

ASRock®

*X370M*

User Manual

Version 1.0

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# Chapter 1 Introduction

Thank you for purchasing ASRock X370M 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 X370M Motherboard (Micro ATX Form Factor)
- ASRock X370M Quick Installation Guide
- ASRock X370M Support CD
- 1 x I/O Panel Shield
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x Screw for M.2 Socket (Optional)

## 1.2 Specifications

- Platform**
- Micro ATX Form Factor
  - Solid Capacitor design

- CPU**
- Supports AMD AM4 Socket Ryzen™ 2000, 3000, 4000 G-Series and 5000 Desktop Processors
  - 6 Power Phase design
  - Supports CPU up to 105W

- Chipset**
- AMD Promontory X370

- Memory**
- Dual Channel DDR4 Memory Technology
  - 2 x DDR4 DIMM Slots
  - AMD Ryzen series CPUs (Vermeer) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory\*
  - AMD Ryzen series CPUs (Matisse) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory\*
  - AMD Ryzen series APUs (Renoir) 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\*

\* For Ryzen Series APUs (Picasso and Renoir), 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 20 for DDR4 UDIMM maximum frequency support.



- Max. capacity of system memory: 32GB
- 15µ Gold Contact in DIMM Slots

### Expansion Slot

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

- 1 x PCI Express 3.0 x16 Slot (PCIe2: x16 mode)\*

**AMD Ryzen series CPUs (Picasso, Raven Ridge)**

- 1 x PCI Express 3.0 x16 Slot (PCIe2: x8 mode)\*

**AMD Athlon 2xxGE series APU**

- 1 x PCI Express 3.0 x16 Slot (PCIe2: x4 mode)\*

\* Supports NVMe SSD as boot disks

- 1 x PCI Express 2.0 x1 Slot

### Graphics

- Integrated AMD Radeon™ Vega Series Graphics in Ryzen 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.

- Supports HDMI 1.4 with max. resolution up to 4K x 2K (4096x2160) @ 24Hz / (3840x2160) @ 30Hz
- 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 HDMI 1.4 Port
- Supports Full HD 1080p Blu-ray (BD) playback with HDMI 1.4 Port

### Audio

- 7.1 CH HD Audio (Realtek ALC887 Audio Codec)
- Supports Surge Protection
- ELNA Audio Caps

## LAN

- PCIE x1 Gigabit LAN 10/100/1000 Mb/s
- Realtek RTL8111H
- Supports Wake-On-LAN
- Supports Lightning/ESD Protection
- Supports Energy Efficient Ethernet 802.3az
- Supports PXE

## Rear Panel I/O

- 1 x PS/2 Mouse/Keyboard Port
- 1 x HDMI Port
- 2 x USB 2.0 Ports (Supports ESD Protection)
- 4 x USB 3.2 Gen1 Ports (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
- 1 x Ultra M.2 Socket, supports M Key type 2242/2260/2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Vermeer, Matisse, Picasso, Summit Ridge, Raven Ridge, Renoir and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with Athlon 2xxGE series APU)\*

\* Supports NVMe SSD as boot disks

\* Supports ASRock U.2 Kit

## Connector

- 1 x COM Port Header
- 1 x Chassis Intrusion and Speaker Header
- 1 x CPU Fan Connector (4-pin)
- \* The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power.
- 2 x Chassis Fan Connectors (1 x 4-pin, 1 x 3-pin)
- \* The Chassis Fan Connector supports the chassis fan of maximum 1A (12W) fan power.
- 1 x 24 pin ATX Power Connector
- 1 x 4 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 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
  - CASE OPEN detection
  - Voltage monitoring: +12V, +5V, +3.3V, Vcore

- OS**
- Microsoft® Windows® 10 64-bit / 11 64-bit
- \* Summit Ridge does not officially support Windows® 11.

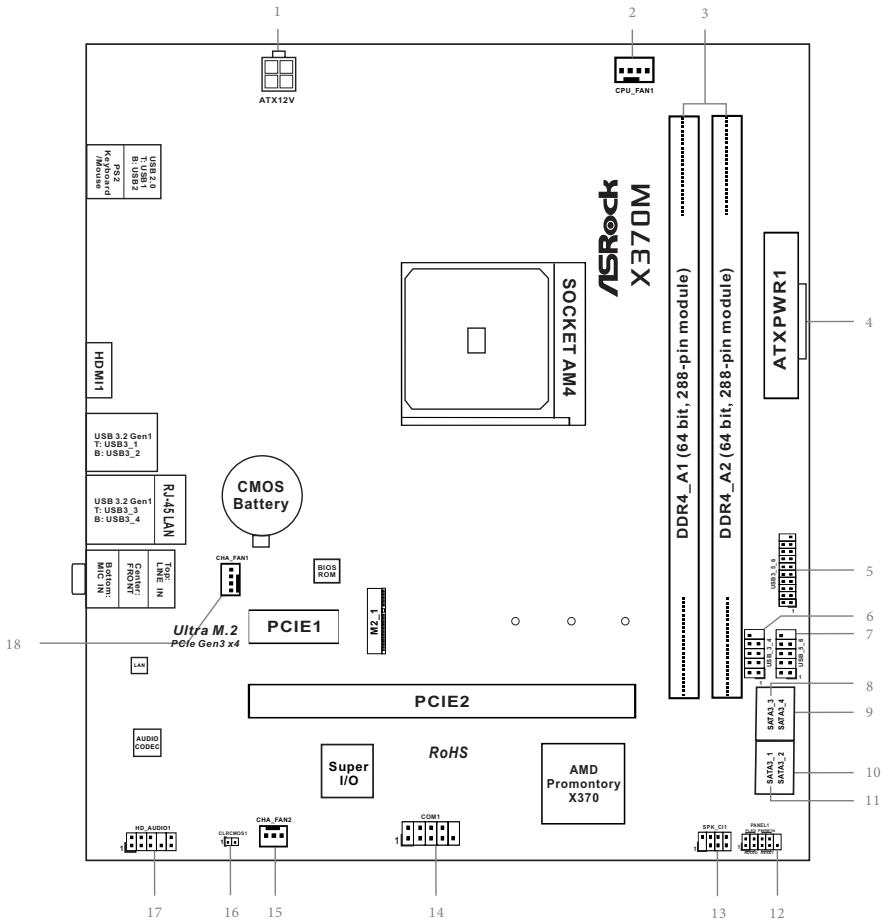
- Certifications**
- FCC, CE
  - ErP/EuP ready (ErP/EuP ready power supply is required)

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



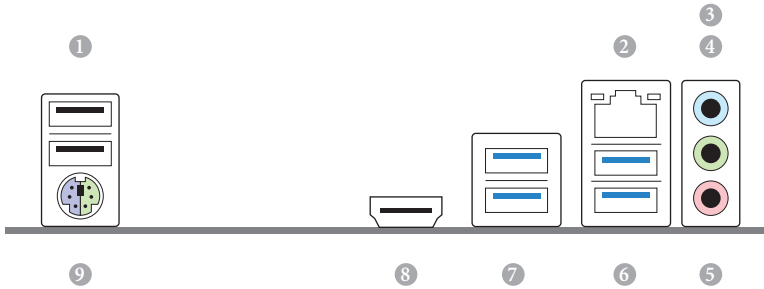
*Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of 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



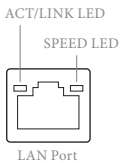
No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_A2)
4	ATX Power Connector (ATXPWR1)
5	USB 3.2 Gen1 Header (USB3_5_6)
6	USB 2.0 Header (USB_3_4)
7	USB 2.0 Header (USB_5_6)
8	SATA3 Connector (SATA3_3)
9	SATA3 Connector (SATA3_4)
10	SATA3 Connector (SATA3_2)
11	SATA3 Connector (SATA3_1)
12	System Panel Header (PANEL1)
13	Chassis Intrusion and Speaker Header (SPK_C11)
14	COM Port Header (COM1)
15	Chassis Fan Connector (CHA_FAN2)
16	Clear CMOS Header (CLR_CMOS1)
17	Front Panel Audio Header (HD_AUDIO1)
18	Chassis Fan Connector (CHA_FAN1)

## 1.4 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports (USB12)	6	USB 3.2 Gen1 Ports (USB3_34)
2	LAN RJ-45 Port*	7	USB 3.2 Gen1 Ports (USB3_12)
3	Line In (Light Blue)**	8	HDMI Port
4	Front Speaker (Lime)**	9	PS/2 Mouse/Keyboard Port
5	Microphone (Pink)**	10	Antenna Ports

\* 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 a Micro 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.

