



MITAC COMPUTING TECHNOLOGY CORP.

MP1-11TGS Series

User Manual **V1.5**



Master Series Embedded System

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

PREFACE



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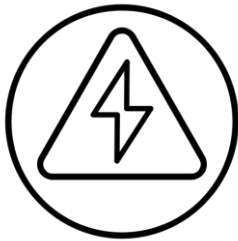

Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Declaration of Conformity

	FCC 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.
	CE 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>WARNING! / AVERTISSEMENT!</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>CAUTION/ATTENTION</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.

<div> <div>部件名称</div> <div>Part Name</div> </div>	<div> <div>有害物质</div> <div>Hazardous Substances</div> </div>					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr ⁺⁶)	多溴联苯(PBB)	多溴二苯(PBDE)
印刷电路板 PCBA	X	O	O	O	O	O
金属部件 Metal Parts	X	O	O	O	O	O
电缆及电缆组 Cable and Cable Assemblies	X	O	O	O	O	O
其他外壳组件 Other Enclosure components	O	O	O	O	O	O
说明书 Manual	O	O	O	O	O	O

本表格依据SJ/T 11364的规定编制。

This table is prepared in accordance with the provisions of SJ/T 11364-2014.

O:表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。

O: Indicates that the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T26572.

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。

X: Indicates that the hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T26572.



在中国大陆销售的相应电子信息产品(EIP)都必须遵照中国大陆《电子信息产品污染控制标识要求》标准贴上环保使用期限(EFUP)标签。MiTAC 产品所采用的 EFUP 标签【请参阅实例，徽标内部的编号使用于制定产品】基於中国大陆的《电子信息产品环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese Mainland must comply with the “Electronic Information Products Pollution Control Labeling Standard” of Chinese Mainland, marked with the Environmental Friendly Use Period (EFUP) logo. The number inside the EFUP logo that MiTAC uses (please refer to the photo) is based on the “Standard of Electronic Information Products Environmental Friendly Use Period” of Chinese Mainland.

Ordering Information



Model Number	CPU Model	Hot Swappable 2.5" HDD Tray	Xpansion Module Support	AC Adaptor
MP1-11TGS-6305E	Celeron 6305E	Single Tray	Only support M.2 Dual LAN port Xpansion	w/o AC Adaptor
MP1-11TGS-1115G4E	i3-1115G4E			
MP1-11TGS-1145G7E	i5-1145G7E			
MP1-11TGS-1185G7E	i7-1185G7E			
MP1-11TGS-6305E-AC	Celeron 6305E			w/ 72W AC to DC Adaptor
MP1-11TGS-1115G4E-AC	i3-1115G4E			
MP1-11TGS-1145G7E-AC	i5-1145G7E			
MP1-11TGS-1185G7E-AC	i7-1185G7E			
MP1-11TGS-D-6305E	Celeron 6305E	Dual Tray	Support all Xpansion models	w/o AC Adaptor
MP1-11TGS-D-1115G4E	i3-1115G4E			
MP1-11TGS-D-1145G7E	i5-1145G7E			
MP1-11TGS-D-1185G7E	i7-1185G7E			
MP1-11TGS-D-6305E-AC	Celeron 6305E			w/ 120W AC to DC Adaptor
MP1-11TGS-D-1115G4E-AC	i3-1115G4E			
MP1-11TGS-D-1145G7E-AC	i5-1145G7E			
MP1-11TGS-D-1185G7E-AC	i7-1185G7E			

Packing List

Item	Description	Q'ty
1	MP1-11TGS or MP1-11TGS-D Embedded System	1
2	Quick Installation Guide (1 page)	1
3	Wall Mount Brackets (2 pcs in 1 set)	2
4	Screw Pack (For HDD and Wall Mount Bracket)	1
5	3-pin Terminal Block Power Connector (For DC Power Input)	1
6	2-pin Terminal Block Power Connector (For Remote Power Control)	1
7	4-pin Terminal Block Power Connector (For DC-out connector, only for MP1-D)	1

Optional Xpansion Modules and Accessories

Model Number	Description
MS-48CDN-DT10 	Expansion Module with 4 x RS232 / 422 / 485, 8-bit Isolated DIDO (4 x DI, 4 x DO)
MS-04LAN-R10 	Expansion Module with 4 x Intel i210-IT Giga LAN, RJ45 Port
MS-04LAN-M10 	Expansion Module with 4 x Intel i210-IT Giga LAN, M12 Port
MS-04POE-R10 	Expansion Module with 4 x PoE+, Intel i210-IT Giga LAN, RJ45 Port
MS-04POE-M10 	Expansion Module with 4 x PoE+, Intel i210-IT Giga LAN, M12 Port
M2-02LAN-R10 	Expansion Module with 2 x Intel i210-IT Giga LAN, RJ45 Port
MS-01IGN-S10 	Vehicle Power Ignition Card, 12V/24V and Power ON/OFF Timing Selectable

MS-26CAD-T10 	Expansion module with 2 x CANBus 2.0B and 6-bit Isolated DIDO (3 x DI, 3 x DO)
MB-01DINVESA 	Din-rail + VESA 75x75mm holes Combo Mounting kit
MPE-072W24-3TUE	AC/DC 24V/3A, 72W 3PIN Terminal Block Power Adaptor with EU+US power cords
MPE-120W24-3TUE	AC/DC 24V/5A, 120W 3PIN Terminal Block Power Adaptor with EU+US power cords
MPE-220W24-3TUE	AC/DC 24V/9.2A, 220W 3PIN Terminal Block Power Adaptor with EU+US power cords

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INTRODUCTION

This chapter provides the MP1-11TGS Embedded System product overview, including features, hardware and mechanical specifications.

1

CHAPTER 1: INTRODUCTION

This chapter provides the MP1-11TGS Embedded System product overview, including features, hardware, mechanical specifications, and I/O placement.

1.1 Overview

MiTAC's MP1-11TGS embedded system is the next generation embedded system with Intel® 11st Gen. (10nm+ manufacturing process) Tiger Lake-UP3 processor which integrates Iris Xe outstanding graphic engine. The excellent graphic performance, performance processor, OCP/OVP power protection, and expandable design provide the solution for every complicated task and most types of application.

1.2 Product Features

MP1-11TGS Embedded System offers the following features:

- 11st Generation Intel® Tiger Lake-UP3 Core™ i7 / i5 / i3 / Celeron Processors
- Integrated Intel® Iris Xe Graphic Engine
- Quadruple Display with HDMI and DisplayPort Interface
- Fan-less chassis and Expandable module design
- Support COM/DIO/LAN/PoE via Xpansion Modules (Only for MP1-D model)
- Support Power Ignition for Vehicle Application via Xpansion Module (Only for MP1-D model)
- 8-24V Wide Power Voltage for MP1-11TGS; 12-36V Wide Power Voltage for MP1-11TGS-D
- 15W TDP: -40 ~ 70°C
28W TDP: -40 ~ 60°C

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

1.3 Hardware Specification

SYSTEM	
CPU	11 st Gen Tiger Lake-UP3 Intel® Core™ i 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
Storage Slot	MP1-11TGS 1 x Hot Swappable 2.5 HDD / SSD (Maximum 9.5mm height) 1 x M.2 B Key 2280/2260/2242 Slot MP1-11TGS-D 2 x Hot Swappable 2.5 HDD / SSD (Maximum 9.5mm height) 1 x M.2 B Key 2280/2260/2242 Slot 1 x mSATA Slot
Ethernet	Intel® I225-LM 2.5GbE LAN + Intel® I219-LM Giga LAN (Additional 2 x Intel® I210-IT Giga LAN for Options)
Audio	Realtek® ALC256
I/O Chipset	Nuvoton NCT6126D
TPM	Nuvoton NPCT750AABYX TPM2.0
Expansion Slot	MP1-11TGS 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 MP1-11TGS-D 2 x Xpansion slot (PoE/LAN/COM/DIO/IGN/CANBus Options) Mini PCIe Full size (USB2.0 / SATAIII / PCIex1) 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

Indicator	Power LED, HDD LED
FRONT I/O	MP1-11TGS 3 x RS232 1 x RS232 / 422 / 485 1 x Audio Combo Jack (Mic-in and Line-out) 1 x Hot Swappable 2.5" SSD/HDD slot (Maximum 9.5mm height) 2 x USB 2.0 2 x SMA Antenna (Optional for WiFi/LTE function) MP1-11TGS-D 3 x RS232 1 x RS232 / 422 / 485 1 x Audio Combo Jack (Mic-in and Line-out) 2 x Hot Swappable 2.5" SSD/HDD slot (Maximum 9.5mm height) 2 x USB 2.0 2 x SMA Antenna (Optional for WiFi/LTE function)
REAR I/O	MP1-11TGS 2 x DisplayPort 1.2 2 x HDMI 1.4 2 x RJ-45 4 x USB 3.1 Gen 2 (10 Gbps) 1 x 3-pin Terminal Block Power Input 1 x 2-pin Terminal Block Remote Power on / off 2 x SMA Antenna (Optional for WiFi/LTE function) MP1-11TGS-D 2 x DisplayPort 1.2 2 x HDMI 1.4 2 x RJ-45 4 x USB 3.1 Gen 2 (10 Gbps) 1 x 3-pin Terminal Block Power Input 1 x 2-pin Terminal Block Remote Power on / off 1 x 4-pin Terminal Block Power Output (12V / 5V) 4 x SMA Antenna (Optional for WiFi/LTE function)
Watchdog Timer	1~255 Steps by Software Program
POWER REQUIREMENT	
Power Input	MP1-11TGS 8~24V Wide Range DC Input w/ Terminal Block Connectivity *Power Ignition Xpansion module is only optional in MP1-11TGS-D model. MP1-11TGS-D 12~36V Wide Range DC-in Input w/ 3-pin Terminal Block Connectivity *Optional Xpansion Module for Power Ignition

MECHANICAL	
Thermal Design	Fanless
Mounting	Wall Mount / Side Mount 75 mm x 75 mm VESA Holes & Din Rail Mount Combo Kit (Optional)
Dimension	a. MP1-11TGS: 8.3" x 5.9" x 2.5" (210 x 150 x 63 mm) b. MP1-11TGS-D: 8.3" x 5.9" x 4" (210 x 150 x 103 mm)
Material	Top cover: Aluminum Alloy , Bezel and chassis: Steel
ENVIRONMENTAL	
Operating Temperature	15W TDP/cTDP: -40 ~ 70°C 28W TDP: -40 ~ 60°C *with 0.7m/s Air Flow (w/ Extended Temp. SSD/mSATA/RAM)
Operating Humidity	10%~95% R/H (Non-condensing)
Vibration Resistance	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock Resistance	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	EMC: CE & FCC Safety: compliant with LVD, EN62368-1
OS	
OS Support	Windows® 10 64-bit, Linux (support by request)

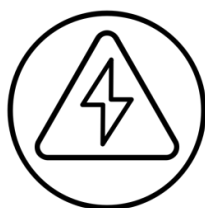


**Notes¹: Installation in Restricted Access Location (RAL)*

A restricted access location is a designated area within an incident area (High or Low temperature environment)

With authorized people can enter for a period of time and for a specific purpose.

- 1. Access can only be gained by service people or by users who have been instructed about the reasons for the Restrictions applied to the location and about any precautions that shall be taken.*
- 2. Access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority Responsible for the location.*



**Notes²: Please make sure that the power consumption is in the spec of the power supply output capability from AC adaptor (72W or 120W). Please choose the suitable AC adaptor for your application.*

AC/DC 24V/3A, 72W 3PIN Terminal Block Power Adaptor

AC/DC 24V/5A, 120W 3PIN Terminal Block Power Adaptor



**Note³: The safety ambient operating temperature is 40 degree C if the external AC adapter model: EA10681V or EA11011M will be placed in the same high temperature area with the embedded system.*



**Note⁴: In the PXE application, please install i219-LM driver in OS image in advance before installing OS via PXE server.*

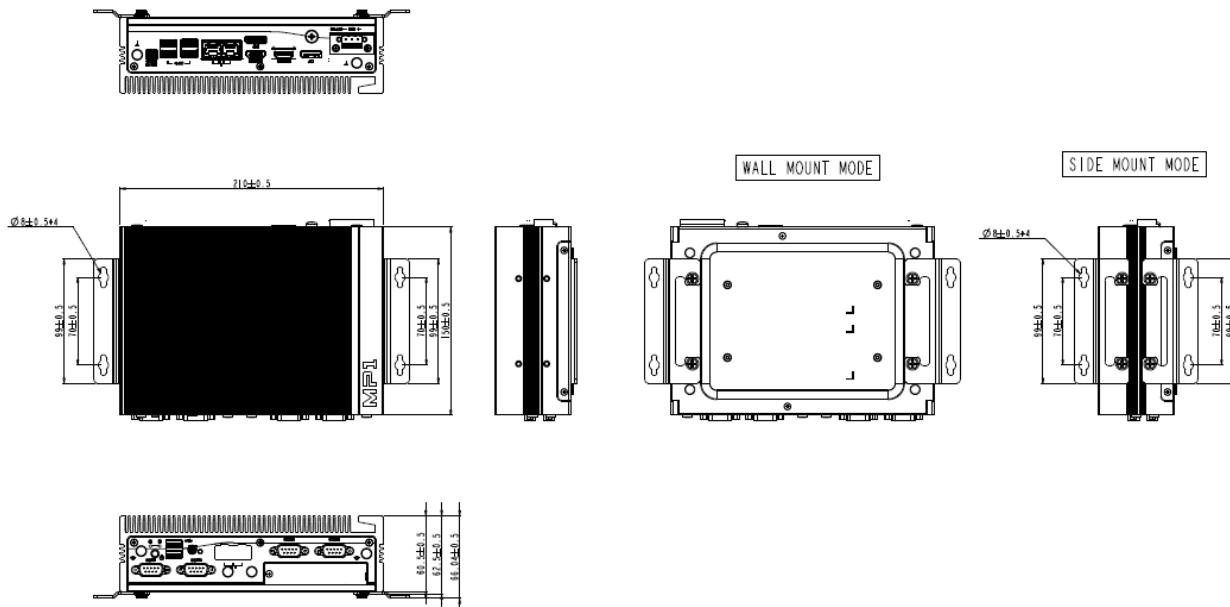


**Note⁵: CAUTION - Lithium battery is included in this embedded system. Please do not puncture, mutilate, or dispose of battery in fire. There will be danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.*

