

ALTOS

User's Guide
BrainSphere™
P15 F7

Version 1.0

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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”

AUSTRALIA ONLY

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Contents

Chapter 1 Introduction	1
1.1 Package Contents	1
1.2 Specifications	2
1.3 Motherboard Layout	7
1.4 I/O Panel	9
Chapter 2 Installation	11
2.1 Installing the CPU	12
2.2 Installing the CPU Fan and Heatsink	14
2.3 Installing Memory Modules (DIMM)	22
2.4 Expansion Slots (PCI Express Slots)	25
2.5 Jumpers Setup	26
2.6 Onboard Headers and Connectors	27
2.7 CrossFireX™ and Quad CrossFireX™ Operation Guide	32
2.7.1 Installing Two CrossFireX™-Ready Graphics Cards	32
2.7.2 Driver Installation and Setup	34
2.8 M.2_SSD (NGFF) Module Installation Guide (M2_1)	35
2.9 M.2_SSD (NGFF) Module Installation Guide (M2_2)	38
Chapter 3 Software and Utilities Operation	41
3.1 Installing Drivers	41
3.2 Altos Motherboard Utility (Phantom Gaming Tuning)	42
3.2.1 Installing Altos Motherboard Utility (Phantom Gaming	

	Tuning)	42
3.2.2	Using Altos Motherboard Utility (Phantom Gaming Tuning)	42
3.3	Altos Live Update & APP Shop	45
3.3.1	UI Overview	45
3.3.2	Apps	46
3.3.3	BIOS & Drivers	49
3.3.4	Setting	50
3.4	Altos Polychrome SYNC	51
	Chapter 4 UEFI SETUP UTILITY	54
4.1	Introduction	54
4.1.1	UEFI Menu Bar	54
4.1.2	Navigation Keys	55
4.2	Main Screen	56
4.3	OC Tweaker Screen	57
4.4	Advanced Screen	60
4.4.1	CPU Configuration	61
4.4.2	Onboard Devices Configuration	62
4.4.3	Storage Configuration	64
4.4.4	ACPI Configuration	65
4.4.5	Trusted Computing	66
4.4.6	AMD PBS	67
4.4.7	AMD Overclocking	68
4.4.8	AMD CBS	69
4.5	Tools	70

4.6	Hardware Health Event Monitoring Screen	71
4.7	Security Screen	73
4.8	Boot Screen	74
4.9	Exit Screen	77

Chapter 1 Introduction

In this documentation, 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 documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on Altos'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 Altos's website as well. Altos website <http://www.Altos.com>.

1.1 Specifications

- Platform**
- Micro ATX Form Factor
 - Solid Capacitor design
 - 2oz Copper PCB

- CPU**
- Supports 3rd Gen AMD AM4 Ryzen™ / future AMD Ryzen™ Processors (3000 and 4000 Series Processors)*
- * Not compatible with AMD Ryzen™ 5 3400G and Ryzen™ 3 3200G.
- Digi Power design
 - 8 Power Phase design

- Chipset**
- AMD B550

- Memory**
- Dual Channel DDR4 Memory Technology
 - 4 x DDR4 DIMM Slots
 - AMD Ryzen series CPUs (Matisse) support DDR4 4533+(OC)/4466(OC)/4400(OC)/4333(OC)/4266(OC)/4200(OC)/4133(OC)/4000(OC)/3866(OC)/3800(OC)/3733(OC)/3600(OC)/3466(OC)/3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory*
 - AMD Ryzen series APUs (Renoir) support DDR4 4733+(OC)/4666(OC)/4600(OC)/4533(OC)/4466(OC)/4400(OC)/4333(OC)/4266(OC)/4200(OC)/4133(OC)/4000(OC)/3866(OC)/3800(OC)/3733(OC)/3600(OC)/3466(OC)/3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory*
- * Please refer to Memory Support List on Altos's website for more information. (<http://www.Altos.com/>)
- * Please refer to page 22 for DDR4 UDIMM maximum frequency support.
- Max. capacity of system memory: 128GB
 - Supports Extreme Memory Profile (XMP) memory modules
 - 15µ Gold Contact in DIMM Slots

Expansion Slot

AMD Ryzen series CPUs (Matisse)

- 2 x PCI Express x16 Slots (PCIe1: Gen4x16 mode; PCIe3: Gen3 x4 mode)*

AMD Ryzen series APUs (Renoir)

- 2 x PCI Express x16 Slots (PCIe1: Gen3x16 mode; PCIe3: Gen3 x4 mode)*

* Supports NVMe SSD as bootdisks

- 1 x PCI Express 3.0 x1 Slot
- Supports AMD Quad CrossFireX™ and CrossFireX™

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.

