

**ROG  
ZENITH  
EXTREME**

**ASUS®**

**Motherboard**

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# 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.

## 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 Setup**  
This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.
- **Chapter 4: RAID Support**  
This chapter describes the RAID configurations.

## 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](http://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.



**DANGER/WARNING:** Information to prevent injury to yourself when trying to complete a task.



**CAUTION:** Information to prevent damage to the components 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.

## Typography

**Bold text**

Indicates a menu or an item to select.

*Italics*

Used to emphasize a word or a phrase.

<Key>

Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.

Example: <Enter> means that you must press the Enter or Return key.

<Key1> + <Key2> + <Key3>

If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).



## ROG ZENITH EXTREME specifications summary

CPU	AMD® SocketTR4 for AMD® Ryzen™ Threadripper™ Processors * Refer to <a href="http://www.asus.com">www.asus.com</a> for CPU support list.
Chipset	AMD® X399
Memory	<b>AMD® Ryzen™ Threadripper™ Processors</b> - 8 x DIMM, max. 128GB, DDR4 3600(O.C) / 3200(O.C) / 2800(O.C) / 2666 / 2400 / 2133 MHz memory* * Please refer to Memory QVL (Qualified Vendors List) for details.
Expansion slots	<b>AMD® Ryzen™ Threadripper™ Processors</b> - 2 x PCIe 3.0 x16 (supports x16, x8+x8, x8+x4+x4, x4+x4+x4+x4)* - 2 x PCIe 3.0 x16 (supports x8, x4+x4)* <b>AMD® X399 chipset</b> - 1 x PCIe 2.0 x4 - 1 x PCIe 2.0 x1 * The PCIe_x8/x4_4 slot shares bandwidth with U.2.
Multi-GPU support	Supports NVIDIA® 4-Way/3-Way/2-way GPU SLI™ Technology Supports AMD® 4-Way/3-Way/2-way GPU CrossFireX™ Technology
Storage	<b>AMD® Ryzen™ Threadripper™ Processors*</b> - 1 x DIMM.2 Card with 2 x M.2 Socket 3 with M Key, type 2242/2260/2280/22110 (PCIe 3.0 x4 and SATA modes) - 1 x M.2 Socket 3 with M Key, type 2242/2260/2280/ (PCIe 3.0 x4 and SATA modes) storage devices support - 1 x U.2 port <b>AMD® X399 chipset</b> - 6 x SATA 6Gb/s ports
USB	<b>AMD® Ryzen™ Threadripper™ Processors</b> - 8 x USB 3.1 Gen 1 ports (8 ports at back panel[blue]) <b>AMD® X399 chipset</b> - 1 x USB 3.1 Gen 2 front panel connector - 4 x USB 3.1 Gen 1 ports (4 ports at mid-board) - 2 x USB 2.0 ports (2 ports at mid-board) <b>ASMedia® 3142 USB 3.1 Gen 2 controller</b> - 2 x USB 3.1 Gen 2 ports (1 x Type-A and 1 x Type-C™ at back panel)
LAN	<b>ROG AREION 10G Ethernet Card</b> Intel® Ethernet Controller I211-AT Anti-surge LANGuard ROG GameFirst IV

(continued on the next page)

## ROG ZENITH EXTREME specifications summary

<b>Audio</b>	<p><b>SupremeFX S1220 8-Channel High Definition Audio CODEC</b></p> <ul style="list-style-type: none"><li>- Supports up to 32-Bit/192kHz playback*</li><li>- High quality 120 dB SNR stereo playback output and 113 dB SNR recording input</li><li>- Impedance sense for front and rear headphone outputs</li><li>- SupremeFX Shielding Technology</li><li>- Jack-detection, Multi-streaming, and Front Panel Jack-retasking</li><li>- Optical S/PDIF out port at back panel</li></ul> <p><b>ESS® SABRE9018Q2C High Definition DAC</b></p> <p><b>Audio Feature</b></p> <ul style="list-style-type: none"><li>- Sonic Studio III</li><li>- Sonic Radar III</li></ul> <p>* Due to limitations in HDA bandwidth, 32-Bit/192kHz is not supported for 8-Channel audio.</p>
<b>Special Features</b>	<p><b>ASUS Dual Intelligent Processors 5</b></p> <ul style="list-style-type: none"><li>- 5-Way Optimization tuning key perfectly consolidates TPU, EPU, DIGI+ Power Control, Fan Xpert 4, and Turbo App</li></ul> <p><b>ASUS Wi-Fi GO! Module</b></p> <ul style="list-style-type: none"><li>- 1x1 802.11 ad Wi-Fi</li><li>- 2x2 MU-MIMO 802.11 a/b/g/n/ac support dual frequency band 2.4/5 GHz</li></ul> <p><b>ASUS Exclusive Features</b></p> <ul style="list-style-type: none"><li>- AI Suite 3</li><li>- USB 3.1 Boost</li><li>- AI Charger+</li><li>- Push Notice</li></ul> <p><b>ASUS EZ DIY</b></p> <ul style="list-style-type: none"><li>- ASUS CrashFree BIOS 3</li><li>- ASUS EZ Flash 3</li><li>- ASUS C.P.R.(CPU Parameter Recall)</li></ul> <p><b>ASUS Q-Design</b></p> <ul style="list-style-type: none"><li>- LIVEDASH OLED</li><li>- ASUS Q-Connector</li><li>- ASUS SafeSlot</li><li>- ASUS SafeDIMM slots</li></ul>

*(continued on the next page)*

# ROG ZENITH EXTREME specifications summary

<b>ROG Exclusive Features</b>	<p><b>Extreme Engine Digi+</b></p> <ul style="list-style-type: none"><li>- MicroFine Alloy Choke</li><li>- NexFET MOSFETs</li><li>- 10K Black Metallic Capacitors</li></ul> <p><b>ROG DIMM.2 extension card with two M.2 slots</b></p> <p><b>Pre-mounted IO Shield</b></p> <p><b>OC Zone</b></p> <ul style="list-style-type: none"><li>- Start Button</li><li>- Reset Button</li><li>- Safe Boot Button</li><li>- ReTry Button</li><li>- LN2 Mode</li><li>- Slow Mode switch</li><li>- PCIe x16 lane switches</li></ul> <p><b>UEFI BIOS features</b></p> <ul style="list-style-type: none"><li>- Extreme Tweaker</li><li>- Tweakers' Paradise</li><li>- ROG SSD Secure Erase</li><li>- O.C. Profile</li><li>- Graphics Card Information Preview</li></ul> <p><b>KeyBot II</b></p> <ul style="list-style-type: none"><li>- One-click overclocking</li><li>- DirectKey</li><li>- Clr CMOS</li><li>- Power On</li></ul> <p><b>ROG RAMCache II</b></p> <p><b>ROG Overwolf</b></p> <p><b>ROG CPU-Z</b></p> <p><b>ROG CloneDrive</b></p>
<b>Back I/O Ports</b>	<ul style="list-style-type: none"><li>1 x Clear CMOS Button</li><li>1 x BIOS Flashback Button</li><li>1 x ASUS Wi-Fi GO! module (1x1 802.11 ad Wi-Fi + 2x2 MU-MIMO 802.11 a/b/g/n/ac and Bluetooth v4.1)</li><li>8 x USB 3.1 Gen 1 ports [blue]</li><li>2 x USB 3.1 Gen 2 ports (1 x Type-A [red] and 1 x Type-C™ [black])</li><li>1 x Optical S/PDIF out</li><li>5 x LED-illuminated audio jacks</li></ul>

*(continued on the next page)*

## ROG ZENITH EXTREME specifications summary

<p><b>Internal I/O Ports</b></p>	<ul style="list-style-type: none"> <li>1 x USB 3.1 Gen 2 front panel connector</li> <li>2 x USB 3.1 Gen 1 header supports additional 4 USB 3.1 Gen 1 ports</li> <li>1 x USB 2.0 header supports additional 2 USB 2.0 ports [via ROG_EXT header]</li> <li>6 x SATA 6Gb/s connectors</li> <li>1 x U.2 port</li> <li>1 x DIMM.2 slot</li> <li>1 x M.2 Socket 3 for M Key, type 2242/2260/2280 storage devices support (Supports PCIe 3.0 x4 and SATA modes)</li> <li>1 x 4-Pin CPU fan connector</li> <li>1 x 4-Pin CPU_OPT fan connector</li> <li>1 x 4-Pin H_AMP Fan connector</li> <li>1 x 4-Pin W_PUMP+ connector</li> <li>2 x 4-Pin Chassis fan connectors</li> <li>2 x Thermal sensor connectors</li> <li>1 x 24-Pin EATX power connector</li> <li>2 x 8-Pin EATX 12V power connectors</li> <li>1 x EZ Plug connector (4-pin Molex power connector)</li> <li>1 x W_IN header</li> <li>1 x W_OUT header</li> <li>1 x W_FLOW header</li> <li>1 x WB_SENSOR header</li> <li>2 x Aura RGB headers</li> <li>1 x Aura Addressable header</li> <li>1 x Front panel audio connector (AAFP)</li> <li>1 x Start button</li> <li>1 x Reset button</li> <li>1 x Safe Boot button</li> <li>1 x ReTry button</li> <li>1 x Slow mode Switch</li> <li>1 x LN2 mode jumper</li> <li>1 x TPM connector</li> <li>1 x System panel connector</li> </ul>
<p><b>Wireless &amp; Bluetooth</b></p>	<ul style="list-style-type: none"> <li>Wi-Fi 802.11ad(WiGig) supports frequency band 60GHz*</li> <li>Up to 4.6Gbps</li> <li>2x2 MU-MIMO 802.11 a/b/g/n/ac supports dual frequency band 2.4/5 GHz</li> <li>Up to 867Mbps transfer speed</li> <li>Bluetooth v4.1**</li> </ul> <p>* 802.11ad(WiGig) is only available in certified countries.  ** Support for the Bluetooth specification depends on the Windows® version.</p>

*(continued on the next page)*

## ROG ZENITH EXTREME specifications summary

<b>BIOS</b>	128 Mb Flash ROM, UEFI AMI BIOS, PnP, WfM2.0, SM BIOS 3.0, ACPI 6.1, Multi-language BIOS, ASUS EZ Flash 3, CrashFree BIOS 3, F11 EZ Tuning Wizard, F6 Qfan Control, F3 My Favorites, Last Modified log, F12 PrintScreen and ASUS DRAM SPD (Serial Presence Detect) memory information
<b>Manageability</b>	WfM 2.0, WOL by PME, PXE
<b>Software</b>	<p>Drivers</p> <p>ROG GameFirst technology</p> <p>ROG RAMDisk</p> <p>ROG RAMCache II</p> <p>ROG CPU-Z</p> <p>Overwolf</p> <p>ROG Keybot II</p> <p>CloneDrive</p> <p>Kaspersky® Anti-Virus</p> <p>DAEMON Tools Software</p> <p>LIVEDASH</p> <p>Sonic Studio III</p> <p>Sonic Radar III</p> <p>Aura</p> <p>WinZip</p> <p>Fan Xpert 4</p> <p>ASUS Utilities</p>
<b>Operating System Support</b>	Windows® 10 64-bit
<b>Form Factor</b>	Extended ATX Form Factor, 12 inch x 10.9 inch (30.5cm x 27.7cm)



- Specifications are subject to change without notice.
- Visit the ASUS website for the software manual.

## Package contents

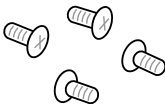


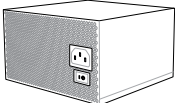
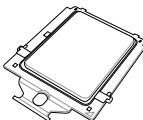
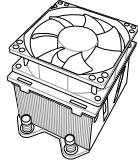
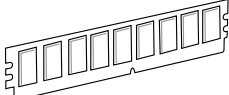
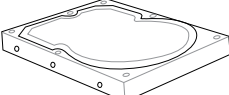
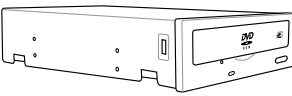
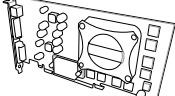
Check your motherboard package for the following items.

Motherboard	1 x ROG ZENITH EXTREME motherboard
Cables	1 x 3-in-1 thermistor cable 3 x 2-in-1 SATA 6Gb/s Cables 1 x RGB LED extension cable 1 x RGB Addressable LED extension cable 1 x Wafer cable
Accessories	1 x ROG DIMM.2 Card 1 x ROG DIMM.2 fan stand pack 1 x SLI™ HB Bridge(2-way-L) 1 x 3-Way SLI™ bridge 1 x 4-Way SLI™ bridge 1 x ROG AREION 10G Ethernet Card 3 x M.2 Screw Package 1 x FAN_EXT card 1 x Bracket for FAN_EXT card 1 x Q-Connector Kit 1 x ROG Coaster 1 x 10-in-1 ROG cable label 1 x ROG big sticker 1 x ROG VGA holder 1 x ASUS 1x1 dual band Wi-Fi moving antenna (Wi-Fi 802.11ad compliant) 1 x ASUS 2x2 dual band Wi-Fi moving antenna (Wi-Fi 802.11a/b/g/n/ac compliant)
Application drive	1 x USB drive with utilities and drivers
Documentation	1 x User guide



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

## Installation tools and components

	
<b>1 Bag of screws</b>	<b>Phillips (cross) screwdriver</b>
	
<b>PC chassis</b>	<b>Power supply unit</b>
	
<b>AMD® SocketTR4 CPU</b>	<b>AMD® SocketTR4 compatible CPU Fan</b>
	
<b>DDR4 DIMM</b>	<b>SATA hard disk drive</b>
	
<b>SATA optical disc drive (optional)</b>	<b>Graphics card (optional)</b>



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





# Product Introduction

# 1

## 1.1 Motherboard overview

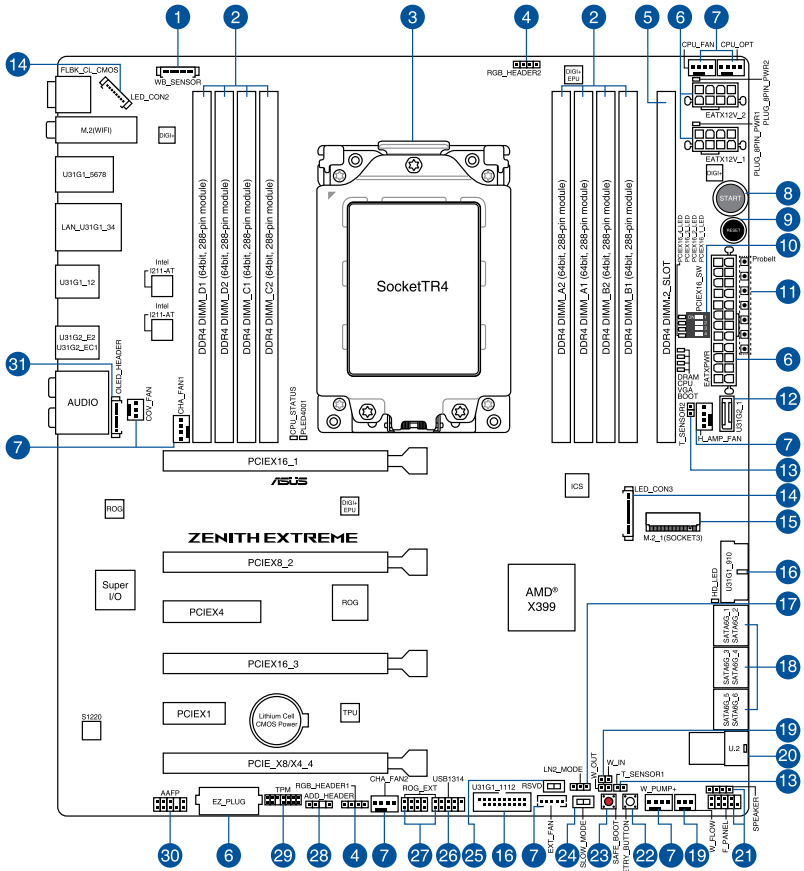
### 1.1.1 Before you proceed

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.
-

## 1.1.2 Motherboard layout



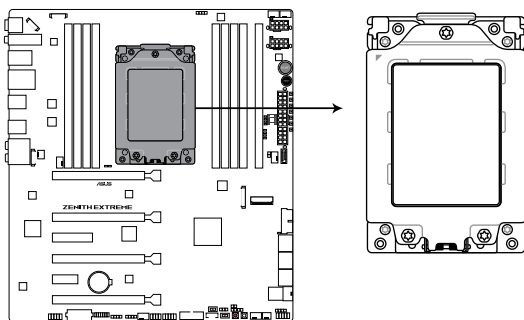
Refer to 1.1.9 Internal connectors and 2.3.1 Rear I/O connection for more information about rear panel connectors and internal connectors.

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4. AURA RGB headers (4-pin RGB_HEADER1-2)	1-23
5. DIMM.2 slot (DIMM.2_SLOT)	1-27
6. ATX power connectors (24-pin EATXPWR; 8-pin EATX12V1; 8-pin EATX12V2; 4-pin EZ_PLUG))	1-21
7. CPU, CPU optional, high amp, water pump+, extension, cover, and chassis fan connectors (4-pin CPU_FAN; 4-pin CPU_OPT; 4-pin H_AMP_FAN; 4-pin W_PUMP+; 3-pin COV_FAN; 5-pin EXT_FAN; 4-pin CHA_FAN1-2)	1-20
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11. ProbelT	1-30
12. USB 3.1 Gen 2 front panel connector (U31G2_1)	1-17
13. Thermal sensor connectors (2-pin T_SENSOR1-2)	1-19
14. LED connectors (8-pin LED_CON2; 13-pin LED_CON3)	1-23
15. M.2 sockets (M.2_1(Socket 3))	1-26
16. USB 3.1 Gen 1 connector (20-1 pin U31G1_910; 20-1 pin U31G1_1112)	1-18
17. LN2 Mode jumper (3-pin LN2_MODE)	1-13
18. AMD® Serial ATA 6 Gb/s connectors (7-pin SATA6G_12; SATA 6G_34; SATA 6G_56)	1-16
19. Water in, water out, and water flow connectors (2-pin W_IN; 2-pin W_OUT; 3-pin W_FLOW)	1-28
20. U.2 connector (U.2)	1-26
21. System panel connectors (10-1 pin F_PANEL; 4-pin SPEAKER)	1-22
22. ReTry button (RETRY_BUTTON)	1-10
23. Safe Boot button (SAFE_BOOT)	1-10
24. Slow Mode switch (SLOW_MODE)	1-11
25. RSVD switch (RSVD)	1-11
26. USB 2.0 connector (10-1 pin USB1314)	1-19
27. ROG Extension connector (18-1 pin ROG_EXT)	1-29
28. Addressable RGB header (4-1 pin ADD_HEADER)	1-24
29. TPM connector (14-1 pin TPM)	1-25
30. Front panel audio connector (10-1 pin AAFP)	1-17
31. OLED connector (9-pin OLED_HEADER)	1-25

### 1.1.3 Central Processing Unit (CPU)

The motherboard comes with a SocketTR4 designed for the AMD® Ryzen™ Threadripper™ processors.



