eIVP-CFS-IV-V0004

AI Mobile NVR

Intel® Core™ i7/i5 with 4 PoE Ports

User's Manual

EverFocus

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EVERFOCUS ELECTRONICS CORPORATION

eIVP-CFS-IV-V0004 AI Mobile NVR

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User's Manual

www.everfocus.com.tw

Disclaimer

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Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references.

- All cautions and warnings on the device should be noted.
- All cables and adapters supplied by EverFocus are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by EverFocus to prevent system malfunction or fires.
- Make sure the power source matches the power rating of the device.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- Always completely disconnect the power before working on the system's hardware.
- No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
- If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- Always disconnect this device from any AC supply before cleaning.
- While cleaning, use a damp cloth instead of liquid or spray detergents.
- Make sure the device is installed near a power outlet and is easily accessible.
- Keep this device away from humidity.
- Place the device on a solid surface during installation to prevent falls.
- Do not cover the openings on the device to ensure optimal heat dissipation.
- Watch out for high temperatures when the system is running.
- Do not touch the heat sink or heat spreader when the system is running.
- Never pour any liquid into the openings. This could cause fire or electric shock.
- As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
- If any of the following situations arises, please contact our service personnel (ts@everfocus.com.tw):

  - Damaged power cord or plug
  - Liquid intrusion to the device
  - Exposure to moisture
  - Device is not working as expected or in a manner as described in this manual
  - The device is dropped or damaged
  - Any obvious signs of damage displayed on the device

- DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE SPECIFICATION) TO PREVENT DAMAGE.

FCC Statement

This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.

Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

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Chapter

1

1. Introduction

The eIVP-CFS-IV-V0004 is one of EverFocus' IPC products with rugged design that uses Intel® Core™ i7/i5. By installing with EverFocus' AiO NVR software, this model can be used as an AI NVR for transportation market or general and commercial markets.

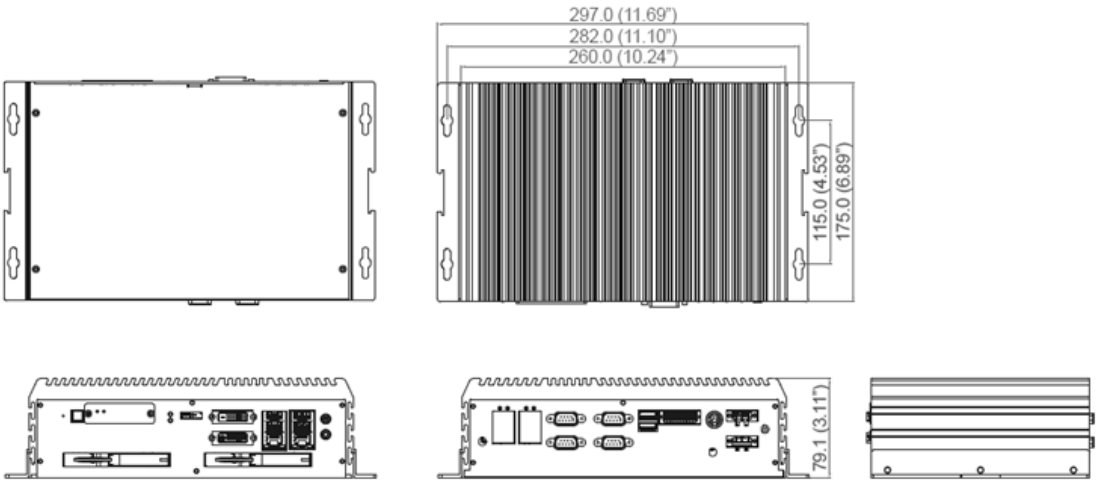
The model supports up to 4 PoE ports, wide operating temperature ranging from -40°C to 75°C, wide DC power range between 6V and 36V, and 80V surge protection with ignition pin. It also features comprehensive storage and interface options including up to two 2.5 SSD trays, two SIM sockets, one CFast socket, one M.2 key E socket, six USB 3.1, four COM RS-232/422/485, sixteen isolated DIO for connecting to other devices.

The vibration of eIVP-CFS-IV-V0004's SSD is certificated with IEC 60068-2-64 while the shock is certificated with IEC 60068-2-27. It supports onboard GPS and GLONASS. Besides, the model is also CE, FCC, EN50155, EN50121-3-2 and RoHS certified. The eIVP-CFS-IV-V0004 AI NVR carries everything you need for computing in your application.

1.1 Features

- In-vehicle network video recorder platform
- 8 Cores 9th Generation Intel® Core™ i7/i5 Processor
- (Coffee Lake Refresh) with Intel® C246 Chipset
- Fanless, -40°C to 75°C Operating Temperature
- 6 Independent GigE LAN with 4 IEEE 802.3at PoE+
- SIM Sockets for WiFi/4G/3G/LTE/GPRS/UMTS
- 2 2.5 SSD Tray, 2 SIM Socket, 1 CFast Socket, 2 M.2 Socket
- 6 USB 3.1, 4 COM RS-232/422/485, 16 Isolated DIO
- Expansion : SUMIT A, B, M.2, up to 5 Mini PCIe
- 6V to 36V DC Power Input with 80V Surge Protection
- Configurable Ignition Power Control
- CE, FCC, EN50155, EN50121-3-2, RoHS certified

1.2 Dimensions



1.3 Packing List

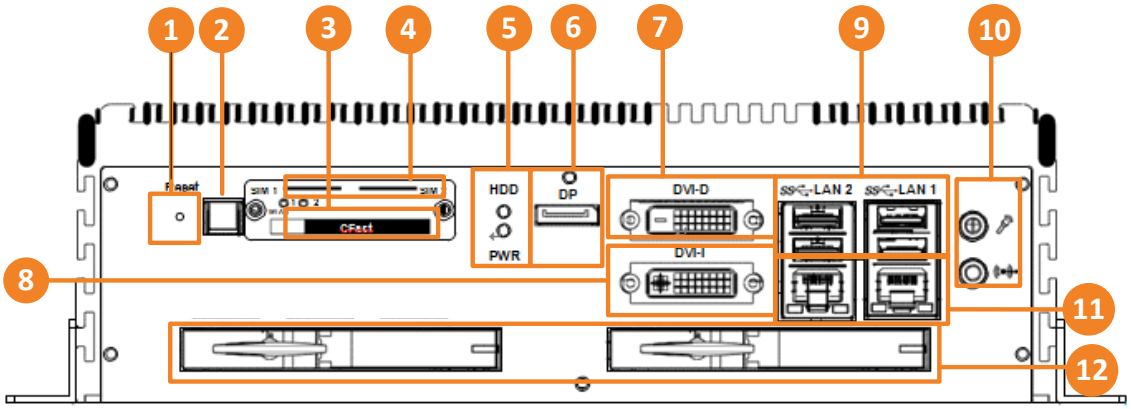
• NVR x 1 • Foot pad x 4 • Wall-mounting bracket x 2	• SSD/HDD tray key x 2 • Drivers & utilities DVD x 1

Note:

1. Equipment configurations and supplied accessories vary by country. Please consult your local EverFocus office or agents for more information. Please also keep the shipping carton for possible future use.
2. Contact the shipper if any items appear to have been damaged in the shipping process.
3. The DVD contains the User Manual and some Drivers for the system. If you can't find the required drivers from the DVD, please go to our website for related drivers. www.everfocus.com.tw

Item	Description	Outlook	Usage	Qty
1	PHILLPIS M4x16L with washer, Ni		Mount	4
2	PHILLPIS M2.5x6L, Ni		Mini PCIe slot	4
3	PHILLPIS M3x6L, Ni+Ny		M.2	2
4	PHILLPIS #10-32x6L, Ni		Wall mount bracket	6
5	Terminal block 3-pin (5.0mm)		DC-IN/Switch	2
6	Terminal block 20-pin (2.54mm)		Isolated DIO/ GPIO	1

1.4 Front Panel



No.	Name	Description
1.	**Reset Tact Switch**	It is a hardware reset switch. Use this switch to reset the system without powering off the system. Press the Reset Switch for a few seconds, and then reset will be enabled.
2.	**Power Button**	Press the button to turn on or turn off the system. For more details, please refer to *1.4.1 Power Button.*
3.	**CFast Card**	The eIVP-CFS-IV-V0004 does not support the CFast hot swap. Be sure to disconnect the power source and unscrew the CFast socket cover before installing a CFast card. For more details, please refer to *1.4.2 CFast Card.*
4.	**WLAN LED, Mini PCIe, SIM Card Comparison**	The SIM card sockets do not support hot-plug. Please make sure to unplug the system power before inserting the SIM card(s). For more details, please refer to *1.4.3 WLAN LED, Mini PCIe, SIM Card Comparison*.
5.	**PWR & HDD LED Indicator**	HDD LED/Yellow : A Hard Disk/CFast LED. If the LED is on, it indicates that the system's storage is functional. If it is off, it indicates that the system's storage is not functional. If it is flashing, it indicates that data access activities. For more details, please refer to *1.4.4 PWR & HDD LED Indicator.*
6.	**DisplayPort**	Onboard Display Port supports up to 4096x2304 resolution at 60Hz.
7.	**DVI-D Connector**	You can use the DVI-D connector on the front panel to connect to a display device. The DVI-D supports 1920 x 1200 resolution output. You will need a DVI-D cable when connecting to a display device.
8.	**DVI-I Connector**	You can use the DVI-I connector to connect to a display device. The DVI-I supports 1920 x 1200 resolution output. You will need a DVI-I cable when connecting to a display device. You can optionally use a DVI-I to VGA cable/connector if you want to connect to a VGA display device.

9.	**USB3.1 Ports**	There are 4 USB 3.1 connections available supporting up to 5Gb per second data rate in the front side. It is also compliant with the requirements of Super Speed (SS), high speed (HS), full speed (FS) and low speed (LS).
10.	**Ethernet Port**	There are 2 8-pin RJ-45 jacks supporting 10/100/1000 Mbps Ethernet connections in the front side. When both LAN 1 and LAN 2 work in normal status, iAMT 12.0 function is enabled. Both of LAN 1 and LAN 2 support Wake on LAN and Pre-boot functions. For more details, please refer to *1.4.5 Ethernet Port.*
11.	**Audio Connector**	There are 2 audio connectors, Mic-in and Line-out. Onboard Realtek ALC892 audio codec supports 5.1 channel HD audio and fully complies with Intel® High Definition Audio (Azalia) specifications. To utilize the audio function in Windows platform, you need to install corresponding drivers for both Intel Sunrise Point chipset and Realtek ALC892 codec.
12.	**SSD/HDD Tray**	There are 2 front-access 2.5" SSD/HDD trays in the front side. Just pull the trigger to open the SSD/HDD tray. Make sure the system is powered-off. Unlock the SSD Tray using the supplied SSD Lock Key.

1.4.1 Power Button

The Power Button is a non-latched switch with dual color LED indication. It indicates power status: S0, S3 and S5. More details of LED indications are listed as follows:

LED Color	Power Status	System Status
Solid Blue	S0	System working
Solid Orange	S3, S5	Suspend to RAM, System off with standby power

To power on the system, press the power button and then the blue LED is lightened. To power off the system, you can either command shutdown by OS operation, or just simply press the power button.

1.4.2 CFast Card

If a system error occurs, you can just press the power button for 4 seconds to shut down the machine directly. Please do note that a 4-second interval between each 2 power-on/power-off operation is necessary in normal working status. (For example, once you turn off the system, you have to wait for 4 seconds to initiate another power-on operation).

There is a CFast socket on the front panel supporting Type-I/II Compact Flash card. It is implemented by a SATA III Port from C246 PCH. Be sure to disconnect the power source and unscrew the CFast socket cover before installing a CFast card. The eIVP-CFS-IV-V0004 does not support the CFast hot

swap and PnP (Plug and Play) functions. It is necessary to remove power source first before inserting or removing the CFast card.

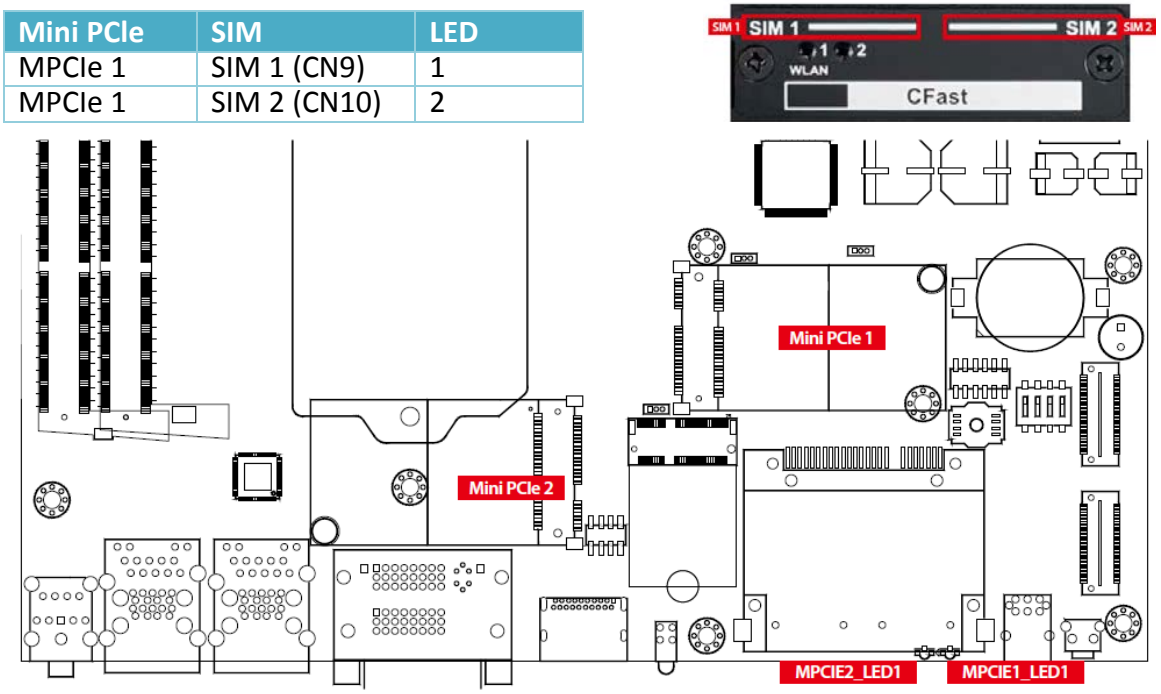
The pinouts of CFast port are listed as follows:

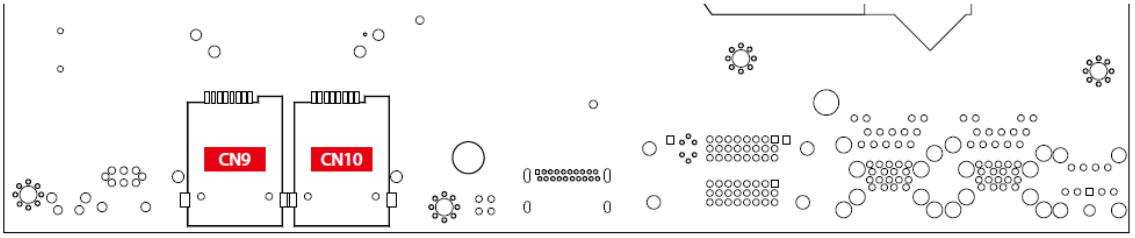
Pin No.	Description	Pin No.	Description
S1	GND	PC6	NC
S2	SATA_TXP5	PC7	GND
S3	SATA_TXN5	PC8	CFAST_LED
S4	GND	PC9	NC
S5	SATA_RXN5	PC10	NC
S6	SATA_RXP5	PC11	NC
S7	GND	PC12	NC
PC1	GND	PC13	+3.3V
PC2	GND	PC14	+3.3V
PC3	NC	PC15	GND
PC4	NC	PC16	GND
PC5	NC	PC17	NC

1.4.3 WLAN LED, Mini PCIe, SIM Card Comparison

Mini PCIe Slot/SIM Slot/WLAN LED Mapping Table:

Mini PCIe	SIM	LED
MPCIe 1	SIM 1 (CN9)	1
MPCIe 1	SIM 2 (CN10)	2





1.4.4 PWR & HDD LED Indicator

Power LED/Green: If the LED is solid green, it indicates that the system is powered on.

LED Color	Indication	System Status
Yellow	HDD/CFast	• On/Off: Storage status, function or not. • Twinkling: Data transferring.
Green	Power	System power status (on/off)

1.4.5 Ethernet Port

There are 2 8-pin RJ-45 jacks supporting 10/100/1000 Mbps Ethernet connections in the front side. LAN 1 is powered by Intel® i219 Ethernet Phy; LAN 2 is powered by Intel® I210 Ethernet engine. When both LAN 1 and LAN 2 work in normal status, iAMT 12.0 function is enabled.

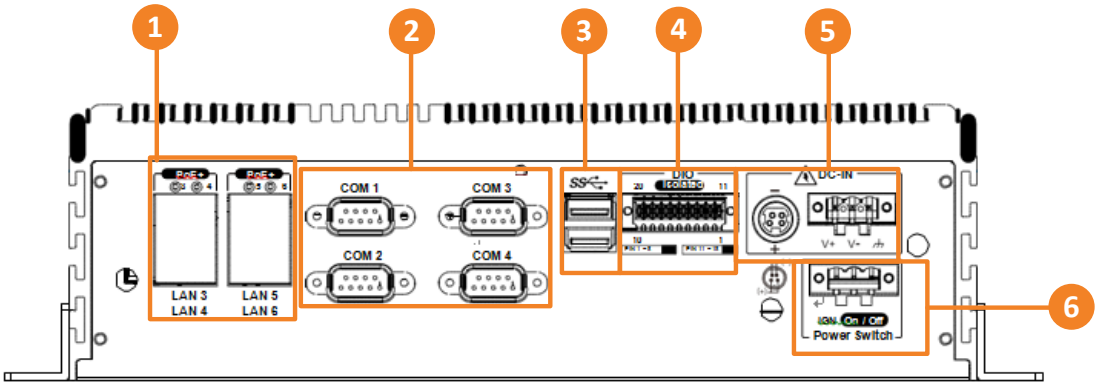
Using suitable RJ-45 cable, you can connect the system to a computer, or to any other devices with Ethernet connection, such as hubs and switches. Moreover, both of LAN 1 and LAN 2 support Wake on LAN and Pre-boot functions. The pin-outs of LAN 1 and LAN 2 are listed as follows:

Pin No.	10/100Mbps	1000Mbps
1	E_TX+	MDI0_P
2	E_TX-	MDI0_N
3	E_RX+	MDI1_P
4	-----	MDI2_P
5	-----	MDI2_N
6	E_RX-	MDI1_N
7	-----	MDI3_P
8	------	MDI3_N

Each LAN port is supported by standard RJ-45 connector with LED indicators to present Active/Link/Speed status of the connection.

The LED indicator on the right bottom corner lightens in solid green when the cable is properly connected to a 100Mbps Ethernet network; The LED indicator on the right bottom corner lightens in solid orange when the cable is properly connected to a 1000Mbps Ethernet network; The left LED will keep twinkling/off when Ethernet data packets are being transmitted/received.

1.5 Rear Panel



No.	Name	Description
1	**PoE Ports**	The LED indicator lightens in solid green when the cable is properly connected to a 100 Mbps Ethernet network; The LED indicator lightens in solid orange when the cable is properly connected to a 1000 Mbps Ethernet network; The left LED will keep twinkling/off when Ethernet data packets are being transmitted/received. For more details, please refer to *1.5.1 PoE Ports.*
2	**Serial Port**	Serial port 1 to 4 (COM 1 to 4) can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition of COM 1 and COM 2 is RS-232. If you want to change to RS-422 or RS-485, you can find the setting in BIOS. For more details, please refer to *1.5.2 Serial Port.*
3	**USB Port**	There are 2 USB 3.1 connections available supporting up to 5Gb per second data rate. It is also compliant with the requirements of Super Speed (SS), high speed (HS), full speed (FS) and low speed (LS).
4	**Isolated DIO**	There is a 16-bit (8-bit DI, 8-bit DO) connectors in the rear side. DI/DIO support NPN (sink) and PNP (Source) mode. Each DI pin is equipped with a photocoupler for isolated protection. For more details, please refer to *1.5.3 Isolated DIO*.
5	**Remote Power On/Off Switch & LED Terminal Block**	It is a 2-pin power-on or power-off switch through Phoenix Contact terminal block. You could turn on or off the system power by using this contact. This terminal block supports dual function of soft power-on/power-off (instant off or delay 4 second), and suspend mode. Pin 1: Ignition Pin2 : SW+ Pin3 : SW-
6	**Power Terminal Block**	eIVP-CFS-IV-V0004 supports 6V to 36V DC power input by terminal block in the rear side. In normal power operation, power LED lightens in solid green. eIVP-CFS-IV-V0004 supports up to 80V surge protection. Pin 1: V+ Pin2 : V- Pin3 : Chassis Ground

1.5.1 PoE Ports

There are 4 RJ45 connectors in the rear side. It supports IEEE 802.3 at (PoE+) Power over Ethernet (PoE) connection delivering up to 37W/54V per port and 1000 BASE-T gigabit data signals over standard Ethernet Cat 5/Cat 6 cable.

Each PoE connection is powered by Intel® I210 Gigabit Ethernet controller and independent PCI express interface to connect with multi-core processor for network and data transmit optimization. Only when PoE port starts to supply power to power devices, the dedicated LED will be lightened.

PS. Suggest to use PoE function when power input is over 12V.

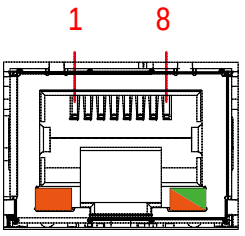
The pin-outs of LAN 3 and LAN 6 are listed as follows:

Pin No.	10/100Mbps	1000Mbps	PoE
1	E_TX+	MDI0_P	PoE+
2	E_TX-	MDI0_N	PoE+
3	E_RX+	MDI1_P	PoE-
4	-----	MDI2_P	-----
5	-----	MDI2_N	-----
6	E_RX-	MDI1_N	PoE-
7	-----	MDI3_P	-----
8	------	MDI3_N	-----

Each LAN port is supported by standard RJ-45 connector with LED indicators to present Active/Link/Speed status of the connection.

The LED indicator on the right bottom corner lightens in solid green when the cable is properly connected to a 100 Mbps Ethernet network; The LED indicator on the right bottom corner lightens in solid orange when the cable is properly connected to a 1000 Mbps Ethernet network; The left LED will keep twinkling/off when Ethernet data packets are being transmitted/received.

LED Location	LED Color	10Mbps	100Mbps	1000Mbps
Right	Green/ Orange	Off	Solid Green	Solid Orange
Left	Yellow	Twinkling Yellow	Twinkling Yellow	Twinkling Yellow



POE LED	LED Color	POE Status
LED 3-6	Solid Green	POE ON

1.5.2 Serial Port

Serial port 1 to 4 (COM 1 to 4) can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition of COM 1 and COM 2 is RS-232. If you want to change to RS-422 or RS-485, you can find the setting in BIOS.

