

WEBS-85H1

Fan-less Embedded System

AS5-3625



User's Manual

Version 1.3

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How to Use This Manual

The manual describes how to configure your WEBS-85H1 system to meet various operating requirements. It is divided into four chapters, with each chapter addressing a basic concept and operation of Fan-less Embedded System.

Chapter 1: System Overview. Present what you have in the box and give you an overview of the product specifications and basic system architecture for this fan-less embedded system.

Chapter 2: System Installation. Show the definitions and locations of all the interfaces and describe a proper installation guide so that you can easily configure your system.

Chapter 3: BIOS Setup Information. Specify the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of troubleshooting.

Chapter 4: Important Instructions. Indicate some instructions which must be carefully followed when the fan-less embedded system is used.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. The vendor may make supplement or change in the products described in this document at any time.

Revision History

Revision	Date	Details of Change(s)
V1.0	2022/06/14	Initial Release
V1.1	2022/10/13	Updated Operation temperature condition in product specification
V1.2	2022/10/13	Change system photo
V1.3	2022/10/26	1. Added warning for installation/uninstallation and maintenance process 2. Added Desk mount screw size

Chapter 1 System Overview

1.1 Introduction

The WEBS-85H1 builds on Intel® desktop W480E chipset and takes advantages of 10th Generation Intel® Core™ i3/i5/i7/i9 processors technologies that can support dual DDR4 memory, Type II CFAST and 2x 2.5" SSD slot for storage. Support three Gigabit Ethernet ports, One M.2 E Key, One M.2 M Key and one Mini PCIe socket. The WEBS-85H1 is an ideal platform with rich I/O and high resolution for POS, kiosk, digital signage, and factory automation applications.

The system further takes advantage of the 10th generation Intel Core processor technologies supporting dual-channel DDR4 memory up to 64GB.

Furthermore, the WEBS-85H1 Box PC includes rich I/O interfaces and fast connectivity with three independent display (DisplayPort/HDMI 2.0/HDMI 1.4) interfaces with resolution up to 4K, three Gigabit Ethernet ports, four COM ports, Two USB 3.2 Gen2, four USB 3.2 Gen1 ports, one 8 bits DIO port, and Mic-in/Line-out. Optional wireless via M.2 socket and 4G or LTE modules can be added via a Mini PCIe socket.

The rugged, fan-less design makes the WEBS-85H1 durable in harsh environment applications, such as factory automation and industrial automation. Portwell's WEBS-85H1 has already passed a vibration test of 1Grms/ 58.1~500Hz and a shock test of 50G, 11 msec assuring its solidity and reliability.

In addition, the system accepts a wide input voltage range from 9V to 36V. This power-source flexibility enables product usage in a variety of situations. Moreover, the WEBS-85H1 is more than a robust and dependable embedded system with high performance and graphics efficacy, its stylish mechanical design enhances the system's artistry. Potential applications include kiosk, intelligent digital security, IVI, factory automation and surveillance applications, and many more.

Check List

The WEBS-85H1 package should cover the following basic items:

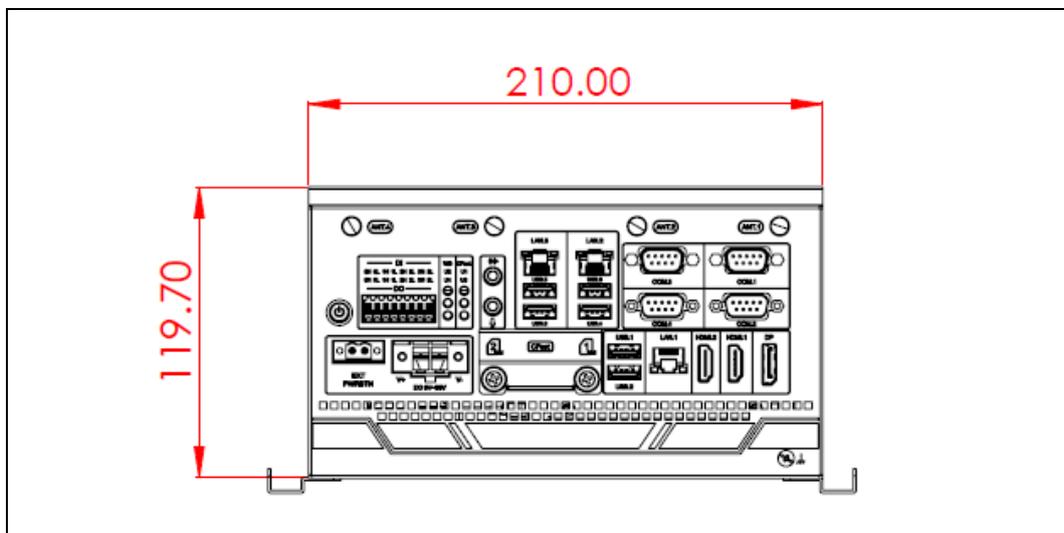
- ✓ One WEBS-85H1 Fan-less Embedded System
- ✓ One Desk Mount Kit
- ✓ Other Accessories

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

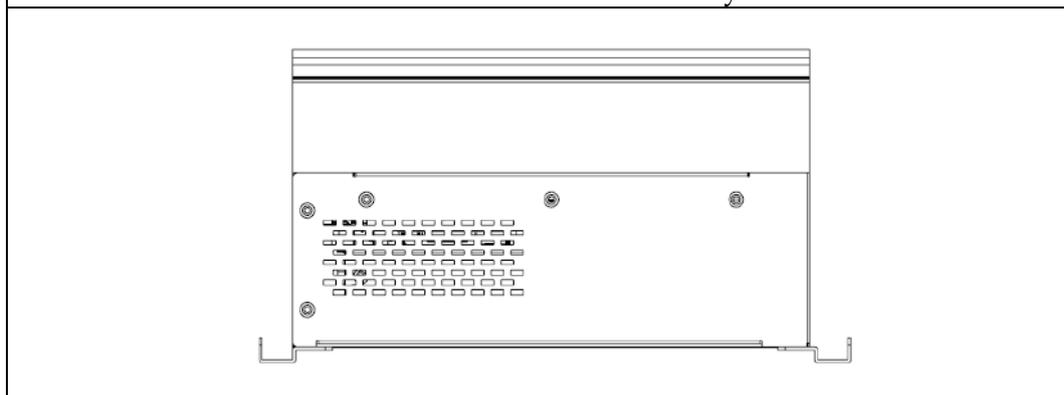
1.2 Product Specification

System	
M/B	Proprietary
System Chipset	Intel® W480E chipset
CPU	10th Generation Intel® Core™ i3/i5/i7/i9 Processors (35W TDP)
BIOS	AMI uEFI BIOS (SPI ROM)
System Memory	2x SO-DIMM sockets support DDR4 2400/2666 Non-ECC Up to 64 GB
Storage	- 1x Type II CFast slot - 2x 2.5" SSD slots
Watchdog Timer	Programmable by embedded controller
H/W Status Monitor	HW WDT Enable (WDT_EN)
Expansion	- 1x Mini PCIe socket (supports mSATA or cellular module) - 1x M.2 2242/60/80 M key socket (PCIe x4 & SATA mode) - 1x M.2 2230 E key socket (supports CNVi, Wi-Fi/BT module)
External I/O	
Series Ports	4x COM port (1x RS-232/422/485, CANbus (2.0 A/B) selected by on board jumper)
Display	- 1x HDMI 2.0, supports up to 4096 x 2160 @ 60 Hz - 1x HDMI 1.4, supports up to 4096 x 2160 @ 30 Hz - 1x DP 1.2, supports up to 4096 x 2304 @ 60 Hz
USB	- 2x USB 3.2 Gen 2 - 4x USB 3.2 Gen 1
Audio	Mic-in / Line-Out
LAN	3x Gigabit Ethernet (Intel® I210-IT)
GPIO	4x DI, 4x DO
Other	2x nano SIM card slot
Power Supply Unit	
Power Supply	9 to 36 VDC, 2-pin terminal block connector
Environment	
Operating Temperature	-20°C ~ 40°C with Adapter -20°C ~ 60°C with DC source
Storage Temperature	-40°C ~ 80°C
Relative Humidity	60°C, 95%RH non-condensing
Operating Vibration	Desk mount: 0.5 Grms (10 Hz to 500Hz) System: 1Grms (10 Hz to 500Hz)
Operating Shock	Desk mount: 15G, 11 msec System: 50G, 11 msec
Mechanical	
Dimension (W x D x H)	210(W) x 250(D) x 119.7 (H) mm
Weight	4.5 Kg
Mounting	Desk mounting

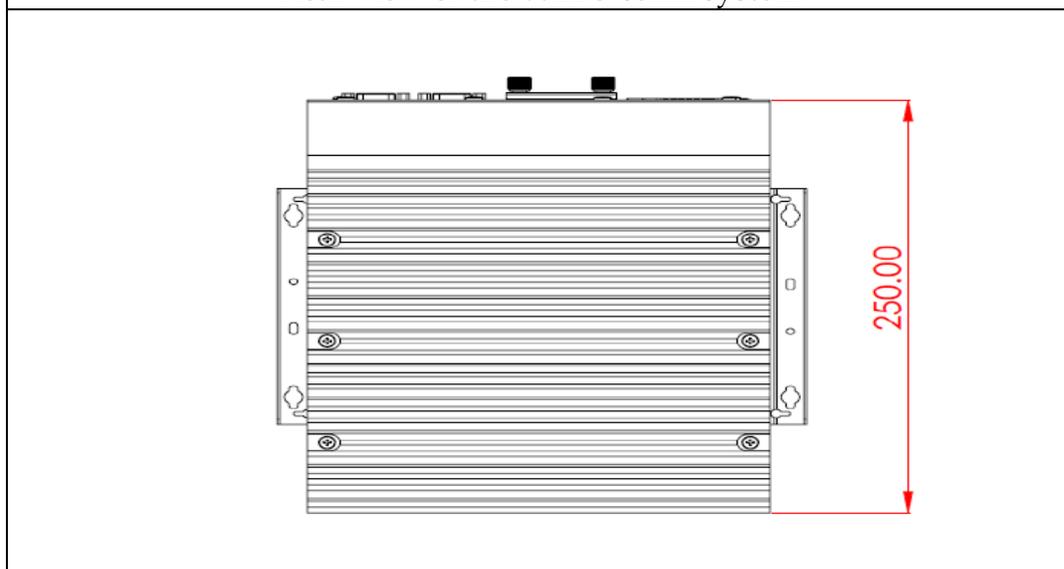
1.3 Mechanical Dimension



front view of the WEBS-85H1 system



Rear view of the WEBS-85H1 system



Top view of the WEBS-85H1 system

Chapter 2 System Installation

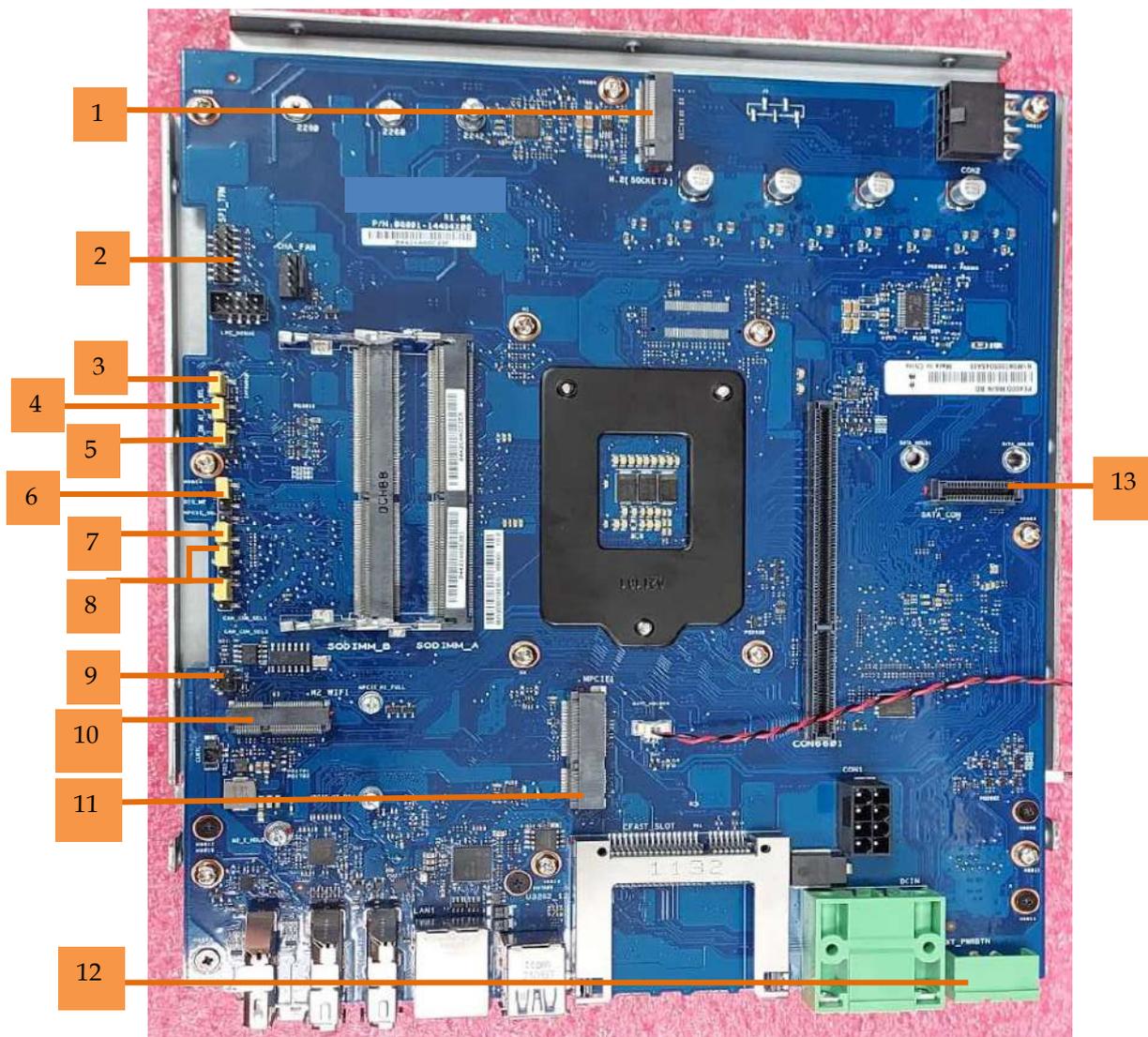
This chapter provides you with instructions to set up your system. Definitions and locations of all the interfaces are described so that you can easily configure your system.

Important:

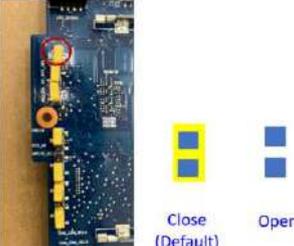
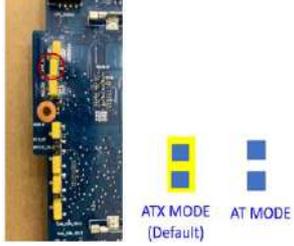
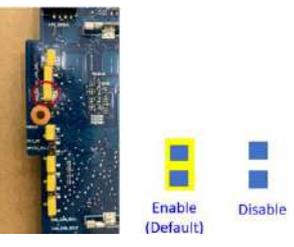
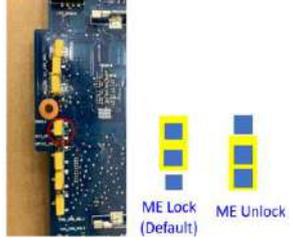
- Turn off the power of your IPC BOX PC and allow it to cool for at least 10 minutes before performing any installation/uninstallation and maintenance process.
- Professionals (Skilled person) are required for maintenance, assembly or disassembly, and the pluggable 2.5" SSD can be replaced by end user.

