PRIME Z270M-PLUS

Motherboard

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 components, 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 be exposed to moisture.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

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

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports. It includes descriptions of the switches, jumpers, and connectors on the motherboard.

- **Chapter 2: BIOS information**

  This chapter discusses changing system settings through the BIOS Setup menus. Detailed descriptions for the BIOS parameters are also provided.

Where to find more information

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

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

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 completing a task.

CAUTION: Information to prevent damage to the components when completing 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 (+).

Package contents

Check your motherboard package for the following items.

Motherboard	ASUS PRIME Z270M-PLUS motherboard
Cables	2 x Serial ATA 6.0 Gb/s cables
Accessories	1 x I/O Shield 2 x M.2 screws
Application DVD	Support DVD
Documentation	User Guide

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

PRIME Z270M-PLUS specifications summary

CPU	LGA1151 socket for Intel® 7th / 6th Generation Core™ i7 / i5 / i3, Pentium®, and Celeron® processors Supports Intel® 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® Z270 Chipset
Memory	4 x DIMM, maximum 64 GB, DDR4 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(O.C.)*/2400(O.C.)*/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 Memory QVL (Qualified Vendors List).**

Graphics	Integrated graphics processor - Intel® HD Graphics support
	Multi-VGA output support: HDMI, DVI-D, RGB ports
	  - Supports HDMI 1.4b with maximum resolution of 4096 x 2160 @24Hz / 2560 x 1600 @60Hz
	  - Supports DVI-D with maximum resolution of 1920 x 1200 @60Hz
	  - Supports RGB with maximum resolution of 1920 x 1200 @60Hz
	Supports up to three displays simultaneously
	Supports Intel® InTru™ 3D, Quick Sync Video, Intel® Clear Video HD Technology, and Intel® Insider™
	Maximum shared memory of 1024 MB (for iGPU exclusively)

Expansion Slots	1 x PCI Express 3.0/2.0 x16 slot (at x16 mode) 1 x PCI Express 3.0/2.0 x16 slot (max. at x4 mode, compatible with PCIe x1, x2 and x4 devices) 2 x PCI Express 3.0/2.0 x1 slots

PRIME Z270M-PLUS specifications summary

Multi-GPU Support	Supports AMD® CrossFireX™ Technology
Audio	Realtek® ALC887 8-channel High Definition Audio CODEC **Audio Features** - 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-made audio capacitors: Provide warm, natural and immersive sound with exceptional clarity and fidelity - Supports jack-detection and front panel jack-retasking

Storage	Intel® Z270 Chipset with RAID 0, 1, 5, 10 and Intel Rapid Storage Technology 15 support
	  - 2 x M.2 Socket 3 with M Key, type 2242/2260/2280 storage devices support (both SATA & X4 PCIE mode)*
	  - 4 x SATA 6.0 Gb/s ports (gray)
	  - Intel® Optane™ memory ready**
	  - Supports Intel® Smart Response Technology***
	* **When a device in SATA mode is installed on the M.2_1 socket, SATA_1 port cannot be used.**
	** **Inte® Optane Technology is only supported when using 7th Generation Intel® Processors. Before using Intel® Optane memory modules, ensure that you have updated your motherboard drivers and BIOS to the latest version from ASUS support website.**
	*** **These functions work depending on the type of CPU installed.**

LAN	Intel I219-V Gigabit LAN - Dual interconnection between the integrated Media Access Controller (MAC) and physical layer (PHY)

USB	Intel® Z270 Chipset
	  - 1 x USB 5Gb/s Type C port supports 3A power output (at the rear panel)
	  - 6 x USB 3.0 / 2.0 ports (4 ports at mid-board, 2 ports at the rear panel)
	  - 6 x USB 2.0 / 1.1 ports (4 ports at mid-board, 2 ports at the rear panel)

ASUS Unique Features	**ASUS 5X PROTECTION III** - ASUS LANGuard - Protects against LAN surges, lightning strikes and static-electricity discharges! - ASUS Overvoltage Protection - World-class circuit-protection power design - ASUS DIGI+ VRM 7 phase digital power design - ASUS SafeSlot Core - Fortifies PCIe Slot damage prevention - ASUS Stainless Steel Back I/O - 3X corrosion-resistance for greater durability **Superb Performance** **M.2 onboard** - The latest transfer technologies with up to 32Gb/s data transfer speeds **ASUS Fan Xpert 4 core** - Advanced fan controls for ultimate cooling and quietness

PRIME Z270M-PLUS specifications summary

ASUS Unique Features	**ASUS EPU** - EPU **UEFI BIOS** - Most advanced options with fast response time **Gaming Scenario** **Audio Features** - Audio that roars on the battlefield **ASUS Exclusive Features** - ASUS Ai Charger - ASUS Ai Suite 3 **EZ DIY** **UEFI BIOS EZ Mode** - Featuring friendly graphics user interface - ASUS O.C. Tuner - ASUS CrashFree BIOS 3 - ASUS EZ Flash 3 **Q-Design** - ASUS Q-Slot - ASUS Q-DIMM
ASUS Quiet Thermal Solution	**Quiet Thermal Design** - ASUS Fan Xpert 4 Core - Stylish Fanless Design: PCH Heatsink & MOS Heatsink solution
ASUS Exclusive Overclocking Features	**Precision Tweaker 2** - vCore: Adjustable CPU core voltage at 0.005V increment - iGPU: Adjustable CPU Graphics voltage at 0.005V increment - vCCIO: Adjustable Analog and Digital I/O voltage at 0.005V increment - vCCSA: Adjustable CPU System Agent Voltage at 0.1V increment - vDRAM Bus: 160-step memory voltage control - vPCH: 3-step Chipset voltage control **SFS (Stepless Frequency Selection)** - BCLK/PCIE frequency tuning from 98MHz up to 538MHz at 0.1MHz increment **Overclocking Protection** - ASUS CPR (CPU Parameter Recall)
Rear Panel I/O Ports	1 x PS/2 keyboard port (purple) 1 x PS/2 mouse port (green) 1 x HDMI port 1 x DVI-D port 1 x RGB port 1 x LAN (RJ-45) port 2 x USB 3.0/2.0 ports (Type A,teal blue) 1 x USB 5Gb/s Type C port 2 x USB 2.0/1.1 ports 3 x Audio jacks support 8-channel audio output

(continued on the next page)

PRIME Z270M-PLUS specifications summary

Internal I/O Connectors	2 x USB 3.0 / 2.0 connectors support additional 4 USB 3.0 / 2.0 ports (19-pin)
	2 x USB 2.0 / 1.1 connectors support additional 4 USB 2.0 / 1.1 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 both 3-pin (DC mode) and 4-pin (PWM mode) coolers control
	1 x Front panel audio connector (AAFP)
	1 x System panel connector
	1 x S/PDIF out header
	1 x 24-pin EATX power connector
	1 x 8-pin EATX 12V power connector
	1 x COM connector
	1 x Mono out header
	1 x Clear CMOS jumper
	* **By default, the CPU Q-Fan and the CHA FAN control setting is set to Auto mode, which detects the CPU fan installed and changes the control mode automatically.**
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, Last Modified log, F12 PrintScreen, and ASUS DRAM SPD (Serial Presence Detect) memory information
Manageability	WfM 2.0, DMI 3.0, WOL by PME, PXE
Support DVD	Drivers
	ASUS utilities
	ASUS EZ Update
	Anti-virus software (OEM version)
OS support	Windows® 10 (64-bit)
	Windows® 8.1 (64-bit)*
	Windows® 7 (32-bit/64-bit)*
	* **Windows® 8.1 64-bit and Windows® 7 32/64-bit are only supported when using 6th Generation Intel® Core™ Processors.**
Form factor	mATX form factor: 9.6 in. x 9.4 in. (24.38 cm x 23.88 cm)

Specifications are subject to change without notice.

Product introduction

1
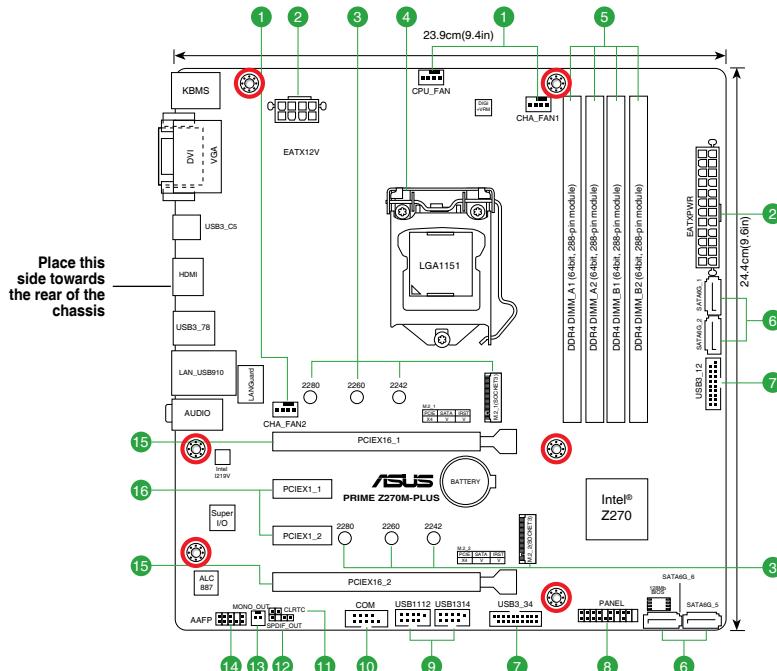
1.1 Before you proceed

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

- Unplug the power cord from the wall socket before touching any component.

- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.

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

1.2 Motherboard overview

Unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

1.2.1   Layout contents
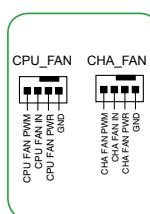
Connectors/Jumpers/Slots/LED	Page
1. CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN1/2)	1-2
2. ATX power connectors (24-pin EATXPWR, 8-pin EATX12V)	1-2
3. M.2 Socket3	1-3
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1.   CPU and chassis fan connectors (4-pin CPU_FAN, 4-pin CHA_FAN1/2)

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! The CPU_FAN connector supports a CPU fan of maximum 1A (12 W) fan power.

