

PRIME Z590-V

Motherboard

ASUS

E17748
First Edition
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Contents

Safety information.....	iv
About this guide.....	v
PRIME Z590-V specifications summary.....	vi
Connectors with shared bandwidth.....	x
Package contents.....	xi
Installation tools and components.....	xii

Chapter 1: Product Introduction

1.1 Before you proceed.....	1-1
1.2 Motherboard layout.....	1-2

Chapter 2: Basic Installation

2.1 Building your PC system.....	2-1
2.1.1 CPU installation.....	2-1
2.1.2 Cooling system installation.....	2-3
2.1.3 DIMM installation.....	2-5
2.1.4 M.2 installation.....	2-6
2.1.5 Motherboard installation.....	2-7
2.1.6 ATX power connection.....	2-9
2.1.7 SATA device connection.....	2-10
2.1.8 Front I/O connector.....	2-11
2.1.9 Expansion card installation.....	2-12
2.2 Motherboard rear and audio connections.....	2-14
2.2.1 Rear I/O connection.....	2-14
2.2.2 Audio I/O connections.....	2-15
2.3 Starting up for the first time.....	2-18
2.4 Turning off the computer.....	2-18

Chapter 3: BIOS and RAID Support

3.1 Knowing BIOS.....	3-1
3.2 BIOS Setup program.....	3-2
3.3 ASUS EZ Flash 3.....	3-3
3.4 ASUS CrashFree BIOS 3.....	3-4
3.5 RAID configurations.....	3-5

Appendix

Notices.....	A-1
Warranty.....	A-6
ASUS contact information.....	A-8

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.
- Your motherboard should only be used in environments with ambient temperatures between 0°C and 40°C.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product Introduction**
This chapter describes the features of the motherboard and the new technology it supports. It includes description of the switches, jumpers, and connectors on the motherboard.
- **Chapter 2: Basic Installation**
This chapter lists the hardware setup procedures that you have to perform when installing system components.
- **Chapter 3: BIOS and RAID Support**
This chapter tells how to boot into the BIOS, upgrade BIOS using the EZ Flash Utility and support on RAID.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS website**
The ASUS website (www.asus.com) provides updated information on ASUS hardware and software products.
2. **Optional documentation**
Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.



CAUTION: Information to prevent damage to the components and injuries to yourself when trying to complete a task.



IMPORTANT: Instructions that you **MUST** follow to complete a task.



NOTE: Tips and additional information to help you complete a task.

PRIME Z590-V specifications summary

<p>CPU</p>	<p>Intel® Socket LGA1200 for 11th Gen Intel® Core™ Processors & 10th Gen Intel® Core™, Pentium® Gold and Celeron® Processors*</p> <p>Supports Intel® 14 nm CPU</p> <p>Supports Intel® Turbo Boost Technology 2.0 and Intel® Turbo Boost Max Technology 3.0**</p> <p>* Refer to www.asus.com for CPU support list.</p> <p>** Intel® Turbo Boost Max Technology 3.0 support depends on the CPU types.</p>
<p>Chipset</p>	<p>Intel® Z590 Chipset</p>
<p>Memory</p>	<p>4 x DIMM, Max. 128GB, DDR4 5133(OC)/5000(OC)/4800(OC)/4700(OC)/4600(OC)/4500(OC)/4400(OC)/4266(OC)/4133(OC)/4000(OC)/3866(OC)/3733(OC)/3600(OC)/3466(OC)/3400(OC)/3333(OC)/3200/3000/2933/2800/2666/2400/2133 MHz Non-ECC, Un-buffered Memory*</p> <p>Dual Channel Memory Architecture</p> <p>Supports Intel® Extreme Memory Profile (XMP)</p> <p>OptiMem II</p> <p>* 10th Gen Intel® Core™ i7/i9 processors support 2933/2800/2666/2400/2133 natively, others will run at the maximum transfer rate of DDR4 2666MHz.</p> <p>* 11th Gen Intel® processors support 3200/2933/2800/2666/2400/2133 natively.</p> <p>** Refer to www.asus.com for the Memory QVL (Qualified Vendors Lists), and memory frequency support depends on the CPU types.</p>
<p>Graphics</p>	<p>1 x DisplayPort 1.4**</p> <p>1 x HDMI™ 1.4/2.0***</p> <p>* Graphics specifications may vary between CPU types.</p> <p>** Intel® 11th & 10th Gen processors support DisplayPort 1.4 with max. resolution of 4096 x 2304 @60Hz. Please refer to www.intel.com for any updates.</p> <p>***Only Intel® 11th Gen processors support HDMI™ 2.0 with max. resolution of 4K@60Hz, others will only support HDMI™ 1.4 with max. resolution of 4K@30Hz. Please refer to www.intel.com for any updates.</p>
<p>Expansion Slots</p>	<p>Intel® 11th & 10th Gen Processors*</p> <p>1 x PCIe 4.0/3.0 x16 slot</p> <ul style="list-style-type: none"> - Intel® 11th Gen processors support PCIe 4.0 x16 or x8/x8 or x8/x4/x4 modes - Intel® 10th Gen processors support PCIe 3.0 x16 or x8/x8 or x8/x4/x4 modes <p>Intel® Z590 Chipset</p> <p>1 x PCIe 3.0 x16 slot (supports x4 mode)</p> <p>3 x PCIe 3.0 x1 slots</p> <p>* Supports PCIe bandwidth bifurcation for RAID on CPU function.</p>
<p>Storage</p>	<p>Total supports 3 x M.2 slots and 4 x SATA 6Gb/s ports</p> <p>Intel® 11th Gen Processors</p> <p>M.2_1 slot (Key M), type 2242/2260/2280/22110</p> <ul style="list-style-type: none"> - Only Intel® 11th Gen processors support PCIe 4.0 x4 mode, this slot will be disabled for other CPUs <p>Intel® Z590 Chipset</p> <p>M.2_2 slot (Key M), type 2242/2260/2280 (supports PCIe 3.0 x4 & SATA modes)*</p> <p>M.2_3 slot (Key M), type 2242/2260/2280/22110 (supports PCIe 3.0 x4 & SATA modes)</p> <p>4 x SATA 6Gb/s ports</p>

(continued on the next page)

PRIME Z590-V specifications summary

Storage	<p>Raid function for PCIe mode SSD in Intel® Rapid Storage Technology is available with either 1. Intel® SSDs installed in both CPU-attached and PCH-attached slots, or 2. any other 3rd party SSDs installed in PCH-attached slots.</p> <p>To enable Intel® Optane™ Memory (Hybrid Storage device), it must be installed in PCH-attached slots with Intel® Rapid Storage Technology.</p> <p>* When a device in SATA mode is installed on the M.2_2 slot, SATA6G_2 port cannot be used.</p>
Ethernet	1 x Intel® I219-V 1Gb Ethernet
Wireless & Bluetooth	<p>V-M.2 slot only (Key E, CNVi & PCIe)*</p> <p>* Wi-Fi module and vertical M.2 Key E bracket set are purchased separately.</p>
USB	<p>Rear USB (Total 6 ports)</p> <p>1 x USB 3.2 Gen 2 port (1 x USB Type-C®)</p> <p>1 x USB 3.2 Gen 2 port (1 x Type-A)</p> <p>2 x USB 3.2 Gen 1 ports (2 x Type-A)</p> <p>2 x USB 2.0 ports (2 x Type-A)</p> <p>Front USB (Total 8 ports)</p> <p>2 x USB 3.2 Gen 1 headers support additional 4 USB 3.2 Gen 1 ports</p> <p>2 x USB 2.0 headers support additional 4 USB 2.0 ports*</p> <p>* USB_E1 port, USB_E2 port, USB_E3 port and USB_E4 port share the bandwidth.</p>
Audio	<p>Realtek ALC897 7.1 Surround Sound High Definition Audio CODEC</p> <ul style="list-style-type: none"> - Supports: Jack-detection, Multi-streaming, Front Panel Jack-retasking - Supports up to 24-Bit/192kHz playback <p>Audio Features:</p> <ul style="list-style-type: none"> - Audio Shielding - Rear optical S/PDIF out port - Premium Japanese audio capacitors - Dedicated audio PCB layers
Back Panel I/O Ports	<p>1 x USB 3.2 Gen 2 port (1 x USB Type-C®)</p> <p>1 x USB 3.2 Gen 2 port (1 x Type-A)</p> <p>2 x USB 3.2 Gen 1 ports (2 x Type-A)</p> <p>2 x USB 2.0 ports (2 x Type-A)</p> <p>1 x DisplayPort</p> <p>1 x HDMI™ port</p> <p>1 x V-M.2 slot (Key E)</p> <p>1 x Intel® I219-V 1Gb Ethernet port</p> <p>5 x Audio jacks</p> <p>1 x Optical S/PDIF out port</p> <p>1 x PS/2 Keyboard/Mouse combo port</p>

(continued on the next page)

PRIME Z590-V specifications summary

Internal I/O Connectors	<p>Fan and Cooling related</p> <ul style="list-style-type: none">1 x 4-pin CPU Fan header1 x 4-pin AIO_Pump header2 x 4-pin Chassis Fan headers <p>Power related</p> <ul style="list-style-type: none">1 x 24-pin Main Power connector1 x 8-pin +12V Power connector1 x 4-pin +12V Power connector <p>Storage related</p> <ul style="list-style-type: none">3 x M.2 slots (Key M)4 x SATA 6Gb/s ports <p>USB</p> <ul style="list-style-type: none">2 x USB 3.2 Gen 1 headers support additional 4 USB 3.2 Gen 1 ports2 x USB 2.0 headers support additional 4 USB 2.0 ports <p>Miscellaneous</p> <ul style="list-style-type: none">2 x AURA Addressable Gen 2 headers2 x AURA RGB headers1 x Clear CMOS header1 x COM Port header1 x Front Panel Audio header (AAFP)1 x SPI TPM header (14-1 pin)1 x 20-5 pin System Panel header1 x Thunderbolt™ header
Special Features	<p>ASUS 5X PROTECTION III</p> <ul style="list-style-type: none">- DIGI+ VRM (- Digital power design with DrMOS)- LANGuard- Overvoltage Protection- SafeSlot Core- Stainless-Steel Back I/O <p>ASUS Q-Design</p> <ul style="list-style-type: none">- Q-DIMM- Q-Slot <p>ASUS Thermal Solution</p> <ul style="list-style-type: none">- VRM heatsink design <p>ASUS EZ DIY</p> <ul style="list-style-type: none">- ProCool <p>AURA Sync</p> <ul style="list-style-type: none">- AURA RGB headers- Addressable Gen 2 RGB headers

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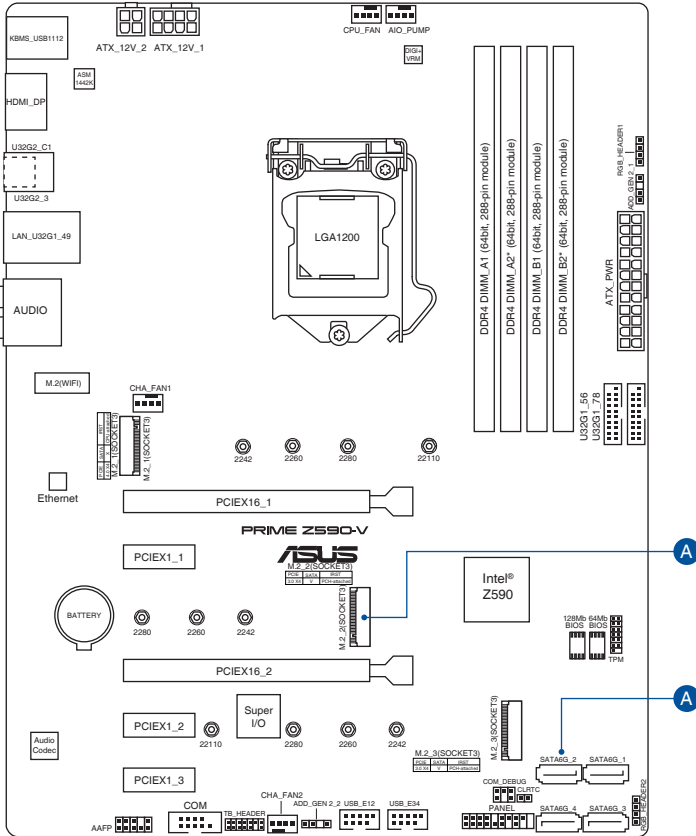
PRIME Z590-V specifications summary

Software Features	ASUS Exclusive Software Features
	Armoury Crate
	- AURA Sync
	AI Suite 3
	- Performance And Power Saving Utility
	TurboV EVO
	EPU
	DIGI+ VRM
	Fan Xpert 4
	- EZ Update
ASUS CPU-Z	
AI Charger	
DAEMON Tools	
Norton Anti-virus software (Free Trial version)	
WinRAR	
UEFI BIOS	
ASUS EZ DIY	
- ASUS CrashFree BIOS 3	
- ASUS EZ Flash 3	
- ASUS UEFI BIOS EZ Mode	
BIOS	192 (128+64) Mb Flash ROM, UEFI AMI BIOS
Manageability	WOL by PME, PXE
Operating System	Windows® 10 64-bit
Form Factor	ATX Form Factor
	12 inch x 9.2 inch (30.5 cm x 23.4 cm)



Specifications are subject to change without notice. Please refer to the ASUS website for the latest specifications.

