



MITAC COMPUTING TECHNOLOGY CORP.

# PD11TGS

## User Manual **v1.0**



### **E**Embedded 3.5" SBC

Intel® Tiger Lake-UP3 Core-i/Celeron Processors  
Performance, Versatile, and Reliable

## PREFACE



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### Declaration of Conformity

	<b>FCC</b> This equipment has been tested and found to comply with the limits for a class "A" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. 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 him own expense.
	<b>CE</b> This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

### Safety Information

	<p><b>WARNING! / AVERTISSEMENT!</b></p> <p>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.</p>
	<p><b>CAUTION/ATTENTION</b></p> <p>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.</p>

## Safety Precautions

For your safety, please carefully read all the safety instructions before using the device. All cautions and warnings on the equipment should be noted. Keep this user manual for future reference.

**\*Let service personnel to check the equipment in case any of the following problems appear:**

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well or you cannot get it to work according to the user manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage on the surface.

## Ordering Information

Model Number	CPU Model	Heatsink Configuration
PD11TGS-6305E-HSK	Celeron 6305E	MB + Heatsink
PD11TGS-1115G4E-HSK	i3-1115G4E	MB + Heatsink
PD11TGS-1145G7E-HSK	i5-1145G7E	MB + Heatsink
PD11TGS-1185G7E-HSK	i7-1185G7E	MB + Heatsink

**Packing List**

Item	Description	Q'ty
1	PD11TGS Embedded Motherboard	1
2	SATA Power Cable	1
3	SATA Signal Cable	1

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## INTRODUCTION

This chapter provides the PD11TGS Embedded Motherboard product overview, including features, hardware and mechanical specifications.

# 1

# CHAPTER 1: INTRODUCTION

This chapter provides the PD11TGS Embedded System product overview, including features, hardware, mechanical specifications, and I/O placement.

## 1.1 Overview

MiTAC's PD11TGS embedded motherboard is the next generation embedded system with Intel® 11<sup>st</sup> Gen. (10nm+ manufacturing process) Tiger Lake-UP3 processor which integrates Iris Xe outstanding graphic engine. The excellent graphic performance and performance processor provide the solution for every complicated task and most types of application.

## 1.2 Product Features

PD11TGS Embedded System offers the following features:

- 11<sup>st</sup> Generation Intel® Tiger Lake-UP3 Core™ i7 / i5 / i3 / Celeron Processors
- Integrated Intel® Iris Xe Graphic Engine
- Quadruple Display with HDMI, DisplayPort, and LVDS/eDP (BOM option) Interface
- 8-24V Wide Power Voltage
- 15W TDP: -40 ~ 60°C  
28W TDP: -40 ~ 50°C

\*with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)



## 1.3 Hardware Specification

SYSTEM	
CPU	11 <sup>st</sup> Gen Tiger Lake-UP3 Intel® Core™ i /Celeron ULV Processor Celeron 6305E (Dual Core, 4MB Cache, up to 1.80 GHz) i3-1115G4E (Dual Core, 6MB Cache, up to 3.90 GHz) i5-1145G7E (Quad Core, 8MB Cache, up to 4.10 GHz) i7-1185G7E (Quad Core, 12MB Cache, up to 4.40 GHz)
System Memory	DDR4 3200 MHz / 1 x 260-pin SO-DIMM / Max. 32GB (Non-ECC)
Graphics	Intel® Iris Xe Graphics
Display Interface	HDMI, DisplayPort, and LVDS / eDP (BOM option)
Storage Slot	1 x SATAIII / 1 x SATA power header 1 x M.2 B Key 2280/2260/2242 Slot
Ethernet	Intel® I225-LM 2.5GbE LAN + Intel® I219-LM Giga LAN
Audio	Realtek® ALC256
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	Wireless: M.2 2230 E key (PCIe, USB) Storage/LTE/5G Slot: M.2 2280/2260/2242/3042/3052 B Key (USB2.0/*PCIex1/SATAIII) *Not support M.2 M Key NVMe SSD **5G card support is by BOM option. Please check with sales about the M.2 B Key 3052 5G card spec if you have any request
Internal I/O	1 x SATAIII connector 1 x SATA power header 1 x SATA HDD Hot Swappable Detection header 2 x USB 2.0 (1 x USB Header) 1 x LVDS (*Optional eDP SKU available) / 1 x Backlight Connector 1 x Stereo Speaker Header 3 x RS232 and 1 x RS232 / 422 / 485 (2 x Dual COM Header) 1 x 4-pin CPU Fan Header 1 x AT / ATX Mode Select Jumper 1 x 8~24V 4-pin Power Connector 1 x CMOS Jumper 1 x Chassis Front Panel Header (2 x 5-pin) 1 x Front Audio Header (Mic-in & Line-out) 1 x Panel power select header 1 x Backlight power select header 1 x Buzzer

Rear I/O	1 x DisplayPort 1.2 2 x HDMI 1.4 2 x RJ-45 (1 for 2.5GbE LAN and 1 for 1GbE LAN) 4 x USB 3.1 Gen 2 (10 Gbps) 1 x 2-pin Terminal Block Remote Power on / off
POWER REQUIREMENT	
Power Input	8~24V Wide Range DC Input w/ 4-pin header (Pitch 2.5mm)
MECHANICAL	
Thermal Design	Heatsink
Dimension	4" x 5.8" (102 mm x 147 mm)
ENVIRONMENTAL	
Operating Temperature	15W TDP/cTDP: -40 ~ 60°C 28W TDP: -40 ~ 50°C *with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)
Storage Temperature	-40 ~ 85°C
Operating Humidity	10%~95% R/H (Non-condensing)
Certification	CE & FCC Class B
OS	
OS Support	Windows® 10 64-bit, Linux (support by request)

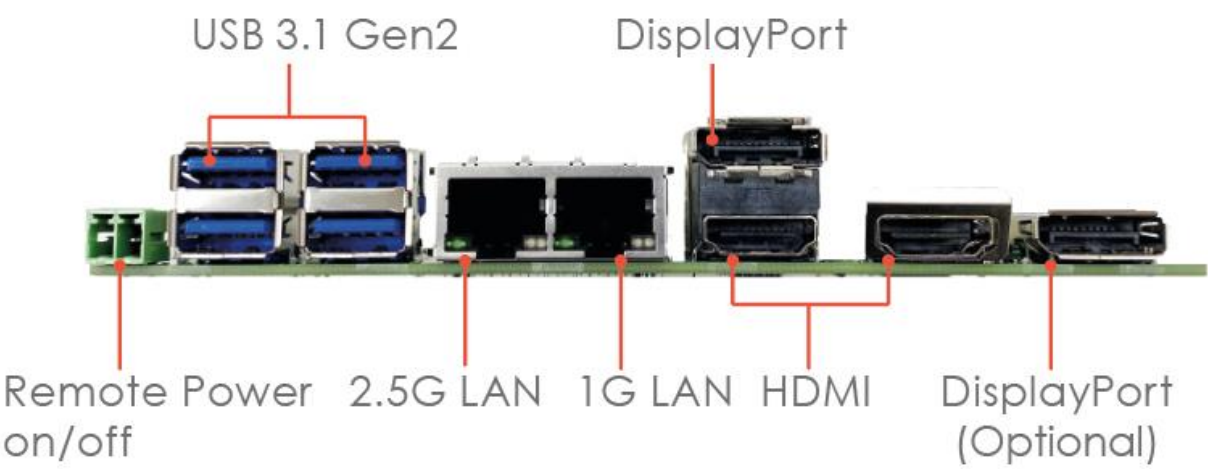


*\*Note<sup>1</sup>: In the PXE application, please install i219-LM driver in OS image in advance before installing OS via PXE server.*



*\*Note<sup>2</sup>: CAUTION - Lithium battery is included in this embedded system. Please do not puncture, mutilate, or dispose of battery in fire. There will be danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.*

1.4 Rear I/O Placement



## JUMPER SETTING AND PIN DEFINITION

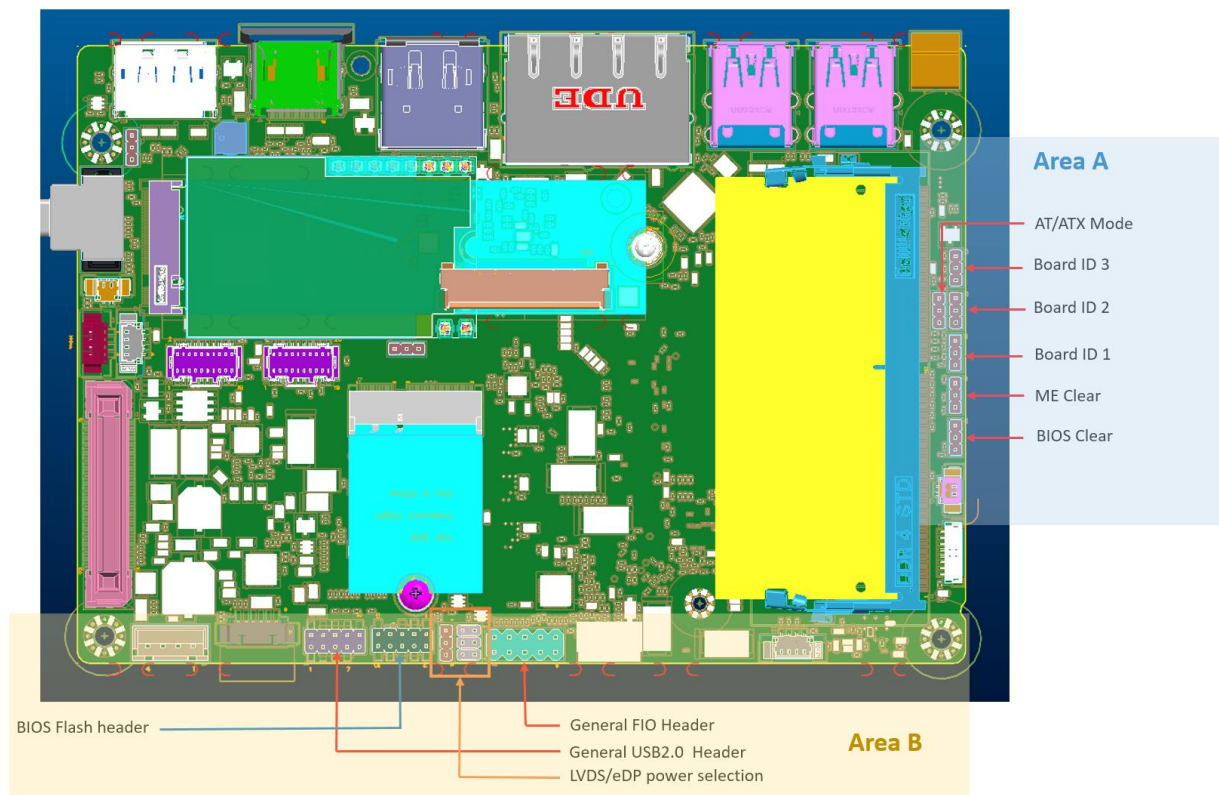
This chapter provides information about how to set up the jumper and use internal I/Os of PD11TGS Embedded Motherboard hardware.

# 2

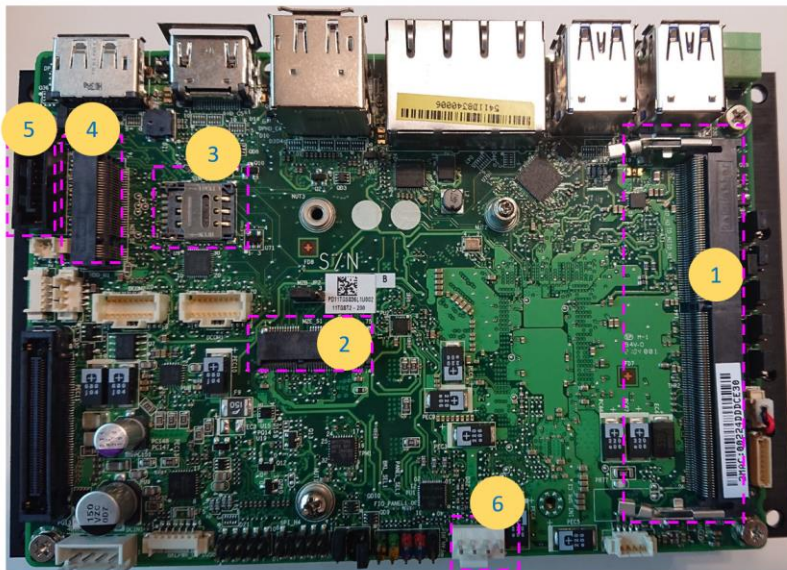
## CHAPTER 2: JUMPER SETTING AND PIN DEFINITION

This chapter provides information about how to set up the jumper, and use internal I/Os of PD11TGS Embedded Motherboard hardware.

