OPEN Industry Standard, Flexible Architecture

GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation

Motherboard

TRX40D8-2N2T

User Manual

English

Version 1.0
Published August 2020
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Copyright Notice:

Disclaimer:

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

CALIFORNIA, USA ONLY

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

ASRock Rack's Website: www.ASRockRack.com

Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at www.ASRockRack.com; or you may contact your dealer for further information.

ASRock Rack Incorporation

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

Contents

Chapter 1 Introduction

Thank you for purchasing ASRock Rack *TRX40D8-2N2T* motherboard, a reliable motherboard produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contains the configuration guide to BIOS setup and information of the Support CD.

> ⚠ *Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock Rack website without further notice. You may find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com*
>
> *If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.*
> *http://www.asrockrack.com/support/*

1.1 Package Contents

- ASRock Rack TRX40D8-2N2T Motherboard
  (ATX Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
- Quick Installation Guide
- 1 x SATA3 Cable (60cm)
- 2 x Screws for M.2 Sockets
- 1 x I/O Shield

> ☆ *If any items are missing or appear damaged, contact your authorized dealer.*

English

1.2 Specifications

TRX40D8-2N2T	
MB Physical Status	
Form Factor	ATX
Dimension	12" x 9.6" (30.5 cm x 24.4 cm)
Processor System	
CPU	Supports AMD Ryzen™ Threadripper™ TR4+ Series Processors
Socket	AMD Socket TR4 4094P
Chipset	AMD TRX40
System Memory	
Capacity	- 8 x 288-pin DDR4 DIMM slots
	- Supports up to 256GB DDR4 ECC & non-ECC U-DIMM
Type	- Dual Channel Memory Technology
	- Supports DDR4 ECC U-DIMM
Voltage	1.2V
DIMM Size per DIMM	ECC U-DIMM: 32GB, 16GB, 8GB, 4GB
DIMM Frequency	ECC / non-ECC U-DIMM: 4666(OC)+ / 4600(OC) / 4533(OC) / 4466(OC) / 4400(OC) / 4333(OC) / 4266(OC) / 4200(OC) / 4133(OC) / 4000(OC) / 3866(OC) / 3800(OC) / 3733(OC) / 3600(OC) / 3466(OC) / 3200 / 2933 / 2667 / 2400 / 2133 MHz
Expansion Slot	
PCIe 4.0 x 16	SLOT3: Gen4 x16 link
	SLOT5: Gen4 x16 link
	SLOT7: Gen4 x16 link
PCIe 4.0 x 8 (open-ended)	SLOT1: Gen4 x 8 link
M.2	2 x M-key (PCIe4.0 x4) support 2230/2242/2260/2280/22110
Storage	
SATA Controller	TRX40: 2 x SATA 6Gb/s; 2x SATA DOM, support RAID 0, 1, 10
Additional SATA Controller	Asmedia 1061: 2 x SATA3 6.0 Gb/s (A_SATA0/A_SATA1)
Ethernet	
Interface	10Gbps/2.5Gbps
LAN Controller	- 2 x RJ45 10GbEby Intel® X710-AT2
	- 2 x RJ45 2.5GbEby Intel® i225
	- Supports Wake-On-LAN
	- Supports Energy Efficient Ethernet 802.3az
	- Supports PXE
	- LAN3 Supports NCSI

Management	
BMC Controller	ASPEED AST2500 : IPMI (Intelligent Platform Management Interface) 2.0 with Ikvm and vMedia support
IPMI Dedicated GLAN	1 x Realtek RTL8211E for dedicated management
Features	NMI
Gracphics	
Controller	ASPEED AST2500
VRAM	DDR4 16MB
Rear Panel I/O	
PS/2 KB/mouse	1
VGA Port	1 x D-Sub
USB 3.2 Gen1 Port	2
USB 3.2 Gen2 Port	2 (1 type A, 1 type C)
LAN Port	-2 x RJ45: 2 x 10GbE by Intel® X710-AT2
	-2 x RJ45: 2 x 2.5GbE by Intel® i225
	-1 x IPMI dedicated LAN
	-LAN Ports with LED (ACT/LINK LED and SPEED LED)
UID	1
Internal Connector	
Auxiliary Panel Header	1 (includes chassis intrusion, location button & LED, system fault LED, and front LAN LED)
Front Panel	1 (RST, PWRBTN, HDDLED, PWRLED)
VGA Header	1
COM Header	1
SATA DOM	2
Speaker	1 (4-pin)
TR1	1
TPM Header	1
SPI TPM Header	1
IPMB Header	1
PSU SMB Header	1
BMC SMBus Header	1
Fan Header	6 x 6-pin Fans
ATX Power	1 x (24-pin) + 1 x (8-pin) + 1 x (8-pin)
Type A USB 3.2 Gen1 Port	1
USB 3.2 Gen1 Header	1 (support 2 USB 3.2 Gen1 ports)
USB 2.0 Header	1 (support 2 USB2.0 ports)
ClearCMOS	1 (short pad)
NMI button	1
Buzzer	1

80 Debug Port LED	1
Front LAN LED	1
OH/FanFail LED	6 (Fan Fail LED only)
System BIOS	
BIOS Type	32Mb AMI UEFI Legal BIOS
BIOS Features	- Plug and Play (PnP)
	- ACPI 2.0 Compliance Wake Up Events
	- SMBIOS 2.8 Support
	- ASRock Rack Instant Flash
Hardware Monitor	
Temperature	- CPU Temperature Sensing
	- System Temperature Sensing
	- Card side Temperature Sensing
	- System TR Temperature Sensing
Fan	- CPU/Rear/Front Fan Tachometer
	- CPU Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature)
	- CPU/Rear/Front Fan Multi-Speed Control
Voltage	Voltage Monitoring: +3VSB, +5VSB, VCORE, VCORE_NB, VCCM_AB, VCCM_CD, BAT, 3V, 5V, 12V
GPU Support	
Technology	Supports AMD Quad-GPU CrossFireX™ Technology
Support OS	
OS	Microsoft® Windows®
	- Windows 10 (64 bit)
	Linux®
	- CentOS 8.1 (64 bit)
	*The Linux system does not support Raid mode.
	* Please refer to our website for the latest OS support list.
Environment	
Temperature	Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C

⚠ *This motherboard supports Wake from on Board LAN. To use this function, please make sure that the "Wake on Magic Packet from power off state" is enabled in Device Manager > Intel® Ethernet Connection > Power Management. And the "PCI Devices Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration. After that, onboard LAN1&2 can wake up S5 under OS.*

⚠ *If you install Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If you install the drivers only, it will pass the WHQL tests.*

English

1.3 Unique Features

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This conve-
nient BIOS update tool allows you to update system BIOS without entering operating
systems first like Windows[*]. With this utility, you can press the <F6> key during the
POST or the <F2> key to enter into the BIOS setup menu to access ASRock Rack
Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive,
floppy disk or hard drive, then you can update your BIOS only in a few clicks without
preparing an additional floppy diskette or other complicated flash utility. Please be

noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

1.4 Motherboard Layout

24.4cm (9.6 in)

30.5cm (12.0 in)

UID1

VGA1

FRNT_VGA1

USB 3.2 Gen1
T: USB3 1
B: USB3 2

PS/2
Keyboard
/Mouse

USB 3.2 Gen2
T: USB3 1
B: USB3 1 _TC_1

IPMI
LAN

2.5G_LAN1

2.5G_LAN2

10G_LAN3
(NCSI)

10G_LAN4

X710-AT2

PCIE7

BIOS
ROM

PCIE5

ASRock
Rack

TRX40D8-2N2T

AST2500

PCIE3

RoHS

BMC
ROM

NUT110_2   NUT80_2   NUT60_2   NUT42_2   NUT30_2

PCIE1

MINI_SAS1   LED_LAN1_1   BMC_SMB1   IPMB1   TR1   Dr.
Debug   TPM1   SPEAKER1   BUZZER1   M2_1   USB3_1_2   COM1   AUX_PANEL1   PANEL1

DDR4_D1 (64 bit, 288-pin module), Blue
DDR4_D2 (64 bit, 288-pin module), White
DDR4_C1 (64 bit, 288-pin module), Blue
DDR4_C2 (64 bit, 288-pin module), White

ATX12V2   ATX12V1

ATXPWR1

PSU_SMB1

DDR4_A2 (64 bit, 288-pin module), White
DDR4_A1 (64 bit, 288-pin module), Blue
DDR4_B2 (64 bit, 288-pin module), White
DDR4_B1 (64 bit, 288-pin module), Blue

NUT110

USB3_6_7

FAN1

TPM_BIOS_PH1

NUT90

Super
I/O

AMD
TRX40

FAN2

FAN3

FAN4

FAN5

FAN6

A_SATA4
A_SATA0

SATA 0

NUT60

NUT30

CMOS
Battery

M2_2

CLKAGEN1

SATAPWR1

M2_1

SATA2
(Red)

SATAPWR2   USB3_5

SATA3
(Red)

No.	Description
1	2 x 288-pin DDR4 DIMM Slots (DDR4_C2, DDR4_D2, White)*
2	2 x 288-pin DDR4 DIMM Slots (DDR4_C1, DDR4_D1, Blue)*
3	ATX 12V Power Connector (ATX12V2)
4	ATX 12V Power Connector (ATX12V1)
5	ATX Power Connector (ATXPWR1)
6	PSU SMBus (PSU_SMB1)
7	AMD Socket TR4 4094P
8	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2, White)*
9	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1, Blue)*
10	USB 3.2 Gen1 Header (USB3_6_7)
11	System Fan Connector (FAN1)
12	System Fan Connector (FAN2)
13	SATA3 Connector (A_SATA1) (Upper), SATA3 Connector (A_SATA0) (Lower)
14	System Fan Connector (FAN3)
15	SATA3 Connector (SATA1) (Upper), SATA3 Connector (SATA0) (Lower)
16	System Fan Connector (FAN5)
17	System Fan Connector (FAN6)
18	Vertical Type A USB 3.2 Gen1 (USB3_5)
19	SATA DOM Power Connector (SATAPWR2)
20	SATA3 DOM Connector (SATA3), Red
21	System Panel Header (PANEL1)
22	Auxiliary Panel Header (AUX_PANEL1)
23	System Fan Connector (FAN4)
24	COM Port Header (COM1)
25	SATA3 DOM Connector (SATA2), Red
26	USB 2.0 Header (USB_1_2)
27	M.2 Socket (M2_1) (Type 2230/2242/2260/2280/22110)
28	SATA DOM Power Connector (SATAPWR1)
29	Clear CMOS Pad (CLRMOS1)
30	TPM Header (TPM1)
31	Speaker Header (SPEAKER1)
32	Thermal Sensor Header (TR1)

No.	Description
33	Intelligent Platform Management Bus Header (IPMB1)
34	BMC SMBus Header (BMC_SMB1)
35	Front LAN LED Connector (LED_LAN3_4)
36	Non Maskable Interrupt Button (NMI_BTN1)
37	M.2 Socket (M2_2) (Type 2230/2242/2260/2280/22110)
38	SPI TPM Header (TPM_BIOS_PH1)
39	Front VGA Header (FRNT_VGA1)

For DIMM installation and configuration instructions, please see p.23 (Installation of Memory Modules (DIMM)) for more details.

