

# HPM-621DE

Intel® Xeon® Scalable Processors / Intel® Xeon® Scalable  
Processors up to 150W TDP

## User's Manual



4<sup>th</sup> Ed –18 October 2021

## FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

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## Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.



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# 1. Getting Started

## 1.1 Safety Precautions

### Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## 1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x HPM-621DE motherboard
- 1 x I/O Shield



If any of the above items is damaged or missing, contact your retailer.

### 1.3 Document Amendment History

Revision	Date	By	Comment
1 <sup>st</sup>	September 2020		Initial Release
2 <sup>nd</sup>	December 2020		Update 2.2 Jumper and Connector Lis
3 <sup>rd</sup>	July 2021		Update 2.3 Setting Jumpers & Connectors
4 <sup>th</sup>	October 2021		Update 2.3 Setting Jumpers & Connectors

### 1.4 Manual Objectives

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up HPM-621DE or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

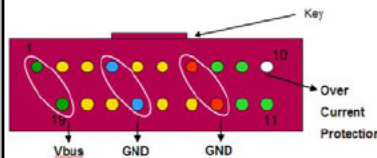
If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.



## 1.5 System Specifications

System								
CPU	Supports dual 2nd Gen. Intel® Xeon® Scalable Processors / Intel® Xeon® Scalable Processors up to 150W TDP							
BIOS	AMI UEFI BIOS							
System Chipset	Intel C621 Chipset							
System Memory	12 x DDR4 2933/2666/2400/2133 RDIMM/LRDIMM up to 768GB							
	Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)			Speed (MT/s); Voltage (V); Slots per Channel (SPC) & DIMMs per Channel (DPC)		
						1 Slot per Channel	2 Slots per Channel	
			DRAM Density			1DPC	1DPC	2DPC
	4Gb <sup>2</sup>	8Gb	16Gb <sup>1</sup>	1.2V	1.2V	1.2V		
	RDIMM	SRx8	4GB	8GB	16GB	2933 <sup>3</sup>	2933 <sup>3</sup>	2666
	RDIMM	SRx4	8GB	16GB	32GB			
	RDIMM	DRx8	8GB	16GB	32GB			
	RDIMM	DRx4	16GB	32GB	64GB			
	RDIMM 3DS	QRx4	N/A	2H-64GB	2H-128GB			
8Rx4		N/A	4H-128GB	4H-256GB				
LRDIMM	QRx4	32GB	64GB	128GB				
LRDIMM 3DS	QRx4	N/A	2H-64GB	2H-128GB				
	8Rx4	N/A	4H-128GB	4H-256GB				
<sup>1</sup> 16Gb DRAM density based DIMMs are supported on Cascade Lake only (not available on Skylake-SF) <sup>2</sup> 4Gb DRAM density is only supported on speeds up to 2666MT/s <sup>3</sup> 2933 MT/s 1DPC is available on Cascade Lake Platinum 82xx and Gold 62xx Series SKUs only								
Watchdog Timer	System reset event 0~6553 second.							
H/W Status Monitor	Temperature. Fan. Voltage. Case open. (1 x 2.5mm pitch Box Wafer, Pinrex 753-71-02TW07 or equivalent) Please refer to note 1 for more information.							
RAID	Intel C621 software RAID 0,1,5,10							
TPM	TPM 2.0 onboard							
Other	IPMI 2.0 with AST 2500 BMC controller onboard.							
Expansion Slot								
PCIe	4 x PCIe x16 slots, 2 x PCIe x8 slots							
	Slot 1, PCIe 3.0 x16 from CPU1							
	Slot 3, PCIe 3.0 x16 from CPU1							
	Slot 4, PCIe 3.0 x16 from CPU2							
	Slot 5, PCIe 3.0 x16 from CPU2							
	Slot 6, PCIe 3.0 x8 from CPU1							
PCI	Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)							
	1 x PCI 3.0 slot							
Storage								

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M.2	1 x M.2 M-Key PCIe 3.0 x4 NVMe SSD 2242/2260/2280 form factor			
SATA	10 x SATA III Supports up to 6.0 Gb/s			
Oculink	4 x OCuLink ports from CPU 2			
Edge I/O				
LAN	4 x RJ45 (LAN1 share IPMI port)			
USB 3.1	4 x USB 3.2 Gen1			
Onboard I/O				
COM	2 x RS232 ports (2 x 2.0mm pitch Box Header, CKM 2008WVS-10-AA or equivalent) Pin definition: Follow our standard.			
USB 2.0	2 x USB 2.0 ports (1 x USB 2.0 2.54mm pitch Box Header) Pin definition :			
	VCC	Pin 1	Pin 2	VCC
	USB0-	Pin 3	Pin 4	USB1-
	USB0+	Pin 5	Pin 6	USB1+
	GND	Pin 7	Pin 8	GND
	Key	Pin 9	Pin 10	No Connection
USB 3.1	2 x USB 3.2 Gen1 ports (1 x 2.0mm pitch Box Header, Pinrex 52X-8020GB52 or equivalent) Pin definition :			
				
	Pin No.	Signal	Description	
	1	Vbus	Power	
	2	IntA_P1_SSRX-	USB3 ICC Port1 SuperSpeed Rx-	
	3	IntA_P1_SSRX+	USB3 ICC Port1 SuperSpeed Rx+	
	4	GND	GND	
	5	IntA_P1_SSTX-	USB3 ICC Port1 SuperSpeed Tx-	
	6	IntA_P1_SSTX+	USB3 ICC Port1 SuperSpeed Tx+	
	7	GND	GND	
	8	IntA_P1_D-	USB3 ICC Port1 D- (USB2 Signal D-)	
	9	IntA_P1_D+	USB3 ICC Port1 D+ (USB2 Signal D+)	
	10	ID	Over Current Protection	
	11	IntA_P2_D+	USB3 ICC Port2 D+ (USB2 Signal D+)	
	12	IntA_P2_D-	USB3 ICC Port2 D- (USB2 Signal D-)	
	13	GND	GND	
	14	IntA_P2_SSTX+	USB3 ICC Port2 SuperSpeed Tx+	
	15	IntA_P2_SSTX-	USB3 ICC Port2 Super Speed Tx-	
	16	GND	GND	
	17	IntA_P2_SSRX+	USB3 ICC Port2 SuperSpeed Rx+	
	18	IntA_P2_SSRX-	USB3 ICC Port2 SuperSpeed Rx-	
	19	Vbus	Power	
CPU/System	2 x 4 Pin CPU Fan Header (4 Pin PWM)			

<b>FAN</b>	5 x 4 Pin Chassis Fan Header (4 Pin PWM)			
<b>Buzzer</b>	1 x onboard buzzer			
<b>Front Panel</b>	1 x front panel connector (2.54 mm Pitch)			
	Pin	Function	Pin	Function
	1-3	HDD LED	2-4	POWER LED
	5-7	RESET BUTTON	6-8	POWER BUTTON
	9-11	STATUS LED	10-12	LAN1 ACT LED
	13-15	UID LED	14-16	STBY POWER LED
	17-19	UID BUTTON	18-20	LAN2-X ACT LED
<b>RTC Battery</b>	1 x Horizontal Socket Type CMOS Battery Holder with CR2450			
<b>Clear CMOS</b>	1 x Clear CMOS header (1 x 2.0 mm pitch Header)			
<b>LPC</b>	1 x LPC header (2.0 mm pitch header)			
<b>Display</b>				
<b>Graphic Chipset</b>	1 x VGA port (1 x 2.0mm pitch Box Header, CKM 2008WV-16-BK-HF or equivalent) AST2500 BMC controller			
<b>Spec. &amp; Resolution</b>	1920 x 1200@60Hz 32bpp			
<b>Ethernet</b>				
<b>LAN Chipset</b>	4 x Intel I210AT			
<b>LAN Spec.</b>	1 Gigabit Ethernet Controller			
<b>Mechanical &amp; Environmental</b>				
<b>Power Requirement</b>	1 x Std. 24 pin ATX Connector 2 x 8 Pin SSI 12V Connectors			
<b>ACPI</b>	Yes			
<b>Power Mode</b>	ATX			
<b>Operating Temp.</b>	0 °C to 60 °C			
<b>Storage Temp.</b>	-40 °C to 85 °C			
<b>Operating Humidity</b>	40°C 95% non-condensing			
<b>Size (L x W)</b> (Please consult product engineers for the production feasibility if the size is larger than 410x360mm or smaller than 80x70mm)	EATX form factor 12" x 13" (304.8mm x 330.2mm)			
<b>Weight</b>	1.81 kg			
<b>Vibration Test</b>	Follow our standard test.			

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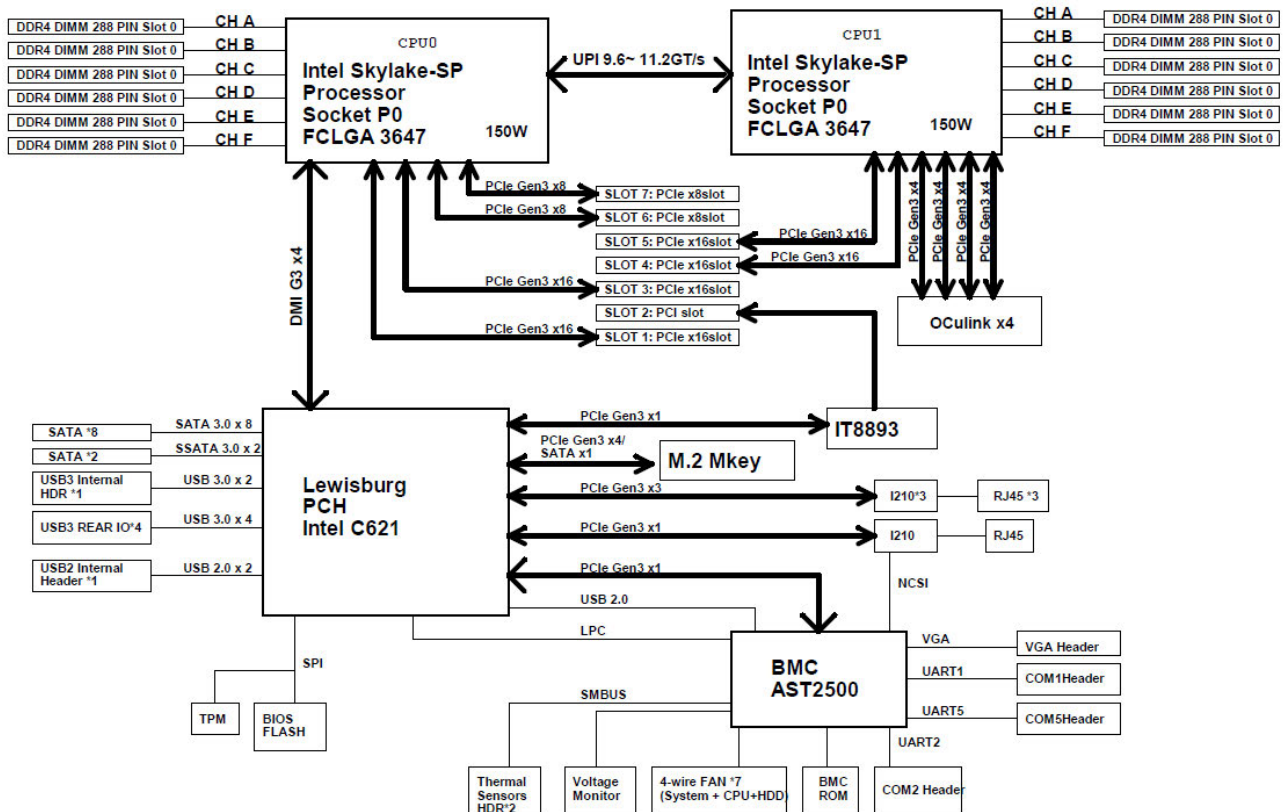
	<p>Random Vibration Operation</p> <p>1 Test PSD : 0.00454G<sup>2</sup>/Hz , 1.5 Grms</p> <p>2 System condition : operation mode</p> <p>3 Test frequency : 5~500 Hz</p> <p>4 Test axis : X,Y and Z axis</p> <p>5 Test time : 30 minutes per each axis</p> <p>6 IEC60068-2-64 Test Fh</p> <p>6 Storage : mSATA</p> <p>Random vibration test (Non-operation)</p> <p>1 PSD: 0.00808G<sup>2</sup>/Hz , 2.0 Grms</p> <p>2 Non-Operation mode</p> <p>3 Test Frequency : 5-500Hz</p> <p>4 Test Axis : X,Y and Z axis</p> <p>5 30 min. per each axis</p> <p>6 IEC 60068-2-64 Test:Fh</p> <p>Package Vibration Test:</p> <p>1 Test PSD : 0.026G<sup>2</sup>/Hz , 2.16 Grms</p> <p>2 Test frequency : 5~500 Hz</p> <p>3 Test axis : X,Y and Z axis</p> <p>4 Test time : 30 minutes per each axis</p> <p>5 IEC 60068-2-64 Test Fh</p>
<b>Drop Test</b>	<p>Follow our standard test.</p> <p>Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed</p> <p>Test Ea : Drop Test</p> <p>1 Test phase : One corner, three edges, six faces</p> <p>2 Test high : 96.5cm</p> <p>3 Package weight : 5Kg</p> <p>4 Test drawing</p>
<b>OS Information</b>	<p>Windows : Windows 10 IOT Enterprise, Windows server 2016,</p> <p>Windows server 2019</p> <p>Linux : Ubuntu 18.04</p>



**Note:** Specifications are subject to change without notice.

## 1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of HPM-621DE.

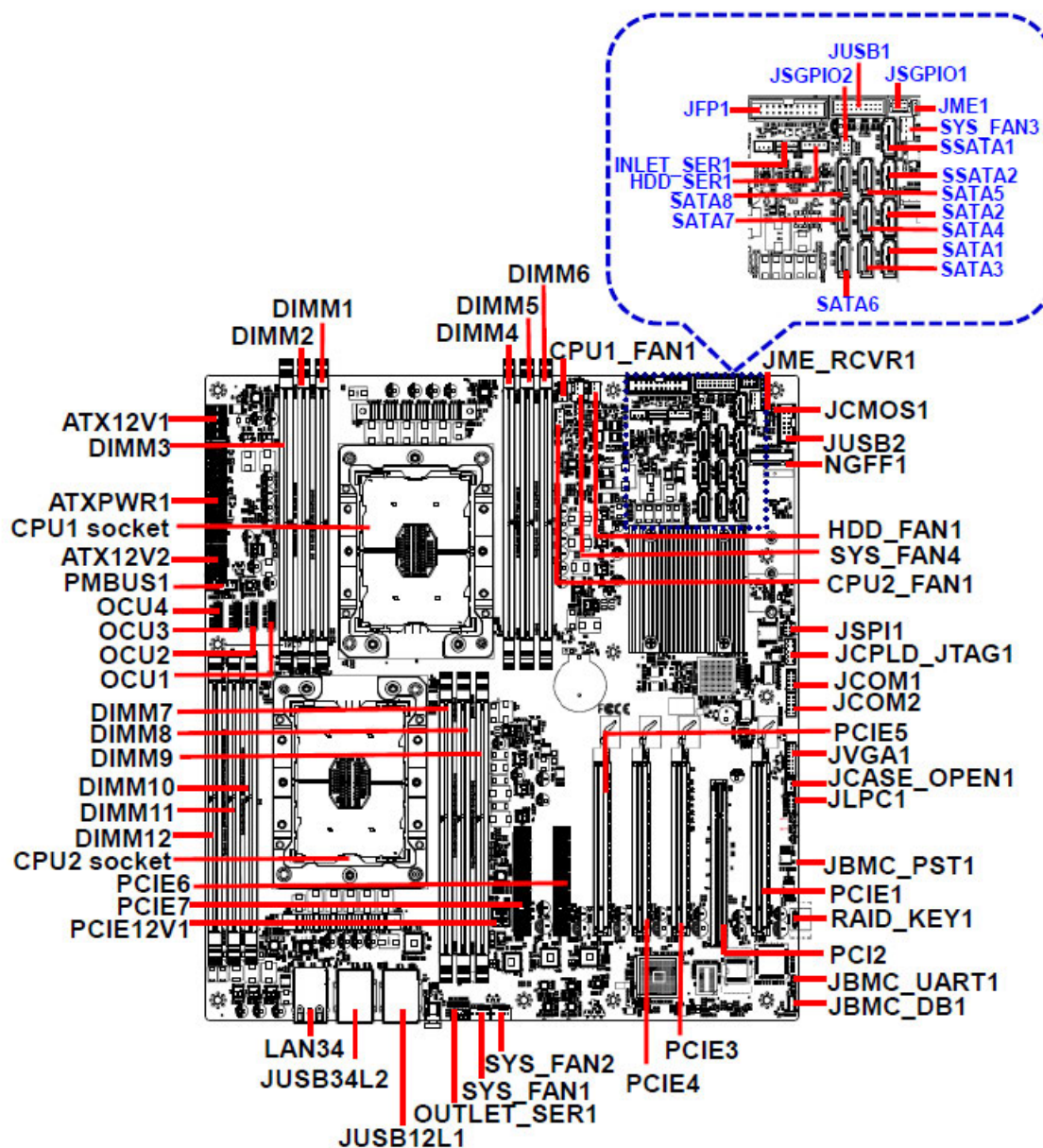


## 2. Hardware Configuration

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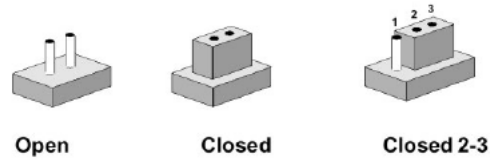
## 2.1 Product Overview



## 2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

### Jumpers

Label	Function	Note
JME_RCVR1	ME Firmware Recovery	3 x 1 header, pitch 2.00mm
JME1	Flash Descriptor Security override	3 x 1 header, pitch 2.00mm
JBMC_DB1	BMC strap setting	4 x 2 header, pitch 2.00mm
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm
JBMC_PST1	CPLD strap setting for BMC Present or not	2 x 1 header, pitch 2.00mm

### Connectors

Label	Function	Note
SYS_FAN1	System fan connector 1	4 x 1 wafer, pitch 2.54mm
SYS_FAN2	System fan connector 2	4 x 1 wafer, pitch 2.54mm
SYS_FAN3	System fan connector 3	4 x 1 wafer, pitch 2.54mm

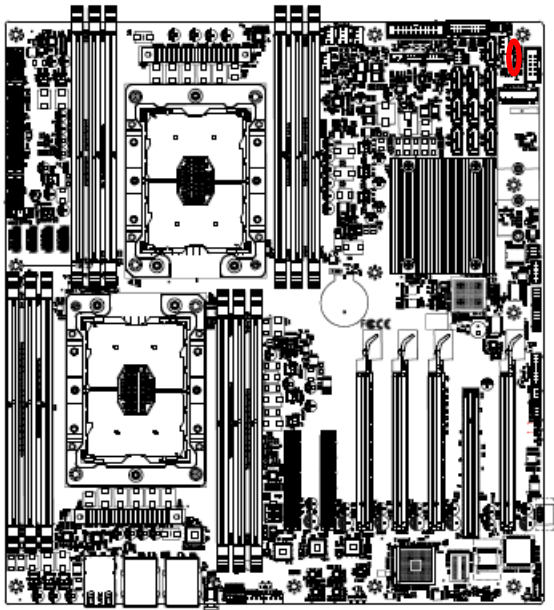
<b>SYS_FAN4</b>	System fan connector 4	4 x 1 wafer, pitch 2.54mm
<b>CPU1_FAN1</b>	CPU fan connector 1	4 x 1 wafer, pitch 2.54mm
<b>CPU2_FAN1</b>	CPU fan connector 2	4 x 1 wafer, pitch 2.54mm
<b>HDD_FAN1</b>	HDD fan connector	4 x 1 wafer, pitch 2.54mm
<b>JCOM1</b>	Serial Port 1 connector	5 x 2 wafer, pitch 2.00mm
<b>JCOM2</b>	Serial Port 2 connector	5 x 2 wafer, pitch 2.00mm
<b>JSGPIO1</b>	Serial General purpose I/O connector 1	3 x 2 wafer, pitch 2.00mm
<b>JSGPIO2</b>	Serial General purpose I/O connector 2	3 x 2 wafer, pitch 2.00mm
<b>PCIE1</b>	PCIe 3.0 x16 from CPU1	
<b>PCIE3</b>	PCIe 3.0 x16 from CPU1	
<b>PCIE4</b>	PCIe 3.0 x16 from CPU2	
<b>PCIE5</b>	PCIe 3.0 x16 from CPU2	
<b>PCIE6</b>	PCIe 3.0 x8 from CPU1	
<b>PCIE7</b>	PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)	
<b>PCIE12V1</b>	PCIE 12V power connector	2 x 2 wafer, pitch 4.20mm
<b>PCI2</b>	PCI 3.0 connector	
<b>JFP1</b>	Front Panel connector	10 x 2 wafer, pitch 2.54mm
<b>JUSB12L1</b>	2 x USB3.2 Gen1 connector 1 x RJ-45 Ethernet (LAN1 Share IPMI Port)	
<b>JUSB34L2</b>	2 x USB3.2 Gen1 connector 1 x RJ-45 Ethernet	
<b>LAN34</b>	2 x RJ-45 Ethernet	
<b>JUSB1</b>	USB3.2 Gen1 connector	10 x 2 wafer, pitch 2.00mm
<b>JUSB2</b>	USB2.0 connector	5 x 2 wafer, pitch 2.54mm
<b>JLPC1</b>	LPC connector	5 x 2 header, pitch 2.00mm
<b>JSPI1</b>	SPI connector	4 x 2 header, pitch 2.00mm
<b>SATA1-8</b>	8 x Serial ATA connector	
<b>SSATA1/2</b>	2 x Second Serial ATA connector	
<b>DIMM1-12</b>	12 x DDR4 DIMM socket	DIMM1~6: CPU1 Support DIMM7~12: CPU2 Support
<b>JVGA1</b>	VGA connector	8 x 2 wafer, pitch 2.00mm
<b>JBMC_UART1</b>	For BMC debug message read	4 x 1 header, pitch 2.54mm
<b>JCASE_OPEN1</b>	CASEOPEN connector	2 x 1 wafer, pitch 2.50mm

**HPM-621DE User's Manual**

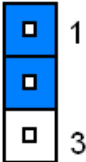
<b>ATX12V1</b>	ATX 12V power connector 1	4 x 2 wafer, pitch 4.20mm
<b>ATX12V2</b>	ATX 12V power connector 2	4 x 2 wafer, pitch 4.20mm
<b>ATXPWR1</b>	ATX power connector	12 x 2 wafer, pitch 4.20mm
<b>PMBUS1</b>	Power supply PMBus connector	5 x 1 wafer, pitch 2.54mm
<b>INLET_SER1</b>	Inlet Thermal Sensors connector	4 x 1 wafer, pitch 2.00mm
<b>OUTLET_SER1</b>	Outlet Thermal Sensors connector	4 x 1 wafer, pitch 2.00mm
<b>HDD_SER1</b>	HDD Backplane thermal Sensors connector	5 x 1 wafer, pitch 2.00mm
<b>OCU1-4</b>	4 x OCuLink ports from CPU 2	
<b>NGFF1</b>	M.2 M-Key PCIe 3.0 x4 NVMe SSD	
<b>RAID_KEY1</b>	RAID KEY connector	4x 1 header, pitch 2.00mm
<b>CPU1 socket</b>	CPU1 socket	One CPU shall install on CPU1 socket and DIMM1 to DIMM 6 shall be installed at least one memory module before booting the motherboard.
<b>CPU2 socket</b>	CPU2 socket	

2.3 Setting Jumpers & Connectors

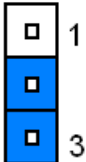
2.3.1 ME Firmware Recovery (JME\_RCVR1)



Normal\*

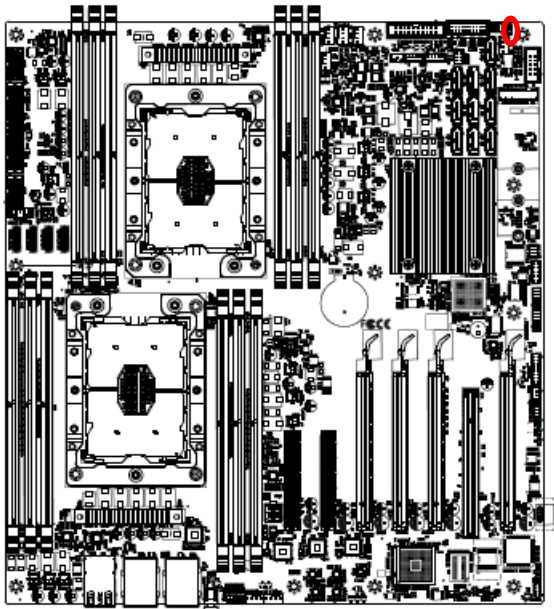


ME FORCE UPDATE

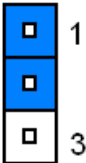


\* Default

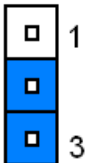
2.3.2 Flash Descriptor Security override (JME1)



