In-Vehicle Computing

FleetPC-4-F

User Manual

CARTFT.COM

User Manual

Copyright

Disclaimer

CARTFT.COM shall not be liable for any incidental or consequential damages resulting from the performance or use of this product.

CARTFT.COM makes no representation or warranty regarding the content of this manual. Information in this manual had been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. For continuing product improvement, CARTFT.COM reserves the right to revise the manual or make changes to the specifications of this product at any time without notice and obligation to any person or entity regarding such change. The information contained in this manual is provided for general use by customers.

Declaration of Conformity

The CE symbol on your product indicates that it complies with the Union European (EU) directives. A Certificate of Compliance is available by contacting Technical Support. This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables.

This product has been tested and found to comply with the limits for a Class B device, according to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the manufacturer’s instructions, may cause harmful interference to radio communications.

Trademarks

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All the trademarks, registrations, and brands mentioned herein are used for identification purposes only and may be trademarks and registered trademarks of their respective owners.

Safety Information

Read the following precautions before setting up a CARTFT.COM Product.

Electrical safety

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

Operation safety

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

Environmental safety

- Use this product in environments with ambient temperatures between -30˚C and 60˚C.
- Do not leave this product in an environment where the storage temperature may be below -30°C or above 85°C. To prevent damages, the product must be used in a controlled environment.

CAUTION

Incorrectly replacing the battery may damage this computer. Replace only with the same or equivalent as recommended by CARTFT.COM Dispose of used battery according to the manufacturer's instructions.

Technical Support

Please do not hesitate to call or e-mail our customer service when you cannot fix the problems.

- –TEL: +4971213878264
- FAX: +4971213878265
- E-mail: sales@CarTFT.com
- Website: www.CarTFT.com

TABLE OF CONTENTS

Chapter 1

Product Introduction

1.0 PRODUCT INTRODUCTION

1.1 OVERVIEW

FLEETPC-4-F is an ultra-compact size fanless In-Vehicle Computer with 5G connectivity. It utilizes Intel ATOM Braswell N3060 Dual-Core CPU up to 2.48GHz. FLEETPC-4-F features an ultra-compact design measuring 150 x 135 x 55.3 mm, easily fitting into restricted spaces. The system can select 5G, LTE, GPS, and Wi-Fi/BT by M.2 modules as robust connectivity. In addition, it is building-in DVI-D, HDMI, audio line out, and microphone in, which is the perfect solution for fleet management, in-vehicle digital signage, and mobile DVR. Furthermore, it features Smarter Vehicle Power Ignition and wireless remote control in various vehicles. FLEETPC-4-F can effectively support cars in extreme weather and operating conditions, such as Snowplow, Trucks, Buses, Taxis, and Forklifts. Combining Intel Braswell N3060 CPU, 5G, LTE, Wi-Fi, Bluetooth wireless connectivity, and ultra-compact enclosure, CarTFT.com' FLEETPC-4-F is a compact yet versatile In-vehicle computer that can fuel various transportation systems.

1.2 KEY FEATURES

- Intel N3060 Core CPU up to 2.48 GHz
- Wireless support 5G/LTE/GPS, Wi-Fi + Bluetooth (by optional M.2 modules)
- 9V ~ 60V DC Power Input
- Smarter vehicle power ignition for various vehicle applications
- Ultra-compact design 150 x 135 x 55.3 mm

- Battery backup (Optional)

1.3 SPECIFICATION

System	
CPU	Intel N3060 Dual-Core CPU up to 2.48GHz
Chipset	N/A
Memory	1 x DDR3L-1600 SO-DIMM up to 8GB
Graphic	Intel HD Graphics
Lan Chipset	1 x Intel i210AT Gigabit Ethernet
Watchdog	1 ~ 255 Level Reset
TPM	2.0
I/O	
USB Port	2 x 3.2 Gen 1x1 2 x USB 2.0
LAN	1 x RJ45 Ports for GbE
Video Port	1 x HDMI 1 x DVI-D *Use only with Single Link DVI Cables
DIO Port	2 x Analog Input (9~60V) 4 x DI (5V~60V) 4 x DO (5V/100mA/port)
Audio	1 x Mic-in, 1 x Line-out
Expansion Bus	1 x M.2 3042/3052 B Key for LTE/5G module 1 x M.2 2230 A-E Key for Wi-Fi + Bluetooth 1 x mini PCIe slot support (USB + PCIe bus or mSATA)
Antenna	7 x Pre-cut SMA holes for Antenna Connectors
SIM Card Socket	2 x SIM Card Sockets Supported Onboard
Serial Port	2 x RS 232/422/485 (Optional for model FLEETPC-4-F-2S)
Storage	

Type	1 x M.2 2280 M key support SATA Bus *Additional heat sink is required. Please contact a sales representative for more information on a suitable model.
Operating System	
Windows	Windows 10
Linux	Ubuntu 16.04
Environment	
Operating Temp.	-30 ~ 60ºC, ambient w/ 0.6m/s airflow
Storage Temp.	-30 ~ 85ºC
Relative Humidity	10% RH ~ 90% RH (non-condensing)
Vibration (with SSD)	IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis MIL-STD-810G, Method 514.6, Procedure I, Cat.4, Operating
Shock	Operating: MIL-STD-810G, Method 516.6, Procedure I, Trucks and semi-trailers=15G (11ms) with M.2 SSD
Certifications	CE, FCC Class A, E13, ECE R118
Patent	No. M447854 Build-in Battery (Taiwan)
Power	
Power Input	9 ~ 60 VDC Power Input
Power Management	Vehicle Power Ignition for Variety Vehicle
Power Off Control	Power off Delay Time Setting by BIOS and Software
Power Off Control	Power off Delay Time Setting by Software and BIOS
Battery (UPS)	Internal Battery Kit for 10 Mins Operating (Optional) *UPS backup time varies depending on actual overall system power consumption. Patent No. M447854 - Build-in Battery
Mechanical	
Construction	Aluminum Alloy
Mounting	Wall-mount and VESA mount
Weight	1100g
Dimension	150(L) x 135(W) x 55.3(H) mm

1.4 PACKAGE CONTENTS

Your product package should include the items listed below. If any of the items below is missing, contact the distributor or dealer from whom you purchased the product.

Item	Description	Function	Q'ty
326910039661	CABLING MC101-508-03G F 90D	Terminal block for DC power input connector	1
351102050110	Screw I Type M2*5L ISO	For fastening miniPCIe modules	2
372800000900	M.2 Data Storage Heatsink Type_3	Heatsink for DRAM and M.2 Modem	1
265066022010	Thermal PAD 66x22x1.75T mm	Thermal pad for sticking on (372800000900) heat sink for DRAM	1
265016037010	Thermal PAD 16x37x1.0T mm	Thermal pad for sticking on the side of (372800000900) heat sink	1
351103060810	ROUND HAND SCREW W/SPRING_ P3x6L	For fastening (372800000900), heat sink	1
351125100110	Screw I Type M2.5x10L	For fastening (372800000900), heat sink	2
351125050110	Screw I Type M2.5x5L	For fastening M.2 modules	3
370831310200	FLEETPC-4-F mount bracket	For wall mount bracket	2
351451060210	Screw F Type #6-32*6L Ni	For fastening wall mount bracket	4

1.5 ORDERING INFORMATION

Model Name	Description
FLEETPC-4-F	Intel® Celeron N3060 Braswell CPU with 9~60V DC Input In-Vehicle Computer
FLEETPC-4-F-2S	Intel® Celeron N3060 Braswell CPU with 9~60V DC Input and 2 x COM In-Vehicle Computer

1.6 OPTIONAL ACCESSORY

CARTFT.COM provides optional accessories as follows. Please get in touch with your dealer or us if you need any.

Item	Order No.	Description
DRAM	515002107610	2GB DDR3L WT InnoDisk M3S0-2GMJCDPC
DRAM	515004107202	4GB DDR3L WT InnoDisk M3S0-4GMSCDPC
DRAM	515008107610	8GB DDR3L WT InnoDisk M3S0-8GMSDDPC
DRAM	510500210711	2GB DDR3L WT Apacer 75.A83E2.G030B
DRAM	510500810710	8GB DDR3L WT Apacer 75.C93E2.G040B
M.2 SSD	525006400020	64GB, -40~85°C, with DRAM IM2S3338-064GP
M.2 SSD	525012800020	128GB -40~85°C, with DRAM IM2S3338-128GP
M.2 SSD	525025600020	256GB -40~85°C, with DRAM IM2S3338-256GP
M.2 SSD	525051200020	512GB -40~85°C, with DRAM IM2S3338-512GP
M.2 SSD	525100000020	1TB -40~85°C, with DRAM IM2S3338-1TP
5G	570010042001	5G SIM8202G M.2 Card-SIMCom
5G Antenna	342630000000	Antenna 5GNR Sub 6 SMA Male
Pigtail for Modem	341620212001	21cm M.2 pigtail cable SMA F-F
LTE	587906140010	LTE 4G Cat 6 SIM7906E M.2 Card kit
CANBUS	580011022000	EMUC-B202-W1-D81J Kit
GPS	610810080000	VDB-810 kit
GPS	610810080001	VDB-810G kit
GPS	618100080000	VDB-810DR kit
Wi-Fi + BT	580261090010	WNFQ-261ACNI(BT) kit
Battery backup	580016011001	BAT-3000-P kit

*Please check with CARTFT.COM' sales representatives for the availability.

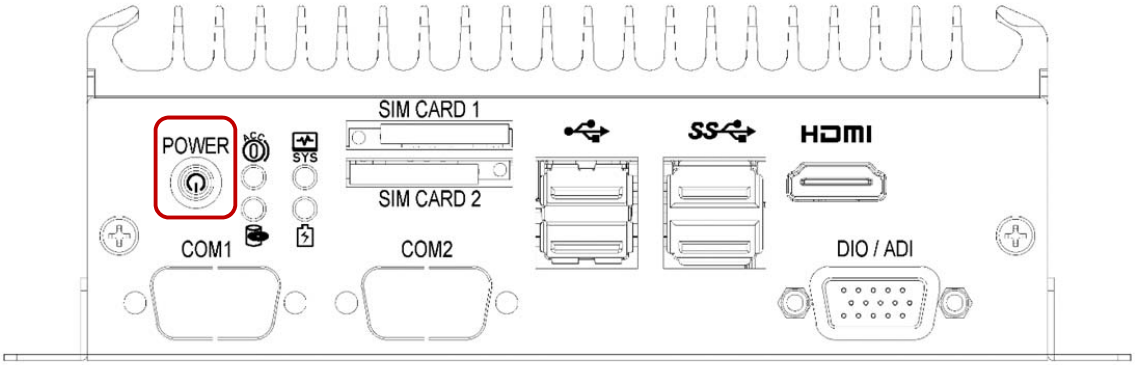
Chapter 2

I/O and Connectors

2.0 SYSTEM I/O

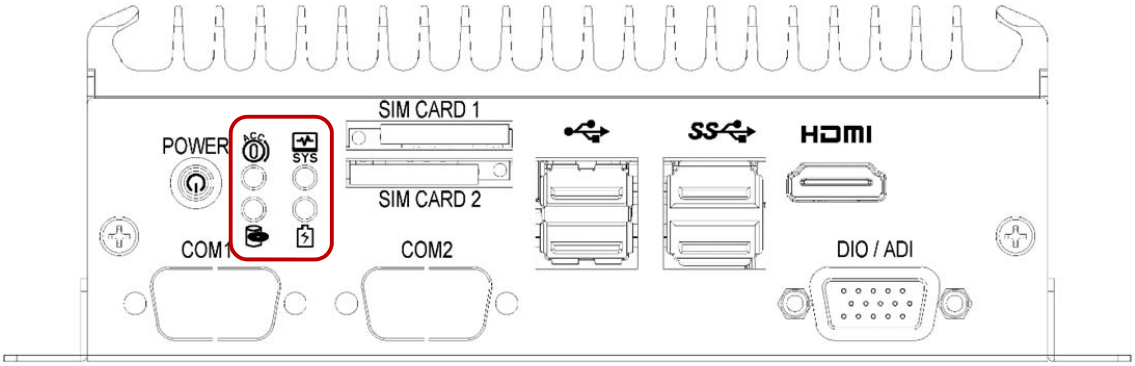
2.1 FRONT PANEL INFORMATION

2.1.1 POWER BUTTON



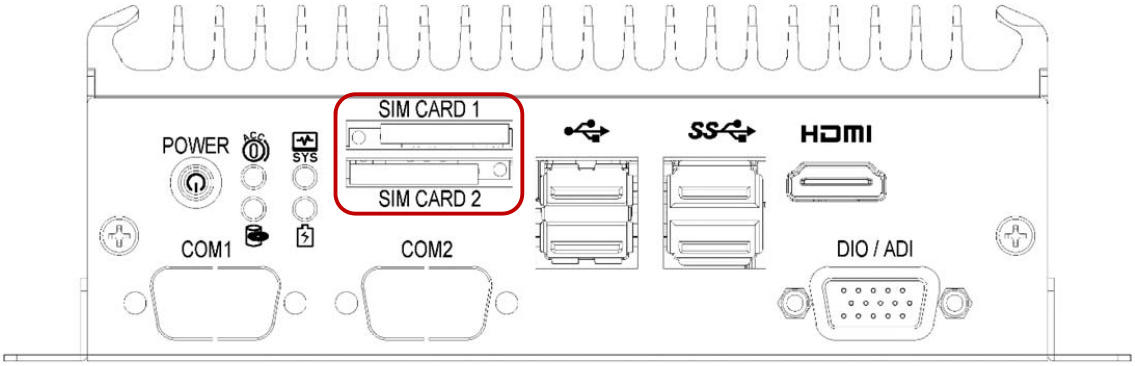
- RED Light: Standby
- BLUE Light: Power On

2.1.2 LED INDICATORS



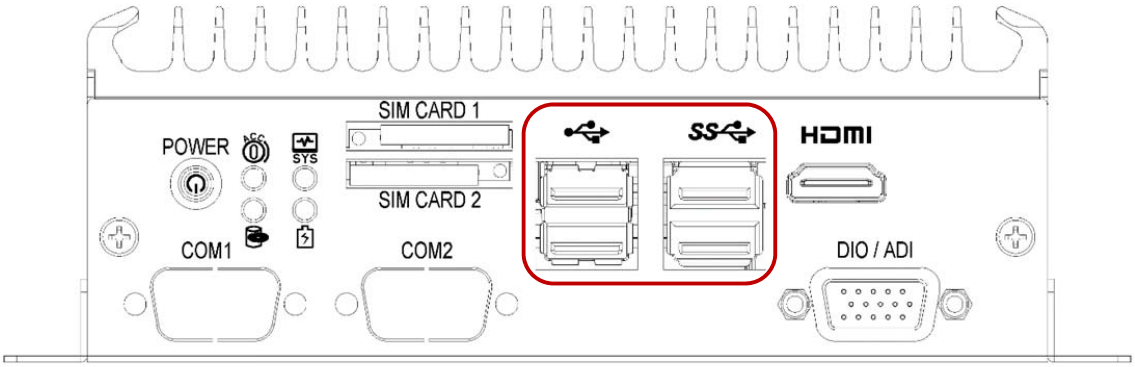
ACC Flash: Detection Continue: Ignition Ready	**System Status** ON: System on OFF: System off
HDD Flash: One of Storage Read/Write	**UPS** ON: UPS enables

2.1.3 SIM CARDS



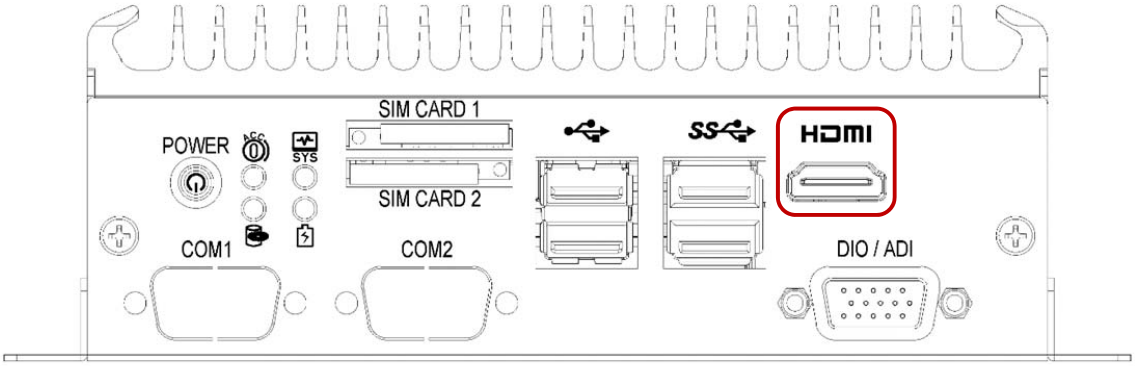
- Support SIM Card size: Mini-SIM. SIM Card is switchable, but the default setting is on SIM CARD1. Please contact your CARTFT.COM' sales representative to get the utility or software control for the SIM card switch function.