CPU_FAN   CHA_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND

CHA FAN PWM
CHA FAN IN
CHA FAN PWR
GND
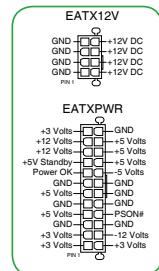
2.   ATX power connectors (24-pin EATXPWR, 8-pin EATX12V)

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.

- • We recommend that you use an EATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 300W power rating. This PSU type has 24-pin and 8-pin power plugs.

- • DO NOT forget to connect the 8-pin EATX +12V power plug. Otherwise, the system will not boot up.

- • We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate.

- • If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us for details.
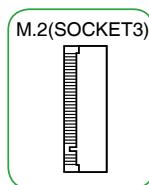
3.   M.2 socket 3

These sockets allow you to install an M.2 (NGFF) SSD module.

- • These sockets support M Key and 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.

4.   Intel® LGA1151 CPU socket

Install Intel® LGA1151 CPU into this surface mount LGA1151 socket, which is designed for 7th/6th Generation Intel® Core™ i7 / i5 / i3, Pentium®, and Celeron® processors.

For more details, refer to **Central Processing Unit (CPU)**.

5.   DDR4 DIMM slots

Install 2 GB, 4 GB, 8 GB, and 16 GB unbuffered non-ECC DDR4 DIMMs into these DIMM sockets.
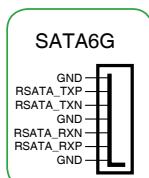
For more details, refer to **System memory**.

6.   Intel® Z270 Serial ATA 6.0Gb/s ports (7-pin SATA6G_1~4)

These ports connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.
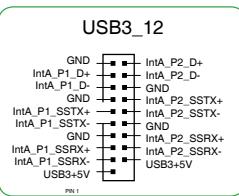
When using hot-plug and NCQ, set the **SATA Mode Selection** item in the BIOS to [AHCI].

7.   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 5Gbps, faster charging time for USB-
chargeable devices, optimized power efficiency and
backward compatibility with USB 2.0.

USB3_12

GND	IntA_P2_D+
IntA_P1_D+	IntA_P2_D-
IntA_P1_D-	GND
GND	IntA_P2_SSTX+
IntA_P1_SSTX+	IntA_P2_SSTX-
IntA_P1_SSTX-	GND
GND	IntA_P2_SSRX+
IntA_P1_SSRX+	IntA_P2_SSRX-
IntA_P1_SSRX-	USB3+5V
USB3+5V	

PIN 1

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

This connector supports several chassis-mounted functions.

• **System power LED (2-pin PWR_LED)**

These 2-pin connectors are for the system power LED.
Connect the chassis power LED cable to these connectors.
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)**
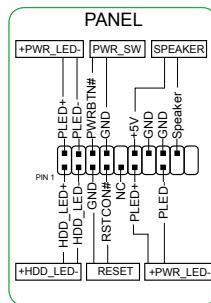
This 4-pin connector is for the chassis-mounted system
warning speaker. The speaker allows you to hear system
beeps and warnings.

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

This connector is for the system power button.

• **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.

PANEL

+PWR_LED-	PWR_SW	SPEAKER

PLED+
PLED-
PWRBTN#
GND
+5V
GND
GND
Speaker

PIN 1

HDD_LED+
HDD_LED-
RSTCON#
GND
NC
PLED+
PLED-

+HDD_LED-	RESET	+PWR_LED-
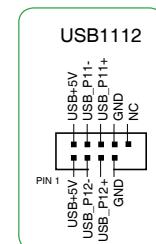
9.   USB 2.0 connectors (10-1 pin USB1112, USB1314)

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 specifications and support up to 480Mbps
connection speed.

USB1112

USB+5V
USB_P11-
USB_P11+
GND
NC

PIN 1

USB+5V
USB_P12-
USB_P12+
GND
GND
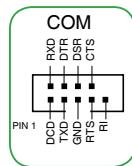
⚡ Never connect a 1394 cable to the USB connectors. Doing so
will damage the motherboard!

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.
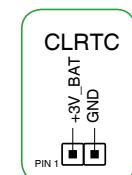
11. Clear RTC RAM (2-pin CLRTC)

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

To erase the RTC RAM:
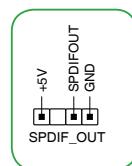
1. Turn OFF the computer and unplug the power cord.

2. Use a metal object such as a screwdriver to short the two pins.

3. Plug the power cord and turn ON the computer.

4. Hold down the <**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.
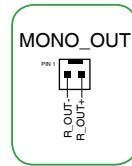
12. Digital audio connector (4-1 pin SPDIF_OUT)

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.
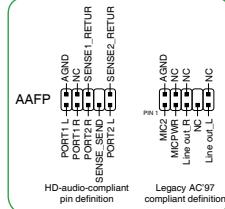
13. Mono out header (2-pin MONO_OUT)

This internal mono out header allows connection to an internal, low power speaker for basic system sound capability. The subsystem is capable of driving a speaker load of 4 Ohms at 2 Watts (rms).

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

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

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

- If you want to connect a high-definition front panel audio module to this connector, set the **Front Panel Type** item in the BIOS setup to [HD]. By default, this connector is set to [HD].

15. PCI Express 3.0/2.0 x16 slots

This motherboard supports two PCI Express 3.0/2.0 x16 graphic cards that comply with the PCI Express specifications.

VGA configuration	PCI Express operating mode	
	PCIe 3.0 x16_1 (gray)	PCIe 3.0 x16_2
Single VGA/PCIe card	x16 (Recommended for single VGA card)	N/A
Dual VGA/PCIe cards	x16	x4

- In single VGA card mode, use the PCIe 3.0 x16_1 slot (gray) for a PCI Express x16 graphics card to get better performance.

- 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.

16. PCI Express 3.0/2.0 x1 slots

This motherboard has two PCI Express 3.0/2.0 x1 slots that support PCI Express x1 network cards, SCSI cards, and other cards that comply with the PCI Express specifications.
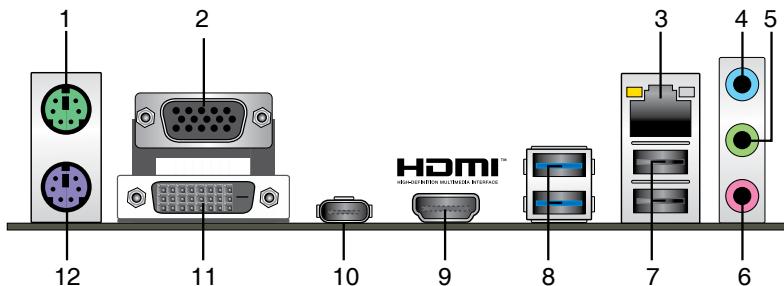
IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
HD Audio Controller	shared	–	–	–	–	–	–	–
XHCI	shared	–	–	–	–	–	–	–
SATA Controller	shared	–	–	–	–	–	–	–
LAN Controller	shared	–	–	–	–	–	–	–
PCIEx1_1	–	–	shared	–	–	–	–	–
PCIEx1_2	–	–	–	shared	–	–	–	–
PCIEx16_1	shared	–	–	–	–	–	–	–
PCIEx16_2	shared	–	–	–	–	–	–	–
M.2_1	shared	–	–	–	–	–	–	–
M.2_2	shared	–	–	–	–	–	–	–

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

1.2.2 Rear panel connectors

1. **PS/2 Mouse port (green).** This port is for a PS/2 mouse.

2. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

3. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

    LAN port LED indications

Activity/Link LED		Speed LED	
Status	Description	Status	Description
Off	No link	OFF	10Mbps connection
Orange	Linked	ORANGE	100Mbps connection
Orange (Blinking)	Data activity	GREEN	1Gbps connection
Orange (Blinking then steady)	Ready to wake up from S5 mode		

Activity Link LED   Speed LED

LAN port

4. **Line In port (light blue)**. This port connects the tape, CD, DVD player, or other audio sources.

5. **Line Out port (lime)**. This port connects a headphone or a speaker. In 4.1-channel, 5.1-channel, and 7.1-channel configurations, the function of this port becomes Front Speaker Out.

6. **Microphone port (pink)**. This port connects a microphone.

> Refer to the audio configuration table for the function of the audio ports in 2.1, 4.1, 5.1, or 7.1-channel configuration.

Audio 2.1, 4.1, 5.1 or 7.1-channel configuration

Port	Headset 2.1-channel	4.1-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

To configure an 7.1-channel audio output:

Use a chassis with HD audio module in the front panel to support an 7.1-channel audio output.

7. **USB 2.0 ports** These four 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices.

8. **USB 3.0 ports.** These four 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.

- Due to USB 3.0 controller limitations, USB 3.0 devices can only be used under a Windows® OS environment and after USB 3.0 driver installation.

- The plugged USB 3.0 device may run on xHCI or EHCI mode, depending on the operating system's setting.

- USB 3.0 devices can only be used for data storage.

- We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance from your USB 3.0 devices.

9. **HDMI port.** This port is for a High-Definition Multimedia Interface (HDMI) connector, and is HDCP compliant allowing playback of HD DVD, Blu-ray, and other protected content.

10. **USB 5Gb/s Type C port.** This 24-pin Universal Serial Bus (USB) port is for USB (Type C) devices.

11. **DVI-D port.** This port is for any DVI-D compatible device.

