

**EX-A320M-GAMING**

**ASUS**<sup>®</sup>

**Motherboard**

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# Contents

Safety information .....	iv
About this guide .....	iv
Package contents .....	vi
EX-A320M-GAMING specifications summary .....	vi

## Chapter 1 Product introduction

Motherboard overview .....	1-1
Central Processing Unit (CPU) .....	1-7
System memory .....	1-9

## Chapter 2 BIOS information

BIOS setup program .....	2-1
I-Cafe .....	2-2
Main menu .....	2-3
Ai Tweaker .....	2-4
Advanced menu .....	2-6
Monitor menu .....	2-8
Boot menu .....	2-9
Tool menu .....	2-11
Exit menu .....	2-12

## Appendix

Notices .....	A-1
ASUS contact information .....	A-4

# 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.

## 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.

<b>Motherboard</b>	ASUS EX-A320M-GAMING motherboard
<b>Accessories</b>	2 x Serial ATA 6.0Gb/s cables 1 x I/O Shield 1 x M.2 screw package
<b>Application DVD</b>	1 x Support DVD
<b>Documentation</b>	User Guide



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

## EX-A320M-GAMING specifications summary

<b>CPU</b>	AM4 socket for AMD® Ryzen™/7 <sup>th</sup> Generation A-series/Athlon™ Processors Supports 14nm CPU Supports CPU up to 8 cores* * Due to CPU limitation, CPU cores supported varies by processor. ** Refer to <a href="http://www.asus.com">www.asus.com</a> for the AMD® CPU support list.
<b>Chipset</b>	AMD® A320 Chipset
<b>Memory</b>	<b>AMD Ryzen™ processors:</b> 4 x DIMMs, max. 64GB, DDR4 2666/2400/2133 MHz,ECC, non-ECC, un-buffered memory <b>AMD 7<sup>th</sup> Generation A-series / Athlon™ processors:</b> 4 x DIMMs, max. 64GB, DDR4 2400/2133 MHz, ECC,non-ECC, un-buffered memory Dual-channel memory architecture * Refer to <a href="http://www.asus.com">www.asus.com</a> for the latest Memory QVL (Qualified Vendors List).
<b>Graphics</b>	<b>Integrated AMD Radeon™ R Series Graphics in the 7<sup>th</sup> Generation A-Series APU</b> Multi-VGA output support: HDMI, DVI-D ports - Supports HDMI 1.4b with max. resolution 4096 x 2160 @24Hz - Supports DVI-D with max. resolution up to 1920 x 1200 @60Hz Maximum shared memory of 2048 MB
<b>Expansion slots</b>	<b>AMD Ryzen™ processors:</b> 1 x PCI Express 3.0/2.0 x16 slot (max. @x16 mode) <b>AMD 7<sup>th</sup> Generation A-series / Athlon™ processors:</b> 1 x PCI Express 3.0/2.0 x16 slot (max. @x8 mode) <b>AMD A320 Chipset:</b> 1 x PCI Express 2.0 x4 slot (max. @x2 mode) 1 x PCI Express 2.0 x1 slot
<b>Audio</b>	Realtek® ALC 887-VD2 8-Channel High Definition Audio CODEC * Use a chassis with HD audio module in the front panel to support an 8-channel audio output.

(continued on the next page)

## EX-A320M-GAMING specifications summary

LAN	Realtek® RTL8111H Gigabit LAN
Storage	<p><b>AMD Ryzen™ processors:</b></p> <ul style="list-style-type: none"> <li>- 1 x M.2 socket 3 with M Key, Type 2242/2260/2280/22110 (PCIe 3.0 x4 and SATA modes) storage devices support</li> </ul> <p><b>AMD 7<sup>th</sup> Generation A-series / Athlon™ processors:</b></p> <ul style="list-style-type: none"> <li>- 1 x M.2 socket 3 with M Key, Type 2242/2260/2280/22110(SATA mode) storage devices support</li> </ul> <p><b>AMD A320 Chipset:</b></p> <ul style="list-style-type: none"> <li>- 4 x Serial ATA 6.0 Gb/s connectors with RAID 0, RAID 1, and RAID 10 support</li> </ul>
USB	<ul style="list-style-type: none"> <li>- 6 x USB 3.0/2.0 ports (4 ports at back; 2 ports at mid-board)</li> <li>- 6 x USB 2.0/1.1 ports (2 ports at back; 4 ports at mid-board)</li> </ul>
ASUS unique features	<p><b>Dependable Stability</b></p> <p><b>ASUS SafeSlot</b></p> <p><b>ASUS 5X PROTECTION III</b></p> <ul style="list-style-type: none"> <li>- ASUS SafeSlot Core</li> <li>- ASUS LANGuard - Surge-protected networking</li> <li>- ASUS Overvoltage Protection - World-class circuit-protecting power design</li> <li>- ASUS DRAM Overcurrent Protection - Enhanced DRAM overcurrent protection</li> <li>- ASUS Stainless Steel Back I/O - 3X more durable</li> </ul> <p><b>Aura</b></p> <ul style="list-style-type: none"> <li>- Aura Lighting Control</li> <li>- Aura RGB Strip Headers</li> </ul> <p><b>Superb performance</b></p> <p><b>UEFI BIOS</b></p> <ul style="list-style-type: none"> <li>- Most advanced options with fast response time</li> </ul> <p><b>Easy PC DIY</b></p> <p><b>Q-Design</b></p> <ul style="list-style-type: none"> <li>- ASUS Q-DIMM</li> <li>- ASUS Q-Slot</li> </ul> <p><b>UEFI BIOS EZ Mode</b> - featuring friendly graphics user interface</p> <ul style="list-style-type: none"> <li>- ASUS CrashFree BIOS 3</li> <li>- ASUS EZ Flash 3</li> </ul> <p><b>Optimized cooling</b></p> <ul style="list-style-type: none"> <li>- Stylish Fanless Design: Chipset Heat-sink solution</li> <li>- ASUS Fan Xpert</li> </ul>

