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GREEN Less Heat, Less Power Consumption

STABLE Robust Design, Quality Parts

Stable and
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Server/Workstation
Motherboard

E3C256D4ID2

E3C252D4ID2

User Manual

English



Version 1.10

Published Apr. 2026

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WARNING



THIS PRODUCT CONTAINS A BUTTON BATTERY

If swallowed, a button battery can cause serious injury or death.
Please keep batteries out of sight or reach of children.

ASRock Rack's Website: www.ASRockRack.com



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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



ASRock Rack INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related UKCA Directives. Full text of UKCA declaration of conformity is available at: <http://www.asrockrack.com>



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ASRock Rack follows the green design concept to design and manufacture our products, and makes sure that each stage of the product life cycle of ASRock Rack product is in line with global environmental regulations. In addition, ASRock Rack disclose the relevant information based on regulation requirements.

Please refer to <https://www.asrockrack.com/general/about.asp?cat=Responsibility> for information disclosure based on regulation requirements ASRock Rack is complied with.



DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

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Chapter 1 Introduction

Thank you for purchasing ASRock Rack **E3C256D4ID2** or **E3C252D4ID2** 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 software support.



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. Find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com

*Please visit the website for specific information and technical support:
<http://www.asrockrack.com/support/>*

1.1 Package Contents

- ASRock Rack E3C256D4ID2 or E3C252D4ID2 motherboard
(Deep mini ITX form factor: 6.7 in x 8.2 in)
- Quick installation guide
- 1 SATA power cable (80 cm)
- 1 ATX 4P to 24P power cable
- 1 Oculink to 4 SATA cable (60 cm)
- 1 Oculink to 4 SATA cable (60 cm) (Optional)
- 1 I/O shield
- 2 Screws for M.2 sockets



If any items are missing or appear damaged, contact the authorized dealer.

1.2 Specifications

E3C256D4ID2, E3C252D4ID2	
Physical Status	
Form Factor	Deep mini ITX
Dimension	6.7 in x 8.2 in
Processor System	
CPU	Supports Intel® Xeon® E-2300 and 10 th Gen Intel® Pentium® series processors
Socket	Single Socket H5 (LGA 1200)
Thermal Design Power (TDP)	95W
Chipset	E3C256D4ID2: Intel® C256 E3C252D4ID2: Intel® C252
System Memory	
Supported DIMM Quantity	4 DIMM slots (2DPC)
Supported Type	DDR4 288-pin ECC / non-ECC UDIMM
Max. Capacity per DIMM	ECC / non-ECC UDIMM: up to 32 GB
Max. Frequency	ECC/non-ECC UDIMM: max. 3200 MHz*
Voltage	1.2V
*Up to DDR4 2666 MHz when installing 10 th Gen Intel® Pentium® Series Processors.	
PCIe Expansion Slots	
SLOT7	PCIe4.0* x16 [CPU]
*SLOT7 supports PCIe3.0 only when installing 10 th Gen Intel® Pentium® Series Processors	
Other PCIe Expansion Connectors	
M.2	1 M-key* (PCIe 4.0 x4); support 2280 form factor [CPU] 1 M-key (PCIe 3.0 x4); support 2280 form factor [PCH]
OCuLink	E3C256D4ID2: 3 (OCU1 & OCU2: PCIe 3.0 x4 or 4 SATA 6 Gb/s [PCH] ; OCU3: PCIe3.0 x4 [PCH]) E3C252D4ID2: 2 (OCU1: PCIe 3.0 x2 or 4 SATA 6 Gb/s [PCH] ; OCU2: 2 SATA 6 Gb/s [PCH])
*M.2 from CPU will not function when installing 10 th Gen Intel® Pentium® Series Processors	
SATA / SAS Storage	
PCH Built-in Storage	E3C256D4ID2: Intel® C256 (8 SATA 6 Gb/s; RAID 0/1/5/10): 2 OcuLink E3C252D4ID2: Intel® C252 (6 SATA 6 Gb/s; RAID 0/1/5/10): 2 OcuLink

Ethernet	
Additional Ethernet Controller	2 RJ45 (1 GbE) by Intel® i210
USB	
Connectors / Headers	External: 2 Type A (USB 3.2 Gen1) Internal: 1 header (19-pin, 2 USB3.2 Gen1)
Graphics	
Controller	ASPEED AST 2500: 1 DB15 (VGA)
Security	
TPM	1 (13-pin, SPI)
Rear I/O	
UID Button/LED	1 UID button w/ LED
Video Output	1 DB15 (VGA)
USB Port	2 Type A (USB 3.2 Gen1)
LAN Port	2 RJ45(10 GbE), 1 dedicated IPMI
Hardware Monitor	
Temperature	CPU, PCH, MB, card side temperature sensing
Fan	Fan tachometer CPU quiet fan (allow chassis fan speed auto-adjust by CPU temperature) Fan multi-speed control
Voltage	VCORE,VCCSA,VCCM,3V, 5V, 12V, +1.05V_PCH_ AUX,+BAT, 3VSB, 5VSB,VCCIO,+2.5V_VPP
Server Management	
BMC Controller	ASPEED AST2500: iKVM, vMedia support
Dedicated IPMI LAN	1 RJ45 dedicated IPMI LAN port by Realtek RTL8211E
BIOS	
Type	AMI 256 Mb SPI Flash ROM
Features	Plug and Play, ACPI 6.2 (and above) compliance wake-up events, SMBIOS 3.3 and above , ASRock Rack Instant Flash
Internal Connectors/Headers	
Power Connector	1 (4-pin, ATX PSU signal) w/ ATX 24-pin adapter cable, 1 (8-pin, ATX 12V) support 12V DC-in
Other Power Connectors	1 (4-pin) for HDD power when using 12V DC-in power source
Auxiliary Panel Header	1 (9-pin): chassis intrusion, system fault LED, LAN activity LEDs, locate
System Panel Header	1 (9-pin): power switch, reset switch, system power LED, HDD activity LED

COM Header	1
Fan Header	3 (4-pin)
Thermal Sensor Header	1
TPM Header	1 (13-pin, SPI)
SGPIO Header	1
SMbus Header	1
PMbus Header	1
IPMB Header	1
UID Header	1
Clear CMOS	1 (contact pads)
Others	1 NC-SI
LED Indicators	
Standby Power LED	1 (5VSB)
Fan Fail LED	3
BMC Heartbeat LED	1
Support OS	
OS	Microsoft® Windows® - Server 2019 (64 bit) - Server 2022 (64 bit) Linux® - RedHat Enterprise Linux Server 8.6 (64 bit) / 8.3 (64 bit) - CentOS 8.5 (64 bit) / 8.3 (64 bit) - SUSE Enterprise Linux Server 15 SP3 (64 bit) / 15 SP2 (64 bit) - Ubuntu 21.10 (64 bit) Hypervisor: - VMWare® ESXi 7.0U3d/ vSphere 7.0U3d <i>*Please refer to the website for the latest OS support list.</i>
Operating Environment	
Temperature	Operating temperature: 10°C ~ 35°C Non-operating temperature: -40°C ~ 70°C
Humidity	Non-perating humidity: 20% ~ 90% (non-condensing)

NOTE: Please refer to the website for the latest specifications.



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.

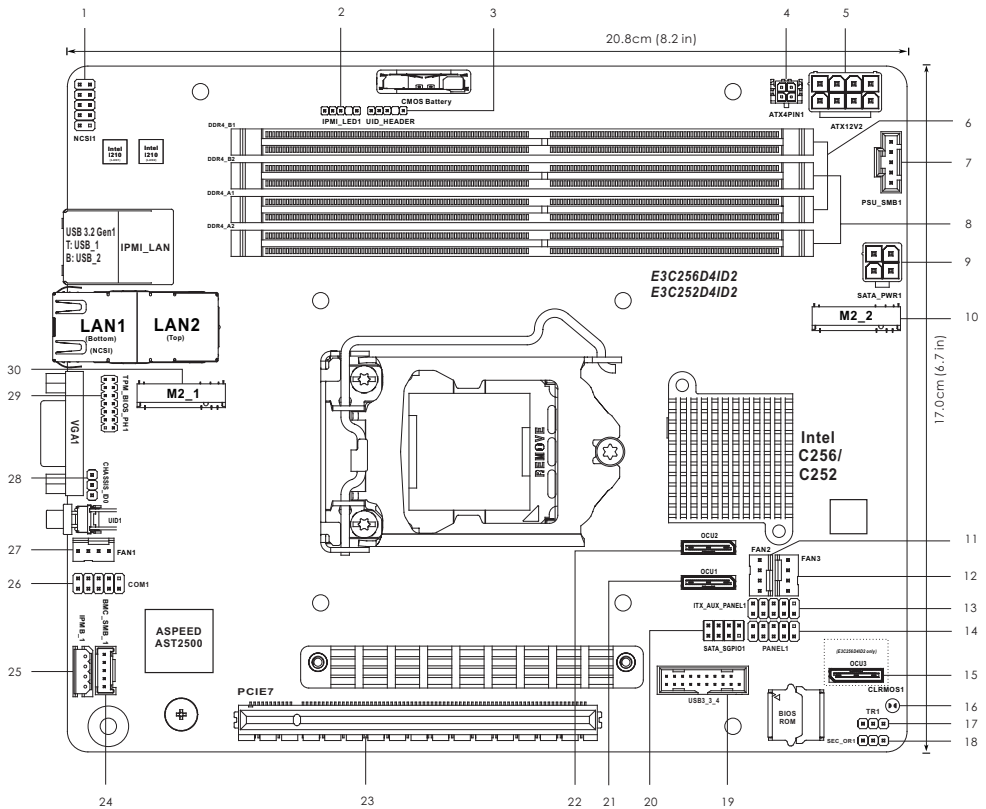


If you install Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If you install the drivers only, it will pass the WHQL tests.