- Dual graphics output: support HDMI and DisplayPort 1.4 ports by independent display controllers
- Supports HDMI 2.1 with max. resolution up to 4K x 2K (4096x2160) @ 60Hz
- Supports DisplayPort 1.4 with max. resolution up to 5K (5120x2880)@120Hz
- Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI 2.1 Port (Compliant HDMI monitor is required)
- Supports HDR (High Dynamic Range) with HDMI2.1
- Supports HDCP 2.3 with HDMI 2.1 and DisplayPort 1.4 Ports
- Supports 4K Ultra HD (UHD) playback with HDMI 2.1 and DisplayPort 1.4 Ports
- Supports Microsoft PlayReady®

Audio

- 7.1 CH HD Audio (Realtek ALC887/897 Audio Codec)
- Supports Surge Protection

LAN

- PCIE x1 Gigabit LAN 10/100/1000Mb/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
- 1 x DisplayPort 1.4
- 4 x USB 3.2 Gen1 Ports (Supports ESD Protection)
- 2 x USB 2.0 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 Hyper M.2 Socket (M2_1), supports M Key type 2280 M.2 PCI Express module up to Gen4x4 (64 Gb/s) (with Matisse) or Gen3x4 (32 Gb/s) (with Renoir)*
 - 1 x M.2 Socket (M2_2), supports M Key type 2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x2 (16Gb/s)*
- * Supports NVMe SSD as boot disks
* Supports Altos U.2 Kit

Connector

- 1 x SPI TPM Header
 - 1 x Power LED and Speaker Header
 - 2 x RGB LED Headers
- * Support in total up to 12V/3A, 36W LED Strip
- 2 x Addressable LED Headers
- * Support in total up to 5V/3A, 15W LED Strip
- 1 x CPU Fan Connector (4-pin)
- * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power.

- 3 x Chassis/Water Pump Fan Connectors (4-pin) (Smart Fan Speed Control)
- * The Chassis/Water Pump Fan supports the water cooler fan of maximum 2A (24W) fan power.
- * CHA_FAN1/WP, CHA_FAN2/WP and CHA_FAN3/WP can auto detect if 3-pin or 4-pin fan is in use.
- 1 x 24 pin ATX Power Connector
- 1 x 8 pin 12V Power Connector
- 1 x Front Panel Audio Connector
- 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) (Supports ESD Protection)
- 2 x USB 3.2 Gen1 Headers (Support 4 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
- CPU, CPU VDDCR_SOC, DRAM, +1.8VSB, Voltage Multi-adjustment

Hardware Monitor

- Temperature Sensing: CPU, Chassis/Water Pump Fans
- Fan Tachometer: CPU, Chassis/Water Pump Fans
- Quiet Fan (Auto adjust chassis fan speed by CPU temperature): CPU, Chassis/Water Pump Fans
- Fan Multi-Speed Control: CPU, Chassis/Water Pump Fans
- Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore, CPU VDDCR_SOC, DRAM, VPPM, +1.8V

OS

- Microsoft® Windows® 10 64-bit

Certifica- tions

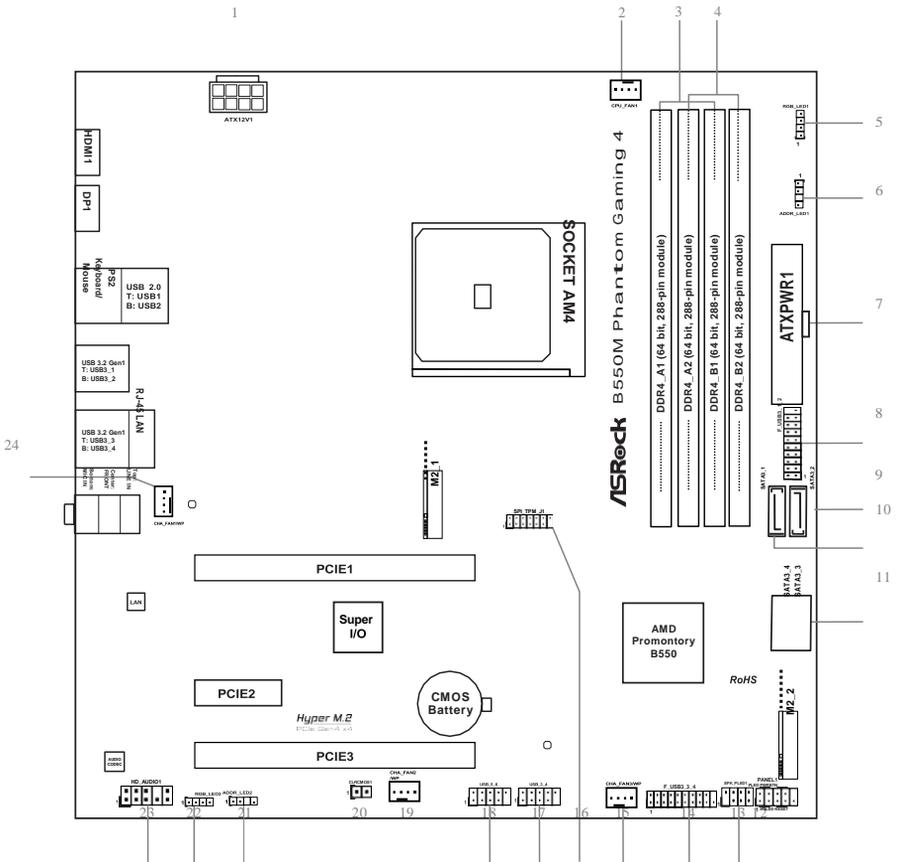
- FCC, CE
- ErP/EuP ready (ErP/EuP ready power supply is required)

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



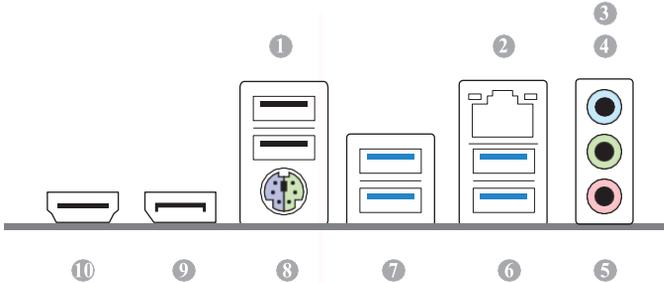
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of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

