

**ROG STRIX
B550-F GAMING**

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.
- Your motherboard should only be used in environments with ambient temperatures between 0°C and 40°C.

About this guide

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

How this guide is organized

This guide contains the following parts:

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

Where to find more information

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

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

Conventions used in this guide

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



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



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



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

ROG STRIX B550-F GAMING specifications summary

CPU	AMD Socket AM4 for 3 rd Gen AMD Ryzen™ Processors* * Refer to www.asus.com for CPU support list.
Chipset	AMD 550 Chipset
Memory	3rd Gen AMD Ryzen™ Processors 4 x DIMM, Max. 128GB, 4400(O.C)/4266(O.C)/4133(O.C)/4000(O.C)/3866(O.C)/3600(O.C)/3466(O.C.)/3200/3000/2800/2666/2400/2133 MHz, Un-buffered Memory* Dual Channel Memory Architecture OptiMem II * ECC memory(ECC mode) support varies by CPU. * Refer to www.asus.com for the Memory QVL (Qualified Vendors Lists).
Graphics	1 x DisplayPort 1.2* 1 x HDMI™ 2.1 (4K@60HZ) * Graphics specifications may vary between CPU types.
Expansion Slots	3rd Gen AMD Ryzen™ Processors 1 x PCIe 4.0 x16 SafeSlots (supports x16 mode) AMD B550 Chipset 1 x PCIe 3.0 x16 slot (supports x4 mode)* 3 x PCIe 3.0 x1 slots * Share bandwidth with PCIe3.0 x1_1, PCIe3.0 x1_2, PCIe3.0 x1_3
Multi-GPU Support	Supports AMD 2-Way CrossFireX™ Technology
Storage	Total supports 2 x M.2 slots and 6 x SATA 6Gb/s ports 3rd Gen AMD Ryzen™ Processors M.2_1 slot (Key M), type 2242/2260/2280/22110 (supports PCIe 4.0 x4 & SATA modes) AMD B550 Chipset M.2_2 slot (Key M), type 2242/2260/2280/22110 (supports PCIe 3.0 x4 & SATA modes)* 6 x SATA 6Gb/s ports Supports RAID 0,1,10 * When the M.2_2 Socket 3 is populated , SATA6G_5/6 ports will be disabled.
Ethernet	1 x Intel® I225-V 2.5Gb Ethernet ASUS LANGuard
USB	Rear USB (Total 8 ports) 2 x USB 3.2 Gen 2 ports (1 x Type-A + 1 x Type-C®) 4 x USB 3.2 Gen 1 ports (4 x Type-A) 2 x USB 2.0 ports (2 x Type-A) Front USB (Total 6 ports) 1 x USB 3.2 Gen 1 header supports additional 2 USB 3.2 Gen 1 ports 2 x USB 2.0 headers support additional 4 USB 2.0 ports

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ROG STRIX B550-F GAMING specifications summary

<p>Audio</p>	<p>ROG SupremeFX 7.1-Channel High Definition Audio CODEC S1220A</p> <ul style="list-style-type: none"> - Impedance sense for front and rear headphone outputs - Jack-detection, Multi-streaming, Front Panel Jack-retasking - High quality 120 dB SNR stereo playback output and 113 dB SNR recording input - Supports up to 32-Bit/192kHz playback* <p>Audio Features:</p> <ul style="list-style-type: none"> - SupremeFX Shielding Technology - Dual OP Amplifiers - Premium Japanese audio capacitors - Audio cover <p>* Due to limitations in HDA bandwidth, 32-Bit/192 kHz is not supported for 8-Channel audio.</p>
<p>Back Panel I/O Ports</p>	<p>2 x USB 3.2 Gen 2 ports (1 x Type-A + 1 x Type-C®)</p> <p>4 x USB 3.2 Gen 1 ports (4 x Type-A)</p> <p>2 x USB 2.0 ports (2 x Type-A)</p> <p>1 x DisplayPort</p> <p>1 x HDMI™ port</p> <p>1 x Intel® I225-V 2.5G Ethernet</p> <p>1 x Optical S/PDIF out</p> <p>5 x Audio jacks</p>
<p>Internal I/O Connectors</p>	<p>Fan and cooling-related</p> <p>1 x 4-pin CPU Fan header</p> <p>1 x 4-Pin CPU_OPT fan header</p> <p>1 x 4-pin AIO_Pump header</p> <p>3 x 4-pin Chassis Fan headers</p> <p>Power related</p> <p>1 x 24-pin Main Power connector</p> <p>1 x 8-pin +12V Power connector</p> <p>1 x 4-pin +12V Power connector</p> <p>Storage related</p> <p>2 x M.2 slots (Key M)</p> <p>6 x SATA 6Gb/s ports</p> <p>USB</p> <p>1 x USB 3.2 Gen 1 header supports additional 2 USB 3.2 Gen 1 ports</p> <p>2 x USB 2.0 headers support additional 4 USB 2.0 ports</p> <p>Miscellaneous</p> <p>1 x AURA Addressable Gen 2 header</p> <p>2 x AURA RGB headers</p> <p>1 x Clear CMOS header</p> <p>1 x Front Panel Audio header (AAFP)</p> <p>1 x 20-3 pin System Panel header</p> <p>1 x Thermal sensor header</p> <p>1 x Thunderbolt header</p>

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ROG STRIX B550-F GAMING specifications summary

Special Features	<p>ASUS Q-Design</p> <ul style="list-style-type: none">- ASUS Q-DIMM- ASUS Q-LED (DRAM [yellow], CPU [red], VGA [white], Boot Device [yellow green])- ASUS Q-Slot <p>ASUS Thermal Solution</p> <ul style="list-style-type: none">- Aluminum M.2 heatsink design <p>ASUS EZ DIY</p> <ul style="list-style-type: none">- BIOS Flashback™ button- BIOS FlashBack™ LED- Clear CMOS header- ProCool- Pre-mounted I/O shield- SafeSlot <p>AURA Sync</p> <ul style="list-style-type: none">- Standard RGB headers- Addressable Gen 2 RGB header
Software Features	<p>ROG Exclusive Software</p> <ul style="list-style-type: none">- RAMCache III- ROG CPU-Z- GameFirst VI- Sonic Studio III + Sonic Studio Virtual Mixer- Sonic Radar III- DTS® Sound Unbound- Overwolf- Anti-virus software <p>ASUS Exclusive Software Features</p> <p>Armoury Crate</p> <ul style="list-style-type: none">- Aura Creator- Aura Sync- AI Noise Cancelling Microphone <p>AI Suite 3</p> <ul style="list-style-type: none">- PPSUEPUDigi+ VRMFan Xpert 4TurboV EVO <ul style="list-style-type: none">- EZ Update <p>WinRAR</p> <p>UEFI BIOS</p> <p>ASUS EZ DIY</p> <ul style="list-style-type: none">- ASUS CrashFree BIOS 3- ASUS EZ Flash 3- ASUS UEFI BIOS EZ Mode

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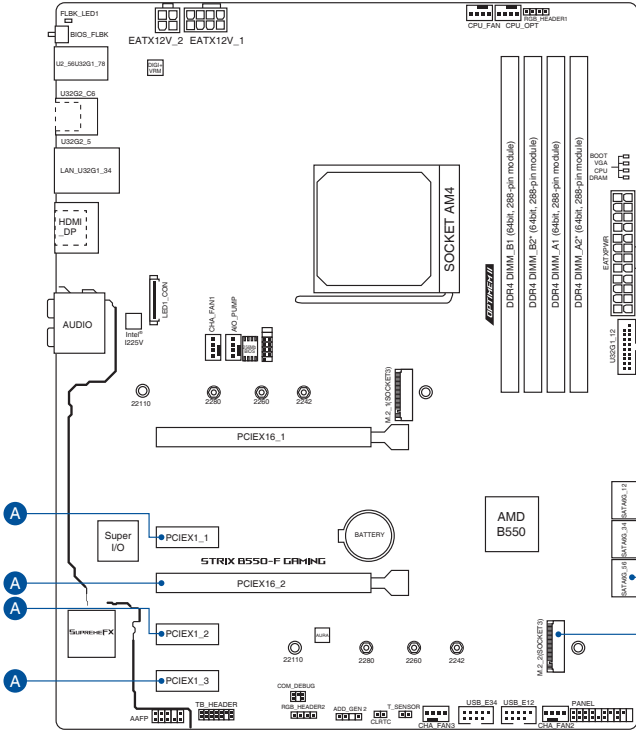
ROG STRIX B550-F GAMING specifications summary

