



THOR100-X4-D7E

*1U 1/2 Size IP65 Fanless Rugged Computer Intel Xeon
E-2276ML processor, MIL-STD-461 EMI 18-36V
DC-In*



User's Manual

Revision Date: 08. 23. 2022



Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

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- All product specifications are subject to change without prior notice

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Revision Date: 05. 29. 2023



Revision History

Revision	Date (yyyy/mm/dd)	Changes
V1.0	2022/08/02	Initial release
V2.0	2023/05/29	

Packing List

THOR100-X4-D7E 1U 1/2 Fanless Rugged System
CD (Driver + Quick Installation Guide)

Ordering information

Model Number	Scripton
THOR100-X4-D7E-D10	Fanless Rugged Computer with Intel® 9th Gen Xeon® E-2276ML, IP65, with 10 MIL-DTL-D38999 Connectors, Operating Temp. -40 to 70°C
THOR100-X4-D7E-D9	Fanless Rugged Computer with Intel® 9th Gen Intel® Core i7-9850HL, IP65, with 10 MIL-DTL-D38999 Connectors, Operating Temp. -40 to 70°C
THOR100-X4-D7E	THOR100-X4-D7E Fanless Rugged Computer with Intel® 9th Gen Xeon® E-2276ML, IP65 , with D38999 Connectors, Operating Temp. -40 to 70°C. Together with Rackmount brackets (To mount two computers side by side), I/O: 1 x DC-IN, 2 x LAN, 2 x DVI, 2 x USB3.0



If any of the above items is damaged or missing, please contact your local distributor.



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Chapter 1: Product Introduction

1.1 Key Features

SYSTEM

CPU	Intel® 9th Gen. XEON E-2276ML Processor (12M Cache, Base Frequency 20GHz; Max Turbo Frequency 4.2GHz)
Memory type	4 x DDR4 2666MHz up to 128GB
Processor Graphics	Intel® UHD Graphics P630
BIOS	AMI® BIOS
Storage Device	1x M.2 2280 NVMe up to 2TB

FRONT I/O

DC In	1 x Amphenol TV07RW-09-98P
LAN	1 x Amphenol TV07RW-09-09S
LAN	1 x Amphenol TV07RW-09-09S
GND	1 x GND Screw
Power Button with LED backlight	

REAR I/O

DVI	1 x Amphenol TV07RW-13-35S
DVI	1 x Amphenol TV07RW-13-35S
USB 3.0	1 x Amphenol USB3FTV7AZNF312
USB 3.0	1 x Amphenol USB3FTV7AZNF312

APPLICATIONS

Applications	1U Half Size Rugged Mission MIL-STD 810 Computer is built to meet strict size, weight, and power (SWaP) requirements and to withstand harsh environments, including temperature extremes, shock/vibe, sand/dust, and salt/fog.
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OPERATION SYSTEM

OS Support	Windows 10 64bit, Windows server 2019 64bit, Windows 2016 64bit, Hyper-V Server 2016 R2, Ubuntu 16.04.3 LTS/17.10/18.04.1 LTS, Fedora 25/26, RedHat Linux EL 6.8/6.9/7.3/7.4/7.6, VMware ESXi6.5u1, VMware ESXi6.7u2
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MECHANICAL & ENVIRONMENT

Chassis	Aluminum Alloy, Corrosion design
Finish	Anodic aluminum oxide
Cooling	Natural Passive Convection/Conduction. No Moving Parts
Ingress Protection	IP65
Power Requirements	MIL-STD-461 EMI Power Supply, 18-36V DC In
Dimension (W x D x H)	220 x 450 x 44mm (8.6" x 17.7" x 1.7")
Operating Temp.	-40 to 70°C
Storage Temp.	-40 to 85°C
Relative Humidity	5% to 95%, non-condensing

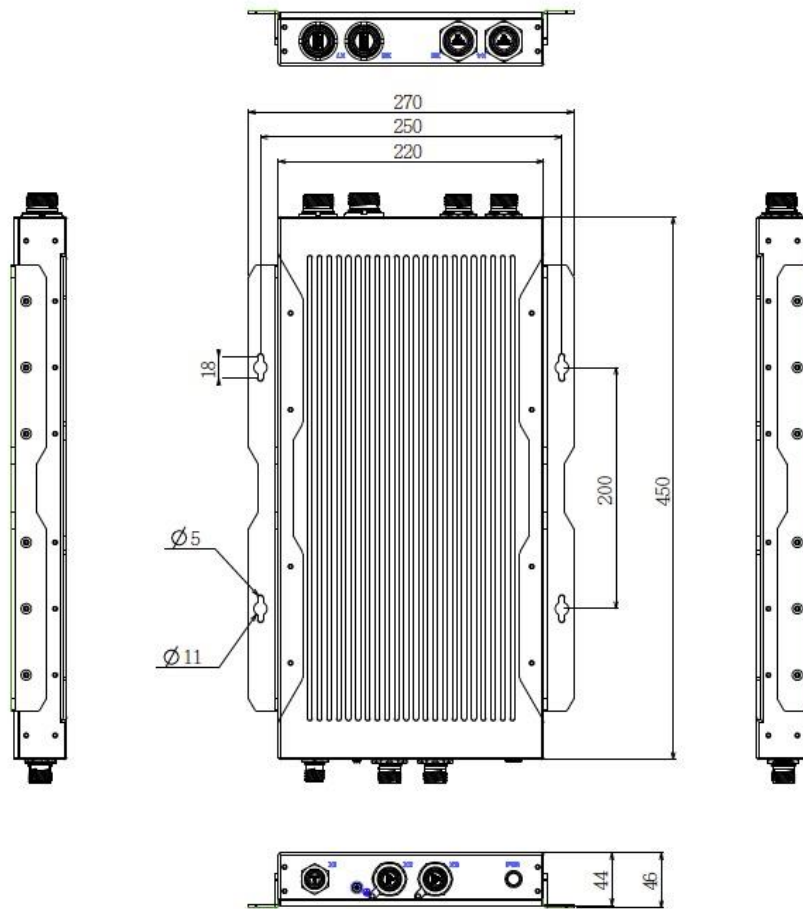
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1.2 Dimensions (2D)



1.3 Panel Component



1	DC In label (X1)
2	GND, label
3	LAN, label (X2)
4	LAN, label (X3)
5	Power Button, label
6	DVI, label (X4)
7	DVI, label (X5)
8	USB 3.0, label (X6)
9	USB 3.0, label (X7)

Chapter 2: Jumpers and Connectors Locations

2.1 X1:DC-In

Cable length:2000mm

CON1
AMPHENOL TV06RW09-98S (female)

CON1	
A	TN1(DC+)
B	TN2(DC-)
Shell	O Plug

2.2 X2, X3:LAN

CON1
AMPHENOL TV06RW-9-09P (male)

Cable length:1500mm

CON2
RJ45 female socket

CON1	CON2	
1	1	WHITE / ORANGE
2	2	ORANG
3	3	WHITE / GREEN
4	4	BLUE
5	5	WHITE / BLUE
6	6	GREEN
7	7	WHITE / BROWN
8	8	BROWN
Shell	Shell	

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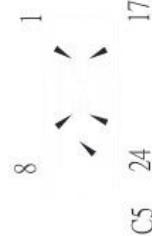
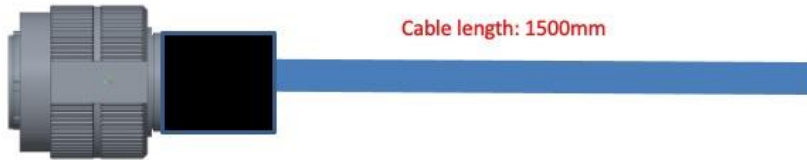
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2.3 X4, X5:DVI

CON1
AMPHENOL TV06RW-13-35P (male)

CON2
DVI CONNECTOR (male)



CON1	CON2		CON1	CON2	
1	1	DPA_TN0	14	18	DPA_TP2
2	2	DPA_TP0	15	19	GND
3	3	GND	16	22	CLOCK Shield
4	6	DPA_AUXP_CLK(p)	17	23	DPA_TP3
5	7	DPA_AUXP_CLK(n)	18	24	DPA_TN3
6		GND	19	shell	GND
7	9	DPA_TN1	20		
8	10	DPA_TP1	21		
9	11	GND	22		
10	14	DPA_PWR	23		
11	15	Return GND	24		
12	16	DPA_DET	C5		
13	17	DPA_TN2	SHELL		

2.3 X6, X7:USB 3.0

CON1
AMPHENOL USB3FTV7AZNF312 (Female)

Product	Length (mm)	Footprint (mm)	Panel dimension
 Reduced Flange USB3F TV	 Reduced Flange USB3F TV (F312)	 Stand off Reduced Flange USB3F TV (F059)	 Reduced Flange USB3F TV

Pin assignments:

USB 3.0 Standard A front coupling side connector to USB 3.0 Standard A back side connector					
Pin number	Signal name	Description	Sequence	Pin number	Signal name
1	VBUS	Power	Second	1	VBUS
2	D-	USB 2.0 differential pair	Third	2	D-
3	D+			3	D+
4	GND	Ground for power return	Second	4	GND
5	StdA_SSRX-	Superspeed receiver differential pair	Last	8	StdB_SSTX-
6	StdA_SSRX+			9	StdB_SSTX+
7	GND_DRAIN	Ground for signal return		7	GND_DRAIN
8	StdA_SSTX-	Superspeed transmitter differential pair		5	StdB_SSRX-
9	StdA_SSTX+			6	StdB_SSRX+
Shell	Shield	Connector metal shell	First	Shell	Shield





Chapter 3: AMI BIOS UTILITY

This chapter provides users with detailed descriptions on how to set up a basic system configuration through the AMI BIOS setup utility.

3.1 Starting

To enter the setup screens, perform the following steps:

- Turn on the computer and press the key immediately.
- After the key is pressed, the main BIOS setup menu displays. Other setup screens can be accessed from the main BIOS setup menu, such as the Chipset and Power menus.

3.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.



Some of the navigation keys may differ from one screen to another.

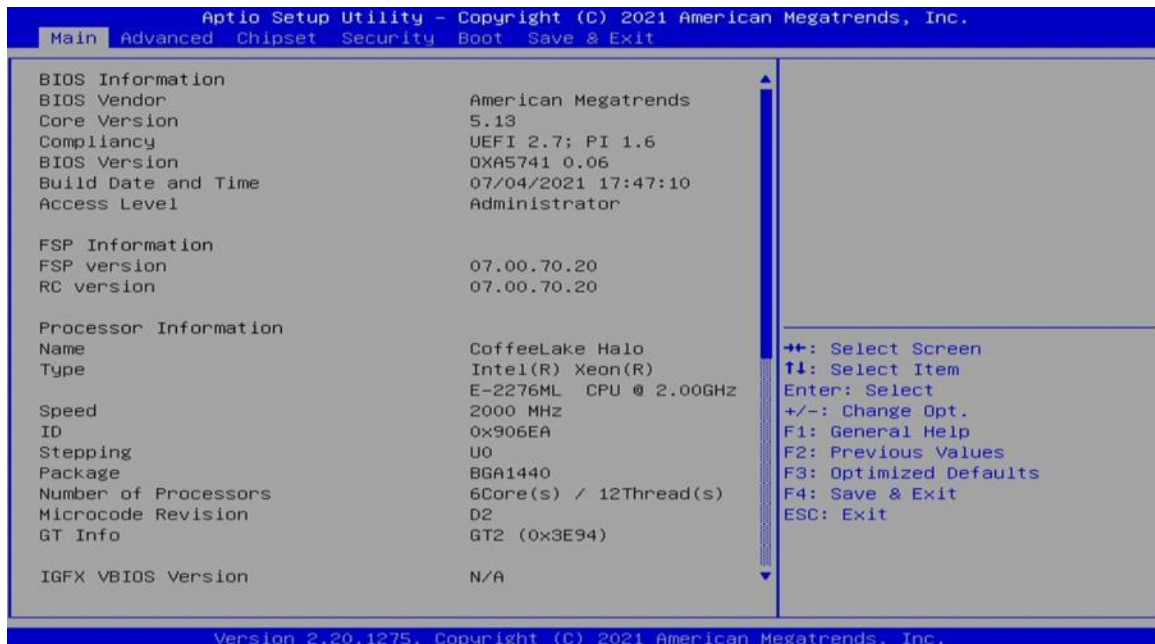
Left/Right	The Left and Right <Arrow> keys moves the cursor to select a menu.
Up/Down	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
Tab	The <Tab> key selects the setup fields.
F1	The <F1> key displays the General Help screen.
F10	The <F10> key saves any changes made and exits the BIOS setup utility.
Esc	The <Esc> key discards any changes made and exits the BIOS setup utility.
Enter	The <Enter> key displays a sub-screen or changes a selected or highlighted option in each menu.



3.3 Main Page

The Main menu is the screen that first displays when BIOS Setup is entered, unless an error has occurred.

When you first enter the BIOS Setup Utility, you will encounter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

- **System Date**

Use this function to change the system date.

Select System Date using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The date setting must be entered in MM/DD/YY format.

- **System Time**

Use this function to change the system time.

Select System Time using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The time setting is entered in HH:MM:SS format.

Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

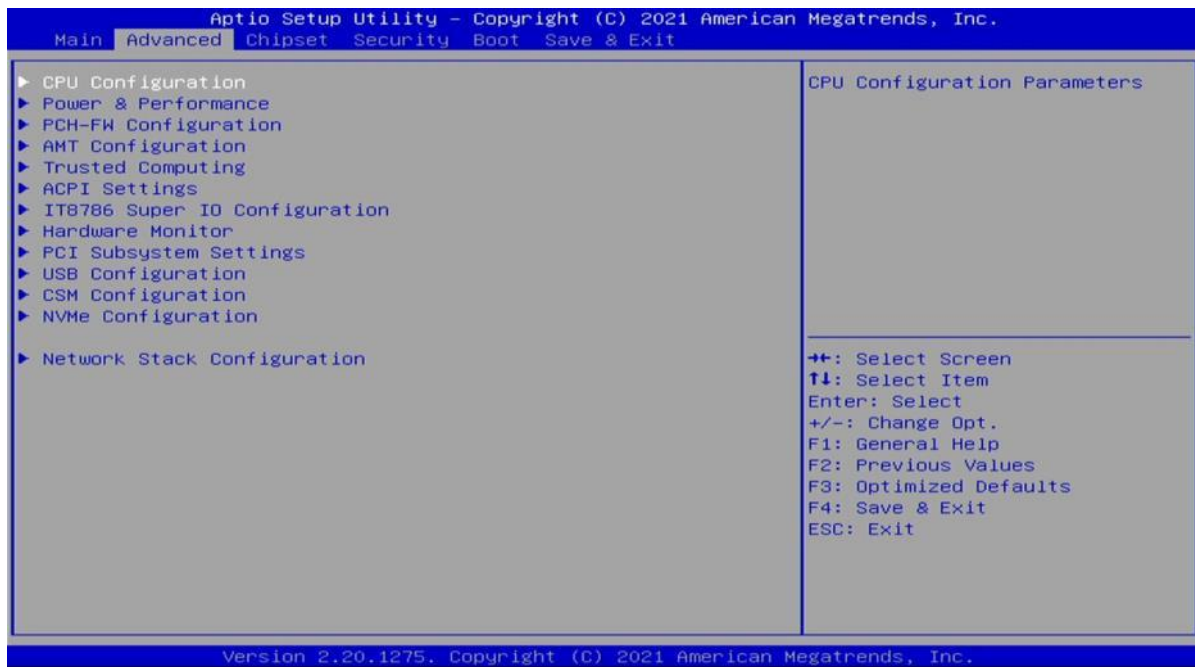
- **Access Level**

Display the access level of the current user in the BIOS.