12 Motherboard Layout



No.	Description
1	8 pin 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
4	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2)
5	RGB LED Header (RGB_LED1)
6	Addressable LED Header (ADDR_LED1)
7	ATX Power Connector (ATXPWR1)
8	USB 3.2 Gen1 Header (F_USB3_1_2)
9	SATA3 Connector (SATA3_2)
10	SATA3 Connector (SATA3_1)
11	SATA3 Connector (SATA3_4)(Upper), SATA3 Connector (SATA3_3)(Lower)
12	System Panel Header (PANEL1)
13	Power LED and Speaker Header (SPK_PLED1)
14	USB 3.2 Gen1 Header (F_USB3_3_4)
15	Chassis/Water Pump Fan Connector (CHA_FAN3/WP)
16	SPI TPM Header (SPI_TPM_J1)
17	USB 2.0 Header (USB_3_4)
18	USB 2.0 Header (USB_5_6)
19	Chassis/Water Pump Fan Connector (CHA_FAN2/WP)
20	Clear CMOS Jumper (CLRCMOS1)
21	Addressable LED Header (ADDR_LED2)
22	RGB LED Header (RGB_LED2)
23	Front Panel Audio Header (HD_AUDIO1)
24	Chassis/Water Pump Fan Connector (CHA_FAN1/WP)

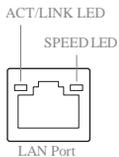
13 I/O Panel



No.	Description	No.	Description
1	USB 2.0 Ports(USB_12)*	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	PS/2 Mouse/Keyboard Port
4	Front Speaker (Lime)***	9	DisplayPort 1.4
5	Microphone (Pink)***	10	HDMI Port

Please note that the USB_2 consumes auxiliary power (+5VSB) while the other USB ports consume DUAL Power (+5VDUAL). The USB_2 is optimal for connecting the USB Type speaker and headset.

** 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.

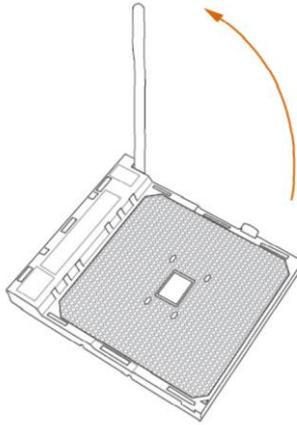
- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a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

21 Installing the CPU

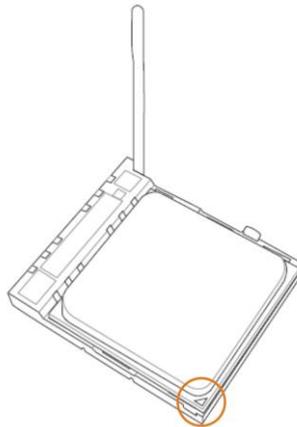


Unplug all power cables before installing the CPU.

1



2



3



22 Installing the CPU Fan and Heatsink

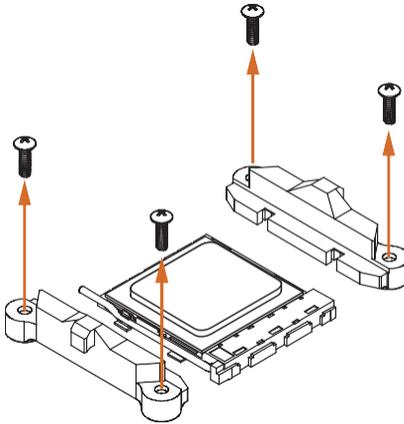
After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good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



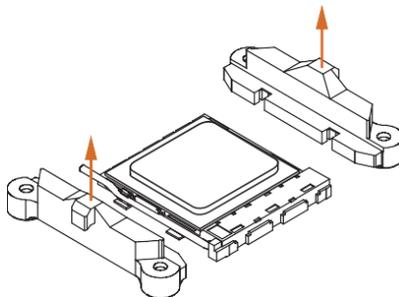
Please turn off the power or remove the power cord before changing a CPU or heatsink.