BIOS Setting	Function
COM 1	RS-232
	RS-422 (5-wire)

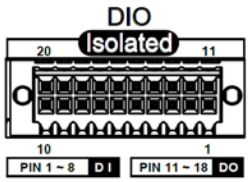
COM 2 COM 3 COM 4	RS-422 (9-wire)
	RS-485
	RS-485 w/z auto-flow control

The pin assignments are listed in the following table:

Serial Port	Pin No.	RS-322	RS-422 (5-wire)	RS-422 (9-wire)	RS-485 (3-wire)
1 to 4	**1**	DCD	TXD-	TXD-	DATA-
	2	RXD	TXD+	TXD+	DATA+
	3	TXD	RXD+	RXD+	-----
	4	DTR	RXD-	RXD-	-----
	5	GND	GND	GND	GND
	6	DSR	-----	RTS-	-----
	7	RTS	-----	RTS+	-----
	8	CTS	-----	CTS+	-----
	9	RI	-----	CTS-	-----

1.5.3 Isolated DIO

There is a 16-bit (8-bit DI, 8-bit DO) connectors in the rear side. DI/DIO support NPN (sink) and PNP (Source) mode, Each DI pin is equipped with a photocoupler for isolated protection. Each DO pin is equipped with isolator function, DO Safety-Related Certifications:



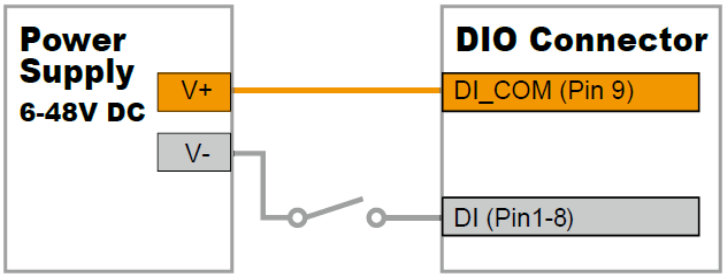
- 4242-VPK Basic Isolation per DIN V VDE V 0884-10 and DIN EN 61010-1
- 3-KVRMS Isolation for 1 minute per UL 1577
- CSA Component Acceptance Notice 5A, IEC 60950-1 and IEC 61010-1 End Equipment Standards
- GB4943.1-2011 CQC Certified

DIO Connectors pin out:

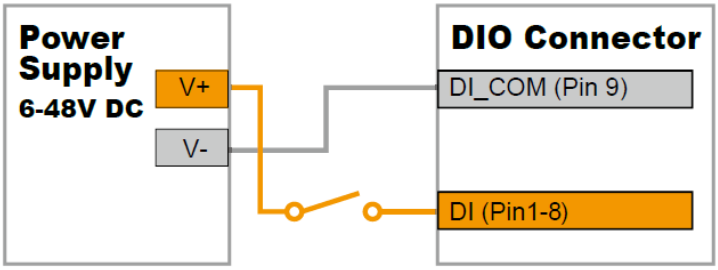
DIO	Pin No.	Definition	Function
DIO	1	INPUT 0	SIO_GPI70
	2	INPUT 1	SIO_GPI71
	3	INPUT 2	SIO_GPI72
	4	INPUT 3	SIO_GPI73
	5	INPUT 4	SIO_GPI74
	6	INPUT 5	SIO_GPI75
	7	INPUT 6	SIO_GPI76
	8	INPUT 7	SIO_GPI77
	9	DI_COM	-----
	10	DIO GND	-----
	11	OUTPUT 0	SIO_GPO80
	12	OUTPUT 1	SIO_GPO81
	13	OUTPUT 2	SIO_GPO82
	14	OUTPUT 3	SIO_GPO83
	15	OUTPUT 4	SIO_GPO84
	16	OUTPUT 5	SIO_GPO85
	17	OUTPUT 6	SIO_GPO86
	18	OUTPUT 7	SIO_GPO87
	19	DIO_GND	-----
	20	External 6-40VDC (NPN) External 6-48VDC (PNP)	-----

DI reference circuit :

Sink Mode (NPN)

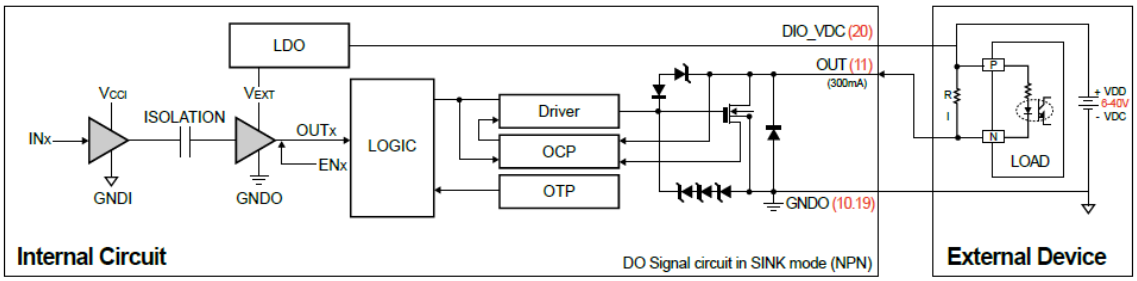


Source Mode (PNP)

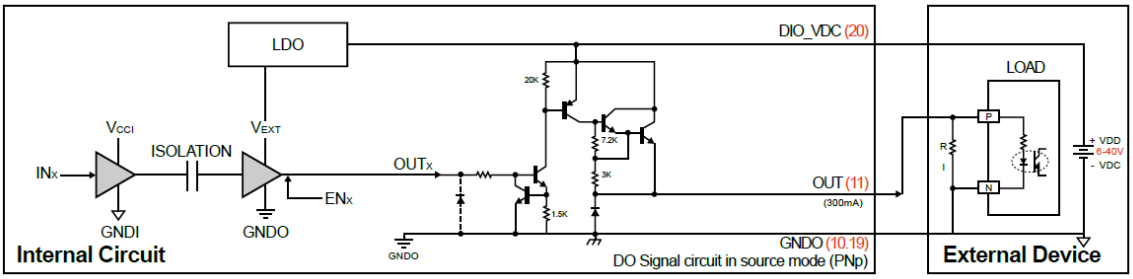


DO reference circuit :

Sink Mode (NPN, Default)



Source (PNP)



Chapter
2

2. Connection and Installation

2.1 How to Open Your eIVP-CFS-IV-V0004

Step 1 Turn eIVP-CFS-IV-V0004 bottom side up and remove 6pcs HEX#6-32 crews from the front panel.

Step 2 Remove front panel.

Step 3 Turn over eIVP-CFS-IV-V0004 to face the rear side.

Step 4 Remove 5pcs HEX#6-32 screws (circled in red) from the rear side and 4pcs PHILLIPS#6-32 screws (circled in yellow) from the bottom side.

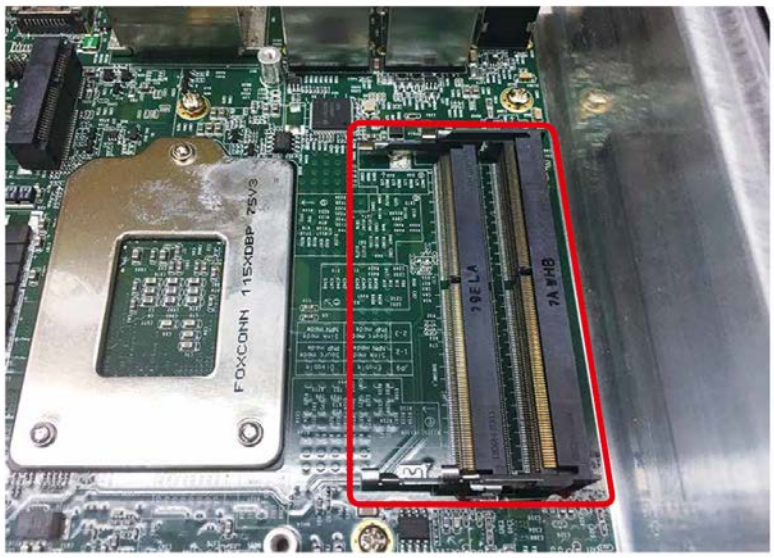
Step 5 Remove rear panel.

Step 6 Remove the SATA cable and SATA power cables.

Step 7 Finished.

2.2 Installing DDR4 SO-DIMM Modules

Step 1 DDR4 SO-DIMM socket.

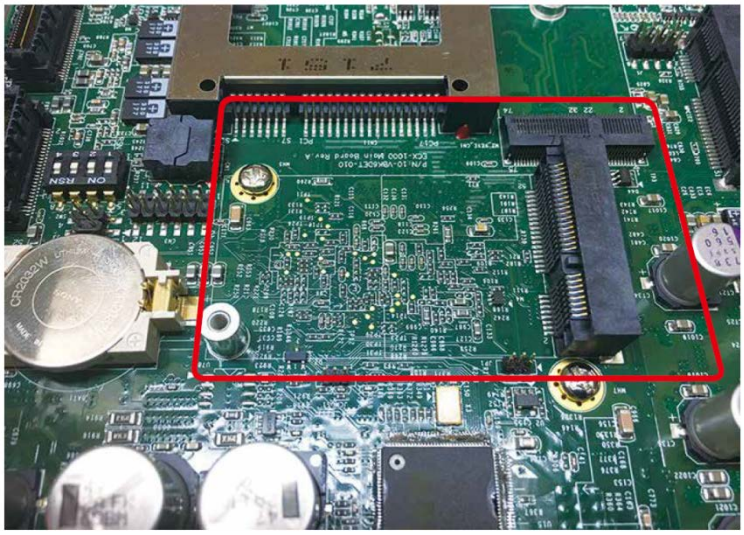


Step 2 Install DDR4 RAM module into SO-DIMM socket.

Step 3 Install DDR4 RAM module into SO-DIMM socket.

2.3 Installing Mini PCIe Card

Step 1 Mini PCIe socket.



Step 2 Install Mini PCIe card into socket.

Step 3 Install Mini PCIe card into socket.

2.4 Installing Antenna Cable

Step 1 Check antenna cable and washer.

Step 2 Rear panel antenna hole.

Step 3 Install antenna cable.

Step 4 Fasten washer 1 and 2.

Step 5 Finished.

2.5 Installing CFast Card

Step 1 Remove 2pcs PHILLIPS M3 screws on CFast & SIM cover at front panel.

Step 2 Before installing CFast, make sure the system power is not working.

Step 3 Insert CFast card and push to lock.

2.6 Installing SIM Card

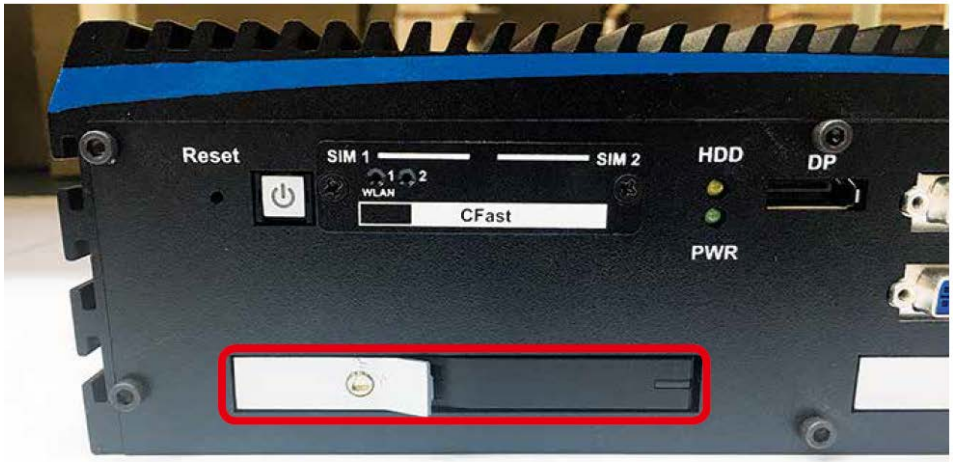
Step 1 Remove 2pcs PHILLIPS M3 screws on CFast & SIM cover at front panel.

Step 2 Before install CFast, make sure the system power is not working.

Step 3 Insert SIM card and push to lock.

2.7 Installing SSD/HDD

Step 1 Unlock SSD/HDD tray.



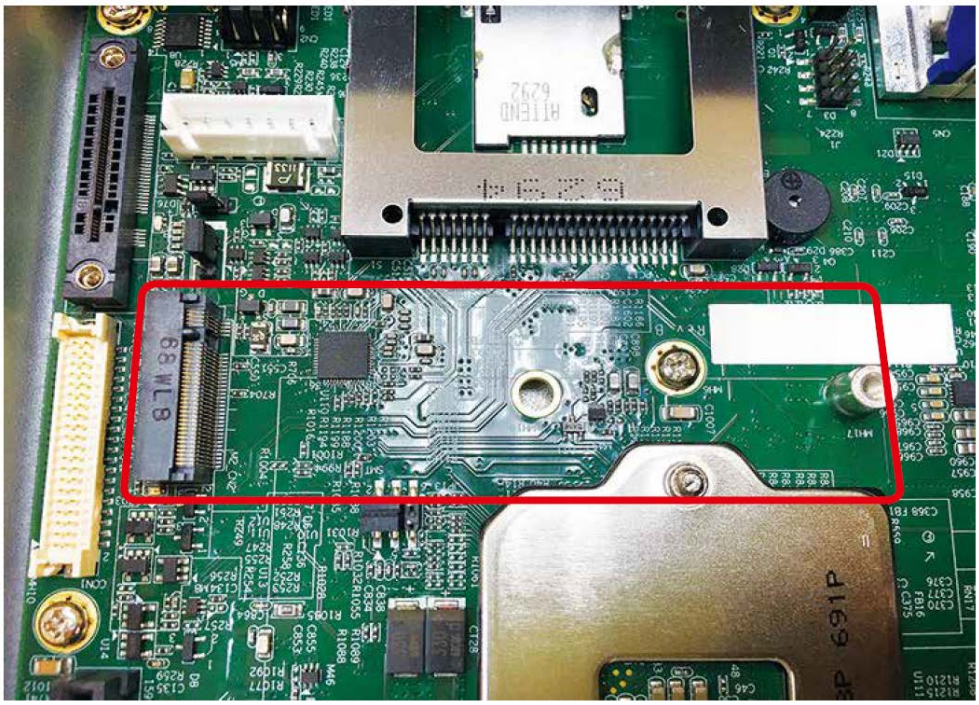
Step 2 Pull the trigger and open SSD/HDD tray.

Step 3 Install 2.5" SSD/HDD into the tray and then push back to close the tray.

Step 4 Lock the SSD/HDD tray with the SSD/HDD tray key.

2.8 Installing M.2

Step 1 M.2 socket.



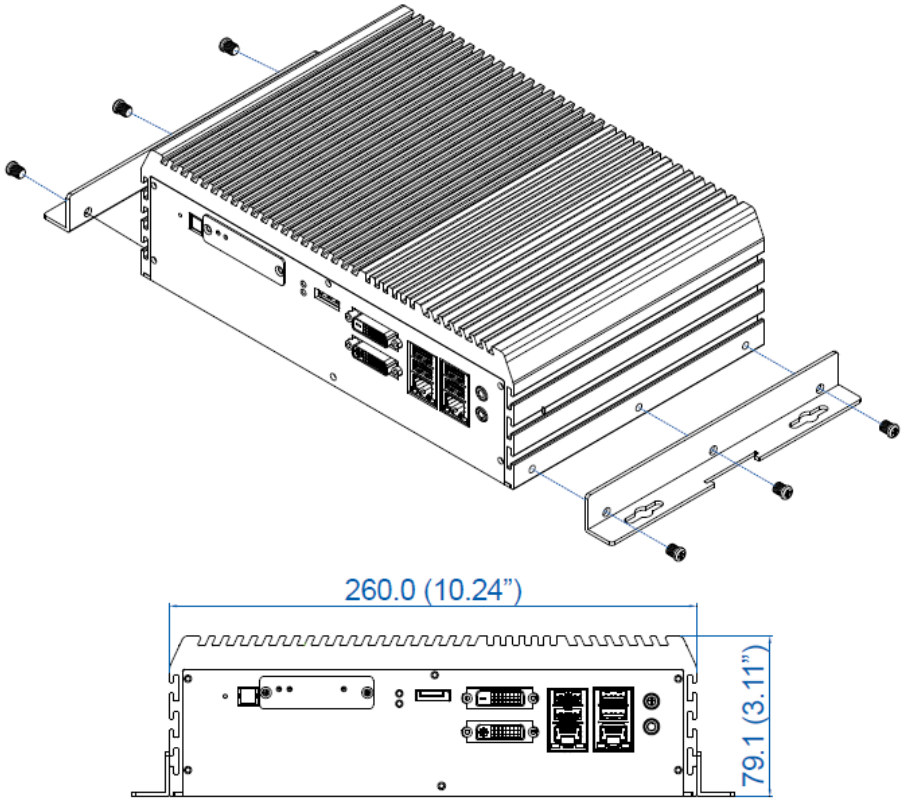
Step 2 Install M.2 into socket and fasten 1pcs PHILLIPS M3 screw.

2.9 Mounting Your eIVP-CFS-IV-V0004

EverFocus provides wall mount brackets in the package. If you need other brackets for VESA mount, Din Rail Kit and 2U rack mount kit as described in the content below, please consult with EverFocus local office.

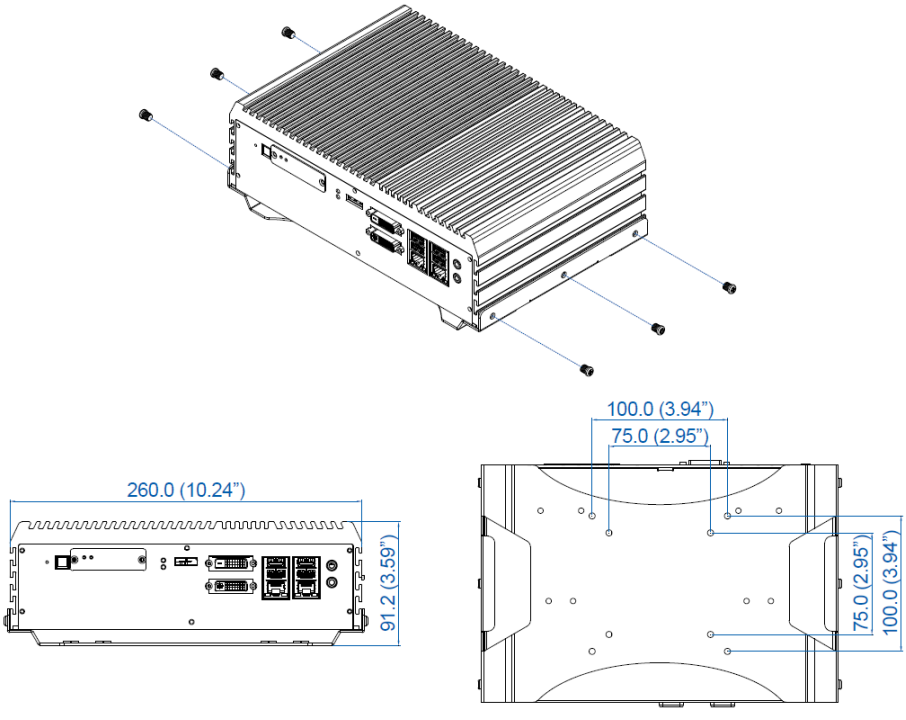
2.9.1 Wall mount

Fasten 6pcs PHILLIPS#10-32 screws.



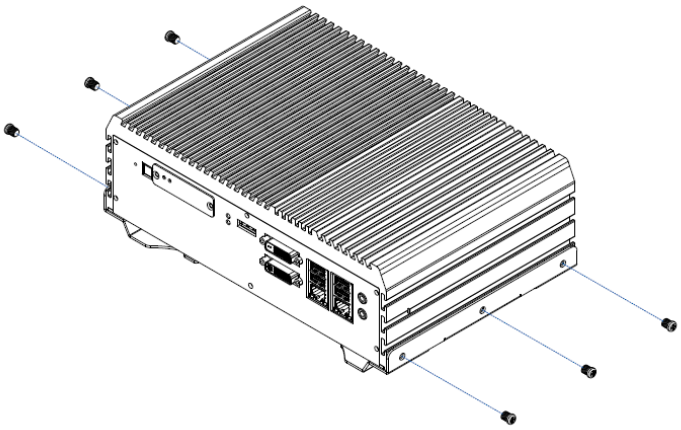
2.9.2 VESA mount

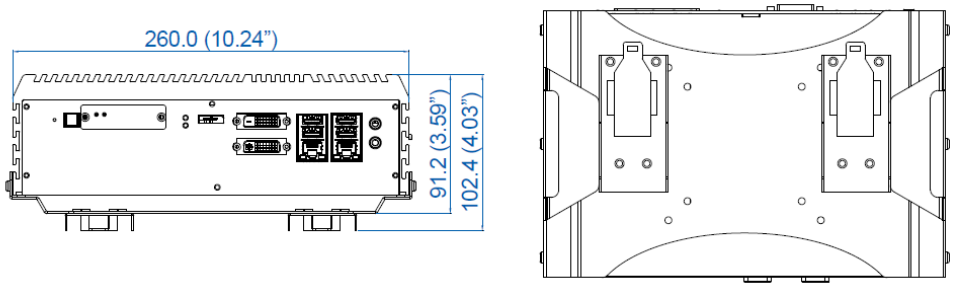
Fasten 6pcs PHILLIPS#10-32 screws.
VESA 75 x 75/100 x 100 mm



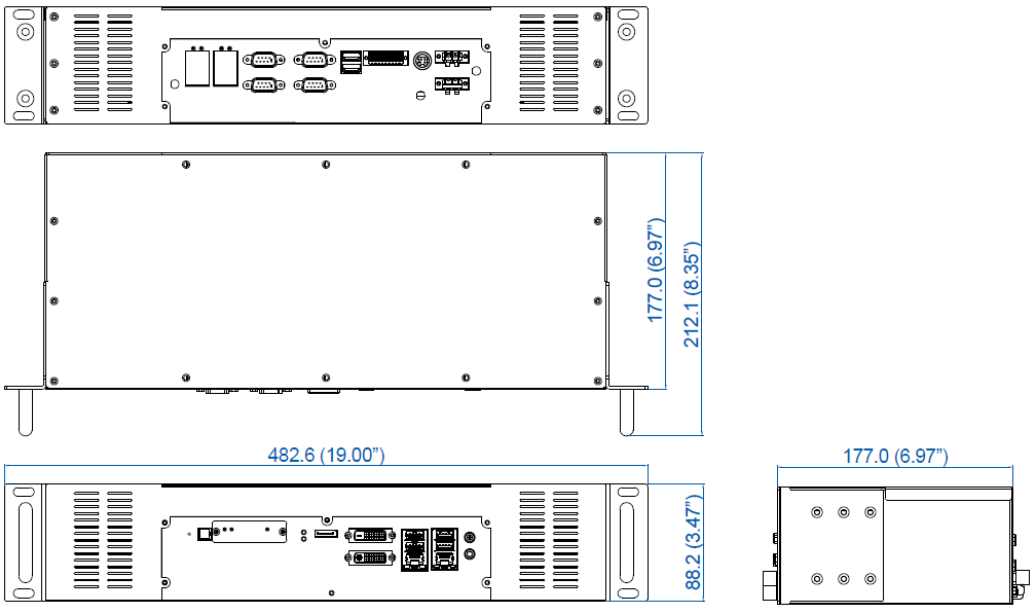
2.9.3 Din Rail Kit

Fasten 6pcs PHILLIPS#10-32 screws.