### 2.1 Jumper and Internal Connector Overall Placement

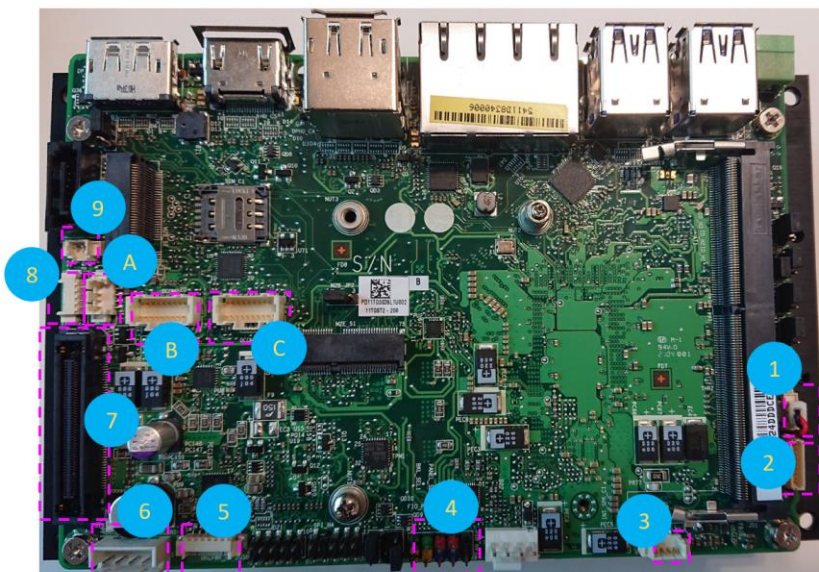


## Standard Connectors



- 1 **DDR4 SO-DIMM Slot**  
(Max Capacity & Speed: 32G-3200)
- 2 **M.2 E-KEY Slot**  
(PCIEx1, USB2.0, CNVi support)
- 3 **Nano SIM Socket**  
(Use with M.2 B-KEY for 4G module support)
- 4 **M.2 B-KEY Slot**  
(PCIEx1, USB2.0, SATA & NVMe SSD support)
- 5 **SATA 7P Connector**  
(SATA interface)
- 6 **FAN Header**  
(4pin PWM)

## Special Connectors

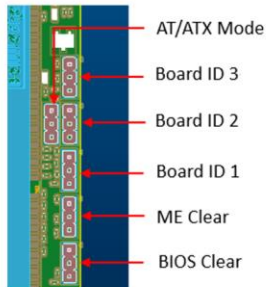


- 1 **RTC Battery Socket**  
(CR2025 cable type)
- 2 **Audio socket**  
(Connect to MH-02FIO-U10)
- 3 **Speaker socket**  
(Connect to 4 ohm speaker)
- 4 **Front I/O Header**  
(General type or connect to MH-02FIO-U10)
- 5 **Panel Backlight Power socket**  
(Support 5V or 12V )
- 6 **DC Input socket**  
(DC source input 9~36V support)
- 7 **BTB connector**  
(Connect to MS-01MPCB-S10)
- 8 **Output Power connector**  
(DC 5V/1A & 12V/A output support)
- 9 **SATA HDD Detection connector**  
(Support SATA HDD Hot Plug Detect)
- A **SATA HDD Power connector**  
(SATA Power 3.3V/ 5V/ 12V)
- B **Dual COM Port connector**  
(COM3 & COM4 RS232 )
- C **Dual COM Port connector**  
(COM1 & COM2 RS232/422/485 )

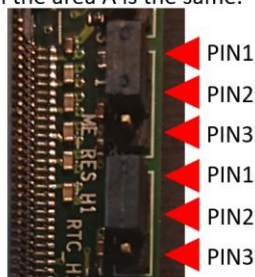


## 2.2 Jumper Setting

### Area A



The definition of each pin position of herders in the area A is the same.



#### • AT/ATX Mode

Jumper is set to Pin1-Pin2 [ATX mode/default]  
System power on by power switch or wake up event  
Jumper is set to Pin2-Pin3  
System power on when DC power source is plug in

#### • Board ID 1 ~3

These headers are used as MCT production identification.  
Any changes may make the system unable to boot.

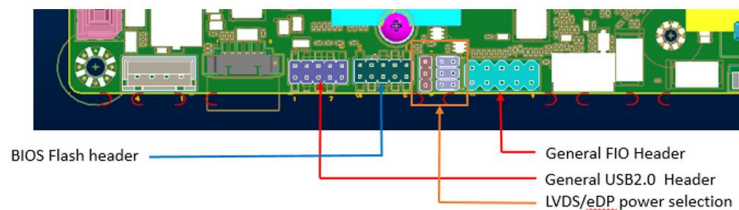
#### • ME Clear

Jumper is set to Pin1-Pin2 [default]  
Keep current ME setting.  
Jumper is set to Pin2-Pin3  
Intel ME will be cleared to the default setting.

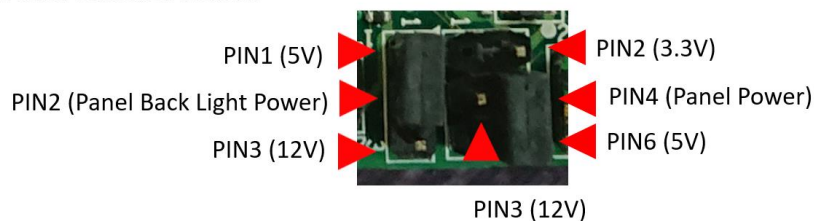
#### • BIOS Clear

Jumper is set to Pin1-Pin2 [default]  
Keep current BIOS setting.  
Jumper is set to Pin2-Pin3  
BIOS will be cleared to the default setting.

### Area B



#### • LVDS/eDP Power selection Header



#### • LVDS/eDP Backlight Power selection Header

Jumper is set to Pin1-Pin2 [default]  
Backlight power 5V support.  
Jumper is set to Pin2-Pin3  
Backlight power 12V support.

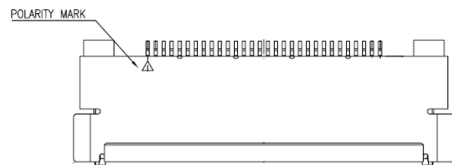
#### • LVDS/eDP Panel Power selection Header

Jumper is set to Pin6-Pin4 [default]  
Panel power 5V support.  
Jumper is set to Pin2-Pin4  
Panel power 3.3V support.  
Jumper is set to Pin3-Pin4  
Panel power 12V support.

## 2.3 Internal Connector Pin Definition

### Standard Connectors

- eDP or LVDS



PIN	LVDS Define	eDP Define
1	LVDS0_LINK3_CON_DP	NC
2	LVDS0_LINK3_CON_DN	GND
3	LVDS0_LINK2_CON_DP	eDP_TX3_DN
4	LVDS0_LINK2_CON_DN	eDP_TX3_DP
5	LVDS0_LINK1_CON_DP	GND
6	LVDS0_LINK1_CON_DN	eDP_TX2_DN
7	LVDS0_LINK0_CON_DP	eDP_TX2_DP
8	LVDS0_LINK0_CON_DN	GND
9	LVDS1_LINK3_CON_DP	eDP_TX1_DN
10	LVDS1_LINK3_CON_DN	eDP_TX1_DP
11	LVDS1_LINK2_CON_DP	GND
12	LVDS1_LINK2_CON_DN	eDP_TX0_DN
13	LVDS1_LINK1_CON_DP	eDP_TX0_DP
14	LVDS1_LINK1_CON_DN	GND
15	LVDS1_LINK0_CON_DP	eDP_AUX_DN
16	LVDS1_LINK0_CON_DN	eDP_AUX_DP
17	GND	GND
18		Panel VDD
19		Panel VDD
20		Panel VDD
21		Panel VDD
22		Panel VDD
23		GND
24		GND
25		GND
26	LVDS0_CLK_CON_DP	GND
27	LVDS0_CLK_CON_DN	Hot Plug Detect
28		GND
29		GND
30		GND
31	DDC_SCL	GND
32		Backlight Enable
33		Backlight Control
34	LVDS1_CLK_CON_DP	NC
35	LVDS1_CLK_CON_DN	NC
36		Backlight VCC
37		Backlight VCC
38		Backlight VCC
39		Backlight VCC
40	DDC_SDA	NC

- M.2 B-KEY Slot

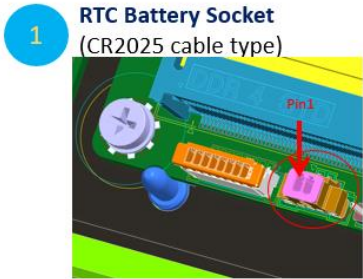
(PCIEx1,USB2.0, SATA & NVMe SSD support)

74	3.3V	CONFIG_2	75
72	3.3V	GND	73
70	3.3V	GND	71
68	NC	NC	69
66	SIM_DET	GPIO(O)(1.8V)(WAN_RSET#)	67
64	NC	NC	65
62	NC	NC	63
60	NC	NC	61
58	NC	NC	59
56	NC	GND	57
54	PEWAKE#	CLOCK+	55
52	CLKREQ#	CLOCK-	53
50	PERST#	GND	51
48	NC	SATA_TXP / PCIEx1_TXP	49
46	NC	SATA_TXN / PCIEx1_TXN	47
44	NC	GND	45
42	NC	SATA_RXN / PCIEx1_RXP	43
40	NC	SATA_RXP / PCIEx1_RXN	41
38	DEVSLP	GND	39
36	UIM_PWR	NC	37
34	UIM_DAT	NC	35
32	UIM_CLK	GND	33
30	UIM_RESET#	NC	31
28	NC	NC	29
26	NC	GND	27
24	NC	GPIO(I)(O)(1.8V)(M2B_DPR_SEL)	25
22	GND	GPIO(I)(O)(3.3V)(M2B_WAN_WAKE#)	23
20	NC	CONFIG_0	21
18	Module Key	Module Key	19
16	Module Key	Module Key	17
14	Module Key	Module Key	15
12	Module Key	Module Key	13
10		GND	11
8		USB2.0 D-	9
6		USB2.0 D+	7
4		GND	5
2		GND	3
		CONFIG_3	1

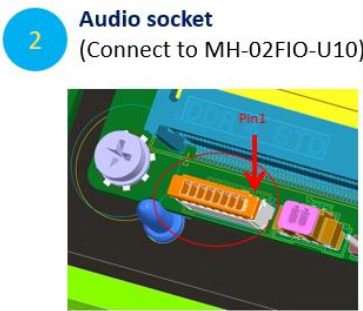
- Without USB3.0 inter face.



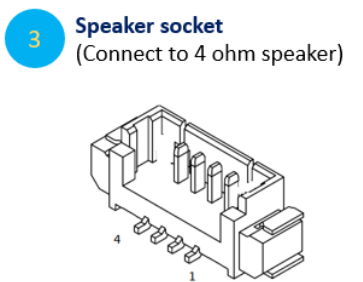
# Special Connectors



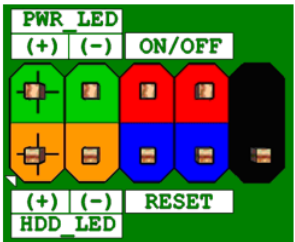
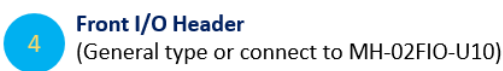
PIN	Name
1	VBAT
2	GND



PIN	Name
1	HPOUT_JD
2	HP_LOUT_R
3	HP_LOUT_L
4	RING2
5	
6	SLEEVE
7	AGND
8	AGND

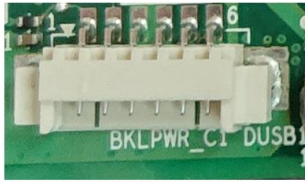


PIN	Name
1	LINE OUT L-
2	LINE OUT L+
3	LINE OUT R-
4	LINE OUT R+



PIN	Name
1	HDD_LED+
2	Power_LED+ (S0)
3	HDD_LED-
4	Power_LED- (S3)
5	GND
6	PWRBT_N
7	RESET_N
8	GND
9	VCC(5V)

**5 Panel Backlight Power socket**  
(Support 5V or 12V )



PIN	Name
1	LVDS_BKTEN
2	BKLT_CTRL
3	BKLT_PWR (5V or 12V)
4	BKLT_PWR (5V or 12V)
5	GND
6	GND

**6 DC Input socket**  
(DC source input 9~36V support)



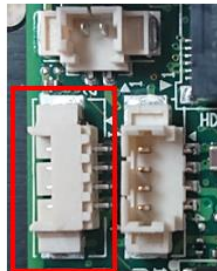
PIN	Name
1	GND
2	DC_IN(8-24V)
3	DC_IN(8-24V)
4	GND

**7 BTB connector**  
(Connect to MS-01MPCB-S10)

Connect to MS-01MPCB-S10 to expand more functions.



