MSI MPG Z690 EDGE WIFI DDR4 Motherboard User Guide

Contents

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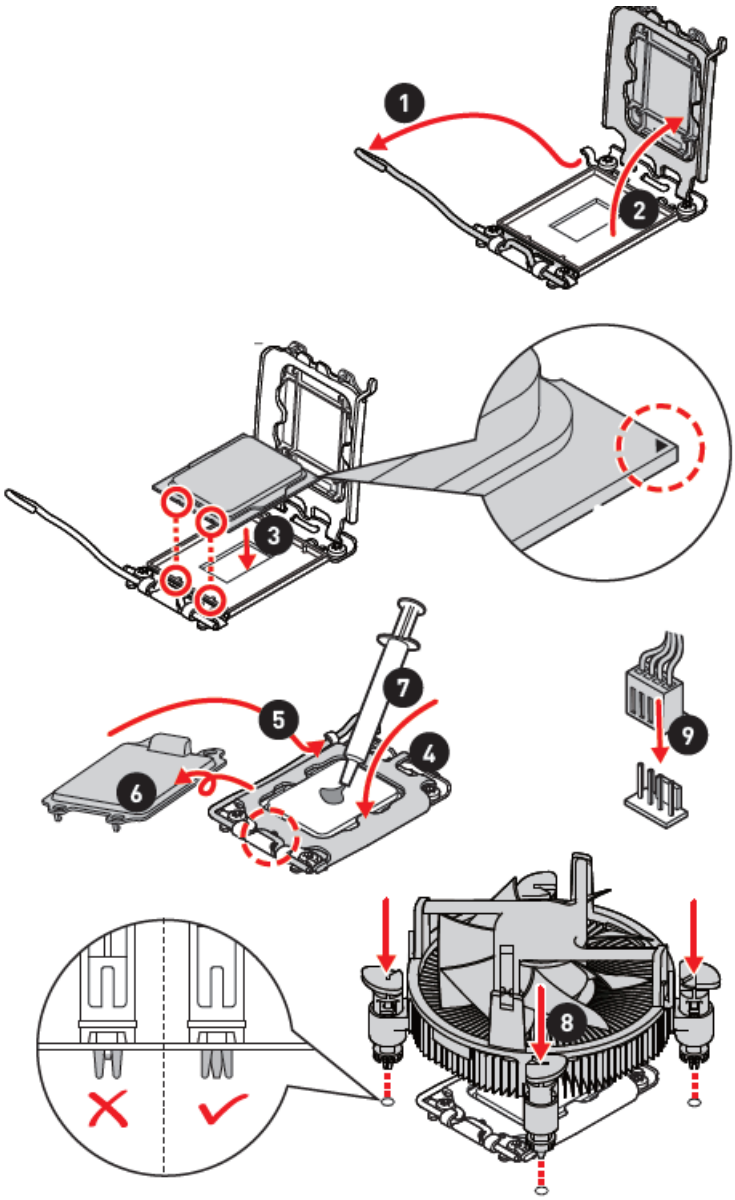
Quick Start

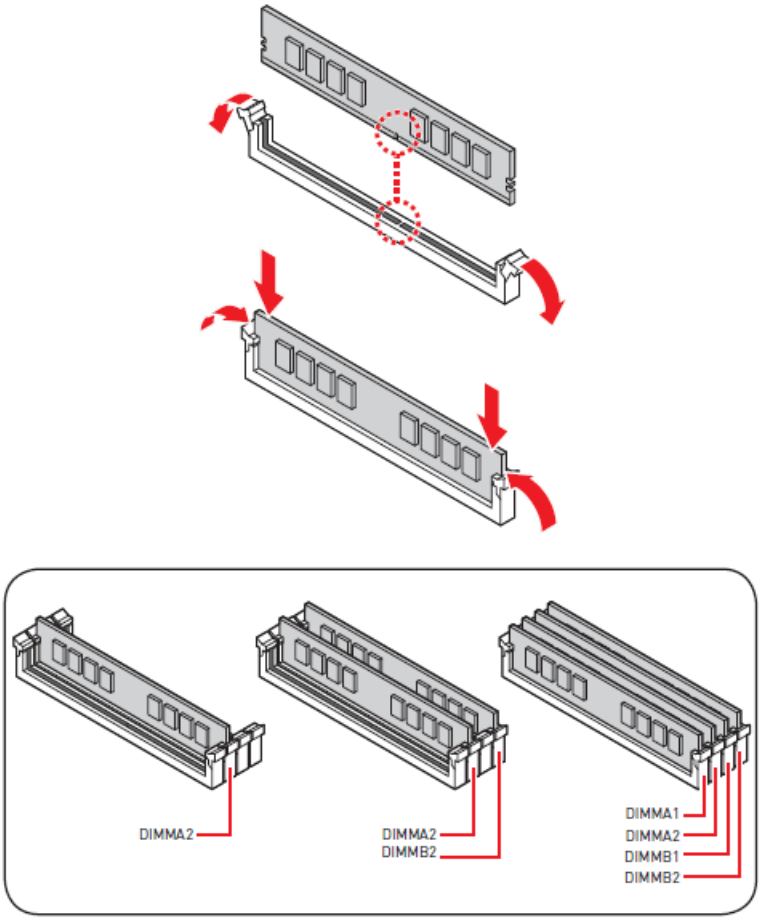
Thank you for purchasing the MSI® motherboard. This Quick Start section provides demonstration diagrams about how to install your computer. Some of the installations also provide video demonstrations. Please link to the URL to watch it with the web browser on your phone or tablet. You may have even link to the URL by scanning the QR code.

Installing a Processor

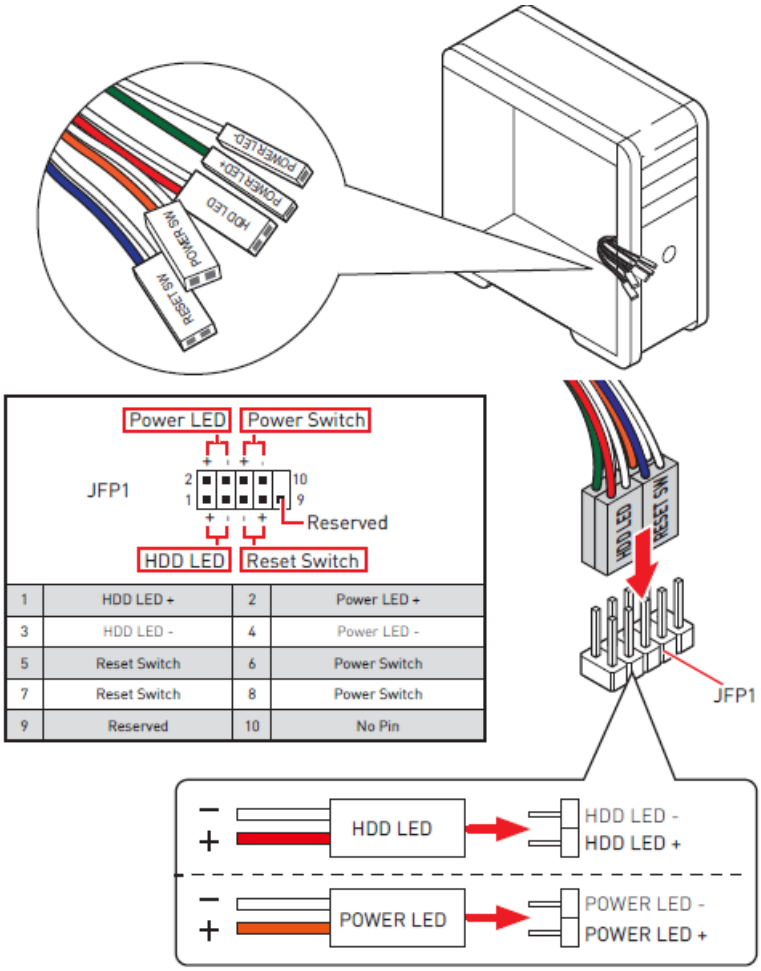


Youtube
https://youtu.be/KMf9olDsGes

Installing DDR4 memory

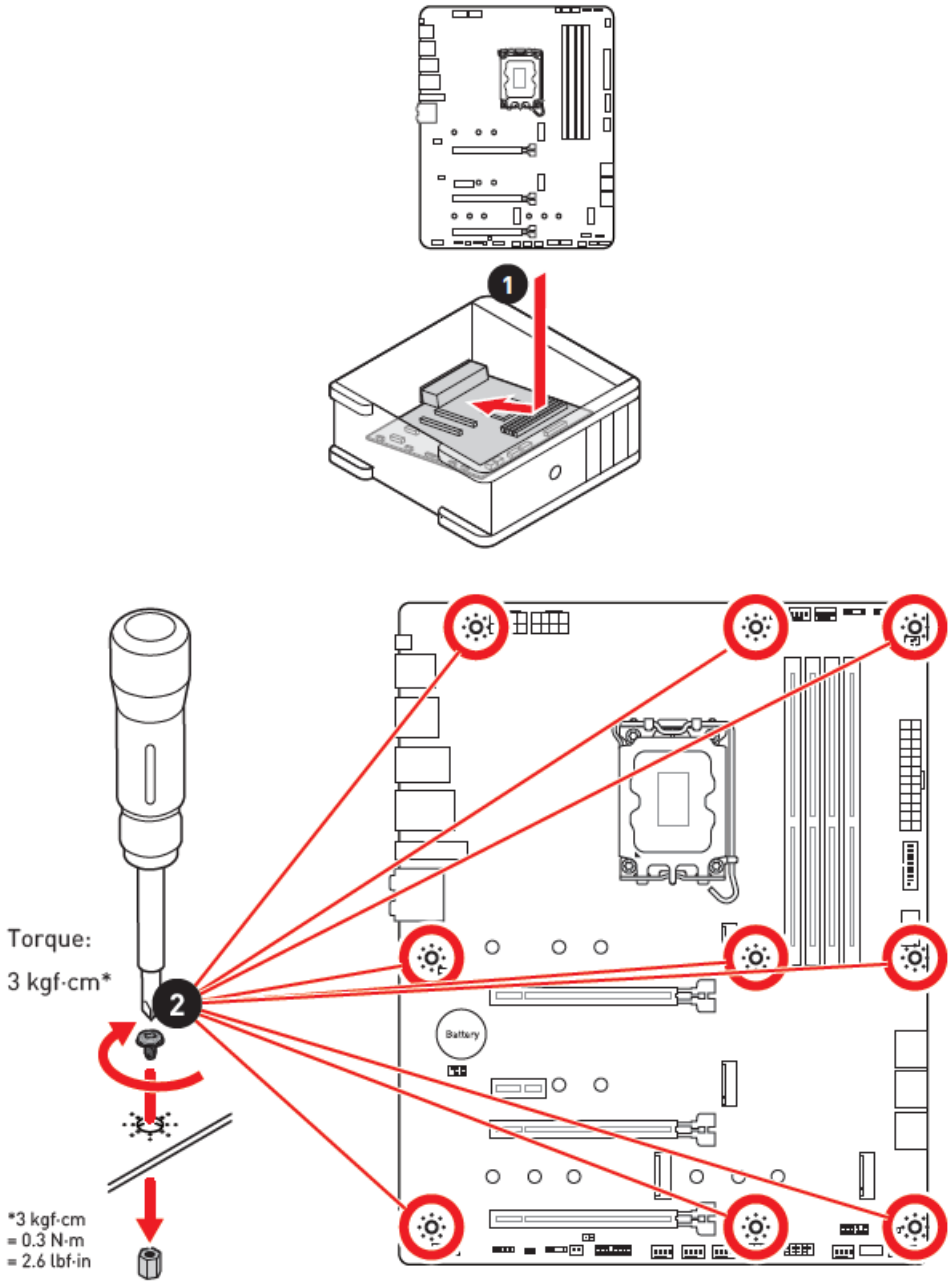


Connecting the Front Panel Header

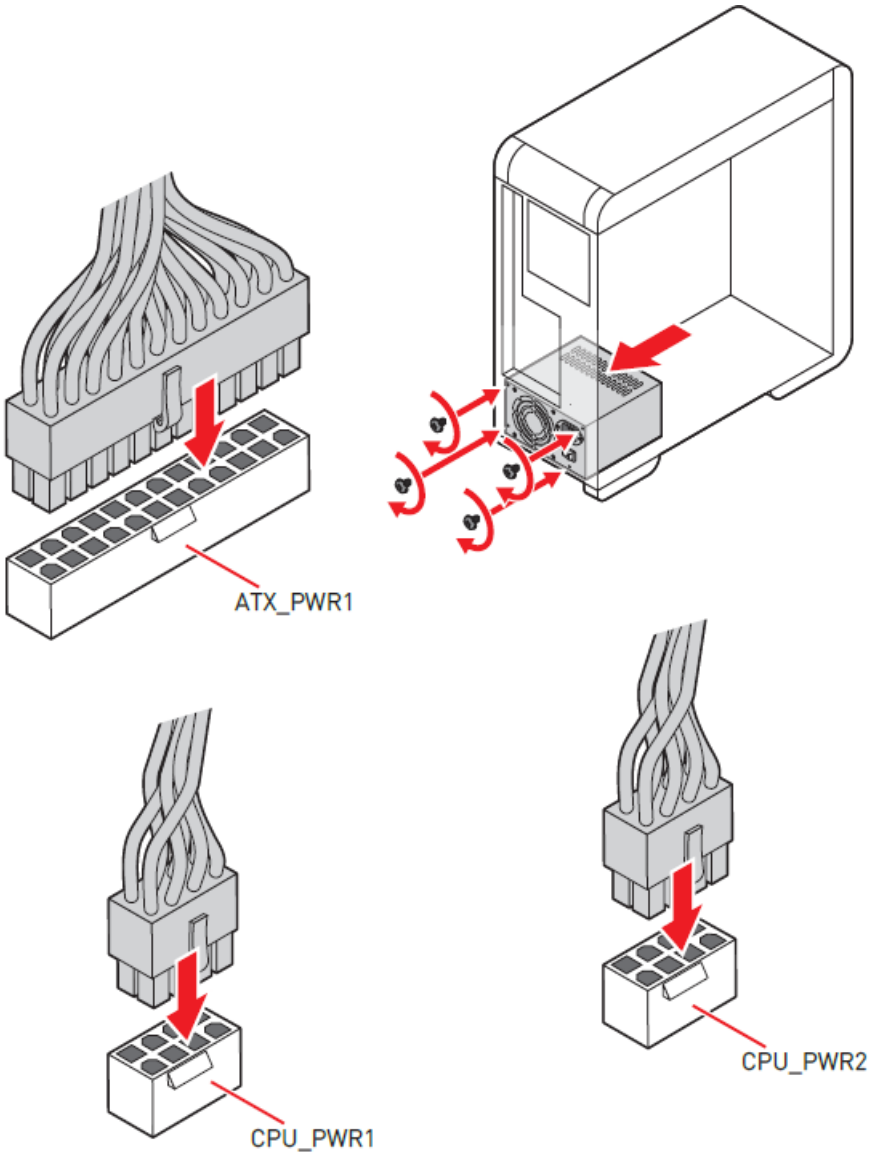


1	HDD LED +	2	Power LED +
3	HDD LED -	4	Power LED -
5	Reset Switch	6	Power Switch
7	Reset Switch	8	Power Switch
9	Reserved	10	No Pin

