STRIX H270F GAMING

Motherboard

E12124
First Edition
November 2016

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Contents

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:

1. **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.

2. **Chapter 2: Basic Installation**

   This chapter lists the hardware setup procedures that you have to perform when installing system components.

3. **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.

4. **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) 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 (+).

STRIX H270F GAMING specifications summary

CPU	Intel® Socket 1151 for 7th / 6th Generation Core™ i7/Core™ i5/Core™ i3/ Pentium®, and Celeron® Processors Supports 14nm CPU Supports Intel® Turbo Boost Technology 2.0* *** The Intel® Turbo Boost Technology 2.0 support depends on the CPU types.** **** Refer to www.asus.com for Intel® CPU support list.**
Chipset	Intel® H270 Chipset
Memory	4 x DIMM, max. 64GB DDR4 2400/2133 MHz Non-ECC, Un-buffered Memory Dual channel memory architecture Supports Intel® Extreme Memory Profile (XMP)* Support Intel® Optane Memory** *** Hyper DIMM support is subject to the physical characteristics of individual CPUs. Please refer to Memory QVL(Qualified Vendors List) for details.** **** Intel® Optane Technology in only supported when using 7th Generation Intel® Processors.** **** Refer to www.asus.com for the lastest Memory QVL(Qualified Vendors List).**
Expansion slots	1 x PCIe 3.0/2.0 x16 slot (at x 16 mode) 1 x PCI Express 3.0/2.0 x16 slot (max. at x4 mode) 4 x PCIe 3.0/2.0 x1 slots
VGA	Integrated Graphics Processor- Intel® HD Graphics support Multi-VGA output support: DisplayPort, HDMI, DVI ports Supports DisplayPort 1.2 with max. resolution 4096 x 2304@60Hz Supports HDMI 1.4b with max. resolution 4096 x 2160@24Hz Supports DVI with max. resolution 1920 x 1200@60Hz Supports Intel® InTru™ 3D/Quick Sync Video/Clear Video HD Technology/ Insider™ Supports up to 3 displays simultaneously Maximum shared memory of 1024 MB (for iGPU exclusively) *** DP 1.2 Multi-Stream Transport compliant, supports DP 1.2 monitor daisy chain up to 3 displays**
Multi-GPU support	Supports AMD® CrossFireX™ Technology
Rear Panel I/O Ports	1 x PS/2 keyboard/mouse combo port 1 x DisplayPort 1 x HDMI port 1 x DVI-D port 1 x Anti-surge LAN (RJ45) port 2 x USB 3.1 ports (1 Type-A, red; 1 Type-C, black at back panel) 2 x USB 3.0/2.0 ports (blue, Type A) 4 x USB 2.0/1.1 ports 5 x Audio jacks 1 x Optical S/PDIF out

(continued on the next page)

STRIX H270F GAMING specifications summary

Storage	**Intel® H270 Chipset** - 6 x SATA 6Gb/s ports* - 1 x M.2_1 Socket 3 with M key, type 2242/2260/2280 storage devices support (both SATA & PCIE 3.0 x 2 mode) - 1 x M.2_2 Socket 3 with M key, type 2242/2260/2280/22110 storage devices support (PCIE 3.0 x 4 mode), supports Intel® Optane Memory** - Supports Intel® Smart Response Technology, Intel® Rapid Recovery Technology - Support Raid 0, 1, 5, 10 *** When a device in SATA mode is installed on the M.2_1 socket, SATA_1 port cannot be used.** **** These functions will work depending on the CPU installed.**
Audio	**SupremeFX 8-Channel High Definition Audio CODEC** - SupremeFX Shielding Technology - Dual Headpone Amplifiers - Jack-detection, Multi-streaming, Multi-recording, and Front Panel Jack-retasking - Optical S/PDIF out port at back panel **Audio Features** - Sonic Radar III - Sonic Studio III
USB	**ASMedia USB 3.1 controllers - supports ASUS USB 3.1 Boost** - 2 x USB 3.1 ports (1 x Type-A [red] and 1 x Type-C ports at back panel) **Intel® H270 Chipset** - 6 x USB 3.0/2.0 ports (4 ports @mid-board; 2 ports @back panel, blue, Type A) - 8 x USB 2.0/1.1 ports (4 ports @mid-board; 4 ports @back panel)* *** 2 x USB2.0 port at mid-board shares with ROG extension (ROG_EXT) port.**
LAN	Intel® I219-V Gigabit LAN- Dual interconnect between the integrated Media Access Controller (MAC) and physical layer (PHY) Anti-surge LANGuard ROG GameFirst Technology
ROG Exclusive Features	ROG RAMCache II ROG GameFirst IV ROG Overwolf ROG CPU-Z ROG Clonedrive
ASUS Special Features	**Performance Optimization** - DIGI + VRM - GPU Boost - Fan Xpert 4 featuring Fan Auto Tuning function and multiple thermistors selection for optimized system cooling control - AI Suite 3

(continued on the next page)

STRIX H270F GAMING specifications summary

ASUS Special Features	**Gamers Guardian** - SafeSlot - DIGI+ VRM - DRAM Overcurrent Protection - ESD Guards on LAN, Audio, KBMS and USB3.0/2.0 ports - Highly Durable Components - Stainless Steel Back I/O **ASUS EZ DIY** - ASUS EZ Flash 3 - ASUS CrashFree BIOS 3 **ASUS Q-Design** - Q-Shield - Q-LED (CPU, DRAM, VGA, Boot Device LED) - Q-Slot - Q-DIMM **ASUS Exclusive Features** - AURA Lightning Control - 3D Printing Friendly Design - AI Charger
Internal I/O connectors	2 x USB 3.0 connectors support additional 4 x USB 3.0 ports 2 x USB 2.0 connectors support additional 4 x USB 2.0 ports [one connector via ROG_EXT header] 6 x SATA 6.0 Gb/s connectors (gray) - 1 x M.2_1 Socket 3 with M key, type 2242/2260/2280 storage devices support (both SATA & PCIE 3.0 x 2 mode) - 1 x M.2_2 Socket 3 for M Key, type 2242/2260/2280/22110 storage devices support (Support PCIE mode only) 1 x 4-Pin AIO_PUMP fan connector 1 x 4-Pin CPU fan connector 1 x 4-Pin CPU_OPT fan connector 2 x 4-Pin Chassis fan connectors 1 x 5-Pin Extension fan connector 1 x 24-pin EATX Power connector 1 x 8-pin EATX 12V Power connector 1 x Front panel audio connector (AAFP) 1 x COM connector 1 x RGB Header 1 x TPM connector 1 x System panel connector 1 x Clear CMOS jumper (2-pin) 1 x Thermal sensor connectors

(continued on the next page)

STRIX H270F GAMING specifications summary

BIOS Features	128 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.0, WfM2.0, SM BIOS 3.0, ACPI 6.0, Multi-language BIOS, ASUS EZ Flash 3, CrashFree BIOS 3, F11 EZ Tuning Wizard, F6 Qfan Control, F3 My Favorites, Quick Note, Last Modified log, F12 PrintScreen, and ASUS DRAM SPD (Serial Presence Detect) memory information
Manageability	WfM2.0, DMI3.0, WOL by PME, PXE
Support DVD contents	Drivers Anti-virus software (OEM version) ASUS Utilities
Operating system support	Windows® 10 64-bit Windows® 8.1 64-bit* Windows® 7* *** Windows® 8.1 64-bit and Windows® 7 32/64-bit are only supported when using 6th Generation Intel® Processors.**
Form factor	ATX Form Factor, 12” x 9.6” (30.5cm x 24.4cm)

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

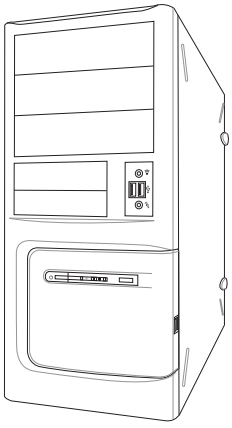
Package contents

Check your motherboard package for the following items.

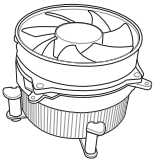
Motherboard	STRIX H270F GAMING
Cables	2 x 2-in-1 SATA 6Gb/s cables 1 x RGB LED extension cable
Accessories	1 x I/O shield 1 x ROG SATA cable label 1 x ROG Strix sticker 1 x 3D Printing Mount 1 x M.2 Screw Package 1 x RGB cable
Application drive	Support DVD
Documentation	User Guide

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

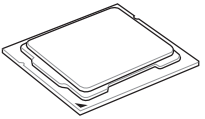
Installation tools and components



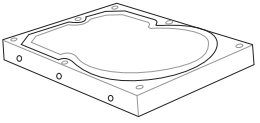
PC chassis



Intel® 1151 compatible CPU Fan

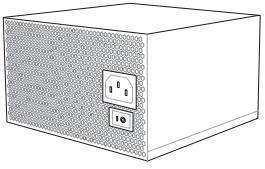


Intel® 1151 CPU

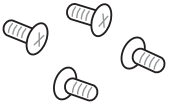


SATA hard disk drive

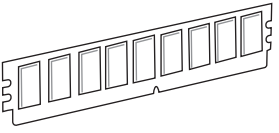
Phillips (cross) screwdriver



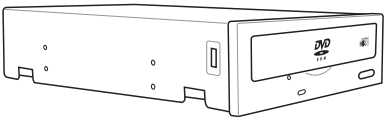
Power supply unit



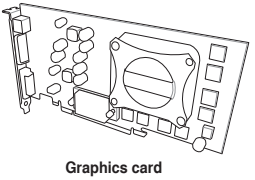
1 bag of screws



DIMM



SATA optical disc drive (optional)



Graphics card

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

Product Introduction

1

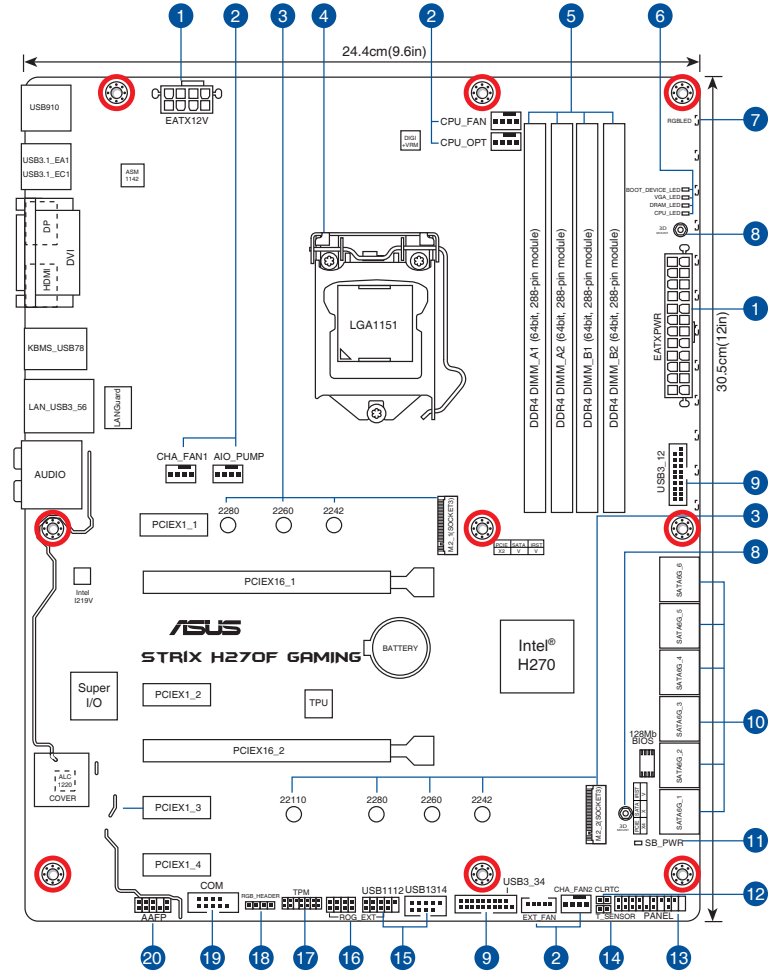
1.1 Motherboard overview

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



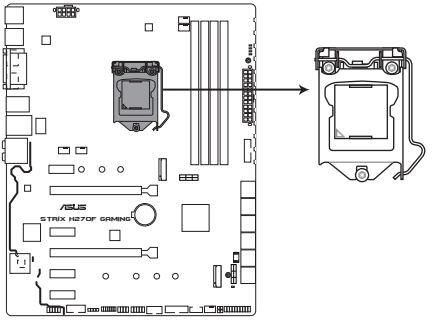
Refer to **1.1.8 Internal connectors** and **2.2.1 Rear I/O connection** for more information about rear panel connectors and internal connectors.

Layout contents

Connectors/Jumpers/Buttons and switches/Slots/LEDs	Page
1. ATX power connectors (24-pin EATXPWR, 8-pin EATX12V)	1-17
2. CPU, CPU optional, AIO pump, extension, and chassis fan connectors (4-pin CPU_FAN, 4-pin CPU_OPT, 4-pin AIO_PUMP, 5-pin EXT_FAN, 4-pin CHA_FAN1~2)	1-16
3. M.2 sockets (M.2_1~2)	1-20
4. LGA1151 CPU socket	1-4
5. DDR4 DIMM slots	1-5
6. POST State LEDs	1-10
7. RGB LED	1-11
8. 3D Mount holes	1-10
9. USB 3.0 connectors (20-1 pin USB3_12, USB3_34)	1-14
10. Intel® Serial ATA 6 Gb/s connectors (7-pin SATA6G_1~6)	1-13
11. Standby power LED (SB_PWR)	1-11
12. Clear RTC RAM jumper (2-pin CLRTC)	1-9
13. System panel connector (20-5 pin PANEL)	1-18
14. Thermal sensor cable connector (2-pin T_SENSOR)	1-20
15. USB 2.0 connectors (10-1 pin USB1112, USB1314)	1-15
16. ROG Extension connector (18-1 pin ROG_EXT)	1-15
17. TPM connector (14-1 pin TPM)	1-19
18. RGB header (4-pin RGB_HEADER)	1-21
19. Serial port connector (10-1 pin COM)	1-19
20. Front panel audio connector (10-1 pin AAFP)	1-14

1.1.3 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA1151 socket designed for the 7th / 6th Generation Intel® Core™ i7 / Intel® Core™ i5 / Intel® Core™ i3, Pentium®, and Celeron® processors.



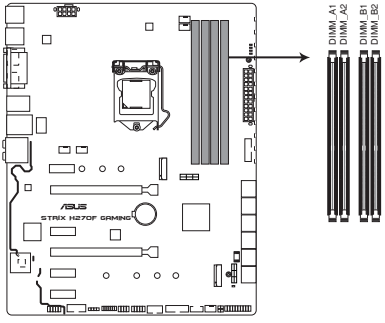
STRIX H270F GAMING CPU socket LGA1151

- Ensure that all power cables are unplugged before installing the CPU.
- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1151 socket.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.

1.1.4 System memory

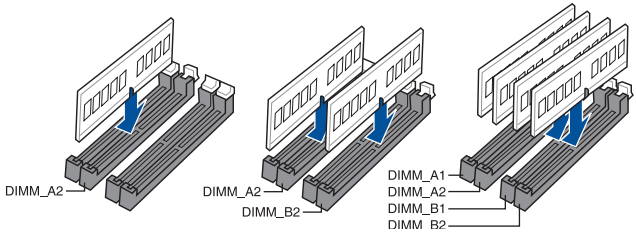
The motherboard comes with four DDR4 (Double Data Rate 4) Quad Inline Memory Modules (DIMM) slots.

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.



STRIX H270F GAMING 288-pin DDR4 DIMM sockets

Recommended memory configurations



Memory configurations

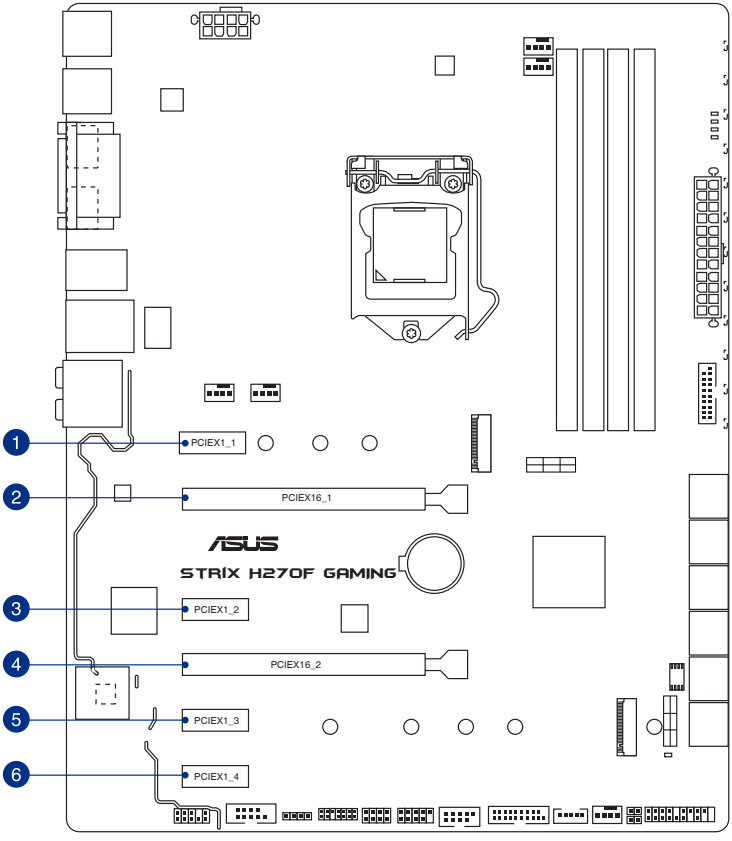
You may install 1 GB, 2 GB, 4 GB, 8 GB and 16 GB unbuffered and non-ECC DDR4 DIMMs into the DIMM sockets.

- You may install varying memory sizes in Channel A, 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.
- Due to the memory address limitation on 32-bit Windows® OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following:
  a) Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS.
  b) Install a 64-bit Windows® OS when you want to install 4 GB or more on the motherboard.
  c) For more details, refer to the Microsoft® support site at http://support.microsoft.com/kb/929605/en-us.
- The design of the DIMM fan may vary. Ensure that the DIMM fan fits to the motherboard

- 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.
- ASUS exclusively provides hyper DIMM support function.
- Hyper DIMM support is subject to the physical characteristics of individual CPUs. Load the X.M.P. or D.O.C.P. settings in the BIOS for the hyper DIMM support.
- Visit the ASUS website for the latest QVL.

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_x1_1 slot
2	PCIE_x16_1 slot
3	PCIE_x1_2 slot
4	PCIE_x16_2 slot
5	PCIE_x1_3 slot
6	PCIE_x1_4 slot

VGA configuration	PCI Express 3.0 operating mode	
	PCIe_x16/x8_1	PCIe_x4_2
Single VGA/PCIe card	x16 (single VGA recommended)	N/A
Dual VGA/PCIe card	x16	x4

- We recommend that you provide sufficient power when running CrossFireX™ mode.
- Connect a chassis fan to the motherboard connector labeled CHA_FAN1-2 when using multiple graphics cards for better thermal environment.

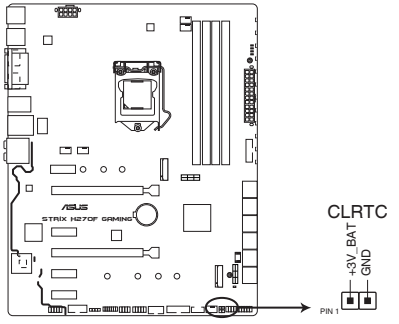
IRQ assignments for this motherboard

	A	B	C	D
PCIEX1_1	–	–	–	shared
PCIEX16_1	shared	–	–	–
PCIEX1_2	–	–	–	shared
PCIEX16_2	shared	–	–	–
PCIEX1_3	–	–	shared	–
PCIEX1_4	–	–	shared	–
XHCI Controller	shared	–	–	–
SATA Controller	shared	–	–	–
HD Audio	shared	–	–	–
SMBUS Controller	shared	–	–	–
Intel Lan i219V	shared	–	–	–
ASMedia 1142	–	–	shared	–

1.1.6 Headers / Holes

1. Clear RTC RAM (2-pin CLRTC)

This header allows you to clear the CMOS RTC RAM data of the system setup information such as date, time, and system passwords.



