HPS-246U4A /HPS-246UTA

19" 4U Workstation, Intel Xeon E-processors, C246, 500W PSU

Quick Reference Guide

3rd Ed –16 February 2023

Part No. E2017T1S0A2R

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 UNDESIRED 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 INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

http://www.avalue.com.tw/

Content

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

- 1 x HPS-246U4A/HPS-246UTA barebone system
  - HPM-246UA motherboard
  - 500W PSU
- 2 x front door keys

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

1.3 System Specifications

Component	
Mother Board	1 x Intel 8th/9th Gen ,C246,IPMI 2.0, DP Intel Xeon E processors, Up to 95W (HPM-246UAA-A1R)
CPU	1 x Intel Xeon E-2176G 3.7GHz Processor CM8068403380018SR3WS, Intel (BCC-CPU-2176GR) At CPU1
CPU Cooler (Type)	1 x CPU Cooler for LGA1155 Package 4-Pin/12V 4200RPM 94*94*25.4mm(RoHS) (ACC-FAN-829R)
Memory	2 x DDR4 2666 16GB 288PIN 0~85C M4C0-AGS1MCIK, Innodisk, ECC UDIMM (BCC-MEM-16G-05R) At DIMMA1, DIMMB1
Power Supply	1 x Power Supply ATX 500W 140 x 150 x 86mm FSP500-80AGGBM(M) (BCC-PSU-500N-02R)
Operating System	1 x Win10 IoT Ent LTSC 2019 MultiLang OEI High End EPKEA (ESD) (ESW-071R)(Optional)
GPU Card	NVIDIA Quadro P2200 5GB/75W Leadtek DP 1.4 (4) (BCC-GPU-P2200-01R) At Slot 6
Storage	
Optical Disk Drive	1 x GH24NSD5 Super Multi DVD Rewriter (BCC-ODD-24X-01R) At SATA4
Solid State Drive	1 x 2.5" SATA3 SSD 240GB TLC 0~70C (non-IPS) TS240GSSD452K-PHX1, Transcend, 1.02 DWPD (BCC-2S3S-240G-03R) At SATA1 Physical (Top to Bottom, 1-3): At 1
External I/O	
Serial Port	1 x RS232 (Bracket shared with VGA port, RS232 on the top) At Slot 0
USB Port	• Front: 2 x USB 3.2 Gen1 Ports. At JUSB34 • Rear: 2 x USB 3.2 Gen2 Ports
Video Port	**Display Priority: VGA** 1 x VGA (Bracket shared with Serial port, VGA on the bottom)

	At Slot 0 3 x DP++ Intel® 8th/9th Generation CPU integrated DP: 4096 x 2304 @ 60Hz Triple Display
LAN Port	7 x RJ-45 (LAN 1 port shared with IPMI 2.0) Chipset: 7 x Intel®I210AT Giga-bit Ethernet
Indicator Light	1 x Power state 1 x Disk drive activity 1 x Network activity
Expansion Slots	**1x PCIe x16 slot, 1x PCIe x8 slot, 1x PCIe x 4 slot, 1x PCIe x1 slot, 1x PCI 3.0** Slot 1, PCI 3.0 Slot 2, PCIe 3.0 x1 Slot 3, PCIe 3.0 x4 Slot 4, PCIe 2.0 x8 (Only by HPM-246UAA) Slot 5, NA Slot 6, PCIe 3.0 x16 (GPU-P2200) At (Board) PCIEX1 Slot 7, NA (Slot 7 is the slot closest to CPU)
Mechanical	
Power Type	H/W: ATX power well design only BMC: AT (Default)
Power Connector Type	AC Power Socket
Dimension	D x W x H: 528mm x 430mm x 174.8mm
Weight	18kg
Color	Black
Fanless	No
OS Support	• Windows 10 IoT Enterprise 2016 LTSB • Windows 10 IoT Enterprise LTSC 2019
Reliability	
EMI Test	CE, FCC class A EMC Safety Requirement: ESD +8KV Contact and +15KV Air
Safety	EN62368
Vibration Test	**Operational :** 1. 0.25 Grms Random 2. Operation mode 3. Test Frequency : 5-500Hz 4. Test Axis : X,Y and Z axis 5. 30 min. per each axis

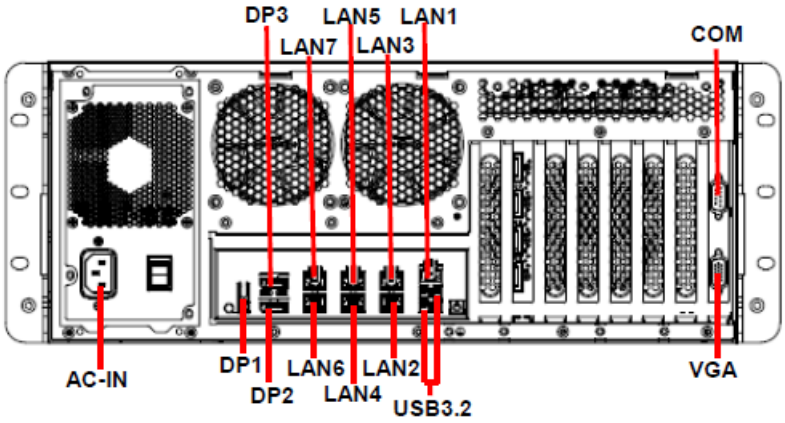
	6. IEC 60068-2-64 Test:Fh **Non-operational :** 1. Test Acceleration : 0.5G 2. Test frequency : 5~500 Hz 3. Sweep：1 Oct/ per one minute. (logarithmic) 4. Test Axis : X,Y and Z axis 5. Test time :30 min. each axis 6. System condition : Non-Operating mode 7. Reference IEC 60068-2-6 Testing procedures **Package Vibration Test:** 1. PSD: 0.026G²/Hz , 2.16 Grms 2. Non-operation mode 3. Test Frequency : 5-500Hz 4. Test Axis : X,Y and Z axis 5. 30 min. per each axis 6. IEC 60068-2-64 Test:Fh
Mechanical Shock Test	**Operational :** 1. Wave form：Half Sine wave 2. Acceleration Rate：5.0G for operation mode 3. Duration Time：11ms 4. No. of Shock：Z axis 300 times 5. Test Axis: Z axis 6. Operation mode 7. Reference IEC 60068-2-27 Testing procedures
Drop Test	**Package drop test :** 1. One corner , three edges, six face 2. ISTA 2A, IEC-60068-2-32 Test:Ed
Operating Temperature	Condition 1: Temperature: 0 to 45 degree C (L6 system) Condition 2: Temperature: 0 to 40 degree C (L10 system, GPU P2200) Condition 3: Temperature: 0 to TBC degree (L10 system, depends on added card spec.)
Operating Humidity	40℃/RH95%/24hrs IEC 60068-2-56 Test:Cb
Storage Temperature	-40℃ 24hrs IEC60068-2-1 Cold test Test : Ab 70℃/ RH95％ 24hrs IEC 60068-2-3 Test:Ca

Note: Specifications are subject to change without notice.

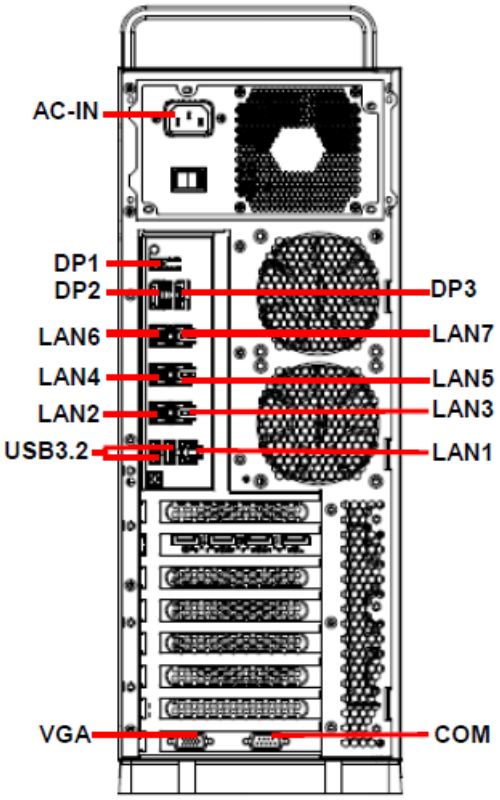
1.4 System Overview

1.4.1 Front View

HPS-246U4A



HPS-246UTA



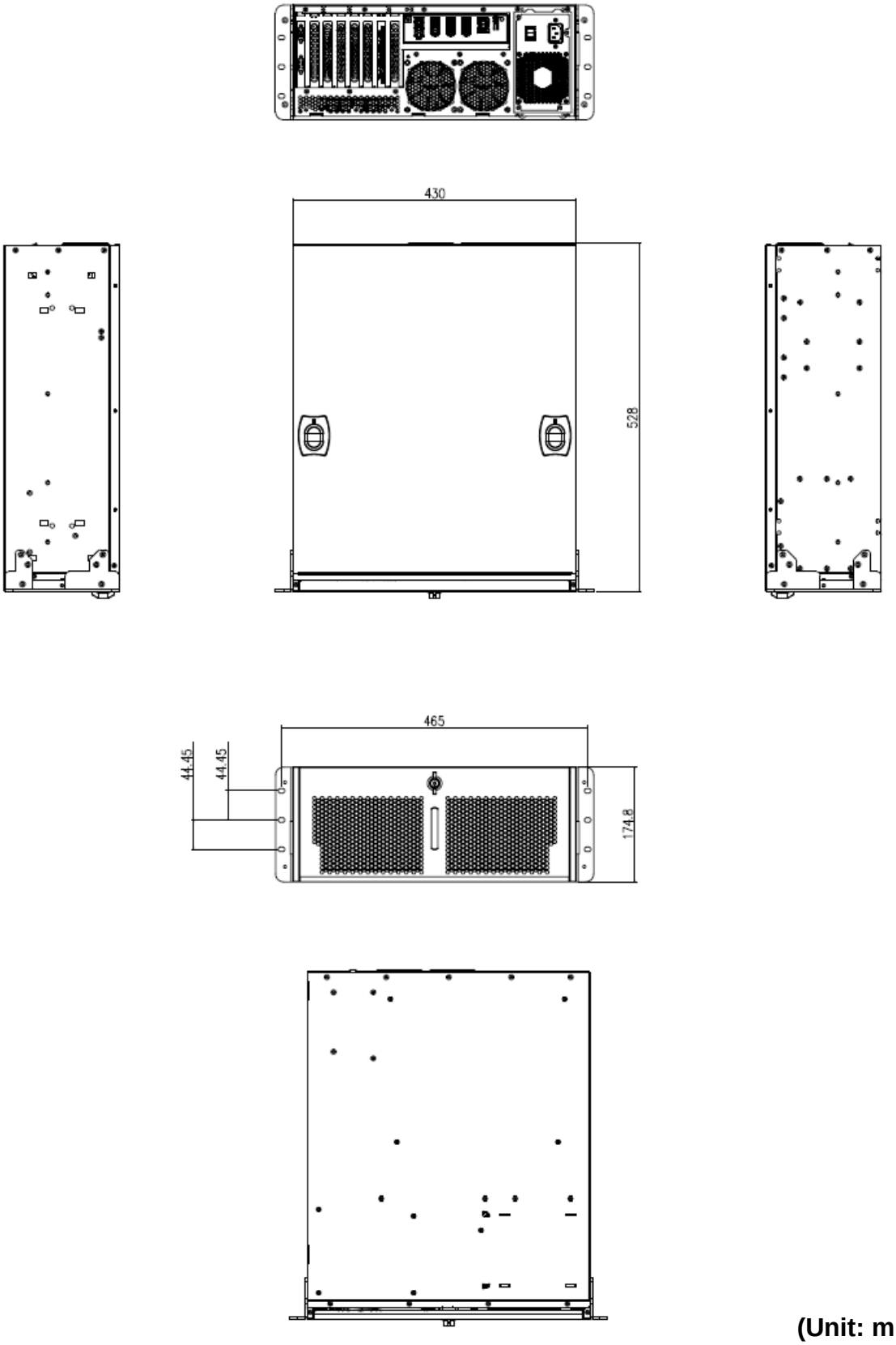
Connectors

Label	Function	Note
COM	Serial port connector	D-sub 9-pin, male
VGA	VGA connector	

LAN1~7	7 x RJ-45 Ethernet connector
USB3.2	2 x USB3.2 connector
DP1~3	3 x DP connector
AC-IN	AC power-in connector

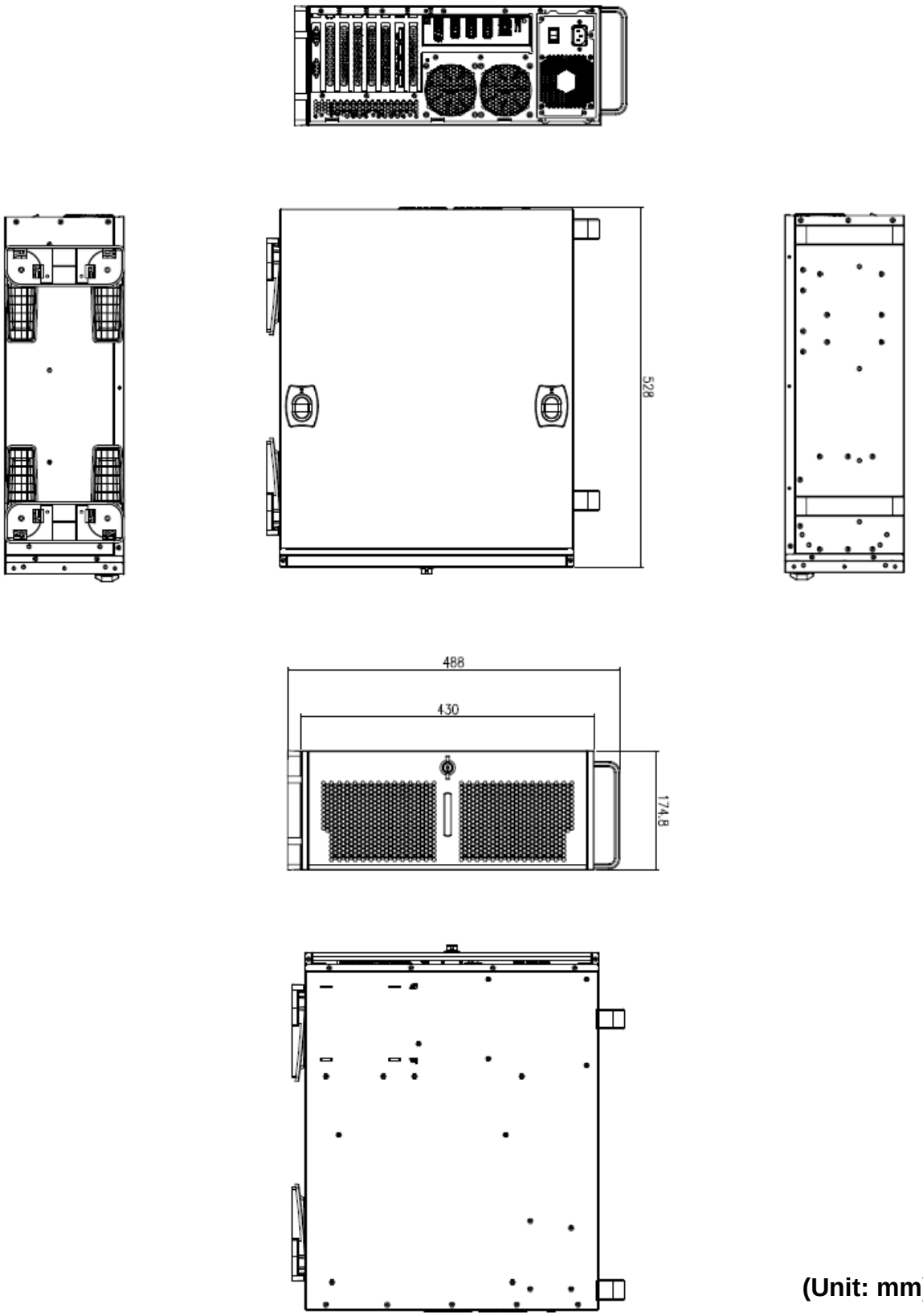
1.5 System Dimensions

1.5.1 HPS-246U4A



(Unit: mm)

1.5.2 HPS-246UTA



(Unit: mm)

2. Hardware Configuration

Jumper and Connector Setting

For advanced information, please refer to:

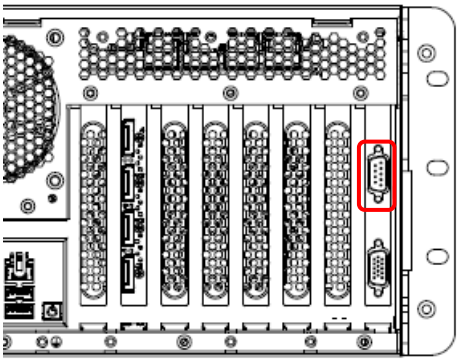
1- HPM-246 included in this manual.

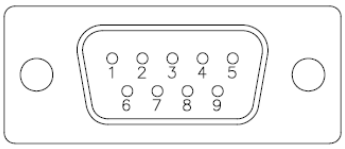
Note: If you need more information, please visit our website:

http://www.avalue.com.tw

2.1 HPS-246U4A/HPS-246UTA connector mapping

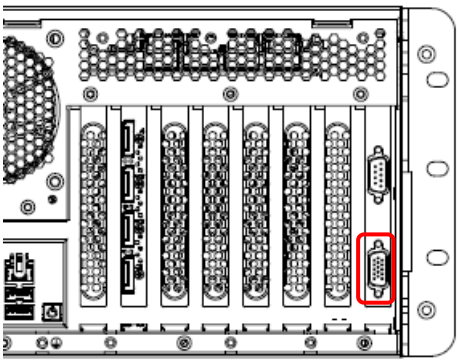
2.1.1 Serial Port connector (COM)

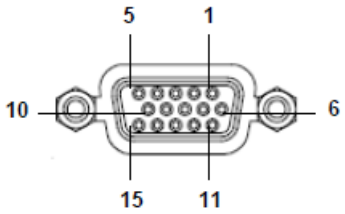




Signal	PIN	PIN	Signal
DCD#	1	6	DSR#
RXD	2	7	RTS#
TXD	3	8	CTS#
DTR#	4	9	RI#
GND	5		

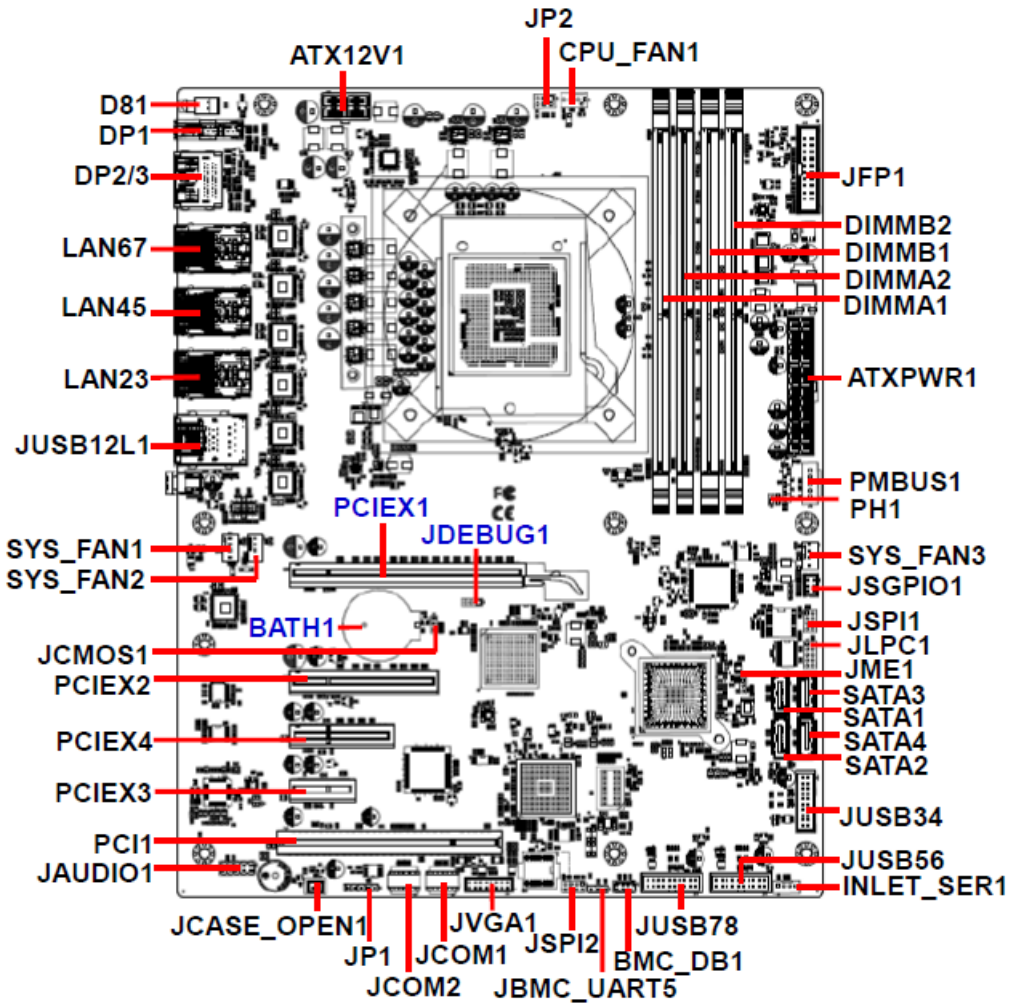
2.1.2 VGA connector (VGA)





PIN	Signal	PIN	Signal	PIN	Signal
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	DDCDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	+5V	14	VSYNS
5	GND	10	GND	15	DDCCLK

2.2 HPM-246 Overviews



2.3 HPM-246 Jumper & Connector list

Jumpers

Label	Function	Note
PH1	PM BUS pull high Jumper	2 x 1 header, pitch 2.00mm
JME1	Flash BIOS ME connector	3 x 1 header, pitch 2.00mm
BMC_DB1	BMC strap setting	4 x 2 header, pitch 2.00mm
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm

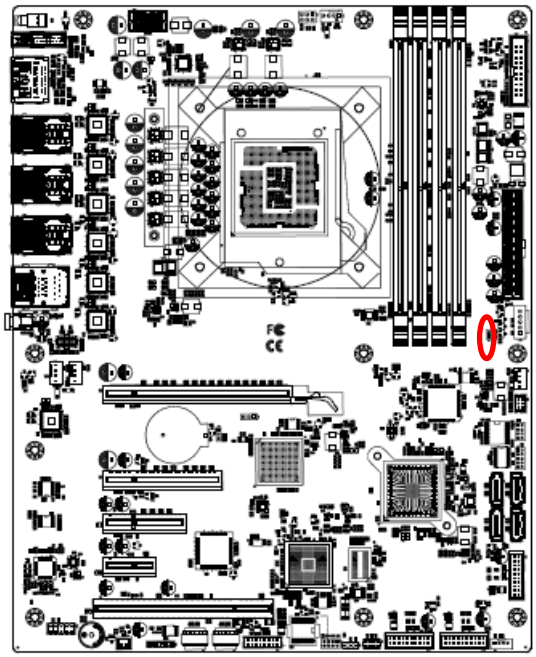
Connectors

Label	Function	Note
SYS_FAN1	Outlet fan connector 1	4 x 1 wafer, pitch 2.54mm
SYS_FAN2	Outlet fan connector 2	4 x 1 wafer, pitch 2.54mm
SYS_FAN3	Inlet fan connector	4 x 1 wafer, pitch 2.54mm
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
JCOM1	Serial Port 1 connector	5 x 2 wafer, pitch 2.00mm
JCOM2	Serial Port 2 connector	5 x 2 wafer, pitch 2.00mm
JSGPIO1	Rear General purpose I/O connector (Reserved)	3 x 2 wafer, pitch 2.00mm
PCIEX1	PCIEx16 connector	
PCIEX2	PCIEx8 connector	
PCIEX3	PCIEx1 connector	
PCIEX4	PCIEx4 connector	
PCI1	PCI connector	
D81	Rear System Error LED	
DP1	Display Port connector 1	
DP2/3	Display Port connector 2/3	
JFP1	Front Panel connector	10 x 2 wafer, pitch 2.54mm
JUSB12L1	2 x USB3.2 connector 1 x RJ-45 Ethernet	
JUSB34	USB3.1 connector	10 x 2 wafer, pitch 2.00mm
JUSB56	USB3.1 connector	10 x 2 wafer, pitch 2.00mm
JUSB78	USB3.1 connector	10 x 2 wafer, pitch 2.00mm
LAN23/45/67	6 x RJ-45 Ethernet	
BATH1	Battery connector	

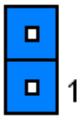
JLPC1	LPC connector	5 x 2 header, pitch 2.00mm
JSPI1	SPI connector 1	4 x 2 header, pitch 2.00mm
JSPI2	SPI connector 2	4 x 2 header, pitch 2.00mm
SATA1-4	Serial ATA connector 1-4	
DIMMA1/A2/B1/B2	4 x DDR4 SODIMM socket	
JAUDIO1	Audio connector	5 x 2 header, pitch 2.54mm
JCASE_OPEN1	CASEOPEN connector	2 x 1 wafer, pitch 2.50mm
JP1	For EEPROM write data	5 x 1 header, pitch 2.54mm
JP2	For VCORE PWM FW write data	3 x 2 header, pitch 2.54mm
JVGA1	VGA connector	8 x 2 wafer, pitch 2.00mm
JBMC_UART5	For BMC debug message read	3 x 1 header, pitch 2.54mm
ATX12V1	ATX 12V power connector	4 x 2 wafer, pitch 4.20mm
ATXPWR1	ATX power connector	12 x 2 wafer, pitch 4.20mm
PMBUS1	Read power supply information	5 x 1 wafer, pitch 2.54mm
INLET_SER1	Inlet Thermal Sensors	4 x 1 wafer, pitch 2.00mm
JDEBUG1	DEBUG connector	3 x 1 header, pitch 2.54mm

2.4 EAP-CE04 Jumpers & Connectors settings

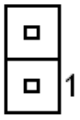
2.4.1 PM BUS pull high Jumper (PH1)



Read power supply information*

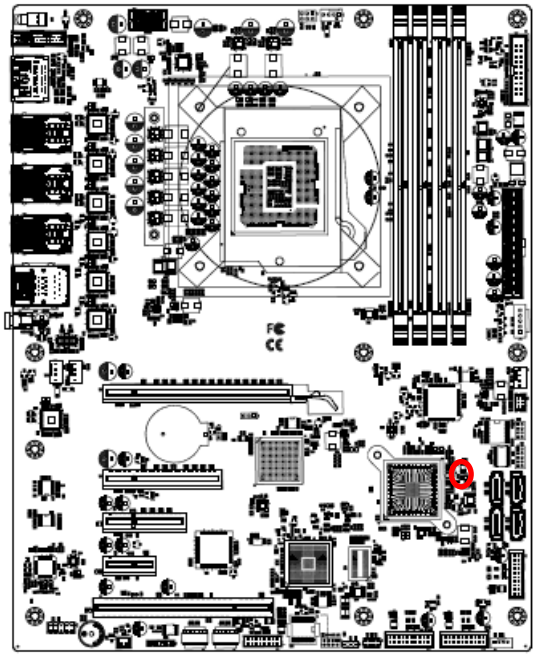


PM BUS non pull high with 3.3V

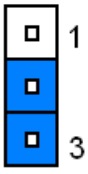


*** Default**

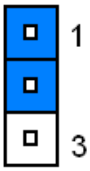
2.4.2 Flash BIOS ME connector (JME1)



Normal*

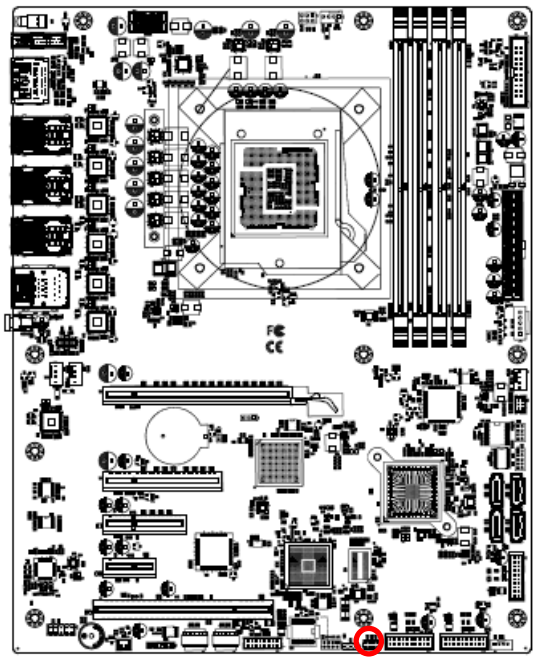


Override

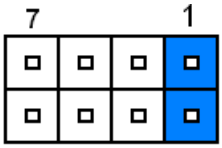


*** Default**

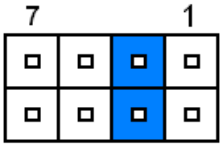
2.4.3 BMC strap setting (BMC_DB1)



