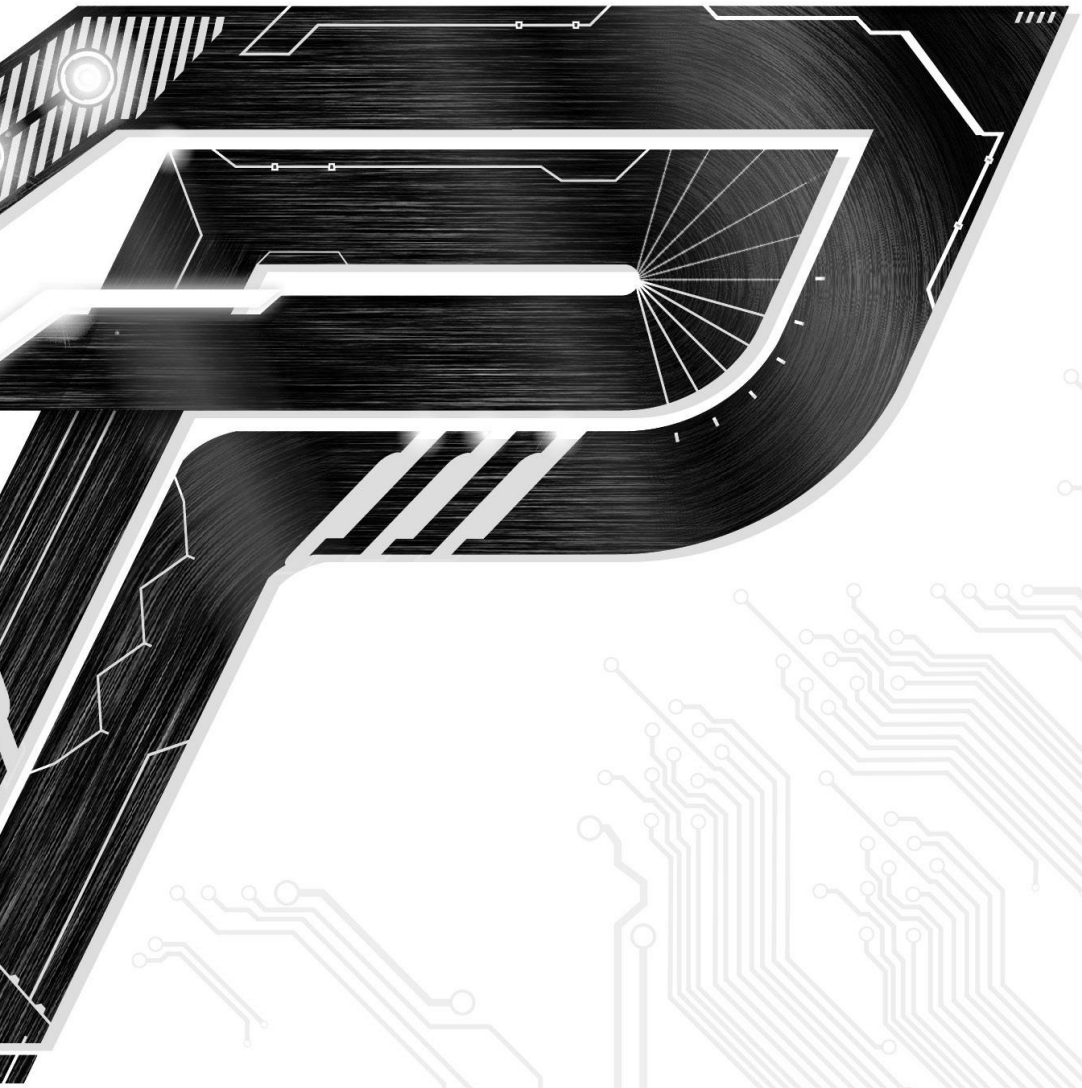
ASRock



X370 PRO4

User Manual

Version 1.1
Published October 2020

Copyright Notice:

Disclaimer:

Specifications and information contained in this documentation are furnished for informational use only and subject to change without notice, and should not be constructed as a commitment by ASRock. ASRock assumes no responsibility for any errors or omissions that may appear in this documentation.

With respect to the contents of this documentation, ASRock does not provide warranty of any kind, either expressed or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose.

In no event shall ASRock, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock has been advised of the possibility of such damages arising from any defect or error in the documentation or product.

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.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

ASRock Website: http://www.asrock.com

AUSTRALIA ONLY

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage caused by our goods. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you require assistance please call ASRock Tel : +886-2-28965588 ext.123 (Standard International call charges apply)

Contents

Chapter 1 Introduction

Thank you for purchasing ASRock X370 Pro4 motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, Chapter 1 and 2 contains the introduction of the motherboard and step-by-step installation guides. Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.com.

1.1 Package Contents

- ASRock X370 Pro4 Motherboard (ATX Form Factor)
- ASRock X370 Pro4 Quick Installation Guide
- ASRock X370 Pro4 Support CD
- 1 x I/O Panel Shield
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 2 x Screws for M.2 Sockets (Optional)

1.2 Specifications

Platform	• ATX Form Factor • Solid Capacitor design
CPU	• Supports AMD Socket AM4 A-Series APUs (Bristol Ridge) and Ryzen Series CPUs (Matisse, Picasso, Summit Ridge, Raven Ridge and Pinnacle Ridge) • Digi Power design • 9 Power Phase design
Chipset	• AMD Promontory X370
Memory	• Dual Channel DDR4 Memory Technology • 4 x DDR4 DIMM Slots • AMD Ryzen series CPUs (Matisse) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Pinnacle Ridge) support DDR4 3200+(OC)/2933(OC)/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Picasso) support DDR4 2933/2667/2400/2133 non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Summit Ridge) support DDR4 3200+(OC)/2933(OC)/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Raven Ridge) support DDR4 3200+(OC)/2933/2667/2400/2133 non-ECC, un-buffered memory* • AMD 7th Gen A-Series APUs support DDR4 2400/2133 non-ECC, un-buffered memory* * For Ryzen Series CPUs (Picasso and Raven Ridge), ECC is only supported with PRO CPUs. * Please refer to Memory Support List on ASRock's website for more information. (http://www.asrock.com/) * Please refer to page 22 for the table for AMD non-XMP memory frequency support. For more details, please refer to the QVL on ASRock's website. • Max. capacity of system memory: 64GB • 15µ Gold Contact in DIMM Slots

Expansion Slot

AMD Ryzen series CPUs (Matisse, Summit Ridge and Pinnacle Ridge)

- 2 x PCI Express 3.0 x16 Slots (single at x16 (PCIE2); dual at x16 (PCIE2) / x4 (PCIE4))*

AMD 7th A-Series APUs

- 2 x PCI Express 3.0 x16 Slots (single at x8 (PCIE2); dual at x8 (PCIE2) / x2 (PCIE4))*

AMD Ryzen series CPUs (Picasso, Raven Ridge)

- 2 x PCI Express 3.0 x16 Slots (single at x8 (PCIE2); dual at x8 (PCIE2) / x4 (PCIE4))*

AMD Athlon series CPUs

- 2 x PCI Express 3.0 x16 Slots (single at x4 (PCIE2); dual at x4 (PCIE2) / x2 (PCIE4))*

* Supports NVMe SSD as boot disks
* If M2_1 is occupied, PCIE4 will be disabled.

- 4 x PCI Express 2.0 x1 Slots
- Supports AMD Quad CrossFireX™ and CrossFireX™**

** This feature is only supported with Ryzen Series CPUs (Matisse, Summit Ridge, Pinnacle Ridge, Picasso and Raven Ridge).

Graphics

- Integrated AMD Radeon™ Vega Series Graphics in Ryzen Series APU*
- Integrated AMD Radeon™ R-Series Graphics in A-series APU*

* Actual support may vary by CPU

- DirectX 12, Pixel Shader 5.0
- Shared memory default 2GB. Max Shared memory supports up to 16GB.

* The Max shared memory 16GB requires 32GB system memory installed.

- Three graphics output options: D-Sub, DVI-D and HDMI
- Supports Triple Monitor
- Supports HDMI 1.4 with max. resolution up to 4K x 2K (4096x2160) @ 24Hz / (3840x2160) @ 30Hz
- Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz
- Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz

	• Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI 1.4 Port (Compliant HDMI monitor is required) • Supports HDCP 1.4 with DVI-D and HDMI 1.4 Ports • Supports Full HD 1080p Blu-ray (BD) playback with DVI-D and HDMI 1.4 Ports
Audio	• 7.1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec) • Premium Blu-ray Audio support • Supports Surge Protection • ELNA Audio Caps
LAN	• PCIE x1 Gigabit LAN 10/100/1000 Mb/s • Realtek RTL8111GR • Supports Wake-On-LAN • Supports Lightning/ESD Protection • Supports LAN Cable Detection • Supports Energy Efficient Ethernet 802.3az • Supports PXE
Rear Panel I/O	• 1 x PS/2 Mouse/Keyboard Port • 1 x D-Sub Port • 1 x DVI-D Port • 1 x HDMI Port • 2 x USB 2.0 Ports (Supports ESD Protection) • 1 x USB 3.2 Gen1 Type-C Port (Supports ESD Protection) • 5 x USB 3.2 Gen1 Ports (Supports ESD Protection (Supports ESD Protection) • 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) • HD Audio Jacks: Line in / Front Speaker / Microphone
Storage	• 4 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1 and RAID 10), NCQ, AHCI and Hot Plug* • 2 x SATA3 6.0 Gb/s Connectors by ASMedia ASM1061, support NCQ, AHCI and Hot Plug * M2_2 and SATA3_3 share lanes. If either one of them is in use, the other one will be disabled.