STRIX H270F GAMING Clear RTC RAM

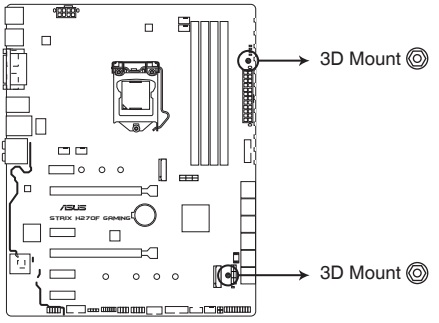
To erase the RTC RAM:

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 <**Del**> key during the boot process and enter BIOS setup to re-enter data.

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.

2. 3D Mount holes

Create a 3D printout and secure it to these 3D Mount holes for a personalized motherboard.



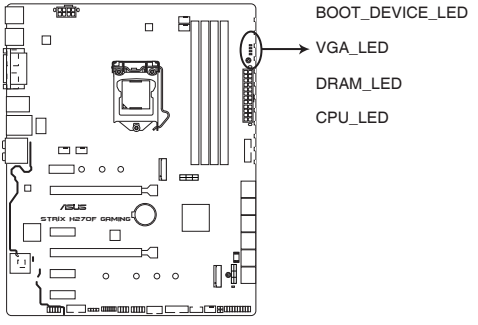
STRIX H270F GAMING 3D Printing Mount

- Download 3D source files at http://www.asus.com.
- Use the bundled 3D mount printing screws to install the 3D printouts.

1.1.7 Onboard LEDs

1. POST State LEDs

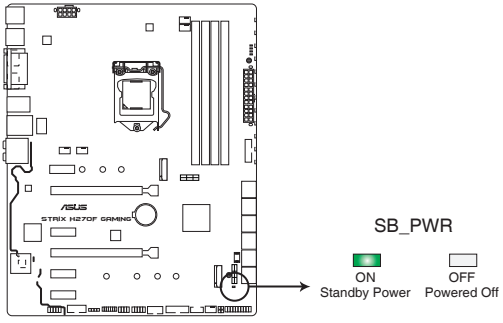
The POST State LEDs provide the status of these key components during POST (Power-On Self-Test): CPU, memory modules, VGA card, and hard disk drives. If an error is found, the critical component's LED stays lit up until the problem is solved.



STRIX B250F GAMING Boot_Device/VGA/DRAM/CPU LED

2. Standby Power LED

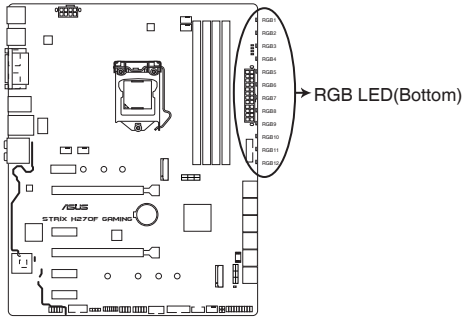
The motherboard comes with a standby power LED. The LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



STRIX H270F GAMING Onboard LED

3. RGB LED

The RGB LED lighting control provides several lighting schemes, which allow you to customize your favorite LED effect. You can set your favorite LED effect to cast a stunning multi-color glow across your build, change shades to indicate CPU temperature, pulsate in time to the beat of your music, or set your favorite color for each pair of LEDs.



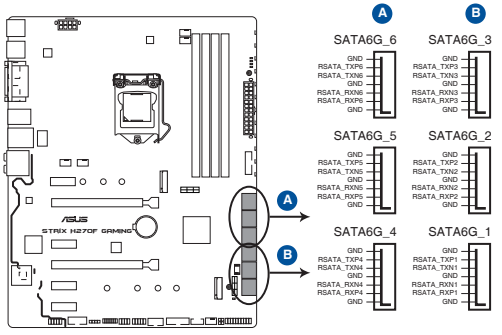
STRIX H270F GAMING RGB LED Lighting

1.1.8 Internal connectors

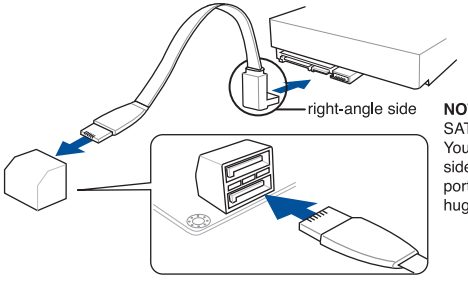
1. Intel® Serial ATA 6 Gb/s connectors (7-pin SATA6G_1~6)

These connectors connect to Serial ATA 6 Gb/s hard disk drives via Serial ATA 6 Gb/s signal cables.

If you installed Serial ATA hard disk drives, you can create a RAID 0, 1, 5, and 10 configuration with the Intel® Rapid Storage Technology through the onboard Intel® H270 chipset.



STRIX H270F GAMING Intel® SATA 6.0Gb/s connectors

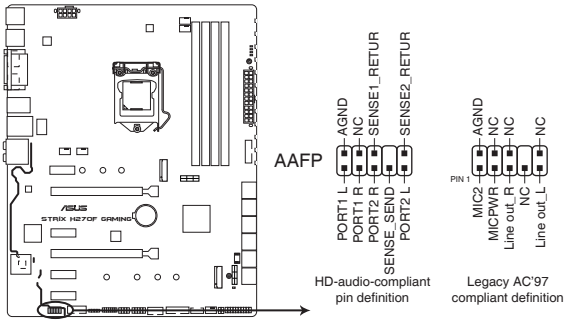


NOTE: Connect the right-angle side of SATA signal cable to SATA device. You may also connect the right-angle side of SATA cable to the onboard SATA port to avoid mechanical conflict with huge graphics cards.

- 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 item in the BIOS to **[Intel RST Premium With Intel Optane System Acceleration (RAID)]**.
- Before creating a RAID set, refer to the manual bundled in the motherboard support DVD.

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.

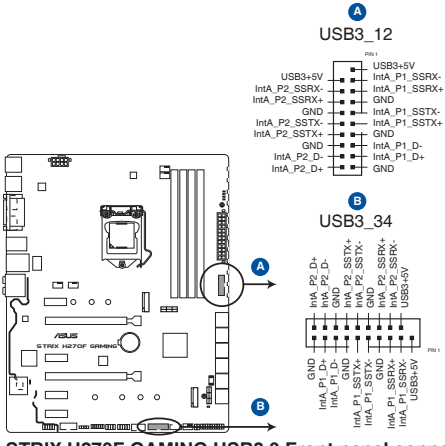


STRIX H270F GAMING Front panel audio connector

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 3.0 connectors (20-1 pin USB3_12, USB3_34)

These connectors allow you to connect a USB 3.0 module for additional USB 3.0 front or rear panel ports. With an installed USB 3.0 module, you can enjoy all the benefits of USB 3.0 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.

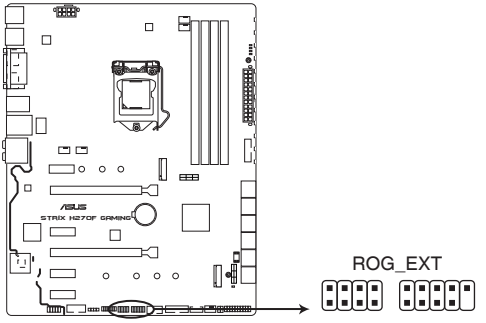


STRIX H270F GAMING USB3.0 Front panel connectors

The USB 3.0 module is purchased separately.

4. ROG Extension connector (18-1 pin ROG_EXT)

This connector is for the OC Panel I/II, Front Base, and other ROG devices.

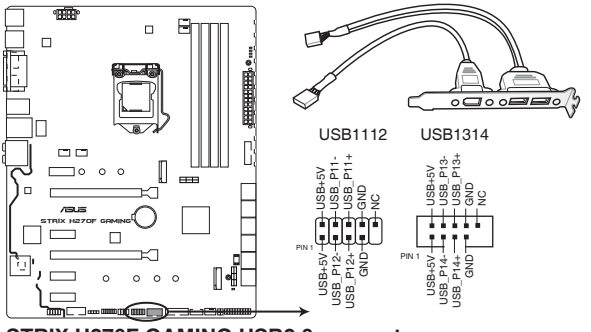


STRIX H270F GAMING ROG_EXT connectors

- The Front Base is purchased separately.
- Visit www.asus.com for more information about the OC Panel and Front Base.

5. USB 2.0 connectors (10-1 pin USB1112, USB1314)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mb/s connection speed.



STRIX H270F GAMING USB2.0 connectors

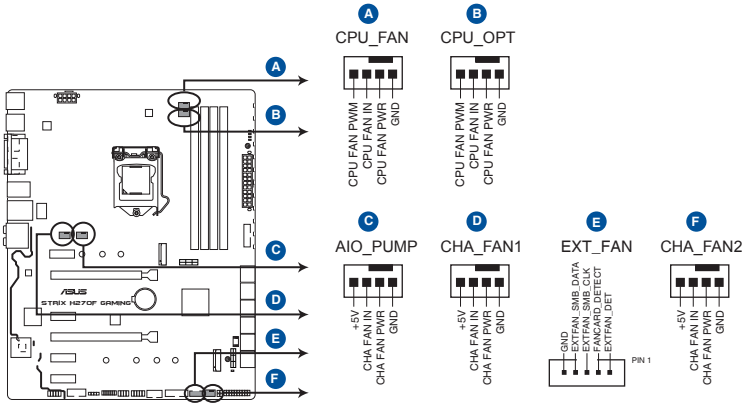
DO NOT connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

The USB 2.0 module is purchased separately.

6. CPU, CPU optional, AIO pump, extension, and chassis fan connectors (4-pin CPU_FAN, 4-pin CPU_OPT, 4-pin AIO_PUMP, 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.

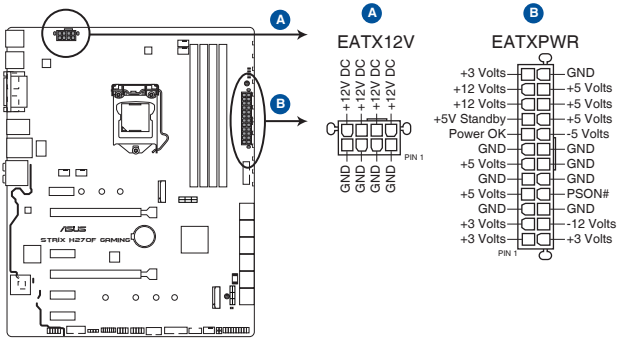


STRIX H270F GAMING Fan connectors

- 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.
- To install more fans, refer to section **2.1.8 Expansion card installation** for details.
- Connect the fan of your water cooling kit to the CPU_FAN connector.

7. ATX power connectors (24-pin EATXPWR, 8-pin EATX12V)

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.

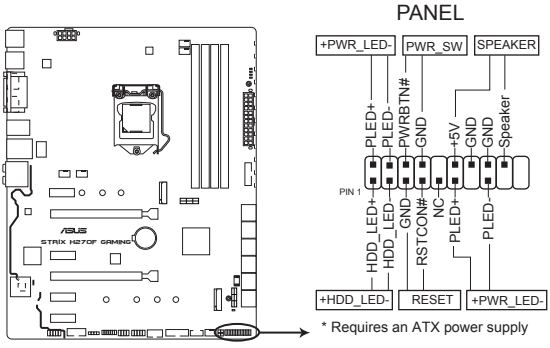


STRIX H270F GAMING ATX power connectors

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 350 W.
- DO NOT forget to connect the 8-pin EATX12V power plug. Otherwise, the system will not boot.
- 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.

8. System panel connector (20-5 pin PANEL)

This connector supports several chassis-mounted functions.



STRIX H270F GAMING System panel connector

- **System power LED (4-pin +PWR_LED-)**

  This 2-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 PWR_SW)**

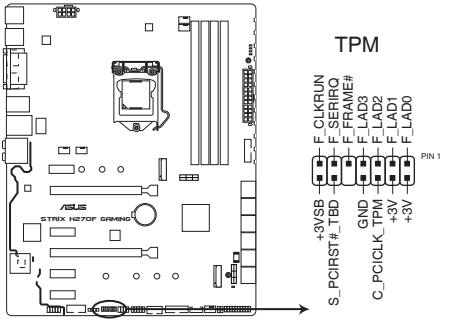
  This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the operating system settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **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.

9. 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.

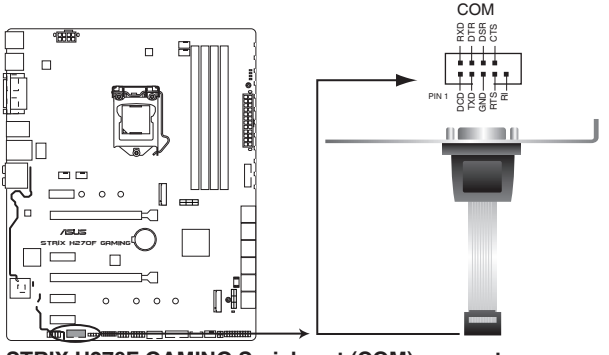


STRIX H270F GAMING TPM connector

The TPM module is purchased separately.

10. Serial port connector (10-1 pin COM)

This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.

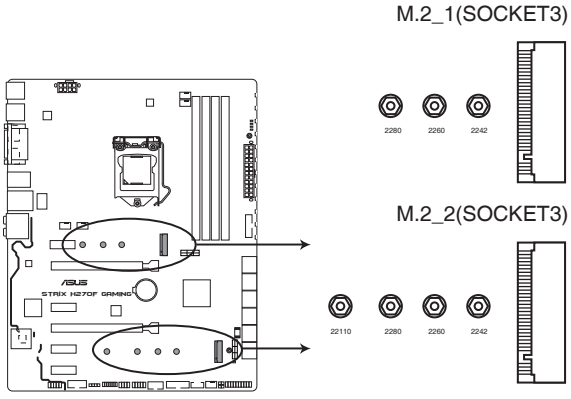


STRIX H270F GAMING Serial port (COM) connector

The COM module is purchased separately.

11. M.2 sockets (M.2_1~2)

These sockets allow you to install M.2 SSD modules.



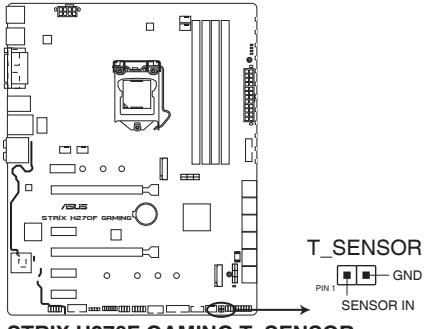
STRIX H270F GAMING M.2(SOCKET3)s

- M.2_1 socket supports PCIe 3.0 x2 and SATA mode M Key design and type 2242 / 2260 / 2280 PCIe and SATA storage devices.
- M.2_2 socket supports PCIe 3.0 x4 M Key design and type 2242 / 2260 / 2280 / 2210 PCIe storage devices.
- M.2_2 socket supports IRST (Intel® Rapid Storage Technology).

The M.2 SSD module is purchased separately.

12. Thermal sensor connector (2-pin T_SENSOR)

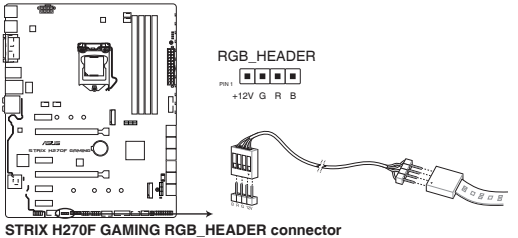
This connector is for the thermistor cable that monitors the temperature of the devices and the critical components inside the motherboard. Connect the thermistor cable and place the sensor on the device or the motherboard's component to detect its temperature.



STRIX H270F GAMING T_SENSOR connector

13. RGB headers (4-pin RGB_HEADER)

This connector is for RGB LED strips.



STRIX H270F GAMING RGB_HEADER connector

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 when the system is operating.
- The LED strips are purchased separately.

Basic Installation

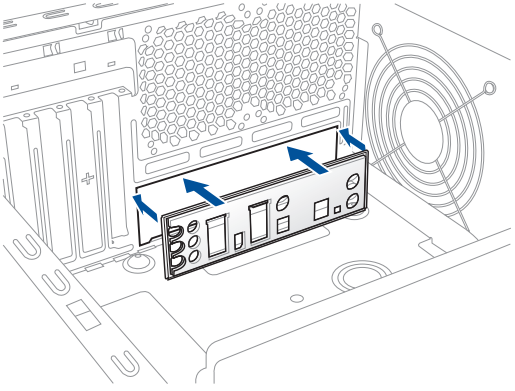
2

2.1 Building your PC system

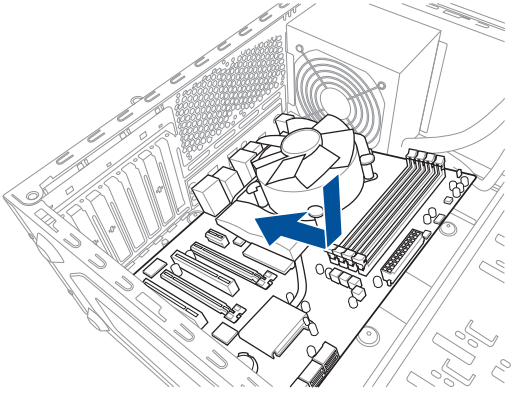
The diagrams in this section are for reference only. The motherboard layout may vary with models, but the installation steps are the same for all models.

2.1.1 Motherboard installation

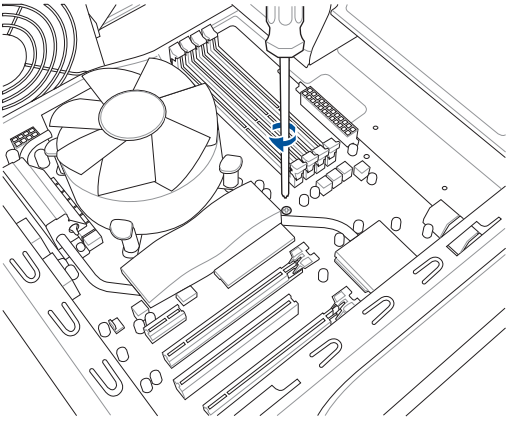
1. Install the ASUS Q-Shield to the chassis rear I/O panel.