1.3 Unique Features

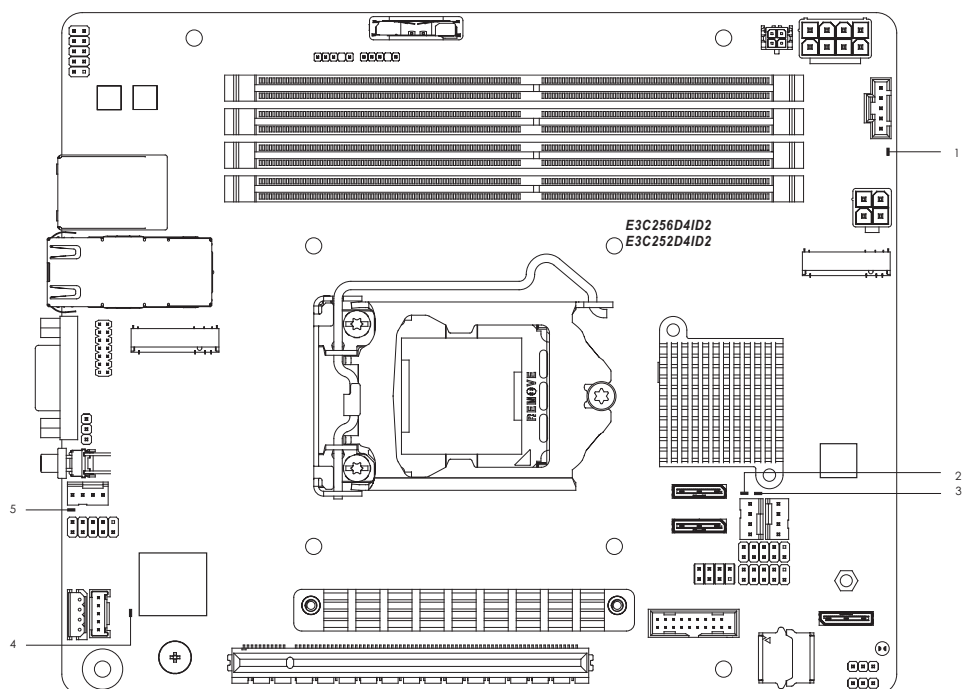
ASRock Rack Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the 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



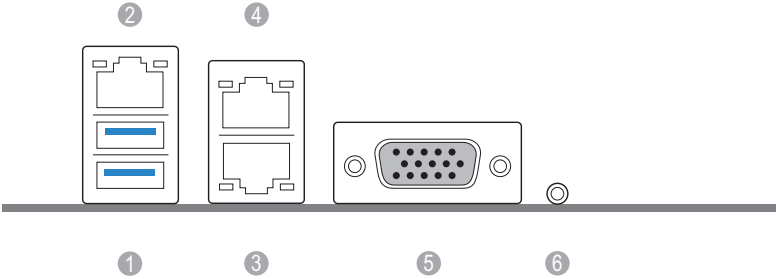
No.	Description
1	NCSI Header (NCSI1)
2	UID Button Header (UID_HEADER)
3	IPMI LAN LED Header (IPMI_LED1)
4	Micro-Fit Power Connector (ATX4PIN1)
5	ATX 12V Power Connector (ATX12V2)
6	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1)
7	PSU SMBus Header (PSU_SMB1)
8	2 x 288-pin DDR4 DIMM Slots (DDR4_A2, DDR4_B2)
9	SATA Power Connector (SATA_PWR1)
10	M.2 Socket (M2_2) (Type 2280)
11	System Fan Header (FAN2)
12	System Fan Header (FAN3)
13	Auxiliary Panel Header (ITX_AUX_PANEL1)
14	System Panel Header (PANEL1)
15	OCuLink x4 Connector (OCU3) (<i>E3C256D4ID2 only</i>)
16	Clear CMOS Pad (CLRMOS1)
17	Thermal Sensor Header (TR1)
18	Security Override Jumper (SEC_OR1)
19	USB 3.2 Gen1 Header (USB3_3_4)
20	SATA SGPIO Connector (SATA_SGPIO1)
21	OCuLink x4 Connector (OCU1)
22	OCuLink x4 Connector (OCU2)
23	PCI Express 4.0 x16 Slot (PCIE7)
24	BMC SMBus Header (BMC_SMB_1)
25	Intelligent Platform Management Bus Header (IPMB_1)
26	COM Port Header (COM1)
27	System Fan Header (FAN1)
28	Chassis ID Jumper (CHASSIS_ID0)
29	SPI TPM Header (TPM_BIOS_PH1)
30	M.2 Socket (M2_1) (Type 2280) <i>*The M2_1 slot is not supported with the 10th Gen Intel® Pentium Series Processors installed.</i>

1.5 Onboard LED Indicators



No.	Item	Status	Description
1	SB_PWR1_LED	Green	STB PWR ready
2	FAN_LED2	Red	FAN2 failed
3	FAN_LED3	Red	FAN3 failed
4	BMC_LED1	Green	BMC heartbeat LED
5	FAN_LED1	Red	FAN1 failed

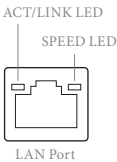
1.6 I/O Panel



No.	Description	No.	Description
1	USB 3.2 Gen1 Ports (USB3_1_2)	4	1G LAN RJ-45 Port (LAN2)**
2	LAN RJ-45 Port (IPMI_LAN)*	5	VGA Port (VGA1)
3	1G LAN RJ-45 Port (LAN1)**	6	UID Switch (UID1)

LAN Port LED Indications

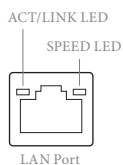
*There are two LEDs on the LAN port specified for link activity and speed. Please refer to the table below for the LAN port LED indications.



Dedicated IPMI LAN Port LED Indications

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

**There are two LEDs on the LAN port specified for link activity and speed. Please refer to the table below for the LAN port LED indications.

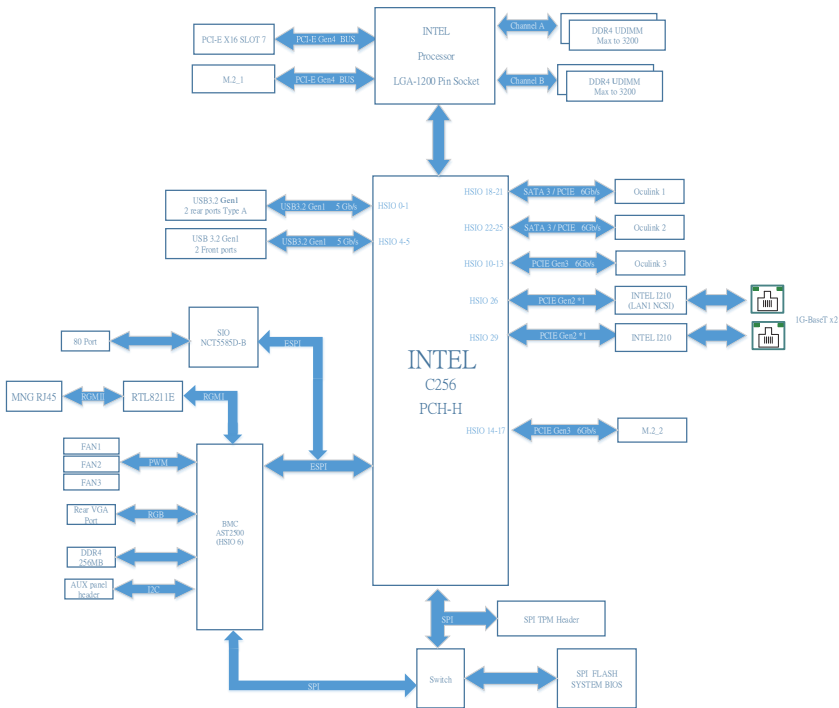


LAN Port LED Indications

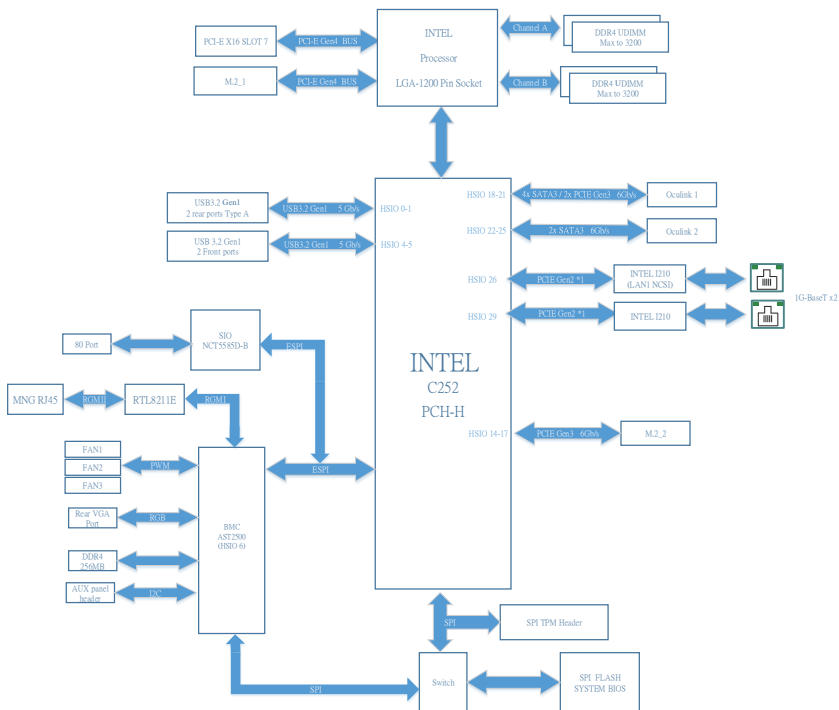
Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No link	Off	100 Mbps connection or no link
Blinking Yellow	Data activity	Yellow	1 Gbps connection
On	Link	Green	10 Gbps connection

1.7 Block Diagram

E3C256D4ID2



E3C252D4ID2



Chapter 2 Installation

This is a deep mini ITX form factor (170.2 mm x 208.2 mm) motherboard. Before installing the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



1. Ensure the motherboard battery is installed before unplugging the power cord or installing/removing the motherboard.
2. Before installing or removing any component, ensure that the power supply is 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.

