S1206 (1U12)

MS-S311

Server System

User Guide

Contents

Revision

V1.3, 2024/09

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.

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

CE Conformity

Hereby, Micro-Star International CO., LTD declares that this device is in compliance with the essential safety requirements and other relevant provisions set out in the European Directive.

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.

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/

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

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. **Do not cover the openings**.
- Make sure the voltage of the power source and adjust properly before connecting the equipment to the power inlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always unplug the power cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that could damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well or you can not get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.
- **Do not leave this equipment in an environment unconditioned, storage temperature above 60°C (140°F), it may damage the equipment.**

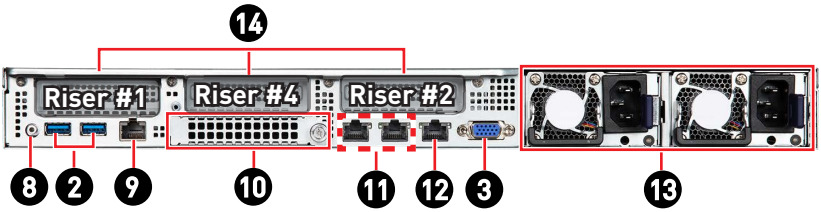
System Specifications

SKUs	S1206-01	S1206-02-10G
Form factor	1U	
Dimensions	438mm(17.2") W x 43.2mm(1.7")H x 770mm(30.3")D	
Processor	Dual AMD EPYC™ 9004 and 9005 series processors, TDP up to 210W* *Optional **EVAC CPU coolers** available for supporting CPUs up to 360W TDP.	
Socket	2 x AMD Socket SP5	
Networking	• **2 x GbE RJ45 ports** - Intel® LAN controller I350-AM2	• **2 x 10GSFP+ LAN ports** - Intel® LAN controller X710-BM2 - Through OCP NIC 3.0 LAN adapter OCP-321
Memory	• 24 x DDR5 DIMM slots, 24 channels (1DPC), RDIMM/ 3DS-RDIMM - Max Frequency: 6000 MT/s (1DPC) - Max Capacity per DIMM: 256GB	
Drive Bays	• 12 x 2.5" Hot-swap drive bays - Supports U.2 PCIe 4.0 NVMe signal	
Internal Storage	2 x M.2 M-Key (PCIe 3.0 x2, 2280, from CPU0)	
Expansion Slots	• 3 x PCIe slots - RISER1: » 1 x PCIe 5.0 x16 slot (PCIe 5.0 x16 signal, from CPU0, supporting LP PCIe card) - RISER2: » 1 x PCIe 5.0 x16 slot (PCIe 5.0 x16 signal, from CPU1, supporting LP PCIe card) - RISER4: » 1 x PCIe 3.0 x16 slot (PCIe 3.0 x16 signal, from CPU1, supporting LP PCIe card) • 1 x OCP 3.0 Mezzanine card slot (PCIe 5.0 x16 signal, from CPU0) - Supports NCSI	
Front Panel	• 2 x USB 3.2 Gen 1 Type-A ports • 1 x VGA port • 1 x System power LED button • 1 x UID LED button • 1 x Reset button • 4 x Status LEDs (M.2/ Alarm/ 2 x LANs)	
Rear Panel	• **2 x GbE RJ45 ports** • 1 x GbE RJ45 Port (mgmt.) • 2 x USB 3.2 Gen 1 Type-A ports • 1 x COM RJ45 port • 1 x VGA port • 1 x UID LED button*	• 1 x GbE RJ45 Port (mgmt.) • 2 x USB 3.2 Gen 1 Type-A ports • 1 x COM RJ45 port • 1 x VGA port • 1 x UID LED button*
	*The UID LED button can also function as a **BMC reset button** by configuring jumper: JUID_SEL1.	
TPM	1 x TPM header (with SPI interface)	
Security	TPM 2.0	

Continued on next column

SKUs	S1206-01	S1206-02-10G
Server Management	• 1 x GbE RJ45 Port (mgmt.) (Realtek® RTL8211FD-CG) • 1 x MicroSD card slot (for BMC log) • ASPEED AST2600 with AMI MegaRAC based firmware - Supports IPMI 2.0 and DMTF Redfish® API • Dual BIOS and BMC supported	
Cooling	• 2 x Passive air cooling modules (for max 210W CPU) • 2 x EVAC air cooling modules (for max 360W CPU, optional) • 8 x 4056 easy-swap system fans	
Environment	• Operating Temperature: 0°C ~ 35°C • Non-operating Temperature: -20°C ~ 70°C • Non-operating Relative Humidity: 5% ~ 85% (non-condensing)	
Power Supply	(1+1) 1300W CRPS, 80 PLUS® Platinum	
Certification	CE, FCC (Class A)	

System Overview

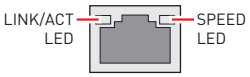


❶	**USB 2.0 Type-A Port** This connector is provided for USB peripheral devices. (Speed up to 480 Mbps) ***Important*** *High-speed devices are recommended for USB 3.2 ports whereas low-speed devices, such as mouse or keyboard, are suggested to be plugged into the USB 2.0 ports.*
❷	**USB 3.2 Gen 1 Port** This connector is provided for USB peripheral devices. (Speed up to 5 Gbps)
❸	**VGA Port**
❹	**System Power Button/ LED**
❺	**UID Button/ LED**
❻	**System Reset Button**
❼	**System Alarm LED** **NIC Link LEDs** **M.2 Activity LED**
❽	**UID LED Button (or BMC Reset Button, configured using jumper: JUID_SEL1)**
❾	**COM RJ45 Port**
❿	**OCP Mezzanine card slot**

Continued on next column

⓫ GbE RJ45 Port (S1206-01 only)

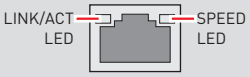
The standard RJ45 LAN jack is provided for connection to the Local Area Network (LAN). You can connect a network cable to it.



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

⓬ GbE RJ45 Port (mgmt.)

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

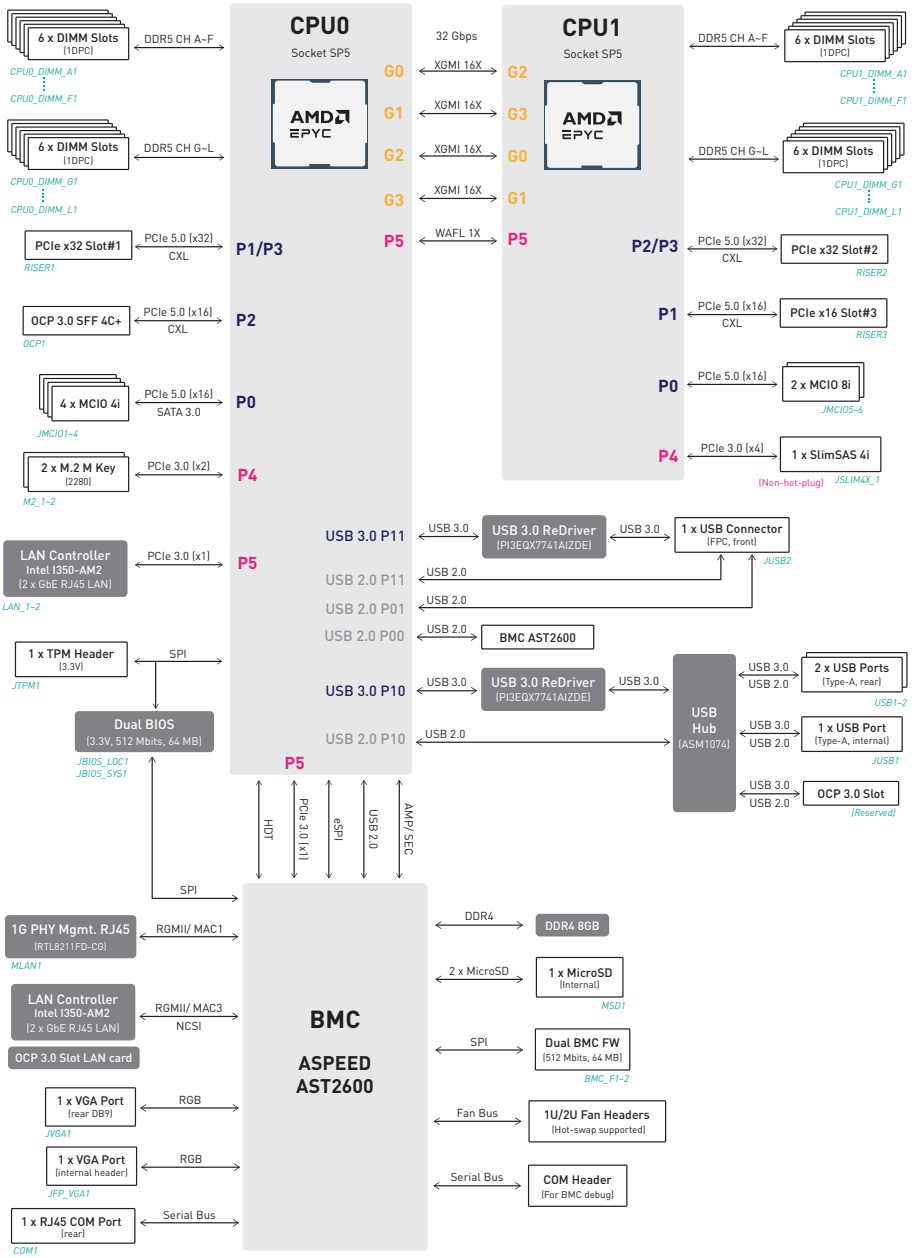


LED	Status	Description
Link/ Activity LED	Off	No link
	Green	Linked
	Blinking	Data activity
Speed LED	Off	10 Mbps
	Orange	100 Mbps
	Green	1 Gbps