**ROG ZENITH EXTREME CPU SocketTR4**



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The SocketTR4 has a different pinout design. Ensure that you use a CPU designed for the SocketTR4. 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!

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Ensure that all power cables are unplugged before installing the CPU.

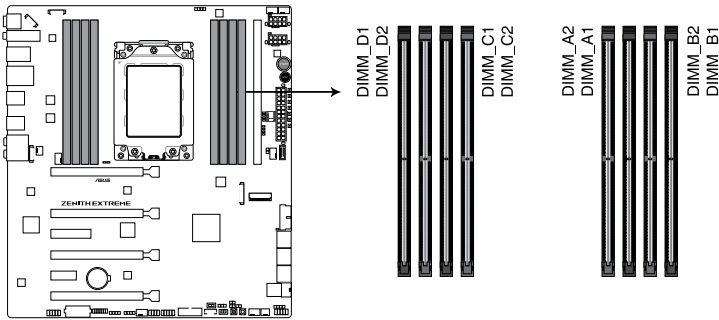
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## 1.1.4 System memory

The motherboard comes with four Double Data Rate 4 (DDR4) Dual Inline Memory Modules (DIMM) slots.

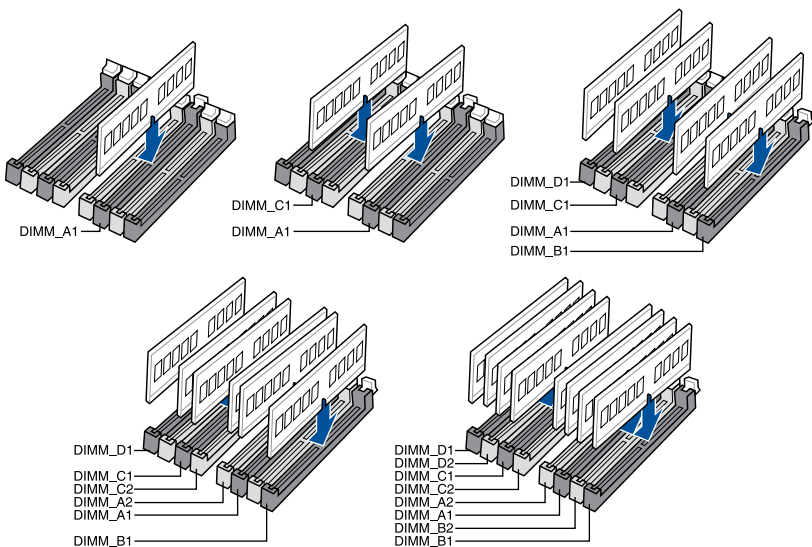


A DDR4 module is notched differently from a DDR, DDR2, or DDR3 module. DO NOT install a DDR, DDR2, or DDR3 memory module to the DDR4 slot.



ROG ZENITH EXTREME 288-pin DDR4 DIMM socket

### Recommended memory configurations



## Memory configurations

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



- 
- You may install varying memory sizes in Channel A, Channel B, Channel C, and Channel D. The system maps the total size of the lower-sized channel for the quad channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.
  - This motherboard does not support DIMMs made up of 512 Mb (64 MB) chips or less (Memory chip capacity counts in Megabit, 8 Megabit/Mb = 1 Megabyte/MB).
- 

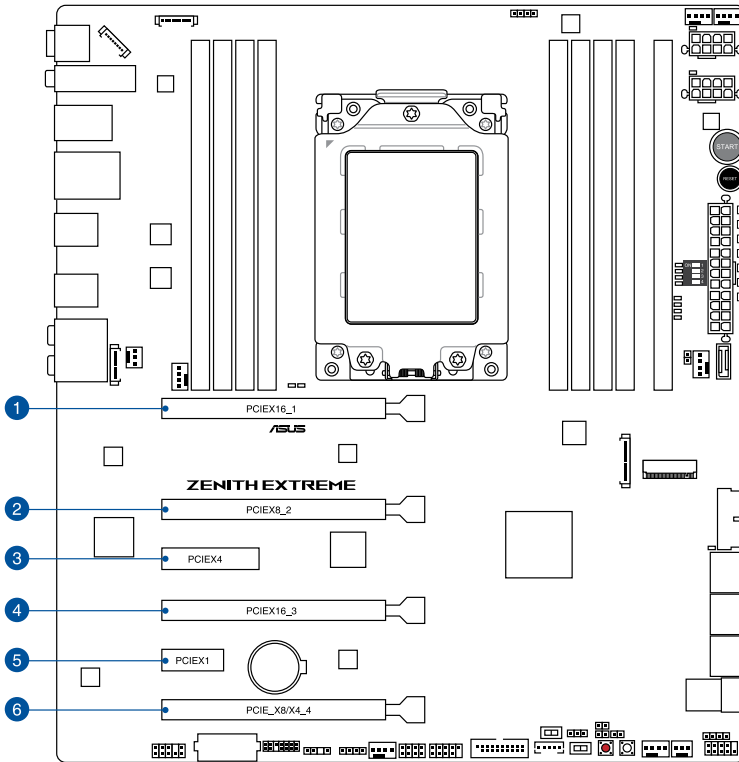


- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value.
  - For system stability, use a more efficient memory cooling system to support a full memory load (4 DIMMs) 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.
-

## 1.1.5 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.



Slot No.	Slot Description
1	PCIe x16_1 slot
2	PCIe x8_2 slot
3	PCIe x4 slot
4	PCIe x16_3 slot
5	PCIe x1 slot
6	PCIe x8/x4_4 slot

## AMD® Ryzen™ Threadripper™ Processors

VGA Configuration	PCI Express 3.0 operating mode			
	Single VGA	SLI™/CFX	3-Way SLI™/CFX	4-Way SLI™/CFX
PCIe x16_1	x16	x16	x16	x16
PCIe x8_2	N/A	N/A	x8	x8
PCIe x16_3	N/A	x16	x16	x16
PCIe x8/x4_4	N/A	N/A	N/A	x8*

\* The PCIe\_X8/X4\_4 slot shares bandwidth with U.2. In 4-Way configuration, if the PCIe\_X8/X4\_4 is used in x8 mode, U.2 port will be disabled.



- We recommend that you provide sufficient power when running CrossFireX™ or SLI™ mode.
- Connect chassis fans to the motherboard chassis fan connectors when using multiple graphics cards for better thermal environment.

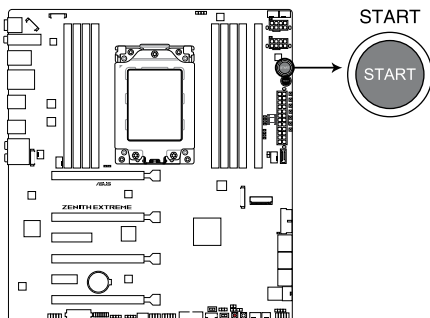


## 1.1.6 Onboard buttons and switches

Onboard buttons and switches allow you to fine-tune performance when working on a bare or open-case system. This is ideal for overclockers and gamers who continually change settings to enhance system performance.

### 1. Power-on button (START)

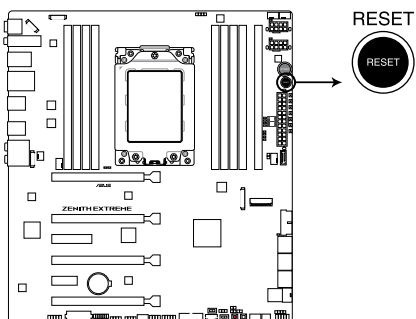
The motherboard comes with a power-on button that allows you to power up or wake up the system. The button also lights up when the system is plugged to a power source indicating that you should shut down the system and unplug the power cable before removing or installing any motherboard component.



**ROG ZENITH EXTREME Power on button**

### 2. RESET button (RESET)

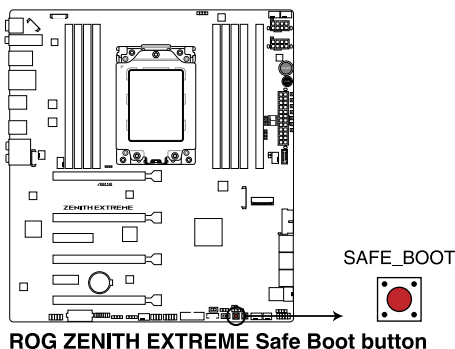
Press the reset button to reboot the system.



**ROG ZENITH EXTREME Reset button**

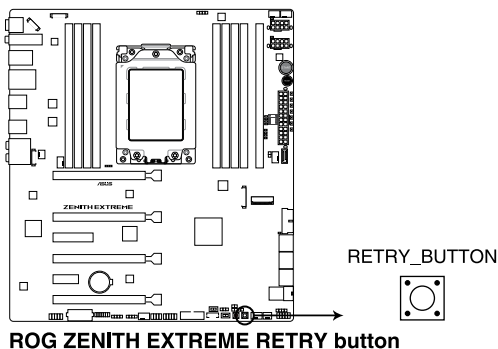
### 3. Safe Boot button (SAFE\_BOOT)

The Safe Boot button can be pressed anytime to force the system to reboot into the BIOS safe mode. This button temporarily applies safe settings to the BIOS while retaining any overclocked settings allowing you to modify the settings causing boot failure. Use this button when overclocking or tweaking the settings of your system.



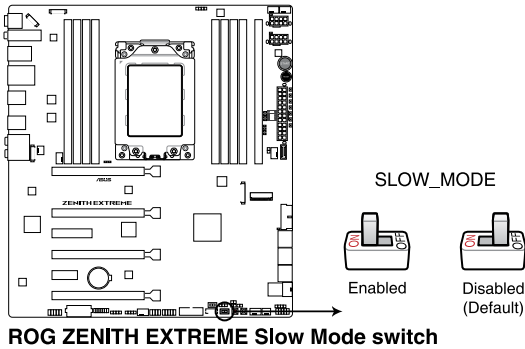
### 4. ReTry button (RETRY\_BUTTON)

The ReTry button is specially designed for overclockers and is most useful during the booting process where the Reset button is rendered useless. When pressed, it forces the system to reboot while retaining the same settings to be retried in quick succession to achieve a successful POST.



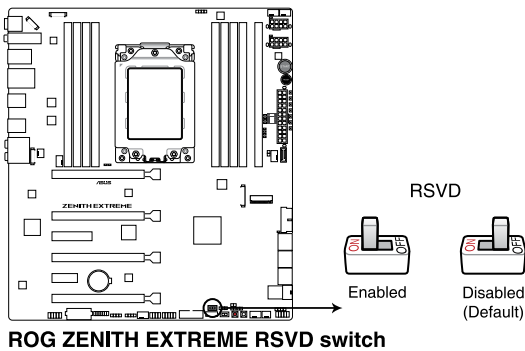
## 5. Slow Mode Switch (SLOW\_MODE)

Slow Mode Switch is employed during LN2 benching. The system may crash due to the CPU being unstable when using extreme overclocking, enabling slow mode will decrease the processor frequency and stabilize the system, allowing overclockers to keep track of their overclocking data.



## 6. RSVD switch (RSVD)

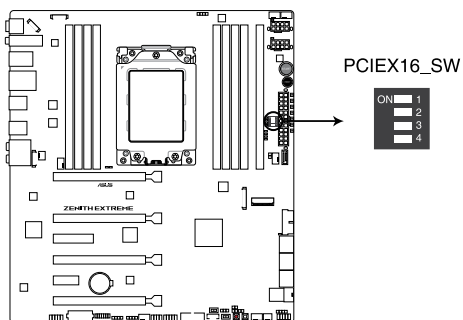
This switch is reserved for ASUS-authorized technicians only.



Ensure to set this switch to disabled, enabling this switch may cause system failure.

## 7. PCIe x16 Lane switch (PCIEX16\_SW)

These slide switches allow you to enable and disable the corresponding PCIe x16 slots. When one of the installed PCIe x16 cards is out of order, you can use the slide switch to find the faulty one without removing the cards.

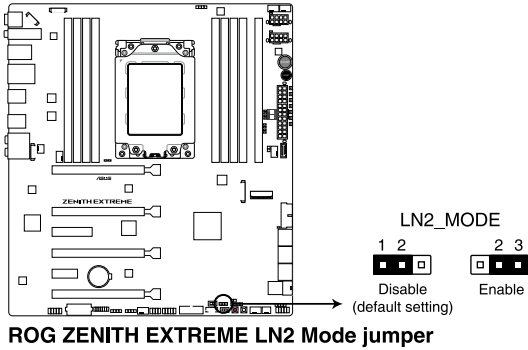


**ROG ZENITH EXTREME PCIe x16 Lane switch**

## 1.1.7 Jumper

### 1. LN2 Mode jumper (3-pin LN2\_MODE)

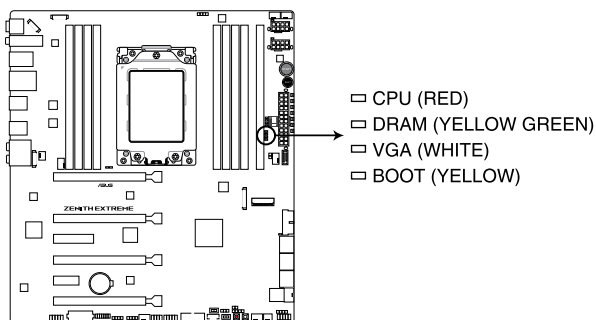
With LN2 mode activated, the ROG motherboard is optimized to remedy the cold-boot bug during POST and help the system boot successfully.



## 1.1.8 Onboard LEDs

### 1. Q LEDs (CPU, DRAM, VGA, BOOT)

Q LEDs check key components (CPU, DRAM, VGA card, and booting devices) in sequence during motherboard booting process. If an error is found, the corresponding LED remains lit until the problem is solved. This user-friendly design provides an intuitive way to locate the root problem within seconds.



**ROG ZENITH EXTREME CPU/ DRAM/  
BOOT\_DEVICE/ VGA LED**



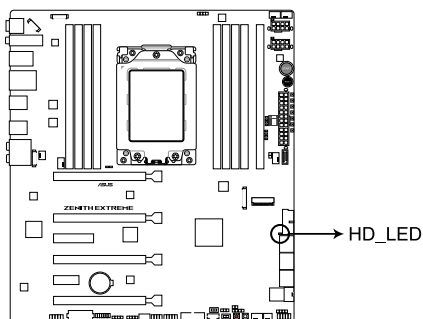
The order which the LEDs light up may vary per CPU.



The Q LEDs provide the most probable cause of an error code as a starting point for troubleshooting. The actual cause may vary from case to case.

### 2. Hard Disk LED (HD\_LED)

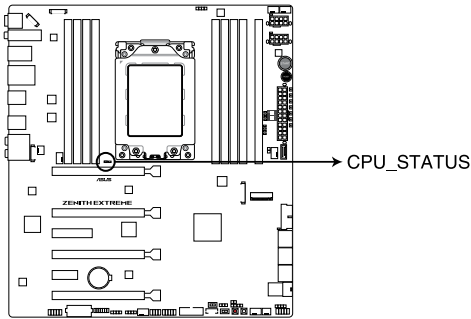
The Hard Disk LED is designed to indicate the hard disk activity. It blinks when data is being written into or read from the hard disk drive. The LED does not light up when there is no hard disk drive connected to the motherboard or when the hard disk drive does not function.



**ROG ZENITH EXTREME Hard Disk LED**

### 3. CPU Status LED (CPU\_STATUS)

This LED will indicate the current status of your CPU. A red light indicates that the CPU is not ready to boot, and the LED will turn off once the problem is solved. This user-friendly design helps you quickly identify whether your CPU is ready to boot or not.



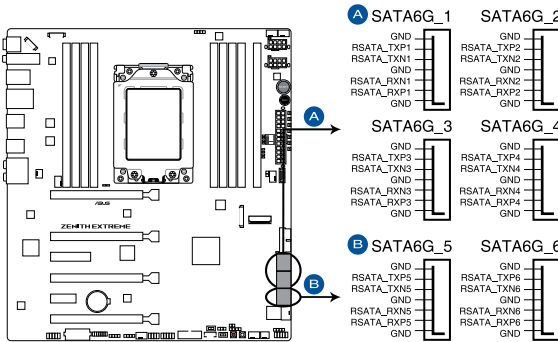
**ROG ZENITH EXTREME CPU STATUS**

## 1.1.9 Internal connectors

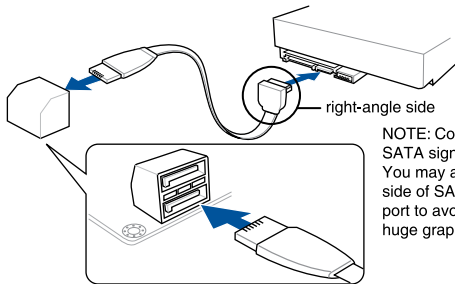
### 1. AMD® Serial ATA 6 Gb/s connectors (7-pin SATA6G\_12; SATA 6G\_34; SATA 6G\_56)

These connectors connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.

If you installed Serial ATA hard disk drives, you can create a RAID 0, 1, and 10 configuration through the onboard AMD® X399 chipset.



ROG ZENITH EXTREME AMD® Serial ATA 6 Gb/s connectors



NOTE: Connect the right-angle side of SATA signal cable to SATA device. You may also connect the right-angle side of SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards.

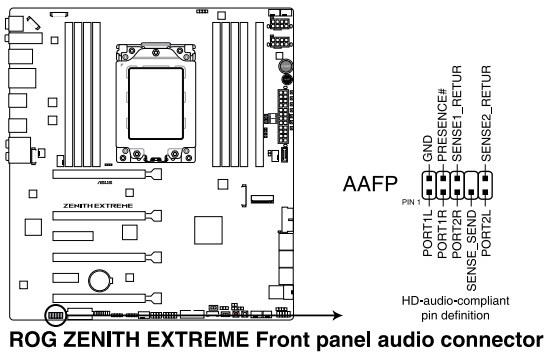


- These connectors are set to **[AHCI]** by default. If you intend to create a Serial ATA RAID set using these connectors, set the SATA Mode Selection item in the BIOS to **[RAID]**.
- Before creating a RAID set, refer to section **RAID configurations** or the manual bundled in the motherboard support USB.
- When using NCQ, set the SATA Mode in the BIOS to **[AHCI]**. Refer to section **SATA Configuration** for details.



