



PHANTOM<sup>®</sup>  
GAMING

LIGHTNING GAMING

ASRock<sup>®</sup>

PHANTOM GAMING  
*Z790I LIGHTNING* **WiFi**

User Manual

## Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information. For technical questions, please submit a support request form at <https://event.asrock.com/tsd.asp>

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# Chapter 1 Introduction

Thank you for purchasing ASRock Z790I Lightning WiFi motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.



*Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website <http://www.asrock.com>.*

## 1.1 Package Contents

- ASRock Z790I Lightning WiFi Motherboard (Mini-ITX Form Factor)
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 2 x ASRock WiFi 2.4/5/6 GHz Antennas (Optional)
- 1 x Screw for M.2 Socket (Optional)
- 1 x Thermistor Cable (Optional)

## 1.2 Specifications

- Platform**
- Mini-ITX Form Factor
  - 8 Layer PCB
  - 2oz Copper PCB

- CPU**
- Supports 14<sup>th</sup>, 13<sup>th</sup> & 12<sup>th</sup> Gen Intel® Core™ Processors (LGA1700)
  - Supports Intel® Hybrid Technology
  - Supports Intel® Turbo Boost Max 3.0 Technology
  - Supports Intel® Thermal Velocity Boost (TVB)
  - Supports Intel® Adaptive Boost Technology (ABT)

- Chipset**
- Intel® Z790

- Memory**
- Dual Channel DDR5 Memory Technology
  - 2 x DDR5 DIMM Slots
  - Supports DDR5 non-ECC, un-buffered memory up to 8600+(OC)\*  
1DPC 1R Up to 8600+ MHz (OC), 5600 MHz Natively.  
1DPC 2R Up to 7000+ MHz (OC), 5200 MHz Natively.
  - Max. capacity of system memory: 96GB
  - Supports Intel® Extreme Memory Profile (XMP) 3.0
- \* Please refer to Memory Support List on ASRock's website for more information. (<http://www.asrock.com/>)

- Expansion Slot**
- CPU:
- 1 x PCIe 5.0 x16 Slot (PCIe1), supports x16 mode\*
- Chipset:
- 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT PCIe WiFi module

\* Supports PCIe riser cards to extend one x16 slot to two x8 slots

\* Supports NVMe SSD as boot disks

**Graphics**

- Intel® UHD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.
- Intel® X<sup>c</sup> Graphics Architecture (Gen 12)
- 1 x HDMI 2.1 TMDS Compatible, supports HDCP 2.3 and max. resolution up to 4K 60Hz
- 1 x DisplayPort 1.4 with DSC (compressed), supports HDCP 2.3 and max. resolution up to 8K 60Hz / 5K 120Hz

**Audio**

- 7.1 CH HD Audio (Realtek ALC897 Audio Codec)
- Nahimic Audio

**LAN**

- 2.5 Gigabit LAN 10/100/1000/2500 Mb/s
- Dragon RTL8125BG
- Supports Phantom Gaming LAN Software
  - Smart Auto Adjust Bandwidth Control
  - Visual User Friendly UI
  - Visual Network Usage Statistics
  - Optimized Default Setting for Game, Browser, and Streaming Modes
  - User Customized Priority Control

**Wireless****LAN**

- 802.11ax Wi-Fi 6E Module
- Supports IEEE 802.11a/b/g/n/ac/ax/ax
- Supports Dual-Band 2x2 160MHz with extended 6GHz band\* support

\* Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The availability will depend on the different regulation status of each country and region. It will be activated (for supported countries) through Windows Update and software updates once available.

\* A 6GHz compatible router is required for 6E functionality.

- 2 antennas to support 2 (Transmit) x 2 (Receive) diversity technology
- Supports Bluetooth 5.3
- Supports MU-MIMO

## USB

Chipset:

- 1 x USB 3.2 Gen2 Type-A (Rear)
- 1 x USB 3.2 Gen2 Type-C (Rear)
- 6 x USB 3.2 Gen1 Type-A (4 Rear, 2 Front)
- 1 x USB 3.2 Gen1 Type-C (Front)
- 2 x USB 2.0 (Front)

\* All USB ports support ESD Protection

## Rear Panel I/O

- 2 x Antenna Ports
- 1 x HDMI Port
- 1 x DisplayPort 1.4
- 1 x Optical SPDIF Out Port
- 1 x USB 3.2 Gen2 Type-A Port (10 Gb/s)
- 1 x USB 3.2 Gen2 Type-C Port (10 Gb/s)
- 4 x USB 3.2 Gen1 Ports
- 1 x RJ-45 LAN Port
- 1 x Line Out Jack (Gold Audio Jack)
- 1 x Microphone Input Jack (Gold Audio Jack)

## Storage

CPU:

- 1 x Hyper M.2 Socket (M2\_1, Key M), supports type 2280 PCIe Gen4x4 (64 Gb/s) mode\*

Chipset:

- 1 x Hyper M.2 Socket (M2\_2, Key M), supports type 2280 PCIe Gen4x4 (64 Gb/s) mode\*
- 3 x SATA3 6.0 Gb/s Connectors

\* Supports Intel® Volume Management Device (VMD)

\* Supports NVMe SSD as boot disks

## RAID

- Supports RAID 0, RAID 1 and RAID 5 for SATA storage devices
  - Supports RAID 0, RAID 1, RAID 5 and RAID 10 for M.2 NVMe storage devices\*
- \* Requires additional M.2 NVMe expansion cards to support RAID 5 and RAID 10

**Connector**

- 2 x Addressable LED Headers\*
- 1 x Thermistor Cable Header
- 1 x CPU/Water Pump Fan Connector (4-pin) (Smart Fan Speed Control)\*\*
- 2 x Chassis Fan Connectors (4-pin)\*\*\*
- 1 x 24 pin ATX Power Connector
- 1 x 8 pin 12V Power Connector (Hi-Density Power Connector)
- 1 x Front Panel Audio Connector
- 1 x USB 2.0 Header (Supports 2 USB 2.0 ports)
- 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports)
- 1 x Front Panel Type C USB 3.2 Gen1 Header

\* Support in total up to 5V/3A, 15W LED Strip

\*\* CPU\_FAN1/WP supports the fan power up to 2A (24W).

\*\*\* CPU\_FAN1/WP can auto detect if 3-pin or 4-pin fan is in use.

\*\*\* CHA\_FAN1 and CHA\_FAN2 support the fan power up to 1A (12W).

**BIOS Feature**

- AMI UEFI Legal BIOS with GUI support

**OS**

- Microsoft® Windows® 10 64-bit / 11 64-bit

**Certifications**

- FCC, CE
- ErP/EuP ready (ErP/EuP ready power supply is required)

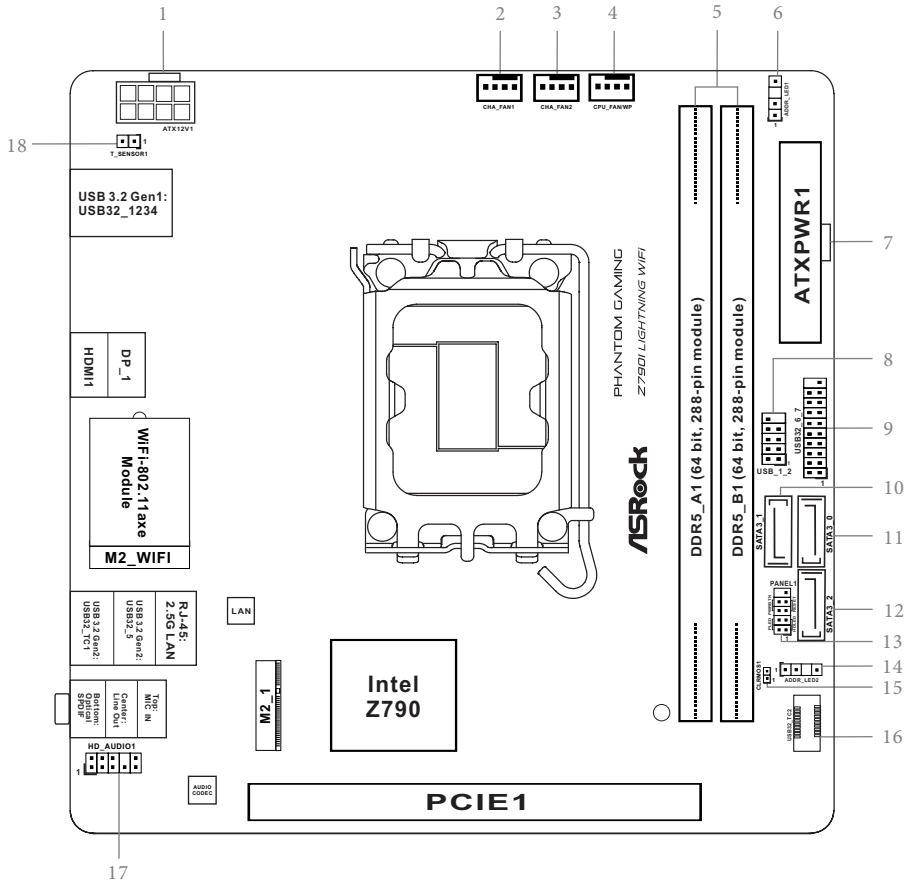
\* For detailed product information, please visit our website: <http://www.asrock.com>