Installing the CPU Box Cooler SR1

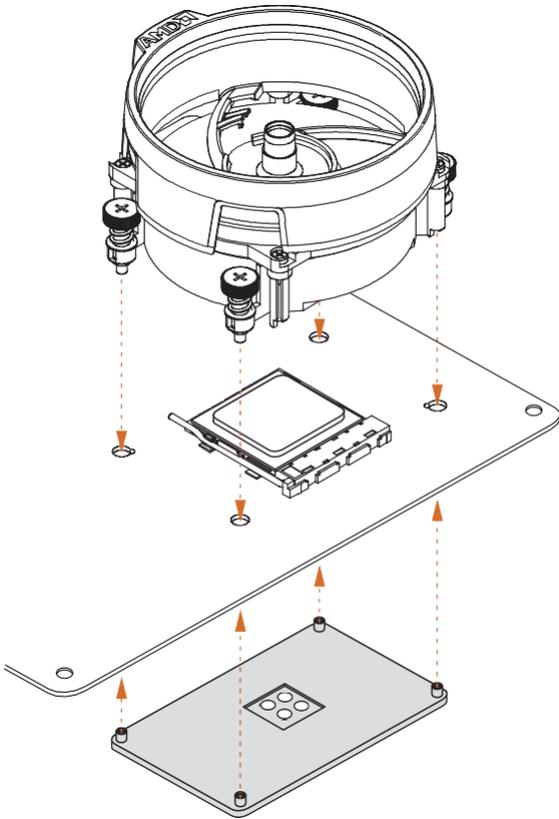
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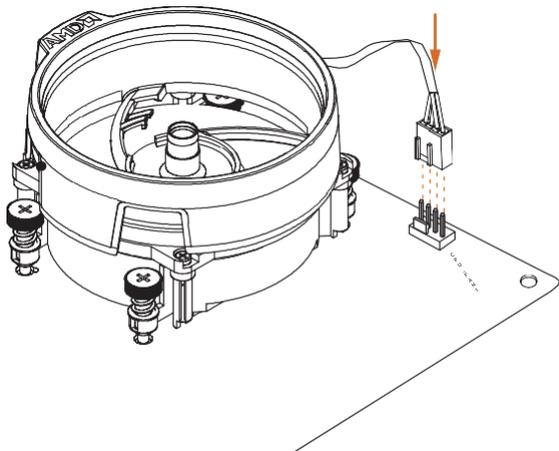
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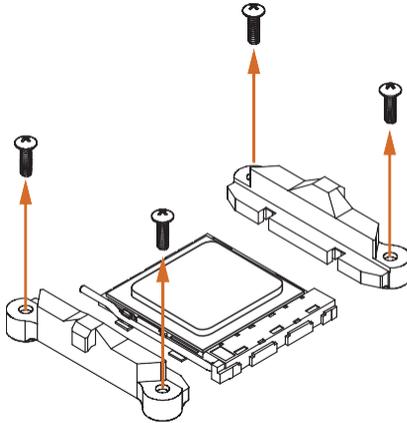


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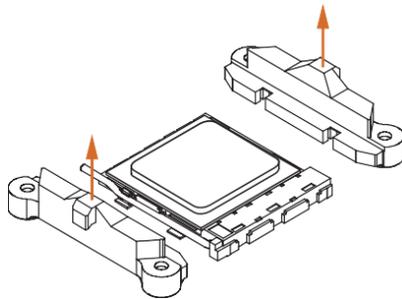


Installing the AM4 Box Cooler SR2

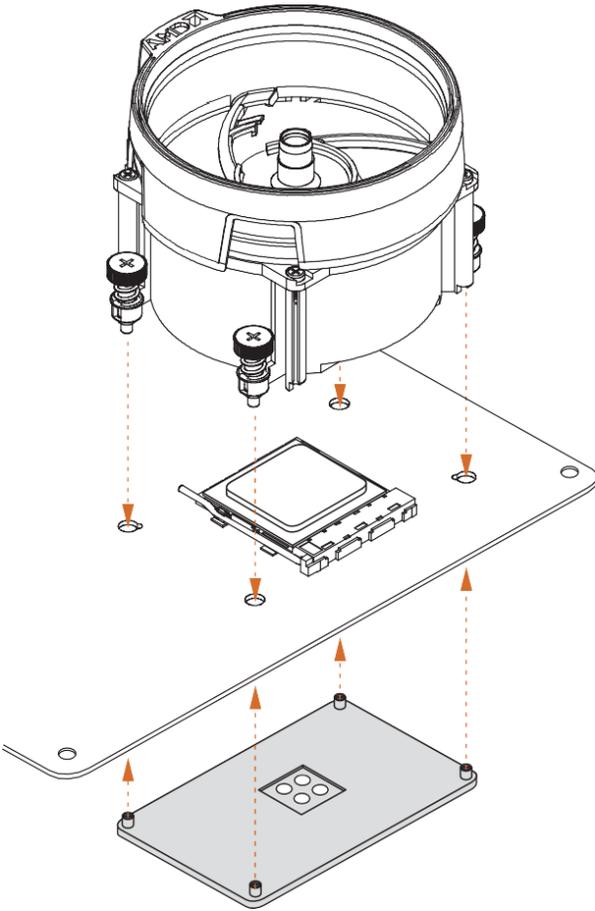
1



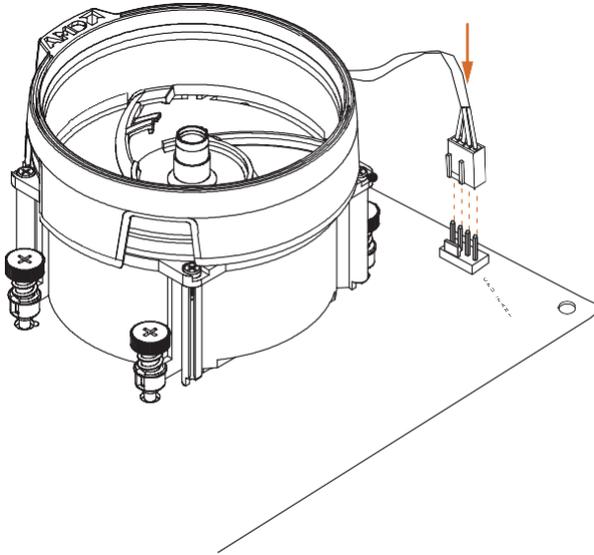
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3