⓭ Power Supply Unit

⓮ PCIe Add-in Card Area

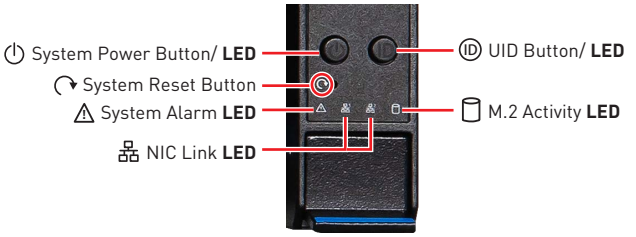
Block Diagram



System Storage Topology

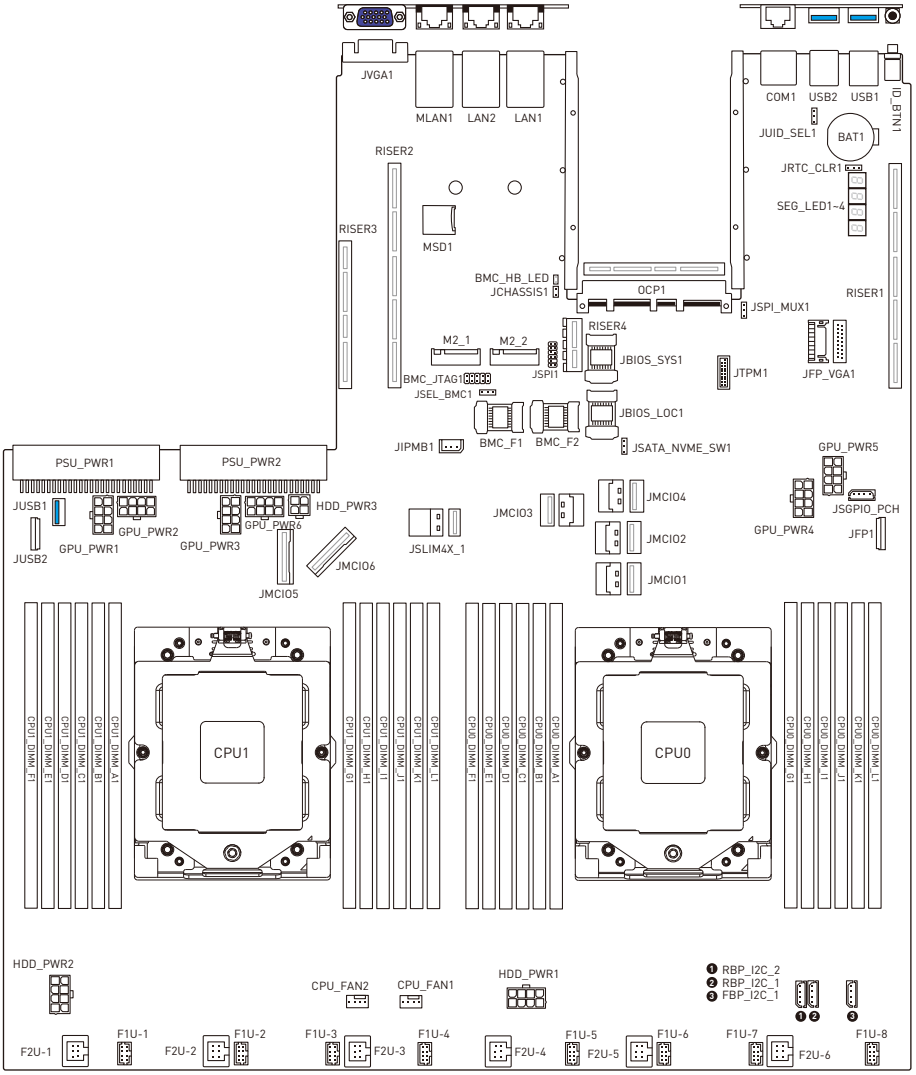
12 x 2.5" NVMe Hot-Swap Drive Bays					
NVMe #11	**NVMe #9**	**NVMe #7**	**NVMe #5**	**NVMe #3**	**NVMe #1**
CPU1 P1	CPU1 P1	CPU1 P0	CPU1 P0	CPU0 P0	CPU0 P0
Lanes 8:11	Lanes 0:3	Lanes 8:11	Lanes 0:3	Lanes 8:11	Lanes 0:3
NVMe #12	**NVMe #10**	**NVMe #8**	**NVMe #6**	**NVMe #4**	**NVMe #2**
CPU1 P1	CPU1 P1	CPU1 P0	CPU1 P0	CPU0 P0	CPU0 P0
Lanes 12:15	Lanes 4:7	Lanes 12:15	Lanes 4:7	Lanes 12:15	Lanes 4:7

System LED Indicators



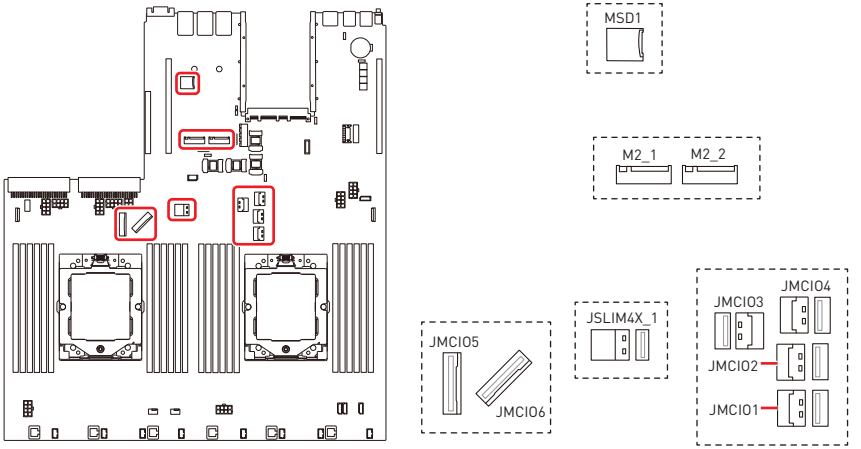
LED	LED State	Description
System Power LED	Blue	System power is on
		System power is on ACPI S0 state
	Blinking	System is sleeping
	Off	System power is off
		System power is on ACPI S4, S5 state
UID LED	Blue	Identify active via command or button
	Off	No identification
System Alarm LED	Green	BMC initialization
	Red	System has failed
	Off	System is running/ normal operation
NIC Link LED	Blinking	NIC activity is occurring
	Off	NIC link is not established
M.2 Activity LED	Amber	M.2 present, no activity
	Blinking	M.2 accessing
	Off	No M.2 activity

System Board Layout



System Board Connectors

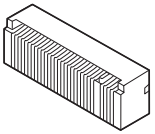
Storage Connectors



Name	Description
JSLIM4X_1	PCIe 3.0 x4, 8GT/s
JMCIO1~4	PCIe 4.0 x4, 16GT/s (default)
	SATA 3.0, 6Gb/s
JMCIO5~6	PCIe 4.0 x8, 16GT/s
M2_1~2	PCIe 3.0 x2, 8GT/s

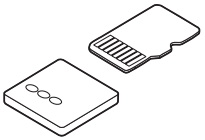
M2_1~2: M.2 Slots (M Key, PCIe 3.0 x2, 2280)

The M.2 slot supports solid-state drive (SSD). For Installation procedure, please refer to **"System Setup > M.2 M Key"**.



MSD1: Micro SD Card Slot

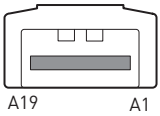
This slot is for inseriting the micro SD card.



JMCIO1~4: MCIO 4i Connectors

These are right-angle 38-pin Mini Cool Edge IO (MCIO) connectors, which support PCIe 4.0 x4 16GT/s and SATA 3.0 6Gb/s interfaces. A **JSATA_NVME_SW1** jumper can be used to switch signals between **SATA** and **PCIe NVMe (default)**.

JMCIO1~4

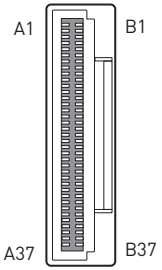


	A1	GND	B1	GND
	A2	RXP0	B2	TXP0
	A3	RXN0	B3	TXN0
	A4	GND	B4	GND
	A5	RXP1	B5	TXP1
	A6	RXN1	B6	TXN1
	A7	GND	B7	GND
	A8	NC	B8	I2C_CLK
	A9	HP_INT_L	B9	I2C_DATA
	A10	GND	B10	GND
	A11	PCIe CLK_P	B11	PCIe_RST
	A12	PCIe CLK_N	B12	PRSNT_N (NC)
	A13	GND	B13	GND
	A14	RXP2	B14	TXP2
	A15	RXN2	B15	TXN2
	A16	GND	B16	GND
	A17	RXP3	B17	TXP3
	A18	RXN3	B18	TXN3
	A19	GND	B19	GND

JMCIO5~6: MCIO 8i Connectors

These are vertical 74-pin Mini Cool Edge IO (MCIO) connectors, which support PCIe 4.0 x8 16GT/s interface.

JMCIO5~6

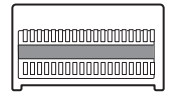


	A1	GND	B1	GND
	A2	RXP0	B2	TXP0
	A3	RXN0	B3	TXN0
	A4	GND	B4	GND
	A5	RXP1	B5	TXP1
	A6	RXN1	B6	TXN1
	A7	GND	B7	GND
	A8	NC	B8	I2C_CLK1
	A9	HP_INT_L1	B9	I2C_DATA1
	A10	GND	B10	GND
	A11	PCIe CLK_P1	B11	PCIe_RST1
	A12	PCIe CLK_N1	B12	PRSNT_N (NC)
	A13	GND	B13	GND
	A14	RXP2	B14	TXP2
	A15	RXN2	B15	TXN2
	A16	GND	B16	GND
	A17	RXP3	B17	TXP3
	A18	RXN3	B18	TXN3
	A19	GND	B19	GND
	A20	RXP4	B20	TXP4
	A21	RXN4	B21	TXN4
	A22	GND	B22	GND
	A23	RXP5	B23	TXP5
	A24	RXN5	B24	TXN5
	A25	GND	B25	GND
	A26	NC	B26	I2C_CLK2
	A27	HP_INT_L2	B27	I2C_DATA2
	A28	GND	B28	GND
	A29	PCIe CLK_P2	B29	PCIe_RST2
	A30	PCIe CLK_N2	B30	PRSNT_N (NC)
	A31	GND	B31	GND
	A32	RXP6	B32	TXP6
	A33	RXN6	B33	TXN6
	A34	GND	B34	GND
	A35	RXP7	B35	TXP7
	A36	RXN7	B36	TXN7
	A37	GND	B37	GND

JSLIM4X_1: Slimline SAS 4i Connector

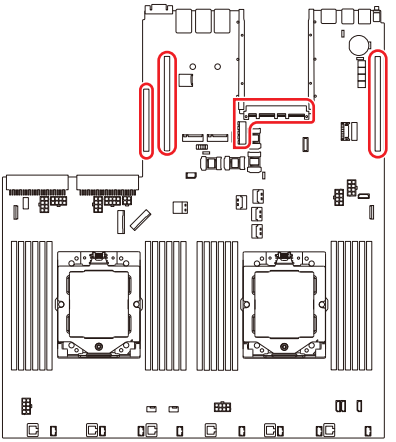
This is 38-pin Slimline SAS 4i connector, which support PCIe 3.0 x4 8GT/s interface.

