

msi[®]

D3060

MS-S4171

Server Motherboard
User Guide

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V1.0, 2025/06

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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

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.

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 and locate a nearby distributor for further recycling information.
- Users may also reach us at gpcontdev@msi.com for information regarding proper disposal, take-back, recycling, and disassembly of MSI products.
- Please visit <https://us.msi.com/page/recycling> for information regarding the recycling of your product in the US.



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MICRO-STAR INTERNATIONAL



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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 Guide 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.

Assembly and Installation

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

WARNING: This server is heavy.

- 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.

Hot Surfaces

- Allow components like drives and power supplies to cool before touching.

Energy Pack Handling after Removal

To reduce the risk of fire or burns:

- 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.

Specifications

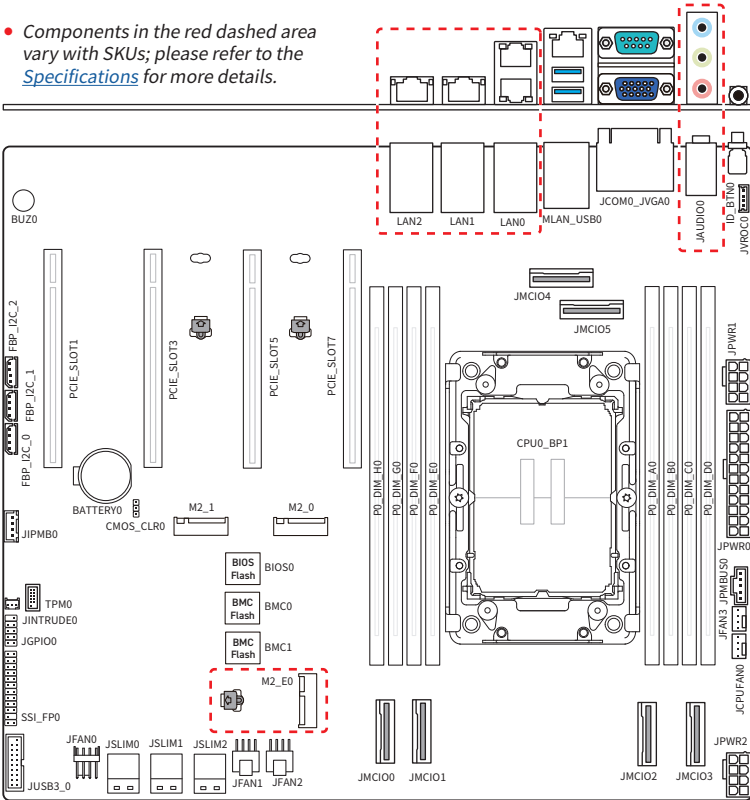
Model	D3060	
SKU	D3060AGB2N-10G	D3060GB2N-1G
Form factor	SSI CEB (with ATX screw holes)	
Dimensions	305mm(12") x 267mm(10.5")	
Processor	Single Intel® Xeon® 6700E-Series, 6500P-Series and 6700P-Series Processors, TDP up to 350W	
Socket	1 x Intel® LGA 4710 (Socket E2)	
Memory	<ul style="list-style-type: none"> • 8 x DDR5 DIMM slots, 8 channels (1DPC), RDIMM/ MRDIMM* <ul style="list-style-type: none"> - Max Frequency: <ul style="list-style-type: none"> » RDIMM: 6400 MT/s » MRDIMM: 8000 MT/s - Max Capacity per DIMM: <ul style="list-style-type: none"> » RDIMM: 256GB » MRDIMM: 64GB <p>*MRDIMMs are only supported with Intel® Xeon® 6 P-core series processors.</p>	
Storage	<ul style="list-style-type: none"> • 2 x M.2 (M Key) slots <ul style="list-style-type: none"> - Support 2280/22110 storage devices - Support up to PCIe 5.0 x2 NVMe • 3 x SlimSAS 4i connectors <ul style="list-style-type: none"> - Support 12 SATA 3.0 (6Gb/s) drives 	
Expansions	<ul style="list-style-type: none"> • 4 x PCIe 5.0 x16 slots (1 slot only functional with R1S CPU) • 6 x PCIe 5.0 x8 MCIO 8i connectors (4 connectors only functional with R1S CPU) 	
LAN	2 x 10G Base-T Ethernet ports (Intel® X710AT2 with NCSI supported)	2 x 1000Base-T Ethernet ports (Intel® i210AT with NCSI supported)
Wireless LAN	<ul style="list-style-type: none"> • 1 x M.2 (A-E Key) slot - Supports 2230 Wi-Fi 6/7 module 	
RAID	NVMe RAID 0/1/5/10 (Intel® VROC RAID key required)	
Graphics	1 x VGA D-Sub 15-pin port (from the integrated AST2600 BMC)	
Audio	<ul style="list-style-type: none"> • 3 x 3.5mm audio jacks - Vertical stack: Line-in / Line-out / Mic-in 	
USB	<ul style="list-style-type: none"> • 1 x 20-pin USB 3.2 Gen 1 header (5 Gbps, internal, for 2 USB ports) • 2 x USB 3.2 Gen 1 Type-A ports (5 Gbps, rear) 	

Continued on next column

Model	D3060	
SKU	D3060AGB2N-10G	D3060GB2N-1G
Rear I/O	<ul style="list-style-type: none"> • 2 x 10G Base-T Ethernet ports • 3 x 3.5mm audio jacks - Vertical stack: Line-in / Line-out / Mic-in 	<ul style="list-style-type: none"> • 2 x 1000Base-T Ethernet ports
	<ul style="list-style-type: none"> • 1 x 1000Base-T dedicated server management port • 2 x USB 3.2 Gen 1 Type-A ports • 1 x COM Port • 1 x VGA D-Sub port • 1 x UID LED button 	
System Connectors	<ul style="list-style-type: none"> • 1 x 20-pin USB 3.2 Gen 1 header (5 Gbps, for 2 USB ports) • 1 x Chassis intrusion header • 3 x I2C headers (support storage BP) • 1 x IPMB header • 1 x GPIO header • 1 x PMBus header • 1 x VROC connector • 1 x Buzzer 	
Power Connectors	<ul style="list-style-type: none"> • 1 x 24-pin ATX power connector • 2 x 8-pin for ATX 8-pin power connector 	
Fan Connectors	<ul style="list-style-type: none"> • 3 x 4-pin PWM fan header • 2 x 8-pin PWM fan header 	
Security	<ul style="list-style-type: none"> • Chassis intrusion (header on board) • TPM 2.0 module (optional, header on board) 	
Server Management	<ul style="list-style-type: none"> • 1 x 1000Base-T dedicated server management port • ASPEED® AST2600 with AMI MegaRAC based firmware - Supports IPMI 2.0 and DMTF Redfish® API • Single BIOS and dual BMC 	
Environment	<ul style="list-style-type: none"> • Operating Temperature: 0°C ~ 40°C (32°F ~ 104°F) • Non-operating Temperature: -20°C ~ 70°C (-4°F to 158°F) • Non-operating Relative Humidity: 5% to 85% (non-condensing) 	
Certifications	CE, FCC (Class A)	