Override disable\*

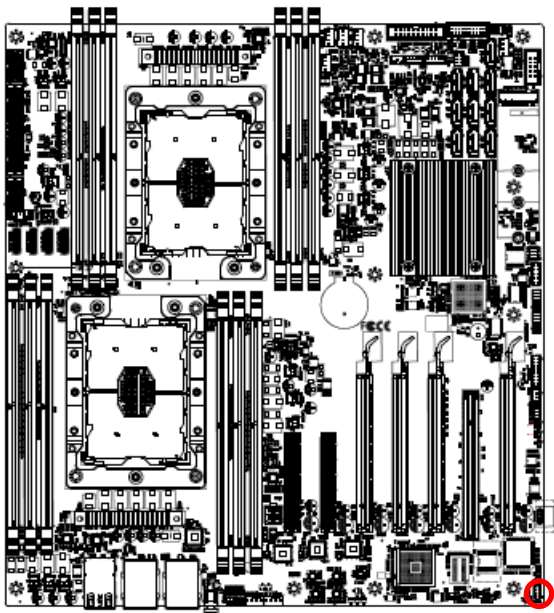


Override enable



\* Default

2.3.3 BMC strap setting (JBMC\_DB1)



\* Default

ENABLE PASS-THRU AT POWER ON\*

<input type="checkbox"/>	<input type="checkbox"/>	7
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		1

ENABLE DEDICATED VGA BIOS ROM

<input type="checkbox"/>	<input type="checkbox"/>	7
<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
		1

BMC SOC Level reset

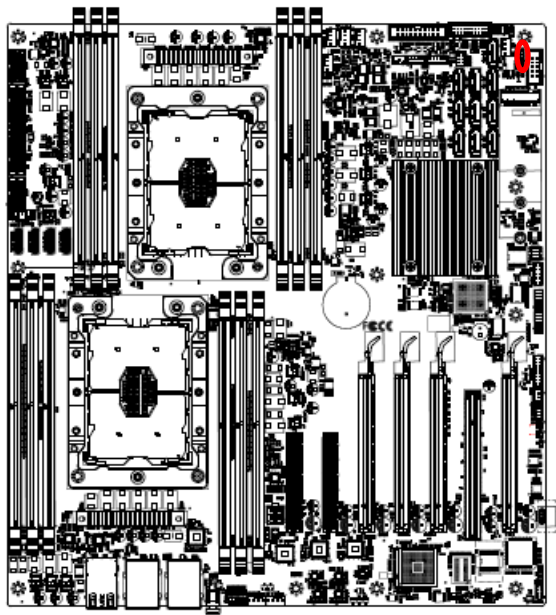
<input type="checkbox"/>	<input type="checkbox"/>	7
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
		1

BMC Chip Level reset

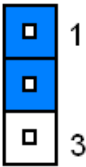
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	
		1



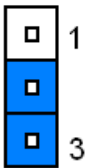
2.3.4 Clear CMOS (JCMOS1)



Normal\*

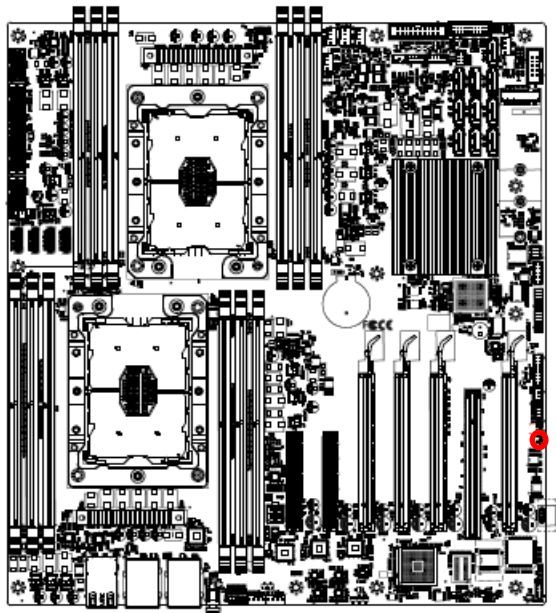


Clear RTC REGISTERS

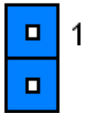


\* Default

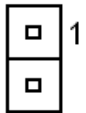
2.3.5 CPLD strap setting for BMC Present or not (JBMC\_PST1)



Non BMC\*

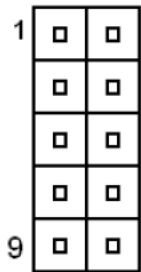
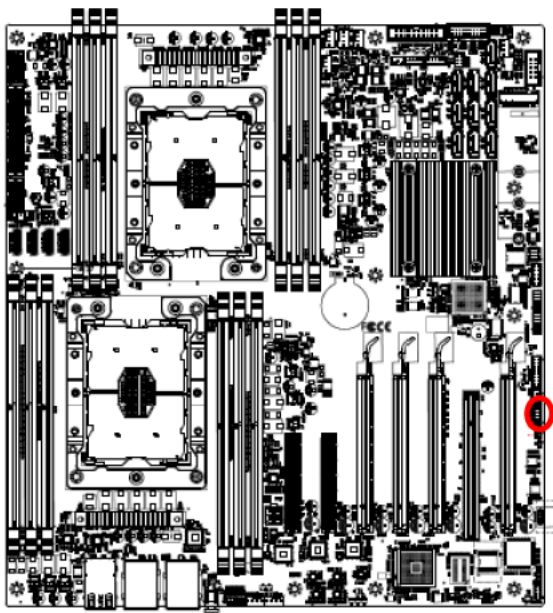


BMC Present



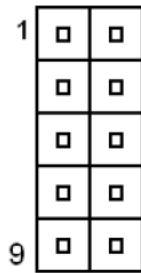
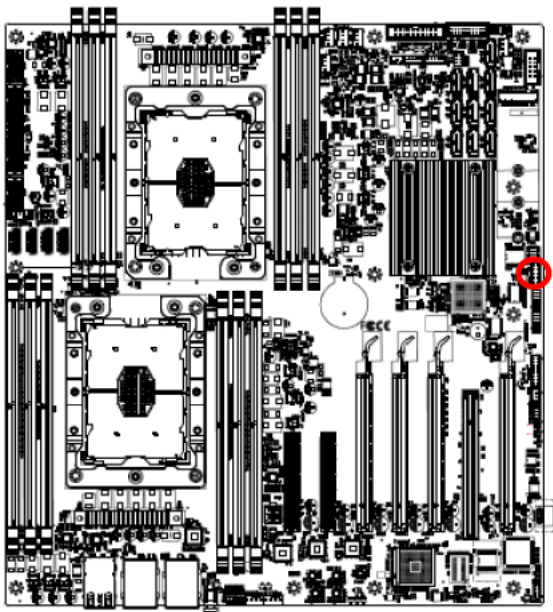
\* Default

2.3.6 LPC connector (JLPC1)



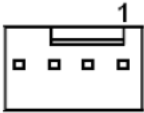
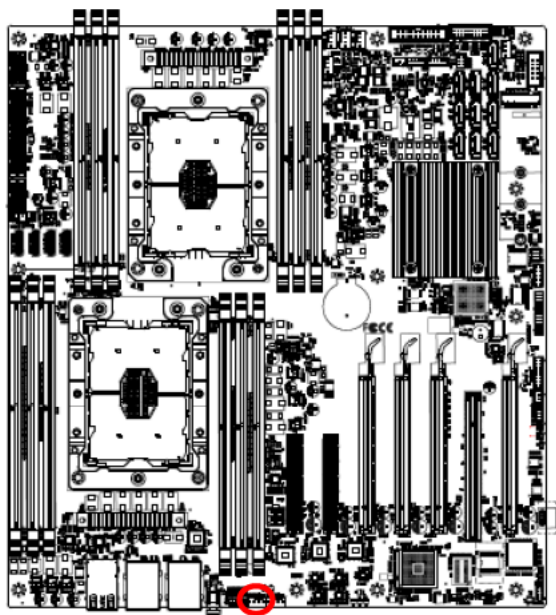
Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	RST_PLTRST_B_N
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	CLK_24M_LPC2_80P
LPC_SERIRQ	9	10	GND

2.3.7 CPLD JTAG header (JCPLD\_JTAG1)



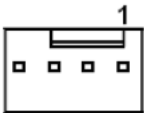
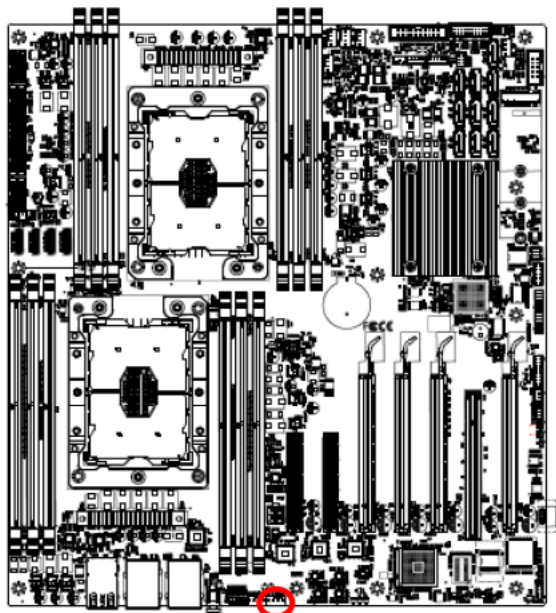
Signal	PIN	PIN	Signal
JTAG_TCK_CONN	1	2	CPLD_JTAG_MUX_CTL
JTAG_TDO_CONN	3	4	+3.3VSB
JTAG_TMS_CONN	5	6	NC
NC	7	8	NC
JTAG_TDI_CONN	9	10	GND

2.3.8 System fan connector 1 (SYS\_FAN1)



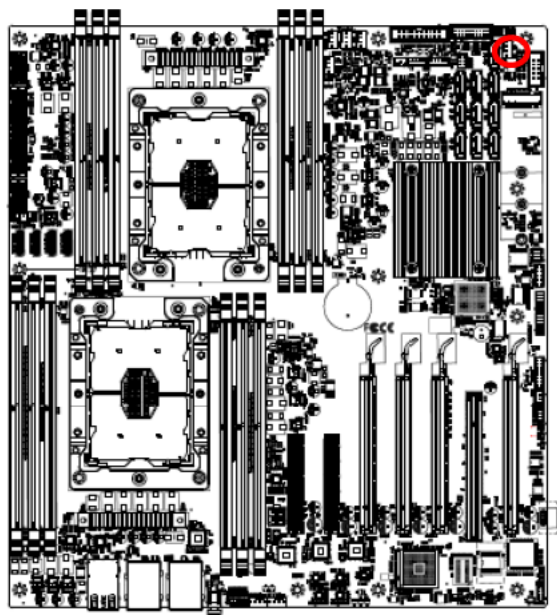
Signal	PIN
GND	1
+12V	2
FAN_TACH2	3
SYS_PWM1	4

2.3.9 System fan connector 2 (SYS\_FAN2)



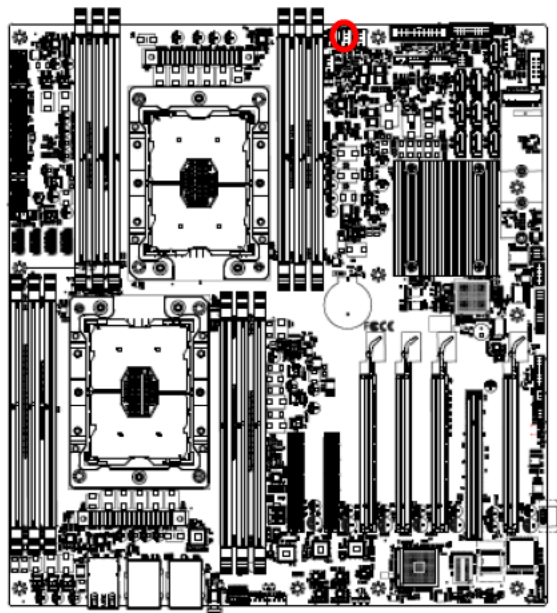
Signal	PIN
GND	1
+12V	2
FAN_TACH3	3
SYS_PWM2	4

2.3.10 System fan connector 3 (SYS\_FAN3)



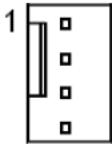
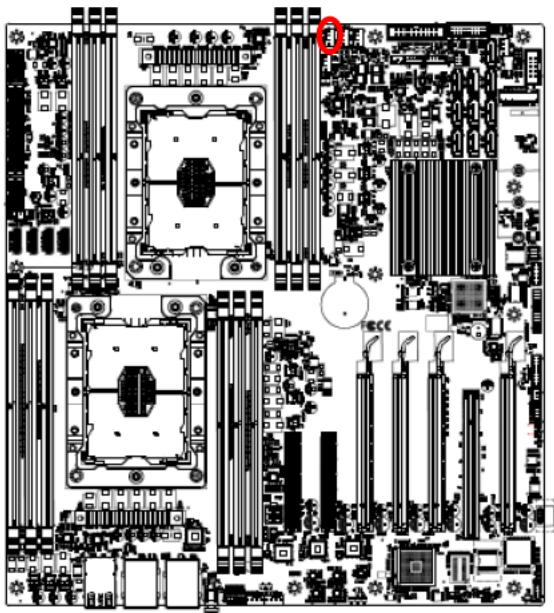
Signal	PIN
GND	1
+12V	2
FAN_TACH4	3
SYS_PWM3	4

2.3.11 System fan connector 4 (SYS\_FAN4)



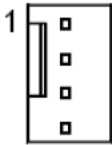
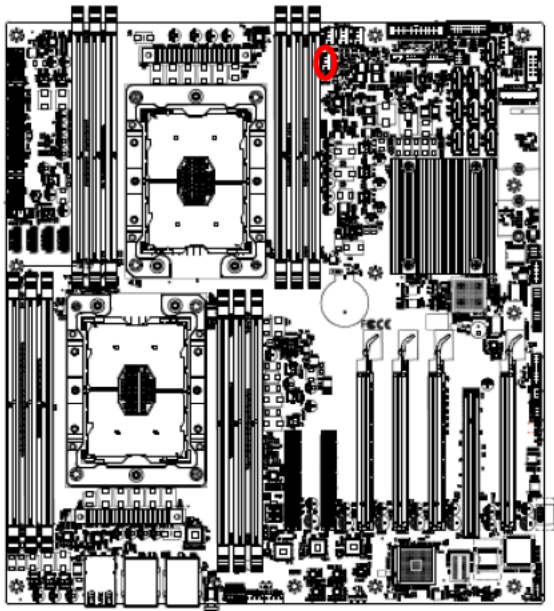
Signal	PIN
GND	1
+12V	2
FAN_TACH6	3
SYS_PWM4	4

2.3.12 CPU fan connector 1 (CPU1\_FAN1)



Signal	PIN
GND	1
+12V	2
FAN_TACH0	3
CPU1_PWM0	4

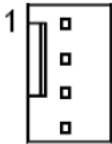
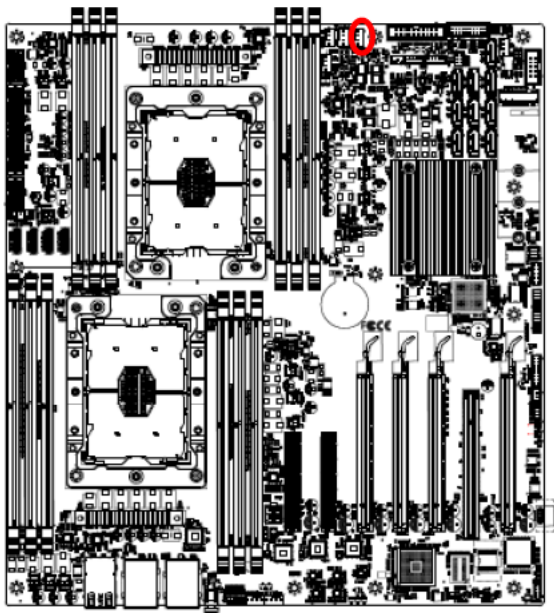
2.3.13 CPU fan connector 2 (CPU2\_FAN1)



Signal	PIN
GND	1
+12V	2
FAN_TACH1	3
CPU2_PWM1	4

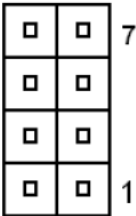
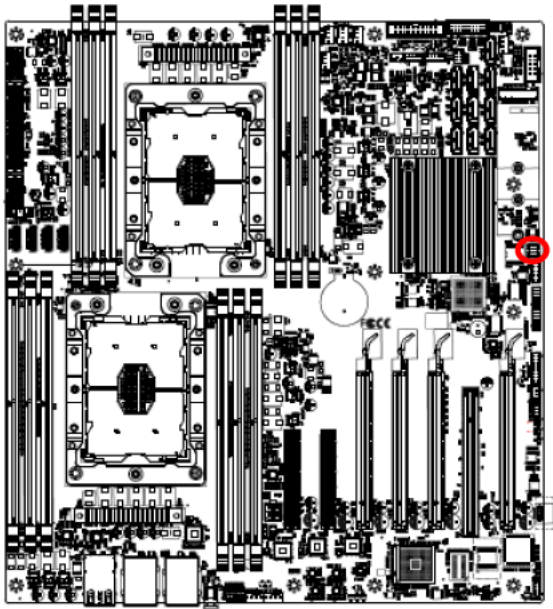


2.3.14 HDD fan connector (HDD\_FAN1)



Signal	PIN
GND	1
+12V	2
FAN_TACH5	3
HDD_PWM1	4

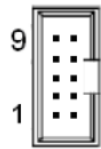
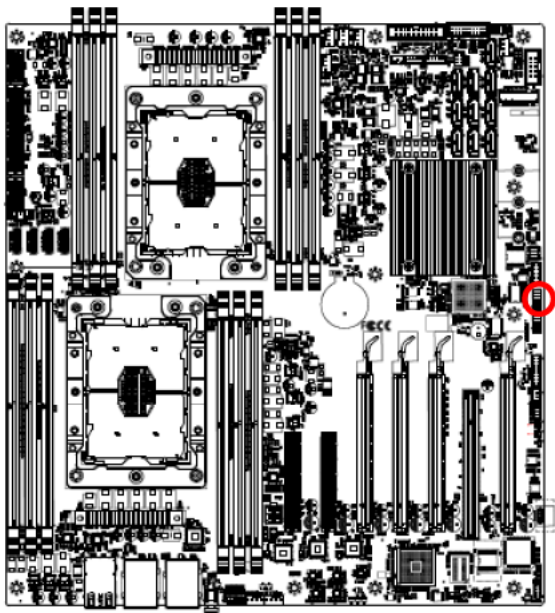
2.3.15 SPI connector (JSPI1)



Signal	PIN	PIN	Signal
SPI_PCH_FLASH_IO2	8	7	SPI_PCH_FLASH_IO3
SPI_BIOS_CS0_N_R	6	5	SPI_BIOS_MISO_FLASH
SPI_BIOS_FLASH_CLK	4	3	SPI_BIOS_CS0_N_R
GND	2	1	+3.3VSB

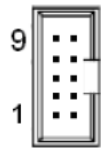
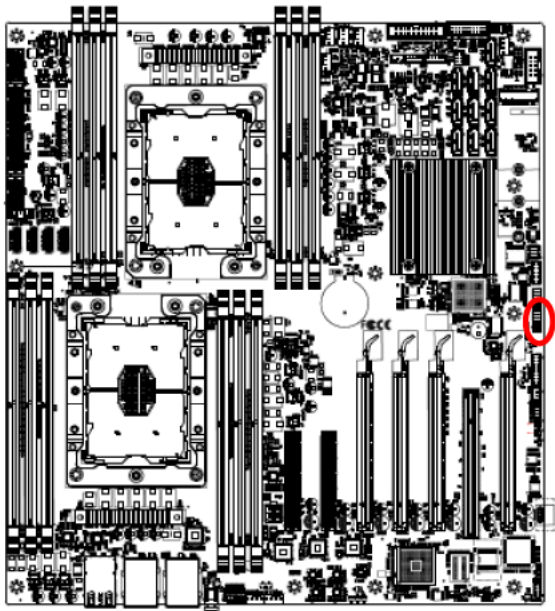


2.3.16 Serial port 1 connector (JCOM1)



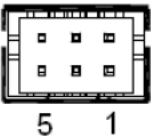
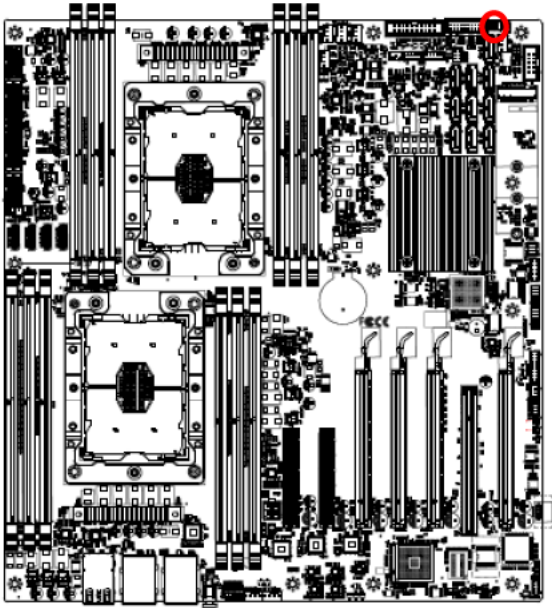
Signal	PIN	PIN	Signal
COM_RI#1	9	10	NC
COM_RTS#1	7	8	COM_CTS#1
GND	5	6	COM_DSR#1
COM_TXD1	3	4	COM_DTR#1
COM_DCD#1	1	2	COM_RXD1

2.3.17 Serial port 2 connector (JCOM2)



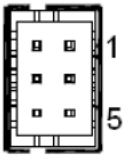
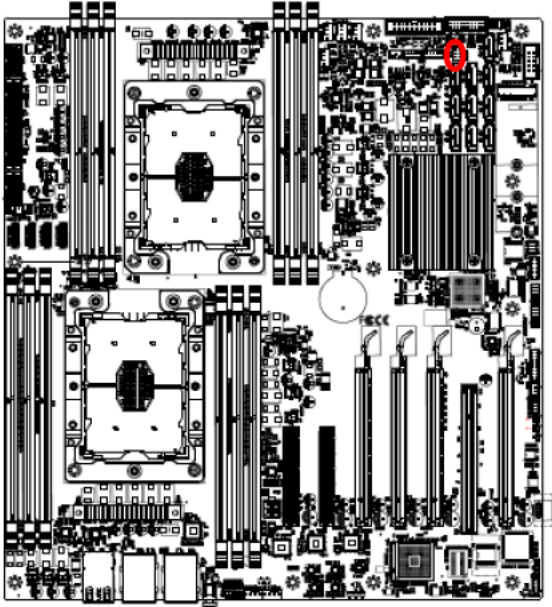
Signal	PIN	PIN	Signal
COM_RI#2	9	10	NC
COM_RTS#2	7	8	COM_CTS#2
GND	5	6	COM_DSR#2
COM_TXD2	3	4	COM_DTR#2
COM_DCD#2	1	2	COM_RXD2

2.3.18 Serial General purpose I/O connector 1 (JSGPIO1)



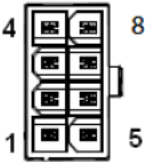
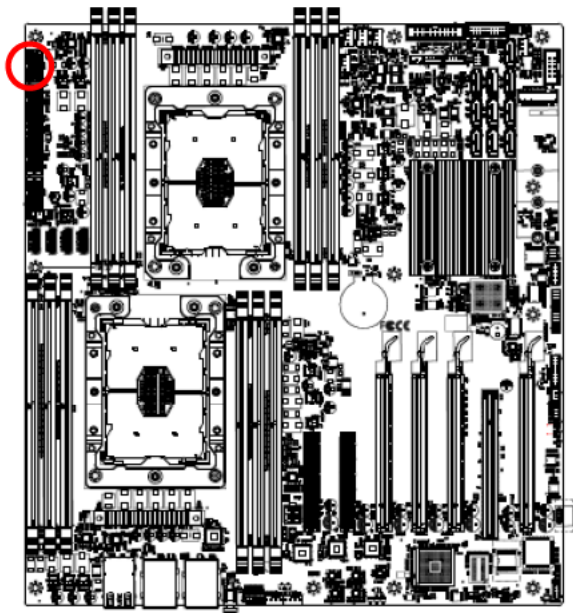
Signal	PIN	PIN	Signal
GND	2	1	GND
SGPIO_SSATA_DATA0_R	4	3	SGPIO_SSATA_LOAD_R
SGPIO_SSATA_DATA1_R	6	5	SGPIO_SSATA_CLOCK_R

2.3.19 Serial General purpose I/O connector 2 (JSGPIO2)



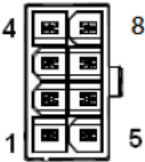
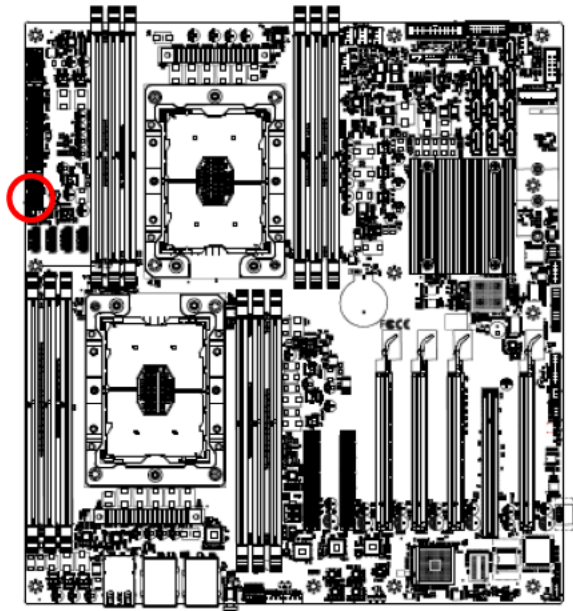
Signal	PIN	PIN	Signal
GND	2	1	GND
SGPIO_SATA_DATA0_R	4	3	SGPIO_SATA_LOAD_R
SGPIO_SATA_DATA1_R	6	5	SGPIO_SATA_CLOCK_R