1.4 Mechanical Specification

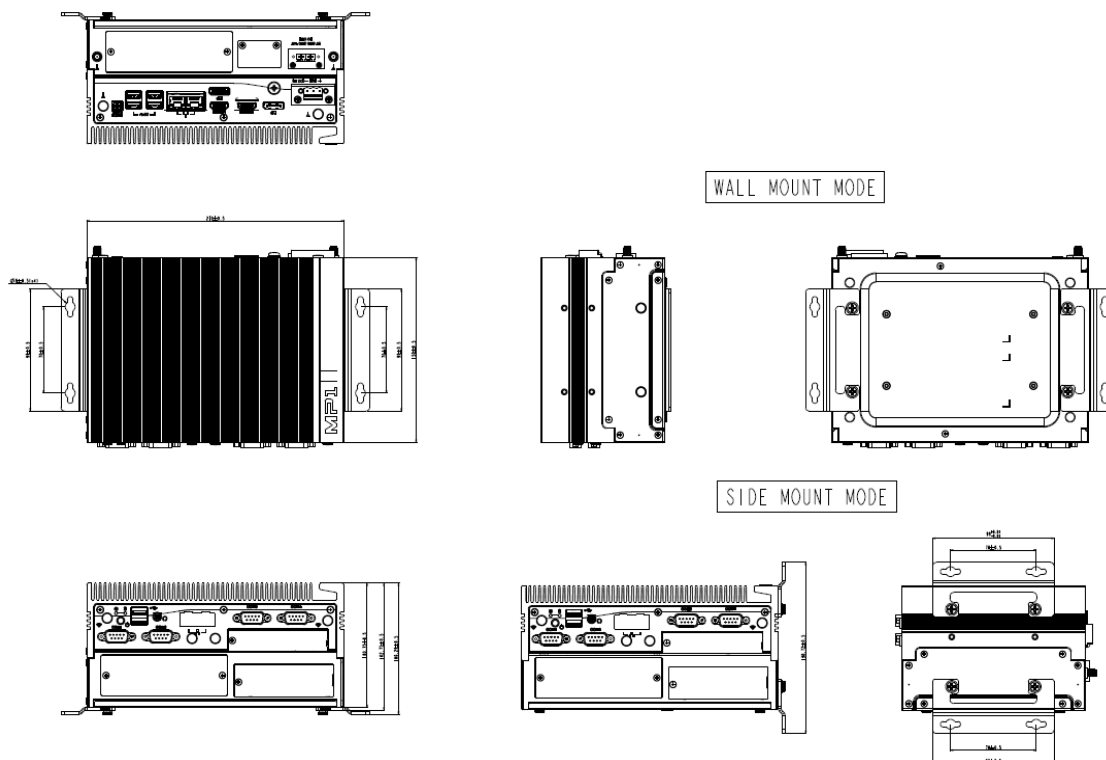
MP1-11TGS

- Mechanical Dimension: 210 mm x 150 mm x 63 mm



MP1-11TGS-D

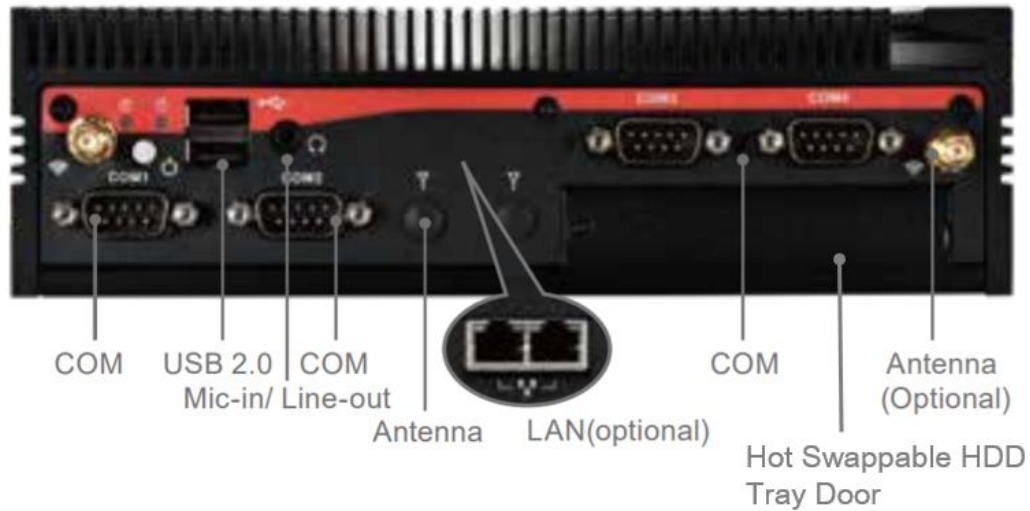
- Mechanical Dimension: 210 mm x 150 mm x 103 mm



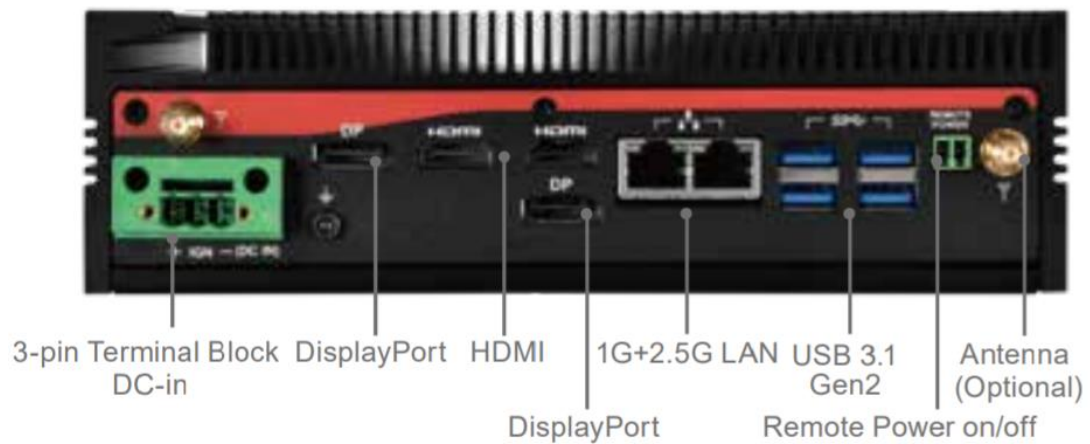
1.5 System I/O Placement

MP1-11TGS

■ Front I/O:



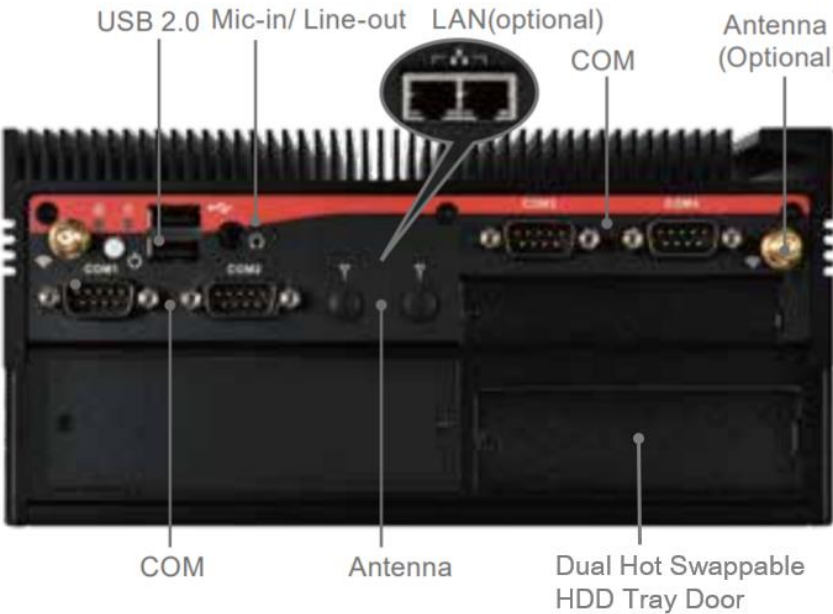
■ Rear I/O:



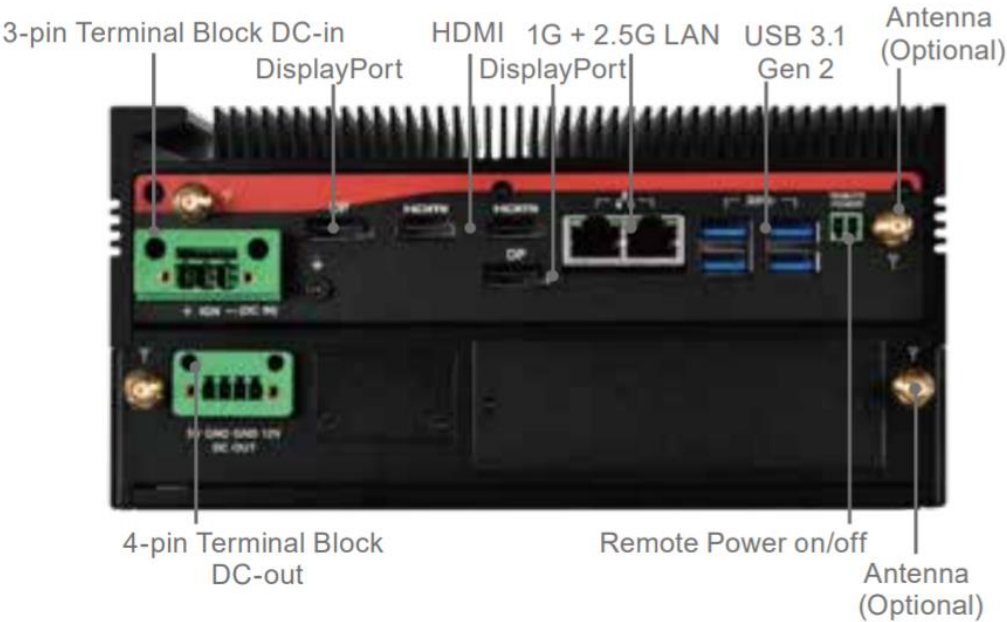
* Power Ignition Xpansion module is only optional for MP1-11TGS-D model.
MP1-11TGS doesn't support IGN

MP1-11TGS-D

■ Front I/O:




■ Rear I/O:



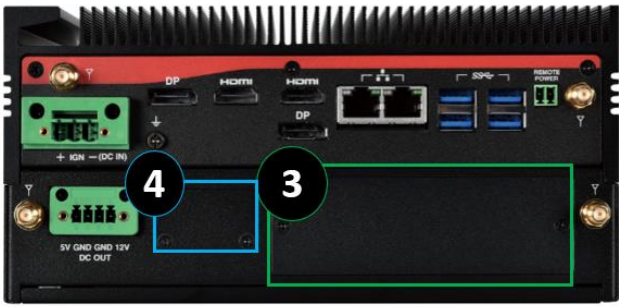
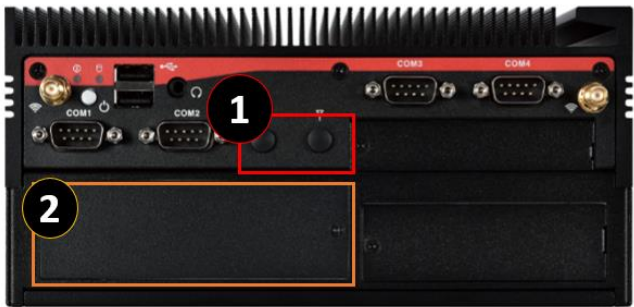
■ Xpansion Module (Optional) Configuration Table









MP1-11TGS



Model Number		Function	1
M2-02LAN-R10		2 x GbE LAN (RJ45)	V

MP1-11TGS-D



Model Number		Function	1	2	3	4
MS-48CDN-DT10		4 x COM; 8 x DIDO		V	V	
MS-04LAN-R10		4 x GbE LAN (RJ45)		V	V	
MS-04LAN-M10		4 x GbE LAN (M12)		V	V	
MS-04POE-R10		4 x PoE LAN (RJ45)		V	V	
MS-04POE-M10		4 x PoE LAN (M12)		V	V	
M2-02LAN-R10		2 x PoE LAN (RJ45)	V			
MS-01IGN-S10		Vehicle Power Ignition				V
MS-26CAD-T10		2 x CANBus (3PIN*2) 6 x DIDO (2x5PIN)		V	V	

■ **MP1-11TGS-D (Dual Layer Model) Xpansion / mPCle / SATA Configuration Table**

	Xpansion_A (All)	Xpansion_B (All)	mSATA SSD	mPCle	2nd 2.5" SATA HDD/SSD
Config#1	O	O	X	X	O
Config#2	X	O	O	X	O
Config#3	X	O	X	O	O

DIP SWITCH SETTING AND PIN DEFINITION

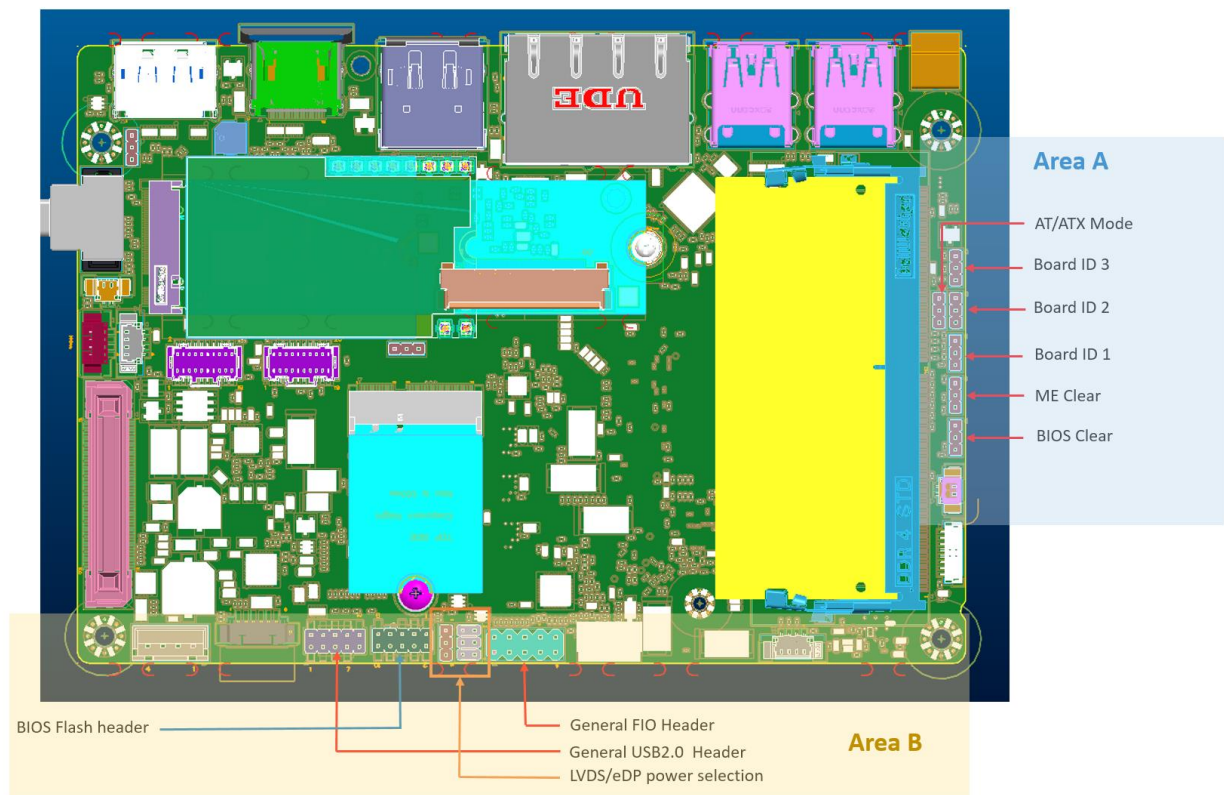
This chapter provides information about how to set up the dip switch and use internal I/Os of MP1-11TGS Embedded System hardware.