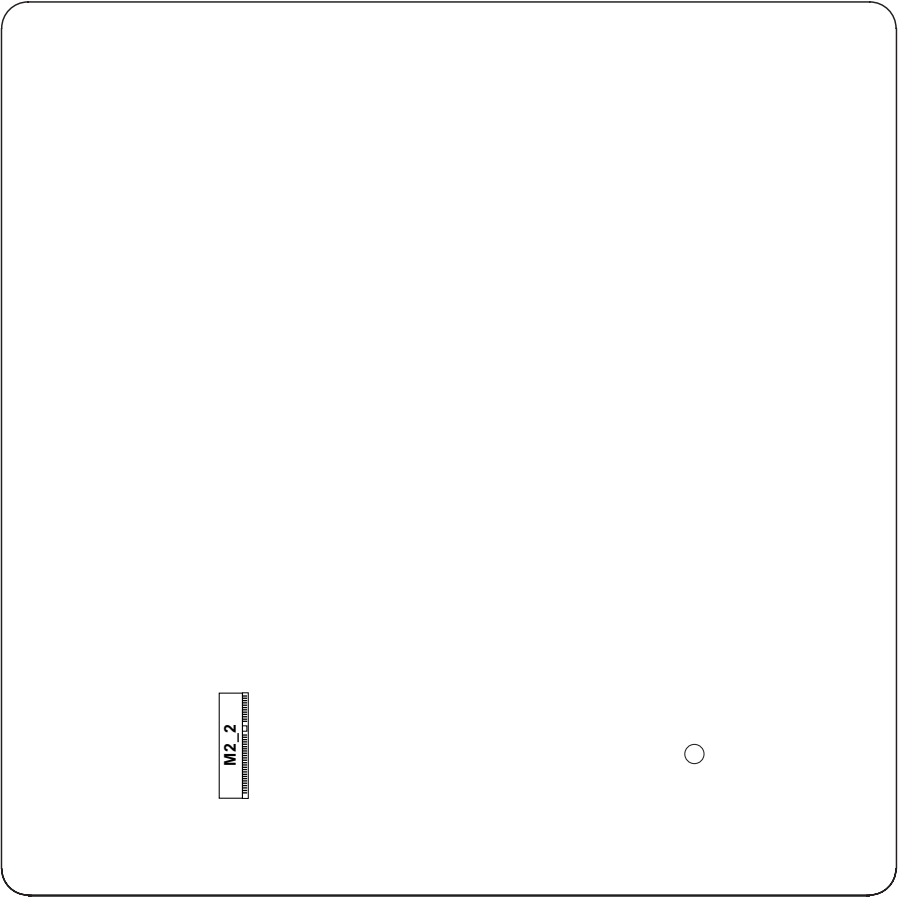
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

# 1.3 Motherboard Layout

## Top Side View

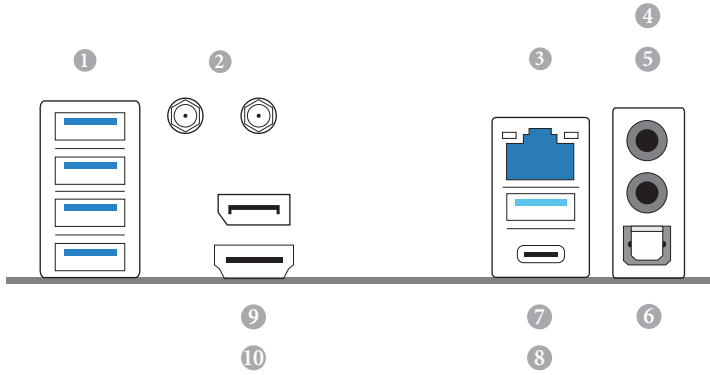


## Back Side View



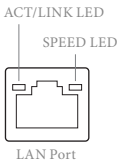
No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	Chassis Fan Connector (CHA_FAN1)
3	Chassis Fan Connector (CHA_FAN2)
4	CPU/Water Pump Fan Connector (CPU_FAN/WP)
5	2 x 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_B1)
6	Addressable LED Header (ADDR_LED1)
7	ATX Power Connector (ATXPWR1)
8	USB 2.0 Header (USB_1_2)
9	USB 3.2 Gen1 Header (USB32_6_7)
10	SATA3 Connector (SATA3_1)
11	SATA3 Connector (SATA3_0)
12	SATA3 Connector (SATA3_2)
13	System Panel Header (PANEL1)
14	Addressable LED Header (ADDR_LED2)
15	Clear CMOS Jumper (CLRMOS1)
16	Front Panel Type C USB 3.2 Gen1 Header (USB32_TC2)
17	Front Panel Audio Header (HD_AUDIO1)
18	Thermistor Cable Header (T_SENSOR1)

## 1.4 I/O Panel



No.	Description	No.	Description
1	USB 3.2 Gen1 Type-A Ports (USB32_1234)	6	Optical SPDIF Out Port
2	Antenna Ports	7	USB 3.2 Gen2 Type-A Port (USB32_5)
3	2.5G LAN RJ-45 Port*	8	USB 3.2 Gen2 Type-C Port (USB32_TC1)
4	Microphone Input Jack**	9	DisplayPort 1.4
5	Line Out Jack**	10	HDMI Port

\* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

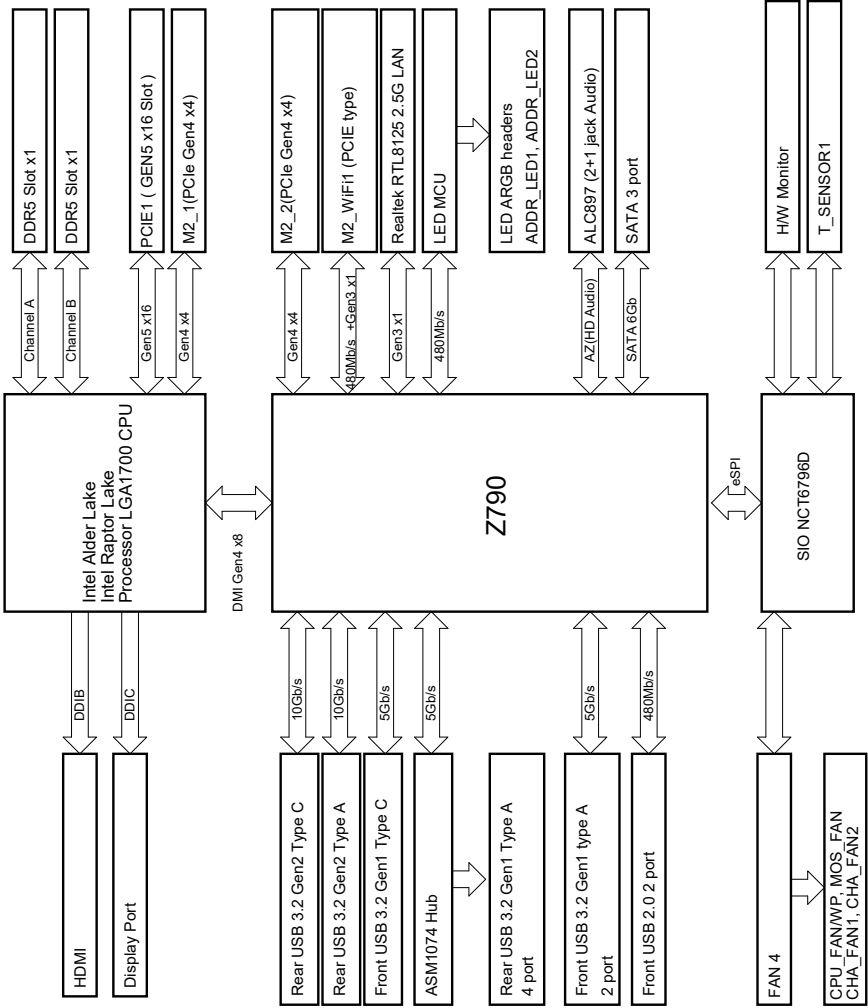


Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps/1Gbps connection
On	Link	Green	2.5Gbps connection

\*\*\* Function of the Audio Ports in 2, 4, 5.1 or 7.1-channel Configuration:

Channel	Port	Function
2ch	Line Out Jack (Rear Panel)	Front speaker out
4ch	Pink-Mic (Front Panel)	Rear speaker out
5.1ch	Microphone Input Jack (Rear Panel)	Central/Subwoofer speaker out
7.1ch	Line-Headphone (Front Panel)	Side Speaker out

## 1.5 Block Diagram



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## 1.6 802.11ax Wi-Fi 6E Module and ASRock WiFi 2.4/5/6 GHz Antennas

### 802.11ax Wi-Fi 6E + BT Module

This motherboard comes with an exclusive 802.11 a/b/g/n/ac/ax/ax Wi-Fi 6E + BT v5.3 module that offers support for 802.11 a/b/g/n/ac/ax/ax Wi-Fi 6E connectivity standards and Bluetooth v5.3. Wi-Fi 6E + BT module is an easy-to-use wireless local area network (WLAN) adapter to support Wi-Fi 6E + BT. Bluetooth v5.3 standard features Smart Ready technology that adds a whole new class of functionality into the mobile devices. BT 5.3 also includes Low Energy Technology and ensures extraordinary low power consumption for PCs.

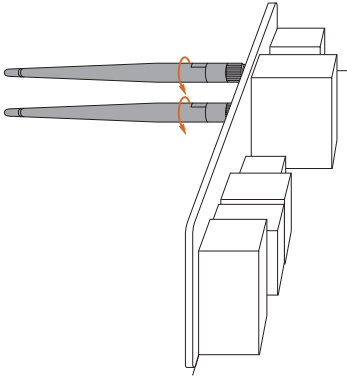
- \* The transmission speed may vary according to the environment.
- \* Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The availability will depend on the different regulation status of each country and region. It will be activated (for supported countries) through Windows Update and software updates once available.
- \* A 6GHz compatible router is required for 6E functionality.

## WiFi Antennas Installation Guide



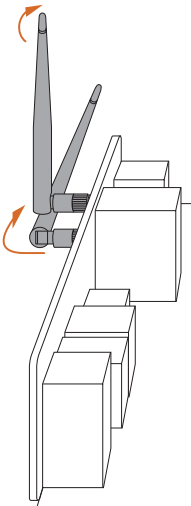
**Step 1**

Prepare the WiFi 2.4/5/6 GHz Antennas that come with the package.



**Step 2**

Connect the two WiFi 2.4/5/6 GHz Antennas to the antenna connectors. Turn the antenna clockwise until it is securely connected.



**Step 3**

Set the WiFi 2.4/5/6 GHz Antenna as shown in the illustration.

\*You may need to adjust the direction of the antenna for a stronger signal.

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## Chapter 2 Installation

This is a Mini-ITX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

### Pre-installation Precautions

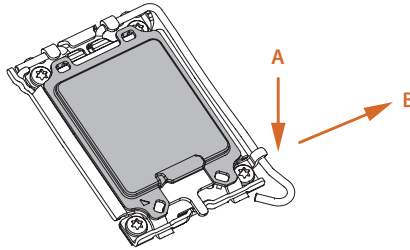
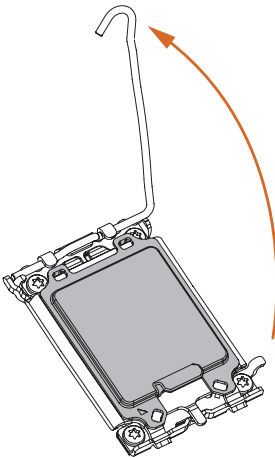
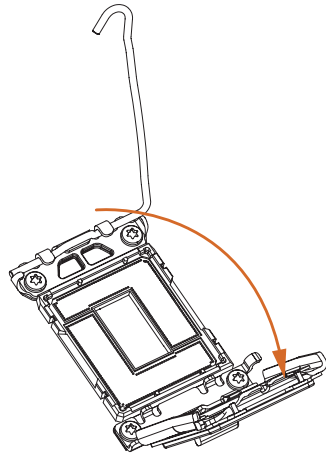
Take note of the following precautions before you install motherboard components or change any motherboard settings.

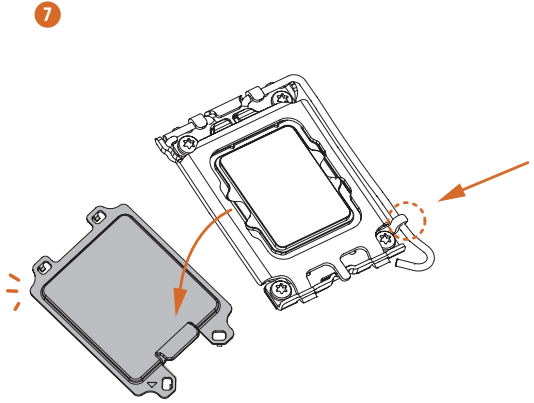
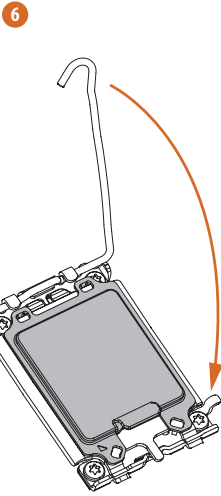
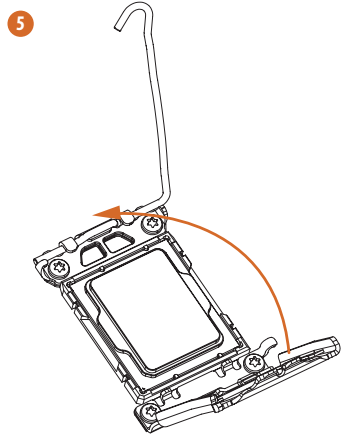
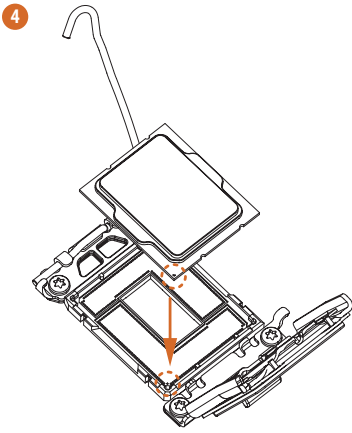
- Make sure to unplug the power cord before installing or removing the motherboard components. Failure to do so may cause physical injuries and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

