



**ASRock**

**X370 PRO  
BTC+**

User Manual

Version 1.0

Published June 2018

Copyright©2018 ASRock INC. All rights reserved.

## Copyright Notice:

No part of this documentation may be reproduced, transcribed, transmitted, or translated in any language, in any form or by any means, except duplication of documentation by the purchaser for backup purpose, without written consent of ASRock Inc.

Products and corporate names appearing in this documentation may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

## 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](http://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)

The terms HDMI™ and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.



# Contents

<b>Chapter 1 Introduction</b>	<b>1</b>
1.1 Package Contents	1
1.2 Specifications	2
1.3 Motherboard Layout	6
1.4 I/O Panel	9
<b>Chapter 2 Installation</b>	<b>10</b>
2.1 Installing the CPU	11
2.2 Installing the CPU Fan and Heatsink	13
2.3 Installing Memory Modules (DIMM)	21
2.4 Expansion Slots (PCI Express Slots and Mining Ports)	23
2.5 Jumpers Setup	25
2.6 Onboard Headers and Connectors	26
2.7 Smart Switches	30
2.8 M.2_SSD (NGFF) Module Installation Guide	31
2.9 Installing the 4-pin PCIe Power Connectors	34
2.10 Special Features	35
2.10.1 Smart PCIe State Detection	35
2.10.2 Graphics Card Indicator LED	36
<b>Chapter 3 Software and Utilities Operation</b>	<b>37</b>
3.1 Installing Drivers	37
<b>Chapter 4 UEFI SETUP UTILITY</b>	<b>38</b>
4.1 Introduction	38

4.1.1	UEFI Menu Bar	38
4.1.2	Navigation Keys	39
4.2	Main Screen	40
4.3	OC Tweaker Screen	41
4.4	Advanced Screen	43
4.4.1	CPU Configuration	44
4.4.2	North Bridge Configuration	45
4.4.3	South Bridge Configuration	46
4.4.4	Storage Configuration	47
4.4.5	Super IO Configuration	48
4.4.6	ACPI Configuration	49
4.4.7	Trusted Computing	50
4.4.8	AMD CBS	51
4.4.9	AMD PBS	59
4.5	Tools	60
4.6	Hardware Health Event Monitoring Screen	62
4.7	Security Screen	64
4.8	Boot Screen	65
4.9	Exit Screen	68

# Chapter 1 Introduction

Thank you for purchasing ASRock X370 Pro BTC+ 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 Pro BTC+ Motherboard
- ASRock X370 Pro BTC+ Quick Installation Guide
- ASRock X370 Pro BTC+ Support CD
- 1 x Serial ATA (SATA) Data Cable (Optional)
- 1 x Screw for M.2 Socket (Optional)

## 1.2 Specifications

**Platform** • All Solid Capacitor design

**CPU**

- Supports AMD Socket AM4 A-Series APUs (Bristol Ridge) and Ryzen Series CPUs (Summit Ridge, Raven Ridge and Pinnacle Ridge)
- 12 Power Phase design
- Supports 105W Water Cooling (Pinnacle Ridge); Supports 95W Water Cooling (Summit Ridge); Supports 65W Water Cooling (Raven Ridge)

**Chipset** • AMD Promontory X370

**Memory**

- 1 x DDR4 DIMM Slot
- AMD Ryzen series CPUs (Pinnacle Ridge) support DDR4 3200+(OC)/2933/2667/2400/2133 ECC & 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(OC)/2667/2400/2133 non-ECC, un-buffered memory\*
- AMD 7<sup>th</sup> Gen A-Series APUs support DDR4 2400/2133 ECC & non-ECC, un-buffered memory\*

\* For Ryzen Series CPUs (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/>)

- Max. capacity of system memory: 16GB
- 15μ Gold Contact in DIMM Slot

**Expansion Slot** AMD 7<sup>th</sup> A-Series APUs

- 8 x PCI Express x16 Slots (PCIe1 at x4; PCIe2~8 at x1)
- 5 x Mining Ports (M\_Port1, 3, 4, 5, 6 at x1, M\_Port2 N/A)\*

### AMD Ryzen series CPUs (Summit Ridge, Raven Ridge and Pinnacle Ridge)

- 8 x PCI Express x16 Slots (PCIe1 at x4; PCIe2~8 at x1)
- 6 x Mining Ports (M\_Port1~M\_Port6 at x1)\*

\* Support USB Type Riser kit

### 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
- Max. shared memory 4GB
- Dual graphics output: Support HDMI and D-Sub ports by independent display controllers

### LAN

- PCIe x1 Gigabit LAN 10/100/1000 Mb/s
- Realtek RTL8111EPV
- Supports Wake-On-LAN
- Supports LAN Cable Detection
- Supports Lightning/ESD Protection (ASRock Full Spike Protection)
- Supports Energy Efficient Ethernet 802.3az
- Supports PXE
- Supports DASH

### Rear Panel I/O

- 1 x PS/2 Mouse/Keyboard Port
- 1 x D-Sub Port
- 1 x HDMI Port
- 2 x USB 2.0 Ports (Supports ESD Protection)
- 2 x USB 3.1 Gen1 Ports (Supports ESD Protection)
- 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)

### Storage

- 1 x SATA3 6.0 Gb/s Connector, supports NCQ, AHCI and Hot Plug
- 1 x M.2 Socket, supports M Key type 2230/2242/2260/2280 M.2 SATA3 6.0 Gb/s module



**Connector**

- 1 x System Panel Header
- 1 x COM Port Header
- 1 x Power LED and Speaker Header
- 1 x CPU Fan Connector (4-pin)

\* The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power.

- 8 x Chassis Fan Connectors (4-pin)

\* CHA\_FAN1~2 support the chassis fan of maximum 1A (12W) fan power. CHA\_FAN3~8 support the chassis fan of maximum 2.5A (30W) fan power.

\* CPU\_FAN1, CHA\_FAN1 and CHA\_FAN2 can adjust 4-pin fan speed.

- 3 x 24 pin ATX Power Connectors
- 1 x 8 pin 12V Power Connector
- 1 x 4 pin 12V Power Connector
- 6 x 4 pin PCIe Power Connectors
- 1 x USB 2.0 Header (Supports 2 USB 2.0 ports) (Supports ESD Protection)
- 1 x Power Button
- 1 x Reset Button

**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
- Linux: Ubuntu 16.04 LTS / Fedora 25

**Certifications**

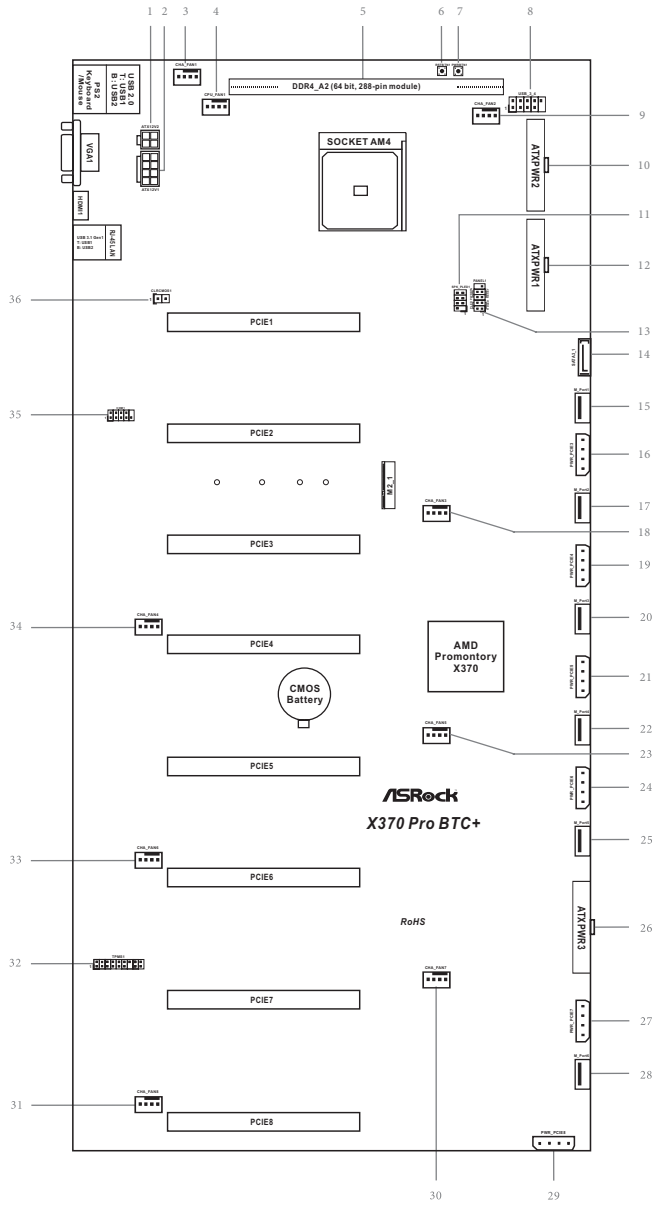
- FCC, CE
- ErP/EuP ready (ErP/EuP ready power supply is required)