## 2. Front panel audio connector (10-1 pin AAFP)

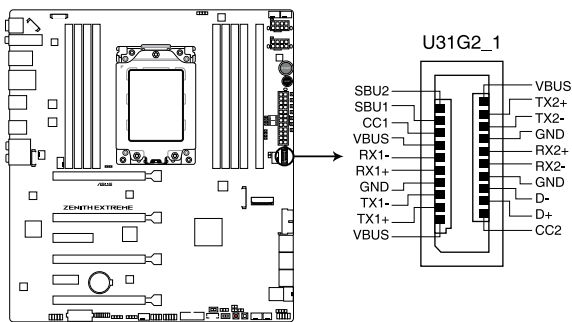
This connector is for a chassis-mounted front panel audio I/O module that supports HD Audio. Connect one end of the front panel audio I/O module cable to this connector.



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.

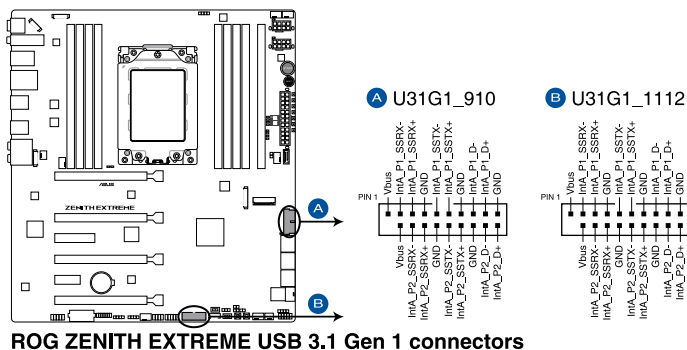
## 3. USB 3.1 Gen 2 front panel connector (U31G2\_1)

This connector allows you to connect a USB 3.1 Gen 2 module for additional USB 3.1 Gen 2 ports. The latest USB 3.1 Gen 2 connectivity provides data transfer speeds of up to 10 Gbps.



#### 4. USB 3.1 Gen 1 connector (20-pin U31G1\_910; 20-pin U31G1\_1112)

These connectors allow you to connect a USB 3.1 Gen 1 module for additional USB 3.1 Gen 1 front or rear panel ports. With an installed USB 3.1 Gen 1 module, you can enjoy all the benefits of USB 3.1 Gen 1 including faster data transfer speeds of up to 5 Gb/s, faster charging time for USB-chargeable devices, optimized power efficiency, and backward compatibility with USB 2.0.



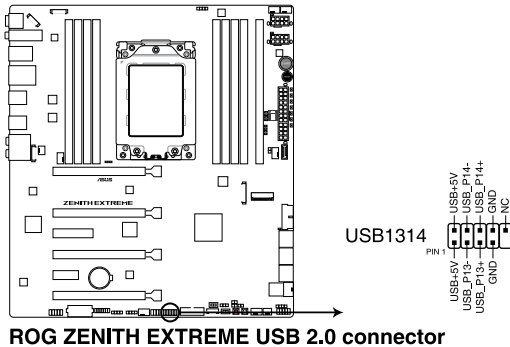
The USB 3.1 Gen 1 module is purchased separately.



The plugged USB 3.1 Gen 1 device may run on xHCI or EHCI mode depending on the operating system's setting.

## 5. USB 2.0 connector (10-1 pin USB1314)

This connector is for USB 2.0 ports. Connect the USB module cable to this connector, then install the module to a slot opening at the back of the system chassis. This USB connector complies with USB 2.0 specification that supports up to 480 Mb/s connection speed.



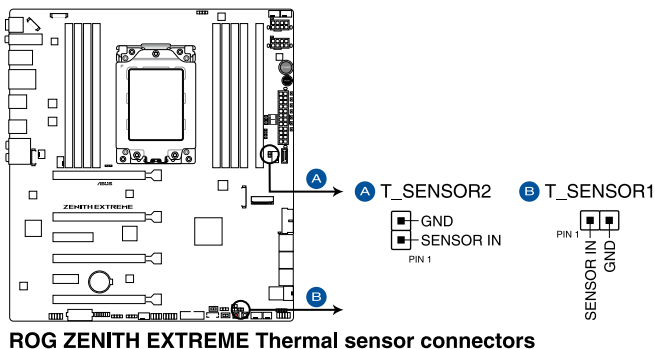
Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



1 x USB 2.0 port (USB1314) at mid-board shares with ROG extension (ROG\_EXT) port.

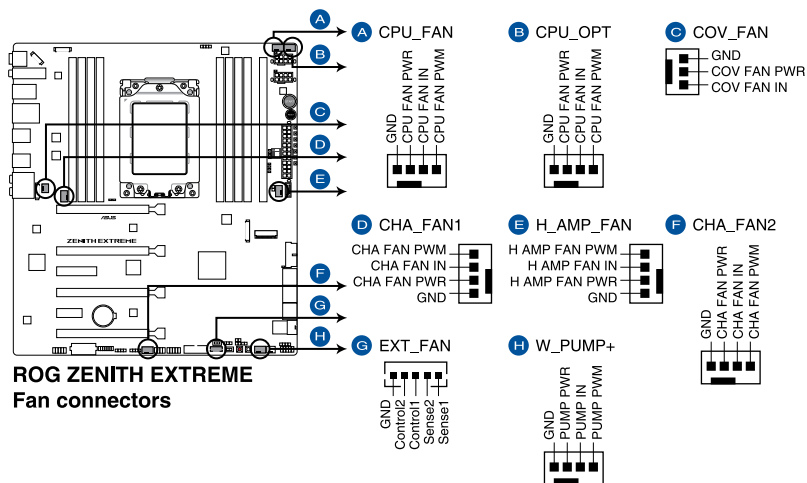
## 6. Thermal sensor connectors (2-pin T\_SENSOR1-2)

These connectors are for the thermistor cables that monitor the temperature of the devices and the critical components inside the motherboard. Connect the thermistor cable and place the sensor on the device or the motherboard's component to detect its temperature.



## 7. CPU, CPU optional, high amp, water pump+, extension, cover, and chassis fan connectors (4-pin CPU\_FAN; 4-pin CPU\_OPT; 4-pin H\_AMP\_FAN; 4-pin W\_PUMP+; 3-pin COV\_FAN; 5-pin EXT\_FAN; 4-pin CHA\_FAN1-2)

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.



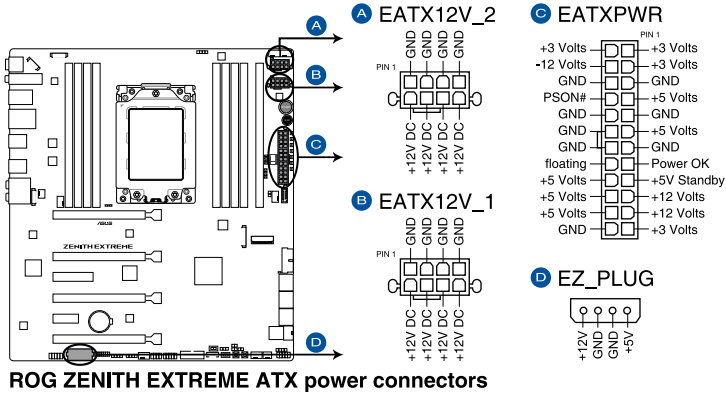
- DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!
- Ensure that the CPU fan cable is securely installed to the CPU fan connector.



- The CPU\_FAN connector supports the CPU fan of maximum 1A (12 W) fan power.
- The EXT\_FAN connector supports 2 of 5 thermal sensor sources.
- W\_PUMP+ function support depends on water cooling device.
- Connect the fan of your water cooling kit to the H\_AMP\_PUMP connector.

## 8. ATX power connectors (24-pin EATXPWR; 8-pin EATX12V1; 8-pin EATX12V2; 4-pin EZ\_PLUG)

These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.



**ROG ZENITH EXTREME ATX power connectors**



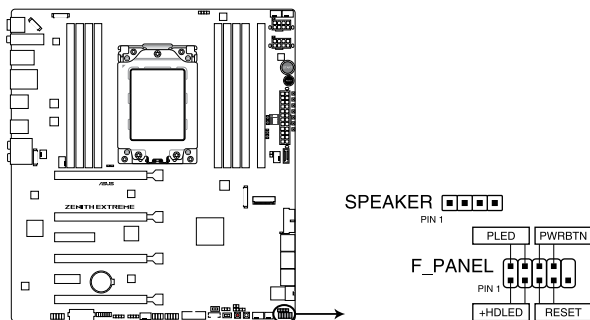
Ensure to connect both 8-pin power plugs. A red LED located to the right of the 8-pin power plug will light up if the 8-pin power plug is not connected.



- 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.

## 9. System panel connectors (10-1 pin F\_PANEL; 4-pin SPEAKER)

This connector supports several chassis-mounted functions.



**ROG ZENITH EXTREME System panel connector**

- **System power LED (2-pin or 3-1 pin PLED)**

The 2-pin or 3-1 pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin HDD\_LED)**

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HDD LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker (4-pin SPEAKER)**

This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **ATX power button/soft-off button (2-pin PWRBTN)**

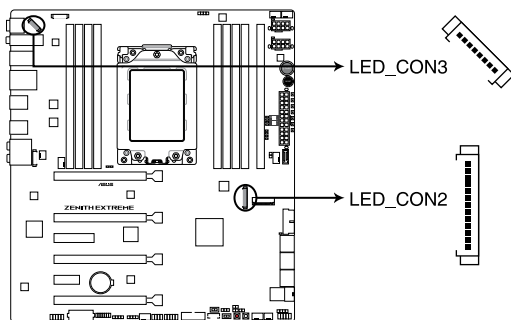
This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the operating system settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **Reset button (2-pin RESET)**

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

## 10. LED connectors (8-pin LED\_CON2; 13-pin LED\_CON3)

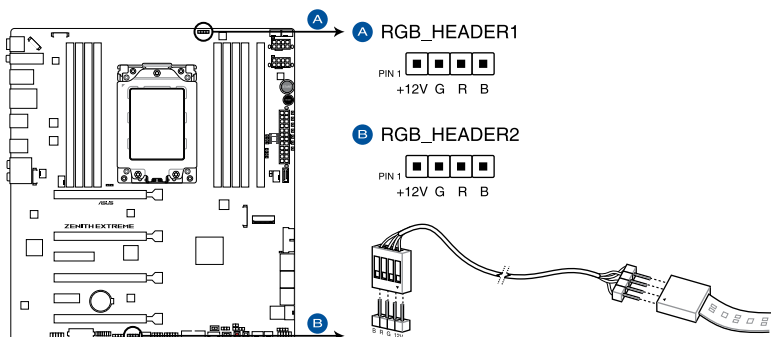
These connectors are for connecting LED strips on your cover.



**ROG ZENITH EXTREME LED\_CON2 & LED\_CON3**

## 11. AURA RGB headers (4-pin RGB\_HEADER1-2)

These connectors are for RGB LED strips.



**ROG ZENITH EXTREME RGB header**



The RGB header supports 5050 RGB multi-color LED strips (12V/G/R/B), with a maximum power rating of 2A (12V), and no longer than 2 m.



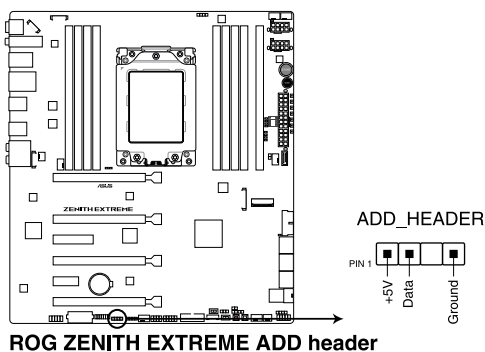
Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.



- 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 under the operating system.
- The LED strip is purchased separately.

## 12. Addressable RGB header (4-1 pin ADD\_HEADER)

This connector is for individually addressable RGB WS2812B LED strips or WS2812B based LED strips.



The addressable RGB header supports WS2812B addressable RGB LED strips (5V/Data/Ground), with a maximum power rating of 3A (5V) and a maximum of 60 LEDs.



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.

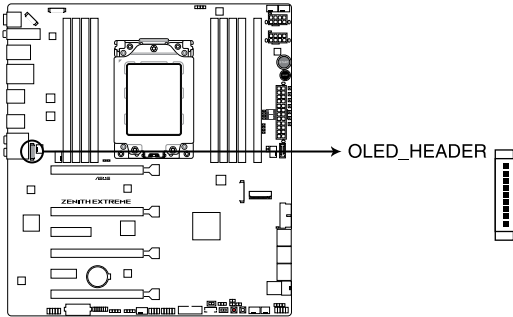


- Actual lighting and color will vary with LED strip.
- If your LED strip does not light up, check if the addressable RGB LED strip is connected in the correct orientation, and the 5V connector is aligned with the 5V header on the motherboard.
- The addressable RGB LED strip will only light up under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



### 13. OLED connector (9-pin OLED\_HEADER)

This connector is used to connect your LiveDash OLED panel. The OLED panel provides you a quick overview of the system temperature, power status, and fan speeds when your system boots up. You can also upload a .gif file for a customized look.



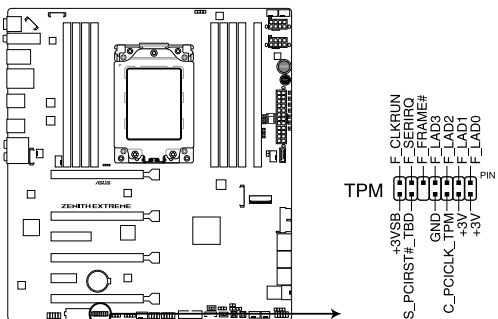
**ROG ZENITH EXTREME OLED\_HEADER**



- Use the **ROG LiveDash Utility** to configure and customize the OLED panel.
- The LiveDash OLED provides the most probable cause of an error code as a starting point for troubleshooting. The actual cause may vary from case to case.

### 14. TPM connector (14-1 pin TPM)

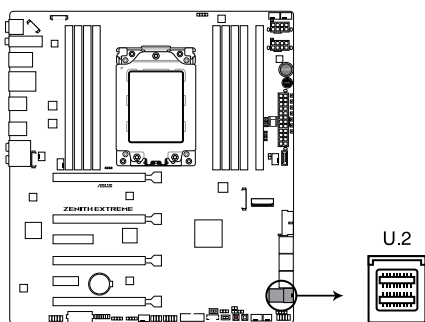
This connector supports a Trusted Platform Module (TPM) system, which securely stores keys, digital certificates, passwords and data. A TPM system also helps enhance network security, protect digital identities, and ensures platform integrity.



**ROG ZENITH EXTREME TPM connector**

### 15. U.2 connector (U.2)

This motherboard comes with a U.2 connector which supports PCIe 3.0 x4 NVM Express storage.



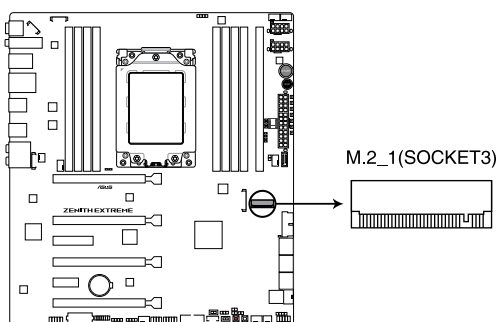
**ROG ZENITH EXTREME U.2 connector**



The U.2 connector shares bandwidth with the PCIe\_X8/X4\_4 slot . Adjust the BIOS settings to use U.2 devices.

### 16. M.2 sockets (M.2\_1(Socket 3))

This socket allows you to install an M.2 SSD module.



**ROG ZENITH EXTREME M.2 socket**



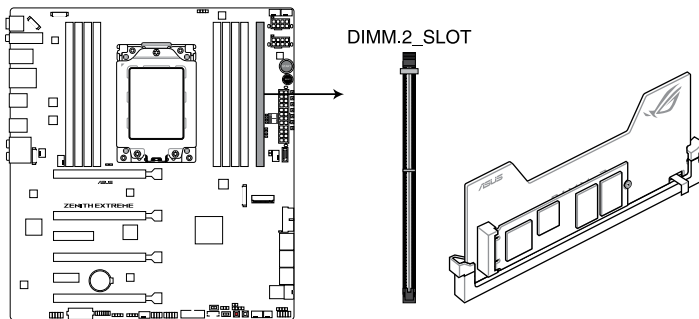
For AMD® Ryzen™ Threadripper™ Processors, the M.2(SOCKET3) supports PCIe 3.0 x4 and SATA mode M Key design and type 2242 / 2260 / 2280 storage devices.



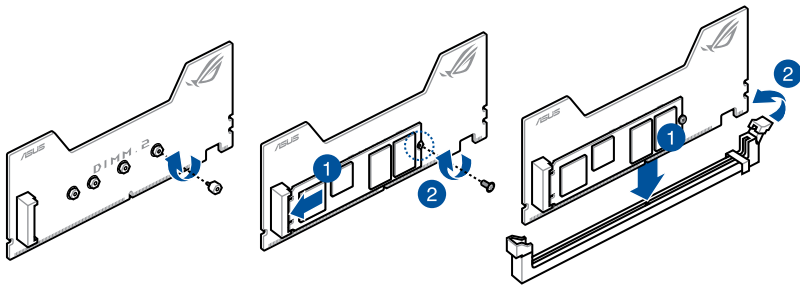
The M.2 SSD module is purchased separately.

## 17. DIMM.2 slot (DIMM.2\_SLOT)

This socket allows you to install the bundled DIMM.2 card to connect M.2 SSD modules.



ROG ZENITH EXTREME 288-pin DDR4 DIMM.2\_SLOT socket



- Before you install or remove the DIMM.2 card, 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 or DIMM.2 card.
- The DIMM.2 card is notched to fit in only one orientation. Ensure that the notch on your card is aligned correctly with the DIMM.2 slot before inserting the card.



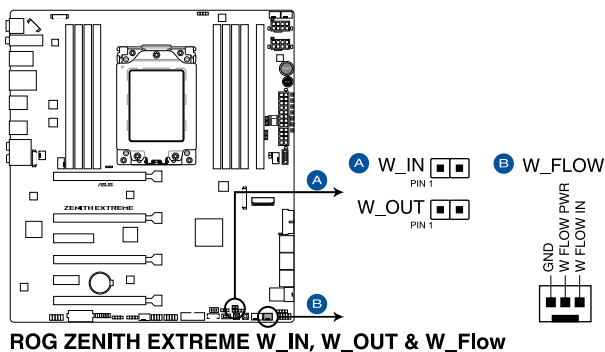
- M.2\_1 socket supports PCIe 3.0 x4 M Key design and type 2230 / 2242 / 2260 / 2280 / 22110 PCIe storage devices.
- M.2\_2 socket supports PCIe 3.0 x4 M Key design and type 2230 / 2242 / 2260 / 2280 / 22110 storage devices.



The M.2 SSD module is purchased separately.

