ASRock

AB350M-HDV R3.0
A320M-HDV R3.0
A320M-DVS R3.0

User Manual

FC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

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

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

AUSTRALIA ONLY

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

Contents

Chapter 1 Introduction

Thank you for purchasing ASRock AB350M-HDV R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0 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 R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0 Motherboard (Micro ATX Form Factor)
- ASRock AB350M-HDV R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0 Quick Installation Guide
- ASRock AB350M-HDV R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0 Support CD
- 1 x I/O Panel Shield
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x Screw for M.2 Socket (Optional) (for AB350M-HDV R3.0 / A320M-HDV R3.0 only)

English

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, Raven Ridge and Pinnacle Ridge) • 6 Power Phase design • Supports CPU up to 105W
Chipset	• AMD Promontory B350 (AB350M-HDV R3.0) • AMD Promontory A320 (A320M-HDV R3.0 / A320M-DVS R3.0)
Memory	• Dual Channel DDR4 Memory Technology • 2 x DDR4 DIMM Slots • 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 7th 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/) * Please refer to page 24 for DDR4 UDIMM maximum frequency support. • Max. capacity of system memory: 32GB • 15μ Gold Contact in DIMM Slots

Expansion Slot	**AMD Ryzen series CPUs (Summit Ridge and Pinnacle Ridge)** • 1 x PCI Express 3.0 x16 Slot (PCIE2: x16 mode)* **AMD 7th A-Series APUs** • 1 x PCI Express 3.0 x16 Slot (PCIE2: x8 mode)* **AMD Ryzen series CPUs (Raven Ridge)** • 1 x PCI Express 3.0 x16 Slot (PCIE2: x8 mode) (If you use Athlon 200GE APU, PCIE2 slot will run at x4 mode.)* * Supports NVMe SSD as boot disks • 1 x PCI Express 2.0 x1 Slot
Graphics	• Integrated AMD Radeon™ Vega Series Graphics in Ryzen Series APU* • Integrated AMD Radeon™ R-Series Graphics in A-series APU* * Actual support may vary by CPU • DirectX 12, Pixel Shader 5.0 • Shared memory default 2GB, Max Shared memory supports up to 16GB. * The Max shared memory 16 GB requires 32 GB system memory installed. **AB350M-HDV R3.0 / A320M-HDV R3.0:** • Three graphics output options: D-Sub, DVI-D and HDMI • Supports Triple Monitor * If you use Athlon 200GE APU, DVI-D port will be disabled. • 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-DVS R3.0:** • Dual graphics output options: support DVI-D and D-Sub by independent display controllers

	• Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz
	• Supports D-Sub with max. resolution up to 2048x1536 @ 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 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 3.1 Gen1 Ports (Supports ESD Protection)
	• 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)
	• HD Audio Jacks: Line in / Front Speaker / Microphone
	AB350M-HDV R3.0 / A320M-HDV R3.0:
	• 1 x D-Sub Port
	• 1 x DVI-D Port
	• 1 x HDMI Port
	A320M-DVS R3.0:
	• 1 x D-Sub Port
	• 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 M Key type 2242/2260/2280 M.2 SATA3 6.0 Gb/s module and M.2 PCI Express module up to Gen3 x4 (32 Gb/s) (with Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with A-Series APU)* (for AB350M-HDV R3.0 / A320M-HDV R3.0 only) * Supports NVMe SSD as boot disks * Supports ASRock U.2 Kit
Connector	• 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 3.1 Gen1 Header (Supports 2 USB 3.1 Gen1 ports) (Supports ESD Protection)
BIOS Feature	• AMI UEFI Legal BIOS with GUI support • Supports "Plug and Play" • ACPI 5.1 compliance wake up events • Supports jumperfree • SMBIOS 2.3 support • DRAM Voltage multi-adjustment
Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan • CPU/Chassis Fan multi-speed control • CASE OPEN detection • Voltage monitoring: +12V, +5V, +3.3V, Vcore

English

5

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.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 R3.0 / A320M-HDV R3.0:
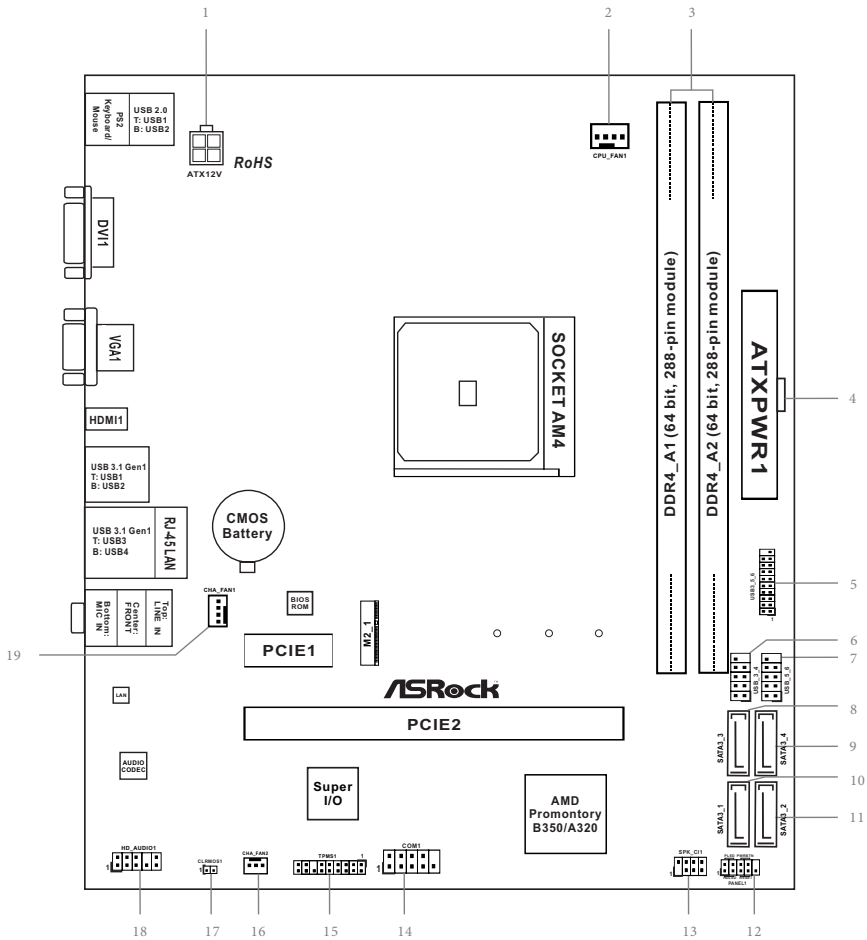
A320M-DVS R3.0:
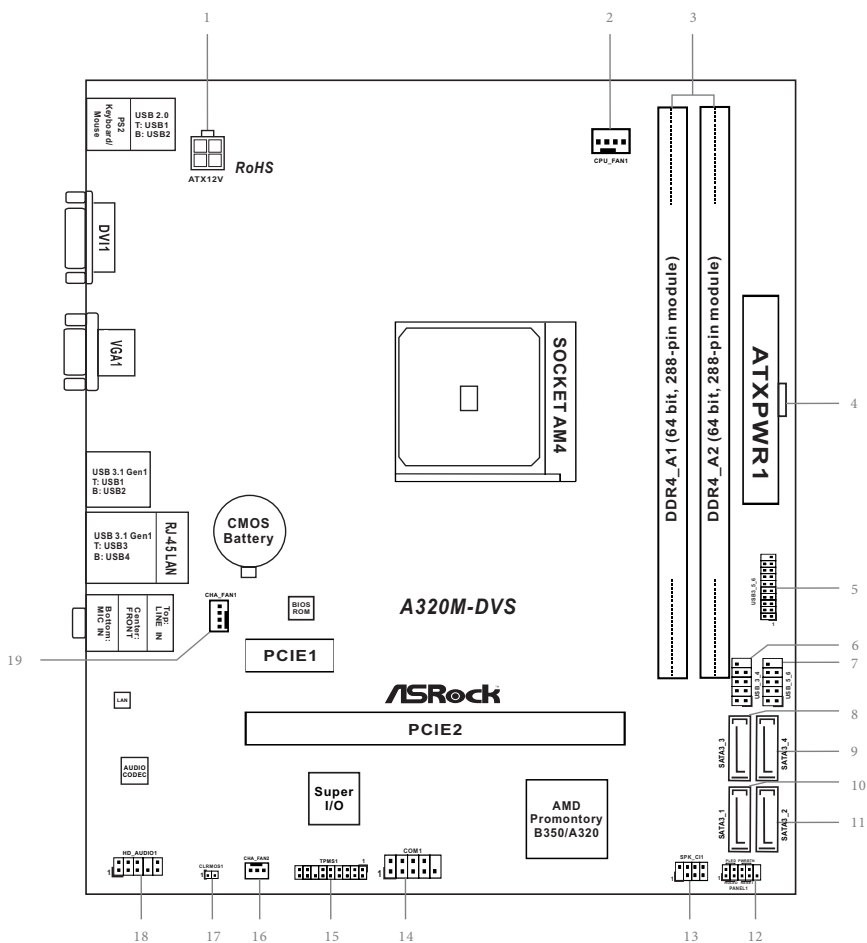
No.	Description
1	ATX 12V Power Connector (ATX12V1)
2	CPU Fan Connector (CPU_FAN1)
3	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_A2)
4	ATX Power Connector (ATXPWR1)
5	USB 3.1 Gen1 Header (USB3_5_6)
6	USB 2.0 Header (USB_3_4)
7	USB 2.0 Header (USB_5_6)
8	SATA3 Connector (SATA3_3)
9	SATA3 Connector (SATA3_4)
10	SATA3 Connector (SATA3_1)
11	SATA3 Connector (SATA3_2)
12	System Panel Header (PANEL1)
13	Chassis Intrusion and Speaker Header (SPK_CI1)
14	COM Port Header (COM1)
15	TPM Header (TPMS1)
16	Chassis Fan Connector (CHA_FAN2)
17	Clear CMOS Jumper (CLRCMOS1)
18	Front Panel Audio Header (HD_AUDIO1)
19	Chassis Fan Connector (CHA_FAN1)