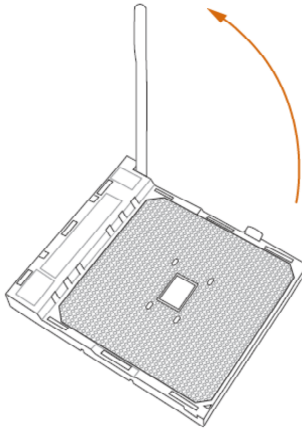
- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a 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

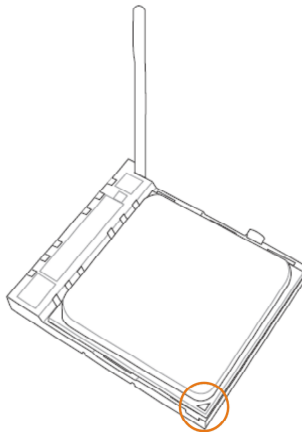


*Unplug all power cables before installing the CPU.*

1

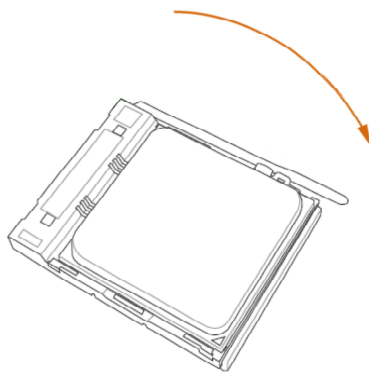


2





3



## 2.2 Installing the CPU Fan and Heatsink

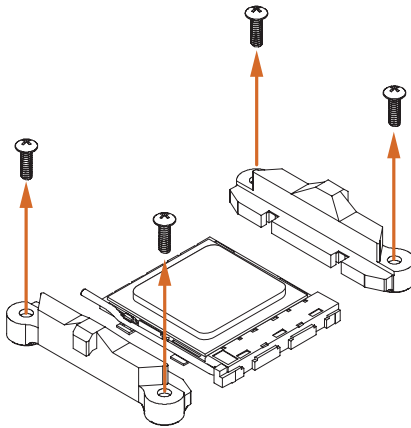
After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good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



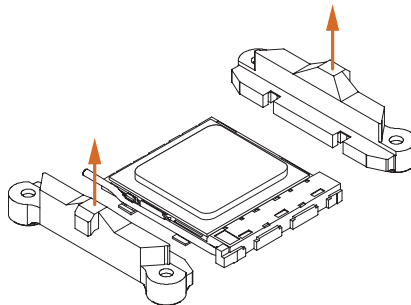
*Please turn off the power or remove the power cord before changing a CPU or heatsink.*

### Installing the CPU Box Cooler SR1

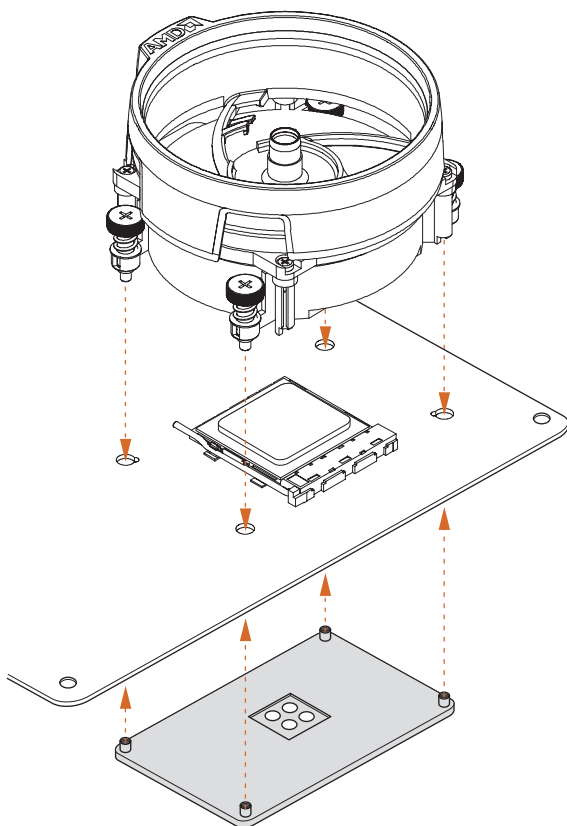
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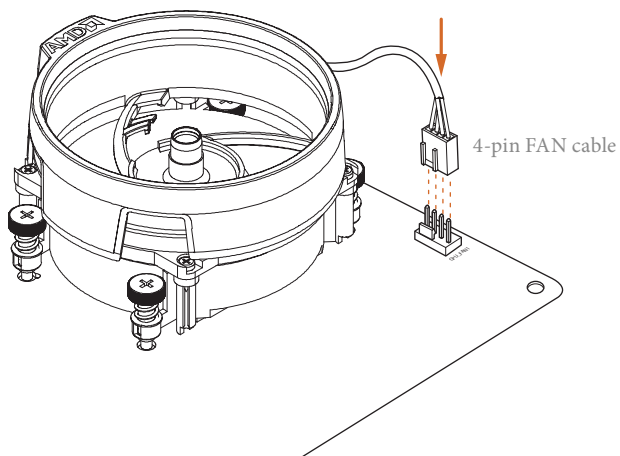
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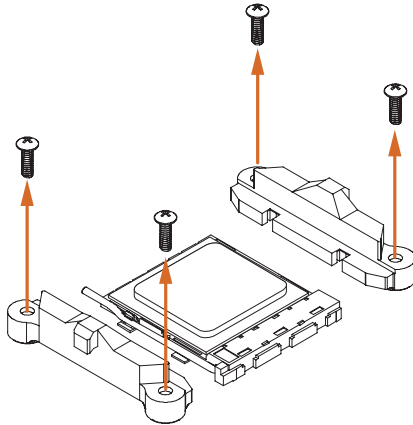


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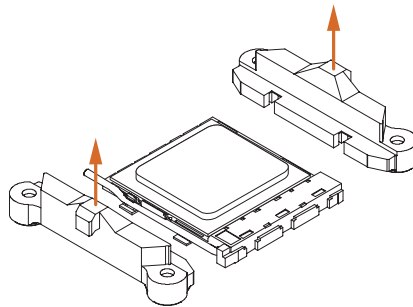


## Installing the AM4 Box Cooler SR2

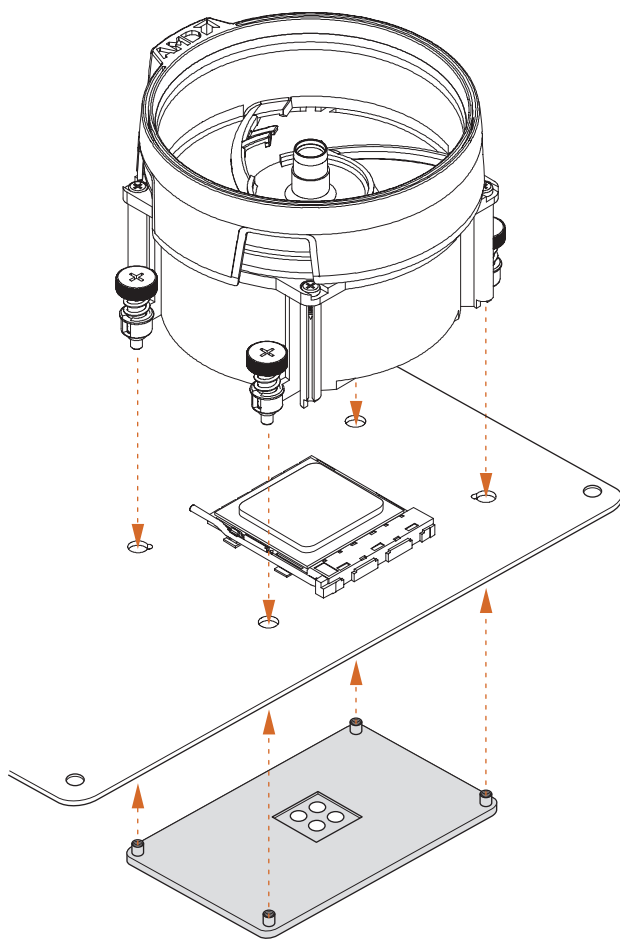
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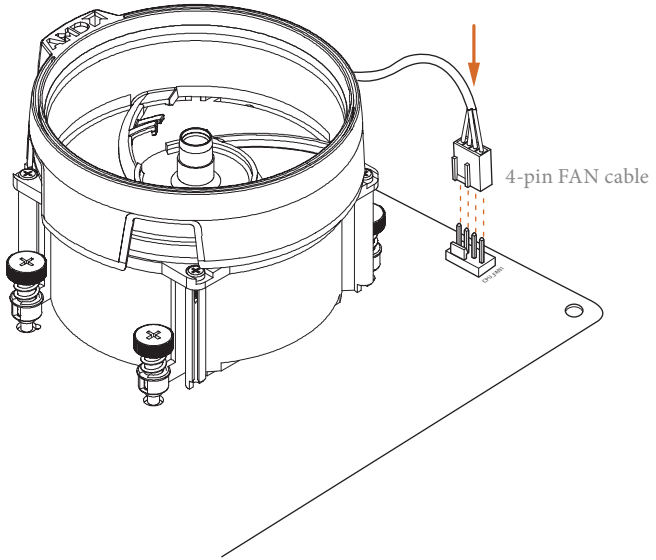
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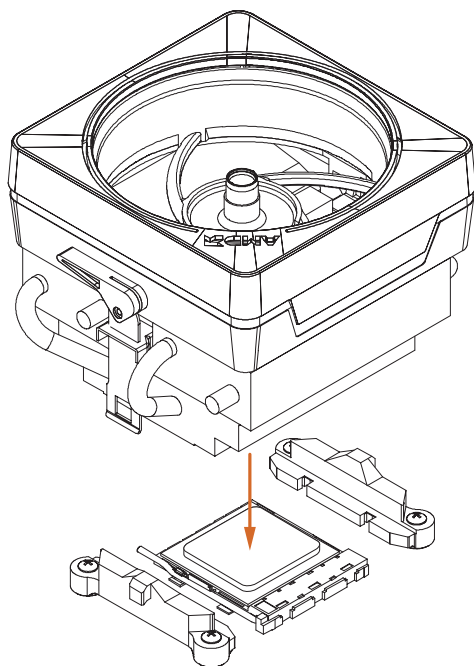