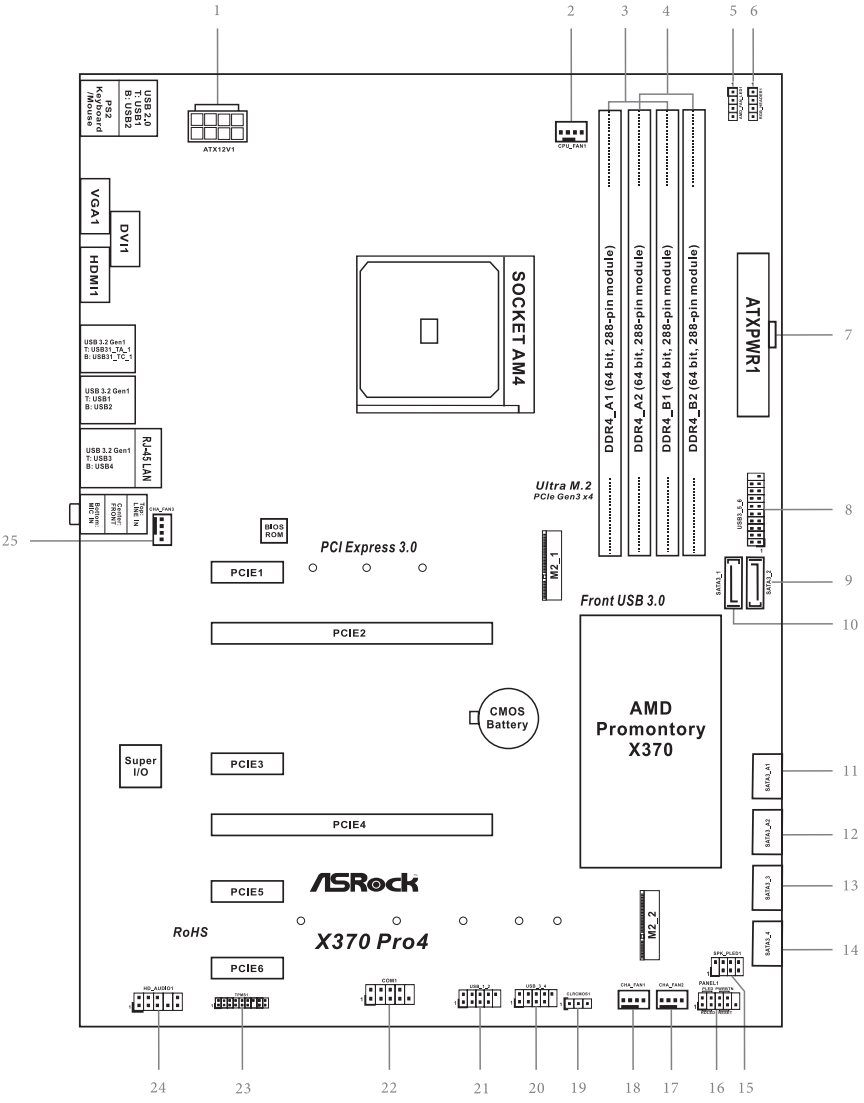
	• 1 x Ultra M.2 Socket (M2_1), supports M Key type 2242/2260/2280 M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Matisse, Picasso, Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with A-Series APU and Athlon series APU)** ** If M2_1 is occupied, PCIE4 will be disabled. ** Supports NVMe SSD as boot disks ** Supports ASRock U.2 Kit • 1 x M.2 Socket (M2_2), supports M Key type 2230/2242/2260/2280/22110 M.2 SATA3 6.0 Gb/s module
Connector	• 1 x COM Port Header • 1 x TPM Header • 1 x Power LED and Speaker Header • 1 x RGB LED Header * Supports up to 12V/3A, 36W LED Strip • 1 x AMD Fan LED Header • 1 x CPU Fan Connector (4-pin) * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 3 x Chassis Fan Connectors (4-pin) (Smart Fan Speed Control) * CHA_FAN2 and CHA_FAN3 can auto detect if 3-pin or 4-pin fan is in use. • 1 x 24 pin ATX Power Connector • 1 x 8 pin 12V Power Connector • 1 x Front Panel Audio Connector • 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) (Supports ESD Protection) • 1 x USB 3.2 Gen1 Header (Supports 2 USB 3.2 Gen1 ports) (Supports ESD Protection)
BIOS Feature	• AMI UEFI Legal BIOS with multilingual GUI support • Supports “Plug and Play” • ACPI 5.1 compliance wake up events • Supports jumperfree • SMBIOS 2.3 support • DRAM Voltage multi-adjustment

Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan • CPU/Chassis Fan multi-speed control • Voltage monitoring: +12V, +5V, +3.3V, Vcore
OS	• Microsoft® Windows® 10 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

** For detailed product information, please visit our website: http://www.asrock.com*

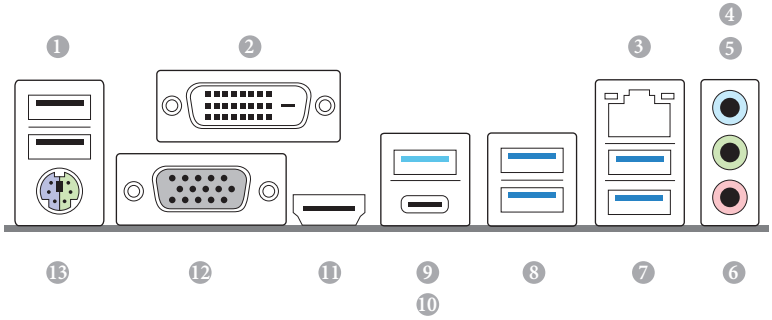
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

1.3 Motherboard Layout



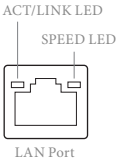
No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
4	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2)
5	AMD Fan LED Header (AMD_FAN_LED1)
6	RGB LED Header (RGB_HEADER1)
7	ATX Power Connector (ATXPWR1)
8	USB 3.2 Gen1 Header (USB3_5_6)
9	SATA3 Connector (SATA3_2)
10	SATA3 Connector (SATA3_1)
11	SATA3 Connector (SATA3_A1)
12	SATA3 Connector (SATA3_A2)
13	SATA3 Connector (SATA3_3)
14	SATA3 Connector (SATA3_4)
15	Power LED and Speaker Header (SPK_PLED1)
16	System Panel Header (PANEL1)
17	Chassis Fan Connector (CHA_FAN2)
18	Chassis Fan Connector (CHA_FAN1)
19	Clear CMOS Jumper (CLRCMOS1)
20	USB 2.0 Header (USB_3_4)
21	USB 2.0 Header (USB_1_2)
22	COM Port Header (COM1)
23	TPM Header (TPMS1)
24	Front Panel Audio Header (HD_AUDIO1)
25	Chassis Fan Connector (CHA_FAN3)

1.4 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports (USB12)	8	USB 3.2 Gen1 Ports (USB3_12)
2	DVI-D Port	9	USB 3.2 Gen1 Port (USB31_TA_1)
3	LAN RJ-45 Port*	10	USB 3.2 Gen1 Type-C Port (USB31_TC_1)
4	Line In (Light Blue)**	11	HDMI Port
5	Front Speaker (Lime)**	12	D-Sub Port
6	Microphone (Pink)**	13	PS/2 Mouse/Keyboard Port
7	USB 3.2 Gen1 Ports (USB3_34)		

** There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.*



Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

*** **Function of the Audio Ports in 7.1-channel Configuration**:*

Port	Function
Light Blue (Rear panel)	Rear Speaker Out
Lime (Rear panel)	Front Speaker Out
Pink (Rear panel)	Central /Subwoofer Speaker Out
Lime (Front panel)	Side Speaker Out

Chapter 2 Installation

This is an ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

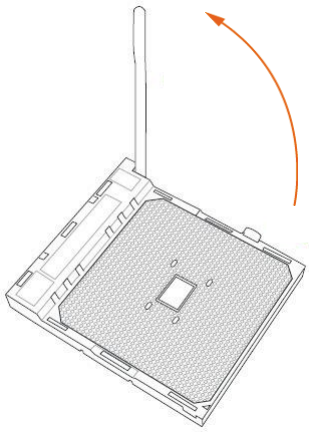
Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

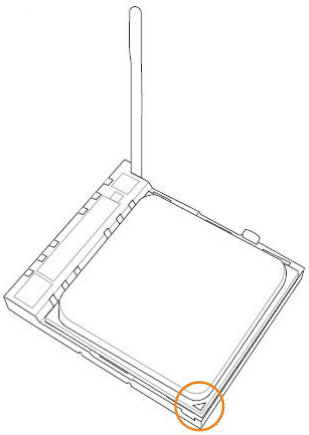
2.1 Installing the CPU

Unplug all power cables before installing the CPU.