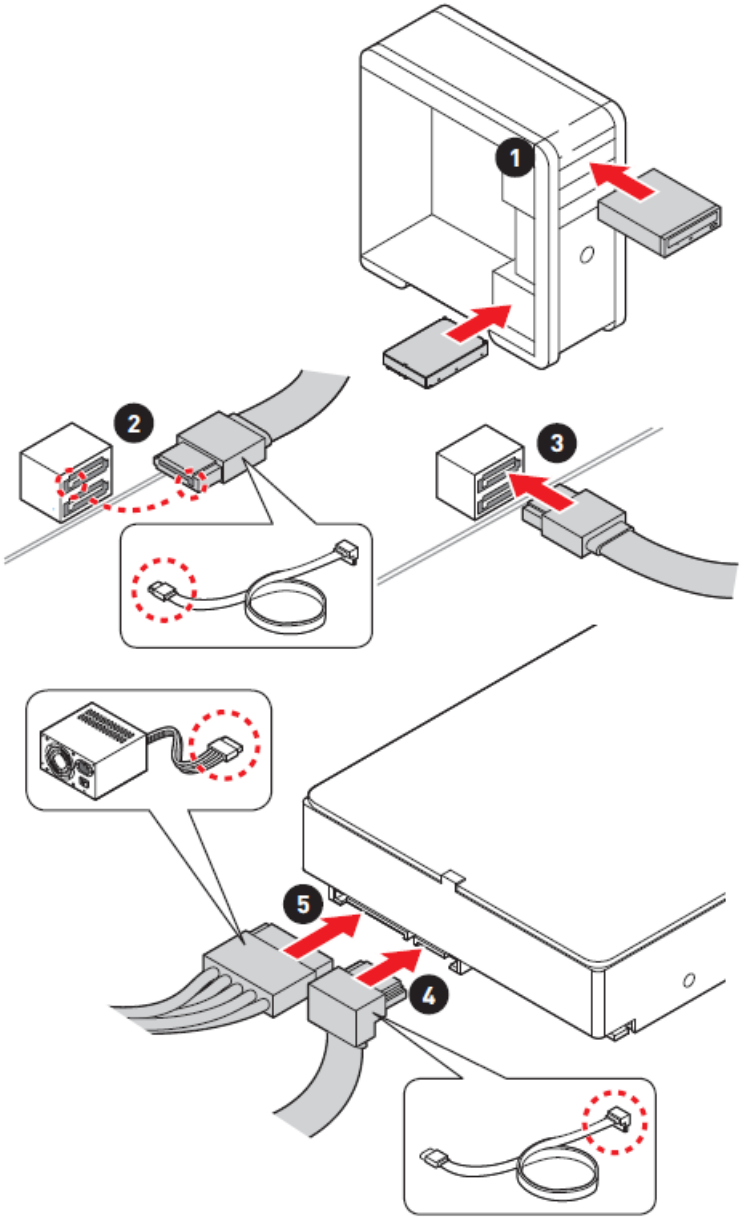
Installing the Motherboard



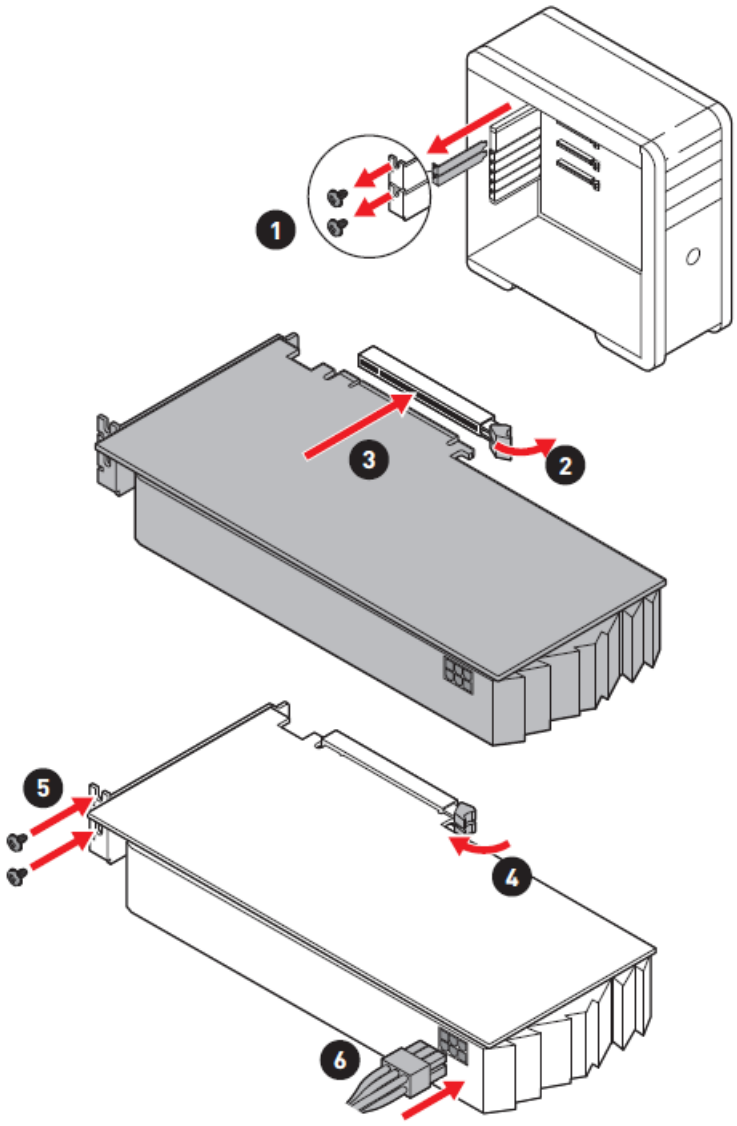
Connecting the Power Connectors



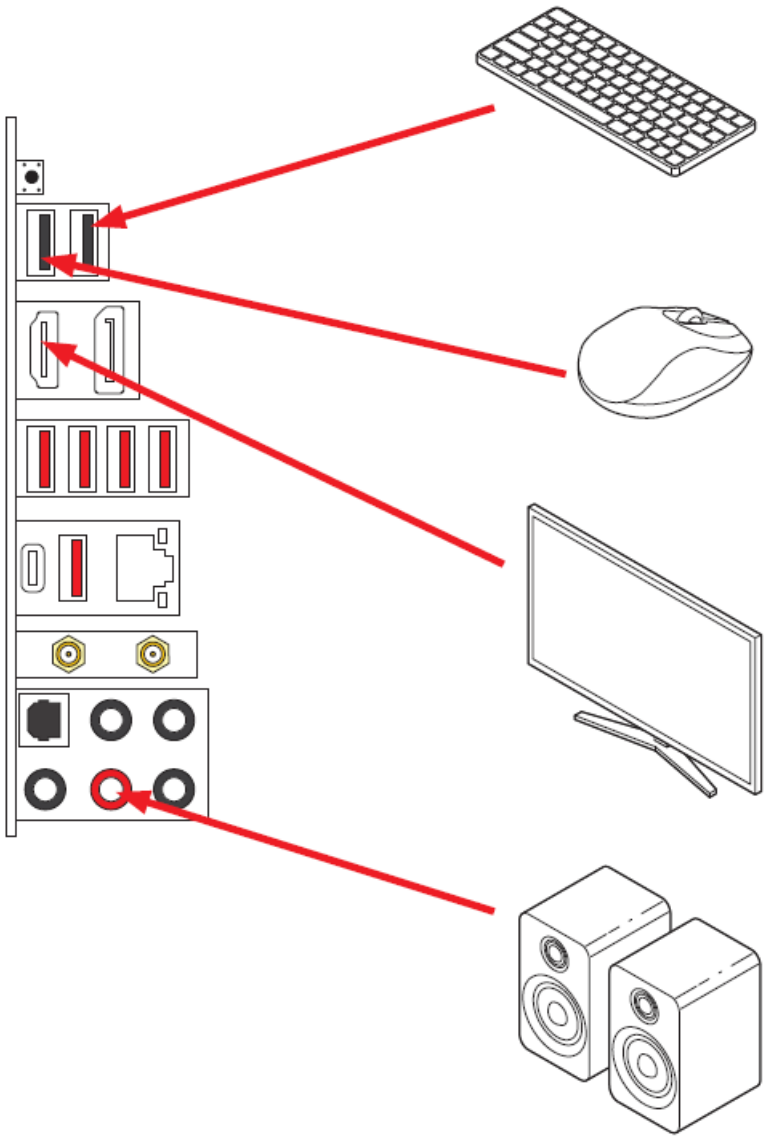
Installing SATA Drives



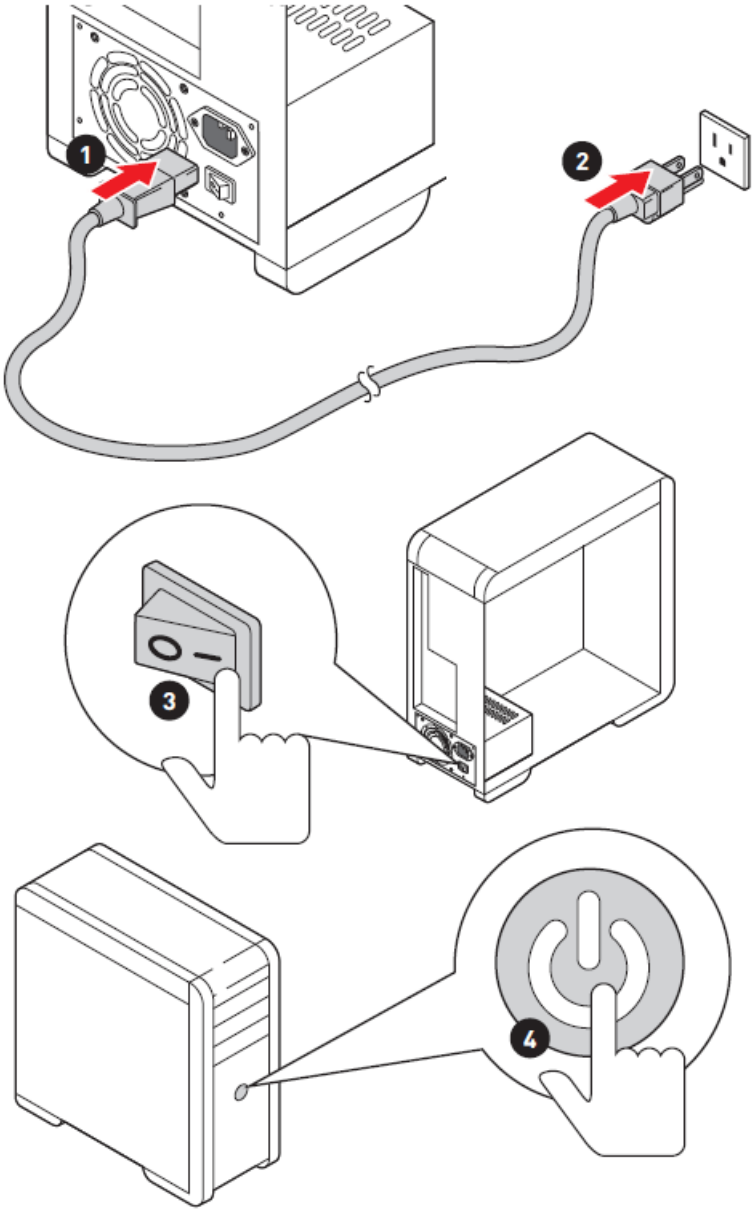
Installing a Graphics Card



Connecting Peripheral Devices



Power On



Safety Information

- The components included in this package are prone to damage from electrostatic discharge (ESD). Please adhere to the following instructions to ensure successful computer assembly.
- Ensure that all components are securely connected. Loose connections may cause the computer to not recognize a component or fail to start.
- Hold the motherboard by the edges to avoid touching sensitive components.
- It is recommended to wear an electrostatic discharge (ESD) wrist strap when handling the motherboard to prevent electrostatic damage. If an ESD wrist strap is not available, discharge yourself of static electricity by touching another metal object before handling the motherboard.
- Store the motherboard in an electrostatic shielding container or on an anti-static pad whenever the motherboard is not installed.
- Before turning on the computer, ensure that there are no loose screws or metal components on the motherboard or anywhere within the computer case.
- Do not boot the computer before installation is completed. This could cause permanent damage to the components as well as injury to the user.

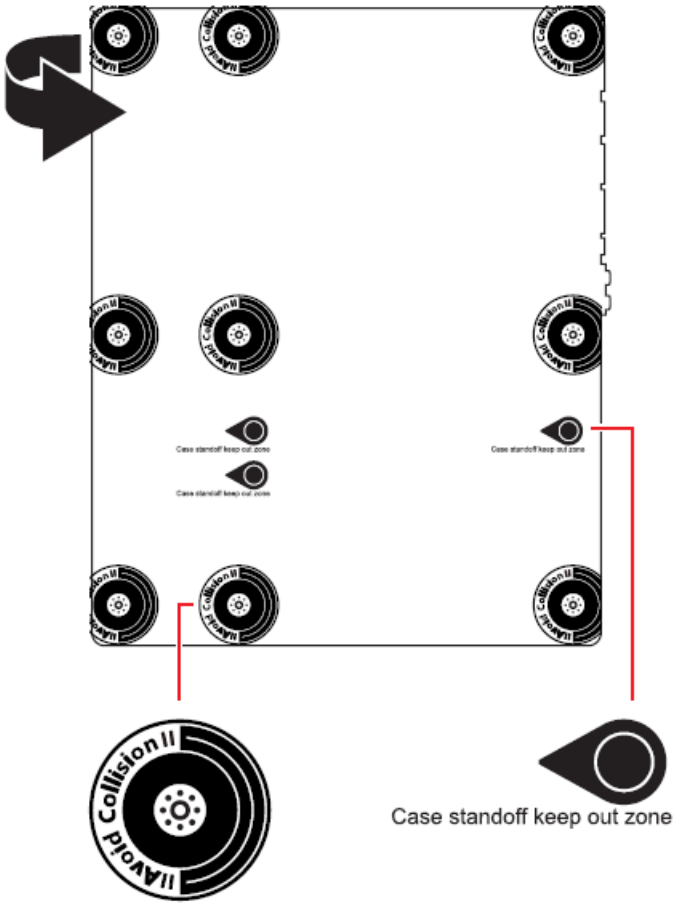
- If you need help during any installation step, please consult a certified computer technician.
- Always turn off the power supply and unplug the power cord from the power outlet before installing or removing any computer component.
- Keep this user guide for future reference.
- Keep this motherboard away from humidity.
- Make sure that your electrical outlet provides the same voltage as is indicated on the PSU, before connecting the PSU to the electrical outlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- All cautions and warnings on the motherboard should be noted.
- If any of the following situations arises, get the motherboard checked by service personnel:
    - Liquid has penetrated into the computer.
    - The motherboard has been exposed to moisture.
    - The motherboard does not work well or you can not get it work according to user guide.
    - The motherboard has been dropped and damaged.
    - The motherboard has obvious sign of breakage.
- Do not leave this motherboard in an environment above 60°C (140°F), it may damage the motherboard.

Case stand-off notification

To prevent damage to the motherboard, any unnecessary mounting stand-off between the motherboard circuits and the computer case is prohibited. The Case standoff keep out zone signs will be marked on the backside of motherboard (as shown below) to serve as a warning to user.

Avoid collision notification

Protective paint is printed around each screw hole to prevent parts from being scratched.