BIOS	256 Mb Flash ROM, UEFI AMI BIOS
Manageability	WOL by PME, PXE
Operating System	Windows® 10 - 64 bit
Form Factor	ATX Form Factor 12 inch x 9.6 inch (30.5 cm x 24.4 cm)



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

Connectors with shared bandwidth



Configuration		1	2
A	PCIEX16_2	x4	x1
	PCIEX1_1	-	x1
	PCIEX1_2	-	x1
	PCIEX1_3	-	x1
Configuration		1	2
B	M.2_2	PCIe 3.0 x4 / SATA	-
	SATA6G_56	-	v



- PCIEX16_2 shares bandwidth with PCIEX1_1, PCIEX1_2, and PCIEX1_3. When PCIEX16_2 runs x4 mode, PCIEX1_1, PCIEX1_2, and PCIEX1_3 will be disabled. PCIEX16_2 will run x1 mode when PCIEX1_1, PCIEX1_2, or PCIEX1_3 is occupied.
- When M.2_2 slot is populated, SATA6G_56 will be disabled.

Package contents



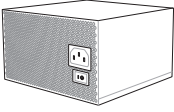
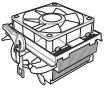
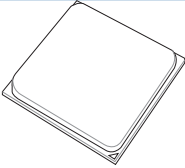
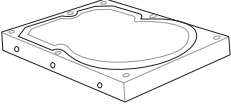
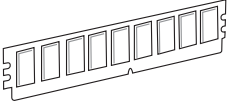
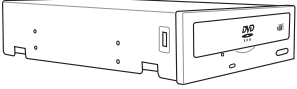
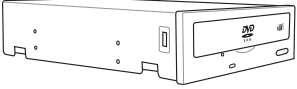
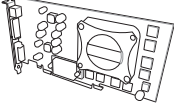

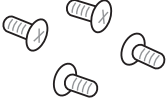
Check your motherboard package for the following items.

Motherboard	1 x ROG STRIX B550-F GAMING motherboard
Cables	1 x Addressable RGB extension cable
	4 x SATA 6Gb/s cables
Miscellaneous	1 x Cable ties pack
	1 x M.2 Rubber Package
	1 x M.2 SSD screw package
	1 x ROG STRIX sticker
	1 x ROG STRIX thank you card
Installation Media	1 x Support DVD
Documentation	1 x User manual



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

Installation tools and components

	
	<p>Phillips (cross) screwdriver</p>
<p>PC chassis</p>	
<p>Power supply unit</p>	
	<p>AMD AM4/AM3 compatible CPU Fan</p>
<p>AMD AM4 CPU</p>	
	<p>SATA hard disk drive</p>
<p>DDR4 DIMM</p>	
	
<p>SATA optical disc drive (optional)</p>	<p>Graphics card (optional)</p>
	
<p>M.2 SSD module (optional)</p>	<p>1 Bag of screws</p>



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

Product Introduction

1

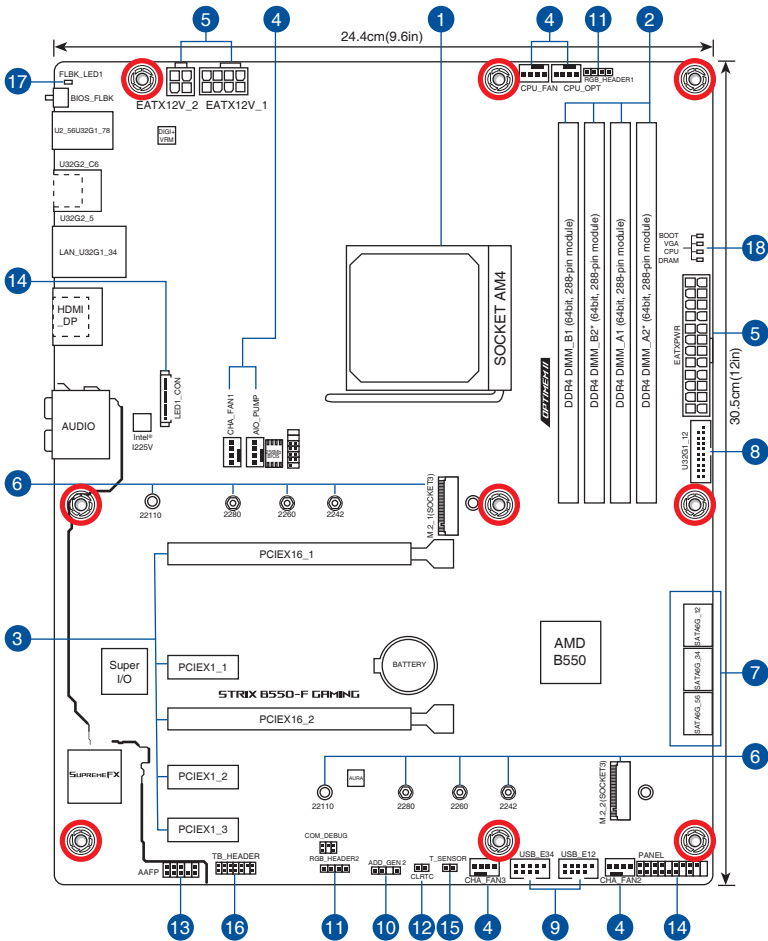
1.1 Before you proceed

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



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

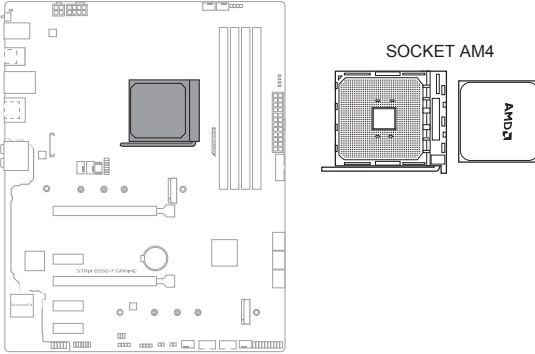
1.2 Motherboard layout



Layout contents	Page
1. CPU socket	1-4
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7. SATA 6Gb/s ports	1-12
8. USB 3.2 Gen 1 header	1-13
9. USB 2.0 headers	1-14
10. AURA Addressable Gen 2 header	1-15
11. AURA RGB headers	1-16
12. Clear CMOS header	1-17
13. Front Panel Audio header	1-18
14. System Panel header	1-19
15. Thermal sensor header	1-20
16. Thunderbolt header	1-20
17. BIOS FlashBack™ LED	1-21
18. Q-LED	1-21

1. CPU socket

The motherboard comes with an AMD Socket AM4 designed for 3rd Gen AMD Ryzen™ Processors.



The AM4 socket has a different pinout design. Ensure that you use a CPU designed for the AM4 socket. The CPU fits in only one correct orientation. **DO NOT** force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!



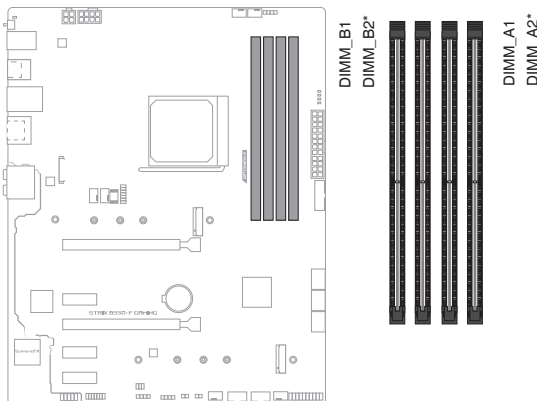
Ensure that all power cables are unplugged before installing the CPU.