2.9.4 2U rack mount kit

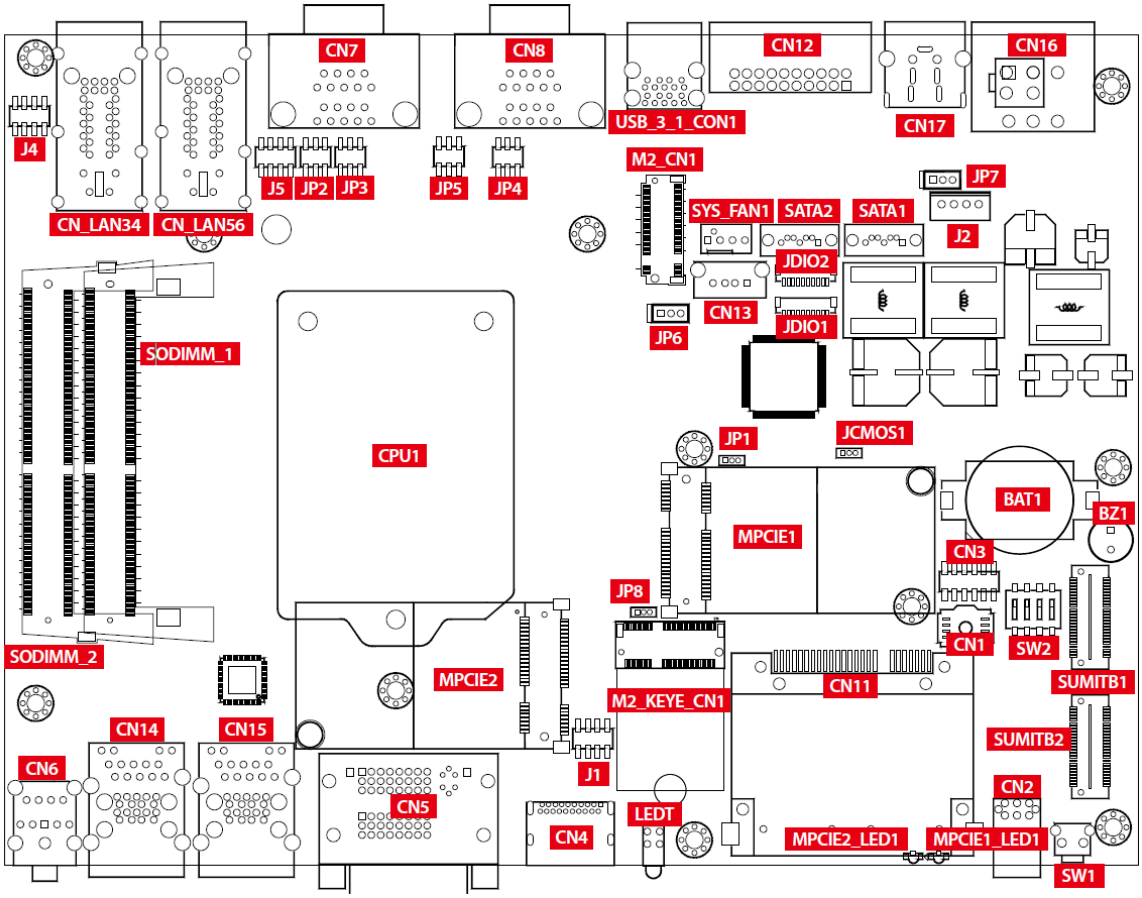


Chapter
3

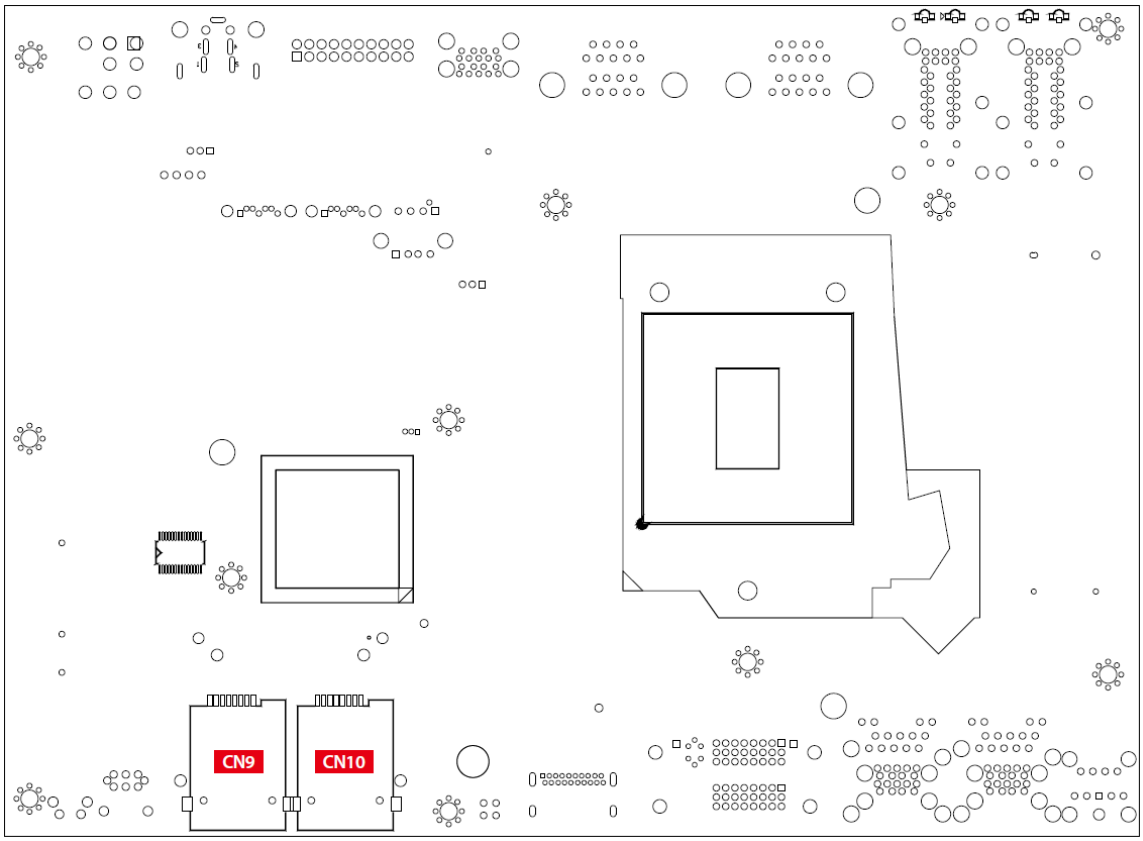
3. Jumpers and Connectors on the Motherboard

3.1 Main Board Expansion Connectors

3.1.1 Top View (Component Side) of eIVP-CFS-IV-V0004 Main Board With Connector Location

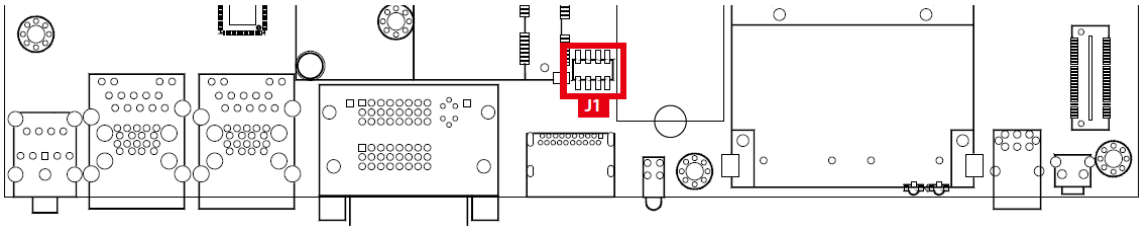


3.1.2 Bottom View (Solder Side) of eIVP-CFS-IV-V0004 Main Board With Connector Location

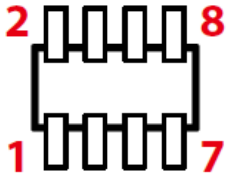


3.1.3 Miscellaneous Pin Header

This pin header can be used as a backup for following functions, such as hard drive LED indicator, reset button, power LED indicator, and power-on/off button, which already can be accessed by front panel and top panel. The pin-outs of Miscellaneous port are listed in following table:

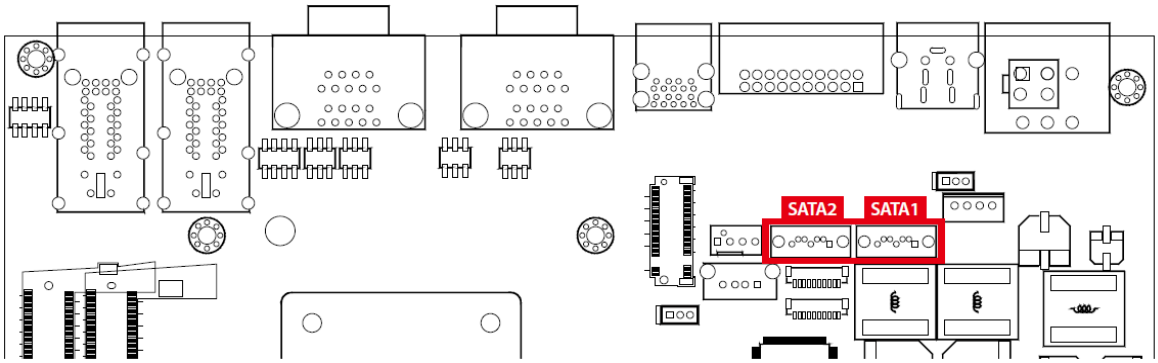


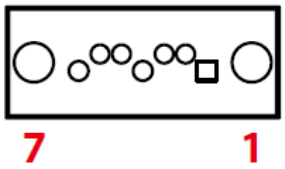
	Group	Pin No.	Description
	HDD LED	**1**	HDD_LED_P
		3	HDD_LED_N
	Reset Button	**5**	FR_RST_BTN_N

		**7**	Ground
	Power LED	**2**	PWR_LED_P
		4	PWR_LED_N
	Power Button	**6**	FP_PWR_BTN_IN
		8	Ground

3.1.4 SATA1, SATA2 : SATA III Connector

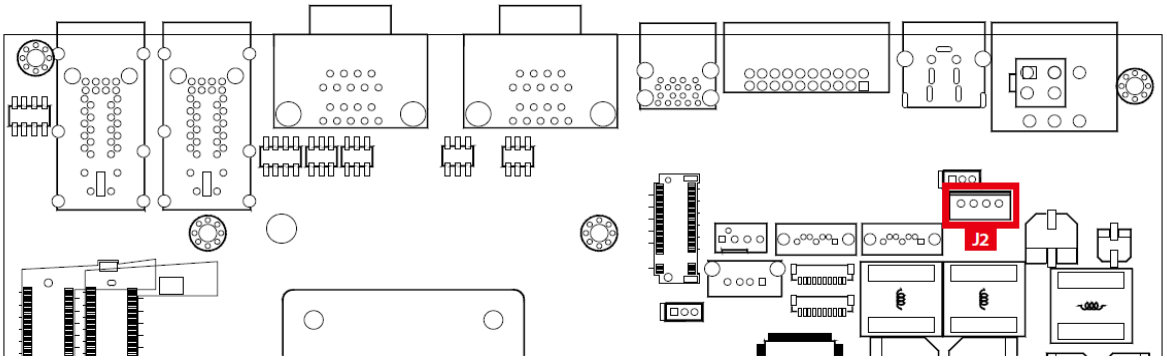
There are 2 onboard high performance Serial ATA III (SATA III) on eIVP-CFS-IV-V0004. It supports higher storage capacity with less cabling effort and smaller required space. The pin assignments of SATA1 and SATA2 are listed in the following table:



	Pin No.	Definition	Pin No.	Definition
	**1**	GND	**5**	RXN
	2	TXP	**6**	RXP
	3	TXN	**7**	GND
	4	GND		

3.1.5 J2 : SATA Power Connector

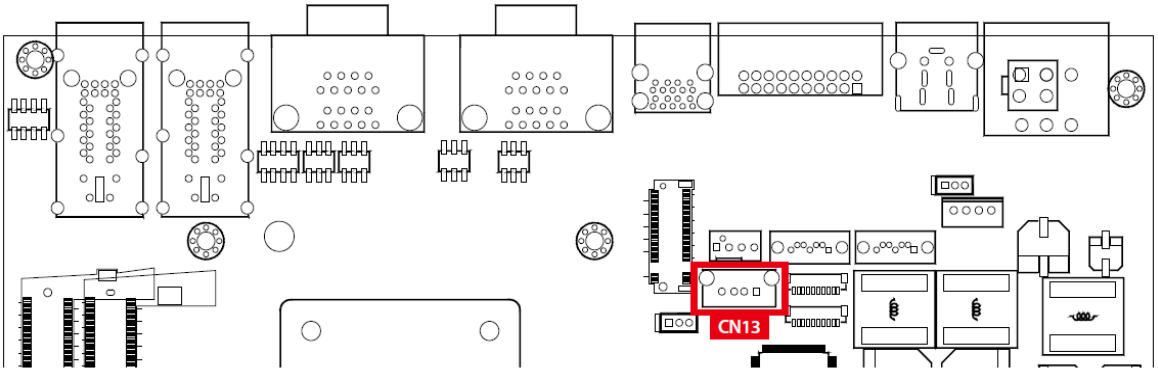
The eIVP-CFS-IV-V0004 also equips with a SATA power connector. The one port supports 5V (Up to 2A) and 12V (Up to 2A) to the hard drive or SSD. The pin assignments of J2 are listed in the following table :



Pin No.	Definition	Pin No.	Definition
1	+12V	**5**	GND
2	GND	**6**	+5V

3.1.6 CN13 : Internal USB

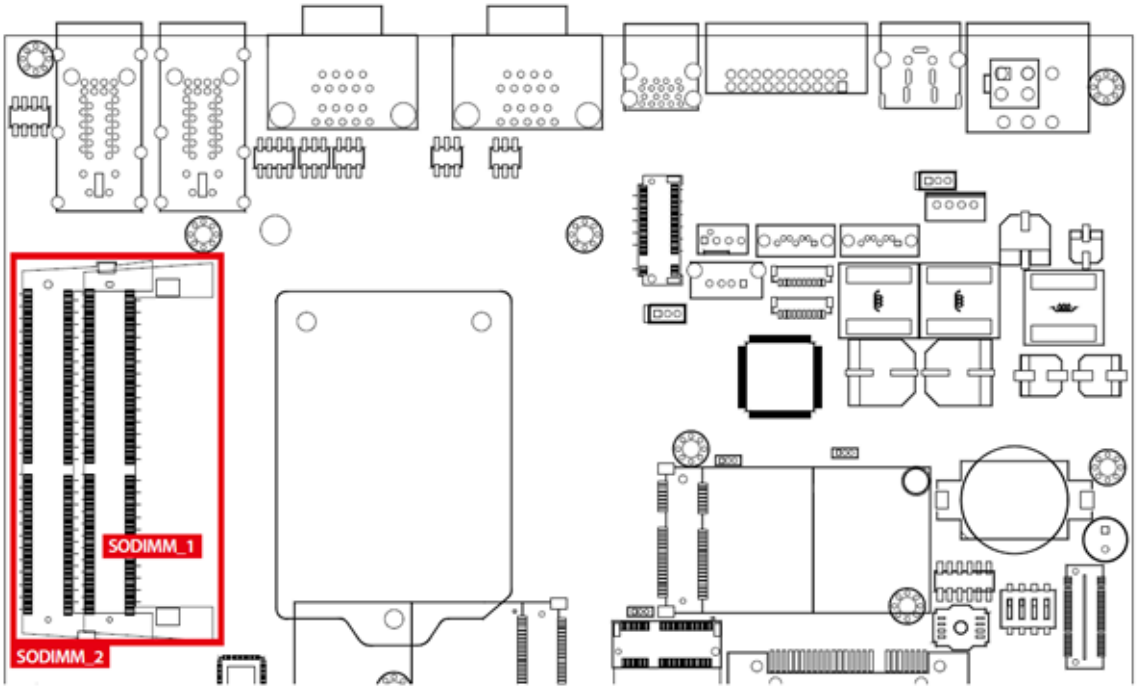
The USB 2.0 connections supports up to 480Mbps. It is also compliant with the requirements of high speed (HS), full speed (FS) and low speed (LS). The pin assignments of CN13 are listed in the following table:



Pin No.	Definition	Pin No.	Definition
1	+5V	**5**	D+
2	D-	**6**	GND

3.1.7 SODIMM_1, SODIMM_1 : DDR4 Slot

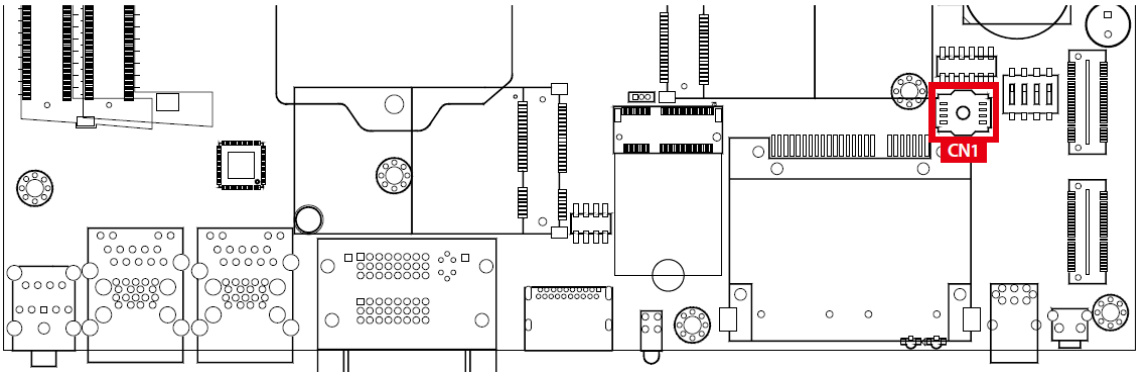
There are 2 DDR4 channel onboard, supporting DDR4 2666, max 64GB.
Each channel supports up to 32GB.



Slot	Description
SODIMM_1	DDR4 Channel A
SODIMM_2	DDR4 Channel B

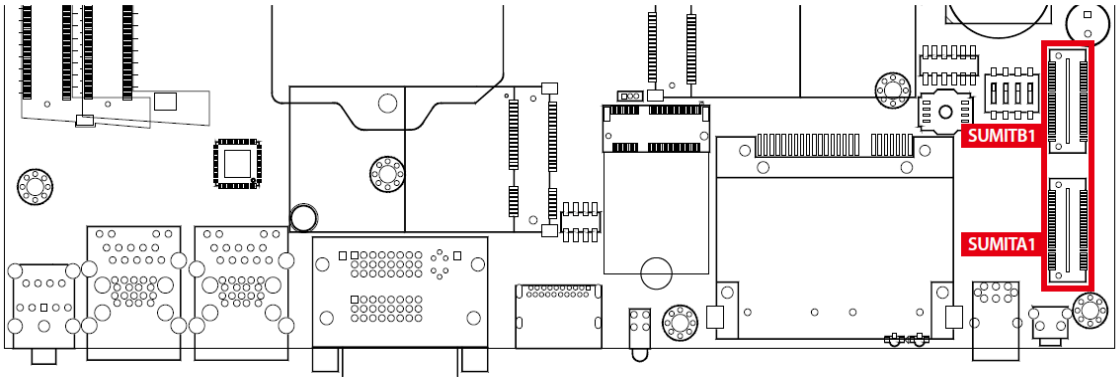
3.1.8 CN1 : BIOS Socket

If the BIOS needs to be changed, please contact the EverFocus Technical Support team : ts@everfocus.com.tw

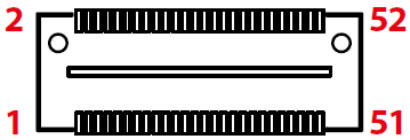


3.1.9 SUMIT A, SUMIT B

This system have standard SUMIT A and SUMIT B for SUMIT type add-on cards.



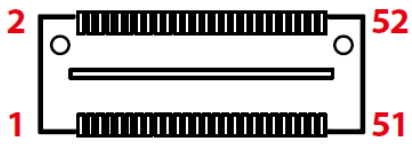
SUMIT A Pin Out :



Pin No.	Function	Pin No.	Function
1	+5V_AUX	**2**	+12V
3	+3.3V	**4**	SMB_DATA
5	+3.3V	**6**	XMB_CLK
7	Reserved	**8**	Reserved
9	Reserved	**10**	SPI_MISO
11	USB_OC#	**12**	SPI_MOSI
13	Reserved	**14**	SPI_CLK
15	+5V	**16**	SPI_CS10
17	USB_3+	**18**	SPI_CS1#
19	USB_3-	**20**	Reserved
21	+5V	**22**	LPC_DRQ1#
23	USB_2+	**24**	LPC_AD0
25	USB_2-	**26**	LPC_AD1
27	+5V	**28**	LPC_AD2
29	USB_1+	**30**	LPC_AD3

31	USB_1-	**32**	LPC_FRAME#
33	+5V	**34**	SERIRQ#
35	USB_0+	**36**	Reserved
37	USB_0-	**38**	CLK_33MHz
39	GND	**40**	GND
41	A_PET_P0	**42**	A_PER_P0
43	A_PET_N0	**44**	A_PER_N0
45	GND	**46**	APRSNT#/A_PE_CLKREQ#
47	PERST#	**48**	A_CLKP
49	WAKE#	**50**	A_CLKN
51	+5V	**52**	GND

SUMIT B Pin Out :

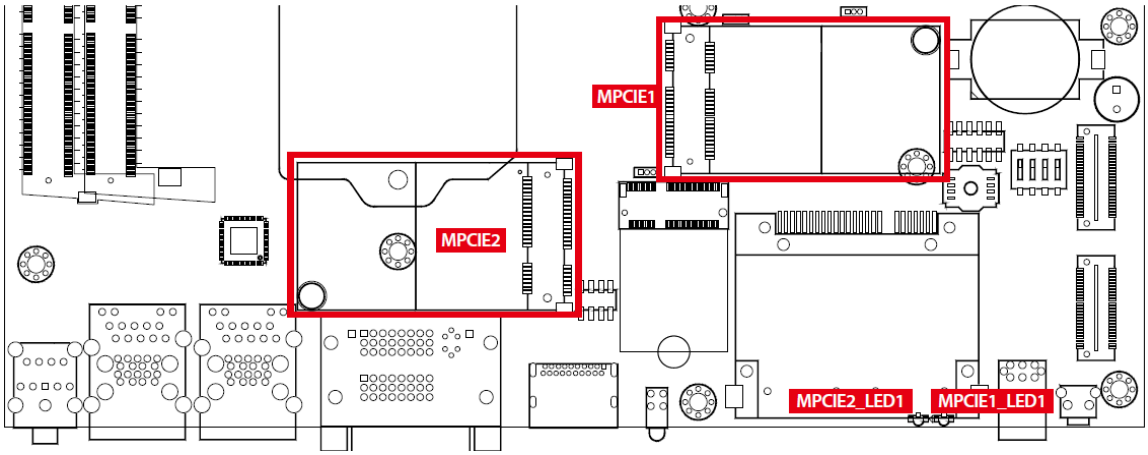


Pin No.	Function	Pin No.	Function
1	GND	**2**	GND
3	B_PET_P0	**4**	B_PER_P0
5	B_PET_N0	**6**	B_PER_N0
7	GND	**8**	GND
9	C_CLKP	**10**	B_CLKP
11	C_CLKN	**12**	B_CLKN
13	CPRSNT#/C_PE_CLKPEQ#	**14**	GND
15	C_PET_P0	**16**	C_PER_P0
17	C_PET_N0	**18**	C_PER_N0
19	GND	**20**	GND