Connectors with shared bandwidth



Configuration		1	2
A	M.2_2	x4	SATA
	SATA6G_2	V	-



- M.2_2 shares bandwidth with SATA6G_2.
- When a device in SATA mode is installed on the M.2_2 slot, SATA6G_2 port cannot be used.

Package contents

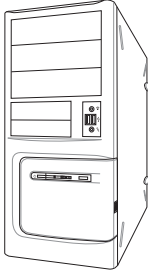
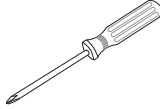
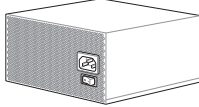
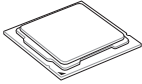
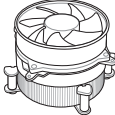
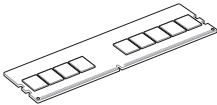
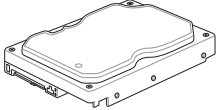

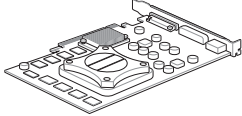
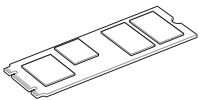

Check your motherboard package for the following items.

Motherboard	1 x PRIME Z590-V motherboard
Cables	2 x SATA 6Gb/s cables
Miscellaneous	1 x I/O Shield 2 x M.2 SSD screw packages
Installation Media	1 x Support DVD
Documentation	1 x User manual



If any of the above items is damaged or missing, contact your retailer.

Installation tools and components

	
	<p>Phillips (cross) screwdriver</p>
<p>PC chassis</p>	
<p>Power supply unit</p>	
<p>Intel® LGA 1200 CPU</p>	
<p>Intel® LGA 1200 compatible CPU Fan</p>	
<p>DDR4 DIMM</p>	
<p>SATA hard disk drive</p>	
<p>SATA optical disc drive (optional)</p>	
<p>Graphics card (optional)</p>	
<p>M.2 SSD module (optional)</p>	
<p>1 Bag of screws</p>	



The tools and components in the table above are not included in the motherboard package.

Product Introduction

1

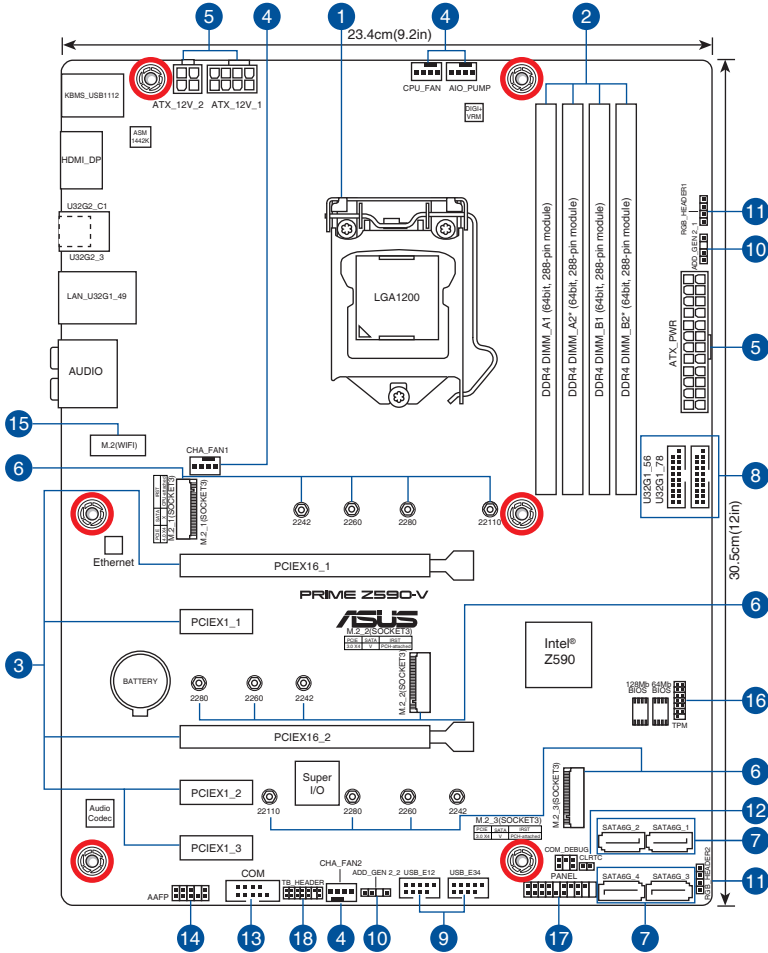
1.1 Before you proceed

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



-
- Unplug the power cord from the wall socket before touching any component.
 - Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
 - Hold components by the edges to avoid touching the ICs on them.
 - Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
 - Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.
-

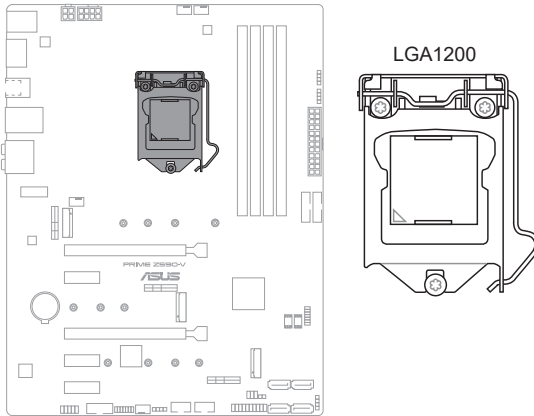
1.2 Motherboard layout



Layout contents	Page
1. CPU socket	1-4
2. DIMM slots	1-5
3. Expansion slots	1-7
4. Fan and Pump headers	1-9
5. Power connectors	1-10
6. M.2 slots (SOCKET 3)	1-11
7. SATA 6Gb/s ports	1-12
8. USB 3.2 Gen 1 headers	1-13
9. USB 2.0 headers	1-14
10. AURA Addressable Gen 2 headers	1-15
11. AURA RGB headers	1-16
12. Clear CMOS header	1-17
13. COM Port header	1-18
14. Front Panel Audio header	1-18
15. V-M.2 slot (Key E)	1-19
16. SPI TPM header (14-1pin)	1-19
17. System Panel header	1-20
18. Thunderbolt™ header	1-21

1. CPU socket

The motherboard comes with a LGA1200 socket designed for 11th Gen Intel® Core™ Processors & 10th Gen Intel® Core™, Pentium® Gold and Celeron® Processors.



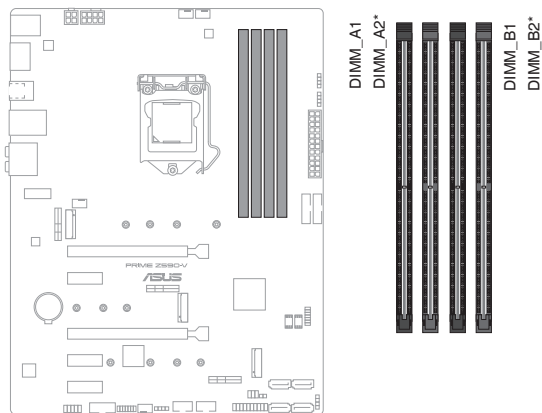
- Ensure that you install the correct CPU designed for LGA1200 socket only. **DO NOT** install a CPU designed for other sockets on the LGA1200 socket.
- The CPU fits in only one correct orientation. **DO NOT** force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU.
- Ensure that all power cables are unplugged before installing the CPU.
- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1200 socket.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

2. DIMM slots

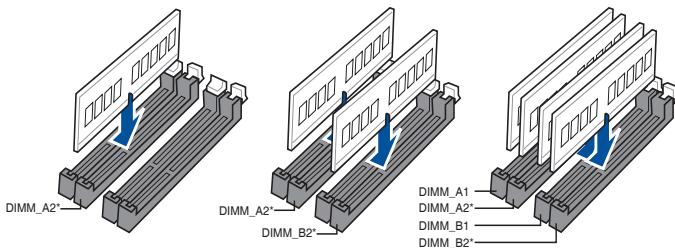
The motherboard comes with Dual Inline Memory Modules (DIMM) slots designed for DDR4 (Double Data Rate 4) memory modules.



A DDR4 memory module is notched differently from a DDR, DDR2, or DDR3 module. DO NOT install a DDR, DDR2, or DDR3 memory module to the DDR4 slot.



Recommended memory configurations



Memory configurations

You may install 2 GB, 4 GB, 8 GB, 16 GB, and 32 GB unbuffered and non-ECC DDR4 DIMMs into the DIMM sockets.



You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.

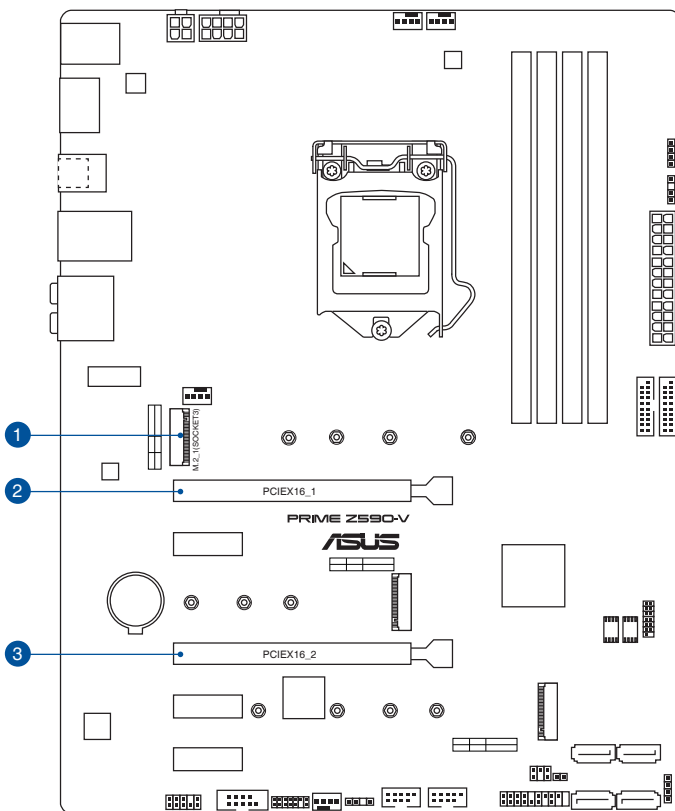


- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value.
 - For system stability, use a more efficient memory cooling system to support a full memory load or overclocking condition.
 - Always install the DIMMS with the same CAS Latency. For an optimum compatibility, we recommend that you install memory modules of the same version or data code (D/C) from the same vendor. Check with the vendor to get the correct memory modules.
 - Visit the ASUS website for the latest QVL.
-

3. Expansion slots



Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.



