/ISRock®

X300-ITX
X300-ITX/COM

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.

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"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

UK CA

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Contents

Chapter 1 Introduction

Thank you for purchasing X300-ITX / X300-ITX/COM motherboard. In this documentation, Chapter 1 and 2 contains the introduction of the motherboard and step-by-step installation guides. Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup.

> *Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice.*

1.1 Package Contents

- X300-ITX / X300-ITX/COM Motherboard (Deep mini-ITX Form Factor)
- 1 x I/O Panel Shield
- 2 x SATA Cables (Optional)
- 1 x Screw for M.2 Socket (M2*2) (Optional)
- 1 x Screw for WiFi Module (M2*2) (Optional)

English

1.2 Specifications

Platform	• Deep mini-ITX Form Factor • Solid Capacitor design
CPU	• Supports AMD AM4 Socket Ryzen™ 2000, 3000, 4000 G-Series, 5000 and 5000 G-Series Desktop Processors • Supports CPU up to 65W • 6 Power Phase design
Chipset	• AMD X300
Memory	• Dual Channel DDR4 Memory Technology • 4 x DDR4 DIMM Slots • AMD Ryzen series APUs (Cezanne) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Vermeer) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Matisse) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series APUs (Renoir) support DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Pinnacle Ridge) support DDR4 2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series APUs (Picasso) support DDR4 2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* • AMD Ryzen series CPUs (Raven Ridge) support DDR4 2933/2667/2400/2133 ECC & non-ECC, un-buffered memory* * For Ryzen Series APUs (Cezanne, Renoir and Picasso), ECC is only supported with PRO CPUs.

* Please refer to page 18 for DDR4 DIMM maximum frequency support.

- Max. capacity of system memory: 128GB
- 15μ Gold Contact in DIMM Slots

Expansion Slot	**AMD Ryzen series CPUs (Vermeer, Matisse, Pinnacle Ridge)**

AMD Ryzen series CPUs (Vermeer, Matisse, Pinnacle Ridge)
- 1 x PCIe Gen3x16 Slot (x16 mode)*

AMD Ryzen series APUs (Cezanne, Renoir)
- 1 x PCIe Gen3x16 Slot (x16 mode)*

AMD Ryzen series APUs (Picasso, Raven Ridge)
- 1 x PCIe Gen3x16 Slot (x8 mode)*

AMD Athlon series CPUs
- 1 x PCIe Gen3x16 Slot (x4 mode)*

* Supports NVMe SSD as boot disks
- 1 x M.2 Socket (Key E), supports type 2230 WiFi/BT module

Graphics
- Integrated AMD Radeon™ Vega Series Graphics in Ryzen Series APU*

* Actual support may vary by CPU
- DirectX 12, Pixel Shader 5.0
- Shared memory default 2GB. Max Shared memory supports up to 16GB.

* The Max shared memory 16GB requires 32GB system memory installed.

- Three graphics output options: D-Sub, DisplayPort 1.2 and HDMI
- Supports Triple Monitor
- Supports HDMI with max. resolution up to 4K x 2K (4096x2160) @ 60Hz
- Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
- Supports DisplayPort 1.2 with max. resolution up to 4K x 2K (4096x2304) @ 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 HDMI and DisplayPort 1.2 Ports
- Supports 4K Ultra HD (UHD) playback with HDMI and DisplayPort 1.2 Ports

English

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Audio	• Realtek ALC897 Audio Codec
	• Supports Surge Protection
	• 1 x Headphone/Headset Jack
	• 1 x Line out Jack
LAN	• PCIE x1 Gigabit LAN 10/100/1000 Mb/s
	• Realtek RTL8111H
	• Supports Wake-On-LAN
	• Supports Lightning/ESD Protection
	• Supports Energy Efficient Ethernet 802.3az
	• Supports PXE
Front Panel I/O	• 1 x Headphone/Headset Jack
	• 2 x USB 3.2 Gen1 Type-A Ports (Supports ESD Protection (Full Spike Protection))
	• 1 x USB 3.2 Gen1 Type-C Port (Supports ESD Protection (Full Spike Protection))
	• 2 x USB 2.0 Ports (Supports ESD Protection (Full Spike Protection))
Rear Panel I/O	• 1 x D-Sub Port
	• 1 x HDMI Port
	• 1 x DisplayPort 1.2
	• 2 x USB 3.2 Gen1 Type-A Ports (Supports ESD Protection (Full Spike Protection))
	• 2 x USB 2.0 Ports (Supports ESD Protection (Full Spike Protection))
	• 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)
	• 1 x Line out Jack
Storage	• 2 x SATA3 6.0 Gb/s with Power Connectors, support RAID (RAID 0 and RAID 1), NCQ, AHCI and Hot Plug
	• 1 x Ultra M.2 Socket (M2_1), supports type 2280 M.2 PCI Express module up to Gen3 x4 (32 Gb/s) or Gen3 x2 (16 Gb/s) (with Athlon 2xxGE series)*
	* Supports NVMe SSD as boot disks