2.1.4 USB CONNECTORS



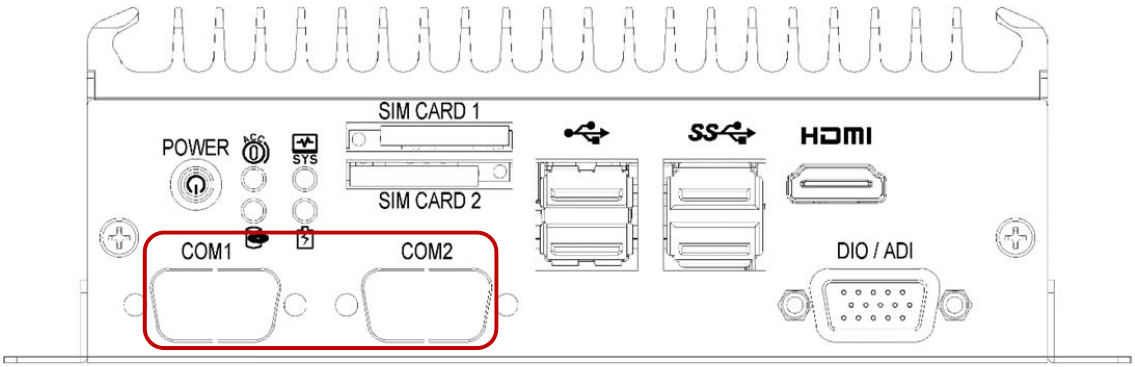
- 2 x USB 2.0
- 2 x USB 3.2 Gen 1x1

2.1.5 HDMI



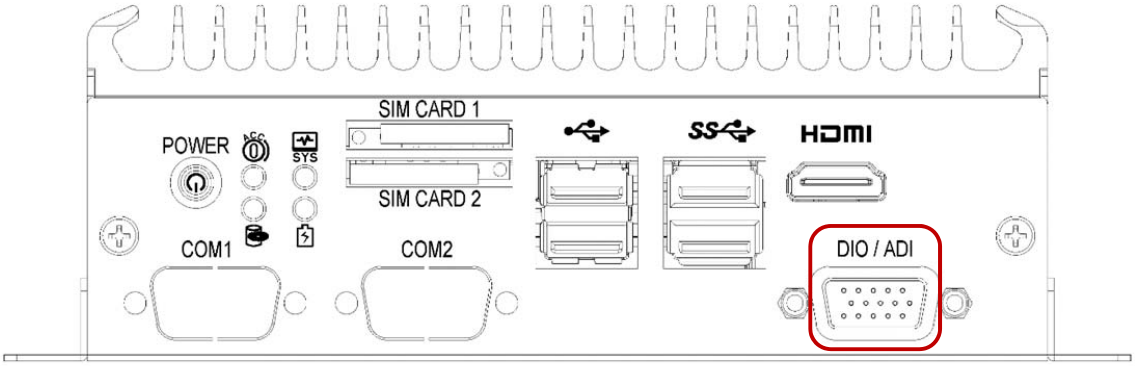
- Max Resolution: 3840 x 2160 @60Hz.

2.1.6 SERIAL PORT (OPTIONAL FOR MODEL FLEETPC-4-F-2S)



- 2 x RS 232/422/485

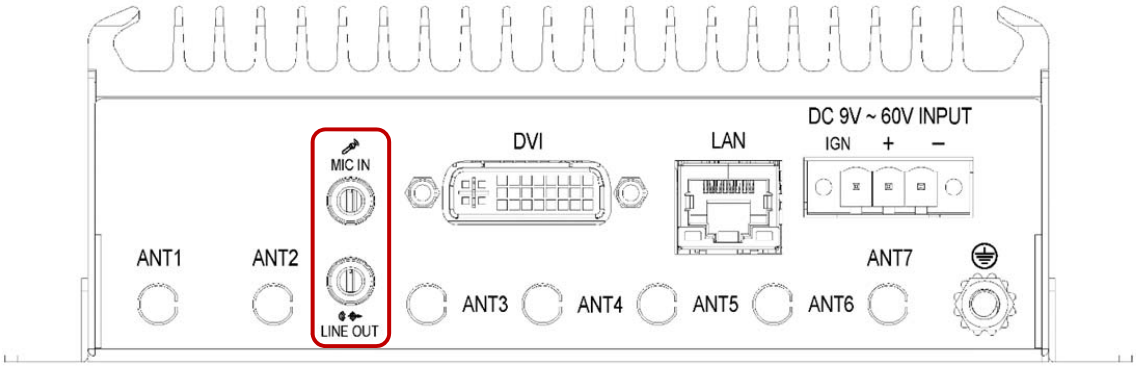
2.1.7 DIO



- 2 x Analog Input (9~60V, with 0.5V accuracy), 4 x DI (5V~60V), 4 x DO (5V/100mA/port)

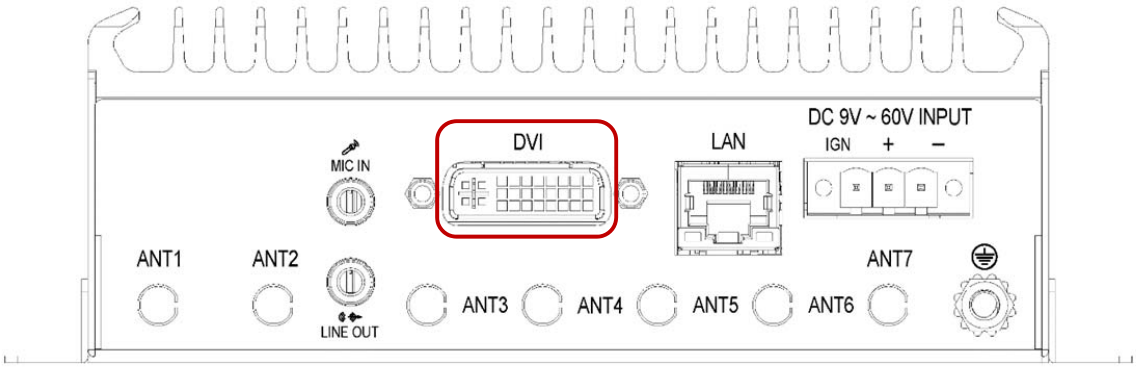
2.2 REAR PANEL INFORMATION

2.2.1 AUDIO JACKS



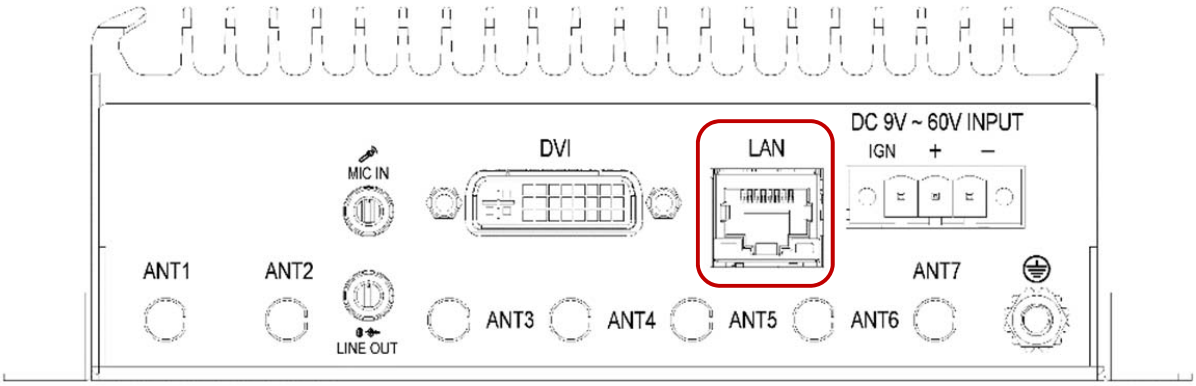
- The system's audio function features high-definition audio Realtek ALC888-vD2-GR codec. There are two 3.5mm audio jacks for Mic-in and Line-out.

2.2.2 DVI



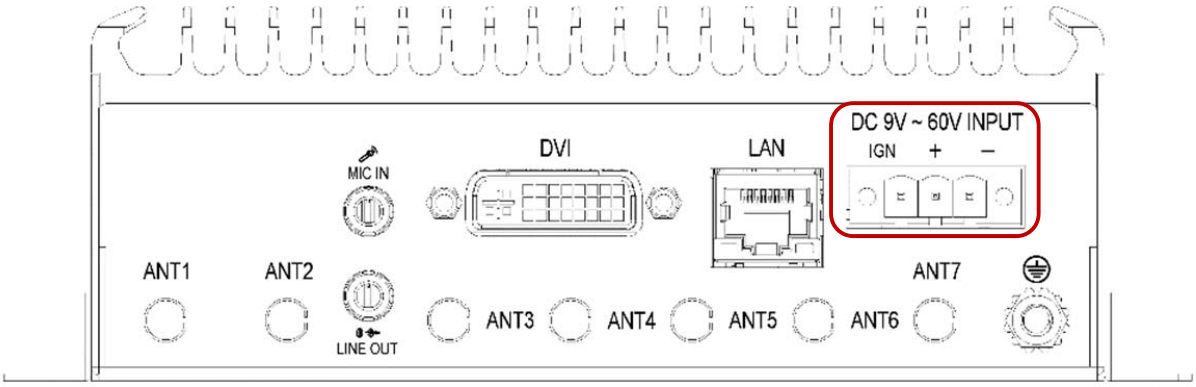
- Max Resolution: 3840 x 2160 @60Hz.
- 1 x DVI-D: Use only with Single Link DVI Cables

2.2.3 LAN



- LAN port feature Intel i210-AT and support 10/100/1000 Mbps LAN.

2.2.4 DC INPUT TERMINAL BLOCK



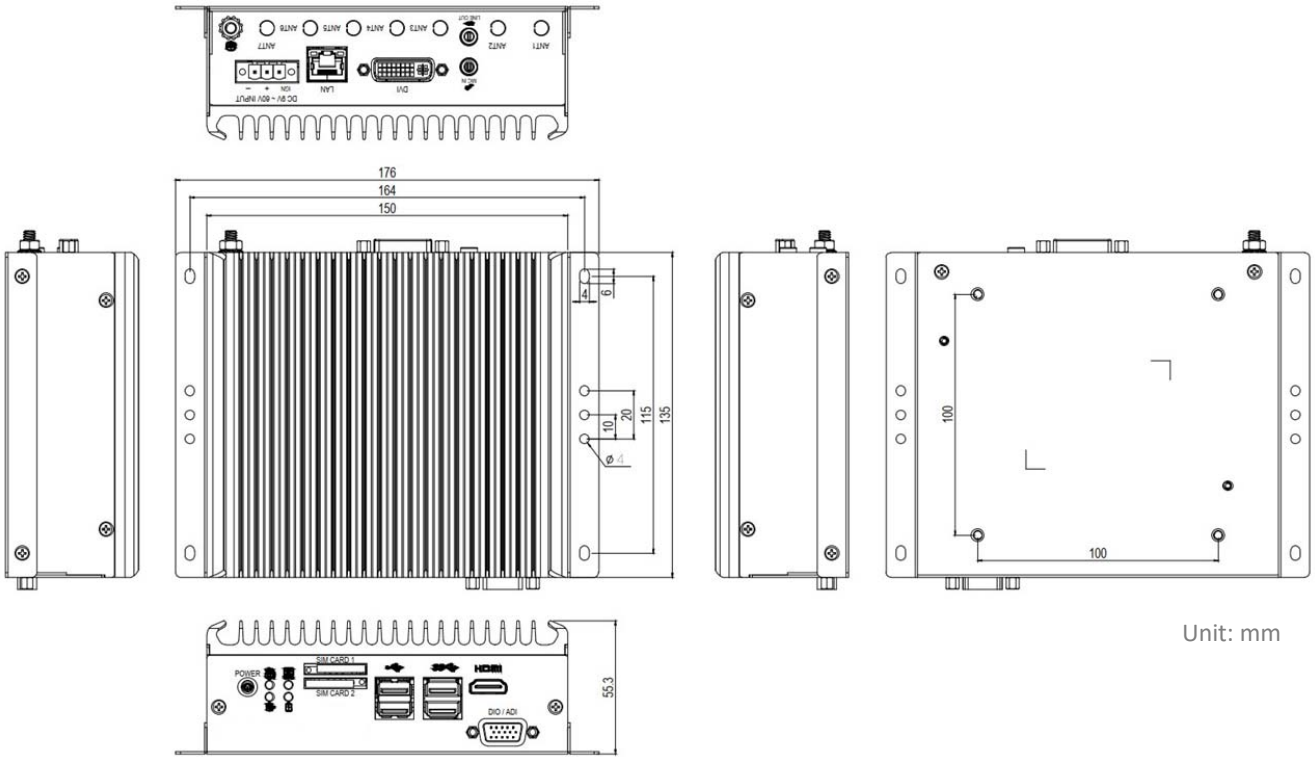
- IGN is for ignition control when installed in a Vehicle. Please see more detail for the ignition control at “4.2 Ignition Power Management Quick Guide.”

2.3 ILLUSTRATION

2.3.1 SYSTEM

VBOX-3131

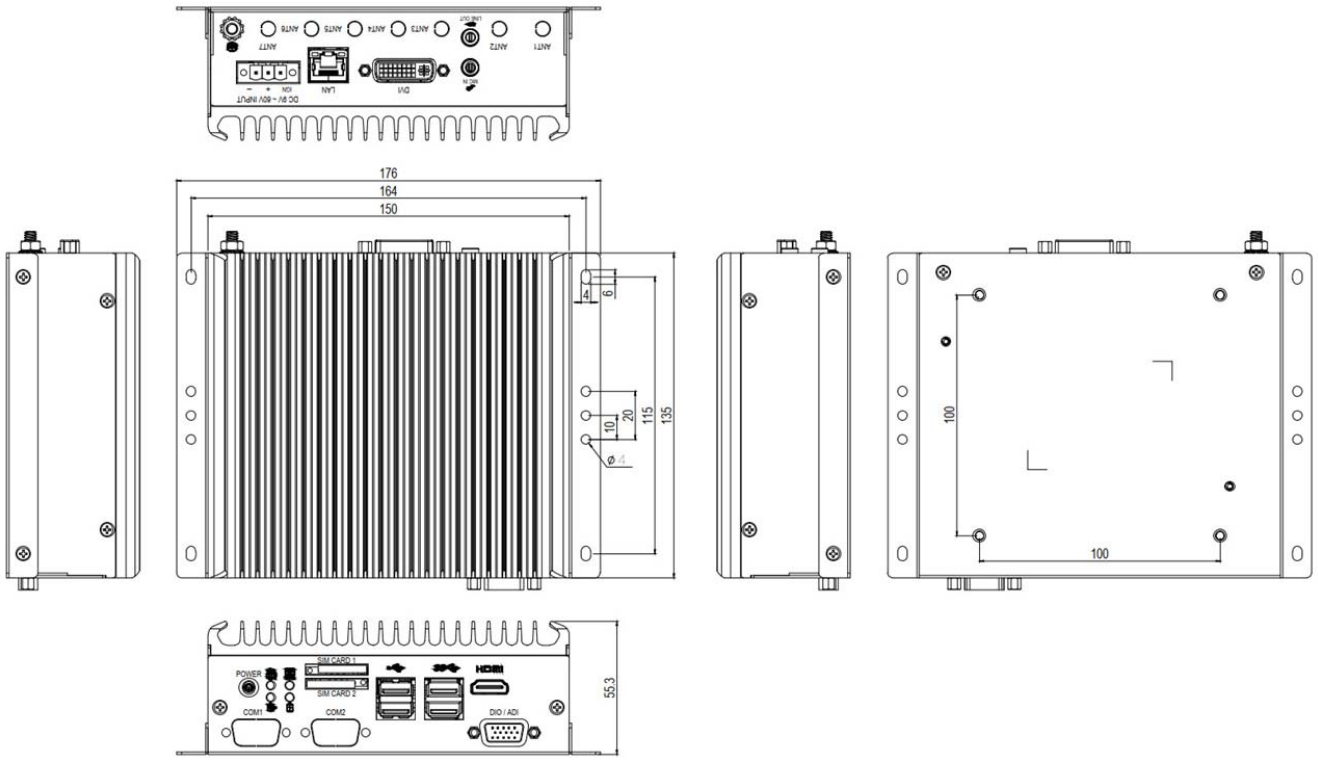
Unit: mm



Unit: mm

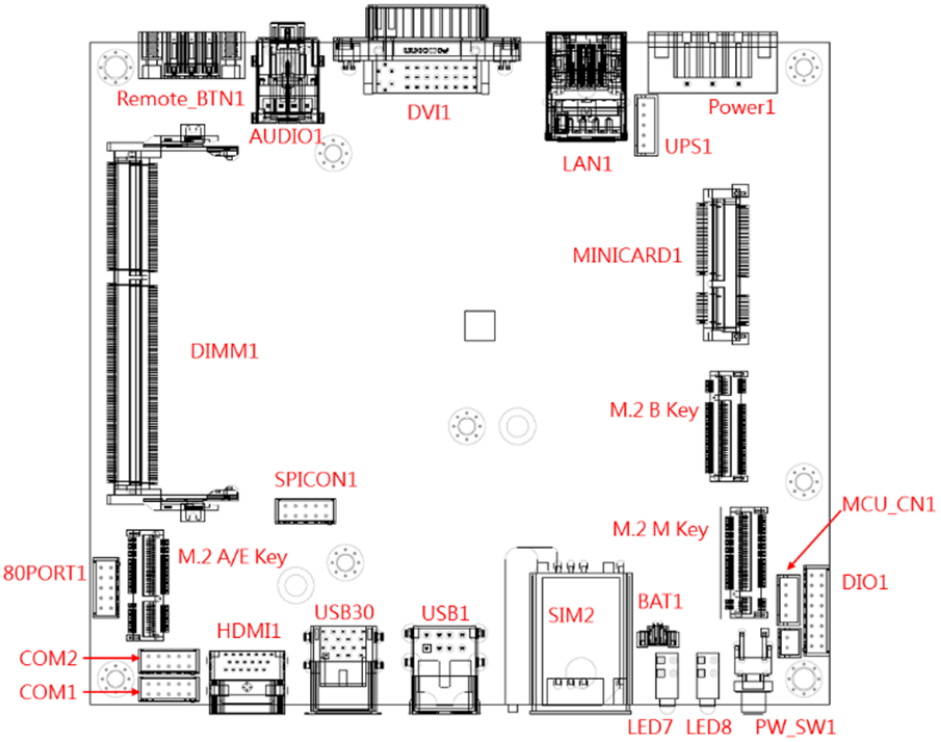
VBOX-3131-2S

Unit: mm

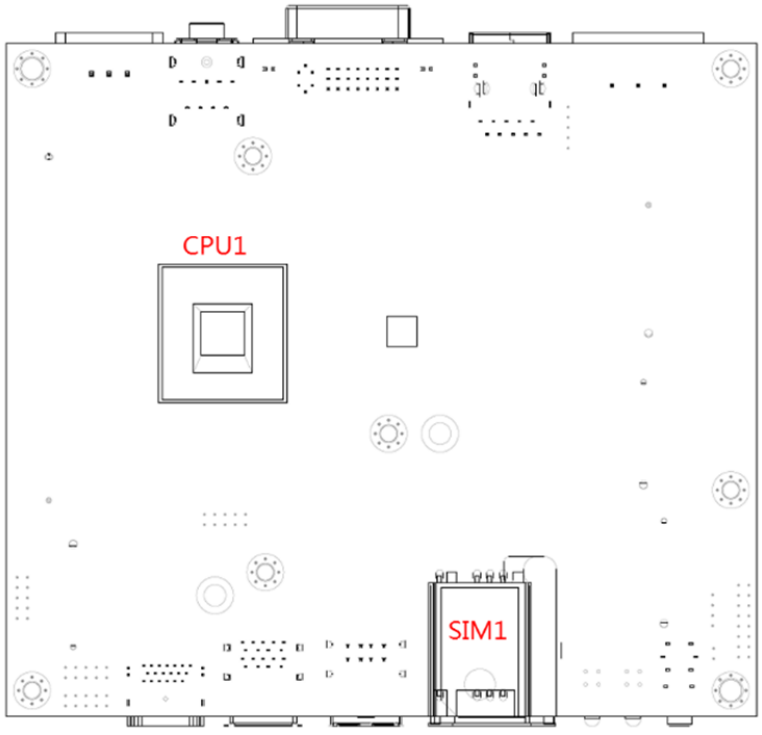


2.3.2 MAIN BOARD

Top View

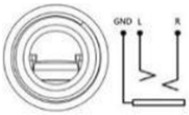


Bottom View



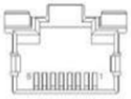
2.4 I/O CONNECTOR DEFINITION

2.4.1 AUDIO CONNECTOR



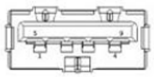
Connector size: 3 Pin x3
Connector type: 3.5mm Phone Jack x 3
Connector location: **AUDIO1**