Please refer to the following tables for the recommended VGA configuration and Hyper M.2 configuration.

Recommended VGA configuration

Slot Description	Single VGA	Dual VGA
2. PCIEX16_1	x16	x16
3. PCIEX16_2	-	x4



Connect a chassis fan to the chassis fan connectors when using multiple graphics cards for better thermal environment.

PCIe bifurcation & M.2 settings in PCIEX16 slot (from CPU)

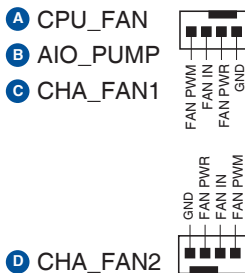
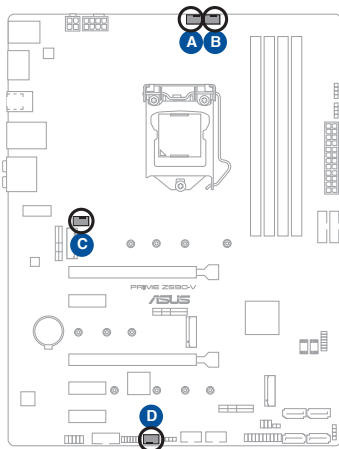
Slot Description	Quantity of identifiable Intel M.2 SSD (pcs)
2. PCIEX16_1	3 (x8+x4+x4)
1. M.2_1	1 (x4)



- Hyper M.2 X16 series card is sold separately.
- Ensure to install the Hyper M.2 X16 series card to PCIEX16_1. If you wish to connect a display, we suggest to use the internal VGA or use PCIEX16_2, which will run at x4.
- Enable the Hyper M.2 X16 series card under BIOS settings.
- M.2_1 is only supported with Intel® 11th Gen processors, this slot will be disabled for other CPUs.

4. Fan and Pump headers

The Fan and Pump headers allow you to connect fans or pumps to cool the system.

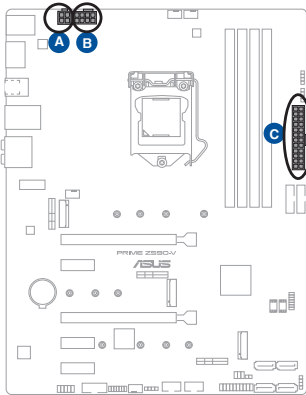


- DO NOT forget to connect the fan cables to the fan headers. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan headers!
- Ensure the cable is fully inserted into the header.

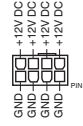
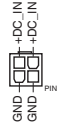
Header	Max. Current	Max. Power	Default Speed	Shared Control
CPU_FAN	1A	12W	Q-Fan Controlled	-
CHA_FAN1	1A	12W	Q-Fan Controlled	-
CHA_FAN2	1A	12W	Q-Fan Controlled	-
AIO_PUMP	1A	12W	Full-Speed	-

5. Power connectors

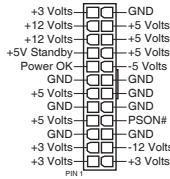
These Power connectors allow you to connect your motherboard to a power supply. The power supply plugs are designed to fit in only one orientation. Find the proper orientation and push down firmly until the power supply plugs are fully inserted.



A ATX_12V_2 **B** ATX_12V_1



C ATX_PWR



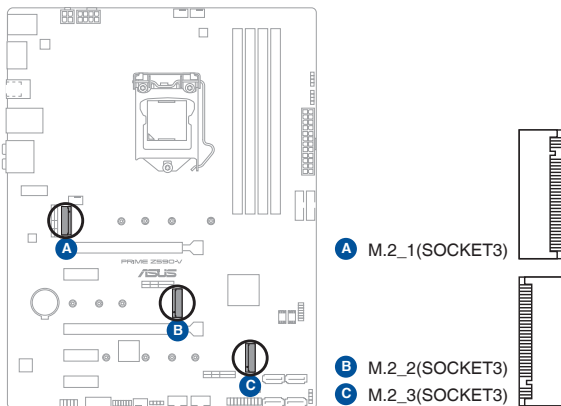
Ensure to connect the 8-pin power plug.



- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12V Specification 2.0 (or later version) and provides a minimum power of 350 W.
- We recommend that you use a PSU with a higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- If you want to use two or more high-end PCI Express x16 cards, use a PSU with 1000W power or above to ensure the system stability.

6. M.2 slots

The M.2 slots allow you to install M.2 devices such as M.2 SSD modules.



- **Intel® 11th Gen processors:**

M.2_1 slot (Key M), type 2242/2260/2280/22110

- Only Intel® 11th Gen processors support PCIe 4.0 x4 mode, this slot will be disabled for other CPUs.

- **Intel® Z590 Chipset:**

- M.2_2 slot (Key M), type 2242/2260/2280 (supports PCIe 3.0 x4 & SATA modes).

- M.2_3 slot (Key M), type 2242/2260/2280/22110 (supports PCIe 3.0 x4 & SATA modes).

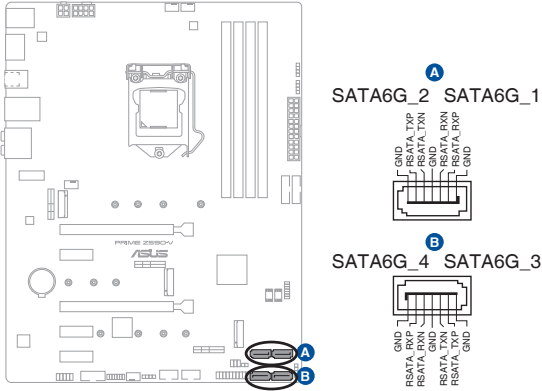
- Raid function in Intel® Rapid Storage Technology is available with either
 1. Intel® SSDs installed in both CPU-attached and PCH-attached slots, or
 2. any other 3rd party SSDs installed in PCH-attached slots.
- To enable Intel® Optane™ Memory (Hybrid Storage device), it must be installed in PCH-attached slots with Intel® Rapid Storage Technology.
- When a device in SATA mode is installed on the M.2_2 slot, SATA6G_2 port cannot be used.



The M.2 SSD module is purchased separately.

7. SATA 6Gb/s ports

The SATA 6Gb/s ports allow you to connect SATA devices such as optical disc drives and hard disk drives via a SATA cable.



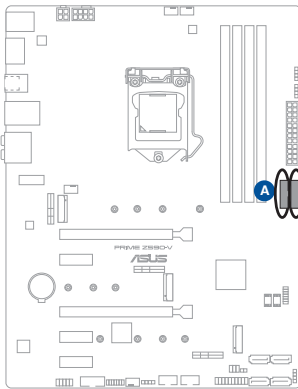
If you installed SATA storage devices, you can create a RAID 0, 1, 5, and 10 configuration with the Intel® Rapid Storage Technology through the onboard Intel® Z590 chipset.



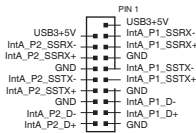
- The connectors are set to **[AHCI Mode]** by default. If you intend to create a SATA RAID set using these connectors, set the SATA Mode item in the BIOS to **[Intel RST Premium with Intel Optane System Acceleration (RAID)]**.
- When a device in SATA mode is installed on the M.2_2 slot, SATA6G_2 port cannot be used.
- Before creating a RAID set, refer to the **RAID Configuration Guide**. You can download the **RAID Configuration Guide** from the ASUS website.

8. USB 3.2 Gen 1 headers

The USB 3.2 Gen 1 headers allow you to connect USB 3.2 Gen 1 modules for additional USB 3.2 Gen 1 ports. The USB 3.2 Gen 1 headers provide data transfer speeds of up to 5 Gb/s.



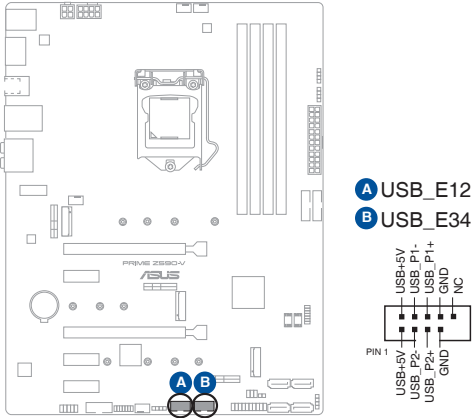
- A** U32G1_56
- B** U32G1_78



The USB 3.2 Gen 1 module is purchased separately.

9. USB 2.0 headers

The USB 2.0 headers allow you to connect a USB module for additional USB 2.0 ports. The USB 2.0 headers provide data transfer speeds of up to 480 Mb/s.



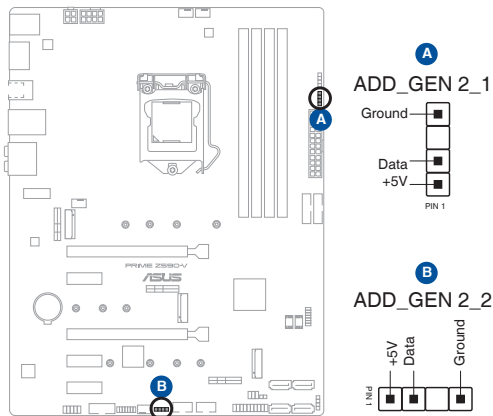
DO NOT connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



The USB 2.0 module is purchased separately.

10. AURA Addressable Gen 2 headers

The Addressable Gen 2 headers allow you to connect individually addressable RGB WS2812B LED strips or WS2812B based LED strips.



The Addressable Gen 2 header supports WS2812B addressable RGB LED strips (5V/ Data/Ground), with a maximum power rating of 3A (5V) and the addressable headers on this board can handle a combined maximum of 500 LEDs.



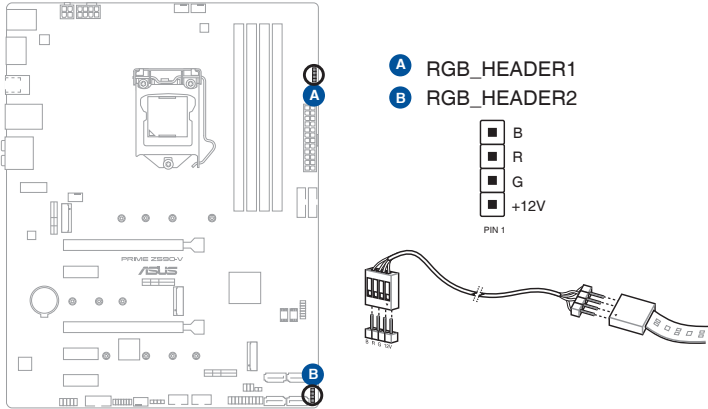
Before you install or remove any component, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.



- Actual lighting and color will vary with LED strip.
- If your LED strip does not light up, check if the addressable RGB LED strip is connected in the correct orientation, and the 5V connector is aligned with the 5V header on the motherboard.
- The addressable RGB LED strip will only light up when the system is powered on.
- The addressable RGB LED strip is purchased separately.

11. AURA RGB headers

The RGB headers allow you to connect RGB LED strips.



The RGB header supports 5050 RGB multi-color LED strips (12V/G/R/B), with a maximum power rating of 3A (12V).



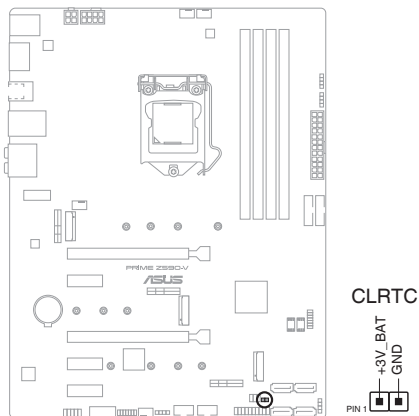
Before you install or remove any component, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.



- Actual lighting and color will vary with LED strip.
- If your LED strip does not light up, check if the RGB LED extension cable and the RGB LED strip is connected in the correct orientation, and the 12V connector is aligned with the 12V header on the motherboard.
- The LED strip will only light up when the system is powered on.
- The LED strip is purchased separately.