2. DIMM slots

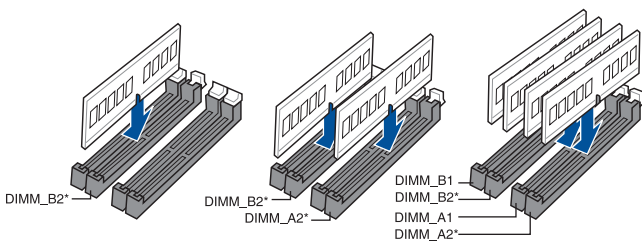
The motherboard comes with Dual Inline Memory Modules (DIMM) slots designed for DDR4 (Double Data Rate 4) memory modules.



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



Recommended memory configurations



Memory configurations

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



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

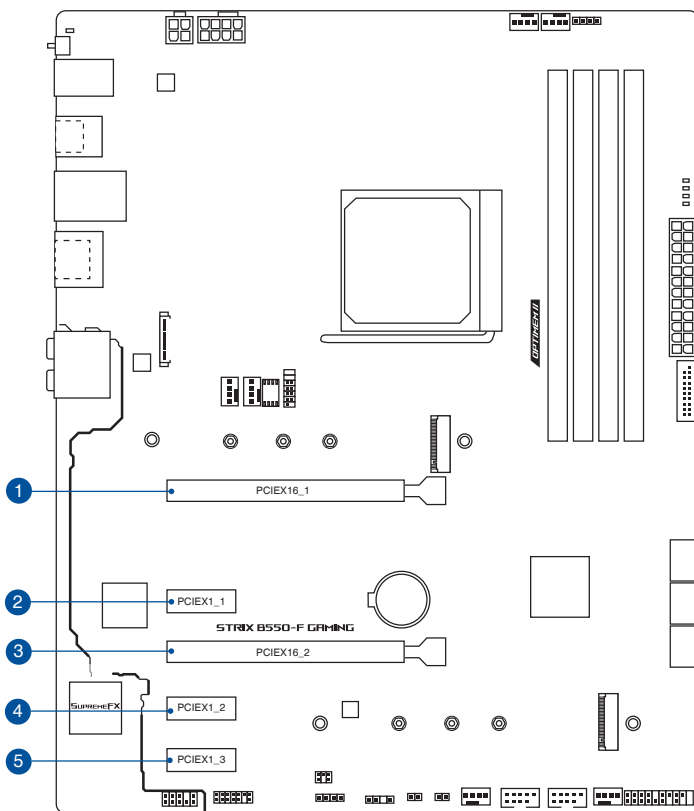


- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value.
 - For system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

3. Expansion slots



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



Please refer to the following table for the recommended VGA configuration.

Recommended VGA configuration

Slot Description	Single VGA	Dual VGA
PCIe x16_1	x16	x16
PCIe x16_2	-	x4



- We recommend that you provide sufficient power when running CrossFireX™ mode.
- Ensure to connect the 8-pin and 4-pin power plugs when running CrossFireX™ mode.
- Connect a chassis fan to the chassis fan connectors when using multiple graphics cards for better thermal environment.

Hyper M.2 X16 series card configuration

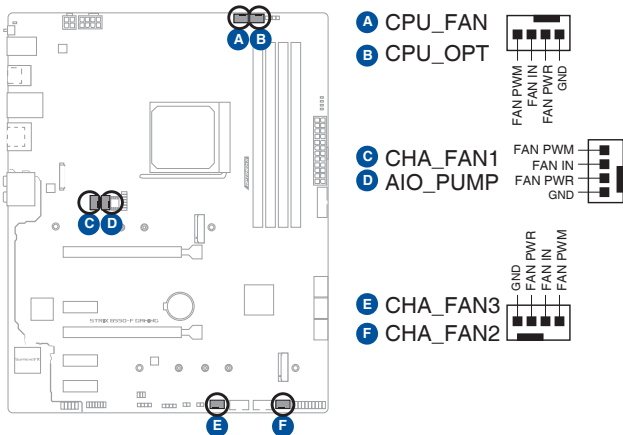
Slot	PCIe bifurcation settings in PCIe x16 slots with different Ryzen™ CPUs
	3 rd Gen AMD Ryzen™ Processors (Support PCIe Gen 4 SSDs)
	Supported SSDs
PCIEX16_1	4



- Hyper M.2 X16 series card is purchased separately.
- When using 3rd Gen AMD Ryzen™ Processors and a Hyper M.2 X16 series card with 4 M.2 SSDs, if you wish to connect a display, we suggest installing a VGA card to PCIe X16_2, which will run at x4.
- Set PCIEX16_1 to **[PCIe RAID Mode]** under BIOS settings to enable the Hyper M.2 X16 series card.

4. Fan and Pump headers

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



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

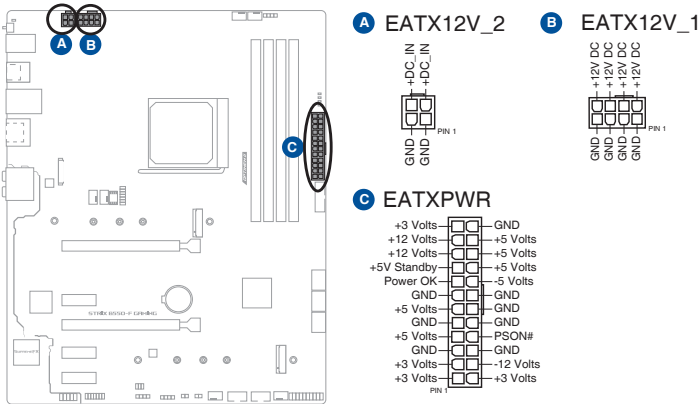


For water cooling kits, connect the pump connector to the **AIO_PUMP** header.

Header	Max. Current	Max. Power	Default Speed	Shared Control
CPU_FAN	1A	12W	Q-Fan Controlled	A
CPU_OPT	1A	12W	Q-Fan Controlled	A
CHA_FAN1	1A	12W	Q-Fan Controlled	-
CHA_FAN2	1A	12W	Q-Fan Controlled	-
CHA_FAN3	1A	12W	Q-Fan Controlled	-
AIO_PUMP	1A	12W	Full-Speed	-

5. Power connectors

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



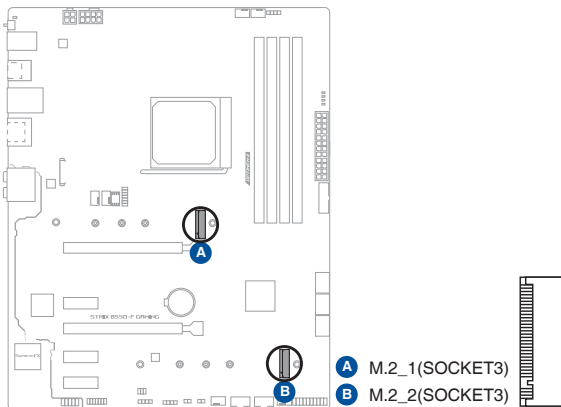
- DO NOT connect the 4-pin power plug only. The motherboard may overheat under heavy usage.
- Ensure to connect the 8-pin power plug, or connect both the 8-pin and 4-pin power plugs.



- 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 350W.
- We recommend that you use a PSU with a higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- If you want to use two or more high-end PCI Express x16 cards, use a PSU with 1000W power or above to ensure the system stability.

6. M.2 slots

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



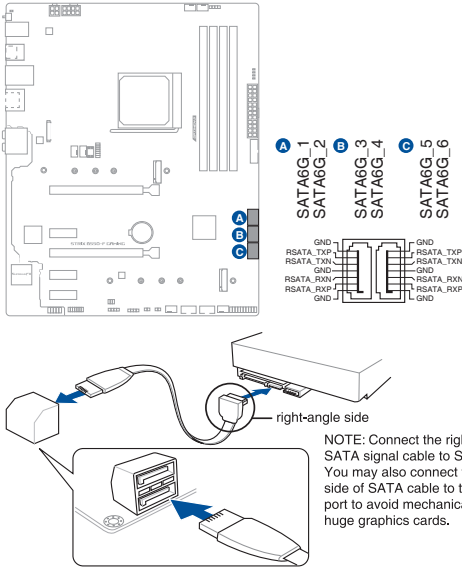
- M.2_1 slot supports PCIe 4.0 x4 and SATA modes Key M design and type 2242/2260 /2280/22110 storage devices.
- M.2_2 slot supports PCIe 3.0 x4 and SATA modes Key M design and type 2242/2260/2280/ 22110 storage devices.
- When M.2_2 slot is populated , SATA6G_5/6 will be disabled.