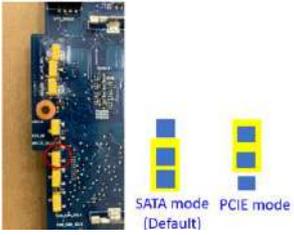
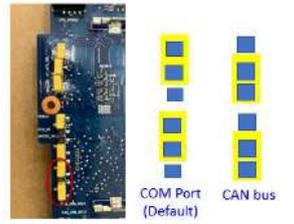
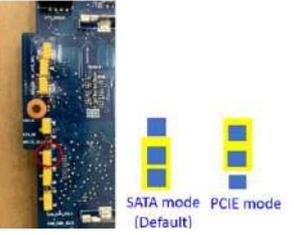
2.1 Embedded Board H/W Jumper Setting Introduction

2.1.1 M/B overview



2.1.2 M/B Jumper setting

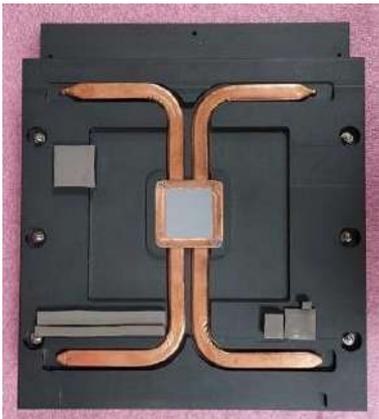
NO	Part	Description	Detail information																
1	M.2 M-key slot	M.2 module (M-key, type 2242/2260/2280) or M.2 B+M key TPU module																	
2	SPI TPM header	The SPI TPM header supports a TPM system.	 <table border="1"> <thead> <tr> <th colspan="2">SPI TPM Pindefine</th> </tr> </thead> <tbody> <tr> <td>T_SPI_MOSI</td> <td>T_SPI_HOLD#</td> </tr> <tr> <td>T_SPI_CLK</td> <td>T_SPI_MISO</td> </tr> <tr> <td>GND</td> <td>S_SPI_CS0#</td> </tr> <tr> <td>T_SPI_BIOS_WPH#</td> <td>+3VSB_SPI</td> </tr> <tr> <td>S_SPI_TPM_CS2#</td> <td>NC</td> </tr> <tr> <td>S_SPI_TPM_IRQ#</td> <td>S_PLTRS#</td> </tr> <tr> <td></td> <td>+VCCCS_SPI_TPM</td> </tr> </tbody> </table>	SPI TPM Pindefine		T_SPI_MOSI	T_SPI_HOLD#	T_SPI_CLK	T_SPI_MISO	GND	S_SPI_CS0#	T_SPI_BIOS_WPH#	+3VSB_SPI	S_SPI_TPM_CS2#	NC	S_SPI_TPM_IRQ#	S_PLTRS#		+VCCCS_SPI_TPM
SPI TPM Pindefine																			
T_SPI_MOSI	T_SPI_HOLD#																		
T_SPI_CLK	T_SPI_MISO																		
GND	S_SPI_CS0#																		
T_SPI_BIOS_WPH#	+3VSB_SPI																		
S_SPI_TPM_CS2#	NC																		
S_SPI_TPM_IRQ#	S_PLTRS#																		
	+VCCCS_SPI_TPM																		
3	Chassis Intrude header	The Chassis Intrusion header allows you to connect an intrusion sensor or microswitch for the chassis intrusion detection feature. The default setting is close with a jumper cap.	 <p>Close (Default) Open</p>																
4	AT / ATX power selection	The AT_ATX_SEL jumper allows you to configure between AT or ATX power mode. If the jumper is attached, ATX power mode is set, if the jumper is removed, AT power mode will be set. The default setting is ATX mode.	 <p>ATX MODE (Default) AT MODE</p>																
5	HW WDT Enable jumper	A watchdog timer is an electronic timer that is used to detect and recover from computer malfunctions. If the jumper is attached, HW WDT_EN is enable, if the jumper is removed, HW WDT_EN is disable.	 <p>Enable (Default) Disable</p>																
6	ME Lock jumper	This jumper is used to lock the Intel® Management Engine (IME). When the Intel® ME is locked, no changes can be made to the Intel® ME. This jumper should only be set to ME Unlock when there is an important update available from Intel®.	 <p>ME Lock (Default) ME Unlock</p>																

7	Mini PCIe / mSATA switch jumper	The Mini PCIe / mSATA switch jumper allows you to set the Mini PCIe /mSATA slot to either support a Mini PCIe card or mSATA card. Default is SATA mode.																					
8	CAN/COM switch jumpers	The CAN / COM switch jumpers allows you to set COM4 to CAN bus or COM port. Both jumpers need to be set to the setting for the configuration to take effect.																					
9	I2C header	The I2C (Inter-Integrated Circuit) header allows you to connect an I2C compatible IoT security module.	<table border="1" data-bbox="1043 752 1337 920"> <tr> <td></td> <td colspan="2">I2C</td> <td></td> </tr> <tr> <td>PIN 1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>I2C_SCL</td> <td></td> <td></td> <td>+V3</td> </tr> <tr> <td>I2C_SDA</td> <td></td> <td></td> <td>NC</td> </tr> <tr> <td>GND</td> <td></td> <td></td> <td></td> </tr> </table>		I2C			PIN 1				I2C_SCL			+V3	I2C_SDA			NC	GND			
	I2C																						
PIN 1																							
I2C_SCL			+V3																				
I2C_SDA			NC																				
GND																							
10	M.2 E-key slot	The M.2 E-key slot allows you to install an M.2 Wi-Fi module (E-key, type 2230), or M.2 A+E key TPU module.																					
11	Mini PCIe / mSATA slot	This slot can only support either Mini PCIe or mSATA, this can be adjusted with the Mini PCIe / mSATA switch jumper.																					
12	External Power Button connector	The External Power Button connector allows you to attach the External power button terminal block to connect to an external power button.																					
13	SATA conn	SATA conn																					

2.2 CPU and Memory module Installation

Equipped with CPU and Memory module by yourself if you purchase CPU or Memory module locally.

<p>Step 1. Loosen the screws of top heatsink (there are 6 screws)</p>	<p>Step 2. Check system inside</p>
	
<p>Step 3. Open CPU Socket before installing CPU.</p>	<p>Step 4. Open CPU socket protection cover</p>
	

<p>Step 5. Install CPU. Please locate notches on both side and pin one of CPU first</p>	<p>Step 6. Install CPU successfully</p>
 <p>A photograph of a CPU with a white thermal paste spreader. Four blue circles highlight the notches on the top and bottom edges and the pins on the left and right sides.</p>	 <p>A photograph showing the CPU successfully seated in the motherboard's LGA socket, with the metal retention arms of the socket clamped down on the CPU.</p>
<p>Step 7. Make sure the thermal paste can be applied uniformly on the heat spreader.</p>	<p>Step 8. Fixed the screws of top heatsink (there are 6 screws)</p>
 <p>A photograph of a black heatsink with copper heat pipes. A small square of thermal paste is applied to the central heat spreader.</p>	 <p>A photograph of the black heatsink with six blue screws being inserted into the mounting holes on its top surface.</p>
<p>Install memory</p>	
<p>Step 1. Loosen the 4 screws on the system</p>	<p>Step 2. Loosen the 8 screws on the system</p>
 <p>A photograph of the front of a black system case. Four blue circles are drawn around the screws on the front panel.</p>	 <p>A photograph of the back of a black system case. Eight blue circles are drawn around the screws on the back panel.</p>

Step 3. Loosen the 2 screws on the system



Step 4. Open the cover of system



Step 5. Install DDR4 SO DIMM Memory Module on the system



Step 6. Close the case and fix the 2 screws on the system



Step 7. Fix the 8 screws on the system



Step 8. Fix the 4 screws on the system



2.3 HDD/SSD Installation

Unique design of the HDD tray allows easy installation and maintenance of 2.5" HDD/SSD. RAID function is supported with dual HDD/SSD design. (The height must be less than 10mm)

Step 1. Loosen the 4 screws on the system



Step 2. Loosen the 8 screws on the system



Step 3. Loosen the 2 screws on the system



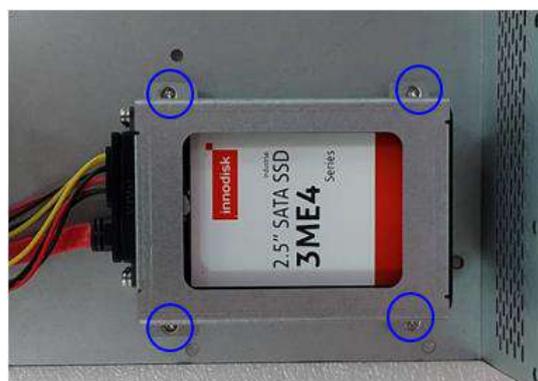
Step 4. Open the cover of system



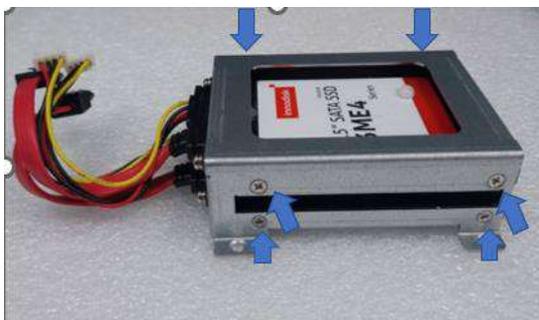
Step 5. Plug out SATA power and SATA data cable from STAT conn board



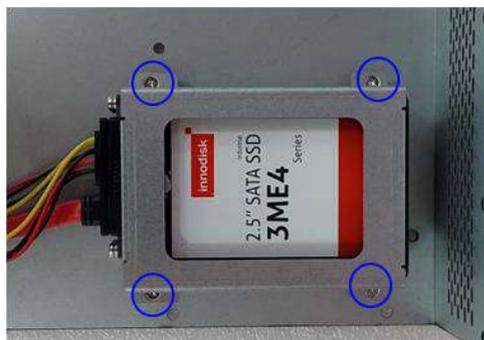
Step 6. Loosen the screw on the case



Step 7. Install the two HDD/SSD and fix the screws (M3*4L:8 pcs) from HDD/SSD kit



Step 8. Fix the screw (M3*4L:4pcs) on the case



Step 9. Plug SATA power and SATA data cable into SATA conn board



Step 10. Close the cover of system



Step 11. fix the 2 screws on the system



Step 12. fix the 8 screws on the system



Step 13. Fix the 4 screws on the system



Step 14. Finish HDD assembly.

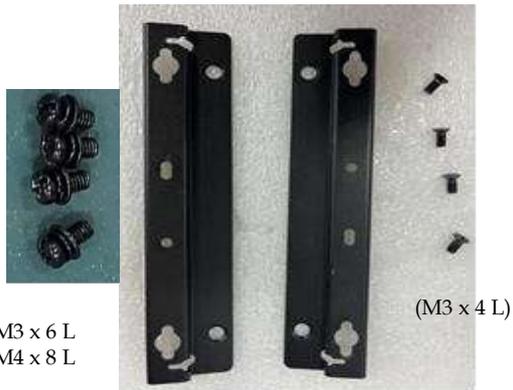


2.4 Desk Mount Installation

Step 1. Prepare Desk mount kit and screws.

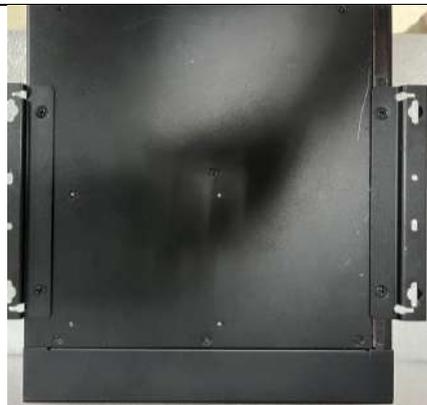
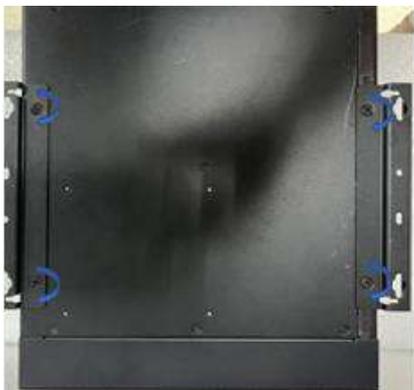
1. Screw size (M3x4L): for system side.
2. Screw size (Support M3x6L and M4 x 8L): for Desk mount side

Step 2. System is ready for assembling.



Step 3. Assemble the desk mount kit with system and fasten it using 4 screws (M3 x 4 L).

Step 4. Final picture.

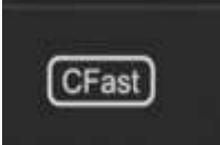


2.5 I/O Interfaces Front View



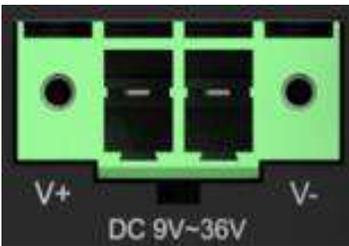
Function	Photo	Description
ANT1.ANT4		Antenna holes for LTE module
ANT2.ANT3		Antenna holes for WIFI module
Power button		Press the power button to turn ON/OFF the system
DI/DO		The Isolation Digital Input / Output
LED indicator		<p>WD LED: Watchdog LED: LED color is Green. Status ON: Watch dog timeout event. Status OFF: Watch dog timeout event.</p> <p>CFast LED: CFast LED: LED color is Green. Status ON: CFast is reading/ Writing data Status OFF: CFast is not working</p> <p>U1~U4 LED: U1~U2 color is RED, U3~U4 color is Yellow. U1~ U4 LED: Programmable Status: ON/Blink/OFF/</p>

Audio		Audio Jack for Mic-In, Line-In and Line-Out																																																		
LAN		Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel® I210-IT GbE Ethernet ContN NNroller																																																		
USB		Support six USB (Universal Serial Bus) ports, four USB 3.2 Gen1 and two USB 3.2 Gen 2.																																																		
COM		<p>Support 4x COM ports, COM1~COM3 default is RS-232, COM4 default is RS-232 (1x RS-232/422/485, CANBUS (2.0 A/B) selected by on board jumper)</p> <table border="1" data-bbox="738 958 1219 1319"> <thead> <tr> <th>Pin</th> <th>RS-232</th> <th>RS-422</th> <th>RS-485</th> <th>CANBUS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DCD#</td> <td>TX-</td> <td>D-</td> <td>-</td> </tr> <tr> <td>2</td> <td>RXD</td> <td>TX+</td> <td>D+</td> <td>CAN_L</td> </tr> <tr> <td>3</td> <td>TXD</td> <td>RX+</td> <td>NA</td> <td>CAN_H</td> </tr> <tr> <td>4</td> <td>DTR</td> <td>RX-</td> <td>NA</td> <td>-</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> <td>-</td> </tr> <tr> <td>6</td> <td>DSR</td> <td>NA</td> <td>NA</td> <td>-</td> </tr> <tr> <td>7</td> <td>RTS</td> <td>NA</td> <td>NA</td> <td>-</td> </tr> <tr> <td>8</td> <td>CTS</td> <td>NA</td> <td>NA</td> <td>-</td> </tr> <tr> <td>9</td> <td>RI</td> <td>NA</td> <td>NA</td> <td>-</td> </tr> </tbody> </table>	Pin	RS-232	RS-422	RS-485	CANBUS	1	DCD#	TX-	D-	-	2	RXD	TX+	D+	CAN_L	3	TXD	RX+	NA	CAN_H	4	DTR	RX-	NA	-	5	GND	GND	GND	-	6	DSR	NA	NA	-	7	RTS	NA	NA	-	8	CTS	NA	NA	-	9	RI	NA	NA	-
Pin	RS-232	RS-422	RS-485	CANBUS																																																
1	DCD#	TX-	D-	-																																																
2	RXD	TX+	D+	CAN_L																																																
3	TXD	RX+	NA	CAN_H																																																
4	DTR	RX-	NA	-																																																
5	GND	GND	GND	-																																																
6	DSR	NA	NA	-																																																
7	RTS	NA	NA	-																																																
8	CTS	NA	NA	-																																																
9	RI	NA	NA	-																																																
EXT PWR BTN		It is for remote system ON/OFF control.																																																		
DC In		Provide power connection of the system to the main power source via DC power cable or AC/DC power adapter.																																																		
SIM slot		Support 2x Nano SIM Card slots																																																		

CFast		Support 1x CFast card slot
HDMI1		HDMI 1.4 display output
HDMI2		HDMI 2.0 display output
DP		DP (Display Port) 1.2 display output
HDD		Two removable 2.5" SSD trays for storage installation

2.6 Getting Started

It is easy to get the system started.

