ASRock

AB350M-HDV
A320M-HDV
A320M-DGS

User Manual

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Chapter 1 Introduction

Thank you for purchasing ASRock AB350M-HDV/A320M-HDV/A320M-DGS 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 AB350M-HDV/A320M-HDV/A320M-DGS Motherboard (Micro ATX Form Factor)
- ASRock AB350M-HDV/A320M-HDV/A320M-DGS Quick Installation Guide
- ASRock AB350M-HDV/A320M-HDV/A320M-DGS Support CD
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x I/O Panel Shield

1.2 Specifications

Platform
- Micro ATX Form Factor
- Solid Capacitor design

CPU
- Supports AMD Socket AM4 A-Series APUs (Bristol Ridge) and Ryzen Series CPUs (Summit Ridge)
- Digi Power design
- 7 Power Phase design
- Supports CPU up to 65W

Chipset
- AMD Promontory B350 (AB350M-HDV)
- AMD Promontory A320 (A320M-HDV/A320M-DGS)

Memory
- Dual Channel DDR4 Memory Technology
- 2 x DDR4 DIMM Slots
- AMD Ryzen series CPUs support DDR4 3200+(OC)/2933 (OC)/2667/2400/2133 ECC & non-ECC, un-buffered memory*
- AMD 7th Gen A-Series APUs support DDR4 2400/2133 ECC & non-ECC, un-buffered memory*

* Please refer to Memory Support List on ASRock's website for more information. (http://www.asrock.com/)
* Please refer to page 23 for DDR4 UDIMM maximum frequency support.
- Max. capacity of system memory: 32GB
- 15μ Gold Contact in DIMM Slots

Expansion Slot
- 1 x PCI Express 3.0 x16 Slot (PCIE2 @ x16 mode)*

* Supports NVMe SSD as boot disks
* AMD Ryzen series CPUs support PCIE2: x16 mode
* AMD 7th A-Series APUs support PCIE2: x8 mode
- 1 x PCI Express 2.0 x1 Slot

Graphics
- Integrated AMD Radeon™ R7 Series Graphics in A-series / E-series APU
- DirectX 12, Pixel Shader 5.0
- Max. shared memory 2GB

AB350M-HDV/A320M-HDV:
- Three graphics output options: D-Sub, DVI-D and HDMI

	• Supports Triple Monitor • Supports HDMI with max. resolution up to 4K x 2K (4096x2160) @ 24Hz / (3840x2160) @ 30Hz • Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz • Supports D-Sub with max. resolution up to 2048x1536 @ 60Hz • Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI Port (Compliant HDMI monitor is required) • Supports HDCP with DVI-D and HDMI Ports • Supports Full HD 1080p Blu-ray (BD) playback with DVI-D and HDMI Ports **A320M-DGS:** • Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz • Supports HDCP with DVI-D Port • Supports Full HD 1080p Blu-ray (BD) playback with DVI-D Port
Audio	• 7.1 CH HD Audio (Realtek ALC887 Audio Codec) * To configure 7.1 CH HD Audio, it is required to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver. • Supports Surge Protection • ELNA Audio Caps
LAN	• PCIE x1 Gigabit LAN 10/100/1000 Mb/s • Realtek RTL8111GR • Supports Wake-On-LAN • Supports Lightning/ESD Protection • Supports LAN Cable Detection • Supports Energy Efficient Ethernet 802.3az • Supports PXE
Rear Panel I/O	• 1 x PS/2 Mouse/Keyboard Port • 2 x USB 2.0 Ports (Supports ESD Protection) • 4 x USB 3.0 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 **AB350M-HDV/A320M-HDV:** • 1 x D-Sub Port • 1 x DVI-D Port 1 x HDMI Port **A320M-DGS:** • 1 x DVI-D Port
Storage	• 4 x SATA3 6.0 Gb/s Connectors, support RAID (RAID 0, RAID 1 and RAID 10), NCQ, AHCI and Hot Plug • 1 x Ultra M.2 Socket, supports type 2242/2260/2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Ryzen Series CPU) or Gen3 x2 (16 Gb/s) (with A-Series APU)* * Supports NVMe SSD as boot disks * Supports ASRock U.2 Kit
Connector	• 1 x Print Port Header • 1 x COM Port Header • 1 x TPM Header • 1 x Chassis Intrusion and Speaker Header • 1 x CPU Fan Connector (4-pin) • 2 x Chassis Fan Connectors (1 x 4-pin, 1 x 3-pin) * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 1 x 24 pin ATX Power Connector • 1 x 4 pin 12V Power Connector • 1 x Front Panel Audio Connector • 2 x USB 2.0 Headers (Support 4 USB 2.0 ports) (Supports ESD Protection) • 1 x USB 3.0 Header (Supports 2 USB 3.0 ports) (Supports ESD Protection)
BIOS Feature	• AMI UEFI Legal BIOS with GUI support • Supports “Plug and Play” • ACPI 5.1 compliance wake up events • Supports jumperfree • SMBIOS 2.3 support • DRAM Voltage multi-adjustment