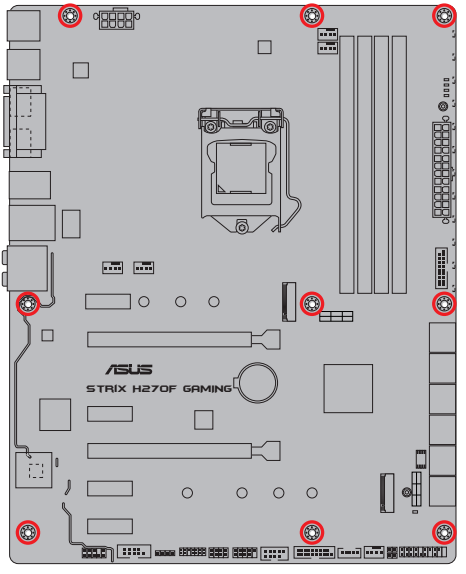


2. Place the motherboard into the chassis, ensuring that its rear I/O ports are aligned to the chassis' rear I/O panel.



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

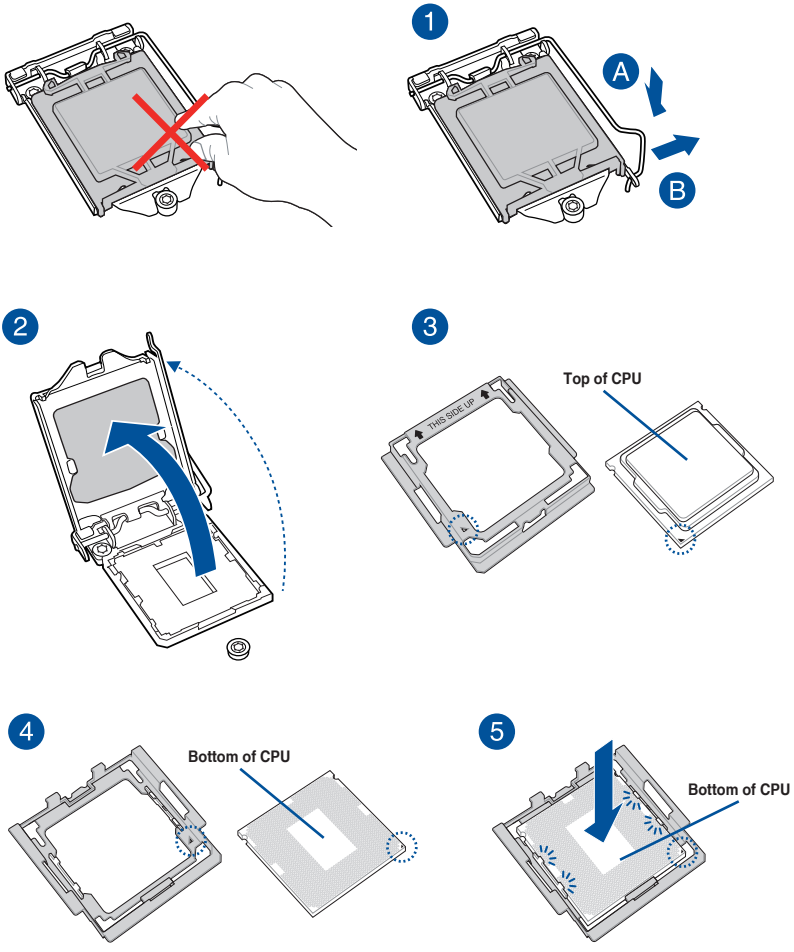


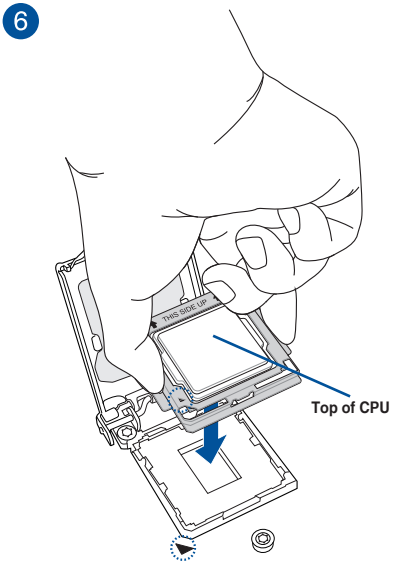


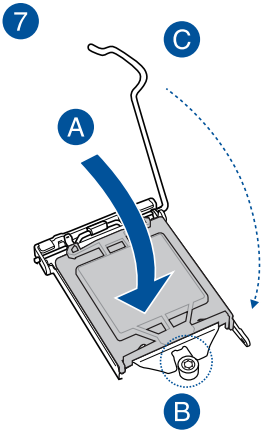
DO NOT overtighten the screws! Doing so can damage the motherboard.

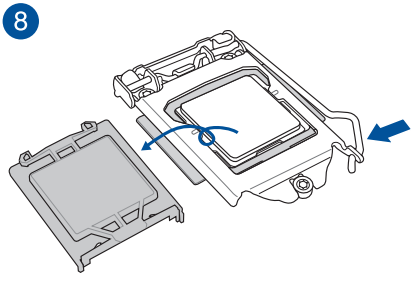
2.1.2 CPU installation

Ensure that you install the correct CPU designed for LGA1151 socket only. DO NOT install a CPU designed for LGA1155 and LGA1156 sockets on the LGA1151 socket.



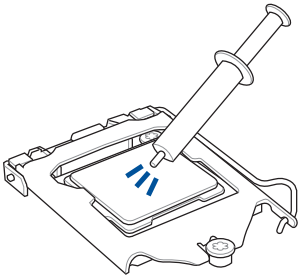






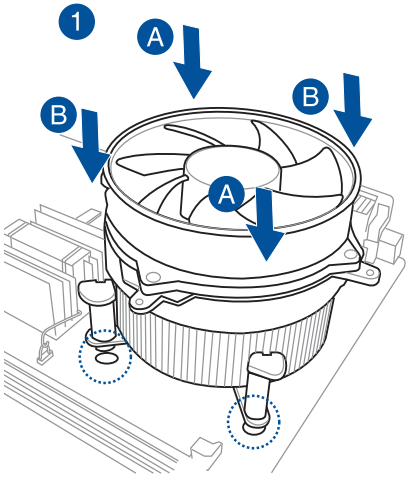
- The CPU Installation Tool is only compatible on ASUS motherboards with a Intel® LGA1151 socket.
- Ensure that the CPU is firmly clicked into place before installing it onto the CPU socket on the motherboard.
- Use the CPU Installation Tool for installing the CPU only. DO NOT damage or bend the CPU Installation Tool.
- Always firmly hold both sides of the CPU Installation Tool when installing, removing, or picking up the CPU Installation Tool.
- Ensure to use a soft stable surface when installing the CPU to the CPU Installation Tool to prevent CPU damage.
- ASUS will not cover damages resulting from incorrect CPU installation/removal, incorrect CPU orientation/placement, or other damages resulting from negligence by the user.

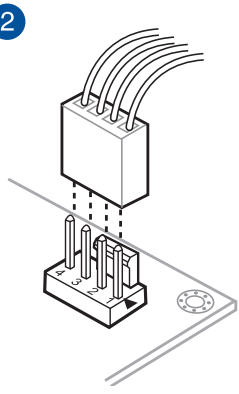
2.1.3 CPU heatsink and fan assembly installation

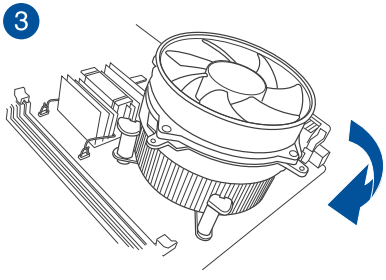


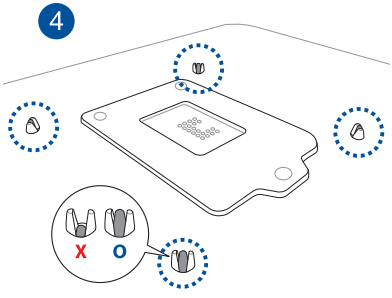
Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan, if necessary.

To install the CPU heatsink and fan assembly





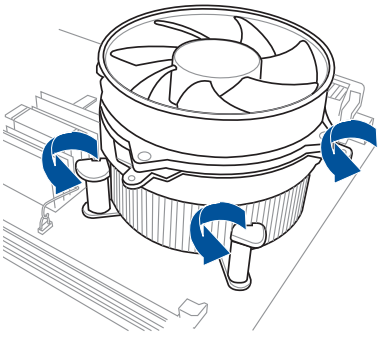




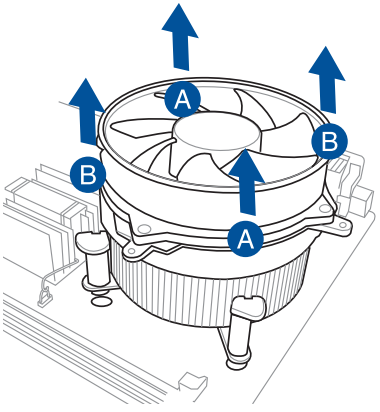
Chapter 2

To uninstall the CPU heatsink and fan assembly

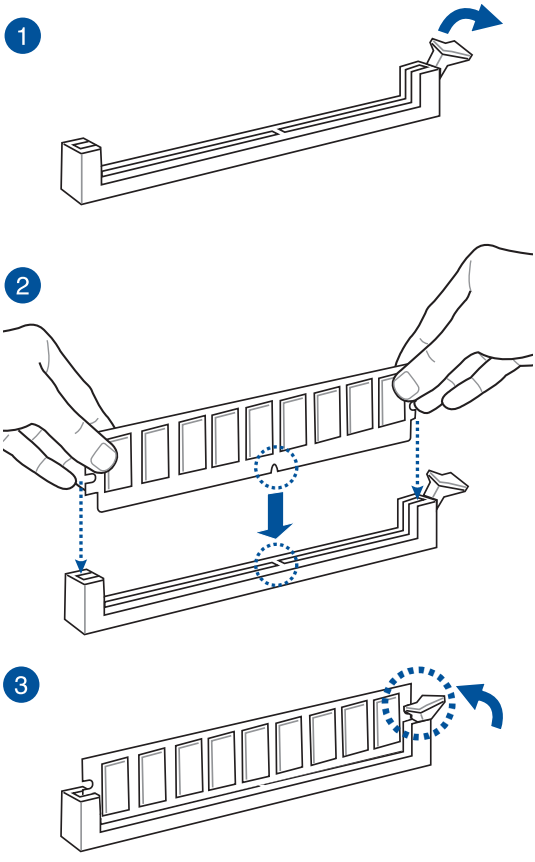
1



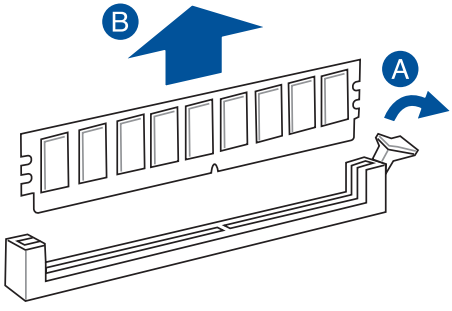
2



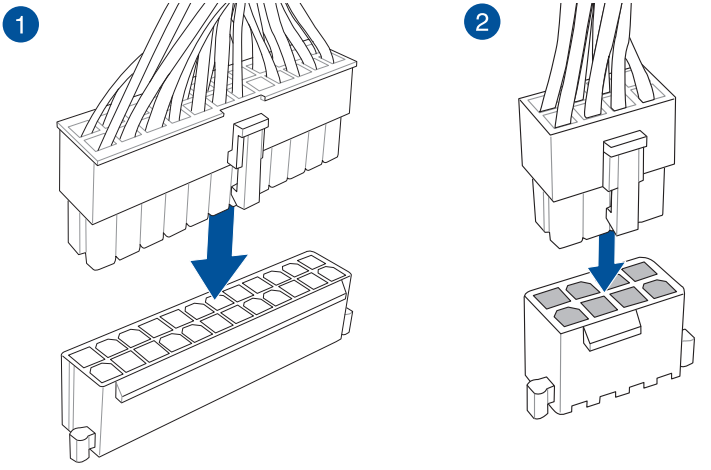
2.1.4 DIMM installation



To remove a DIMM

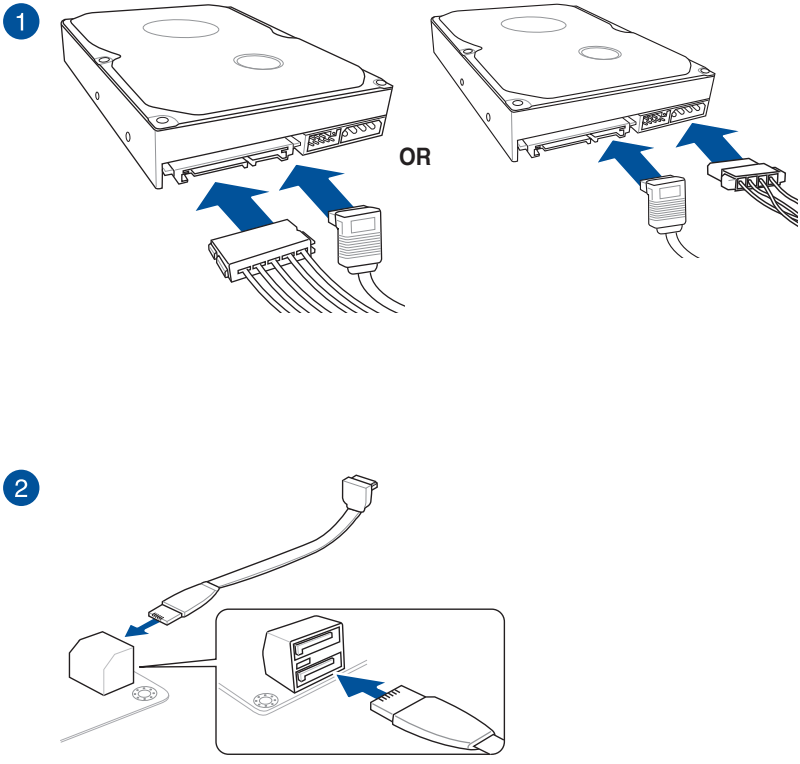


2.1.5 ATX power connection



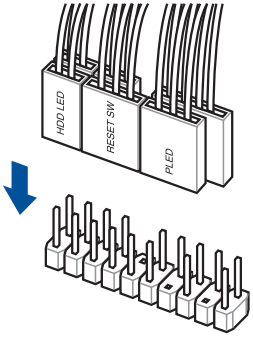
Ensure to connect the 8-pin power plug.

2.1.6 SATA device connection

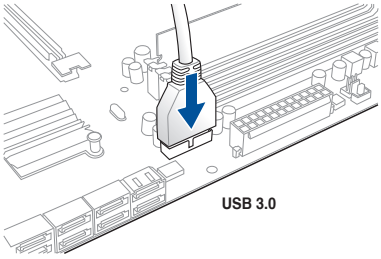


2.1.7 Front I/O connector

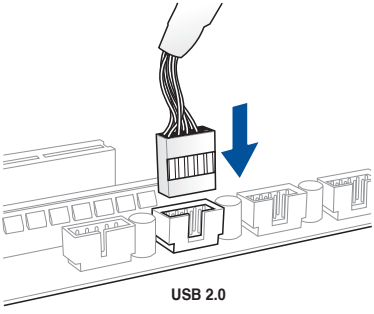
To install front panel connector



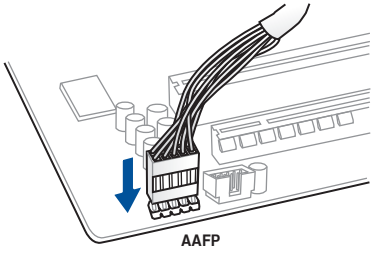
To install USB 3.0 connector



To install USB 2.0 connector

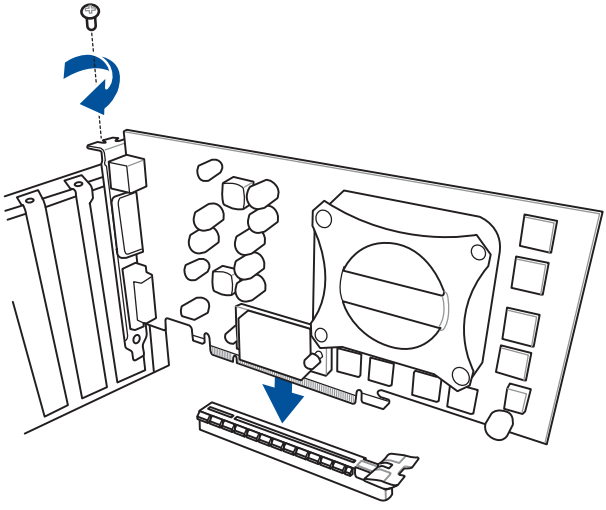


To install front panel audio connector

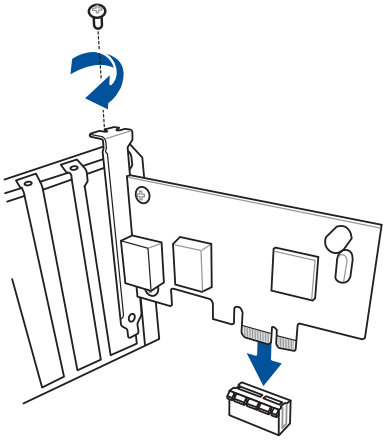


2.1.8 Expansion card installation

To install PCIe x16 cards

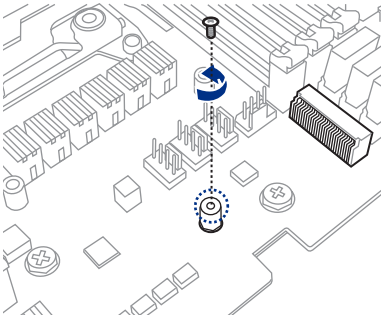


To install PCIe x1 cards

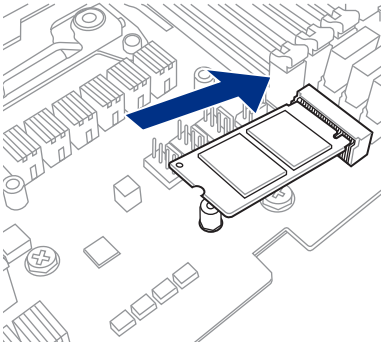


2.1.9 M.2 installation

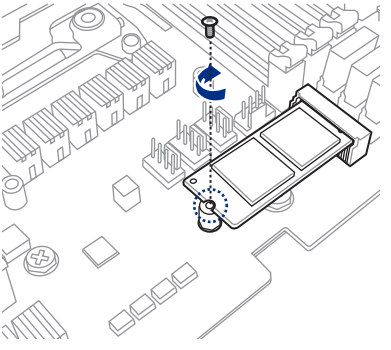
1



2

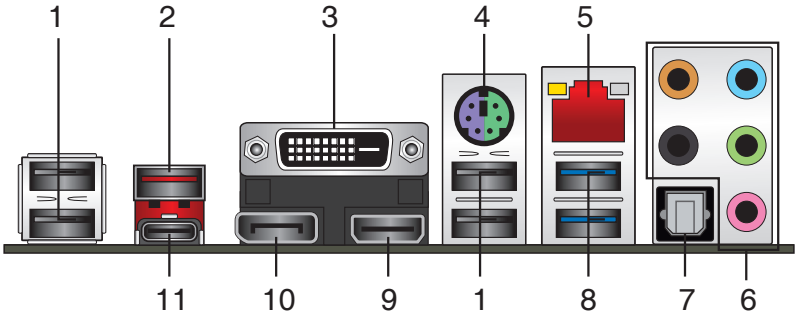


3



2.2 Motherboard rear and audio connections

2.2.1 Rear I/O connection

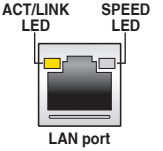


Rear panel connectors			
1.	USB 2.0 ports	7.	Optical S/PDIF Out port
2.	USB 3.1 Type-A port EA1	8.	USB 3.0 ports
3.	DVI-D port	9.	HDMI port
4.	PS/2 keyboard/mouse combo port	10.	DisplayPort
5.	Intel® LAN port*	11.	USB 3.1 Type-C port EC1
6.	Audio I/O ports**		

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

* 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
Orange (Blinking)	Data activity	Green	1 Gbps connection
Orange (Blinking then steady)	Ready to wake up from S5 mode		



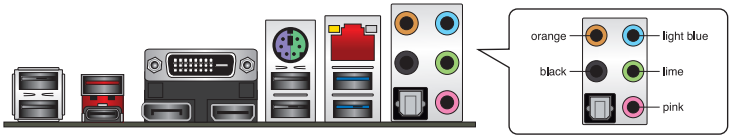
You can disable the LAN controllers in BIOS.