English

1.4 I/O Panel

AB350M-HDV R3.0 / A320M-HDV R3.0:
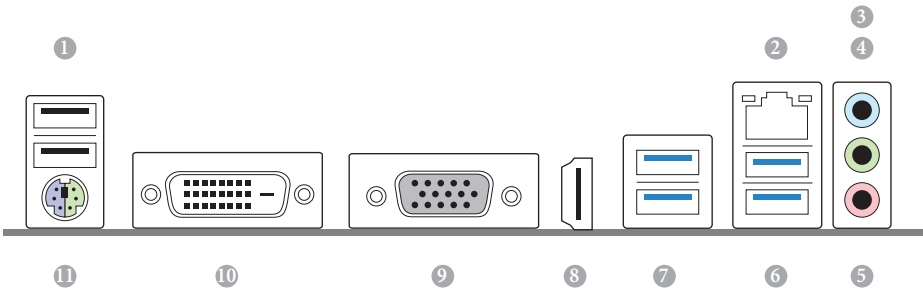
No.	Description	No.	Description
1	USB 2.0 Ports (USB12)	7	USB 3.1 Gen1 Ports (USB3_12)
2	LAN RJ-45 Port*	8	HDMI Port
3	Line In (Light Blue)**	9	D-Sub Port
4	Front Speaker (Lime)**	10	DVI-D Port
5	Microphone (Pink)**	11	PS/2 Mouse/Keyboard Port
6	USB 3.1 Gen1 Ports (USB3_34)		

A320M-DVS R3.0:
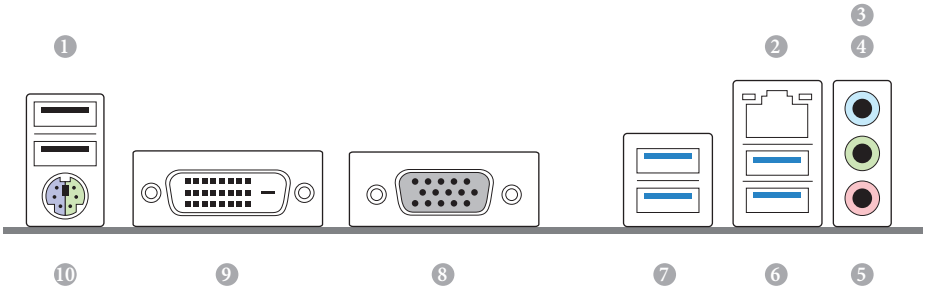
1	USB 2.0 Ports (USB12)	6	USB 3.1 Gen1 Ports (USB3_34)
2	LAN RJ-45 Port*	7	USB 3.1 Gen1 Ports (USB3_12)
3	Line In (Light Blue)**	8	D-Sub Port
4	Front Speaker (Lime)**	9	DVI-D Port
5	Microphone (Pink)**	10	PS/2 Mouse/Keyboard Port

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

ACT/LINK LED

SPEED LED

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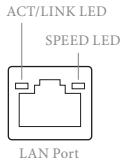
Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

English

11

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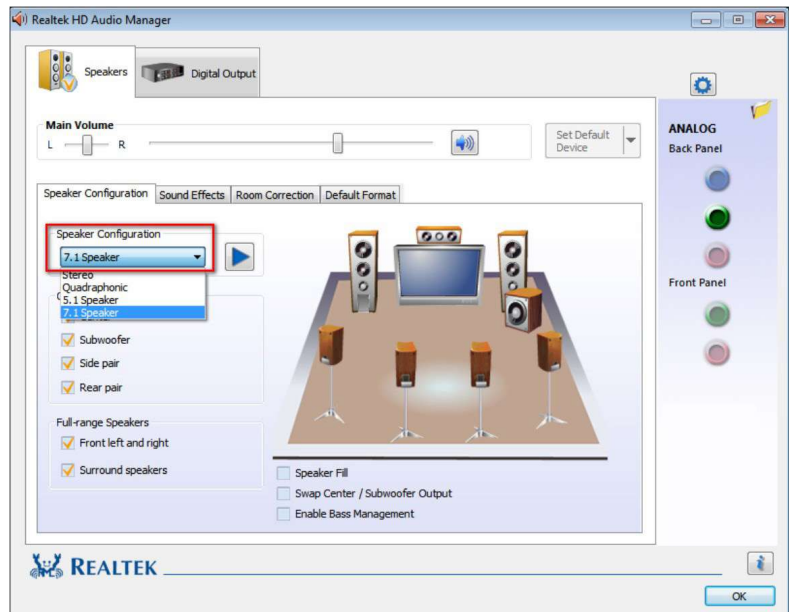
Function of the Audio Ports in 7.1-channel Configuration:

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.

English

13

2.1 Installing the CPU

☆ *Unplug all power cables before installing the CPU.*

1
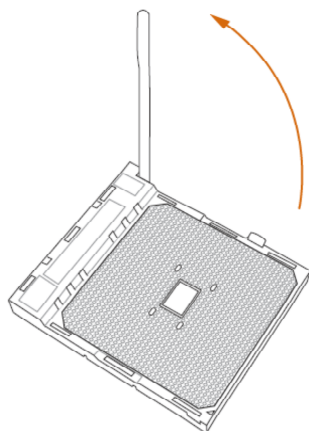
2
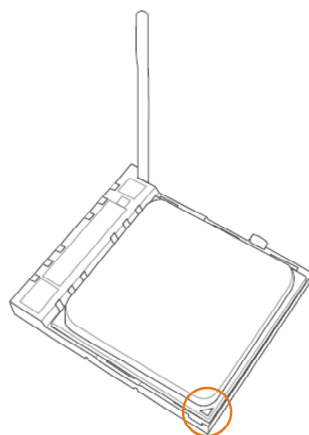
3
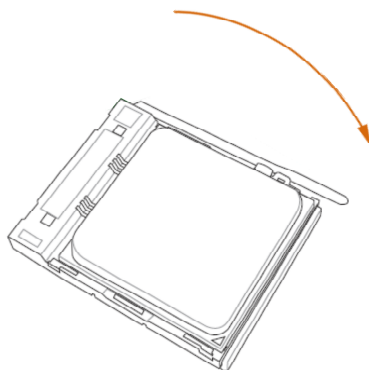
2.2 Installing the CPU Fan and Heatsink