(continued on the next page)

## EX-A320M-GAMING specifications summary

<b>Rear panel I/O ports</b>	<ul style="list-style-type: none"> <li>1 x PS/2 keyboard (purple)</li> <li>1 x PS/2 mouse port (green)</li> <li>1 x HDMI port</li> <li>1 x DVI-D port</li> <li>1 x LAN (RJ-45) port</li> <li>4 x USB 3.0/ 2.0 ports</li> <li>2 x USB 2.0/ 1.1 ports</li> <li>3 x Audio jacks support 8-channel audio output</li> </ul>
<b>Internal connectors</b>	<ul style="list-style-type: none"> <li>2 x USB 2.0/ 1.1 connectors support additional 4 USB 2.0/ 1.1 ports</li> <li>1 x USB 3.0 connector support additional 2 USB 3.0 ports</li> <li>4 x SATA 6.0Gb/s connectors</li> <li>1 x M.2 Socket 3 for M Key, type 2242/2260/2280/22110 devices</li> <li>1 x 14-1 pin TPM connector</li> <li>1 x COM connector</li> <li>1 x CPU fan connector</li> <li>1 x Chassis fan connector</li> <li>1 x AIO Pump header</li> <li>1 x Front panel audio connector</li> <li>1 x 24-pin EATX power connector</li> <li>1 x 8-pin EATX 12V power connector</li> <li>1 x Speaker header</li> <li>1 x Clear RTC RAM (2 pin)</li> <li>1 x System panel connector</li> <li>1 x RGB header</li> </ul>
<b>BIOS features</b>	128 Mb Flash ROM, UEFI AMI BIOS, PnP, DMI3.0, WiM2.0, SM BIOS 3.0, ACPI 6.1, Multi-language BIOS, ASUS EZ Flash 3, ASUS CrashFree BIOS 3, I-CAFE, Last Modified log, F12 PrintScreen, ASUS DRAM SPD (Serial Presence Detect) memory information, F6 Qfan Control
<b>Manageability</b>	WiM 2.0, DMI 3.0, WOL by PME, PXE
<b>Support DVD</b>	<ul style="list-style-type: none"> <li>Drivers</li> <li>ASUS Utilities</li> <li>ASUS Update</li> </ul>
<b>OS support</b>	<b>Windows® 10 (64-bit)</b>
<b>Form factor</b>	µATX Form Factor, 9.6" x 9.6" (24.4 cm x 24.4 cm)



Specifications are subject to change without notice.



