PRIME Z370-P II

Motherboard

E14719
First Edition
August 2018

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Safety information

Electrical safety

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

Operation safety

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

About this guide

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

How this guide is organized

This guide contains the following parts:

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 (+).

PRIME Z370-P II specifications summary

CPU	Intel® Socket 1151 for Intel® Core™ 9000 series, 8th Generation Core™ i7 / i5 / i3, Pentium® and Celeron® processors Supports 14nm CPU Supports Intel® Turbo Boost Technology 2.0* *** The support of these features depends on the CPU types.** **** Refer to www.asus.com for the complete CPU support list.**
Chipset	Intel® Z370 Chipset
Memory	4 x DIMM, max. 64GB DDR4 4000(O.C.)*/3866(O.C.)*/3733(O.C.)*/ 3600(O.C.)*/3466(O.C.)*/3400(O.C.)*/3333(O.C.)*/3300(O.C.)*/ 3200(O.C.)*/3000(O.C.)*/2800(O.C.)*/2666 /2400 /2133 MHz non-ECC, un-buffered memory** Dual channel memory architecture Supports Intel® Extreme Memory Profile (XMP) *** The maximum memory frequency supported varies by processor.** **** Refer to www.asus.com for the complete Memory QVL (Qualified Vendors List).**
Expansion slots	1 x PCI Express 3.0/2.0 x16 slot (support x16, x8/x4+x4*) 1 x PCI Express 3.0/2.0 x16 slot (max. at x4 mode, compatible with PCIe x1, x2 and x4 devices) 4 x PCI Express 3.0/2.0 x1 slots *** The PCIEX16_1 slot supports up to 3 Intel® PCIe NVME SSDs via a Hyper M.2 x16 series Card**.** **** The Hyper M.2 x16 series card is sold separately. Install a Hyper M.2 X16 series card and enable this card under BIOS settings.**
VGA	Integrated Graphics Processor- Intel® HD Graphics support Multi-VGA output support: DVI-D/HDMI port - Supports DVI-D with max. resolution of 1920 x 1200@60Hz - Supports HDMI 1.4b with max. resolution of 4096 x 2160@30Hz Supports Intel® InTru™ 3D/Quick Sync Video/Clear Video HD Technology/Insider™ Maximum shared memory of 1024 MB (for iGPU exclusively)
Multi-GPU support	Supports AMD CrossFireX™ Technology
Audio	**Realtek® ALC887 8-Channel* High Definition Audio CODEC** - LED-illuminated design: Brighten up your build with the gorgeous illuminated audio trace path. - Audio Shielding: Ensures precision analog/digital separation and greatly reduces multi-lateral interference - Dedicated audio PCB layers: Separate layers for left and right channels to guard the quality of the sensitive audio signals - Premium Japanese audio capacitors: Provide warm, natural and immersive sound with exceptional clarity and fidelity - Supports jack-detection and front panel jack-retasking *** Choose a chassis with HD audio module in the front panel to support an 8-channel audio output.**

(continued on the next page)

PRIME Z370-P II specifications summary

Storage	**Intel® CPU with Intel® Rapid Storage Technology support (RAID 0 & RAID 1)** - The PCIEX16_1 slot supports up to 3 Intel® PCIe NVME SSDs via a Hyper M.2 x16 series Card.* **Intel® Z370 Chipset with RAID 0, 1, 5, 10 and Intel® Rapid Storage Technology support** - 2 x M.2 Socket 3 with M Key, type 2242/2260/2280 storage devices support (both SATA & PCIe x4 mode)** - 4 x SATA 6.0 Gb/s ports (gray) - Intel® Optane™ Memory Ready * **The Hyper M.2 x16 series card is sold separately. Install a Hyper M.2 X16 series card and enable this card under BIOS settings.** ** **When a device in SATA mode is installed on the M.2_1 socket, SATA_1 port cannot be used.**
LAN	Realtek® 8111H Gigabit LAN support LANGuard
USB	**Intel® Z370 Chipset** - 8 x USB 3.1 Gen 1 ports (4 ports @mid-board; 4 ports @back panel, blue, Type A) - 6 x USB 2.0/1.1 ports (4 ports @mid-board; 2 ports @back panel)
ASUS Special Features	**ASUS 5X PROTECTION III** - ASUS SafeSlot Core: Fortified PCIe with solid soldering - ASUS LANGuard: Protects against LAN surges, lightning strikes and static-electricity discharges! - ASUS Overvoltage Protection: World-class circuit-protecting power design - ASUS Stainless-Steel Back I/O: 3X corrosion-resistance for greater durability! - ASUS DIGI+ VRM: 8+1 Phase digital power design **Superb Performance** **OptiMem** - Improved DDR4 stability **M.2 onboard** - The latest transfer technologies with up to 32Gb/s data transfer speeds **ASUS Fan Xpert 4 Core** - Advanced fan and liquid controls for ultimate cooling and quietness **ASUS EPU** - EPU **UEFI BIOS** - Most advanced options with fast response time **Gaming Scenario** **Audio Features** - Audio that roars on the battlefield

(continued on the next page)

PRIME Z370-P II specifications summary

ASUS Special Features	**ASUS Exclusive Features** - ASUS Ai Charger - ASUS AI Suite 3 **EZ DIY** **UEFI BIOS EZ Mode** - featuring a friendly graphics user interface - ASUS O.C. Tuner - ASUS CrashFree BIOS 3 - ASUS EZ Flash 3 **Q-Design** - ASUS Q-DIMM - ASUS Q-Slot
ASUS Quiet Thermal Solution	**Quiet Thermal Design** - ASUS Fan Xpert 4 Core - Stylish Fanless Design: PCH Heat-sink & MOS Heat-sink
Back Panel I/O Ports	1 x PS/2 keyboard/mouse combo port 1 x DVI-D port 1 x HDMI port 1 x LAN (RJ45) port 4 x USB 3.1 Gen 1 Type A ports 2 x USB 2.0/1.1 ports 3-Jack 8-Channel Audio I/O ports
Internal I/O Connectors	2 x USB 3.1 Gen 1 connectors support additional 4 USB ports (19-pin) 2 x USB 2.0 connectors support additional 4 USB ports 4 x SATA 6.0 Gb/s connectors (gray) 2 x M.2 Socket 3 (for M Key) 1 x 4-pin CPU Fan connector for both 3-pin (DC mode) and 4-pin (PWM mode) CPU coolers control* 2 x 4-pin Chassis Fan connectors for 3-pin (DC mode) and 4-pin (PWM mode) coolers control* 1 x AIO PUMP connector 1 x Front panel audio connector (AAFP) 1 x System panel connector 1 x S/PDIF out header 1 x COM header 1 x 24-pin EATX Power connector 1 x 8-pin EATX 12V Power connector 1 x Clear CMOS jumper * **By default, the CPU/Chassis Q-Fan control setting is set to Auto mode, which detects the CPU and chassis fans installed and changes the control mode automatically.**

(continued on the next page)

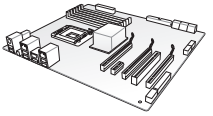
PRIME Z370-P II specifications summary

BIOS Features	128 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.1, WfM2.0, SM BIOS 3.1, ACPI 6.1, Multi-language BIOS, ASUS EZ Flash 3, CrashFree BIOS 3, F11 EZ Tuning Wizard, F6 Qfan Control, F3 My Favorites, Last Modified log, F12 PrintScreen, and ASUS DRAM SPD (Serial Presence Detect) memory information
Manageability	WfM 2.0, DMI 3.1, WOL by PME, PXE
Support DVD	Drivers ASUS Utilities ASUS EZ Update Anti-virus software (OEM version)
Operating System Support	Windows® 10 64-bit
Form Factor	ATX form factor: 12.0 in. x 9.1 in. (30.5 cm x 23.1 cm)

Specifications are subject to change without notice.

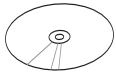
Package contents

Check your motherboard package for the following items:

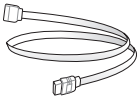


ASUS PRIME Z370-P II motherboard

User Guide

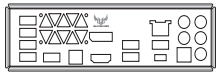


Support DVD



2 x SATA 6.0 Gb/s cables

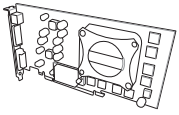
1 x M.2 screw package



1 x I/O Shield

- If any of the above items is damaged or missing, contact your retailer.
- The illustrated items above are for reference only. Actual product specifications may vary with different models.

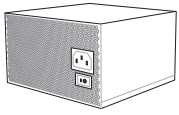
Installation tools and components



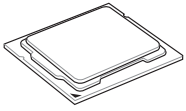
Graphics card (optional)

Phillips (cross) screwdriver

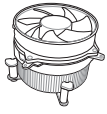
PC chassis



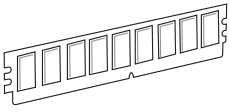
Power supply unit



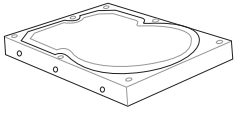
Intel® LGA1151 CPU



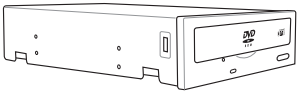
Intel® LGA1151 compatible CPU Fan



DIMM



SATA hard disk drive



SATA optical disc drive (optional)