2

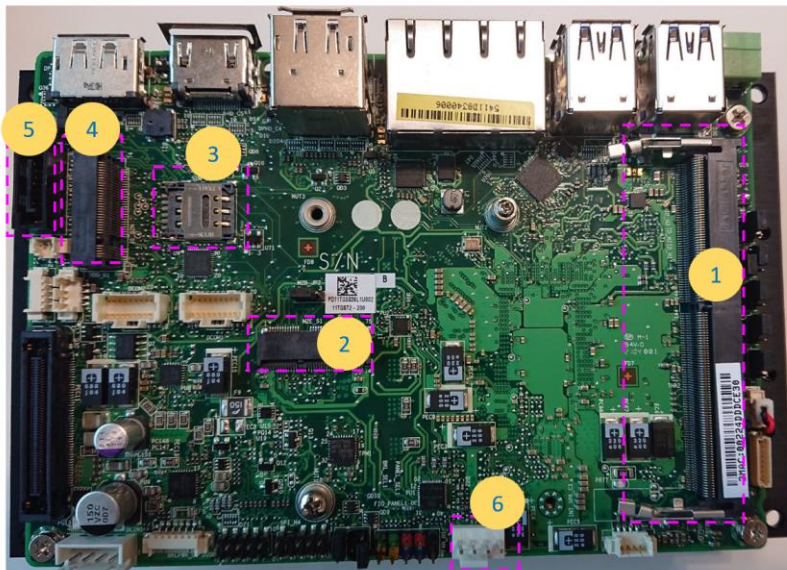
CHAPTER 2: DIP SWITCH SETTING AND PIN DEFINITION

This chapter provides information about how to set up the dip switch, and use internal I/Os of MP1-11TGS Embedded System hardware.

2.1 Jumper and Internal Connector Overall Placement

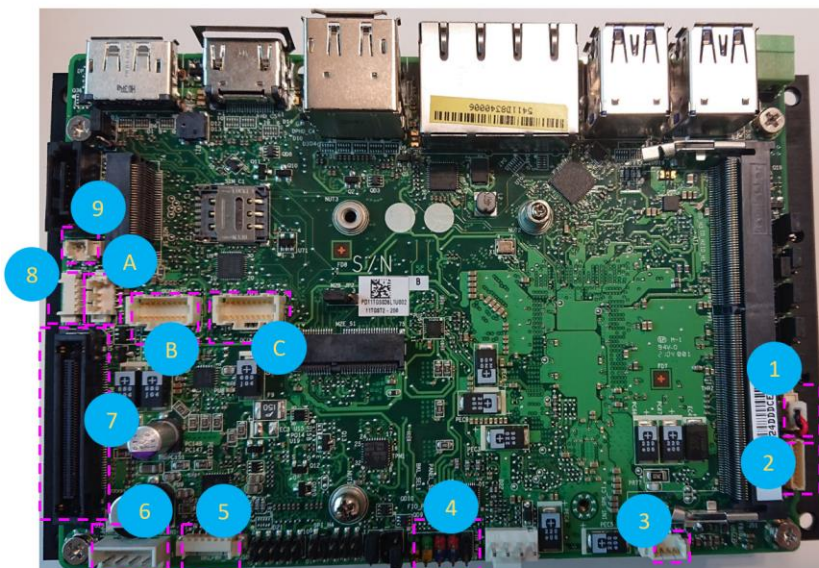


Standard Connectors



- 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)

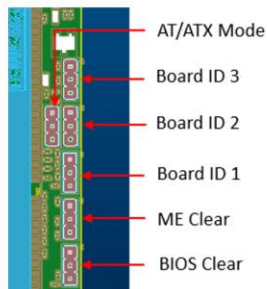
Special Connectors



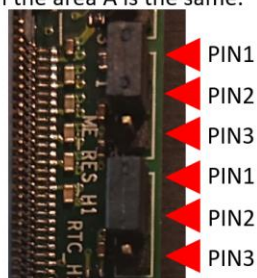
- 1 **RTC Battery Socket**
(CR2025 cable type)
- 2 **Audio socket**
(Connect to MH-02FIO-U10)
- 3 **Speaker socket**
(Connect to 4 ohm speaker)
- 4 **Front I/O Header**
(General type or connect to MH-02FIO-U10)
- 5 **Panel Backlight Power socket**
(Support 5V or 12V)
- 6 **DC Input socket**
(DC source 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 Pin2-Pin3 [ATX mode/default]
System power on by power switch or wake up event
Jumper is set to Pin2-Pin1
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

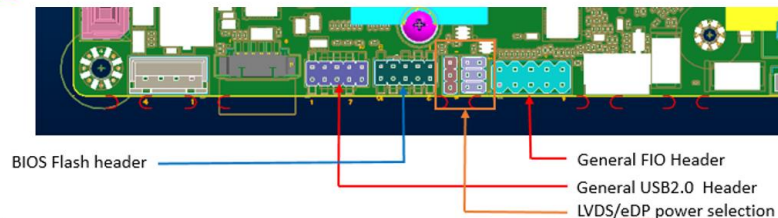
Jumper is set to Pin1-Pin2 [default]
Keep current ME setting.
Jumper is set to Pin2-Pin3
Intel ME will be cleared to the default setting.

● 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.

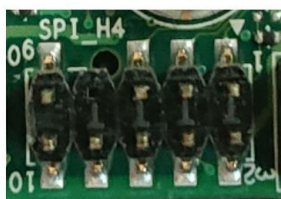
Jumper Setting

Area B



● BIOS Flash Header

This header is used for debugging or updating the BIOS.



PIN	Name
1	ROM_CS0
2	3VSB (3.3V)
3	ROM_MISO
4	ROM_IO3
5	ROM_IO2
6	ROM_CLK
7	X
8	ROM_MOSI
9	GND
10	NC

2.3 Internal Connector Pin Definition

Standard Connectors

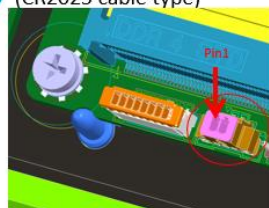
- M.2 B-KEY Slot**
(PCIEx1,USB2.0, SATA & NVMe SSD support)

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) (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

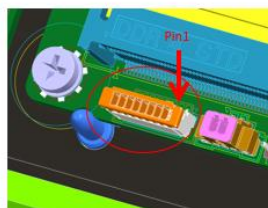
- 1 **RTC Battery Socket**
(CR2025 cable type)



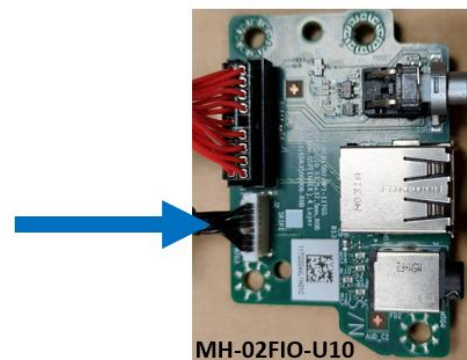
PIN	Name
1	VBAT
2	GND



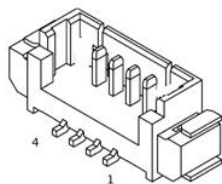
- 2 **Audio socket**
(Connect to MH-02FIO-U10)



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



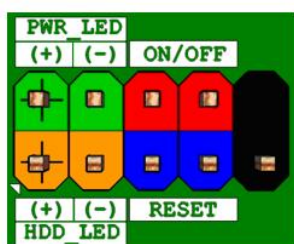
3 Speaker socket
(Connect to 4 ohm speaker)



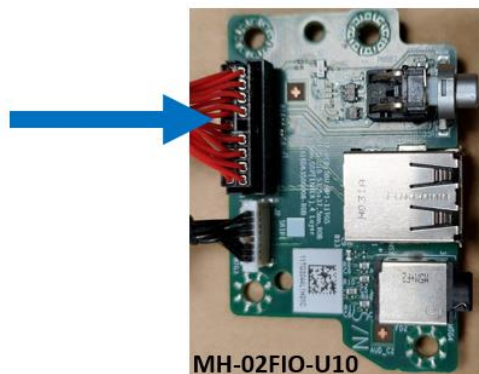
PIN	Name
1	LINE OUT L-
2	LINE OUT L+
3	LINE OUT R-
4	LINE OUT R+



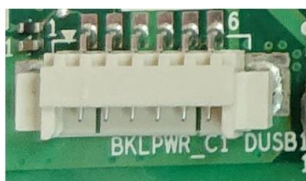
4 Front I/O Header
(General type or connect to MH-02FIO-U10)



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)



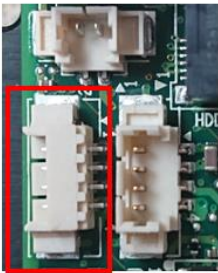
PIN	Name
1	GND
2	DC_IN(8-24V)
3	DC_IN(8-24V)
4	GND

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

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



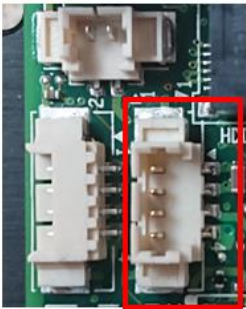
8 Output Power connector
(DC 5V/1A & 12V/A output support)



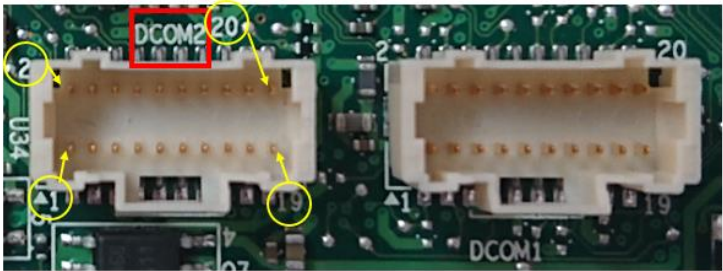
PIN	Name
1	NA
2	GND
3	5V / 1A
4	12V / 1A

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



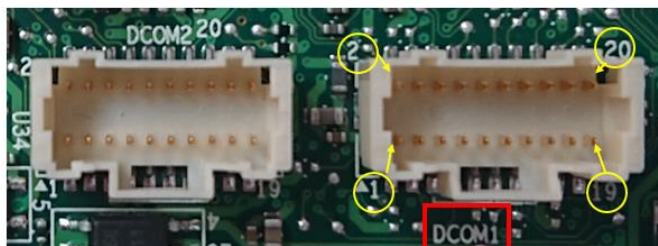
B Dual COM Port connector DCOM2
(RS232)



PIN	RS232
1	ND3D3
2	NRX3
3	NTX3
4	NDTR3
5	GND
6	NDSR3
7	NRTS3
8	NCTS3
9	NRI3
10	X
11	ND3D4
12	NRX4
13	NTX4
14	NDTR4
15	GND
16	NDSR4
17	NRTS4
18	NCTS4
19	NRI4
20	X



Dual COM Port connector DCOM1 (RS232/422/485) (RS232)

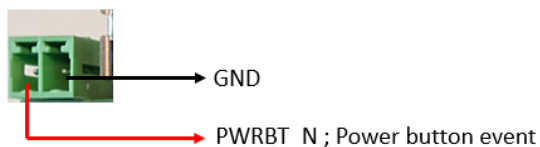


Reference cable concept drawing

PIN	RS232	RS422	RS485
1	NDCD1	TX-	D-
2	NRX1	TX+	D+
3	NTX1	RX+	X
4	NDTR1	RX-	X
5	GND	GND	GND
6	NDSR1	X	X
7	NRTS1	X	X
8	NCTS1	X	X
9	NRI1	X	X
10	X	X	X
11	NDCD2	X	X
12	NRX2	X	X
13	NTX2	X	X
14	NDTR2	X	X
15	GND	X	X
16	NDSR2	X	X
17	NRTS2	X	X
18	NCTS2	X	X
19	NRI2	X	X
20	X	X	X

2.4 External Connector Pin Definition

● 2 PIN terminal block for Power Button

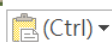


● RJ45 Connector



Port A
2.5G

Port B
1.0G



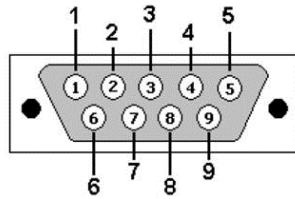
Port B 1.0G

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

■ COM#1-3 (RS232) / COM#4 (RS232/422/485)



Pin No	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	RTX	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

■ 3-pin terminal block for DC Input



Pin	Signal
1	DC IN +8~24VIN (MP1-11TGS)/+12~36VIN (MP1-11TGS-D)
2	*Ignition (IGN)
3	GND

*Only available in MP1-11TGS-D model.

- 4-pin terminal block for DC Output (for MP1-11TGS-D model only)



Pin	Signal
1	5V (max. amp 1A)
2	GND
3	GND
4	12V (max. amp 1A)

2.5 Xpansion Module MS-48CDN-DT10

This Module MS-48CDN-DT10 consists of two parts, one is Serial COM, and the other is Digital IO function.



Please see the guideline about how to set up this Module correctly.

■ COM Port Setting

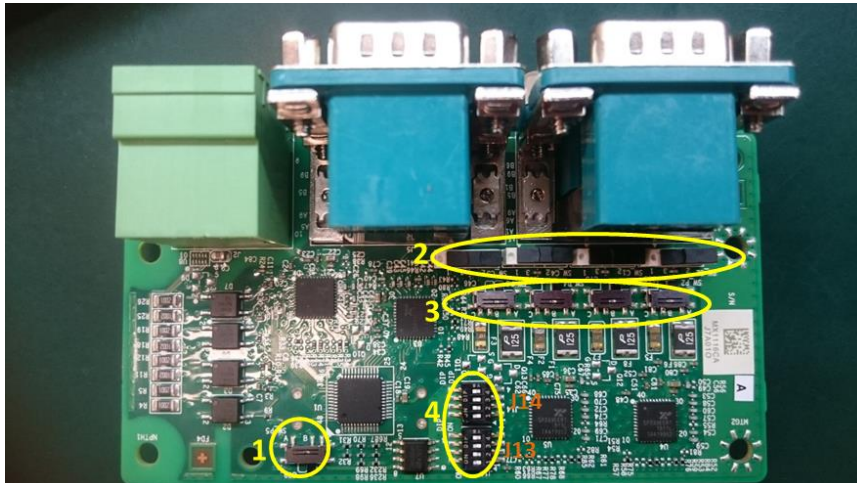
a. Location

MS-48CDN-DT10 has total 4 x COM port. These COM ports can be set to be RS232/RS422/RS485 or powered RS232. There are 2 kinds of Xpansion COM driver.

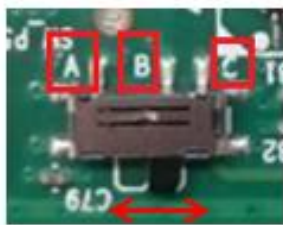
One is standard non-fixed COM port order driver, and the other one is fixed COM order driver. If what you install is fixed COM port order driver, the position will be as follows.

