Contact Information

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

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Scan the QR code to view more manuals and documents.

Contents

Chapter 1 Introduction

Thank you for purchasing ASRock WRX80 Creator R2.0 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.

Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on 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 WRX80 Creator R2.0 Motherboard (EATX Form Factor)
- ASRock WRX80 Creator R2.0 User Manual
- 4 x Serial ATA (SATA) Data Cables (Optional)
- 1 x ASRock WiFi 2.4/5/6 GHz Antenna (Optional)
- 2 x Screws for M.2 Sockets (Optional)
- 2 x Standoffs for M.2 Sockets (Optional)

English

1.2 Specifications

Platform	• EATX Form Factor • 14 Layer PCB • 2oz Copper PCB
CPU	• Supports AMD Socket sWRX8 for AMD Ryzen™ Threadripper™ PRO 5000WX and 3000WX Series Processors • Intersil Digital PWM • 8 Power Phase design • Supports ASRock Hyper BCLK Engine III
Chipset	• AMD WRX80
Memory	• Eight Channel DDR4 Memory Technology • 8 x DDR4 DIMM Slots • Supports DDR4 ECC & non-ECC, buffered and un-buffered memory (U-DIMM) up to 4400+(OC)* • Supports DDR4 3200/2933/2667/2400/2133 ECC & non-ECC, buffered and un-buffered memory (R-DIMM and 3DS R-DIMM)* * Supports DDR4 3200 natively. • Max. capacity of system memory: 2048 GB • 15µ Gold Contact in DIMM Slots
Expansion Slot	CPU: • 7 x PCIe 4.0 x16 Slots (PCIE1/PCIE2/PCIE3/PCIE5/PCIE7 at x16; PCIE4/PCIE6 at x8)* Chipset: • 1 x Vertical M.2 Socket (Key E), supports type 2230 WiFi/BT PCIe WiFi module * Supports NVMe SSD as boot disks • 15µ Gold Contact in VGA PCIe Slots (PCIE1, PCIE2 ,PCIE3, PCIE5 and PCIE7)

English

Thunderbolt™	• Intel® JHL8540 Thunderbolt™ 4 Controller • Supports Thunderbolt™ 4 interface with max. resolution of 5K (5120 x 2880) @ 60Hz for one display over a single cable connection • Supports Thunderbolt™ 4 interface with max. resolution of 4K x 2K (4096x2160) @ 60Hz for dual displays over a single cable connection * DisplayPort or USB-C monitor is not supported on the Thunderbolt™ 4 Type-C Ports * A discrete graphics card is required for Thunderbolt display
Graphics	• Aspeed® AST2500 BMC Controller • Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
Audio	• 7.1 CH HD Audio (Realtek ALC4050H+ALC1220) • Premium Blu-ray Audio support • Supports Surge Protection • NE5532 Premium Headset Amplifier for Front Panel Audio Connector (Supports up to 600 Ohm headsets) • Pure Power-In • Direct Drive Technology • PCB Isolate Shielding • Impedance Sensing on Rear Out port • Individual PCB Layers for R/L Audio Channel • Gold Audio Jacks • 15μ Gold Audio Connector • Nahimic Audio
LAN	**2 x 10 Gigabit LAN 100/1000/2500/5000/10000 Mb/s (Marvell (Aquantia) AQC113CS)** • Support Wake-On-LAN • Support PXE **1 x Dedicated IPMI (ASPEED AST2500)** • Supports iKVM and vMedia

Wireless LAN	• 802.11ax Wi-Fi 6E Module • Supports IEEE 802.11a/b/g/n/ax • Supports Dual-Band 2x2 160MHz with extended 6GHz band* support * Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The availability will depend on the different regulation status of each country and region. It will be activated (for supported countries) through Windows Update and software updates once available. * A 6GHz compatible router is required for 6E functionality. • 2 antennas to support 2 (Transmit) x 2 (Receive) diversity technology • Supports Bluetooth + High speed class II • Supports MU-MIMO
Rear Panel I/O	• 2 x Antenna Ports • 1 x D-Sub Port • 1 x Optical SPDIF Out Port • 2 x USB 4.0 Thunderbolt™ 4 Type-C Ports (40 Gb/s for USB 4.0 protocol; 40Gb/s for Thunderbolt protocol) (Supports ESD Protection)* * Supports USB-PD 3.0 9V/3A(27W) and 5V/3A(15W) • 2 x Mini DisplayPort Input Ports**(For Thunderbolt) ** Please choose regular mini DisplayPort to DisplayPort adapter cables instead of right angled ones if you use two mini DisplayPort input ports simultaneously. • 4 x USB 3.2 Gen2 Ports (10 Gb/s) (Supports ESD Protection)*** *** Ultra USB Power is supported on USB31_1_2 ports. *** ACPI wake-up function is not supported on USB31_1_2 ports. • 2 x USB 3.2 Gen1 Ports (Supports ESD Protection) • 2 x RJ-45 LAN Ports with LED (ACT/LINK LED and SPEED LED) • 1 x RJ45 Dedicated IPMI LAN Port with LED (ACT/LINK LED and SPEED LED) • 1 x Clear CMOS Button • HD Audio Jacks: Rear Speaker / Central / Line in / Front Speaker / Microphone (Gold Audio Jacks)

Storage	CPU: • 1 x Hyper M.2 Socket (M2_1, Key M), supports type 2260/2280/22110 SATA3 6.0 Gb/s & PCIe Gen4x4 (64 Gb/s) modes* Chipset: • 1 x Hyper M.2 Socket (M2_2, Key M), supports type 2260/2280 PCIe Gen4x4 (64 Gb/s) mode* • 8 x SATA3 6.0 Gb/s Connectors • 1 x U.2 Connector * Supports NVMe SSD as boot disks * Supports ASRock U.2 Kit
RAID	• Supports RAID 0, RAID 1, RAID 5 and RAID 10 for SATA storage devices • Supports RAID 0, RAID 1 and RAID 5 for M.2 NVMe storage devices* * Requires additional M.2 NVMe expansion cards to support RAID 5
Connector	• 1 x SPI TPM Header • 1 x COM Port Header • 1 x Intelligent Platform Management Bus Header • 1 x PSU SMBus Header • 1 x BMC SMBus Header • 1 x Auxiliary Panel Header • 1 x Power LED and Speaker Header • 1 x RGB LED Header * Supports in total up to 12V/3A, 36W LED Strip • 2 x Addressable LED Headers * Support in total up to 5V/3A, 15W LED Strip • 1 x CPU Fan Connector (4-pin) * The CPU Fan Connector supports the CPU fan of maximum 1A (12W) fan power. • 1 x CPU/Water Pump Fan Connector (4-pin) (Smart Fan Speed Control) * The CPU/Water Pump Fan supports the water cooler fan of maximum 2A (24W) fan power.

- 3 x Chassis/Water Pump Fan Connectors (4-pin) (Smart Fan Speed Control)

* The Chassis/Water Pump Fan supports the water cooler fan of maximum 2A (24W) fan power.
* CPU_FAN2/WP, CHA_FAN1/WP, CHA_FAN2/WP and CHA_FAN3/WP can auto detect if 3-pin or 4-pin fan is in use.

- 1 x 24 pin ATX Power Connector (Hi-Density Power Connector)

* We recommend using a PSU with a max. current of 3A on +5VSB.

- 2 x 8 pin 12V Power Connectors (Hi-Density Power Connector)
- 1 x 6 pin 12V Power Connector (Hi-Density Power Connector)
- 1 x Front Panel Audio Connector (15μ Gold Audio Connector)
- 1 x Right Angle Front Panel Audio Connector*

* Connect the audio device to either one of the audio connectors.

- 1 x USB 2.0 Header (Supports 2 USB 2.0 ports) (Supports ESD Protection)
- 2 x USB 3.2 Gen1 Headers (Support 4 USB 3.2 Gen1 ports) (Supports ESD Protection)
- 1 x Front Panel Type C USB 3.2 Gen2 Header (Supports ESD Protection)
- 1 x Non Maskable Interrupt Button Header
- 1 x Dr. Debug with LED
- 1 x Power Button with LED
- 1 x Reset Button

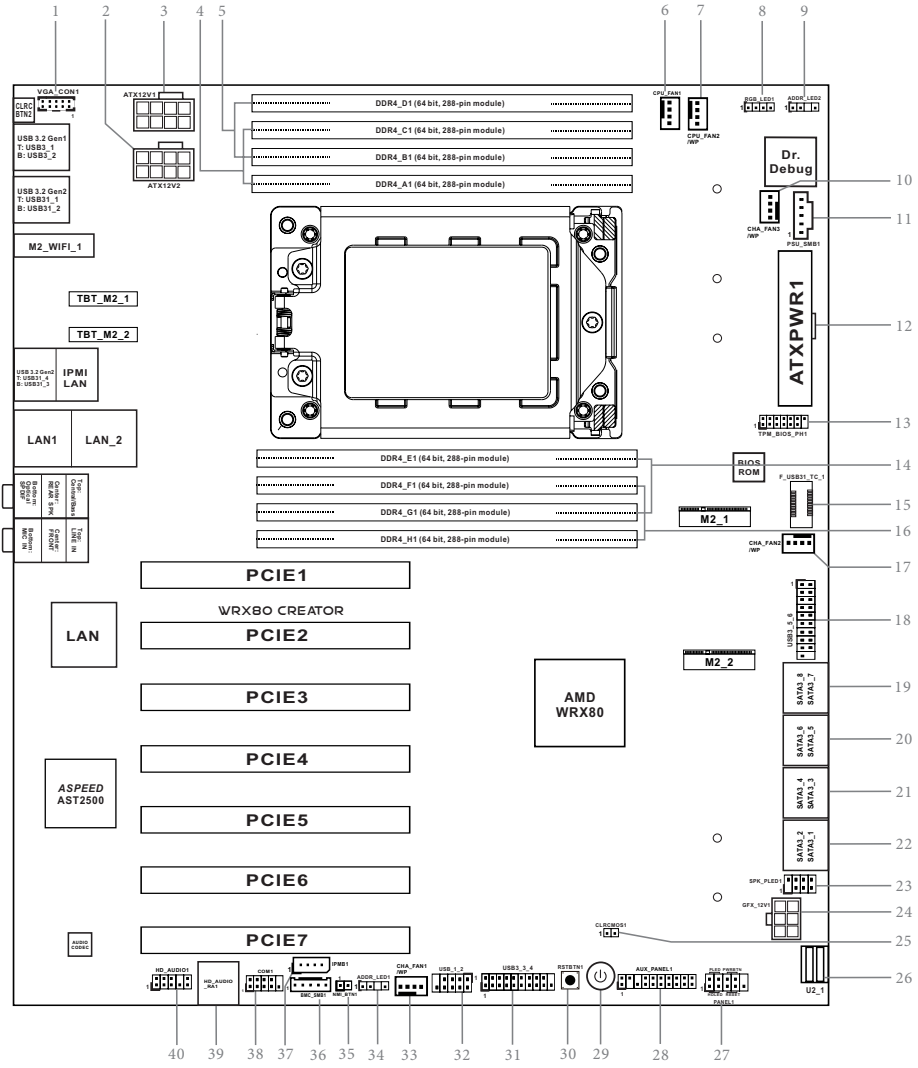
BIOS Feature	• AMI UEFI Legal BIOS with GUI support • Supports “Plug and Play” • ACPI 5.1 compliance wake up events • Supports jumperfree • SMBIOS 2.3 support • CPU VDDCR_CPU, CPU VDDCR_SOC, DRAM, VPPM, PREM VDD_CLDO, PERM VDDCR_SOC, +1.8V, VDDP Voltage Multi-adjustment

Hardware Monitor	• Fan Tachometer: CPU, CPU/Water Pump, Chassis/Water Pump Fans • Quiet Fan (Auto adjust chassis fan speed by CPU temperature): CPU, CPU/Water Pump, Chassis/Water Pump Fans • Fan Multi-Speed Control: CPU, CPU/Water Pump, Chassis/Water Pump Fans • Voltage monitoring: +12V, +5V, +3.3V, CPU VDDCR_CPU, CPU VDDCR_SOC, DRAM, PREM VDDCR_SOC, +1.8V
OS	• Microsoft® Windows® 10 64-bit / 11 64-bit * Sleep (S3) mode is not supported on this motherboard.
Certifications	• FCC, CE • ErP/EuP ready (ErP/EuP ready power supply is required) • CEC Tier II ready

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

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

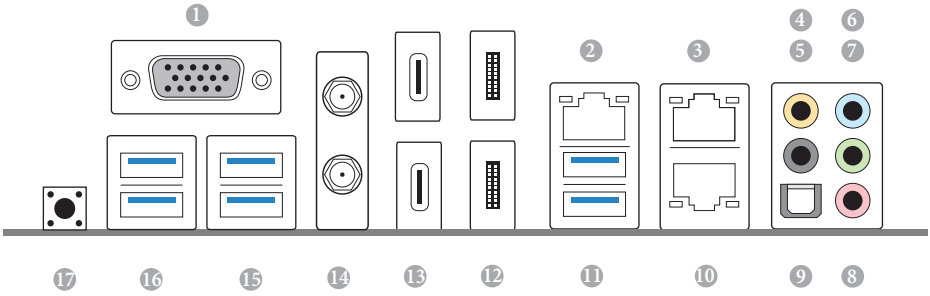
1.3 Motherboard Layout



No.	Description
1	VGA Header (VGA_CON1)
2	8 pin 12V Power Connector (ATX12V2)
3	8 pin 12V Power Connector (ATX12V1)
4	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_C1)
5	2 x 288-pin DDR4 DIMM Slots (DDR4_B1, DDR4_D1)
6	CPU Fan Connector (CPU_FAN1)
7	CPU / Waterpump Fan Connector (CPU_FAN2/WP)
8	RGB LED Header (RGB_LED1)
9	Addressable LED Header (ADDR_LED2)
10	Chassis / Waterpump Fan Connector (CHA_FAN3/WP)
11	PSU SMBus Header (PSU_SMB1)
12	ATX Power Connector (ATXPWR1)
13	SPI TPM Header (TPM_BIOS_PH1)
14	2 x 288-pin DDR4 DIMM Slots (DDR4_E1, DDR4_G1)
15	Front Panel Type C USB 3.2 Gen2 Header (F_USB31_TC_1)
16	2 x 288-pin DDR4 DIMM Slots (DDR4_F1, DDR4_H1)
17	Chassis / Waterpump Fan Connector (CHA_FAN2/WP)
18	USB 3.2 Gen1 Header (USB3_5_6)
19	SATA3 Connectors (SATA3_8)(Upper), (SATA3_7)(Lower)
20	SATA3 Connectors (SATA3_6)(Upper), (SATA3_5)(Lower)
21	SATA3 Connectors (SATA3_4)(Upper), (SATA3_3)(Lower)
22	SATA3 Connectors (SATA3_2)(Upper), (SATA3_1)(Lower)
23	Power LED and Speaker Header (SPK_PLED1)
24	6 pin 12V Power Connector (GFX_12V1)
25	Clear CMOS Jumper (CLRMOS1)
26	U.2 Connector (U2_1)
27	System Panel Header (PANEL1)
28	Auxiliary Panel Header (AUX_PANEL1)
29	Power Button (PWRBTN1)
30	Reset Button (RSTBTN1)
31	USB 3.2 Gen1 Header (USB3_3_4)
32	USB 2.0 Header (USB_1_2)
33	Chassis / Waterpump Fan Connector (CHA_FAN1/WP)