2.1 Screw Holes

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



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

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.

2.3 Installing the CPU

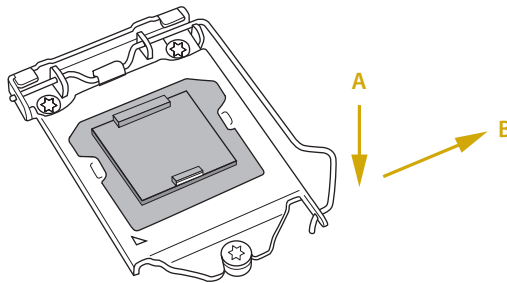


1. Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.

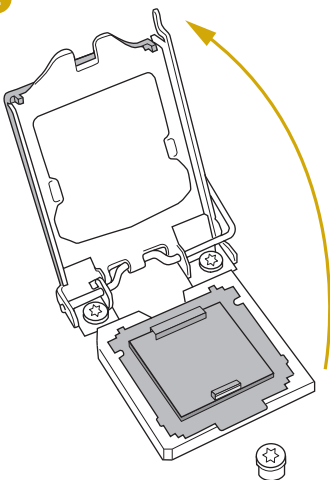


Illustrations in this User Manual are provided for reference only and may slightly differ from actual product appearances.

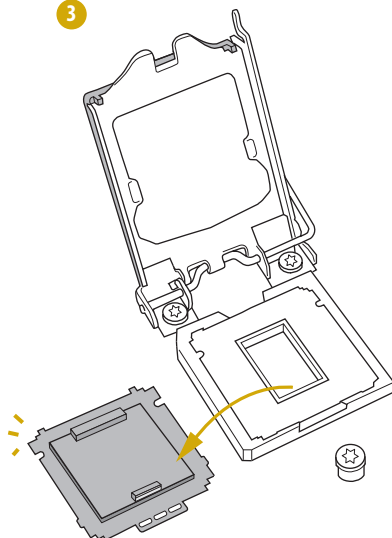
1

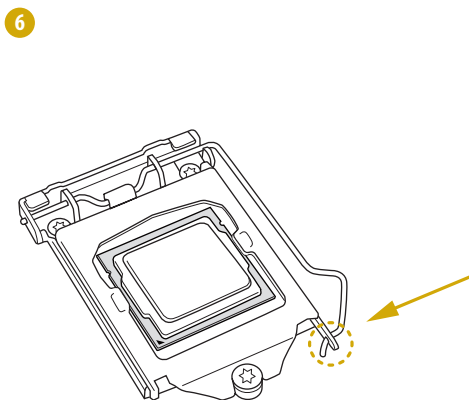
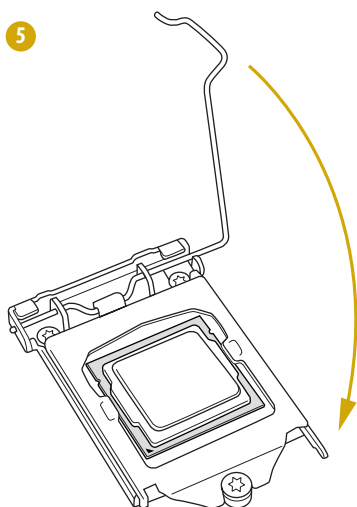
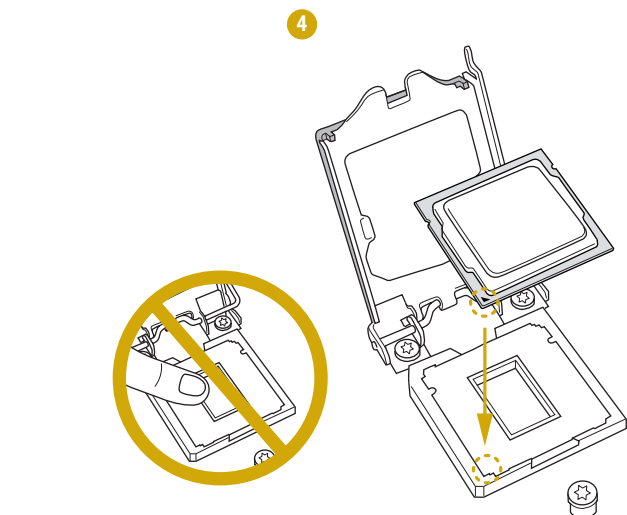


2



3





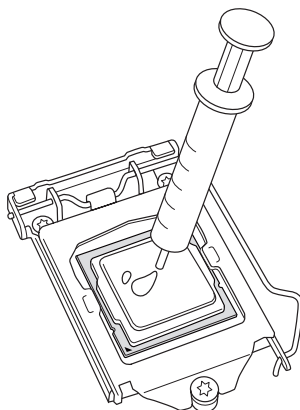
Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

2.4 Installing the Heatsink

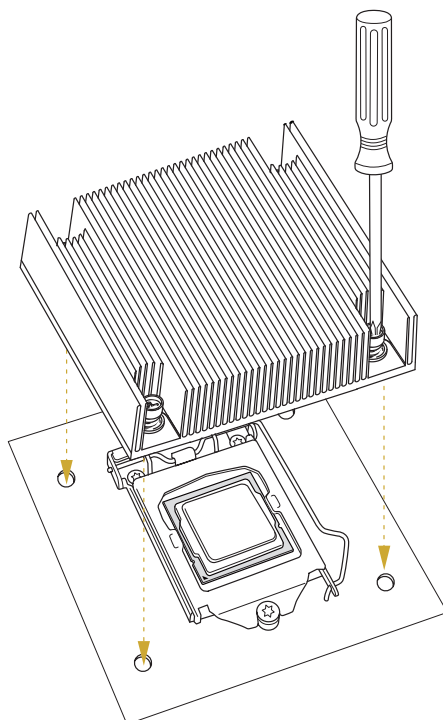


Please avoid using push-pin type CPU coolers, as the PCB thickness may prevent proper installation. A screw-based mounting system is recommended for a secure and reliable fit.

1



2



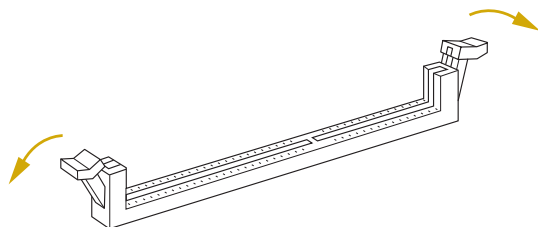
2.5 Installation of Memory Modules (DIMM)

This motherboard provides four 288-pin DDR4 (Double Data Rate 4) DIMM slots.

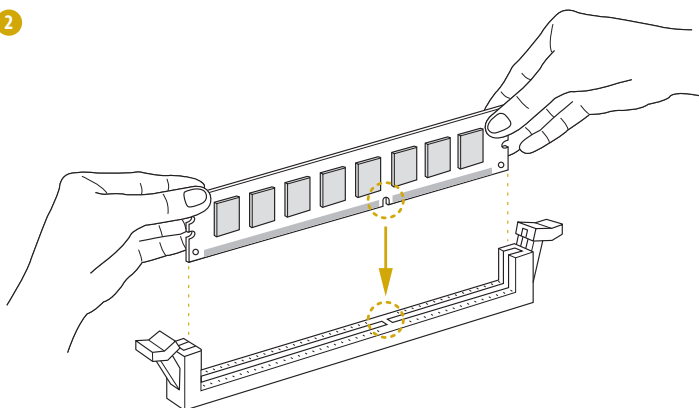


1. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.
2. The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

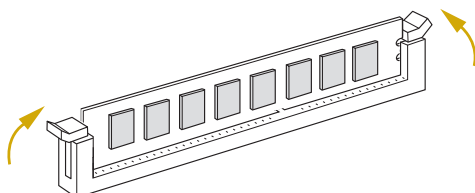
1



2



3



2.6 Expansion Slot (PCI Express Slot)

There is a PCI Express slot on this motherboard.

PCIe slot:

PCIe7 (PCIe 4.0 x16 slot) is used for PCI Express x16 lane width cards.