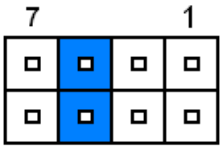
ENABLE PASS-THRU AT POWER ON*



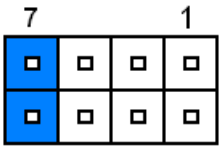
ENABLE DEDICATED VGA BIOS ROM



ENABLE BOOT

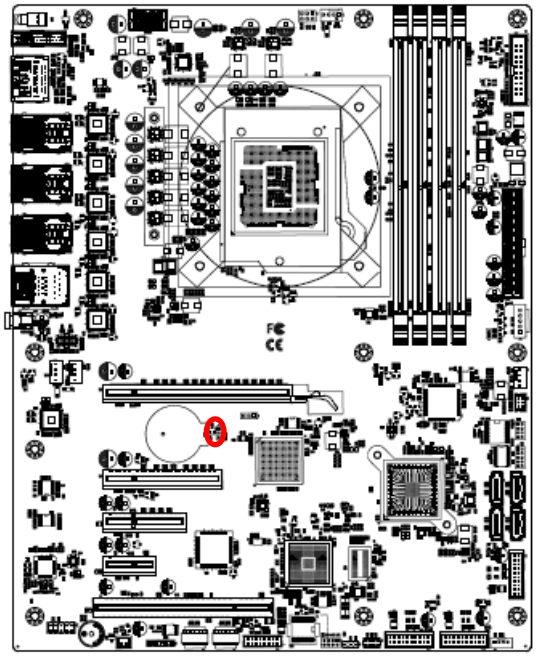


RESET BMC

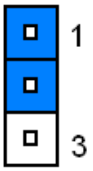


*** Default**

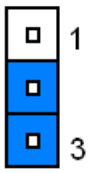
2.4.4 Clear CMOS (JCMOS1)



Normal*

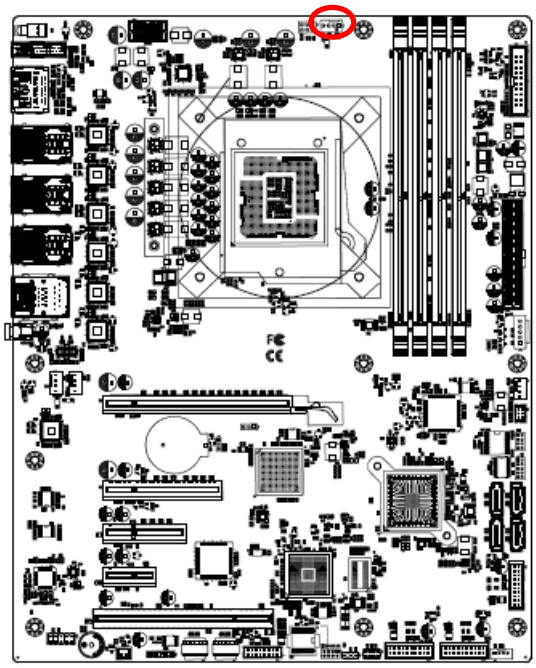


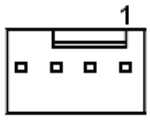
Clear CMOS



*** Default**

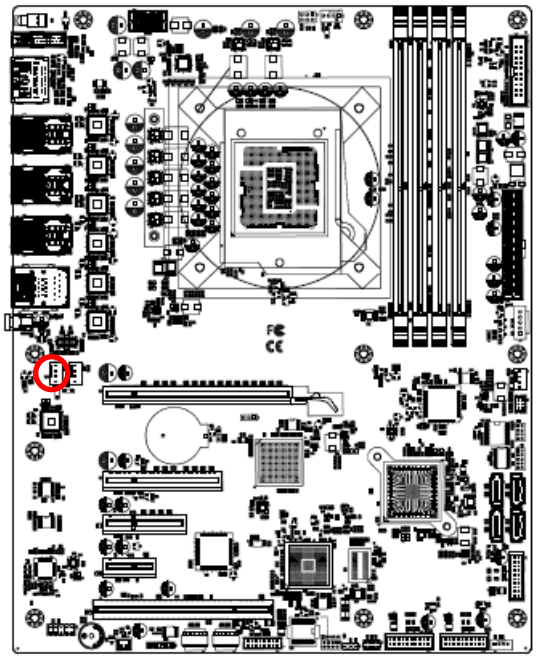
2.4.5 CPU fan connector (CPU_FAN1)

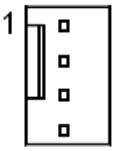




Signal	PIN
GND	1
+12V	2
FAN_TACH0	3
CPU0_PWM0	4

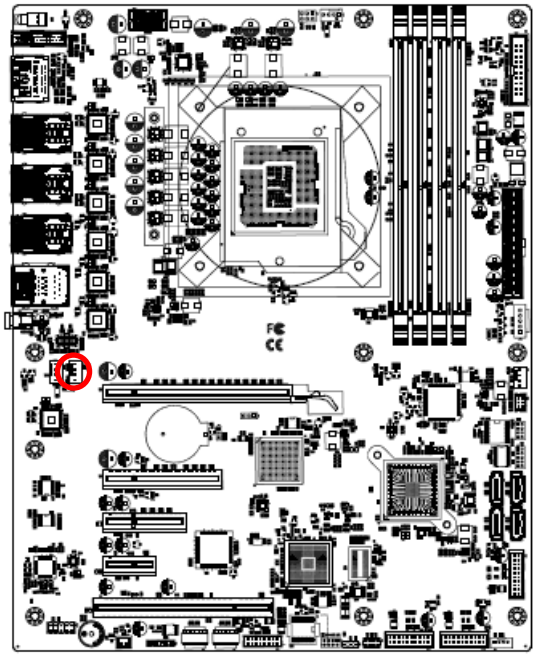
2.4.6 Outlet fan connector 1 (SYS_FAN1)

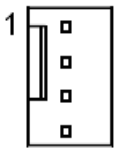




Signal	PIN
GND	1
+12V	2
FAN_TACH2	3
SYS_PWM2	4

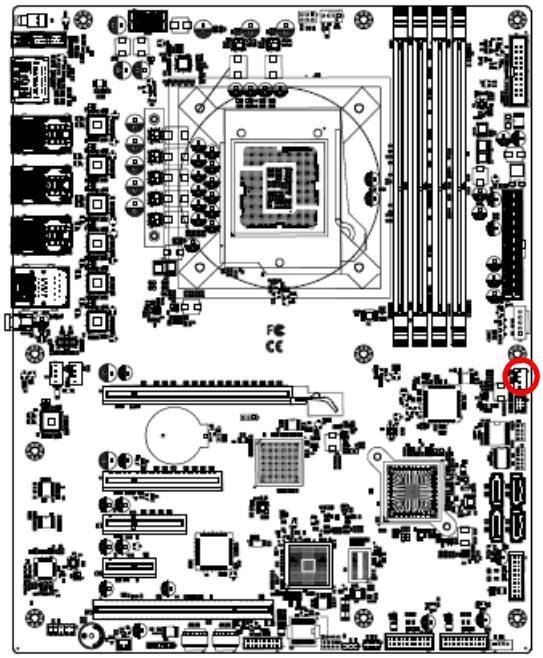
2.4.7 Outlet fan connector 2 (SYS_FAN2)

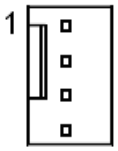




Signal	PIN
GND	1
+12V	2
FAN_TACH3	3
SYS_PWM3	4

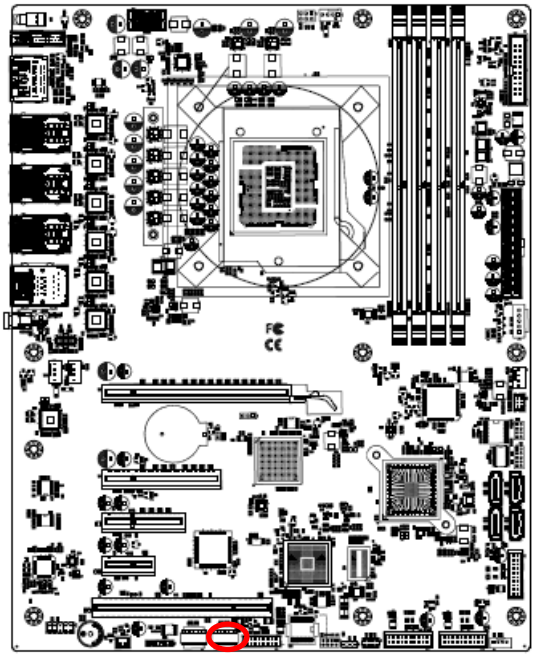
2.4.8 Inlet fan connector (SYS_FAN3)

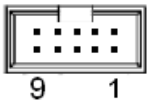




Signal	PIN
GND	1
+12V	2
FAN_TACH4	3
SYS_PWM4	4

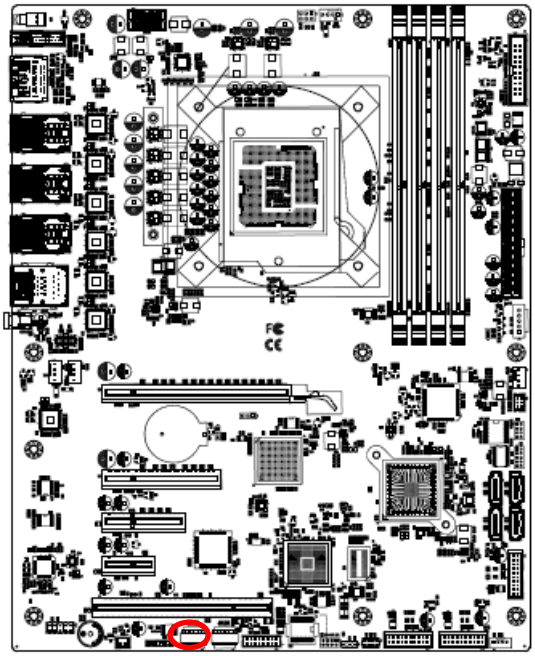
2.4.9 Serial port 1 connector (JCOM1)

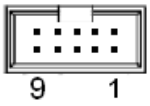




Signal	PIN	PIN	Signal
COM_DCD#1	1	2	COM_RXD1
COM_TXD1	3	4	COM_DTR#1
GND	5	6	COM_DSR#1
COM_RTS#1	7	8	COM_CTS#1
COM_RI#1	9	10	NC

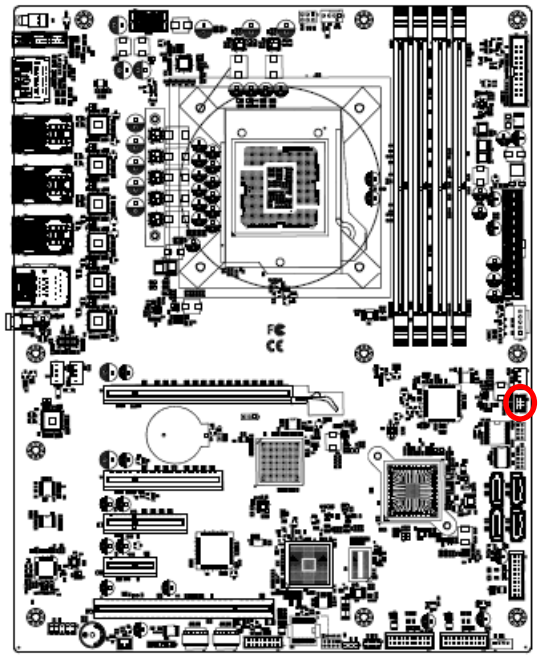
2.4.10 Serial port 2 connector (JCOM2)

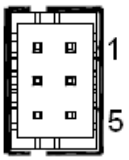




Signal	PIN	PIN	Signal
COM_DCD#2	1	2	COM_RXD2
COM_TXD2	3	4	COM_DTR#2
GND	5	6	COM_DSR#2
COM_RTS#2	7	8	COM_CTS#2
COM_RI#2	9	10	NC

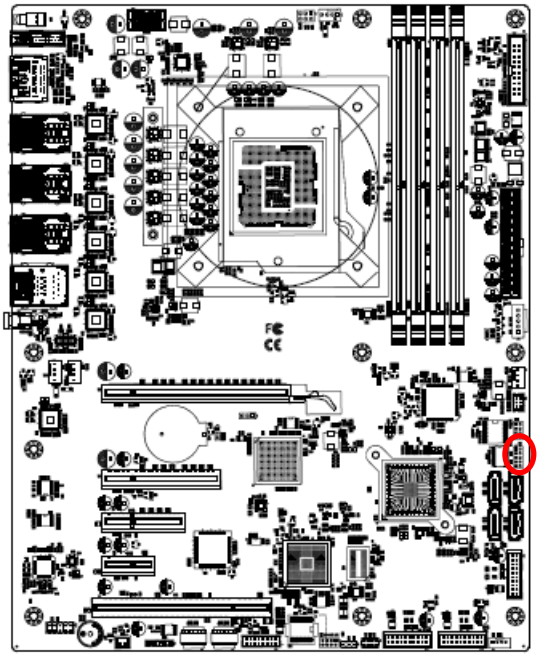
2.4.11 General purpose I/O connector (JSGPIO1)

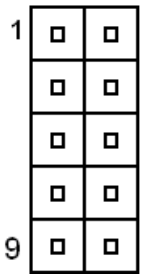




Signal	PIN	PIN	Signal
GND	2	1	GND
SGPIO_SSATA_DATA0_R	4	3	SGPIO_SSATA_LOAD_R
NC	6	5	SGPIO_SSATA_CLOCK_R

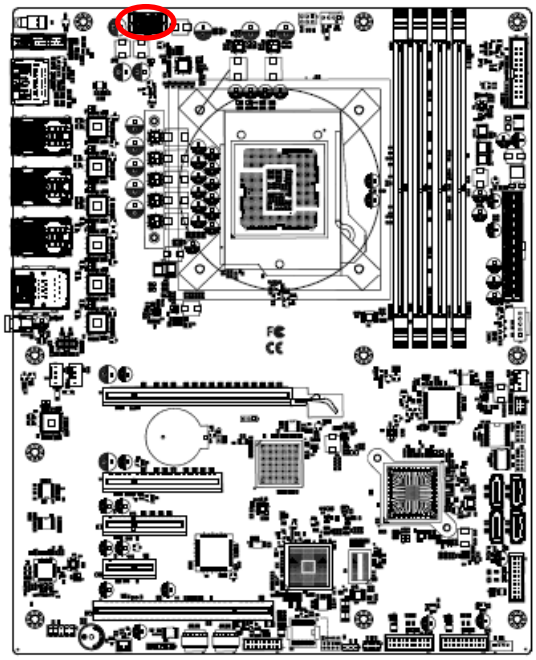
2.4.12 LPC connector (JLPC1)

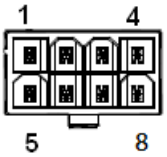




Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PLT_RST#_BUF
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_DEG_CLK
LPC_SERIRQ	9	10	GND

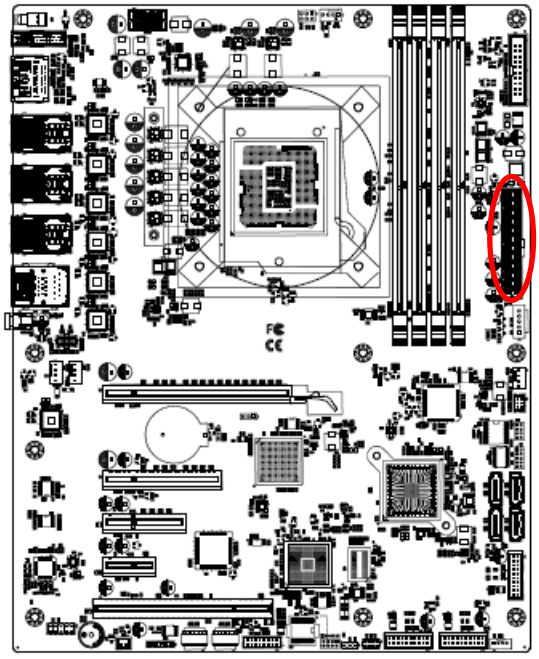
2.4.13 ATX 12V Power connector (ATX12V1)

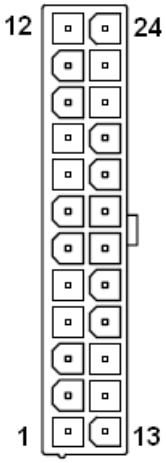




Signal	PIN	PIN	Signal
GND	1	5	+12V
GND	2	6	+12V
GND	3	7	+12V
GND	4	8	+12V

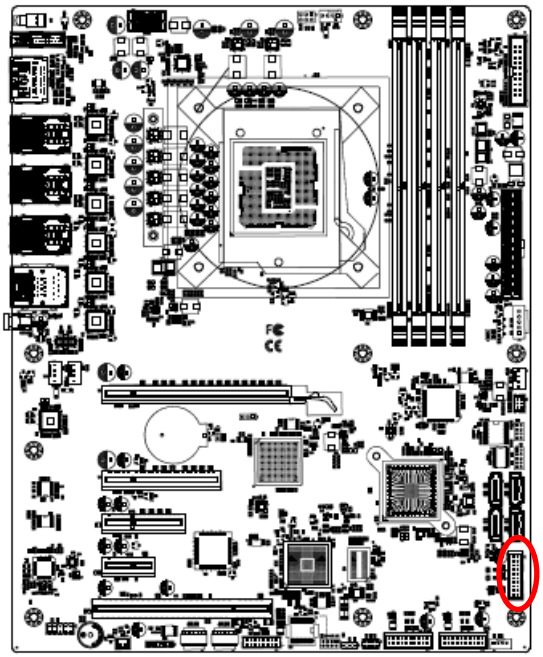
2.4.14 ATX Power connector (ATXPWR1)

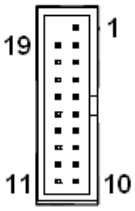




Signal	PIN	PIN	Signal
+3.3V	12	24	GND
+12V	11	23	+5V
+12V	10	22	+5V
+5VSB	9	21	+5V
ATX24_PWROK	8	20	NC
GND	7	19	GND
+5V	6	18	GND
GND	5	17	GND
+5V	4	16	ATX_PSON#
GND	3	15	GND
+3.3V	2	14	-12V
+3.3V	1	13	+3.3V

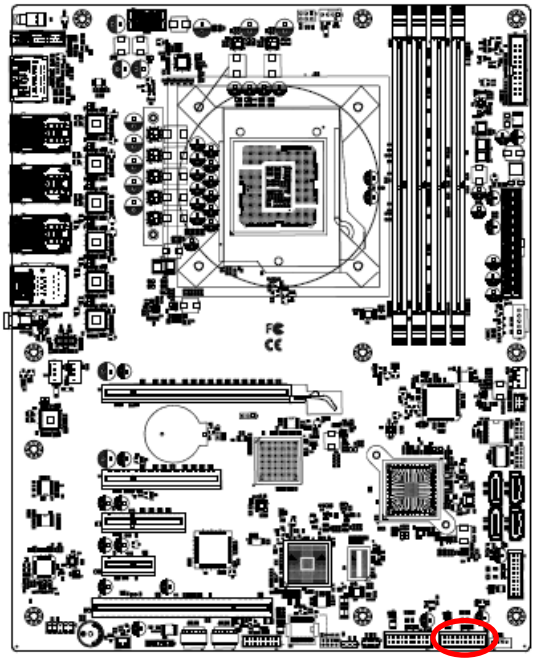
2.4.15 USB3.1 connector (JUSB34)

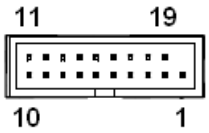




Signal	PIN	PIN	Signal
		1	+5VSB
+5VSB	19	2	USB30_RX_N3
USB30_RX_N4	18	3	USB30_RX_P3
USB30_RX_P4	17	4	GND
GND	16	5	USB30_TXN3
USB30_TXN4	15	6	USB30_TXP3
USB30_TXP4	14	7	GND
GND	13	8	USB_N3
USB_N4	12	9	USB_P3
USB_P4	11	10	NC

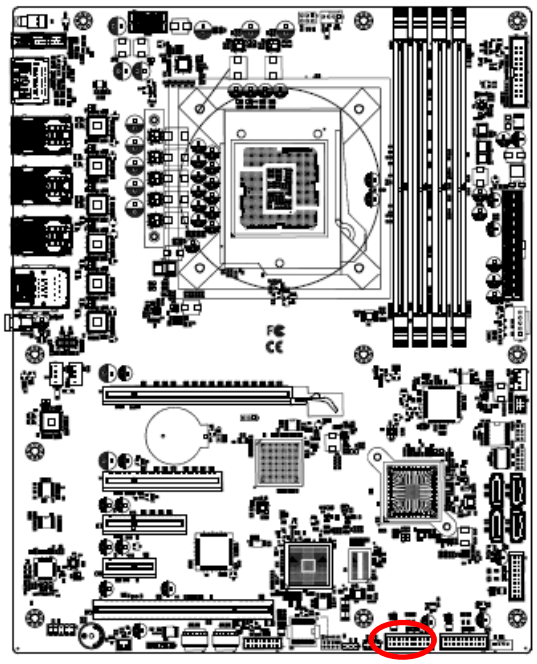
2.4.16 USB3.1 connector (JUSB56)

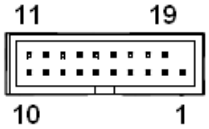




Signal	PIN	PIN	Signal
		1	+5VSB
+5VSB	19	2	USB30_RX_N5
USB30_RX_N6	18	3	USB30_RX_P5
USB30_RX_P6	17	4	GND
GND	16	5	USB30_TXN5
USB30_TXN6	15	6	USB30_TXP5
USB30_TXP6	14	7	GND
GND	13	8	USB_N5
USB_N6	12	9	USB_P5
USB_P6	11	10	NC

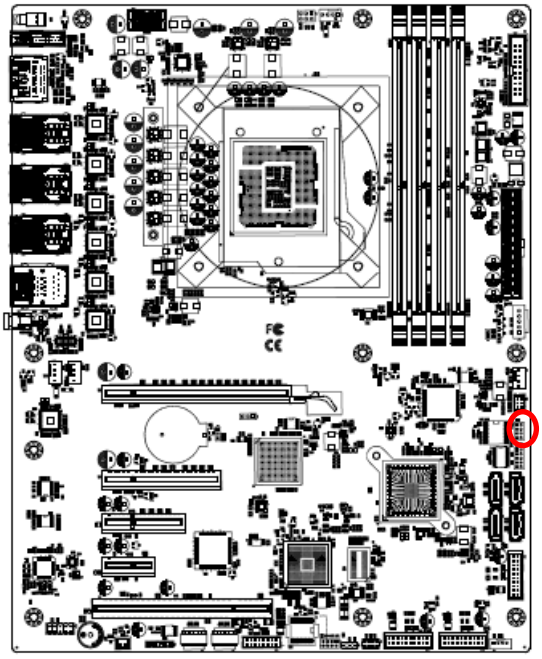
2.4.17 USB3.1 connector (JUSB78)

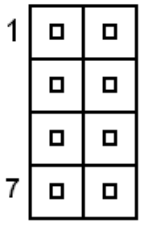




Signal	PIN	PIN	Signal
		1	+5VSB
+5VSB	19	2	USB30_RX_N7
USB30_RX_N8	18	3	USB30_RX_P7
USB30_RX_P8	17	4	GND
GND	16	5	USB30_TXN7
USB30_TXN8	15	6	USB30_TXP7
USB30_TXP8	14	7	GND
GND	13	8	USB_N7
USB_N8	12	9	USB_P7
USB_P8	11	10	NC

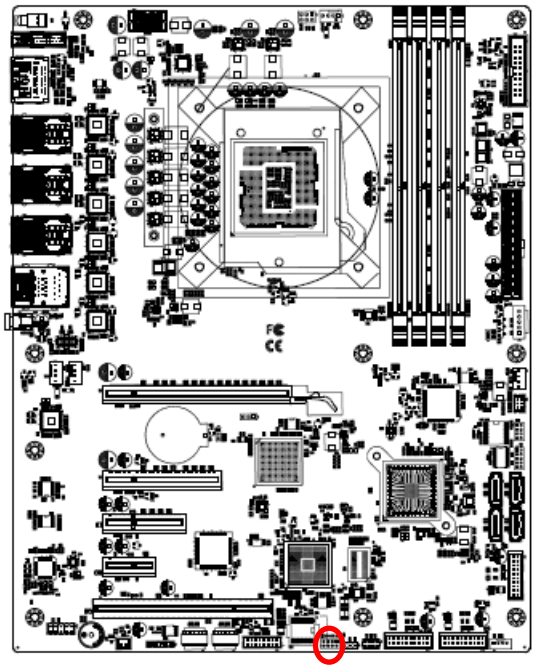
2.4.18 SPI connector 1 (JSPI1)

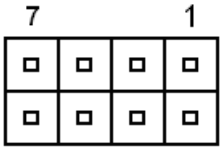




Signal	PIN	PIN	Signal
+3.3VSB	1	2	GND
SPI_BIOS_CS0_N_R	3	4	SPI_BIOS_FLASH_CLK
SPI_BIOS_MISO_FLASH	5	6	SPI_BIOS_MOSI_FLASH
SPI_PCH_FLASH_IO3	7	8	SPI_PCH_FLASH_IO2

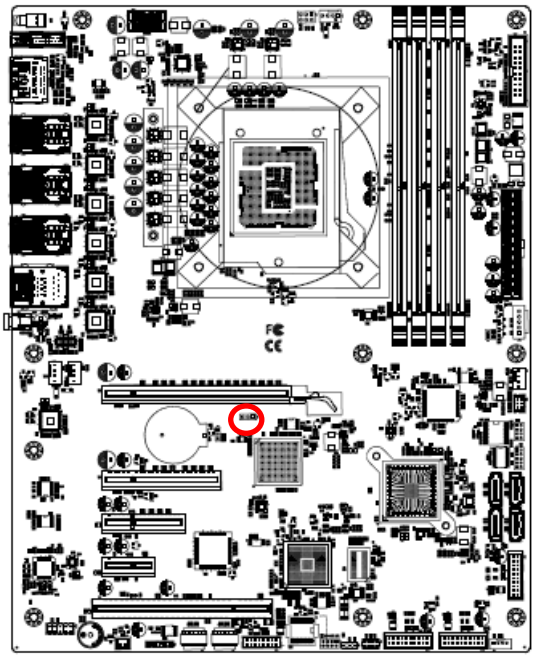
2.4.19 SPI connector 2 (JSPI2)

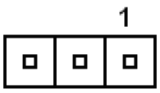




Signal	PIN	PIN	Signal
+3.3VSB	1	2	GND
SPI_BMC_BOOT_CS_N	3	4	SPI_BMC_BOOT_CLK
SPI_BMC_BOOT_R_MISO	5	6	SPI_BMC_BOOT_MOSI
SPI_HOLD#	7	8	SPI_WP#

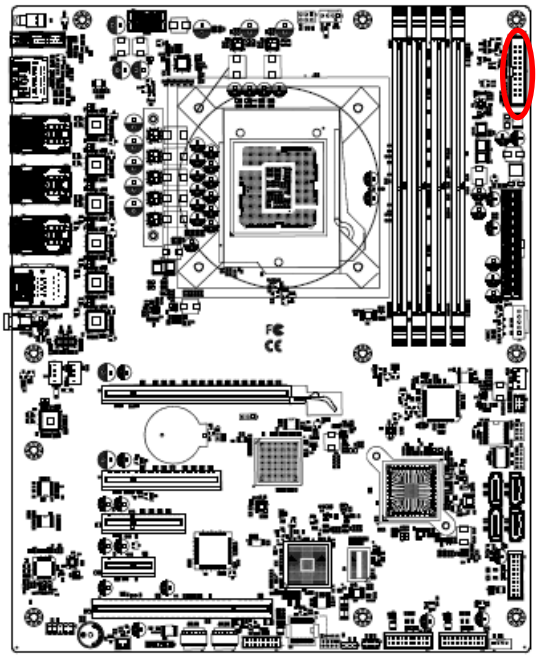
2.4.20 Debug connector (JDEBUG1)

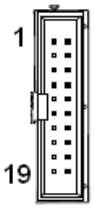




Signal	PIN
PEX_I2C_SCL0_3V3	1
PEX_I2C_SDA0_3V3	2
GND	3

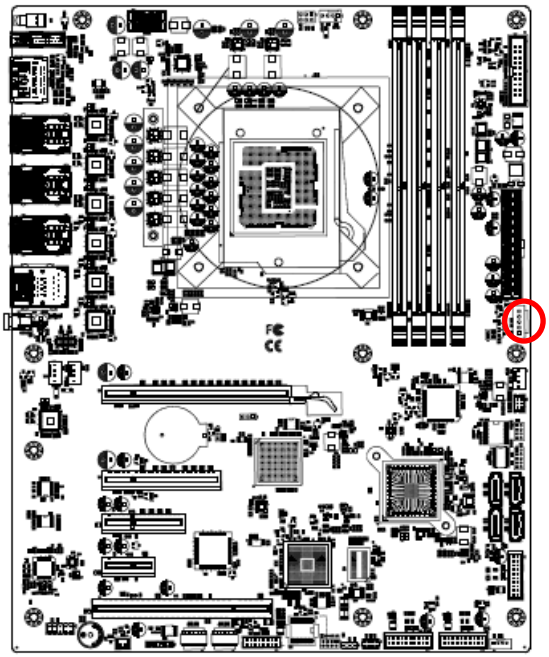
2.4.21 Front Panel connector (JFP1)