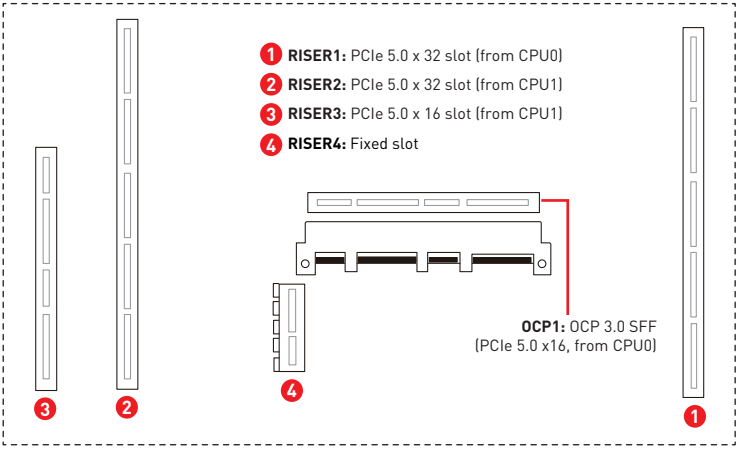
JSLIM4V_1



	A1	GND	B1	GND
	A2	RXP0	B2	TXP0
	A3	RXN0	B3	TXN0
	A4	GND	B4	GND
	A5	RXP1	B5	TXP1
	A6	RXN1	B6	TXN1
	A7	GND	B7	GND
	A8	NC	B8	I2C_CLK
	A9	HP_INT_L	B9	I2C_DATA
	A10	GND	B10	GND
	A11	PCIe CLK_P	B11	PCIe_RST
	A12	PCIe CLK_N	B12	PRSNT_N (NC)
	A13	GND	B13	GND
	A14	RXP2	B14	TXP2
	A15	RXN2	B15	TXN2
	A16	GND	B16	GND
	A17	RXP3	B17	TXP3
	A18	RXN3	B18	TXN3
	A19	GND	B19	GND

Expansion Slots





RISER1~4: PCIe Expansion Slots

The PCI Express(Peripheral Component Interconnect Express) slots support PCIe interface expansion cards.

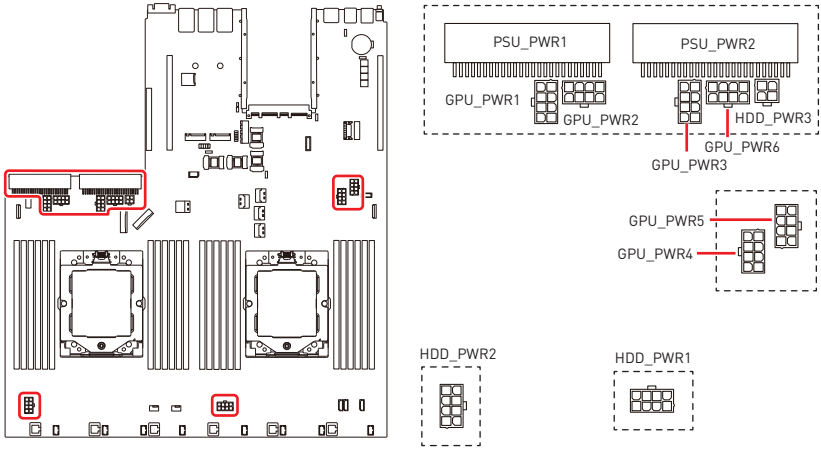
OCP1: OCP (Open Compute Project) LAN Mezzanine Slot

The slots allows the deployment of a wide variety of additional networking options through OCP Mezzanine Ethernet cards.

Important

When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

Power Connectors



PSU_PWR1~2: CRPS Power Connectors

These CRPS (Common Redundant Power Supplies) connectors allow you to connect a power supply. To connect the power supply, ensure that the plug is inserted in the proper orientation and that the pins are aligned. Then firmly push down the power supply into the connector.

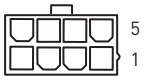
GPU_PWR1~6: 8-Pin GPU Power Connectors

These connectors provide power output to GPUs.

HDD_PWR1~2: 8-Pin HDD BP Power Connectors

These connectors provide power output to HDDs.

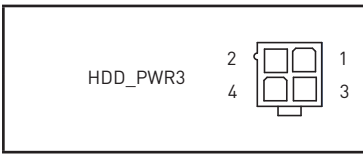
GPU_PWR1~6
HDD_PWR1~2



1	GND	2	GND
3	GND	4	GND
5	P12V	6	P12V
7	P12V	8	P12V

HDD_PWR3: 4-Pin Rear HDD BP Power Connector

This connector provides power output to HDDs on rear side.

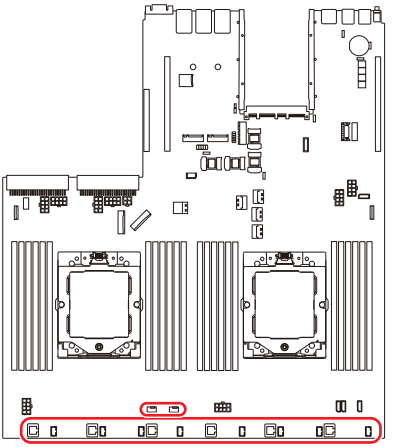


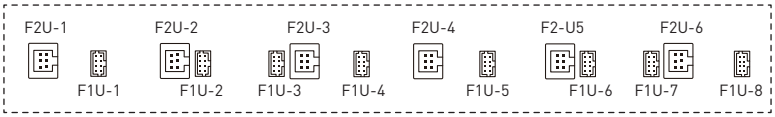
1	GND	2	GND
3	P12V	4	P5V

Important

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

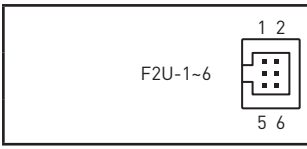
Cooling Connectors





F2U-1~6: 2U System Fan Connectors

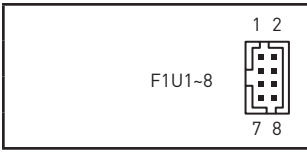
The fan power connectors support 2U system cooling fans.



1	GND	2	P12V
3	FAN_TACH	4	FAN_PWM
5	NC	6	FAN_FAULT

F1U-1~8: 1U System Fan Connectors

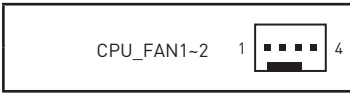
The fan power connectors support 1U system cooling fans.



1	FAN_TACH	2	FAN_PWM
3	P12V	4	P12V
5	FAN_TACH	6	GND
7	GND	8	NC

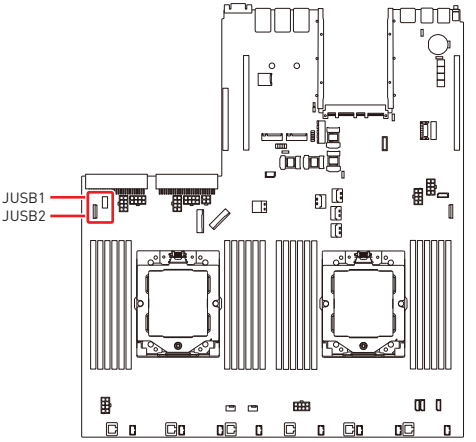
CPU_FAN1~2: CPU Fan Connectors

The fan power connectors support CPU cooling fans.



1	GND	3	FAN_TACH
2	P12V	4	FAN_PWM

USB Connectors



JUSB1: USB 3.2 Gen 1 Type-A Port

The USB (Universal Serial Bus) port is used for connecting USB devices such as keyboards, mice, or other compatible peripherals. It supports data transfer rates up to **5 Gbps** and is backward-compatible with USB 2.0 devices.

JUSB1

JUSB2: USB 3.2 Gen 1 FPC Connector

This port is backward-compatible with USB 2.0 devices and supports data transfer rate up to **5 Gbps.**

JUSB2

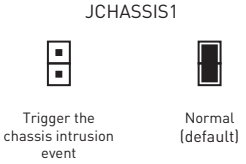
1  26

	1	FUSB_VCC	2	FUSB_VCC
	3	FUSB_VCC	4	FUSB_VCC
	5	FUSB_VCC	6	FUSB_VCC
	7	GND	8	GND
	9	GND	10	GND
	11	GND	12	GND
	13	GND	14	GND
	15	USB3_F_RXN	16	USB3_F_RXP
	17	GND	18	USB3_F_TXN
	19	USB3_F_TXP	20	GND
	21	USB2_F1_DN	22	USB2_F1_DP
	23	GND	24	USB2_F2_DN
	25	USB2_F2_DP	26	GND

Other Connectors and Components

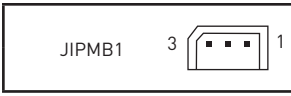
JCHASSIS1: Chassis Intrusion Header

This header connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.

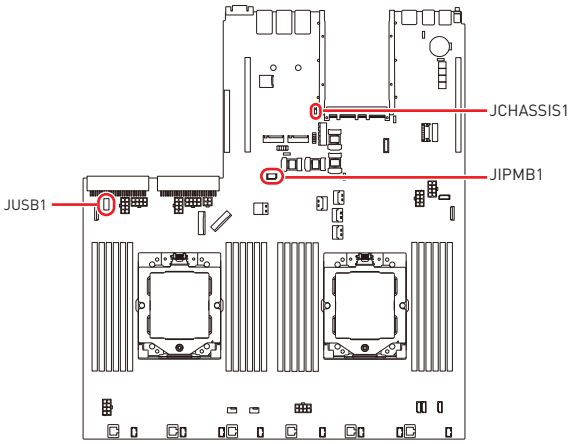


JIPMB1: IPMB Header

This header is used to connect the IPMB (Intelligent Platform Management Bus).