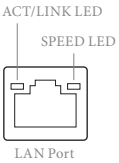
No.	Description
34	Addressable LED Header (ADDR_LED1)
35	Non Maskable Interrupt Button (NMI_BTN1)
36	BMC SMBus Header (BMC_SMB1)
37	Intelligent Platform Management Bus Header (IPMB1)
38	COM Port Header (COM1)
39	Right Angle Front Panel Audio Header (HD_AUDIO_RA1)
40	Front Panel Audio Header (HD_AUDIO1)

1.4 I/O Panel



No.	Description	No.	Description
1	VGA Port	10	10G LAN RJ-45 Port (LAN1)**
2	LAN RJ-45 Port (IPMI_LAN)*	11	USB 3.2 Gen2 Ports (USB31_3_4)
3	10G LAN RJ-45 Port (LAN_2)**	12	Mini DisplayPort Input Ports****
4	Central (Orange)	13	USB 4.0 Thunderbolt™ 4 Type-C Ports
5	Rear Speaker (Black)	14	Antenna Ports
6	Line In (Light Blue)	15	USB 3.2 Gen2 Ports (USB31_1_2)*****
7	Front Speaker (Lime)***	16	USB 3.2 Gen1 Ports (USB3_1_2)
8	Microphone (Pink)	17	Clear CMOS Button
9	Optical SPDIF Out Port		

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

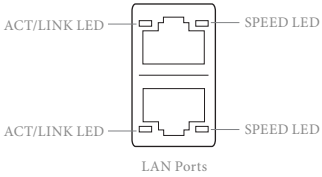


Dedicated IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10M bps connection or no link
Blinking Yellow	Data Activity	Yellow	100M bps connection
On	Link	Green	1G bps connection

English

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



10G LAN Port (LAN1, LAN_2) LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Green	100Mbps/1Gbps/2.5Gbps /5Gbps connection
Blinking	Data Activity		
On	Link	Orange	10Gbps connection

*** *If you use a 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack". See the table below for connection details in accordance with the type of speaker you use.*

Audio Output Channels	Front Speaker (No. 7)	Rear Speaker (No. 5)	Central (No. 4)	Line In (No. 6)
2	V	--	--	--
4	V	V	--	--
6	V	V	V	--
8	V	V	V	V

**** *Please choose regular mini DisplayPort to DisplayPort adapter cables instead of right angled ones when you use two mini DisplayPort input ports simultaneously.*

*****Ultra USB Power is supported on USB31_1_2 ports. ACPI wake-up function is not supported on USB31_1_2 ports.*

1.5 802.11ax Wi-Fi 6E Module and ASRock WiFi 2.4/5/6 GHz Antenna

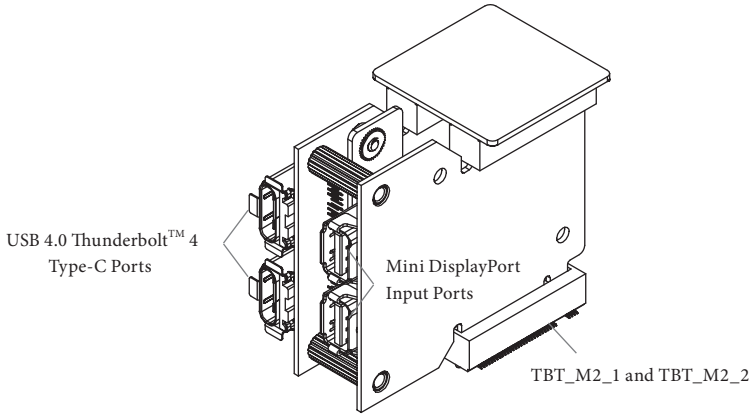
802.11ax Wi-Fi 6E + BT Module

This motherboard comes with an exclusive 802.11 a/b/g/n/ax Wi-Fi 6E + BT module (pre-installed on the rear I/O panel) that offers support for 802.11 a/b/g/n/ax Wi-Fi 6E connectivity standards and Bluetooth. Wi-Fi 6E + BT module is an easy-to-use wireless local area network (WLAN) adapter to support Wi-Fi 6E + BT. Bluetooth standard features Smart Ready technology that adds a whole new class of functionality into the mobile devices. BT also includes Low Energy Technology and ensures extraordinary low power consumption for PCs.

* The transmission speed may vary according to the environment.
* Wi-Fi 6E (6GHz band) will be supported by Microsoft® Windows® 11. The availability will depend on the different regulation status of each country and region. It will be activated (for supported countries) through Windows Update and software updates once available.
* A 6GHz compatible router is required for 6E functionality.

ASRock WiFi 2.4/5/6 GHz Antenna

1.6 ASRock Thunderbolt™ 4 Module



Specifications

Platform	• Size: 1.45-in x 1.65-in x 0.91-in, 3.7 cm x 4.2 cm x 2.3 cm
Controller	• Intel® JHL8540 Thunderbolt™ 4 Controller
M.2	• Proprietary design for ASRock specific motherboard * Please note that plugging into other M.2 connector may damage the motherboard and this module
Connector	• 2 x NGFF M Key Type M.2 Connectors • 2 x Mini DisplayPort 1.4 Input Ports • 2 x USB 4.0 Thunderbolt™ 4 Type-C Ports (40Gb/s for Thunderbolt protocol; 10 Gb/s for USB3.2 protocol) (Support ESD Protection)* *Supports daisy-chaining of up to three Thunderbolt™ devices. *This port supports USB-PD 3.0 power outputs 9V/3A 27W and 5V/3A 15W. For charging Type-C USB devices, the device should support Type-C standards to adjust the current because it will be different in Power On state (3 Amp). * USB keyboard/mouse wake up is not supported. *Some Type-C USB devices may only be charged by its own adapter.

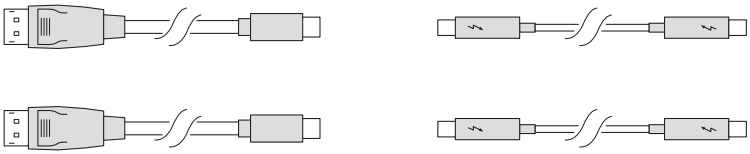
Interface	• PCI Express 3.0 x4 interface
Graphics	• Supports Thunderbolt™ 4 interface with max. resolution of 5K (5120 x 2880) @ 60Hz for one display over a single cable connection • Supports Thunderbolt™ 4 interface with max. resolution of 4K x 2K (4096x2160) @ 60Hz for dual displays over a single cable connection
Data Rate	• Supports 40Gbps bi-directional bandwidth per channel with Thunderbolt™ 4 port
OS	• Microsoft® Windows® 10 64-bit / 11 64-bit

*For the further information on the use of Thunderbolt™ 4 ports, please visit https://www.asrock.com/mb/AMD/WRX80%20Creator/index.asp#Specification.

Installation

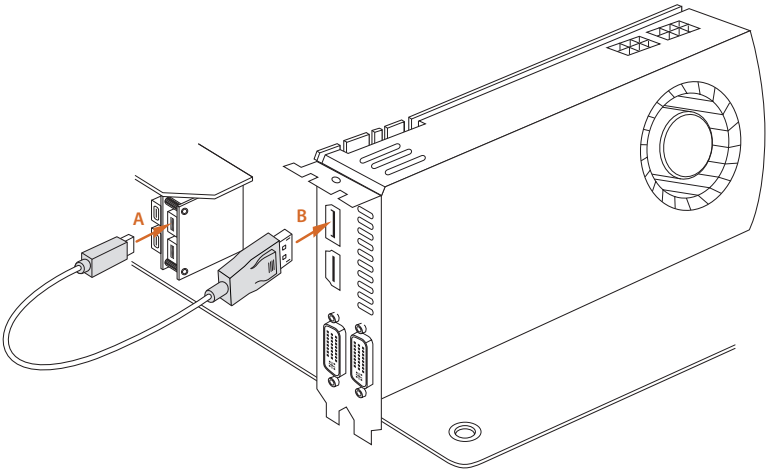
Step 1

Prepare two Mini DisplayPort to DisplayPort Adapter Cables and one/two Thunderbolt™ cables. All these cables are not included in the package.



Step 2

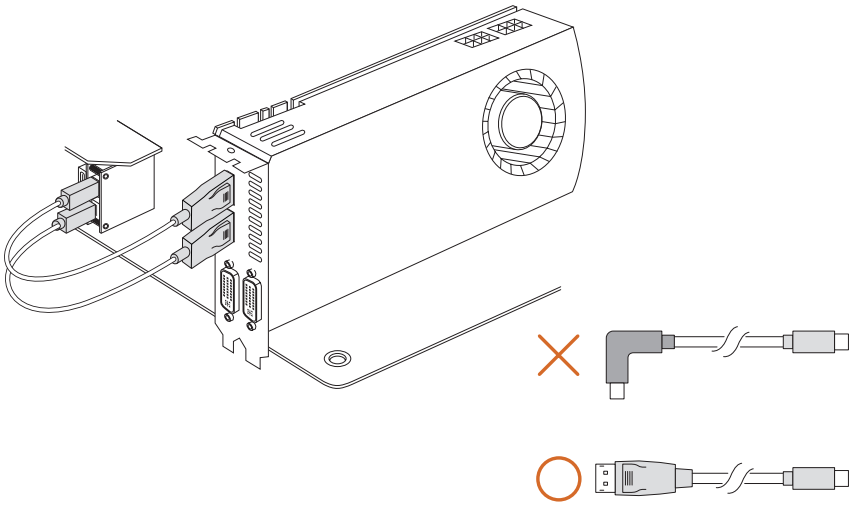
Connect one end of the Mini DisplayPort to DisplayPort Adapter Cable to the **Mini DisplayPort Input Port (A)** on ASRock Thunderbolt™ 4 Module on I/O panel. Then connect the other end of the cable to the **DisplayPort Output Port (B)** on the graphics card.



Step 3

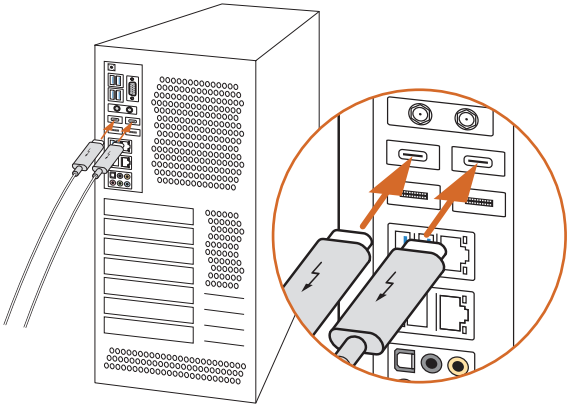
Follow step 2 to connect the other Mini DisplayPort Input Port to the graphics card.

1. *Make sure to connect both Mini DisplayPort Input Ports if you install the Thunderbolt™ output display device.*
2. *Please choose regular Mini DisplayPort to DisplayPort Adapter Cables instead of right angled ones when you use two Mini DisplayPort Input Ports simultaneously.*



Step 4

Connect the Thunderbolt™ cable(s) from your Thunderbolt-enabled device(s) to the USB 4.0 Thunderbolt™ 4 Type-C Port(s) on ASRock Thunderbolt™ 4 Module on I/O panel.



Chapter 2 Installation

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

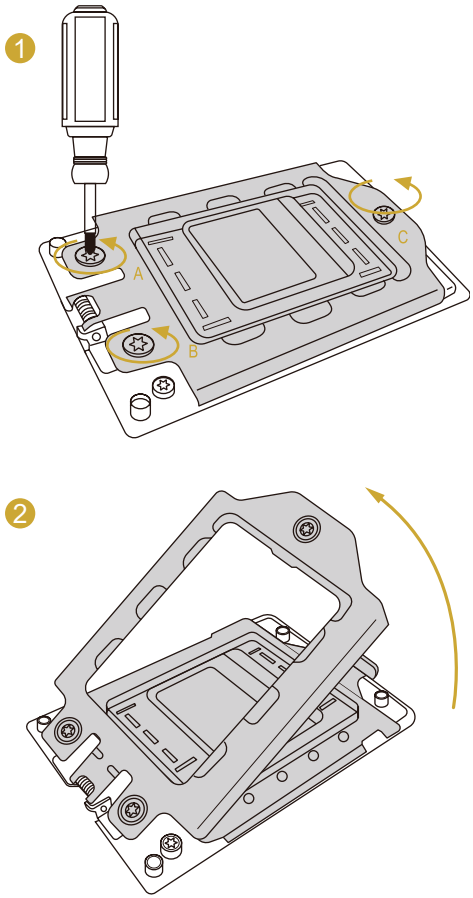
Pre-installation Precautions

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.



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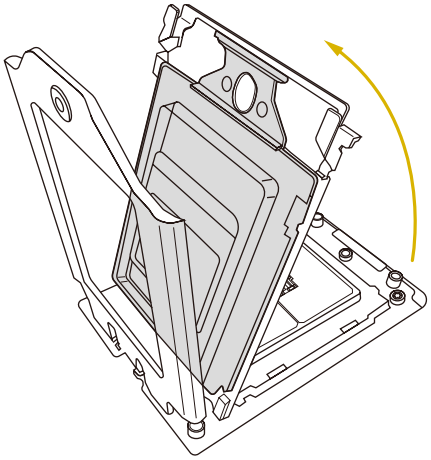

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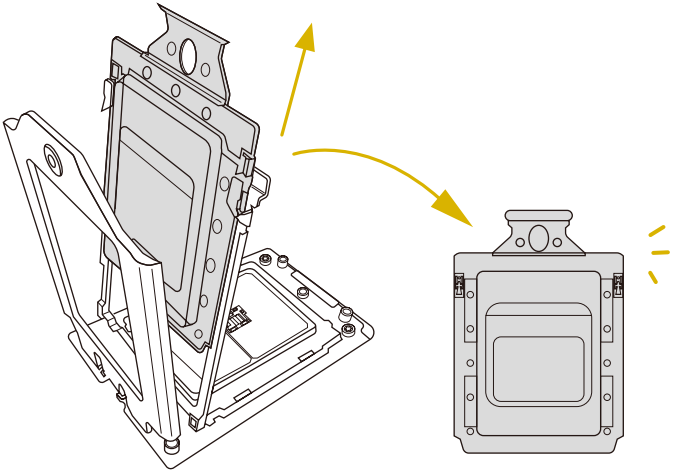

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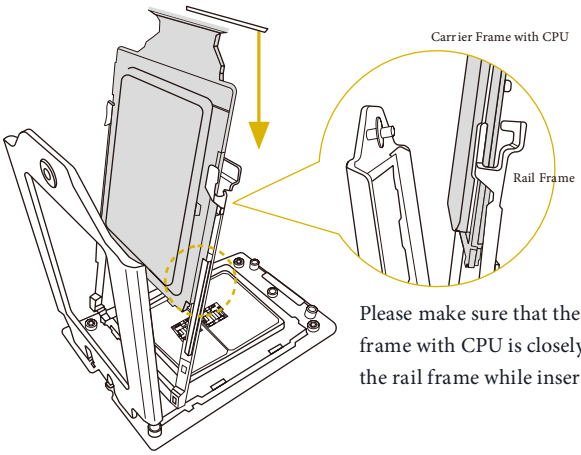
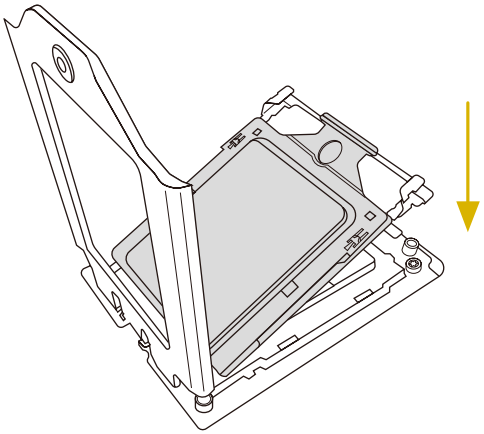


Please make sure that the carrier frame with CPU is closely attached to the rail frame while inserting it.