**8 Output Power connector**  
(DC 5V/1A & 12V/A output support)

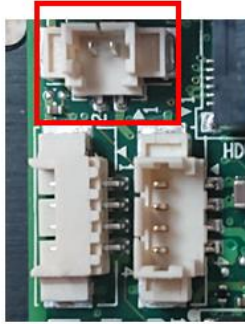


PIN	Name
1	NA
2	GND
3	5V / 1A
4	12V / 1A

9

### SATA HDD Detection connector (Support SATA HDD Hot Plug Detect)

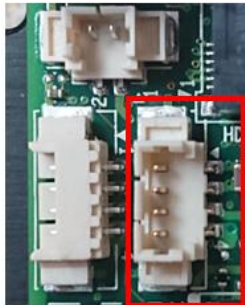
PIN	Name
1	GND
2	SATAGP1_HDD_IN



A

### SATA HDD Power connector (SATA Power 3.3V/ 5V/ 12V)

PIN	NAME
1	V_3P3_SATA
2	GND
3	V_5P0_SATA
4	V_12P0_SATA

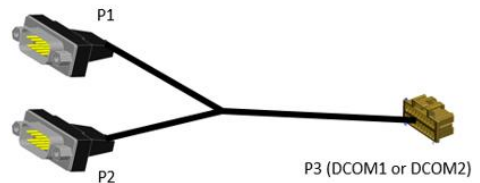
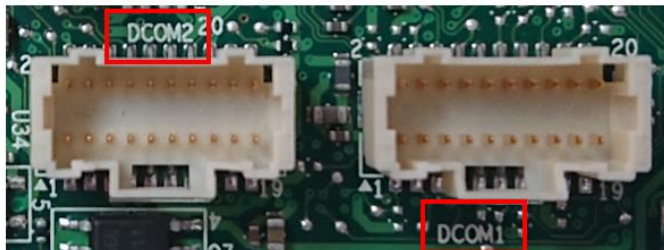


B

### Dual COM Port connector DCOM2 (COM3 & COM4 RS232 )

C

### Dual COM Port connector DCOM1 (COM1 & COM2 RS232/422/485 )

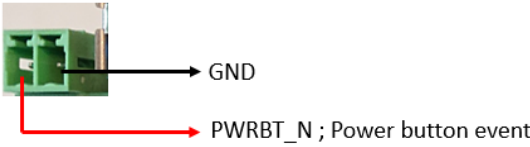


PIN	Name (RS232)
1	NDCD2
2	NRX2
3	NTX2
4	NDTR2
5	GND
6	NDSR2
7	NRTS2
8	NCTS2
9	NR12

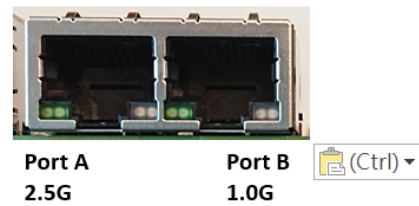
PIN	Name (RS232/RS422/RS485)
1	NDCD1 (TX-) (Data -)
2	NRX1 (TX+) (Data +)
3	NTX1 (RX+)
4	NDTR1(RX-)
5	GND
6	NDSR1
7	NRTS1
8	NCTS1
9	NRI1

# 2.4 External Connector Pin Definition

- 2 PIN terminal block for Power Button



- RJ45 Connector



**Port B 1.0G**

States	Left LED for link [Green LED]	Right LED for Speed [Orange + Green LED]
LAN link is not established	OFF	OFF
10Mb/s data rate	ON/Blinking	OFF
100Mb/s data rate	ON/Blinking	Green ON
1000Mb/s data rate	ON/Blinking	Orange ON

**Port A 2.5G**

States	Left LED for link [Green LED]	Right LED for Speed [Orange + Green LED]
LAN link is not established	OFF	OFF
10/100Mb/s data rate	ON/Blinking	OFF
1000Mb/s data rate	ON/Blinking	Orange ON
2500Mb/s data rate	ON/Blinking	Green ON

## BIOS SETUP

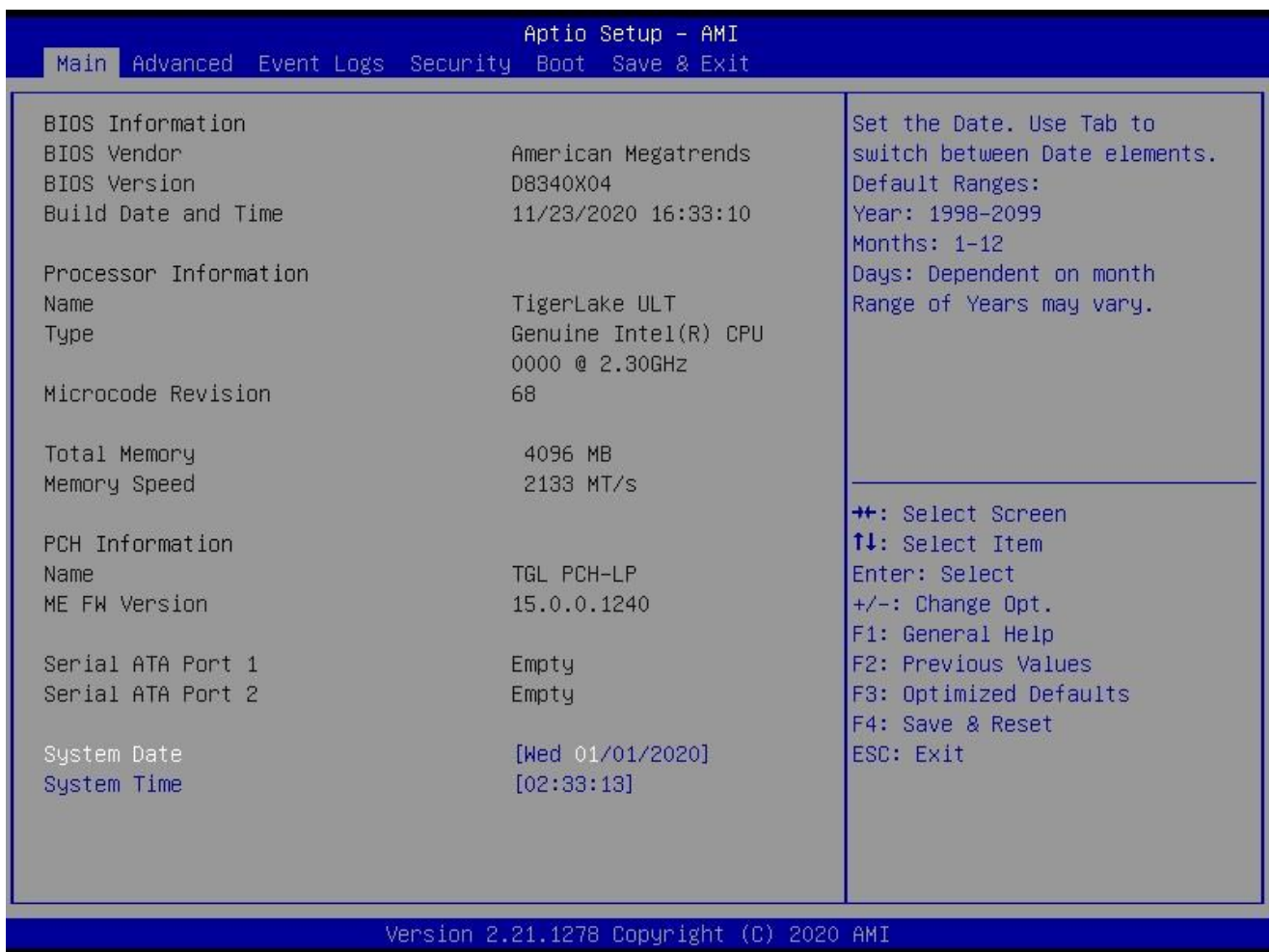
This chapter provides information about how to set up BIOS and use BIOS menu items to adjust basic function settings.

# 3

## CHAPTER 3: BIOS SETUP

This chapter provides information about how to set up BIOS and use BIOS menu items to adjust basic function settings.

### 3.1 Main Page



Field Name	<b>BIOS Vendr</b>
Default Value	American Megatrends
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>BIOS Version</b>
Default Value	Display the version of the BIOS
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Build Date and Time</b>
Default Value	Display build date of the BIOS
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Processor Information</b>
------------	------------------------------

Value	Display the installed CPU brand.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Microcode Version</b>
Value	Display the CPU microcode revision.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Total Memory</b>
Value	Display the installed memory size.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Memory Speed</b>
Value	Display the installed memory Frequency
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>PCH Information</b>
Value	Display PCH family
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>ME FW Version</b>
Value	ME Firmware Version.
Comment	This field is not selectable. There is no help text associated with it.

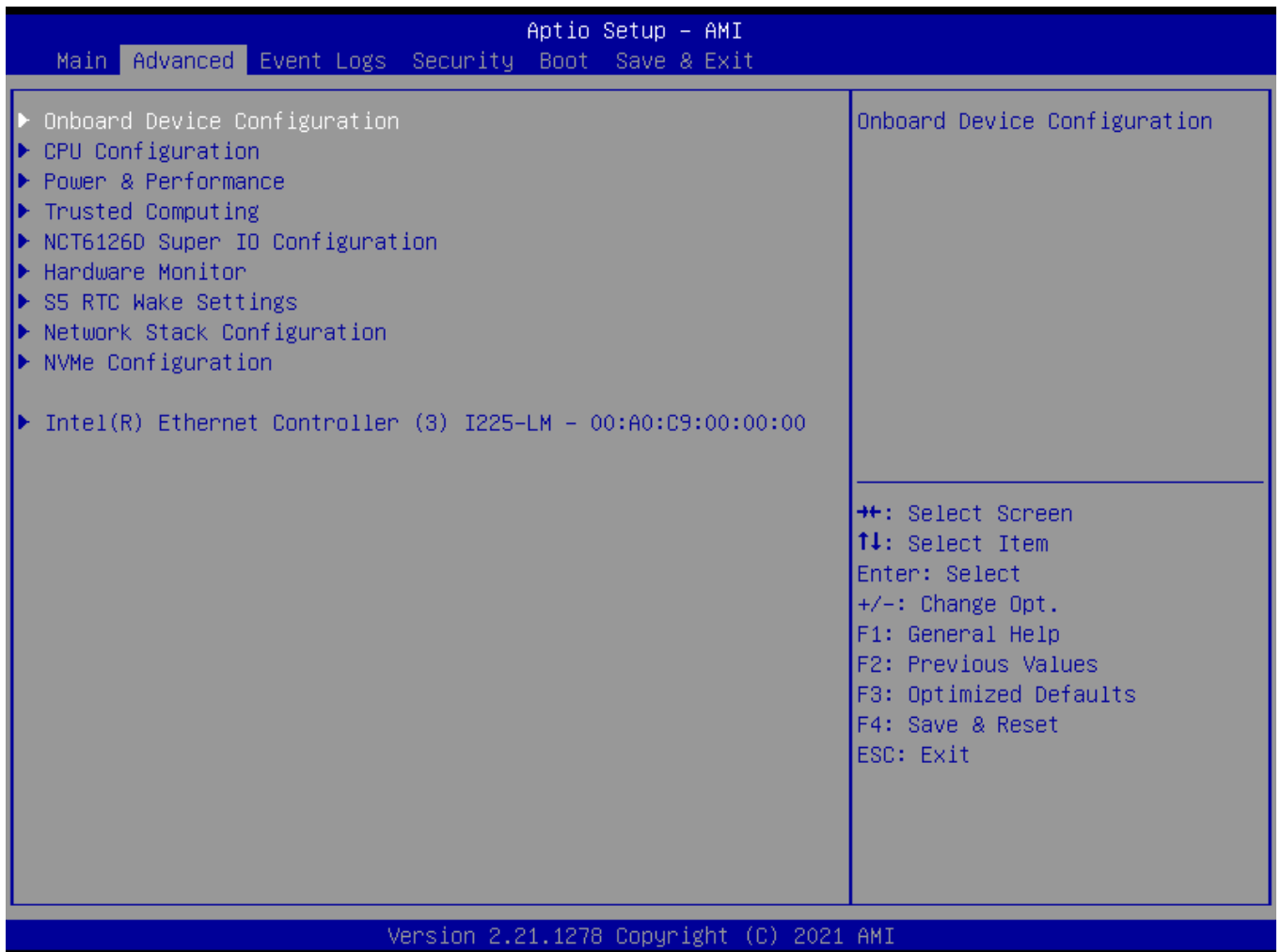
Field Name	<b>Serial ATA Port 1</b>
Value	Display the installed SATA device model/size of port 1.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Serial ATA Port 2</b>
Value	Display the installed SATA device model/size of port 2.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>System Date</b>
Default Value	[Www mm/dd/yyyy]
Possible Value	Www : Mon/Tue/Wed/Thu/Fri/Sat/Sun mm : 1-12 dd : 1-31 yyyy : 1998-2099
Help	Set the Date. Use Tab to switch between Date elements. Default Rangers Year : 1998-2099 Months : 1-12 Days : Dependent on month Range of Years may vary.

Field Name	<b>System Time</b>
Default Value	[hh :mm :ss]
Possible Value	hh : 0-23 mm : 0-59 ss : 0-59
Help	Set the Time. Use Tab to switch between Time elements.

### 3.2 Advanced Page



Field Name	<b>Onboard Device</b>
Help	Onboard Device Configuration.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>CPU Configuration</b>
Help	CPU Configuration Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Power &amp; Performance</b>
Help	Power & Performance Options.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Trusted Computing</b>
Help	Trusted Computing Settings
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>NCT6126D Super IO Configuration</b>
Help	System Super IO Chip Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.



Field Name	<b>HW Monitor</b>
Help	Monitor hardware status
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>S5 RTC Wake Settings</b>
Help	Enable system to wake from S5 using RTC alarm
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Network Stack Configuration</b>
Help	Network Stack Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>NVMe Configuration</b>
Help	NVMe Device Options Settings
Comment	Press Enter when selected to go into the associated Sub-Menu.

