Edge AI GPU Computing

FleetPC-11 Series

User's Manual

CarTFT.com e.K.

User Manual

Copyright

Disclaimer

CarTFT.com e.K. shall not be liable for any incidental or consequential damages resulting from the performance or use of this product.

CarTFT.com e.K. 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 as to the correctness of the contents. For continuing product improvement, CarTFT.com e.K. 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

CE

The CE symbol on your product indicates that it is in compliance with the directives of the Union European (EU). 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, pursuant 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 in accordance with manufacturer's instructions, may cause harmful interference to radio communications.

Trademarks

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

Safety Information

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

Electrical safety

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

Operation safety

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

Environmental safety

- Use this product in environments with ambient temperatures between -40˚C and 70˚C.
- Do not leave this product in an environment where the storage temperature may be below 40°C or above 85°C. To prevent from 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 its equivalent as recommended by CarTFT.com e.K. Dispose used battery according to the manufacturer's instructions.

Technical Support

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

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Chapter 1

Product Introduction

1.0 PRODUCT INTRODUCTION

1.1 Overview

FLEETPC-11 is designed for a variety of performance demanding computing application in surveillance and field control systems. With new Intel Comet Lake 10th Gen Core i Processor's exceptional performance, FLEETPC-11 effectively enables autonomous vehicles, factory automation and license plate recognition.

1.2 Feature

- Intel GEN 10th 10 Cores Xeon W-1290TE / i9-10900TE
- NVIDIA® GeForce GPU GTX-1650/ GTX-1060
- Support 1280 CUDA Cores
- 8 x DI, 4 x DO and 3 x RS-232/422/485
- 1 x M.2 B key, 1 x M.2 A-E key & 3 x miniPCIe expansion slots
- Dual Hot Swappable SATA Storage RAID 0,1,5
- 9-48V DC Input and Operating Temp.: -40~70°C
- 10 x GbE RJ45 (Optional 8 x PoE and 8 x M12 X coded connectors)
- Rolling Stock EN 50155 and EN 50121-3-2 certified

1.3 Specification

System	
CPU	Intel Gen10 Xeon W-1290TE (20M Cache 2.0GHz up to 4.6GHz)* Intel Gen10 Core i9-10900TE (20M Cache 2.0GHz up to 4.5GHz) Intel Gen10 Core i7-10700TE (16M Cache 2.0GHz up to 4.4GHz) Intel Gen10 Core i5-10500TE (12M Cache 2.3GHz up to 3.7GHz) Intel Gen10 Core i3-10100TE (6M Cache 2.3GHz up to 3.6GHz) Intel Gen10 Core G5900TE (4M Cache 3.0GHz) *Use only with Intel W480E
Chipset	Q470E/W480E
Memory	2 x DDR4 2666/2933 MHz SO-DIMM up to 64GB (Optional ECC support with Xeon W-1290TE)
Lan Chipset	9 x Intel i210-AT and 1 x i219 (support iAMT) Gb/s Ethernet Controllers Onboard, Support PXE and WOL
Watchdog	1 ~ 255 Level Reset
TPM	2.0
Power Requirement	
Power Input	9V-48V DC Power input
Power Protection	Automatics Recovery Short Circuit Protection
Power Management	Vehicle Power Ignition for Variety Vehicle
Power Off Control	Power off Delay Time Setting by Software and BIOS
Battery Backup (Option)	Internal Battery Kit for 10 Mins Operating (P/N: BAT-5200 kit, Operating Temp. -20 ~ 60°C)
Storage	
Type	2 x 2.5” Drive Bay for SATA Type HDD/SSD RAID 0, 1, 5 1 x M.2 M key 2280 slot supports NVMe and SATA SSD * Thermal heatsink is required for M.2 storage. Please contact sales window for more information.
Graphics	
Built-in Graphics	Intel® UHD Graphics 630 for z9/i9/i7/i5/i3, Intel® UHD Graphics 610 for G5900TE Max Resolution (DP 1.2) : 4096 x 2340 @ 60Hz
MXM Graphics	NVIDIA® GeForce GTX 1060 GPU (1280 CUDA Cores) w/6GB GDDR5 Max Resolution (HDMI 2.0b) : 4096 x 2160 @ 60Hz (Optional) NVIDIA® GeForce GTX 1650 GPU (896 CUDA Cores) w/4GB GDDR5 Max Resolution (HDMI 2.0b) : 4096 x 2160 @ 60Hz
I/O	
Serial Port	3 x RS 232/422/485 (option additional 1 x RS 232/422/485)

USB Port	4 x USB 3.2 Gen 1x1 Ports
LAN	10 x RJ45 Ports for GbE (Optional 8 with M12 X coded connectors and 8 x PoE total Max.120W)
Video Port	3 x DP (Intel built-in GPU), 2 x HDMI Ports (MXM graphics)
DIO Port	8 x DI (5~48VDC) and 4 x DO (5VDC, 100mA)
Audio	1 x Line-out, 1 x Line-in and 1 x Mic-in
Expansion Bus	2 x Full Mini-PCIe Slots and 1 x Full Mini-PCIe Slot w/ USB interface only for WWAN sharing 2 x SIM Card Sockets with M.2 B Key 3042 slot 1x M.2 A-E Key 2230 slot, 1 x M.2 B Key 3042 slot w/ 2 x SIM Card Sockets for WWAN
Environment & Mechanical	
Operating Temp.	-40°C ~ 70°C w/ GTX 1650 (-40ºC ~ 60ºC w/GTX 1060) w/0.6 m/S airflow
Storage Temp.	-40°C ~ 80°C
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 SSD
Certifications	CE, FCC Class A, E13, EN50155
Patent No. (Taiwan)	M592609 - Automatic SIM Card Detection M565941 - Thermal Cooling M447854 - Build-in Battery
Construction	Aluminum Alloy
Mounting	Wall-mount
Weight	5300g (Barebone)
Dimensions	260(L) x 250(W) x 95(H) mm

1.4 Power Consumption

Intel i9-10900TE with GTX 1660								
Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	8.97A	80.73W	8.88A	106.56W	4.31A	103.44W	2.06A	98.88W
S0 (Idle)	3.73A	33.57W	2.54A	30.48W	1.36A	32.64W	1.0A	48W
S3	0.32A	2.8W	0.27A	3.24W	0.21A	5.04W	0.11A	5.28W
S5	0.27A	2.43W	0.20A	2.4W	0.20A	4.8W	0.10A	4.8W
POE(120W)	23.39A	210.51W	20.08A	240.96W	9.94A	238.56W	4.68A	224.64W
Intel i9-10900TE with GTX 1650								

Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	12.91A	116.19W	10.65A	127.8W	5.24A	125.76W	2.70A	129.6W
S0 (Idle)	5.40A	48.6W	6.09A	73.08W	2.25A	54W	1.29A	61.92W
S3	0.43A	3.87W	0.32A	3.84W	0.20A	4.8W	0.19A	9.12W
S5	0.34A	3.06W	0.25A	3W	0.16A	3.84W	0.17A	8.16W
POE(120W)	26.91A	242.19W	22.63A	271.56W	10.72A	257.28W	5.28A	253.48W
Intel i9-10900TE								
Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	8.36A	75.24W	6.38A	76.56W	3.12A	74.88W	1.5A	72W
S0 (Idle)	2.25A	20.25W	1.88A	22.56W	1.02A	24.28W	0.52A	24.96W
S3	0.32A	2.88W	0.19A	2.28W	0.12A	2.88W	0.12A	5.76W
S5	0.25A	2,25W	0.15A	1.8W	0.10A	2.4W	0.08A	3.84W
POE(120W)	21.47A	193.23W	16.13A	193.56W	8.03A	192.72W	3.96A	190.08W
Intel i7-10700TE with GTX 1660								
Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	9.57A	86.13W	9.11A	109.32W	4.03A	96.72W	2.01A	96.48W
S0 (Idle)	3.56A	32.04W	3.02A	36.24W	1.63A	39.12W	0.73A	35.04W
S3	0.32A	2.88W	0.26A	3.12W	0.24A	5.76W	0.13A	6.24W
S5	0.27A	2.43W	0.22A	2.64W	0.21A	5.04W	0.17A	8.16W
POE(120W)	23.98A	215.82W	20.90A	250.8W	9.72A	233.28W	4.60A	220.8W
Intel i7-10700TE with GTX 1650								
Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	10.38A	93.42W	8.35A	100.2W	4.12A	98.88W	2.02A	96.96W
S0 (Idle)	4.28A	38.52W	2.92A	35.04W	1.35A	32.4W	0.74A	35.52W
S3	0.45A	4.05W	0.25A	3W	0.19A	4.56W	0.22A	10.56W
S5	0.38A	3.42W	0.18A	2.16W	0.14A	3.36W	0.15A	7.2W
POE(120W)	23.77A	213.93W	19.57A	234.84W	9.56A	229.44W	4.64A	222.72W
Intel i7-10700TE								
Voltage / Power Status	9V		12V		24V		48V	
S0 (Burn-In Test)	7.68A	69.12W	6.37A	76.44W	3.28A	78.72W	1.58A	75.84W
S0 (Idle)	3.03A	27.27W	2.30A	27.6W	1.29A	30.96W	0.66A	31.68W
S3	0.30A	2.7W	0.35A	4.2W	0.23A	5.52W	0.03A	1.44W
S5	0.23A	2.07W	0.29A	3.48W	0.20A	4.8W	0.02A	0.96W
POE(120W)	20.79A	187.11W	16.20A	194.4W	8.19A	196.56W	4.03A	193.44W

1.5 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
1	Screw F Type M3*4L ISO BK	For fastening 2.5inch SATA HDD/SSD	8
2	MC101-508-05GA1F90D	Terminal block for DC power input connector	1
3	HDD-RUBBER FOR H=7 mm	Must apply this Rubber when use 7mm 2.5 inch SATA HDD/SSD.	2
4	DDR HEATSINK Kit	Heatspreder for DDR SO-DIMM	1
5	Screw I Type M2*5L ISO	For fastening miniPCIe modules	6
6	Screw I Type M2.5x5L	For fastening M.2 modules	3

1.6 Ordering Information

	See homepage

1.6 Optional Accessory

CARTFT.COM provides optional accessories as follows. Please contact us or your dealer if you need any.

Item	Order No.	Description
DRAM	516016100910	SO-DIMM 16GB DDR4-2666 WT ADATA -40~85℃
DRAM	516008100310	SO-DIMM 8GB DDR4-2666 WT ADATA -40~85℃
DRAM	516004100910	SO-DIMM 4GB DDR4-2666 WT ADATA -40~85℃
M.2 SATA SSD	585100000020	SSD M.2 1TB 2280 SATA TLC WT w/ Thermal Kit Type 1
M.2 SATA SSD	585051200020	SSD M.2 512GB 2280 SATA TLC WT w/ Thermal Kit Type 1
M.2 SATA SSD	585025600020	SSD M.2 256GB 2280 SATA TLC WT w/ Thermal Kit Type 1
M.2 SATA SSD	585012800020	SSD M.2 128GB 2280 SATA TLC WT w/ Thermal Kit Type 1
M.2 SATA SSD	585006400020	SSD M.2 64GB 2280 SATA TLC WT w/ Thermal Kit Type 1
M.2 NVMe SSD	585100060020	SSD M.2 1TB 2280 NVMe TLC WT w/ Thermal Kit Type 1
M.2 NVMe SSD	585051260020	SSD M.2 512GB 2280 NVMe TLC WT w/ Thermal Kit Type 1
M.2 NVMe SSD	585025660020	SSD M.2 256GB 2280 NVMe TLC WT w/ Thermal Kit Type 1
SSD	524100002020	1TB, TLC 2.5" SATA SSD -40~85°C ADATA ISSS333-001TP -40~85℃
SSD	524051202021	512GB, TLC 2.5" SATA SSD -40~85°C ADATA ISSS333-512GP -40~85℃
SSD	524025602023	256GB, TLC 2.5" SATA SSD -40~85°C ADATA ISSS333-256GP -

		40~85℃
SSD	524012802021	128GB, TLC 2.5" SATA SSD -40~85°C ADATA ISSS333-128GP -40~85℃
SSD	524006402020	64B, TLC 2.5" SATA SSD -40~85°C ADATA ISSS333-064GP -40~85℃
LTE Mini PCIe	587600140012	LTE 4G kit, SIM7600E-H-PCIE (EMEA, Korea, Thailand) Industrial Grade Mini PCIe Card-SIMCOM (Antenna kit be included) *Not for Windows 7
LTE Mini PCIe	587600140011	LTE 4G kit, SIM7600SA-H (Australia/New Zealand/South America) Industrial Grade Mini PCIe Card-SIMCOM (Antenna kit be included) *Not for Windows 7
LTE Mini PCIe	587100140010	LTE 4G Cat 3 SIM7100E-PCIE kit Full Mini PCIe Card-SIMCOM (Antenna kit be included) * For Windows 7, not for Windows 10
LTE Mini PCIe	580025140031	LTE 4G Cat 4 EG25-G Kit Mini PCIe Card-Quectel Global band (Antenna kit be included)
LTE M.2	587906140010	LTE 4G Cat 6 SIM7906E M.2 Card Version:V1.1 S2-1058A (Antenna kit be included)
GPS	610810080000	VDB-810 GPS kit, u-blox M8 Engine, Concurrent Reception of GPS/QZSS, GLONASS, BeiDou (GPS Active Antenna be included)
GPS	610810080001	VDB-810G, u-blox M8 Engine, Concurrent Reception of GPS/QZSS, GLONASS, BeiDou and G-sensor (GPS Active Antenna be included)
GPS	618100080000	VDB-810DR, Embedded u-blox NEO-M8U GPS with Untethered Dead Reckoning UDR & G-Sensor Mini PCIe Card (GPS Active Antenna be included)
Wi-Fi	580261090010	WNFQ-261ACNI(BT), 802.11ac 2T2R+BT5.0 M.2 2230 E Key, QCA6174A-5 -40℃~ 85℃ (Wifi Antenna Kit be included)
Wi-Fi	580234090010	WNFT-234ACN(BT) 802.11ac/b/g/n WiFi + Bluetooth M.2 Card, RTL8822BE, 2T2R 0~70C (wifi Antenna kit be included)
Battery kit	585200110000	BAT-5200 Battery kit, 5200mAH 3S-2P with charger board VIB-5000
Power Adapter	549102428000	Power Adapter 24V/11.67A 280W with tin solder end

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

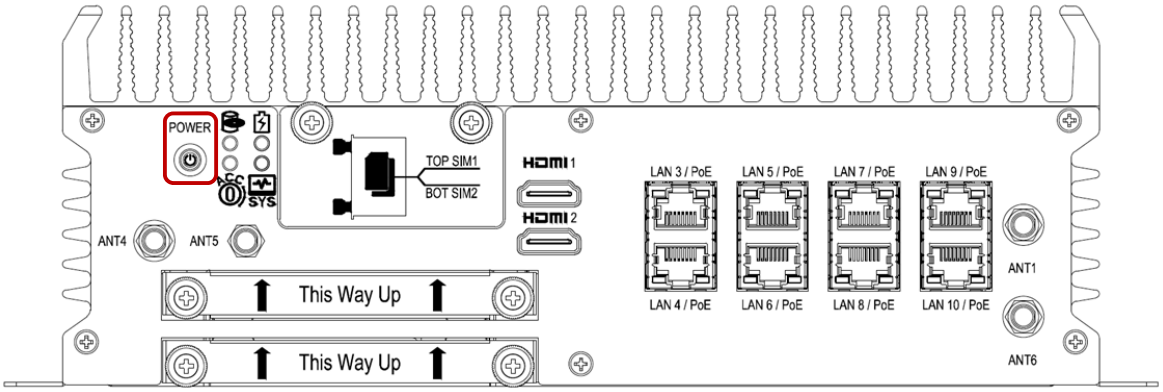
Chapter 2

I/O and Connectors

2.0 I/O AND CONNECTORS

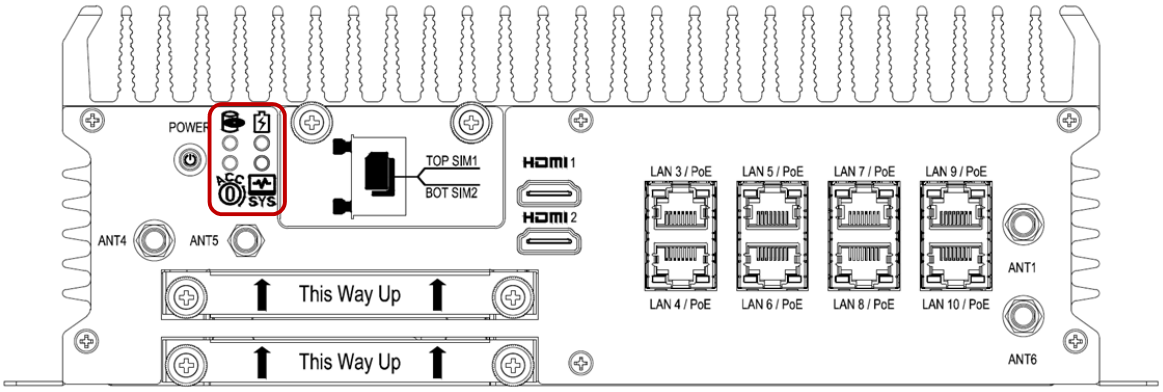
2.1 Front I/O Information

2.1.1 Power Button



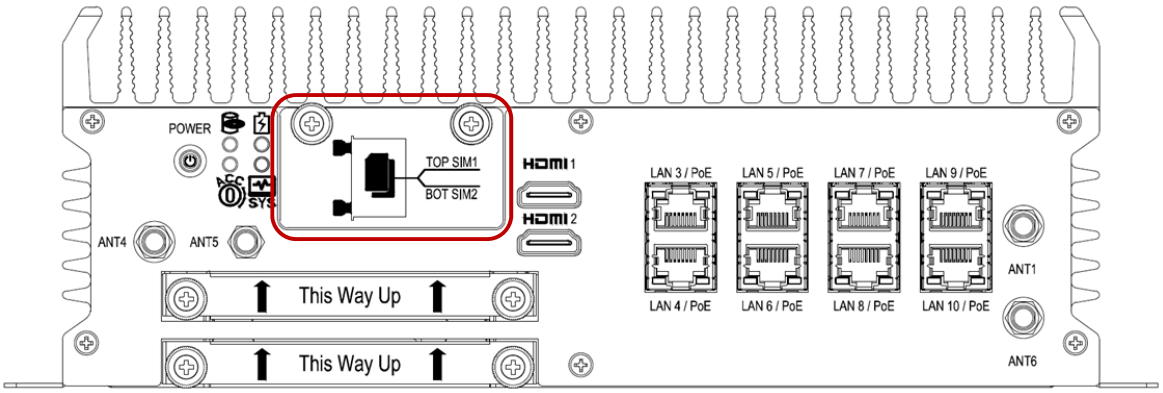
- RED light: Standby
- BLUE light: Power On

2.1.2 LED Indicators



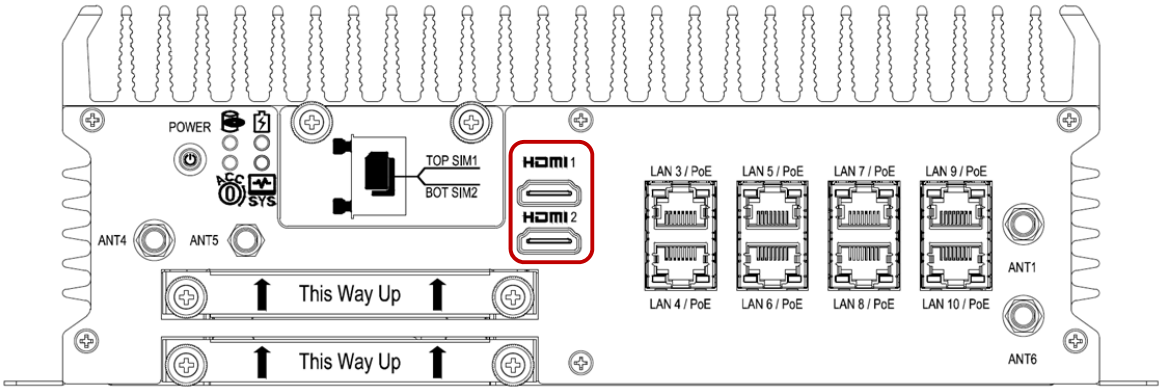
HDD Flash: one of storage Read/Write	**UPS** ON: UPS enable
ACC Flash: detection Continue On: Ignition Ready	**System Status** ON: System on OFF: System off

2.1.3 FES-2SIM



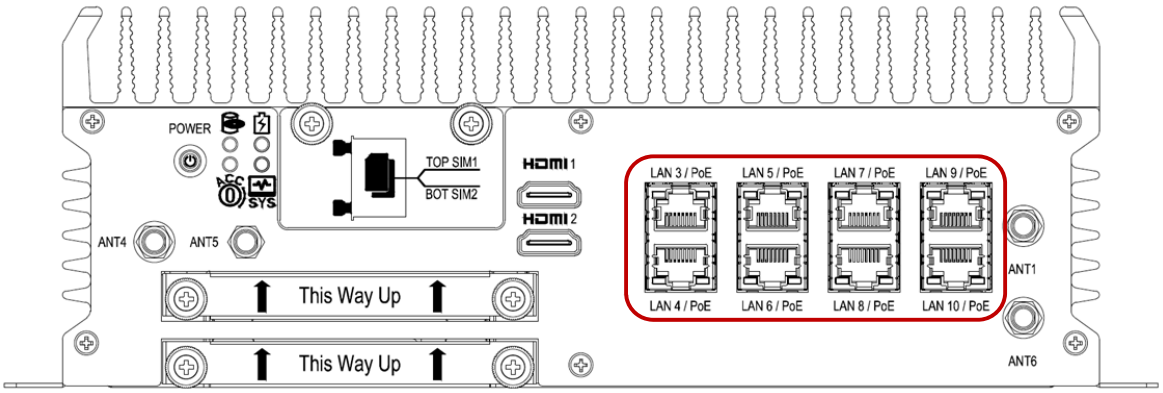
- Support SIM Card size: Mini SIM. SIM Card is switchable, but the default setting is on SIM CARD1. Please contact your CARTFT.COM' sales representative to get the utility or software control for the SIM card switch function.
- Hot swappable design which allows SIM cards changing while system is in operating mode.
- Automatic 3G/LTE module reset after the FES-2SIM module is inserted.

2.1.4 HDMI Connectors (FLEETPC-11 Series)



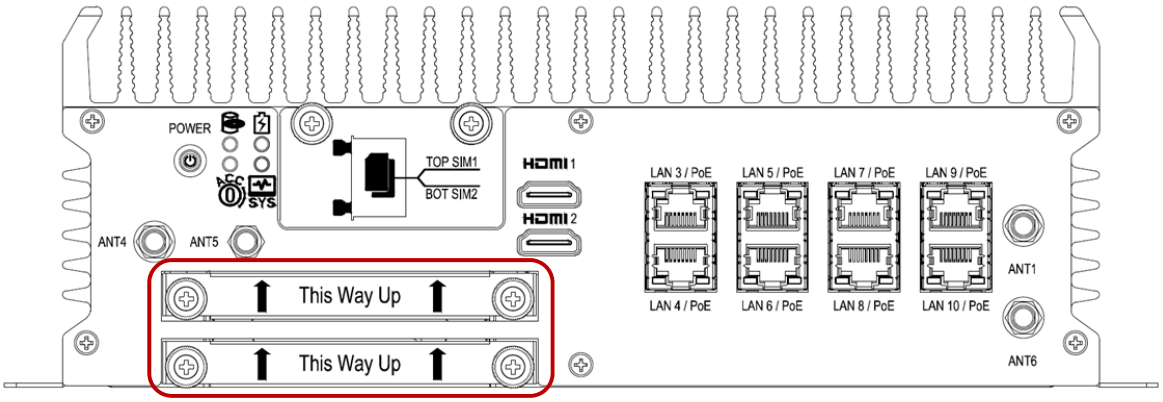
- Max Resolution (HDMI 2.0b): 4096x2160@60Hz from a extended GPU card.

2.1.5 LAN/PoE Ports



- LAN/PoE Ports feature Intel i210-AT and support 10/100/1000 Mbps LAN. Optional PoE support IEEE 802.3af and total max power is 100W budget.

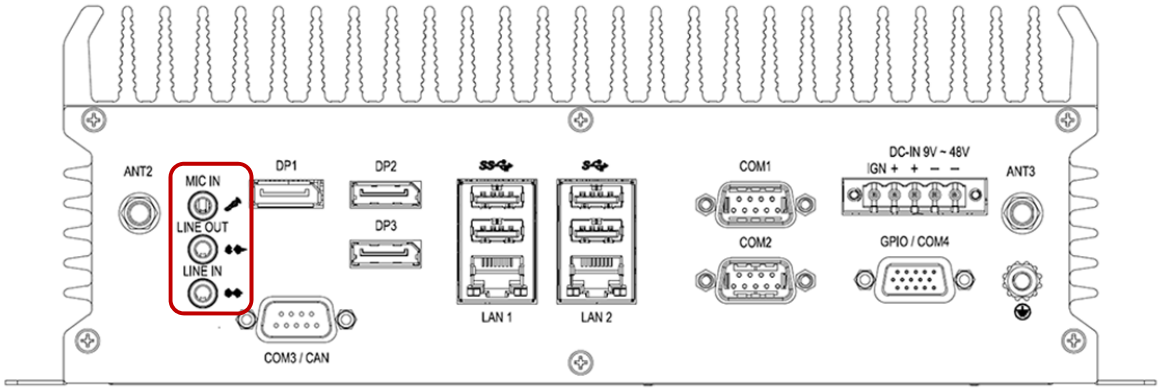
2.1.6 SSD/HDD Holder



- Support: 2.5” and 9mm thickness Drive Bay for SATA Type HDD/SSD. When using 7mm thickness HDD/SSD, please insert HDD rubber (P/N:417290370250) which can be found in the accessories packet.

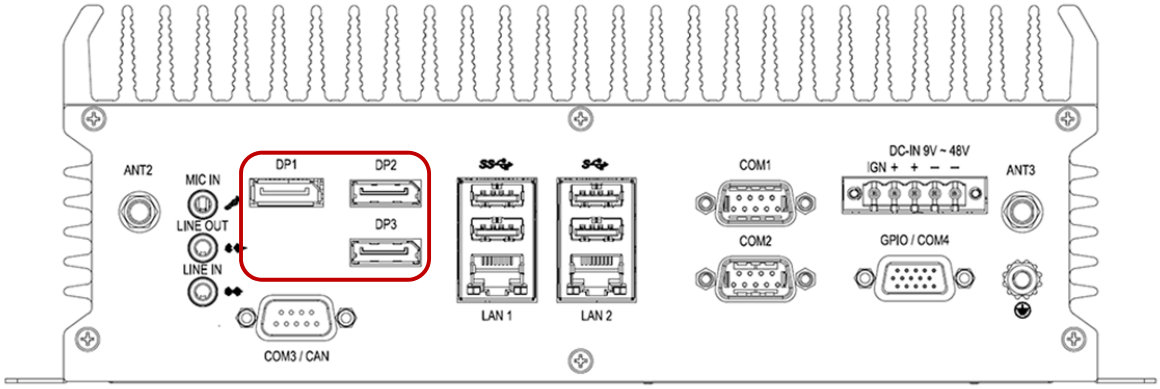
2.2 Rear I/O Information

2.2.1 Audio Jacks



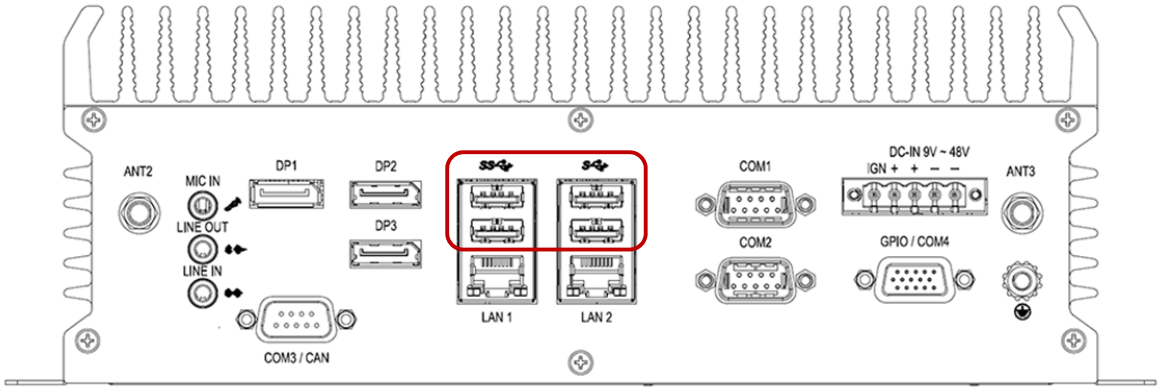
- The system's audio function features high definition audio Realtek ALC662 codec. There are 3 female ports and a 3.5mm audio jack for mic-in, line-in, and line-out.

2.2.2 DP Connectors



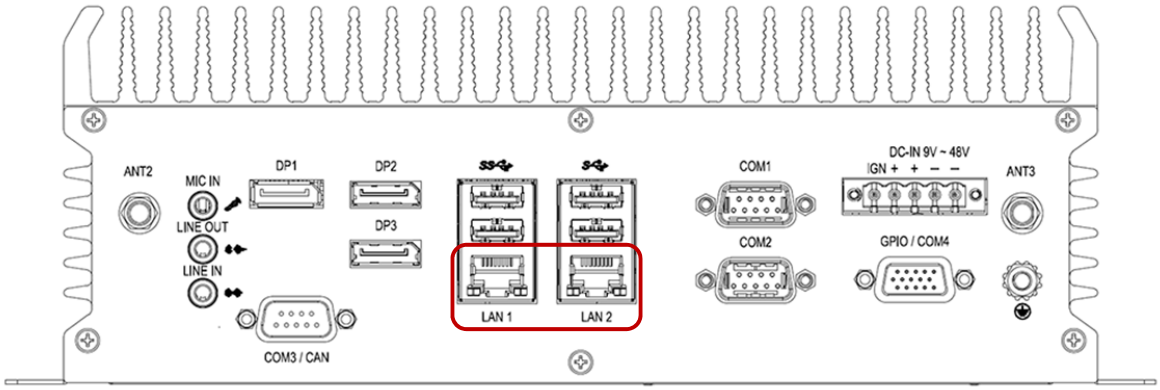
- Max resolution 4096x2304@60Hz from Intel UHD Graphics 630.

2.2.3 USB Connectors



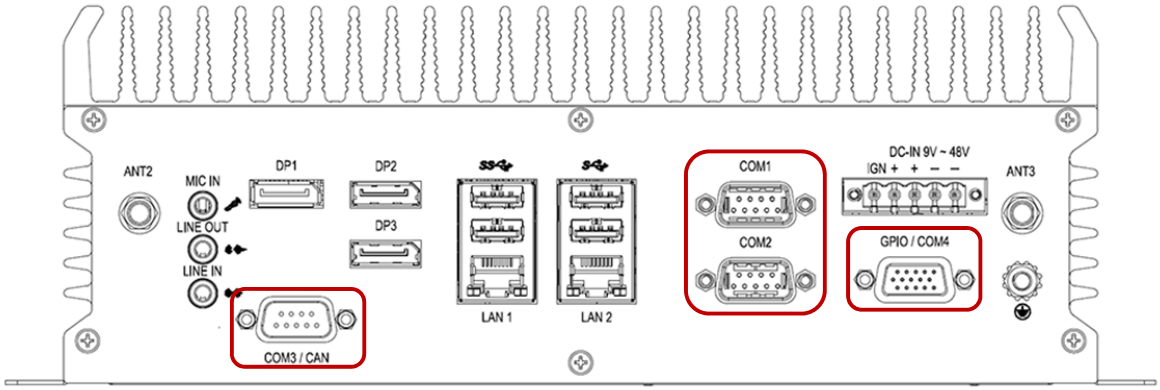
- Support USB 3.0.

2.2.4 LAN Ports



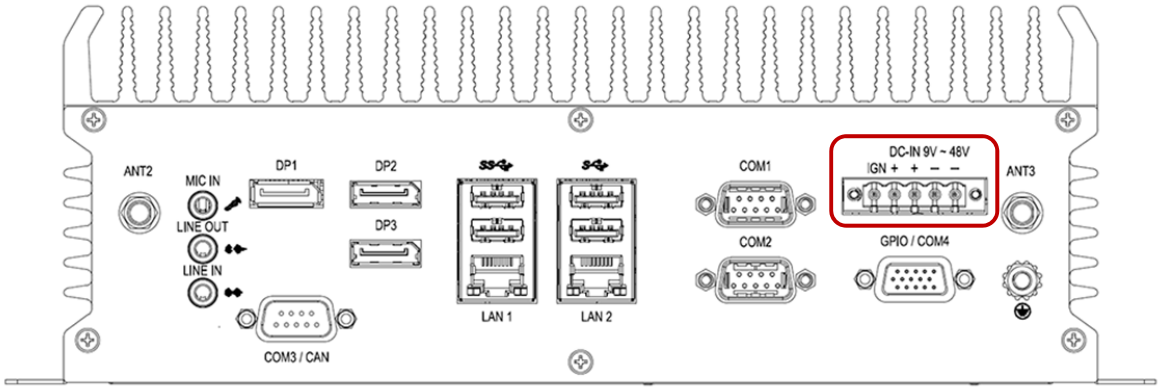
- LAN1 features Intel i219 support 10/100/1000 Mbps and iAMT/PXE/Wake on.
- LAN2 features Intel i210-AT support 10/100/1000 Mbps.