⚠

Install the orange carrier frame with CPU. Don't separate them.

6



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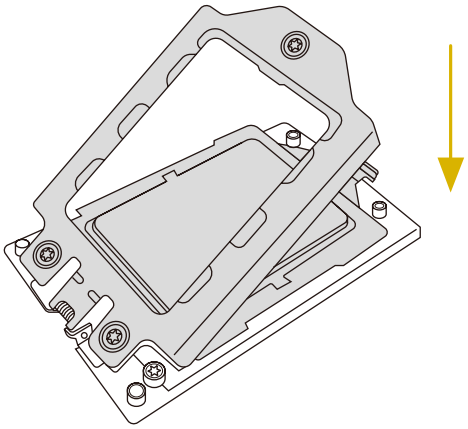

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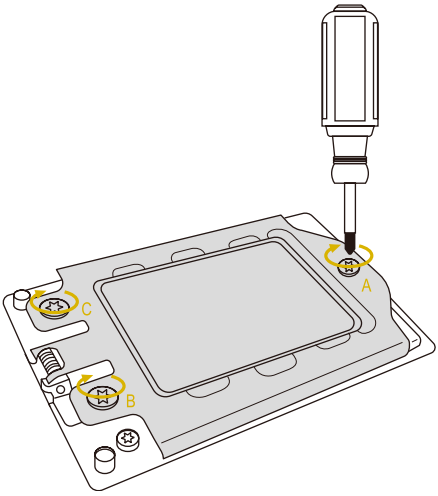
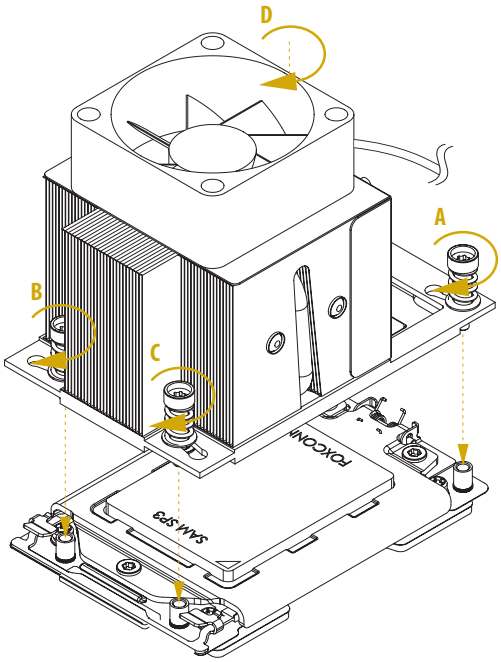


2.2 Installing the CPU Cooler

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.

1



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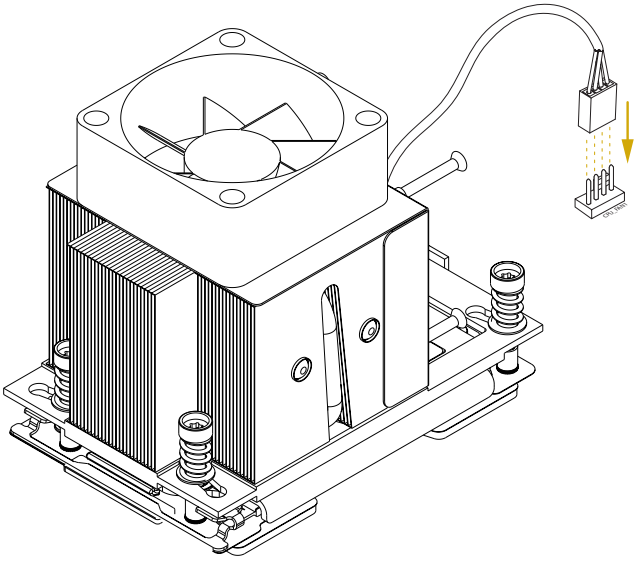
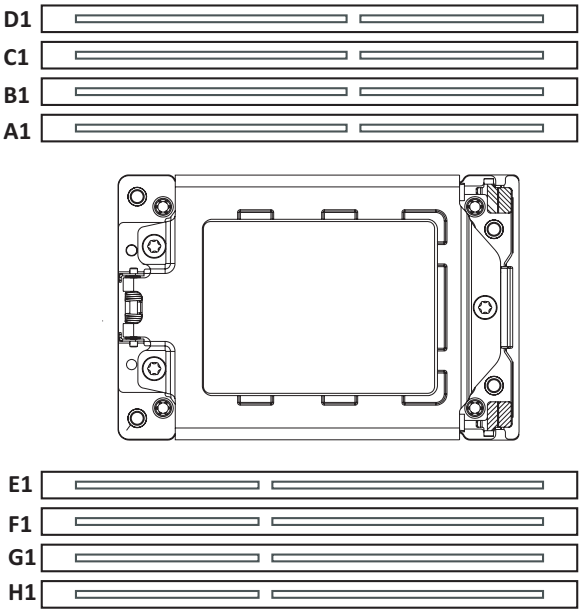


2.3 Installation of Memory Modules (DIMM)

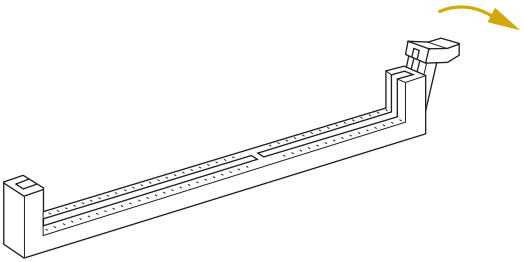
This motherboard provides eight 288-pin DDR4 (Double Data Rate 4) DIMM slots and supports Eight Channel Memory Technology.

1. *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.*
2. *For eight channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.*
3. *Some DDR4 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.*

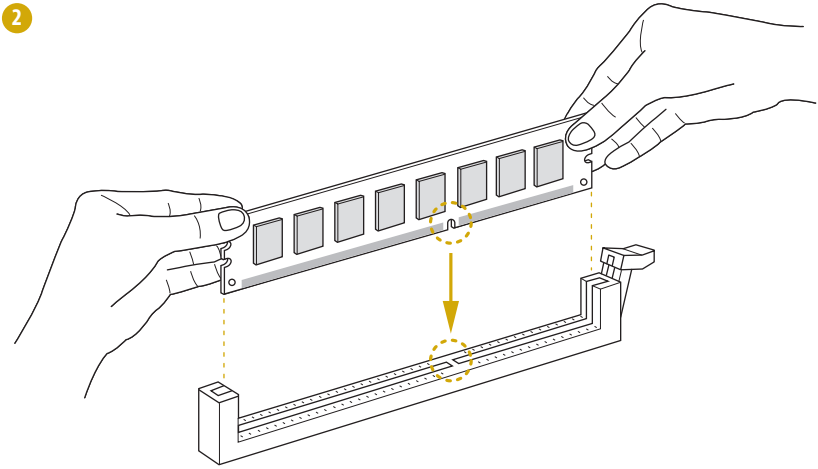
	CPU1							
	A1	B1	C1	D1	E1	F1	G1	H1
1 DIMM			#					
2 DIMMS			#	#				
4 DIMMS	#	#					#	#
8 DIMMS	#	#	#	#	#	#	#	#



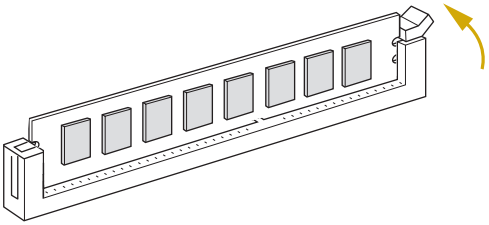
1



2



3



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 Slots (PCIe Slots)

There are 7 PCIe slots on this motherboard.

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

PCIe slots:

PCIE1 (PCIe 4.0 x16 slot) is used for PCIe x16 lane width graphics cards.
PCIE2 (PCIe 4.0 x16 slot) is used for PCIe x16 lane width graphics cards.
PCIE3 (PCIe 4.0 x16 slot) is used for PCIe x16 lane width graphics cards.
PCIE4 (PCIe 4.0 x16 slot) is used for PCIe x8 lane width graphics cards.
PCIE5 (PCIe 4.0 x16 slot) is usedfor PCIe x16 lane width graphics cards.
PCIE6 (PCIe 4.0 x16 slot) is used for PCIe x8 lane width graphics cards.
PCIE7 (PCIe 4.0 x16 slot) is used for PCIe x16 lane width graphics cards.

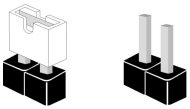
Recommended PCIe Slot Configurations

	PCIE1	PCIE2	PCIE3	PCIE5	PCIE7
Single Graphics Card	N/A	Gen4x16	N/A	N/A	N/A
Two Graphics Cards	N/A	Gen4x16	N/A	Gen4x16	N/A
Three Graphics Cards	Gen4x16	N/A	Gen4x16	Gen4x16	N/A
Four Graphics Cards	Gen4x16	N/A	Gen4x16	Gen4x16	Gen4x16

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

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".



Clear CMOS Jumper (CLRCMOS1) (see p.8, No. 25)	2-pin Jumper	Short: Clear CMOS Open: Default

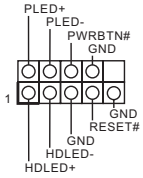
CLRCMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap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

The Clear CMOS Button has the same function as the Clear CMOS jumper.

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.8, No. 27)



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.

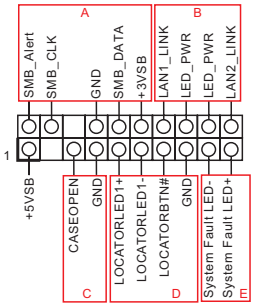
RESET (Reset Button):
Connect to the reset button on the chassis front panel. Press the reset button to restart the computer if the computer freezes and fails to perform a normal restart.

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.

Auxiliary Panel Header
(18-pin AUX_PANEL1)
(see p.8, No. 28)



This header supports multiple functions on the front panel, including the front panel SMB, internet status indicator and chassis intrusion pin.

A. Front panel SMBus connecting pin (6-1 pin FPSMB)
This header allows you to connect SMBus (System Management Bus) equipment. It can be used for communication between peripheral equipment in the system, which has slower transmission rates, and power management equipment.

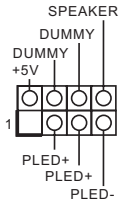
B. Internet status indicator (2-pin LAN1_LED, LAN2_LED)
These two 2-pin headers allow you to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.

C. Chassis intrusion pin (2-pin CHASSIS)
This header is provided for host computer chassis with chassis intrusion detection designs. In addition, it must also work with external detection equipment, such as a chassis intrusion detection sensor or a microswitch. When this function is activated, if any chassis component movement occurs, the sensor will immediately detect it and send a signal to this header, and the system will then record this chassis intrusion event. The default setting is set to the CASEOPEN and GND pin; this function is off.

D. Locator LED (4-pin LOCATOR)
This header is for the locator switch and LED on the front panel.

E. System Fault LED (2-pin LOCATOR)
This header is for the Fault LED on the system.

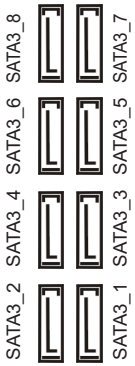
Power LED and Speaker Header
(7-pin SPK_PLED1)
(see p.8, No. 23)



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

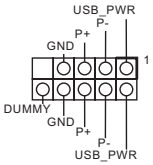
English

Serial ATA3 Connectors
Right Angle:
(SATA3_1:
see p.8, No. 22)(Lower)
(SATA3_2:
see p.8, No. 22)(Upper)
(SATA3_3:
see p.8, No. 21)(Lower)
(SATA3_4:
see p.8, No. 21)(Upper)
(SATA3_5:
see p.8, No. 20)(Lower)
(SATA3_6:
see p.8, No. 20)(Upper)
(SATA3_7:
see p.8, No. 19)(Lower)
(SATA3_8:
see p.8, No. 19)(Upper)



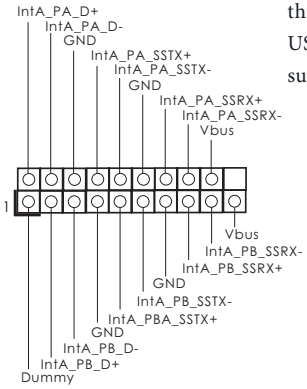
These eight SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

USB 2.0 Header
(9-pin USB_1_2)
(see p.8, No. 32)



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

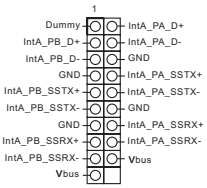
USB 3.2 Gen1 Headers
Vertical:
(19-pin USB3_3_4)
(see p.8, No. 31)



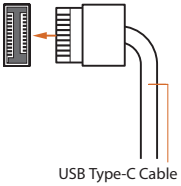
There are two headers on this motherboard. Each USB 3.2 Gen1 header can support two ports.

English

Right Angle:
(19-pin USB3_5_6)
(see p.8, No. 18)



Front Panel Type C USB 3.2 Gen2 Header
(26-pin F_USB31_TC_1)
(see p.8, No. 15)

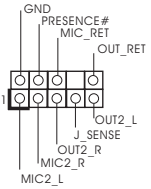


There is one Front Panel Type C USB 3.2 Gen2 Header on this motherboard. This header is used for connecting a USB 3.2 Gen2 module for additional USB 3.2 Gen2 ports.

Front Panel Audio Headers

Vertical:
(9-pin HD_AUDIO1)
(see p.8, No. 40)

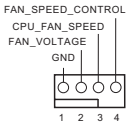
Right Angle:
(9-pin HD_AUDIO_RA1)
(see p.8, No. 39)



These two headers are for connecting audio devices to the front audio panel.

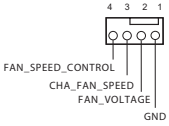
1. *High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.*
2. *If you use an AC'97 audio panel, please install it to the front panel audio header by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

Chassis Water Pump Fan Connectors
(4-pin CHA_FAN1/WP)
(see p.8, No. 33)

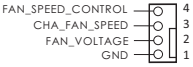


This motherboard provides three 4-Pin water cooling chassis fan connectors. If you plan to connect a 3-Pin chassis water cooler fan, please connect it to Pin 1-3.