12. Clear CMOS header

The Clear CMOS header allows you to clear the Real Time Clock (RTC) RAM in the CMOS, which contains the date, time, system passwords, and system setup parameters.



To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Use a metal object such as a screwdriver to short the two pins.
3. Plug the power cord and turn on the computer.
4. Hold down the key during the boot process and enter BIOS setup to re-enter data.



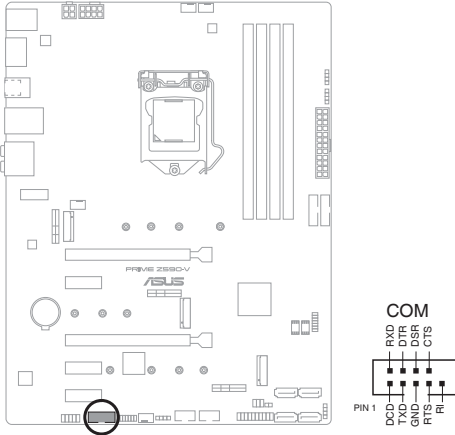
DO NOT short-circuit the pins except when clearing the RTC RAM. Short-circuiting or placing a jumper cap will cause system boot failure!



If the steps above do not help, remove the onboard button cell battery and move the jumper again to clear the CMOS RTC data. After clearing the CMOS, reinstall the button cell battery.

13. COM Port connector

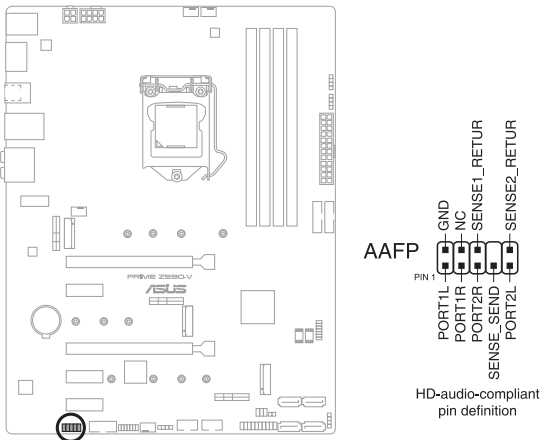
The COM (Serial) Port connector allows you to connect a COM port module. Connect the COM port module cable to this connector, then install the module to a slot opening on the system chassis.



The COM port module is purchased separately.

14. Front Panel Audio header

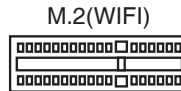
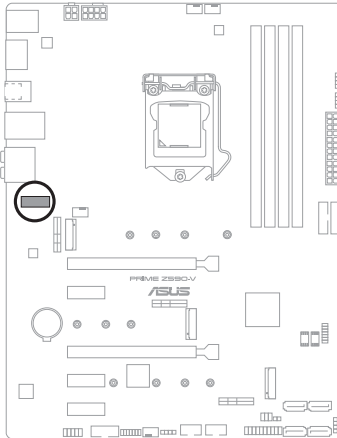
The front panel audio header is for a chassis-mounted front panel audio I/O module that supports HD Audio. Connect one end of the front panel audio I/O module cable to this header.



We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

15. V-M.2 slot (Key E)

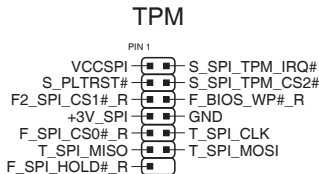
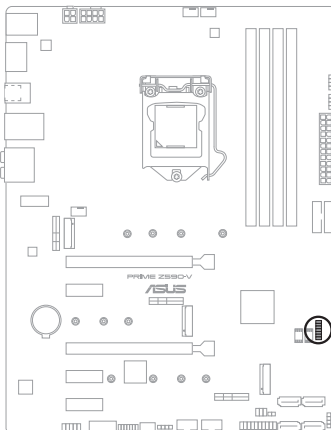
The vertical M.2 slot (Key E) allows you to install an M.2 Wi-Fi module.



The M.2 Wi-Fi module and vertical M.2 Key E bracket set are purchased separately.

16. SPI TPM header (14-1pin)

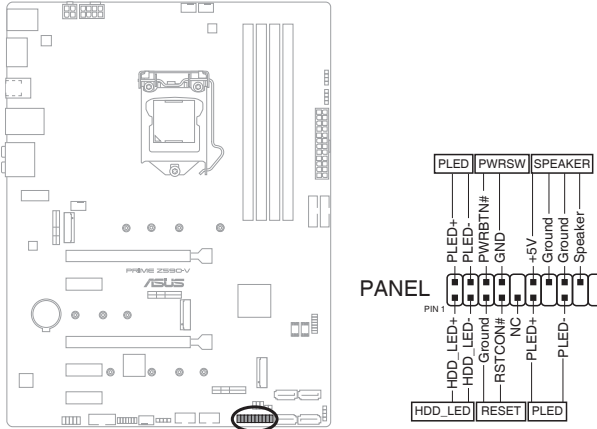
This header supports a Trusted Platform Module (TPM) system with a Serial Peripheral Interface (SPI), allowing you to securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.



The TPM module is purchased separately.

17. System Panel header

The System Panel header supports several chassis-mounted functions.



- **System Power LED header (PLED)**

The 2-pin and/or 3-1 pin headers allow you to connect the System Power LED. The System Power LED lights up when the system is connected to a power source, or when you turn on the system power, and blinks when the system is in sleep mode.

- **Storage Device Activity LED header (HDD_LED)**

The 2-pin header allows you to connect the Storage Device Activity LED. The Storage Device Activity LED lights up or blinks when data is read from or written to the storage device or storage device add-on card.

- **System Warning Speaker header (SPEAKER)**

The 4-pin header allows you to connect the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **Power Button/Soft-off Button header (PWRBNTN#)**

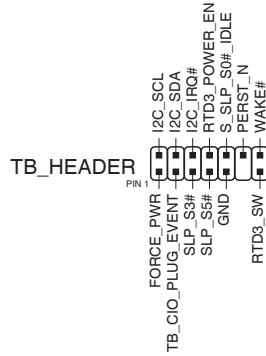
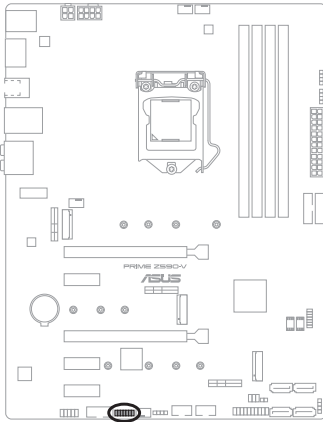
The 3-1 pin header allows you to connect the system power button. Press the power button to power up the system, or put the system into sleep or soft-off mode (depending on the operating system settings).

- **Reset button header (RESET)**

The 2-pin header allows you to connect the chassis-mounted reset button. Press the reset button to reboot the system.

18. Thunderbolt™ header

The Thunderbolt™ header allows you to connect an add-on Thunderbolt™ I/O card that supports Intel®'s Thunderbolt™ Technology, allowing you to connect Thunderbolt™-enabled devices to form a daisy chain-configuration.



- The add-on Thunderbolt™ I/O card and Thunderbolt™ cables are purchased separately.
- Please visit the official website of your purchased Thunderbolt™ card for more details on compatibility.

Basic Installation

2

2.1 Building your PC system

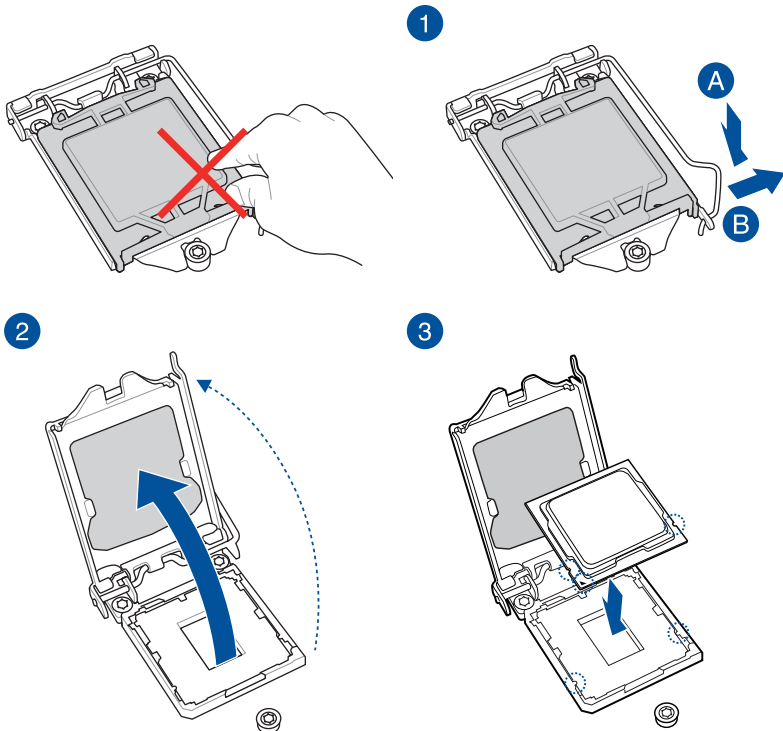


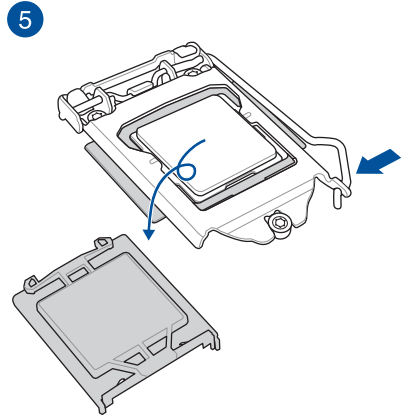
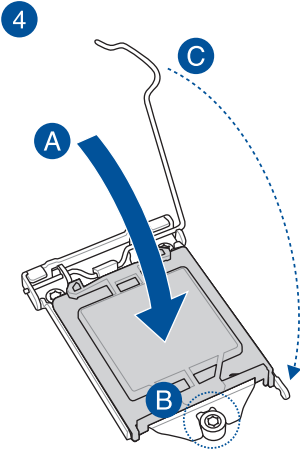
The diagrams in this section are for reference only. The motherboard layout may vary with models, but the installation steps are the same for all models.

2.1.1 CPU installation

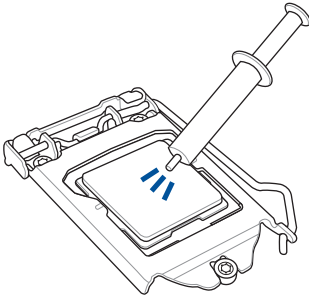


- Ensure that you install the correct CPU designed for LGA1200 socket only. DO NOT install a CPU designed for LGA1155, LGA1156, and LGA1151 sockets on the LGA1200 socket.
- ASUS will not cover damages resulting from incorrect CPU installation/removal, incorrect CPU orientation/placement, or other damages resulting from negligence by the user.





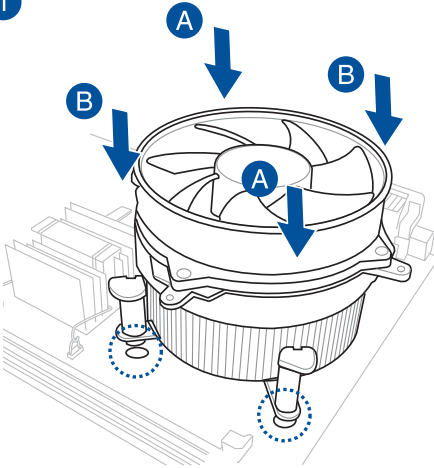
2.1.2 Cooling system installation



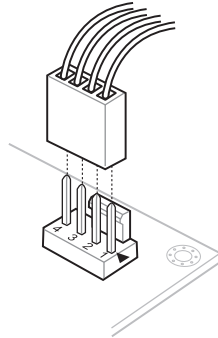
Apply Thermal Interface Material to the CPU cooling system and CPU before you install the cooling system, if necessary.