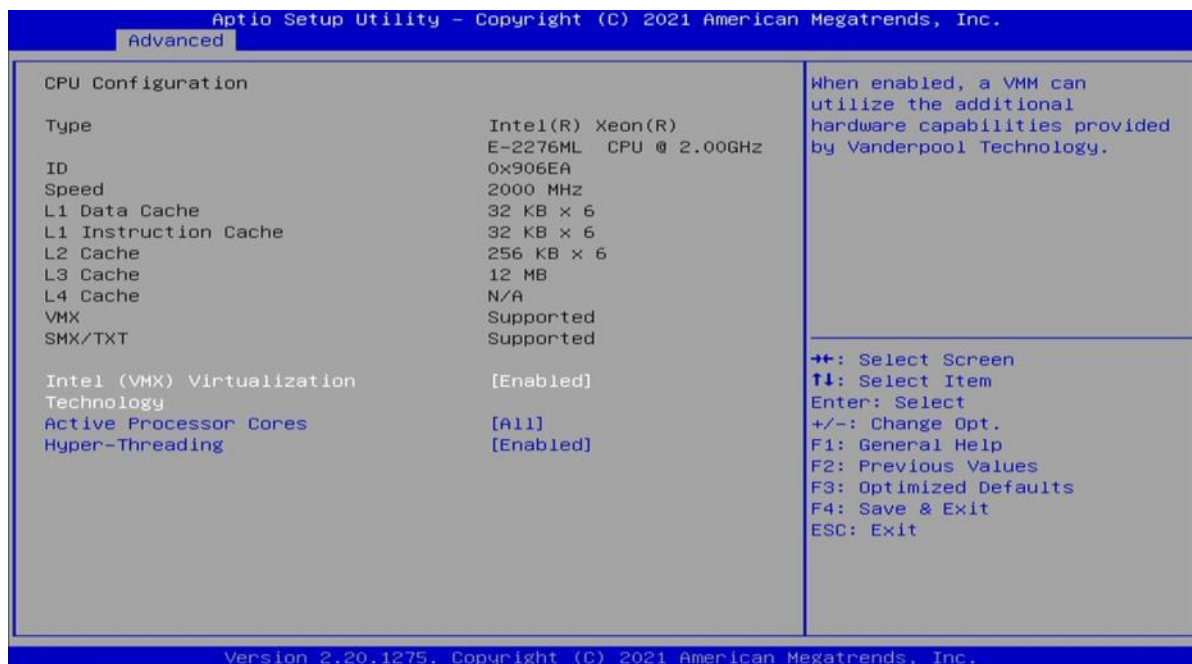
3.4 Advanced Page

The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference. **Setting incorrect field values may cause the system to malfunction.**





3.4.1 CPU Configuration



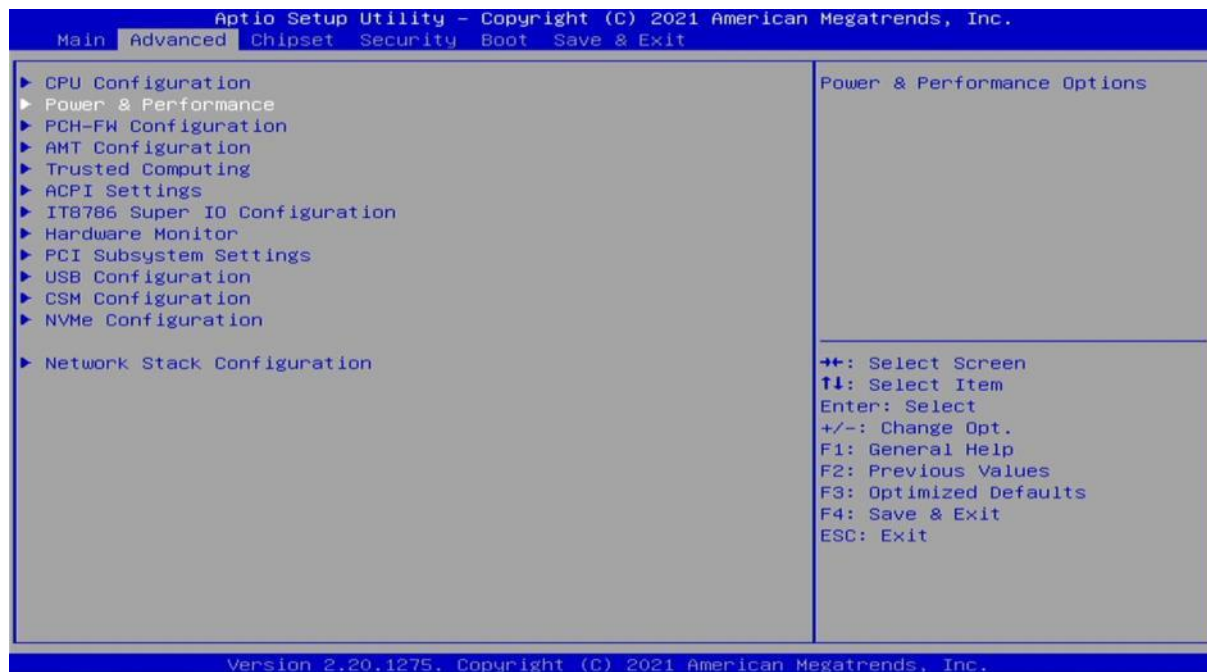
Field Name	Intel (VMX) Virtualization Technology
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Active Processor Cores
Default Value	[A11]
Possible Value	A11 1 2 3 4 5

Field Name	Hyper-Threading
Default Value	[Enabled]
Possible Value	Disabled Enabled



3.4.2 Power & Performance



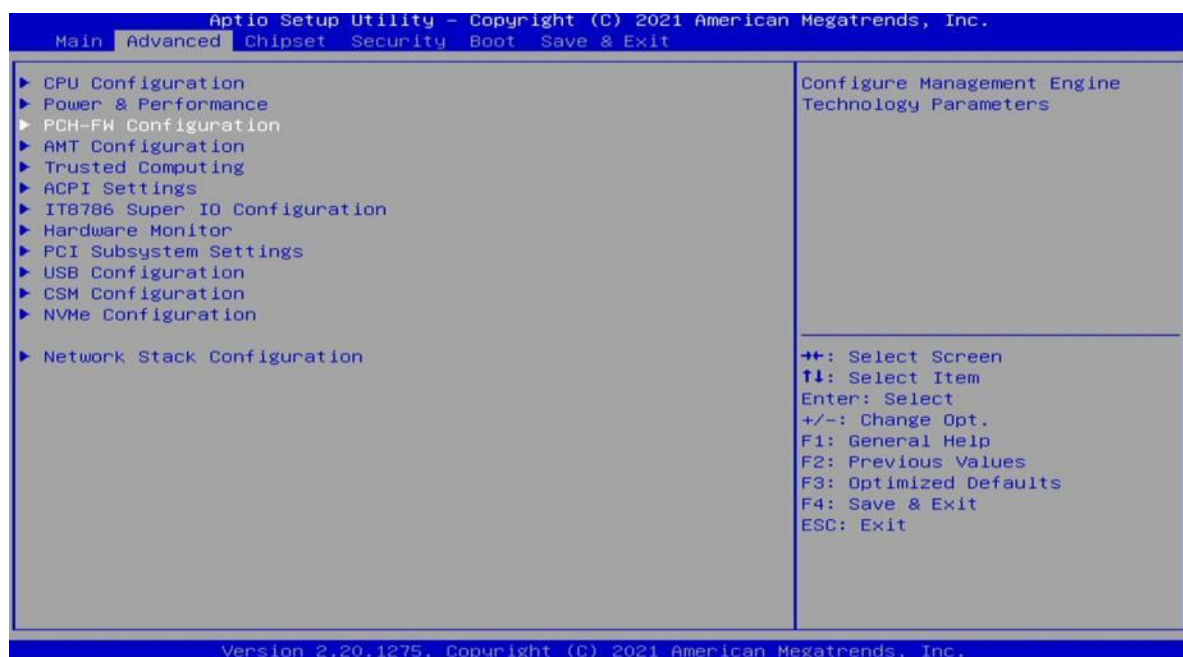
Field Name	Intel (R) SpeedStep(tm)
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Turbo Mode
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	C states
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.4.3 PCH-FW Configuration



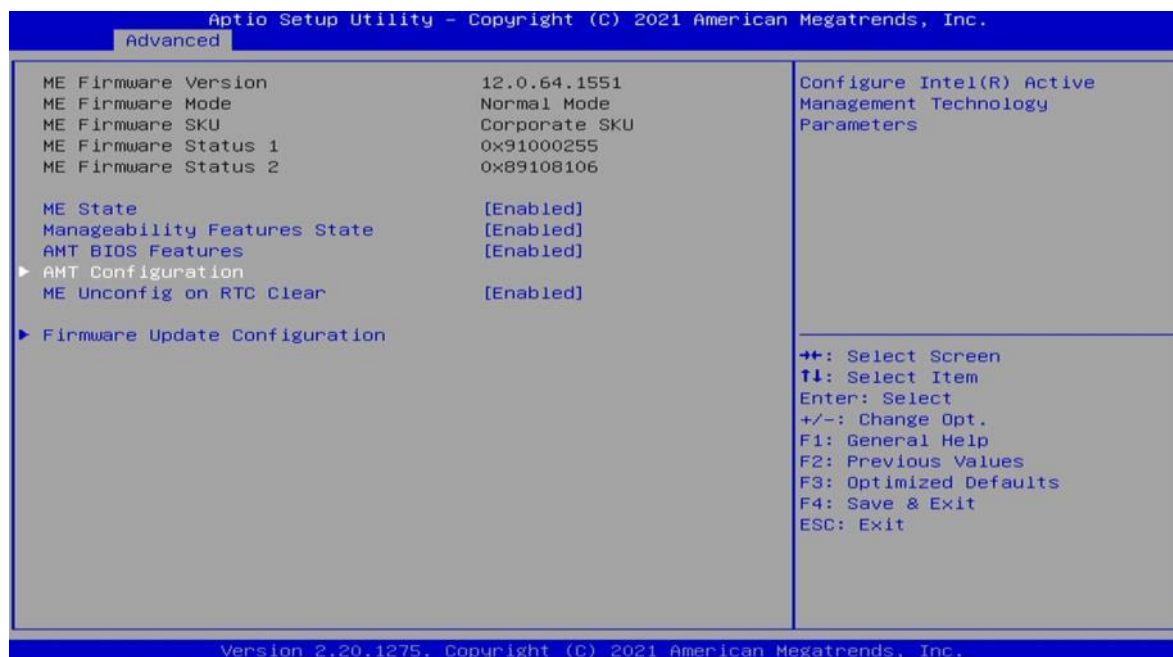
Field Name	ME State
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Manageability Features State
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	AMT BIOS Features
Default Value	[Enabled]
Possible Value	Disabled Enabled



3.4.4 AMT Configuration

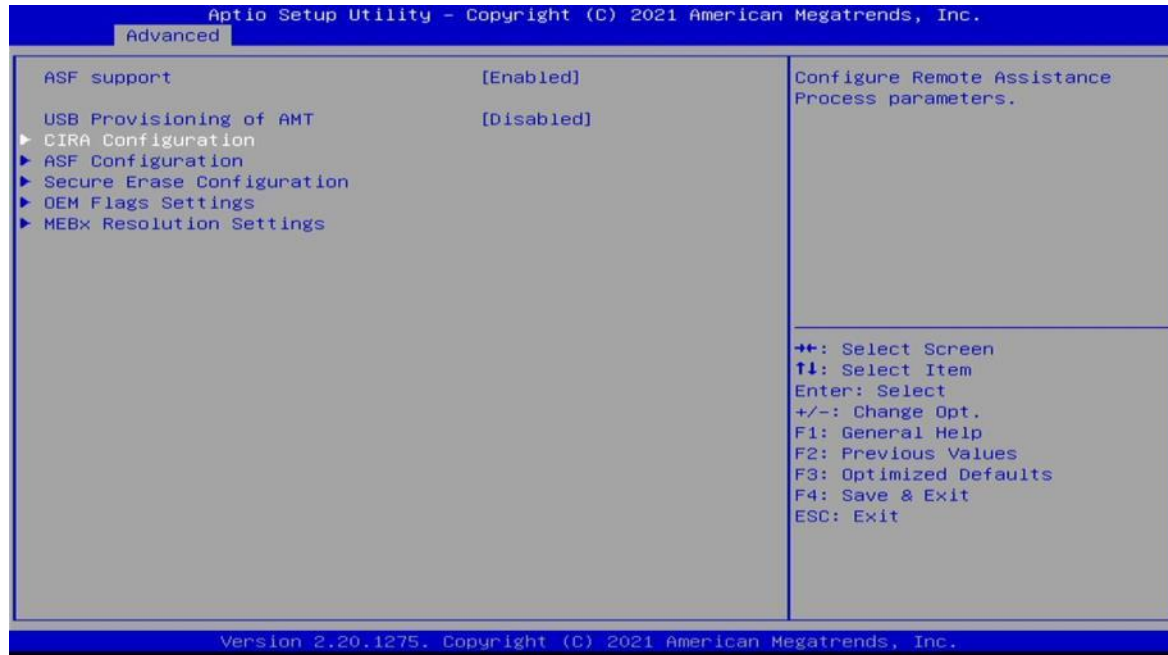


Field Name	ASF support
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	USB Provisioning of AMT
Default Value	[Disabled]
Possible Value	Disabled Enabled



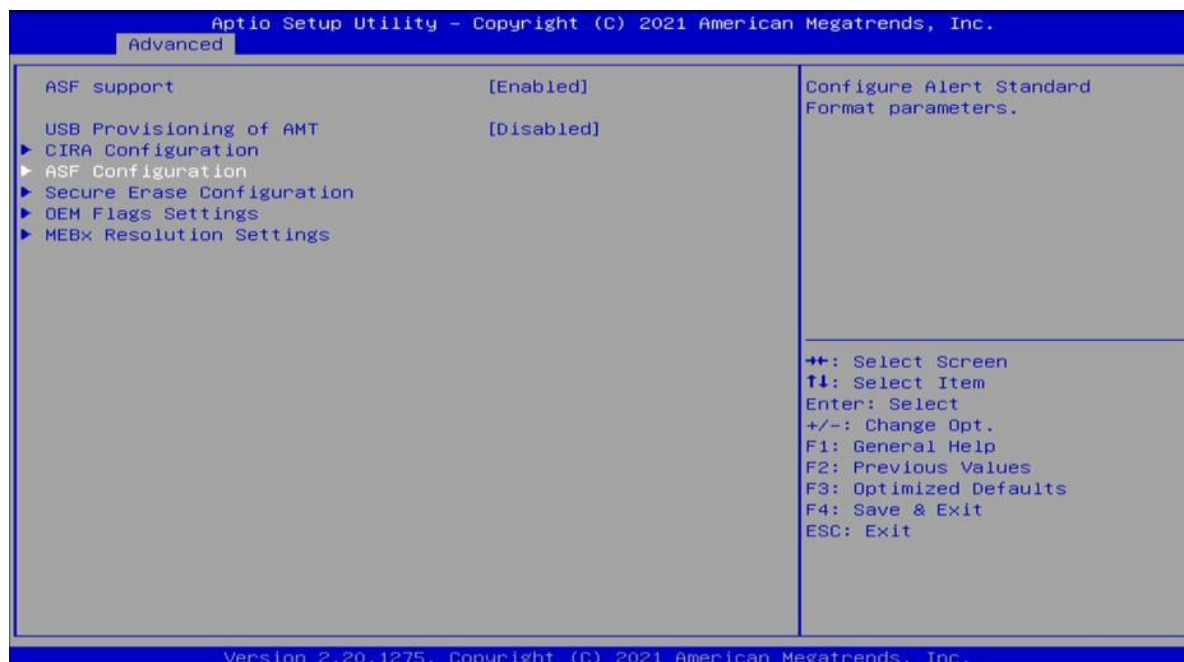
3.4.4.1 CIRA Configuration



Field Name	Activate Remote Assistance Process
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.4.4.2 ASF Configuration