The M.2 SSD module is purchased separately.

7. SATA 6Gb/s ports

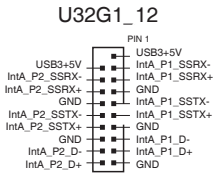
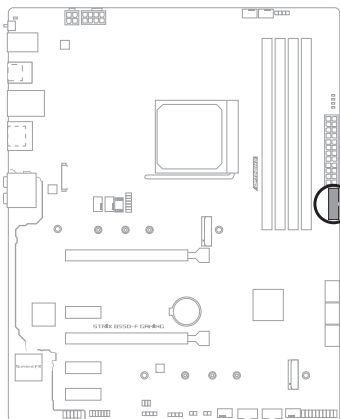
The SATA 6Gb/s ports allow you to connect SATA devices such as optical disc drives and hard disk drives via a SATA cable.



- 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 the **RAID Configuration Guide**. You can download the **RAID Configuration Guide** from the ASUS website.
- When the M.2_2 Socket 3 is populated, SATA6G_5/6 ports will be disabled.

8. USB 3.2 Gen 1 header

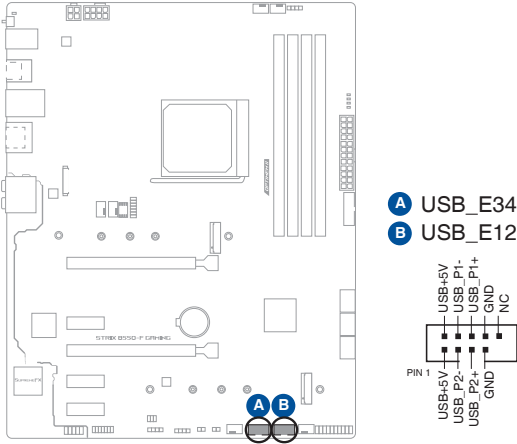
The USB 3.2 Gen 1 header allows you to connect a USB 3.2 Gen 1 module for additional USB 3.2 Gen 1 ports. The USB 3.2 Gen 1 header provides data transfer speeds of up to 5 Gb/s.



The USB 3.2 Gen 1 module is purchased separately.

9. USB 2.0 headers

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



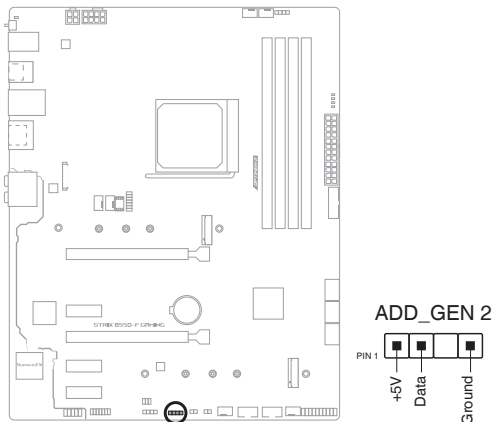
DO NOT connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!



The USB 2.0 module is purchased separately.

10. AURA Addressable Gen 2 header

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



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



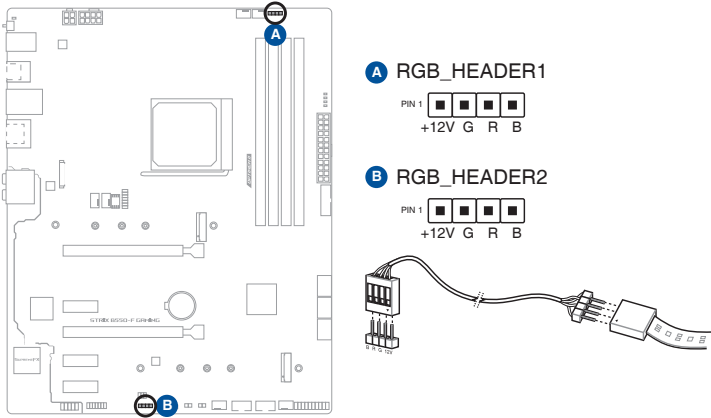
Before you install or remove any component, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.



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

11. AURA RGB headers

The RGB headers allow you to connect RGB LED strips.



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



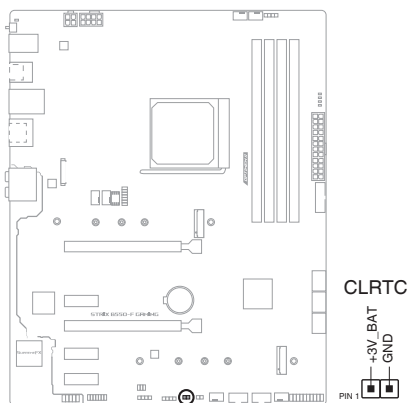
Before you install or remove any component, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.



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

12. Clear CMOS header

This header allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.



To erase the RTC RAM:

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



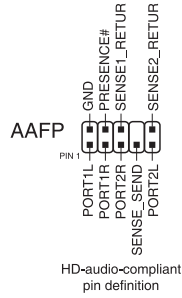
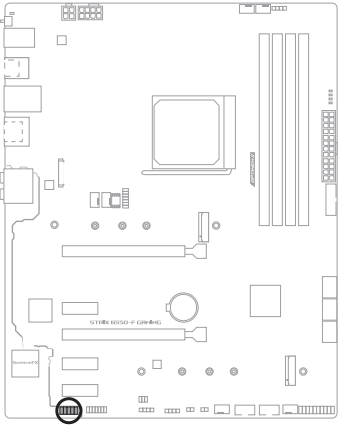
DO NOT short-circuit the pins except when clearing the RTC RAM. Short-circuiting or placing a jumper cap will cause system boot failure!



If the steps above do not help, remove the onboard battery and short the two pins again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.

13. Front Panel Audio header

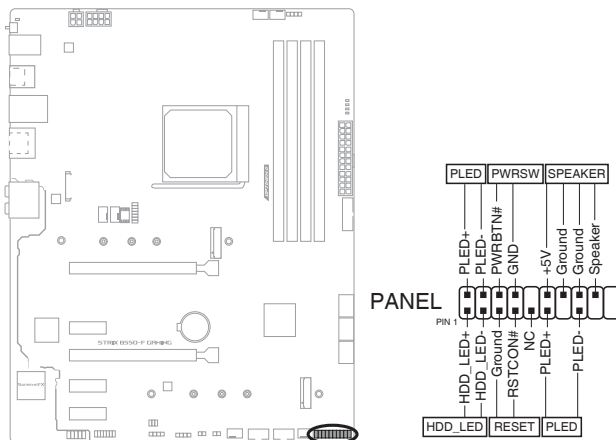
The front panel audio header is for a chassis-mounted front panel audio I/O module that supports HD Audio. Connect one end of the front panel audio I/O module cable to this header.



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

14. System Panel header

The System Panel header supports several chassis-mounted functions.



- **System power LED (2-pin PLED)**

This 2-pin header is for the system power LED. Connect the chassis power LED cable to this header. 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 header is for the HDD Activity LED. Connect the HDD Activity LED cable to this header. 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 header 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 PWRSW)**

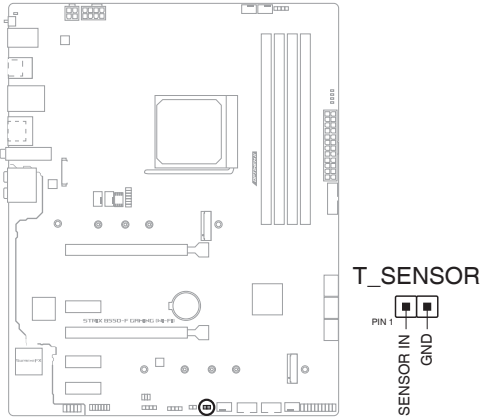
This header is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the operating system settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

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

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

15. Thermal Sensor header

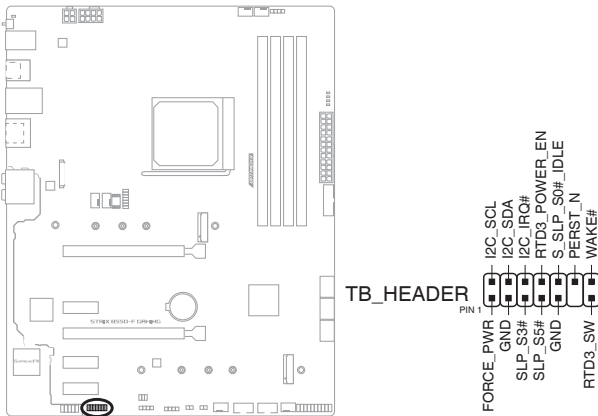
The Thermal Sensor header allows you to connect a sensor to monitor the temperature of the devices and the critical components inside the motherboard. Connect the thermal sensor and place it on the device or the motherboard's component to detect its temperature.