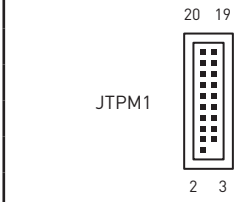


1	SMB_IPMB_DAT	3	SMB_IPMB_CLK
2	GND		

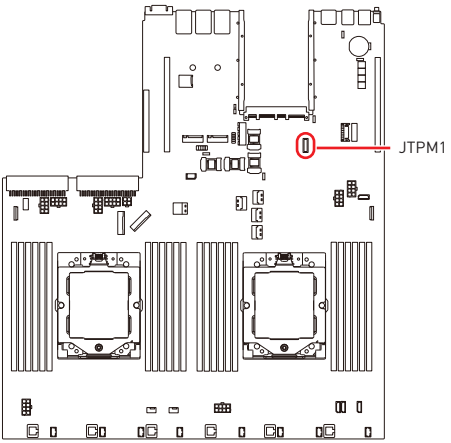


JTPM1: SPI TPM Header

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



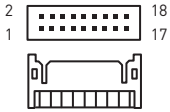
1	N/A	2	N/A
3	N/A	4	N/A
5	GND	6	P3V3_AUX
7	SPI_CPU0_3V3_CLK	8	N/A
9	N/A	10	SPI_CPU0_3V3_MISO
11	N/A	12	SPI_CPU0_3V3_MOSI
13	SPI_TPM_CS_N	14	GND
15	N/A	16	N/A
17	IRQ_TPM_SPI_N	18	P3V3_AUX
19	TPM_RESET_N	20	P3V3_AUX



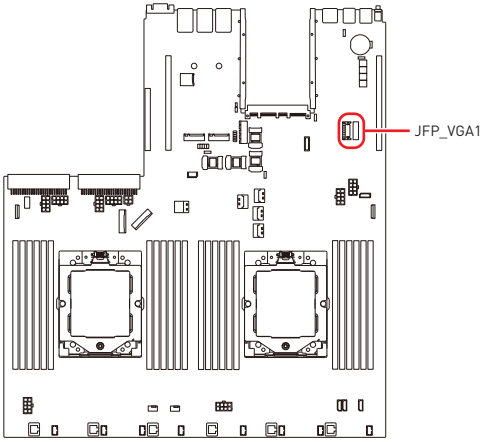
JFP_VGA1: Front VGA Header

The VGA header is provided for monitors.

JFP_VGA1



	1	N/A	2	N/A
	3	F_RED	4	GND
	5	F_GRN	6	GND
	7	F_BLU	8	GND
	9	F_VS	10	GND
	11	F_HS	12	GND
	13	F_DDCDAT	14	SEL_FP_N
	15	F_DDCCLK	16	F_VGA_5V
	17	N/A	18	N/A

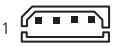


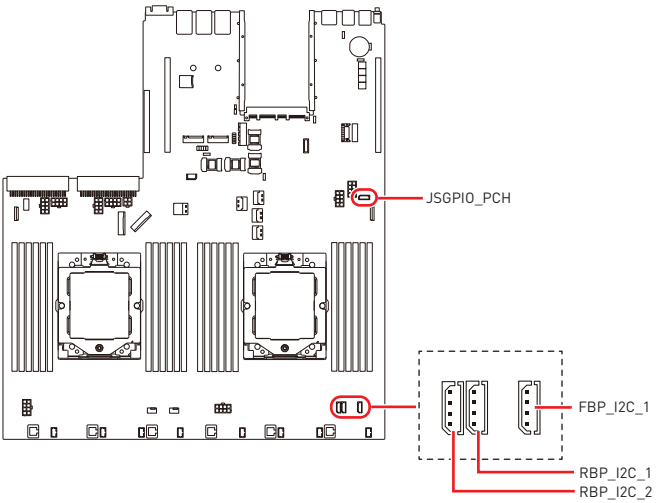
FBP_I2C_1, RBP_I2C_1~2: I2C Headers

I2C headers are used to connect to the System Management Bus (SMBus).
FBP_I2C_1 is for front HDD backplane, and RBP_I2C_1~2 are for rear HDD backplanes.

FBP_I2C_1 RBP_I2C_1 RBP_I2C_2 	1	NC	3	I2C_DAT
	2	I2C_CLK	4	GND

JSGPIO_PCH: Rear Side BP SGPIO Box Header

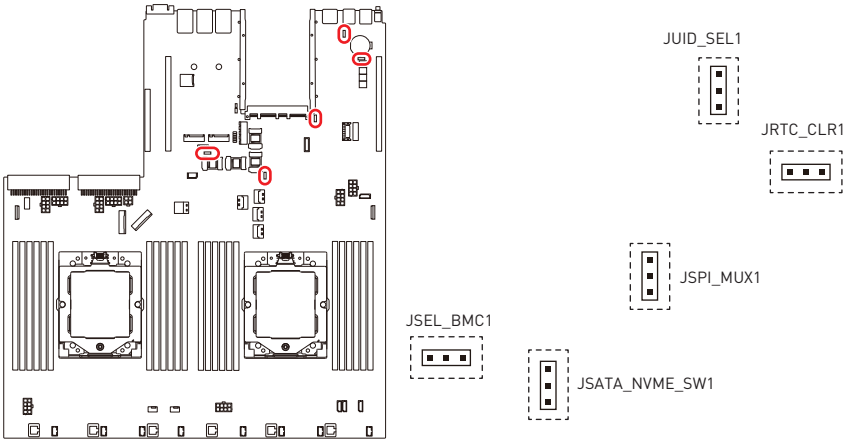
JSGPIO_PCH 	1	SGPIO_SATA_CLOCK_RBP	3	GND
	2	SGPIO_SATA_LOAD_RBP	4	SGPIO_SATA_DATAOUT_RBP



System Board Jumpers

Important

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

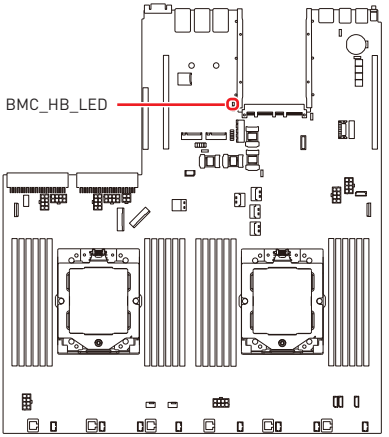


Jumper Name	Default Setting	Description
JSPI_MUX1	 1	1-2: BIOS1 & allows BMC to switch (default) 2-3: BIOS2 (backup only, use when BIOS1 flash crashes)
JSEL_BMC1	 1	1-2: BMC1 (default) 2-3: BMC2
JRTC_CLR1	 1	1-2: Normal (default) 2-3: CMOS Clear
JUID_SEL1	 1	1-2: UID Button (default) 2-3: BMC RST Button
JSATA_NVME_SW1	1 	1-2: JMCIO1~4 set to SATA 2-3: JMCIO1~4 set to NVMe (default)

System Board LEDs

BMC_HB_LED: BMC Heartbeat LED

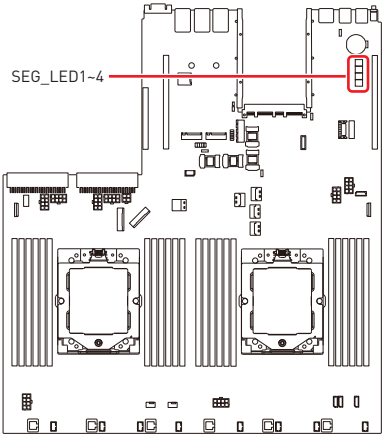
This LED indicates the BMC (Baseboard Management Controller) status.

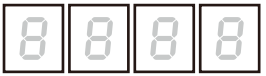


Status	Description
Off	BMC is not activated
Blinking	BMC is functioning normally

SEG_LED1~4: Port 80 Edge LEDs

The Port 80 Edge LEDs display progress and error codes during and after POST (Power-On Self Test).





Hexadecimal Character Table

Hexadecimal	0	1	2	3	4	5	6	7
LED display	0	1	2	3	4	5	6	7
Hexadecimal	8	9	A	B	C	D	E	F
LED display	8	9	A	b	C	d	E	F

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

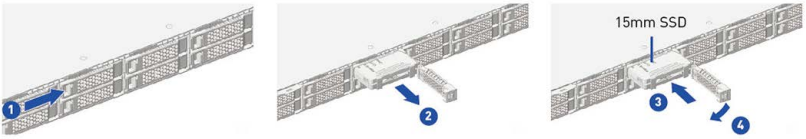
Important

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

Drive Bay

Installing 2.5" HDD/ SSD

1. Press the tray button to release the lever.
2. Pull the HDD/ SSD assembly out of the drive bay.
3. Insert the HDD/ SSD horizontally.

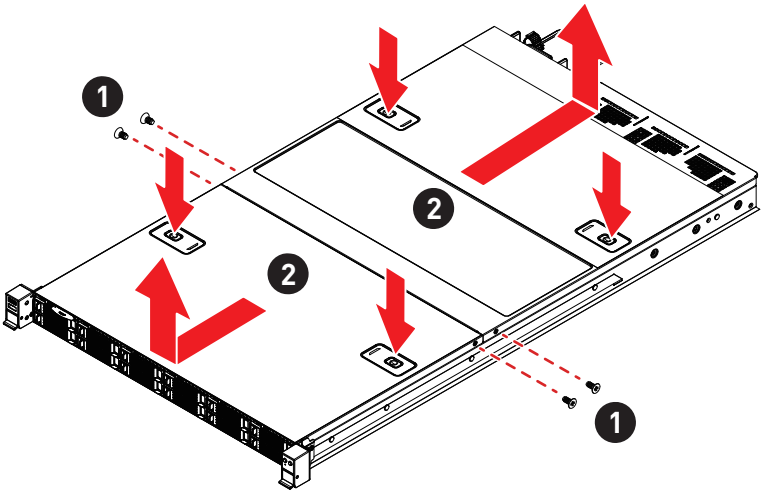


- *The interposer BKT act as dummy HDD/ SSD when no drive inside.*
- *The interposer BKT act as spacer to support 7nm HDD/ SSD.*

System Cover

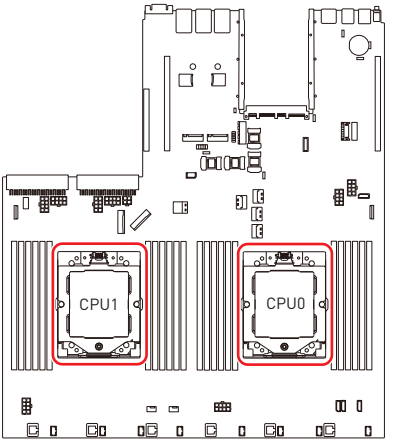
Removing System Cover

1. Remove the **screws** securing the system on both sides.
2. To remove the top cover panels, press down on the **release latches** on both sides and then slide them to the front or back side of the system.