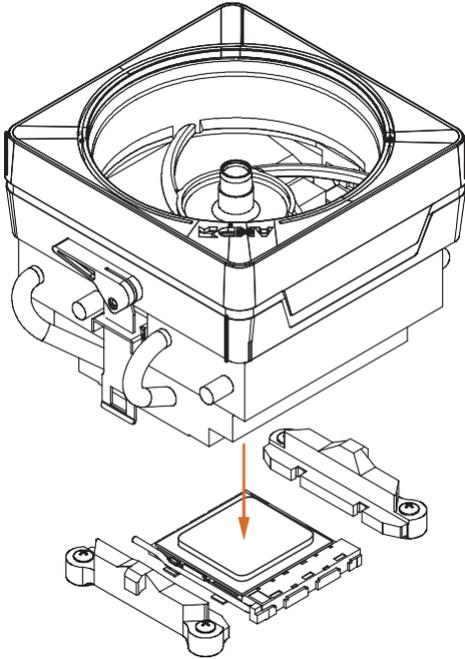
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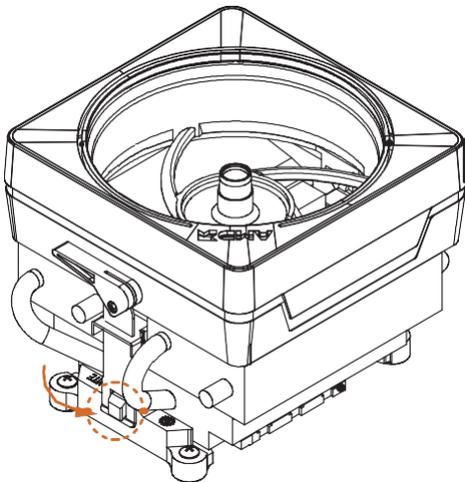
*The diagrams shown here are for reference only. The headers might be in a different position on your motherboard.

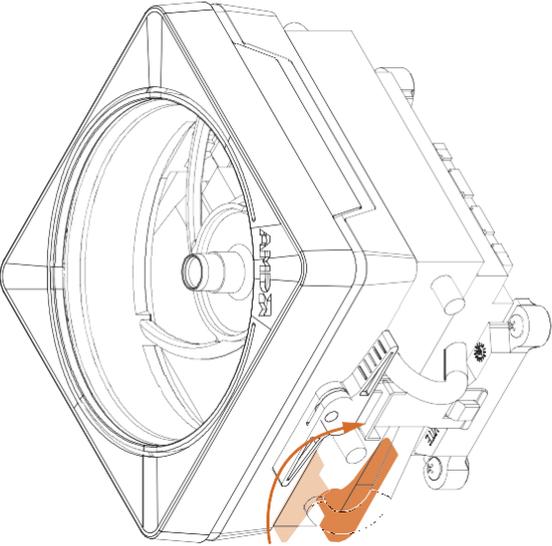
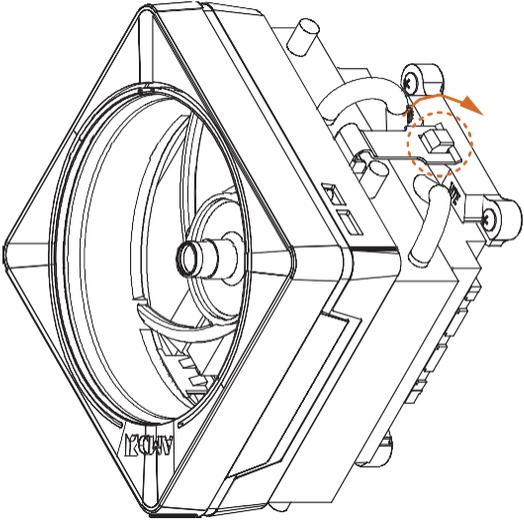
Installing the AM4 Box Cooler SR3

1

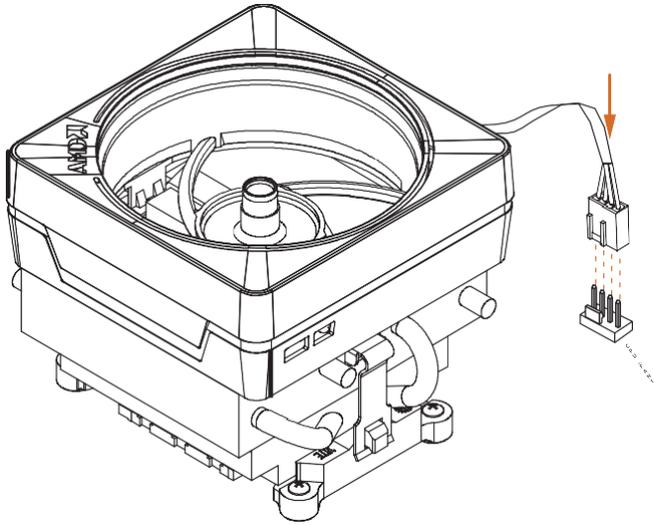


2

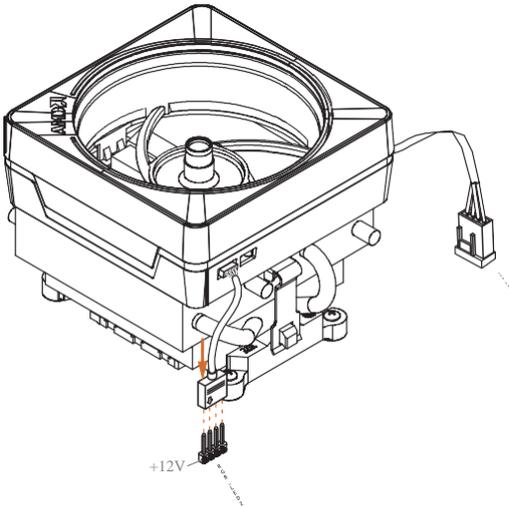




5



6



*The diagrams shown here are for reference only. The headers might be in a different position on your motherboard.