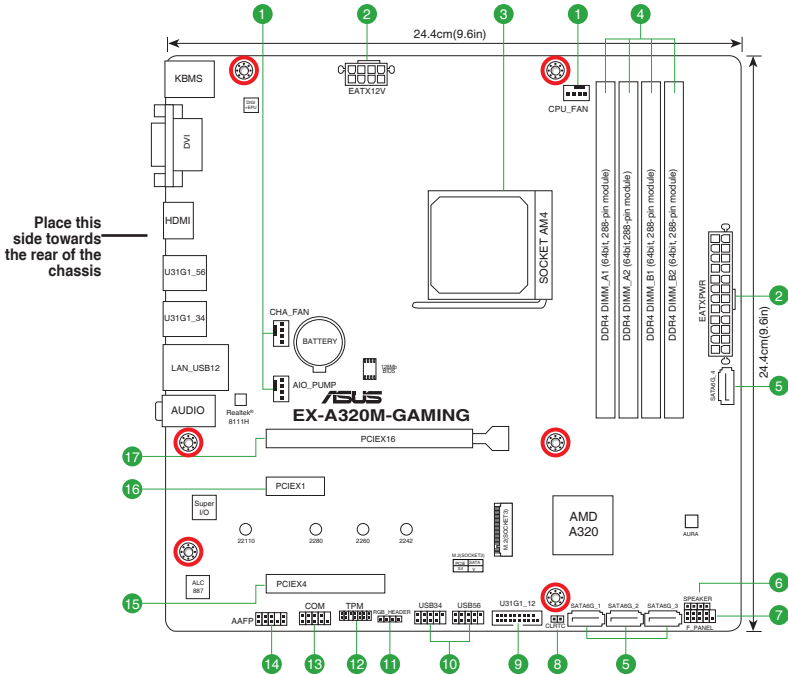
# Product introduction

# 1

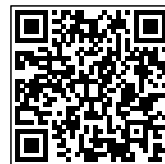
## Motherboard overview



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



Scan the QR code to get the detailed pin definitions.



## 1 CPU and chassis fan connectors (4-pin CPU\_FAN, 4-pin CHA\_FAN)

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.



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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.

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## 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.



- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 350 W.
  - DO NOT forget to connect the 4-pin/ 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 AMD AM4 CPU socket

This motherboard comes with an AMD AM4 socket designed for AMD Ryzen™/7th Generation A-series/Athlon™ Processors.



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

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## 4 DDR4 DIMM slots

Install 2 GB, 4 GB, 8 GB, and 16 GB ECC and non-ECC DDR4 DIMMs into these DIMM sockets.



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For more details, refer to **System memory**.

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## 5 AMD® A320 Serial ATA 6.0Gb/s connectors (7-pin SATA6G\_1~4)

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

## 6 Speaker connector (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.

## 7 System panel connector (10-1 pin F\_PANEL)

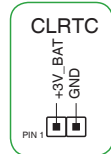
This connector supports several chassis-mounted functions.

## 8 Clear RTC RAM (2-pin CLRRTC)

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

## 9 USB 3.0 connector (20-1 pin U31G1\_12)

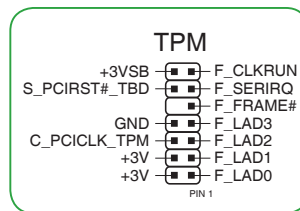
Connect a USB 3.0 module to this connector for additional USB 3.0 front or rear panel ports. This connector complies with USB 3.0 specifications and provide faster data transfer speeds of up to 5 Gbps, faster charging time for USB-chargeable devices, optimized power efficiency, and backward compatibility with USB 2.0.

## 10 USB 2.0 connectors (10-1 pin USB34, USB56)

Connect a 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 supports up to 480Mbps connection speed.

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

Connect a Trusted Platform Module (TPM) system to this connector to enhance network security, protect digital identities, and ensure platform integrity.



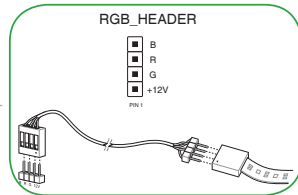
12

**RGB header (4-pin RGB\_HEADER)**

This header is for RGB LED strips.



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



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



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

13

**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.

14

**Front panel audio connector (10-1 pin AAFP)**

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC'97 audio standard. 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 Audio]. If you want to connect an AC'97 front panel audio module to this connector, set the item to [AC97]. By default, this connector is set to [HD Audio].

15

**PCI Express 2.0 x4 slot**

This motherboard has one PCI Express 2.0 x4 slot that supports PCI Express 2.0 x4 graphic cards complying with the PCI Express specifications.

16

**PCI Express 2.0 x1 slot**

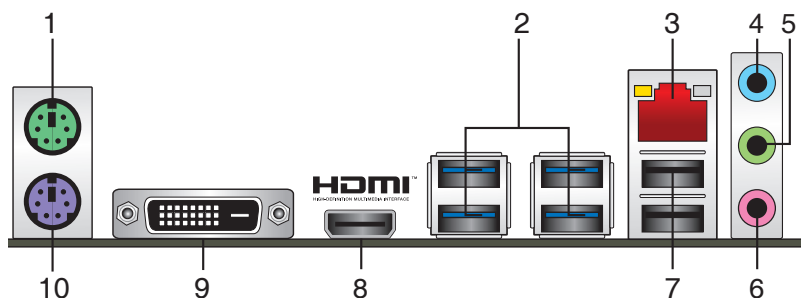
This motherboard supports PCI Express 2.0 x1 network cards, SCSI cards, and other cards that comply with the PCI Express specifications.

17

**PCI Express 3.0 x16 slot**

This motherboard has one PCI Express 3.0 x16 slot that supports PCI Express 3.0 x16 graphic cards complying with the PCI Express specifications.

## Rear panel connectors



1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.
2. **USB 3.0 ports.** These 9-pin Universal Serial Bus (USB) ports are for USB 3.0/2.0 devices.