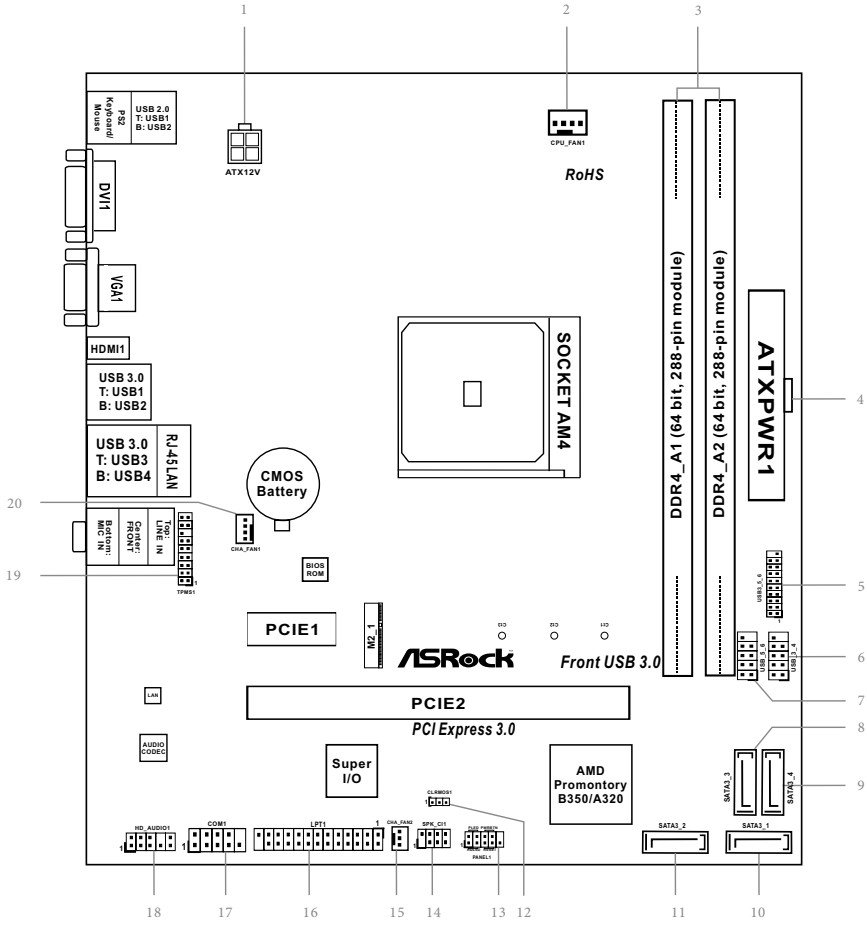
Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan • CPU/Chassis Fan multi-speed control • CASE OPEN detection • Voltage monitoring: +12V, +5V, +3.3V, Vcore
OS	• Microsoft® Windows® 10 64-bit * For the updated Windows® 10 driver, please visit ASRock's website for details: http://www.asrock.com
Certifications	• FCC, CE, WHQL • ErP/EuP ready (ErP/EuP ready power supply is required)

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

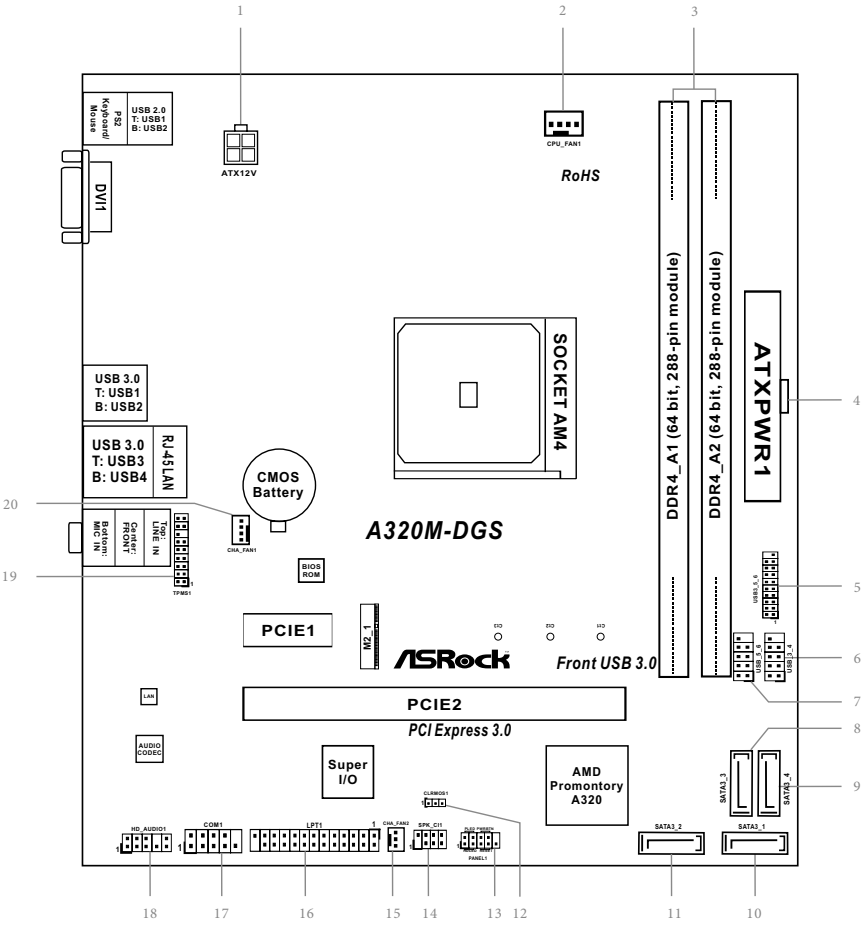
Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of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

AB350M-HDV / A320M-HDV:



A320M-DGS:

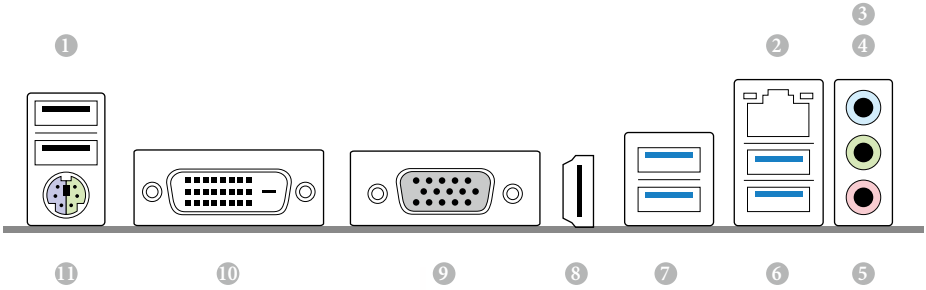


English

No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_A2)
4	ATX Power Connector (ATXPWR1)
5	USB 3.0 Header (USB3_5_6)
6	USB 2.0 Header (USB_3_4)
7	USB 2.0 Header (USB_5_6)
8	SATA3 Connector (SATA3_3)
9	SATA3 Connector (SATA3_4)
10	SATA3 Connector (SATA3_1)
11	SATA3 Connector (SATA3_2)
12	Clear CMOS Jumper (CLRCMOS1)
13	System Panel Header (PANEL1)
14	Chassis Intrusion and Speaker Header (SPK_CI1)
15	Chassis Fan Connector (CHA_FAN2)
16	Print Port Header (LPT1)
17	COM Port Header (COM1)
18	Front Panel Audio Header (HD_AUDIO1)
19	TPM Header (TPMS1)
20	Chassis Fan Connector (CHA_FAN1)