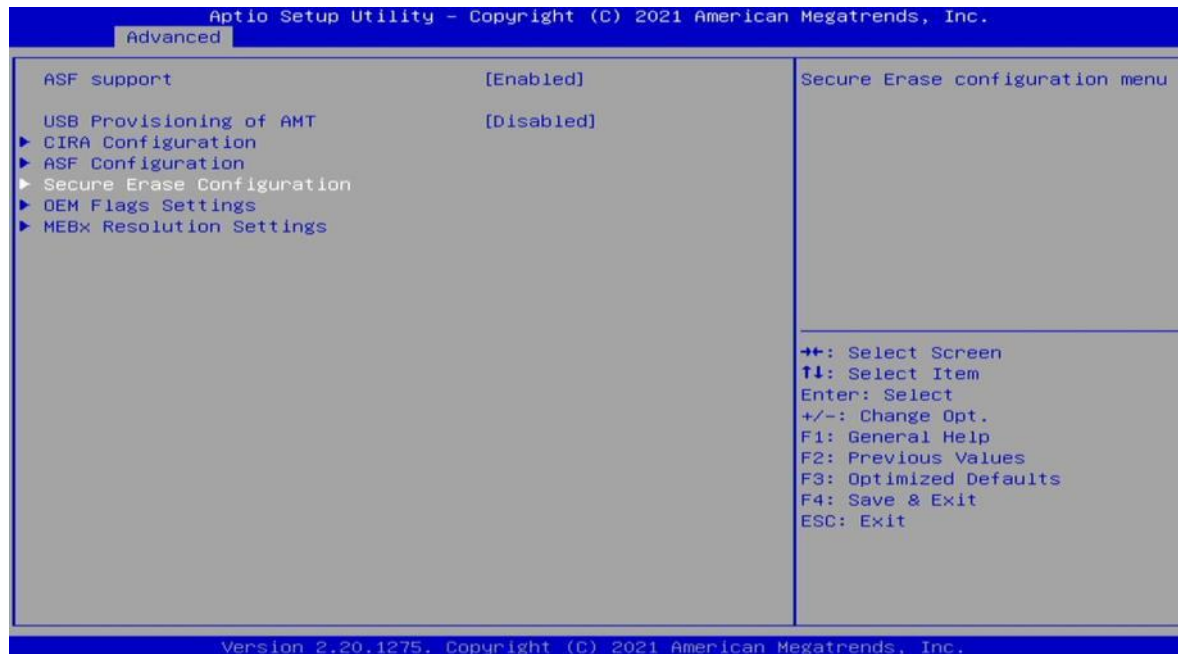
Field Name	PET Progress
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	WatchDog
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	ASF Sensors Table
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.4.4.3 Secure Erase Configuration

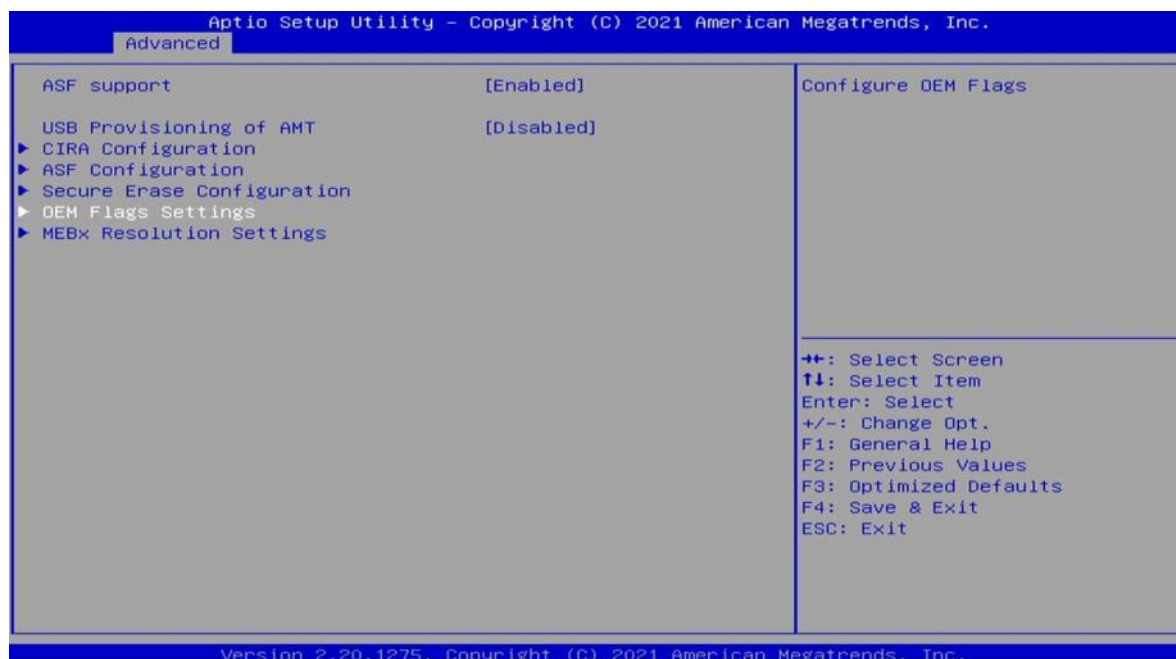


Field Name	Secure Erase mode
Default Value	[Simulated]
Possible Value	Simulated Real

Field Name	Force Secure Erase
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.4.4.4 OEM Flags Settings



Field Name	MEBx hotkey Pressed
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	MEBx Selection Screen
Default Value	[Disabled]
Possible Value	Disabled Enabled

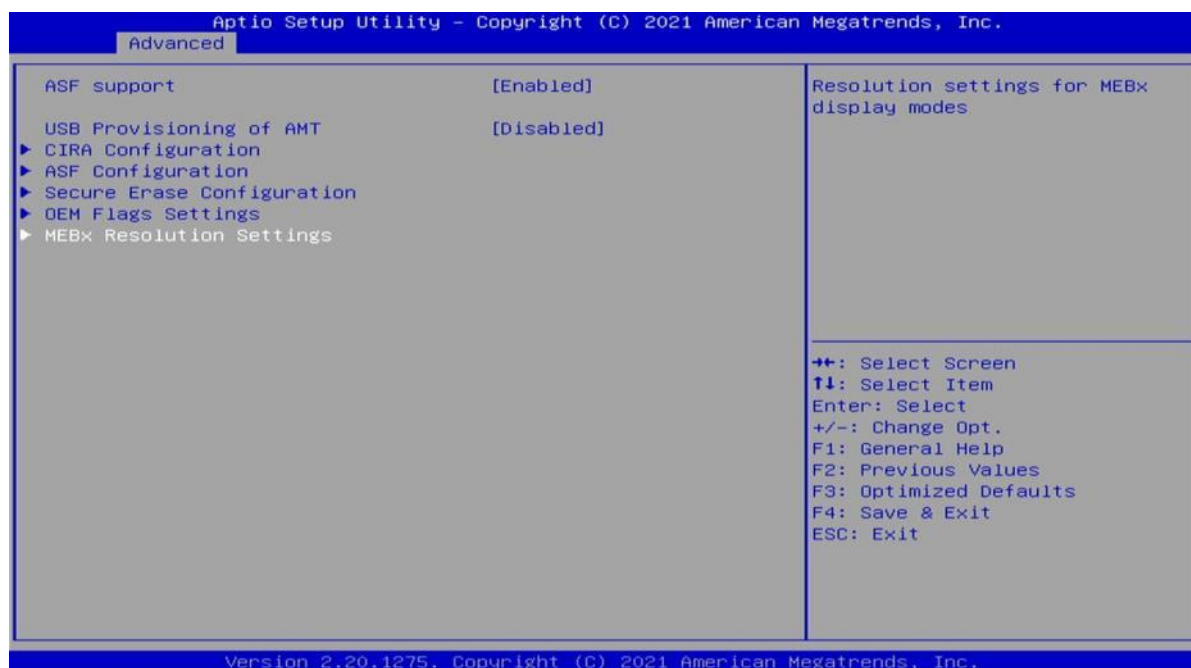
Field Name	Hide Unconfigure ME Confirmation Prompt
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	MEBx OEM Debug Menu Enable
Default Value	[Disabled]
Possible Value	Disabled Enabled



Field Name	Unconfigure ME
Default Value	[Disabled]
Possible Value	Disabled Enabled

3.4.4.5 MEBx Resolution Settings



Field Name	Non-UI Mode Resoultion
Default Value	[Auto]
Possible Value	Auto 80x25 100x31

Field Name	UI Mode Resolution
Default Value	[Auto]
Possible Value	Auto 80x25 100x31

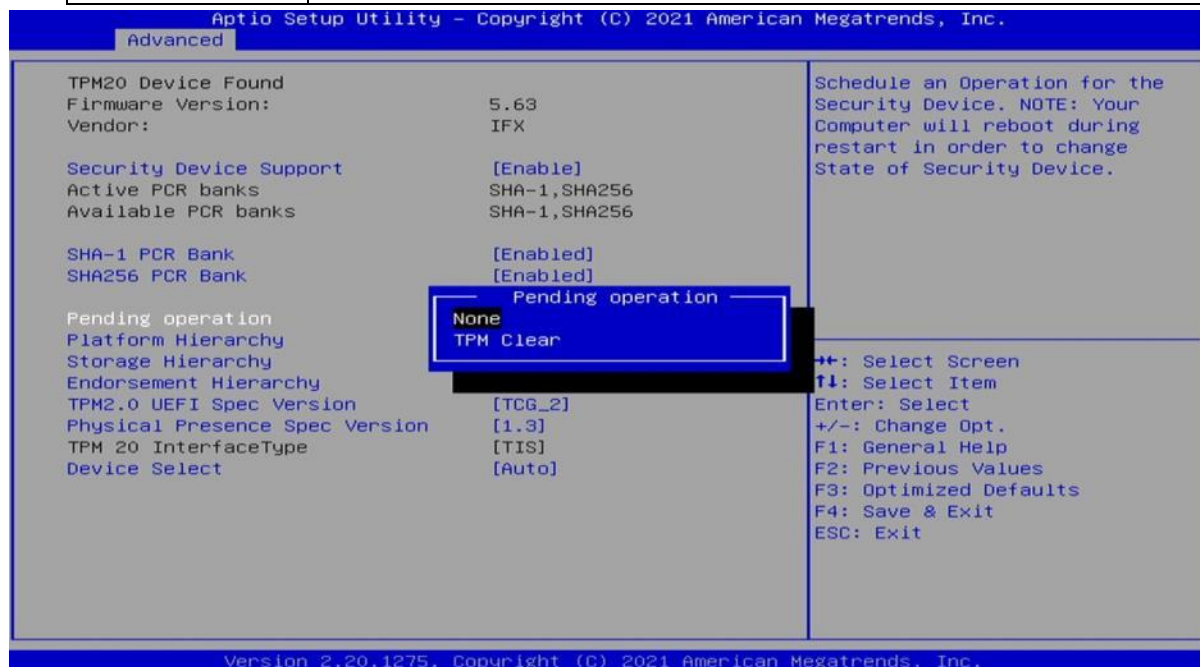
Field Name	Graphics Mode Resoultion
Default Value	[Auto]
Possible Value	Auto

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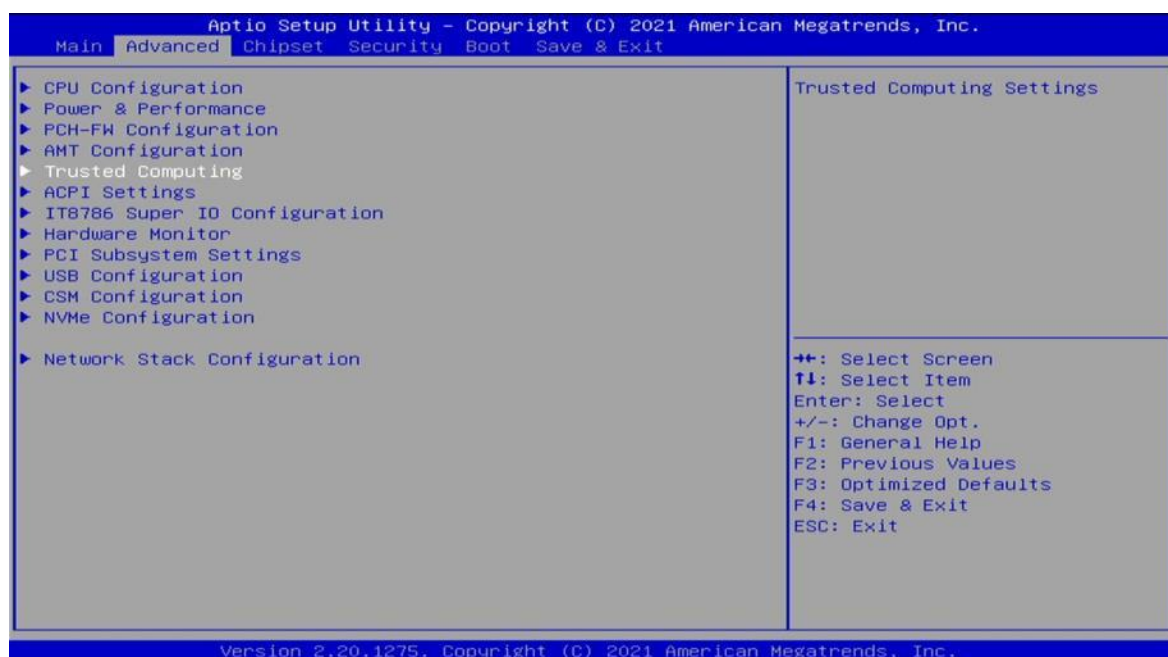
	640x480 800x600 1024x768
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Field Name	Pending operation
Default Value	[None]
Possible Value	None TPM Clear



3.4.5 Trusted Computing



Field Name	Security Device Support
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	SHA-1 PCR Bank
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	SHA256 PCR Bank
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Pending operation
Default Value	[None]
Possible Value	None TPM Clear

Field Name	Platform Hierarchy
Default Value	[Enabled]

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Possible Value	Disabled Enabled
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Field Name	Storage Hierarchy
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Endorsement Hierarchy
Default Value	[Enabled]
Possible Value	Disabled Enabled

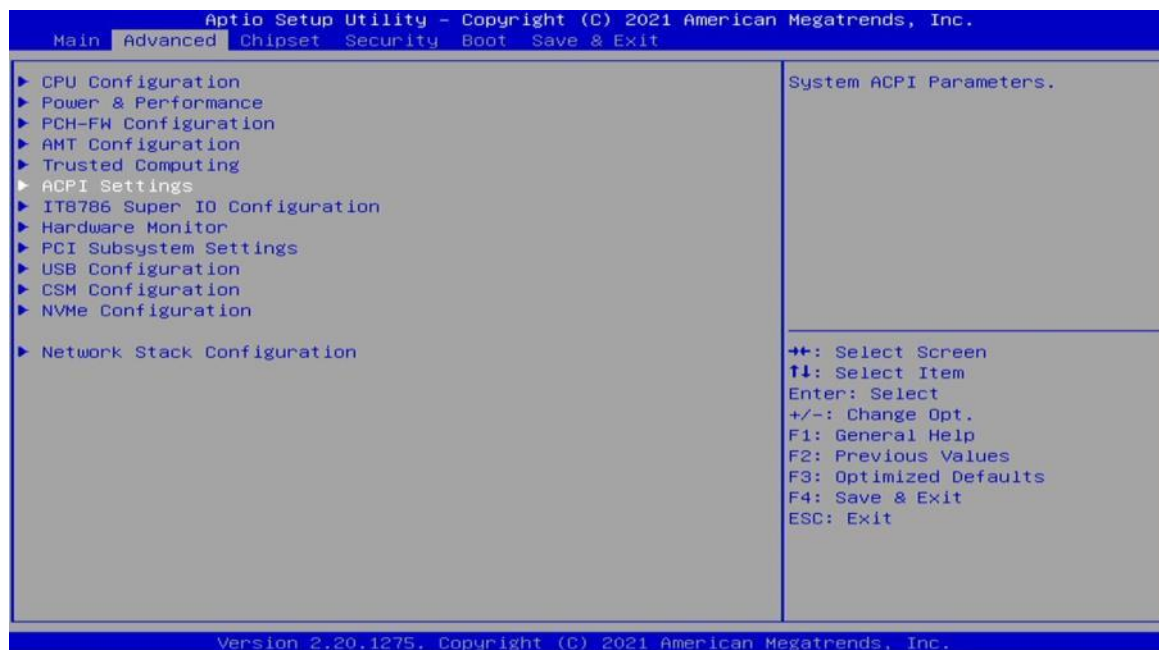
Field Name	TPM2.0 UEFI Spec Version
Default Value	[TCG_2]
Possible Value	TCG_1_2 TCG_2