The thermal sensor is purchased separately.

16. Thunderbolt header

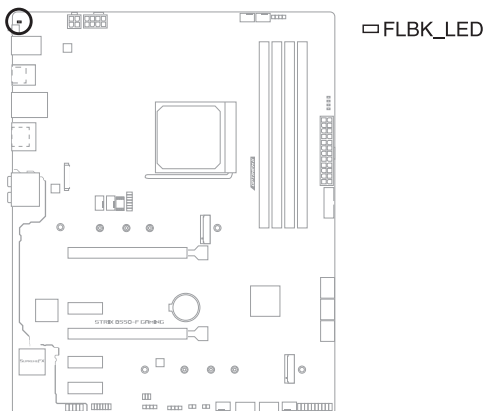
The Thunderbolt header allows you to connect an add-on Thunderbolt I/O card that supports Intel's Thunderbolt Technology, allowing you to connect up to six Thunderbolt-enabled devices and a DisplayPort-enabled display in a daisy-chain configuration.



The add-on Thunderbolt I/O card and Thunderbolt cables are purchased separately.

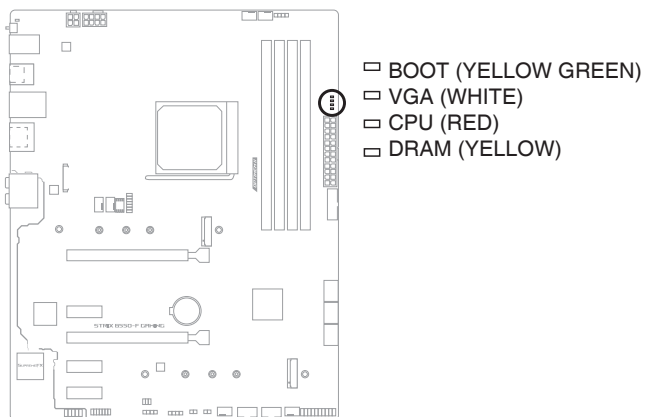
17. BIOS FlashBack™ LED

The FlashBack™ LED lights up or blinks to indicate the status of the BIOS FlashBack™.



18. Q-LEDs

The Q-LEDs check key components (CPU, DRAM, VGA, and booting devices) during the motherboard booting process. If an error is found, the critical component's LED stays lit up until the problem is solved.



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.

Basic Installation

2

2.1 Building your PC system

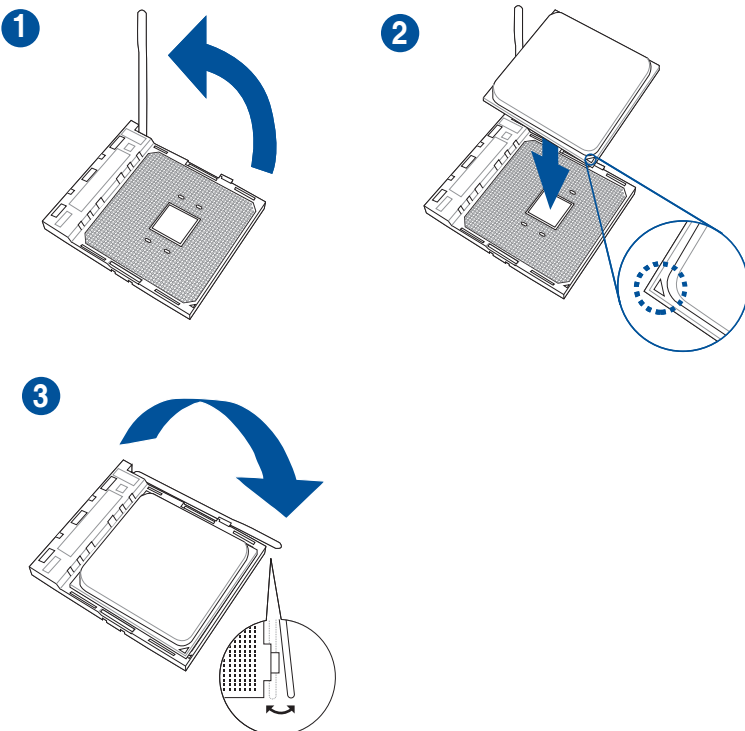


The diagrams in this section are for reference only. The motherboard layout may vary with models, but the installation steps are the same for all models.

2.1.1 CPU installation



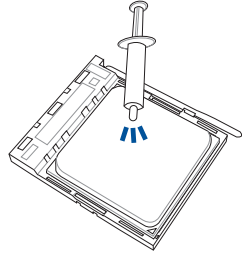
- The AMD AM4 socket is compatible with AMD AM4 processors. Ensure you use a CPU designed for the AM4 socket. The CPU fits in only one correct orientation. **DO NOT** force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!
- ASUS will not cover damages resulting from incorrect CPU installation/removal, incorrect CPU orientation/placement, or other damages resulting from negligence by the user.



2.1.2 Cooling system installation

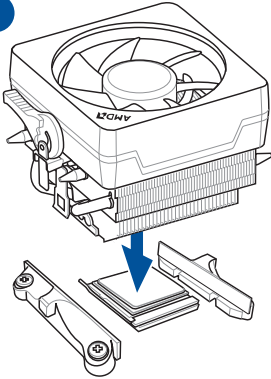


Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

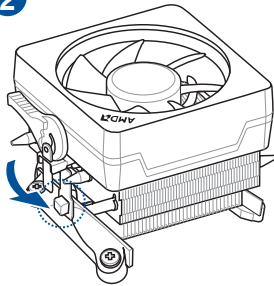


CPU Heatsink and fan assembly Type 1

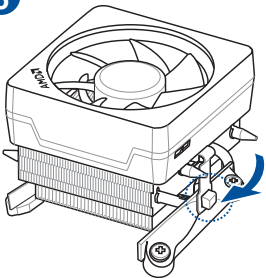
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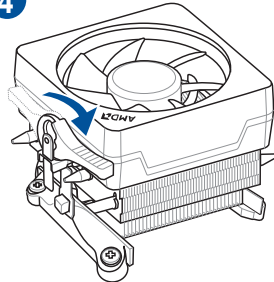
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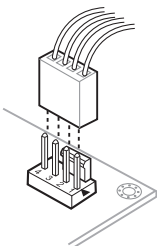
3