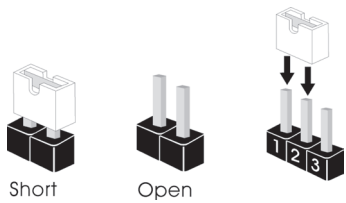
Slot	Generation	Mechanical	Electrical	Source
PCIe 7	4.0	x16	x16	CPU

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 Jumper Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



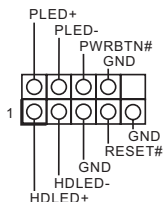
Security Override Jumper (3-pin SEC_OR1) (see p.7, No. 18)	1_2 	2_3 
	Descriptor Security Override	Not override (Default)
CHASSIS ID Jumper (3-pin CHASSIS_ID0) (see p.7, No. 28)	1_2 	2_3 
	Descriptor Security Override	Not override (Default)

2.8 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. 14)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments. Particularly 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):

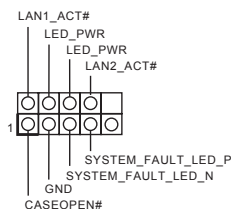
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S4 sleep state or powered off (S5).

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.

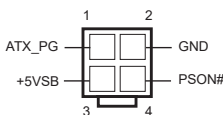
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(9-pin
ITX_AUX_PANEL1)
(see p.7, No. 13)



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

Micro-Fit Power
Connector
(4-pin ATX4PIN1
(ATX 24pin-to-4pin))
(see p.7, No. 4)



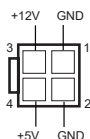
The motherboard provides one Micro-Fit power/signal connector which is a required input for ATX power source.

When using ATX power, it is necessary to use a 24pin-to-4pin power cable to connect between the 24pin power connector of PSU and the ATX4PIN1 connector on the motherboard for power supply and signal communication.

For DC-IN 12V application, it is not necessary to use this ATX 4-PIN power connector.

**Caution: Misconnection between the ATX4PIN1 and the SATA_PWR1 connectors may permanently damage the motherboard.*

SATA Power Connector
(DC-IN Mode)
(4-pin SATA_PWR1)
(see p.7, No. 9)



Please use a SATA power cable to connect this SATA Power Connector and your SATA HDD for supplying power from the motherboard, when using DC-IN mode without SATA power supply.

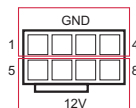
**Caution: Misconnection between the ATX4PIN1 and the SATA_PWR1 connectors may permanently damage the motherboard.*

Clear CMOS Pad
(CLRMOS1)
(see p.7, No. 16)



CLRMOS1 allows you to clear the data in CMOS. To clear CMOS, take out the CMOS battery and short the Clear CMOS Pad.

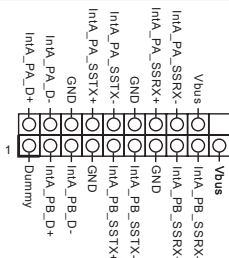
ATX 12V Power
Connector
(8-pin ATX12V2)
(see p.7, No. 5)



The motherboard provides one 8-pin 12V power connector which is a required input for either DC-IN 12V or ATX +12V power source.

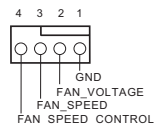
When using ATX power, it is necessary to use a 24pin-to-4pin power cable to connect between the 24pin power connector of PSU and the ATX4PIN1 connector on the motherboard for power supply and signal communication.

USB 3.2 Gen1 Header
(19-pin USB3_3_4)
(see p.7, No. 19)



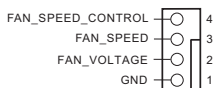
Besides two default USB 3.2 Gen1 ports on the I/O panel, there is one USB 3.2 Gen1 header on this motherboard. This USB 3.2 Gen1 header can support two USB 3.2 Gen1 ports.

System Fan Headers
(4-pin FAN1)
(see p.7, No. 27)

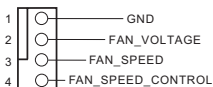


Please connect fan cables to the fan header and match the black wire to the ground pin. All fans support Fan Control. The fan max. current is 4A and the max. power is 48 Watts.

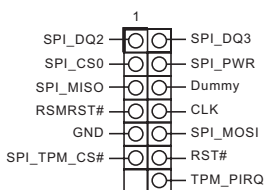
(4-pin FAN2)
(see p.7, No. 11)



(4-pin FAN3)
(see p.7, No. 12)

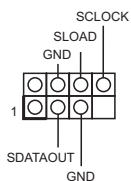


SPI TPM Header
(13-pin TPM_BIOS_PH1)
(see p.7, No. 30)



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.

Serial General Purpose
Input/Output Header
(7-pin SATA_SGPIO1)
(see p.7, No. 20)



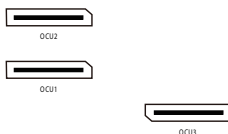
The header supports Serial Link interface for onboard SATA connections.

Thermal Sensor Header
(3-pin TR1)
(see p.7, No. 17)



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.

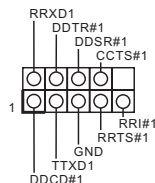
OCuLink Connectors
(OCU1)
(see p.7, No. 21)
(OCU2)
(see p.7, No. 22)



Please connect PCIE SSDs or OCulink-to-SATA x4 cable to the connectors.

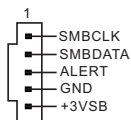
(OCU3)
(see p.7, No. 15)
(E3C256D4ID2 only)

Serial Port Header
(9-pin COM1)
(see p.7, No. 26)



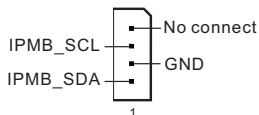
This COM header supports a serial port module.

PSU SMBus
(PSU_SMB1)
(see p.7, No. 7)



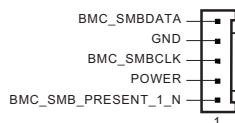
PSU SMBus monitors the status of the power supply, fan and system temperature.

Intelligent Platform
Management Bus Header
(4-pin IPMB_1)
(see p.7, No. 25)



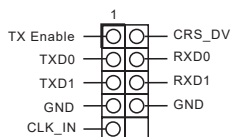
This 4-pin connector is used to provide a cabled base-board or front panel connection for value added features and 3rd-party add-in cards, such as Emergency Management cards, that provide management features using the IPMB.

Baseboard Management
Controller SMBus Header
(5-pin BMC_SMB_1)
(see p.7, No. 24)



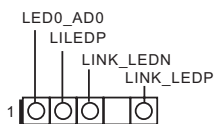
The header is used for the SMBUS devices.

NCSI Header
(9-pin NCSI1)
(see p.7, No. 1)



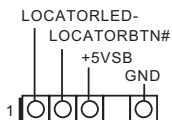
The onboard NCSI header is used for external connections.

IPMI LAN LED Header
(5-pin IPMI_LED1)
(see p.7, No. 2)



This header is used for IPMI LAN LED features.

UID Button Header
(5-pin UID_HEADER)
(see p.7, No. 3)

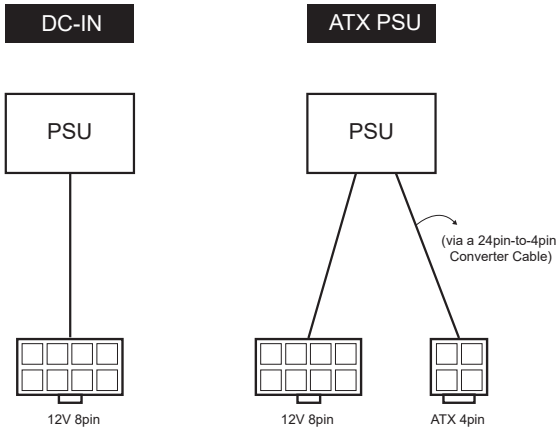


This header is used for UID button features.

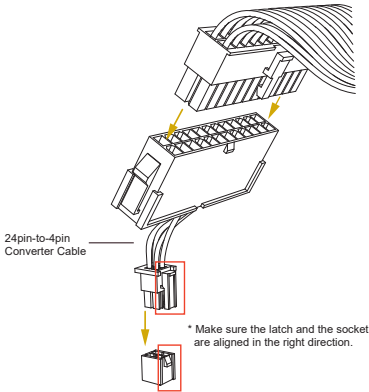
2.9 ATX PSU / DC-IN Power Connections

This motherboard supports both +12V DC and ATX power input. Please refer to the table below for the required connections between the motherboard and the power supply.

Connector	DC-IN	ATX PSU
12V 8pin	O	O
ATX 4pin (Micro-Fit Connector)	X	O (with the bundled ATX 24pin-to-4pin converter cable)



The following diagram illustrates how to connect the bundled ATX 24pin-to-4pin converter cable.



2.10 Unit Identification purpose LED/Switch

Use the UID button to locate the server working on 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.

2.11 Dual LAN and Teaming Operation Guide

Dual LAN with Teaming enabled on this motherboard allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and improving the quality of transmission of distant images. Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.



The speed of transmission is subject to the actual network environment or status even with Teaming enabled.

Before setting up Teaming, please make sure whether your Switch (or Router) supports Teaming (IEEE 802.3ad Link Aggregation). You can specify a preferred adapter in Intel PROSet. Under normal conditions, the Primary adapter handles all non-TCP/IP traffic. The Secondary adapter will receive fallback traffic if the primary fails. If the Preferred Primary adapter fails, but is later restored to an active status, control is automatically switched back to the Preferred Primary adapter.

Step 1

From **Device Manager**, open the properties of a team.

Step 2

Click the **Settings** tab.

