ICS-1110S USER Manual

Intel® Xeon® D-2800/D-2700 (Eddy Lake D)
Server-grade, High-Performance, U.2 Tray, SSD Tray, DC 16V to 50V

Vecow

1.00 Edition 20250612

Record of Revision

Version	Date	Page	Description	Remark
1.00	2025/06/12	All	Official Release	

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FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE

The products described in this manual comply with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

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Order Information

Part Number	Description
ICS-1110S-2876NT	ICS-1110S, onboard Intel® Xeon® D-2876NT, 2 10G SFP+ LAN, 4 GigE LAN, 1 PCIe x2, 10 U.2 Tray, 2 SSD Tray, DC Power Input
ICS-1110S-2752TER	ICS-1110S, onboard Intel® Xeon® D-2752TER, 2 10G SFP+ LAN, 4 GigE LAN, 1 PCIe x2, 10 U.2 Tray, 2 SSD Tray, DC Power Input

Optional Accessories

Part Number	Description
DDR4 64G	Certified DDR4 64GB 2933MHz RAM (RDIMM only)
DDR4 32G	Certified DDR4 32GB 2933MHz RAM
DDR4 16G	Certified DDR4 16GB 2933MHz RAM
DDR4 8G	Certified DDR4 8GB 2933MHz RAM
PWS-480W-WT	480W, 24V, 90V AC to 264V AC Power Supply
TMK2-20P-100	Terminal Block 20-pin to Terminal Block 20-pin Cable, 100cm
TMK2-20P-500	Terminal Block 20-pin to Terminal Block 20-pin Cable, 500cm
TMB-TMBK-20P	Terminal Board with One 20-pin Terminal Block Connector and DIN-Rail Mounting
M.2 Storage Module	M.2 Key M/Key B PCIe Storage Module
U.2 Storage Module	U.2 Storage Module
VROC Key	• VROC Key Standard (supports RAID 0, 1, 10) • VROC Key Premium (supports RAID 0, 1, 5, 10)
M.2 to U.2 Module	M.2 to U.2 Module
5G Module	5G Module with Antenna
4G Module	4G/GPS Module with Antenna
WiFi & Bluetooth	WiFi & Bluetooth Module with Antenna

Table of Contents

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GENERAL INTRODUCTION

1.1 Overview

The Vecow ICS-1110S is a server-grade AI computing system powered by Intel® Xeon® D-2800/D-2700 processors. It supports up to 512GB of DDR4 2933 MHz UDIMM/RDIMM memory and offers scalability through a single PCIe x16 expansion slot—ideal for high-performance, data-centric applications.

Designed for demanding workloads, the ICS-1110S delivers exceptional storage performance and data integrity. It supports up to ten U.2 storage devices with a total capacity of up to 160TB, and enables RAID 0/1/5/10 configurations via Intel® Virtual RAID on CPU (Intel® VROC). Its flexible architecture also allows for optional M.2 storage integration.

Engineered for industrial environments, the ICS-1110S operates reliably in temperatures ranging from -25°C to 45°C and supports DC 16V to 50V power input. With built-in Out-of-Band (OOB) remote management, it provides real-time system monitoring, control, and firmware updates for edge-based deployments.

1.2 Features

- Server-level Platform : Intel® Xeon® D-2800/D-2700 Processor (Eddy Lake D), supports up to 22 cores
- 2 10G SFP+, 4 GigE LAN, 4 USB, 16-bit Isolated DIO
- 2 Front-access 2.5" SSD/HDD Tray, 10 M.2/U.2 PCIe x4 Storage Devices with Intel® VROC Key supports RAID 0, 1, 5, 10
- Multiple 5G/WiFi 6/4G/LTE/GPRS/UMTS
- Supports Intel® vPro, Intel® QAT (Quick Assist Technology), TPM 2.0
- DC 16V to 50V, Software Ignition Control
- Supports remote devices Out-Of-Band management functions powered by Allxon

1.3 Product Specification

Specifications of ICS-1110S

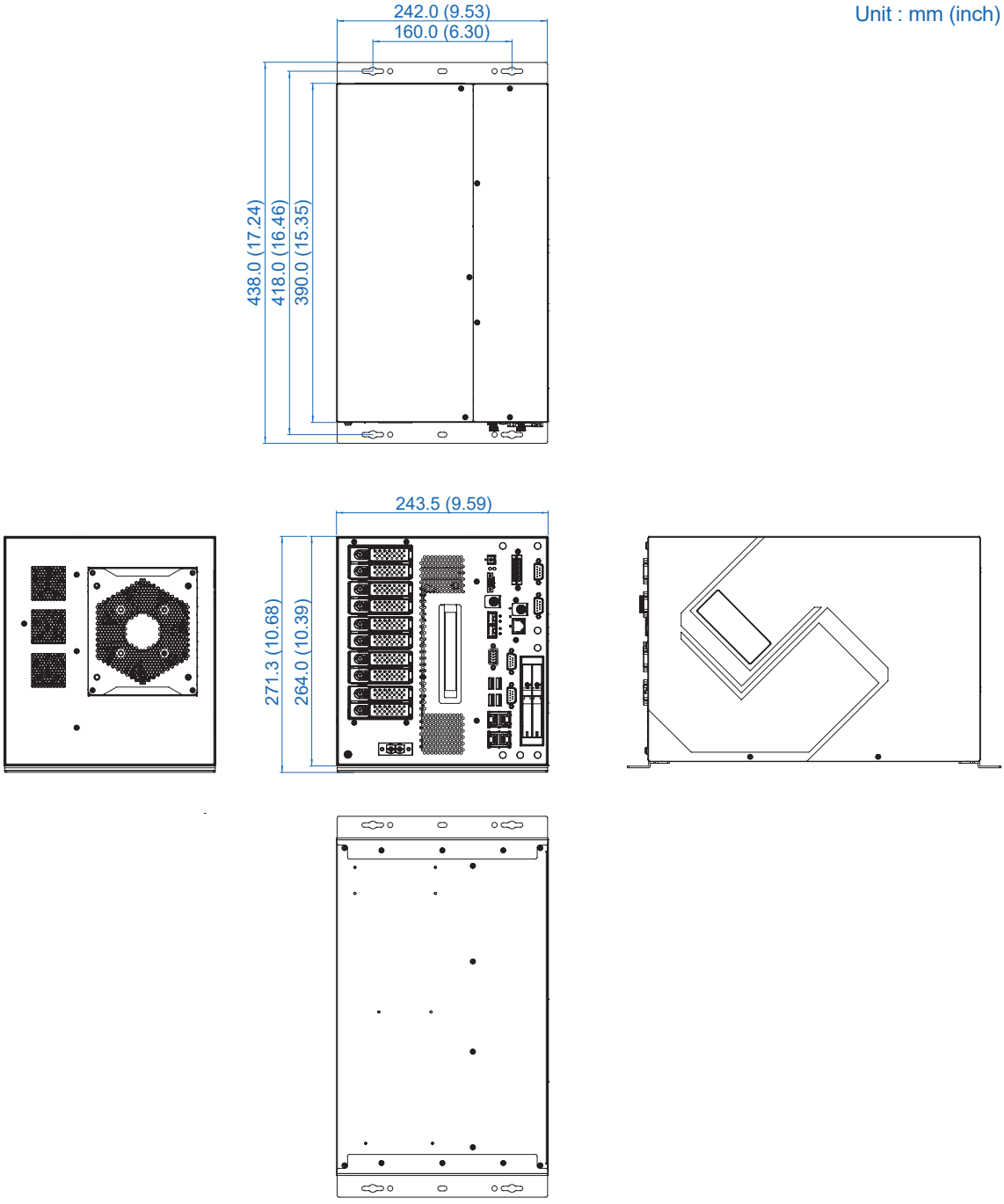
System	
Processor	• 16-core Intel® Xeon® D-2876NT Processor (Eddy Lake D HCC) • 12-core Intel® Xeon® D-2752TER Processor (Ice Lake D HCC)
BIOS	AMI
SIO	IT8786E
Memory	8 DDR4 UDIMM/RDIMM 2933MHz, up to 512GB (ECC support by UDIMM only)
OS	Windows 10, Windows Server, Linux
I/O Interface	
Serial	4 COM RS-232/422/485
USB	• 2 USB 3.0 Type-A • 2 USB 2.0 Type-A
Isolated DIO	16 Isolated DIO : 8 DI, 8 DO
Display	VGA : Up to 1920 x 1080 @60Hz
LED	Power, HDD, Wireless
SIM Card	1 External Nano SIM Card Socket
Expansion	
PCIe	1 PCIe x16 slot with PCIe x2 signal (Gen 4)
M.2	• 1 M.2 Key B Socket (3042/3052/2280, PCIe x2/USB 3.0) • 1 M.2 Key E Socket (2230, PCIe x1)
Storage	
SATA	2 SATA III (6Gbps) support software RAID 0, 1 • 2 Front-access 2.5" SSD/HDD Tray
M.2	1 M.2 Key M Socket (2280/22110, PCIe x2/SATA)
Storage Device	10 U.2 Front-access tray (PCIex4) support RAID 0, 1 , 5, 10 *M.2 supported by optional accessory
Ethernet	
LAN 1 to LAN 4	Intel® I350 GigE LAN
LAN 5 to LAN 6	10G SFP+ LAN by Intel® Xeon® SoC (OS Windows Server support only)
Power	
Input Voltage	DC 16V to 50V
Power Interface	2-pin Terminal Block : V+, V
Ignition Control	16-mode Software Ignition Control
Remote Switch	3-pin Terminal Block

Out-of-Band Management	
MCU	Nuvoton NUC980
Interface	OOB LAN, 10/100Mb Ethernet LAN, RJ45 Connector
Remote Management	Support Remote Power ON/OFF, Reset and Power Cycling
Others	
TPM	Infineon SLB9670 supports TPM 2.0, SPI interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Mechanical	
Dimension (W x D x H)	243.5mm x 271.3mm x 390.0mm (9.58" x 10.68" x 15.35")
Weight	7.9kg (17.41lb)
Mounting	Wallmount by mounting bracket
Environment	
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @60°C
Vibration	MIL-STD-810G method 514.6, Category 4
Shock	MIL-STD-810G method 516.6, Procedure I
EMC	CE, FCC, ICES, EN50155, EN50121-3-2

1.4 Mechanical Dimension

Dimensions of ICS-1110S

Unit : mm (inch)



2

GETTING TO KNOW YOUR ICS-1110S

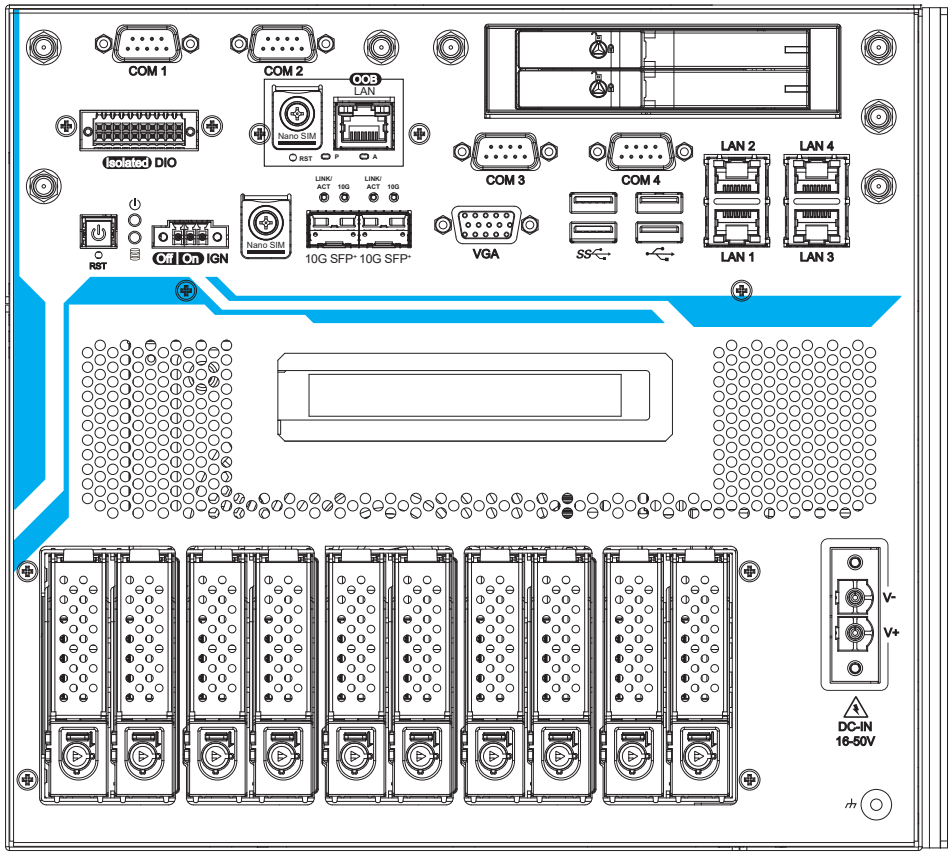
2.1 Packing List

Item	Description	Qty
1	ICS-1110S AI Computing System (According to the configuration you order, the ICS-1110S PEG series may contain SSD/HDD and DDR4 U/R-DIMM. Please verify these items if necessary.)	1

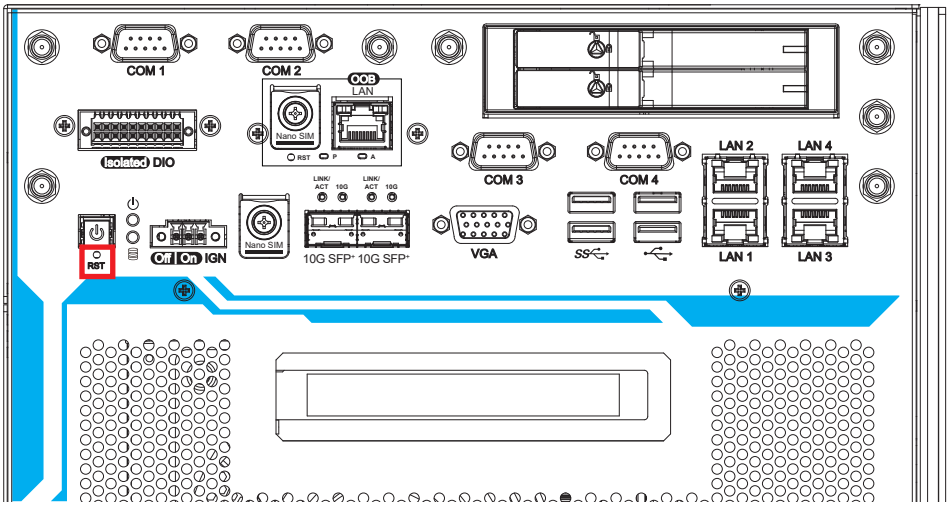
Item	Description	Outlook	Usage	P/N	Qty
1	Flat head_ M3x5L_ Black_Nylok		Wall mount bracket	53-M004950-310	6
2	PHILLPIS M3x4L, Ni+Ny		M.2 socket	53-2426204-80B	4
3	Terminal block 3-pin (3.5mm)		Switch	51-2211R03-S1A	1
4	Terminal block 20-pin (2.54mm)		Isolated DIO/GPIO	51-2112R20-S1D	1
5	Terminal block 2-pin (10.16mm)		Switch	51-2701R02-R1Q	1
6	Key		SSD/HDD tray	N/A	2
7	U.2 KEY		U.2 Tray	N/A	2
8	Wall Mount Bracket		Wall Mount Bracket	62-03P1499-04A	2

2.2 Front Panel I/O Functions

In Vecow's ICS-1110S family, all I/O connectors are located on the front panel. Most of the general connections to the computer device, such as audio, USB, SIM, OOB, LAN, COM Port, Isolated DIO , VGA, and any additional storage, are placed on the front panel.

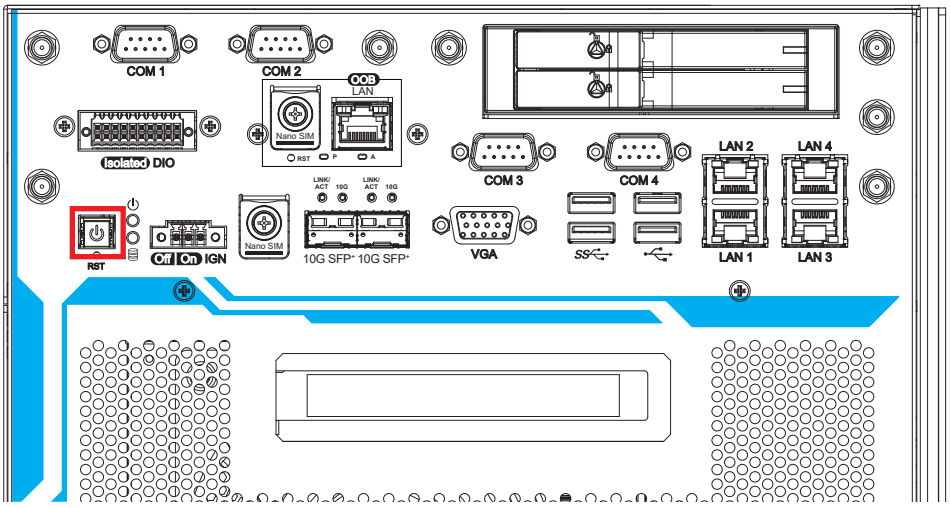


2.2.1 Reset Tact Switch



The item circled red is a hardware reset switch. Use this switch to reset the system without powering off the ICS-1110S. Press and hold the reset switch for a few seconds, then reset will be enabled.

2.2.2 Power Button



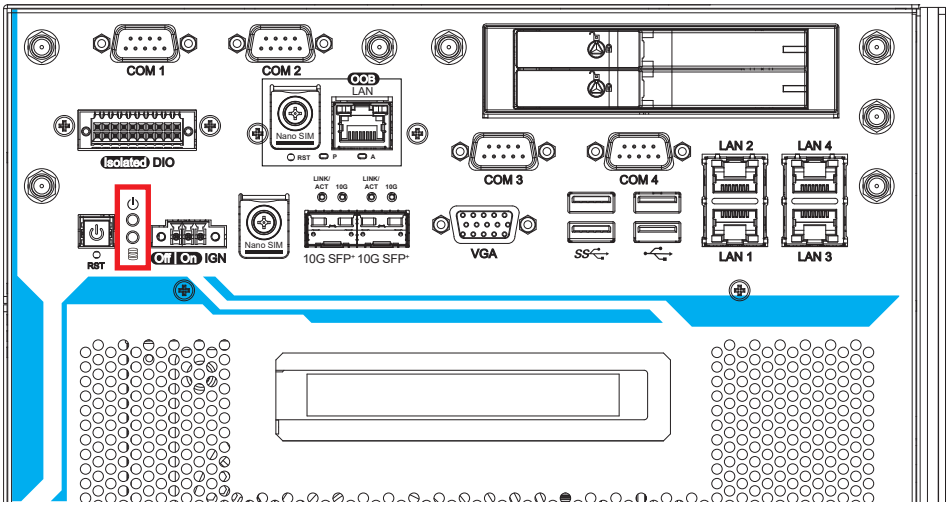
The power button is a non-latched switch with dual color LED indication. It indicates power statuses: S0, S3 and S5. More details on the LED indications are listed in the following chart:

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 ICS-1110S, press the power button which will light the blue LED.
To power off ICS-1110S, you can either command shutdown by OS operation or simply press the power button. If system error appears, press and hold the power button for four seconds to shut down the machine directly.

Please do note that a four-second interval between each two power-on/power-off operation is necessary in normal working status. (For example, once turning off the system, you have to wait for four seconds to initiate another power-on operation).

2.2.3 PWR & HDD LED Indicator

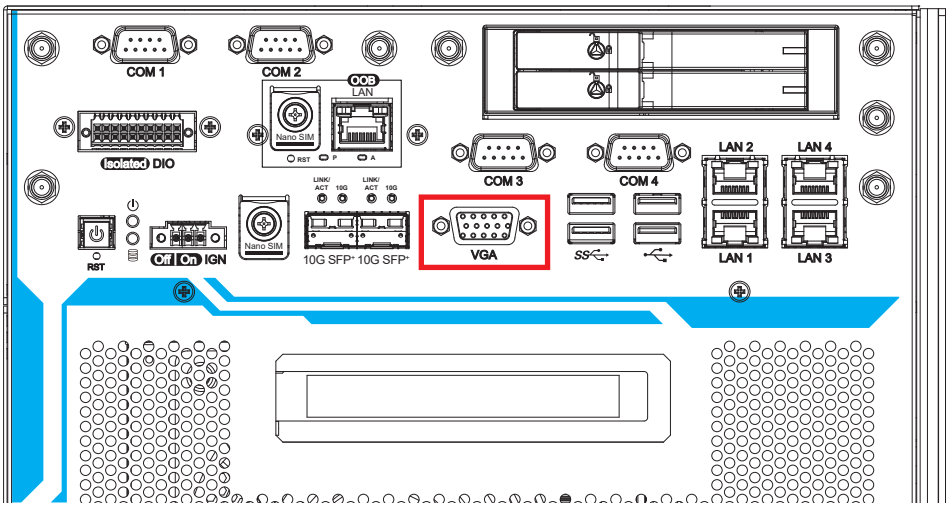


Yellow-HDD LED : A hard disk LED. If the LED is on, it indicates that the system's storage is functional. If it is off, it indicates that the system's storage is not functional. If it is flashing, it indicates data access activities are in progress.