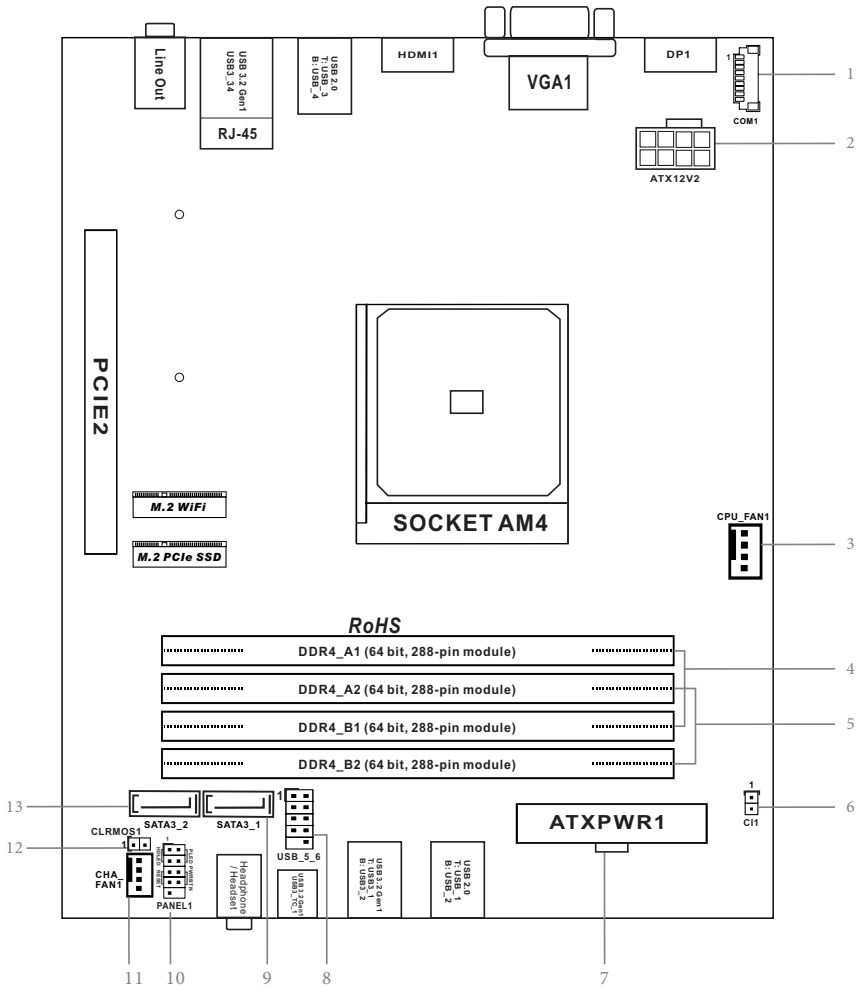| Connector	• 1 x COM Port Header (Optional for X300-ITX/COM model) • 1 x Chassis Intrusion Header • 1 x CPU Fan Connector * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 1 x Chassis Fan Connector (4-pin) * The Chassis Fan Connector supports the chassis fan of maximum 1A (12W) fan power. • 1 x 24 pin ATX Power Connector • 1 x 8 pin 12V Power Connector • 1 x Front Panel Header • 1 x USB 2.0 Header (Supports 2 USB 2.0 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 adjustment
Hardware Monitor	• CPU, Chassis Temperature Sensing • CPU, Chassis Fan Tachometer • CPU, Chassis Quiet Fan (Auto adjust chassis fan speed by CPU temperature) • CPU, Chassis Fan Multi-Speed Control • CASE OPEN detection • Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore
OS	• Microsoft® Windows® 10 64-bit
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required)

⚠ *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.*

English

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## 1.3 Motherboard Layout

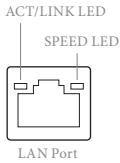| No.	Description
1	COM Port Header (COM1) (for X300-ITX/COM only)
2	8 pin 12V Power Connector (ATX12V2)
3	CPU Fan Connector (CPU_FAN1)
4	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
5	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2)
6	Chassis Intrusion Header (CI1)
7	ATX Power Connector (ATXPWR1)
8	USB 2.0 Header (USB_5_6)
9	SATA3 Connector (SATA3_1)
10	System Panel Header (PANEL1)
11	Chassis Fan Connector (CHA_FAN1)
12	Clear CMOS Jumper (CLRMOS1)
13	SATA3 Connector (SATA3_2)

English

1.4 Front Panel
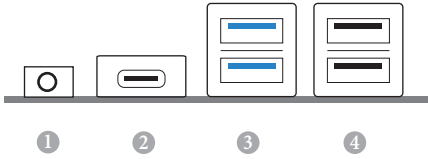
No.	Description	No.	Description
1	Headphone/Headset Jack (AUDIO1)	3	USB 3.2 Gen1 Type-A Ports
2	USB 3.2 Gen1 Type-C Port		(USB3_12)
	(USB3_TC_1)	4	USB 2.0 Ports (USB_12)

1.5 Rear Panel
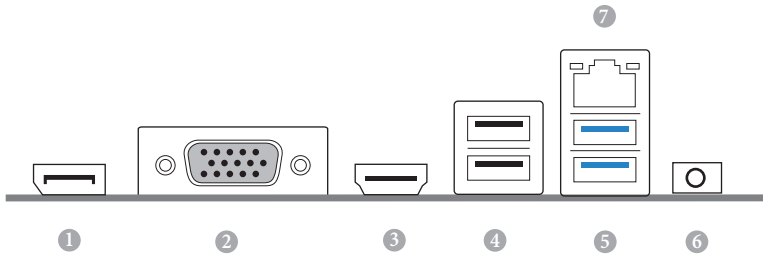
No.	Description	No.	Description
1	DisplayPort 1.2	5	USB 3.2 Gen1 Type-A Ports
2	D-Sub Port		(USB3_34)
3	HDMI Port	6	Line out Jack
4	USB 2.0 Ports (USB_34)	7	LAN RJ-45 Port*

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

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

English

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Chapter 2 Installation

This is a Deep mini-ITX 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.
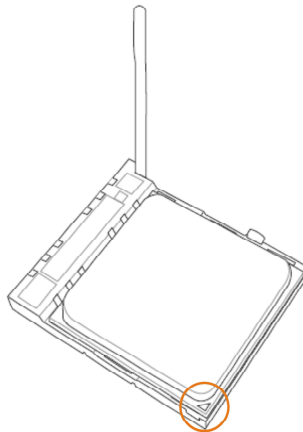
2.1 Installing the CPU

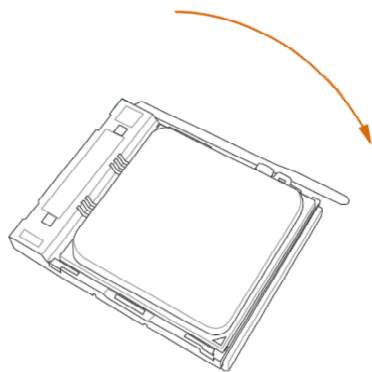*Unplug all power cables before installing the CPU.*

1

2
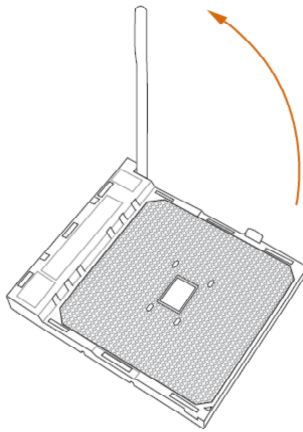
2.2 Installing the CPU Fan and Heatsink