2.4.2 LAN CONNECTOR



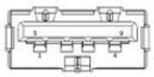
Connector size: 8 Pin
Connector type: RJ45
Connector location: **LANUSB1, LANUSB2**

2.4.3 USB 3.0_1/2 CONNECTOR



Connector size: DOUBLE SHORT USB 3.0
Connector type: A TYPE R/A
Connector location: **USB30_1**

2.4.4 USB 2.0_1/2 CONNECTOR



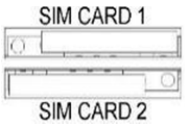
Connector size: DUAL 8 Pin
Connector type: Type R/A
Connector location: **USB1**

2.4.5 COM 1/2 CONNECTOR (OPTIONAL FOR MODEL FLEETPC-4-F-2S)

Connector size: 9 Pin
Connector type: D-Sub 9 Pin
Connector location: **COM1~2**
(RS-232/422/485)

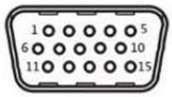
Pin	Signal		
	RS232	RS485/422 Full Duplex	RS485 Half Duplex
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	
4	DTR	RX-	
5	Ground		
6	DSR		
7	RTS		
8	CTS		
9	RI		

2.4.6 SIM CONNECTOR



Connector size: SIM CARD 6 Pin
Connector type: Push-Pull type
Connector location: **SIM1 & 2**

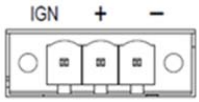
2.4.7 DIO CONNECTOR



Connector size: 15 Pin
Connector type: D-SUB9 Connector Female
Connector location: **DIO**
(DO: 5V@100mA; DI:5~48V, AI: 5~48V)

Pin	Signal	Pin	Signal
1	DO_1	2	DO_2
3	DO_3	4	DO_4
5	GND	6	GND
7	DI_1	8	DI_2
9	DI_3	10	DI_4
11	NC	12	NC
13	AIN0	14	AIN1
15	ADC_GND		

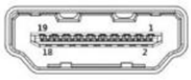
2.4.8 DC POWER CONNECTOR



Connector size: 3 Pin
Connector type: DECA 5mm-F-90D-5PIN
Connector location: **Power1**

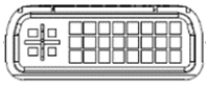
Pin	Signal	Pin	Signal
1	GND	2	DC_VIN(9~60V)
3	IGN		

2.4.9 HDMI CONNECTOR



Connector size: 29 Pin
Connector Type: HDMI Connector Female
Connector location: **HDMI1**

2.4.10 DVI-D CONNECTOR

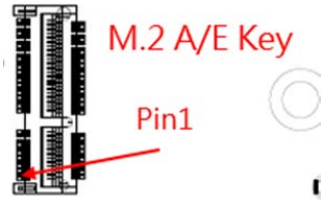


Connector size: 29 Pin
Connector type: DVI-I Connector Female
Connector location: **DVI**

Pin	Signal	Pin	Signal
1	TX2-	2	TX2+
3	GND	4	USB_5V
5	DVI_PWR_12V	6	DDC_CLK
7	DDC_DAT	8	RS232_TX
9	TX1-	10	TX1+
11	GND	12	USB_DM
13	USB_DP	14	+5V_DVI_PWR
15	GND	16	DVI_HPD
17	TX0-	18	TX0+
19	GND	20	RS232_RX
21	DVI_PWR_12V	22	GND
23	DVI_CLK+	24	DVI_CLK-
C1	LINE_OUT_L	C2	LINE_OUT_R
C3	MIC_IN_L	C4	MIC_IN_R
C5	AUDIO_GND		

2.5 BOARD CONNECTOR DEFINITION

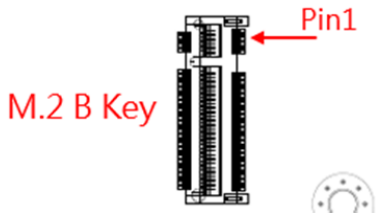
2.5.1 NGFF1 SLOT (PCI-E & USB 2.0)



Connector size: NGFF 2230 /75 Pin
Connector type: M.2 A/E Key H: 8.5mm
Connector location: M2_AE_KEY1

Pin	Signal	Pin	Signal
1	GND	2	3VSB
3	USB_D+	4	3VSB
5	USB_D-	6	NC
7	NC	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	KEY
25	KEY	26	KEY
27	KEY	28	KEY
29	KEY	30	KEY
31	KEY	32	NC
33	GND	34	NC
35	PCIE_TXP0	36	NC
37	PCIE_TXN0	38	NC
39	GND	40	NC
41	PCIE_RXP0	42	NC
43	PCIE_RXN0	44	NC
45	GND	46	NC
47	REFCLK_P0	48	NC
49	REFCLK_N0	50	NC
51	GND	52	PCIE_RST0#
53	PCIE_CLKREQ0#	54	M.2_DIS2#
55	PCIE_WAKE0#	56	M.2_DIS1#
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	PCIE_RST1#
67	NC	68	PCIE_CLKREQ1#
69	GND	70	PCIE_WAKE1#
71	NC	72	3VSB
73	NC	74	3VSB
75	GND		

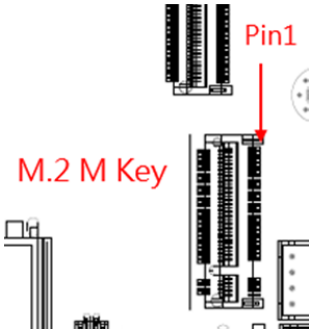
2.5.2 NGFF2 SLOT (USB 3.0 & USB 2.0)



Connector size: NGFF 2230 /2242 /75 Pin
Connector type: M.2 B Key H: 8.5mm
Connector location: M2_B_KEY1

Pin	Signal	Pin	Signal
1	NC	2	3VSB
3	GND	4	3VSB
5	GND	6	PWR_OFF
7	USB_D+	8	W_DIS1
9	USB_D-	10	LED#
11	GND	12	KEY
13	KEY	14	KEY
15	KEY	16	KEY
17	KEY	18	KEY
19	KEY	20	NC
21	NC	22	NC
23	NC	24	NC
25	DPR	26	WDIS2#
27	GND	28	NC
29	USB3_RX-	30	UIM_RST
31	USB3_RX+	32	UIM_CLK
33	GND	34	UIM_DAT
35	USB3_TX-	36	UIM_PWR
37	USB3_TX+	38	N/C
39	GND	40	N/C
41	NC	42	N/C
43	NC	44	N/C
45	GND	46	N/C
47	NC	48	N/C
49	NC	50	PERST#
51	GND	52	CLKREQ#
53	NC	54	PEWAKE#
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	RESET#(1.8V)	68	NC
69	CONFIG_1	70	NC
71	GND	72	3VSB
73	GND	74	3VSB
75	NC		

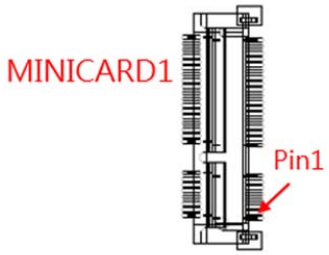
2.5.3 NGFF3 SLOT (SATA)



Connector size: NGFF 2280 /75 Pin
Connector type: M.2 M Key H: 8.5mm
Connector location: M2_M_KEY1

Pin	Signal	Pin	Signal
1	GND	2	3.3V
3	GND	4	3.3V
5	NC	6	NC
7	NC	8	NC
9	GND	10	LED#
11	NC	12	3.3V
13	NC	14	3.3V
15	GND	16	3.3V
17	NC	18	3.3V
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	SMB_CLK
41	SATA-RX+	42	SMB-DATA
43	SATA-RX-	44	NC
45	GND	46	NC
47	SATA-TX-	48	NC
49	SATA-TX+	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	KEY	60	KEY
61	KEY	62	KEY
63	KEY	64	KEY
65	KEY	66	KEY
67	NC	68	NC
69	PEDET(GND-SATA)	70	3VSB
71	GND	72	3VSB
73	GND	74	3VSB
75	GND		

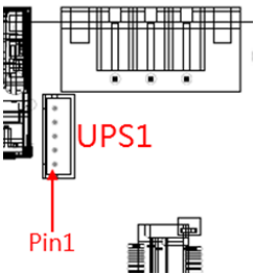
2.5.4 MINI CARD1 (PCIE/SATA/USB2.0)



Connector size: 2 X 26 = 52 Pin
Connector type: MINI PCI-E CON 9.2mmH
Connector location: MINICARD1

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	3VSB
3	NC	4	GND
5	NC	6	NC
7	CLKREQ#	8	NC
9	GND	10	NC
11	CLK_N	12	NC
13	CLK_P	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	W_DISABLE#
21	GND	22	PERST#
23	PET0RX-_SATARX+	24	3VSB
25	PET0RX+_SATARX-	26	GND
27	GND	28	NC
29	GND	30	SMBCLK
31	PET0TX-_SATA_TX-	32	SMBDATA
33	PET0TX+_SATA_TX+	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	3VSB	40	GND
41	3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	CARD_SEL	52	3VSB

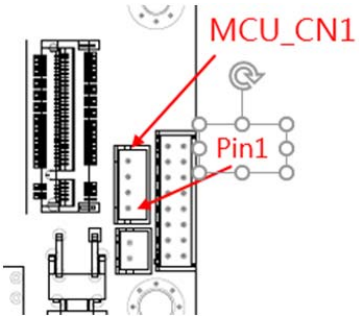
2.5.5 UPS JST CONNECTOR (PCI-EX4/SATAX1)



Pin	Signal	Pin	Signal
1	DC_VIN	2	DC_VIN
3	NC		
4	GND	5	GND

Connector size: 1 X 5 = 4 Pin
Connector type: JST-2.0mm-M-180
Connector location: UPS1

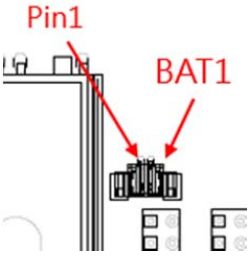
2.5.6 MCU JST CONNECTOR



Pin	Signal	Pin	Signal
1	PROGRAM	2	RS-232-RXD
3	GND	4	RS-232-TXD

Connector size: 1 X 4 = 4 Pin
Connector type: JST-2.0mm-M-180
Connector location: MCU_CN1

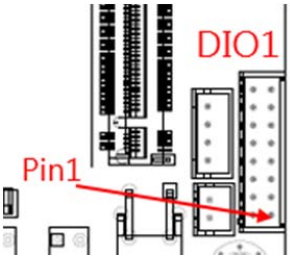
2.5.7 BAT CONNECTOR



Pin	Signal	Pin	Signal
1	3.3V	2	GND

Connector size: 1 X 2 = 2 Pin
Connector type: JST-1.25mm-M-90
Connector location: BAT1

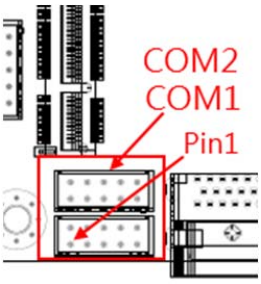
2.5.8 DIO JST CONNECTOR



Connector size: 2 X 8 = 16 Pin
Connector type: JST-2.0mm-M-180
Connector location: DIO1
DO: 5V@100mA; DI: 5~48V; AI: 9~48V

Pin	Signal	Pin	Signal
1	DO_1	2	DO_2
3	DO_3	4	DO_4
5	GND	6	GND
7	DI_1	8	DI_2
9	DI_3	10	DI_4
11	NC	12	NC
13	AIN0	14	AIN1
15	ADC_GND	16	GND_CASS

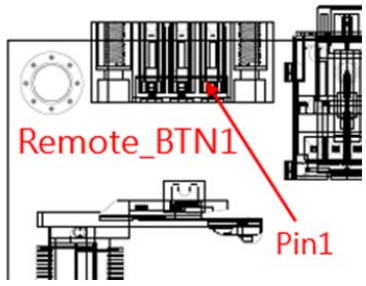
2.5.9 COM JST CONNECTOR (RS-232/422/485) (OPTIONAL FOR MODEL FLEETPC-4-F-2S)



Connector size: 2 X 5 = 10 Pin
Connector type: JST-2.0mm-M-180
Connector location: COM1~2

Pin	Signal	Pin	Signal
1	COM_DCD	2	COM_RXD
3	COM_TXD	4	COM_DTR
5	GND	6	COM_DSR
7	COM_RTS	8	COM_CTS
9	COM_RI	10	GND

2.5.10 REMOTE BTN CONNECTOR (OPTIONAL)



Pin	Signal	Pin	Signal
1	COM_DCD	2	COM_RXD
3	COM_TXD	4	COM_DTR
5	GND	6	COM_DSR
7	COM_RTS	8	COM_CTS
9	COM_RI	10	GND

Connector size: 1 X 3 Pin
Connector type: ME050-350-02G 1x3PIN 90D
Connector location: Remote_BTN1

Chapter 3

System Setup

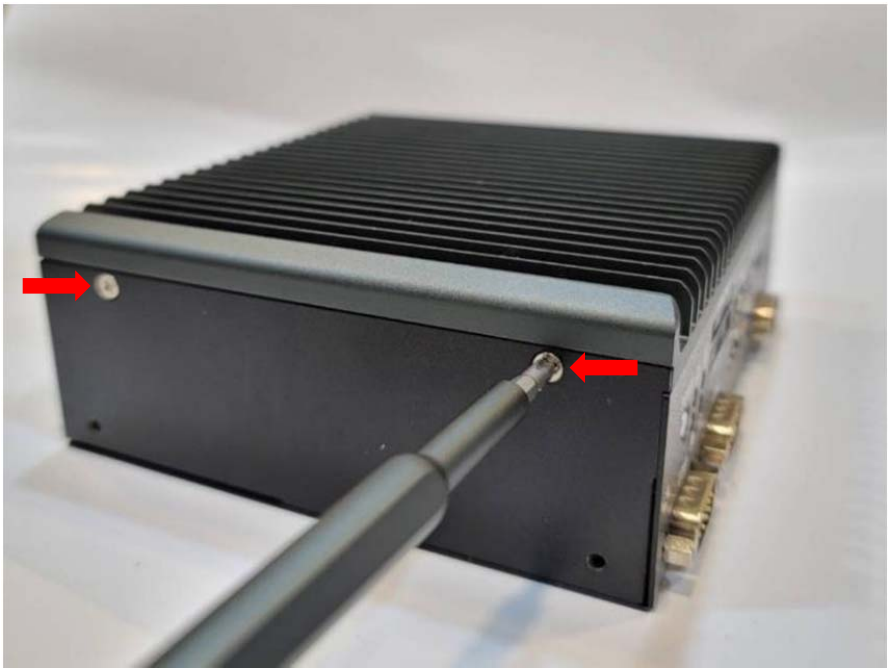
3.0 SYSTEM SETUP

3.1 OPENING THE CHASSIS

Step 1.
Unscrew the six screws on the chassis (side and bottom), as shown in the picture.

Bottom

Side



Step 2.
Unscrew the two screws on the front panel, as shown in the picture.

Step 3.
Remove the chassis.

3.2 INSTALLING MEMORY

Step 1.
Insert the memory module into the slot as shown in the picture.

Step 2.
Hold the memory module with its notch aligned with the memory slot on the motherboard and insert the memory module into the space at a 30-degree angle.

Step 3.
Tilt the memory module to be fixed with both memory lock stoppers.

3.3 INSTALLING MINI PCIE EXPANSION CARD (PCIE/SATA/USB2.0)

Step 1.
Insert MINI PCIe Expansion Card into the Slot as shown in the picture.

Step 2.
Hold the module with its notch aligned with the Slot on the motherboard and insert the module into the slot at a 30-degree angle.

Step 3.
Lock the holder screw (P/N:351103040250) to make the module stable.