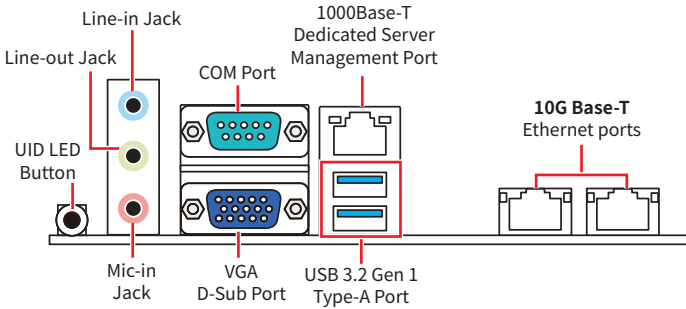
Overview of Components

- Components in the red dashed area vary with SKUs; please refer to the [Specifications](#) for more details.

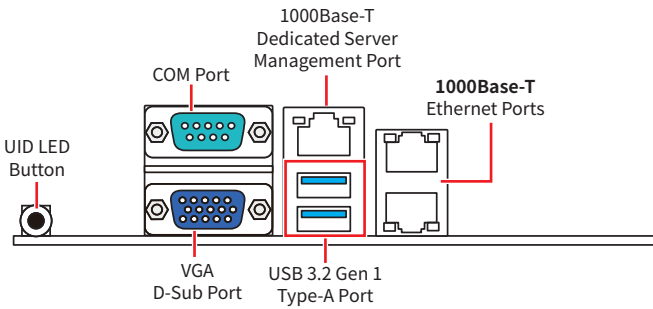


Rear I/O Panel

D3060AGB2N-10G



D3060GB2N-1G



UID LED Button

The UID (Unit Identification) button help users identify and locate a system, especially in high-density rack environments.

Line-In Jack

This connector is provided for external audio output devices.

Line-Out Jack

This connector is provided for headphones or speakers.

Mic-In Jack

This connector is provided for microphones.

VGA D-Sub Port

The DB15-pin female connector is provided for monitors.

COM Port

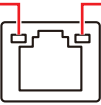
The COM port, also known as a **serial port** or **DB9 connector**, is a communication interface for connecting external devices like barcode scanners, printers, or credit card machines to your computer. It is often used for initial system setup, diagnostics on server boards, or linking legacy devices without modern interfaces. Use a properly configured serial cable to establish a connection.

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.

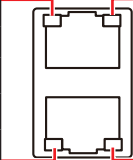
1000Base-T Dedicated Server Management Port

Connect a specially configured RJ45 console cable to this jack for network routers/switches to communicate with the system through a serial connection.

Link/ Activity LED			Speed LED	
Status	Description		Status	Description
<input type="radio"/> Off	No link	<input type="radio"/> Off	10 Mbps	
<input checked="" type="radio"/> Green	Linked	<input checked="" type="radio"/> Orange	100 Mbps	
<input checked="" type="radio"/> Blinking	Data activity	<input checked="" type="radio"/> Green	1 Gbps	

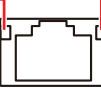
1000Base-T Ethernet Ports

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.

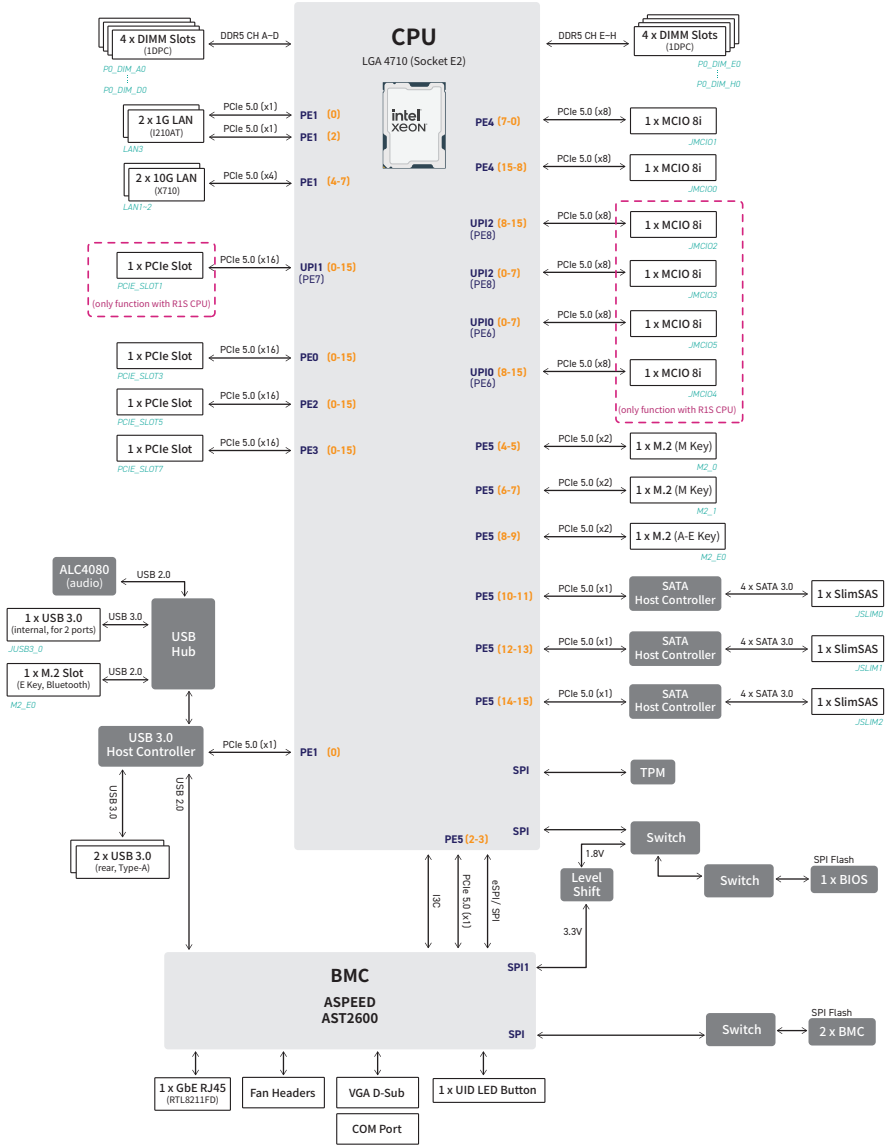
Link/ Activity LED			Speed LED	
Status	Description		Status	Description
<input type="radio"/> Off	No link	<input type="radio"/> Off	10 Mbps	
<input checked="" type="radio"/> Green	Linked	<input checked="" type="radio"/> Orange	100 Mbps	
<input checked="" type="radio"/> Blinking	Data activity	<input checked="" type="radio"/> Green	1 Gbps	

10G Base-T Ethernet ports

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.