English

1.5 Onboard LED Indicators
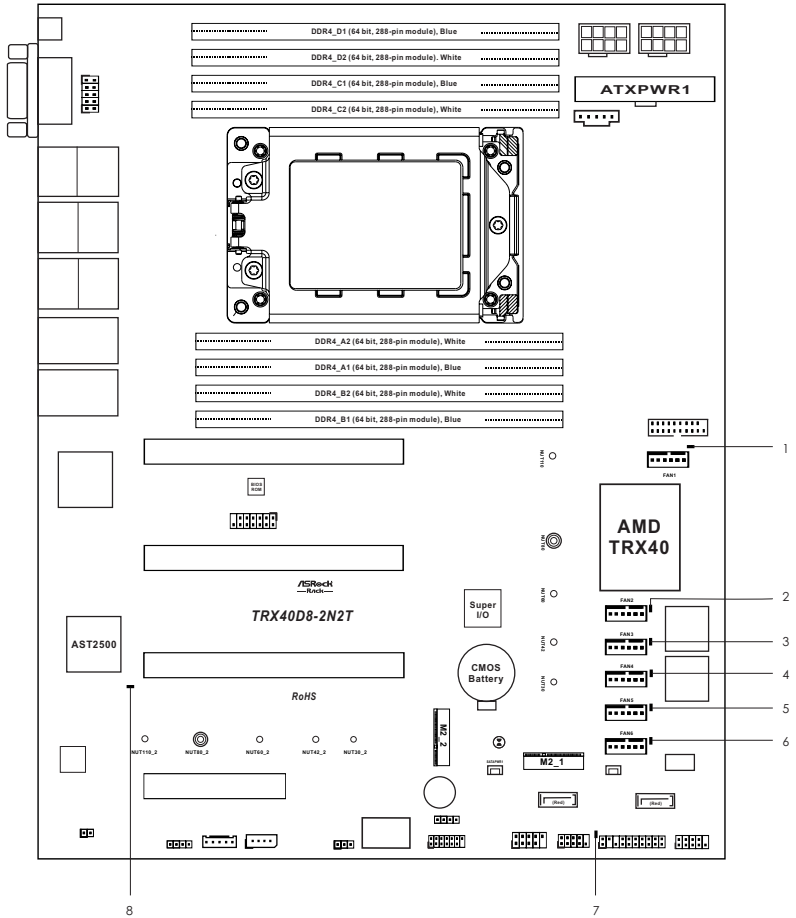
No.	Status	Description
1	Amber	FAN1 failed
2	Amber	FAN2 failed
3	Amber	FAN3 failed
4	Amber	FAN4 failed
5	Amber	FAN5 failed
6	Amber	FAN6 failed
7	Green	STB PWR ready
8	Green	BMC heartbeat LED

1.6 I/O Panel
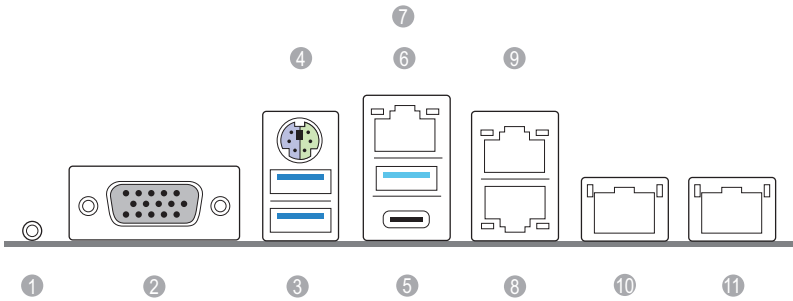
No.	Description	No.	Description
1	UID Switch (UID1)	7	LAN RJ-45 Port (IPMI_LAN)*
2	VGA Port (VGA1)	8	2.5G LAN RJ-45 Port (2.5G_LAN1)**
3	USB 3.2 Gen1 Ports (USB3_1_2)	9	2.5G LAN RJ-45 Port (2.5G_LAN2)**
4	PS/2 Mouse/Keyboard Port	10	10G LAN RJ-45 Port (LAN3)***
5	USB 3.2 Gen2 Port (USB31_TC_1)	11	10G LAN RJ-45 Port (LAN4)***
6	USB 3.2 Gen2 Port (USB31_TA_1)		

LAN Port LED Indications

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

ACT/LINK LED
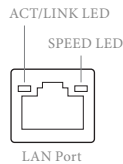
SPEED LED

LAN Port

Dedicated IPMI LAN Port LED Indications

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

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

ACT/LINK LED ——— ☐☐ ——— SPEED LED

ACT/LINK LED ——— ☐☐ ——— SPEED LED
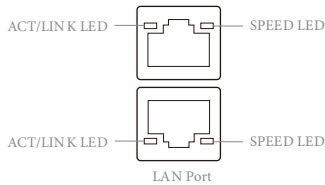
LAN Port

2.5G LAN Port (LAN1, LAN2) LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps/100Mbps connection or no link
Blinking	Data Activity	Yellow	1Gbps connection
On	Link	Green	2.5Gbps connection

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

ACT/LINK LED
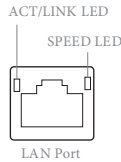
SPEED LED

LAN Port

10G LAN Port (LAN3, LAN4) LED Indications

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

1.7 Block Diagram
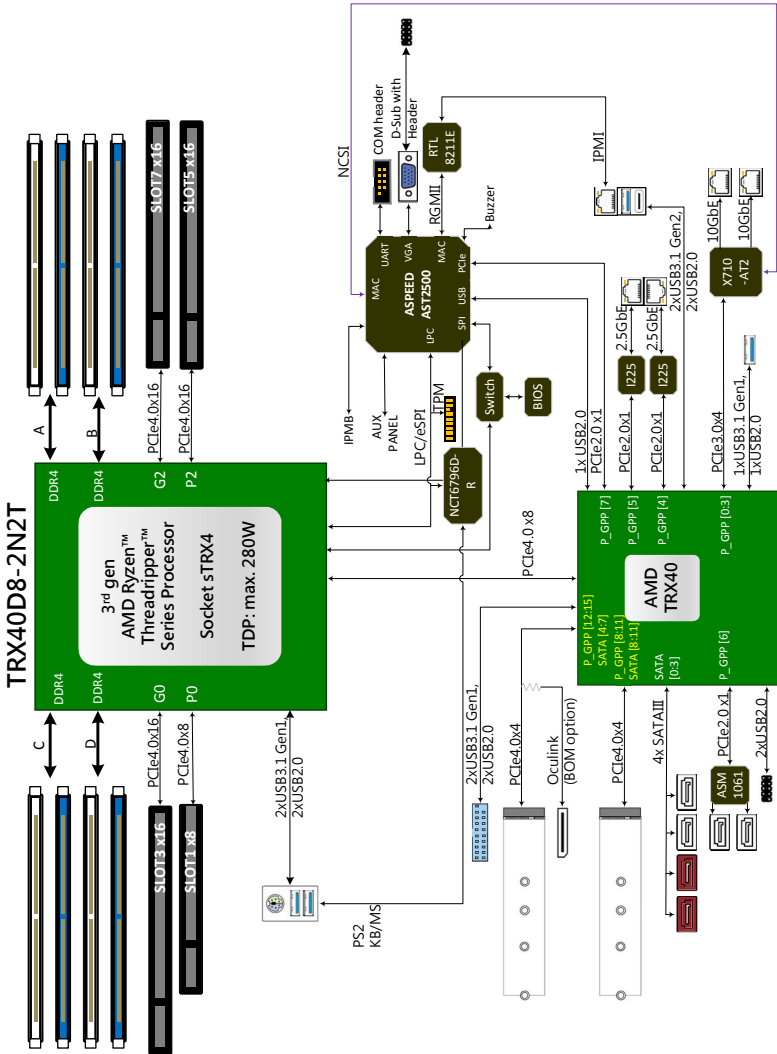
Chapter 2 Installation

This is an ATX form factor (12" x 9.6", 30.5 cm x 24.4 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

> ⚠ *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.*

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

> ⚠ *Attention! Before installing this motherboard, be sure to unscrew and remove the standoff at the marked location, under the motherboard, from the chassis, in order to avoid electrical short circuit and damage to your motherboard.*

Rear I/O

Remove the standoff from the chassis
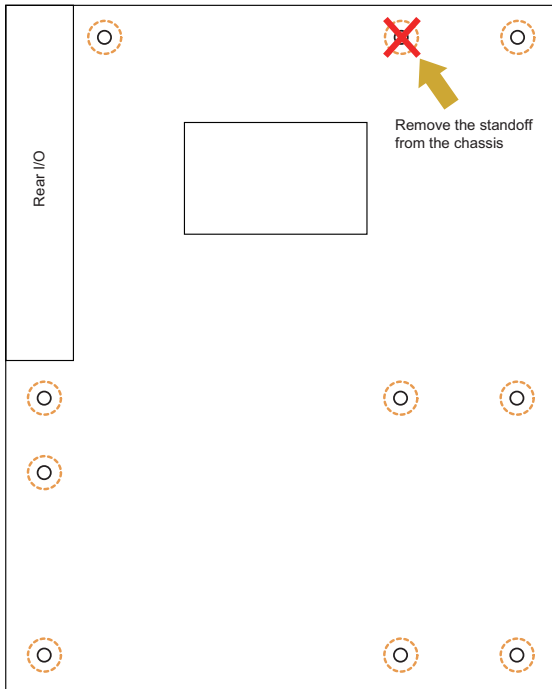
2.2 Pre-installation Precautions

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

1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

> ⚠ *Do not over-tighten the screws! Doing so may damage the motherboard.*

> ⚠ *Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.*

English

2.3 Installing the CPU and Heatsink

Unplug all power cables before installing the CPU.