3.4 INSTALLING M.2 PCIE SSD

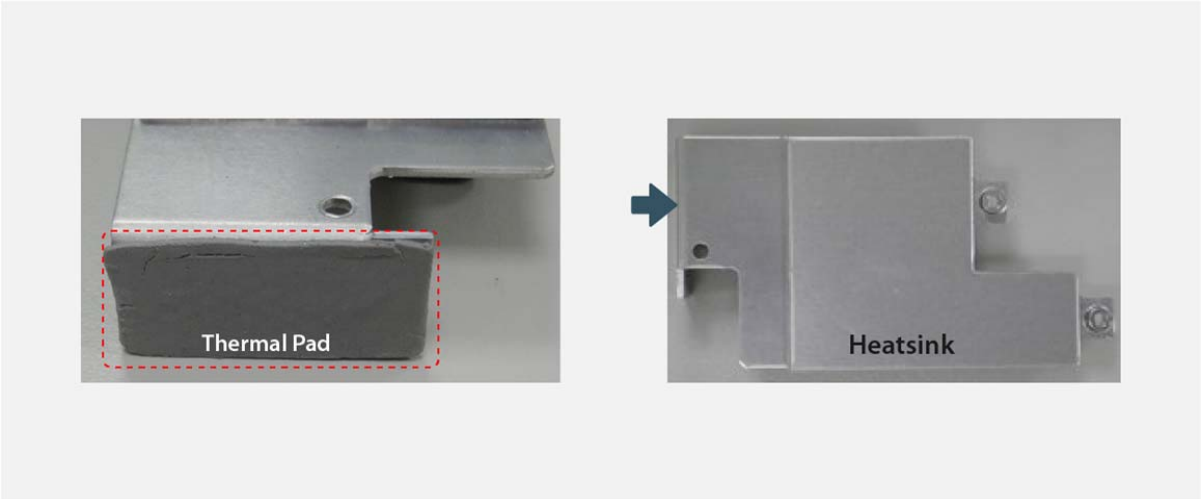
Step 1.
Insert MINI PCIe Expansion Card into the Slot as shown in the picture.

Step 2.
Hold the module with its notch aligned with the Slot on the motherboard and insert the module into the slot at a 30-degree angle.

Step 3.
Lock the holder screw (P/N:351103040250) to make the module stable.

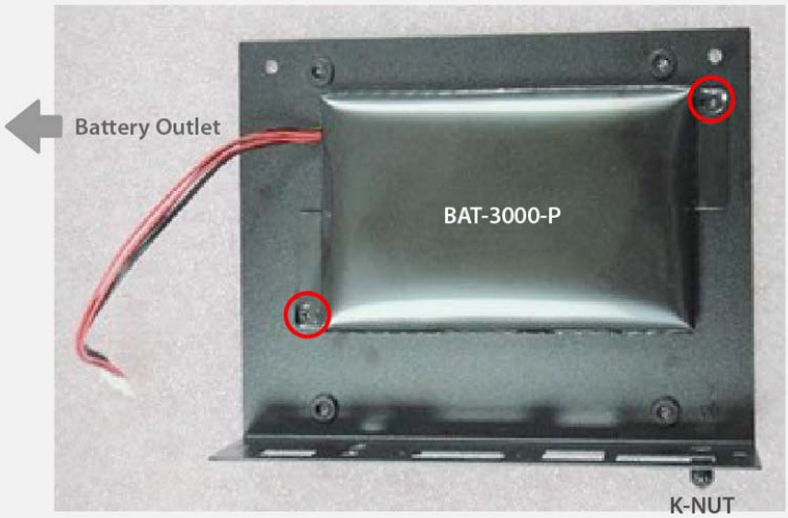
3.5 INSTALLING BAT-3000-P BACKUP BATTERY (OPTIONAL)

Step 1.
Please take out the thermal pad and attach it to the HEATSINK according to the position shown in the figure. (Please smooth it and not exceed the edge)

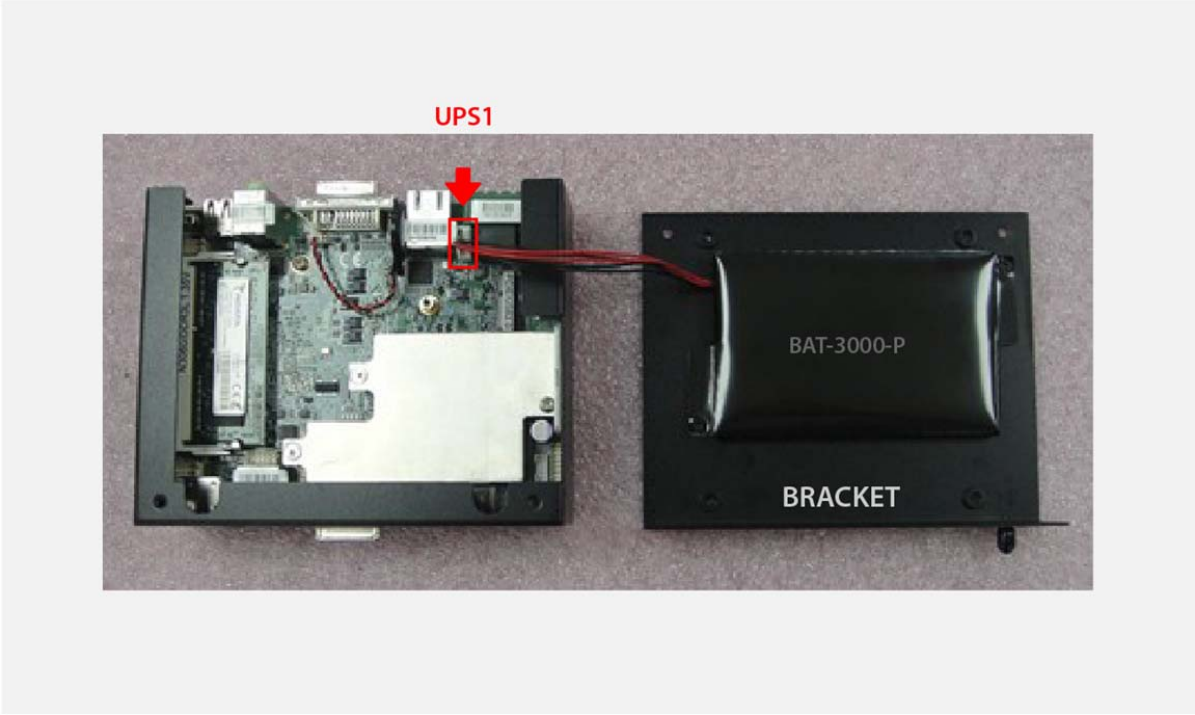


Step 2.
Align the screw holes to install the HEATSINK on the body and tighten the screws.

Step 3.
Mount the BAT-3000-P Kit on the bottom BRACKET using the attached screws. (Pay attention to the direction of the battery outlet)



Step 4.
Insert the battery connector into the UPS1 position of the mainboard, and then install the BRACKET back to the main body of the machine.



Step 5.
Cover the BRACKET to the machine and tighten the screws. Please note that the battery cable is close to the edge, so be careful not to press it.

Chapter 4

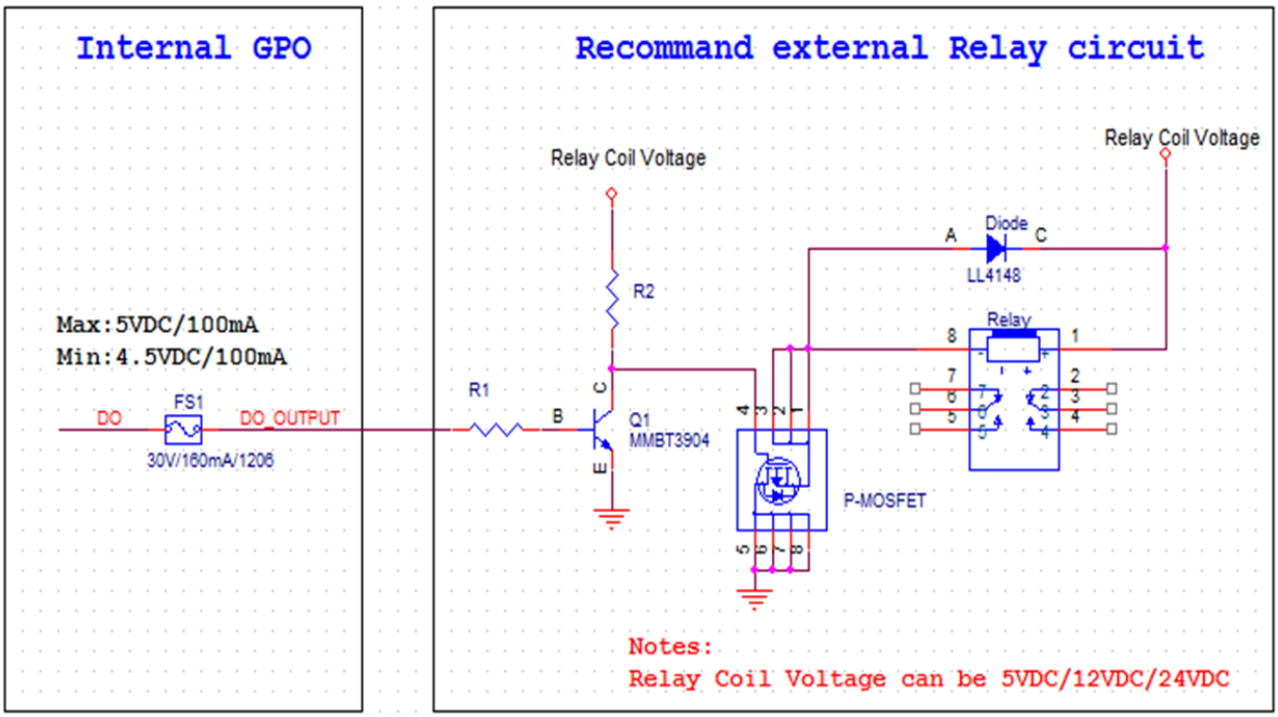
System Resource

4.1 DIO Control Register

Hardware Specification

Model	Analog Input	GPI Voltage	GPO Voltage	DO Max Current
FLEETPC-4-F	9~60V/0.5Vaccuracy	5~60V	5V	100mA

Digital Output and External Relay Recommend Circuit



Register Definitions

DO Data Register – 0x31

Bit	Name	R/W	DESCRIPTION
3	GPIO4_OUT	R/W	GPIO4 output data.
2	GPIO3_OUT	R/W	GPIO3 output data.
1	GPIO2_OUT	R/W	GPIO2 output data.
0	GPIO1_OUT	R/W	GPIO1 output data.

DI Status Register – 0x30

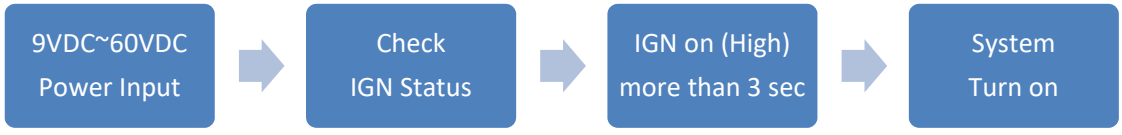
Bit	Name	R/W	DESCRIPTION
3	GPIO4_IN	R	GPIO4 pin status.
2	GPIO3_IN	R	GPIO3 pin status.
1	GPIO2_IN	R	GPIO2 pin status.
0	GPIO1_IN	R	GPIO1 pin status.

4.2 Ignition Power Management Quick Guide

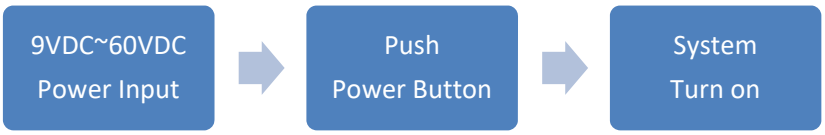
Startup conditions from the IGNITION signal:

- IGNITION startup signal must be valid during 3 sec. (anti-noise protection).
- Typically, the system can start only from the IGNITION signal because the startup PIC controller is disconnected from the power source.

Startup Procedure by Ignition



Startup Procedure by Power Button



Technical Support

Please do not hesitate to contact CARTFT.COM for API and utility when you cannot fix the problems.

- TEL: +4971213878264
- FAX: +4971213878265
- E-mail: sales@CarTFT.com
- Website: www.CarTFT.com

Chapter 5

BIOS Setting

5.0 BIOS SETTING

5.1 Enter The BIOS

Power on the computer, and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press the (DEL) key to enter Setup.

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

- The items under each BIOS category described in this chapter are continuously updated for better system performance. Therefore, the description may differ slightly from the latest BIOS and should be held for reference only.
- Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format.

Control Keys

Power on the computer, and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press the (DEL) key to enter Setup.

<↑>	Move to the previous item.
<↓>	Move to the next item.
<←>	Move to the item in the left hand.
<→>	Move to the item in the right hand.
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General Help
<F3>	Load Optimized Defaults
<F4>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The online description of the highlighted setup function is displayed at the bottom of the screen.

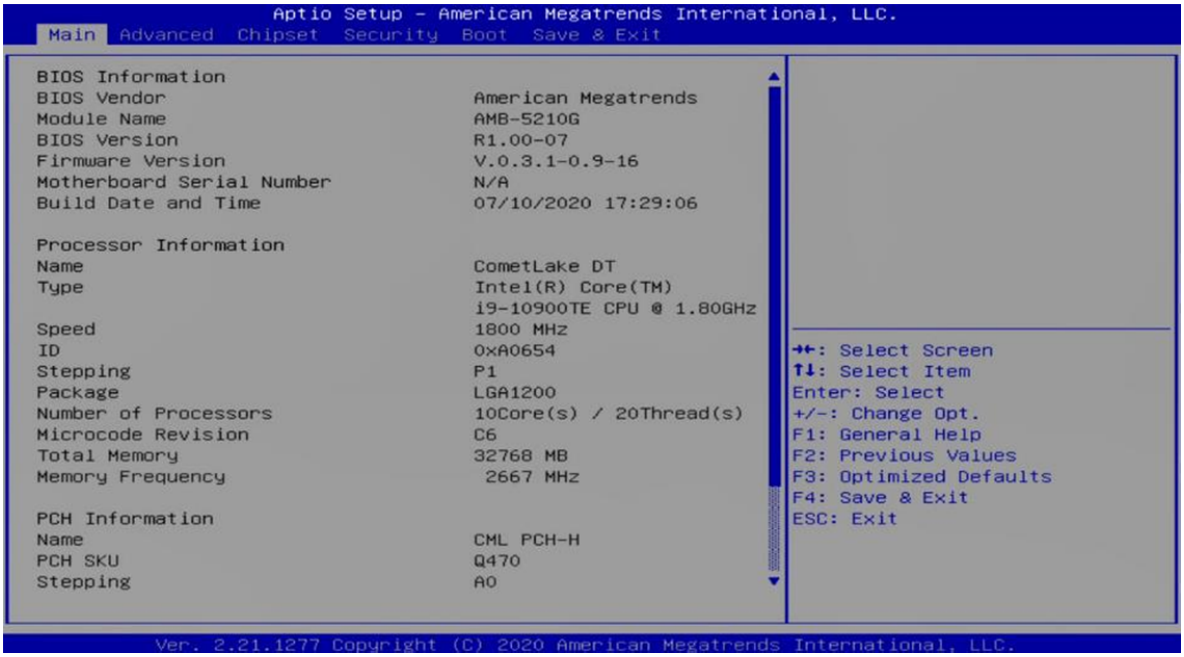
Sub-Menu

If you find a fitting pointer symbol (as shown in the right view) appears to the left of specific fields, a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the area and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from place to field within a sub-menu. If you want to return to the main menu, press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

5.2 Main



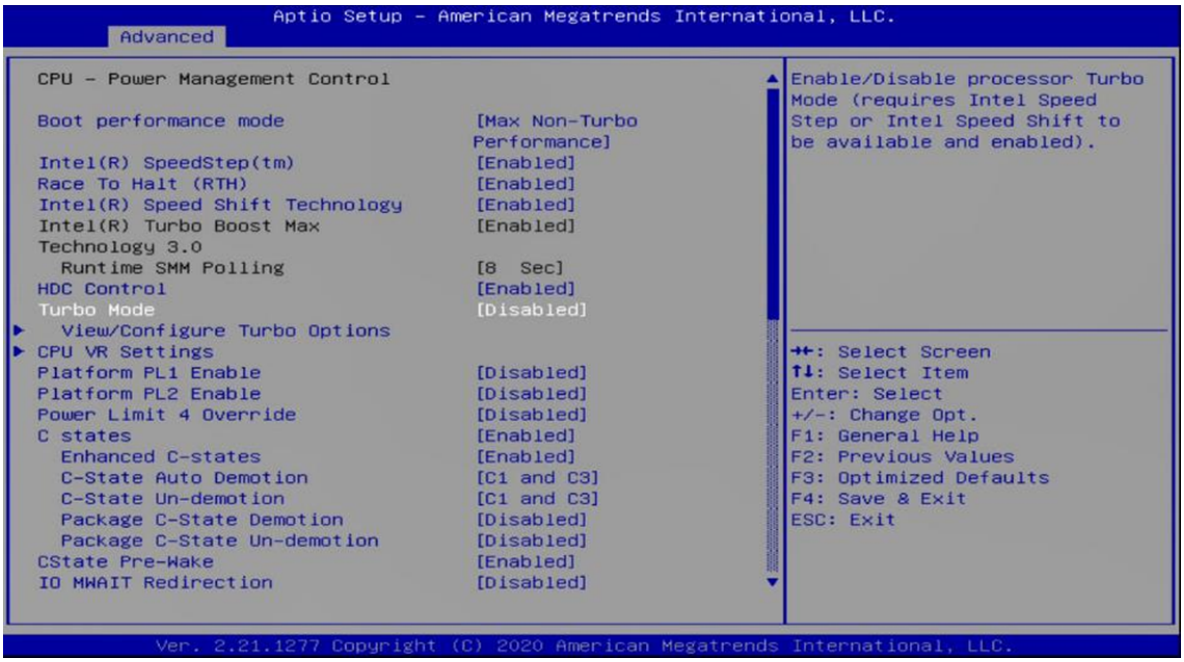
- **System Date**
  This setting allows you to set the system Date. The time format is <Day> <Month> <Date> <Year>.