Specifications

CPU	· Supports 12th Gen Intel® Core™, Pentium® Gold and Celeron® Processors* · Processor socket LGA1700 * Please go to www.msi.com to get the newest support status as new processors are released.
Chipset	Intel® Z690 Chipset

Memory	· 4x DDR4 memory slots, support up to 128GB* · Supports 1R 2133/ 2666/ 2933/ 3200 MHz (by JEDEC & POR)* · Max overclocking frequency: ▪ 1DPC 1R Max speed up to 5200+ MHz ▪ 1DPC 2R Max speed up to 4800+ MHz ▪ 2DPC 1R Max speed up to 4400+ MHz ▪ 2DPC 2R Max speed up to 4000+ MHz · Supports Dual-Channel mode · Supports non-ECC, un-buffered memory · Supports Intel® Extreme Memory Profile (XMP) *Please refer to **www.msi.com** for more information on compatible memory
Expansion Slot	· 3x PCIe x16 slots ▪ PCI_E1 slot (From CPU) ▫ Supports PCIe 5.0 x16 ▪ PCI_E3 & PCI_E4 slots (From Z690 chipset) ▫ Supports PCIe 3.0 x4 · 1x PCIe 3.0 x1 slot (From Z690 chipset)
Multi-GPU	· Supports AMD® CrossFire™ Technology
Onboard Graphics	· 1x HDMI 2.1 with HDR port, supports a maximum resolution of 4K 60Hz*/** · 1x DisplayPort 1.4 port with HBR3, supports a maximum resolution of 4K 60Hz*/** *Available only on processors featuring integrated graphics. ** Graphics specifications may vary depending on the Processor installed.

Storage	· 6x SATA 6Gb/s ports ▪ SATA5~8 (From Z690 Chipset) ▪ SATAA~B (From ASMedia ASM1061) · 4x M.2 slots (Key M) ▪ M2_1 slot (From CPU) ▫ Supports PCIe 4.0 x4 ▫ Supports 2260/ 2280/ 22110 storage devices ▪ M2_2 slot (From Z690 Chipset) ▫ Supports PCIe 4.0 x4 ▫ Supports 2260/ 2280 storage devices ▪ M2_3 slot (From Z690 Chipset) ▫ Supports PCIe 4.0 x4 ▫ Supports SATA 6Gb/s ▫ Supports 2242/ 2260/ 2280 storage devices ▪ M2_4 slot (From Z690 Chipset) ▫ Supports PCIe 4.0 x4 ▫ Supports SATA 6Gb/s ▫ Supports 2242/ 2260/ 2280 storage devices · M2_2~4 support Intel® Optane™ Memory · Supports Intel® Smart Response Technology for Intel Core™ processors
RAID	· Supports RAID 0, RAID 1, RAID 5 and RAID 10 for SATA storage devices* · Supports RAID 0, RAID 1 and RAID 5 for M.2 PCIe storage devices * SATAA & SATAB do not support RAID function.
Audio	· Realtek® ALC4080 ▪ 7.1-Channel High Definition Audio ▪ Supports S/PDIF output

USB	· Intel® Z690 Chipset ▪ 1x USB 3.2 Gen 2×2 20Gbps Type-C port on the back panel ▪ 6x USB 3.2 Gen 2 10Gbps ports (1 Type-C internal connector and 5 Type-A ports on the back panel) ▪ 2x USB 2.0 Type-A ports on the back panel ▪ 2x USB 3.2 Gen 1 5Gbps ports available through the internal USB connector · USB Hub-GL850G ▪ 4x USB 2.0 ports available through the internal USB connectors
LAN	· 1x Intel® I225V 2.5Gbps LAN controller
Wireless LAN & Bluetooth®	Intel® Wi-Fi 6 · The Wireless module is pre-installed in the M.2 (Key-E) slot · Supports MU-MIMO TX/RX, 2.4GHz/ 5GHz (160MHz) up to 2.4Gbps · Supports 802.11 a/ b/ g/ n/ ac/ ax · Supports Bluetooth® 5.2
Back Panel Connectors	· 1x Flash BIOS button · 2x USB 2.0 ports · 1x DisplayPort · 1x HDMI port · 5x USB 3.2 Gen 2 10Gbps Type-A ports · 1x USB 3.2 Gen 2×2 20Gbps Type-C port · 1x 2.5Gbps LAN (RJ45) port · 2x Wi-Fi Antenna connectors · 5x audio jacks · 1x Optical S/PDIF Out connector

Internal Connectors	· 1x 24-pin ATX main power connector · 2x 8-pin ATX 12V power connectors · 6x SATA 6Gb/s connectors · 4x M.2 slots (M-Key) · 1x USB 3.2 Gen 2 10Gbps Type-C port · 1x USB 3.2 Gen 1 5Gbps connector (supports additional 2 USB 3.2 Gen 1 5Gbps ports) · 2x USB 2.0 connectors (supports additional 4 USB 2.0 ports) · 1x 4-pin CPU fan connector · 1x 4-pin water-pump fan connector · 6x 4-pin system fan connectors · 1x Front panel audio connector · 2x System panel connectors · 1x Chassis Intrusion connector · 1xTPM module connector · 1x Clear CMOS jumper · 1x Tuning controller connector · 1x TBT connector (Supports RTD3)
LED Features	· 1x 4-pin RGB LED connector · 3x 3-pin RAINBOW LED connectors · 1x EZ LED Control switch · 4x EZ Debug LED
I/O Controller	NUVOTON NCT6687D Controller Chip
Hardware Monitor	· CPU/ System/ Chipset temperature detection · CPU/ System/ Pump fan speed detection · CPU/ System/ Pump fan speed control
Form Factor	· ATX Form Factor · 12 in. x 9.6 in. (30.5 cm x 24.4 cm)

BIOS Features	· 1x 256 Mb flash · UEFI AMI BIOS · ACPI 6.4, SMBIOS 3.4 · Multi-language
Software	· Drivers · MSI Center · Intel® Extreme Tuning Utility · MSI APP Player (BlueStacks) · Open Broadcaster Software (OBS) · CPU-Z MSI GAMING · Google Chrome™, Google Toolbar, Google Drive · Norton™ Internet Security Solution
	· Gaming Mode
	· Smart Priority
	· Gaming Highlight
	· LAN Manager
	· Mystic Light
	· Ambient Devices
MSI Center Features	· Frozr AI Cooling · User Scenario · True Color
	· Live Update
	· Hardware Monitoring
	· Super Charger
	· Speed Up
	· Smart Image Finder
	· MSI Companion

Special Features	· Audio ▪ Audio Boost 5 · Network ▪ 2.5G LAN ▪ LAN Manager ▪ Intel® WiFi · Cooling ▪ All Aluminum Design ▪ Heat-pipe Design ▪ Extended Heatsink Design ▪ M.2 Shield Frozr ▪ 7W/mK MOSFET thermal pad ▪ Choke thermal pad ▪ Pump Fan ▪ Smart Fan Control · LED ▪ Mystic Light ▪ Mystic Light Extension (RAINBOW/RGB) ▪ Mystic Light SYNC ▪ Ambient Devices Support

Special Features	· Performance ▪ Lightning Gen 5 PCI-E Slot ▪ Lightning Gen 4 M.2 ▪ Multi GPU – CrossFire Technology ▪ Memory Boost ▪ Core Boost ▪ Game Boost ▪ Lightning USB 20G ▪ USB 3.2 Gen 2 10G ▪ USB with Type A+C ▪ Front USB Type-C ▪ Dual CPU Power ▪ Server PCB ▪ 2oz Copper thickened PCB · Protection ▪ PCI-E Steel Armor ▪ Pre-installed I/O Shielding · Experience ▪ MSI Center ▪ Click BIOS 5 ▪ EZ M.2 Clip ▪ Frozr AI Cooling ▪ Flash BIOS Button ▪ EZ LED Control ▪ EZ DEBUG LED ▪ App player ▪ Tile

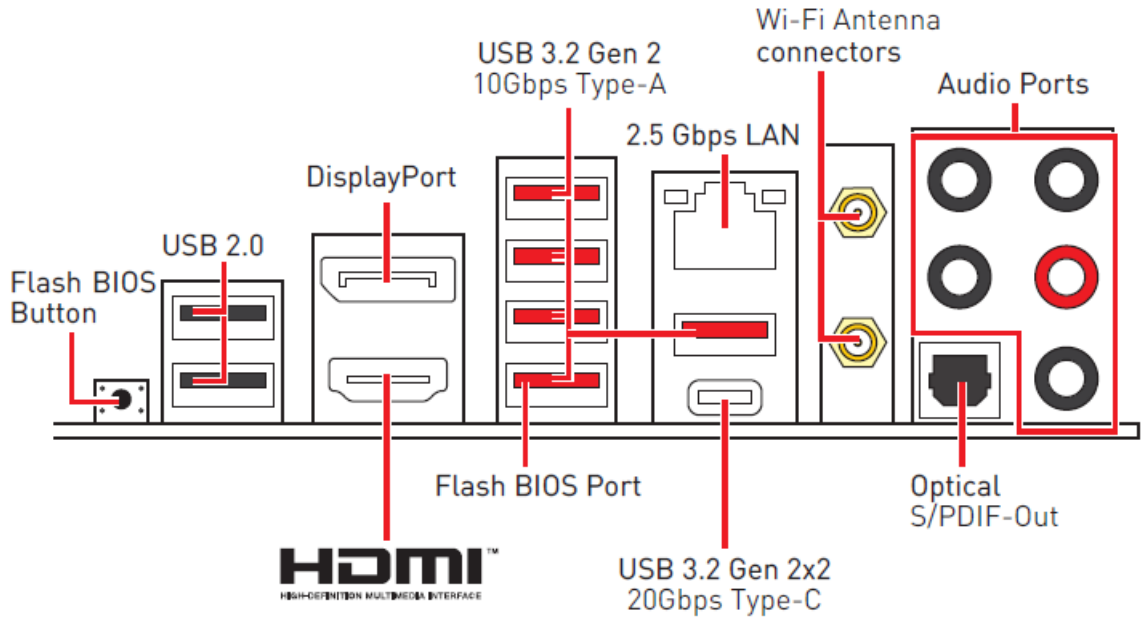
Package contents

Motherboard	MPG Z690 EDGE WIFI DDR4	
Documentation	Quick installation guide	1
Application	USB drive with drivers & utilities	1
Cable	SATA 6G cables (2 cables/pack)	1
	LED JRGB Y cable	1
	LED JRAINBOW cable	1
Accessories	Wi-Fi Antenna	1
	Case Badge	1
	EZ M.2 clip (1 set/pack)	2
	MPG sticker	1
	SATA cable stickers	1
	Product registration card	1
Gift	Small screwdriver set	1
	Small brush	1

Please check the contents of your motherboard package. It should contain:

Important
If any of the above items are damaged or missing, please contact your retailer.

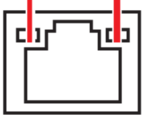
Rear I/O Panel



Flash BIOS Port/ Button – Please refer to page 38 for Updating BIOS with Flash BIOS Button.

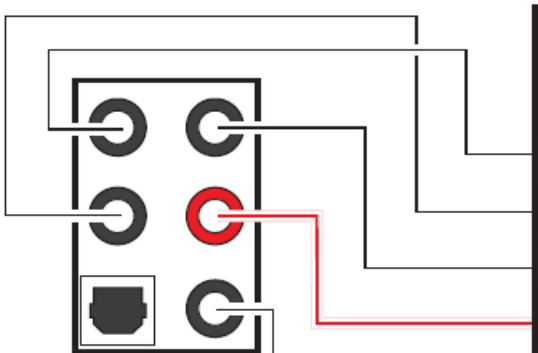
LAN Port LED Status Table

Link/ Activity LED	
Status	**Description**
Off	No link
Yellow	Linked
Blinking	Data activity



Speed LED	
Status	**Description**
Off	10 Mbps connection
Green	100/1000 Mbps connection
Orange	2.5 Gbps connection

Audio Ports Configuration

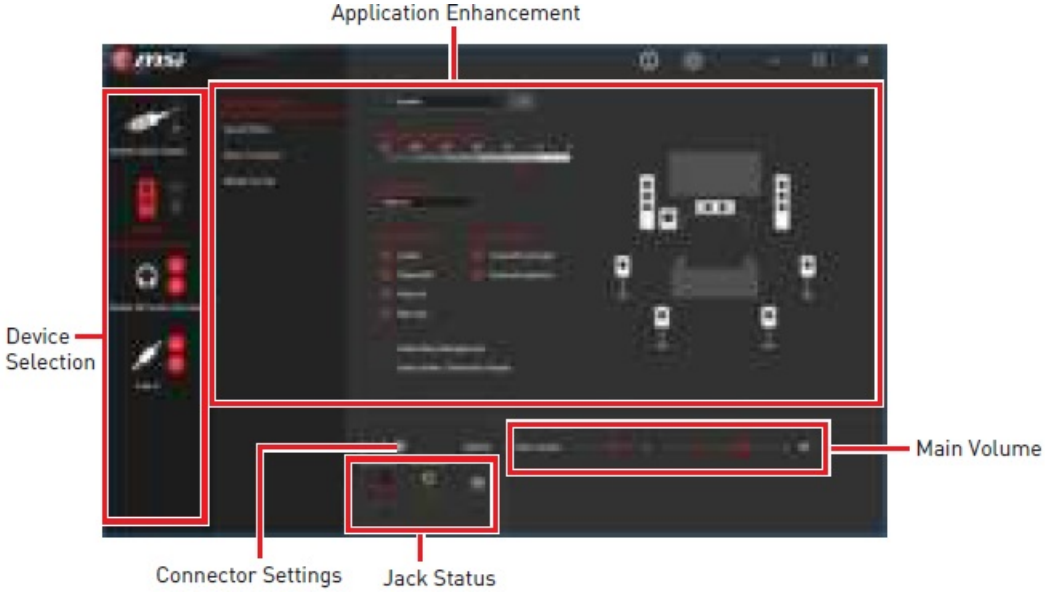


Audio Ports	Channel			
	2	4	6	8
Center/ Sub-woofer Out			●	●
Rear Speaker Out		●	●	●
Line-In/ Side Speaker Out				●
Line-Out/ Front Speaker Out	●	●	●	●
Mic In				

(●: connected, **Blank**: empty)

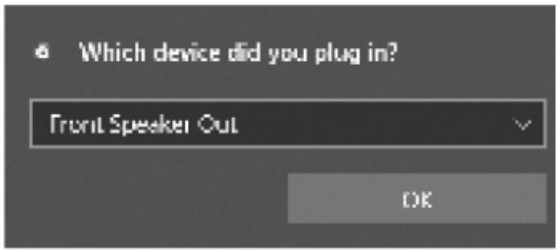
Realtek Audio Console

After Realtek Audio Console is installed. You can use it to change sound settings to get better sound experience.



- **Device Selection** – allows you to select a audio output source to change the related options. The check sign indicates the devices as default.
- **Application Enhancement –** the array of options will provide you a complete guidance of anticipated sound effect for both output and input device.
- **Main Volume** – controls the volume or balance the right/left side of the speakers that you plugged in front or rear panel by adjust the bar.
- **Jack Status** – depicts all render and capture devices currently connected with your computer.
- **Connector Settings –** configures the connection settings.