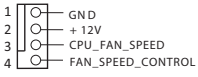
(4-pin CHA_FAN2/WP)
(see p.8, No. 17)



(4-pin CHA_FAN3/WP)
(see p.8, No. 10)

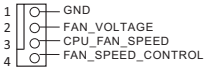


CPU Fan Connector
(4-pin CPU_FAN1)
(see p.8, No. 6)

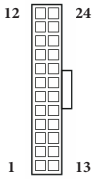
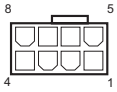


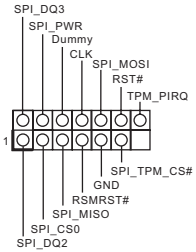
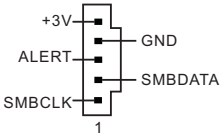
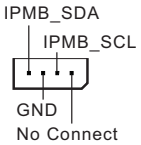
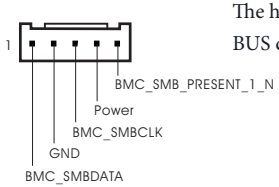
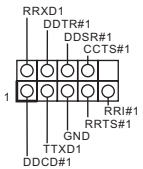
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

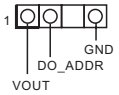
CPU Water Pump Fan Connector
(4-pin CPU_FAN2/WP)
(see p.8, No. 7)



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

ATX Power Connector (24-pin ATXPWR1) (see p.8, No. 12)		This motherboard provides a 24-pin ATX power connector. *We recommend using a PSU with a max. current of 3A on +5VSB.
ATX 12V Power Connectors (8-pin ATX12V1) (see p.8, No. 3) (8-pin ATX12V2) (see p.8, No. 2)		This motherboard provides two 8-pin ATX 12V power connectors. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5. *Connecting an ATX 12V 8-pin cable to ATX12V2 is optional. ***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.**
Graphics 12V Power Connector Right Angle: (6-pin GFX_12V1) (see p.8, No. 24)		This motherboard provides a 6-pin Graphics 12V power connector. * Install the PSU's power cable to this connector when 4 graphics cards are installed.

SPI TPM Header (13-pin TPM_BIOS_PH1) (see p.8, No. 13)		This connector supports SPI Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.
PSU SMBus Header (5-pin PSU_SMB1) (see p.8, No. 11)		PSU SMBus monitors the status of the power supply, fan and system temperature.
Intelligent Platform Management Bus Header (4-pin IPMB1) (see p.8, No. 37)		This 4-pin connector is used to provide a cabled base-board or front panel connection for value added features and 3rd-party add-in cards, such as Emergency Management cards, that provide management features using the IPMB.
Baseboard Management Controller SMBus Header (5-pin BMC_SMB1) (see p.8, No. 36)		The header is used for the SM BUS devices.
Serial Port Header (9-pin COM1) (see p.8, No. 38)		This COM header supports a serial port module.

Non Maskable Interrupt Button Header (NMI_BTN) (see p.8, No. 35)		Please connect a NMI device to this header.
RGB LED Header (4-pin RGB_LED1) (see p.8, No. 8)		This RGB header is used to connect RGB LED extension cable which allow users to choose from various LED lighting effects. **Caution: Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.** *Please refer to page 62 for further instructions on this header.
Addressable LED Headers (3-pin ADDR_LED1) (see p.8, No. 34) (3-pin ADDR_LED2) (see p.8, No. 9)		These two Addressable LED headers are used to connect Addressable LED extension cable which allows users to choose from various LED lighting effects. **Caution: Never install the Addressable LED cable in the wrong orientation; otherwise, the cable may be damaged.** *Please refer to page 63 for further instructions on this header.
U.2 Connector Right Angle: (36-pin U2_1) (see p.8, No. 26)		This connector supports U.2 NVM Express storage devices up to Gen4 x4 (64 Gb/s).

2.7 Smart Switches

The motherboard has three smart switches: Power Button, Reset Button and Clear CMOS Button, allowing users to quickly turn on/off the system, reset the system, clear the CMOS values or flash the BIOS.

Power Button (PWRBTN) (see p.8, No. 29)		Power Button allows users to quickly turn on/off the system.
Reset Button (RSTBTN) (see p.8, No. 30)		Reset Button allows users to quickly reset the system.
Clear CMOS Button (CLRCBTN2) (see p.11, No. 17)		Clear CMOS Button allows users to quickly clear the CMOS values.

2.8 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Code	Description
0x10	PEI_CORE_STARTED
0x11	PEI_CAR_CPU_INIT
0x15	PEI_CAR_NB_INIT
0x19	PEI_CAR_SB_INIT
0x31	PEI_MEMORY_INSTALLED
0x32	PEI_CPU_INIT
0x33	PEI_CPU_CACHE_INIT
0x34	PEI_CPU_AP_INIT
0x35	PEI_CPU_BSP_SELECT
0x36	PEI_CPU_SMM_INIT
0x37	PEI_MEM_NB_INIT
0x3B	PEI_MEM_SB_INIT
0x4F	PEI_DXE_IPL_STARTED
0x60	DXE_CORE_STARTED
0x61	DXE_NVRAM_INIT
0x62	DXE_SBRUN_INIT

0x63	DXE_CPU_INIT
0x68	DXE_NB_HB_INIT
0x69	DXE_NB_INIT
0x6A	DXE_NB_SMM_INIT
0x70	DXE_SB_INIT
0x71	DXE_SB_SMM_INIT
0x72	DXE_SB_DEVICES_INIT
0x78	DXE_ACPI_INIT
0x79	DXE_CSM_INIT
0x90	DXE_BDS_STARTED
0x91	DXE_BDS_CONNECT_DRIVERS
0x92	DXE_PCI_BUS_BEGIN
0x93	DXE_PCI_BUS_HPC_INIT
0x94	DXE_PCI_BUS_ENUM
0x95	DXE_PCI_BUS_REQUEST_RESOURCES
0x96	DXE_PCI_BUS_ASSIGN_RESOURCES
0x97	DXE_CON_OUT_CONNECT
0x98	DXE_CON_IN_CONNECT

0x99	DXE_SIO_INIT
0x9A	DXE_USB_BEGIN
0x9B	DXE_USB_RESET
0x9C	DXE_USB_DETECT
0x9D	DXE_USB_ENABLE
0xA0	DXE_IDE_BEGIN
0xA1	DXE_IDE_RESET
0xA2	DXE_IDE_DETECT
0xA3	DXE_IDE_ENABLE
0xA4	DXE_SCSI_BEGIN
0xA5	DXE_SCSI_RESET
0xA6	DXE_SCSI_DETECT
0xA7	DXE_SCSI_ENABLE
0xA8	DXE_SETUP_VERIFYING_PASSWORD
0xA9	DXE_SETUP_START
0xAB	DXE_SETUP_INPUT_WAIT
0xAD	DXE_READY_TO_BOOT
0xAE	DXE_LEGACY_BOOT

0xAF	DXE_EXIT_BOOT_SERVICES
0xB0	RT_SET_VIRTUAL_ADDRESS_MAP_BEGIN
0xB1	RT_SET_VIRTUAL_ADDRESS_MAP_END
0xB2	DXE_LEGACY_OPROM_INIT
0xB3	DXE_RESET_SYSTEM
0xB4	DXE_USB_HOTPLUG
0xB5	DXE_PCI_BUS_HOTPLUG
0xB6	DXE_NVRAM_CLEANUP
0xB7	DXE_CONFIGURATION_RESET
0xF0	PEI_RECOVERY_AUTO
0xF1	PEI_RECOVERY_USER
0xF2	PEI_RECOVERY_STARTED
0xF3	PEI_RECOVERY_CAPSULE_FOUND
0xF4	PEI_RECOVERY_CAPSULE_LOADED
0xE0	PEI_S3_STARTED
0xE1	PEI_S3_BOOT_SCRIPT
0xE2	PEI_S3_VIDEO_REPOST

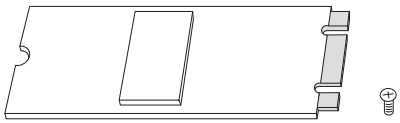
0xE3	PEI_S3_OS_WAKE
0x50	PEI_MEMORY_INVALID_TYPE
0x53	PEI_MEMORY_NOT_DETECTED
0x55	PEI_MEMORY_NOT_INSTALLED
0x57	PEI_CPU_MISMATCH
0x58	PEI_CPU_SELF_TEST_FAILED
0x59	PEI_CPU_NO_MICROCODE
0x5A	PEI_CPU_ERROR
0x5B	PEI_RESET_NOT_AVAILABLE
0xD0	DXE_CPU_ERROR
0xD1	DXE_NB_ERROR
0xD2	DXE_SB_ERROR
0xD3	DXE_ARCH_PROTOCOL_NOT_AVAILABLE
0xD4	DXE_PCI_BUS_OUT_OF_RESOURCES
0xD5	DXE_LEGACY_OPROM_NO_SPACE
0xD6	DXE_NO_CON_OUT
0xD7	DXE_NO_CON_IN

0xD8	DXE_INVALID_PASSWORD
0xD9	DXE_BOOT_OPTION_LOAD_ERROR
0xDA	DXE_BOOT_OPTION_FAILED
0xDB	DXE_FLASH_UPDATE_FAILED
0xDC	DXE_RESET_NOT_AVAILABLE
0xE8	PEI_MEMORY_S3_RESUME_FAILED
0xE9	PEI_S3_RESUME_PPI_NOT_FOUND
0xEA	PEI_S3_BOOT_SCRIPT_ERROR
0xEB	PEI_S3_OS_WAKE_ERROR

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

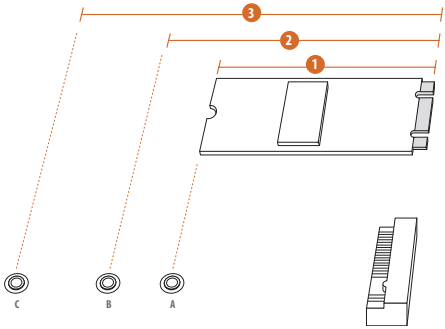
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Hyper M.2 Socket (M2_1, Key M) supports type 2260/2280/22110 SATA3 6.0 Gb/s & PCIe Gen4x4 (64 Gb/s) modes.

Installing the M.2_SSD (NGFF) Module



Step 1

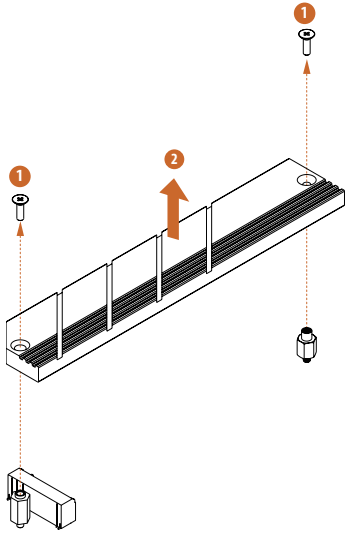
Prepare a M.2_SSD (NGFF) module and the screw.



Step 2

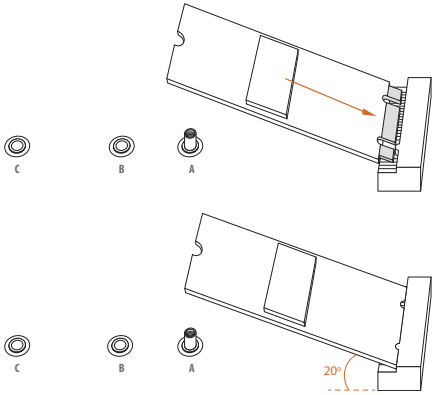
Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.

No.	1	2	3
Nut Location	A	B	C
PCB Length	6cm	8cm	11cm
Module Type	Type2260	Type 2280	Type 22110



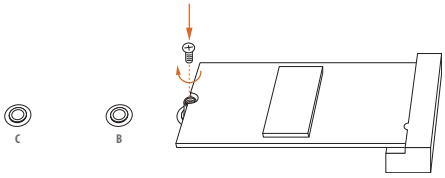
Step 3

Before installing a M.2 (NGFF) SSD module, please loosen the screws to remove the M.2 heatsink.
*Please remove the protective films on the bottom side of the M.2 heatsink before you install a M.2 SSD module.



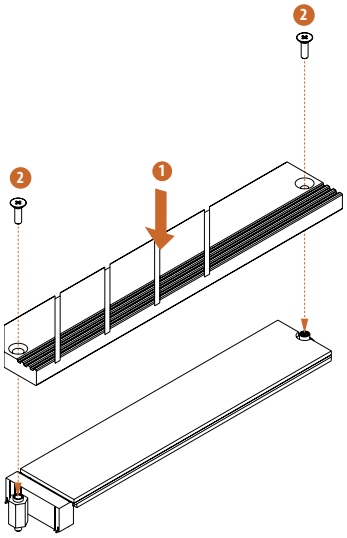
Step 4

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.
*If you insert Type 22110 M.2 SSD, please make sure that there is no standoff being placed at the nut location A or B.



Step 5

Tighten the screw that come with the package with a screwdriver to secure the module into place.



Step 6

Tighten the screw with a screwdriver to secure the M.2 heatsink into place. Please do not overtighten the screw as this might damage the module and M.2 heatsink.

M.2_SSD (NGFF) Module Support List

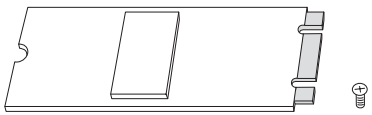
Vendor	Interface	P/N
SanDisk	PCIe	SanDisk-SD6PP4M-128G(Gen2 x2)
Intel	PCIe	INTEL 6000P-SSDPEKKF256G7 (nvme)
Intel	PCIe	INTEL 6000P-SSDPEKKF512G7 (nvme)
Intel	PCIe	SSDPEKKF512G7 NVME / 512GB
Intel	SATA	540S-SSDSCKKW240H6 / 240GB
Kingston	PCIe	Kingston SHPM2280P2 / 240G (Gen2 x4)
Samsung	PCIe	Samsung XP941-MZHPU512HCGL(Gen2x4)
Samsung	PCIe	SM951 (NVME) / 512GB
Samsung	PCIe	SM951 (MZHPV512HDGL) / 512GB
ADATA	SATA	ADATA - AXNS381E-128GM-B
ADATA	PCIe	ASX8000NP-512GM-C / 512GB
ADATA	PCIe	ASX7000NP-512GT-C / 512GB
ADATA	SATA	ASU800NS38-512GT-C / 512GB
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
Kingston	PCIe	SKC1000/480G
Kingston	PCIe	SKC1000/960GB NVME
LITEON	SATA	LITEON LJH-256V2G-256GB (2260)
PLEXTOR	SATA	PLEXTOR PX-128M6G-2260-128GB
PLEXTOR	SATA	PLEXTOR PX-128M7VG-128GB
PLEXTOR	PCIe	PX-512M8PeG/ 512GB
SanDisk	SATA	SanDisk X400-SD8SN8U-128G
SanDisk	SATA	Sandisk Z400s-SD8SNAT-128G-1122
SanDisk	SATA	SanDisk-SD6SN1M-128G
Transcend	SATA	Transcend TS256GMTS800-256GB
Transcend	SATA	TS512GMTS800 / 512GB
V-Color	SATA	V-Color 120G
V-Color	SATA	V-Color 240G
WD	SATA	WD GREEN WDS240G1G0B-00RC30
WD	PCIe	WDS512G1X0C-00ENX0 (NVME) / 512GB

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

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

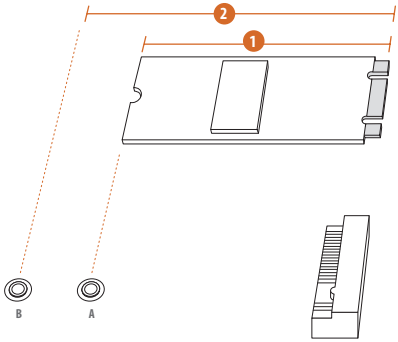
The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The Hyper M.2 Socket (M2_2, Key M), supports type 2260/2280 PCIe Gen4x4 (64 Gb/s) mode.