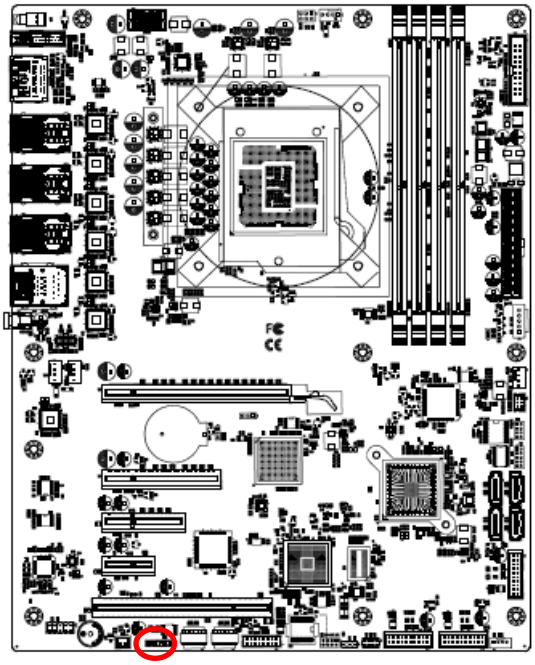
Signal	PIN	PIN	Signal
HDD_LED_P	1	2	+3.3VSB
HDD_LED_N	3	4	PWRLED_N
FP_RST_BTN_N	5	6	FP_PWR_BTN_N_R
GND	7	8	GND
STATUS_LED2_P	9	10	L1_LED_ACT#_PWR
STATUS_LED_N	11	12	L1_LED_ACT#
FRONT_UID_LED_N	13	14	SBPWRLED_P
GND	15	16	GND
FP_UID_BTN_N_R	17	18	+3.3VSB
GND	19	20	LAN_LED_ACT#

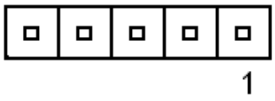
2.4.22 Read power supply information (PMBUS1)



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

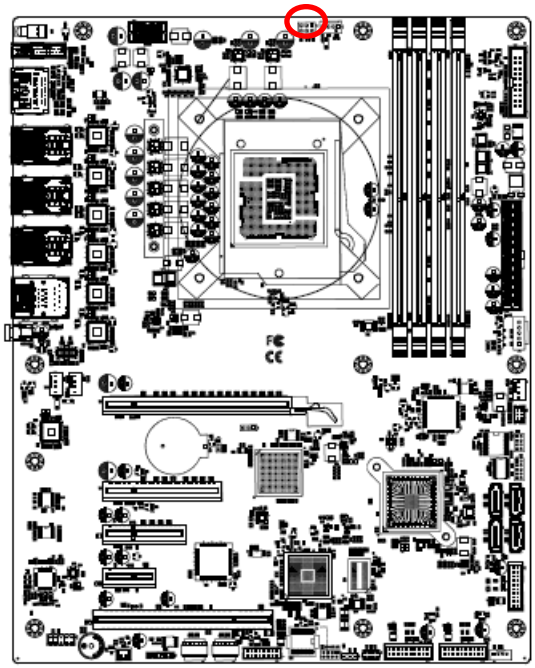
2.4.23 For EEPROM write data (JP1)

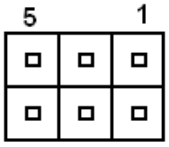




Signal	PIN
+3.3VSB	1
BMC_SCL13_R	2
BMC_SDA13_R	3
24C02_WP	4
GND	5

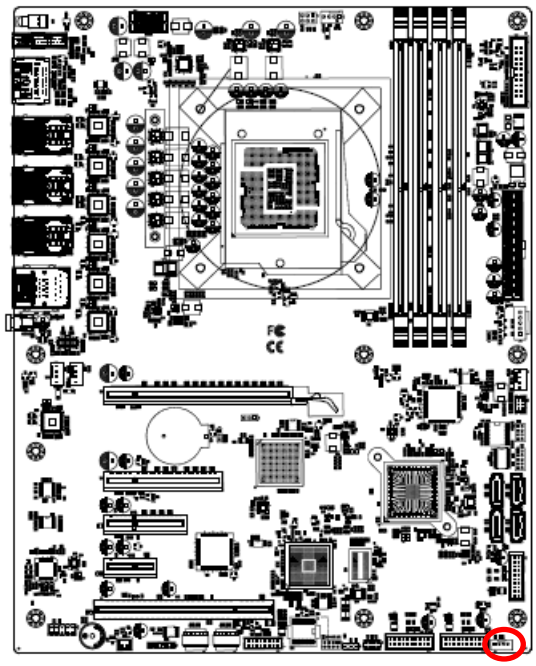
2.4.24 For VCORE PWM FW write data (JP2)

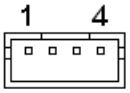




Signal	PIN	PIN	Signal
VCCCORE_Npmalert	1	2	VCCCORE_PMSDA
GND	3	4	VCCCORE_PMSCL
NC	5	6	+3.3V

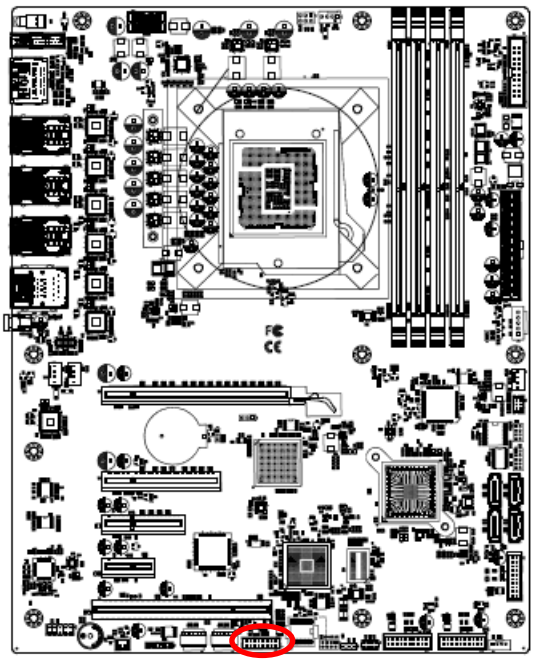
2.4.25 Inlet Thermal Sensors (INLET_SER1)

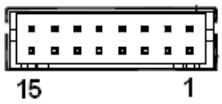




Signal	PIN
+3.3VSB	1
SMB1_TEMPSENSOR_STBY_LVC3_SDA	2
SMB1_TEMPSENSOR_STBY_LVC3_SCL	3
GND	4

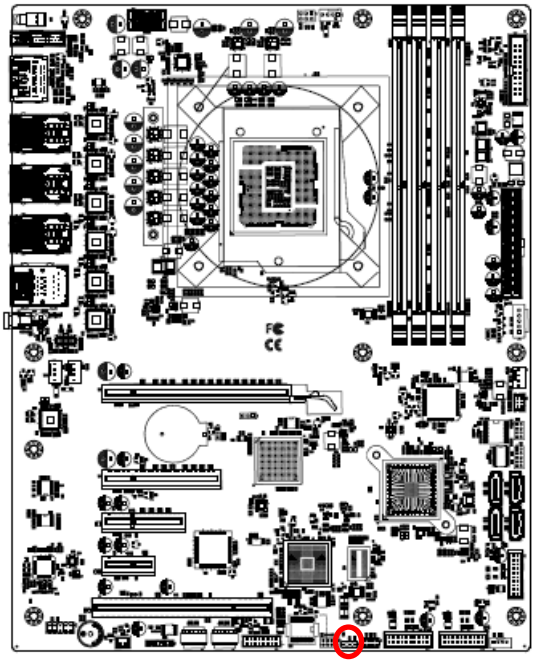
2.4.26 VGA connector (JVGA1)

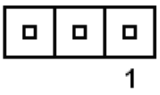




Signal	PIN	PIN	Signal
+5V	1	2	CRT_z_RED
GND	3	4	CRT_z_GREEN
NC	5	6	CRT_z_BLUE
CRT_DDC_z_DATA	7	8	NC
CRT_z_HSYNC	9	10	VIDEO_CABLE_DETECT_N
CRT_z_VSYNC	11	12	GND
CRT_DDC_z_CLK	13	14	GND
GND	15	16	GND

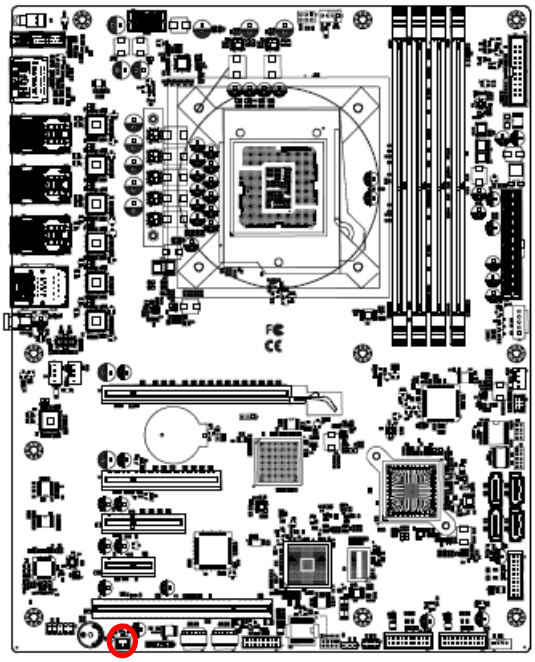
2.4.27 For BMC debug message read (JBMC_UART5)





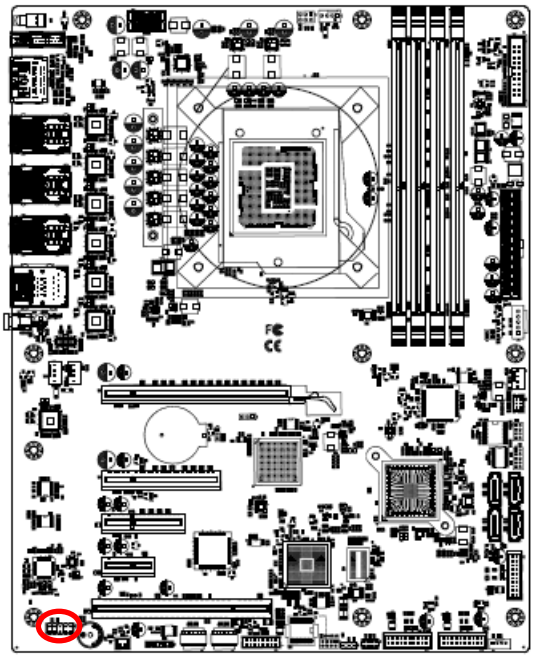
Signal	PIN
UART5_TX	1
UART5_RX	2
GND	3

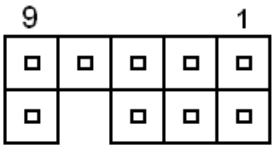
2.4.28 CASE OPEN connector (JCASE_OPEN1)



Signal	PIN
FP_CHASSIS_INTRUSION	1
GND	2

2.4.29 Audio connector (JAUDIO1)





Signal	PIN	PIN	Signal
MIC1-L-IN	1	2	GND
MIC1-R-IN	3	4	ACZ_DET#
FRONT-R-OUT	5	6	MIC1-JD
SENSEA	7		
FRONT-L-OUT	9	10	FRONT-JD

2.4.29.1 Signal Description – Audio connector (JAUDIO1)

Signal	Signal Description
FRONT-JD	AUDIO Out(ROUT/LOUT) sense pin
MIC1-JD	MIC IN (MIC_RIN/LIN) sense pin

3.BIOS Setup

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.

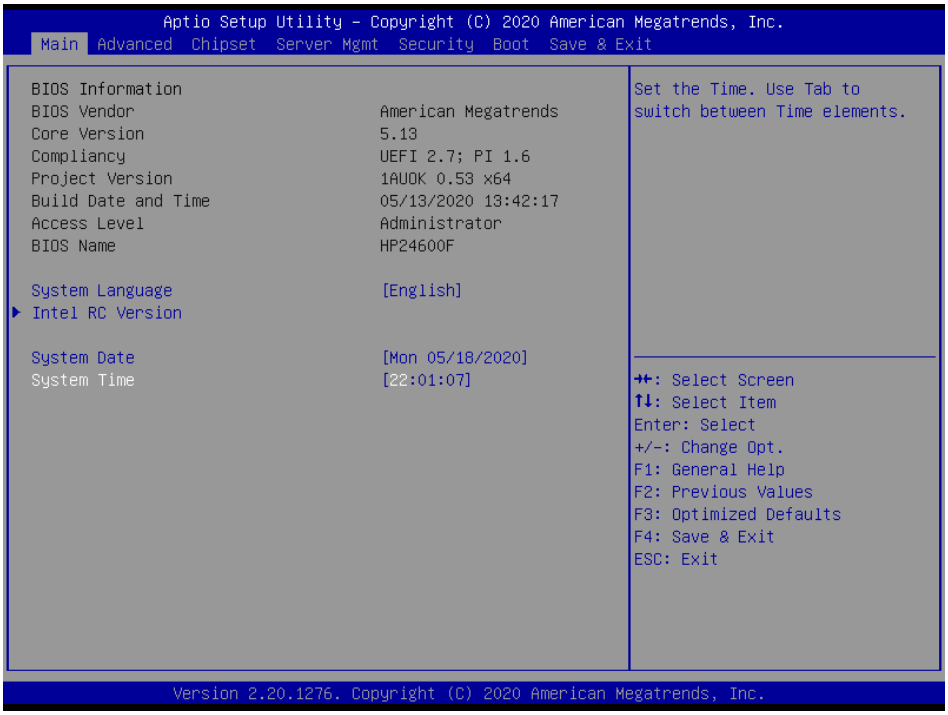
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance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

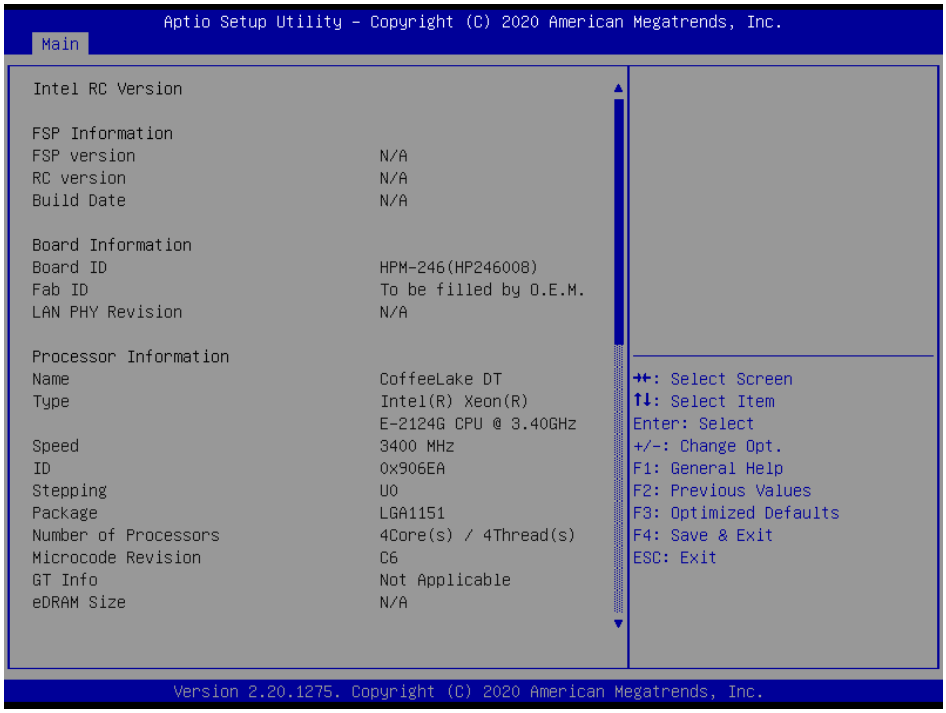
3.6 BIOS setup

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.

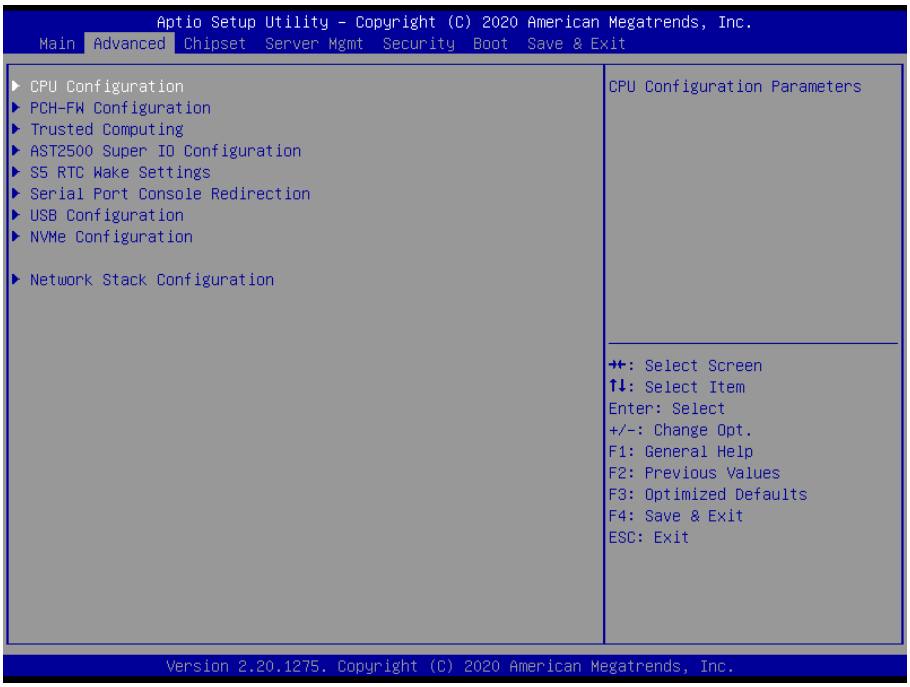
3.6.1.3 System Time

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.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

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.

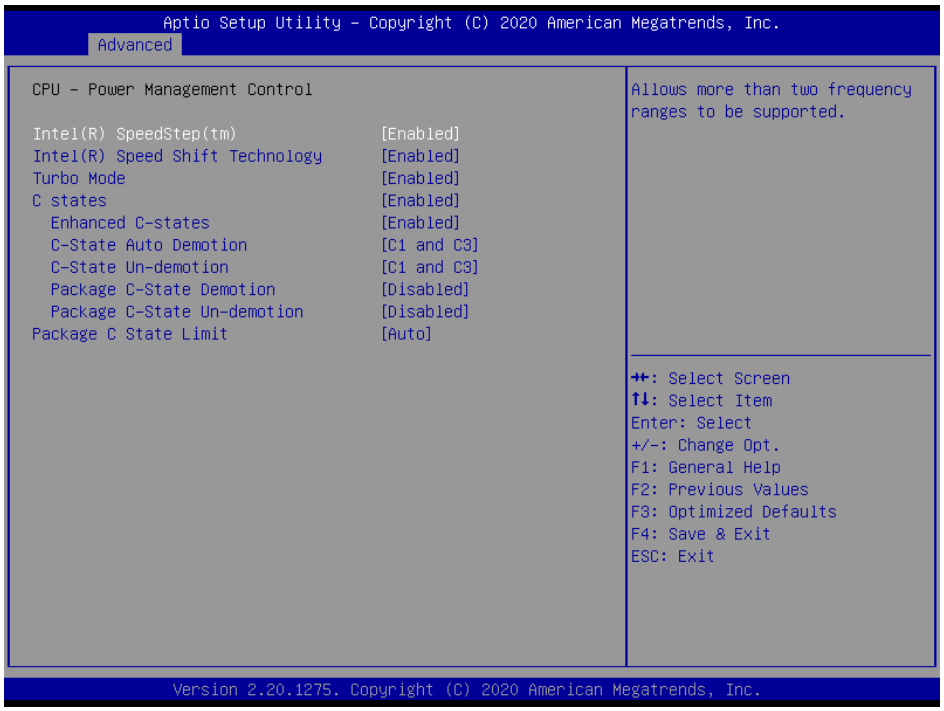


3.6.2.1 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

Item	Options	Description
Intel (VMX) Virtualization Technology	Disabled Enabled**[Default]**	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Active Processor Cores	All**[Default]** 1 2 3 4 5 6 7 8	Number of cores to enable in each processor package.

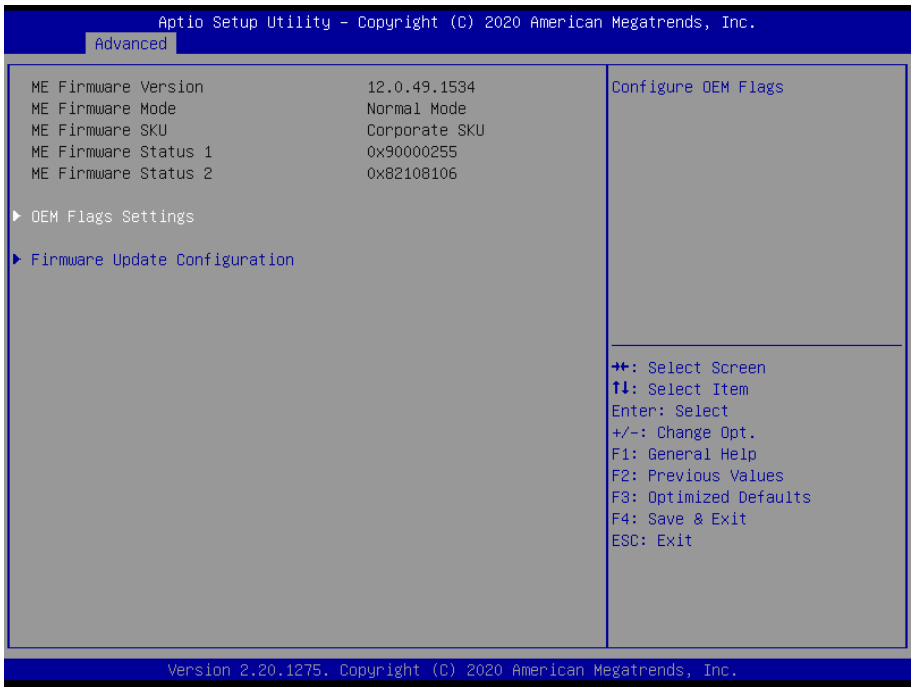
3.6.2.1.1 CPU – Power Management Control



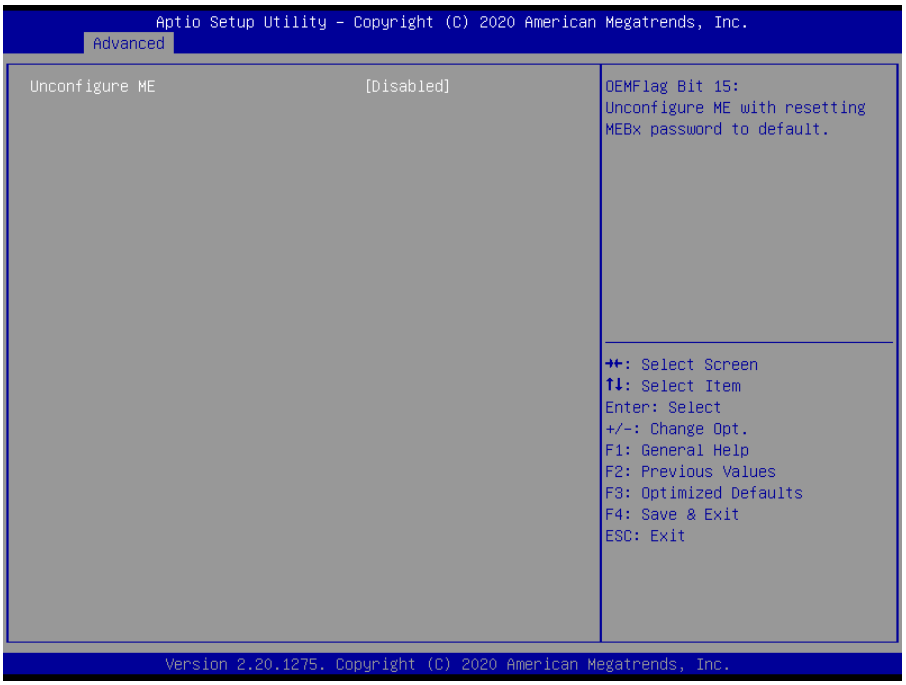
Item	Option	Description
Intel® SpeedStep™	Enabled**[Default]**, Disabled	Allows more than two frequency ranges to be supported.
Intel® Speed Shift Technology	Enabled**[Default]**, Disabled	Eanble/Disable Intel® Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.
Turbo Mode	Enabled**[Default]**, Disabled	Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled).
C States	Enabled**[Default]**, Disabled	Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.
Enhanced C-States	Enabled**[Default]**, Disabled	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.
C-State Auto Demotion	Disabled C1 C3 C1 and C3**[Default]**	Configure C-State Auto Demotion.
C-State Un-demotion	Disabled C1 C3 C1 and C3**[Default]**	Configure C-State Un-demotion.
Package C-State Demotion	Enabled, Disabled**[Default]**	Package C-State Un-demotion.
Package C-State Un-demotion	Enabled, Disabled**[Default]**	Package C-State Un-demotion.
Package C State Limit	C0/C1 C2 C3	Maximum Package C State Limit Setting. Cpu Default: Leaves to Factory default value. Auto: Initializes to deepest available Package C State

	C6 C7 C7s C8 C9 C10 Cpu Default Auto**[Default]**	Limit.

3.6.2.2 PCH-FW Configuration

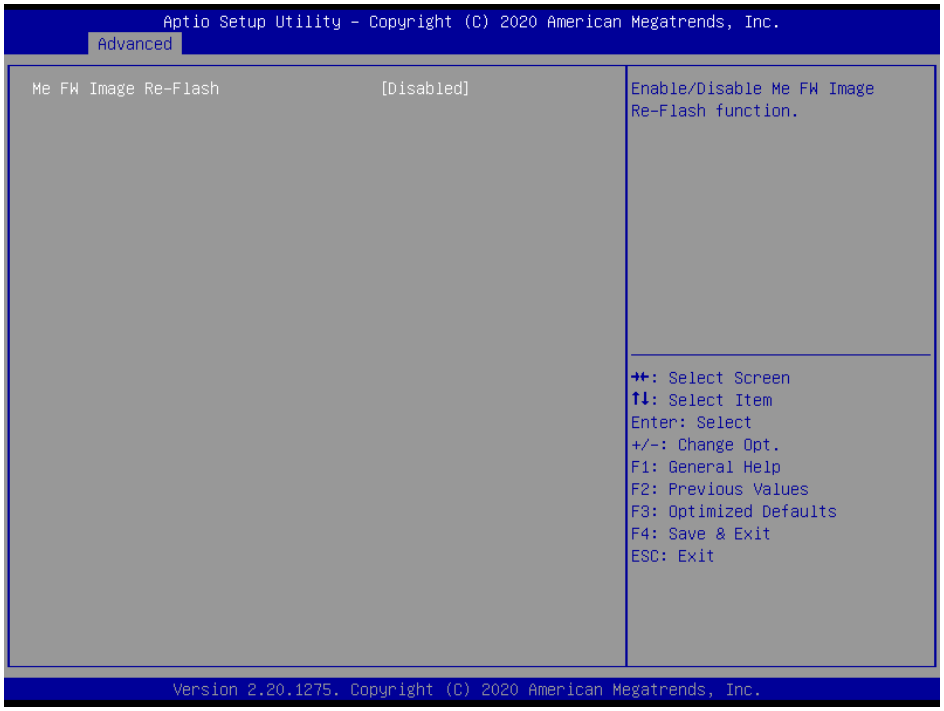


3.6.2.2.1 OEM Flags Settings



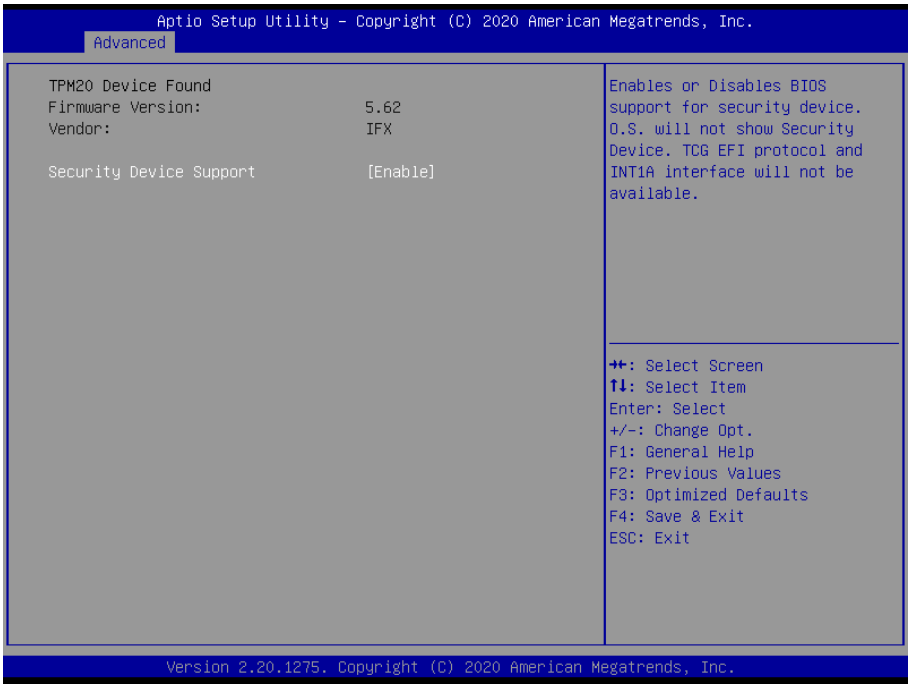
Item	Option	Description
Unconfigure ME	Disabled**[Default]**, Enabled	OEMFlag Bit 15: Unconfigure ME with resetting MEBx password to default.