2.3.20 ATX 12V Power connector 1 (ATX12V1)



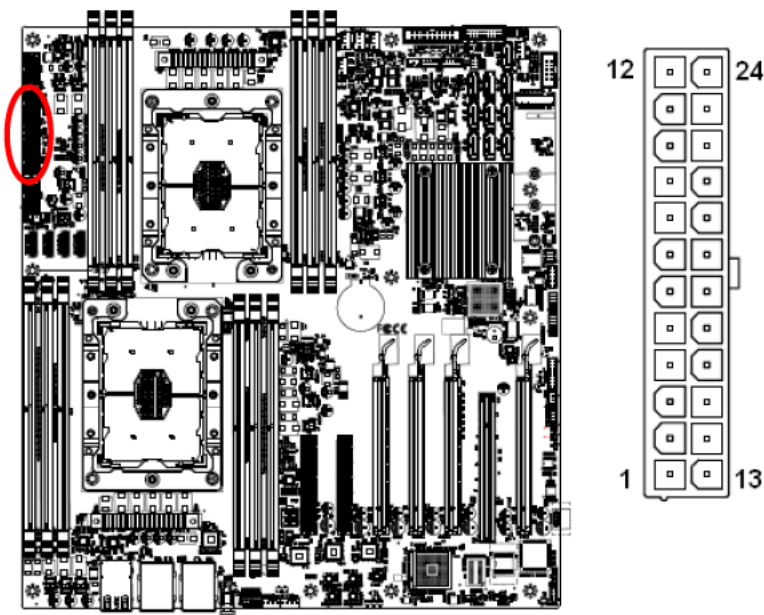
Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

2.3.21 ATX 12V Power connector 2 (ATX12V2)



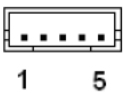
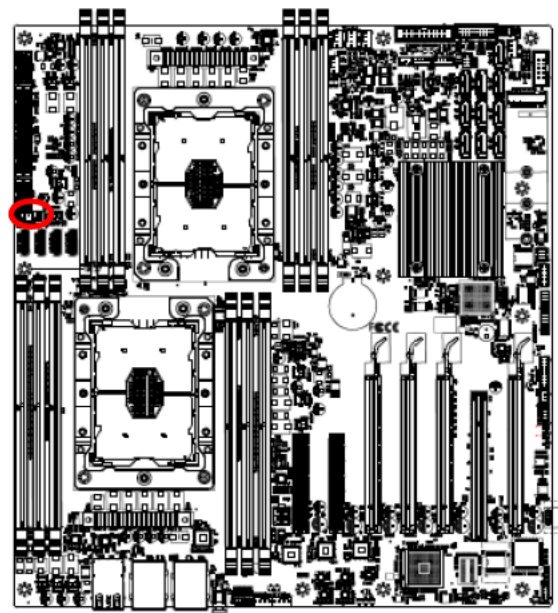
Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

2.3.22 ATX Power connector (ATXPWR1)



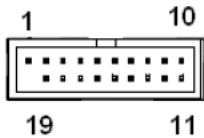
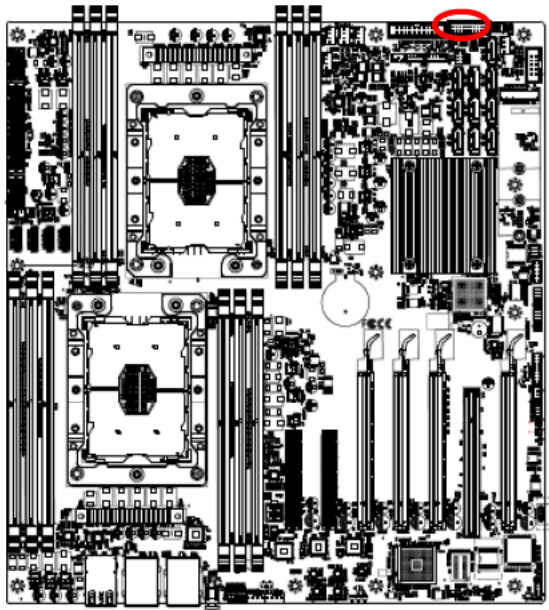
Signal	PIN	PIN	Signal
+3.3V	12	24	GND
+12V	11	23	+5V
+12V	10	22	+5V
+5VSB	9	21	+5V
PWRGD_PS_PWROK_R	8	20	NC
GND	7	19	GND
+5V	6	18	GND
GND	5	17	GND
+5V	4	16	FM_PS_EN_PSU_N
GND	3	15	GND
+3.3V	2	14	-12V
+3.3V	1	13	+3.3V

2.3.23 Power supply PMBus connector (PMBUS1)



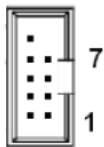
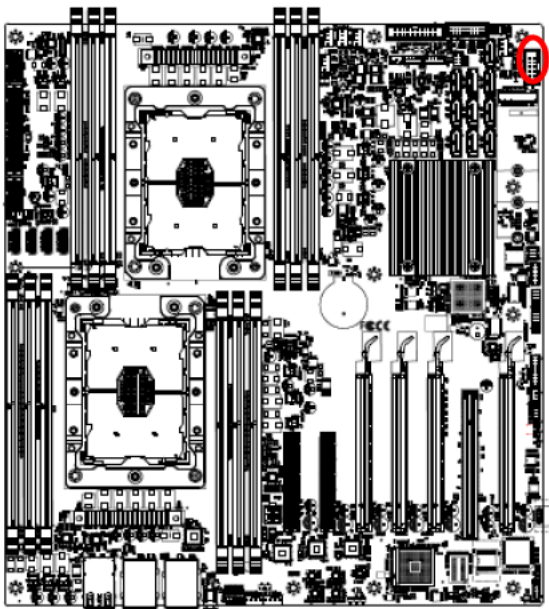
Signal	PIN
PSU_z_SCL	1
PSU_z_SDA	2
PSU1_ALERT_z_N	3
GND	4
NC	5

2.3.24 USB3.2 Gen1 connector (JUSB1)



Signal	PIN	PIN	Signal
		1	+5VSB
+5VSB	19	2	USB3_z_RN5
USB3_z_RN6	18	3	USB3_z_RP5
USB3_z_RP6	17	4	GND
GND	16	5	USB3_z_TN5
USB3_z_TN6	15	6	USB3_z_TP5
USB3_z_TP6	14	7	GND
GND	13	8	USB3_z_PN5
USB3_z_PN6	12	9	USB3_z_PP5
USB3_z_PP6	11	10	USB_a_OC2#

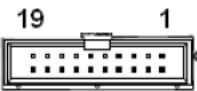
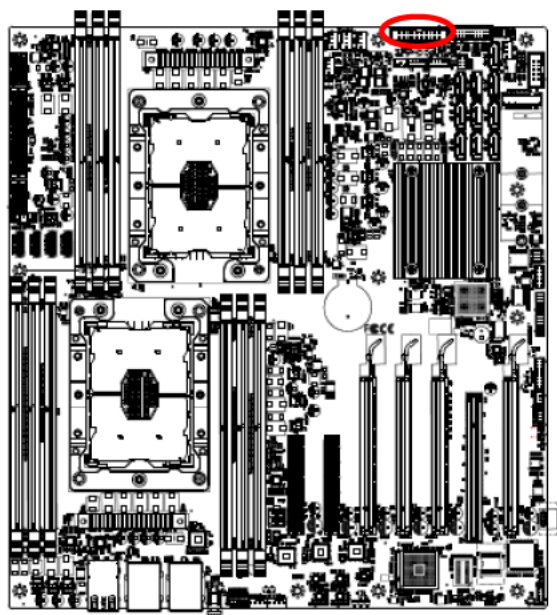
2.3.25 USB2.0 connector (JUSB2)



Signal	PIN	PIN	Signal
NC	10		
GND	8	7	GND
USB_z_PP8	6	5	USB_z_PP7
USB_z_PN8	4	3	USB_z_PN7
+5VSB	2	1	+5VSB

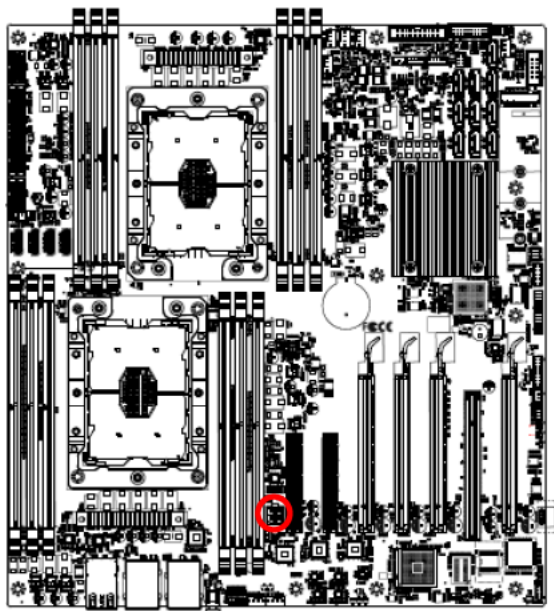


2.3.26 Front Panel connector (JFP1)



Signal	PIN	PIN	Signal
HDD_LED_P	1	2	+3.3VSB
HDD_LED_N	3	4	PWRLED_N
FP_RST_BTN_N	5	6	FP_PWR_BTN_N_R
GND	7	8	GND
STATUS_LED_P	9	10	LAN1_FRONT_LED_ACT_p
STATUS_LED_N	11	12	LAN1_LED_ACT_n
FRONT_UID_LED_N	13	14	SBPWRLED_P
FRONT_UID_LED_P	15	16	GND
FP_UID_BTN_N_R	17	18	+3.3VSB
GND	19	20	LAN_LED_ACT#

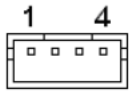
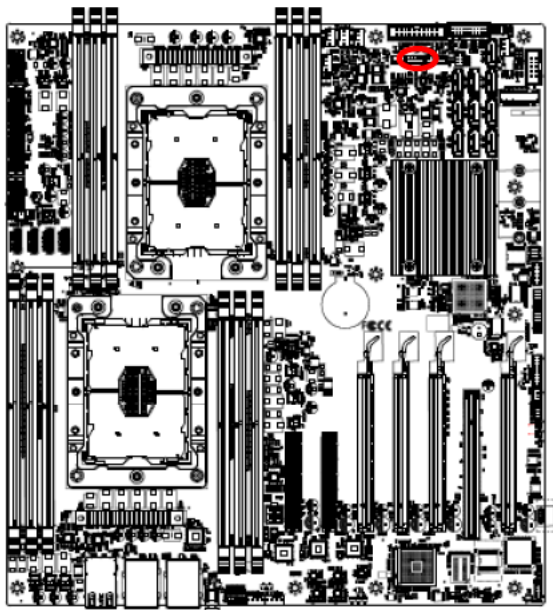
2.3.27 PCIE 12V power connector (PCIE12V1)



Signal	PIN	PIN	Signal
+12V	4	3	+12V
GND	2	1	GND

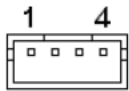
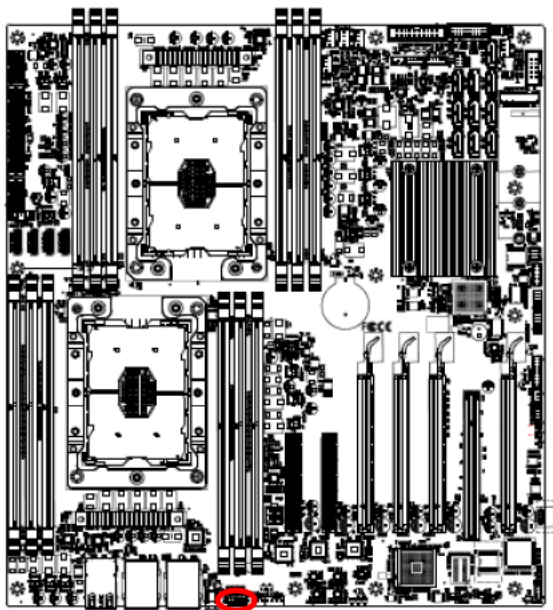
**Note:**  
In case the high power consumption PCIe cards are installed, the PCIE12V1 connector support to supply extra 12 volt power from PSU to ensure all PCIe cards work properly.

2.3.28 Inlet Thermal Sensors connector (INLET\_SER1)



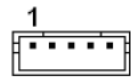
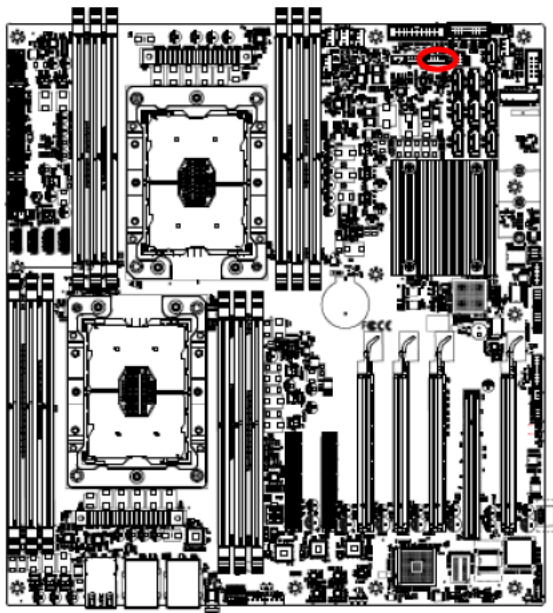
Signal	PIN
+3.3VSB	1
SMB1_TEMPSENSOR_STBY_LVC3_SDA	2
SMB1_TEMPSENSOR_STBY_LVC3_SCL	3
GND	4

2.3.29 Outlet Thermal Sensors connector (OUTLET\_SER1)



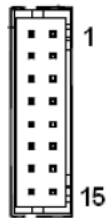
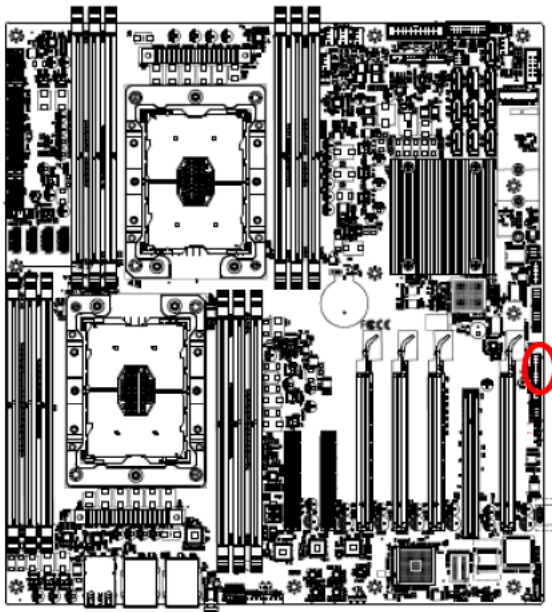
Signal	PIN
+3.3VSB	1
SMB_TEMPSENSOR_STBY_LVC3_SDA	2
SMB_TEMPSENSOR_STBY_LVC3_SCL	3
GND	4

2.3.30 HDD Backplane thermal Sensors connector (HDD\_SER1)



Signal	PIN
+3.3VSB	1
SMB2_TEMPSENSOR_STBY_LVC3_SDA	2
SMB2_TEMPSENSOR_STBY_LVC3_SCL	3
GND	4
SSD_LED_N	5

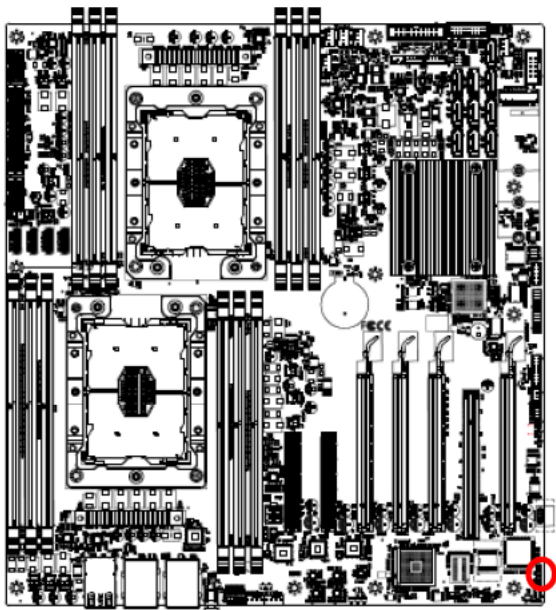
2.3.31 VGA connector (JVGA1)



Signal	PIN	PIN	Signal
CRT_z_RED	2	1	+5V
CRT_z_GREEN	4	3	GND
CRT_z_BLUE	6	5	NC
NC	8	7	CRT_DDC_z_DATA
GND	10	9	CRT_z_HSYNC
GND	12	11	CRT_z_VSYNC
GND	14	13	CRT_DDC_z_CLK
GND	16	15	GND

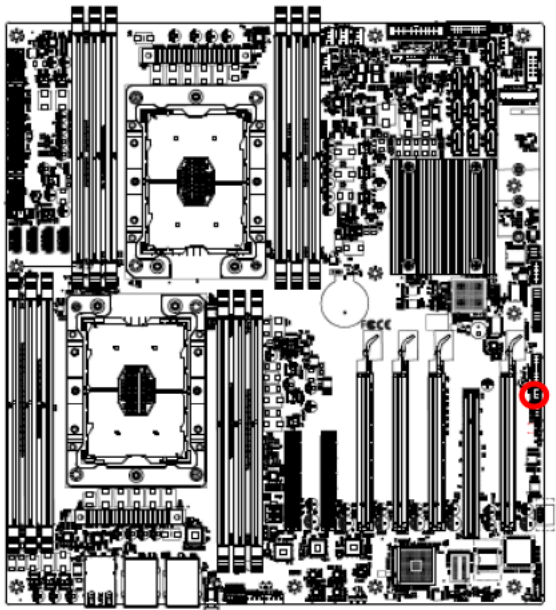


2.3.32 For BMC debug message read (JBMC\_UART5)



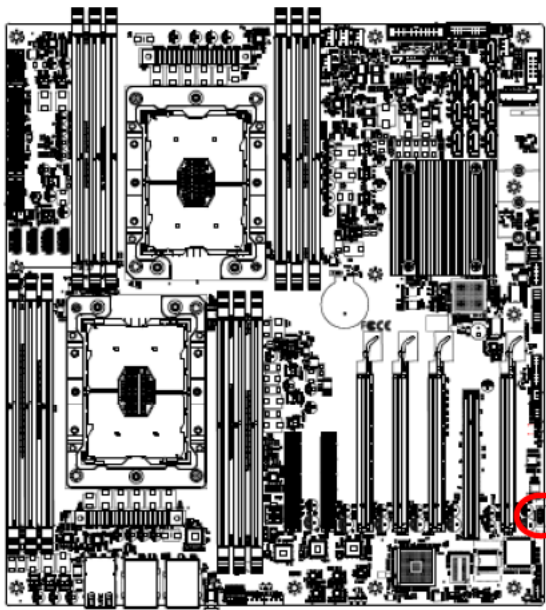
Signal	PIN
+3.3VSB	4
GND	3
UART5_RX	2
UART5_TX	1

2.3.33 CASE OPEN connector (JCASE\_OPEN1)



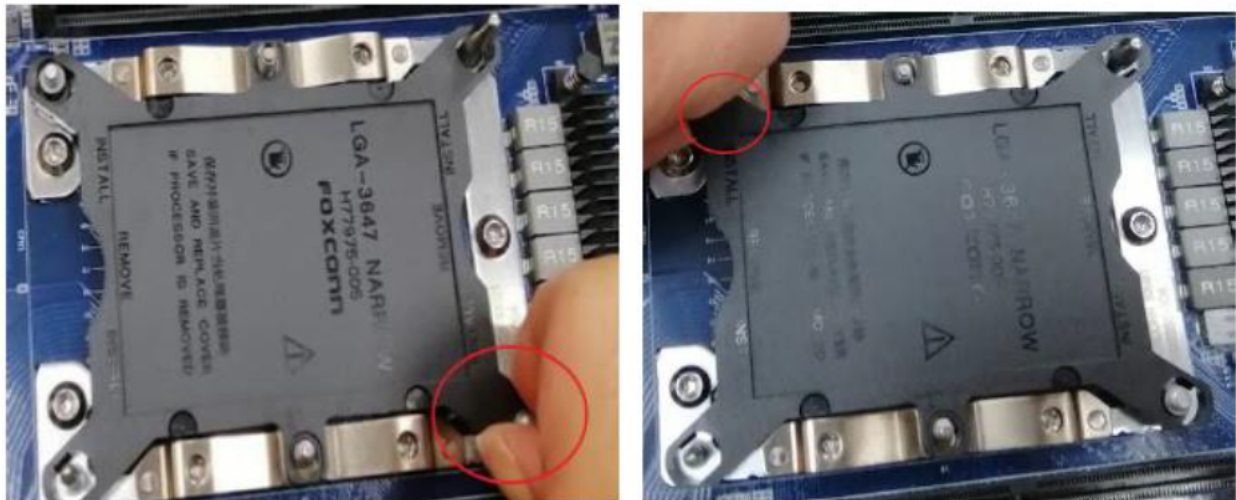
Signal	PIN
FP_CHASSIS_INTRUSION	1
GND	2

2.3.34 RAID KEY connector (RAID\_KEY1)

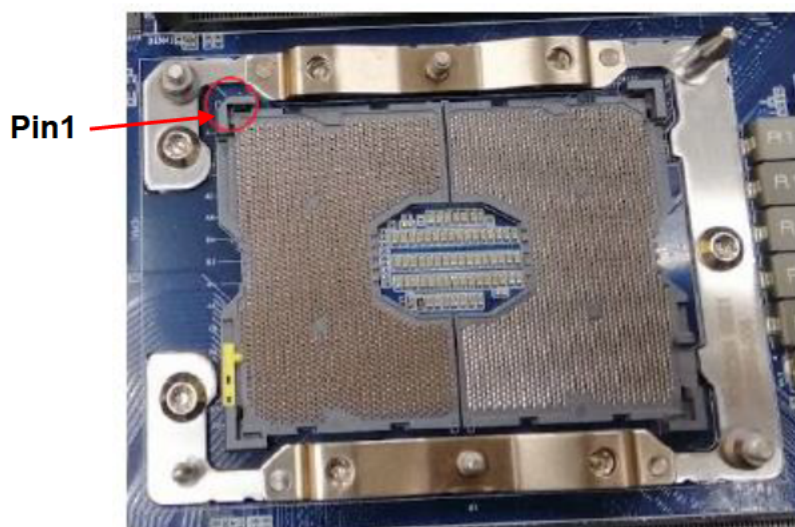


Signal	PIN
FM_PCH_SATA_KEY_R	4
GND	3
PU_KEY_CONN_PIN2_R	2
GND	1

## 2.4 CPU installation



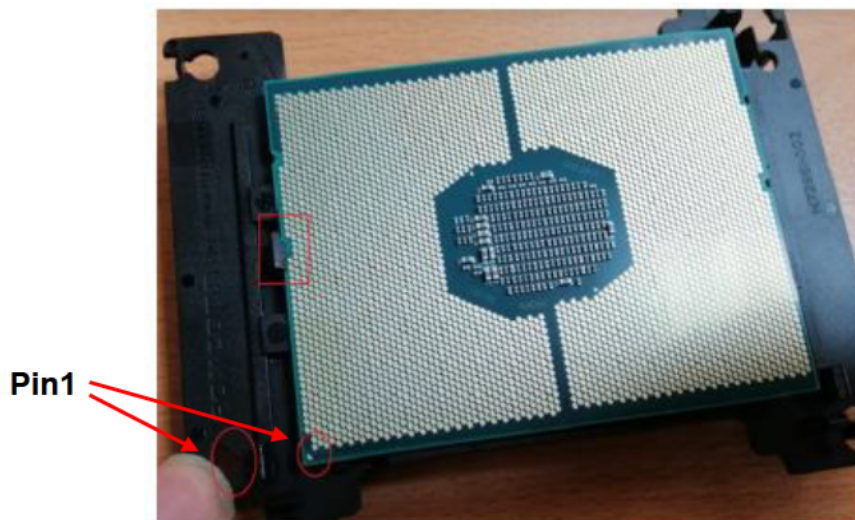
**Step1.** To remove CPU socket cover and be careful of the latch on diagonal location as the red circle marking above photo.



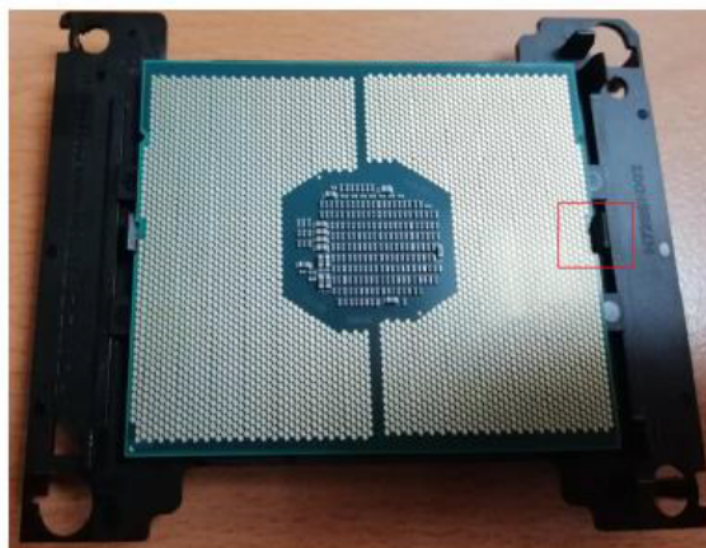
**Step2.** To be careful of the diagonal location on the socket of Pin1 as above photo on red circle marking.