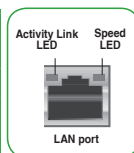


- USB 3.0 devices can only be used for data storage.
- We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance from your USB 3.0 devices.
- Due to the design of the Intel® 200 series chipset, all USB devices connected to the USB 2.0 and USB 3.0 ports are controlled by the xHCI controller. Some legacy USB devices must update their firmware for better compatibility.

3. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub.

### 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	–	–



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 to a headphone or a speaker. In the 4.1, 5.1 and 7.1-channel configurations, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects to 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 a 7.1-channel audio output:

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

- 7. USB 2.0 port.** This 9-pin Universal Serial Bus 2.0 (USB 2.0) port is for a USB 2.0 device.
- 8. 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.
- 9. 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.

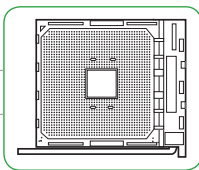
- 10. PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.

## Central Processing Unit (CPU)

The motherboard comes with an AMD AM4 socket designed for AMD Ryzen™ / 7th Generation A-series / Athlon™ processors.



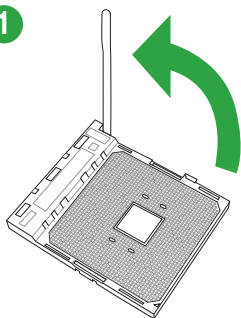
Unplug all power cables before installing the CPU.



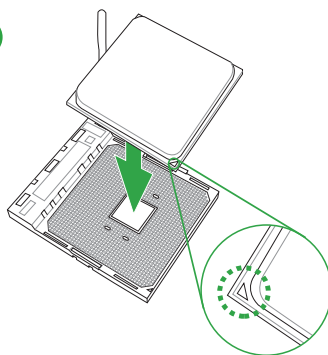
The AM4 socket has a different pinout from the FM2+/FM2 socket. Ensure that you use a CPU designed for the AM4 socket. The CPU fits in only one correct orientation. **DO NOT** force the CPU into the socket to prevent bending the pins and damaging the CPU!

## Installing the CPU

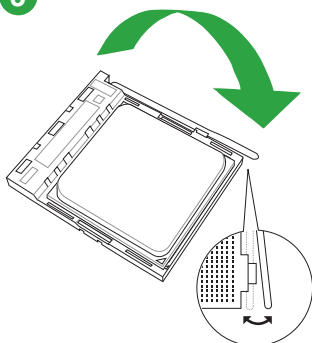
1



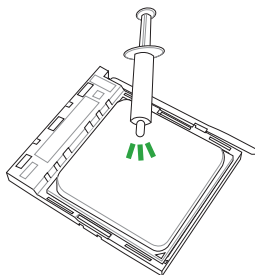
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3



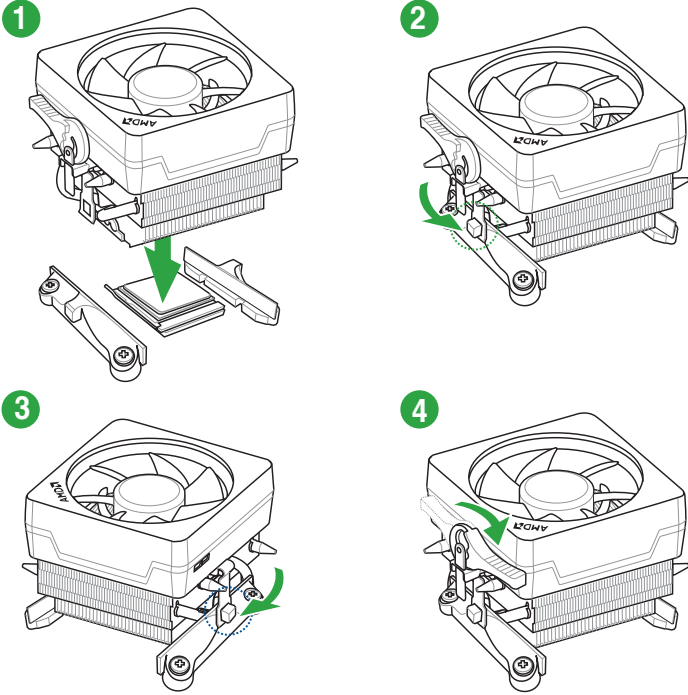
4



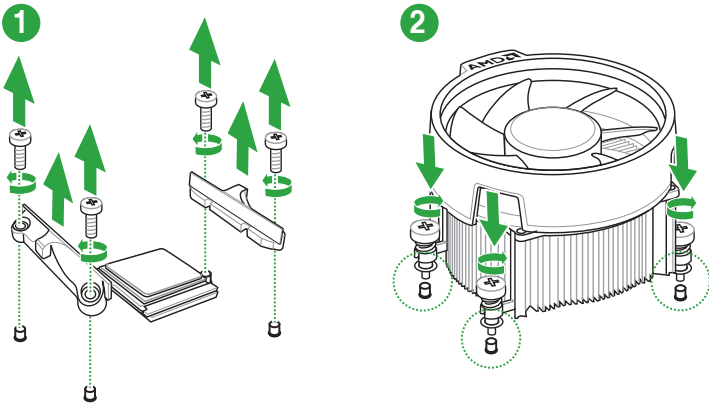
Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

# Installing the CPU heatsink and fan assembly

## Type 1



## Type 2



Remove the screws and the retention module only. Do not remove the plate on the bottom.