Step 3

Click the **Modify Team** button.

Step 4

Select the adapter you want to be the primary adapter and click the **Set Primary** button.

If you do not specify a preferred primary adapter, the software will choose an adapter of the highest capability (model and speed) to act as the default primary. If a failover occurs, another adapter becomes the primary. The adapter will, however, rejoin the team as a non-primary.

2.12 M.2 SSD Module Installation Guide (M2_1/M2_2)

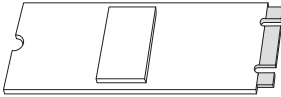
The M.2 Socket (M2_1, Key M) supports a type 2280 PCI Express module up to Gen4 x4.
The M.2 Socket (M2_2, Key M) supports a type 2280 PCI Express module up to Gen3 x4.

**The M2_1 slot is not supported with the 10th Gen Intel® Pentium Series Processors installed.*

Installing the M.2 SSD Module

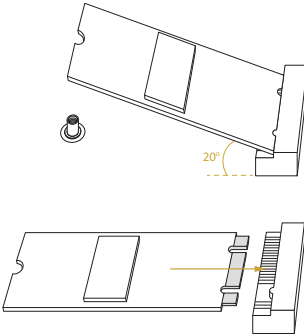
Step 1

Prepare a M.2 SSD module and the screw.



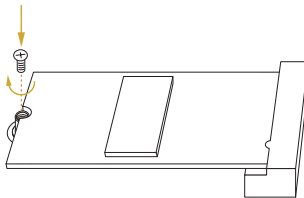
Step 2

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



Step 3

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



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 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
Event Logs	For event log configuration
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.

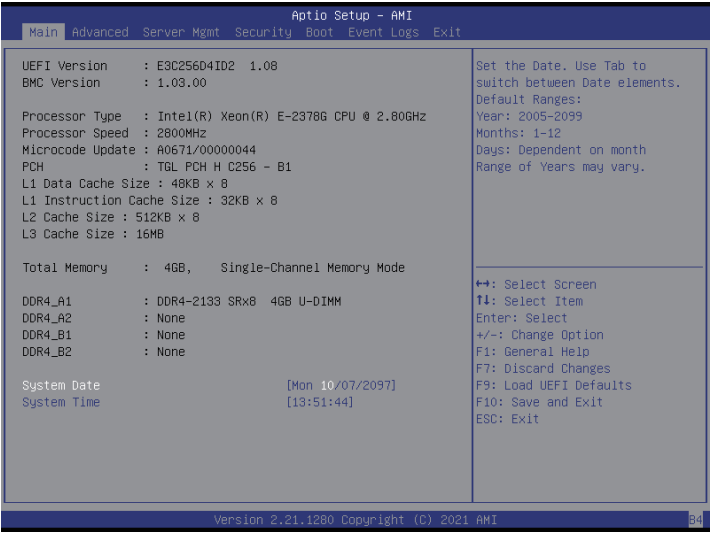
3.1.2 Navigation Keys

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

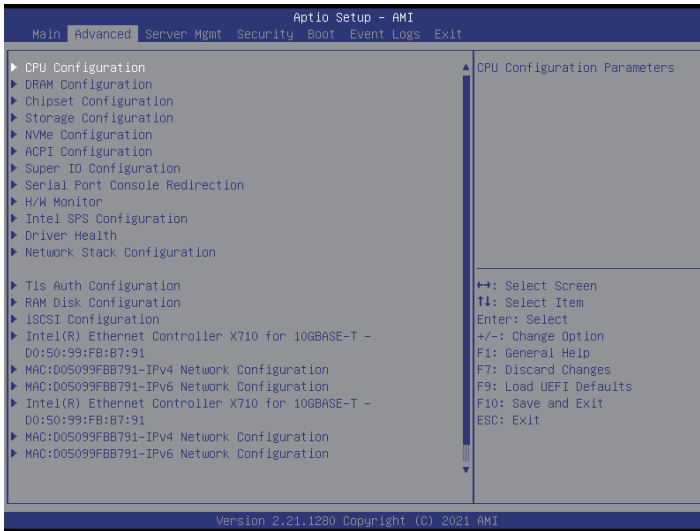
3.2 Main Screen

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.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, DRAM Configuration, Chipset Configuration, Storage Configuration, NVMe Configuration, ACPI Configuration, Super IO Configuration, Serial Port Console Redirection, H/W Monitor, Intel SPS Configuratio, Driver Health, Network Stack Configuration, Tls Auth Configuration, RAM Disk Configuration, iSCSI Configuration and Instant Flash.



Save User Default

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

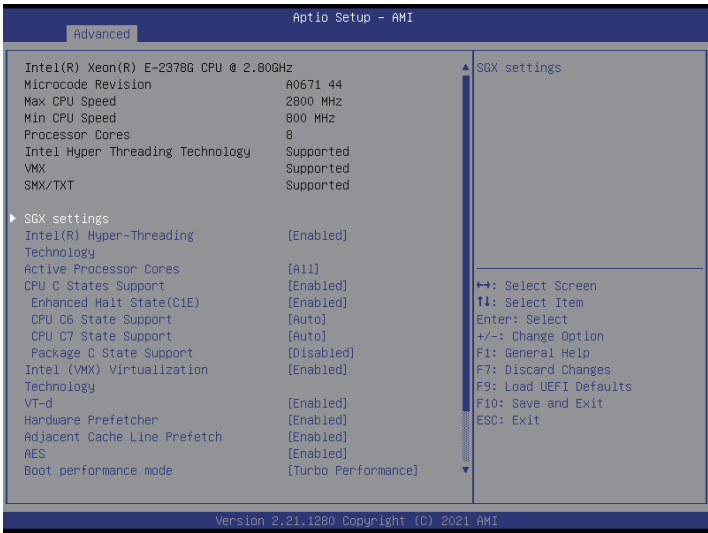
Load User Default

Load previously saved user defaults.



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

3.3.1 CPU Configuration



SGX settings

Hyper-Threading *(Supported depending on your CPU)*

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C6 and C7 all enabled for better power saving.

Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

VT-d

Intel® Virtualization Technology for Directed I/O helps your virtual machine monitor better utilize hardware by improving application compatibility and reliability, and providing additional levels of manageability, security, isolation, and I/O performance.

Hardware Prefetcher

Automatically prefetch data and code for the processor. Enable for better performance.

Adjacent Cache Line Prefetch

Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. Enable for better performance.

AES

Use this to enable or disable CPU Advanced Encryption Standard instructions.

Boot Performance Mode

Use this to item to select the performance state that the BIOS will set starting from reset vector.

Intel SpeedStep Technology

Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation. CPU turbo ratio can be fixed when Intel SpeedStep Technology is set to Disabled and Intel Turbo Boost Technology is set to Enabled.



Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

Intel Turbo Boost Technology

Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state.

Enable Intel TXT Support

Use this to enable or disable Intel Trusted Execution Technology.

CPU Thermal Throttling

Enable CPU internal thermal control mechanisms to keep the CPU from overheating.

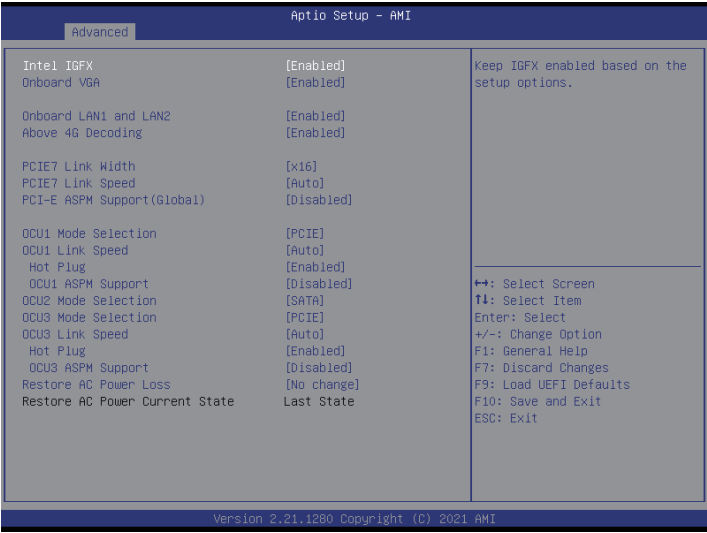
3.3.2 DRAM Configuration



DRAM Frequency

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

3.3.3 Chipset Configuration



Intel IGFX

Keep IGFX enabled based on the setup options. The default value is [Enabled].

Onboard VGA

Use this to enable or disable the Onboard VGA functions. The default value is [Enabled].

Onboard LAN1 and LAN2

Use this to enable or disable the Onboard LAN functions. The default value is [Enabled].

Above 4G Decoding

Enable or disable above 4G MemoryMappedIO decoding. This item will be disabled automatically when Aperture Size is set to 2048MB.

PCIE7 Link Width

This allows you to select PCIE Link Width. The default value is [x16].

PCIE7 Link Speed

This allows you to select PCIE Link Speed. The default value is [Auto].

PCI-E ASPM Support (Global)

This option enables or disables the ASPM support for all PCH downstream devices. The default value is [Disabled].

OCU1 Mode Selection

Switch the OCULink to PCIE/SATA.

OCU1 Link Speed

This allows you to select OCU1 Link Speed. The default value is [Auto].

Hot Plug

This option enables or disables the PCI Express Hot Plug feature.

OCU2 Mode Selection

Switch the OCULink to PCIE/SATA.