\* 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.*

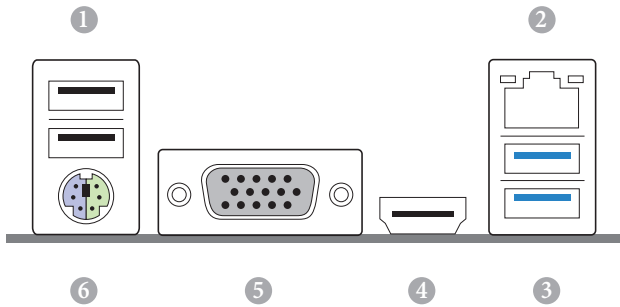
1.3 Motherboard Layout



No.	Description
1	ATX 12V Power Connector (ATX12V2)
2	ATX 12V Power Connector (ATX12V1)
3	Chassis Fan Connector (CHA_FAN1)
4	CPU Fan Connector (CPU_FAN1)
5	288-pin DDR4 DIMM Slot (DDR4_A2)
6	Reset Button (RSTBTN1)
7	Power Button (PWRBTN1)
8	USB 2.0 Header (USB_3_4)
9	Chassis Fan Connector (CHA_FAN2)
10	ATX Power Connector (ATXPWR2)
11	Power LED and Speaker Header (SPK_PLED1)
12	ATX Power Connector (ATXPWR1)
13	System Panel Header (PANEL1)
14	SATA3 Connector (SATA3_1)
15	Mining Port (M_Port1)
16	PCIe Power Connector (PWR_PCIE3)
17	Mining Port (M_Port2)
18	Chassis Fan Connector (CHA_FAN3)
19	PCIe Power Connector (PWR_PCIE4)
20	Mining Port (M_Port3)
21	PCIe Power Connector (PWR_PCIE5)
22	Mining Port (M_Port4)
23	Chassis Fan Connector (CHA_FAN5)
24	PCIe Power Connector (PWR_PCIE6)
25	Mining Port (M_Port5)
26	ATX Power Connector (ATXPWR3)
27	PCIe Power Connector (PWR_PCIE7)
28	Mining Port (M_Port6)
29	PCIe Power Connector (PWR_PCIE8)
30	Chassis Fan Connector (CHA_FAN7)
31	Chassis Fan Connector (CHA_FAN8)
32	TPM Header (TPMS1)
33	Chassis Fan Connector (CHA_FAN6)

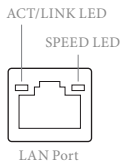
No.	Description
34	Chassis Fan Connector (CHA_FAN4)
35	COM Port Header (COM1)
36	Clear CMOS Jumper (CLRCMOS1)

## 1.4 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports (USB_1_2)	4	HDMI Port
2	LAN RJ-45 Port*	5	D-Sub Port
3	USB 3.1 Gen1 Ports (USB3_12)	6	PS/2 Mouse/Keyboard Port

\* 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

## Chapter 2 Installation

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.

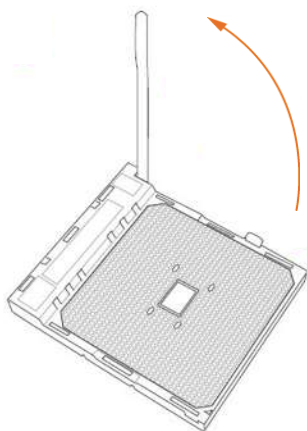
- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a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

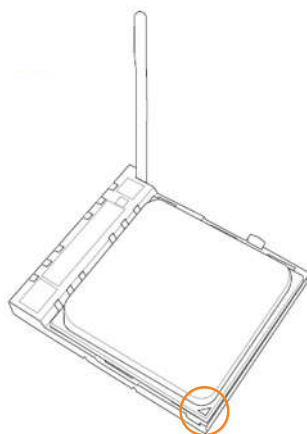


*Unplug all power cables before installing the CPU.*

1



2





3



## 2.2 Installing the CPU Fan and Heatsink

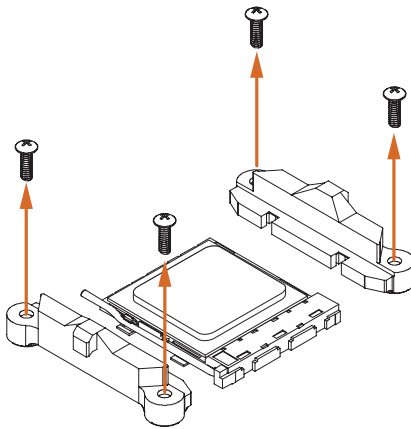
After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good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



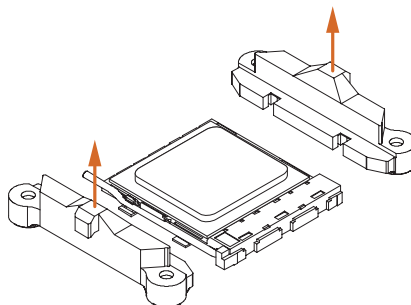
*Please turn off the power or remove the power cord before changing a CPU or heatsink.*

### Installing the CPU Box Cooler SR1

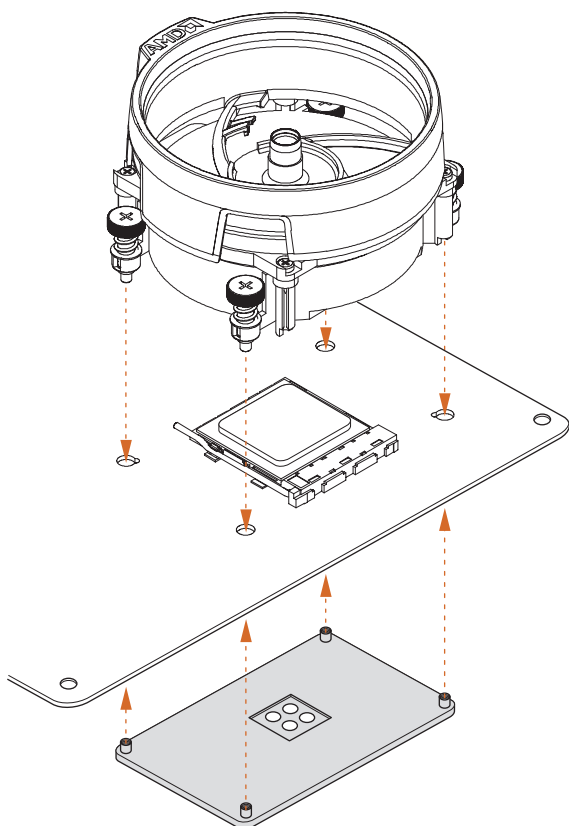
1



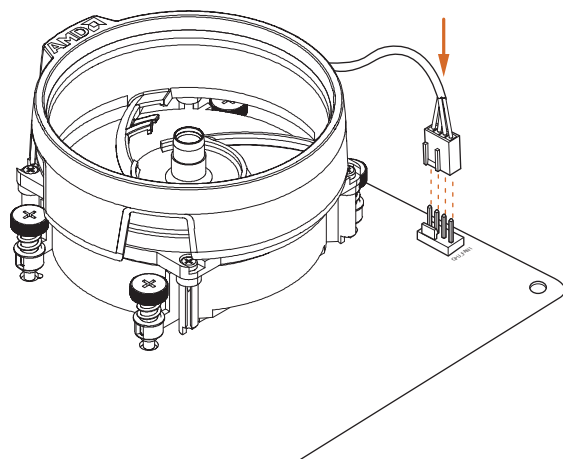
2



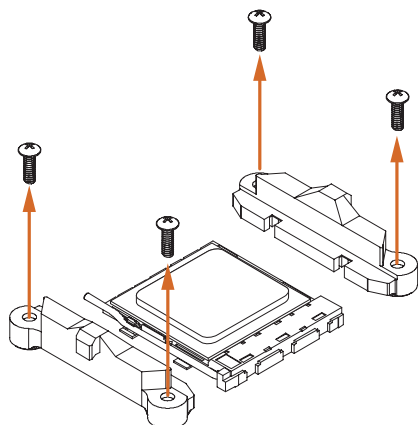
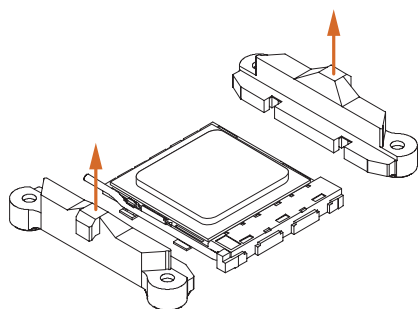
3