1



2



3

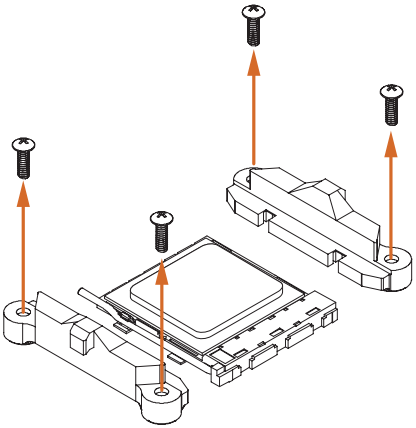
2.2 Installing the CPU Fan and Heatsink

After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other.

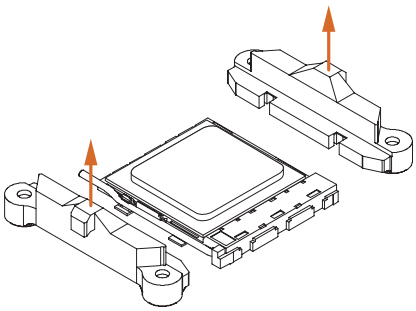
Please turn off the power or remove the power cord before changing a CPU or heatsink.

Installing the CPU Box Cooler SR1

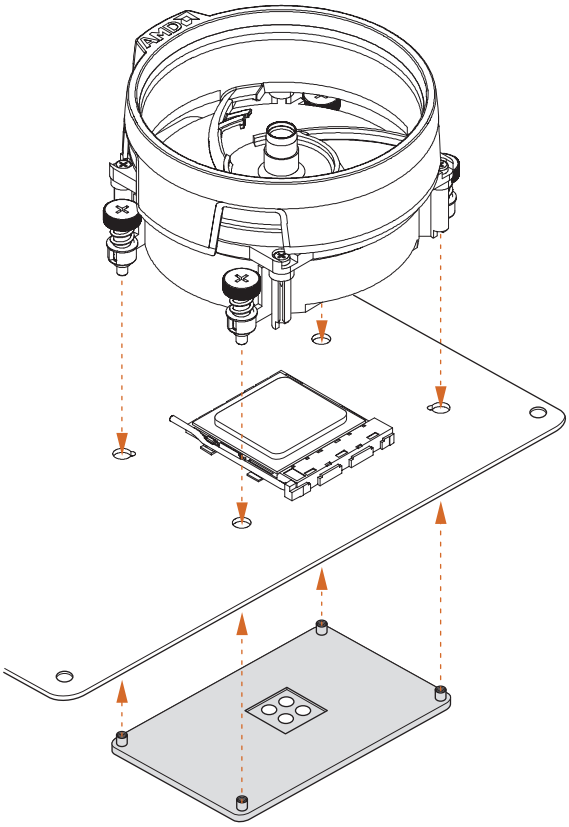
1



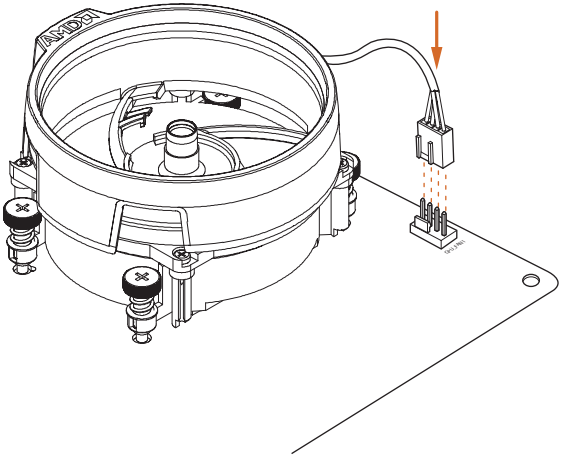
2



3

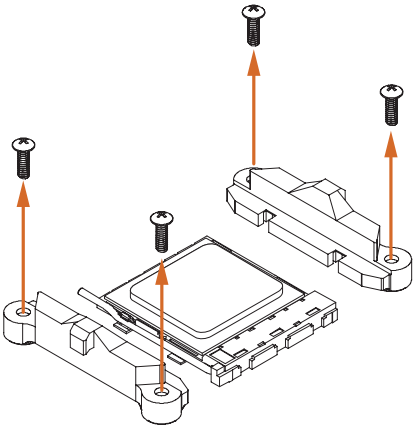


4

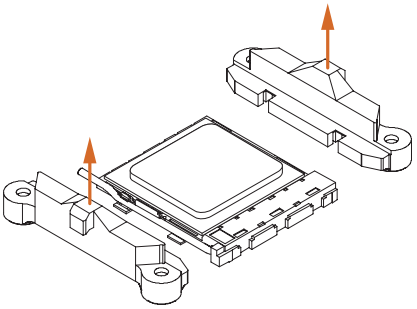


Installing the AM4 Box Cooler SR2

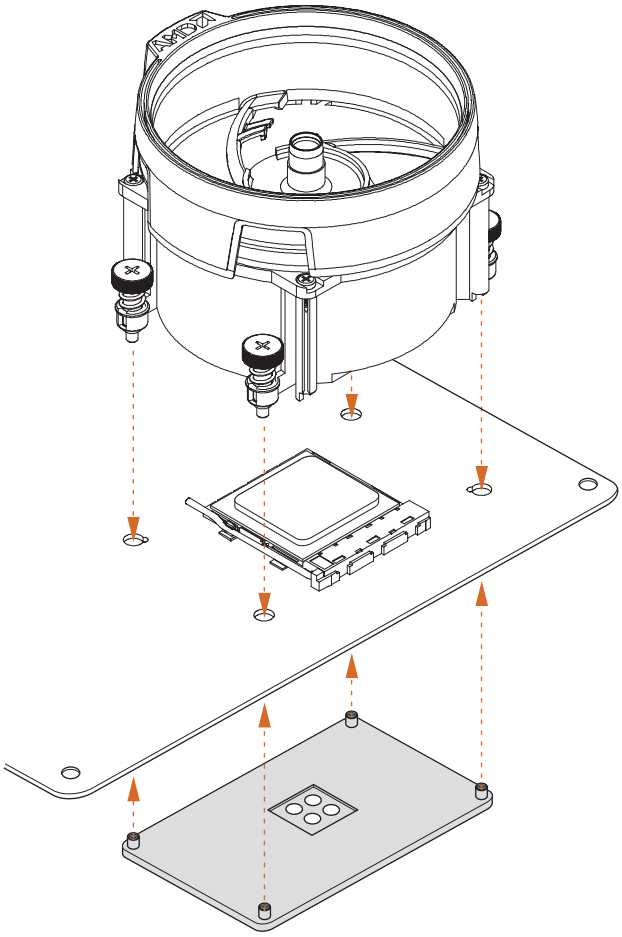
1



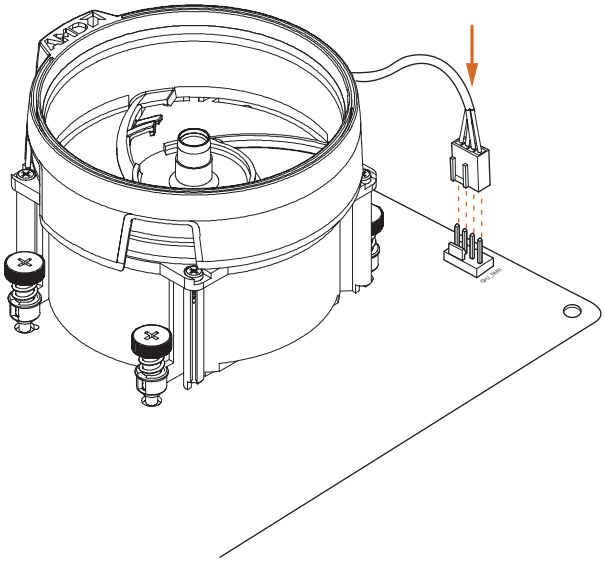
2



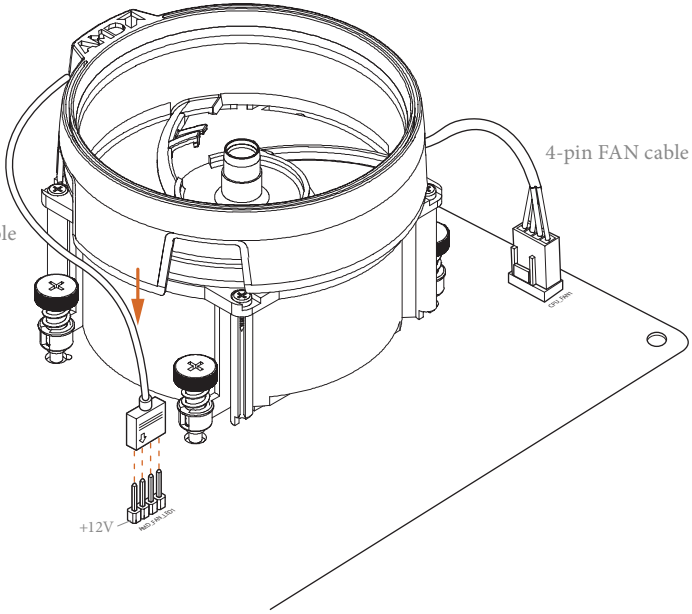
3



4



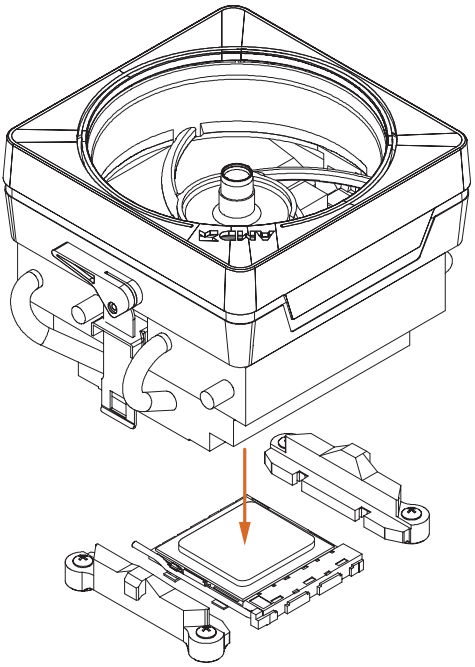
5



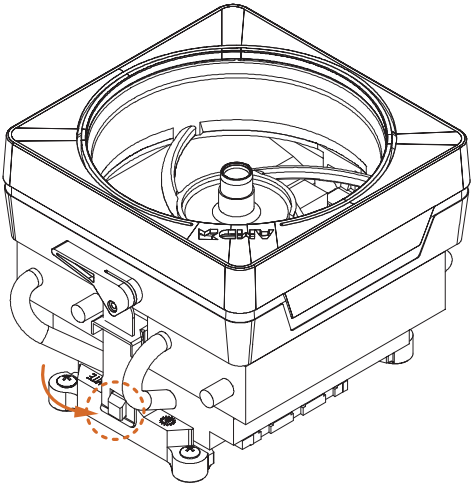
*The diagram shown here are for reference only. Please refer to page 32 for the orientation of AMD Fan LED Header (AMD_FAN_LED1).

Installing the AM4 Box Cooler SR3

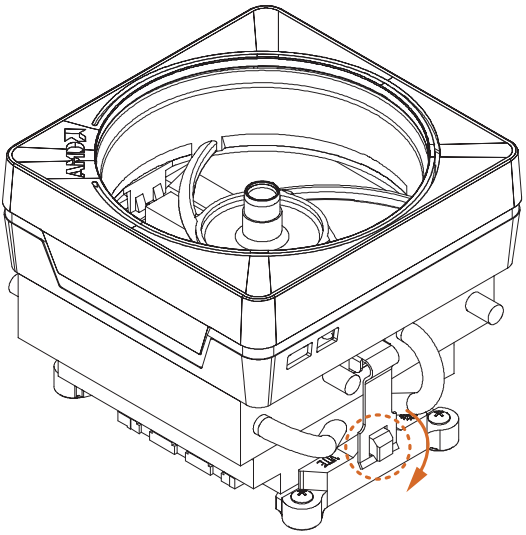
1



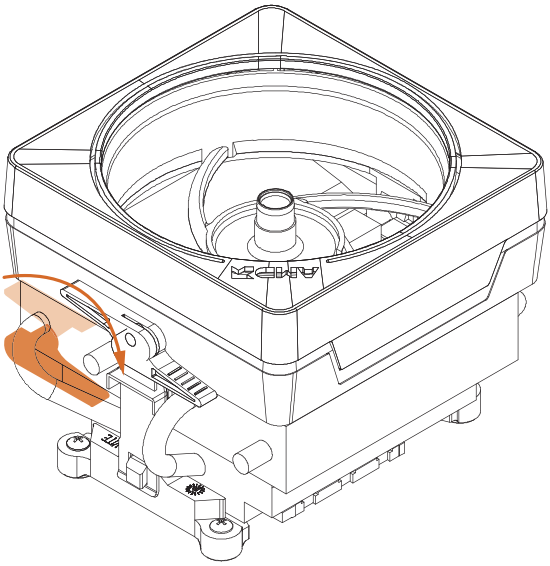
2



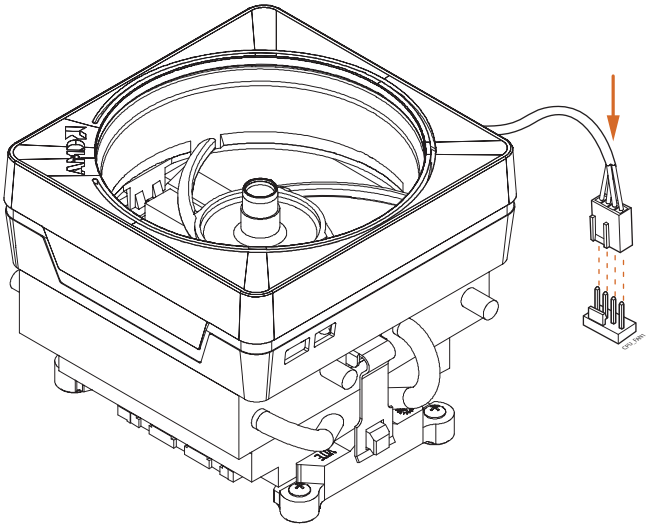
3



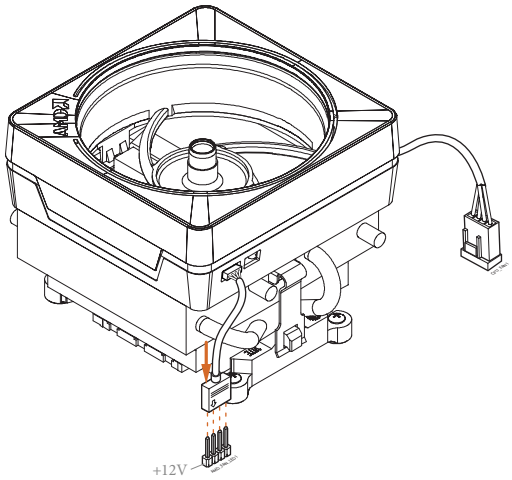
4



5

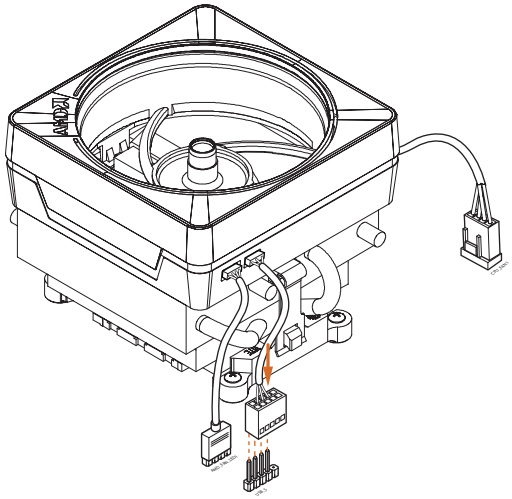


6



or

7



Please note that only one cable should be used at a time in this step.
If you select AMD_FAN_LED1, please install ASRock utility "ASRock RGB LED".
If you select USB connector, please install AMD utility "SR3 Settings Software".

*The diagram shown here are for reference only. Please refer to page 32 for the orientation of AMD Fan LED Header (AMD_FAN_LED1).

2.3 Installing Memory Modules (DIMM)