21	C_PET_P1	**22**	C_PER_P1
23	C_PET_N1	**24**	C_PER_N1
25	GND	**26**	GND
27	C_PET_P2	**28**	C_PER_P2
29	C_PET_N2	**30**	C_PER_N2
31	GND	**32**	GND
33	C_PET_P3	**34**	C_PER_P3
35	C_PET_N3	**36**	C_PER_N3
37	GND	**38**	GND
39	PERST#	**40**	WAKE#
41	Reserved	**42**	Reserved
43	+5V	**44**	Reserved
45	+5V	**46**	+3.3V
47	+5V	**48**	+3.3V
49	+5V	**50**	+3.3V
51	+5V	**52**	+5V_AUX

3.1.10 Mini PCIe : MPCIe_1 , MPCIe_2

Standard full length mini PCIe slot



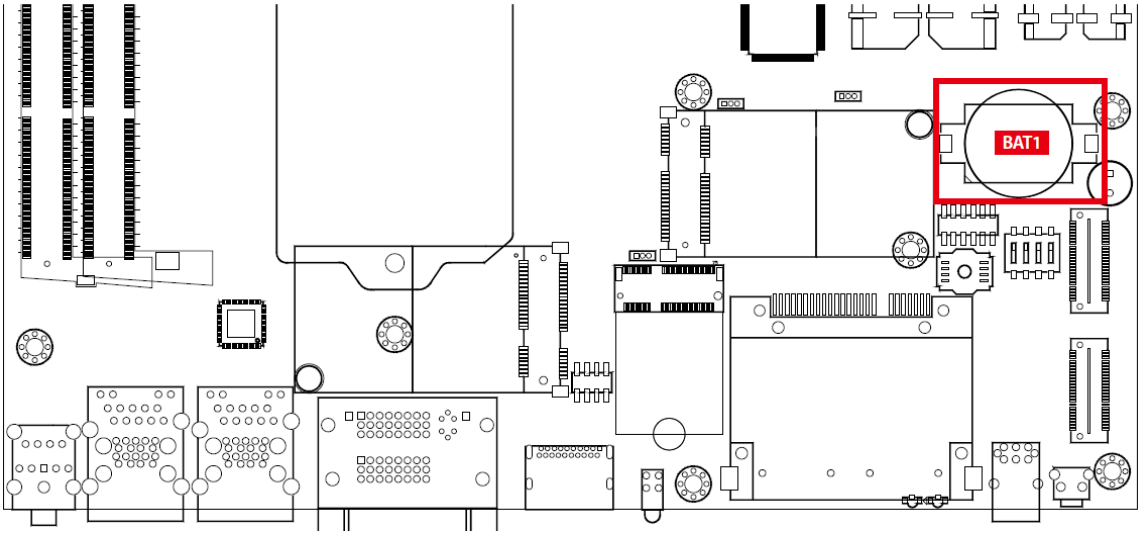
The pin assignments of MPCIe 1, MPCIe 2 ted in the following table:

Pin No.	Signal Name	Pin No.	Signal Name

51	Reserved	**52**	+3.3 Vaux
49	Reserved	**50**	GND
47	Reserved	**48**	+1.5V
45	Reserved	**46**	Reserved
43	GND	**44**	Reserved
41	+3.3 Vaux	**42**	Reserved
39	+3.3 Vaux	**40**	GND
37	GND	**38**	USB_D+
35	GND	**36**	USB_D-
33	PETp0	**34**	GND
31	PETn0	**32**	SMB_DATA
29	GND	**30**	SMB_CLK
27	GND	**28**	+1.5V
25	PETp0	**26**	GND
23	PETn0	**24**	+3.3 Vaux
21	GND	**22**	PERST#
19	Reserved	**20**	Reserved
17	Reserved	**18**	GND
Mechanical Key			
15	GND	**16**	UIM_VPP
13	REFCLK+	**14**	UIM_RESET
11	REFCLK-	**12**	UIM_CLK
9	GND	**10**	UIM_DATA
7	CLKREQ#	**8**	UIM_PWR
5	Reserved	**6**	1.5V
3	Reserved	**4**	GND
1	WAKE#	**2**	+3.3 Vaux

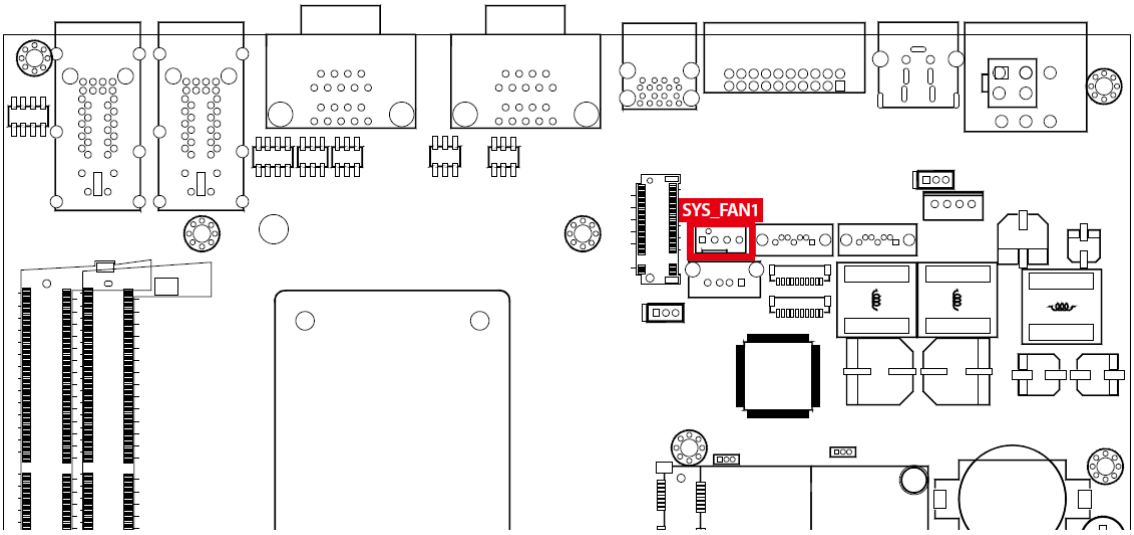
3.1.11BAT1 : RTC Battery

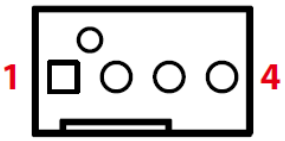
The system's real-time clock is powered by a lithium battery. It is equipped with lithium battery. It is recommended that you shouldn't replace the lithium battery on your own. If the battery needs to be changed, please contact the EverFocus Technical Support team ts@everfocus.com.tw.zk



3.1.12 FN1 : FAN Header

Fan power connector supports for additional thermal requirements. The pin assignments of FAN 1 are listed in the following table.

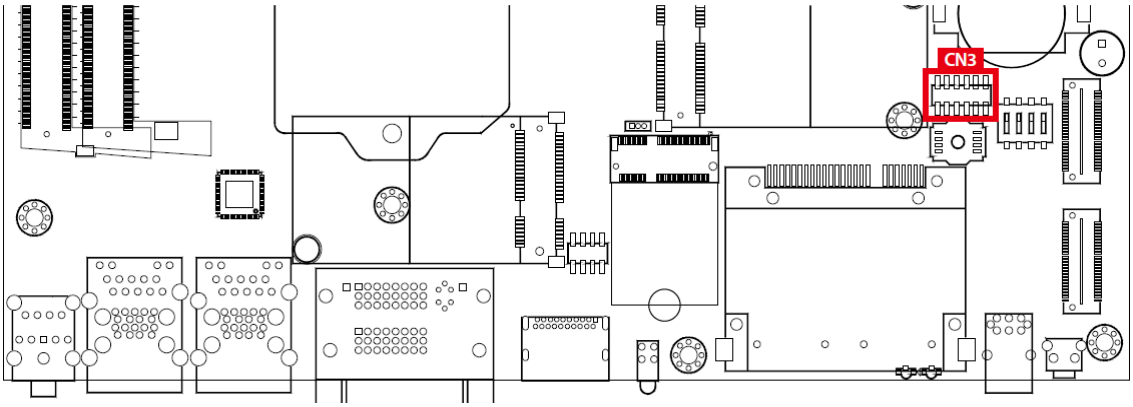


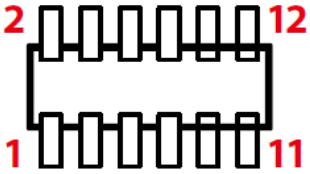


Pin No.	Definition	Pin No.	Definition
1	GND	5	Fan speed sensor
2	+12V (1.5A max)	6	Fan PWM

3.1.13 CN3 : LPC Port 80 Header

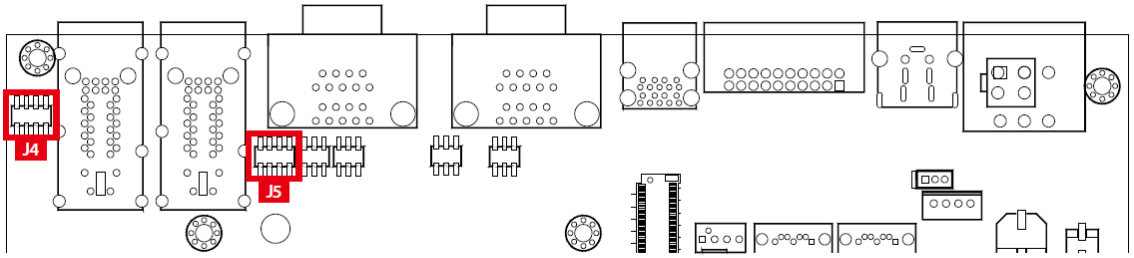
eIVP-CFS-IV-V0004 provides a LPC Port 80 Header for Debug Card.



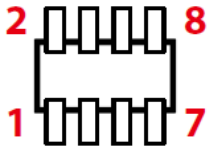


Pin No.	Definition	Pin No.	Definition
1	SERIRQ	7	LFRAME#
2	+3.3V	8	LAD0
3	LA3	9	N/C
4	RESET#	10	Ground
5	LAD1	11	CLOCK
6	LAD2	12	Ground

3.1.14 J4, J5 : LAN3, LAN4, LAN5, LAN6 Speed LED Header

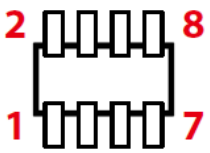


J4 Pin Out :



Pin	LAN PORT/Function
1	LAN3/LINK100#
2	LAN4/LINK100#
3	LAN3/LINK1000#
4	LAN4/LINK1000#
5	LAN3/ACT#

J5 Pin Out :



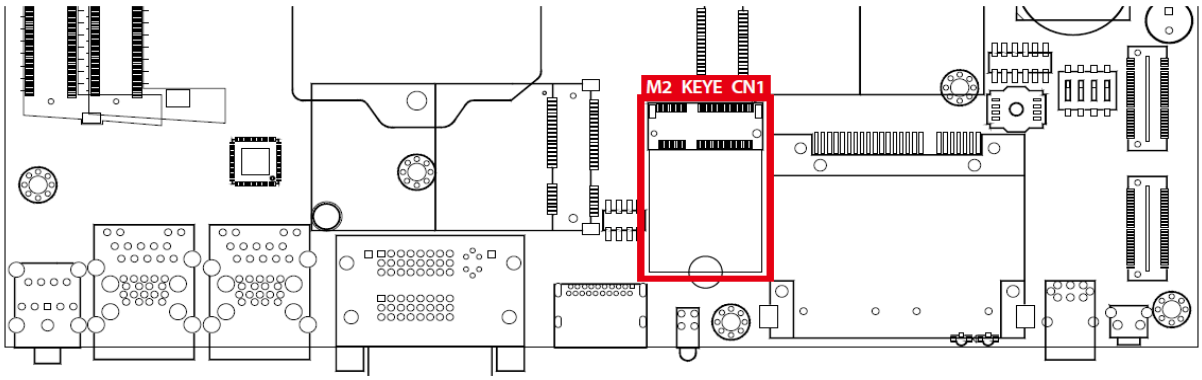
Pin Number	LAN PORT/Function
1	LAN5/LINK100#
2	LAN6/LINK100#
3	LAN5/LINK1000#
4	LAN6/LINK1000#
5	LAN5/ACT#

6	LAN4/ACT#
7	+3V
8	+3V

6	LAN6/ACT#
7	+3V
8	+3V

3.1.15 M.2 KEY E : USB, PCIex2 support

M.2 key E connector is suitable for applications that use wireless connectivity including Wi-Fi, Bluetooth, NFC of GNSS. Module card types include 1630, 2230.

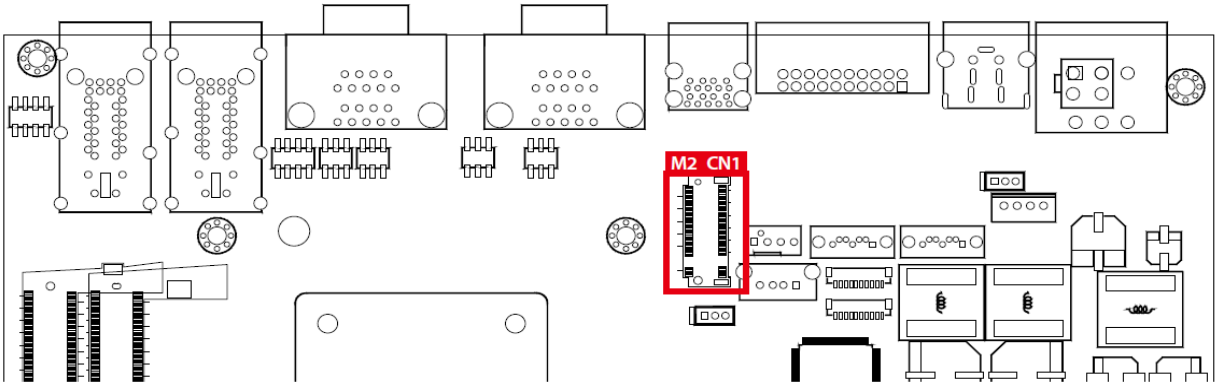


Pin No.	Definition	Pin No.	Definition
74	3.3V	**75**	GND
72	3.3V	**73**	RESERVED/REFCLKn1
70	NC	**71**	RESERVED/REFCLKp1
68	NC	**69**	GND
66	NC	**67**	RESERVED/PETn1
64	NC	**65**	RESERVED/PETp1
62	ALERT# (O)(0/3.3V)	**63**	GND
60	12C_CLK (I)(0/3.3V)	**61**	RESERVED/PERn1
58	12C_DATA (I/O)(0/3.3V)	**59**	RESERVED/PERp1
56	NC	**57**	GND
54	NC	**55**	PEWAKE0# (I/O) (0/3.3V)
52	PERST0# (I)(0/3.3V)	**53**	CLKREQ0# (I/O) (0/3.3V)
50	NC	**51**	GND
48	NC	**49**	REFCLKn0
46	NC	**47**	REFCLKp0
44	NC	**45**	GND
42	NC	**43**	PETn0
40	NC	**41**	PETp0
38	NC	**39**	GND
36	NC	**37**	PERn0
34	NC	**35**	PERp0

32	NC	**33**	GND
	Module Key		Module Key
	Module Key		Module Key
	Module Key		Module Key
	Module Key		Module Key
22	NC	**23**	NC
20	NC	**21**	NC
18	GND	**19**	NC
16	NC	**17**	NC
14	NC	**15**	NC
12	NC	**13**	NC
10	NC	**11**	NC
8	NC	**9**	NC
6	LED1# (O)(od)	**7**	GND
4	3.3V	**5**	USB_D-
2	3.3V	**3**	USB_D+
		1	GND

3.1.16 M.2 KEY M : PCIe x4/SATA Support

M.2 key M connector is suitable for applications that use Host I/Fs supported by either PCIe or SATA, or Solid State Storage Devices (SSD). Module card types is 2280.

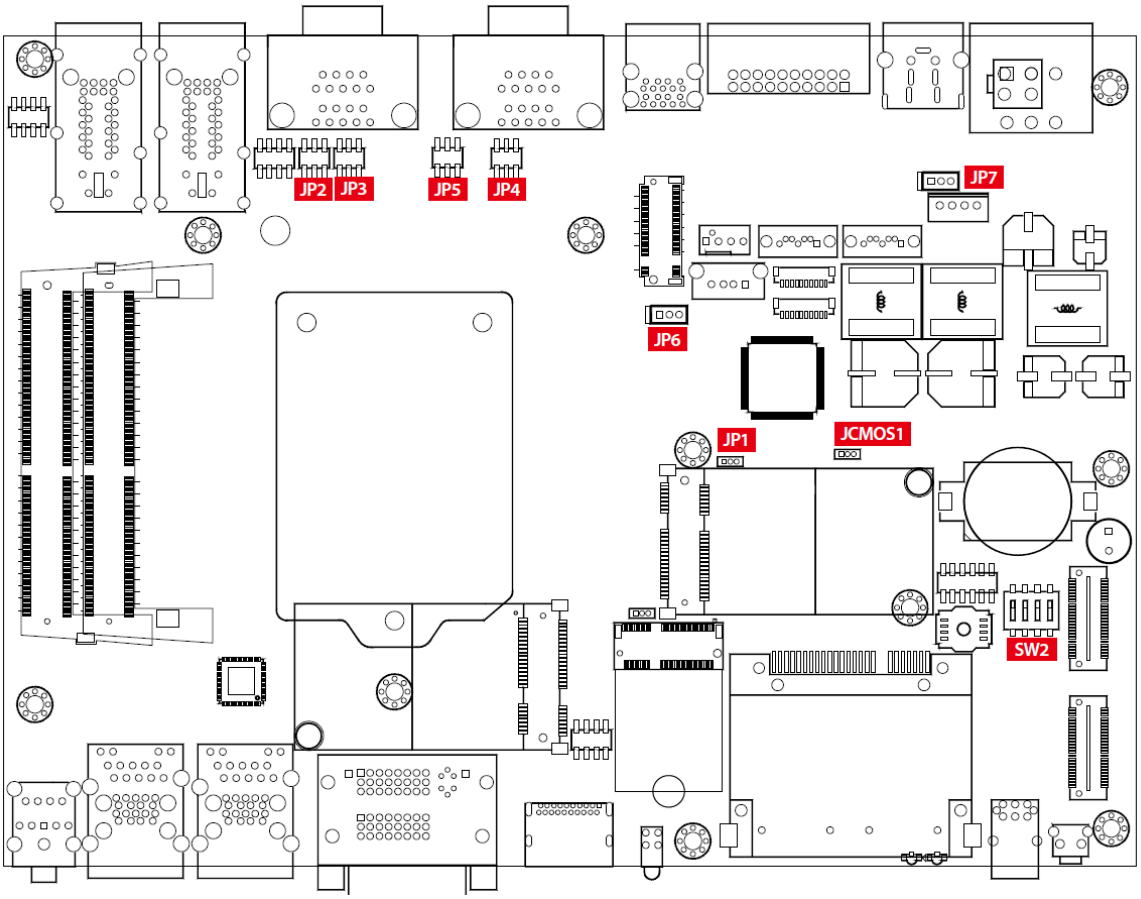


Pin No.	Definition	Pin No.	Definition
74	3.3V	**75**	GND
72	3.3V	**73**	GND
70	3.3V	**71**	GND
68	SCUSCLK(3.2Hz)(O) (0/3.3V)	**69**	PEDET (NC-PCIe/GNDSATA)
	Connector Key	**67**	N/C

	Connector Key		Connector Key
	Connector Key		Connector Key
	Connector Key		Connector Key
58	N/C		Connector Key
56	NC	**57**	GND
54	PEWAKE# (I/O)(O) (0/3.3V) or N/C	**55**	REFCLKp
52	CLKREQ# (I/O)(O)(0/3.3V) or N/C	**53**	REFCLKn
50	PERST#(I/O)(O) (0/3.3V) or N/C	**51**	GND
48	NC	**49**	PETp0/SATA-A+
46	NC	**47**	PETn0/SATA-A-
44	NC	**45**	GND
42	NC	**43**	PERp0/SATA-B-
40	NC	**41**	PERp0/SATA-B+
38	DEVSLP (O)	**39**	GND
36	NC	**37**	PETp1
34	NC	**35**	PETn1
32	NC	**33**	GND
30	NC	**31**	PERp1
28	NC	**29**	PERn1
26	NC	**27**	GND
24	NC	**25**	PETp2
22	NC	**23**	PETn2
20	NC	**21**	GND
18	3.3V	**19**	PERp2
16	3.3V	**17**	PERn2
14	3.3V	**15**	GND
12	3.3V	**13**	PETp3
10	DAS/DDS# (I/O)/LED1# (I)	**11**	
8	N/C	**9**	GND
6	N/C	**7**	PERp3
4	3.3V	**5**	PERn3
2	3.3V	**3**	GND
		1	GND

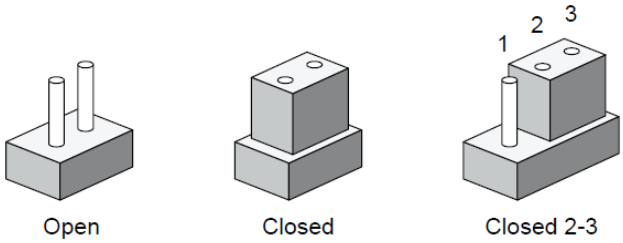
3.2 Main Board Jumper Settings

3.2.1 Board top view of the system main board with jumper and deep switch

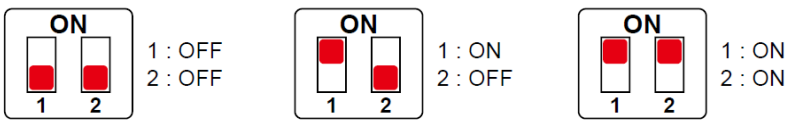


The figure above is the top view of the system main board. It shows the location of the jumpers and the switches.

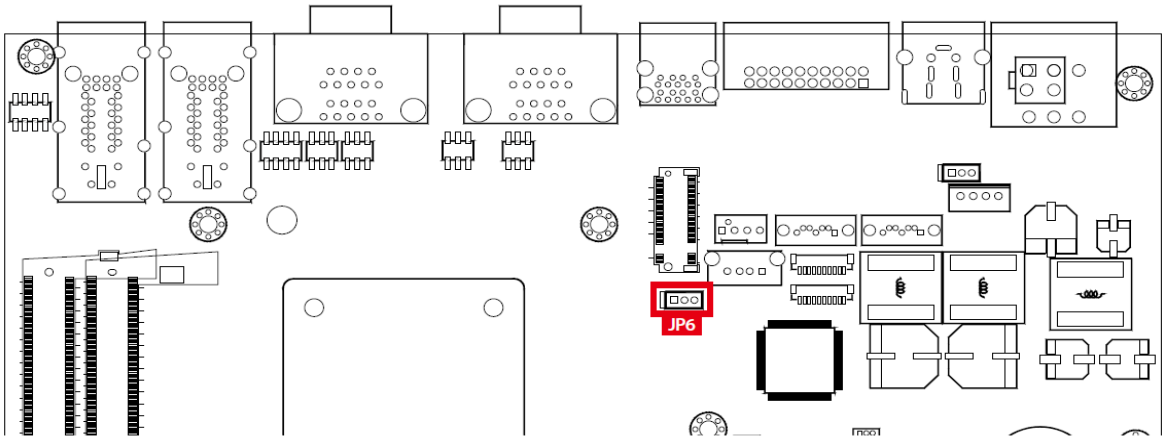
You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, you connect the pins with the clip. To "open" a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1and 2, or 2 and 3.



You may configure your card to match the needs of your application by DIP switch. As below show the deep switch on and off.