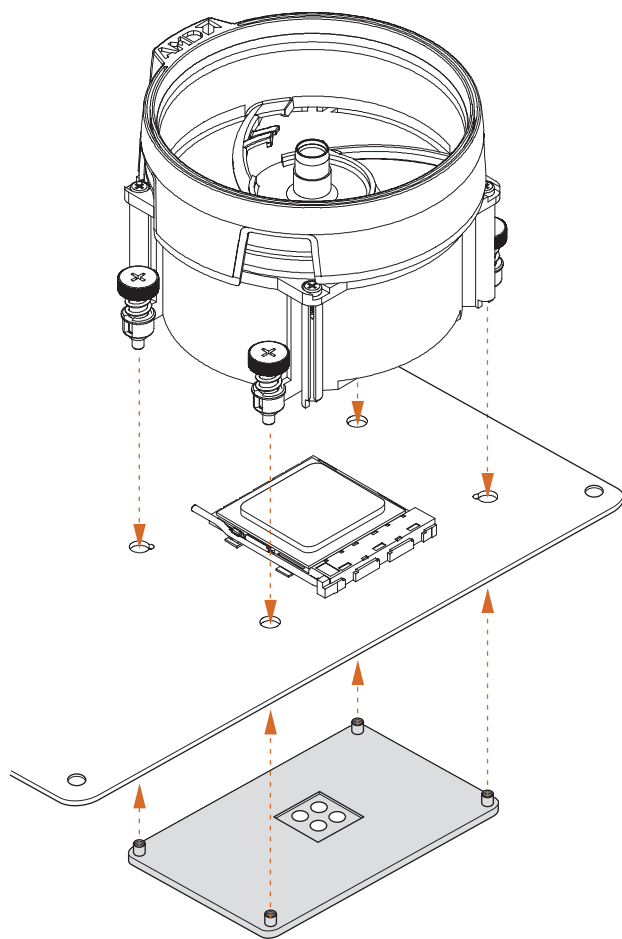
4



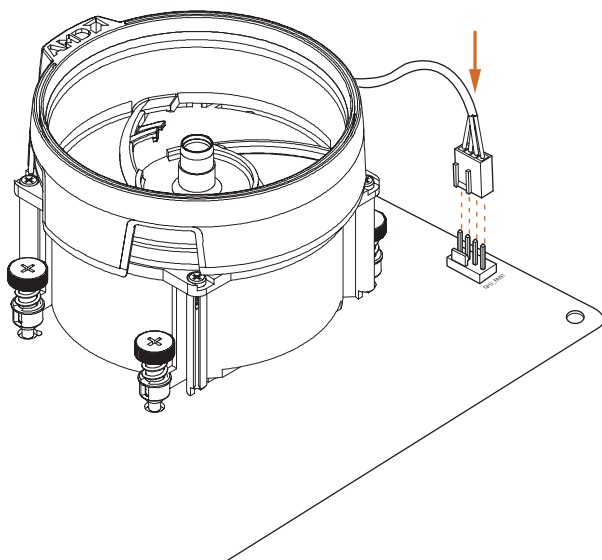
## Installing the AM4 Box Cooler SR2

**1****2**

3

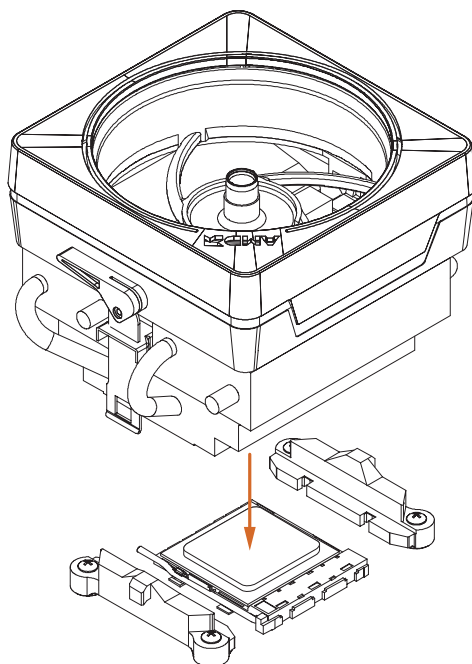


4

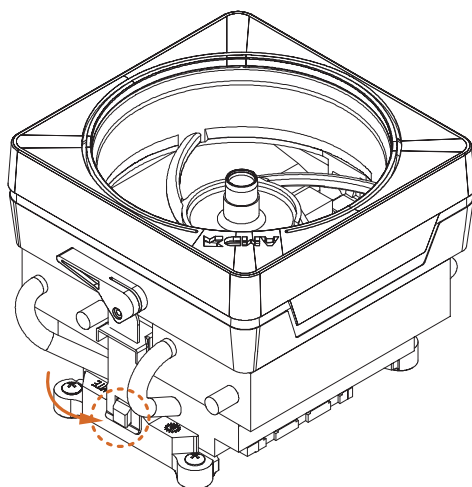


## Installing the AM4 Box Cooler SR3

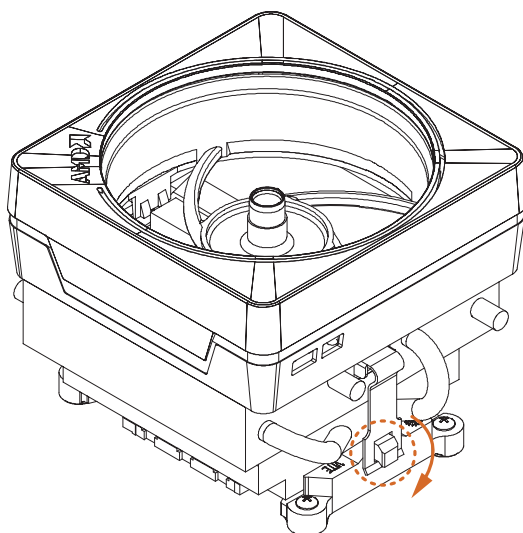
1



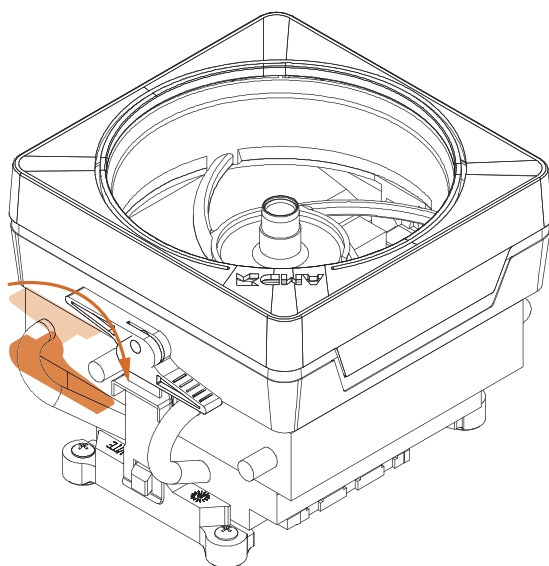
2



3

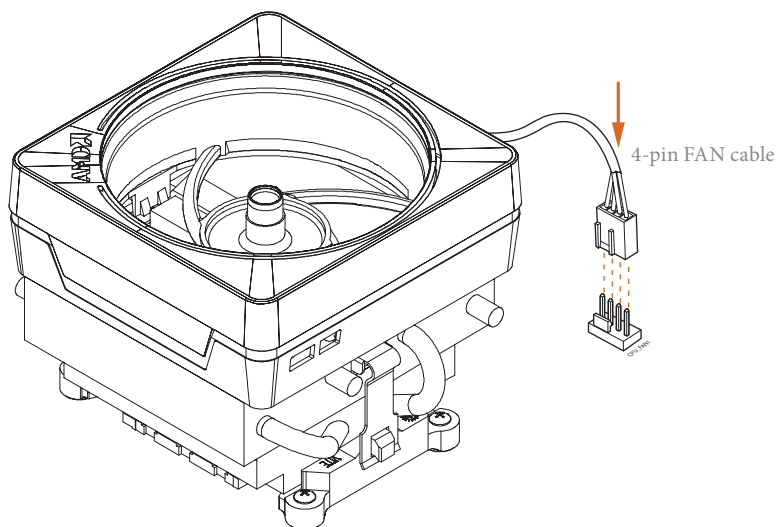


4

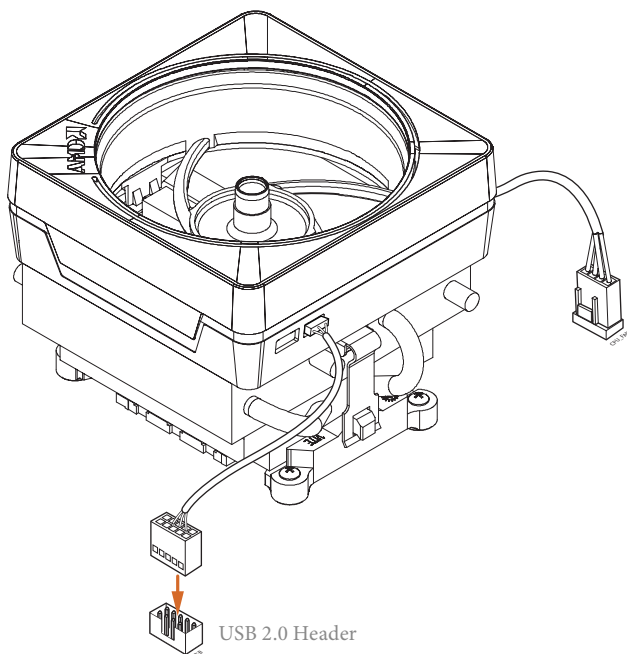




5



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 27 for the orientation of USB Header.