Installing the M.2_SSD (NGFF) Module



Step 1

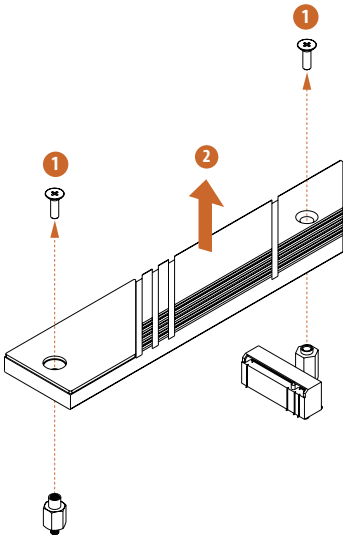
This motherboard supports M.2_SSD (NGFF) module type 2260 and 2280 only. Prepare a proper PCB lenth of module, the screw and the standoff.



Step 2

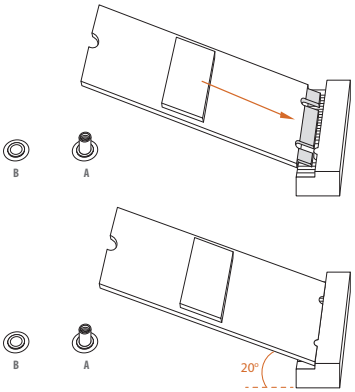
Depending on the PCB type and length of your M.2_SSD (NGFF) module, find the corresponding nut location to be used.

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



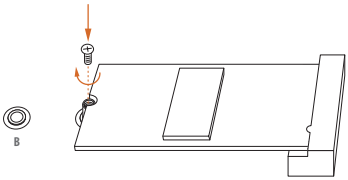
Step 3

Before installing a M.2 (NGFF) SSD module, please loosen the screws to remove the M.2 heatsink.
*Please remove the protective films on the bottom side of the M.2 heatsink before you install a M.2 SSD module.



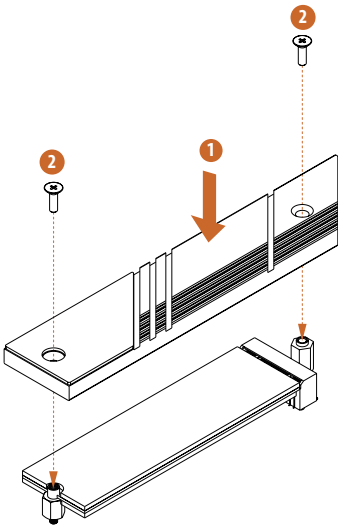
Step 4

Prepare the M.2 standoff that comes with the package. Then hand tighten the standoff into the desired nut location on the motherboard. Align and gently insert the M.2 (NGFF) SSD module into the M.2 slot. Please be aware that the M.2 (NGFF) SSD module only fits in one orientation.



Step 5

Tighten the screw that come with the package with a screwdriver to secure the module into place.



Step 6

Tighten the screw with a screwdriver to secure the M.2 heatsink into place. Please do not overtighten the screw as this might damage the module and M.2 heatsink.

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)
Intel	PCIe	SSDPEKKF512G7 NVME / 512GB
Kingston	PCIe	Kingston SHPM2280P2 / 240G (Gen2 x4)
Samsung	PCIe	Samsung XP941-MZHPU512HCGL(Gen2x4)
Samsung	PCIe	SM951 (NVME) / 512GB
Samsung	PCIe	SM951 (MZHPV512HDGL) / 512GB
ADATA	PCIe	ASX8000NP-512GM-C / 512GB
ADATA	PCIe	ASX7000NP-512GT-C / 512GB
Kingston	PCIe	SKC1000/480G
Kingston	PCIe	SKC1000/960GB NVME
PLEXTOR	PCIe	PX-512M8PeG/ 512GB
WD	PCIe	WDS512G1X0C-00ENX0 (NVME) / 512GB

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 Auto Driver Installer (ADI)

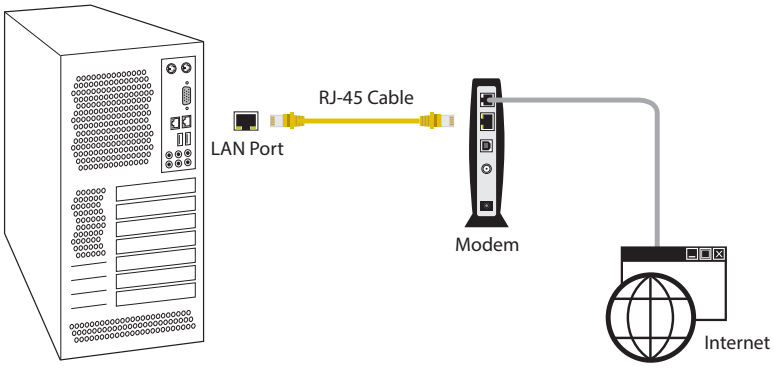
Optical drive or driver DVD is no longer needed for driver installation. ASRock motherboard already has its Ethernet driver prepacked in BIOS ROM. When you finish installing the operation system, simply use the Auto Driver Installer to download and install all necessary drivers automatically.

3.1.1 Installing Drivers for the First Time

Follow the instructions to install all necessary drivers via the Auto Driver Installer. Please note that the Internet access is required during the following procedures.

Step 1

After you install the Windows OS, connect your computer to the Internet.



Step 2

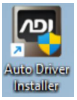
Boot into the system, and a notification will pop up in the lower right corner of your screen saying, "**Do you want to one-step-install the latest drivers simply from ASRock Auto Driver Installer?**".

Select "Yes" to install Auto Driver Installer.
Select "No" to skip the installation.

1. *The Auto Driver Installer will automatically pop up for users to install drivers only when the "Auto Driver Installer" item under the "Tool" menu in the BIOS is set to [Enabled]. The item is enabled by default; therefore, for the first-time users, there is no need to change the setting in the BIOS.*
2. *An available Internet connection is a prerequisite for using the Auto Driver Installer. If you boot into the system without Internet, the Auto Driver Installer won't appear. Now connect your computer to the Internet, wait a few seconds, and then the Auto Driver Installer will pop up.*
3. *If you select "No" in Step 2 and skip the installation, the Auto Driver Installer will be removed. If you would like to run the application again, please enable the "Auto Driver Installer" item in the BIOS setting.*

Step 3

When it's completed, you will see the Auto Driver Installer icon on your desktop and then the Auto Driver Installer appears.



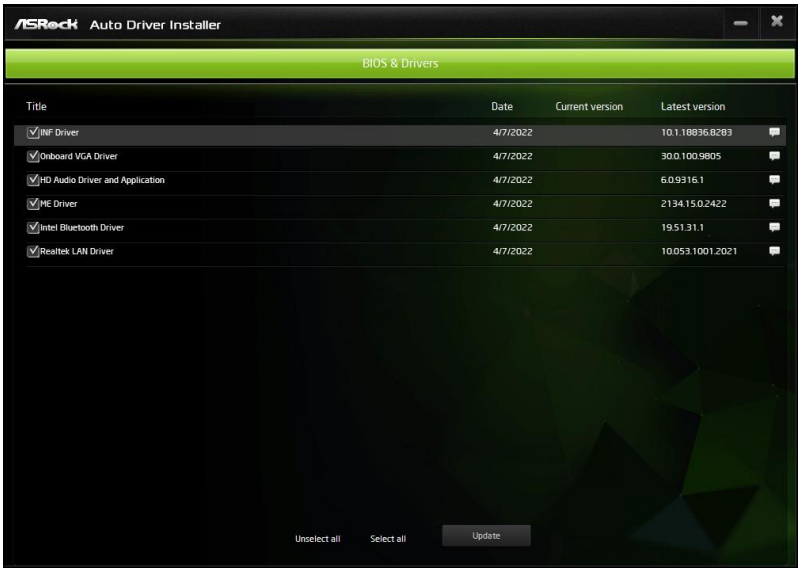
Step 4

The Auto Driver Installer panel lists all available drivers that your motherboard supports. Select one or more drivers to be installed.

Click "Select All" to select all items.

Click "Unselect All" to remove all of your selections.

Click "Update" to start downloading and installing drivers.



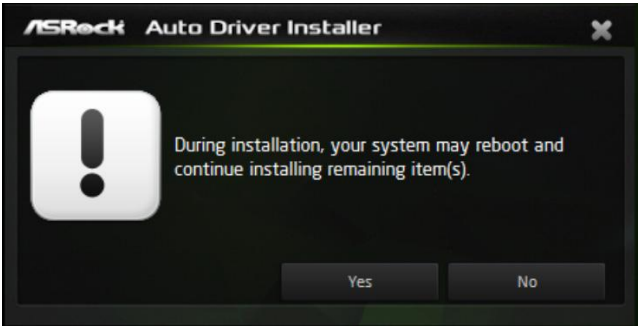
If there are no drivers to be installed, click "Finish" to exit. If you would like to run the application again, please enable the "Auto Driver Installer" item in the BIOS setting.

English

Step 5

A messages pops up saying, "**During installation, your system may reboot and continue installing remaining item(s)**".

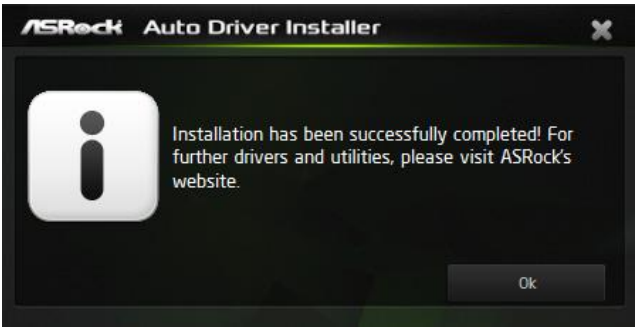
Click "Yes" to continue.
Click “No” to exit.



Step 6

Once all drivers are successfully installed, a message pops up saying, "**Installation has been successfully completed! For further drivers and utilities, please visit ASRock's website.**"

Click "Ok" to complete the procedure.

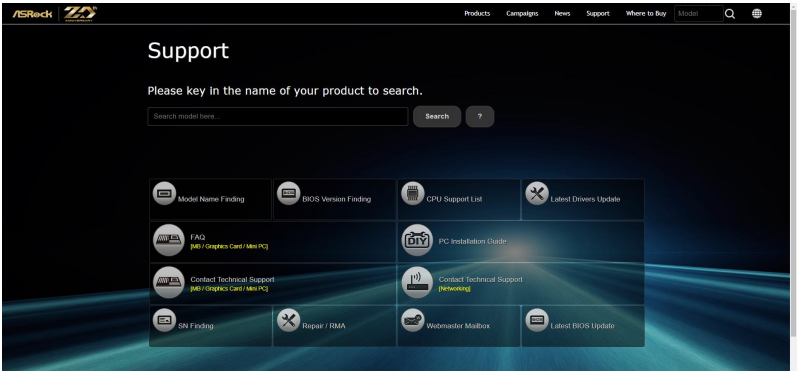


When driver installation is completed, the Auto Driver Installer tool will be uninstalled automatically from your computer.

After driver installation, the Auto Driver Installer will be removed. If you would like to run the application again, please go to the “Tool“ menu in the BIOS setting, and set the “Auto Driver Installer“ item to [Enabled].

3.1.2 Updating Drivers

Updating drivers ensures that your system work well without any issue. To update drivers, please go to ASRock' website (https://www.asrock.com) and select "Support" > "Latest Drivers Update".



3.2 ASRock Motherboard Utility (A-Tuning)

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

3.2.1 Installing ASRock Motherboard Utility (A-Tuning)

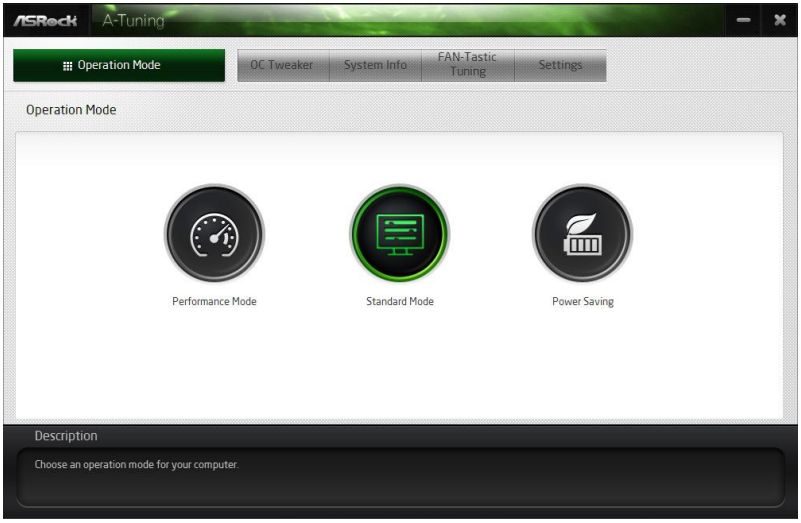
ASRock Motherboard Utility (A-Tuning) can be downloaded from ASRock Live Update & APP Shop. After the installation, you will find the icon "ASRock Motherboard Utility (A-Tuning)" on your desktop. Double-click the "ASRock Motherboard Utility (A-Tuning)"  icon, ASRock Motherboard Utility (A-Tuning) main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

3.2.2 Using ASRock Motherboard Utility (A-Tuning)

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

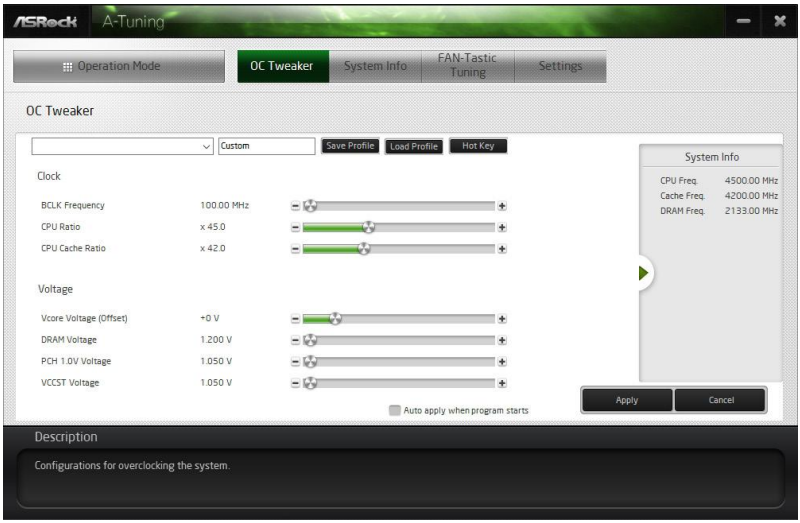
Operation Mode

Choose an operation mode for your computer.



OC Tweaker

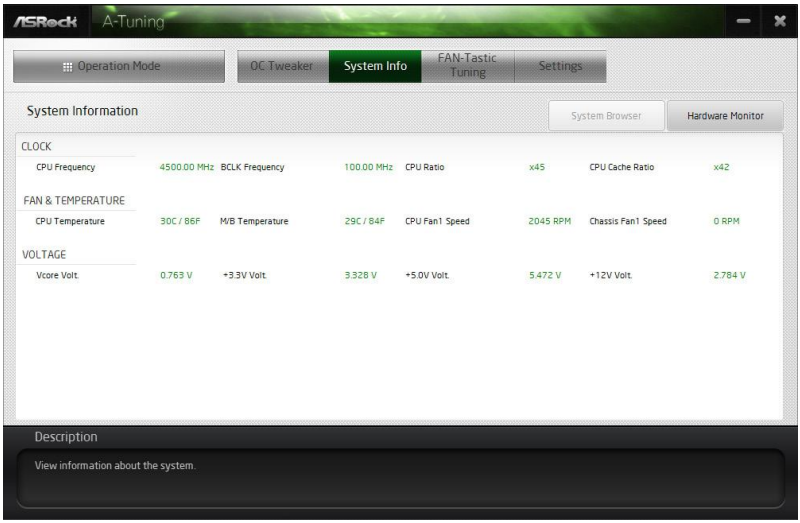
Configurations for overclocking the system.