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

Product Introduction

1

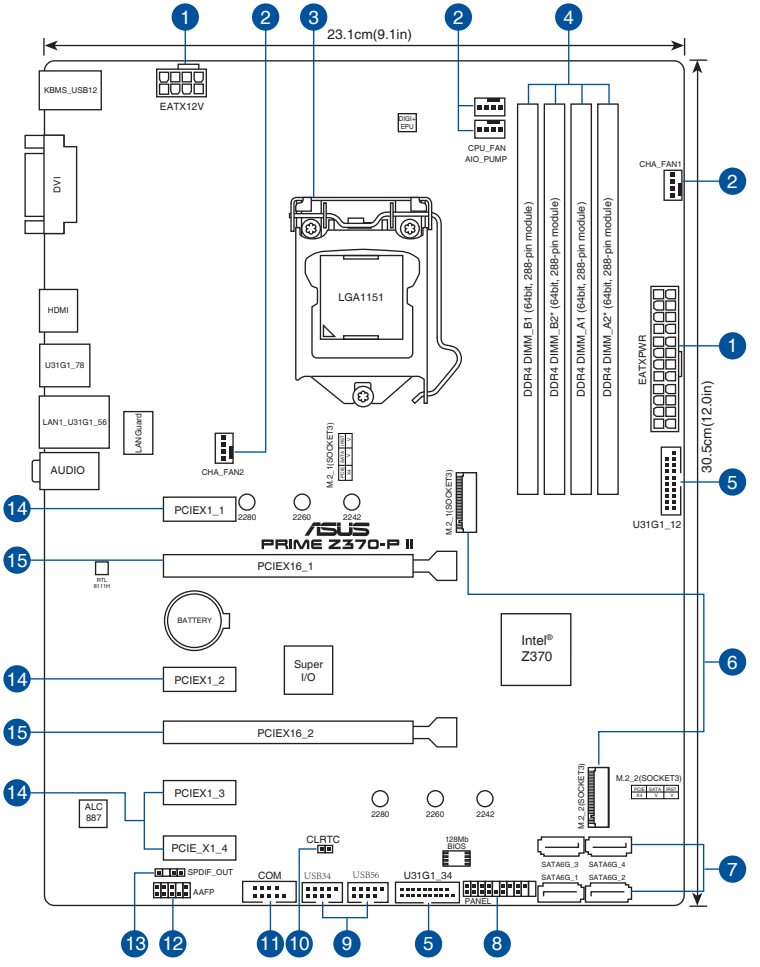
1.1 Motherboard overview

1.1.1 Before you proceed

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

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

1.1.2 Motherboard layout



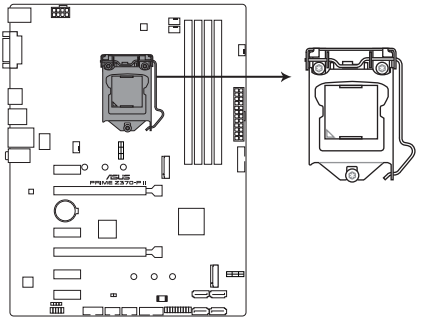
Refer to **1.1.7 Internal connectors** and **2.2.1 Rear I/O connection** for more information about rear panel connectors and internal connectors.

Layout contents

Connectors/Jumpers/Buttons and switches/Slots	Page
1. ATX power connectors (24-pin EATXPWR; 8-pin EATX12V)	1-14
2. CPU and chassis fan connectors; AIO pump connector (4-pin CPU_FAN, 4-pin CHA_FAN1-2; 4-pin AIO_PUMP)	1-13
3. LGA1151 CPU socket	1-4
4. DDR4 DIMM slots	1-5
5. USB 3.1 Gen 1 connectors (20-1 pin U31G1_12; U31G1_34)	1-12
6. M.2 sockets (M.2_1; M.2_2)	1-16
7. Intel® SATA 6 Gb/s connectors (7-pin SATA6G_1~4)	1-10
8. System panel connector (20-5 pin PANEL)	1-15
9. USB 2.0 connectors (10-1 pin USB34; USB56)	1-11
10. Clear RTC RAM jumper (2-pin CLRTC)	1-9
11. Serial port connector (10-1 pin COM)	1-12
12. Front panel audio connector (10-1 pin AAFP)	1-11
13. Digital audio connector (4-1 pin SPDIF_OUT)	1-10

1.1.3 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA1151 socket designed for Intel® Core™ 9000 series, 8th Generation Core™ i7 / i5 / i3, Pentium® and Celeron® processors.



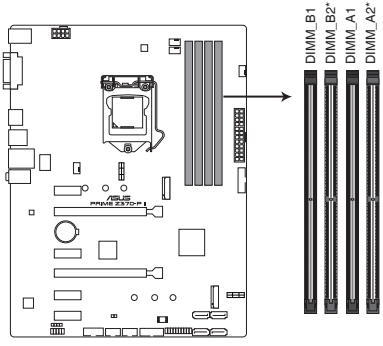
PRIME Z370-P II CPU socket LGA1151

- 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.
- 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

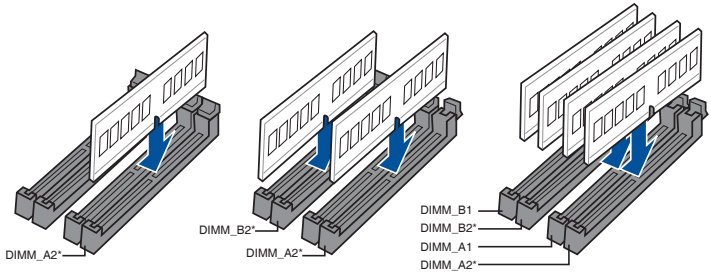
The motherboard comes with four DDR4 (Double Data Rate 4) Quad Inline Memory Modules (DIMM) slots.

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.



PRIME Z370-P II 288-pin DDR4 DIMM sockets

Recommended memory configurations



Memory configurations

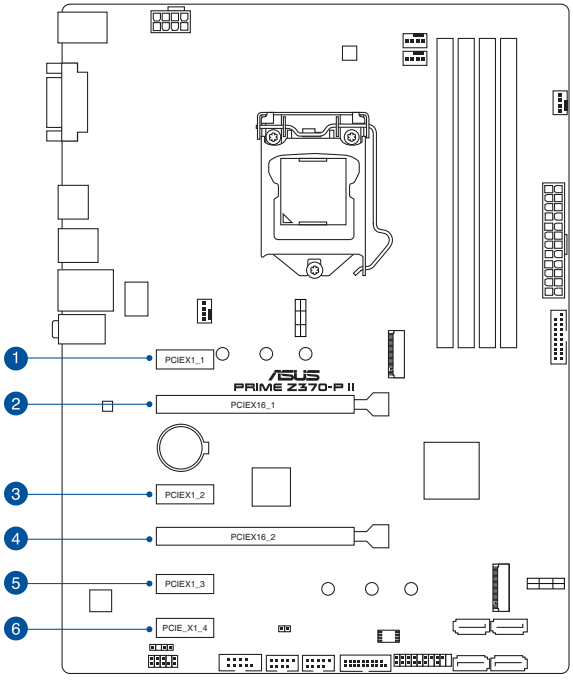
You may install 4 GB, 8 GB, and 16 GB unbuffered and non-ECC DDR4 DIMMs into the DIMM sockets.

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.

- 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.
- For DRAM compatibility and performance, please use A2 slot for priority 1.

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 3.0/2.0 x1_1 slot
2	PCIe 3.0/2.0 x16_1 slot
3	PCIe 3.0/2.0 x1_2 slot
4	PCIe 3.0/2.0 x16_2 slot
5	PCIe 3.0/2.0 x1_3 slot
6	PCIe 3.0/2.0 x1_4 slot

VGA configuration	PCI Express 3.0 operating mode	
	PCIe 3.0/2.0 x16_1	PCIe 3.0/2.0 x16_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 chassis fans to the motherboard chassis fan connectors when using multiple graphics cards for better thermal environment.

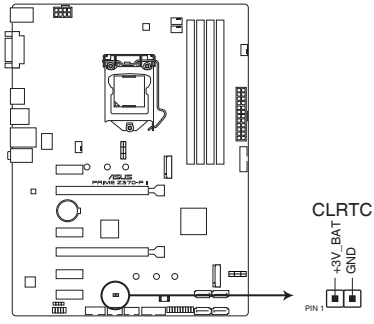
Hyper M.2 X16 card configuration	PCI Express 3.0 operating mode	
	PCIe 3.0/2.0 x16_1	PCIe 3.0/2.0 x16_2
3 Intel® SSD on CPU support	x8 + x4 +x4	N/A

- Hyper M.2 X16 card is purchased separately.
- Enable the Hyper M.2 X16 card under BIOS settings.

1.1.6 Jumpers

1. Clear RTC RAM jumper (2-pin CLRTC)

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



PRIME Z370-P II Clear RTC RAM

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Short-circuit pin 1-2 with a metal object or jumper cap for about 5-10 seconds.
3. Plug the power cord and turn ON the computer.
4. Hold down the <Delete> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never place a metal object or jumper cap on the CLRTC jumper. Placing a metal object or jumper cap will cause system boot failure!

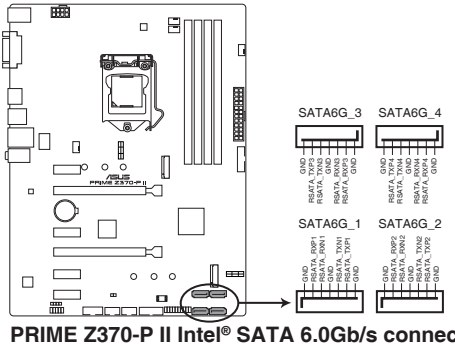
- If the steps above do not help, remove the onboard battery and place a metal object or jumper cap again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.
- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.
- Due to the chipset behavior, AC power off is required to enable C.P.R. function. You must turn off and turn on the power supply or unplug and plug the power cord before rebooting the system.

1.1.7 Internal connectors

1. Intel® SATA 6 Gb/s connectors (7-pin SATA6G_1~4)

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

If you installed SATA hard disk drives, you can create a RAID 0, 1, 5, and 10 configuration with the Intel® Rapid Storage Technology.

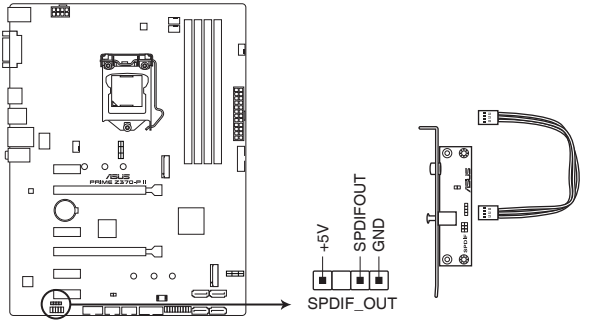


PRIME Z370-P II Intel® SATA 6.0Gb/s connectors

- These connectors are set to **[AHCI Mode]** 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. Digital audio connector (4-1 pin SPDIF_OUT)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port. Connect the S/PDIF Out module cable to this connector, then install the module to a slot opening at the back of the system chassis.