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

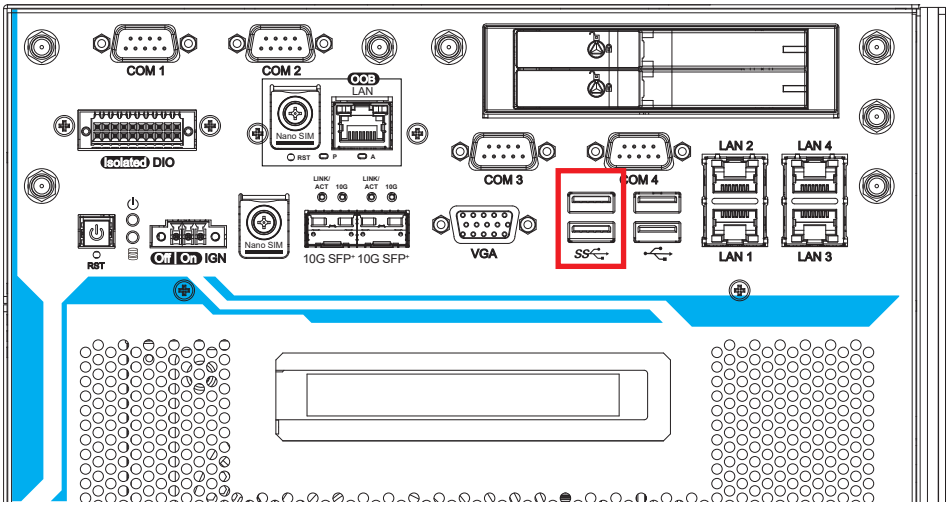
LED Color	Indication	System Status
Yellow	HDD	• On/Off : Storage status, function or not. • Twinkling : Data transferring.
Green	Power	System power status (on/off)

2.2.4 VGA



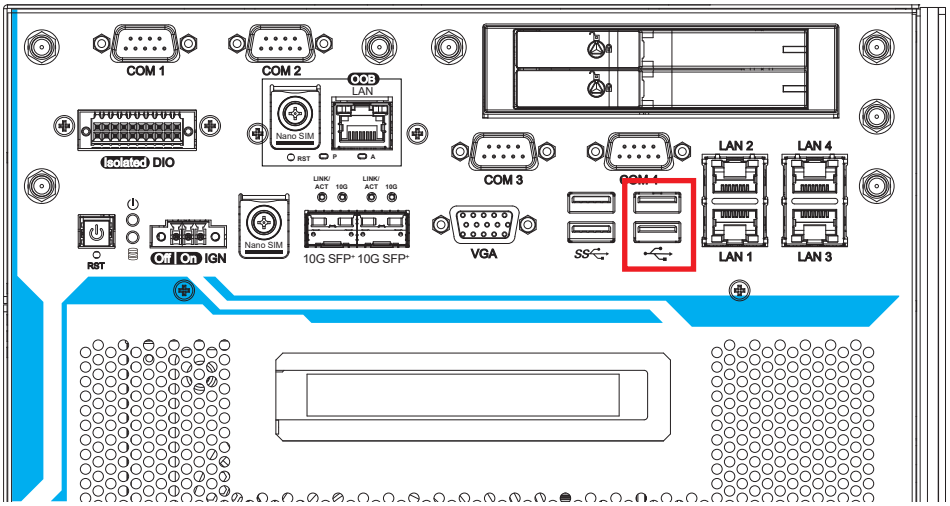
VGA connection supports up to 1920 x 1080 resolution at 60Hz.

2.2.5 USB3.0 Type-A Connector



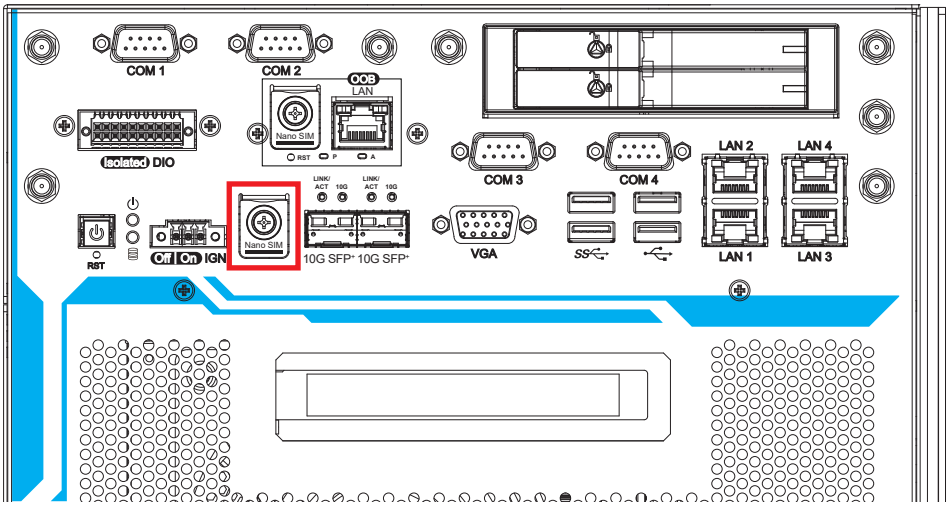
There are 2 USB 3.0 Type A connections available supporting up to 5GB per second data rate in the front side of ICS-1110S . It also compliant with the requirements of Super Speed (SS), high speed (HS), full speed (FS) and low speed (LS).

2.2.6 USB2.0 Type-A Connector



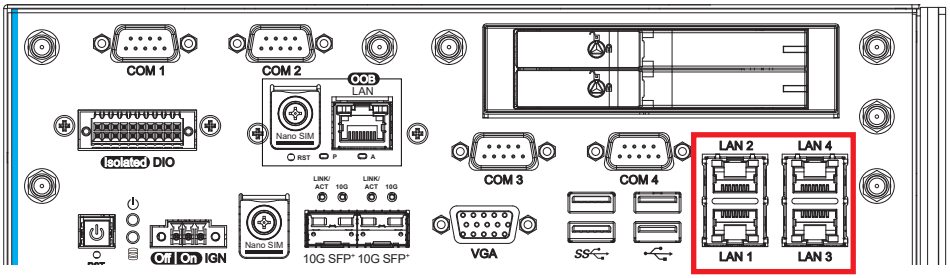
There are 2 USB 2.0 connections available supporting up to 480MB per second data rate.

2.2.7 Nano SIM



The Nano SIM card socket is support Push-Push type. Please make sure to unplug the system power before inserting the Nano SIM card.

2.2.8 10/100/1000 Mbps Ethernet Port



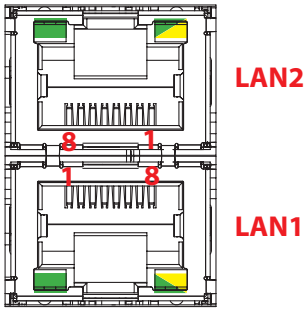
There are Four 8-pin RJ-45 jacks supporting 10/100/1000 Mbps Ethernet connections in the front side. Which is powered by Intel i350 Ethernet engine. When both of LANs work in normal status, iAMT function is enabled. Using suitable RJ-45 cable, you can connect the system to a computer, or to any other devices with Ethernet connection, for example, a hub or a switch. Moreover, both of LANs support Wake on LAN and Pre-boot functions.

LAN Port	Function	Connector
LAN1	RJ-45(10/100/1000)	LAN12
LAN2	RJ-45(10/100/1000)	LAN12
LAN3	RJ-45(10/100/1000)	LAN34
LAN4	RJ-45(10/100/1000)	LAN34

Using suitable RJ-45 cable, you can connect the ICS-1110S system to a computer or to any other devices with Ethernet connection, for example, a hub or a switch. Moreover, both LAN 1 LAN 2 LAN 3 and LAN 4 support “Wake” on LAN functions. The pinouts of LAN 1 LAN 2 LAN 3 and LAN 4 are listed in the following chart:

Pin No.	10/100 Mbps	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

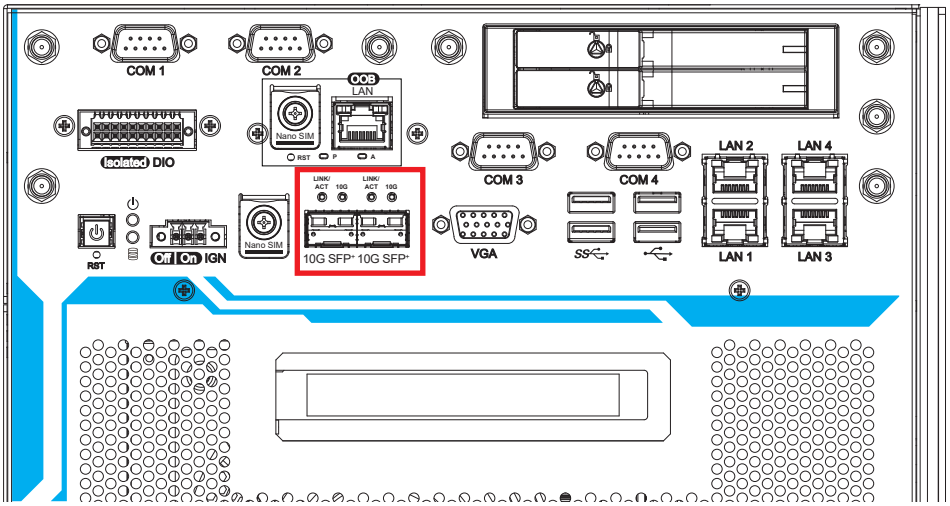
Each LAN port is supported by standard RJ-45 connector with LED indicators to present Active/ Link/ Speed status of the connection.



The LED indicator on the right bottom corner lightens in solid green when the cable is properly connected to a 100 Mbps 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.

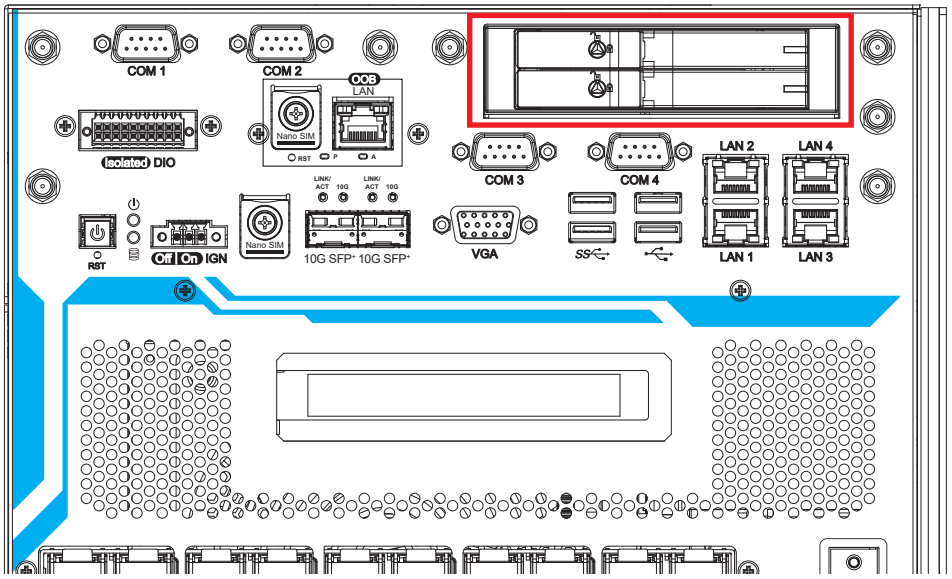
LED Location	LED Color	10Mbps	100Mbps	1000Mbps
Right	Green/ Orange	Off	Solid Green	Solid Orange
Left	Green	Twinkling Green	Twinkling Green	Twinkling Green

2.2.9 10G SFP+



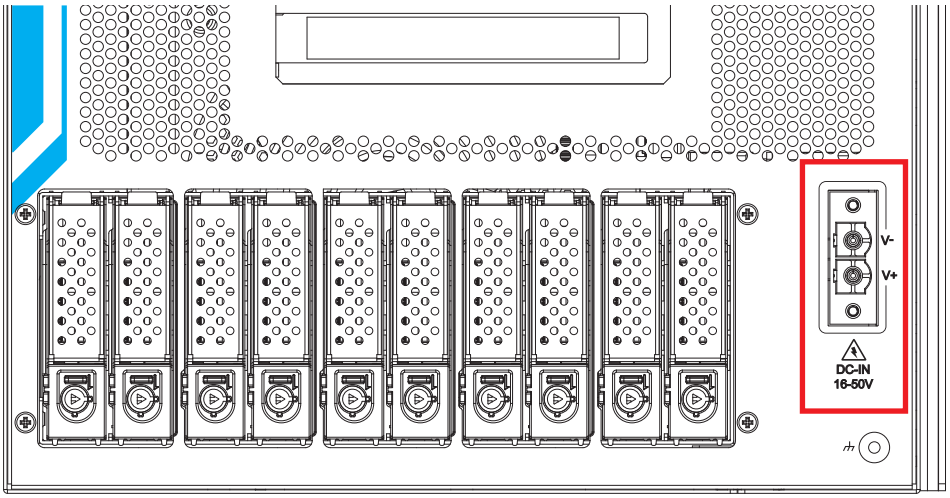
There are two 10G SFP+ connections available supporting up to 10Gb per second data rate.

2.2.10 Front-access SSD/ HDD Tray

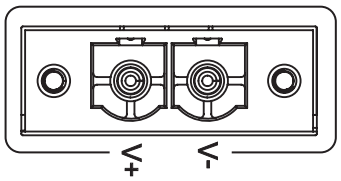


There are two front-access 2.5” SSD/HDD trays on the front side of ICS-1110S. Press the trigger to open the SSD/HDD tray which has up to 8TB available.

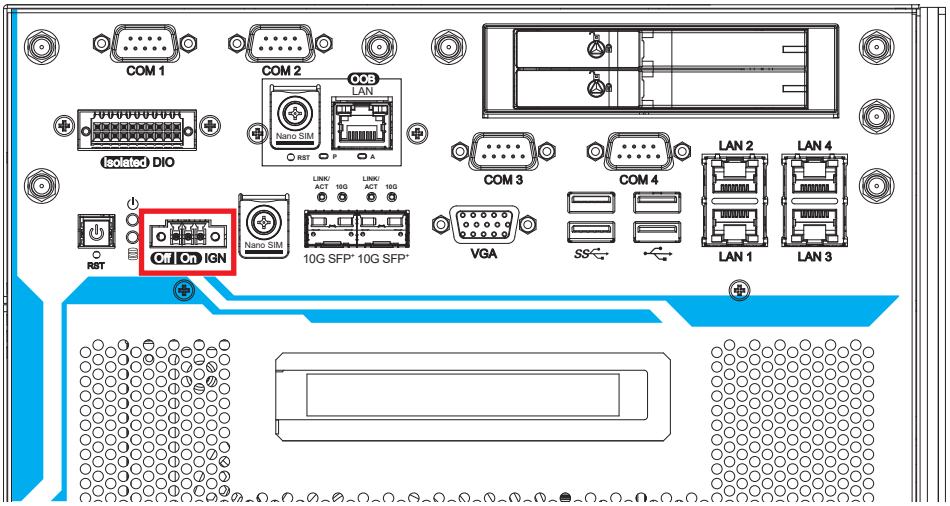
2.2.11 Power Terminal Block



ICS-1110S supports 16V to 50V DC power input.



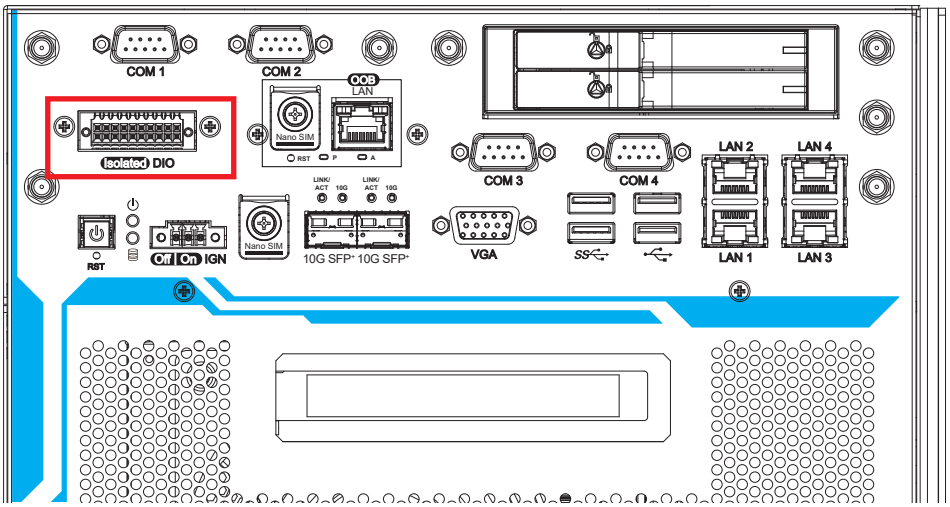
2.2.12 Remote Power On/Off Switch



It is a 2-pin power-on/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 on soft power-on/ power-off (instant off or delay four seconds), and suspend mode.

Pin No.	Definition
1	IGNITION
2	SW+
3	SW-

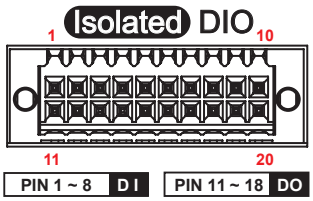
2.2.13 Isolated DIO



There is a 16-bit (8-bit DI, 8-bit DO) connectors in the front side. DI/DIO support NPN (sink) and PNP (Source) mode, Each DI channel is equipped with a photocouper for isolated protection. Each DO with isolator chip, Config by a Jumper for each DIO connector.