Step 1. Make sure the power supply (9~36V) is connected properly	Step 2. Press the power button to turn on the system
	

Chapter 3 BIOS Setup Information

The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

3.1 Entering Setup

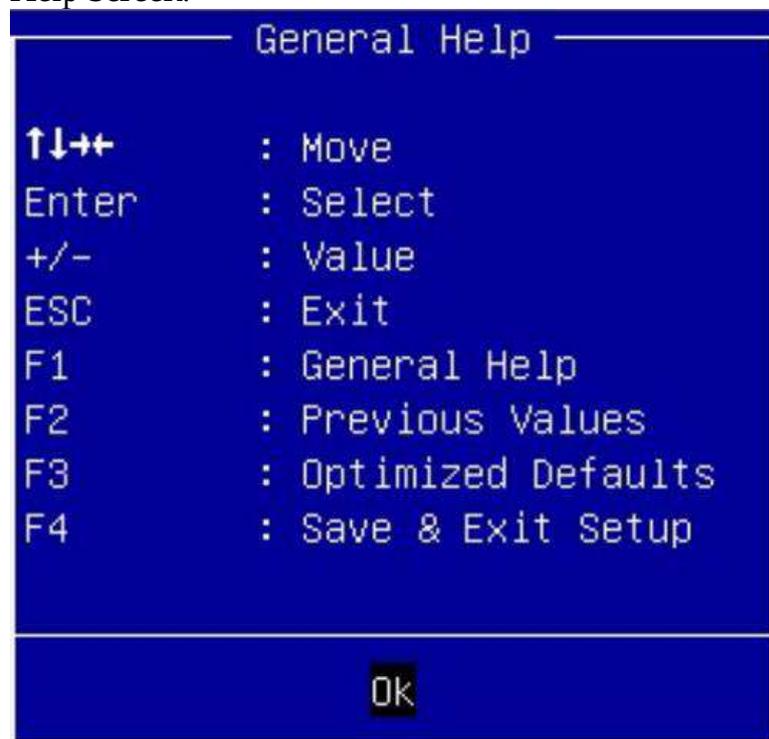
Power on the computer and the system will start POST (Power on Self Test) process. When the message below appears on the screen, press <Delete> or <ESC> key will enter BIOS setup screen.

Press<Delete> or <ESC> to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

Press <F1> to Run General Help or Resume

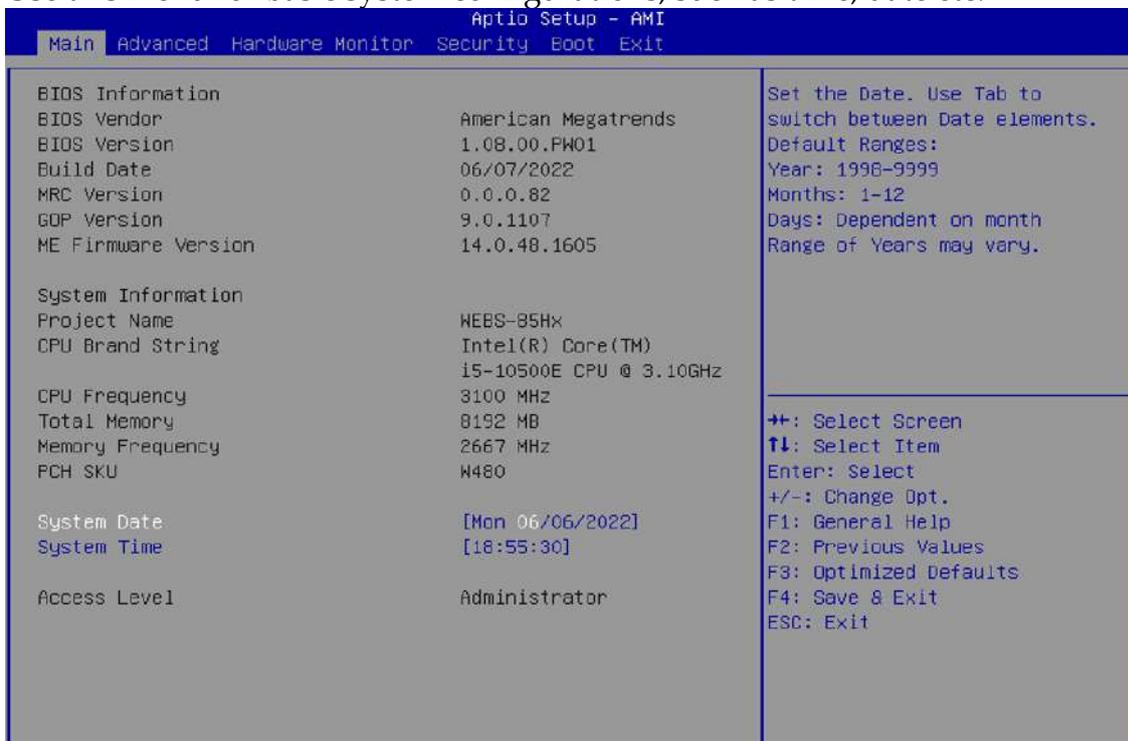
The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help Screen.



3.2 Main

3.2.1 Main

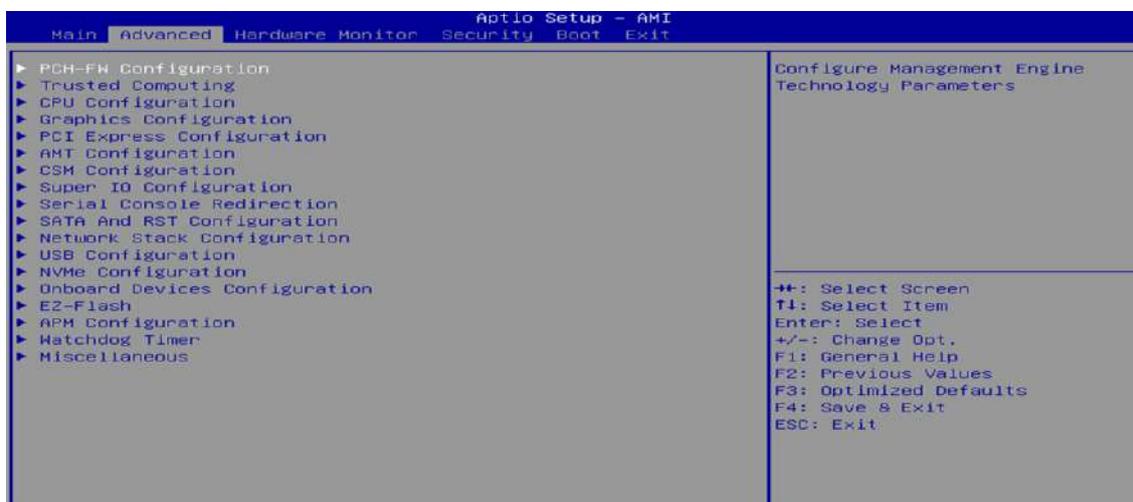
Use this menu for basic system configurations, such as time, date etc.



Feature	Description	Options
System Date	The date format is <Day>, <Month> <Date> <Year>. Use [+] or [-] to configure system Date.	
System Time	The time format is <Hour> <Minute> <Second>. Use [+] or [-] to configure system Time.	

3.2.2 Advanced

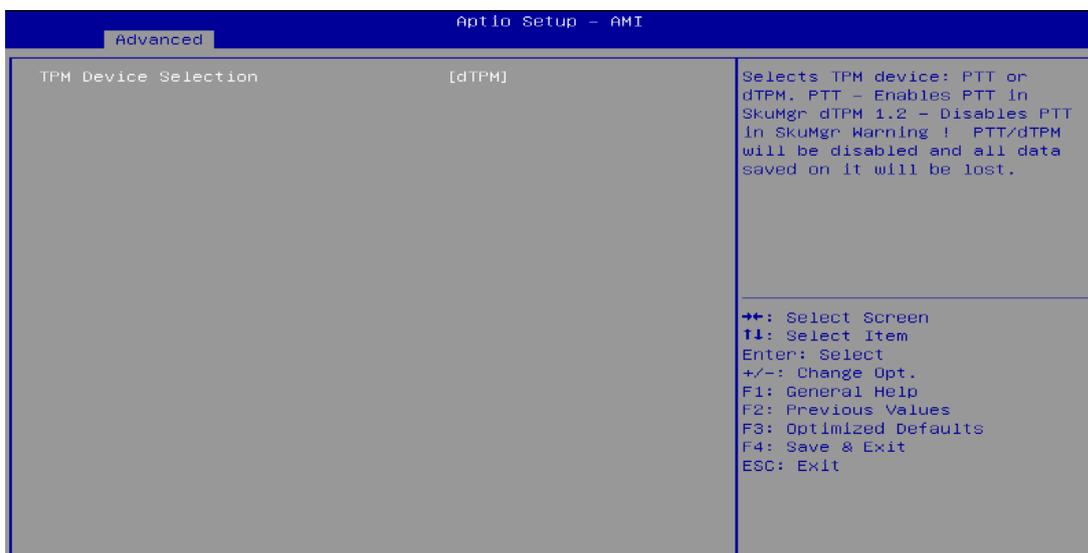
Use this menu to set up the items of special enhanced features



3.3 Configuration

3.3.1 PCH-FW Configuration

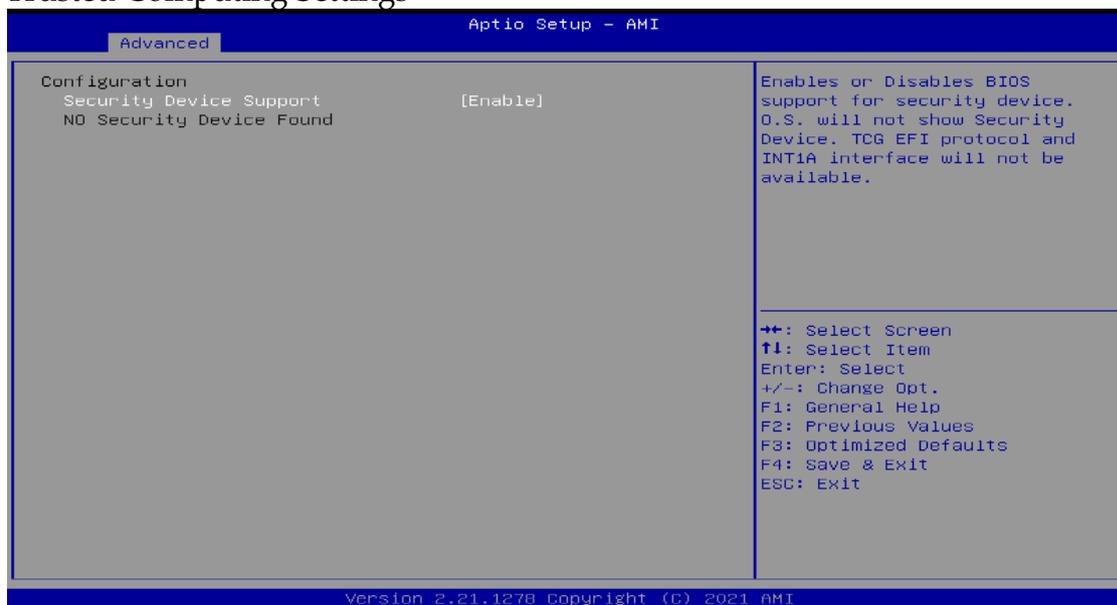
Configure Management Engine Technology Parameters



Feature	Description	Options
TPM Device Selection	Selects TPM device: PTT or dTPM. PTT-Enable PTT in SkuMgr dTPM1.2 -Disables PTT in SkuMgr Warning! PTT/dTPM will be disabled and all data saved on it will be lost.	★dTPM , PTT

Trusted Computing

Trusted Computing Settings



Feature	Description	Options
Security Device Support	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.	★Enable, Disable

3.3.2 CPU Configuration

CPU Configuration Parameters

Aptio Setup - AMI

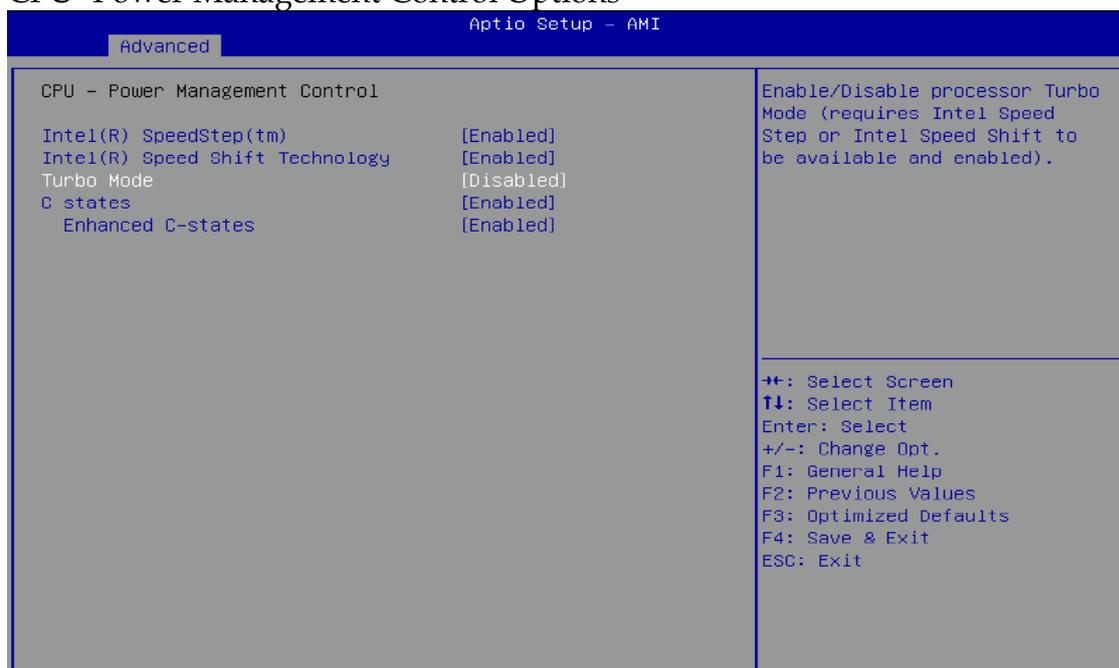
Advanced

CPU Configuration		When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
Type	Intel(R) Core(TM) i5-10500E CPU @ 3.10GHz	
ID	0xA0654	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Speed	3100 MHz	
L1 Data Cache	32 KB × 6	
L1 Instruction Cache	32 KB × 6	
L2 Cache	256 KB × 6	
L3 Cache	12 MB	
L4 Cache	N/A	
VMX	Supported	
SMX/TXT	Supported	
Intel (VMX) Virtualization Technology	[Enabled]	
Hyper-Threading	[Enabled]	
Intel Trusted Execution Technology	[Disabled]	
VT-d	[Enabled]	
▶ CPU - Power Management Control		