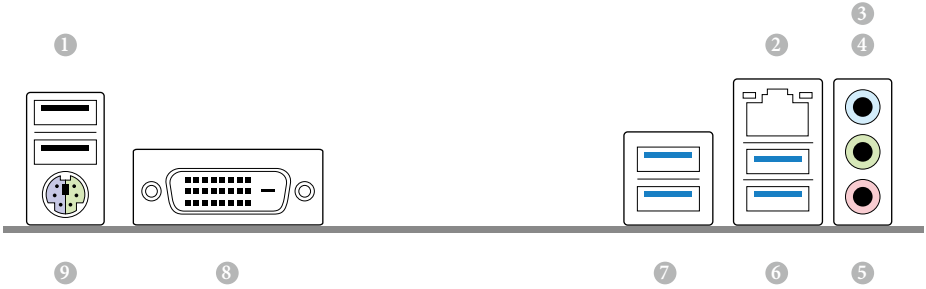
1.4 I/O Panel

AB350M-HDV/A320M-HDV:



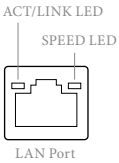
No.	Description	No.	Description
1	USB 2.0 Ports (USB12)	7	USB 3.0 Ports (USB3_12)
2	LAN RJ-45 Port*	8	HDMI Port
3	Line In (Light Blue)**	9	D-Sub Port
4	Front Speaker (Lime)**	10	DVI-D Port (DVI_CON1)
5	Microphone (Pink)**	11	PS/2 Mouse/Keyboard Port
6	USB 3.0 Ports (USB3_34)		

A320M-DGS:



No.	Description	No.	Description
1	USB 2.0 Ports (USB12)	6	USB 3.0 Ports (USB3_34)
2	LAN RJ-45 Port*	7	USB 3.0 Ports (USB3_12)
3	Line In (Light Blue)**	8	DVI-D Port (DVI_CON1)
4	Front Speaker (Lime)**	9	PS/2 Mouse/Keyboard Port
5	Microphone (Pink)**		

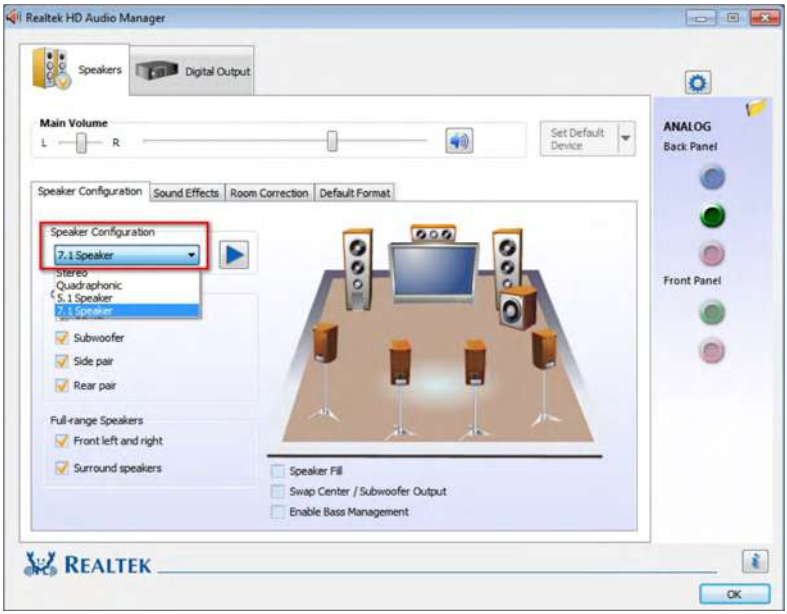
** There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.*



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

*** To configure 7.1 CH HD Audio, it is required to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.*

Please set Speaker Configuration to "7.1 Speaker" in the Realtek HD Audio Manager.



Function of the Audio Ports in 7.1-channel Configuration:

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

Chapter 2 Installation

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

Pre-installation Precautions

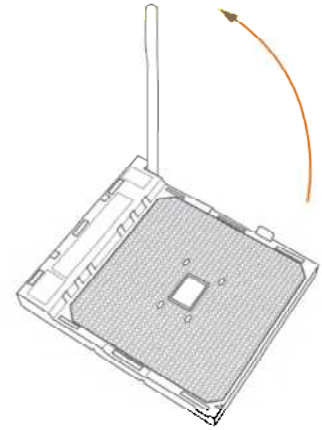
Take note of the following precautions before you install motherboard components or change any motherboard settings.

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

2.1 Installing the CPU

Unplug all power cables before installing the CPU.

1



2



3



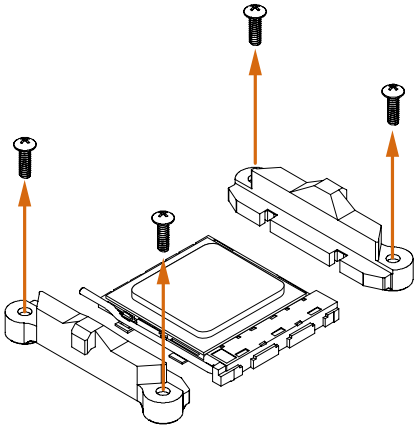
2.2 Installing the CPU Fan and Heatsink

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

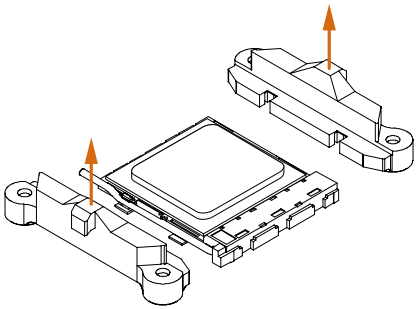
Please turn off the power or remove the power cord before changing a CPU or heatsink.

