X200D6HM

User Manual

Version 1.0
Published March 2018

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(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.

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

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Chapter 1 Introduction

Thank you for purchasing ASRock Rack ***X200D6HM*** 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 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain 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 the ASRock Rack website without further notice. You may find the latest memory and CPU support lists on the 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 X200D6HM Motherboard
  (Half Form Factor: 16.0-in x 6.5-in, 40.6 cm x 16.5 cm)
- Support CD
- User Manual
- 4 x SATA3 Cables (50cm)
- 1 x I/O Shield

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

English

1.2 Specifications

X200D6HM	
MB Physical Status	
Form Factor	SSI EEB
Dimension	16" x 6.5" (40.6 cm x 16.5 cm)
Processor System	
CPU	Intel® Xeon® PHI X200 Series Processors
Socket	Single Socket P
Chipset	Intel® C612
System Memory	
Capacity	6 DIMM slots
Type	Six Channel memory technology
DIMM Size	Supports DDR4 2400/2133 LR/R DIMM
Voltage	1.2V
Expansion Slot	
PCIe 3.0 x 8	2(PCIE1:x8, PCIE2:x8(EE)/x24(ME))
Storage	
SATA Controller	10x SATA3 from 2x miniSAS HD V type by 4x SATA3 & 4 sSATA, 1 SATA 7P + 1 SATA 7P shared with M.2)
Additional Storage Interface	2 x OCuLink (PCIe x4/ per OCulink from CPU)
Ethernet	
Interface	1000 /100 /10 Mbps by Intel® i350
LAN	2 x RJ45 GLAN by Intel® i350 1 x RJ45 Dedicated IPMI LAN port - Supports Wake-On-LAN - Supports Energy Efficient Ethernet 802.3az - Supports Dual LAN with Teaming function - Supports PXE - LAN1 Supports NCSI
Management	
BMC Controller	ASPEED AST2400
IPMI Dedicated GLAN	1 x Realtek RTL8211E for dedicated management GLAN
Features	- Watch Dog - NMI
Graphics	
Controller	ASPEED AST2400
VRAM	DDR3 16MB

Rear Panel I/O	
VGA Port	1 x D-Sub
USB 3.0 Port	2
LAN Port	2 + 1 (IPMI) Lan port (RJ45) LAN Ports with LED (ACT/LINK LED and SPEED LED)
Dedicate LAN	1
UID Buttom/ LED	1
Serial Port	1(COM PORT)
Internal Connector	
Auxiliary Panel Header	1
TPM Header	1
IPMB Header	1
COM Header	1
Buzzer	1
Fan Header	2x CPU Fan, 2x System Fan (4-pin)
USB 3.0 Header	1 (support 2 USB 3.0)
Type A USB 3.0 Port	1
Mezzanine	1
System BIOS	
BIOS Type	128Mb 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
Fan	- CPU/Rear/Front Fan Tachometer - CPU Quiet Fan (Allow CPU Fan Speed Auto-Adjust by CPU Temperature) - CPU/Rear/Front Fan Multi-Speed Control
Voltage	Voltage Monitoring: CPU1, VCCM_AB/CD/EF/GH, +1.50_ PCH, 12V, +1.05V_PCH, +BAT, 3V_AUX/5V_AUX

Support OS	
OS	Microsoft® Windows® - Server 2012 R2 (64 bit) Linux® - RedHat Enterprise Linux Server 7.1 - SUSE Enterprise Linux Server 12 * 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

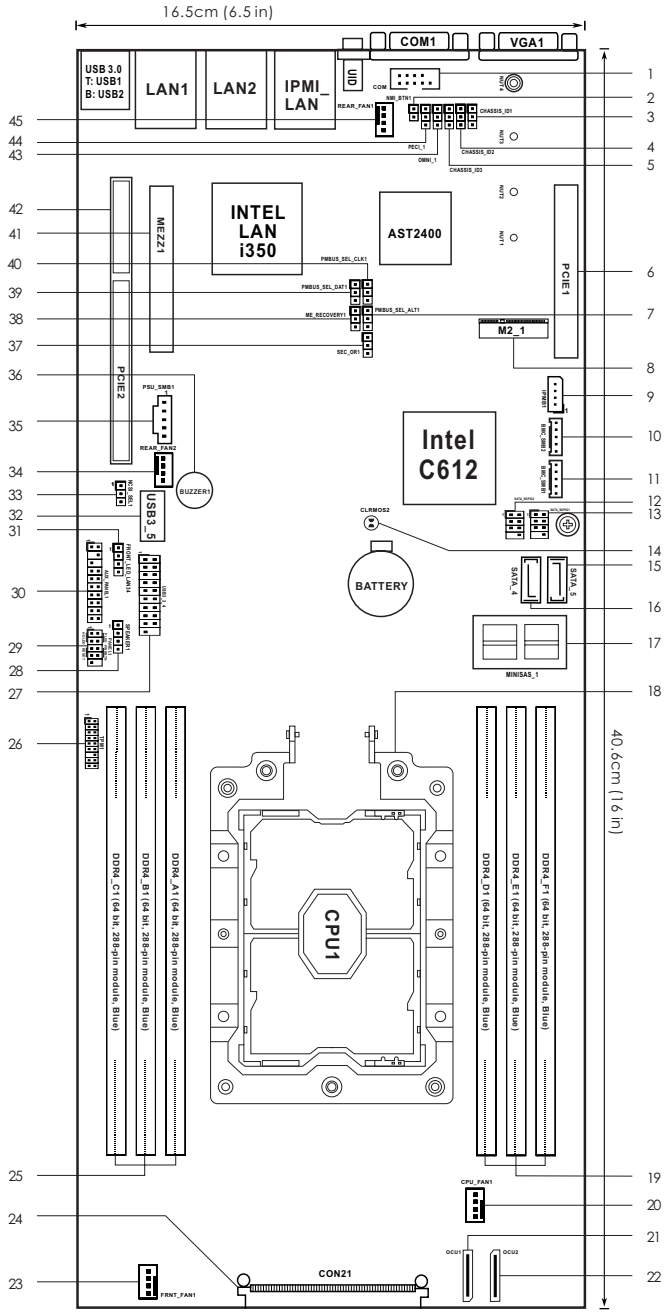
This motherboard supports Wake from on Board LAN. To use this function, please make sure that the "Wake on Magic Packet from power off state" is enabled in Device Manager > Intel® Ethernet Connection > Power Management. And the "PCI Devices Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI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