CPU & Heatsink

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



Important

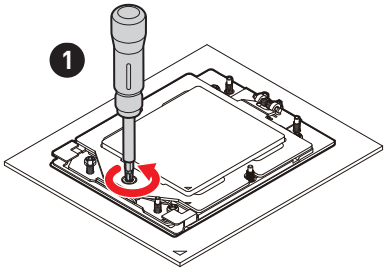
- ***Overheating*** *will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.*
- *While* ***replacing 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.*

Installing CPU & Heatsink

Important

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

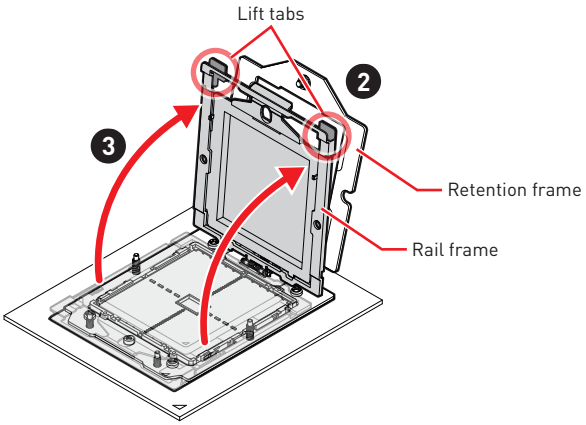
1. Remove the screw on the top of the retention frame.



2. After removing the top screw, the **spring-loaded retention frame** will rise up. Hold it gently until it is fully open.

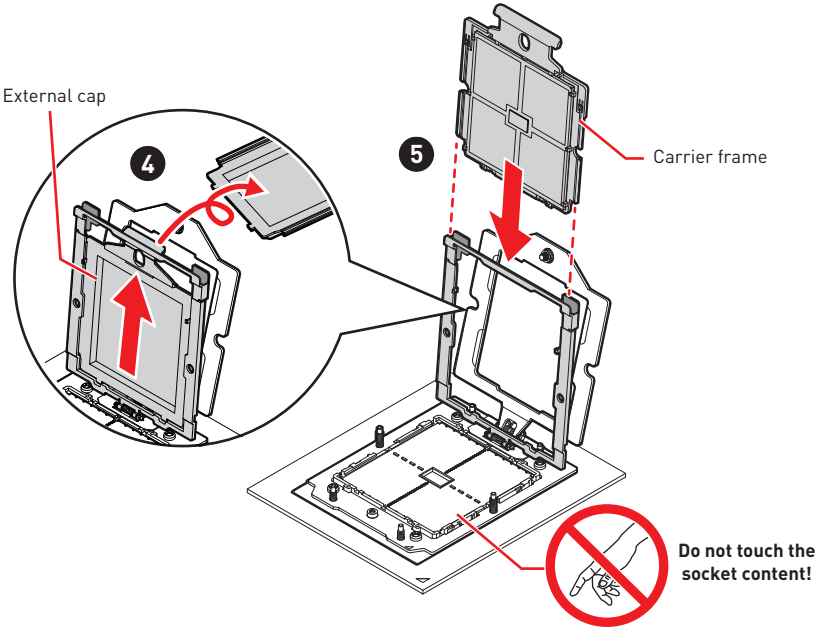
3. Lift the **rail frame** by gripping the lift tabs near the front edge of the rail frame.

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

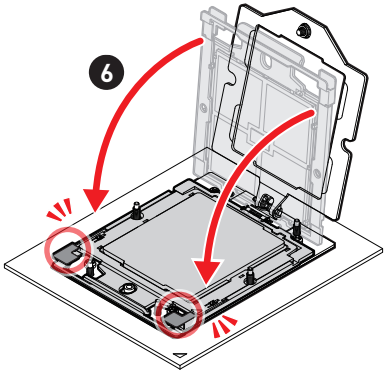


4. Pull the **external cap** upward through the rail guides on the rail frame to remove it.
5. Grip the handle of the **carrier frame** and slide it downward with the flanges and the rail guides aligned.

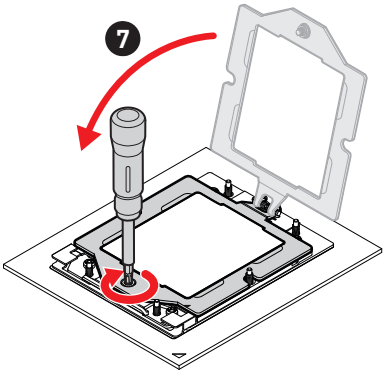
- *CPUs are shipped from the factory with pre-assembled carrier frames.*
- *Make sure the flanges of the carrier frame are firmly loaded on the rails before closing the rail frame.*



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

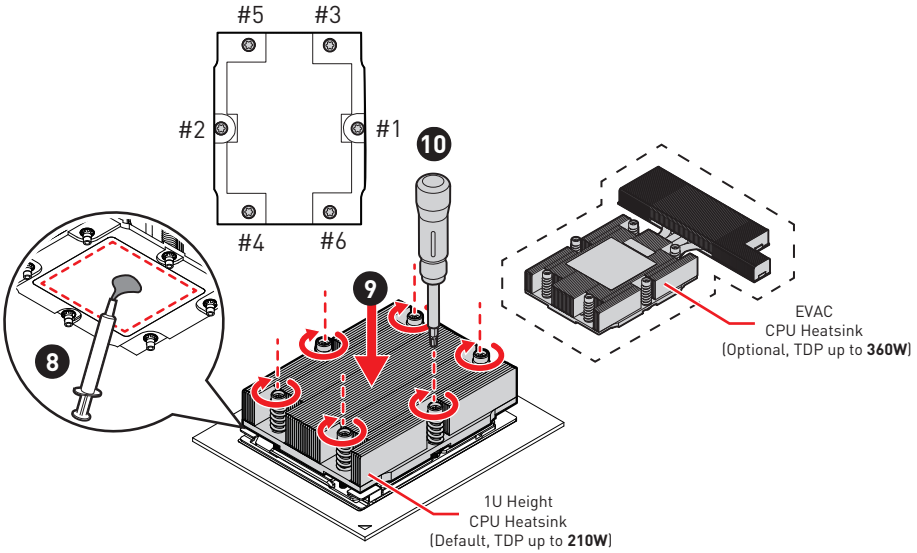
Screw Head: Torx T20

Torque: 12.5-15 kgf·cm*

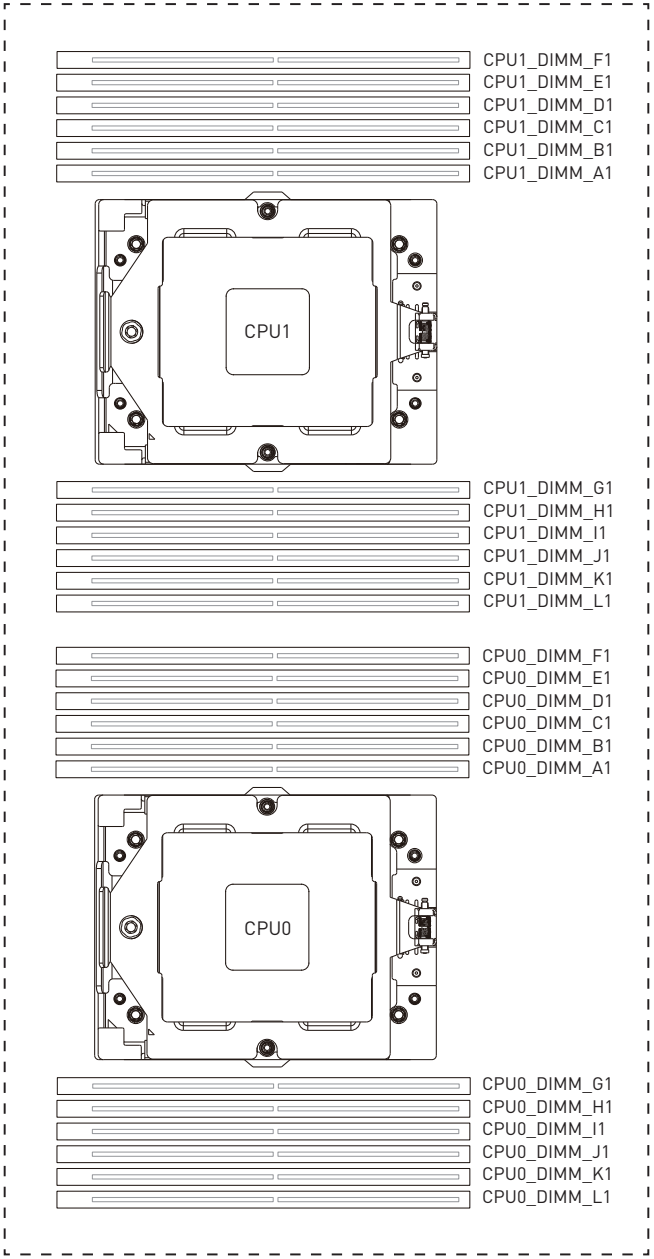
*12.5-15 kgf·cm
= 122.6~147 N·m
= 10.9~13 lbf·in

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 six screw holes on its bottom with the motherboard's studs.
10. Tighten all screws in **diagonal sequence** with a torque screwdriver.