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

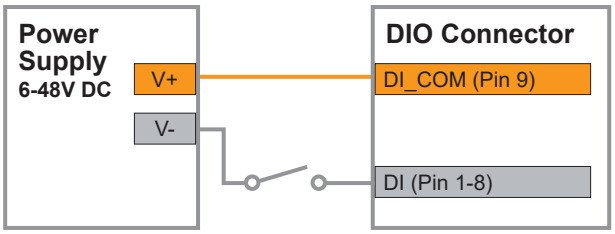


DIO1 Connectors pin out :

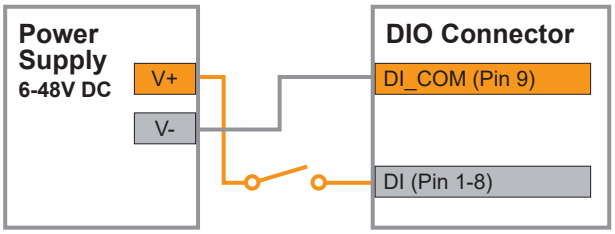
Pin No.	Definition	Mapping to SIO GPIO Function
1	INPUT 0	SIO_GPI80
2	INPUT 1	SIO_GPI81
3	INPUT 2	SIO_GPI82
4	INPUT 3	SIO_GPI83
5	INPUT 4	SIO_GPI84
6	INPUT 5	SIO_GPI85
7	INPUT 6	SIO_GPI86
8	INPUT 7	SIO_GPI87
9	+VDI_COM1	
10	GND_ISO_DIO1	
11	OUTPUT 0	SIO_GPO70
12	OUTPUT 1	SIO_GPO71
13	OUTPUT 2	SIO_GPO72
14	OUTPUT 3	SIO_GPO73
15	OUTPUT 4	SIO_GPO74
16	OUTPUT 5	SIO_GPO75
17	OUTPUT 6	SIO_GPO76
18	OUTPUT 7	SIO_GPO77
19	GND_ISO_DIO1	
20	External 6-40VDC (NPN) External 6-48VDC (PNP)	

DI reference circuit :

Sink Mode (NPN)

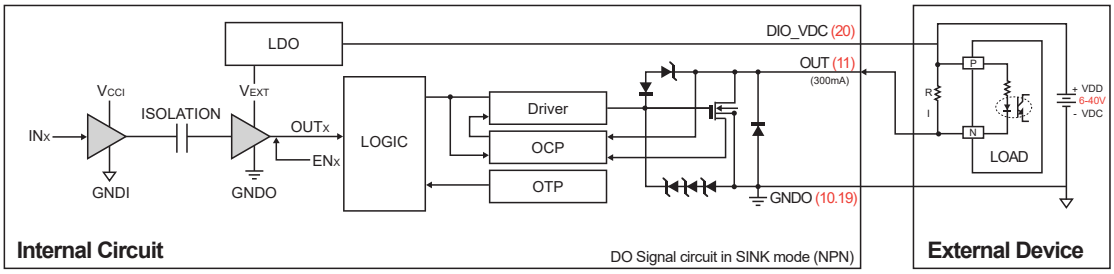


Source Mode (PNP)

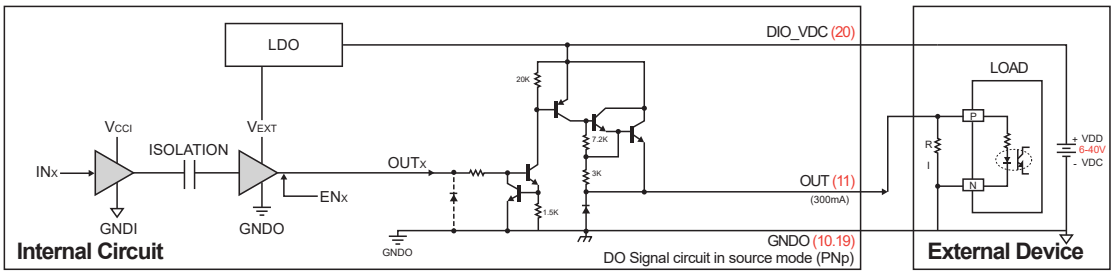


DO reference circuit :

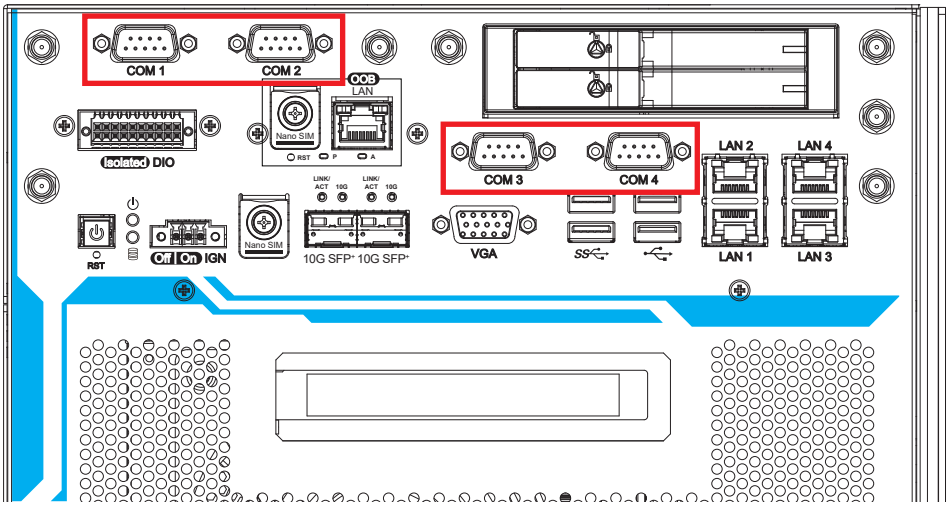
Sink Mode (NPN, Default)



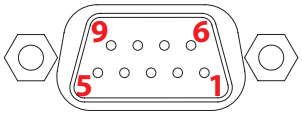
Source (PNP)



2.2.14 Serial Port COM



Serial port can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition is RS-232, but if you want to change to RS-422 or RS-485, you can find the settings in BIOS.

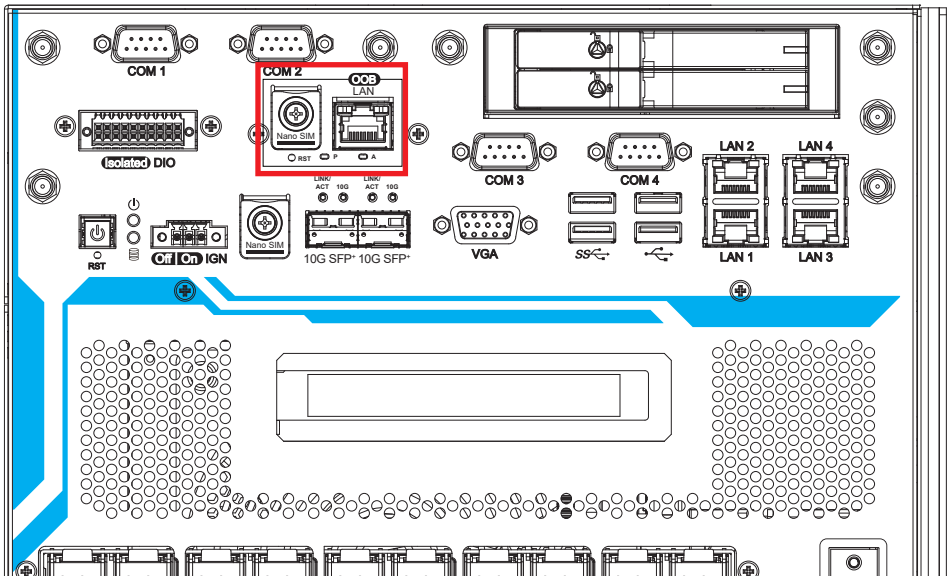


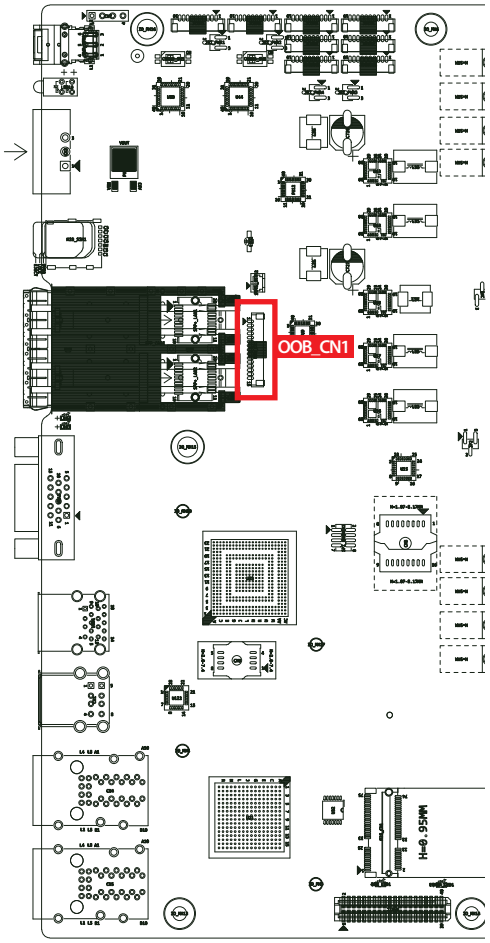
BIOS Setting	Function
COM 1 COM 2 COM 3 COM 4	RS-232
	RS-422 (5-wire)
	RS-485
	RS-485 w/z auto-flow control

The pin assignments are listed in the table as follows :

Serial Port	Pin No.	RS-232	RS-422 (5-wire)	RS-485 (3-wire)
1, 2 3, 4	1	DCD	TXD-	DATA-
	2	RXD	TXD+	DATA+
	3	TXD	RXD+	----------
	4	DTR	RXD-	----------
	5	GND	GND	GND
	6	DSR	----------	----------
	7	RTS	----------	----------
	8	CTS	----------	----------
	9	RI	----------	----------

2.2.15 OOB Connector : Remote control ON/OFF/Reset.





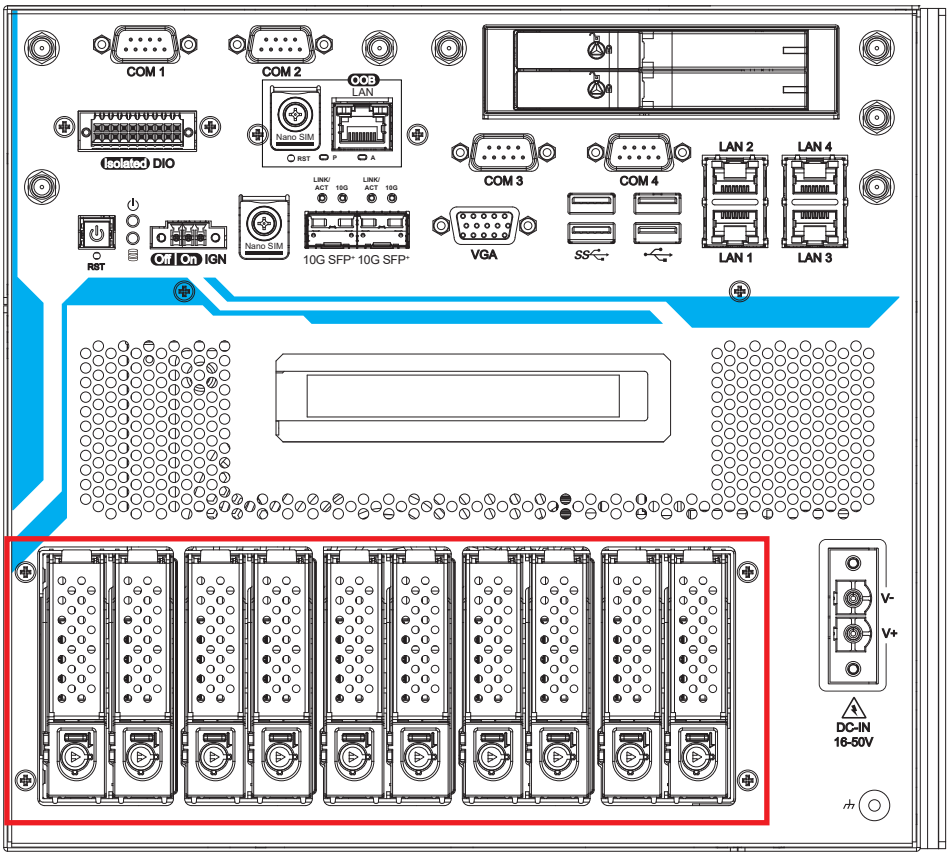
Location	Pin No.	Definition
OOB_CN1	1	5V
	2	5V
	3	GND
	4	NC
	5	NC
	6	GND
	7	UART_RX
	8	UART_TX
	9	GND
	10	NC
	11	NC
	12	GND
	13	PSW_NU
	14	OOB_ RSTBTN#
	15	HDD_LED_N

The LED indicator can instantly judge the power status(P) of OOB Enabler and the connection status(A) of OOB Enabler and Allxon Portal.

If both LEDs are on, it means OOB Enabler is running and the connection to Allxon Cloud is stable. The OOB network port is used for OOB out-of-band control.

The SIM card holder is used for OOB 4G network cards. This function is optional. For detailed instructions, please refer to the OOB chapter.

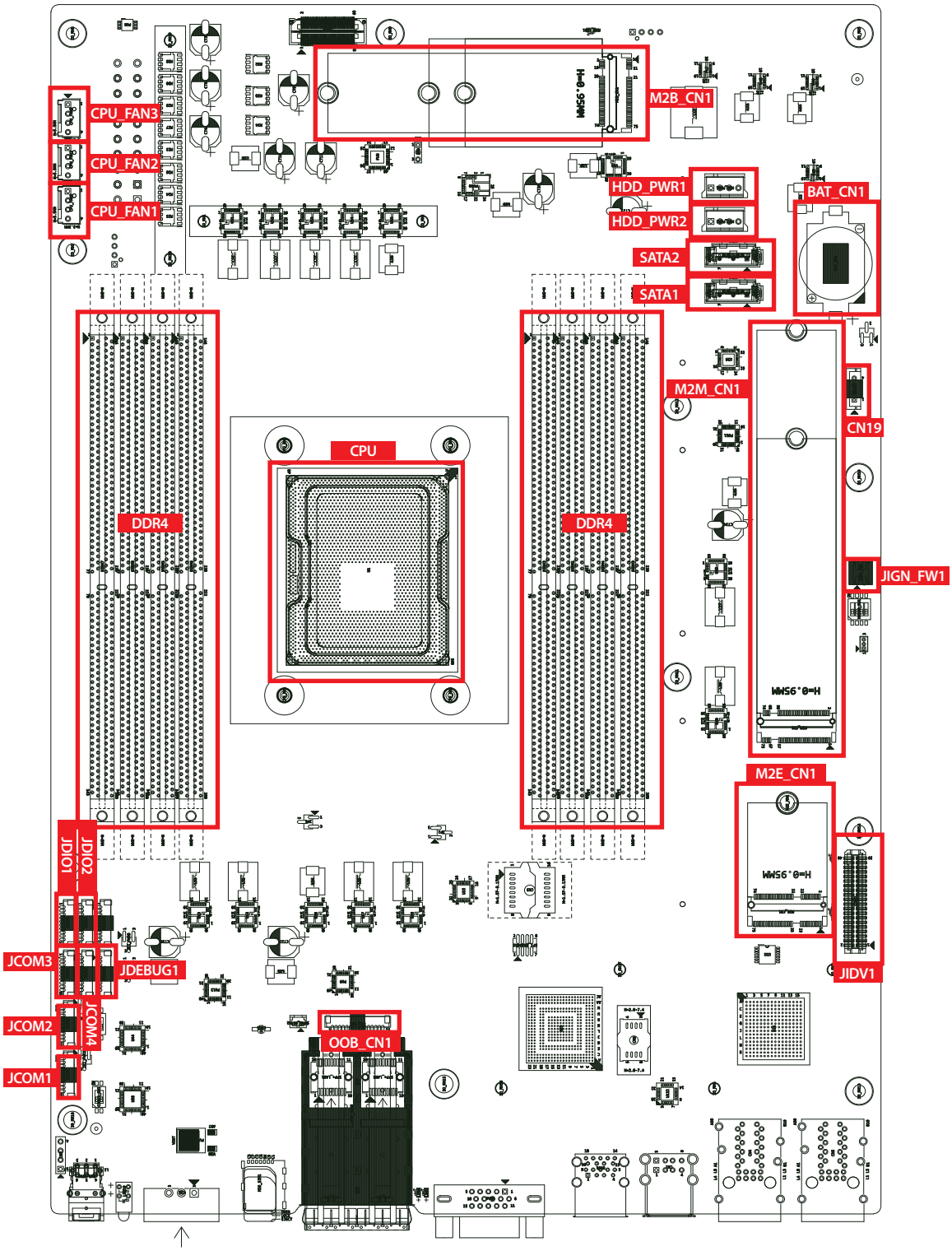
2.2.16 U.2 SSD Tray



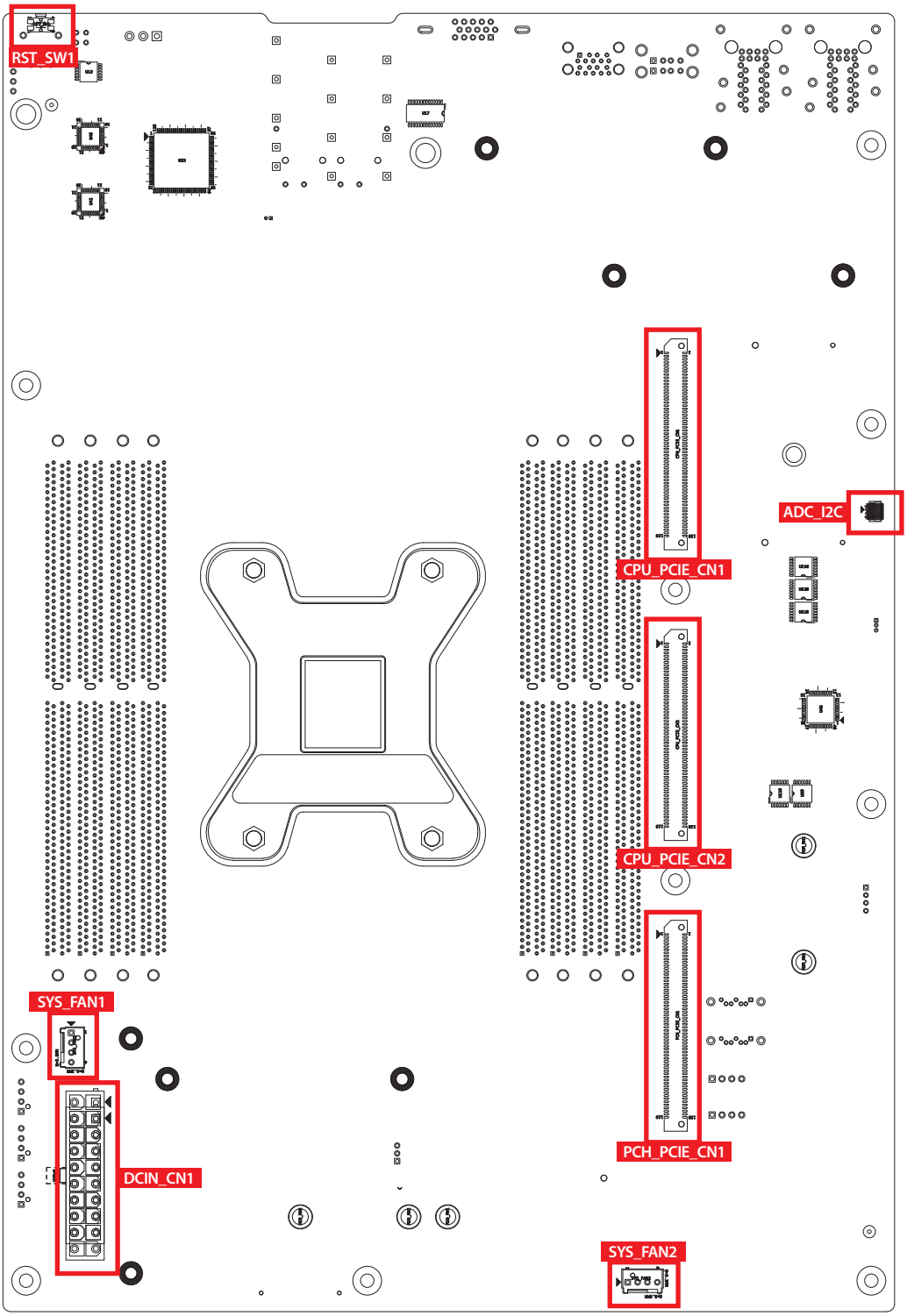
10 Front-access U.2 SSD Tray.