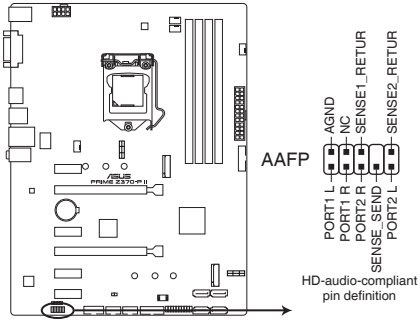


PRIME Z370-P II Digital audio connector

The S/PDIF module is purchased separately.

3. 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.

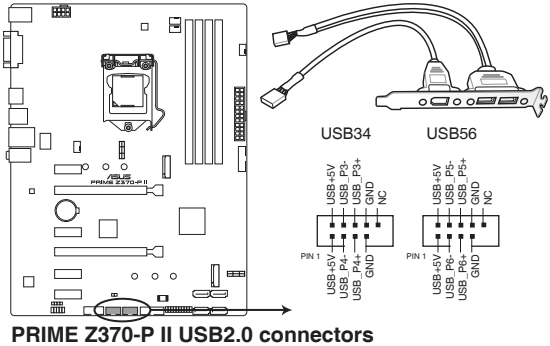


PRIME Z370-P II Front panel audio connector

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.

4. USB 2.0 connectors (10-1 pin USB34; USB56)

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



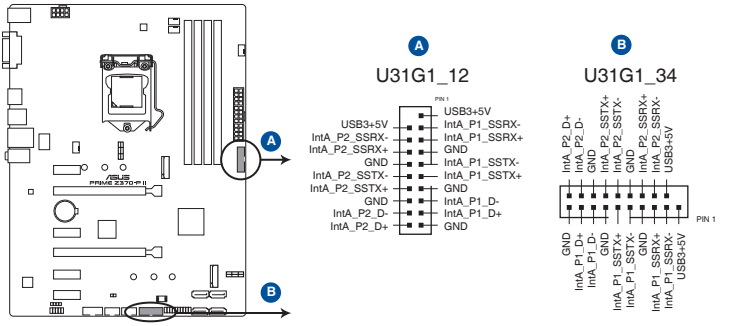
PRIME Z370-P II USB2.0 connectors

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

The USB 2.0 module is purchased separately.

5. USB 3.1 Gen 1 connectors (20-1 pin U31G1_12; U31G1_34)

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



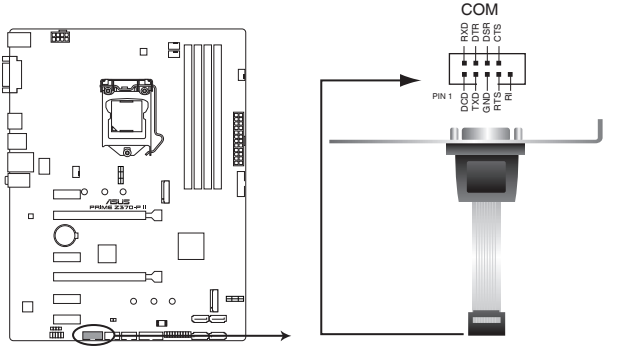
PRIME Z370-P II USB 3.1 Gen 1 connectors

The USB 3.1 Gen 1 module is purchased separately.

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

6. 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.

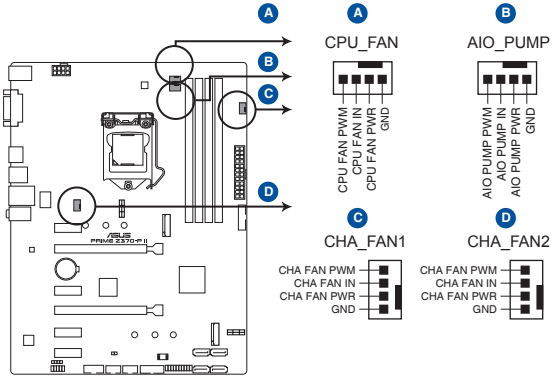


PRIME Z370-P II Serial port (COM) connector

The COM module is purchased separately.

7. CPU and chassis fan connectors; AIO pump connector (4-pin CPU_FAN, 4-pin CHA_FAN1-2; 4-pin AIO_PUMP)

Connect the fan cables to the fan connectors on the motherboard.



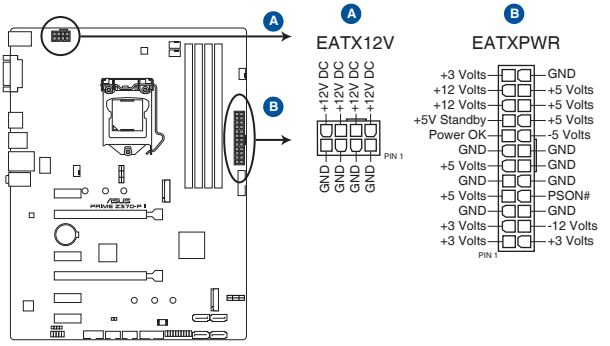
PRIME Z370-P II Fan connectors

- 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.

Connect the pump cable from the all-in-one cooler (AIO cooler) to the AIO_PUMP header, and connect the fan cable to the CPU_FAN header.

8. 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.

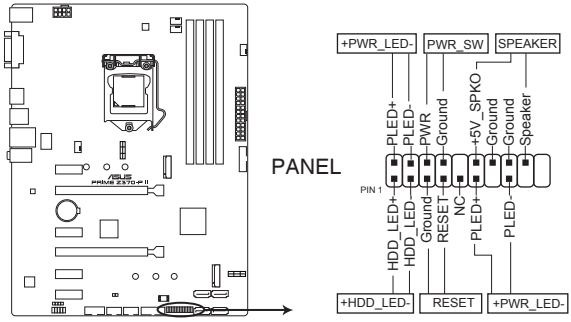


PRIME Z370-P II ATX power connectors

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12V Specification 2.0 (or later version) and provides a minimum power of 350W.
- 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.

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

This connector supports several chassis-mounted functions.



PRIME Z370-P II 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)**

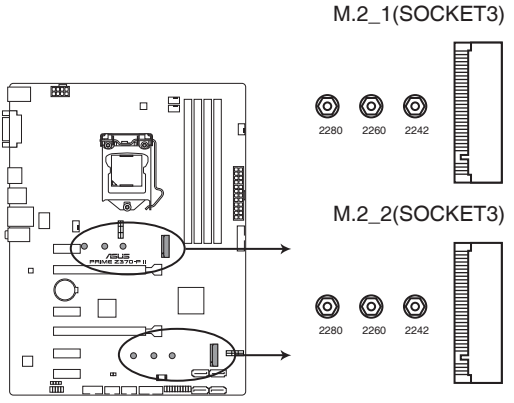
  This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the operating system settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **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.

10. M.2 sockets (M.2_1; M.2_2)

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



PRIME Z370-P II M.2 sockets

- These sockets support PCIe 3.0 x4 and SATA mode M Key design and type 2242/ 2260/ 2280 storage devices.
- When a device in SATA mode is installed on the M.2_1 socket, SATA_1 port cannot be used.
- These sockets support IRST (Intel® Rapid Storage Technology).

The M.2 SSD module is purchased separately.

Basic Installation

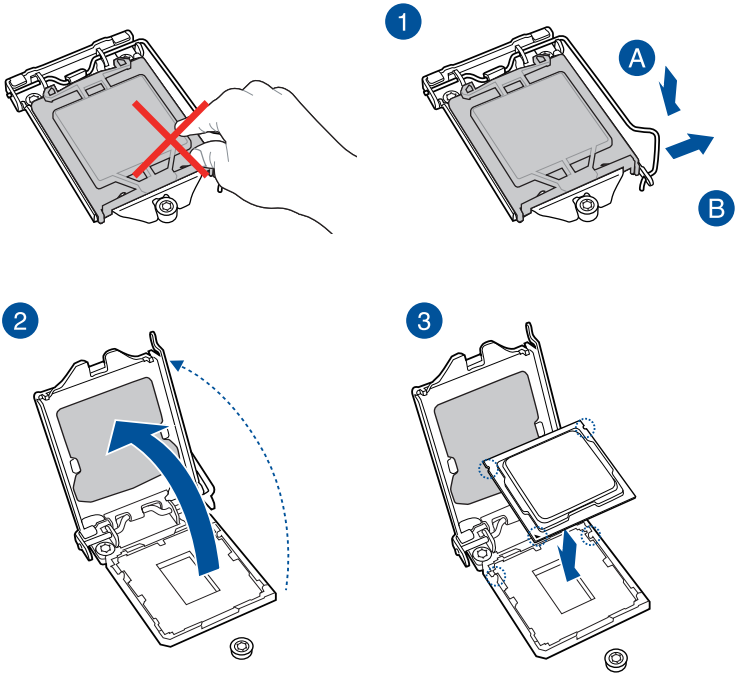
2

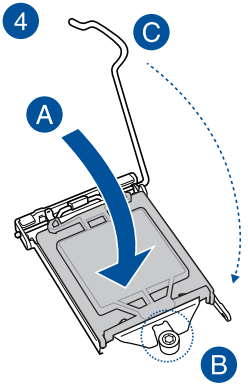
2.1 Building your PC system

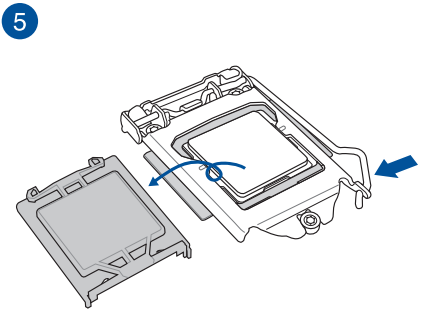
The diagrams in this section are for reference only. The motherboard layout may vary with models, but the installation steps are the same for all models.