Installing the CPU Box Cooler SR1

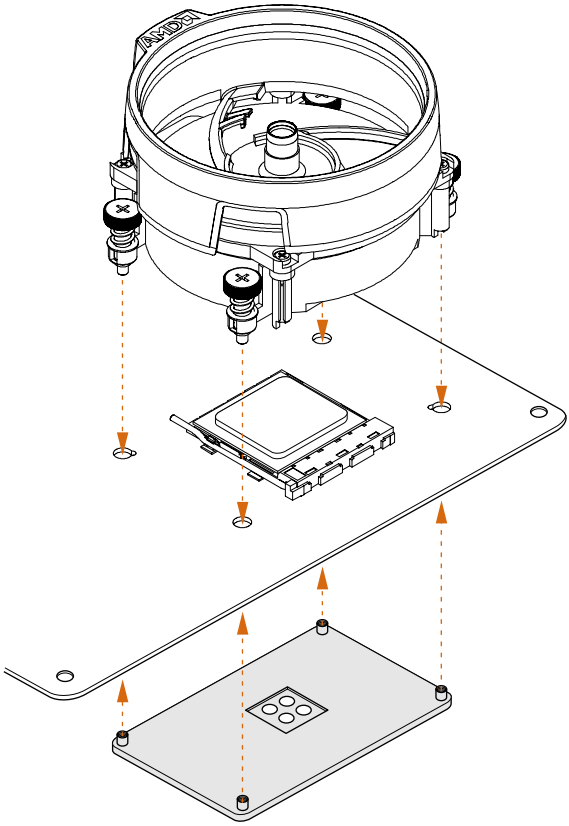
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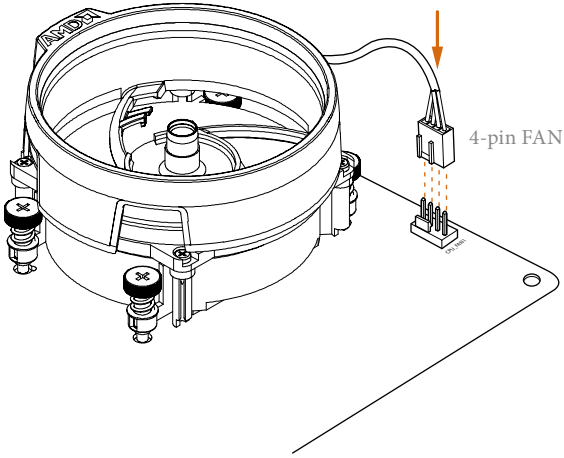
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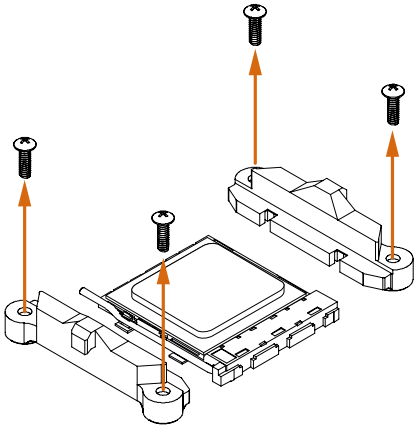


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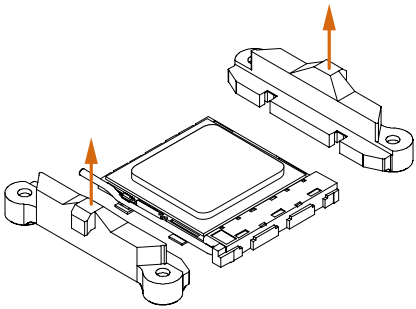


Installing the AM4 Box Cooler SR2

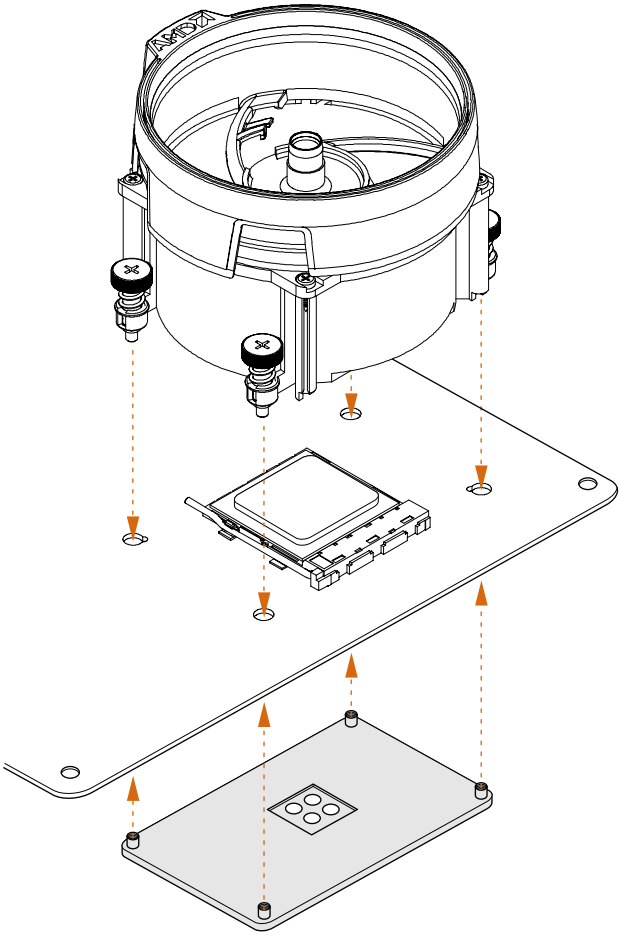
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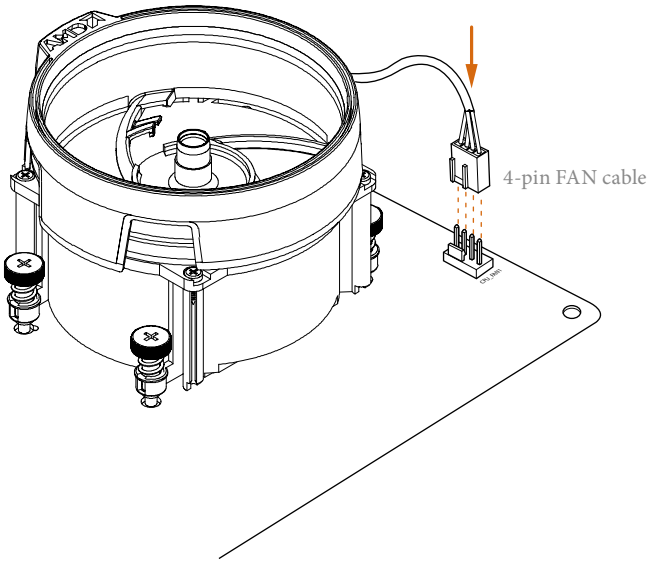
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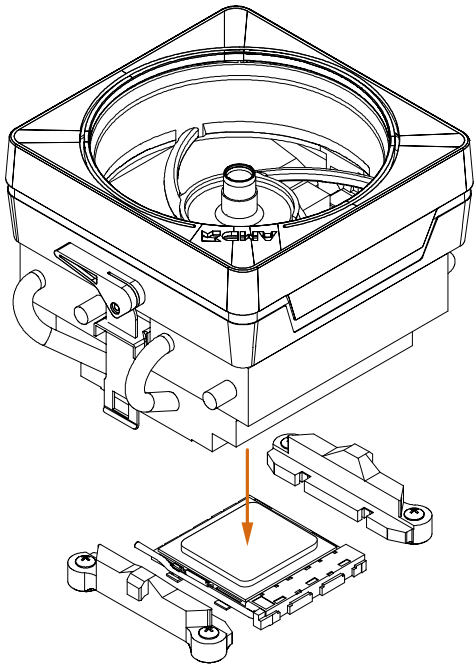