To install a CPU heatsink and fan assembly

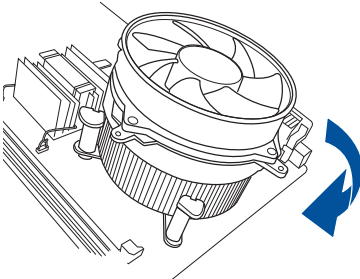
1



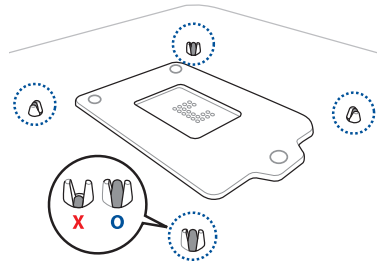
2



3



4

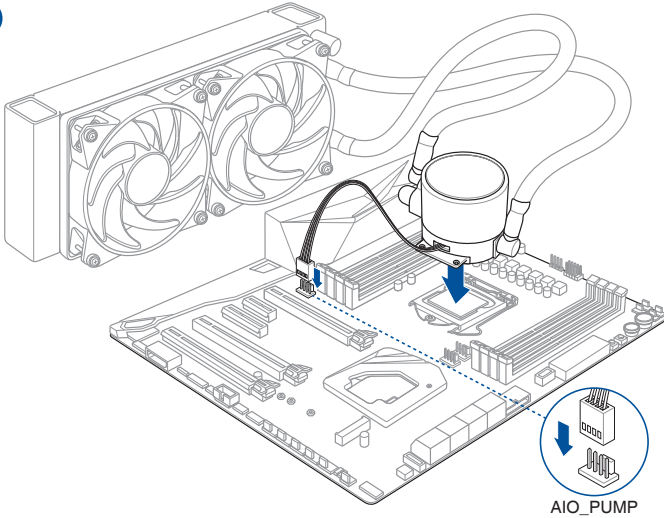


To install an AIO cooler

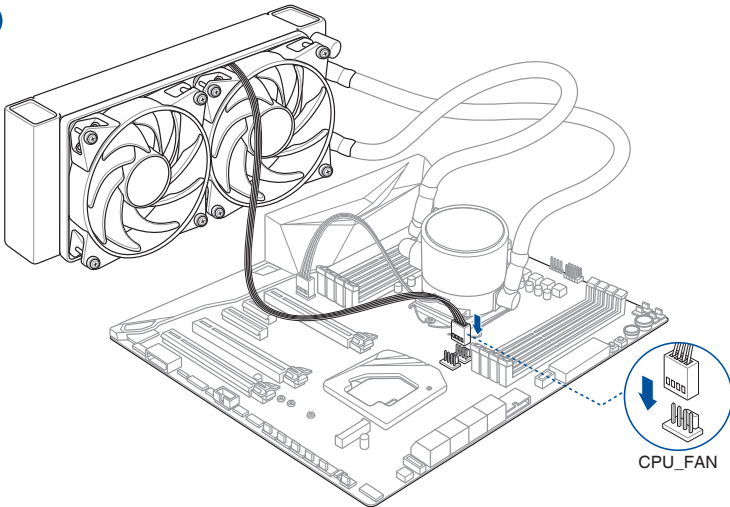


If you wish to install an AIO cooler, we recommend installing the AIO cooler after installing the motherboard into the chassis.

1

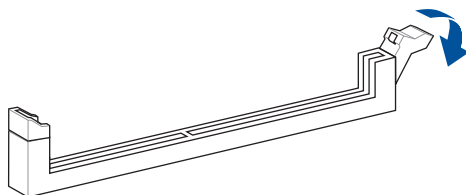


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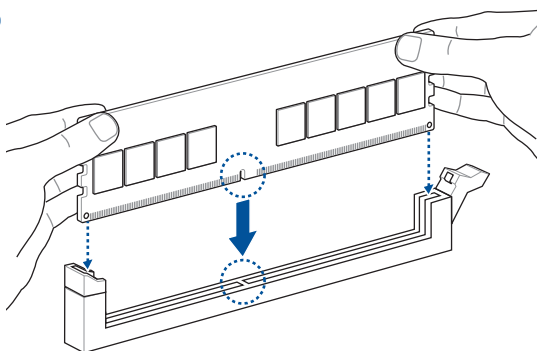


2.1.3 DIMM installation

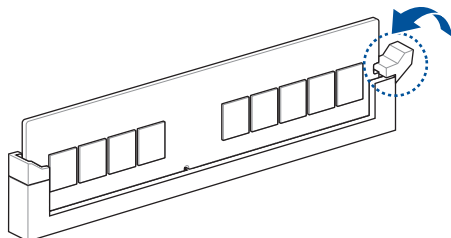
1



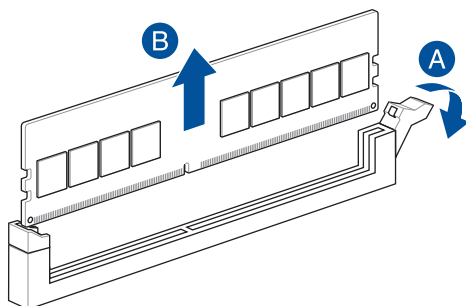
2



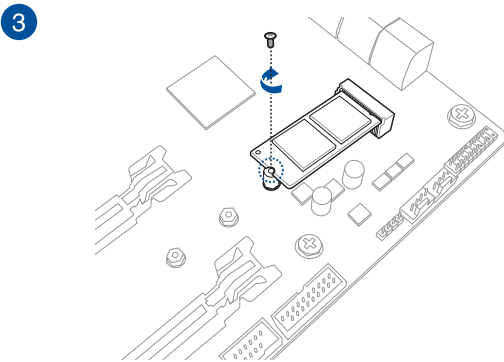
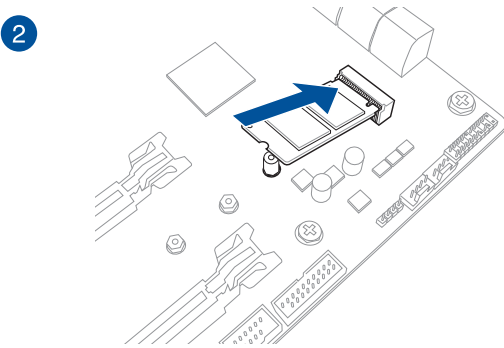
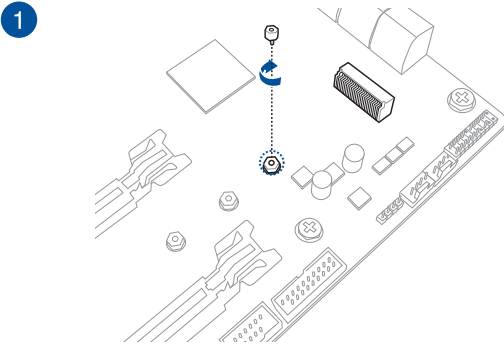
3



To remove a DIMM



2.1.4 M.2 installation



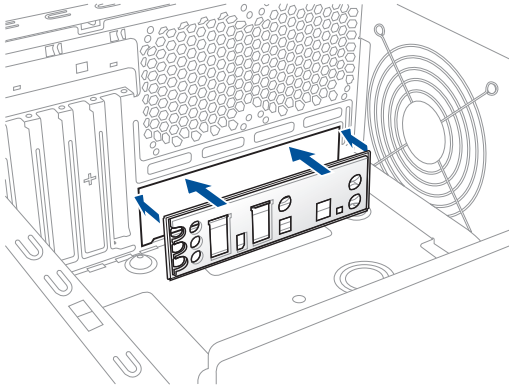
The M.2 SSD module is purchased separately.

2.1.5 Motherboard installation

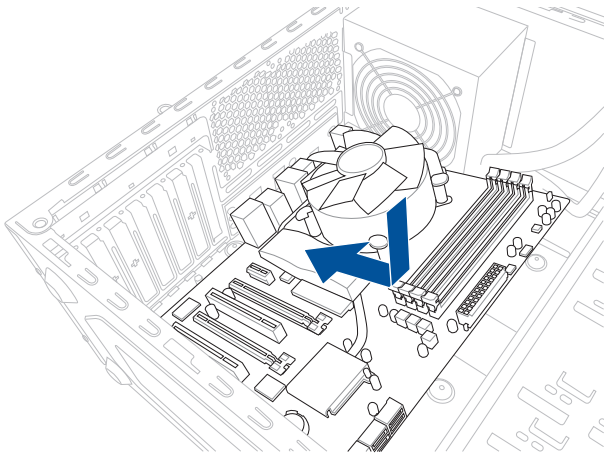
1. Install the ASUS I/O Shield to the chassis rear I/O panel.



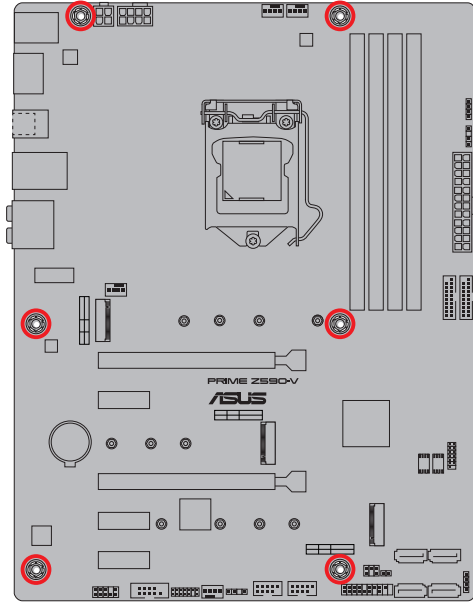
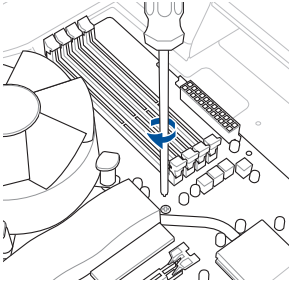
Some sharp edges and points might cause physical injury. We recommend you put on cut or puncture resistant gloves before motherboard and I/O shield installation.



2. Place the motherboard into the chassis, ensuring that its rear I/O ports are aligned to the chassis' rear I/O panel.

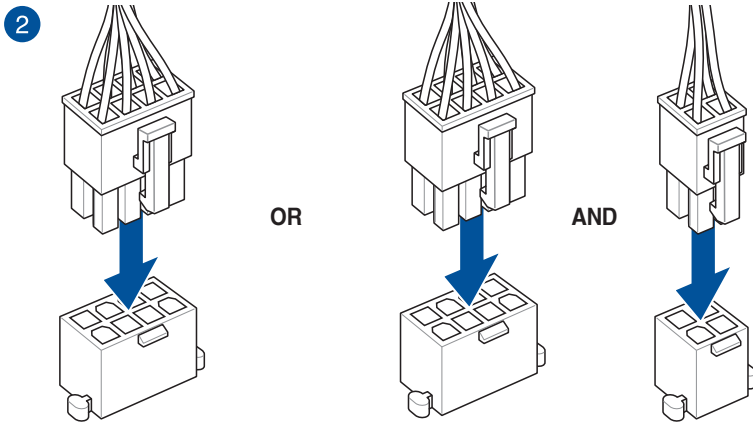
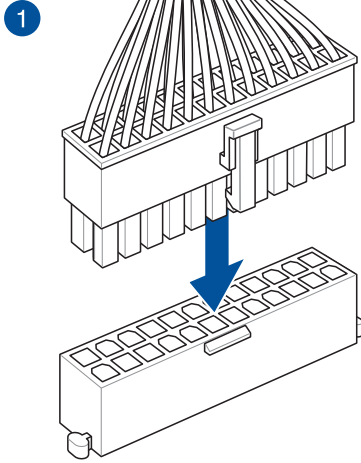


- Place six (6) screws into the holes indicated by circles to secure the motherboard to the chassis.