### 3.2.1 Onboard Device

Aptio Setup - AMI

Advanced

Onboard Device		
Turbo Mode	[Enabled]	Enable/Disable processor Turbo Mode (requires EMTTM enabled too).          →+: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
State After G3	[S5 State]	
DVMT Pre-Allocated	[64M]	
DVMT Total Gfx Mem	[256M]	
Wake on LAN Enable	[Enabled]	
HD Audio	[Enabled]	
ME Update	[Disabled]	
LVDS Interface Type	[Disabled]	
TPM Device Selection	[dTPM]	
G-Sensor Enable/Disable	[Disabled]	

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Field Name	Turbo Mode
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	Enable/Disable processor Turbo Mode (requires EMTTM enabled too)

Field Name	State After G3
Default Value	[S5 State]
Possible Value	S0 State S5 State
Help	Specify what state to go to when power is re-applied after a power failure (G3 state).

Field Name	DVMT Pre-Allocated
Default Value	[64M]
Possible Value	64M 32M/F7 36M 40M 44M 48M 52M 56M 60M
Help	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the

	Internal Graphics Device.
--	---------------------------

Field Name	<b>DVMT Total Gfx Mem</b>
Default Value	[256M]
Possible Value	128M 256M MAX
Help	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Field Name	<b>Wake on LAN Enable</b>
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	Enable/Disable integrated LAN to wake the system.

Field Name	<b>HD Audio</b>
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.

Field Name	<b>ME Update</b>
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Temporary disable Intel CSME for ME FW Update. Enabled = Intel CSME disabled after first time reboot only.

Note: Visible in LVDS SKU.

Field Name	<b>LVDS Interface Type</b>
Default Value	[Disabled]
Possible Value	8 bit-VESA Single Channel 8 bit-VESA Dual Channel 6 bit-VESA Single Channel 6 bit-VESA Dual Channel 8 bit-JEIDA Single Channel 8 bit-JEIDA Dual Channel
Help	Sets LVDS connectivity.

Note: Visible when LVDS Interface Type not set to disable

Field Name	<b>LVDS Panel Type</b>
Default Value	[1920x1080 LVDS]
Possible Value	1024x768 LVDS 1366x768 LVDS 1920x1080 LVDS
Help	Select LVDS panel used by Internal Graphics Device by selecting the appropriate setup item.

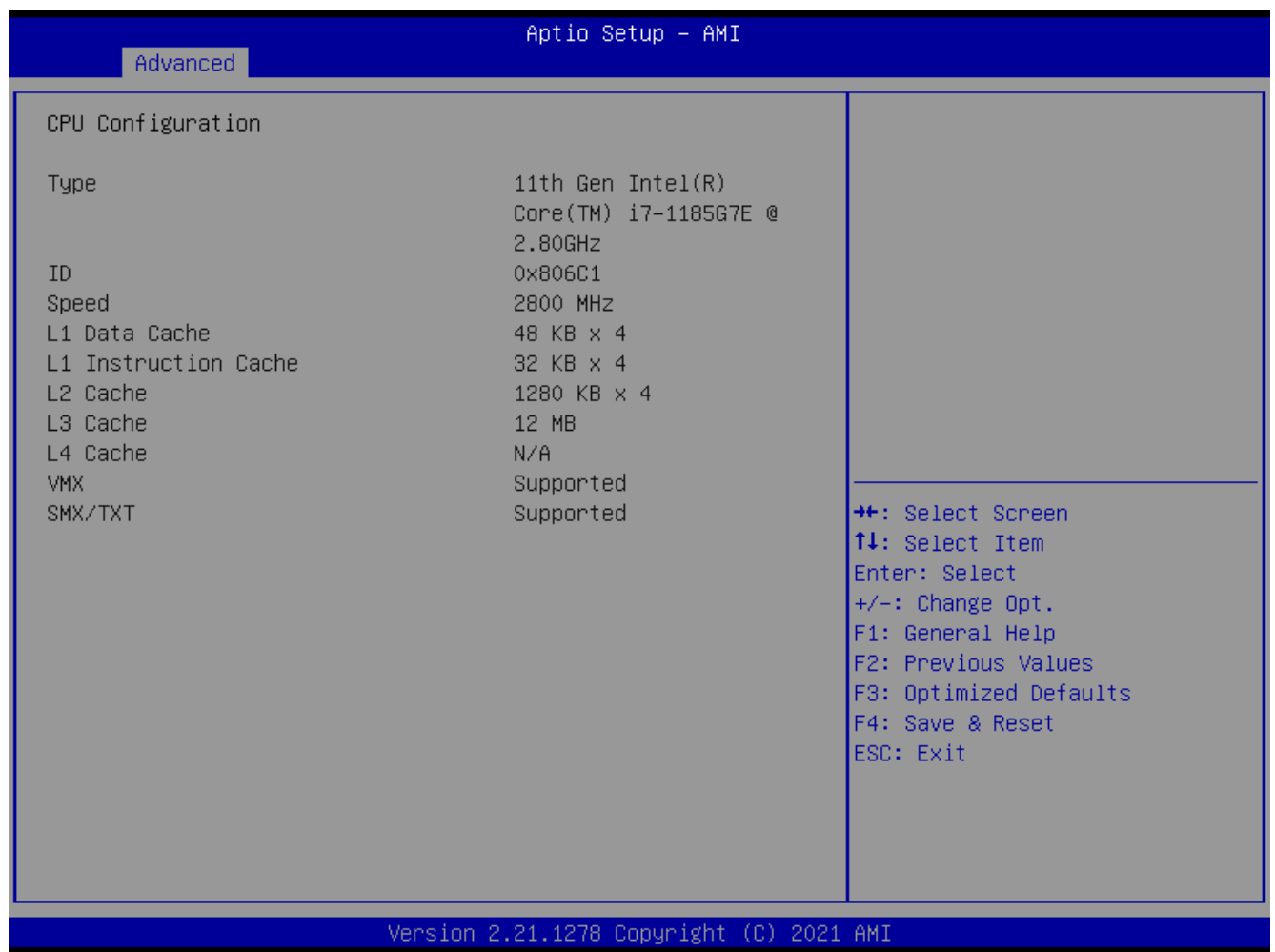
Field Name	<b>TPM Device Selection</b>
Default Value	[dTPM]
Possible Value	PTT dTPM
Help	Selects TPM device: PTT or dTPM. PTT - Enables PTT in SkuMgr dTPM 1.2 - Disables PTT in SkuMgr Warning ! PTT/dTPM will be disabled and all

	data saved on it will be lost
--	-------------------------------

Field Name	<b>G-Sensor Enable/Disable</b>
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	MS-26CAD-T10 G sensor on/off Notice : If <u>Gsensor</u> enabled will reserve 2 pin from DIO

### 3.2.2 CPU Configuration



Field Name	<b>Type</b>
Default Value	[Intel CPU Brand String]
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>ID</b>
Default Value	Displays CPU Signature
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Speed</b>
Default Value	Displays the CPU Speed
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>L1 Data Cache</b>
Default Value	L1 Data Cache Size

Comment	This field is not selectable. There is no help text associated with it.
---------	---

Field Name	<b>L1 Instruction Cache</b>
Default Value	L1 Instruction Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>L2 Cache</b>
Default Value	L2 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

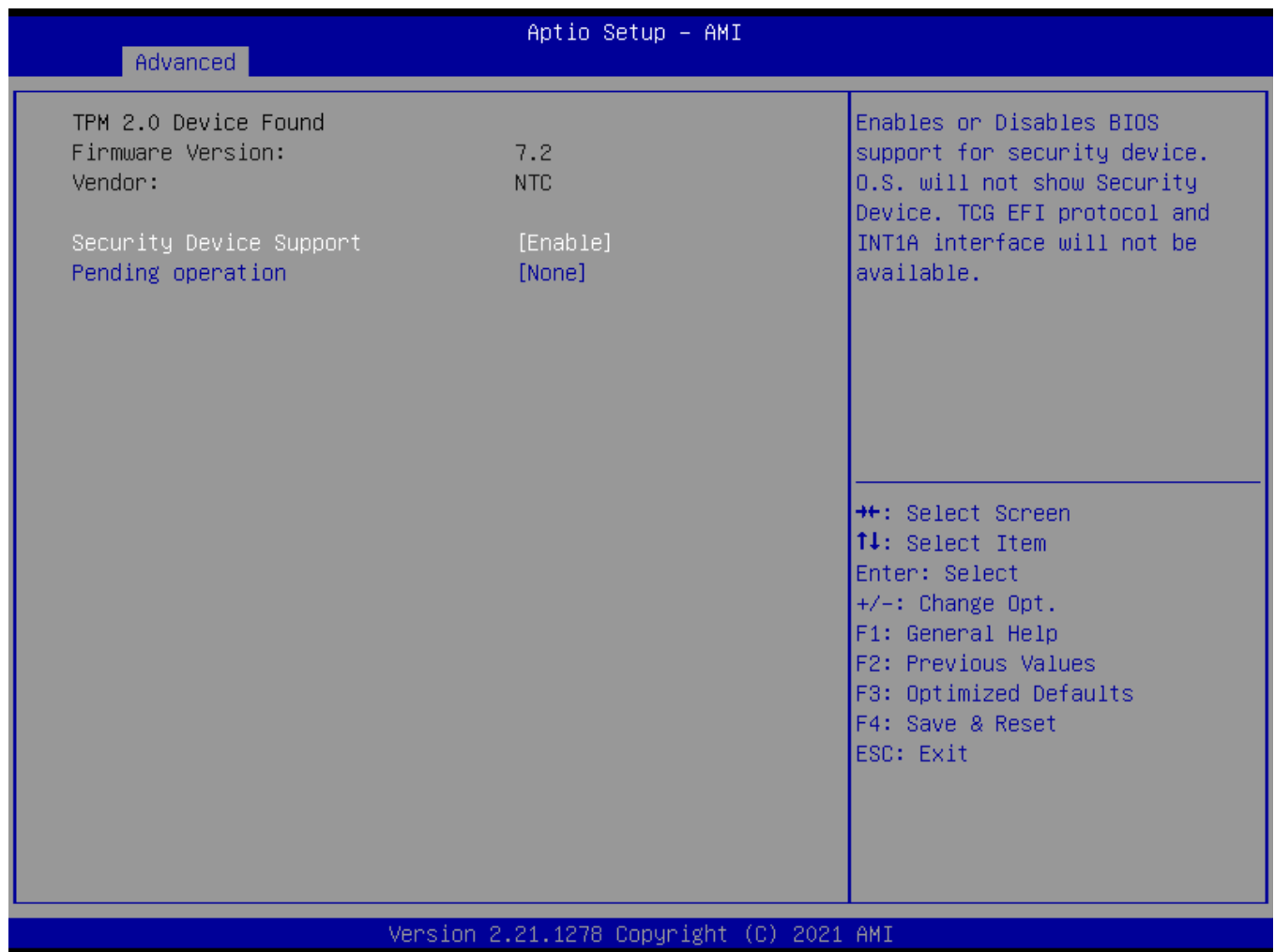
Field Name	<b>L3 Cache</b>
Default Value	L3 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>L4 Cache</b>
Default Value	L4 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>VMX</b>
Default Value	VMX Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>SMX/TXT</b>
Default Value	SMX/TXT Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

### 3.2.3 Trusted Computing



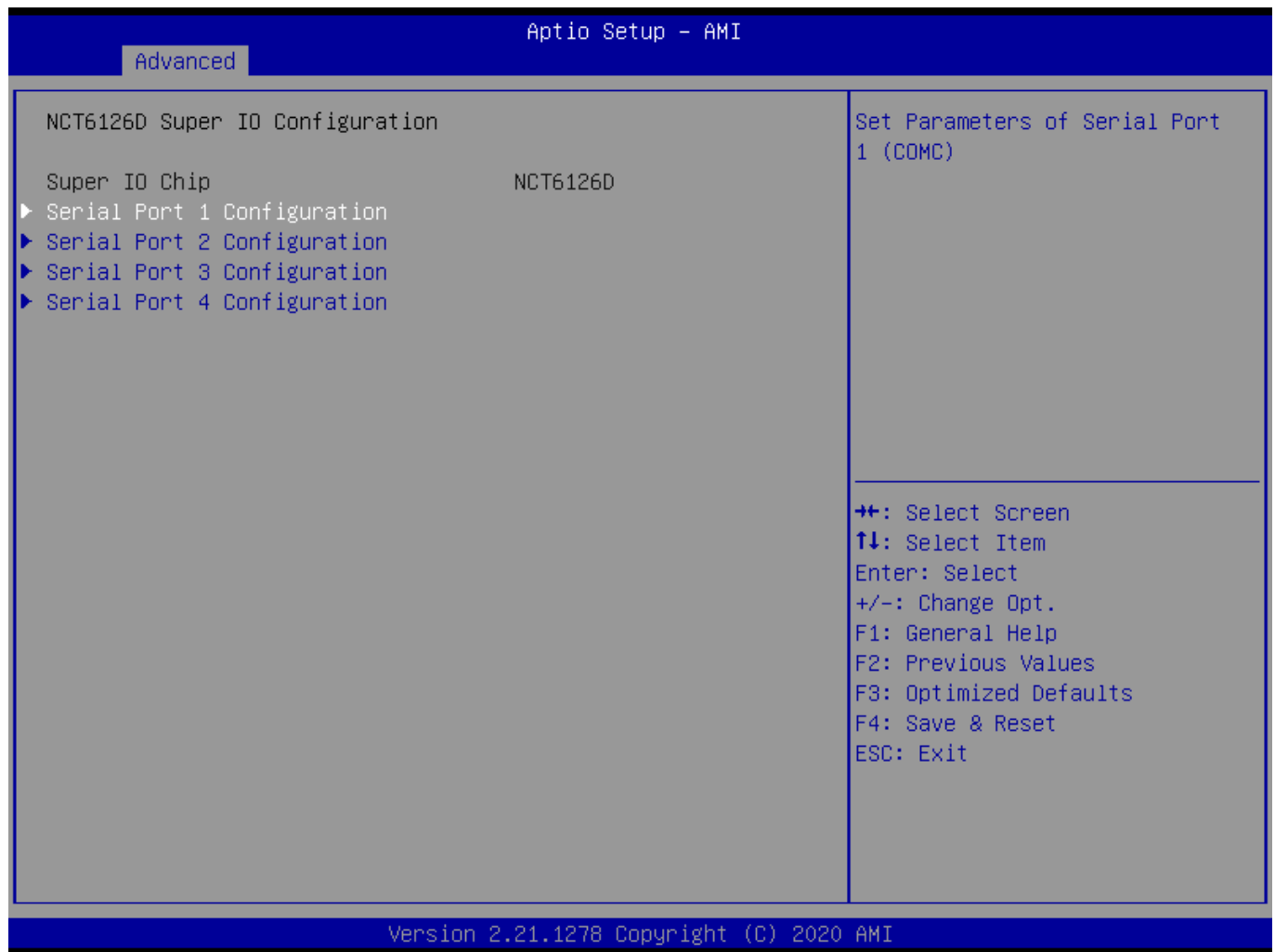
Field Name	Firmware Version
Default Value	TPM module version.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Vendor
Default Value	TPM module vendor name.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Security Device Support
Default Value	[Enable]
Possible Value	Enable Disable
Help	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.