** Audio 2, 4, 6, or 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Side speaker
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Orange	–	–	Center/Subwoofer	Center/Subwoofer
Black	–	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out

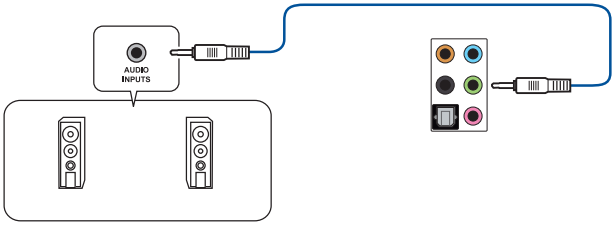
2.2.2 Audio I/O connections

Audio I/O ports

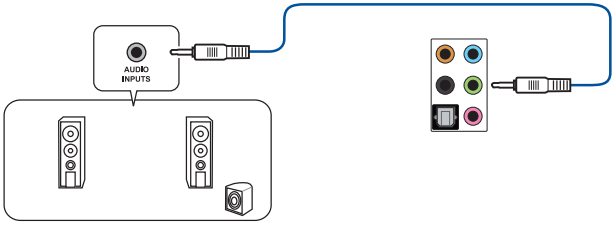


Connect to Headphone and Mic

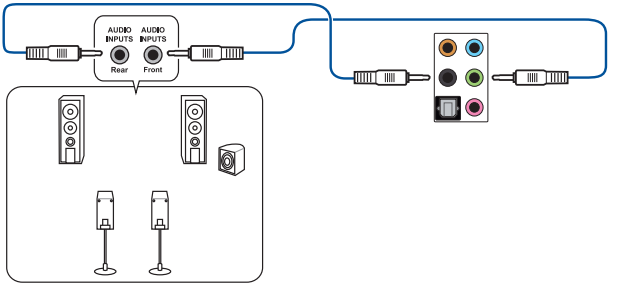
Connect to Stereo Speakers



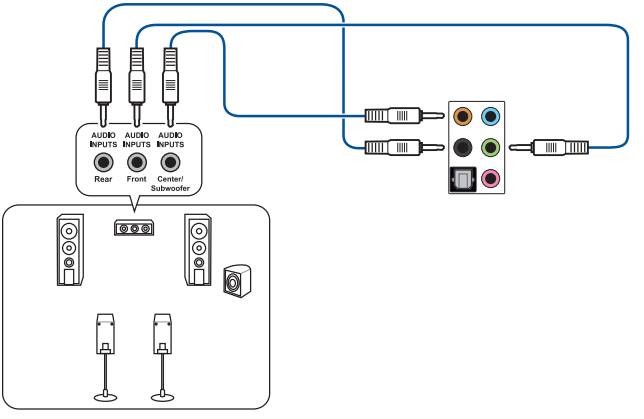
Connect to 2 channel Speakers



Connect to 4 channel Speakers

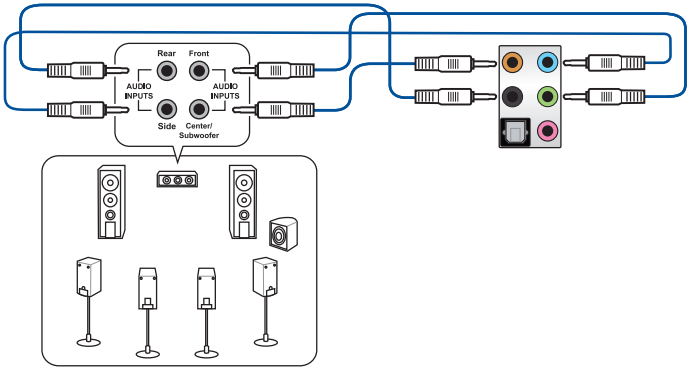


Connect to 6 channel Speakers



If you are using Windows® 8.1/10 platform, use only the light blue audio port for Side Speaker Out in a 6-channel configuration.

Connect to 8 channel Speakers



2.3 Starting up for the first time

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

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

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

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

2.4 Turning off the computer

While the system is ON, press the power button for less than four seconds to put the system on sleep mode or soft-off mode, depending on the BIOS setting. Press the power switch 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 **H270FG.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 **1.1.7 Jumpers** for information on how to erase the RTC RAM via the Clear CMOS jumper.
- The BIOS setup program does not support the Bluetooth devices.

Please visit ASUS website for the detailed BIOS content manual.

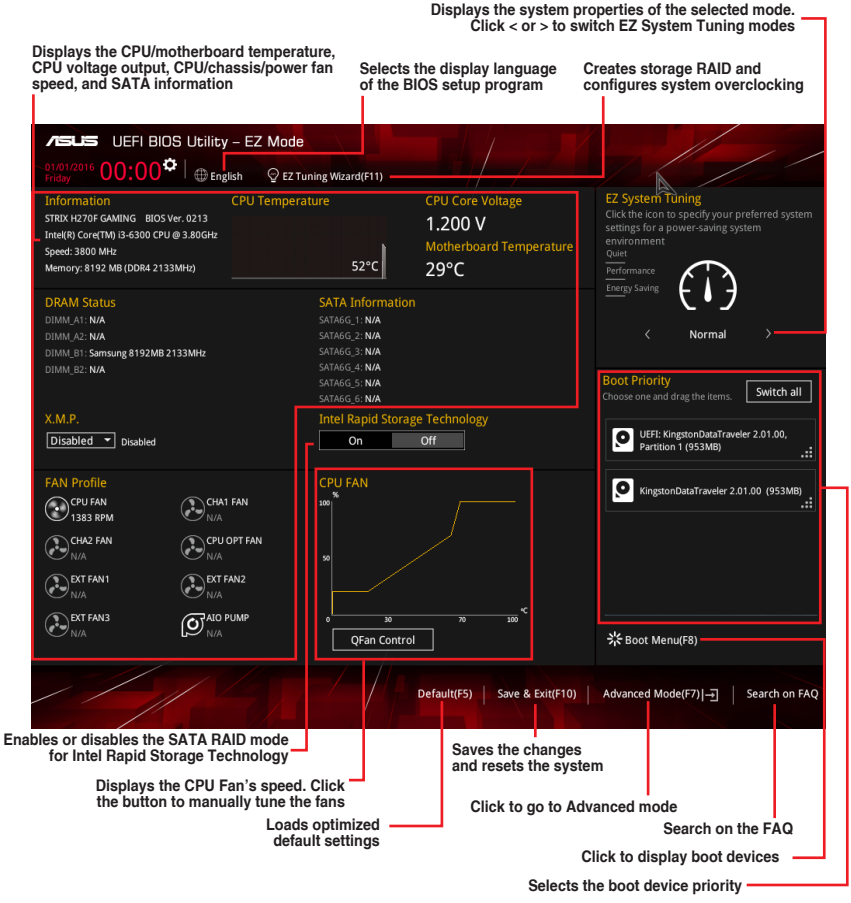
BIOS menu screen

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 EZ Mode

By default, the EZ Mode screen appears when you enter the BIOS setup program. 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.

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

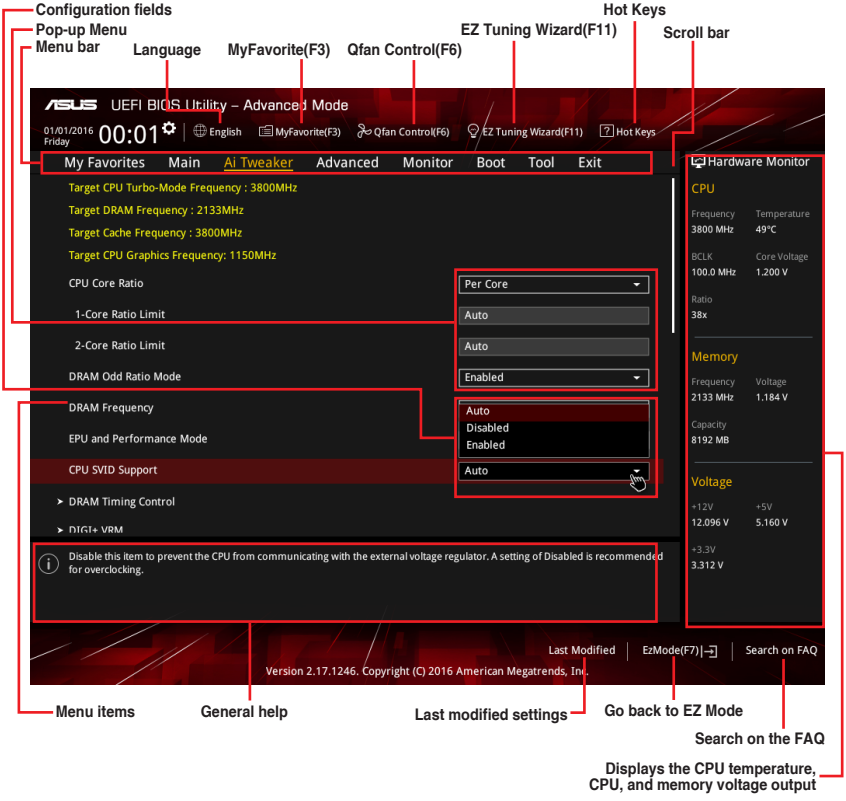


The boot device options vary depending on the devices you installed to the system.

3.2.2 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.

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



Menu bar

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

My Favorites	For saving the frequently-used system settings and configuration.
Main	For changing the basic system configuration
Ai Tweaker	For changing the overclocking settings
Advanced	For changing the advanced system settings
Monitor	For displaying the system temperature, power status, and changing the fan settings.
Boot	For changing the system boot configuration
Tool	For configuring options for special functions
Exit	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, Ai 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 QFan 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.

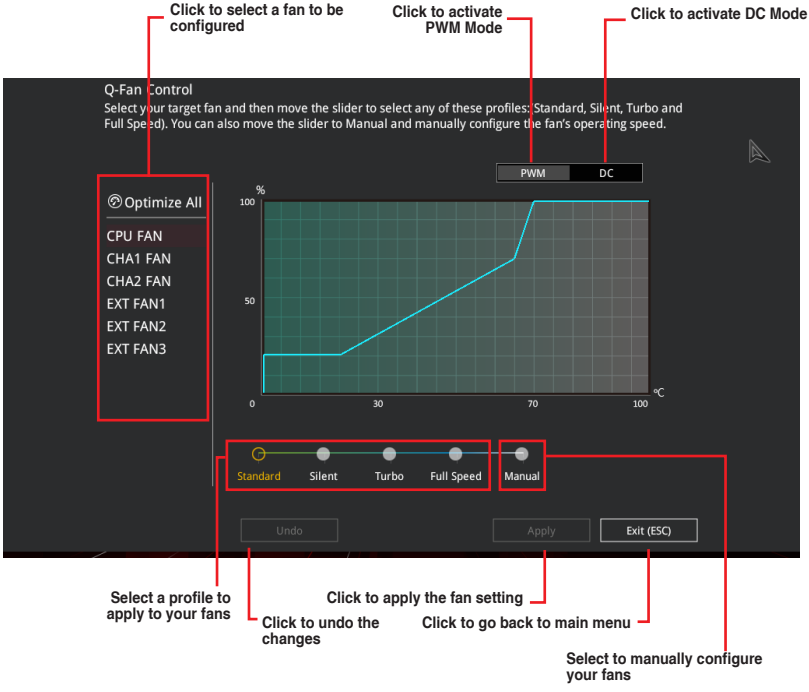
A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

Last Modified button

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

3.2.3 QFan Control

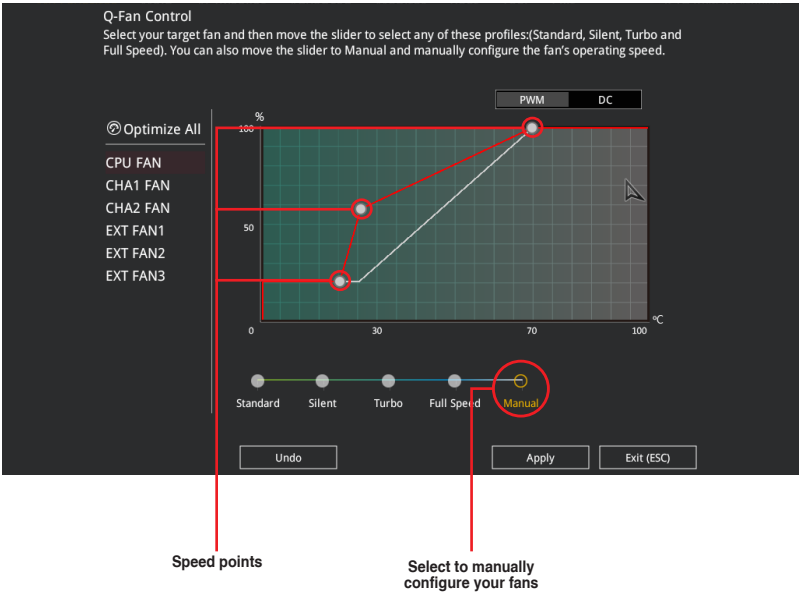
The QFan Control allows you to set a fan profile or manually configure the operating speed of your CPU and chassis fans.



Chapter 3

Configuring fans manually

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

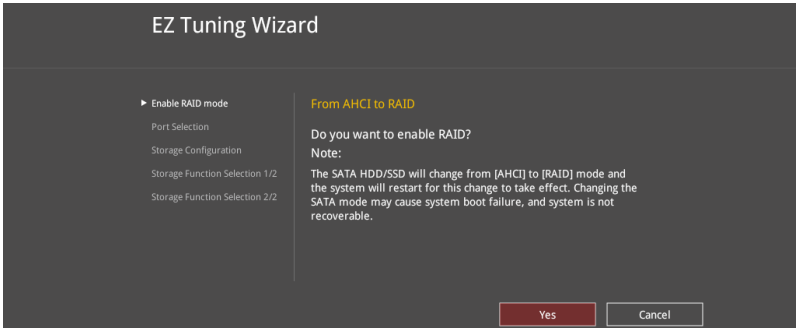


To configure your fans:

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. You can also set RAID in your system using this feature.



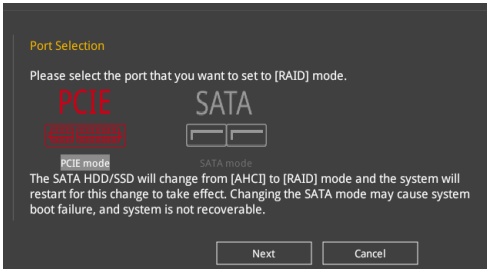
Creating RAID

To create RAID:

1. Press <F11> on your keyboard or click EZ Tuning Wizard(F11) from the BIOS screen to open EZ Tuning Wizard screen.
2. Click **RAID** then click **Next**.

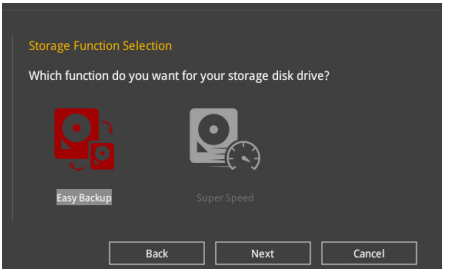
- Ensure that your HDDs have no existing RAID volumes.
- Ensure to connect your HDDs to Intel® SATA connectors.

3. Select the port that you want to set to [RAID] mode, **PCIE** or **SATA**, then click **Next**.

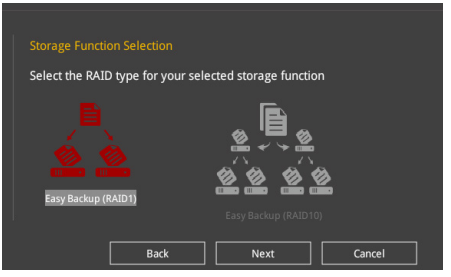


Chapter 3

4. Select the type of storage for your RAID, **Easy Backup** or **Super Speed**, then click **Next**.

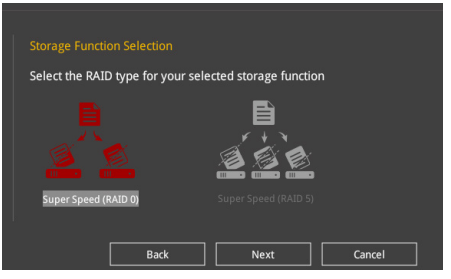


a. For Easy Backup, click **Next** then select from **Easy Backup (RAID1)** or **Easy Backup (RAID10)**.



You can only select Easy Backup (RAID 10) if you connect four (4) HDDs.

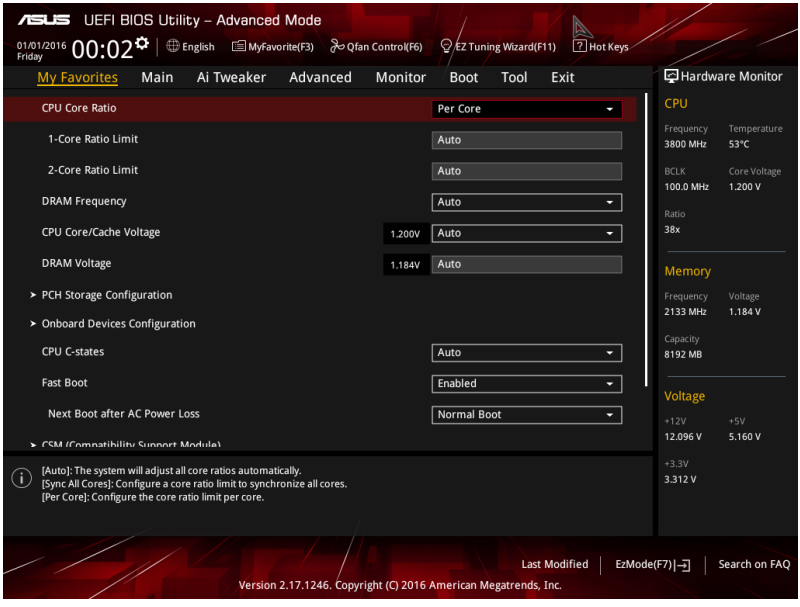
b. For Super Speed, click **Next** then select from **Super Speed (RAID0)** or **Super Speed (RAID5)**.



5. After selecting the type of RAID, click **Next** then click **Yes** to continue the RAID setup.
6. After the RAID setup is done, click **Yes** to exit the setup then click **OK** to reset your system.

3.3 My Favorites

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



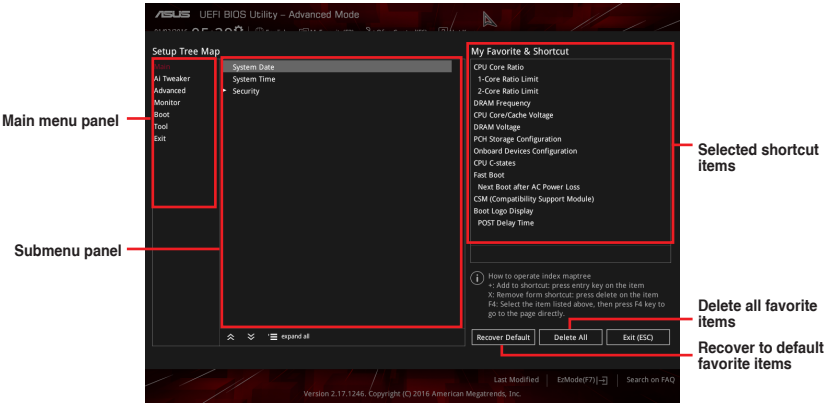
My Favorites comes with several performance, power saving, and fast boot related items by default. You can personalize this screen by adding or removing items.

Chapter 3

Adding items to My Favorites

To add BIOS items:

1. Press <F3> on your keyboard or click (F3)MyFavorite 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 **1.1.6 Onboard buttons and switches** for information on how to erase the RTC RAM via the Clear CMOS button.
- 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 Ai Tweaker menu

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

Be cautious when changing the settings of the Ai 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.

CPU Core Ratio

This item allows you to set the CPU core ratio limit per core or synchronize automatically to all cores. Configuration options: [Auto] [Sync All Cores] [Per Core]

When the CPU Core Ratio is set to [**Sync All Cores**] or **[Per Core]**, the following items appear.

1-Core Ratio Limit [Auto]

Select **[Auto]** to apply the CPU default Turbo Ratio setting or manually assign a 1-Core Limit value that must be higher than or equal to the 2-Core Ratio Limit.

2-Core Ratio Limit [Auto]

Select **[Auto]** to apply the CPU default Turbo Ratio setting or manually assign a 2-Core Limit value that must be higher than or equal to the 3-Core Ratio Limit.

If you assign a value for 2-Core Ratio Limit, do not set the 1-Core Ratio Limit to **[Auto]**.

AVX Instruction Core Ratio Negative Offset

Enter the numerical value that will be subtracted from your core ratio to get the ratio at which the AVX applications run.

This item only displays when you install Intel® 7th Generation K series processors.