❸

❹

❺

Carrier Frame with CPU

Rail Frame

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

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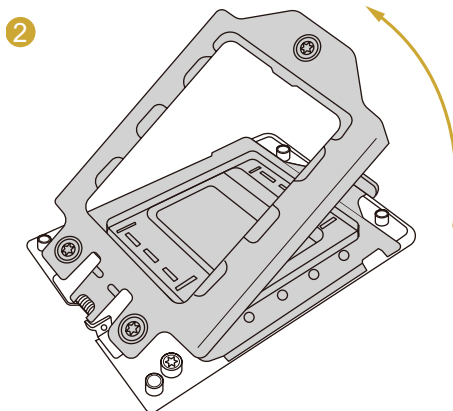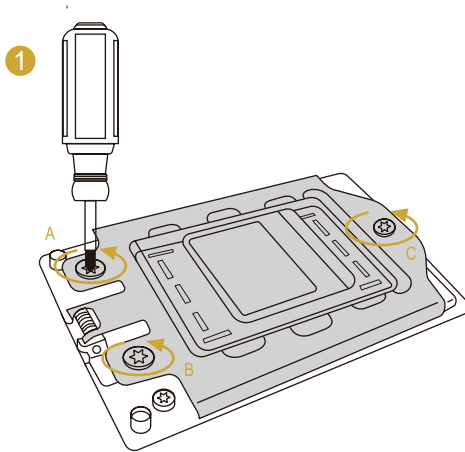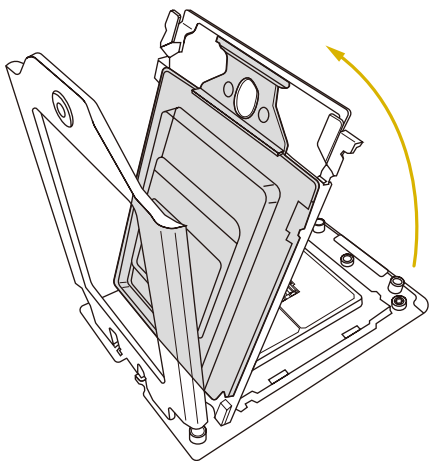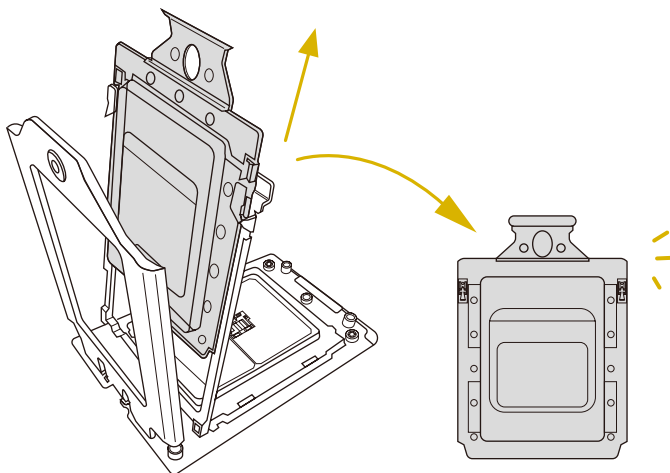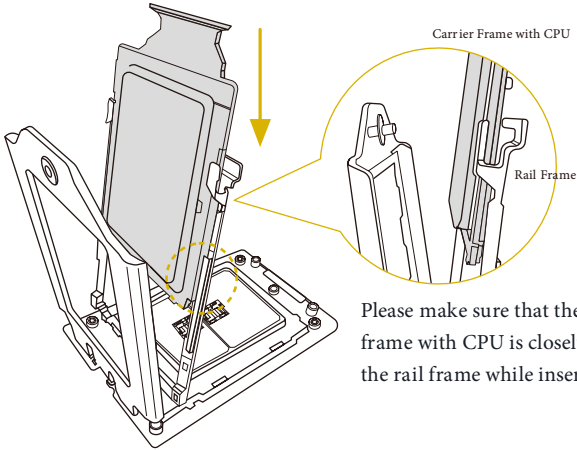
Install the orange carrier frame with CPU. Don't separate them.

❻
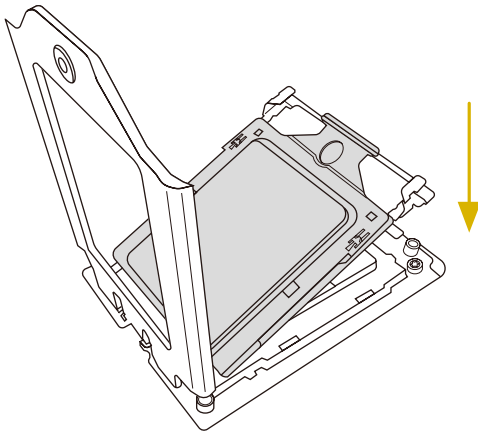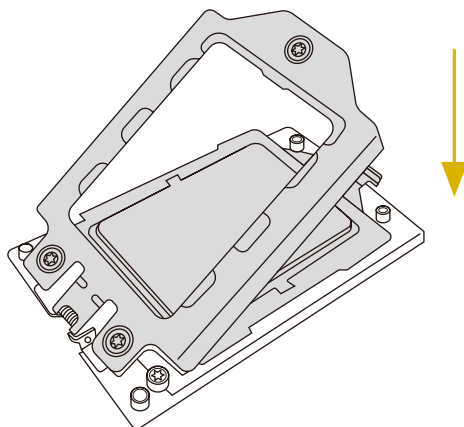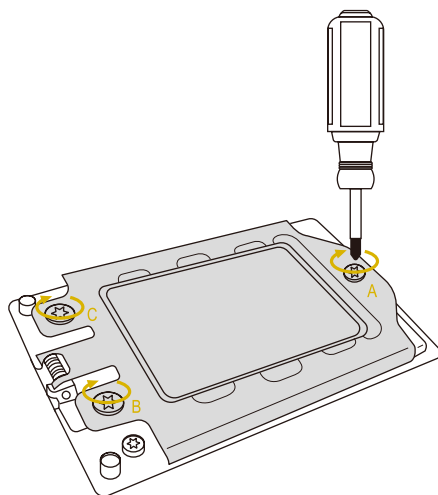
2.4 Installing the CPU Cooler

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.
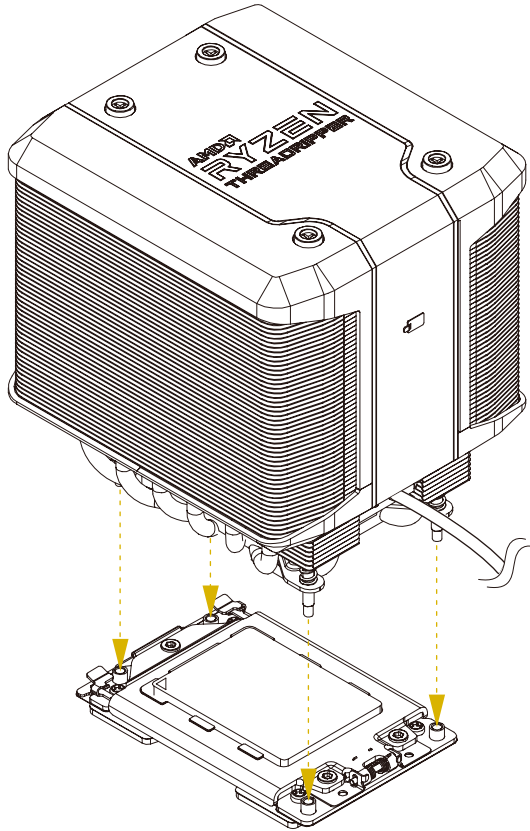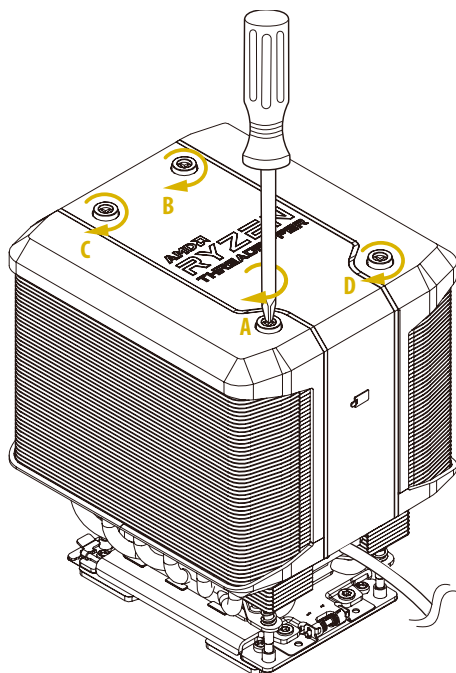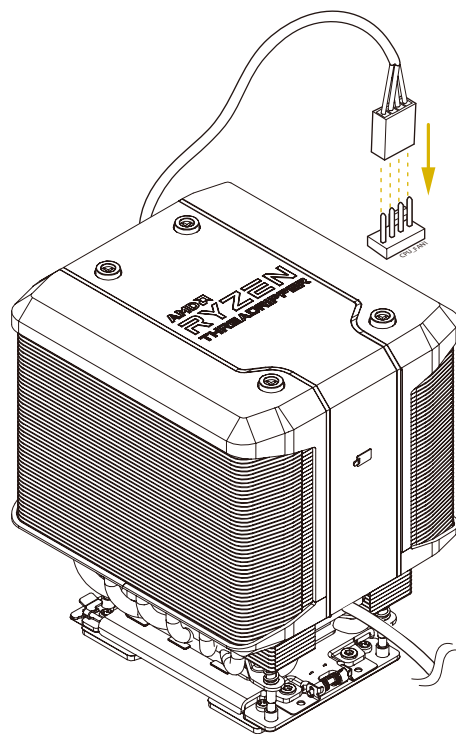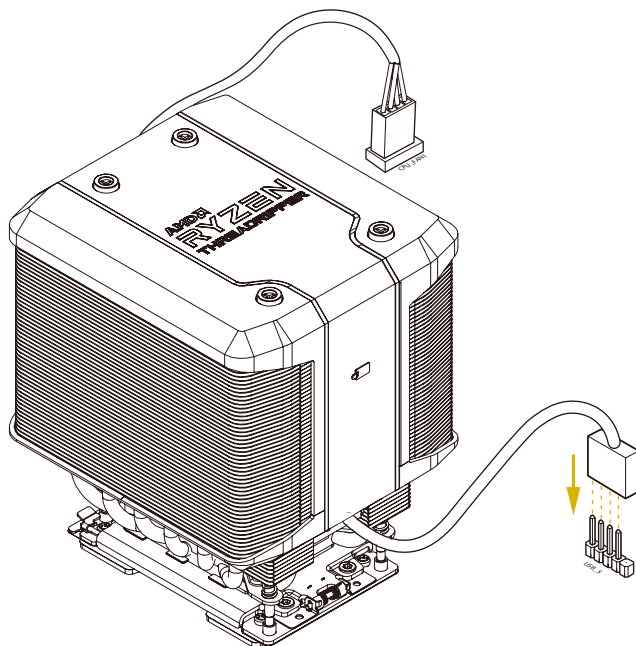
2.5 Installation of Memory Modules (DIMM)

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

A single memory module should be installed in the Blue socket.