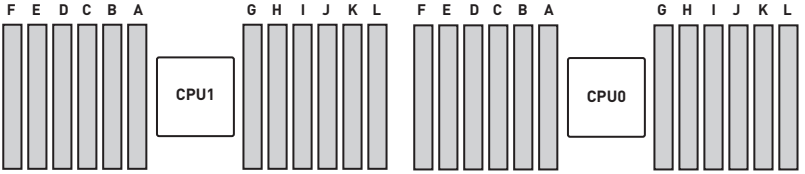
- *To avoid damaging the fins of the heatsink, always grip the heatsink **along the axis of the fins.** Holding a heatsink along the side might damage its fins or solder.*
- *To avoid distributing uneven pressure on the CPU, it is recommended to **secure the heatsink in two steps**: first, loosely attach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



Memory


CPU1_DIMM_F1
CPU1_DIMM_E1
CPU1_DIMM_D1
CPU1_DIMM_C1
CPU1_DIMM_B1
CPU1_DIMM_A1
CPU1
CPU1_DIMM_G1
CPU1_DIMM_H1
CPU1_DIMM_I1
CPU1_DIMM_J1
CPU1_DIMM_K1
CPU1_DIMM_L1
CPU0_DIMM_F1
CPU0_DIMM_E1
CPU0_DIMM_D1
CPU0_DIMM_C1
CPU0_DIMM_B1
CPU0_DIMM_A1
CPU0
CPU0_DIMM_G1
CPU0_DIMM_H1
CPU0_DIMM_I1
CPU0_DIMM_J1
CPU0_DIMM_K1
CPU0_DIMM_L1

Recommended Memory Population



1 CPU														
Qty. of DDR5 \ Channel		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							
2 CPUs														
Qty. of DDR5 \ Channel		F	E	D	C	B	A	CPU	G	H	I	J	K	L
24	CPU1	V	V	V	V	V	V		V	V	V	V	V	V
	CPU0	V	V	V	V	V	V		V	V	V	V	V	V
20	CPU1		V	V	V	V	V		V	V	V	V	V	
	CPU0		V	V	V	V	V		V	V	V	V	V	
16	CPU1		V		V	V	V		V	V	V		V	
	CPU0		V		V	V	V		V	V	V		V	
12	CPU1				V	V	V		V	V	V			
	CPU0				V	V	V		V	V	V			
8	CPU1				V		V		V		V			
	CPU0				V		V		V		V			
4	CPU1						V		V					
	CPU0						V		V					
2	CPU1						V							
	CPU0						V							
1	CPU1													
	CPU0						V							

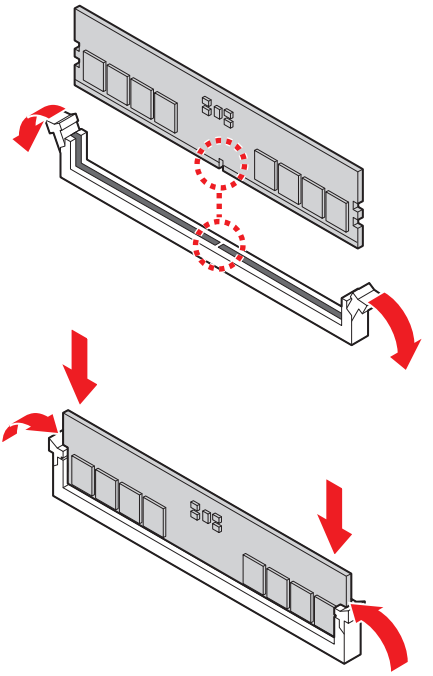
"V" indicates DIMMs are populated with **DDR5**.

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.

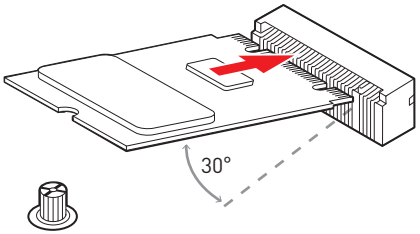
M.2 M Key

Installing M.2 SSD

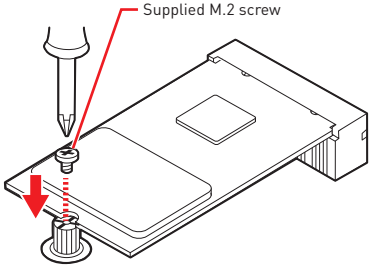
Video Demonstration

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 supplied M.2 screw.



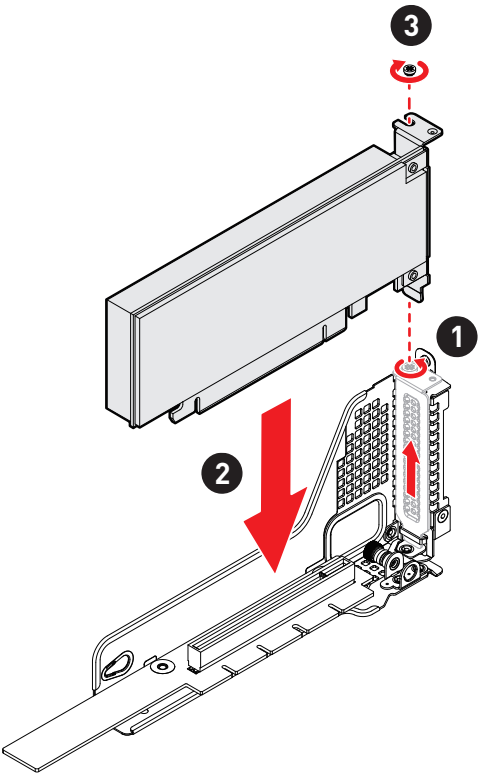
PCIe Add-in Card

Installing PCIe Add-in Card

1. Loosen the screws on the riser bracket to remove the filler panels.
2. Align the PCIe add-in card with the connector on the riser card, and insert it until it is fully seated.
3. Tighten the screws to securely fix the PCIe add-in card in place.

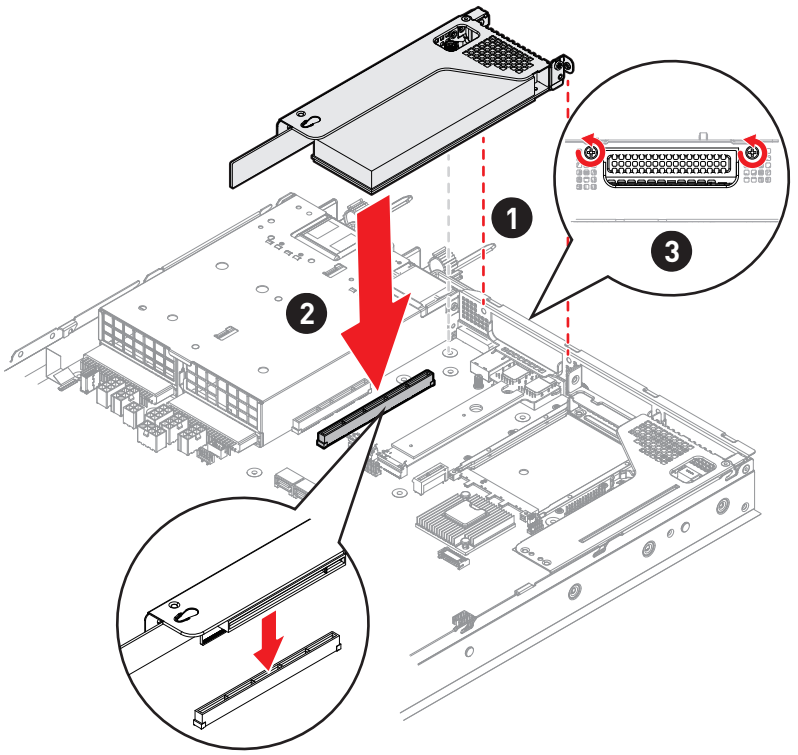
Important

The procedure for installing PCIe add-in cards are the same for all riser slots.



Installing Riser Card Assembly

1. Lower the riser card assembly down as shown in the image below.
2. Insert the riser card assembly into the PCIe slot on the system board.
3. Tighten the screws on the rear side of the system to secure the riser card assembly.



System Fan

The server system is equipped with **8 non-hot swappable system fans** that measure **40 x 40 x 56mm**, which provide primary airflow to maintain optimal cooling and prevent overheating.

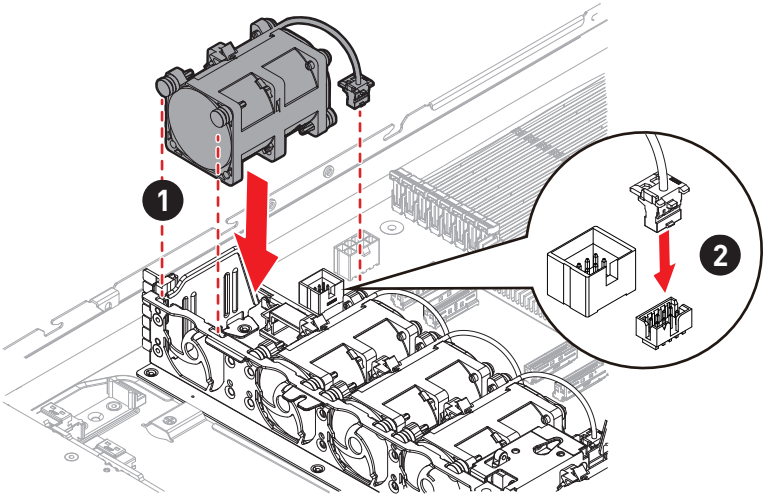
The fan features include:

- Tachometer on each fan allows BMC to monitor the system's status in real-time.
- An integrated BMC firmware automatically adjusts fan speed based on the system's thermal status to maintain optimal performance.

Installing 1U Fan

1. Lower the system fan until it seated firmly.
2. Connect the fan cable to the system board.

- *Note the fool-proof design on the connector before docking it.*



Power Supply Unit (PSU)

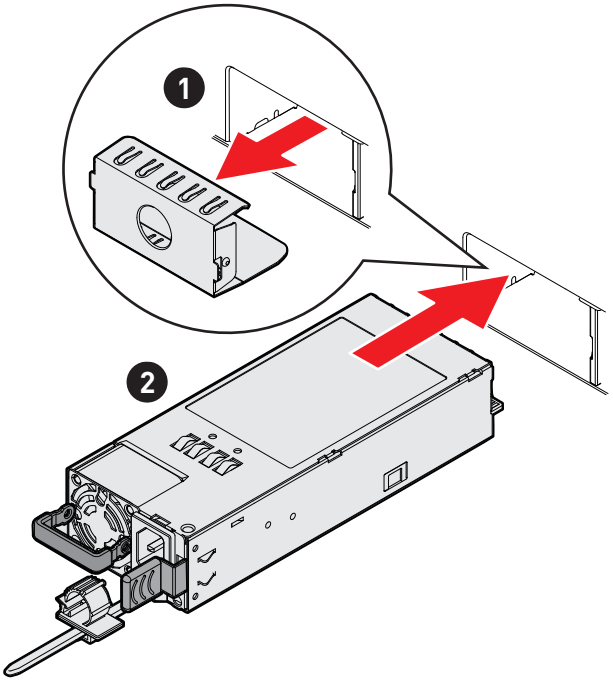
The server system supports two power supplies that can be easily inserted and removed from the rear side of the system without the need for tools.

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. Remove the PSU blank.
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.