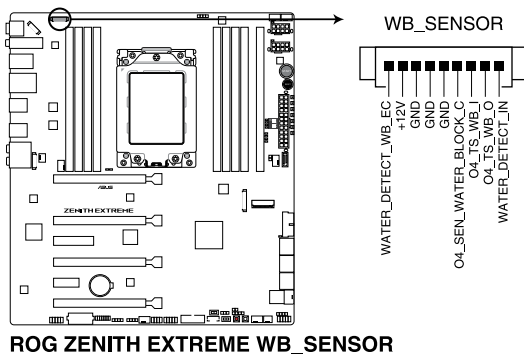
## 18. Water in, water out, and water flow connectors (2-pin W\_IN; 2-pin W\_OUT; 3-pin W\_FLOW)

These connectors allow you to connect sensors to monitor the temperature and flow rate of your liquid cooling system. You can manually adjust the fans and water pump to optimize the thermal efficiency of your liquid cooling system.



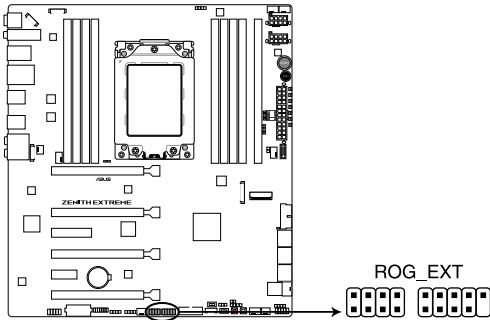
## 19. Water Block connector (9-pin WB\_SENSOR)

This connector allows you to connect a water block connector to monitor the temperature, flow rate, and water leak signals of your third party monoblocks. You can manually adjust the fans and water pump to optimize the thermal efficiency of your third party monoblocks.



## 20. ROG extension connector (18-1 pin ROG\_EXT)

This connector is for the OC Panel I/II.



**ROG ZENITH EXTREME ROG extension connector**

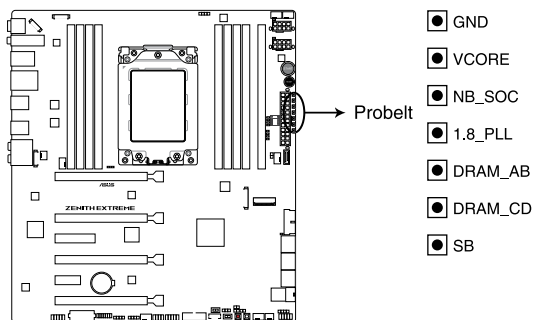


- The OC Panel I/II is purchased separately.
- Support for OC Panel I/II varies over different platforms.
- Visit [www.asus.com](http://www.asus.com) for more information about the devices and the latest compatibility list.

### 1.1.10 Probelt

The ROG Probelt allows you to detect your system's current voltage and OC settings. Use a multimeter to measure the Probelt points even during overclocking.

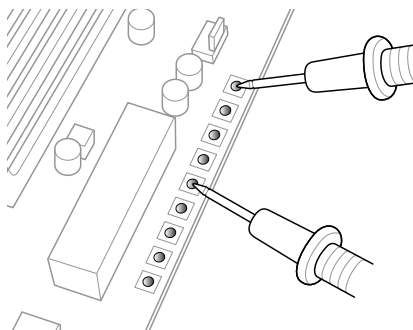
See the illustration below to locate the respective Probelt points.



**ROG ZENITH EXTREME Probelt**

#### Using Probelt

You can connect the multimeter to the motherboard as shown on the following figure.



The illustration above is for reference only, the actual motherboard layout and measure points may differ by model.

# 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

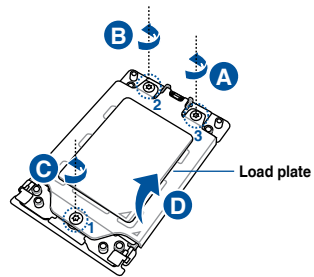


The AMD® SocketTR4 is compatible with AMD® SocketTR4 processors. Ensure you use a CPU designed for the SocketTR4. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

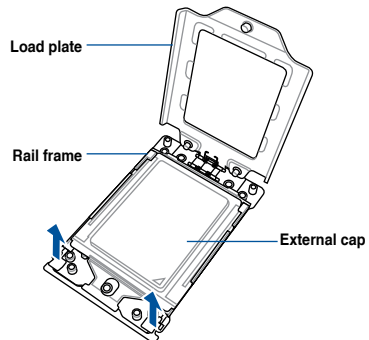


Unplug all power cables before installing the CPU.

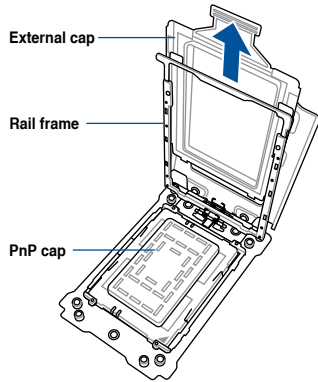
- 1 Use the bundled Torx screwdriver to remove the load plate screws in sequence 3>2>1, then lift the load plate.



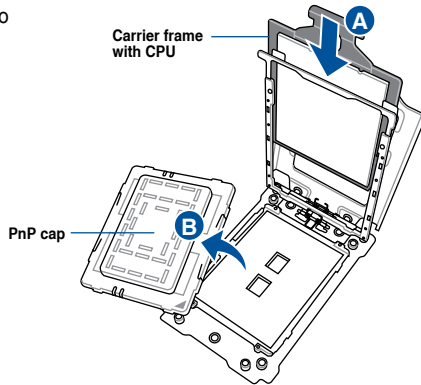
- 2 Use your fingers to pull up the tabs on both sides of the rail frame to release the rail frame, then lift the rail frame to its fully open position.



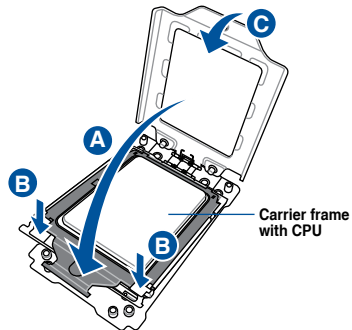
- 3 Remove the external cap.



- 4 Slide the carrier frame with CPU into the rail frame until you hear a click sound, then remove the PnP cap.

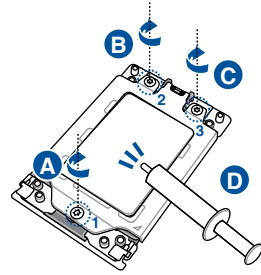


- 5 Gently press down the rail frame until it latches to the socket housing, then press down the load plate.





- 6 Drive the three screws slightly into the holes in sequence 1>2>3, just enough to attach the load plate to the socket. When the three screws are attached, tighten them in sequence 1>2>3 to completely secure the load plate. Then apply the Thermal Interface Material to the CPU.



---

The load plate screws are Torx T20 models. A torque value of 12 inch-lbf is recommended.

---



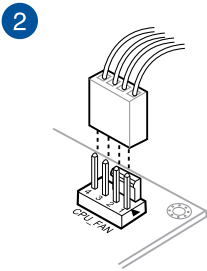
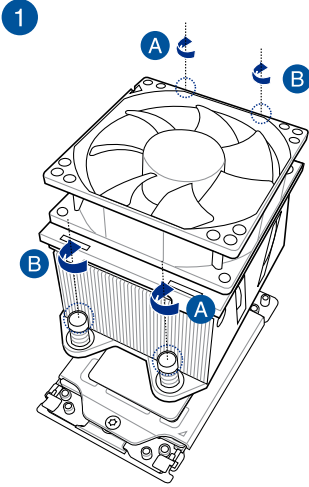
---

Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

---

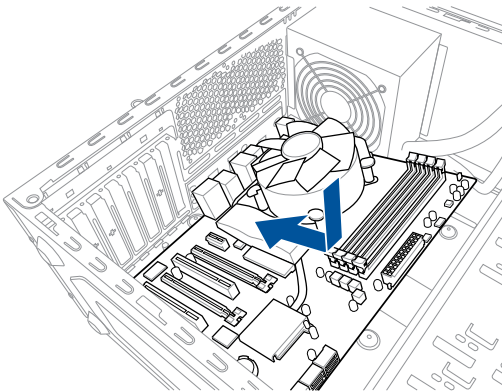
## 2.1.2 CPU heatsink and fan assembly installation

To install the CPU heatsink and fan assembly:

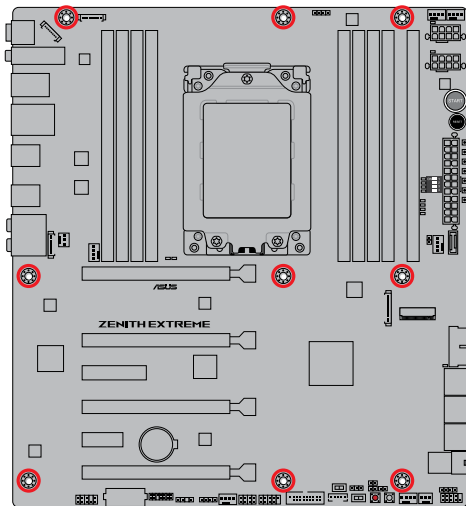
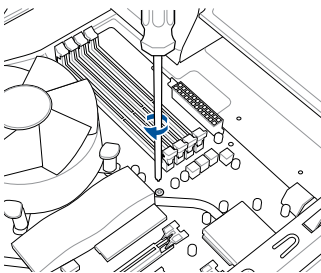


### 2.1.3 Motherboard installation

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



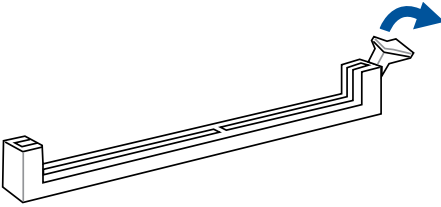
2. Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.



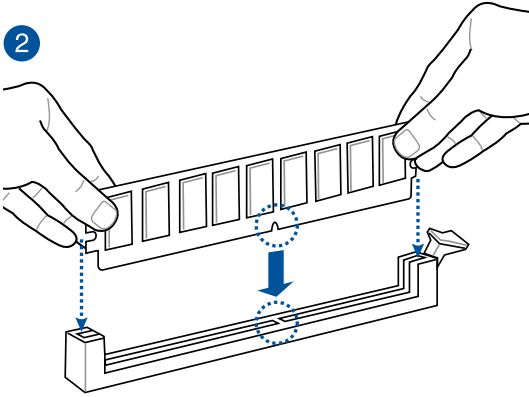
DO NOT over tighten the screws! Doing so can damage the motherboard.

## 2.1.4 DIMM installation

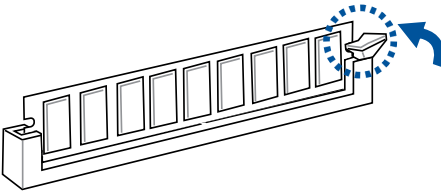
1



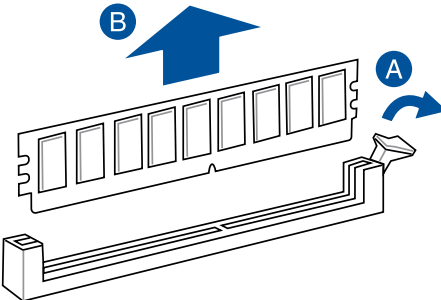
2



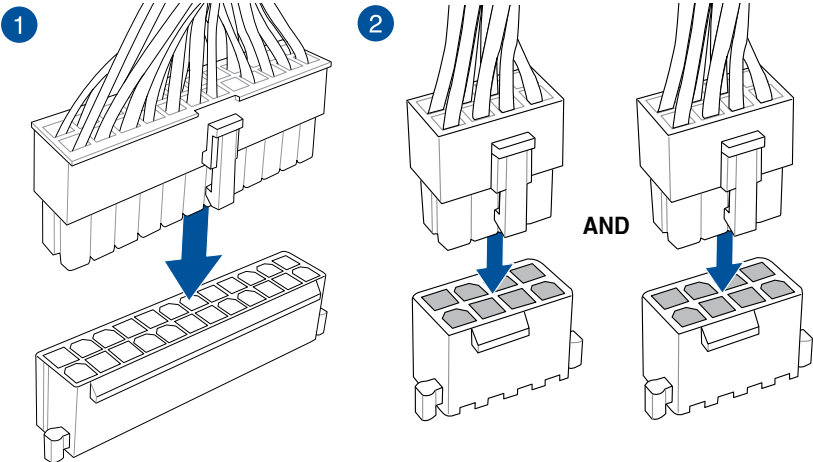
3



To remove a DIMM

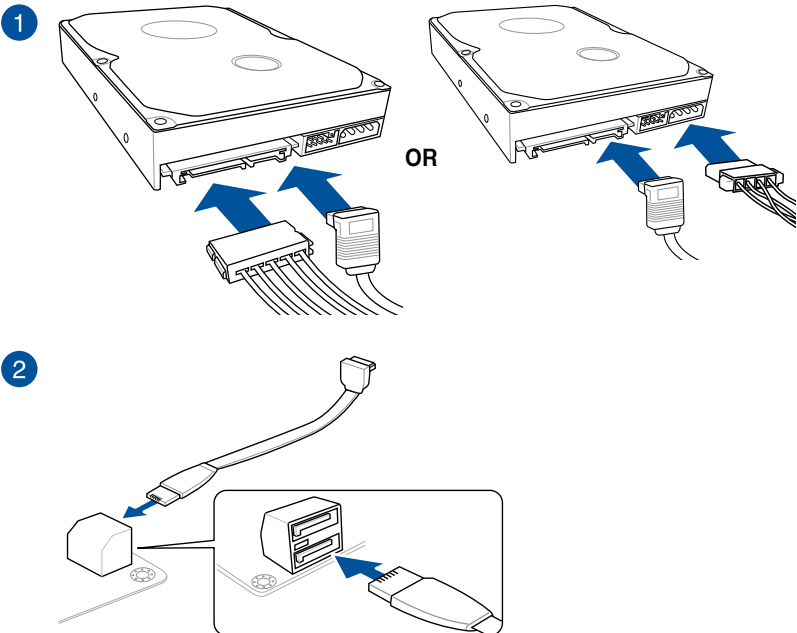


## 2.1.5 ATX power connection



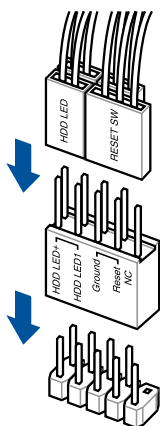
Ensure to connect both 8-pin power plugs.

## 2.1.6 SATA device connection

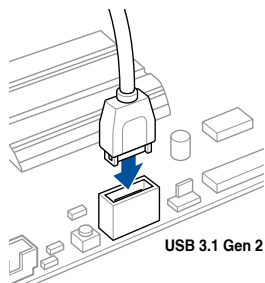


## 2.1.7 Front I/O connector

### To install ASUS Q-Connector

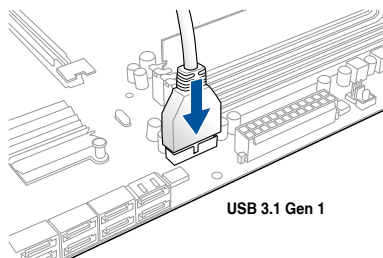


### To install USB 3.1 Gen 2 connector

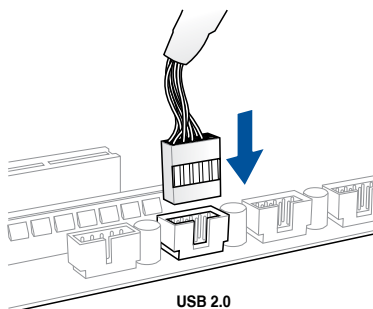


This connector will only fit in one orientation. Push the connector until it clicks into place.