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.
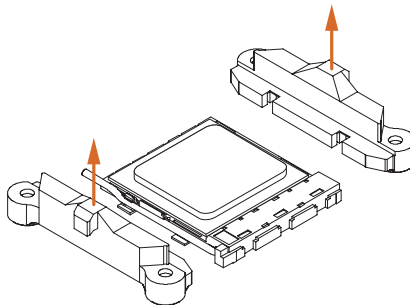
☆   *Please turn off the power or remove the power cord before changing a CPU or heatsink.*
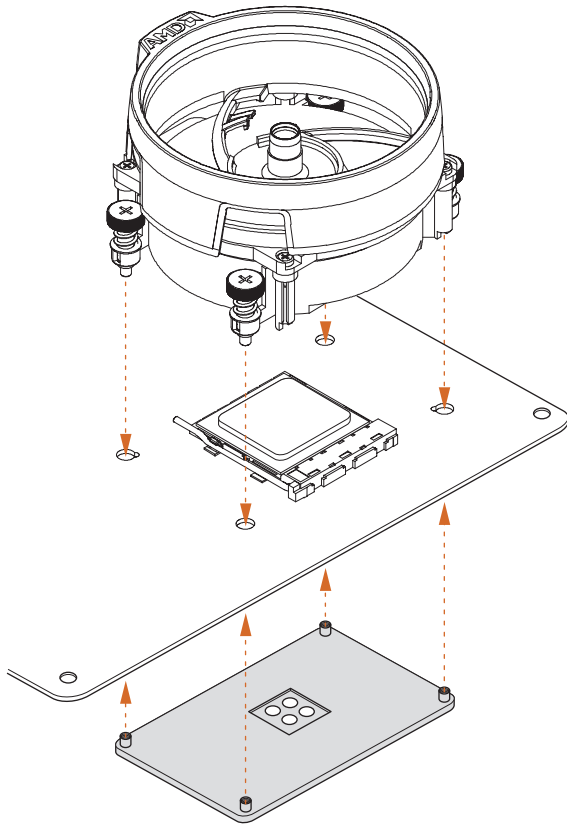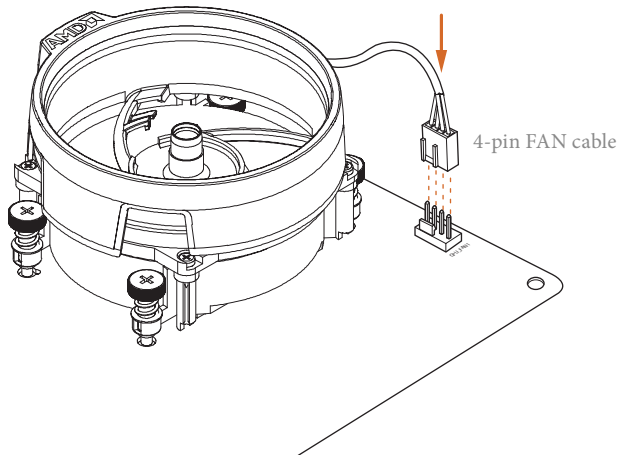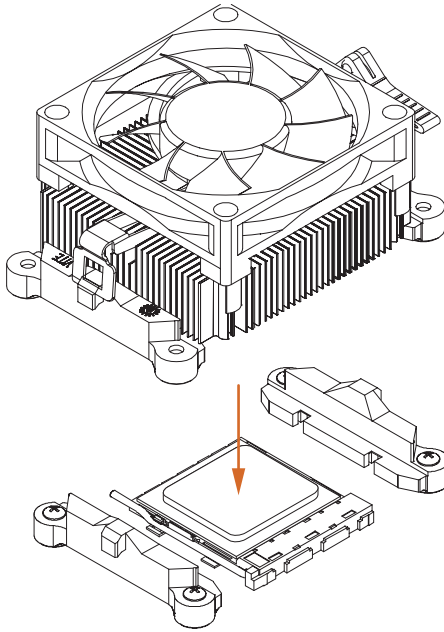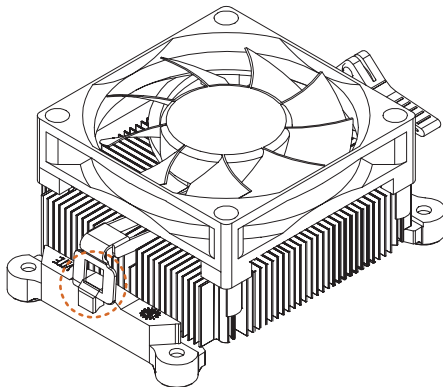
Installing the CPU Box Cooler -1

1

2

3

4

4-pin FAN cable
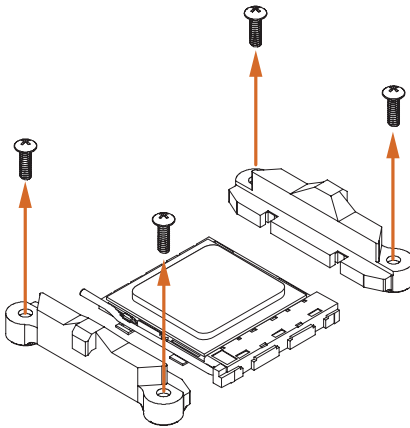
Installing the CPU Box Cooler -2

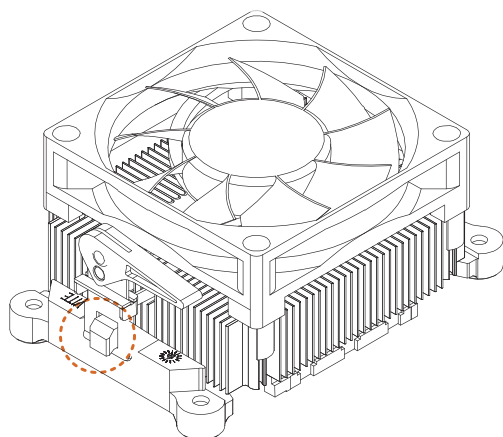**1**
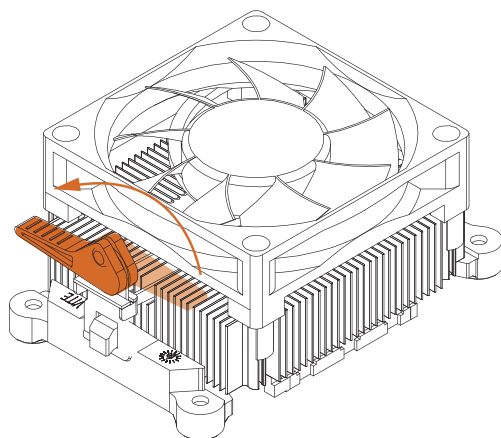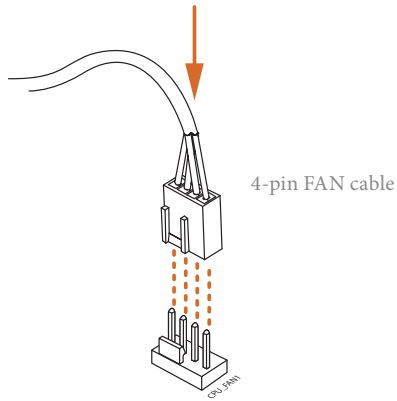

2

3

4

5

4-pin FAN cable

CPU_FAN1

2.3 Installing Memory Modules (DIMM)

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

☆

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

AMD non-XMP Memory Frequency Support

Ryzen Series APUs (Cezanne):