- **System Time**
  This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

5.3 Advanced

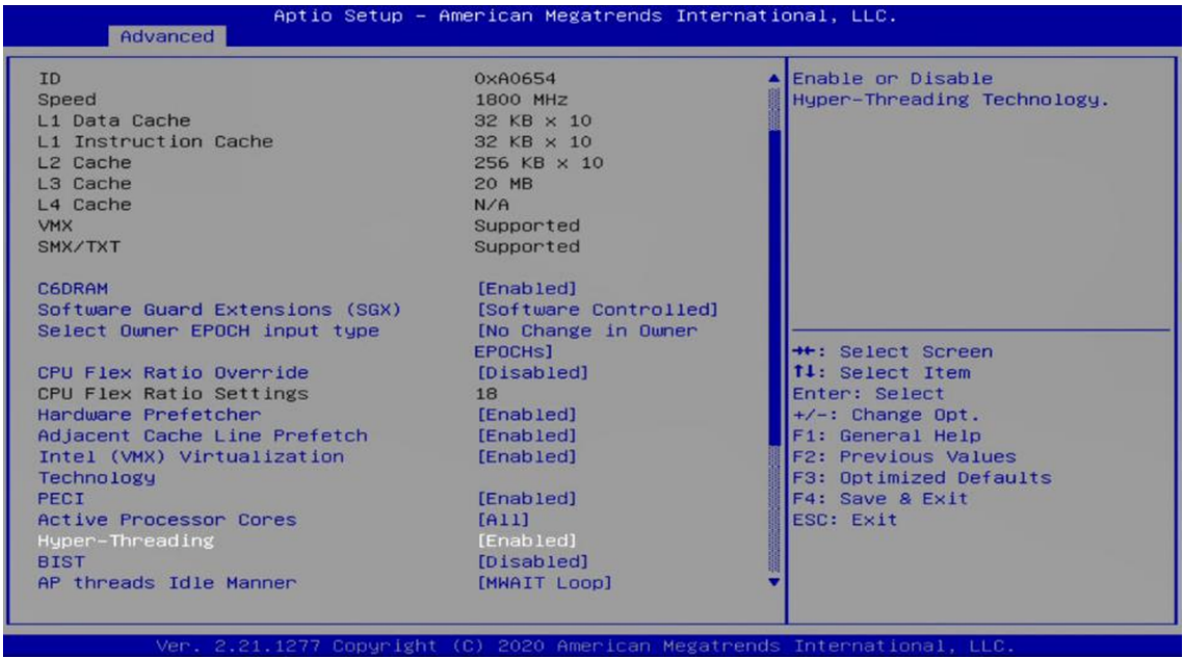
5.3.1 CPU Configuration

- **Turbo Mode**

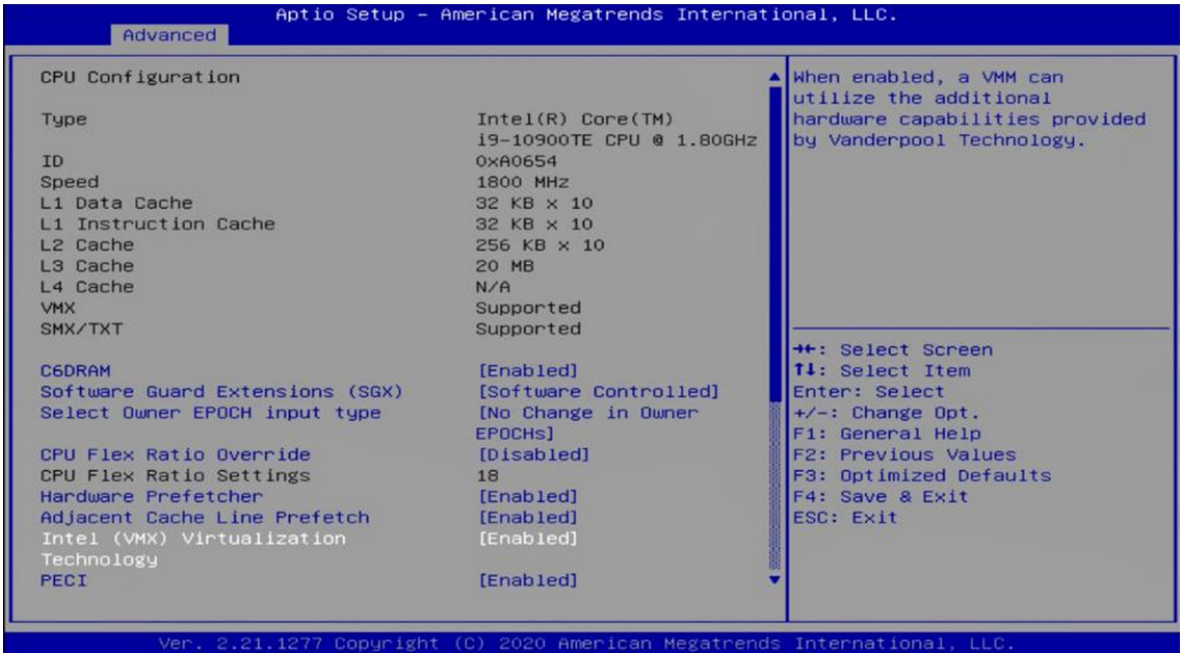


- **Hyper-Threading**

  Allows you to enable or disable the Intel® Hyper-Threading function of the processor.



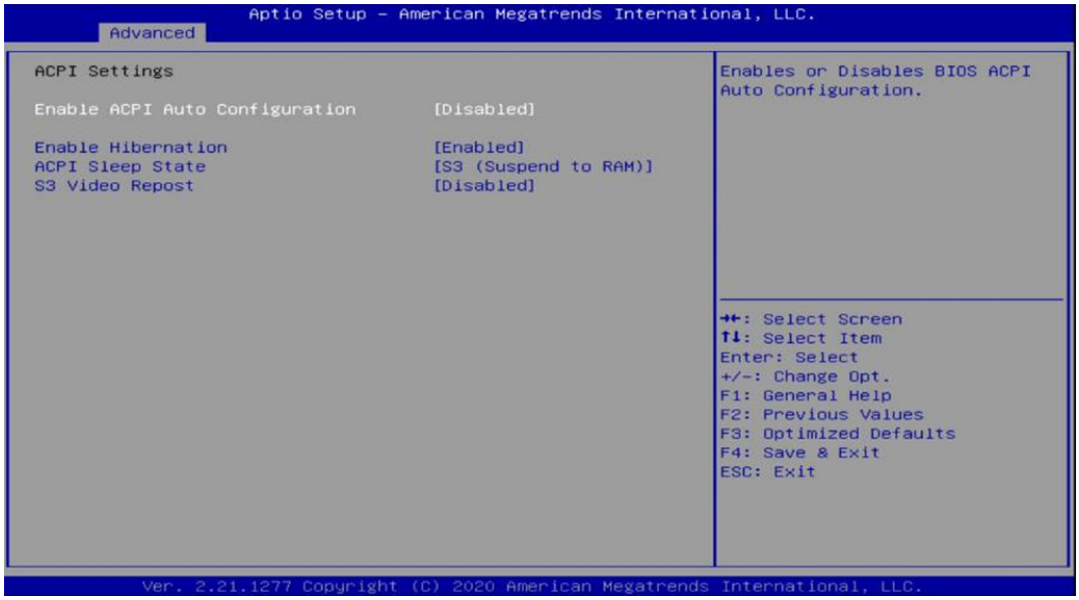
- **Intel (VMX) Virtualization Technology**
  Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems.



5.3.2 ACPI Settings

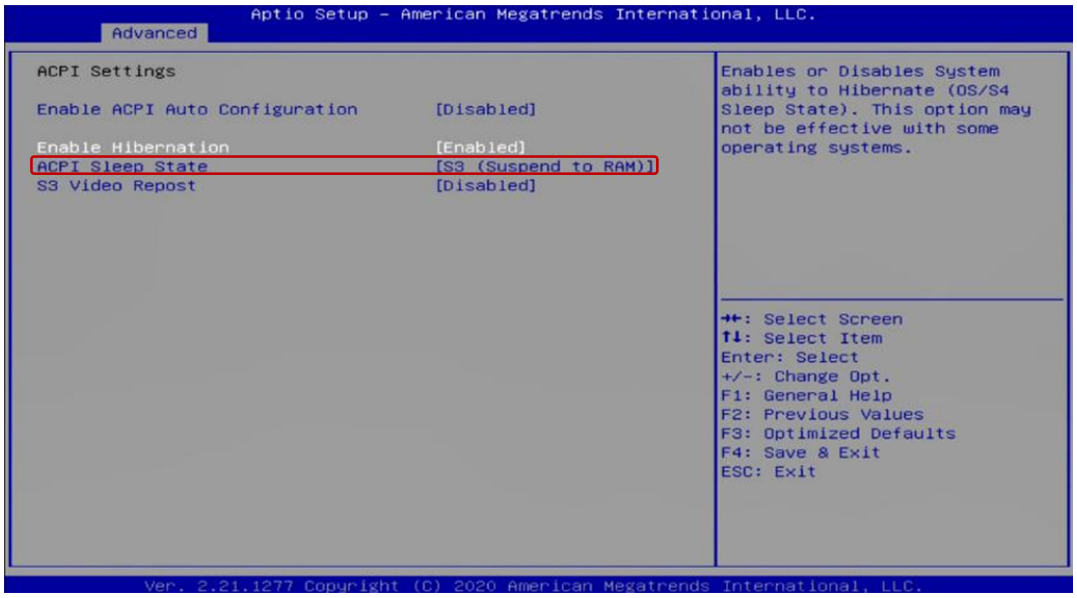
This item allows users to configure ACPI settings.

- **Enable ACPI Auto Configuration**
  Enables or disables BIOS Advanced Configuration Power Interface® (ACPI) auto-configuration.

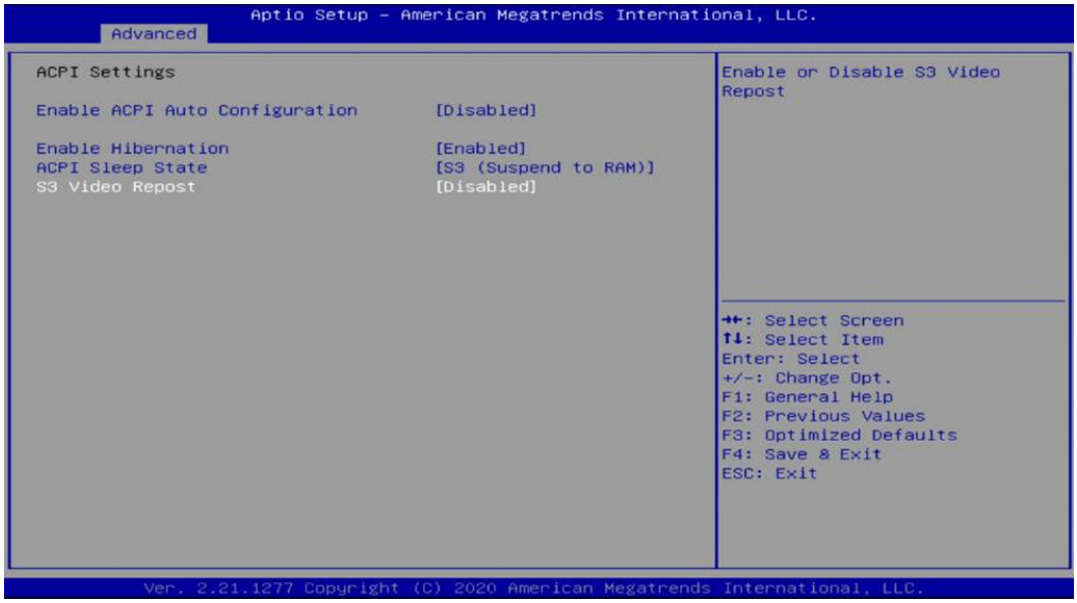


- **ACPI Sleep State**

  Allows users to select the highest Advanced Configuration Power Interface® (ACPI) sleep state that the system will enter when suspend button is pressed.



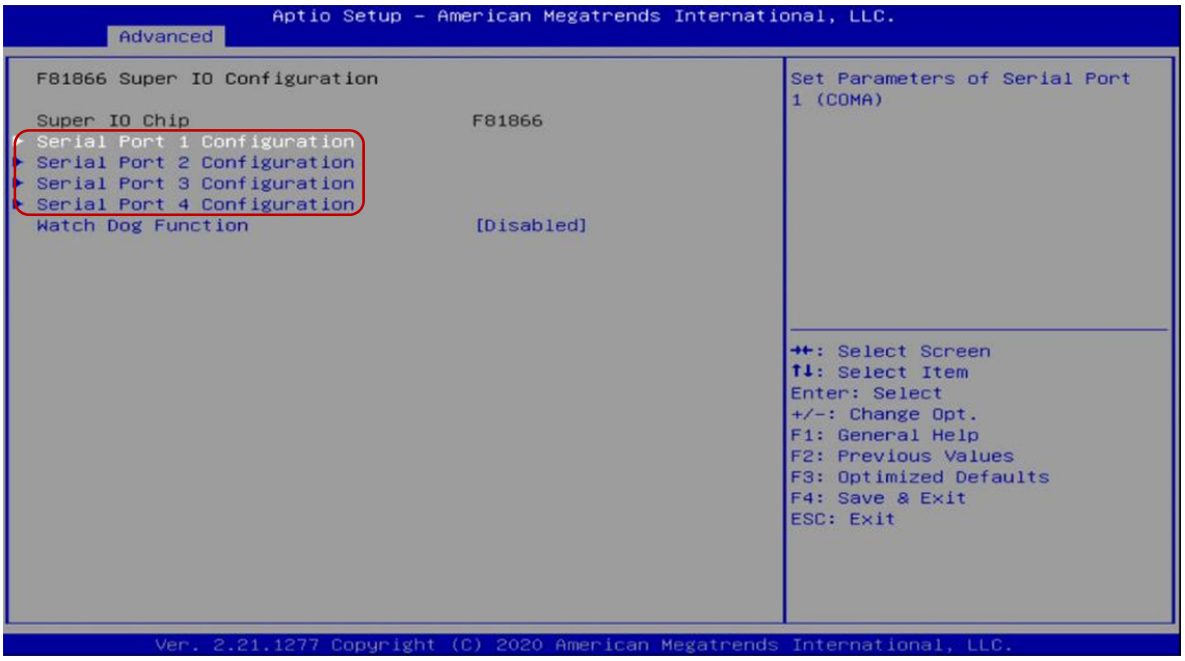
- **S3 Video Repost**



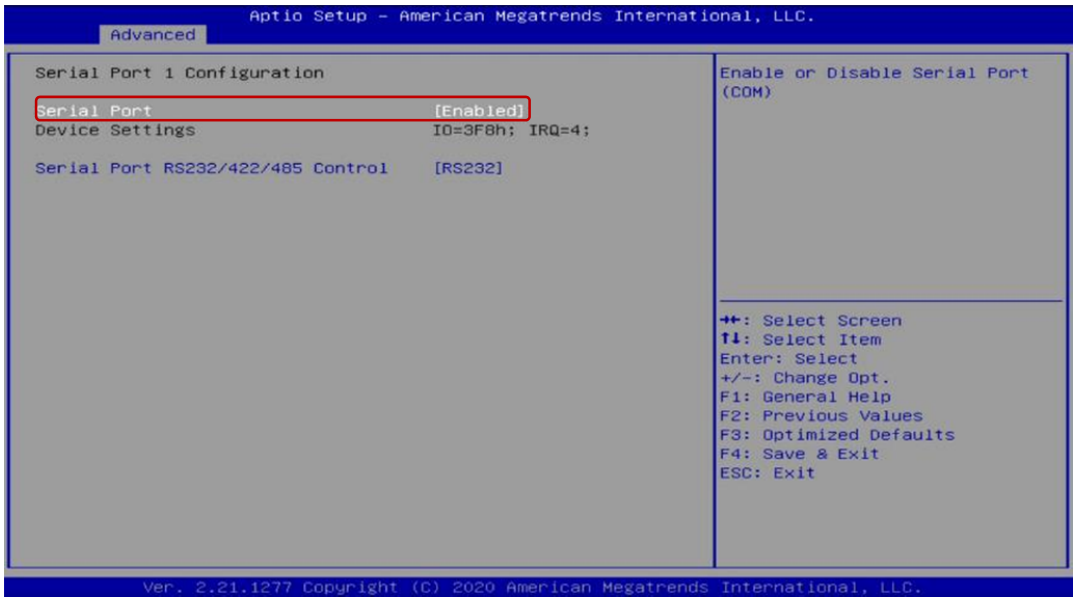
5.3.3 Super I/O

The screen allows users to select options for the Super IO configuration and change the value of the option chosen.