If you install Intel® LAN 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



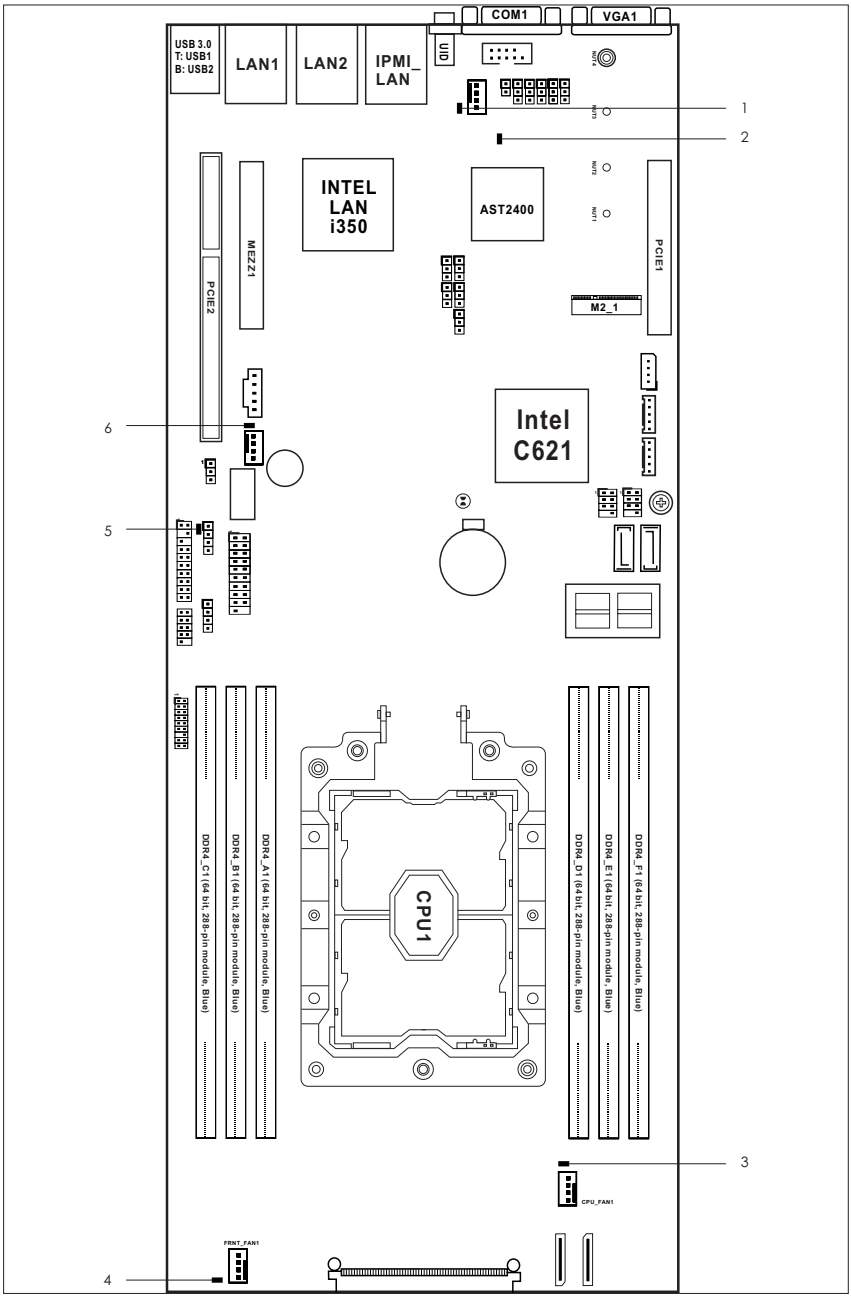
No.	Description
1	COM Port Header (COM)
2	Non Maskable Interrupt Button (NMI_BTN1)
3	Chassis ID1 Jumper (CHASSIS_ID1)
4	Chassis ID2 Jumper (CHASSIS_ID2)
5	Chassis ID3 Jumper (CHASSIS_ID3)
6	PCI Express 3.0 Card Slot1 (PCIE1) (EE x8, ME x8)
7	PMBUS Mode Jumper (PMBUS_SEL_ALT1)
8	M.2 Slot (M2_1)**
9	Intelligent Platform Management Bus Header (IPMB1)
10	BMC SMBus Header (BMC_SMB2)
11	BMC SMBus Header (BMC_SMB1)
12	SATA SGPIO Connector (SATA_SGPIO2)
13	SATA SGPIO Connector (SATA_SGPIO1)
14	Clear CMOS Pad (CLRMOS2)
15	SATA3 Connector (SATA_5)**
16	SATA3 Connector (SATA_4)
17	Mini SAS HD Connector (MINISAS_1)
18	LGA 3647 CPU Socket
19	3 x 288-pin DDR4 DIMM Slots (DDR4_D1, DDR4_E1, DDR4_F1)*
20	CPU Fan Connector (CPU_FAN1)
21	OCuLink x4 Connector (OCU1)
22	OCuLink x4 Connector (OCU2)
23	Front Fan Connector (FRNT_FAN1)
24	Power Distribution Board Connector (CON21)
25	PWM Configuration Header (PWM_CFG1)
26	3 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_B1, DDR4_C1)*
27	TPM Header (TPM1)
28	USB 3.0 Header (USB3_3_4)
29	Speaker Header (SPEAKER1)
30	System Panel Header (PANEL1)
31	Auxiliary Panel Header (AUX_PANEL1)
32	Front Lan LED Connector (FRONT_LED_LAN34) (For Mezzanine Card)
33	Vertical Type A USB 3.0 (USB3_5)

No.	Description
34	NCSI Mode Jumper (NCSI_SEL1)
35	Rear Fan Connector (REAR_FAN2)
36	PSU SMBus (PSU_SMB1)
37	Buzzer (BUZZER1)
38	Security Override Jumper (SEC_OR1)
39	ME Recovery Jumper (ME_RECOVERY1)
40	PMBUS Mode Jumper (PMBUS_SEL_DAT1)
41	PMBUS Mode Jumper (PMBUS_SEL_CLK1)
42	Mezzanine Card Slot1 (MEZZ1)
43	PCI Express 3.0 Card Slot2 (PCIE2) (EE x8, ME x24)
44	OMNI Header (OMNI_1)
45	CPU PECI Jumper (PECI1)
46	Rear Fan Connector (REAR_FAN1)

**For DIMM installation and configuration instructions, please see p.18 (Installation of Memory Modules) for more details.*

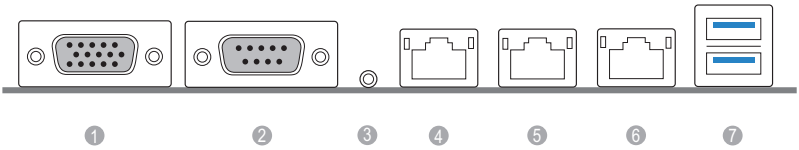
***The M.2 socket (M2_1) is shared with the SATA_5 connector. If you install a M.2 SATA module to the M.2 Socket (M2_1), the internal SATA_5 will not function (and vice versa).*

1.5 Onboard LED Indicators



No.	Item	Status	Description
1	REAR_FAN_LED1	Amber	REAR_FAN1 failed
2	BMC_LED1	Green	BMC heartbeat LED
3	CPU_FAN_LED1	Amber	CPU_FAN1 failed
4	FRNT_FAN_LED1	Amber	FRNT_FAN1 failed
5	SB_PWR1	Green	STB PWR ready
6	REAR_FAN_LED2	Amber	REAR_FAN2 failed

1.6 I/O Panel

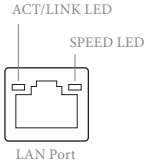


No.	Description	No.	Description
1	VGA Port (VGA1)	5	LAN RJ-45 Port (LAN2)**
2	Serial Port (COM1)	6	LAN RJ-45 Port (LAN1)**
3	UID Switch (UID1)	7	USB 3.0 Ports (USB3_1_2)
4	LAN RJ-45 Port (IPMI_LAN)*		

Note: LAN1 supports NCSI.

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.

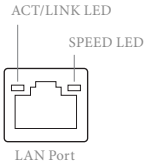


Dedicated IPMI LAN Port LED Indications

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

English

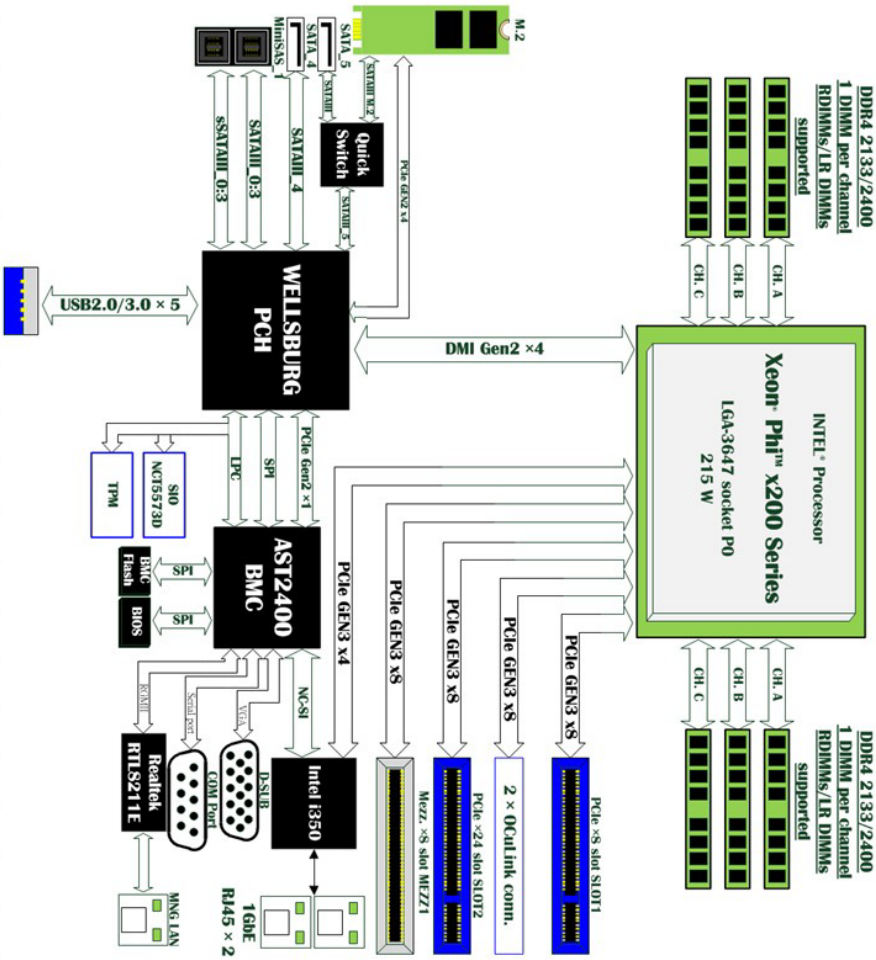
**There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.



LAN Port (LAN1, LAN2) LED Indications

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

1.7 Block Diagram



Chapter 2 Installation

This is a half form factor (16" x 6.5", 40.6 cm x 16.5 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.

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.