3.6.2.2.2 Firmware Update Configuration



Item	Option	Description
ME FW Image Re-Flash	Disabled**[Default]**, Enabled	Enable/Disable Me FW Image Re-Flash function.

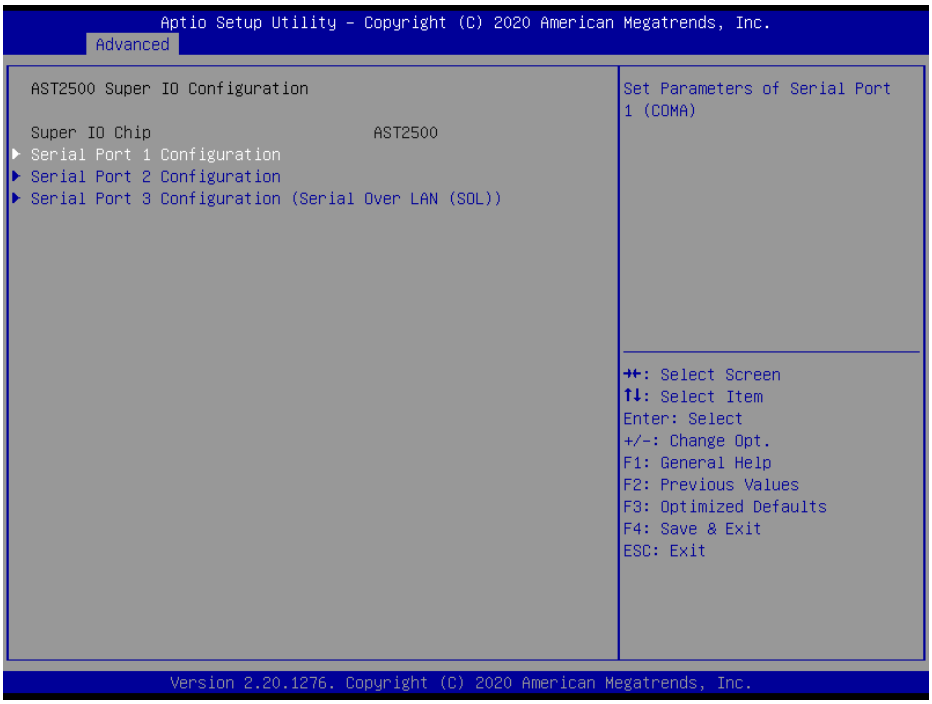
3.6.2.3 Trusted Computing



Item	Options	Description
Security Device 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.

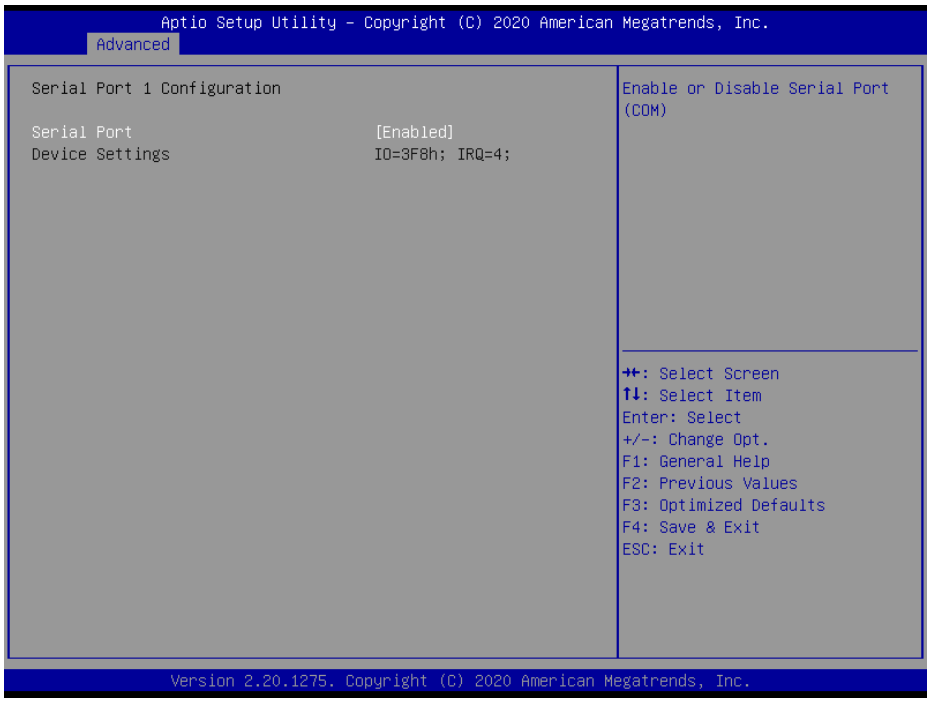
3.6.2.4 AST2500 Super IO Configuration

You can use this item to set up or change the AST2500 Super IO configuration for serial ports. Please refer to 3.6.2.4.1 and 3.6.2.4.2 for more information.



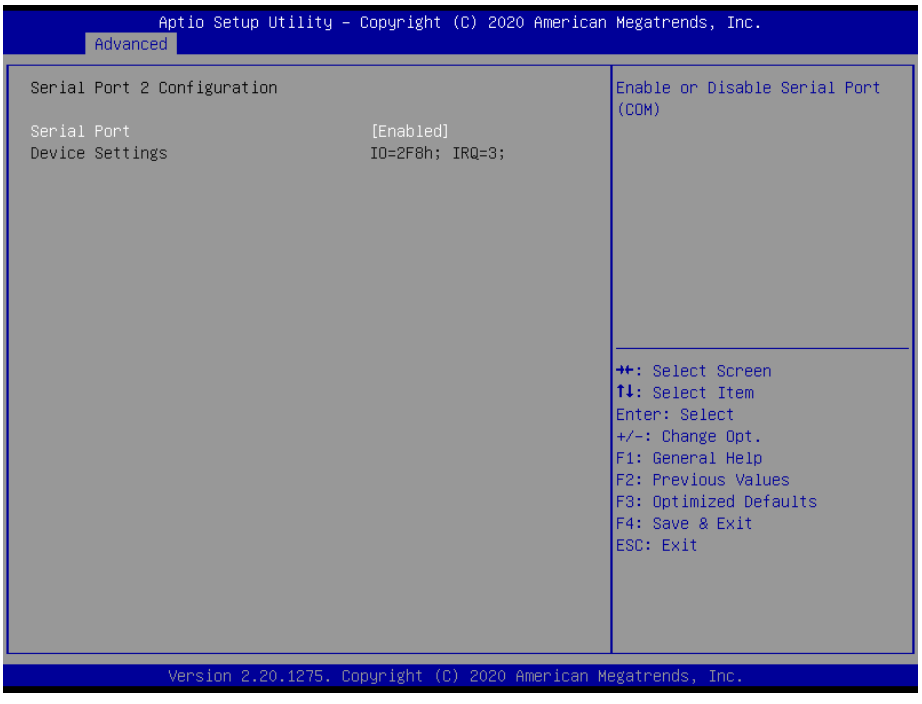
Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration(Serial Over LAN (SOL))	Set Parameters of Serial Port 3 (COMC), for Serial Over LAN(SOL) only.

3.6.2.4.1 Serial Port 1 Configuration



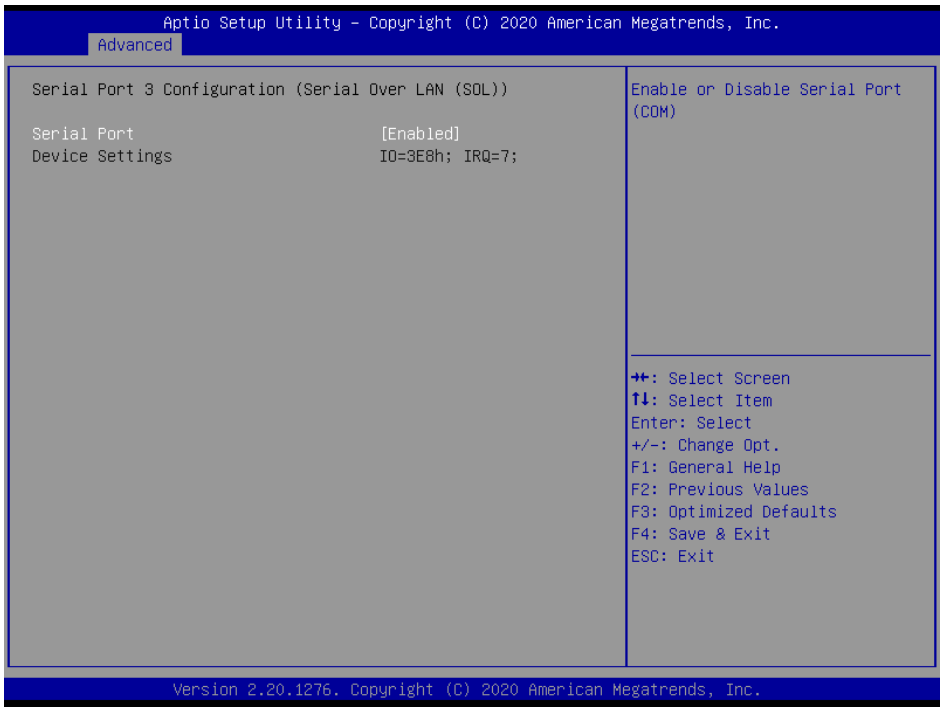
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.4.2 Serial Port 2 Configuration



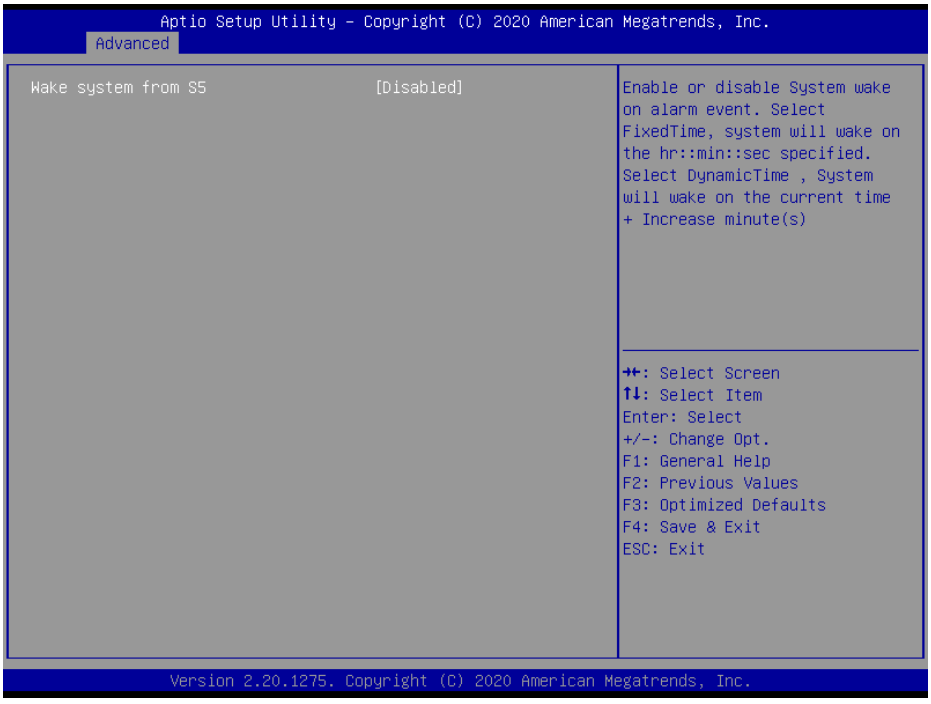
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.4.3 Serial Port 3 Configuration (Serial Over LAN (SOL))



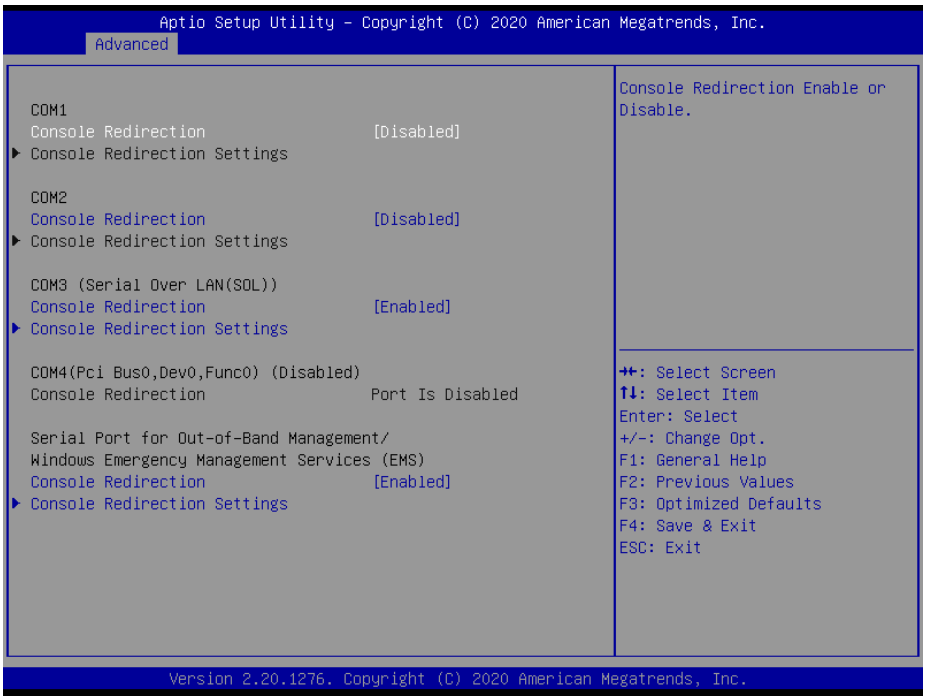
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM).

3.6.2.5 S5 RTC Wake Settings



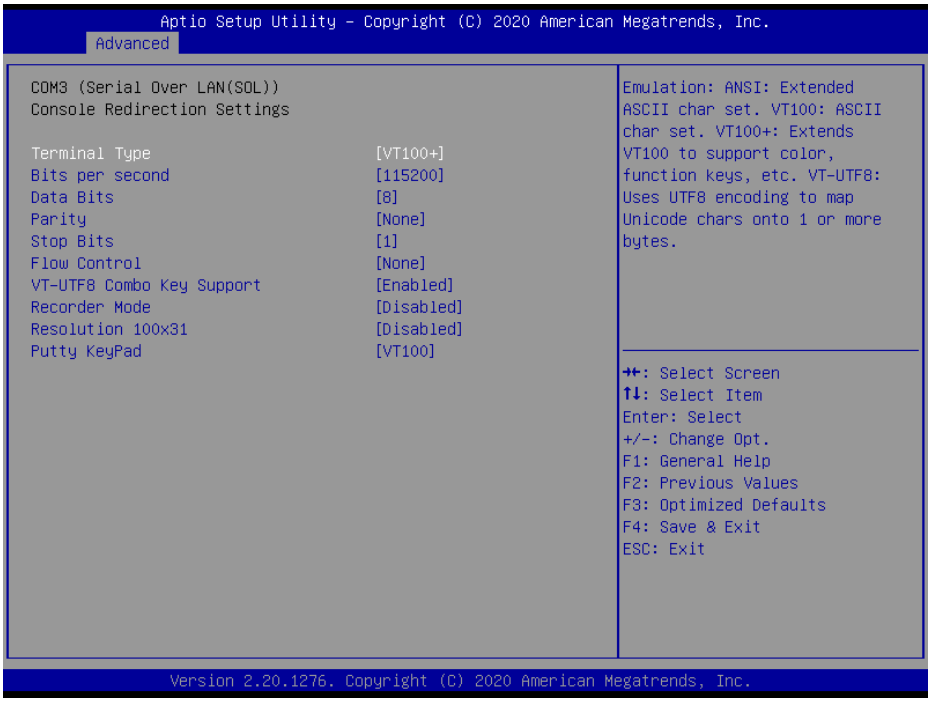
Item	Options	Description
Wake system from S5	Disabled**[Default]**, Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).

3.6.2.6 Serial Port Console Redirection



Item	Options	Description
COM1 Console Redirection	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.
COM2 Console Redirection	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.
COM3 Console Redirection	Disabled, Enabled**[Default]**	Console Redirection Enable or Disable.
EMS Console Redirection	Disabled Enabled**[Default]**,	Console Redirection Enable or Disable.

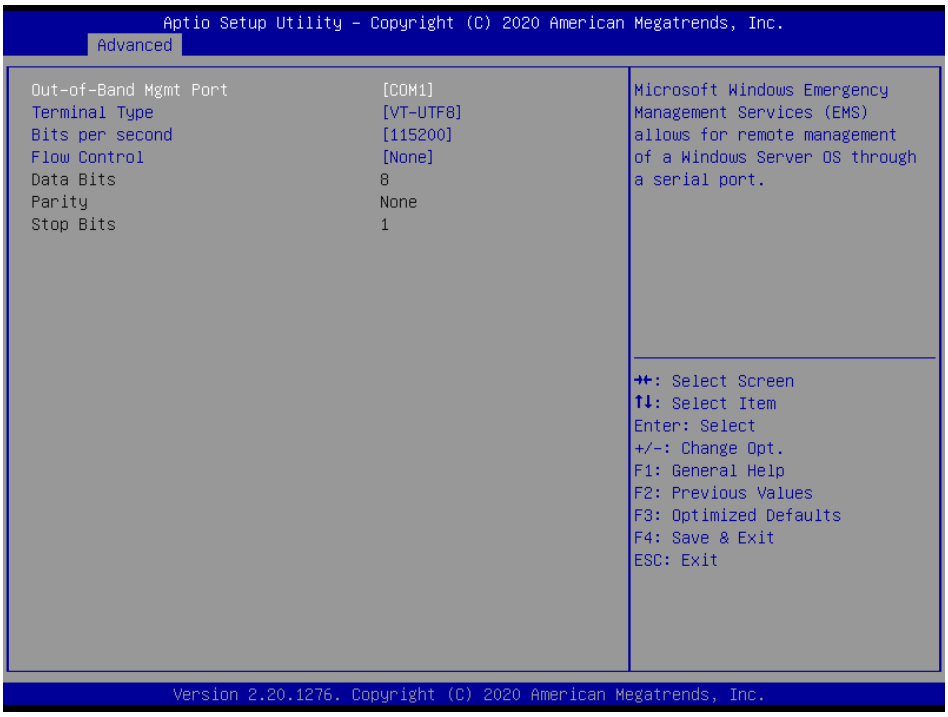
3.6.2.6.1 COM3 (Serial Over LAN(SOL))



Item	Option	Description
Terminal Type	VT100 VT100+**[Default]** VT-UTF8 ANSI	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200**[Default]**	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits	7 8**[Default]**	Data Bits.
Parity	None**[Default]** Even Odd Mark Space	A parity bit can be sent with the data bits to detect some transmission errors. Ever: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection.
Stop Bits	1**[Default]** 2	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
Flow Control	None**[Default]** Hardware RTS/CTS	Flow control can 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 re-start the flow. Hardware flow control uses two wires to send start/stop signals.
VT-UTF8 Combo Key Support	Disabled Enabled**[Default]**	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
Recorder Mode	Disabled**[Default]** Enabled	With this mode enabled only text will be sent. This is to capture Terminal data.
Resolution 100x31	Disabled**[Default]** Enabled	Enables or disables extended terminal resolution.
Putty KeyPad	VT100**[Default]** LINUX XTERMR6 SCO ESCN VT400	Select FunctionKey and KeyPad on Putty.

3.6.2.6.2 Console Redirection Settings

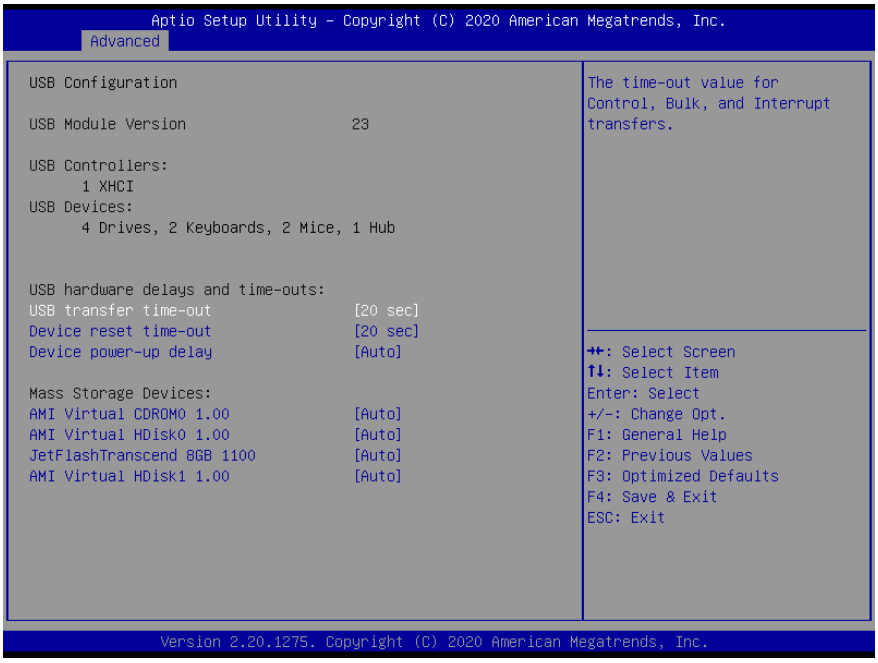


Item	Option	Description
Out-of-Band Mgmt Port	COM1**[Default]** COM2 COM3(Serial Over LAN (SOL))	Microsoft Windows Emergency Management Services(EMS) allows for remote management of a Windows Server OS through a serial port.
Terminal Type	VT100 VT100+ VT-UTF8**[Default]** ANSI	VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.
Bits per second	9600 19200	Select serial port transmission speed. The speed must be matched on the

	57600 115200**[Default]**	other side. Long or noisy lines may require lower speeds.
Flow Control	None**[Default]** Hardware RTS/CTS Software Xon/Xoff	Flow control can 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 re-start the flow. Hardware flow control uses two wires to send start/stop signals.

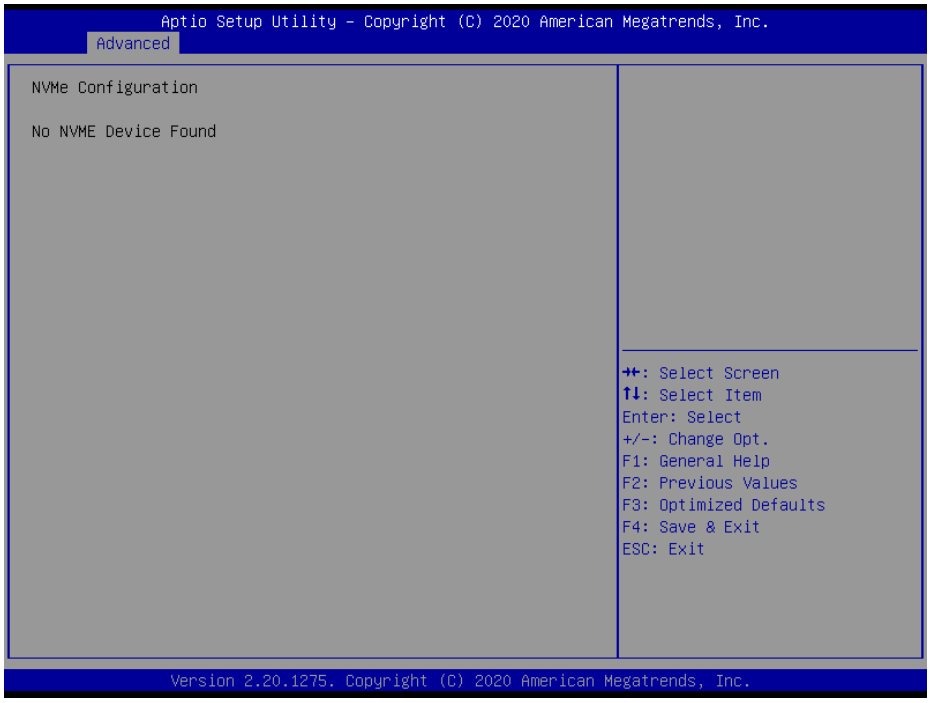
3.6.2.7 USB Configuration

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

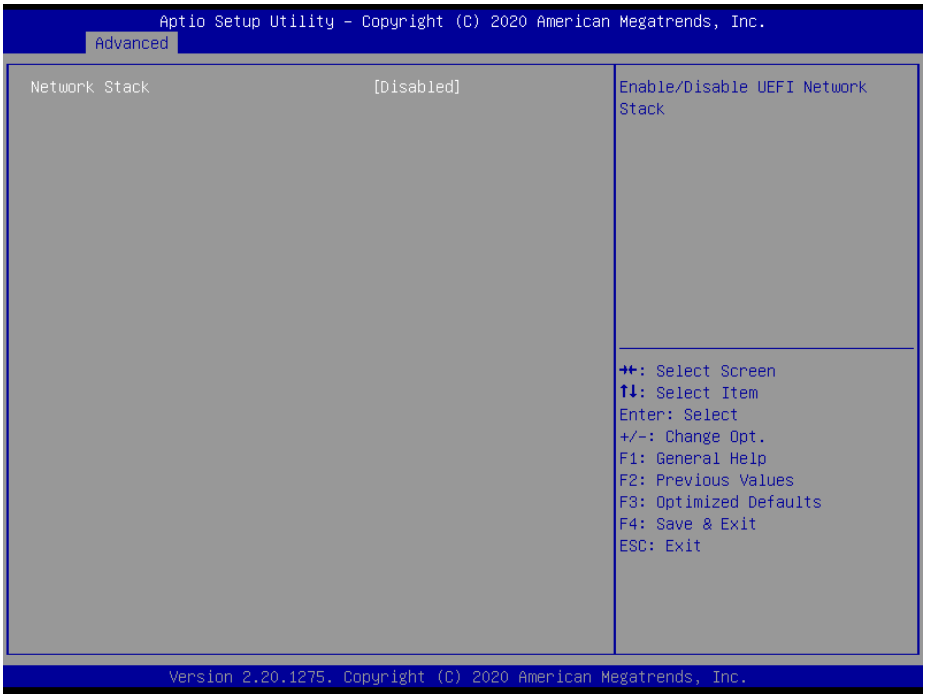


Item	Options	Description
USB transfer time-out	1 sec 5 sec 10 sec 20 sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec**[Default]** 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** 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 form Hub descriptor.
Mass Storage Devices	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.