## 2.3 Installing Memory Modules (DIMM)

This motherboard provides one 288-pin DDR4 (Double Data Rate 4) DIMM slot.

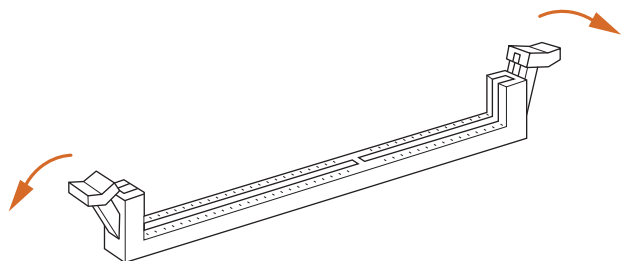


*It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.*

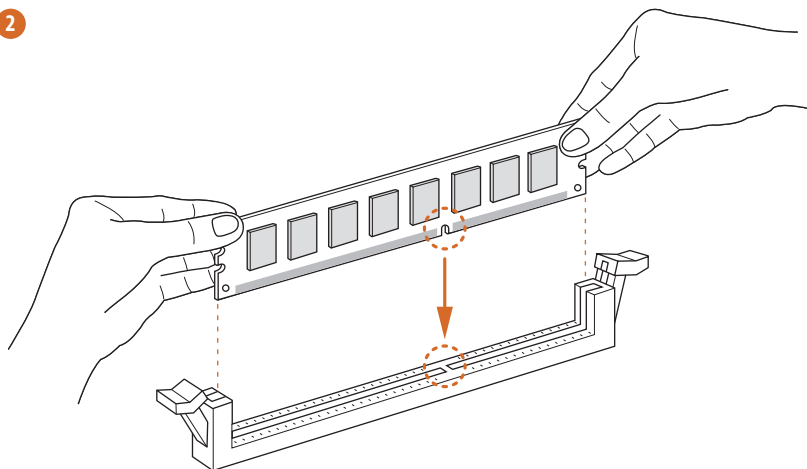


*The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.*

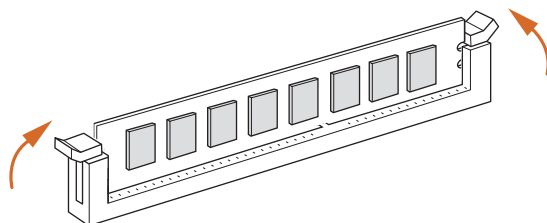
1



2



3



## 2.4 Expansion Slots (PCI Express Slots and Mining Ports)

There are 8 PCI Express slots and 6 Mining ports 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 x16 slot) is used for PCI Express x4 lane width cards.

PCIE2/PCIE3/PCIE4/PCIE5/PCIE6/PCIE7/PCIE8 (PCIe x16 slot) is used for PCI Express x1 lane width cards.

### PCIe Slot and Mining Port Configurations

7<sup>th</sup> A-Series APUs:

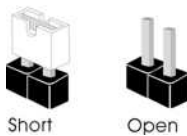
PCIe Slot		Mining Port	
PCIE1	x4	M_Port1	x1
PCIE2	x1	M_Port2	N/A
PCIE3	x1	M_Port3	x1
PCIE4	x1	M_Port4	x1
PCIE5	x1	M_Port5	x1
PCIE6	x1	M_Port6	x1
PCIE7	x1		
PCIE8	x1		

Ryzen series CPUs (Summit Ridge, Raven Ridge and Pinnacle Ridge):

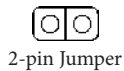
PCIe Slot		Mining Port	
PCIe1	x4	M_Port1	x1
PCIe2	x1	M_Port2	x1
PCIe3	x1	M_Port3	x1
PCIe4	x1	M_Port4	x1
PCIe5	x1	M_Port5	x1
PCIe6	x1	M_Port6	x1
PCIe7	x1		
PCIe8	x1		

## 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  
(CLR CMOS1)  
(see p.6, No. 36)



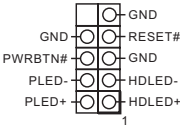
CLR CMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short the pins on CLR CMOS1 for 5 seconds. However, please do not 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. Please remember to remove the jumper cap after clearing the CMOS.

## 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. 13)



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):**

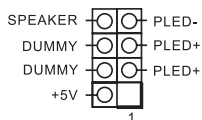
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

**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.6, No. 11)



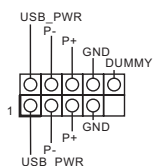
Please connect the chassis power LED and the chassis speaker to this header.

Serial ATA3 Connector  
(SATA3\_1:  
see p.6, No. 14)



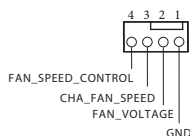
This SATA3 connector supports SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

USB 2.0 Header  
(9-pin USB\_3\_4)  
(see p.6, No. 8)



There is one header on this motherboard. This USB 2.0 header can support two ports.

Chassis Fan Connectors  
(4-pin CHA\_FAN1)  
(see p.6, No. 3)  
(4-pin CHA\_FAN2)  
(see p.6, No. 9)  
(4-pin CHA\_FAN3)  
(see p.6, No. 18)  
(4-pin CHA\_FAN4)  
(see p.6, No. 34)  
(4-pin CHA\_FAN5)  
(see p.6, No. 23)  
(4-pin CHA\_FAN6)  
(see p.6, No. 33)  
(4-pin CHA\_FAN7)  
(see p.6, No. 30)  
(4-pin CHA\_FAN8)  
(see p.6, No. 31)

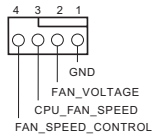


Please connect fan cables to the fan connectors and match the black wire to the ground pin.



---

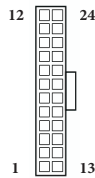
CPU Fan Connector  
(4-pin CPU\_FAN1)  
(see p.6, No. 4)



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.

---

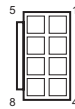
ATX Power Connectors  
(24-pin ATXPWR1)  
(see p.6, No. 12)  
(24-pin ATXPWR2)  
(see p.6, No. 10)



This motherboard provides two 24-pin ATX power connectors. 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.6, No. 2)



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.

---

ATX 12V Power Connector  
(4-pin ATX12V2)  
(see p.6, No. 1)



This motherboard provides a 4-pin ATX 12V power connector. **Important: Make sure both the connected 4-pin (ATX12V2) and 24-pin (ATXPWR1) power connectors are on the same PSU; otherwise, the motherboard may be damaged.**

---

## PCIe Power Connectors

(4-pin PCIE\_PWR3)

(see p.6, No. 16)

(4-pin PCIE\_PWR4)

(see p.6, No. 19)

(4-pin PCIE\_PWR5)

(see p.6, No. 21)

(4-pin PCIE\_PWR6)

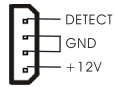
(see p.6, No. 24)

(4-pin PCIE\_PWR7)

(see p.6, No. 27)

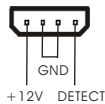
(4-pin PCIE\_PWR8)

(see p.6, No. 29)



Please connect these connectors to the power supplies.

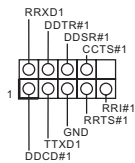
**Important: Make sure the 4-pin PCIe power connector and the external power connector on the graphics card are connected to the same PSU; otherwise, the motherboard and the graphics card may be damaged.**



## Serial Port Header

(9-pin COM1)

(see p.6, No. 35)

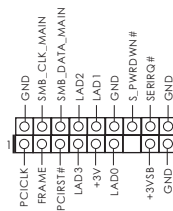


This COM1 header supports a serial port module.

## TPM Header

(17-pin TPMS1)

(see p.6, No. 32)



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.

## Mining Ports

(M\_Port1: see p.6, No. 15)

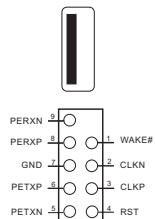
(M\_Port2: see p.6, No. 17)

(M\_Port3: see p.6, No. 20)

(M\_Port4: see p.6, No. 22)

(M\_Port5: see p.6, No. 25)

(M\_Port6: see p.6, No. 28)



Please connect these ports to the PCIe riser kits.