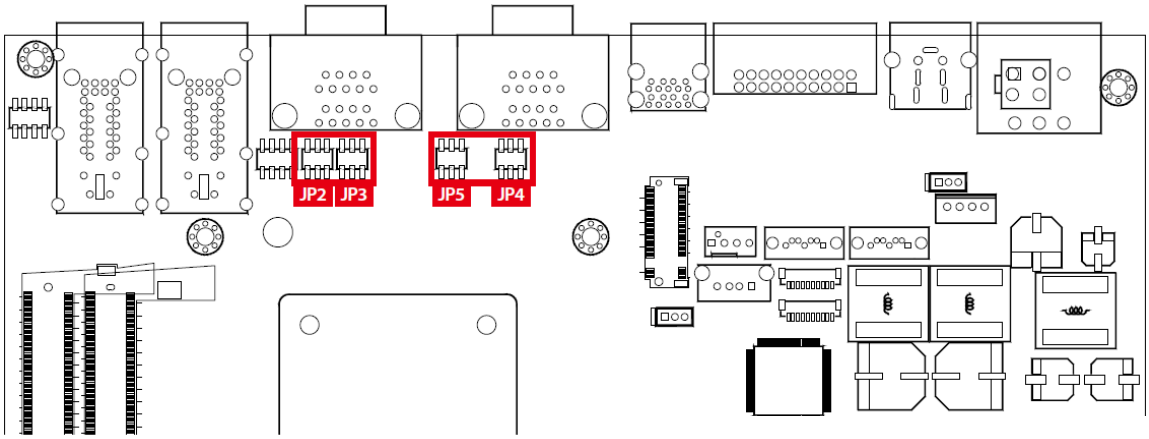


3.2.2 JP6 : USB Wake Up



Jumper	Setting	Function
JP6	2:3	Non Wake Up support
JP6	1:2	Supported Wake Up (Default)

3.2.3 JP2, JP3, JP4, JP5 : COM Port RI pin Select



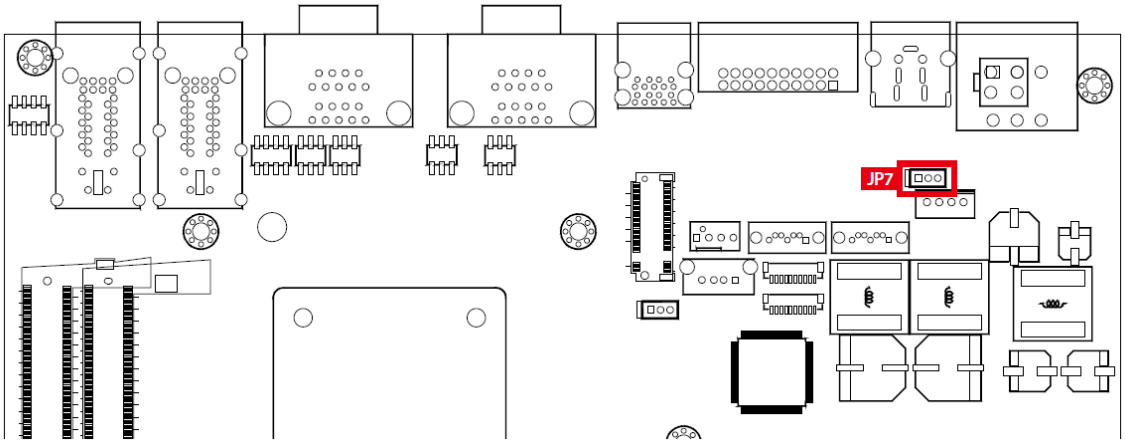
Pin Header	Pin No.	Description
COM1 JP2	1 - 2	+5V (1A max.)
	3 - 4	+12V (0.5A max.))
	5 - 6	RI (Default)

Pin Header	Pin No.	Description
COM1 JP3	1 - 2	+5V (1A max.)
	3 - 4	+12V (0.5A max.)
	5 - 6	RI (Default)

Pin Header	Pin No.	Description
COM1 JP4	1 - 2	+5V (1A max.)
	3 - 4	+12V (0.5A max.)
	5 - 6	RI (Default)

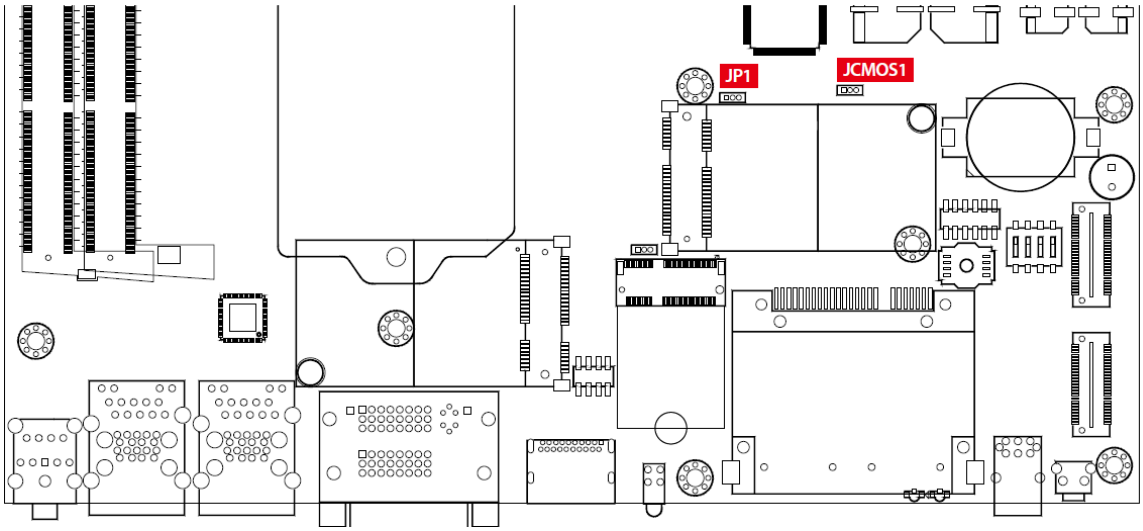
Pin Header	Pin No.	Description
COM1 JP5	1 - 2	+5V (1A max.)
	3 - 4	+12V (0.5A max.)
	5 - 6	RI (Default)

3.2.4 JP7 : PoE Power ON Select



Jumper	Setting	Function
JP7	1:2	PoE power on at standby power ready
JP7	2:3	PoE power on after system power on (Default)
JP7	No Jumper	Disable PoE power

3.2.5 JCMOS1, JP1 : CMOS & ME Flash



Jumper	Setting	Function
JCMOS1	1:2	*Normal (Default)
JCMOS1	2:3	Clear CMOS

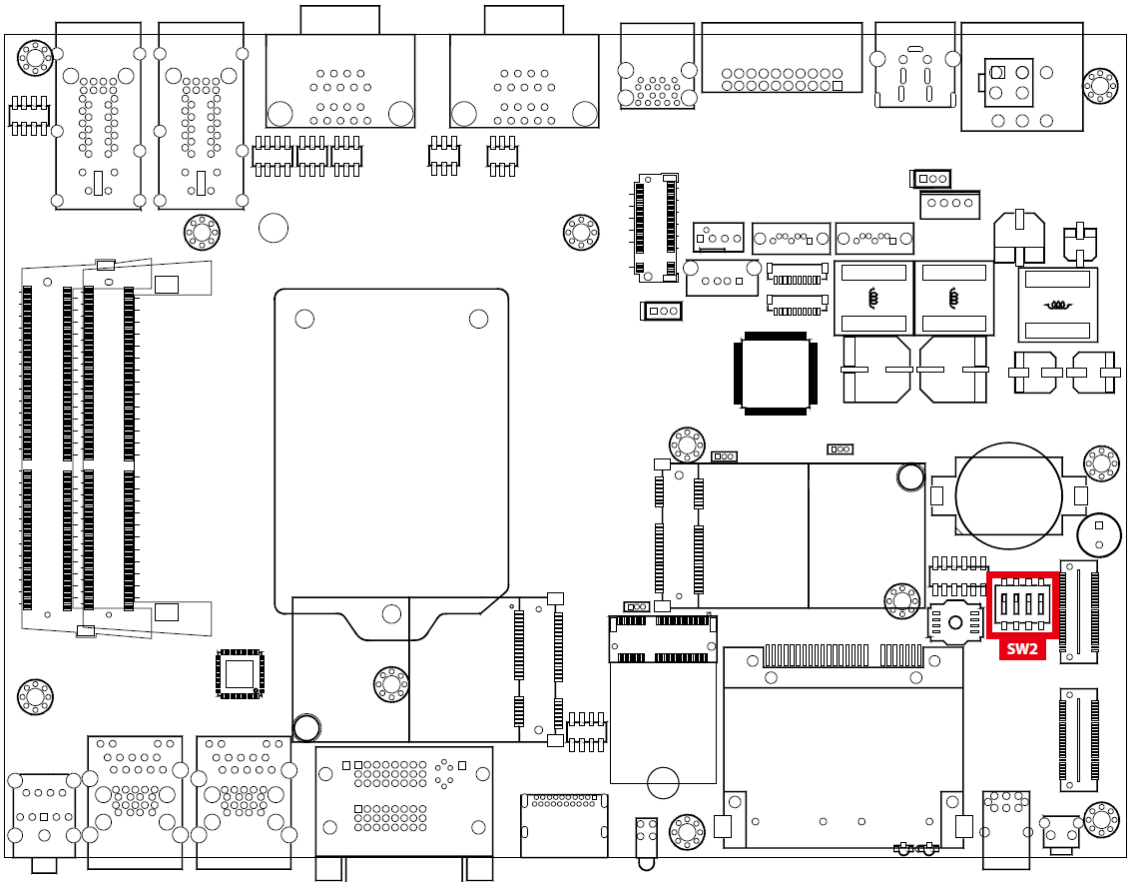
Jumper	Setting	Function
JP1	1:2	Enable security measures defined in the Flash Descriptor. (Default)
JP1	2:3	Disable Flash Descriptor Security (Flash ME)

3.3 Ignition Control

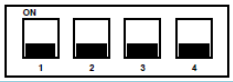
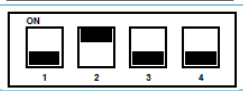
eIVP-CFS-IV-V0004 provides ignition power control featuring for in-vehicle applications. The built-in MCU monitors the ignition signal and turns on/off the system according to pre-defined on/off delay periods.

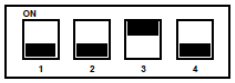
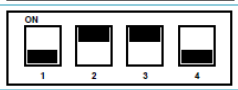
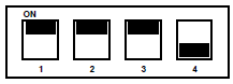
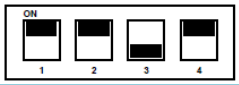
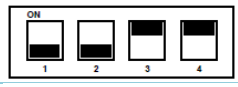
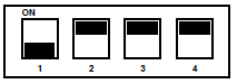
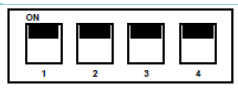
3.3.1 Adjust Ignition Control Modes

eIVP-CFS-IV-V0004 provide 16 modes of different power on/off delay periods adjustable via SW5 switch. The default dip switch is set to 0 in ATX/AT power mode.



The modes are listed in below table :

Deep Switch Position	Power on delay	Power off delay	Switch Position
0	ATX/AT mode (Default)		
1	No delay	No delay	
2	No delay	5 seconds	
3	No delay	10 seconds	

4	No delay	20 seconds	
5	5 seconds	30 seconds	
6	5 seconds	0 seconds	
7	5 seconds	90 seconds	
8	5 seconds	30 minutes	
9	5 seconds	1 hour	
A	10 seconds	2 hours	
B	0 seconds	4 hours	
C	10 seconds	6 hours	
D	10 seconds	8 hours	
E	10 seconds	12 hours	
F	10 seconds	24 hours	

3.3.2 Ignition Control Wiring

To activate ignition control, you need to provide IGN signal via the 3-pin pluggable terminal block in the back panel. Please find below the general wiring configuration.

Pin No.	Definition
1	Ignition (IGN)
2	SW+
3	SW-

For testing purpose, you can refer to the picture below to simulate ignition signal input controlled by a latching switch.

Note :

1. DC power source and IGN share the same ground.

2. eIVP-CFS-IV-V0004 supports 6V to 36V wide range DC power input in ATX/AT mode. In Ignition mode, the input voltage is fixed to 12V/24V for car battery scenario.

3. For proper ignition control, the power button setting should be in "Power Down" mode.

Chapter
4

4. BIOS Setup

4.1 Entering BIOS Setup

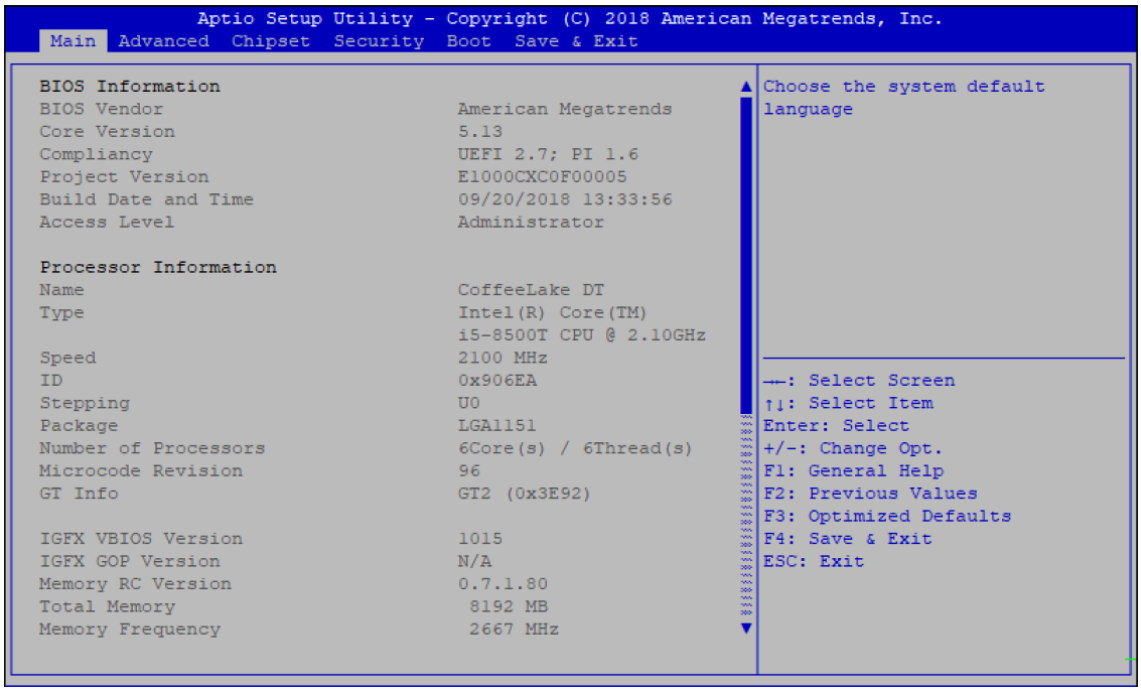


Figure 4-1: Entering Setup Screen

BIOS provides an interface for users to check and change system configuration.

The BIOS setup program is accessed by pressing the <Del> key when POST display output is shown.

4.2 Main

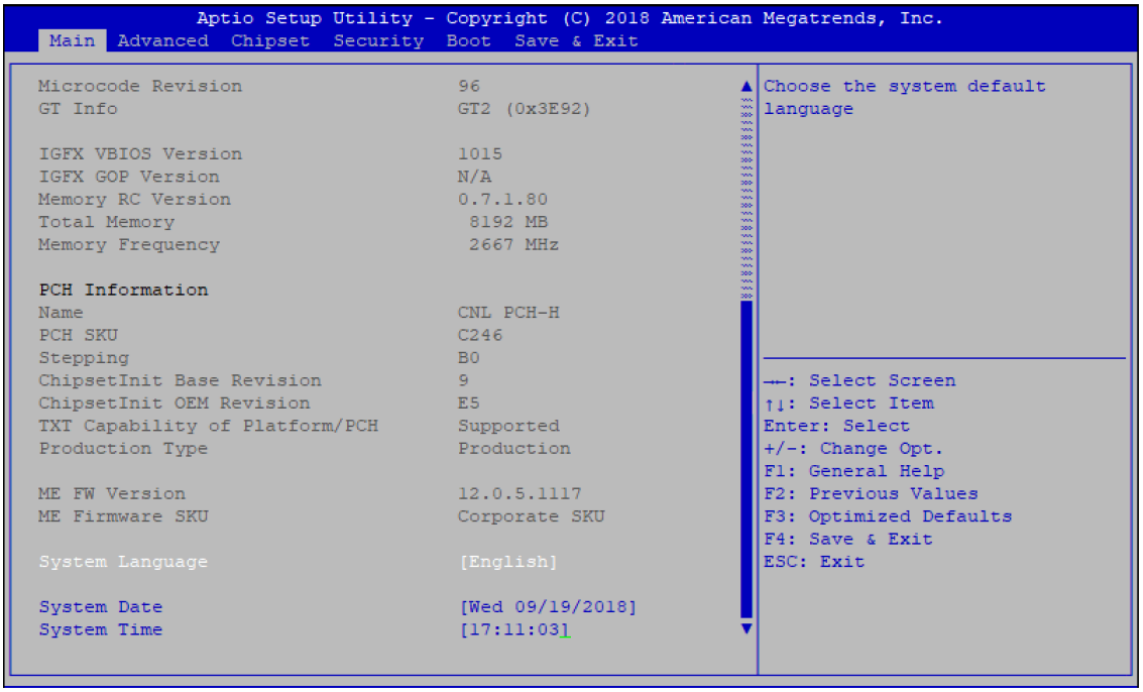


Figure 4-2: BIOS Main Menu

The main menu displays BIOS version and system information. There are two options on Main menu.

System Date

Set the date. Use <Tab> to switch between date elements.

System Time

Set the time. Use <Tab> to switch between time elements

4.3 Advanced

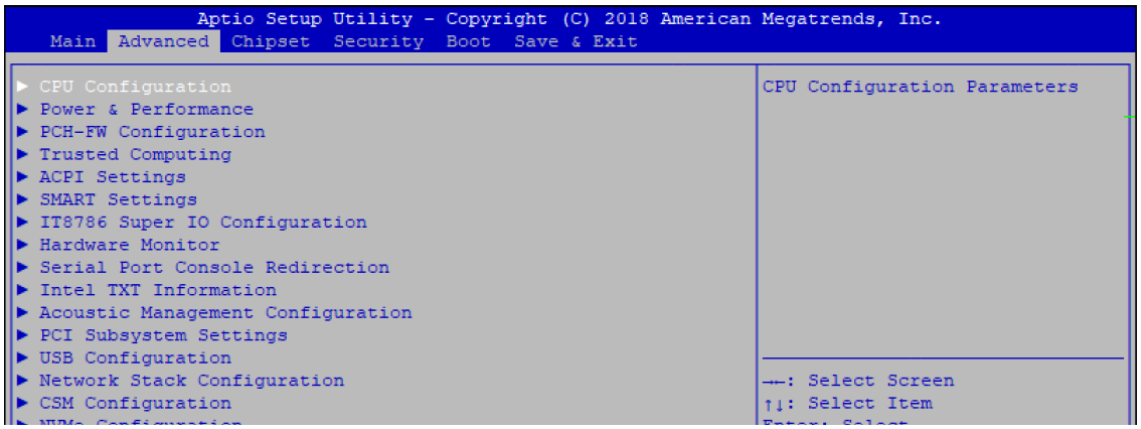


Figure 4-3: BIOS Advanced Menu

Select advanced tab to enter advanced BIOS setup options, such as CPU configuration, SATA configuration, and USB configuration.

4.3.1 CPU Configuration

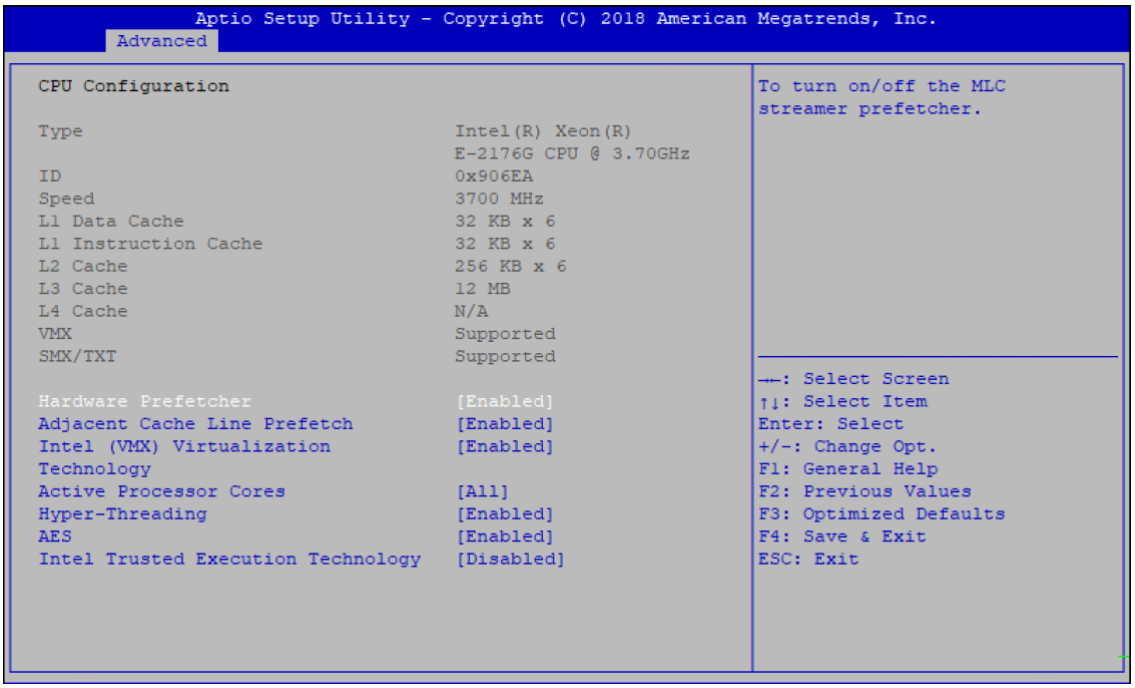


Figure 4-3-1: CPU Configuration

Hardware Prefetcher

To turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

To turn on/off prefetching of adjacent cache lines.

Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

Number of cores to enable in each processor package.

Hyper-threading

Enabled for Windows XP and Linux (OS optimized for Hyper-ThreadingTechnology) and disabled for other OS (OS not optimized for Hyper-Threading Technology). When disabled only one thread per core is enabled.

AES

Enable/disable CPU Advanced Encryption Standard instructions.

Intel Trusted Execution Technology

Enables utilization of additional hardware capabilities provided by Intel® Trusted Execution Technology.

Changes require a full power cycle to take effect.