This motherboard provides four 288-pin DDR4 (Double Data Rate 4) DIMM slots, and supports Dual Channel Memory Technology.

1. *For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.*
2. *It is unable to activate Dual Channel Memory Technology with only one or three memory module installed.*
3. *It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.*

AMD non-XMP Memory Frequency Support

A-Series APUs (Bristol Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2400
-	DR	-	-	2400
-	SR	-	SR	2400
-	DR	-	DR	2133
SR	SR	SR	SR	1866
SR/DR	DR	SR/DR	DR	1866

Ryzen Series CPUs (Matisse):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	3200
-	DR	-	-	3200
-	SR	-	SR	3200
-	DR	-	DR	3200
SR	SR	SR	SR	2933
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2667

Ryzen Series CPUs (Pinnacle Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2933
-	SR	-	SR	2933
-	DR	-	DR	2933
SR	SR	SR	SR	2933
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2133-2400

Ryzen Series CPUs (Picasso):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2667
-	SR	-	SR	2667
-	DR	-	DR	2400
SR	SR	SR	SR	2133
SR/DR	DR	SR/DR	DR	1866
SR/DR	SR/DR	SR/DR	SR/DR	1866

Ryzen Series CPUs (Summit Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2667
-	DR	-	-	2667
-	SR	-	SR	2667
-	DR	-	DR	2667
SR	SR	SR	SR	2667
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2133-2400

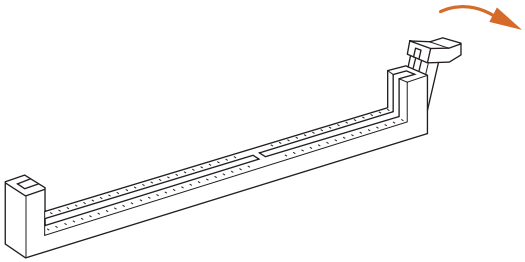
Ryzen Series CPUs (Raven Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2667
-	SR	-	SR	2667
-	DR	-	DR	2667
SR	SR	SR	SR	2667
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2133-2400