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

4-pin FAN cable
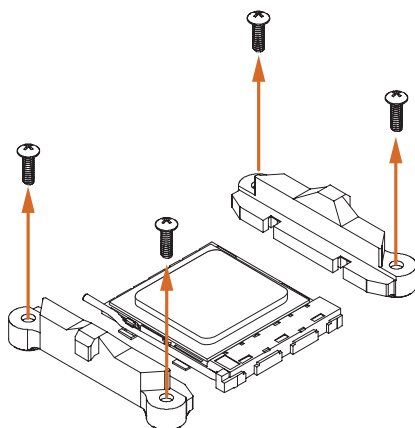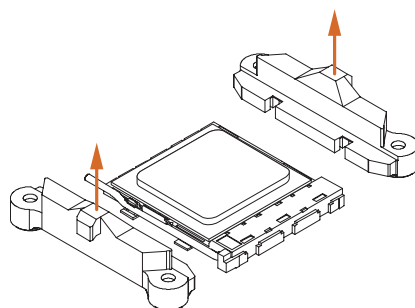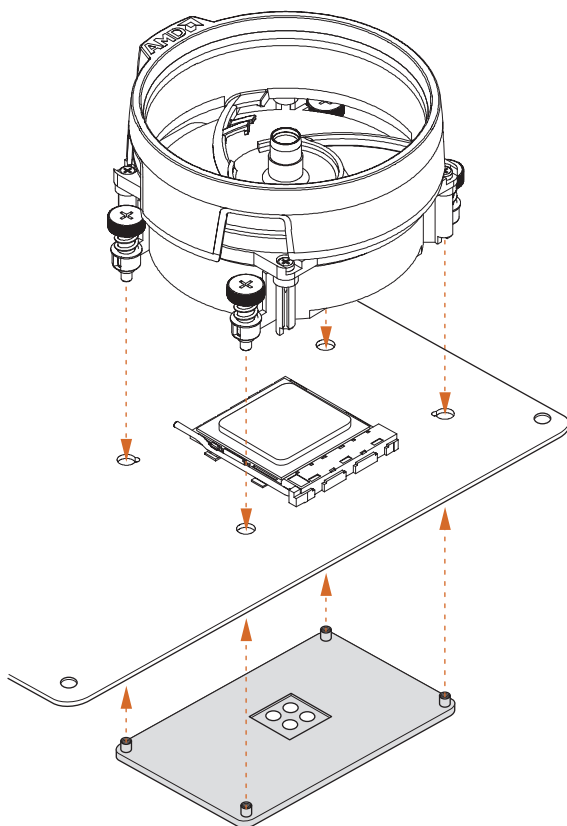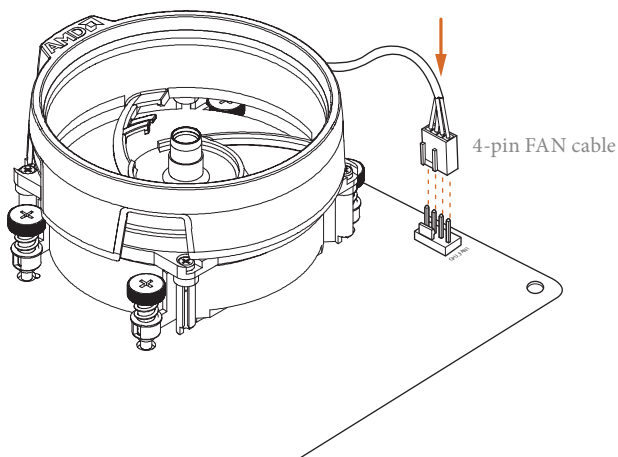
Installing the AM4 Box Cooler SR2

1

2

3

4-pin FAN cable
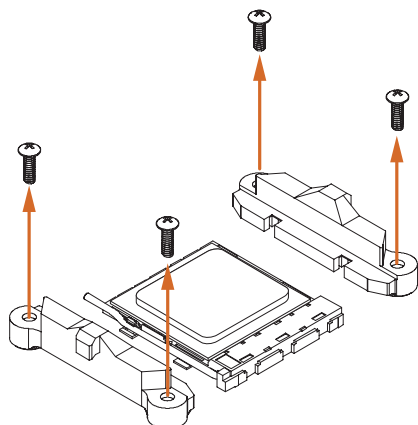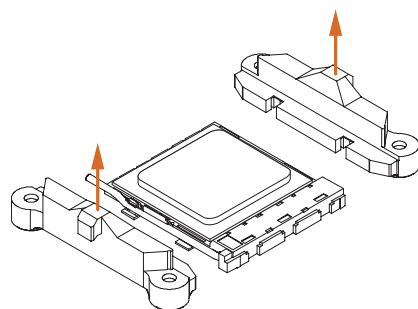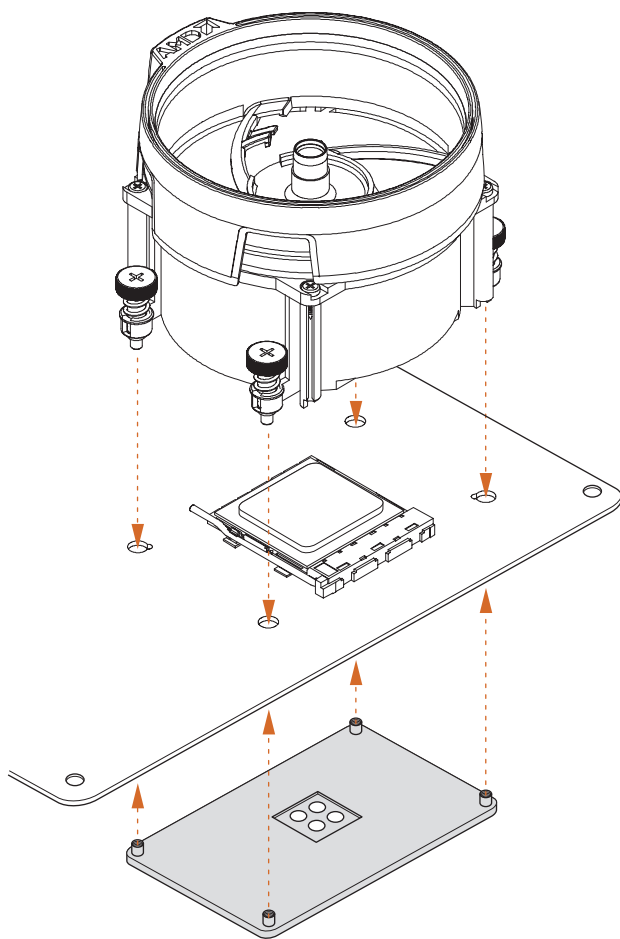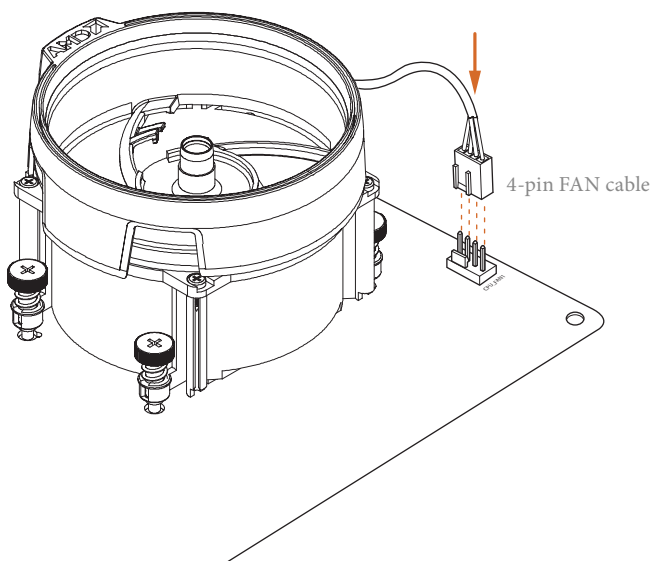
Installing the AM4 Box Cooler SR3