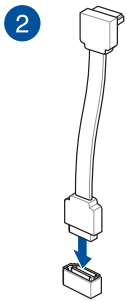
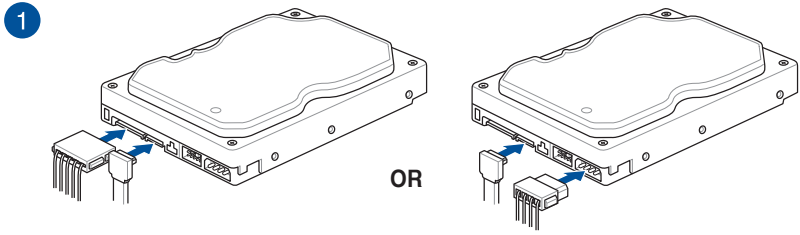
DO NOT over tighten the screws! Doing so can damage the motherboard.

2.1.6 ATX power connection



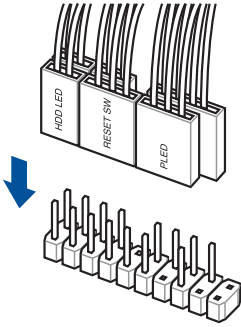
Ensure to connect the 8-pin power plug.

2.1.7 SATA device connection

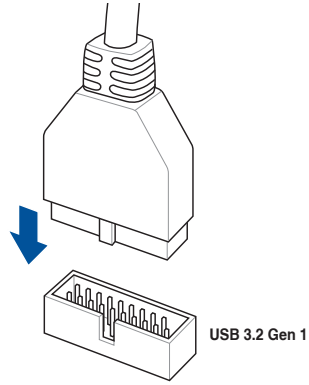


2.1.8 Front I/O connector

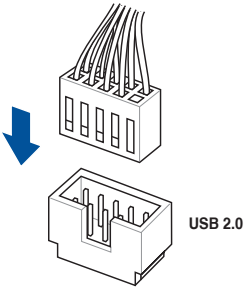
To install front panel connector



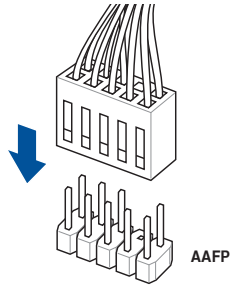
To install USB 3.2 Gen 1 connector



To install USB 2.0 connector

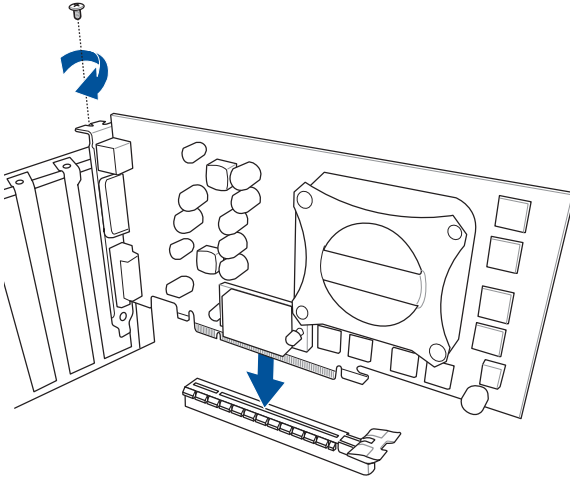


To install front panel audio connector

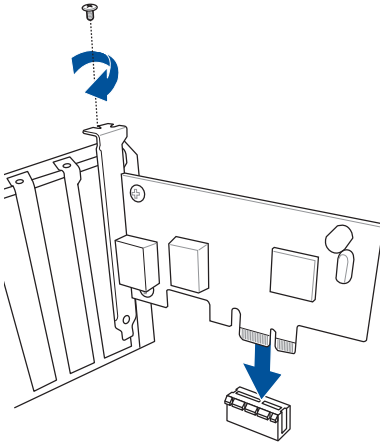


2.1.9 Expansion card installation

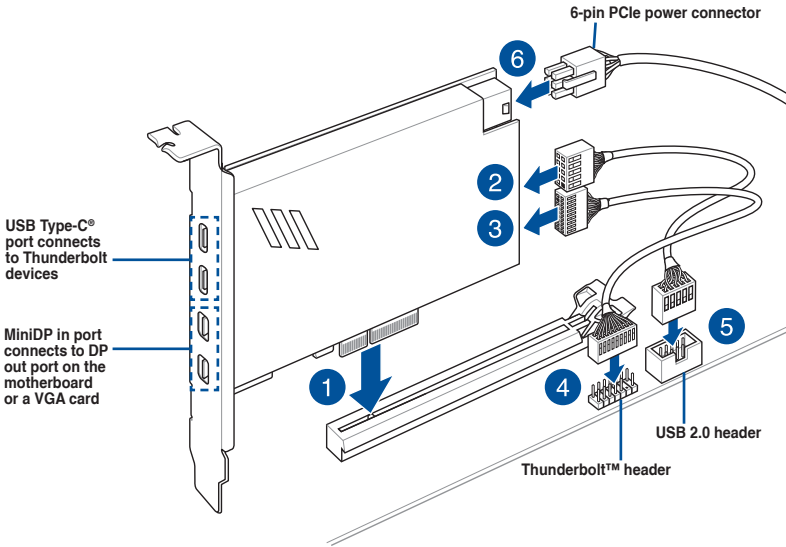
To install PCIe x16 cards



To install PCIe x1 cards



To install Thunderbolt™ series card



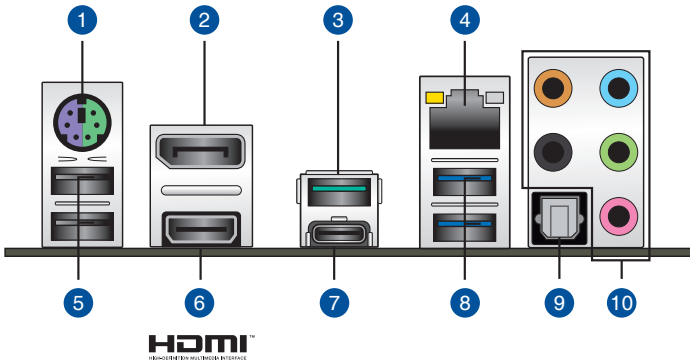
Ensure to install the Thunderbolt™ series card to a PCIe slot from PCH.



- Step 6 is optional, please connect a 6-pin PCIe power connector when you wish to use the USB Type-C® port Thunderbolt™ quick charge feature to charge a 5V or more device.
- The TypeC_1 port can support up to 20V devices, and the TypeC_2 port can support up to 9V devices when the 6-pin PCIe power connector is connected.
- The Thunderbolt™ series card is sold separately.
- Please visit the official website of your purchased Thunderbolt™ card for more details on compatibility.

2.2 Motherboard rear and audio connections

2.2.1 Rear I/O connection



Rear panel connectors

- | | |
|-----|------------------------------------|
| 1. | PS/2 Keyboard/Mouse combo port |
| 2. | DisplayPort |
| 3. | USB 3.2 Gen 2 Type-A port 3 |
| 4. | Ethernet port* |
| 5. | USB 2.0 ports 11 and 12 |
| 6. | HDMI™ port |
| 7. | USB 3.2 Gen 2 Type-C® port C1 |
| 8. | USB 3.2 Gen 1 Type-A ports 4 and 9 |
| 9. | Optical S/PDIF OUT port |
| 10. | Audio Jacks** |

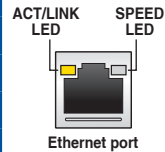
* and **: Refer to the tables on the next page for LAN port LEDs, and audio port definitions.



We strongly recommend that you connect your devices to ports with matching data transfer rate. Please connect your USB 3.2 Gen 1 devices to USB 3.2 Gen 1 ports and your USB 3.2 Gen 2 devices to USB 3.2 Gen 2 ports for faster and better performance for your devices.

* Ethernet port LED indications

Activity Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection

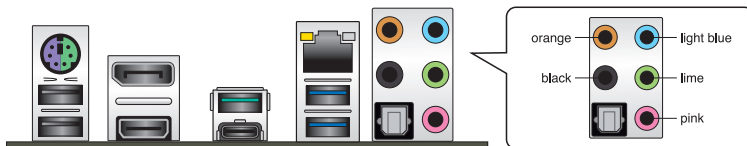


** Audio 2, 4, 5.1 or 7.1-channel configuration

Port	Headset 2-channel	4-channel	5.1-channel	7.1-channel
Light Blue	Line In	Line In	Line In	Side Speaker Out
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Sub woofer	Center/Sub woofer
Black	–	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out

2.2.2 Audio I/O connections

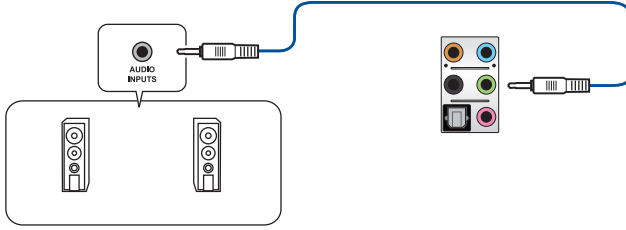
Audio I/O ports



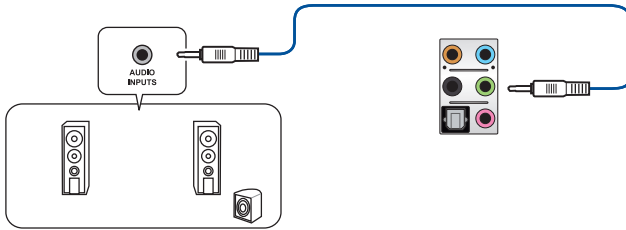
Connect to Headphone and Mic



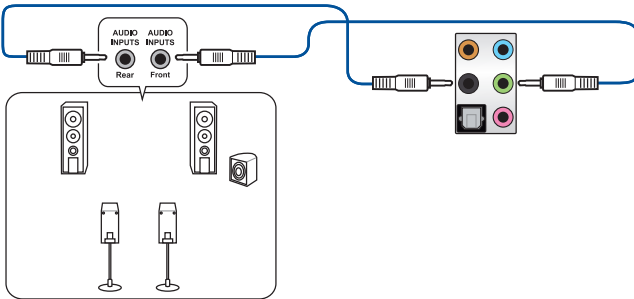
Connect to Stereo Speakers



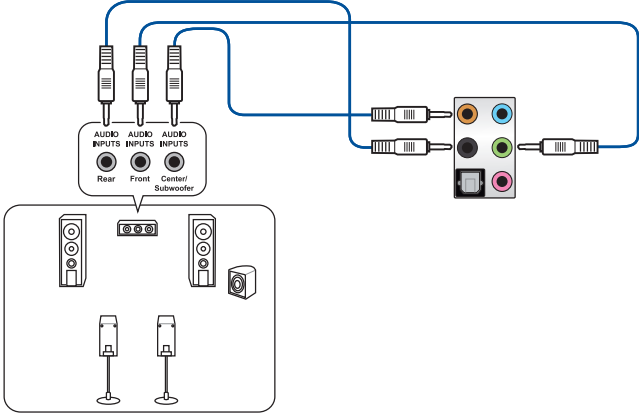
Connect to 2-channel Speakers



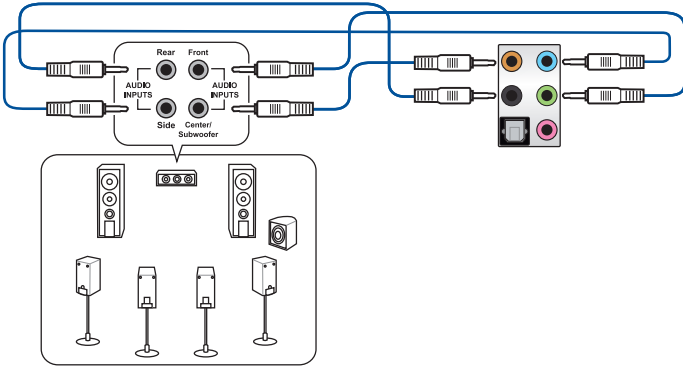
Connect to 4-channel Speakers



Connect to 5.1-channel Speakers



Connect to 7.1-channel Speakers



2.3 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Ensure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
 - a. Monitor
 - b. External storage devices (starting with the last device on the chain)
 - c. System power
6. After applying power, the system power LED on the system front panel case lights up. For systems with ATX power supplies, the system LED lights up when you press the ATX power button. If your monitor complies with the “green” standards or if it has a “power standby” feature, the monitor LED may light up or change from orange to green after the system LED turns on.