4.3.2 Power & Performance

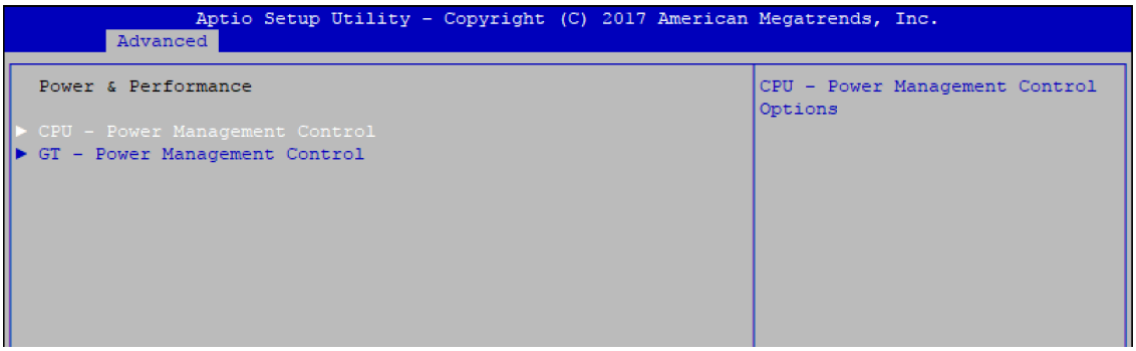


Figure 4-3-2: Power & Performance

4.3.2.1 CPU – Power Management Control

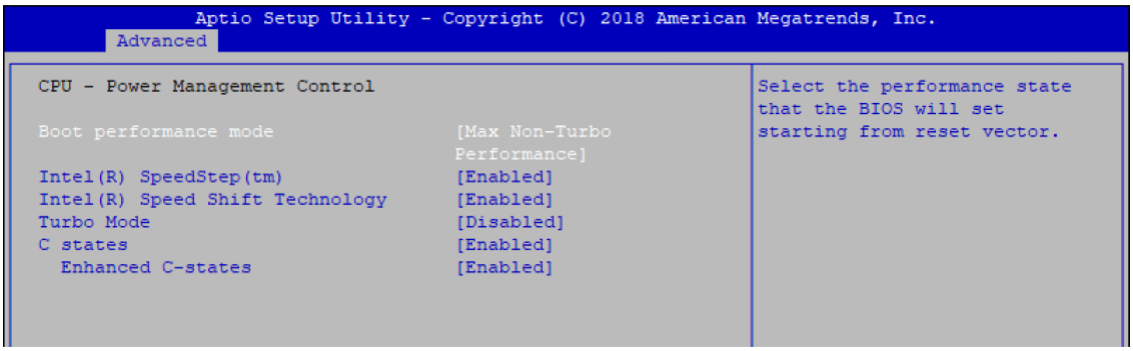


Figure 4-3-2-1: CPU – Power Management Control

Boot performance mode

Select the performance state that the BIOS will set before OS handoff.

Intel(R) SpeedStep(tm)

Allows more than two frequency ranges to be supported.

Intel(R) Speed shift Technology

Enable/Disable Intel® Speed Shift Technology support. Enabling will expose the CPPCv2 interface to allow for hardware controlled P-states.

Turbo Mode

Turbo Mode.

C states

Enable or disable CPU C states.

Enhanced C-states

Enable/disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C- State.

4.3.2.2 GT – Power Management Control

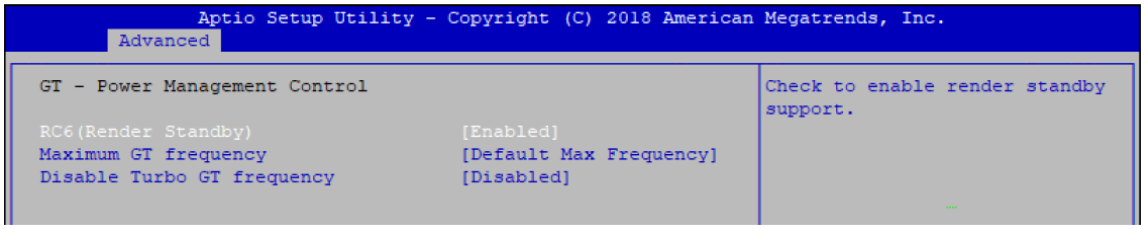


Figure 4-3-2-2: GT-Power Management Control

RC6 (Render Standby)

Check to enable render standby support.

Maximum GT frequency

Maximum GT frequency is limited by the user. Choose between 350MHz (RPN) and 1150MHz (RP0). Value beyond the range will be clopped to min/max supported by SKU

Disable Turbo GT frequency

Check to enable render standby support.

4.3.3 PCH-FW Configuration

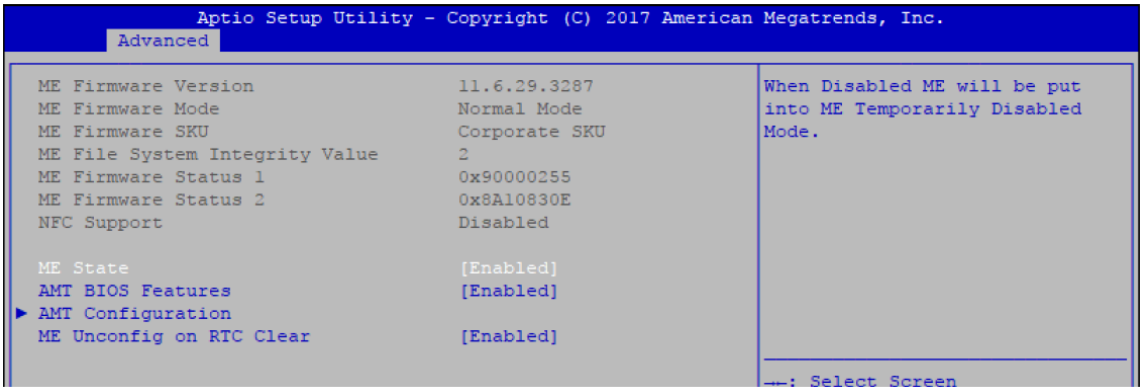


Figure 4-3-3: PCH-FW Settings

ME State

Set ME to Soft temporarily disabled.

AMT BIOS Features

When disable AMT BIOS Features, they will be no longer supported and user is no longer able to access MEBx Setup.

AMT Configuration

Configure Intel® Active Management Technology Parameters.

ME Unconfig on RTC Clear State

Disabling this option will cause ME not to unconfigure on RTC clear.

4.3.4 Trusted Computing

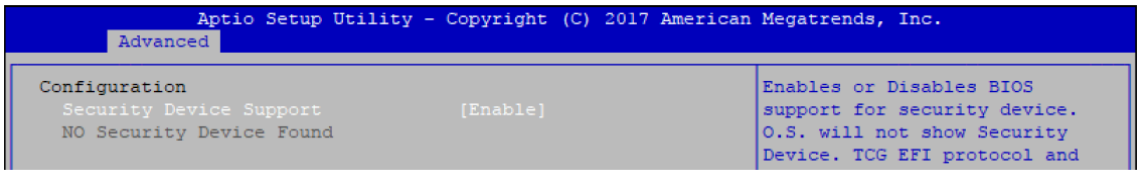


Figure 4-3-4: Trusted Computing

Control the TPM device status and display related information if TPM chip is present.

4.3.5 ACPI Settings

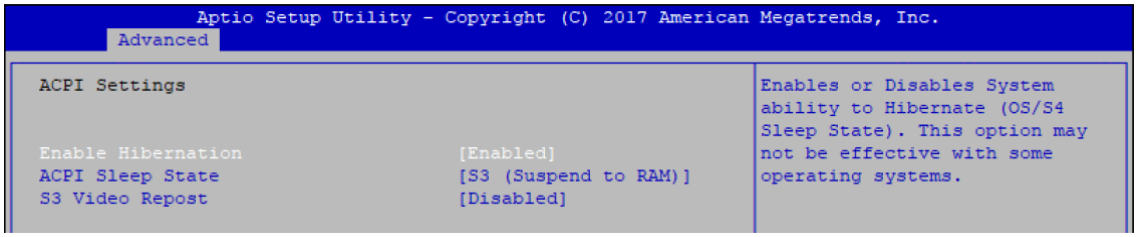


Figure 4-3-5: ACPI Settings

Enable Hibernation

Enables or disables system's ability to hibernate (OS/S4 sleep state). This option may not be effective with some OS.

ACPI Sleep State

Selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

S3 Video Repost

Enables or disables S3 video repost.

4.3.6 SMART Settings

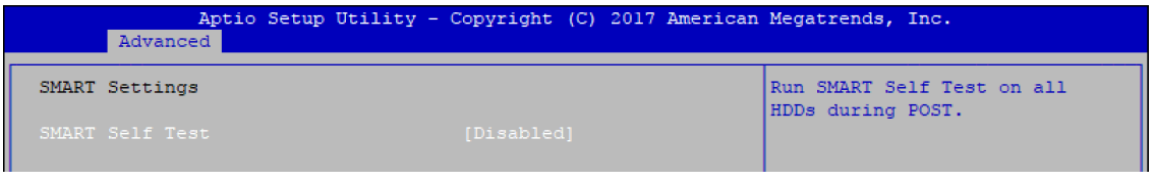


Figure 4-3-6 : SMART Settings

SMART Self Test

Run SMART self test on all HDDs during POST.

4.3.7 IT8786 Super IO Configuration

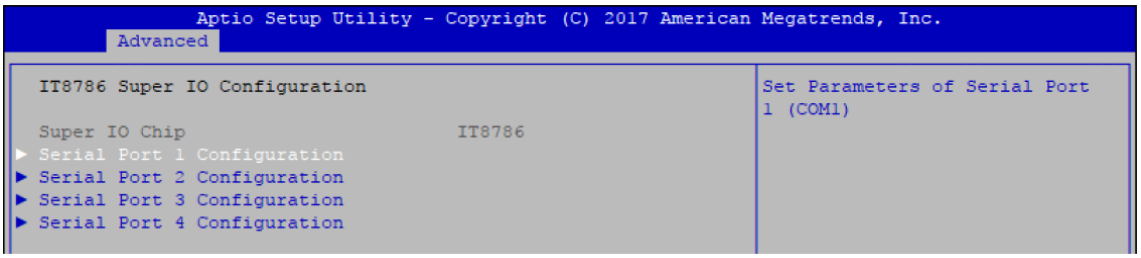


Figure 4-3-7: IT8786 Super IO Settings

4.3.7.1 Serial Port X Configuration

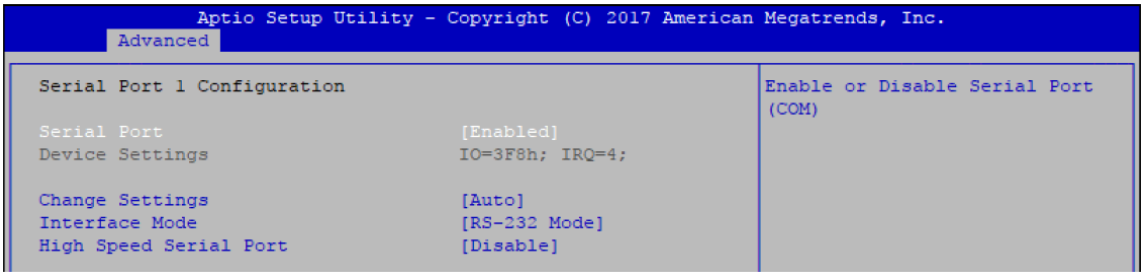


Figure 4-3-7-1: Serial Port X Configuration

Serial Port 1 to port 4 Configuration

Options for Serial Port 1 to Serial Port 4.

Entering the corresponding Port option then end user can change the settings such as I/O resource and UART mode (High Speed Serial Port is Port 1 only).

4.3.8 Hardware Monitor

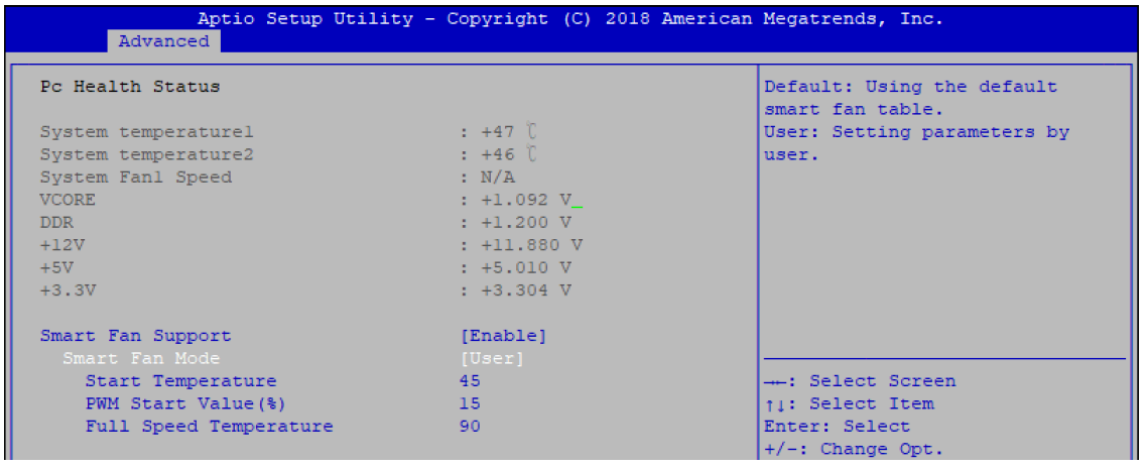


Figure 4-3-8: Hardware Monitor Settings

The IT8786 SIO features an enhanced hardware monitor providing thermal, fan speed, and system voltages' status monitoring.

Smart Fan Support

Smart Fan Support. Work with Full Speed if "Smart Fan Support" is disabled.

Smart Fan Mode

Default: Using the default smart fan table.

User: Setting parameters by user.

Start Temperature

Temperature Limit value of Fan Start (Degree C).

(Range: 10~80)

PWM Start Value (%)

Default PWM Value of Fan.

(Range: 15%~100%)

Full Speed Temperature

Temperature Limit value of Fan Full Speed (Degree C).

(Range: 50~90)

4.3.9 Serial Port Console Redirection

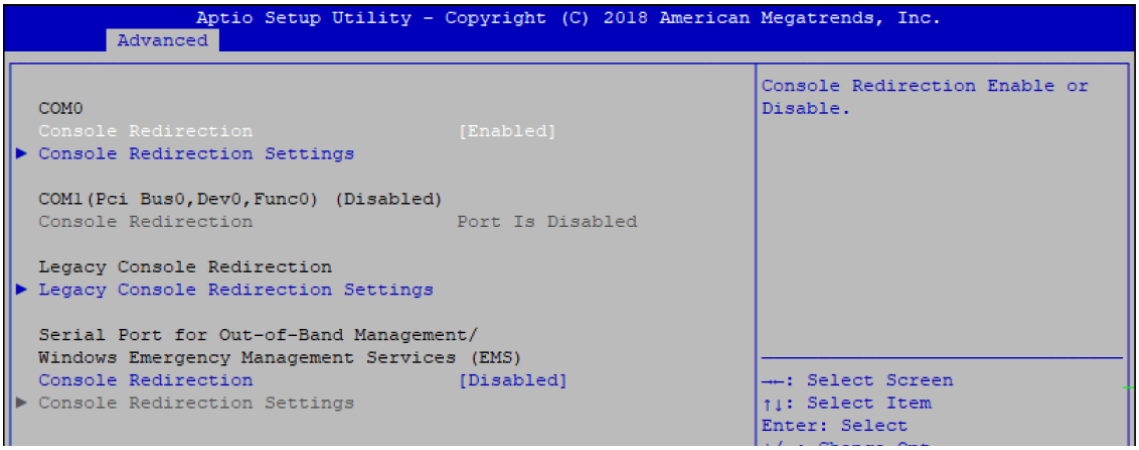


Figure 4-3-9 : Serial Port Console Redirection Settings

Console Redirection

Console redirection enable or disable.

Console Redirection Settings

These settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Legacy Console Redirection

Legacy Console Redirection Settings

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console redirection enable or disable

4.3.10 Intel TXT Information

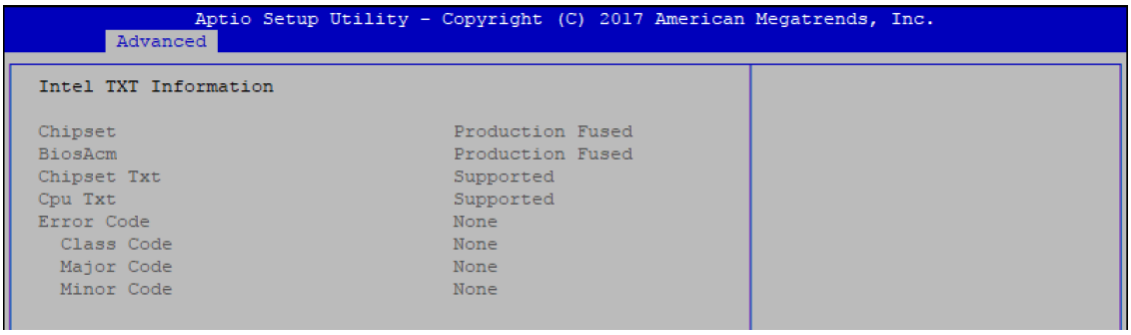


Figure 4-3-10: Intel TXT Information

Display Intel TXT information

4.3.11 Acoustic Management Configuration

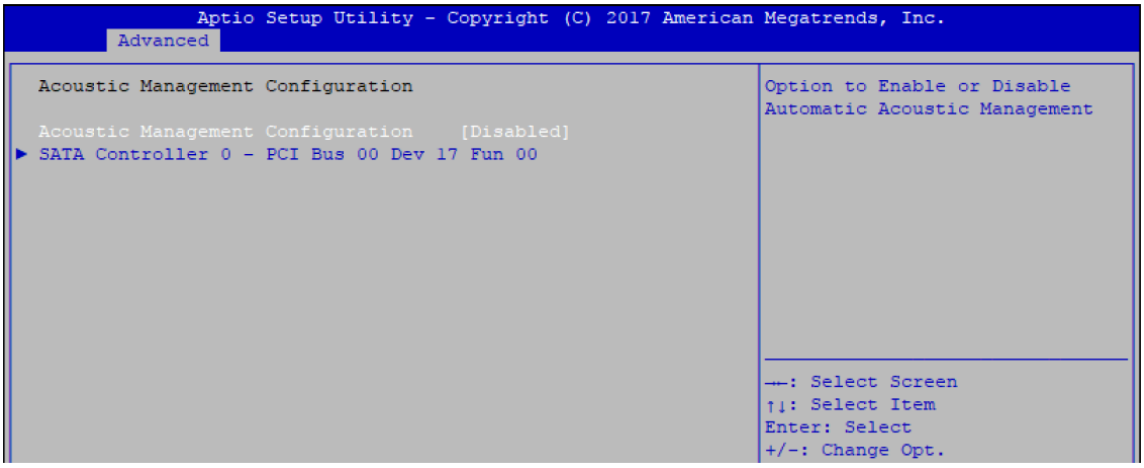


Figure 4-3-11: Acoustic Management Settings

Acoustic Management Configuration

Option to enable or disable automatic acoustic management

4.3.12 PCI Subsystem Setting

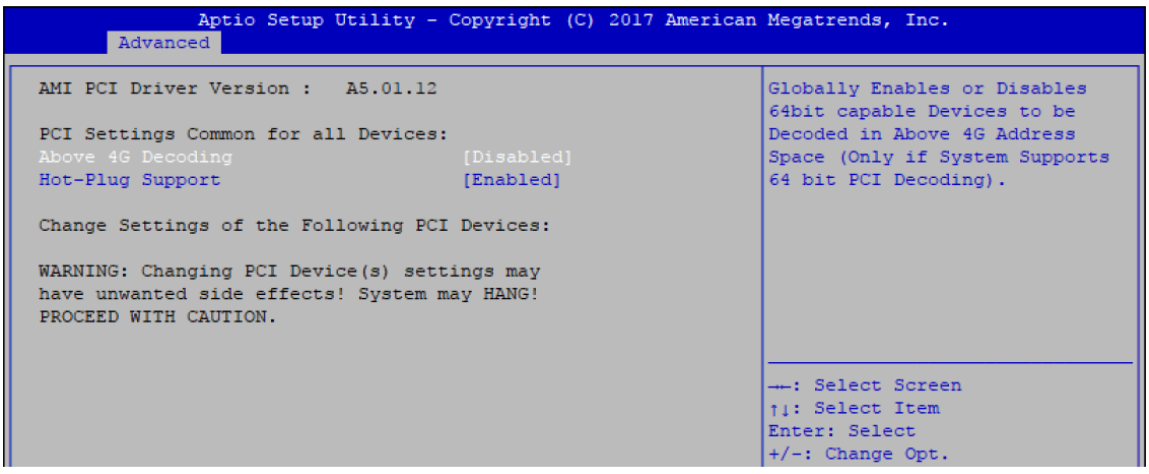


Figure 4-3-12: PCI Subsystem Settings

Above 4G Decoding

Globally Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports bot PCI Decoding)

Hot-Plug Support

Globally Enables or Disables Hot-Plug support for the entire System. If system has Hot-Plug Capable Slots and this option set to Enabled, it provides a Setup screen for selecting PCI resource padding for Hot-Plug.

4.3.13 Network Stack Configuration

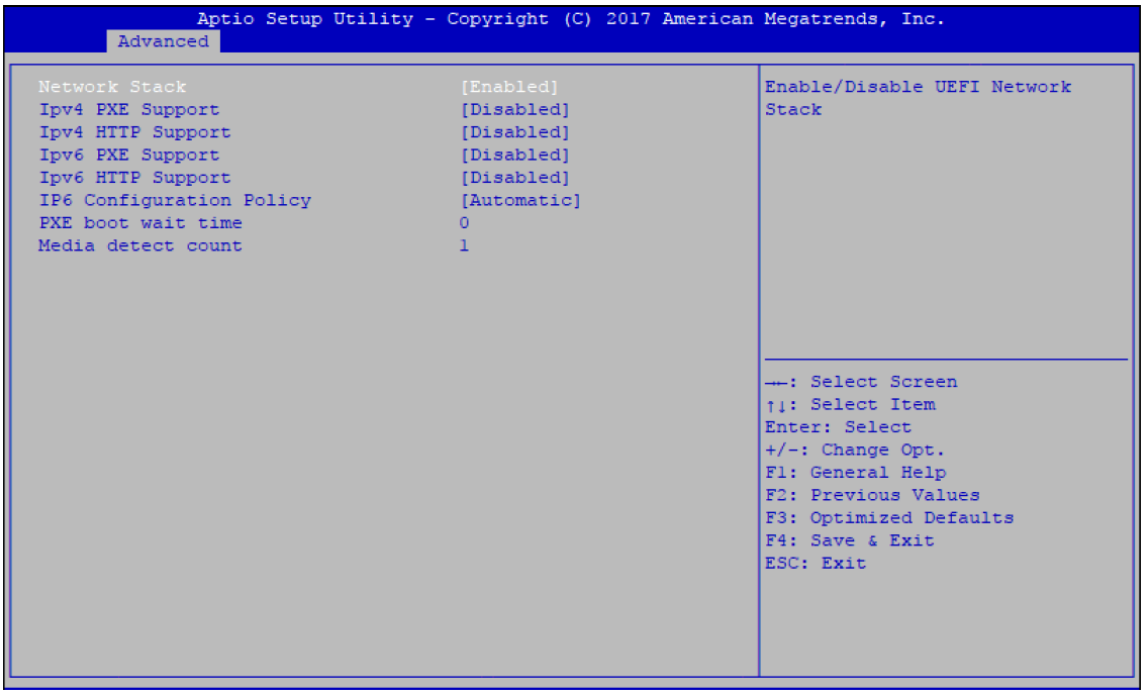


Figure 4-3-13: Network Stack Settings

Network Stack

Enable/Disable UEFI Network Stack

Ipv4 PXE Support

Enable/Disable IPv4 PXE boot support.

Ipv4 HTTP Support

Enable/Disable IPv4 HTTP boot support.

Ipv6 PXE Support

Enable/Disable IPv6 PXE boot support.

Ipv6 HTTP Support

Enable/Disable IPv6 HTTP boot support.