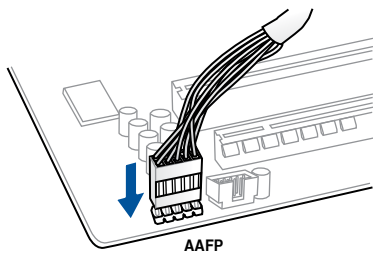
### To install USB 3.1 Gen 1 connector



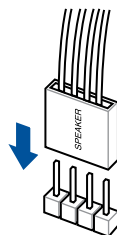
### To install USB 2.0 connector



### To install front panel audio connector

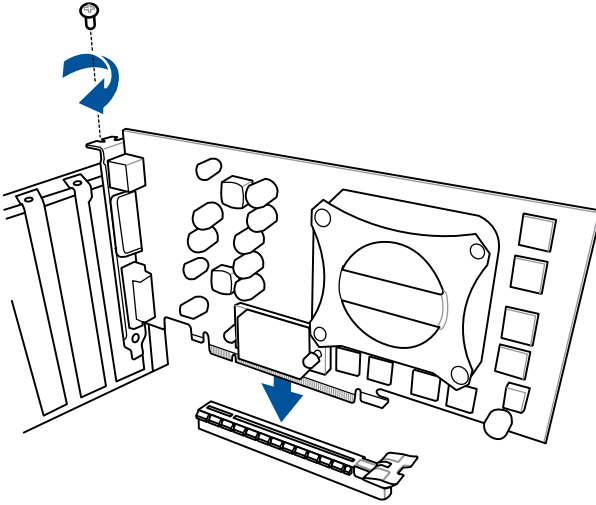


### To install system speaker connector

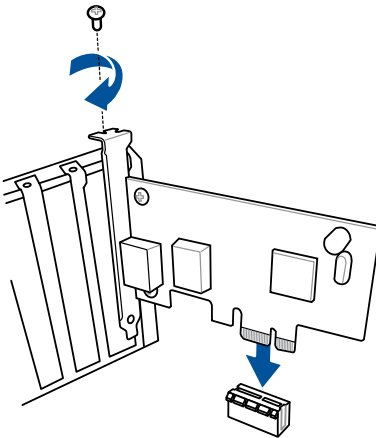


## 2.1.8 Expansion card installation

To install PCIe x16 cards

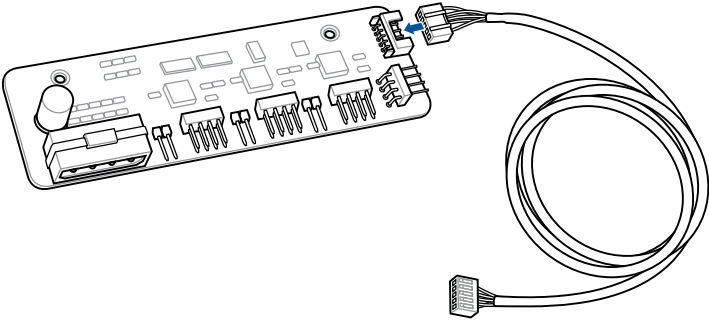


To install PCIe x1 cards

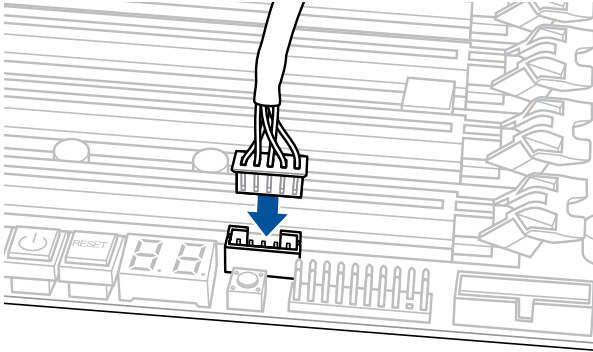


## To install FAN EXTENSION CARD

1



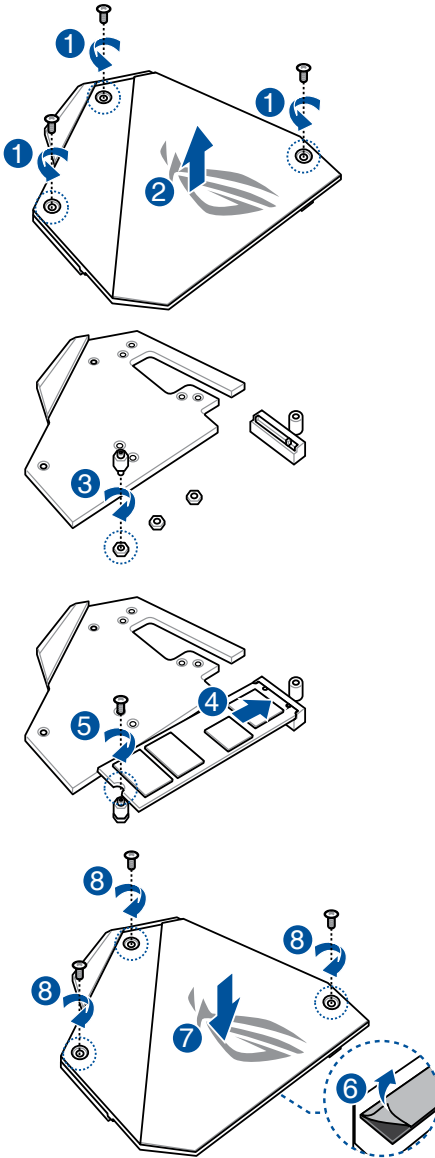
2



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



## 2.1.9 M.2 installation

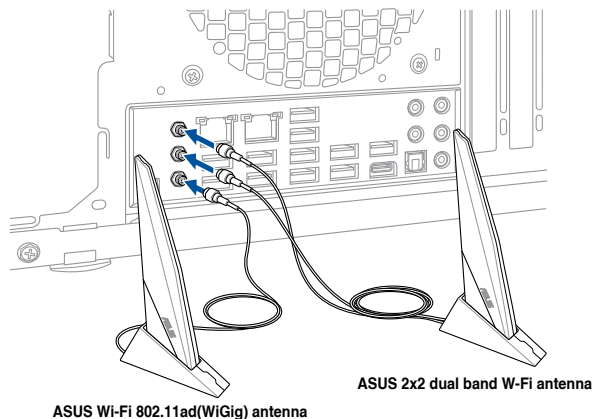


Supported M.2 type varies per motherboard.

## 2.1.10 Wi-Fi antenna installation

### Installing the ASUS 2x2 dual band W-Fi and ASUS Wi-Fi 802.11ad(WiGig) antenna

Connect the bundled ASUS 2x2 dual band Wi-Fi antenna connector to the top two Wi-Fi ports at the back of the chassis, then connect the Wi-Fi 802.11ad(WiGig) antenna to the bottom Wi-Fi port.



- Ensure that the ASUS 2x2 dual band W-Fi and ASUS Wi-Fi 802.11ad(WiGig) antenna is securely installed to the Wi-Fi ports.
- Ensure that the antenna is at least 20 cm away from all persons.
- Wi-Fi 802.11ad(WiGig) is only available in certified countries.
- For optimum performance, ensure that the ASUS 2x2 dual band W-Fi antenna is at least 10 cm away from the ASUS Wi-Fi 802.11ad(WiGig) antenna.



The illustration above is for reference only. The I/O port layout may vary with models, but the Wi-Fi antenna installation procedure is the same for all models.

## 2.2 BIOS update utility

### USB BIOS Flashback

USB BIOS Flashback allows you to easily update the BIOS without entering the existing BIOS or operating system. Simply insert a USB storage device to the USB port (the USB port hole marked in green on the I/O shield) then press the USB BIOS Flashback button for three seconds to automatically update the BIOS.

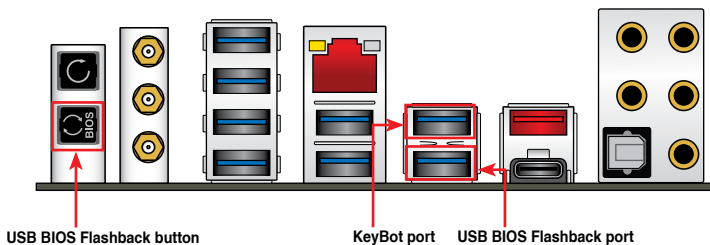
#### To use USB BIOS Flashback:

1. Insert a USB storage device to the USB Flashback port.



We recommend you to use a USB 2.0 storage device to save the latest BIOS version for better compatibility and stability.

2. Visit <https://www.asus.com/support/> and download the latest BIOS version for this motherboard.
3. Rename the file as **ZE.CAP**, then copy it to your USB storage device.
4. Shut down your computer.
5. Press the BIOS Flashback button for three seconds until the Flashback LED blinks three times, indicating that the BIOS Flashback function is enabled.



6. Wait until the light goes out, indicating that the BIOS updating process is completed.



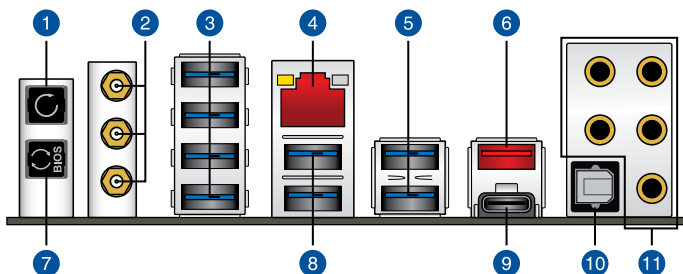
For more BIOS update utilities in BIOS setup, refer to the section **3.12 Updating BIOS** in Chapter 3.



- Do not unplug portable disk, power system, or press the CLR\_CMOS button while BIOS update is ongoing, otherwise update will be interrupted. In case of interruption, please follow the steps again.
- If the light flashes for five seconds and turns into a solid light, this means that the BIOS Flashback is not operating properly. This may be caused by improper installation of the USB storage device and filename/file format error. If this scenario happens, please restart the system to turn off the light.
- Updating BIOS may have risks. If the BIOS program is damaged during the process and results to the system's failure to boot up, please contact your local ASUS Service Center.

## 2.3 Motherboard rear and audio connections

### 2.3.1 Rear I/O connection



#### Rear panel connectors

1.	Clear CMOS button (CLR_CMOS). Press this button to clear the BIOS setup information only when the systems hangs due to overclocking.
2.	Wi-Fi 802.11 a/b/g/n/ac/ad, Bluetooth V4.1 ports
3.	USB 3.1 Gen 1 ports 5, 6, 7, and 8.
4.	LAN (RJ-45) port*
5.	USB 3.1 Gen 1 ports 1, 2. Upper port supports the KeyBot II feature, and lower port supports USB BIOS Flashback function.
6.	USB 3.1 Gen 2 Type-A port E2
7.	USB BIOS Flashback button
8.	USB 3.1 Gen 1 ports 3, 4
9.	USB 3.1 Gen 2 Type-C™ port EC1
10.	Optical S/PDIF OUT port
11.	LED-illuminated Audio Jacks**

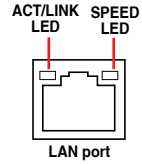
\* and \*\*: Refer to the tables on the next page for LAN port LEDs, and audio port definitions.



- When using Windows® 7, the USB 3.1 Gen 1 driver must be manually installed before USB 3.1 Gen 1 devices can be used due to the controller's limitation.
- USB 3.1 Gen 1/Gen 2 devices can only be used as data storage only.
- We strongly recommend that you connect your devices to ports with matching data transfer rate. Please connect your USB 3.1 Gen 1 devices to USB 3.1 Gen 1 ports and your USB 3.1 Gen 2 devices to USB 3.1 Gen 2 ports for faster and better performance for your devices.
- When KeyBot II is activated, USB hot plug function of the KeyBot port (USB 3.1 Gen 1 port 1) will be temporarily disabled.

**\* LAN ports 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

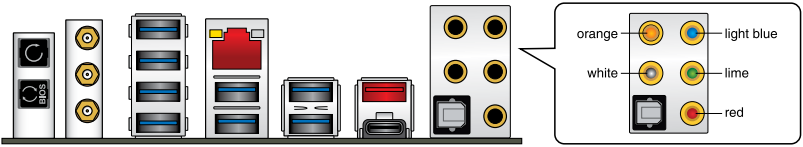


**\*\* Audio 2, 4, 5.1 or 7.1-channel configuration**

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
Red	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Sub woofer	Center/Sub woofer
White	–	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out

## 2.3.2 Audio I/O connections

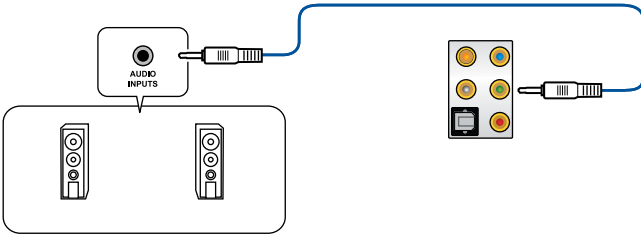
### Audio I/O ports



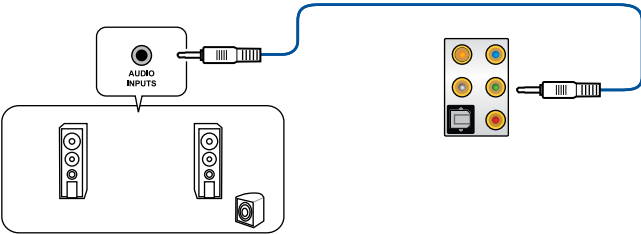
### Connect to Headphone and Mic



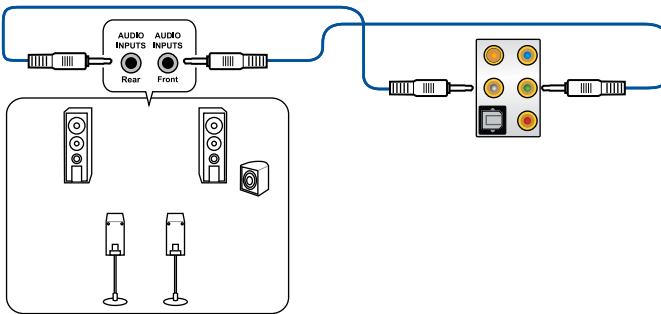
### Connect to Stereo Speakers



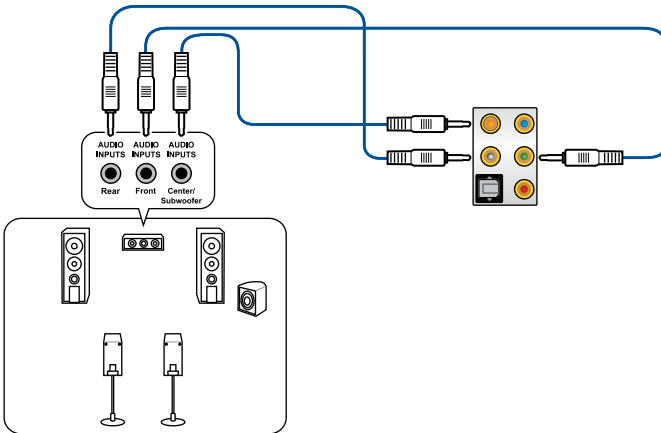
### Connect to 2-channel Speakers



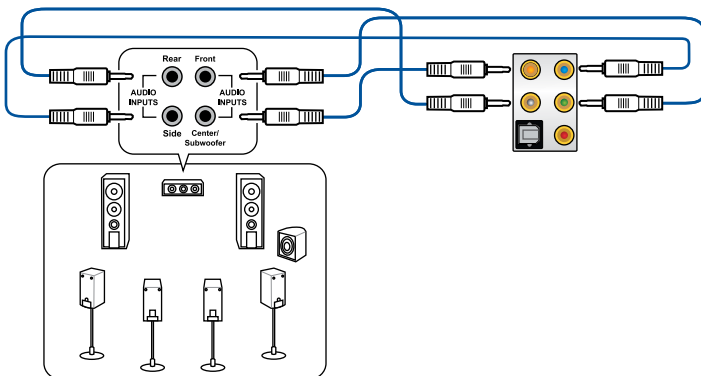
### Connect to 4-channel Speakers



### Connect to 5.1-channel Speakers



### Connect to 7.1-channel Speakers



## 2.4 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.

## 2.5 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 Setup

# 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 to instability or boot failure. **We strongly recommend that you change the BIOS settings only with the help of a trained service personnel.**

---



When downloading or updating the BIOS file, rename it as **ZE.CAP** for this motherboard.

---

## 3.2 BIOS setup program

Use the BIOS Setup to update the BIOS or configure its parameters. The BIOS screen 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.



- 
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
  - 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>. See section 3.10 **Exit Menu** for details.
  - If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section 1.1.6 **Onboard buttons and switches** for information on how to erase the RTC RAM via the Clear CMOS button.
  - The BIOS setup program does not support the Bluetooth devices.
- 



---

Please visit ASUS website for the detailed BIOS content manual.

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### 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.

### 3.2.1 Advanced Mode

The Advanced Mode provides advanced options for experienced end-users to configure the BIOS settings. The figure below shows an example of the Advanced Mode. Refer to the following sections for the detailed configurations.



The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item in section **Boot menu** for details.

The screenshot shows the BIOS Advanced Mode interface. Key components are labeled as follows:

- Configuration fields:** Points to the top navigation bar containing 'Language', 'MyFavorite(F3)', 'Qfan Control(F6)', 'EZ Tuning Wizard(F11)', and 'Hot Keys'.
- Pop-up Menu:** Points to the 'Extreme Tweaker' menu item.
- Menu bar:** Points to the top navigation bar.
- Scroll bar:** Points to the vertical scrollbar on the right side of the main content area.
- Hardware Monitor:** Points to the right-hand panel displaying system status including CPU (3100 MHz, 60°C), Memory (2133 MHz, 1.199 V), and Voltage (+12V, +5V, +3.3V, 3.335 V).
- Menu items:** Points to the bottom navigation bar with options like 'My Favorites', 'Main', 'Extreme Tweaker', 'Advanced', 'Monitor', 'Chipset', and 'Boot'.
- General help:** Points to the information icon (i) and the help text below the 'Manual' selection.
- Last modified settings:** Points to the 'Last Modified' text at the bottom of the screen.
- Go back to EZ Mode:** Points to the 'EzMode(F7)' button at the bottom.
- Search on the FAQ:** Points to the 'Search on FAQ' text at the bottom.

The main content area shows settings for 'Extreme Tweaker' with a dropdown menu open for 'Ai Overclock Tuner', listing options: Default, Auto, Manual, D.O.C.P. Standard, D.O.C.P. 1, D.O.C.P. 2, D.O.C.P. 3, D.O.C.P. 4, D.O.C.P. 5, and Auto.

## Menu bar

The menu bar on top of the screen has the following main items:

<b>My Favorites</b>	For saving the frequently-used system settings and configuration.
<b>Main</b>	For changing the basic system configuration
<b>Extreme Tweaker</b>	For changing the overclocking settings
<b>Advanced</b>	For changing the advanced system settings
<b>Monitor</b>	For displaying the system temperature, power status, and changing the fan settings.
<b>Chipset</b>	For changing the configuration of the chipsets.
<b>Boot</b>	For changing the system boot configuration
<b>Tool</b>	For configuring options for special functions
<b>Exit</b>	For selecting the exit options and loading default settings

### Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (My Favorites, Extreme Tweaker, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

### Submenu items

A greater than sign (>) before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter>.

### Language

This button above the menu bar contains the languages that you can select for your BIOS. Click this button to select the language that you want to display in your BIOS screen.

### My Favorites(F3)

This button above the menu bar shows all BIOS items in a Tree Map setup. Select frequently-used BIOS settings and save it to MyFavorites menu.



---

Refer to section **3.3 My Favorites** for more information.

---

### Q-Fan Control(F6)

This button above the menu bar displays the current settings of your fans. Use this button to manually tweak the fans to your desired settings.



---

Refer to section **3.2.3 Q-Fan Control** for more information.

---

## EZ Tuning Wizard(F11)

This button above the menu bar allows you to view and tweak the overclocking settings of your system. It also allows you to change the motherboard's SATA mode from AHCI to RAID mode.



---

Refer to section **3.2.4 EZ Tuning Wizard** for more information.

---

## Search on FAQ

Move your mouse over this button to show a QR code, scan this QR code on your mobile device to connect to the BIOS FAQ web page of the ASUS support website. You can also scan the following QR code:



## Hot keys

This button above the menu bar contains the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

## Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> / <Page Down> keys to display the other items on the screen.

## General help

At the bottom of the menu screen is a brief description of the selected item. Use <F12> key to capture the BIOS screen and save it to the removable storage device.

## Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

## Last Modified button

This button shows the items that you last modified and saved in BIOS Setup.

### 3.2.2 EZ Mode

The EZ Mode provides you an overview of the basic system information, and allows you to select the display language, system performance, mode and boot device priority. To access the Advanced Mode, select **Advanced Mode** or press the <F7> hotkey for the advanced BIOS settings.



To switch from Advanced Mode to EZ Mode, click **EZ Mode(F7)** or press the <F7> hotkey.

The screenshot shows the UEFI BIOS Utility - EZ Mode interface. Key components and their functions are as follows:

- Information Panel:** Displays a quick overview of the system status, including system version (ROG ZENITH EXTREME BIOS Ver. 0204), AMD Eng Sample, Speed (3100 MHz), and Memory (4096 MB).
- Language and Mode:** Allows selecting the display language of the BIOS setup program and switching EZ System Tuning modes (Quiet, Performance, Energy Saving).
- System Tuning:** Creates storage RAID and configures system overlocking.
- Temperature and Voltage:** Shows CPU Temperature (63°C), CPU Core Voltage (1,395 V), and Motherboard Temperature (33°C).
- DRAM Status:** Lists DIMM modules (e.g., Corsair 4096MB 2133MHz).
- SATA Information:** Lists SATA ports and their status (e.g., SATA6G\_1: N/A).
- FAN Profile:** Shows various fan profiles (CPU FAN, CHA\_FAN, HAMP\_FAN, CPU\_OPT, EXT\_FAN) and a graph for CPU FAN speed. A callout indicates: "Displays the CPU Fan's speed. Click the button to manually tune the fans".
- Boot Priority:** Allows choosing one and dragging the items. A callout indicates: "Selects the boot device priority".
- Navigation:** Includes buttons for Default(F5), Save & Exit(F10), Advanced Mode(F7), and Search on FAQ. Callouts indicate: "Saves the changes and resets the system", "Click to go to Advanced mode", and "Search on the FAQ".
- QFan Control:** A button to load optimized default settings. A callout indicates: "Loads optimized default settings".
- Boot Menu(F8):** A button to click to display boot devices.