OCU3 Mode Selection *(E3C256D4ID2 only)*

Switch the OCULink to PCIE/SATA.

OCU3 Link Speed *(E3C256D4ID2 only)*

This allows you to select OCU1 Link Speed. The default value is [Auto].

Hot Plug

This option enables or disables the PCI Express Hot Plug feature.

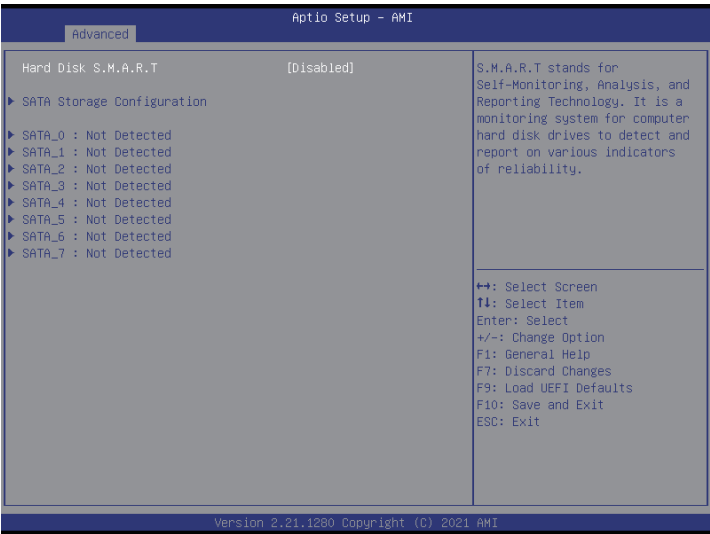
Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. If [Last State] is selected, it will recover to the state before AC/power loss.

Restore AC Power Current State

This allows you to restore AC Power Current State.

3.3.4 Storage Configuration



Hard Disk S.M.A.R.T.

S.M.A.R.T. stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators or reliability.

SATA Storage Configuration

SATA Controller

Use this item to enable or disable SATA Controllers.

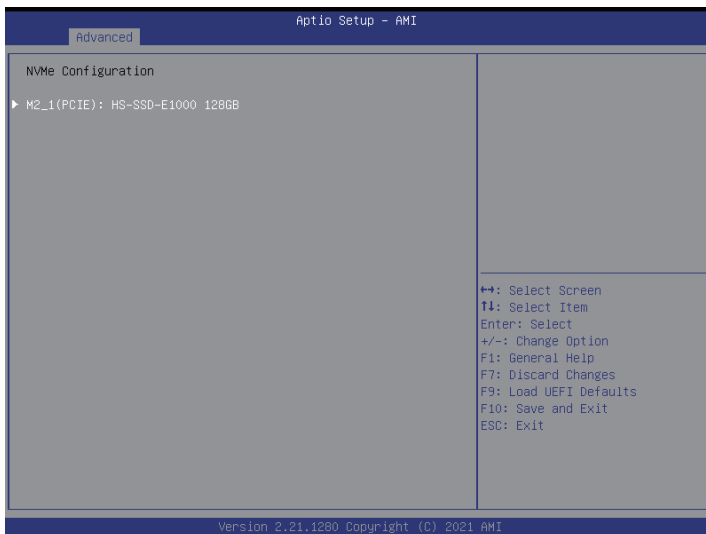
SATA/M.2_SATA Mode Selection

Identify the SATA/M.2_SATA port is connected to Solid State Drive or Hard Disk Drive. Press <Ctrl+I> to enter RAID ROM during UEFI POST process.

Support Aggressive Link Power Management

Use this item to enable or disable SALP.

3.3.5 NVMe Configuration



The NVMe Configuration displays the NVMe controller and Drive information.

3.3.6 ACPI Configuration



PCIE Devices Power On

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

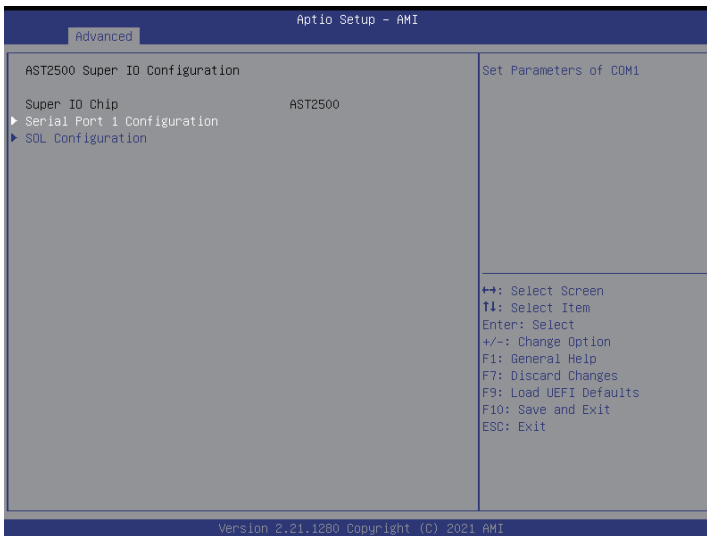
Ring-In Power On

This allows the system to be waked up by onboard COM port modem Ring-In signals.

RTC Alarm Power On

This allows the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by your operating system.

3.3.7 Super IO Configuration



Serial Port 1 Configuration

Use this item to set parameters of COM1.

Serial Port

Use this item to enable or disable the serial port.

Change Settings

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

SOL Configuration

Use this item to set SOL configuration.

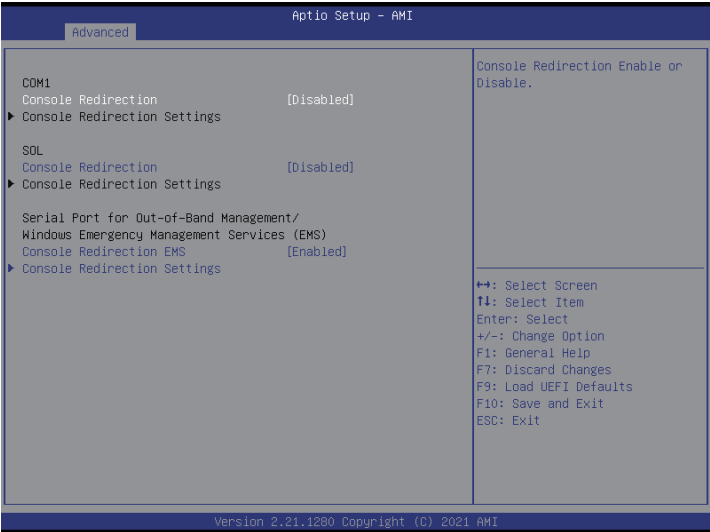
SOL Port

Use this item to enable or disable the SOL port.

Change Settings

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

3.3.8 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

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.

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

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].

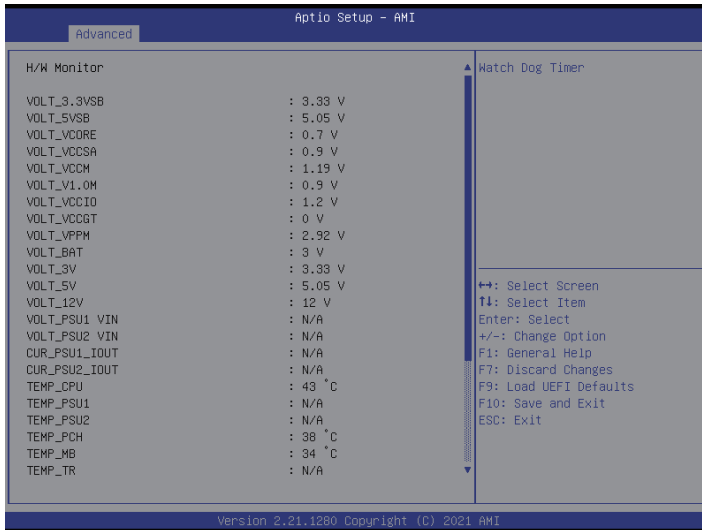
Data Bits EMS

Parity EMS

Stop Bits EMS

3.3.9 H/W Monitor

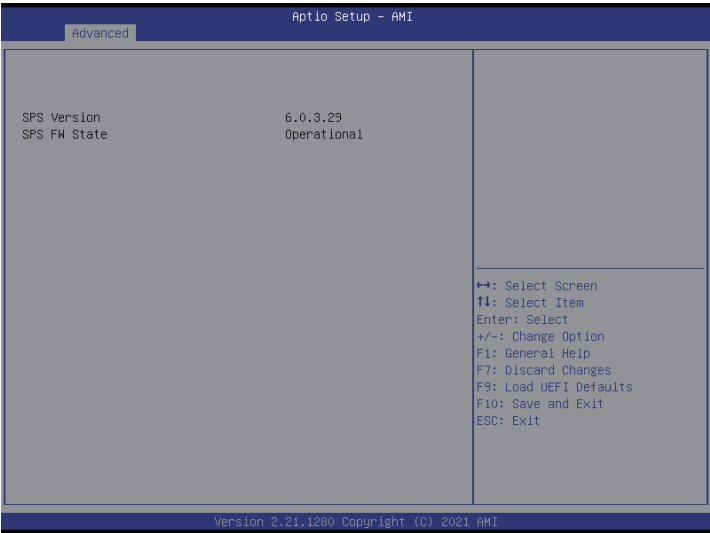
In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



Watch Dog Timer

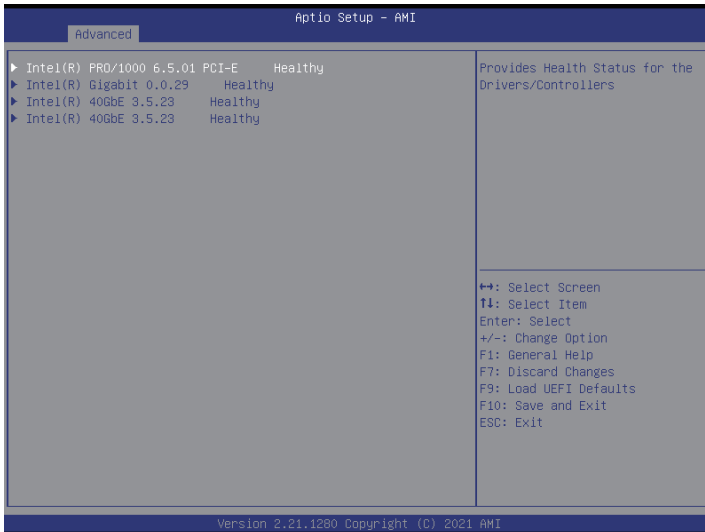
This allows you to enable or disable the Watch Dog Timer. The default value is [Auto].