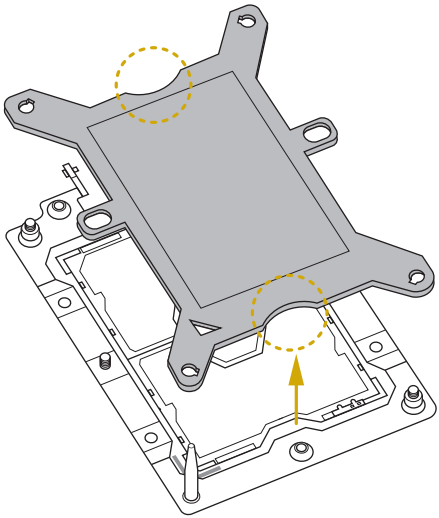
1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before 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.

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.

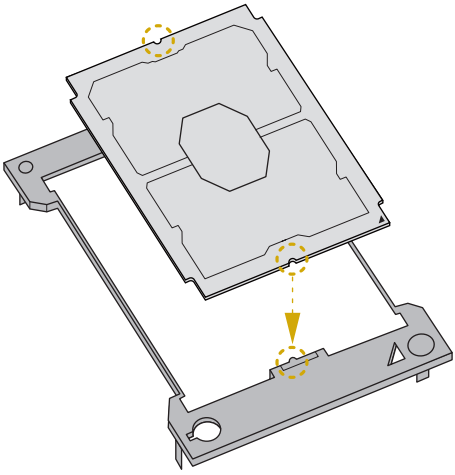
2.3 Installing the CPU

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.*

1



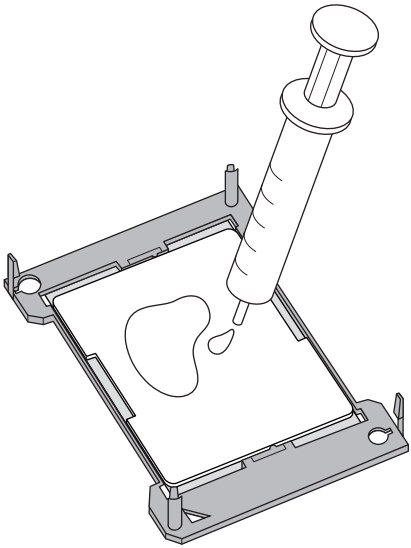
2



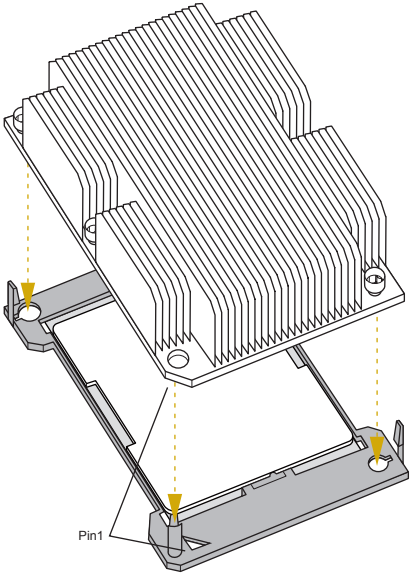
The cover must be placed if returning the motherboard for after service.

1. *Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation.*
2. *Illustration in this documentation are examples only. Heatsink or fan cooler type may differ.*

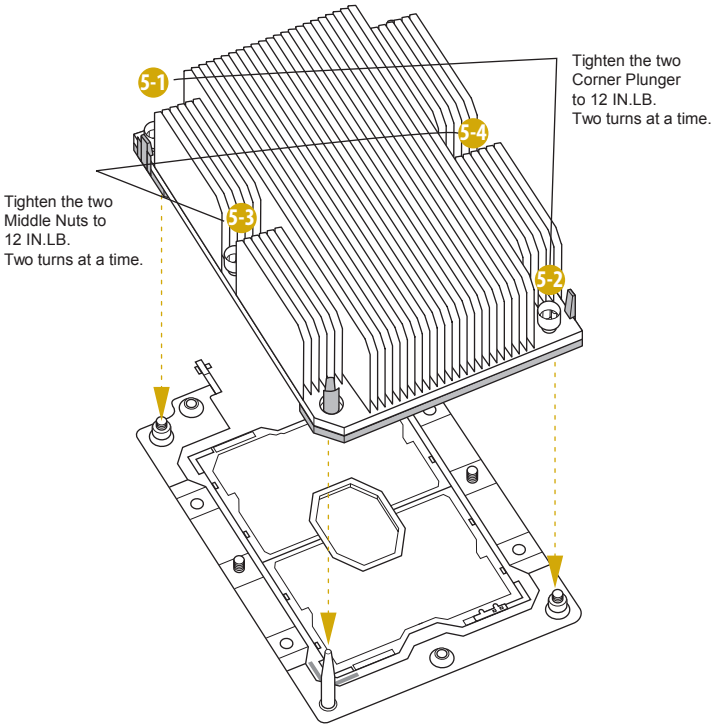
3



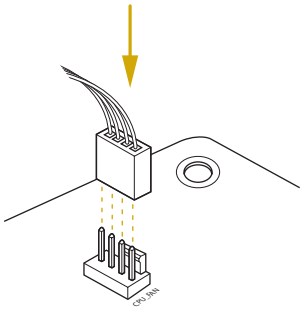
4



5


5-1
5-2
5-3
5-4
Tighten the two
Middle Nuts to
12 IN.LB.
Two turns at a time.
Tighten the two
Corner Plunger
to 12 IN.LB.
Two turns at a time.

6


CPU_FAN

2.4 Installation of Memory Modules

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

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.

A single memory module should be installed in the DDR4_C1 or DDR4_F1 socket.

Channel Memory Configuration

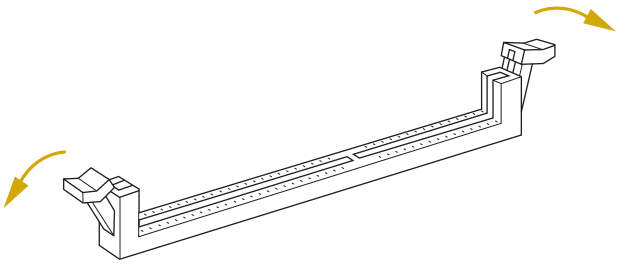
	A1	B1	C1	D1	E1	F1
1 DIMM			#			
						#
2 DIMMs			#			#
3 DIMMs		#	#			#
			#		#	#
4 DIMMs		#	#		#	#
5 DIMMs	#	#	#		#	#
		#	#	#	#	#
6 DIMMs	#	#	#	#	#	#

**The # symbol indicates the slot is populated.*

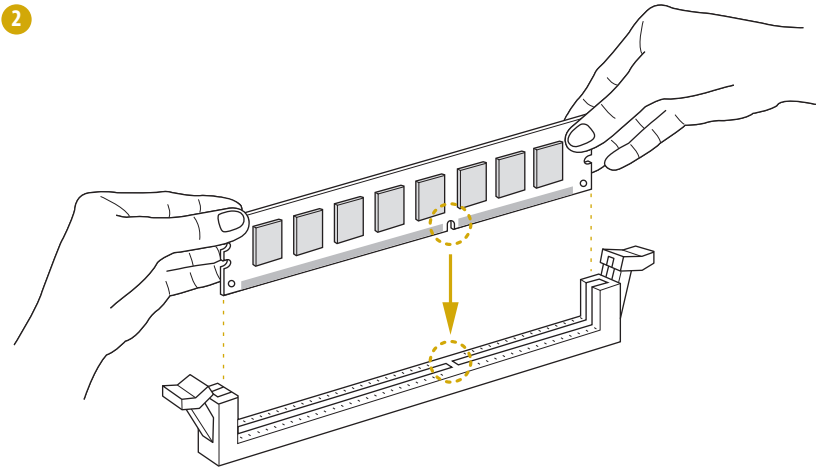
The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

English

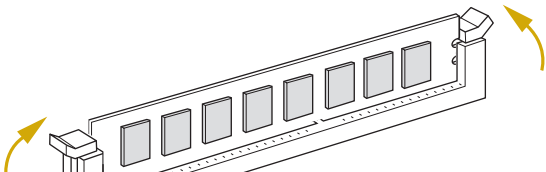
1



2



3



2.5 Expansion Slots (PCI Express Slots)

There are 2 PCI Express slots on this motherboard.

PCIE slot:

PCIE1 (PCIE 3.0 x8 slot) is used for PCI Express x8 lane width low-profile cards.
PCIE2 (PCIE 3.0 x24 slot) is used for PCI Express x8 lane width low-profile cards.

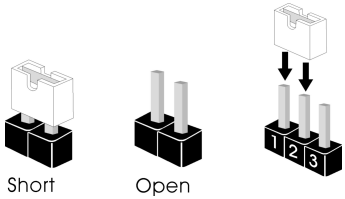
Slot	Generation	Mechanical	Electrical	Source
PCIE 1	3.0	x8	x8	CPU
PCIE 2	3.0	x24	x8	CPU

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.