## 2.1 Installing the CPU



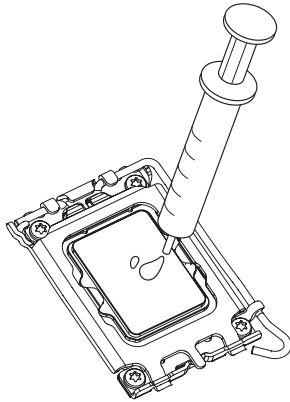
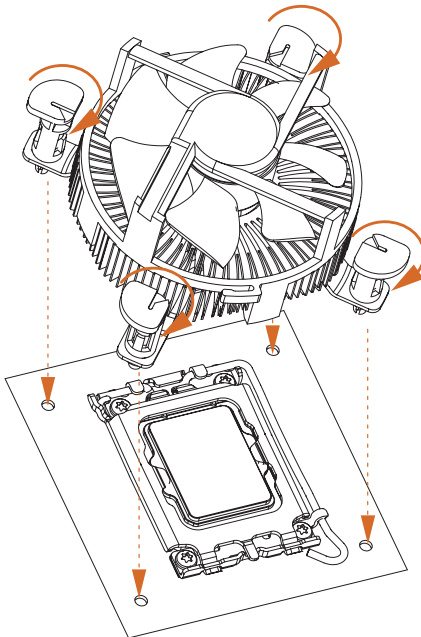
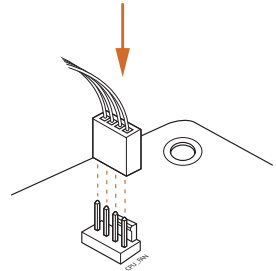
1. Before you insert the 1700-Pin CPU into the socket, please check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

**1****2****3**



Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

## 2.2 Installing the CPU Fan and Heatsink

**1****2**

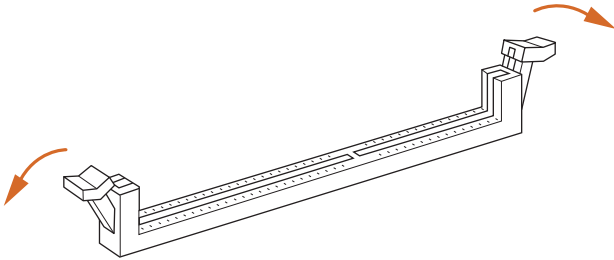
## 2.3 Installing Memory Modules (DIMM)

This motherboard provides two 288-pin DDR5 (Double Data Rate 5) DIMM slots, and supports Dual Channel Memory Technology.

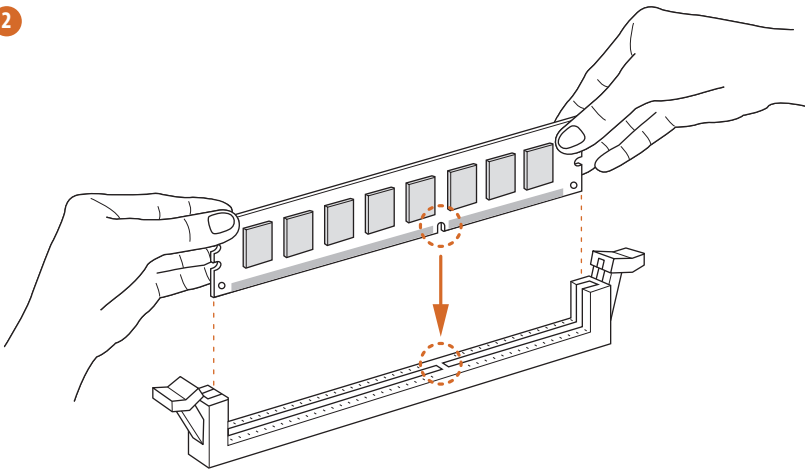


- 1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR5 DIMM pairs.*
- 2. It is unable to activate Dual Channel Memory Technology with only one memory module installed.*
- 3. It is not allowed to install a DDR, DDR2, DDR3 or DDR4 memory module into a DDR5 slot; otherwise, this motherboard and DIMM may be damaged.*
- 4. The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.*

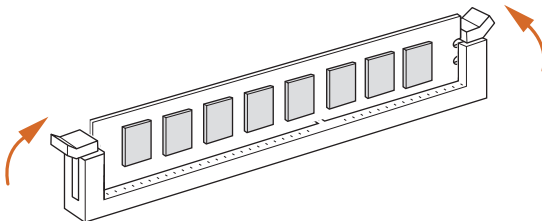
1



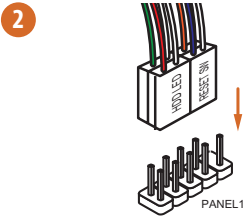
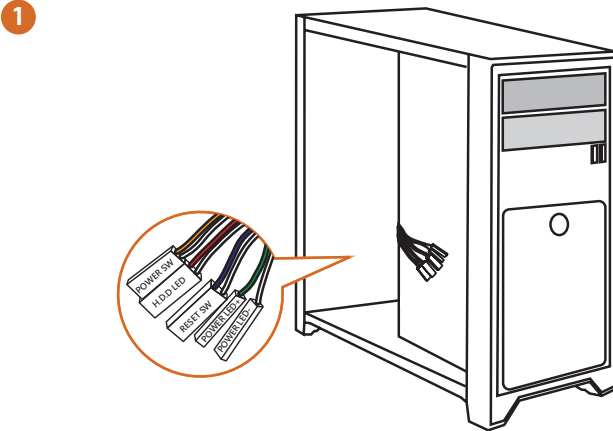
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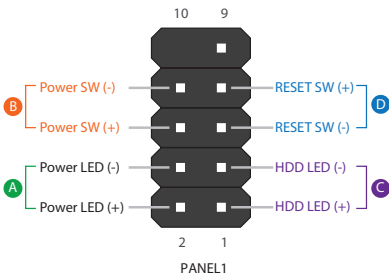
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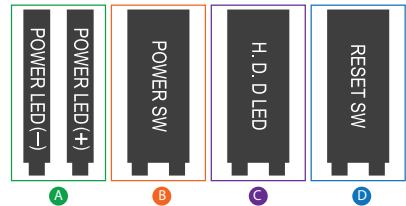
## 2.4 Connecting the Front Panel Header