**Step3.** There is marking of PUSH and LATCH on the Blaster. Heatsink cooler need to be installed on this side.

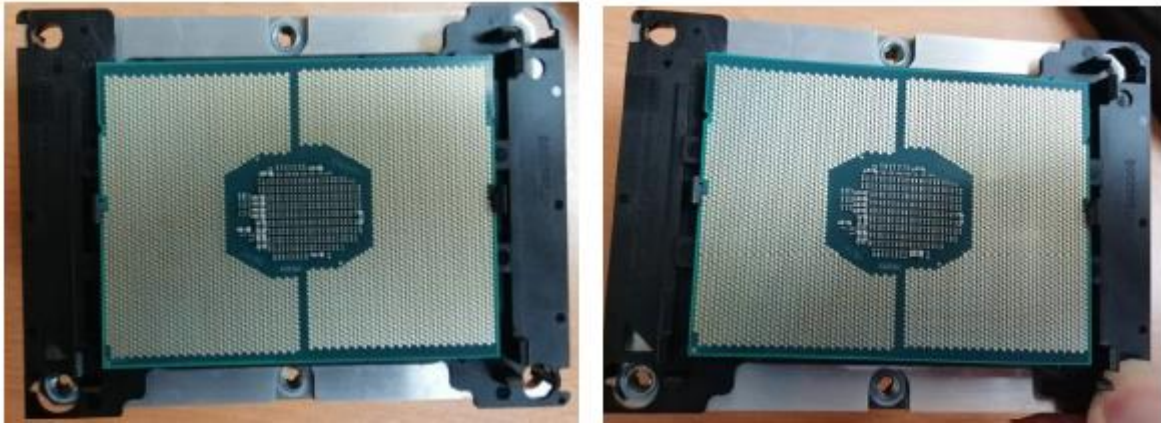


**Step4.** To turn upside down of the Blaster and install CPU on this side. To notice the red circle marking of the Pin1, and the red square marking of the latch.



**Step5.** To install the other side of the latch.

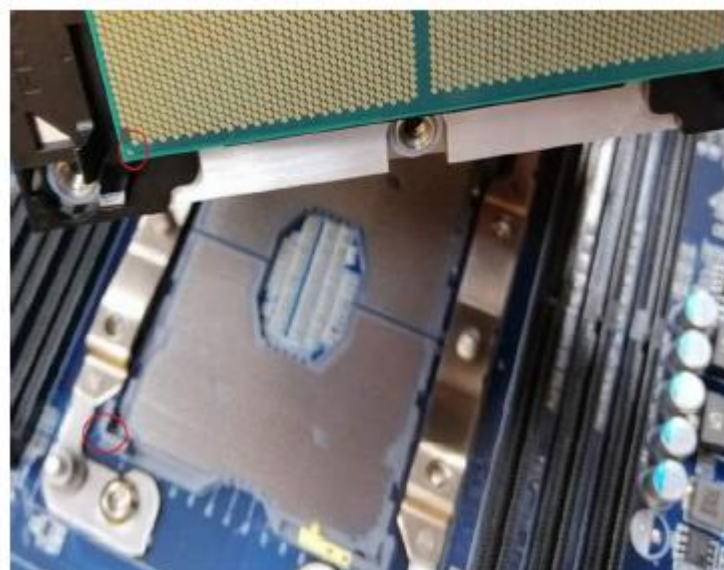




**Step6.** To install 4 corners of CPU and Blaster to the heatsink.



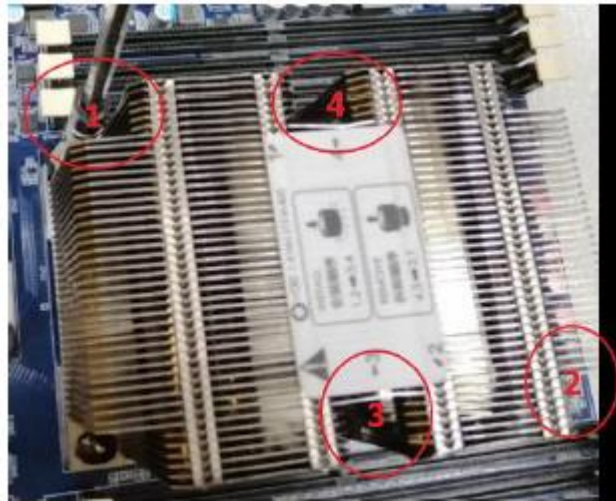
To notice the orientation of the FAN as the red square marking of photo when installing the CPU heatsink module to the motherboard.



**Step7.** Please keep Pin1 as red-circled aligned with CPU when installing.

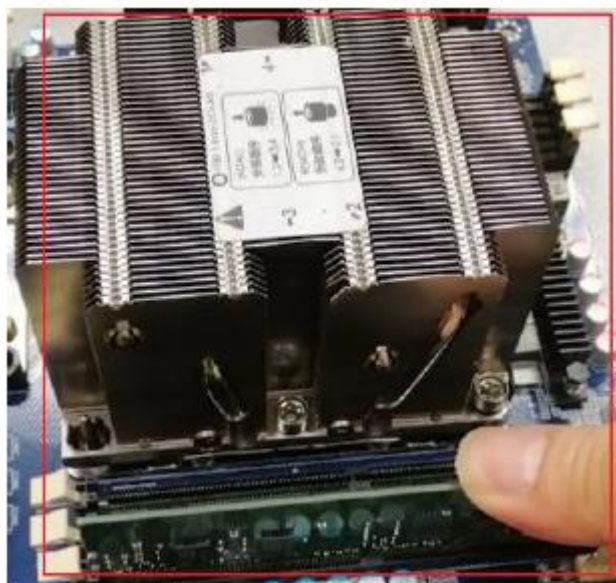


**Step8.** Put it in along the Leader Pin on the motherboards.



**Step9.** Fasten screws.

(Fasten screws: 1->2->3->4, Unfasten screws: 4->3->2->1)



**Step10.** Installing RAM will be supported only in the models with CPU.

## 3.BIOS Setup

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### 3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

### 3.2 Starting Setup

AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <ESC> or <Del> immediately after switching the system on, or

By pressing the <ESC> or <Del> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

**Press <ESC> or <Del> to enter SETUP**

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.



### 3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.



**Note:** Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A “➤” pointer marks all sub menus.

### 3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the <Enter> key again.

### 3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

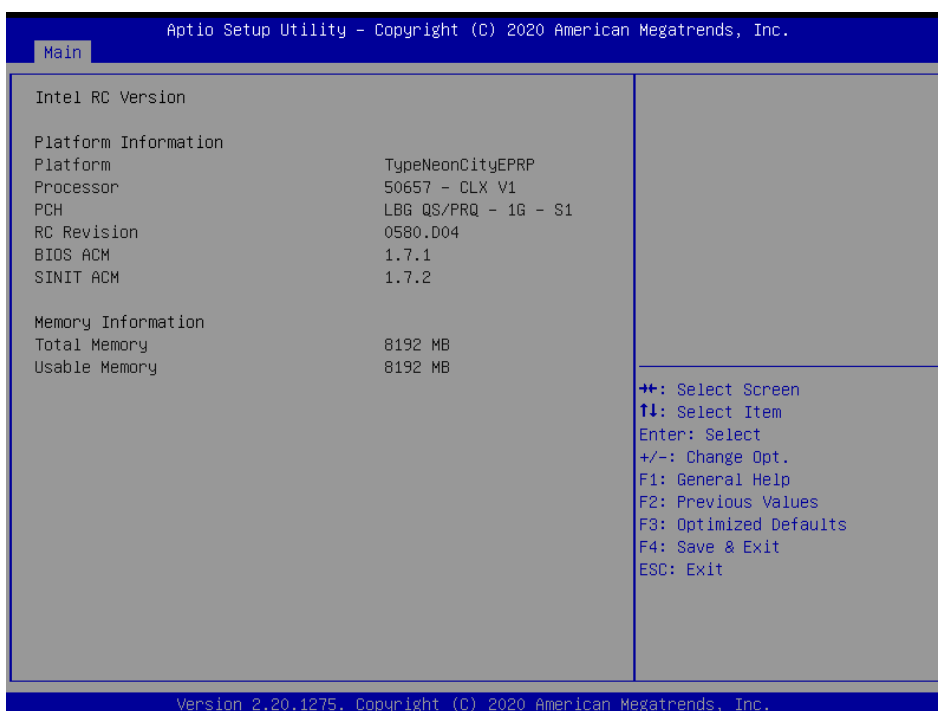
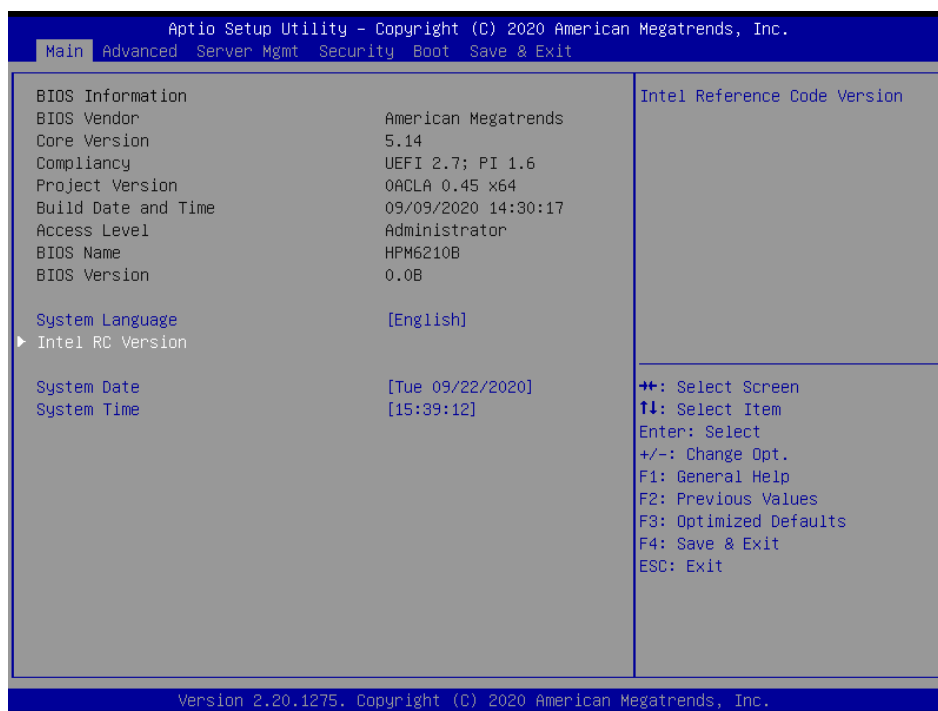
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

## 3.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

### 3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



3.6.1.1 System Language

This option allows choosing the system default language.

3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.3 System Time

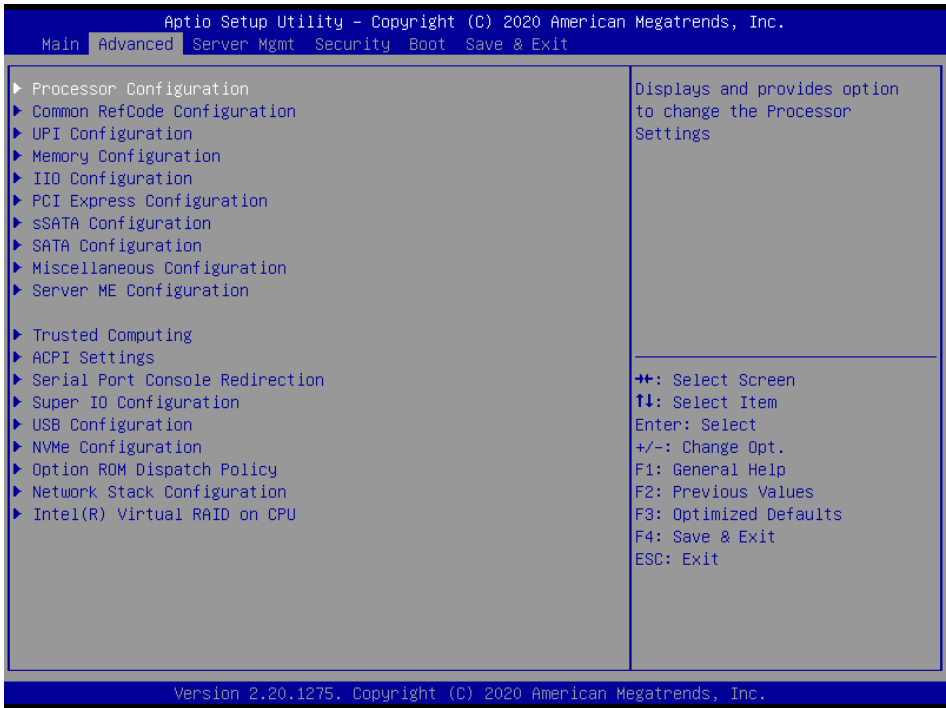
Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



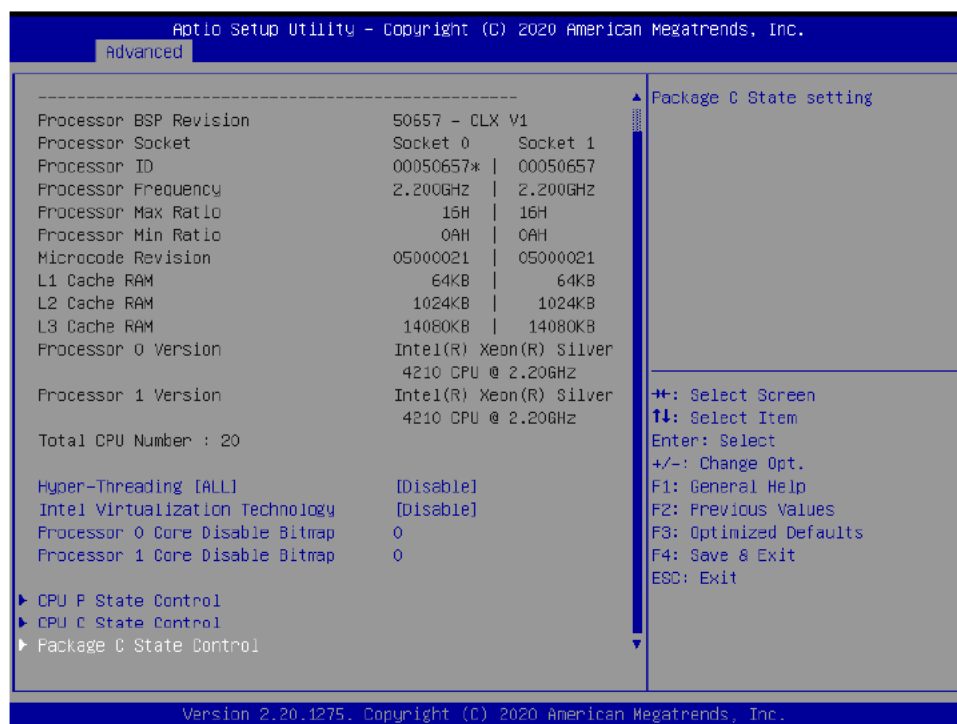
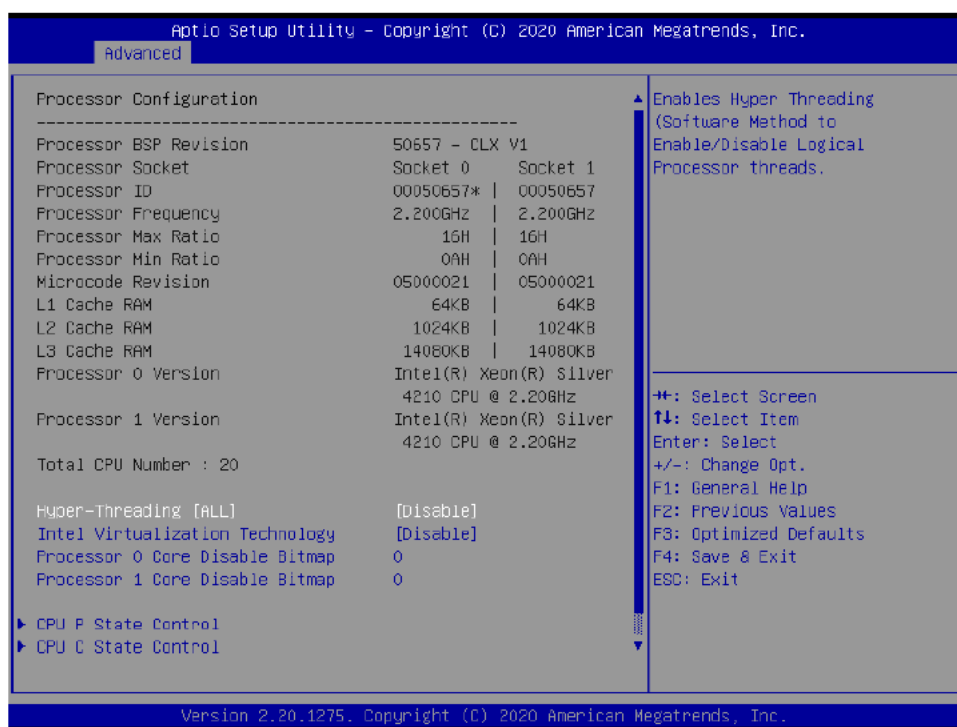
**Note:** The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

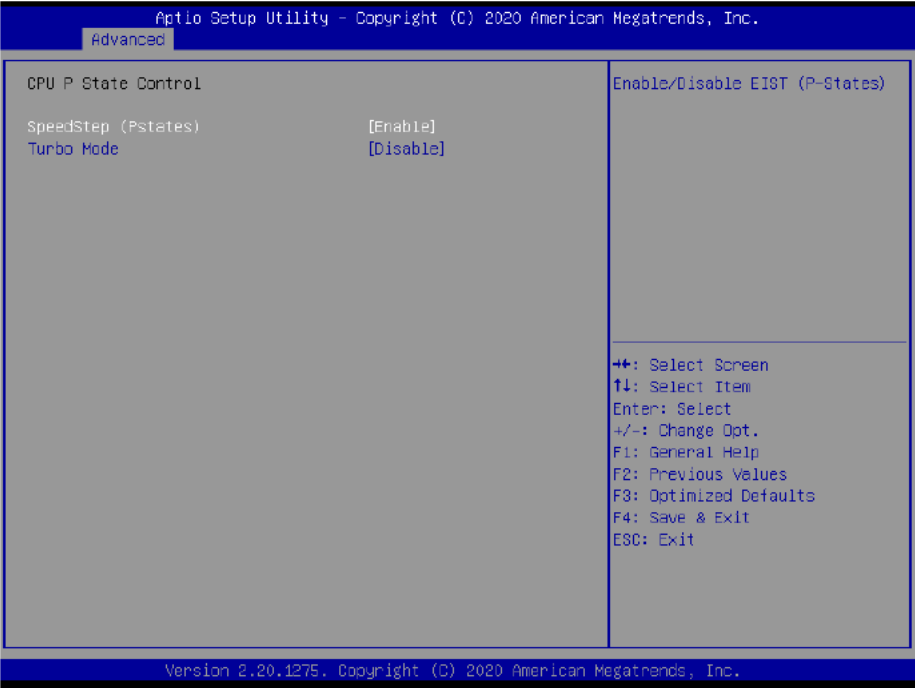


### 3.6.2.1 Processor Configuration



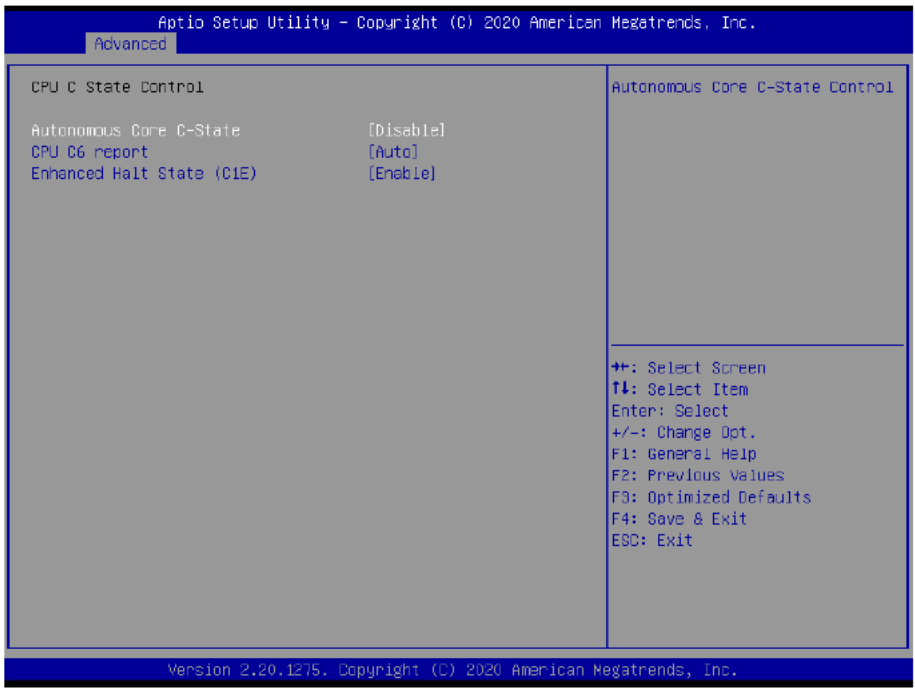
Item	Options	Description
Hyper-Threading (ALL)	Disable[Default] Enable	Enables Hyper Threading (Software Method to Enable/Disable Logical Processor threads).
Intel Virtualization Technology	Disable[Default] Enable	Enables the Vanderpool Technology, takes effect after reboot.
Processor 0/1 Core Disable Bitmap	0	0: Enable all cores. 3fff: Disable all cores.

3.6.2.1.1 CPU P State Control



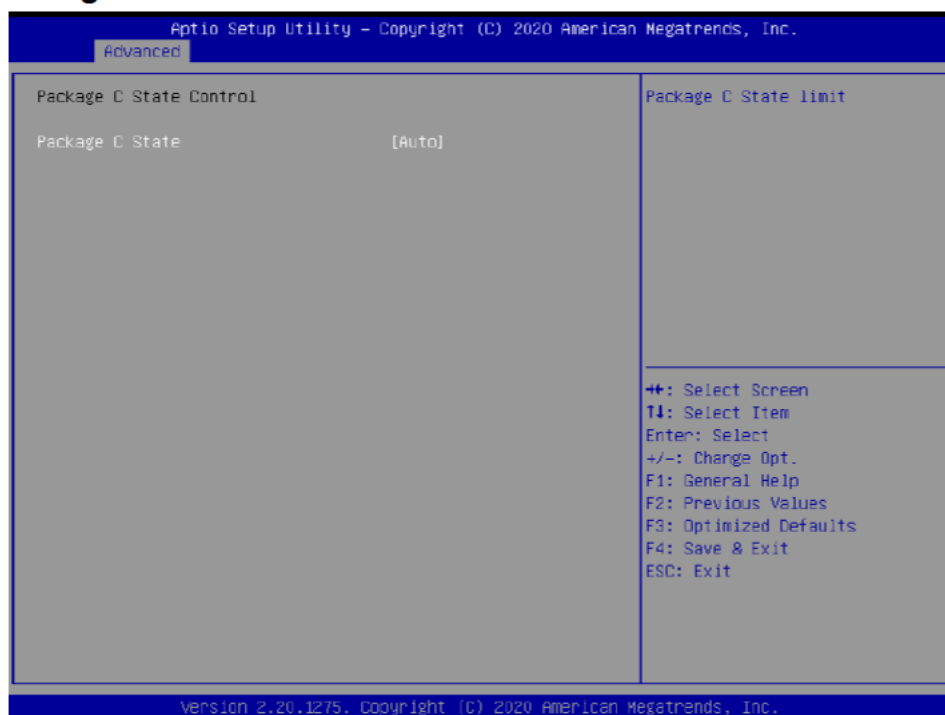
Item	Option	Description
SpeedStep (Pstates)	Enable[Default], Disable	Enable/Disable EIST (P-States)
Turbo Mode	Enable Disable[Default]	Enable/Disable processor Turbo Mode (requires EMTTM enabled too).

3.6.2.1.2 CPU C State Control



Item	Option	Description
Autonomous Core C-State	Enable Disable[Default],	Autonomous Core C-State Control.
CPU C6 report	Disable Enable Auto[Default]	Enable/Disable CPU C6(ACPI C3) report to OS.
Enhanced Halt State (C1E)	Disable[Default] Enable	Core C1E auto promotion Control. Takes effect after reboot.