2.6 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.



ME Recovery Jumper (3-pin ME_RECOVERY1) (see p.6, No. 38)	1_2 Normal Mode (Default)	2_3 ME Recovery Mode
CPU PECI Mode Jumper (3-pin PECI1) (see p.6, No. 44)	1_2 CPU PECI connect to PCH	2_3 CPU PECI connect to BMC (Default)
PMBUS Mode Jumper (3-pin PMBUS_SEL_ALT1) (see p.6, No. 7) (3-pin PMBUS_SEL_DAT1) (see p.6, No. 39) (3-pin PMBUS_SEL_CLK1) (see p.6, No. 40)	1_2 PMBus connected to BMC (Default)	2_3 PMBus connected to PCH
NCSI Mode Jumper (3-pin NCSI_SEL1) (see p.6, No. 33)	1_2 NCSI is set to onboard LAN1 (Default)	2_3 NCSI is set to Mezzanine Card

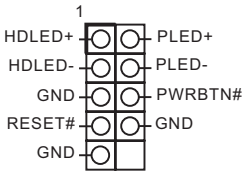
Chassis ID1 Jumper (3-pin CHASSIS_ID1) (see p.6, No. 3) Chassis ID2 Jumper (3-pin CHASSIS_ID2) (see p.6, No. 4) Chassis ID3 Jumper (3-pin CHASSIS_ID3) (see p.6, No. 5)	   X200D6HM	   2U4N-F/x200
Chassis ID1 Jumper (3-pin CHASSIS_ID1) (see p.6, No. 3) Chassis ID2 Jumper (3-pin CHASSIS_ID2) (see p.6, No. 4) Chassis ID3 Jumper (3-pin CHASSIS_ID3) (see p.6, No. 5)	   Reserved for system level use	   Reserved for system level use
Chassis ID1 Jumper (3-pin CHASSIS_ID1) (see p.6, No. 3) Chassis ID2 Jumper (3-pin CHASSIS_ID2) (see p.6, No. 4) Chassis ID3 Jumper (3-pin CHASSIS_ID3) (see p.6, No. 5)	   Reserved for system level use	   Reserved for system level use
OMNI Jumper (3-pin OMNI_1) (see p.6, No. 43)	 No KNL-F CPU (Default)	 KNL-F CPU is used

Security Override Jumper (3-pin SEC_OR1) (see p.6, No. 37)	1_2  Descriptor Security Override	2_3  Not override (Default)

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.6, No. 25)



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.

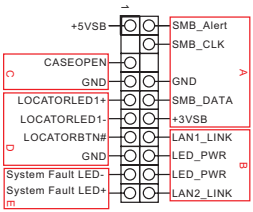
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

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
(18-pin AUX PANEL_1)
(see p.6, No. 30)



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.

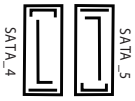
B. Internet status indicator (2-pin LAN1_LED, LAN2_LED)
These two 2-pin headers allow you to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.

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
(SATA_4)
(see p.6, No. 16)
(SATA_5)
(see p.6, No. 15)



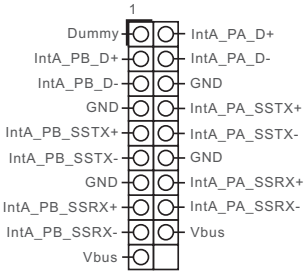
These two SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.

**The M.2 socket (M2_1) is shared with the SATA_5 connector. If you install a M.2 SATA module to the M.2 Socket (M2_1), the internal SATA_5 will not function (and vice versa).*

English

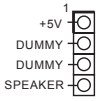
USB 3.0 Connector
(USB3_5)
(see p.6, No. 32)

USB 3.0 Header
(19-pin USB3_3_4)
(see p.6, No. 27)



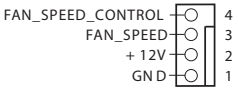
Besides two default USB 3.0 ports on the I/O panel, there is one USB 3.0 header on this motherboard. This USB 3.0 header can support two USB 3.0 ports.

Chassis Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 28)



Please connect the chassis speaker to this header.

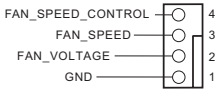
CPU Fan Connector
(4-pin CPU_FAN1)
(see p.6, No. 20)



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

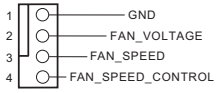
**For more details, please refer to the Cooler QVL list on the ASRock Rack website.*

Front and Rear Fan Connectors
(4-pin FRNT_FAN1)
(see p.6, No. 23)



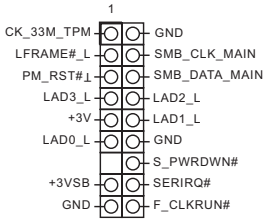
Please connect fan cables to the fan connectors and match the black wire to the ground pin. All fans support Fan Control.

(4-pin REAR_FAN1)
(see p.6, No. 45)
(4-pin REAR_FAN2)
(see p.6, No. 34)



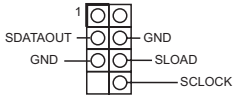
English

TPM Header
(13-pin TPM1)
(see p.6, No. 26)



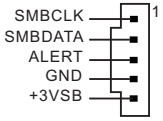
This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

Serial General Purpose Input/Output Headers
(7-pin SATA_SGPIO1)
(see p.6, No. 13)
(7-pin SATA_SGPIO2)
(see p.6, No. 12)



These headers support Serial Link interface for onboard SATA connections.

PSU SMBus
(PSU_SMB1)
(see p.6, No. 35)

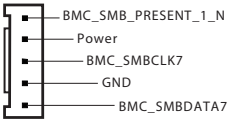


PSU SMBus monitors the status of the power supply, fan and system temperature.

Non Maskable Interrupt Button Header
(NMI_BTN1)
(see p.6, No. 2)

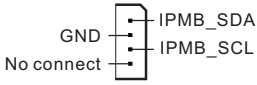
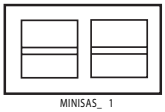
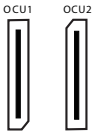
Please connect a NMI device to this header.

BMC SMB Headers
(5-pin BMC_SMB1)
(see p.6, No. 11)
(5-pin BMC_SMB2)
(see p.6, No. 10)



The headers are used for the SM BUS devices.

English

Intelligent Platform Management Bus header (4-pin IPMB1) (see p.6, No. 9)		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.
Front Lan LED Connector (FRNT_LED_LAN34) (see p.6, No. 31)		This 4-pin connector is used for the front LAN status indicator.
Mini SAS HD Connector (MINISAS_1) (see p.6, No. 17)		The Mini SAS HD connector supports SAS/SATA data cables for internal storage devices. The current SAS3/ SATA3 interface allows up to 12.0 Gb/s data transfer rate. For connecting SAS HDDs, please contact SAS data cable dealers.
OCuLink Connectors (OCU1) (see p.6, No. 21) (OCU2) (see p.6, No. 22)		Please connect PCIE SSDs to these connectors.
Clear CMOS Pads (CLRMOS2) (see p.6, No. 14)		These allow you to clear the data in CMOS. To clear CMOS, take out the CMOS battery and short the Clear CMOS Pad.

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 truned 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 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 (Adapter Fault Tolerance (AFT), Switch Fault Tolerance (SFT) and Adaptive Load Balancing (ALB) teams). 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.

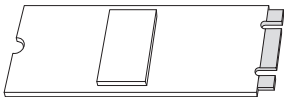
If you do not specify a preferred primary adapter, the software will choose an adapter of the highest capability (model and speed) to act as the default primary. If a failover occurs, another adapter becomes the primary. The adapter will, however, rejoin the team as a non-primary.

2.11 M.2_SSD (NGFF) Module Installation Guide

The M.2, also known as the Next Generation Form Factor (NGFF), is a small size and versatile card edge connector that aims to replace mPCIe and mSATA. The M.2 Socket (M2_1) supports a M.2 SATA3 6.0 Gb/s module or a M.2 PCI Express module up to Gen 2 x4 (10Gb/s).

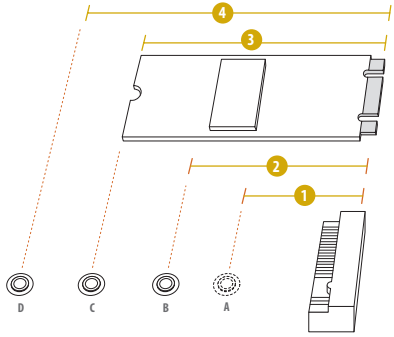
The M.2 socket (M2_1) is shared with the SATA_5 connector. If you install a M.2 SATA module to the M.2 Socket (M2_1), the internal SATA_5 will not function (and vice versa).