2.2.5 COM Ports

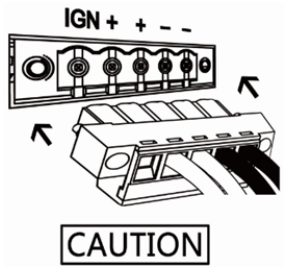


- COM1 and COM2 port support RS 232/422/485, default setting is RS 232.
- COM3/CAN: default setting is COM3 and RS 232 (support RS 232/422/485 set by BIOS). Please contact the CARTFT.COM' sales representative for optional CANBUS module.
- GPIO/COM4: default setting is GPIO. Please contact CARTFT.COM' sales representative for optional COM4.

2.2.6 DC Input Terminal Block



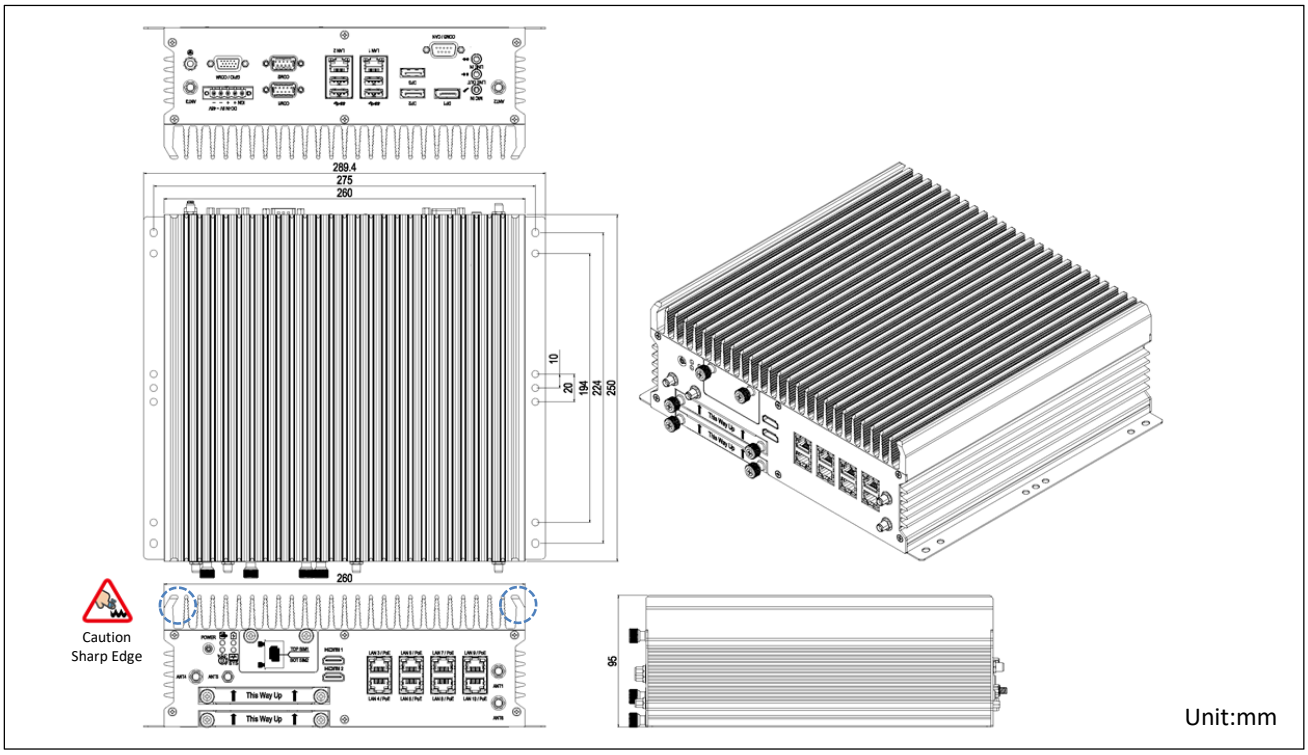
- Ensure all 4 pins (Passive x 2 pins and Negative x 2pins) are used and connected to the input connector as in the drawing below. Missing pins may reduce lifetime of the product.



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”

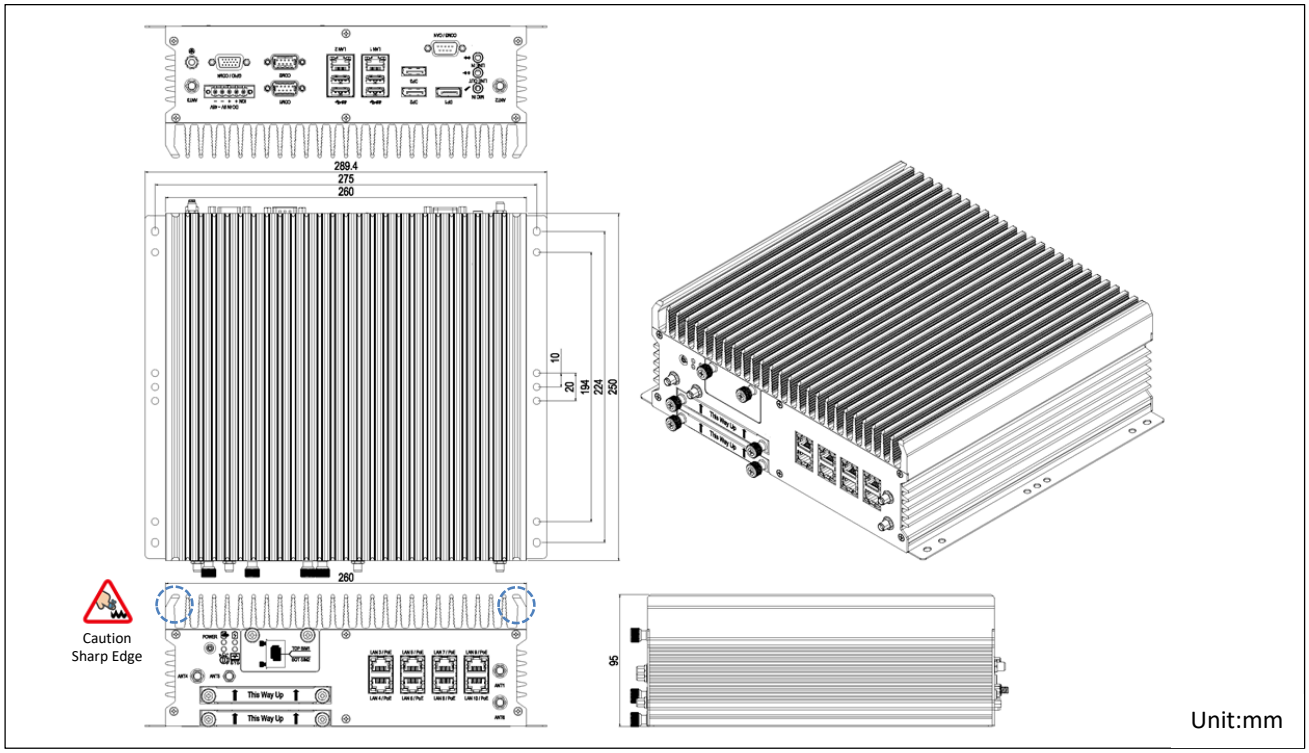
2.3 Illustration

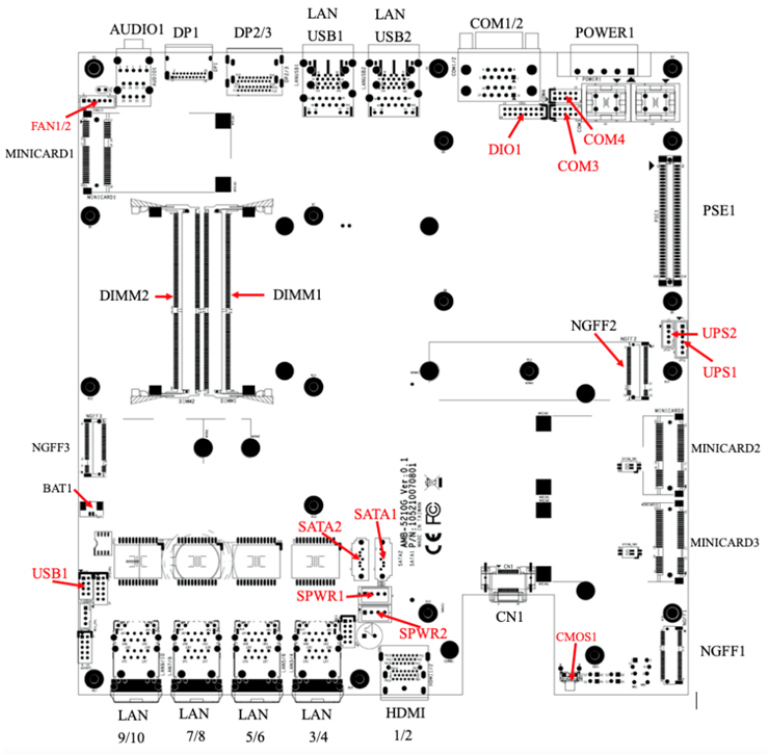
2.3.1 System



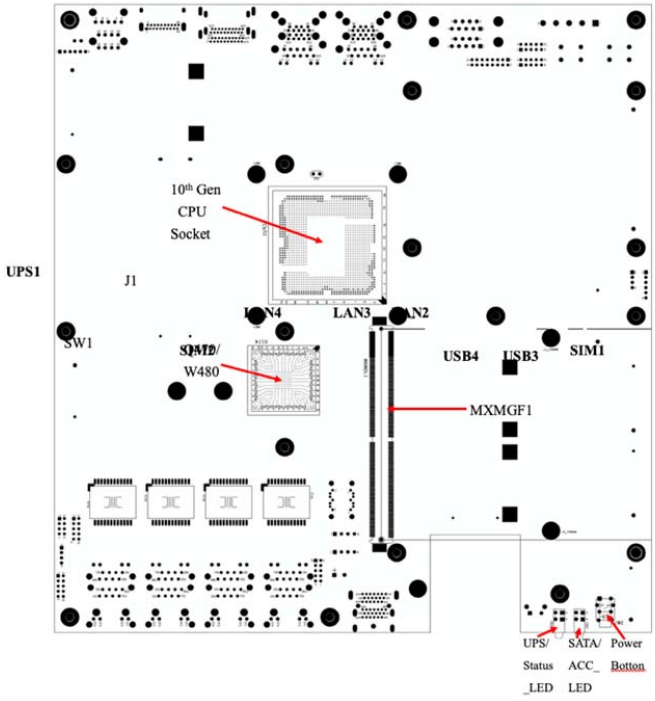
2.3.2 Main Board

Top View



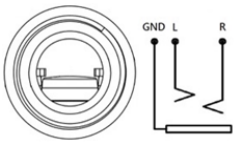

AUDIO1
DP1
DP2/3
LAN
USB1
LAN
USB2
COM1/2
POWER1
FAN1/2
MINICARD1
DIO1
COM4
COM3
PSE1
DIMM2
DIMM1
NGFF2
UPS2
UPS1
NGFF3
BAT1
MINICARD2
SATA2
SATA1
MINICARD3
USB1
SPWR1
SPWR2
CN1
CMOS1
NGFF1
LAN
9/10
LAN
7/8
LAN
5/6
LAN
3/4
HDMI
1/2

Bottom View


10th Gen
CPU
Socket
UPS1
J1
LAN4
LAN3
LAN2
SW1
W480
USB4
USB3
SIM1
MXMGF1
UPS/
Status
_LED
SATA/
ACC_
LED
Power
Botton

2.4 I/O Connector Definition

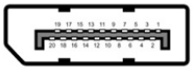
2.4.1 Audio Connector



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

Pin	Signal	Pin	Signal
1	GND	2	MIC_R
3	MIC_JD	4	GND
5	MIC_L	22	LINE OUT_R
23	LINE OUT_JD	24	GND
25	LINE OUT_L	32	LINE IN_R
33	LINE IN_JD	34	GND
35	LINE IN_L		

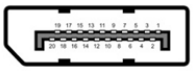
2.4.2 DP1 Connector



Connector size: 20 Pin
Connector type: Display Port
Connector location: **DP1**

Pin	Signal	Pin	Signal
1	DP1_LANE_0P	2	GND
3	DP1_LANE_0N	4	DP1_LANE_1P
5	GND	6	DP1_LANE_1N
7	DP1_LANE_2P	8	GND
9	DP1_LANE_2N	10	DP1_LANE_3P
11	GND	12	DP1_LANE_3N
13	DP1_AUX_EN#	14	GND
15	DP1_AUXP/LK	16	GND
17	DP1_AUXN/DATA	18	DP1_HPD
19	GND	20	DP1_VCC+3.3V

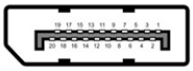
2.4.3 DP2 Connector



Connector size: 20 Pin
Connector type: Display Port
Connector location: **DP2**

Pin	Signal	Pin	Signal
1	DP2_LANE_0P	2	GND
3	DP2_LANE_0N	4	DP2_LANE_1P
5	GND	6	DP2_LANE_1N
7	DP2_LANE_2P	8	GND
9	DP2_LANE_2N	10	DP2_LANE_3P
11	GND	12	DP2_LANE_3N
13	DP2_AUX_EN#	14	GND
15	DP2_AUXP/LK	16	GND
17	DP2_AUXN/DATA	18	DP2_HPD
19	GND	20	DP2_VCC+3.3V

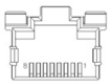
2.4.4 DP3 Connector



Connector size: 20 Pin
Connector type: Display Port
Connector location: **DP3**

Pin	Signal	Pin	Signal
1	DP3_LANE_0P	2	GND
3	DP3_LANE_0N	4	DP3_LANE_1P
5	GND	6	DP3_LANE_1N
7	DP3_LANE_2P	8	GND
9	DP3_LANE_2N	10	DP3_LANE_3P
11	GND	12	DP3_LANE_3N
13	DP3_AUX_EN#	14	GND
15	DP3_AUXP/LK	16	GND
17	DP3_AUXN/DATA	18	DP3_HPD
19	GND	20	DP3_VCC+3.3V

2.4.5 LAN1/2 Connector

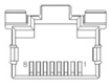


Connector size: 8 Pin
Connector type: RJ45
Connector location: **LANUSB1, LANUSB2**

RJ45 pin definition

Pin	Signal	Pin	Signal
1	TX_D1+	2	TX_D1-
3	RX_D2+	4	BI_D3+
5	BI_D3-	6	RX_D2-
7	BI_D4+	8	BI_D4-

2.4.6 LAN3~10 Connector

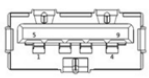


Connector size: 8 Pin
Connector type: RJ45
Connector location: **LAN3/4, LAN5/6, LAN7/8, LAN9/10**

RJ45 pin definition

Pin	Signal	Pin	Signal
1	TX_D1+	2	TX_D1-
3	RX_D2+	4	BI_D3+
5	BI_D3-	6	RX_D2-
7	BI_D4+	8	BI_D4-

2.4.7 USB3.0_1/2 Connector

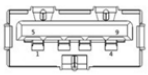


Pin	Signal	Pin	Signal
1	+5VSB	2	USB_DN

Connector size: 9 Pin x2
Connector type: USB3.0 Type A x2
Connector location: **LANUSB1**

3	USB_DP	4	GND
5	USB3_SSRX_DN	6	USB3_SSRX_DP
7	GND	8	USB3_SSTX_DN
9	USB3_SSTX_DP		

2.4.8 USB3.0_3/4 Connector



Connector size: 9 Pin x2
Connector type: USB3.0 Type A x2
Connector location: **LANUSB2**

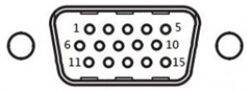
Pin	Signal	Pin	Signal
1	+5VSB	2	USB_DN
3	USB_DP	4	GND
5	USB3_SSRX_DN	6	USB3_SSRX_DP
7	GND	8	USB3_SSTX_DN
9	USB3_SSTX_DP		

2.4.9 COM1/2/3 Connector

Connector size: 9 Pin
Connector type: D-SUB_9P
Connector location: **COM1, COM2, COM3**

Pin	Signal		
	RS232	RS422	RS485
1	COM1_DCD	TXD-	TXD-/RXD-
2	COM1_RXD	TXD+	TXD+/RXD+
3	COM1_TXD	RXD+	NC
4	COM1_DTR	RXD-	NC
5	GND	GND	GND
6	COM1_DSR	NC	NC
7	COM1_RTS	NC	NC
8	COM1_CTS	NC	NC
9	COM1_RI	NC	NC

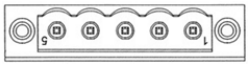
2.4.10 GPIO Connector



Connector size: 15 Pin
Connector type: D-SUB_15P
Connector location: **GPIO**

Pin	Signal	Pin	Signal
1	D0_1 (5V~100mA)	2	D0_2 (5V~100mA)
3	D0_3 (5V~100mA)	4	D0_4 (5V~100mA)
5	GND	6	GND
7	DI_1 (5V~48V)	8	DI_2 (5V~48V)
9	DI_3 (5V~48V)	10	DI_4 (5V~48V)
11	DI_5 (5V~48V)	12	DI_6 (5V~48V)
13	DI_7 (5V~48V)	14	DI_8 (5V~48V)
15	GND		

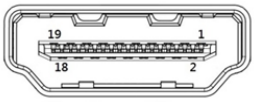
2.4.11 DC Power Connector



Connector size: 1x5 Pin
Connector type: DECA 5mm-F-90D-5PIN
Connector location: **Power1**

Pin	Signal	Pin	Signal
1	GND	2	GND
3	DC_IN(+9~+48V)	4	DC_IN(+9~+48V)
5	Ignition		

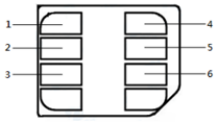
2.4.12 HDMI1/2 Connector



Connector size: 19 Pin
Connector type: HDMI-TYPE A
Connector location: **HDMI1/2**

Pin	Signal	Pin	Signal
1	TMDS Data2+	2	GND
3	TMDS Data2-	4	TMDS Data1+
5	GND	6	TMDS Data1-
7	TMDS Data0+	8	GND
9	TMDS Data0-	10	TMDS Clock+
11	GND	12	TMDS Clock-
13	NC/CEC	14	NC
15	SCL	16	SDA
17	GND	18	VCC +5V
19	Hot Plug Detect		

2.4.13 FES-2SIM SIM1/2 Connector

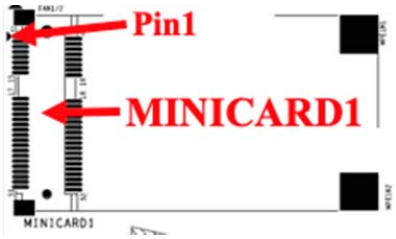


Connector size: 6 Pin
Connector type: Full-size SIM
Connector location:
UPPER=**SIM1,** LOWER=**SIM2**

Pin	Signal	Pin	Signal
1	SIM VCC	2	RESET
3	CLOCK	4	GND
5	NC	6	DATA

2.5 Board Connector Definition

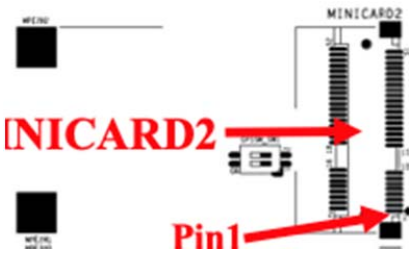
2.5.1 MINI PCI-E 1 Slot (USB2.0 only)



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	+3.3VSB
3	NC	4	GND
5	NC	6	NC
7	NC	8	UIM_PWR_B
9	GND	10	UIM_DAT_B
11	NC	12	UIM_CLK_B
13	NC	14	UIM_RST_B
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1_DIS#
21	GND	22	PCIE_RST#
23	NC	24	+3.3VSB
25	NC	26	GND
27	GND	28	NC
29	GND	30	NC
31	NC	32	NC
33	NC	34	GND
35	GND	36	USB_7N
37	GND	38	USB_7P
39	+3.3VSB	40	GND
41	+3.3VSB	42	WWAN_LED#
43	GND	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	NC	52	+3.3VSB

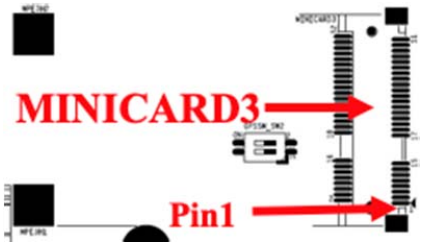
2.5.2 MINI PCI-E 2 Slot (PCI-E&USB2.0)



Connector size: 2 X 26 = 52 Pin
Connector type: MINI PCI-E CON 9.2mmH
Connector location: **MINICARD2**

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	MINICARD2_CLKREQ#	8	NC
9	GND	10	NC
11	PCIE_MCARD2_CLK_DN	12	NC
13	PCIE_MCARD2_CLK_DP	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD2_DIS#
21	GND	22	PCIE_RST#
23	PCIE_MCARD2_RX_N	24	3VSB
25	PCIE_MCARD2_RX_P	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_MCARD2_TX_N	32	SMB_DATA
33	PCIE_MCARD2_TX_P	34	GND
35	GND	36	USB_8N
37	GND	38	USB_8P
39	+3.3VSB	40	GND
41	+3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3VSB

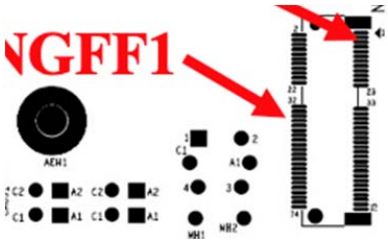
2.5.3 MINI PCI-E 3 Slot (PCI-E&USB2.0)



Connector size: 2 X 26 = 52 Pin
Connector type: MINI PCI-E CON 9.2mmH
Connector location: **MINICARD3**

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	MINICARD3_CLKREQ#	8	NC
9	GND	10	NC
11	PCIE_MCARD3_CLK_DN	12	NC
13	PCIE_MCARD3_CLK_DP	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD3_DIS#
21	GND	22	PCIE_RST#
23	PCIE_MCARD3_RX_N	24	+3.3VSB
25	PCIE_MCARD3_RX_P	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_MCARD3_TX_N	32	SMB_DATA
33	PCIE_MCARD3_TX_P	34	GND
35	GND	36	USB_9N
37	GND	38	USB_9P
39	+3.3VSB	40	GND
41	+3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3VSB

2.5.4 NGFF1 slot (PCI-E&USB2.0)



Connector size: 2230
Connector type: NGFF _AE KEY_H:8.5mm
Connector location: **NGFF1**

Pin	Signal	Pin	Signal
1	GND	2	+3.3VSB
3	USB_10P	4	+3.3VSB
5	USB_10N	6	NC
7	GND	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_M.2_TX_1P	36	NC
37	PCIE_M.2_TX_1N	38	NC
39	GND	40	NC
41	PCIE_M.2_RX_1P	42	NC
43	PCIE_M.2_RX_1N	44	NC
45	GND	46	NC
47	PCIE_M.2_CLK_1P	48	NC
49	PCIE_M.2_CLK_1N	50	NC
51	GND	52	M.2_RESET#
53	M.2_CLKREQ0#	54	M.2_DIS2#
55	PCIE_WAKE#	56	M.2_DIS1#
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	M.2_RESET #
67	NC	68	M.2_CLKREQ1#
69	GND	70	PCIE_WAKE#

71	NC	72	+3.3VSB
73	NC	74	+3.3VSB
75	GND		

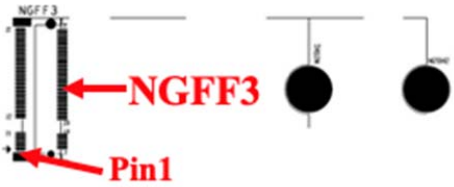
2.5.5 NGFF2 slot (PCI-Ex4/SATAx1)

Pin	Signal	Pin	Signal
1	GND	2	+3.3V
3	GND	4	+3.3V

Connector size: 2280
Connector type: NGFF _M KEY_H:8.5mm
Connector location: **NGFF2**

5	PCIE_M.2_RX_20N	6	NC
7	PCIE_M.2_RX_20P	8	NC
9	GND	10	DAS/DSS#
11	PCIE_M.2_TX_20N	12	+3.3V
13	PCIE_M.2_TX_20P	14	+3.3V
15	GND	16	+3.3V
17	PCIE_M.2_RX_19N	18	+3.3V
19	PCIE_M.2_RX_19P	20	NC
21	GND	22	NC
23	PCIE_M.2_TX_19N	24	NC
25	PCIE_M.2_TX_19P	26	NC
27	GND	28	NC
29	PCIE_M.2_RX_18N	30	NC
31	PCIE_M.2_RX_18P	32	NC
33	GND	34	NC
35	PCIE_M.2_TX_18N	36	NC
37	PCIE_M.2_TX_18P	38	NC
39	GND	40	NC
41	SATA_M.2_RXP4	42	NC
43	SATA_M.2_RXN4	44	NC
45	GND	46	NC
47	SATA_M.2_TXN4	48	NC
49	SATA_M.2_TXP4	50	M.2_RESET#
51	GND	52	M.2_CLKREQ#
53	PCIE_M.2_CLK_N	54	PCIE_WAKE#
55	PCIE_M.2_CLK_P	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	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

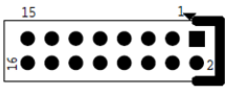
2.5.6 NGFF3 slot (PCI-E&USB3.0&2.0)



Connector size: 3042
Connector type: NGFF _B KEY_H:8.5mm
Connector location: **NGFF3**

Pin	Signal	Pin	Signal
1	CONFIG3	2	+3.3VSB
3	GND	4	+3.3VSB
5	GND	6	PWR_OFF_1.8V
7	USB_5P	8	M.2_DIS1#
9	USB_5N	10	M.2WWLANLED#
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	PCIE_WAKE#	24	NC
25	DPR_1.8V	26	M.2_DIS2#1.8V
27	GND	28	NC
29	USB3-TX_5N	30	UIM_RESET1
31	USB3-TX_5P	32	UIM_CLK1
33	GND	34	UIM_DATA1
35	USB3-RX_5N	36	UIM_PWR1
37	USB3-RX_5P	38	NC
39	GND	40	NC
41	PCIE_M.2_RX_15N	42	NC
43	PCIE_M.2_RX_15P	44	NC
45	GND	46	NC
47	PCIE_M.2_TX_15N	48	NC
49	PCIE_M.2_TX_15P	50	M.2_RESET#
51	GND	52	M.2_CLKREQ#
53	PCIE_M.2_CLK_N	54	PCIE_WAKE#
55	PCIE_M.2_CLK_P	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	M.2_RESET#	68	NC
69	CONFIG_1	70	+3.3VSB
71	GND	72	+3.3VSB
73	GND	74	+3.3VSB
75	NC		

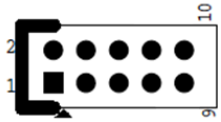
2.5.7 DIO1 JST Connector



Connector size: 2 X 8 = 16 Pin
Connector type: JST-2.0mm-M-180
Connector location: **DIO1**

Pin	Signal	Pin	Signal
1	D0_1 (+5V-100mA)	2	D0_2 (+5V-100mA)
3	D0_3 (+5V-100mA)	4	D0_4 (+5V-100mA)
5	GND	6	GND
7	DI_1 (+5V~48V)	8	DI_2 (+5V~48V)
9	DI_3 (+5V~48V)	10	DI_4 (+5V~48V)
11	DI_5 (+5V~48V)	12	DI_6 (+5V~48V)
13	DI_7 (+5V~48V)	14	DI_8 (+5V~48V)
15	GND		

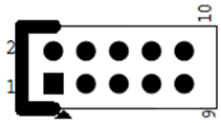
2.5.8 COM3 JST Connector



Connector size: 2 X 5 = 10 Pin
Connector type: JST-2.0mm-M-180
Connector location: **COM3**

Pin	Signal	Pin	Signal
1	COM3_DCD	2	COM3_RXD
3	COM3_TXD	4	COM3_DTR
5	GND	6	COM3_DSR
7	COM3_RTS	8	COM3_CTS
9	COM3_RI	10	GND

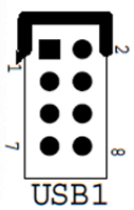
2.5.9 COM4 JST Connector



Connector size: 2 X 5 = 10 Pin
Connector type: JST-2.0mm-M-180
Connector location: **COM4**

Pin	Signal	Pin	Signal
1	COM4_DCD	2	COM4_RXD
3	COM4_TXD	4	COM4_DTR
5	GND	6	COM4_DSR
7	COM4_RTS	8	COM4_CTS
9	COM4_RI	10	GND

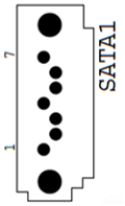
2.5.10 USB1 JST Connector



Pin	Signal	Pin	Signal
1	+5VSB	2	+5VSB
3	USB_12N	4	USB_13N
5	USB_12P	6	USB_13P
7	GND	8	GND

Connector size: 2 X 4 = 8 Pin
Connector type: JST-2.0mm-M-180
Connector location: **USB1**

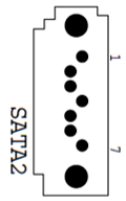
2.5.11 SATA1 Connector



Connector size: 1 X 7 = 7 Pin
Connector type: SATA 1.27mm-M-180D
Connector location: **SATA1**

Pin	Signal
1	GND
2	SATA_TXP1
3	SATA_TXN1
4	GND
5	SATA_RXN1
6	SATA_RXP1
7	GND

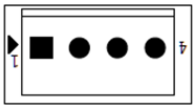
2.5.12 SATA2 Connector



Connector size: 1 X 7 = 7 Pin
Connector type: SATA 1.27mm-M-180D
Connector location: **SATA2**

Pin	Signal
1	GND
2	SATA_TXP2
3	SATA_TXN2
4	GND
5	SATA_RXN2
6	SATA_RXP2
7	GND

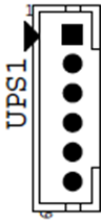
2.5.13 SATA Power1/2 JST Connector



Connector size: 1X4 = 4 Pin
Connector type: JST 2.54mm-M-180
Connector location: SPWR1, SPWR2

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	GND	4	+12V

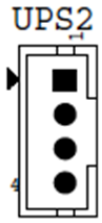
2.5.14 UPS1 JST Connector



Connector size: 1 X 6 = 6 Pin
Connector type: WAFER 2.0mm-M-180
Connector location: **UPS1**

Pin	Signal
1	+12V UPS
2	+12V UPS
3	GND
4	GND
5	SCLK
6	SDA

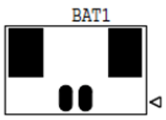
2.5.15 UPS2 JST Connector



Connector size: 1 X 4 = 4 Pin
Connector type: WAFER 2.0mm-M-180
Connector location: **UPS2**

Pin	Signal
1	DC IN
2	DC IN
3	GND
4	GND

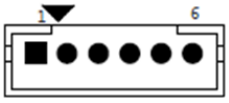
2.5.16 BAT1 Power Connector



Connector size: 1 X 2 = 2 Pin
Connector type: JST-1.25mm-M-180
Connector location: **BAT1**

Pin	Signal
1	BAT +3V
2	GND

2.5.17 FAN1/2 JST Connector



Connector size: 1 X 6 = 6 Pin
Connector type: WAFER 2.0mm-M-180
Connector location: **FAN1/2**

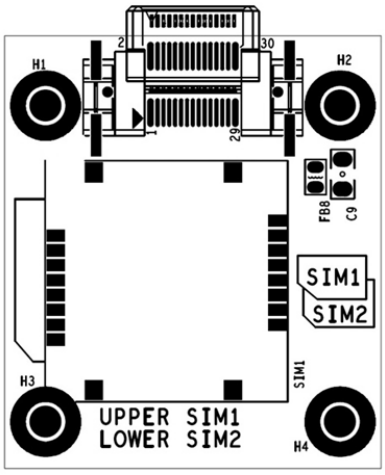
Pin	Signal
1	GND
2	+12V
3	FAN1DET
4	FAN1CTRL
5	FAN2DET
6	FAN2CTRL

2.5.18 CN1 JST Connector

Connector size: 2 X 15 = 30 Pin
Connector type: P0.5mm-FM-90,H=9mm
Connector location: **CN1**