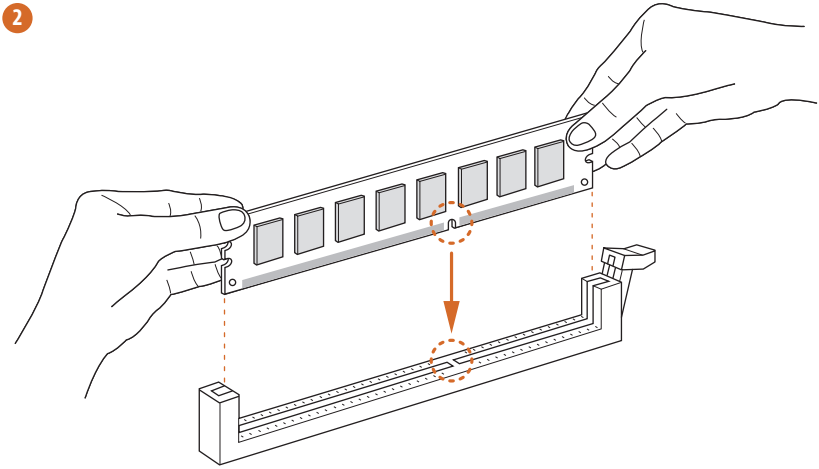
SR: Single rank DIMM, 1Rx4 or 1Rx8 on DIMM module label
DR: Dual rank DIMM, 2Rx4 or 2Rx8 on DIMM module label

The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

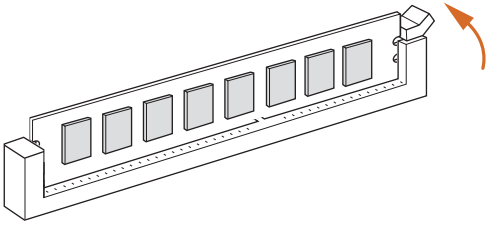
1



2



3



2.4 Expansion Slots (PCI Express Slots)

There are 6 PCI Express slots on the motherboard.

Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

PCIe slots:

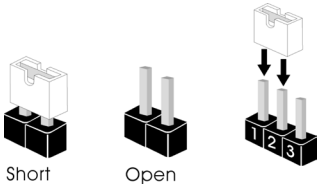
PCIE1 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards.
PCIE2 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards.*
PCIE3 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards.
PCIE4 (PCIe 3.0 x16 slot) is used for PCI Express x4 lane width graphics cards.**
PCIE5 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards.
PCIE6 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards.
** If M2_1 is occupied, PCIE4 will be disabled.

PCIe Slot Configurations

PCIe Slot	PCIE1	PCIE2	PCIE3	PCIE4	PCIE5	PCIE6
A-Series APUs (Bristol Ridge)	x1	8	x1	x2	x1	x1
Ryzen Series CPUs (Matisse)	x1	x16	x1	x4	x1	x1
Ryzen Series CPUs (Pinnacle Ridge)	x1	x16	x1	x4	x1	x1
Ryzen Series CPUs (Summit Ridge)	x1	x16	x1	x4	x1	x1
Ryzen Series CPUs (Picasso)	x1	x8	x1	x4	x1	x1
Ryzen Series CPUs (Raven Ridge)	x1	x8	x1	x4	x1	x1
AMD Athlon Series CPUs	x1	x4	x1	x2	x1	x1

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



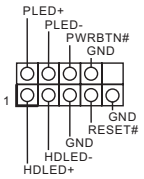
Clear CMOS Jumper
(CLRMOS1)
(see p.7, No. 19)

CLRMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, and user default profile will be cleared only if the CMOS battery is removed.

2.6 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.7, No. 16)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

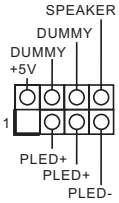
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

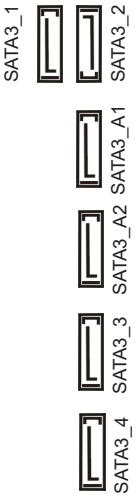
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Power LED and Speaker Header
(7-pin SPK_PLED1)
(see p.7, No. 15)



Please connect the chassis power LED and the chassis speaker to this header.

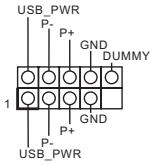
Serial ATA3 Connectors
Vertical:
(SATA3_1:
see p.7, No. 10)
(SATA3_2:
see p.7, No. 9)
Right Angle:
(SATA3_3:
see p.7, No. 13)
(SATA3_4:
see p.7, No. 14)
(SATA3_A1:
see p.7, No. 11)
(SATA3_A2:
see p.7, No. 12)



These six SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.
* M2_2 and SATA3_3 share lanes. If either one of them is in use, the other one will be disabled.

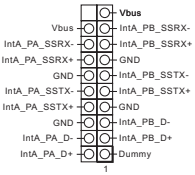
* To minimize the boot time, use AMD SATA ports (SATA3_1~4) for your bootable devices.

USB 2.0 Headers
(9-pin USB_1_2)
(see p.7, No. 21)
(9-pin USB_3_4)
(see p.7, No. 20)



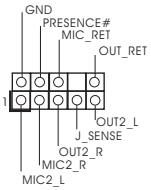
There are two headers on this motherboard. Each USB 2.0 header can support two ports.

USB 3.2 Gen1 Header
(19-pin USB3_5_6)
(see p.7, No. 8)



There is one header on this motherboard. Each USB 3.2 Gen1 header can support two ports.

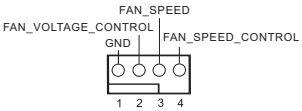
Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.7, No. 24)



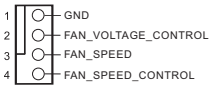
This header is for connecting audio devices to the front audio panel.

1. *High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.*
2. *If you use an AC'97 audio panel, please install it to the front panel audio header by the steps below:*
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for the HD audio panel only. You don't need to connect them for the AC'97 audio panel.
   E. To activate the front mic, go to the "FrontMic" Tab in the Realtek Control panel and adjust "Recording Volume".

Chassis Fan Connectors
(4-pin CHA_FAN1)
(see p.7, No. 18)
(4-pin CHA_FAN2)
(see p.7, No. 17)

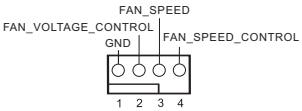


(4-pin CHA_FAN3)
(see p.7, No. 25)



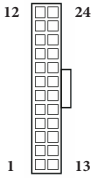
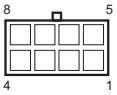
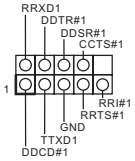
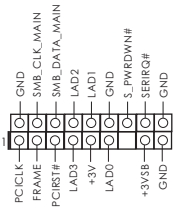
Please connect fan cables to the fan connectors and match the black wire to the ground pin.

CPU Fan Connector
(4-pin CPU_FAN1)
(see p.7, No. 2)



This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

English

ATX Power Connector (24-pin ATXPWR1) (see p.7, No. 7)		This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.
ATX 12V Power Connector (8-pin ATX12V1) (see p.7, No. 1)		This motherboard provides a 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.
Serial Port Header (9-pin COM1) (see p.7, No. 22)		This COM1 header supports a serial port module.
TPM Header (17-pin TPMS1) (see p.7, No. 23)		This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

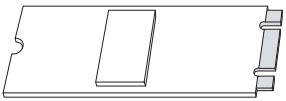
RGB LED Header (4-pin RGB_HEADER1) (see p.7, No. 6)		RGB LED header is used to connect RGB LED extension cable which allows users to choose from various LED lighting effects. **Caution: Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.** *Please refer to page 46 for for further instructions on these two headers.
AMD FAN LED Header (4-pin AMD_FAN_ LED1) (see p.7, No. 5)		AMD FAN LED Header is used to connect RGB LED extension cable that comes with AMD heatsink. The cable connection allows users to choose from various LED lighting effects. **Caution: Never install the FAN LED cable in the wrong orientation; otherwise, the cable may be damaged.**

2.7 M.2_SSD (NGFF) Module Installation Guide (M2_1)

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Ultra M.2 Socket (M2_1) supports type 2242/2260/2280 M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Matisse, Picasso, Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with A-Series APU and Athlon series APU).

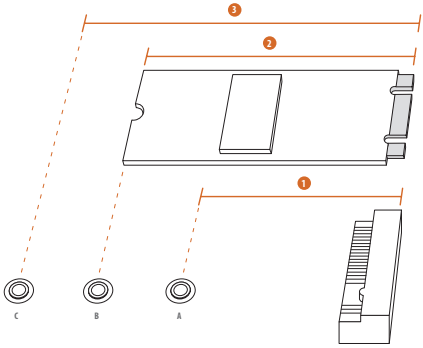
* If M2_1 is occupied, PCIE4 will be disabled.

Installing the M.2_SSD (NGFF) Module



Step 1

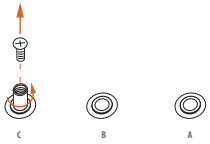
Prepare a M.2_SSD (NGFF) module and the screw.

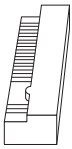


Step 2

Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.

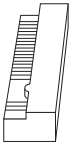
No.	1	2	3
Nut Location	A	B	C
PCB Length	4.2cm	6cm	8cm
Module Type	Type 2242	Type2260	Type 2280





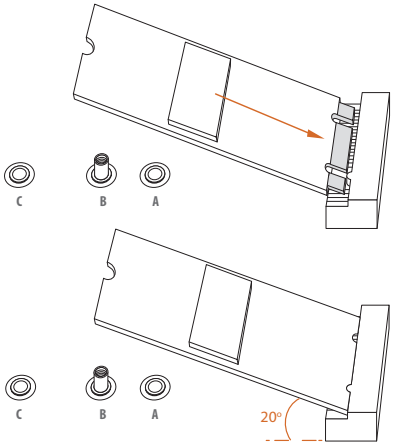
Step 3

Move the standoff based on the module type and length.
The standoff is placed at the nut location C by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.