DVI-D can not be converted to output from RGB Signal to CRT and is not compatible with DVI-I.
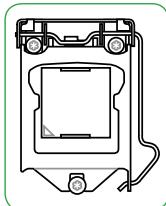
12. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

1.3 Central Processing Unit (CPU)

This motherboard comes with a surface mount LGA1151 socket designed for 7th / 6th Generation Intel® Core™ i7 / i5 / i3, Pentium®, and Celeron® processors.
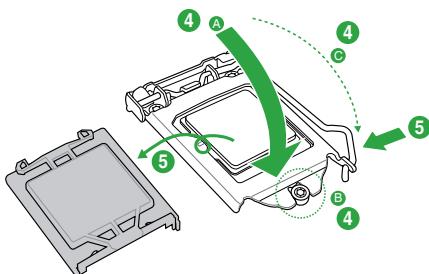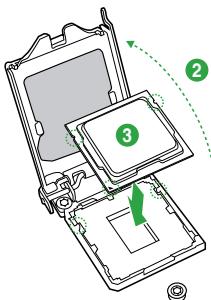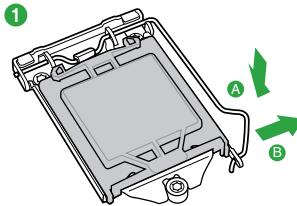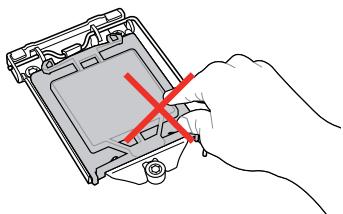
Unplug all power cables before installing the CPU.

- Ensure that you install the correct CPU designed for the LGA1151 socket only. DO NOT install a CPU designed for LGA1150, LGA1155 and LGA1156 sockets on the LGA1151 socket.

- 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.

Installing the CPU

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

1.4 System memory

Overview

This motherboard comes with four Double Data Rate 4 (DDR4) Dual Inline Memory Module (DIMM) sockets. The figure illustrates the location of the DDR4 DIMM sockets:

Channel	Sockets
Channel A	DIMM_A1 & DIMM_A2
Channel B	DIMM_B1 & DIMM_B2
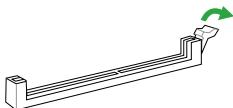
- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.

- Always install DIMMs with the same CAS latency. For optimal compatibility, we recommend that you install memory modules of the same version or date code (D/C) from the same vendor. Check with the retailer to get the correct memory modules.

- According to Intel® CPU spec, DIMM voltage below 1.35V is recommended to protect the CPU.

- 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:

  - Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS.

  - Install a 64-bit Windows® OS if you want to install 4GB or more on the motherboard.

  - For more details, refer to the Microsoft® support site at http://support.microsoft.com/kb/929605/en-us.

- Memory modules with memory frequency higher than 2133 MHz and its corresponding timing or the loaded X.M.P. Profile is not the JEDEC memory standard. The stability and compatibility of these memory modules depend on the CPU's capabilities and other installed devices.

- 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).

- Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List).
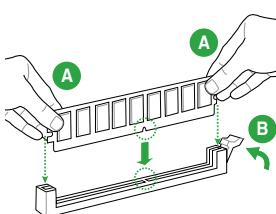
Installing a DIMM

To remove a DIMM

1.5   Software support

1.5.1   Installing an operating system

This motherboard supports Windows® 7 (64-bit/32-bit), Windows® 8.1 (64-bit) and Windows® 10 (64-bit) Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

> • Motherboard settings and hardware options vary. Refer to your OS documentation for detailed information.
>
> • Windows® 8.1 (64-bit) and Windows® 7 (32/64-bit) are only supported when using 6th Generation Intel® Processors

1.5.2   Support DVD information

The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

> The contents of the Support DVD are subject to change at any time without notice. Visit the ASUS website at www.asus.com for updates.
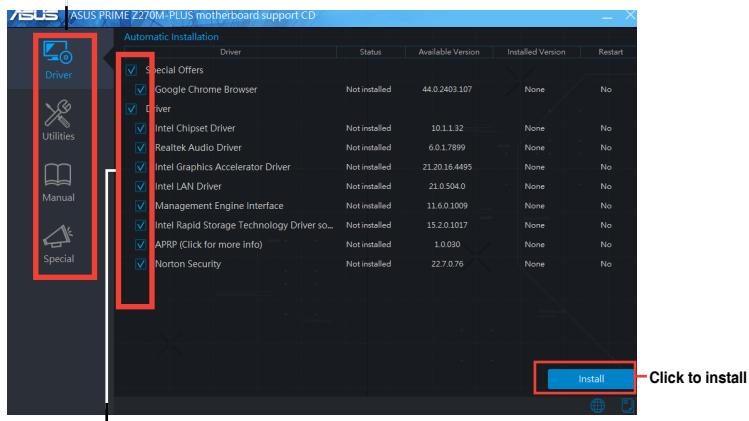
To run the Support DVD

Place the Support DVD into the optical drive. If Autorun is enabled in your computer, the DVD automatically displays the lists of the unique features of your ASUS motherboard. Click the **Driver**, **Utilities**, **Manual**, or **Special** tabs to display their respective menus.

> The following screen is for reference only.

Click a tab to display Support DVD information

Click to install

Select an item/subitem that you want to install

> If Autorun is NOT enabled in your computer, browse the contents of the Support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

Chapter 1: Product introduction

BIOS information

2

2.1 Managing and updating your BIOS
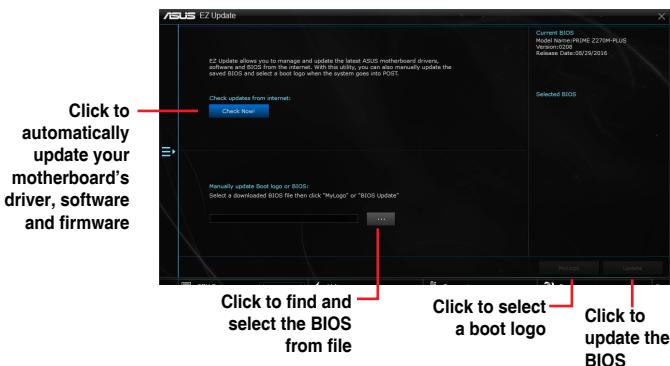
Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.

2.1.1 EZ Update

EZ Update is a utility that allows you to automatically update your motherboard's softwares, drivers and the BIOS version easily. With this utlity, you can also manually update the saved BIOS and select a boot logo when the system goes into POST.

To launch EZ Update, click **EZ Update** on the AI Suite 3 main menu bar.

Click to automatically update your motherboard's driver, software and firmware

Click to find and select the BIOS from file

Click to select a boot logo

Click to update the BIOS
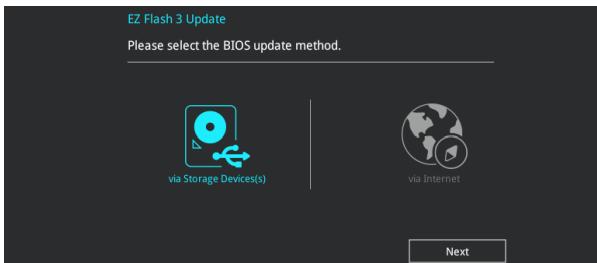
EZ Update requires an Internet connection either through a network or an ISP (Internet Service Provider).

2.1.2   ASUS EZ Flash 3

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

- Ensure that you load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the Exit menu. See section **2.10 Exit Menu** for details.
- Check your Internet connection before updating the BIOS via the Internet.

To update the BIOS using EZ Flash 3:

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> to enable it.

2.   Follow the steps below to update the BIOS via Storage Device(s) or Internet.

<u>Via Storage Device(s)</u>

a)   Insert the USB flash disk that contains the latest BIOS file to the USB port, then select **via Storage Device(s)**.

b)   Press <Tab> to switch to the **Drive** field.

c)   Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.

d)   Press <Tab> to switch to the **Folder Info** field.

e)   Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process.

<u>Via Internet</u>

a)   Select **via Internet**.

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

c)   Follow the onscreen instructions to complete the update.

3.   Reboot the system when the update process is done.

⚠
- ASUS EZ Flash 3 supports USB 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!

2.1.3   ASUS CrashFree BIOS 3 utility

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 **PZ270MP.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!

2.1.4   ASUS BIOS Updater

ASUS BIOS Updater allows you to update the BIOS in DOS environment.

✎
The screen captures used in this section are for reference only and may not be exactly the same as actually shown on your computer screen.

Before updating BIOS

- Prepare the motherboard support DVD and a USB flash drive.

- Download the latest BIOS file and BIOS Updater from http://support.asus.com and save them in your USB flash drive.

> NTFS is not supported under FreeDOS environment. Ensure that your USB flash drive is in single partition and in FAT32/16 format.

- Turn off the computer.

- Ensure that your computer has a DVD optical drive.

Booting the system in DOS environment

To boot the system in DOS:

1. Insert the USB flash drive with the latest BIOS file and BIOS Updater to the USB port.

2. Boot your computer then press <F8> to launch the select boot device screen.

3. When the select boot device screen appears, insert the Support DVD into the optical drive then select the optical drive as the boot device.

```
Please select boot device:
↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults

P2:  ST3808110AS  (76319MB)
aigo miniking (250MB)
UEFI: (FAT)  ASUS   DRW-2014L1T(4458MB)
P1:  ASUS   DRW-2014L1T(4458MB)
UEFI: (FAT)  aigo miniking (250MB)
Enter Setup
```

4. When the booting message appears, press <Enter> within five (5) seconds to enter FreeDOS prompt.

```
ISOLINUX 3.20 2006-08-26 Copyright (C) 1994-2005 H. Peter Anvin
A Bootable DVD/CD is detected. Press ENTER to boot from the DVD/CD.
If no key is pressed within 5 seconds, the system will boot next priority
device automatically. boot:
```

5. On the FreeDOS prompt, type **d:** then press <Enter> to switch the disk from Drive C (optical drive) to Drive D (USB flash drive).

```
Welcome to FreeDOS (http://www.freedos.org)!
C:/> d:
D:/>
```
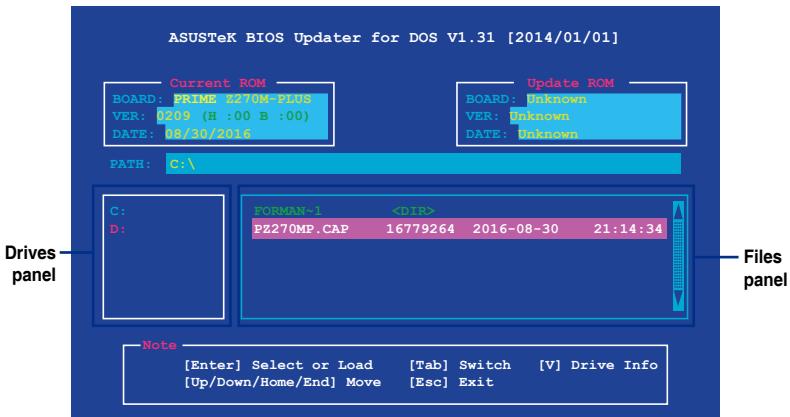
Updating the BIOS file