3.6.2.8 NVMe Configuration

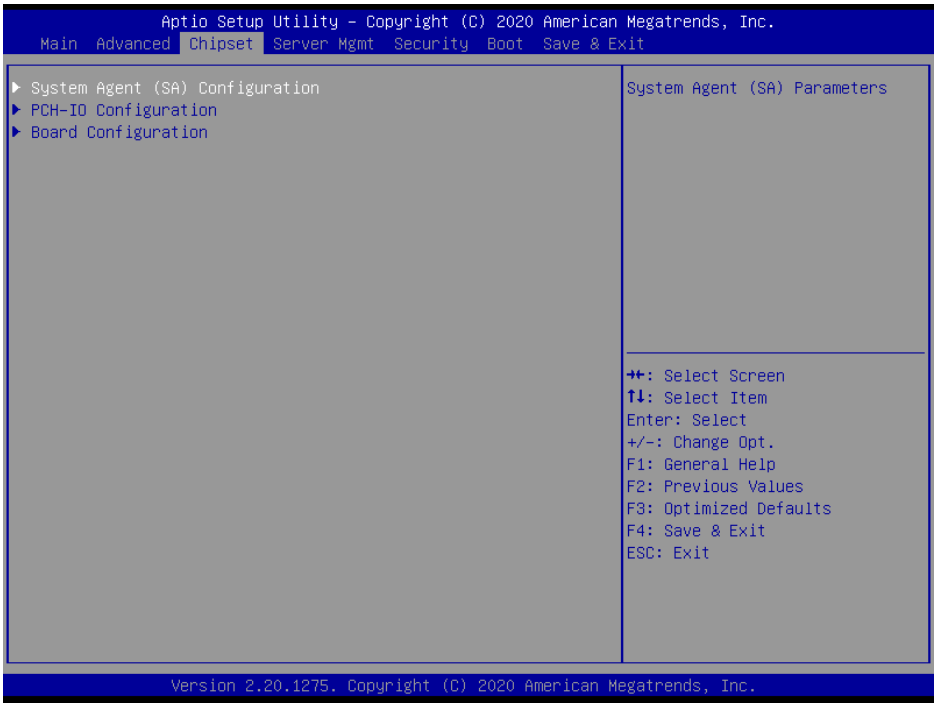


3.6.2.9 Network Stack Configuration

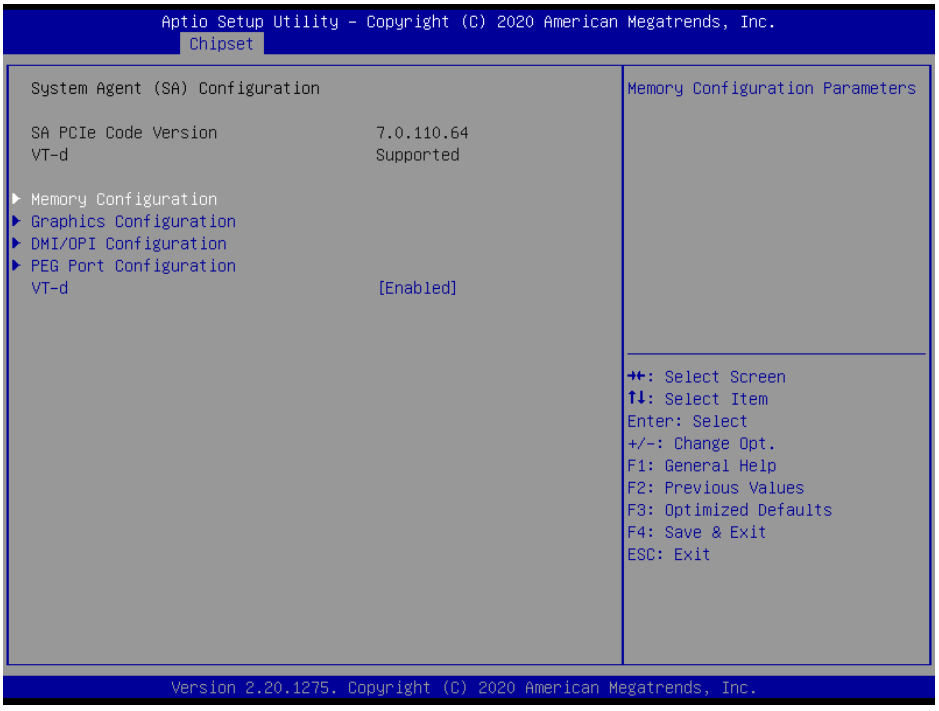


Item	Options	Description
Network Stack	Enabled Disabled**[Default]**	Enable/Disable UEFI Network Stack.

3.6.3 Chipset

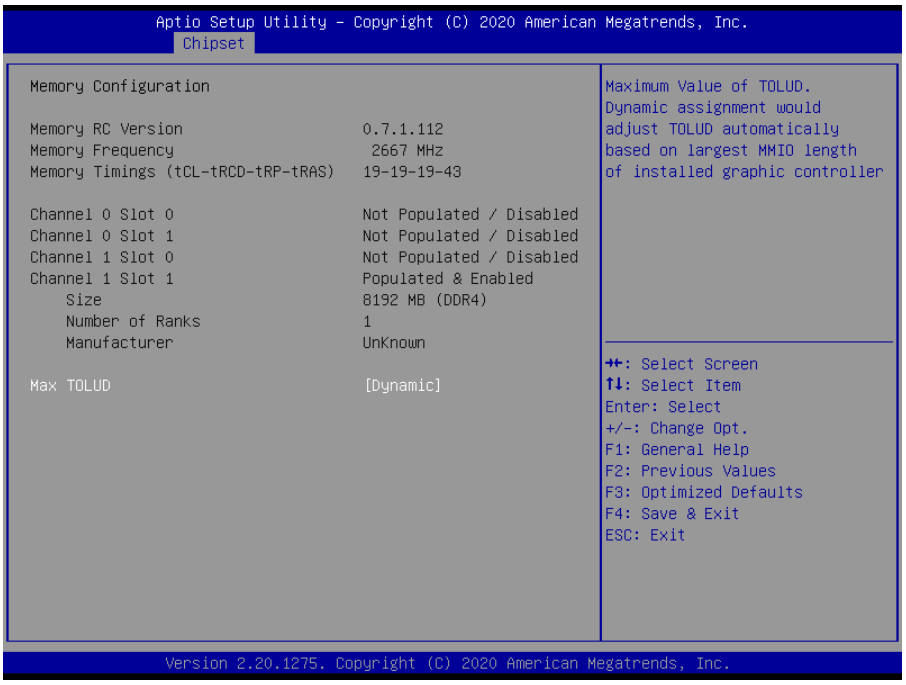


3.6.3.1 System Agent (SA) Configuration



Item	Option	Description
VT-d	Enabled**[Default]** Disabled	VT-d capability.

3.6.3.1.1 Memory Configuration

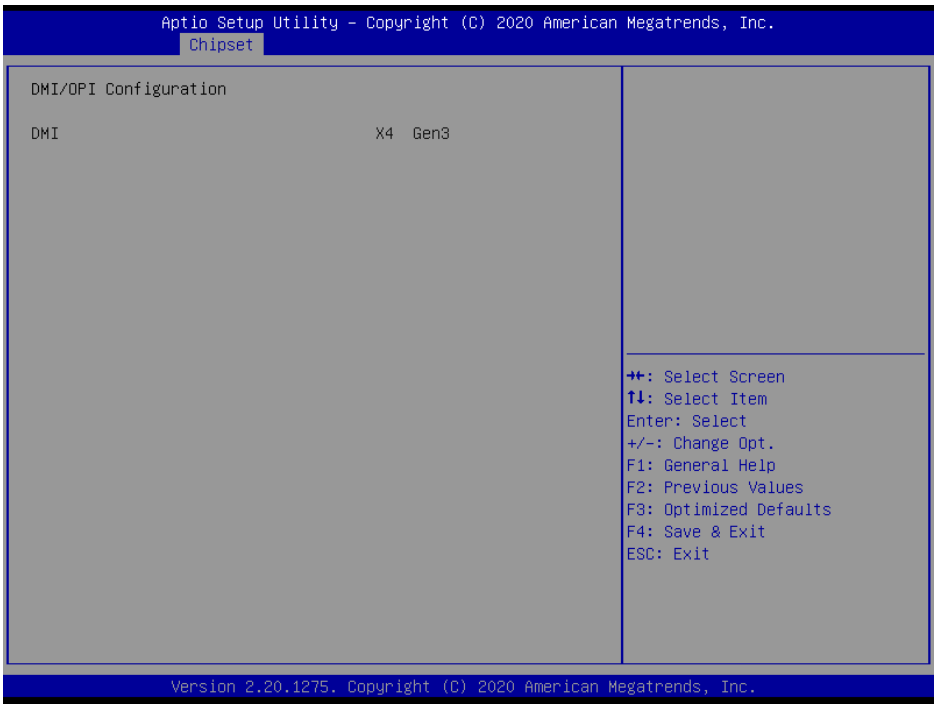


Item	Option	Description
Max TOLUD	Dynamic**[Default]** 1 GB 1.25 GB 1.5 GB 1.75 GB 2 GB 2.25 GB 2.5 GB 2.75 GB 3 GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

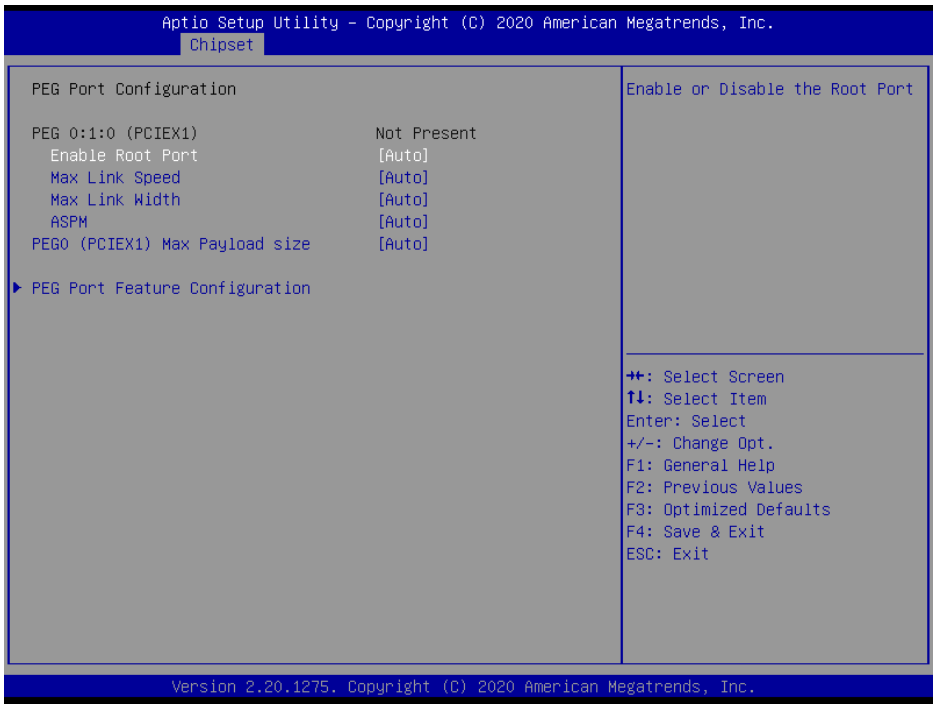
3.6.3.1.2 Graphics Configuration

Item	Option	Description
Primary Display	Auto**[Default]** IGFX PEG PCI	Select which of IGFX/PEG/PCI Graphics device should be Primary Display.
GTT Size	2MB 4MB 8MB**[Default]**	Select the GTT Size.

3.6.3.1.3 DMI/OPI Configuration



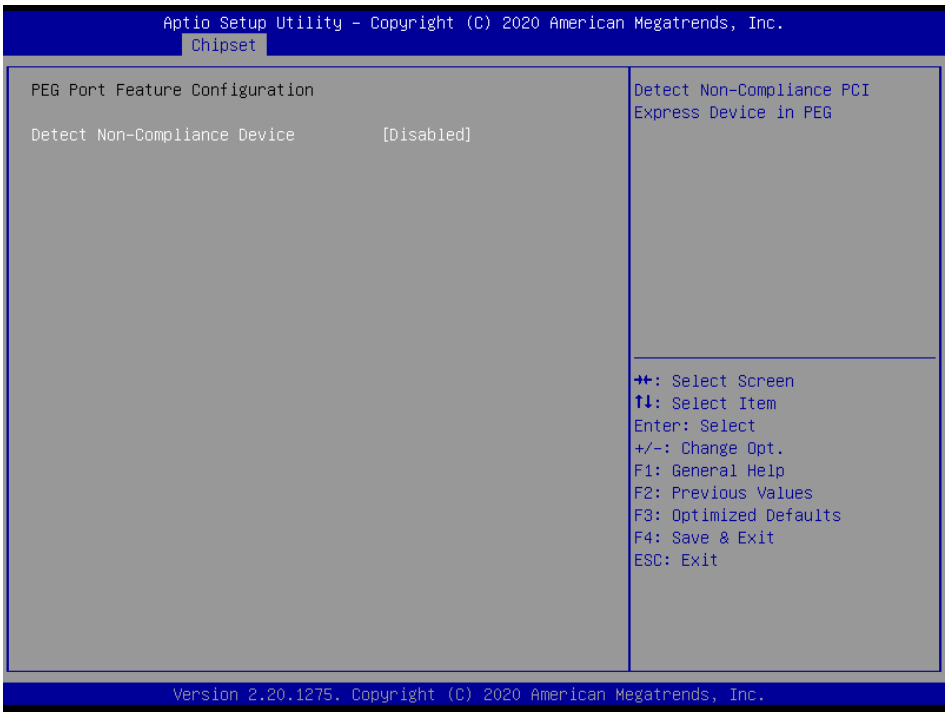
3.6.3.1.4 PEG Port Configuration



Item	Option	Description
Enable Root Port	Disabled Enabled Auto**[Default]**	Enable or Disable the Root Port.
Max Link Speed	Auto**[Default]** Gen1	Configure PEG 0:1:0 Max Speed.

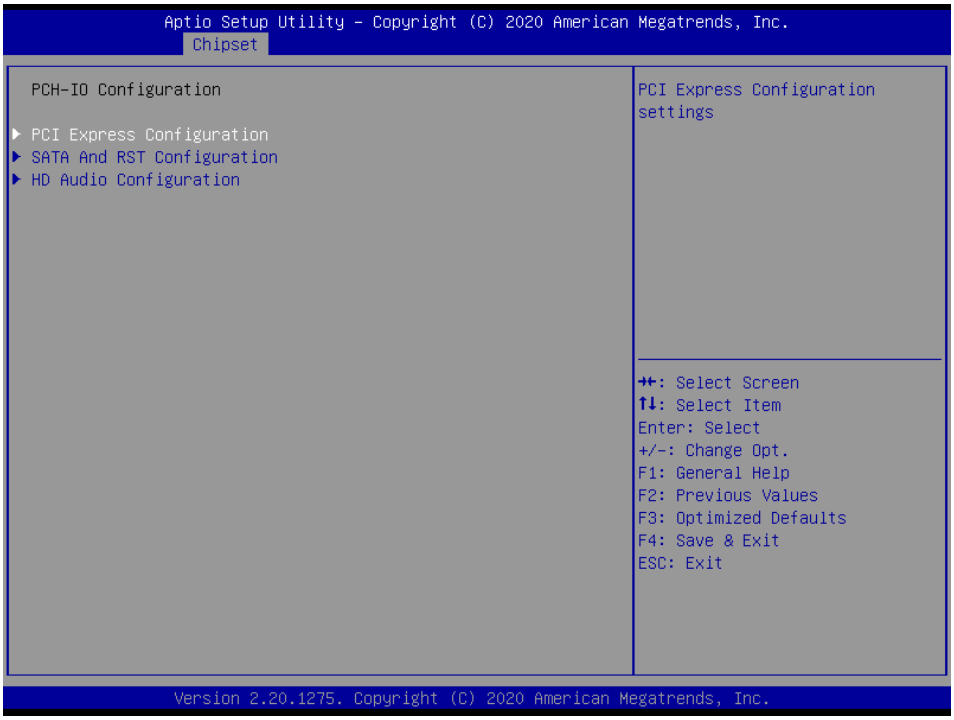
	Gen2 Gen3	
Max Link Width	Auto**[Default]** Force X1 Force X2 Force X4 Force X8	Force PEG link to retrain to X1/2/4/8.
ASPM	Disabled Auto**[Default]** ASPM L0s ASPM L1 ASPM L0sL1	Control ASPM support for the PEG 0. This has no effect if PEG is not the currently active device.
PEG0(PCIEX1) Max Payload size	Auto**[Default]** 128 256 TLP	Select PEG0 Max Payload Size; Choose Auto(Default Device Capability) or force to 128/256 Bytes.

3.6.3.1.4.1 PEG Port Feature Configuration

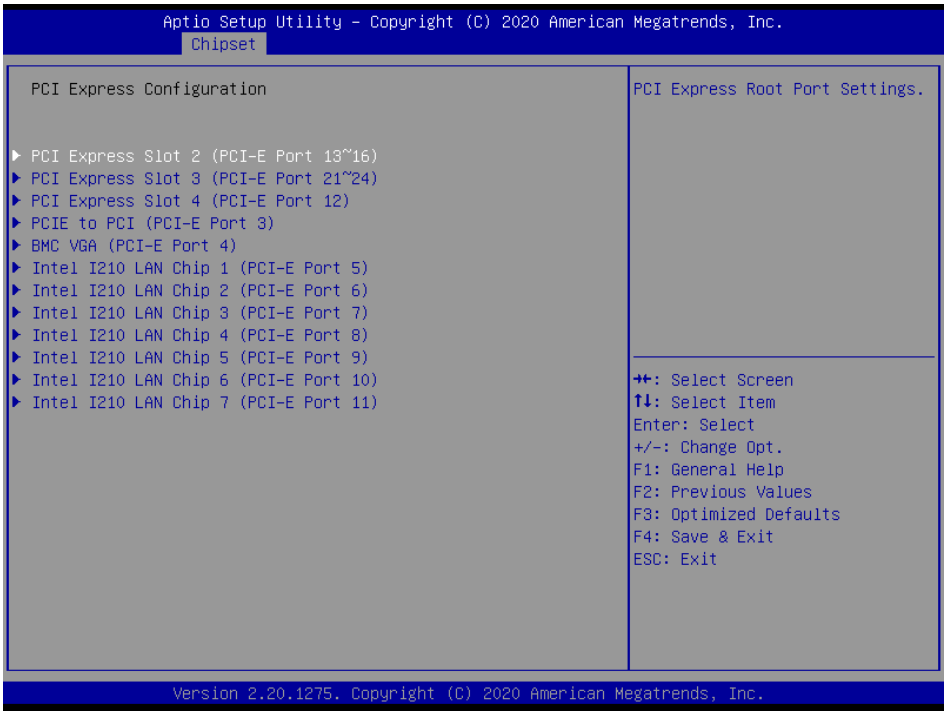


Item	Option	Description
Detect Non-Compliance Device	Enabled, Disabled**[Default]**	Detect Non-Compliance PCI Express Device in PEG.

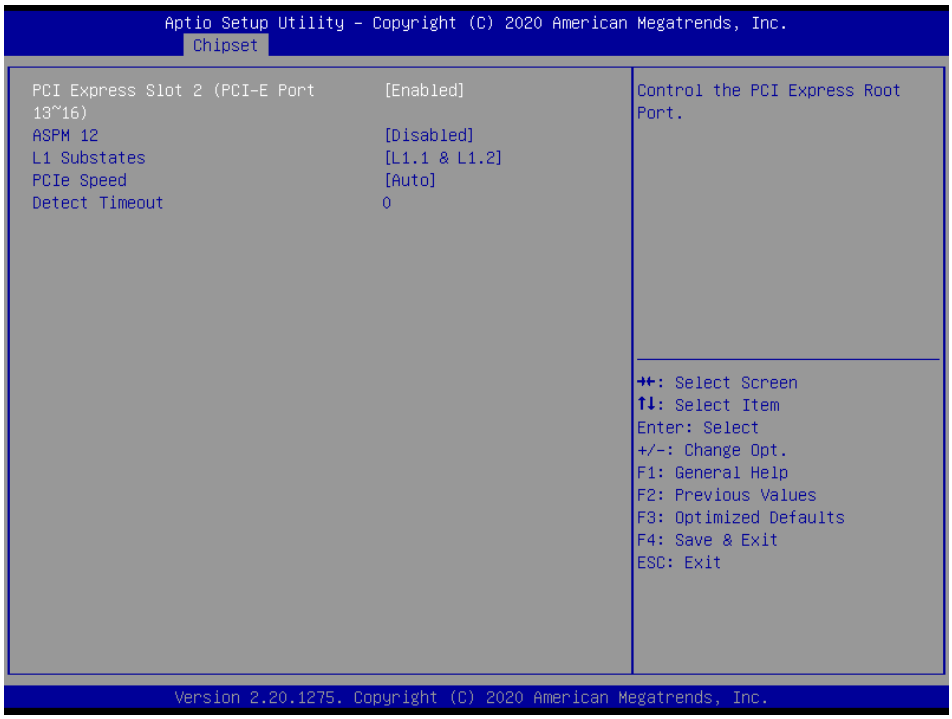
3.6.3.2 PCH-IO Configuration



3.6.3.2.1 PCI Express Configuration

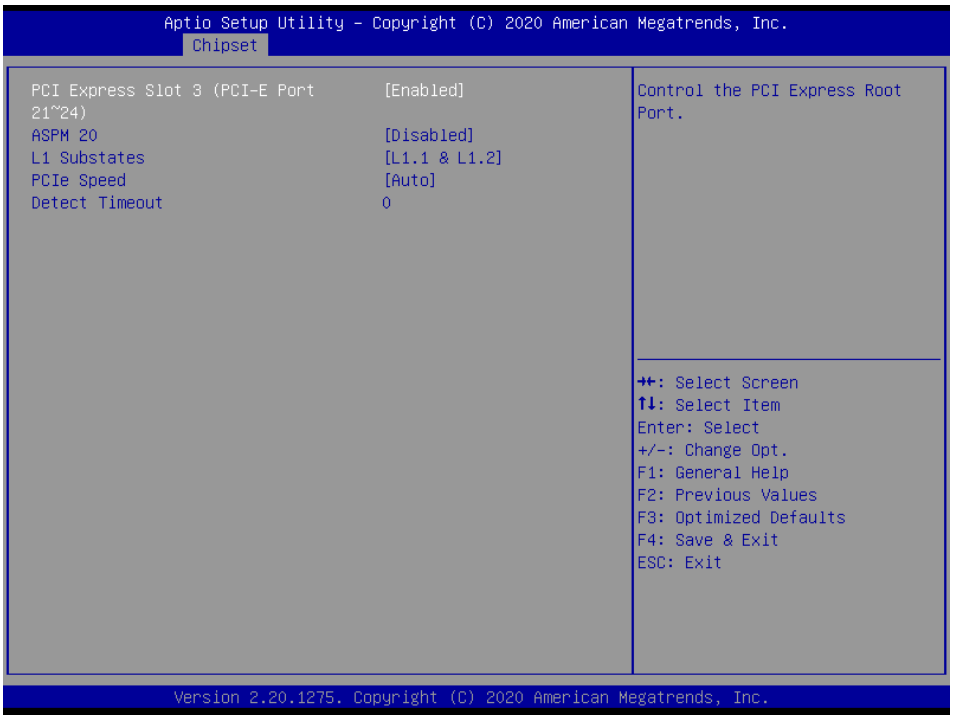


3.6.3.2.1.1 PCI Express Slot 2 (PCI-E Port 13~16)



Item	Option	Description
PCI Express Slot 2 (PCI-E Port 13~16)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 12	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.2 PCI Express Slot 3 (PCI-E Port 21~24)

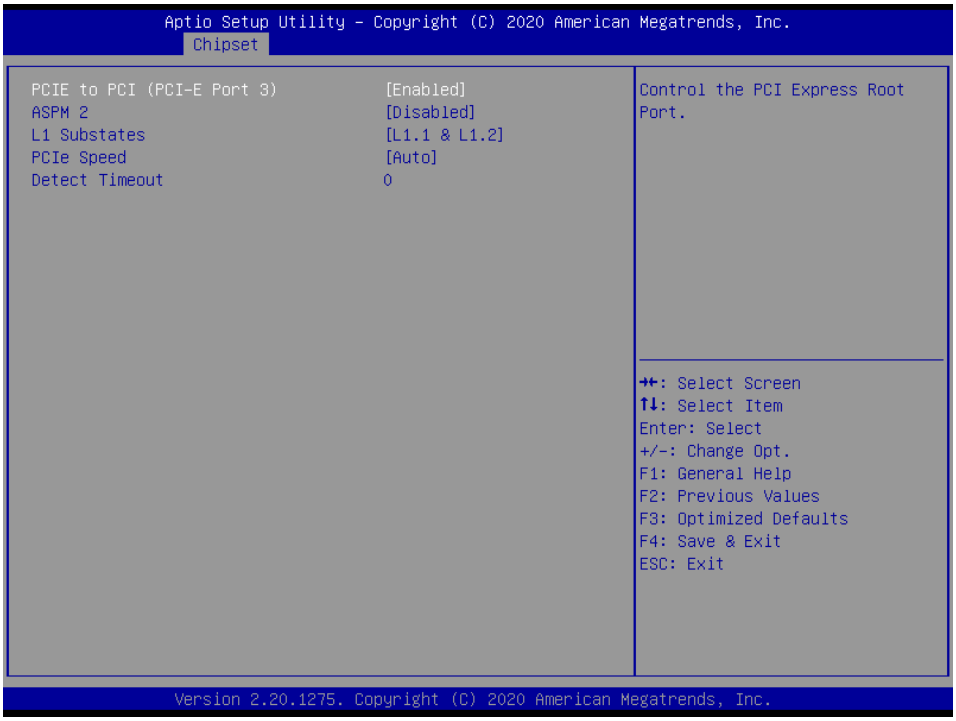


Item	Option	Description
PCI Express Slot 3 (PCI-E Port 21~24)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 20	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.3 PCI Express Slot 4 (PCI-E Port 12)

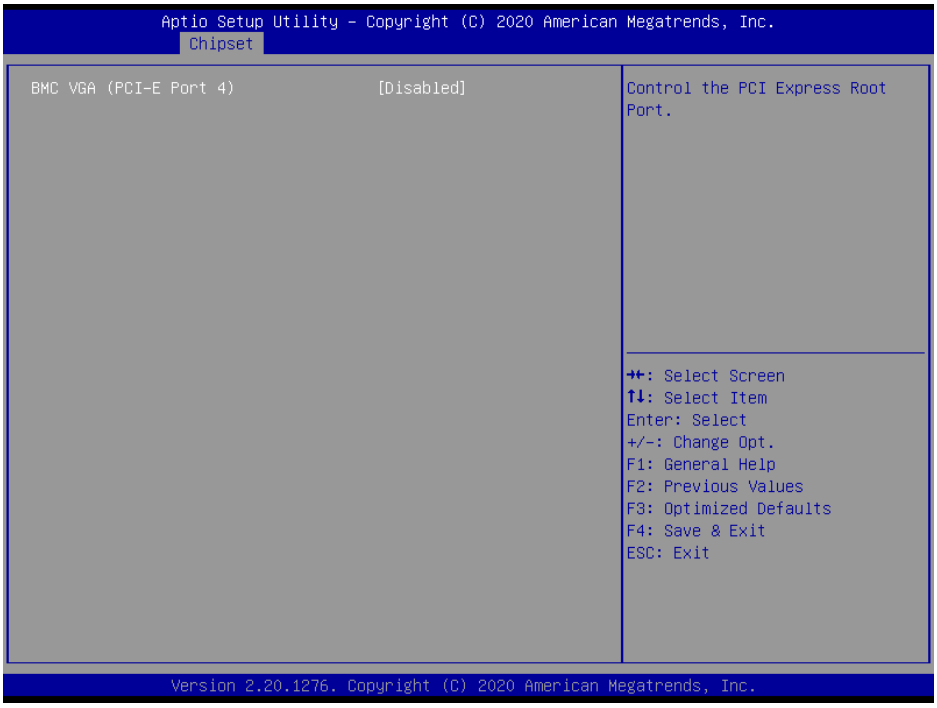
Item	Option	Description
PCI Express Slot 4 (PCI-E Port 12)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 11	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.4 PCIE to PCI (PCI-E Port 3)



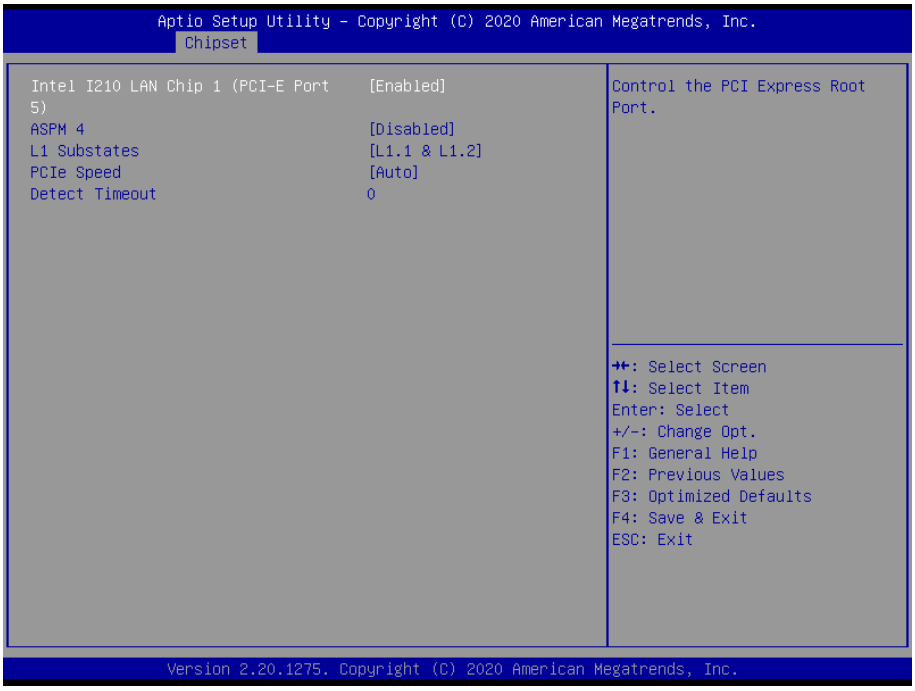
Item	Option	Description
PCIE to PCI(PCI-E Port 3)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 2	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.5 BMC VGA (PCI-E Port 4)



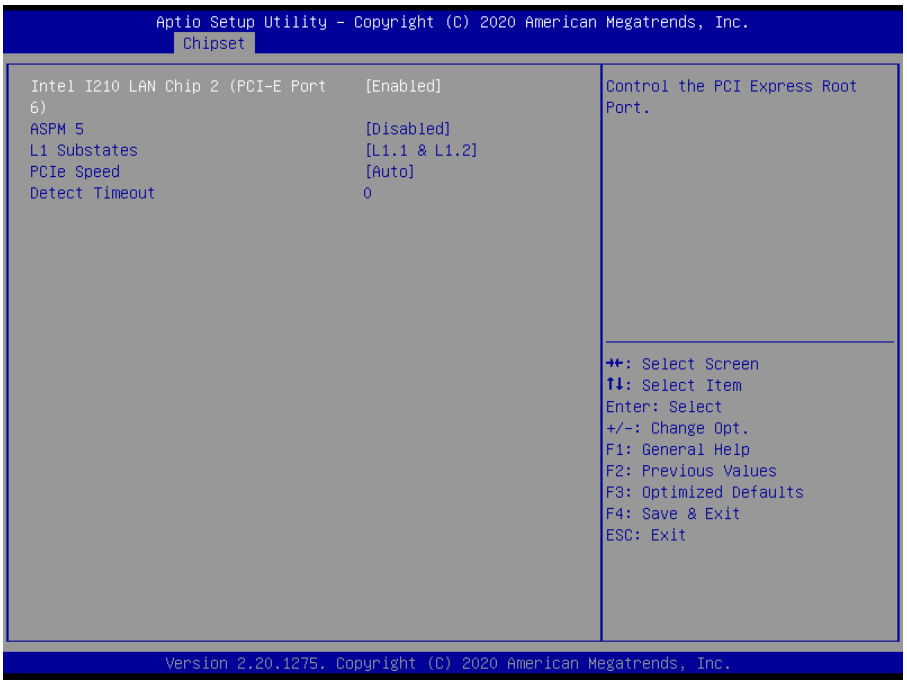
Item	Option	Description
BMC VGA (PCI-E Port 4)	Enabled, Disabled**[Default]**	Control the PCI Express Root Port.