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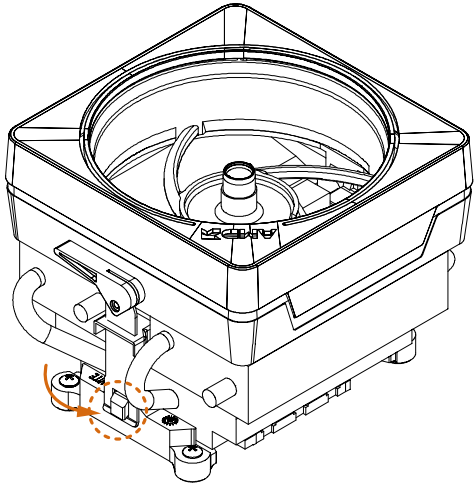


Installing the AM4 Box Cooler SR3

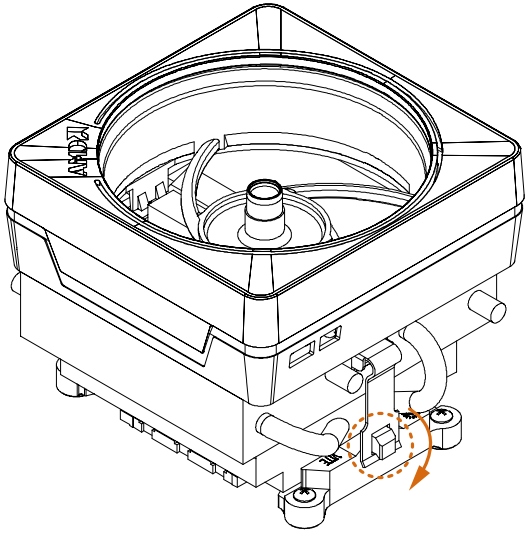
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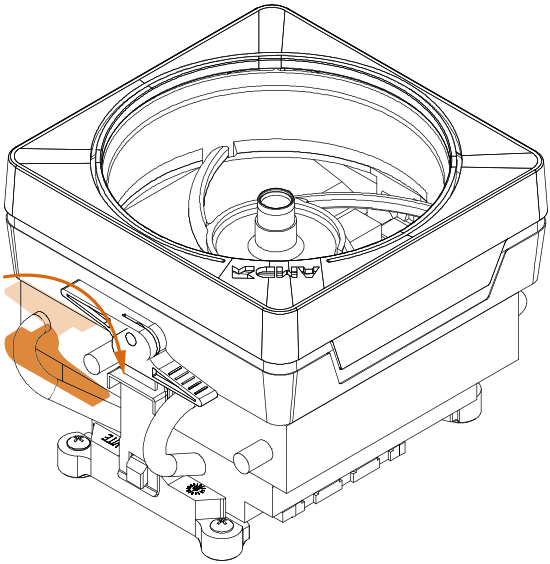
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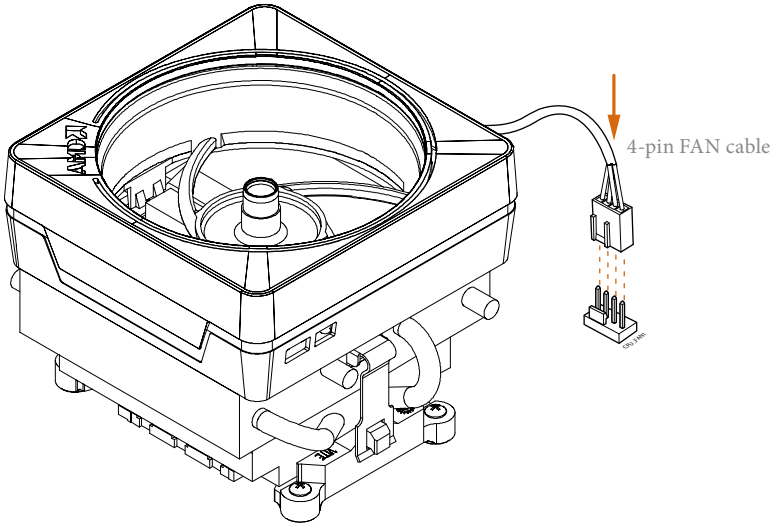
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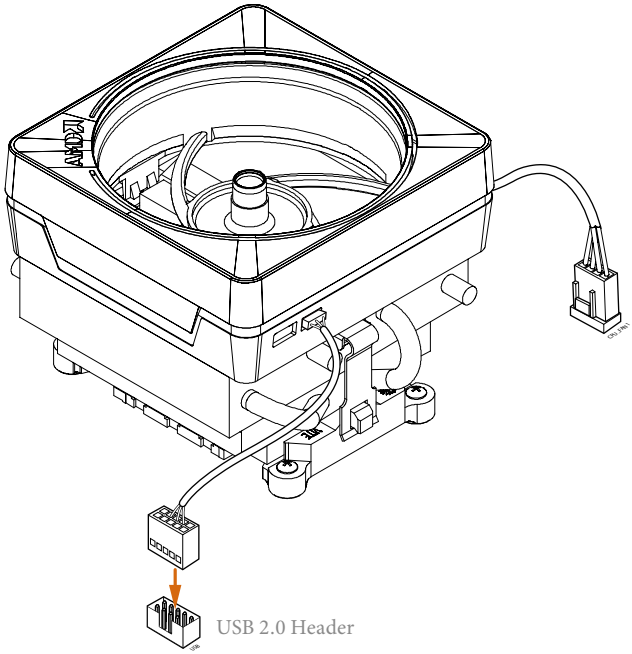
4



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 28 for the orientation of USB Header.