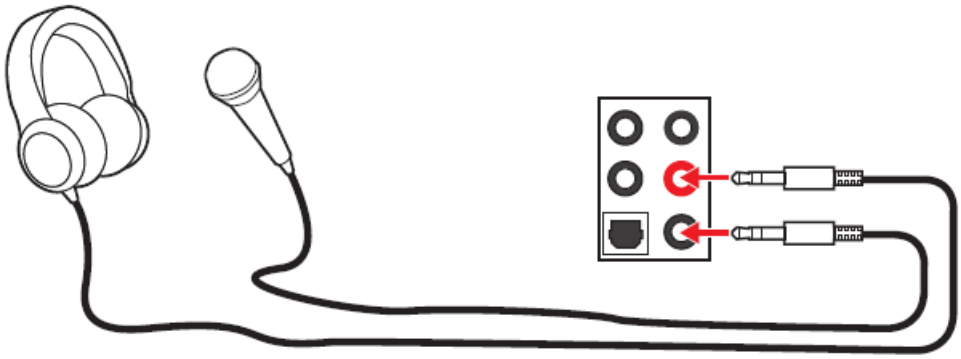
Auto popup dialog
When you plug into a device at an audio jack, a dialogue window will pop up asking you which device is current connected.



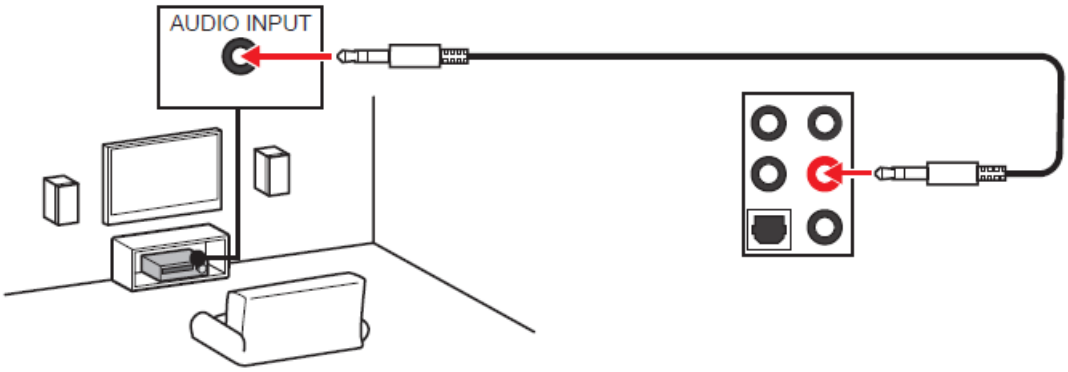
Each jack corresponds to its default setting as shown on the next page.

Important
The pictures above for reference only and may vary from the product you purchased.

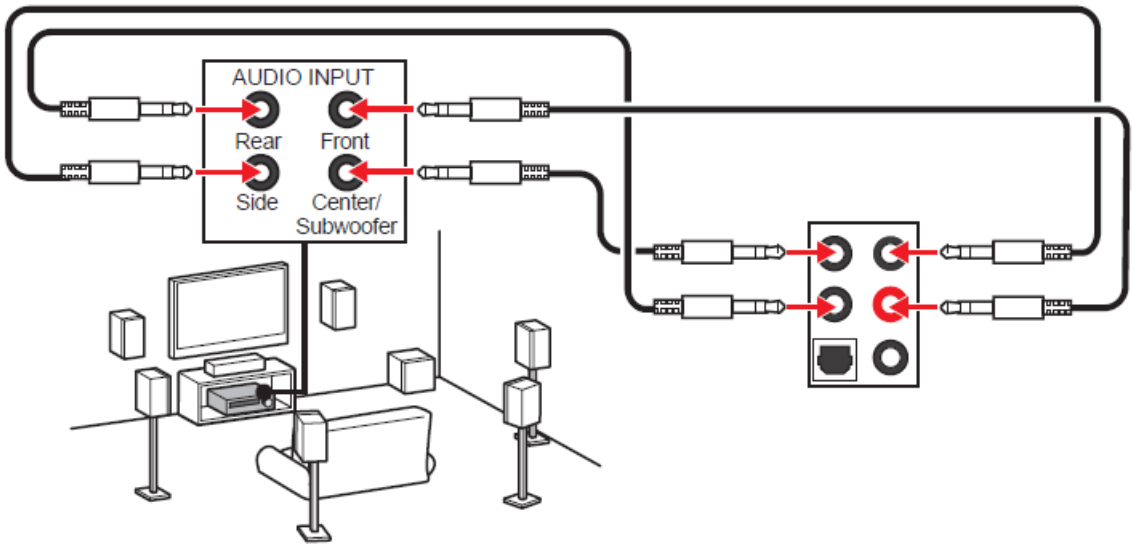
Audio jacks to headphone and microphone diagram



Audio jacks to stereo speakers diagram

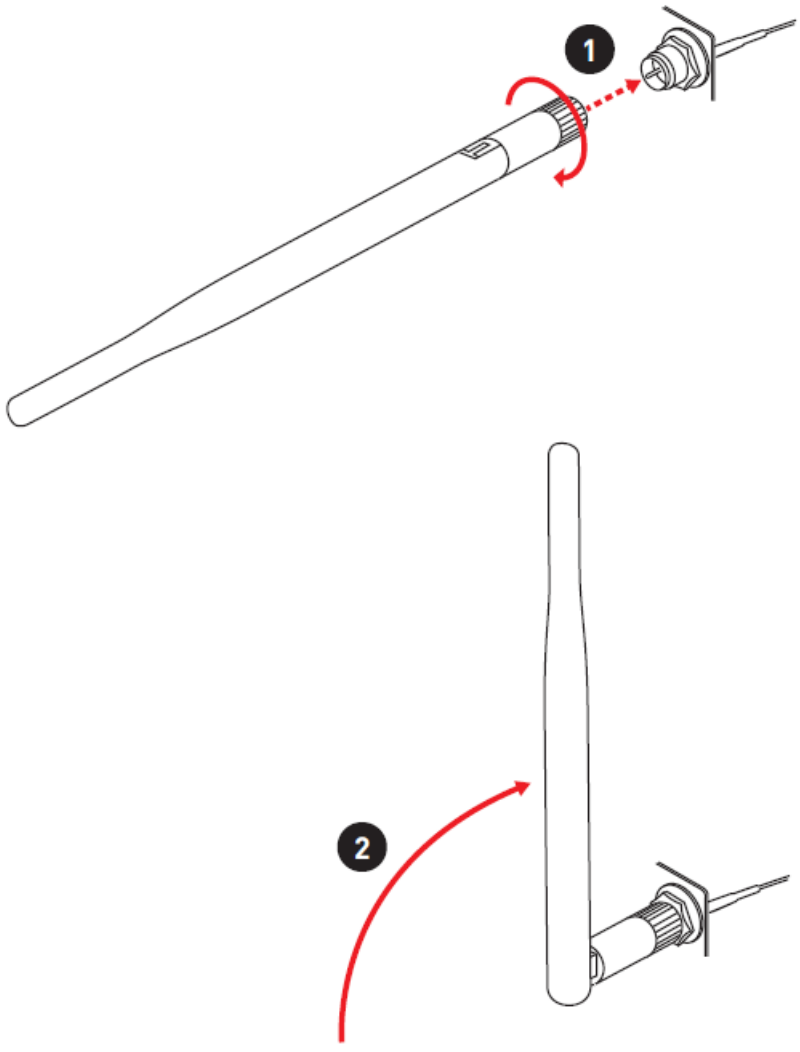


Audio jacks to 7.1-channel speakers diagram

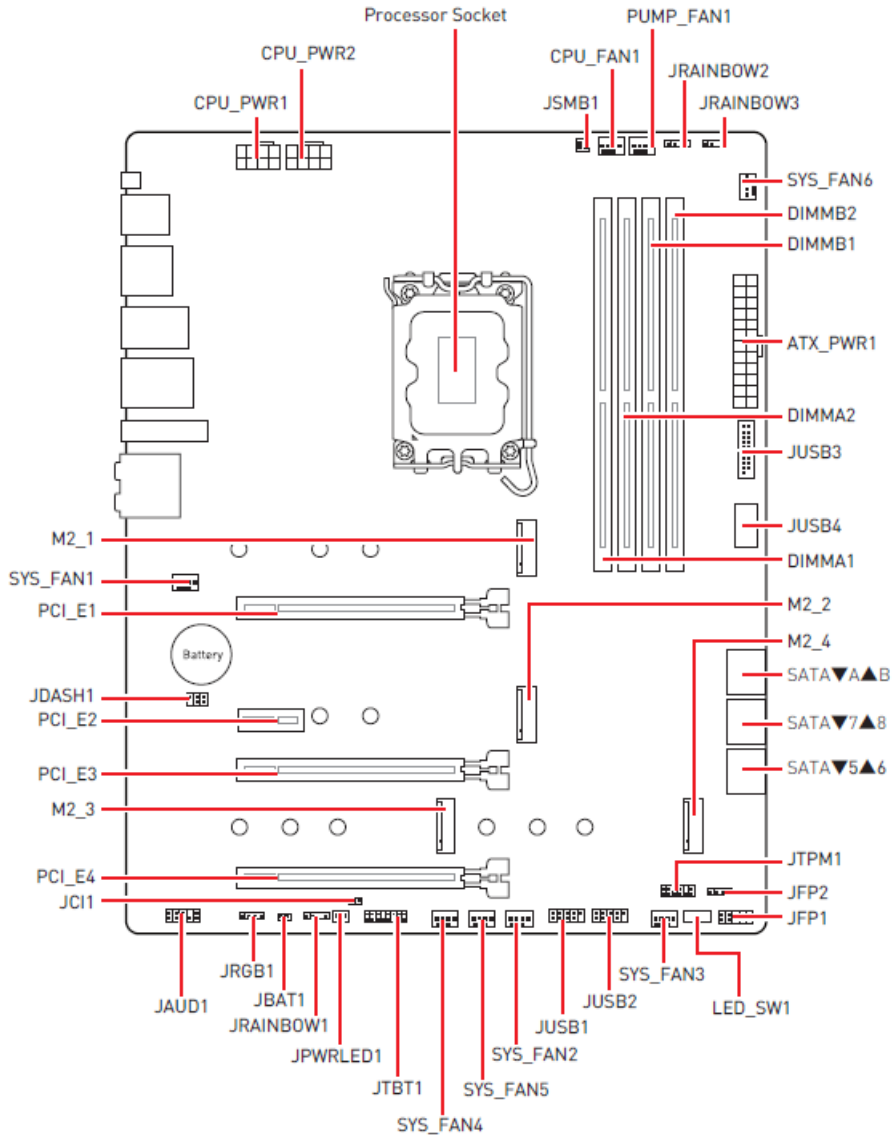


Installing antennas

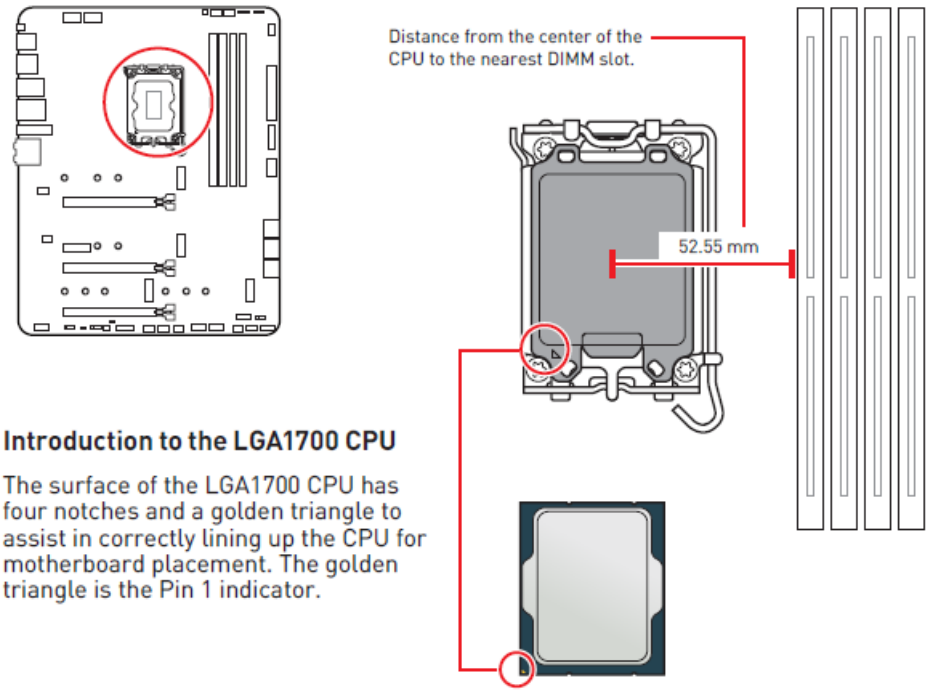
1. Screw the antennas tight to the antenna connectors as shown below.
2. Orient the antennas.



Overview of Components



CPU Socket



Introduction to the LGA1700 CPU

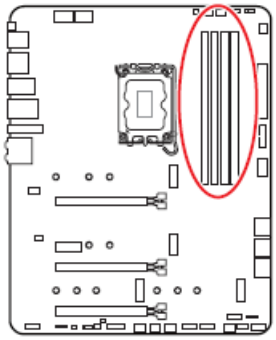
The surface of the LGA1700 CPU has four notches and a golden triangle to assist in correctly lining up the CPU for motherboard placement. The golden triangle is the Pin 1 indicator.

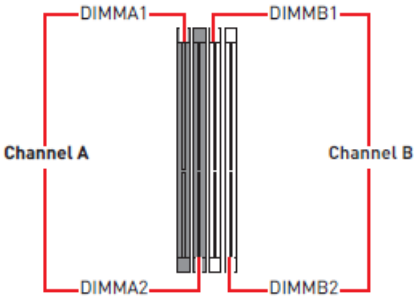
Introduction to the LGA1700 CPU
The surface of the LGA1700 CPU has four notches and a golden triangle to assist in correctly lining up the CPU for motherboard placement. The golden triangle is the Pin 1 indicator.