Installing the M.2_SSD (NGFF) Module



Step 1

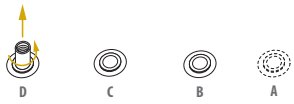
Prepare a M.2_SSD (NGFF) module and the screw.

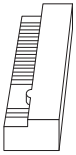


Step 2

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

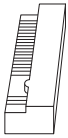
No.	1	2	3	4
Nut Location	A	B	C	D
PCB Length	3cm	4.2cm	6cm	8cm
Module Type	Type2230	Type 2242	Type2260	Type 2280





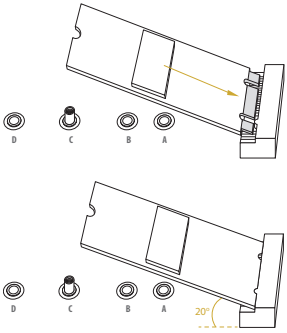
Step 3

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.



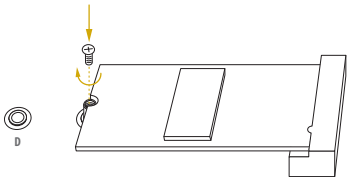
Step 4

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



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.



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

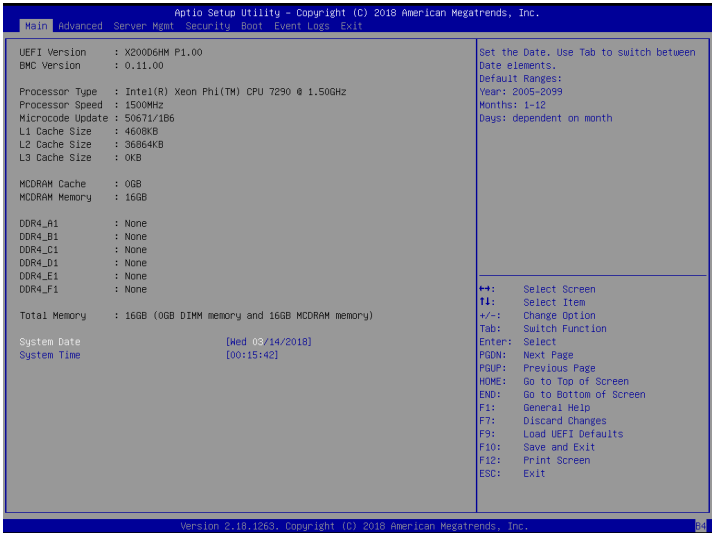
3.1.2 Navigation Keys

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

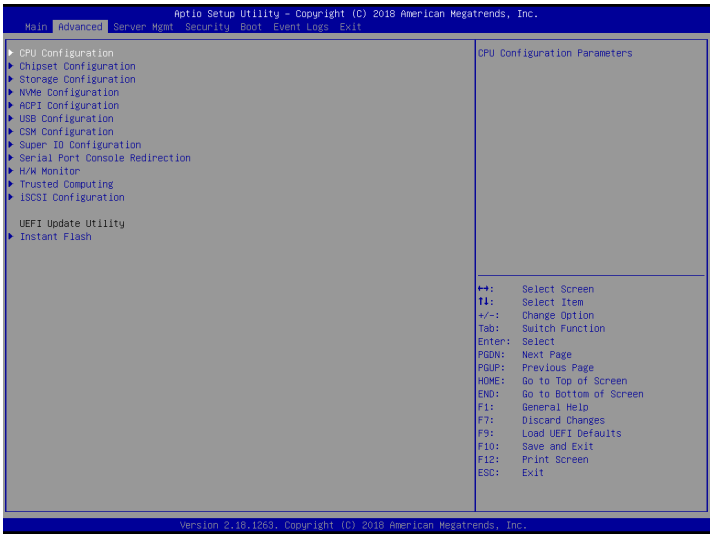
Once you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows you to set the system time and date.



English

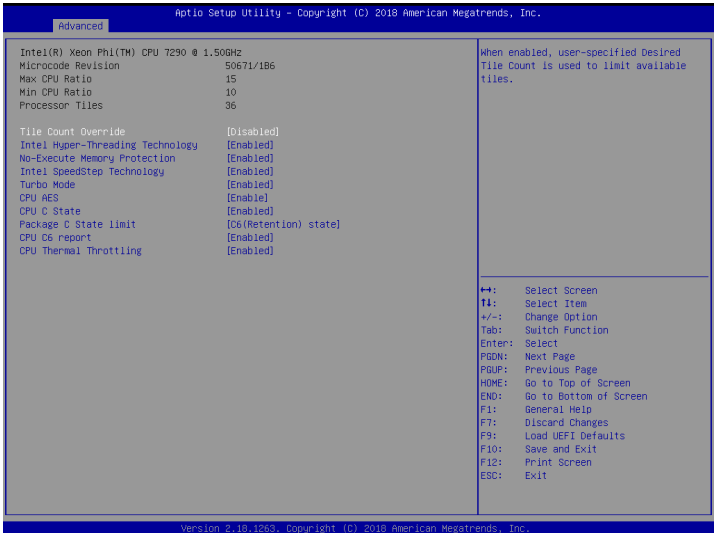
3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, NVMe Configuration, ACPI Configuration, USB Configuration, CSM Configuration, Super IO Configuration, Serial Port Console Redirection, H/W Monitor, Trusted Computing, iSCSI Configuration and Instant Flash.



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

3.3.1 CPU Configuration



Tile Count Override

When enabled, user-specified Desired Tile Count is used to limit available tiles.

Intel(R) Hyper-Threading Technology

Use this item to enable Intel(R) Hyper-Threading Technology (Software Method to Enable/ Disable Logical Processor threads).

No-Execute Memory Protection

Processors with No-Execution Memory Protection Technology may prevent certain classes of malicious buffer overflow attacks.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

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.

English

Turbo Mode

Use this item to enable or disable processor Turbo Mode (enabling EMTTM required too).

CPU AES

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

CPU C State

Use this item to enable the Enhanced Cx state of the CPU, takes effect after reboot.

Package C State Limit

Use this item to configure Package C State limit.

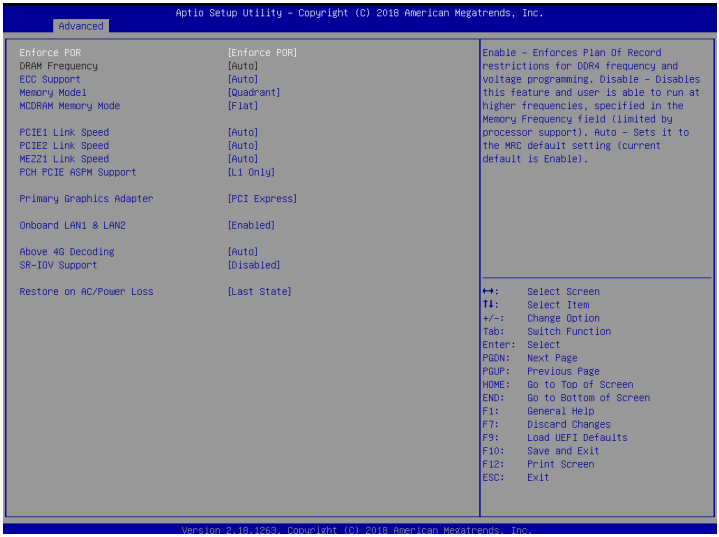
CPU C6 Report

Use this item to enable or disable CPU C6(ACPI C3) report to OS.

CPU Thermal Throttling

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

3.3.2 Chipset Configuration



Enforce POR

Enable to enforce POR restrictions for DDR4 frequency and voltage programming.

ECC Support

Use this item to enable or disable DDR ECC Support.

Memory Mode1

Use this item to select Memory Cluster Mode. Auto will try to set Quadrant mode1 if supported.

MCDRAM Memory Mode

Use this item to select MCDRAM Memory Mode. Auto will try to set Cache mode if supported.

PCIE1 Link Speed

This allows you to select PCIE1 Link Speed. The default value is [Auto].

PCIE2 Link Speed

This allows you to select PCIE2 Link Speed. The default value is [Auto].

MEZZ1 Link Speed

This allows you to select MEZZ1 Link Speed. The default value is [Auto].

PCH PCI-E ASPM Support

This option enables or disables the ASPM support for all PCH downstream devices.

Primary Graphics Adapter

Use this item to select the type and primary VGA in case of multiple video contorllers.

Onboard LAN1 & LAN2

Use this to enable or disable the Onboard LAN1 & LAN2.

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).