23 Installing Memory Modules (DIMM)

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



1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
2. It is unable to activate Dual Channel Memory Technology with only one or three memory module installed.
3. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.
4. We suggest that you install the memory modules on DDR4_A2 and DDR4_B2 first for better DRAM compatibility on 2 DIMMs configuration.

AMD non-XMP Memory Frequency Support

Ryzen Series CPUs (Matisse):

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

Ryzen Series APUs (Renoir):

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

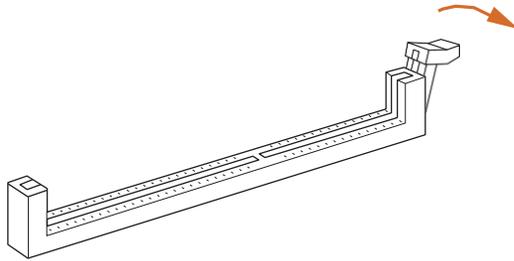
DIMM, 1Rx4 or 1Rx8 on DIMM module label DR: Dual rank

DIMM, 2Rx4 or 2Rx8 on DIMM module label

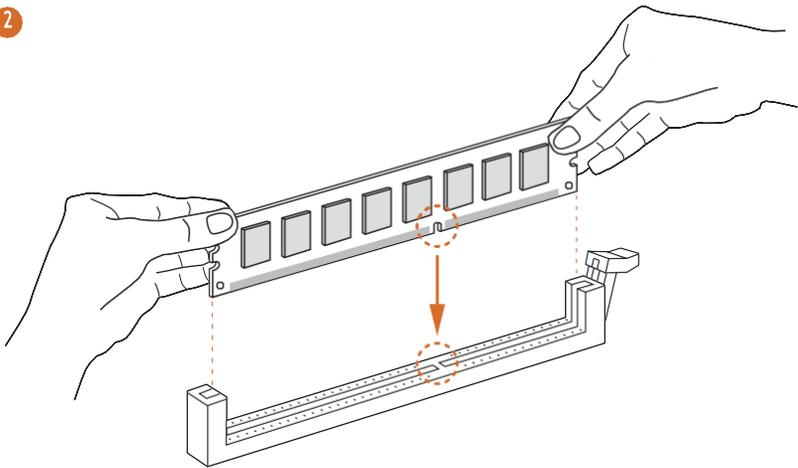


The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

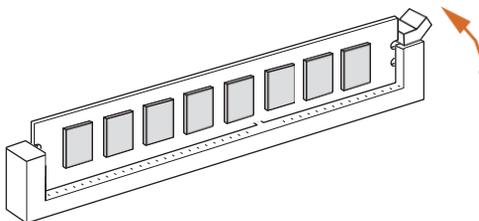
1



2



3



24 Expansion Slots (PCI Express Slots)

There are 3 PCI Express slots on the motherboard.



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

PCIe slots:

PCIe1 (PCIe 4.0 x16 slot) is used for PCI Express x16 lane width graphics cards.

PCIe2 (PCIe 3.0 x1 slot) is used for PCI Express x1 lane width cards.

PCIe3 (PCIe 3.0 x16 slot) is used for PCI Express x4 lane width graphics cards.

PCIe Slot Configurations

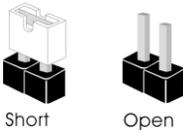
	PCIe1	PCIe2	PCIe3
Ryzen Series CPUs (Matisse)	Gen4x16	Gen3x1	Gen3x4
Ryzen Series CPUs (Renoir)	Gen3x16	Gen3x1	Gen3x4



For a better thermal environment, please connect a chassis fan to the motherboard's chassis fan connector (CHA_FAN1/WP, CHA_FAN2/WP or CHA_FAN3/WP) when using multiple graphics cards.

25 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 Jumper
(CLRCMOS1)
(see p.7, No. 20)

2-pin Jumper  Short: Clear CMOS
Open: Default

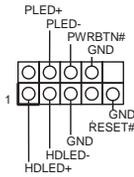
CLRCMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRCMOS1 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.

26 Onboard Headers and Connectors



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

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

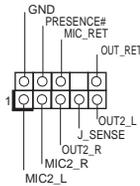
HDLED (Hard Drive Activity LED):

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.

IntA_P_SSRX-
IntA_P_SSRX+
GND
IntA_P_SSTX-
IntA_P_SSTX+
GND
IntA_P_D-
ID IntA_P_D+

Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.7, No. 23)



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



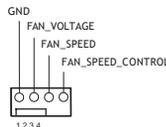
1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.
2. If you use an AC'97 audio panel, please install it to the front panel audio header by the 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 Water Pump Fan Connectors
(4-pin CHA_FAN1/WP)
(see p.7, No. 24)

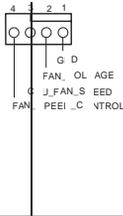


This motherboard provides three 4-Pin water cooling chassis fan connectors. If you plan to connect a 3-Pin chassis water cooler fan, please connect it to Pin 1-3.