To update the BIOS file:

1. On the FreeDOS prompt, type **bupdater /g** and press <Enter>.

```
D:/> bupdater /g
```

2. On the BIOS Updater screen, press <Tab> to switch from Files panel to Drives panel then select **D:**.

```
            ASUSTeK BIOS Updater for DOS V1.31 [2014/01/01]

         — Current ROM ——————            —— Update ROM —————
   BOARD: PRIME Z270M-PLUS           BOARD: Unknown
   VER: 0209 (H :00 B :00)           VER: Unknown
   DATE: 08/30/2016                  DATE: Unknown

   PATH: C:\

   ┌─────────────┐ ┌───────────────────────────────────────────┐
   │ C:          │ │ FORMAN~1          <DIR>                    │
   │ D:          │ │ PZ270MP.CAP    16779264   2016-08-30       21:14:34 │
   │             │ │                                            │
   └─────────────┘ └───────────────────────────────────────────┘

       — Note ——————————————————————————————————————————
         [Enter] Select or Load      [Tab] Switch    [V] Drive Info
         [Up/Down/Home/End] Move     [Esc] Exit
```

Drives panel — (left)   Files panel — (right)

3. Press <Tab> to switch from Drives panel to Files panel then press <Up/Down or Home/End> keys to select the BIOS file and press <Enter>.

4. After the BIOS Updater checks the selected BIOS file, select **Yes** to confirm the BIOS update.

```
   Are you sure you want to update the BIOS?

                    Yes       No
```

> The BIOS Backup feature is not supported due to security regulations.

5. Press any key to reboot the system to automatically launch EZ Flash 3. Wait until the BIOS update is completed.

> ⚠ DO NOT shut down or reset the system while updating the BIOS to prevent system boot failaure.

> Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the **Exit** BIOS menu. See section **2.10 Exit Menu** for details.

2.2 BIOS setup program

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

Entering BIOS Setup 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>+<Del> 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.

Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to force reset from a running operating system can cause damage to your data or system. We recommend you always shut down the system properly from the operating system.

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

- Visit the ASUS website at **www.asus.com** to download the latest BIOS file for this motherboard.

- 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 **2.10 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 **1.2.1 Layout Contents** for information on how to erase the RTC RAM.

BIOS menu screen

The BIOS setup program can be used under two modes: **EZ Mode** and **Advanced Mode**. Press <F7> to change between the two modes.

2.2.1 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, fan profile and boot device priority. To access the Advanced Mode, click **Advanced Mode(F7)** or press <F7>.

> The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item in section **2.8 Boot menu** for details.

Displays the system properties of the selected mode. Click <Enter> to switch EZ System Tuning modes

Displays the CPU/motherboard temperature, CPU voltage output, CPU/chassis fan speed, and SATA information

Selects the display language of the BIOS setup program

Creates storage RAID and configures system overclocking

Enables or disables the Intel Rapid Storage Technology

Displays the CPU Fan's speed Click the button to manually tune the fans

Loads optimized default settings

Saves the changes and resets the system

Shows the bootable devices

Displays the Advanced mode menus

Search on FAQs
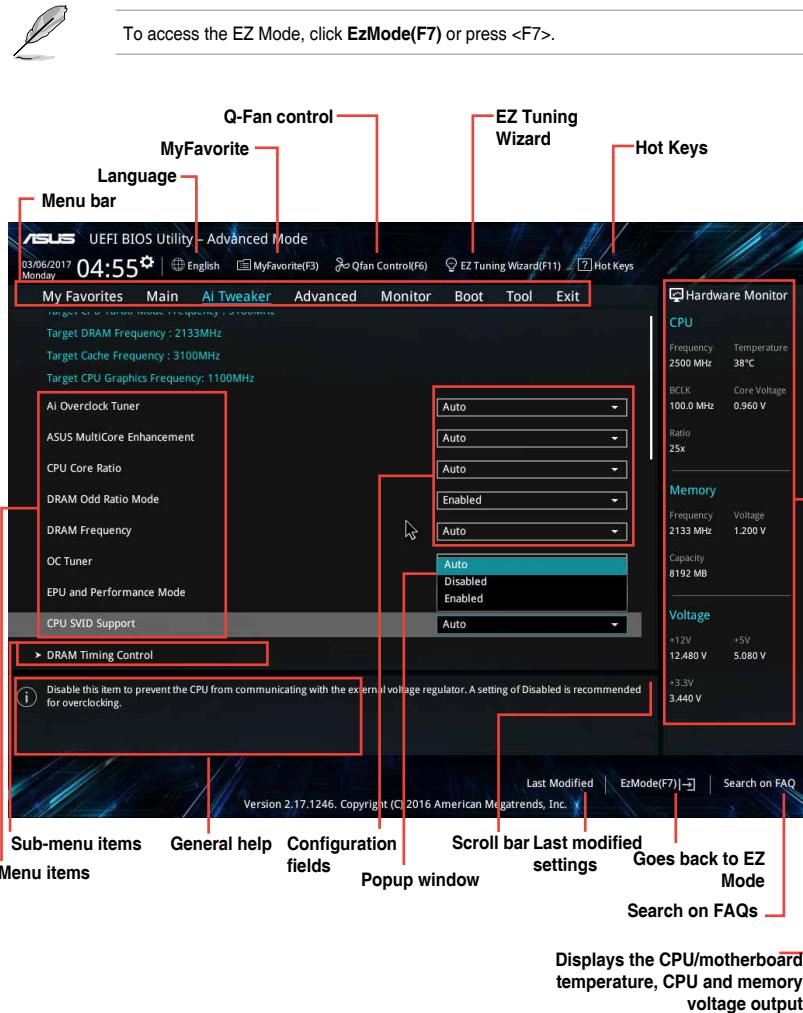
Selects the boot device priority

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

2.2.2   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 access the EZ Mode, click **EzMode(F7)** or press <F7>.

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 **2.3 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 **2.2.3 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 **2.2.4 EZ Tuning Wizard** for more information.

Search on FAQ

Move your mouse over this button to show a QR code. Scan this QR code with your mobile device to connect to the ASUS BIOS FAQ web page. You can also scan the QR code below.

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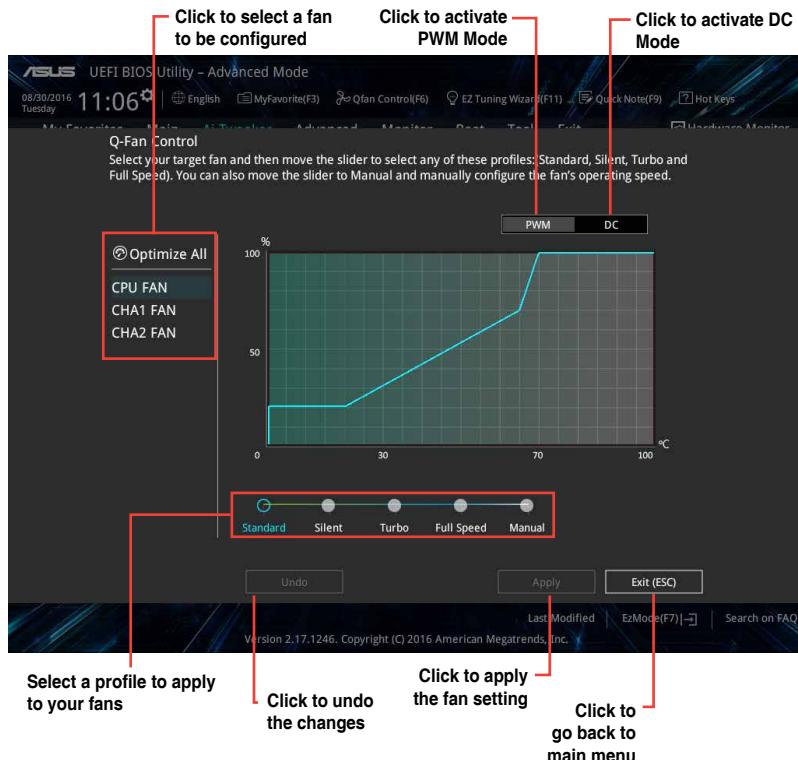
A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

Last Modified button

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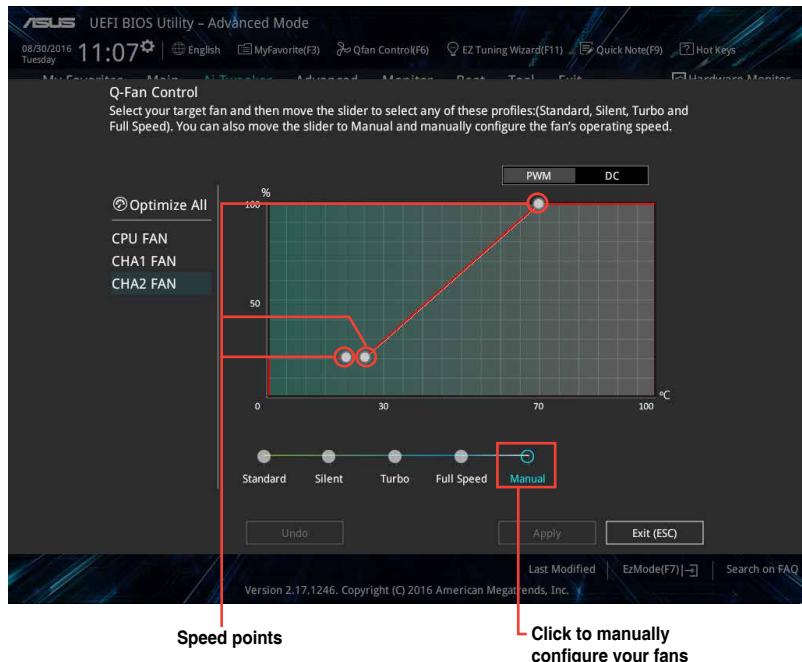
2.2.3 QFan Control