MS-48CDN-DT10 Xpansion #A	MS-48CDN-DT10 Xpansion #A
	

b. Dip Switch Function



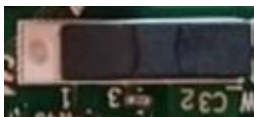
(1) COM PID selection switch



Set A-B; COM PID 0x1414 is determined by UART controller (default).

Set B-C; COM PID 0x1415 is determined by EEPROM (setting for 2nd MS-48CDN-DT10).

(2) Powered COM enable switch



Set to the right(default)
Normal COM port (Pin9 = signal)



Set to the left
Powered COM port (Pin9 = VDD)

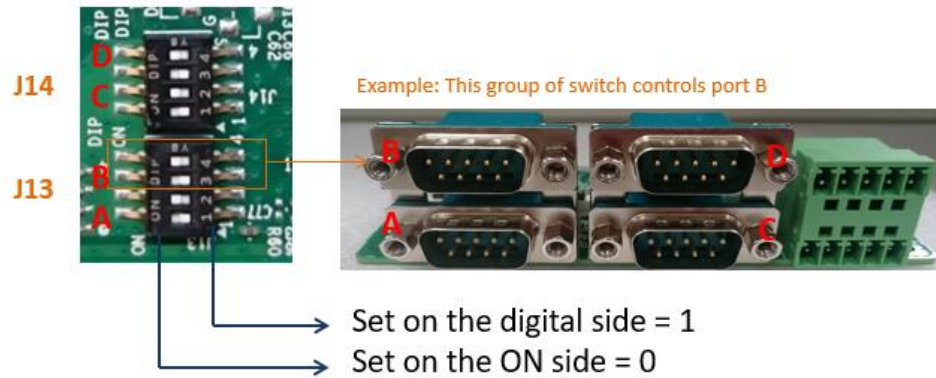
(3) Powered COM power source selection switch



Set A-B; VDD = 12V (Default)

Set B-C; VDD = 5V

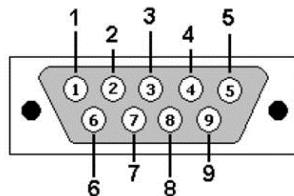
(4) COM Mode setting switch



Switch	Bit	COM Port	Test Mode	RS485	RS232 (Default)	RS422
J14	4	Port D	0	1	0	1
	3		0	0	1	1
	2	Port C	0	1	0	1
	1		0	0	1	1

Switch	Bit	COM Port	Test Mode	RS485	RS232 (Default)	RS422
J13	4	Port B	0	1	0	1
	3		0	0	1	1
	2	Port A	0	1	0	1
	1		0	0	1	1

(5) COM Port Pinout



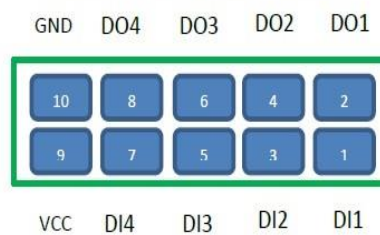
Pin No	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	RTX	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

■ Digital IO Port

MS-48CDN-DT10 has total 8-bit GPIO, the position is as follows.



DIDO board pin definition



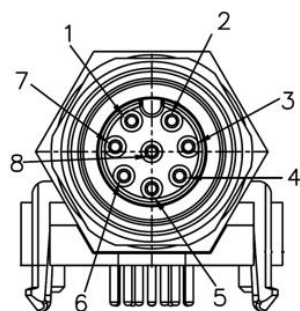
DIO Xpansion #A (Front I/O)	DIO Xpansion #B (Rear I/O)

PIN	HW	Left DIO Order	Right DIO Order	Description
PIN1	DI_1	21	11	Digital Input 1
PIN2	DO_1	22	12	Digital Output 1
PIN3	DI_2	23	13	Digital Input 2
PIN4	DO_2	24	14	Digital Output 2
PIN5	DI_3	25	15	Digital Input 3
PIN6	DO_3	26	16	Digital Output 3
PIN7	DI_4	27	17	Digital Input 4
PIN8	DO_4	28	18	Digital Output 4
PIN9	VCC	-	-	VCC
PIN10	GND	-	-	Ground

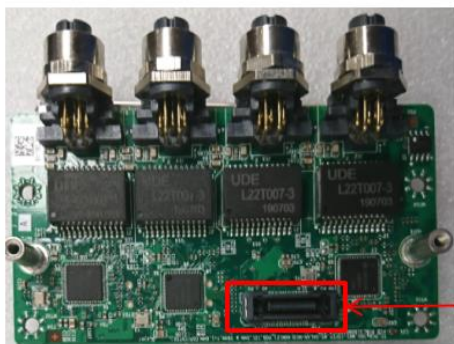
2.6 Xpansion Module MS-04LAN-M10

This Module is a Giga LAN module, which supports four M12 type interfaces. Combined with MS-01PON-S10 to support PoE (typeA).

■ **M12 Code A LAN Module Pin definitions**



PIN	Signal	POE typeA
1	LAN_MDI1+	DC+
2	LAN_MDI1-	DC+
3	LAN_MD20+	DC-
4	LAN_MDI2-	
5	LAN_MDI3+	
6	LAN_MDI3-	DC-
7	LAN_MDI4+	
8	LAN_MDI4-	

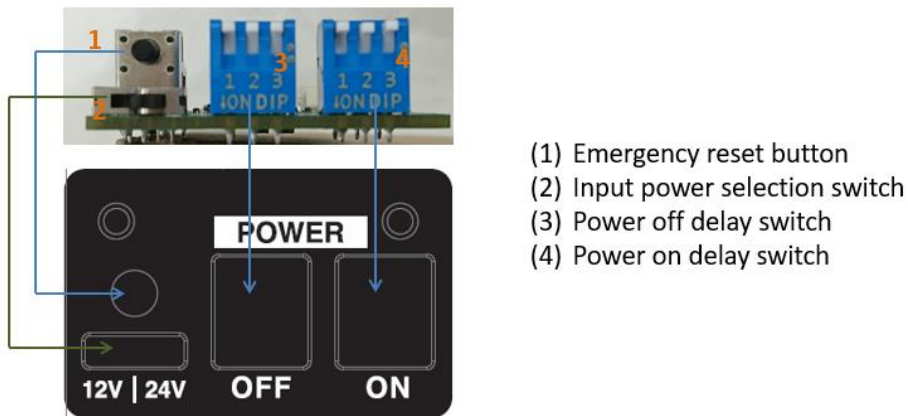


Use for connecting to MS-01PON-S10

2.7 Xpansion Module MS-01IGN-S10

This Module MS-01IGN-S10 can detect vehicle ignition status and control the on/off delay time setting. This document is used to guide how to set up this power ignition module correctly.

a. Location



b. Function

✓ Emergency reset button

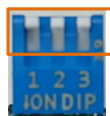
This button is for engineering use only. The host will be reset when this button is pressed.

✓ Input power selection switch

Common car power supplies are DC 12V or 24V. Please set it according to your environment.

c. Delay Power On/Off Setting Switch

This feature detects the ignition signal status and allows users to control the on/off delay time setting through DIP switch.



set on up side = 0



set on down side = 1

Power Off Delay Time Table

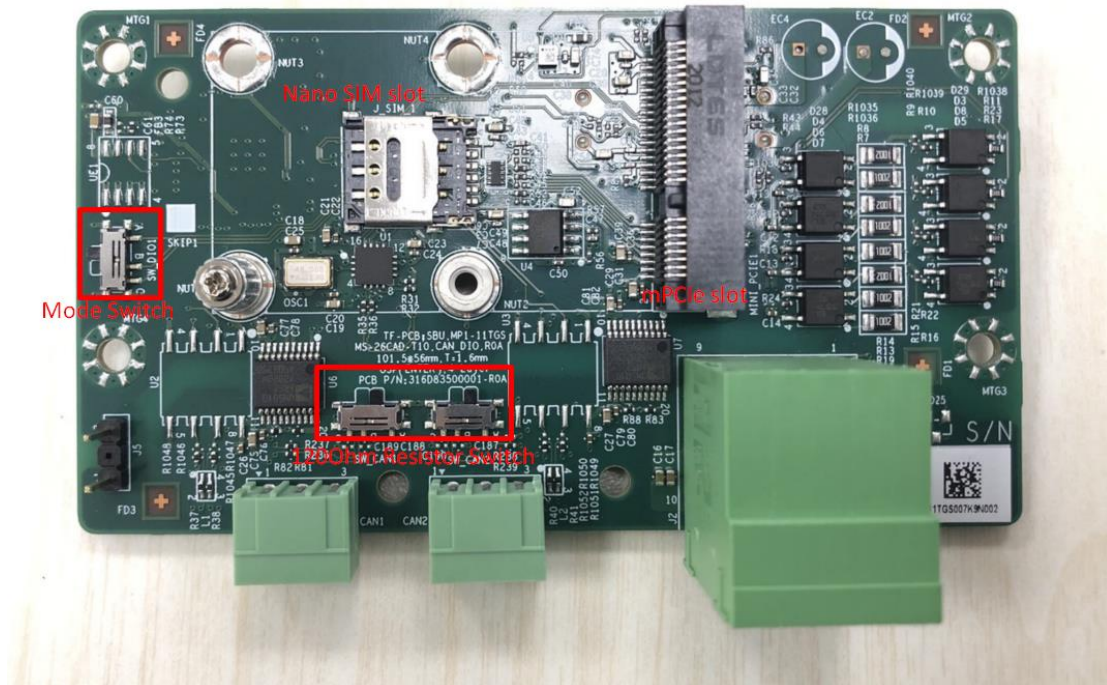
1	2	3	
0	0	0	0 second
0	0	1	1 minute
0	1	0	3 minutes
0	1	1	5 minutes
1	0	0	10 minutes
1	0	1	30 minutes
1	1	0	1 hour
1	1	1	2 hours

Power On Delay Time Table

1	2	3	
0	0	0	0 second
0	0	1	3 seconds
0	1	0	4 seconds
0	1	1	10 seconds
1	0	0	15 seconds
1	0	1	20 seconds
1	1	0	25 second
1	1	1	30 seconds

2.8 Xpansion Module MS-26CAD-T10

a. Internal Location



1. Mode Switch:

Default Dip Switch is set to PIN1-PIN2. **[6-bit GPIO + G sensor]**

*G-sensor is only available in MP1-11TGS-D model. Not work on MX1-10FEP model.

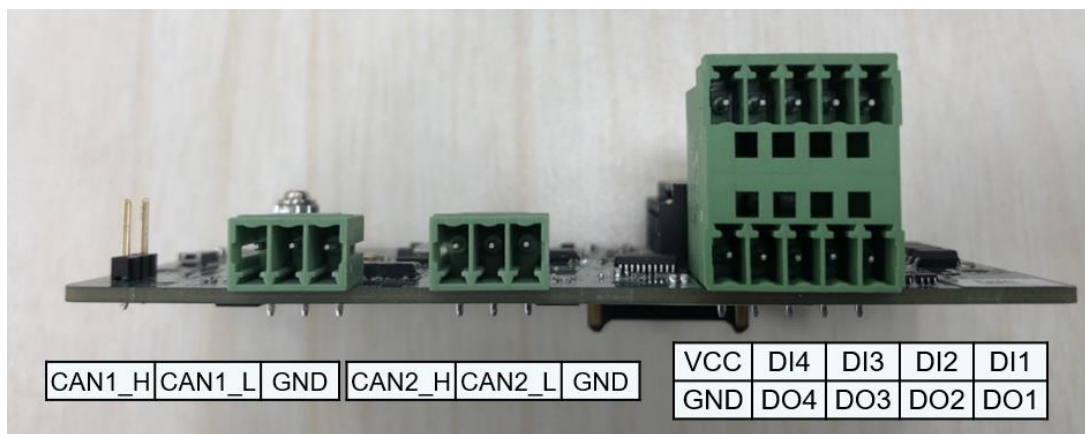
Set to PIN2-PIN3 **[8-bit GPIO]**

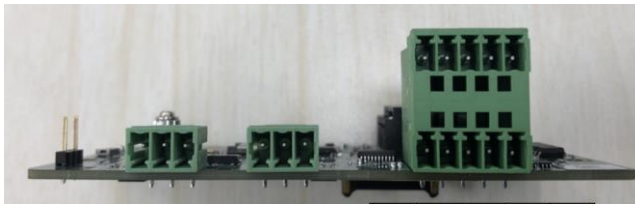
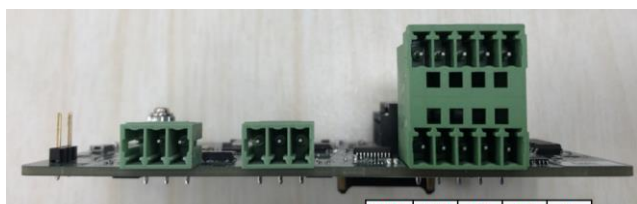
2. 120Ohm Resistor Switch:

Default Dip Switch is set to PIN1-PIN2. **[With 120Ohm Terminal Resistor]**

Set to PIN2-PIN3 **[Without Terminal Resistor]**

b. Rear I/O Location



DIO Xpansion #A (Front I/O)	DIO Xpansion #B (Rear I/O)																				
																					
6-bit GPIO + G-sensor Mode	6-bit GPIO + G-sensor Mode																				
<table><tr><td>VCC</td><td>N/A</td><td>25</td><td>23</td><td>21</td></tr><tr><td>GND</td><td>N/A</td><td>26</td><td>24</td><td>22</td></tr></table>	VCC	N/A	25	23	21	GND	N/A	26	24	22	<table><tr><td>VCC</td><td>N/A</td><td>15</td><td>13</td><td>11</td></tr><tr><td>GND</td><td>N/A</td><td>16</td><td>14</td><td>12</td></tr></table>	VCC	N/A	15	13	11	GND	N/A	16	14	12
VCC	N/A	25	23	21																	
GND	N/A	26	24	22																	
VCC	N/A	15	13	11																	
GND	N/A	16	14	12																	
8-bit GPIO Mode	8-bit GPIO Mode																				
<table><tr><td>VCC</td><td>27</td><td>25</td><td>23</td><td>21</td></tr><tr><td>GND</td><td>28</td><td>26</td><td>24</td><td>22</td></tr></table>	VCC	27	25	23	21	GND	28	26	24	22	<table><tr><td>VCC</td><td>17</td><td>15</td><td>13</td><td>11</td></tr><tr><td>GND</td><td>18</td><td>16</td><td>14</td><td>12</td></tr></table>	VCC	17	15	13	11	GND	18	16	14	12
VCC	27	25	23	21																	
GND	28	26	24	22																	
VCC	17	15	13	11																	
GND	18	16	14	12																	

HW	Front DIO Order	Rear DIO Order	Description
DI_1	21	11	Digital Input 1
DO_1	22	12	Digital Output 1
DI_2	23	13	Digital Input 2
DO_2	24	14	Digital Output 2
DI_3	25	15	Digital Input 3
DO_3	26	16	Digital Output 3
DI_4	27	17	Digital Input 4
DO_4	28	18	Digital Output 4
VCC	-	-	VCC
GND	-	-	Ground

SYSTEM SETUP

This chapter provides information about how to set up the MP1-11TGS Embedded System hardware installation.