2.3 Main Board Expansion Connectors

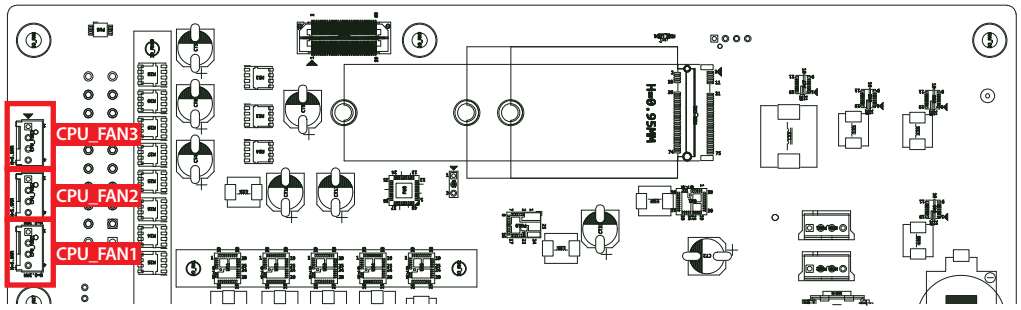
2.3.1 TOP View of ICS-1110S Main Board With Connector Location

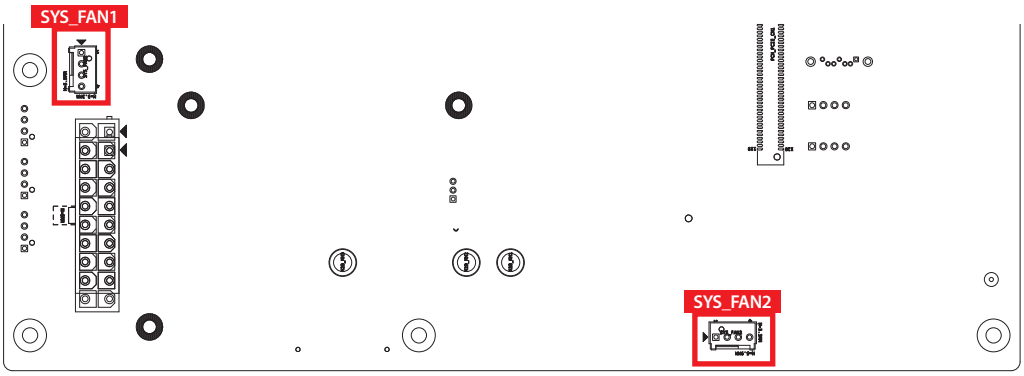


2.3.2 Bottom View of ICS-1110S Main Board With Connector Location

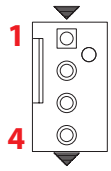


2.3.3 CPU_FAN1, CPU_FAN2, CPU_FAN3, SYS_FAN1, SYS_FAN2



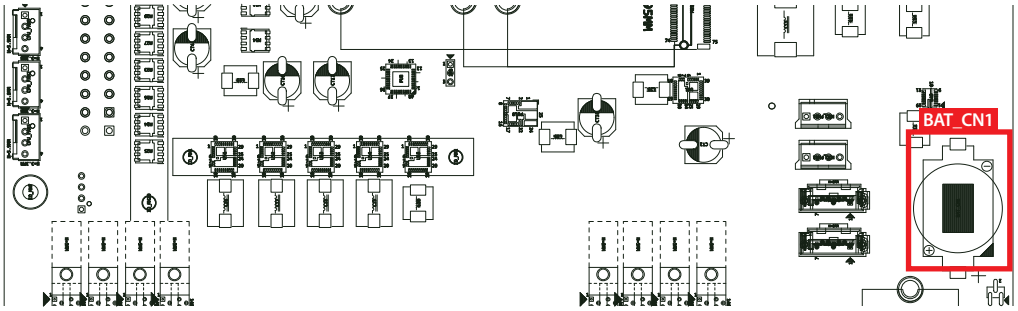


The fan power connector is for additional thermal requirements. The pin assignments of CPU_FAN1 , CPU_FAN2, CPU_FAN3 , SYS_FAN1 , SYS_FAN2 are listed in the following table:



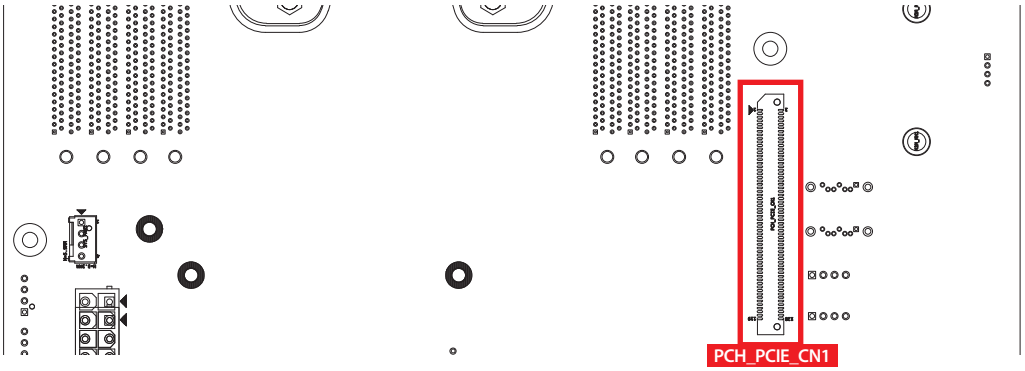
CPU_FAN1,CPU_FAN2, SYS_FAN2		CPU_FAN3, SYS_FAN1	
Pin No.	Description	Pin No.	Description
1	GND	1	GND
2	+12V (up to 2A)	2	+12V (up to 2A)
3	Fan speed sensor	3	NC
4	Fan PWM	4	Fan PWM

2.3.4 BAT_CN1 : Battery

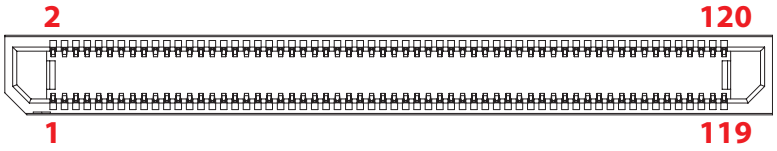


The ICS-1110S's real-time clock is powered by a lithium battery. It is equipped with Panasonic CR2032 220mAh lithium battery. It is recommended that you do not replace the lithium battery on your own. If the battery needs to be changed, please contact the Vecow RMA service team.

2.3.5 PCH_PCIE_CN1 : Board to Board Conn. (PCH)



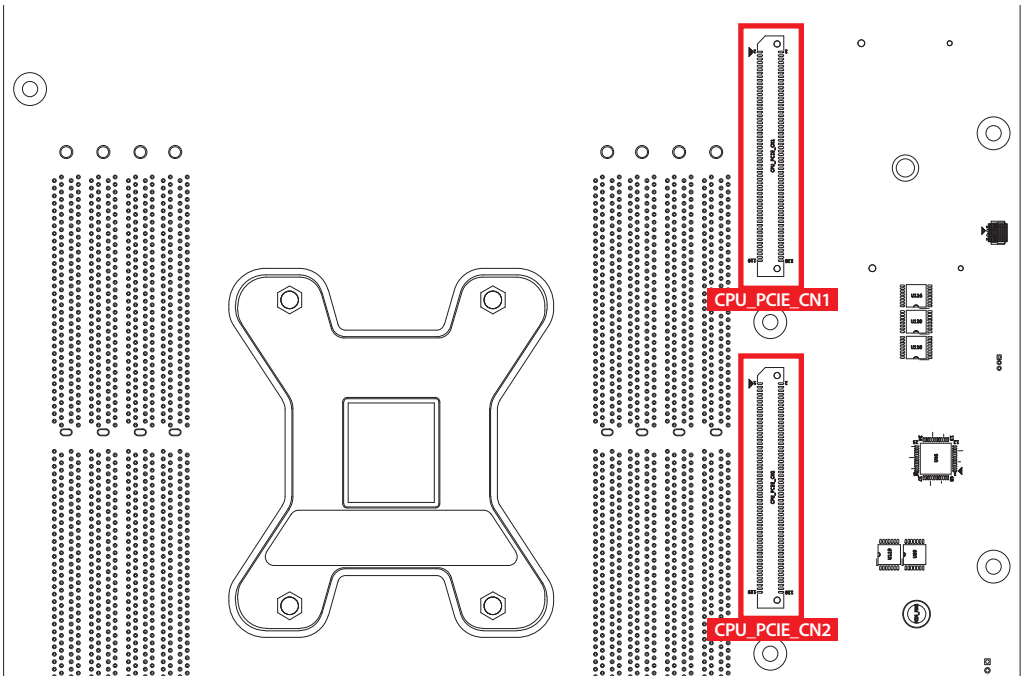
The pin assignments of PCH_PCIE_CN1 are listed in the following table :



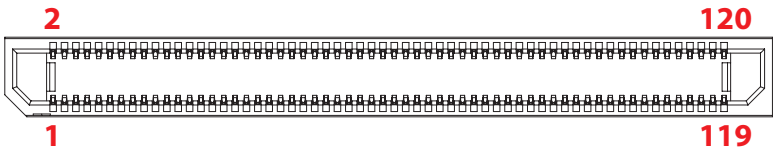
Pin No.	Function	Pin No.	Function
1	+P3V3	2	PEG_SLIMSAS_SLOT_RST#3
3	+P3V3	4	GND
5	+P3V3	6	SMB_SLIMSAS_11_SDA
7	+P3V3	8	SMB_SLIMSAS_11_SCL
9	+P3V3	10	+P3V3
11	+P3V3	12	+P3V3
13	+P3V3	14	GND
15	+P3V3	16	PCIE_WAKE_N
17	+P3V3	18	PEG_SLIMSAS_SLOT_RST#4
19	GND	20	PEG_SLIMSAS_SLOT_RST#1
21	NC	22	PEG_SLIMSAS_SLOT_RST#2
23	GND	24	PCIe_SLIMSAS_SLOT_ RST#0
25	FM_SLPS3_N	26	GND
27	GND	28	SMB_X2_STBY_SLOT6_SDA
29	+P12V_PG	30	SMB_X2_STBY_SLOT6_SCL
31	GND	32	GND
33	CLK100M_SLOTX8_DN	34	SMB_X8_SLIMSAS_SLOT5_SDA
35	CLK100M_SLOTX8_DP	36	SMB_X8_SLIMSAS_SLOT5_SCL
37	GND	38	GND
39	PE_PCH_X8_TN0	40	PE_PCH_X8_RN0

Pin No.	Function	Pin No.	Function
41	PE_PCH_X8_TP0	42	PE_PCH_X8_RP0
43	GND	44	GND
45	PE_PCH_X8_TN1	46	PE_PCH_X8_RN1
47	PE_PCH_X8_TP1	48	PE_PCH_X8_RP1
49	GND	50	GND
51	PE_PCH_X8_TN2	52	PE_PCH_X8_RN2
53	PE_PCH_X8_TP2	54	PE_PCH_X8_RP2
55	GND	56	GND
57	PE_PCH_X8_TN3	58	PE_PCH_X8_RN3
59	PE_PCH_X8_TP3	60	PE_PCH_X8_RP3
61	GND	62	GND
63	PE_PCH_X8_TN4	64	PE_PCH_X8_RN4
65	PE_PCH_X8_TP4	66	PE_PCH_X8_RP4
67	GND	68	GND
69	PE_PCH_X8_TN5	70	PE_PCH_X8_RN5
71	PE_PCH_X8_TP5	72	PE_PCH_X8_RP5
73	GND	74	GND
75	PE_PCH_X8_TN6	76	PE_PCH_X8_RN6
77	PE_PCH_X8_TP6	78	PE_PCH_X8_RP6
79	GND	80	GND
81	PE_PCH_X8_TN7	82	PE_PCH_X8_RN7
83	PE_PCH_X8_TP7	84	PE_PCH_X8_RP7
85	GND	86	GND
87	CLK100M_SLOTX2_DN	88	PE_PCH_X2_RN8
89	CLK100M_SLOTX2_DP	90	PE_PCH_X2_RP8
91	GND	92	GND
93	PE_PCH_X2_TN8	94	PE_PCH_X2_RN9
95	PE_PCH_X2_TP8	96	PE_PCH_X2_RP9
97	GND	98	GND
99	PE_PCH_X2_TN9	100	+P3V3_DAUL
101	PE_PCH_X2_TP9	102	+P3V3_DAUL
103	GND	104	+P3V3_DAUL
105	+P12V	106	+P3V3_DAUL
107	+P12V	108	+P3V3
109	+P12V	110	+P3V3
111	+P12V	112	+P3V3
113	+P12V	114	+P3V3
115	+P12V	116	+P3V3
117	+P12V	118	+P3V3
119	+P12V	120	+P3V3

2.3.6 CPU_PCIE_CN1,CPU_PCIE_CN2 : Board to Board Conn. (CPU)



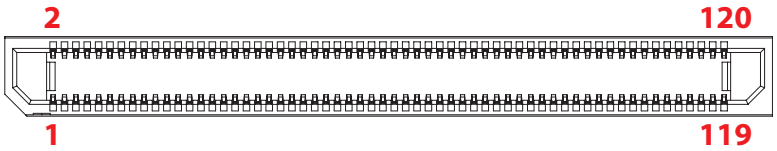
The pin assignments of CPU_PCIE_CN1 are listed in the following table :



Pin No.	Function	Pin No.	Function
1	NC	2	NC
3	SMB_SLIMSAS_8_SDA	4	NC
5	SMB_SLIMSAS_8_SCL	6	NC
7	SMB_SLIMSAS_7_SDA	8	NC
9	SMB_SLIMSAS_7_SCL	10	NC
11	SMB_X8_SLIMSAS_SLOT2_SDA	12	NC
13	SMB_X8_SLIMSAS_SLOT2_SCL	14	NC
15	GND	16	NC
17	SMB_X16_X8_SLIMSAS_SLOT1_SDA	18	GND
19	SMB_X16_X8_SLIMSAS_SLOT1_SCL	20	CPU_PCIE_CLK_N_OUT
21	GND	22	CPU_PCIE_CLK_P_OUT
23	GND	24	GND
25	PEG0_TXN_15	26	PCIE0_CRX_N15
27	PEG0_TXP_15	28	PCIE0_CRX_P15
29	GND	30	GND
31	PEG0_TXN_14	32	PCIE0_CRX_N14

Pin No.	Function	Pin No.	Function
33	PEG0_TXP_14	34	PCIE0_CRX_P14
35	GND	36	GND
37	PEG0_TXN_13	38	PCIE0_CRX_N13
39	PEG0_TXP_13	40	PCIE0_CRX_P13
41	GND	42	GND
43	PEG0_TXN_12	44	PCIE0_CRX_N12
45	PEG0_TXP_12	46	PCIE0_CRX_P12
47	GND	48	GND
49	PEG0_TXN_11	50	PCIE0_CRX_N11
51	PEG0_TXP_11	52	PCIE0_CRX_P11
53	GND	54	GND
55	PEG0_TXN_10	56	PCIE0_CRX_N10
57	PEG0_TXP_10	58	PCIE0_CRX_P10
59	GND	60	GND
61	PEG0_TXN_9	62	PCIE0_CRX_N9
63	PEG0_TXP_9	64	PCIE0_CRX_P9
65	GND	66	GND
67	PEG0_TXN_8	68	PCIE0_CRX_N8
69	PEG0_TXP_8	70	PCIE0_CRX_P8
71	GND	72	GND
73	PEG0_TXN_7	74	PCIE0_CRX_N7
75	PEG0_TXP_7	76	PCIE0_CRX_P7
77	GND	78	GND
79	PEG0_TXN_6	80	PCIE0_CRX_N6
81	PEG0_TXP_6	82	PCIE0_CRX_P6
83	GND	84	GND
85	PEG0_TXN_5	86	PCIE0_CRX_N5
87	PEG0_TXP_5	88	PCIE0_CRX_P5
89	GND	90	GND
91	PEG0_TXN_4	92	PCIE0_CRX_N4
93	PEG0_TXP_4	94	PCIE0_CRX_P4
95	GND	96	GND
97	PEG0_TXN_3	98	PCIE0_CRX_N3
99	PEG0_TXP_3	100	PCIE0_CRX_P3
101	GND	102	GND
103	PEG0_TXN_2	104	PCIE0_CRX_N2
105	PEG0_TXP_2	106	PCIE0_CRX_P2
107	GND	108	GND
109	PEG0_TXN_1	110	PCIE0_CRX_N1
111	PEG0_TXP_1	112	PCIE0_CRX_P1
113	GND	114	GND
115	PEG0_TXN_0	116	PCIE0_CRX_N0
117	PEG0_TXP_0	118	PCIE0_CRX_P0
119	GND	120	GND

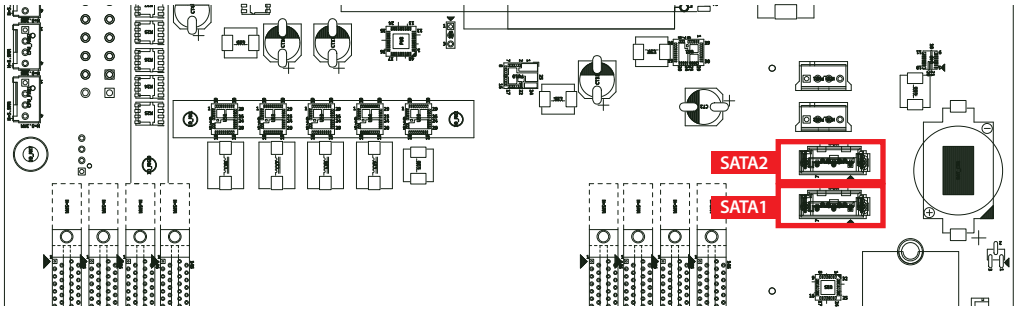
The pin assignments of CPU_PCIE_CN2 are listed in the following table :



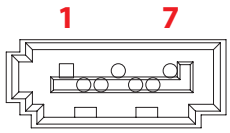
Pin No.	Function	Pin No.	Function
1	NC	2	NC
3	SMB_SLIMSAS_10_SDA	4	NC
5	SMB_SLIMSAS_10_SCL	6	NC
7	SMB_SLIMSAS_9_SDA	8	NC
9	SMB_SLIMSAS_9_SCL	10	NC
11	SMB_X8_SLIMSAS_SLOT4_SDA	12	NC
13	SMB_X8_SLIMSAS_SLOT4_SCL	14	NC
15	GND	16	NC
17	SMB_X16_X8_SLIMSAS_SLOT3_SDA	18	GND
19	SMB_X16_X8_SLIMSAS_SLOT3_SCL	20	CPU_CLK_PCIE_N
21	GND	22	CPU _CLK_PCIE_P
23	GND	24	GND
25	PEG1_TXN_15	26	PCIE1_CRX_N15
27	PEG1_TXP_15	28	PCIE1_CRX_P15
29	GND	30	GND
31	PEG1_TXN_14	32	PCIE1_CRX_N14
33	PEG1_TXP_14	34	PCIE1_CRX_P14
35	GND	36	GND
37	PEG1_TXN_13	38	PCIE1_CRX_N13
39	PEG1_TXP_13	40	PCIE1_CRX_P13
41	GND	42	GND
43	PEG1_TXN_12	44	PCIE1_CRX_N12
45	PEG1_TXP_12	46	PCIE1_CRX_P12
47	GND	48	GND
49	PEG1_TXN_11	50	PCIE1_CRX_N11
51	PEG1_TXP_11	52	PCIE1_CRX_P11
53	GND	54	GND
55	PEG1_TXN_10	56	PCIE1_CRX_N10
57	PEG1_TXP_10	58	PCIE1_CRX_P10
59	GND	60	GND
61	PEG1_TXN_9	62	PCIE1_CRX_N9
63	PEG1_TXP_9	64	PCIE1_CRX_P9
65	GND	66	GND
67	PEG1_TXN_8	68	PCIE1_CRX_N8

69	PEG1_TXP_8	70	PCIE1_CRX_P8
71	GND	72	GND
73	PEG1_TXN_7	74	PCIE1_CRX_N7
75	PEG1_TXP_7	76	PCIE1_CRX_P7
77	GND	78	GND
79	PEG1_TXN_6	80	PCIE1_CRX_N6
81	PEG1_TXP_6	82	PCIE1_CRX_P6
83	GND	84	GND
85	PEG1_TXN_5	86	PCIE1_CRX_N5
87	PEG1_TXP_5	88	PCIE1_CRX_P5
89	GND	90	GND
91	PEG1_TXN_4	92	PCIE1_CRX_N4
93	PEG1_TXP_4	94	PCIE1_CRX_P4
95	GND	96	GND
97	PEG1_TXN_3	98	PCIE1_CRX_N3
99	PEG1_TXP_3	100	PCIE1_CRX_P3
101	GND	102	GND
103	PEG1_TXN_2	104	PCIE1_CRX_N2
105	PEG1_TXP_2	106	PCIE1_CRX_P2
107	GND	108	GND
109	PEG1_TXN_1	110	PCIE1_CRX_N1
111	PEG1_TXP_1	112	PCIE1_CRX_P1
113	GND	114	GND
115	PEG1_TXN_0	116	PCIE1_CRX_N0
117	PEG1_TXP_0	118	PCIE1_CRX_P0
119	GND	120	GND

2.3.7 SATA1, SATA2 : SATA III Connector

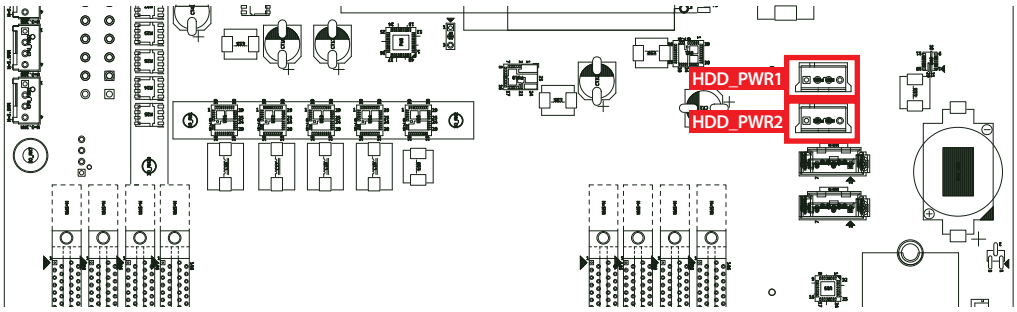


There are two onboard high performance Serial ATA III's (SATA III) on ICS-1110S. It supports higher storage capacity with less cabling effort and smaller required space. The pin assignments of SATA1, SATA2 are listed in the following table:

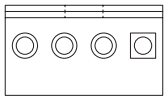


Pin No.	Definition	Pin No.	Definition
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