IP6 Configuration Policy

Set IP6 Configuration Policy.

PXE boot wait time

Wait time to press ESC key to abort the PXE boot.

Media detect count

Number of times presence of media will be checked.

4.3.14 CSM Configuration

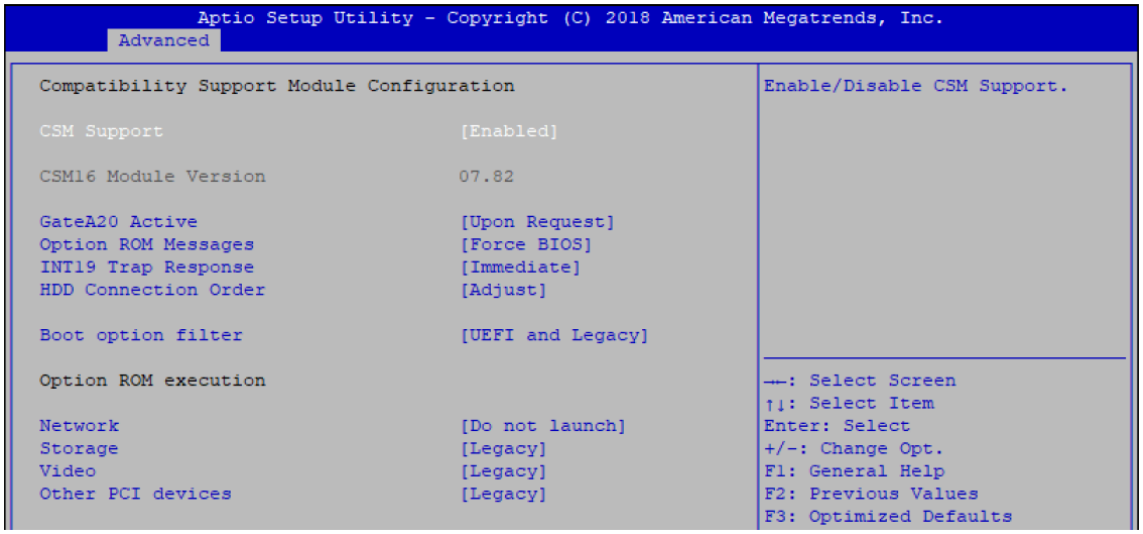


Figure 4-3-14: CSM Configuration

CSM Support

Enable/disable CSM support

GateA20 Active

UPON REQUEST - GA20 can be disabled using BIOS services.

ALWAYS - do not allow GA20 to be disabled; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

Set display mode for Option ROM.

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM :

IMMEDIATE - execute the trap right away;

POSTPONED - execute the trap during legacy boot.

HDD Connection Order

Some OS require HDD handles to be adjusted, i.e. OS is installed on drive 80h.

Boot option filter

This option controls Legacy/UEFI ROM's priority.

Network

Controls the execution of UEFI and Legacy PXE OpROM.

Storage

Controls the execution of UEFI and Legacy Storage OpROM.

Video

Allows more than two frequency ranges to be supported.

Other PCI devices

Determines OpROM execution policy for devices other than network, storage, or video.

4.3.15 NVMe Configuration

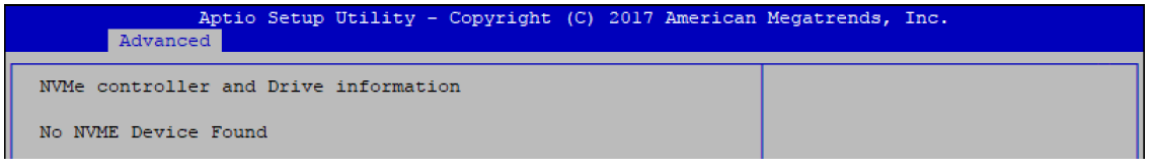


Figure 4-3-15: NVMe Settings

Display NVMe controller and Drive information.

4.3.16 USB Configuration

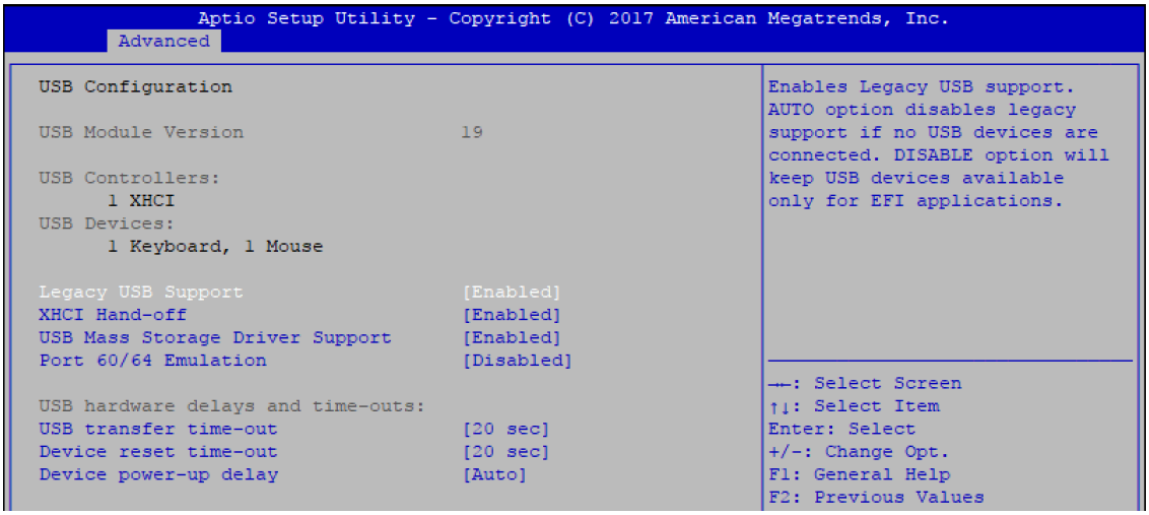


Figure 4-3-16: USB Settings

Legacy USB Support

Enables Legacy USB support.

AUTO option disables Legacy support if no USB devices are connected.

DISABLE option will keep USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OS-es without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

USB Mass Storage Driver Support

Enable/disable USB mass storage driver support.

Port 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB transfer time-out

The time-out value for control, bulk, and interrupt transfers.

Device reset time-out

USB mass storage device start unit command time-out.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value, for a root port it is 100 ms, for a hub port the delay is taken from the hub descriptor.

4.4 Chipset

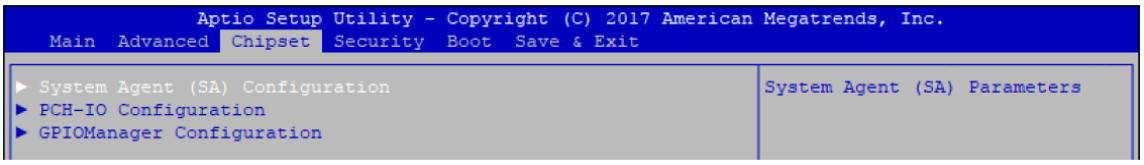


Figure 4-4: BIOS Chipset Menu

System Agent (SA) Configuration

System Agent (SA) parameters.

PCH-IO Configuration

PCH parameters.

GPIOManager Configuration

GPIOManager Configuration.

4.4.1 System Agent (SA) Configuration

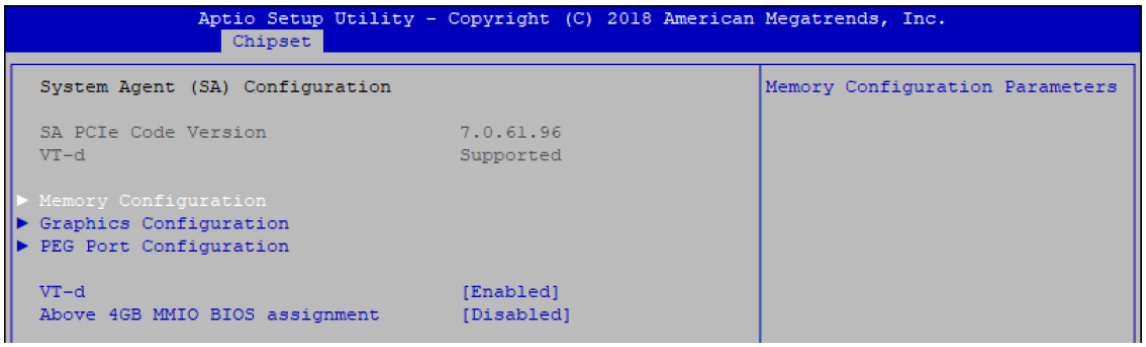


Figure 4-4-1: System Agent Settings

VT-d

VT-d capability.

Above 4GB MMIO BIOS assignment

Enable/disable above 4GB MemoryMappedIO BIOS assignment. This is disabled automatically when aperture size is set to 2048MB.

4.4.1.1 Memory Configuration

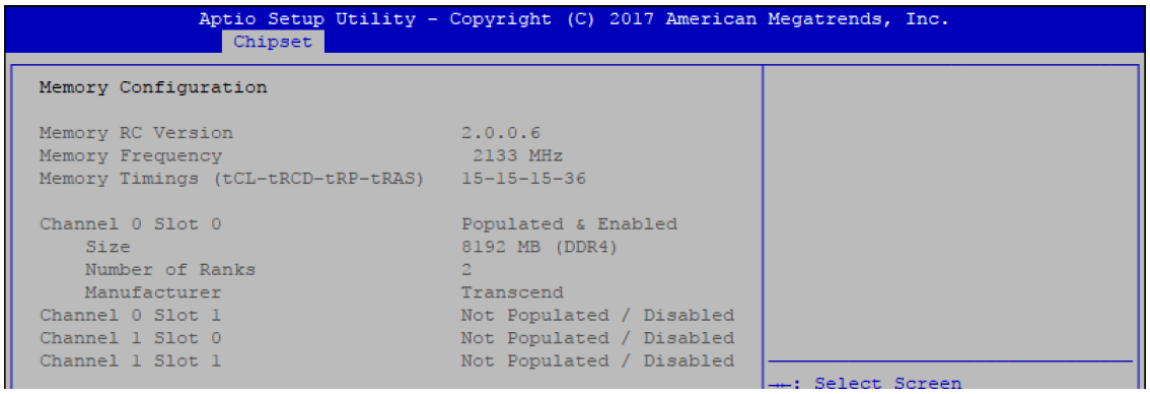


Figure 4-4-1-1: Memory Information

Displays memory information.

4.4.1.2 Graphics Configuration

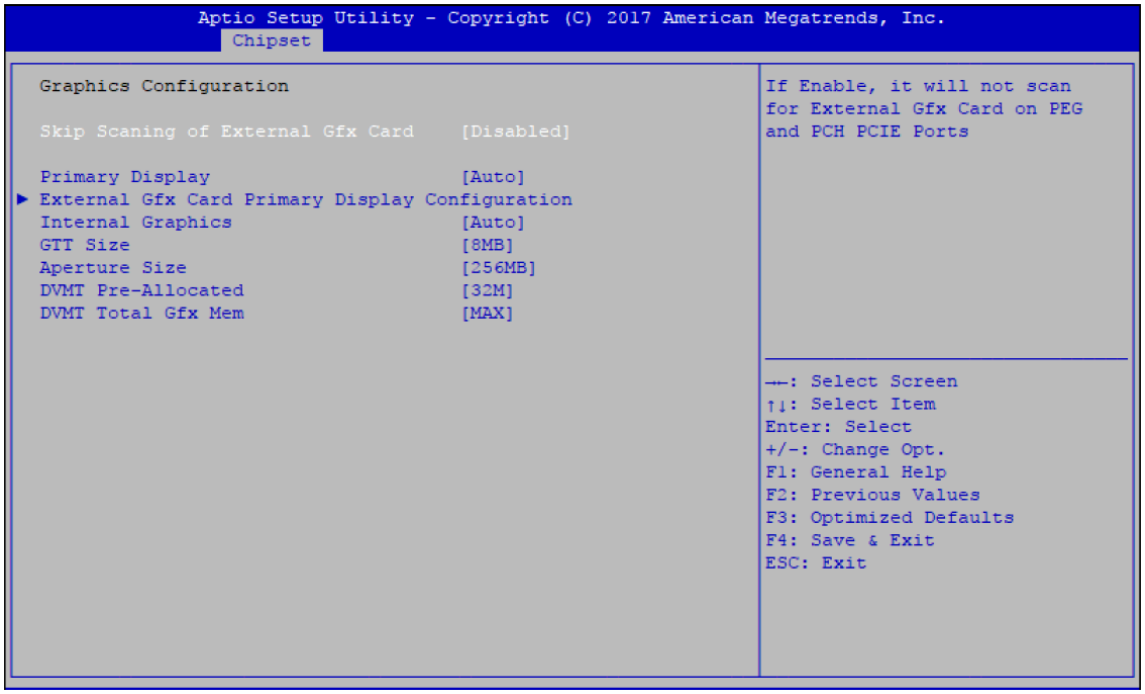


Figure 4-4-1-2: Graphics Settings

Skip Scaning of External Gfx Card

If Enable, it will not scan for External Gfx Card on PEG and PCH PCIE Ports.

Primary Display

Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.

Internal graphics

Keep IGFX enabled based on the setup options.

GTT Size

Select the GTT Size.

Aperture Size

Select the Aperture Size.

Note: Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.

DVMT Pre-Allocated

Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

DVMT Total Gfx Mem

Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

4.4.1.3 PEG Port Configuration

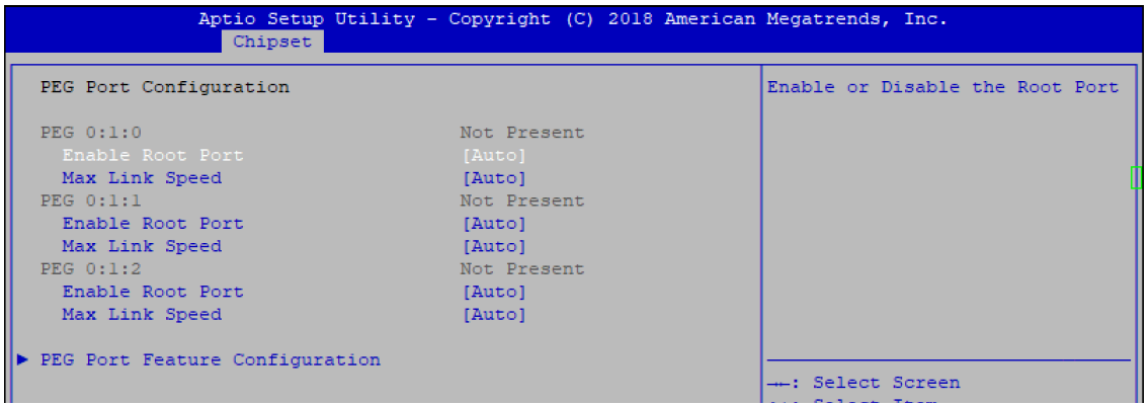


Figure 4-4-1-3: PEG Port Configuration

PEG port options for PCIe device.

4.4.2 PCH-IO Configuration

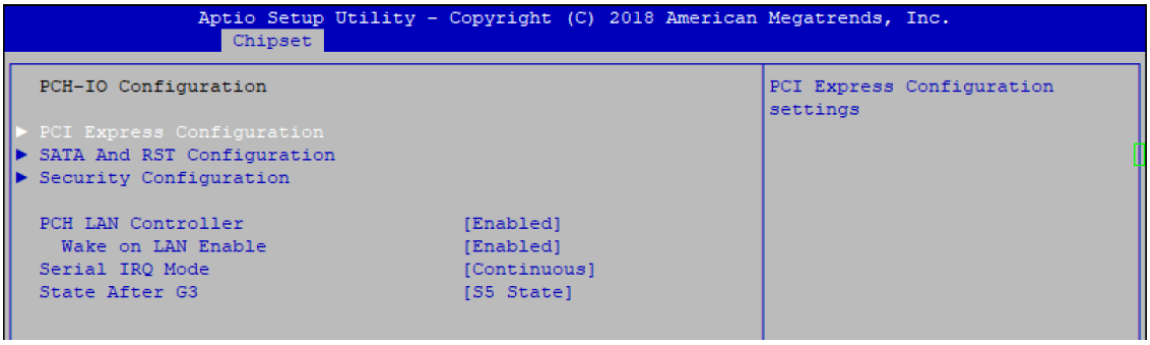


Figure 4-4-2: PCH-IO Settings

PCH LAN Controller

Enable or disable onboard NIC.

Wake on LAN

Enable or disable integrated LAN to wake the system. (The wake On LAN cannot be disabled if ME is on at Sx state.)

Serial IRQ Mode

Configure serial IRQ mode.

State After G3

Specify what state to go to when power is re-applied after a power failure (G3 state).

S0 State: Always turn-on the system when power source plugged-in.

S5 State: Always turn-off the system when power source plugged-in.

4.4.2.1 PCI Express Configuration of PCH-IO

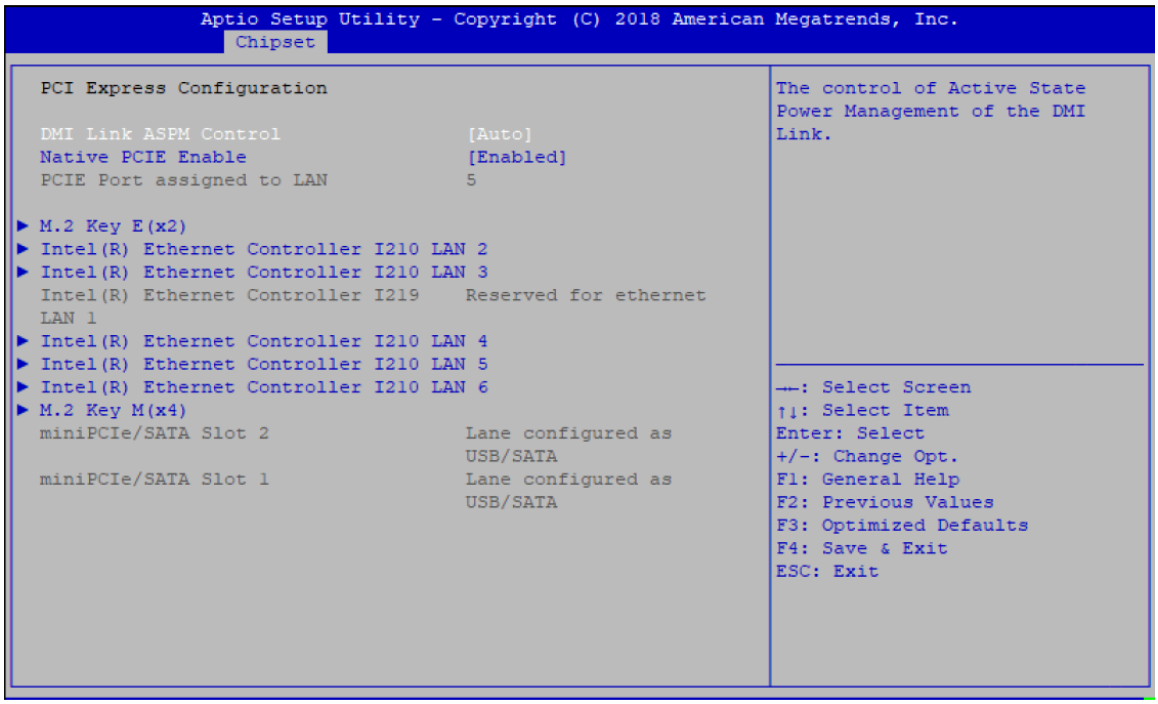


Figure 4-4-2-1: PCH-IO Settings

DMI Link ASPM Control

Enable/Disable the control of Active State Power Management on SA side of the DMI Link.

Native PCIE Enable

PCIE Express Native Support Enable/Disable.

PCI Express device settings

Bios options for PCI Express device setting.

4.4.2.2 SATA and RST Configuration

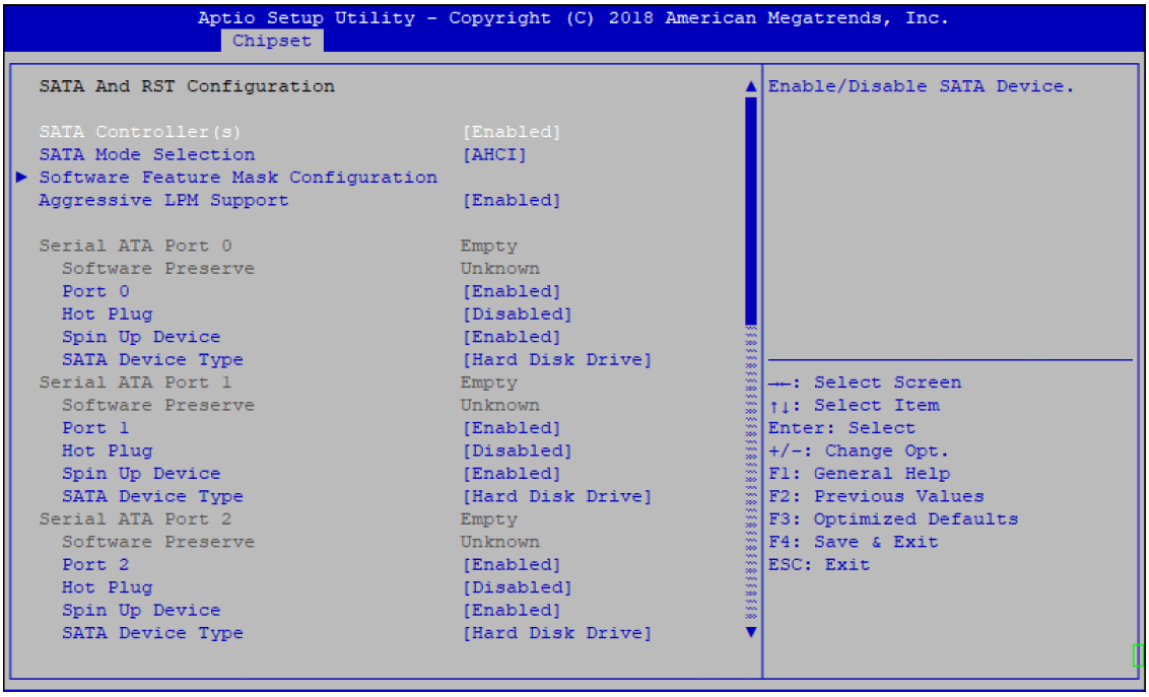


Figure 4-4-2-2: SATA and RST Settings

SATA Controller(s)

Enable or disable SATA Device.

SATA Mode Selection

Determines how SATA controller(s) operate.

Software Feature Mask Configuration

RAID OROM/RST driver will refer to the SWFM configuration to enable or disable the storage features.

Aggressive LPM Support

Enable PCH to aggressively enter link power state.

Options for each SATA port:

Port n

Enable or disable SATA Port.

Hot Plug

Designated this port as Hot Pluggable.

Spin Up Device

On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.

SATA Device Type

Identifies that the SATA port is connected to solid state drive or hard disk drive.