Link/ Activity LED			Speed LED	
Status	Description		Status	Description
<input type="radio"/> Off	No link	<input type="radio"/> Off	100 Mbps/ No link	
<input checked="" type="radio"/> Green	Linked	<input checked="" type="radio"/> Orange	1 Gbps	
<input checked="" type="radio"/> Blinking	Data activity	<input checked="" type="radio"/> Green	10 Gbps	

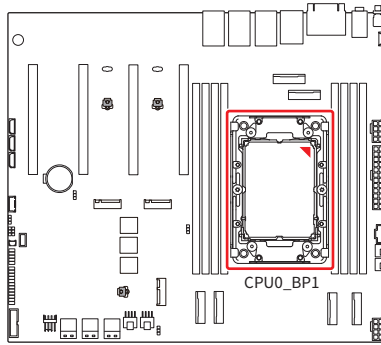
Block Diagram



Component Contents

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Storage Connectors	28
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PCIE_SLOT1, 3, 5, 7: PCIe Expansion Slots	30
JMCIO0~5: MCIO 8i Connectors	31
Power Connectors	32
JPWR0: 24-Pin ATX Power Connector	32
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Cooling Connectors	33
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JCPUFAN0, JFAN0, 3: 4-Pin Fan Connectors	33
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JVROC0: VROC Connector	36
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JPMBUS0: PMBus Header	37
JINTRUDE0: Chassis Intrusion Header	38
M2_E0: M.2 Slot (A-E Key, 2230) (D3060AGB2N-10G only)	39
TPM0: SPI TPM Header	40
BATTERY1: CMOS Battery	41
Jumpers	42

CPU Socket



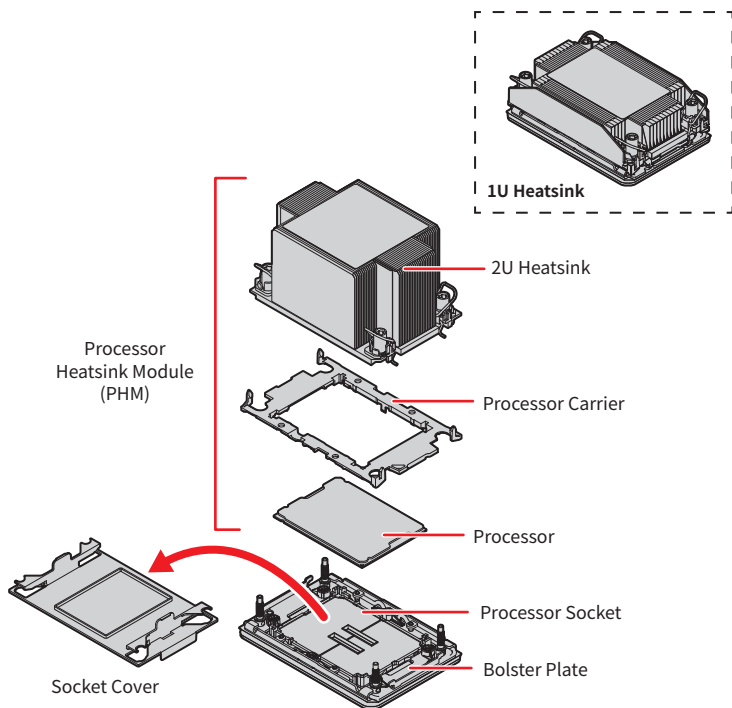
Important

- **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.

Assembly Overview

 **Important**

Illustrations are for demonstration purposes only; actual parts may vary.

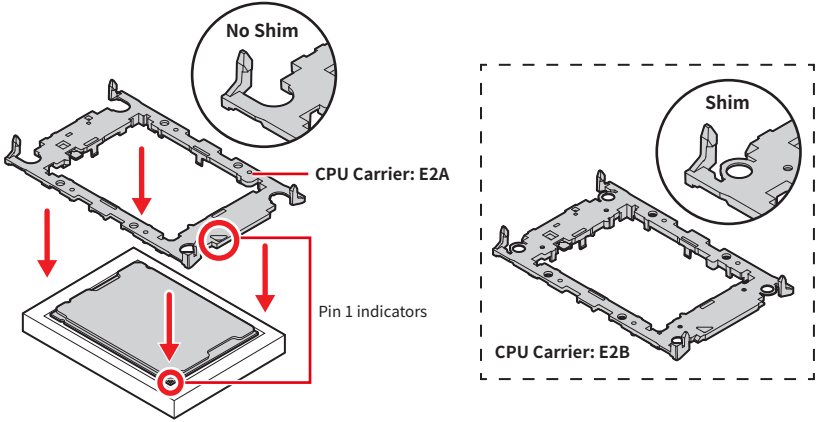


 **Important**

- Please check the instruction that come with your heatsink and thermal paste for more details before starting.
- Confirm if your heatsink is firmly installed before turning on your system.
- Whenever CPU is not installed, always protect your CPU socket pins with the plastic cap covered.
- Do not touch the CPU socket content to avoid damage.
- Read the CPU status in BIOS.

Installing CPU & Heatsink

1. Place the processor carrier on top of the processor in the tray with their **pin 1 indicators aligned**. If installed properly, the CPU will snap into the carrier's side latches and the carrier will latch firmly to it.



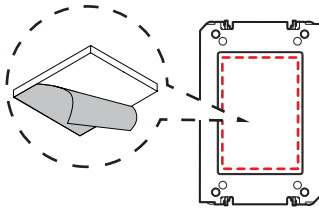
Important

- Do not touch the CPU package land to avoid damage.
- Please refer to the following table for the corresponding CPU carrier.

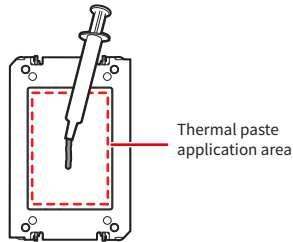
CPU Package Type	Thin Package	Thick Package
CPU Package Name	· Granite Rapids- SP XCC	· Granite Rapids- SP HCC/ LCC · Sierra Forest- SP
CPU Carrier Code	E2A	E2B
Shim	No	Yes
Integrated TIM Break Lever	Yes	Yes

2. Remove the **protective film** at the bottom of the heatsink if any.

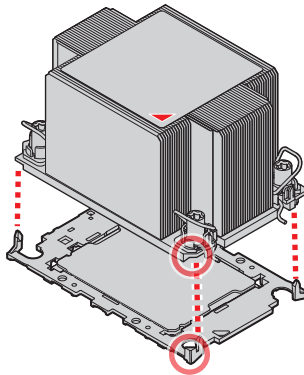
- To avoid damaging the fins of the heatsink, always grip the heatsink **along the axis of the fins**. Holding a heatsink along the side might damage its fins or solder.