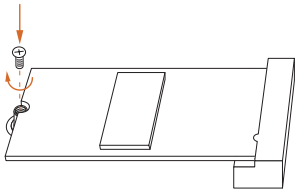
Step 4

Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Gently insert the M.2 (NGFF) SSD module into the M.2 slot. Please be aware that the M.2 (NGFF) SSD module only fits in one orientation.



Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

M.2_SSD (NGFF) Module Support List

Vendor	Interface	P/N
Intel	PCIe	INTEL 6000P-SSDPEKKF256G7 (nvme)
Intel	PCIe	INTEL 6000P-SSDPEKKF512G7 (nvme)
Intel	PCIe	INTEL 600P-SSDPEKKW256G7-256GB (nvme)
Kingston	PCIe	Kingston SHPM2280P2 / 240G (Gen2 x4)
SanDisk	PCIe	SanDisk-SD6PP4M-128G(Gen2 x2)
Samsung	PCIe	Samsung XP941-MZHPU512HCGL(Gen2x4)

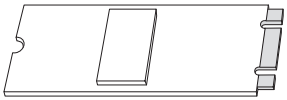
For the latest updates of M.2_SSD (NFGG) module support list, please visit our website for details: http://www.asrock.com

2.8 M.2_SSD (NGFF) Module Installation Guide (M2_2)

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (M2_2) supports type 2230/2242/2260/2280/22110 M.2 SATA3 6.0 Gb/s module.

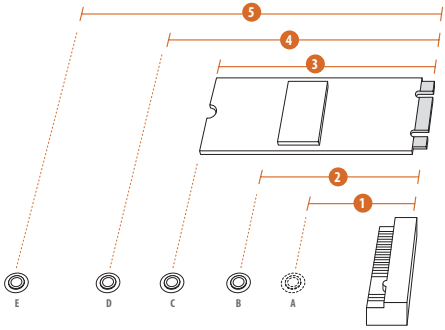
* M2_2 and SATA3_3 share lanes. If either one of them is in use, the other one will be disabled.

Installing the M.2_SSD (NGFF) Module



Step 1

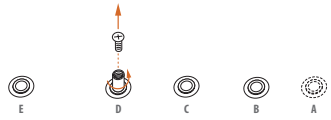
Prepare a M.2_SSD (NGFF) module and the screw.

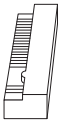


Step 2

Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.

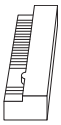
No.	1	2	3	4	5
Nut Location	A	B	C	D	E
PCB Length	3cm	4.2cm	6cm	8cm	11cm
Module Type	Type2230	Type 2242	Type2260	Type 2280	Type 22110





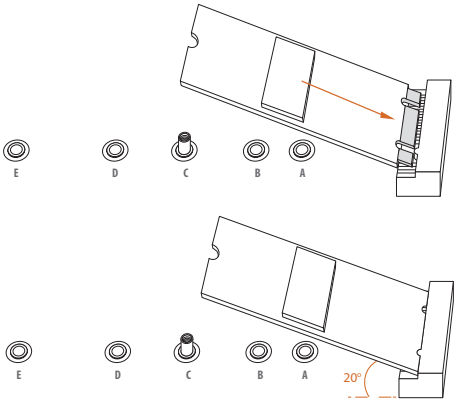
Step 3

Move the standoff based on the module type and length.
The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.



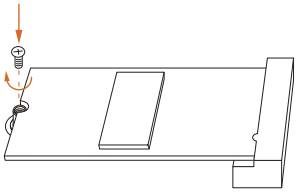
Step 4

Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Gently insert the M.2 (NGFF) SSD module into the M.2 slot. Please be aware that the M.2 (NGFF) SSD module only fits in one orientation.



Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

M.2_SSD (NGFF) Module Support List

Vendor	Interface	P/N
ADATA	SATA	ADATA - AXNS381E-128GM-B
Crucial	SATA	Crucial-CT240M500SSD4-240GB
EZLINK	SATA	EZLINK P51B-80-120GB
Intel	SATA	INTEL 540S-SSDSCKKW240H6-240GB
Kingston	SATA	Kingston-RBU-SNS8400S3 / 180GD
Kingston	SATA	Kingston SM2280S3G2/120G - Win8.1
LITEON	SATA	LITEON LJH-256V2G-256GB (2260)
PLEXTOR	SATA	PLEXTOR PX-128M7VG-128GB
PLEXTOR	SATA	PLEXTOR PX-128M6G-2260-128GB
SanDisk	SATA	SanDisk-SD6SN1M-128G
SanDisk	SATA	SanDisk X400-SD8SN8U-128G
SanDisk	SATA	Sandisk Z400s-SD8SNAT-128G-1122
Transcend	SATA	Transcend TS256GMTS800-256GB
Transcend	SATA	Transcend TS64GMTS400-64GB
V-Color	SATA	V-Color 120G
V-Color	SATA	V-Color 240G
WD	SATA	WD BLUE WDS100T1B0B-00AS40
WD	SATA	WD GREEN WDS240G1G0B-00RC30

For the latest updates of M.2_SSD (NFGG) module support list, please visit our website for details: http://www.asrock.com

Chapter 3 Software and Utilities Operation

3.1 Installing Drivers

The Support CD that comes with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu.

Drivers Menu

The drivers compatible to your system will be auto-detected and listed on the support CD driver page. Please click **Install All** or follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

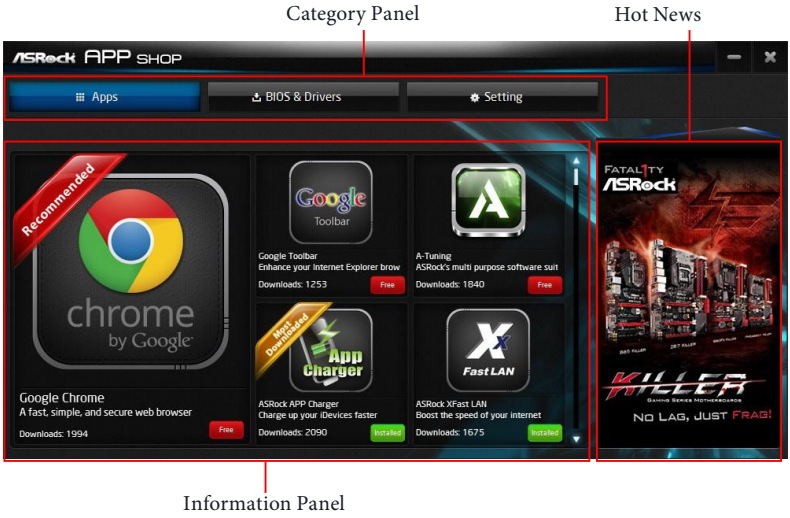
3.2 ASRock Live Update & APP Shop

The ASRock Live Update & APP Shop is an online store for purchasing and downloading software applications for your ASRock computer. You can quickly and easily install various apps and support utilities. With ASRock Live Update & APP Shop, you can optimize your system and keep your motherboard up to date simply with a few clicks.

Double-click on your desktop to access ASRock Live Update & APP Shop utility.

**You need to be connected to the Internet to download apps from the ASRock Live Update & APP Shop.*

3.2.1 UI Overview



Category Panel: The category panel contains several category tabs or buttons that when selected the information panel below displays the relative information.

Information Panel: The information panel in the center displays data about the currently selected category and allows users to perform job-related tasks.

Hot News: The hot news section displays the various latest news. Click on the image to visit the website of the selected news and know more.

3.2.2 Apps

When the "Apps" tab is selected, you will see all the available apps on screen for you to download.

Installing an App

Step 1

Find the app you want to install.

The most recommended app appears on the left side of the screen. The other various apps are shown on the right. Please scroll up and down to see more apps listed.

You can check the price of the app and whether you have already intalled it or not.

Free - The red icon displays the price or "Free" if the app is free of charge.

Installed - The green "Installed" icon means the app is installed on your computer.

Step 2

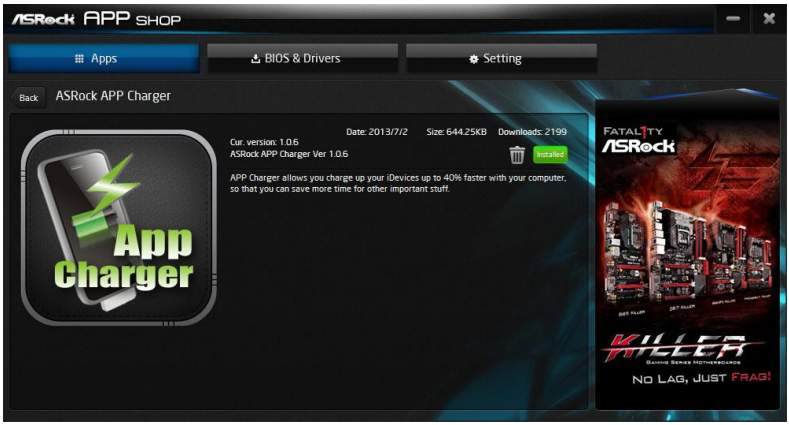
Click on the app icon to see more details about the selected app.