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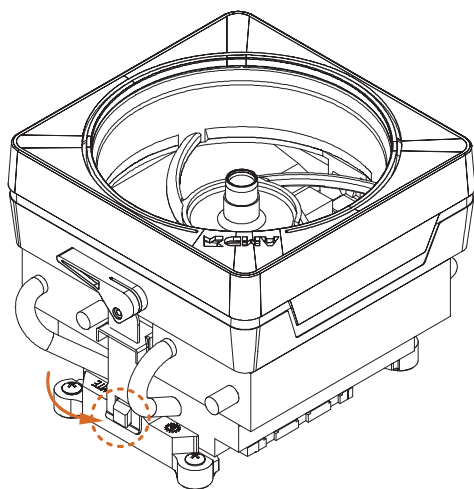


## Installing the AM4 Box Cooler SR3

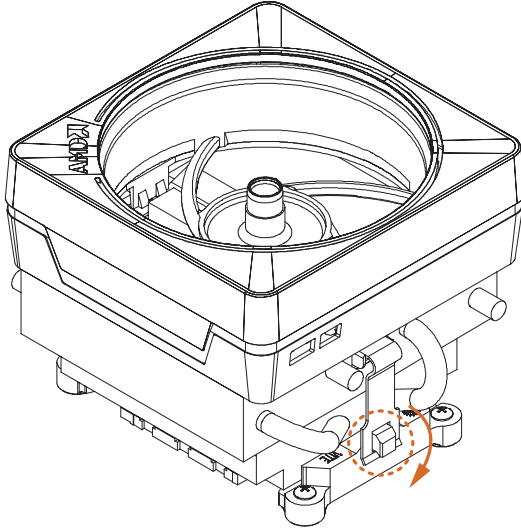
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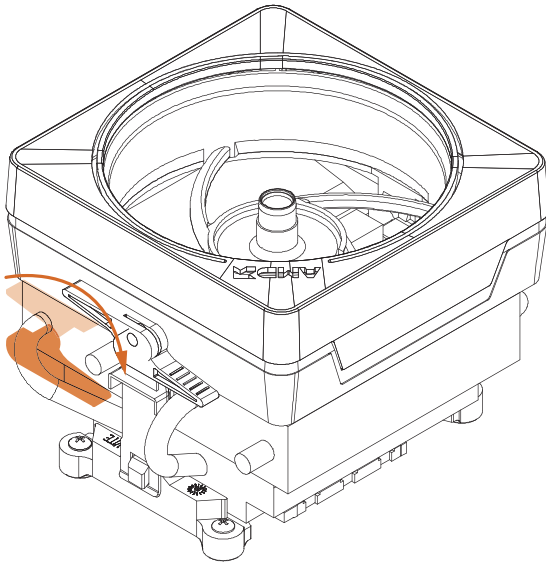
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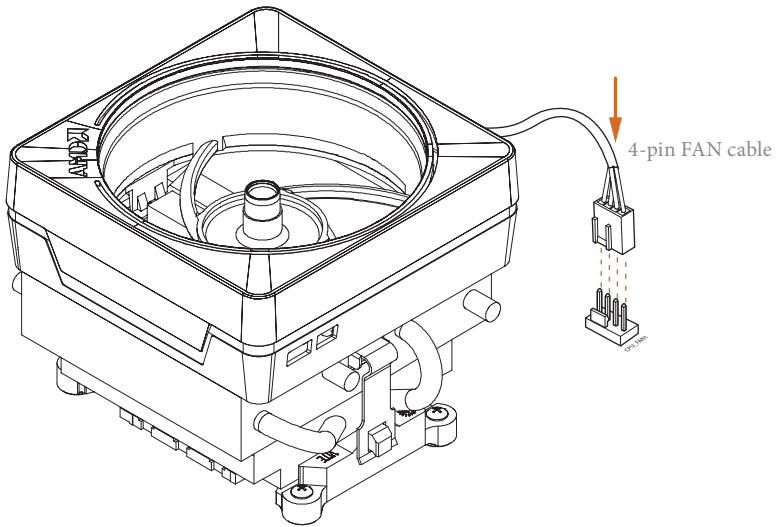


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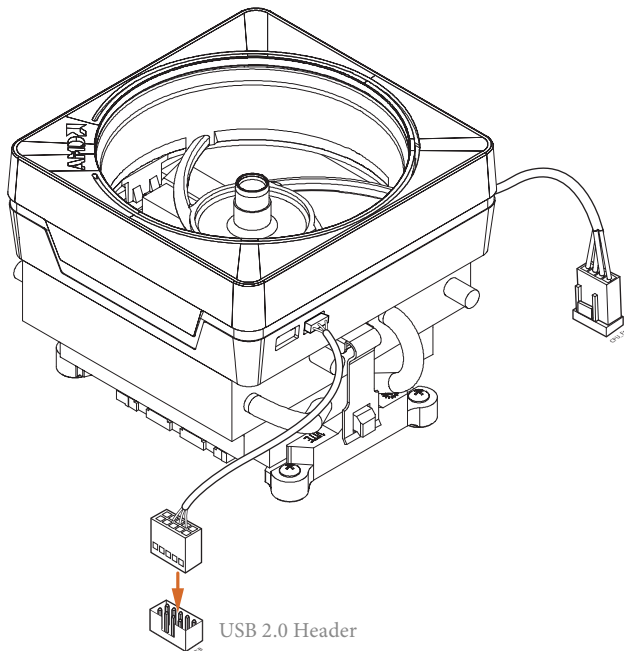




5



6



Please note that this connector is the interface to the LED control board on the SR3, it requires the AMD utility "SR3 Settings Software" to control the LED.

\*The diagram shown here are for reference only. Please refer to page 29 for the orientation of USB Header.

## 2.3 Installing Memory Modules (DIMM)

This motherboard provides two 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 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

Ryzen Series CPUs (Vermeer):

UDIMM Memory Slot		Frequency
A1	B1	(Mhz)
SR	-	3200
-	SR	3200
DR	-	3200
-	DR	3200
SR	SR	3200
DR	DR	3200

Ryzen Series CPUs (Matisse):

UDIMM Memory Slot		Frequency
A1	B1	(Mhz)
SR	-	3200
-	SR	3200
DR	-	3200
-	DR	3200
SR	SR	3200
DR	DR	3200

## Ryzen Series CPUs (Renoir):

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
SR	-	2933
-	SR	2933
DR	-	2933
-	DR	2933
SR	SR	2933
DR	DR	2933

## Ryzen Series CPUs (Pinnacle Ridge):

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
SR	-	2933
-	SR	2933
DR	-	2933
-	DR	2933
SR	SR	2933
DR	DR	2933

## Ryzen Series CPUs (Picasso):

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
SR	-	2933
-	SR	2933
DR	-	2667
-	DR	2667
SR	SR	2933
DR	DR	2667

Ryzen Series CPUs (Summit Ridge):

UDIMM Memory Slot		Frequency
A1	B1	(Mhz)
SR	-	2667
-	SR	2667
DR	-	2667
-	DR	2667
SR	SR	2667
DR	DR	2667

Ryzen Series CPUs (Raven Ridge):

UDIMM Memory Slot		Frequency
A1	B1	(Mhz)
SR	-	2933
-	SR	2933
DR	-	2667
-	DR	2667
SR	SR	2933
DR	DR	2667

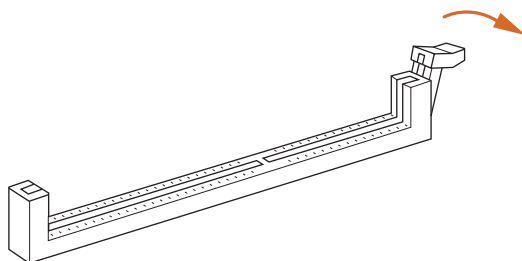
SR: Single rank DIMM, 1Rx4 or 1Rx8 on DIMM module label