# 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

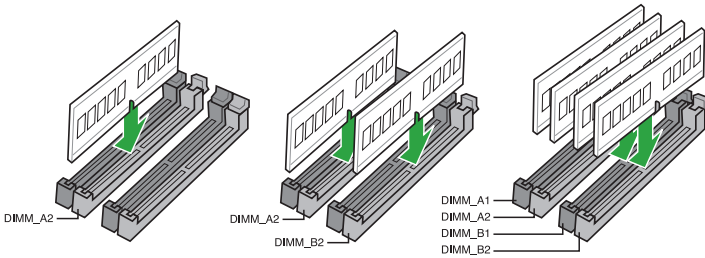


- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.
- Always install DIMMs with the same CAS latency.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



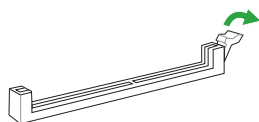
- For system stability, use a more efficient memory cooling system to support a full memory load (4 DIMMs).
- Refer to [www.asus.com](http://www.asus.com) for the latest Memory QVL (Qualified Vendors List)

## Recommended memory configurations

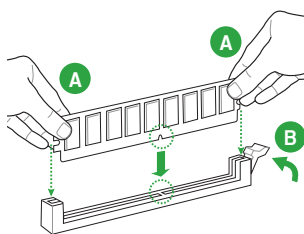


## Installing a DIMM

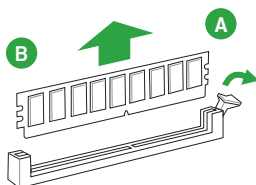
1



2



## To remove a DIMM



# BIOS information

# 2



Scan the QR code to view the BIOS update guide.



## 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.



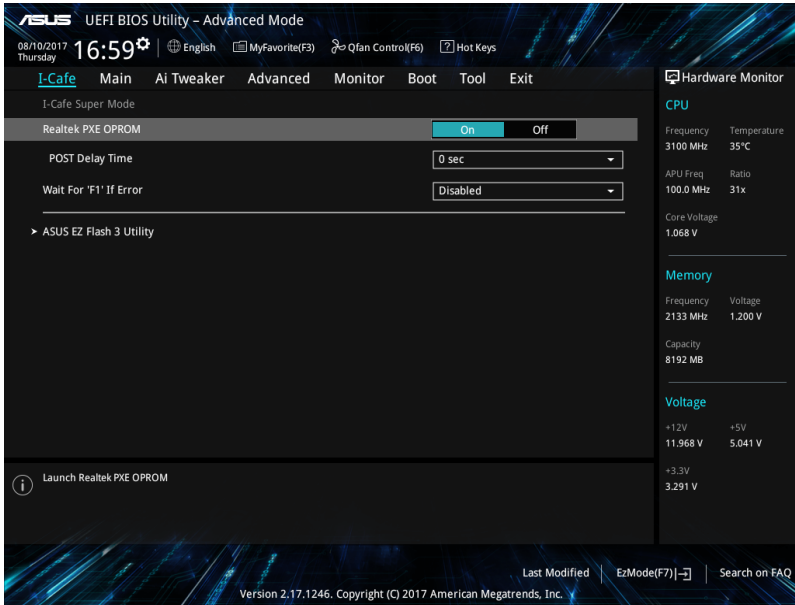
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website at [www.asus.com](http://www.asus.com) to download the latest BIOS file for this motherboard.
- If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the Exit menu or press hotkey F5.
- If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section **Motherboard overview** for information on how to erase the RTC RAM.

## BIOS menu screen

The BIOS setup program can be used under the **Advanced Mode**.

# I-Cafe

The items in this menu allows you to configure some quick settings for the I-Cafe feature.



## Realtek PXE Option ROM

This item allows you to enable or disable the PXE OptionRom of the Realtek LAN controller.

## POST Delay Time [3 sec]

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.