Feature	Description	Options
Intel (VMX) Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.	★Enabled, Disabled
Hyper-Threading	Enable or Disable Hyper-Threading Technology.	★Enabled, Disabled
Intel Trusted Execution Technology	Enables utilization of additional hardware capabilities provided by Intel(R) Trusted Execution Technology. Changes require a full power cycle to take effect.	★Disabled, Enabled
VT-d	VT-d capability	★Enabled, Disabled

CPU- Power Management Control

CPU- Power Management Control Options



Feature	Description	Options
Intel(R) SpeedStep(tm)	Allows more than two frequency ranges to be supported.	★Enabled, Disabled
Intel(R) Speed Shift Technology	Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware-controlled P-states.	★Enabled, Disabled
Turbo Mode	Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled)	★Disabled, Enabled
C states	Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.	★Enabled, Disabled
Enhanced C-states	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.	★Enabled, Disabled

3.3.3 Graphics Configuration

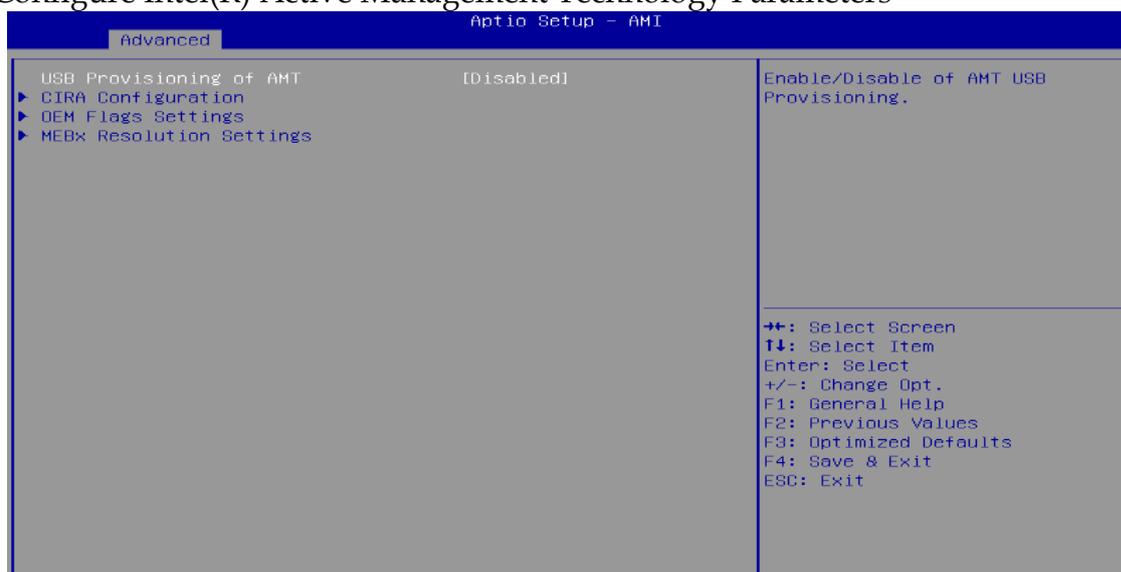
System Agent (SA)Parameters

Advanced		Aptio Setup - AMI
Graphics Configuration		Select which of IGFX/PEG/PCIE Graphics device should be Primary Display.
Primary Display	[Auto]	
Internal Graphics	[Auto]	
RC6(Render Standby)	[Enabled]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Feature	Description	Options
Primary Display	Select which of IGFX/PEG/PCIE Graphics device should be Primary Display.	★Auto, IGFX, PCIE, PEG
Internal Graphics	Keep IGFX enabled based on the setup options.	★Auto, Disabled, Enabled
RC6 (Render standby)	Check to enable render standby support.	★Enabled, Disabled

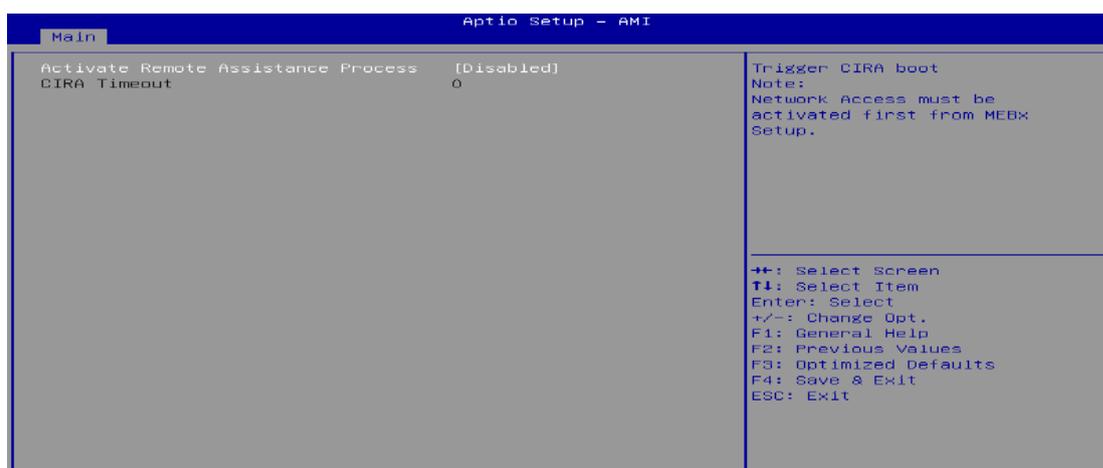
3.3.4 AMT Configuration

Configure Intel(R) Active Management Technology Parameters



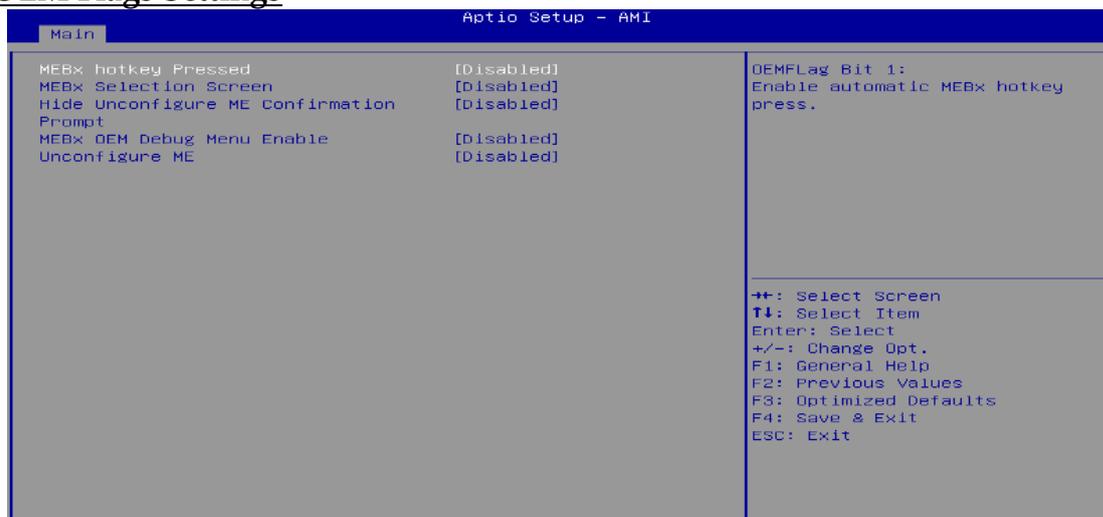
Feature	Description	Options
USB Provisioning of AMT	Enable/Disable of AMT USB Provisioning.	★Disabled, Enable
CIRA Configuration	Configure Remote Assistance Process parameters.	
OEM Flags Settings	Configure OEM Flags	
MEBx Resolution Settings	Resolution settings for MEBx display modes.	

3.3.5 CIRA Configuration



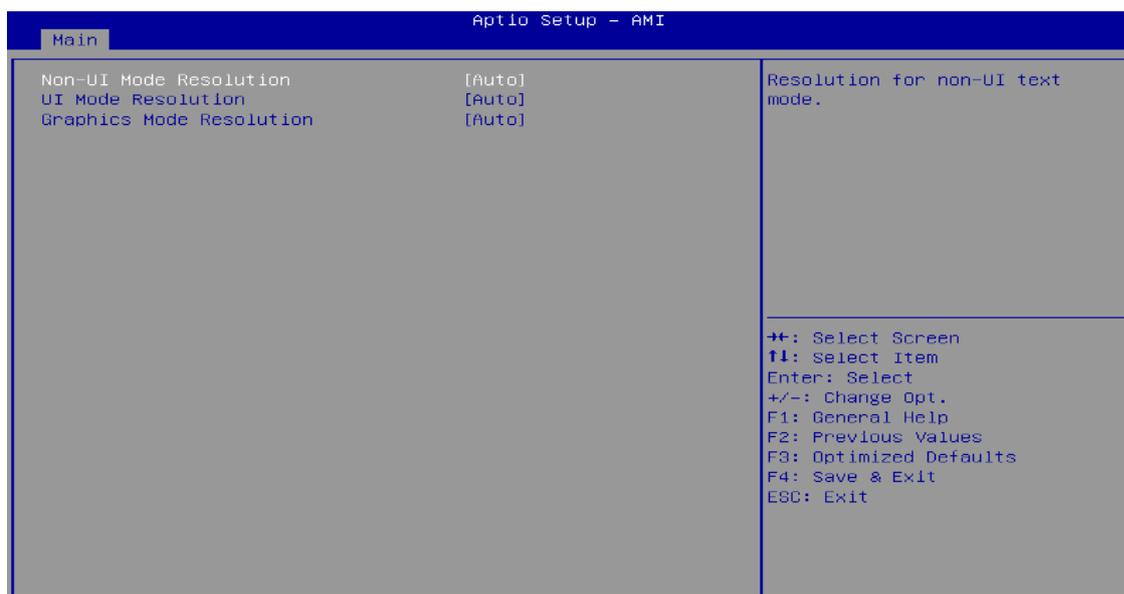
Feature	Description	Options
Active Remote Assistance Process	Trigger CIRA boot. Note: Network Access must be activated first from MEBx Setup.	★Disabled, Enable
CIRA Timeout	OEM defined timeout for MPS connection to be established. 0 - use the default timeout value of 60 seconds. 255 - MEBx waits until the connection succeeds.	★0

OEM Flags Settings



Feature	Description	Options
MEBx hotkey Pressed	OEMFlag Bit 1: Enable automatic MEBx hotkey press.	★Disabled, Enable
MEBx Selection Screen	OEMFlag Bit 2: Enable MEBx selection screen with 2 options: Press 1 to enter ME Configuration Screens Press 2 to initiate a remote connection Note: Network Access must be activated from MEBx Setup for this screen to be displayed.	★Disabled, Enable
Hide Unconfigure ME Confirmation Prompt	OEMFlag Bit 6: Hide Unconfigure ME confirmation prompt when attempting ME unconfiguration.	★Disabled, Enable
MEBx OEM Debug Menu Enable	OEMFlag Bit 14: Enable OEM debug menu in MEBx.	★Disabled, Enable
Unconfigure ME	OEMFlag Bit 15: Unconfigure ME with resetting MEBx password to default.	★Disabled, Enable

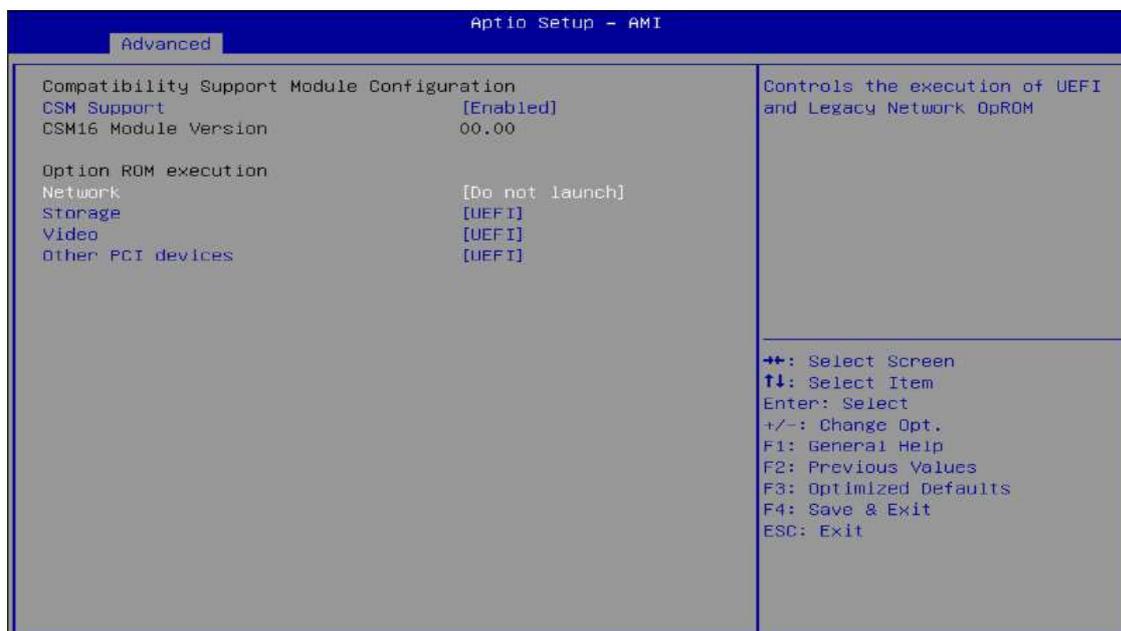
MEBx Resolution Settings



Feature	Description	Options
Non-UI Mode Resolution	Resolution for non-UI text mode.	★Auto, 80x25, 100x31
UI Mode Resolution	Resolution for UI text mode.	★Auto, 80x25, 100x31
Graphics Mode Resolution	Resolution for graphics mode.	★Auto, 640x480, 800x600, 1024x768

3.3.6 CSM Configuration

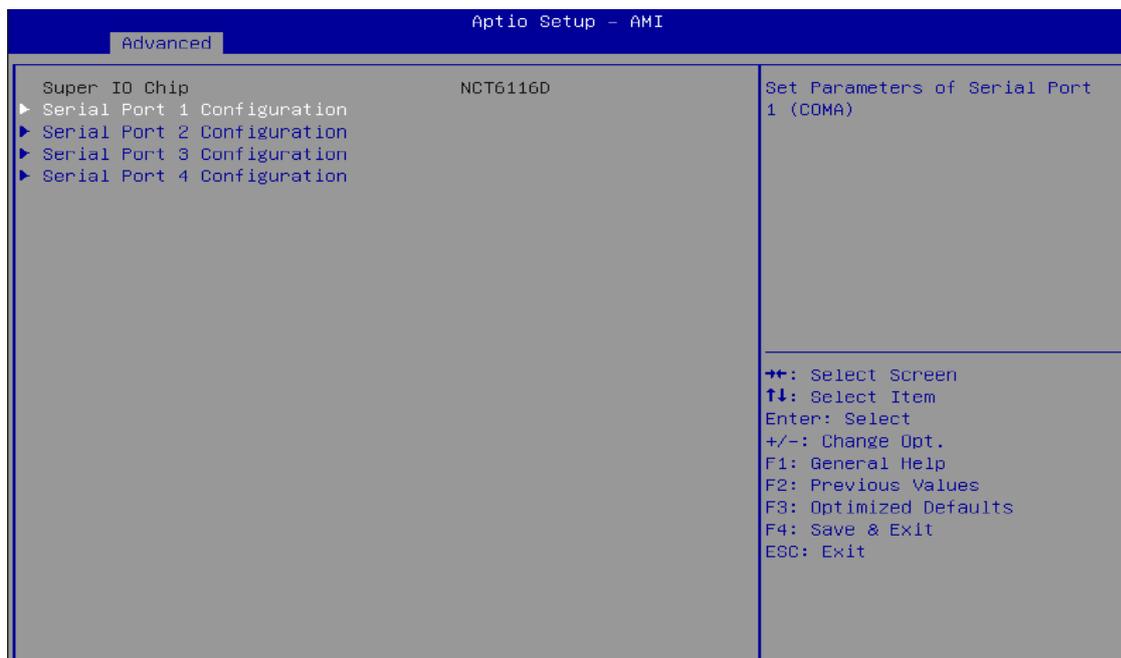
CSM Configuration: Enable/Disable, Option ROM execution settings, etc.