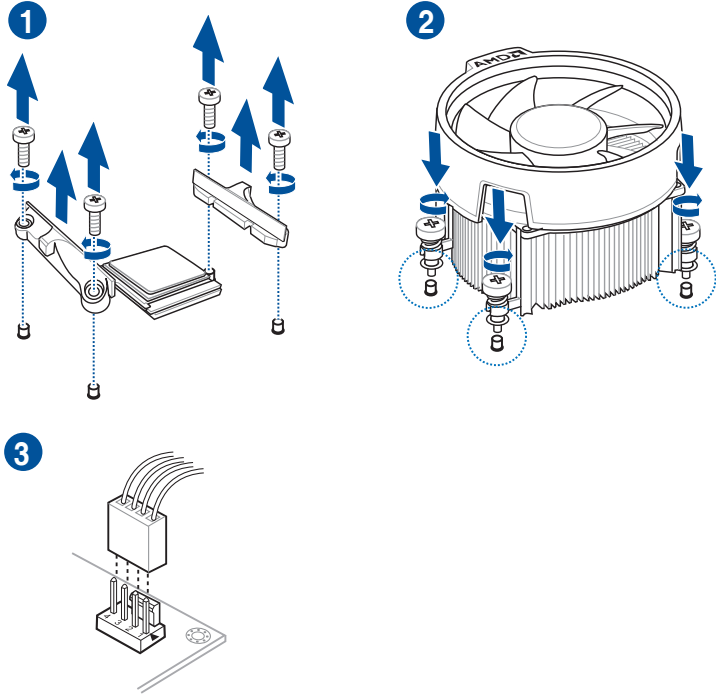
4



5



CPU Heatsink and fan assembly Type 2



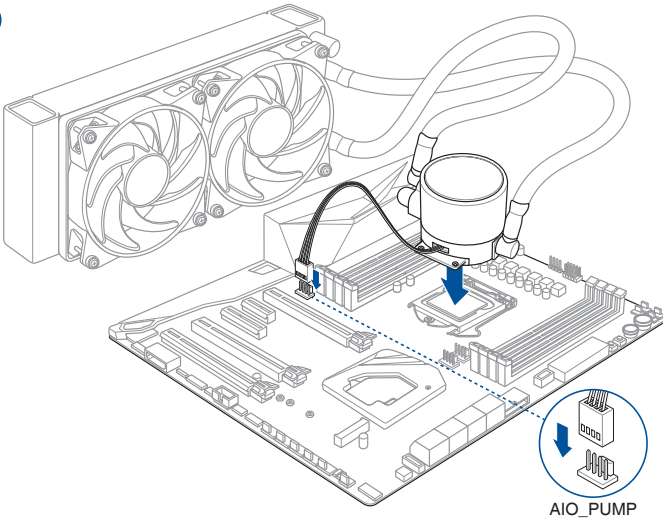
When using this type of CPU fan, remove the screws and the retention module only. Do not remove the plate on the bottom.

To install an AIO cooler

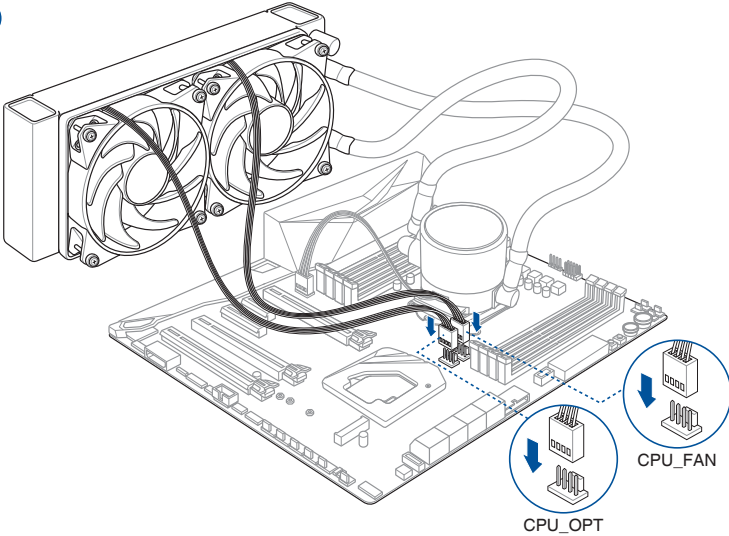


If you wish to install an AIO cooler, we recommend installing the AIO cooler after installing the motherboard into the chassis.

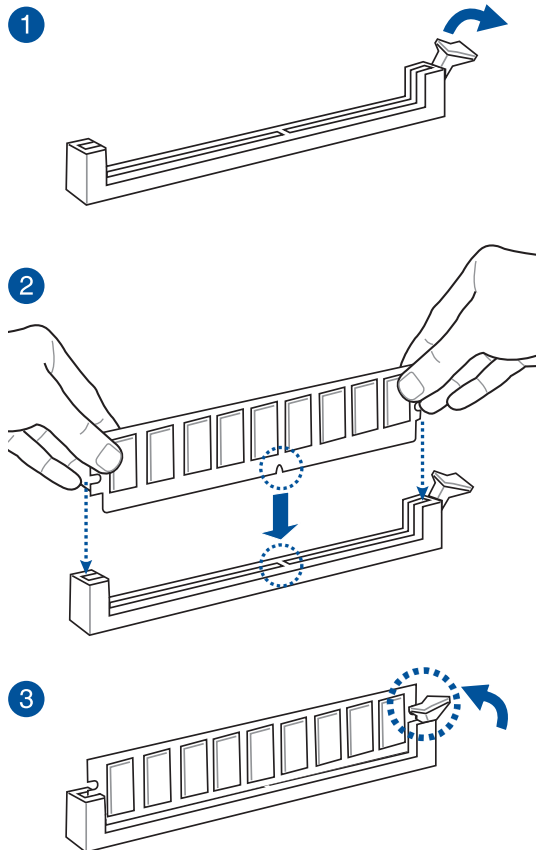
1



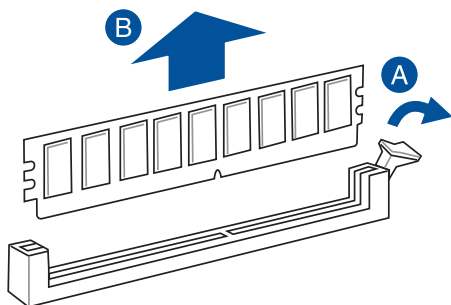
2



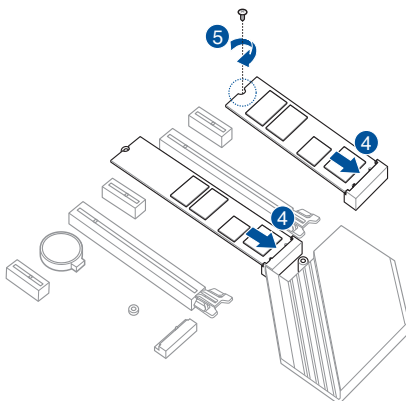
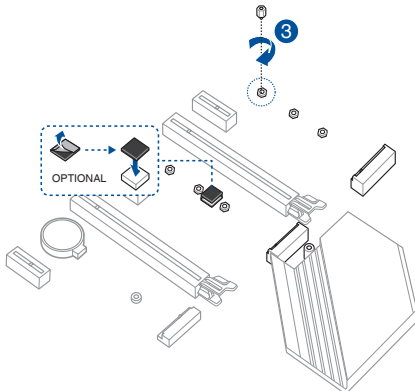
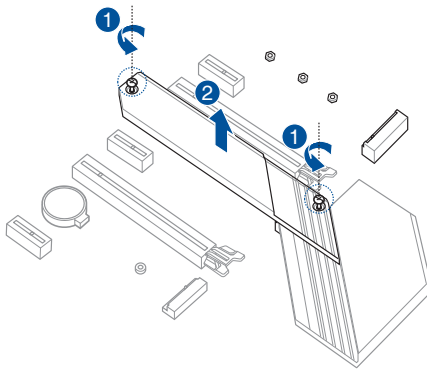
2.1.3 DIMM installation



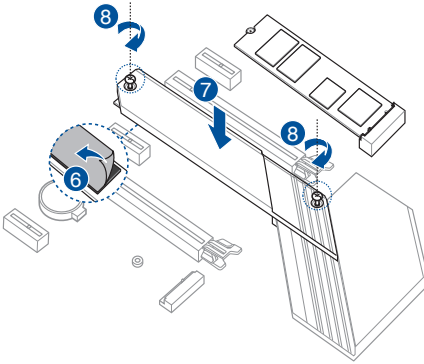
To remove a DIMM



2.1.4 M.2 installation



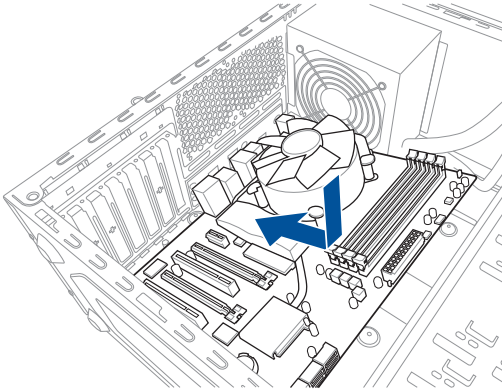
- The M.2 rubber pad is optional for when installing a single sided M.2 storage device. Ensure to install the bundled M.2 rubber pad before installing your single sided M.2 storage device.
- DO NOT install the bundled M.2 rubber pads when installing a double-sided M.2 storage device. The rubber pad installed by default is compatible with double sided M.2 storage devices.