The boot device options vary depending on the devices you installed to the system.

### 3.2.3 Q-Fan Control

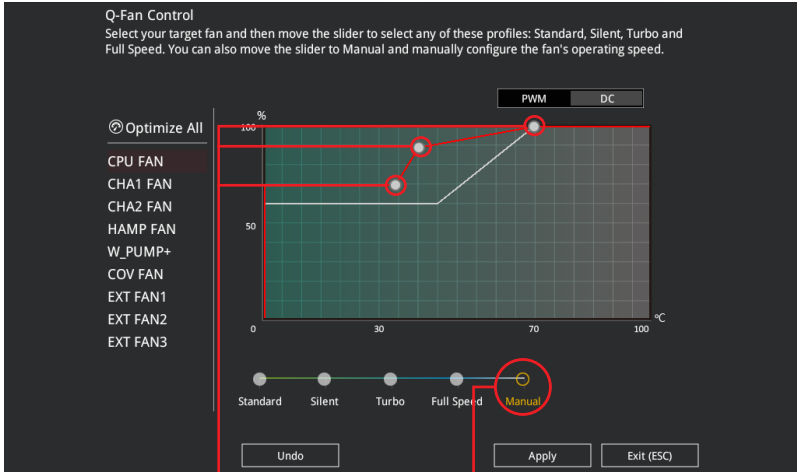
The Q-Fan Control allows you to set a fan profile or manually configure the operating speed of your CPU and chassis fans.

The screenshot shows the Q-Fan Control interface with the following elements and annotations:

- Q-Fan Control** header and introductory text: "Select your target fan and then move the slider to select any of these profiles: Standard, Silent, Turbo and Full Speed). You can also move the slider to Manual and manually configure the fan's operating speed."
- Mode Selection:** "PWM" and "DC" buttons at the top right. An annotation points to the "PWM" button: "Click to activate PWM Mode".
- Fan List:** A list of fans on the left: "Optimize All", "CPU FAN", "CHA1 FAN", "CHA2 FAN", "HAMP FAN", "W\_PUMP+", "COV FAN", "EXT FAN1", "EXT FAN2", "EXT FAN3". An annotation points to this list: "Click to select a fan to be configured".
- Graph:** A line graph showing fan speed (%) vs temperature (°C). The y-axis ranges from 0 to 100, and the x-axis from 0 to 100. A blue line shows a profile that is flat at ~25% until 30°C, then rises to ~75% at 70°C, and stays flat at 100% until 100°C.
- Profile Selection:** A row of radio buttons: "Standard", "Silent", "Turbo", "Full Speed", "Manual". An annotation points to the "Manual" button: "Click to activate DC Mode".
- Buttons:** "Undo", "Apply", and "Exit (ESC)" buttons at the bottom. Annotations point to these buttons: "Click to apply the fan setting" (Apply), "Click to go back to main menu" (Exit (ESC)), and "Click to undo the changes" (Undo).
- Manual Configuration:** A red box highlights the "Manual" radio button and the "Apply" button. An annotation points to this area: "Select to manually configure your fans".
- Profile Selection:** A red box highlights the "Standard", "Silent", "Turbo", and "Full Speed" radio buttons. An annotation points to this area: "Select a profile to apply to your fans".

## Configuring fans manually

Select **Manual** from the list of profiles to manually configure your fans' operating speed.



Speed points

Select to manually  
configure your fans

To configure your fans:

1. Select the fan that you want to configure and to view its current status.
2. Click and drag the speed points to adjust the fans' operating speed.
3. Click **Apply** to save the changes then click **Exit (ESC)**.



### 3.2.4 EZ Tuning Wizard

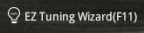
EZ Tuning Wizard allows you to easily overclock your CPU and DRAM, computer usage, and CPU fan to their best settings.

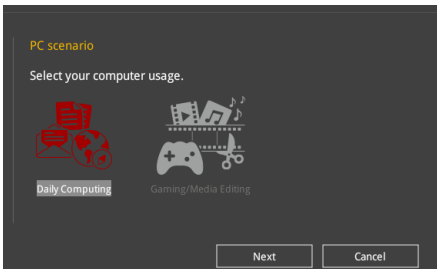


OC Setup

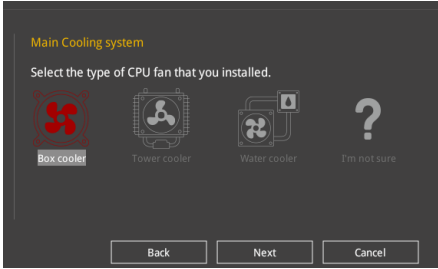
### OC Tuning

To start OC Tuning:

1. Press <F11> on your keyboard or click  from the BIOS screen to open EZ Tuning Wizard screen.
2. Click **OC** then click **Next**.
3. Select a PC scenario **Daily Computing** or **Gaming/Media Editing**, then click **Next**.



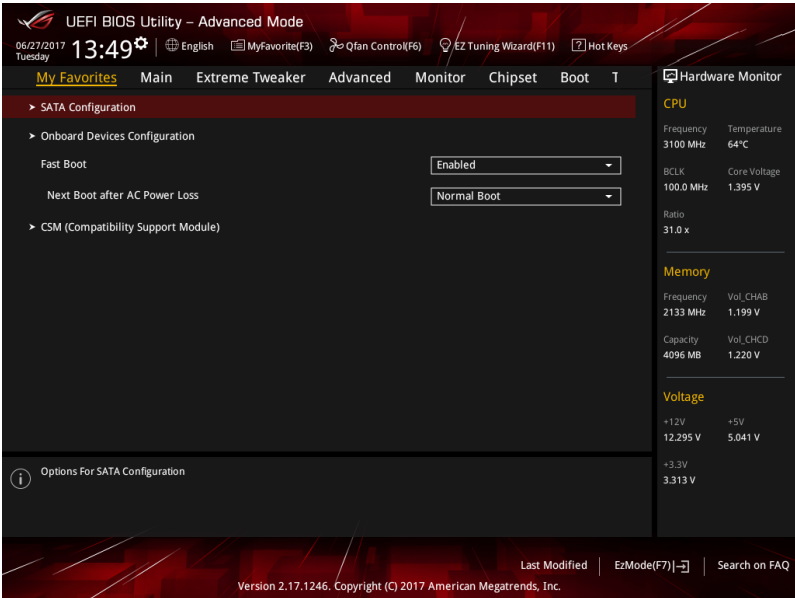
4. Select a Main Cooling System **BOX cooler**, **Tower cooler**, **Water cooler**, or **I'm not sure**, then click **Next**.



5. After selecting the Main Cooling System, click **Next** then click **Yes** to start the OC Tuning.

### 3.3 My Favorites

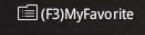
My Favorites is your personal space where you can easily save and access your favorite BIOS items.

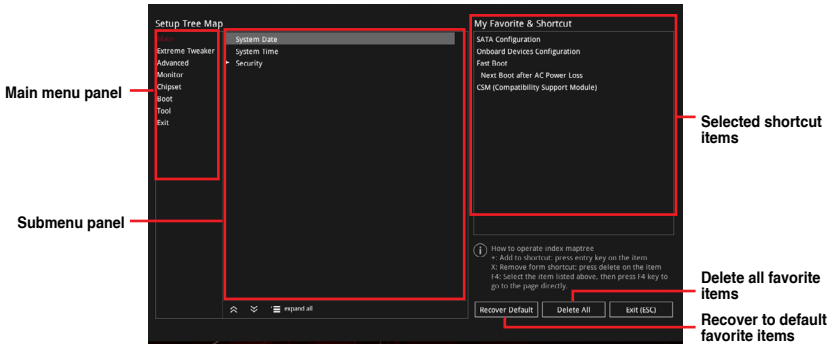



My Favorites comes with several performance, power saving, and fast boot related items by default. You can personalize this screen by adding or removing items.

## Adding items to My Favorites

To add BIOS items:

1. Press <F3> on your keyboard or click  from the BIOS screen to open Setup Tree Map screen.
2. On the Setup Tree Map screen, select the BIOS items that you want to save in My Favorites screen.



3. Select an item from main menu panel, then click the submenu that you want to save as favorite from the submenu panel and click  or press <Enter> on your keyboard.



You cannot add the following items to My Favorite items:

- Items with submenu options
- User-managed items such as language and boot order
- Configuration items such as Memory SPD Information, system time and date.

4. Click **Exit (ESC)** or press <Esc> key to close Setup Tree Map screen.
5. Go to My Favorites menu to view the saved BIOS items.

## 3.4 Main menu

The Main menu screen appears when you enter the Advanced Mode of the BIOS Setup program. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.

### Security

The Security menu items allow you to change the system security settings.



- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section **2.3.1 Rear I/O connection** for the location of the Clear CMOS button to clear RTC RAM.
- The Administrator or User Password items on top of the screen show the default [**Not Installed**]. After you set a password, these items show [**Installed**].

## 3.5 Extreme Tweaker menu

The Extreme Tweaker menu items allow you to configure overclocking-related items.



Be cautious when changing the settings of the Extreme Tweaker menu items. Incorrect field values can cause the system to malfunction



The configuration options for this section vary depending on the CPU and DIMM model you installed on the motherboard.

### Ai Overclock Tuner

Allows you to select the CPU overclocking options to achieve the desired CPU internal frequency.

- |            |  |
|------------|--|
| [Auto]     | Loads the optimal settings for the system.   |
| [Manual]   | Allows you to individually set overclocking parameters.  |
| [D.O.C.P.] | Allows you to select a DRAM O.C. profile, and the related parameters will be adjusted automatically. |



The following item appears only when you set the **Ai Overclocking Tuner** to [**Manual**].

#### BCLK Frequency

This item allows you to set the BCLK frequency to enhance the system performance. Use the <+> or <-> to adjust the value.



We recommend you to set the value based on the CPU specification, as high BCLK frequencies may damage the CPU permanently.

## Custom CPU Core Ratio

This item allows you to set a custom CPU core ratio. The CPU core ratio is calculated with the formula:  $2 * \text{FID} / \text{DID}$ .

Configuration options: [Auto] [Manual]



---

The following items appear only when you set the **Custom CPU Core Ratio** to **[Manual]**.

---

### FID

This item allows you to set the core frequency multiplier. Use the <+> or <-> to adjust the value.

### DID

This item allows you to set the core frequency divisor. Use the <+> or <-> to adjust the value.

## Memory Frequency

This item allows you to set the memory operating frequency. The configurable options vary with the BCLK (base clock) frequency setting. Select the auto mode to apply the optimized setting.

Configuration options: [Auto] [DDR4-1333MHz] - [DDR4-4000MHz]

## 3.6 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.



---

Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

---

### 3.6.1 AMD fTPM configuration

The items in this menu show the AMD fTPM configuration options.

#### TPM Device Selection

This item allows you to select the TPM device.

[Firmware TPM] Enables AMD CPU fTPM.

[Discrete TPM] Disables AMD CPU fTPM.

### 3.6.2 ROG Effects

The items in this menu allow you to configure the LEDs on your motherboard.

#### Onboard LED

This item allows you to enable all the onboard LEDs.

Configuration options: [Enabled] [Disabled]

### 3.6.3 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

#### SATA Port Enable

This item allows you to enable or disable the SATA Device.

Configuration options: [Disabled] [Enabled]

#### SATA Mode

This item allows you to set the SATA configuration.

[AHCI] Set to [AHCI] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

[RAID] Set to [RAID] when you want to create a RAID configuration from the SATA hard disk drives.

#### SMART Self Test

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a monitoring system that shows a warning message during POST (Power-on Self Test) when an error occurs in the hard disks.

Configuration options: [On] [Off]

#### SATA6G\_1(Gray) - SATA6G\_6(Gray)

##### SATA6G\_1 - SATA6G\_6

This item allows you to enable or disable the selected SATA port.

Configuration options: [Disabled] [Enabled]

##### Hot Plug

These items appears only when the **SATA Mode** is set to [AHCI] and allows you to enable or disable SATA Hot Plug Support.

Configuration options: [Disabled] [Enabled]

### 3.6.4 Onboard Devices Configuration

The items in this menu allow you to switch between PCIe Lanes and configure onboard devices.

#### HD Audio Controller

This item allows you to use the Azalia High Definition Audio Controller.

Configuration options: [Disabled] [Enabled]

#### CPU PCIE Link Mode

This item allows you to set the M.2/PCIE link speed.

Configuration options: [Auto] [GEN 1] [GEN 2] [GEN 3]

## SB PCIE Link Mode

This item allows you to set the Southbridge link speed.  
Configuration options: [Auto] [GEN 1] [GEN 2]

### PCIEX16\_1 Bandwidth

[X16 Mode] The PCIe x16\_1 slot runs at x16 mode.

[PCIe RAID Mode] The four PCIe x16 slots run at x4+x4+x4+x4 mode, which allows you to create a RAID array for up to 4 PCIe devices.



---

Use PCIe RAID Mode when installing the Hyper M.2 x16 card or other M.2 adapter cards. Installing other devices when using PCIe RAID Mode may cause your PC to fail to boot up.

---

### PCIEX16\_2 Bandwidth

[X8 Mode] The PCIe x16\_2 slot runs at x8 mode.

[PCIe RAID Mode] The PCIe x16 slots run at x4+x4 mode, which allows you to create a RAID array for up to 2 PCIe devices.



---

Use PCIe RAID Mode when installing the Hyper M.2 x16 card or other M.2 adapter cards. Installing other devices when using PCIe RAID Mode may cause your PC to fail to boot up.

---

### PCIEX16\_3 Bandwidth

[X16 Mode] The PCIe x16\_3 slot runs at x16 mode.

[PCIe RAID Mode] The four PCIe x16 slots run at x4+x4+x4+x4 mode, which allows you to create a RAID array for up to 4 PCIe devices.



---

Use PCIe RAID Mode when installing the Hyper M.2 x16 card or other M.2 adapter cards. Installing other devices when using PCIe RAID Mode may cause your PC to fail to boot up.

---

### PCIEX8/X4\_4 Bandwidth

[X8 mode] The PCIEX8/X4\_4 slot will run at X8 mode for high performance with the U.2 disabled.

[X4 mode] The PCIEX8/X4\_4 slot will run at X4 mode with the U.2 enabled.

[PCIe RAID Mode] The PCIe x16 slots run at x4+x4 mode, which allows you to create a RAID array for up to 2 PCIe devices. The U.2 port will be disabled.



---

Use PCIe RAID Mode when installing the Hyper M.2 x16 card or other M.2 adapter cards. Installing other devices when using PCIe RAID Mode may cause your PC to fail to boot up.

---

## Asmedia USB 3.1 Controller

[Disabled] Disables the controller.

[Enabled] Enables the rear USB 3.1 controller.



## USB Type C Power Switch for U31G2\_1

[Auto] The system will automatically detect your USB Type C devices and provide suitable power if needed.

[Enabled] The USB Type C port will always provide power to your devices.

## USB Type C Power Switch for U31G2\_EC1

[Auto] The system will automatically detect your USB Type C devices and provide suitable power if needed.

[Enabled] The USB Type C port will always provide power to your devices.

## RGB LED lighting

### When system is in working state

This item allows you to turn the RGB LED lighting on or off when the system is in the working state.

Configuration options: [On] [Off]

### When system is in sleep, hibernate or soft off states

This item allows you to turn the RGB LED lighting on or off when the system is in the sleep, hibernate or soft off states.

Configuration options: [On] [Off]

## Intel LAN Controller

This item allows you to enable or disable the Intel LAN controllers.

Configuration options: [Disabled] [Enabled]

## Wi-Fi Controller

This item allows you to enable or disable the Wi-Fi controller.

Configuration options: [Disabled] [Enabled]

## Bluetooth Controller

This item allows you to enable or disable the Intel Bluetooth controller.

Configuration options: [Disabled] [Enabled]

### 3.6.5 APM Configuration

The items in this menu allow you to set system wake and sleep settings.

#### ErP Ready

This item allows you to switch off some power at S4+S5 or S5 to get the system ready for ErP requirement. When set to **[Enabled]**, all other PME options are switched off.

Configuration options: [Disabled] [Enable(S4+S5)] [Enable(S5)]

#### Restore On AC Power Loss

This item allows your system to go to ON state, OFF state, or both states after an AC power loss. When setting your system to **[Last State]**, it goes to the previous state before the AC power loss.

Configuration options: [Power On] [Power Off] [Last State]

#### Power On By PCI-E/PCI

This item allows you to enable or disable the Wake-on-LAN function of the onboard LAN controller or other installed PCI-E LAN cards.

Configuration options: [Disabled] [Enabled]

#### Power On By RTC

This item allows you to enable or disable the RTC (Real-Time Clock) to generate a wake event and configure the RTC alarm date. When enabled, you can set the days, hours, minutes, or seconds to schedule an RTC alarm date.

Configuration options: [Disabled] [Enabled]

### 3.6.6 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.



---

The items in this menu may vary based on the CPU installed.

---

#### NX Mode

This item allows you enable or disable No-execute page protection function.

Configuration options: [Disabled] [Enabled]

#### SVM Mode

This item allows you enable or disable CPU Virtualization.

Configuration options: [Disabled] [Enabled]

### 3.6.7 Network Stack Configuration

The items in this menu allow you to enable or disable the UEFI network stack

### 3.6.8 HDD/SSD SMART Information

This menu displays the SMART information of the connected devices.



---

NVM Express devices do not support SMART information.

---

## 3.6.9 USB Configuration

The items in this menu allow you to change the USB-related features.



---

The **Mass Storage Devices** item shows the auto-detected values. If no USB device is detected, the item shows **None**.

---

### Legacy USB Support

- [Enabled] Your system supports the USB devices in legacy operating systems.
- [Disabled] Your USB devices can be used for BIOS setup only and cannot be recognized in the boot devices list.
- [Auto] Your system automatically detects the presence of USB devices at startup. If any USB devices are detected, the legacy USB support is enabled.

### XHCI Hand-off

- [Enabled] Enables the support for operating systems without an XHCI hand-off feature.
- [Disabled] Disables the XHCI Hand-off support.

### USB Single Port Control

This item allows you to enable or disable the individual USB ports.