	CPU1							
	A1	A2	B1	B2	C1	C2	D1	D2
1 DIMM	#							
2 DIMMS	#		#					
4 DIMMS	#		#		#		#	
8 DIMMS	#	#	#	#	#	#	#	#

⚠️
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 quad channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
3. It is unable to activate Quad Channel Memory Technology with only one, two or three memory module installed.
4. 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.
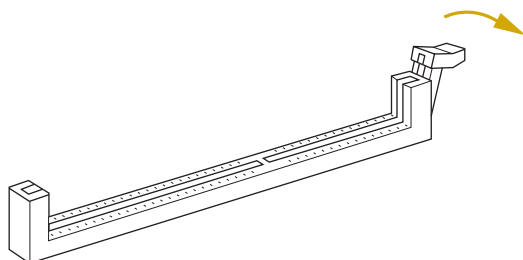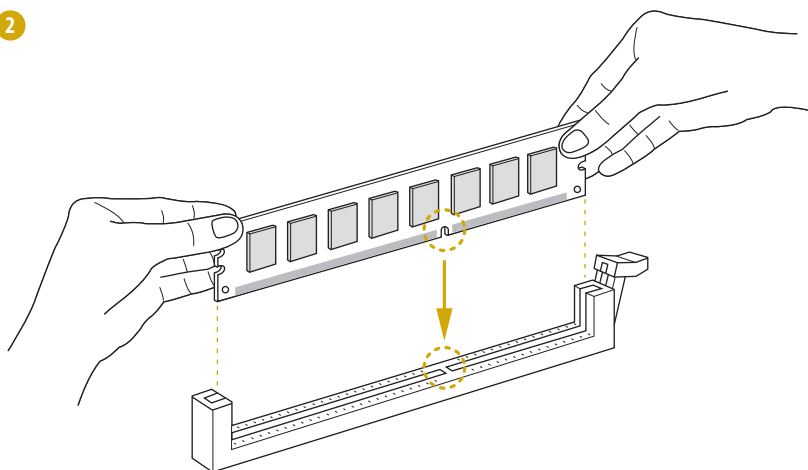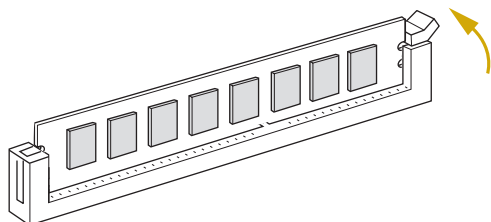
The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

2.6 Expansion Slots (PCI Express Slots)

There are 4 PCI Express slots on this motherboard.

PCIE slot:

PCIE3, PCIE5 and PCIE7 (PCIE 4.0 x16 slot, from CPU) are used for PCI Express x16 lane width graphics cards.

PCIE1 (PCIE 4.0 x8 slot, from CPU) is used for PCI Express x8 lane width graphics cards.

Slot	Generation	Mechnical	Eletrical	Source
PCIE 1	4.0	x8	x8	CPU
PCIE 3	4.0	x16	x16	CPU
PCIE 5	4.0	x16	x16	CPU
PCIE 7	4.0	x16	x16	CPU

Installing an expansion card

Step 1.   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.

Step 2.   Remove the system unit cover (if your motherboard is already installed in a chassis).

Step 3.   Remove the bracket facing the slot that you intend to use. Keep the screws for later use.

Step 4.   Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5.   Fasten the card to the chassis with screws.

Step 6.   Replace the system cover.

2.7 Onboard Headers and Connectors

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

System Panel Header
(9-pin PANEL1)
(see p.7, No. 21)

PLED+
PLED-
PWRBTN#
GND

1

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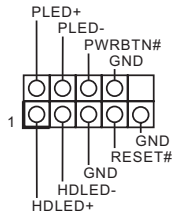
Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

🔍 **PWRBTN (Power Switch):**
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

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

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in 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 switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(18-pin AUX_PANEL1)
(see p.7, No. 22)
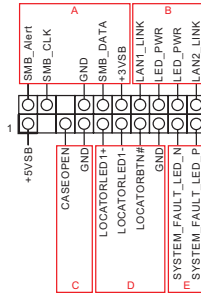
This header supports multiple functions on the front panel, including the front panel SMB, internet status indicator and chassis intrusion pin.

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.

Serial ATA3 Connectors
Right-Angled:
(SATA0)
(see p.7, No. 15)
(SATA1)
(see p.7, No. 15)
(A_SATA0)
(see p.7, No. 13)
(A_SATA1)
(see p.7, No. 13)
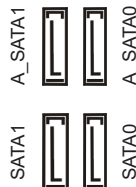
These four SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

English

Serial ATA3 DOM Connectors (SATA2) (see p.7, No. 25) (SATA3) (see p.7, No. 20)	SATA2 SATA3	The SATA3 DOM connectors support both a SATA DOM (Disk-On-Module) and a SATA data cable for internal storage device.
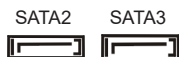
USB 3.2 Gen1 Connector (USB3_5) (see p.7, No. 18)		

USB 2.0 Header (9-pin USB_1_2) (see p.7, No. 26)	USB_PWR P- P+ GND DUMMY 1 GND P+ P- USB_PWR	This is one header on this motherboard. This USB 2.0 header can support two ports.
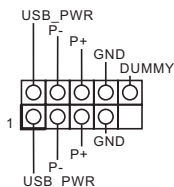
USB 3.2 Gen1 Header (19-pin USB3_6_7) (see p.7, No. 10)	IntA_PA_D+ IntA_PA_D- GND IntA_PA_SSTX+ IntA_PA_SSTX- GND IntA_PA_SSRX+ IntA_PA_SSRX- Vbus 1 Vbus IntA_PB_SSRX- IntA_PB_SSRX+ GND IntA_PB_SSTX- IntA_PBA_SSTX+ GND IntA_PB_D- IntA_PB_D+ Dummy	Besides two default USB 3.2 Gen1 ports on the I/O panel, there is one USB 3.2 Gen1 header on this motherboard. Each USB 3.2 Gen1 header can support two USB 3.2 Gen1 ports.
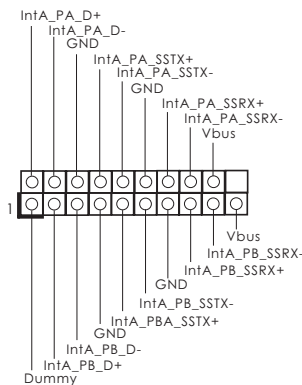
Chassis Speaker Header (4-pin SPEAKER1) (see p.7, No. 31)	DUMMY SPEAKER 1 +5V DUMMY	Please connect the chassis speaker to this header.

Baseboard Management
Controller SMBus Header
(5-pin BMC_SMB1)
(see p.7, No. 34)

BMC_SMB_PRESENT_1_N
Power
BMC_SMBCLK
GND
BMC_SMBDATA
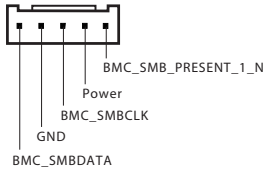
The header is used for the
SMBus devices.

System Fan Connectors
(4-pin FAN1)
(see p.7, No. 11)
(4-pin FAN2)
(see p.7, No. 12)
(4-pin FAN3)
(see p.7, No. 14)
(4-pin FAN4)
(see p.7, No. 23)
(4-pin FAN5)
(see p.7, No. 16)
(4-pin FAN6)
(see p.7, No. 17)

6 5 4 3 2 1
GND
FAN_VOLTAGE
FAN_SPEED
FAN_SPEED_CONTROL
SENSOR
NC
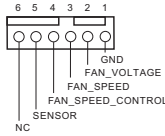
Please connect the fan cables to
the fan connectors and match
the black wire to the ground
pin. All fans supports Fan
Control.

ATX Power Connector
(24-pin ATXPWR1)
(see p.7, No. 5)

3V
3V
GND
5V
GND
5V
GND
PWROK_PS
5VSB
12V
12V
3V

1   12

13   24

3V
-12V
GND
PSON#
GND
GND
GND
N/A
5V
5V
5V
GND
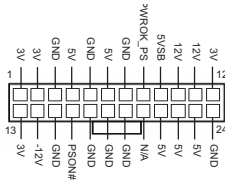
This motherboard provides a
24-pin ATX power connector.
To use a 20-pin ATX power
supply, please plug it along Pin
1 and Pin 13.

ATX 12V Power
Connectors
(8-pin ATX12V1)
(see p.7, No. 4)
(8-pin ATX12V2)
(see p.7, No. 3)

GND
1   4
5   8
12V
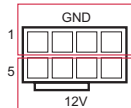
This motherboard provides
two 8-pin ATX 12V power
connectors.

TPM Header (13-pin TPM1) (see p.7, No. 30)	GND LFRAME LAD1 LAD3 GND +3V +3V 33M RST LAD0 LAD2 GND +3V	This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.
PSU SMBus (PSU_SMB1) (see p.7, No. 6)	ALERT SMBCLK +3V 1 SMBDATA GND	PSU SMBus monitors the status of the power supply, fan and system temperature.
Non Maskable Interrupt Button Header (NMI_BTN1) (see p.7, No. 36)	GND 1 CONTROL	Please connect a NMI device to this header.
Intelligent Platform Management Bus Header (4-pin IPMB1) (see p.7, No. 33)	IPMB_SDA IPMB_SCL No connect GND	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.
Thermal Sensor Header (3-pin TR1) (see p.7, No. 32)	TR1 TR1 1 GND	Please connect the thermal sensor cable to either pin 1-2 or pin 2-3 and the other end to the device which you wish to monitor its temperature.
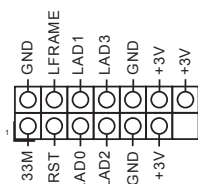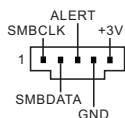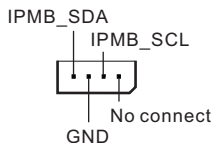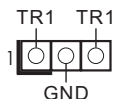
Clear CMOS Pad
(CLRMOS1)
(see p.7, No. 29)

This allows you to clear the data in CMOS. To clear CMOS, take out the CMOS battery and short the Clear CMOS Pad.