3.6.3.2.1.6 Intel I210 LAN Chip 1 (PCI-E Port 5)



Item	Option	Description
Intel I210 LAN Chip 1 (PCI-E Port 5)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 4	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

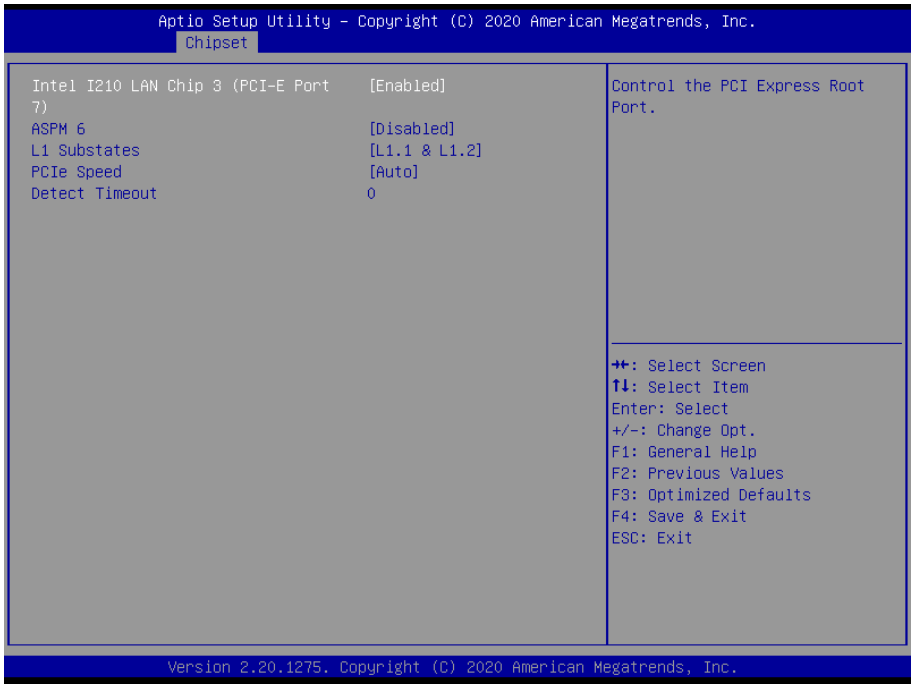
3.6.3.2.1.7 Intel I210 LAN Chip 2 (PCI-E Port 6)



Item	Option	Description
Intel I210 LAN Chip 2 (PCI-E Port 6)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 5	Disabled**[Default]**, L0s L1 L0sL1	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.

	Auto	
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

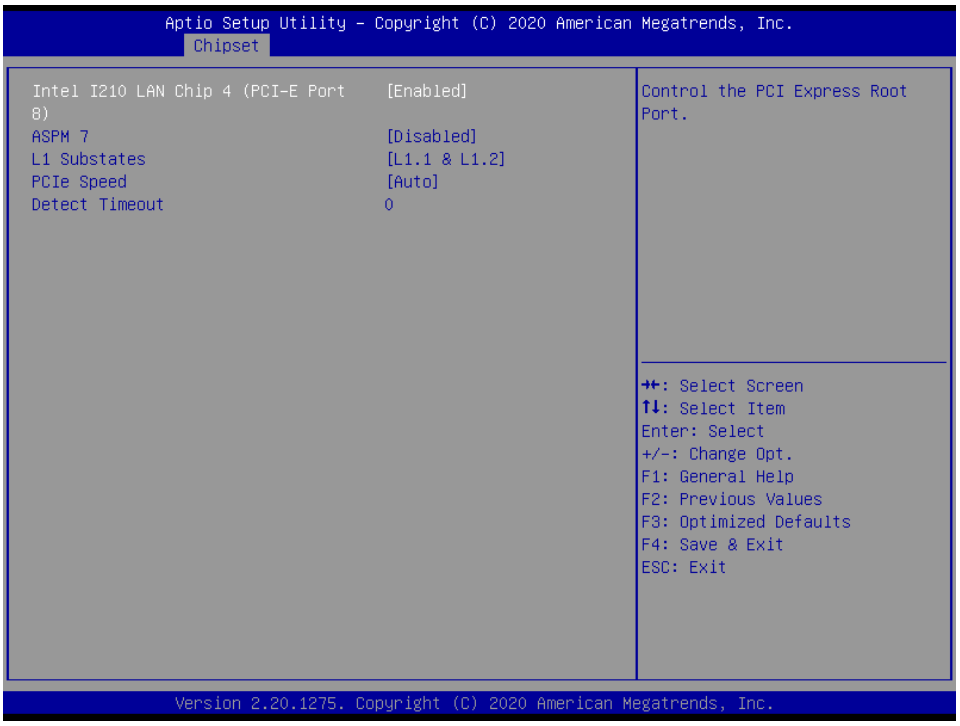
3.6.3.2.1.8 Intel I210 LAN Chip 3 (PCI-E Port 7)



Item	Option	Description
Intel I210 LAN Chip 3 (PCI-E Port 7)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 6	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2	Configure PCIe Speed.

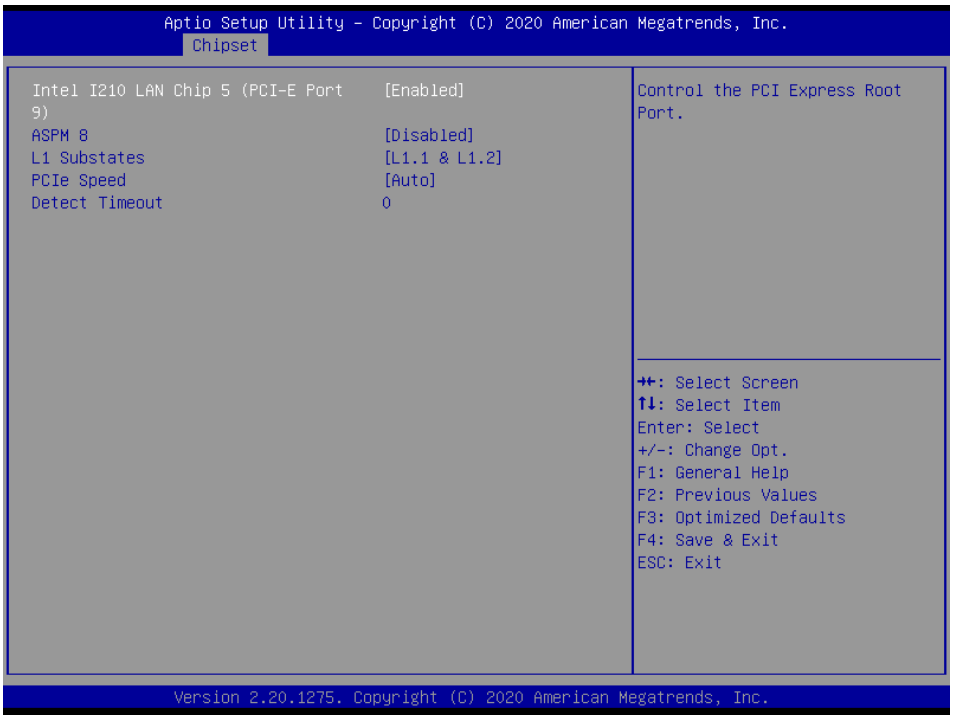
	Gen3	
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.9 Intel I210 LAN Chip 4 (PCI-E Port 8)



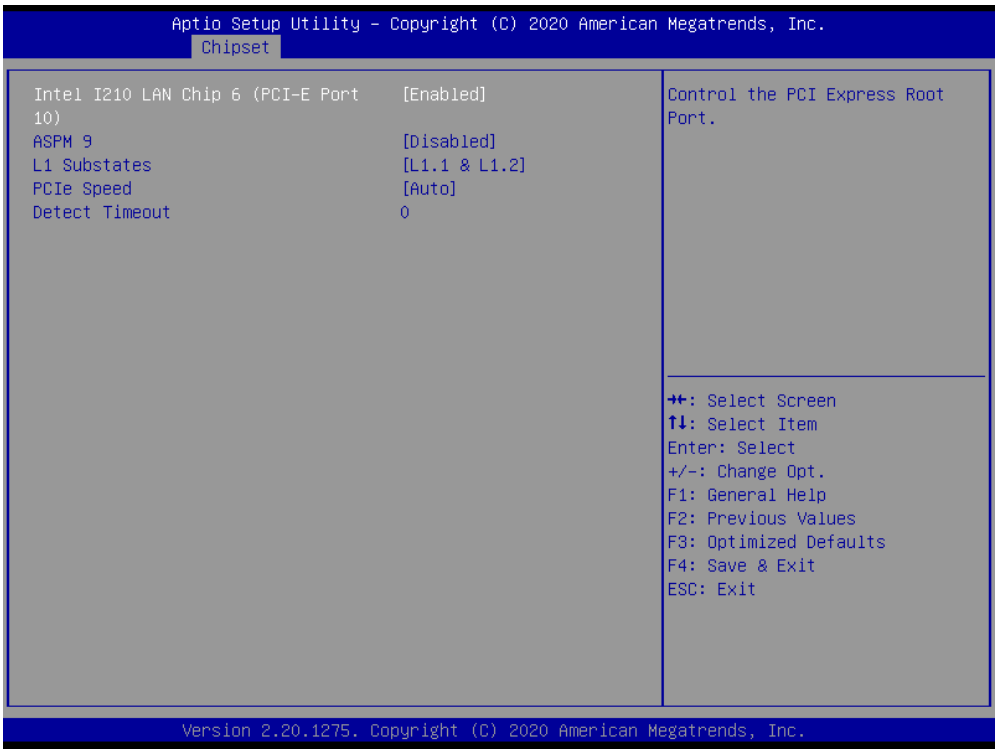
Item	Option	Description
Intel I210 LAN Chip 4 (PCI-E Port 8)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 7	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.10 Intel I210 LAN Chip 5 (PCI-E Port 9)



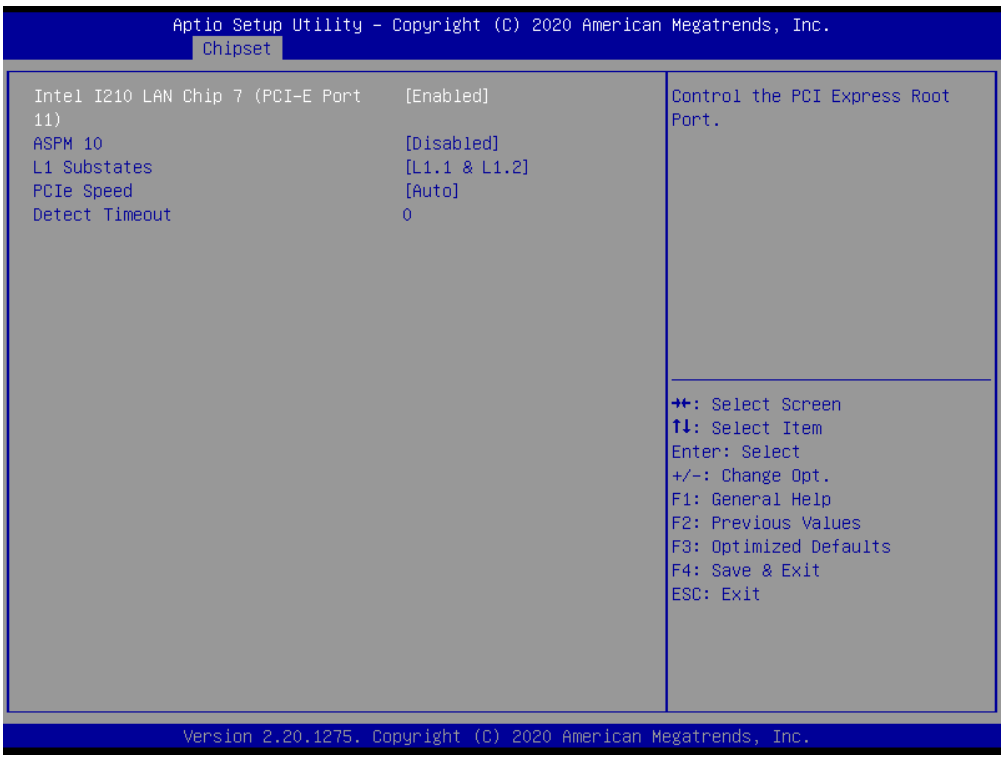
Item	Option	Description
Intel I210 LAN Chip 5 (PCI-E Port 9)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 8	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.11 Intel I210 LAN Chip 6 (PCI-E Port 10)



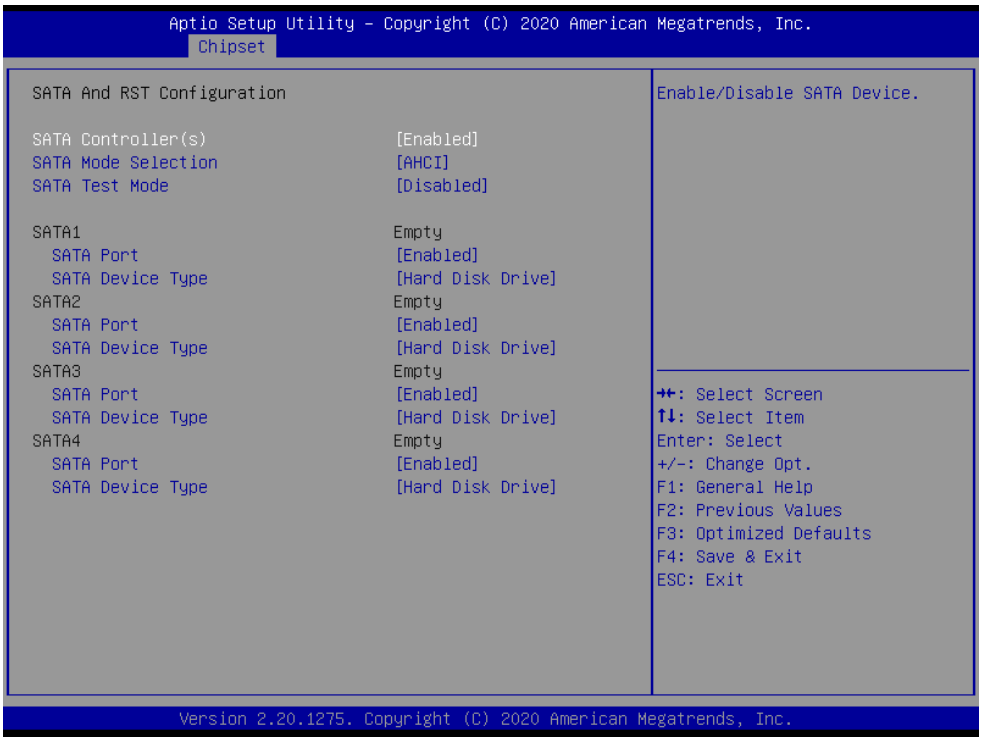
Item	Option	Description
Intel I210 LAN Chip 6 (PCI-E Port 10)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 9	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.1.12 Intel I210 LAN Chip 7 (PCI-E Port 11)



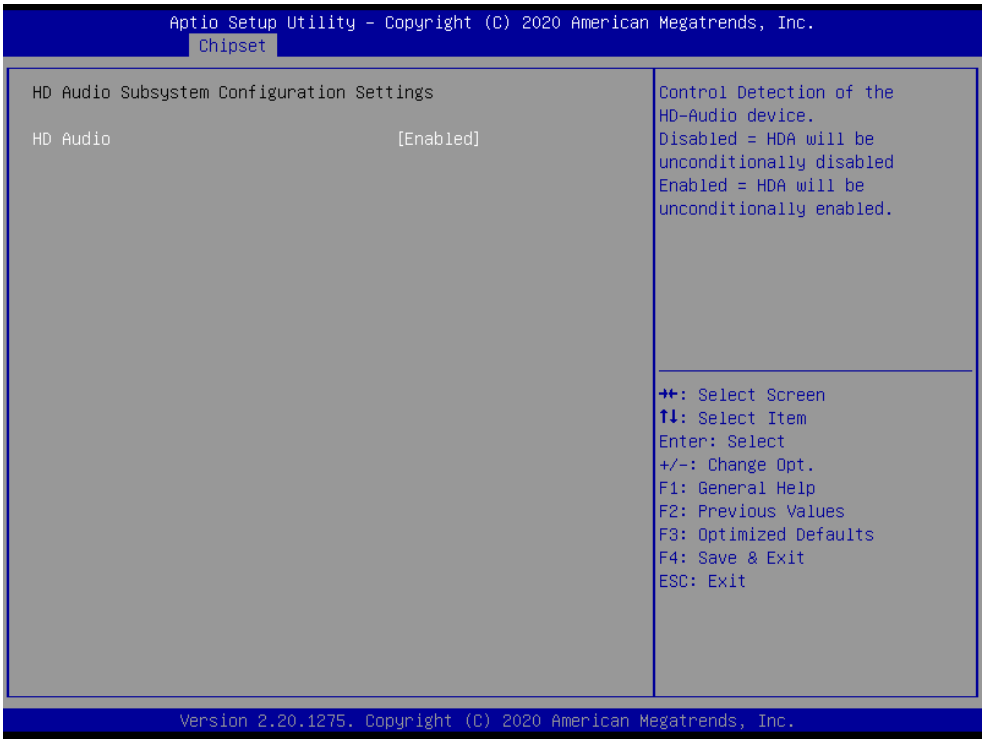
Item	Option	Description
Intel I210 LAN Chip 7(PCI-E Port 11)	Enabled**[Default]**, Disabled	Control the PCI Express Root Port.
ASPM 10	Disabled**[Default]**, L0s L1 L0sL1 Auto	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO – BIOS auto configure DISABLE – Disables ASPM.
L1 Substates	Disabled, L1.1 L1.1 & L1.2**[Default]**	PCI Express L1 Substates settings.
PCIe Speed	Auto**[Default]** Gen1 Gen2 Gen3	Configure PCIe Speed.
Detect Timeout	0	The number of milliseconds reference code will wait for link to exit Detect state for enabled ports before assuming there is no device and potentially disabling the port.

3.6.3.2.2 SATA And RST Configuration



Item	Options	Description
SATA Controller(s)	Enabled**[Default]** Disabled,	Enable/Disable SATA Device.
SATA Mode Selection	AHCI**[Default]**, RAID	Determines how SATA controller(s) operate.
SATA Test Mode	Enabled Disabled**[Default]**	Test Mode Enable/Disable (Loop Back).
SATA Port	Enabled**[Default]** Disabled	Enable or Disable SATA Port.
SATA Device Type	Hard Disk Drive**[Default]** Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.3.2.3 HD Audio Configuration

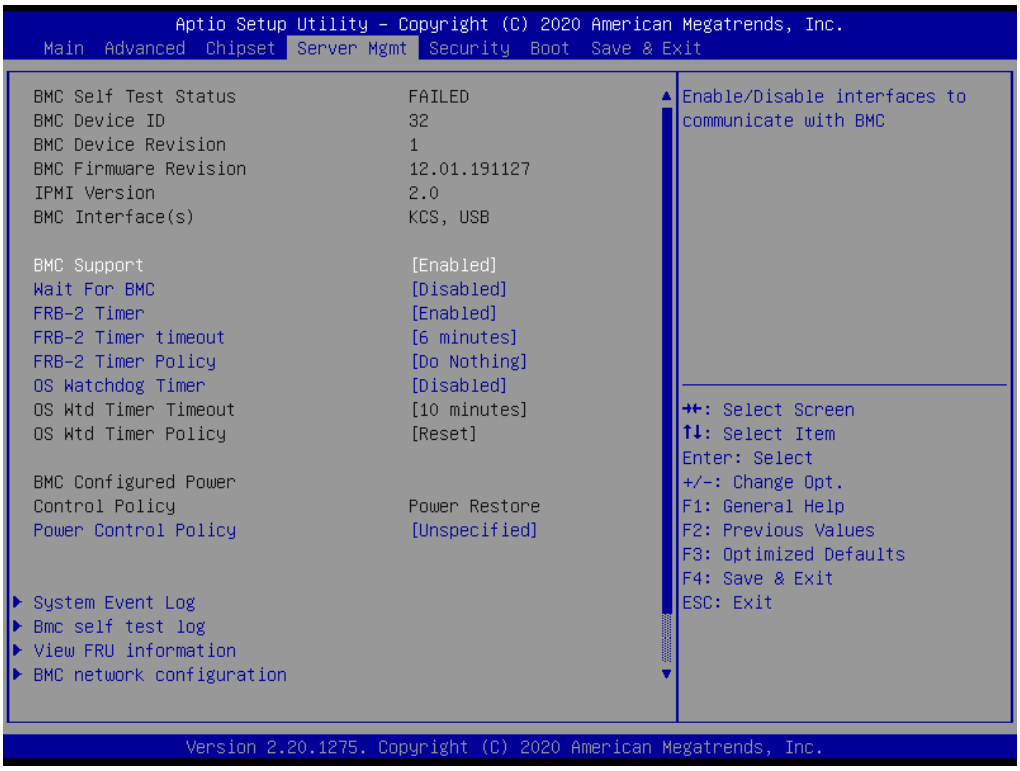


Item	Option	Description
HD Audio	Disabled Enabled**[Default]**	Control Detection of the HD-Audio device. Disable = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.

3.6.3.3 Board Configuration

Item	Option	Description
Wake Up by Ring	Disabled Enabled**[Default]**	Wake Up by Ring from S3/S4/S5.
USB Standby Power	Disabled Enabled**[Default]**	Enable/Disabled USB Standby Power during S3/S4/S5.

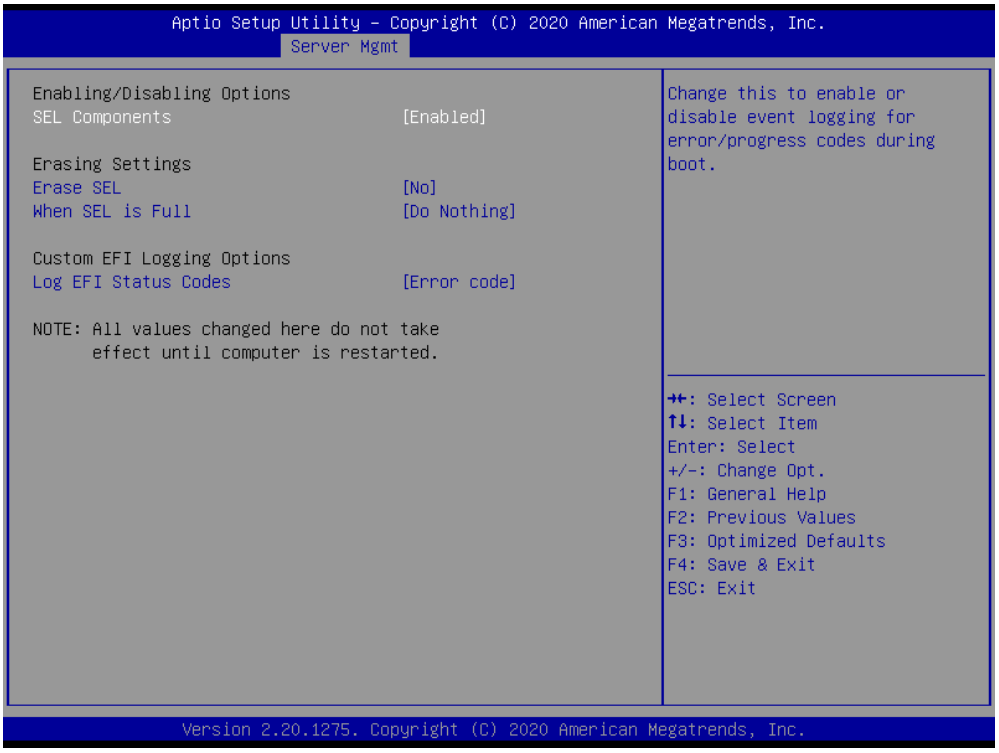
3.6.4 Server Mgmt



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 starts at the same time when BIOS starts during AC power ON. It takes around 30 seconds to initialize Host to BMC interfaces.
FRB-2 Timer	Enabled**[Default]** Disabled	Enable or Disable FRB-2 time (POST timer).
FRB-2 Timer timeout	3 minutes 4 minutes 5 minutes 6 minutes**[Default]**	Enter value Between 3 to 6 min for FRB-2 Timer Expiration value.
FRB-2 Timer Policy	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.
OS Watchdog Timer	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

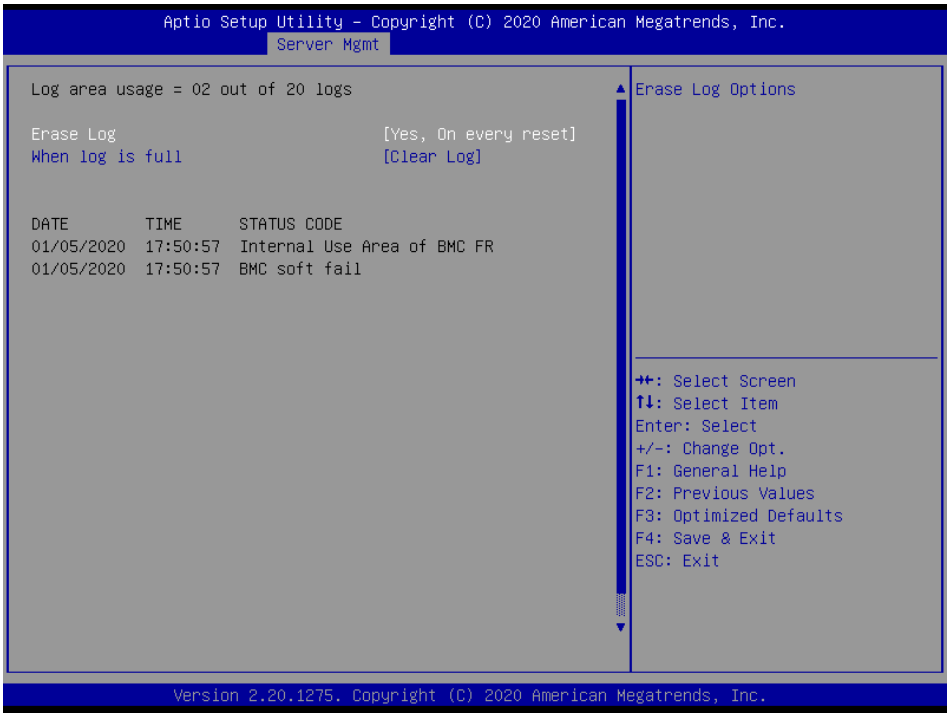
		the OS Boot Watchdog Timer policy.
Power Control Policy	Do Not PowerUp Last Power State Power Restore Unspecified**[Default]**	Configure how the system should respond if AC Power is lost, Reset not required as selected Power policy will be set in BMC when policy is saved.