Feature	Description	Options
CSM Support	Enable/Disable CSM Support	★Disable, Enabled
CSM Support [Enable]		
Network	Controls the execution of UEFI and Legacy Network OpROM.	★Do not launch, UEFI, Legacy
Storage	Controls the execution of UEFI and Legacy Storage OpROM	★UEFI, Do not launch, Legacy
Video	Controls the execution of UEFI and Legacy Video OpROM	★UEFI, Do not launch, Legacy
Other PCI device	Determines OpROM execution policy for devices other than Network, Storage, or Video	★UEFI, Do not launch, Legacy

3.3.7 Super IO Configuration

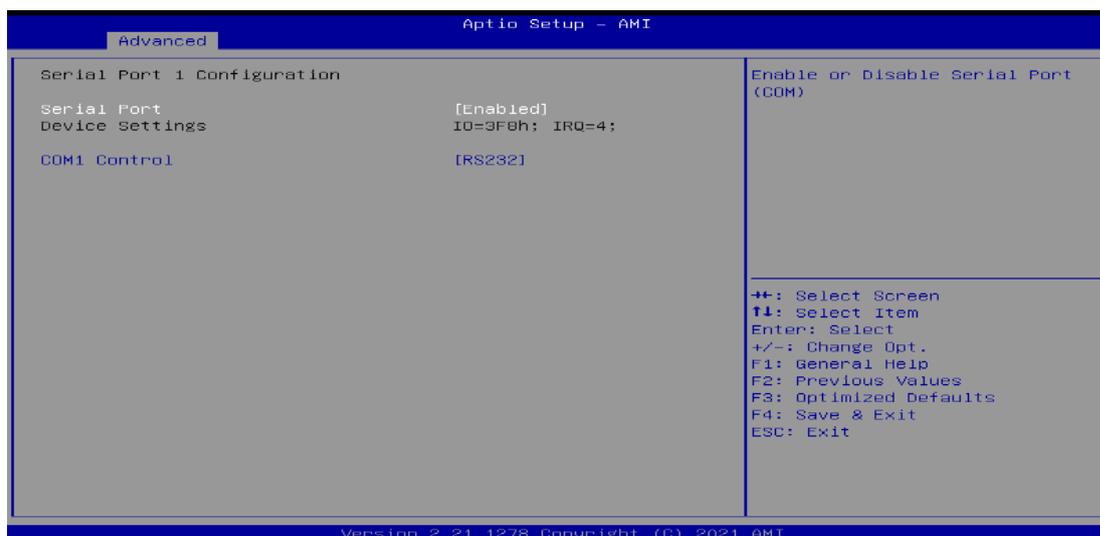
Super IO Configuration



Feature	Description	Options
Serial Port 1 Configuration	Set Parameters of Serial Port1(COMA)	
Serial Port 2 Configuration	Set Parameters of Serial Port2(COMB)	
Serial Port 3 Configuration	Set Parameters of Serial Port3(COMC)	
Serial Port 4 Configuration	Set Parameters of Serial Port4(COMD)	

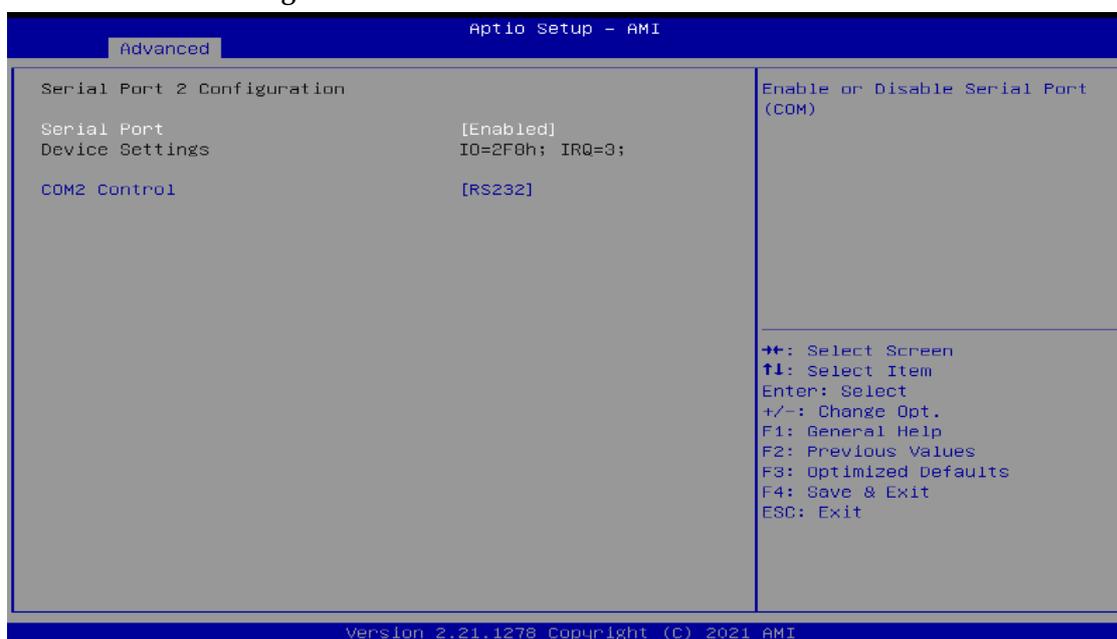
3.3.8 Serial Port Configuration

■ Serial Port 1 Configuration



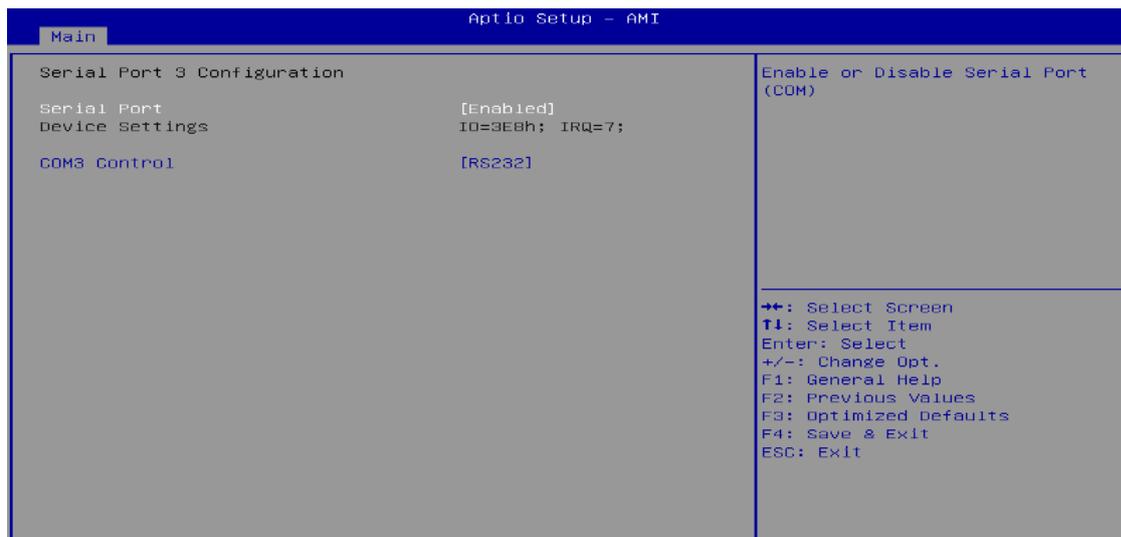
Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
COM1 Control	Select COM1 mode. RS232, RS422 or RS485	★RS232,RS422, RS485

■ Serial Port 2 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
COM2 Control	Select COM2 mode. RS232, RS422 or RS485	★RS232, RS422, RS485

■ **Serial Port 3 Configuration**



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
COM3 Control	Select COM3 mode, RS232, RS422 or RS485	★RS232, RS422, RS485

■ **Serial Port 4 Configuration**



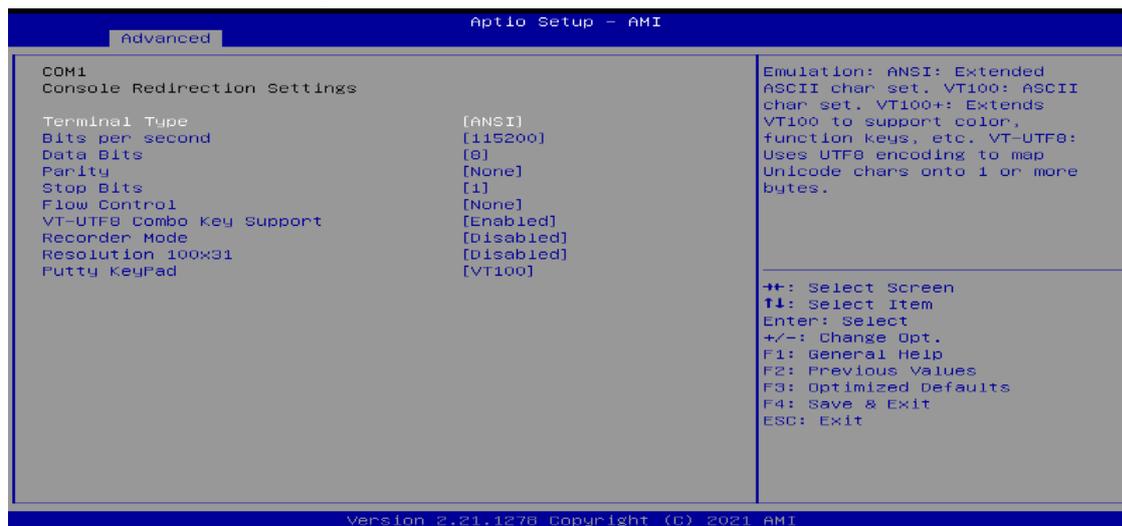
Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
COM4 Control	Select COM4 mode, RS232, RS422 or RS485	★RS232, RS422, RS485

Serial Console Redirection

Serial Console Redirection

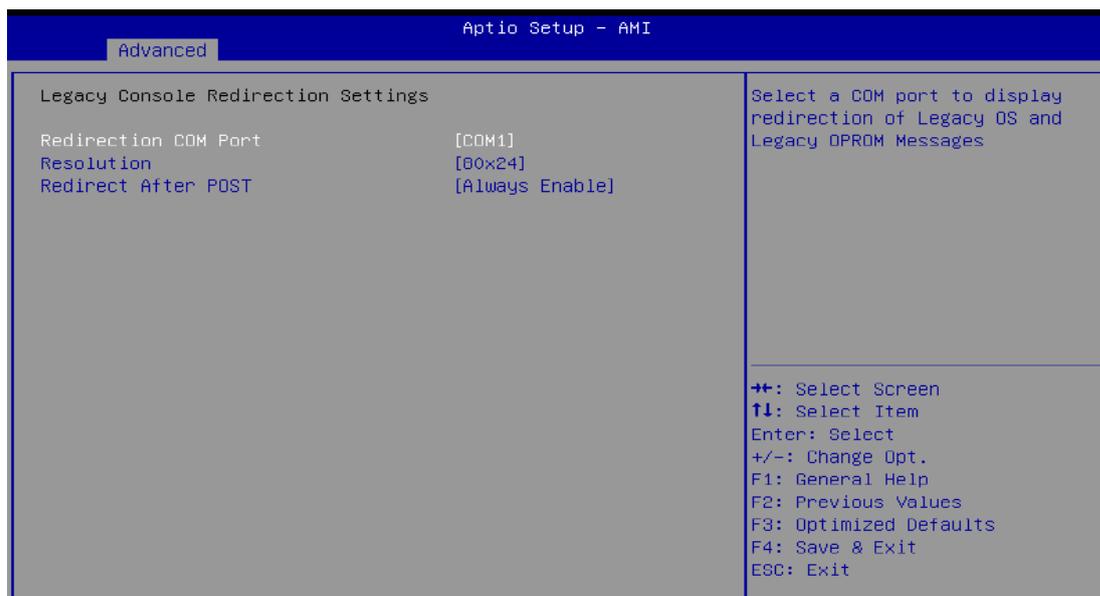


Feature	Description	Options
Console Redirection	Console Redirection Enable or Disable	★Disabled, Enabled
Console Redirection [Enabled]		
Console Redirection Settings	The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.	
Legacy Console Redirection Settings	Legacy Console Redirection Settings	

Console Redirection Settings

Feature	Description	Options
Terminal Type	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.	★ANSI, VT100, VT100+, VT-UTF8
Bits per second	Select Serial port transmission speed. The speed must be matched on other side. Long or noisy lines may require lower speeds.	★115200, 9600, 19200, 38400, 57600
Data bits	Data bits	★8, 7
Parity	A parity bit can be sent with the data bits to detect some transmission errors. Even: 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. They can be used as an additional data bit.	★None, Even, Odd, Mark, Space
Stop Bits	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.	★1,2
Flow Control	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.	★None, Hardware RTS/CTS
VT-UTF8 Combo Key Support	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	★Enabled, Disabled
Recorder Mode	With this mode enabled only text will be sent. This is to capture Terminal data.	★Disabled, Enabled
Resolution 100x31	Enables or disables extended terminal resolution	★Disabled, Enabled
Putty KeyPad	Select FunctionKey and KeyPad on Putty	★VT100, LINUX, XTERMR6, SCO, ESCN, VT400

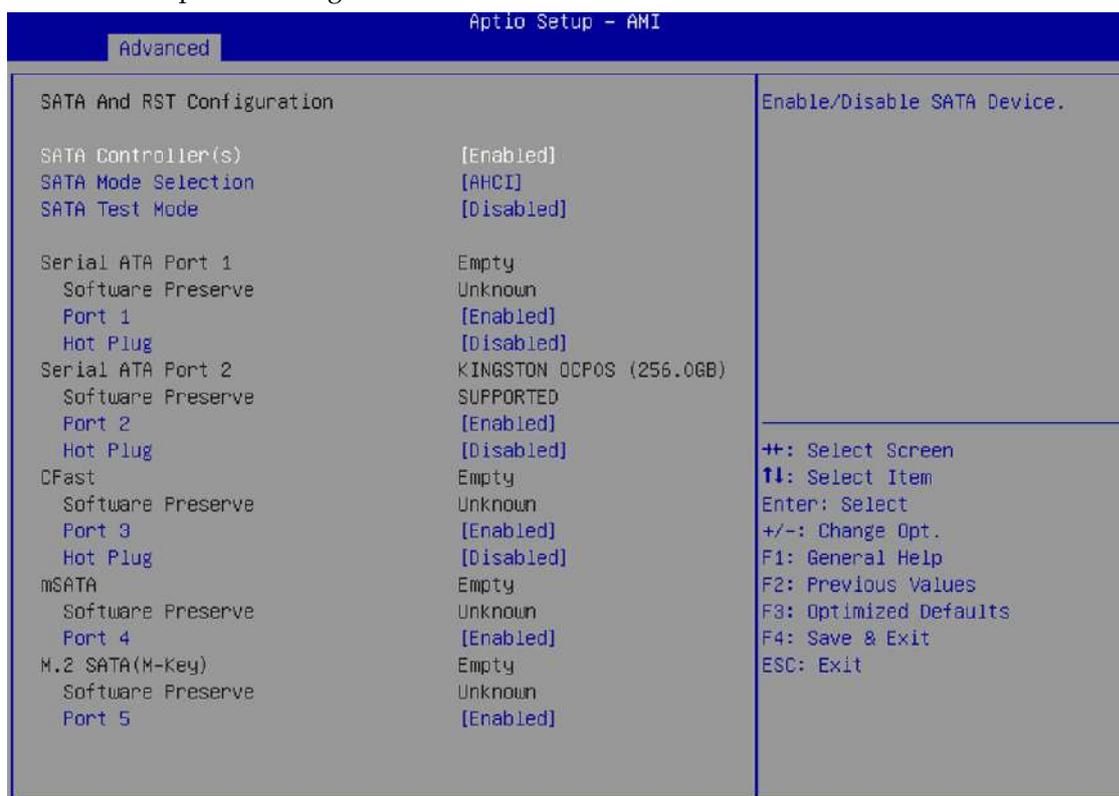
Legacy Console Redirection Settings



Feature	Description	Options
Redirection COM Port	Select s COM port to display redirection of Legacy OS and Legacy OPRM Messages.	★COM1, COM2, COM3, COM4
Resolution	On Legacy OS, the number of Rows and Columns supported redirection.	★80X24,80X25
Redirect After POST	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.	★Always Enable, BootLoader