Pin	Signal	Pin	Signal
1	+3.3VSB	2	UIM_RESET1
3	GND	4	GND
5	USB-D6P	6	UIM_CLK1
7	USB-D6N	8	GND
9	GND	10	UIM_DATA1
11	+5VSB	12	GND
13	GND	14	UIM_PWR1
15	DET LOW	16	SIM_DET
17	NC	18	UIM_RESET2
19	GND	20	GND
21	NC	22	UIM_CLK2
23	GND	24	GND
25	NC	26	UIM_DATA2
27	GND	28	GND
29	NC	30	UIM_PWR2

2.5.19 FES-2SIM CN1 JST Connector



Connector size: 2 X 15 = 30 Pin
Connector type: P0.5mm-FM-90,H=9mm
Connector location: **CN1**

Pin	Signal	Pin	Signal
1	NC	2	UIM_RESET1
3	GND	4	GND
5	NC	6	UIM_CLK1
7	NC	8	GND
9	GND	10	UIM_DATA1
11	NC	12	GND
13	GND	14	UIM_PWR1
15	SIM_DET	16	SIM_DET
17	NC	18	UIM_RESET2
19	GND	20	GND
21	NC	22	UIM_CLK2
23	GND	24	GND
25	NC	26	UIM_DATA2
27	GND	28	GND
29	NC	30	UIM_PWR2

2.5.20 PSE1 Slot

Connector size: 2 X 34 = 67 Pin
Connector type: 2 X 34-P1.27mm-180 H9.05mm
Connector location: **PSE1**

Pin	Signal	Pin	Signal
A1	+3.3V	B1	VIN_IN
A2	+3.3V	B2	VIN_IN
A3	+5V	B3	VIN_IN
A4	GND	B4	VIN_IN
A5	GND	B5	VIN_IN
A6	GND	B6	VIN_IN
A7	SMB_CLK	B7	VIN_IN
A8	SMB_DATA	B8	VIN_IN
A9	NC	B9	VIN_IN
A10	PSE_AGND	B10	VIN_IN
A11	PSE_INT#	B11	VIN_IN
A12	PSE_AGND	B12	VIN_IN
A13	PSE_OUT1	B13	GND_C
A14	PSE_AGND	B14	GND_C
A15	PSE_OUT2	B15	GND_C
A16	PSE_AGND	B16	GND_C

A17	PSE_OUT3	B17	GND_C
A18	PSE_AGND	B18	GND_C
A19	PSE_OUT4	B19	GND_C
A20	PSE_AGND	B20	GND_C
A21	PSE_OUT5	B21	GND_C
A22	PSE_AGND	B22	GND_C
A23	PSE_OUT6	B23	GND_C
A24	PSE_AGND	B24	GND_C
A25	PSE_OUT7	B25	GND_C
A26	PSE_AGND	B26	NC
A27	PSE_OUT8	B27	NC
A28	NC	B28	NC
A29	NC	B29	NC
A30	NC	B30	GND56P_PSE
A31	NC	B31	GND56P_PSE
A32	NC	B32	NC
A33	GND56P_PSE	B33	NC
A34	GND56P_PSE	B34	NC

2.5.21 MXMGF1 Connector

Connector size: 281Pin
Connector type: MXM3.0
CONNECTOR_H:5.5mm
Connector location: **MXMGF1**

Pin	Signal	Pin	Signal
E1	+12V	E2	+12V
E3	GND	E4	GND
1	+5V	2	PRSNT
3	+5V	4	NC
5	+5V	6	PWRGD
7	+5V	8	PWR_EN
9	+5V	10	NC
11	GND	12	NC
13	GND	14	NC
15	GND	16	NC
17	GND	18	PWR_LEVEL
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC/CEC	30	NC

31	NC	32	SMB_DAT
33	NC	34	SMB_CLK
35	NC	36	GND
37	GND	38	NC
39	NC	40	NC
41	NC	42	NC
43	NC	44	NC
45	NC	46	GND
47	GND	48	TX_15_N
49	RX_15_N	50	TX_15_P
51	RX_15_P	52	GND
53	GND	54	TX_14_N
55	RX_14_N	56	TX_14_P
57	RX_14_P	58	GND
59	GND	60	TX_13_N
61	RX_13_N	62	TX_13_P
63	RX_13_P	64	GND
65	GND	66	TX_12_N
67	RX_12_N	68	TX_12_P
69	RX_12_P	70	GND
71	GND	72	TX_11_N
73	RX_11_N	74	TX_11_P
75	RX_11_P	76	GND
77	GND	78	TX_10_N
69	RX_10_N	80	TX_10_P
81	RX_10_P	82	GND
83	GND	84	TX_9_N
85	RX_9_N	86	TX_9_P
87	RX_9_P	88	GND
89	GND	90	TX_8_N
91	RX_8_N	92	TX_8_P
93	RX_8_P	94	GND
95	GND	96	TX_7_N
97	RX_7_N	98	TX_7_P
99	RX_7_P	100	GND
101	GND	102	TX_6_N
103	RX_6_N	104	TX_6_P
105	RX_6_P	106	GND
107	GND	108	TX_5_N
109	RX_5_N	110	TX_5_P
111	RX_5_P	112	GND
113	GND	114	TX_4_N

115	RX_4_N	116	TX_4_P
117	RX_4_P	118	GND
119	GND	120	TX_3_N
121	RX_3_N	122	TX_3_P
123	RX_3_P	124	GND
125	GND	126	KEY
127	KEY	128	KEY
129	KEY	130	KEY
131	KEY	132	KEY
133	GND	134	GND
135	RX_2_N	136	TX_2_N
137	RX_2_P	138	TX_2_P
139	GND	140	GND
141	RX_1_N	142	TX_1_N
143	RX_1_P	144	TX_1_P
145	GND	146	GND
147	RX_0_N	148	TX_0_N
149	RX_0_P	150	TX_0_P
151	GND	152	GND
153	CLK100M_N	154	CLK_REQ#
155	CLK100M_P	156	PEG_RST#
157	GND	158	NC
159	NC	160	NC
161	NC	162	NC
163	NC	164	NC
165	NC	166	GND
167	NC	168	NC
169	NC	170	NC
171	NC	172	NC
173	GND	174	GND
175	NC	176	NC
177	NC	178	NC
179	GND	180	GND
181	NC	182	NC
183	NC	184	NC
185	GND	186	GND
187	NC	188	NC
189	NC	190	NC
191	GND	192	GND
193	NC	194	NC
195	NC	196	NC
197	GND	198	GND

199	NC	200	NC
201	NC	202	NC
203	GND	204	GND
205	NC	206	NC
207	NC	208	NC
209	GND	210	GND
211	NC	212	NC
213	NC	214	NC
215	GND	216	GND
217	NC	218	NC
219	NC	220	NC
221	GND	222	GND
223	NC	224	NC
225	NC	226	NC
227	NC	228	GND
229	NC	230	NC
231	NC	232	NC
233	NC	234	NC
235	NC	236	NC
237	NC	238	GND
239	NC	240	+3.3V
241	NC	242	+3.3V
243	NC	244	GND
245	NC	246	HDDMI_B_D0_N
247	NC	248	HDDMI_B_D0_P
249	NC	250	GND
251	GND	252	HDDMI_B_D1_N
253	HDDMI_A_D0_N	254	HDDMI_B_D1_P
255	HDDMI_A_D0_P	256	GND
257	GND	258	HDDMI_B_D2_N
259	HDDMI_A_D1_N	260	HDDMI_B_D2_P
261	HDDMI_A_D1_P	262	GND
263	GND	264	HDDMI_B_D3_N
265	HDDMI_A_D2_N	266	HDDMI_B_D3_P
267	HDDMI_A_D2_P	268	GND
269	GND	270	HDDMI_B_DATE
271	HDDMI_A_D3_N	272	HDDMI_B_CLK
273	HDDMI_A_D3_P	274	HDDMI_B_HPD
275	GND	276	HDDMI_A_HPD
277	HDDMI_A_DATE	278	+3.3V
269	HDDMI_A_CLK	280	NC
281	PRSET#		

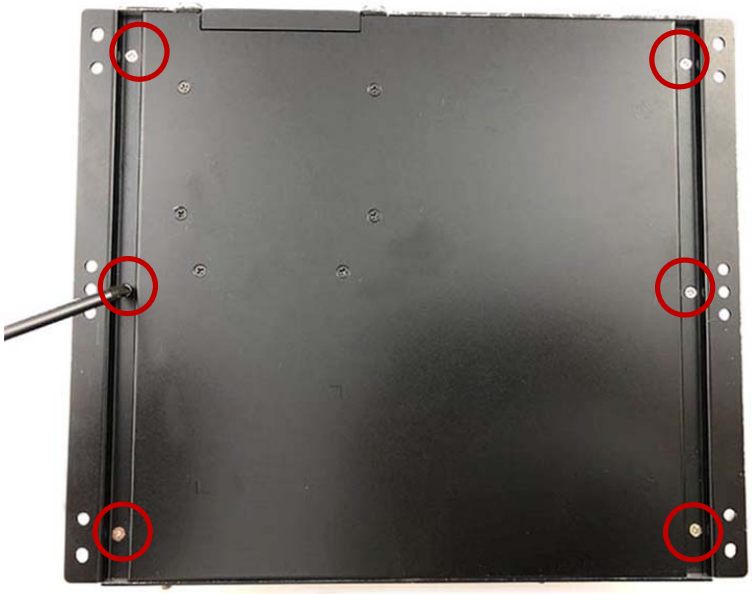
Chapter 3

System Setup

3.0 SYSTEM SETUP

3.1 Opening the Chassis

Step 1. Unscrew the six screws on the back cover as shown in the picture.



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

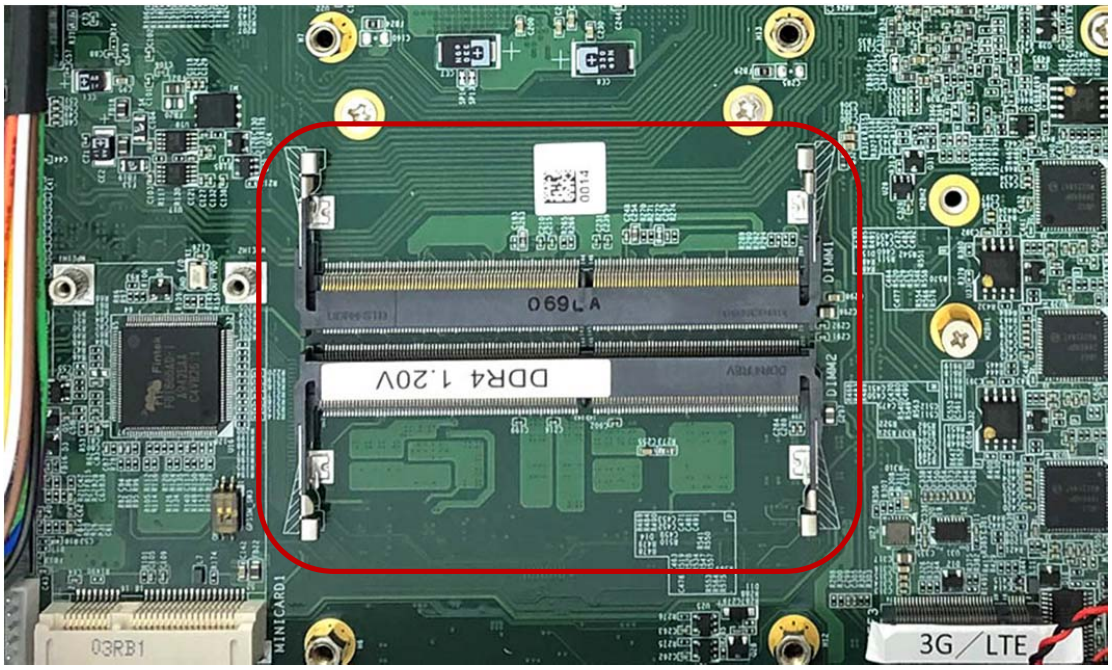
Step 3. Unscrew the one screw on the rear panel as shown in the picture.

Step 4. Untighten the storage bracket screws on the front panel as shown in the picture.

Step 5. Remove bottom cover as shown in the picture.

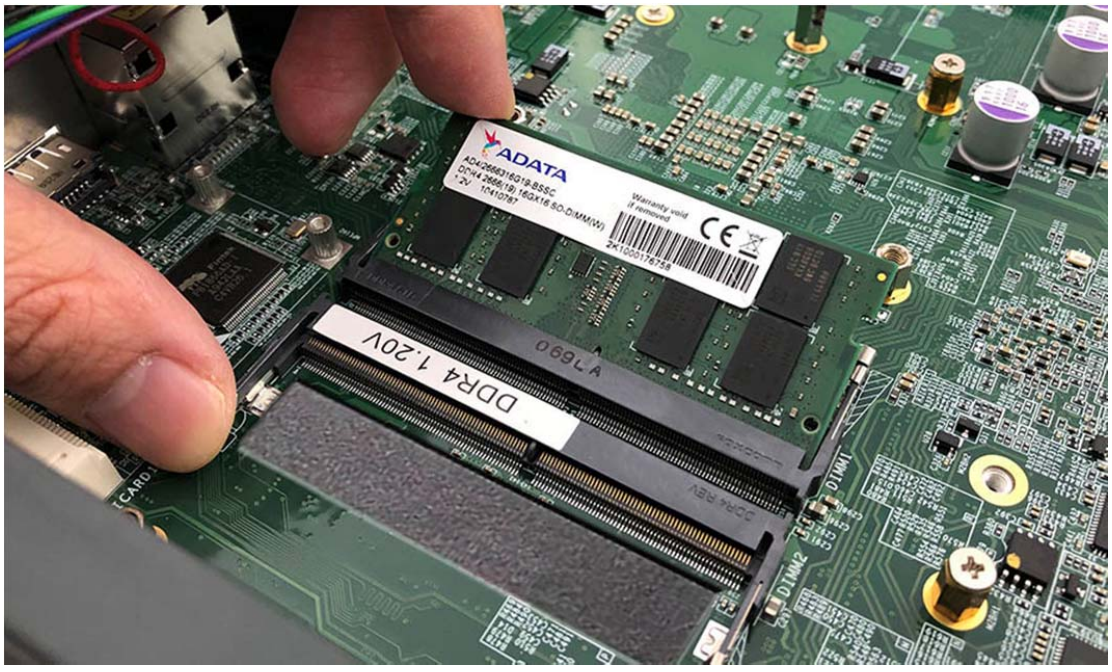
3.2 Installing Memory

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



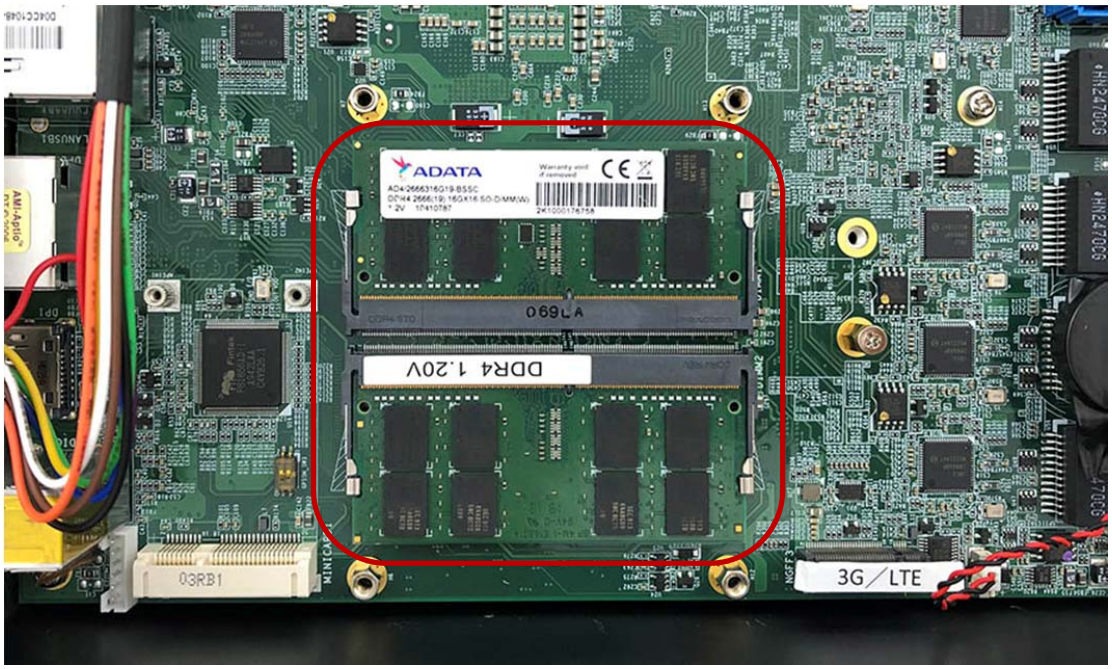
Step 2. Stick the poron (P/N: 417290362120) on the memory slot as shown in the picture.

Step 3. Hold the memory module with its notch aligned with the memory slot on the motherboard and insert the memory module into the slot at a 30-degree angle as shown in the picture.

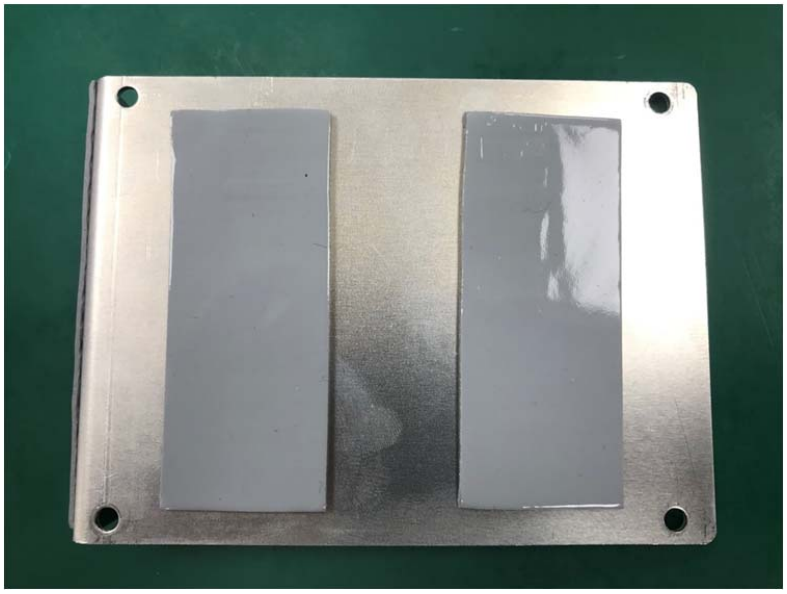


Step 4. Tilt the memory module so that it can be fixed with both memory lock stoppers as shown in the picture.

Step 5. Complete as shown in the picture.

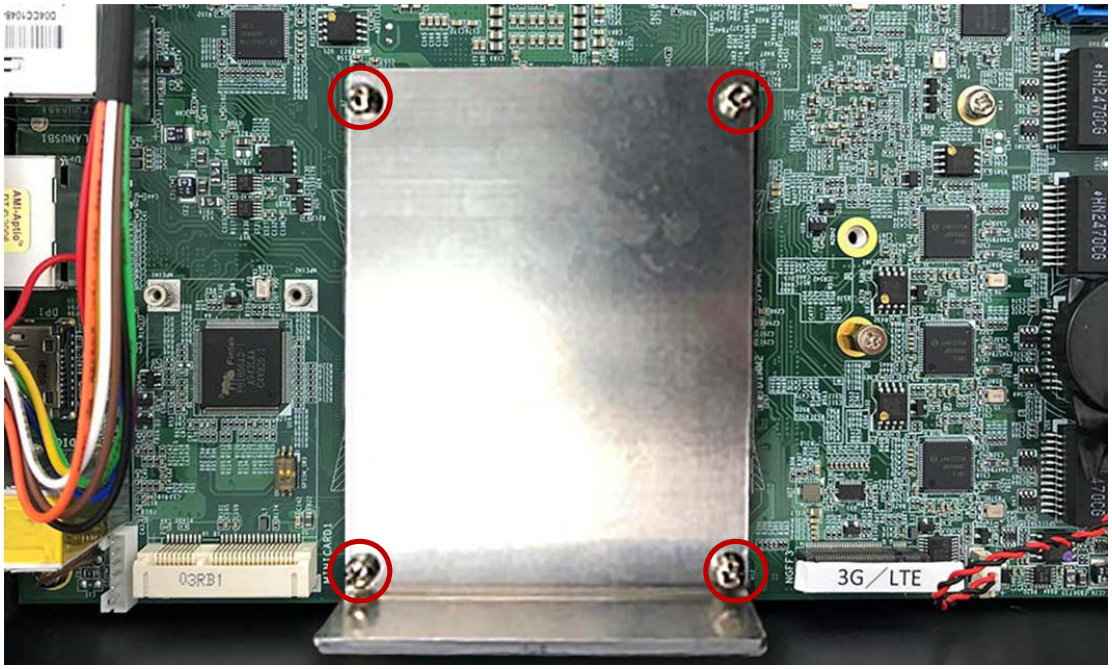


Step 6. Stick the pad (P/N: 265024060010) on the heatsink (P/N: 263097072190) as shown in the picture.



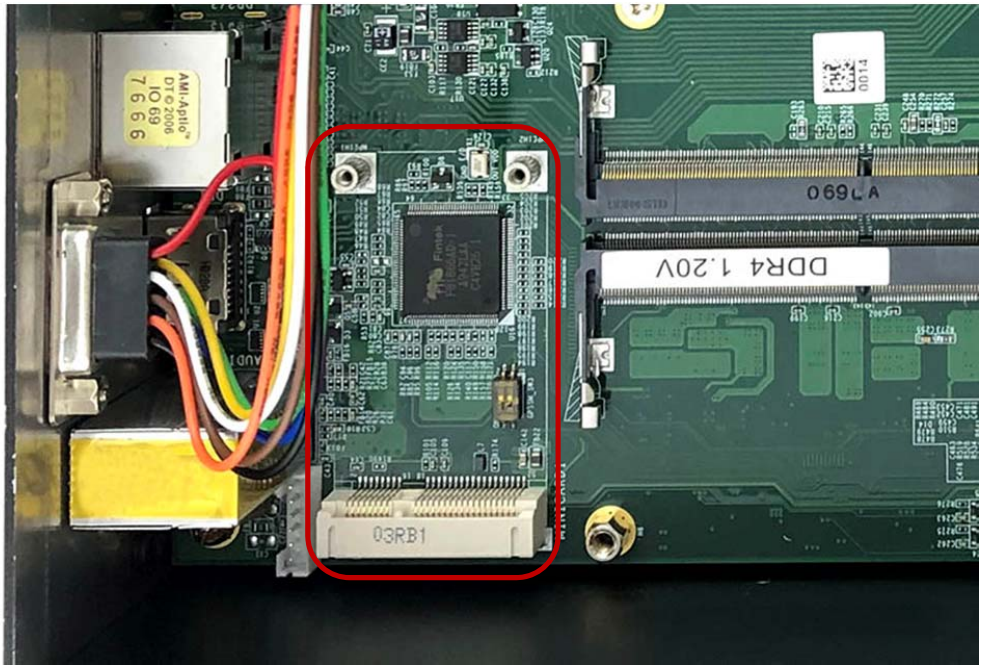
Step 7. Stick the pad (P/N: 265018070010) on the memory heatsink as shown in the picture.

Step 8. Put the heatsink on the memory module and screw the one screw to the holder (P/N: 351103060810) as shown in the picture.

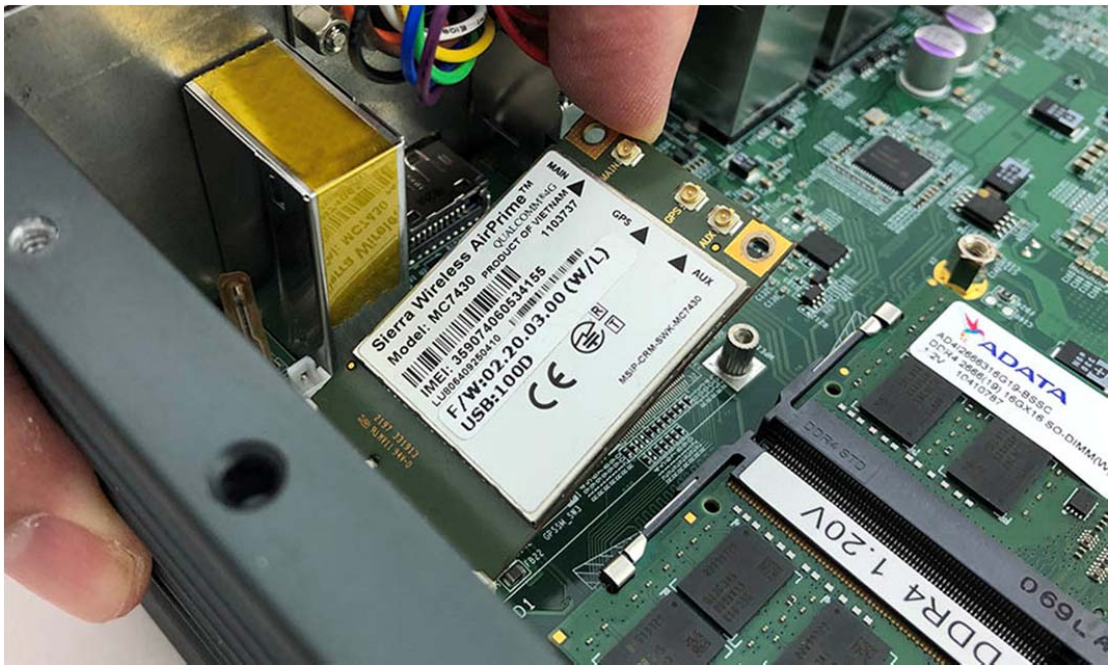


3.3 Installing MINI PCIe Expansion Card (Minicard 1, 3G/LTE)

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 as shown in the picture.

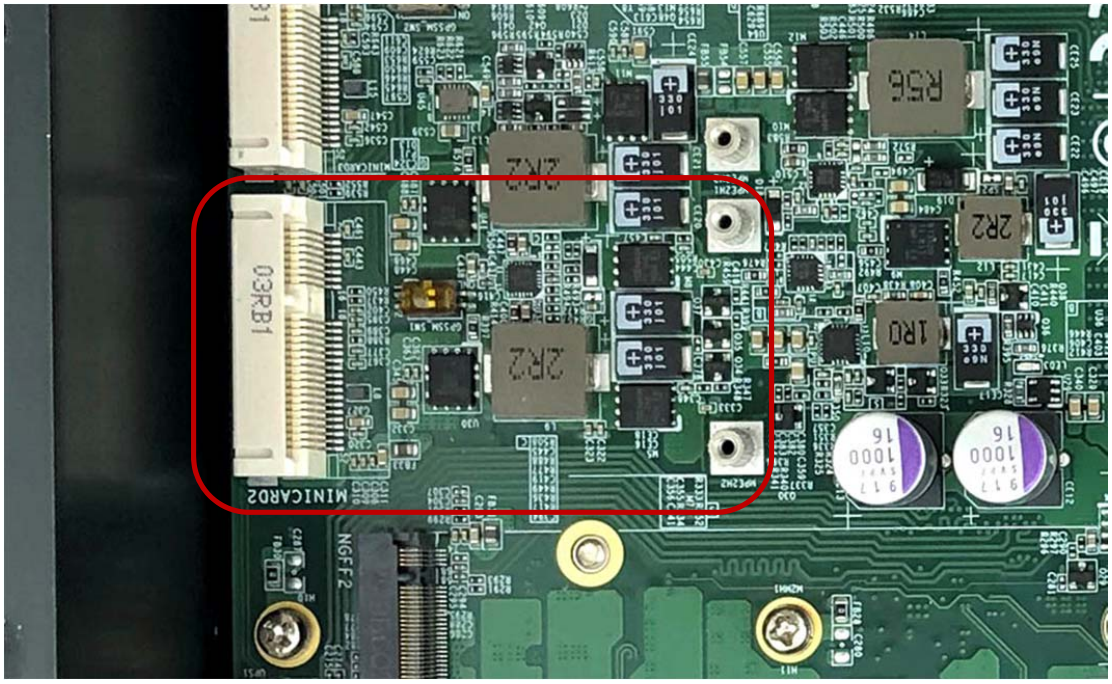


Step 3. Screw the two screws (P/N:351103040250) to the holder as shown in the picture.

Step 4. Complete as shown in the picture.

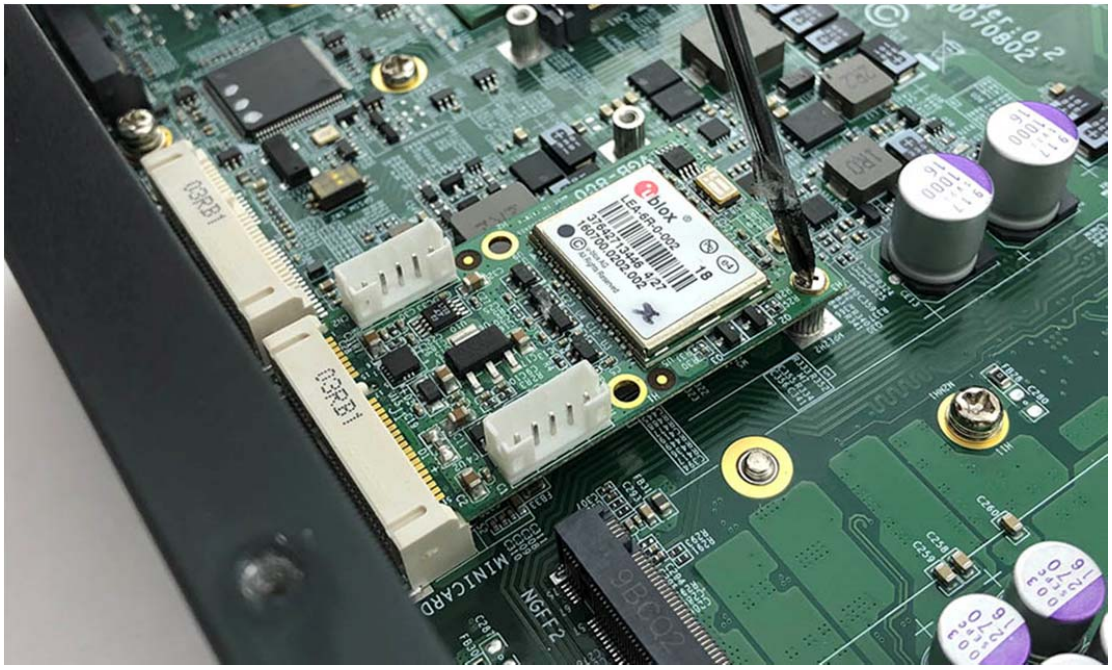
3.4 Installing MINI PCIe Expansion Card (MiniCard 2)

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

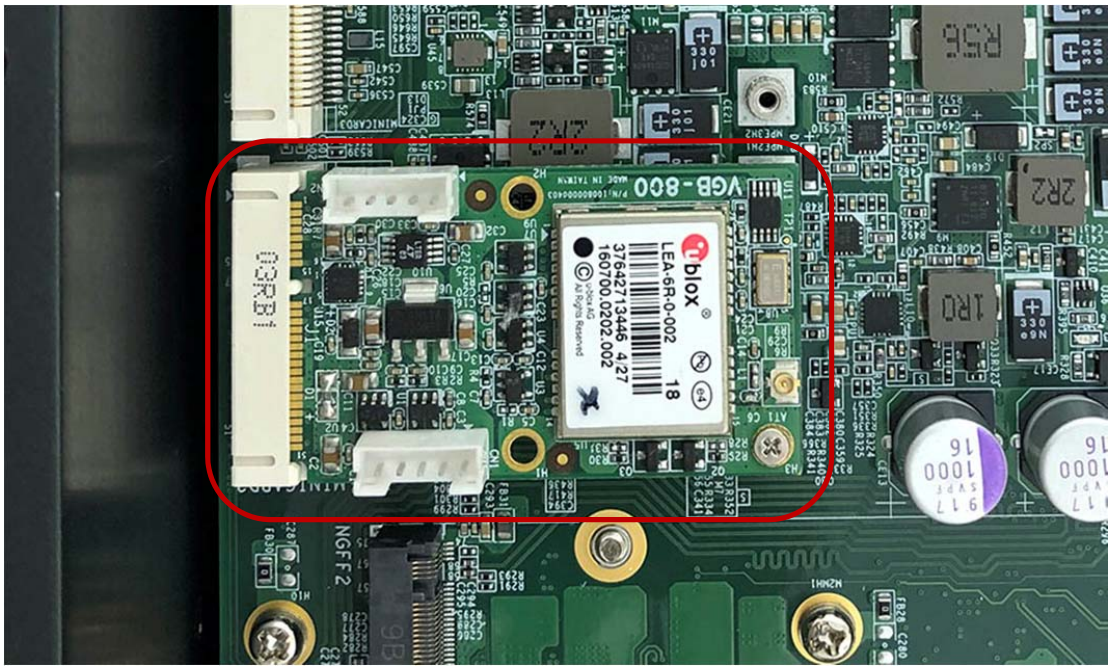


Step 2. Hold the Module with its notch aligned with the Slot on the motherboard and insert the Module into the Slot at a 30-degree angle as shown in the picture.