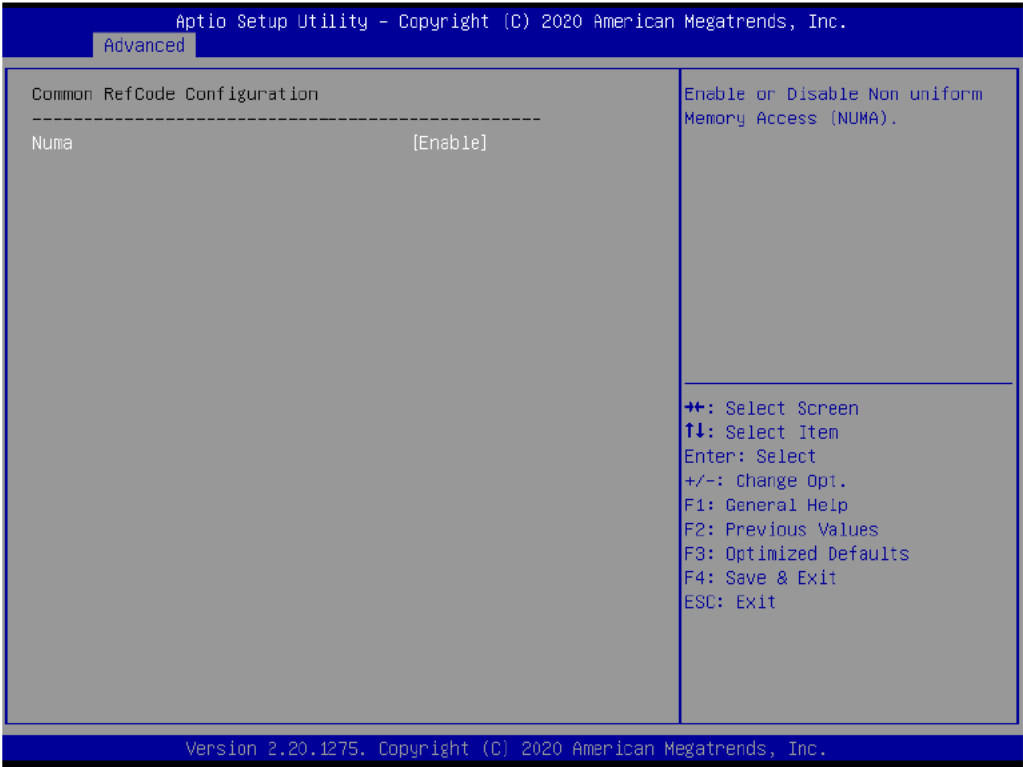
### 3.6.2.1.3 Package C State Control



Item	Option	Description
Package C State	C0/C1 state C2 state C6(non Retention)state C6(Retention)state No Limit Auto[Default],	Package C State limit.

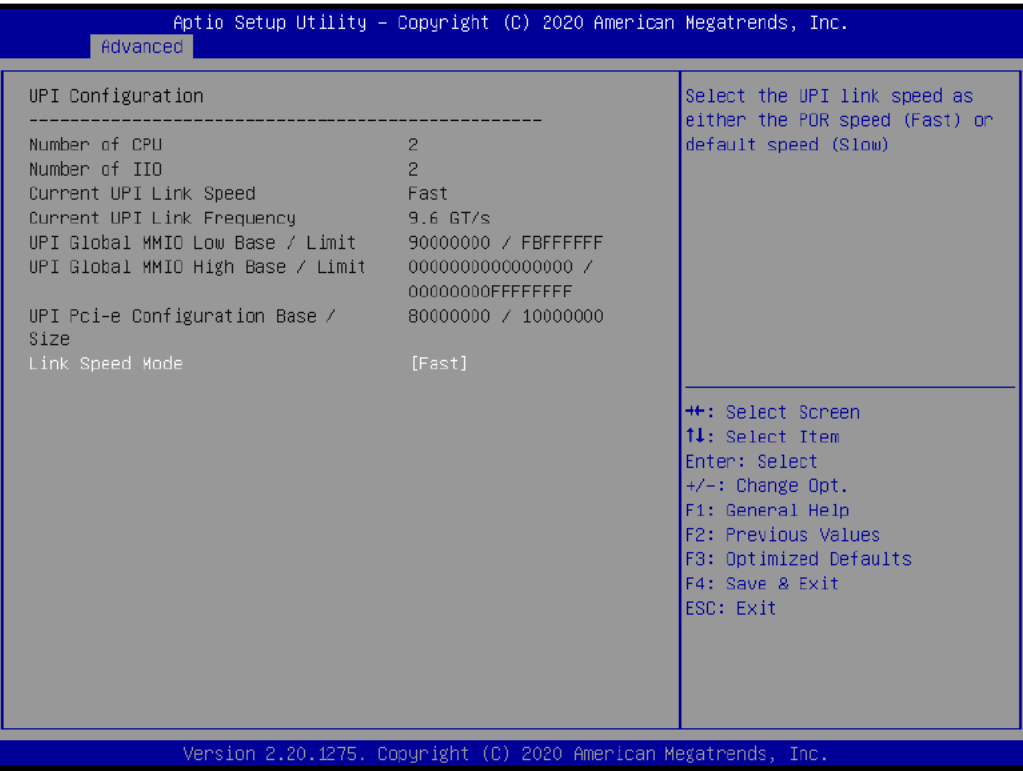


3.6.2.2 Common RefCode Configuration



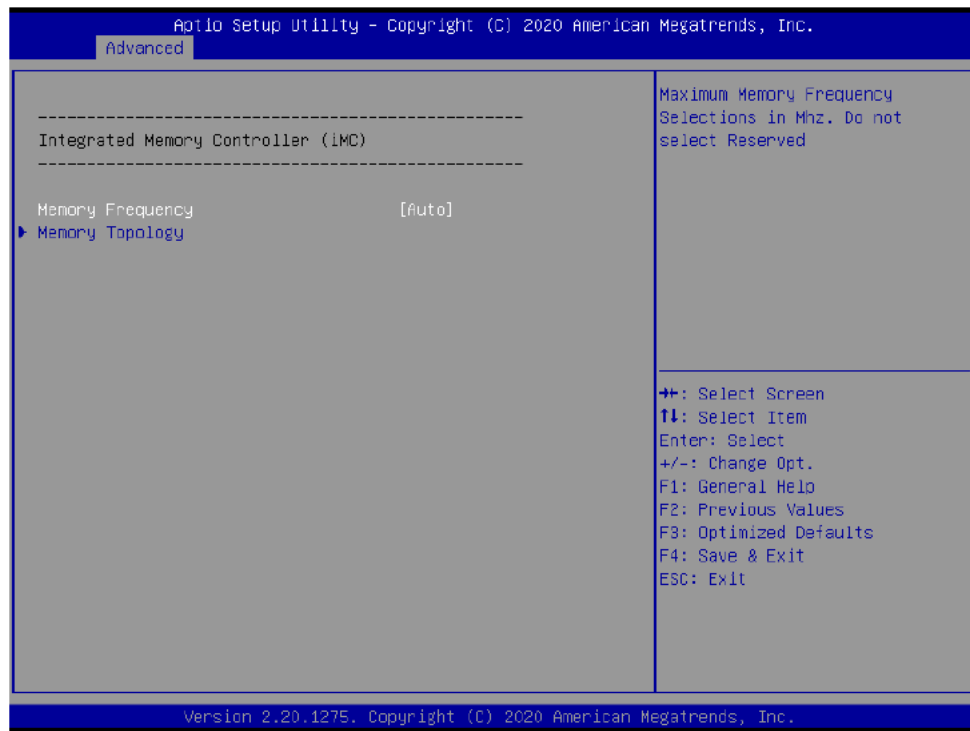
Item	Option	Description
Numa	Disable Enable[Default]	Enable or Disable Non uniform Memory Access (NUMA).

3.6.2.3 UPI Configuration



Item	Option	Description
Link Speed Mode	Slow Fast <b>[Default]</b>	Select the UPI link speed as either the POR speed (Fast) or default speed (Slow).

### 3.6.2.4 Memory Configuration



Item	Option	Description
Memory Frequency	Auto <b>[Default]</b> /800/1000/1066/1200 /1333/1400/1600/1800/1866 /2000/2133/2200/2400/2600/2666 /2800-OvrClk/2933/3000-OvrClk /3200-OvrClk/3400-OvrClk/3466-OvrClk /3600-OvrClk/3733-OvrClk/3800-OvrClk /4000-OvrClk/4200-OvrClk/4266-OvrClk /4400-OvrClk	Maximum Memory Frequency Selections in Mhz. Do not select Reserved.

# HPM-621DE User's Manual

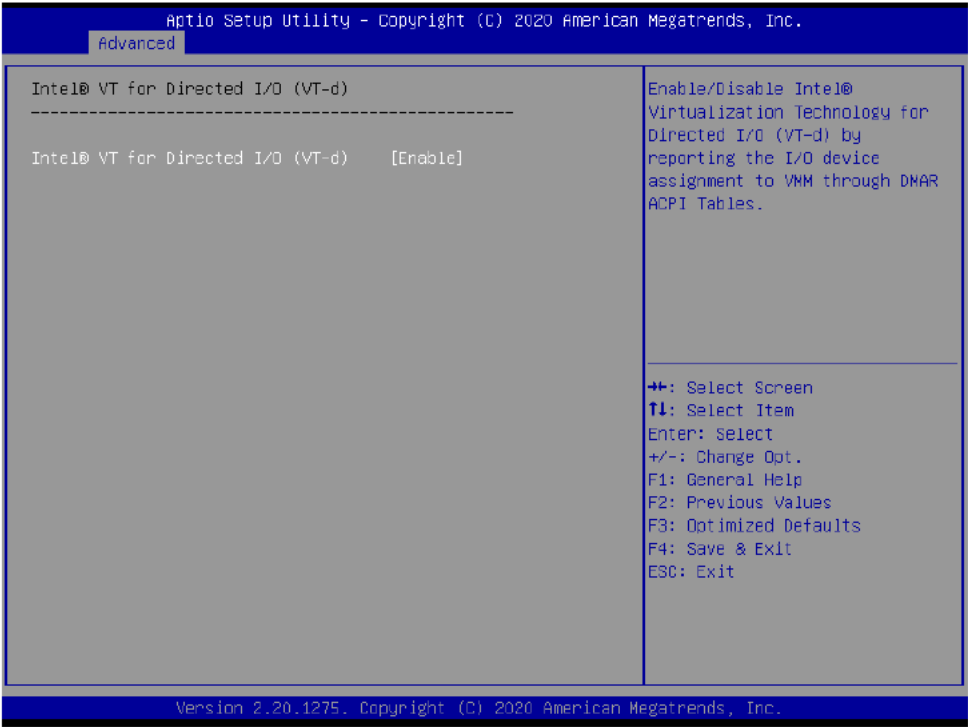
### 3.6.2.4.1 Memory Topology



### 3.6.2.5 IIO Configuration

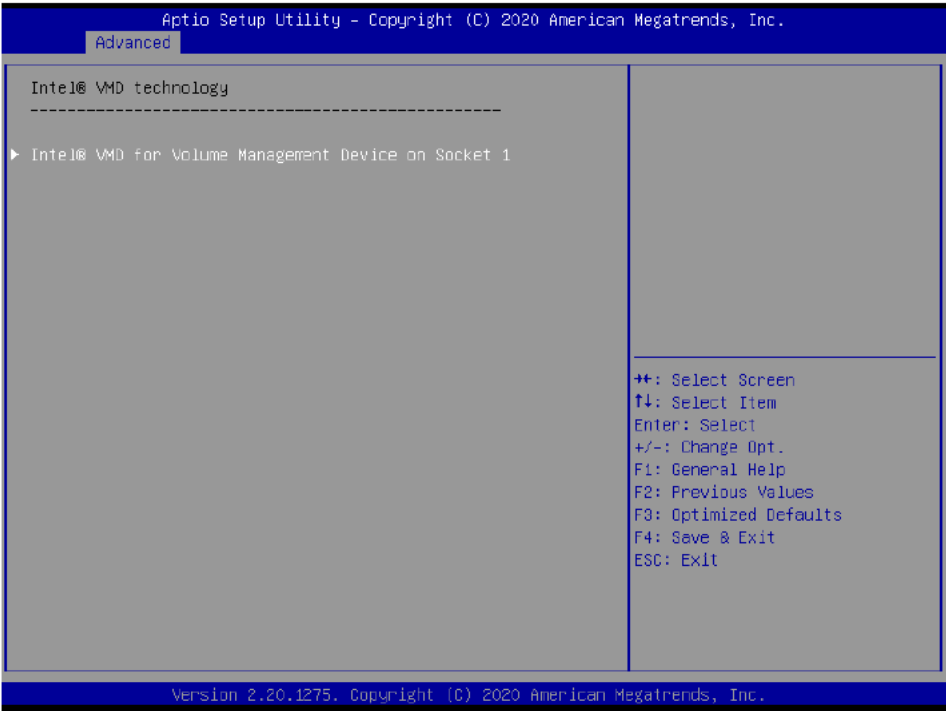


3.6.2.5.1 Intel® VT for Directed I/O (VT-d)

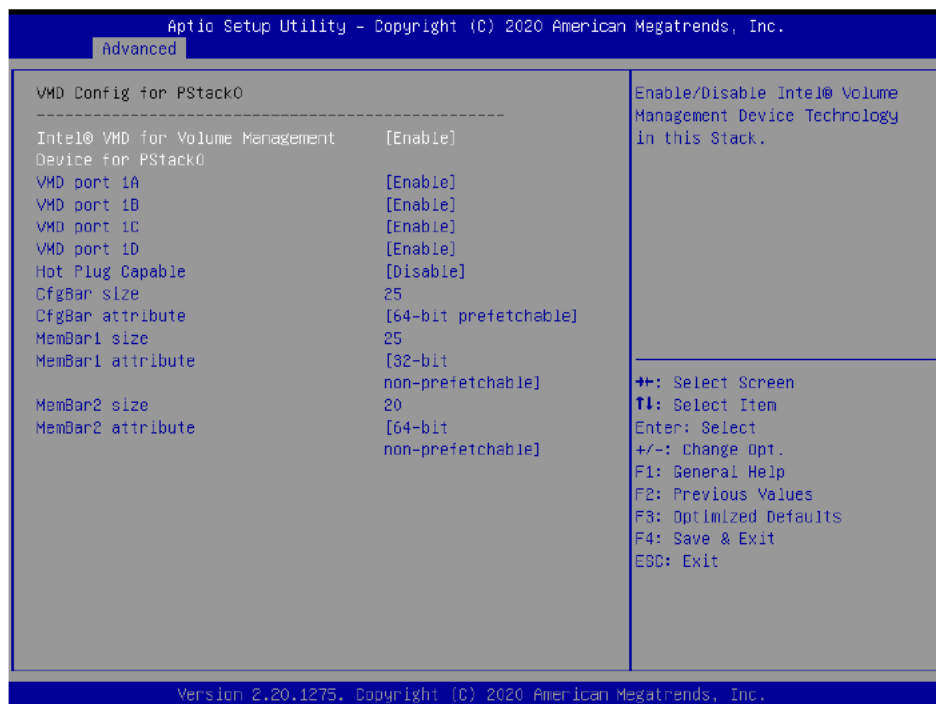


Item	Options	Description
Intel® VT for Directed I/O (VT-d)	Enable[Default] Disable	Enable/Disable Intel® Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables.

3.6.2.5.2 Intel® VMD Technology



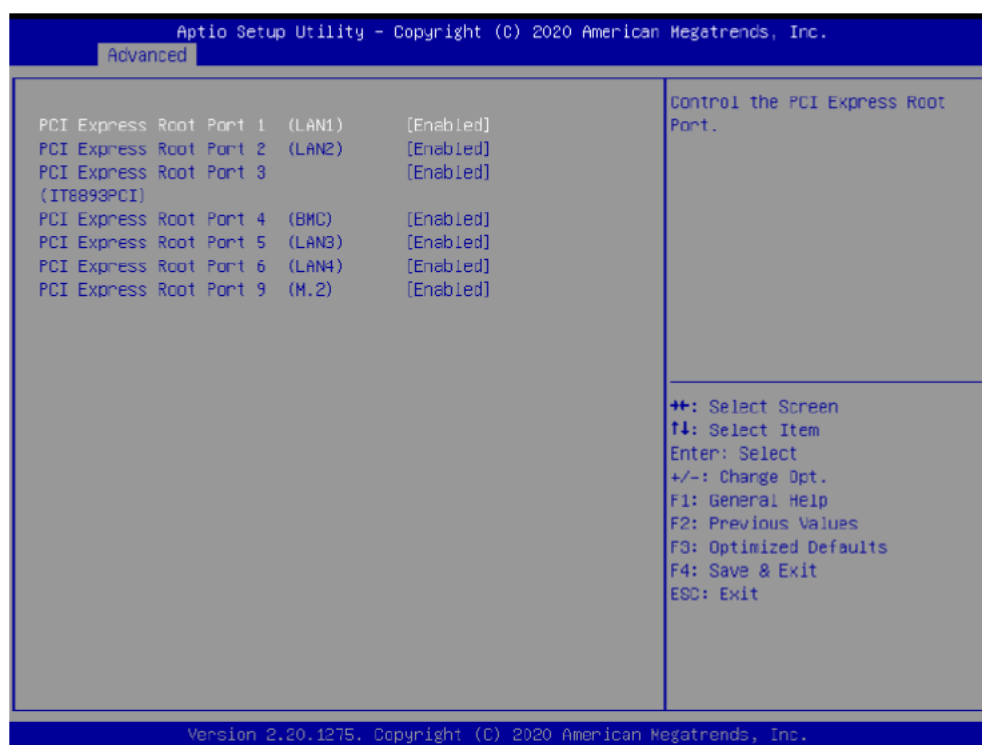
## 3.6.2.5.2.1 Intel® VMD for Volume Management Device on Socket 1



Item	Option	Description
<b>Intel® VMD for Volume Management Device for PStack0</b>	Disable Enable[Default]	Enable/Disable Intel® Volume Management Device Technology in this Stack.
<b>VMD port 1A</b>	Disable Enable[Default]	Enable/Disable Intel® Volume Management Device Technology on specific root port.
<b>VMD port 1B</b>	Disable Enable[Default]	Enable/Disable Intel® Volume Management Device Technology on specific root port.
<b>VMD port 1C</b>	Disable Enable[Default]	Enable/Disable Intel® Volume Management Device Technology on specific root port.
<b>VMD port 1D</b>	Disable Enable[Default]	Enable/Disable Intel® Volume Management Device Technology on specific root port.
<b>Hot Plug Capable</b>	Disable[Default] Enable	Enable/Disable Hot Plug for PCIe Root Ports 1A-1D.
<b>CfgBar size</b>	25	Setup VMD Config BAR size (in bits Min=20, Max=27), ex: 20bits=1MB, 27bits=128MB.
<b>CfgBar attribute</b>	64-bit prefetchable	Setup VMD Config BAR attribute, like 64-bit or prefetchable.
<b>MemBar1 size</b>	25	Setup VMD Memory BAR1 size (in bits Min=20), ex: 20bits=1MB, 22bits=4MB, 26bits=64MB.
<b>MemBar1 attribute</b>	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR attribute, like 64-bit or prefetchable.
<b>MemBar2 size</b>	20	Setup VMD Memory BAR2 size (in bits Min=20), ex: 20bits=1MB, 22bits=4MB, 26bits=64MB.

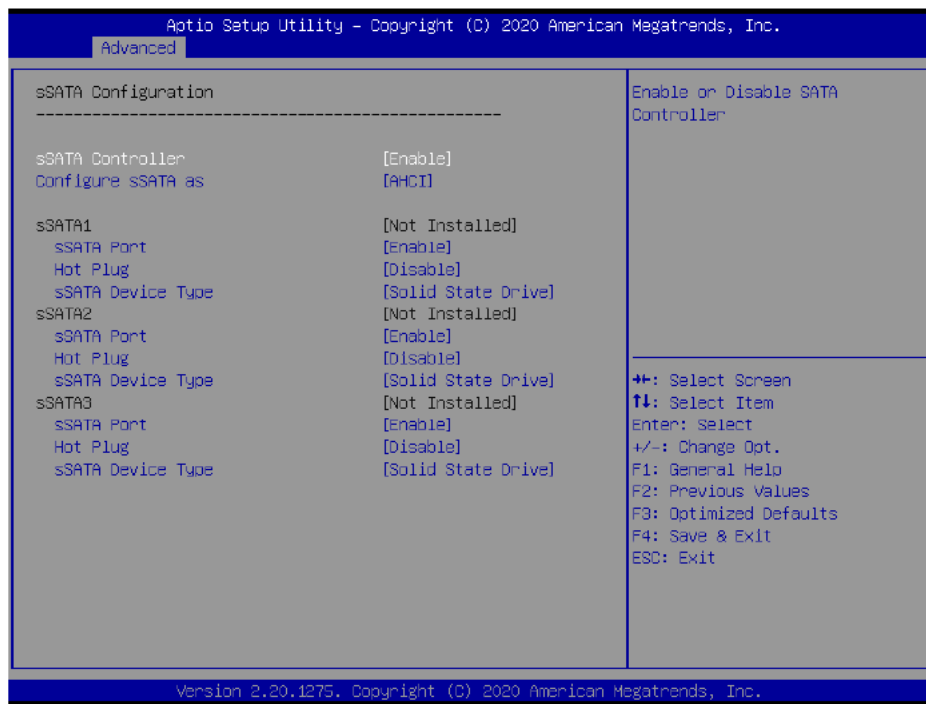
<b>MemBar2 attribute</b>	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR attribute, like 64-bit or prefetchable.
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### 3.6.2.6 PCI Express Configuration



Item	Options	Description
<b>PCI Express Root Port 1(LAN1)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 2(LAN2)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 3(IT8893PCI)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 4(BMC)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 5(LAN3)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 6(LAN4)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.
<b>PCI Express Root Port 9(M.2)</b>	Disabled Enabled[Default]	Control the PCI Express Root Port.

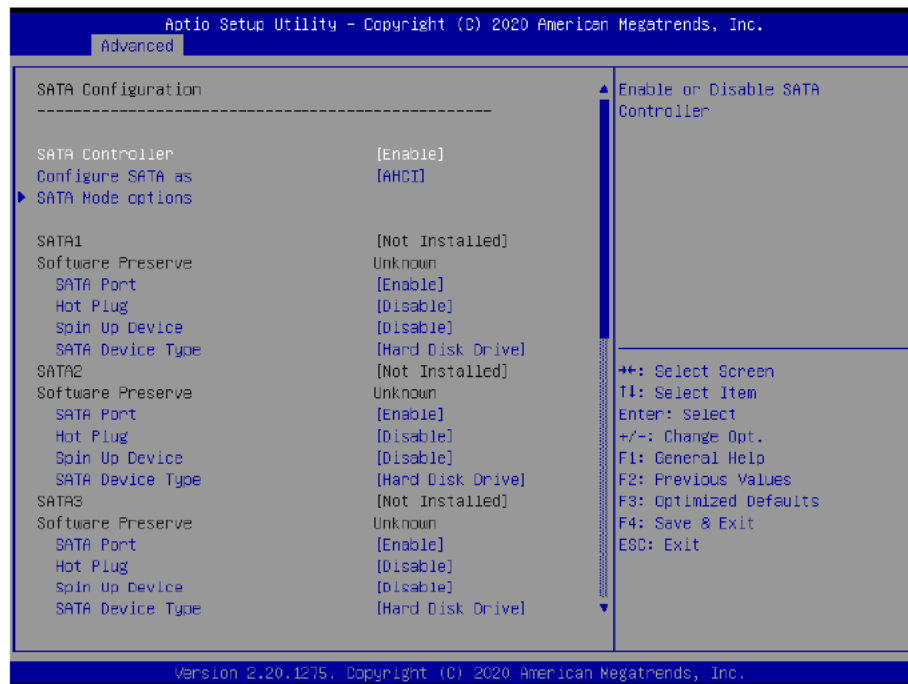
## 3.6.2.7 sSATA Configuration



Item	Options	Description
<b>sSATA Controller</b>	Enable <b>[Default]</b> Disable	Enable or Disable SATA Controller.
<b>Configure sSATA as</b>	AHCI <b>[Default]</b> RAID	This will configure sSATA as RAID or AHCI.
<b>sSATA Port</b>	Disable Enable <b>[Default]</b>	Enable or Disable SATA Port.
<b>Hot Plug</b>	Disable <b>[Default]</b> Enable	Designates this port as Hot Pluggable.
<b>sSATA Device Type</b>	Hard Disk Drive Solid State Drive <b>[Default]</b>	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