System Info

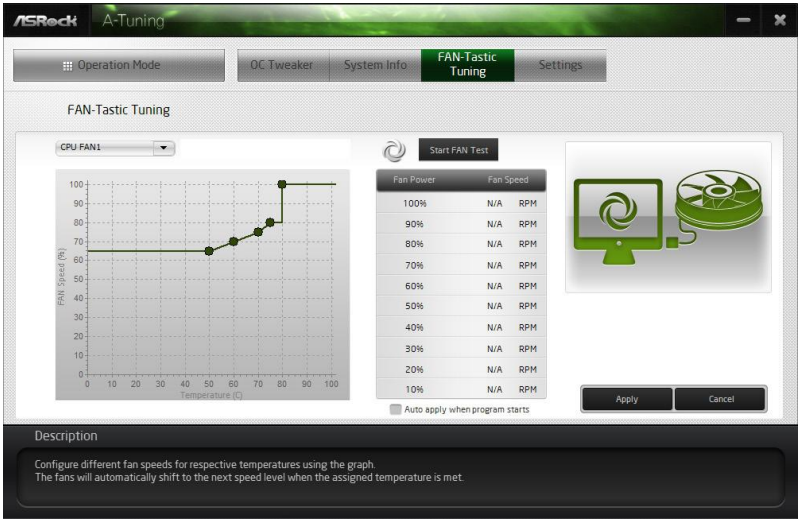
View information about the system.

*The System Browser tab may not appear for certain models.



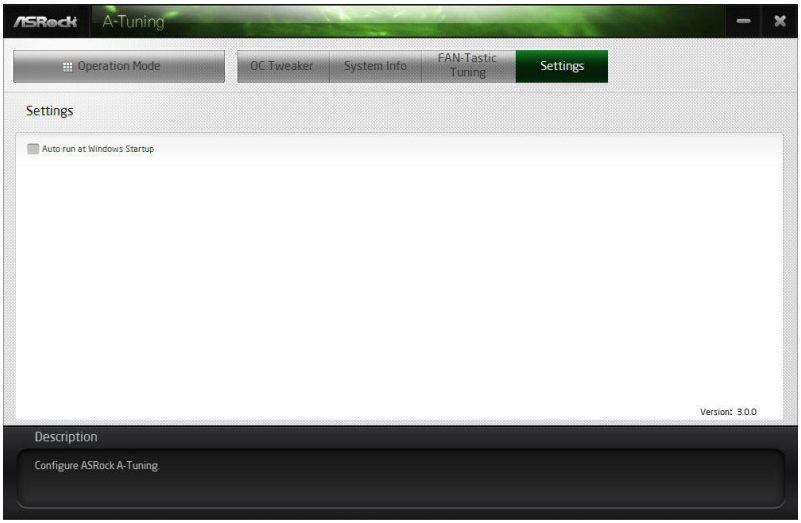
FAN-Tastic Tuning

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 ASRock Motherboard Utility (A-Tuning). Click to select "Auto run at Windows Startup" if you want ASRock Motherboard Utility (A-Tuning) to be launched when you start up the Windows operating system.



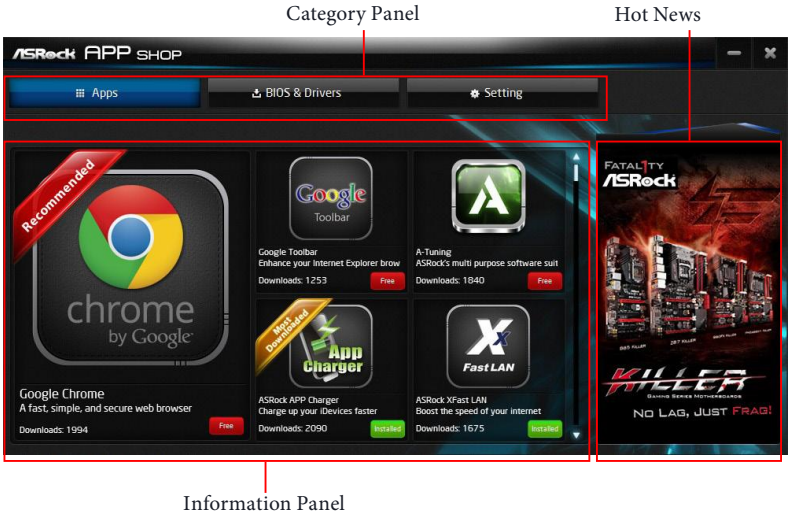
3.3 ASRock Live Update & APP Shop

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

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

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

3.3.2 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

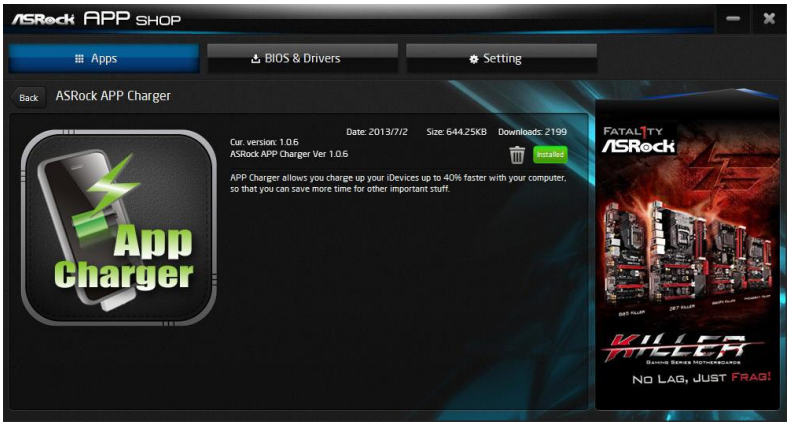
Click on the app icon to see more details about the selected app.

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.

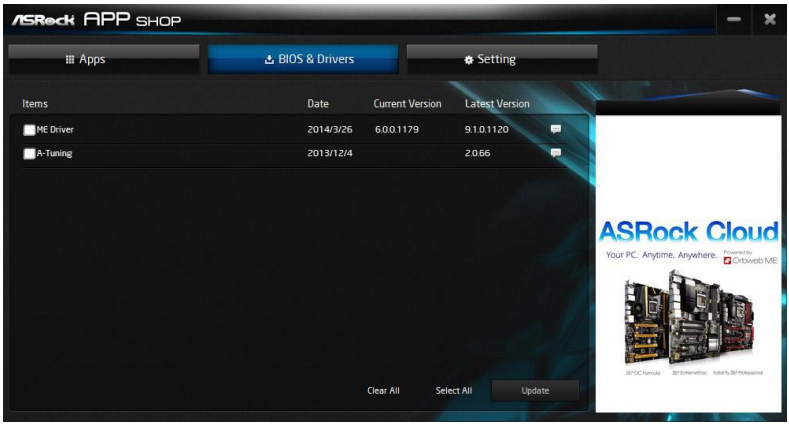
Step 2

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

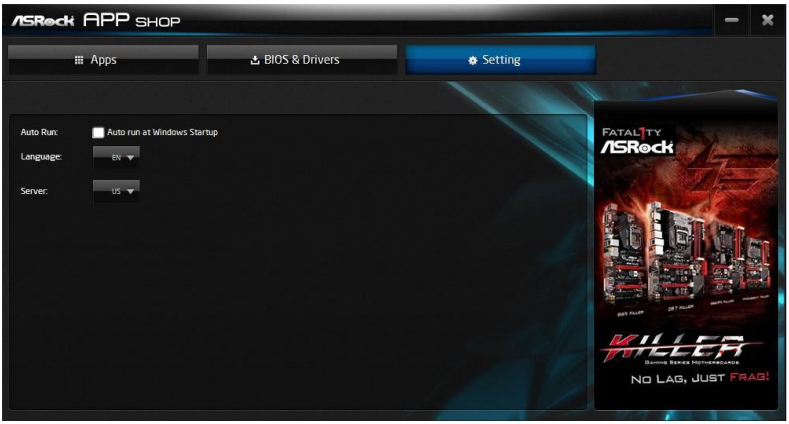
Click to select one or more items you want to update.

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.

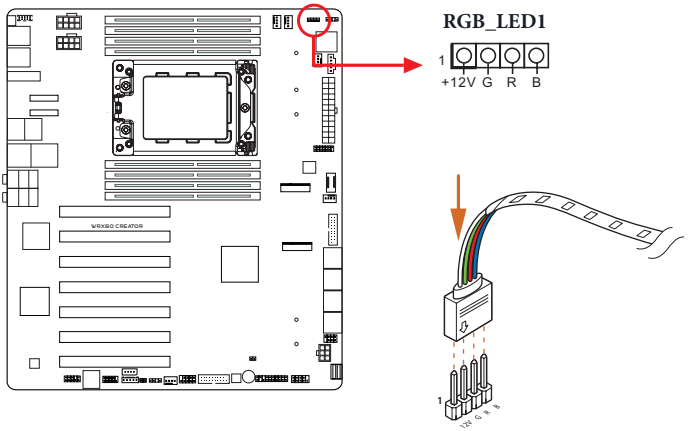


3.4 ASRock Polychrome SYNC

ASRock Polychrome SYNC is a lighting control utility specifically designed for unique individuals with sophisticated tastes to build their own stylish colorful lighting system. Simply by connecting the LED strip, you can customize various lighting schemes and patterns, including Static, Breathing, Strobe, Cycling, Music, Wave and more.

Connecting the LED Strip

Connect your RGB LED strip to the **RGB LED Header (RGB_LED1)** on the motherboard.

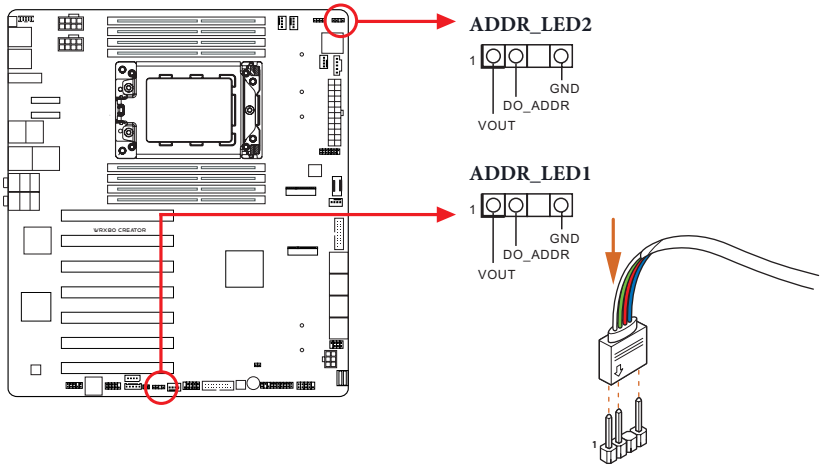


1. *Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.*
2. *Before installing or removing your RGB LED cable, please power off your system and unplug the power cord from the power supply. Failure to do so may cause damages to motherboard components.*

1. *Please note that the RGB LED strips do not come with the package.*
2. *The RGB LED header supports standard 5050 RGB LED strip (12V/G/R/B), with a maximum power rating of 3A (12V) and length within 2 meters.*

Connecting the Addressable RGB LED Strip

Connect your Addressable RGB LED strip to the **Addressable LED Headers (ADDR_LED1, ADDR_LED2)** on the motherboard.

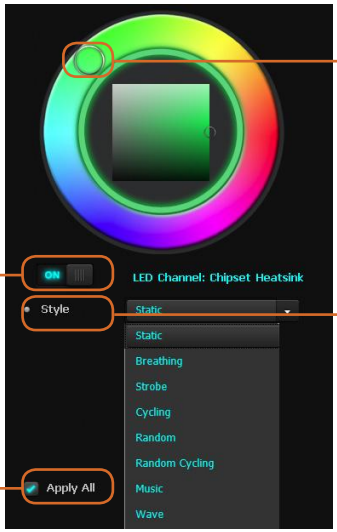


1. *Never install the RGB LED cable in the wrong orientation; otherwise, the cable may be damaged.*
2. *Before installing or removing your RGB LED cable, please power off your system and unplug the power cord from the power supply. Failure to do so may cause damages to motherboard components.*

1. *Please note that the RGB LED strips do not come with the package.*
2. *The RGB LED header supports WS2812B addressable RGB LED strip (5V/Data/GND), with a maximum power rating of 3A (5V) and length within 2 meters.*

ASRock Polychrome SYNC Utility

Now you can adjust the RGB LED color through the ASRock Polychrome SYNC Utility. Download this utility from the ASRock Live Update & APP Shop and start coloring your PC style your way!



Drag the tab to customize your preference.

Toggle on/off the RGB LED switch

Select a RGB LED light effect from the drop-down menu.

Sync RGB LED effects for all LED regions of the motherboard

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
Server Mgmt	For managing the server
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

4.1.2 Navigation Keys

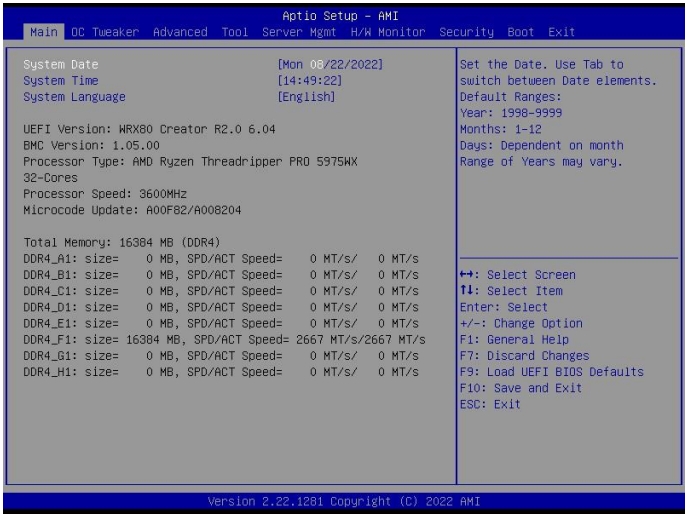
Use <←> key or <→> key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

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

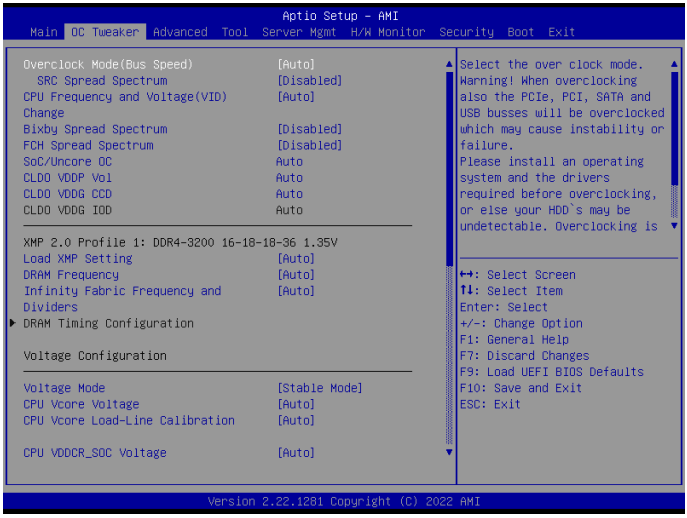
4.2 Main Screen

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

Overclock Mode (Bus Speed)

Select the overclock mode.
*Do not use SATA HDD when you overclock BCLK.

SRC Spread Spectrum

Enable SRC Spread Spectrum to reduce electromagnetic interference for passing EMI tests. Disable to achieve higher clock speeds when overclocking.