## Wait for 'F1' If Error

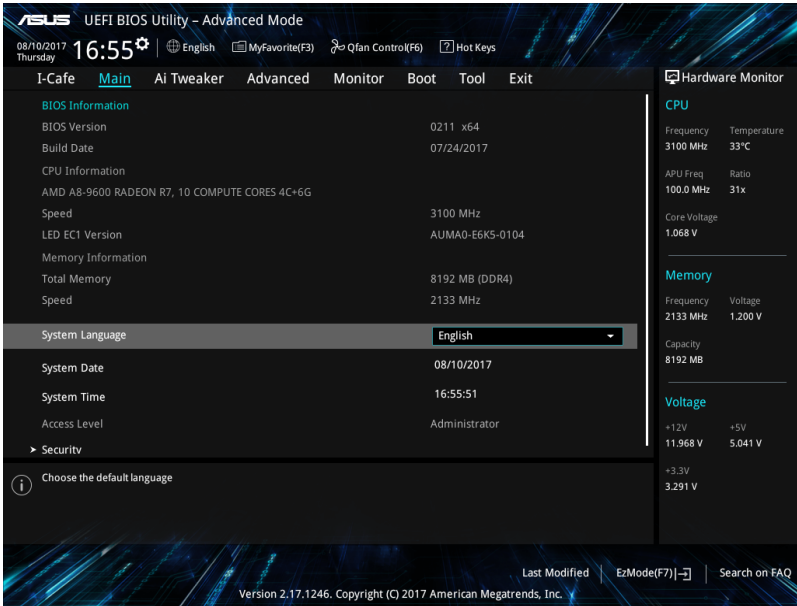
When this item is set to [Enabled], the system waits for the F1 key to be pressed when error occurs.

## ASUS EZ Flash 3 Utility

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

# 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.



## System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English]

## System Date [Day xx/xx/xxxx]

Allows you to set the system date.

## System Time [xx:xx:xx]

Allows you to set the system time.

## Security

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



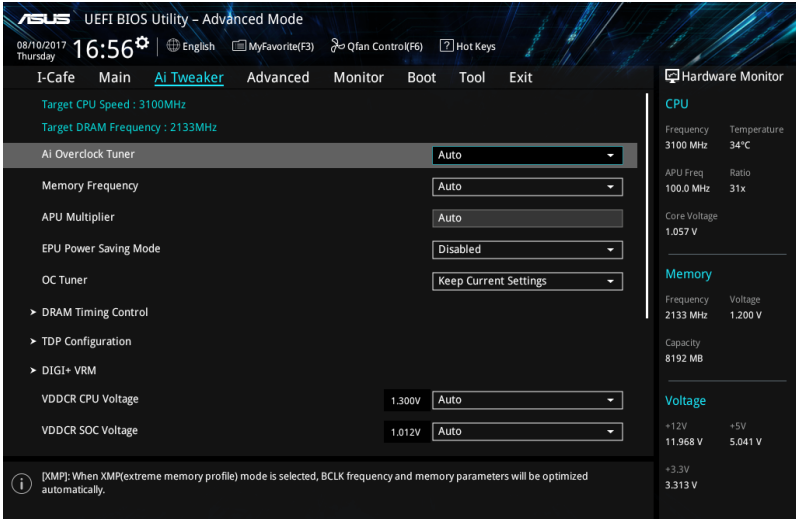
- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section 1 **Motherboard overview** for information on how to erase the RTC RAM.
- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

# Ai Tweaker

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



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



## Ai Overclock Tuner

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

## Memory Frequency

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

## APU Multiplier

Allows you to set the multiplier between the APU Core Clock and the APU Bus Frequency. Use the <+> and <-> keys to adjust the value. You can also key in the desired value using the numeric keypad.

## EPU Power Saving Mode

Allows you to enable or disable the EPU power saving function.

## DRAM Timing Control

The sub-items 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 <Enter>.

## TDP Configuration

This item allows you to configure TDP.

## DIGI+ VRM

The subitems in this menu allows you to configure the DIGI+VRM settings.

## VDDCR CPU Voltage

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.

## VDDCR SOC Voltage

Allows you to set the VDDCR SOC Voltage. Configuration options: [Auto] [Manual] [Offset].

## DRAM Voltage [Auto]

This item allows you to set the voltage for the DRAM. Use the <+> and <-> keys to adjust the value.

## 1.05V SB Voltage [Auto]

This item allows you to set the voltage for the 1.05V SB voltage. Use the <+> and <-> keys to adjust the value. The values range from 1.05V to 1.1V with a 0.05V interval.

## 2.5V SB Voltage [Auto]

This item allows you to set the voltage for the 2.5V SB voltage. Use the <+> and <-> keys to adjust the value. The values range from 2.5V to 2.55V with a 0.05V interval.

## VDDP Voltage

This item allows you to set the voltage for the VDDP voltage. Use the <+> and <-> keys to adjust the value. The values range from 1.05V to 1.2V with a 0.05V interval.

## CPU 1.80V Voltage

This item allows you to set the voltage for the APU 1.80V voltage. Use the <+> and <-> keys to adjust the value. The values range from 1.80V to 1.85V with a 0.005 interval.

## VTTDDR Voltage

This item allows you to set the voltage for the VTTDDR voltage. Use the <+> and <-> keys to adjust the value. The values range from 0.600V to 1/2VDDQ+0.2V with a 0.005V interval.