2.1.1 CPU installation

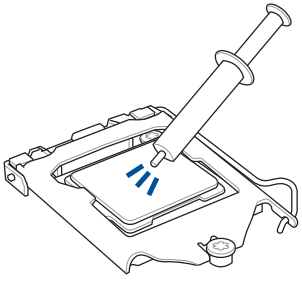
- Ensure that you install the correct CPU designed for LGA1151 socket only. DO NOT install a CPU designed for LGA1155 and LGA1156 sockets on the LGA1151 socket.
- ASUS will not cover damages resulting from incorrect CPU installation/removal, incorrect CPU orientation/placement, or other damages resulting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





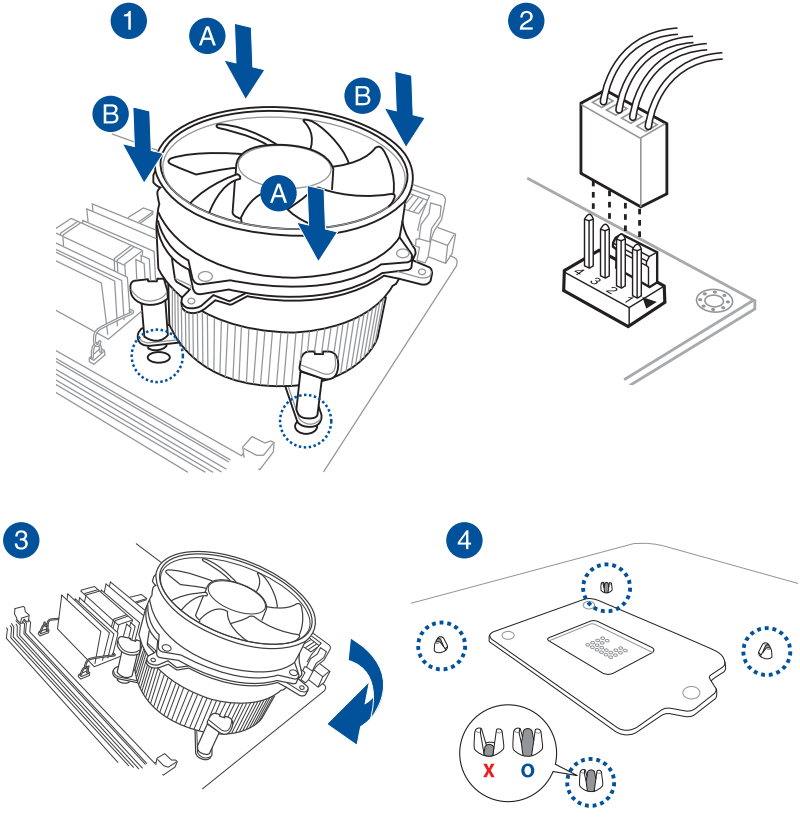


2.1.2 Cooling system installation



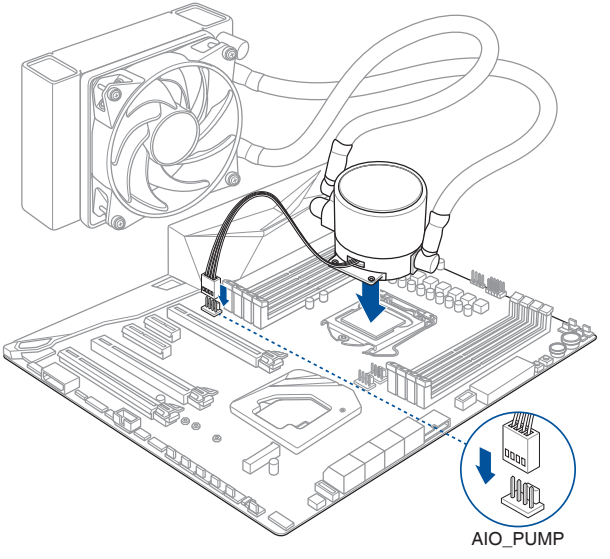
Apply the Thermal Interface Material to the CPU cooling systems and CPU before you install the cooling systems and fan, if necessary.

To install a CPU heatsink and fan assembly

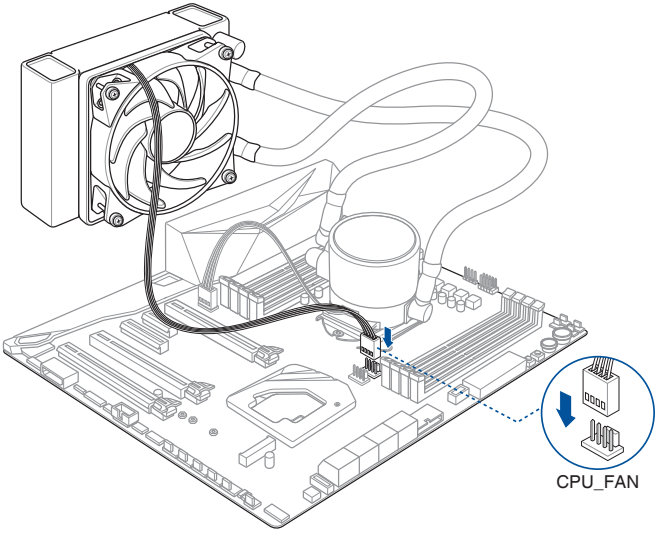


To install an AIO cooler

1



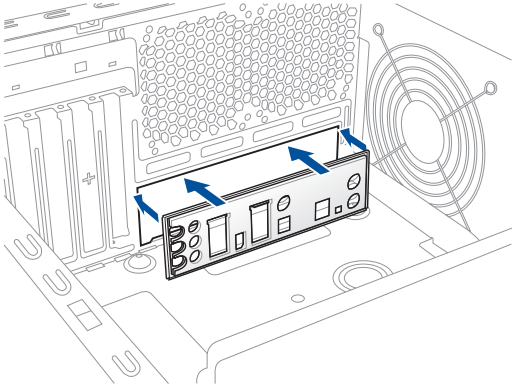
2



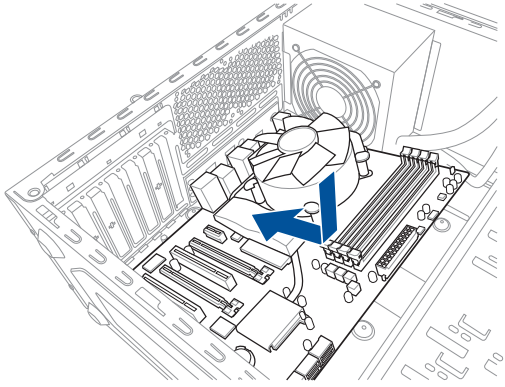
The illustrations in this section are for reference only. Please refer to section **1.1.2 Motherboard Layout** for the actual location of the header(s).

2.1.3 Motherboard installation

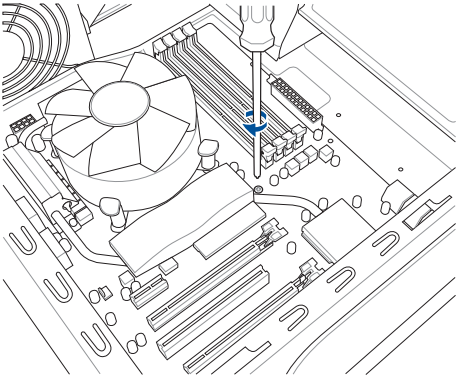
1. Install the ASUS I/O Shield to the chassis rear I/O panel.

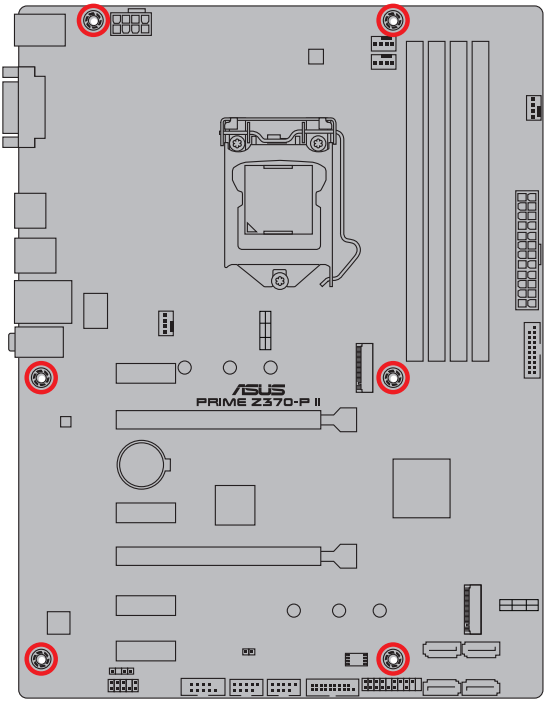


2. Place the motherboard into the chassis, ensuring that its rear I/O ports are aligned to the chassis' rear I/O panel.



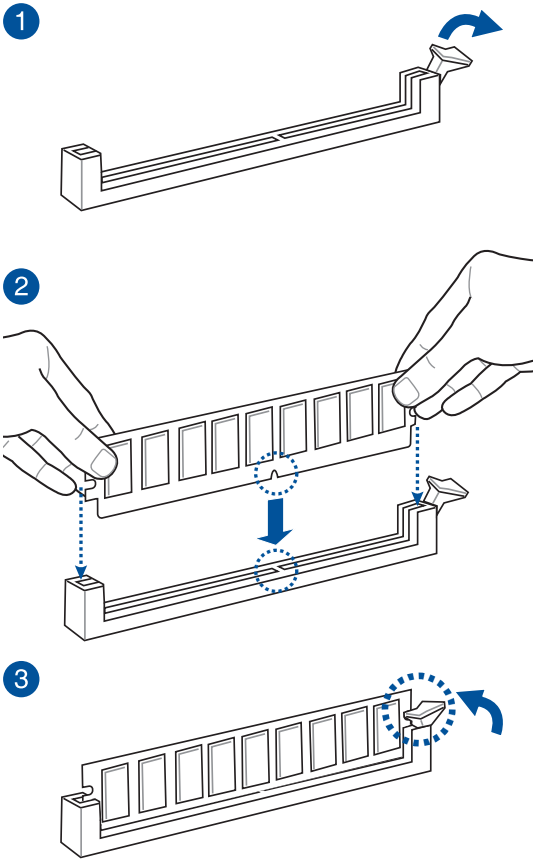
3. Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.