Step 3. Screw the one screw to the holder as shown in the picture.

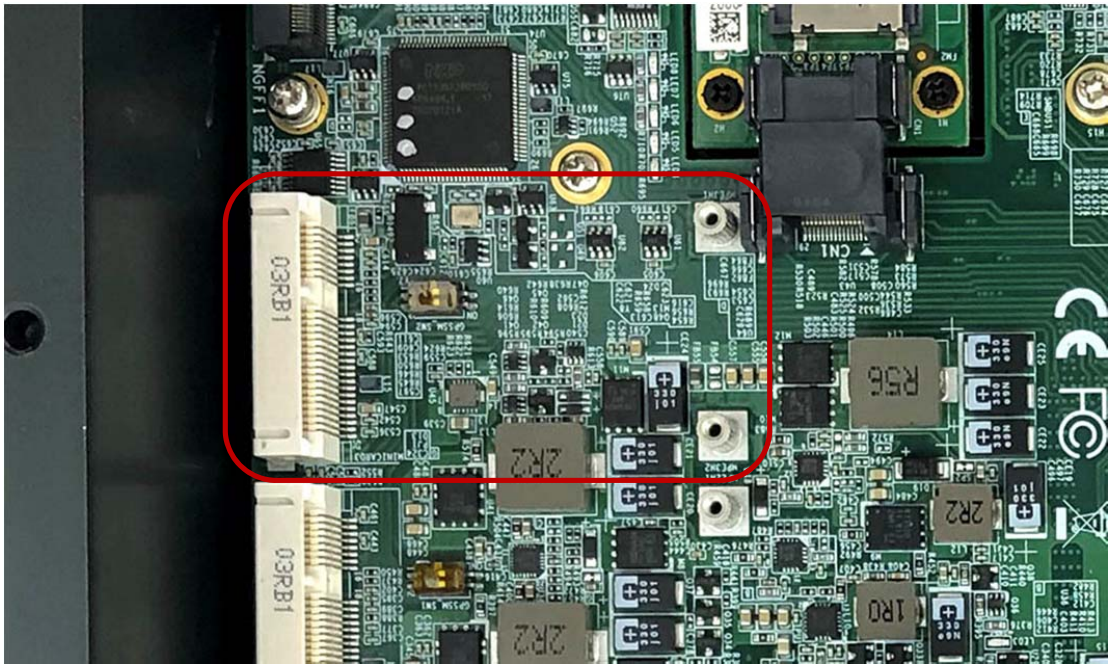


Step 4. Complete as shown in the picture.

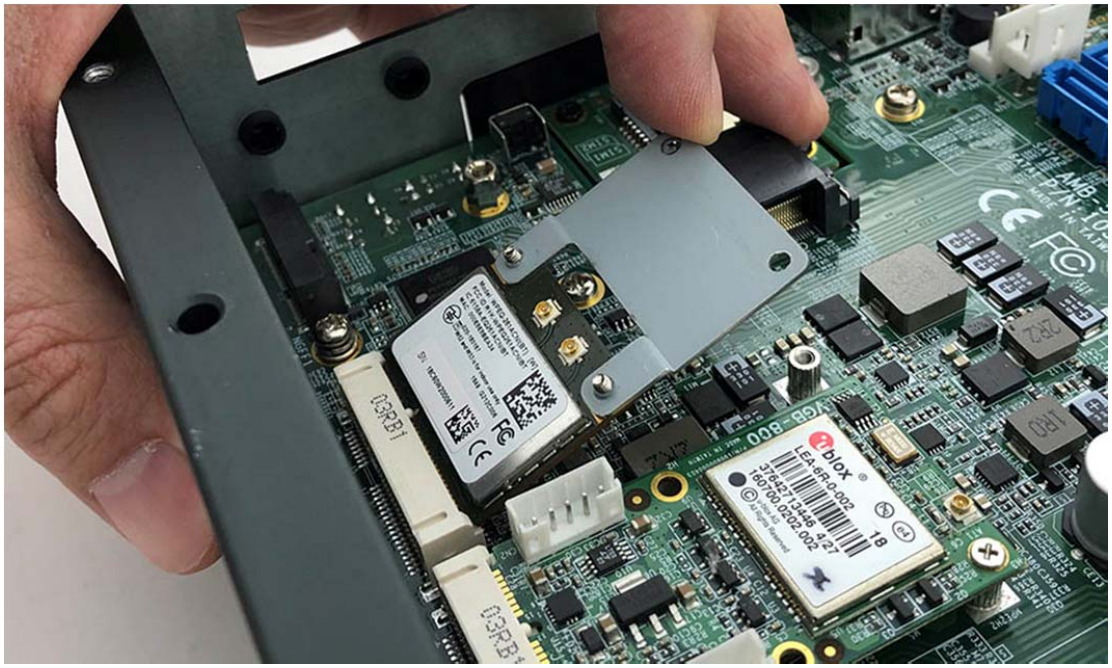


3.5 Installing MINI PCIe Expansion Card (MiniCard 3)

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

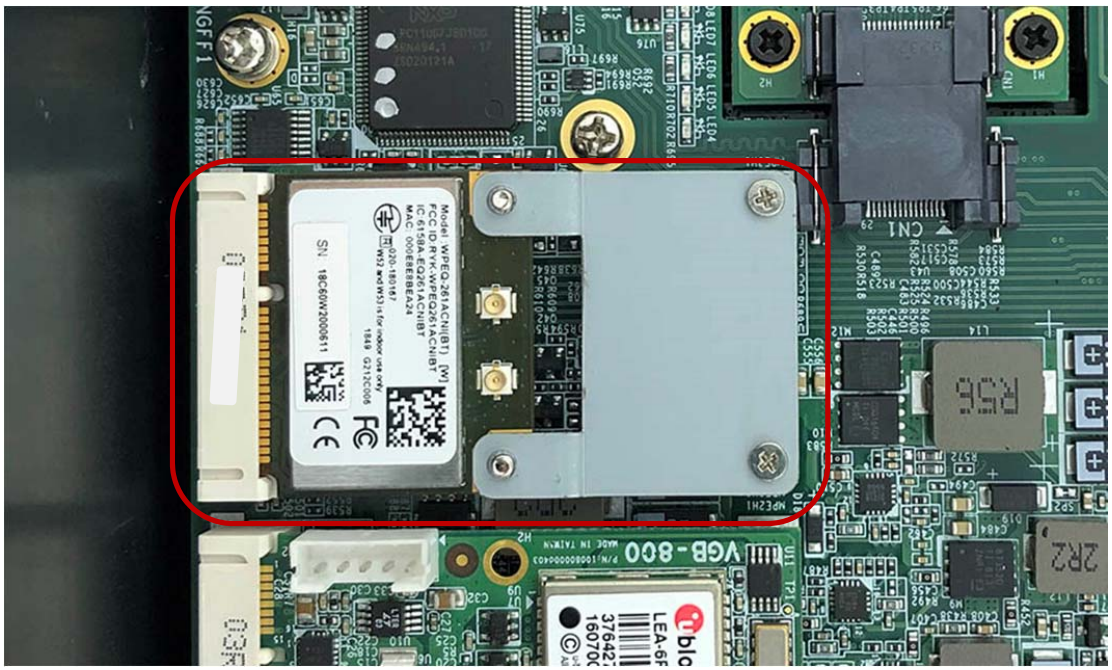


Step 2. Hold the Module with its notch aligned with the Slot on the motherboard and insert the Module into the Slot at a 30-degree angle as shown in the picture.



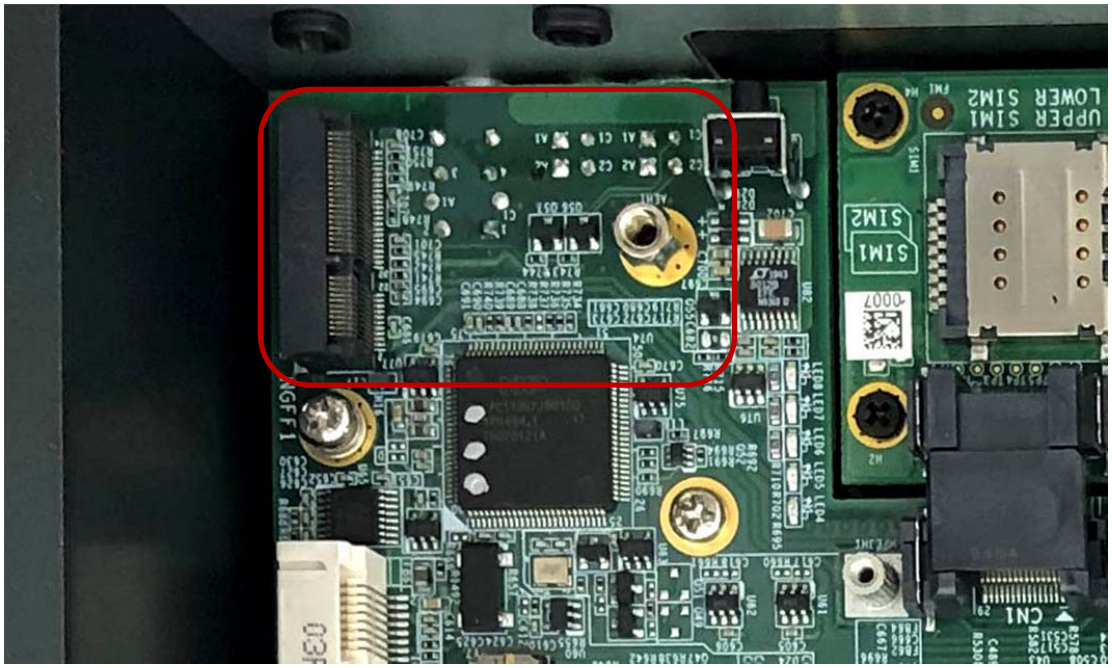
Step 3. Screw the two screws to the holder as shown in the picture.

Step 4. Complete as shown in the picture.



3.6 Installing M.2 Module

Step 1. Insert M.2 module into this 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 as shown in the picture.

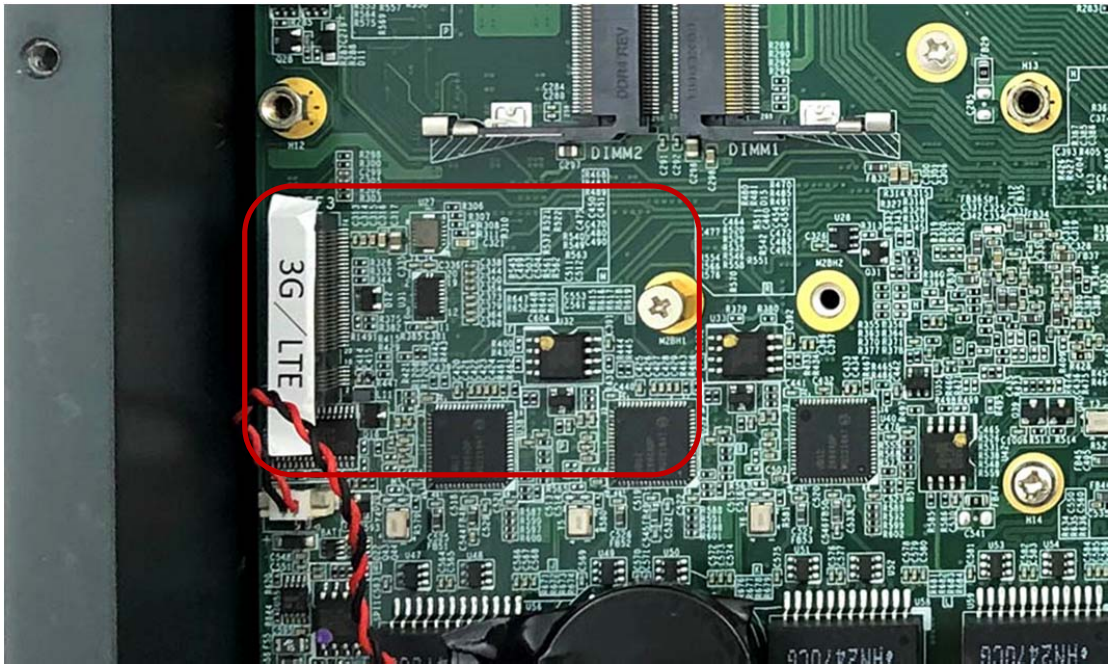
Step 3. Screw one screw (P/N:351103060810) to the holder as shown in the picture.

Step 4. Complete as shown in the picture.

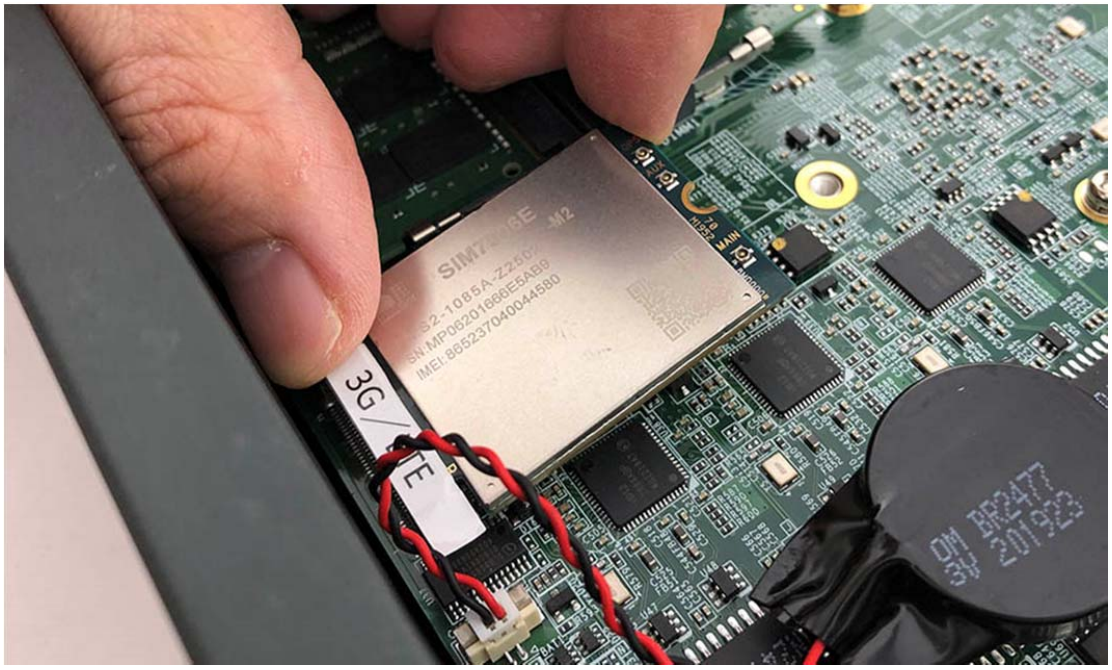
Step 5. Take the Ipex Connector and press on the M.2 module as shown in the picture.

3.7 Installing M.2 Module (3G/LTE)

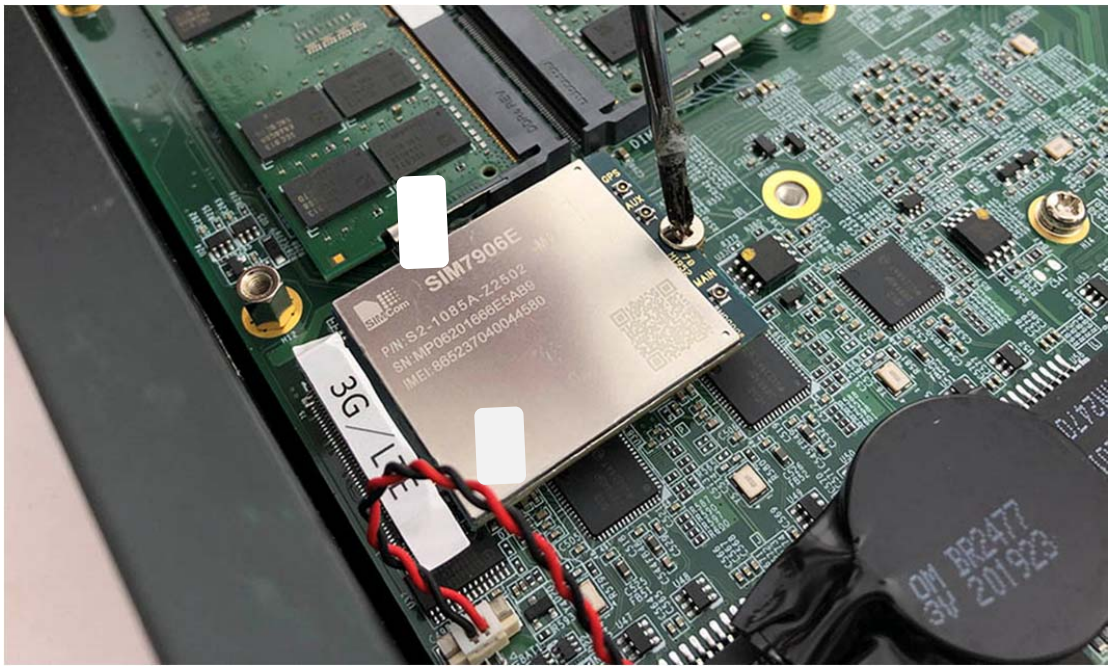
Step 1. Insert MINI PCIe Expansion Card into the Slot as shown in the picture.



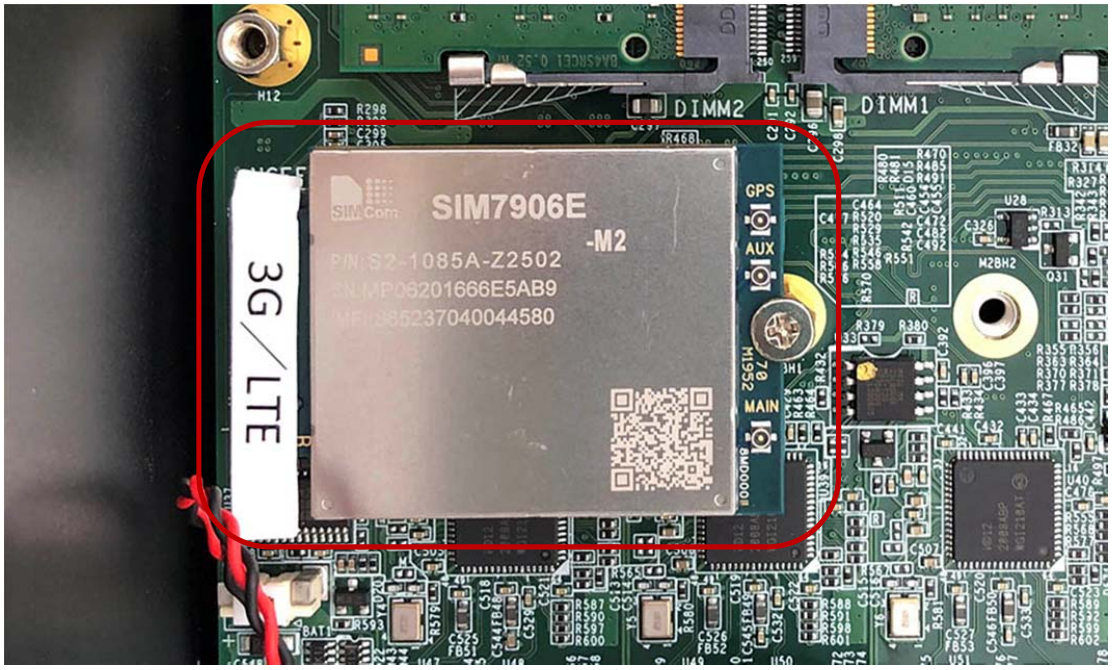
Step 2. Hold the Module with its notch aligned with the Slot on the motherboard and insert the Module into the Slot at a 30-degree angle as shown in the picture.



Step 3. Screw the one screw to the holder as shown in the picture.

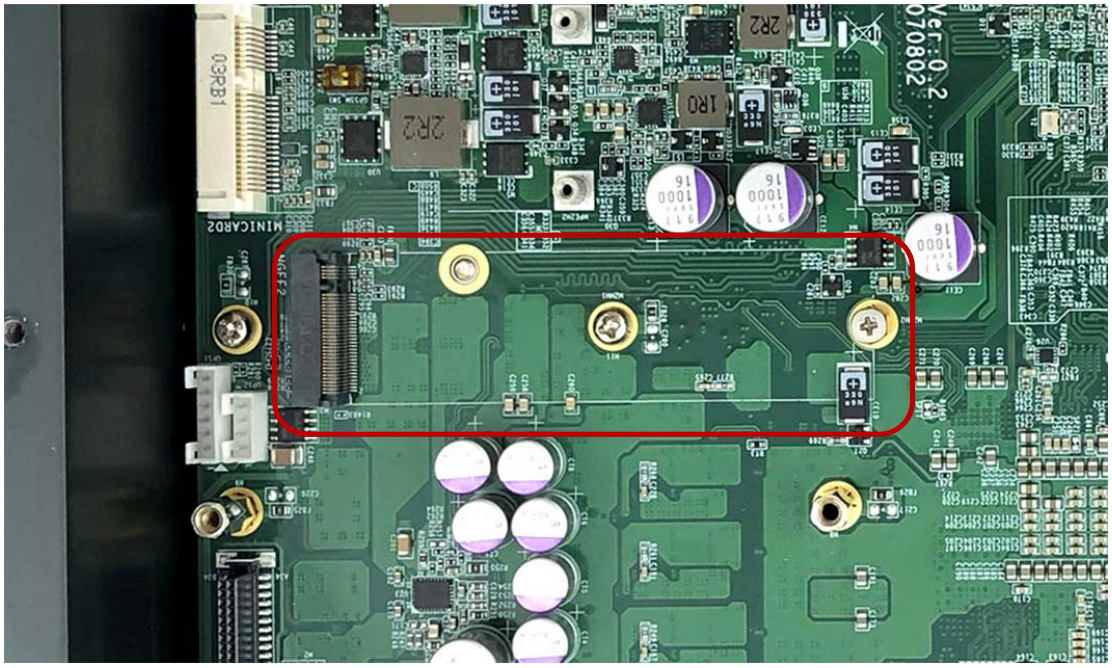


Step 4. Complete as shown in the picture.

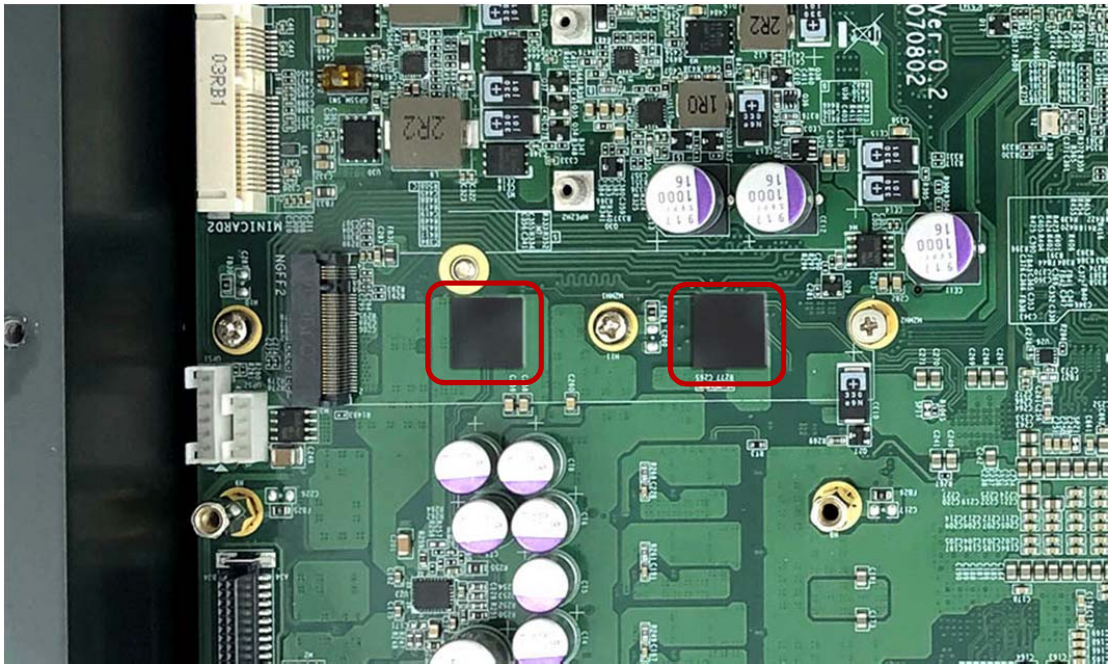


3.8 Installing M.2 NVMe SSD

Step 1. Insert NVMe SSD into this Slot as shown in the picture.



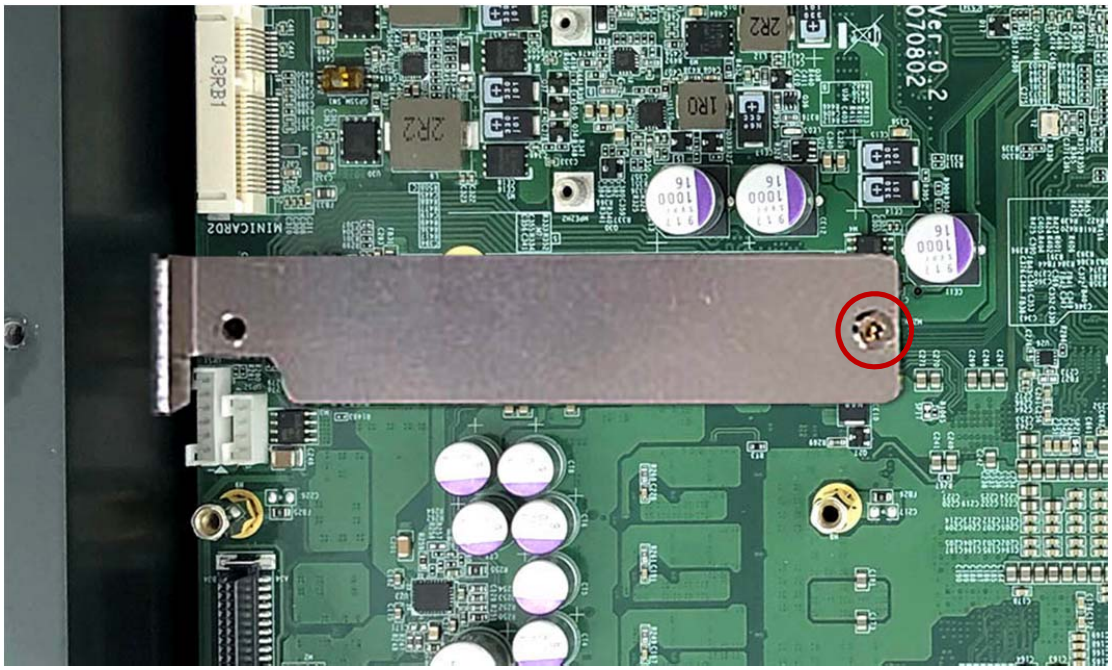
Step 2. Stick the two Silicone Rubbers (P/N: 417290310101) on the mainboard as shown in the picture.



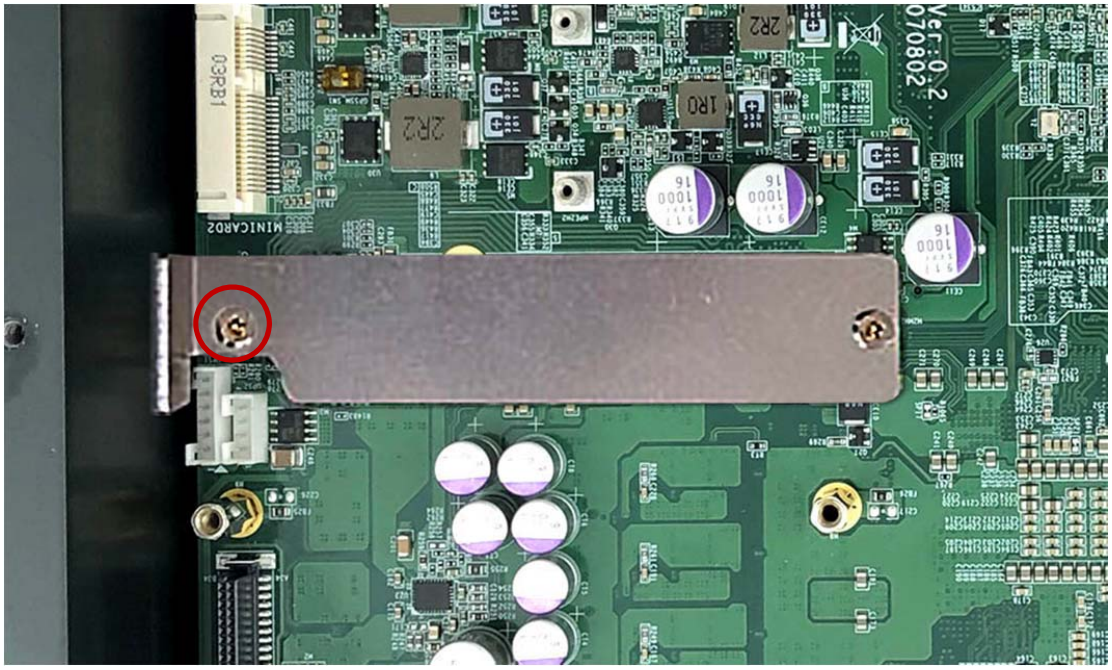
Step 3. Stick the Thermal Pad to the heatsink (P/N: 268104022240) as shown in the picture.

Step 4. Hold the SSD with its notch aligned with the Slot on the motherboard and insert the Module into the Slot at a 30-degree angle as shown in the picture.

Step 5. Put the heatsink on the module and screw the one screw to the holder (P/N: 351125100110) as shown in the picture.

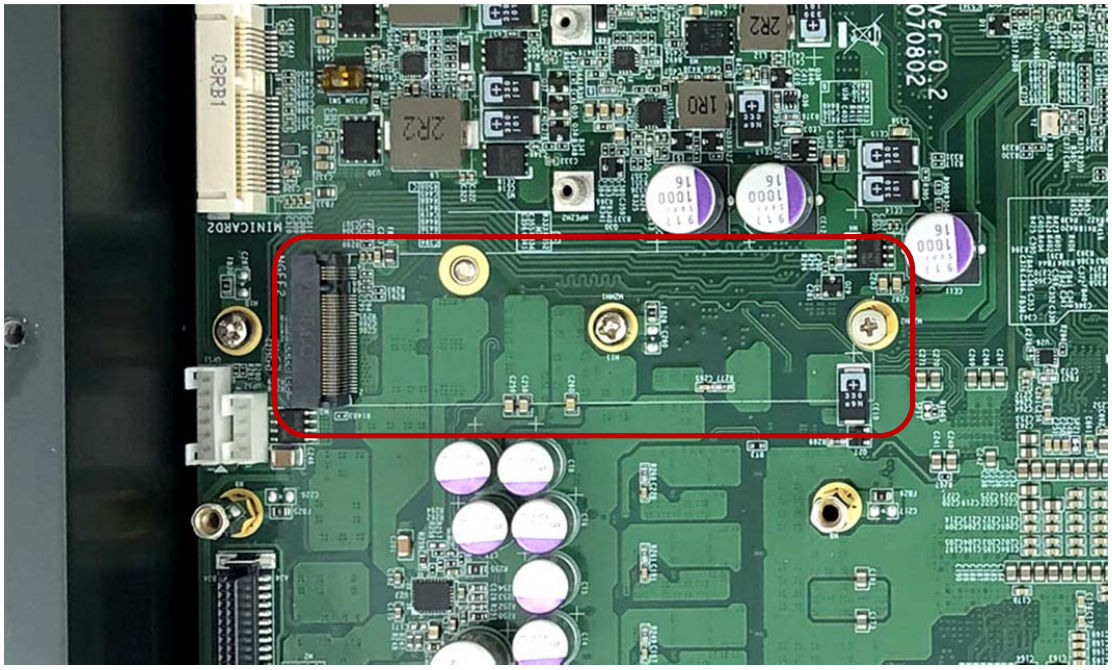


Step 6. Screw the one screw (P/N: 35110306810) to the holder as shown in the picture.