3.3.9 SATA And RST Configuration

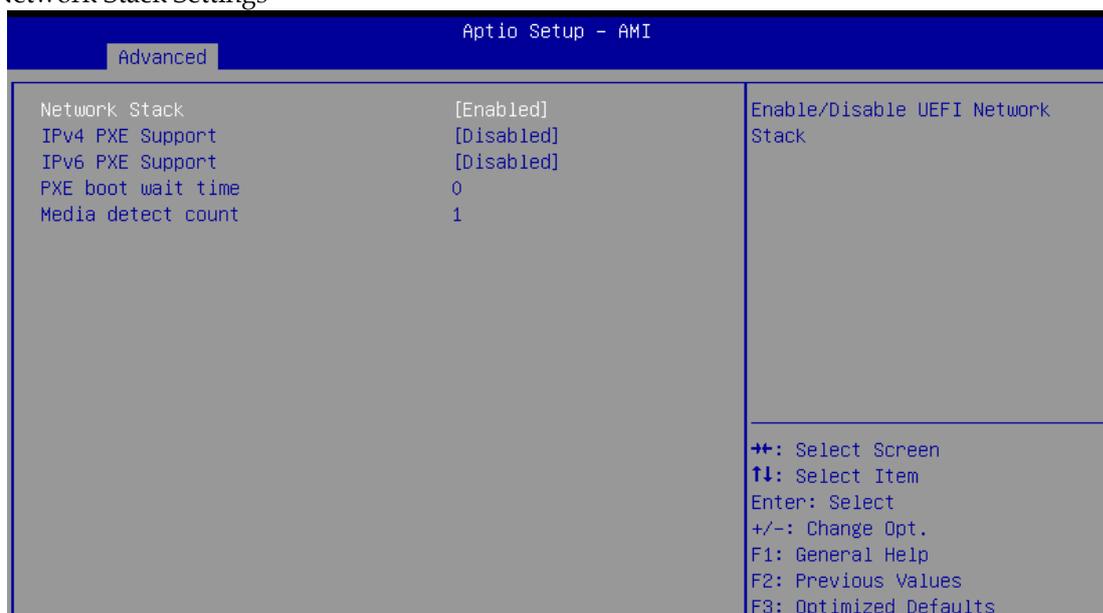
SATA Device Options Settings



Feature	Description	Options
SATA Controller(s)	Enable/disable the SATA controllers.	★Enabled, Disabled
SATA Mode Selection	Determines how SATA controller(s) operate.	★AHCI, Intel RST Premium (RAID)
SATA Test Mode	Test Mode Enable/Disable (Loop Back)	★Disabled, Enabled
Port1~Port5	Enable or Disable SATA Port	★Enabled, Disabled
Hot Plug	Designates this port as Hot Pluggable.	★Disabled, Enabled

3.3.10 Network Stack Configuration

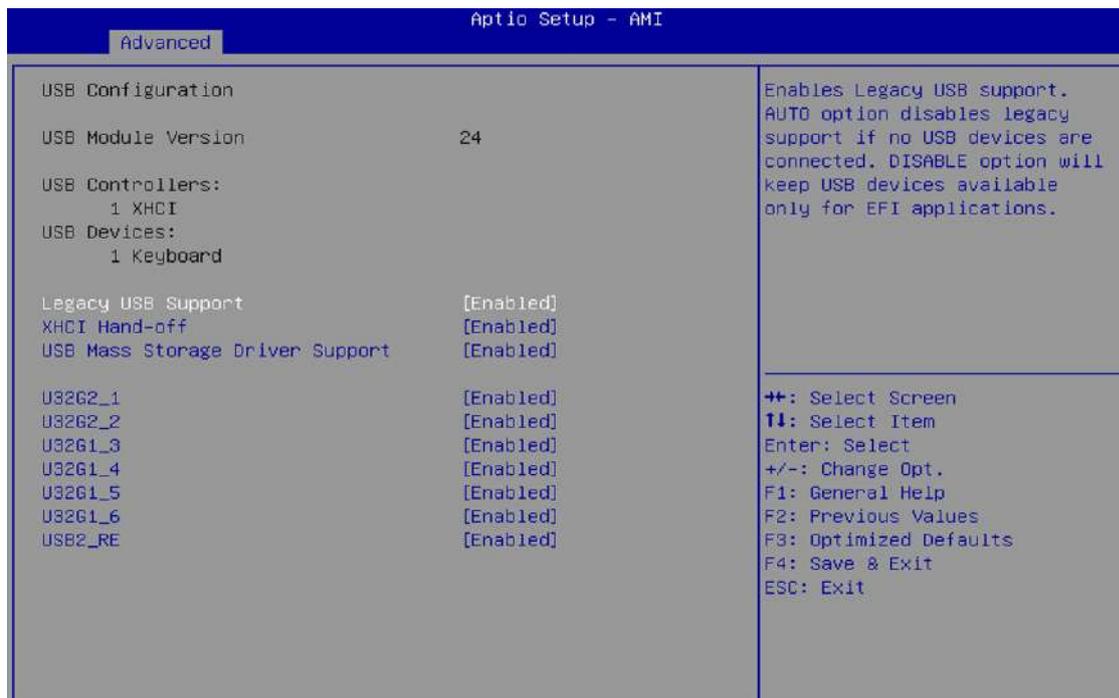
Network Stack Settings



Feature	Description	Options
Network Stack	Enable/ Disable UEFI Network Stack	★Disabled, Enabled
Network Stack [Enabled]		
Ipv4 PXE Support	Enable/Disable IPv4 PXE boot support. If disable, IPv4 PXE boot support will not be available.	★Disabled, Enabled
Ipv6 PXE Support	Enable/Disable IPv6 PXE boot support. If disable, IPv6 PXE boot support will not be available.	★Disabled, Enabled
PXE boot wait time	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.	★0
Media detect count	Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.	★1

3.3.11 USB Configuration

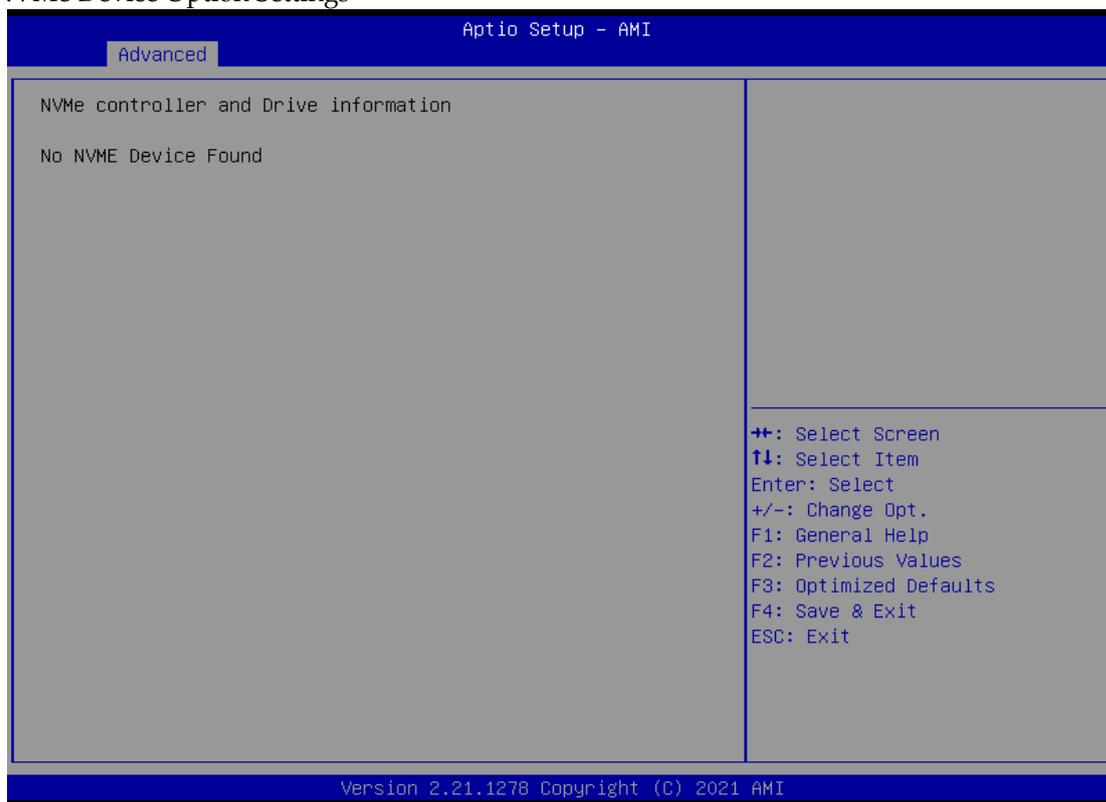
USB Configuration Parameters



Feature	Description	Options
Legacy USB Support	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	★Enabled, Disabled, Auto
XHCI Hand-off	This is a workaround for Oses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver	★Enabled, Disabled
USB Mass Storage Driver Support	Enable/Disable USB Mass Storage Driver Support	★Enabled, Disabled
U32G2_1~ U32G2_2	Enable/Disable this USB Physical Connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
U32G1_3~ U32G1_6	Enable/Disable this USB Physical Connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
USB2_RE	Enable/Disable this USB Physical Connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled

3.3. 12 NVMe Configuration

NVMe Device Option Settings



3.3.13 Onboard Devices Configuration

Onboard Devices Options Settings

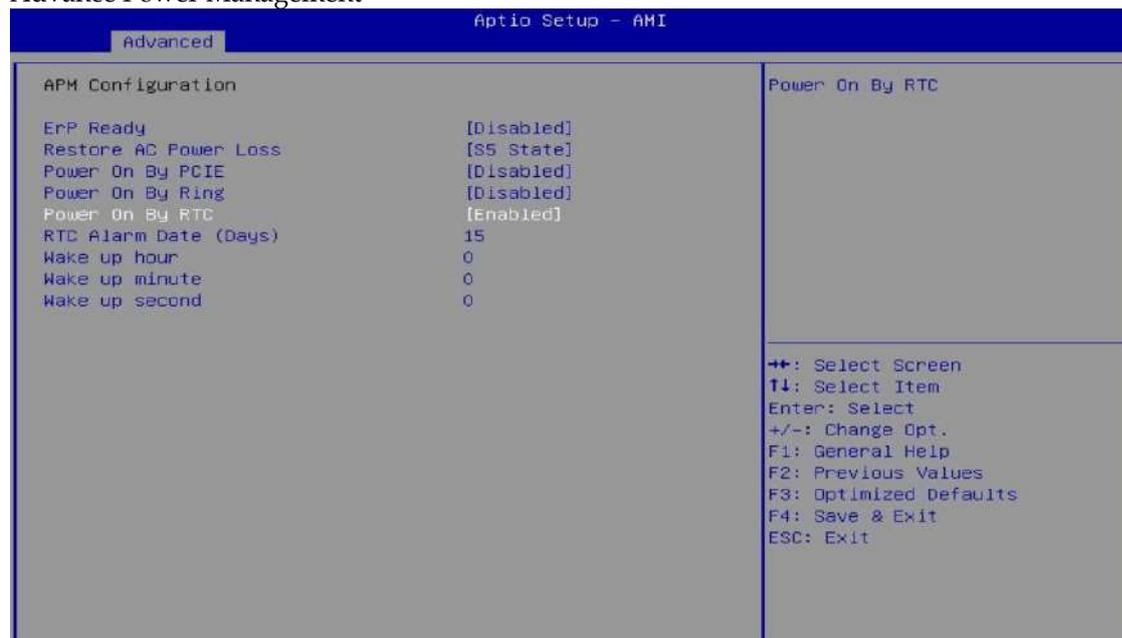


Feature	Description	Options
HD Audio	Control Detection of the HD-Audio device. Disabled= HDA will be unconditionally disabled. Enabled= HDA will be unconditionally enabled.	★Enabled, Disabled
LAN1 I210IT	Enable/Disable LAN1 I210IT	★Enabled, Disabled
Intel LAN1 OPROM	Launch Intel PXE OPROM.	★Disabled, Enabled
LAN2 I210IT	Enable/Disable LAN2 I210IT	★Enabled, Disabled
Intel LAN2 OPROM	Launch Intel PXE OPROM.	★Disabled, Enabled
LAN3 I210IT	Enable/Disable LAN3 I210IT	★Enabled, Disabled
Intel LAN3 OPROM	Launch Intel PXE OPROM.	★Disabled, Enabled
mPCIE PCIE Port	Enable/Disable mPCIE1 Controller	★Enabled, Disabled
mPCIE USB Port	Enable/Disable mPCIE1 Controller	★Enabled, Disabled
M.2 WiFi(E-Key) CNVi Mode	This option configures Connectivity. [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise, Integrated solution (CNVi) will be enabled. [Disable Integrated] disables Integrated Solution.	★Auto Detection, Disable Integrated
M.2 WiFi(E-Key) PCIE Port	Enabled/disabled M.2 WIFI Controller	★Enabled, Disabled
M.2 WiFi(E-Key) USB Port	Enabled/disabled M2_WIFI Controller	★Enabled, Disabled
SIM Slot Selection	Select Nano SIM1 or Nano SIM2	★Nano SIM1, Nano SIM2
I2C Controller	Enables/Disables Serial Io Controller If given device is Function 0PSF disabling is skipped. PSF default will remain and device PCI CFG Space will still be visible. This is needed to allow	★Enabled, Disabled

	PCI enumerator access functions above 0 in a multifunction device.	
SPIO Controller	Enables/Disables Serial Io Controller If given device is Function 0PSF disabling is skipped. PSF default will re-main and device PCI CFG Space will still be visible. This is needed to allow PCI enumerator access functions above 0 in a multifunction device.	★Disabled, Enabled