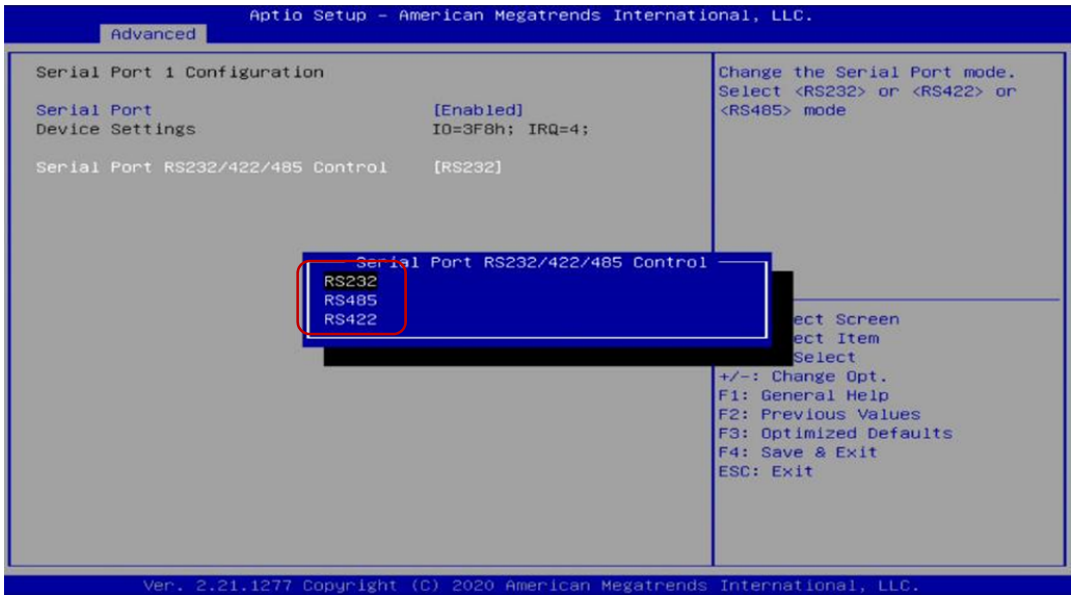
- **Serial Port Configuration**



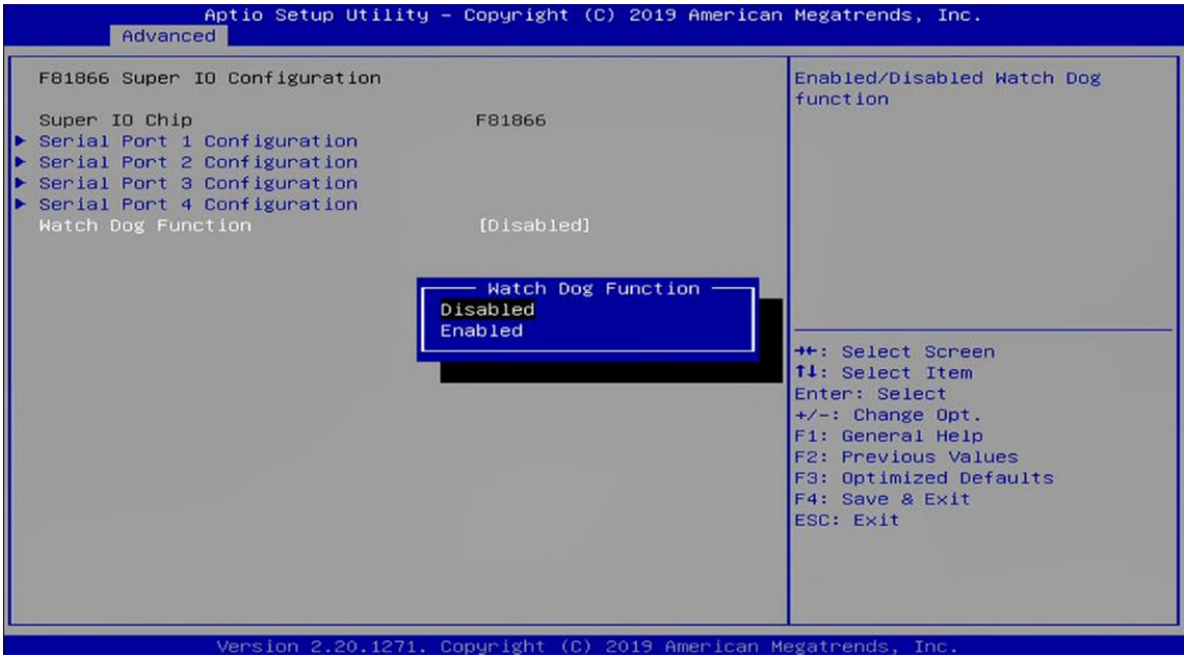
- **Serial Port 1/2/3/4 Enable or Disable.**
  Select an Enable or Disable for the specified serial ports.



- **COM1 RS232/422/485 Select**

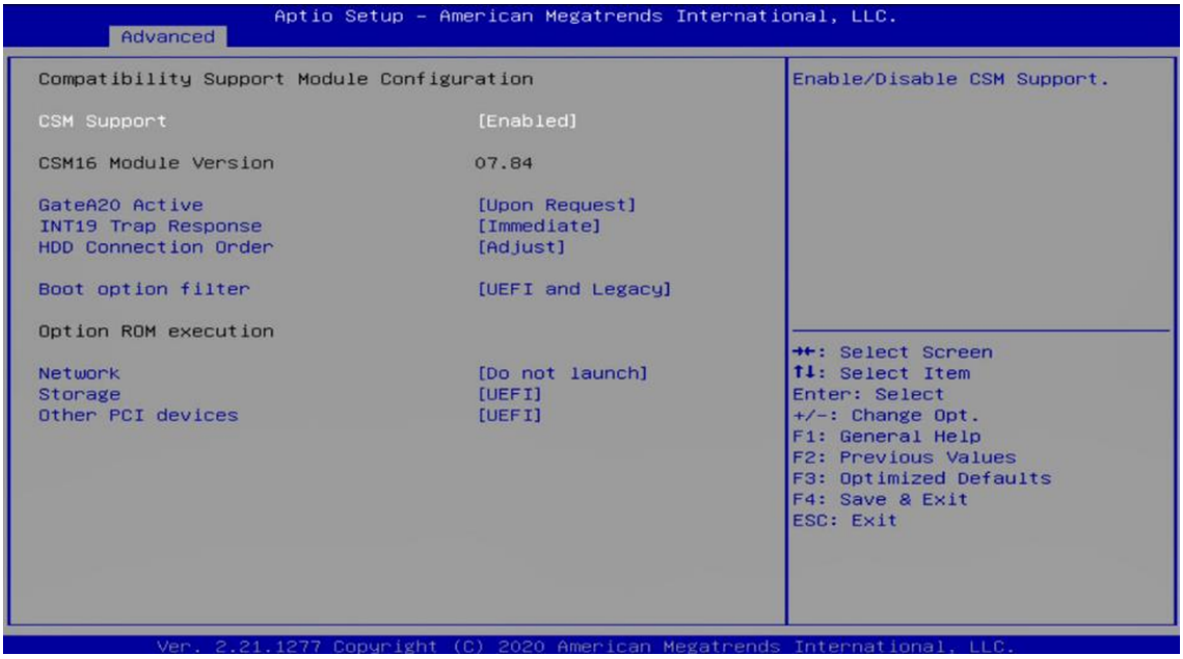


■ **Watchdog Function**

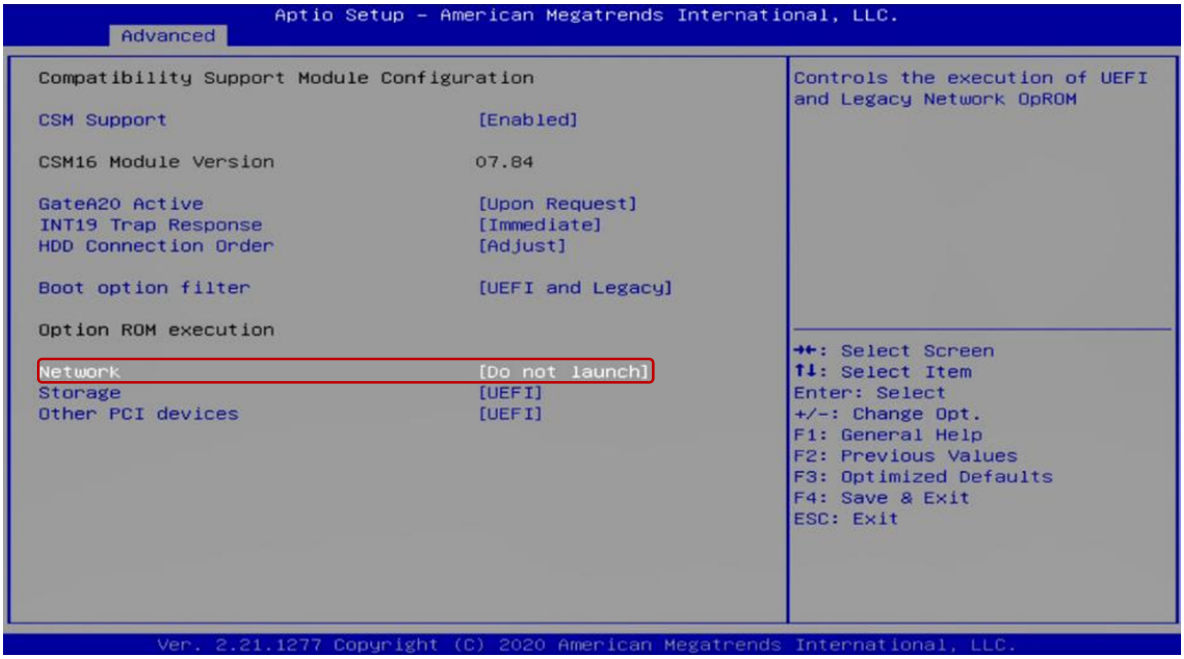


5.3.4 CMS Configuration

This item allows users to enable or disable UEFI Compatibility Support Module (CSM) to support a legacy PC boot process.

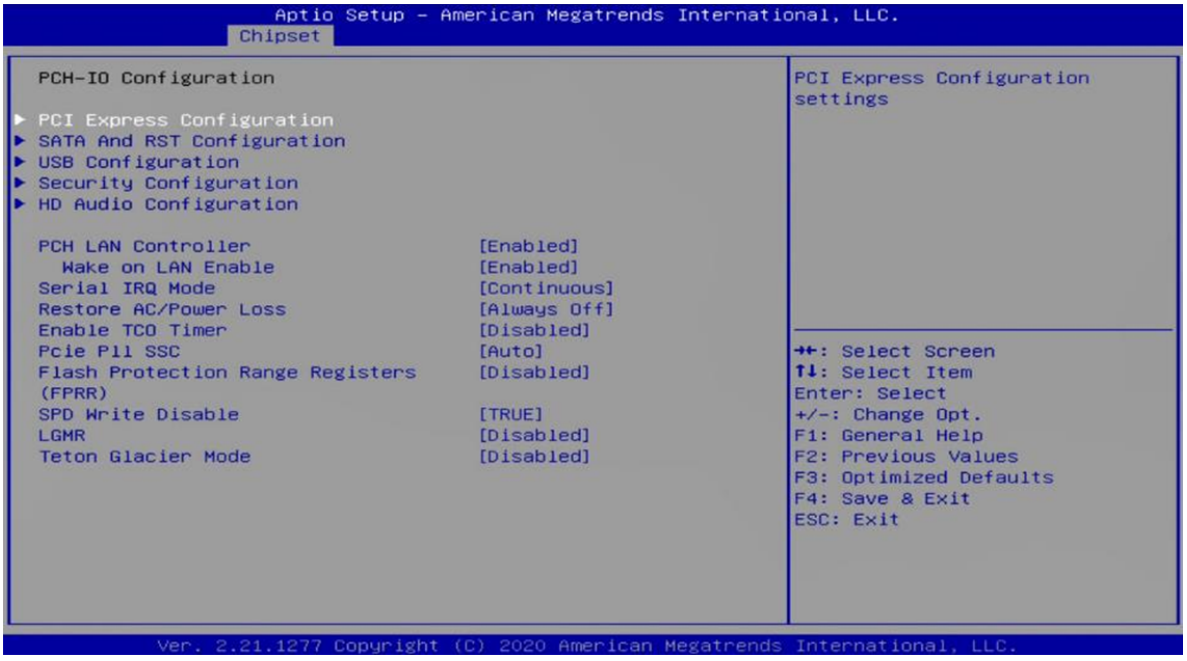


■ **Network**

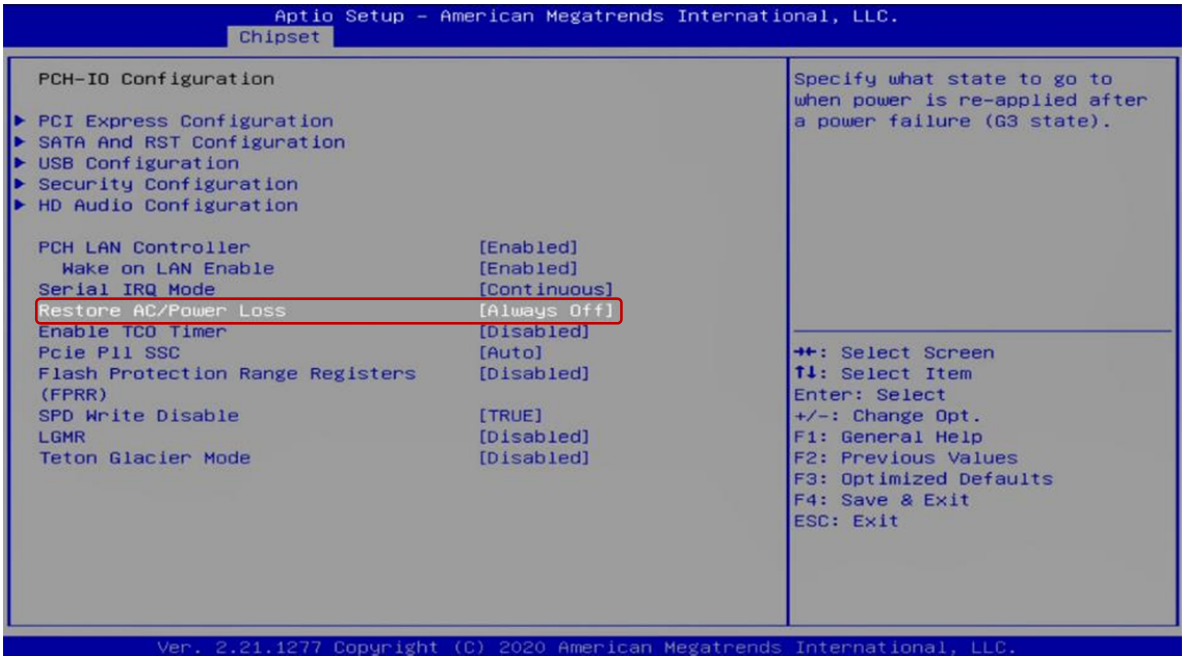


5.4 Chipset

5.4.1 PCH-IO Express Configuration

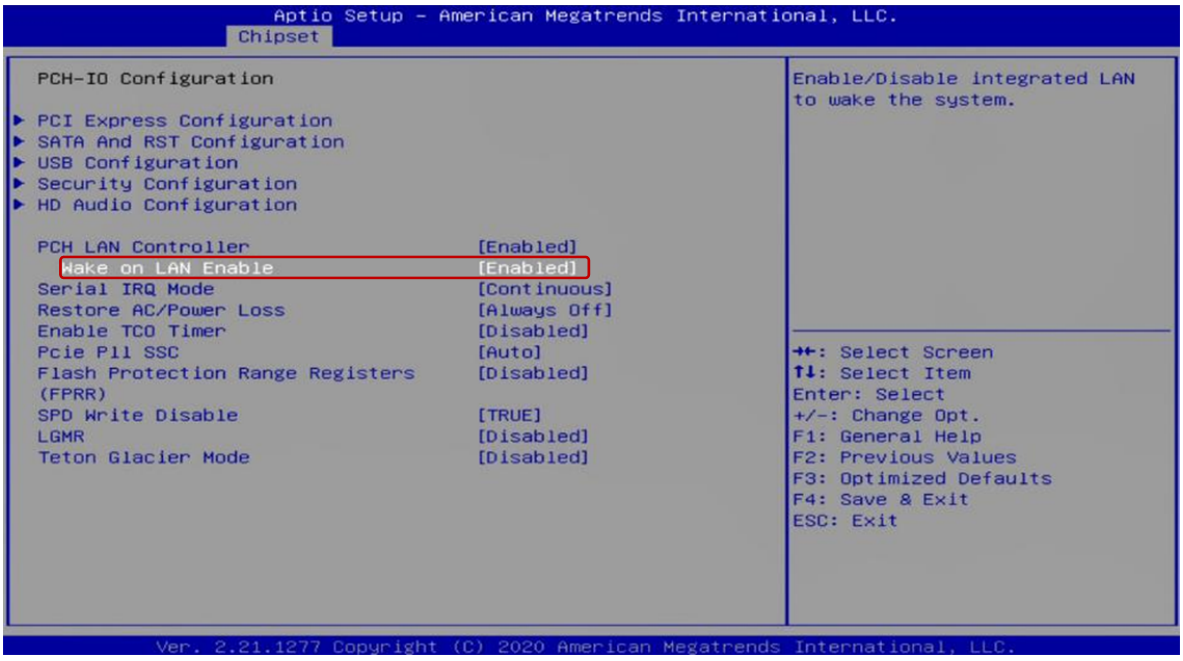


- **Restore AC/Power Loss**
  This item allows users to choose [Always off] or [Always On] mode.



- **Wake on LAN**

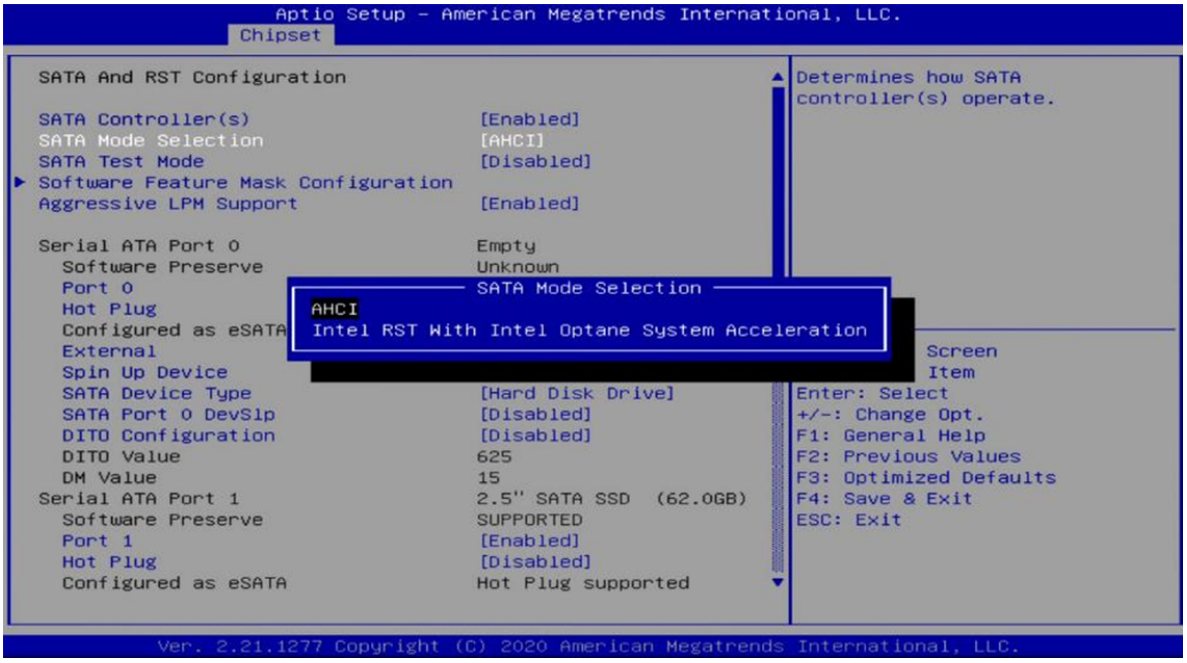
  This item allows users to choose [Enabled] or [Disabled] mode.