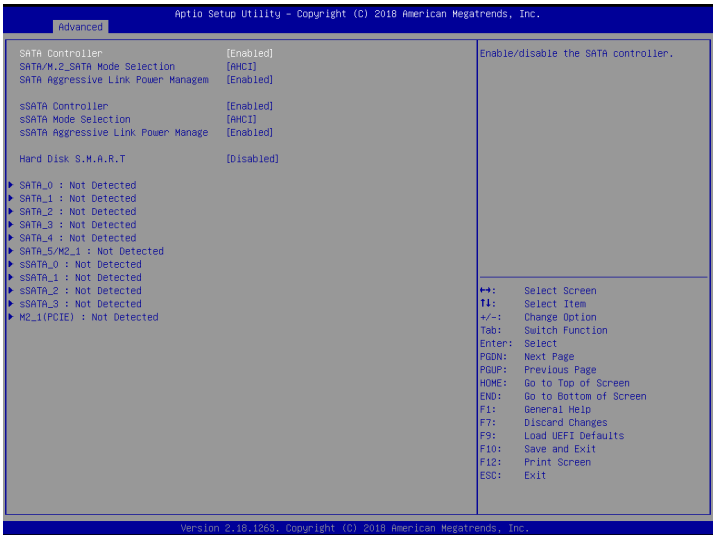
SR-IOV Support

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

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.

3.3.3 Storage Configuration



SATA Controller

Use this item to enable or disable SATA Controller.

SATA/M.2_SATA Mode Selection

Identify the SATA/M.2_SATA port is connected to Solid State Drive or Hard Disk Drive.

SATA Aggressive Link Power Management

SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode.

sSATA Controller

Use this item to enable or disable sSATA Controller.

sSATA Mode Selection

Identify the sSATA port is connected to Solid State Drive or Hard Disk Drive.

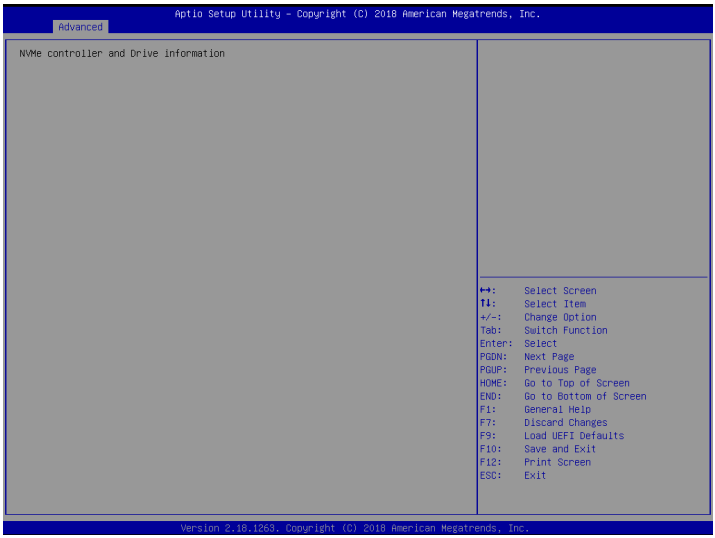
sSATA Aggressive Link Power Management

SATA Aggressive Link Power Management allows sSATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode.

Hard Disk S.M.A.R.T

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 NVMe Configuration



The NVMe Configuration displays the NVMe controller and Drive information.

3.3.5 ACPI Configuration

PCIE Devices Power On

Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

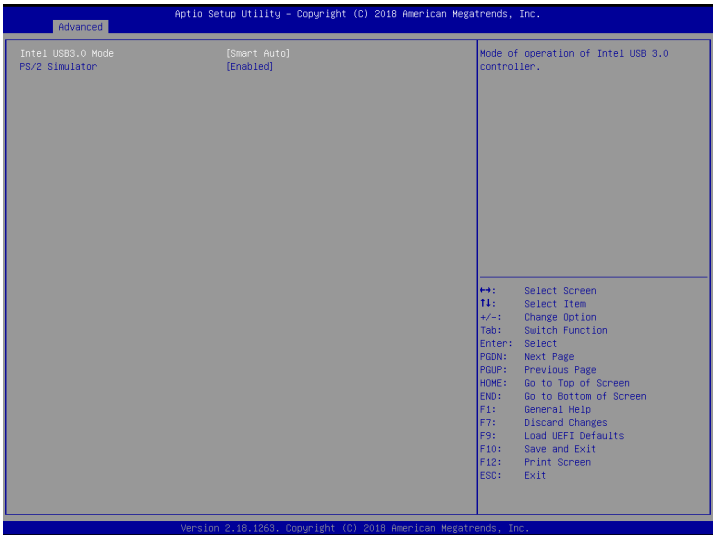
Ring-In Power On

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.

3.3.6 USB Configuration



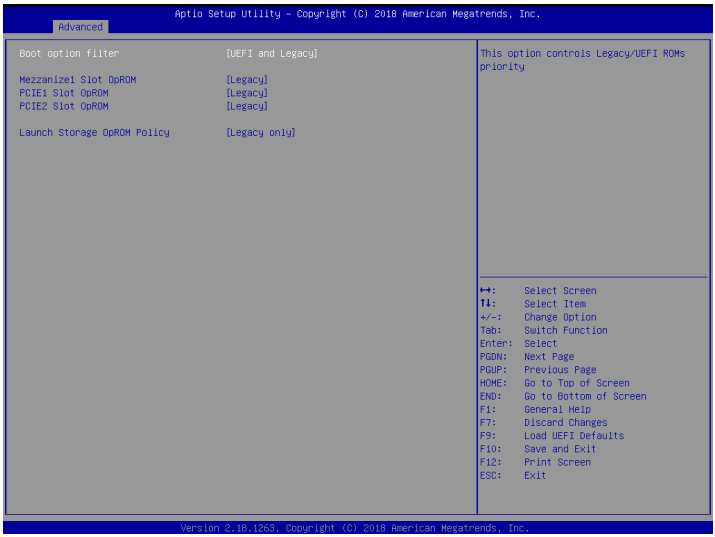
Intel USB3.0 Mode

Use this item to select the mode of operation of Intel USB 3.0 controller. Configuration options: [Enabled], [Disabled], [Auto] and [Smart Auto]. If [Auto] is selected, all USB ports work as USB3.0 after boot to OS. If [Smart Auto] is selected, all USB ports work as USB3.0 after boot to OS and work as USB2.0 in deep sleep stages.

PS/2 Simulator

Enable this item for the complete USB keyboard legacy support for non-USB aware operating system.

3.3.7 CSM Configuration



Boot Option Filter

This option controls Legacy/UEFI ROMs priority.

Mezzanine1 Slot OpROM

Use this item to select slot Storage and Network Option ROM policy. (This item can't select Video Option ROM policy.)

PCIE1 Slot OpROM

Use this item to select slot Storage and Network Option ROM policy. (This item can't select Video Option ROM policy.)

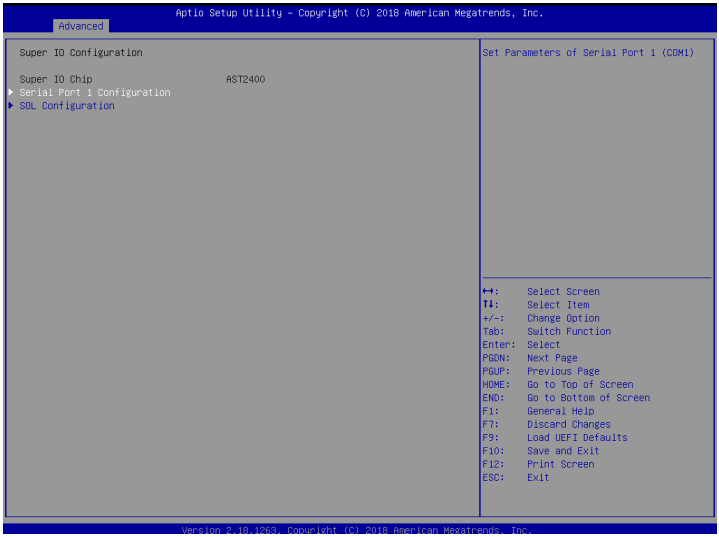
PCIE2 Slot OpROM

Use this item to select slot Storage and Network Option ROM policy. (This item can't select Video Option ROM policy.)

Launch Storage OpROM Policy

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

3.3.8 Super IO Configuration



Serial Port 1 Configuration

Use this item to configure the onboard serial port 1.

Select and enter the "Serial Port 1 Configuration" and you will see the followings:

Serial Port
Use this item to enable or disable the onboard serial port.