## 2.7 Smart Switches

The motherboard has two smart switches: Power Button and Reset Button.

Power Button  
(PWRBTN1)  
(see p.6, No. 7)



Power Button allows users to quickly turn on/off the system.

Reset Button  
(RSTBTN1)  
(see p.6, No. 6)

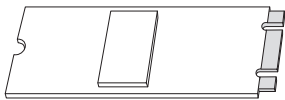


Reset Button allows users to quickly reset the system.

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

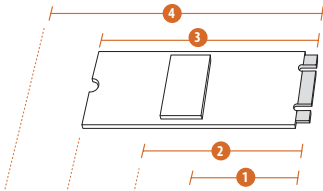
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket supports type 2230/2242/2260/2280 M.2 SATA3 6.0 Gb/s module.

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



**Step 1**

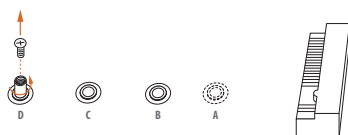
Prepare a M.2\_SSD (NGFF) module and the screw.



**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
Nut Location	A	B	C	D
PCB Length	3cm	4.2cm	6cm	8cm
Module Type	Type2230	Type 2242	Type2260	Type 2280

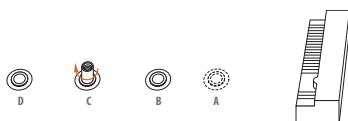


### Step 3

Move the standoff based on the module type and length.

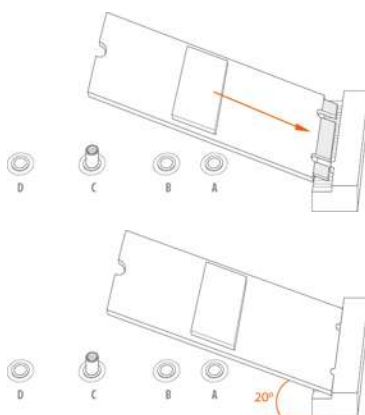
The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut.

Otherwise, release the standoff by hand.



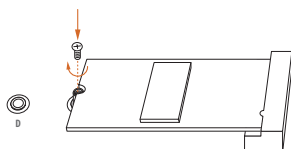
### Step 4

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

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>

## 2.9 Installing the 4-pin PCIe Power Connectors

The extra 4-pin PCIe power connectors on this motherboard offer more power for your graphics cards. They provide stable voltages and greatly reduce the risks of burning your motherboard or graphics cards.

**When the graphics cards are installed, be sure to install the PSU's 4-pin power cables to the corresponding 4-pin PCIe power connectors (PCIE\_PWR) on your motherboard; otherwise, the cards may be damaged.**



*Make sure the 4-pin PCIe power connector and the external power connector on the graphics card are connected to the same PSU; otherwise, the motherboard and the graphics card may be damaged.*

## 2.10 Special Features

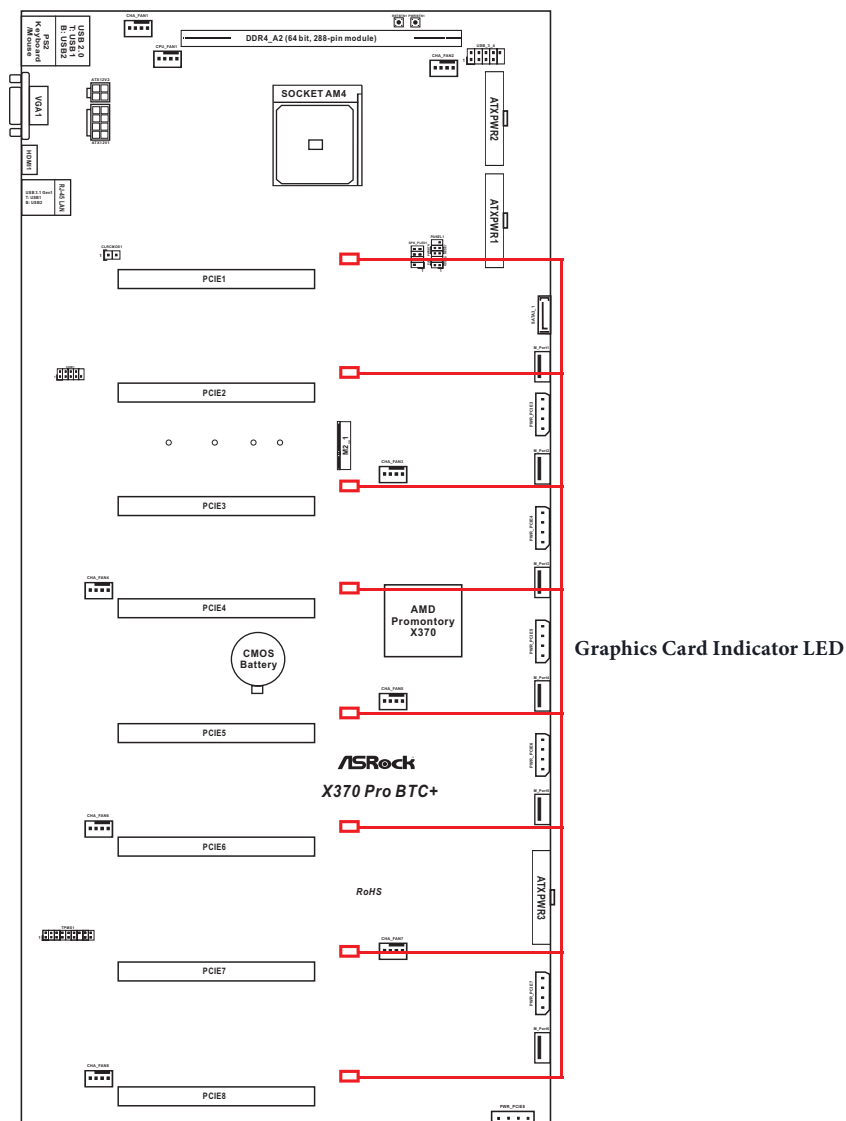
### 2.10.1 Smart PCIe State Detection

This motherboard has included a smart way to show the status of every graphics card. While the system is booting, the Power-On, Self-Test (POST) screen will show the status of the graphics cards that were installed on the motherboard.



## 2.10.2 Graphics Card Indicator LED

ASRock also placed a faulty graphics card indicator LED behind every mining ports and PCIe slots so you may monitor the status even without a screen.



## 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.

# 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>Security</b>	For security settings
<b>Boot</b>	For configuring boot settings and boot priority
<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

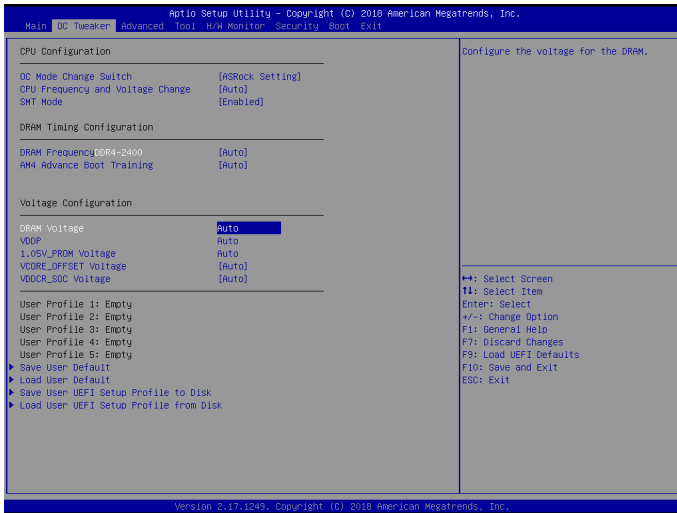
# 4.2 Main Screen

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.*

### CPU Configuration

#### OC Mode Change Switch

Select a setting for OC Mode.

#### Overclock Mode

Select the overclock mode.

#### CPU Frequency and Voltage 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.

#### 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.

## DRAM Timing Configuration

### DRAM Frequency

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

### AM4 Advance Boot Training

Set TR4 Advance boot training to [Auto] to increase compatibility.

## Voltage Configuration

### DRAM Voltage

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

### VDDP

Configure the voltage for the VDDP.

### 1.05V\_PROM Voltage

Use this to select 1.05V\_PROM Voltage. The default value is [Auto].

### VCORE\_OFFSET Voltage

Use this to select VCORE\_OFFSET Voltage.

### VDDCR\_SOC Voltage

Use this to select VDDCR\_SOC Voltage.