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

Ryzen Series CPUs (Matisse):

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

Ryzen Series CPUs (Matisse):

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

Ryzen Series APUs (Renoir):

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

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Ryzen Series CPUs (Pinnacle Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2933
-	SR	-	SR	2933
-	DR	-	DR	2933
SR	SR	SR	SR	2933
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2133-2400

Ryzen Series APUs (Picasso):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2667
-	SR	-	SR	2667
-	DR	-	DR	2400
SR	SR	SR	SR	2133
SR/DR	DR	SR/DR	DR	1866
SR/DR	SR/DR	SR/DR	SR/DR	1866

Ryzen Series CPUs (Raven Ridge):

UDIMM Memory Slot				Frequency (Mhz)
A1	A2	B1	B2	
-	SR	-	-	2933
-	DR	-	-	2933
-	SR	-	SR	2933
-	DR	-	DR	2933
SR	SR	SR	SR	2933
SR/DR	DR	SR/DR	DR	2667
SR/DR	SR/DR	SR/DR	SR/DR	2133-2400

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

Recommended Memory Configuration

1 DIMM

A1	A2	B1	B2
			V

2 DIMMs

A1	A2	B1	B2
	V		V

4 DIMMs

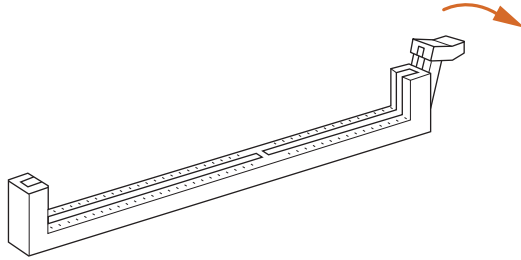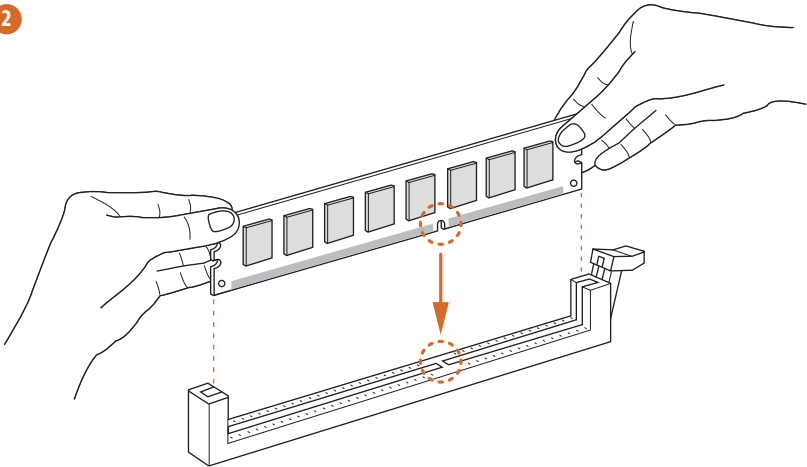| A1	A2	B1	B2
V	V	V	V

English

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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.
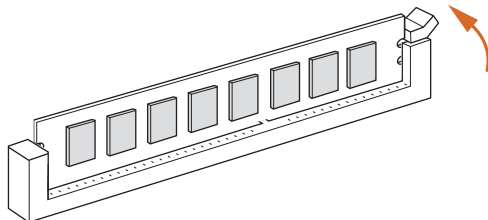
2.4 Expansion Slot (PCIe Slot)

There are 1 PCIe slot 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 slot:

PCIE2 (PCIe 3.0 x16 slot) is used for PCIe x16 lane width graphics cards.

PCIe Slot Configuration

	PCIE2
Ryzen series CPUs **(Vermeer, Matisse, Pinnacle Ridge)**	Gen3x16
Ryzen series APUs **(Cezanne, Renoir)**	Gen3x16
Ryzen series APUs **(Picasso, Raven Ridge)**	Gen3x8
Athlon series CPU	Gen3x4

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".
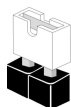
Short   Open

| Clear CMOS Jumper (CLRCMOS1) (see p.6, No. 13) | 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.6, No.10)

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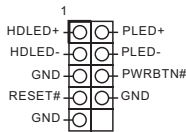
Connect the power button, reset button and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

> 🔍 **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.
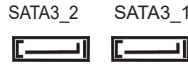>
> **PLED (System Power LED):**
> Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).
>
> **HDLED (Hard Drive 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.
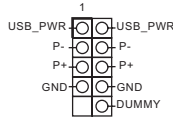>
> *The front panel design may differ by chassis. A front panel module mainly consists of power button, reset button, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.*

English

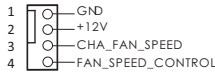|		
Serial ATA3 Connector (SATA3_1: see p.6, No. 9) (SATA3_2: see p.6, No. 13)	SATA3_2 SATA3_1	These two SATA3 connector supports SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

USB 2.0 Header (9-pin USB_5_6) (see p.6, No. 8)	1 USB_PWR — USB_PWR P- — P- P+ — P+ GND — GND DUMMY	There is one header on this motherboard. This USB 2.0 header can support two ports.

Chassis Fan Connector (4-pin CHA_FAN1) (see p.6, No. 11)	1 — GND 2 — +12V 3 — CHA_FAN_SPEED 4 — FAN_SPEED_CONTROL	Please connect fan cable to the fan connector and match the black wire to the ground pin.

|		
CPU Fan Connectors (4-pin CPU_FAN1) (see p.6, No. 3)	1 — GND 2 — +12V 3 — CPU_FAN_SPEED 4 — FAN_SPEED_CONTROL	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.
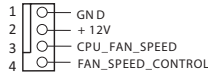
Serial Port Header (9-pin COM1) (see p.6, No.1) (for X300-ITX/COM only)	1 RRI#1 CCTS#1 RRTS#1 DDSR#1 GND DDTR#1 TTXD#1 RRXD#1 DDCD#1	This COM1 header supports a serial port module.
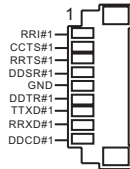
ATX Power Connector
(24-pin ATXPWR1)
(see p.6, No. 7)

1   **12**

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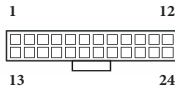
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.


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

8   5

4   1
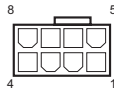
This motherboard provides a 8-pin ATX 12V power connectors. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5.
*Warning: Please make sure that the power cable connected is for the CPU and not the graphics card. Do not plug the PCIe power cable to this connector.

Chassis Intrusion Header
(2-pin CI1)
(see p.6, No. 6)

GND ——— 1
Signal ———
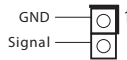
This motherboard supports CASE OPEN detection feature that detects if the chassis cove has been removed. This feature requires a chassis with chassis intrusion detection design.