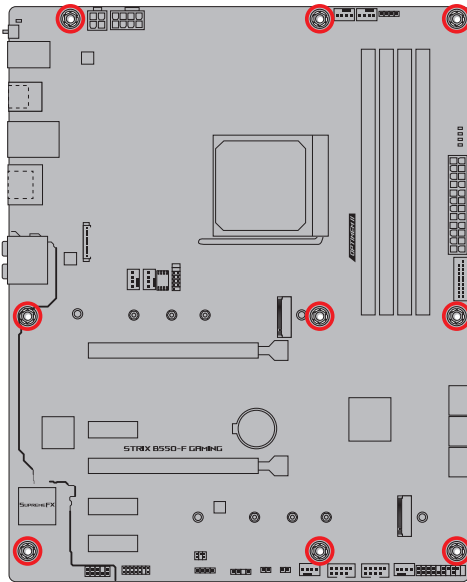
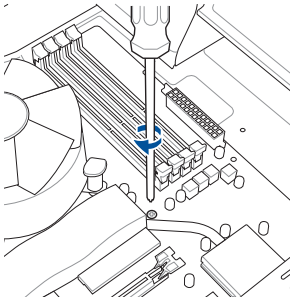
The M.2 is purchased separately.

2.1.5 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.

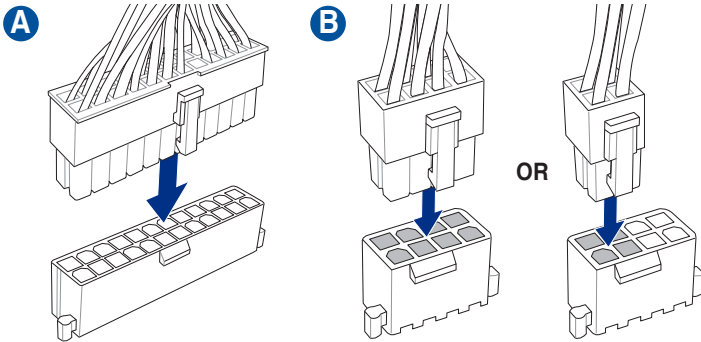


2. Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.



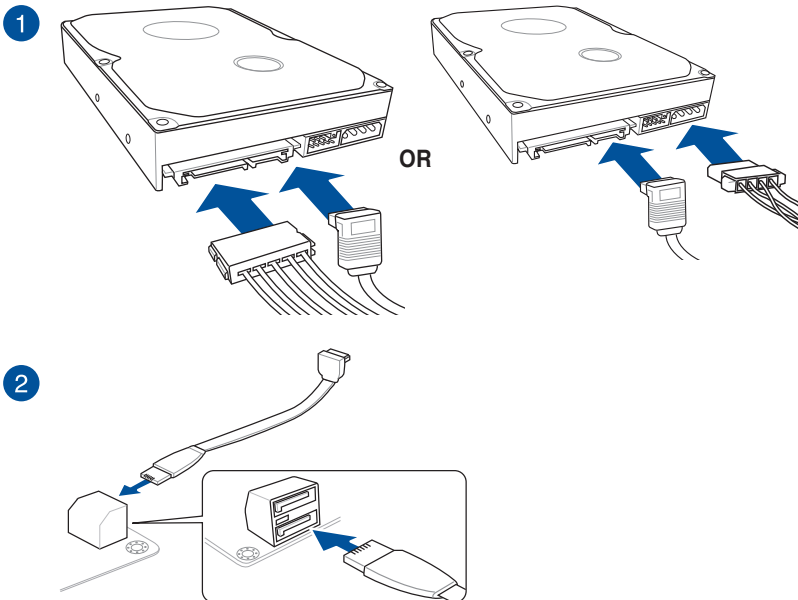
DO NOT over tighten the screws! Doing so can damage the motherboard.

2.1.6 ATX power connection



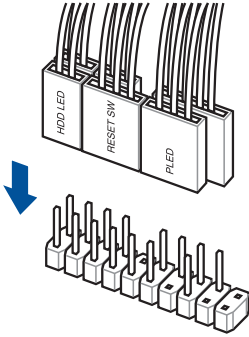
Ensure to connect the 8-pin or 4-pin power plug.

2.1.7 SATA device connection

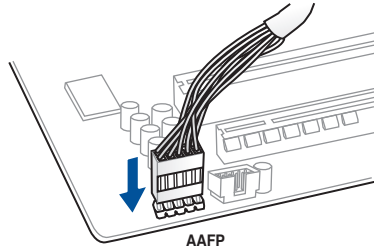


2.1.8 Front I/O connector

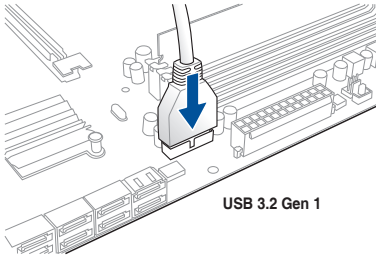
To install front panel connector



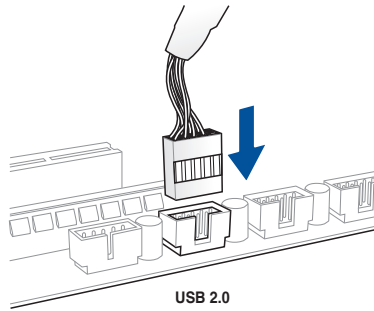
To install front panel audio connector



To install USB 3.2 Gen 1 connector



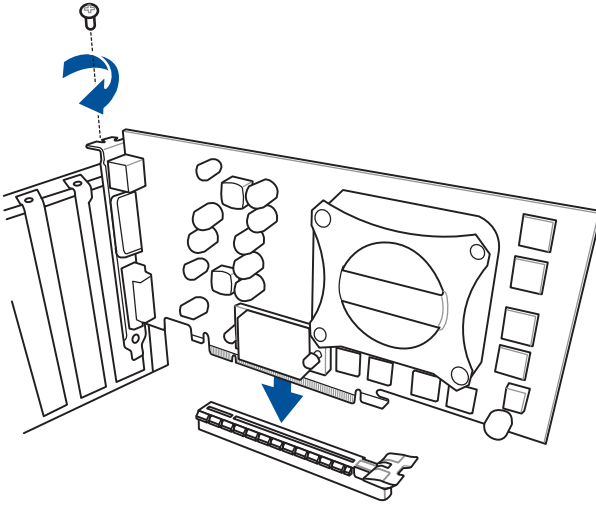
To install USB 2.0 connector



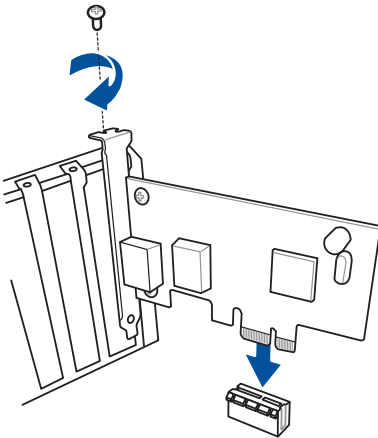
This connector will only fit in one orientation. Push the connector until it clicks into place.

2.1.9 Expansion card installation

To install PCIe x16 cards



To install PCIe x1 cards



2.2 BIOS update utility

BIOS FlashBack™

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 is marked on the I/O shield) then press the BIOS FlashBack™ button for three seconds to automatically update the BIOS.