Step 3

If you want to install the app, click on the red icon Free to start downloading.

Step 4

When installation completes, you can find the green "Installed" icon appears on the upper right corner.



To uninstall it, simply click on the trash can icon .
*The trash icon may not appear for certain apps.

Upgrading an App

You can only upgrade the apps you have already installed. When there is an available new version for your app, you will find the mark of "New Version" New Version appears below the installed app icon.

Step 1

Click on the app icon to see more details.

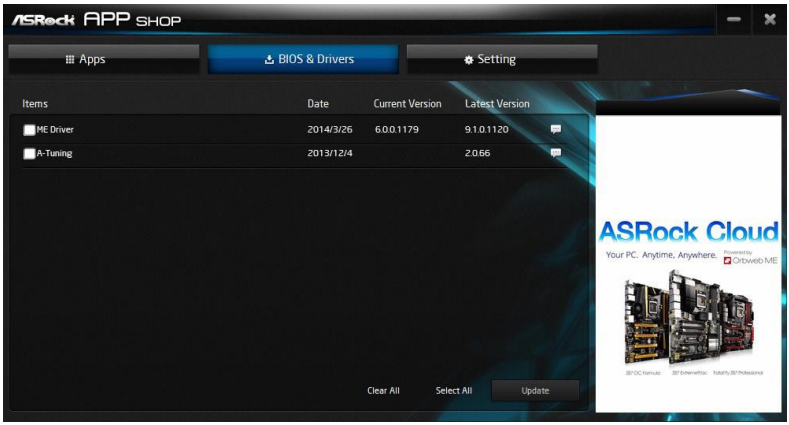
Step 2

Click on the yellow icon New Version to start upgrading.

3.2.3 BIOS & Drivers

Installing BIOS or Drivers

When the "BIOS & Drivers" tab is selected, you will see a list of recommended or critical updates for the BIOS or drivers. Please update them all soon.



Step 1

Please check the item information before update. Click on to see more details.

Step 2

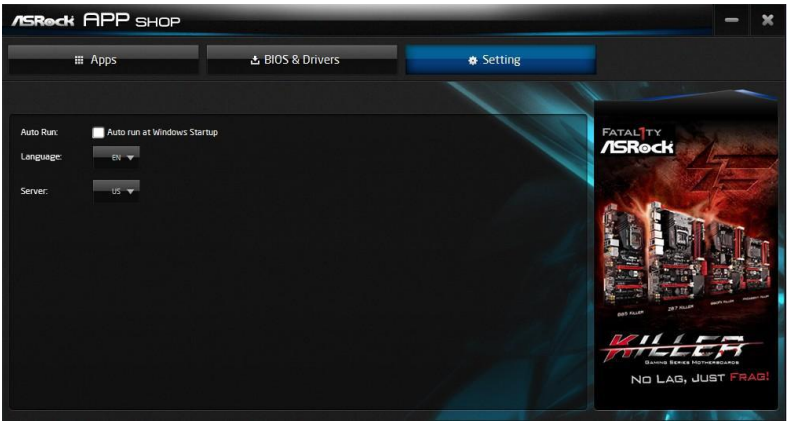
Click to select one or more items you want to update.

Step 3

Click Update to start the update process.

3.2.4 Setting

In the "Setting" page, you can change the language, select the server location, and determine if you want to automatically run the ASRock Live Update & APP Shop on Windows startup.

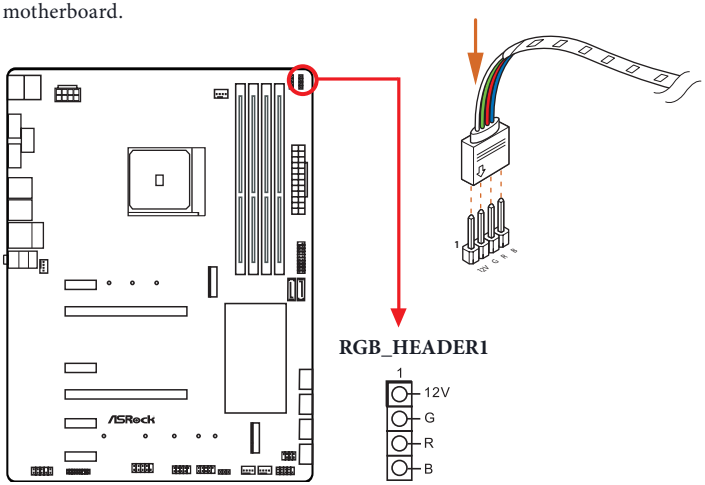


3.3 ASRock RGB LED

ASRock RGB LED is a lighting control utility specifically designed for unique individuals with sophisticated tastes to build their own stylish colorful lighting system. Simply by connecting the LED strip, you can customize various lighting schemes and patterns, including Static, Breathing, Strobe, Cycling, Music, Wave and more.

Connecting the LED Strip

Connect your RGB LED strip to the **RGB LED Header (RGB_HEADER1)** on the motherboard.



1. *Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.*
2. *Before installing or removing your RGB LED cable, please power off your system and unplug the power cord from the power supply. Failure to do so may cause damages to motherboard components.*

1. *Please note that the RGB LED strips do not come with the package.*
2. *The RGB LED header supports standard 5050 RGB LED strip (12V/G/R/B), with a maximum power rating of 3A (12V) and length within 2 meters.*

ASRock RGB LED Utility

Now you can adjust the RGB LED color through the ASRock RGB LED utility. Download this utility from the ASRock Live Update & APP Shop and start coloring your PC style your way!

Chapter 4 UEFI SETUP UTILITY

4.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. You may run the UEFI SETUP UTILITY by pressing <F2> or <Del> right after you power on the computer, otherwise, the Power-On-Self-Test (POST) will continue with its test routines. If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

4.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	For setting system time/date information
OC Tweaker	For overclocking configurations
Advanced	For advanced system configurations
Tool	Useful tools
H/W Monitor	Displays current hardware status
Security	For security settings
Boot	For configuring boot settings and boot priority
Exit	Exit the current screen or the UEFI Setup Utility

4.1.2 Navigation Keys

Use <←> key or <→> key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

Please check the following table for the descriptions of each navigation key.

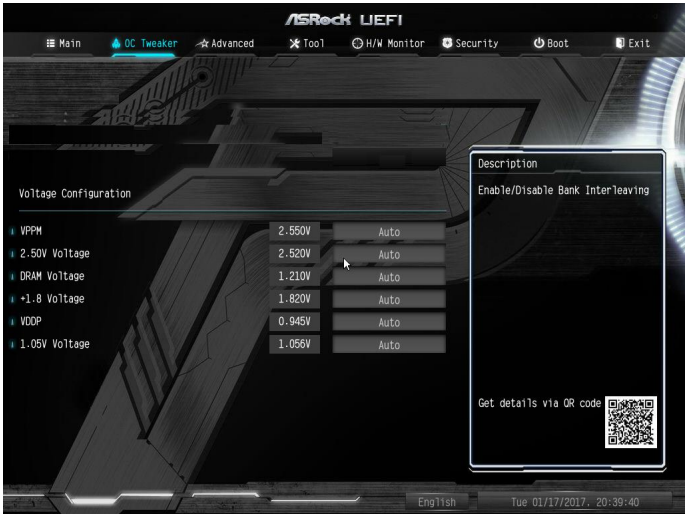
Navigation Key(s)	Description
+ / -	To change option for the selected items
<Tab>	Switch to next function
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

4.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.

4.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

Voltage Configuration

VPPM

Configure the voltage for the VPPM.

2.50V Voltage

Configure the voltage for the 2.50V PROM.

DRAM Voltage

Use this to select DRAM Voltage. The default value is [Auto].

+1.8 Voltage

Configure +1.8V voltage.

VDDP

Configure the voltage for the VDDP.

1.05V Voltage

Chipset 1.05V Voltage. Use default settings for best performance.

4.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, North Bridge Configuration, South Bridge Configuration, Storage-Configuration, Super IO Configuration, ACPI Configuration and Trusted Computing.

Setting wrong values in this section may cause the system to malfunction.

UEFI Configuration

Active Page on Entry

Select the default page when entering the UEFI setup utility.

Full HD UEFI

When [Auto] is selected, the resolution will be set to 1920 x 1080 if the monitor supports Full HD resolution. If the monitor does not support Full HD resolution, then the resolution will be set to 1024 x 768. When [Disable] is selected, the resolution will be set to 1024 x 768 directly.

4.4.1 CPU Configuration

Cool 'n' Quiet

Use this item to enable or disable AMD's Cool 'n' Quiet™ technology. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® OS and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies. Please set this item to [Disable] if above issue occurs.

AMD fTPM Switch

Use this to enable or disable AMD CPU fTPM.

SVM Mode

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by AMD-V. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled].

C6 Mode

Use this item to enable or disable Core C6 mode. The default value is [Enabled].

4.4.2 North Bridge Configuration

IOMMU

Use this to enable or disable IOMMU. The default value of this feature is [Disabled].

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

4.4.3 South Bridge Configuration

Onboard HD Audio

Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.

Front Panel

Enable/disable front panel HD audio.

Deep Sleep

Configure deep sleep mode for power saving when the computer is shut down.

Restore on AC/Power Loss

Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

4.4.4 Storage Configuration

SATA Controller(s)

Enable/disable the SATA controllers.