1

2

3

4

5

4-pin FAN cable

6

USB 2.0 Header
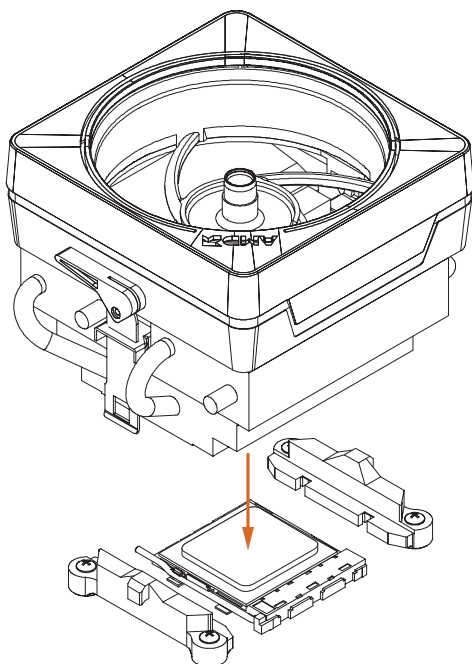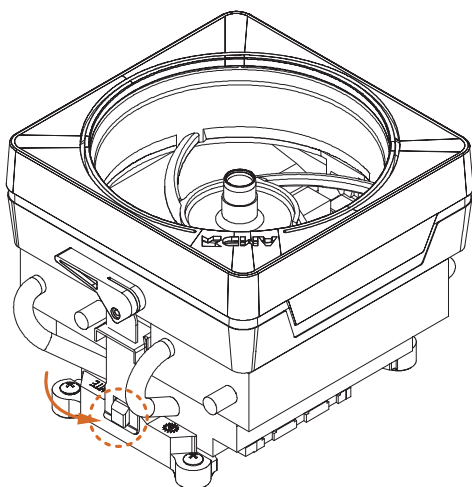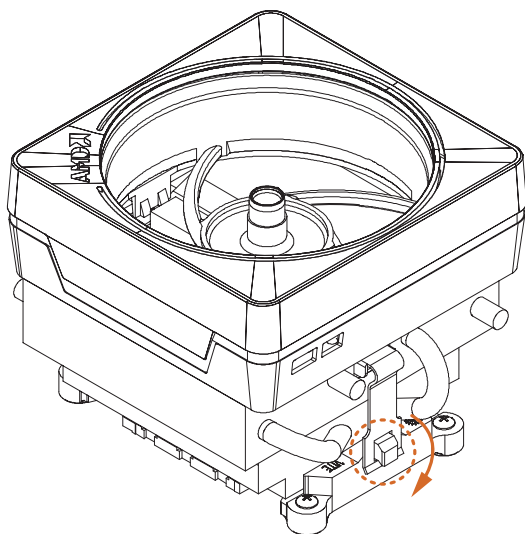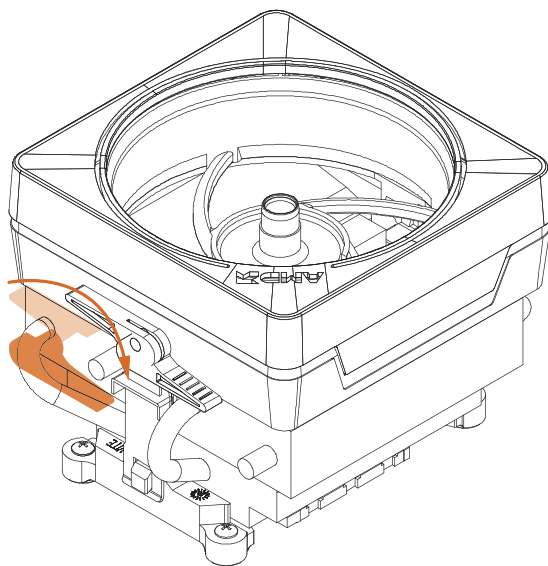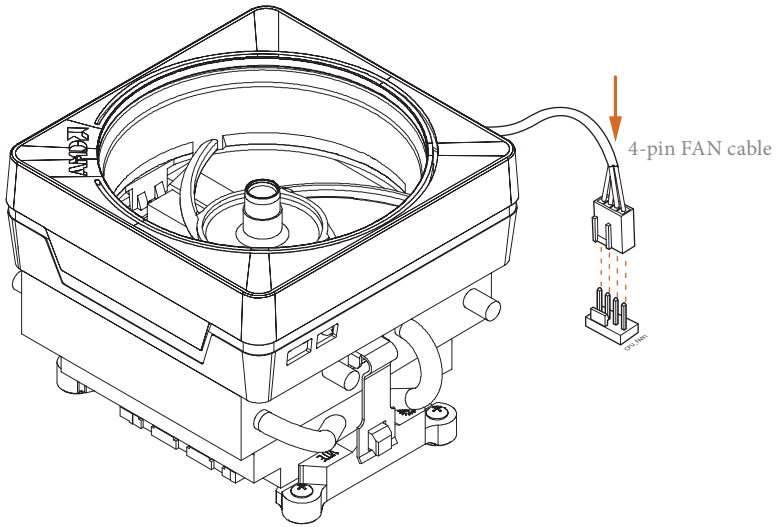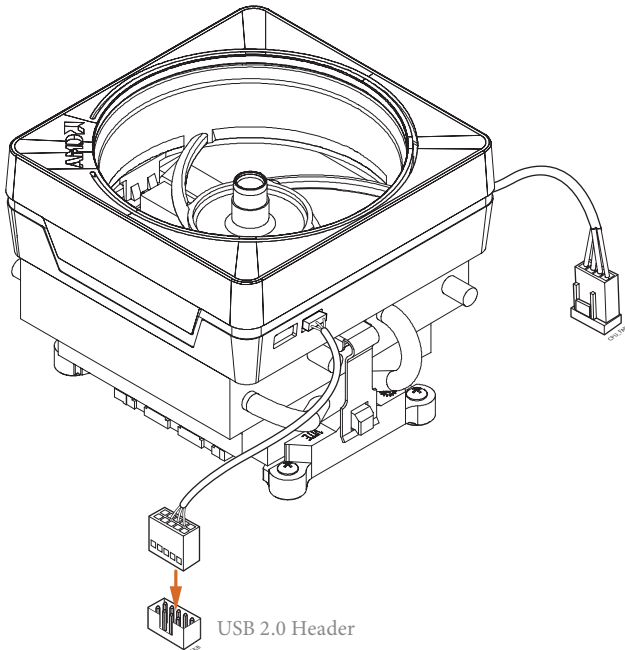
Please note that this connector is the interface to the LED control board on the SR3, it requires the AMD utility "SR3 Settings Software" to control the LED.

*The diagram shown here are for reference only. Please refer to page 31 for the orientation of USB Header.

English

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 Series CPUs (Pinnacle Ridge):

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
-	SR	2667
SR	-	2667
-	DR	2400
DR	-	2400
SR	SR	2667
DR	DR	2400

Ryzen Series CPUs (Summit Ridge):

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

Ryzen Series CPUs (Raven Ridge):

UDIMM Memory Slot		Frequency (Mhz)
A1	B1	
-	SR	2933
SR	-	2933
-	DR	2667
DR	-	2667
SR	SR	2667
DR	DR	2400

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

1
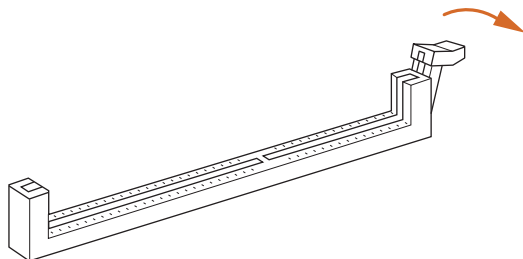
2
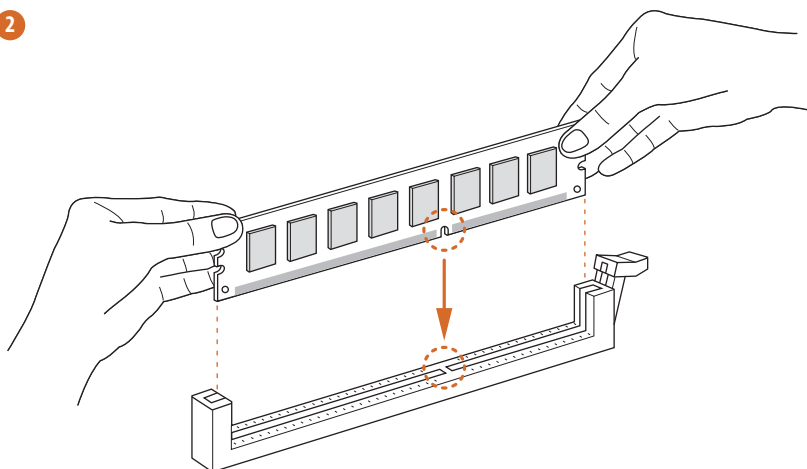
3
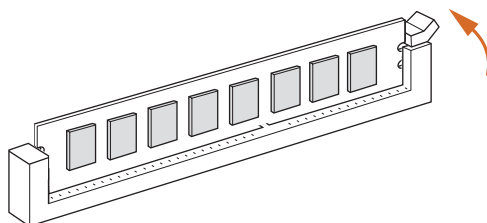
2.4 Expansion Slots (PCI Express Slots)

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.