DRAM Odd Ratio Mode [Enabled]

Allows you to enable or disable the DRAM Odd Ratio Mode, which provides better granularity. Configuration options: [Disabled] [Enabled]

DRAM Frequency [Auto]

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] [DDR4-800MHz] - [DDR4-4266MHz]

Selecting a very high memory frequency may cause the system to become unstable! If this happens, revert to the default setting.

EPU and Performance Mode [Auto]

EPU and Performance Mode lets you configure the power usage to boost or enhance system performance.

[Auto]	Automatically adjusts the power usage based on the system load.
[Max Power-Saving Mode]	Enables all power-saving settings for maximum energy-saving condition.
[EPU Mode]	Lowers the CPU core/cache voltage for the best energy-saving condition.
[Performance Mode]	Disables all power-saving settings to achieve a high system performance.

CPU SVID Support [Auto]

Disabling SVID Support stops the processor from communicating with the external voltage regulator. Configuration options: [Auto] [Disabled] [Enabled]

DRAM Timing Control

The subitems in this menu allow you to set the DRAM timing control features. Use the <+> and <-> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press the <Enter> key.

Changing the values in this menu may cause the system to become unstable! If this happens, revert to the default settings.

DIGI+ VRM

CPU Load-Line Calibration [Auto]

Load-line is defined by Intel VRM specification and affects the CPU power voltage. The CPU working voltage will decrease proportionally depending on the CPU loading. Higher levels of the load-line calibration can get a higher voltage and a better overclocking performance but increases the CPU and VRM thermal. Configuration options: [Auto] [Level 1] [Level 2] ~ [Level 6] [Level 7]

The boosted performance may vary depending on the CPU specification. Do not remove the thermal module.

CPU Current Capability [Auto]

Allows you to configure the total power range, and extends the overclocking frequency range simultaneously. Configuration options: [Auto] [100%] [110%] [120%] [130%] [140%]

Choose a higher value when overclocking, or under a high CPU loading for extra power support.

CPU VRM Switching Frequency [Auto]

This item affects the VRM transient response speed and the component thermal production. Select [Manual] to configure a higher frequency for a quicker transient response speed. Configuration options: [Auto] [Manual]

DO NOT remove the thermal module. The thermal conditions should be monitored.

The following item appears only when you set the CPU VRM Switching Frequency to **[Manual]**.

Fixed CPU VRM Switching Frequency (KHz) [250]

This item allows you to set a higher frequency for a quicker transient response speed. Use the <+> and <-> keys to adjust the value. The values range from 250KHz to 300KHz with a 50KHz interval.

VRM Spread Spectrum [Disabled]

This item allows you to reduce the magnitude of peak noise from the VRM.Disable this setting when overclocking. Configuration options: [Disabled] [Enabled]

CPU Power Duty Control [T.Probe]

DIGI + VRM Duty control adjusts the current and thermal conditions of every component's phase.

[T. Probe] Select to maintain the VRM thermal balance.

[Extreme] Select to maintain the current VRM balance.

CPU Power Phase Control [Auto]

This item allows you to set the power phase control of the CPU. Configuration options: [Auto] [Standard] [Optimized] [Extreme]

CPU Graphics Load-Line Calibration [Auto]

Load-line is defined by Intel VRM specification and affects the GT power voltage. The GT working voltage will decrease proportionally depending on the GT loading. Higher levels of the load-line calibration can get a higher voltage and a better overclocking performance but increases the GT and VRM thermal. Select from level 1 to 7 to adjust the GT power voltage from 0% to 100%. Configuration options: [Auto] [Level 1] [Level 2] [Level 3] [Level 4] [Level 5] [Level 6] [Level 7]

The boosted performance may vary depending on the GT specification. Do not remove the thermal module.

CPU Graphics Current Capability [Auto]

Allows you to configure the total power range, and extends the overclocking frequency range simultaneously. Configuration options: [Auto] [100%] [110%] [120%] [130%] [140%]

Choose a higher value when overclocking, or under a high GT loading for extra power support.

CPU Graphics VRM Switching Frequency [Auto]

This item affects the CPU Graphics transient response speed and the component thermal production. Select [Manual] to configure a higher frequency for a quicker transient response speed. Configuration options: [Auto] [Manual]

DO NOT remove the thermal module. The thermal conditions should be monitored.

The following item appears only when you set the GT VRM Switching Frequency to **[Manual]**.

Fixed CPU Graphics Switching Frequency (KHz) [300]

This item allows you to set a higher frequency for a quicker transient response speed. Use the <+> and <-> keys to adjust the value. The values range from 250KHz to 500KHz with a 50KHz interval.

Internal CPU Power Management

The subitems in this menu allow you to set the CPU ratio and their features.

Intel(R) SpeedStep(tm) [Enabled]

This item allows the operating system to dynamically adjust the processor voltage and cores frequency, resulting to a decreased average power consumption and decreased average heat production. Configuration options: [Disabled] [Enabled]

Turbo Mode Parameters

Long Duration Package Power Limit [Auto]

Allows you to limit the Turbo Ratio's time duration that exceeds the TDP (Thermal Design Power) for maximum performance. Use the <+> or <-> keys to adjust the value. The values range from 1 W to 4096 W.

Package Power Time Window [Auto]

Also known as Power Limit 1, this item allows you to maintain the time window for Turbo Ratio over TDP (Thermal Design Power). Use the <+> or <-> keys to adjust the value. The values range from 1 to 127 in seconds.

Short Duration Package Power Limit [Auto]

Also known as Power Limit 2, this item allows you to provide rapid protection when the package power exceeds the Power Limit 1. Use the <+> or <-> keys to adjust the value. The values range from 1 W to 4095 W.

IA AC Load Line [Auto]

This item allows you to set the AC loadline defined in 1/100 mOhms. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [0.01] - [62.49]

IA DC Load Line [Auto]

This item allows you to set the DC loadline defined in 1/100 mOhms. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [0.01] - [62.49]

CPU Core/Cache Current Limit Max. [Auto]

Allows you to set a higher current limit to prevent a frequency or power throttling when overclocking. Use the <+> or <-> keys to adjust the value. The values range from 0.00A to 255.50A with a 0.25A interval.

CPU Graphics Current Limit [Auto]

Allows you to set a higher current limit to prevent a frequency or power throttling when overclocking. Use the <+> or <-> keys to adjust the value. The values range from 0.00A to 255.50A with a 0.25A interval.

Min. CPU Cache Ratio [Auto]

This item allows you to set the minimum possible CPU cache ratio. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [8] - [83]

Max. CPU Cache Ratio [Auto]

This item allows you to set the maximum possible CPU cache ratio. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [8] - [83]

Max. CPU Graphics Ratio [Auto]

This item allows you to set the maximum possible CPU graphics ratio. Use the <+> and <-> keys to adjust the value. Configuration options: [Auto] [8] - [83]

CPU Core/Cache Voltage [Auto]

This item allows you to configure the amount of voltage fed to the CPU cores. Increase the voltage when setting a high Core Frequency value. Configuration options: [Auto] [Manual Mode] [Offset Mode]

The following item appears only when you set the CPU Core/Cache Voltage to [Offset Mode].

Offset Mode Sign [+]

[+] To offset the voltage by a positive value.

[–] To offset the voltage by a negative value.

CPU Graphics Voltage Offset [Auto]

This item allows you to configure the CPU Graphics Voltage Offset. Use the <+> or <-> keys to adjust the value. The values range from 0.001V to 0.999V with a 0.001V interval.

DRAM Voltage [Auto]

This item allows you to set the voltage for the DRAM. Use the <+> and <-> keys to adjust the value. The values range from 1.000V to 1.800V with a 0.005 interval.

CPU VCCIO Voltage [Auto]

This item allows you to set the voltage for the CPU VCCIO. Use the <+> and <-> keys to adjust the value. The values range from 0.900V to 1.585V with a 0.005V interval.

CPU System Agent Voltage [Auto]

This item allows you to set the voltage for the VCCSA. Use the <+> and <-> keys to adjust the value. The values range from 0.700V to 1.685V with a 0.005V interval.

CPU Graphics Voltage Mode [Auto]

This item allows you to configure the mode of voltage fed to the CPU Graphics Voltage. Manual mode allows user-defined values. Offset mode modifies values by SVID. Configuration options: [Auto] [Manual Mode] [Offset Mode]

The following item appears only when you set the CPU Graphics Voltage Mode to **[Manual Mode]**.

CPU Graphics Voltage Override [Auto]

This item allows you to configure the CPU Graphics Voltage Override. Use the <+> or <-> keys to adjust the value. The values range from 0.600V to 1.700V with a 0.005V interval.

The following item appears only when you set the CPU Graphics Voltage Mode to **[Offset Mode]**.

Offset Mode Sign [+]

[+] To offset the voltage by a positive value.

[–] To offset the voltage by a negative value.

CPU Graphics Voltage Offset [Auto]

This item allows you to configure the CPU Graphics Voltage Offset. Use the <+> or <-> keys to adjust the value. The values range from 0.001V to 0.999V with a 0.001V interval.

PCH Core Voltage [Auto]

This item allows you to set the PCH core voltage. Use the <+> and <-> keys to adjust the value. The values range from 0.800V to 1.635V with a 0.005V interval.

Internal PLL Voltage [Auto]

Allows you to configure the offset for the Core PLL VCC Trim.

DRAM REF Voltage Control [Auto]

The subitems in this menu allows you to set the DRAM reference voltage on the control lines from the memory bus. You can use the <+> or <-> keys to adjust the value.

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.

Platform Misc Configuration

The items in this menu allow you to configure the platform-related features.

PCI Express Native Power Management [Disabled]

This item allows you to enhance the power saving feature of PCI Express and perform ASPM operations in the operating system. Configuration options: [Disabled] [Enabled]

The following item appears only when you set the PCI Express Native Power Management to **[Enabled]**.

Native ASPM [Disabled]

[Enabled]	Windows® Vista OS controls the ASPM (active state power management) support for devices.
[Disabled]	BIOS controls the ASPM support for the device.

PCH - PCI Express options

PCH DMI ASPM [Disabled]

This item allows you to enable/disable the PCH DMI ASPM settings. Configuration options: [Disabled] [Enabled]

ASPM [Disabled]

This item allows you to select the ASPM state for energy-saving conditions. Configuration options: [Disabled] [L0s] [L1] [L0sL1] [Auto]

SA - PCI Express options

DMI Link ASPM Control [Disabled]

This item allows you to control the Active State Power Management on both CPU and PCH (platform controller hub) Both DMI link ASPM control items of the CPU and PCH sides must be enabled for the ASPM to take effect. Configuration options: [Disabled] [L1]

PEG ASPM [Disabled]

This item allows you to select the ASPM state for energy-saving conditions, or use the ASUS optimized energy saving profile. Configuration options: [Disabled] [Auto] [ASPM L0s] [ASPM L1] [ASPM L0sL1]

CPU Configuration

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

The items shown in submenu may be different due to the CPU you installed.

Hyper-threading [Enabled]

The Intel Hyper-Threading Technology allows a hyper-threading processor to appear as two logical processors to the operating system, allowing the operating system to schedule two threads or processes simultaneously.

[Enabled] Two threads per activated core are enabled.

[Disabled] Only one thread per activated core is enabled.

Active Processor Cores [All]

This item allows you to select the number of CPU cores to activate in each processor package. Configuration options: [All] [1] [2] [3]

For some CPU types, only [**All**] and [**1**] appear.

Intel Virtualization Technology [Disabled]

When set to **[Enabled]**, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Configuration options: [Disabled] [Enabled]

Hardware Prefetcher [Enabled]

This item allows the CPU to prefetch commands and data in the L2 cache, reduces the DRAM loading time and improves the system performance. Configuration options: [Disabled] [Enabled]

Adjacent Cache Line Prefetch [Enabled]

This item allows the mid level cache (L2) to prefetch adjacent cache lines, reducing the DRAM loading time and improves the system performance. Configuration options: [Disabled] [Enabled]

SW Guard Extensions [Disabled]

This item enables/disables the Software Guard Extensions (SGX). Configuration options: [Disabled] [Software Controlled]

Tcc Offset Time Window [Auto]

This item allows you to specify the time window for the Running Average Temperature Limit (RATL) feature. Configuration options: [Auto] [Disabled] [5 ms] [10 ms] [55 ms] [156 ms] [375 ms] [500 ms] [750 ms] [1 sec]

CPU Power Management Control

This item allows you to manage and configure the CPU's power.

Intel(R) SpeedStep(tm) [Auto]

This item allows your system to support more than two frequency ranges. Configuration options: [Auto] [Disabled] [Enabled]

CPU C-States [Auto]

This item allows you to set the power saving of the CPU states.
Configuration options: [Auto] [Disabled] [Enabled]

The following items appear only when you set the CPU C-States to **[Enabled]**.

Enhanced C-States [Enabled]
This item allows your CPU to reduce power consumption when the system is in idle mode. Configuration options: [Enabled] [Disabled]
CPU C3 Report [Enabled]
This item allows you to disable or enable the CPU C3 report to the operating system. Configuration options: [Enabled] [Disabled]
CPU C6 Report [Enabled]
This item allows you to disable or enable the CPU C6 report to the operating system. Configuration options: [Enabled] [Disabled]
CPU C7 Report [Enabled]
This item allows you to disable or enable the CPU C7 report to the operating system. Configuration options: [Disabled] [CPU C7] [CPU C7s]
CPU C8 Report [Enabled]
This item allows you to disable or enable the CPU C8 report to the operating system. Configuration options: [Enabled] [Disabled]
Package C State limit [Auto]
This item allows you to set the a C-state support for the CPU package. Configuration options: [C0/C1] [C2] [C3] [C6] [C7] [C7s] [C8] [Auto] [Enabled]

CFG lock [Disabled]

This item allows you to enable or disable the CFG lock. Configuration options: [Disabled] [Enabled]

System Agent (SA) Configuration

VT-d [Enabled]

Allows you to enable or disable VT-d function on MCH. Configuration options: [Enabled] [Disabled]

Graphics Configuration

Allows you to select a primary display from CPU, PCIE and PCI graphical devices.

Primary Display [Auto]

Allows you to select the primary display from CPU, PCIE and PCI graphics devices. Configuration options: [Auto] [CPU Graphics] [PCIE] [PCI]

iGPU Multi-Monitor [Disabled]

This item allows you to empower both integrated and discrete graphics devices for the multi-monitor output. The CPU graphics shared system memory size is fixed at 64 MB. Configuration options: [Disabled] [Enabled]

RC6(Render Standby) [Enabled]

Allows you to enable or disable render standby support. Configuration options: [Disabled] [Enabled]

DVMT Pre-Allocated [64M]

Allows you to select the DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device. Configuration options: [32M] [64M] [96M] [128M] [160M] [192M] [224M] [256M] [288M] [320M] [352][384][416][448][480][512][1024]

DMI/OPI Configuration

This item allows you to control various DMI (direct media interface) to run at PCI-E 3.0 speed.

DMI Max Link Speed [Auto]

Allows you to configure the DMI speed. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

PEG Port Configuration

Allows you to configure the PEG Port settings.

PCIEx16_1 Link Speed [Auto]

Allows you to configure the PCIEx16 speed for slot 1. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

Memory Configuration

Allows you to configure the memory configuration parameters.

Memory Remap [Enabled]

Set this item to **[Enabled]** to support DRAM address remapping for 64-bit operating systems. Configuration options: [Enabled] [Disabled]

PCH Configuration

PCI Express Configuration

This item allows you to configure the PCI Express slots.

PCI-E Speed [Auto]

This item allows your system to automatically select the PCI Express port speed. When set to [Gen1], the PCI-E port runs at PCI-E 1.0 speed. When set to [Gen2], the PCI-E port runs at PCI-E 2.0 speed. Configuration options: [Auto] [Gen1] [Gen2]

IOAPIC 24-119 Entries [Enabled]

This item allows you to enable/disable the IOAPIC 24-119 Entries. IRQ24-119 may be used by PCH devices. Disabling those interrupts may cause certain devices to fail. Configuration options: [Enabled] [Disabled]

PCH Storage Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show Empty if no SATA device is installed to the corresponding SATA port.

Hyper Kit Mode [Disabled]

Disable this option for M.2 devices. Enable this option for ASUS Hyper Kit card. Configuration options: [Disabled] [Enabled]

SATA Controller(s) [Enabled]

This item allows you to enable or disable the SATA device. Configuration options: [Enabled] [Disabled]

SATA Mode Selection

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.
[Intel RST Premium With Intel Optane System Acceleration(RAID)]	Set to [Intel RST Premium With Intel Optane System Acceleration(RAID)] when you want to create a RAID configuration from the SATA hard disk drives.

Aggressive LPM Support [Disabled]

This item appears only when you set the previous item to [AHCI] or [RAID] and allows you to enable or disable PCH entering link power state aggressively. Configuration options: [Disabled] [Enabled]

SMART Self Test [On]

SMART (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]

Hot Plug [Disabled] (SATA6G_1 (Gray) ~ SATA6G_6(Gray))

These items allow you to enable/disable SATA Hot Plug Support. Configuration options: [Disabled] [Enabled]

PCH-FW Configuration

TPM Device Selection [Discrete TPM]

This item allows you to select the TPM device. Configuration options: [Discrete TPM] [Firmware TPM]

Onboard Devices Configuration

HD Audio Controller [Enabled]

This item allows you to use the Azalia High Definition Audio Controller. Configuration options: [Disabled] [Enabled]

The following items appear only when you set the HD Audio Controller item to **[Enabled]**.

DVI Port Audio [Disabled]

Allows you to enable or disable the DVI port audio function. Configuration options: [Enabled] [Disabled]

Depop [Enabled]

Configuration options: [Enabled] [Disabled]

M.2_1 Configuration: [Auto]

[Auto] Auto-detects the M.2 device mode. If a SATA device is detected, SATA6G_1 will be disabled.

[SATA mode] Only supports M.2 SATA devices. Please note that SATA6G_1 port cannot be used in this mode.

[PCIE mode] Only supports M.2 PCIE devices.

Asmedia USB 3.1 Controller [Enabled]

This item allows you to enable or disable the Asmedia USB 3.1 function. Configuration options: [Enabled] [Disabled]

RGB LED Lighting [On]

[On] The LEDs will always light up at the S0(Working), S3(Sleep), and S5(Soft off) states, but not light up at the S4/S5 state when the ErP Ready item is enabled.

[Off] The LEDs will not light up.

Intel LAN Controller [Enabled]

[Enabled] Enables the Intel LAN controller.

[Disabled] Disables the controller.

Intel PXE Option ROM [Off]

This item appears only when you set the previous item to [On] and allows you to enable or disable the PXE OptionRom of the Intel LAN controller. Configuration options: [On] [Off]

Serial Port Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port 1 [On]

Allows you to enable or disable the serial port (COM).Configuration options: [On] [Off]

Change Settings [IO=3F8h; IRQ=4]

This item appears only when you set the **Serial Port** to [On] and allows you to select the Serial Port base address. Configuration options: [IO=3F8h; IRQ=4] [IO=2F8h; IRQ=3] [IO=3E8h; IRQ=4] [IO=2E8h; IRQ=3]

APM Configuration

ErP Ready [Disabled]

Allows BIOS to switch off some power at S5 to get the system ready for ErP requirement. When set to [Enabled], all other PME options will be switched off.
Configuration options: [Enable(S4+S5)] [Enable(S5)] [Disabled]

Restore AC Power Loss [Power Off]

[Power On] The system goes into on state after an AC power loss.

[Power Off] The system goes into off state after an AC power loss.

[Last State] The system goes into either off or on state, whatever the system state was before the AC power loss.

Power On By PCI-E [Disabled]

This item allows you to enable or disable the Wake-on-LAN function of the onboard LAN controller or other installed PCIe LAN cards. Configuration options: [Disabled] [Enabled]

Power On By Ring [Disabled]

[Disabled] Disables Ring to generate a wake event.

[Enabled] Enables Ring to generate a wake event.

Power On By RTC [Disabled]

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]

Network Stack Configuration

Network Stack [Disabled]

This item allows user to disable or enable the UEFI network stack. Configuration options: [Disabled] [Enabled]

The following two items appear only when you set the previous item to [Enabled].