Field Name	Pending operation
Default Value	[None]
Possible Value	None TPM Clear
Help	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

### 3.2.4 NCT6126D Super IO Configuration



Field Name	<b>Serial Port 1 Configuration</b>
Help	Set Parameters of Serial Port 1 (COMC)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Serial Port 2 Configuration</b>
Help	Set Parameters of Serial Port 2 (COMD)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Serial Port 3 Configuration</b>
Help	Set Parameters of Serial Port 3 (COME)
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Serial Port 4 Configuration</b>
Help	Set Parameters of Serial Port 4 (COMA)
Comment	Press Enter when selected to go into the associated Sub-Menu.

### 3.2.5 Serial Port 1 Configuration



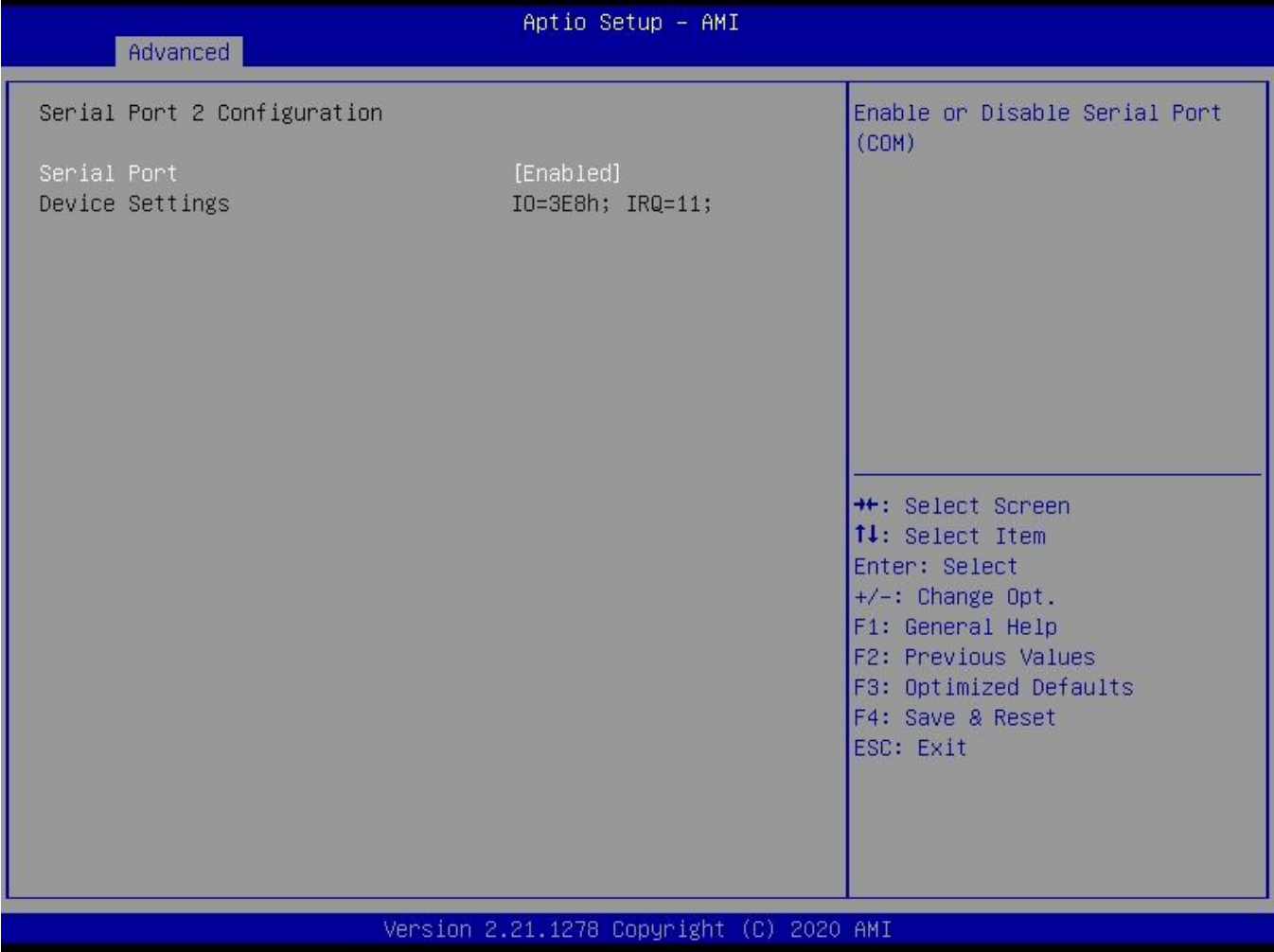
Field Name	<b>Serial Port</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	<b>Device Settings</b>
Default Value	Device Super IO COM1 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	<b>Mode Configuration</b>
Default Value	[3T/5R RS232]
Possible Value	1T/1R RS422 3T/5R RS232 1T/1R RS485 TX ENABLE Low Active 1T/1R RS422 with termination resistor 1T/1R RS485 with termination resistor TX ENABLE Low Active Disabled
Help	Configure serial port as RS232/RS422/RS485.



3.2.6 Serial Port 2 Configuration



Field Name	<b>Serial Port</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	<b>Device Settings</b>
Default Value	Device Super IO COM2 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

3.2.7 Serial Port 3 Configuration



Field Name	<b>Serial Port</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	<b>Device Settings</b>
Default Value	Device Super IO COM3 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

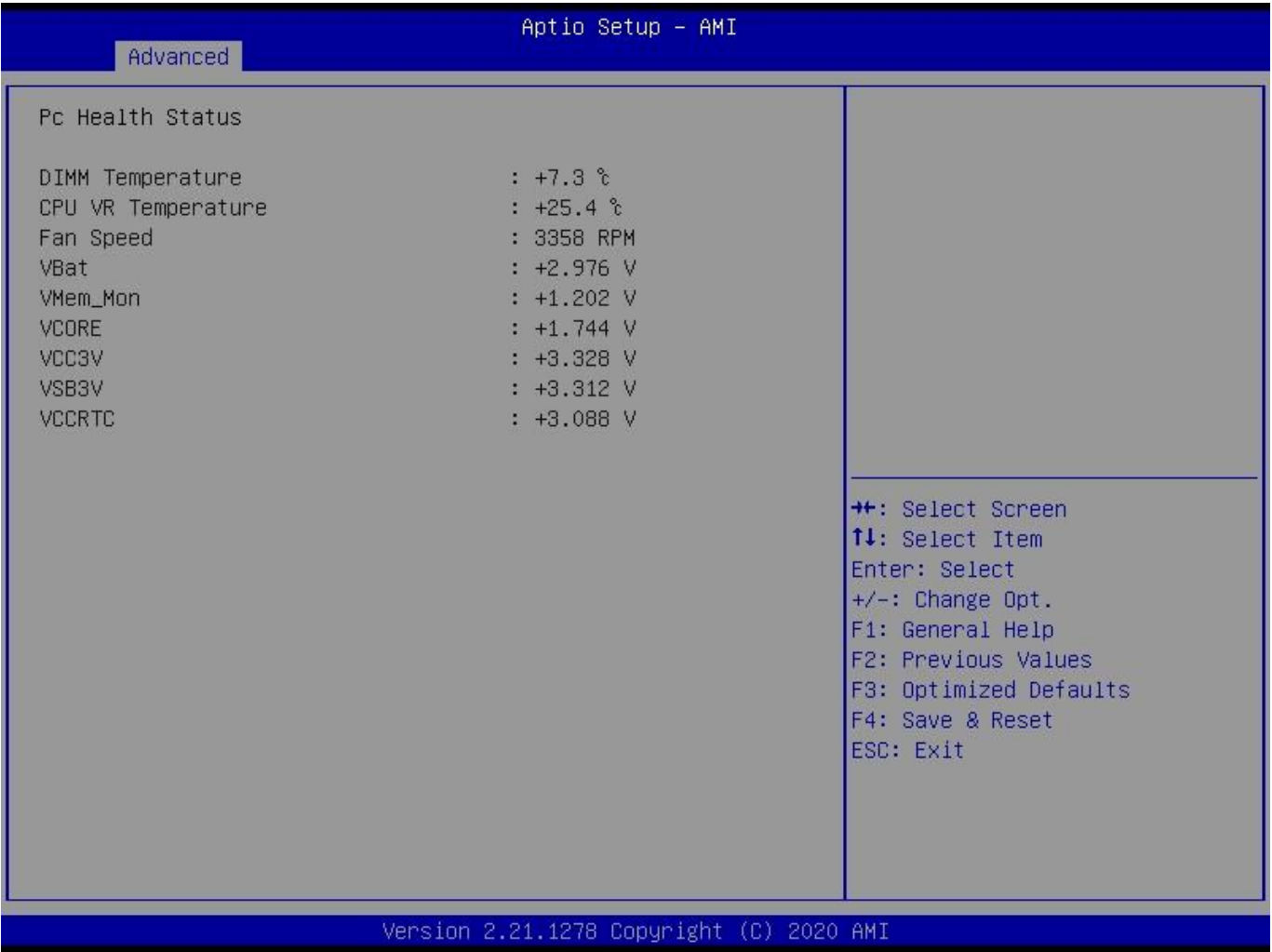
3.2.8 Serial Port 4 Configuration



Field Name	<b>Serial Port</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	<b>Device Settings</b>
Default Value	Device Super IO COM4 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

### 3.2.9 Hardware Monitor



Type	Range
DIMM Temperature	70~-40°C
CPU VR Temperature	70~-40°C
Fan Speed	There are many kinds of the fan could be installed into the system, so we could only set 0 RPM for the failed fan speed, and there is also no high RPM limitation.
VBat	2.0~ 3.65V
VMem_Mon	1.15 ! 1.25V
VCORE	0~2V
VCC3V	3.13 ~ 3.65V
VSB3V	3.13 ~ 3.65V
VCCRTC	2.0 ~ 3.2V

### 3.2.10 RTC Wake Settings

Aptio Setup - American Megatrends International, LLC.

Advanced

Wake system from S5 [Disabled]	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified.
	⇄: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit

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Field Name	Wake system from S5
Default Value	[Disabled]
Possible Value	Disabled Fixed Time
Help	Enable or disable System wake on alarm event, Select FixedTime, system will wake on the hr::min::sec specified.

Field Name	Wake up hour(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0-23
Help	Select 0-23 For example enter 3 for 3am and 15 for 3pm

Field Name	Wake up minute(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0-59
Help	Select 0 – 59 for Minute

Field Name	Wake up second(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0 - 59
Help	Select 0 – 59 for Second

3.2.11 Network Stack Configuration



Field Name	<b>Network stack</b>
Default Value	[Disabled]
Possible Value	Disabled Enabled
Help	Enable/Disable UEFI Network stack.

Field Name	<b>Ipv4 PXE Support (Available when Network stack Enabled)</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable/Disable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot support will not be available.