3. Make sure the heatsink has **pre-applied thermal paste**. If there isn't, you'll need to apply thermal paste to the bottom center of the heatsink.

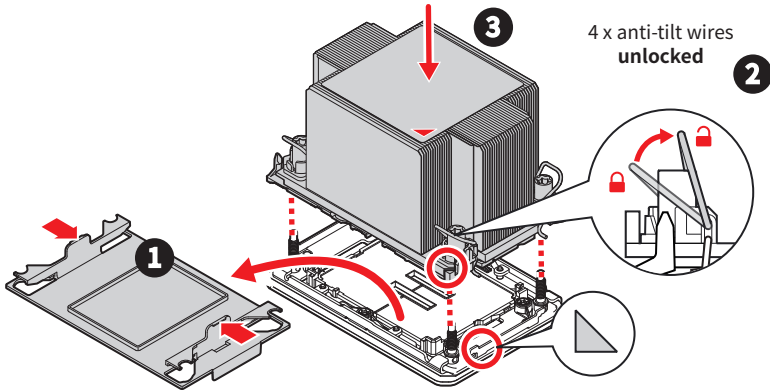


4. Check the heatsink for a diagonally cut corner or the #1clip on the heatsink label if present. Align the **processor carrier's Pin 1 indicator** with the **heatsink's cut corner (#1 clip)**, then gently press the heatsink down to engage the carrier's latching mechanism to the heatsink at four corners.

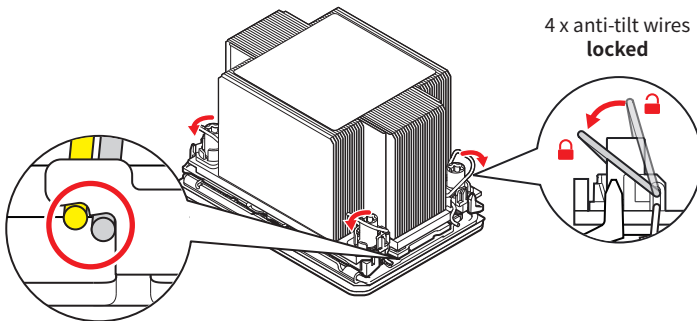


5. Make sure the attached clips on the carrier grab onto the heatsink and firmly secure the carrier, CPU and heatsink as one **Processor Heatsink Module (PHM)**.

6. Remove the socket cover by squeezing the finger grips in, then flip **4 anti-tilt wires** on the heatsink to the **unlocked position (inward)** and place the PHM on top of the bolster plate with the Pin 1 indicators aligned. Hold the PHM horizontally, carefully lower down to engage PHM to bolster the plate's alignment pin.



7. Flip 4 anti-tilt wires to the **locked position (outward)** and make sure the wires are firmly secure.

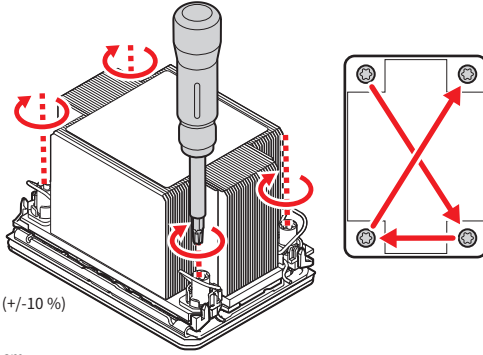


Important

Ensure the 4 anti-tilt wires rotate and lock into the **designated positions** on the stepped flanges, as specified in the table below for each CPU carrier.

CPU Package Type	Thin Package	Thick Package
CPU Package Name	· Granite Rapids- SP XCC	· Granite Rapids- SP HCC/ LCC · Sierra Forest- SP
CPU Carrier Code	E2A	E2B
Anti-tilt Wire Position	<input type="radio"/> Lower step flange	<input checked="" type="radio"/> Upper step flange

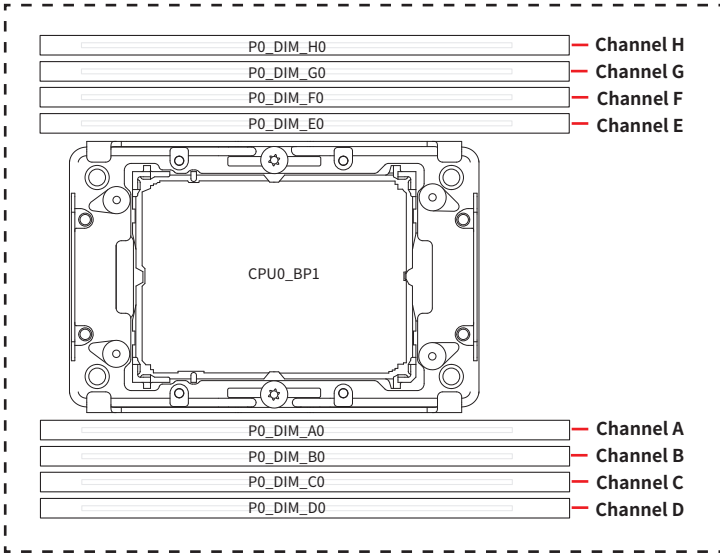
-
8. Tighten all heatsink nuts using a **Torx T30 screwdriver** in a diagonal sequence to secure the PHM to the motherboard.
- *To ensure even pressure on the CPU, first loosely fasten all four screws, then gradually tighten them.*



Torque: 0.904 N·m* (+/-10 %)
*0.904 N·m
= 9.2208 kgf·cm
= 8 lbf·in

Memory Slots

P0_DIM_A0~H0, : DDR5 DIMM Slots



Recommended Memory Population



Please read the following Guidelines before populating memory.

General Memory Population Rules

- **Single DIMM Type Usage:** Only one type of DIMM is allowed across the system. Mixing different DIMM types is not permitted.
 - Example: All DDR5 RDIMMs or all MRDIMMs.
- **Consistent Rank Configuration:** All DIMMs within a channel must have the same number of ranks unless explicitly stated otherwise.
- **Uniform Speed:** All DDR5 DIMMs associated with a given processor (e.g., CPU0 or CPU1) must operate at the same speed.
- **Uniform Density:** All DDR5 DIMMs must have the same density.
- **Vendor Restrictions:** Unless explicitly stated otherwise, DIMMs from different vendors cannot be mixed for RDIMMs, 3DS RDIMMs, and MRDIMMs.

DIMM Mixing Restrictions

- Mixing of **non-3DS** and **3DS-RDIMMs** is not allowed in the same channel, across different channels, and across different processor sockets.
- **9x4 RDIMMs** cannot be mixed with other DIMM types.
- Mixing of DDR5 operating frequencies is not validated:
 - If DIMMs with varying maximum frequencies are mixed, the **BIOS determines and sets the DIMM speed** to the highest common frequency across all channels on the platform.
 - Example: If a 6000 MT/s DIMM is installed in one channel, and a 6400 MT/s DIMM in another, the BIOS sets the platform speed to 6000 MT/s.