---

Refer to section **1.1.2 Motherboard layout** for the location of the USB ports.

---

## 3.7 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.

Scroll down to display the other BIOS items.

### Q-fan Configuration

#### Qfan Tuning

Click this item to automatically detect the lowest speed and configure the minimum duty cycle for each fan.

#### W\_PUMP+ Control

- [Disabled] Disable the Water Pump control feature.
- [Auto] Detects the type of water pump installed and automatically switches the control modes.
- [DC mode] Enable the Water Pump control in DC mode for 3-pin chassis fan.
- [PWM mode] Enable the Water Pump control in PWM mode for 4-pin chassis fan.

## 3.8 Boot menu

The Boot menu items allow you to change the system boot options.

### Fast Boot

- [Disabled] Allows your system to go back to its normal boot speed.
- [Enabled] Allows your system to accelerate the boot speed.



---

The following item appears only when you set the **Fast Boot** to **[Enabled]**.

---

### Next Boot after AC Power Loss

- [Normal Boot] Returns to normal boot on the next boot after an AC power loss.
- [Fast Boot] Accelerates the boot speed on the next boot after an AC power loss.

## Boot Configuration

### Boot Logo Display

- [Auto] Sets the boot logo to display during POST.
- [Full Screen] Sets the boot logo display in full screen during POST.
- [Disabled] Disables the boot logo display during POST.

### Setup Mode

- [Advanced Mode] This item allows you to go to Advanced Mode of the BIOS after POST.
- [EZ Mode] This item allows you to go to EZ Mode of the BIOS after POST.

## CSM (Compatibility Support Module)

This item allows you to configure the CSM (Compatibility Support Module) items to fully support the various VGA, bootable devices and add-on devices for better compatibility.

### Launch CSM

- [Auto] The system automatically detects the bootable devices and the add-on devices.
- [Enabled] For better compatibility, enable the CSM to fully support the non-UEFI driver add-on devices or the Windows® UEFI mode.
- [Disabled] Disable the CSM to fully support the non-UEFI driver add-on devices or the Windows® UEFI mode.



---

The following items appear only when you set the **Launch CSM** to **[Enabled]**.

---

### **Boot Device Control**

This item allows you to select the type of devices that you want to boot.

Configuration options: [UEFI and Legacy OPROM] [Legacy OPROM only] [UEFI only]

### **Boot from Network Devices**

This item allows you to select the type of network devices that you want to launch.

Configuration options: [Ignore] [Legacy only] [UEFI driver first]

**Boot from Storage Devices**

This item allows you to select the type of storage devices that you want to launch.

Configuration options: [Ignore] [Legacy only] [UEFI driver first]

**Boot from PCI-E/PCI Expansion Devices**

This item allows you to select the type of PCI-E/PCI expansion devices that you want to launch.

Configuration options: [Legacy only] [UEFI driver first]

**Secure Boot**

This item allows you to configure the Windows® Secure Boot settings and manage its keys to protect the system from unauthorized access and malwares during POST.

**Boot Option Priorities**

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.



- To access Windows® OS in Safe Mode, press <F8> after POST (Windows® 8 not supported).
- To select the boot device during system startup, press <F8> when the ASUS Logo appears.

**Boot Override**

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

**3.9 Tool menu**

The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

**Setup Animator**

This item allows you to enable or disable the Setup animator.

Configuration options: [Disabled] [Enabled]

**3.9.1 ASUS EZ Flash 3 Utility**

This item allows you to run ASUS EZ Flash 3. When you press <Enter>, a confirmation message appears. Use the left/right arrow key to select between [Yes] or [No], then press <Enter> to confirm your choice.



For more details, refer to section **3.12.2 ASUS EZ Flash 3**.

### 3.9.2 Secure Erase

SSD speeds may lower over time as with any storage medium due to data processing. Secure Erase completely and safely cleans your SSD, restoring it to factory performance levels.



Secure Erase is only available in AHCI mode. Ensure to set the SATA mode to AHCI. Click **Advanced > SATA Configuration > SATA Mode > AHCI**.

To launch Secure Erase, click **Tool > Secure Erase** on the Advanced mode menu.



Secure Erase is only supported on selected SATA SSDs, and cannot erase NVMe storage devices.



- The time to erase the contents of your SSD may take a while depending on its size. Do not turn off the system during the process.
- Secure Erase is only supported on AMD® SATA port. For more information about AMD® SATA ports, refer to section 1.1.2 **Motherboard layout** of this manual.

Displays the available SSDs



Port #	SSD Name	Status	Total Capacity
PC	ABATA 500G Turbo	Frozen	64.0GB



#### Status definition:

- **Frozen.** The frozen state is the result of a BIOS protective measure. The BIOS guards drives that do not have password protection by freezing them prior to booting. If the drive is frozen, a power off or hard reset of your PC must be performed to proceed with the Secure Erase.
- **Locked.** SSDs might be locked if the Secure Erase process is either incomplete or was stopped. This may be due to a third party software that uses a different password defined by ASUS. You have to unlock the SSD in the software before proceeding with Secure Erase.

### 3.9.3 ASUS Overclocking Profile

This item allows you to store or load multiple BIOS settings.

#### Load from Profile

This item allows you to load the previous BIOS settings saved in the BIOS Flash. Key in the profile number that saved your BIOS settings, press <Enter>, and then select **Yes**.



- DO NOT shut down or reset the system while updating the BIOS to prevent the system boot failure!
- We recommend that you update the BIOS file only coming from the same memory/CPU configuration and BIOS version.

#### Profile Name

This item allows you to key in a profile name.

#### Save to Profile

This item allows you to save the current BIOS settings to the BIOS Flash, and create a profile. Key in a profile number from one to eight, press <Enter>, and then select **Yes**.

#### Load/Save Profile from/to USB Drive

This item allows you to load or save profile from your USB drive, load and save profile to your USB drive.

### 3.9.4 ROG OC Panel H-Key Configure

The ROG OC Panel H-Key Configure allows you to input and save values on the CPU core voltage, VCCSA voltage, BCLK Frequency, CPU ratio, and Cache ratio in the UEFI BIOS. The saved values can be synchronized to a compatible OC Panel device and these values can be tweaked or configured using the OC Panel without going to the BIOS menu.

#### Load Default

This item allows you to load the default values of the CPU Core Voltage, VCCSA Voltage, BCLK Frequency, CPU ratio, and Cache ratio.

#### Save Above Settings

This item allows you to save the new values of the CPU Core Voltage, VCCSA Voltage, BCLK Frequency, CPU ratio, and Cache ratio.

#### Load from profile

This item allows you to load the previous values of the CPU Core Voltage, VCCSA Voltage, BCLK Frequency, CPU ratio, and Cache ratio.

### 3.9.5 ASUS SPD Information

This item allows you to view the DRAM SPD information.

## 3.9.6 Graphics Card Information

This item displays the information about the graphics card installed in your system.

### GPU Post

This item displays the information and recommended configuration for the PCIE slots that the graphics card is installed in your system.



---

This feature is only supported on selected ASUS graphics cards.

---

## 3.10 Exit menu

The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items.

### Load Optimized Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select **OK** to load the default values.

### Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **OK** to save changes and exit.

### Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

### Launch EFI Shell from USB drives

This item allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices.



## 3.11 Updating BIOS

The ASUS website publishes the latest BIOS versions to provide enhancements on system stability, compatibility, and performance. However, BIOS updating is potentially risky. If there is no problem using the current version of BIOS, DO NOT manually update the BIOS. Inappropriate BIOS updating may result to system's failure to boot. Carefully follow the instructions in this chapter to update your BIOS when necessary.



---

Visit <http://www.asus.com> to download the latest BIOS file for this motherboard.

---

The following utilities allow you to manage and update the motherboard BIOS setup program.

1. EZ Update: Updates the BIOS in Windows® environment.
2. ASUS EZ Flash 3: Updates the BIOS using a USB flash drive.
3. ASUS CrashFree BIOS 3: Restores the BIOS using the motherboard support USB drive when the BIOS file fails or gets corrupted.

### 3.11.1 EZ Update

The EZ Update is a utility that allows you to update the motherboard BIOS in Windows® environment.



- EZ Update requires an Internet connection either through a network or an ISP (Internet Service Provider).
  - This utility is available in the support USB drive that comes with the motherboard package.
-

### 3.11.2 ASUS EZ Flash 3

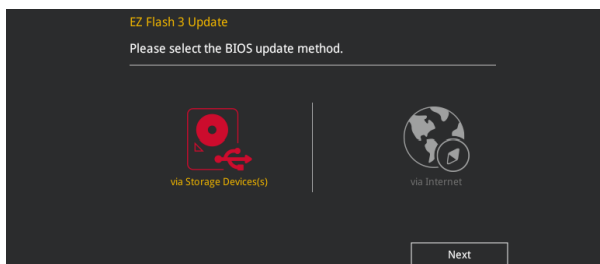
ASUS EZ Flash 3 allows you to download and update to the latest BIOS through the Internet without having to use a bootable floppy disk or an OS-based utility.



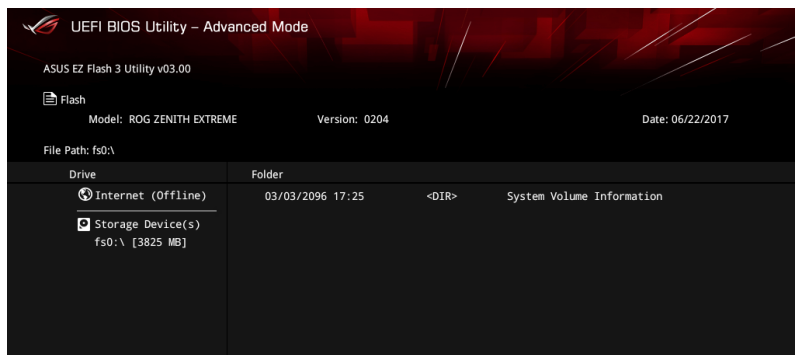
Updating through the Internet varies per region and Internet conditions. Check your local Internet connection before updating through the Internet.

#### To update the BIOS by USB:

1. Enter the Advanced Mode of the BIOS setup program. Go to the Tool menu to select **ASUS EZ Flash 3 Utility** and press <Enter>.
2. Insert the USB flash disk that contains the latest BIOS file to the USB port.
3. Select **via Storage Device(s)**.



4. Press <Tab> to switch to the Drive field.
5. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.
6. Press <Tab> to switch to the Folder Info field.
7. 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.





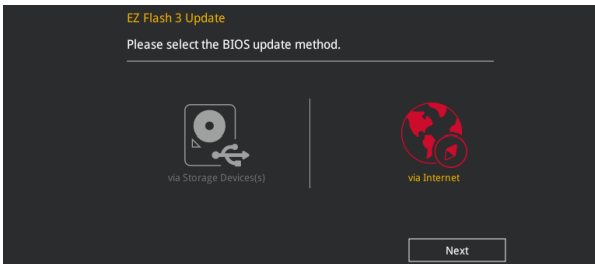
- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!



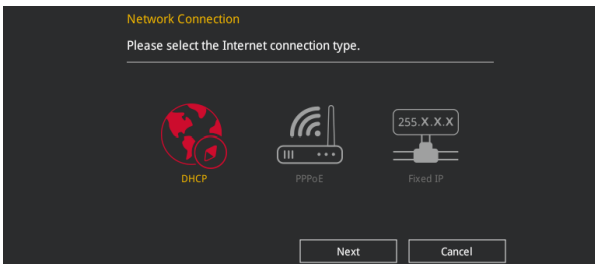
Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. See section 3.10 **Exit Menu** for details.

### To update the BIOS by Internet:

1. Enter the Advanced Mode of the BIOS setup program. Go to the Tool menu to select **ASUS EZ Flash 3 Utility** and press <Enter>.
2. Select **via Internet**.



3. Press the Left/Right arrow keys to select an Internet connection method, and then press <Enter>.



4. Follow the onscreen instructions to complete the update.
5. Reboot the system when the update process is done.



Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. See section 3.10 **Exit Menu** for details.

### 3.11.3 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 the motherboard support USB drive that contains the BIOS file.



---

The BIOS file in the motherboard support USB drive may be older than the BIOS file published on the ASUS official website. If you want to use the newer BIOS file, download the file at <https://www.asus.com/support/> and save it to a USB flash drive.

---

#### Recovering the BIOS

##### To recover the BIOS:

1. Turn on the system.
2. Insert the motherboard support USB drive, or the USB flash drive containing the BIOS file to the USB port.
3. 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.
4. 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!

---

# RAID Support

# 4

## 4.1 AMD RAID Array configurations

The motherboard comes with the RaidXpert2 Configuration Utility that supports Volume, RAIDABLE, RAID 0, RAID 1, and RAID 10 (depends on system licensing) configurations.



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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>.

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### 4.1.1 RAID definitions

**Volume** provides the ability to link-together storage from one or several disks, regardless of the size of the space on those disks. This configuration is useful in scavenging space on disks unused by other disks in the array. This configuration does not provide performance benefits or data redundancy, disk failure will result in data loss.

**RAIDABLE** arrays (also known as RAID Ready) are a special type of Volume (JBOD) that allows the user to add more storage space or create a redundant array after a system is installed. RAIDABLE arrays are created using Option ROM, UEFI, or rcadm.



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The ability to create RAIDABLE arrays may vary per system.

---

**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 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

### Federal Communications Commission Statement

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

- This device may not cause harmful interference.
- 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 manufacturer's 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 to 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.



The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

---

## 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-3(B)/NMB-3(B)

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

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3(B)/NMB-3(B)

## VCCI: Japan Compliance Statement 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。

VCCI-B

## KC: Korea Warning Statement

B급 기기 (가정용 방송통신기자재)

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

\*당해 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다.



## REACH

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>.



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.

## 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.

### Regional notice for California



### WARNING

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

### RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

## FCC Bluetooth Wireless Compliance

The antenna used with this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter subject to the conditions of the FCC Grant.

## Bluetooth Industry Canada Statement

This Class B device meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## NCC: Taiwan Wireless Statement

### 無線設備の警告聲明

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射頻、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。

於 5.25GHz 至 5.35GHz 區域內操作之  
無線設備的警告聲明

工作頻率 5.250 ~ 5.350GHz 該頻段限於室內使用。

## Japan RF Equipment Statement

### 屋外での使用について

本製品は、5GHz帯域での通信に対応しています。電波法の定めにより5.2GHz、5.3GHz帯域の電波は屋外で使用が禁じられています。

### 法律および規制遵守

本製品は電波法及びこれに基づく命令の定めるところに従い使用してください。日本国外では、その国の法律または規制により、本製品の使用ができないことがあります。このような国では、本製品を運用した結果、罰せられることがあります。当社は一切責任を負いかねますのでご了承ください。

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**Simplified EU Declaration of Conformity**

ASUSTek Computer Inc. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. Full text of EU declaration of conformity is available at <https://www.asus.com/support/>

The WiFi operating in the band 5150-5350MHz shall be restricted to indoor use for countries listed in the table below:

The WiGig operating in the band 57-66GHz shall be restricted from fixed outdoor installations for countries listed in the table below:

**Déclaration simplifiée de conformité de l'UE**

ASUSTek Computer Inc. déclare par la présente que cet appareil est conforme aux critères essentiels et autres clauses pertinentes de la directive 2014/53/UE. La déclaration de conformité de l'UE peut être téléchargée à partir du site internet suivant : <https://www.asus.com/support/>

Dans la plage de fréquence 5150-5350 MHz, le Wi-Fi est restreint à une utilisation en intérieur dans les pays listés dans le tableau ci-dessous:

Dans la plage de fréquence 57-66 GHz, le WiGig est restreint aux installations en extérieur dans les pays listés dans le tableau ci-dessous:

**Vereinfachte EU-Konformitätserklärung**

ASUSTek COMPUTER INC erklärt hiermit, dass dieses Gerät mit den grundlegenden Anforderungen und anderen relevanten Bestimmungen der Richtlinie 2014/53/UE übereinstimmt. Der gesamte Text der EU-Konformitätserklärung ist verfügbar unter: <https://www.asus.com/support/>. Der WLAN-Betrieb im Band von 5150-5350 MHz ist für die in der unteren Tabelle aufgeführten Länder auf den Innenbereich beschränkt: Der WiGig-Betrieb im Band von 57-66 GHz ist für die in der unteren Tabelle aufgeführten Länder bei festen Installationen im Außenbereich untersagt:

Der WLAN-Betrieb im Band von 57-66 GHz ist für die in der unteren Tabelle aufgeführten Länder bei festen Installationen im Außenbereich untersagt:

**Dichiarazione di conformità UE semplificata**

ASUSTek Computer Inc. con la presente dichiara che questo dispositivo è conforme ai requisiti essenziali e alle altre disposizioni pertinenti con la direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile all'indirizzo: <https://www.asus.com/support/>

L'utilizzo della rete Wi-Fi con frequenza compresa nell'intervallo 5150-5350MHz deve essere limitato all'interno degli edifici per i paesi presenti nella seguente tabella:

L'utilizzo della rete WiGig operante nella banda di frequenza 57-66GHz deve essere limitato alle installazioni fisse all'esterno degli edifici per i paesi nella seguente tabella:

**Упрощенное заявление о соответствии европейской директиве**

ASUSTek Computer Inc. заявляет, что устройство соответствует основным требованиям и другим соответствующим условиям директивы 2014/53/ЕU. Полный текст декларации соответствия ЕС доступен на <https://www.asus.com/support/>

Работа WiFi в диапазоне частот 5150-5350 должна быть ограничена использованием в помещениях для стран, перечисленных в таблице ниже:

Работа WiGig в диапазоне частот 57-66 ГГц должна быть ограничена использованием в помещениях для стран, указанных в таблице ниже:

**إعلان التوافق المبسط الصادر عن الاتحاد الأوروبي**

تقر شركة ASUSTek Computer أن هذا الجهاز يتوافق مع المتطلبات الأساسية والأحكام الأخرى ذات الصلة الخاصة بتوجيه 2014/53/UE. يتوفر النص الكامل لإعلان التوافق الصادر عن الاتحاد الأوروبي على: <https://www.asus.com/support/>

يجب حصر استخدام WiFi المعاملة ب 5150-5350 ميجا هرتز على الاستخدام المنزلي المبنيان المدرجة بالجدول.

يجب حظر تركيب جهاز WiGig، الذي يعمل في نطاق 57-66 جيجا هرتز، بشكل ثابت خارج المباني بالدول المدرجة بالجدول أدناه:

**Opročena deklaracija za съответствие на ЕС**

С настоящото ASUSTek Computer Inc. декларира, че това устройство е в съответствие със съществениите изисквания и другите приложими постановления на свързаната Директива 2014/53/ЕU. Пълният текст на ЕС декларация за съвместимост е достъпен на адрес <https://www.asus.com/support/>

WiFi, работеща в диапазон 5150-5350MHz, трябва да се ограничи до употреба на закрито за страните, посочени в таблицата по-долу:

WiGig работещ на честота 57-66GHz, трябва да не се доближава до постоянни инсталции на открито за държави, включени в таблицата по-долу.