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

SOL Configuration

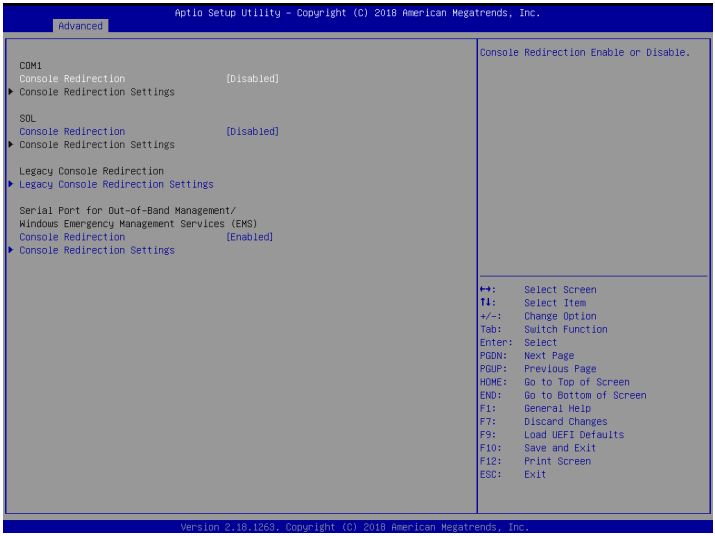
Use this item to configure the onboard SOL Port.

Select and enter the "SOL Configuration" and you will see the followings:

Serial Port
Use this item to enable or disable the onboard serial port.

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

3.3.9 Serial Port Console Redirection



COM1

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], [115200] and [38400].

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.

Legacy OS Redirection Resolution
Use this item to select the number of rows and columns used in legacy OS redirection.

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

Redirection After BIOS POST
If the [BootLoader] is selected, legacy console redirection is disabled before booting to legacy OS. If [Always Enabled] is selected, legacy console redirection is enabled for legacy OS. The default value is [Always Enabled].

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.

Terminal Type

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

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

Bits Per Second

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

Flow Control

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

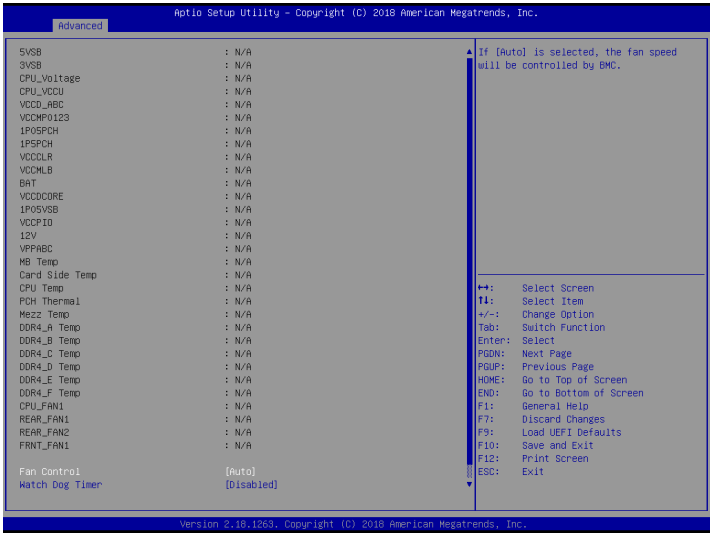
Data Bits

Parity

Stop Bits

3.3.10 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.



Fan Control

If [Auto] is selected, the fan speed will controlled by BMC.
If [Manual] is selected, configure the items below.

CPU_FAN1

This allows you to set the CPU fan1's speed. The default value is [Smart Fan].

REAR_FAN1

This allows you to set the rear fan1's speed. The default value is [Smart Fan].

REAR_FAN2

This allows you to set the rear fan2's speed. The default value is [Smart Fan].

FRNT_FAN1

This allows you to set the front fan1's speed. The default value is [Smart Fan].

Smart Fan Control

This allows you to set the Smart fan's level speed.

Smart Fan Duty Control

Smart Fan Duty x (x means 1 to 11 stage)

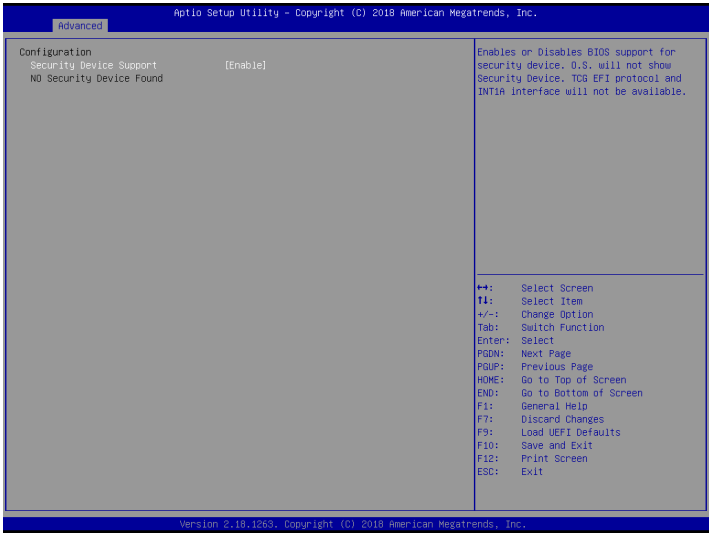
This allows you to set duty cycle for each stage.

Smart Fan Temp Control

Smart Fan Temp x (x means 1 to 11 stage)

This allows you to set temperature for each stage.

3.3.11 Trusted Computing



NOTE: Options vary depending on the version of your connected TPM module. Here is an example of TPM2.0.

TPM State

Use this item to enable or disable Security Device.
NOTE: Your computer will reboot during restart in order to change State of the Device.

Pending Operation

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

Platform Hierarchy

Use this item to enable or disable Platform Hierarchy.

Storage Hierarchy

Use this item to enable or disable Storage Hierarchy.

Endorsement Hierarchy

Use this item to enable or disable Endorsement Hierarchy.

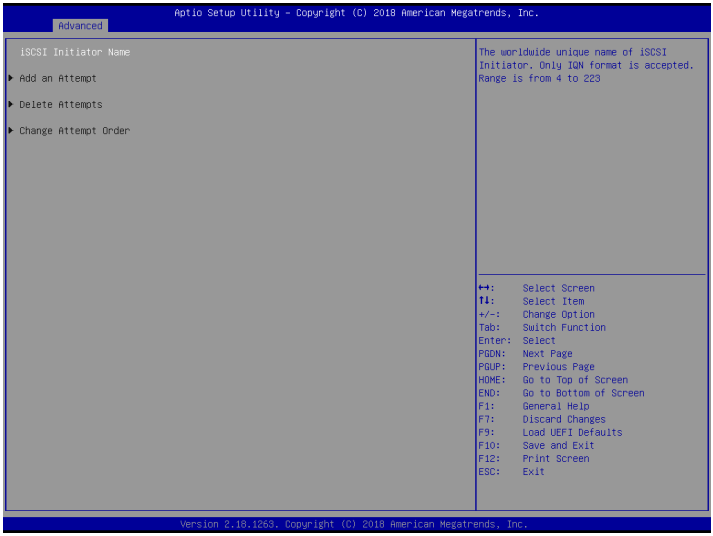
Hash Policy

Select the Hash policy to use. SHA-2 is most secure but might not be supported by all Operating Systems.

Device Select

TPM 1.2 will restrict support to TPM 1.2 devices; TPM 2.0 will restrict support to TPM 2.0 devices; Auto will support both with the default set to TPM 2.0 devices. If TPM 2.0 devices are not found, TPM 1.2 devices will be enumerated.

3.3.12 iSCSI Configuration

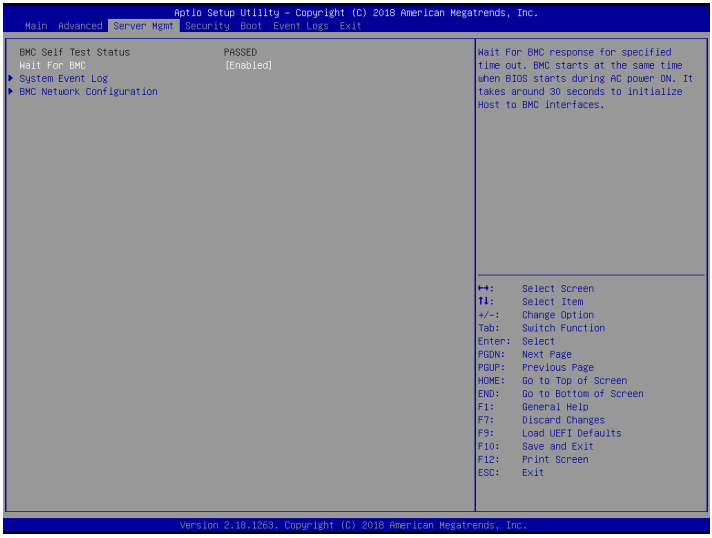


The worldwide unique name of iSUSI Initiator. Only IQN format is accepted. Range is from 4 to 223.

3.3.13 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.