Key Parameters for DIMM

Intel® Xeon® 6700E Series

DDR Type	Ranks Per DIMM & Data Width	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); & DIMMs per Channel (DPC)
		DRAM Density		1DPC
		16 Gb		1.1 V
		1DPC		
RDIMM	1Rx4	32 GB		6400
	2Rx8	32 GB		
	2Rx4	64 GB		
3DS-RDIMM	4Rx4	128 GB		6400

Intel® Xeon® 6700P/ 6500P Series

DDR Type	Ranks Per DIMM & Data Width	DIMM Capacity (GB)			Speed (MT/s); Voltage (V); & DIMMs per Channel (DPC)
		DRAM Density			1DPC
		16 Gb	24 Gb	32 Gb	1.1 V
		1DPC	1DPC	1DPC	
RDIMM	1Rx8	16 GB	24 GB		6400
	1Rx4	32 GB	48 GB		
	2Rx8	32 GB	48 GB		
	2Rx4	64 GB	96 GB	128 GB	
3DS-RDIMM	8Rx4				6400
MRDIMM	2Rx8	32 GB			8000
	2Rx4	64 GB			

DIMM Configuration

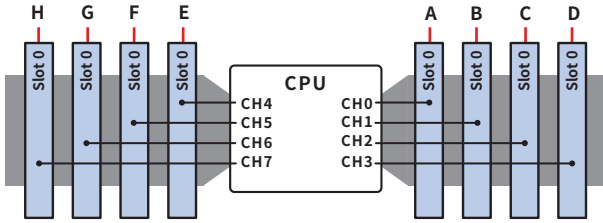
Intel® Xeon® 6700E Series

DDR Type	Memory Channels	Slots per Channel (SPC)	DIMMs per Channel (DPC)	Slot 0		DIMM Organization	DRAM Density (Gb)
				DIMM Ranks & Width	DIMM Capacity (GB)		
RDIMM	8	1	1	2Rx8	32 GB	5x8	16 Gb
				1Rx4	32 GB	10x4	
				2Rx4	64 GB		
				2Rx4	128 GB	10x4	32 Gb

Intel® Xeon® 6700P/ 6500P Series

DDR Type	Memory Channels	Slots per Channel (SPC)	DIMMs per Channel (DPC)	Slot 0		DIMM Organization	DRAM Density (Gb)
				DIMM Ranks & Width	DIMM Capacity (GB)		
RDIMM	4	1	1	2Rx8	32 GB	5x8	16 Gb
					48 GB		24 Gb
				2Rx4	64 GB	10x4	16 Gb
					1Rx8	16 GB	5x8
	24 GB			24 Gb			
	8			2Rx8	32 GB	5x8	16 Gb
						10x4	
				2Rx8	48 GB	5x8	24 Gb
						10x4	
				2Rx4	64 GB	10x4	16 Gb
					96 GB		24 Gb
	2Rx4			128 GB	10x4	32 Gb	
MRDIMM	8	1	1	2Rx8	32 GB	5x8	16 Gb
				2Rx4	64 GB	10x4	

DDR5 Only DIMM Configuration Diagram



IMC#	IMC7	IMC6	IMC5	IMC4	C P U	IMC0	IMC1	IMC2	IMC3
Channel	H	G	F	E		A	B	C	D
DDR5 Qty.	Chan 7	Chan 6	Chan 5	Chan 4		Chan 0	Chan 1	Chan 2	Chan 3
	H0	G0	F0	E0		A0	B0	C0	D0
1						v			
4	v		v	v	v		v	v	
8	v	v	v	v	v	v	v	v	

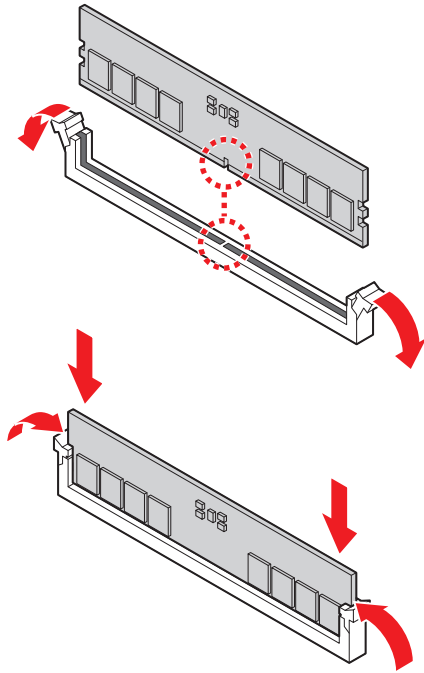
"v" indicates DIMMs are populated with DDR5.

Important

There should be at least one DDR5 DIMM per socket.

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.



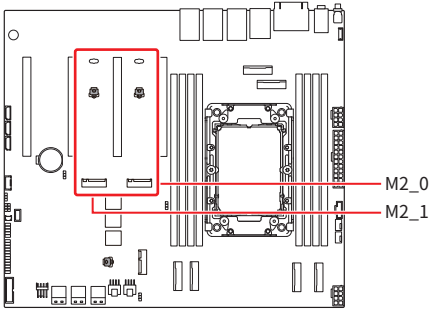
Important

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

Storage Connectors

M2_0~1: M.2 Slots (M Key, 2280/ 22110)

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



M.2 Transmission Rate Table

Name	Description
M2_0~1	PCIe 5.0 x2, 32GT/s

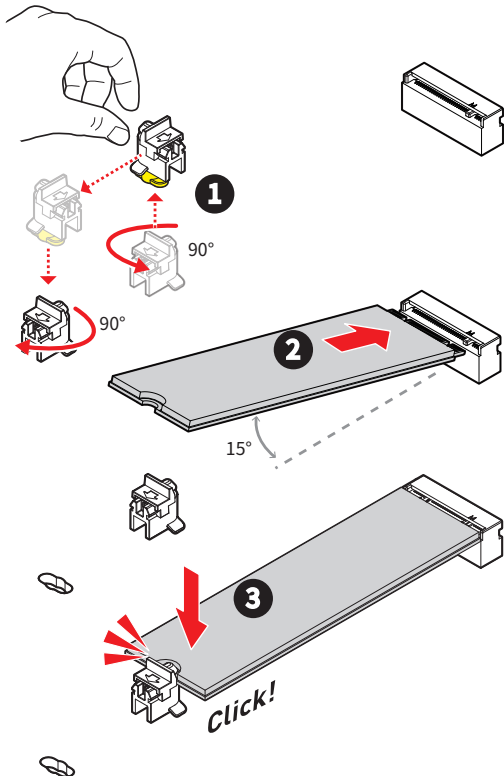
Installing M.2 SSD

1. Adjust the **M.2 board latch** to fit your M.2 SSD size.

- Turn the M.2 board latch **counterclockwise to release, and clockwise to lock.**

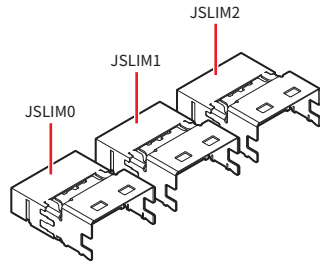
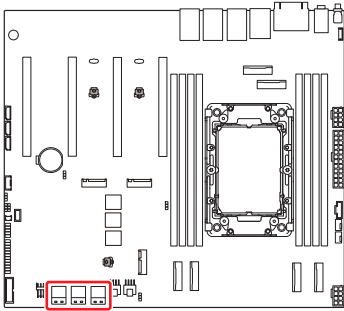
2. Insert your M.2 SSD into the M.2 slot at a 15-degree angle.