2.3.8 HDD_PWR1, HDD_PWR2 : SATA Power Connector

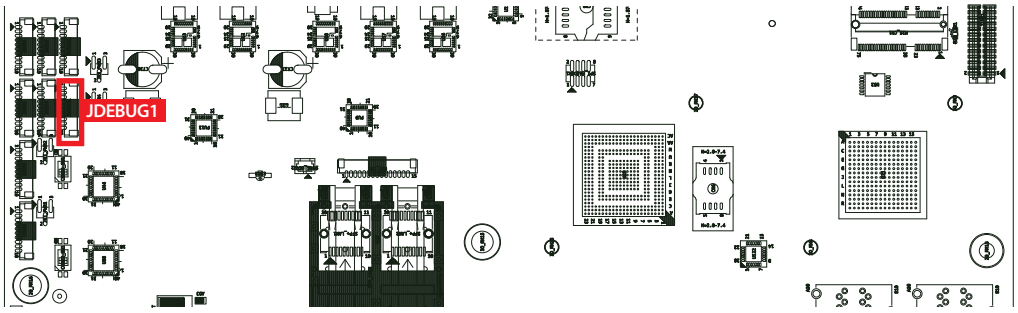


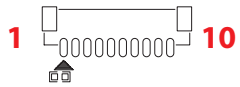
The ICS-1110S is also equipped with two SATA power connectors. It supports 5V (Up to 3A) and 12V (Up to 3A) currents to the hard drive or SSD. The pin assignments of HDD_PWR1 , HDD_PWR2 are listed in the following table:



Pin No.	Definition	Pin No.	Definition
1	+12V	2	GND
3	GND	4	+5V

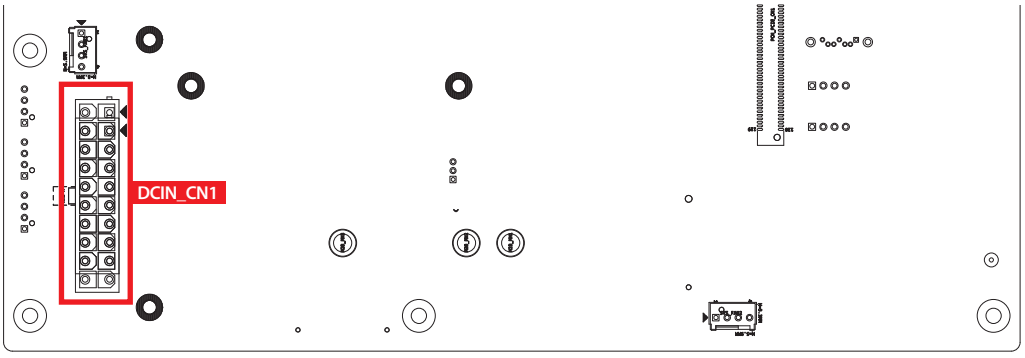
2.3.9 JDEBUG1 : ESPI Port 80 Debug Port

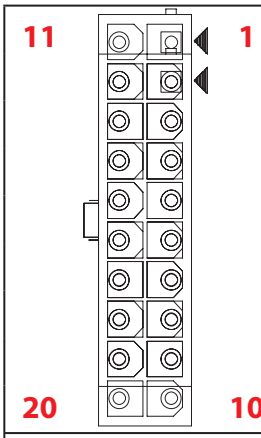




Pin No.	Definition	Pin No.	Definition
1	+V3.3S	2	Port 80_ESPI_CS#
3	Port 80_ESPI_IO0	4	Port 80_ESPI_IO1
5	Port 80_ESPI_IO2	6	Port 80_ESPI_IO3
7	GND	8	Port 80_ESPI_CLK
9	Port 80_ESPI_RST#	10	GND

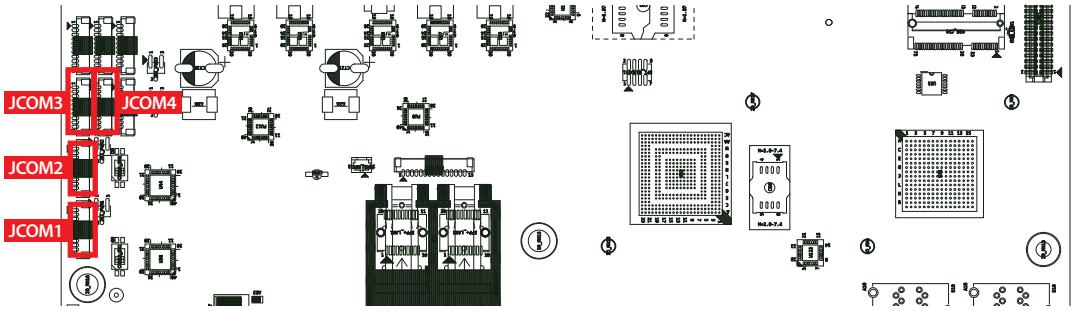
2.3.10 DCIN_CN1 : DC input Connector(12V Only)





Pin No.	Definition	Pin No.	Definition
1	V-	11	V-
2	V-	12	V-
3	V-	13	V-
4	V-	14	V-
5	V-	15	V-
6	V+	16	V+
7	V+	17	V+
8	V+	18	V+
9	V+	19	V+
10	V+	20	V+

2.3.11 JCOM1, JCOM2, JCOM3, JCOM4 : Serial Ports



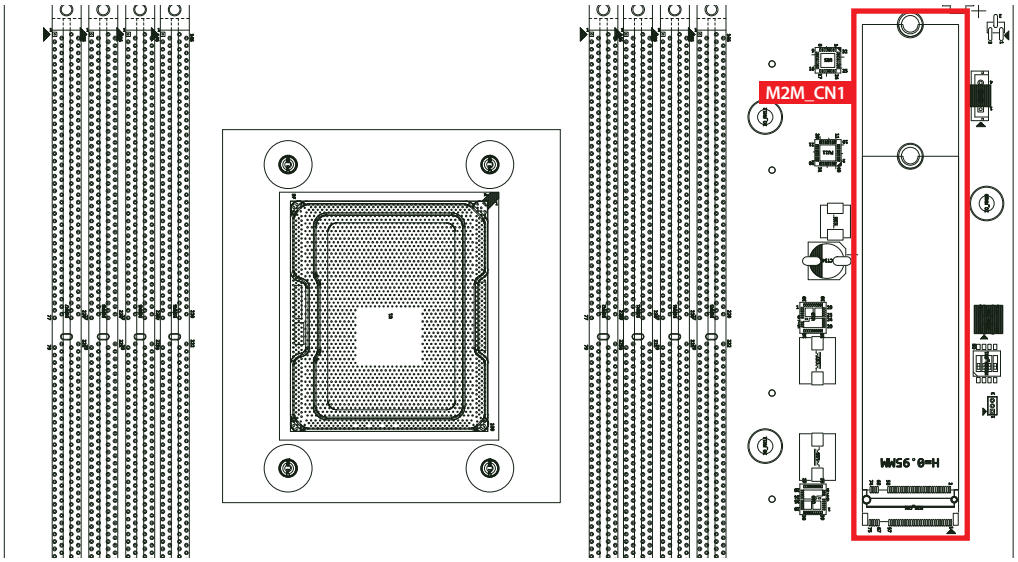
Serial port 1 to 4 (JCOM 1 to 4) can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition of COM 1 to 4 is RS-232, if you want to change to RS-422 or RS-485, you can find the setting in BIOS

BIOS Setting	Funtion
COM 1 (JCOM1) COM 2 (JCOM2) COM 3 (JCOM3) COM 4 (JCOM4)	RS-232
	RS-422 (5-wire)
	RS-485
	RS-485 w/z auto-flow contral

The pin assignments are listed in the following table:

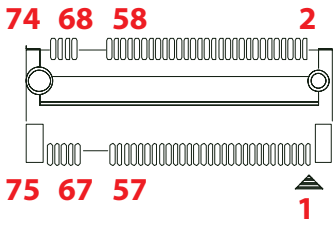
Pin No.	Definition	Pin No.	Definition
1	NC	6	TXD
2	GND	7	RTS
3	RI	8	RXD
4	DTR	9	DSR 80_ESPI_ RST#
5	CTS	10	DCD

2.3.12 M.2 KEY M: PCIex2/SATA (BIOS SKU)



M.2 key M connector is suitable for applications that use Host I/Fs supported by either PCIe Module card types include 2280,22110 (Support PCIE/SATA (BIOS SKU))

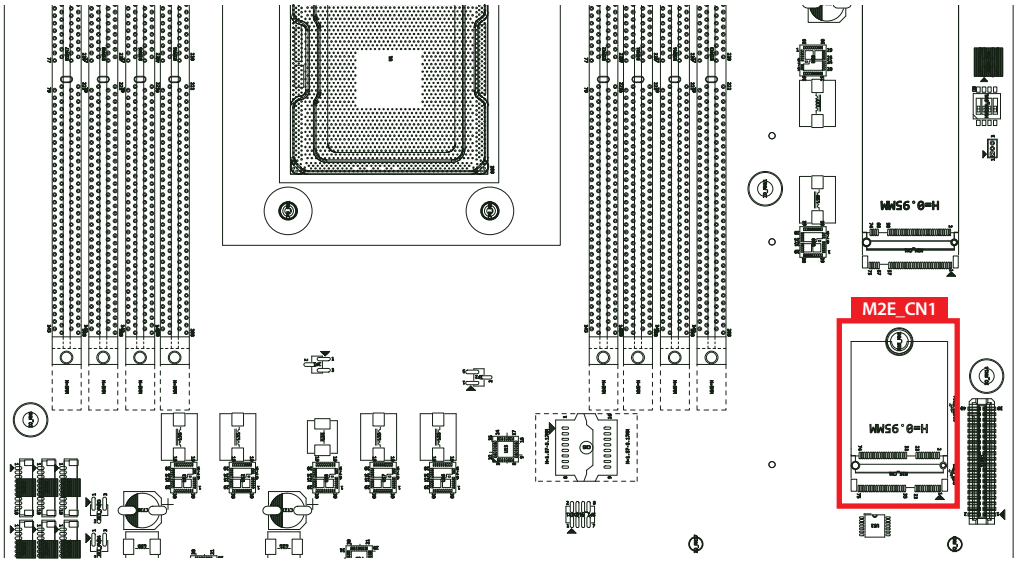
The pin assignments of M.2 Key M are listed in the following table:



Pin No.	Signal Name	Pin No.	Signal Name
1	GND	2	+P3V3
3	GND	4	+P3V3
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2M_SATA_LED#
11	NC	12	+P3V3
13	NC	14	+P3V3
15	GND	16	+P3V3
17	NC	18	+P3V3
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	M2M_17_RXN	30	NC
31	M2M_17_RXP	32	NC

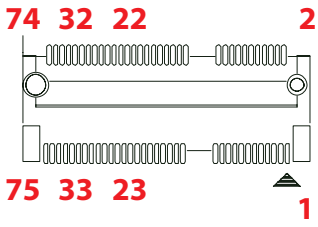
33	GND	34	NC
35	M2M_17_TXN	36	NC
37	M2M_17_TXP	38	DEVSLP
39	GND	40	NC
41	M2M_16_RXP/SATA_16_RXP	42	NC
43	M2M_16_RXN/SATA_16_RXN	44	NC
45	GND	46	NC
47	M2M_16_TXN/SATA_16_TXN	48	NC
49	M2M_16_TXP/SATA_16_TXP	50	M2M_RST#
51	GND	52	NC
53	M2M_CLKN	54	PCIE_WAKE_N
55	M2M_CLKP	56	NC
57	GND	58	NC
Mechanical Key			
67	NC	68	Reserved
69	NC	70	+P3V3
71	GND	72	+P3V3
73	GND	74	+P3V3
75	GND		

2.3.13 M2E_CN1 : M.2 KEY E USB2, PCIex1 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 2230

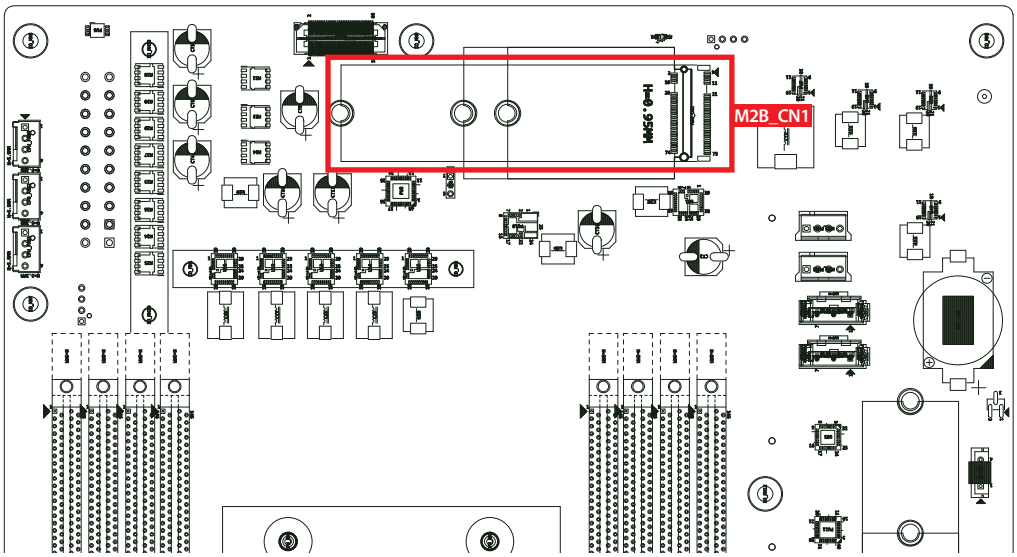
The pin assignments of M.2 Key E are listed in the following table:



Pin No.	Signal Name	Pin No.	Signal Name
75	GND	74	+V3.3A
73	NC	72	+V3.3A
71	NC	70	NC
69	GND	68	NC
67	NC	66	NC
65	NC	64	NC
63	GND	62	SMB_ALERT#
61	NC	60	SMB_CLK
59	NC	58	SMB_DATA
57	GND	56	NC
55	PCIE_WAKE#	54	NC
53	PCIE_CLK_REQ0#	52	PLTRST#
51	GND	50	NC
49	PCIE_100M_CLK__N0	48	NC
47	PCIE_100M_CLK__P0	46	NC
45	GND	44	NC
43	PCIE_RX_N0	42	NC
41	PCIE_RX_P0	40	NC
39	GND	38	NC
37	PCIE_TX_N0	36	NC
35	PCIE_TX_P0	34	NC
33	GND	32	NC

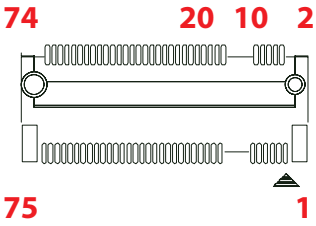
Mechanical Key			
23	NC		
21	NC	22	NC
19	NC	20	NC
17	NC	18	GND
15	NC	16	NC
13	NC	14	NC
11	NC	12	NC
9	NC	10	NC
7	GND	8	NC
5	USB-	6	LED1#
3	USB+	4	+V3.3A
1	GND	2	+V3.3A

2.3.14 M2B_CN1 : M.2 KEY B USB3,USB2,PCIe Support



USB3.0/USB2.0 Support(Default) , PCIex2(BIOS control)
Module card types include 3042,3052,2280.

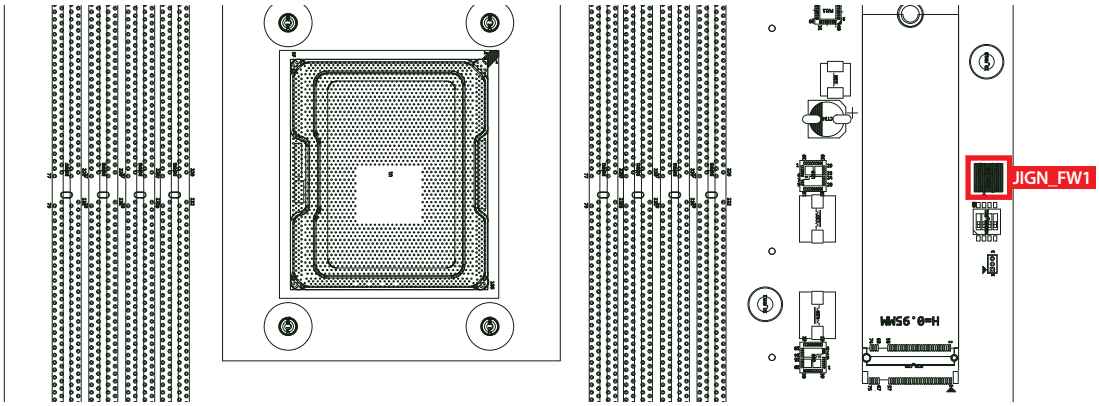
Pin Out :

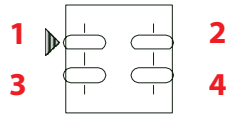


Pin No.	Signal Name	Pin No.	Signal Name
75	NC	74	+V3.3A
73	GND	72	+V3.3A
71	GND	70	+V3.3A
69	NC	68	NC
67	NC	66	SIM_DETECT
65	NC	64	NC
63	NC	62	NC
61	NC	60	NC
59	NC	58	NC
57	GND	56	NC
55	PCIE_100M_CLK_P	54	PCIE_WAKE#
53	PCIE_100M_CLK_N	52	PCIE_CLK_REQ
51	GND	50	PLTRST#
49	(default)USB_TX_1P, PCIe_TX_1P	48	NC
47	(default)USB_TX_1N, PCIe_TX_1N	46	NC
45	GND	44	NC

43	(default)USB_RX_1P, PCIe_RX_1P	42	NC
41	(default)USB_RX_1N, PCIe_RX_1N	40	NC
39	GND	38	DEVSLP
37	(default)USB_TX_2P, PCIe_TX_2P	36	UIM_PWR
35	(default)USB_TX_2N, PCIe_TX_2N	34	UIM_DATA
33	GND	32	UIM_CLK
31	(default)USB_RX_2P, PCIe_RX_2P	30	UIM_RESET
29	(default)USB_RX_2N, PCIe_RX_2N	28	NC
27	GND	26	NC
25	NC	24	NC
23	NC	22	NC
21	NC	20	NC
Mechanical Key			
11	GND		
9	USB-	10	LED1#
7	USB+	8	NC
5	GND	6	FULL_CARD_PWR_OFF
3	GND	4	+V3.3A
1	NC	2	+V3.3A

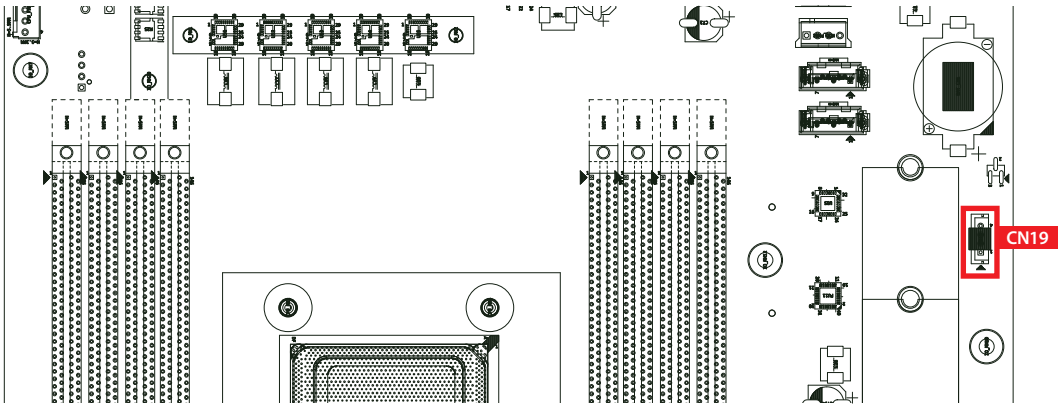
2.3.15 JIGN_FW1 : IGNITION FW Programming Header