### 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

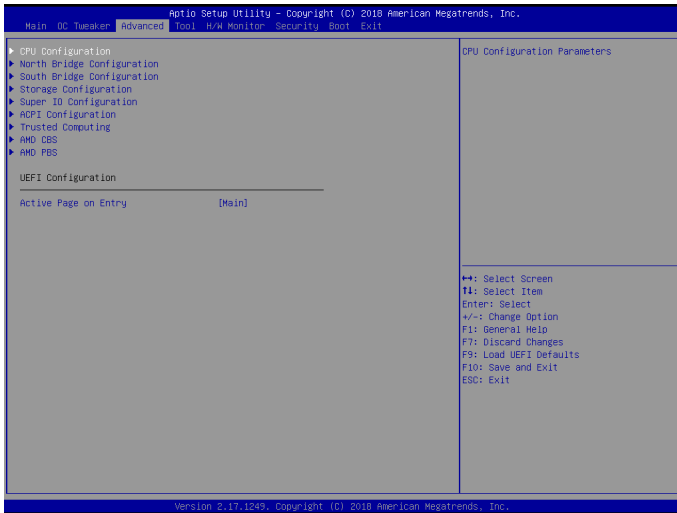
It helps you to save current UEFI settings as an user profile to disk.

### Load User UEFI Setup Profile from Disk

You can load previous saved profile from the disk.

## 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, Trusted Computing, AMD CBS and AMD PBS.



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

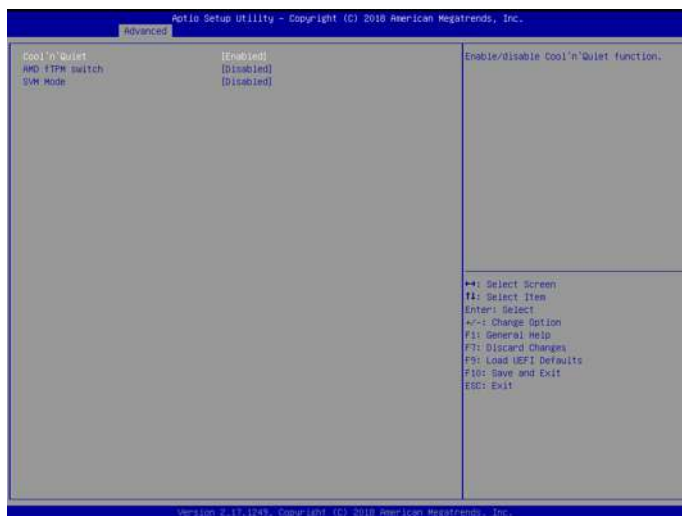
### UEFI Configuration

#### Active Page on Entry

Select the default page when entering the UEFI setup utility.



## 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].

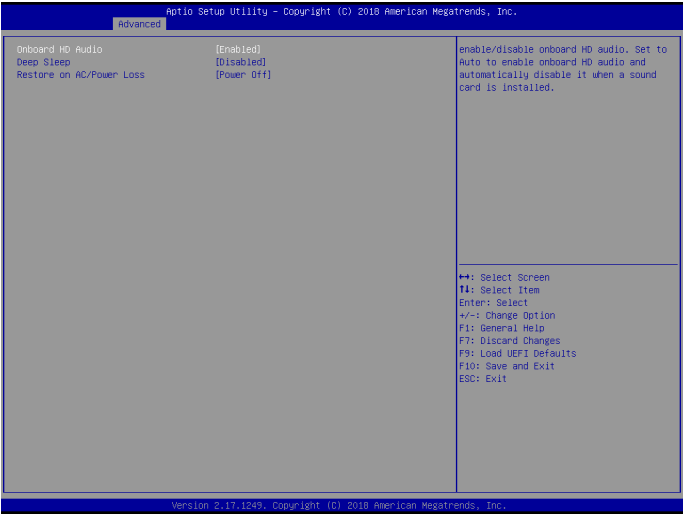
## 4.4.2 North Bridge Configuration



### 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 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.

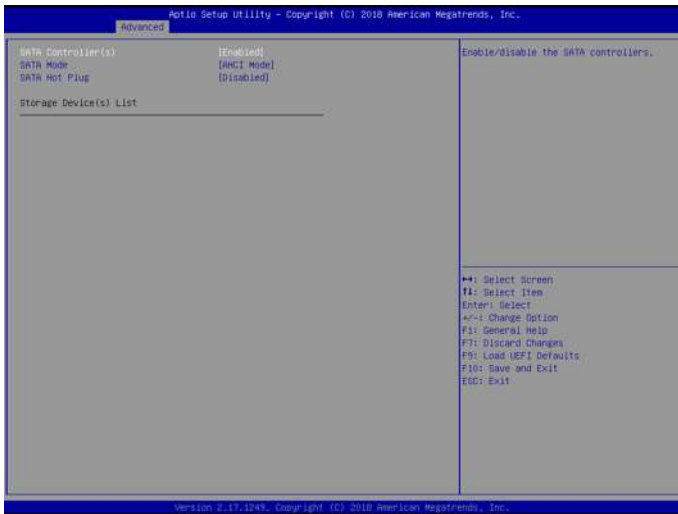
#### Deep Sleep

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

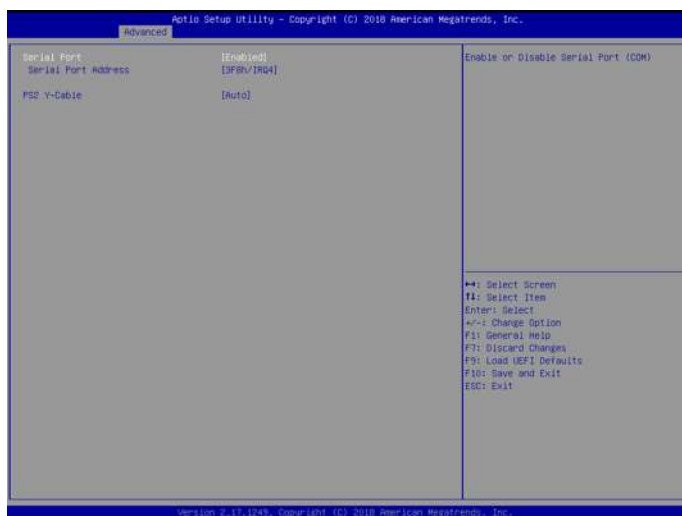
AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

### SATA Hot Plug

Enable/disable the SATA Hot Plug function.

## 4.4.5 Super IO Configuration



### Serial Port

Enable or disable the Serial port.

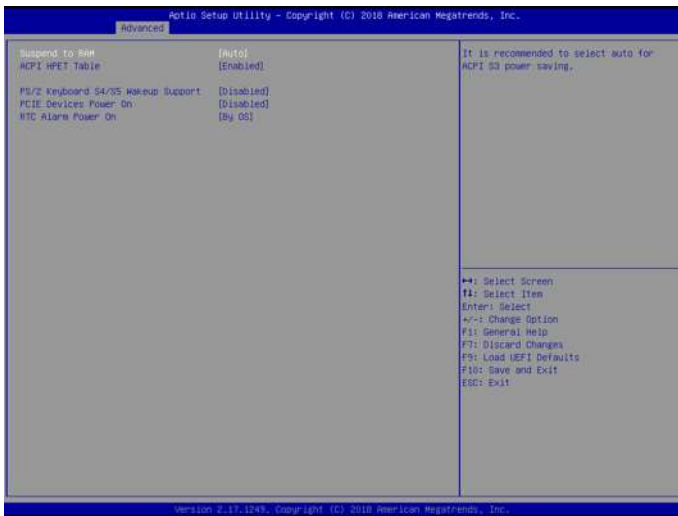
### Serial Port Address

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.

### 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.

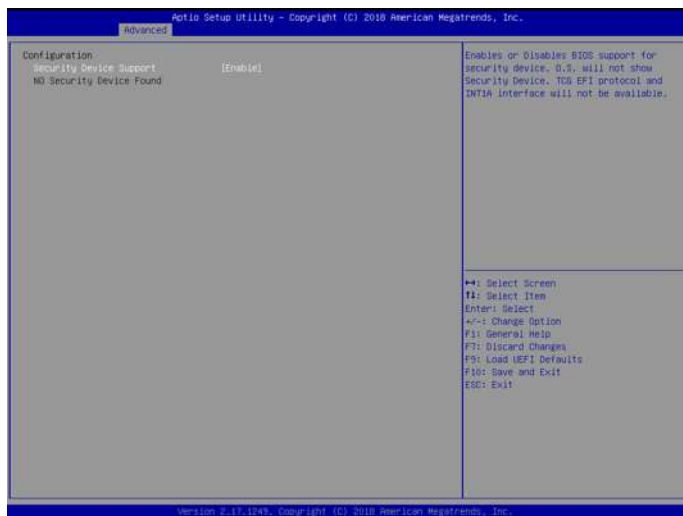
### PCIe Devices Power On

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

### 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.

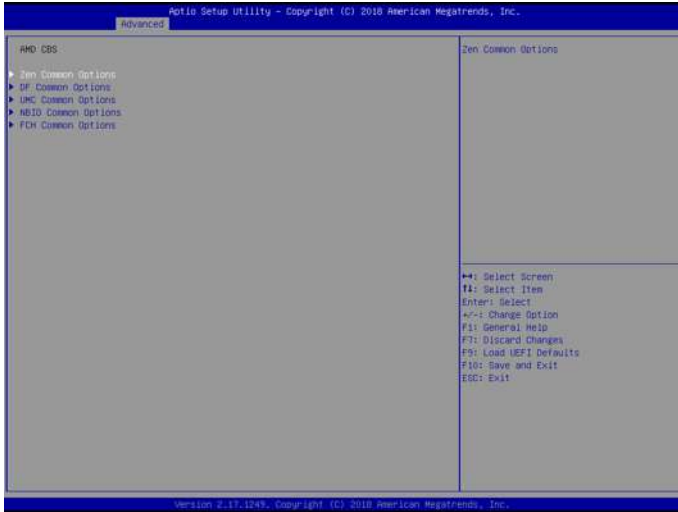
## 4.4.7 Trusted Computing



### Security Device Support

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

## 4.4.8 AMD CBS



### Zen Common Options

#### RedirectForReturnDis

From a workaround for GCC/C000005 issue for XV Core on CZ A0, setting MSRC001\_1029 Decode Configuration (DE\_CFG) bit 14 [DecfgNoRdrctForReturns] to 1.