Ipv4 / Ipv6 PXE Support [Enabled]

This item allows you to enable or disable the Ipv4/Ipv6 PXE wake event. Configuration options: [Disable Link] [Enabled]

HDD/SSD SMART Information

This menu displays the SMART information of the connected devices.

USB Configuration

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

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

Legacy USB Support [Enabled]

[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 [Disabled]

[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.

CPU Temperature, MotherBoard Temperature, PCH Temperature, T_Sensor Temperature, EXT_Sensor 1/2/3 Temperature [xxx°C/xxx°F] or [Ignore]

The onboard hardware monitor automatically detects and displays the CPU and motherboard temperatures. Select **[Ignore]** if you do not wish to display the detected temperatures.

CPU Fan Speed, CPU Optional Fan Speed, Chassis Fan 1/2 Speed, Extension Fan 1/2/3 Speed [xxxx RPM] or [Ignore] / [Monitor]

The onboard hardware monitor automatically detects and displays the CPU, chassis and extension fan speeds in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select **[Ignore]** if you do not wish to display the detected speed.

CPU Core Voltage, CPU Graphics Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage, PCH Core Voltage, CPU System Agent Voltage, CPU VCCIO Voltage, DRAM Voltage, CPU Standby Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **[Ignore]** if you do not want to detect this item.

Q-Fan Configuration

The subitems in this menu allows you to configure the Q-Fan features.

Qfan Tuning

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

CPU Q-Fan Control [Auto]

[Auto]	Enables the CPU Q-Fan control for 4-pin CPU fan.
[Disabled]	Disables the CPU Q-Fan control feature.
[PWM Mode]	Enable the CPU Q-Fan control in PWM mode for 4-pin CPU fan.
[DC Mode]	Enable the CPU Q-Fan control in DC mode for 3-pin CPU fan.

CPU Fan Speed Lower Limit [200 RPM]

This item appears only when you enable the CPU Q-Fan Control feature and allows you to disable or set the CPU fan warning speed. Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600RPM]

CPU Fan Profile [Standard]

This item appears only when you enable the CPU Q-Fan Control feature and allows you to set the appropriate performance level of the CPU fan.

[Standard]	Sets to [Standard] to make the CPU fan automatically adjust depending on the CPU temperature.
[Silent]	Sets to [Silent] to minimize the fan speed for quiet CPU fan operation.
[Turbo]	Sets to [Turbo] to achieve maximum CPU fan speed.
[Manual]	Sets to [Manual] to assign detailed fan speed control parameters.

The following items appear only when you set **CPU Fan Profile** to [Manual].

CPU Upper Temperature [70]

Use the <+> and <-> keys to adjust the upper limit of the CPU temperature. The values range from 25ºC to 75ºC.

CPU Fan Max. Duty Cycle(%) [100]

Use the <+> and <-> keys to adjust the maximum CPU fan duty cycle. The values range from 20% to 100%. When the CPU temperature reaches the upper limit, the CPU fan will operate at the maximum duty cycle.

CPU Middle Temperature [25]

Use the <+> or <-> keys to set the value for CPU Middle Temperature. The range of the values depends on the CPU installed.

CPU Fan Middle Duty Cycle(%) [20]

Use the <+> or <-> keys to adjust the CPU fan middle duty cycle. The values range from 20% to 100%. When the CPU temperature reaches the upper limit, the CPU fan operates at the maximum duty cycle.

CPU Lower Temperature [25]

Use the <+> or <-> keys to adjust the CPU fan's lower temperature. The values range from 0°C to 75°C.

CPU Fan Min. Duty Cycle(%) [20]

Use the <+> and <-> keys to adjust the minimum CPU fan duty cycle. The values range from 20% to 100%. When the CPU temperature is under the lower limit, the CPU fan will operate at the minimum duty cycle.

Chassis Fan(s) Configuration

The subitems in this menu allows you to configure the chassis Q-Fan features.

Chassis Fan 1/2 Q-Fan Control [Auto]

[Auto]	Detect the type of chassis fan installed and automatically switch the control modes.
[PWM mode]	Enables the chassis Q-Fan control in PWM mode for the 4-pin chassis fan.
[DC mode]	Enables the chassis Q-Fan control in DC mode for the 3-pin chassis fan.
[Disabled]	Disables the chassis Q-Fan control feature.

The following items appear only when you set the Chassis Fan 1/2 Q-Fan Control to **[Auto], [PWM Mode],** or **[DC Mode]**.

Chassis Fan 1/2 Q-Fan Source [CPU]

This item controls the assigned fan according to the selected temperature source. Configuration options: [CPU] [Motherboard]

Chassis Fan 1/2 Speed Low Limit [200 RPM]

This item allows you to disable or set the chassis fan warning speed. Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600 RPM]

Chassis Fan 1/2 Profile [Standard]

This item allows you to set the appropriate performance level of the chassis fan.

[Standard]	Sets to [Standard] to make the chassis fan automatically adjust depending on the chassis temperature.
[Silent]	Sets to [Silent] to minimize the fan speed for quiet chassis fan operation.
[Turbo]	Sets to [Turbo] to achieve maximum chassis fan speed.
[Manual]	Sets to [Manual] to assign detailed fan speed control parameters.

The following four items appear only when you set **Chassis Fan 1/2 Profile** to [Manual].

Chassis Fan 1/2 Upper Temperature [70]

Use the <+> or <-> keys to adjust the upper limit of the CPU temperature. The values range from 0°C to 75°C.

Chassis Fan 1/2 Max. Duty Cycle(%) [100]

Use the <+> or <-> keys to adjust the maximum chassis fan duty cycle. The values range from 60% to 100%. When the chassis temperature reaches the upper limit, the chassis fan will operate at the maximum duty cycle.

Chassis Fan 1/2 Middle Temperature [45]

Use the <+> or <-> keys to set the value for Chassis Fan Middle Temperature.

Chassis Fan 1/2 Middle Duty Cycle(%) [60]

Use the <+> or <-> keys to adjust the chassis fan middle duty cycle. The values range from 60% to 100%.

Chassis Fan 1/2 Lower Temperature [40]

Use the <+> or <-> keys to adjust the chassis fans' lower temperature. The values range from 0°C to 75°C.

Chassis Fan 1/2 Min. Duty Cycle(%) [60]

Use the <+> or <-> keys to adjust the minimum chassis fan duty cycle. The values range from 60% to 100%. When the CPU temperature is under the lower limit, the chassis fan operates at the minimum duty cycle.

Ext. Fan(s) Configuration

The subitems in this menu allows you to configure the extension Q-Fan features.

Extension Fan 1/2/3 Q-Fan Control [DC Mode]

[PWM mode]	Enables the chassis Q-Fan control in PWM mode for the 4-pin chassis fan.
[DC mode]	Enables the chassis Q-Fan control in DC mode for the 3-pin chassis fan.
[Disabled]	Disables the chassis Q-Fan control feature.

The following items appear only when you set the Extension Fan 1/2/3 Q-Fan Control to **[PWM Mode]** or **[DC Mode]**.

Extension Fan 1/2/3 Q-Fan Source [CPU]

This item controls the assigned fan according to the selected temperature source. Configuration options: [CPU] [MotherBoard] [VRM] [PCH] [T_Sensor] [EXT_Sensor1] [EXT_Sensor2] [EXT_Sensor3]

Extension Fan 1/2/3 Speed Low Limit [300 RPM]

This item allows you to disable or set the extension fan warning speed. Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600 RPM]

Extension Fan 1/2/3 Profile [Standard]

This item allows you to set the appropriate performance level of the extension fan.

[Standard]	Sets to [Standard] to make the extension fan automatically adjust depending on the chassis temperature.
[Silent]	Sets to [Silent] to minimize the fan speed for quiet extension fan operation.
[Turbo]	Sets to [Turbo] to achieve maximum extension fan speed.
[Manual]	Sets to [Manual] to assign detailed fan speed control parameters.

The following items appear only when you set **Extension Fan 1/2/3 Profile** to [Manual].

Extension Fan 1/2/3 Upper Temperature [70]
Use the <+> or <-> keys to adjust the upper limit of the extension fan temperature. The values range from 20°C to 75°C.

Extension Fan 1/2/3 Max. Duty Cycle(%) [100]
Use the <+> or <-> keys to adjust the maximum extension fan duty cycle. The values range from 60% to 100%. When the chassis temperature reaches the upper limit, the extension fan will operate at the maximum duty cycle.

Extension Fan 1/2/3 Middle Temperature [45]
Use the <+> or <-> keys to set the value for Extension Fan Middle Temperature.

Extension Fan 1/2/3 Middle Duty Cycle(%) [60]
Use the <+> or <-> keys to adjust the extension fan middle duty cycle. The values range from 60% to 100%.

Extension Fan 1/2/3 Lower Temperature [40]
Use the <+> or <-> keys to adjust the extension fans' lower temperature. The values range from 0°C to 75°C.

Extension Fan 1/2/3 Min. Duty Cycle(%) [60]
Use the <+> or <-> keys to adjust the minimum extension fan duty cycle. The values range from 60% to 100%. When the CPU temperature is under the lower limit, the extension fan operates at the minimum duty cycle.

Allow Fan Stop [Disabled]
Allows the fan to run at 0% duty cycle when the temperature of the source is dropped below the lower temperature.

AIO PUMP Control [Disabled]

The subitems in this menu allows you to configure the AIO PUMP Control settings.

[PWM mode]	Enables the Q-Fan control feature in PWM mode for the 4-pin AIO pump fan.
[DC mode]	Enables the Q-Fan control feature in DC mode for the 3-pin AIO pump fan.
[Disabled]	Disables the Q-Fan control feature.

The following items appear only when you set the AIO PUMP Control to **[PWM Mode]** or **[DC Mode]**.

AIO PUMP Upper Temperature [70]

Use the <+> and <-> keys to adjust the upper limit of the AIO pump fan temperature. The values range from 25ºC to 75ºC.

AIO PUMP Max. Duty Cycle(%) [100]

Use the <+> and <-> keys to adjust the maximum AIO pump fan duty cycle. The values range from 20% to 100%. When the AIO pump fan temperature reaches the upper limit, the AIO pump fan will operate at the maximum duty cycle.

AIO PUMP Middle Temperature [25]

Use the <+> or <-> keys to set the value for AIO pump fan's middle temperature. The range of the values depends on the AIO pump installed.

AIO PUMP Middle Duty Cycle(%) [20]

Use the <+> or <-> keys to adjust the AIO pump fan middle duty cycle. The values range from 20% to 100%. When the AIO pump temperature reaches the upper limit, the AIO pump fan operates at the maximum duty cycle.

AIO PUMP Lower Temperature [20]

Use the <+> or <-> keys to adjust the AIO pump fan's lower temperature. The values range from 20°C to 75°C.

AIO PUMP Min. Duty Cycle(%) [20]

Use the <+> and <-> keys to adjust the minimum AIO pump fan duty cycle. The values range from 20% to 100%. When the AIO pump fan temperature is under the lower limit, the AIO pump fan operates at the minimum duty cycle.

3.8 Boot menu

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

Fast Boot [Enabled]

[Enabled] Select to accelerate the boot speed.

[Disabled] Select to go back to normal boot speed.

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

Next Boot after AC Power Loss [Normal Boot]

[Normal Boot] Returns to normal boot on the next boot after AC power loss.

[Fast Boot] Accelerates the boot speed on the next boot after AC power loss.

Boot Configuration

Boot Logo Display [Auto]

[Auto] Adjusts logo automatically based on Windows® display requrements.

[Full Screen] Maximize the boot logo size.

[Disabled] Hide the logo during POST.

POST Delay Time [3 sec]

This item appears only when you set Boot Logo Display to [Auto] and [Full Screen]. This item allows you to select the desired additional POST waiting time to easily enter the BIOS setup. You can only execute the POST delay time during Normal Boot. The values range from 0 to 10 seconds.

This feature will only work under normal boot.

Post Report [5 sec]

This item appears only when you set Boot Logo Display to [Disabled]. This item allows you to select a desired post report waiting time. Configuration options: [1 sec] ~ [10 sec] [Until Press ESC].

Bootup NumLock State [Enabled]

This item allows you to enable or disable power-on state of the NumLock. Configuration options: [Disabled] [Enabled]

Wait for 'F1' If Error [Enabled]

When this item is set to [Enabled], the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

Option ROM Messages [Force BIOS]

[Force BIOS] The third-party ROM messages will be forced to display during the boot sequence.

[Keep Current] The third-party ROM messages will be displayed only if the third-party manufacturer had set the add-on device to do so.

Interrupt 19 Capture [Disabled]

This item allows you to trap Interrupt 19 by the option ROMs. Configuration options: [Disabled] [Enabled]

Setup Mode [EZ 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)

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 [Enabled]

[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 Windows® Security Update and Security Boot.

The following four items appear when you set Launch CSM to [Enabled].

Boot Device Control [UEFI and Legacy OPROM]

Allows you to select the type of devices that you want to boot up. Configuration options: [UEFI and Legacy OPROM] [Legacy OPROM only] [UEFI only]

Boot from Network Devices [Legacy only]

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 [Legacy Only]

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 Expansion Devices [Legacy Only]

Allows you to select the type of PCI-E expansion devices that you want to launch. Configuration options: [Legacy only] [UEFI driver first]

Secure Boot

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

OS Type [Other OS]

Allows you to select your installed operating system.

[Windows UEFI mode]	This item allows you to select your installed operating system. Execute the Microsoft® Secure Boot check. Only select this option when booting on Windows® UEFI mode or other Microsoft® Secure Boot compliant OS.
[Other OS]	Get the optimized function when booting on Windows® non-UEFI mode. Microsoft® Secure Boot only supports Windows® UEFI mode.

Key Management

This allows you to manage the Secure Boot keys.

Clear Secure Boot keys

This item appears only when you load the default Secure Boot keys. This item allows you to clear all the previously applied Secure Boot keys.

Save Secure Boot variables

This item allows you to save all the Secure Boot keys to a USB storage device.

PK Management

The Platform Key (PK) locks and secures the firmware from any non-permissible changes. The system verifies the PK before your system enters the OS.

Save to File
This item allows you to save the downloaded PK to a USB storage device.
Set New Key
This item allows you to load the downloaded PK from a USB storage device.

The PK file must be formatted as a UEFI variable structure with time-based authenticated variable.

Delete Key
This item allows you to delete the PK from your system. Once the PK is deleted, all the system's Secure Boot keys will not be active.

KEK Management

The KEK (Key-exchange Key or Key Enrollment Key) manages the Signature database (db) and Revoked Signature database (dbx).

Key-exchange Key (KEK) refers to Microsoft® Secure Boot Key-Enrollment Key (KEK).

Save to File
Allows you to save the downloaded KEK to a USB storage device.
Set New Key
Allows you to load the downloaded KEK from a USB storage device.
Append Key
Allows you to load the additional KEK from a storage device for an additional db and dbx loaded management.

The KEK file must be formatted as a public key certificate or UEFI variable structure with time-based authenticated variable.

Delete key
Allows you to delete the Key from your system. Configuration options: [Yes] [No]

DB Management

The db (Authorized Signature database) lists the signers or images of UEFI applications, operating system loaders, and UEFI drivers that you can load on the single computer.

Save to File
Allows you to save the downloaded db to a USB storage device.
Set New Key
Allows you to load the downloaded db from a USB storage device.
Append Key
Allows you to load the additional KEK from a storage device for an additional db and dbx loaded management.

The db file must be formatted as a UEFI variable structure with time-based authenticated variable. DBX Management

Delete Key
Allows you to delete the db file from your system.
Configuration options: [Yes] [No]

DBX Management

The DBX (Revoked Signature database) lists the forbidden images of db items that are no longer trusted and cannot be loaded.

Save to File
Allows you to load the downloaded dbx to a USB storage device.

Set New Key
Allows you to load the downloaded dbx from a USB storage device.

Append Key
Allows you to load the additional KEK from a storage device for an additional db and dbx loaded management.

The dbx file must be formatted as a UEFI variable structure with time-based authenticated variable.

Delete key
Allows you to delete the Key from your system. Configuration options: [Yes] [No]

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 select the boot device during system startup, press <F8> when 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.

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 **3.11.2 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.

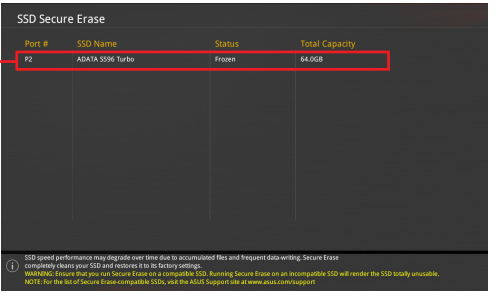
Secure Erase is only available in AHCI mode. Ensure to set the SATA mode to AHCI. Click **Advanced > PCH Storage Configuration > SATA Mode Selection > AHCI.**

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

Check the ASUS support site for a full list of SSDs tested with Secure Erase. The drive may become unstable if you run Secure Erase on an incompatible SSD.

- 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 Intel SATA port. For more information about Intel SATA ports, refer to section **1.1.2 Motherboard layout** of this manual.

Displays the available SSDs



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 Setup Animator

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

Configuration options: [Enabled] [Disabled]

3.9.4 ASUS Overclocking Profile

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

Load 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.

3.9.5 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.

Bus Interface

This item allows you to select the bus interface.

Configuration options: [PCIEX16_1] [PCIEX16_2]

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. You can access the EZ Mode from the Exit menu.

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 and 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 DVD or a USB flash 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 DVD that comes with the motherboard package.

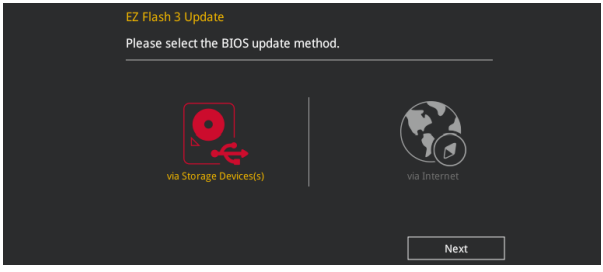
3.11.2 ASUS EZ Flash 3

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.

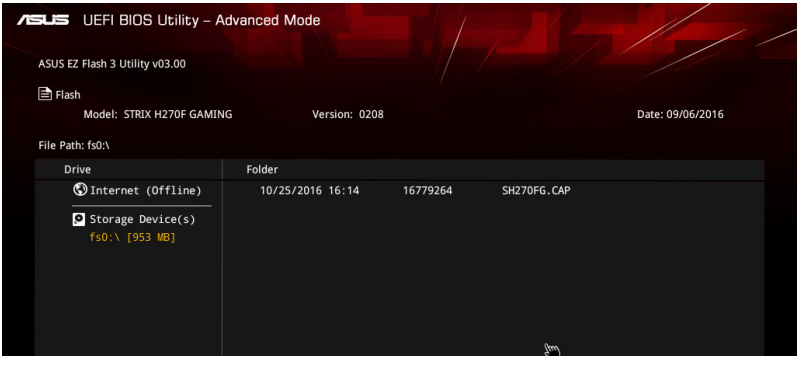
Updating through the Internet varies per region and Internet conditions. Check your local Internet connection before updating through the Internet.

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 Utility** and press <Enter>.
2. Insert the USB flash disk that contains the latest BIOS file to the USB port.
3. Select **by USB.**



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.

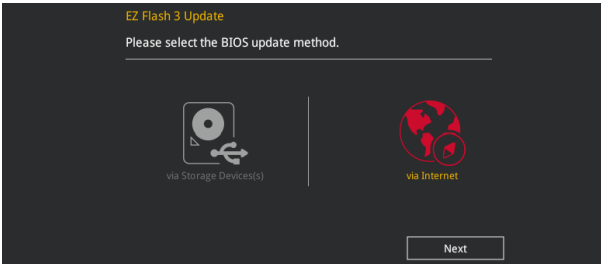


- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

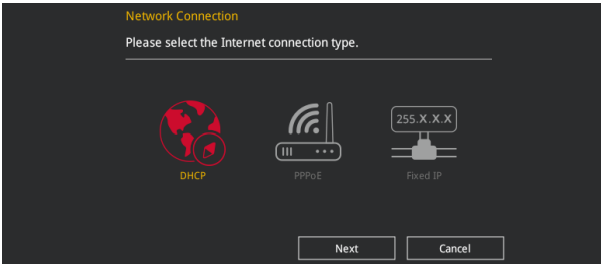
Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. See section **3.10 Exit Menu** for details.