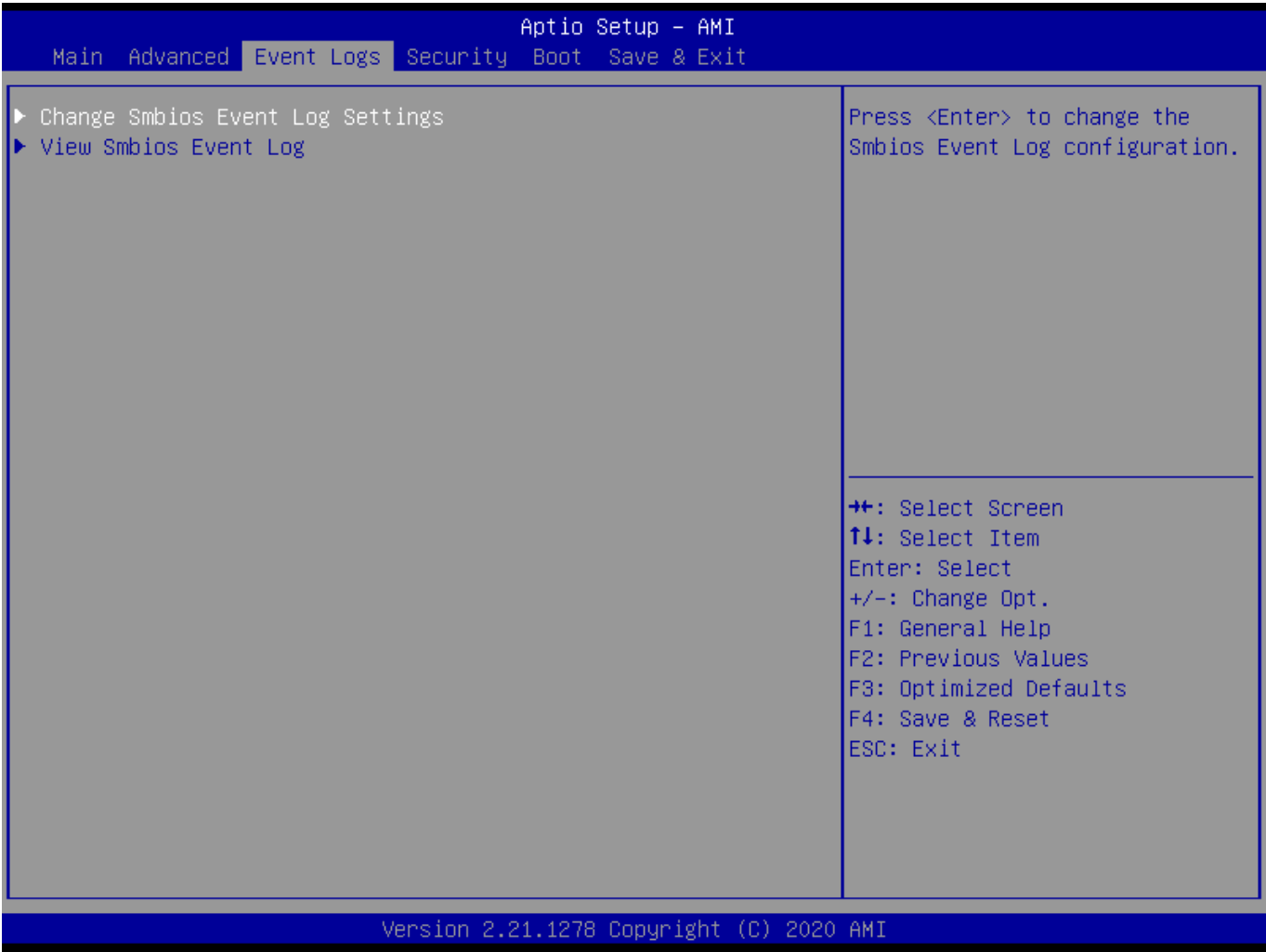
Field Name	<b>Ipv6 PXE Support (Available when Network stack Enabled)</b>
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable/Disable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot support will not be available.

3.2.12 NVMe Configuration



Field Name	(Device)
Comment	Press Enter when selected to go into the associated Sub-Menu.

3.3 Evnet logs

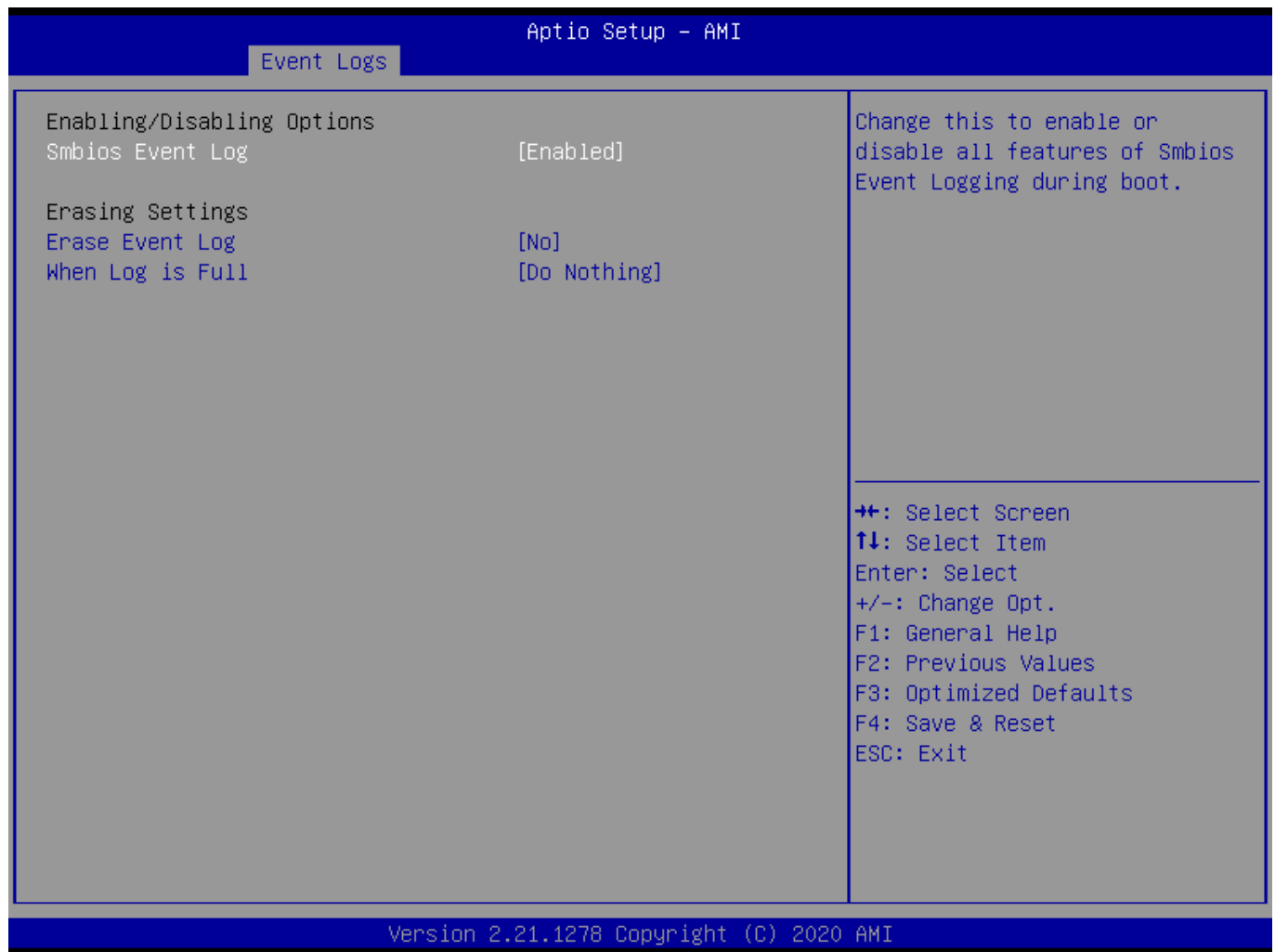


Field Name	Change <u>Smbios</u> Event Log Settings
Help	Press <Enter> to change the <u>Smbios</u> Event Log configuration.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	View <u>Smbios</u> Event Log
Help	Press <Enter> to view the <u>Smbios</u> Event Log records.
Comment	Press Enter when selected to go into the associated Sub-Menu.



### 3.3.1 Enabling/Disabling Options



Field Name	<u>Smbios</u> Event Log
Default Value	[Enable]
Possible Value	Disabled Enabled
Help	Change this to enable or disable all features of <u>Smbios</u> Event Logging during boot.

Field Name	Erase Event Log
Default Value	[No]
Possible Value	No Yes, Next reset Yes, Every reset
Help	Choose options for erasing <u>Smbios</u> Event Log. Erasing is done prior to any logging activation during reset.

Field Name	When Log is Full
Default Value	[Do Nothing]
Possible Value	Do Nothing Erase Immediately
Help	Choose options for reactions to a full <u>Smbios</u> Event Log.

3.3.2 View Smbios Event log

Aptio Setup - AMI

Event Logs

DATE	TIME	ERROR CODE	SEVERITY	COUNT	DESCRIPTION
09/09/20	17:22:06	Smbios 0x16	N/A	N/A	Log Area Reset and Count is applicable only for Multi-Events
09/09/20	17:22:50	EFI 03008205	Unrecognized	02	
09/09/20	17:22:50	EFI 03008105	Unrecognized	02	
09/09/20	17:54:26	EFI 03008303	Unrecognized	01	
09/09/20	17:54:26	EFI 03008103	Unrecognized	01	

↔: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Reset

ESC: Exit

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Field Name	DATE / TIME / ERROR CODE / SEVERITY / COUNT
Default Value	MM/DD/YY HH:MM:SS Smbios 0x16 N/A N/A
Possible Value	By Events.
Help	By Events.

### 3.4 Security Page

Aptio Setup - American Megatrends International, LLC.					
Main   Advanced <b>Security</b> Boot   Save & Exit					
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.</p> <p>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.</p> <p>The password length must be in the following range:</p> <table><tr><td>Minimum length</td><td>3</td></tr><tr><td>Maximum length</td><td>20</td></tr></table> <p>Administrator Password</p> <p>User Password</p> <p>HDD Security Configuration:</p> <p>P1:128GB SATA Flash Drive</p> <p>▶ Secure Boot</p> <p>▶ BIOS Update</p>	Minimum length	3	Maximum length	20	<p>Set Administrator Password</p> <hr/> <p>←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Reset ESC: Exit</p>
Minimum length	3				
Maximum length	20				
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Field Name	<b>Administrator Password</b>
Help	Set Administrator Password

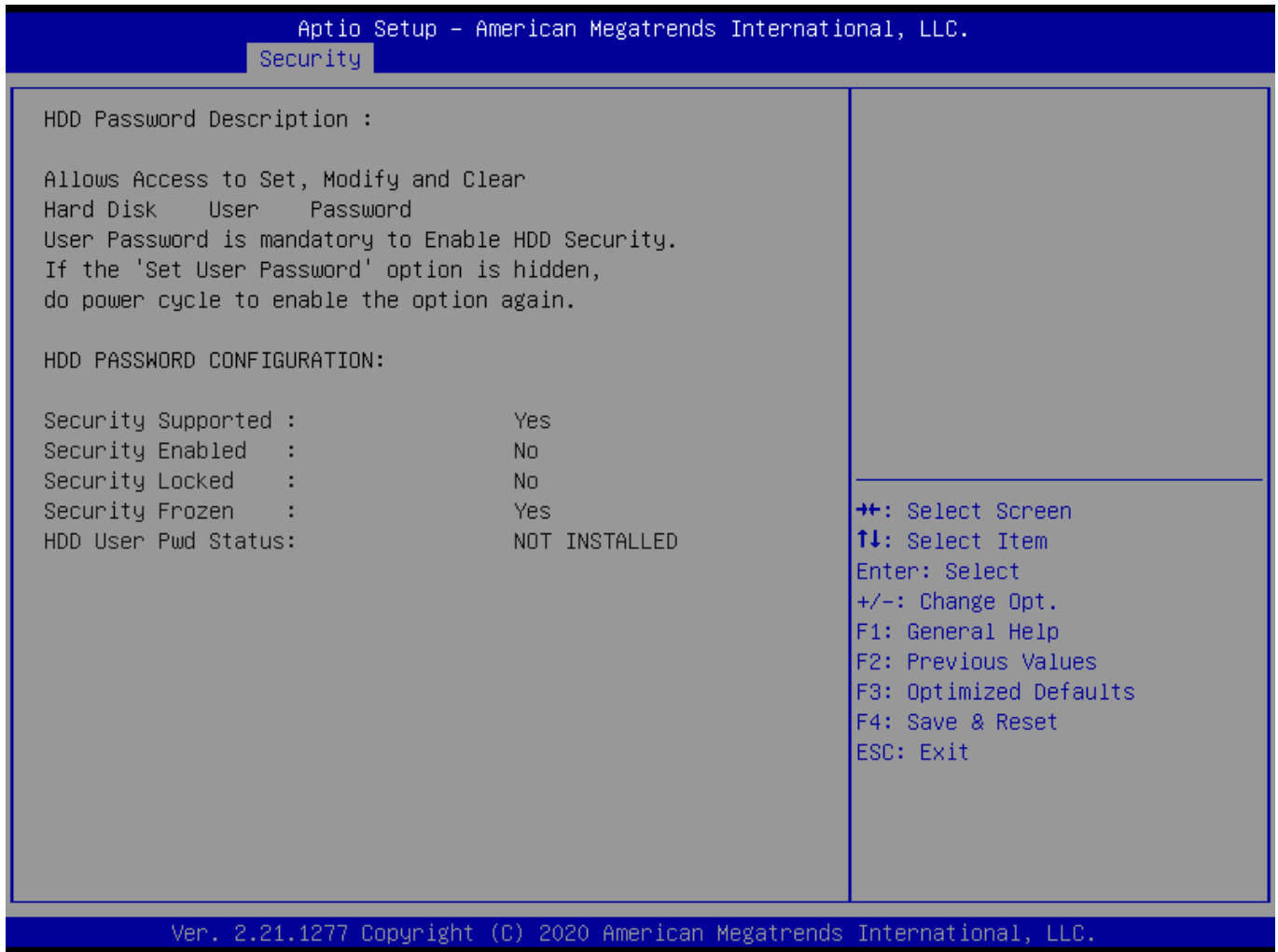
Field Name	<b>User Password</b>
Help	Set User Password.