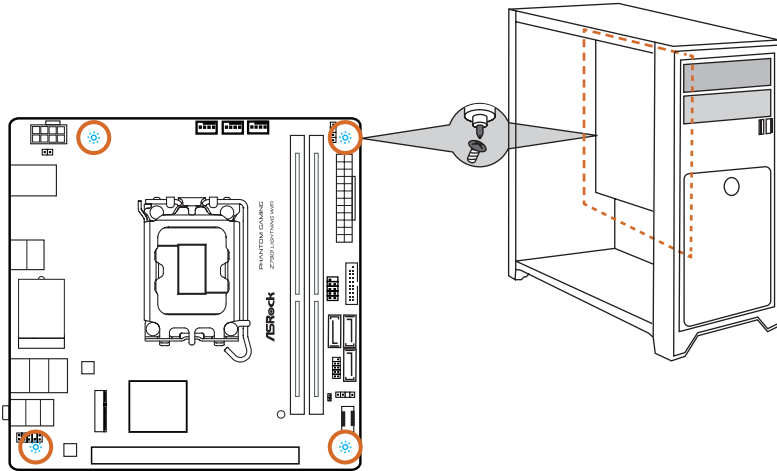
System Panel Header



Front Panel Wires

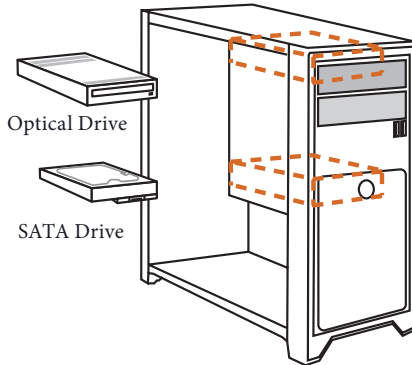


## 2.5 Installing the Motherboard

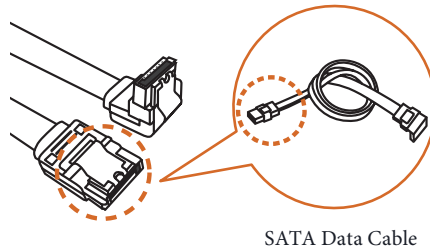


## 2.6 Installing SATA Drives

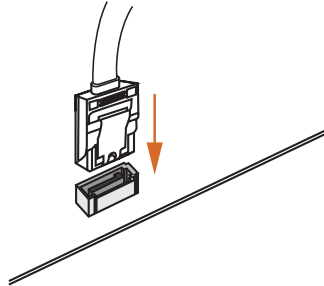
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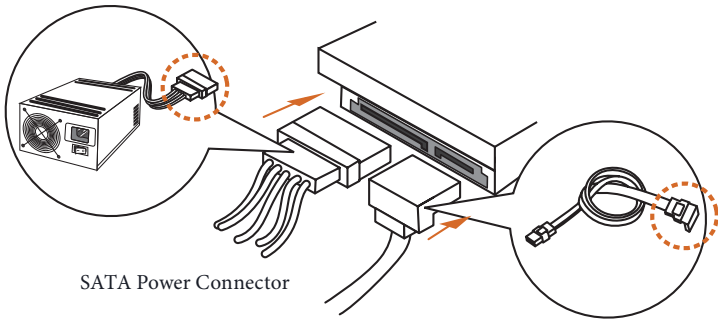
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3



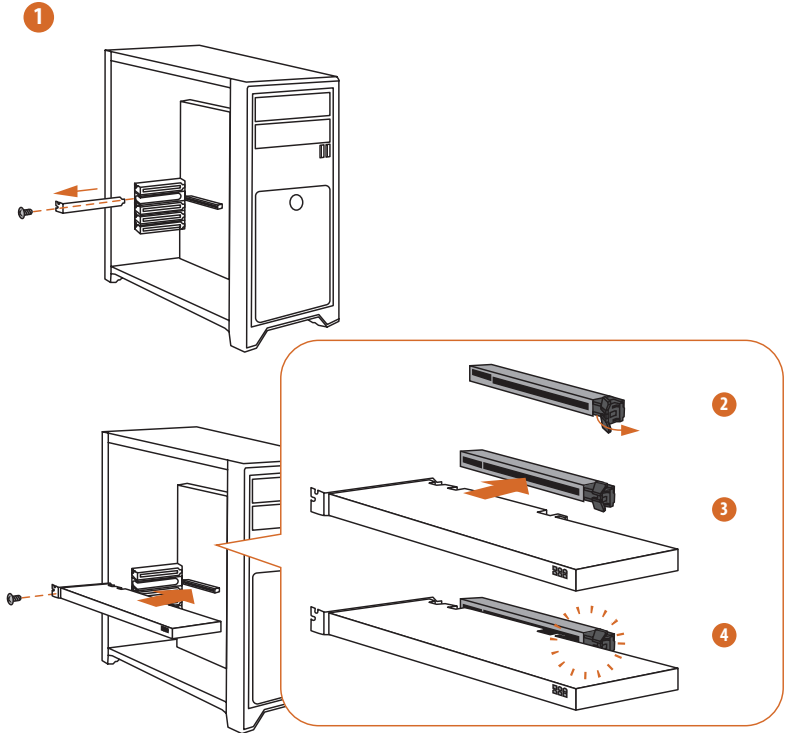
4



SATA Power Connector

SATA Data Connector

## 2.7 Installing a Graphics Card



## Expansion Slot (PCIe Slot)

There is 1 PCI Express slot on the motherboard.



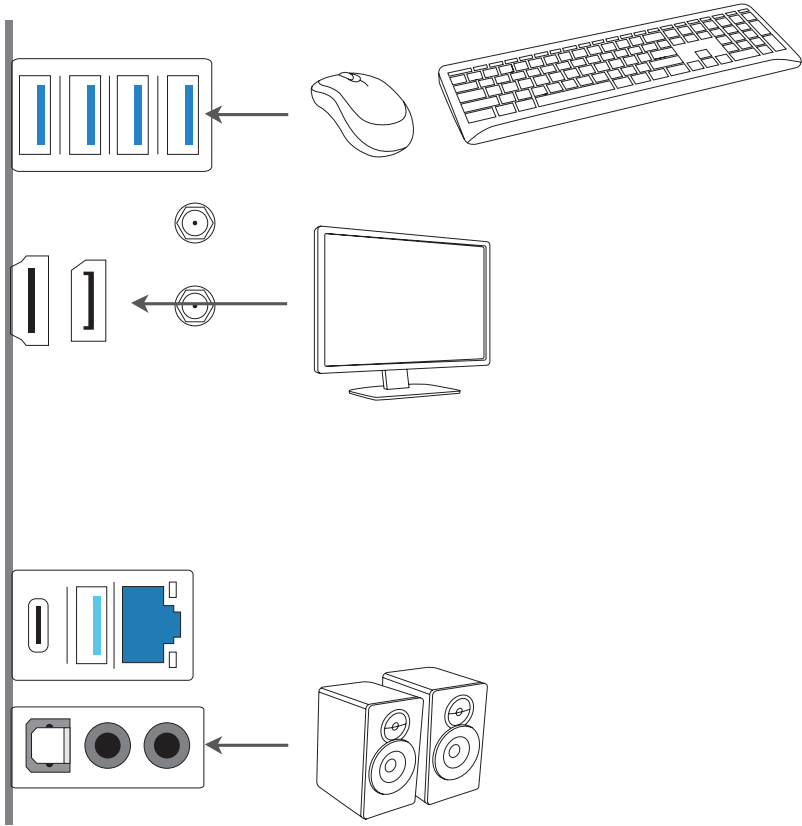
*Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.*

### **PCIe slot:**

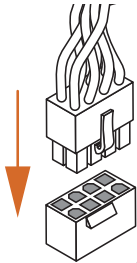
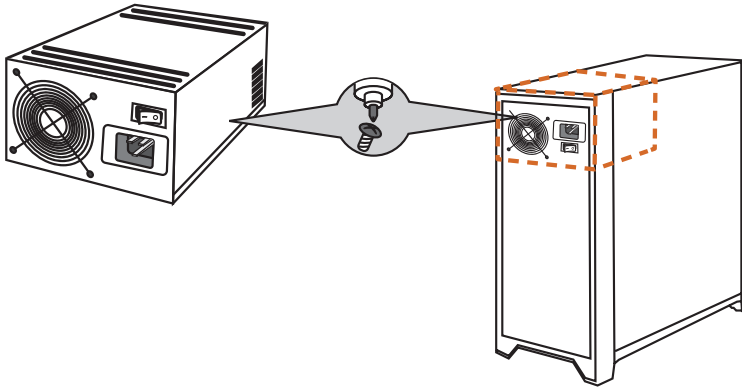
PCIe1 (PCIe 5.0 x16 slot) is used for PCIe x16 lane width graphics cards.