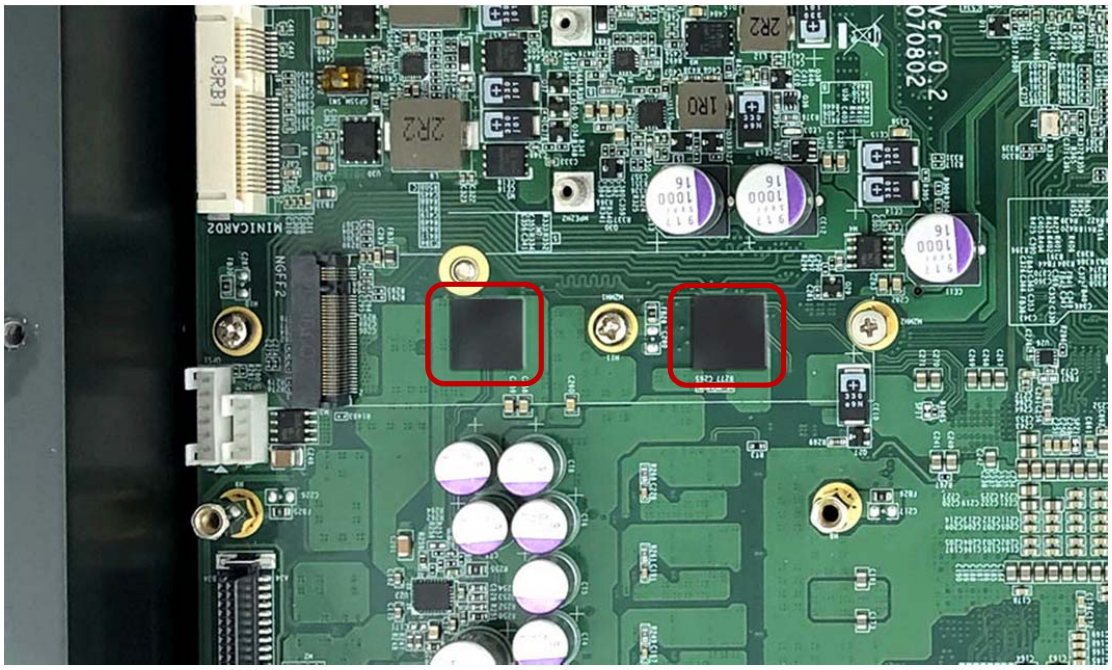


3.9 Installing M.2 SATA SSD

Step 1. Insert NVMe SSD into this Slot as shown in the picture.



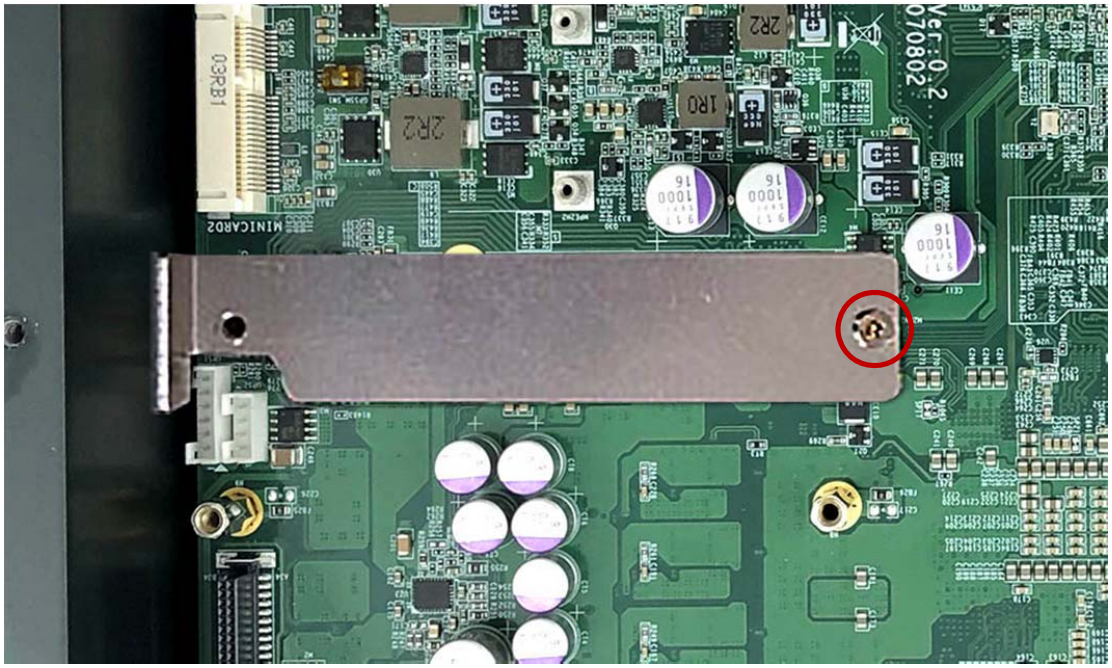
Step 2. Stick the two Silicone Rubbers (P/N: 417290310102) on the mainboard as shown in the picture.



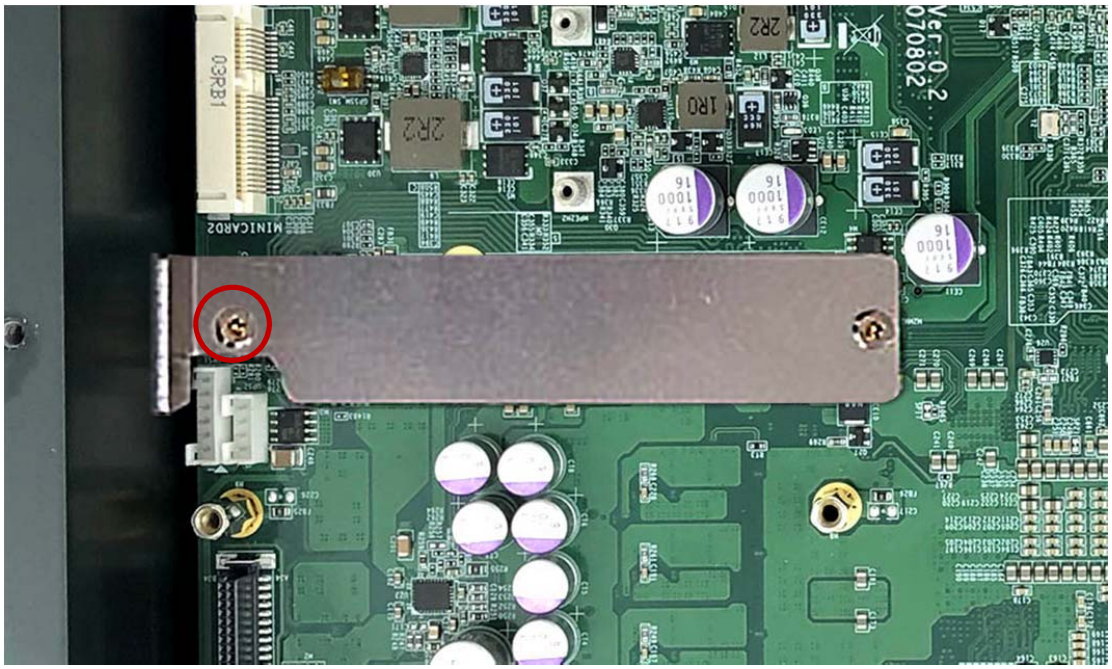
Step 3. Stick the Thermal Pad to the heatsink (P/N: 268104022240) as shown in the picture.

Step 4. Hold the SSD with its notch aligned with the Slot on the motherboard and insert the Module into the Slot at a 30-degree angle as shown in the picture.

Step 5. Put the heatsink on the module and screw the one screw to the holder (P/N: 351125100110) as shown in the picture.



Step 6. Screw the one screw (P/N: 35110306810) to the holder as shown in the picture.



3.10 Installing Internal Antenna Cable

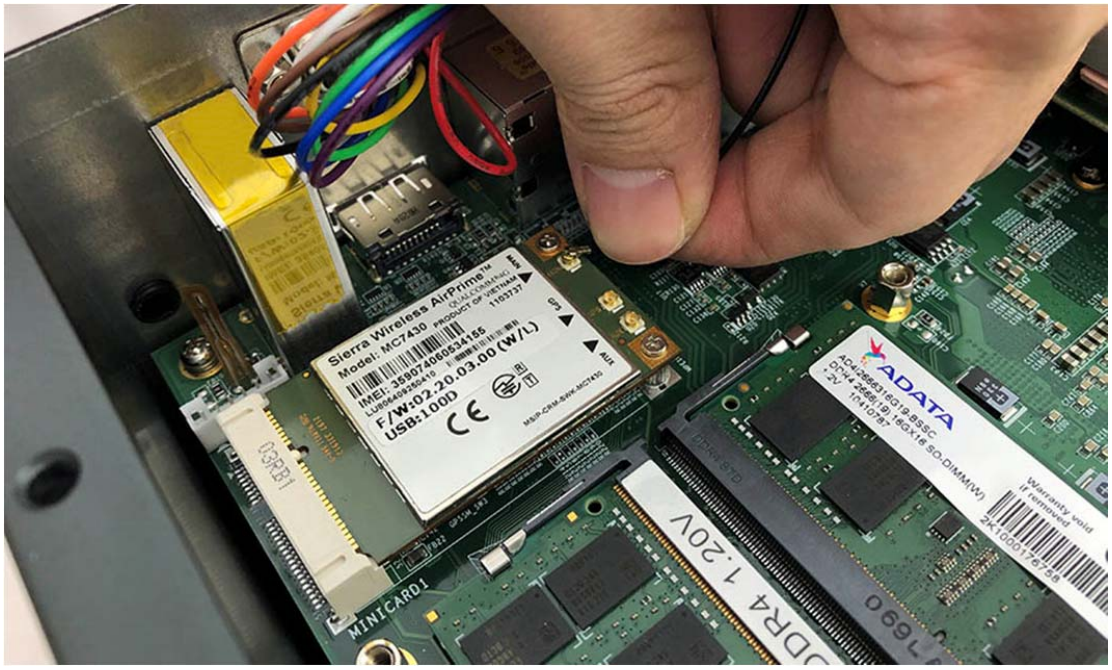
Step 1. Take the SMA Connector and Plug into IO Panel as shown in the picture.

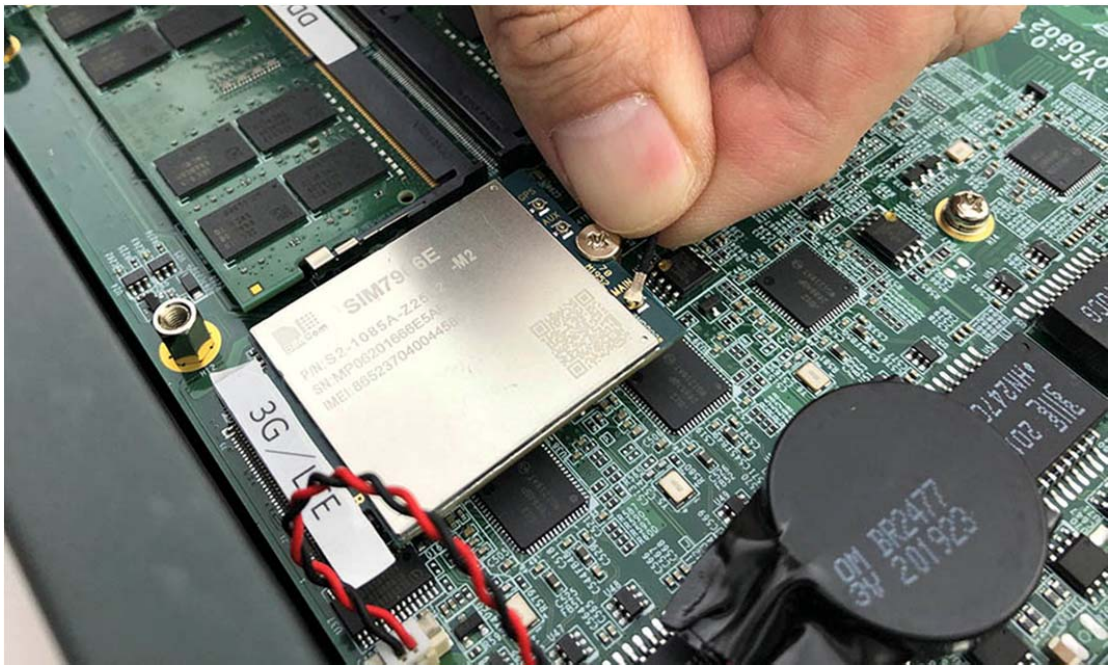
Step 2. Put the Washer into the SMA Connector as shown in the picture.

Step 3. Put the O-ring to the SMA Connector and tighten it as shown in the picture.

Step 4. Complete as shown in the picture.

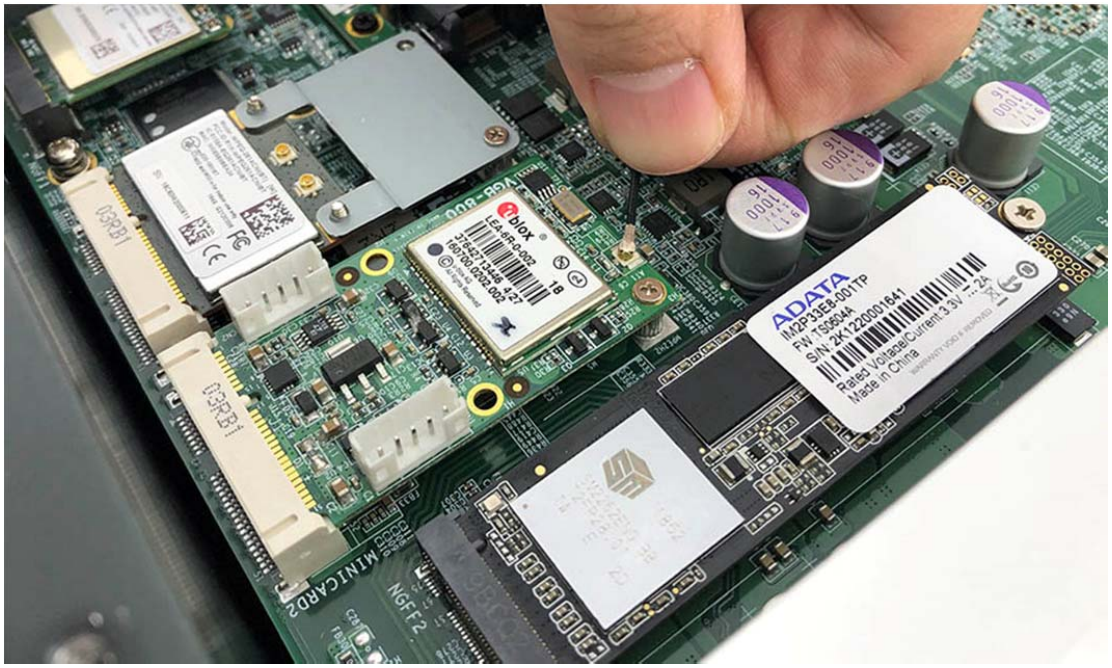
Step 5. Take the Ipex Connector and press on the 3G module as shown in the picture. (3G/LTE)





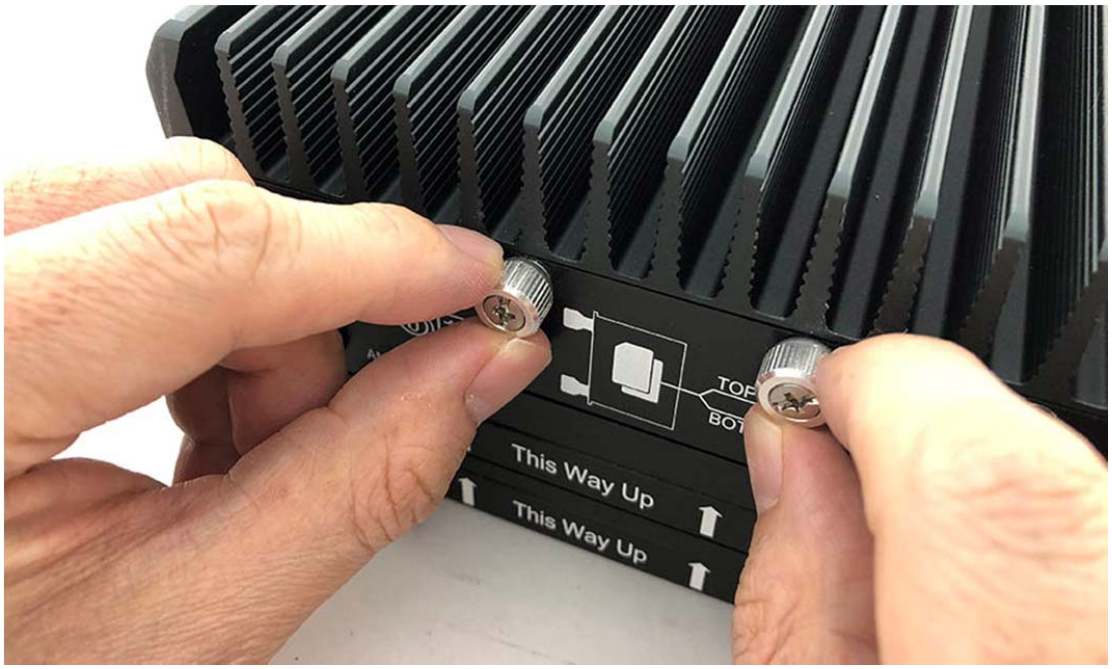
Step 6. Take the Ipex Connector and press on the WiFi module as shown in the picture.(WiFi)

Step 7. Take the Ipex Connector and press on the GPS module as shown in the picture. (GPS)



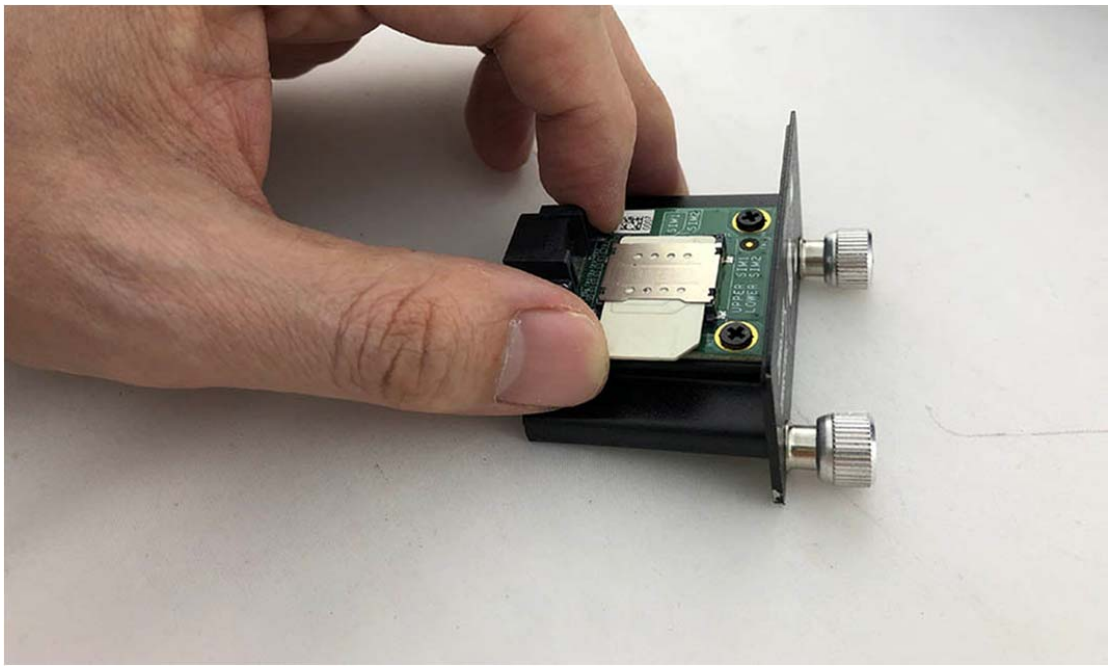
3.11 Installing SIM Card

Step 1. Loosen the SIM Card bracket screws as shown in the picture.

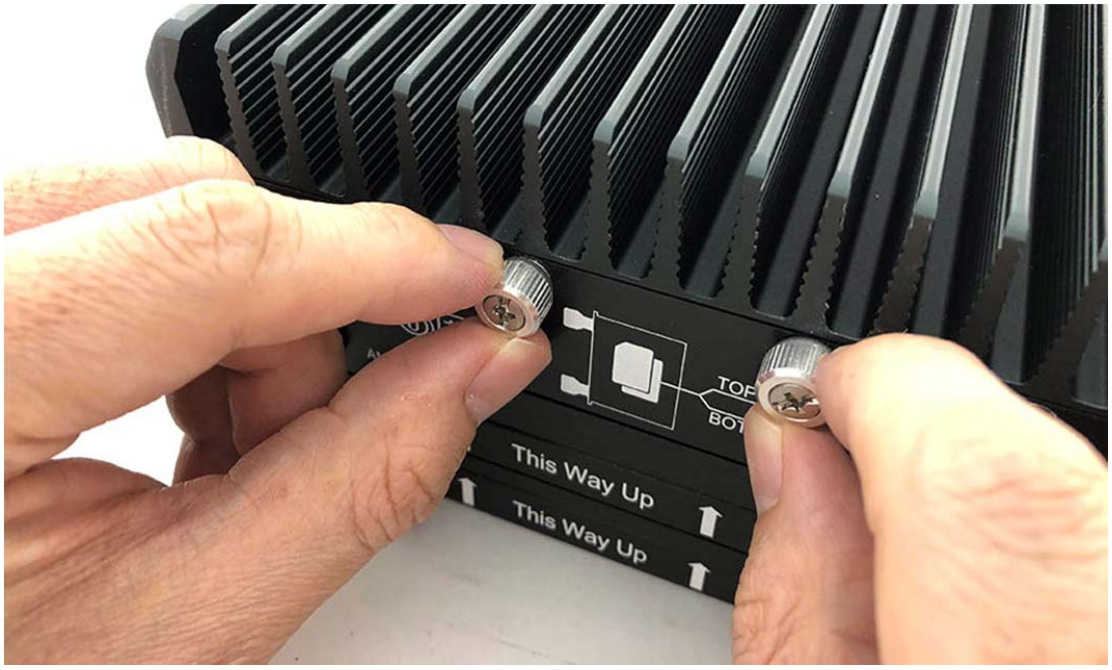


Step 2. Take the SIM Card bracket away from front panel as shown in the picture.

Step 3. Put your SIM Card into the bracket as shown in the picture.



Step 4. Push the SIM Card bracket into the socket as shown in the picture.



Step 5. Fully insert the SIM Card bracket into the socket until you hear a “click” as shown in the picture.

Step 6. Tighten the SIM Card bracket screws as shown in the picture.

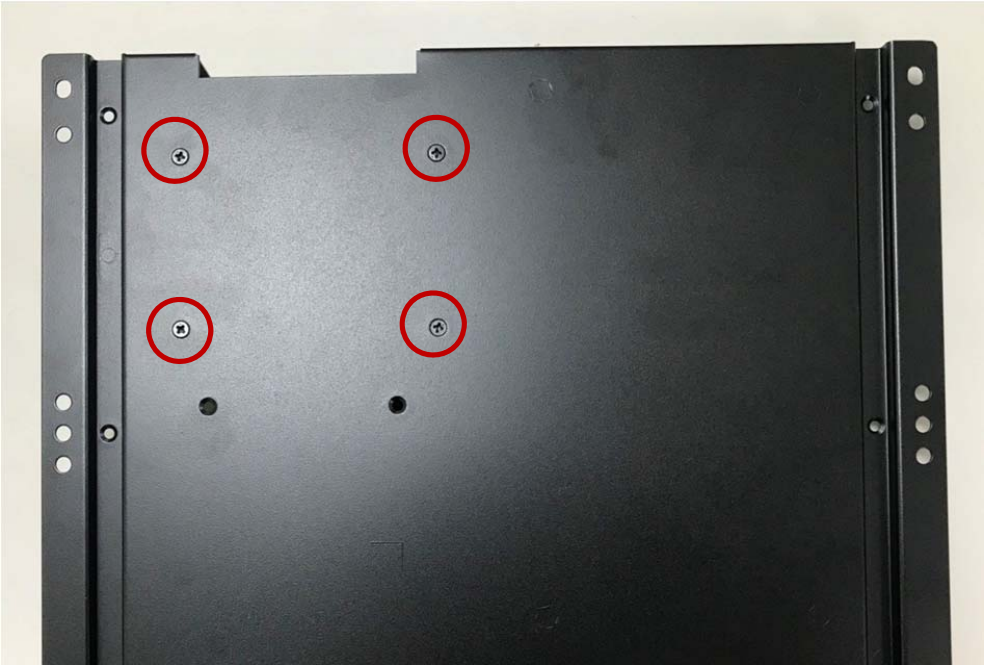
Step 7. Complete as shown in the picture.

Attention:
When insert a SIM card to the SIM card holder, please remove the main power at input to avoid undetectable SIM card.

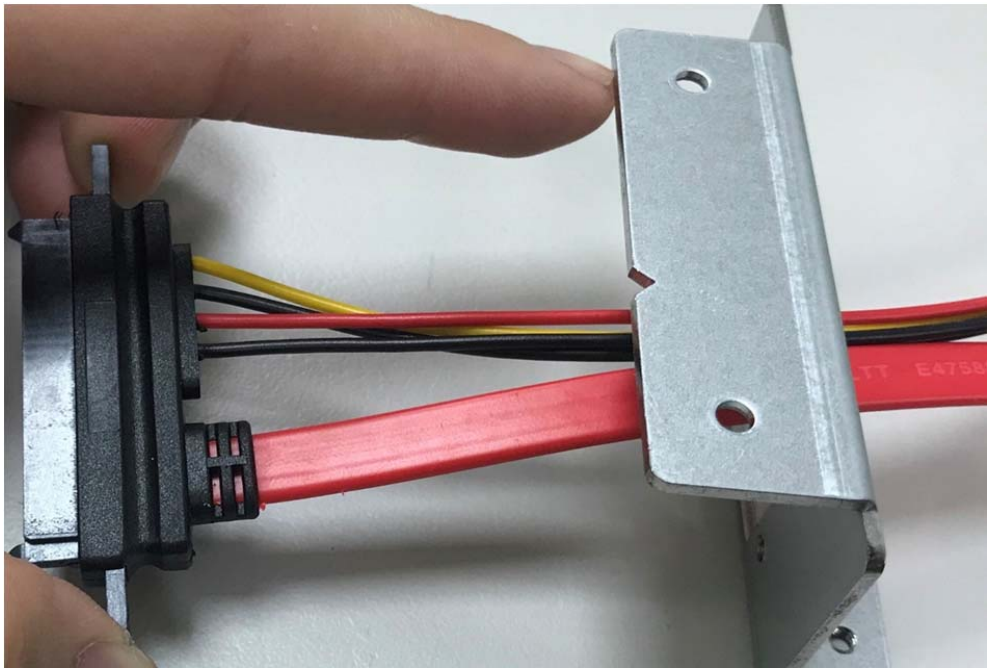
3.12 Installing HDD

Step 1. Put the HDD bracket on the bottom cover as shown in the picture.

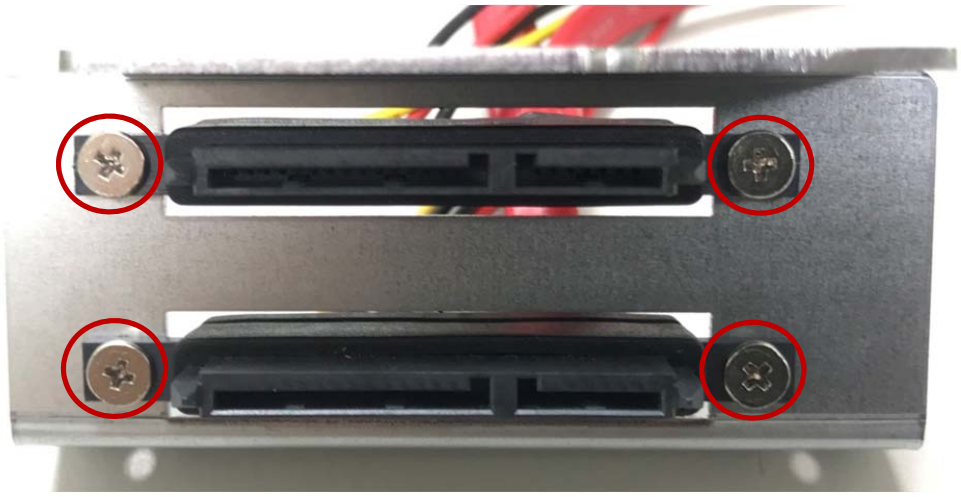
Step 2. Turn over the bottom cover and screw the four screws as shown in the picture.



Step 3. Take SATA cable into the SATA bracket as shown in the picture.

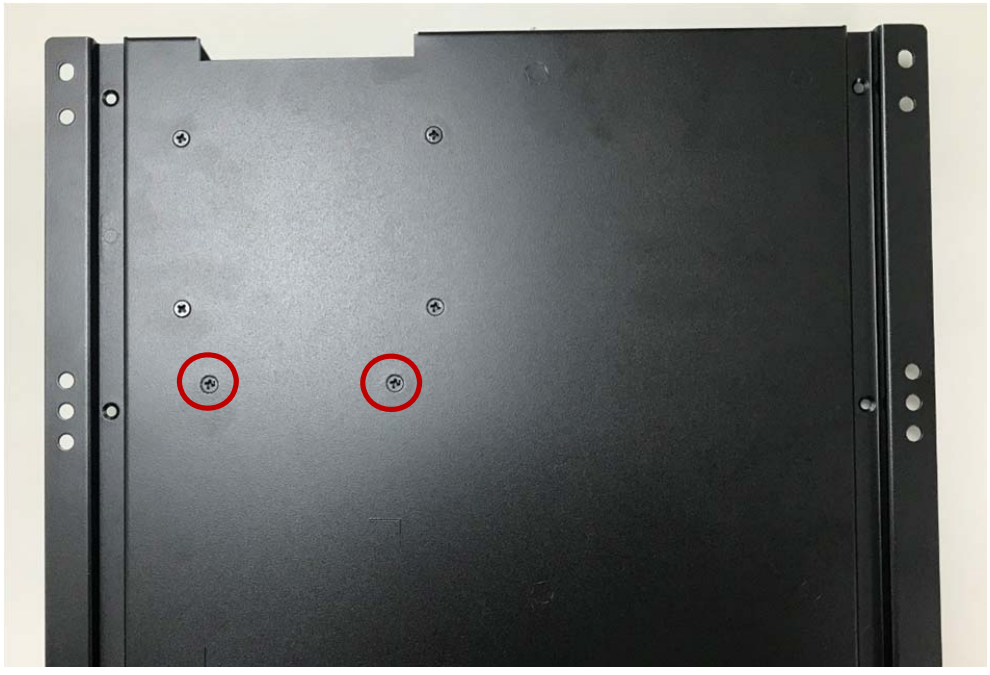


Step 4. Screw two screws (one HDD) or four screws (two HDD) as shown in the picture.

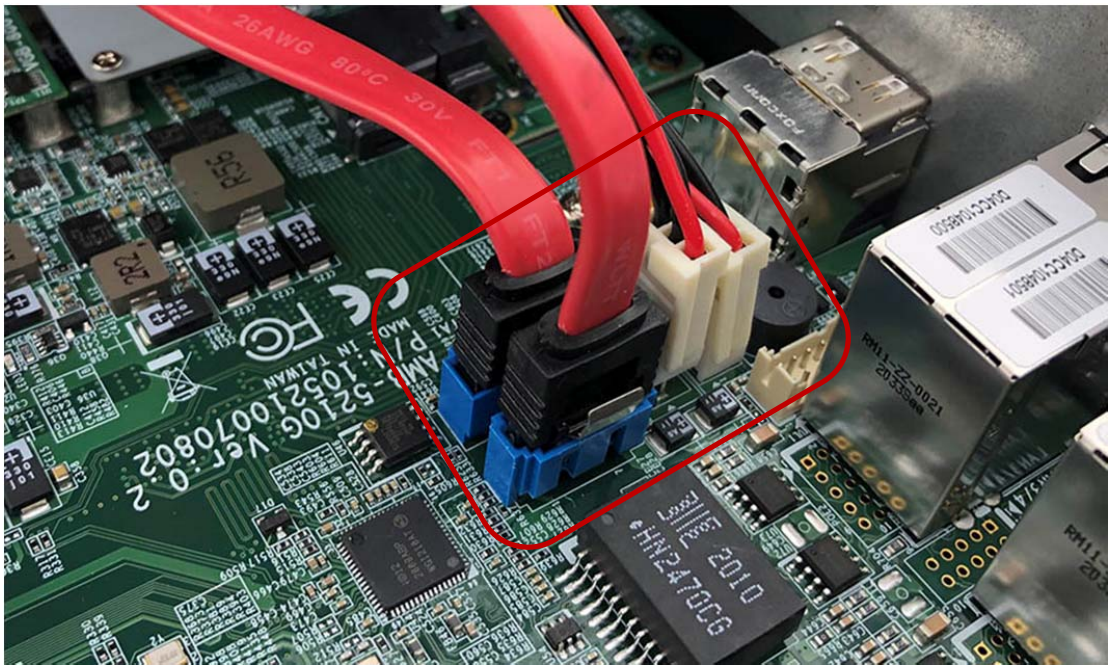


Step 5. Put SATA bracket on the bottom cover and screw the two screws as shown in the picture.