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

Click to select a fan to be configured

Click to activate PWM Mode

Click to activate DC Mode

Select a profile to apply to your fans

Click to undo the changes

Click to apply the fan setting

Click to go back to main menu

Configuring fans manually

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

Speed points   **Click to manually configure your fans**
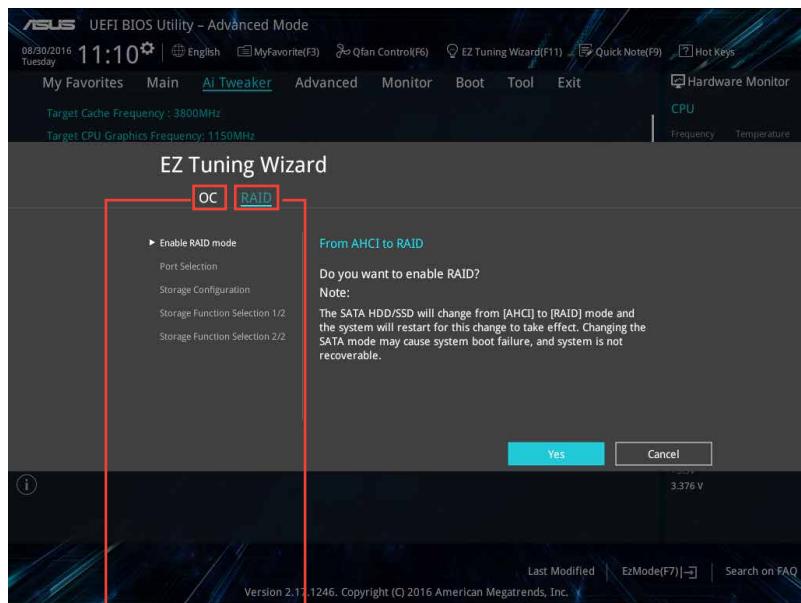
To configure your fans:

1.   Select the fan that you want to configure and to view its current status.

2.   Click and drag the speed points to adjust the fans' operating speed.

3.   Click **Apply** to save the changes then click **Exit (ESC)**.

2.2.4 EZ Tuning Wizard

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

System OC setup   **RAID setup**

Tuning your system settings

To tune your settings:

1. Press <F11> on your keyboard or click from the BIOS screen to open EZ Tuning Wizard screen, then click **Next**.

2. Select a PC scenario **Daily Computing** or **Gaming/Media Editing**, then click **Next**.

3. Select the CPU fan type (**Box cooler**, **Tower cooler**, or **Water cooler**) that you installed then click **Next**.

> If you are not sure of the CPU fan type, click **I'm not sure**. The system automatically detects the CPU fan type.

4. Click **Next** then click **Yes** to confirm auto-tuning.

Creating RAID
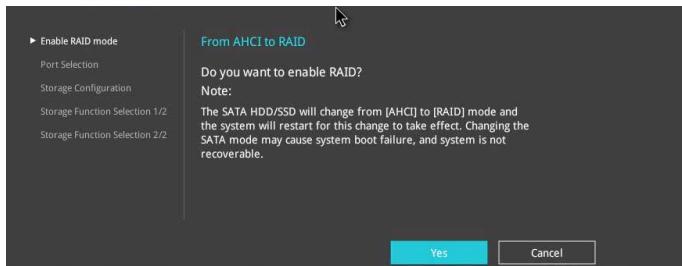
To create RAID:

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 **Yes** to enable RAID.
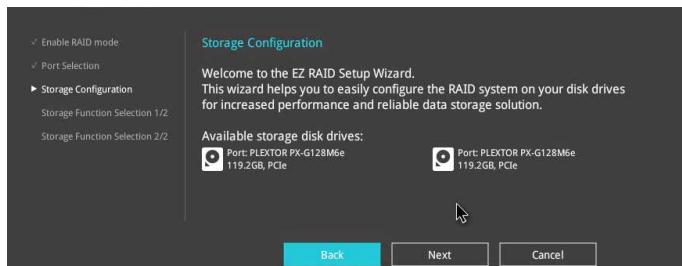
> •   Ensure that your HDDs have no existing RAID volumes.
>
> •   Ensure to connect your HDDs to Intel® SATA connectors or PCIE ports.
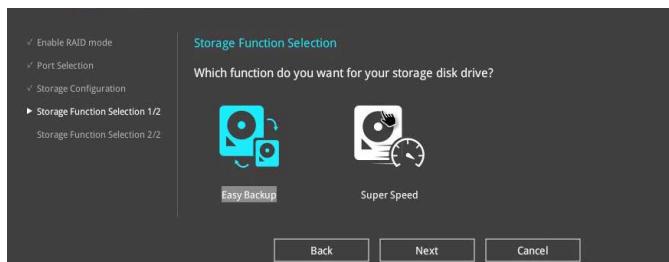
3.   Select **PCIE** or **SATA** then click **Next** to continue.

4.   The available HDDs are displayed. Click Next to continue.

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

      a.   For Easy Backup, select from **Easy Backup (RAID1) or Easy Backup (RAID10**
            then click **Next**.
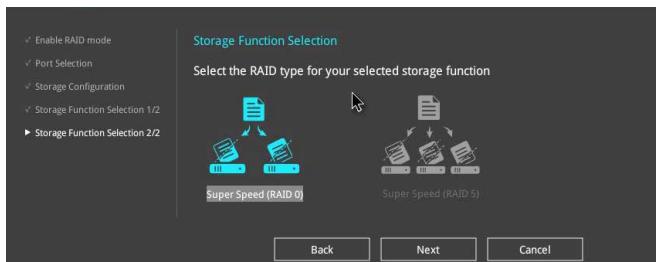
      You can only select Easy Backup (RAID 10) if you connect four (4) HDDs.
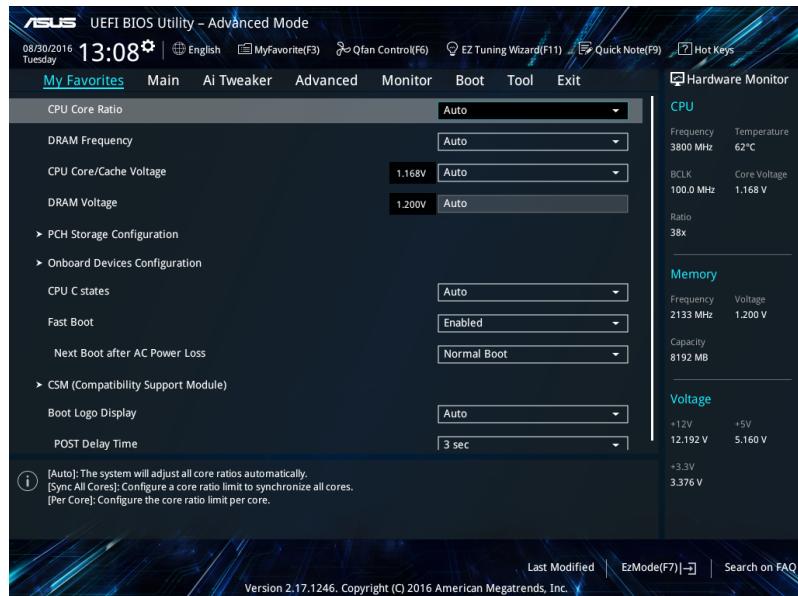
      b.   For Easy Backup, select from **Super Speed (RAID0)** or **Super Speed (RAID5)**
            then click **Next**.

6.   After selecting the type of RAID, click **Yes** to continue the RAID setup.

7.   After the RAID setup is done, click **Yes** to exit the setup then click **OK** to reset your
      system.

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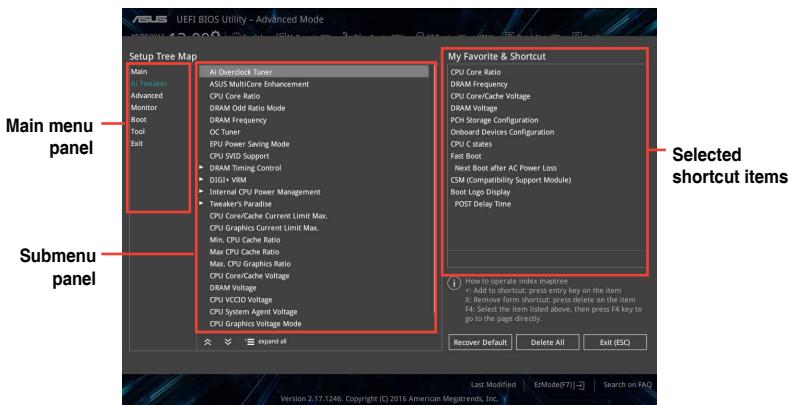
MyFavorites is your personal space where you can easily save and access your favorite BIOS items.

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 MyFavorites screen.