Important

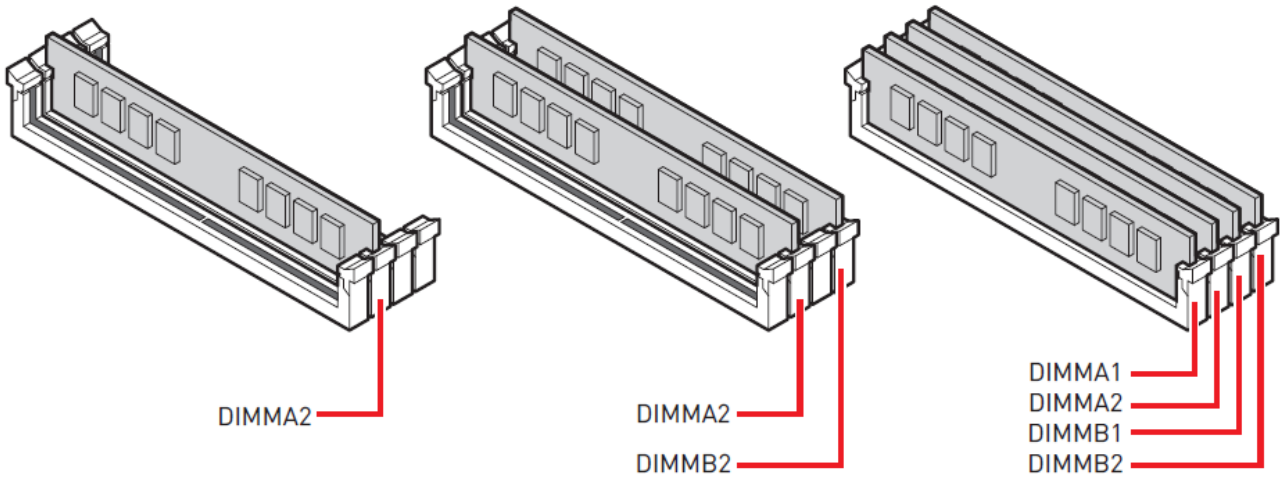
- Always unplug the power cord from the power outlet before installing or removing the CPU.
- Please retain the CPU protective cap after installing the processor. MSI will deal with Return Merchandise Authorization (RMA) requests if only the motherboard comes with the protective cap on the CPU socket.
- When installing a CPU, always remember to install a CPU heatsink. A CPU heatsink is necessary to prevent overheating and maintain system stability.
- Confirm that the CPU heatsink has formed a tight seal with the CPU before booting your system.
- Overheating can seriously damage the CPU and motherboard. Always make sure the cooling fans work properly to protect the CPU from overheating. Be sure to apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.
- Whenever the CPU is not installed, always protect the CPU socket pins by covering the socket with the plastic cap.
- If you purchased a separate CPU and heatsink/ cooler, Please refer to the documentation in the heatsink/ cooler package for more details about installation.
- This motherboard is designed to support overclocking. Before attempting to overclock, please make sure that all other system components can tolerate overclocking. Any attempt to operate beyond product specifications is not recommended. MSI® does not guarantee the damages or risks caused by inadequate operation beyond product specifications.

DIMM Slots





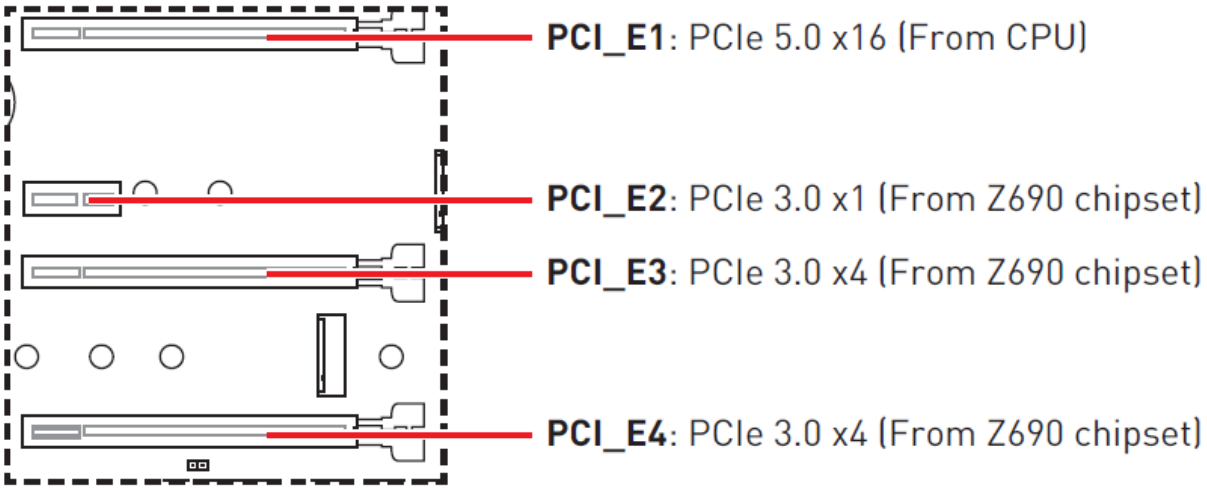
Memory module installation recommendation



Important

1. Always insert memory modules in the DIMMA2 slot first.
2. To ensure system stability for Dual channel mode, memory modules must be of the same type, number and density.
3. Some memory modules may operate at a lower frequency than the marked value when overclocking due to the memory frequency operates dependent on its Serial Presence Detect (SPD). Go to BIOS and find the DRAM Frequency to set the memory frequency if you want to operate the memory at the marked or at a higher frequency.
4. It is recommended to use a more efficient memory cooling system for full DIMMs installation or overclocking.
5. The stability and compatibility of installed memory module depend on installed CPU and devices when overclocking.
6. Please refer www.msi.com for more information on compatible memory.

PCI_E1~4: PCIe Expansion Slots



Important

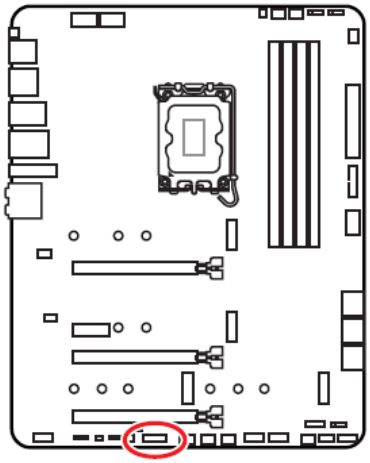
- If you install a large and heavy graphics card, you need to use a tool such as MSI Gaming Series Graphics Card Bolster to support its weight to prevent deformation of the slot.
- For a single PCIe x16 expansion card installation with optimum performance, using the PCI_E1 slot is

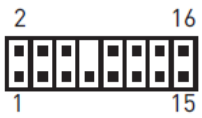
recommended.

- When adding or removing expansion cards, always turn off the power supply and unplug the power supply power cable from the power outlet. Read the expansion card™s documentation to check for any necessary additional hardware or software changes.

JTBT1: Thunderbolt Add-on Card Connector

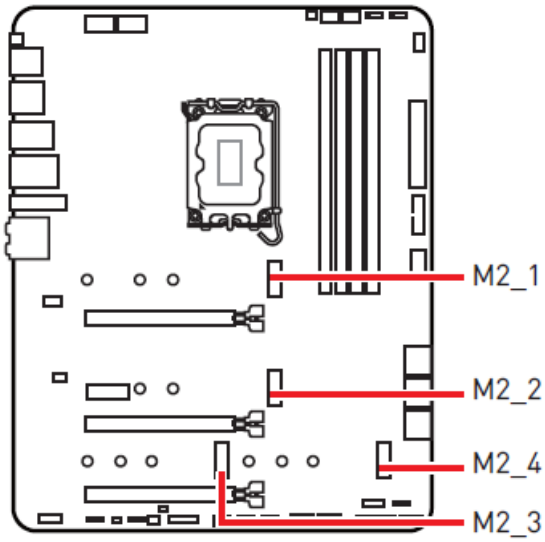
This connector allows you to connect the add-on Thunderbolt I/O card.





1	TBT_Force_PWR	2	TBT_S0IX_Entry_REQ
3	TBT_CIO_Plug_Event#	4	TBT_S0IX_Entry_ACK
5	SLP_S3#_TBT	6	TBT_PSON_Override_N
7	SLP_S5#_TBT	8	No pin
9	Ground	10	SMBCLK_VSB
11	DG_PEWake	12	SMBDATA_VSB
13	TBT_RTD3_PWR_EN	14	Ground
15	TBT_Card_DET_R#	16	PD_IRQ#

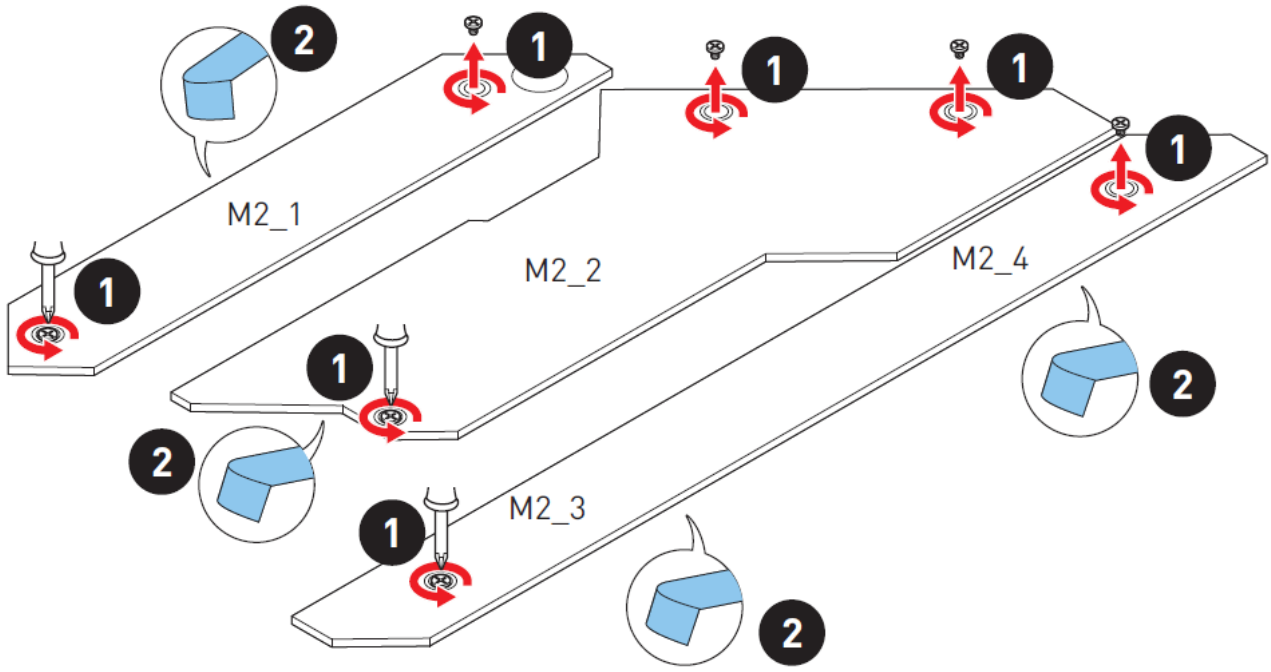
M2_1~4: M.2 Slots (Key M)



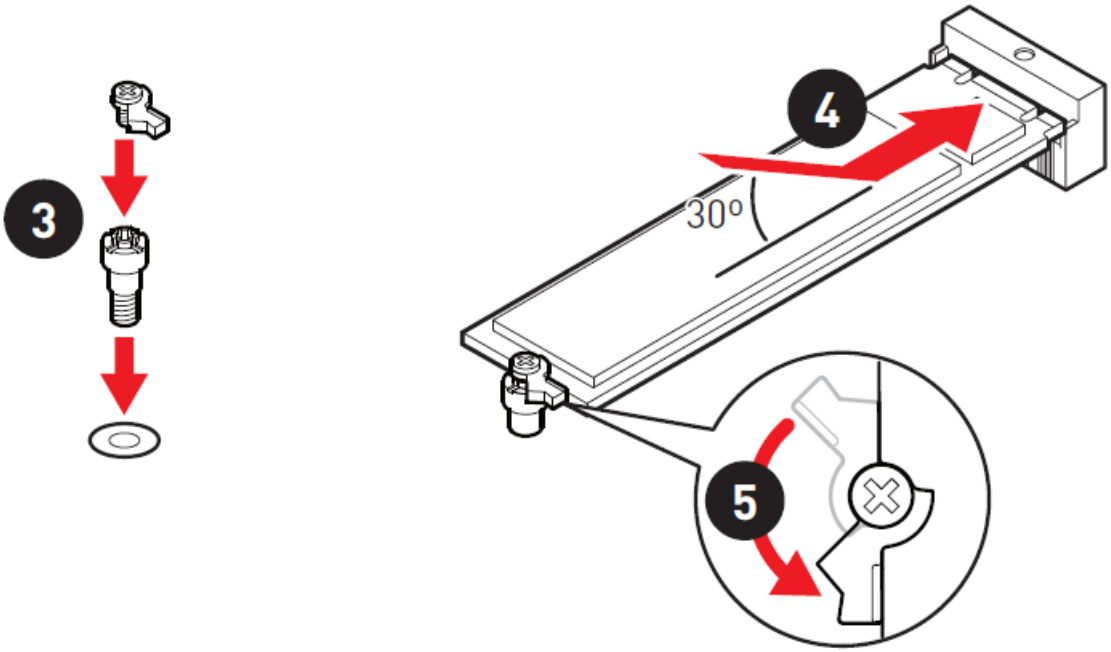
- Intel® RST only supports PCIe M.2 SSD with UEFI ROM.
- M2_2~4 support Intel® Optane™ Memory.

Installing M.2 module

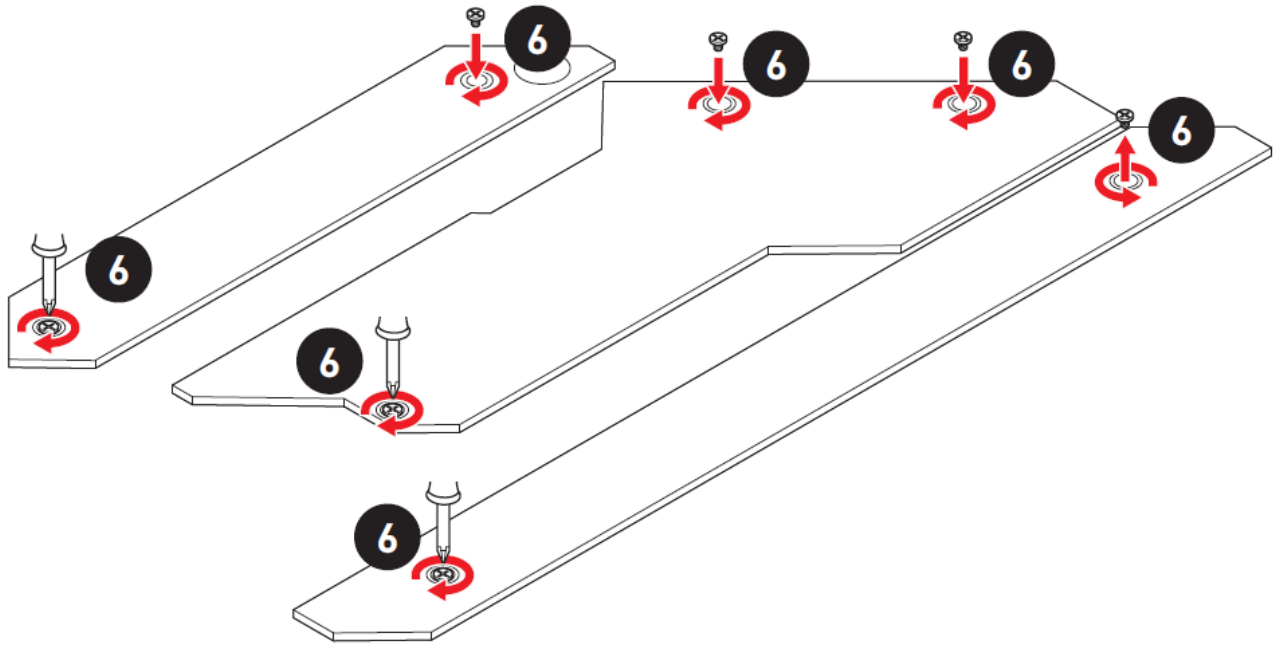
1. Loosen the screws of M.2 SHIELD FROZR heatsink.
2. Remove the M.2 SHIELD FROZR and remove the protective films from the thermal pads.