3

CHAPTER 3: SYSTEM SETUP

This chapter provides information about how to set up the MP1-11TGS Embedded System hardware installation.



Warning: The edge of MP1-11TGS aluminum extrusion fins is a little bit sharp. Please be careful when you move the unit, do the installation, and operate the embedded system!

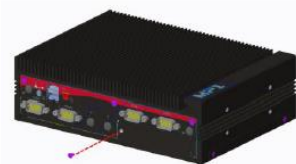
MP1-11TGS

Quick Assembly Guide



5615D8350001

Disassemble HDD Dummy Cover



1. Loosen screw from HDD dummy cover as dash line location and remove cover.

Release HDD Tray



2. Lift lever of HDD tray as arrow direction & draw out HDD tray.

Open Bottom Cover



3. Loosen 6 screws from Bottom cover as the dash line locations.

DRAM Maintenance



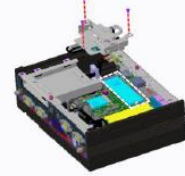
4. Install DIMM to MB on dash line area.

M.2 WiFi Installation



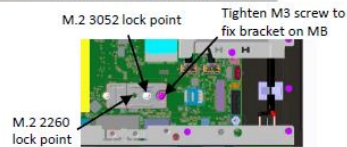
5. Install WiFi card on M.2 slot & plug in antenna IPEX header on WiFi card as arrow locations.

M.2 SSD Installation



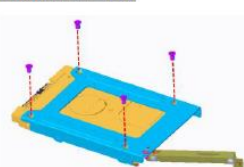
6. Loosen 3 screws of rear HDD cage , **no need unplug any cable** . Install M.2 SSD on M.2 slot on dash line area.

M.2 transfer bracket Installation



7. Pick up M.2 transfer bracket from accessory and fix it on MB by M3 screw . It could be support 3052 or 2260 type of M.2 card and switch lock point by hexagon standoff.

HDD Installation on Tray




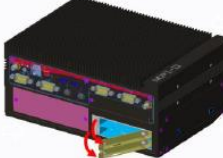

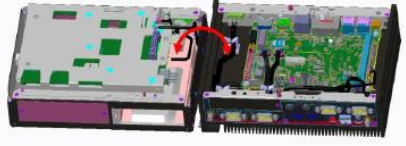



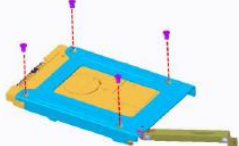
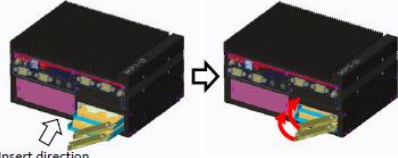
8. Pick up M3 screw kit from accessory and fixed as dash line locations.

HDD Tray Installation to Chassis



9. Insert HDD tray to chassis and turn back lever as arrow direction when feel tray is stuck and cannot move on.



<p><u>Disassemble HDD Dummy Cover</u></p>  <p>1. Loosen screw from HDD dummy cover as dash line location and remove cover.</p>	<p><u>Release HDD Tray</u></p>  <p>2. Lift both of HDD tray's lever as arrow direction & draw out HDD tray.</p>	<p><u>Separate Bottom Layer</u></p>  <p>3. Loosen 4 screws from side of chassis as the dash line locations and lift bottom layer.</p>
<p><u>Depart Bottom Layer</u></p>  <p>4. Rotate bottom layer as shown and no need to unplug any cable.</p>	<p><u>DRAM Maintenance</u></p>  <p>5. Install DIMM to MB on dash line area.</p>	<p><u>M.2 WiFi & SSD Installation</u></p>  <p>6. Install WiFi card on M.2 slot & plug in antenna IPEX header on WiFi card as arrow locations . M.2 SSD install on dash line area.</p>
<p><u>M.2 transfer bracket Installation</u></p>  <p>7. Pick up M.2 transfer bracket from accessory and fix it on MB by M3 screw . It could be support 3052 or 2260 type of M.2 card and switch lock point by hexagon standoff.</p>	<p><u>HDD Installation on Tray</u></p>  <p>8. Pick up M3 screw kit from accessory and fixed as dash line locations.</p>	<p><u>HDD Tray Installation to Chassis</u></p>  <p>9. Insert HDD tray to chassis and turn back lever as arrow direction when feel tray is stuck and cannot move on.</p>

BIOS SETUP

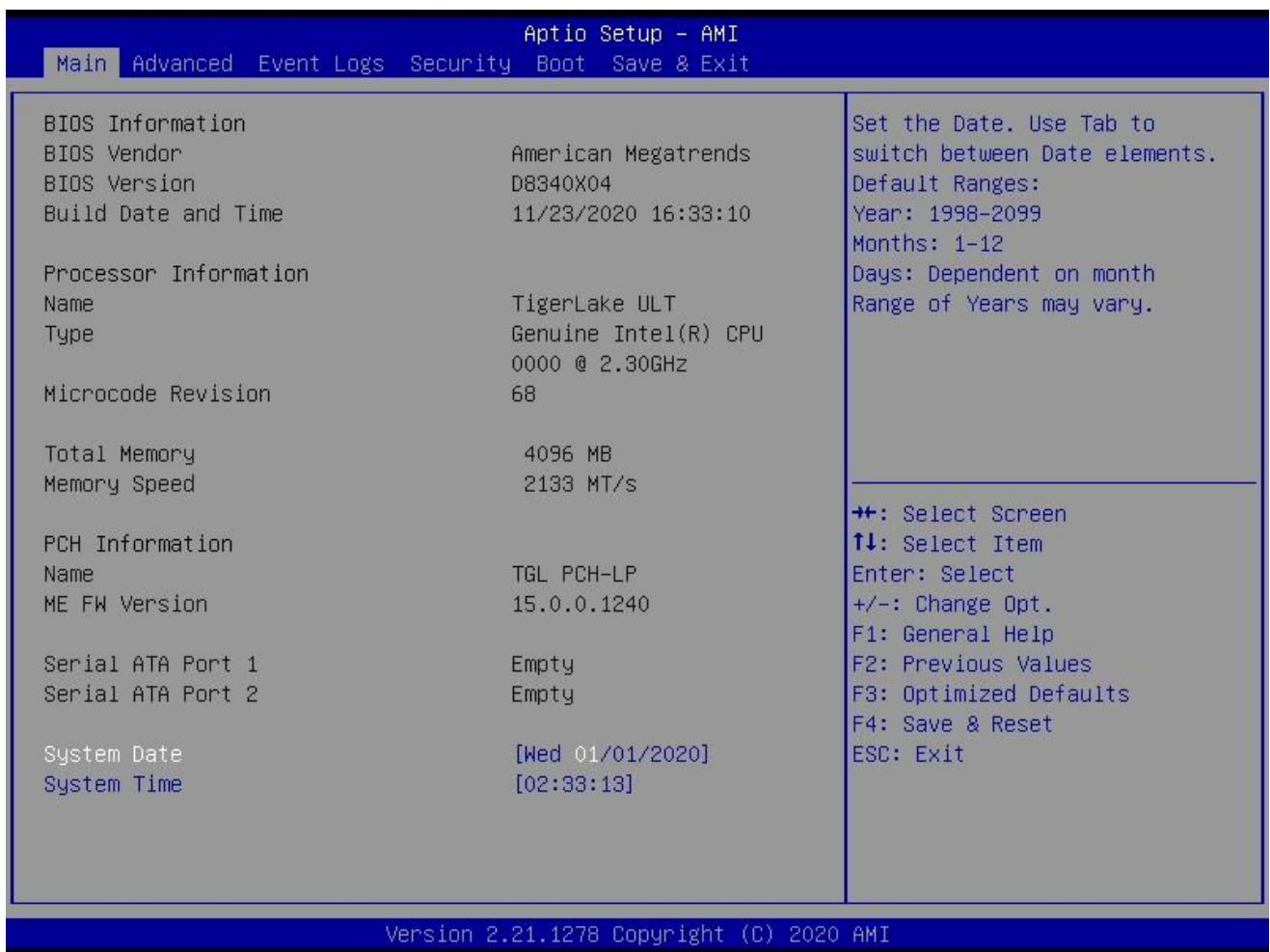
This chapter provides information about how to set up BIOS and use BIOS menu items to adjust basic function settings.

4

CHAPTER 4: BIOS SETUP

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

4.1 Main Page



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

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

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

Field Name	Processor Information
------------	------------------------------

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

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

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

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

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

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

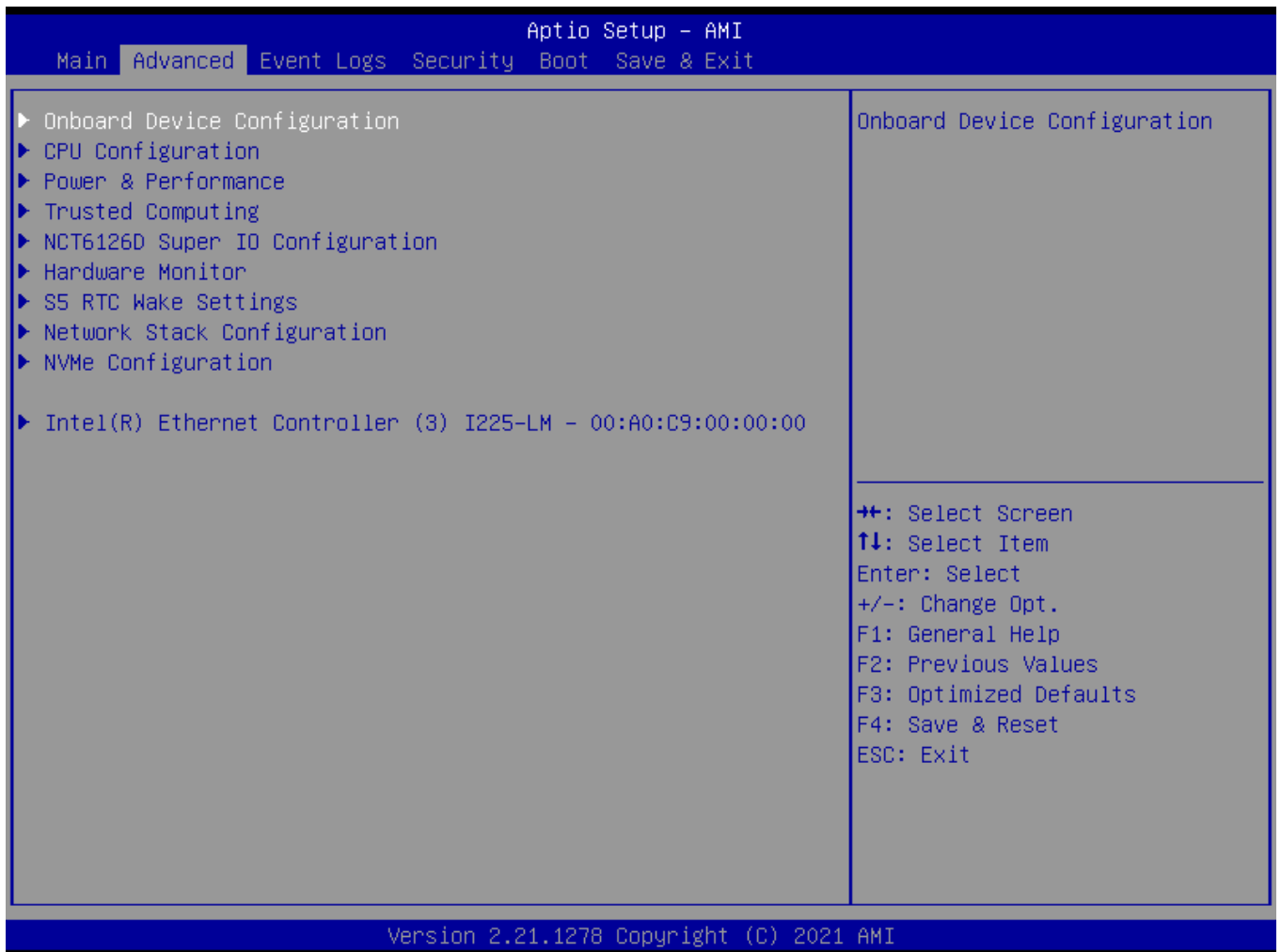
Field Name	Serial ATA Port 1
Value	Display the installed SATA device model/size of port 1.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 2
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	System Date
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	System Time
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.

4.2 Advanced Page



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

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

Field Name	Power & Performance
Help	Power & Performance Options.
Comment	Press Enter when selected to go into the associated Sub-Menu.

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

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

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

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

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

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

4.2.1 Onboard Device

Aptio Setup - AMI

Advanced

Onboard Device

Turbo Mode [Enabled]

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]

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

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

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

Field Name	HD Audio
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	ME Update
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	LVDS Interface Type
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

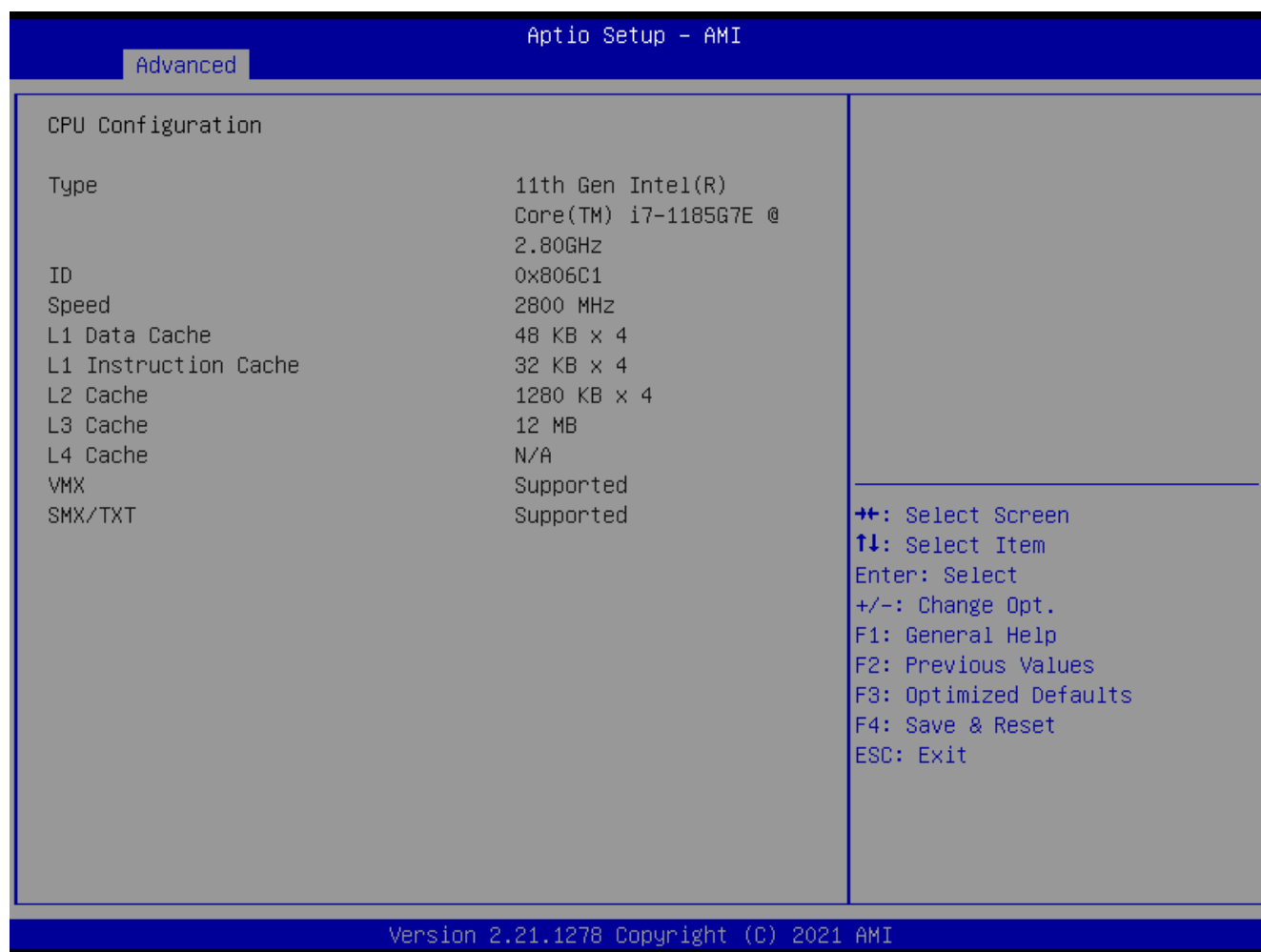
Field Name	LVDS Panel Type
Default Value	[1920x1080 LVDS]
Possible Value	1024x768 LVDS 1366x768 LVDS 1920x1080 LVDS
Help	Select LVDS panel used by Internal Graphics Device by selecting the appropriate setup item.