Front VGA Header
(10-pin FRN_VGA1)
(see p.7, No. 39)

1

RED — GND
GREEN — GND
BLUE — GND
HSYNC — VSYNC
DDCCLK_C — DDCDAT_C
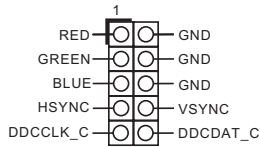
Please connect either end of VGA_2X5 cable to VGA header.

Serial Port Header
(9-pin COM1)
(see p.7, No. 24)

RRXD1
DDTR#1
DDSR#1
CCTS#1

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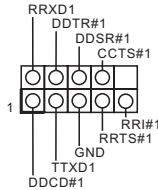
This COM header supports a serial port module.

SATA DOM Power
Connectors
(3-pin SATAPWR1)
(see p.7, No. 28)
(3-pin SATAPWR2)
(see p.7, No. 19)

N/A
GND
+5V
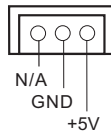
Please connect the power cables on the SATA DOM to these connectors.

Front LAN LED
Connector
(LED_LAN3_4)
(see p.7, No. 35)

LAN4_LINK
LED_PWR

1
LAN3_LINK
LED_PWR
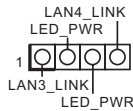
This 4-pin connector is used for the front LAN status indicator.

SPI TPM Header
(13-pin TPM_BIOS_PH1)
(see p.7, No. 38)

```
                              SPI_DQ2
                           SPI_CS0
                        SPI_MISO
                     RSMRST#
                   GND
        SPI_TPM_CS#

                   [O|O|O|O|O|O|O] 1
                   [O|O|O|O|O|O|O]

        TPM_PIRQ
              RST#
          SPI_MOSI
               CLK
         TPM_Present
              +3.3V
            SPI_DQ3
```
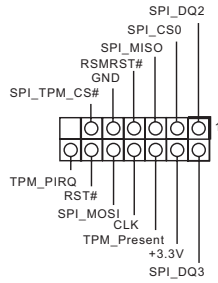
This connector supports SPI Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

2.8 Unit Identification purpose LED/Switch

With the UID button, You are able to locate the server you're working on from behind a rack of servers.

Unit Identification
purpose LED/Switch
(UID1)

When the UID button on the front or rear panel is pressed, the front/rear UID blue LED indicator will be turned on. Press the UID button again to turn off the indicator.

2.9 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

2.10 M.2_SSD (NGFF) Module Installation Guide

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe. The M.2 Socket supports a M.2 PCI Express module up to Gen4 x4 (64 Gb/s).

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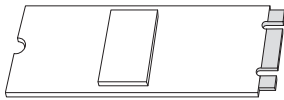
Step 1

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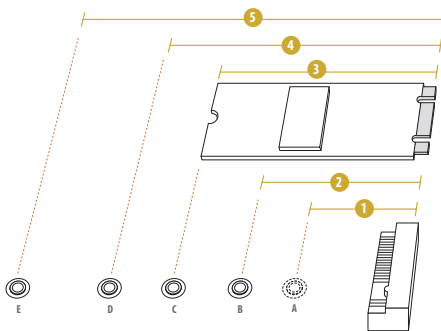
Step 2

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

No.	1	2	3	4	5
Nut Location	A	B	C	D	E
PCB Length	3cm	4.2cm	6cm	8cm	11cm
Module Type	Type2230	Type 2242	Type2260	Type 2280	Type 22110

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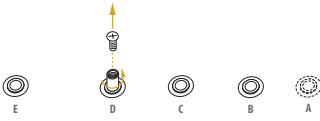
Move the standoff based on the module type and length.
The standoff is placed at the nut location D by default. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut. Otherwise, release the standoff by hand.

E   D   C   B   A

Step 4

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

E   D   C   B   A

Step 5
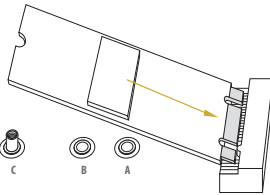
Gently insert the M.2 (NGFF) SSD module into the M.2 slot. Please be aware that the M.2 (NGFF) SSD module only fits in one orientation.

E   D   C   B   A

E   D   C   B   A   20°
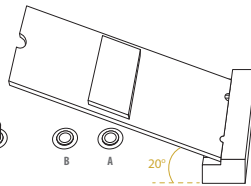
Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.
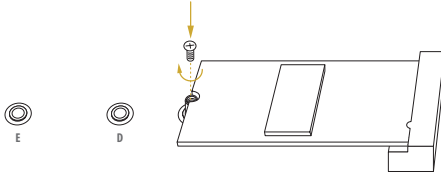
Chapter 3 UEFI Setup Utility

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY; otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctrl> + <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.*

3.1.1 UEFI Menu Bar

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

Item	Description
Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
Server Mgmt	To manage the server
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use < ←> key or < →> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

English

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3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Tab>	Switch to next function
<Enter>	To bring up the selected screen
<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 UEFI SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

3.2 Main Screen

Once you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows you to set the system time and date.

```
                Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
    Main  Advanced  Server Mgmt  Security  Boot  Exit

    UEFI Version      : TRX40D8-2N2T L0.29          Set the Date. Use Tab to
    BMC Version       : 0.06.01                     switch between Date elements.
    Processor Type    : AMD Ryzen Threadripper 3960X 24-Core  Default Ranges:
    Processor                                       Year: 2005-2099
    Processor Speed   : 3852MHz                     Months: 1-12
    Microcode Update  : 830F10/8301025              Days: Dependent on month
    L1 Instruction Cache : 32KB                     Range of Years may vary.
    L1 Data Cache Size   : 32KB
    L2 Cache Size        : 512KB
    L3 Cache per Socket  : 128MB

    Total Memory      : 8GB

    DDR4_A1           : 8GB UDIMM (DDR4-3200)       ↔: Select Screen
    DDR4_A2           : None                        ↑↓: Select Item
    DDR4_B1           : None                        Enter: Select
    DDR4_B2           : None                        +/-: Change Option
    DDR4_C1           : None                        F1: General Help
    DDR4_C2           : None                        F7: Discard Changes
    DDR4_D1           : None                        F9: Load UEFI Defaults
    DDR4_D2           : None                        F10: Save and Exit
                                                    ESC: Exit
    System Date                      [Thu 07/16/2020]
    System Time                      [02:33:22]


                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.    B4
```

3.3 Advanced Screen

In this section, you may set the configurations for the following items: OC Tweaker, CPU Configuration, Chipset Configuration, Storage Configuration, ACPI Configuration, Super IO Configuration, Serial Port Console Redirection, H/W Monitor, USB Configuration, PCI Subsystem Settings, AMD Mem Configuration Status, AMD CBS, AMD PBS, AMD Overclocking and Instant Flash.

```
                Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
          Main  Advanced  Server Mgmt  Security  Boot  Exit

  ▶ OC Tweaker                                              OC Tweaker
  ▶ CPU Configuration
  ▶ Chipset Configuration
  ▶ Storage Configuration
  ▶ ACPI Configuration
  ▶ Super IO Configuration
  ▶ Serial Port Console Redirection
  ▶ H/W Monitor
  ▶ USB Configuration
  ▶ PCI Subsystem Settings
  ▶ AMD Mem Configuration Status
  ▶ AMD CBS                                                 ↔: Select Screen
  ▶ AMD PBS                                                 ↑↓: Select Item
  ▶ AMD Overclocking                                        Enter: Select
                                                            +/-: Change Option
    UEFI Update Utility                                     F1: General Help
  ▶ Instant Flash                                           F7: Discard Changes
                                                            F9: Load UEFI Defaults
                                                            F10: Save and Exit
                                                            ESC: Exit

                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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

3.4 OC Tweaker

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

```
           Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
              Advanced

  Overclock Mode                    [Auto]          ▲  Select the over clock mode.
  SRC Spread Spectrum               [Disabled]         Warning! When overclocking
  SMT Mode                          [Auto]             also the PCIe, PCI, SATA and
  CPU Frequency and Voltage(VID)    [Auto]             USB busses will be overclocked
  Change                                               which may cause instability or
▶ CPU Core (Per CCX)                                   failure.
  SoC/Uncore OC voltage (mV)        0                  Please install an operating
  CLDO VDDP voltage (mV)            0                  system and the drivers
  CLDO VDDG CCD voltage (mV)        0                  required before overclocking,
  CLDO VDDG IOD voltage (mV)        0                  or else your HDD`s may be
                                                       undetectable. Overclocking is  ▼
  DRAM freq. DDR4-2933              [Auto]
  Infinity Fabric freq. and Dividers [Auto]
▶ DRAM Information                                    ↔: Select Screen
▶ DRAM Timing Configuration                          ↑↓: Select Item
                                                     Enter: Select
  Voltage Mode                      [Stable Mode]    +/-: Change Option
                                                     F1: General Help
  VCORE voltage                     [Auto]           F7: Discard Changes
  VCORE Load-Line Calibration       [Auto]           F9: Load UEFI Defaults
  VSOC voltage                      [Auto]           F10: Save and Exit
  VSOC Load-Line Calibration        [Auto]           ESC: Exit
  VCCM_AB Fixed (mV)                0
  VCCM_CD Fixed (mV)                0
  +1.8VSB (mV)                      0              ▼

           Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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

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.

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.

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.

CPU Core (Per CCX)

Frequency (MHz)

Adjust processor boost frequency.

Voltage (VID)

Adjust processor core voltage.

SoC/Uncore OC voltage (mV)

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 voltage (mV)

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 voltage (mV)

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 voltage (mV)

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.

DRAM freq. DDR4-2933

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

Infinity Fabric freq. and Dividers

Set Infinity Fabric Frequency and Dividers (FCLK).

DRAM Information

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

DRAM Timing Configuration

Voltage Configuration

Voltage Mode

[OC]: Larger range voltage for overclocking.
[STABLE]: Smaller range voltage for stable system.