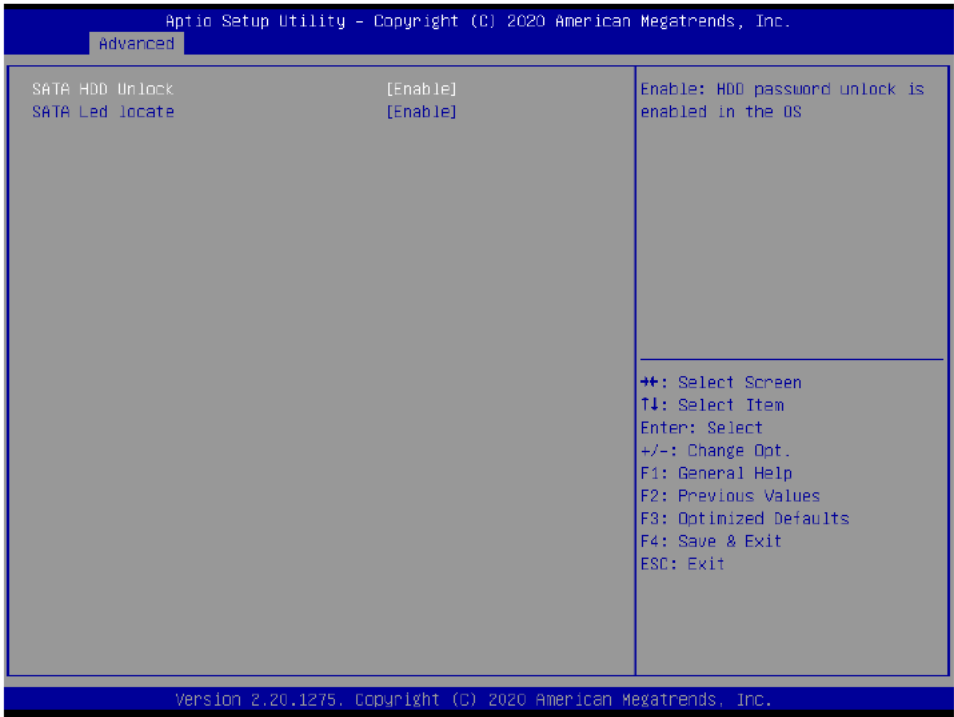


### 3.6.2.8 SATA Configuration



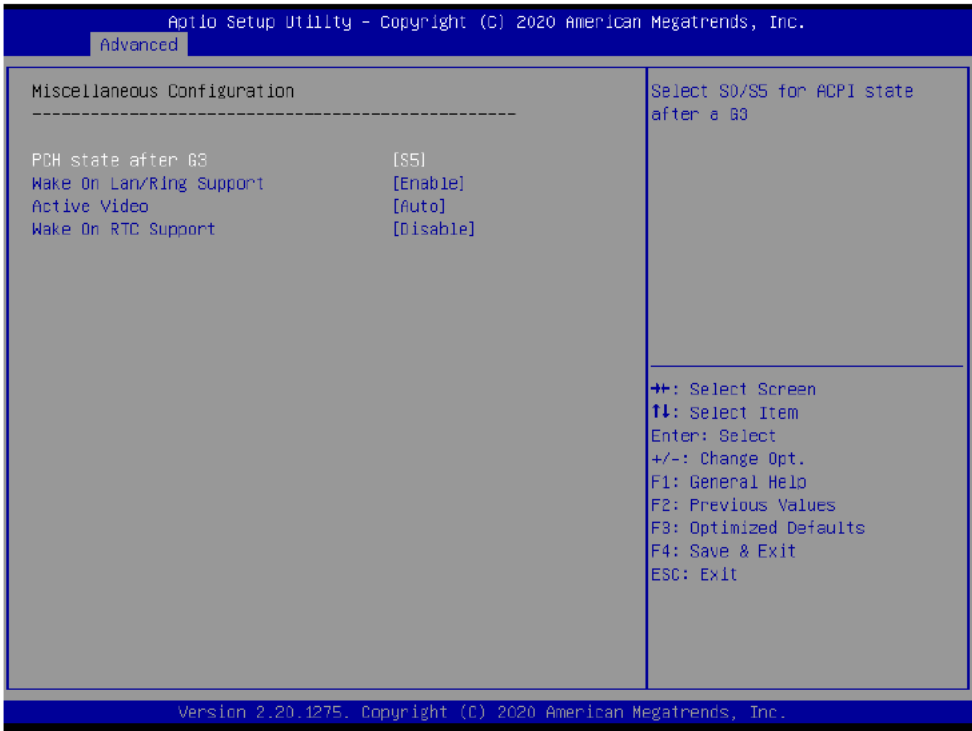
Item	Options	Description
<b>SATA Controller</b>	Enable[Default] Disable	Enable or Disable SATA Controller.
<b>Configure SATA as</b>	AHCI[Default] RAID	This will configure SATA as RAID or AHCI
<b>SATA Port</b>	Disable Enable[Default]	Enable or Disable SATA Port.
<b>Hot Plug</b>	Disable[Default] Enable	Designates this port as Hot Pluggable.
<b>Spin Up Device</b>	Disable[Default] Enable	If enabled for any of ports Staggered Spin Up will be performed and only the drives witch have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
<b>SATA Device Type</b>	Hard Disk Drive Solid State Drive[Default]	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.2.8.1 SATA Mode options



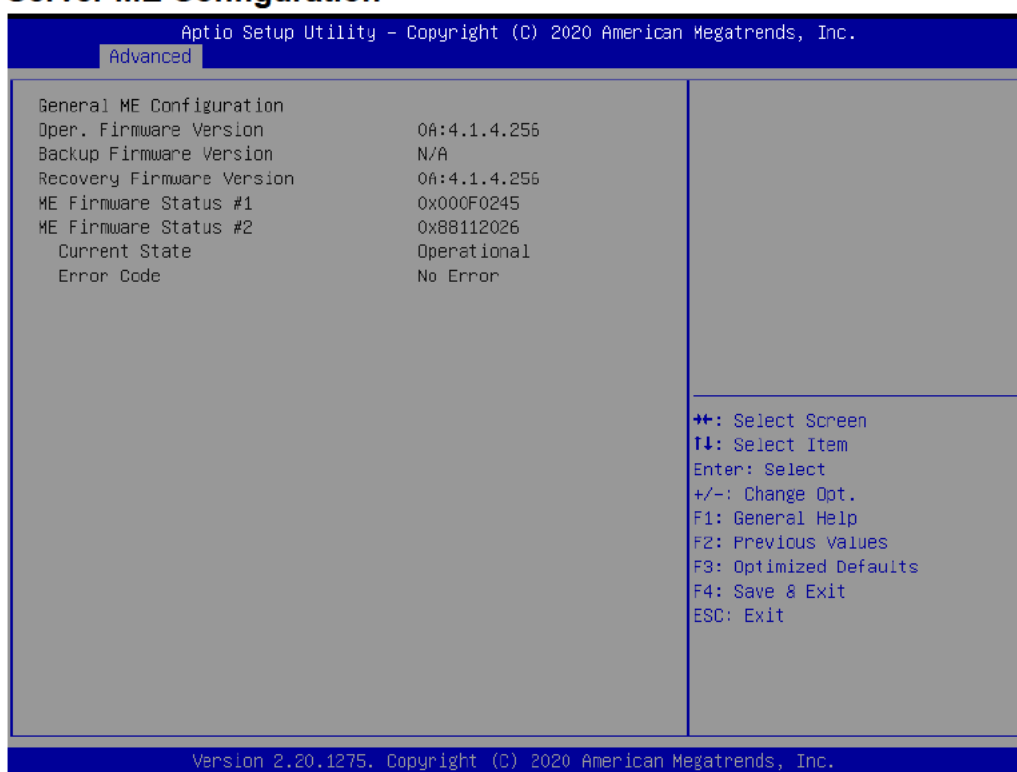
Item	Option	Description
<b>SATA HDD Unlock</b>	Disable Enable[Default]	Enable: HDD password unlock is enabled in the OS.
<b>SATA Led locate</b>	Disable Enable[Default]	If enabled LED/SGPIO hardware is attached.

3.6.2.9 Miscellaneous Configuration



Item	Options	Description
PCH state after G3	S0 S5[Default] Leave power state unchanged	Select S0/S5 for ACPI state after a G3.
Wake On Lan/Ring Support	Disable, Enable[Default]	Enable or Disable Wake On Lan Support.
Active Video	Auto[Default] Onboard Offboard	Select active Video type.
Wake On RTC Support	Disable[Default], Enable	Enable or disable System wake on alarm event. When enabled, System will wake on the day ::hr::min::sec specified.

### 3.6.2.10 Server ME Configuration

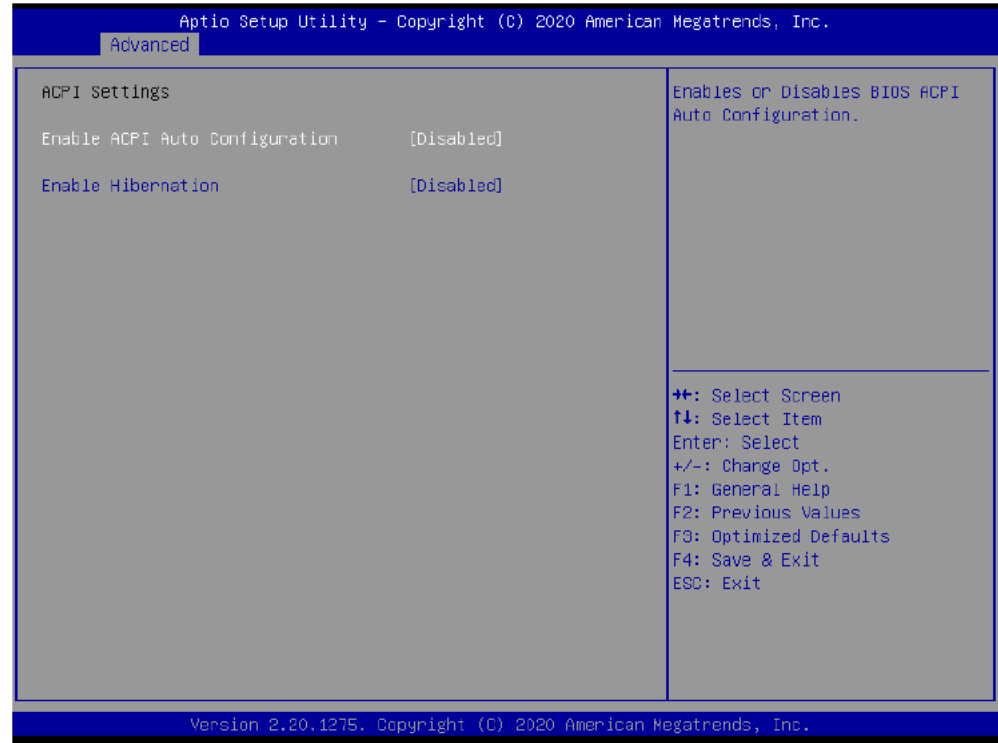


3.6.2.11 Trusted Computing



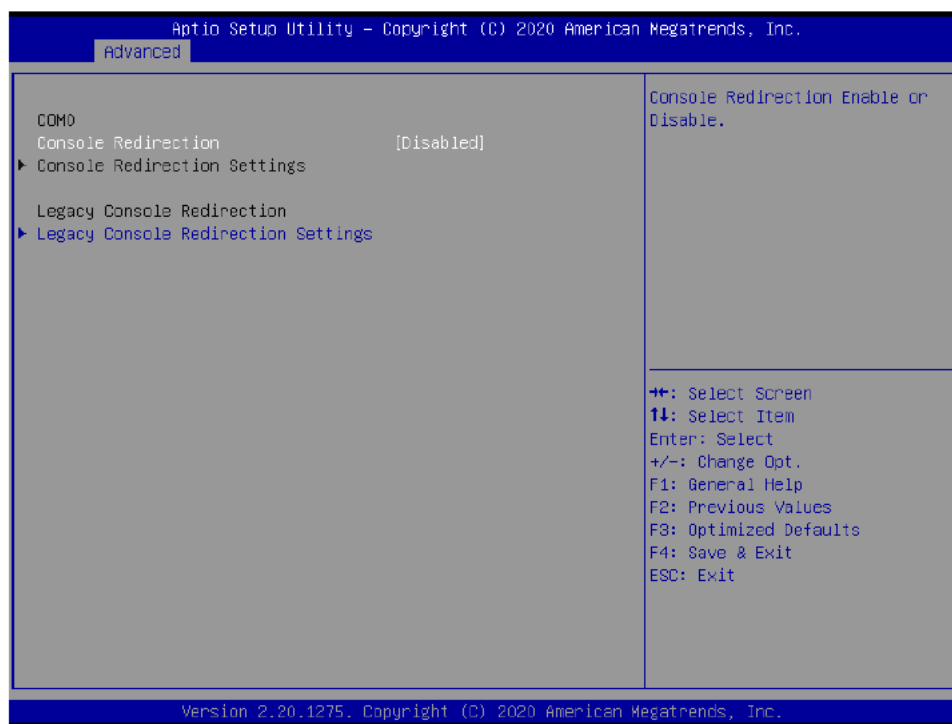
Item	Options	Description
TPM Support	Disable, Enable[Default]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

3.6.2.12 ACPI Settings



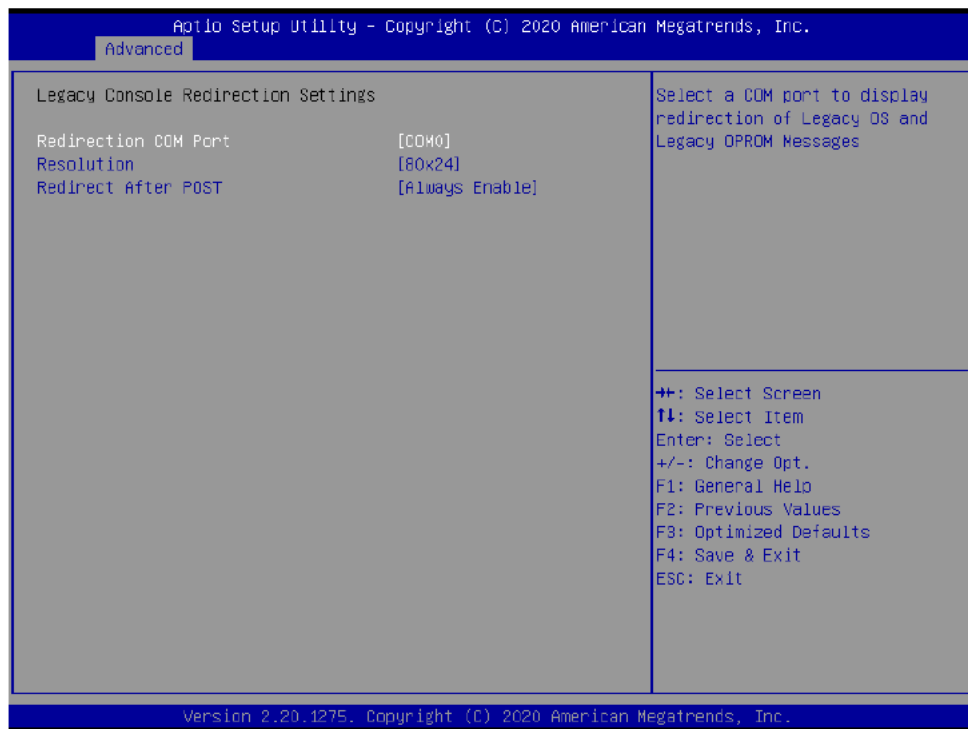
Item	Options	Description
<b>Enable ACPI Auto Configuration</b>	Disabled[Default] Enabled	Enables or Disables BIOS ACPI Auto Configuration.
<b>Enable Hibernation</b>	Disabled[Default] Enabled	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

### 3.6.2.13 Serial Port Console Redirection



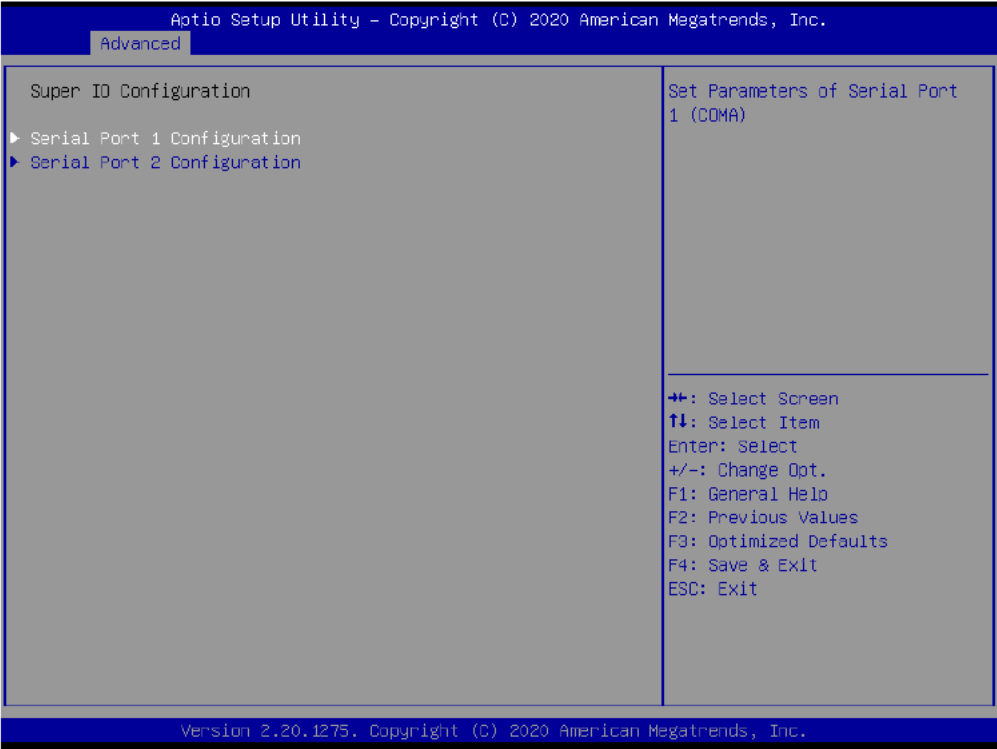
Item	Options	Description
<b>Console Redirection</b>	Disabled[Default], Enabled	Console Redirection Enable or Disable.

## 3.6.2.13.1 Legacy Console Redirection Settings



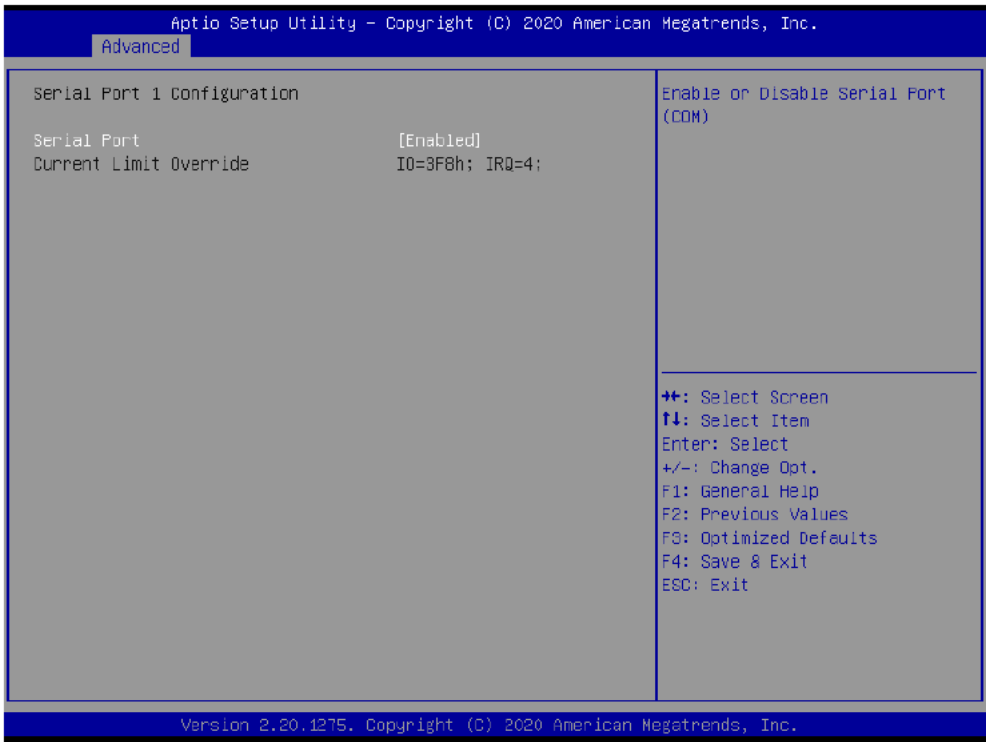
Item	Option	Description
Redirection COM Port	COM0[Default]	Select a COM port to display redirection of Legacy OS and Legacy OPRM Messages.
Resolution	80x24[Default] 80x25	On Legacy OS, the Number of Rows and Columns supported redirection.
Redirect After POST	Always Enable[Default] BootLoader	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

3.6.2.14 Super IO Configuration



Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).

3.6.2.14.1 Serial Port 1 Configuration





Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).

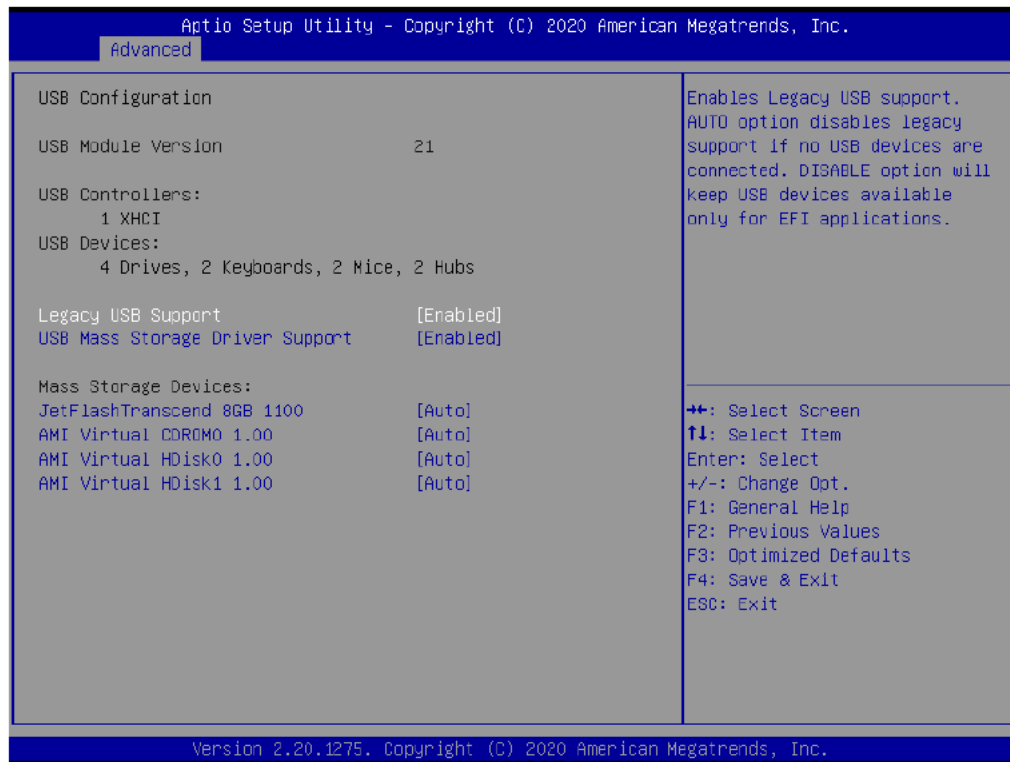
## 3.6.2.14.2 Serial Port 2 Configuration



Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).

### 3.6.2.15 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

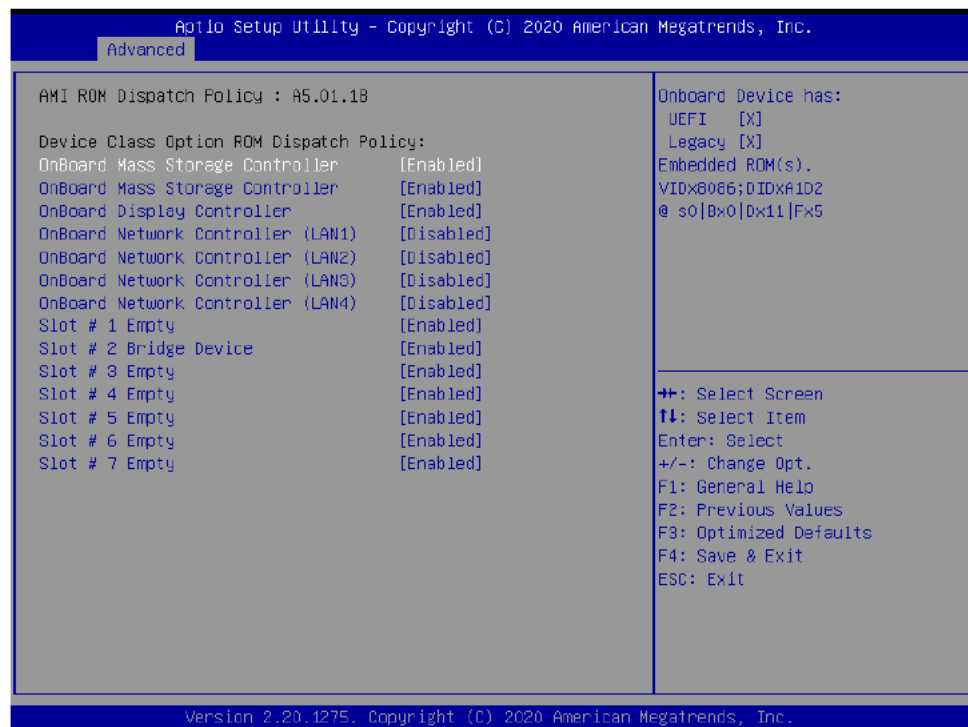


Item	Options	Description
<b>Legacy USB Support</b>	Enabled[Default], Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
<b>USB Mass Storage Driver Support</b>	Disabled Enabled[Default],	Enable/Disable USB Mass Storage Driver Support.
<b>Device power-up delay</b>	Auto[Default] Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
<b>Mass Storage Devices</b>	Auto[Default] Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

## 3.6.2.16 NVMe Configuration



## 3.6.2.17 Option ROM Dispatch Policy



Item	Options	Description
Onboard Mass Storage Controller	Enabled[Default], Disabled	Onboard Device has: UEFI [X] Legacy [X]

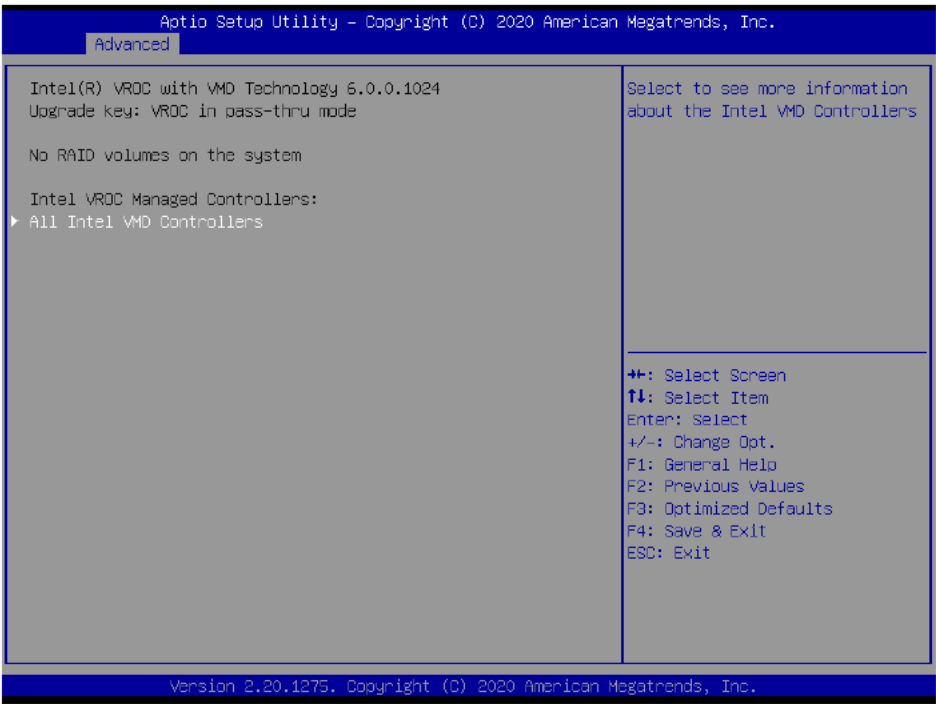
		Embedded ROM(s). VIDx8086; DIDxA1D2 @ s0 Bx0  Dx11  Fx5
<b>Onboard Display Controller</b>	Enabled[ <b>Default</b> ], Disabled	Onboard Device has: UEFI [X] Legacy [X] Embedded ROM(s). VIDx1A03; DIDx2000 @ s0 BxA  Dx0  Fx0
<b>Onboard Network Controller(LAN1)</b>	Enabled[ <b>Default</b> ], Disabled	Onboard Device has: UEFI [X] Legacy [X] Embedded ROM(s). VIDx8086; DIDx1533 @ s0 Bx6  Dx0  Fx0
<b>Onboard Network Controller(LAN2)</b>	Enabled, Disabled[ <b>Default</b> ]	Onboard Device has: UEFI [X] Legacy [X] Embedded ROM(s). VIDx8086; DIDx1533 @ s0 Bx7  Dx0  Fx0
<b>Onboard Network Controller(LAN3)</b>	Enabled, Disabled[ <b>Default</b> ]	Onboard Device has: UEFI [X] Legacy [X] Embedded ROM(s). VIDx8086; DIDx1533 @ s0 Bx1  Dx0  Fx0
<b>Onboard Network Controller(LAN4)</b>	Enabled, Disabled[ <b>Default</b> ]	Onboard Device has: UEFI [X] Legacy [X] Embedded ROM(s). VIDx8086; DIDx1533 @ s0 Bx2  Dx0  Fx0
<b>Slot#1 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#2 Bridge Device</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#3 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#4 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#5 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#6 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.
<b>Slot#7 Empty</b>	Enabled[ <b>Default</b> ], Disabled	Enable or Disable Option ROM execution for selected Slot.