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

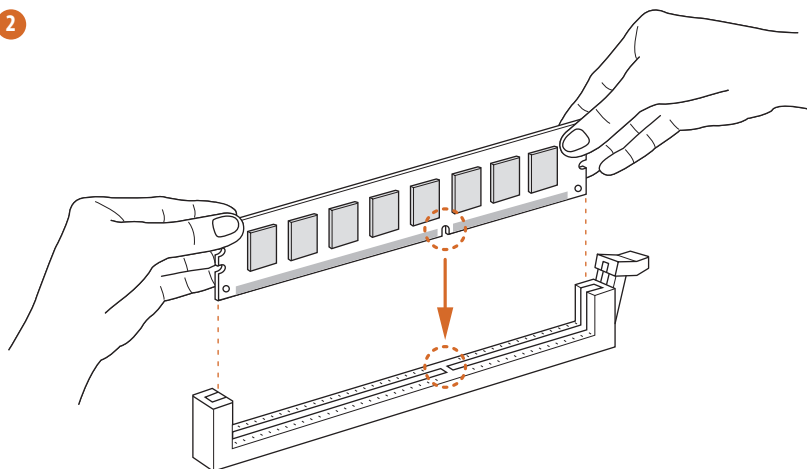


*The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.*

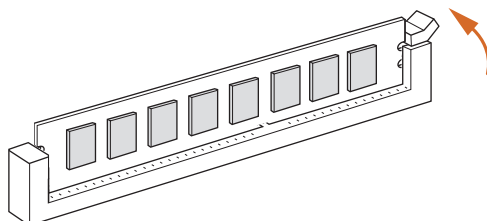
1



2



3



## 2.4 Expansion Slots (PCIe Slots)

There are 2 PCIe 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 PCIe x1 lane width cards

PCIe2 (PCIe 3.0 x16 slot) is used for PCIe x16 lane width graphics cards.

### PCIe Slot Configurations

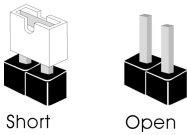
CPU	PCIe2
Ryzen series CPUs (Vermeer)	x16
Ryzen series CPUs (Matisse)	x16
Ryzen series APUs (Renoir)	x16
Ryzen series CPUs (Pinnacle Ridge)	x16
Ryzen series CPUs (Summit Ridge)	x16
Ryzen series CPUs (Picasso)	x8
Ryzen series CPUs (Raven Ridge)	x8
Athlon 2xxGE series APU	x4



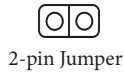
*For a better thermal environment, please connect a chassis fan to the motherboard's chassis fan connector (CHA\_FAN1 or CHA\_FAN2 ) when using multiple graphics cards.*

## 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”.



Clear CMOS Header  
(CLR CMOS1)  
(see p.6, No. 16)



Short: Clear CMOS  
Open: Default

CLR CMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLR CMOS1 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS. 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.



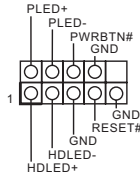
*If you clear the CMOS, the case open may be detected. Please adjust the BIOS option “Clear Status” to clear the record of previous chassis intrusion status.*

## 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.6, No. 12)



Connect the power button, reset button 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 Button):**

Connect to the power button on the chassis front panel. You may configure the way to turn off your system using the power button.

**RESET (Reset Button):**

Connect to the reset button on the chassis front panel. Press the reset button 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 S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

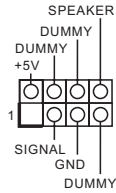
**HDLED (Hard Drive Activity LED):**

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 button, reset button, 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.

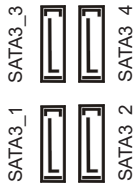


Chassis Intrusion and  
Speaker Header  
(7-pin SPK\_CII)  
(see p.6, No. 13)



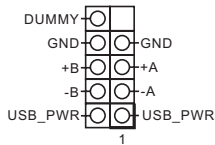
Please connect the  
chassis intrusion and the  
chassis speaker to this  
header.

Serial ATA3 Connectors  
Right Angle:  
(SATA3\_1:  
see p.6, No. 11)  
(SATA3\_2:  
see p.6, No. 10)  
(SATA3\_3:  
see p.6, No. 8)  
(SATA3\_4:  
see p.6, No. 9)



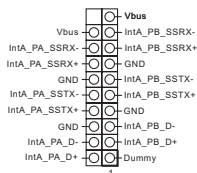
These four SATA3  
connectors support SATA  
data cables for internal  
storage devices with up to  
6.0 Gb/s data transfer rate.

USB 2.0 Headers  
(9-pin USB\_3\_4)  
(see p.6, No. 6)  
(9-pin USB\_5\_6)  
(see p.6, No. 7)



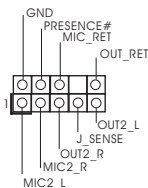
There are two headers  
on this motherboard.  
Each USB 2.0 header can  
support two ports.

USB 3.2 Gen1 Header  
(19-pin USB3\_5\_6)  
(see p.6, No. 5)



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.6, No. 17)

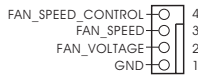


This header is for  
connecting audio devices  
to the front audio panel.



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 Connector**  
(4-pin CHA\_FAN1)  
(see p.6, No. 18)

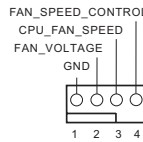


Please connect fan cables to the fan connectors and match the black wire to the ground pin.

(3-pin CHA\_FAN2)  
(see p.6, No. 15)

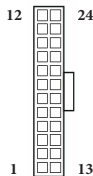


**CPU Fan Connector**  
(4-pin CPU\_FAN1)  
(see p.6, No. 2)



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.

**ATX Power Connector**  
(24-pin ATXPWR1)  
(see p.6, No. 4)



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.

---

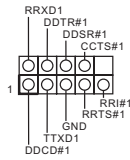
ATX 12V Power  
Connector  
(4-pin ATX12V1)  
(see p.6, No. 1)



Please connect an ATX 12V  
power supply to this connector.  
\*The power supply plug fits into  
this connector in only one orien-  
tation.

---

Serial Port Header  
(9-pin COM1)  
(see p.6, No. 14)

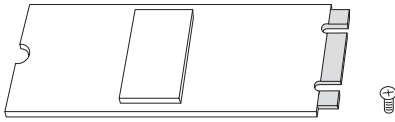


This COM1 header  
supports a serial port  
module.

## 2.7 M.2\_SSD (NGFF) Module Installation Guide

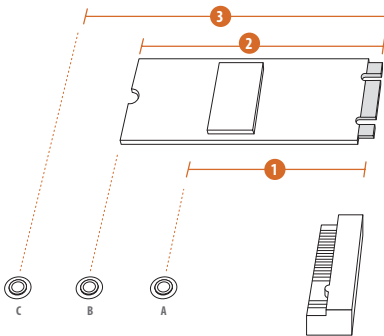
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Ultra M.2 Socket (M2\_1) supports SATA3 6.0 Gb/s module and M.2 PCIe module up to Gen3 x4 (32 Gb/s) (with Matisse, Picasso, Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with Athlon 2xxGE series APU).

### Installing the M.2\_SSD (NGFF) Module



#### Step 1

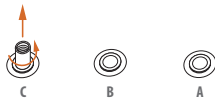
Prepare a M.2\_SSD (NGFF) module and the screw.



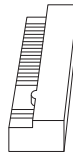
#### Step 2

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

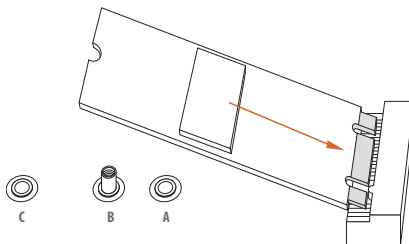
No.	1	2	3
Nut Location	A	B	C
PCB Length	4.2cm	6cm	8cm
Module Type	Type 2242	Type2260	Type 2280

**Step 3**

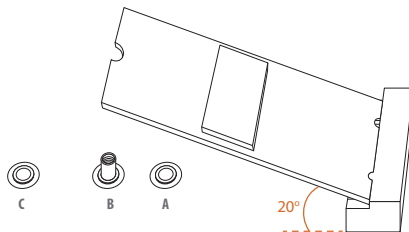
Move the standoff based on the module type and length. The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.