English
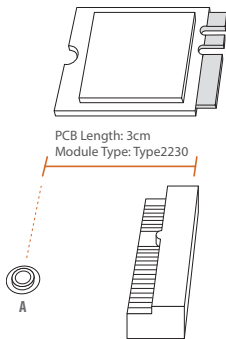
27

2.7 M.2 WiFi/BT Module Installation Guide

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (Key E) supports type 2230 WiFi/BT module.
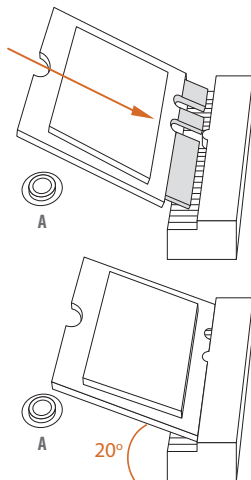
Installing the WiFi/BT module
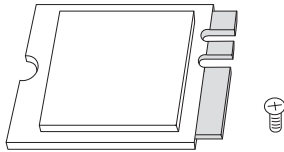
Step 1

Prepare a type 2230 WiFi/BT module and the screw.

Step 2

Find the nut location to be used.

PCB Length: 3cm
Module Type: Type2230

A

Step 3

Gently insert the WiFi/BT module into the M.2 slot. Please be aware that the module only fits in one orientation.

A

A   20°
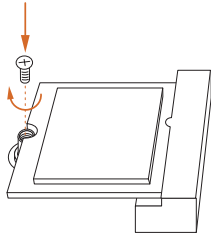
Step 4

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

2.8 M.2_SSD (NGFF) Module Installation Guide

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Ultra M.2 Socket (M2_1) supports type 2280 M.2 PCI Express module up to Gen3 x4 (32 Gb/s) or Gen3 x2 (16 Gb/s) (with Athlon 2xxGE series).

Installing the M.2_SSD (NGFF) Module

Step 1

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

Step 2

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.
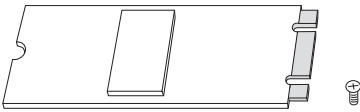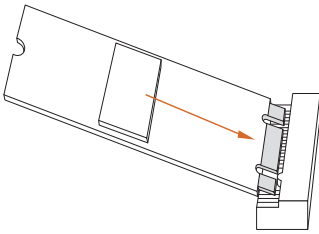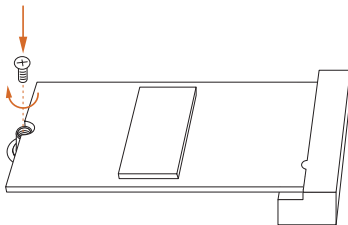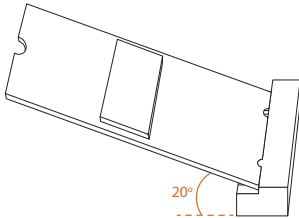
20º

Step 3

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

M.2_SSD (NGFF) Module Support List

Vendor	Interface	P/N
ADATA	PCIe	ADATA ASX7000NPC-512GT-C (XPG SX7000) (NVMe)
ADATA	PCIe	ADATA ASX8000NPC-512GM-C (XPG ASX8000) (NVMe)
Apacer	PCIe	Apacer Z280 AP240GZ280-240G (NVMe)
Intel	PCIe	Intel Optane Memory 32GB (MEMPEK1W032GA)(NVMe)
Intel	PCIe	Intel Optane Memory 16GB (MEMPEK1W016GA)(NVMe)
INTEL	PCIe	INTEL 600P-SSDPEKKW256G7-256GB (NVMe)
INTEL	PCIe	INTEL 600P-SSDPEKKW128G7-128GB (NVMe)
INTEL	PCIe	INTEL 6000P-SSDPEKKF256G7-256GB (NVMe)
INTEL	PCIe	INTEL 6000P-SSDPEKKF512G7-512GB (NVMe)
Kingston	PCIe	Kingston SHPM2280P2/240G
PATRIOT	PCIe	PATRIOT Hellfire M2 (240G) (NVMe)
PLEXTOR	PCIe	PLEXTOR PX-256M8PeG (NVMe)
PLEXTOR	PCIe	PLEXTOR PX-256M8SeGN (NVMe)
Samsung	PCIe	Samsung XP941-512G (MZHPU512HCGL)
Samsung	PCIe	Samsung 950Pro-512G (NVMe)
Samsung	PCIe	Samsung 950Pro-256G (NVMe)
Samsung	PCIe	Samsung MZ-VLW1280 (PM961) (NVMe)
Samsung	PCIe	Samsung MZ-VPW1280 (SM961) (NVMe)
TOSHIBA	PCIe	TOSHIBA XG3-128G (NVMe)
TOSHIBA	PCIe	TOSHIBA OCZ RD400-256G (NVMe)
WD	PCIe	WD WDS512G1X0C-00ENX0 (NVMe)
WD	PCIe	WD WDS256G1X0C-00ENX0 (NVMe)

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

English

Chapter 3 Software and Utilities Operation

3.1 Installing Drivers

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

Running The Support CD

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

Drivers Menu

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

Utilities Menu

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

Chapter 4 UEFI SETUP UTILITY

4.1 Introduction

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

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

4.1.1 UEFI Menu Bar

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

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
Security	For security settings
Boot	For configuring boot settings and boot priority
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.
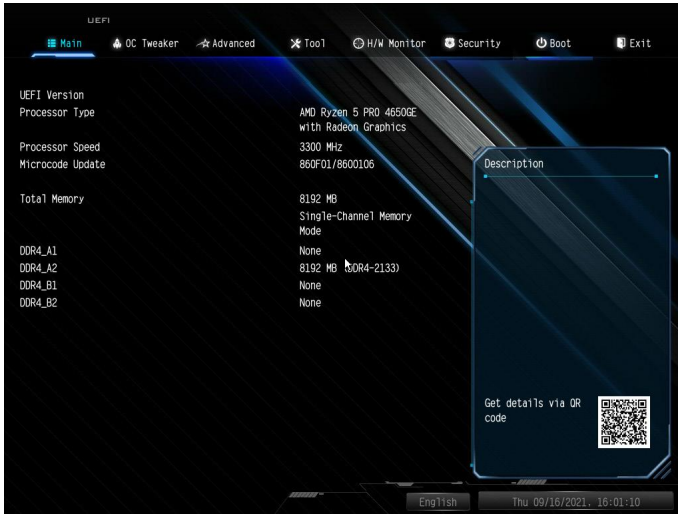
4.3 OC Tweaker Screen