Step 6. Turn over the bottom cover and screw the two screws as shown in the picture.



Step 7. Connect SATA cable to motherboard (SATA1 to SPWR1, SATA2 to SPWR2) as shown in the picture.

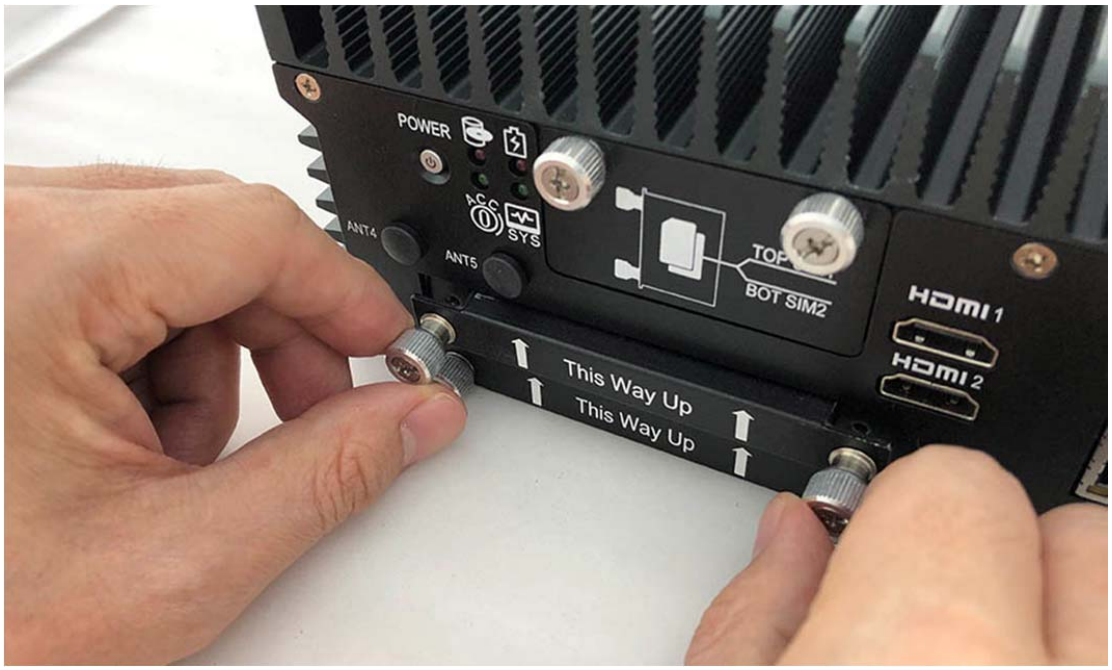


Step 8. Put the HDD into HDD Holder as shown in the picture.

Step 9. This rubber (P/N:417290370250) is used only for a thickness of 7mm SSD/HDD. Please stick this rubber at the side without golden fingers as the indicated position as shown in the picture.

Step 10. Screw the two screws (P/N:351103040250) on both sides as shown in the picture.

Step 11. Push the HDD Holder into the socket as shown in the picture.



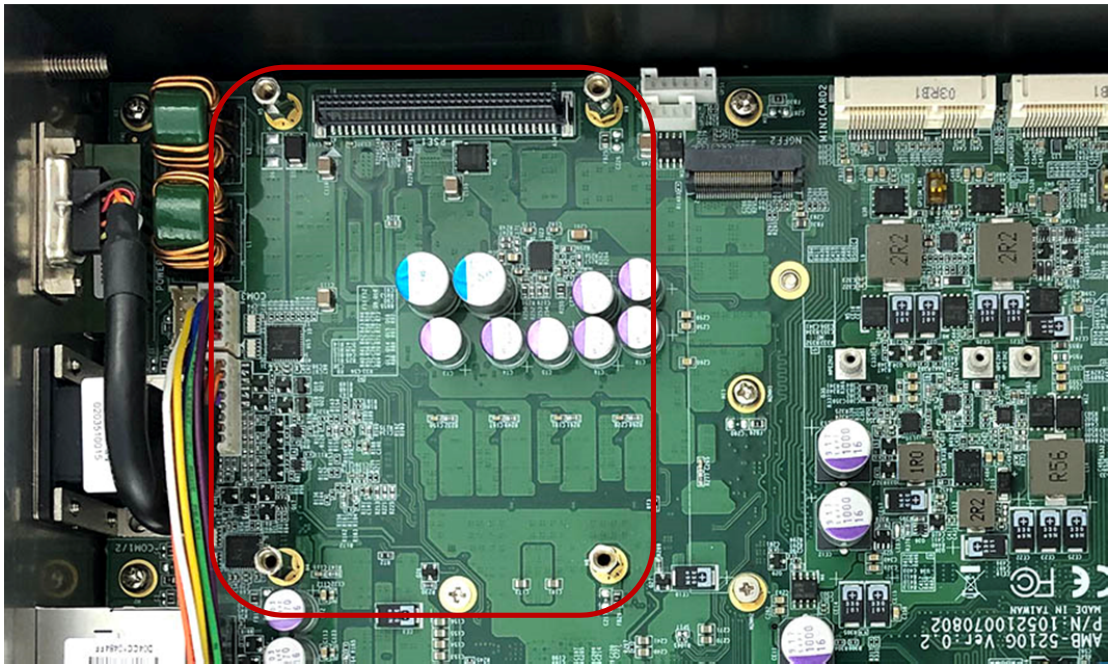
Step 12. Fully insert the HDD Holder into the socket until you hear a “click” as shown in the picture.

Step 13. Tighten the Storage Bracket screws as shown in the picture.

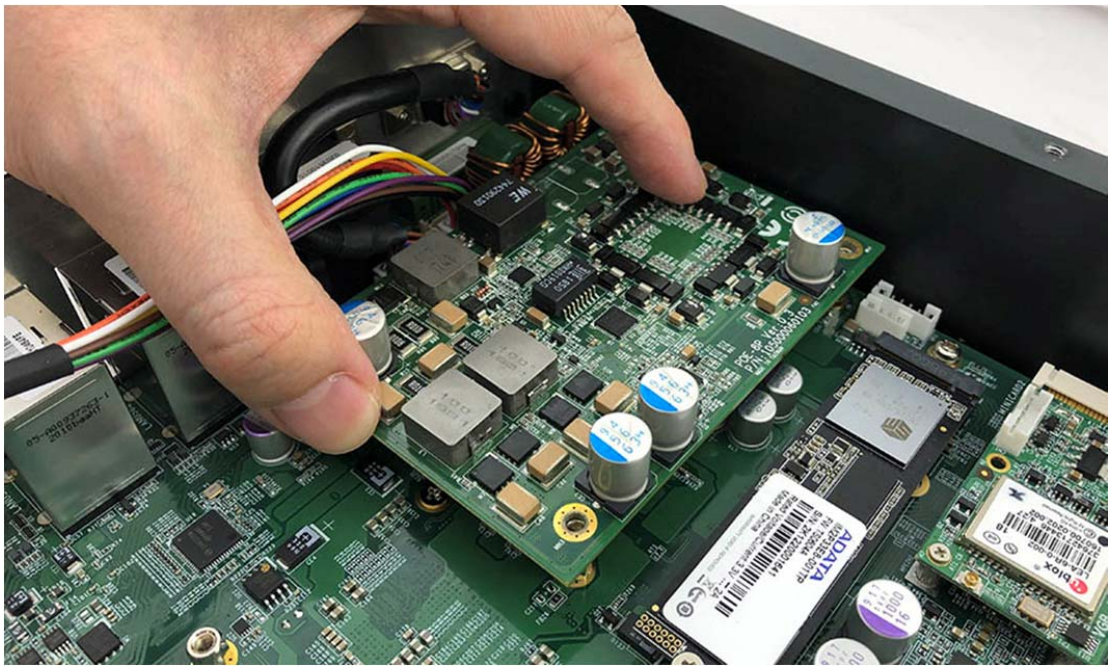
Step 14. Complete as shown in the picture.

3.13 Installing POE Module

Step 1. Insert POE Module into this Slot as shown in the picture.

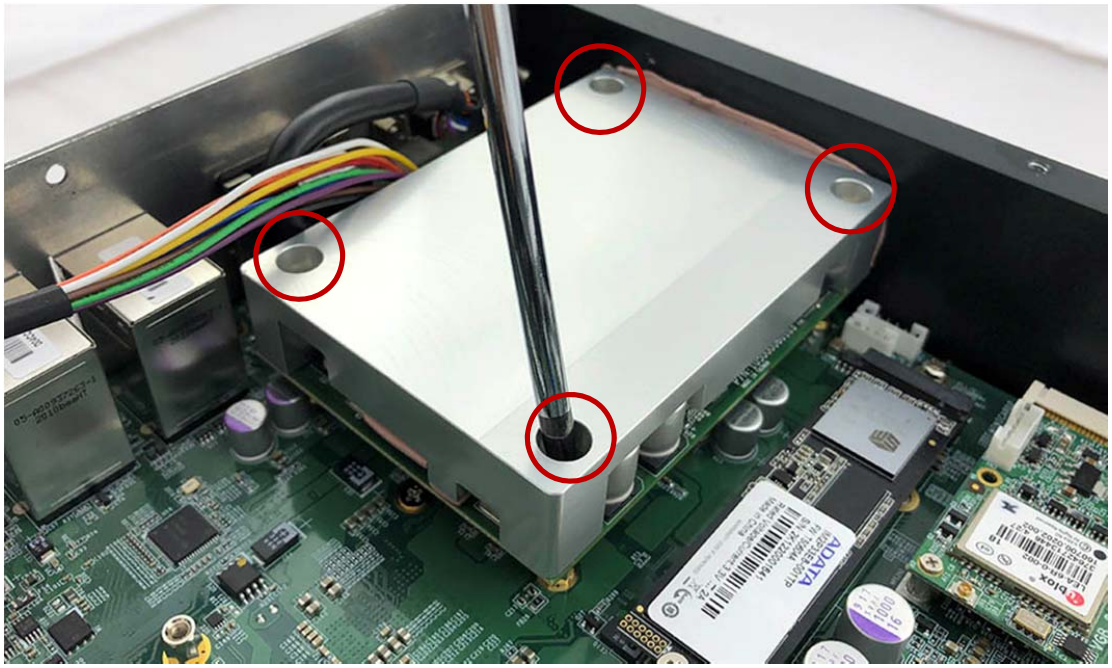


Step 2. Insert the POE-8P module into the motherboard as shown in the picture



Step 3. Put the Heatsink on the POE module as shown in the picture

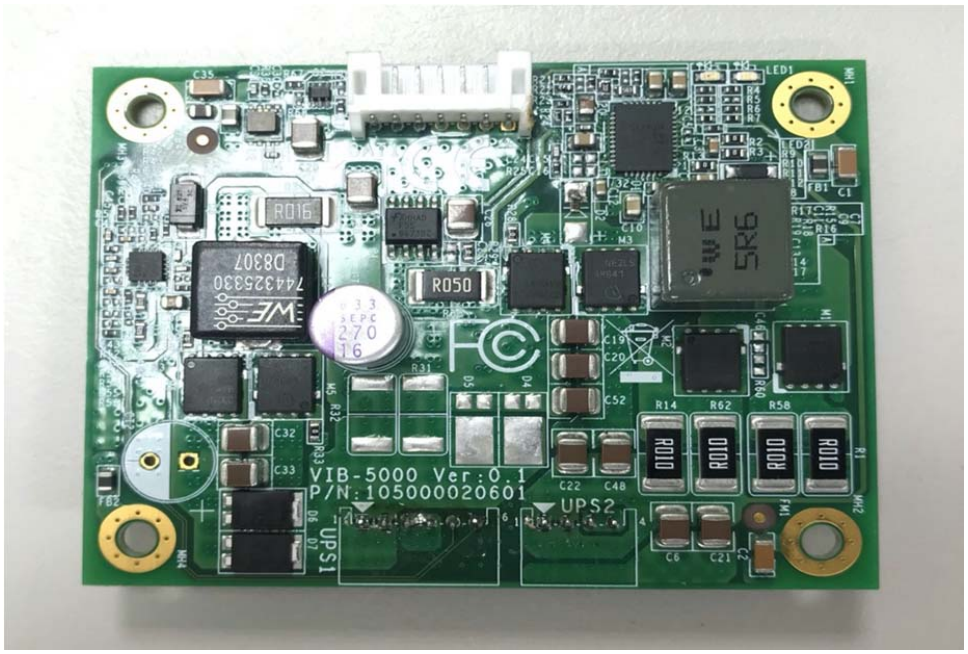
Step 4. Screw the four screws (P/N:351103151810) as shown in the picture



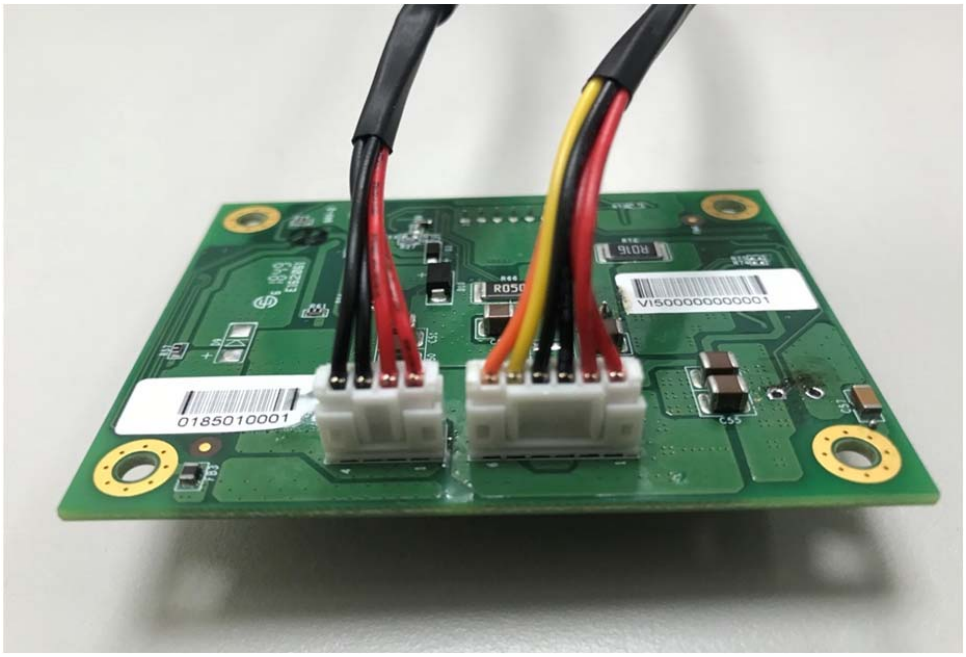
Step 5. Complete as shown in the picture

3.14 Installing Battery Module (only for optional BAT-5200 Kit)

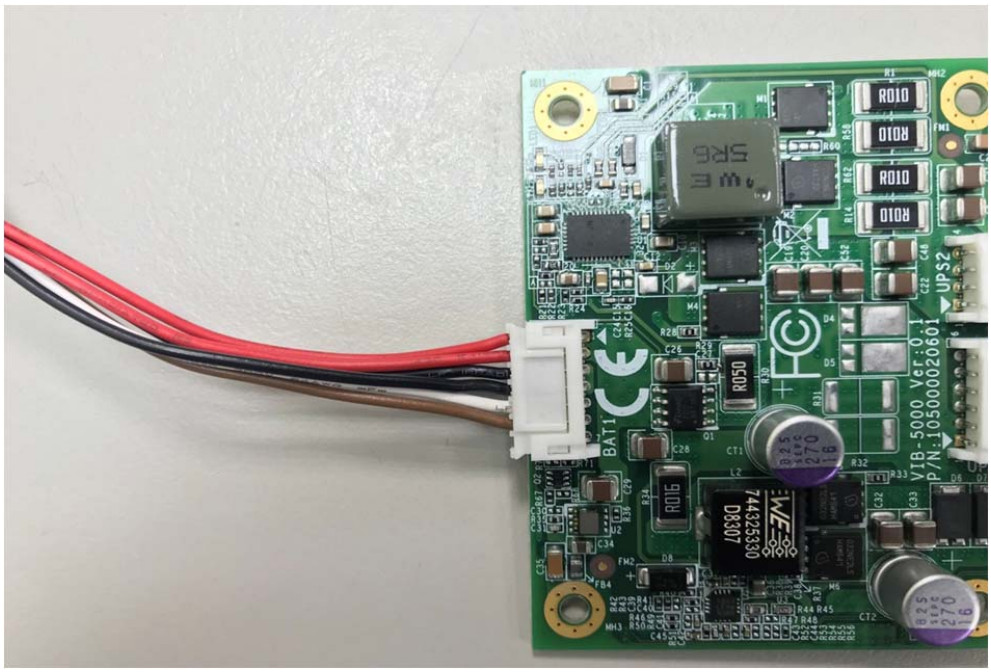
Step 1. VIB-5000 board t as shown in the picture.



Step 2. Take 6pin cable into UPS3 socket & 4pin cable into UPS4 socket on VIB-5000 Board as shown in the picture.



Step 3. Connect the battery with VIB-5000 on BAT-1 Socket as shown in the picture.

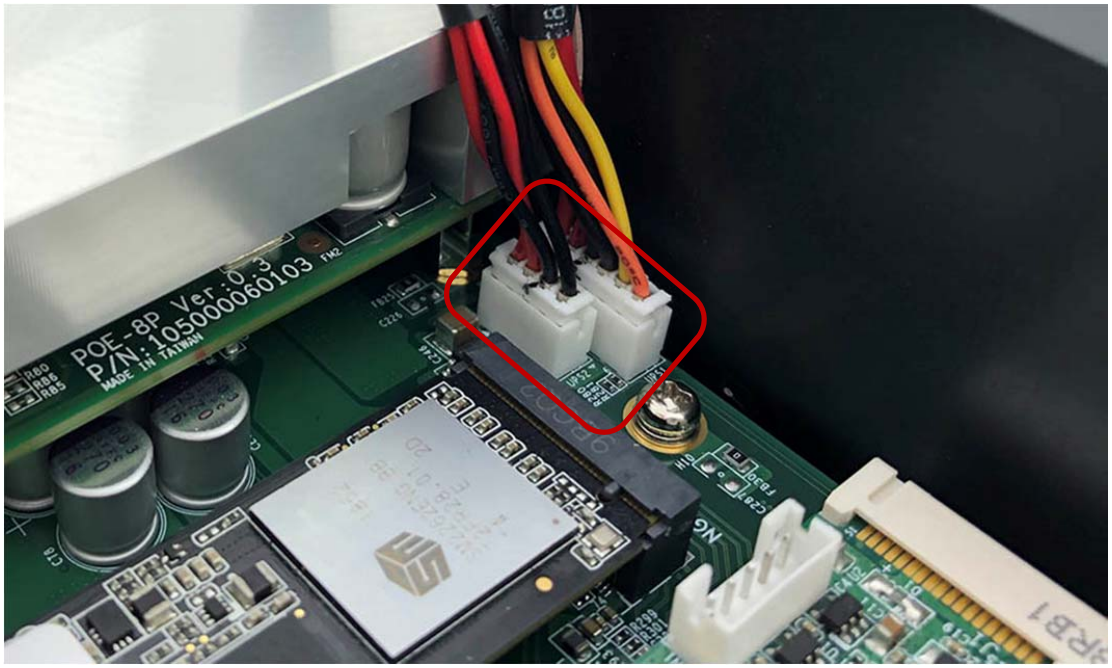


Step 4. BAT-5100 battery bracket as shown in the picture.

Step 5. Put the battery and VIB-5000 board into the bracket and screw four screws as shown in the picture.

Step 6. Take the battery kit and screw four screws into the back cover as shown in the picture.

Step 7. Connect the battery kit with motherboard on UPS1(6pin) & UPS2(4pin) location as shown in the picture.



Chapter 4

System Resource

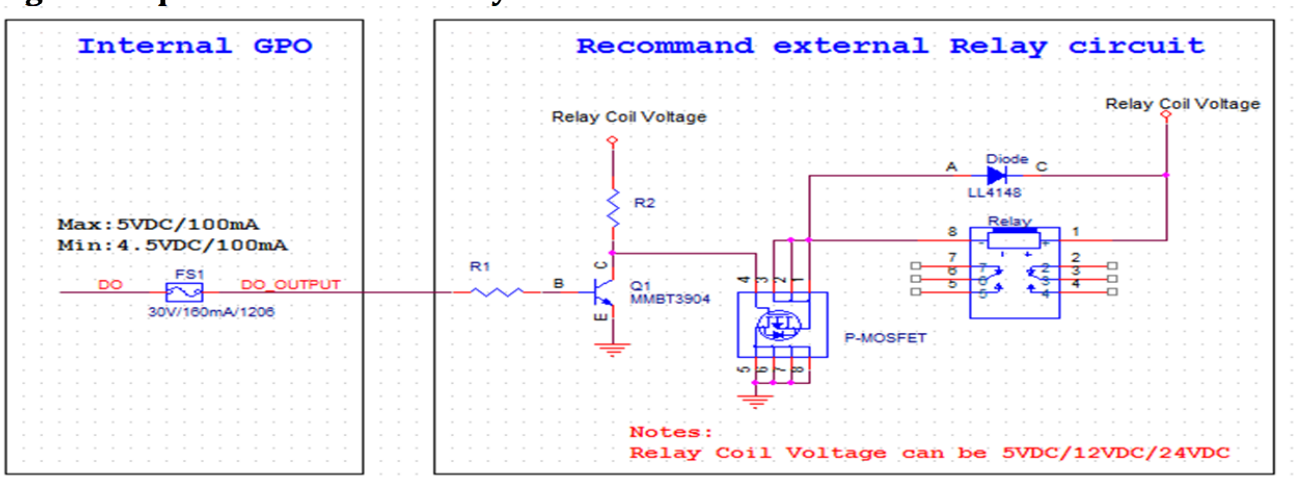
4.0 SYSTEM RESOURCE

4.1 GPIO Control Register

Hardware Specification

Model	GPI voltage	GPO voltage	DO max current
FLEETPC-11	5-48V	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
7	GPIO8_IN	R	GPIO8 pin status.
6	GPIO7_IN	R	GPIO7 pin status.
5	GPIO6_IN	R	GPIO6 pin status.
4	GPIO5_IN	R	GPIO5 pin status.
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.

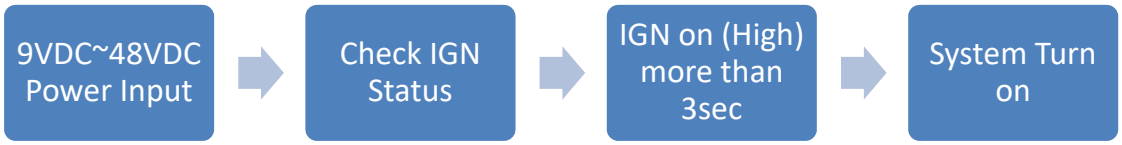
4.2 Ignition Power Management Quick Guide

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 IGNITION signal, because startup PIC controller is disconnected from the power source.

Startup Procedure by Ignition



Startup Procedure by Power Button

Technical Support

Please do not hesitate contact with CARTFT.COM E.K. for API and utility when you still cannot fix the problems.

- Tel : +49 7121 3878264
- Fax : +49 7121 3878265
- 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 (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 under continuous update for better system performance. Therefore, the description may be slightly different 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 (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 on-line description of the highlighted setup function is displayed at the bottom of the screen.

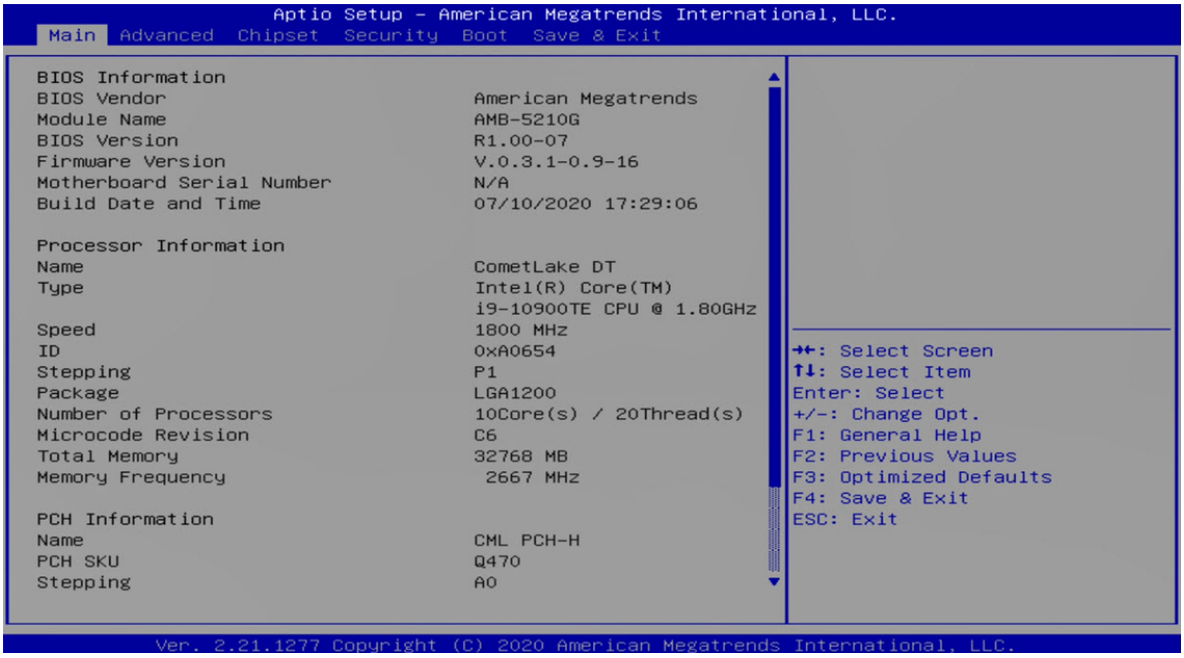
Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means 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 field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just 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



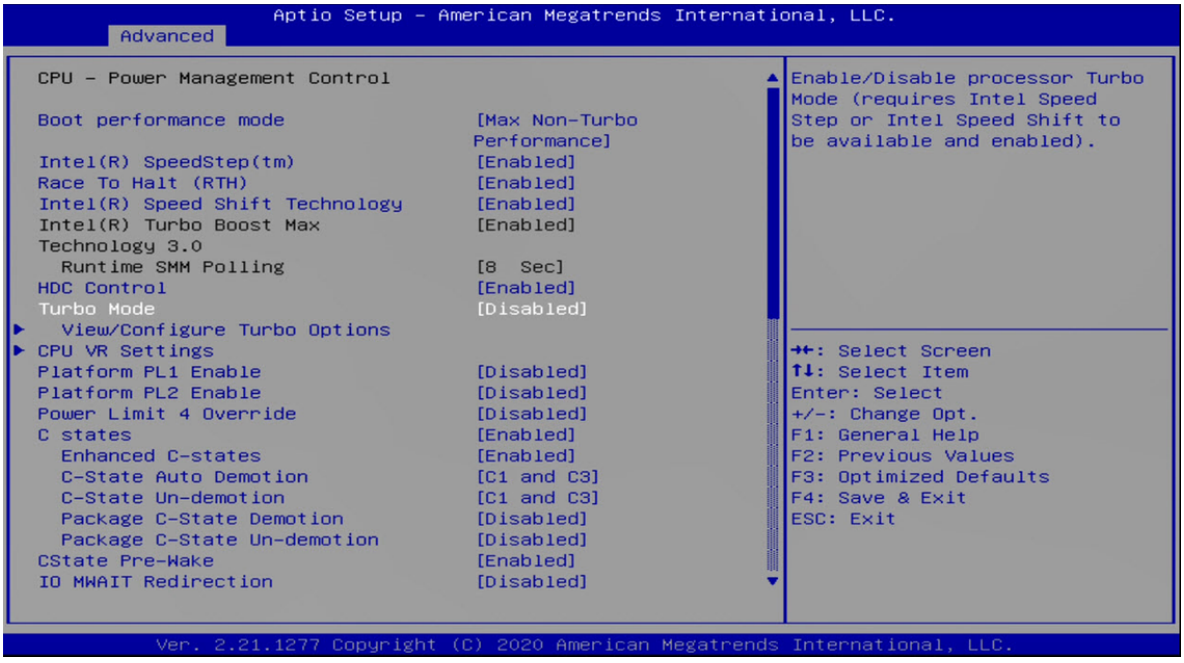
- **System Date**
  This setting allows you to set the system Date. The time format is <Day> <Month> <Date> <Year>.

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

5.3 Advanced

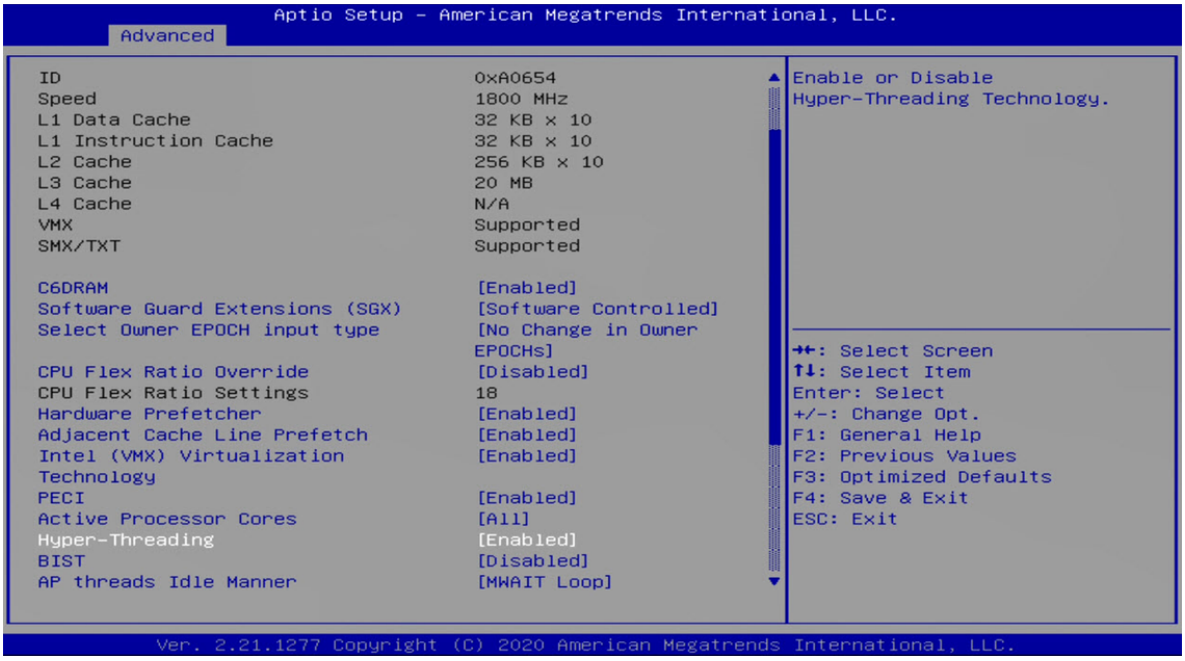
5.3.1 CPU Configuration

- **Turbo Mode**



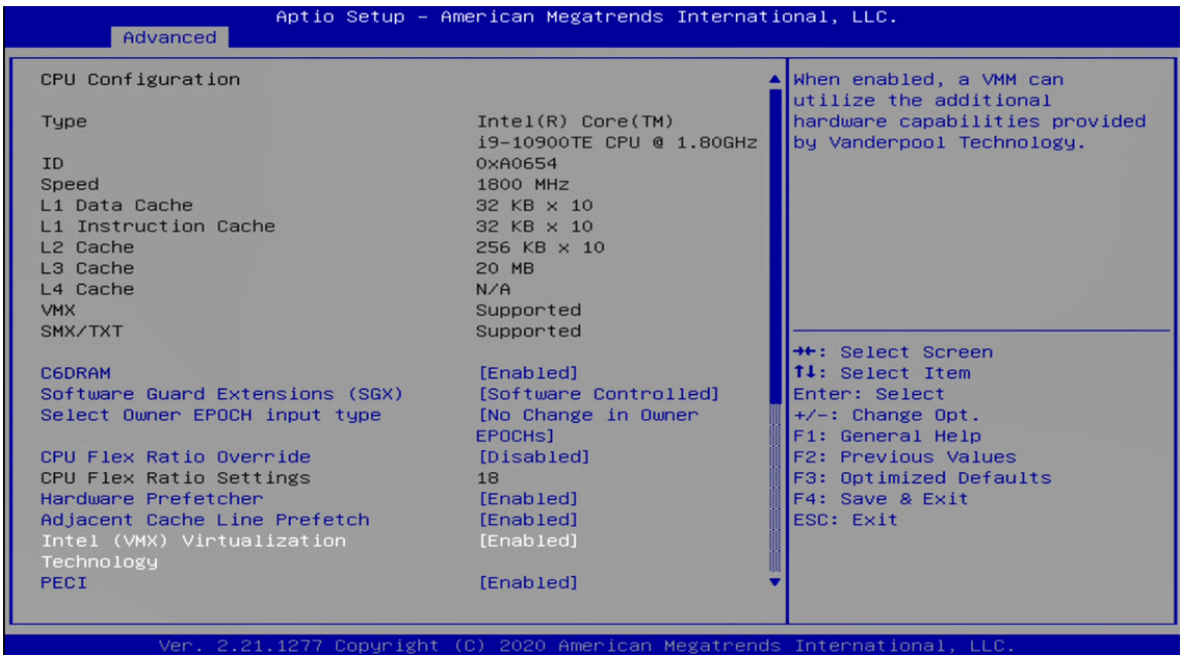
- **Hyper-Threading**

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



■ Intel (VMX) Virtualization Technology

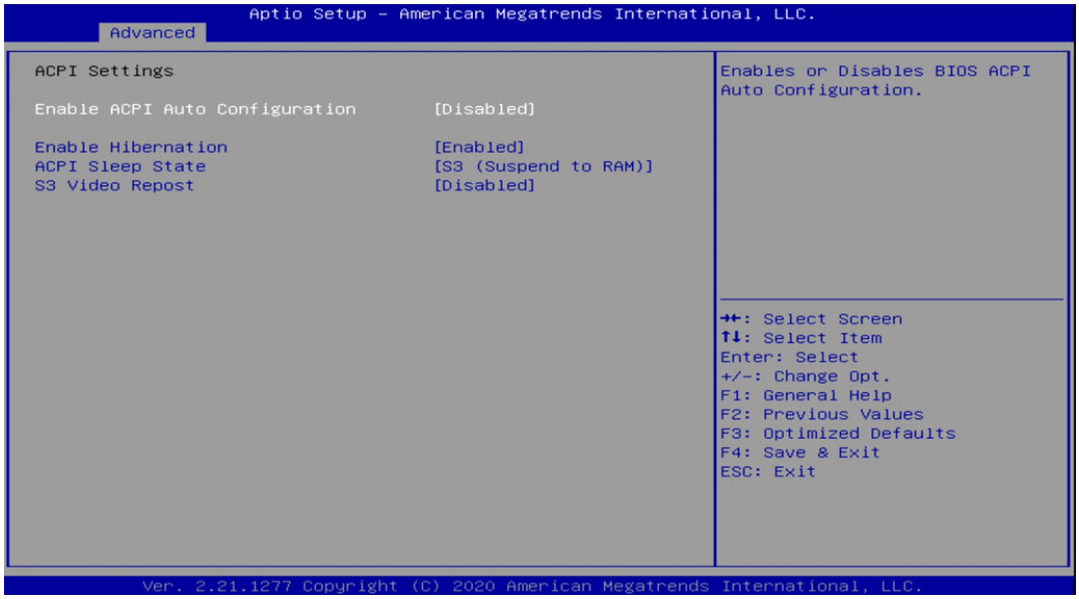
Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems.