Field Name	Physical Presence Spec Version
Default Value	[1.3]
Possible Value	1.2 1.3

Field Name	Device Select
Default Value	[Auto]
Possible Value	TPM 1.2 TPM 2.0 Auto



3.4.6 ACPI Settings



Field Name	Enable ACPI Auto Configuration
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	Enable Hibernation
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	ACPI Sleep State
Default Value	[S3 (Suspend to RAM)]
Possible Value	Suspend Disabled S3 (Suspend to RAM)

Field Name	Lock Legacy Resources
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.4.7 IT8786 Super IO Configuration



3.4.7.1 Serial Port 1 Configuration

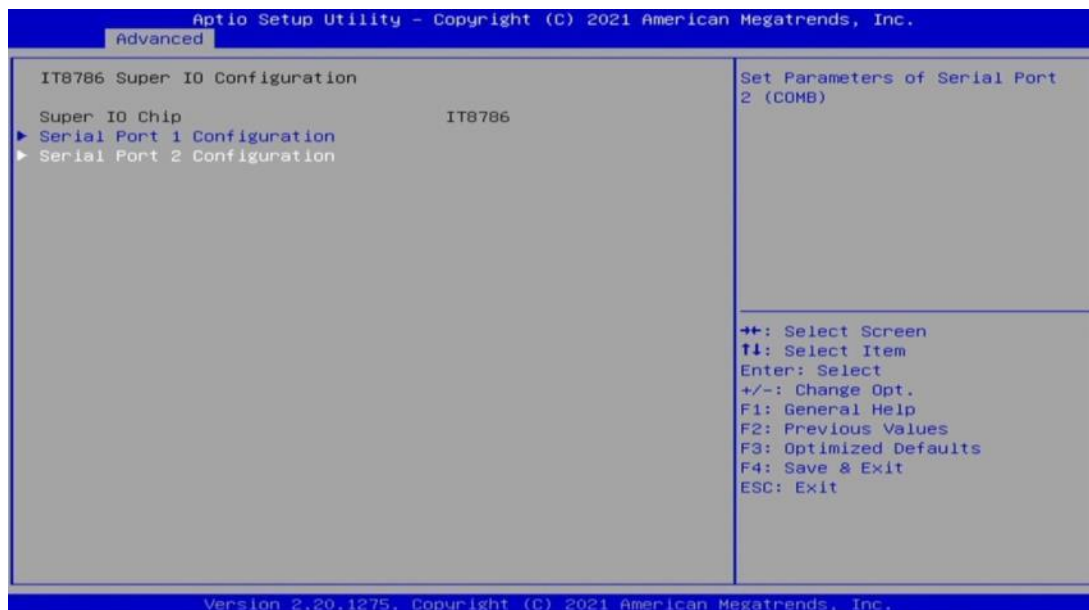


Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled Enabled



3.4.7.2 Social Port 2 Configuration

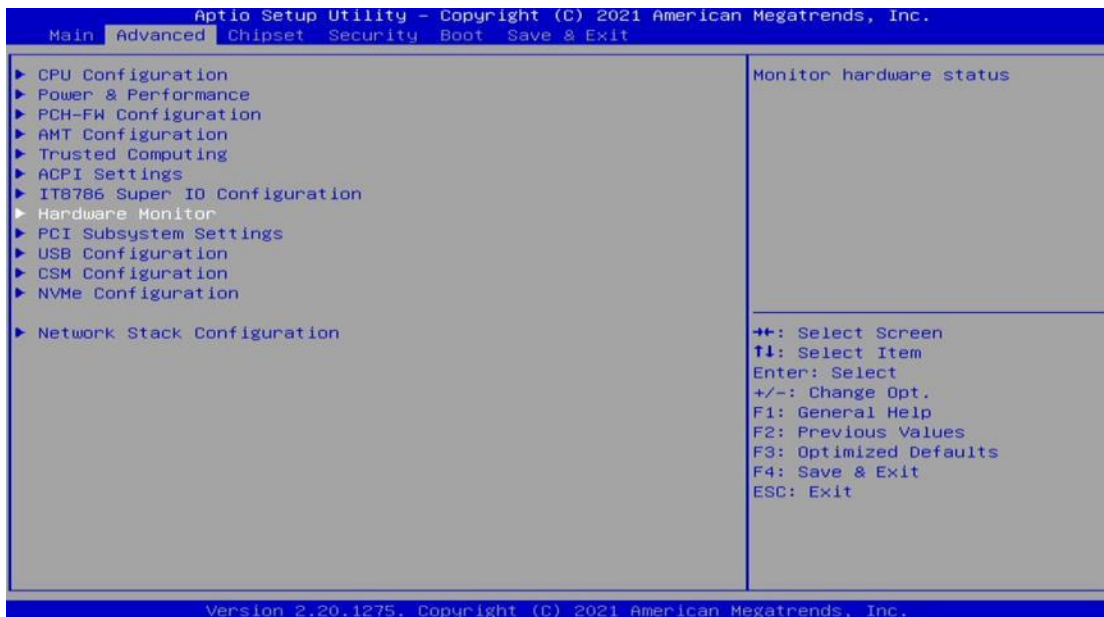


Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled Enabled

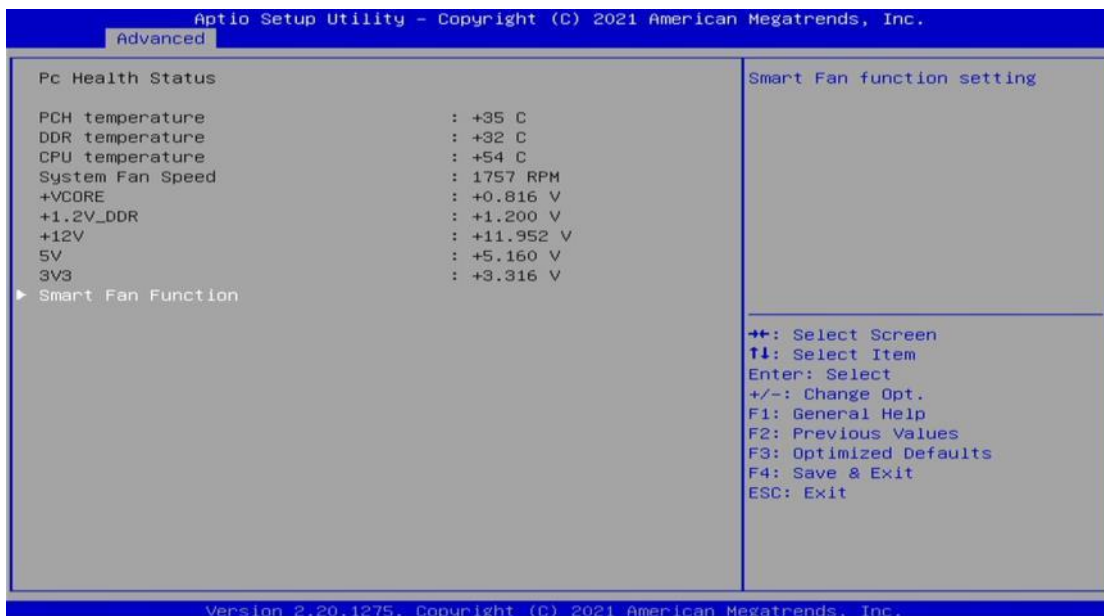
Field Name	COM2 Control
Default Value	[RS-232]
Possible Value	Loopback RS-232 RS-485 Half Duplex RS-485/422 Full Duplex



3.4.8 Hardware Monitor



3.4.8.1 Smart Fan Function



Field Name	FAN_CTL Polarity
Default Value	[Active high]
Possible Value	Active low ctive high

Field Name	Smoothing control
Default Value	[4Hz]
Possible Value	1Hz 16Hz 8Hz 4Hz



3.4.8.2 System Fan Setting



Field Name	Smart Fan Mode
Default Value	[Automatic Mode]
Possible Value	Software Mode Automatic Mode

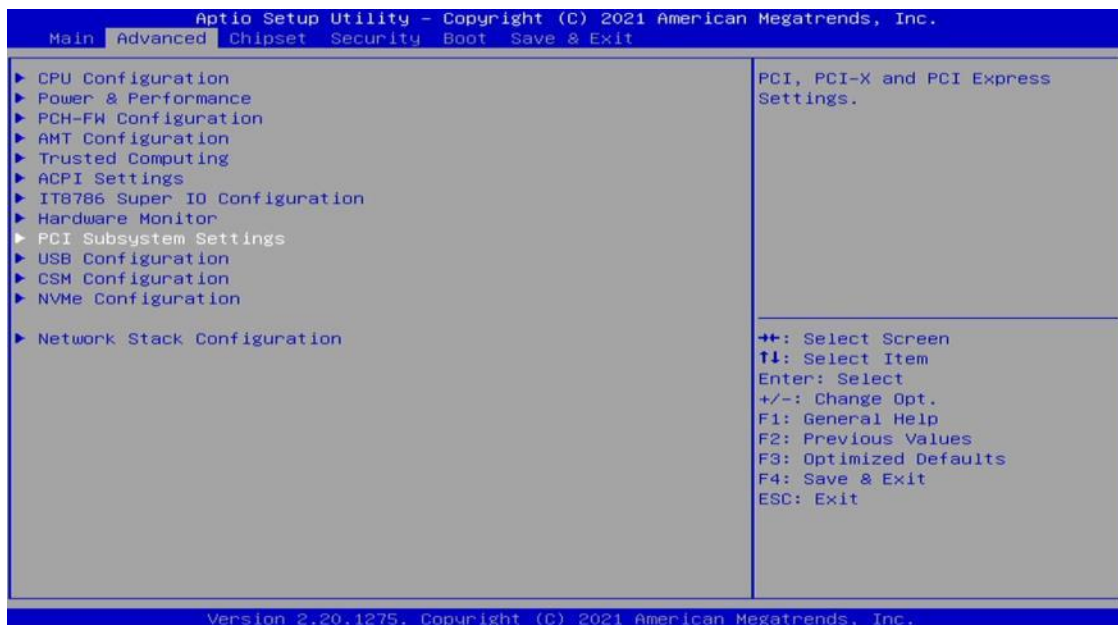
Field Name	Smart Fan Mode
Default Value	[Automatic Mode]
Possible Value	Software Mode Automatic Mode

Field Name	System Fan Type
Default Value	[PWM]
Possible Value	PWM RPM

Field Name	Temperature select
Default Value	[TMP IN3]
Possible Value	TMP IN1 TMP IN2 TMP IN3



3.4.9 PCI Subsystem Settings



Field Name	Legacy USB Support
Default Value	[Enabled]
Possible Value	Enabled Disabled Auto

Field Name	XHCI Hand-off
Default Value	[Enabled]
Possible Value	Enabled Disabled

Field Name	USB Mass Storage Driver Support
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	USB transfer time-out
Default Value	[20 sec]
Possible Value	1 sec 5 sec 10 sec 20 sec

Field Name	Device reset time-out
Default Value	[20 sec]
Possible Value	10 sec 20 sec

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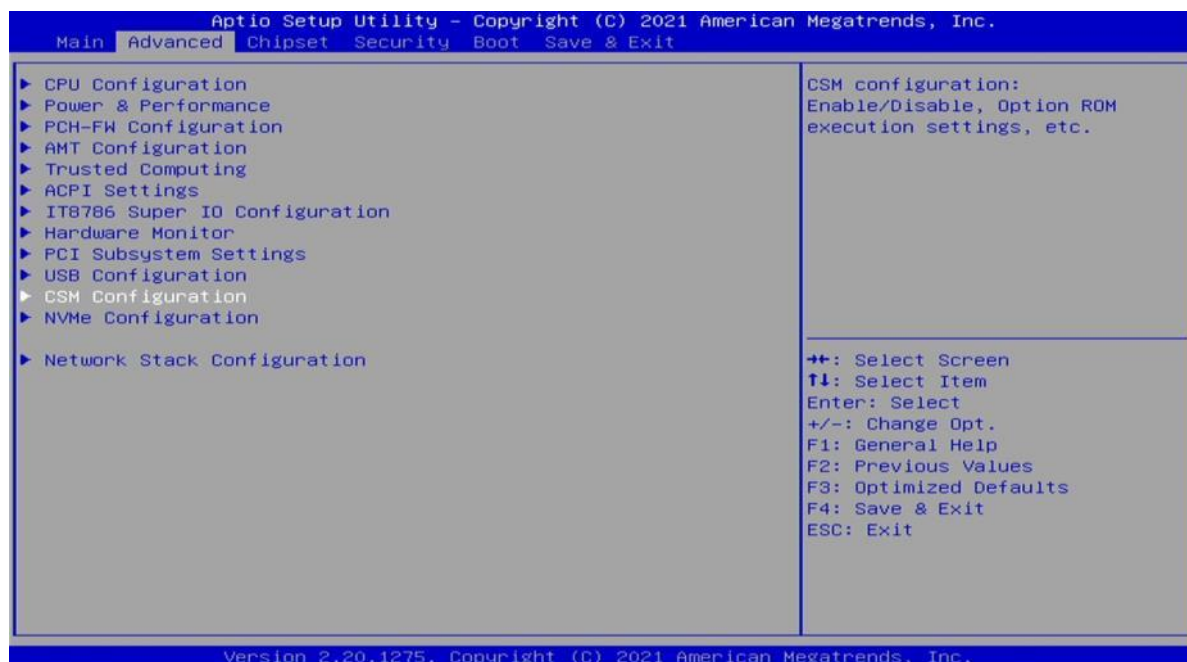
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	30 sec 40 sec
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Field Name	Device power-up delay
Default Value	[Auto]
Possible Value	Auto Manual