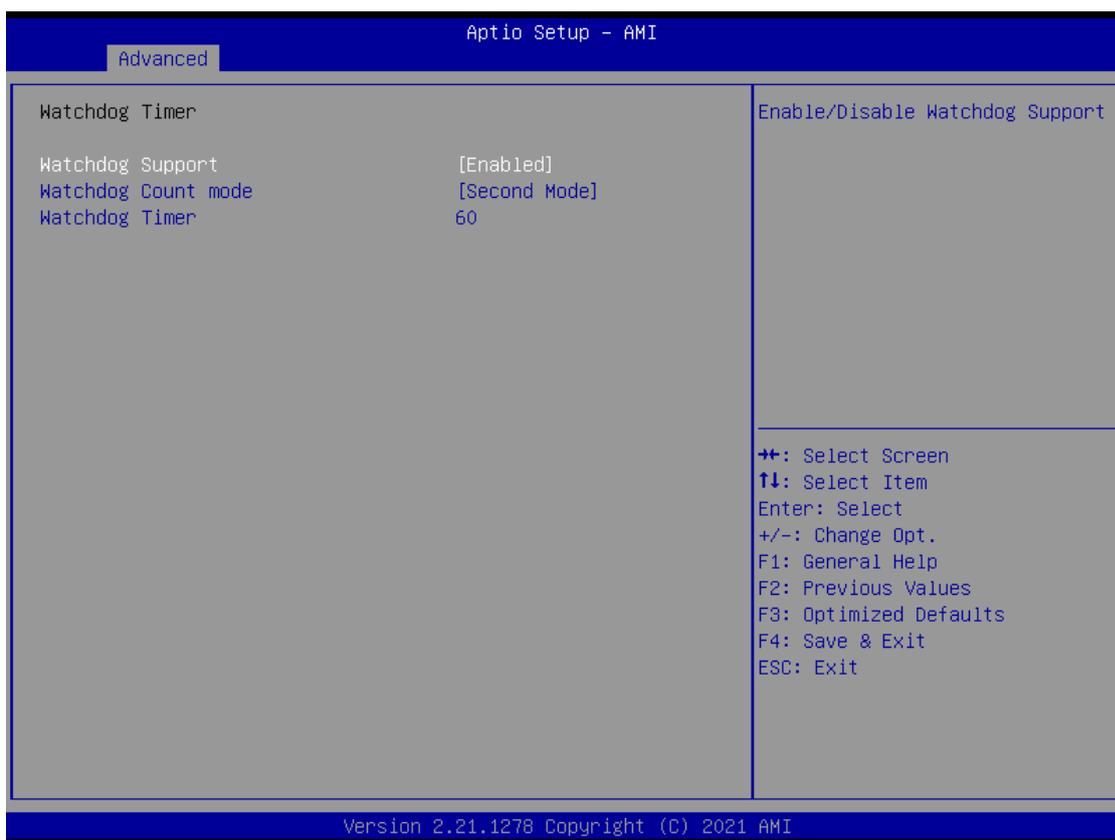
3.3.14 APM Configuration

Advance Power Management



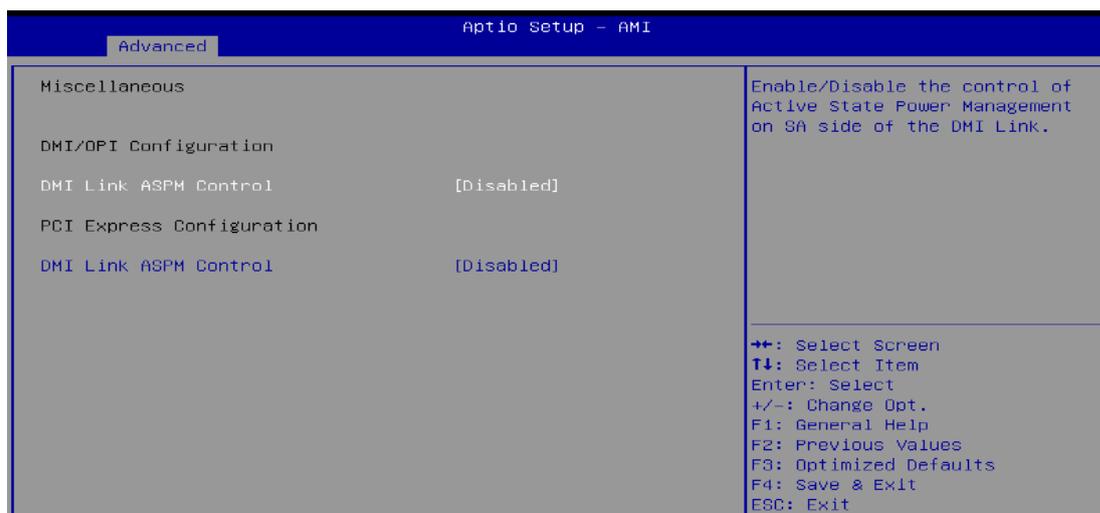
Feature	Description	Options
ErP Ready	Allow BIOS to switch off some power at S4/S5 to get the system ready for ErP requirement. When set to Enabled, all other PME options will be switched off.	★Disabled, Enabled
Restore AC Power Loss	Select AC power state when power is re-applied after a power failure.	★S5 State, S0 State
Power On By PCIE	Enable or disable the Wake-on-LAN function of the onboard LAN controller or other installed PCIE LAN devices.	★Disabled, Enabled
Power On By Ring	Power On By Ring.	★Disabled, Enabled
Power On By RTC	Power On By RTC	★Disabled, Enabled
Power On By RTC[Enable]		
RTC Alarm Date (Days)	RTC Alarm Date (Days). 0: Every Day	★15
Wake up hour	Select 0-23 For example enter 3 for 3am and 15 for 3 pm.	★0
Wake up minute	Select 0-59 for Minute.	★0
Wake up second	Select 0-59 for Second.	★0

Watchdog Timer



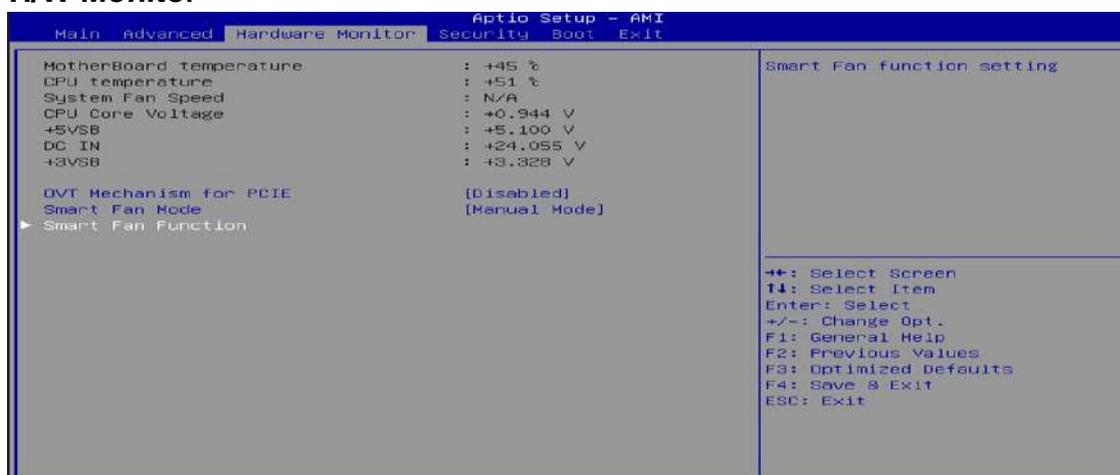
Feature	Description	Options
Watchdog Support	Enable/Disable Watchdog Support.	★Enable, Disabled
Watchdog Count mode	Select Watchdog Timer I count mode.	★Second Mode, Minute Mode
Watchdog Timer	Watchdog Timer I Time-out value.	★60

Miscellaneous



Feature	Description	Options
DMI/OPI Configuration		
DMI Link ASPM Control	Enable/Disable the control of Active State Power Management on SA side of the DMI Link.	★Disabled, L0s, L1, L0sL1
PCI Express Configuration		
DMI Link ASPM Control	The control of Active State Power Management of the DMI Link.	★Disabled, L0s, L1, L0sL1, Auto

H/W Monitor



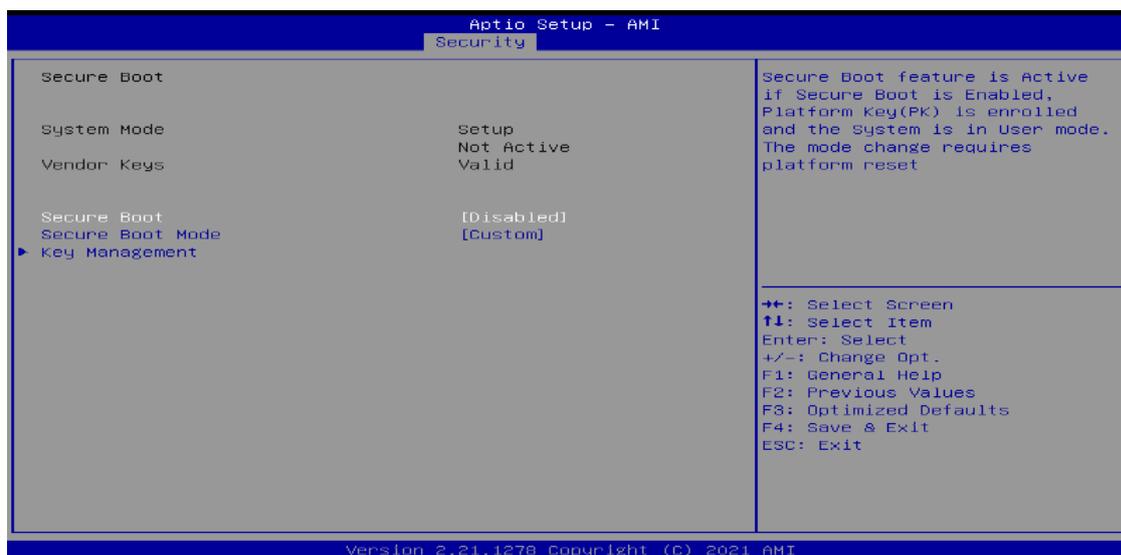
Feature	Description	Options
OVT Mechanism for PCIE	OVT Mechanism for PCIE	★Disabled, Enabled
Smart Fan Mode	Smart Fan Mode Select	★Normal, Manual Mode, Disabled,
Smart Fan Mode [Manual Mode]		
Smart Fan Function	Smart Fan Function setting	

3.4 Security



Feature	Description	Options
Administrator Password	Set Administrator password.	
User Password	Set User Password	

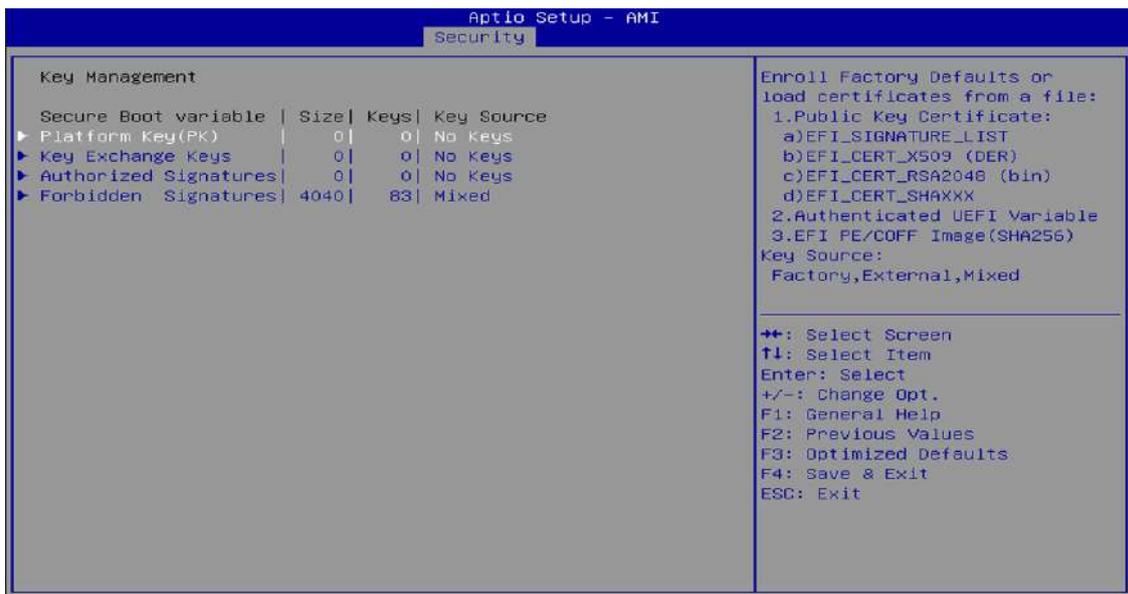
Secure Boot



Secure Boot configuration

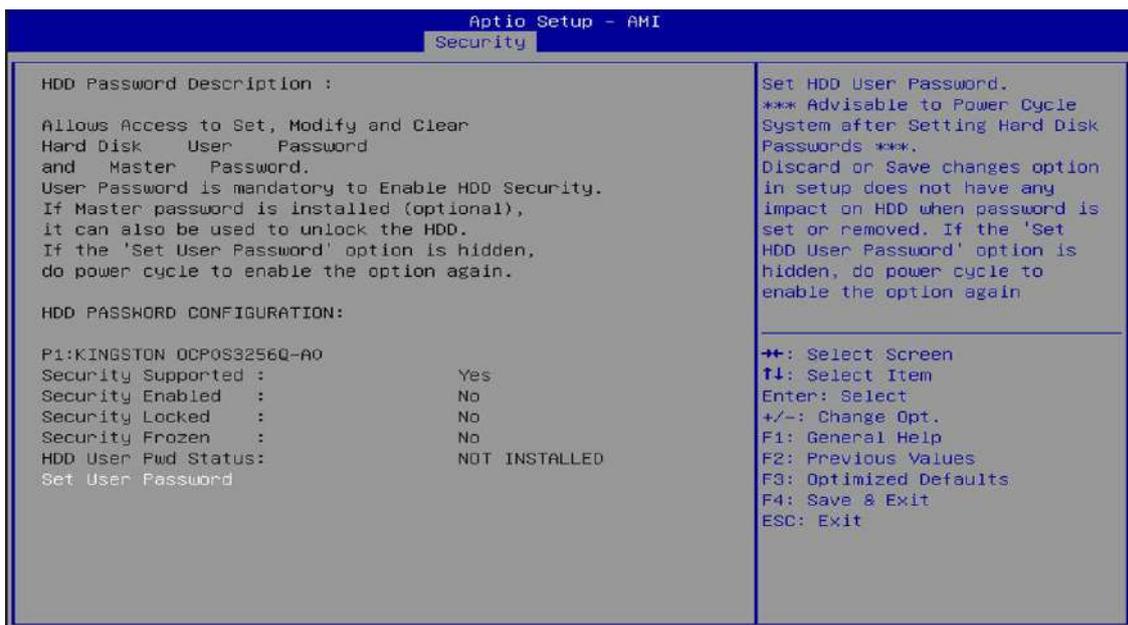
Feature	Description	Options
Secure Boot	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.	★Disabled, Enabled
Secure Boot Mode	Secure Boot Mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication	★Custom, Standard