3. Push down the M.2 SSD till it clicks in place.



JSLIM0~2: SlimSAS 4i Connectors

This is 38-pin Slimline SAS 4i connector, which support SATA 3.0 interface.

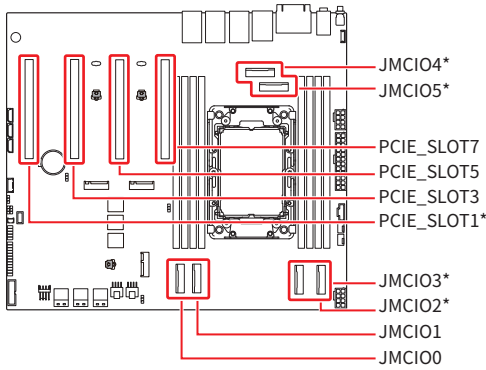


SlimSAS Transmission Rate Table

Name	Description
JSLIM0~2	SATA 3.0, 6 Gb/s

<p style="text-align: center;">JSLIM0~2</p>	A1	GND	B1	GND
	A2	SATA_RX+	B2	SATA_TX+
	A3	SATA_RX-	B3	SATA_TX-
	A4	GND	B4	GND
	A5	SATA_RX+	B5	SATA_TX+
	A6	SATA_RX-	B6	SATA_TX-
	A7	GND	B7	GND
	A8	NC	B8	NC
	A9	NC	B9	NC
	A10	GND	B10	GND
	A11	NC	B11	P3V3
	A12	NC	B12	NC
	A13	GND	B13	GND
	A14	SATA_RX+	B14	SATA_TX+
	A15	SATA_RX-	B15	SATA_TX-
	A16	GND	B16	GND
	A17	SATA_RX+	B17	SATA_TX+
	A18	SATA_RX-	B18	SATA_TX-
	A19	GND	B19	GND

Expansions



*PCIE_SLOT1, JMCIO2~5 are only functional with the R1S processor.

Expansions Transmission Rate Table

Name	Description
PCIE_SLOT1, 3, 5, 7	PCIe 5.0 x16, 32 GT/s
JMCIO0~5	PCIe 5.0 x8, 32 GT/s

PCIE_SLOT1, 3, 5, 7: PCIe Expansion Slots

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

Important

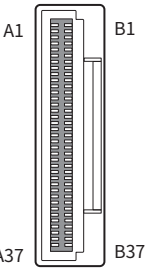
When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

JMCIO0~5: MCIO 8i Connectors

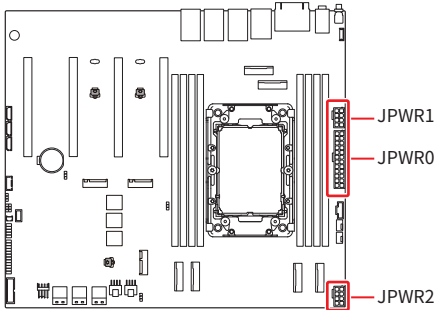
These are vertical 74-pin Mini Cool Edge IO (MCIO) connectors, which support PCIe 5.0 x8 32GT/s interface.

	A1	GND	B1	GND
	A2	P5E_CPU_PE4_NVME_RX_D+	B2	P5E_CPU_PE4_NVME_TX_D+
	A3	P5E_CPU_PE4_NVME_RX_D-	B3	P5E_CPU_PE4_NVME_TX_D-
	A4	GND	B4	GND
	A5	P5E_CPU_PE4_NVME_RX_D+	B5	P5E_CPU_PE4_NVME_TX_D+
	A6	P5E_CPU_PE4_NVME_RX_D-	B6	P5E_CPU_PE4_NVME_TX_D-
	A7	GND	B7	GND
	A8	P3V3_AUX	B8	SMB_MCIO_SCL
	A9	FM_SMB_PEHPCPU_MCIO_LVC3_ALERT_N	B9	SMB_MCIO_SDA
	A10	GND	B10	GND
	A11	CLK_100M_CPU_MCIO_0_D+	B11	RST_MCIO1_0_CPU0_PERST-
	A12	CLK_100M_CPU_MCIO_0_D-	B12	GND
	A13	GND	B13	GND
	A14	P5E_CPU_PE4_NVME_RX_D+	B14	P5E_CPU_PE4_NVME_TX_D+
	A15	P5E_CPU_PE4_NVME_RX_D-	B15	P5E_CPU_PE4_NVME_TX_D-
	A16	GND	B16	GND
	A17	P5E_CPU_PE4_NVME_RX_D+	B17	P5E_CPU_PE4_NVME_TX_D+
	A18	P5E_CPU_PE4_NVME_RX_D-	B18	P5E_CPU_PE4_NVME_TX_D-
	A19	GND	B19	GND
	A20	P5E_CPU_PE4_NVME_RX_D+	B20	P5E_CPU_PE4_NVME_TX_D+
	A21	P5E_CPU_PE4_NVME_RX_D-	B21	P5E_CPU_PE4_NVME_TX_D-
	A22	GND	B22	GND
	A23	P5E_CPU_PE4_NVME_RX_D+	B23	P5E_CPU_PE4_NVME_TX_D2+
	A24	P5E_CPU_PE4_NVME_RX_D-	B24	P5E_CPU_PE4_NVME_TX_D2+
	A25	GND	B25	GND
	A26	SMB_MCIOP_CPU_SCL	B26	SMB_MCIO_SCL
	A27	SMB_MCIOP_CPU_SDA	B27	SMB_MCIO_SDA
	A28	GND	B28	GND
	A29	CLK_100M_CPU0_MCIO_0_D+	B29	PST_MCIO1_1_CPU0_PERST
	A30	CLK_100M_CPU0_MCIO_0_D-	B30	NVME_PERST_WAKE_L
	A31	GND	B31	GND
	A32	P5E_CPU_PE4_NVME_RX_D+	B32	P5E_CPU_PE4_NVME_TX_D+
	A33	P5E_CPU_PE4_NVME_RX_D-	B33	P5E_CPU_PE4_NVME_TX_D-
	A34	GND	B34	GND
	A35	P5E_CPU_PE4_NVME_RX_D+	B35	P5E_CPU_PE4_NVME_TX_D+
	A36	P5E_CPU_PE4_NVME_RX_D-	B36	P5E_CPU_PE4_NVME_TX_D-
	A37	GND	B37	GND

JMCIO0~5



Power Connectors



JPWR0: 24-Pin ATX Power Connector

This connector allows you to connect an ATX power supply.