SATA Mode

AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

ASMedia SATA3 Mode

IDE: For better compatibility.

AHCI: Supports new features that improve performance.

4.4.5 Super IO Configuration

Serial Port

Enable or disable the Serial port.

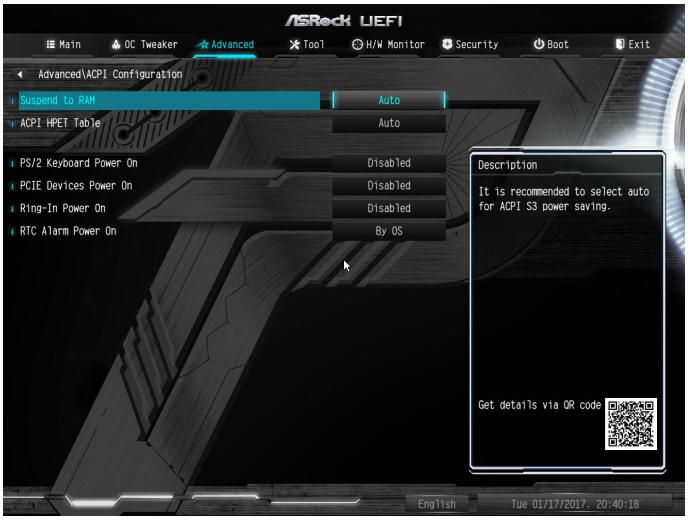
Serial Port Address

Select the address of the Serial port.

PS2 Y-Cable

Enable the PS2 Y-Cable or set this option to Auto.

4.4.6 ACPI Configuration



Suspend to RAM

It is recommended to select auto for ACPI S3 power saving.

ACPI HPET Table

Enable the High Precision Event Timer for better performance and to pass WHQL tests.

PS/2 Keyboard Power On

Allow the system to be waked up by a PS/2 Keyboard.

PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

Ring-In Power On

Allow the system to be waked up by onboard COM port modem Ring-In signals.

RTC Alarm Power On

Allow the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by your operating system.

4.4.7 Trusted Computing

Security Device Support

Enable to activate Trusted Platform Module (TPM) security for your hard disk drives.

4.5 Tools

RGB LED

ASRock RGB LED allows you to adjust the RGB LED color to your liking.

Easy RAID Installer

Easy RAID Installer helps you to copy the RAID driver from the support CD to your USB storage device. After copying the drivers please change the SATA mode to RAID, then you can start installing the operating system in RAID mode.

Instant Flash

Save UEFI files in your USB storage device and run Instant Flash to update your UEFI.

Internet Flash - DHCP (Auto IP), Auto

ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you. Please setup network configuration before using Internet Flash.

*For BIOS backup and recovery purpose, it is recommended to plug in your USB pen drive before using this function.

Network Configuration

Use this to configure internet connection settings for Internet Flash.

Internet Setting

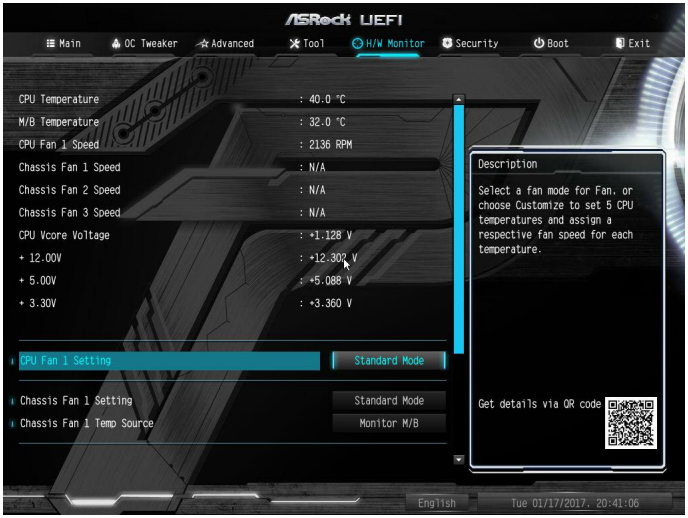
Enable or disable sound effects in the setup utility.

UEFI Download Server

Select a server to download the UEFI firmware.

4.6 Hardware Health Event Monitoring Screen

This section allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, fan speed and voltage.



CPU Fan 1 Setting

Select a fan mode for CPU Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Chassis Fan 1 Setting

Select a fan mode for Chassis Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Chassis Fan 1 Temp Source

Select a fan temperature source for Chassis Fan 1.

Chassis Fan 2 Setting

Select a fan mode for Chassis Fan 2, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Chassis Fan 2 Temp Source

Select a fan temperature source for Chassis Fan 2.

Chassis Fan 3 Setting

Select a fan mode for Chassis Fan 3, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Chassis Fan 3 Temp Source

Select a fan temperature source for Chassis Fan 3.

Over Temperature Protection

When Over Temperature Protection is enabled, the system automatically shuts down when the motherboard is overheated.

4.7 Security Screen

In this section you may set or change the supervisor/user password for the system. You may also clear the user password.

Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Enable to support Secure Boot.

4.8 Boot Screen

This section displays the available devices on your system for you to configure the boot settings and the boot priority.

Fast Boot

Fast Boot minimizes your computer's boot time. In fast mode you may not boot from an USB storage device.

Setup Prompt Timeout

Configure the number of seconds to wait for the setup hot key.

Bootup Num-Lock

Select whether Num Lock should be turned on or off when the system boots up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

Enable to display the boot logo or disable to show normal POST messages.

AddOn ROM Display

Enable AddOn ROM Display to see the AddOn ROM messages or configure the AddOn ROM if you've enabled Full Screen Logo. Disable for faster boot speed.

CSM (Compatibility Support Module)

CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

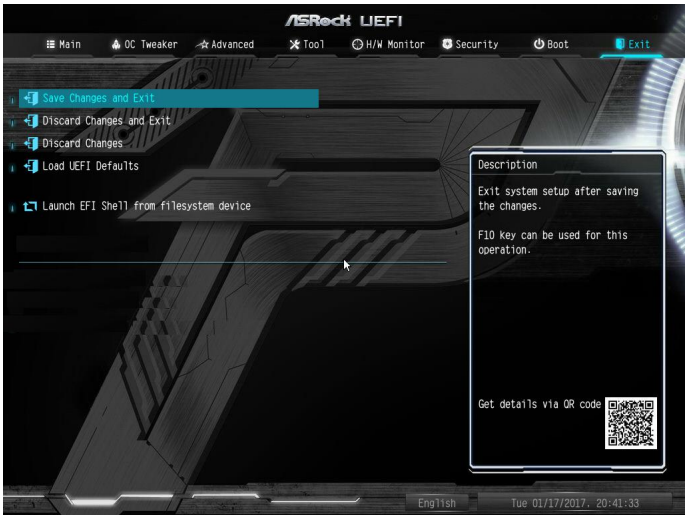
Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

4.9 Exit Screen



Save Changes and Exit

When you select this option the following message, "Save configuration changes and exit setup?" will pop out. Select [OK] to save changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option the following message, "Discard changes and exit setup?" will pop out. Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option the following message, "Discard changes?" will pop out. Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all options. The F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Copy shellx64.efi to the root directory to launch EFI Shell.

Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information. For technical questions, please submit a support request form at https://event.asrock.com/tsd.asp

ASRock Incorporation

2F., No.37, Sec. 2, Jhongyang S. Rd., Beitou District,

Taipei City 112, Taiwan (R.O.C.)

ASRock EUROPE B.V.

Bijsterhuizen 11-11

6546 AR Nijmegen

The Netherlands

Phone: +31-24-345-44-33

Fax: +31-24-345-44-38

ASRock America, Inc.

13848 Magnolia Ave, Chino, CA91710

U.S.A.

Phone: +1-909-590-8308

Fax: +1-909-590-1026

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: ASRock Incorporation

Address: 13848 Magnolia Ave, Chino, CA91710

Phone/Fax No: +1-909-590-8308/+1-909-590-1026

hereby declares that the product

Product Name : Motherboard

Model Number : X370 Pro4

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: **James**

Signature :

Date : **May 12, 2017**

EU Declaration of Conformity

For the following equipment:

Motherboard

(Product Name)

X370 Pro4 / ASRock

(Model Designation / Trade Name)

ASRock Incorporation

(Manufacturer Name)

2F., No.37, Sec. 2, Jhongyang S. Rd., Beitou District, Taipei City 112, Taiwan (R.O.C.)

(Manufacturer Address)

☒ **EMC —Directive 2014/30/EU (from April 20th, 2016)**

☐ EN 55022:2010/AC:2011 Class B
☒ EN 55024:2010/A1:2015
☒ EN 55032:2012+AC:2013 Class B
☒ EN 61000-3-3:2013
☒ EN 61000-3-2:2014

☐ **LVD —Directive 2014/35/EU (from April 20th, 2016)**

☐ EN 60950-1 : 2011+ A2: 2013
☐ EN 60950-1 : 2006/A12: 2011

☒ RoHS — Directive 2011/65/EU
☒ CE marking

(EU conformity marking)

CE

ASRock EUROPE B.V.

(Company Name)

Bijsterhuizen 1111 6546 AR Nijmegen The Netherlands

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

A.V.P

(Position / Title)

February 9, 2018

(Date)

P/N: 15G062075001AK V1.1