3.3.10 Intel SPS Configuration



SPS screen displays the Intel SPS Configuration information, such as Operational Firmware Version and Firmware State.

3.3.11 Driver Health



This page provides health status for the drivers/controllers.

Note: The screenshot here is for your references only. The items on this page vary depending on models and devices you use.

3.3.12 Network Stack Configuration



Network Stack

Use this item to enable or disable UEFI Network Stack. The default value is [Disabled]. When [Enabled] is selected, the following items appear.

Ipv4 PXE Support

Use this item to enable or disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

Ipv4 HTTP Support

Use this item to enable or disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

Ipv6 PXE Support

Use this item to enable or disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

Ipv6 HTTP Support

Use this item to enable or disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

PXE boot wait time

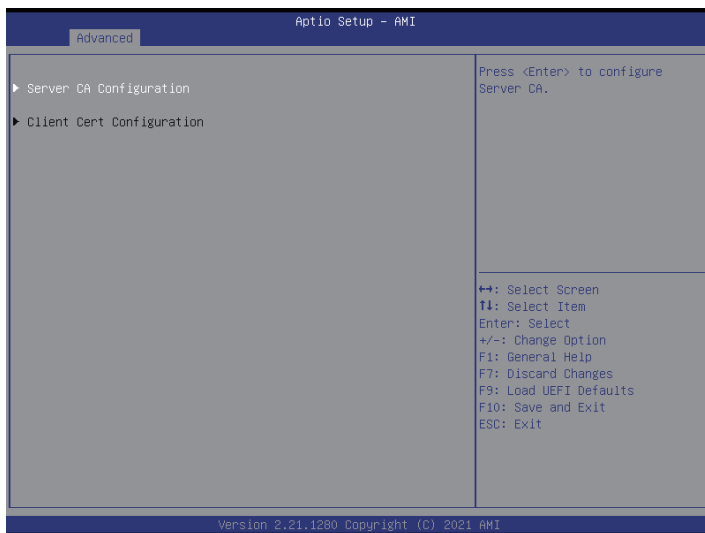
Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric

keys to set the value.

Media detect count

Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

3.3.13 Tls Auth Configuration



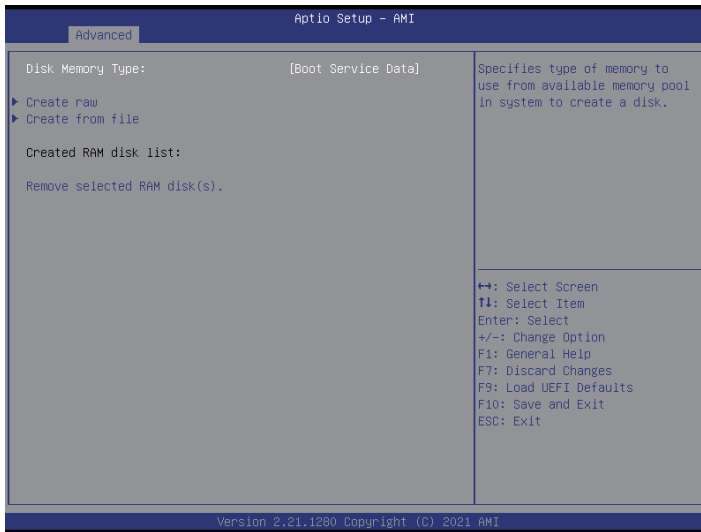
Server CA Configuration

Press <Enter> to configure Server CA.

Client Cert Configuration

Press <Enter> to configure Client Cert.

3.3.14 RAM Disk Configuration



Disk Memory Type

Specifies type of memory to use from available memory pool in system to create a disk.

Create raw

Create a raw RAM disk.

Create from file

Create a RAM disk from a given file.

Remove selected RAM disk(s).

Remove selected RAM disk(s)

3.3.15 iSCSI Configuration



Attempt Priority

Change this priority using +/- keys. Use arrow keys to select the attempt then press +/- to move the attempt up/down in the attempt order list.

Host iSCSI Configuration

Use this to configure iSCSI settings.

3.3.16 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 complicated 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.

3.4 Server Mgmt



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.

FRB-2 Timer

Use this item to enable or disable FRB-2 timer (POST timer).

FRB-2 Timer Timeout

Enter value between 1 to 30 min for FRB-2 Timer Expiration.

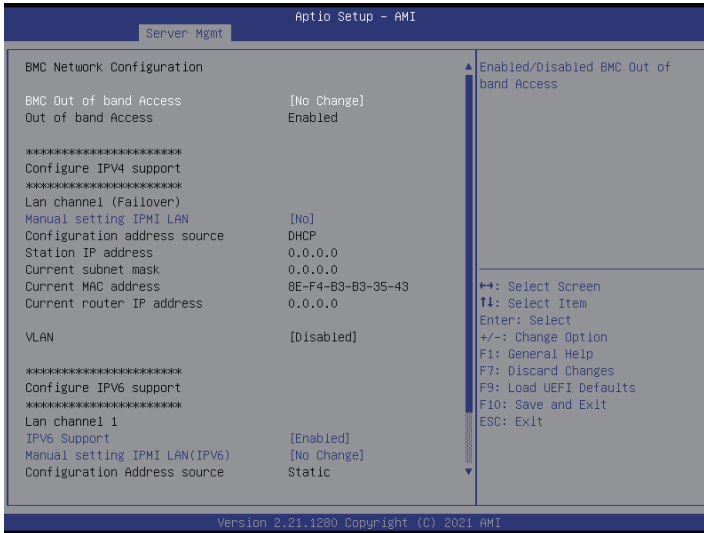
FRB-2 Timer Policy

Use this item to configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.

OS Watchdog Timer

If enabled, starts a BIOS timer which can only be shut off by Management Software after the OS loads. Helps determine that the OS successfully loaded or follows the OS Boot Watchdog Timer policy.

3.4.1 BMC Network Configuration



BMC Out of band Access

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

Manual Setting IPMI LAN

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

Configuration Address Source

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

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.

DHCP: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.



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



The default login information for the IPMI web interface is:

Username: admin

Password: admin

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

VLAN

Enabled/Disabled Virtual Local Area Network.

If [Enabled] is selected, configure the items below.

IPV6 Support

Enabled/Disable LAN1 IPV6 Support.

Manual Setting IPMI LAN(IPV6)

Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC).

Unspecified option will not modify any BMC network parameters during BIOS phase. The options include [DHCP], [No Change] and [Static].

3.4.2 System Event Log



SEL Components

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

Erase SEL

Use this to choose options for erasing 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.

3.4.3 Bmc self test log



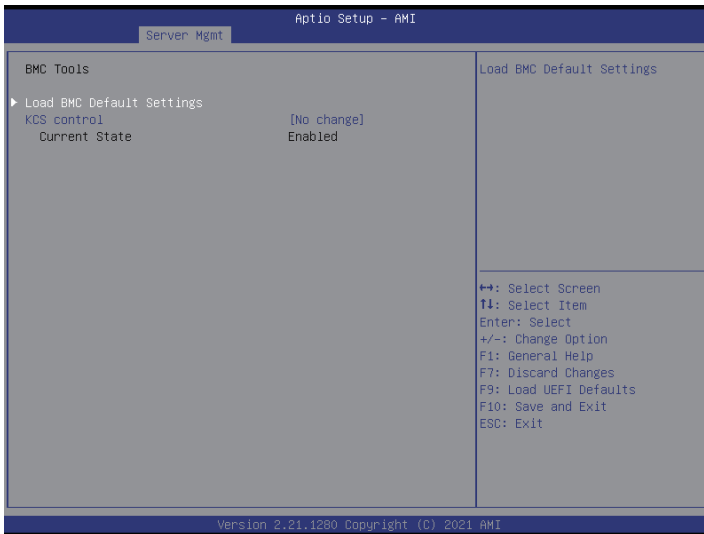
Erase Log

Use this to choose options for erasing Log.

When Log is Full

Use this to select the action to be taken when log is full.