#### L2 TLB Associativity

0 - L2 TLB ways [11:8] are fully associative. 1 - L2 TLB ways [11:8] are 4K-only.

#### Platform first Error Handling

Enable/disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank.

#### Core Performance Boost

Disable CPB.

#### Enable IBS

Enables IBS through MSRC001\_1005[42] and disables SpecLockMap through MSRC001\_1020[54].

#### Global C-state Control

Controls IO based C-state generation and DF C-states.



## Opcache Control

Enables or disables the Opcache.

## OC Mode

OC1 - 16 cores/3.6GHz on 1.3375V

OC2 - 8 cores/3.7GHz on 1.369V

OC3 - 4 cores/3.75GHz on 1.374V\nMax Stress - 16 cores/3.8GHz on 1.400V

## SEV-ES ASID Space Limit

SEV VMs using ASIDs below the SEV-ES ASID Space Limit must enable the SEV-ES feature.

The valid values for this field are from 0x1 (1) - 0x10 (16).

## Core/Thread Enablement

### Downcore control

Sets the number of cores to be used. Once this option has been used to remove any cores, a POWER CYCLE is required in order for future selections to take effect.

### SMTEN

This item can be used to disable symmetric multithreading. To re-enable SMT, a POWER CYCLE is needed after selecting the 'Auto' option.

Warning: S3 is NOT SUPPORTED on systems where SMT is disabled.

## Streaming Stores Control

Enables or disables the streaming stores functionality.

## DF Common Options

### DRAM scrub time

Provide a value that is the number of hours to scrub memory.

### Redirect scrubber control

Control DF::RedirScrubCtrl[EnRedirScrub]

### Disable DF sync flood propagation

Control DF::PIEConfig[DisSyncFloodProp].

### Freeze DF module queues on error

Controls DF::PIEConfig[DisImmSyncFloodOnFatalError]

Disabling this option sets DF::PIEConfig[DisImmSyncFloodOnFatalError].

## GMI encryption control

GMI encryption control

## Control GMI link encryption

xGMI encryption control

## Control xGMI link encryption

## CC6 memory region encryption

Control whether or not the CC6 save/restore memory is encrypted

## Location of private memory regions

Controls whether or not the private memory regions (PSP, SMU and CC6) are at the top of DRAM or distributed. Note that distributed requires memory on all dies. Note that it will always be at the top of DRAM if some dies don't have memory regardless of this option's setting.

## System probe filter

Controls whether or not the probe filter is enabled. Has no effect on parts where the probe filter is fuse disabled.

## Memory interleaving

Controls fabric level memory interleaving (AUTO, none, channel, die, socket). Note that channel, die, and socket has requirements on memory populations and it will be ignored if the memory doesn't support the selected option.

## Memory interleaving size

Controls the memory interleaving size. The valid values are AUTO, 256 bytes, 512 bytes, 1 Kbytes or 2Kbytes. This determines the starting address of the interleave (bit 8, 9, 10 or 11).

## Channel interleaving hash

Controls whether or not the address bits are hashed during channel interleave mode. This field should not be used unless the interleaving is set to channel and the interleaving size is 256 or 512 bytes.

## Memory Clear

When this feature is disabled, BIOS does not implement MemClear after memory training (only if non-ECC DIMMs are used).

## UMC Common Options

## DDR4 Common Options

## DRAM Controller Configuration

### DRAM Controller Configuration

## DRAM Power Options

## Cmd2T

Select between 1T and 2T mode on ADDR/CMD

## Gear Down Mode

Configure the Gear Down Mode.

## CAD Bus Configuration

## CAD Bus Timing User Controls

Setup time on CAD bus signals to Auto or Manual

## CAD Bus Drive Strength User Controls

Drive Strength on CAD bus signals to Auto or Manual

## Data Bus Configuration

## Data Bus Configuration User Controls

Specify the mode for drive strength to Auto or Manual

## Common RAS

## Data Poisoning

Enable/disable data poisoning: UMC\_CH::EccCtrl[UcFatalEn] UMC\_CH::EccCtrl[WREccEn]

Should be enabled/disabled together.

## Security

## TSME

Transparent SME: AddrTweakEn = 1; ForceEncrEn = 1; DataEncrEn = 0

## Data Scramble

Data scrambling: DataScrambleEn

## DRAM Memory Mapping

### Chipselect Interleaving

Interleave memory blocks across the DRAM chip selects for node 0.

### BankGroupSwap

Configure the BankGroupSwap.

### BankGroupSwapAlt

Configure BankGroupSwapAlt.

### Address Hash Bank

Configure the bank address hashing.

### Address Hash CS

Configure the CS address hashing.

## NVDIMM

### Memory MBIST

#### MBIST Enable

Configure the Memory MBIST.

#### MBIST SubType Test

Select MBIST Subtest - Single Chipselect, Multi Chipselect, Address Line Test or execute All test

#### MBIST Aggressors

Enable or disable MBIST Aggressor test.

#### MBIST Per Bit Slave Die Reporting

Enable or disable MBIST per bit slave die result report.

## NBIO Common Options

### NB Configuration

### IOMMU

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

## Determinism Slider

[Auto]

Use default performance determinism settings

## cTDP Control

[Auto]

Use the fused cTDP.

[Manual]

User can set customized cTDP.

## Fan Control

[Auto]

Use the default fan controller settings.

[Manual]

User can set customized fan controller settings.

## PSI

Disable PSI.

## ACS Enable

Enable ACS.

## PCIe ARI Support

Enables Alternative Routing-ID Interpretation

## CLDO\_VDDP Control

[Manual]

If this option is selected, user can set customized CLDO\_VDDP voltage.

## HD Audio Enable

Enable HD Audio.

## FCH Common Options

## SATA Configuration Options

## SATA Controller

Disable or enable OnChip SATA controller

## Sata RAS Support

Disable or enable Sata RAS Support

## Sata Disabled AHCI Prefetch Function

Configure the Sata Disabled AHCI Prefetch function.

## Aggresive SATA Device Sleep Port 0

Configure the Aggresive SATA Device Sleep Port 0.

## Aggresive SATA Device Sleep Port 1

Configure the Aggresive SATA Device Sleep Port 1.

## USB Configuration Options

### XHCI controller enable

Configure the USB3 controller.

## SD (Secure Digital) Options

### SD Configuration Mode

Select SD Mode.

## Ac Power Loss Options

Select Ac Loss Control Method.

## I2C Configuration Options

## Uart Configuration Options

## ESPI Configuration Options

## XGBE Configuration Options

## eMMC Options

## NTB Common Options

## DRAM Memory Mapping

## Chipselect Interleaving

Interleave memory blocks across the DRAM chip selects for node 0.

## BankGroupSwap

Configure the BankGroupSwap.

## BankGroupSwapAlt

Configure the BankGroupSwapAlt.

## Address Hash Bank

Configure the bank address hashing.

## Address Hash CS

Configure the CS address hashing.

## NVDIMM

## Memory MBIST

## MBIST Enable

Configure the Memory MBIST.

## MBIST SubType Test

Select MBIST Subtest - Single Chipselect, Multi Chipselect, Address Line Test or execute all test.