\* Supports PCIe riser cards to extend one x16 slot to two x8 slots

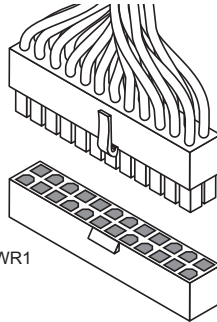
## 2.8 Connecting Peripheral Devices



## 2.9 Connecting the Power Connectors

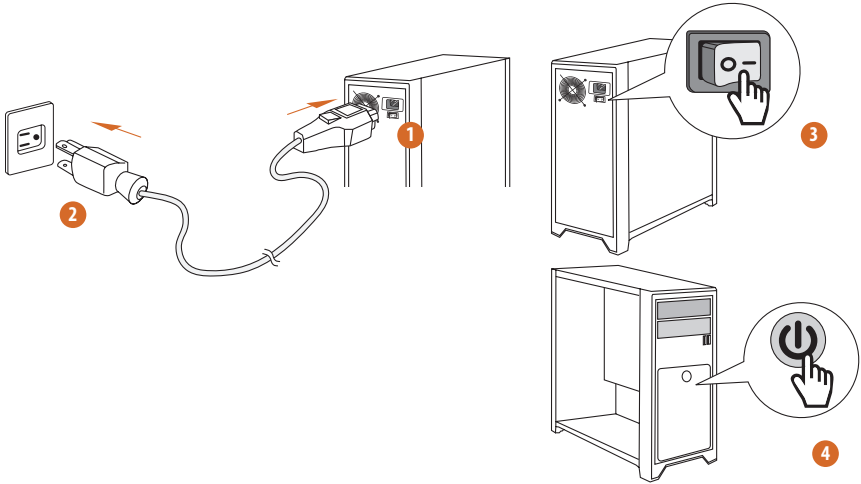


ATX12V1



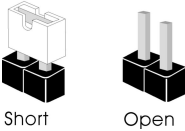
ATXPWR1

## 2.10 Power On



## 2.1 Jumpers Setup

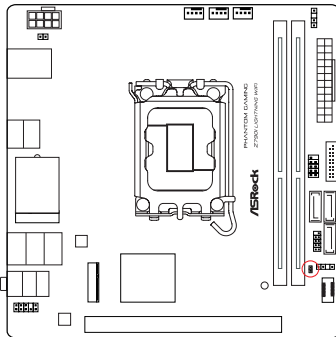
The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”.



### Clear CMOS Jumper

(CLRMOSE1) (see p.6, No. 15)

CLRMOSE1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRMOSE1 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.



CLRMOSE1



2-pin Jumper

Short: Clear CMOS

Open: Default

## 2.12 Onboard Headers and Connectors

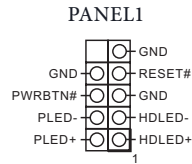
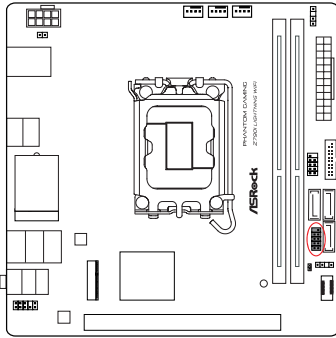


Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

### System Panel Header

(9-pin PANEL1) (see p.6, No. 13)

Connect the power button, reset button and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.



#### **PWRBTN (Power Button):**

Connect to the power button on the chassis front panel. You may configure the way to turn off your system using the power button.

#### **RESET (Reset Button):**

Connect to the reset button on the chassis front panel. Press the reset button to restart the computer if the computer freezes and fails to perform a normal restart.

#### **PLED (System Power LED):**

Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

#### **HDLED (Hard Drive Activity LED):**

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power button, reset button, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Serial ATA3 Connectors

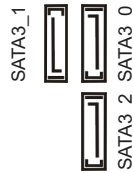
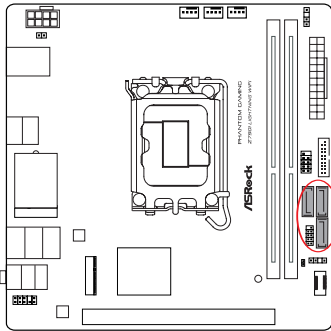
Vertical:

(SATA3\_0) (see p.6, No. 11)

(SATA3\_1) (see p.6, No. 10)

(SATA3\_2) (see p.6, No. 12)

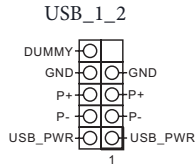
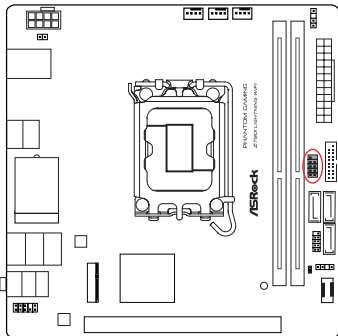
These three SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.



USB 2.0 Header

(9-pin USB\_1\_2) (see p.6, No. 8)

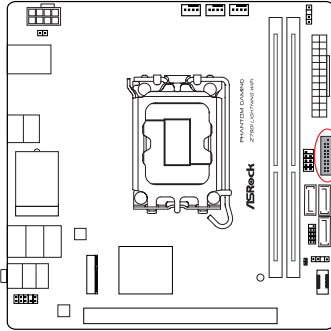
There is one header on this motherboard. This USB 2.0 header can support two ports.



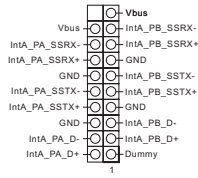
### USB 3.2 Gen1 Header

(19-pin USB32\_6\_7) (see p.6, No. 9)

There is one header on this motherboard. This USB 3.2 Gen1 header can support two ports.



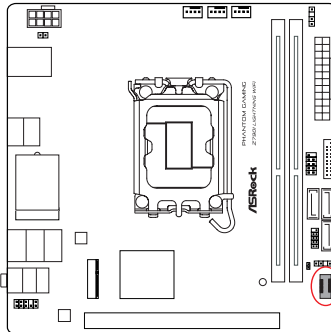
USB32\_6\_7



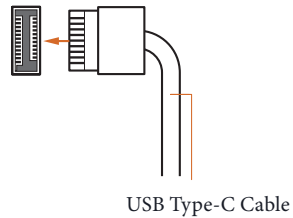
### Front Panel Type C USB 3.2 Gen1 Header

(20-pin USB32\_TC2) (see p.6, No. 16)

There is one Front Panel Type C USB 3.2 Gen1 Header on this motherboard. This header is used for connecting a USB 3.2 Gen1 module for additional USB 3.2 Gen1 ports.

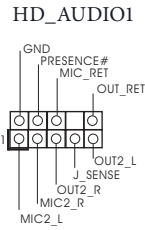
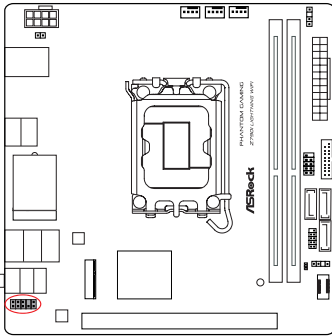


USB32\_TC2



### Front Panel Audio Header (9-pin HD\_AUDIO1) (see p.6, No. 17)

This header is for connecting audio devices to the front audio panel.



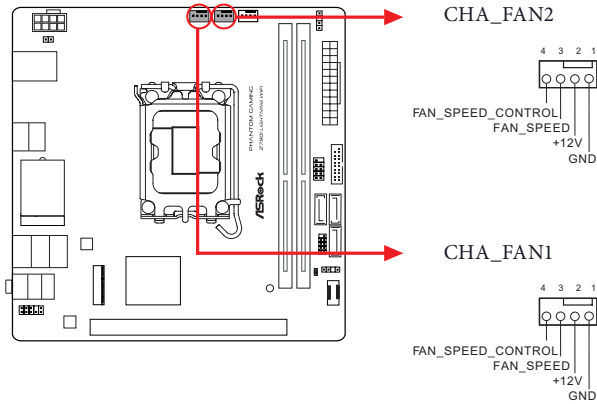
*High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.*

### Chassis Fan Connectors

(4-pin CHA\_FAN1) (see p.6, No. 2)

(4-pin CHA\_FAN2) (see p.6, No. 3)

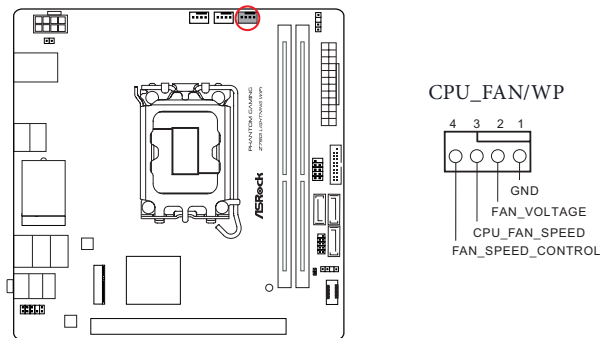
Please connect fan cables to the fan connectors and match the black wire to the ground pin.