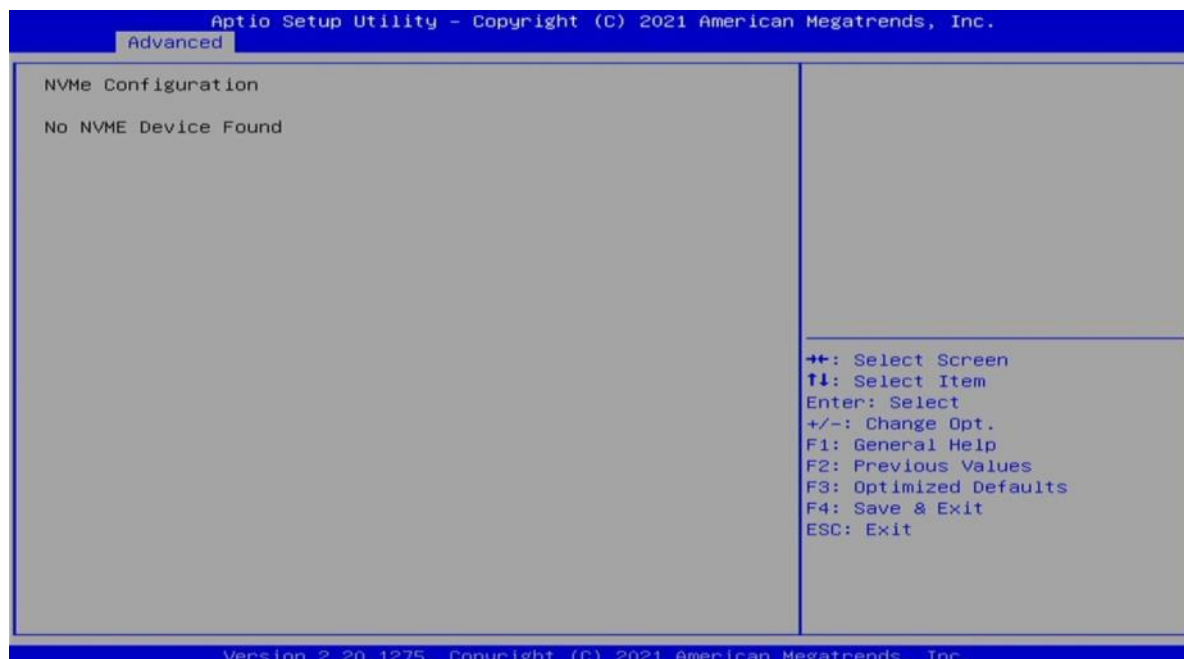
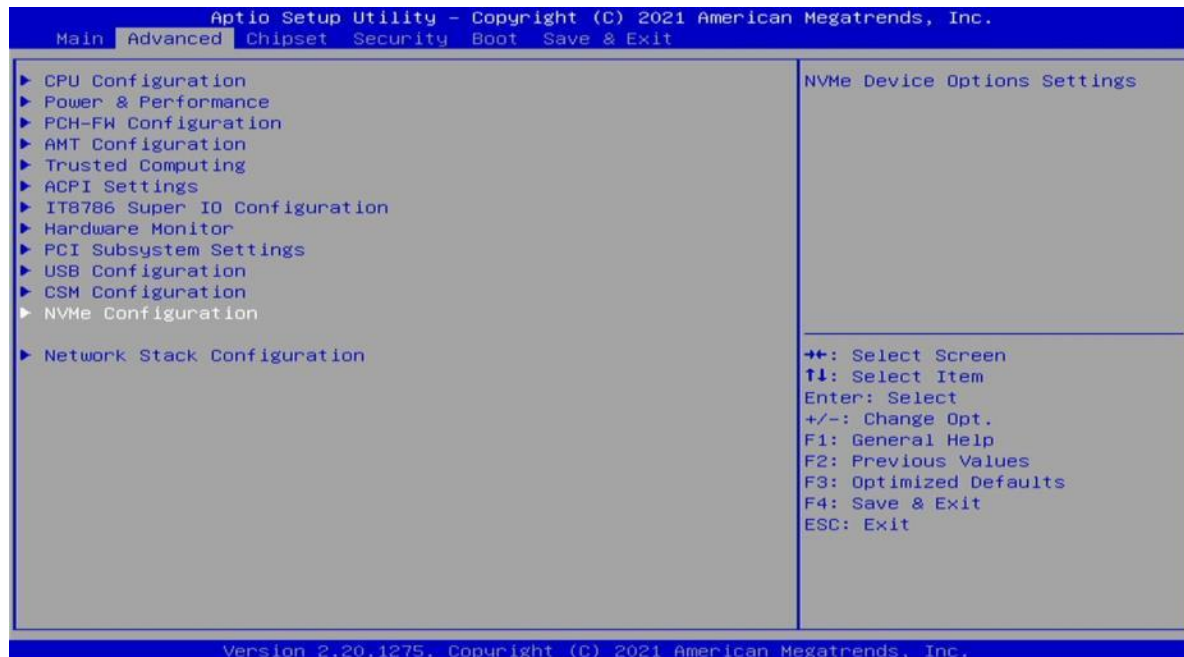
3.4.11 CSM Configuration



Field Name	CSM Support
Default Value	[Disabled]
Possible Value	Disabled Enabled

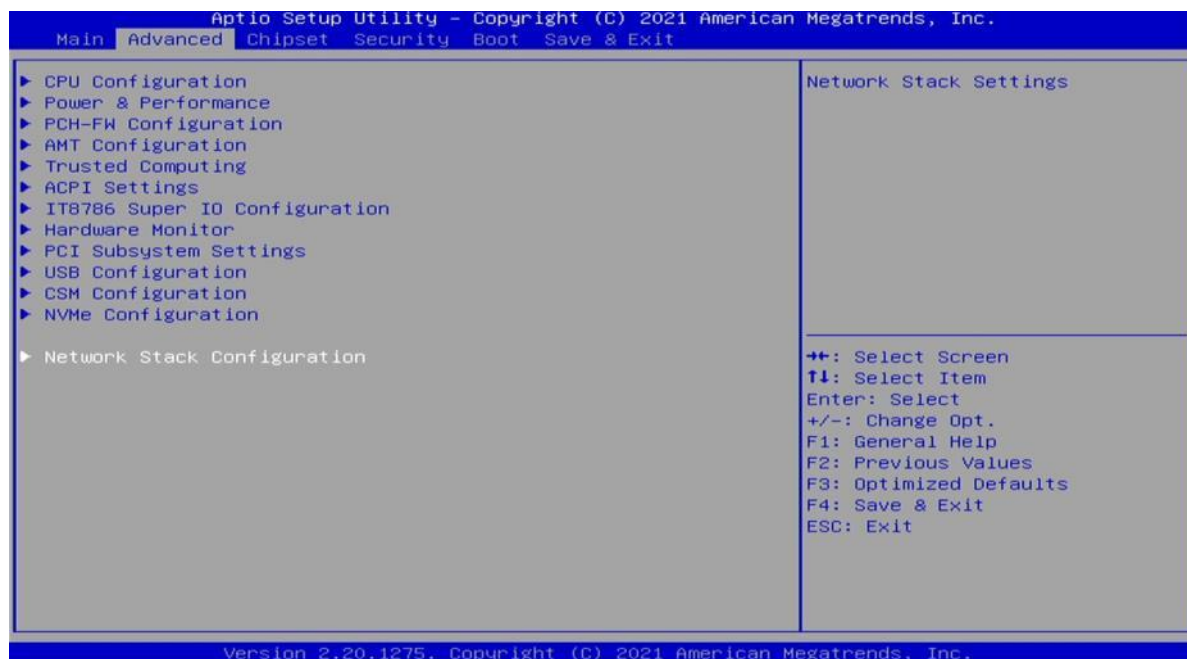


3.4.12 NVMe Configuration





3.4.13 Network Stack Configuration

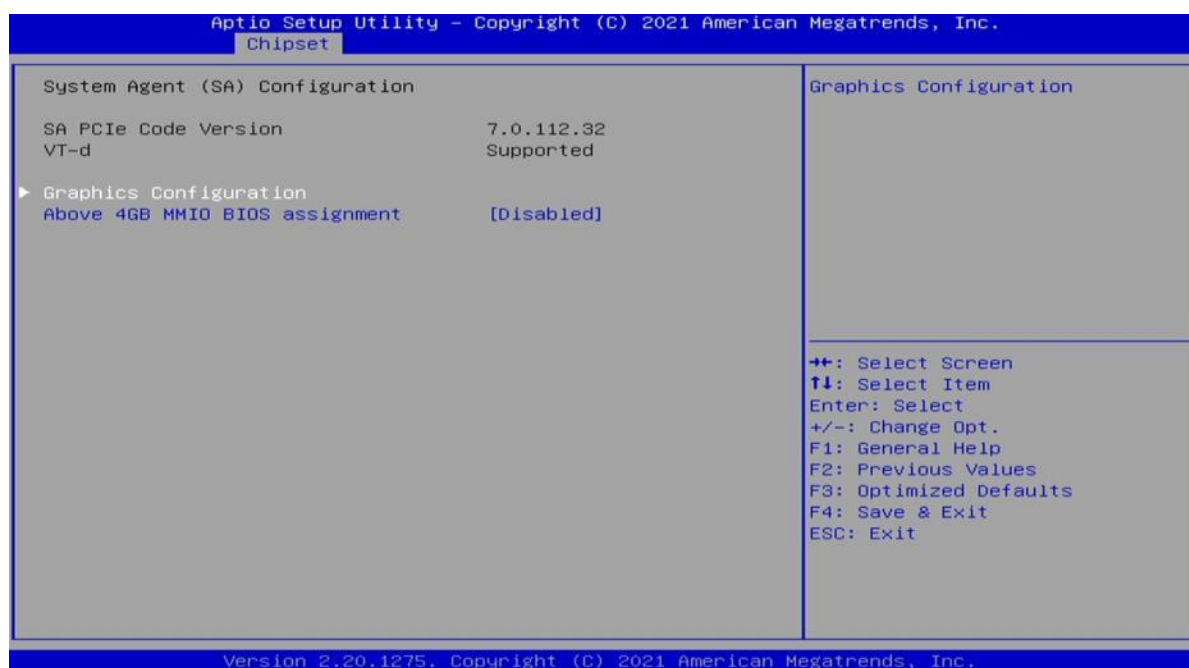
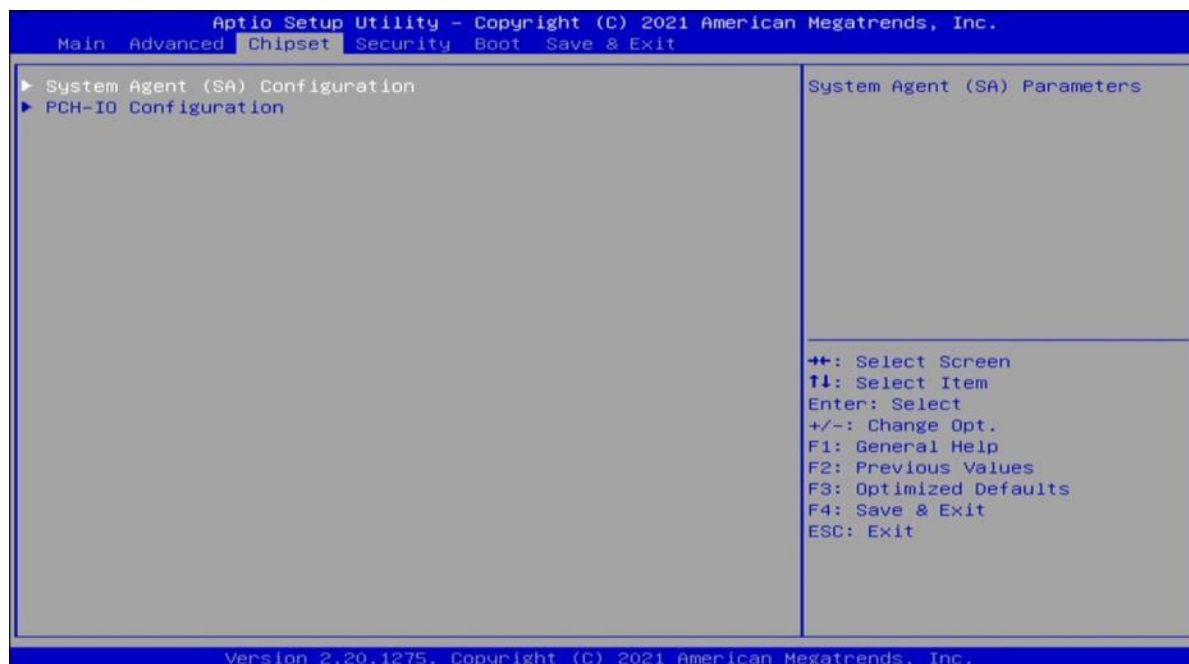


Field Name	Network Stack
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.5 Chipset

3.5.1 System Agent (SA) Configuration



Field Name	Primary Display
Default Value	[Auto]
Possible Value	Auto IGFX PEG PCI SG

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Field Name	Internal Graphics
Default Value	[Auto]
Possible Value	Auto Disabled Enabled

Field Name	GTT Size
Default Value	[8MB]
Possible Value	2MB 4MB 8MB

Field Name	Aperture Size
Default Value	[256MB]
Possible Value	128MB 256MB 512MB 1024MB 2048MB

Field Name	DVMT Pre-Allocated
Default Value	[32M]
Possible Value	0M 32M 64M 4M 8M 12M 16M 20M 24M 28M 32M/F7 36M 40M 44M

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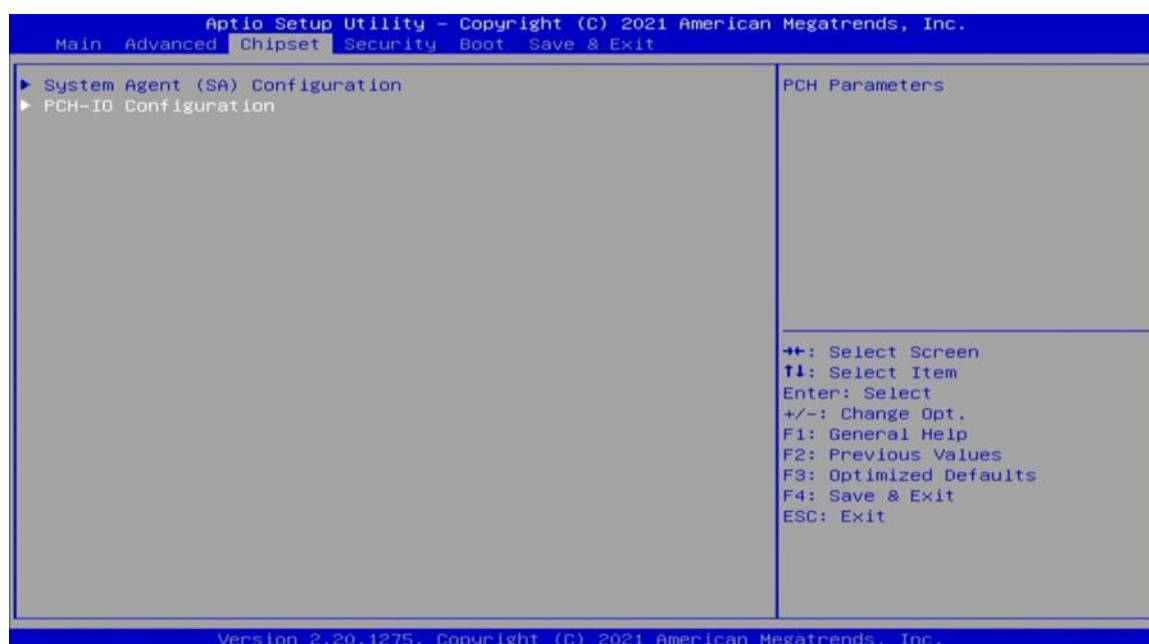


	48M
	52M
	56M
	60M

Field Name	DVMT Total Gfx Mem
Default Value	[128M]
Possible Value	128M 256M MAX

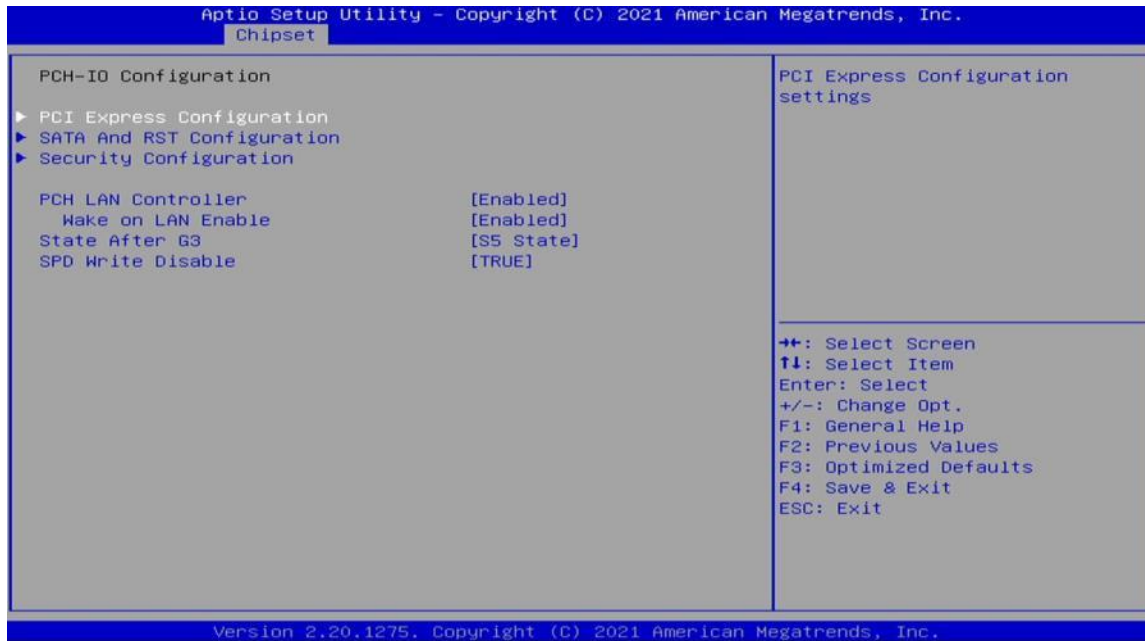
Field Name	Above 4GB MMIO BIOS assignment
Default Value	[Enabled]
Possible Value	Enabled Disabled