Field Name	<b>HDD Security drive</b>
Help	HDD Security Configuration for selected drive
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Secure Boot</b>
Help	Secure Boot Configuration
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>BIOS Update</b>
Help	BIOS Update support
Comment	Press Enter when selected to go into the associated Sub-Menu.

### 3.4.1 HDD Security



Field Name	Set User Password
Help	Set HDD User Password. *** Advisable to Power Cycle System after Setting Hard Disk Passwords ***.Discard or Save changes option in setup does not have any impact on HDD when password is set or removed. If the 'Set HDD User Password' option is hidden, do power cycle to enable the option again

### 3.4.2 Secure Boot



Field Name	<b>Secure Boot</b>
Default Value	[Enabled]
Possible Value	Enabled Disabled
Help	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

Field Name	<b>Secure Boot Mode</b>
Default Value	[Standard]
Possible Value	Standard Custom
Help	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

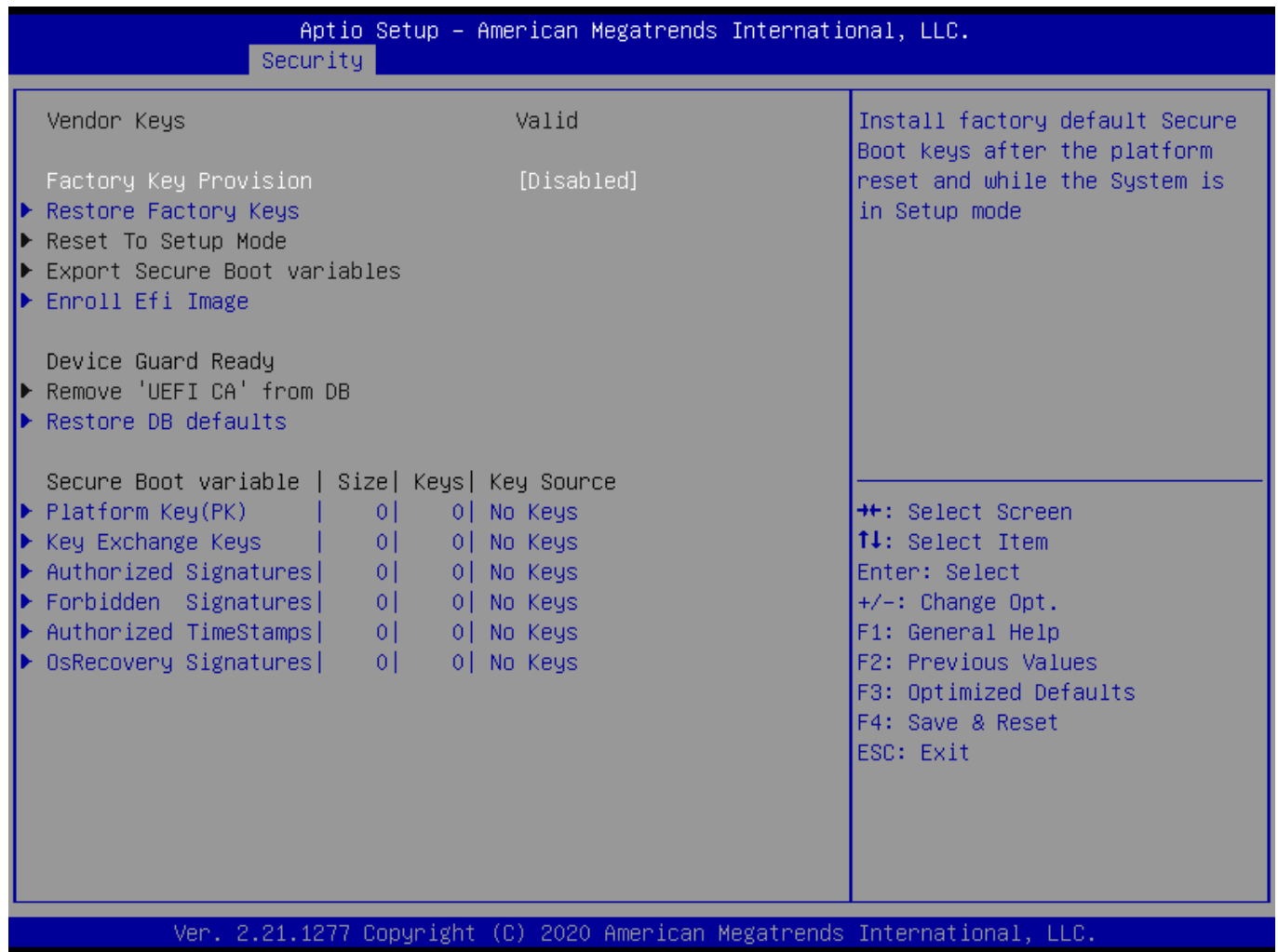
Field Name	<b>Restore Factory Keys (Secure Boot Mode set to Custom)</b>
Help	Force System to User Mode. Install factory default Secure Boot key databases

Field Name	<b>Reset to Setup Mode(After Restore Factory keys Provision)</b>
Help	Delete all Secure Boot key databases from NVRAM

Field Name	<b>Key Management</b>
Help	Enables expert users to modify Secure Boot Policy variables without full authentication

Comment	Enables expert users to modify Secure Boot Policy variables without full authentication
---------	---

### 3.4.3 Key Management (Secure Boot Mode set to Custom)



Field Name	<b>Factory Key Provision</b>
Default Value	[Disabled]
Possible Value	Enabled Disabled
Help	Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode

Field Name	<b>Restore Factory Keys</b>
Help	Force System to User Mode. Install factory default Secure Boot key databases

Field Name	<b>Reset to Setup Mode</b>
Help	Delete all Secure Boot key databases from NVRAM

Field Name	<b>Export Secure Boot variables</b>
Help	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device

Field Name	<b>Enroll Efi Image</b>
Help	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db)

Field Name	<b>Remove 'UEFI CA' from DB</b>
Help	Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db)

Field Name	<b>Restore DB defaults</b>
Help	Restore DB variable to factory defaults

Field Name	<b>Platform Key (PK)</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	<p>Enroll Factory Defaults or load certificates from a file:</p> <ol style="list-style-type: none"> <li>1.Public Key Certificate: <ol style="list-style-type: none"> <li>a)EFI_SIGNATURE_LIST</li> <li>b)EFI_CERT_X509 (DER)</li> <li>c)EFI_CERT_RSA2048 (bin)</li> <li>d)EFI_CERT_SHAXXX</li> </ol> </li> <li>2.Authenticated UEFI Variable</li> <li>3.EFI PE/COFF Image(SHA256)</li> </ol> <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu "Key Management".

Field Name	<b>Key Exchange Keys</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	<p>Enroll Factory Defaults or load certificates from a file:</p> <ol style="list-style-type: none"> <li>1.Public Key Certificate: <ol style="list-style-type: none"> <li>a)EFI_SIGNATURE_LIST</li> <li>b)EFI_CERT_X509 (DER)</li> <li>c)EFI_CERT_RSA2048 (bin)</li> <li>d)EFI_CERT_SHAXXX</li> </ol> </li> <li>2.Authenticated UEFI Variable</li> <li>3.EFI PE/COFF Image(SHA256)</li> </ol> <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Authorized Signatures</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	<p>Enroll Factory Defaults or load certificates from a file:</p> <ol style="list-style-type: none"> <li>1.Public Key Certificate: <ol style="list-style-type: none"> <li>a)EFI_SIGNATURE_LIST</li> <li>b)EFI_CERT_X509 (DER)</li> <li>c)EFI_CERT_RSA2048 (bin)</li> <li>d)EFI_CERT_SHAXXX</li> </ol> </li> <li>2.Authenticated UEFI Variable</li> <li>3.EFI PE/COFF Image(SHA256)</li> </ol> <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Forbidden Signatures</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	<p>Enroll Factory Defaults or load certificates from a file:</p> <ol style="list-style-type: none"> <li>1.Public Key Certificate: <ol style="list-style-type: none"> <li>a)EFI_SIGNATURE_LIST</li> <li>b)EFI_CERT_X509 (DER)</li> </ol> </li> </ol>

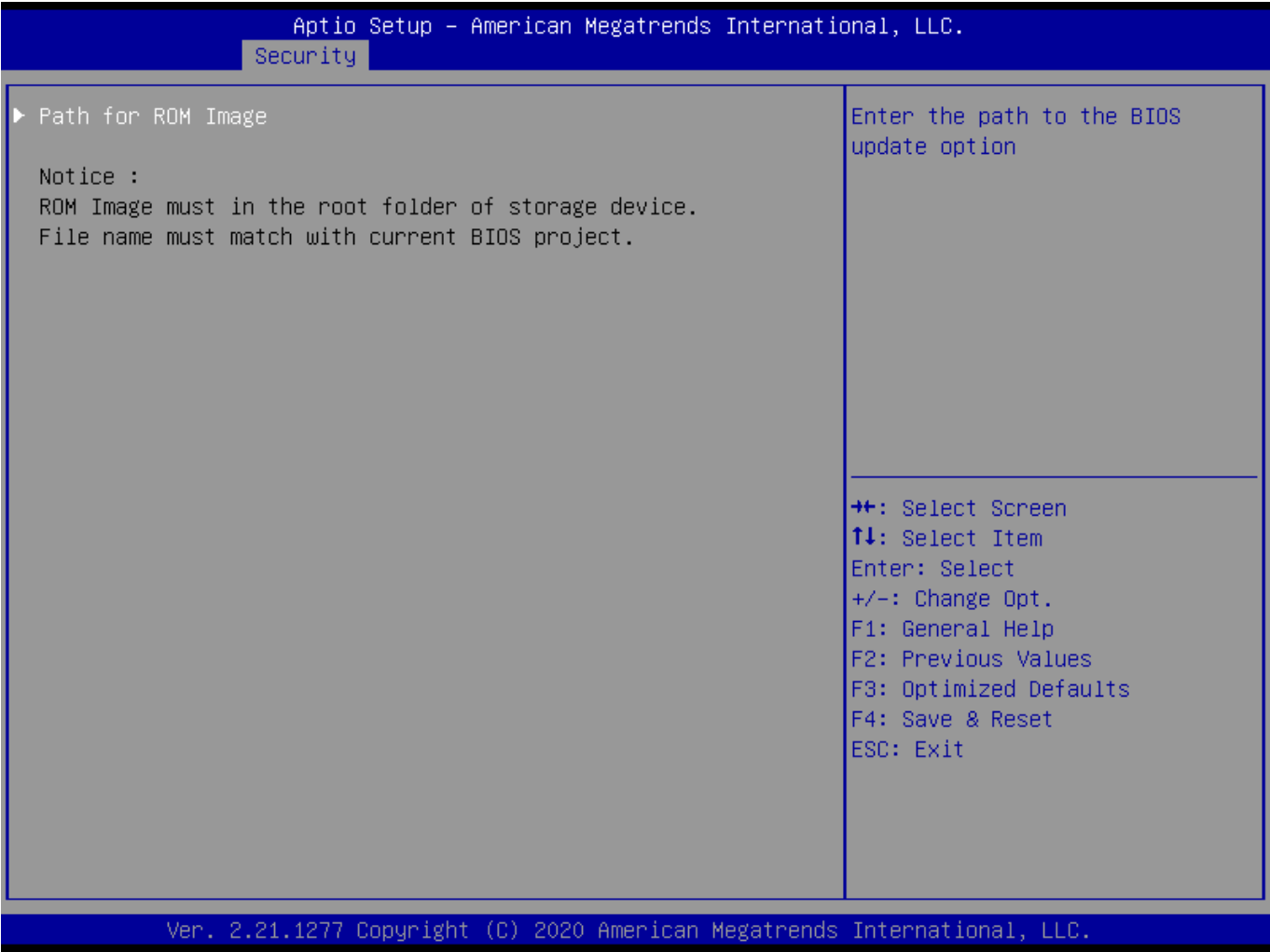


	c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>Authorized TimeStamps</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	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
comment	Press Enter when selected to go into the associated Sub-Menu.