PCIe Slot Configurations

CPU	PCIE2
Ryzen series CPUs (Pinnacle Ridge)	x16
Ryzen series CPUs (Summit Ridge)	x16
Ryzen series CPUs (Raven Ridge)	x8
Athlon 200GE APU	x4
7th A-Series APUs	x8

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

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is "Short". If no jumper cap is placed on the pins, the jumper is "Open".
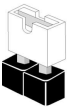
Short   Open

Clear CMOS Jumper (CLRCMOS1) (see p.7, 8, No. 17)	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.

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

2.6 Onboard Headers and Connectors

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

System Panel Header
(9-pin PANEL1)
(see p.7, 8, No. 12)

PLED+
PLED-
PWRBTN#
GND
1
GND
RESET#
GND
HDLED-
HDLED+
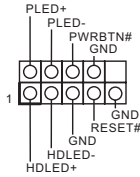
Connect the power button, reset button and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

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.

English

Chassis Intrusion and
Speaker Header
(7-pin SPK_CI1)
(see p.7, 8, No. 13)

SPEAKER
DUMMY
DUMMY
+5V

SIGNAL
GND
DUMMY
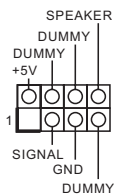
Please connect the
chassis intrusion and the
chassis speaker to this
header.

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

SATA3_3   SATA3_4
SATA3_1   SATA3_2
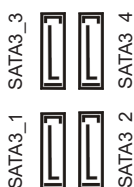
These four SATA3
connectors support SATA
data cables for internal
storage devices with up to
6.0 Gb/s data transfer rate.

USB 2.0 Header
(9-pin USB_3_4)
(see p.7, 8, No. 6)
(9-pin USB_5_6)
(see p.7, 8, No. 7)

DUMMY
GND   GND
+B   +A
-B   -A
USB_PWR   USB_PWR
1
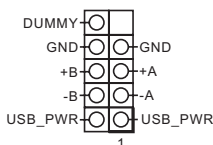
There are two headers
on this motherboard.
Each USB 2.0 header can
support two ports.

USB 3.1 Gen1 Header
(19-pin USB3_5_6)
(see p.7, 8, No. 5)

Vbus
Vbus   IntA_PB_SSRX-
IntA_PA_SSRX- IntA_PB_SSRX+
IntA_PA_SSRX+ GND
GND   IntA_PB_SSTX-
IntA_PA_SSTX- IntA_PB_SSTX+
IntA_PA_SSTX+ GND
GND   IntA_PB_D-
IntA_PA_D-   IntA_PB_D+
IntA_PA_D+   Dummy
1
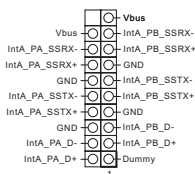
There is one header on
this motherboard. Each
USB 3.1 Gen1 header can
support two ports.

Front Panel Audio Header
(9-pin HD_AUDIO1)
(see p.7, 8, No. 18)

GND
PRESENCE#
MIC_RET
OUT_RET

OUT2_L
J_SENSE
OUT2_R
MIC2_R
MIC2_L
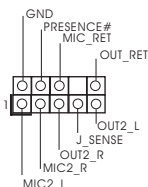
This header is for
connecting audio devices
to the front audio panel.

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.7, 8, No. 19)

FAN_SPEED_CONTROL — 4
FAN_SPEED — 3
FAN_VOLTAGE — 2
GND — 1
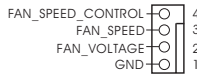
Please connect fan cables to the fan connectors and match the black wire to the ground pin.

(3-pin CHA_FAN2)
(see p.7, 8, No. 16)

GND
FAN_VOLTAGE
CHA_FAN_SPEED

CPU Fan Connector
(4-pin CPU_FAN1)
(see p.7, 8, No. 2)

FAN_SPEED_CONTROL
CPU_FAN_SPEED
FAN_VOLTAGE
GND

1 2 3 4
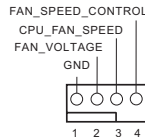
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

ATX Power Connector
(24-pin ATXPWR1)
(see p.7, 8, No. 4)

12   24

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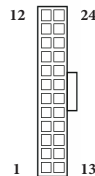
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

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

Please connect an ATX 12V
power supply to this connector.

Serial Port Header
(9-pin COM1)
(see p.7, 8, No. 14)

RRXD1
DDTR#1
DDSR#1
CCTS#1

RRI#1
RRTS#1
GND
TTXD1
DDCD#1
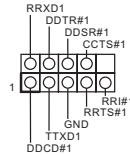
This COM1 header
supports a serial port
module.

TPM Header
(17-pin TPMS1)
(see p.7, 8, No. 15)

GND
+3VS B
LAD0
+3V
LAD3
PCIRST #
FRAME
PCICLK

GND
SERIRQ #
S_PWRDWN #
GND
LAD1
LAD2
SMB_DATA_MAIN
SMB_CLK_MAIN
GND
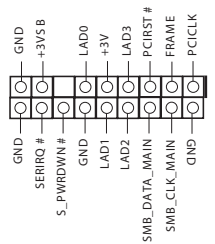
This connector supports
Trusted Platform Module
(TPM) system, which can
securely store keys, digital
certificates, passwords,
and data. A TPM system
also helps enhance
network security, protects
digital identities, and
ensures platform integrity.

2.7 M.2_SSD (NGFF) Module Installation Guide (for AB350M-HDV R3.0 / A320M-HDV R3.0 only)

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 Summit Ridge, Raven Ridge and Pinnacle Ridge) or Gen3 x2 (16 Gb/s) (with A-Series APU).

Installing the M.2_SSD (NGFF) Module
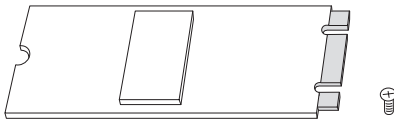
Step 1

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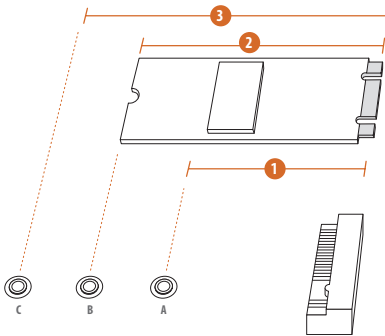
Step 2

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

English
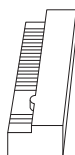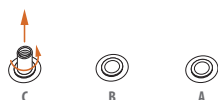
Step 3

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.

C B A
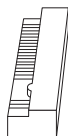
Step 4

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

C B A
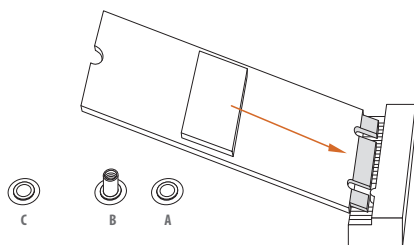
Step 5

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.

C B A

C B A 20º
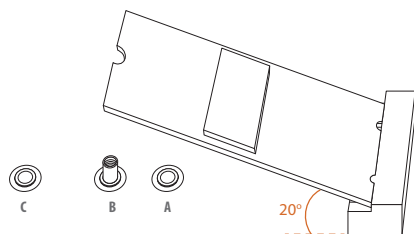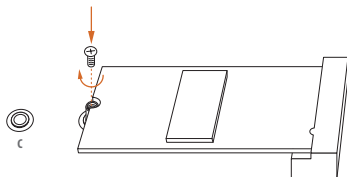
Step 6

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.