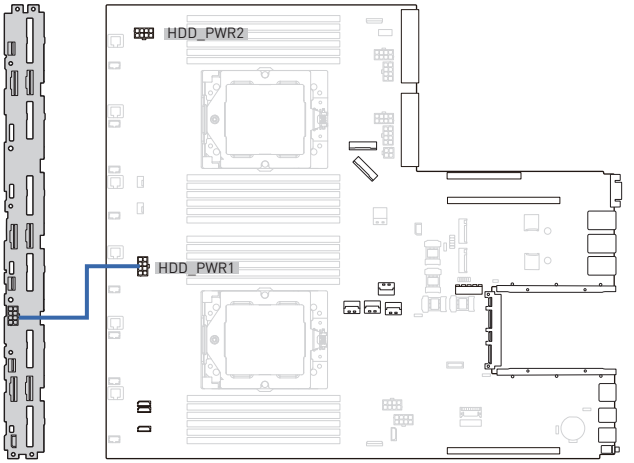


Cable Routing

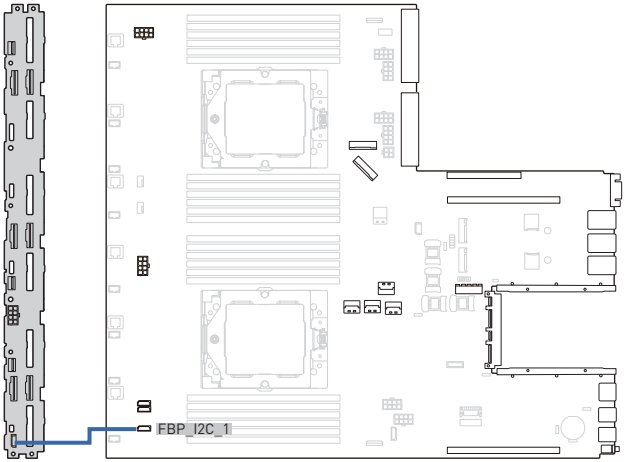
Important

*Please remove the **fan cage** before routing cables.*

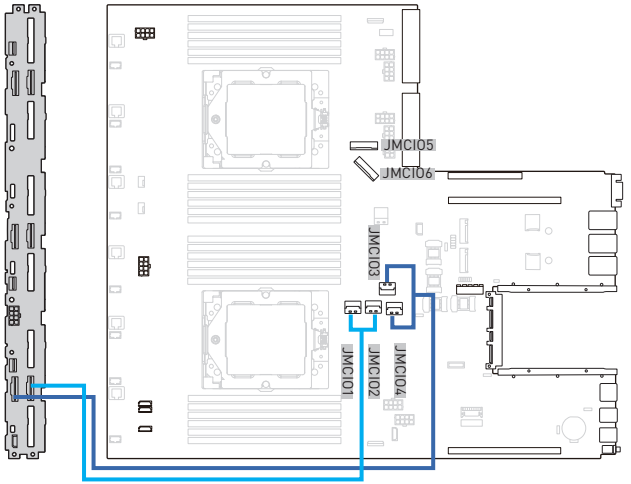
8-pin to 8-pin Power Cable



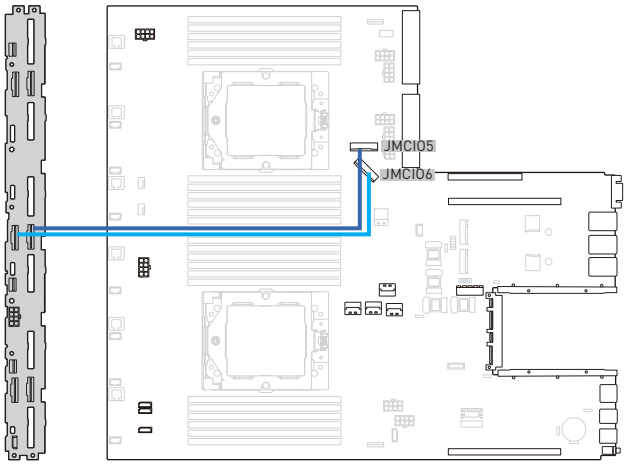
I2C Cable



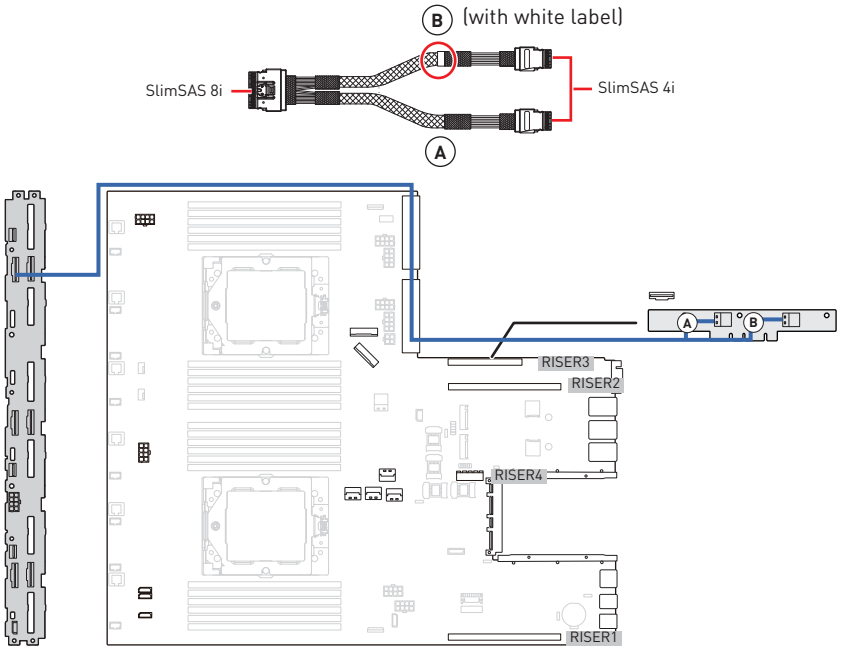
MCIO 4i to SlimlineSAS 8i Cable



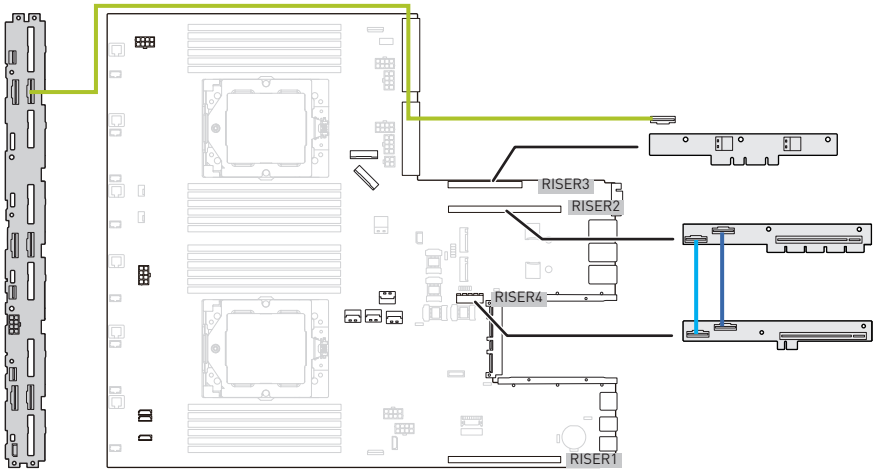
MCIO 8i to SlimlineSAS 8i Cable



SlimlineSAS 4i to SlimlineSAS 8i Cable



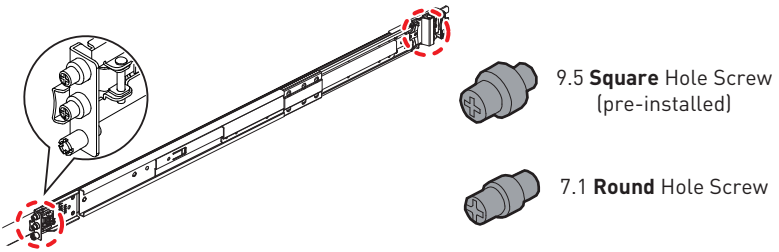
SlimlineSAS 8i to SlimlineSAS 8i Cable



Slide Rail

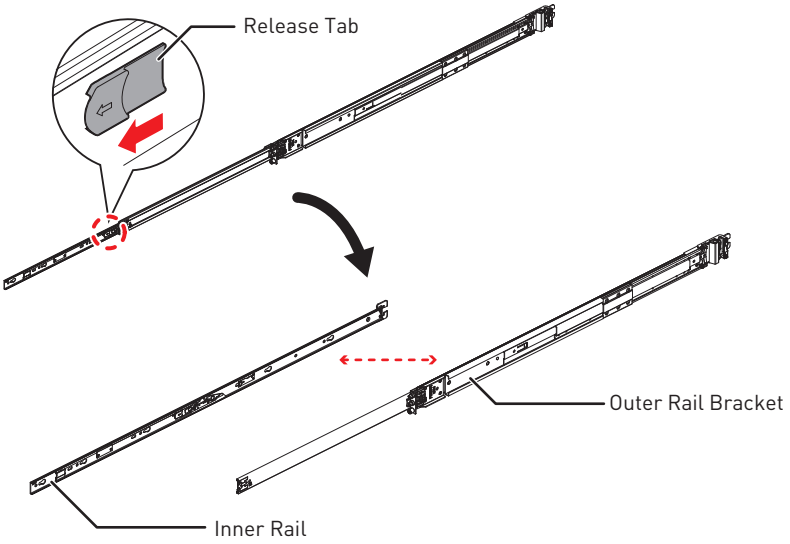
Important

*The pre-installed screws on the outer rail bracket are intended only for square rack holes. For round holes, please switch to the **"7.1 round hole screw"**.*



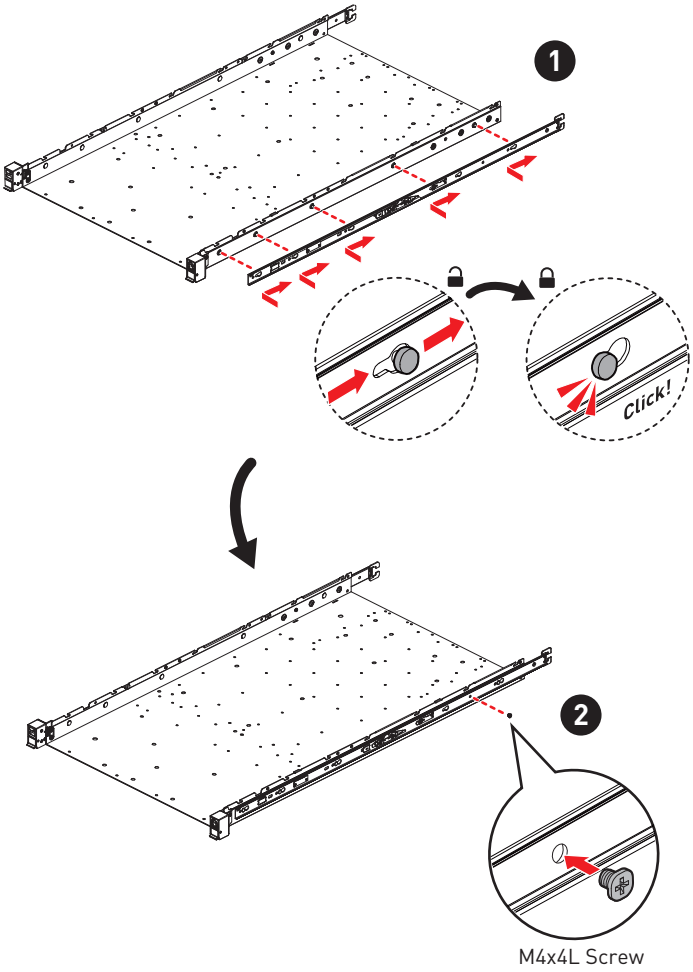
Disassembling Slide Rail

Slide the **release tab** forward to separate the inner rail from the bracket.