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.

Bixby Spread Spectrum

Enable Bixby Spread Spectrum to reduce electromagnetic interference for passing EMI tests. Disable to achieve higher clock speeds when overclocking.

FCH Spread Spectrum

Enable FCH Spread Spectrum to reduce electromagnetic interference for passing EMI tests. Disable to achieve higher clock speeds when overclocking.

SoC/Uncore OC

Specify the SoC/Uncore 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" need to be enabled to force this voltage.

CLDO VDDP Vol

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

CLDO VDDG CCD

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

CLDO VDDG IOD

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

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.

Infinity Fabric Frequency and Dividers

Set Infinity Fabric Frequency and Dividers (FCLK).

DRAM Timing Configuration

Voltage Configuration

Voltage Mode

[OC]
If this option is selected, there is larger range voltage for overclocking.

[Stable]
If this option is selected, there is smaller range voltage for stable system.

CPU Vcore Voltage

Configure the voltage for the CPU Vcore.

CPU Vcore Load-Line Calibration

CPU Load-Line Calibration helps prevent CPU voltage droop when the system is under heavy loading.

CPU VDDCR_SOC Voltage

Configure the voltage for the VID-requested VDDCR_SOC supply level.

CPU VDDCR_SOC Load-Line Calibration

VDDCR_SOC Load-Line Calibration helps prevent VDDCR_SOC voltage droop when the system is under heavy loading.

DRAM_ABCD Voltage

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

DRAM_EFGH Voltage

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

VTT_DDR_ABCD Offset Voltage (mV)

Configure the voltage for the VPPM_ABCD.

Configure the VTT_DDR_ABCD offset voltage. The default value is [Auto].

VTT_DDR_EFGH Offset Voltage (mV)

Configure the voltage for the VPPM_EFGH.

Configure the VTT_DDR_EFGH offset voltage. The default value is [Auto].

VPPM_ABCD

Configure the voltage for the VPPM_ABCD.

VPPM_EFGH

Configure the voltage for the VPPM_EFGH.

VDDCR_SOC_S5

Configure the voltage for the VDDCR_SOC_S5.

CPU VDD +1.8 V

Configure the voltage for the CPU VDD 1.8 PROM.

+1.8VSB Voltage

Configure the voltage for the +1.8VSB.

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

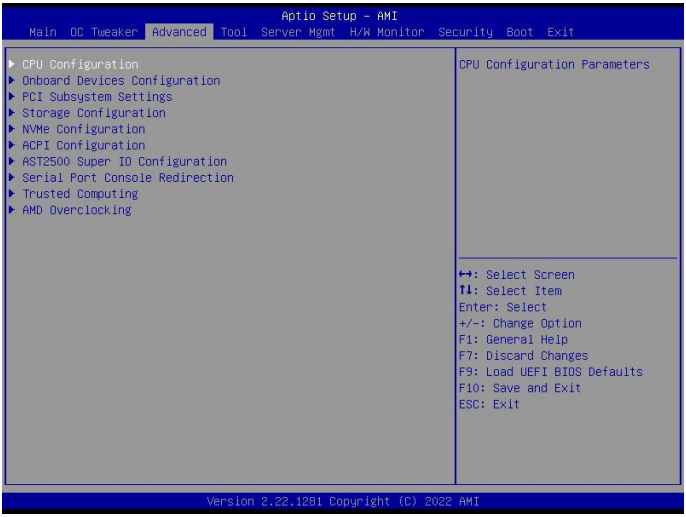
Save current UEFI settings as an user default profile to disk.

Load User UEFI Setup Profile to Disk

Load previously saved user defaults from the disk.

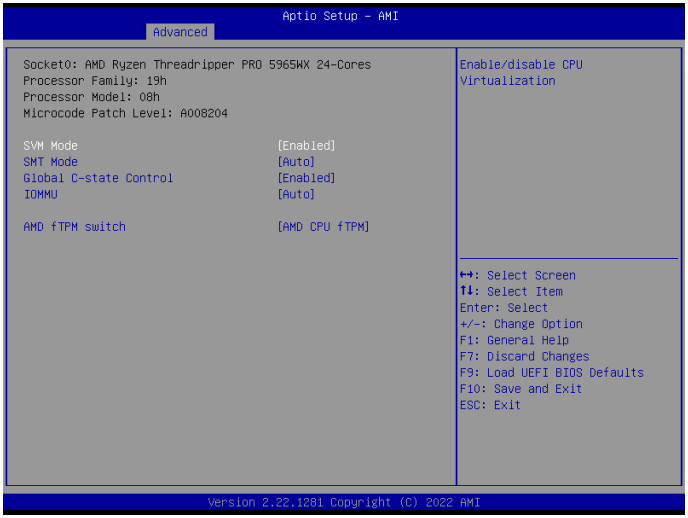
4.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Onboard Devices Configuration, PCIe Subsystem Settings, Storage Configuration, ACPI Configuration, Super IO Configuration, Serial Port Console Redirection, Trusted Computing and AMD Overclocking..



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

4.4.1 CPU Configuration



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.

Global C-state Control

This item can be used to control the IO based C-state generation and DF C-states.

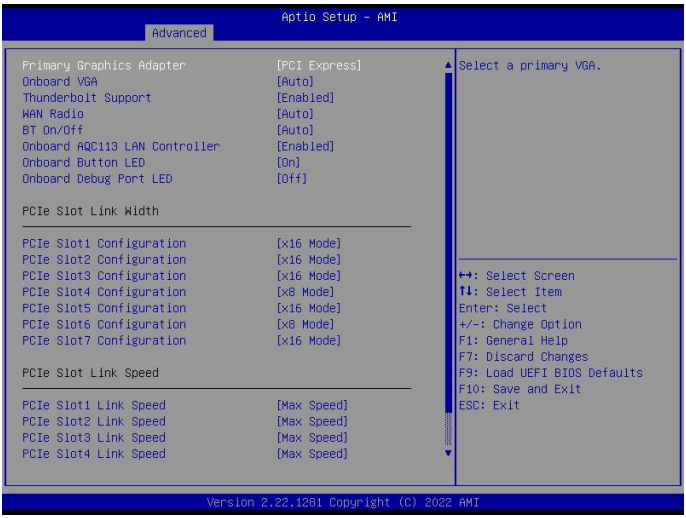
IOMMU

Use this to configure IOMMU. The default value of this feature is [Auto].

AMD fTPM Switch

Use this to enable or disable AMD CPU fTPM.

4.4.2 Onboard Devices Configuration



Primary Graphics Adapter

Select a primary VGA.
*To ensure better graphics compatibility, the default is set to [Onboard] (boot from onboard VGA).

Onboard VGA

Enable/disable the Onboard VGA.

Thunderbolt Support

Enable Thunderbolt Support

Onboard AQC113 LAN Controller

Enable / Disable Onboard AQC113 LAN Controller

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.

WAN Radio

Configure the WiFi module's connectivity.

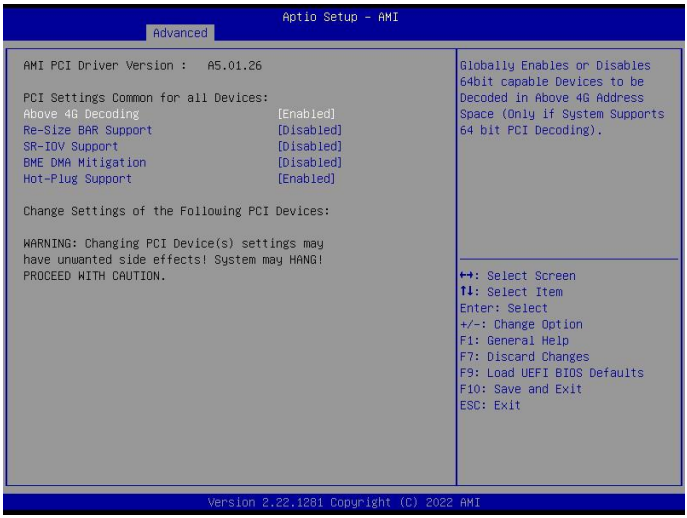
BT On/Off

Enable/disable the bluetooth.

Power Button LED

Enable/disable the Power Button LED.

4.4.3 PCI Subsystem Settings



Above 4G Decoding

Globally Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).

Re-Size BAR Support

If system has Resizable BAR capable PCIe Devices, this option Enables or Disables Resizable BAR Support.

SR-IOV Support

If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.

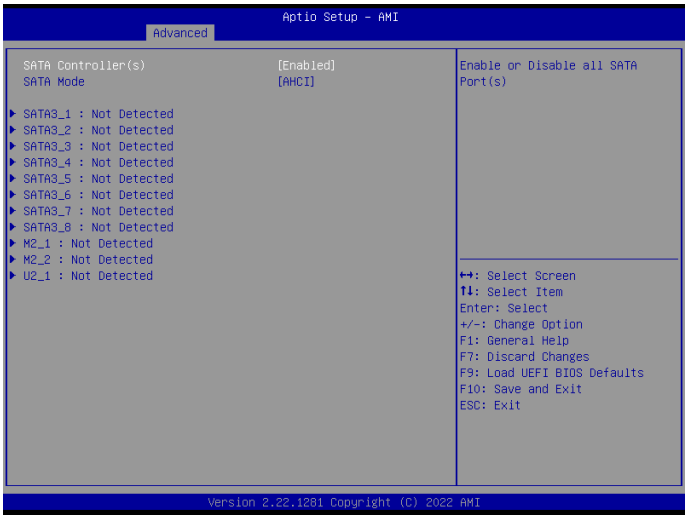
BME DMA Mitigation

Re-enable Bus Master Attribute disabled during Pci enumeration for PCI Bridges after SMM Locked

Hot-Plug Support

Globally Enables or Disables Hot-Plug support for the entire System. If System has Hot-Plug capable Slots and this option set to Enabled, it provides a Setup screen for selecting PCI resource padding for Hot-Plug.

4.4.4 Storage Configuration



SATA Controller(s)

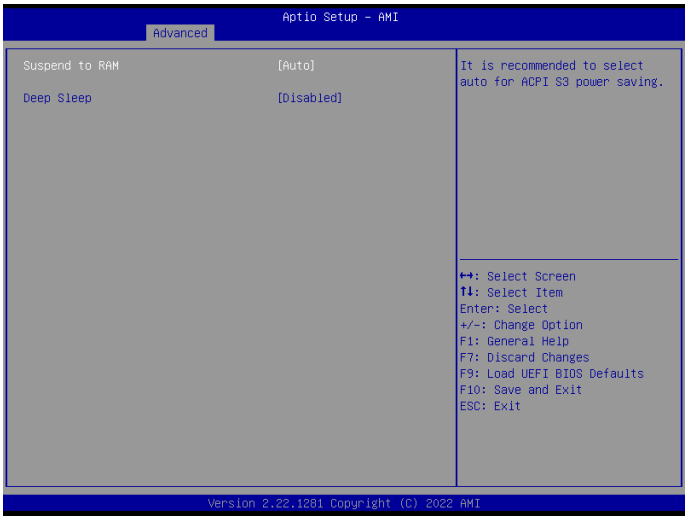
Enable/disable the SATA controllers.

SATA Mode

AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

4.4.5 ACPI Configuration



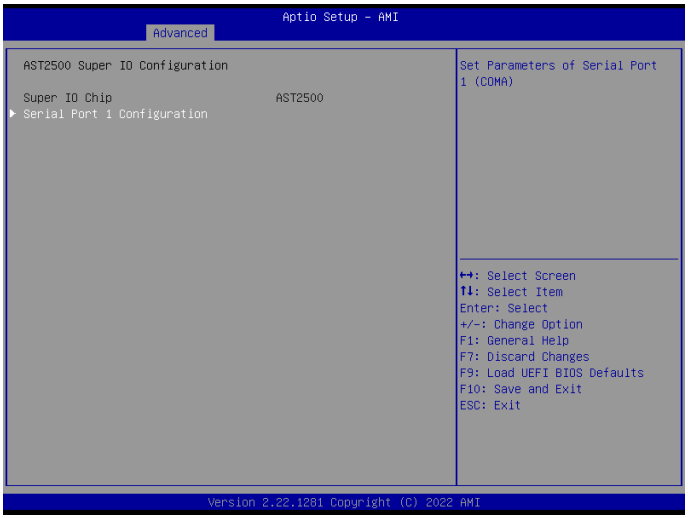
Suspend to RAM

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.

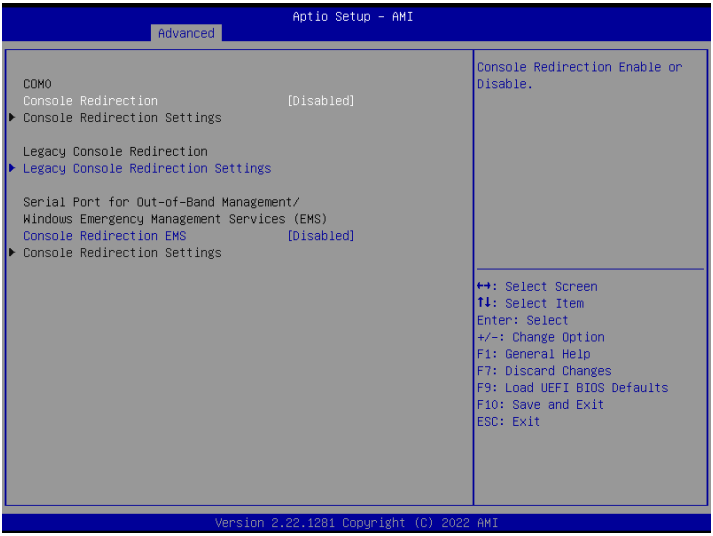
4.4.6 Super IO Configuration



Serial Port 1 Configuration

Enable or disable the Serial port 1.

4.4.7 Serial Port Console Redirection



COM0

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information. Both computers should have the same or compatible settings.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower

transmission speed. The options include [9600], [19200], [38400], [57600] and [115200].

Data Bits
Use this item to set the data transmission size. The options include [7] and [8] (Bits).

Parity
Use this item to select the parity bit. The options include [None], [Even], [Odd], [Mark] and [Space].

Stop Bits
The item indicates the end of a serial data packet. The standard setting is [1] Stop Bit. Select [2] Stop Bits for slower devices.

Flow Control
Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None] and [Hardware RTS/CTS].

VT-UTF8 Combo Key Support
Use this item to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT100 terminals.

Recorder Mode
Use this item to enable or disable Recorder Mode to capture terminal data and send it as text messages.

Resolution 100x31
Use this item to enable or disable extended terminal resolution support.

Putty Keypad
Use this item to select Function Key and Keypad on Putty.

Legacy Console Redirection

Legacy Console Redirection Settings

Use this option to configure Legacy Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Redirection COM Port
Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

Resolution
On Legacy OS, the Number of Rows and Columns supported redirection.

Redirect After POST
When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Out-of-Band Mgmt Port

Microsof t Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].