3.6.2.18 Network Stack Configuration



Item	Options	Description
Network Stack	Enabled Disabled[Default]	Enable/Disable UEFI Network Stack.

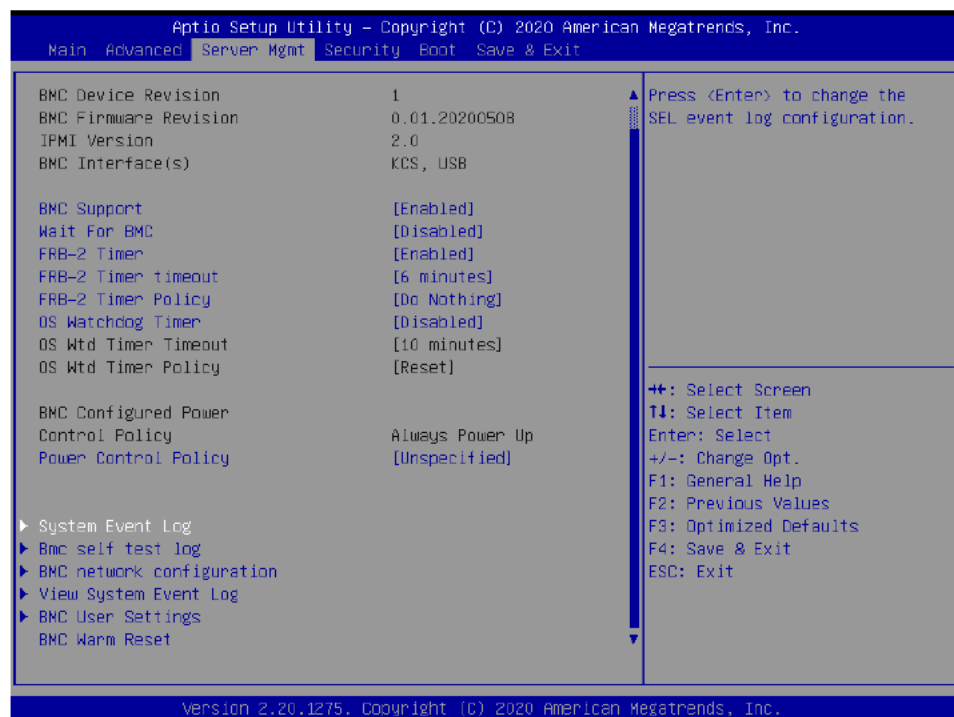
3.6.2.19 Intel® Virtual RAID on CPU



### 3.6.2.19.1 All Intel VMD Controllers



### 3.6.3 Server Mgmt



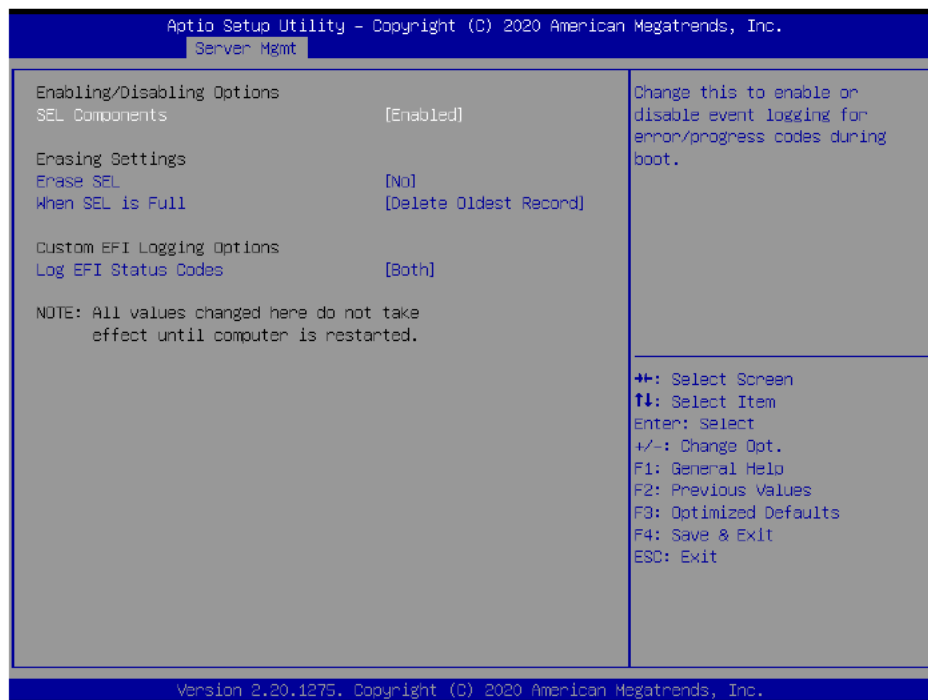
Item	Options	Description
BMC Support	Enabled[Default] Disabled	Enable/Disable interfaces to communicate with BMC.
Wait For BMC	Enabled Disabled[Default]	Wait For BMC response for specified time out. BMC



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		starts at the same time when BIOS starts during AC power ON. It takes around 30 seconds to initialize Host to BMC interfaces.
<b>FRB-2 Timer</b>	Enabled[Default] Disabled	Enable or Disable FRB-2 time (POST timer).
<b>FRB-2 Timer timeout</b>	3 minutes 4 minutes 5 minutes 6 minutes[Default]	Enter value Between 3 to 6 min for FRB-2 Timer Expiration value.
<b>FRB-2 Timer Policy</b>	Do Nothing[Default] Reset Power Down Power Cycle	Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.
<b>OS Watchdog Timer</b>	Enabled Disabled[Default]	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.
<b>Power Control Policy</b>	Do Not PowerUp Last Power State Power Restore Unspecified[Default]	Configure how the system should respond if AC Power is lost, Reset not required as selected Power policy will be set in BMC when policy is saved.

### 3.6.3.1 System Event Log



Item	Option	Description
<b>SEL Components</b>	Enabled[Default] Disabled	Change this to enable or disable event logging for error/progress codes during boot.
<b>Erase SEL</b>	No[Default] Yes, On next reset	Choose options for erasing SEL.

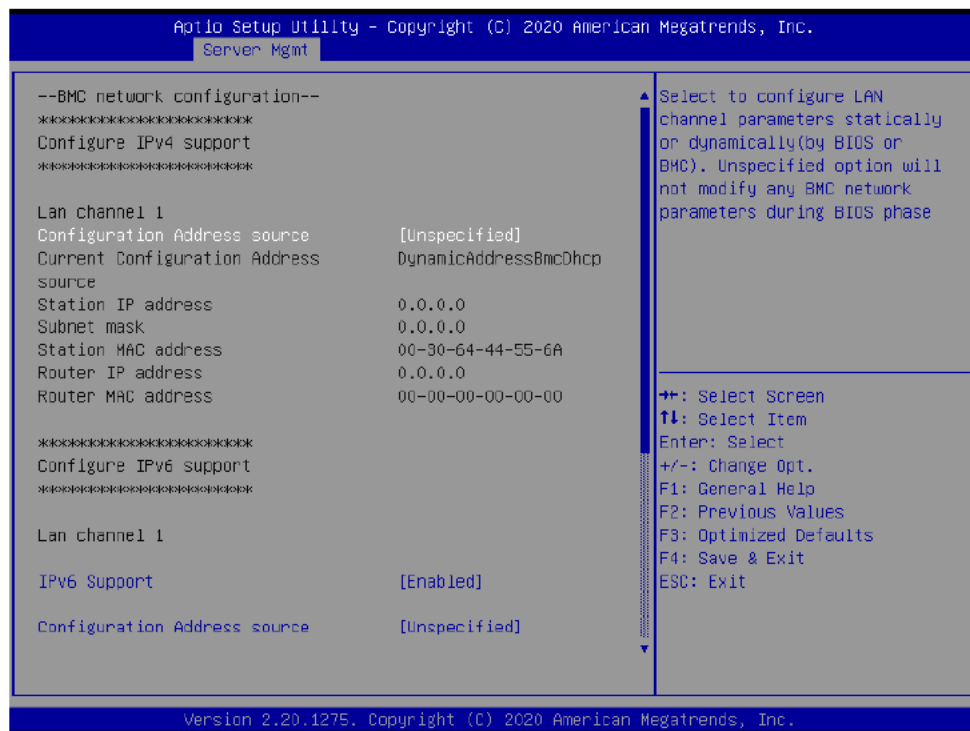
	Yes, On every reset	
<b>When SEL is Full</b>	Do Nothing Erase Immediately Delete Oldest Record[Default]	Choose options for reactions to a full SEL.
<b>Log EFI Status Codes</b>	Disabled Both[Default] Error code Progress code	Disable the logging of EFI Status Codes or log only error code or only progress code or both.

### 3.6.3.2 Bmc self test log



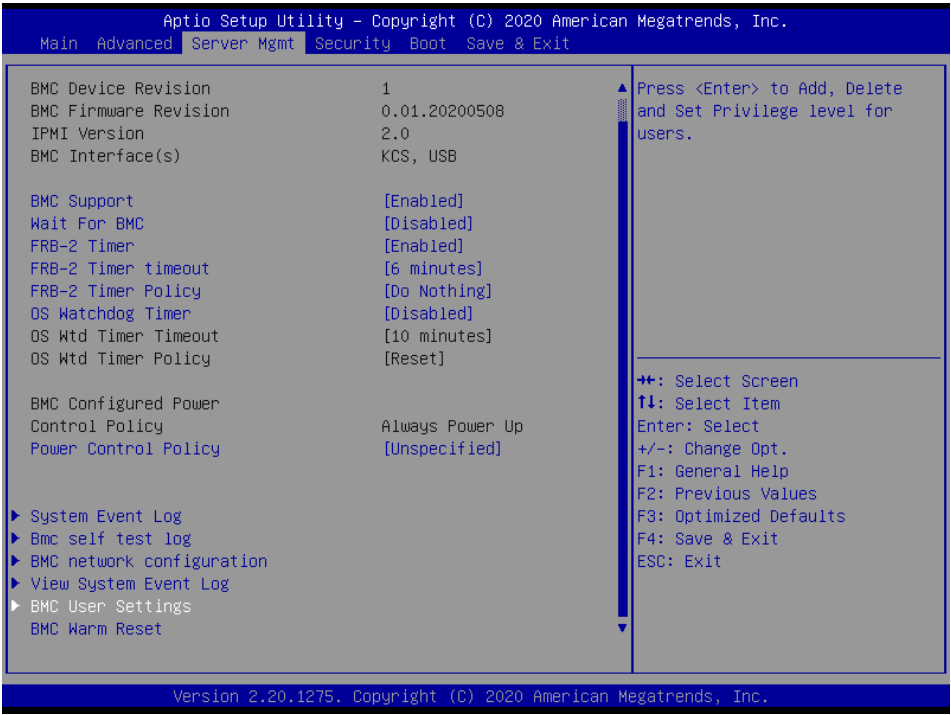
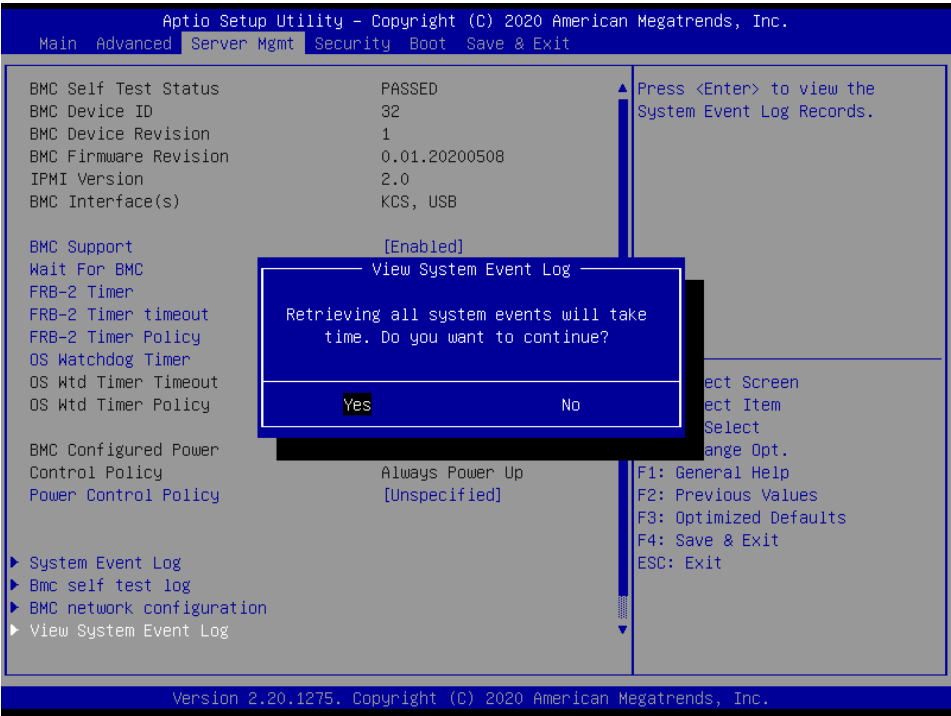
Item	Option	Description
<b>Erase Log</b>	Yes, On every reset[Default] No	Erase Log Options.
<b>When log is full</b>	Clear Log[Default] Do not log any more	Select the action to be taken when log is full.

### 3.6.3.3 BMC network configuration

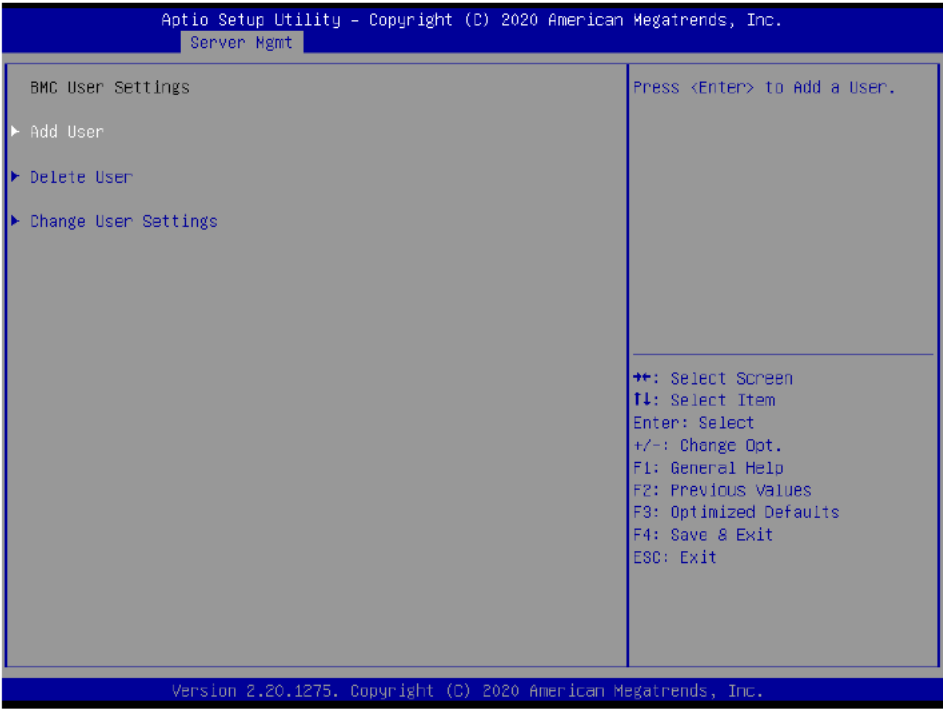


Item	Option	Description
Configuration Address source	Unspecified[Default] Static DynamicBmcDhcp DynamicBmcNonDhcp	Select configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
IPV6 Support	Enabled[Default] Disabled	Enable or Disable LAN1 IPV6 Support.
Configuration Address source	Unspecified[Default] Static DynamicBmcDhcp	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.

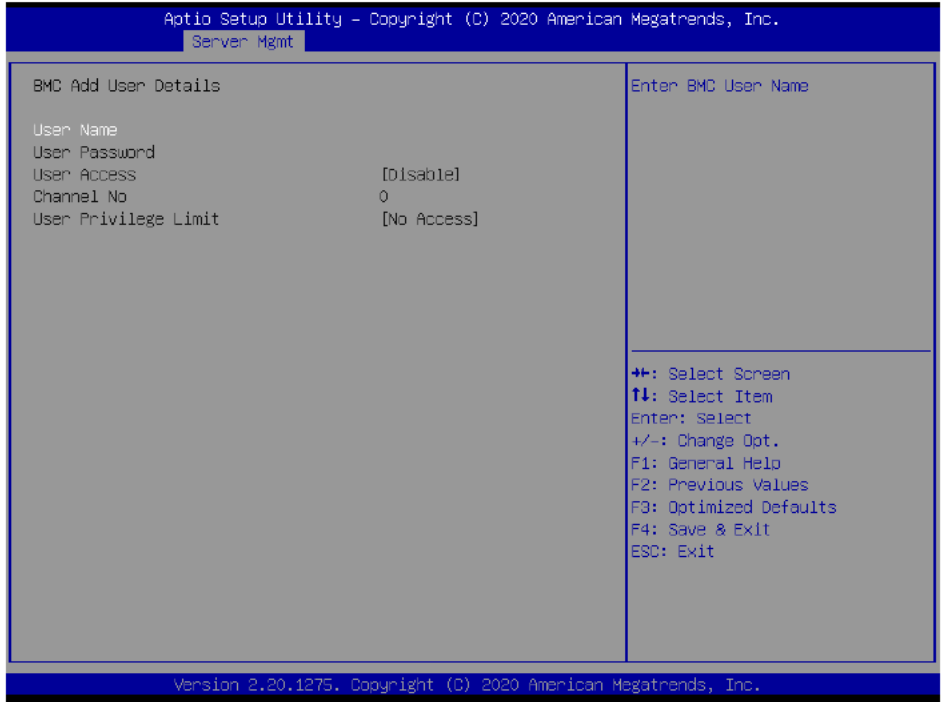
3.6.3.4 BMC User Settings



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3.6.3.4.1 BMC Add User Details



Item	Description
User Name	Enter BMC User Name.

3.6.3.4.2 BMC Delete User Details

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

Server Mgmt

BMC Delete User Details

User Name  
User Password

Enter BMC User Name

++: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F2: Previous Values  
F3: Optimized Defaults  
F4: Save & Exit  
ESC: Exit

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

Item	Description
User Name	Enter BMC User Name.

3.6.3.4.3 BMC Change User Settings

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

Server Mgmt

BMC Change User Settings

User Name  
User Password  
Change User Password  
User Access [Disable]  
Channel No 0  
User Privilege Limit [No Access]

Enter BMC User Name

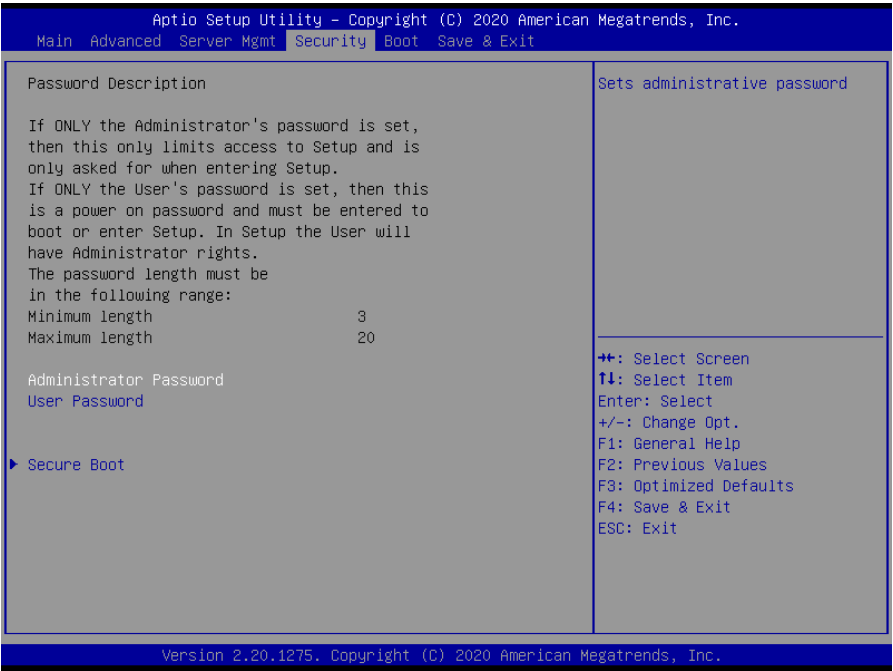
++: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F2: Previous Values  
F3: Optimized Defaults  
F4: Save & Exit  
ESC: Exit

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

Item	Description
User Name	Enter BMC User Name.



3.6.4 Security



● Administrator Password

Set setup Administrator Password

● User Password

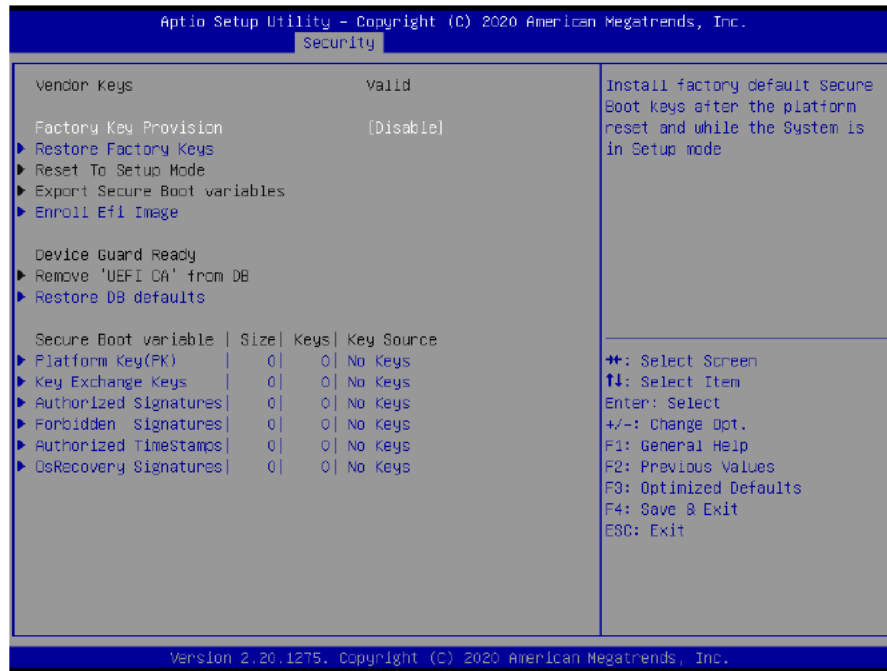
Set User Password

3.6.4.1 Secure Boot



Item	Option	Description
Secure Boot	Disabled Enabled[Default]	Secure Boot feature is Active if Secure Boot is Enable, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset.
Secure Boot Mode	Standard Custom[Default]	Secure Boot mode selector: Standard/Custom. In Custom mode Secure Boot Variables can be configured without authentication.