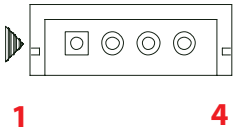




Pin No.	Description
1	GND
2	MCU_RST#
3	+V3.3_MCU
4	MCU_PRG

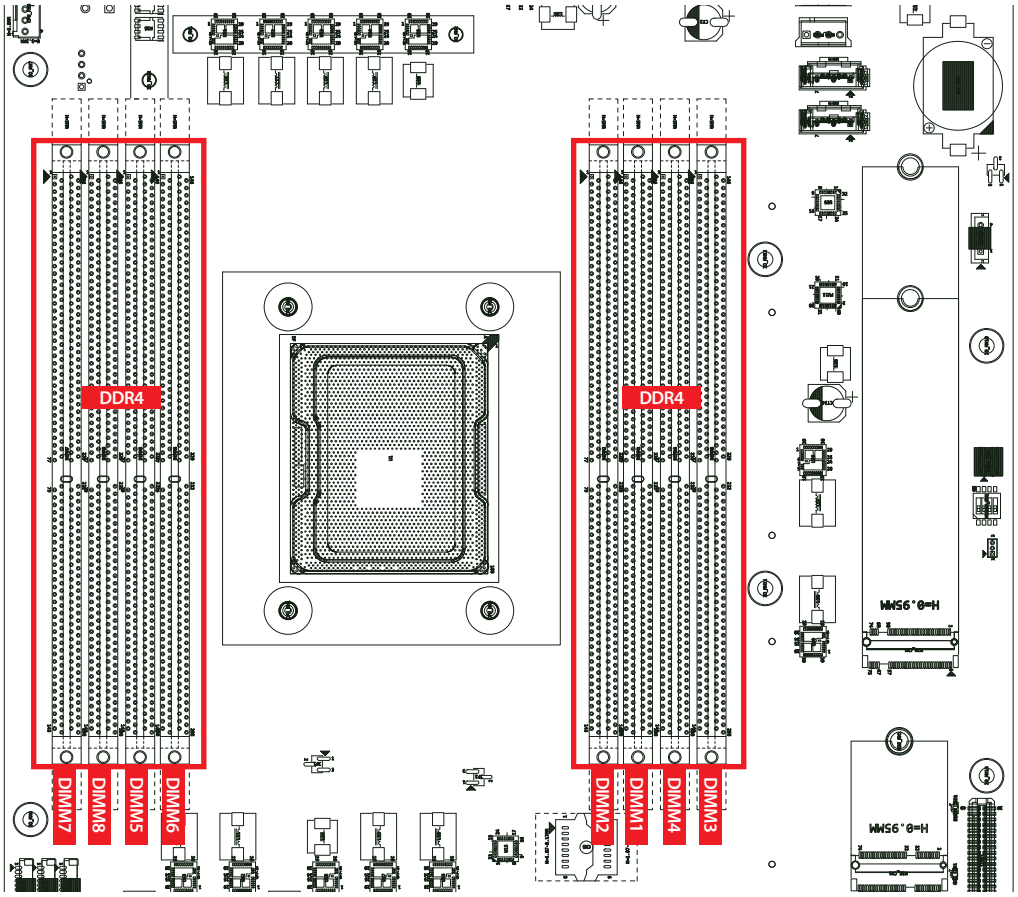
2.3.16 CN19 : SATA RAID KEY





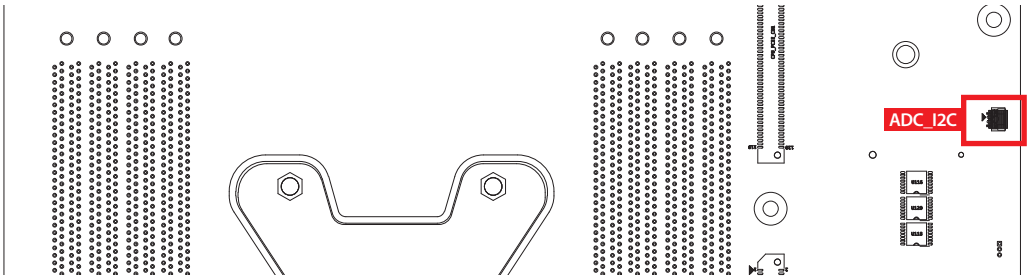
Pin No.	Definition
1	GND
2	PU_P3V3
3	GND
4	FM_SATA_RAID_R_KEY

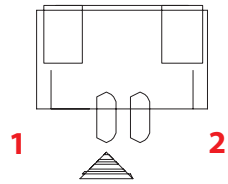
2.3.17 DIMM1_CHA0, DIMM2_CHA1, DIMM3_CHB0, DIMM4_CHB1, DIMM5_CHG0, DIMM6_CHG1, DIMM7_CHH0, DIMM8_CHH1 : DDR4 U-DIMM slot



U-DIMM Quantity	Location
1	DIMM1
1	DIMM7
2	DIMM1, DIMM5
4	DIMM1, DIMM2, DIMM5, DIMM6
4	DIMM1, DIMM2, DIMM7, DIMM8
4	DIMM3, DIMM4, DIMM7, DIMM8
8	DIMM1, DIMM2, DIMM3, DIMM4, DIMM5, DIMM6, DIMM7, DIMM8

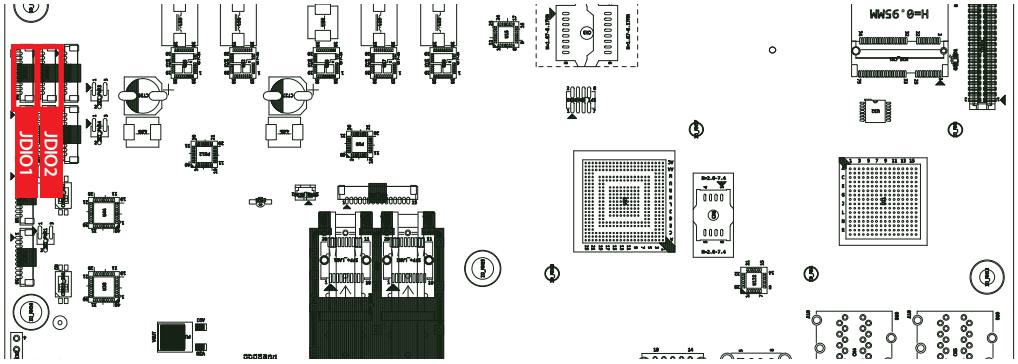
2.3.18 ADC_I2C : MCU I2C





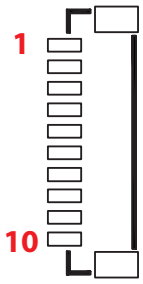
Pin No.	Definition
1	I2C0_SDA_MCU
2	I2C0_SCL_MCU

2.3.19 JDIO1, JDIO2 : GPIO from Super I/O



There is a 16-bit GPIO connector in the Top side. Each GPIO channel can be configuration GPI or GPO. JSEL_DIO header is for SYNC/SOURCE mode selection on ISO_DIO board (DMX-100-E).

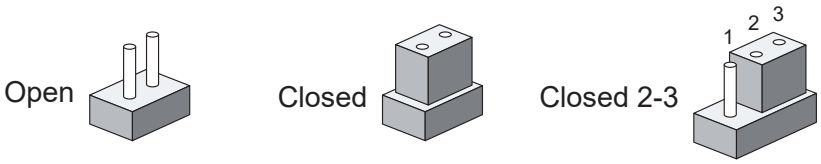
JDIO1 and JDIO2 pins are defined in the following table:



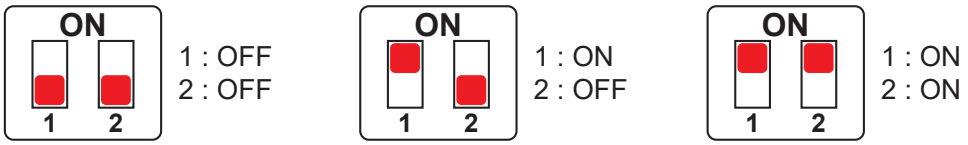
Pin No.	JDIO1 Definition	JDIO2 Definition
1	SIO_GPI80	SIO_GPO70
2	SIO_GPI81	SIO_GPO71
3	SIO_GPI82	SIO_GPO72
4	SIO_GPI83	SIO_GPO73
5	SIO_GPI84	SIO_GPO74
6	SIO_GPI85	SIO_GPO75
7	SIO_GPI86	SIO_GPO76
8	SIO_GPI87	SIO_GPO77
9	+3.3V	+3.3V
10	GND	GND

2.4 Main Board Jumper Settings

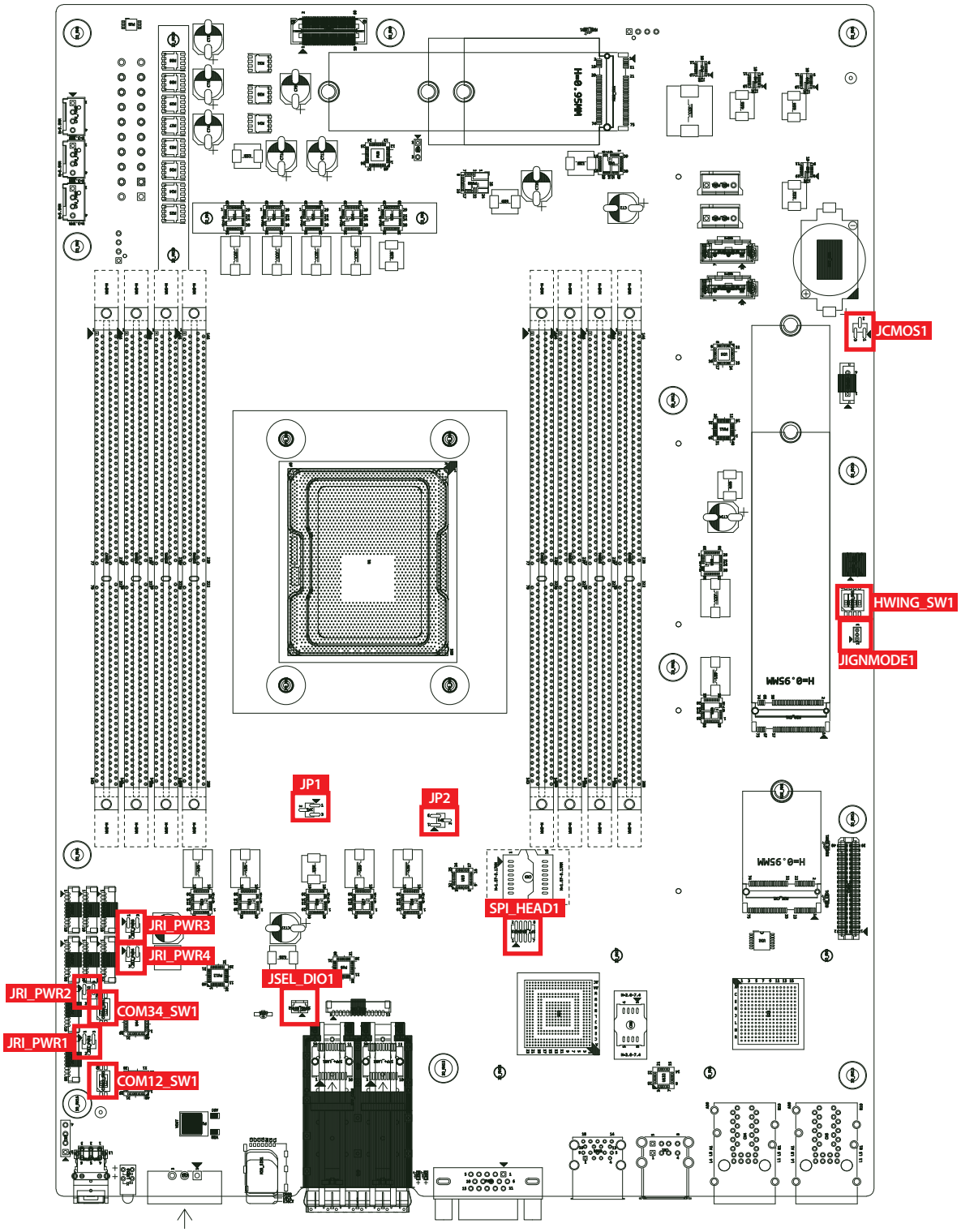
You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper,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



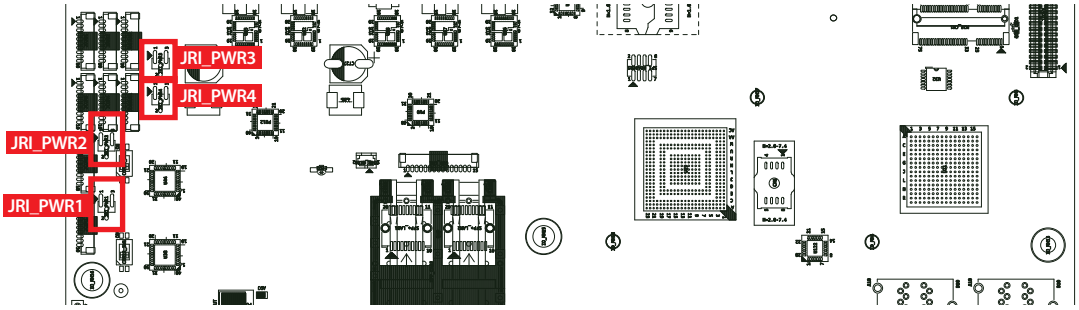
You may configure your card to match the needs of your application by DIP switch. As below show the DIP switch on and off.

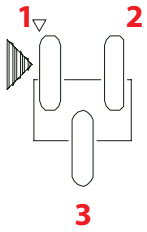


2.4.1 Front View of ICS-1110S Main Board With Jumper Location



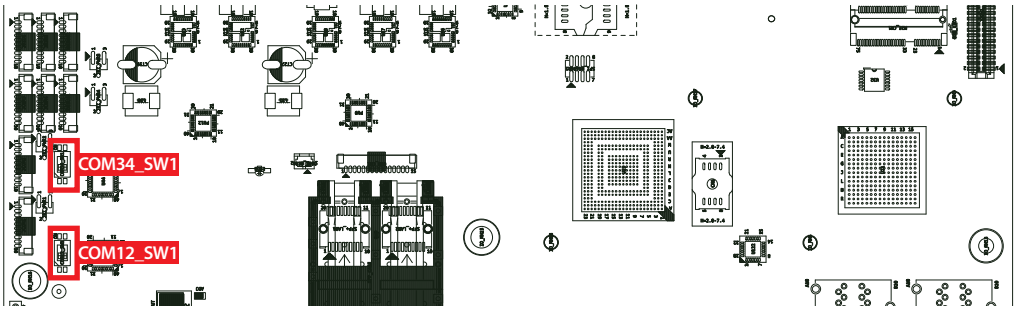
2.4.2 JRI_PWR1-4 : COM1-4 RI Pin Function

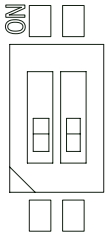




Port	Setting	Description
COM1	1 - 2	+12V (0.5A max.)
	2 - 3	RI(Default)
COM2	1 - 2	+12V (0.5A max.)
	2 - 3	RI(Default)
COM3	1 - 2	+12V (0.5A max.)
	2 - 3	RI(Default)
COM4	1 - 2	+12V (0.5A max.)
	2 - 3	RI(Default)

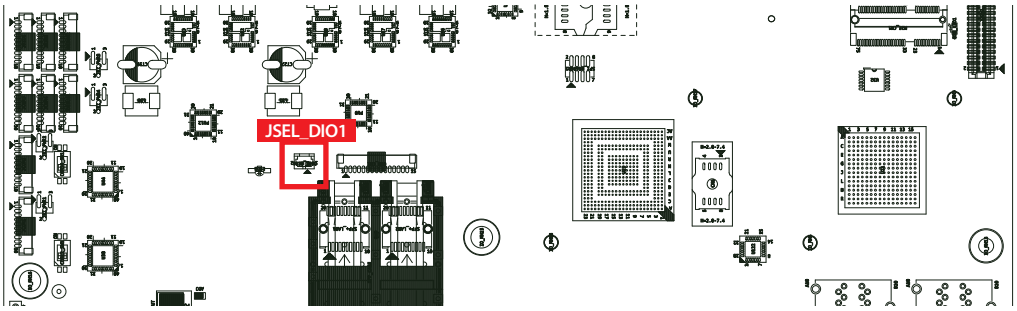
2.4.3 COM12_SW1,COM34_SW1 : RS-485/422 RECEIVER TERMINATION RESISTANCE

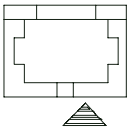




Port	Setting	Description	Port
COM12_SW1	1(ON)	DCD / RXD Termination 120R enable	COM1
	1(OFF)	DCD / RXD Termination 120R Disable(default)	
	2(ON)	DCD / RXD Termination 120R enable	COM2
	2(OFF)	DCD / RXD Termination 120R Disable(default)	
COM34_SW1	3(ON)	DCD / RXD Termination 120R enable	COM3
	3(OFF)	DCD / RXD Termination 120R Disable(default)	
	4(ON)	DCD / RXD Termination 120R enable	COM4
	4(OFF)	DCD / RXD Termination 120R Disable(default)	

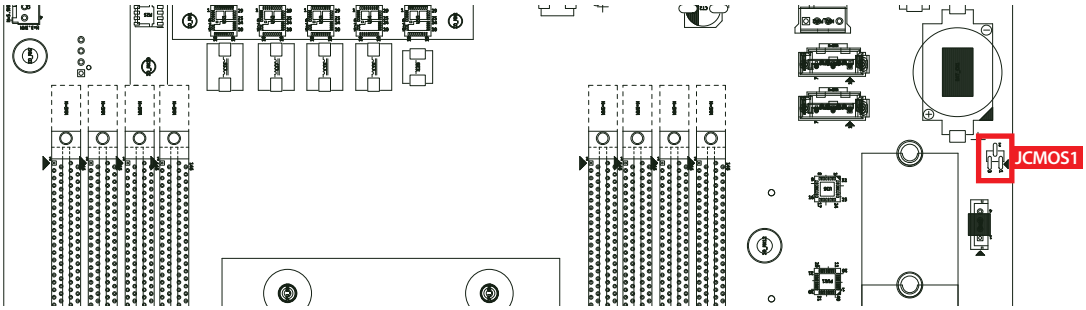
2.4.4 JSEL_DIO1 : Rerserved for SINK/SOURCE Mode selection on ISO_DIO Board(DMX-100-E)

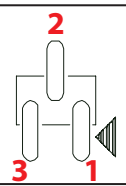




Pin No.	Description
1	ISO_DIO_SINK
2	ISO_DIO_SOURCE

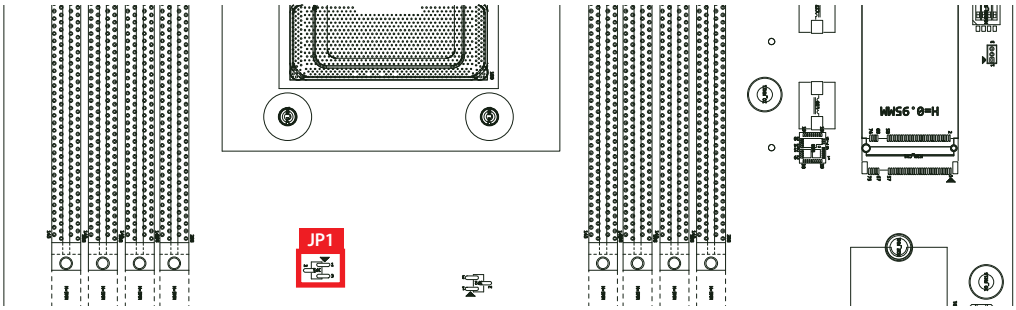
2.4.5 JCMOS1 : Clear CMOS

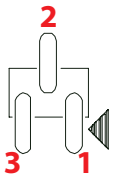




Setting	Description
1-2	Normal (Default)
2-3	Clear CMOS

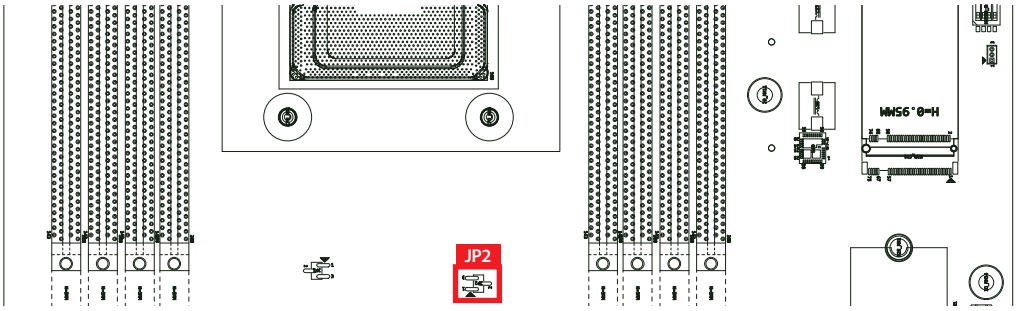
2.4.6 JP1 : SMB_PECI_ALRT_N

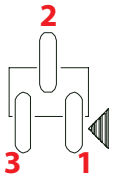




Pin No.	Description
1	SMB_PECI_ALRT_N
2	GND
3	NC

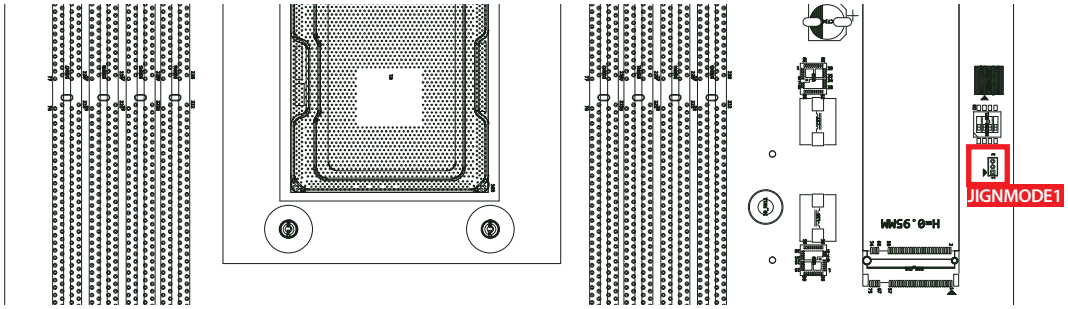
2.4.7 JP2 : CLK_48M_FLEX_BMC

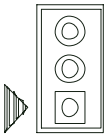




Pin No.	Description
1 - 2	FLA SECURITY OVERRIDE
2 - 3	NORMAL OPERATION(Default)