<p>JPWR0</p>	1	+3.3V	13	+3.3V
	2	+3.3V	14	-12V
	3	GND	15	GND
	4	+5V	16	PS-ON#
	5	GND	17	GND
	6	+5V	18	GND
	7	GND	19	GND
	8	PWR OK	20	-5V
	9	5VSB	21	+5V
	10	+12V	22	+5V
	11	+12V	23	+5V
	12	+3.3V	24	GND

JPWR1~2: 8-Pin ATX Power Connectors

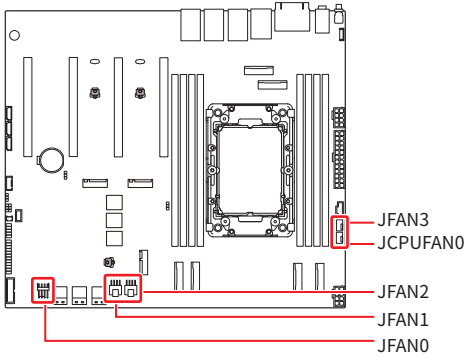
These connectors allow you to connect ATX power supply.

<p>JPWR1~2</p>	1	GND	5	P12V
	2	GND	6	P12V
	3	GND	7	P12V
	4	GND	8	P12V

Important

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

Cooling Connectors



JFAN1~2: 6-Pin Fan Connectors

The fan power connectors support system cooling fans.

JFAN1~2 	1	P12V_FAN_SLOT	5	P12V_FAN_SLOT
	2	GND	6	GND
	3	FAN_TACH	7	FAN_TACH
	4	FAN1_BUF_PWM	8	GND

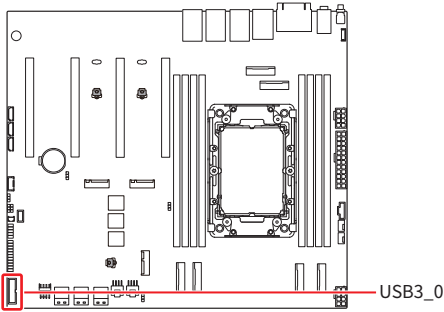
JCPUFANO, JFANO, 3: 4-Pin Fan Connectors

The fan connector supports cooling fans with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND.

JCPUFANO 	1	GND
	2	P12V
	3	FAN_TACH
	4	BMC_PWM

JFANO, 3 	1	GND
	2	P12V
	3	FAN_TACH
	4	BMC_PWM

USB Connectors



JUSB3_0: USB 3.2 Gen 1 Connector

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices. It supports up to **5Gbps** and backward compatibility with USB 2.0 devices (**480 Mbps**).

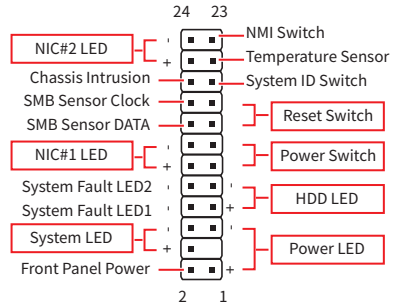
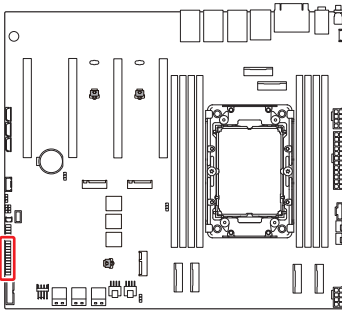
	1	P5V_USB_3	11	USB2_P2_ESD_D+
	2	USB3_P3_ESD_RX-	12	USB2_P2_ESD_D-
	3	USB3_P3_ESD_RX+	13	GND
	4	GND	14	USB3_P2_ESD_TX+
	5	USB3_P3_ESD_TX-	15	USB3_P2_ESD_TX-
	6	USB3_P3_ESD_TX+	16	GND
	7	GND	17	USB3_P3_ESD_RX+
	8	USB2_P3_ESD_D-	18	USB3_P3_ESD_RX-
	9	USB2_P3_ESD_D+	19	P5V_USB_2
	10	NC	20	No Pin

Other Connectors and Components

SSI_FP0: 24-Pin SSI Front Panel Connector

The connector connect to the switches and LEDs on the front panel.

	1	POWER LED +	2	FRONT PANEL POWER
	3	No Pin	4	SYS ID LED +
	5	POWER LED -	6	SYS ID LED -
	7	HDD_ACT_LED +	8	SYS FAULT LED1 -
	9	HDD_ACT_LED -	10	SYS FAULT LED2 -
	11	POWER SWITCH	12	NIC#1 ACT LED+
	13	POWER SWITCH GND	14	NIC#1 ACT LED-
	15	RESET SWITCH	16	SMB SDA
	17	RESET SWITCH GND	18	SMD SCL
	19	SYS ID SWITCH	20	CHASSIS INTRUSION
	21	1 WIRE TEMP SENSOR	22	NIC#2 ACT LED+
	23	NMI SWITCH	24	NIC#2 ACT LED-




Important

The server board is equipped with one or two types of NIC chips for different SKUs. The first type, **NIC#1**, is controlled by Intel® I210-AT and manages 1000Base-T Ethernet ports (LAN0). The second type, **NIC#2**, is controlled by Intel® X710-AT2 and manages 10G Base-T Ethernet ports (LAN1~2).


JIPMB0: IPMB Header

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

	1	SMB_IPMB_STBY_CMOS_ISO_SDA
	2	GND
	3	SMB_IPMB_STBY_CMOS_ISO_SCL
	4	P5V_AUX


JVROC0: VROC Connector

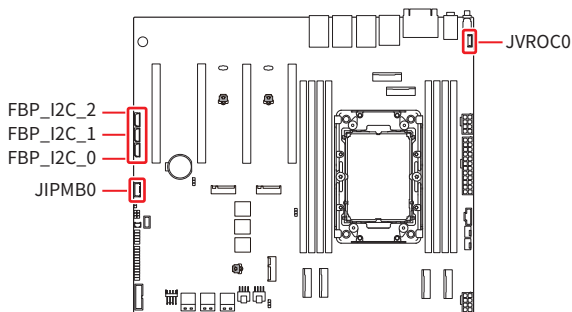
Intel® Virtual RAID on CPU (Intel® VROC) is a hybrid RAID solution specifically designed for NVMe SSDs connected directly to the CPU.