### CPU/Water Pump Fan Connector

(4-pin CPU\_FAN/WP) (see p.6, No. 4)

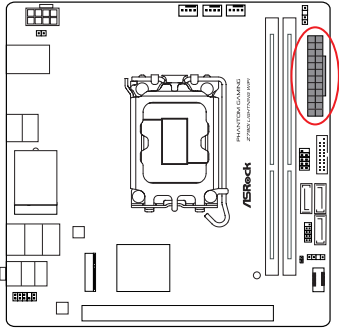
This motherboard provides a 4-Pin water cooling CPU fan connector. If you plan to connect a 3-Pin CPU water cooler fan, please connect it to Pin 1-3.



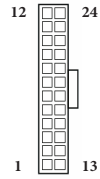
### ATX Power Connector

(24-pin ATXPWR1) (see p.6, No. 7)

This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.



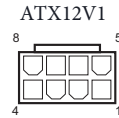
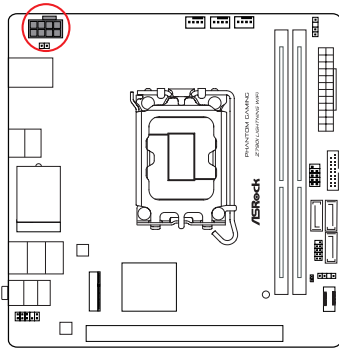
ATXPWR1



ATX 12V Power Connector  
(8-pin ATX12V1) (see p.6, No. 1)

This motherboard provides a 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.

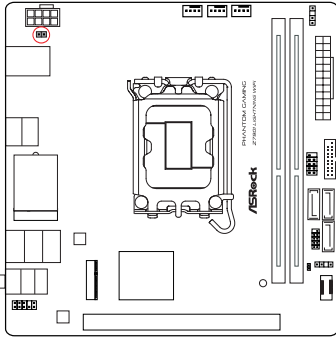
**\*Warning: Please make sure that the power cable connected is for the CPU and not the graphics card. Do not plug the PCIe power cable to this connector.**



### Thermistor Cable Header

(4-pin T\_SENSOR1) (see p.6, No. 18)

The Thermistor Cable Header is used to connect thermistor cable to monitor the temperature of the critical components. Plug the thermistor cable that comes with the package to this header, and then attach the sensor end to the component to detect its temperature.

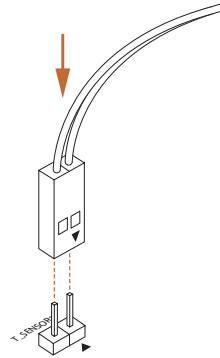


T\_SENSOR1

SENSOR IN



Connect your Thermistor Cable to the **Thermistor Cable Header (T\_SENSOR1)** on the motherboard.



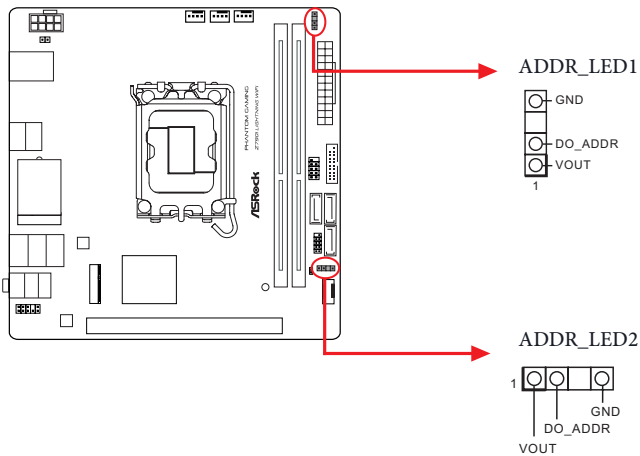
### Addressable LED Headers

(3-pin ADDR\_LED1) (see p.6, No. 6)

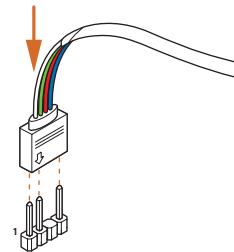
(3-pin ADDR\_LED2) (see p.6, No. 14)

These headers are used to connect Addressable LED extension cables which allow users to choose from various LED lighting effects.

**Caution: Never install the Addressable LED cable in the wrong orientation; otherwise, the cable may be damaged.**



Connect your Addressable RGB LED strips to the **Addressable LED Headers (ADDR\_LED1 / ADDR\_LED2)** on the motherboard.





1. *Never install the Addressable LED cable in the wrong orientation; otherwise, the cable may be damaged.*
2. *Before installing or removing your Addressable LED cable, please power off your system and unplug the power cord from the power supply. Failure to do so may cause damages to motherboard components.*

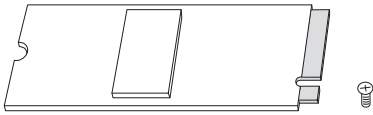


1. *Please note that the Addressable LED strips do not come with the package.*
2. *The Addressable LED header supports WS2812B addressable RGB LED strip (5V/Data/GND), with a maximum power rating of 3A (5V) and length within 2 meters.*

## 2.13 M.2 SSD Module Installation Guide (M2\_1)

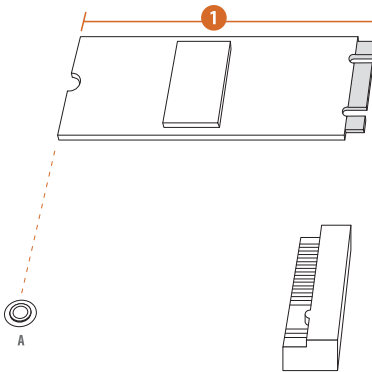
The M.2 is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Hyper M.2 Socket (M2\_1, Key M) supports type 2280 PCIe Gen4x4 (64 Gb/s) mode.

### Installing the M.2 SSD Module



#### Step 1

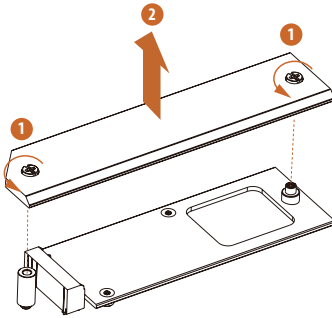
Prepare a M.2 SSD module and the screw.



#### Step 2

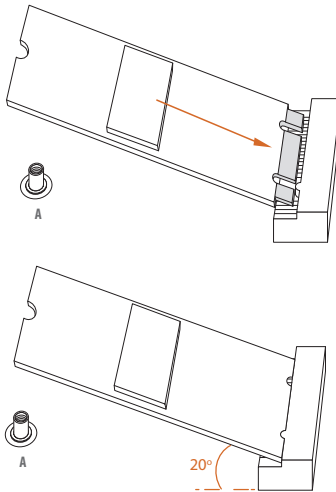
Depending on the PCB type and length of your M.2 SSD module, find the corresponding nut location to be used.

No.	1
Nut Location	A
PCB Length	8cm
Module Type	Type2280

**Step 3**

Before installing a M.2 SSD module, please loosen the screws to remove the M.2 heatsink.

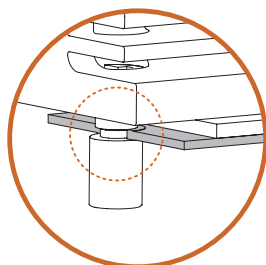
\*Please remove the protective films on the bottom side of the M.2 heatsink before you install a M.2 SSD module.

**Step 4**

Align and gently insert the M.2 SSD module into the M.2 slot. Please be aware that the M.2 SSD module only fits in one orientation.

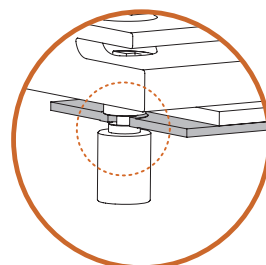
### Step 5

Before securing the M.2 heatsink, make sure to align the notch on the SSD to the standoff on the motherboard; otherwise, the SSD module may be damaged.