Key Management

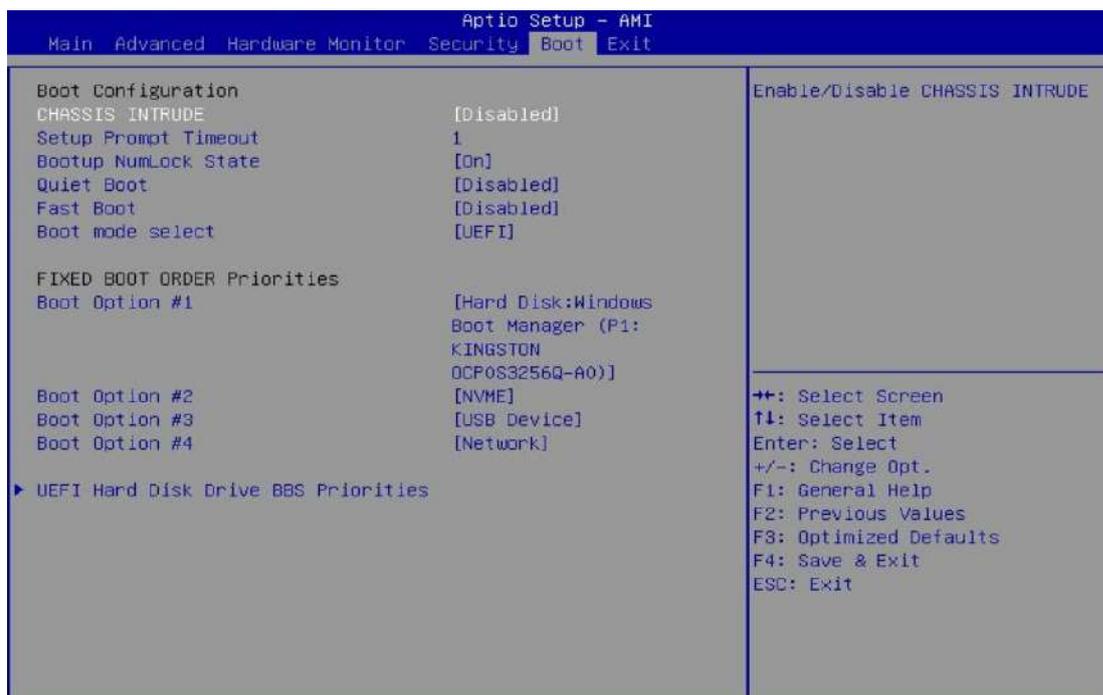


Feature	Description	Options
Platform Key(PK)	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed	
Key Exchange Keys		
Authorized Signatures		
Forbidden Signatures		

HDD Security Configuration



3.5 Boot

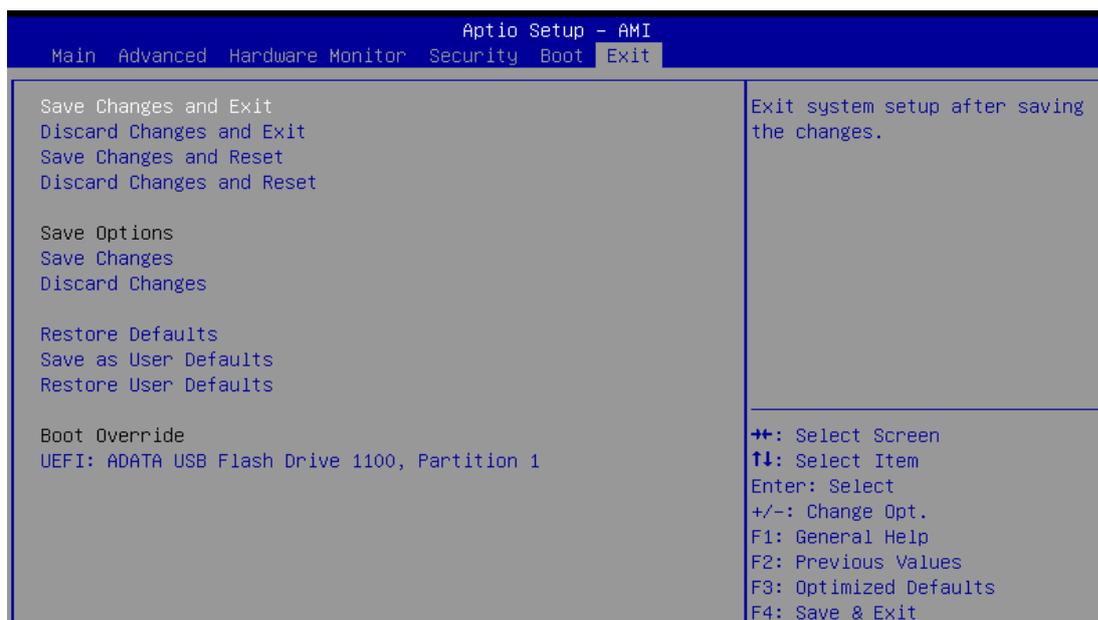


Feature	Description	Options
CHASSIS INTRUDE	Enable/Disable CHASSIS INTRUDE	★Disabled, Enabled
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	★1
Bootup NumLock State	Select the keyboard NumLock state	★On, Off
Quiet Boot	Enables or disables Quiet Boot option	★Disabled, Enabled
Fast Boot	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.	★Disabled, Enabled
Boot mode select	Select boot mode LEGACY/UEFI	★UEFI, LEGACY
Boot Option #1~#4	Sets the system boot order	★Hard Disk, NVME, USB device, Network, Disabled
UEFI Hard Disk Drive BBS Priorities	Specifies the Boot Device Priority sequence from available UEFI Hard Disk Drives.	

UEFI Hard Disk Drive BBS Priorities



3.6 Save & Exit



Feature	Description	Options
Save Changes and Exit	Exit system setup after saving the changes.	
Discard Changes and Exit	Exit system setup without saving any changes.	
Save Changes and Reset	Reset the system after saving the changes.	
Discard Changes and Reset	Rest system setup without saving any changes.	
Save Changes	Save Changes done so far to any of the setup options.	
Discard Changes	Discard Changes done so far to any of the setup options.	
Restore Defaults	Restore/Load Default values for all the setup options.	
Save as Use Defaults	Save the changes done so far as User Defaults	
Restore User Defaults	Restore the User Defaults to all the setup options.	

Chapter 4 Important Instructions

This chapter includes instructions which must be carefully followed when the fan-less embedded system is used.

4.1 Note on the Warranty

Due to their limited-service life, parts which, by their nature, are especially subject to wear are not included in the guarantee beyond the legal stipulations.

4.2 Exclusion of Accident Liability Obligation

Portwell, Inc. shall be exempt from the statutory accident liability obligation if users fail to abide by the safety instructions.

4.3 Liability Limitations / Exemption from the Warranty Obligation

In the event of damage to the system unit caused by failure to abide by the hints in this manual and on the unit (especially the safety instructions), Portwell, Inc. shall not be required to respect the warranty even during the warranty period and shall be free from the statutory accident liability obligation.

4.4 Declaration of Conformity

CE/FCC Class A

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

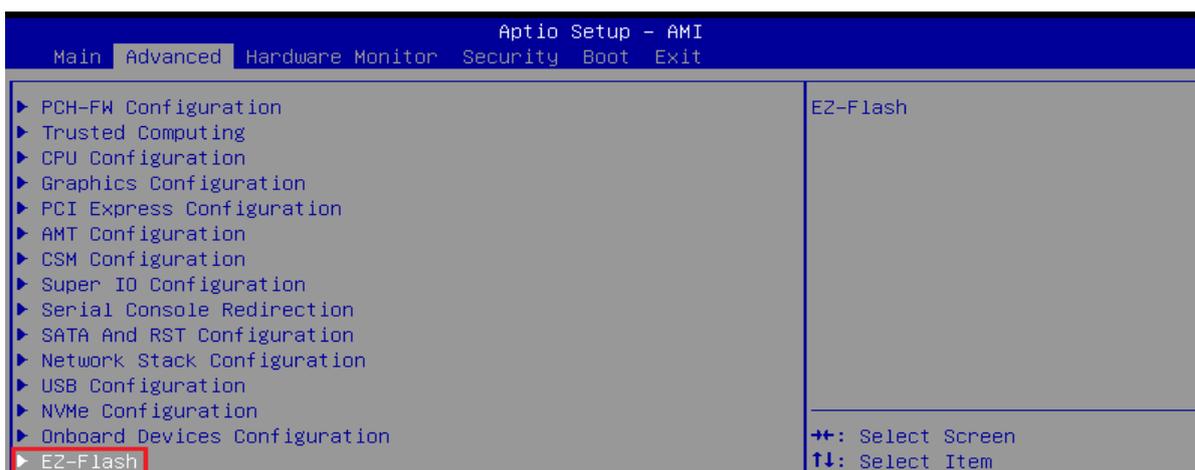
Applicable Standards:

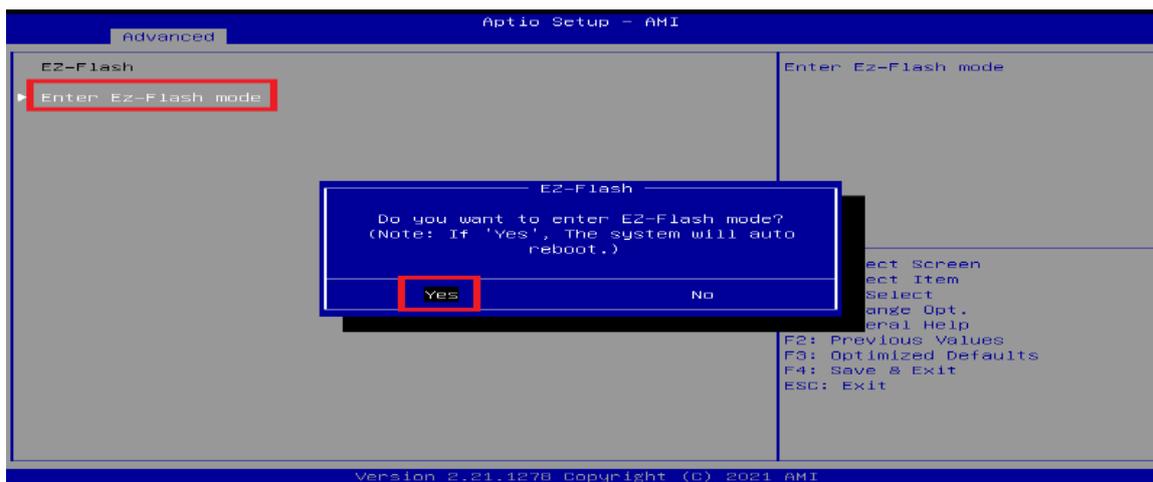
EN IEC 61000-6-2: 2019
EN IEC 61000-6-4 : 2019
EN IEC 61000-3-2: 2019
EN 61000-3-3:2013+A1:2019
EN 55032: 2015 + A11: 2020
EN 55035: 2017 + A11: 2020
EN IEC 61000-3-2: 2019
EN IEC 62328-1:2020+A11:2020
EN 61000-3-3: 2013 + A1: 2019
BS EN 55032: 2015+A11:2020
BS EN 55035: 2017+A11:2020
BS EN IEC 61000-3-2:2019
BS EN 61000-3-3:2013+A1:2019
BS EN IEC 62328-1:2020+A11:2020
FCC 47 CFR PART 15 SUBPART B ANSI C63.4:2014
IECS-003: Issue 7
ANSI C63.4-2014 amended as per ANSI C63.4a-2017

Chapter 5 Frequent Asked Questions

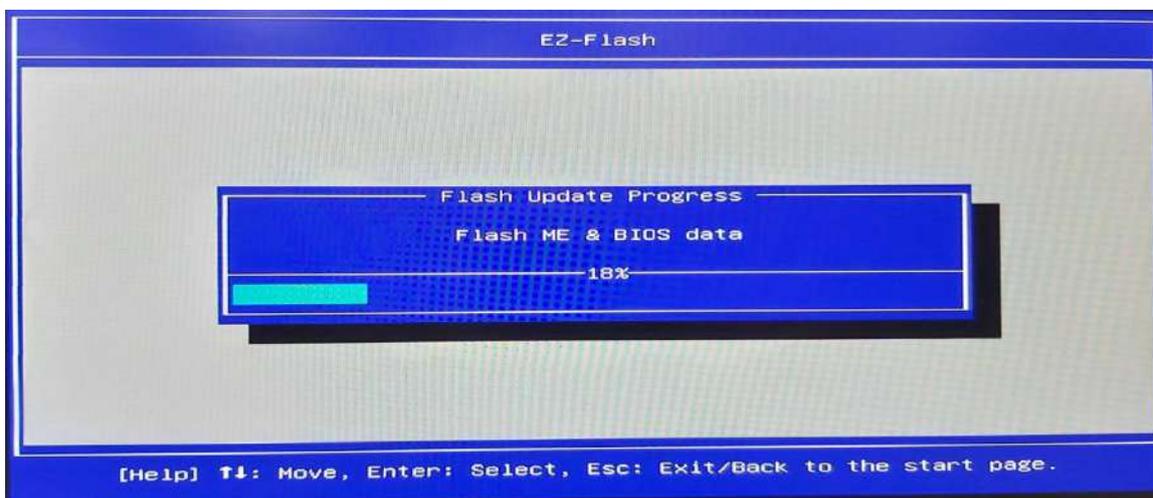
Question: How to update the BIOS file of WEBS-85Hx?

- Answer:**
1. Please visit web site of Portwell download center as below hyperlink <https://www.portwell.com.tw/support-center/download-center/>
 2. Select “Search download” and type the keyword “WEBS-85H”.
 3. Find the “BIOS “page and download the ROM file and unzip file to USB flash drive (FAT 32 / 16 format).
 4. Boot into BIOS and switch to “Advanced” page then select” EZ-Flash”.

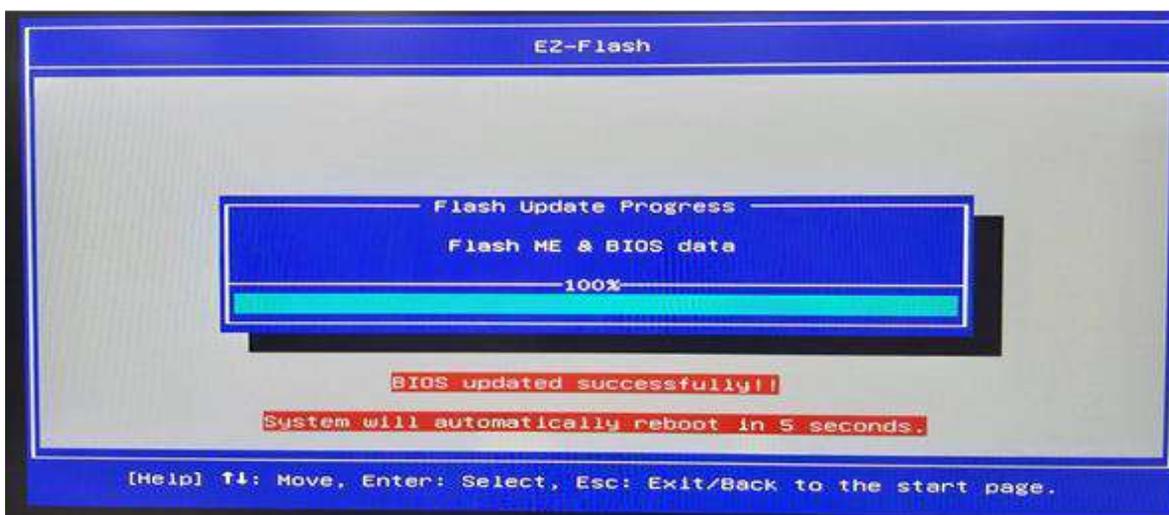




5. Enter EZ-Flash mode, Select the USB Drive and Click the BIOS file then start updating BIOS.



6. When you see the “BIOS updated successfully” message, which means the BIOS update processes finished. Please cut the AC power of and wait for 10 seconds before powering on.



Question: What are the display options while using WEBS-85Hx?

Answer: - The WEBS-85Hx supports HDMIx2、DP display output.

Note:

Please visit our Download Center to get the Catalog, User manual, BIOS, and Driver files.

<https://www.portwell.com.tw/support-center/download-center/>

If you have other additional technical information or request which is not covered in this manual, please fill in the technical request form as below hyperlink.

<https://www.portwell.com.tw/support-center/technical-request/>

We will do our best to provide a suggestion or solution for you.

Portwell Software Service

1. If you have customized requirements of BIOS, you can contact person of our company or branch.
2. If you have requirements of WDT、GPIO APP, you can contact our headquarter or branch, and we can render your assistance on developing.

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