Field Name	TPM Device Selection
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	G-Sensor Enable/Disable
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

4.2.2 CPU Configuration



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

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

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

Field Name	L1 Data Cache
Default Value	L1 Data Cache Size

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

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

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

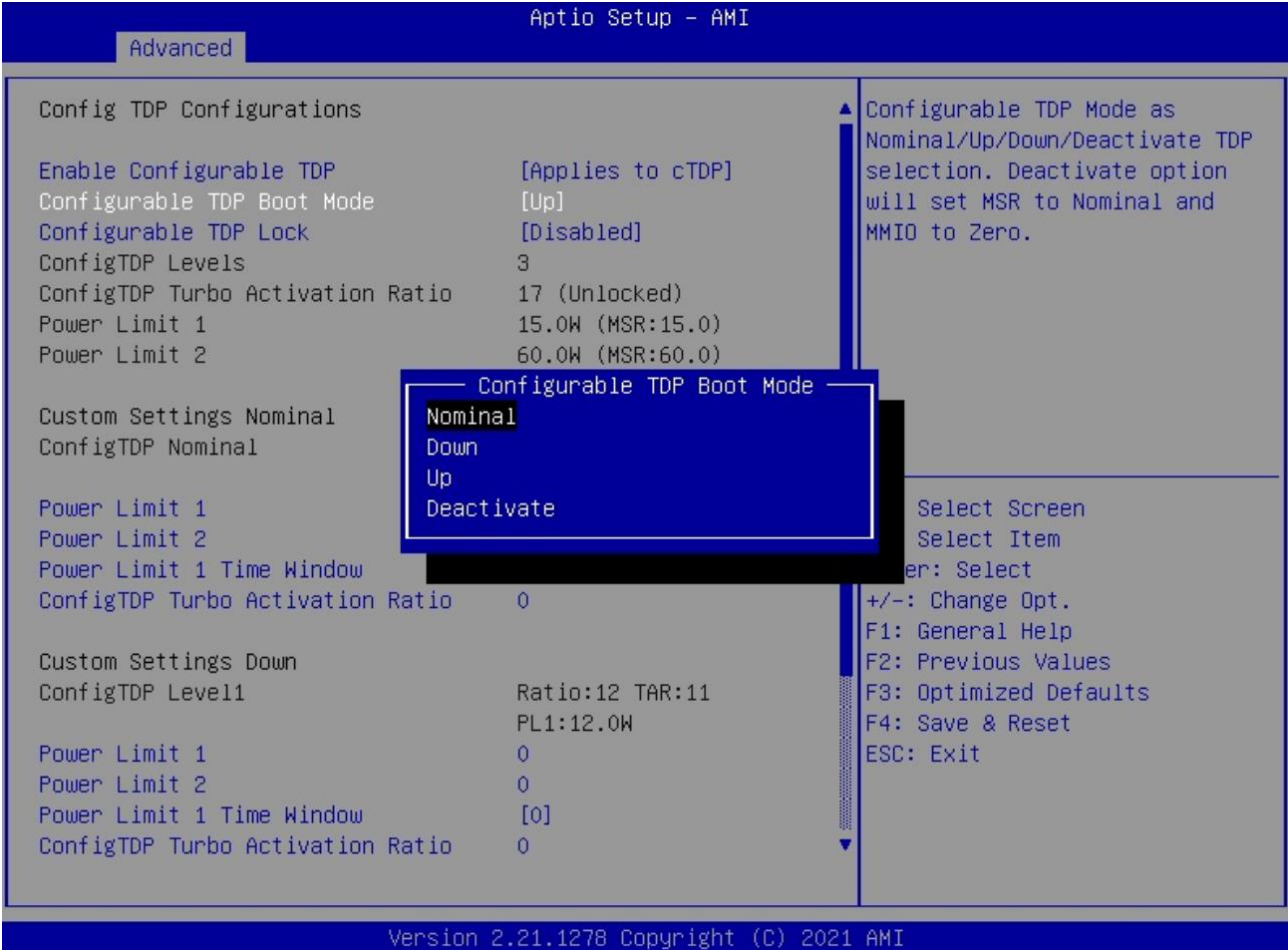
Field Name	L3 Cache
Default Value	L3 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

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

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

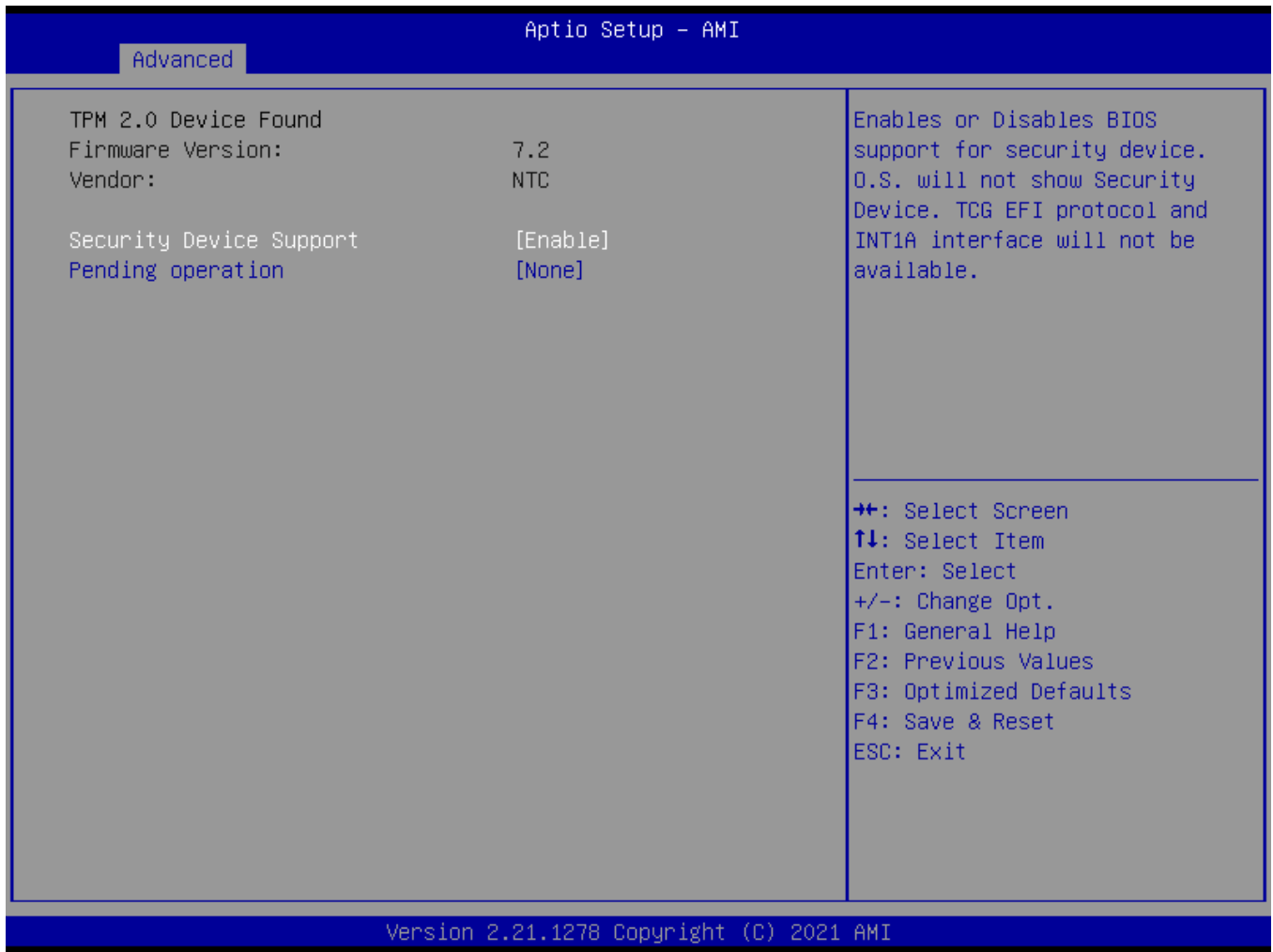
Field Name	SMX/TXT
Default Value	SMX/TXT Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

4.2.3 Power & Performance



Field Name	Configurable TDP Boot Mode
Default Value	[Nominal]
Possible Value	Nominal Down Up Deactive
Help	Nominal (Set TDP to 28W) Down (Set TDP to 12W) Up (Set TDP to 15W)

4.2.4 Trusted Computing



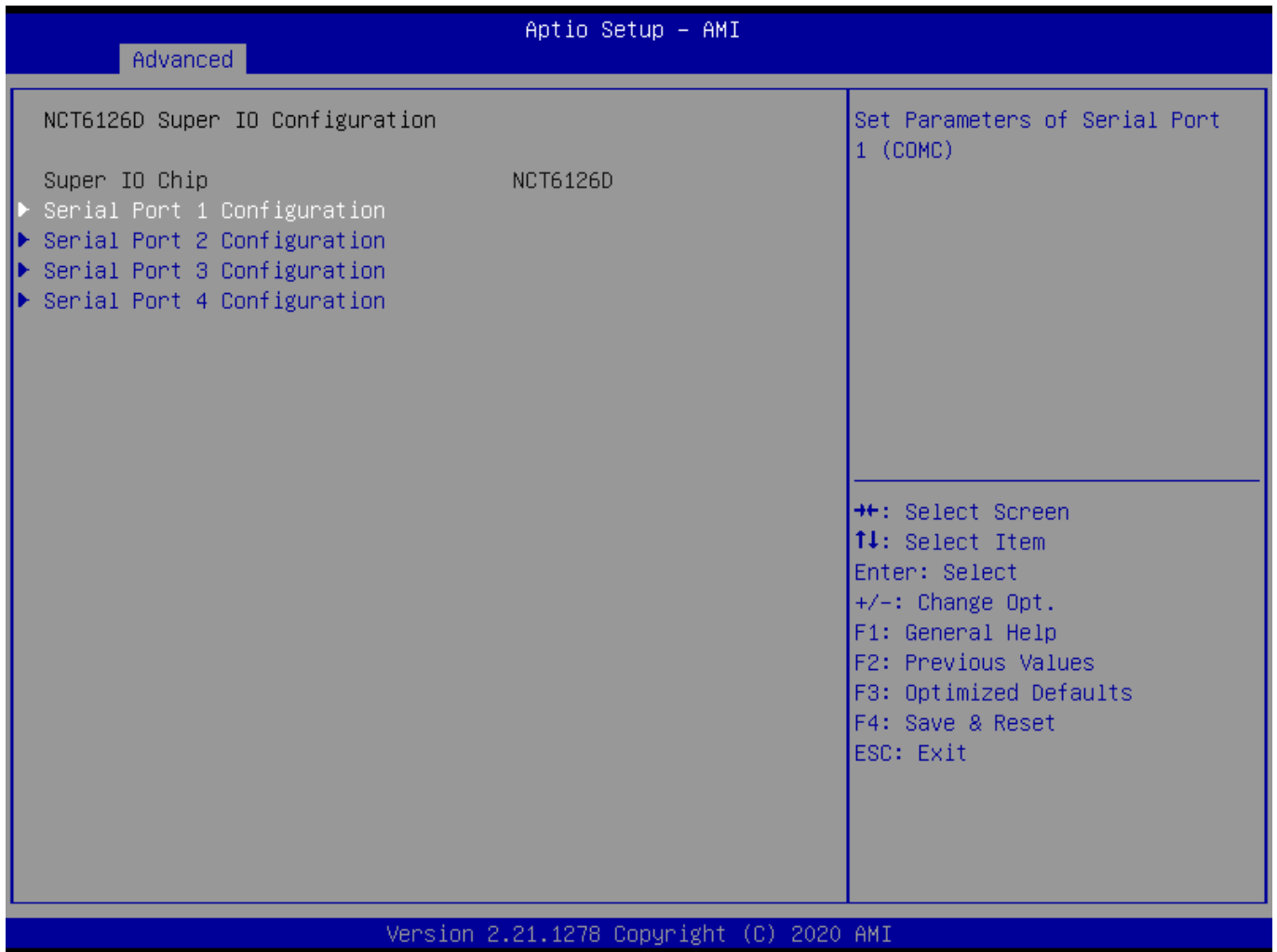
Field Name	Firmware Version
Default Value	TPM module version.
Comment	This field is not selectable. There is no help text associated with it.

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.