Flow Control

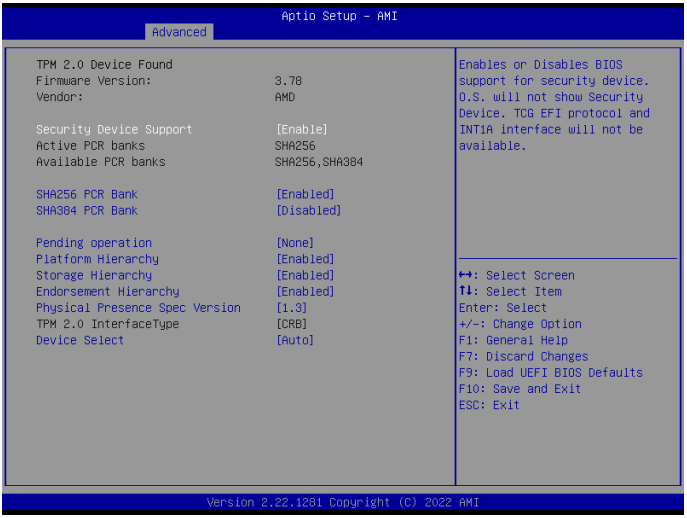
Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None], [Hardware RTS/CTS], and [Software Xon/Xoff].

Data Bits

Parity

Stop Bits

4.4.8 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.

Active PCR banks

This item displays active PCR Banks.

Available PCR Banks

This item displays available PCR Banks.

SHA256 PCR Bank

Use this item to enable or disable SHA256 PCR Bank.

SHA384 PCR Bank

Use this item to enable or disable SHA384 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.

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.

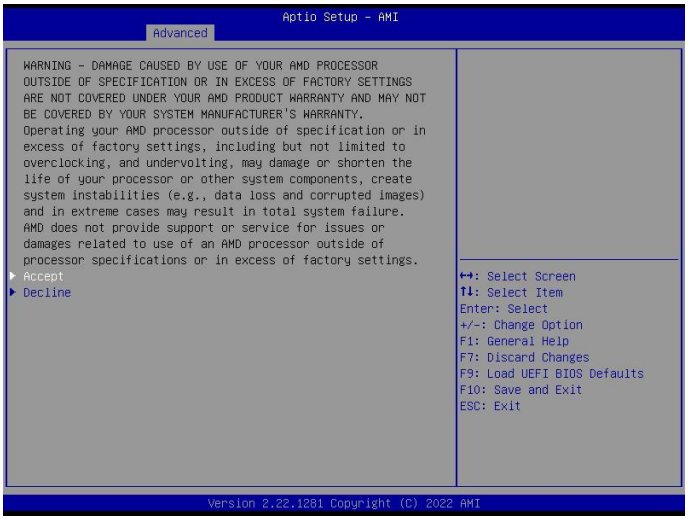
TPM 2.0 InterfaceType (CRB)

Select the Communication Interface to TPM 2.0 Device

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.

4.4.9 AMD Overclocking



The AMD Overclocking menu accesses options for configuring CPU frequency and voltage.

4.5 Tools

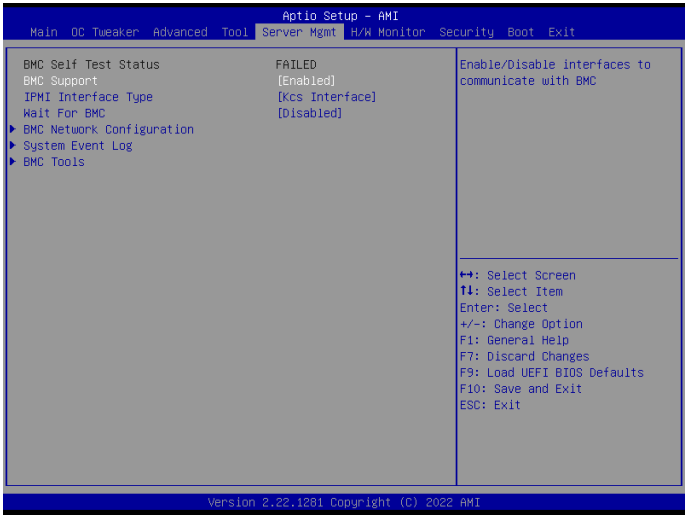
NVME Sanitization Tool

After you sanitize SSD, all user data will be permantly destroyed on the SSD and cannot be recovered.

Instant Flash

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

4.6 Server Mgmt



BMC Support

Use this item to enable or disable interfaces to communicate with BMC.

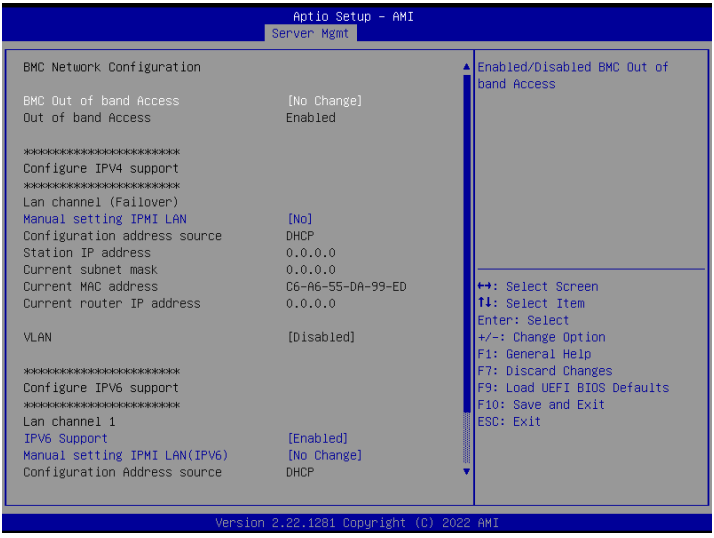
IPMI Interface Type

Use this item to select IPMI Interface Type.

Wait For BMC

Wait For BMC response for specified time out. BMC starts at the same time when BIOS starts during AC power ON. It takes around 90 seconds to initialize Host to BMC interfaces.

4.6.1 BMC Network Configuration



BMC Out of Band Access

Use this item to enable or disable BMC Out of band Access.

Manual Setting IPMI LAN

If [No] is selected, the IP address is assigned by DHCP. If you prefer using a static IP address, toggle to [Yes], and the changes take effect after the system reboots. The default value is [No].

Configuration Address Source

Select to configure BMC network parameters statically or dynamically(by BIOS or BMC). Configuration options: [Static] and [DHCP].

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.
DHCP: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.

When [DHCP] or [Static] is selected, do NOT modify the BMC network settings on the IPMI web page.

The default login information for the IPMI web interface is:
Username: admin
Password: admin

For more instructions on how to set up remote control environment and use the IPMI management platform, please refer to the IPMI Configuration User Guide or go to the Support website at: http://www.asrockrack.com/support/faq.asp

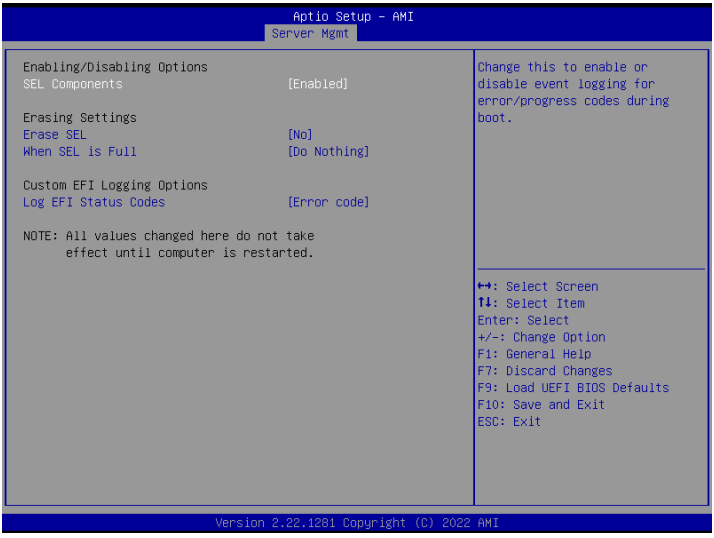
VLAN
Enabled/Disabled Virtual Local Area Network.
If [Enabled] is selected, configure the items below.

Configure IPV6 Support
Enabled/Disable LAN1 IPV6 Support.

Manual Setting IPMI LAN(IPV6)
Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

IPV6 Index
IPV6 Index - Set Selector for Static IP, range 0 to 15.

4.6.2 System Event Log



SEL Components

Change this to enable ro disable event logging for error/progress codes during boot.

Erase SEL

Use this to choose options for earsing SEL.

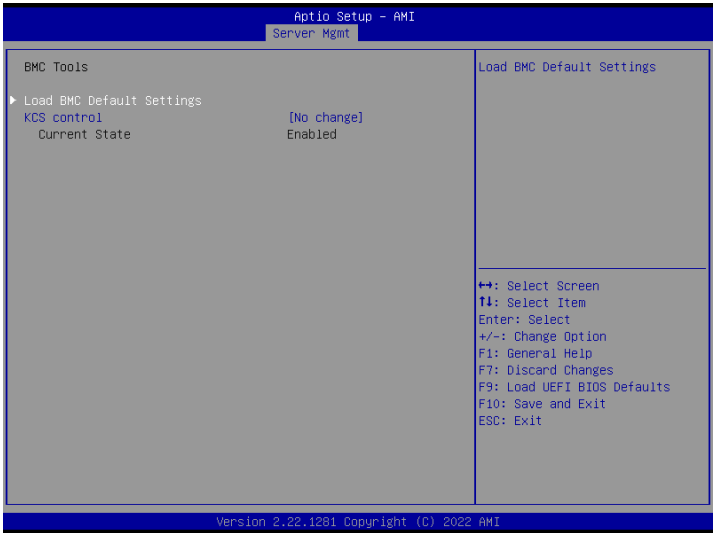
When SEL is Full

Use this to choose options for reactions to a full SEL.

Log EFI Status Codes

Use this item to disable the logging of EFI Status Codes or log only error code or only progress code or both.

4.6.3 BMC Tools



Load BMC Default Settings

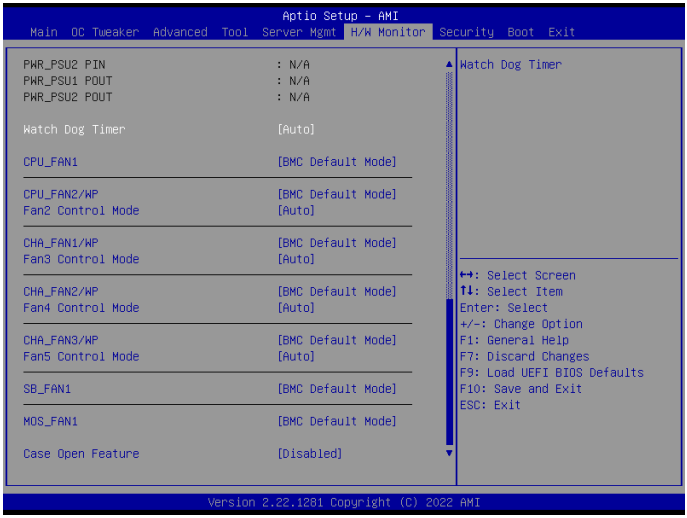
Use this item to Load BMC Default Settings

KCS Control

Select this KCS interface state after POST end. If [Enabled] us selected, the BMC will remain KCS interface after POST stage. If [Disabled] is selected, the BMC will disable KCS interface after POST stage

4.7 H/W Monitor

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer.

CPU_FAN1

Select a fan mode for CPU_FAN1.

CPU_FAN2/WP

Select a fan mode for CPU_FAN2/WP.

Fan2 Control Mode

If [Auto] is selected, the fan speed will controlled by BMC.

CHA_FAN1/WP

Select a fan mode for CHA_FAN1/WP.

Fan3 Control Mode

If [Auto] is selected, the fan speed will controlled by BMC.

CHA_FAN2/WP

Select a fan mode for CHA_FAN2/WP.

Fan4 Control Mode

If [Auto] is selected, the fan speed will controlled by BMC.

CHA_FAN3/WP

Select a fan mode for CHA_FAN3/WP.

Fan5 Control Mode

If [Auto] is selected, the fan speed will controlled by BMC.

SB_FAN1 Setting

Select a fan mode for SB_FAN1.

MOS_FAN1

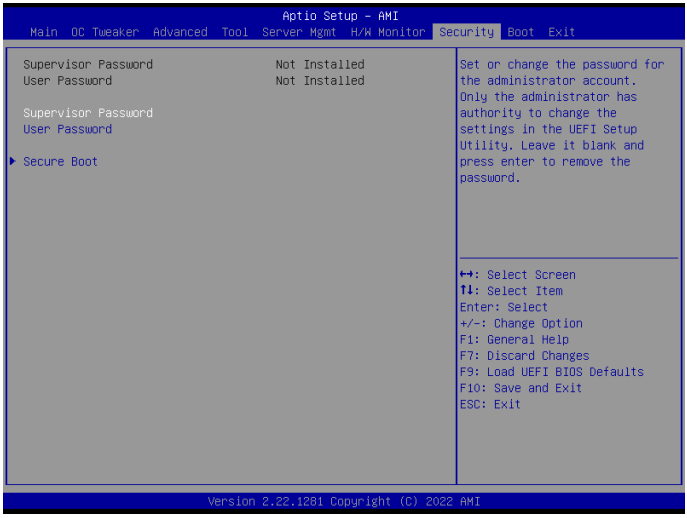
Select a fan mode for MOS_FAN1.

Case Open Feature

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

4.8 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

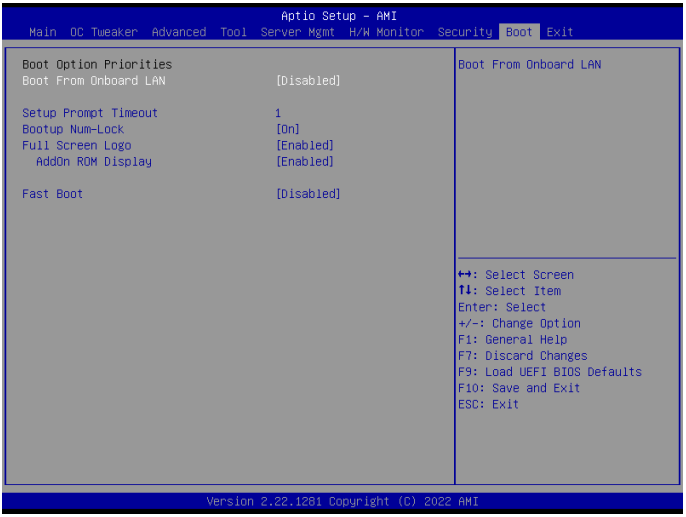
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Enable to support Secure Boot.

4.9 Boot Screen

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



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.

Full Screen Logo

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

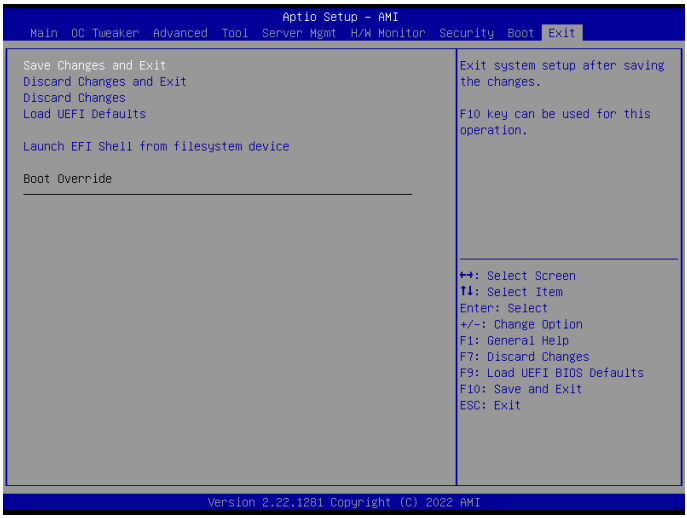
AddOn ROM Display

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.

Fast Boot

Fast Boot minimizes your computer's boot time. In fast mode you may not boot from an USB storage device.

4.10 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.