To use BIOS FlashBack™:

1. Insert a USB storage device to the BIOS FlashBack™ port.



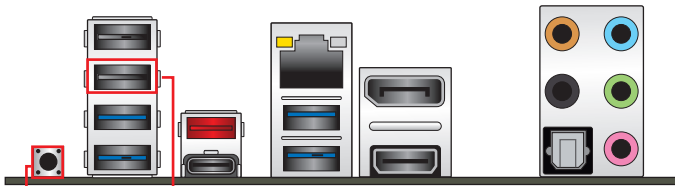
We recommend you to use a USB 2.0 storage device to save the latest BIOS version for better compatibility and stability.

2. Visit <https://www.asus.com/support/> and download the latest BIOS version for this motherboard.
3. Manually rename the file as **RSB550FG.CAP**, or launch the **BIOSRenamer.exe** application to automatically rename the file, then copy it to your USB storage device.



The **BIOSRenamer.exe** application is zipped together with your BIOS file when you download a BIOS file for a BIOS FlashBack™ compatible motherboard.

4. Shut down your computer.
5. Press the BIOS FlashBack™ button for three seconds until the BIOS FlashBack™ LED blinks three times, indicating that the BIOS FlashBack™ function is enabled.



BIOS FlashBack™ button BIOS FlashBack™ port

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



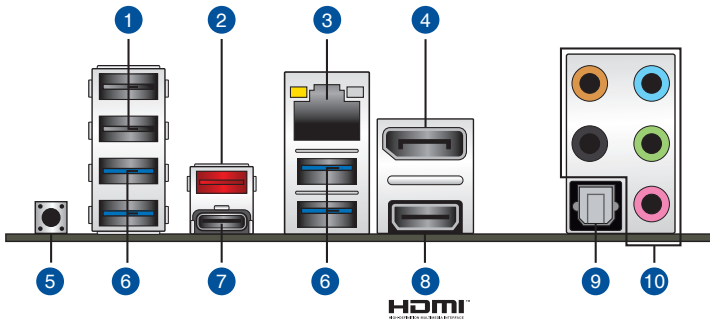
For more BIOS update utilities in BIOS setup, refer to the section **Updating BIOS** in Chapter 3.



- Do not unplug portable disk, power system, or short the CLRTC header 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. | USB 2.0 ports 5 and 6 |
| 2. | USB 3.2 Gen 2 Type-A port 5 |
| 3. | Intel® I225-V 2.5Gb Ethernet port* |
| 4. | DisplayPort |
| 5. | BIOS FlashBack™ button |
| 6. | USB 3.2 Gen 1 Type-A ports 3, 4, 7 and 8 |
| 7. | USB 3.2 Gen 2 Type-C® port C6 |
| 8. | HDMI™ port |
| 9. | Optical S/PDIF Out port |
| 10. | Audio jacks** |

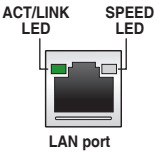
* and **: Refer to the tables on the next page for LAN port LEDs, and audio port definitions.



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

*** Intel® I225-V 2.5Gb Ethernet port LED indications**

Activity Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	100 Mbps connection
GREEN	Linked	GREEN	2.5 Gbps connection
BLINKING	Data activity	ORANGE	1 Gbps / 100 Mbps / 10 Mbps connection

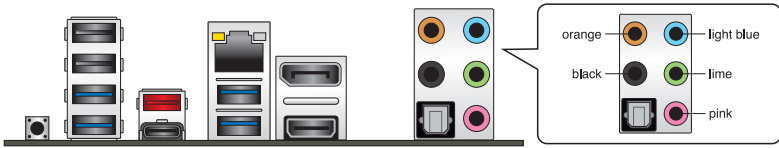


**** Audio 2, 4, 5.1 or 7.1-channel configuration**

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

2.3.2 Audio I/O connections

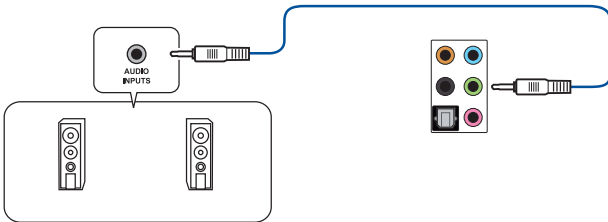
Audio I/O ports



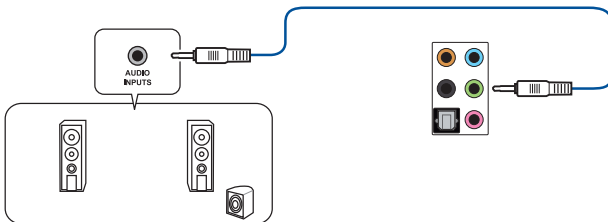
Connect to Headphone and Mic



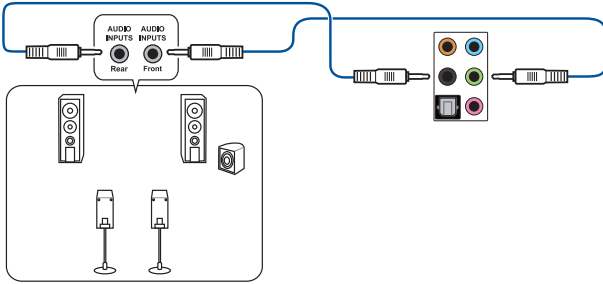
Connect to Stereo Speakers



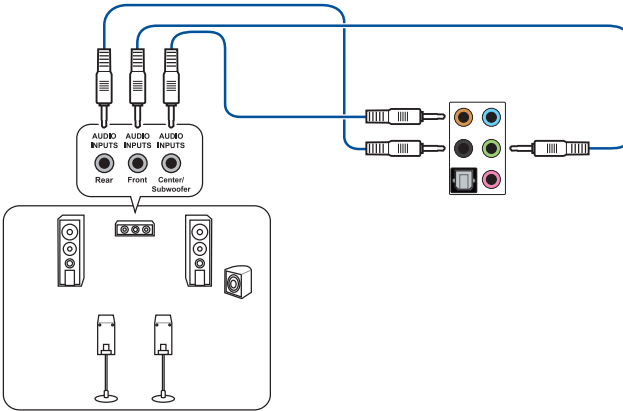
Connect to 2-channel Speakers



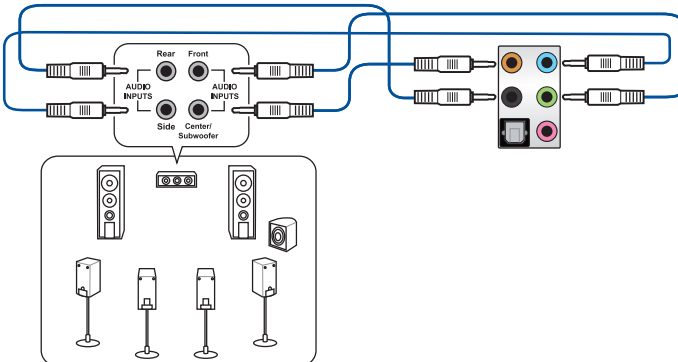
Connect to 4-channel Speakers



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 and RAID Support

3



For more details on BIOS and RAID configurations, please refer to www.asus.com/support.

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 **RSB550FG.CAP** for this motherboard.
 - BIOS settings and options may vary due to different BIOS release versions. Please refer to the latest BIOS version for settings and options.
-

3.2 BIOS setup program

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

Entering BIOS at startup

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

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

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

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



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

BIOS menu screen

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

3.3 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 DVD that comes with the motherboard package.
-

3.4 ASUS EZ Flash 3

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



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

To update the BIOS:



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

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

3.5 ASUS CrashFree BIOS 3

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



If you want to use the latest 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 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!

3.6 RAID 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.



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



RAID definitions

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

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

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

Appendix

Notices

FCC Compliance Information

Responsible Party: Asus Computer International

Address: 48720 Kato Rd., Fremont, CA 94538, USA

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

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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)

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Declaration of compliance for product environmental regulation

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

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

EU REACH and Article 33

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

EU RoHS

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

India RoHS

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

Vietnam RoHS

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

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

Turkey RoHS

AEEE Yönetmeliğine Uygundur

ASUS Recycling/Takeback Services

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



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



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

Regional notice for California



WARNING

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

English ASUSTeK Computer Inc. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related Directives. Full text of EU declaration of conformity is available at: www.asus.com/support

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

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

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

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