4.2.5 NCT6126D Super IO Configuration



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

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

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

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

4.2.6 Serial Port 1 Configuration

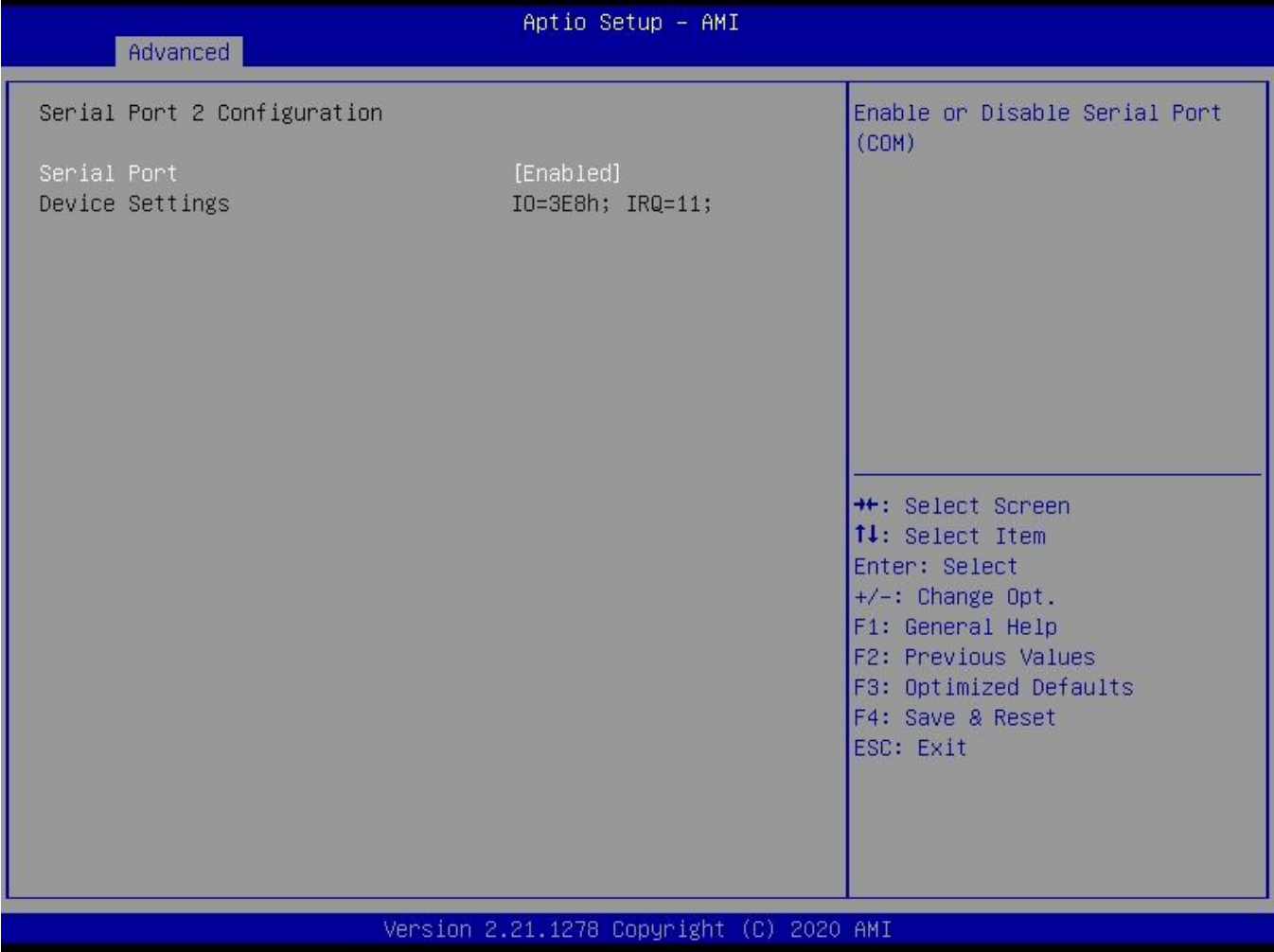


Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	Device Settings
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	Mode Configuration
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.

4.2.7 Serial Port 2 Configuration



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

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

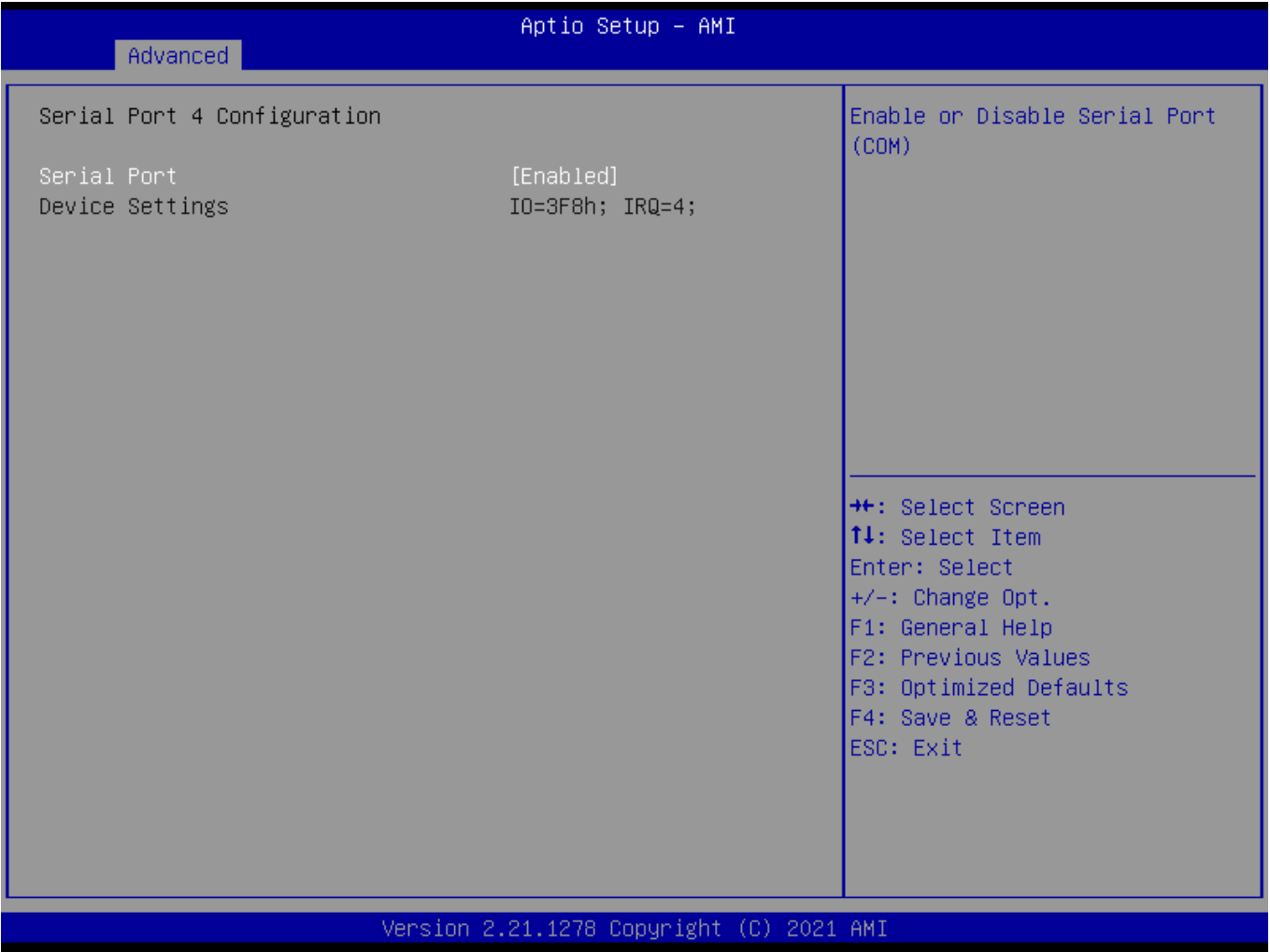
4.2.8 Serial Port 3 Configuration



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

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

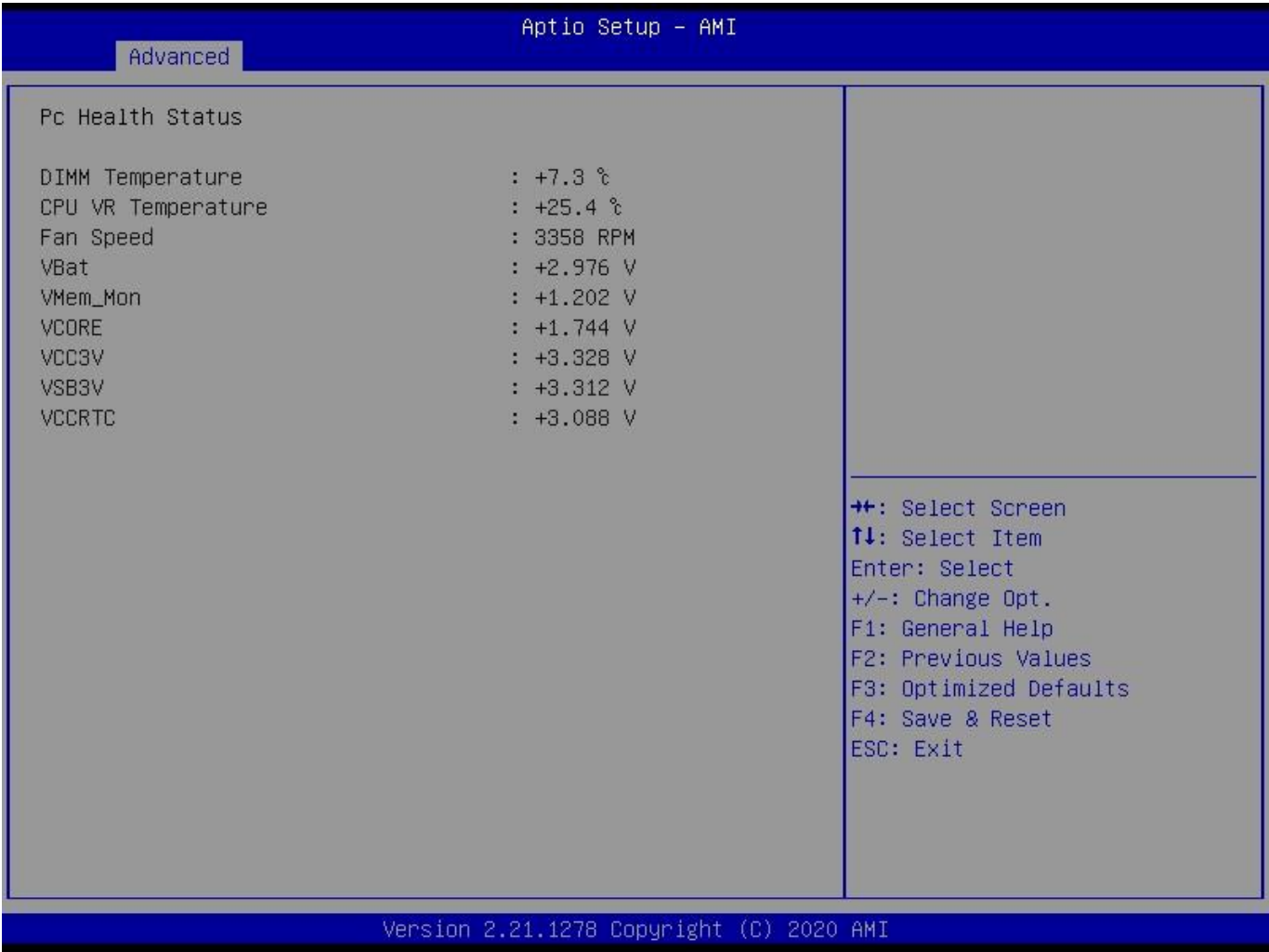
4.2.9 Serial Port 4 Configuration



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

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

4.2.10 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
VSBB3V	3.13 ~ 3.65V
VCCRTC	2.0 ~ 3.2V

4.2.11 RTC Wake Settings

Aptio Setup - American Megatrends International, LLC.

Advanced

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

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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

4.2.12 Network Stack Configuration



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

Field Name	Ipv4 PXE Support (Available when Network stack Enabled)
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	Ipv6 PXE Support (Available when Network stack Enabled)
Default Value	[Enabled]
Possible Value	Disabled Enabled
Help	Enable/Disable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot support will not be available.

4.2.13 NVMe Configuration



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

4.3 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.

4.3.1 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.

4.3.2 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.

4.4 Security Page

Aptio Setup - American Megatrends International, LLC.					
Main Advanced Security 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 & Reset ESC: Exit</p>
Minimum length	3				
Maximum length	20				

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Field Name	Administrator Password
Help	Set Administrator Password

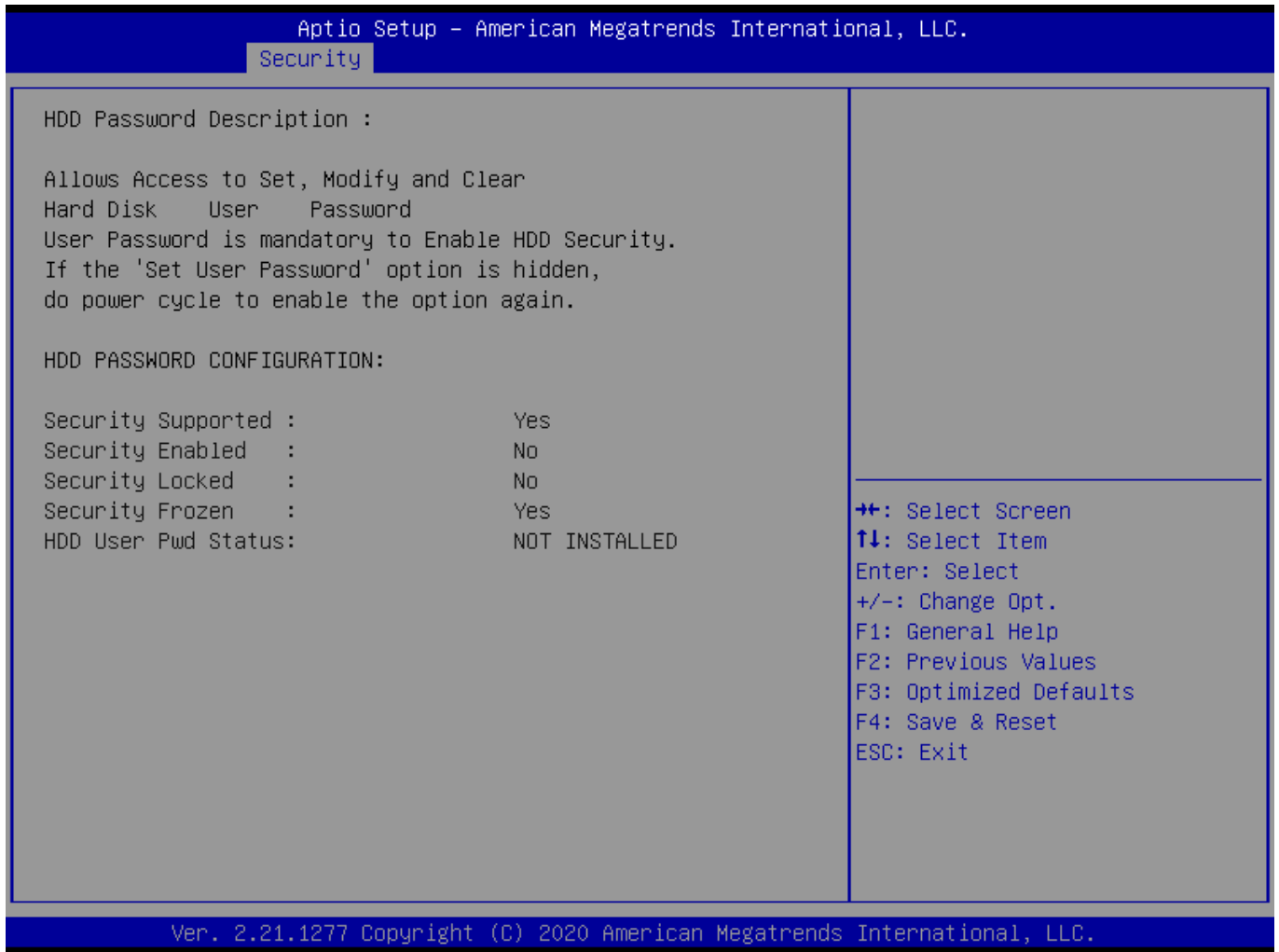
Field Name	User Password
Help	Set User Password.