3.4.4 BMC Tools



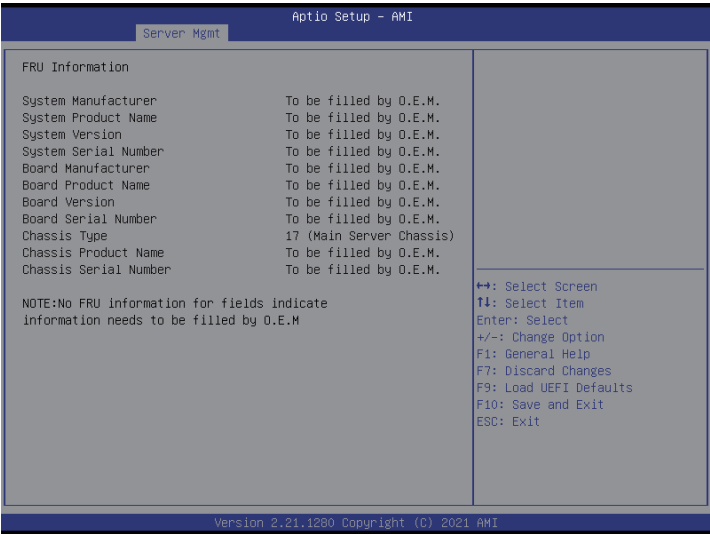
Load BMC Default Settings

Use this item to Load BMC Default Settings

KCS Control

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

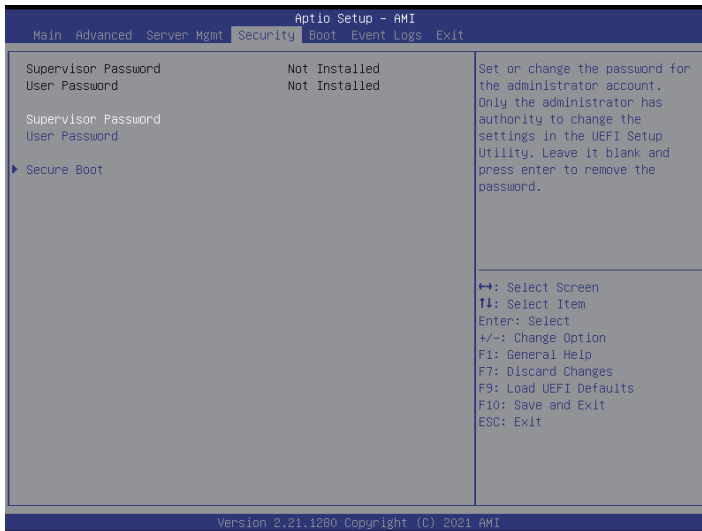
3.4.5 View FRU Information



This page displays the FRU Information, such as Manufacturer, Product Name, Version, System Serial Number of the system, board and chassis.

3.5 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

Use this to enable or disable Secure Boot Control. The default value is [Disabled]. Enable to support Windows Server 2012 R2 or later versions Secure Boot.

Secure Boot Mode

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

3.5.1 Key Management

In this section, expert users can modify Secure Boot Policy variables without full authentication.



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 Source: Factory, External, Mixed

Key Exchange Keys

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

Authorized 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)

Key Source: Factory, External, Mixed

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)

Key Source: Factory, External, Mixed

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

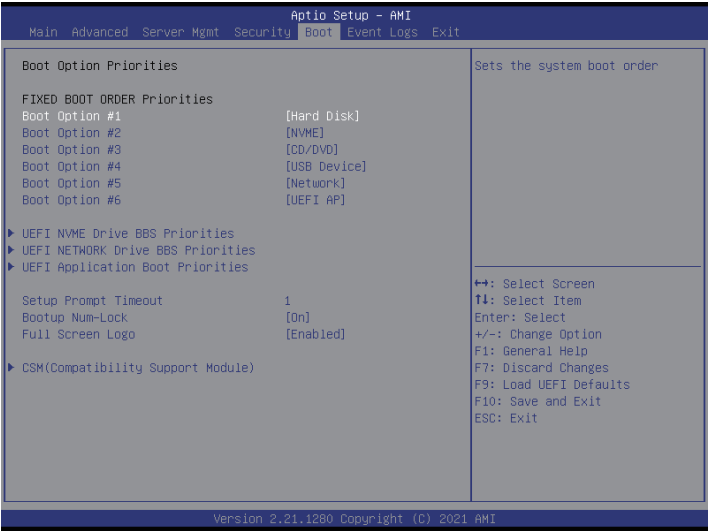
2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, External, Mixed

3.6 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.



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 #3

Use this item to set the system boot order.

Boot Option #4

Use this item to set the system boot order.

Boot Option #5

Use this item to set the system boot order.

Boot Option #6

Use this item to set the system boot order.

UEFI NVME Drive BBS Priorities

Specifies the Boot Device Priority sequence from available UEFI NVME Drives.

UEFI NETWORK Drive BBS Priorities

Specifies the Boot Device Priority sequence from available UEFI NETWORK Drives.

UEFI Application Boot Priorities

Specifies the Boot Device Priority sequence from available UEFI Application.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key.

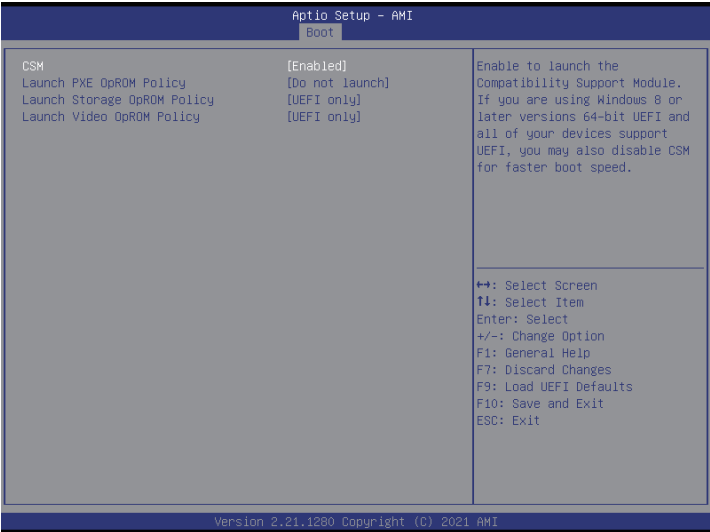
Bootup Num-Lock

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

Full Screen Logo

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

3.6.1 CSM Parameters



CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8.1 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

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

Launch 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.

3.7 Event Logs



Change Smbios Event Log Settings

This allows you to configure the Smbios Event Log Settings.

When entering the item, you will see the followings:

Smbios Event Log

Use this item to enable or disable all features of the SMBIOS Event Logging during system boot.

Erase Event Log

The options include [No], [Yes, Next reset] and [Yes, Every reset]. If Yes is selected, all logged events will be erased.

When Log is Full

Use this item to choose options for reactions to a full Smbios Event Log. The options include [Do Nothing] and [Erase Immediately].

Log System Boot Event

Choose option to enable/disable logging of System boot event.

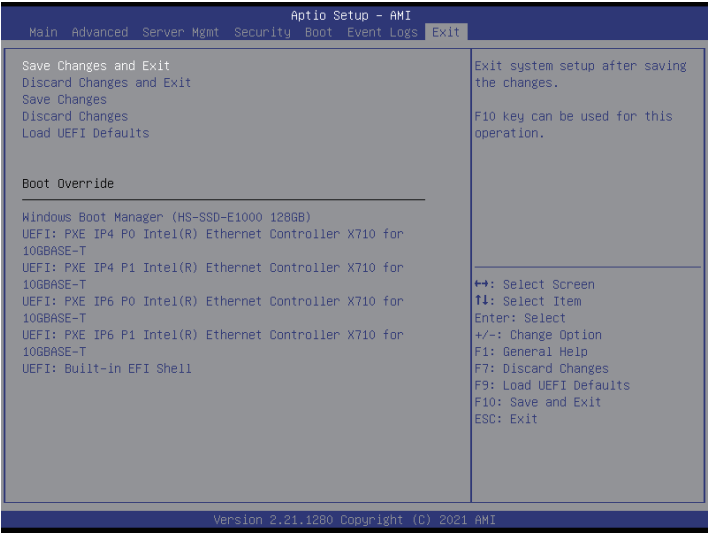
View Smbios Event Log

Press <Enter> to view the Smbios Event Log records.



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

3.8 Exit Screen



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

When you select this option, the following message “Save changes?” will pop-out. Press <F7> key or select [Yes] to save all changes.

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.

Boot Override

These items displays the available devices. Select an item to start booting from the selected device.

Chapter 4 Software Support

After all the hardware has been installed, it suggests to the official website at <http://www.ASRockRack.com> and make sure if there are any new updates of the BIOS / BMC firmware for the motherboard.

4.1 Download and Install Operating System

This motherboard supports various Microsoft® Windows® Server / Linux compliant operating systems. Please download the operating system from the OS manufacturer. Please refer to the OS documentation for more instructions.

**Please download the Intel® Rapid Storage Technology driver from the ASRock Rack's website (www.asrockrack.com) to the USB drive while installing OS in SATA RAID mode.*

4.2 Download and Install Software Drivers

This motherboard supports various Microsoft® Windows® compliant drivers. Please download the required drivers from the website at <http://www.ASRockRack.com>.

To download necessary drivers, go to the product page, click on the "Download" tab, choose the operating system, and select the driver to download.

4.3 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.

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 UDIMM.
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 adequate 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.

Contact Information

Contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at <http://www.asrockrack.com>; or contact the dealer for further information. For technical questions, please submit a support request form at <https://event.asrockrack.com/tsd.asp>

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