3.5.2 PCH-IO Configuration

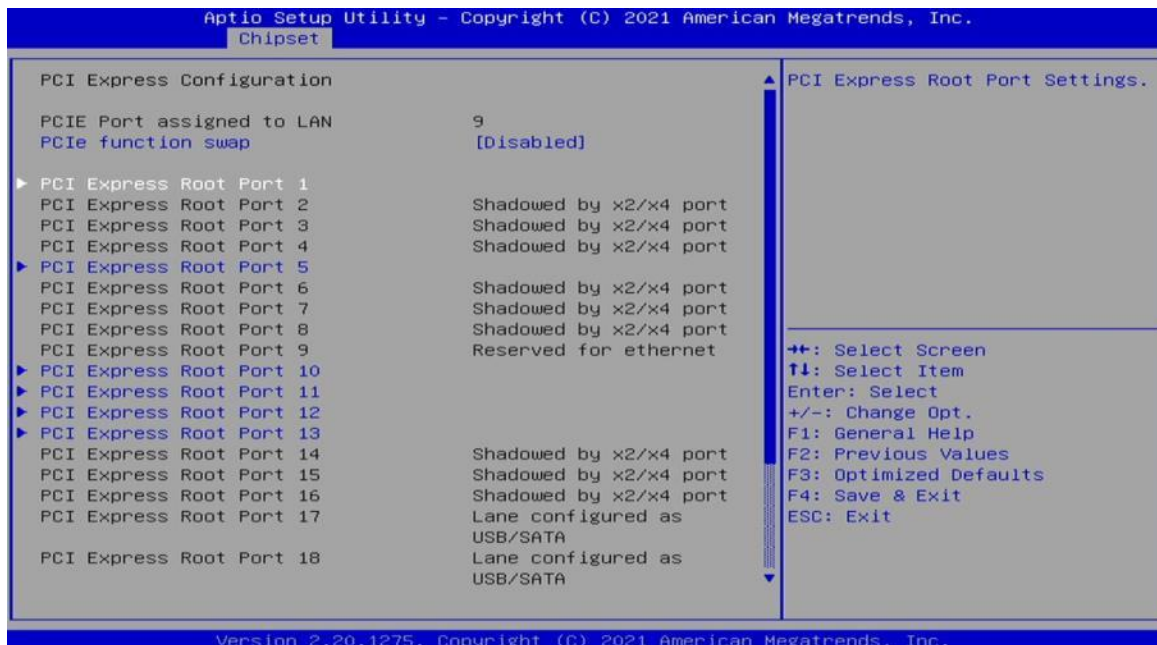




3.5.2.1 PCI Express Configuration

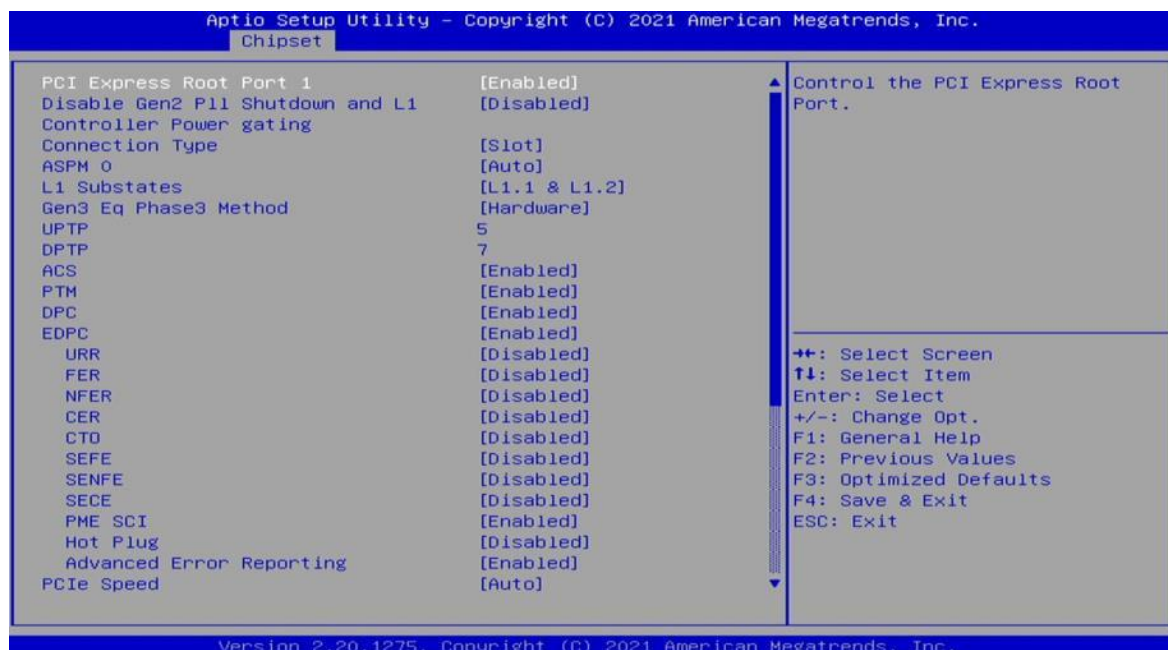


Field Name	PCIe function swap
Default Value	[Disabled]
Possible Value	Disabled Enabled



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Field Name	PCI Express Root Port 1
Default Value	[Enabled]

Field Name	PCI Express Root Port 5
Default Value	[Enabled]

Field Name	PCI Express Root Port 10
Default Value	[Enabled]

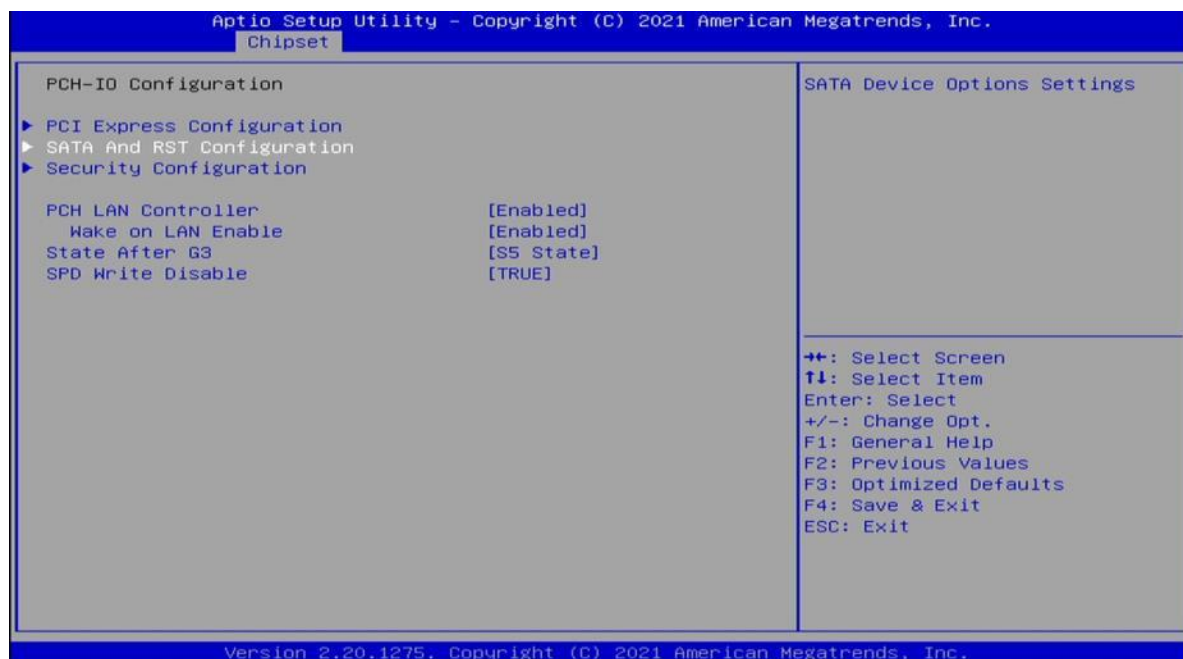
Field Name	PCI Express Root Port 11
Default Value	[Enabled]

Field Name	PCI Express Root Port 12
Default Value	[Enabled]

Field Name	PCI Express Root Port 13
Default Value	[Enabled]



3.5.2.2 SATA And RST Configuration



Field Name	SATA Controller(s)
Default Value	[Enabled]
Possible Value	Enabled Disabled

Field Name	SATA Mode Selection
Default Value	[AHCI]
Possible Value	AHCI Intel RST Premium With Intel Optane System Acceleration

Field Name	M.2 Port
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	Port 1
Default Value	[Enabled]
Possible Value	Disabled Enabled

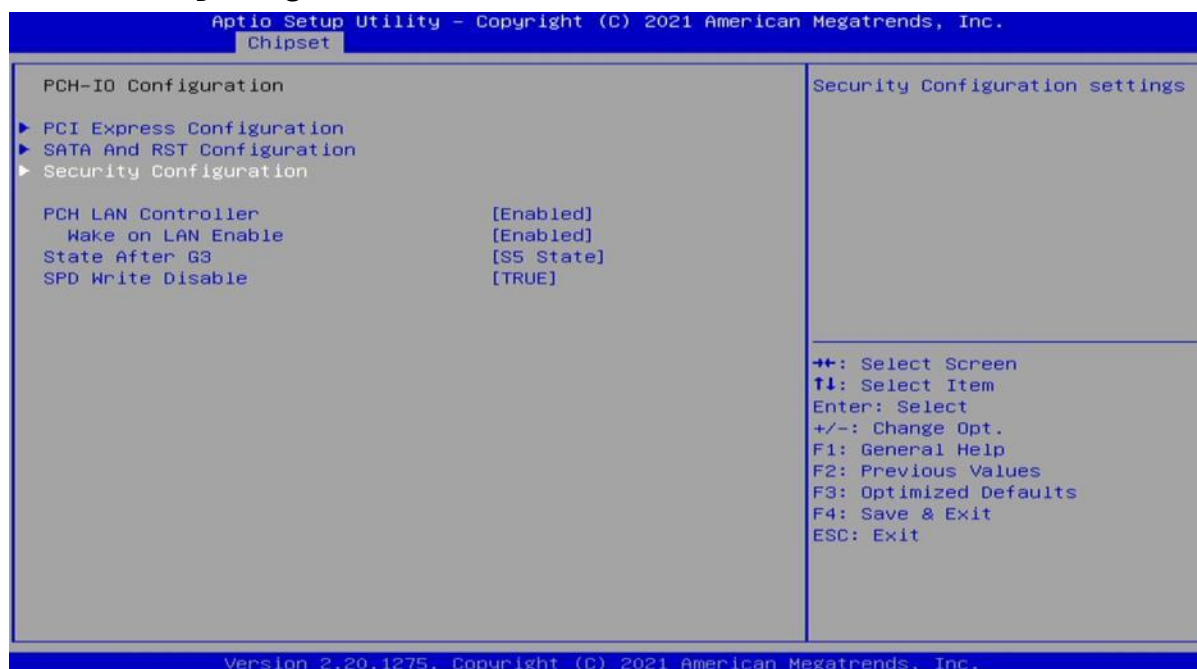
Field Name	Port 2
Default Value	[Enabled]
Possible Value	Disabled Enabled



Field Name	Port 3
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Port 4
Default Value	[Enabled]
Possible Value	Disabled Enabled

3.5.2.3 Security Configuration



Field Name	RTC Memory Lock
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	BIOS Lock
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Force unlock on all GPIO pads
Default Value	[Disabled]
Possible Value	Disabled Enabled



Field Name	PCH LAN Controller
Default Value	[Enabled]
Possible Value	Enabled Disabled

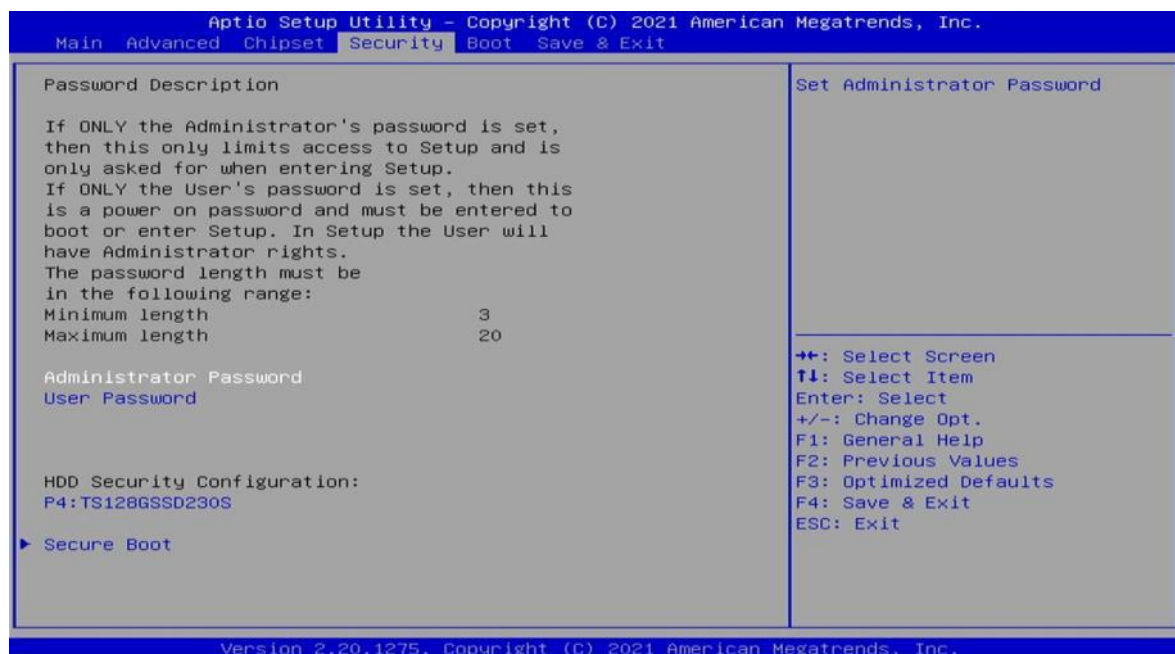
Field Name	Wake on LAN Enable
Default Value	[Enabled]
Possible Value	Enabled Disabled

Field Name	State After G3
Default Value	[S5 State]
Possible Value	S0 State S5 State

Field Name	SPD Write Disable
Default Value	[TRUE]
Possible Value	TRUE FALSE

3.6 Security

3.6.1 Administrator Password



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Revision Date: 05. 29. 2023



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Main Advanced Chipset Security Boot Save & Exit

Password Description

If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length
Maximum length

Administrator Password
User Password

► Secure Boot

Create New Password

Set Administrator Password

→+: 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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3.6.2 User Password

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
Main Advanced Chipset Security Boot Save & Exit