2.4.8 JIGNMODE1 : IGN Mode

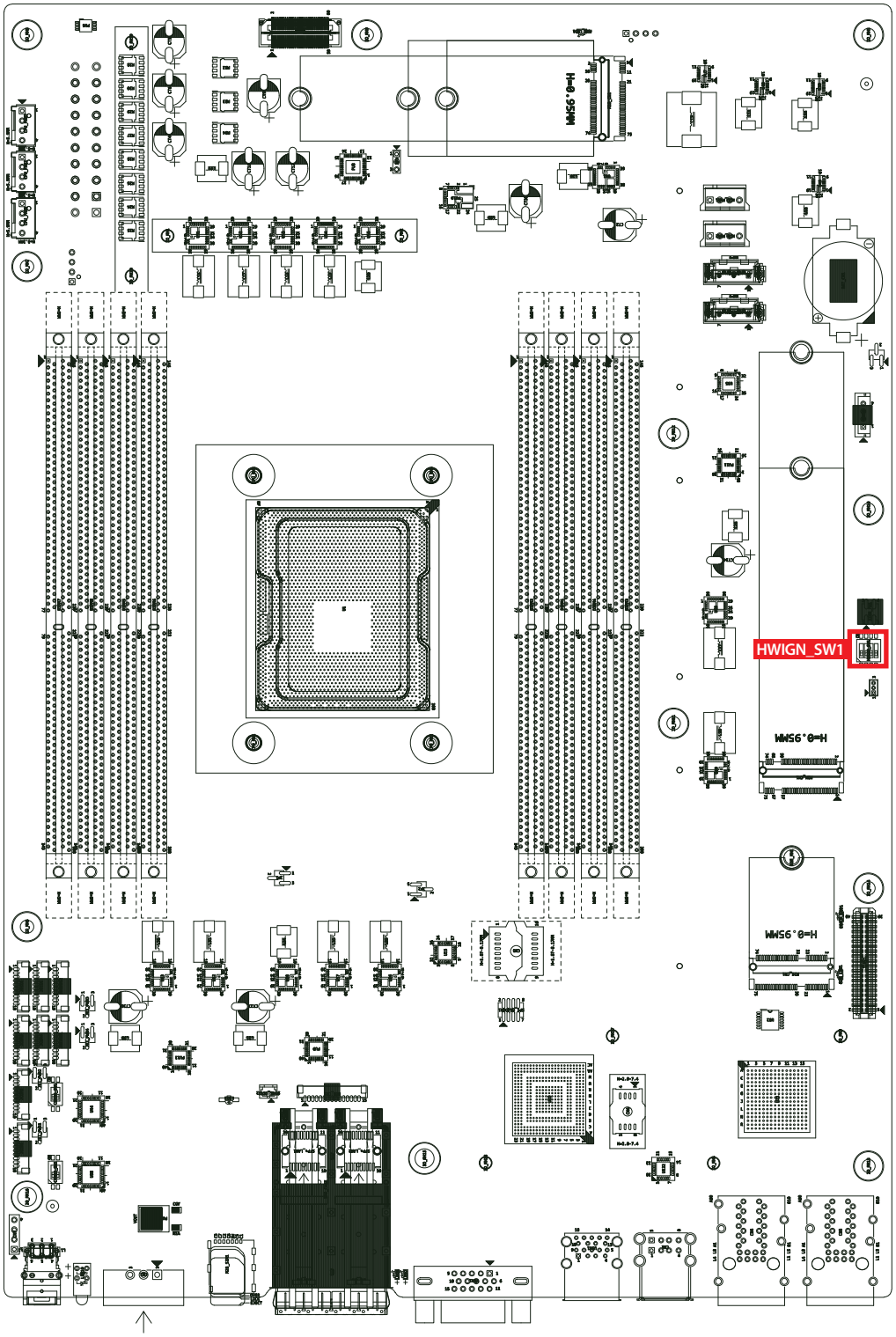




Pin No.	Description
1 - 2	HW Mode
2 - 3	SW Mode (Default)

2.5 Ignition Control

2.5.1 HWIGN_SW1 : Ignition Control (HW)

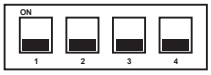
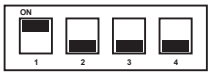
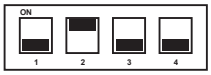
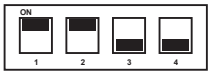
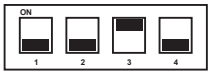
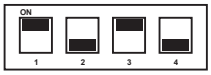
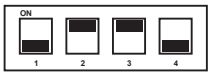
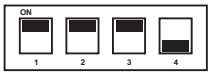
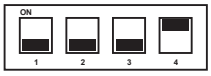
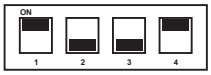
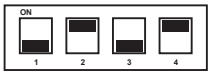
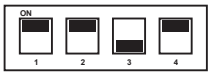
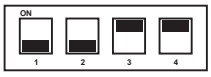
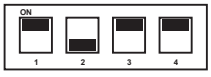
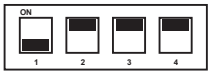
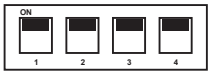


The ICS-1110S provide ignition power control feature for in-vehicle applications. The built-in MCU monitors the ignition signal and turns on/off the system according to pre-defined on/off delay period.

2.5.2 Adjust Ignition Control Modes

The ICS-1110S provide sixteen modes of different power on/off delay periods adjustable via rotary switch. The default rotary switch is set to 0 in ATX/ AT power mode.

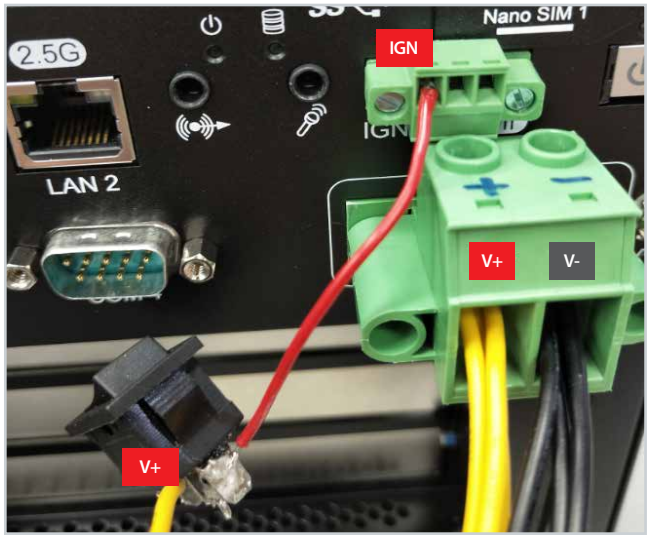
The modes are listed in the following table:

DIP 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	30 seconds	
5	No delay	60 seconds	
6	5 seconds	10 seconds	
7	5 seconds	30 seconds	
8	5 seconds	60 seconds	
9	5 seconds	90 seconds	
A	5 seconds	120 seconds	
B	10 seconds	10 seconds	
C	10 seconds	30 seconds	
D	10 seconds	60 seconds	
E	10 seconds	90 seconds	
F	10 seconds	120 seconds	

2.5.3 Ignition Control Wiring

To activate ignition control, you need to provide IGN signal via the 3-pin plugable terminal block located on the front panel. Please use the following pictures to find the general wiring configuration.

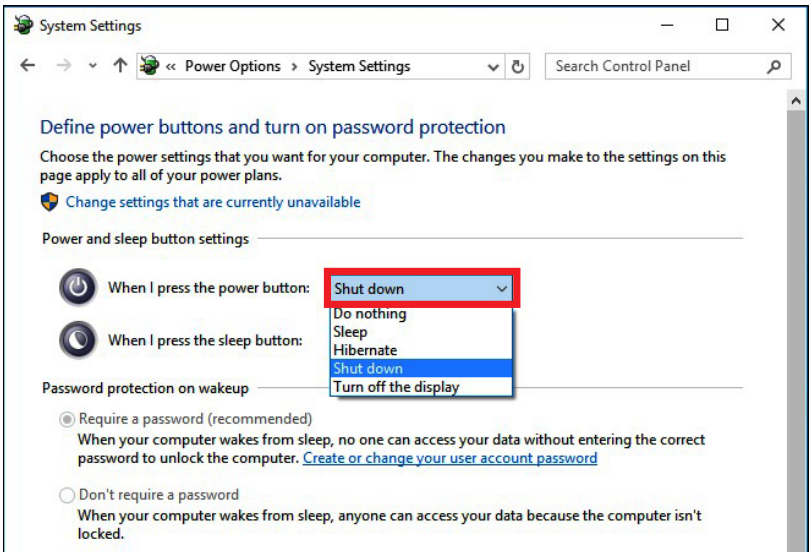
Pin No.	Definition
1	Ignition
2	SW+
3	SW-



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

Note :

1. DC power source and IGN share the same ground.
2. ICS-1110S supports 16V to 50V 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 "Power Down" mode.



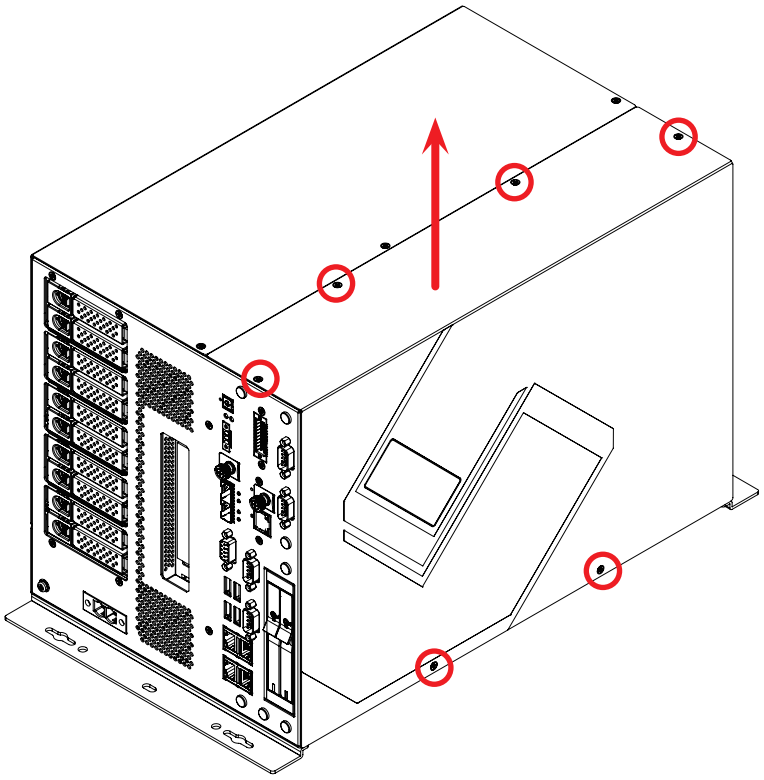
In Windows for example, you need to set "When I press the power button" to Shut down.

3

SYSTEM SETUP

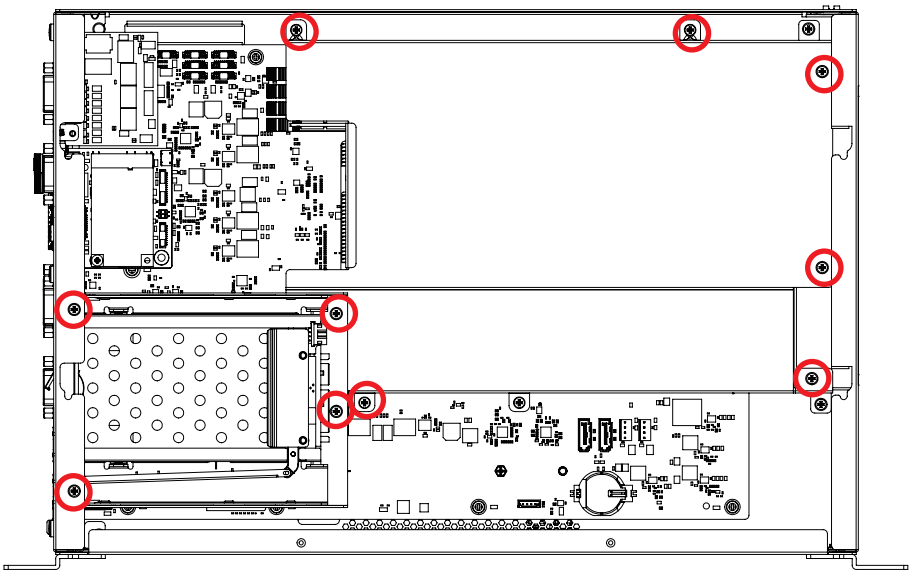
3.1 How to open your ICS-1110S

Remove the screws indicated and separate the Cover from the enclosure.

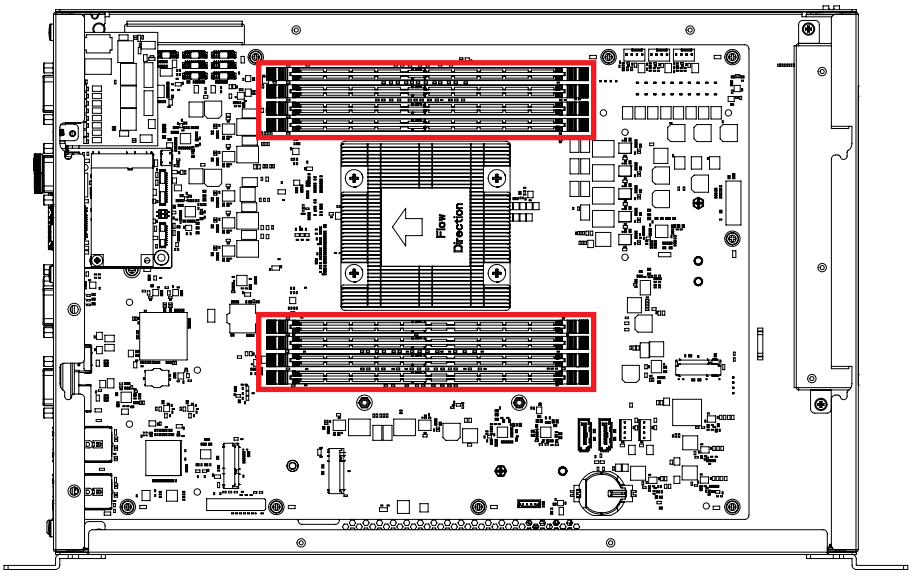


3.2 Installing DDR4 UDIMM

Step 1 Remove ten F-M3x5L screws and pick up HDD bracket and fan duct.



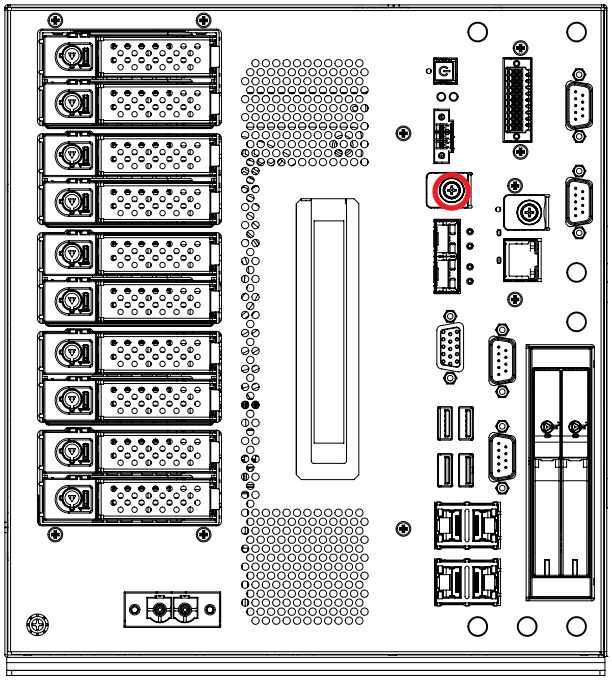
Step 2 Install UDIMM.



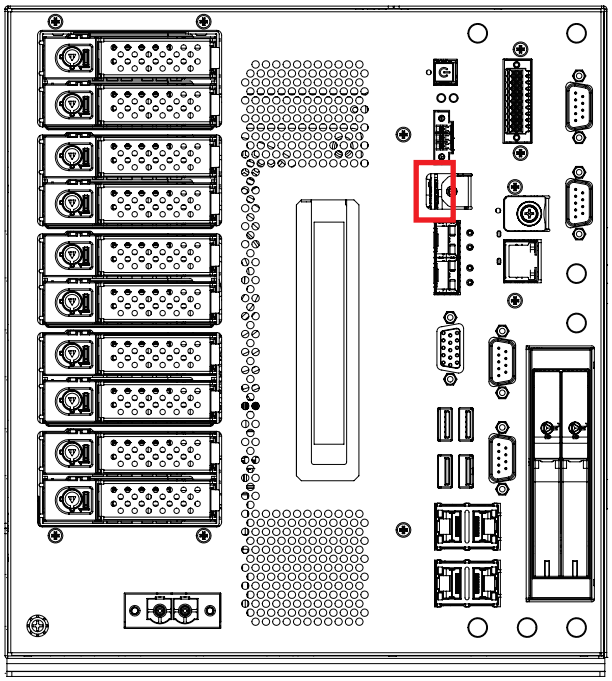
3.3 Installing SIM Card

3.3.1 SIM Card

Step 1 Remove the SIM card cover.

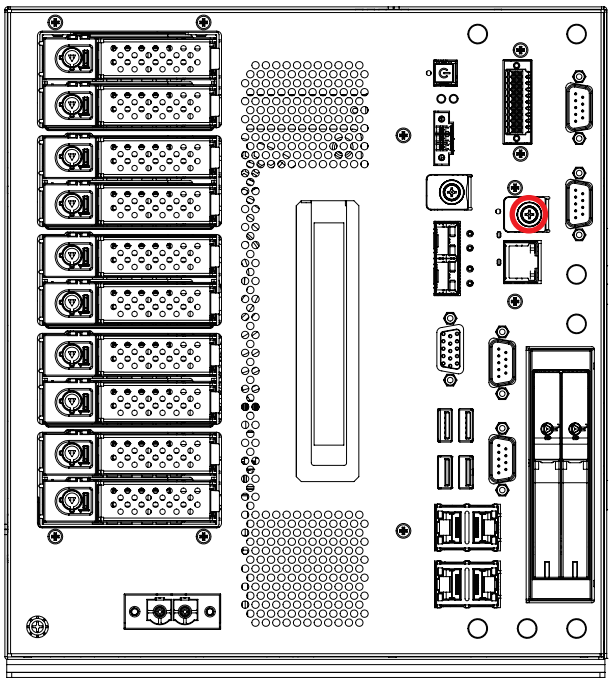


Step 2 Install SIM card in the marked red area.

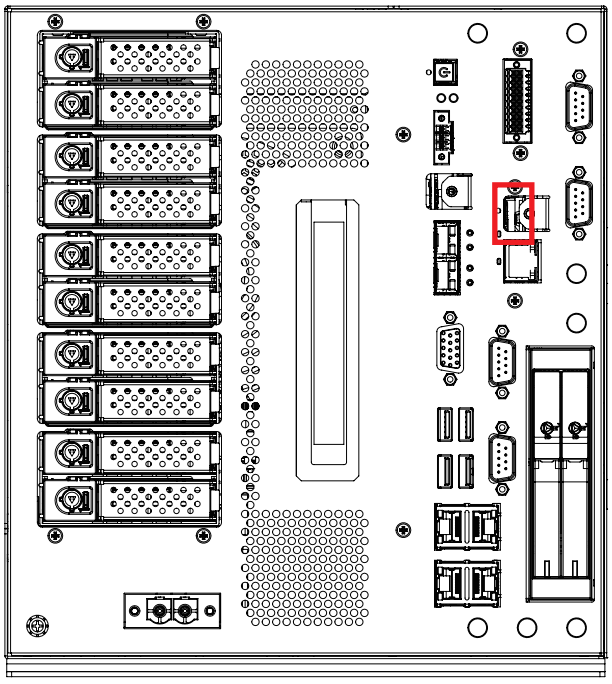


3.3.2 OOB SIM Card

Step 1 Remove the OOB SIM card cover.



Step 2 Install SIM card.