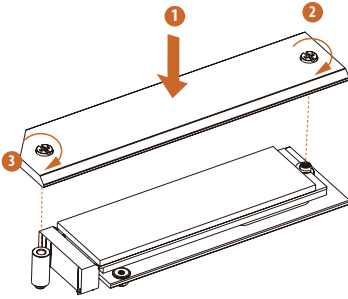
Correct Installation:

The SSD's PCB is in proper place, and the M.2 heatsink can be screwed in.



Incorrect Installation:

The SSD's PCB sits between M.2 heatsink and standoff. Do not continue.

**Step 6**

*\*If you are installing a M.2 SSD equipped with heatsink, please skip this step and use the M.2 screw that comes with the package to secure your M.2 SSD into place.*

Tighten the screws with a screwdriver to secure the module and M.2 heatsink into place in the order shown. Tighten screw opposite the M.2 connector first (2), and then tighten the one next to the M.2 connector (3).

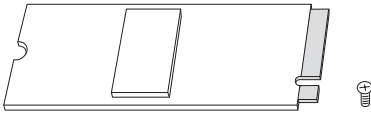
*\*Please do not overtighten the screw as this might damage the module and M.2 heatsink.*

For the latest updates of M.2 SSD module support list, please visit our website for details:  
<http://www.asrock.com>

## 2.14 M.2 SSD Module Installation Guide (M2\_2)

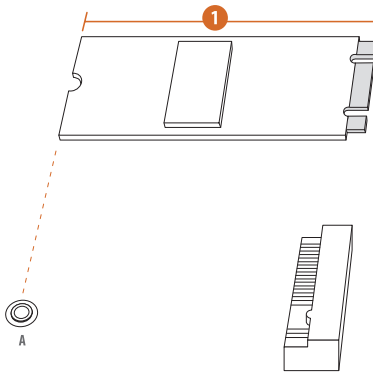
The M.2 is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Hyper M.2 Socket (M2\_2, Key M) supports type 2280 PCIe Gen4x4 (64 Gb/s) mode.

### Installing the M.2 SSD Module



#### Step 1

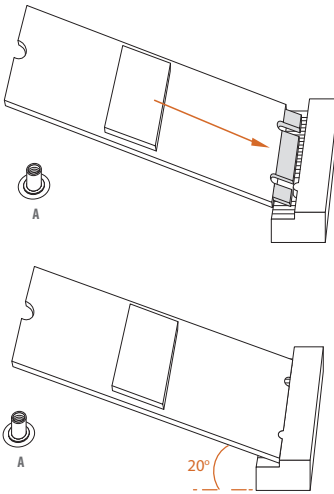
Prepare a M.2 SSD module and the screw.



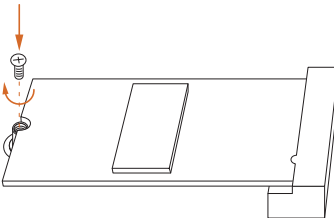
#### Step 2

Depending on the PCB type and length of your M.2 SSD module, find the corresponding nut location to be used.

No.	1
Nut Location	A
PCB Length	8cm
Module Type	Type 2280

**Step 3**

Peel off the yellow protective film on the nut to be used. Align and gently insert the M.2 SSD module into the M.2 slot. Please be aware that the M.2 SSD module only fits in one orientation.

**Step 4**

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

For the latest updates of M.2 SSD module support list, please visit our website for details:  
<http://www.asrock.com>

Version 1.0

Published March 2024

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Licensee's specific rights may vary from country to country.

## FCC Compliance Statement



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, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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 can radiate 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.
- Consult the dealer or an experienced radio/TV technician for help.

## Button Battery Safety Notice

### **WARNING**

- **INGESTION HAZARD:** This product contains a button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**.
- **KEEP** new and used batteries **OUT OF REACH** of **CHILDREN**
- **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.



- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Battery type: CR2032
- Battery voltage: 3V
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- This product contains an irreplaceable battery.
- This icon indicates that a swallowed button battery can cause serious injury or death. Please keep batteries out of sight or reach of children.

## CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)”

## CALIFORNIA, USA ONLY



WARNING: Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## CE Conformity



ASRock INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related Directives. Full text of EU declaration of conformity is available at: <http://www.asrock.com>

ASRock follows the green design concept to design and manufacture our products, and makes sure that each stage of the product life cycle of ASRock product is in line with global environmental regulations. In addition, ASRock disclose the relevant information based on regulation requirements.

Please refer to <https://www.asrock.com/general/about.asp?cat=Responsibility> for information disclosure based on regulation requirements ASRock is complied with.

## UKCA Conformity



ASRock INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related UKCA Directives. Full text of UKCA declaration of conformity is available at: <http://www.asrock.com>

## Consumer Limited Warranty - Australia

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRock Tel : +886-2-28965588 ext.123 (Standard International call charges apply)



### WARNING

THIS PRODUCT CONTAINS A BUTTOON BATTERY

If swallowed, a button battery can cause serious injury or death.  
Please keep batteries out of sight or reach of children.

## Proper Disposal



DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

## Class B ITE

この装置は、クラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

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HIGH-DEFINITION MULTIMEDIA INTERFACE

## European Community Radio Equipment Directive Compliance Statement

This device complies with directive 2014/53/EU issued by the Commission of the European Community. This equipment complies with EU radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Operations in the 5.15-5.35/6GHz band are restricted to indoor usage only.

	AT	BE	BG	CH	CY	CZ	DE
	DK	EE	EL	ES	FI	FR	HR
	HU	IE	IS	IT	LI	LT	LU
	LV	MT	NL	NO	PL	PT	RO
	SE	SI	SK	TR			



### Radio Frequency Bands and Maximum Power Levels

- Features : Wi-Fi 6E, BT, Wi-Fi 7
- Frequency Range : 2.4 GHz: 2400-2485MHz; 5 GHz: 5150-5350MHz, 5470-5725MHz, 5725-5850MHz; 6 GHz: 5955-6415MHz
- Max Power Level : 2.4 GHz: 20dBm; 5 GHz: 23dBm; 6 GHz: 23dBm

### 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)

### NCC 無線設備警告聲明

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

**ASRock Incorporation**

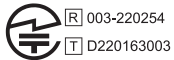
**Contains Wi-Fi 6E module with Bluetooth**

**Intel® Wi-Fi 6E AX210**

**Model: AX210NGW**

FCC ID: PD9AX210NG

IC: 1000M-AX210NG



R 003-220254

T D220163003



CCAH20Y10130T8

5.15~5.35/6GHz indoor use only

## BSMI 限用物質及元素清單

單元	限用物質及其化學符號					
	鉛 (Pb)	鎘 (Cd)	汞 (Hg)	六價鉻 (Cr <sup>+6</sup> )	多溴聯苯 (PBB)	多溴聯苯醚 (PBDE)
電路板	○	○	○	○	○	○
電子元件	-	○	○	○	○	○
線材	-	○	○	○	○	○
配件	-	○	○	○	○	○
<p>備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。</p> <p>備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。</p> <p>備考 3. “-” 係指該項限用物質為排除項目。</p>						

## China RoHS

### 电子信息产品污染控制标示

依据中国发布的「电子信息产品污染控制管理办法」及 SJ/T 11364-2014「电子信息产品污染控制标示要求」，电子信息产品应进行标示，藉以向消费者揭露产品中含有的有毒有害物质或元素不致发生外泄或突变从而对环境造成污染或对人身、财产造成严重损害的期限。依上述规定，您可于本产品之印刷电路板上看见图一之标示。图一中之数字为产品之环保使用期限。由此可知此主板之环保使用期限为 10 年。



图一

### 有毒有害物质或元素的名称及含量说明

若您欲了解此产品的有毒有害物质或元素的名称及含量说明，请参照以下表格及说明。

部件名称	有害物质或元素					
	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及电子组件	X	O	O	O	O	O
外部信号连接头及线材	X	O	O	O	O	O

以上表格依据 SJ/T 11364-2014 的规定编制。  
O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。  
X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。  
备注：此产品所标示之环保使用年限，系指在一般正常使用状况下。