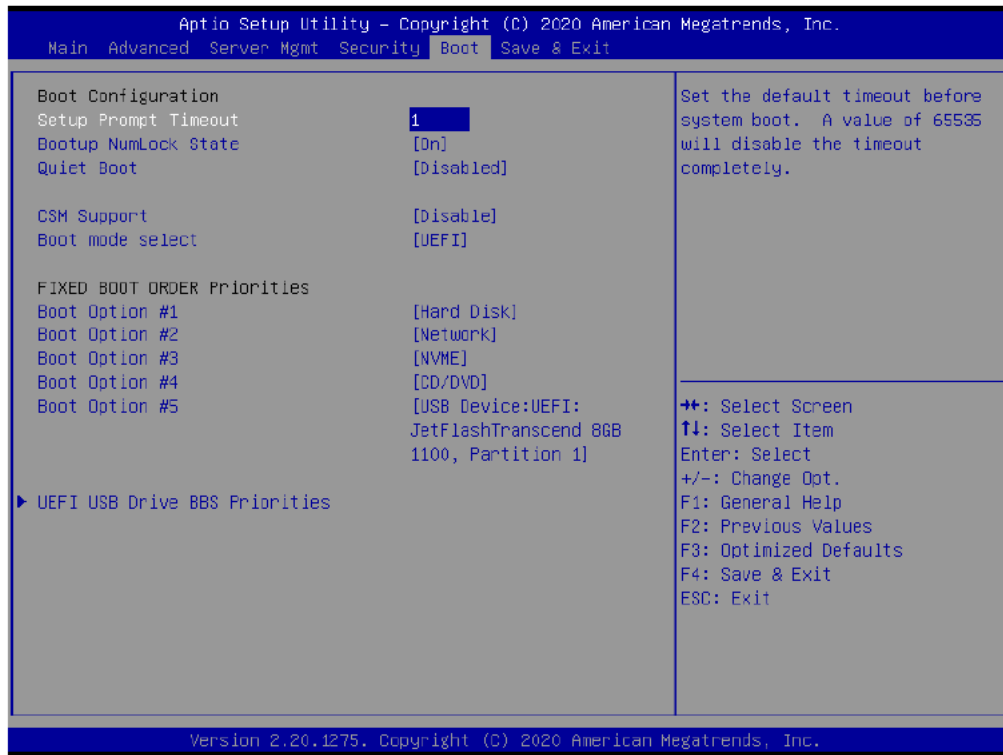
### 3.6.4.1.1 Key Management



Item	Option	Description
Factory Key Provision	Disabled[Default] Enabled	Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

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### 3.6.5 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Set the default timeout before system boot. A value of 65535 will disable the timeout completely.
Bootup NumLock State	On[Default] Off	Select the keyboard NumLock state

<b>Quiet Boot</b>	Disabled[Default] Enabled	Enables or disables Quiet Boot option
<b>CSM Support</b>	Disabled[Default] Enabled	Enable/Disable CSM Support.
<b>Boot mode select</b>	LEGACY UEFI[Default]	Select boot mode LEGACY/UEFI.
<b>Boot Option #1/#2/#3/#4/#5</b>	Set the system boot order.	

### 3.6.6 Save and exit



### **3.6.6.1 *Save Changes and Reset***

Reset the system after saving the changes.

### **3.6.6.2 *Discard Changes and Reset***

Reset system setup without saving any changes.

### **3.6.6.3 *Restore Default Values***

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

### **3.6.6.4 *Save the User Default Values***

Restore/Load Default values for all the setup options.

### **3.6.6.5 *Restore the User Default Values***

Restore the User Defaults to all the setup options.

## 4. Drivers Installation

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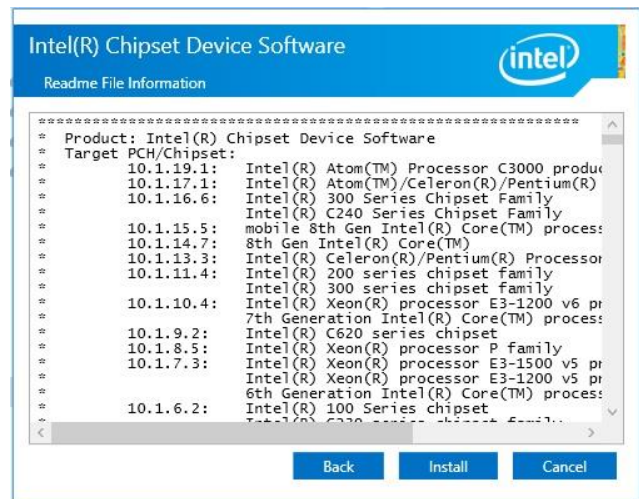
**Note:** Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.



## 4.1 Install Chipset Driver



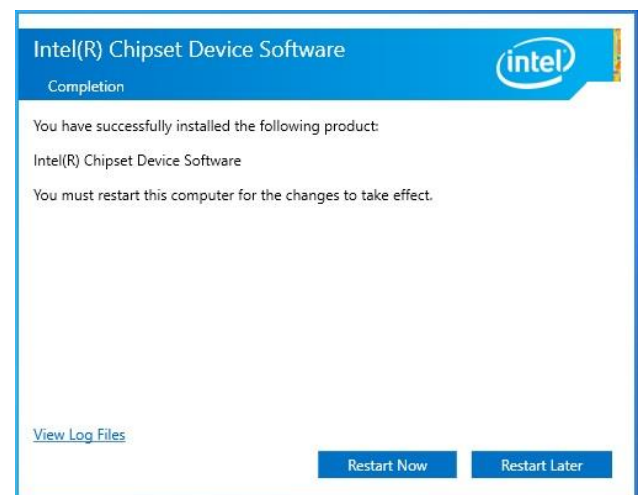
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



**Step 3. Click Install.**



**Step1. Click Next.**



**Step 4. Setup completed.**

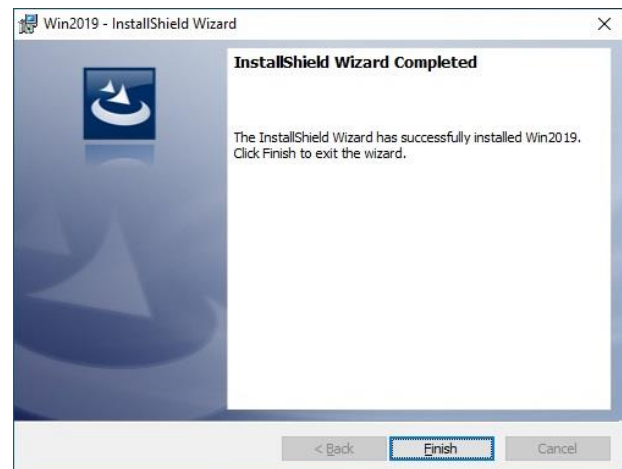


**Step 2. Click Accept.**

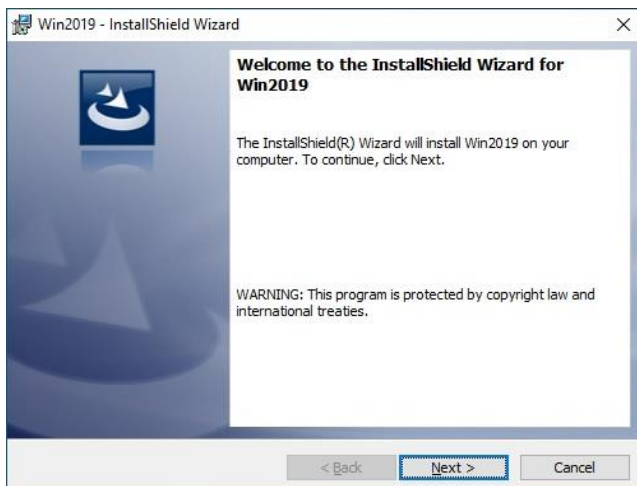
## 4.2 Install VGA Driver



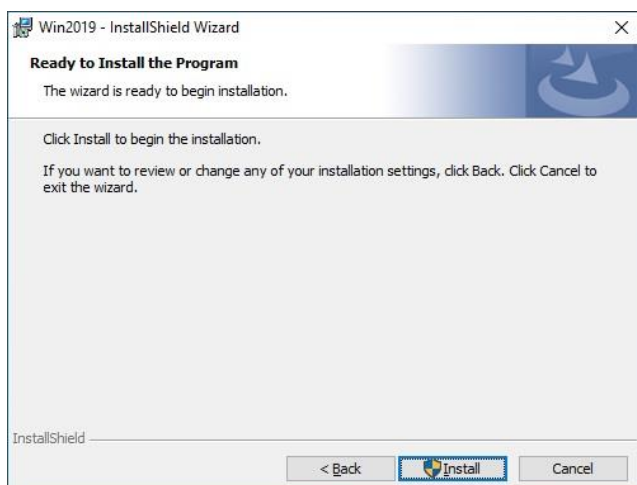
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system.



**Step 3.** Click **Finish** to complete setup.



**Step 1.** Click **Next** to continue installation.

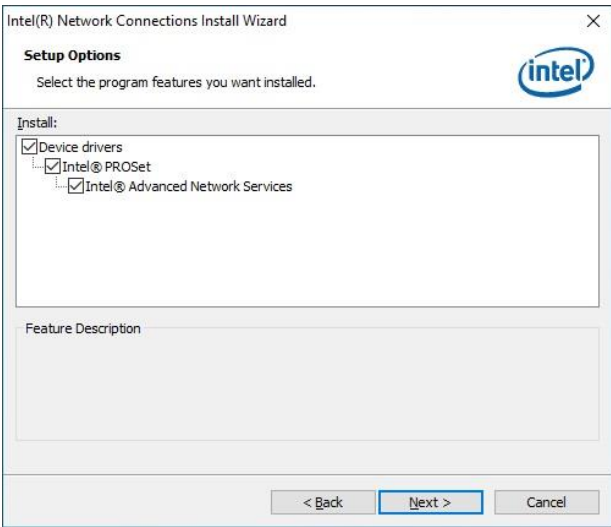


**Step 2.** Click **Install**.

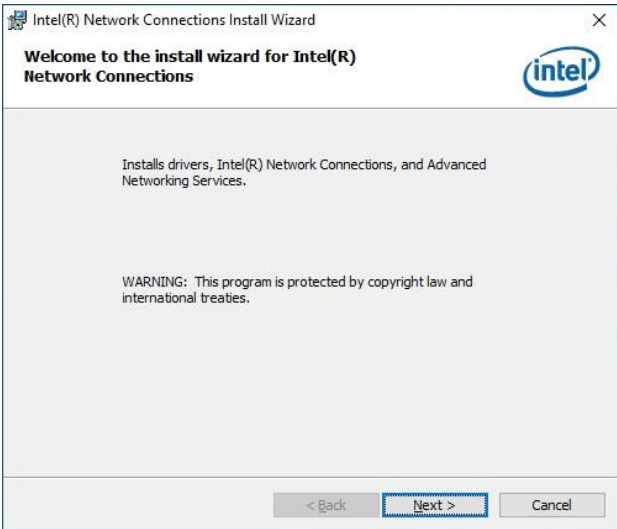
4.3 Install Ethernet Driver



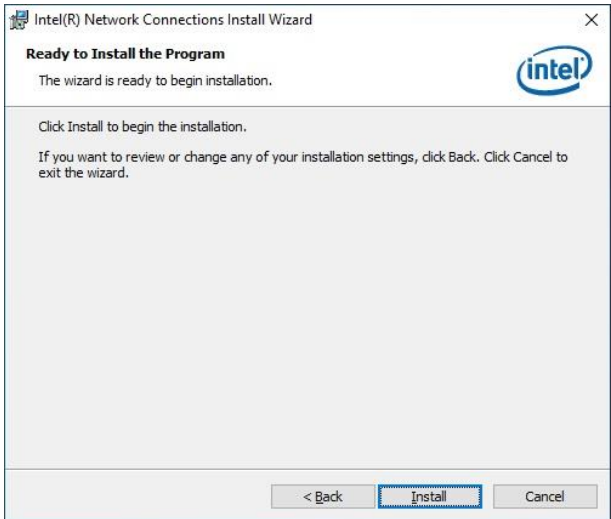
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system.



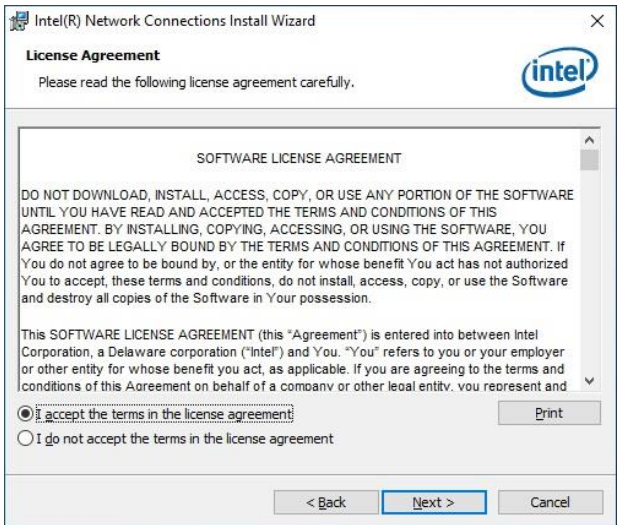
Step 3. Click Next.



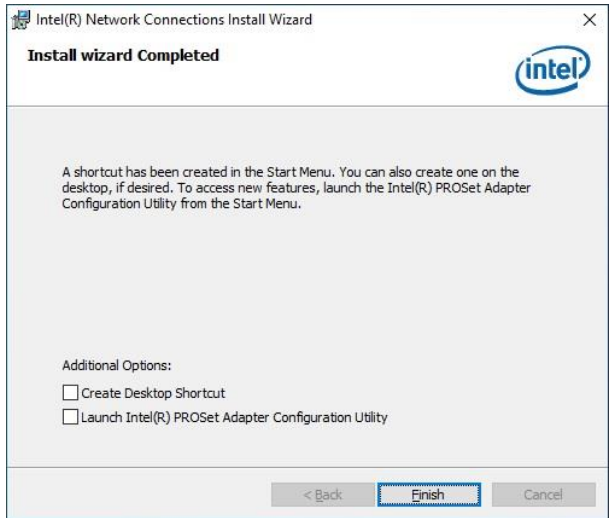
Step 1. Click Next to continue installation.



Step 4. Click Install.



Step 2. Click Next.

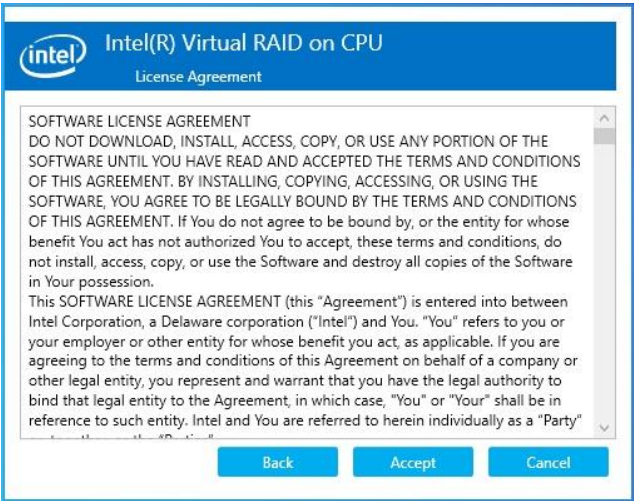


Step 5. Click Finish to complete setup.

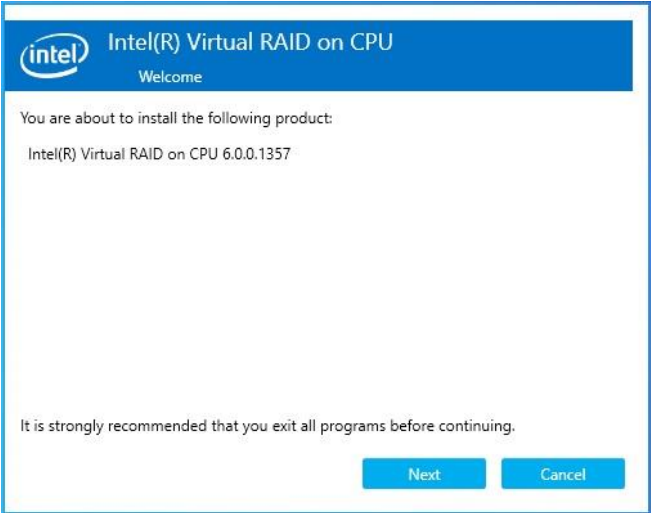
4.4 Install VROC Driver



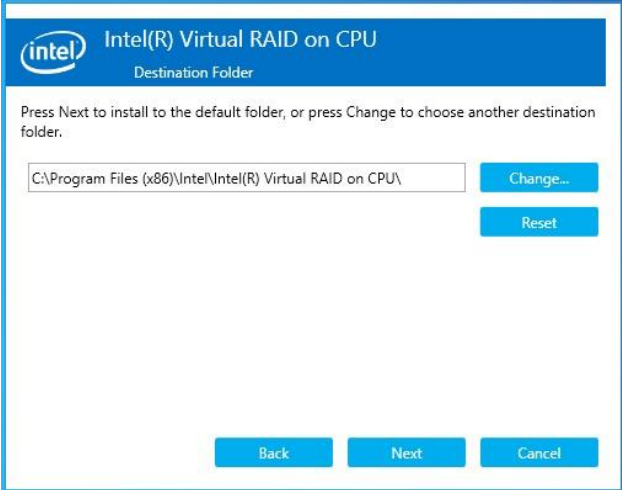
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system.



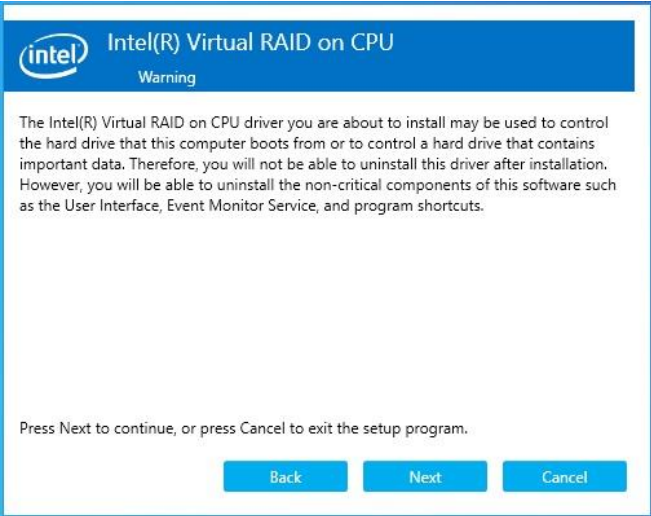
**Step 3. Click Accept.**



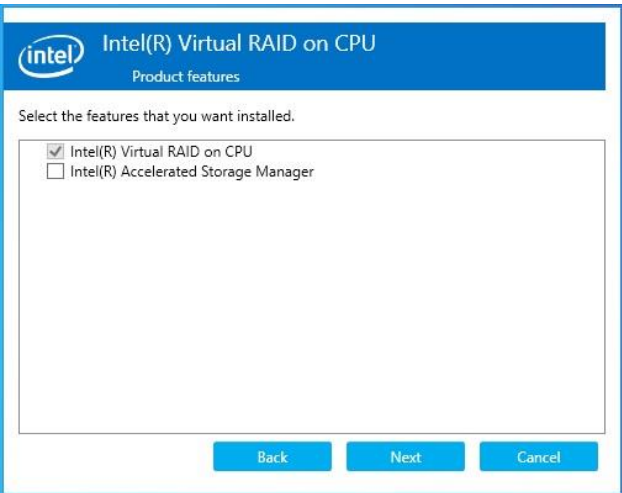
**Step 1. Click Next** to continue installation.



**Step 4. Click Next.**

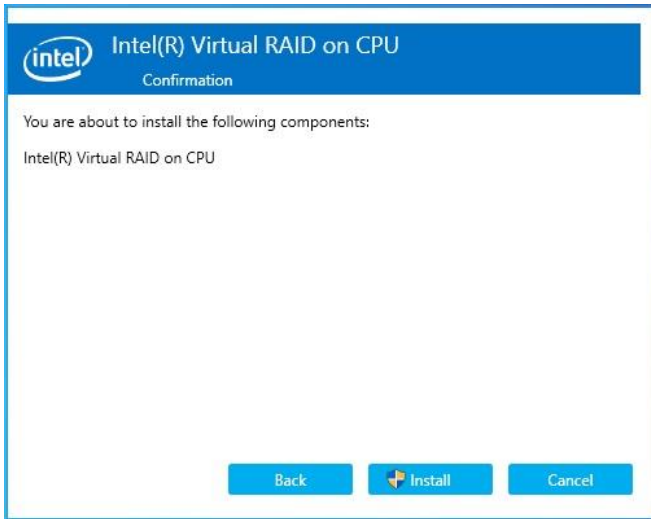


**Step 2. Click Next.**

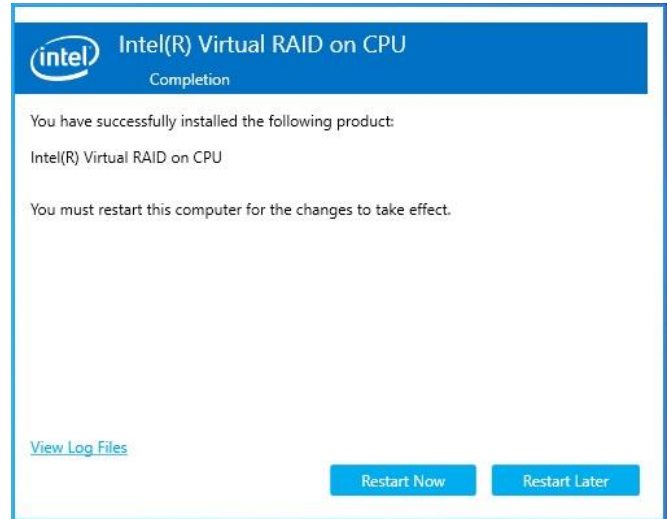


**Step 5. Click Next.**

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**Step 6.** Click **Install** to complete setup.

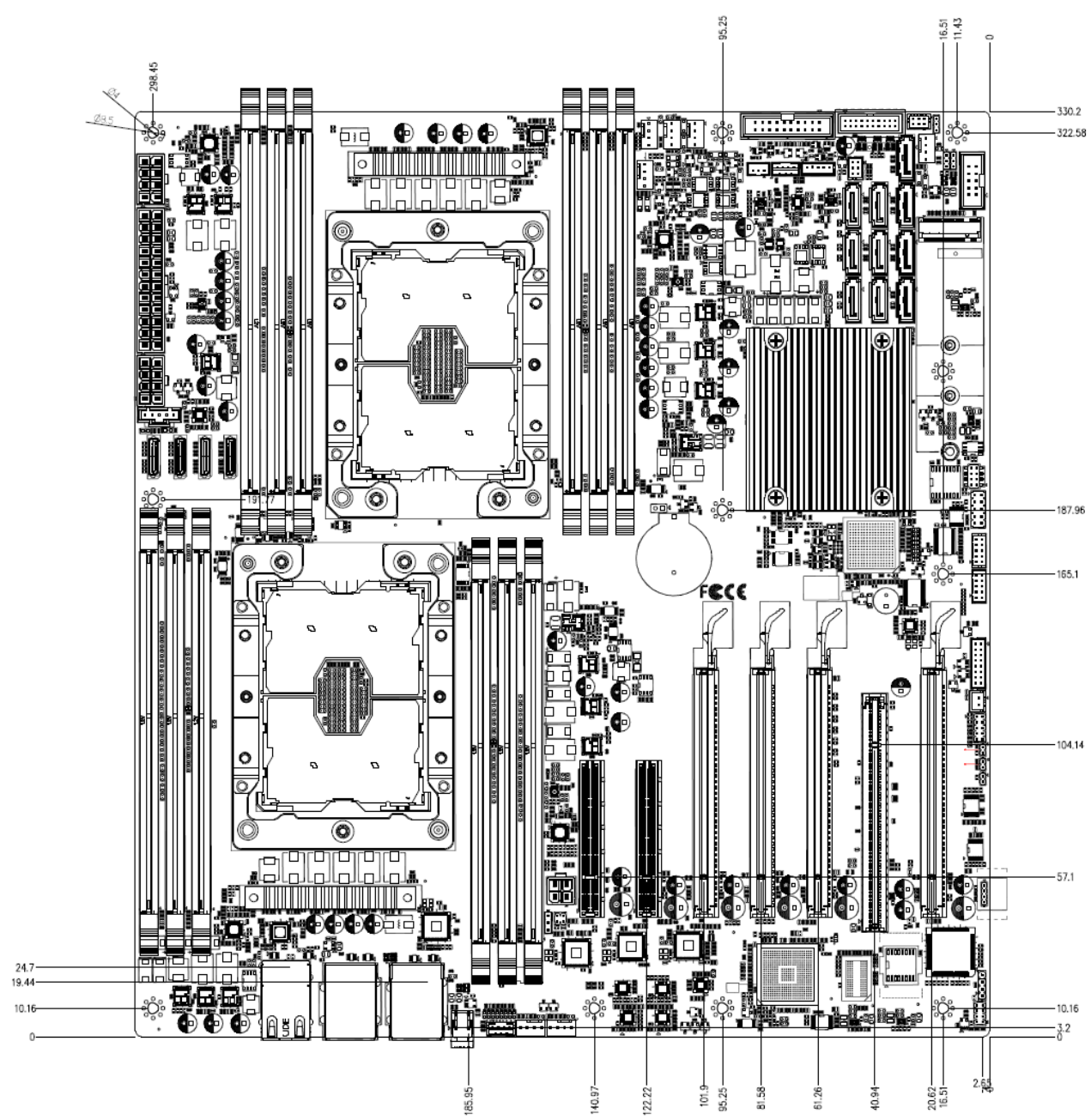


**Step 7.** Setup completed.

# 5. Mechanical Drawing

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Unit: mm