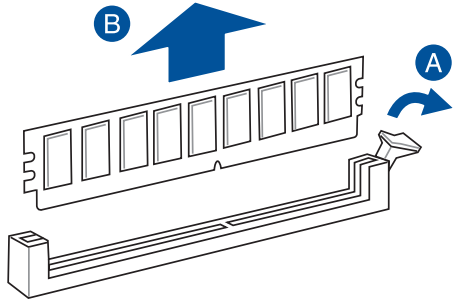


DO NOT overtighten the screws! Doing so can damage the motherboard.

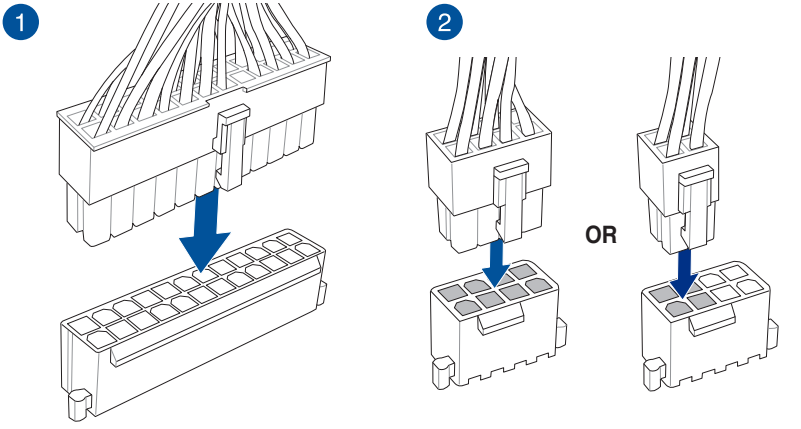
2.1.4 DIMM installation



To remove a DIMM

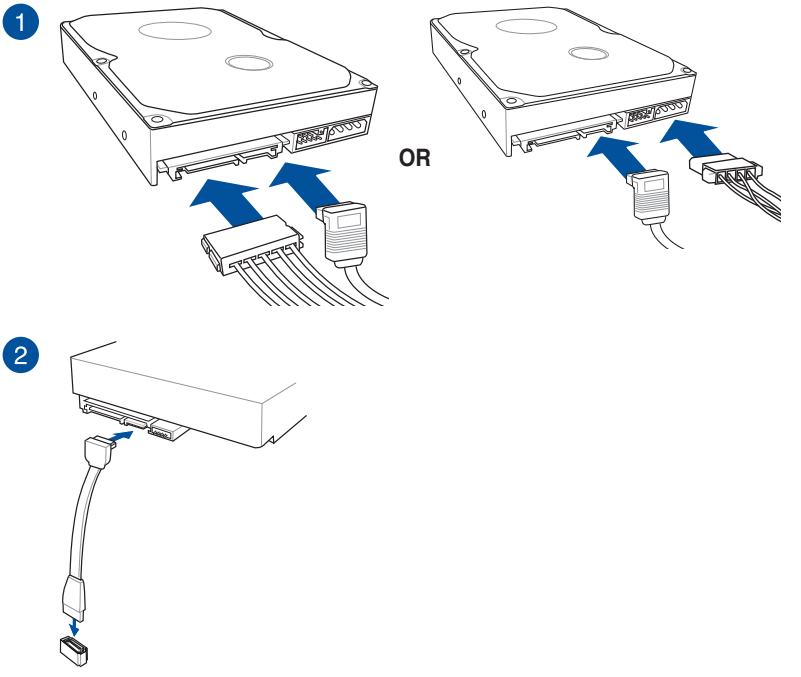


2.1.5 ATX power connection



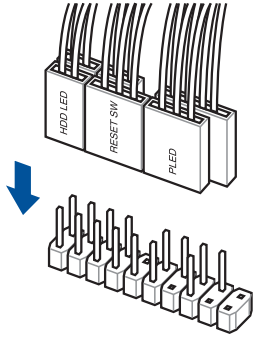
Ensure to connect the 8-pin power plug.

2.1.6 SATA device connection

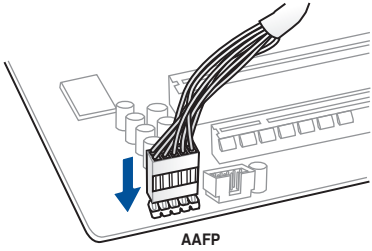


2.1.7 Front I/O connector

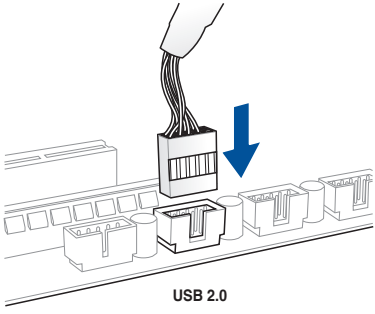
To install front panel connector



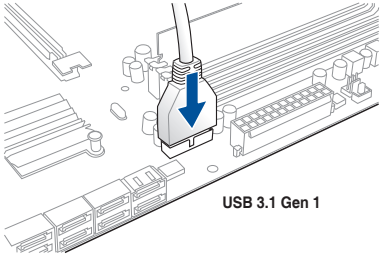
To install front panel audio connector



To install USB 2.0 connector

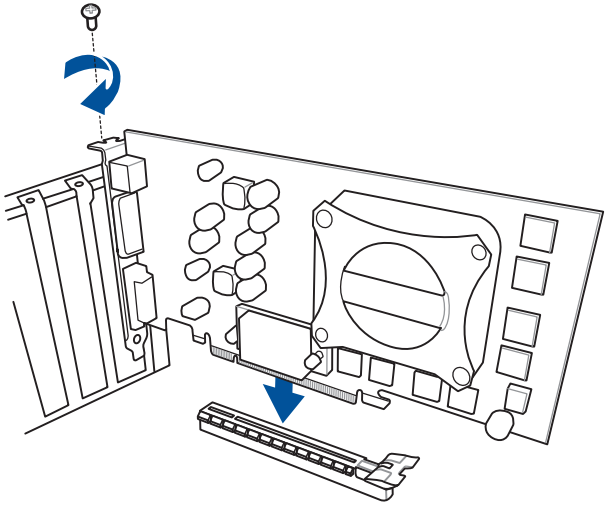


To install USB 3.1 Gen 1 connector

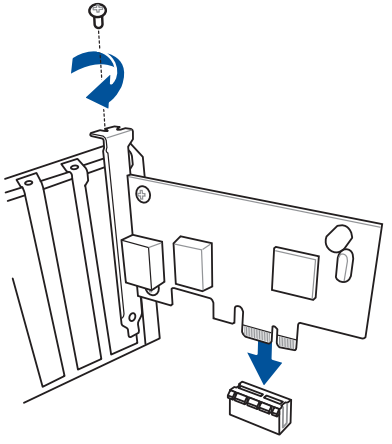


2.1.8 Expansion Card installation

To install PCIe x16 cards

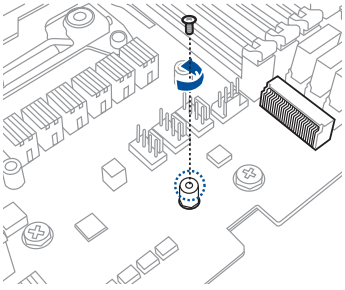


To install PCIe x1 cards

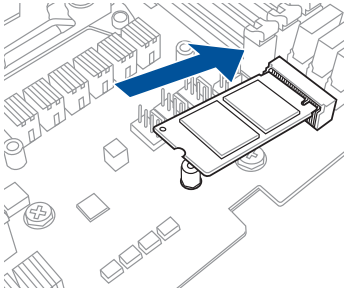


2.1.9 M.2 installation

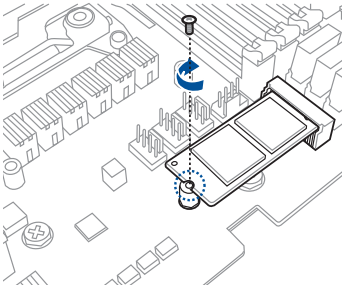
1



2



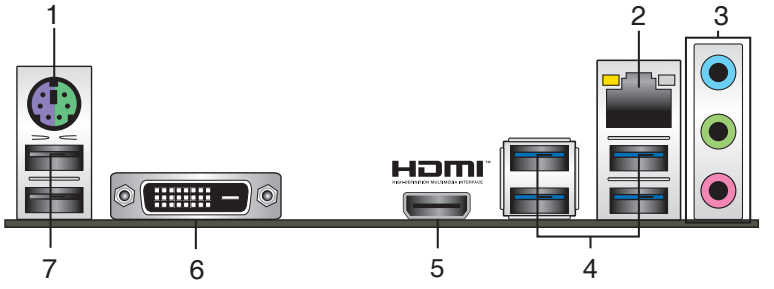
3



Supported M.2 type varies per motherboard.

2.2 Motherboard rear and audio connections

2.2.1 Rear I/O connection



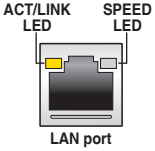
Rear panel connectors			
1.	PS/2 keyboard/mouse combo port	5.	HDMI port
2.	LAN port*	6.	DVI-D port
3.	Audio I/O ports**	7.	USB 2.0 ports
4.	USB 3.1 Gen 1 Type A ports		

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

- USB 3.1 Gen 1 devices can only be used as data storage only.
- Due to the design of the Intel® 300 series chipset, all USB devices connected to the USB 2.0 and USB 3.1 Gen 1 ports are controlled by the xHCI controller. Some legacy USB devices must update their firmware for better compatibility.
- We strongly recommend that you connect USB 3.1 Gen 1 devices to USB 3.1 Gen 1 ports for faster and better performance for your USB 3.1 Gen 1 devices.

* 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. Due to hardware design, the LAN1 port's LEDs may continue to blink even when disabled.