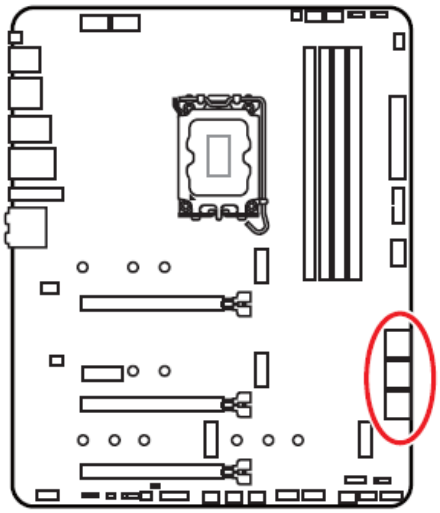
3. If there is no EZ M.2 Clip installed, please install the supplied EZ M.2 Clip kit in the M. 2 slot according to your SSD length.
4. Insert your M.2 SSD into the M.2 slot at a 30-degree angle.
5. Rotate the EZ M.2 Clip to fix the M.2 SSD.

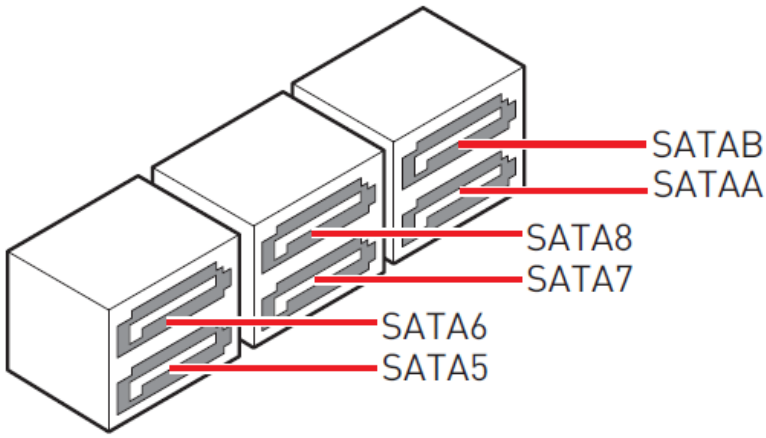


6. Put the M.2 SHIELD FROZR heatsink back in place and secure it.



SATA5~8 & SATAA~B: SATA 6Gb/s Connectors
These connectors are SATA 6Gb/s interface ports. Each connector can connect to one SATA device.

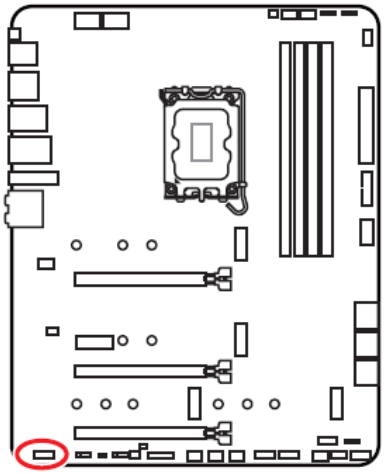


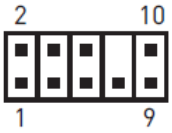


Important

- Please do not fold the SATA cable at a 90-degree angle. Data loss may result during transmission otherwise.
- SATA cables have identical plugs on either sides of the cable. However, it is recommended that the flat connector be connected to the motherboard for space saving purposes.

JAUD1: Front Audio Connector
This connector allows you to connect audio jacks on the front panel.

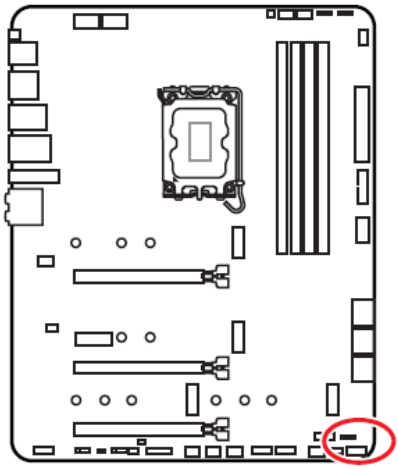


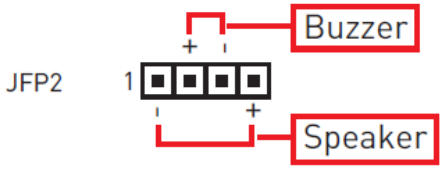


1	MIC L	2	Ground
3	MIC R	4	NC
5	Head Phone R	6	MIC Detection
7	SENSE_SEND	8	No Pin
9	Head Phone L	10	Head Phone Detection

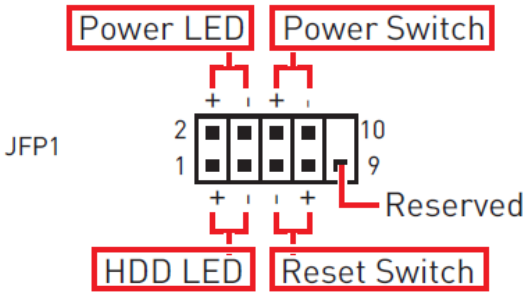
JFP1, JFP2: Front Panel Connectors

These connectors connect to the switches and LEDs on the front panel.





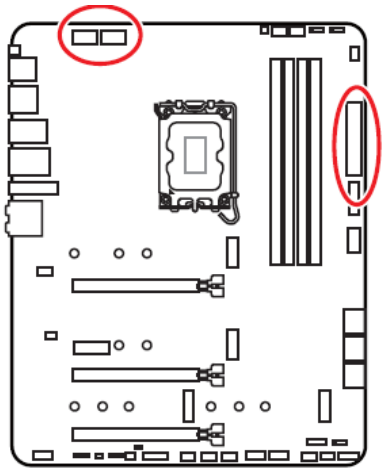
1	Speaker -	2	Buzzer +
3	Buzzer -	4	Speaker +



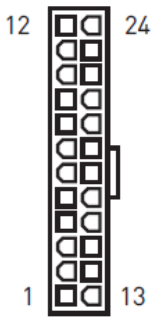
1	HDD LED +	2	Power LED +
3	HDD LED -	4	Power LED -
5	Reset Switch	6	Power Switch
7	Reset Switch	8	Power Switch
9	Reserved	10	No Pin

CPU_PWR1~2, ATX_PWR1: Power Connectors

These connectors allow you to connect an ATX power supply.



8 4 5 1 CPU_PWR1~2			
1	Ground	5	+12V
2	Ground	6	+12V
3	Ground	7	+12V
4	Ground	8	+12V



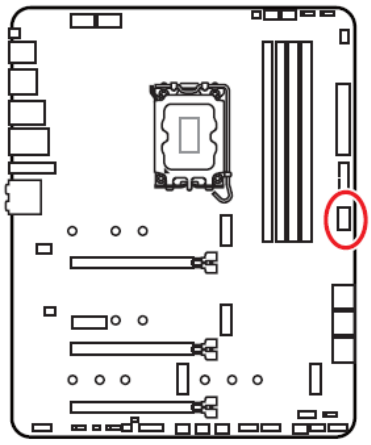
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	Ground
4	+5V	16	PS-ON#
5	Ground	17	Ground
6	+5V	18	Ground
7	Ground	19	Ground
8	PWR OK	20	Res
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Ground

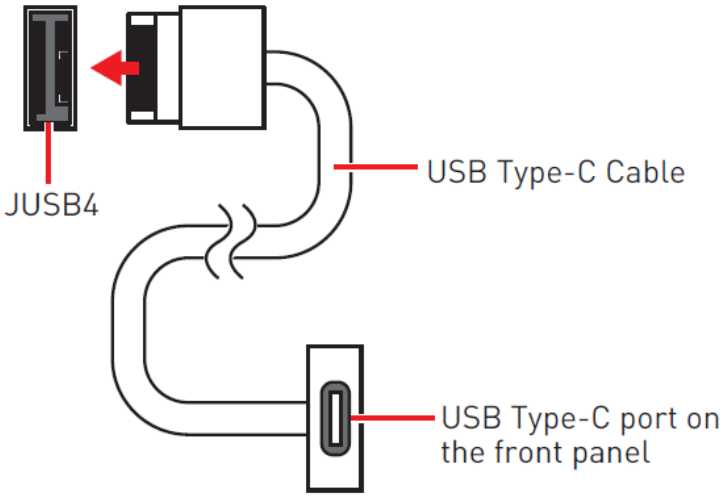
Important

Make sure that all the power cables are securely connected to a proper ATX power supply to ensure stable operation of the motherboard.

JUSB4: USB 3.2 Gen 2 Type-C Connector

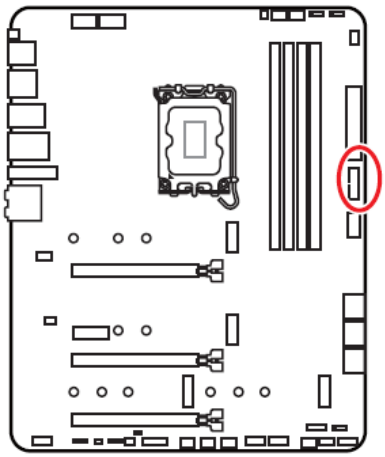
This connector allows you to connect USB 3.2 Gen 2 10Gbps Type-C connector on the front panel. The connector possesses a foolproof design. When you connect the cable, be sure to connect it with the corresponding orientation.

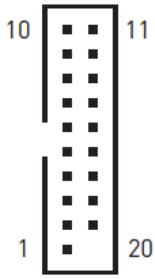




JUSB3: USB 3.2 Gen 1 Connector

This connector allows you to connect USB 3.2 Gen 1 5Gbps ports on the front panel.





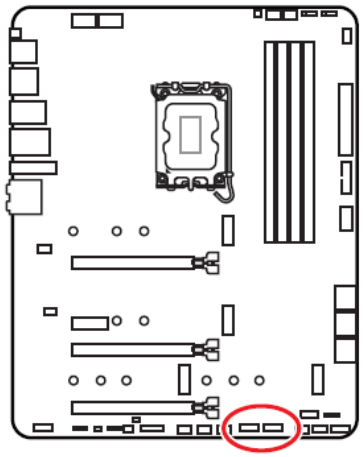
1	Power	11	USB2.0+
2	USB3_RX_DN	12	USB2.0-
3	USB3_RX_DP	13	Ground
4	Ground	14	USB3_TX_C_DP
5	USB3_TX_C_DN	15	USB3_TX_C_DN
6	USB3_TX_C_DP	16	Ground
7	Ground	17	USB3_RX_DP
8	USB2.0-	18	USB3_RX_DN
9	USB2.0+	19	Power
10	Ground	20	No Pin

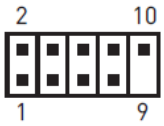
Important

Note that the Power and Ground pins must be connected correctly to avoid possible damage.

JUSB1~2: USB 2.0 Connectors

These connectors allow you to connect USB 2.0 ports on the front panel.





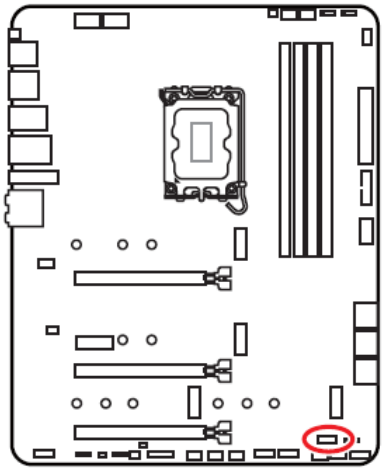
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	Ground	8	Ground
9	No Pin	10	NC

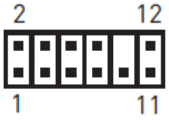
Important

- Note that the VCC and Ground pins must be connected correctly to avoid possible damage.
- In order to recharge your iPad,iPhone and iPod through USB ports, please install MSI® Center utility.

JTPM1: TPM Module Connector

This connector is for TPM (Trusted Platform Module). Please refer to the TPM security platform manual for more details and usages.

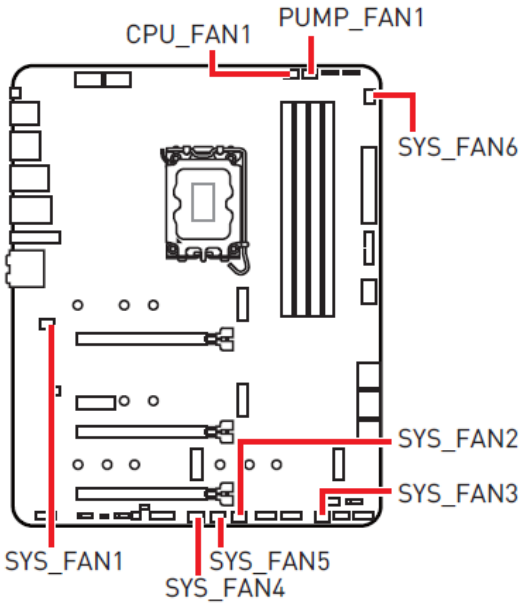




1	SPI Power	2	SPI Chip Select
3	Master In Slave Out (SPI Data)	4	Master Out Slave In (SPI Data)
5	Reserved	6	SPI Clock
7	Ground	8	SPI Reset
9	Reserved	10	No Pin
11	Reserved	12	Interrupt Request

CPU_FAN1, PUMP_FAN1, SYS_FAN1~6: Fan Connectors

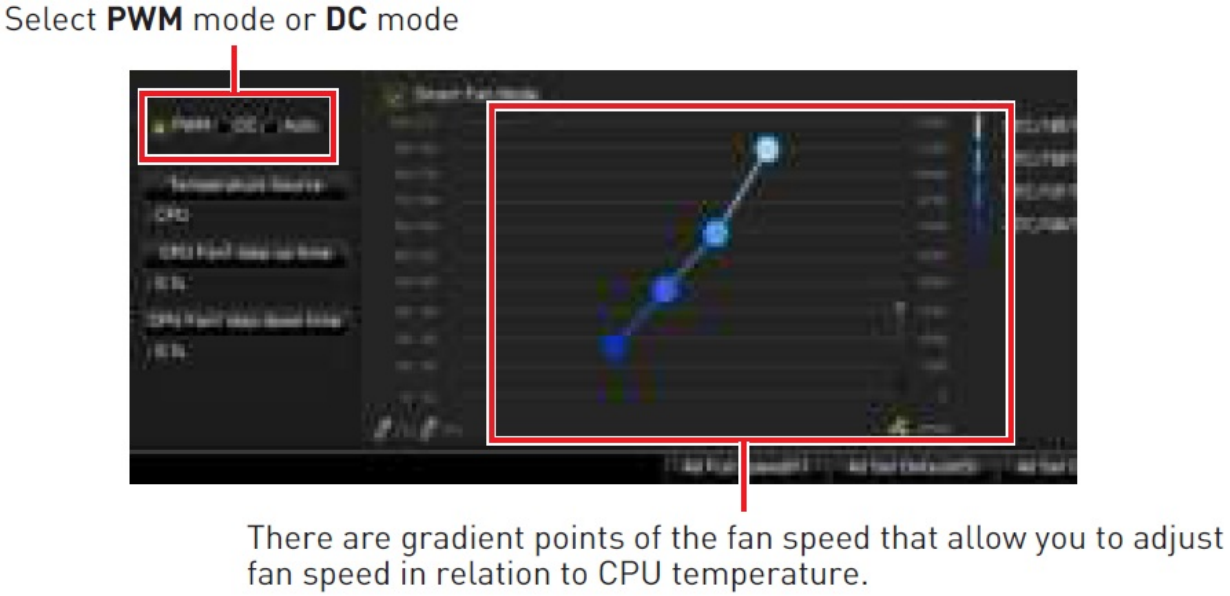
Fan connectors can be classified as PWM (Pulse Width Modulation) Mode or DC Mode. PWM Mode fan connectors provide constant 12V output and adjust fan speed with speed control signal. DC Mode fan connectors control fan speed by changing voltage. The auto mode fan connectors can automatically detect PWM and DC mode. However, you can follow the instruction below to adjust the fan connector to PWM or DC Mode manually.