4.4.2.3 Security Configuration

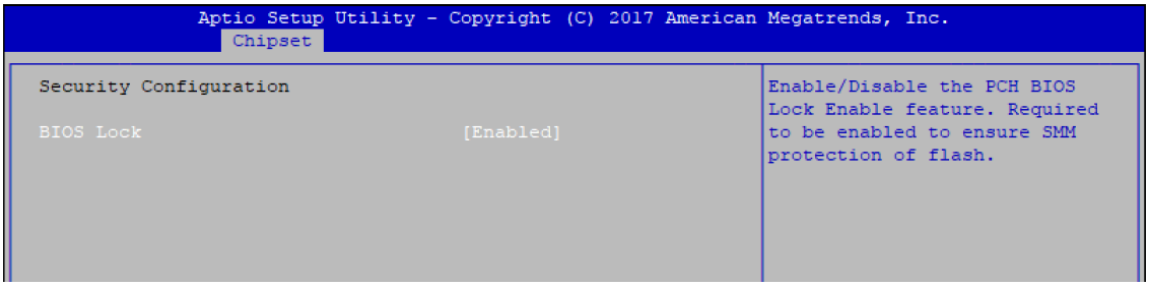


Figure 4-4-2-3: Security Settings

BIOS Lock

Enable/disable the PCH BIOS Lock Enable (BLE bit) feature.

4.5 Security

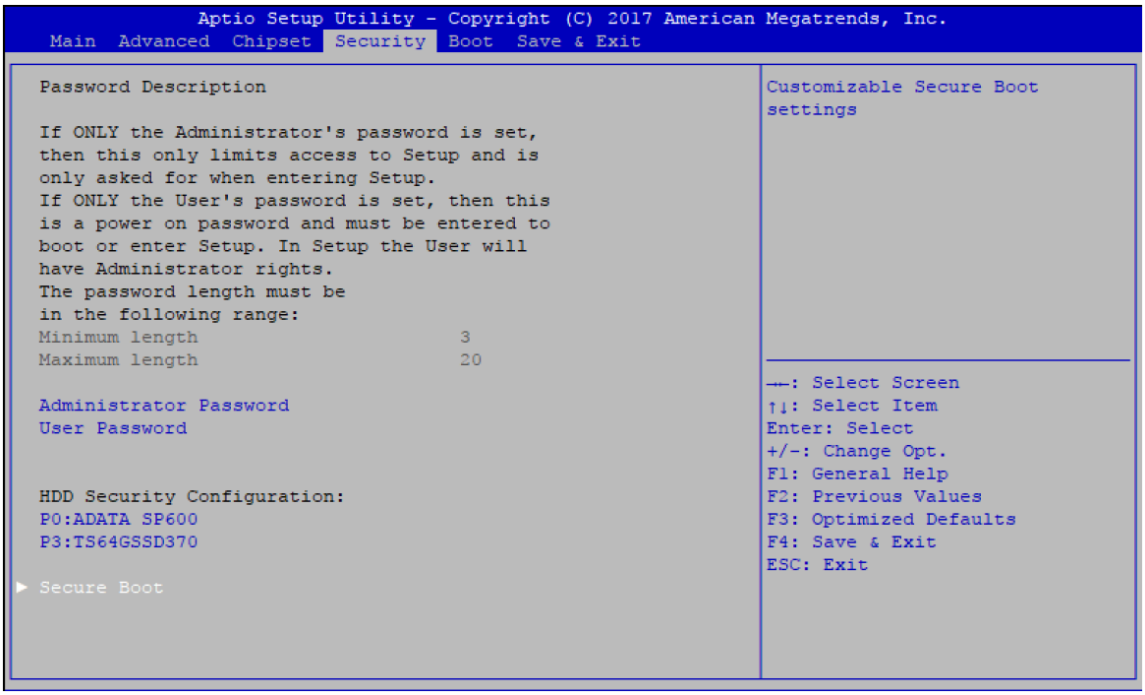


Figure 4-5: BIOS Security Menu

Administrator Password

Set administrator password.

User Password

Set user password.

Secure Boot

Customizable Secure Boot Settings.

4.5.1 HDD Security Configuration

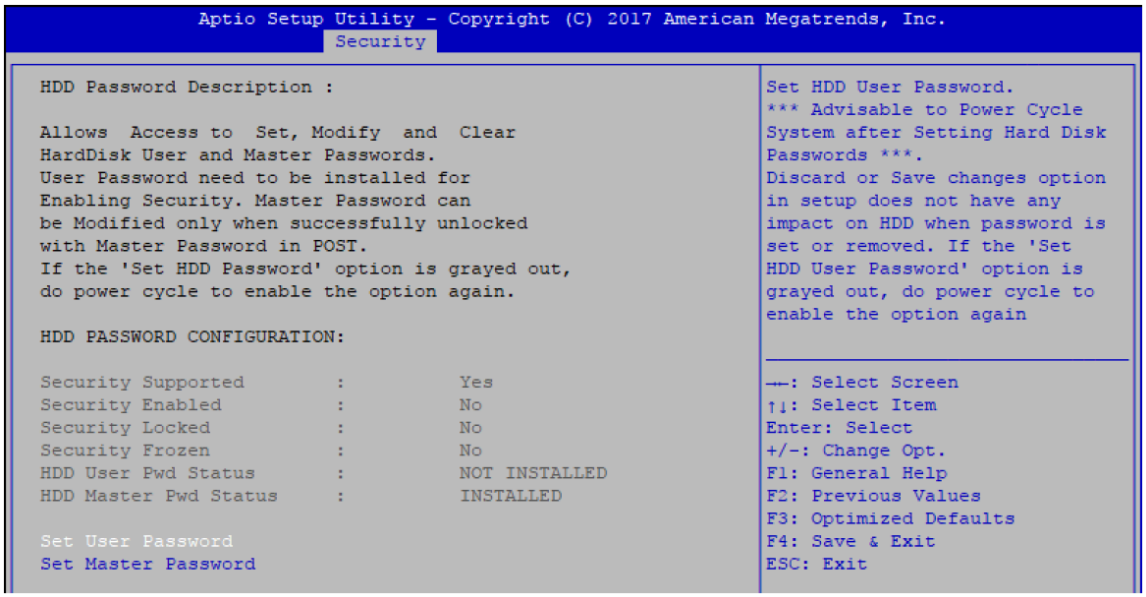


Figure 4-5-1: HDD Security Settings

Set User Password

Set HDD user password.

*** Advisable to power cycle system after setting hard disk passwords ***

Discard or save changes option in setup does not have any impact on HDD when password is set or removed. If the 'Set HDD User Password' option is gray, do power cycle to enable the option again.

4.5.2 Security Boot

Figure 4-5-2: Security Boot Settings

Attempt Secure Boot

Secure Boot activated when Platform Key (PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.

Secure Boot Mode

Secure Boot mode selector Standard/Custom.

In custom mode Secure Boot Variables can be configured without authentication.

Key Management

Enables expert users to modify Secure boot policy variables without full authentication.

4.6 Boot

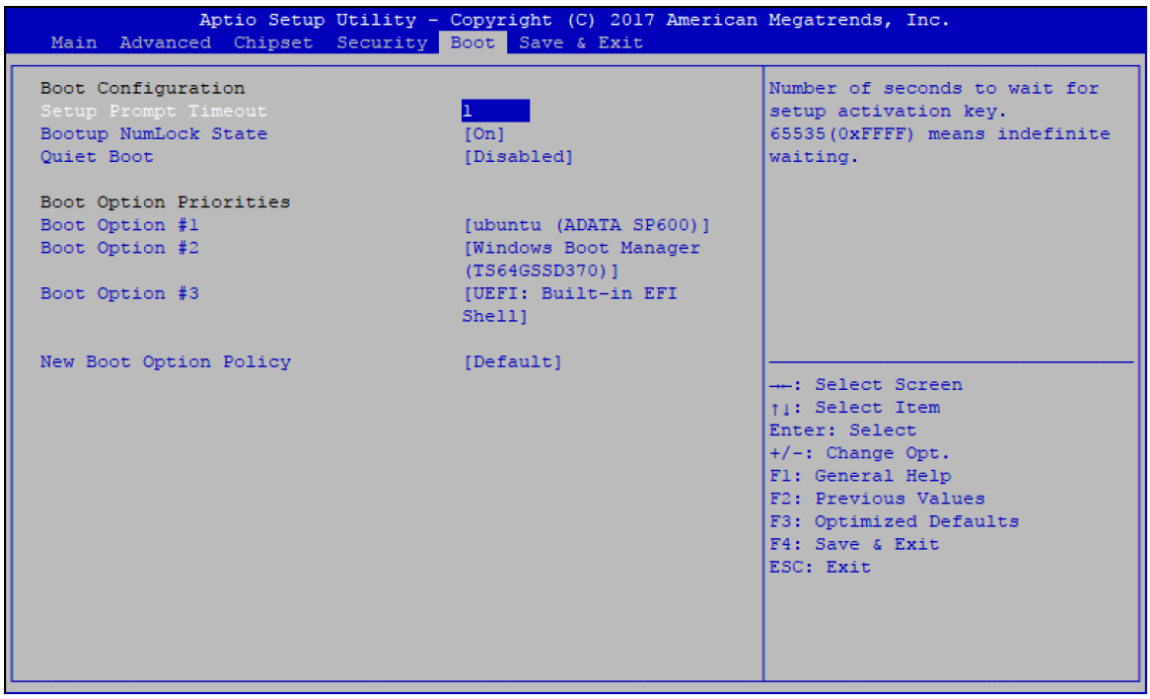


Figure 4-6: BIOS Boot Menu

Setup Prompt Timeout

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

Bootup NumLock State

Select the keyboard NumLock state.

Quiet Boot

Enables or disables Quiet Boot option.

Boot Option

Sets the system boot order.

New Boot Option Policy

Controls the placement of newly detected UEFI boot options.

Hard Drive BBS Priorities

Set the order of the Legacy devices in this group.

4.7 Save & Exit

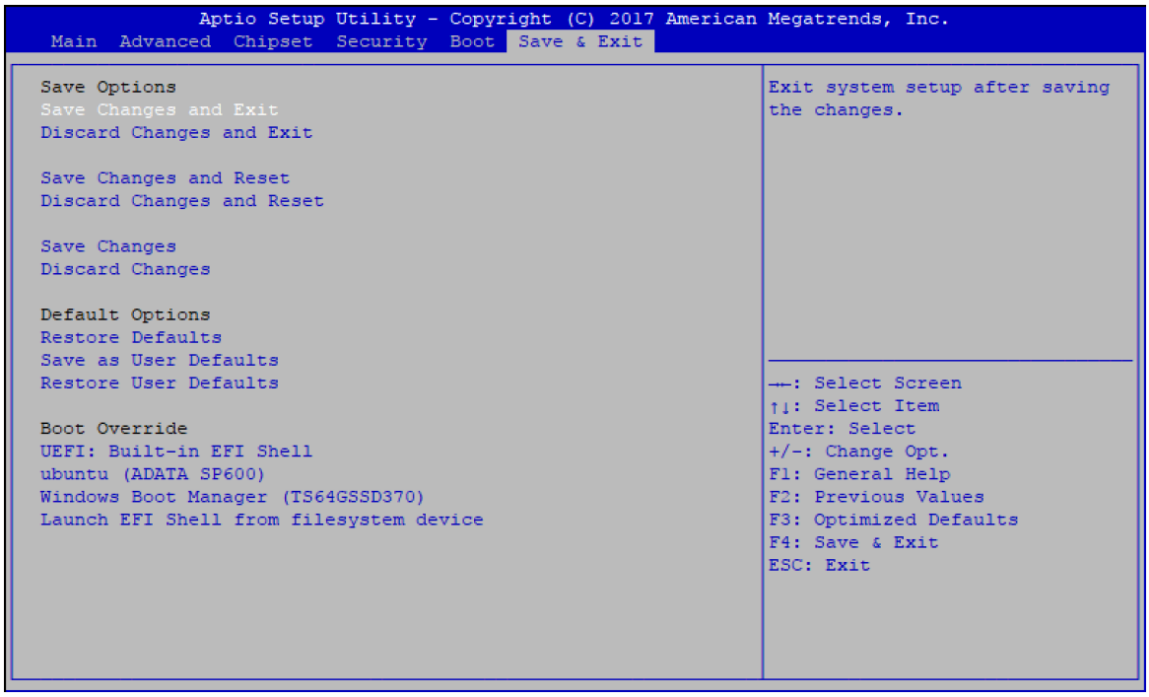


Figure 4-7: BIOS Save and Exit Menu

Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Changes

Save Changes done so far to any of the setup options.

Discard Changes

Discard Changes done so far to any of the setup options.

Default Options.

Restore Defaults

Restore/Load Default values for all the setup options.

Save as User Defaults

Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.

Chapter
5

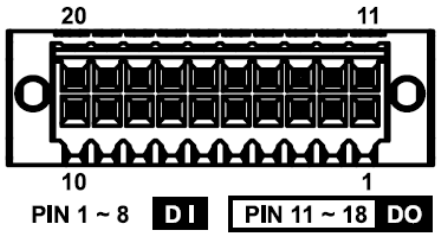
5. Appendix

5.1 Function Description

The eIVP-CFS-IV-V0004 offers a 16-bit DIO (Isolated/Non-Isolated) 20-pin terminal block connector, a watchdog timer, and a 4-port POE.

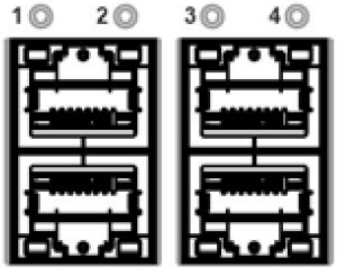
Isolated DIO pins are fixed by Hardware design that cannot change in/out direction in runtime process.

DIO definition is shown below:



Pin No.	DIO Definition	GPIO Definition	Pin No.	DIO Definition	GPIO Definition
1	DI 0	DIO 0	**11**	DO 0	DIO 8
2	DI 1	DIO 1	**12**	DO 1	DIO 9
3	DI 2	DIO 2	**13**	DO 2	DIO 10
4	DI 3	DIO 3	**14**	DO 3	DIO 11
5	DI 4	DIO 4	**15**	DO 4	DIO 12
6	DI 5	DIO 5	**16**	DO 5	DIO 13
7	DI 6	DIO 6	**17**	DO 6	DIO 14
8	DI 7	DIO 7	**18**	DO 7	DIO 15
9	DI COM	NC	**19**	DIO_GND	DIO_GND
10	DIO_GND	DIO_GND	**20**	External VDC	NC

POE definition is shown below :



Port No.	Definition	Port No.	Definition
1	POE 0	**3**	POE 2
2	POE 1	**4**	POE 3

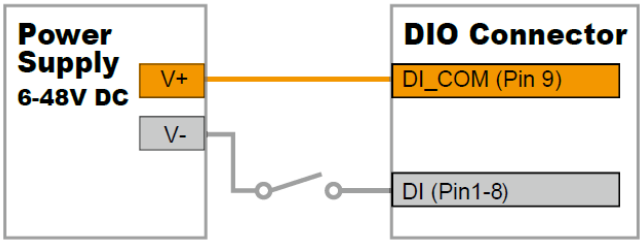
Do NOT use these functions in below :

1. PE-2000 : DIO1 (ID = 0), POE
2. PE-3000 : POE (ID = 0)
3. UE-1000 : USB (ID = 0)

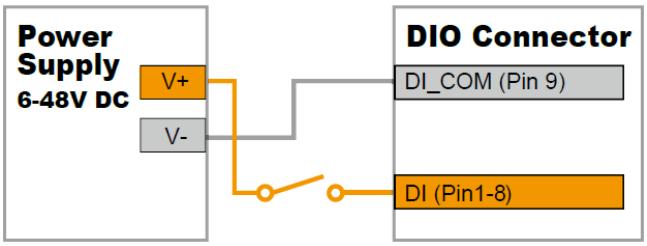
5.2 Isolated DIO Signal Circuit

DI reference circuit:

Sink Mode (NPN)



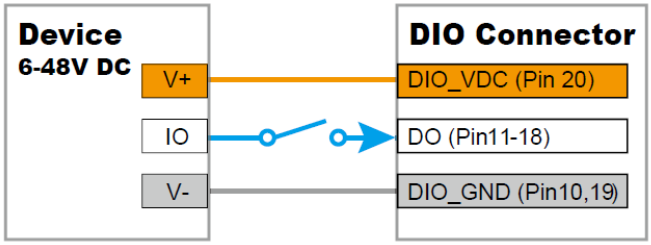
Source Mode (PNP)



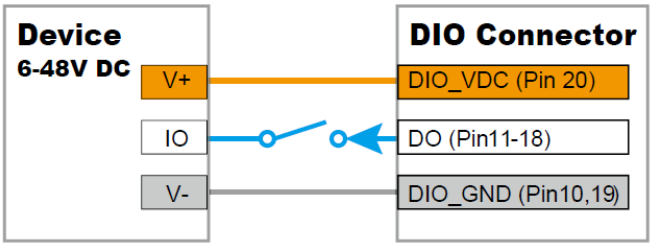
DO reference circuit :

Sink Mode

(NPN, Default)



Source Mode (PNP)

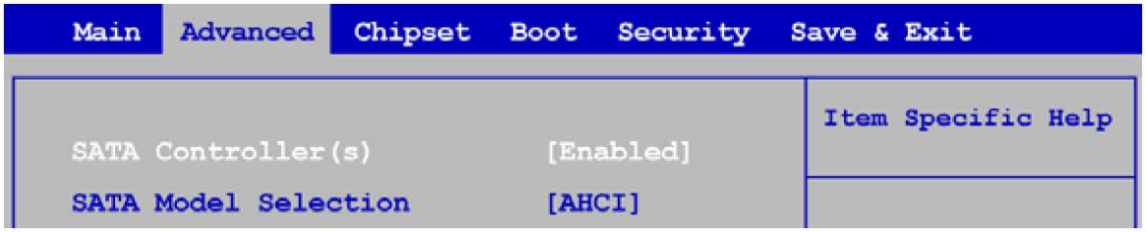


5.3 RAID Functions

5.3.1 SATA Mode for RAID

Please select SATA Device to RAID mode on BIOS menu.

Advanced → SATA Configuration → SATA Mode Selection → RAID/Intel RST Premium

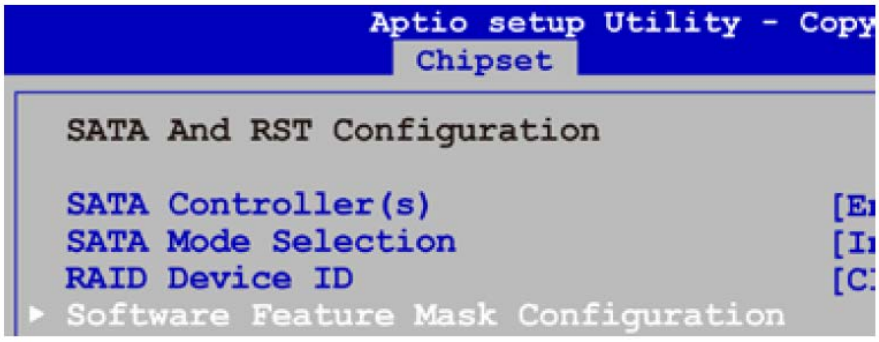


5.3.2 UEFI Mode for RAID

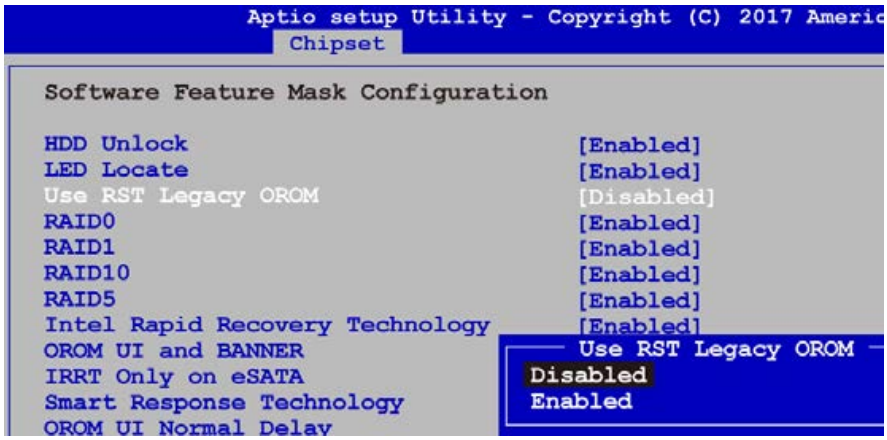
1. Please select SATA device to RAID mode on BIOS menu.

Advanced → SATA Configuration → SATA Mode Selection → RAID/Intel RST Premium

2. Please select Software Feature Mask Configuration on BIOS menu.

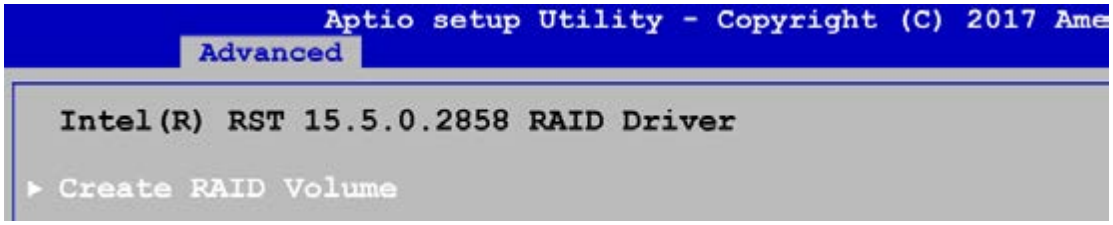


3. Use RST Legacy OROM → Disabled → Save Changes and Reset.

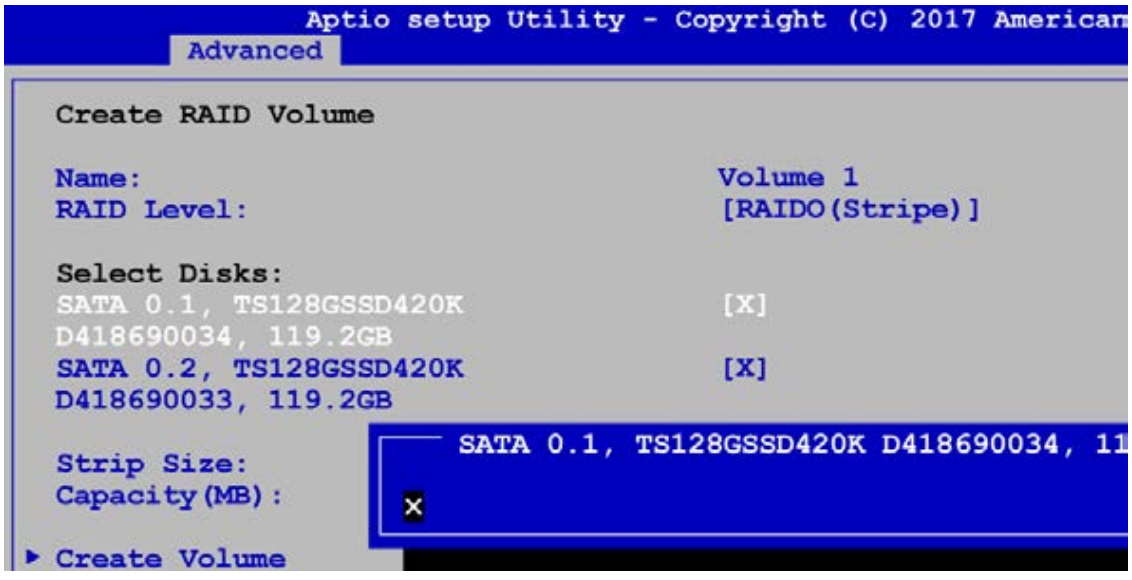


4. Into BIOS menu again, select Intel(R) Rapid Storage Technology on BIOS menu.

5. Select Create RAID Volume on BIOS menu.



6. Select disks to create RAID Volume then Save Changes and Reset to install OS with EFI mode.



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