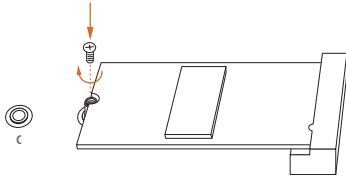
**Step 4**

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**

Align and 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
SanDisk	PCIe	SanDisk-SD6PP4M-128G( Gen2 x2)
Intel	PCIe	INTEL 6000P-SSDPEKKF256G7 (nvme)
Intel	PCIe	INTEL 6000P-SSDPEKKF512G7 (nvme)
Kingston	PCIe	Kingston SHPM2280P2 / 240G (Gen2 x4)
Samsung	PCIe	Samsung XP941-MZHPU512HCGL(Gen2x4)
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 SM2280S3G2/120G - Win8.1
Kingston	SATA	Kingston-RBU-SNS8400S3 / 180GD
LITEON	SATA	LITEON LJH-256V2G-256GB (2260)
PLEXTOR	SATA	PLEXTOR PX-128M6G-2260-128GB
PLEXTOR	SATA	PLEXTOR PX-128M7VG-128GB
SanDisk	SATA	SanDisk X400-SD8SN8U-128G
SanDisk	SATA	Sandisk Z400s-SD8SNAT-128G-1122
SanDisk	SATA	SanDisk-SD6SN1M-128G
Transcend	SATA	Transcend TS256GMTS800-256GB
V-Color	SATA	V-Color 120G
V-Color	SATA	V-Color 240G
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 Motherboard Utility (A-Tuning)

ASRock Motherboard Utility (A-Tuning) is ASRock's multi purpose software suite with a new interface, more new features and improved utilities.

### 3.2.1 Installing ASRock Motherboard Utility (A-Tuning)

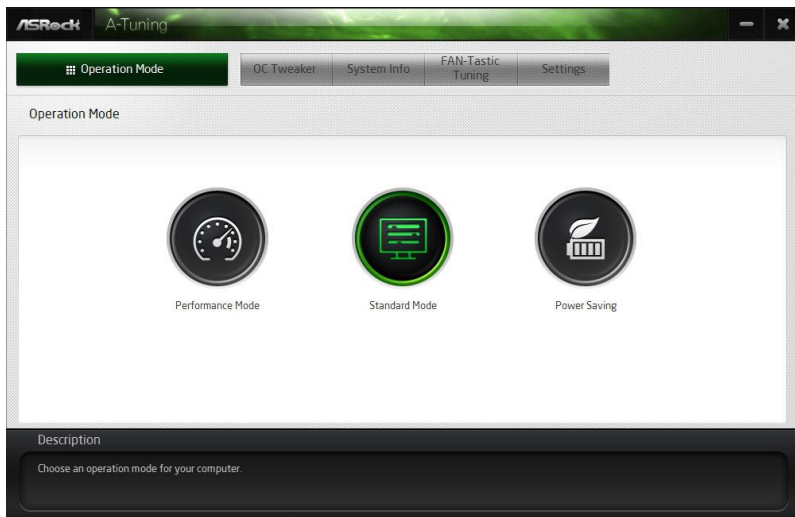
ASRock Motherboard Utility (A-Tuning) can be downloaded from ASRock Live Update & APP Shop. After the installation, you will find the icon "ASRock Motherboard Utility (A-Tuning)" on your desktop. Double-click the "ASRock Motherboard Utility (A-Tuning)"  icon, ASRock Motherboard Utility (A-Tuning) main menu will pop up.

### 3.2.2 Using ASRock Motherboard Utility (A-Tuning)

There are five sections in ASRock Motherboard Utility (A-Tuning) main menu: Operation Mode, OC Tweaker, System Info, FAN-Tastic Tuning and Settings.

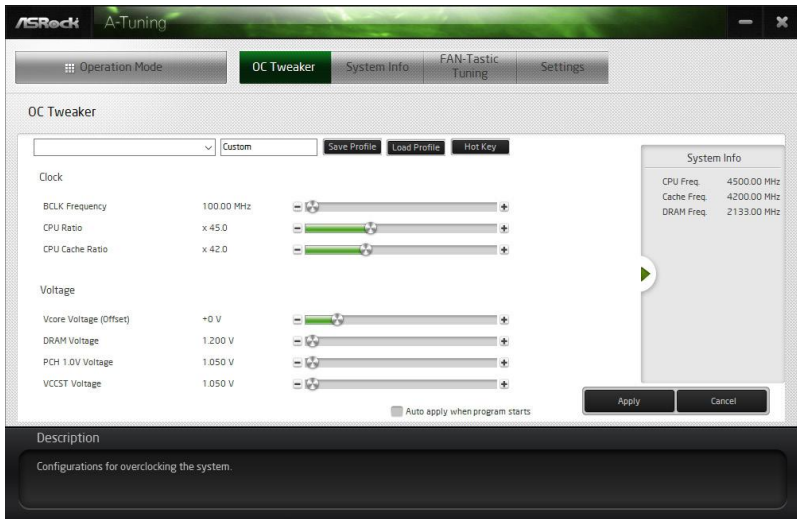
#### Operation Mode

Choose an operation mode for your computer.



## OC Tweaker

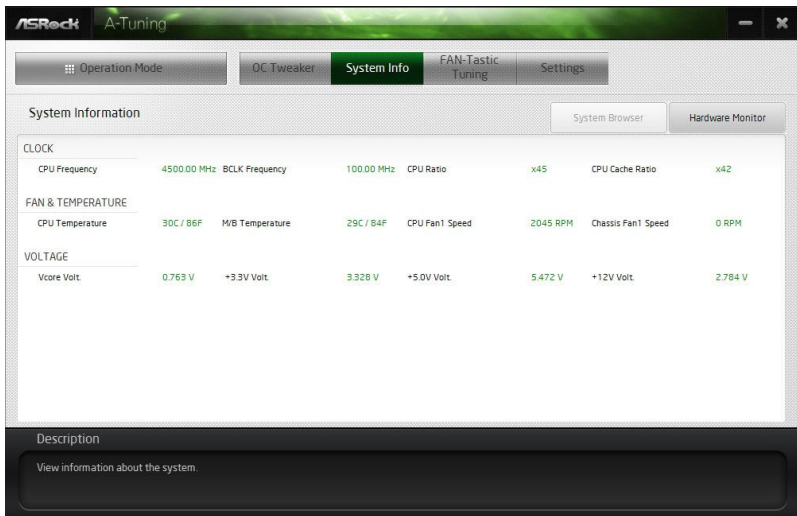
Configurations for overlocking the system.



## System Info

View information about the system.

\*The System Browser tab may not appear for certain models.



## FAN-Tastic Tuning

Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met.

**FAN-Tastic Tuning**

CPU FAN1

Start FAN Test

Fan Power	Fan Speed
100%	N/A RPM
90%	N/A RPM
80%	N/A RPM
70%	N/A RPM
60%	N/A RPM
50%	N/A RPM
40%	N/A RPM
30%	N/A RPM
20%	N/A RPM
10%	N/A RPM

Auto apply when program starts

Apply Cancel

**Description**

Configure different fan speeds for respective temperatures using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met.

## Settings

Configure ASRock ASRock Motherboard Utility (A-Tuning). Click to select "Auto run at Windows Startup" if you want ASRock Motherboard Utility (A-Tuning) to be launched when you start up the Windows operating system.

**Settings**

Auto run at Windows Startup


Version: 3.0.0

**Description**

Configure ASRock A-Tuning.

## 3.3 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.*

### 3.3.1 UI Overview



Information Panel

**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.

## 3.3.2 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 installed it or not.


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

 - 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.

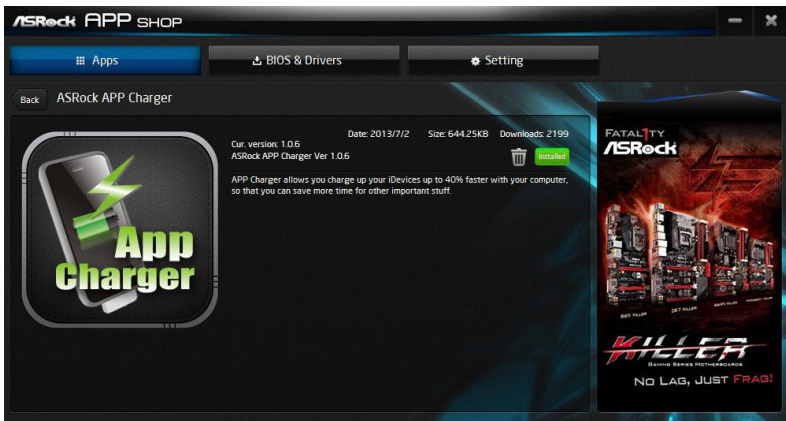
### Step 3

If you want to install the app, click on the red icon  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" appears below the installed app icon.



### Step 1

Click on the app icon to see more details.

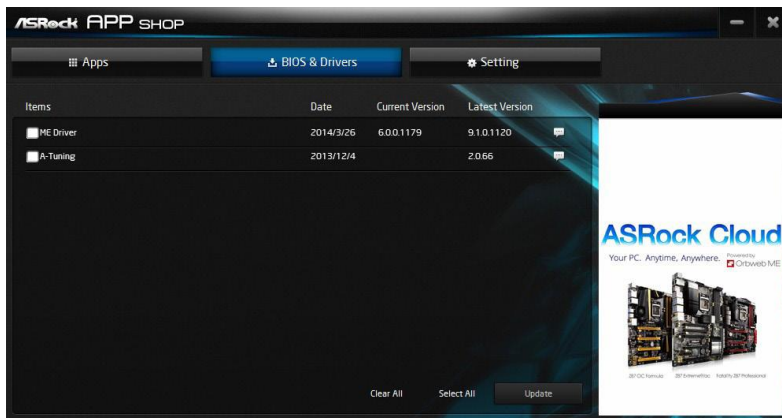
### Step 2

Click on the yellow icon  to start upgrading.