The system then runs the power-on self tests (POST). While the tests are running, the BIOS beeps (refer to the BIOS beep codes table) or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.

BIOS Beep	Description
One short beep	VGA detected Quick boot set to disabled No keyboard detected
One continuous beep followed by two short beeps then a pause (repeated)	No memory detected
One continuous beep followed by three short beeps	No VGA detected
One continuous beep followed by four short beeps	Hardware component failure

7. At power on, hold down the <Delete> key to enter the BIOS Setup. Follow the instructions in Chapter 3.

2.4 Turning off the computer

While the system is ON, press the power button for less than four seconds to put the system on sleep mode or soft-off mode, depending on the BIOS setting. Press the power button for more than four seconds to let the system enter the soft-off mode regardless of the BIOS setting.

BIOS and RAID Support

3

3.1 Knowing BIOS



The new ASUS UEFI BIOS is a Unified Extensible Interface that complies with UEFI architecture, offering a user-friendly interface that goes beyond the traditional keyboard-only BIOS controls to enable a more flexible and convenient mouse input. You can easily navigate the new UEFI BIOS with the same smoothness as your operating system. The term “BIOS” in this user manual refers to “UEFI BIOS” unless otherwise specified.

BIOS (Basic Input and Output System) stores system hardware settings such as storage device configuration, overclocking settings, advanced power management, and boot device configuration that are needed for system startup in the motherboard CMOS. In normal circumstances, the default BIOS settings apply to most conditions to ensure optimal performance. **DO NOT change the default BIOS settings** except in the following circumstances:

- An error message appears on the screen during the system bootup and requests you to run the BIOS Setup.
- You have installed a new system component that requires further BIOS settings or update.



Inappropriate BIOS settings may result in instability or boot failure. **We strongly recommend that you change the BIOS settings only with the help of a trained service personnel.**



BIOS settings and options may vary due to different BIOS release versions. Please refer to the latest BIOS version for settings and options.



For more information on BIOS configurations, please refer to <https://www.asus.com/support>, or download the BIOS manual by scanning the QR code.



3.2 BIOS Setup program

Use the BIOS Setup to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief onscreen help to guide you in using the BIOS Setup program.

Entering BIOS at startup

To enter BIOS Setup at startup, press <Delete> or <F2> during the Power-On Self Test (POST). If you do not press <Delete> or <F2>, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

- Press <Ctrl>+<Alt>+<Delete> simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

After doing either of the three options, press <Delete> key to enter BIOS.



-
- Ensure that a USB mouse is connected to your motherboard if you want to use the mouse to control the BIOS setup program.
 - If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu or press hotkey <F5>.
 - If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value.
 - The BIOS setup program does not support Bluetooth devices.
-

BIOS menu screen

The BIOS Setup program can be used under two modes: **EZ Mode** and **Advanced Mode**. You can change modes from **Setup Mode** in **Boot menu** or by pressing the <F7> hotkey.

3.3 ASUS EZ Flash 3

The ASUS EZ Flash 3 feature allows you to update the BIOS without using an OS-based utility.



Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** menu or press hotkey <F5>.

To update the BIOS:



-
- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
 - DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!
-

1. Insert the USB flash disk that contains the latest BIOS file to the USB port.
2. Enter the Advanced Mode of the BIOS setup program. Go to the **Tool** menu to select **ASUS EZ Flash 3 Utility** and press <Enter>.
3. Press the Left/Right arrow keys to switch to the **Drive** field.
4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.
5. Press the Left/Right arrow keys to switch to the **Folder** field.
6. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

3.4 ASUS CrashFree BIOS 3

The ASUS CrashFree BIOS 3 utility is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can restore a corrupted BIOS file using a USB flash drive that contains the BIOS file.

Recovering the BIOS

1. Download the latest BIOS version for this motherboard from <https://www.asus.com/support/>.
2. Rename the BIOS file as **ASUS.CAP** or **PZ590V.CAP** and copy the renamed BIOS file to a USB flash drive.
3. Turn on the system.
4. Insert the USB flash drive containing the BIOS file to a USB port.
5. The utility automatically checks the devices for the BIOS file. When found, the utility reads the BIOS file and enters ASUS EZ Flash 3 automatically.
6. The system requires you to enter BIOS Setup to recover the BIOS setting. To ensure system compatibility and stability, we recommend that you press <F5> to load default BIOS values.



DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

3.5 RAID configurations

The motherboard comes with the Intel® Rapid Storage Technology that supports RAID 0, RAID 1, RAID 5 and RAID 10 configuration.



For more information on configuring your RAID sets, please refer to the **RAID Configuration Guide** which you can find at <https://www.asus.com/support>, or by scanning the QR code.



RAID definitions

RAID 0 (Data striping) optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup.

RAID 1 (Data mirroring) copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

RAID 5 stripes both data and parity information across three or more hard disk drives. Among the advantages of RAID 5 configuration include better HDD performance, fault tolerance, and higher storage capacity. The RAID 5 configuration is best suited for transaction processing, relational database applications, enterprise resource planning, and other business systems. Use a minimum of three identical hard disk drives for this setup.

RAID 10 is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. With the RAID 10 configuration you get all the benefits of both RAID 0 and RAID 1 configurations. Use four new hard disk drives or use an existing drive and three new drives for this setup.

Appendix

Notices

FCC Compliance Information

Responsible Party: Asus Computer International
Address: 48720 Kato Rd., Fremont, CA 94538, USA
Phone / Fax No: (510)739-3777 / (510)608-4555

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.

HDMI Compliance Statement

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

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

This device complies with Innovation, Science and Economic Development Canada licence exempt RSS standard(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.

CAN ICES-003(B)/NMB-003(B)

Déclaration de conformité de Innovation, Sciences et Développement économique Canada (ISED)

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CAN ICES-003(B)/NMB-003(B)

VCCI: Japan Compliance Statement

Class B ITE

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取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

Japan JATE

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KC: Korea Warning Statement

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이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

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Declaration of compliance for product environmental regulation

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

Please refer to <http://csr.asus.com/Compliance.htm> for information disclosure based on regulation requirements ASUS is complied with:

EU REACH and Article 33

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at <http://csr.asus.com/english/REACH.htm>.

EU RoHS

This product complies with the EU RoHS Directive. For more details, see <http://csr.asus.com/english/article.aspx?id=35>

India RoHS

This product complies with the "India E-Waste (Management) Rules, 2016" and prohibits use of lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) in concentrations exceeding 0.1% by weight in homogenous materials and 0.01% by weight in homogenous materials for cadmium, except for the exemptions listed in Schedule II of the Rule.

Vietnam RoHS

ASUS products sold in Vietnam, on or after September 23, 2011, meet the requirements of the Vietnam Circular 30/2011/TT-BCT.

Các sản phẩm ASUS bán tại Việt Nam, vào ngày 23 tháng 9 năm 2011 trở về sau, đều phải đáp ứng các yêu cầu của Thông tư 30/2011/TT-BCT của Việt Nam.

Turkey RoHS

AEEE Yönetmeliğine Uygundur

ASUS Recycling/Takeback Services

ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components as well as the packaging materials. Please go to <http://csr.asus.com/english/Takeback.htm> for detailed recycling information in different regions.



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.



DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

Regional notice for California



WARNING

Cancer and Reproductive Harm -
www.P65Warnings.ca.gov

English ASUSTeK Computer 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: www.asus.com/support

Français ASUSTeK Computer Inc. déclare par la présente que cet appareil est conforme aux critères essentiels et autres clauses pertinentes des directives concernées. La déclaration de conformité de l'UE peut être téléchargée à partir du site Internet suivant : www.asus.com/support

Deutsch ASUSTeK Computer Inc. erklärt hiermit, dass dieses Gerät mit den wesentlichen Anforderungen und anderen relevanten Bestimmungen der zugehörigen Richtlinien übereinstimmt. Der gesamte Text der EU-Konformitätserklärung ist verfügbar unter: www.asus.com/support

Italiano ASUSTeK Computer Inc. con la presente dichiara che questo dispositivo è conforme ai requisiti essenziali e alle altre disposizioni pertinenti con le direttive correlate. Il testo completo della dichiarazione di conformità UE è disponibile all'indirizzo: www.asus.com/support

Русский Компания ASUS заявляет, что это устройство соответствует основным требованиям и другим соответствующим условиям соответствующих директив. Подробную информацию, пожалуйста, смотрите на www.asus.com/support

Български С настоящото ASUSTeK Computer Inc. декларира, че това устройство е в съответствие със съществени изисквания и другите приложими постановления на свързаните директиви. Пълният текст на декларацията за съответствие на ЕС е достъпна на адрес: www.asus.com/support

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Čeština Společnost ASUSTeK Computer Inc. tímto prohlašuje, že toto zařízení splňuje základní požadavky a další příslušná ustanovení souvisejících směrnic. Plné znění prohlášení o shodě EU je k dispozici na adrese: www.asus.com/support

Dansk ASUSTeK Computer Inc. erklærer hermed, at denne enhed er i overensstemmelse med hovedkravene og andre relevante bestemmelser i de relaterede direktiver. Hele EU-overensstemmelseserklæringen kan findes på: www.asus.com/support

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Suomi ASUSTeK Computer Inc. ilmoittaa täten, että tämä laite on asiaankuuluvien direktiivien olennaisten vaatimusten ja muiden tätä koskevien säädösten mukainen. EU-yhdenmukaisuusilmoituksen koko teksti on luettavissa osoitteessa: www.asus.com/support

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Warranty

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- ASUS offers a voluntary manufacturer's Commercial Guarantee.
- ASUS reserves the right to interpret the provisions of the ASUS Commercial Guarantee.
- This ASUS Commercial Guarantee is provided independently and in addition to the statutory Legal Guarantee and in no way affects or limits the rights under the Legal Guarantee.

For all the guarantee information, please visit <https://www.asus.com/support>.

F: Garantie ASUS

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G: ASUS Garantieinformationen

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I: Informativa sulla Garanzia ASUS

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- ASUS si riserva il diritto di interpretare le disposizioni della Garanzia Commerciale ASUS.
- La presente Garanzia Commerciale ASUS viene fornita in modo indipendente e in aggiunta alla Garanzia Legale prevista per legge e non pregiudica o limita in alcun modo i diritti previsti dalla Garanzia Legale.

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R: Информация о гарантии ASUS

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- ASUS оставляет за собой право интерпретирование положений гарантии ASUS.
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CZ: Informace o záruce společnosti ASUS

- Společnost ASUS nabízí dobrovolnou komerční záruku výrobce.
- Společnost ASUS si vyhrazuje právo vykládat ustanovení komerční záruky společnosti ASUS.
- Tato komerční záruka společnosti ASUS je poskytována nezávisle a jako doplněk zákonné záruky a žádným způsobem neovlivňuje ani neomezuje práva vyplývající ze zákonné záruky.

Všechny informace o záruce najdete na adrese <https://www.asus.com/cz/support/>.

CR: Informacije o ASUS jamstvu

- ASUS dragovaljno nudi komercijalno proizvođačko jamstvo.
- ASUS zadržava prava na tumačenje odredbi ASUS komercijalnog jamstva.
- Ovo ASUS komercijalno jamstvo daje se neovisno i kao dodatak zakonskom jamstvu i ni na koji način ne ograničuje prava iz okvira zakonskog jamstva.

Sve informacije o jamstvu potražite na <https://www.asus.com/support>.