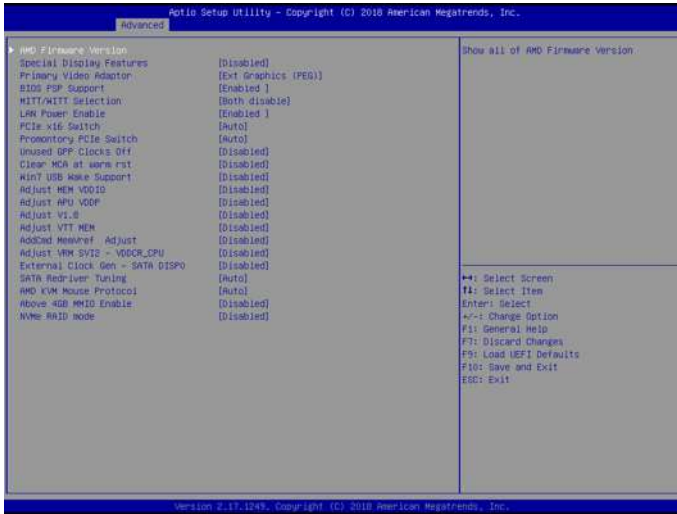
## MBIST Aggressors

Configure the MBIST Aggressor test.

## MBIST Per Bit Slave Die Reporting

Configure the MBIST per bit slave die result report.

## 4.4.9 AMD PBS



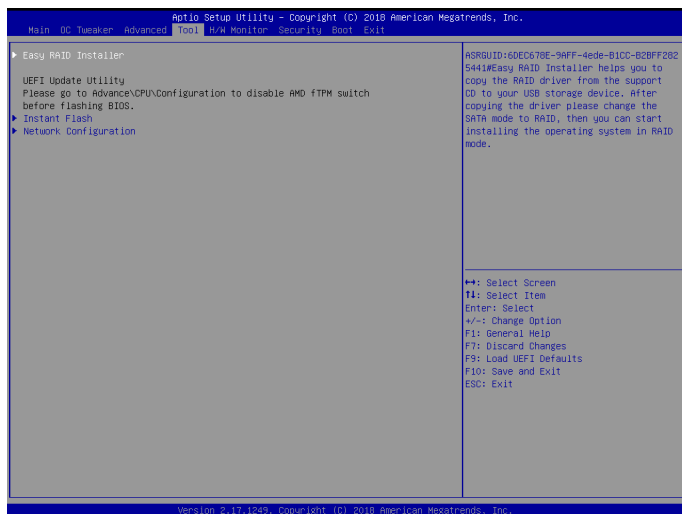
The AMD PBS menu accesses AMD specific features.



*If you want to use the onboard graphics output, please make sure the item "Primary Video Adapter" is set to [Int Graphics (IGD)].*



## 4.5 Tools



### Easy RAID Installer

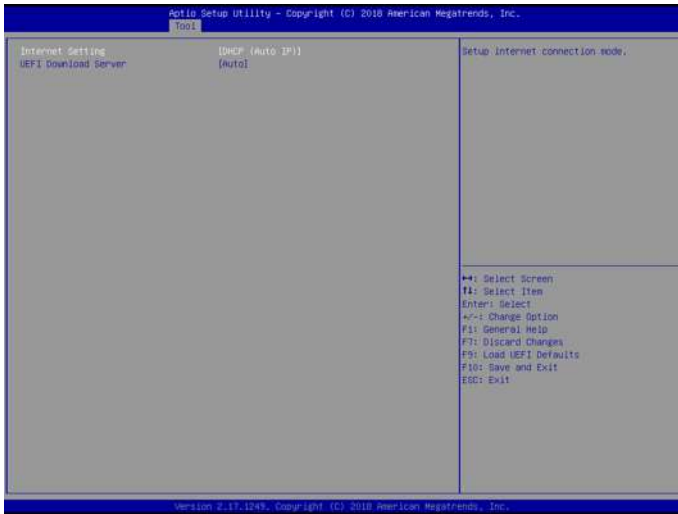
Easy RAID Installer helps you to copy the RAID driver from the support CD to your USB storage device. After copying the drivers please change the SATA mode to RAID, then you can start installing the operating system in RAID mode.

### Instant Flash

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

## 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.

### 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.

### 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

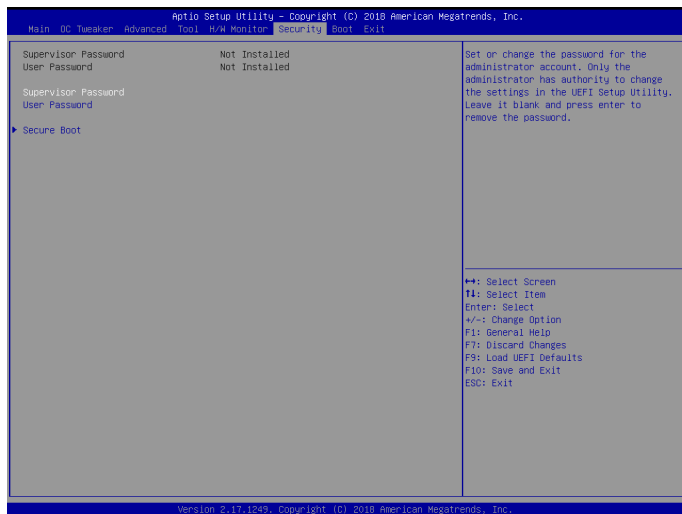
Select a fan temperature source for Chassis Fan 2.

## 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

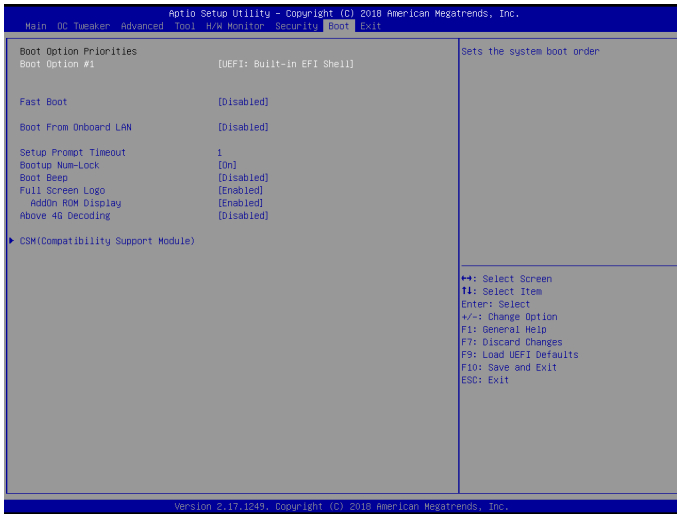
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

### 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.

### Boot From Onboard LAN

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

### 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.

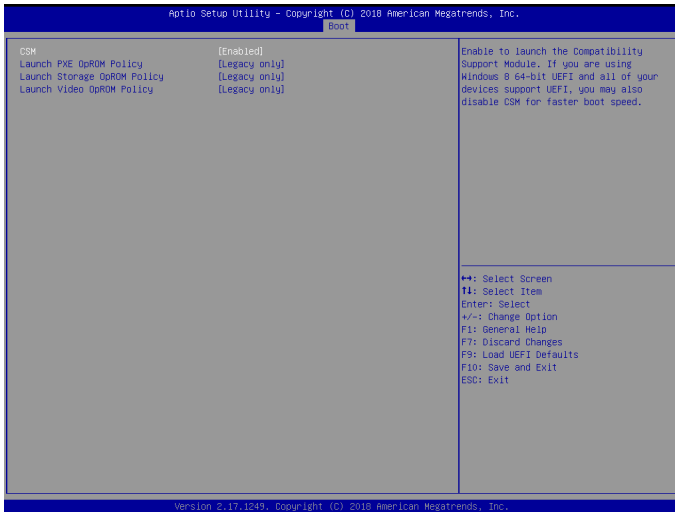
## AddOn ROM Display

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.

## 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).

## 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

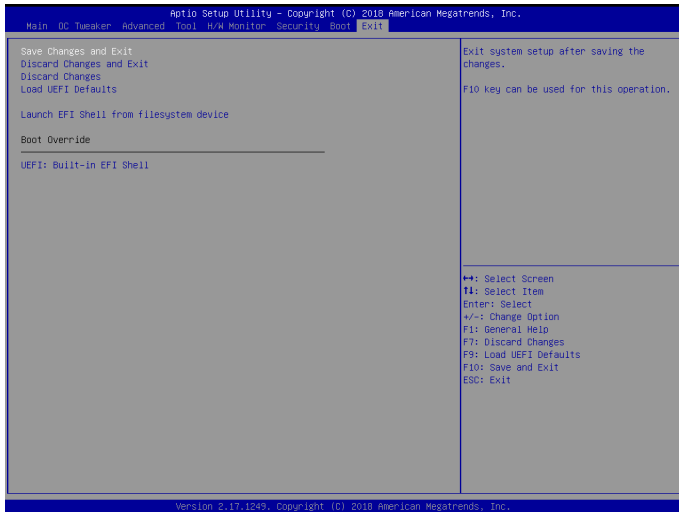
Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

### 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 Pro BTC+

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)

**X370 Pro BTC+ / 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)



**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)

**July 13, 2018**

(Date)

P/N: 15G062101000AK V1.0