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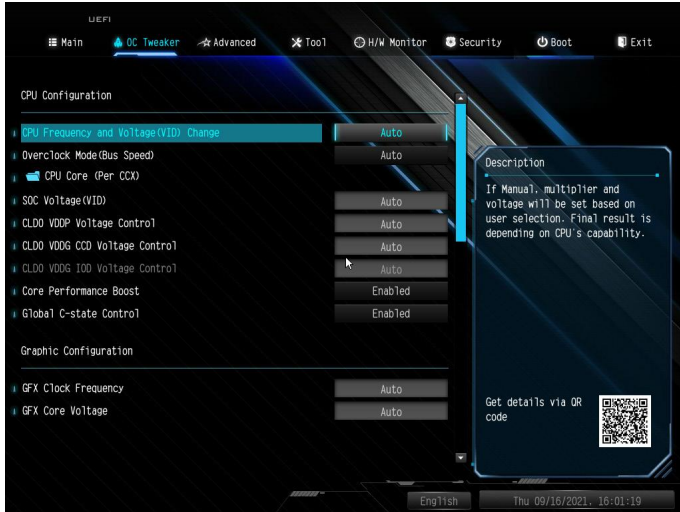
> *Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.*

CPU Frequency and Voltage(VID) Change

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

Overclock Mode(Bus Speed)

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

CPU Core (Per CCX)

CPU Voltage

Specifies a custom CPU core voltage (mV), Should be combined with a custom CPU core frequency. Power saving features for idle cores (e.g. cc6 sleep) remain active.

CCD0

CCX0 Frequency (MHz)

Use this item to adjust CCX0 Frequency.

CCX1 Frequency (MHz)

Use this item to adjust CCX1 Frequency.

CCD1

CCX0 Frequency (MHz)

Use this item to adjust CCX0 Frequency.

CCX1 Frequency (MHz)

Use this item to adjust CCX1 Frequency.

SoC Voltage(VID)

Specify the voltage (VDD_SOC) in mV to support memory and Infinity Fabric overclocking. VDD_SOC also determines the GPU voltage on processors with integrated graphics. "SoC/ Uncore OC Mode" needs to be enabled to force this voltage.

CLD0 VDDP Voltage Control

AMD Overclocking Setup VDDP is a voltage for the DDR4 bus signaling (PHY), and it is derived from your DRAM Voltage (VDDIO_Mem). As a result, VDDP voltage in mV can approach but not exceed your DRAM Voltage.

CLD0 VDDG CCD Voltage Control

AMD Overclocking Setup VDDG CCD represents voltage for the data portion of the Infinity Fabric. It is derived from the CPU SoC/Uncore Voltage (VDD_SOC). VDDG can approach but not exceed VDD_SOC.

CLD0 VDDG IOD Voltage Control

AMD Overclocking Setup VDDG IOD represents voltage for the data portion of the Infinity Fabric. It is derived from the CPU SoC/Uncore Voltage (VDD_SOC). VDDG can approach but not exceed VDD_SOC.

Core Performance Boost

Core Performance Boost (CPB) allows you to determine whether to enable the Core Performance Boost (CPB) technology, a CPU performance-boost technology.

English

Global C-state Control

This option controls IO based C-state generation and DF C-states.

Graphic Configuration

GFX Clock Frequency (Only for processor with integrated graphics)

This item allows you to alter the frequency for the GFX clock frequency. After you alter the GFX Clock Frequency settings, make sure to adjust the GFX Core Voltage settings.
*The adjustable range is dependent on the CPU being installed.

GFX Core Voltage (Only for processor with integrated graphics)

This item allows you to alter the voltage for the GFX Core Voltage.
*The adjustable range is dependent on the CPU being installed.

DRAM Timing Configuration

DRAM Information

Load XMP Setting

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

DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically. Setting DRAM Frequency can adjust DRAM Timing.

Infinity Fabric Frequency and Dividers

AMD Overclocking Setup Set Infinity Fabric frequency (FCLK). Auto: FCLK = MCLK. Manual: FCLK must be less than or equal to MCLK for best performance in most cases. Latency penalties are incurred if FCLK and MCLK are mismatched, but sufficiently high MCLK can negate or overcome this penalty.

DRAM Timing Configuration

Voltage Configuration

CPU Vcore Voltage (Offset)

Configure the voltage for the CPU Vcore (Offset).

VDDCR SOC Voltage (Offset)

Configure the voltage for the VDDCR SOC (Offset)

DRAM Voltage

Configure the voltage for the DRAM Voltage.

VDDP

Configure the voltage for the VDDP.

SMU Common Options

XFR Enhancement

Save User Default

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

Load User Default

Load previously saved user defaults.

### Save User UEFI Setup Profile to Disk

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

Load User UEFI Setup Profile to Disk

Load previously saved user defaults from the disk.

4.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Onboard Devices Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration, Trusted Computing and AMD Firmware Version.
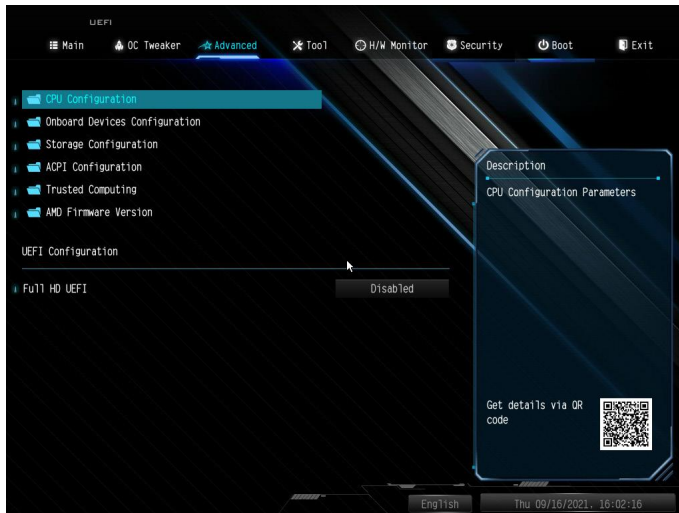
> 🔍 *Setting wrong values in this section may cause the system to malfunction.*

UEFI Configuration

Full HD UEFI

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

4.4.1 CPU Configuration

PSS Support

Use this to enable or disable the generation of ACPI_PPC, _PSS, and _PCT objects.

NX Mode

Use this to enable or disable NX mode.