Main menu panel

Submenu panel

Selected shortcut items

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 **+** .
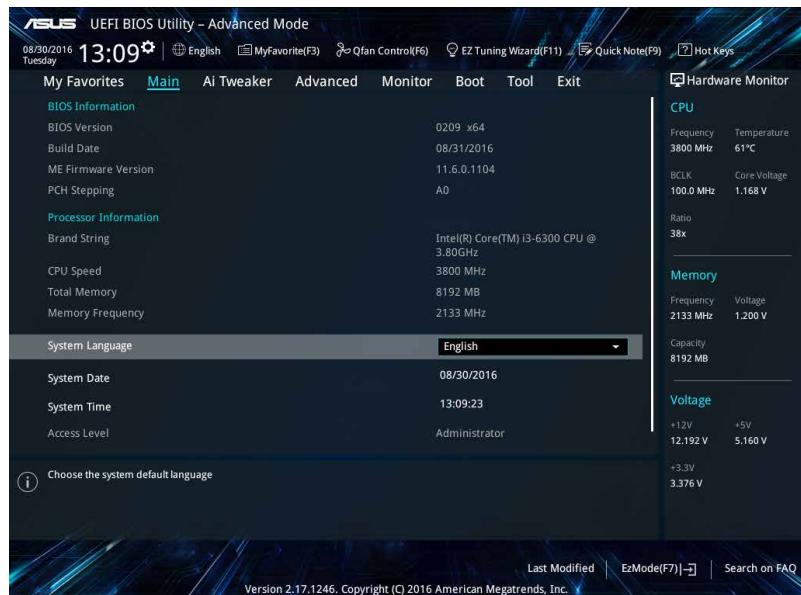
> You cannot add the following items to My Favorite items:
>
> • User-managed items such as language and boot order

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.

2.4 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.

2.4.1 System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English] [Français] [Deutsch] [简体中文] [繁體中文] [日本語] [Español] [Русский] [한국어]

2.4.2 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 **1.2.1 Layout Contents** for information on how to erase the RTC RAM.

- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system.

To set an administrator password:

1.   Select the **Administrator Password** item and press <Enter>.

2.   From the **Create New Password** box, key in a password, then press <Enter>.

3.   Confirm the password when prompted.

To change an administrator password:

1.   Select the **Administrator Password** item and press <Enter>.

2.   From the **Enter Current Password** box, key in the current password, then press <Enter>.

3.   From the **Create New Password** box, key in a new password, then press <Enter>.

4.   Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a user password:

1.   Select the **User Password** item and press <Enter>.

2.   From the **Create New Password** box, key in a password, then press <Enter>.

3.   Confirm the password when prompted.

To change a user password:

1.   Select the **User Password** item and press <Enter>.

2.   From the **Enter Current Password** box, key in the current password, then press <Enter>.

3.   From the **Create New Password** box, key in a new password, then press <Enter>.

4.   Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

2.5 Ai Tweaker menu

The Ai Tweaker menu items allow you to configure overclocking-related items.
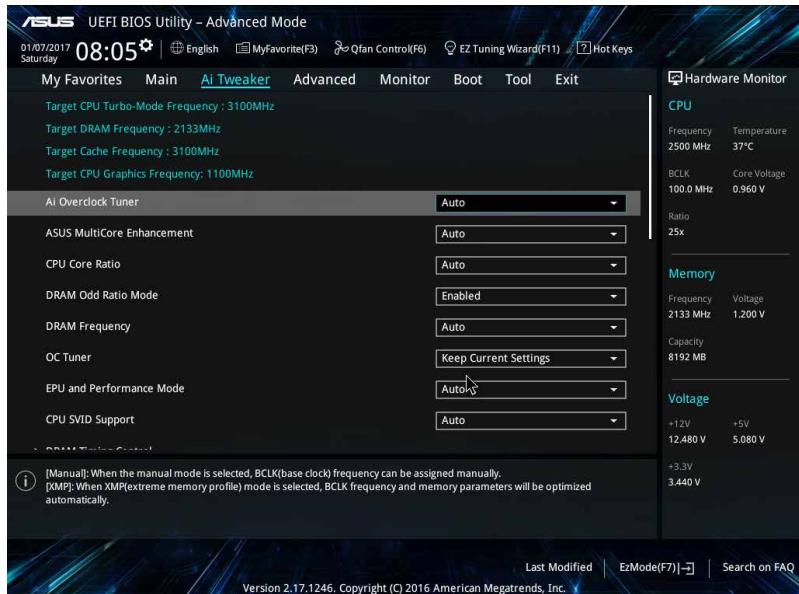
⚠️ Be cautious when changing the settings of the Ai Tweaker menu items. Incorrect field values can cause the system to malfunction.

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

Scroll down to display other BIOS items.

2.5.1 Ai Overclock Tuner [Auto]

This item allows you to select the CPU overclocking options to achieve the desired CPU internal frequency. Select any of these preset overclocking configuration options:

[Auto]   Loads the optimal settings for the system automatically.

[Manual]   Allows you to assign the BCLK (base clock) frequency manually.

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

BCLK Frequency [100.0000]

This item appears only when you set **Ai Overclock Tuner** to [Manual] and allows you to set the BCLK (base clock) frequency to enhance the system performance. Use the <+> / <-> to adjust the value. The values range from 98.0 MHz to 538.0 MHz.

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

BCLK Spread Spectrum [Auto]

This item allows you to enhance the BCLK overclocking capability or reduce the EMI (electromagnetic disturbance) generated by the BCLK. Set this item to [Enabled] for EMI reduction, or set this item to [Disabled] to enhance BCLK overclocking. Configuration options: [Auto] [Disabled] [Enabled]

2.5.2 ASUS MultiCore Enhancement [Auto]

[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.

2.5.3 CPU Core Ratio [Auto]

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]**.

2.5.4   DRAM Odd Ratio Mode [Enabled]

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

2.5.5   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: [DDR4-800MHz] [DDR4-933MHz] [DDR4-1066MHz] [DDR4-
1200MHz] [DDR4-1333MHz] [DDR4-1466MHz] [DDR4-1600MHz] [DDR4-1733MHz]
[DDR4-1866MHz] [DDR4-2000MHz] [DDR4-2133MHz] [DDR4-2266MHz] [DDR4-2400MHz]
[DDR4-2533MHz] [DDR4-2666MHz] [DDR4-2800MHz] [DDR4-2933MHz] [DDR4-3066MHz]
[DDR4-3200MHz] [DDR4-3333MHz] [DDR4-3466MHz] [DDR4-3600MHz] [DDR4-3733MHz]
[DDR4-3866MHz] [DDR4-4000MHz] [DDR4-4133MHz] [DDR4-4266MHz]

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

2.5.6   OC Tuner [Keep Current Settings]

This item allows you to automatically overclock the CPU and DRAM frequencies and voltage
for an enhanced system performance. It also accelerates the CPU graphics performance to
the extreme depending on the CPU graphics loading. Configuration options: [Keep Current
Settings] [OC Tuner I] [OC Tuner II]

> Ensure that you installed an efficient CPU fan for CPU and graphics loading before
> selecting either **[OC Tuner I]** or **[OC Tuner II]**. To keep the current overclocking tuner
> status, select **[Keep Current Settings]**.

2.5.7   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.

2.5.8   CPU SVID Support [Auto]

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

2.5.9   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.

2.5.10   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 1-7]

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 500KHz with a 50KHz interval.

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] [Power Phase Response]

> ⚠ DO NOT remove the thermal module when setting this item to **[Power Phase Response]**.
> The thermal conditions should be monitored.

> 🖉 The following item appears only when you set the **CPU Power Phase Control** to **[Power
> Phase Response]**.

Power Phase Response [Fast]

This item allows you to set a faster phase response for the CPU to increase system
performance or to slower phase response to decrease DRAM power efficiency.
Configuration options: [Ultra Fast] [Fast] [Medium] [Regular]

CPU Graphics Load-line Calibration [Auto]

The load-line is defined by the 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
increase the GT and VRM thermal production. Select from level 1 to 7 to adjust the GT power
voltage from 0% to 100%.

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

CPU Graphics Current Capability [Auto]

This item allows you to adjust the total power range for GT overclocking. A higher value
provides a wider 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) [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
500KHz with a 50KHz interval.

CPU Graphics Power Duty Control [T.Probe]

This item 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 Graphics Power Phase Control [Auto]

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

> ⚠️ DO NOT remove the thermal module when setting this item to **[Power Phase Response]**. The thermal conditions should be monitored.

> 🖉 The following item appears only when you set the **CPU Graphics Power Phase Control** to **[Power Phase Response]**.

Power Phase Response [Fast]

Select [Ultra Fast] for a faster power phase response. The reaction time will be longer when [Regular] is selected. Configuration options: [Ultra Fast] [Fast] [Medium] [Regular]

2.5.11 Internal CPU Power Management

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

Intel(R) SpeedStep(tm) [Auto]

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: [Auto] [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 4095 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]

2.5.12 Tweaker's Paradise

FCLK Frequency [Auto]

This item allows you to set the FLCK frequency. Configuration options: [Auto] [Normal(800MHz)] [1GHz] [400MHz]

Internal PLL Voltage [Auto]

This item allows you to configure the offset for the Core PLL VCC Trim.

2.5.13 CPU Core/Cache Current Limit Max. [Auto]

Allows you to configure a higher CPU core/cache current limit to prevent a frequency or power throttling when overclocking.

2.5.14 CPU Graphics Current Limit Max. [Auto]

Allows you to configure a higher CPU graphics current limit to prevent a frequency or power throttling when overclocking.

2.5.15 Min. CPU Cache Ratio [Auto]

Allows you to configure the minimum possible CPU cache ratio.

2.5.16 Max. CPU Cache Ratio [Auto]

Allows you to configure the maximum possible CPU cache ratio.

2.5.17 Max. CPU Graphics Ratio [Auto]

Allows you to configure the maximum CPU graphics ratio.

2.5.18 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 **[Manual Mode]**.

CPU Core Voltage Override [Auto]

Allows you to set the CPU Core 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 items appear 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 Core Voltage Offset [Auto]

Use the <+> or <-> keys to adjust the value. The values range from 0.005V to 0.635V with a 0.005V interval.

2.5.19 DRAM Voltage [Auto]

Allows you to set the DRAM Voltage for the sytem memory. The values range from 1.000V to 1.800V with a 0.005V interval.

2.5.20 CPU VCCIO Voltage [Auto]

Allows you to set the value for the VCCIO voltage. The values range from 0.700V to 1.585V with a 0.005V interval.

2.5.21 CPU System Agent Voltage [Auto]

Allows you to set the value for the CPU system agent voltage. Use the <+> or <-> keys to adjust the value.The values range from 0.700V to 1.685V with a 0.005V interval.