**Dichiarazione di Conformidade UE Simplificada**

ASUSTek Computer Inc. declara que este dispositivo está em conformidade com os requisitos essenciais e outras disposições relevantes relacionadas às diretivas 2014/53/UE. O texto completo da declaração de conformidade CE está disponível em <https://www.asus.com/support/>

O WiFi operando na banda 5150-5350MHz deve ser restrito para uso interno para os países listados na tabela abaixo:

A operação do WiGig na banda de 57-66GHz deve ser restrita de instalações fixas externas para países listados na tabela abaixo:

**Pojednostavljena EU Izjava o skladnosti**

ASUSTek Computer Inc. ovim izjavljuje da je ovaj uređaj skladan s bitnim zahtjevima i ostalim odgovarajućim odredbama direktive 2014/53/EU. Cijeli tekst EU izjave o skladnosti dostupan je na <https://www.asus.com/support/>

WiFi koji radi na opsegu frekvencija 5150-5350 MHz bit će ograničen na upotrebu u zatvorenom prostoru u zemljama na donjoj popisku:

WiFi koji radi na opsegu frekvencija 57-66 GHz bit će zabranjen za upotrebu u fiksnim vanjskim instalacijama u zemljama na donjoj tablici:

**Zjednodušené prohlášení o shodě EU**

Společnost ASUSTek Computer Inc. tímto prohlašuje, že toto zařízení splňuje základní požadavky a další příslušná ustanovení směrnice 2014/53/EU. Plně znění prohlášení o shodě EU je k dispozici na adrese <https://www.asus.com/support/>

V zemích uvedených v tabulce je provoz sítě Wi-Fi ve frekvenčním rozsahu 5 150 - 5 350 MHz povolen pouze ve vnitřních prostorech:

V zemích uvedených v tabulce níže je provoz sítě WiGig v pásmu 57 - 66 GHz zakázán pro pevné venkovní instalace:

**Förenklat EU-överensstemmelseerklaring**

ASUSTek Computer Inc. erklærer hermed at denne enhed er i overensstemmelse med hovedkravene og øvrige relevante bestemmelser i direktivet 2014/53/EU. Hele EU-överensstemmelseerklaringen kan findes på <https://www.asus.com/support/>

Wi-Fi, der bruger båndbredden 5150-5350 MHz skal begrænses til indendørs brug i lande, der er anført i tabellen:

WiGig-enheden, der bruger båndbredden 57-66 GHz på ikke bruges i fastspændte udendørsinstallationer i landene, der er anført på listen nedenfor:

**Vereenvoudigd EU-conformiteitsverklaring**

ASUSTek Computer Inc. verklaart hierbij dat dit apparaat voldoet aan de essentiële vereisten en andere relevante bepalingen van Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring is beschikbaar op <https://www.asus.com/support/>

De WiFi op 5150-5350MHz zal beperkt zijn tot binnengebruik voor in de tabel vermelde landen:

De WiGig die werkt in de band 57-66GHz moet worden uitgesloten van vaste installaties buitenshuis voor landen die in de onderstaande tabel zijn vermeld:

**Lihtsustatud EU vastavusdeklaratsioon**

Käesolevaga kinnitab ASUSTek Computer Inc. et seade vastab direktiivi 2014/53/EU olulistele nõuetele ja teiste esajakohaste sätetele. EU vastavusdeklaratsiooni täistekst on saadaval veebisaidil <https://www.asus.com/support/>

Sagedusvahemikus 5150-5350 MHz töötava WiFi kasutamise on järgmistes riikides lubatud ainult siseruumides:

WiGig-i kasutamise sagedusribal 57-66 GHz on keelatud paigsetel välismedmetel riikides, mis on loetletud allolevas tabelis:

**Europa - EYn vaatimustenmukaisuusvaakuutus**

ASUSTek Computer Inc. ilmoittaa täten, että tämä laite on direktiivin 2014/53/UE olennaisten vaatimusten ja muiden asiaankuuluvien lisäysten mukainen. Koko EYn vaatimustenmukaisuusvaakuutuksen teksti on luettavissa osoitteessa <https://www.asus.com/support/>

5 150 - 5 350 MHz:in taajuudella toimiva WiFi on rajoitettu sisäkäyttöön taulukossa luetelluissa maissa:

WiGig-käyttö 57 - 66 GHz:in taajuuskaistalla tulee rajoittaa kiinteisiin ulkoasennuksiin alla olevassa taulukossa luetelluissa maissa:

**تعمیر از نسخه ساده شده بیانیه انطباقی اروپا**

ASUSTek Computer Inc در اینجا اعلام می کند که این دستگاه با نیازهای اساسی و سایر مقررات مربوط به بیانیه 2014/53/UE مطابقت دارد. متن کامل بیرونی از این بیانیه انطباقی اروپا در این آدرس موجود است: <https://www.asus.com/support/>

عملکرد 5150-5350 مگاهرتز برای WiFi باید برای استفاده در فضای داخل ساختمان برای کشورهای فهرست شده در جدول، محدود شود.

برای کشورهای که در زیر لیست شده اند، عملکرد WiGig باید در باند 57 تا 66 گیگاهرتز باید برای تلسیسات نصب شده در فضای بیرون ساختمان محدود شود.

**Αποστομμένη Δήλωση Συμμόρφωσης ΕΕ**

Διά του παρόντος η ASUSTek Computer Inc. δηλώνει ότι αυτή η συσκευή είναι συμμόρφη με τις βασικές προϋποθέσεις και άλλες σχετικές διατάξεις της Οδηγίας 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης της ΕΕ είναι διαθέσιμο στη διεύθυνση <https://www.asus.com/support/>

Το WiFi που λειτουργεί στη ζώνη 5150-5350MHz περιορίζεται για χρήση σε εσωτερικούς χώρους για τις χώρες που αναφέρονται στον παρακάτω πίνακα:

Το WiGig που λειτουργεί στη ζώνη 57-66GHz δεν πρέπει να χρησιμοποιείται σε σταθερές υπαίθριες εγκαταστάσεις στις χώρες που απαριθμούνται στον παρακάτω πίνακα:

**צהרת תמיכה רגולטורית מקוצרת עבור האיחוד אירופי**  
 ASUSTek Computer Inc. מצהירה באתר כי מכשיר זה תואם לדרישות החינויות ולשאר הטיפים הרלוונטיים של תקנה 2014/53/EU. ניתן לראות את הנוסח המלא של הצהרת התמיכה רגולטורית עבור האיחוד האירופי בכתובת: <https://www.asus.com/support/>  
 יש להבדיל רשתות Wi-Fi הפועלות ברצועת התדרים 5150-5350MHz בשימוש בתוך מבנים גורמים ברצועת המפוטרת ברשימה הבאה:  
 - WiGig פועל בתחום התדרים 57-66GHz ולא יזכי להתחרות לאנטנת חינויות במידות שמפועות בטבלה שלהלן:

#### Egyszerűsített EU megfelelési nyilatkozatok

Az ASUSTek Computer Inc. ezennel kijelenti, hogy ez az eszköz megfelel az 2014/53/EU sz. irányelv alapvető követelményeinek és egyéb vonatkozó rendelkezésének. Az EU megfelelési nyilatkozat teljes szövegét a következő weboldalon tekintheti meg: <https://www.asus.com/support/>

Az 5150-5350 MHz-es sávban működő Wi-Fi-t beltéri használatra kell korlátozni az alábbi táblázatban felsorolt országokban:

Az 57-66 GHz-es sávban működő WiGig-et korlátozni kell a rögzített kültéri üzembekapcsolást illetően az alábbi táblázatban lévő országokban:

#### Pernyataan Kesesuaian UE yang Disederhanakan

ASUSTek Computer Inc. dengan ini menyatakan bahwa perangkat ini memenuhi persyaratan utama dan ketentuan relevan lainnya yang terdapat pada Peraturan 2014/53/EU. Teks lengkap pernyataan kesesuaian UE tersedia di: <https://www.asus.com/support/>

WiFi yang Beroperasi pada 5150-5350 MHz akan terbatas untuk penggunaan dalam ruangan di negara yang tercantum dalam tabel

Pengoperasian WiGig pada pita 57-66GHz akan dibatasi dari pemasangan luar ruangan tetap untuk negara yang tercantum dalam tabel di bawah ini:

#### Vienākārta ES atbilstības paziņojums

ASUSTek Computer Inc. ar šo paziņo, ka šis ierīce atbilst Direktīvas 2014/53/ES būtiskajam prasībām un citiem citiem saistajiem nosacījumiem.

Pilns ES atbilstības paziņojuma teksts pieejams šeit: <https://www.asus.com/support/>

Wi-Fi darbība 5150-5350 MHz ir jāierobežo lietošanai telpās valstīs, kuras norādītas tālāk.

WiGig, kas darbojas 57-66 GHz joslā, nav atļauts pastāvīgi uzstādīt ārpus telpām valstīs, kas norādītas nākamajā tabulā.

#### Supaprasītina ES atitikties deklaracija

Šiame dokumente pildome „ASUSTek Computer Inc.“ pareiškia, kad šis prietaisas atitinka pagrindinius reikalavimus ir kitas susijusias Direktyvos 2014/53/ES nuostatas. Visas ES atitikties deklaracijos tekstas pateikiame čia: <https://www.asus.com/support/>

Toliau nurodytose šalyse „WiFi“ ryšiu, veikiančiu 5 150-5 350 MHz dažnio juostoje, galima naudotis tik patalpose:

Toliau lentelėje nurodytose šalyse yra lubojamas 57-66 GHz dažnių juostoje veikiančių „WiGig“ fiksuoatų įrengimas laukais:

#### Forenklet EU-samsvarserklæring

ASUSTek Computer Inc. erklærer herved at denne enheten er i samsvar med hovedsaklige krav og andre relevante forskrifter i direktivet 2014/53/EU.

Fullstendig tekst for EU-samsvarserklæringen finnes på: <https://www.asus.com/support/>

Wi-Fi-området 5150-5350 MHz skal begrenses til innendørs bruk for landene som er oppført i tabellen:

Bruk i Wi-Gig-båndet 57-66 GHz skal begrenses til fast utendørs installasjon i landene som er oppført i følgende tabell:

#### Uproszczone deklaracja zgodności UE

Firma ASUSTek Computer Inc. niniejszym oświadcza, że urządzenie to jest zgodne z zasadniczymi wymogami i innymi właściwymi postanowieniami dyrektywy 2014/53/EU. Pełny tekst deklaracji zgodności UE jest dostępny pod adresem <https://www.asus.com/support/>

W krajach wymienionych w tabeli działanie sieci Wi-Fi w paśmie 5150-5350 MHz powinno być ograniczone wyłącznie do pomieszczeń:

WiGig-enheden, der bruger båndbredden 57-66 GHz på ikke bruges i fastspændte udendørsinstallationer i landene, der er anført på listen nedenfor:

#### Declaração de Conformidade Simplificada da UE

A ASUSTek Computer Inc. declara que este dispositivo está em conformidade com os requisitos essenciais e outras disposições relevantes da Diretiva 2014/53/UE. O texto integral da declaração de conformidade da UE está disponível em <https://www.asus.com/support/>

A utilização das frequências WiFi de 5150 a 5350MHz está restrita a ambientes interiores nos países apresentados na tabela:

A utilização do WiGig na banda de 57 a 66GHz está restrita a ambientes interiores nos países apresentados na tabela seguinte:

#### Declaratie de conformitate UE, versiune simplificată

Prin prezenta, ASUSTek Computer Inc. declară că acest dispozitiv este în conformitate cu regulamentele esențiale și cu celelalte prevederi relevante ale Directivei 2014/53/UE. Textul complet al declarației de conformitate UE este disponibil la adresa <https://www.asus.com/support/>

Pentru țările listate în tabelul de mai jos, rețelele WiFi care funcționează în banda de frecvență de 5.150-5.350 MHz trebuie utilizate doar în interior: Funcționarea dispozitivelor WiGig în banda de 57-66 GHz va fi restricționată pentru instalațiile fixe exterioare în țările din tabelul de mai jos:

#### Pojednostavljena Deklaracija o usaglasnosti EU

ASUSTek Computer Inc. ovim izjavljuj da je ovaj uređaj usaglašen sa osnovnim zahtevima i drugim relevantnim odredbama Direktive 2014/53/EU. Ceo tekst Deklaracije o usaglasnosti EU dostupan je na lokaciji <https://www.asus.com/support/>

WiFi koji radi u frekventnom opsegu od 5150 MHz do 5350 MHz ograničen je isključivo na upotrebu u zatvorenom prostoru za zemlje navedene u tabeli ispod:

WiFi koji radi u opsegu od 57-66GHz biće ograničen od fiksiranih spoljašnjih instalacija za države navedene u tabeli ispod:

#### Zjednodušené vyhlásenie o zhode platné pre EÚ

Spoločnosť ASUSTek Computer Inc. týmto vyhlasuje, že toto zariadenie je v súlade so základnými požiadavkami a ďalšími príslušnými ustanoveniami smernice č. 2014/53/EU. Plné znenie vyhlásenia o zhode pre EÚ je dostupné na lokalite <https://www.asus.com/support/>

Činnosť WiFi v pásme 5150-5350 MHz obmedzená na použitie vo vnútornom prostredí pre krajiny uvedené v tabuľke nižšie:

WiGig, ktorý sa v krajinách uvedených v tabuľke nižšie, prevádzkuje v pásme 57 až 66 GHz, musí byť umiestnený ďalej od pevných vonkajších zariadení.

#### Poenostavljena izjava EU o skladnosti

ASUSTek Computer Inc. tukaj izjavlja, da je ta naprava skladna s temeljnimi zahtevami in drugimi relevantnimi določili Direktive 2014/53/EU. Polno besedilo izjave EU o skladnosti je na voljo na <https://www.asus.com/support/>

WiFi, ki deluje v pasovnem območju 5150-5350 MHz, mora biti v državah, navedenih v spodnjem seznamu, omejen na notranjo uporabo:

V državah, ki so navedene v spodnji tabeli, naprave WiGig, ki deluje v 57-66 GHz pasu, ne smete uporabljati kot fiksne namestitve na prostoru:

#### Declaración de conformidad simplificada para la UE

Por la presente, ASUSTek Computer Inc. declara que este dispositivo cumple los requisitos básicos y otras disposiciones pertinentes de la directiva 2014/53/UE. En <https://www.asus.com/support/> está disponible el texto completo de la declaración de conformidad para la UE.

La conexión WiFi con una frecuencia de funcionamiento de 5150-5350 MHz se restringirá al uso en interiores para los países enumerados en la tabla:

El funcionamiento de WiGig en la banda de 57-66 GHz se restringirá al uso en interiores para los países enumerados en la tabla siguiente:

#### Förenklat EU-försäkran om överensstämmelse

ASUSTek Computer Inc. deklarerar härmed att denna enhet överensstämmer med de grundläggande kraven och andra relevanta bestämmelser i direktiv 2014/53/EU. Fullständig text av EU-försäkran om överensstämmelse finns på <https://www.asus.com/support/>

WiFi som används 5150-5350 MHz kommer att begränsas för användning inomhus i de länder som anges i tabellen:

WiGig som används på frekvensbanden 57-66 GHz ska begränsas från fasta installationer utomhus i länder som finns upptagna i nedanstående tabell:

#### ประกาศเกี่ยวกับความสอดคล้องของสหภาพยุโรปแบบย่อ

ASUSTek Computer Inc. ขอประกาศในที่นี้ว่าอุปกรณ์นี้มีความสอดคล้องกับความต้องการที่จำเป็นและเงื่อนไขที่เกี่ยวข้องอื่น ๆ ของบทบัญญัติข้อกำหนด 2014/53/UE เกี่ยวกับคุณสมบัติของประกาศความสอดคล้องกับ EU

ที่อยู่ <https://www.asus.com/support/>

การทำงานของ WiFi ที่ 5150-5350MHz ถูกจำกัดให้ใช้ในอาคารสำหรับประเทศที่แสดงในตาราง

WiGig ที่ใช้งานในย่านความถี่ 57-66GHz จะถูกจำกัดมิให้ติดตั้งภายนอกอาคารแบบถาวรสำหรับประเทศที่ระบุไว้ในตารางด้านล่าง:

#### Basitleştirilmiş AB Uyumluluk Bildirimi

ASUSTek Computer Inc. bu aygıtın 2014/53/UE Yönergesinin temel gereksinimlerine ve diğer ilgili hükümlerine uygun olduğunu bildirir. AB uyumluluk bildiriminin tam metni şu adreste bulunabilir: <https://www.asus.com/support/>

5150-5350 MHz aralındaki WiFi çalışması, tabloda listelenen ülkeler için iç mekan kullanımla kısıtlanacaktır.

57-66 GHz bandında çalışan WiGig, aşağıdaki tabloda listelenen ülkelere sabit dış mekân kurulumlarından hariç tutulacaktır:

#### Спрощена декларація про відповідність нормам ЄС

ASUSTek Computer Inc. заявляє, що цей пристрій відповідає основним вимогам та іншим відповідним вимогам Директиви 2014 / 53 / EU. Повний текст декларації відповідності нормам ЄС доступний на <https://www.asus.com/support/>

Робота Wi-Fi на частоті 5150-5350 МГц обмежується використанням у приміщенні для країн, поданих у таблиці нижче:

Робота WiGig на частоті 57-66 ГГц обмежується фіксованою інсталяцією просто неба для країн, поданих у таблиці нижче.



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

#### QCA9008-TBD1 output power table:

Function	Frequency	Maximum Output Power (EIRP)
WiFi	2412-2472 MHz	18 dBm
	5150-5350 MHz	21 dBm
	5470-5725 MHz	19 dBm
WiGig	58.32-62.64 GHz	27 dBm
Bluetooth	2402-2480 MHz	8 dBm

## ASUS contact information

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Online contact <http://eu-rma.asus.com/sales>

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Support Fax +49-2102-959911  
Online support <https://www.asus.com/support/Product/ContactUs/Services/questionform/?lang=de-de>

# DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)



**Responsible Party Name:** Asus Computer International

**Address:** 800 Corporate Way, Fremont, CA 94539.

**Phone/Fax No:** (510)739-3777/(510)608-4555

hereby declares that the product

**Product Name :** Motherboard

**Model Number :** ROG ZENITH EXTREME

Conforms to the following specifications:

FCC Part 15, Subpart B, Unintentional Radiators

### Supplementary Information:

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.

Representative Person's Name : Steve Chang / President

A handwritten signature in blue ink that reads "Steve Chang". The signature is written in a cursive style and is placed over a light blue rectangular background.

Signature :

Date : Jul. 10, 2017

Ver. 170324





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