Connector	Default fan mode	Max. current	Max. power
CPU_FAN1	Auto mode	2A	24W
PUMP_FAN1	PWM mode	3A	36W
SYS_FAN1~6	DC mode	1A	12W

Switching fan mode and adjusting fan speed
You can switch between PWM mode and DC mode and adjust fan speed in BIOS > HARDWARE MONITOR.

Important
Make sure fans are working properly after switching the PWM/ DC mode.

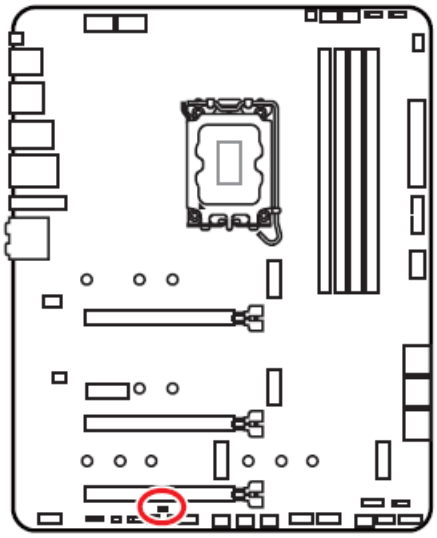


Pin definition of fan connectors

1 PWM Mode pin definition			
1	Ground	2	+12V
3	Sense	4	Speed Control Signal

1 DC Mode pin definition			
1	Ground	2	Voltage Control
3	Sense	4	NC

JCI1: Chassis Intrusion Connector
This connector allows you to connect the chassis intrusion switch cable.



Normal
(default)

Trigger the chassis
intrusion event

Using chassis intrusion detector

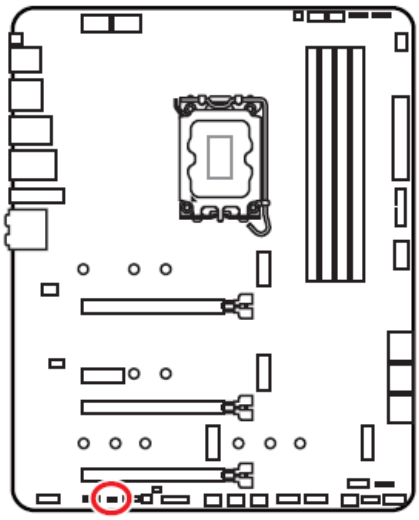
1. Connect the JCI1 connector to the chassis intrusion switch/ sensor on the chassis.
2. Close the chassis cover.
3. Go to BIOS > SETTINGS > Security > Chassis Intrusion Configuration.
4. Set Chassis Intrusion to Enabled.
5. Press F10 to save and exit and then press the Enter key to select Yes.
6. Once the chassis cover is opened again, a warning message will be displayed on screen when the computer is turned on.

Resetting the chassis intrusion warning

1. Go to BIOS > SETTINGS > Security > Chassis Intrusion Configuration.
2. Set Chassis Intrusion to Reset.
3. Press F10 to save and exit and then press the Enter key to select Yes.

JBAT1: Clear CMOS (Reset BIOS) Jumper

There is CMOS memory onboard that is external powered from a battery located on the motherboard to save system configuration data. If you want to clear the system configuration, set the jumpers to clear the CMOS memory.



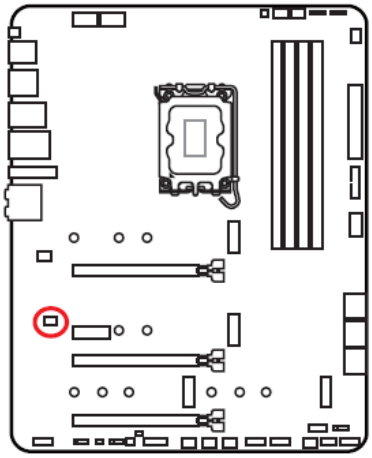
Keep Data
(default)

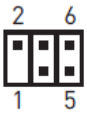
Clear CMOS/
Reset BIOS

Resetting BIOS to default values

1. Power off the computer and unplug the power cord.
2. Use a jumper cap to short JBAT1 for about 5-10 seconds.
3. Remove the jumper cap from JBAT1.
4. Plug the power cord and Power on the computer.

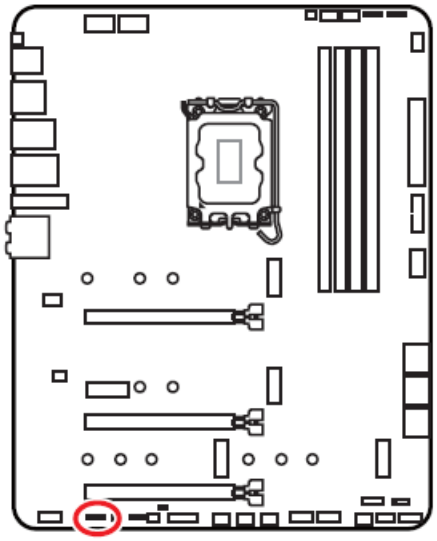
JDASH1 : Tuning Controller connector
This connector is used to connect an optional Tuning Controller module.

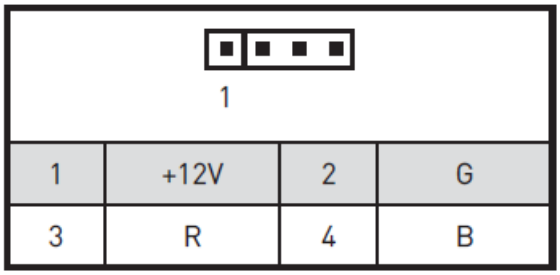




1	No Pin	2	NC
3	MCU_SMB_SCL_M	4	MCU_SMB_SDA_M
5	VCC5	6	Ground

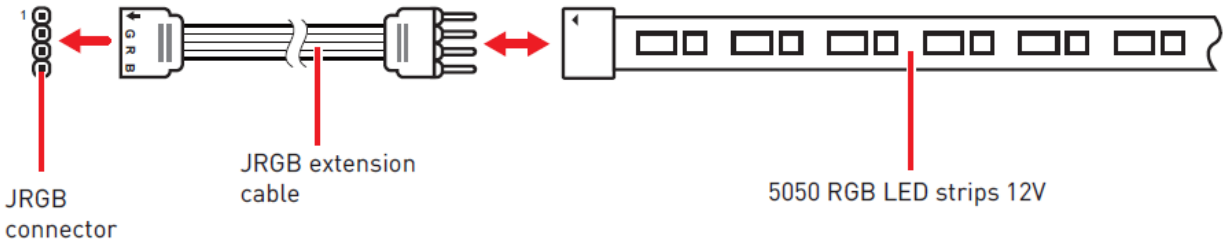
JRGB1: RGB LED connector
The JRGB connector allows you to connect the 5050 RGB LED strips 12V.



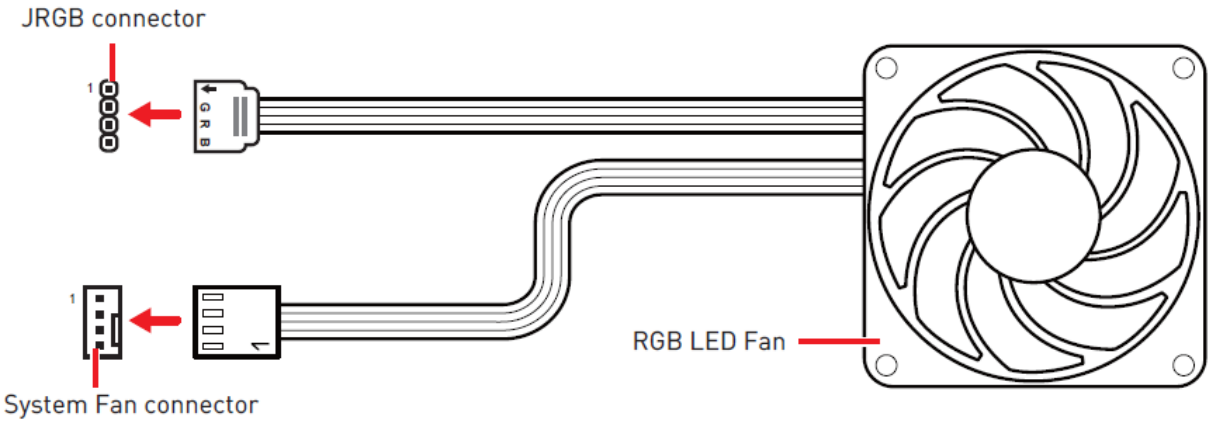


1	+12V	2	G
3	R	4	B

RGB LED Strip Connection

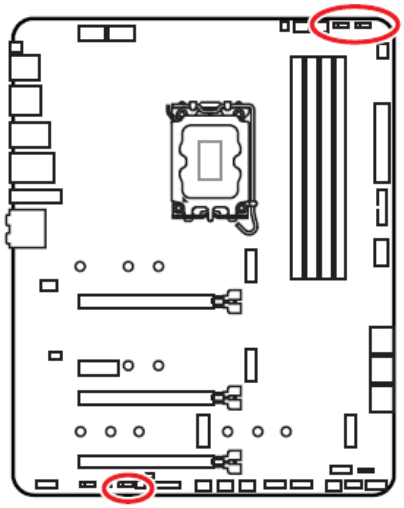


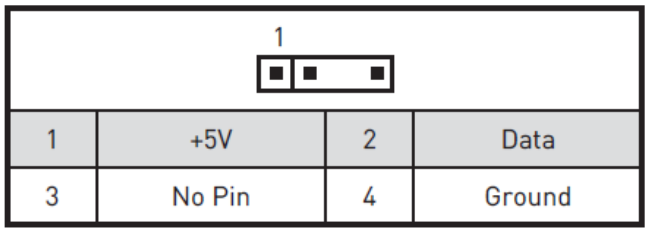
RGB LED Fan Connection



- The JRGB connector supports up to 2 meters continuous 5050 RGB LED strips (12V/G/R/B) with the maximum power rating of 3A (12V).
- Always turn off the power supply and unplug the power cord from the power outlet before installing or removing the RGB LED strip.
- Please use MSI's software to control the extended LED strip.

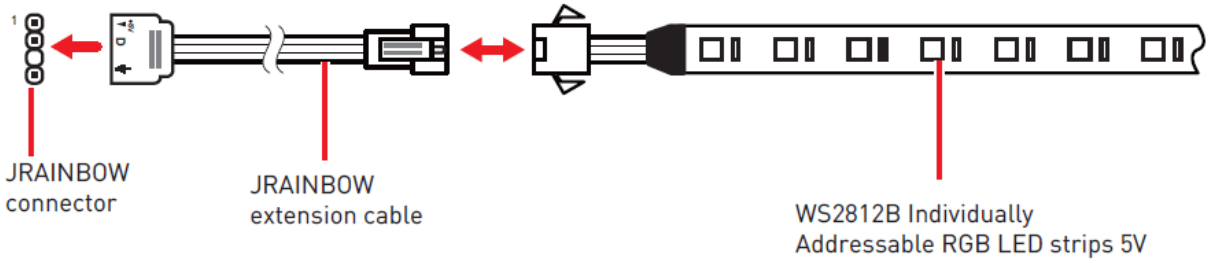
JRAINBOW1~3: Addressable RGB LED connectors
The JRAINBOW connectors allow you to connect the WS2812B Individually Addressable RGB LED strips 5V.



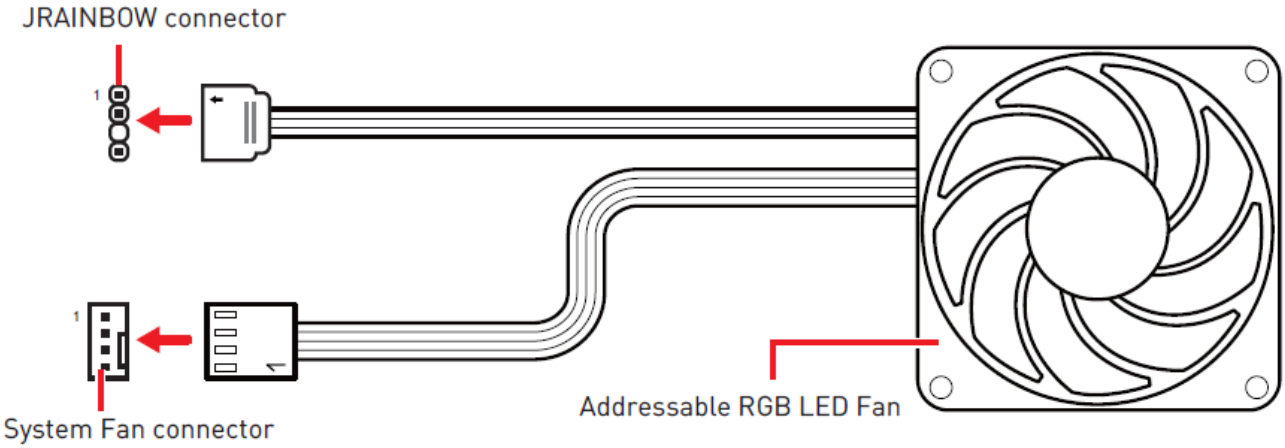


1	+5V	2	Data
3	No Pin	4	Ground

Addressable RGB LED Strip Connection



Addressable RGB LED Fan Connection



CAUTION

Do not connect the wrong type of LED strips. The JRGB connector and the JRAINBOW connector provide different voltages, and connecting the 5V LED strip to the JRGB
connector will result in damage to the LED strip.

Important

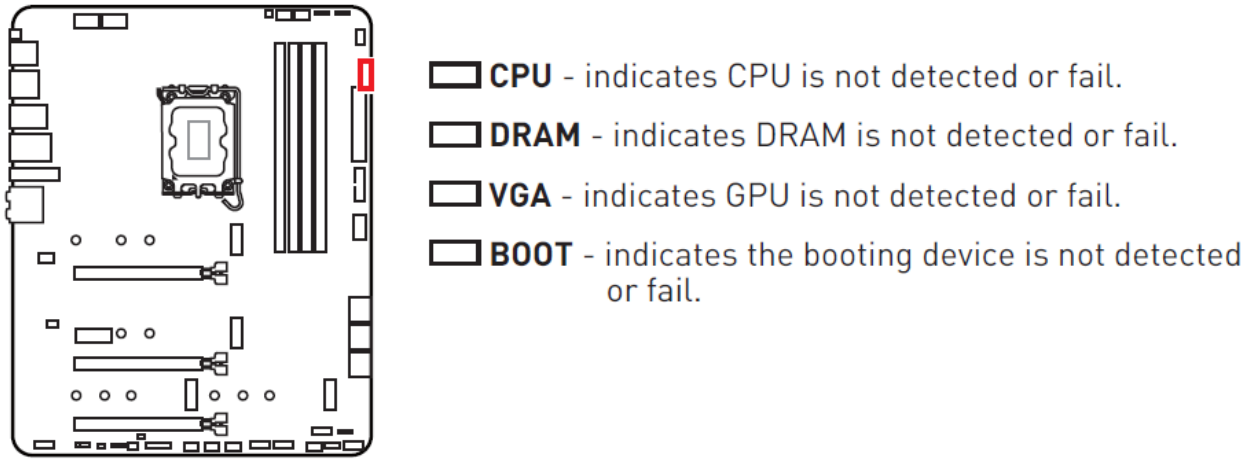
- The JRAINBOW connector supports up to 75 LEDs WS2812B Individually Addressable RGB LED strips (5V/Data/Ground) with the maximum power rating of 3A (5V). In the case of 20% brightness, the connector supports up to 200 LEDs.
- Always turn off the power supply and unplug the power cord from the power outlet before installing or removing the RGB LED strip.