Vcore voltage

Configure the voltage for the CPU Vcore.

Vcore Load-Line Calibration

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

VSOC voltage

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

VSOC Load-Line Calibration

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

VCCM_AB Fixed (mV)

System may be damaged or reduce its life cycle when overvoltage.

VCCM_CD Fixed (mV)

System may be damaged or reduce its life cycle when overvoltage.

+1.8VSB (mV)

Configure the voltage for the +1.8VSB.

PREM VDDCR_SOC_S5 (mV)

Use this to configure the voltage of the PREM_VDDCR_SOC_S5.

VPPM_AB (mV)

Use this to configure the voltage of the VPPM_AB.

VTT_DDR_AB offset (mV)

Use this to configure the voltage of the VPPM_AB.

VPPM_CD (mV)

Use this to configure the voltage of the VPPM_CD.

VTT_DDR_CD offset (mV)

Use this to configure the voltage of the VPPM_CD.

+1.8V (mV)

Configure the voltage for the +1.8V.

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.

3.4.1 CPU Configuration

```
            Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
    Advanced

 SVM Mode                        [Enabled]              Enable/disable CPU
                                                        Virtualization




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Option
                                                        F1: General Help
                                                        F7: Discard Changes
                                                        F9: Load UEFI Defaults
                                                        F10: Save and Exit
                                                        ESC: Exit



            Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```
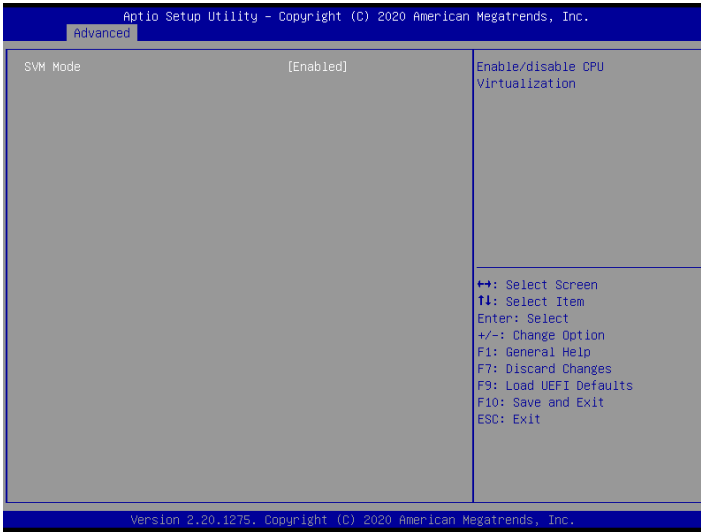
SVM Mode

Enable/disable CPU Virtualization.

3.4.2 Chipset Configuration

```
               Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
          Advanced

 Primary Graphics Adapter          [PCI Express]          Select a primary VGA.
 Onboard VGA                       [Auto]

 SPI/LPC/fTPM TPM switch           [LPC TPM]

 Onboard I225 LAN1                 [Enabled]
 Onboard I225 LAN2                 [Enabled]
 Onboard X710 LAN                  [Enabled]

 PCIE Slot 1 Link Width            [x8]
 PCIE Slot 3 Link Width            [x16]
 PCIE Slot 5 Link Width            [x16]             ↔: Select Screen
 PCIE Slot 7 Link Width            [x16]             ↑↓: Select Item
                                                     Enter: Select
 PS2 Y-Cable                       [Enabled]         +/-: Change Option
                                                     F1: General Help
 Restore AC Power Loss             [No change]       F7: Discard Changes
 Restore AC Power Current State    Last State        F9: Load UEFI Defaults
                                                     F10: Save and Exit
                                                     ESC: Exit




               Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.        B4
```

Primary Graphics Adapter

Select a primary VGA.

Onboard VGA

To enable or disable Onboard VGA.

SPI/LPC/fTPM TPM switch

To select. 0 - AMD CPU fTPM. 1 - LPC TPM. 2 - SPI TPM.

Onboard I225 LAN1

To enable or disable Onabord LAN.

Onboard I225 LAN2

To enable or disable Onabord LAN.

Onboard X710 LAN

To enable or disable Onabord LAN.

PCIE Slot 1 Link Width

Use this item to set PCIE Slot1's Link Width.

PCIE Slot 3 Link Width

Use this item to set PCIE Slot3's Link Width.

PCIE Slot 5 Link Width

Use this item to set PCIE Slot5's Link Width.

PCIE Slot 7 Link Width

Use this item to set PCIE Slot7's Link Width.

PS2 Y-Cable

Enable the PS2 Y-Cable or set this option to Auto.

Restore AC Power Loss

This allows you to set 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.

Restore AC Power Current State

This allows you to restore AC Power Current State.

3.4.3 Storage Configuration

```
                  Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
       Advanced

    SATA Controller(s)              [Enabled]              Enable/disable the SATA
    SATA Mode                       [AHCI]                 controllers.

    SATA Hot Plug (ASM1061)         [Enabled]

  ▶ SATA0 : Not Detected
  ▶ SATA1 : Not Detected
  ▶ SATA2 : Not Detected
  ▶ SATA3 : Not Detected
  ▶ A_SATA0 : Not Detected
  ▶ A_SATA1 : WDC WD10EZEX-08WN4A0
  ▶ M2_1(PCIE) : Not Detected
  ▶ M2_2/OCU1(PCIE) : Not Detected
                                                           ↔: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Option
                                                           F1: General Help
                                                           F7: Discard Changes
                                                           F9: Load UEFI Defaults
                                                           F10: Save and Exit
                                                           ESC: Exit


                  Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

SATA Controller(s)

Use this item to enable or disable the SATA controllers.

SATA Mode

AHCI: Supports new features that improve performance.

RAID: Combine multiple disk drives into a logical unit.

SATA Hot Plug (ASM1601)

SATA Hot Plug (ASM1061 A_SATA0_1) Enable/Disable Control.

3.4.4 ACPI Configuration

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
          Advanced

 PCIE Devices Power On              [Disabled]            Allow the system to be waked
 Ring-In Power On                   [Disabled]            up by a PCIE device and enable
 RTC Alarm Power On                 [By OS]               wake on LAN.




                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Option
                                                          F1: General Help
                                                          F7: Discard Changes
                                                          F9: Load UEFI Defaults
                                                          F10: Save and Exit
                                                          ESC: Exit



              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

3.4.5 Super IO Configuration

```
                Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

    AST2500 Super IO Configuration                               Set Parameters of COM1

    Super IO Chip                        AST2500
  ▶ Serial Port 1 Configuration
  ▶ SOL Configuration



                                                              ↔: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Option
                                                              F1: General Help
                                                              F7: Discard Changes
                                                              F9: Load UEFI Defaults
                                                              F10: Save and Exit
                                                              ESC: Exit


                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

Serial Port 1 Configuration

Use this item to set parameters of Serial Port 1 (COM1).

Serial Port

Use this item to enable or disable the serial port.

Serial Port Address

Use this item to select an optimal setting for Super IO device.

SOL Configuration

Use this item to set parameters of SOL.

SOL Port

Use this item to set parameters of SOL.

Serial Port Address

Use this item to select an optimal setting for Super IO device.

3.4.6 Serial Port Console Redirection
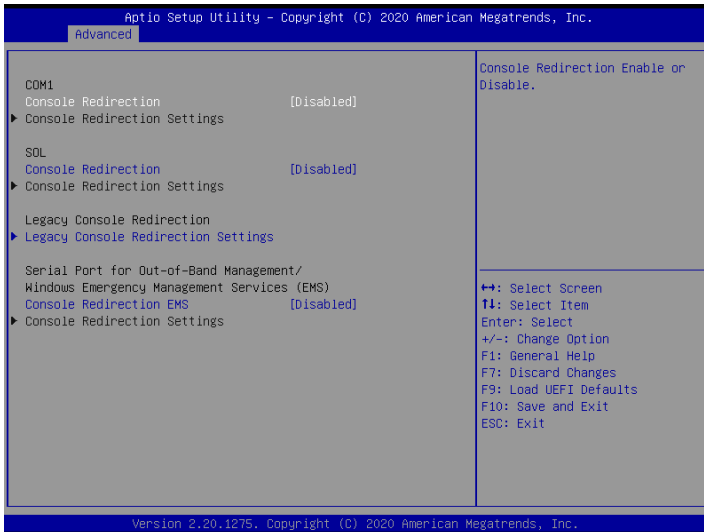
COM1 / SOL

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.

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

English

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].

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

Terminal Type EMS
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 EMS
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 EMS
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 EMS

English

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3.4.7 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.

```
                    Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
      Main  Advanced  Server Mgmt  Security  Boot  Exit

     3VSB                              : 3.28 V          ▲  Watch Dog Timer
     5VSB                              : 4.62 V
     VCPU                              : 1.35 V
     VSOC                              : 1.07 V
     VCCM_AB                           : 1.2 V
     VCCM_CD                           : 1.2 V
     PM_VDD_CLD0                       : 1.19 V
     PM_VDDCR_S5                       : 0.99 V
     PM_VDDCR                          : 0.96 V
     BAT                               : 3.02 V
     3V                                : 3.1 V
     5V                                : 4.62 V
     12V                               : 11.8 V
     PSU1 VIN                          : N/A              ↔: Select Screen
     PSU2 VIN                          : N/A              ↑↓: Select Item
     PSU1 IOUT                         : N/A              Enter: Select
     PSU2 IOUT                         : N/A              +/-: Change Option
     CPU1 Temp                         : 55 ˚C           F1: General Help
     MB Temp                           : 40 ˚C           F7: Discard Changes
     Card Side Temp                    : 28 ˚C           F9: Load UEFI Defaults
     TR1                               : N/A              F10: Save and Exit
     PSU1 Temp                         : N/A              ESC: Exit
     PSU2 Temp                         : N/A
     DDR4_A1 Temp                      : N/A
     DDR4_A2 Temp                      : N/A              ▼

                    Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer. The default value is [Disabled].

3.4.8 USB Configuration

```
                Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Advanced

   Legacy USB Support              [Enabled]            Enables Legacy USB support.
                                                        AUTO option disables legacy
                                                        support if no USB devices are
                                                        connected. DISABLE option will
                                                        keep USB devices available
                                                        only for EFI applications.




                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Option
                                                        F1: General Help
                                                        F7: Discard Changes
                                                        F9: Load UEFI Defaults
                                                        F10: Save and Exit
                                                        ESC: Exit




                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

Legacy USB Support

Enable Legacy OS Support for USB 2.0 devices. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

English

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3.4.9 PCI Subsystem Settings

```
                  Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
        Advanced

  Above 4G Decoding                    [Enabled]              Globally Enables or Disables
  SR-IOV Support                       [Disabled]             64bit capable Devices to be
                                                              Decoded in Above 4G Address
                                                              Space (Only if System Supports
                                                              64 bit PCI Decoding).