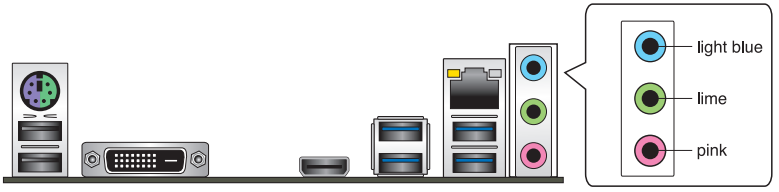
** Audio 2, 4, 5.1 or 7.1-channel configuration

Port	Headset 2-channel	4-channel	5.1-channel	7.1-channel
Light Blue (Rear panel)	Line In	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Lime (Rear panel)	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink (Rear panel)	Mic In	Mic In	Bass/Center	Bass/Center
Lime (Front panel)	-	-	-	Side Speaker Out

For a 7.1-channel speaker setup, refer to the 7.1-channel configuration in the table.

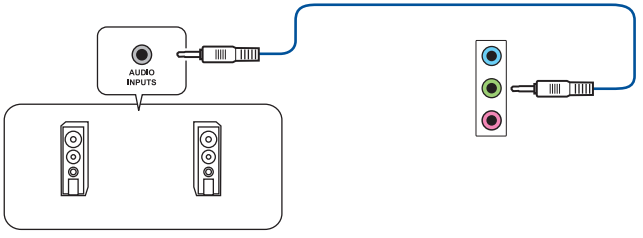
2.2.2 Audio I/O connections

Audio I/O ports

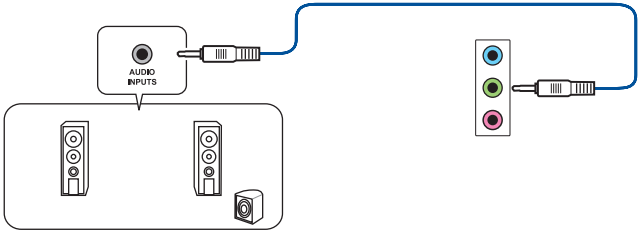


Connect to Headphone and Mic

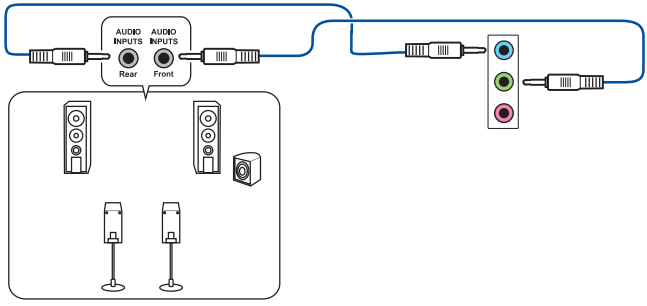
Connect to Stereo Speakers



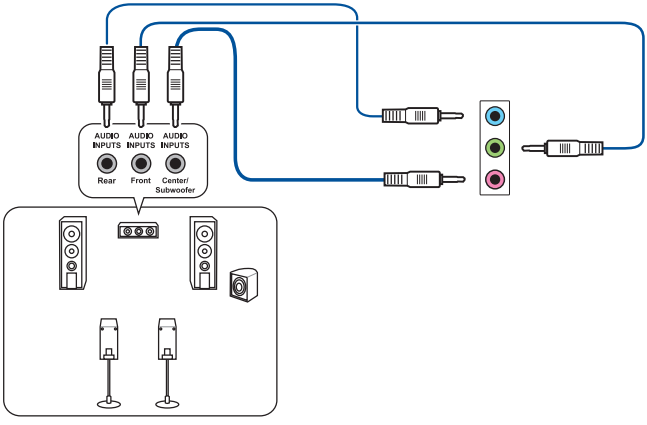
Connect to 2-channel Speakers



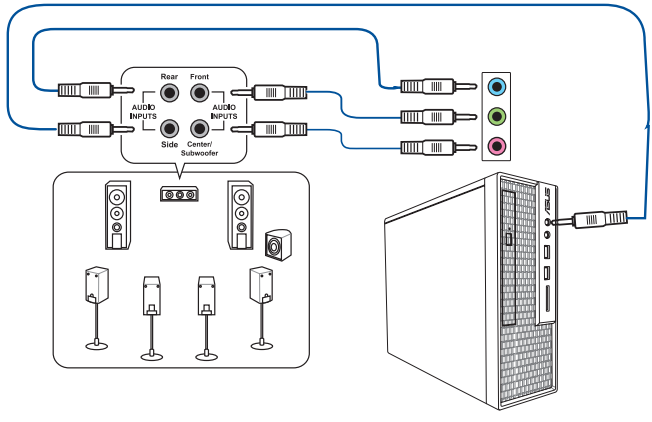
Connect to 4-channel Speakers



Connect to 5.1-channel Speakers



Connect to 7.1-channel Speakers



2.3 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Ensure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
   a. Monitor
   b. External 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 **PZ370PII.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> during the Power-On Self Test (POST). If you do not press <Delete>, 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 the **<F5>** hotkey. See section **3.10 Exit menu** for details.
- If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section **1.1.6 Jumpers** for information on how to erase the RTC RAM.
- The BIOS setup program does not support Bluetooth devices.

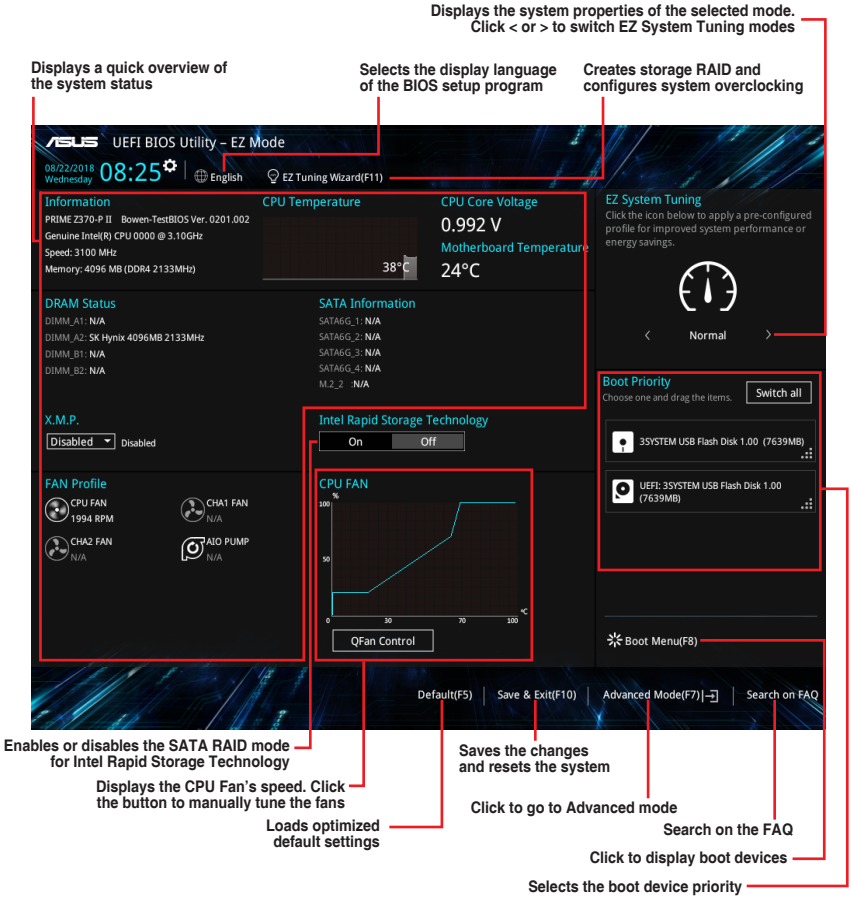
BIOS menu screen

The BIOS Setup program can be used under two modes: **EZ Mode** and **Advanced Mode**. You can change modes from the **Exit** menu or from the **Exit/Advanced Mode** screen.

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.

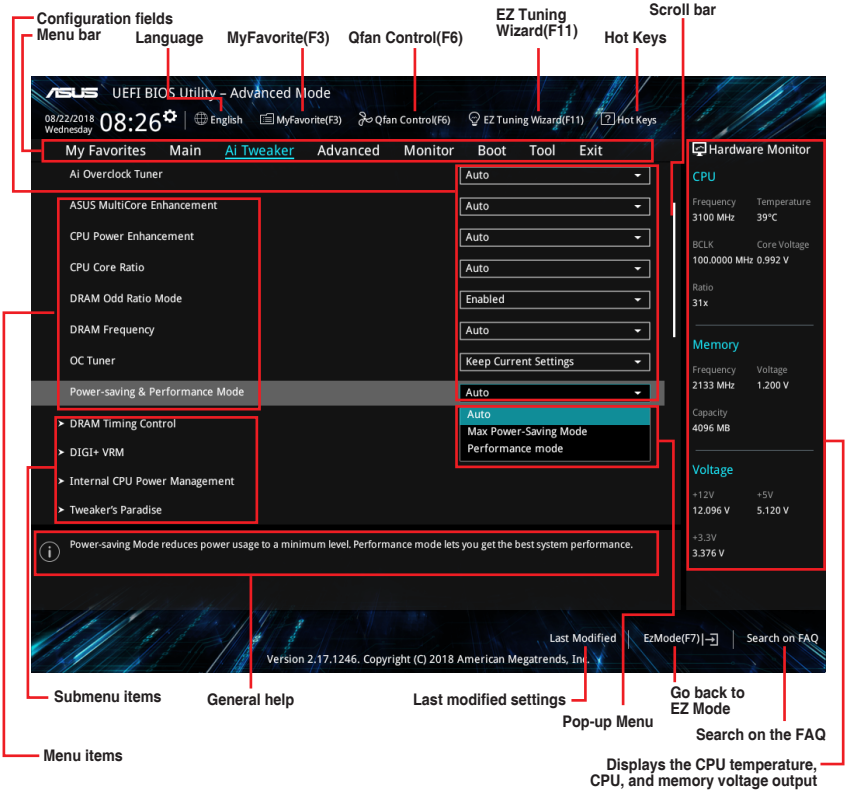


The boot device options vary depending on the devices you installed to the system.

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.

MyFavorites (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.