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 Utility** and press <Enter>.
2. Select **by 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 DVD or a USB flash drive that contains the BIOS file.

The BIOS file in the motherboard support DVD 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 DVD to the optical 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 RAID configurations

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

If you want to install a Windows® operating system to a hard disk drive included in a RAID set, you have to create a RAID driver disk and load the RAID driver during OS installation. Refer to section **4.2 Creating a RAID driver disk** for details.

4.1.1 RAID definitions

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

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

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

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

4.1.2 Installing Serial ATA hard disks

The motherboard supports Serial ATA hard disk drives. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

To install the SATA hard disks for a RAID configuration:

1. Install the SATA hard disks into the drive bays.
2. Connect the SATA signal cables.
3. Connect a SATA power cable to the power connector on each drive.

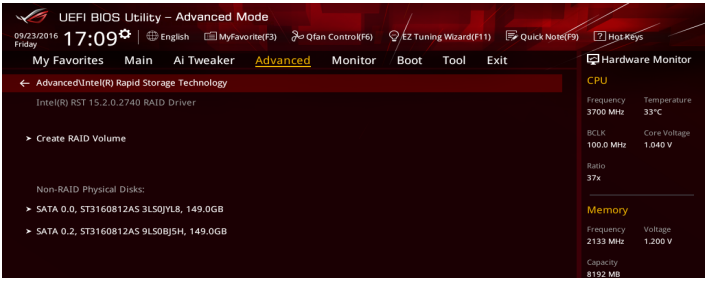
4.1.3 Intel® Rapid Storage Technology in UEFI BIOS

To enter the Intel® Rapid Storage Technology in UEFI BIOS:

1. Enter the BIOS Setup during POST.
2. Go to the **Advanced** menu > **PCH Storage Configuration**, then press <Enter>.
3. Set the SATA Controller Mode Selection item to **[Intel RST Premium With Intel Optane System Acceleration (RAID)]**.
4. Go to the **Boot** menu > **CSM (Compatibility Support Module)** > **Launch CSM**, then set the item to **[Disabled]**.
5. Save your changes and exit the BIOS Setup, then enter the BIOS Setup again.
6. Go to the **Advanced** menu > **Intel(R) Rapid Storage Technology**, then press <Enter> to display the Intel® Rapid Storage Technology menu.

Refer to Chapter 3 for details on entering and navigating through the BIOS Setup

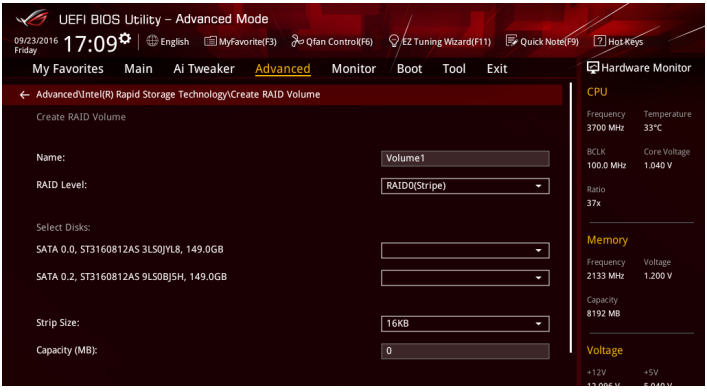
Due to chipset limitation, when SATA ports are set to RAID mode, all SATA ports run at RAID mode together.



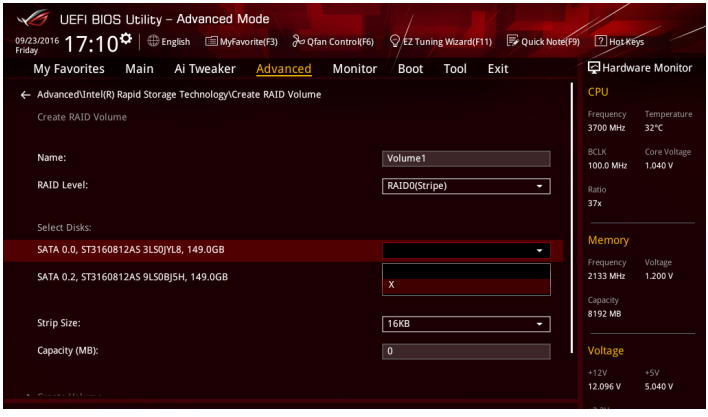
Creating a RAID set

To create a RAID set:

1. From the Intel® Rapid Storage Technology menu, select **Create RAID Volume** and press <Enter>. The following screen appears:



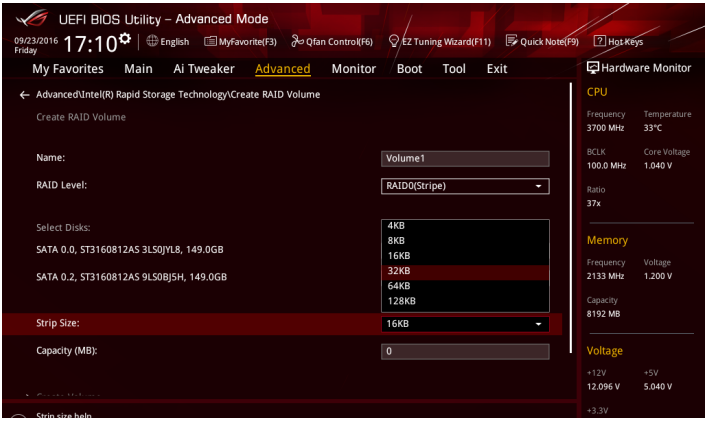
2. When the Name item is selected, enter a name for the RAID set and press <Enter>.
3. When the RAID Level item is selected, press <Enter> to select the RAID level to create, and then press <Enter>.
4. Under Select Disks, press <Enter> and select **X** for the disks you want to include in the RAID set.



5. When the Strip Size item is selected, press <Enter> to select strip size for the RAID array (for RAID 0, 10 and 5 only), and then press <Enter>. The available strip size values range from 4 KB to 128 KB. The following are typical values:

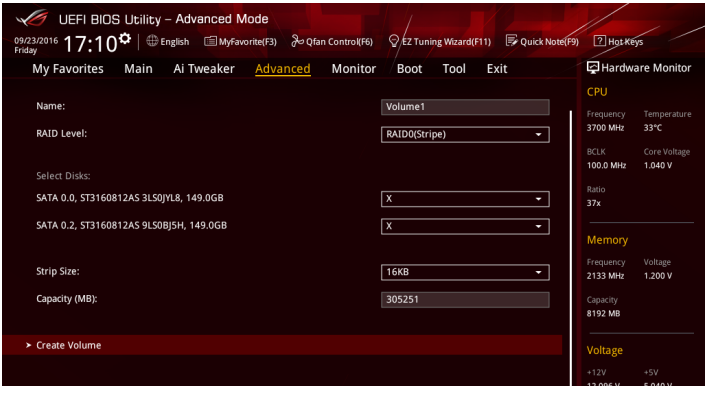
   - RAID 0: 128 KB
   - RAID 10: 64 KB
   - RAID 5: 64 KB

We recommend a lower strip size for server systems, and a higher strip size for multimedia computer systems used mainly for audio and video editing.



6. When the **Capacity (MB)** item is selected, enter the RAID volume capacity that you want and press <Enter>. The default value indicates the maximum allowed capacity.

7. When the **Create Volume** item is selected, press <Enter> to create the RAID volume and return to the Intel® Rapid Storage Technology menu.

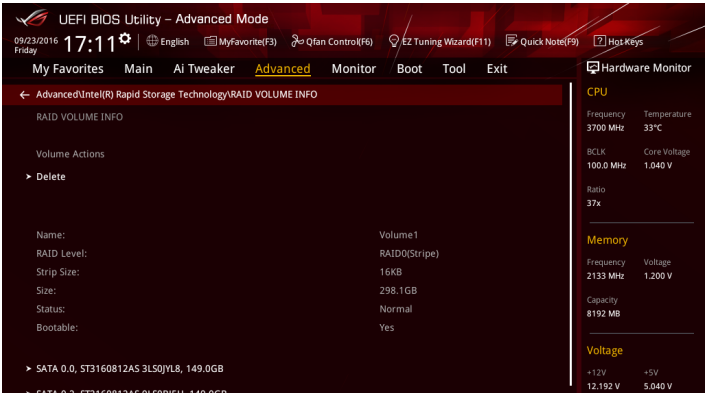


Deleting a RAID set

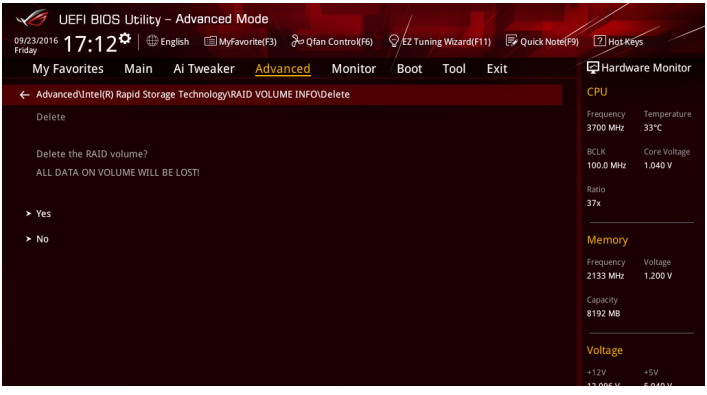
Be cautious when deleting a RAID set. You will lose all data on the hard disk drives when you delete a RAID set.

To delete a RAID set:

1. From the Intel® Rapid Storage Technology menu, select the RAID volume you want to delete and press <Enter>. The following screen appears:



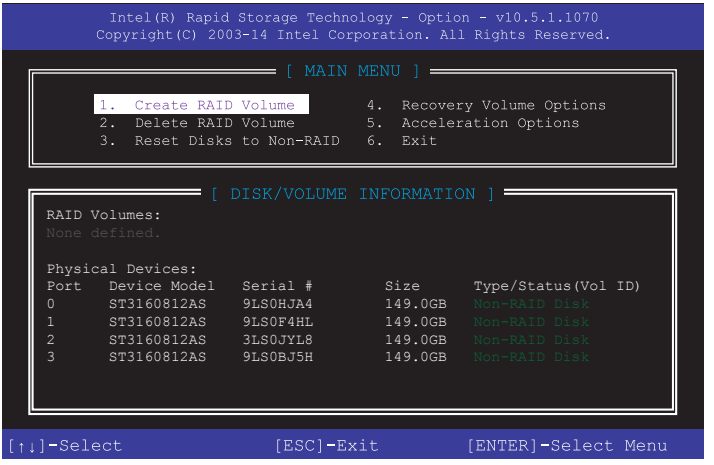
2. When the **Delete** item is selected, press <Enter>, then select **Yes** to delete the RAID volume and return to the Intel® Rapid Storage Technology menu, or select **No** to cancel.



4.1.4 Intel® Rapid Storage Technology Option ROM utility

To enter the Intel® Rapid Storage Technology Option ROM utility:

1. Turn on the system.
2. During POST, press <Ctrl> + <I> to display the utility main menu.



The navigation keys at the bottom of the screen allow you to move through the menus and select the menu options.

The RAID BIOS setup screens shown in this section are for reference only and may not exactly match the items on your screen.

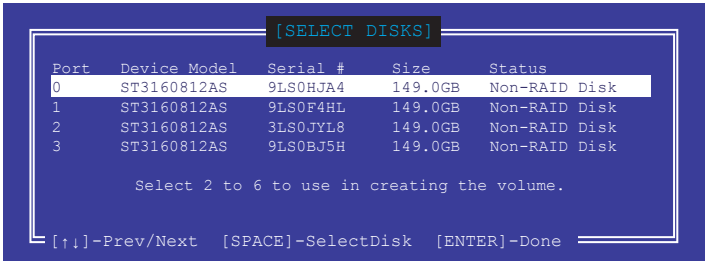
The utility supports maximum four hard disk drives for RAID configuration.

Creating a RAID set

To create a RAID set:

1. From the utility main menu, select **1. Create RAID Volume** and press <Enter>. The following screen appears:

2. Enter a name for the RAID set and press <Enter>.
3. When the RAID Level item is selected, press the up/down arrow key to select a RAID level to create, and then press <Enter>.
4. When the Disks item is selected, press <Enter> to select the hard disk drives you want to include in the RAID set. The SELECT DISKS screen appears:



5. Use the up/down arrow key to select a drive, and then press <Space> to select. A small triangle marks the selected drive. Press <Enter> after completing your selection.

6. Use the up/down arrow key to select the strip size for the RAID array (for RAID 0, 10 and 5 only),and then press <Enter>. The available strip size values range from 4KB to 128KB. The following are typical values:

   - RAID 0: 128KB
   - RAID 10: 64KB
   - RAID 5: 64KB

We recommend a lower strip size for server systems, and a higher strip size for multimedia computer systems used mainly for audio and video editing.

7. When the **Capacity** item is selected, enter the RAID volume capacity that you want and press <Enter>. The default value indicates the maximum allowed capacity.

8. When the **Create Volume** item is selected, press <Enter>. The following warning message appears:

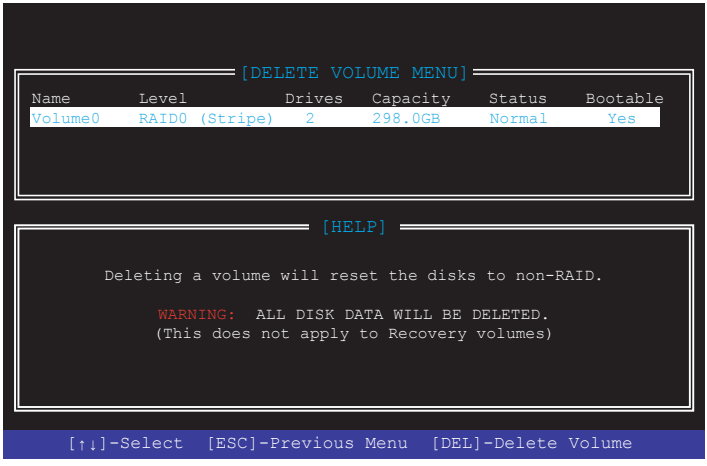
9. Press <Y> to create the RAID volume and return to the main menu, or <N> to go back to the CREATE VOLUME menu.

Deleting a RAID set

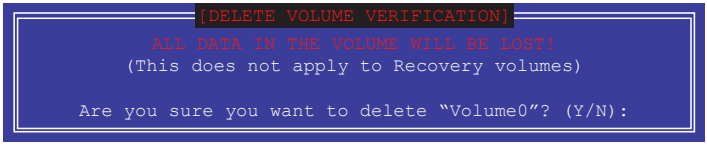
Be cautious when deleting a RAID set. You will lose all data on the hard disk drives when you delete a RAID set.

To delete a RAID set:

1. From the utility main menu, select **2. Delete RAID Volume** and press <Enter>. The following screen appears:



2. Use the up/down arrow key to select the RAID set you want to delete, and then press <Delete>. The following warning message appears:

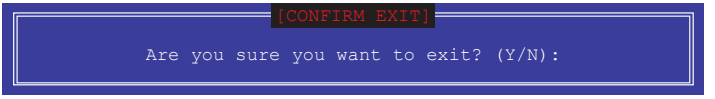


3. Press <Y> to delete the RAID set and return to the utility main menu, or press <N> to return to the DELETE VOLUME menu.

Exiting the Intel® Rapid Storage Technology Option ROM utility

To exit the utility:

1. From the utility main menu, select **5. Exit**, and then press <Enter>. The following warning message appears:



2. Press <Y> to exit or press <N> to return to the utility main menu.

4.2 Creating a RAID driver disk

4.2.1 Creating a RAID driver disk in Windows®

To install the RAID driver for Windows® OS:

1. During the OS installation, click **Load Driver** to allow you to select the installation media containing the RAID driver.
2. Insert the support USB drive with RAID driver into the USB port, and then click **Browse**.
3. Click the name of the device you've inserted, go to **Drivers** > **RAID**, and then select the RAID driver for the corresponding OS version. Click **OK**.
4. Follow the succeeding screen instructions to complete the installation.

To set up a Windows® UEFI operating system under RAID mode, ensure to load the UEFI driver for your optical drive.

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.

IC: Canadian Compliance Statement

Complies with the Canadian ICES-003 Class B specifications. This device complies with RSS 210 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.

This device complies with Industry Canada license 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.

Cut appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada. Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Cet appareil est conforme aux normes CNR exemptes de licence d'Industrie Canada. Le fonctionnement est soumis aux deux conditions suivantes :

(1) cet appareil ne doit pas provoquer d'interférences et

(2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

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! This product may contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

RF Equipment Notices

CE: European Community Compliance Statement

The equipment complies with the RF Exposure Requirement 1999/519/EC, Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0–300 GHz). This wireless device complies with the R&TTE Directive.

Wireless Radio Use

This device is restricted to indoor use when operating in the 5.15 to 5.25 GHz frequency band.

Exposure to Radio Frequency Energy

The radiated output power of the Wi-Fi technology is below the FCC radio frequency exposure limits. Nevertheless, it is advised to use the wireless equipment in such a manner that the potential for human contact during normal operation is minimized.

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

無線設備的警告聲明
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が、当社は一切責任を負いかねますのでご了承ください。

Google™ License Terms

English ASUSTeK Computer Inc. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. Full text of EU declaration of conformity is available at: www.asus.com/support

This device may be operated in the countries listed below:

Français AsusTek Computer Inc. déclare par la présente que cet appareil est conforme aux critères essentiels et autres clauses pertinentes de la directive 1999/5/EC. La déclaration de conformité de l'UE peut être téléchargée à partir du site Internet suivant: www.asus.com/support.