Password Description

If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length
Maximum length

Administrator Password
User Password

► Secure Boot

Create New Password

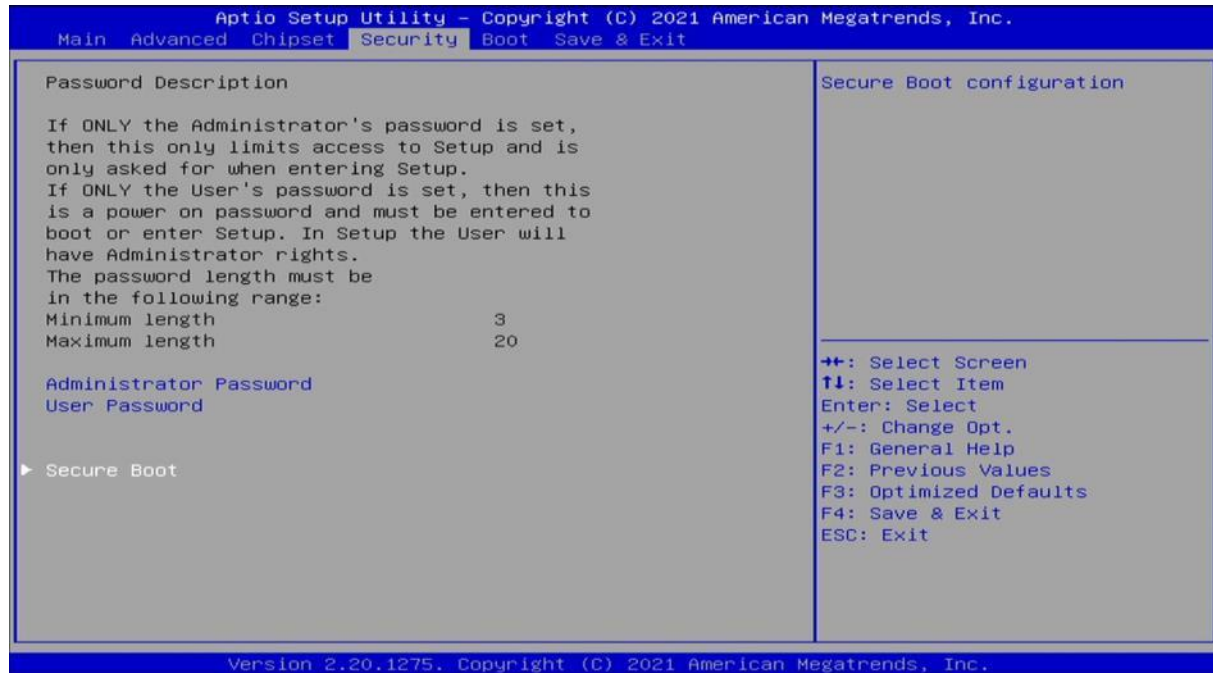
Set User Password

→+: 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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3.6.3 Secure Boot

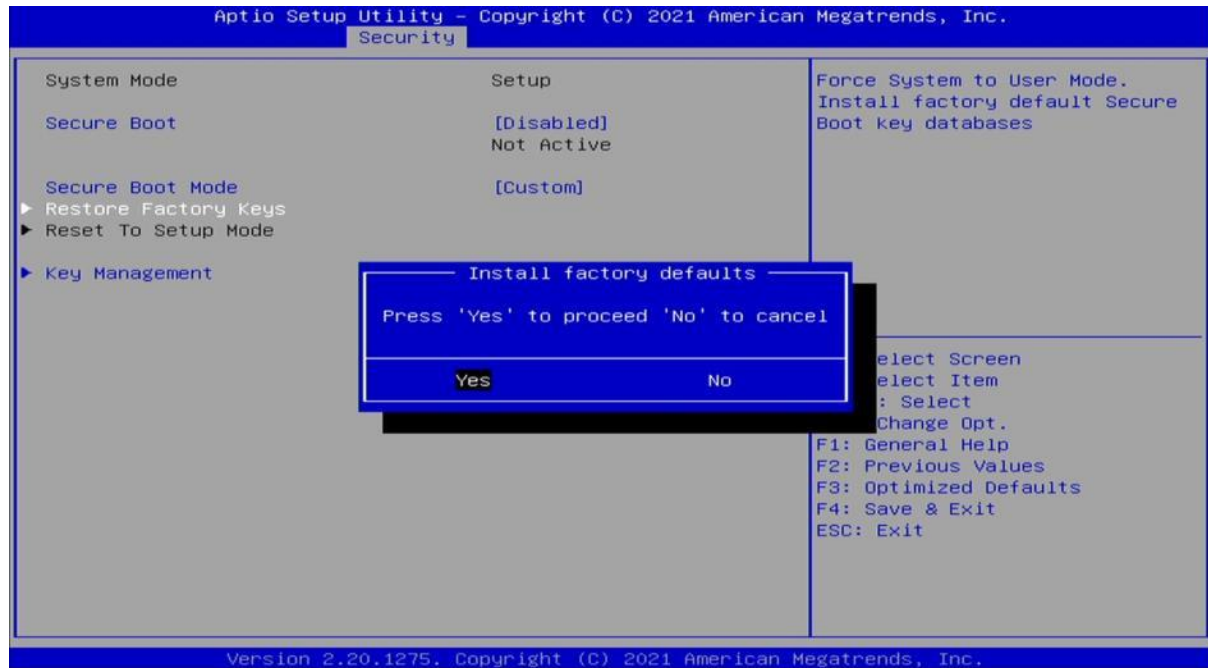


Field Name	Secure Boot
Default Value	[Disabled]
Possible Value	Disabled Enabled

Field Name	Secure Boot Mode
Default Value	[Custom]
Possible Value	Standard Custom

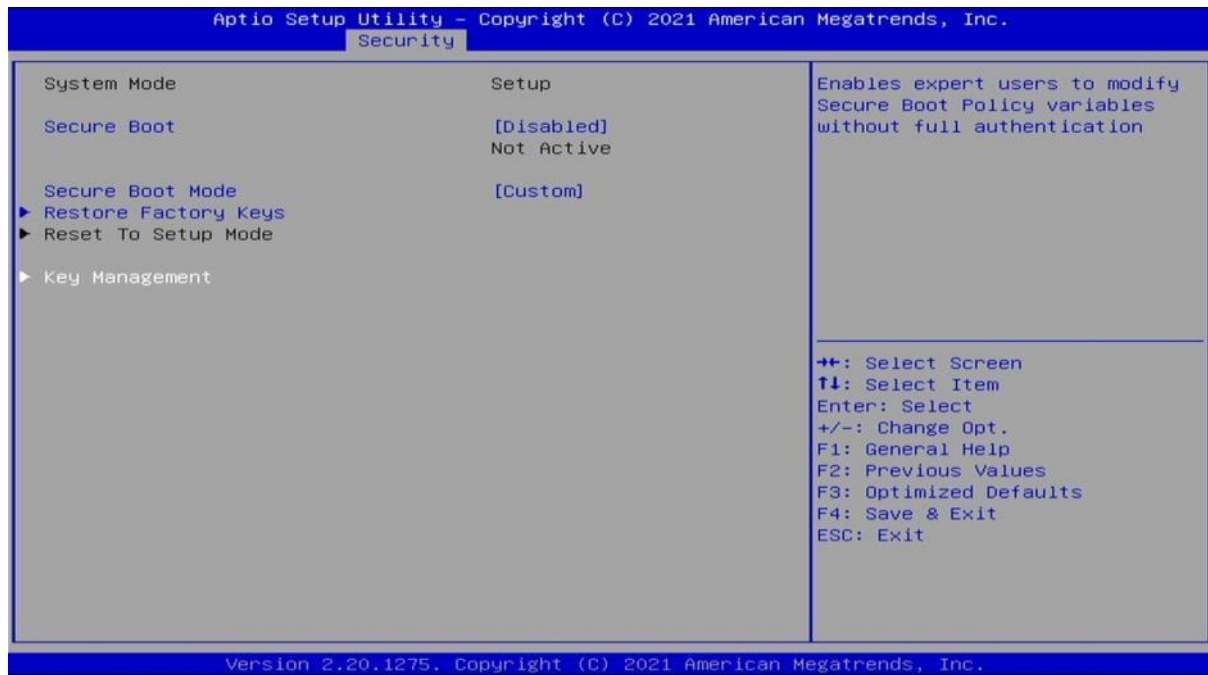


3.6.3.1 Restore Factory Keys





3.6.3.2 Key Management

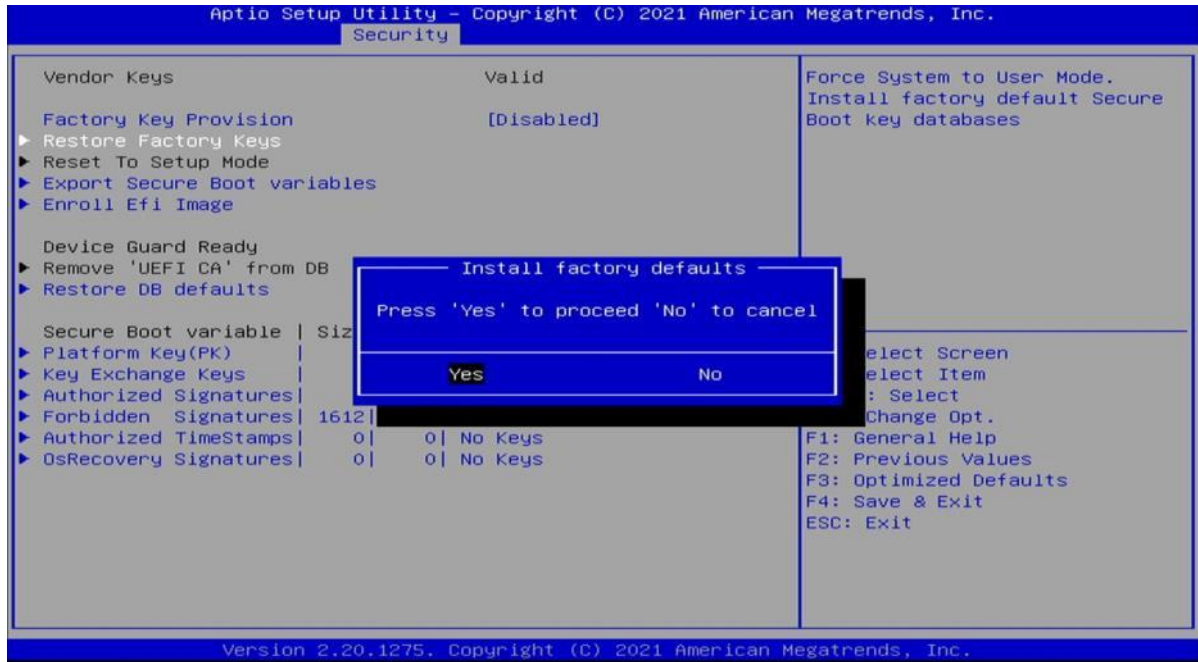


Field Name	Factory Key Provision
Default Value	[Disabled]
Possible Value	Disabled Enabled



3.6.3.3 Install factory defaults

3.6.3.4 File System

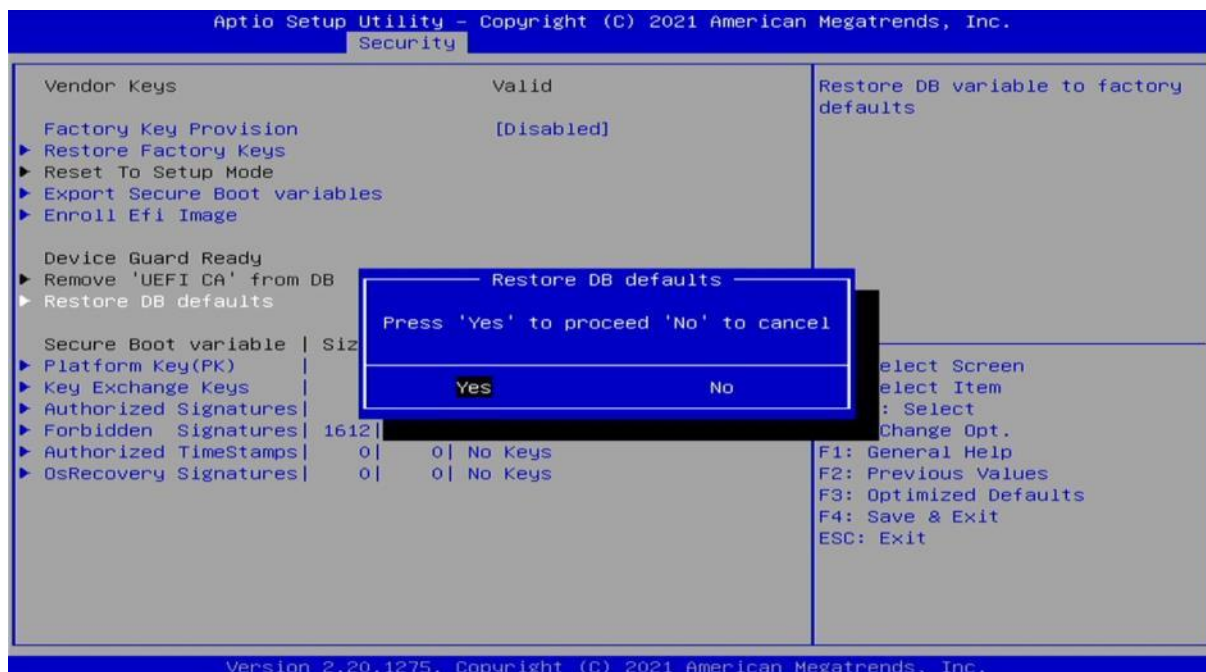




3.6.3.5 File System



3.6.3.6 Restore DB defaults

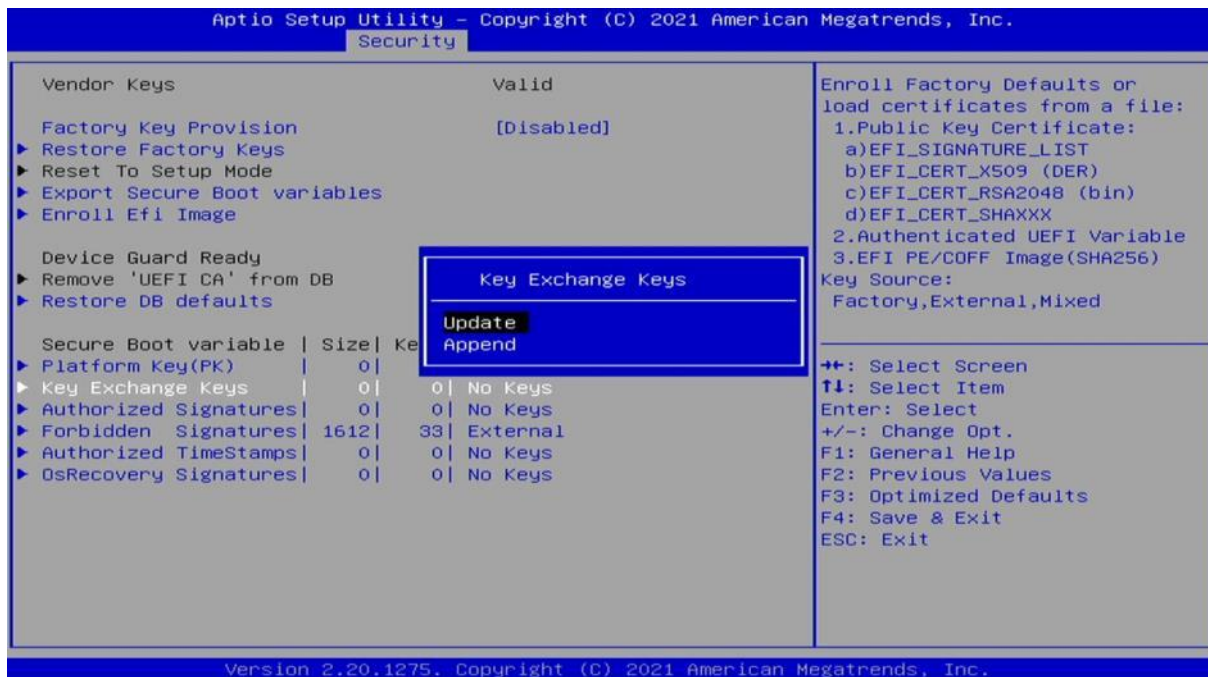




3.6.3.7 Platform Key(PK)

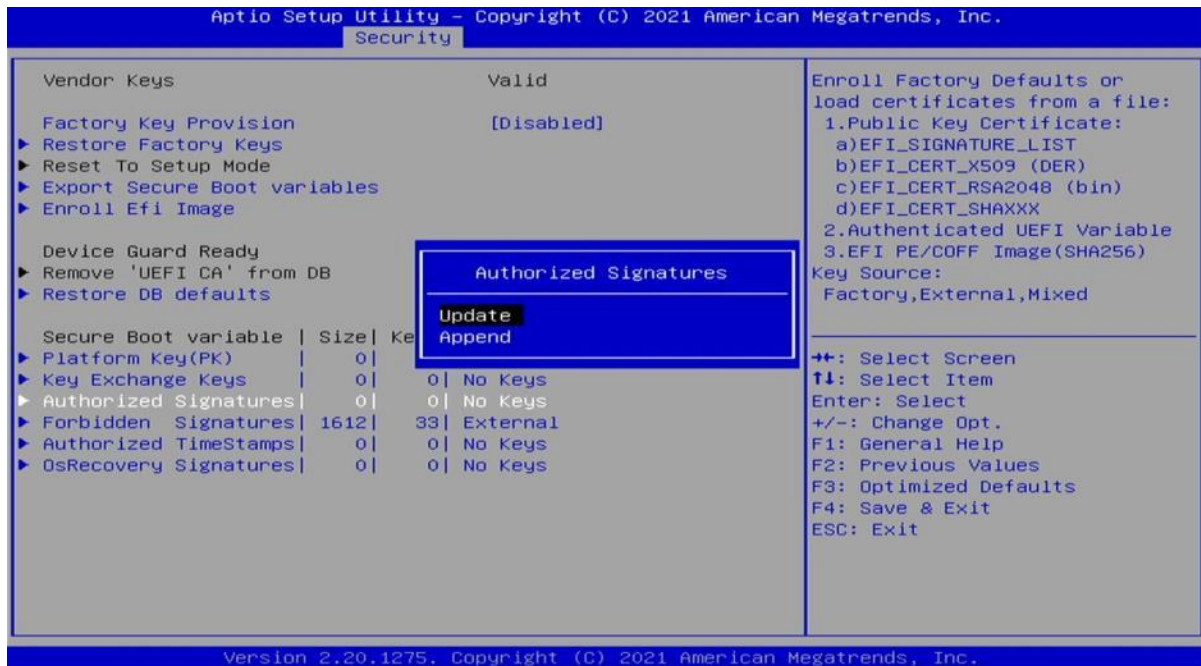


3.6.3.8 Key Exchange Keys





3.6.3.9 Authorized Signatures



3.6.3.10 Forbidden Signatures





3.6.3.11 Authorized TimeStamps

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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	1612	33 External
▶ Authorized TimeStamps	0	0 No Keys
▶ OsRecovery Signatures	0	0 No Keys