Qfan Control (F6)

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

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

EZ Tuning Wizard (F11)

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

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

Search on FAQ

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

Hot keys

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

Scroll bar

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

General help

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

Configuration fields

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

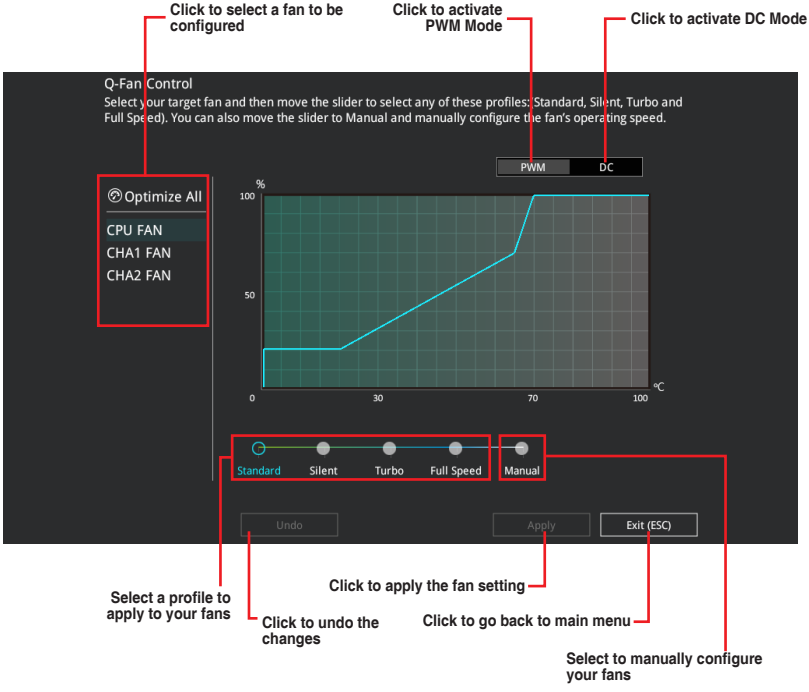
A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

Last Modified button

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

3.2.3 Q-Fan Control

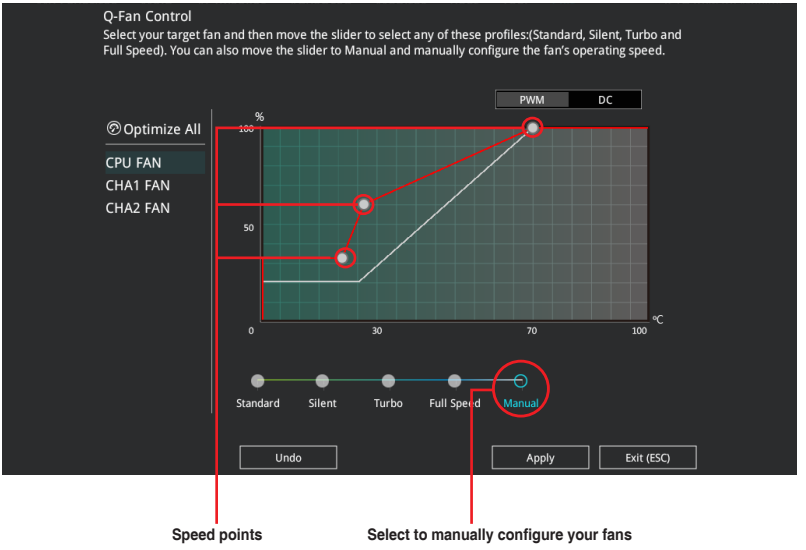
The Q-Fan Control allows you to set a fan profile or manually configure the operating speed of your CPU and chassis fans.



Chapter 3

Configuring fans manually

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



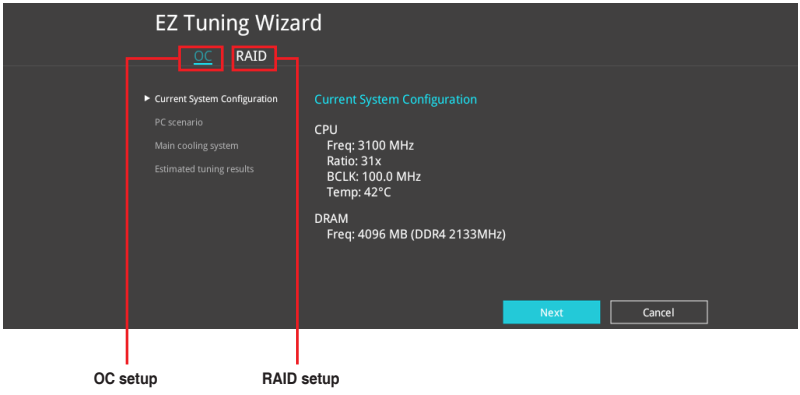
To configure your fans:

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)**.

Chapter 3

3.2.4 EZ Tuning Wizard

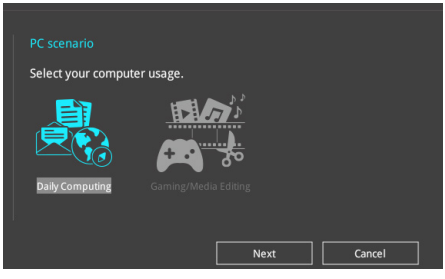
EZ Tuning Wizard allows you to easily overclock your CPU and DRAM, computer usage, and CPU fan to their best settings. You can also set RAID in your system using this feature.



OC Tuning

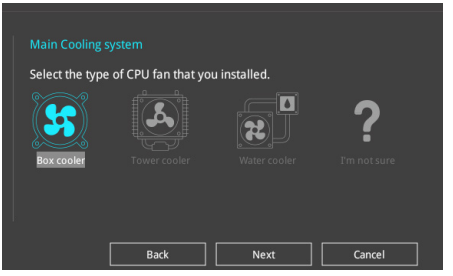
To start OC Tuning:

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



Chapter 3

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



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

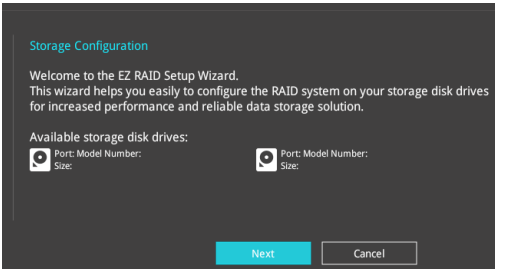
Creating RAID

To create RAID:

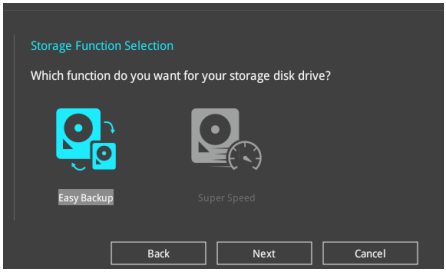
1. Press <F11> on your keyboard or click EZ Tuning Wizard(F11) from the BIOS screen to open EZ Tuning Wizard screen.
2. Click **RAID** then click **Next**.

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

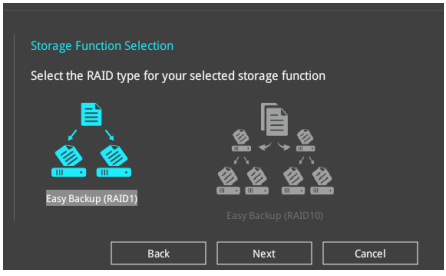
3. Check the available storage disk drives, then click **Next**.



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

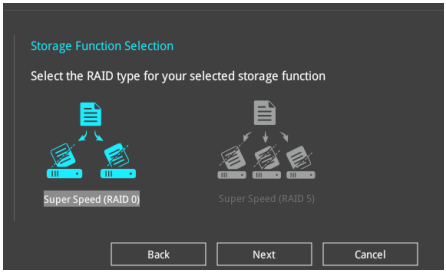


a. For Easy Backup, click **Next** then select from **Easy Backup (RAID 1)** or **Easy Backup (RAID 10)**.



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

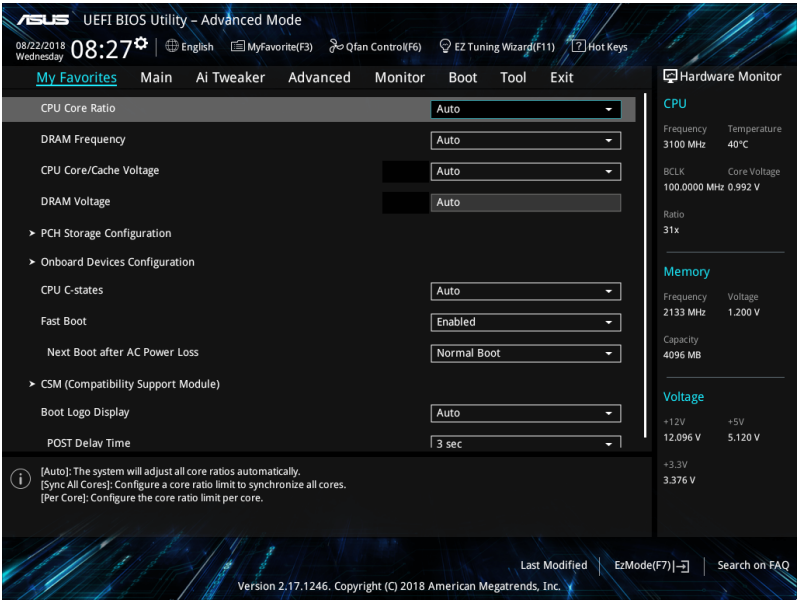
b. For Super Speed, click **Next** then select from **Super Speed (RAID 0)** or **Super Speed (RAID 5)**.



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

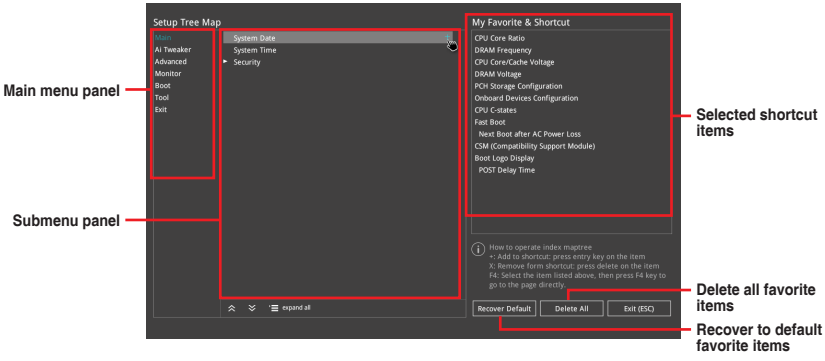
My Favorites is your personal space where you can easily save and access your favorite BIOS items. My Favorites comes with several performance, power saving, and fast boot related items by default. You can personalize this screen by adding or removing items.