### 3.3.3 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.

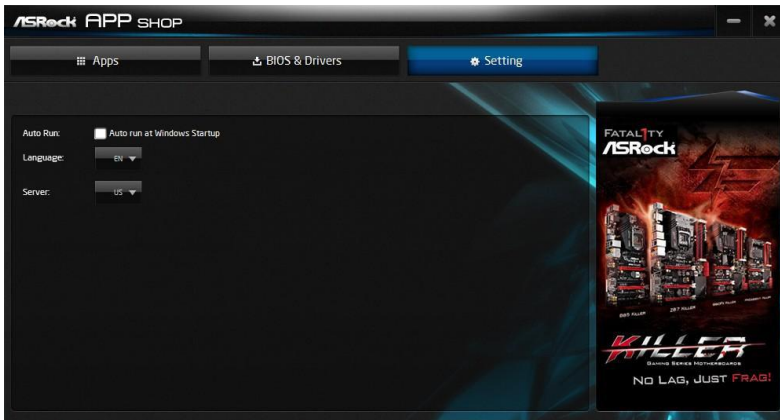
#### **Step 3**

Click Update to start the update process.



### 3.3.4 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.



# 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:

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

## 4.1.2 Navigation Keys

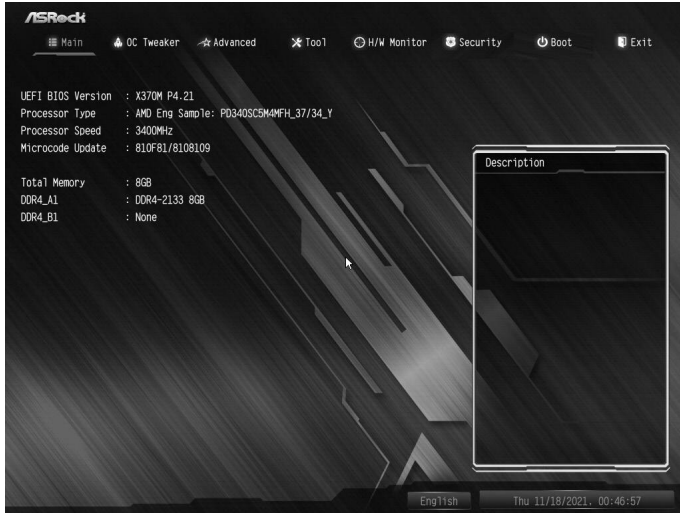
Use <←> key or <→> key to choose among the selections on the menu bar, and use <↑> key or <↓> key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

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.*

### Overclock Mode(Bus Speed)

Select the overclock mode. Warning! When overlocking also the PCIe, PCI, SATA and USB busses will be overlocked which may cause instability or failure. Please install an operating system and the drivers required before overlocking, or else your HDD's may be undetectable. Overlocking is not supported if the monitor is connected via the onboard D-Bus/VGA connector.

### Spread Spectrum

Enable Spread Spectrum to reduce electromagnetic interference for passing EMI tests. Disable to achieve higher clock speeds when overlocking.

### CPU Frequency and Voltage(VID) Change

If this item is set to [Manual], the multiplier and voltage will be set based on user selection. Final result is depending on the CPU's capability.

### GFX Clock Frequency (Only for processor with integrated graphics)

This item allows you to alter the frequency for the GFX clock frequency. After you alter the GFX Clock Frequency settings, make sure to adjust the GFX Core Voltage settings.

\*The adjustable range is dependent on the CPU being installed.

### GFX Core Voltage (Only for processor with integrated graphics)

This item allows you to alter the voltage for the GFX Core Voltage.

\*The adjustable range is dependent on the CPU being installed.

### DRAM Information

Browse the serial presence detect (SPD) for DDR4 modules.

### Load XMP Setting

Load XMP settings to overclock the memory and perform beyond standard specifications.

### DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

### DRAM Timing Configuration

#### DRAM Voltage

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

#### Save User Default

Type a profile name and press enter to save your settings as user default.

#### Load User Default

Load previously saved user defaults.

#### Save User UEFI Setup Profile to Disk

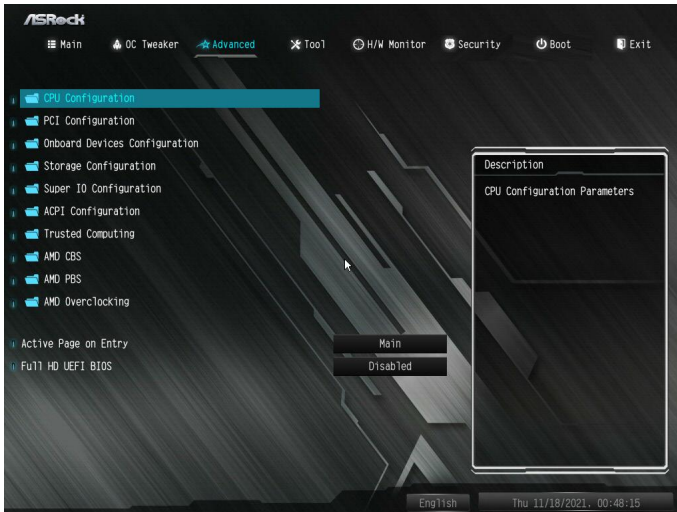
Save current UEFI settings as an user default profile to disk.

#### Load User UEFI Setup Profile to Disk

Load previously saved user defaults from the disk.

## 4.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, PCI Configuration, Onboard Devices Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration, Trusted Computing, AMD CBS, AMD PBS and AMD Overclocking.



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

### UEFI Configuration

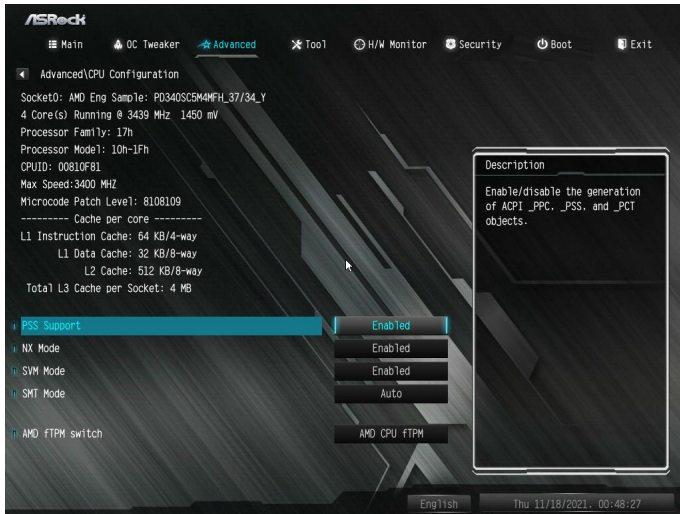
#### Active Page on Entry

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



### PSS Support

This item allows you to enable or disable the generation of ACPI\_PPC, \_PSS, and \_PCT objects.

### NX Mode

This item allows you to enable or disable the No-execute page protection function.

### SVM Mode

When this 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].

### SMT Mode

This item can be used to disable symmetric multithreading. To re-enable SMT, a power cycle is needed after selecting [Auto].

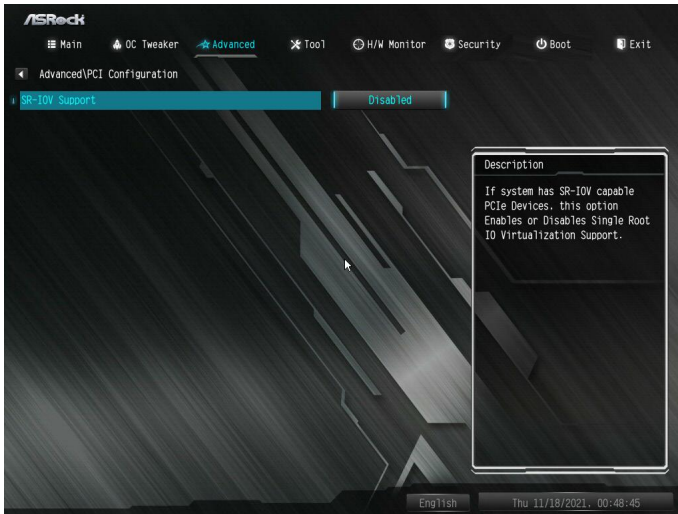
Warning: S3 is not supported on systems where SMT is disabled.

### AMD fTPM Switch

Use this to enable or disable AMD CPU fTPM.