Cet appareil peut être utilisé dans les pays de la liste ci-dessous:

Deutsch ASUSTeK Computer Inc. erklärt hiermit, dass dieses Gerät mit den wesentlichen Anforderungen und anderen relevanten Bestimmungen der Richtlinie 1999/5/EC übereinstimmt. Der gesamte Text der EU-Konformitätserklärung ist verfügbar unter: www.asus.com/support

Dieses Gerät darf in den unten aufgeführten Ländern betrieben werden:

Italiano ASUSTeK Computer Inc. con la presente dichiara che questo dispositivo è conforme ai requisiti essenziali e alle altre disposizioni pertinenti con la direttiva 1999/5/EC. Il testo completo della dichiarazione di conformità UE è disponibile all'indirizzo: www.asus.com/support

Questo dispositivo può essere utilizzato nei paesi elencati qui di seguito:

Русский Компания ASUS заявляет, что это устройство соответствует основным требованиям и другим соответствующим условиям европейской директивы 1999/5/EC. Подробную информацию, пожалуйста, смотрите на www.asus.com/support

Это устройство может работать в странах, которые приведены ниже:

Български С настоящото ASUSTeK Computer Inc. декларира, че това устройство е в съответствие със съществените изисквания и другите приложими постановления на Директива 1999/5/EC. Пълният текст на декларацията за съответствие на ЕС е достъпна на адрес: www.asus.com/support

Устройството може да се използва във всички страни, посочени по-долу:

Hrvatski ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj sukladan s bitnim zahtjevima i ostalim odgovarajućim odredbama direktive 1999/5/EZ. Cijeli tekst EU izjave o sukladnosti dostupan je na: www.asus.com/support

Ovaj uređaj može se koristiti u dolje navedenim zemljama:

Čeština Společnost ASUSTeK Computer Inc. tímto prohlašuje, že toto zařízení splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/ EC. Plné znění prohlášení o shodě EU je k dispozici na adrese: www.asus.com/support

Toto zařízení lze používat v níže uvedených zemích:

Dansk ASUSTeK Computer Inc. erklærer hermed, at denne enhed er i overensstemmelse med hovedkravene og andre relevante bestemmelser i direktivet 1999/5/EC. Hele EU-overensstemmelseserklæringen kan findes på: www.asus.com/support

Denne enhed kan bruges i landene, der står på listen nedenfor:

Nederlands ASUSTeK Computer Inc. verklaart hierbij dat dit apparaat voldoet aan de essentiële vereisten en andere relevante bepalingen van de verwante richtlijnen 1999/5/EC. De volledige tekst van de EU-verklaring van conformiteit is beschikbaar op: www.asus.com/support

Dit apparaat kan worden gebruikt in de hieronder vermelde landen:

Eesti Käesolevaga kinnitab ASUSTeK Computer Inc, et see seade vastab Direktiivi 1999/5/EÜ asjakohaste direktiivide oluliste nõuetele ja teistele asjassepuutuvatele sätetele. EL vastavusdeklaratsiooni täielik tekst on saadaval järgmisel aadressil: www.asus.com/support

Seda seadet võib kasutada alltoodud riikides:

Suomi ASUSTeK Computer Inc. ilmoittaa täten, että tämä laite on on EY-direktiivin 1999/5/ olennaisten vaatimusten ja muiden tätä koskevien säädösten mukainen. EU-yhdenmukaisuusilmoituksen koko teksti on luettavissa osoitteessa: www.asus.com/support

Tätä laitetta voidaan käyttää alla luetelluissa maissa:

Ελληνικά Με το παρόν, η AsusTek Computer Inc. δηλώνει ότι αυτή η συσκευή συμμορφώνεται με τις θεμελιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/ΕΕ. Το πλήρες κείμενο της δήλωσης συμβατότητας είναι διαθέσιμο στη διεύθυνση: www.asus.com/support

Αυτή η συσκευή μπορεί να λειτουργήσει στις χώρες που αναφέρονται στη λίστα που ακολουθεί:

Magyar Az ASUSTeK Computer Inc. ezennel kijelenti, hogy ez az eszköz megfelel az 1999/5/EK Irányelv lényeges követelményeinek és egyéb vonatkozó rendelkezéseinek. Az EU megfelelőségi nyilatkozat teljes szövege innen letölthető: www.asus.com/support

Az eszköz az alább felsorolt országokban működtethető:

Latviski „ASUSTeK Computer Inc." šiuo tvirtina, kad šis įrenginys atitinka pagrindinius reikalavimus ir kitas svarbias Direktyvos 1999/5 EB nuostatas. Visą ES atitikties deklaracijos tekstą galima rasti: www.asus.com/support

Šo ierīci var lietot tālāk norādītajās valstīs:

Lietuvių ASUSTeK Computer Inc. ar šo paziņo, ka šī ierīce atbilst Direktīvas 1999/5/ EK būtiskajām prasībām un citiem citiem saistošajiem nosacījumiem. Pilns ES atbilstības paziņojuma teksts pieejams šeit: www.asus.com/support

Šį įrenginį galima naudoti toliau išvardytose šalyse:

Norsk ASUSTeK Computer Inc. erklærer herved at denne enheten er i samsvar med hovedsaklige krav og andre relevante forskrifter i direktivet 1999/5/EF. Fullstendig tekst for EU-samsvarserklæringen finnes på: www.asus.com/support

Enheten kan brukes i landene under:

Polski Firma ASUSTeK Computer Inc. niniejszym oświadcza, że urządzenie to jest zgodne z zasadniczymi wymogami i innymi właściwymi postanowieniami dyrektywy 1999/5/WE. Pełny tekst deklaracji zgodności UE jest dostępny pod adresem: www.asus.com/support

Urządzenie to może być używane w wymienionych poniżej krajach:

Português A ASUSTeK Computer Inc. declara que este dispositivo está em conformidade com os requisitos essenciais e outras disposições relevantes da Diretiva 1999/5/CE. Texto integral da declaração da UE disponível em: www.asus.com/support

Este dispositivo pode ser utilizado nos países indicados abaixo:

Română ASUSTeK Computer Inc. declară că acest dispozitiv se conformează cerinţelor esenţiale şi altor prevederi relevante ale Directivei 1999/5/CE. Textul complet al declaraţiei de conformitate a Uniunii Europene se găseşte la: www.asus.com/support

Puteţi utiliza acest dispozitiv în ţările următoare:

Srpski ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj u saglasnosti sa osnovnim zahtevima i drugim relevantnim odredbama Direktive 1999/5/EC. Pun tekst EU deklaracije o usaglašenosti je dostupan da adresi: www.asus.com/support

Ovaj uređaj može da se koristi u državama navedenim ispod:

Slovensky Spoločnosť ASUSTeK Computer Inc. týmto vyhlasuje, že toto zariadenie vyhovuje základným požiadavkám a ostatým príslušným ustanoveniam smernice 1999/5/ES. Celý text vyhlásenia o zhode pre štáty EÚ je dostupný na adrese: www.asus.com/support

Toto zariadenie môže byť prevádzkované v dolu uvedených krajinách:

Slovenščina ASUSTeK Computer Inc. izjavlja, da je ta naprava skladna z bistvenimi zahtevami in drugimi ustreznimi določbami Direktive 1999/5/ES. Celotno besedilo EU-izjave o skladnosti je na voljo na spletnem mestu: www.asus.com/support

To napravo je mogoče uporabljati v spodaj navedenih državah:

Español Por la presente, ASUSTeK Computer Inc. declara que este dispositivo cumple los requisitos básicos y otras disposiciones pertinentes de la directiva 1999/5/ EC. El texto completo de la declaración de la UE de conformidad está disponible en: www.asus.com/support

Este dispositivo se puede utilizar en los países enumerados a continuación:

Svenska ASUSTeK Computer Inc. förklarar härmed att denna enhet överensstämmer med de grundläggande kraven och andra relevanta föreskrifter i direktiv 1999/5/EG. Fulltext av EU-försäkran om överensstämmelse finns på: www.asus.com/support

Denna enhet kan användas i följande länder:

Українська ASUSTeK Computer Inc. заявляє, що цей пристрій відповідає основним вимогам та іншим відповідним положенням Директиви 1999/5/ЕС. Повний текст декларації відповідності стандартам ЄС доступний на: www.asus.com/support

Цей пристрій можна експлуатувати у країнах зі списку нижче:

Türkçe AsusTek Computer Inc., bu aygıtın temel gereksinimlerle ve 1999/5/EC Yönergesinin diğer ilgili koşullarıyla uyumlu olduğunu beyan eder. AB uygunluk bildiriminin tam metni şu adreste bulunabilir: www.asus.com/support

Bu aygıt aşağıda listelenen ülkelerde çalıştırılabilir:

Bosanski ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj usklađen sa bitnim zahtjevima i ostalim odgovarajućim odredbama direktive 1999/5/EC. Cijeli tekst EU izjave o usklađenosti dostupan je na: www.asus.com/support

Ovaj uređaj može se koristiti u dolje navedenim zemljama:

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

ASUS contact information

ASUSTeK COMPUTER INC.

Address	4F, No. 150, Li-Te Road, Peitou, Taipei 112, Taiwan
Telephone	+886-2-2894-3447
Fax	+886-2-2890-7798
Web site	www.asus.com

Technical Support

Telephone	+86-21-38429911
Fax	+86-21-5866-8722, ext. 9101#
Online support	http://qr.asus.com/techserv

ASUS COMPUTER INTERNATIONAL (America)

Address	800 Corporate Way, Fremont, CA 94539, USA
Telephone	+1-510-739-3777
Fax	+1-510-608-4555
Web site	http://www.asus.com/us/

Technical Support

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

ASUS COMPUTER GmbH (Germany and Austria)

Address	Harkort Str. 21-23, 40880 Ratingen, Germany
Fax	+49-2102-959931
Web site	http://www.asus.com/de
Online contact	http://eu-rma.asus.com/sales

Technical Support

Telephone	+49-2102-5789555
Support Fax	+49-2102-959911
Online support	http://qr.asus.com/techserv

EU Declaration of Conformity

IN SEARCH OF INCREDIBLE

We, the undersigned,

Manufacturer:	ASUSTeK COMPUTER INC.
Address:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Authorized representative in Europe:	ASUS COMPUTER GmbH
Address, City:	HARKORT STR. 21-23, 40880 RATINGEN
Country:	GERMANY

declare the following apparatus:

Product name :	**Motherboard**
Model name :	**STRIX H270F GAMING**

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

☒ **EMC – Directive 2004/108/EC (until April 19th, 2016) and Directive 2014/30/EU (from April 20th, 2016)**

☒ EN 55022:2010+AC:2011	☒ EN 55024:2010
☒ EN 55032:2012+AC:2013	☒ EN 61000-3-3:2013
☒ EN 61000-3-2:2014	☐ EN 55020:2007+A11:2011
☐ EN 55013:2001+A1:2003+A2:2006	

☐ **R&TTE – Directive 1999/5/EC**

☐ EN 300 328 V1.8.1(2012-06)	☐ EN 301 489-1 V1.9.2(2011-09)
☐ EN 300 440-1 V1.6.1(2010-08)	☐ EN 301 489-3 V1.6.1(2013-12)
☐ EN 300 440-2 V1.4.1(2010-08)	☐ EN 301 489-4 V2.1.1(2013-12)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V6.2.1(2013-04)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V6.2.1(2013-10)	☐ EN 301 489-17 V2.2.1(2012-09)
☐ EN 301 908-13 V6.2.1(2014-02)	☐ EN 301 489-24 V1.5.1(2010-09)
☐ EN 301 893 V1.7.1(2012-06)	☐ EN 301 357-2 V1.4.1(2008-11)
☐ EN 300 330-2 V1.5.1(2010-02)	☐ EN 302 291-2 V1.1.1(2005-07)
☐ EN 50360:2001/A1:2012	☐ EN 302 623 V1.1.1(2009-01)
☐ EN 62479:2010	☐ EN 50566:2013/AC:2014
☐ EN 62311:2008	☐ EN 50385:2002

☒ **LVD – Directive 2006/95/EC (until April 19th, 2016) and Directive 2014/35/EU (from April 20th, 2016)**

☐ EN 60950-1: 2006 / A12: 2011	☐ EN 60065:2002 / A12: 2011
☒ EN 60950-1: 2006 / A2: 2013	

☐ **Ecodesign – Directive 2009/125/EC**

☐ Regulation (EC) No. 1275/2008	☐ Regulation (EC) No. 278/2009
☐ Regulation (EC) No. 642/2009	☐ Regulation (EU) No. 617/2013

☒ **RoHS – Directive 2011/65/EU** Ver. 160217

☒ **CE marking**

☒ **Equipment Class 1**

CE (EU conformity marking)

Signature	**Taipei, Taiwan** Place of issue
Jerry Shen Printed Name	**16/11/2016** Date of issue
CEO Position	**2016** Year CE marking was first affixed

DECLARATION UE DE CONFORMITE

IN SEARCH OF INCREDIBLE

Nous, soussignés

Fabricant:	ASUSTeK COMPUTER INC.
Adresse:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Représentant autorisé en Europe:	ASUS COMPUTER GmbH
Adresse, ville:	HARKORT STR. 21-23, 40880 RATINGEN
Pays:	GERMANY

Déclarons l'appareil suivant:

Nom du produit :	**Motherboard**
Nom du modèle :	**STRIX H270F GAMING**

L'objet de la déclaration décrit ci-dessus est conforme avec la législation d'harmonisation de l'Union applicable

☒ **Directive CEM 2004/108/CE (jusqu'au 19 avril 2016) et la directive 2014/30/UE (à partir du 20 avril 2016)**

☒ EN 55022:2010+AC:2011	☒ EN 55024:2010
☒ EN 55032:2012+AC:2013	☒ EN 61000-3-3:2013
☒ EN 61000-3-2:2014	☐ EN 55020:2007+A11:2011
☐ EN 55013:2001+A1:2003+A2:2006	

☐ **Directive R&TTE 1999/5/CE**

☐ EN 300 328 V1.8.1(2012-06)	☐ EN 301 489-1 V1.9.2(2011-09)
☐ EN 300 440-1 V1.6.1(2010-08)	☐ EN 301 489-3 V1.6.1(2013-12)
☐ EN 300 440-2 V1.4.1(2010-08)	☐ EN 301 489-4 V2.1.1(2013-12)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V6.2.1(2013-04)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V6.2.1(2013-10)	☐ EN 301 489-17 V2.2.1(2012-09)
☐ EN 301 908-13 V6.2.1(2014-02)	☐ EN 301 489-24 V1.5.1(2010-09)
☐ EN 301 893 V1.7.1(2012-06)	☐ EN 301 357-2 V1.4.1(2008-11)
☐ EN 300 330-2 V1.5.1(2010-02)	☐ EN 302 291-2 V1.1.1(2005-07)
☐ EN 50360:2001/A1:2012	☐ EN 302 623 V1.1.1(2009-01)
☐ EN 62479:2010	☐ EN 50566:2013/AC:2014
☐ EN 62311:2008	☐ EN 50385:2002

☒ **Directive LVD 2006//125/CE (jusqu'au 19 avril 2016) et la directive 2014/34/UE (à partir du 20 avril 2016)**

☐ EN 60950-1: 2006 / A12: 2011	☐ EN 60065:2002 / A12: 2011
☒ EN 60950-1: 2006 / A2: 2013	

☐ **Directive écoconception 2009/125/CE**

☐ Regulation (CE) No. 1275/2008	☐ Regulation (CE) No. 278/2009
☐ Regulation (CE) No. 642/2009	☐ Regulation (UE) No. 617/2013

☒ **Directive RoHS 2011/65/UE** Ver. 160217

☒ **Marquage CE**

☒ **Equipement de classe 1**

CE (Marquage UE de conformité)

Signature	**Taipei, Taiwan** Lieu de délivrance
Jerry Shen Nom en caractères d'imprimerie	**16/11/2016** Date d'Emission
CEO Position	**2016** Année où commence l'apposition du marquage CE

UE Declaración de Conformidad

Nosotros, los abajo firmantes,

Fabricante:	ASUSTeK COMPUTER INC.
Dirección:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Representante autorizado en Europa:	ASUS COMPUTER GmbH
Dirección, Ciudad:	HARKORT STR. 21-23, 40880 RATINGEN
País:	GERMANY

Declaramos el siguiente producto:

Nombre del aparato :	**Motherboard**
Nombre del modelo :	**STRIX H270F GAMING**

El objeto de la declaración descrita anteriormente es conforme con la legislación de armonización pertinente de la Unión:

☒ **EMC Directiva 2004/108/CE (hasta el 19 de abril, 2016) y Directiva 2014/30/UE (desde el 20 de abril, 2016)**

☒ EN 55022:2010+AC:2011	☒ EN 55024:2010
☒ EN 55032:2012+AC:2013	☒ EN 61000-3-3:2013
☒ EN 61000-3-2:2014	☐ EN 55020:2007+A11:2011
☐ EN 55013:2001+A1:2003+A2:2006	

☐ **R&TTE – Directiva 1999/5/CE**

☐ EN 300 328 V1.8.1(2012-06)	☐ EN 301 489-1 V1.9.2(2011-09)
☐ EN 300 440-1 V1.6.1(2010-08)	☐ EN 301 489-3 V1.6.1(2013-12)
☐ EN 300 440-2 V1.4.1(2010-08)	☐ EN 301 489-4 V2.1.1(2013-12)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V6.2.1(2013-04)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V6.2.1(2013-10)	☐ EN 301 489-17 V2.2.1(2012-09)
☐ EN 301 908-13 V6.2.1(2014-02)	☐ EN 301 489-24 V1.5.1(2010-09)
☐ EN 301 893 V1.7.1(2012-06)	☐ EN 301 357-2 V1.4.1(2008-11)
☐ EN 300 330-2 V1.5.1(2010-02)	☐ EN 302 291-2 V1.1.1(2005-07)
☐ EN 50360:2001/A1:2012	☐ EN 302 623 V1.1.1(2009-01)
☐ EN 62479:2010	☐ EN 50566:2013/AC:2014
☐ EN 62311:2008	☐ EN 50385:2002

☒ **LVD Directiva 2006/95/CE (hasta el 19 de abril, 2016) y Directiva 2014/35/UE (desde el 20 de abril, 2016)**

☐ EN 60950-1: 2006 / A12: 2011	☐ EN 60065:2002 / A12: 2011
☒ EN 60950-1: 2006 / A2: 2013	

☐ **Diseño Ecológico – Directiva 2009/125/CE**

☐ Regulation (EC) No. 1275/2008	☐ Regulation (EC) No. 278/2009
☐ Regulation (EC) No. 642/2009	☐ Regulation (EU) No. 617/2013

☒ **RoHS – Directiva 2011/65/UE** Ver. 160217

☒ **Marcado CE**

☒ **Clase de equipo 1**

CE (marcado CE de conformidad)

Firma	**Taipei, Taiwan** Lugar de emisión
Jerry Shen Nombre impreso	**16/11/2016** Fecha de emisión
CEO Posición	**2016** Año en que se colocó el marcado CE por primera vez

EU Konformitätserklärung

Hiermit erklären wir,

Hersteller:	ASUSTeK COMPUTER INC.
Anschrift:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Bevollmächtigter:	ASUS COMPUTER GmbH
Anschrift des Bevollmächtigten:	HARKORT STR. 21-23, 40880 RATINGEN
Land:	GERMANY

dass nachstehend bezeichnete Produkte

Produktbezeichnung	**Motherboard**
Modellbezeichnung:	**STRIX H270F GAMING**

mit den nachstehend angegebenen, für das Produkt geltenden Richtlinien/Bestimmungen übereinstimmen:

☒ **EMV – Richtlinie 2004/108/EG (bis 19. April 2016) und Richtlinie 2014/30/EU (ab 20. April 2016)**

☒ EN 55022:2010+AC:2011	☒ EN 55024:2010
☒ EN 55032:2012+AC:2013	☒ EN 61000-3-3:2013
☒ EN 61000-3-2:2014	☐ EN 55020:2007+A11:2011
☐ EN 55013:2001+A1:2003+A2:2006	

☐ **R&TTE – Richtlinie 1999/5/EG**

☐ EN 300 328 V1.8.1 (2012-06)	☐ EN 301 489-1 V1.9.2(2011-09)
☐ EN 300 440-1 V1.6.1(2010-08)	☐ EN 301 489-3 V1.6.1(2013-12)
☐ EN 300 440-2 V1.4.1(2010-08)	☐ EN 301 489-4 V2.1.1(2013-12)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V6.2.1(2013-04)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V6.2.1(2013-10)	☐ EN 301 489-17 V2.2.1(2012-09)
☐ EN 301 908-13 V6.2. 1(2014-02)	☐ EN 301 489-24 V1.5.1(2010-09)
☐ EN 301 893 V1.7.1 (2012-06)	☐ EN 301 357-2 V1.4.1 (2008-11)
☐ EN 300 330-2 V1.5.1(2010-02)	☐ EN 302 291-2 V1.1.1 (2005-07)
☐ EN 50360:2001/A1:2012	☐ EN 302 623 V1.1.1(2009-01)
☐ EN 62479:2010	☐ EN 50566:2013/AC:2014
☐ EN 62311:2008	☐ EN 50385:2002

☒ **LVD – Richtlinie 2006/95/EG (bis 19. April 2016) und Richtlinie 2014/35/EU (ab 20. April 2016)**

☐ EN 60950-1: 2006 / A12: 2011	☐ EN 60065:2002 / A12: 2011
☒ EN 60950-1: 2006 / A2: 2013	

☐ **Ökodesign – Richtlinie 2009/125/EG**

☐ Verordnung (EG) No. 1275/2008	☐ Verordnung (EG) No. 278/2009
☐ Verordnung (EG) No. 642/2009	☐ Verordnung (EU) No. 617/2013

☒ **RoHS – Richtlinie 2011/65/EU** Ver. 160217

☒ **CE Kennzeichen**

☒ **Geräteklasse 1**

CE (EU Konformitätszeichen)

Unterschrift	**Taipei, Taiwan** Ort
Jerry Shen Name	**16/11/2016** Datum
CEO Position	**2016** Jahr der Kennzeichenvergabe

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 : STRIX H270F GAMING

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**

Signature : Steve Chang

Date : **Nov. 16, 2016**

Ver. 140331