English

3.2 A-Tuning

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

3.2.1 Installing A-Tuning

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

3.2.2 Using A-Tuning

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

Operation Mode

Choose an operation mode for your computer.
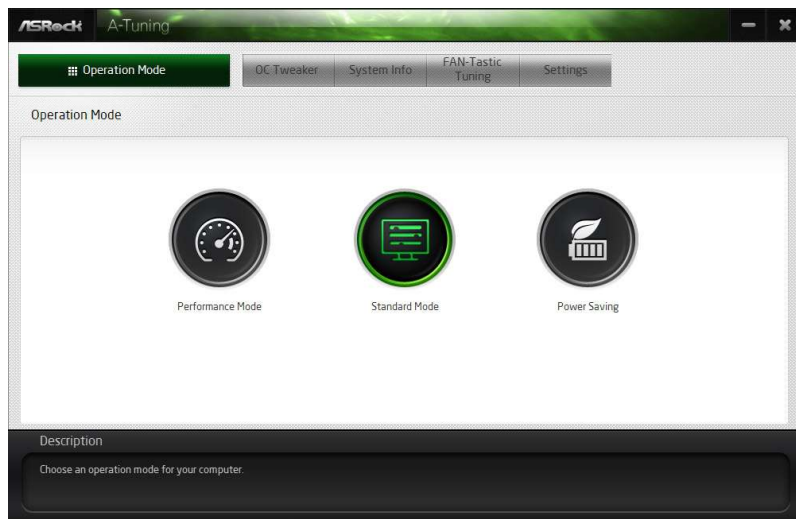
OC Tweaker

Configurations for overclocking the system.
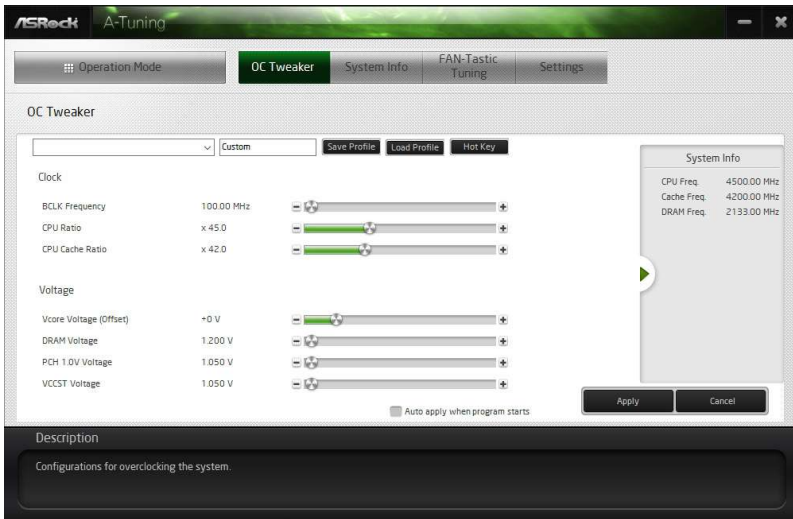
System Info

View information about the system.

*The System Browser tab may not appear for certain models.
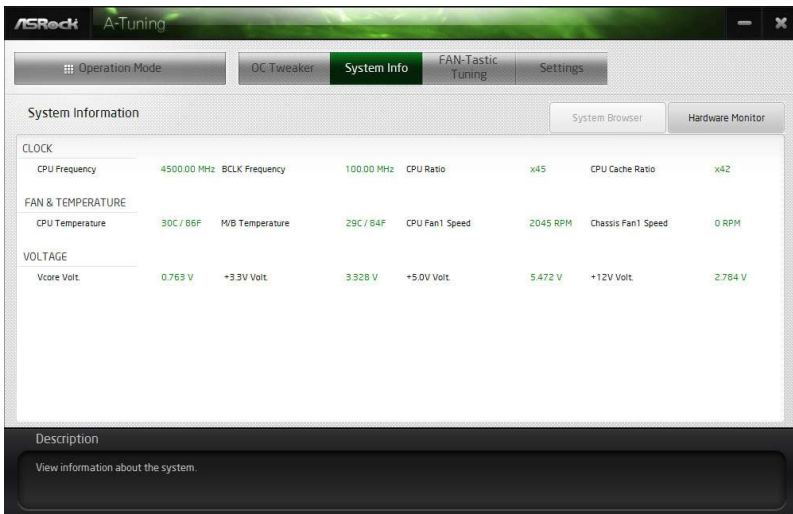
FAN-Tastic Tuning

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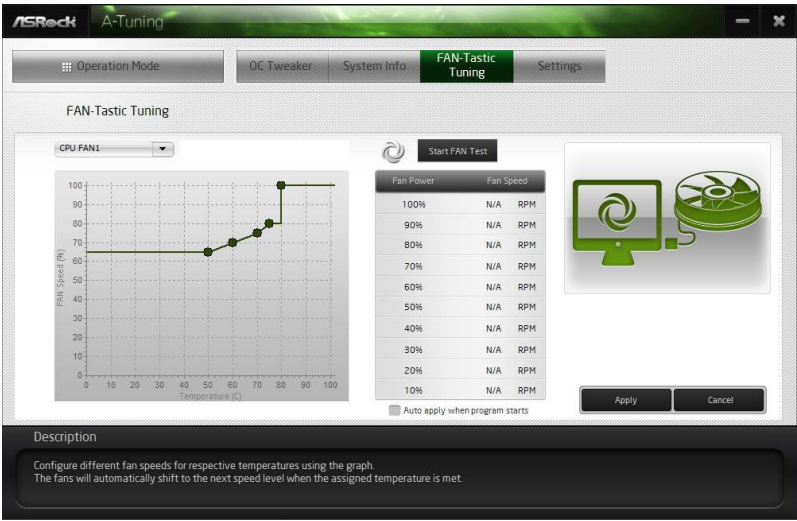
Settings

Configure ASRock A-Tuning. Click to select "Auto run at Windows Startup" if you want A-Tuning to be launched when you start up the Windows operating system.
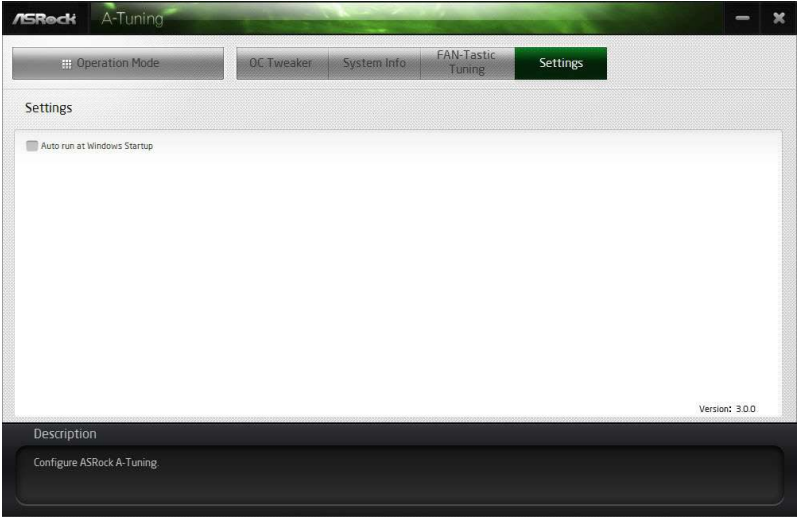
3.3 ASRock Live Update & APP Shop

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

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

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

3.3.1 UI Overview

Category Panel

Hot News
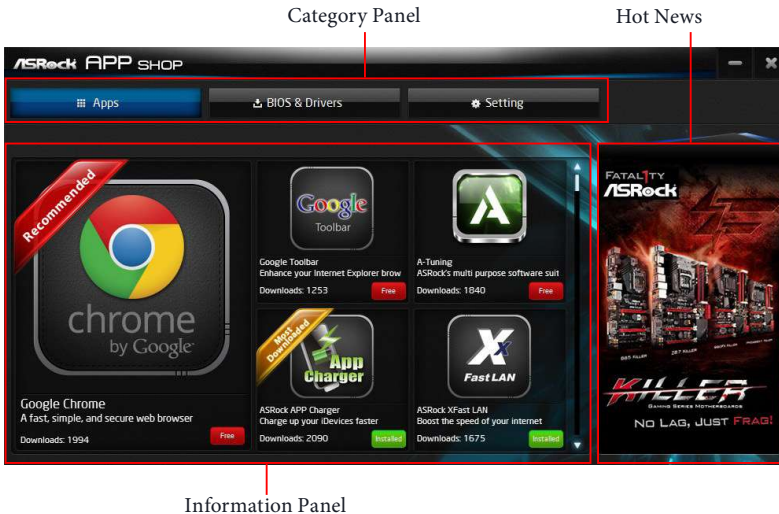
Information Panel

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

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

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

English

41

3.3.2 Apps

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

Installing an App

Step 1

Find the app you want to install.