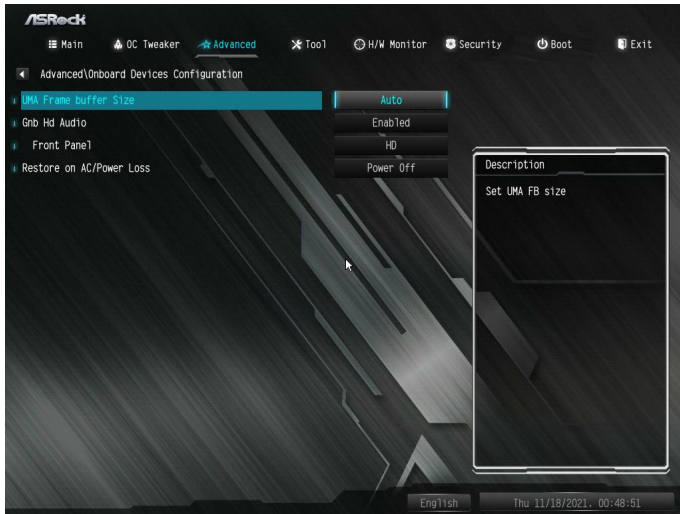
## 4.4.2 PCI Configuration



### SR-IOV Support

Enable/disable the SR-IOV (Single Root IO Virtualization Support) if the system has SR-IOV capable PCIe devices.

## 4.4.3 Onboard Devices Configuration



### UMA Frame buffer Size (Only for processor with integrated graphics)

This item allows you to set the size of the UMA frame buffer.

### Gnb Hd Audio

Enable/disable the support for Gnb Hd Audio.

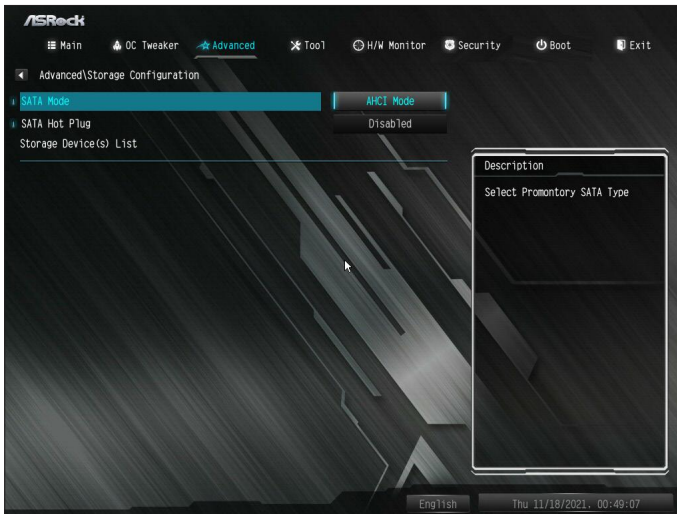
### Front Panel

Enable/disable front panel HD audio.

### 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 Mode

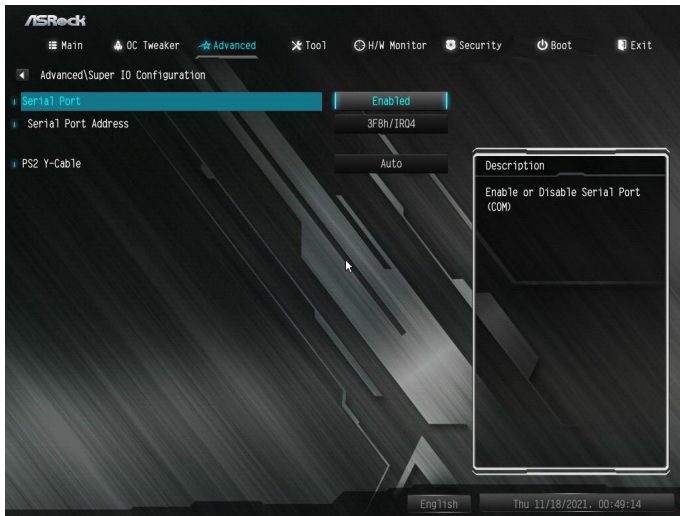
AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

### SATA Hot Plug

Enable/disable the SATA Hot Plug function.

## 4.4.5 Super IO Configuration



### Serial Port

Enable or disable the Serial port.

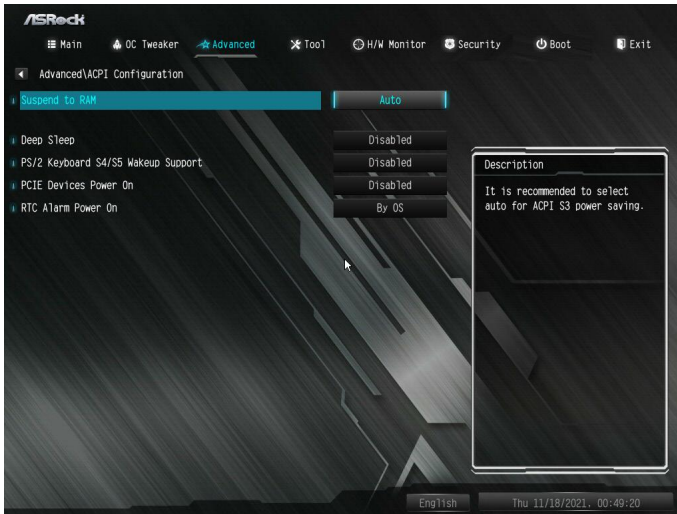
### Serial Port Address

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.

### Deep Sleep

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

### PS/2 Keyboard S4/S5 Wakeup Support

Allow the system to be waked up by a PS/2 Keyboard in S4/S5.

### PCIE Devices Power On

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

### 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



*NOTE: Options vary depending on the version of your connected TPM module.*

### Security Device Support

Use this item to enable or disable BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

### Active PCR banks

This item displays active PCR Banks.

### Available PCR Banks

This item displays available PCR Banks.

### SHA-1 PCR Bank

Use this item to enable or disable SHA-1 PCR Bank.

### SHA256 PCR Bank

Use this item to enable or disable SHA256 PCR Bank.

### Pending Operation

Schedule an Operation for the Security Device.

**NOTE:** Your computer will reboot during restart in order to change State of the Device.

### Platform Hierarchy

Use this item to enable or disable Platform Hierarchy.

## Storage Hierarchy

Use this item to enable or disable Storage Hierarchy.

## Endorsement Hierarchy

Use this item to enable or disable Endorsement Hierarchy.

## TPM2.0 UEFI Spec Version

Use this item to select the TCG2 spec. version supported.

The optional settings: [TCG\_1\_2]; [TCG\_2].

[TCG\_1\_2]: compatible mode for Win8/Win10.

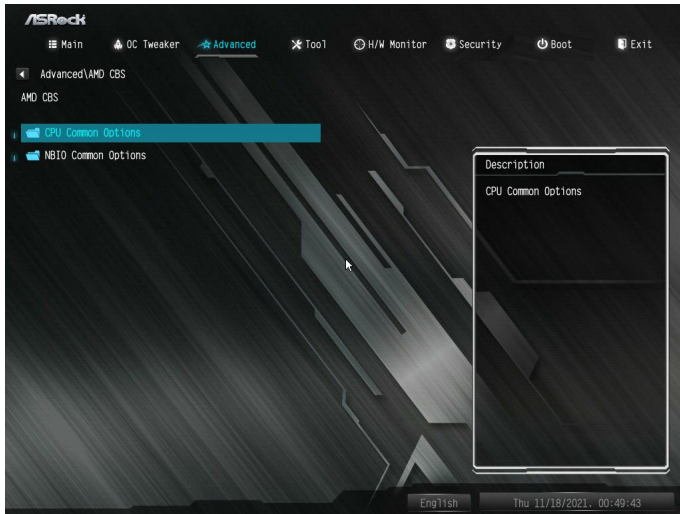
[TCG\_2]: for TCG2 newer spec. compatible mode for Win10  
**Physical Presence Spec version**

Select this item to tell OS to support PPI spec version 1.2 or 1.3. Please note that some HCK tests might not support version 1.3.

## Device Select

Use this item to select the TPM device to be supported. TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both with the default set to TPM 2.0 devices. If TPM 2.0 devices are not found, TPM 1.2 devices will be enumerated.

## 4.4.8 AMD CBS



The AMD CBS menu accesses AMD specific features.