3.6.4.1 System Event Log



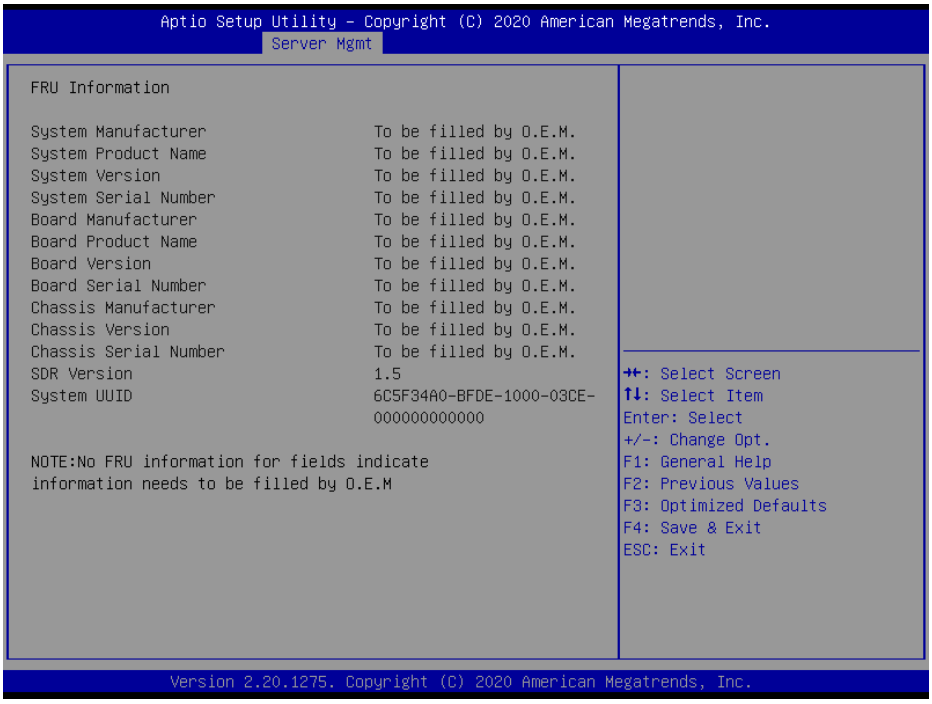
Item	Option	Description
SEL Components	Enabled**[Default]** Disabled	Change this to enable or disable event logging for error/progress codes during boot.
Erase SEL	No**[Default]** Yes, On next reset Yes, On every reset	Choose options for erasing SEL.
When SEL is Full	Do Nothing**[Default]** Erase Immediately Delete Oldest Record	Choose options for reactions to a full SEL.
Log EFI Status Codes	Disabled Both Error code**[Default]** Progress code	Disable the logging of EFI Status Codes or log only error code or only progress code or both.

3.6.4.2 Bmc self test log

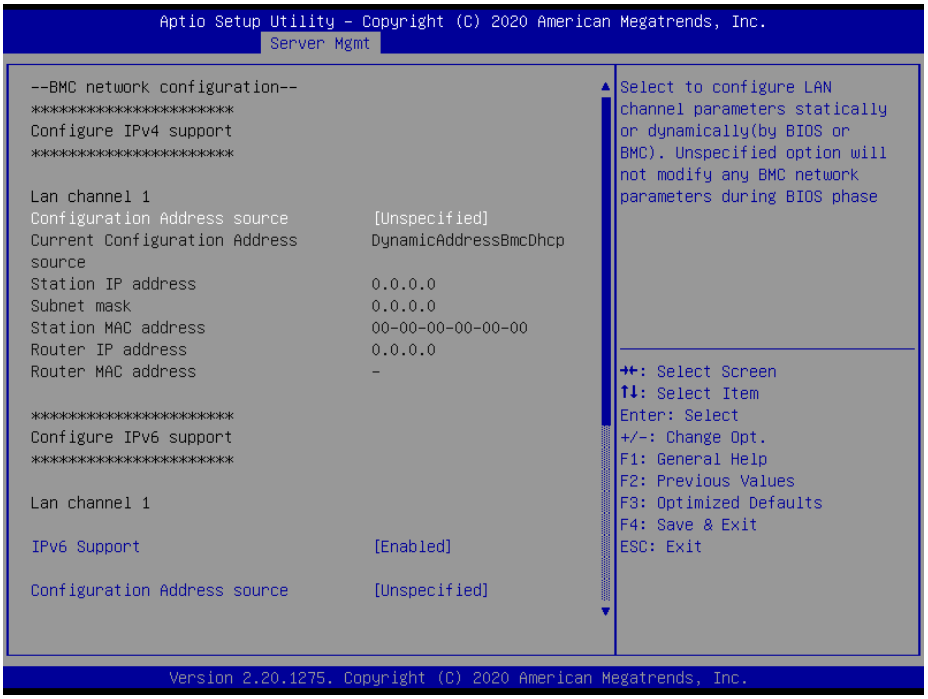


Item	Option	Description
Erase Log	Yes, On every reset**[Default]** No	Erase Log Options.
When log is full	Clear Log**[Default]** Do not log any more	Select the action to be taken when log is full.

3.6.4.3 FRU Information

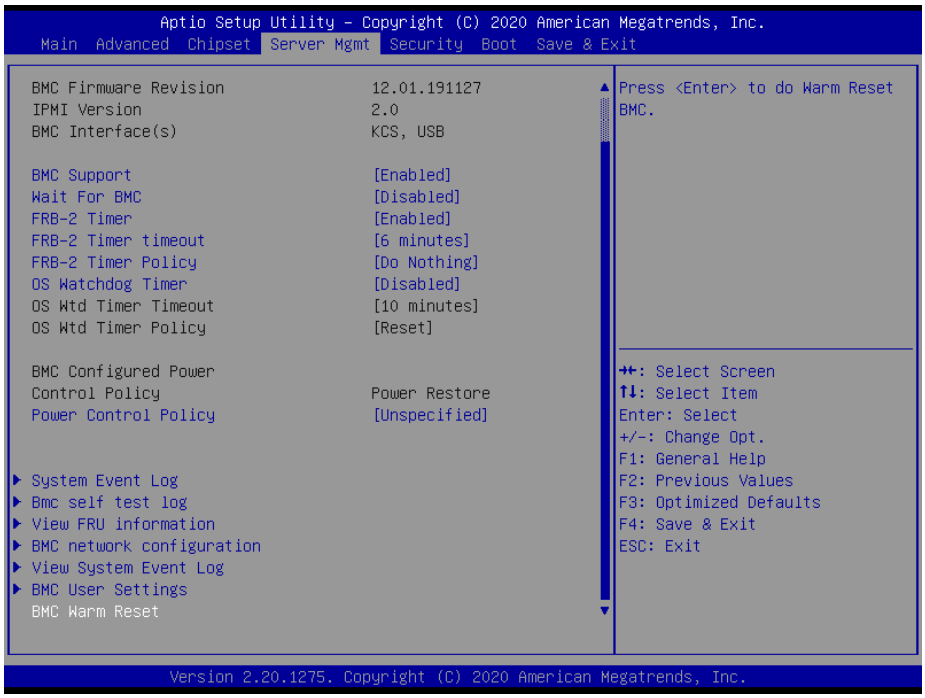


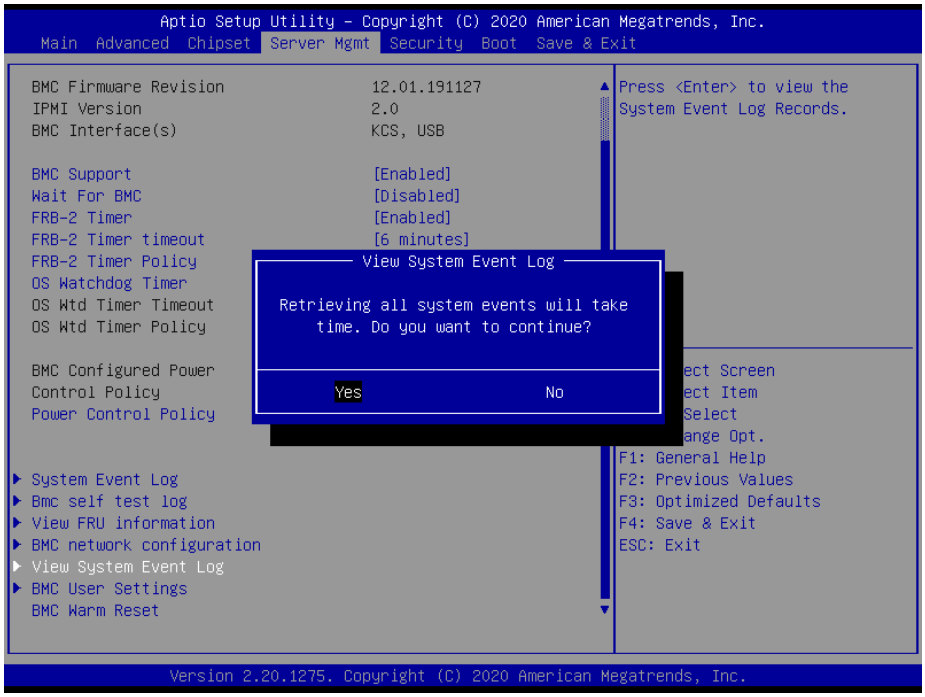
3.6.4.4 BMC network configuration

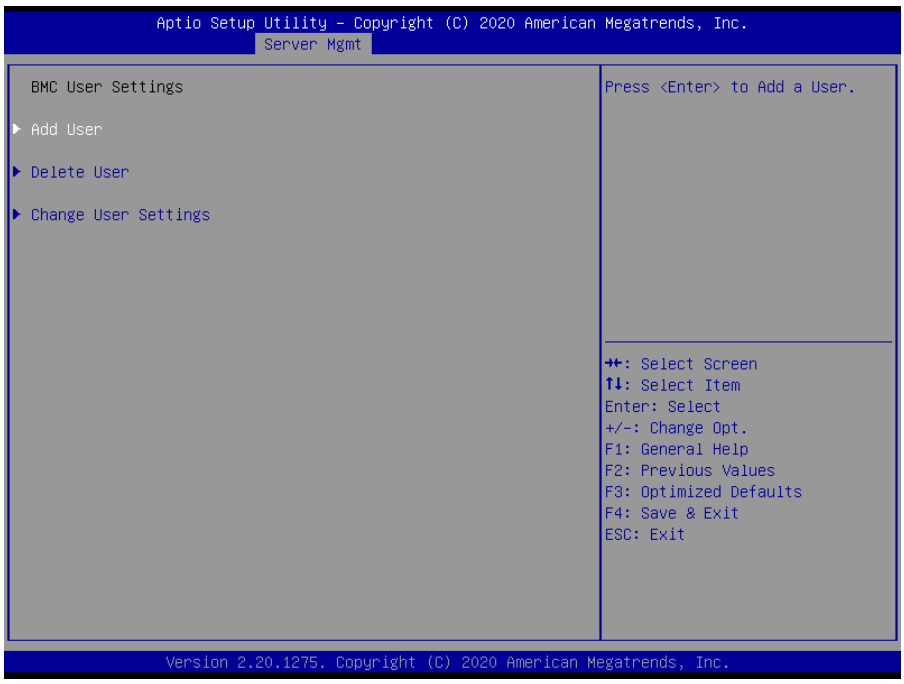


Item	Option	Description
Configuration Address source	Unspecified**[Default]** Static DynamicBmcDhcp DynamicBmcNonDhcp	Select configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
IPV6 Support	Enabled**[Default]**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

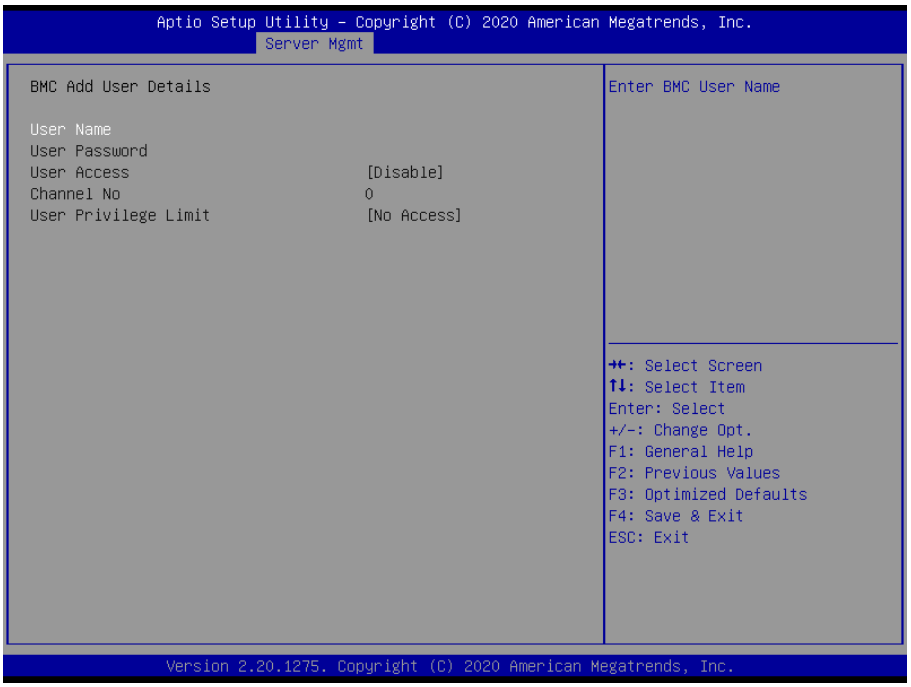
3.6.4.5 BMC User Settings





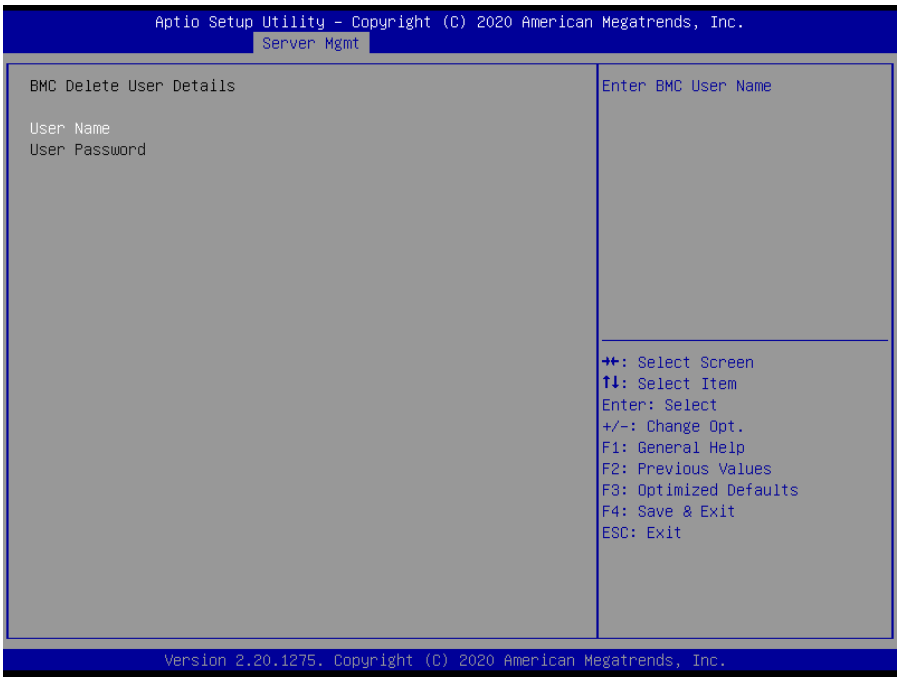


3.6.4.5.1 BMC Add User Details



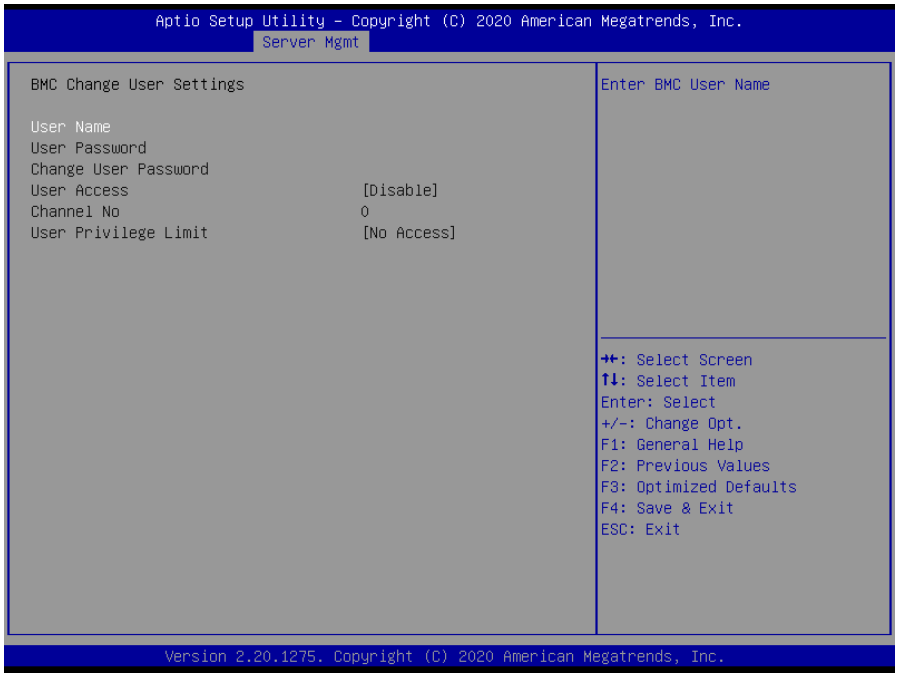
Item	Description
User Name	Enter BMC User Name.

3.6.4.5.2 BMC Delete User Details



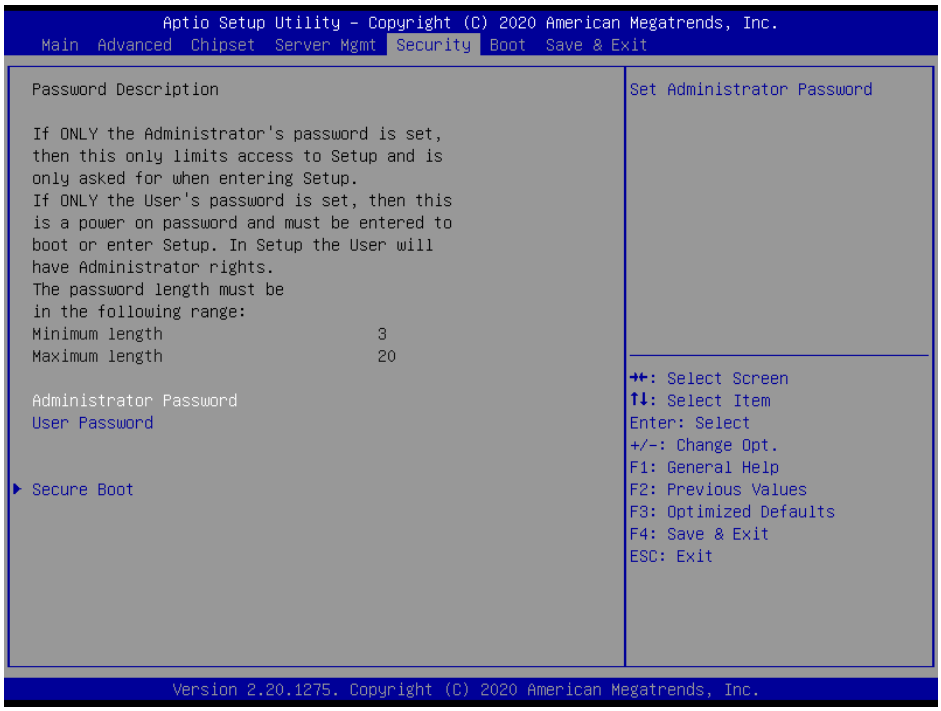
Item	Description
User Name	Enter BMC User Name.

3.6.4.5.3 BMC Change User Settings



Item	Description
User Name	Enter BMC User Name.

3.6.4 Security



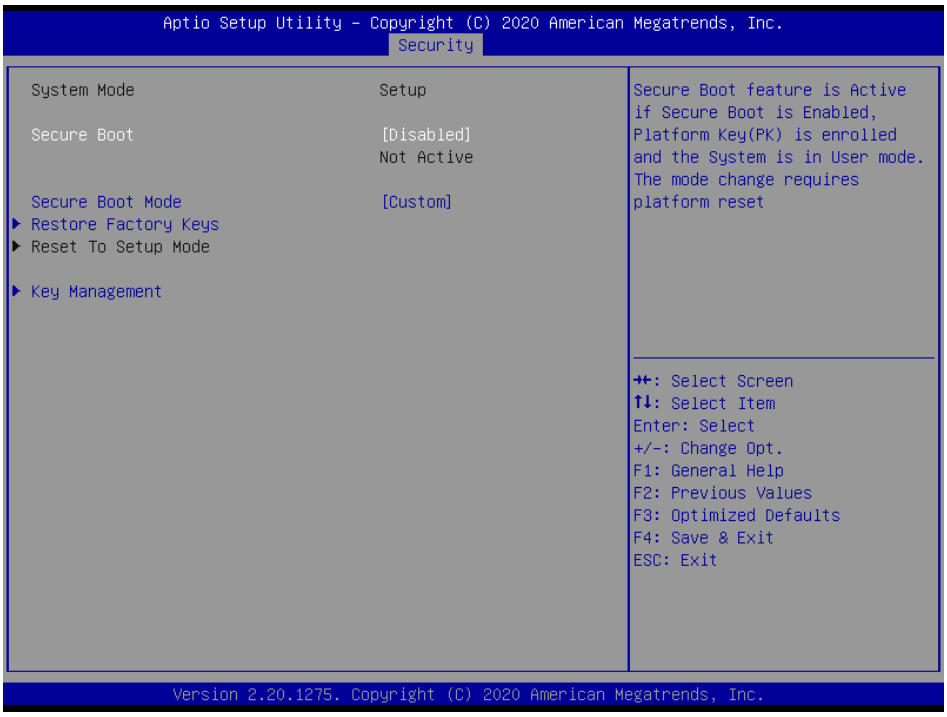
- **Administrator Password**

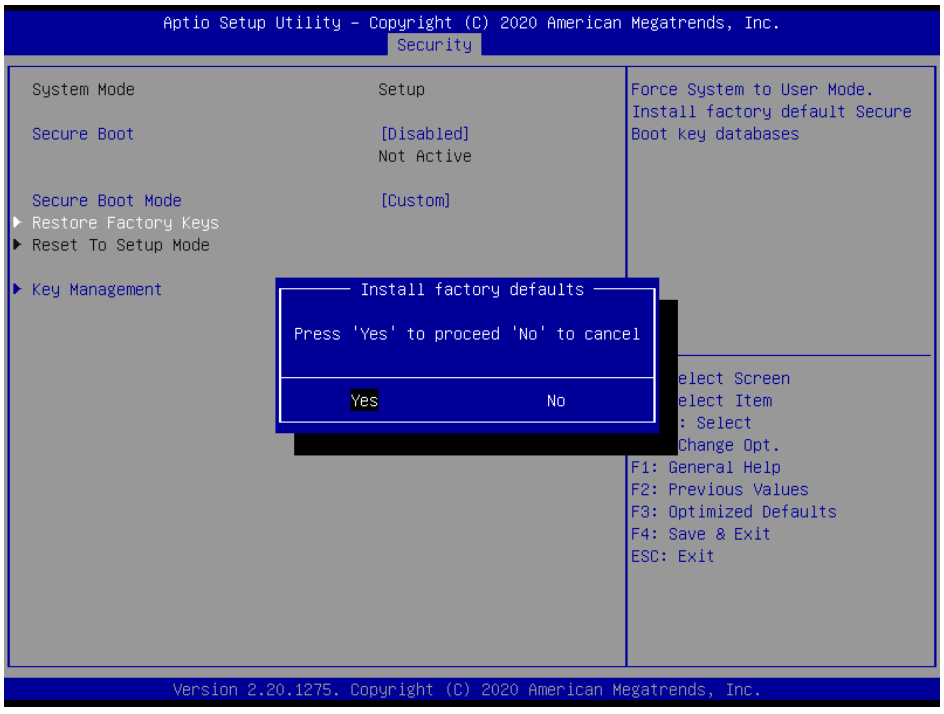
Set setup Administrator Password

- **User Password**

Set User Password

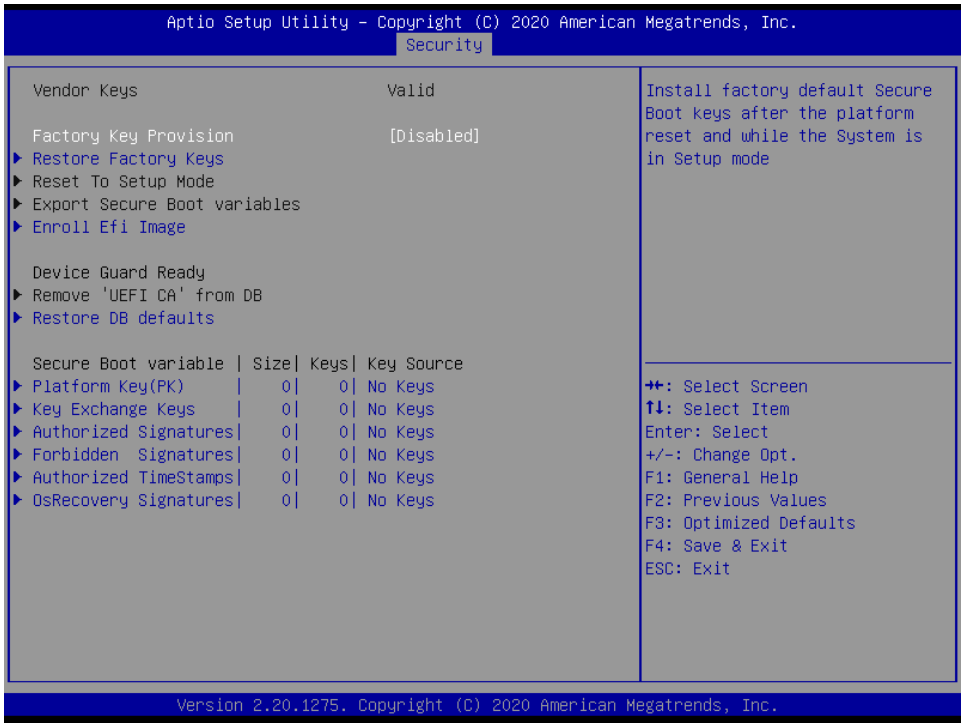
3.6.4.1 Secure Boot

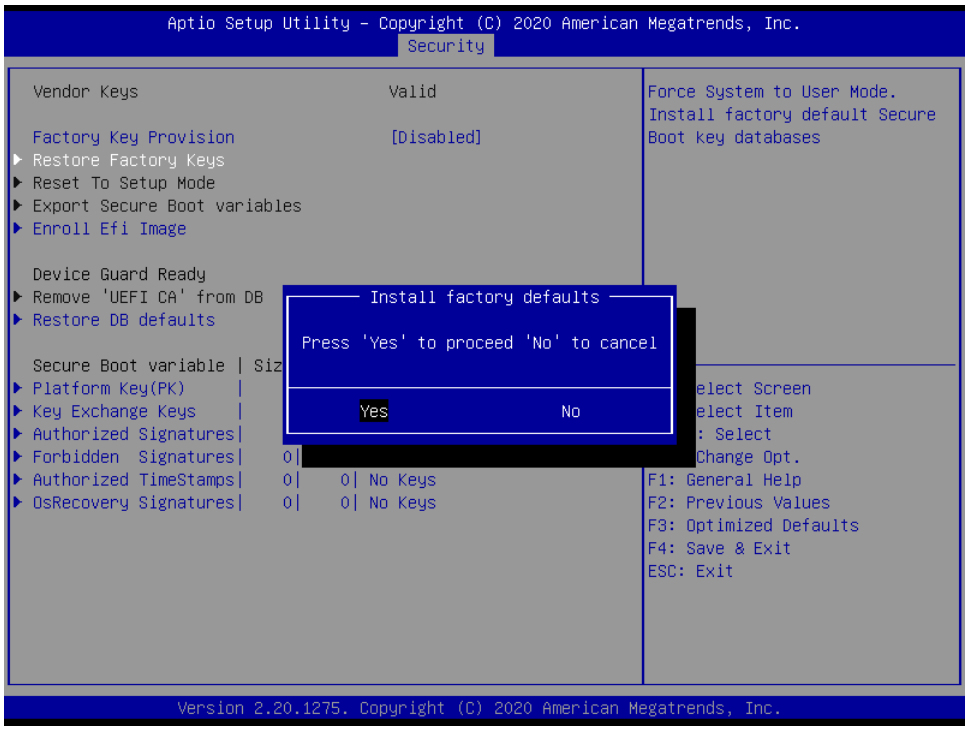


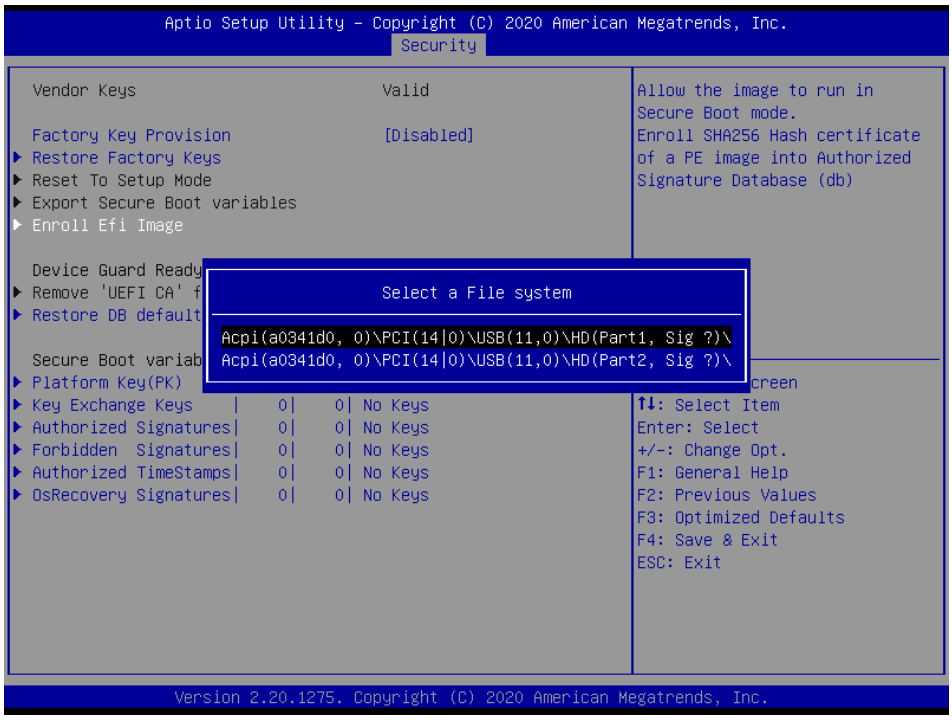


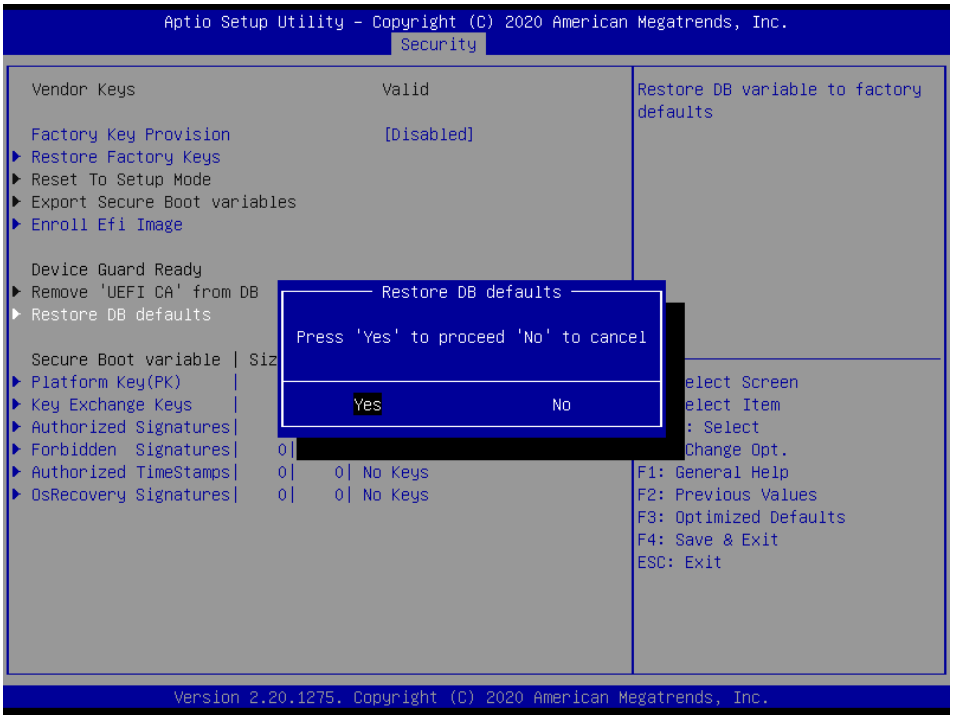
Item	Option	Description
Secure Boot	Disabled**[Default]** Enabled	Secure Boot feature is Active if Secure Boot is Enable, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset.
Secure Boot Mode	Standard Custom**[Default]**	Secure Boot mode selector: Standard/Custom.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