- Please use MSI’s software to control the extended LED strip.

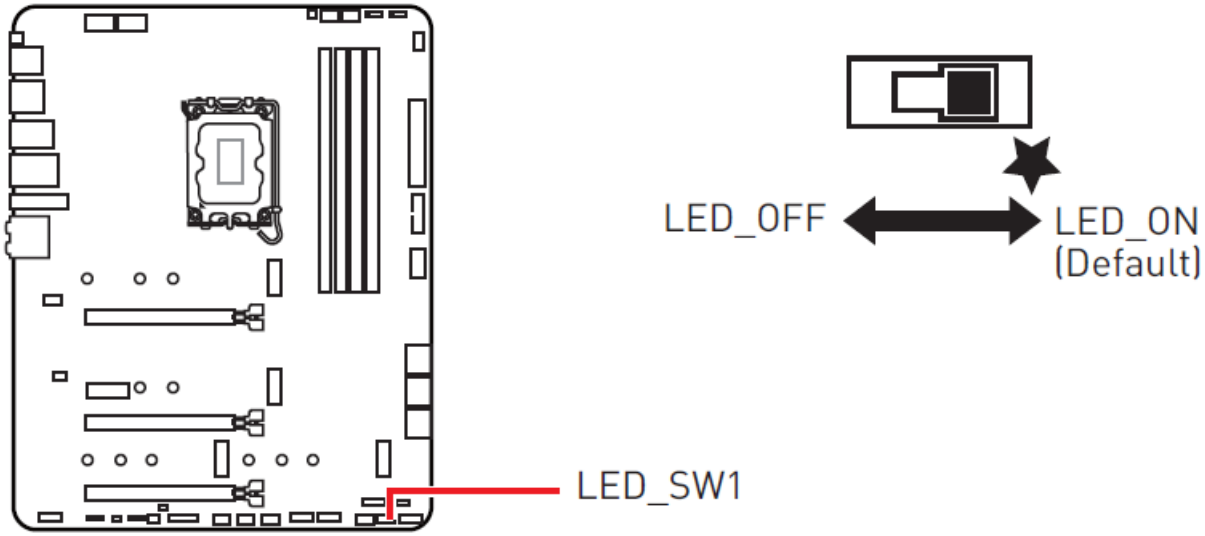
Onboard LEDs

EZ Debug LED

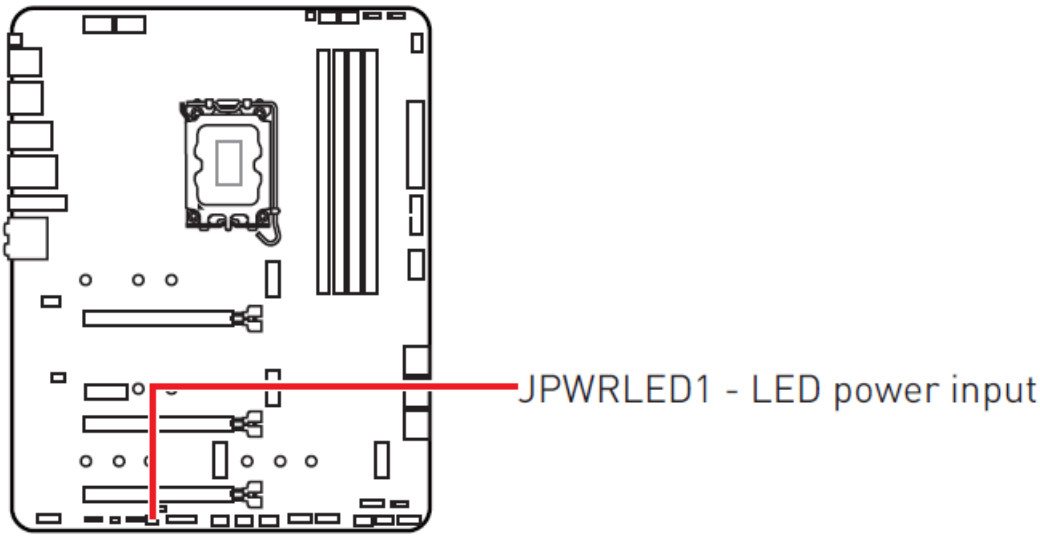
These LEDs indicate the debug status of the motherboard.



LED_SW1: EZ LED Control
This switch is used to switch on/ off all the LEDs of motherboard.



JPWRLED1: LED power input
This connector is used by retailers to demonstrate onboard LED lights.



Installing OS, Drivers & MSI Center

Please download and update the latest utilities and drivers at **www.msi.com**

Installing Windows 10/ Windows 11

1. Power on the computer.
2. Insert the Windows 10/ Windows 11 installation disc/ USB into your computer.
3. Press the Restart button on the computer case.
4. Press F11 key during the computer POST (Power-On Self Test) to get into Boot Menu.
5. Select the Windows 10/ Windows 11 installation disc/USB from the Boot Menu.
6. Press any key if screen shows Press any key to boot from CD or DVD… message. If not please skip this step.
7. Follow the instructions on the screen to install Windows 10/ Windows 11.

Installing Drivers

1. Start up your computer in Windows 10/ Windows 11.
2. Insert MSIÂ® USB Drive into the USB port.
3. Click the Select to choose what happens with this disc pop-up notification, then select Run DVDSetup.exe to open the installer. If you turn off the AutoPlay feature from the Windows Control Panel, you can still manually execute the DVDSetup.exe from the root path of the MSI USB Drive.
4. The installer will find and list all necessary drivers in the Drivers/Software tab.
5. Click the Install button in the lower-right corner of the window.
6. The drivers installation will then be in progress, after it has finished it will prompt you to restart.
7. Click OK button to finish.
8. Restart your computer.

MSI Center

MSI Center is an application that helps you easily optimize game settings and smoothly use content creation softwares. It also allows you to control and synchronize LED light effects on PCs and other MSI products. With

MSI Center, you can customize ideal modes, monitor system performance, and adjust fan speed.

MSI Center User Guide

- If you would like to know more information about MSI Center, please refer to **http://download.msi.com/manual/mb/MSICENTER.pdf** or scan the QR code to access.

Important
Functions may vary depending on the product you have.

UEFI BIOS

MSI UEFI BIOS is compatible with UEFI (Unified Extensible Firmware Interface) architecture. UEFI has many new functions and advantages that traditional BIOS cannot achieve, and it will completely replace BIOS in the future. The MSI UEFI BIOS uses UEFI as the default boot mode to take full advantage of the new chipset's capabilities.

Important
The term BIOS in this user guide refers to UEFI BIOS unless otherwise noted.

UEFI advantages

- Fast booting – UEFI can directly boot the operating system and save the BIOS self-test process. And also eliminates the time to switch to CSM mode during POST.
- Supports for hard drive partitions larger than 2 TB.
- Supports more than 4 primary partitions with a GUID Partition Table (GPT).
- Supports unlimited number of partitions.
- Supports full capabilities of new devices – new devices may not provide backward compatibility.
- Supports secure startup – UEFI can check the validity of the operating system to ensure that no malware tampers with the startup process.

Incompatible UEFI cases

- 32-bit Windows operating system – this motherboard supports only Windows 10/ Windows 11 64-bit operating system.
- Older graphics card – the system will detect your graphics card. When display a warning message There is no GOP (Graphics Output protocol) support detected in this graphics card.

Important

We recommend that you to replace with a GOP/UEFI compatible graphics card or using integrated graphics from CPU for having normal function.

How to check the BIOS mode?

1. Power on your computer.
2. Press Delete key, when the Press DEL key to enter Setup Menu, F11 to enter Boot Menu message appears on the screen during the boot process.
3. After entering the BIOS, you can check the BIOS Mode at the top of the screen.

BIOS Setup

The default settings offer the optimal performance for system stability in normal conditions. You should always keep the default settings to avoid possible system damage or failure booting unless you are familiar with BIOS.

Important

- BIOS items are continuously update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be for reference only. You could also refer to the HELP information panel for BIOS item description.
- The BIOS screens, options and settings will vary depending on your system.

Entering BIOS Setup

Press Delete key, when the Press DEL key to enter Setup Menu, F11 to enter Boot Menu message appears on the screen during the boot process.

Function key

- F1: General Help list
- F2: Add/ Remove a favorite item
- F3: Enter Favorites menu
- F4: Enter CPU Specifications menu
- F5: Enter Memory-Z menu
- F6: Load optimized defaults
- F7: Switch between Advanced mode and EZ mode
- F8: Load Overclocking Profile
- F9: Save Overclocking Profile
- F10: Save Change and Reset*
- F12: Take a screenshot and save it to USB flash drive (FAT/ FAT32 format only).

Ctrl+F: Enter Search page
When you press F10, a confirmation window appears and it provides the modification information. Select between Yes or No to confirm your choice

BIOS User Guide
If you'd like to know more instructions on setting up the BIOS, please refer to http://download.msi.com/manual/mb/Intel600BIOS.pdf or scan the QR code to access.

Resetting BIOS
You might need to restore the default BIOS setting to solve certain problems. There are several ways to reset BIOS:

- Go to BIOS and press F6 to load optimized defaults.
- Short the Clear CMOS jumper on the motherboard.

Important

Be sure the computer is off before clearing CMOS data. Please refer to the Clear CMOS jumper section for resetting BIOS.

Updating BIOS

Updating BIOS with M-FLASH

Before updating:
Please download the latest BIOS file that matches your motherboard model from MSI website. And then save the BIOS file into the USB flash drive.
Updating BIOS:

1. Switch to the target BIOS ROM by Multi-BIOS switch. Please skip this step if your motherboard doesn't has this switch.
2. Insert the USB flash drive that contains the update file into the USB port.
3. Please refer the following methods to enter flash mode.
   - Reboot and press Ctrl + F5 key during POST and click on Yes to reboot the system.

   - Reboot and press Del key during POST to enter BIOS. Click the M-FLASH button and click on Yes to reboot the system.

4. Select a BIOS file to perform the BIOS update process.
5. When prompted click on Yes to start recovering BIOS.
6. After the flashing process is 100% completed, the system will reboot automatically.

Updating the BIOS with MSI Center

Before updating:

- Make sure the LAN driver is already installed and the internet connection is set properly.
- Please close all other application software before updating the BIOS.

To update BIOS:

1. Install and launch MSI Center and go to Support page.
2. Select Live Update and click on Advance button.
3. Select the BIOS file and click on Install button.
4. The installation reminder will appear, then click the Install button on it.
5. The system will automatically restart to update BIOS.
6. After the flashing process is 100% completed, the system will restart automatically.

Updating BIOS with Flash BIOS Button

1. Please download the latest BIOS file that matches your motherboard model from the MSI® website.
2. Rename the BIOS file to MSI.ROM, and save it to the root of the USB storage device.
3. Connect the power supply to CPU_PWR1 and ATX_PWR1. (No need to install CPU and memory.)
4. Plug the USB storage device that contains the MSI.ROM file into the Flash BIOS Port on the rear I/O panel.
5. Press the Flash BIOS Button to flash BIOS, and the LED starts flashing.
6. The LED will be turned off when the process is completed.

Regulatory Notices

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and radiates radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

NOTE

- The changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.
- Shield interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

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

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

MSI Computer Corp.
901 Canada Court, City of Industry, CA 91748, USA (626)913-0828
www.msi.com

CE Conformity
Products bearing the CE marking comply with one or more of the following EU Directives as may be applicable:

- RED 2014/53/EU
- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- RoHS Directive 2011/65/EU
- ErP Directive 2009/125/EC

Compliance with these directives is assessed using applicable European Harmonized Standards.
The point of contact for regulatory matters is MSI, MSI-NL Eindhoven 5706 5692 ER Son.

Products with Radio Functionality (EMF)

This product incorporates a radio transmitting and receiving device. For computers in normal use, a separation distance of 20 cm ensures that radio frequency exposure levels comply with EU requirements. Products designed to be operated at closer proximities, such as tablet computers, comply with applicable EU requirements in typical operating positions. Products can be operated without maintaining a separation distance unless otherwise indicated in instructions specific to the product.

Restrictions for Products with Radio Functionality

CAUTION: IEEE 802.11x wireless LAN with 5.15~5.35 GHz frequency band is restricted for indoor use only in all European Union member states, EFTA (Iceland, Norway, Liechtenstein), and most other European countries (e.g., Switzerland, Turkey, Republic of Serbia). Using this WLAN application outdoors might lead to interference issues with existing radio services.
CAUTION: Fixed outdoor installations for WiGig application (57~66 GHz frequency band) are excluded in all European Union member states, EFTA (Iceland, Norway, Liechtenstein), and other European countries (e.g., Switzerland, Turkey, Republic of Serbia).

Wireless Radio Use
This device is restricted to indoor use when operating in the 2.4GHz, 5GHz frequency band.

Compliance Statement of Innovation, Science and Economic Development Canada (ISED)

This device complies with with Innovation, Science and Economic Development
Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems. CAN ICES-003(B)/NMB-003(B)

Australia and New Zealand notice
This equipment incorporates a radio transmitting and receiving device. In normal use, a separation distance of 20 cm ensures that radio frequency exposure levels comply with the Australian and New Zealand Standards.

Battery Information

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.
Taiwan:
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/**
CAUTION: There is a risk of explosion, if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

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**

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

WEEE (Waste Electrical and Electronic Equipment) Statement

To protect the global environment and as an environmentalist, MSI must remind you that…
Under the European Union (“EU”) Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of “electrical and electronic equipment” cannot be discarded as municipal wastes anymore, and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSIbranded products that are sold into the EU. You can return these products to local collection points

India RoHS
This product complies with the “India E-waste (Management and Handling) Rule 2011” and prohibits use of lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers in concentrations exceeding 0.1 weight % and 0.01 weight % for cadmium, except for the exemptions set in Schedule 2 of the Rule.

Copyright and Trademarks Notice

Technical Support

If a problem arises with your system and no solution can be obtained from the user guide, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI website for technical guide, BIOS updates, driver updates, and other information: http://www.msi.com
- Register your product at: http://register.msi.com

Revision History

- Version 1.0, 2021/10, First release.
- Version 1.1, 2022/01, update list.

Documents / Resources

	MSI MPG Z690 EDGE WIFI DDR4 Motherboard [pdf] User Guide MPG Z690 EDGE WIFI DDR4 Motherboard, MPG Z690 EDGE, WIFI DDR4 Motherboard, DDR 4 Motherboard, Motherboard

References

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