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

Update
Append

++: 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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3.6.3.12 OsRecovery Signatures

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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	1612	33 External
▶ Authorized TimeStamps	0	0 No Keys
▶ OsRecovery Signatures	0	0 No Keys

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

Update
Append

++: 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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3.7 Boot



Field Name	Bootup NumLock State
Default Value	[Off]
Possible Value	On Off

Field Name	Quiet Boot
Default Value	[Enabled]
Possible Value	Disabled Enabled

Field Name	Fast Boot
Default Value	[Disable Link]
Possible Value	Disable Link Enabled

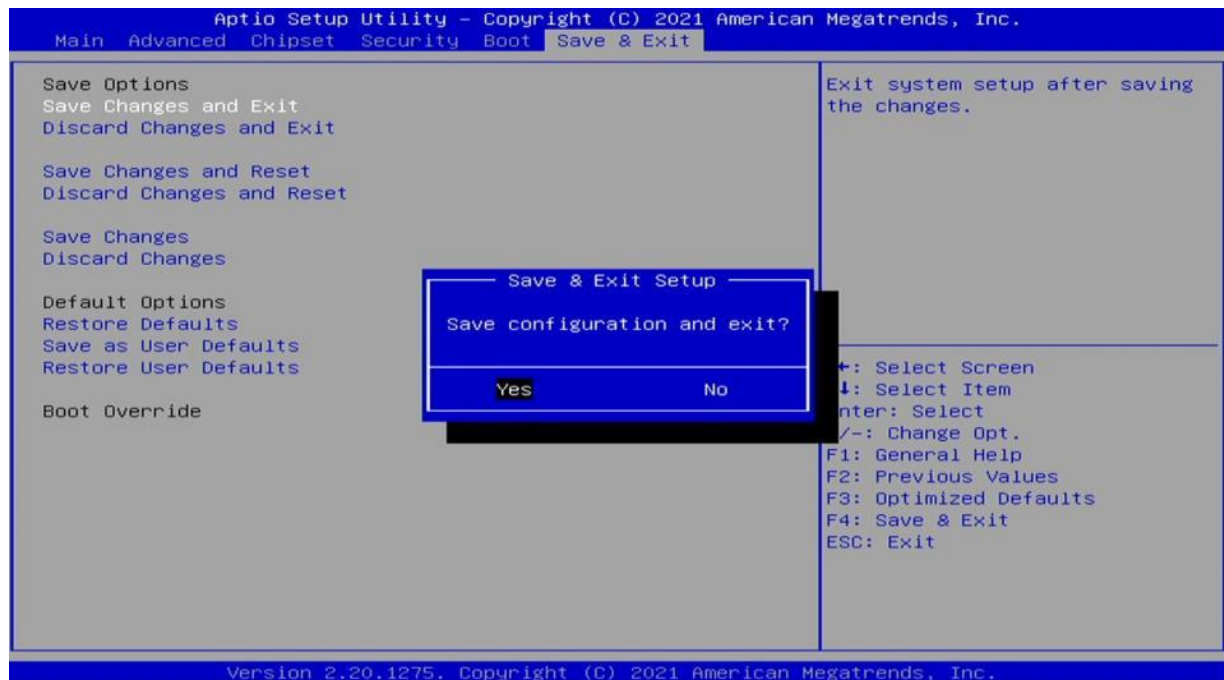


3.8 Save & Exit

3.8.1 Save Changes and Exit

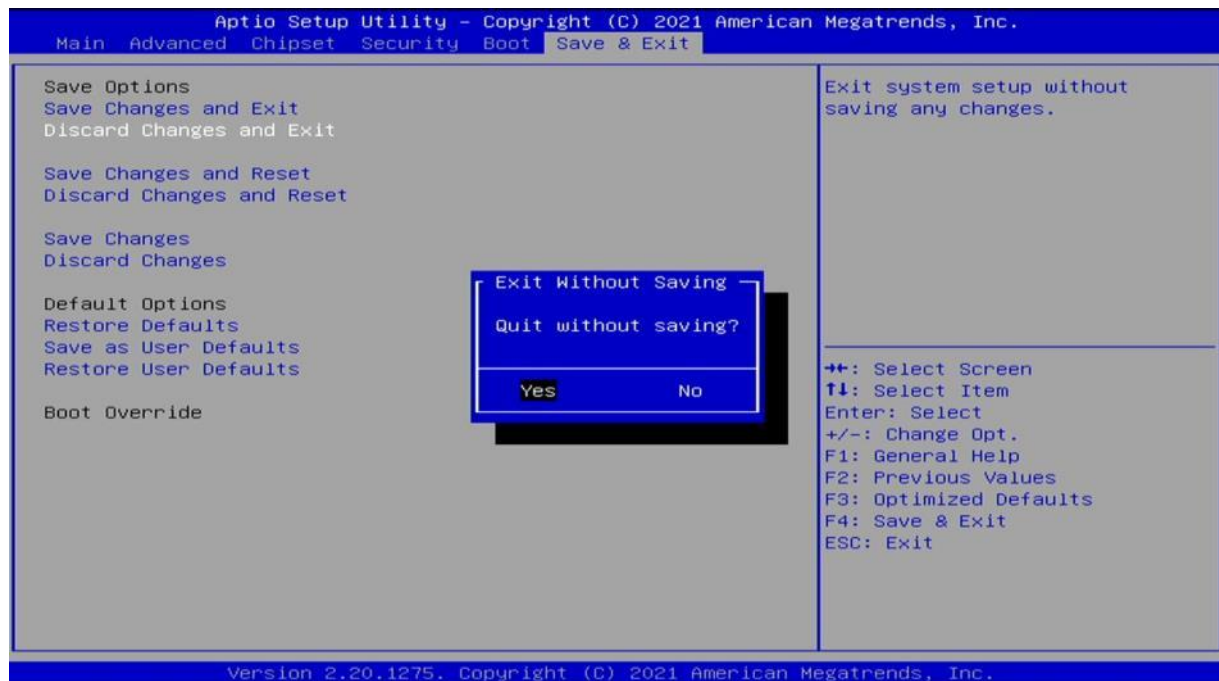


3.8.1.1 Save & Exit Setup

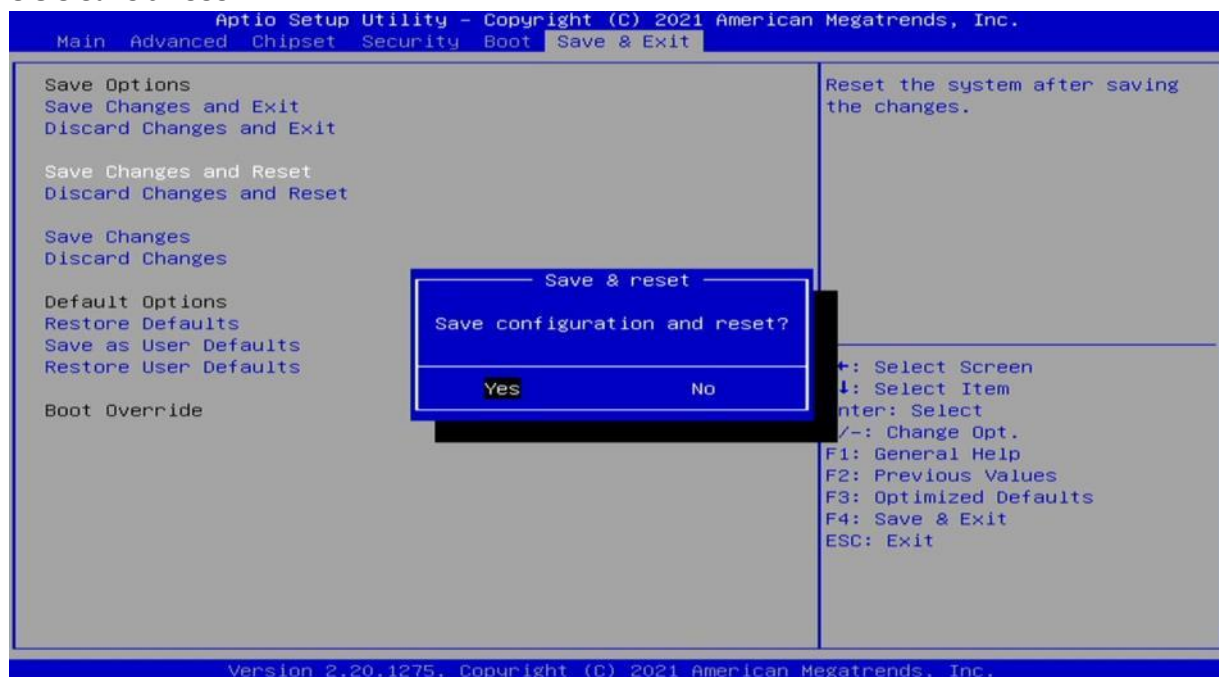




3.8.2 Exit Without Saving

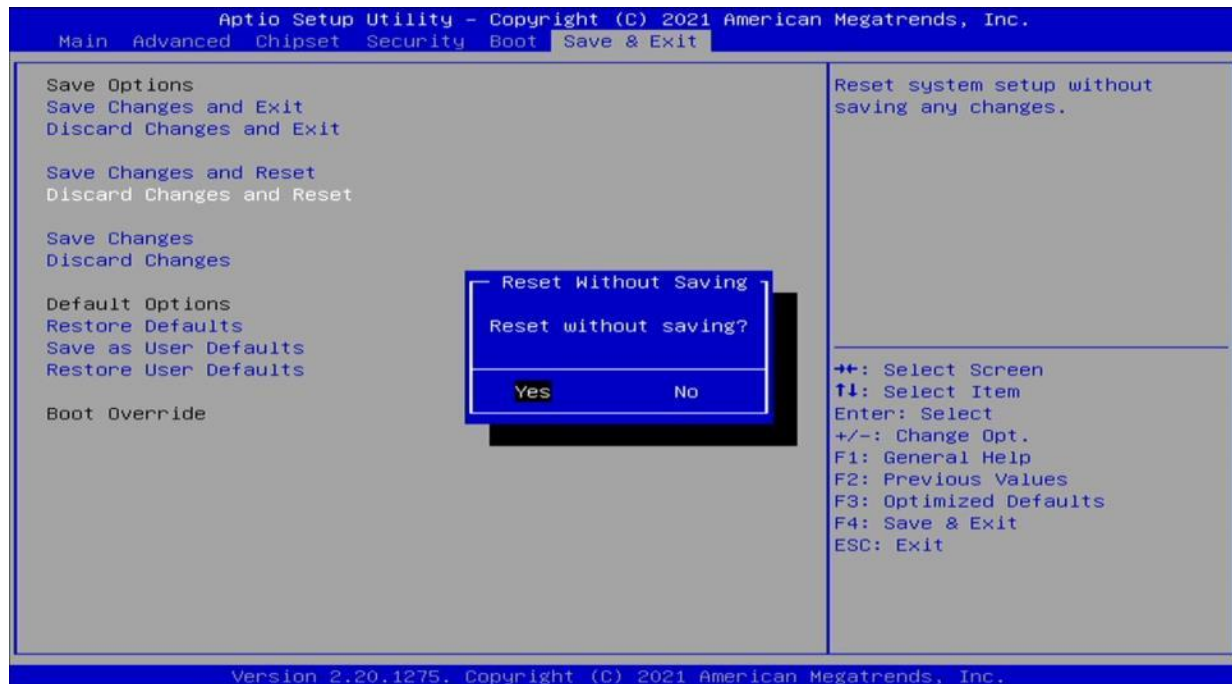


3.8.3 Save & reset

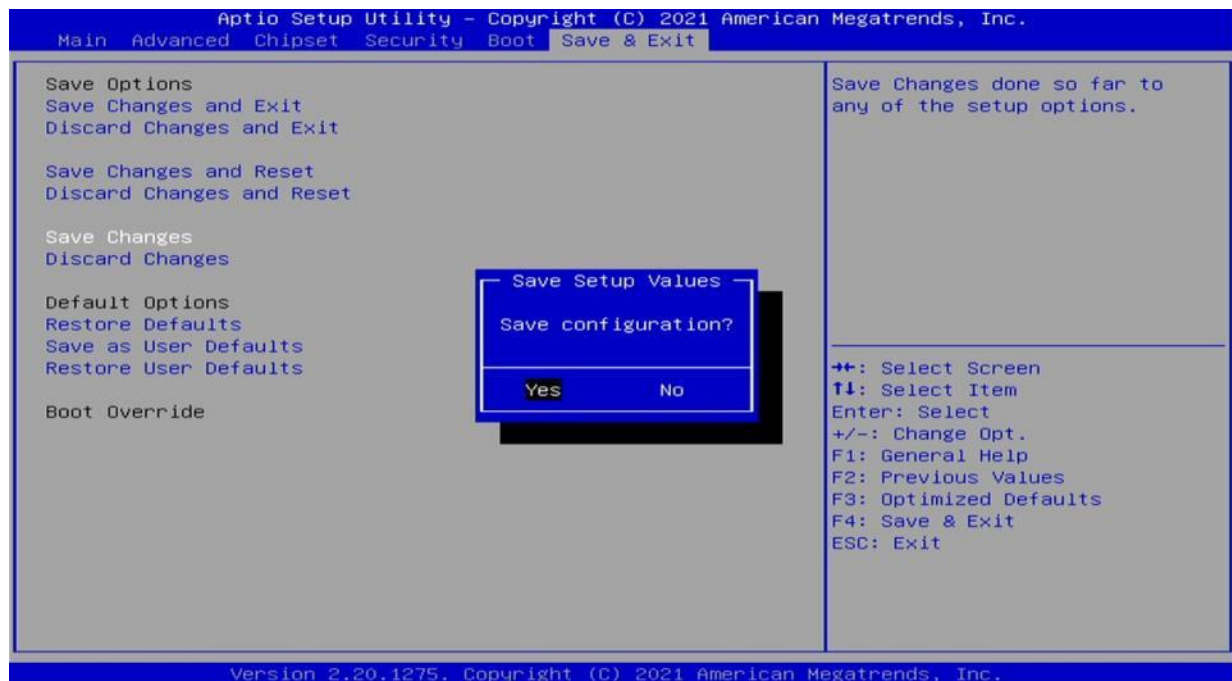




3.8.4 Reset Without Saving



3.8.5 Save Setup Values





3.8.6 Load Previous Values



3.8.7 Load Optimized Defaults