5.3.2 ACPI Settings

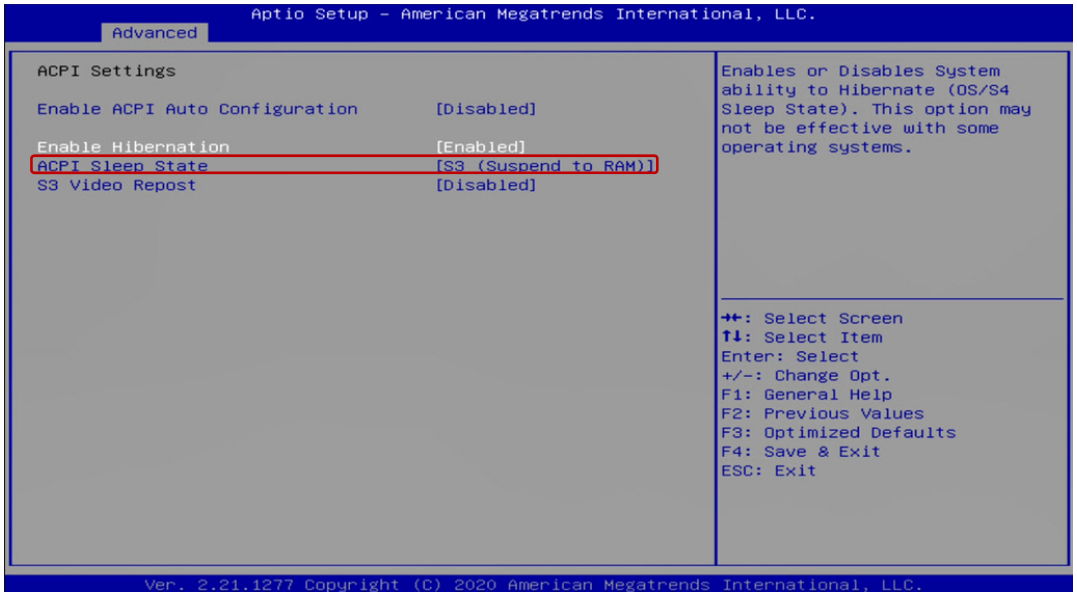
This item allows users to configure ACPI settings.

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

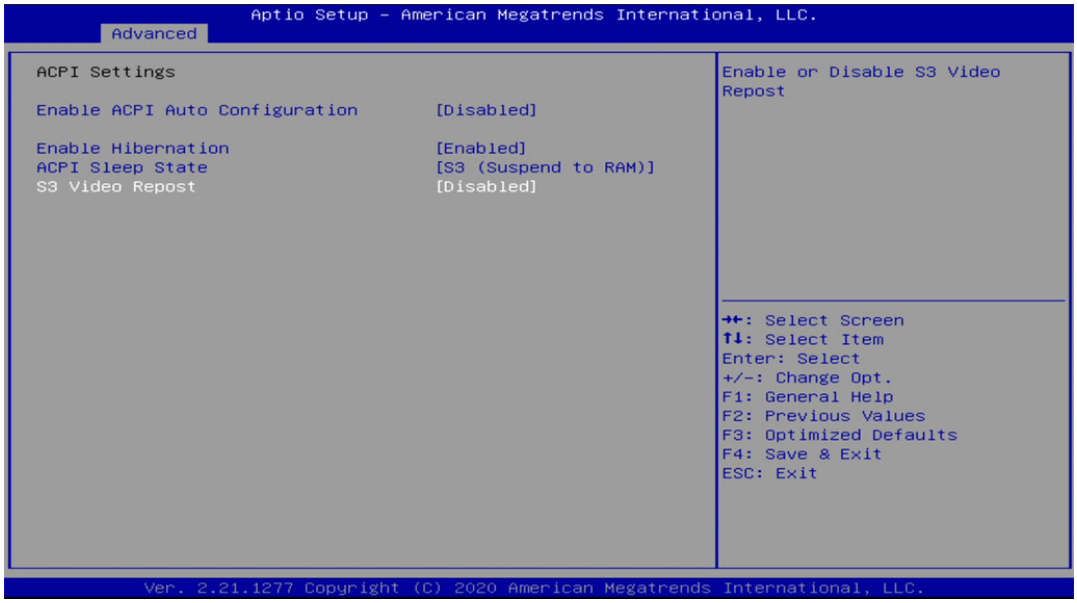


- **ACPI Sleep State**

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



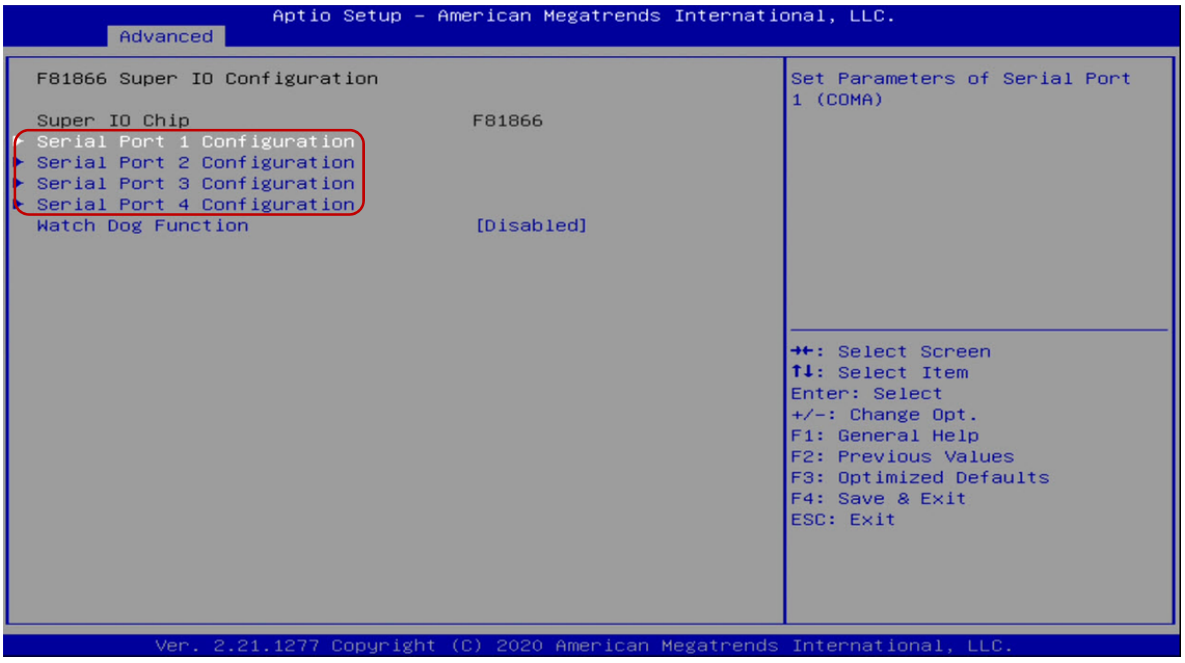
- **S3 Video Repost**



5.3.3 Super I/O

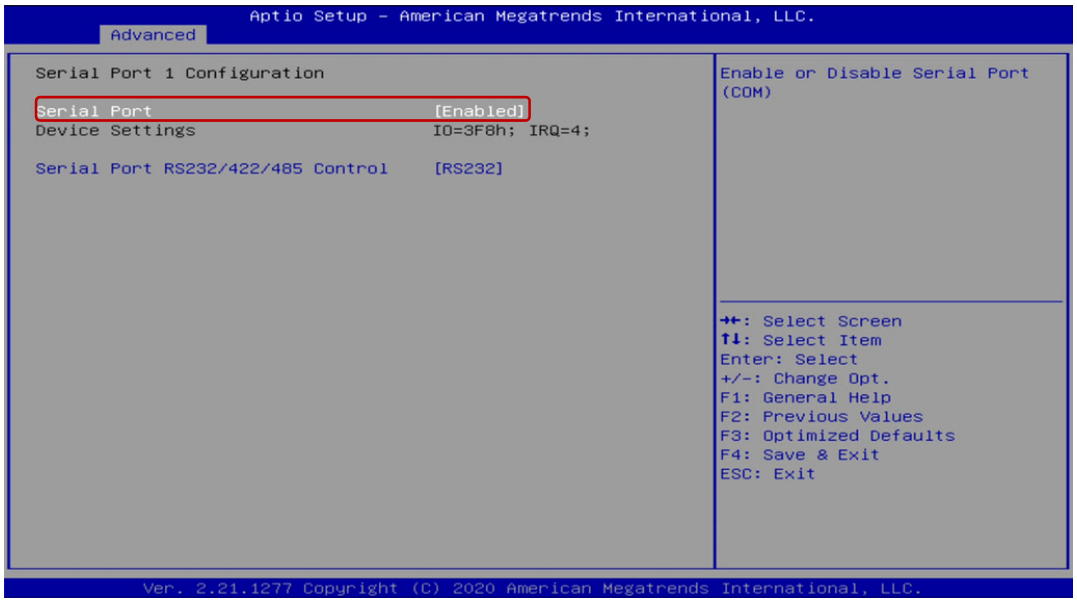
The screen allows users to select options for the Super IO configuration, and change the value of the selected option.

- **Serial Port Configuration**

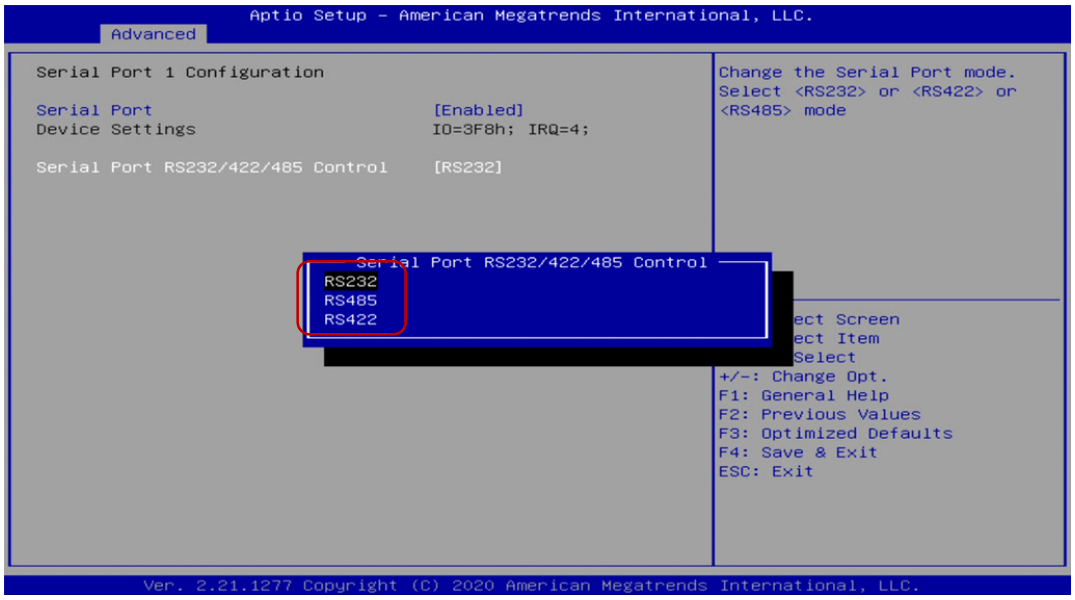


◆ **Serial Port 1/2/3/4 Enable or Disable**

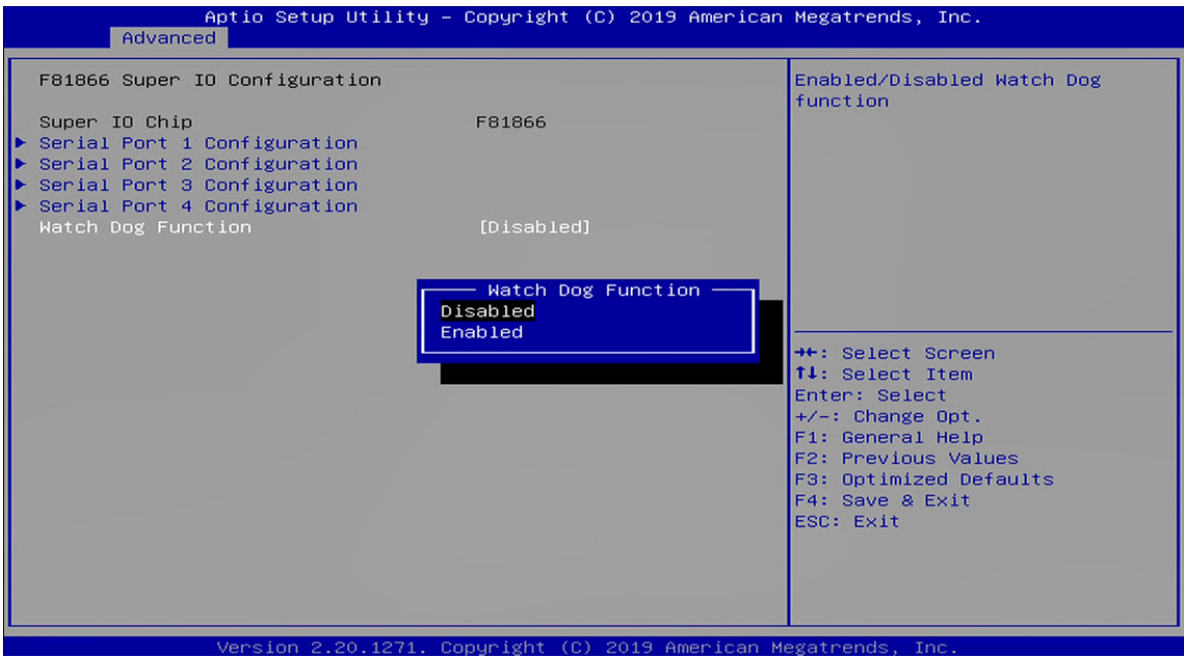
Select an Enable or Disable for the specified serial ports.



◆ **COM1 RS232/422/485 Select**

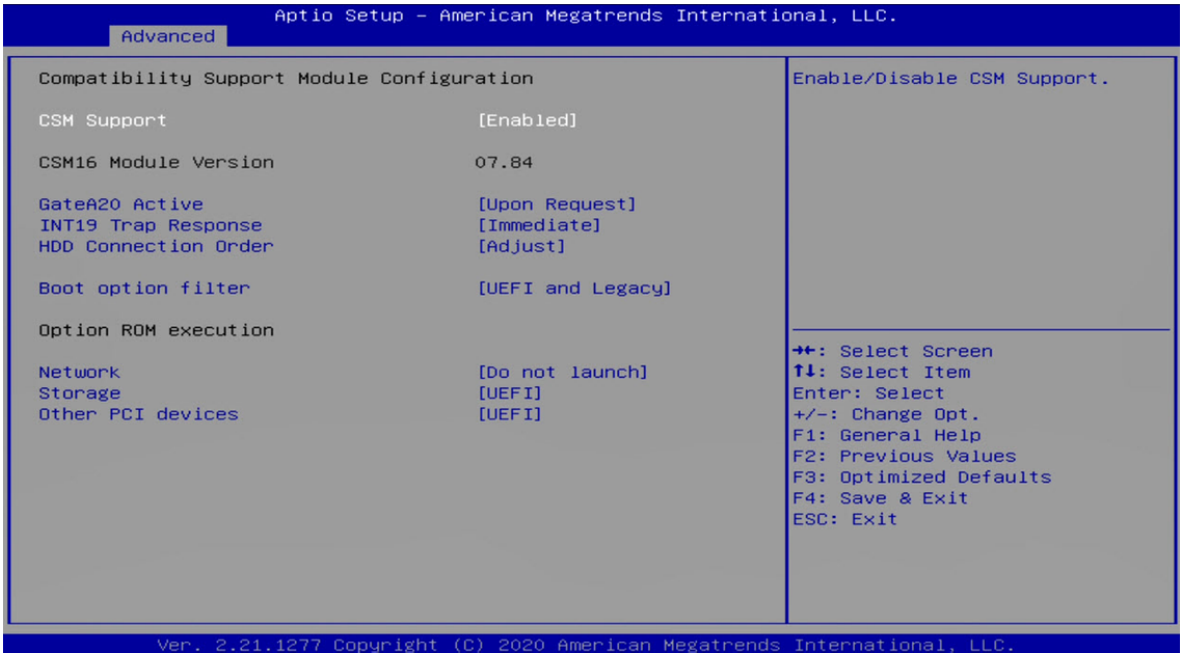


■ **Watch Dog Function**

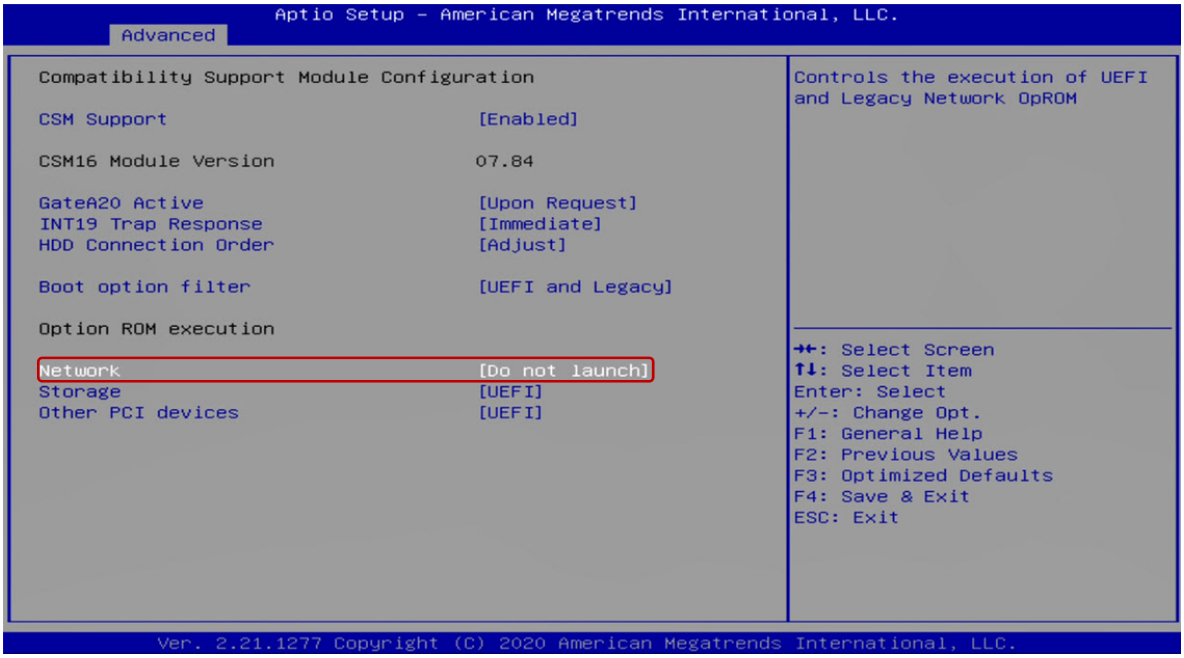


5.3.4 CMS Configuration

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

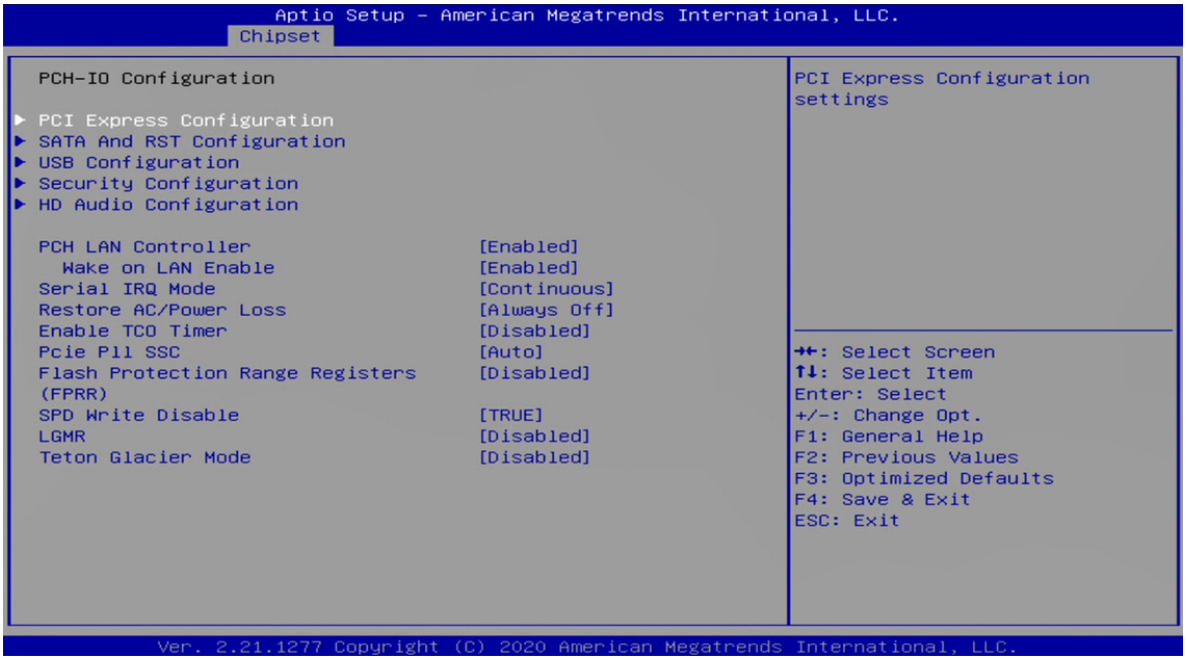


■ **Network**



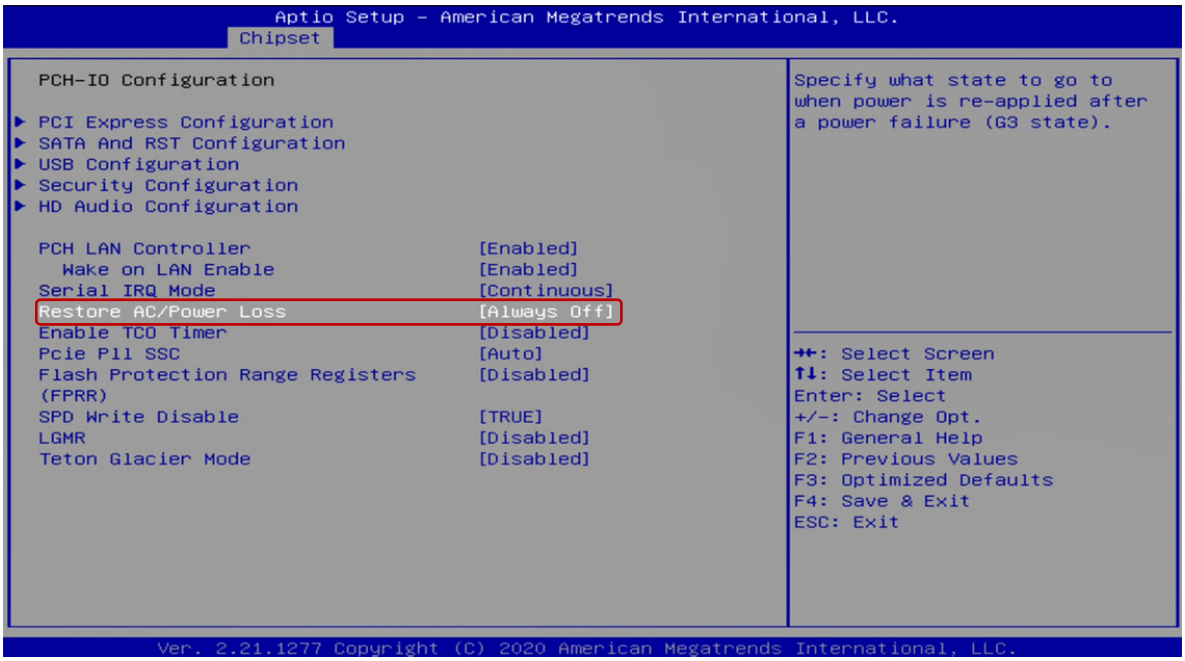
5.4 Chipset

5.4.1 PCH-IO Express Configuration



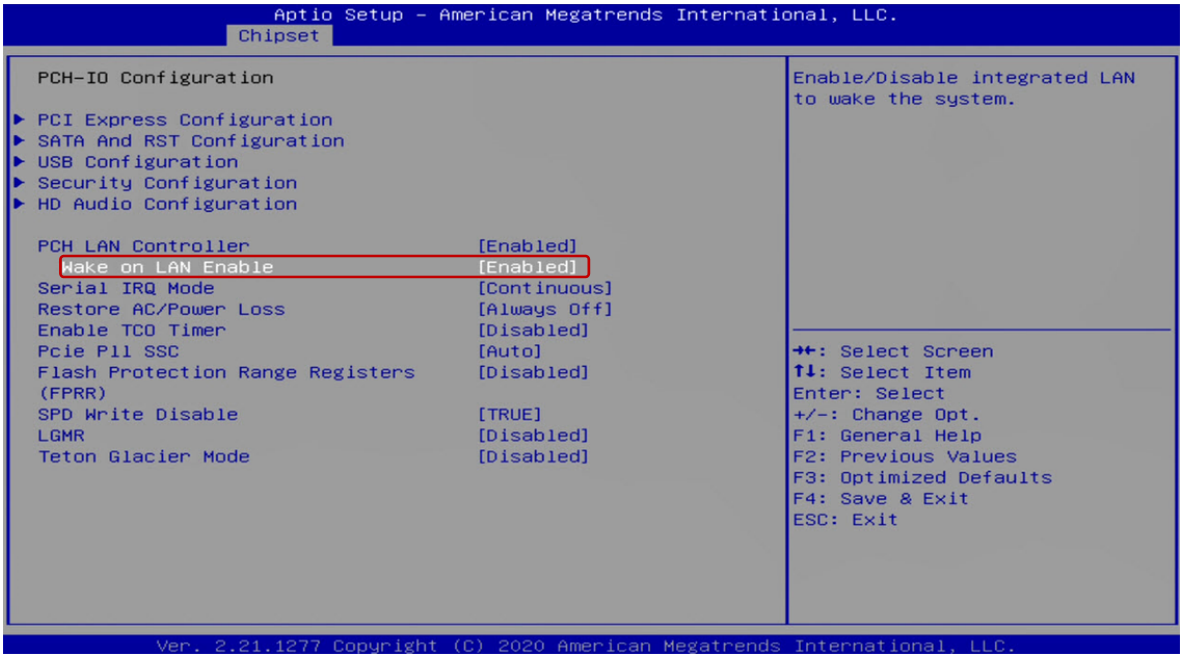
■ Restore AC/Power Loss

This item allows users to choose [Always off] or [Always on] mode.



■ Wake on LAN

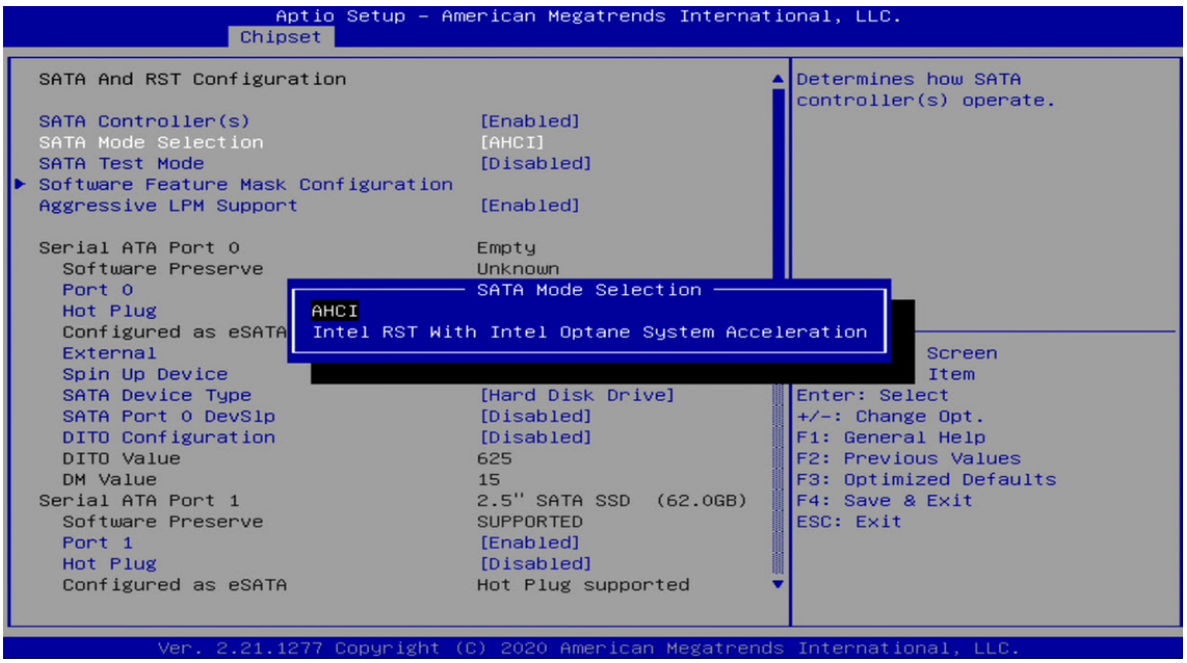
This item allows users to choose [Enabled] or [Disabled] mode.