2.3 Installing Memory Modules (DIMM)

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

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

DDR4 UDIMM Maximum Frequency Support

A-Series APUs:

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
-	SR	2400
SR	-	2400
-	DR	2400
DR	-	2400
SR	SR	2400
DR	DR	2400

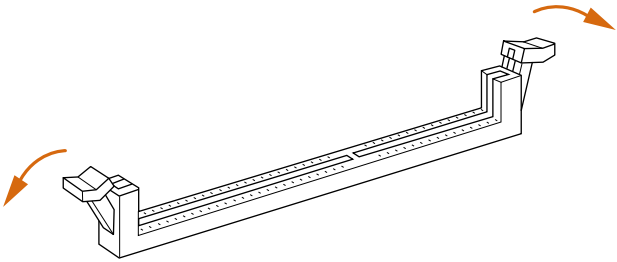
Ryzen CPUs:

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

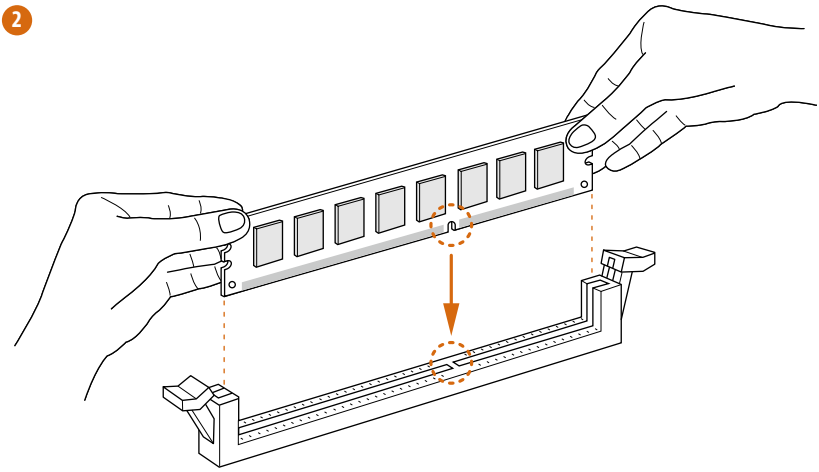
SR: Single rank DIMM, 1Rx4 or 1Rx8 on DIMM module label
DR: Dual rank DIMM, 2Rx4 or 2Rx8 on DIMM module label

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

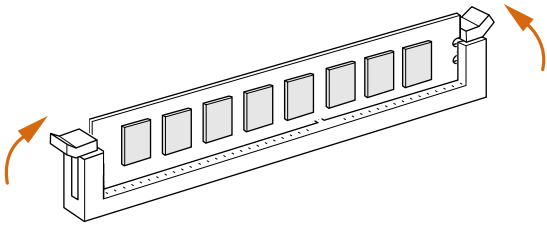
1



2



3



2.4 Expansion Slots (PCI Express Slots)

There are 2 PCI Express slots on the motherboard.

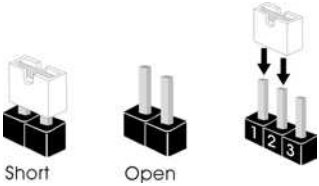
Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

PCIe slots:

PCIE1 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards
PCIE2 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards.
* PCIE2 will downgrade to x8 mode when A-Series APU is installed.

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 (CLRCMOS1) (see p.6, 7, No. 12)	1_2 Default	2_3 Clear CMOS

CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 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.

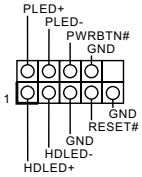
If you clear the CMOS, the case open may be detected. Please adjust the BIOS option "Clear Status" to clear the record of previous chassis intrusion status.

English

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, 7, 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.

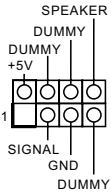
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

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.

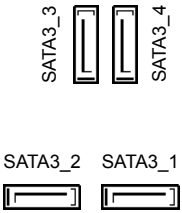
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Chassis Intrusion and Speaker Header
(7-pin SPK_CI1)
(see p.6, 7, No. 14)



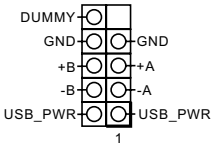
Please connect the chassis intrusion and the chassis speaker to this header.

Serial ATA3 Connectors
(SATA3_1:
see p.6, 7, No. 10)
(SATA3_2:
see p.6, 7, No. 11)
(SATA3_3:
see p.6, 7, No. 8)
(SATA3_4:
see p.6, 7, No. 9)



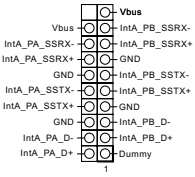
These four SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

USB 2.0 Header
(9-pin USB_3_4)
(see p.6, 7, No. 6)
(9-pin USB_5_6)
(see p.6, 7, No. 7)



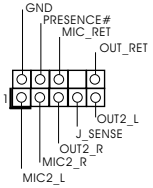
Besides two USB 2.0 ports on the I/O panel, there are two headers on this motherboard. Each USB 2.0 header can support two ports.

USB 3.0 Header
(19-pin USB3_5_6)
(see p.6, 7, No. 5)



Besides four USB 3.0 ports on the I/O panel, there is one header on this motherboard. Each USB 3.0 header can support two ports.

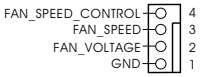
Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.6, 7, No. 18)



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

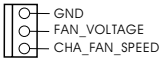
1. *High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.*
2. *If you use an AC'97 audio panel, please install it to the front panel audio header by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

Chassis Fan Connector
(4-pin CHA_FAN1)
(see p.6, 7, No. 20)

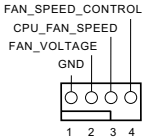


Please connect fan cables to the fan connectors and match the black wire to the ground pin.