SVM Mode

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

SMT Mode

This item can be used to disable symmetric multithreading. To re-enable SMT, a power cycle is needed after selecting [Auto].
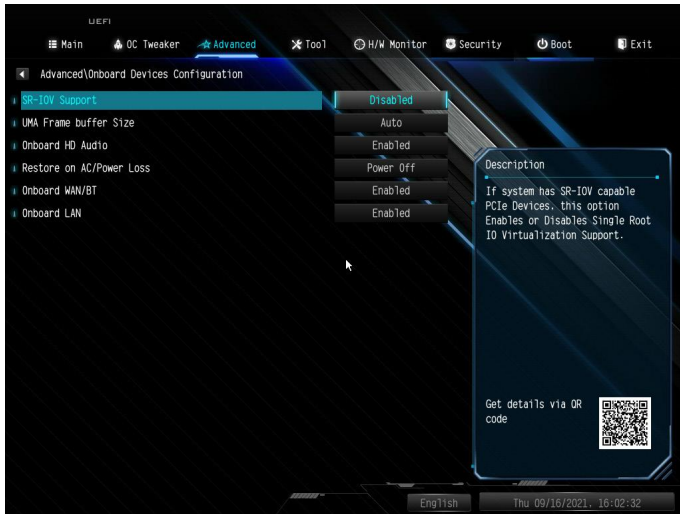Warning: S3 is not supported on systems where SMT is disabled.

IOMMU

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

TPM Switch

Use this to enable or disable AMD CPU fTPM.

English

4.4.2 Onboard Devices Configuration

SR-IOV Support

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

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

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

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.

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.
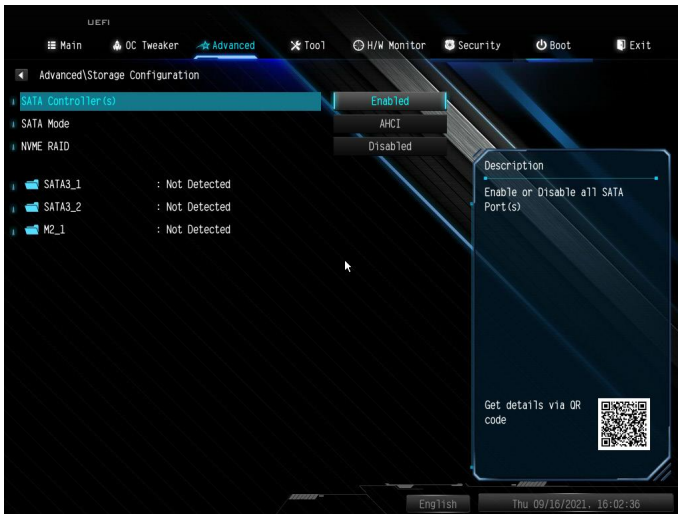
Onboard WAN/BT

Enable/disable the onboard WAN/bluetooth function.

Onboard LAN

Enable or disable the onboard network interface controller.

4.4.3 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.

NVME RAID

Enable/disable RAID mode on NVMe device.
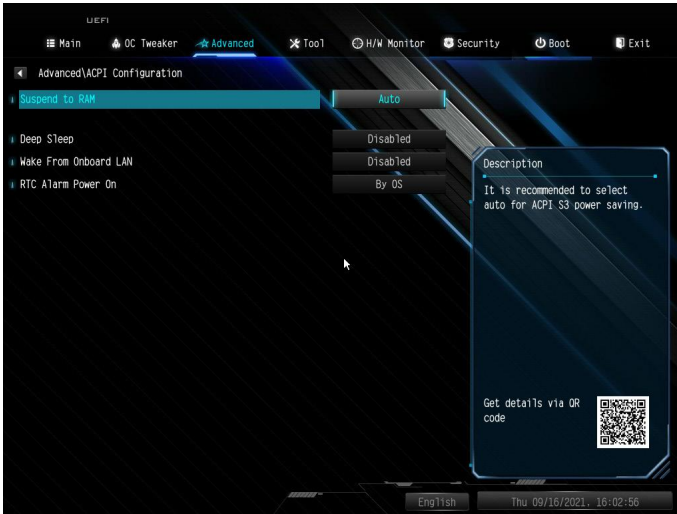
4.4.4 Super IO Configuration

Serial Port (for X300-ITX/COM only)

Enable or disable the Serial port.

Serial Port Address (for X300-ITX/COM only)

Select the address of the Serial port.

4.4.5 ACPI Configuration

Suspend to RAM

It is recommended to select auto for ACPI S3 power saving.

Deep Sleep

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

Wake From Onboard LAN

Allow the system to be waked up by a onboard 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.

4.4.6 Trusted Computing

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

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

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

SHA256 PCR Bank
Use this item to enable or disable SHA256 PCR Bank.

Pending Operation
Schedule an Operation for the Security Device.
NOTE: Your computer will reboot during restart in order to change State of the Device.

Platform Hierarchy
Use this item to enable or disable Platform Hierarchy.

Storage Hierarchy
Use this item to enable or disable Storage Hierarchy.

Endorsement Hierarchy
Use this item to enable or disable Endorsement Hierarchy.

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TPM2.0 UEFI Spec Version

Use this item to select the TCG2 spec. version supported.
The optional settings: [TCG_1_2]; [TCG_2].

[TCG_1_2]: compatible mode for Win8/Win10.
[TCG_2]: for TCG2 newer spec. compatible mode for Win10

Physical Presence Spec version

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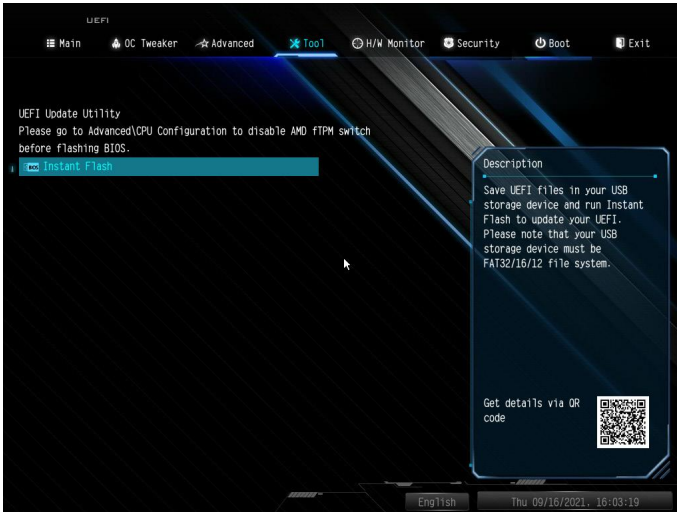
Device Select