	1	GND
	2	PU_KEY_CONN_PIN2_R
	3	GND
	4	FM_PCH_SATA_RAID_KEY_R

FBP_I2C_0~2: I2C Headers

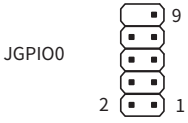
I²C (Inter-Integrated Circuit) headers connect to the System Management Bus (SMBus), FBP_I2C_0~2 are for the HDD backplane.

	1	P3V3
	2	SMB_HSBP_LVC3_R_SCL
	3	SMB_HSBP_LVC3_R_SDA
	4	GND



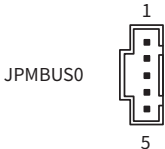
JGPIO0: GPIO Header

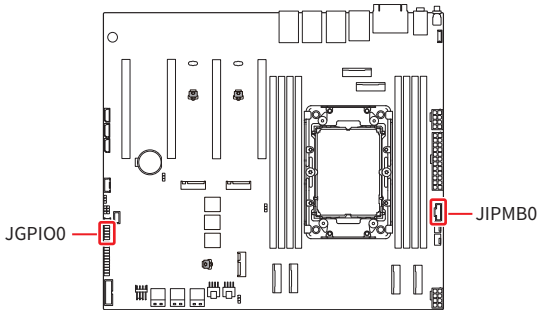
This header is provided for the General-Purpose Input/Output (GPIO) peripheral module.

	1	USER_GPIO0	2	USER_GPIO1
	3	USER_GPIO2	4	USER_GPIO3
	5	USER_GPIO4	6	USER_GPIO5
	7	USER_GPIO6	8	USER_GPIO7
	9	GND	10	No pin

JPMBUS0: PMBus Header


Power Management Bus (PMBus) is a variant of the System Management Bus (SMBus) which is targeted at digital management of power supplies.

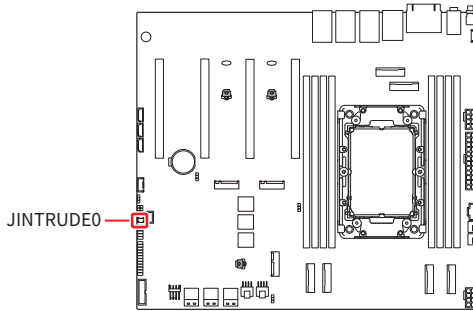
	1	SMB_PMBUS_SCM_SCL
	2	SMB_PMBUS_SCM_SDA
	3	FM_PS_ALERT
	4	GND
	5	P3V3_AUX



JINTRUDE0: Chassis Intrusion Header

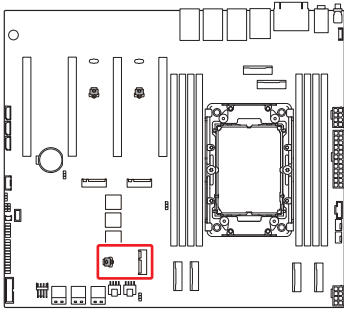
This header connects to the **chassis intrusion switch cable**, which monitors and detects any unauthorized opening in the server's chassis. When the chassis is opened, this header sends a signal to notify the **Baseboard Management Controller (BMC)** to record the intrusion event or trigger an alert for administrators.

JINTRUDE0		1	NC
		2	GND
		3	FM_INTRUDER_HDR_N



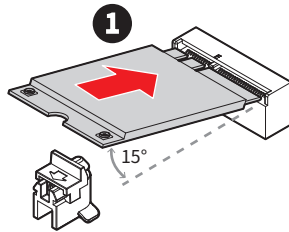
M2_E0: M.2 Slot (A-E Key, 2230) (D3060AGB2N-10G only)

Please install the Wi-Fi/ Bluetooth card into the M.2 slot as shown below.

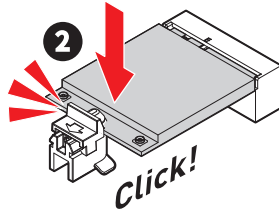


Installing Wi-Fi/ Bluetooth card

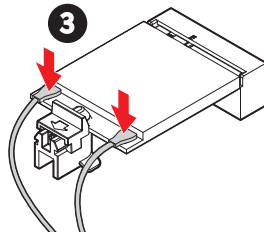
1. Insert your M.2 SSD into the M.2 slot at a 15-degree angle.



2. Push down the M.2 SSD till it clicks in place.

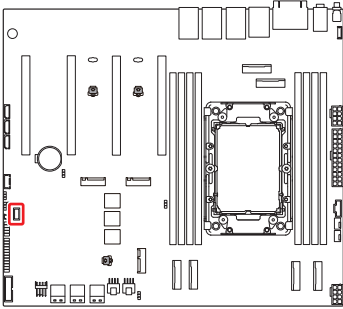


3. Attaching the antenna cables to the card's terminals.



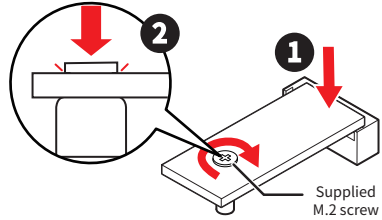
TPM0: SPI TPM Header

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



Installing TPM module

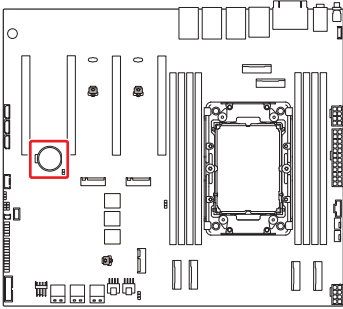
1. Place the TPM20-IRS module atop the SPI TPM header.
2. Secure the module in place with the supplied M.2 screw.



	1	PRSENT#	2	RST#
	3	MOSI	4	PIRQ
	5	MISO	6	CLK
	7	PP/Reserved	8	GND
	9	Vcc	10	CS
	11	Vcc	12	No pin

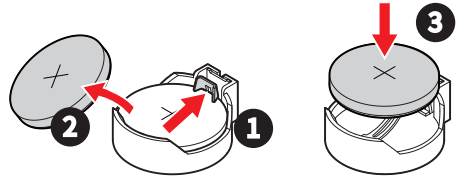
BATTERY1: CMOS Battery

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

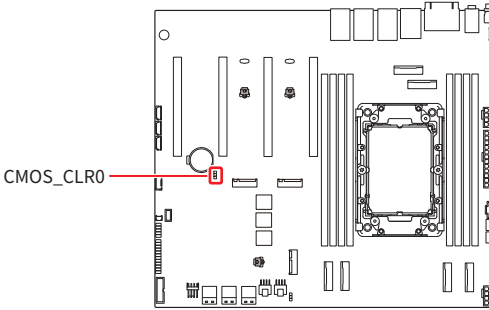
- Swallowing can cause chemical burns, perforation of soft tissue, and even death.
- Severe burns can occur within 2 hours of ingestion.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.


Jumpers



Important

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



Jumper Name	Default Setting	Description
CMOS_CLR0		CMOS Clear Jumper
		1-2: Normal (default) 2-3: Clear RTC registers



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