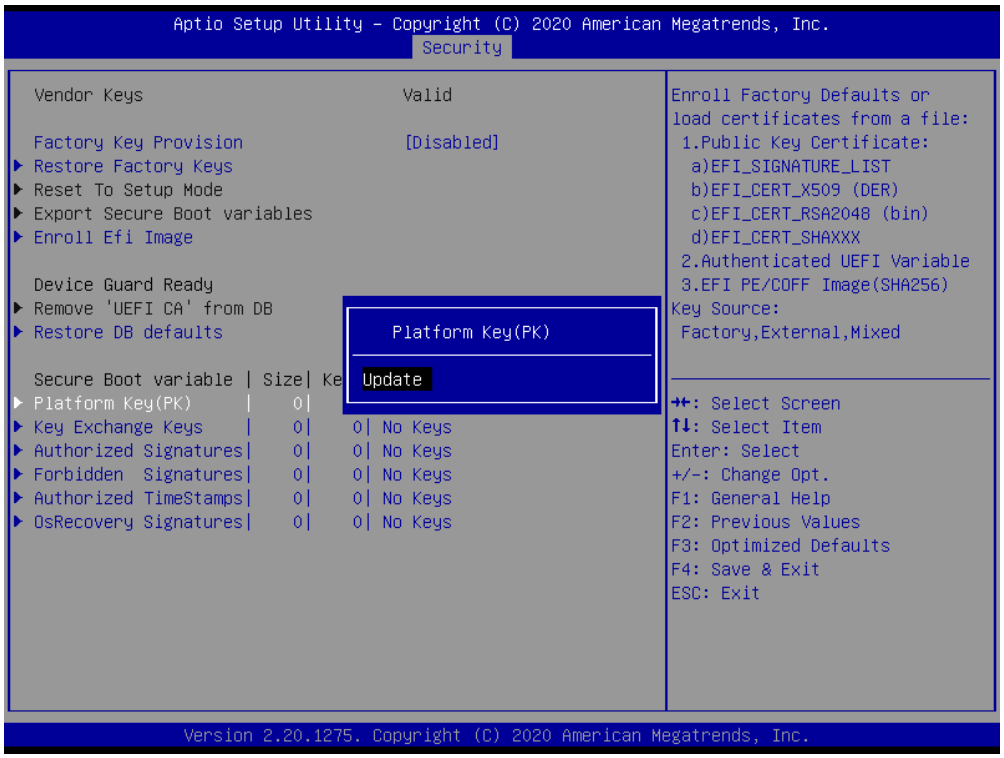
3.6.4.1.1 Key Management






Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Security
Vendor Keys Valid
Factory Key Provision [Disabled]
Restore Factory Keys
Reset To Setup Mode
Export Secure Boot variables
Enroll Efi Image
Device Guard Ready
Remove 'UEFI CA' f
Restore DB default
Secure Boot variab
Platform Key(PK)
Key Exchange Keys 0| 0| No Keys
Authorized Signatures| 0| 0| No Keys
Forbidden Signatures| 0| 0| No Keys
Authorized TimeStamps| 0| 0| No Keys
OsRecovery Signatures| 0| 0| No Keys
Select a File system
Acpi(a0341d0, 0)\PCI(14|0)\USB(11,0)\HD(Part1, Sig ?)\
Acpi(a0341d0, 0)\PCI(14|0)\USB(11,0)\HD(Part2, Sig ?)\
Allow the image to run in Secure Boot mode.
Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db)
creen
↑↓: 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.


Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Security
Vendor Keys Valid
Factory Key Provision [Disabled]
Restore Factory Keys
Reset To Setup Mode
Export Secure Boot variables
Enroll Efi Image
Device Guard Ready
Remove 'UEFI CA' from DB
Restore DB defaults
Secure Boot variable | Siz
Platform Key(PK)
Key Exchange Keys
Authorized Signatures|
Forbidden Signatures| 0|
Authorized TimeStamps| 0| 0| No Keys
OsRecovery Signatures| 0| 0| No Keys
Restore DB defaults
Press 'Yes' to proceed 'No' to cancel
Yes
No
Restore DB variable to factory defaults
elect Screen
elect Item
: 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.


Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Security
Vendor Keys Valid
Factory Key Provision [Disabled]
Restore Factory Keys
Reset To Setup Mode
Export Secure Boot variables
Enroll Efi Image
Device Guard Ready
Remove 'UEFI CA' from DB
Restore DB defaults
Secure Boot variable | Size| Ke
Platform Key(PK) | 0|
Key Exchange Keys | 0| 0| No Keys
Authorized Signatures| 0| 0| No Keys
Forbidden Signatures| 0| 0| No Keys
Authorized TimeStamps| 0| 0| No Keys
OsRecovery Signatures| 0| 0| No Keys
Platform Key(PK)
Update
Enroll Factory Defaults or load certificates from a file:
1.Public Key Certificate:
a)EFI_SIGNATURE_LIST
b)EFI_CERT_X509 (DER)
c)EFI_CERT_RSA2048 (bin)
d)EFI_CERT_SHAXXX
2.Authenticated UEFI Variable
3.EFI PE/COFF Image(SHA256)
Key Source:
Factory,External,Mixed
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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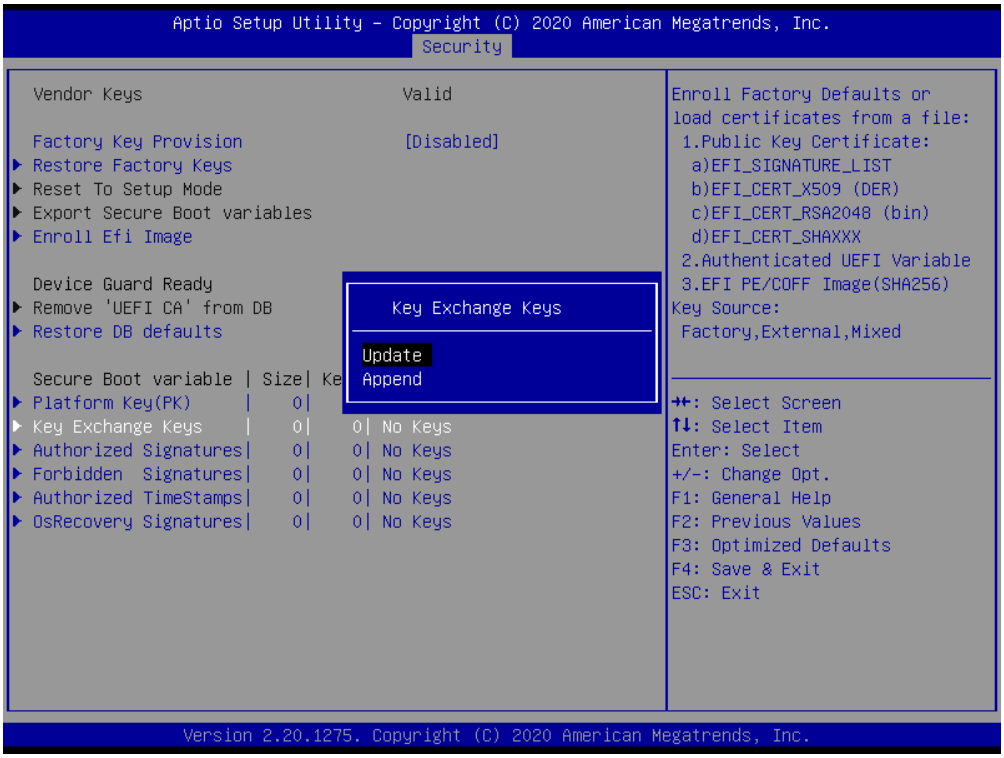
Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Security
Vendor Keys Valid
Factory Key Provision [Disabled]
Restore Factory Keys
Reset To Setup Mode
Export Secure Boot variables
Enroll Efi Image
Device Guard Ready
Remove 'UEFI CA' from DB
Restore DB defaults
Secure Boot variable | Size| Ke
Platform Key(PK) | 0|
Key Exchange Keys | 0| 0| No Keys
Authorized Signatures| 0| 0| No Keys
Forbidden Signatures| 0| 0| No Keys
Authorized TimeStamps| 0| 0| No Keys
OsRecovery Signatures| 0| 0| No Keys
Key Exchange Keys
Update
Append
Enroll Factory Defaults or load certificates from a file:
1.Public Key Certificate:
a)EFI_SIGNATURE_LIST
b)EFI_CERT_X509 (DER)
c)EFI_CERT_RSA2048 (bin)
d)EFI_CERT_SHAXXX
2.Authenticated UEFI Variable
3.EFI PE/COFF Image(SHA256)
Key Source:
Factory,External,Mixed
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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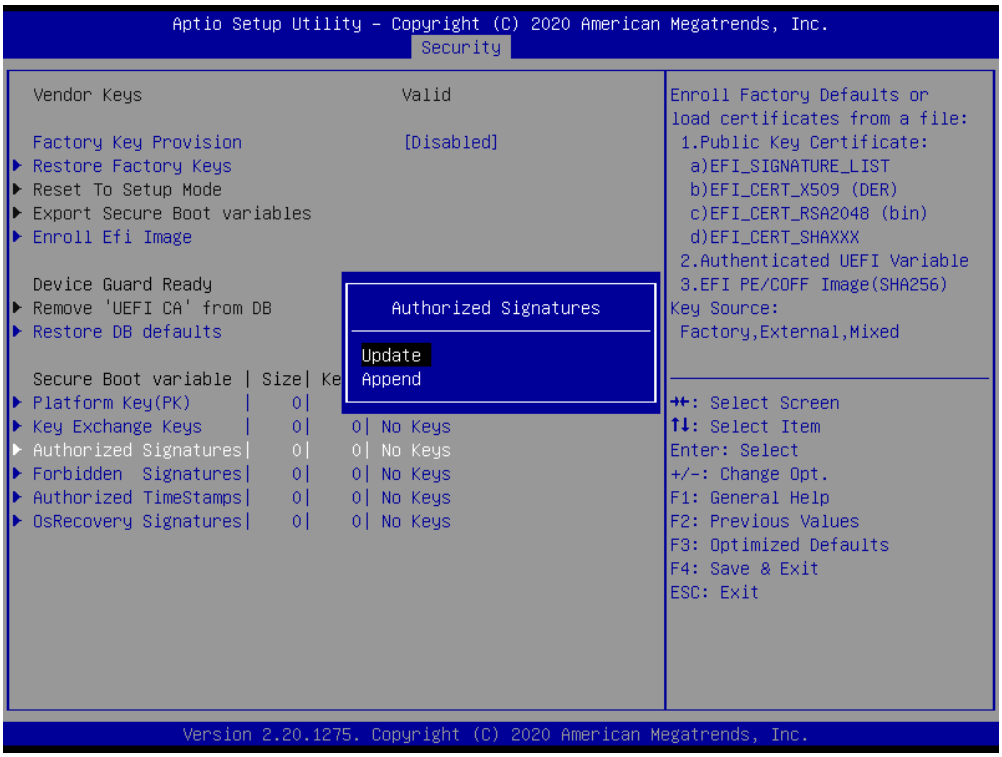
Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
Security
Vendor Keys Valid
Factory Key Provision [Disabled]
Restore Factory Keys
Reset To Setup Mode
Export Secure Boot variables
Enroll Efi Image
Device Guard Ready
Remove 'UEFI CA' from DB
Restore DB defaults
Secure Boot variable | Size| Ke
Platform Key(PK) | 0|
Key Exchange Keys | 0| 0| No Keys
Authorized Signatures| 0| 0| No Keys
Forbidden Signatures| 0| 0| No Keys
Authorized TimeStamps| 0| 0| No Keys
OsRecovery Signatures| 0| 0| No Keys
Authorized Signatures
Update
Append
Enroll Factory Defaults or load certificates from a file:
1.Public Key Certificate:
a)EFI_SIGNATURE_LIST
b)EFI_CERT_X509 (DER)
c)EFI_CERT_RSA2048 (bin)
d)EFI_CERT_SHAXXX
2.Authenticated UEFI Variable
3.EFI PE/COFF Image(SHA256)
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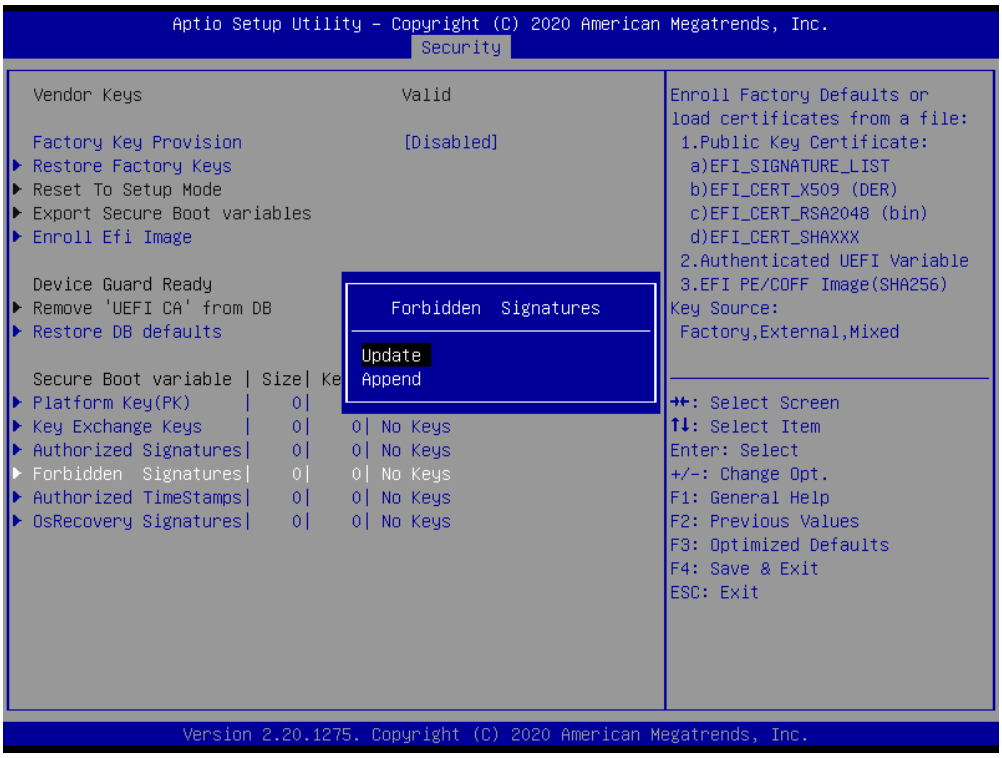
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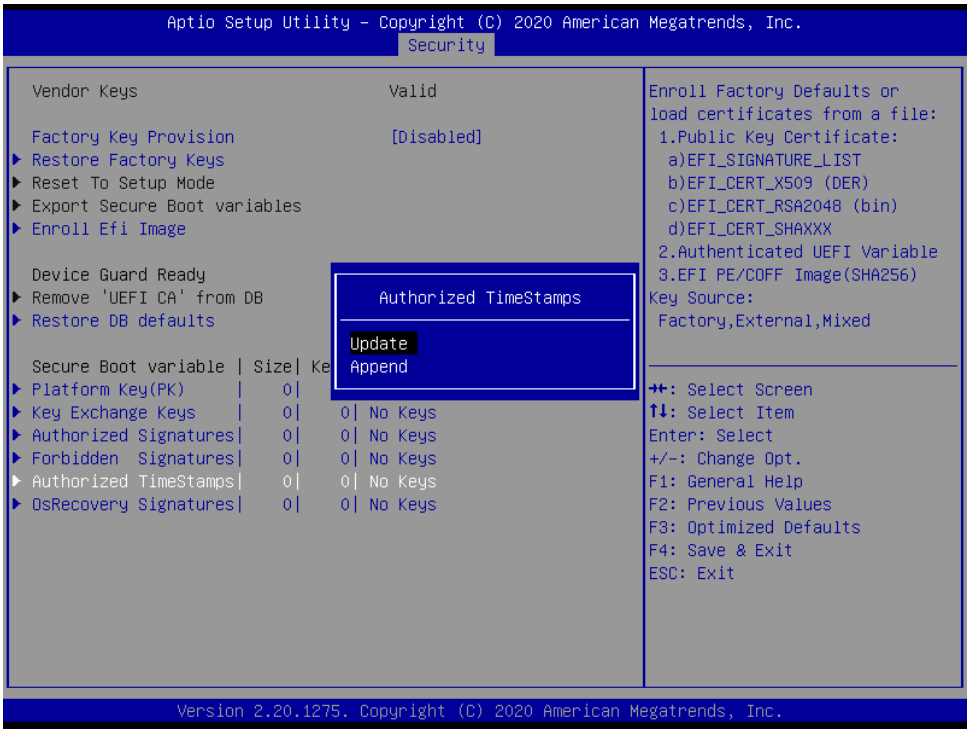
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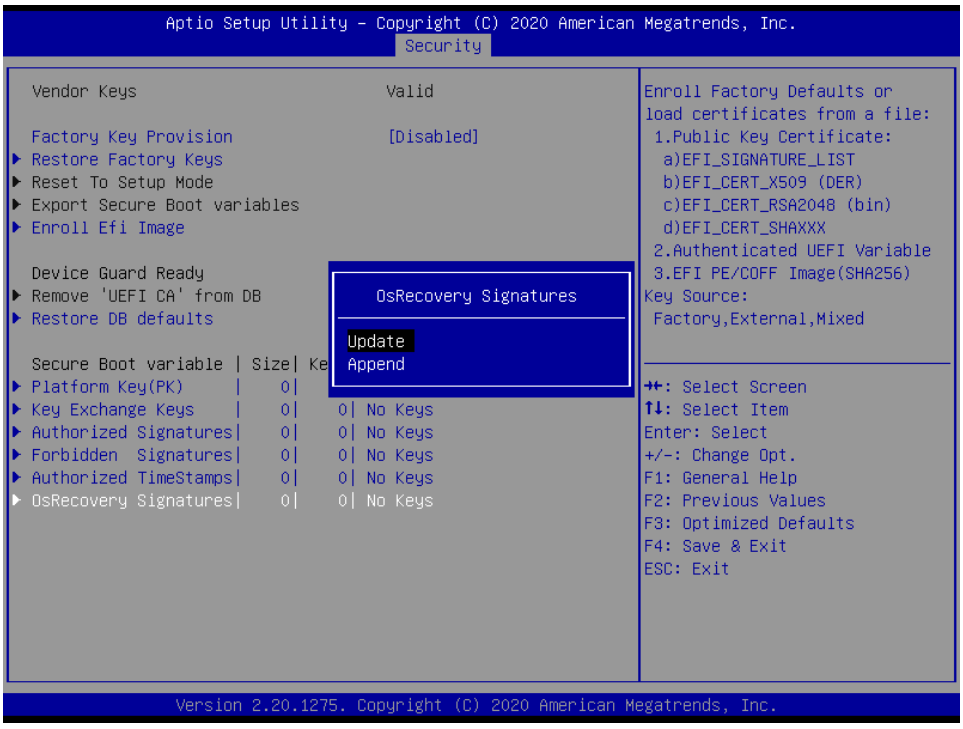
Aptio Setup Utility – Copyright (C) 2020 American Megatrends, Inc.
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Factory Key Provision [Disabled]
Restore Factory Keys
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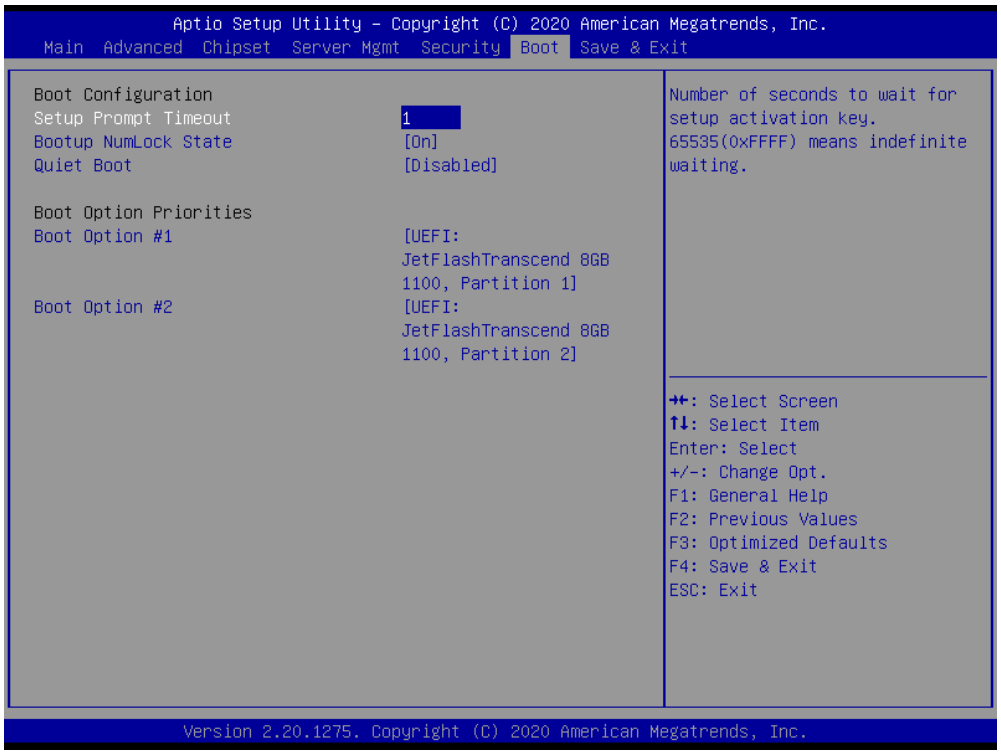
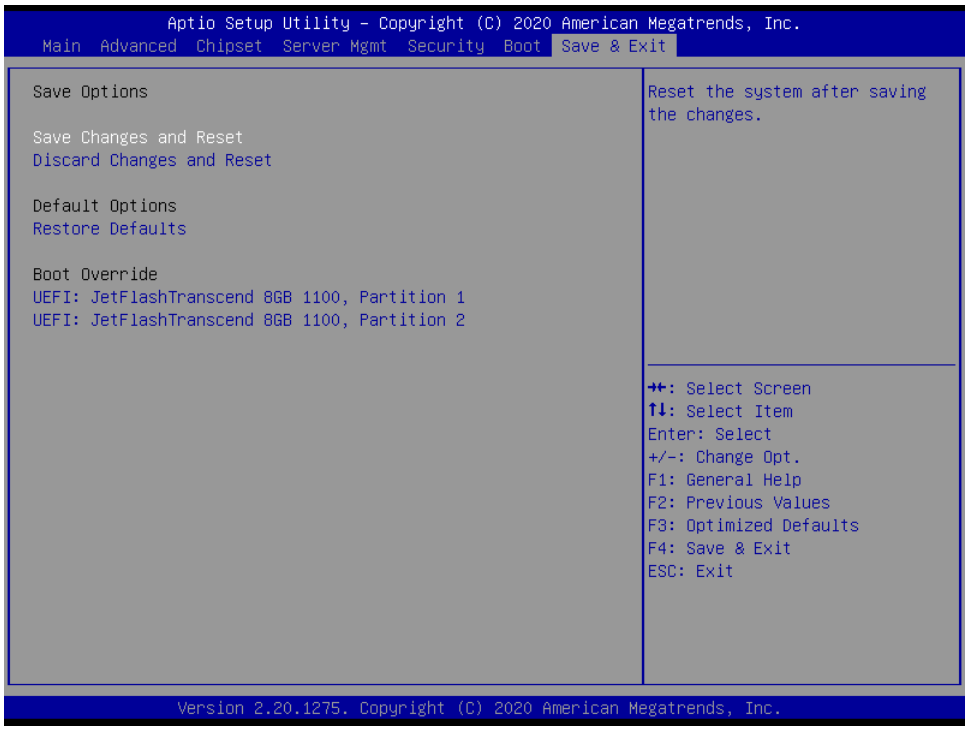
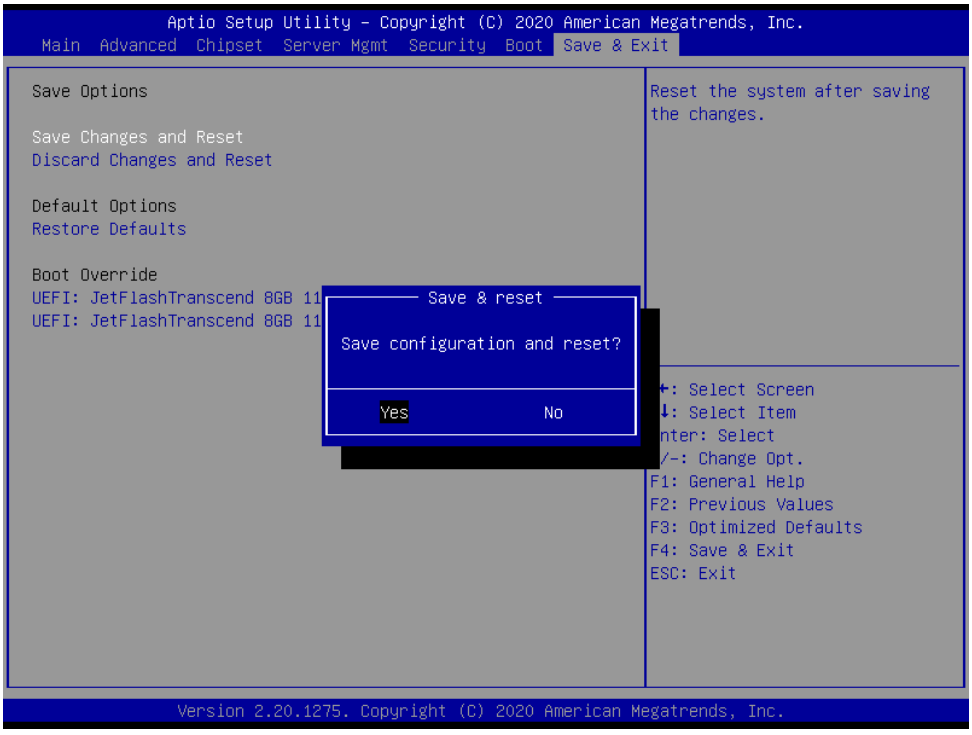
3.6.5 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the keyboard NumLock state
Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option
Boot Option #1/#2	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

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.3 Restore Defaults

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 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.