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

4.4.7 AMD Firmware Version
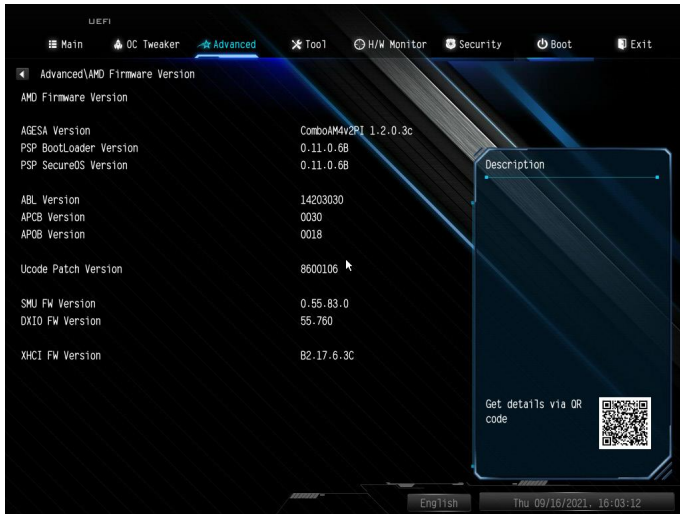
This page shows all of AMD Firmware Version.

4.5 Tools

Instant Flash

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

4.6 Hardware Health Event Monitoring Screen

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

CPU Fan 1 Setting

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

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.
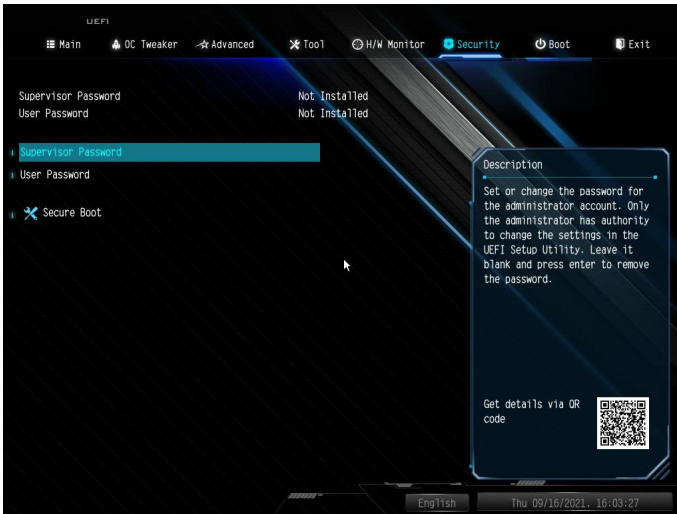
Supervisor Password

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.
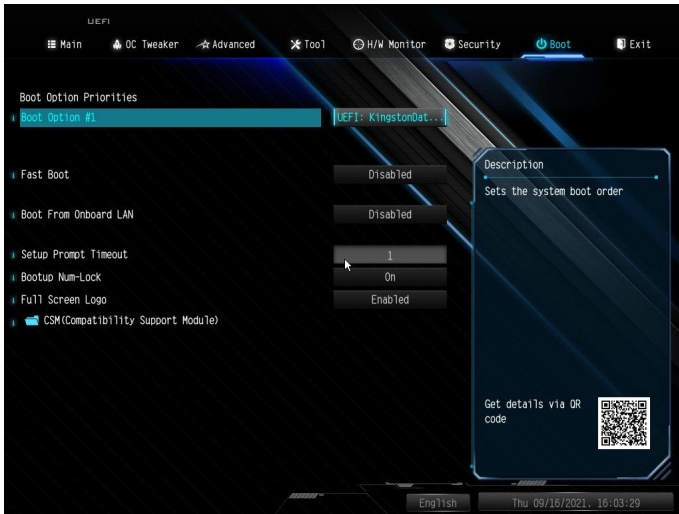
User Password

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 boot from a network instead of the local drive.

Setup Prompt Timeout

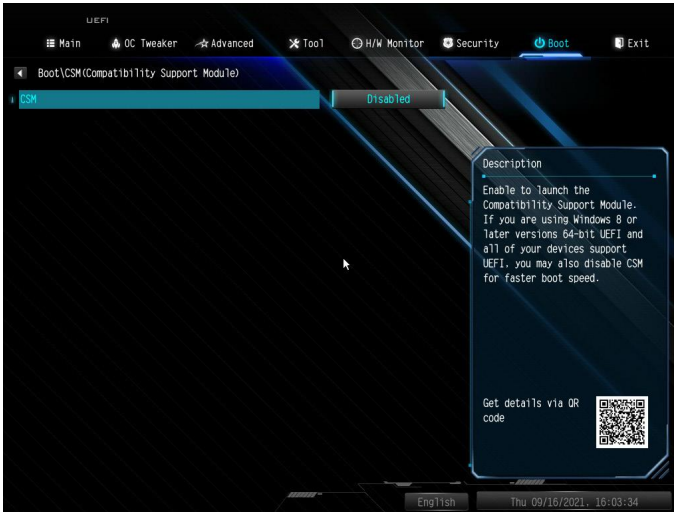Configure the number of seconds to wait for the setup hot key.

Bootup Num-Lock

Select whether Num Lock should be turned on or off when the system boots up.

Full Screen Logo

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

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
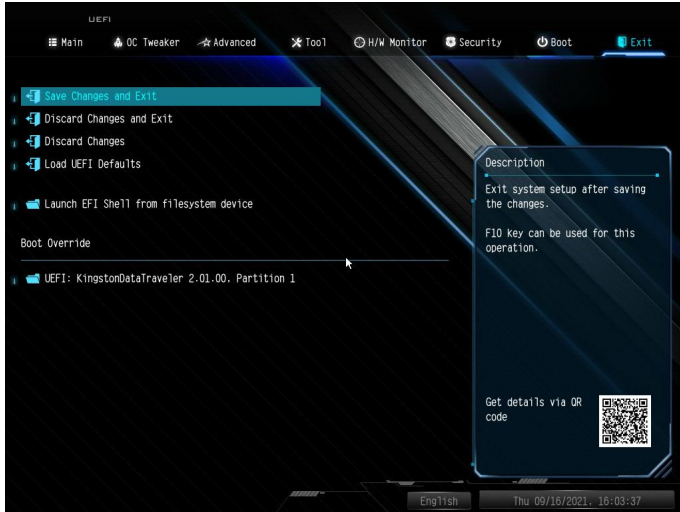
Save Changes and Exit

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.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

FC

Product Name : Motherboard

Model Number : X300-ITX / X300-ITX/COM

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.

EU Declaration of Conformity

For the following equipment:

Motherboard

(Product Name)

X300-ITX / X300-ITX/COM

(Model Designation / Trade Name)

EMC Directive – 2014/30/EU
EN 55032: 2015 / A11: 2020, EN 55035: 2017 / A11: 2020
EN IEC 61000-3-2: 2019, EN 61000-3-3: 2013

RoHS Directive - 2011/65/EU
2015/863/EU, EN IEC 63000:2018

CE (EU conformity marking)