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

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

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

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

Step 2

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

Step 3

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

Step 4

When installation completes, you can find the green "Installed" icon appears on the upper right corner.
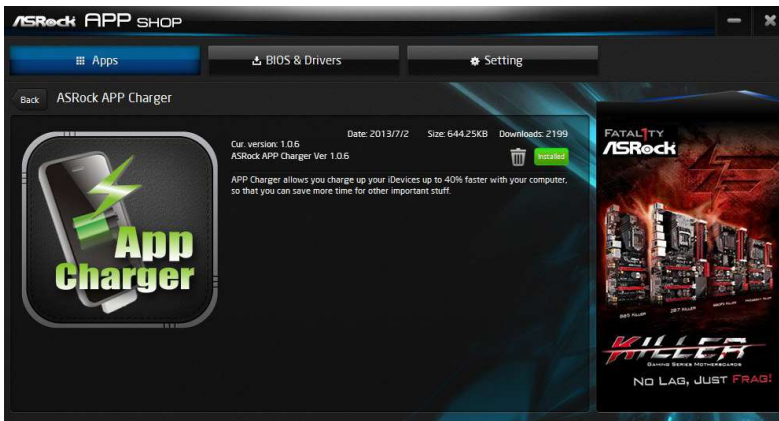
To uninstall it, simply click on the trash can icon 🗑 .
*The trash icon may not appear for certain apps.

Upgrading an App

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

Step 1

Click on the app icon to see more details.

Step 2

Click on the yellow icon ![New Version] to start upgrading.

3.3.3 BIOS & Drivers

Installing BIOS or Drivers

When the "BIOS & Drivers" tab is selected, you will see a list of recommended or critical updates for the BIOS or drivers. Please update them all soon.
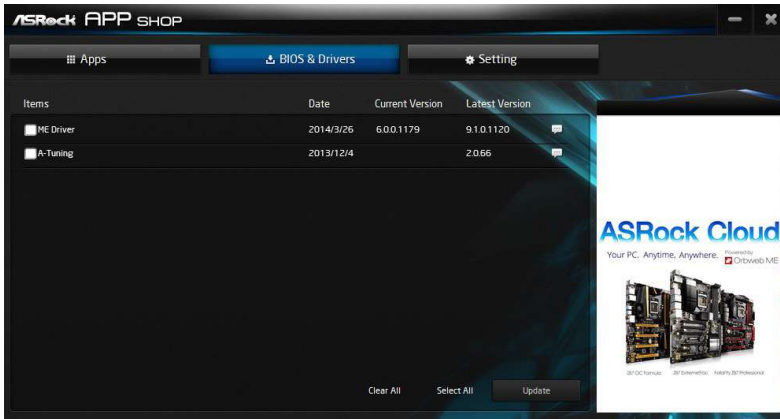
Step 1

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

Step 2

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

Step 3

Click Update to start the update process.

3.3.4 Setting

In the "Setting" page, you can change the language, select the server location, and determine if you want to automatically run the ASRock Live Update & APP Shop on Windows startup.
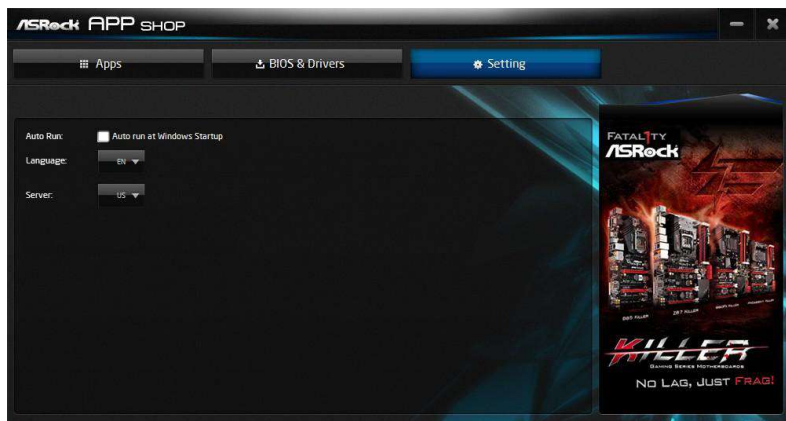
Chapter 4 UEFI SETUP UTILITY

4.1 Introduction

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

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

4.1.1 UEFI Menu Bar

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

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

English

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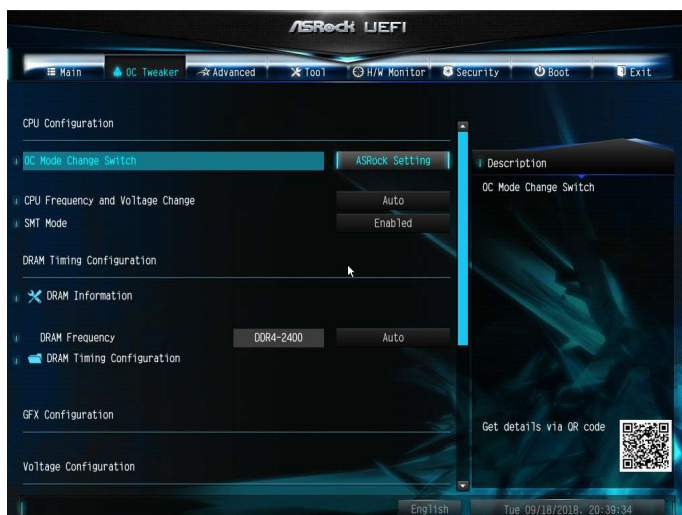
> *Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.*

CPU Configuration

OC Mode Change Switch

Select a setting for OC Mode.

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 Information

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

DRAM Frequency

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

DRAM Timing Configuration

Primary Timing

CAS# Latency (tCL)

The time between sending a column address to the memory and the beginning of the data in response.

RAS# to CAS# Delay to Read (tRCDRD)

RAS# to CAS# Delay : The number of clock cycles required between the opening of a row of memory and accessing columns within it.
The number of clock cycles required between the opening of a row of memory and accessing columns within it

RAS# to CAS# Delay to Write (tRCDWR)

RAS# to CAS# Delay : The number of clock cycles required between the opening of a row of memory and accessing columns within it.
The number of clock cycles required between the opening of a row of memory and accessing columns within it.

Row Precharge Time (tRP)

The number of clock cycles required between the issuing of the precharge command and opening the next row.

RAS# Active Time (tRAS)

The number of clock cycles required between a bank active command and issuing the precharge command.

Secondary Timing

Fail Count

The number of training failure/retries required before boot from recovery mode.

English

Refresh Cycle Time

The Refresh command period.

RAS to RAS Delay (tRRD_S)

The number of clocks between two rows activated in different banks of the same rank.

RAS to RAS Delay (tRRD_L)

The number of clocks between two rows activated in different banks of the same rank.

Four Activate Window (tFAW)

The time window in which four activates are allowed the same rank.

Write to Read Delay (tWTR_S)

The number of clocks between the last valid write operation and the next read command to the same internal bank.

Write to Read Delay (tWTR_L)

The number of clocks between the last valid write operation and the next read command to the same internal bank.

Write Recovery Time (tWR)

The amount of delay that must elapse after the completion of a valid write operation, before an active bank can be precharged.

Trcpage (tMAW,MAC)

The minimum average time in memory clock cycles within a refresh window from an activate command to another activate command.

TrdrdScL

The minimum number of cycles from the last clock of virtual CAS of the first read-burst operation to the clock in which CAS is asserted for a following read-burst operation in the same chipselect in the same bank group

TwrwrScL

The minimum number of cycles from the last clock of virtual CAS of a first write-burst operation to the clock in which CAS is asserted for a following write-burst operation in the same bank group.

Refresh Cycle Time (tRFC)

The number of clocks from a Refresh command until the first Activate command to the same rank.

Refresh Cycle Time (tRFC2)

The number of clocks from a Refresh command until the first Activate command to the same rank.

Refresh Cycle Time (tRFC4)

The number of clocks from a Refresh command until the first Activate command to the same rank.

CAS Write Latency (tCWL)

Configure CAS Write Latency.

Read to Precharge (tRTP)

The number of clocks that are inserted between a read command to a row precharge command to the same rank.

Trdwr

The minimum number of cycles from the last clock of virtual CAS of the first read-burst operation to the clock in which CAS is asserted for a following write-burst operation.

Twrrd

The minimum number of cycles from the last clock of virtual CAS of the first write-burst operation to the clock in which CAS is asserted for a following read-burst operation.

TwrwrSc

The minimum number of cycles from the last clock of virtual CAS of the first write-burst operation to the clock in which CAS is asserted for a following write-burst operation in the same chipselect.

TwrwrSd

The minimum number of cycles from the last clock of virtual CAS of the first write-burst operation to the clock in which CAS is asserted for a following write-burst operation in the same DIMM.