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 user-managed items such as language and boot order to My Favorites.

.

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.

Chapter 3

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 Jumpers** for information on how to erase the RTC RAM via the Clear CMOS button.
- The Administrator or User Password items on the screen show the default **[Not Installed]**. After you set a password, these items show **[Installed]**.

3.5 Ai Tweaker menu

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

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

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

Ai Overclock Tuner

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

[Auto] Loads the optimal settings for the system.

[Manual] Allows you to individually set overclocking parameters.

[X.M.P.] If you install memory modules supporting the eXtreme Memory Profile (X.M.P.) Technology, choose this item to set the profiles supported by your memory modules for optimizing the system performance.

The [X.M.P.] configuration option appears only when you install memory modules supporting the eXtreme Memory Profile(X.M.P.) Technology.

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

BCLK Frequency

This item allows you to set the BCLK (base clock) frequency to enhance the system performance. Use the <+> or <-> to adjust the value. The values range from 98.0000 MHz to 538.0000 MHz.

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

ASUS MultiCore Enhancement

[Auto] This item allows you to maximize the oveclocking performance optimized by ASUS core ratio settings.

[Disabled] This item allows you to set to default core ratio settings.

CPU Core Ratio

This item allows you to set the CPU core ratios. Configuration options: [Auto] [Sync All Cores] [Per Core] [AI Optimized]

The **[AI Optimized]** item appears only when you use an unlocked CPU.

DRAM Odd Ratio Mode

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

DRAM Frequency

This item allows you to set the memory operating frequency. The configurable options vary with the BCLK (base clock) frequency setting. Select the auto mode to apply the optimized setting. Configuration options: [Auto] [DDR4-800MHz] - [DDR4-8533MHz]

Internal CPU Power Management

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

Intel(R) SpeedStep(tm)

Allows the operating system to dynamically adjust the processor voltage and cores frequency to decrease the average power consumption and decrease average heat production. Configuration options: [Auto] [Disabled] [Enabled]

Turbo Mode

Allows you to enable your processor cores to run faster than the base operating frequency when it is below power, current and specification limit.
Configuration options: [Disabled] [Enabled]

3.6 Advanced menu

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

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

3.6.1 Platform Misc Configuration

The items in this menu allow you to change the ASPM for PCH and SA PCI Express.

3.6.2 CPU Configuration

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

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

CPU - Power Management Control

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

Intel(R) SpeedStep(tm)

This item allows more than two frequency to be supported.
Configuration options: [Auto] [Disabled] [Enabled]

Turbo Mode

This item allows you to automatically set the CPU cores to run faster than the base operating frequency when it is below the operating power, current and temperature specification limit. Configuration options: [Disabled] [Enabled]

CPU C-states

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

CFG Lock

This item allows you to configure MSR 0xE2[15], CFG lock bit. Configuration options: [Disabled] [Enabled]

3.6.3 System Agent (SA) Configuration

The items in this menu allow you to adjust the Link Speed for PEG Port and Multi-Monitor.

3.6.4 PCH Configuration

The items in this menu allow you to adjust the PCH PCI Express speed.

PCI Express Configuration

This item allows you to configure the PCI Express slots.

PCIe Speed

This item allows your system to automatically select the PCI Express port speed.
Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

3.6.5 PCH Storage Configuration

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

SATA Controller(s)

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.

SMART Self Test

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]

SATA6G_1(Gray) - SATA6G_4(Gray)

SATA6G_1(Gray) - SATA6G_4(Gray)

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

Hot Plug

These items appear only when the SATA Mode Selection is set to [**AHCI**] and allows you to enable or disable SATA Hot Plug Support. Configuration options: [Disabled] [Enabled]

3.6.6 PCH-FW Configuration

This item allows you to configure the firmware TPM.

3.6.7 Onboard Devices Configuration

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

HD Audio Controller

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

LED Lighting

This item allows you to set the audio shielding LED mode. Configuration options: [Disabled] [Still Mode] [Breathing Mode]

M.2_1 Configuration

[Auto]	Automatically detects the M.2 device mode. If a SATA device is detected, SATA6G_1 port will be disabled.
[SATA Mode]	Supports M.2 SATA devices only. SATA6G_1 port will be disabled.
[PCIE Mode]	Supports M.2 PCIe devices only.

Realtek LAN Controller

This item allows you to enable or disable the Realtek LAN controllers. Configuration options: [Disabled] [Enabled]

USB power delivery in Soft Off state (S5)

[Enabled] The USB port will provide power to your devices even when the system is in Power State S5.

[Disabled] Disables this function.

3.6.8 APM Configuration

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

ErP Ready

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

3.6.9 USB Configuration

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

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

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.

3.6.10 Network Stack Configuration

The items in this menu allow you to configure Ipv4 / Ipv6 PXE support.

3.6.11 HDD/SSD SMART Information

The items in this menu display the SMART information of the connected devices.

3.7 Monitor menu

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

Q-Fan Configuration

Qfan Tuning

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

AIO PUMP Control

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

3.8 Boot menu

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

Fast Boot

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

The following items appear only when you set the Fast Boot to **[Enabled]**.

Next Boot after AC Power Loss

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

Boot Configuration

Setup Mode

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

CSM (Compatibility Support Module)

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

Launch CSM

[Auto]	The system automatically detects the bootable devices and the add-on devices.
[Enabled]	For a 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 secure update and secure boot.

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

Boot Devices Control [UEFI and Legacy OPROM]
This item allows you to select the type of devices that you want to boot. Configuration options: [UEFI and Legacy OPROM] [Legacy OPROM only] [UEFI only]

Boot from Network Devices [Legacy only]
This item allows you to select the type of network devices that you want to launch. Configuration options: [Ignore] [Legacy only] [UEFI driver first]

Boot from Storage Devices [Legacy only]
This item allows you to select the type of storage devices that you want to launch. Configuration options: [Ignore] [Legacy only] [UEFI driver first]

Boot from PCI-E/PCI Expansion Devices [Legacy only]
This item allows you to select the type of PCI-E/PCI expansion devices that you want to launch. Configuration options: [Legacy only] [UEFI driver first]

Secure Boot

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

Boot Option Priorities

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

- To access Windows® OS in Safe Mode, press <F8> after POST.
- To select the boot device during system startup, press <F8> when the ASUS Logo appears.

Boot Override

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

3.9 Tool menu

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

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**.

Setup Animator

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

3.9.2 ASUS User Profile

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

Load from Profile

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

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

Profile Name

This item allows you to key in a profile name.

Save to Profile

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

Load/Save Profile from/to USB Drive

This item allows you to load/save profile from/to your USB drive.

3.9.3 ASUS SPD Information

This item allows you to view the DRAM SPD information.

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 & 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 **Ok** 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.

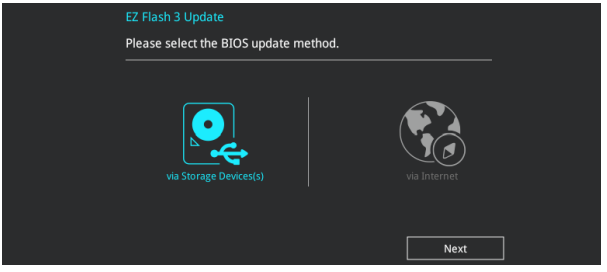
3.11.2 ASUS EZ Flash 3

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 3 Utility** and press <Enter>.
2. Insert the USB flash disk that contains the latest BIOS file to the USB port.
3. Select **via Storage Devices(s).**



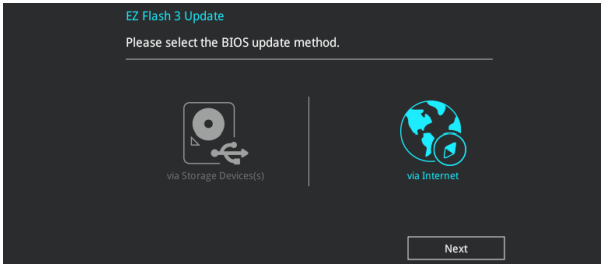
4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.
5. Press the Left/Right arrow keys to switch to the Folder field.
6. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

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

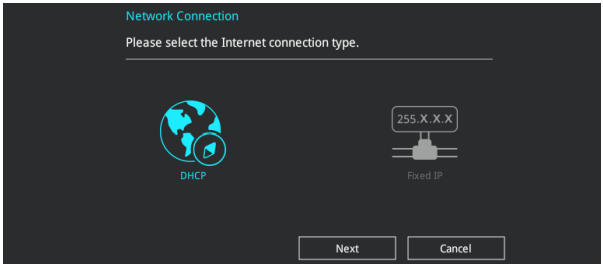
Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. See section **3.10 Exit menu** for details.

To update the BIOS by Internet:

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



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



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

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

3.11.3 ASUS CrashFree BIOS 3

The ASUS CrashFree BIOS 3 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 updated BIOS file.

- Before using this utility, rename the BIOS file in the removable device into **TZ370PG.CAP**.
- The BIOS file in the support DVD may not be the latest version. Download the latest BIOS file from the ASUS website at www.asus.com.

Recovering the BIOS

To recover the BIOS:

1. Turn on the system.
2. Insert the support DVD to the optical drive or the USB flash drive that contains 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 utility automatically.
4. The system requires you to enter BIOS Setup to recover BIOS settings. 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.

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

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.

Appendix

Notices

FCC Compliance Information

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

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

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

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

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取扱説明書に従って正しい取り扱いをして下さい。

ＶＣＣＩ－Ｂ

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

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

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

ASUS Recycling/Takeback Services

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

Regional notice for California

WARNING

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

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