(3-pin CHA_FAN2)
(see p.6, 7, No. 15)

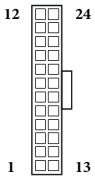


CPU Fan Connector
(4-pin CPU_FAN1)
(see p.6, 7, No. 2)



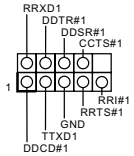
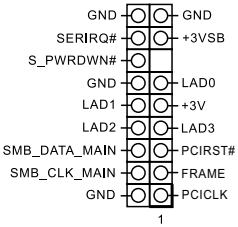
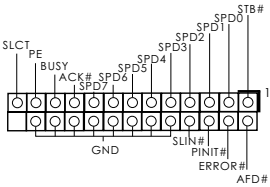
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

ATX Power Connector
(24-pin ATXPWR1)
(see p.6, 7, No. 4)



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

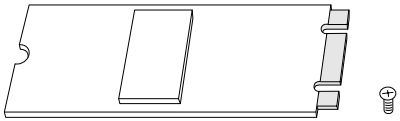
English

ATX 12V Power Connector (4-pin ATX12V1) (see p.6, 7, No. 1)		Please connect an ATX 12V power supply to this connector.
Serial Port Header (9-pin COM1) (see p.6, 7, No. 17)		This COM1 header supports a serial port module.
TPM Header (17-pin TPMS1) (see p.6, 7, No. 19)		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.
Print Port Header (25-pin LPT1) (see p.6, 7, No. 16)		This is an interface for print port cable that allows convenient connection of printer devices.

2.7 M.2_SSD (NGFF) Module Installation Guide

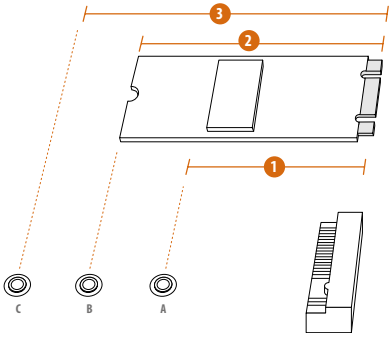
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Ultra M.2 Socket (M2_1) supports SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Ryzen CPU) or Gen3 x2 (16 Gb/s) (with A-Series APU)

Installing the M.2_SSD (NGFF) Module



Step 1

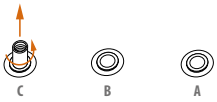
Prepare a M.2_SSD (NGFF) module and the screw.

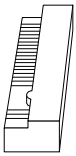


Step 2

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

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

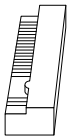




Step 3

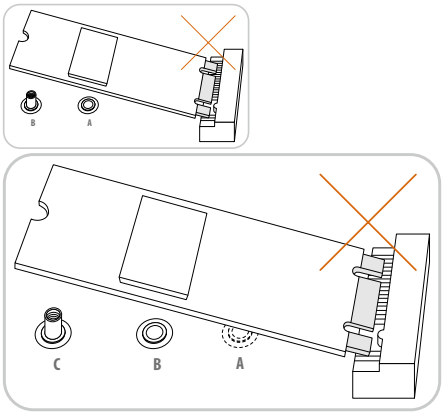
Move the standoff based on the module type and length.
The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.





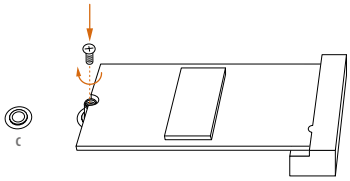
Step 4

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



Step 5

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



Step 6

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

M.2_SSD (NGFF) Module Support List

Vendor	Interface	P/N
SanDisk	PCIe	SanDisk-SD6PP4M-128G(Gen2 x2)
Intel	PCIe	INTEL 6000P-SSDPEKKF256G7 (nvme)
Intel	PCIe	INTEL 6000P-SSDPEKKF512G7 (nvme)
Kingston	PCIe	Kingston SHPM2280P2 / 240G (Gen2 x4)
Samsung	PCIe	Samsung XP941-MZHPU512HCGL(Gen2x4)
ADATA	SATA	ADATA - AXNS381E-128GM-B
Crucial	SATA	Crucial-CT240M500SSD4-240GB
ezlink	SATA	ezlink P51B-80-120GB
Intel	SATA	INTEL 540S-SSDSCKKW240H6-240GB
Kingston	SATA	Kingston SM2280S3G2/120G - Win8.1
Kingston	SATA	Kingston-RBU-SNS8400S3 / 180GD
LITEON	SATA	LITEON LJH-256V2G-256GB (2260)
PLEXTOR	SATA	PLEXTOR PX-128M6G-2260-128GB
PLEXTOR	SATA	PLEXTOR PX-128M7VG-128GB
SanDisk	SATA	SanDisk X400-SD8SN8U-128G
SanDisk	SATA	Sandisk Z400s-SD8SNAT-128G-1122
SanDisk	SATA	SanDisk-SD6SN1M-128G
Transcend	SATA	Transcend TS256GMTS800-256GB
V-Color	SATA	V-Color 120G
V-Color	SATA	V-Color 240G
WD	SATA	WD GREEN WDS240G1G0B-00RC30

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

Chapter 3 Software and Utilities Operation

3.1 Installing Drivers

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

Running The Support CD

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

Drivers Menu

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

Utilities Menu

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

To improve Windows 7 compatibility, please download and install the following hot fix provided by Microsoft.
"KB2720599": http://support.microsoft.com/kb/2720599/en-us

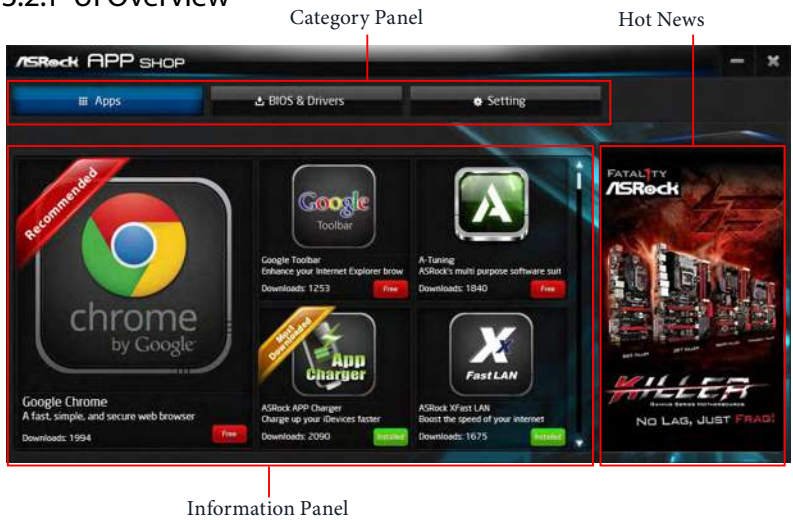
3.2 ASRock Live Update & APP Shop

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

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

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

3.2.1 UI Overview



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

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

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

3.2.2 Apps

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

Installing an App

Step 1

Find the app you want to install.