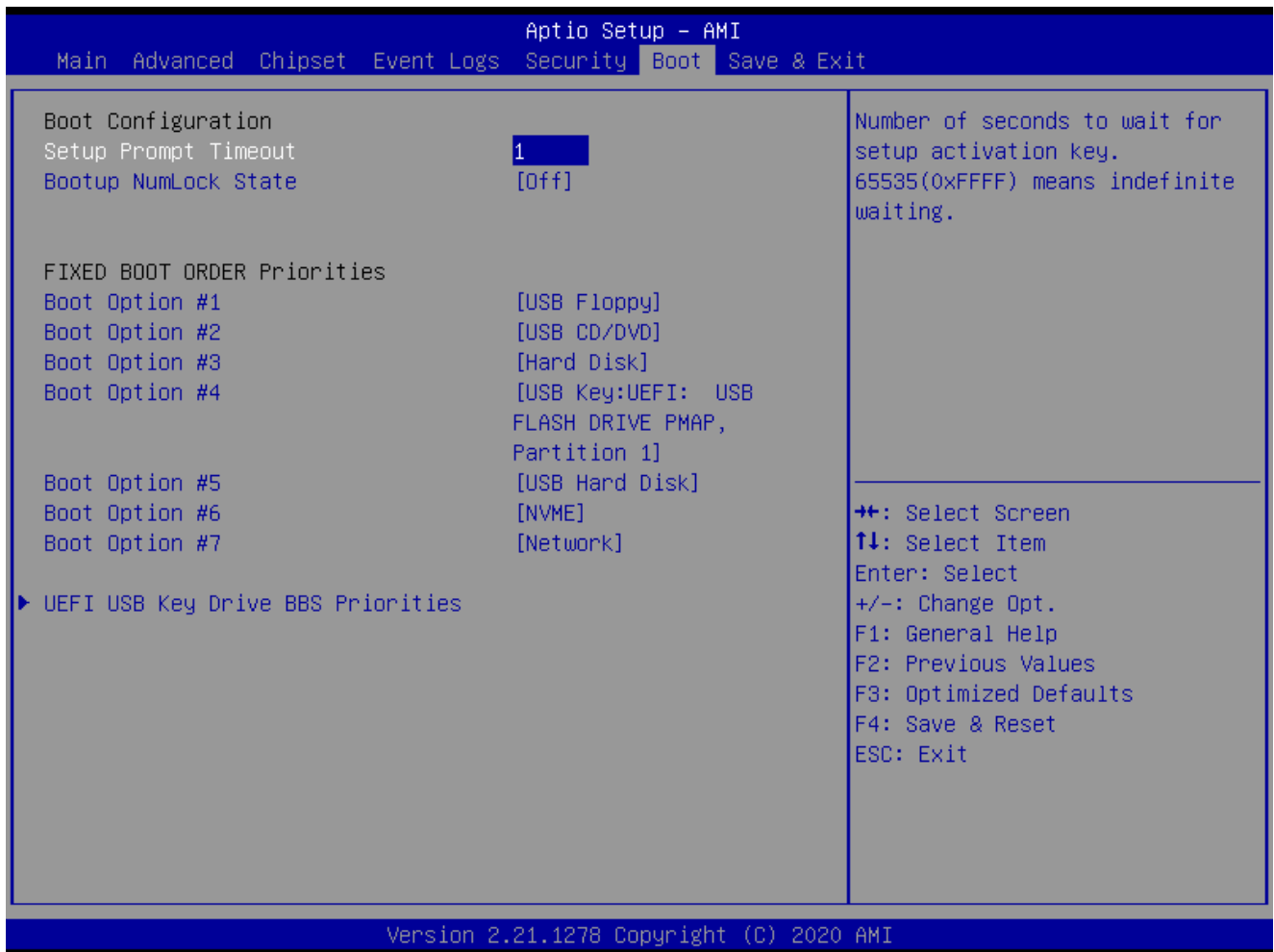
Field Name	<b>OsRecovery Signatures</b>
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory,External,Mixed
comment	Press Enter when selected to go into the associated Sub-Menu.

3.4.4 BIOS Update



Field Name	<b>Path for ROM Image</b>
Help	Enter the path to the Secure flash option

### 3.5 Boot Page



Field Name	Setup Prompt Timeout
Default Value	1
Possible Value	1~65535
Help	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Field Name	Bootup NumLock State
Default Value	[Off]
Possible Value	On Off
Help	Select the keyboard NumLock state

Field Name	Boot Option #1
Default Value	[USB Floppy]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	Boot Option #2
------------	----------------

Default Value	[USB CD/DVD]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>Boot Option #3</b>
Default Value	[Hard Disk]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>Boot Option #4</b>
Default Value	[USB Key]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>Boot Option #5</b>
Default Value	[USB Hard Disk]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>Boot Option #6</b>
Default Value	[NVME]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>Boot Option #7</b>
Default Value	[Network]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk NVME, Network, Disabled
Help	Sets the system boot order

Field Name	<b>(UEFI) USB Floppy Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available USB Floppy Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>(UEFI) USB CDROM/DVD ROM Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available USB CDROM/DVD Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>(UEFI) Hard Disk Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available Hard Disk Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>(UEFI) USB KEY Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available USB Key Drives.

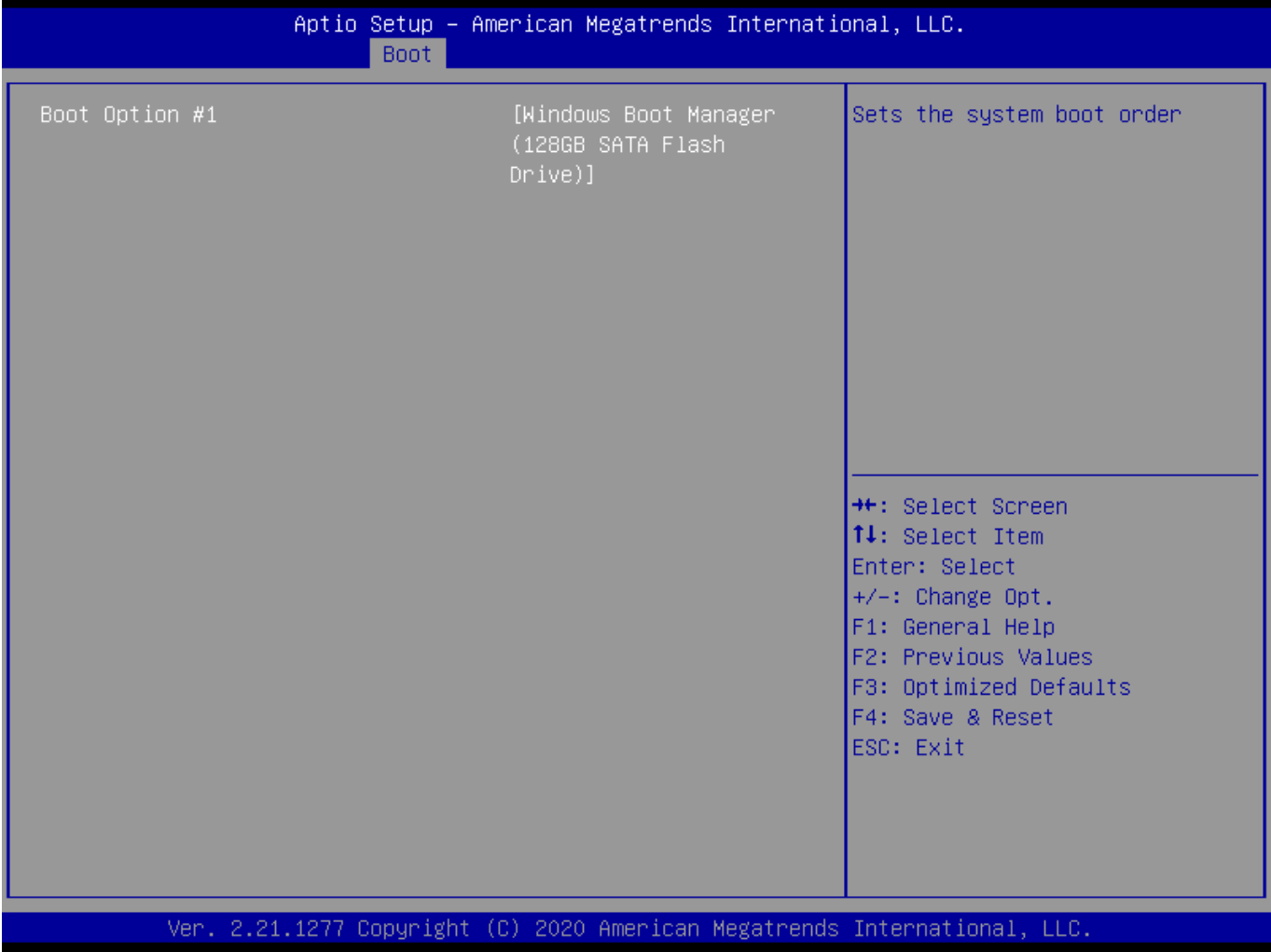
Comment	Press Enter when selected to go into the associated Sub-Menu.
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Field Name	<b>(UEFI) USB Hard Disk Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available USB Hard Disk Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	<b>(UEFI) NVME Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available NVME Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

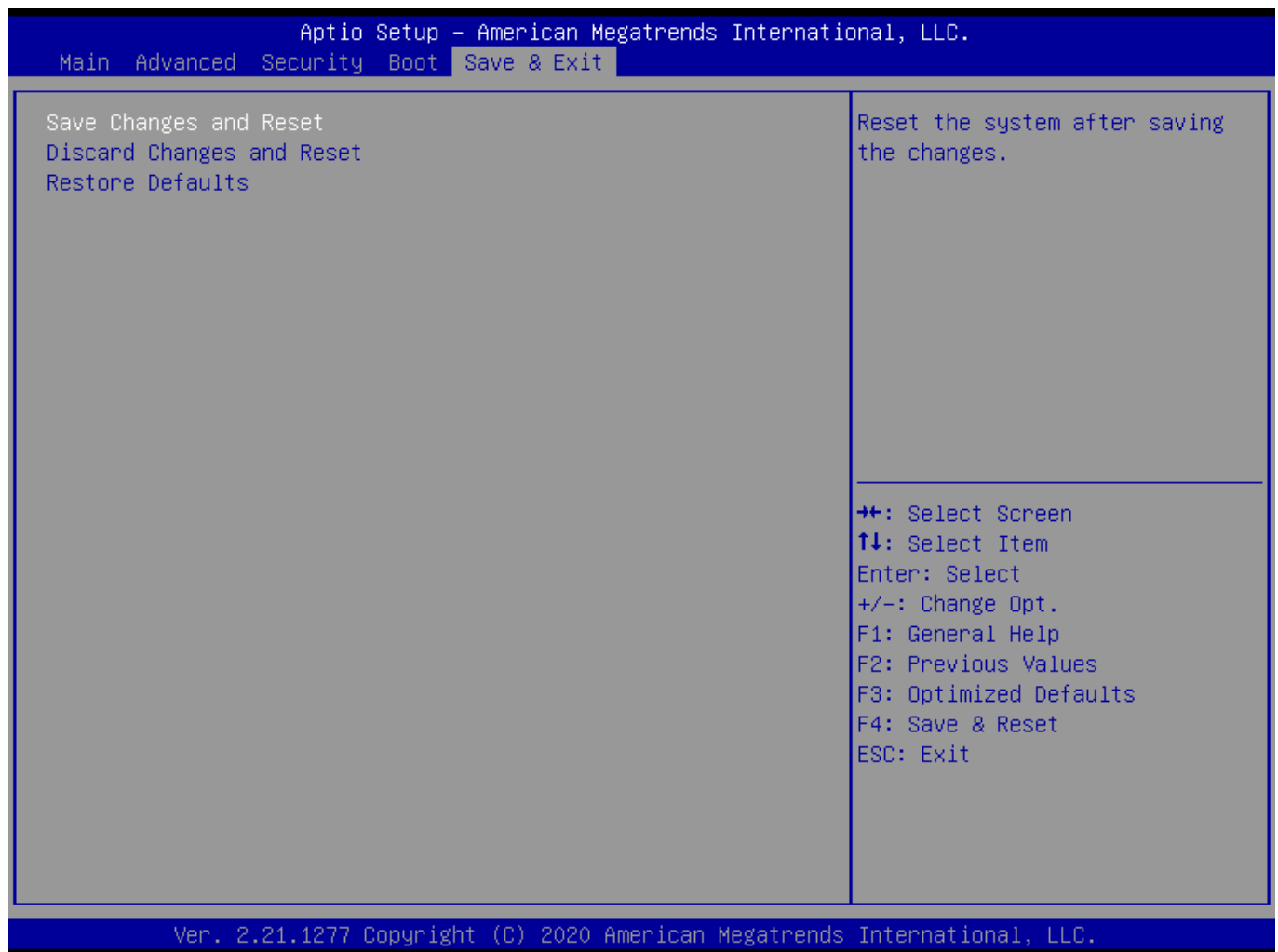
Field Name	<b>(UEFI) NETWORK Drive BBS Priorities</b>
Help	Specifies the Boot Device Priority sequence from available NETWORK Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

3.5.1 (List Boot Device Type) Drive BBS Priorities



Field Name	Boot Option #1
Default Value	
Possible Value	Boot Device Name 1 of this type, Disable
Help	Sets the system boot order

### 3.6 Save & Exit Page



Field Name	<b>Save Changes and Reset</b>
Help	Reset the system after saving the changes.

Field Name	<b>Discard Changes and Rest</b>
Help	Reset system setup without saving any changes.

Field Name	<b>Restore Defaults</b>
Help	Restore/Load Default values for all the setup options.