(4-pin CHA_FAN2/WP)
(see p.7, No. 19)
(4-pin CHA_FAN3/WP)
(see p.7, No. 15)

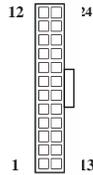


CPU Fan Connector
(4-pin CPU_FAN1)
(see p.7, No. 2)



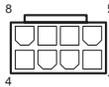
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

ATX Power Connector
(24-pin ATXPWR1)
(see p.7, No. 7)



This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

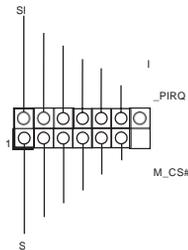
ATX 12V Power Connector
(8-pin ATX12V1)
(see p.7, No. 1)



This motherboard provides an 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.

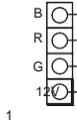
***Warning: Please make sure that the power cable connected is for the CPU and not the graphics card. Do not plug the PCIe power cable to this connector.**

SPI TPM Header
(13-pin SPI_TPM_J1)
(see p.7, No. 16)



This connector supports SPI Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

RGB LED Headers
(4-pin RGB_LED1)
(see p.7, No. 5)



These two RGB headers are used to connect RGB LED extension cable which allows users to choose from various LED lighting effects.

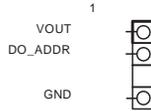
Caution: Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.

*Please refer to page 51 for further instructions on these two headers.

(4-pin RGB_LED2)
(see p.7, No. 22)



Addressable LED Headers
(3-pin ADDR_LED1)
(see p.7, No. 6)

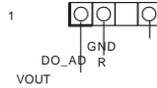


These two Addressable headers are used to connect Addressable LED extension cable which allows users to choose from various LED lighting effects.

Caution: Never install the Addressable LED cable in the wrong orientation; otherwise, the cable may be damaged.

*Please refer to page 52 for further instructions on this header.

(3-pin ADDR_LED2)
(see p.7, No. 21)



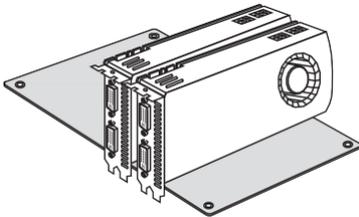
27 CrossFireX™ and Quad CrossFireX™ Operation Guide

This motherboard supports CrossFireX™ and Quad CrossFireX™ that allows you to install up to two identical PCI Express x16 graphics cards.



1. You should only use identical CrossFireX™-ready graphics cards that are AMD certified.
2. Make sure that your graphics card driver supports AMD CrossFireX™ technology. Download the drivers from the AMD's website: www.amd.com
3. Make sure that your power supply unit (PSU) can provide at least the minimum power your system requires. It is recommended to use a AMD certified PSU. Please refer to the AMD's website for details.
4. If you pair a 12-pipe CrossFireX™ Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFireX™ mode.
5. Different CrossFireX™ cards may require different methods to enable CrossFireX™. Please refer to AMD graphics card manuals for detailed installation guide.

27.1 Installing Two CrossFireX™-Ready Graphics Cards



Step 1

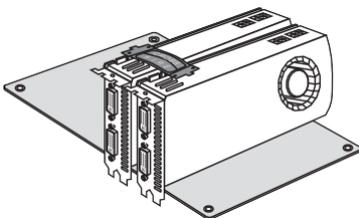
Insert one graphics card into PCIe1 slot and the other graphics card to PCIe3 slot. Make sure that the cards are properly seated on the slots.

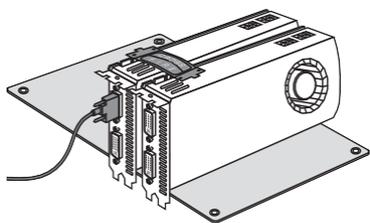


CrossFire Bridge

Step 2

Connect two graphics cards by installing a CrossFire Bridge on the CrossFire Bridge Interconnects on the top of the graphics cards. (The CrossFire Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.)





Step 3

Connect a VGA/DVI/DP/HDMI cable from the monitor to the corresponding port on the graphics card installed to the PCIe1 slot.

272 Driver Installation and Setup

Step 1

Power on your computer and boot into OS.

Step 2

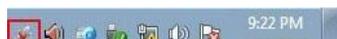
Remove the AMD drivers if you have any VGA drivers installed in your system.



The Catalyst Uninstaller is an optional download. We recommend using this utility to uninstall any previously installed Catalyst drivers prior to installation. Please check AMD's website for AMD driver updates.

Step 3

Install the required drivers and CATALYST Control Center then restart your computer. Please check AMD's website for details.



AMD Catalyst Control Center

Step 4

Double-click the **AMD Catalyst Control Center** icon in the Windows[®] system tray.