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

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

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

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

Step 2

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

Step 3

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



Step 4

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



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

Upgrading an App

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

appears below the installed app icon.



Step 1

Click on the app icon to see more details.

Step 2

Click on the yellow icon 

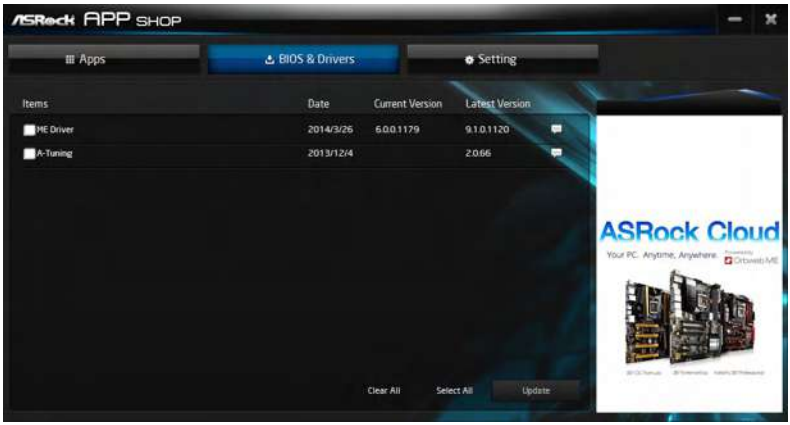
to start upgrading.

English

3.2.3 BIOS & Drivers

Installing BIOS or Drivers

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



Step 1

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

Step 2

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

Step 3

Click Update to start the update process.

3.2.4 Setting

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



Chapter 4 UEFI SETUP UTILITY

4.1 Introduction

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

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

4.1.1 UEFI Menu Bar

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

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

4.1.2 Navigation Keys

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

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

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

4.2 Main Screen

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



4.3 OC Tweaker Screen

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



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

Voltage Configuration

DRAM Voltage

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

1.8 Voltage

Use this to select +1.8 Voltage. The default value is [Auto].

VDDP

Configure the VDDP.

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, USB Configuration and Trusted Computing.



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

UEFI Configuration

Active Page on Entry

Select the default page when entering the UEFI setup utility.

Full HD UEFI

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

4.4.1 CPU Configuration



Cool 'n' Quiet

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

AMD fTPM Switch

Use this to enable or disable AMD CPU fTPM.

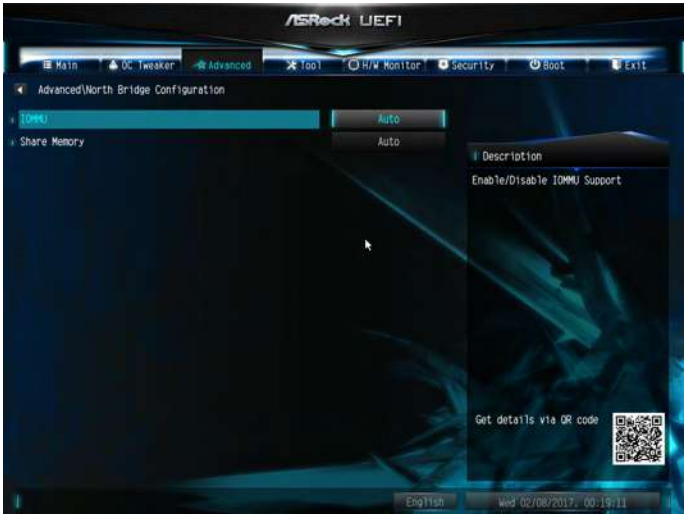
SVM Mode

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

C6 Mode

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

4.4.2 North Bridge Configuration



IOMMU

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

Share Memory

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

4.4.3 South Bridge Configuration



Onboard HD Audio

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

Front Panel

Enable/disable front panel HD audio.

Deep Sleep

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

Restore on AC/Power Loss

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

4.4.4 Storage Configuration



SATA Controller(s)

Enable/disable the SATA controllers.

SATA Mode

AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

4.4.5 Super IO Configuration



Serial Port

Enable or disable the Serial port.

Serial Port Address

Select the address of the Serial port.

Parallel Port

Enable or disable the Parallel port.

Change Settings

Select the address of the Parallel port.

Device Mode

Select the device mode according to your connected device.

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.

4.5 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.

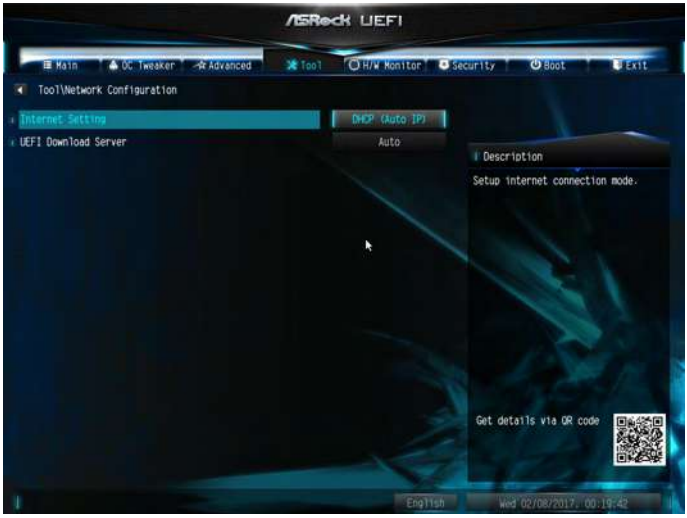
Internet Flash - DHCP (Auto IP), Auto

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

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

Network Configuration

Use this to configure internet connection settings for Internet Flash.



Internet Setting

Enable or disable sound effects in the setup utility.

UEFI Download Server

Select a server to download the UEFI firmware.

4.6 Hardware Health Event Monitoring Screen

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



CPU Fan 1 Setting

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

Chassis Fan 1 Setting

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

Chassis Fan 1 Temp Source

Select a fan temperature source for Chassis Fan 1.

Over Temperature Protection

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

Case Open Feature

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

4.7 Security Screen

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



Supervisor Password

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

User Password

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

Secure Boot

Enable to support Secure Boot.

4.8 Boot Screen

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



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.

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 http://www.asrock.com/support/tsd.asp

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