                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Option
                                                              F1: General Help
                                                              F7: Discard Changes
                                                              F9: Load UEFI Defaults
                                                              F10: Save and Exit
                                                              ESC: Exit


                  Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

Above 4G Decoding

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

SR-IOV Support

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

3.4.10 AMD Mem Configuration Status

```
                Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
        Advanced

  Legacy USB Support                    [Enabled]              Enables Legacy USB support.
                                                               AUTO option disables legacy
                                                               support if no USB devices are
                                                               connected. DISABLE option will
                                                               keep USB devices available
                                                               only for EFI applications.




                                                               ↔: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Option
                                                               F1: General Help
                                                               F7: Discard Changes
                                                               F9: Load UEFI Defaults
                                                               F10: Save and Exit
                                                               ESC: Exit


                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

To display memory configuration (initialized by ABL) status.

English

3.4.11 AMD CBS

```
              Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
       Advanced

    AMD CBS                                         CPU Common Options

  ▶ CPU Common Options
  ▶ DF Common Options
  ▶ UMC Common Options
  ▶ NBIO Common Options
  ▶ FCH Common Options
  ▶ Soc Miscellaneous Control
  ▶ X570/590 Chipset Common Options

                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Option
                                                    F1: General Help
                                                    F7: Discard Changes
                                                    F9: Load UEFI Defaults
                                                    F10: Save and Exit
                                                    ESC: Exit


              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

The AMD CBS menu accesses AMD specific features.

3.4.12 AMD PBS

```
              Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
       Advanced

   ▶ AMD Firmware Version                               Show all of AMD Firmware
   ▶ VR Config                                          Version

     Unused GPP Clocks Off           [Disabled]
     MITT/WITT Selection             [Both disable]
     Core Voltage VRM Override       [Disabled]
     Mmio Above 4G Limit             [Auto]
     NVMe RAID mode                  [Disabled]
     PM L1 SS                        [Auto]
     Data Link Feature Exchange      [Auto]

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Option
                                                         F1: General Help
                                                         F7: Discard Changes
                                                         F9: Load UEFI Defaults
                                                         F10: Save and Exit
                                                         ESC: Exit

              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

The AMD PBS menu accesses AMD specific features.

3.4.13 AMD Overclocking

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
  Advanced

  WARNING - DAMAGE CAUSED BY USE OF YOUR AMD PROCESSOR
  OUTSIDE OF SPECIFICATION OR IN EXCESS OF FACTORY SETTINGS
  ARE NOT COVERED UNDER YOUR AMD PRODUCT WARRANTY AND MAY NOT
  BE COVERED BY YOUR SYSTEM MANUFACTURER'S WARRANTY.
  Operating your AMD processor outside of specification or in
  excess of factory settings, including but not limited to
  overclocking, may damage or shorten the life of your
  processor or other system components, create system
  instabilities (e.g., data loss and corrupted images) and in
  extreme cases may result in total system failure. AMD does
  not provide support or service for issues or damages
  related to use of an AMD processor outside of processor
  specifications or in excess of factory settings.        ←→: Select Screen
▶ Accept                                                  ↑↓: Select Item
▶ Decline                                                 Enter: Select
                                                          +/-: Change Option
                                                          F1: General Help
                                                          F7: Discard Changes
                                                          F9: Load UEFI Defaults
                                                          F10: Save and Exit
                                                          ESC: Exit

              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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

3.4.14 Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows*. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other compli-cated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

English

3.5 Server Mgmt

```
                Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
         Main  Advanced  Server Mgmt  Security  Boot  Exit

        BMC Self Test Status              PASSED          Wait For BMC response for
        Wait For BMC                      [Enabled]       specified time out. BMC starts
                                                          at the same time when BIOS
        ▶ System Event Log                                starts during AC power ON. It
        ▶ BMC Tools                                       takes around 30 seconds to
        ▶ BMC Network Configuration                       initialize Host to BMC
                                                          interfaces.


                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Option
                                                          F1: General Help
                                                          F7: Discard Changes
                                                          F9: Load UEFI Defaults
                                                          F10: Save and Exit
                                                          ESC: Exit


                Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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.

3.5.1 System Event Log

```
Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
Server Mgmt

Enabling/Disabling Options                           Change this to enable or disable all
SEL Components                    [Enabled]           features of System Event Logging during
                                                      boot.
Erasing Settings
Erase SEL                         [No]
When SEL is Full                  [Do Nothing]

Custom EFI Logging Options
Log EFI Status Codes              [Error code]

NOTE: All values changed here do not take
      effect until computer is restarted.

                                                      ↔: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Option
                                                      F1: General Help
                                                      F7: Discard Changes
                                                      F9: Load UEFI Defaults
                                                      F10: Save and Exit
                                                      ESC: Exit

Version 2.20.1271. Copyright (C) 2019 American Megatrends, Inc.
```

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.

PCIe Device Degrade ELog Support

Use this item to enable or disable PCIe Device Degrade Error Logging Support.

3.5.2 BMC Tools

```
              Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
                  Server Mgmt

   BMC Tools                                              Load BMC Default Settings

 ▶ Load BMC Default Settings
   KCS control                        [No change]
     Current State                    Enabled




                                                      ↔: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Option
                                                      F1: General Help
                                                      F7: Discard Changes
                                                      F9: Load UEFI Defaults
                                                      F10: Save and Exit
                                                      ESC: Exit


              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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

3.5.3 BMC Network Configuration

```
                  Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
                       Server Mgmt

   BMC Network Configuration                          ▲   Enabled/Disabled BMC Out of
                                                          band Access
   BMC Out of band Access              [No Change]
   Out of band Access                  Enabled

   **********************
   Configure IPV4 support
   **********************
   Lan channel (Failover)
   Manual setting IPMI LAN             [No]
   Configuration address source        DHCP
   Station IP address                  192.168.36.70
   Current subnet mask                 255.255.255.0
   Current MAC address                 d0-50-99-f1-a3-fb          ↔: Select Screen
   Current router IP address           192.168.36.1              ↑↓: Select Item
                                                                  Enter: Select
   VLAN                                [Disabled]                 +/-: Change Option
                                                                  F1: General Help
   **********************                                         F7: Discard Changes
   Configure IPV6 support                                         F9: Load UEFI Defaults
   **********************                                         F10: Save and Exit
   Lan channel 1                                                  ESC: Exit
   IPV6 Support                        [Enabled]
   Manual setting IPMI LAN(IPV6)       [No Change]
   IPV6 Index                          0                      ▼

                  Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```
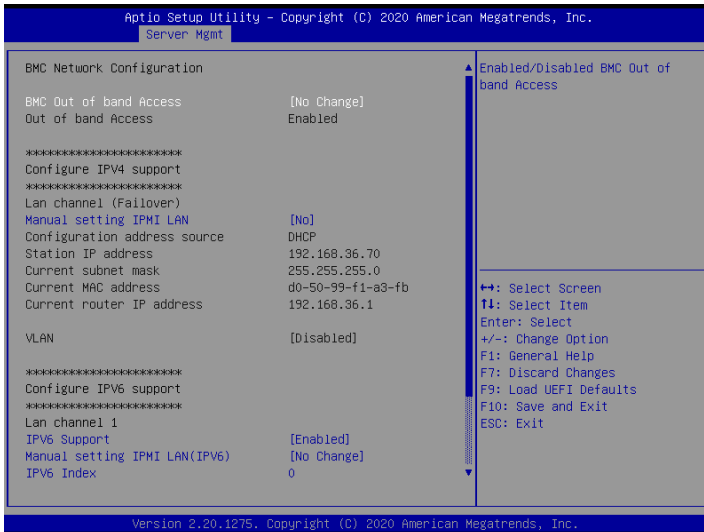
BMC Out of Band Access

Enabled/Disabled BMC Out of band Access.

Lan Channel (Failover)

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.*

English

VLAN

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

IPV6 Support

Enable or Disable LAN1 IPV6 Support.

Manual Setting IPMI LAN (IPV6)

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].

IPV6 Index

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

VLAN ID

Use this item to configure VLAN ID setting.

VLAN Priority

Use this item to configure VLAN Priority setting.

3.6 Security

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.
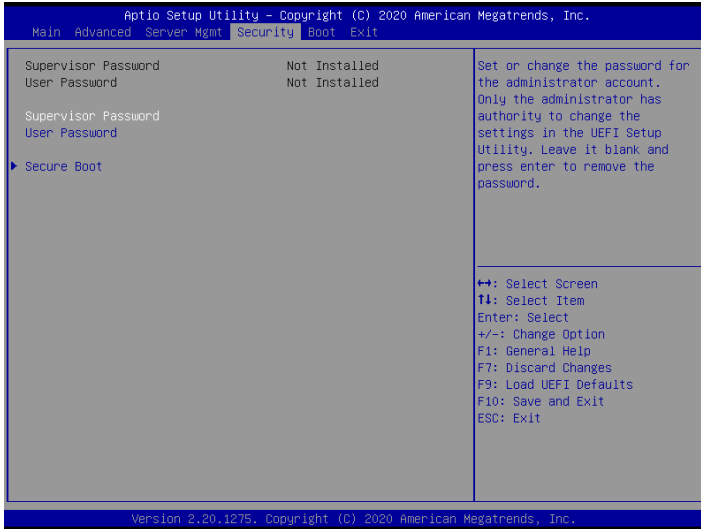
Supervisor Password

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 Windows 8 Secure Boot. The default value is [Disabled].