English

TwrwrDd

The minimum number of cycles from the last clock of virtual CAS of the first write-burst operation to the clock in which CAS is asserted for a following write-burst operation in a different DIMM.

TrdrdSc

The minimum number of cycles from the last clock of virtual CAS of the first read-burst operation to the clock in which CAS is asserted for a following read-burst operation in the same chipselect.

TrdrdSd

The minimum number of cycles from the last clock of virtual CAS of the first read-burst operation to the clock in which CAS is asserted for a following read-burst operation in the same DIMM.

TrdrdDd

The minimum number of cycles from the last clock of virtual CAS of the first read-burst operation to the clock in which CAS is asserted for a following read-burst operation in a different DIMM.

tCKE

Specifies the CKE minimum high and low pulse width in memory clock cycles.

ProcODT

Specifies the Processor ODT

Data Bus Configuration

Configure the RttNom, RttWr and RttPark.

Gear Down Mode

Power Down Enable

CAD Bus Configuration

Command Rate (CR)

The delay between when a memory chip is selected and when the first active command can be issued.

Voltage Configuration

CPU SOC Voltage (for AB350M-HDV R3.0 only)

Configure the voltage for the CPU SOC supply level.

DRAM Voltage

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

Save User Default

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

Load User Default

Load previously saved user defaults.

Save User UEFI Setup Profile to Disk

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

Load User UEFI Setup Profile to Disk

Load previously saved user defaults from the disk.

English

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.

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].

4.4.2 North Bridge Configuration
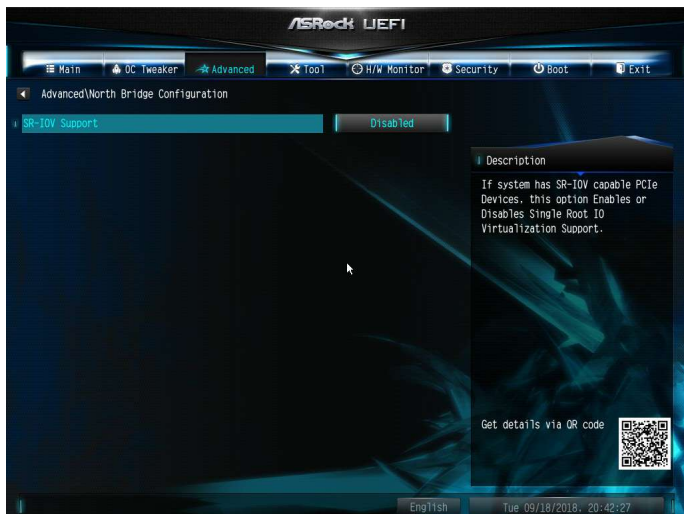
SR-IOV Support

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.

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.

SATA Hot Plug

Enable/disable the SATA Hot Plug function.

4.4.5 Super IO Configuration
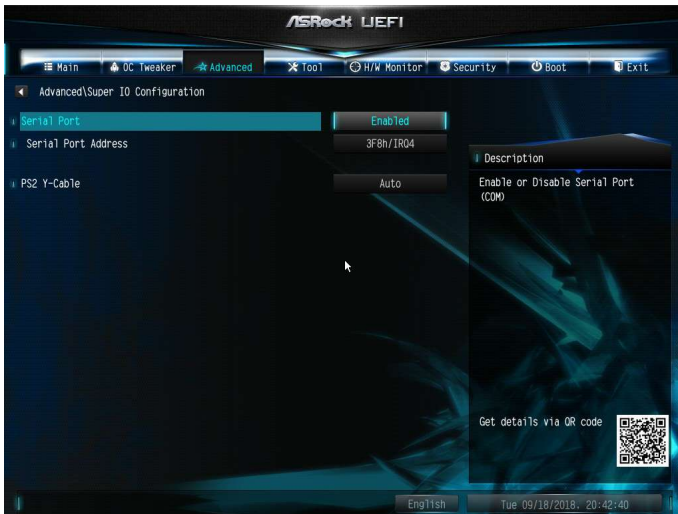
Serial Port

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
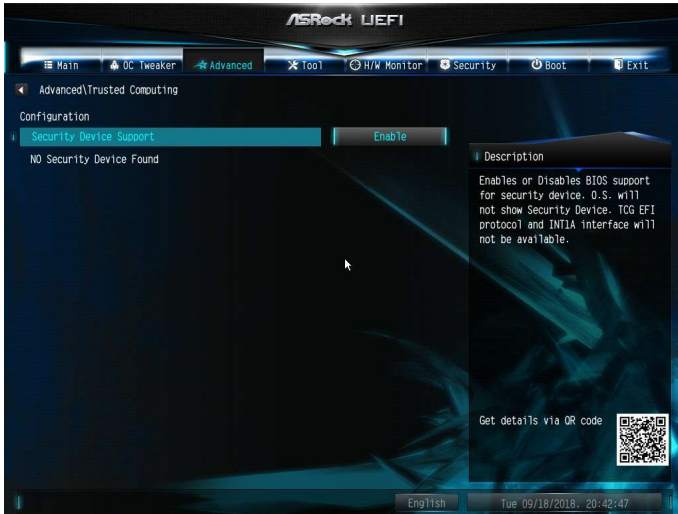
Security Device Support

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.

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.
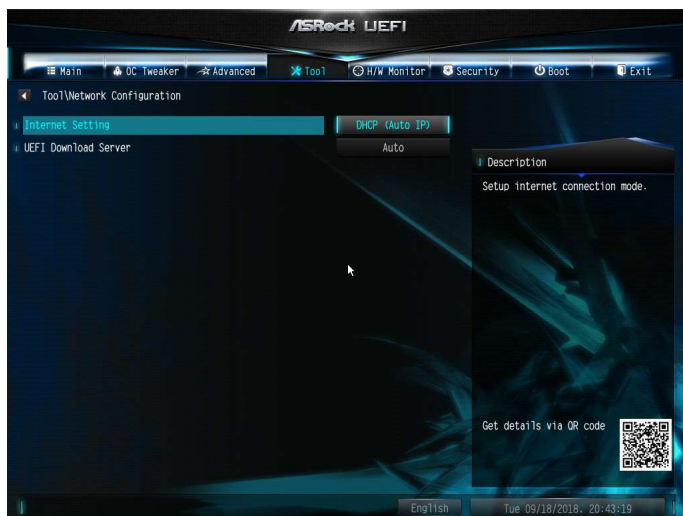
Internet Setting

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.
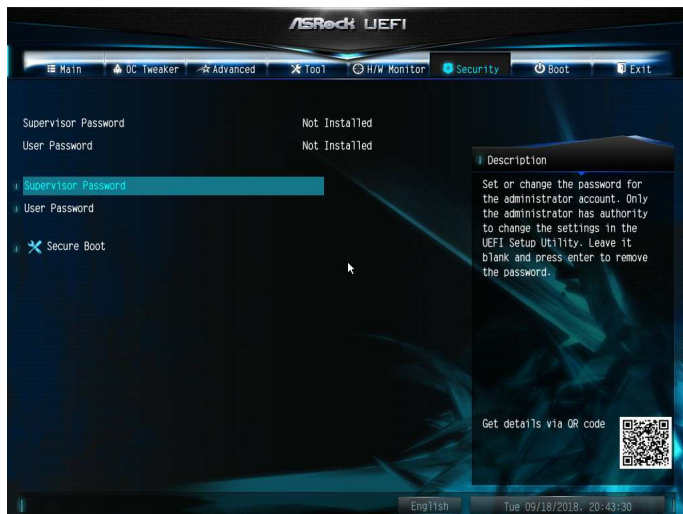
Supervisor Password

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.

Above 4G Decoding

Enable/disable the 64-bit capable devices to be decoded in above 4G address space.

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.

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.

English

79

Contact Information

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

ASRock Incorporation

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

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

ASRock EUROPE B.V.

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)

FC

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 : AB350M-HDV R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0

Conforms to the following specifications:

☒ FCC Part 15, Subpart B, Unintentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name: **James**

Signature :

Date : **May 12, 2017**

EU Declaration of Conformity /ISRock®

For the following equipment:

Motherboard

(Product Name)

AB350M-HDV R3.0 / A320M-HDV R3.0 / A320M-DVS R3.0 / 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)

$$ C\hspace{-0.2em}E $$

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)

October 26, 2018

(Date)

P/N: 15G062129000AK V1.0