2.5.22 CPU Graphics Voltage Mode [Auto]

Allows you to select the CPU graphics voltage mode.

[Manual Mode]   Allows you to define the value.

[Offset Mode]   The value is set by SVID.

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

CPU Graphics Voltage Override [Auto]

Allows you to set 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 items appear 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]

Use the <+> or <-> keys to adjust the value. The values range from 0.005V to 0.635V with a 0.005V interval.

2.5.23 PCH Core Voltage [Auto]

Allows you to set the Platform Controller Hub voltage. Use the <+> or <-> keys to adjust the value. The values range from 1.0V to 1.15V with a 0.05V interval.

> The system may need better cooling system to work stably under high voltage settings.

2.5.24 DRAM REF Voltage Control

DRAM CTRL REF Voltage [Auto]

This item 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. The values range from 0.39500V to 0.63000V with a 0.00500V interval.

DRAM DATA REF Voltage on CHB [Auto]

Allows you to set the DRAM DATA REF Voltage on CHB. The values range from 0.39500x to 0.63000x with a 0.00500x interval

BRAM DATA REF Voltage on CHA DIMM0 Rank0 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHA DIMM0 Rank0 BL1~BL7.

BRAM DATA REF Voltage on CHA DIMM0 Rank1 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHA DIMM0 Rank1 BL1~BL7.

BRAM DATA REF Voltage on CHA DIMM1 Rank0 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHA DIMM1 Rank0 BL1~BL7.

BRAM DATA REF Voltage on CHA DIMM1 Rank1 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHA DIMM1 Rank1 BL1~BL7.

BRAM DATA REF Voltage on CHB DIMM0 Rank0 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHB DIMM0 Rank0 BL1~BL7.

BRAM DATA REF Voltage on CHB DIMM0 Rank1 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHB DIMM0 Rank1 BL1~BL7.

BRAM DATA REF Voltage on CHB DIMM1 Rank0 BL0~BL7 [Auto]

Allows you to set the DRAM DATA REF Voltage on CHB DIMM1 Rank0 BL1~BL7.

BRAM DATA REF Voltage on CHB DIMM1 Rank1 BL0~BL7 [Auto]
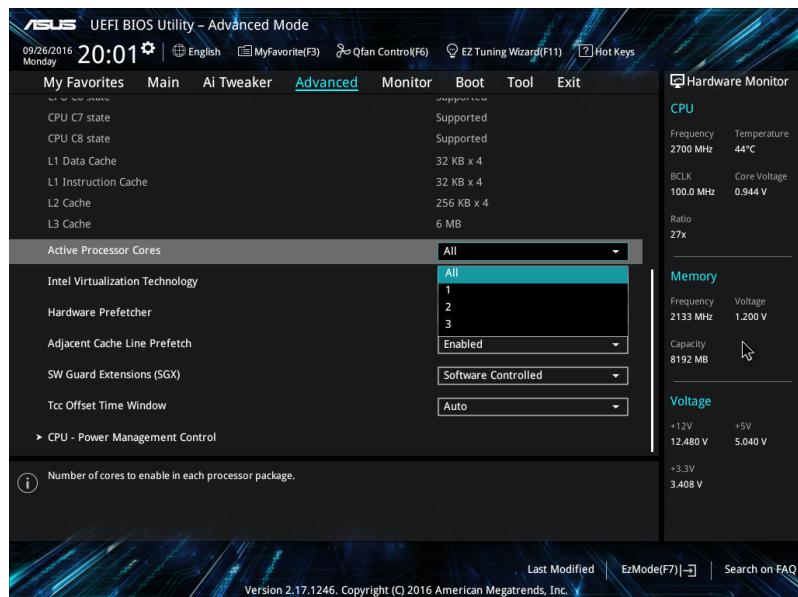
Allows you to set the DRAM DATA REF Voltage on CHB DIMM1 Rank1 BL1~BL7.

2.6 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.

2.6.1 Platform Misc Configuration

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

PCI-E 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

PCH DMI ASPM [Disabled]

This item allows you to set PCH DMI ASPM. 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

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]

2.6.2   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 Prefetcher [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 (SGX) [Disabled]

Allows you to disable Software Guard Extgensions (SGX).

CPU Power Management Control

Intel® SpeedStep™ [Auto]

This item allows more than two frequency rates to be supported. 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]

CFG Lock [Disabled]

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

2.6.3   System Agent (SA) Configuration

VT-d [Disabled]

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]

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 Intel® Graphics Render Standby support to reduce iGPU power use when the system is idle. Configuration options: [Disabled] [Enabled]

DVMT Pre-Allocated [64M]

Allows you to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

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]

2.6.4 PCH Configuration

This item allows you to configure the PCI Express configuration settings.

PCI Express Configuration

PCIe Speed [Auto]

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

IOAPIC 24-119 Entries [Enabled]

This item allows you to enable/disable IOAPIC 24-199 Entries to expand to PIRQI-PIRQX.
Configuration options: [Enabled] [Disabled]

2.6.5 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]

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

SATA Controller(s) [Enabled]

Enables or disables onboard the SATA device. Configuration options: [Disabled] [Enabled]

> The following items appear only when you set the SATA Controller(s) to **[Enabled]**.

SATA Mode Selection [AHCI]

Allows you to set the SATA configuration.

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

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

Aggressive LPM Support [Disabled]

This item is designed for LPM (link power management) support with a better energy saving conditions. When disabled, the hot plug function of SATA ports are disabled. Configuration options: [Disabled] [Enabled]

SMART Self Test [On]

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

SATA6G_1~4(Gray) [Enabled]

Allows you to enable/disable the SATA6G_1~4 ports. Configuration options: [Disabled] [Enabled]

Hot Plug [Disabled]

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

M.2_2 [Enabled]

Allows you to enble/disable the SATA port. Configuration options: [Disabled] [Enabled]

2.6.6   PCH-FW Configuration

Intel Platform Trust Technology [Disabled]

This item allows you to enable/disable Intel Platform Trust Technology.

> [Enabled]   Enables PTT in Skumgr.
> [Disabled] Disables PTT in Skumgr.

⚠ PTT will be disabled and all data saved on it will be lost.

2.6.7   Trusted Computing

The items under this menu allow you to configure Trusted Computing settings.This menu appears only when you enable Intel Platform Trust Technology and reboot the system.

Security Device Support [Enabled]

This item allows you to enable/disable BIOS support for security devices such as TPM or IPTT cards. The security device is not shown on the system. TCG EFI protocol and INT1A interface are not available. Configuration options: [Disabled] [Enabled]

📝 The following items appear only when you set the Security Device Support to **[Enabled]**.

SHA-1 PCR Bank [Enabled] / SHA256 PCR Bank [Enabled]

These items allow you to enable or disable the SHA-1 PCR Bank and SHA256 PCR Bank functions. Configuration options: [Enabled] [Disabled]

Pending Operation [None]

Allows you to clear the TPM setting for the security device such as TPM or IPTT card. Configuration options: [None] [TPM Clear]

> Your system restarts when the TPM setting is cleared.

Platform Hierarchy [Enabled] / Storage Hierarchy [Enabled] / Endorsement Hierarchy [Enabled]

These items allow you to enable or disable the platform, storage, and endorsement hierarchies. Configuration options: [Enabled] [Disabled]

TPM2.0 UEFI Spec Version [TCG_2]

[TCG_1_2]   The compatible mode for Windows® 8 / Windows® 10.

[TCG_2]   Supports new TCG2 protocol and event format for Windows® 10 or later.

Physical Presence Spec Version [1.2]

[1.2]   Supports PPI Spec version 1.2.

[1.3]   Supports PPI Spec version 1.3.

> Some HCK tests might not support PPI Spec version 1.3.

2.6.8   Onboard Devices Configuration

HD Audio Controller [Enabled]

[Enabled]   Enables the HD Audio Device.

[Disabled]   Disables the HD Audio Device.

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

SPDIF Out Type [SPDIF]

[SPDIF]   Sets to an SPDIF audio output.
[HDMI]   Sets to an HDMI audio output.

DVI Port Audio [Disabled]

Configuration options: [Enabled] [Disabled]

LED Lighting [Breathing Mode]

Allows you to set the behavior of the LED. Configuration options: [Disabled] [Still Mode] [Breathing Mode]

M.2_1 Configuration [Auto]

M.2_1 shares SATA mode with SATA6G_1 port.

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

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

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

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 [Enabled] and allows you to enable or disable the PXE OptionRom of the Intel LAN controller. Configuration options: [On] [Off]

Charging USB devices in Power State S5 [Enabled]

Allows you enable or disable the function to Charges USB devices even when the system is in Power State S5.

USB Type C Power Switch [Auto]

[Auto]   Turn off Type C power if the device does not suppport.

[Enabled]   Turn Type C power on.

Serial Port Configuration

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

Serial Port [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 [Enabled] 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]

2.6.9 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: [Enabled (s4+s5)] [Enabled (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 PS/2 Keyboard [Disabled]

[Disabled]   Disables the Power On by a PS/2 keyboard.

[Space Bar]   Sets the Space Bar on the PS/2 keyboard to turn on the system.

[Ctrl-Esc]   Sets the Ctrl+Esc key on the PS/2 keyboard to turn on the system.

[Power Key]   Sets Power key on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PCI-E/PCI [Disabled]

This item allows you to enable or disable the Wake-on-LAN function of the onboard LAN controller or other installed PCIe/PCI 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]

[Disabled]   Disables RTC to generate a wake event.

[Enabled]   When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/Minute/Second** will become user-configurable with set values.

2.6.10 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: [Disabled] [Enabled]

2.6.11   HDD/SSD SMART Information

This menu displays the SMART information of the connected devices.