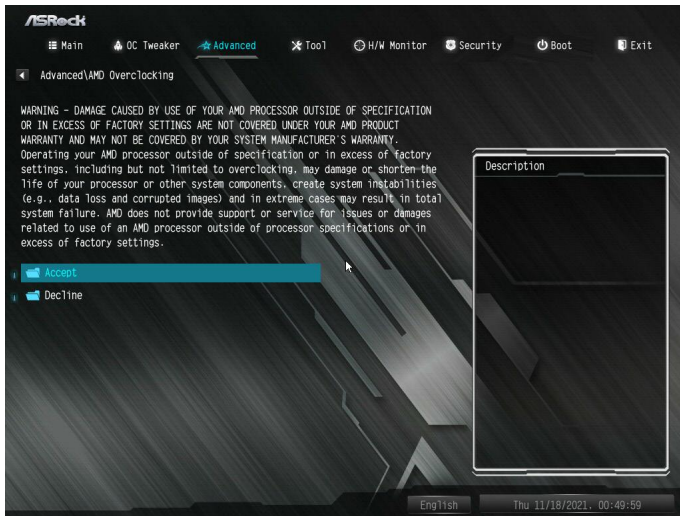


## 4.4.9 AMD PBS



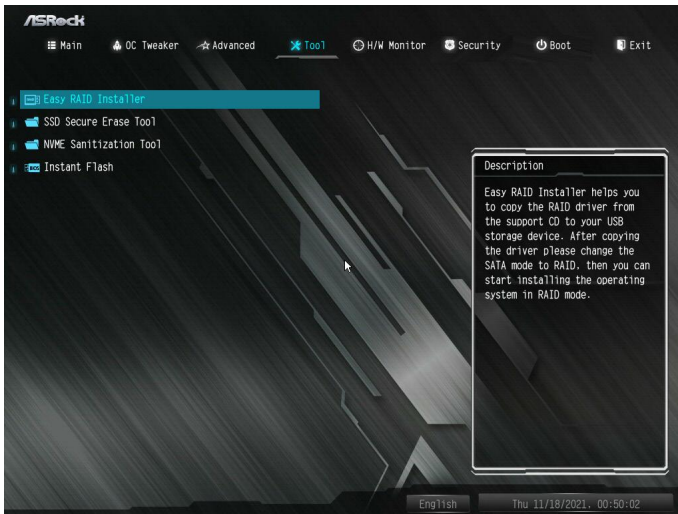
The AMD PBS menu accesses AMD specific features.

## 4.4.10 AMD Overclocking



The AMD Overclocking menu accesses options for configuring CPU frequency and voltage.

## 4.5 Tools



### 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.

### SSD Secure Erase Tool

Use this tool to securely erase SSD.

### NVME Sanitization Tool

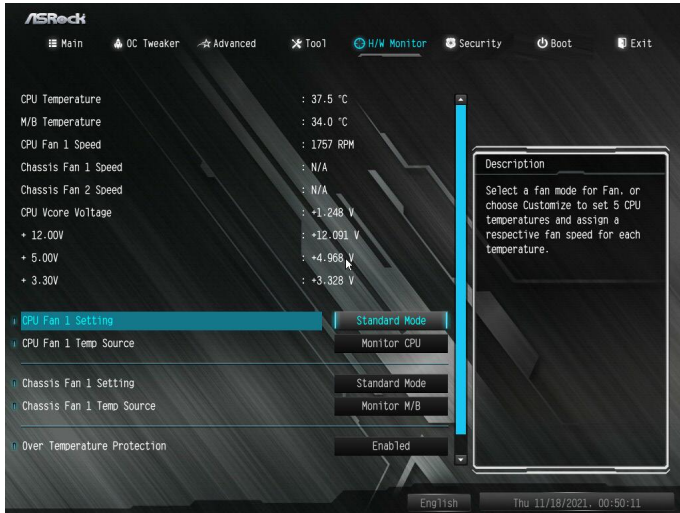
After you Sanitize SSD, all user data will be permanently destroyed on the SSD and cannot be recovered.

### Instant Flash

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

## 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.

### CPU Fan 1 Temp Source

Select a fan temperature source for CPU Fan 1.

### 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.

### Over Temperature Protection

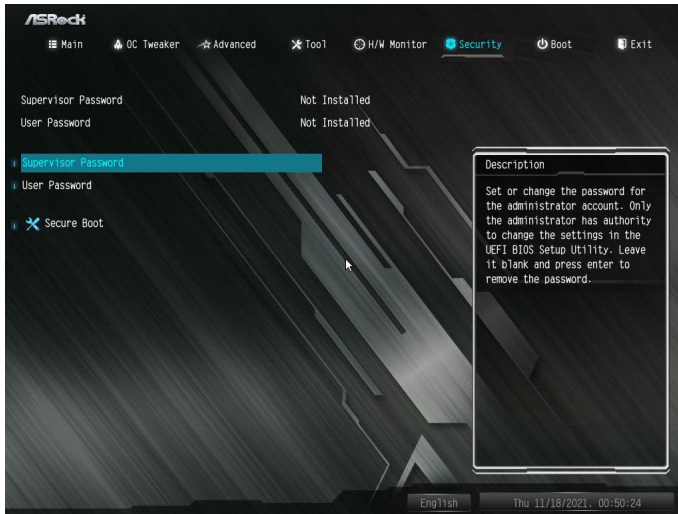
When Over Temperature Protection is enabled, the system automatically shuts down when the motherboard is overheated.

## Case Open Feature

Enable or disable Case Open Feature to detect whether the chassis cover has been removed.

## 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.



### Boot From Onboard LAN

Allow the system to be waked up by the onboard LAN.

### 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.

### 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.

### Full Screen Logo

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

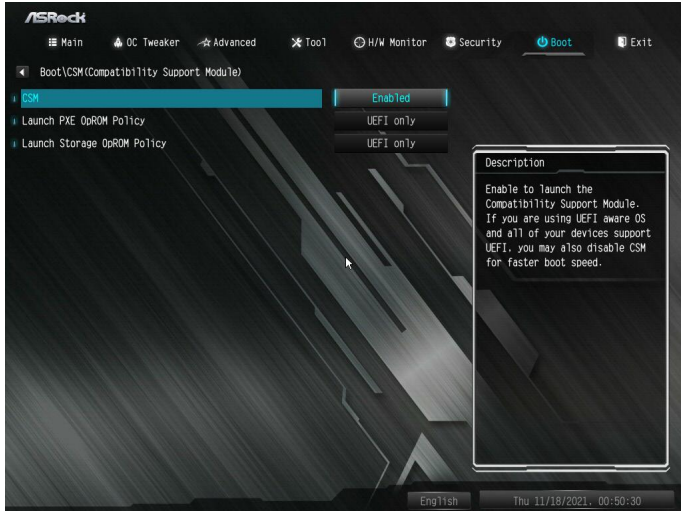
### AddOn ROM Display

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.

## Fast Boot

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

## CSM (Compatibility Support Module)



### CSM

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

### Above 4G Decoding

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

### Launch PXE OpROM Policy

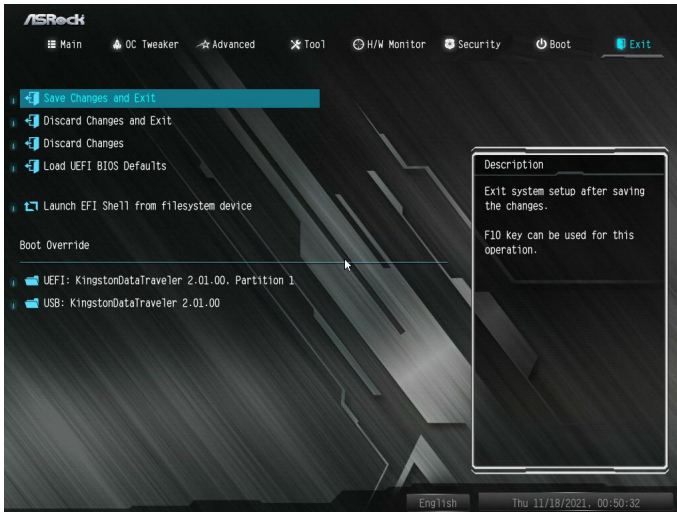
Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

### 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.



## 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 <http://www.asrock.com/support/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.**

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6546 AR Nijmegen

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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 :** X370M

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:

A handwritten signature in black ink, appearing to read 'James', written over a horizontal line.

Date : May 12, 2017

# EU Declaration of Conformity



For the following equipment:

## Motherboard

(Product Name)

X370M / ASRock

(Model Designation / Trade Name)

## ASRock Incorporation

(Manufacturer Name)

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

(Manufacturer Address)

### EMC Directive - 2014/30/EU

EN 55032:2015/A11:2020

EN 61000-3-2:2014

EN 61000-3-3:2013

EN 55024:2010/A1:2015

EN 55035:2017/A11:2020

EN 61000-4-2:2009

EN 61000-4-3:2006/A1:2008/A2:2010

EN 61000-4-4:2012

EN 61000-4-5:2014/A1:2017

EN 61000-4-6:2014/AC:2015

EN 61000-4-8:2010

EN 61000-4-11:2004/A1:2017

### Low Voltage Directive - 2014/35/EU

EN 62368-1:2014

EN 62368-1:2014/A11:2017

### RoHS Directive - 2011/65/EU

(EU) 2015/863

EN 50581:2012

## 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)

January 7, 2022

(Date)

P/N: 15G062345000AK V1.0