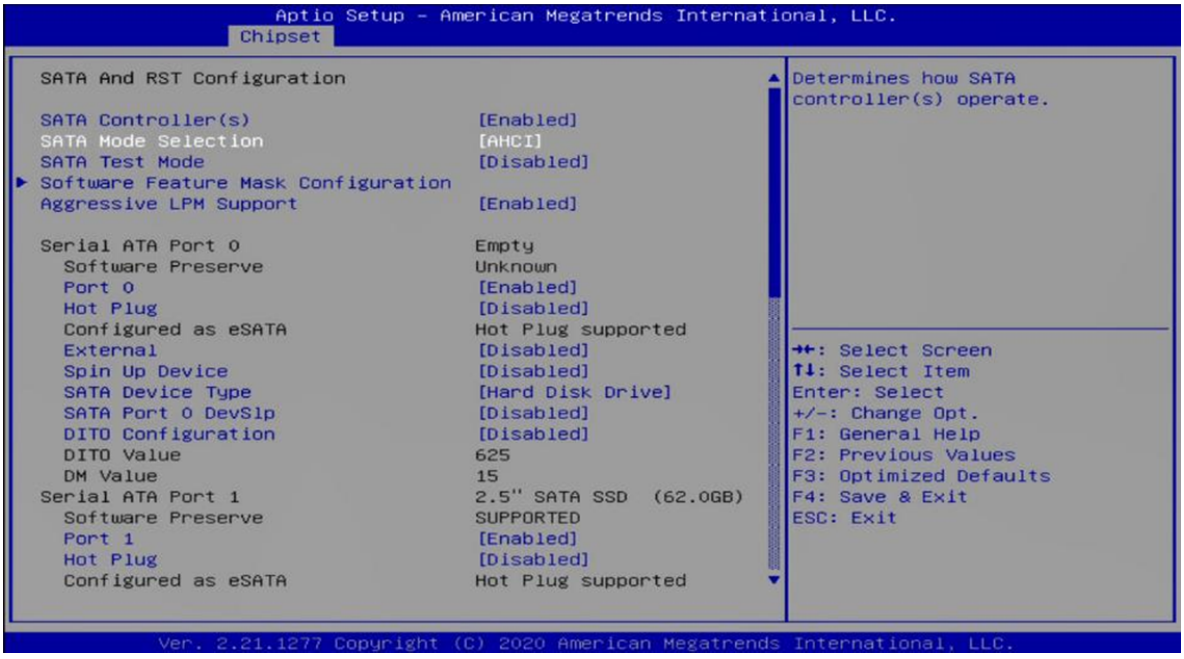
5.4.2 SATA

- **SATA Mode Selection**

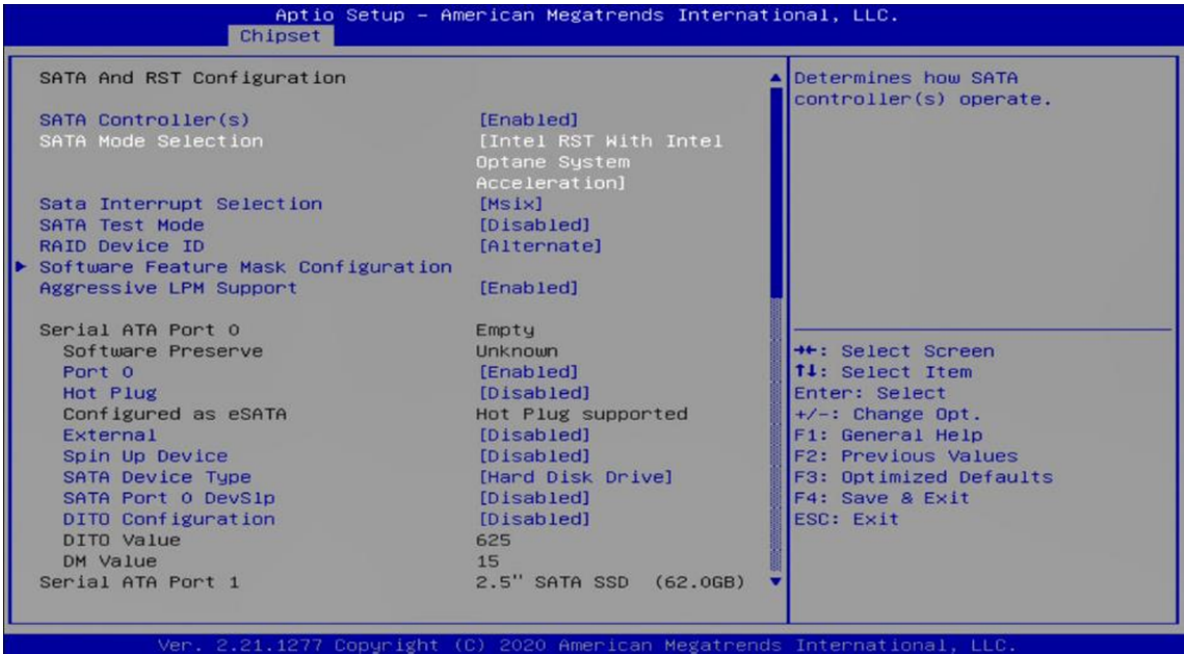
  This item allows users to choose [AHCI] or [Intel RST with Intel Optane System Acceleration] mode.

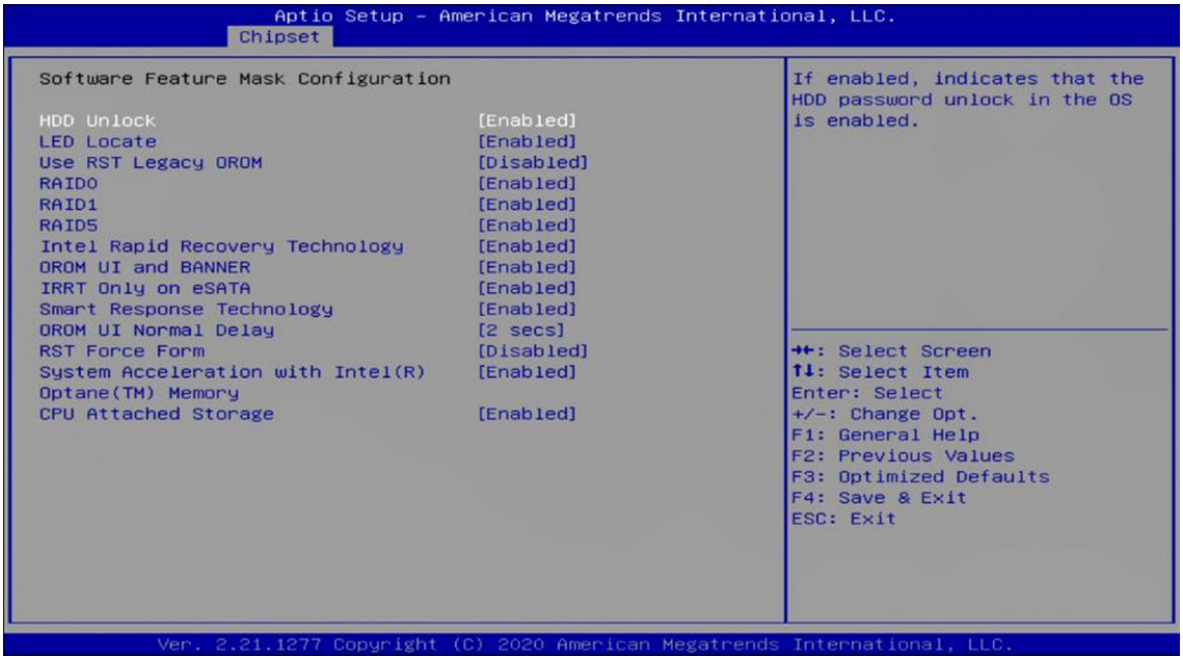


- **AHCI Setting**



- **RAID Setting (if select** Intel RST with Intel Optane System Acceleration**)**


Aptio Setup – American Megatrends International, LLC.
Chipset
SATA And RST Configuration
SATA Controller(s) [Enabled]
SATA Mode Selection [Intel RST With Intel Optane System Acceleration]
Sata Interrupt Selection [Msix]
SATA Test Mode [Disabled]
RAID Device ID [Alternate]
Software Feature Mask Configuration
Aggressive LPM Support [Enabled]
Serial ATA Port 0 Empty
Software Preserve Unknown
Port 0 [Enabled]
Hot Plug [Disabled]
Configured as eSATA Hot Plug supported
External [Disabled]
Spin Up Device [Disabled]
SATA Device Type [Hard Disk Drive]
SATA Port 0 DevSlp [Disabled]
DITO Configuration [Disabled]
DITO Value 625
DM Value 15
Serial ATA Port 1 2.5" SATA SSD (62.0GB)
Determines how SATA controller(s) operate.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Ver. 2.21.1277 Copyright (C) 2020 American Megatrends International, LLC.


Aptio Setup – American Megatrends International, LLC.
Chipset
Software Feature Mask Configuration
HDD Unlock [Enabled]
LED Locate [Enabled]
Use RST Legacy OROM [Disabled]
RAID0 [Enabled]
RAID1 [Enabled]
RAID5 [Enabled]
Intel Rapid Recovery Technology [Enabled]
OROM UI and BANNER [Enabled]
IRRT Only on eSATA [Enabled]
Smart Response Technology [Enabled]
OROM UI Normal Delay [2 secs]
RST Force Form [Disabled]
System Acceleration with Intel(R) Optane(TM) Memory [Enabled]
CPU Attached Storage [Enabled]
If enabled, indicates that the HDD password unlock in the OS is enabled.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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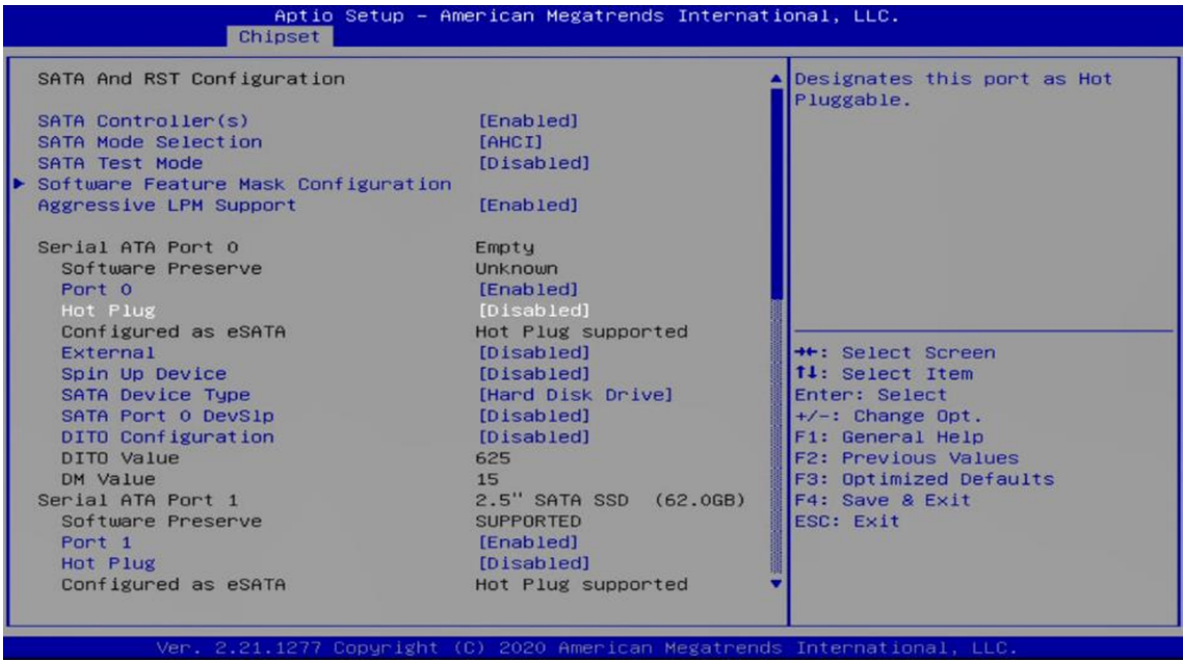
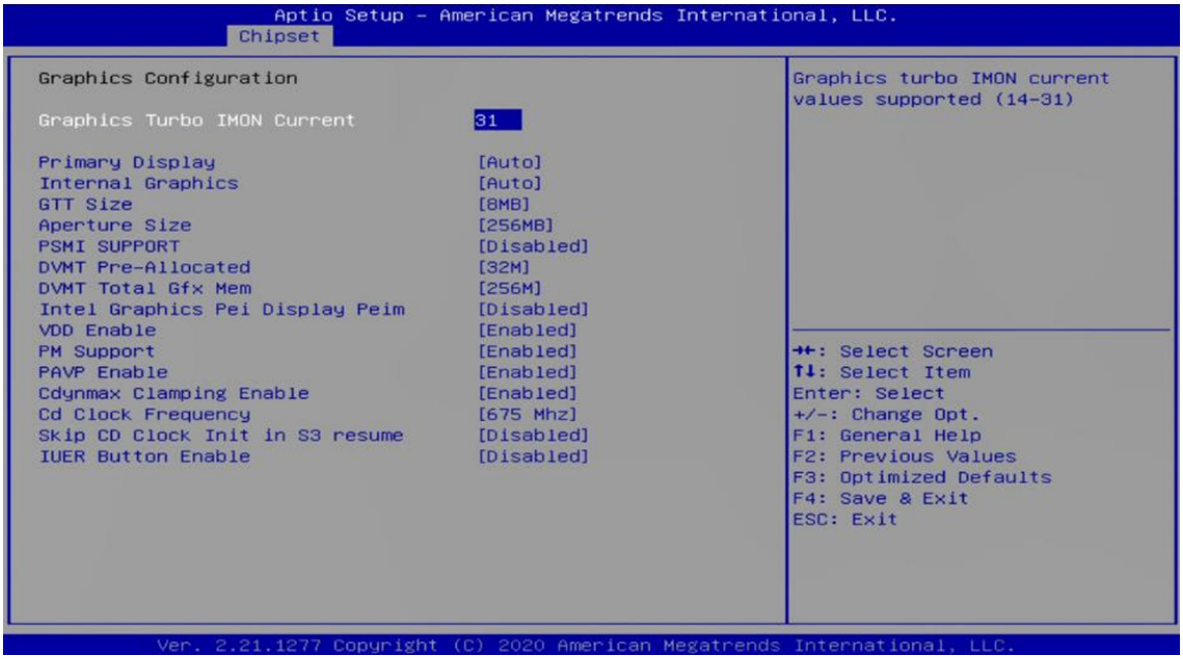
■ **Hot Plug**



5.4.3 Graphics Configuration

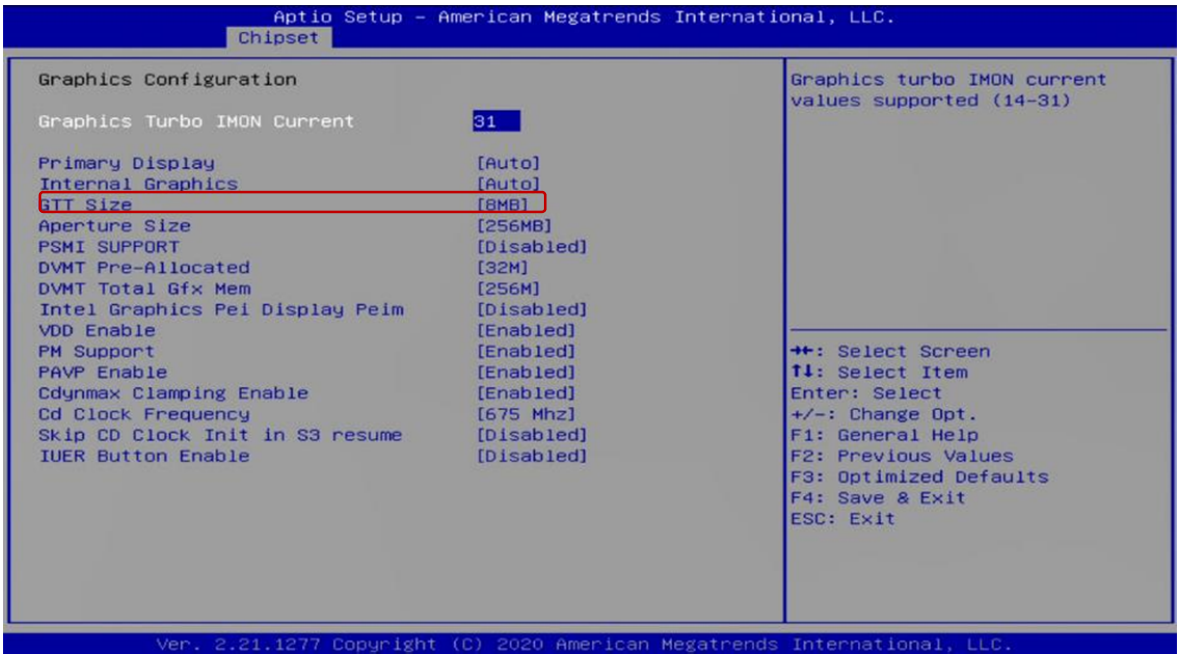


◆ **Primary Display**

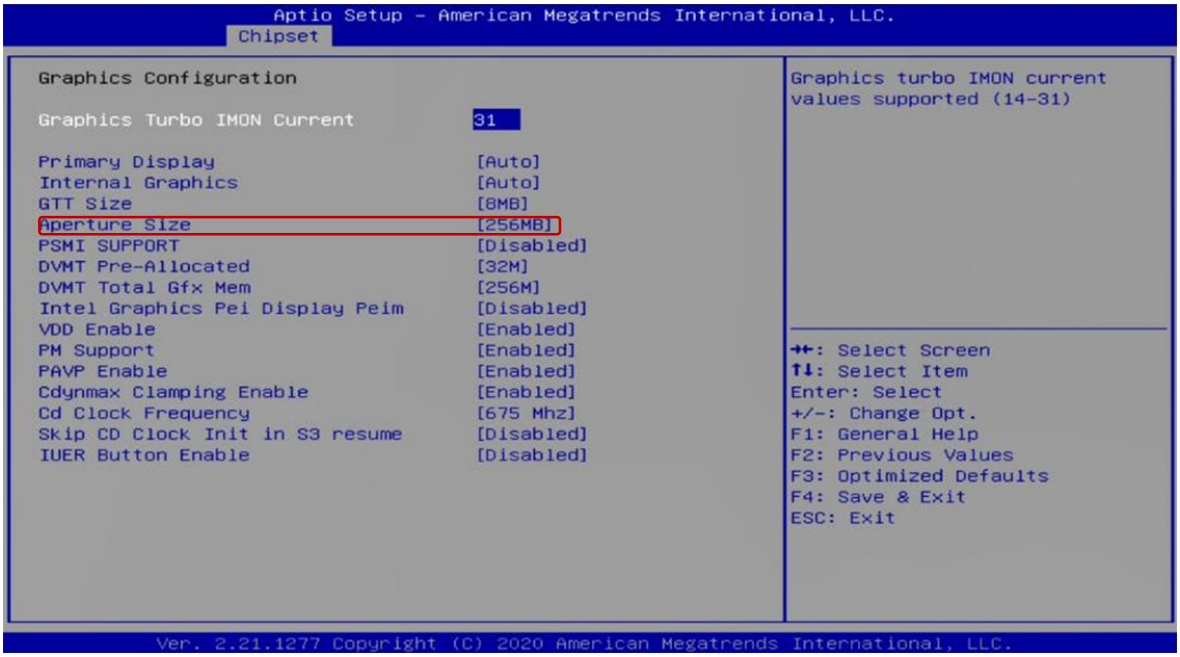
Allows users to select which graphics device should be the primary display or SG for switchable graphics.