## VPP\_MEM Voltage

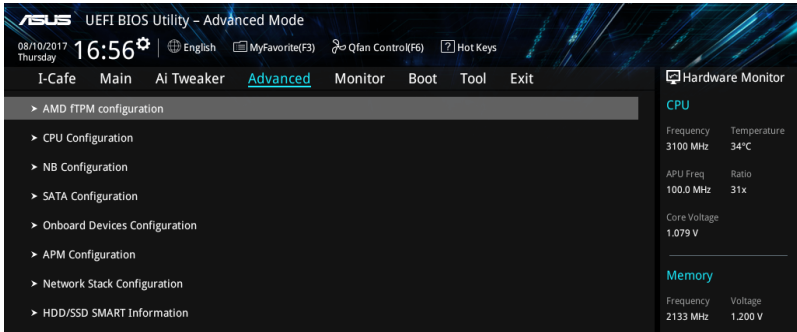
This item allows you to set the voltage for the VPP\_MEM voltage. Use the <+> and <-> keys to adjust the value.

## 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.



### AMD fTPM configuration

Allows you to select the TPM device. You can select the Firmware TPM to enable the AMD CPU fTPM or select Discrete TPM to disable the AMD CPU fTPM.

### CPU Configuration

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

### NB Configuration

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

### PCH-FW Configuration

The items in this menu allows you to configure the management engine technology settings.

### SATA Configuration

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

### Onboard Devices Configuration

The items in this menu allow you to configure the onboard devices.

### APM Configuration

The items in this menu allow you to configure the advanced power management settings.



## **Network Stack Configuration**

The items in this menu allow you to configure the network stack settings.

## **HDD/SSD SMART Information**

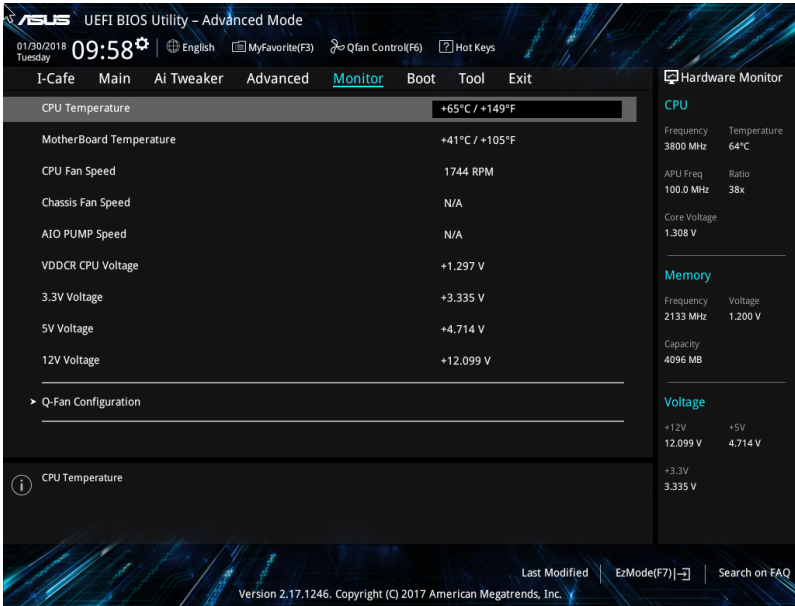
This menu displays the SMART information of the connected devices.

## **USB Configuration**

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

# Monitor menu

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



## CPU/ MB Temperature

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

## CPU Fan/ Chassis Fan Speed

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.

## CPU Core Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

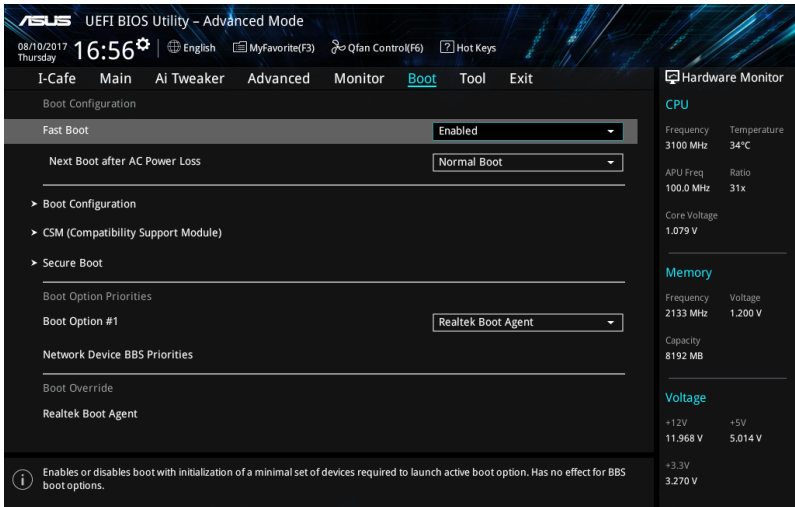
The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **[Ignore]** if you do not want to detect this item.