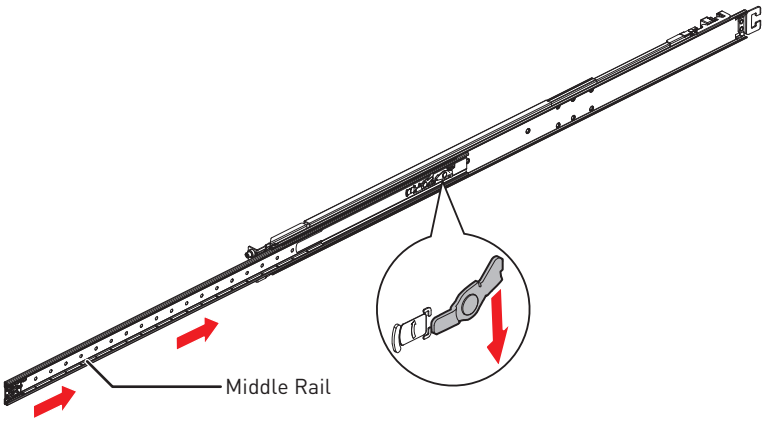
Installing Inner Rail to System

1. Align the standoffs on the side of the system with the hole on the inner rail, then **pull the inner rail backwards** till it locks into place.
2. Tighten the screw to secure the inner rail.
3. Repeat the same procedure to install the inner rail on the other side of the system.

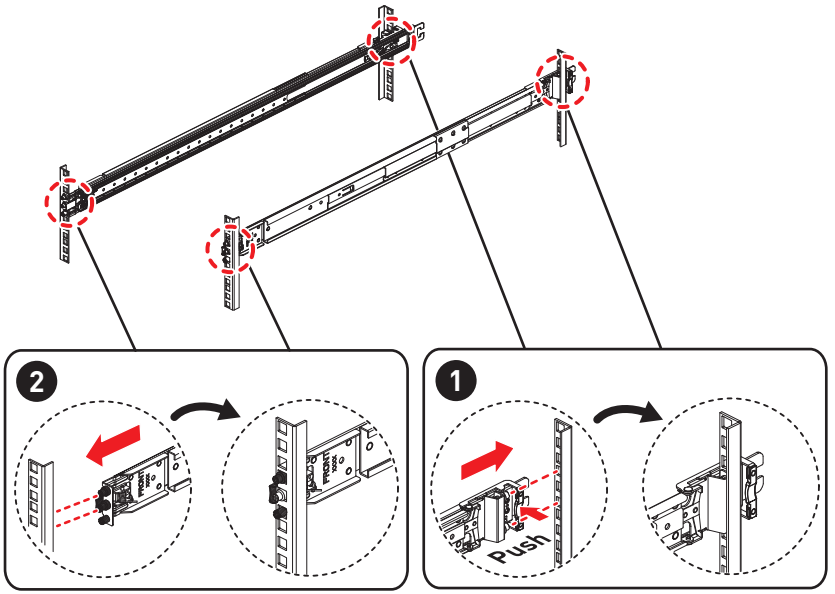


Retracting Outer Rail Bracket

Pull the latch downward to slide the middle rail back to the outer rail bracket.



Attaching Outer Rail Bracket to Rack Frame

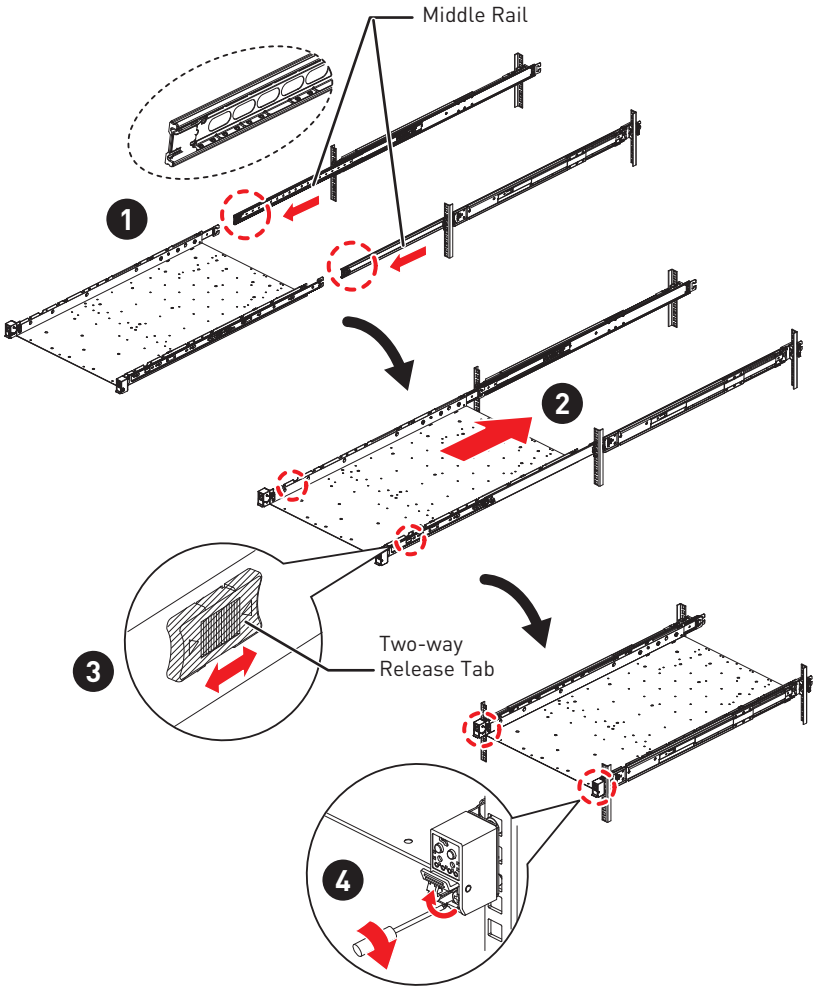


Installing System into Rack

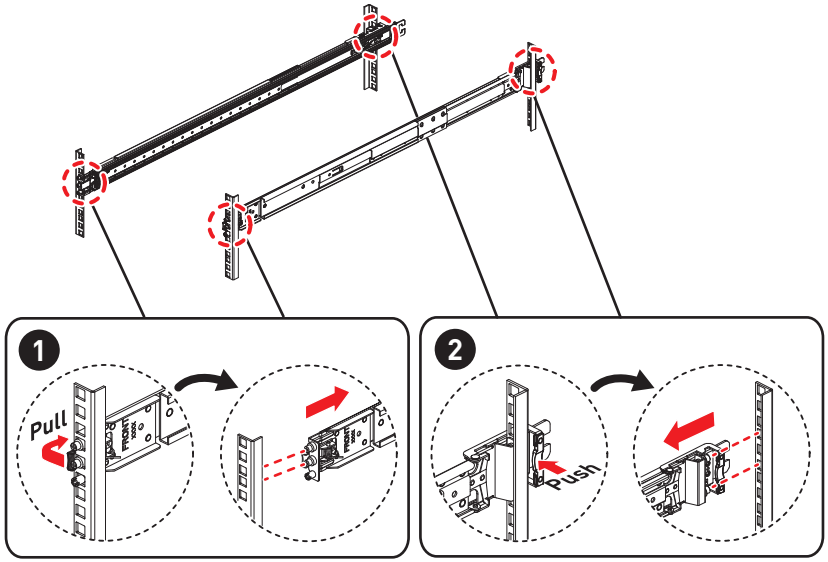
1. Pull out the middle rails till it fully extended.
2. Engage the inner rails of the system to the middle rails, then push the system forward until it stops.
3. Push the system into the rack by sliding the **two-way release tabs** forward or backward.
4. Tighten the screws to secure the system.

Important

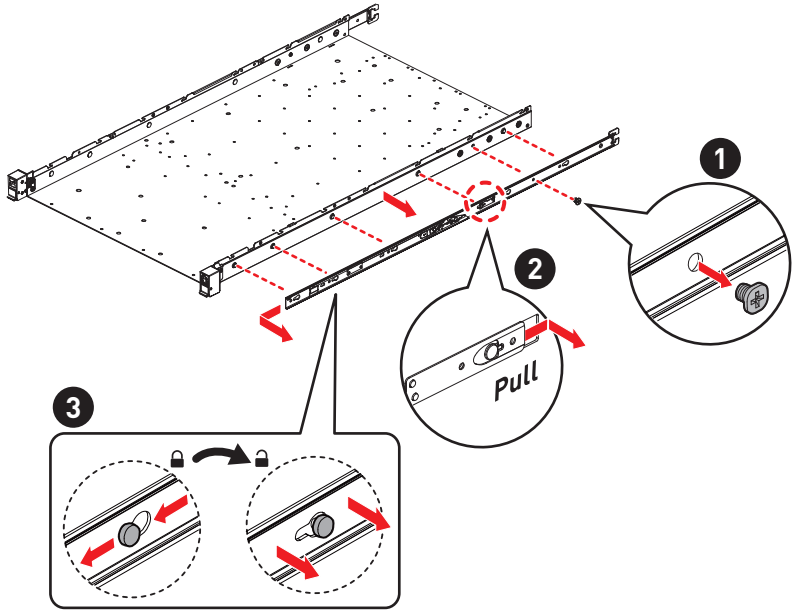
Ensure the ball bearing retainers are locked forward on each middle rail.



Detaching Outer Rail Bracket from Rack Frame



Detaching Inner Rail from System



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