- **Internal Graphics**
  This item allows users to enable or disable Internal Graphics. When set to [Auto], it will detect by BIOS.

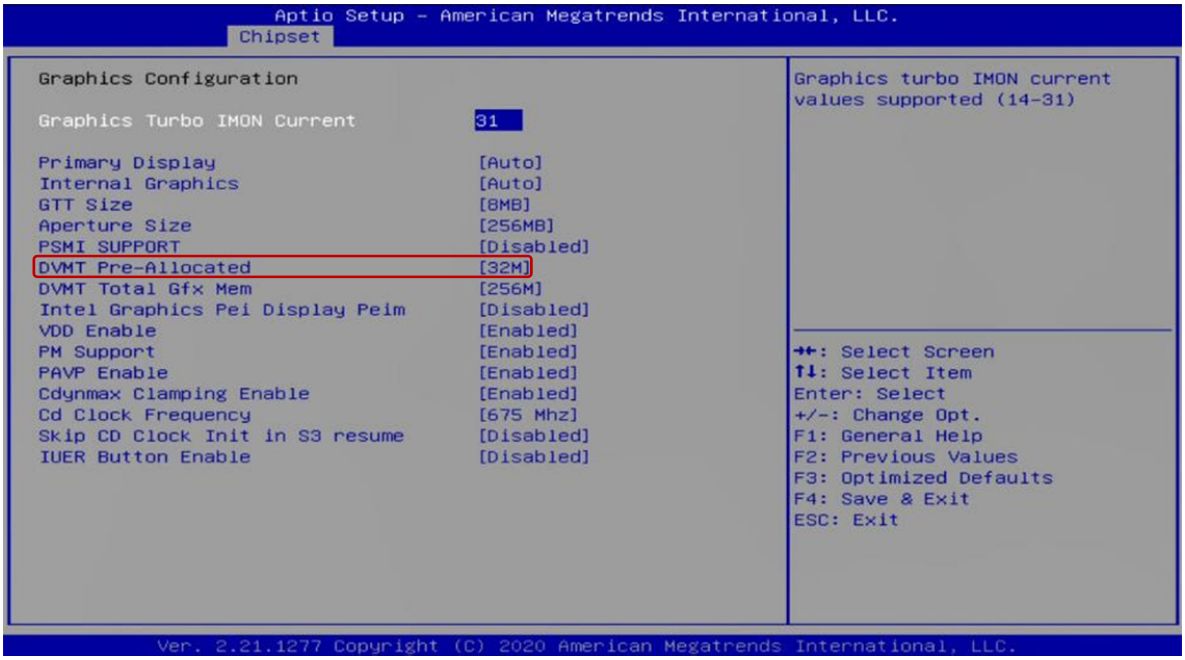
GTT Size



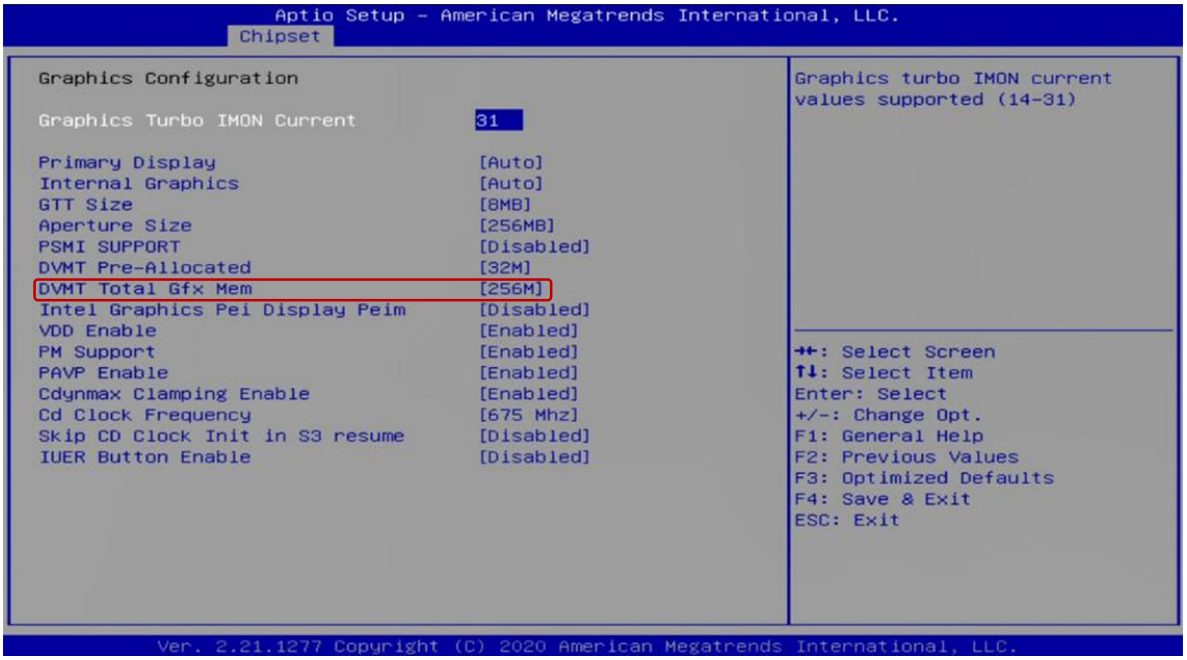
■ Aperture Size



■ DVMT Pre-Allocated



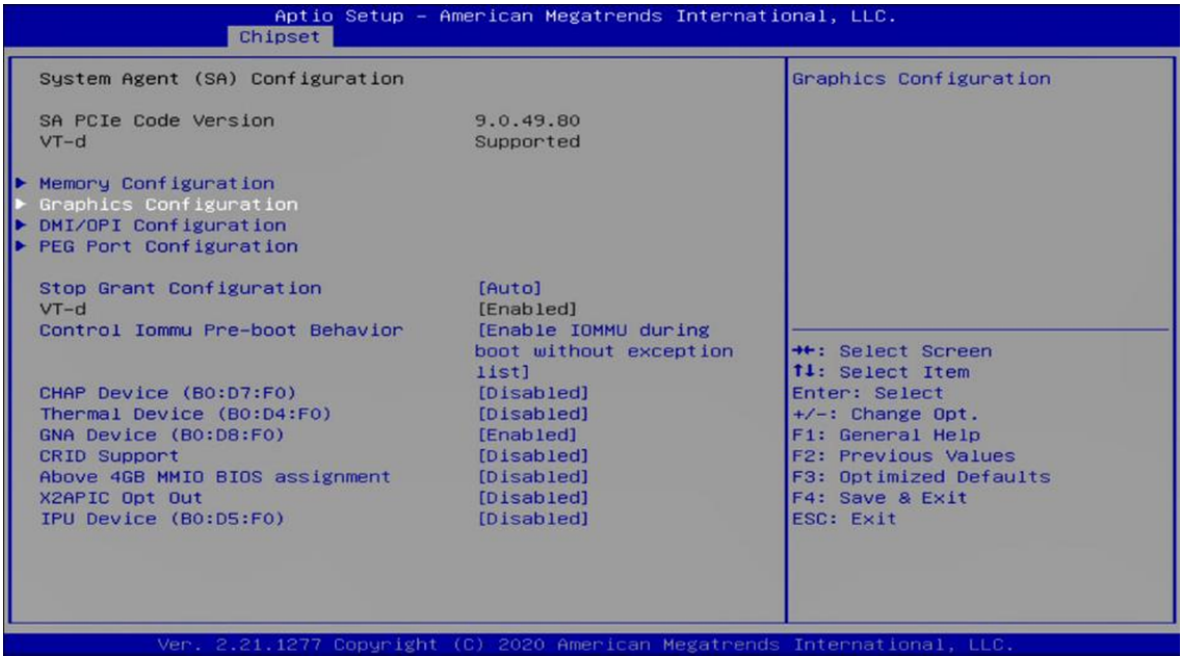
■ **DVMT Total Gfx Mem**



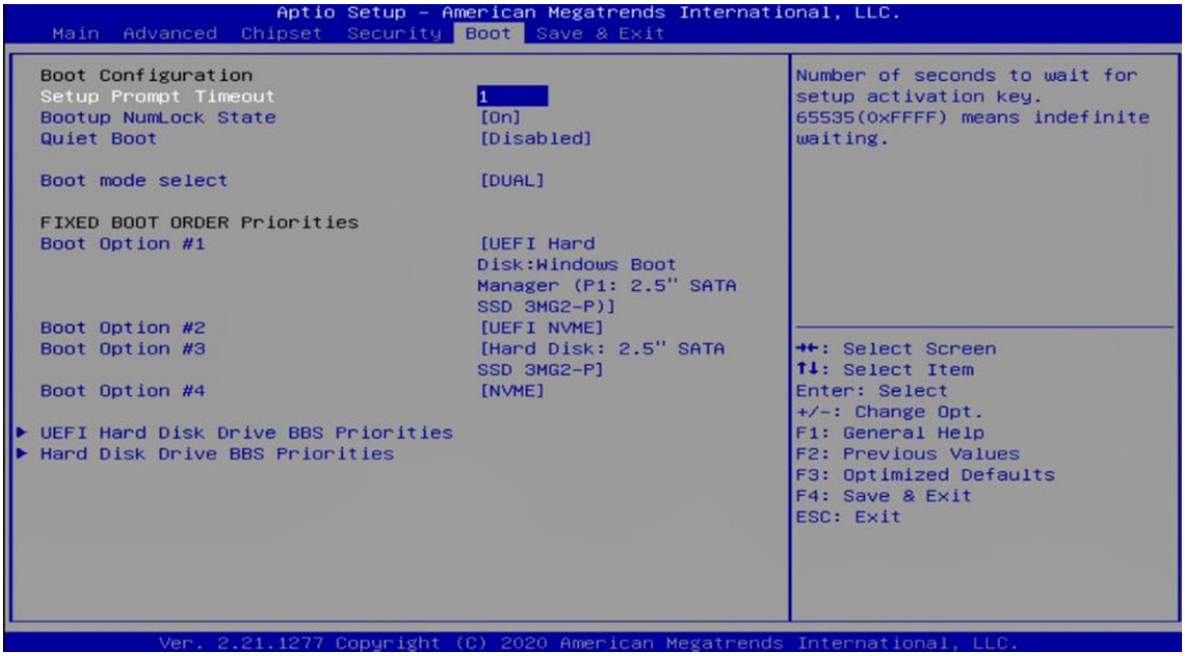
5.4.4 System Agent(SA) Configuration

■ **VT-d**

This item allows users to enable or disable Intel® Virtualization Technology for Directed I/O (VT d) function.

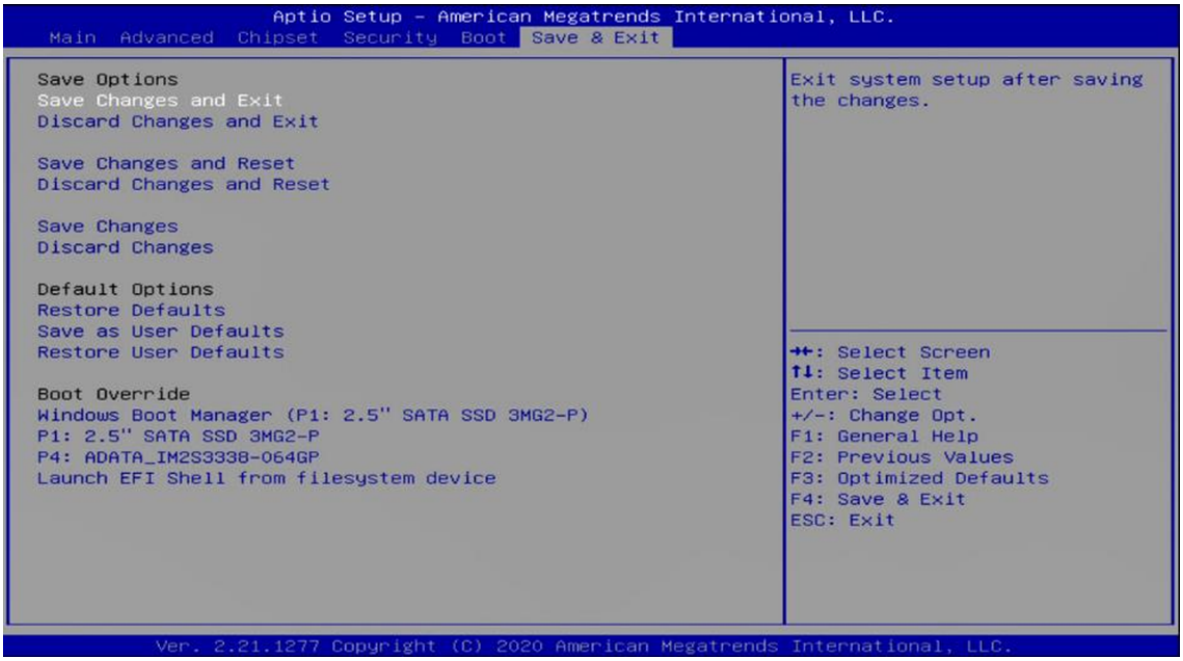


5.5 Boot



- **Boot Option Priorities**
  The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

5.6 Save & Exit


Aptio Setup – American Megatrends International, LLC.
Main Advanced Chipset Security Boot Save & Exit
Save Options
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Save Changes
Discard Changes
Default Options
Restore Defaults
Save as User Defaults
Restore User Defaults
Boot Override
Windows Boot Manager (P1: 2.5" SATA SSD 3MG2-P)
P1: 2.5" SATA SSD 3MG2-P
P4: ADATA_IM2S3338-064GP
Launch EFI Shell from filesystem device
Exit system setup after saving the changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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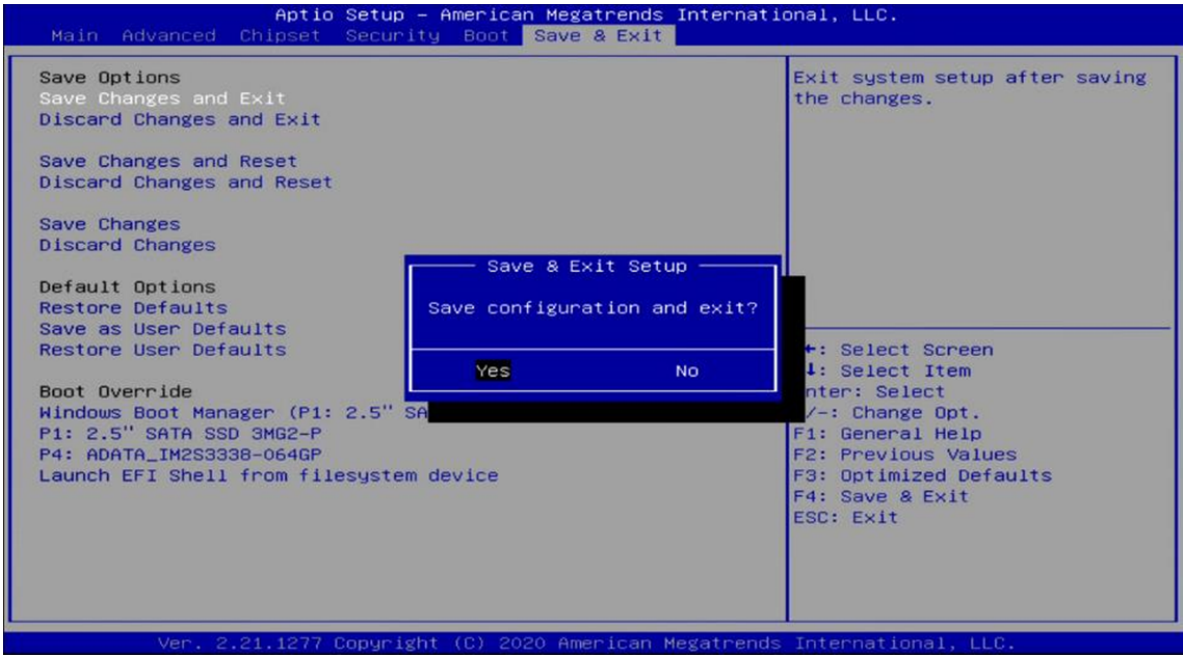
Aptio Setup – American Megatrends International, LLC.
Main Advanced Chipset Security Boot Save & Exit
Save Options
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Save Changes
Discard Changes
Default Options
Restore Defaults
Save as User Defaults
Restore User Defaults
Boot Override
Windows Boot Manager (P1: 2.5" SA
P1: 2.5" SATA SSD 3MG2-P
P4: ADATA_IM2S3338-064GP
Launch EFI Shell from filesystem device
Save & Exit Setup
Save configuration and exit?
Yes
No
Exit system setup after saving the changes.
←: Select Screen
↓: Select Item
nter: Select
/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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