Step 5

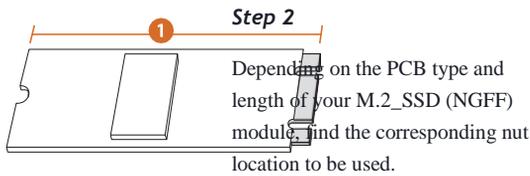
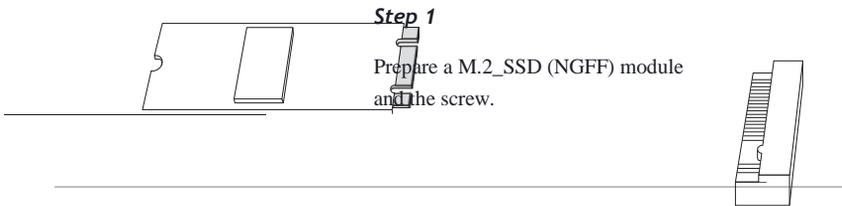
In the left pane, click **Performance** and then **AMD CrossFireX™**. Then select **Enable AMD CrossFireX** and click **Apply**. Select the GPU number according to your graphics card and click **Apply**.

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

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA.

The Hyper M.2 Socket (M2_1) supports M Key type 2280 M.2 PCI Express module up to Gen4x4 (64 Gb/s) (with Matisse) or Gen3x4 (32 Gb/s) (with Renoir).

Installing the M.2_SSD (NGFF) Module

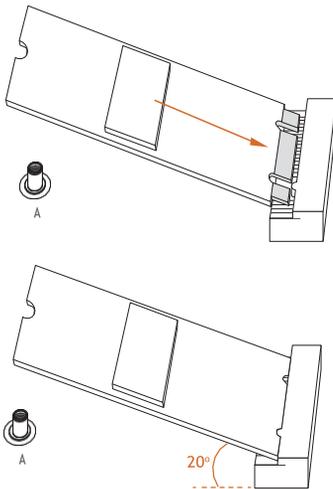


No.	1
Nut Location	A
PCB Length	8cm
Module Type	Type2280

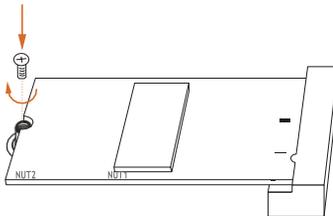


Step 3

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 4**

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 (M2_1)

Vendor	Interface	P/N
ADATA	PCIe3 x4	ASX7000NP-128GT-C
ADATA	PCIe3 x4	ASX8000NP-256GM-C
ADATA	PCIe3 x4	ASX7000NP-256GT-C
ADATA	PCIe3 x4	ASX8000NP-512GM-C
ADATA	PCIe3 x4	ASX7000NP-512GT-C
Apacer	PCIe3 x4	AP240GZ280
Corsair	PCIe3 x4	CSSD-F240GBMP500
Intel	PCIe3 x4	SSDPEKKF256G7
Intel	PCIe3 x4	SSDPEKKF512G7
Kingston	PCIe3 x4	SKC1000/480G
Kingston	PCIe2 x4	SH2280S3/480G
OCZ	PCIe3 x4	RVD400 -M2280-512G (NVME)
PATRIOT	PCIe3 x4	PH240GPM280SSDR NVME
Plextor	PCIe3 x4	PX-128M8PeG
Plextor	PCIe3 x4	PX-1TM8PeG
Plextor	PCIe3 x4	PX-256M8PeG
Plextor	PCIe3 x4	PX-512M8PeG
Plextor	PCIe	PX-G256M6e
Plextor	PCIe	PX-G512M6e
Samsung	PCIe3 x4	SM961 MZVPW128HEGM (NVM)
Samsung	PCIe3 x4	PM961 MZVLW128HEGR (NVME)
Samsung	PCIe3 x4	960 EVO (MZ-V6E250) (NVME)
Samsung	PCIe3 x4	960 EVO (MZ-V6E250BW) (NVME)
Samsung	PCIe3 x4	SM951 (NVME)
Samsung	PCIe3 x4	SM951 (MZHPV256HDGL)
Samsung	PCIe3 x4	SM951 (MZHPV512HDGL)
Samsung	PCIe3 x4	SM951 (NVME)
Samsung	PCIe x4	XP941-512G (MZHPU512HCGL)
SanDisk	PCIe	SD6PP4M-128G
SanDisk	PCIe	SD6PP4M-256G
TEAM	PCIe3 x4	TM8FP2240G0C101
TEAM	PCIe3 x4	TM8FP2480GC110
WD	PCIe3 x4	WDS256G1X0C-00ENX0 (NVME)
WD	PCIe3 x4	WDS512G1X0C-00ENX0 (NVME)

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

<http://www.Altos.com>

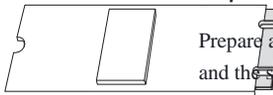
29 M.2_SSD (NGFF) Module Installation Guide (M2_2)

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (M2_2) supports M Key type 2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x2 (16 Gb/s).

Installing the M.2_SSD (NGFF) Module

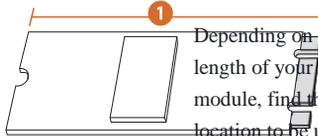
Step 1

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



Step 2

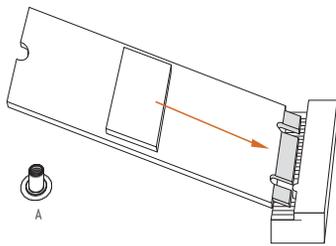
Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.



No.	1
Nut Location	A
PCB Length	8cm
Module Type	Type2280

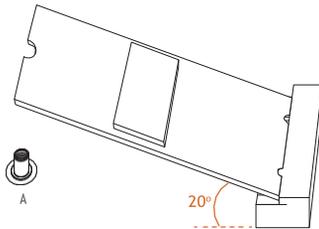


A



Step 3

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 4

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