DU: ASUS-garantie-informatie

- SUS biedt een vrijwillige commerciële garantie van de fabrikant.
- ASUS behoudt zich het recht voor om de bepalingen van de commerciële garantie van ASUS uit te leggen.
- Deze commerciële garantie van ASUS wordt onafhankelijk en als aanvulling op de statutaire Wettelijke garantie geboden en beïnvloedt of beperkt in geen geval de rechten onder de wettelijke garantie.

Voor alle informatie over de garantie, gaat u naar <https://www.asus.com/nl/support>.

EE: Teave ASUS-e garanti kohta

- ASUS pakub vabatahtlikku tasulist tootjagarantiid.
- ASUS jätab endale õiguse tõlgendada ASUS-e tasulise garanti tingimusi.
- See ASUS-e tasuline garanti on sõltumatu lisagarantiid seadusega kehtestatud garantiile ega mõjuta mingil määral seadusega kehtestatud garantiid ning seadusega kehtestatud garanti piiranguid.

Vaadake garantiiga seotud teavet veebisaidilt <https://www.asus.com/ee/>.

GK: Πληροφορίες εγγύησης ASUS

- Η ASUS προσφέρει μια εθελοντική Εμπιστοσύνη κατασκευαστή.
- Η ASUS διατηρεί το δικαίωμα ερμηνείας των διατάξεων της Εμπιστοσύνη εγγύησης ASUS.
- Αυτή η Εμπιστοσύνη εγγύησης ASUS παρέχεται ανεξάρτητα και επισπροσθίως της θεσμικής Νομικής εγγύησης και σε καμία περίπτωση δεν επηρεάζει ή περιορίζει το δικαίωμά της βάσει της Νομικής εγγύησης.

Για όλες τις πληροφορίες εγγύησης, επισκεφθείτε τη διεύθυνση <https://www.asus.com/gr-el/>.

HUG: ASUS garanciális információk

- Az ASUS önkéntes gyártói kereskedelmi garanciát kínál.
- Az ASUS fenntartja magának a jogot, hogy értelmezze az ASUS kereskedelmi garanciára vonatkozó rendelkezéseket.
- Ezt a kereskedelmi garanciát az ASUS függetlenül és a törvényes garancia mellett nyújtja és semmilyen módon nem befolyásolja, vagy korlátozza a jogi garancia nyújtotta jogokat.

A garanciára vonatkozó teljes körű információkért látogasson el a <https://www.asus.com/hu/support/> oldalra.

LV: ASUS garantijas informācija

- ASUS piedāvā brīvprātīgu ražotāja komerciālo garantiju.
- ASUS patur tiesības interpretēt ASUS komerciālās garantijas noteikumus.
- Šī komerciālā garantija tiek piedāvāta neatkarīgi un papildus likumā noteiktajai juridiskajai garantijai, un tā nekādā neietekmē vai neierobežo juridiskajā garantijā noteiktās tiesības.

Lai iegūtu informāciju par garantiju, apmeklējiet vietni <https://www.asus.com/lv/>.

LT: Informacija apie ASUS garantiją

- ASUS siūlo savanorišką komercinę gamintojo garantiją.
- ASUS pasilieka teisę savo nuostatais aiškinti šios komercinės ASUS garantijos nuostatas.
- Ši komercinė ASUS garantija suteikiama nepriklausoma, be įstatymine teisineis garantijos, ir jokiu būdu nepaveikia ar neapriboja teisineis garantijos suteikiamą teisių.

Norėdami gauti visą informaciją apie garantiją, apsilankykite <https://www.asus.com/lt/>.

PL: Informacje o gwarancji firmy ASUS

- Firma ASUS oferuje dobrowolną gwarancję handlową producenta.
- Firma ASUS zastrzegła sobie prawo do interpretacji warunków gwarancji handlowej firmy ASUS.
- Niniejsza gwarancja handlowa firmy ASUS jest udzielana niezależnie, jako dodatek do wymaganego ustawowo gwarancji prawnej i w żaden sposób nie wpływa na prawa przysługujące na mocy gwarancji prawnej ani ich nie ogranicza.

Wszelkie informacje na temat gwarancji można znaleźć na stronie <https://www.asus.com/pl/support>.

PG: Informações de Garantia ASUS

- A ASUS oferece uma Garantia Comercial voluntária do fabricante.
- A ASUS reserva o direito de interpretar as disposições da Garantia Comercial da ASUS.
- Esta Garantia Comercial da ASUS é fornecida de forma independente além da Garantia Legal estatutária e não afeta nem limita de qualquer forma os direitos estabelecidos na Garantia Legal.

Para consultar todas as informações sobre a garantia, visite <https://www.asus.com/pt/support/>.

RO: Informații despre garanția ASUS

- ASUS oferă o garanție comercială voluntară a producătorului.
- ASUS își rezervă dreptul de a interpreta prevederile garanției comerciale ASUS.
- Această garanție comercială ASUS este oferită independent și în plus față de garanția obligatorie legală și nu limitează sau limitează în niciun fel drepturile acordate conform garanției legale.

Pentru toate informațiile legate de garanție, vizitați <https://www.asus.com/ro/support/>.

SL: Informacije o garanciji ASUS

- ASUS ponuja prostovoljno tržno garancijo proizvajalca.
- ASUS si pridružuje pravico do razlage določb tržne garancije družbe ASUS.
- Ta tržna garancija družbe ASUS je na voljo neodvisno in kot dodatek zakonsko predpisani pravni garanciji ter na noben način ne vpliva na pravice, ki jih zagotavlja pravna garancija, oziroma jih omejuje.

Vse informacije o garanciji najdete na spletnem mestu <https://www.asus.com/slo/support/>.

SK: Informácie o záruke ASUS

- ASUS ponúka dobrovoľnú obchodnú záruku výrobcu.
- ASUS si vyhradzuje právo interpretovať ustanovenia obchodnej záruky ASUS.
- Táto obchodná záruka ASUS je poskytnutá nezávisle a navyše k zákonnej záruke a v žiadnom prípade neovplyvňuje ani neobmedzuje tieto práva podľa tejto zákonnej záruky.

Všetky další informace o záruce najdete na <https://www.asus.com/sk/support/>.

ES: Información de garantía de ASUS

- ASUS ofrece una garantía comercial voluntaria del fabricante.
- ASUS se reserva el derecho de interpretar las disposiciones de esta garantía comercial de ASUS.
- Esta garantía comercial de ASUS se proporciona de forma independiente y adicional a la garantía estatutaria y de ninguna manera afecta a los derechos bajo la garantía legal ni los limita.

Para obtener toda la información sobre la garantía, visite <https://www.asus.com/ES/support/>.

TR: ASUS Garanti Bilgileri

- ASUS, gönüllü olarak üretici Ticari Garantisini sunar.
- ASUS, ASUS Ticari Garantisinin hükümlerini yorumlama hakkını saklı tutar.
- Bu ASUS Ticari Garantisini, bağımsız olarak ve hukuki Yasal Garanti'ye ek olarak sağlanır ve hiçbir şekilde Yasal Garanti kapsamındaki hakları etkilemez veya sınırlamaz.

Tüm garanti bilgileri için lütfen <https://www.asus.com/tr/support/> adresini ziyaret edin.

FI: ASUS-takuutiedot

- ASUS tarjoaa vapaaehtoisena valmistajan kaupallisen takuun.
- ASUS pidättää oikeuden tulkita ASUS-kaupallisen takuun ehdot.
- Tämä ASUS-kaupallinen takuu tarjotaan itsenäisesti lakisääteisen oikeudellisen takuun lisäksi eikä se vaikuta millään tavoin laillisen takuun oikeuksiin tai rajoita niitä.

Saadaksesi kaikki takuutiedot, siirry osoitteeseen <https://www.asus.com/fi/support/>.

NW: Informasjon om ASUS-garanti

- ASUS tilbyr som produsent en frivillig kommersiell garanti.
- ASUS forbeholder seg retten til å tolke bestemmelsene i ASUS sin kommersielle garanti.
- ASUS sin kommersielle garanti gir uavhengig og i tillegg til den lovbestemte juridiske garantien, og verken påvirker eller begrenser rettighetene under den juridiske garantien på noen måte.

Du finner fullstendig informasjon om garanti på <https://www.asus.com/no/support/>.

SB: Informacije o ASUS garanciji

- ASUS nudi dobrovoljnu proizvođačku komercijalnu garanciju.
- ASUS zadržava pravo da tumači odredbe svoje ASUS komercijalne garancije.
- Ova ASUS komercijalna garancija daje se nezavisno, kao dodatak zakonskoj pravnoj garanciji, i ni ka koji način ne utiče na i ne ograničava prava dava pravnog garancijom.

Za sve informacije o garanciji, posetite <https://www.asus.com/support/>.

SW: ASUS garantiinformation

- ASUS erbjuder en frivillig kommersiell tillverkningsgaranti.
- ASUS förbehåller sig rätten att tolka bestämmelserna i ASUS kommersiella garanti.
- Denna kommersiella garanti från ASUS tillhandahålls separat och som tillägg till den lagstadgade garantin, och påverkar eller begränsar på intet sätt rättsigheterna under den lagstadgade garantin.

För all garantiinformation, besök <https://www.asus.com/se/support/>.

UA: Інформація про Гарантію ASUS

- ASUS пропонує добровільну Комерційну Гарантію виробника.
- ASUS застерігає за собою право тлумачити положення Комерційної Гарантії ASUS
- Цю Комерційну Гарантію надано незалежно і на додаток до обов'язкової Законної Гарантії; вона жодним чином не впливає на права за Законовою Гарантією і не обмежує їх.

Всі інформації про гарантію подано тут: <https://www.asus.com/ua/support/>.

MX: Garantía y Soporte

Esta Garantía aplica en el país de compra. Usted acepta que en esta garantía;

- Los procedimientos de servicio pueden variar en función del país.
- Algunos servicios y/o piezas de reemplazo pudieran no estar disponibles en todos los países.
- Algunos países pueden tener tarifas y restricciones que se apliquen en el momento de realizar el servicio, visite el sitio de Soporte de ASUS en <https://www.asus.com/mx/support/> para ver más detalles.
- Si tiene alguna queja o necesidad de un centro de reparación local o el periodo de garantía del producto ASUS, por favor visite el sitio de Soporte de ASUS en <https://www.asus.com/mx/support/> para mayores detalles.

Información de contacto ASUS

Esta garantía está respaldada por: ASUSTeK Computer Inc. Centro de Atención ASUS +52 (55) 1946-3663

BP: Informações de garantia ASUS

Esta garantia aplica-se ao período definido pela garantia legal (90 dias) mais o período de garantia comercial oferecido pela ASUS. Por exemplo: 12M significa 12 meses de garantia no total (3 meses de garantia legal mais 9 meses de garantia contratual), 24 meses significa 24 meses de garantia no total (3 meses de garantia legal mais 21 meses de garantia contratual) e 36 meses significa 36 meses de garantia no total (3 meses de garantia legal e 33 de garantia contratual) a contar da data da garantia declarada (Data de Início da Garantia).

Para todas as informações de garantia, visite <https://www.asus.com/br/support/>.



ASUS contact information

ASUSTeK COMPUTER INC.

Address 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Telephone +886-2-2894-3447
Fax +886-2-2890-7798
Web site <https://www.asus.com>

Technical Support

Telephone +86-21-38429911
Online support <https://qr.asus.com/techserv>

ASUS COMPUTER INTERNATIONAL (America)

Address 48720 Kato Rd., Fremont, CA 94538, USA
Telephone +1-510-739-3777
Fax +1-510-608-4555
Web site <https://www.asus.com/us/>

Technical Support

Support fax +1-812-284-0883
Telephone +1-812-282-2787
Online support <https://qr.asus.com/techserv>

ASUS COMPUTER GmbH (Germany and Austria)

Address Harkortstrasse 21-23, 40880 Ratingen, Germany
Web site <https://www.asus.com/de>
Online contact <https://www.asus.com/support/Product/ContactUs/Services/questionform/?lang=de-de>

Technical Support

Telephone (DE) +49-2102-5789557
Telephone (AT) +43-1360-2775461
Online support <https://www.asus.com/de/support>