2.6.12   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.
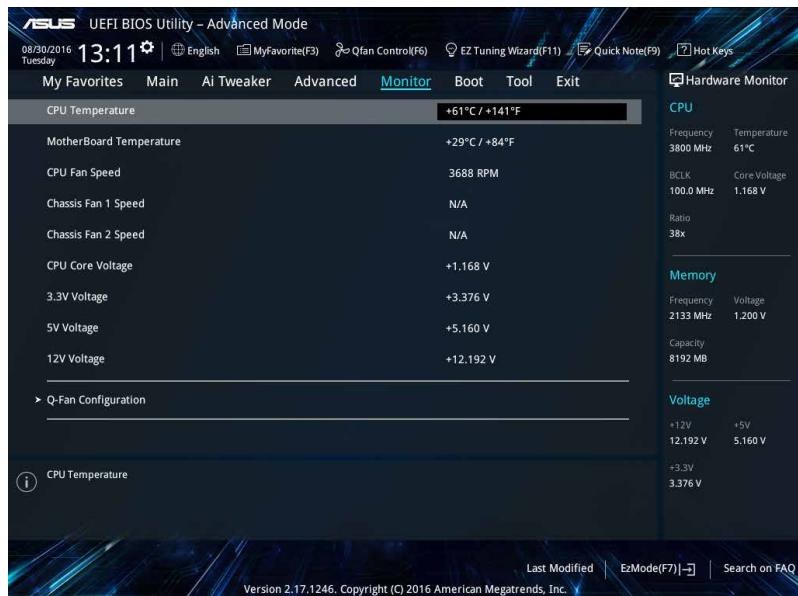
Refer to section **1.2 Motherboard Overview** for the location of the USB ports.

2.7 Monitor menu

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

Scroll down to display the other BIOS items.

2.7.1 CPU/ MB Temperature [xxxºC/xxxºF]/ [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.

2.7.2 CPU Fan/ Chassis Fan 1/2 Speed [xxxx RPM]/ [Ignore]/ [N/A]

The onboard hardware monitor automatically detects and displays the CPU and chassis fan 1/2 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.

2.7.3 CPU Core Voltage, 3.3V Voltage, 5V Voltage, 12V 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.

2.7.4   Q-Fan Configuration

Ofan 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]   Detects the type of CPU fan installed and automatically switches the mode control.

[Disabled]   Disables the Q-Fan control.

[DC Mode]   Enables the CPU Q-Fan control feature in DC mode for 3-pin CPU fan.

[PWM Mode]   Enables the CPU Q-Fan control feature in PWM mode for 4-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] [100RPM] [200RPM] [300 RPM] [400 RPM] [500 RPM]

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 four 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 20°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.

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

[Auto]   Detects the type of Chassis fan installed and automatically switch the control modes.

[PWM mode]   Enables the chassis Q-Fan control in PWM mode for 4-pin chassis fan.

[DC mode]   Enables the chassis Q-Fan control in DC mode for 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] [MB]

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 40°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 [25]

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

Chassis Fan 1/2 Middle Duty Cycle(%) [20]

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 [20]

Use the <+> or <-> keys to adjust the chassis fans' lower temperature. The values range from 40°C to 75°C.
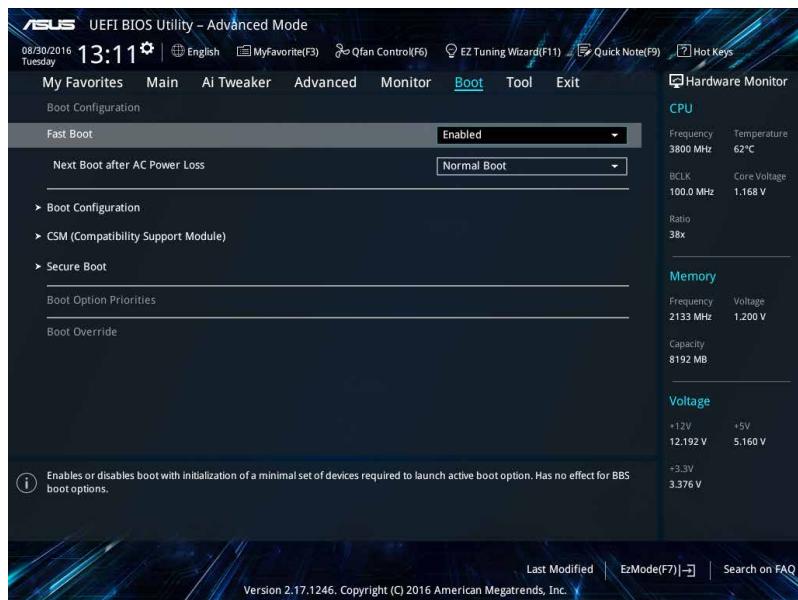
Chassis Fan 1/2 Min. Duty Cycle(%) [20]

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.

2.8 Boot menu

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

Scroll down to display the other BIOS items.

2.8.1 Fast Boot [Enabled]

[Enabled]   Select to accelerate the boot speed.

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

Next Boot after AC Power Loss [Normal Boot]

This item appears only when **Fast Boot** is set to [Enabled].

[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.

2.8.2 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.

2.8.3   Bootup NumLock State [Enabled]

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

2.8.4   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]

2.8.5   Option ROM Messages [Force BIOS]

[Force BIOS]   The Option ROM Messages will be shown during the POST.

[Keep Current]   Only the ASUS logo will be shown during the POST.

2.8.6   Interrupt 19 Capture [Disabled]

[Enabled]   Allows the option ROMs to trap Interrupt 19.

[Disabled]   Disables this function.

2.8.7   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.

2.8.8   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.

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: [Legacy Only] [UEFI driver first] [Ignore]

Boot from Storage Devices [Legacy Only]

Allows you to select the type of storage devices that you want to launch. Configuration options: [Legacy nly] [UEFI driver first] [Ignore]

Boot from PCI-E/PCI 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]

2.8.9   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 all 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.

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.

Configuration options: [Yes] [No]

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).

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.

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

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

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.

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

Append Key
Allows you to load the additional db from a storage device so that more images can be loaded securely.

Delete Key
Allows you to delete the db file from your system.

Configuration options: [Yes] [No]

- The DB file must be formatted as a UEFI variable structure with time-based authenticated variable.
- UEFI executable files include UEFI boot devices, drivers and applications.

DBX Management

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

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

Configuration options: [Yes] [No]

Append Key
Allows you to load the additional dbx from a storage device so that more db's images cannot be loaded.

Delete Key
Allows you to delete the dbx file from your system.

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

2.8.10   Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.
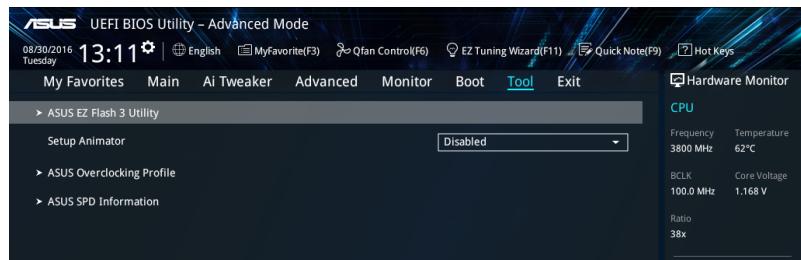
> - To access Windows® OS in Safe Mode, press <F8 > after POST (Windows® 8 not supported).
> - To select the boot device during system startup, press <F8> when ASUS Logo appears.

2.8.11   Boot Override

These items display 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.

2.9 Tool menu

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

2.9.1 ASUS EZ Flash 3 Utility

Allows you to run ASUS EZ Flash 3. Press [Enter] to launch the ASUS EZ Flash 3 screen.

For more details, see section **2.1.2 ASUS EZ Flash 3**.

2.9.2 Setup Animator [Disabled]

Enables or disables the Setup animator. Configuration options: [Disabled] [Enabled]

2.9.3 ASUS Overclocking Profile

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

The **Overclocking Profile** items show **Not assigned** if no profile is created.

Load from Profile

Allows you to load the previous BIOS settings saved in the BIOS Flash. Key in the profile number that saved your CMOS 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

Allows you to create a name for the profile you want to save.

Save to Profile

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.
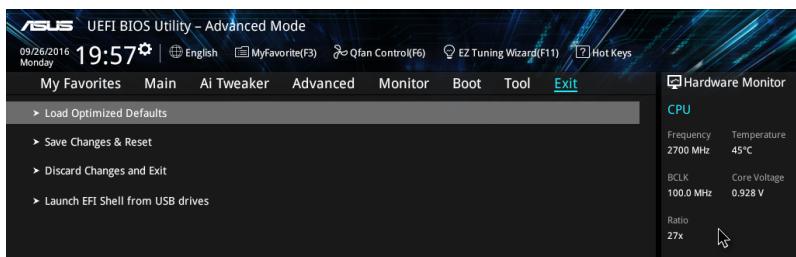
2.9.4 ASUS SPD Information

DIMM Slot number [DIMM_A1]

Displays the Serial Presence Detect (SPD) information of the DIMM module installed on the selected slot. Configuration options: [DIMM_A1] [DIMM_B1] [DIMM_A2] [DIMM_B2]

2.10 Exit menu

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

Load Optimized Defaults

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

Save Changes & Reset

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

Discard Changes 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 OK to discard changes and exit.

Launch EFI Shell from USB drives

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

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.

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.

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

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

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

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

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

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

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

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

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

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

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

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

Latviski ASUSTeK Computer Inc. ar šo paziņo, ka šī ierīce atbilst saistīto Direktīvu būtiskajām prasībām un citiem citiem saistošajiem nosacījumiem. Pilns ES atbilstības paziņojuma teksts pieejams šeit: www.asus.com/support

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

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

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

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

Română ASUSTeK Computer Inc. declară că acest dispozitiv se conformează cerințelor esențiale și altor prevederi relevante ale directivelor conexe. Textul complet al declarației de conformitate a Uniunii Europene se găsește la: www.asus.com/support

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

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

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

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

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

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

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

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

ASUS contact information

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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
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Technical Support

Support fax	+1-812-284-0883
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ASUS COMPUTER GmbH (Germany and Austria)

Address	Harkort Str. 21-23, 40880 Ratingen, Germany
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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

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

FC

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 : PRIME Z270M-PLUS

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 :   **Oct. 07, 2016**

Ver. 140331