Secure Boot Mode

Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

3.6.1 Key Management

In this section, expert users can modify Secure Boot Policy variables without full authentication.
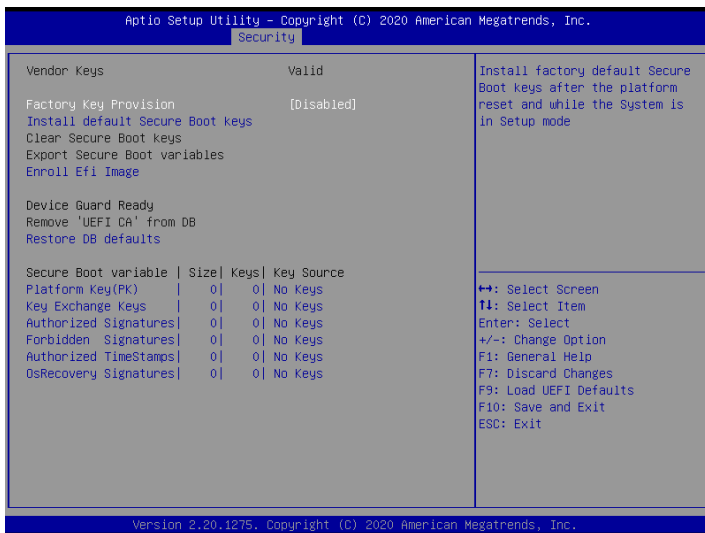
```
Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
                     Security

 Vendor Keys                      Valid                Install factory default Secure
                                                       Boot keys after the platform
 Factory Key Provision            [Disabled]           reset and while the System is
 Install default Secure Boot keys                      in Setup mode.
 Clear Secure Boot keys
 Export Secure Boot variables
 Enroll Efi Image

 Device Guard Ready
 Remove 'UEFI CA' from DB
 Restore DB defaults

 Secure Boot variable | Size| Keys| Key Source
 Platform Key(PK)     |   0|    0| No Keys          ↔: Select Screen
 Key Exchange Keys    |   0|    0| No Keys          ↑↓: Select Item
 Authorized Signatures|   0|    0| No Keys          Enter: Select
 Forbidden Signatures |   0|    0| No Keys          +/-: Change Option
 Authorized TimeStamps|   0|    0| No Keys          F1: General Help
 OsRecovery Signatures|   0|    0| No Keys          F7: Discard Changes
                                                    F9: Load UEFI Defaults
                                                    F10: Save and Exit
                                                    ESC: Exit

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```

Factory Key Provision

Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

Install Default Secure Boot Keys

Please install default secure boot keys if it's the first time you use secure boot.

Clear Secure Boot keys

Force System to Setup Mode - clear all Secure Boot Variables. Change takes effect after reboot.

Export Secure Boot variables

Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

Enroll Efi Image

Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

Remove 'UEFI CA' from DB

Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db).

Restore DB defaults

Restore DB variable to factory defaults.

Platform Key(PK)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Exchange Keys

Enroll Factory Defaults or load certificates from a file:

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Authorized Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

English

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Forbidden Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Authorized TimeStamps

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, External, Mixed

OsRecovery Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

3.7 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.

```
              Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
      Main  Advanced  Server Mgmt  Security  Boot  Exit

    Boot Option Priorities                                    Sets the system boot order
    Boot Option #1                    [USB: AMI Virtual
                                      CDROMO 1.00]
    Boot Option #2                    [UEFI: Built-in EFI
                                      Shell]

    Boot option filter               [UEFI and Legacy]

    USB Device BBS Priorities

    Fast Boot                        [Disabled]

    Boot From Onboard LAN            [Disabled]                ↔: Select Screen
                                                               ↑↓: Select Item
    Setup Prompt Timeout              1                        Enter: Select
    Bootup Num-Lock                  [On]                      +/-: Change Option
    Boot Beep                        [Disabled]                F1: General Help
    Full Screen Logo                 [Enabled]                 F7: Discard Changes
      AddOn ROM Display              [Enabled]                 F9: Load UEFI Defaults
                                                               F10: Save and Exit
    ▶ CSM(Compatibility Support Module)                        ESC: Exit




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```

Boot Option #1

Use this item to set the system boot order.

Boot Option #2

Use this item to set the system boot order.

Boot Option Filter

This option controls Legacy/UEFI ROMs priority.

USB Device BBS Priorities

This page will show only when system install USB Storage.

Fast Boot

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

Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

Configure the number of seconds to wait for the UEFI setup utility.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.
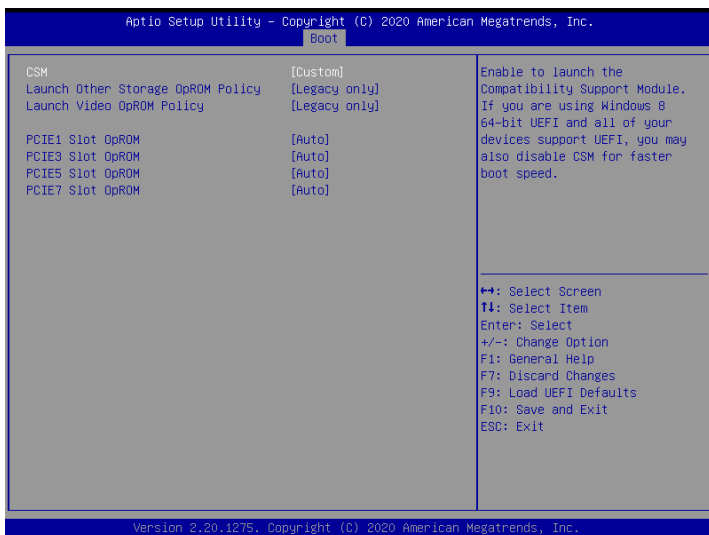
Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

3.7.1 CSM Parameters

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
                   Boot

 CSM                                  [Custom]              Enable to launch the
 Launch Other Storage OpROM Policy    [Legacy only]         Compatibility Support Module.
 Launch Video OpROM Policy            [Legacy only]         If you are using Windows 8
                                                            64-bit UEFI and all of your
 PCIE1 Slot OpROM                     [Auto]                devices support UEFI, you may
 PCIE3 Slot OpROM                     [Auto]                also disable CSM for faster
 PCIE5 Slot OpROM                     [Auto]                boot speed.
 PCIE7 Slot OpROM                     [Auto]




                                                            ↔: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Option
                                                            F1: General Help
                                                            F7: Discard Changes
                                                            F9: Load UEFI Defaults
                                                            F10: Save and Exit
                                                            ESC: Exit


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```

CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows Server 2012 R2 or later versions 64-bit UEFI and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch Other Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

PCIE1 Slot OpROM

To select Slot Storage and Network Option ROM policy. In Auto option, the default is Disabled with NVMe device, but it is Legacy with other devices. (This item can't select Video Option ROM policy.)
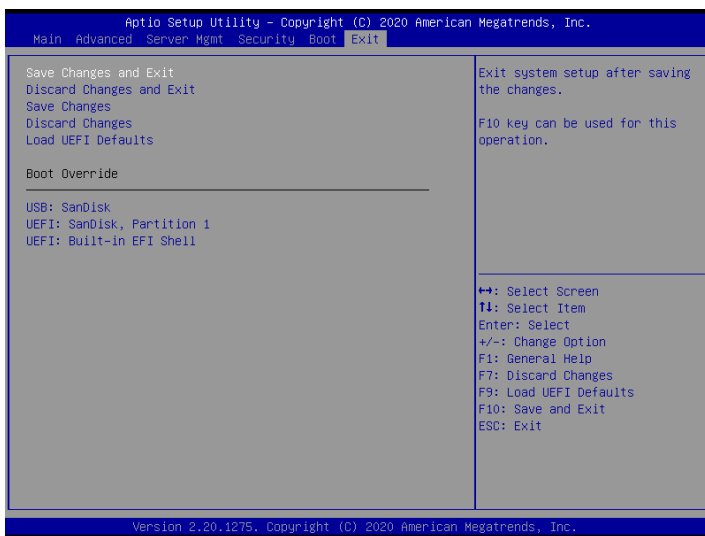
PCIE3 Slot OpROM

To select Slot Storage and Network Option ROM policy. In Auto option, the default is Disabled with NVMe device, but it is Legacy with other devices. (This item can't select Video Option ROM policy.)

PCIE5 Slot OpROM

To select Slot Storage and Network Option ROM policy. In Auto option, the default is Disabled with NVMe device, but it is Legacy with other devices. (This item can't select Video Option ROM policy.)

PCIE7 Slot OpROM

To select Slot Storage and Network Option ROM policy. In Auto option, the default is Disabled with NVMe device, but it is Legacy with other devices. (This item can't select Video Option ROM policy.)

3.8 Exit Screen

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
        Main  Advanced  Server Mgmt  Security  Boot  Exit

    Save Changes and Exit                              Exit system setup after saving
    Discard Changes and Exit                           the changes.
    Save Changes
    Discard Changes                                    F10 key can be used for this
    Load UEFI Defaults                                 operation.

    Boot Override

    USB: SanDisk
    UEFI: SanDisk, Partition 1
    UEFI: Built-in EFI Shell

                                                       ↔: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Option
                                                       F1: General Help
                                                       F7: Discard Changes
                                                       F9: Load UEFI Defaults
                                                       F10: Save and Exit
                                                       ESC: Exit

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```

Save Changes and Exit

When you select this option, the following message "Save configuration changes and exit setup?" will pop-out. Press <F10> key or select [Yes] to save the 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. Press <ESC> key or select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

Save Changes

Save Changes done so far to any of the setup options.

Discard Changes

When you select this option, the following message "Discard changes?" will pop-out. Press <F7> key or select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® / Linux compliant. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

Please download the Intel® SATA Floppy Image driver from the ASRock Rack's website (www.asrockrack.com) to your USB drive or simply install the SATA driver from the Support CD while installing OS in SATA RAID mode.

4.2 Support CD Information

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

4.2.1 Running The Support CD

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

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

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

4.2.4 Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, welcome to visit ASRock Rack's website at http://www.ASRockRack.com; or you may contact your dealer for further information.

English

Chapter 5 Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot your system.

> ⚠️ *Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries to you and damages to motherboard components.*

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard. Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...
1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...
1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...
1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR4 ECC & non-ECC U-DIMMs.
3. If you have installed more than one DIMM modules, they should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify faulty ones.
5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether your power supply provides adaquate and stable power.

Other problems...

1. Try searching keywords related to your problem on ASRock Rack's FAQ page: http://www.asrockrack.com/support

5.2 Technical Support Procedures

If you have tried the troubleshooting procedures mentioned above and the problems are still unsolved, please contact ASRock Rack's technical support with the following information:

1. Your contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

You may contact ASRock Rack's technical support at:
http://www.asrockrack.com/support/tsd.asp

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of your invoice marked with the date of purchase is required. By calling your vendor or going to our RMA website (http://event.asrockrack.com/tsd.asp) you may obtain a Returned Merchandise Authorization (RMA) number.
The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when you return the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

Contact your distributor first for any product related problems during the warranty period.