## Q-Fan Configuration

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

# Boot menu

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



## Fast Boot

This item allows you to accelerate the boot speed.

## Boot Configuration

### Boot Logo Display

This item allows you to configure the boot logo display settings.

### Bootup NumLock State

This item allows you to enable or disable power-on state of the NumLock.

### Wait for 'F1' If Error

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

### Option ROM Messages

This item allows you to configure how the third-party ROM messages will be displayed during the boot sequence.

### Interrupt 19 Capture

This item allows you to trap Interrupt 19 by the option ROMs.

## Setup Mode

Allows you to select the setup mode.

## 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.

## 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.



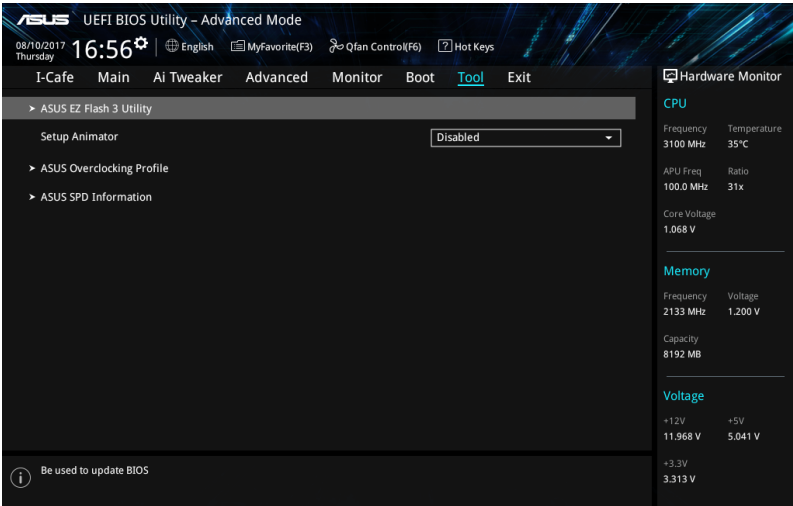
- 
- To access Windows® OS in Safe Mode, press <F8 > after POST (Windows® 8 not supported).
  - To select the boot device during system startup, press <F8> when ASUS Logo appears.
- 

## Boot Override

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

# Tool menu

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



## ASUS EZ Flash 3 Utility

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

## Setup Animator [Disabled]

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

## 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.

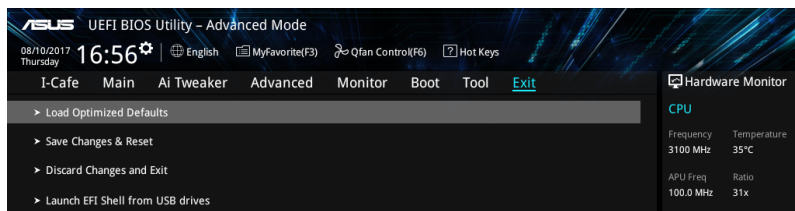
## ASUS SPD Information

### 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\_A2] [DIMM\_B1] [DIMM\_B2]

## 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.



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

---

## Compliance Statement of Innovation, Science and Economic Development Canada (ISED)

This Class B digital apparatus complies with Canadian ICES-003, RSS-210, and CAN ICES-3(B)/NMB-3(B).

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.

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VCCI-B

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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.

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

## Regional notice for California



### WARNING

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

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**Srpski** ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj u saglasnosti sa osnovnim zahtevima i drugim relevantnijim odredbama povezanih Direktiva. Pun tekst EU deklaracije o usaglasenosti je dostupan da adres: [www.asus.com/support](http://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](http://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](http://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](http://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](http://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](http://www.asus.com/support)

**Türkçe** ASUSTeK Computer Inc., bu aygıtın temel gereksinimlerle ve ilişkili Yönergelerin diğer ilgili koşullarıyla uyumlu olduğunu beyan eder. AB uygunluk bildirimini tam metni şu adreste bulunabilir: [www.asus.com/support](http://www.asus.com/support)

**Bosanski** ASUSTeK Computer Inc. ovim izjavljuje da je ovaj uređaj uskladan sa bitnim zahtjevima i ostalim odgovarajućim odredbama vezanih direktiva. Cijeli tekst EU izjave o uskladenosti dostupan je na: [www.asus.com/support](http://www.asus.com/support)

## ASUS contact information

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# DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)



**Responsible Party Name:** **Asus Computer International**

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

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

hereby declares that the product

**Product Name :** **Motherboard**

**Model Number :** **EX-A320M-GAMING**

Conforms to the following specifications:

FCC Part 15, Subpart B, Unintentional Radiators

## **Supplementary Information:**

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

Representative Person's Name : Steve Chang / President

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

Signature :

Date : Aug. 30, 2017

Ver. 170324