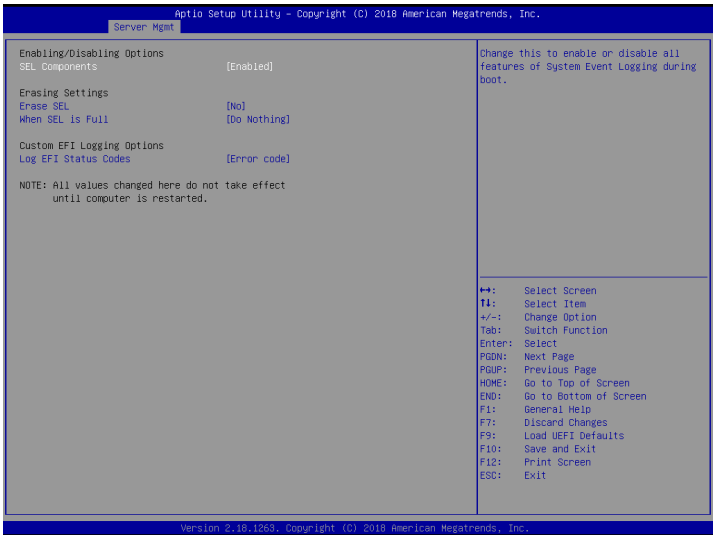
3.4 Server Mgmt



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 30 seconds to initialize Host to BMC interfaces.

3.4.1 System Event Log



SEL Components

Change this to enable ro disable all features of System Event Logging during boot.

Erase SEL

Use this to choose options for earsing SEL.

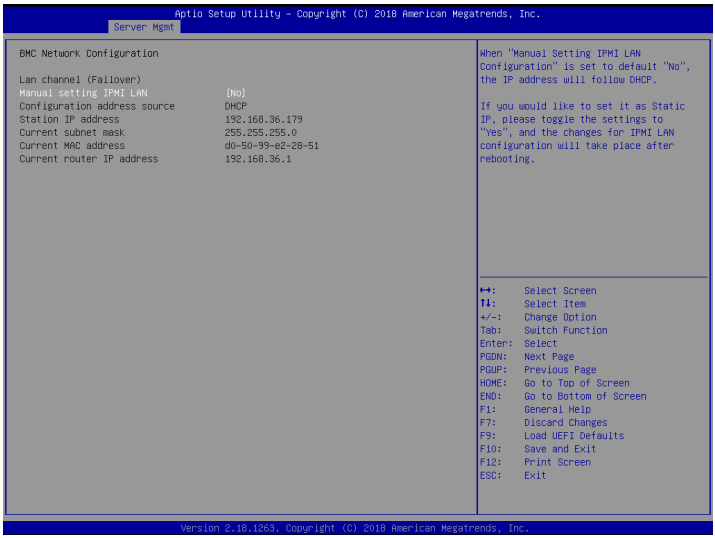
When SEL is Full

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 or both.

3.4.2 BMC Network Configuration



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.

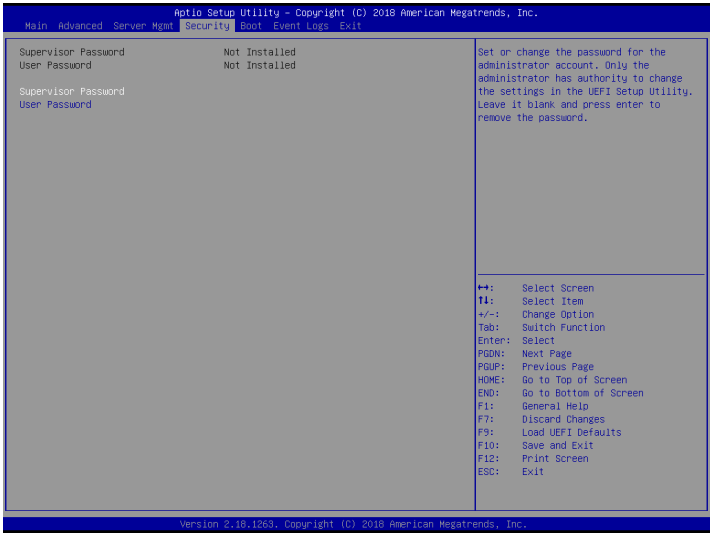
The default login information for the IPMI web interface is:
Username: admin
Password: admin
For more instructions on how to set up remote control environment and use the IPMI management platform, please refer to the IPMI Configuration User Guide or go to the Support website at: http://www.asrockrack.com/support/ipmi.asp

BMC Mac Backup Tool

Use this to restore BMC Mac from the backup.

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

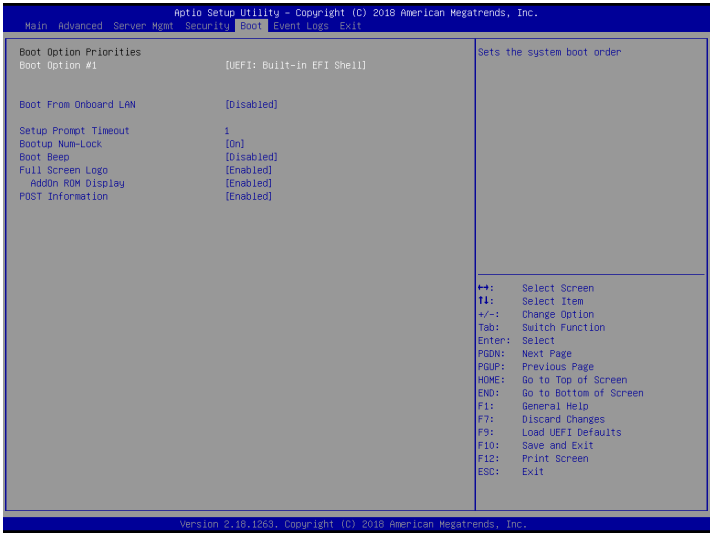
Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

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.

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 From Onboard LAN

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

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0XFFFF) means indefinite waiting.

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].

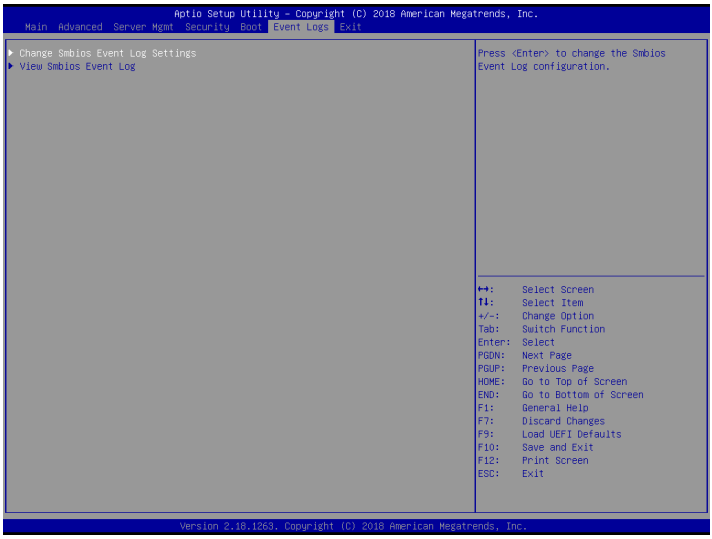
AddOn ROM Display

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].

POST Information

Use this option to enable or disable the function which displays the information during POST.

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 or disable logging of System boot event.

MECI (Multiple Event Count Increment)
Use this item to enter the increment value for the multiple event counter. The valid range is from 1 to 255.

METW (Multiple Event Time Window)
Use this item to specify the number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.

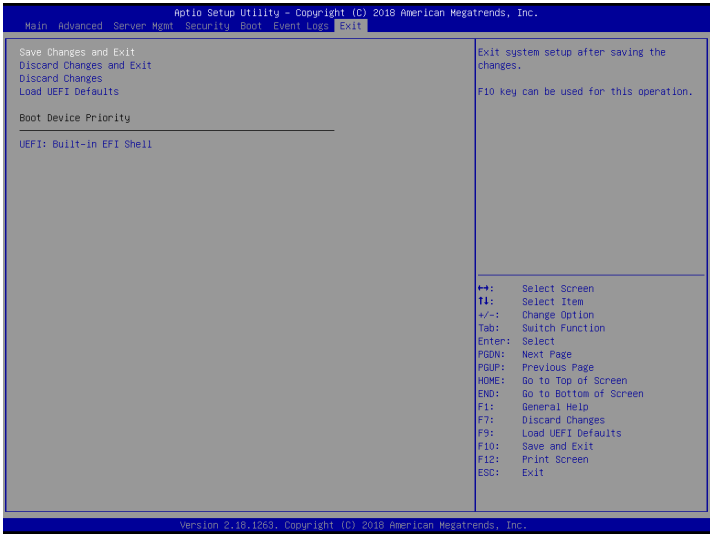
Log OEM Codes
Use this item to enable or disable the logging of EFI Status Codes as OEM Codes (if not already converted to legacy).

Convert OEM Codes
Use this item to enable or disable the converting of EFI Status Codes to Standard Smbios Types (Not all may be translated).

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.

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® Server 2012 R2 / 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.

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 2133 R-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.