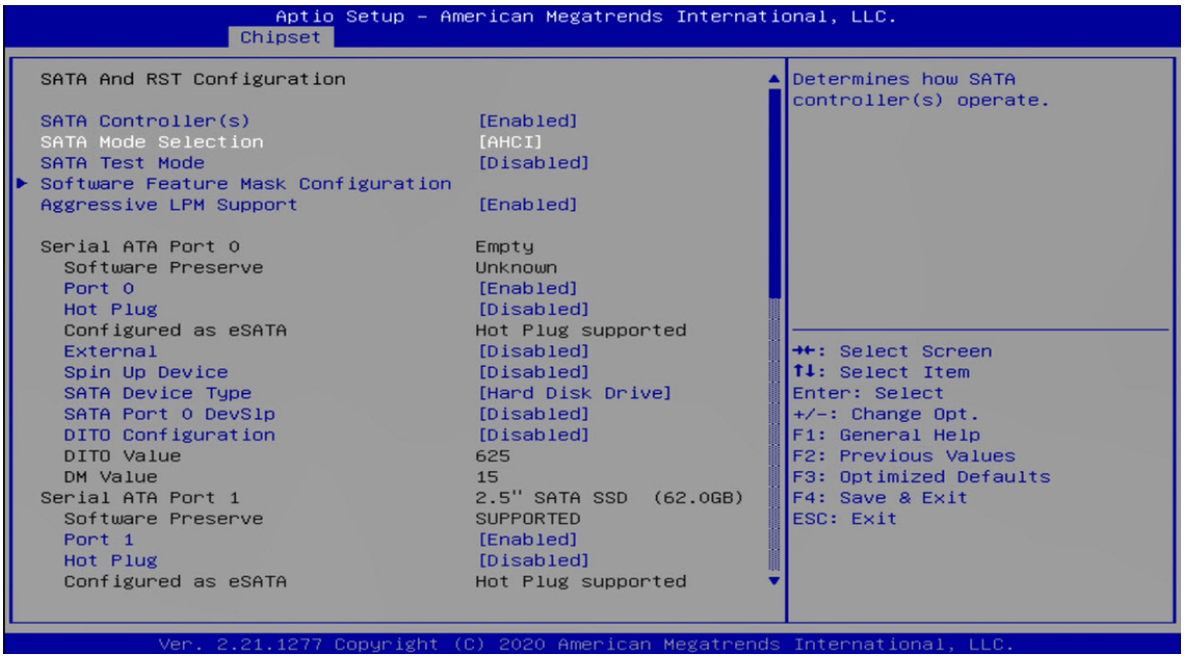
5.4.2 SATA

■ SATA Mode Selection

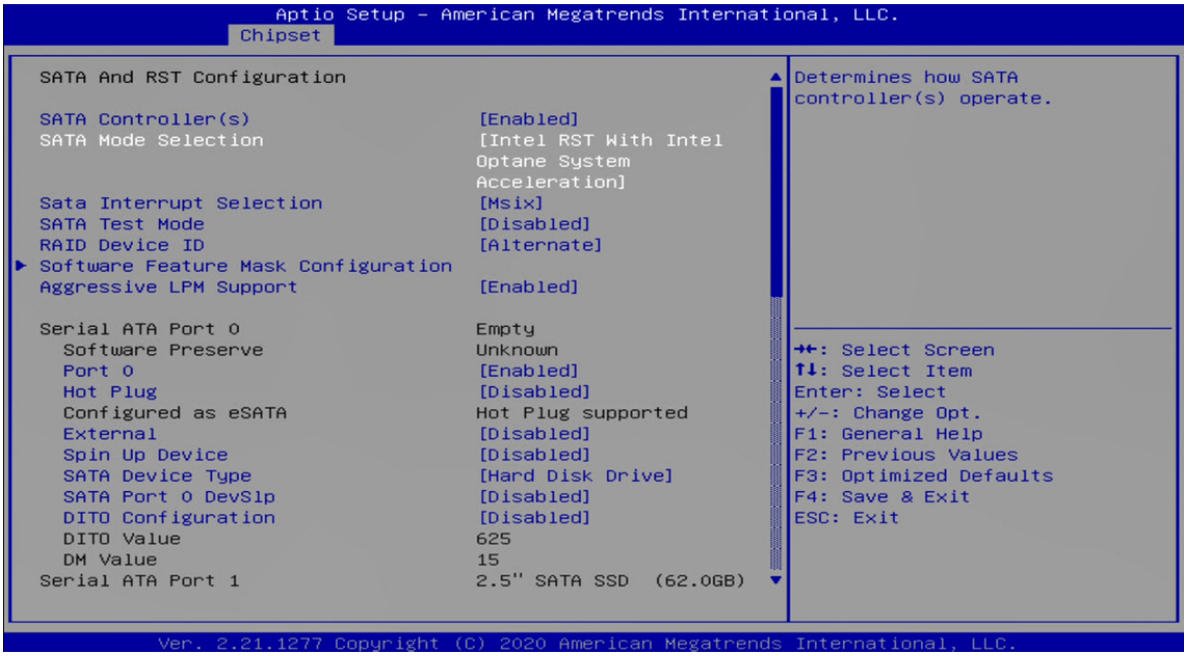
This item allows users to choose [AHCI] or [Intel RST with Intel Optane System Acceleration] mode.

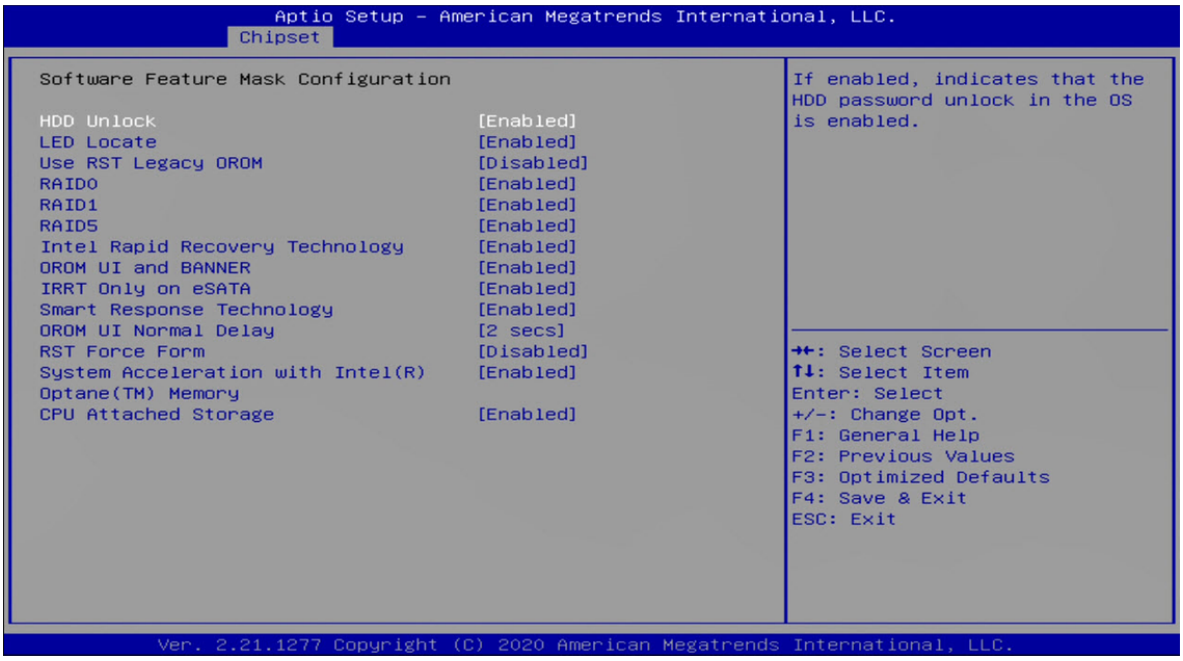


■ AHCI Setting

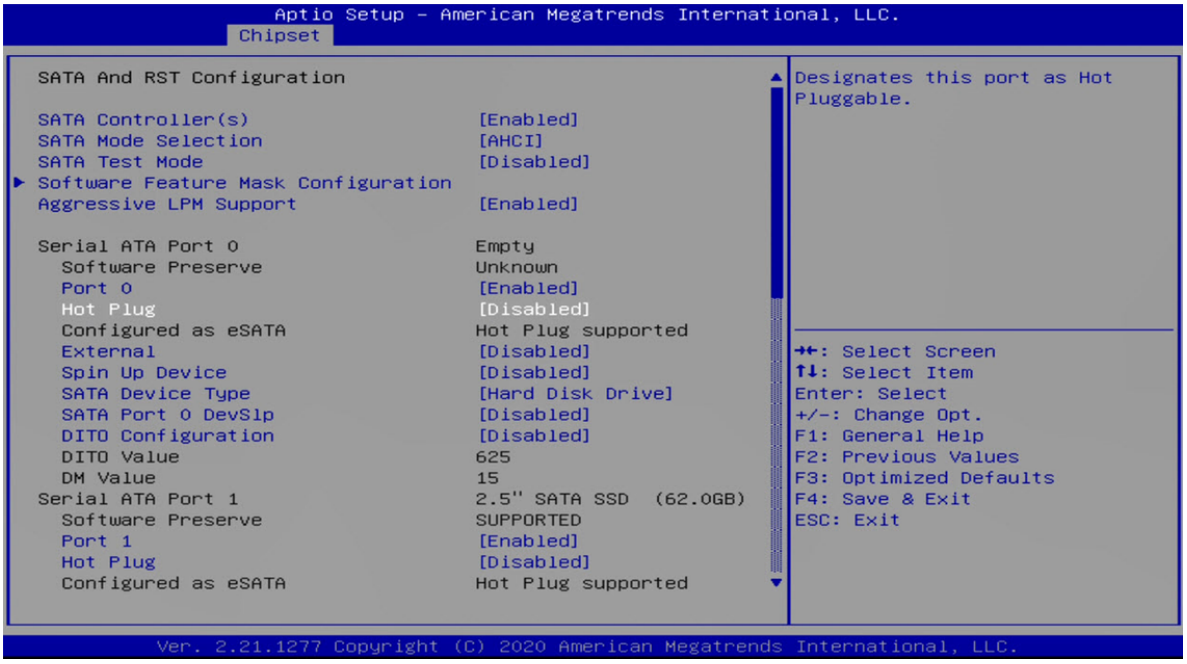


■ **RAID Setting (if select** Intel RST with Intel Optane System Acceleration**)**

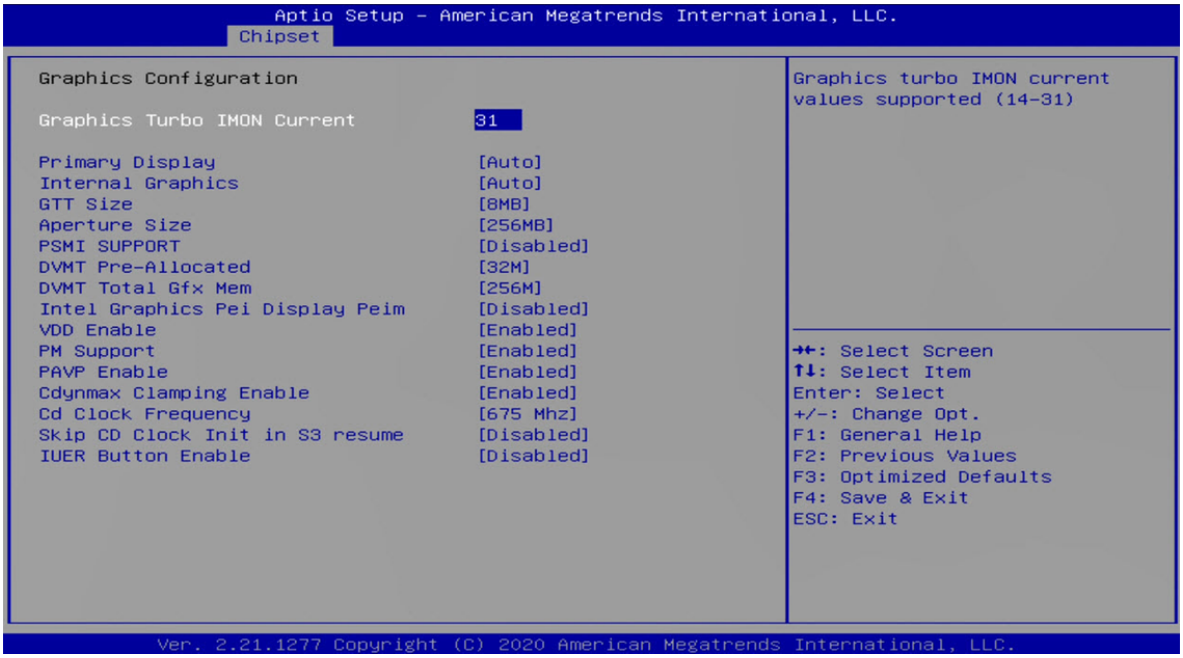




■ **Hog Plug**



5.4.3 Graphics Configuration



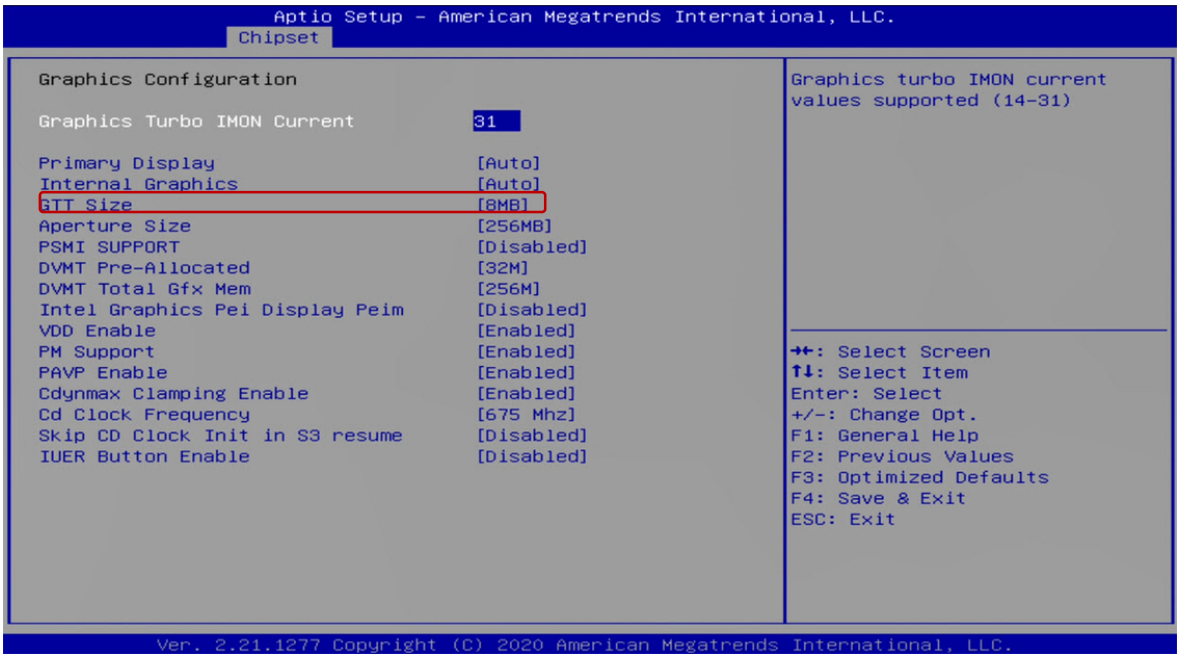
◆ **Primary Display**

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

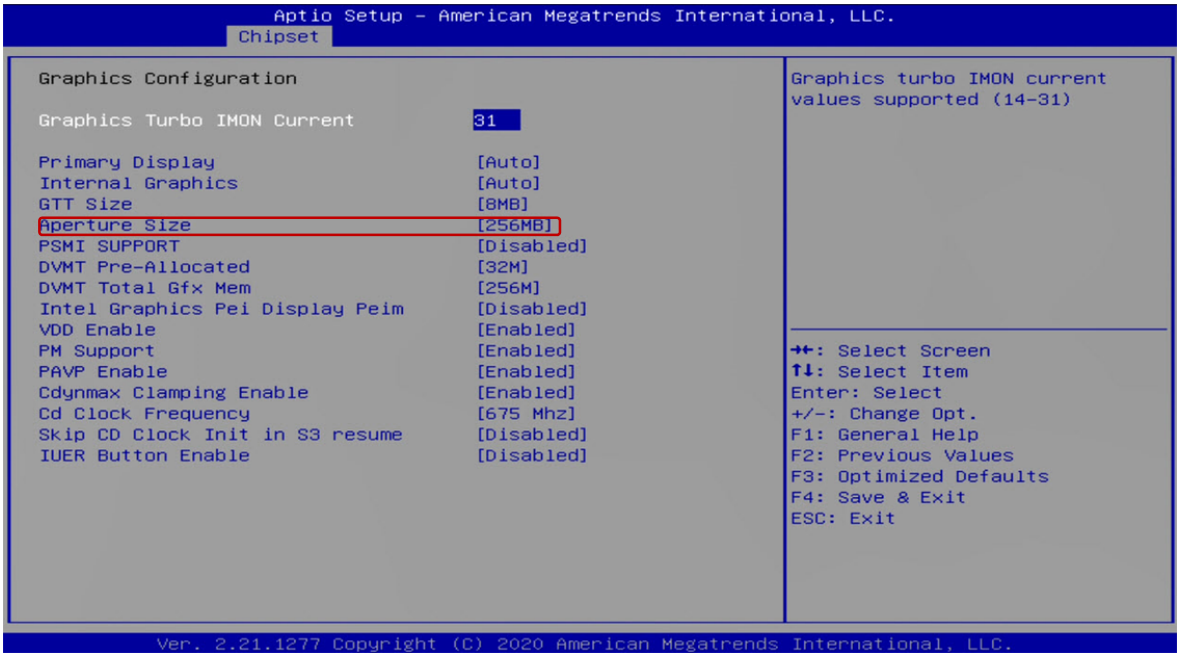
◆ **Internal Graphics**

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

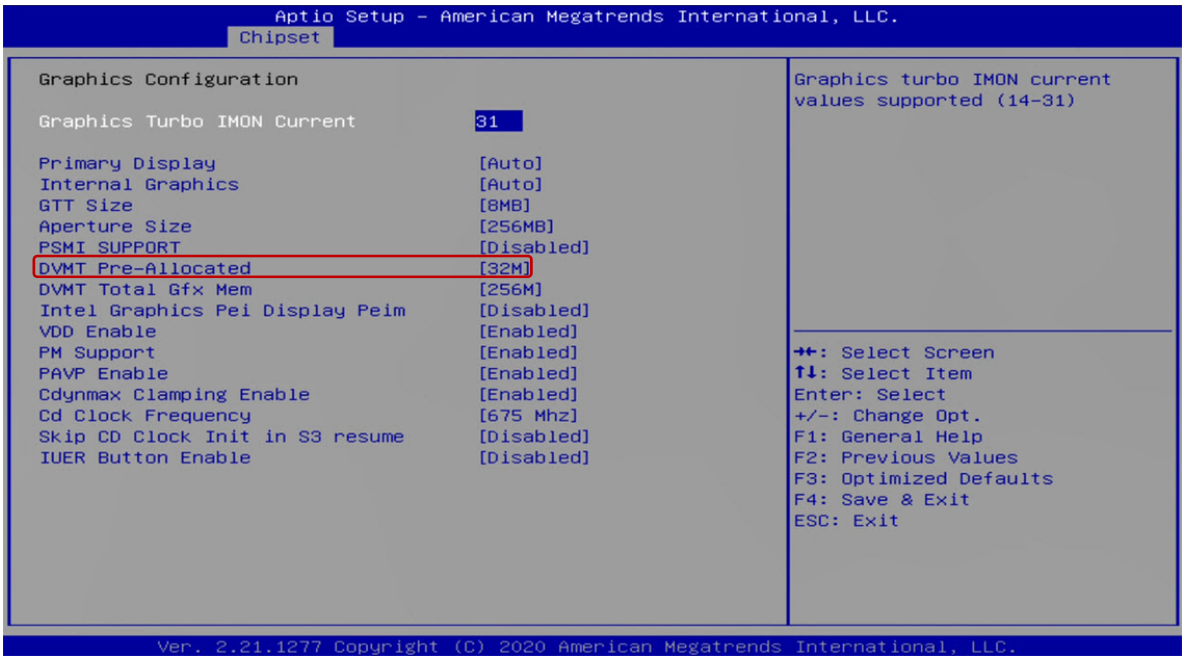
■ **GTT Size**



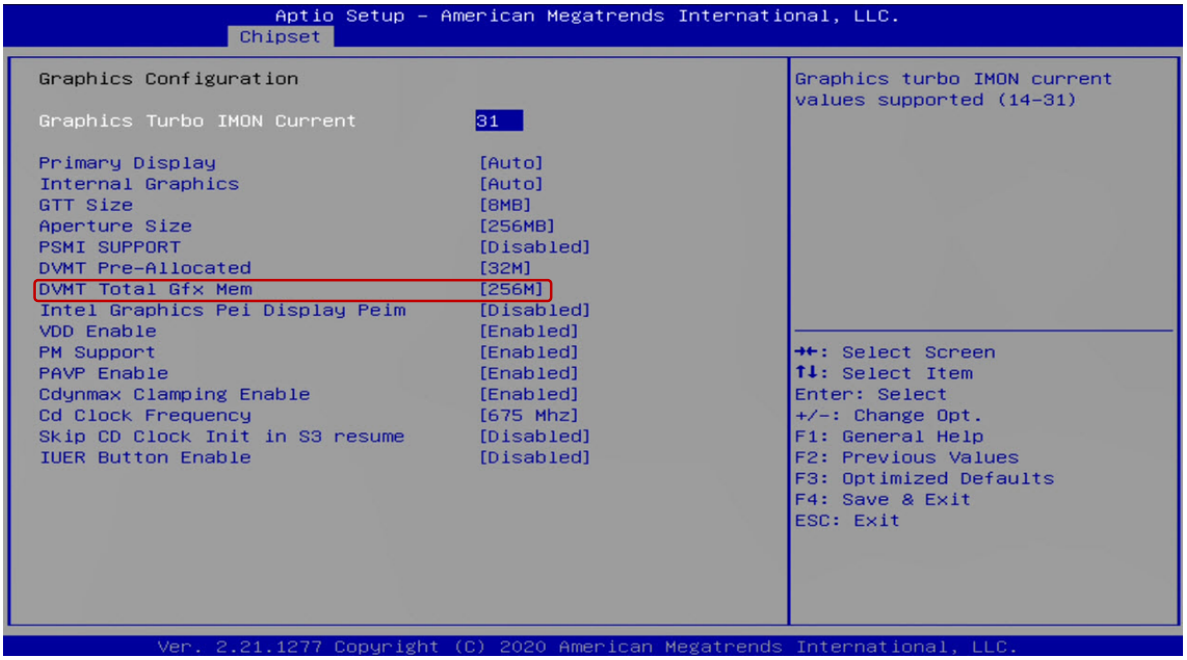
■ **Aperture Size**



■ DVMT Pre-Allocated



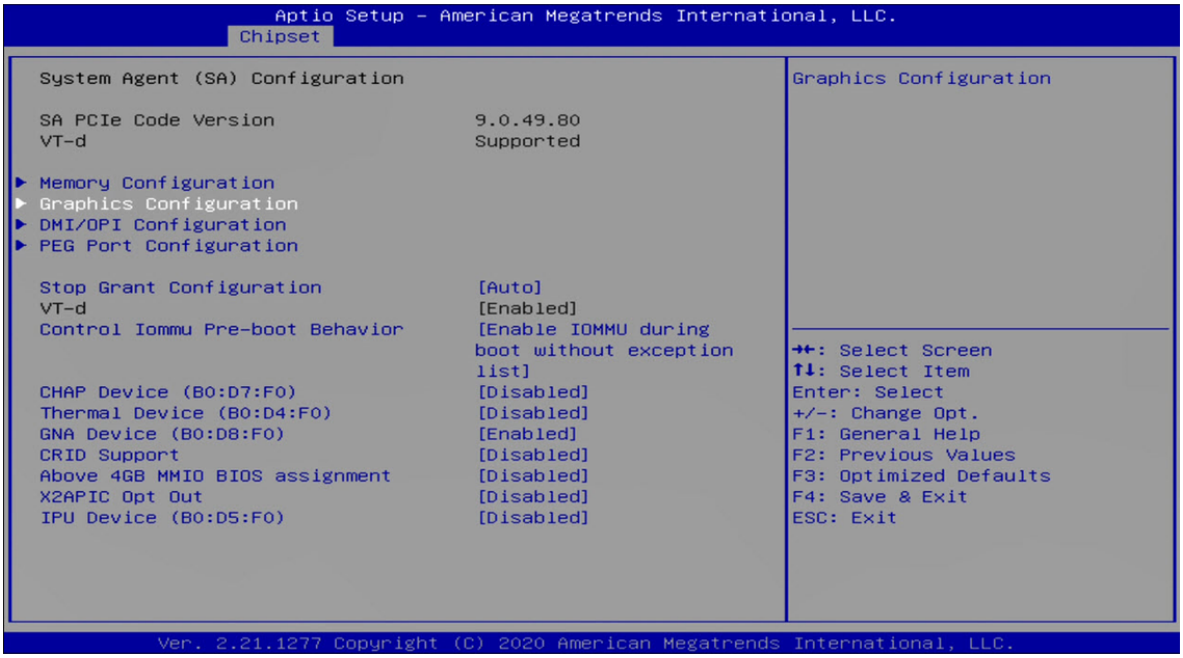
■ DVMT Total Gfx Mem



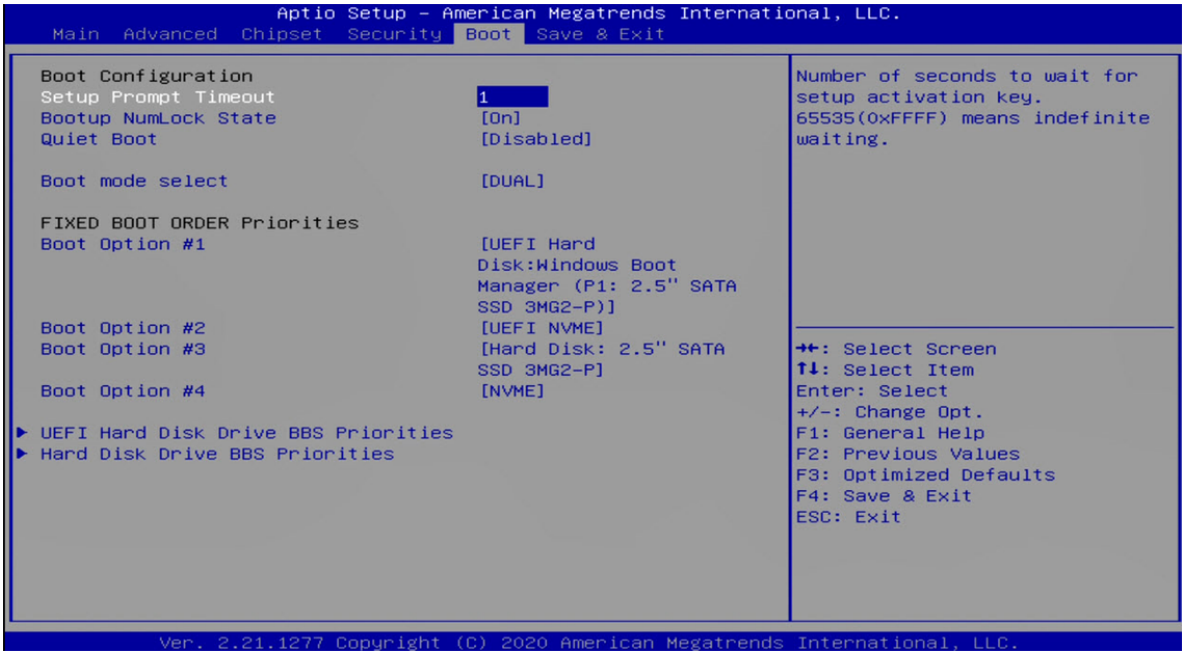
5.4.4 System Agent(SA) Configuration

- **VT-d**

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



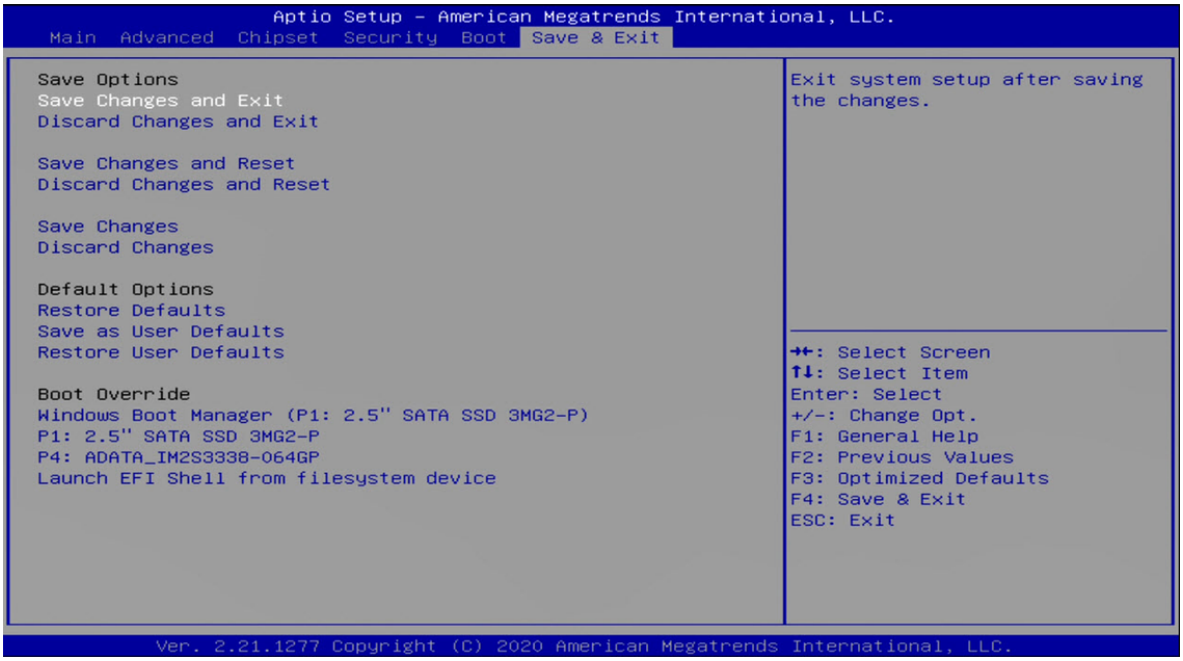
5.5 Boot



- **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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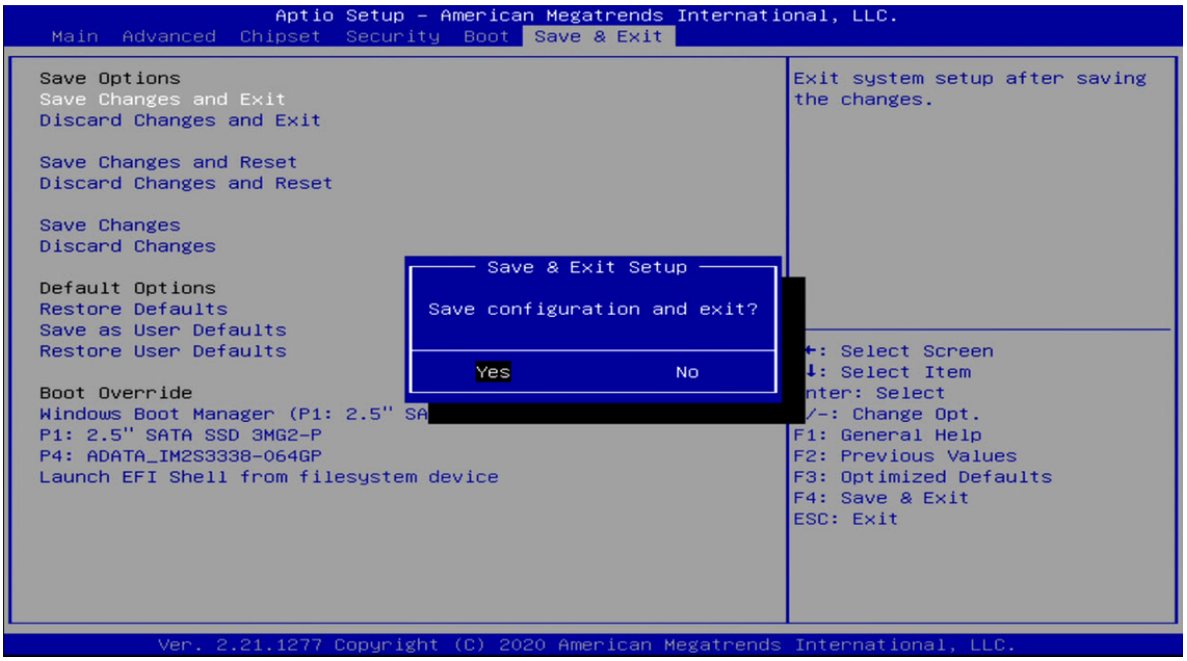
Aptio Setup – American Megatrends International, LLC.
Main Advanced Chipset Security Boot Save & Exit
Save Options
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Save Changes
Discard Changes
Default Options
Restore Defaults
Save as User Defaults
Restore 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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