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

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

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

4.4.1 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

4.4.2 Secure Boot



Field Name	Secure Boot
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	Secure Boot Mode
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

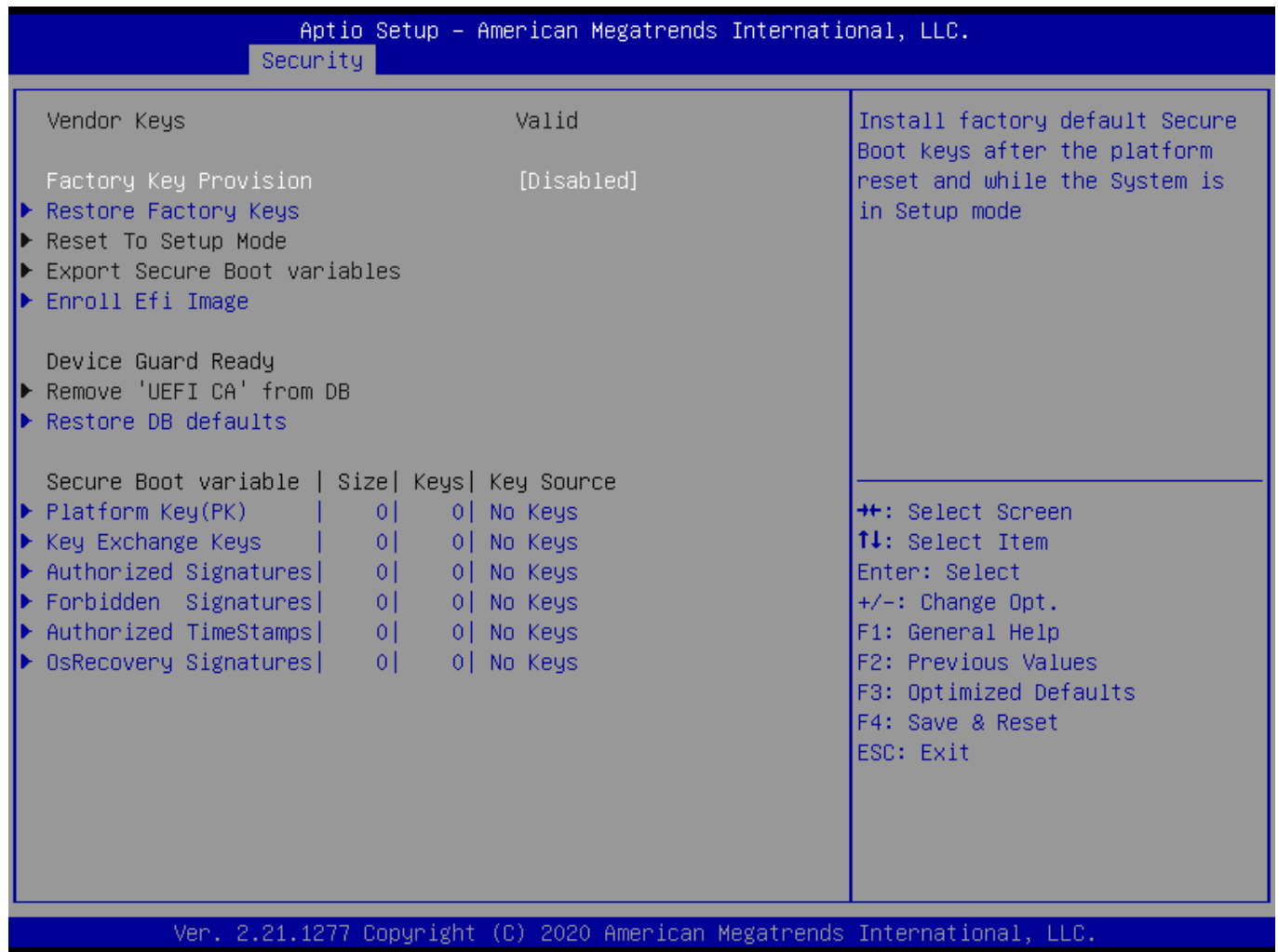
Field Name	Restore Factory Keys (Secure Boot Mode set to Custom)
Help	Force System to User Mode. Install factory default Secure Boot key databases

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

Field Name	Key Management
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
---------	---

4.4.3 Key Management (Secure Boot Mode set to Custom)



Field Name	Factory Key Provision
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	Restore Factory Keys
Help	Force System to User Mode. Install factory default Secure Boot key databases

Field Name	Reset to Setup Mode
Help	Delete all Secure Boot key databases from NVRAM

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

Field Name	Enroll Efi Image
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	Remove 'UEFI CA' from DB
Help	Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db)

Field Name	Restore DB defaults
Help	Restore DB variable to factory defaults

Field Name	Platform Key (PK)
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"> 1.Public Key Certificate: <ol style="list-style-type: none"> 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) <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu "Key Management".

Field Name	Key Exchange Keys
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"> 1.Public Key Certificate: <ol style="list-style-type: none"> 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) <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	Authorized Signatures
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"> 1.Public Key Certificate: <ol style="list-style-type: none"> 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) <p>Key Source: Factory,External,Mixed</p>
comment	Press Enter when selected to go into the associated Sub-Menu.

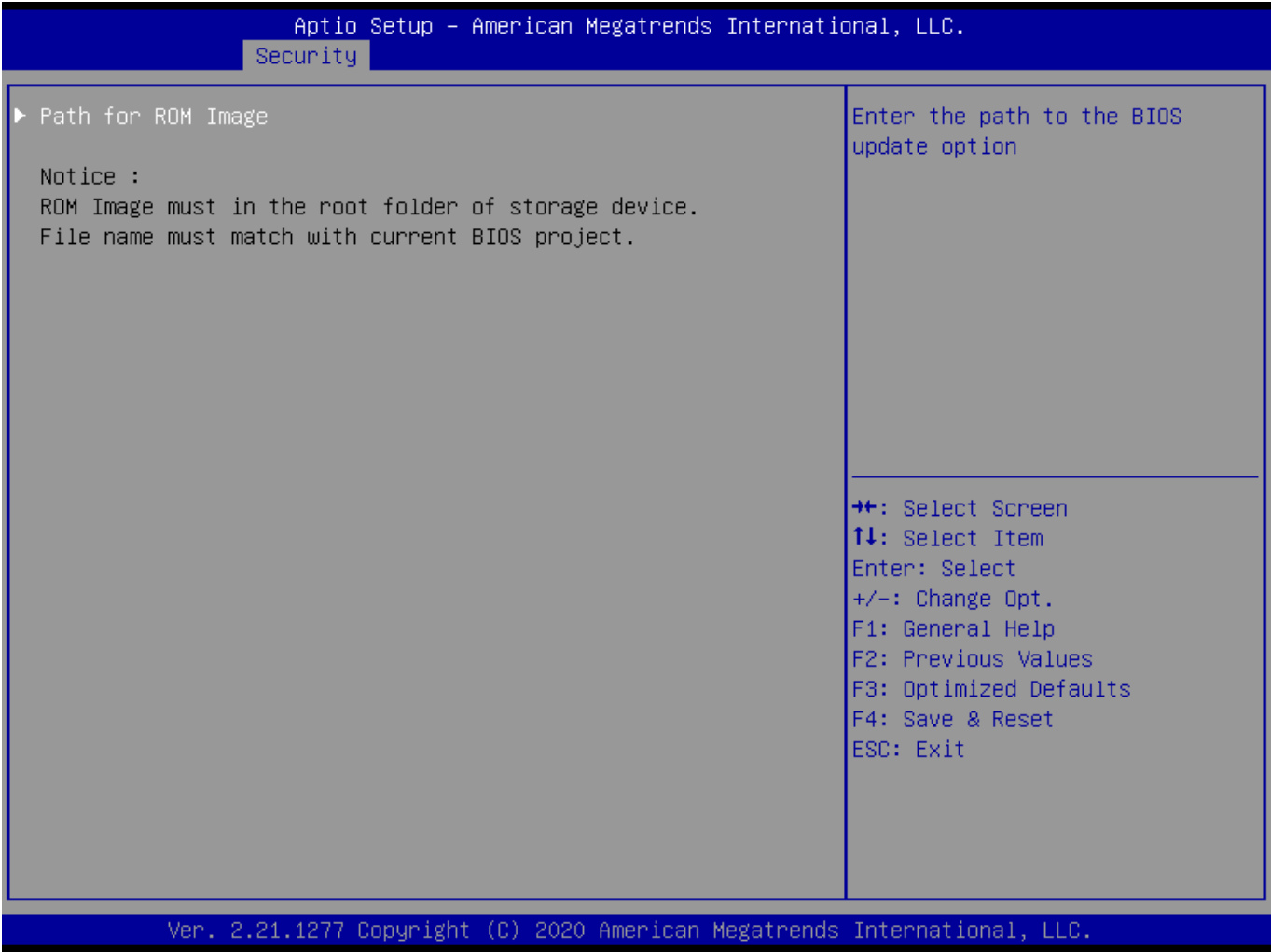
Field Name	Forbidden Signatures
Default Value	Size:0, Keys:0, Key source: No Keys
Help	<p>Enroll Factory Defaults or load certificates from a file:</p> <ol style="list-style-type: none"> 1.Public Key Certificate: <ol style="list-style-type: none"> a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER)

	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	Authorized TimeStamps
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	OsRecovery Signatures
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.

4.4.4 BIOS Update



Field Name	Path for ROM Image
Help	Enter the path to the Secure flash option

4.5 Boot Page

Aptio Setup - AMI

Main
Advanced
Chipset
Event Logs
Security
Boot
Save & Exit

Boot Configuration

Setup Prompt Timeout 1

Bootup NumLock State [Off]

FIXED BOOT ORDER Priorities

Boot Option #1 [USB Floppy]

Boot Option #2 [USB CD/DVD]

Boot Option #3 [Hard Disk]

Boot Option #4 [USB Key:UEFI: USB FLASH DRIVE PMAP, Partition 1]

Boot Option #5 [USB Hard Disk]

Boot Option #6 [NVME]

Boot Option #7 [Network]

▶ UEFI USB Key Drive BBS Priorities

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

⇄: 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	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	Boot Option #3
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	Boot Option #4
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	Boot Option #5
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	Boot Option #6
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	Boot Option #7
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	(UEFI) USB Floppy Drive BBS Priorities
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	(UEFI) USB CDROM/DVD ROM Drive BBS Priorities
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	(UEFI) Hard Disk Drive BBS Priorities
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	(UEFI) USB KEY Drive BBS Priorities
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	(UEFI) USB Hard Disk Drive BBS Priorities
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	(UEFI) NVME Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available NVME Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

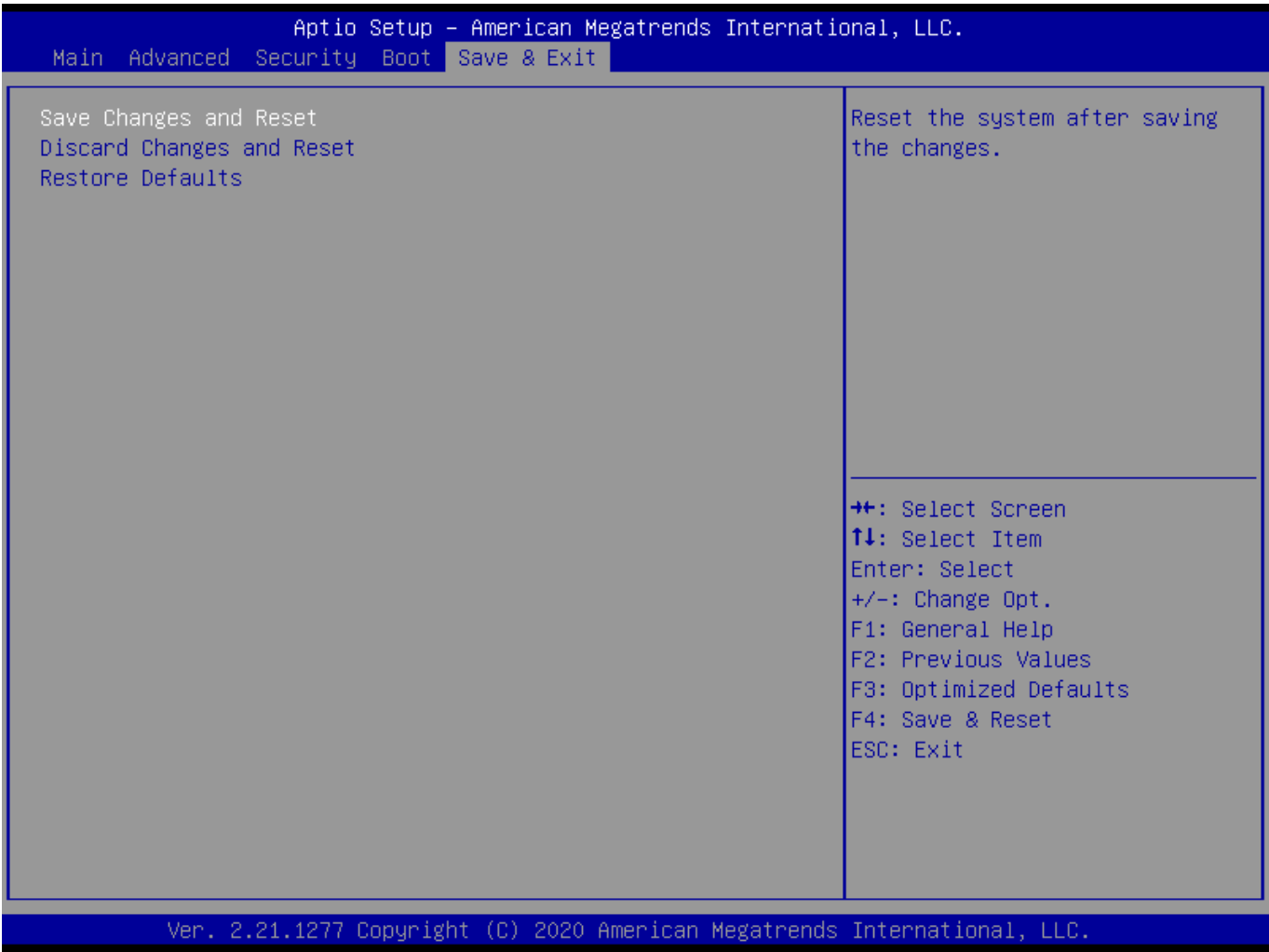
Field Name	(UEFI) NETWORK Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available NETWORK Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

4.5.1 (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

4.6 Save & Exit Page



Field Name	Save Changes and Reset
Help	Reset the system after saving the changes.

Field Name	Discard Changes and Rest
Help	Reset system setup without saving any changes.

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