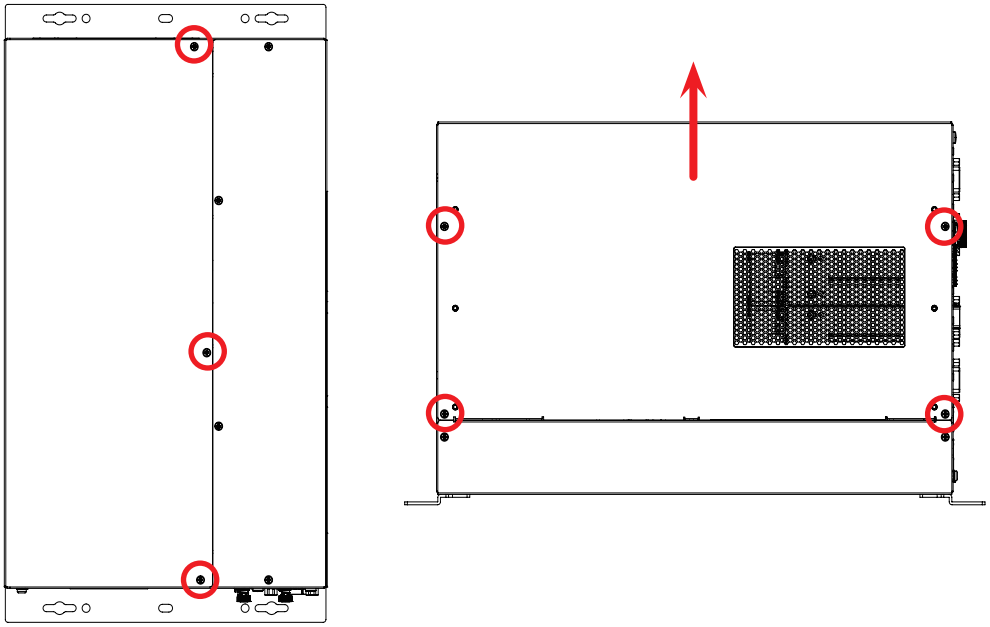


3.4 Installing PCIe Card

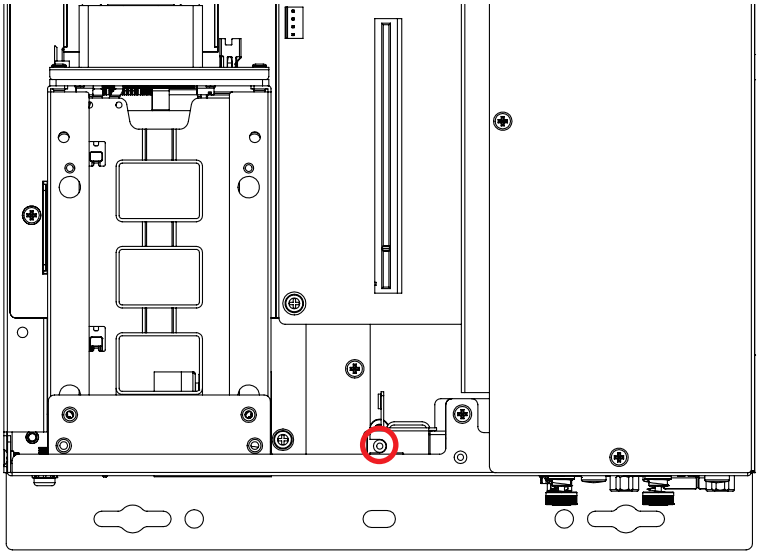
System designs will support 111.15 mm standard height, 312 mm maximum length (without the I/O bracket & power cable) expansion cards.

(*Based on the position of power connectors and the card sink/case design, not all expansion card within the maximum dimension can fit in to the system. Please consult the Vecow support team for confirmation.)

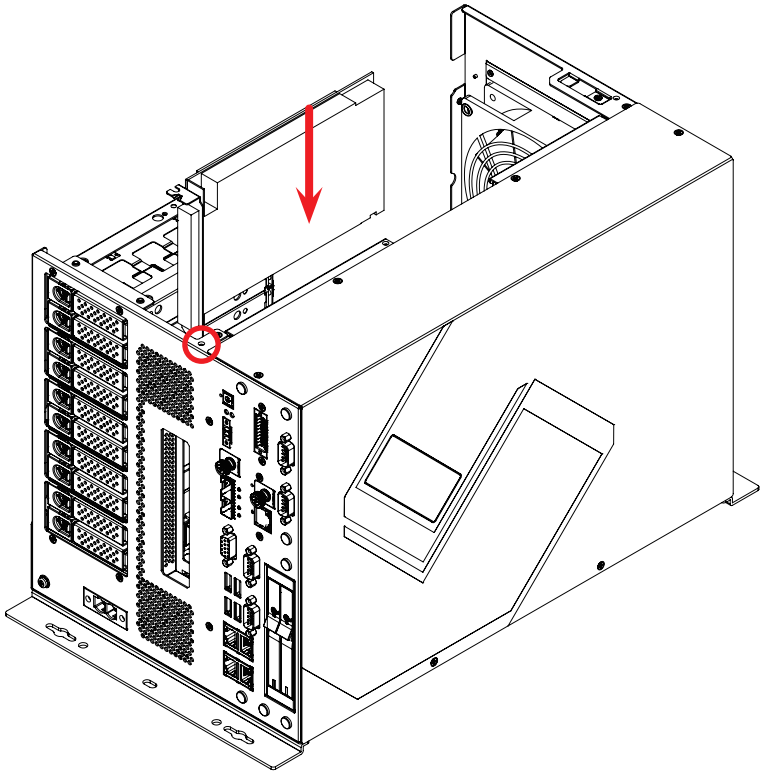
Step 1 Remove 7 M3 flat head screws and remove the top cover.



Step 2 Install PCIe card in the marked red area.
(Notice: For ICS-1110S Series, please press the clip before removing the card.)



Step 3 Install the PCIe card and secure it by tightening the M3 x 5L screws.



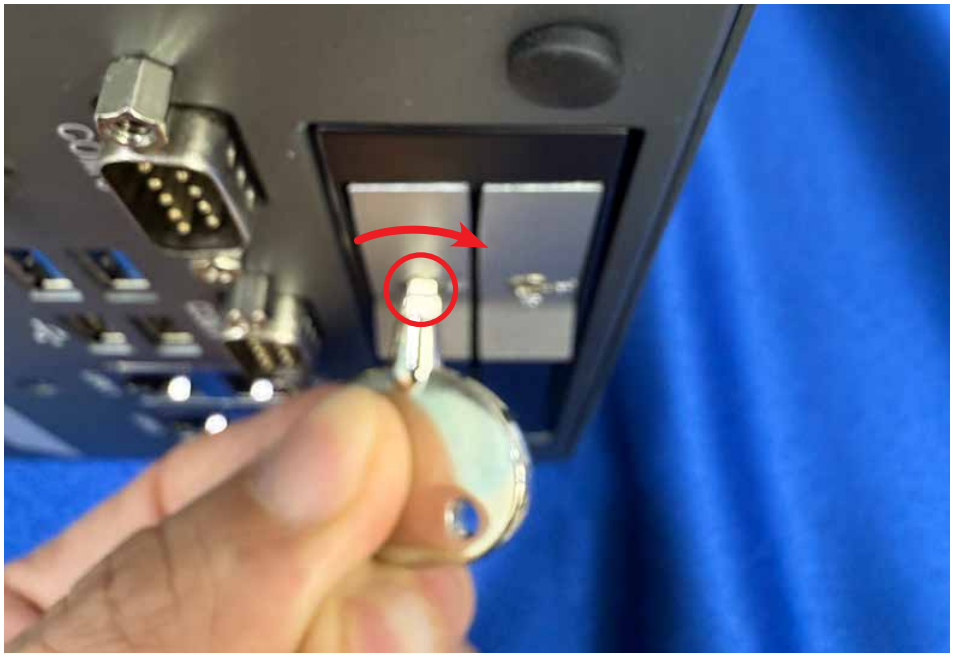
3.5 Installing HDD/SSD

Step 1 Use the trigger and open SSD/HDD tray.

Step 2 Open front door of SSD/HDD tray.

Step 3 Install 2.5” SSD/HDD into the tray and close.

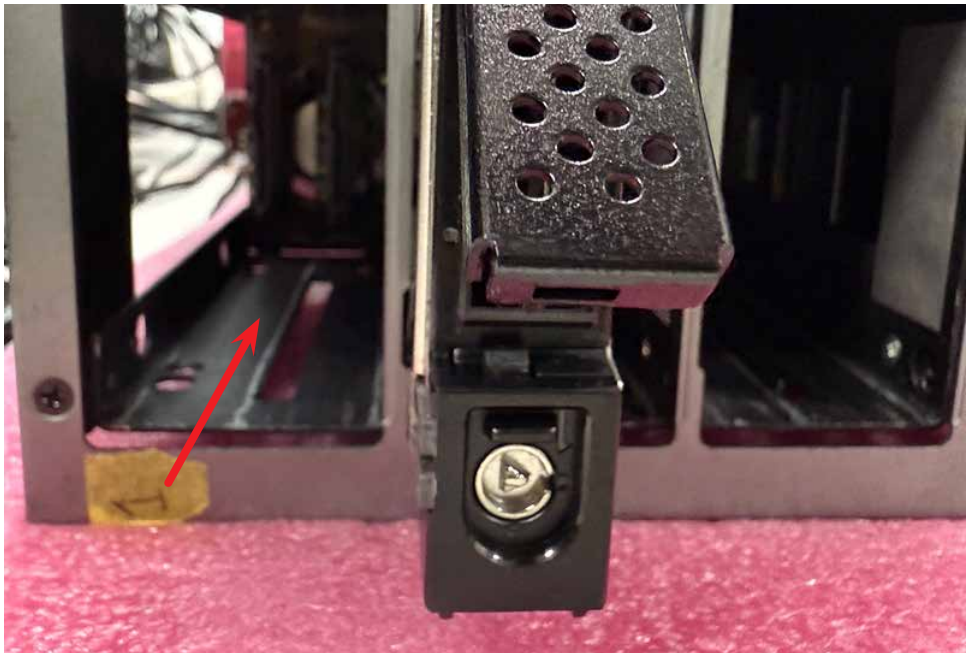
Step 4 Lock the SSD/HDD tray with key.



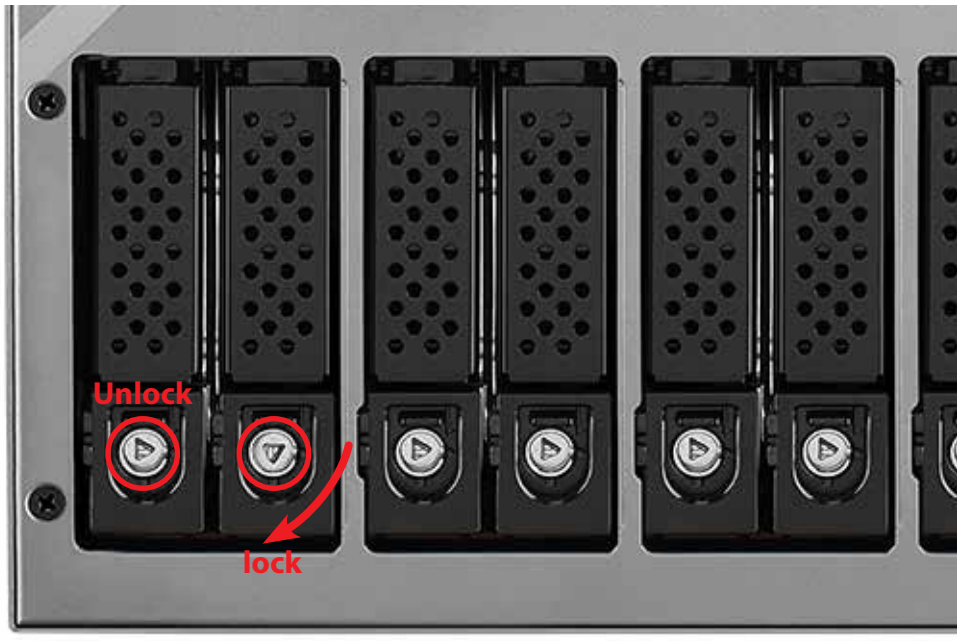
3.6 Installing U.2

Step 1 Fasten 4 Flat head M3x4L screw.

Step 2 Inserting U.2 Tray.

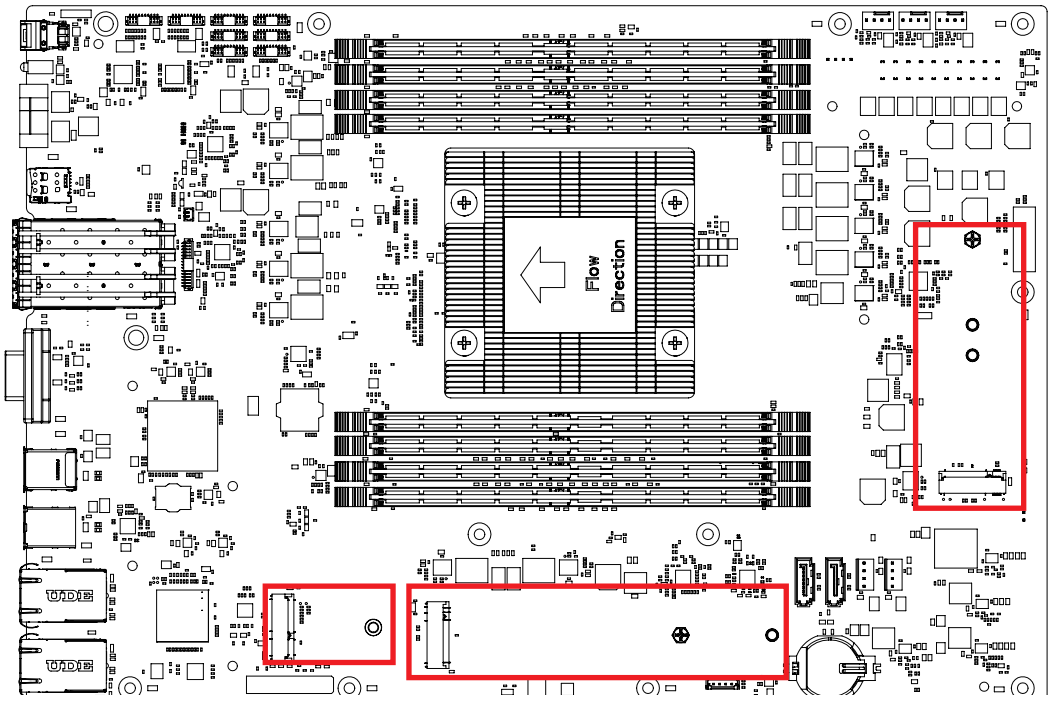


Step 3 Lock the U.2 tray with key.

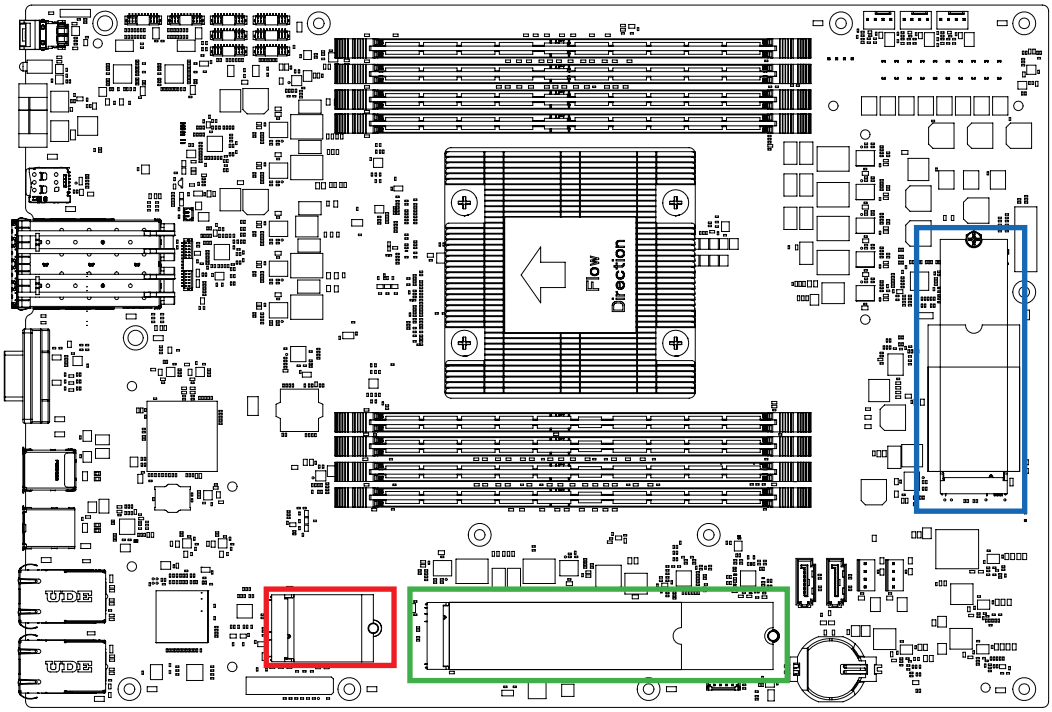


3.7 Installing M.2

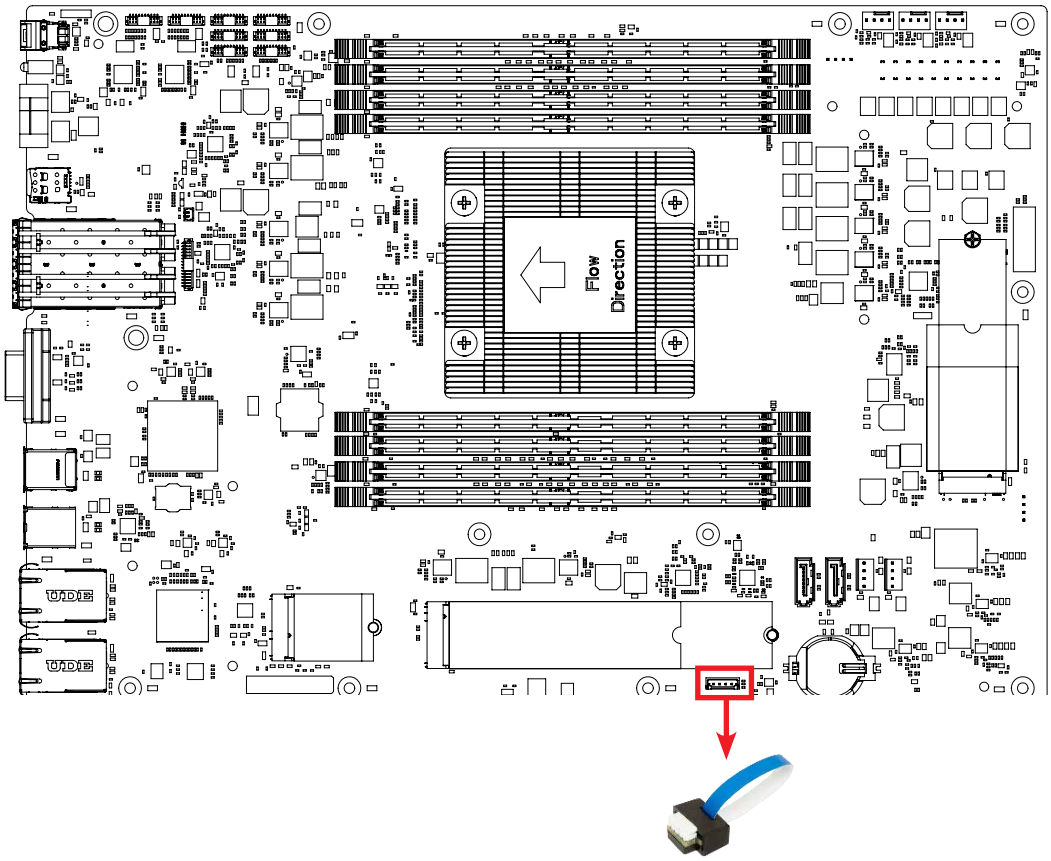
Step 1 The red box indicates the location of the M.2.



Step 2 Install M.2 (Key E 2230/Key M 2280-22110/Key B 2280-3042-3052) into slot and fasten one pan head M3x4L screw

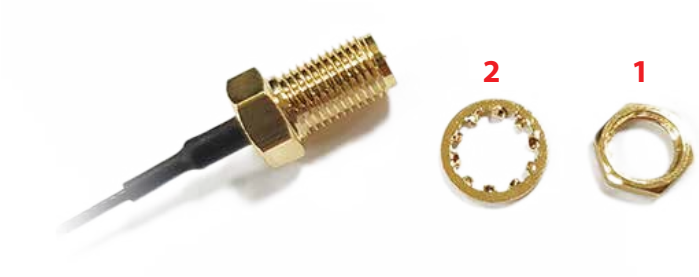


3.8 Installing VROC

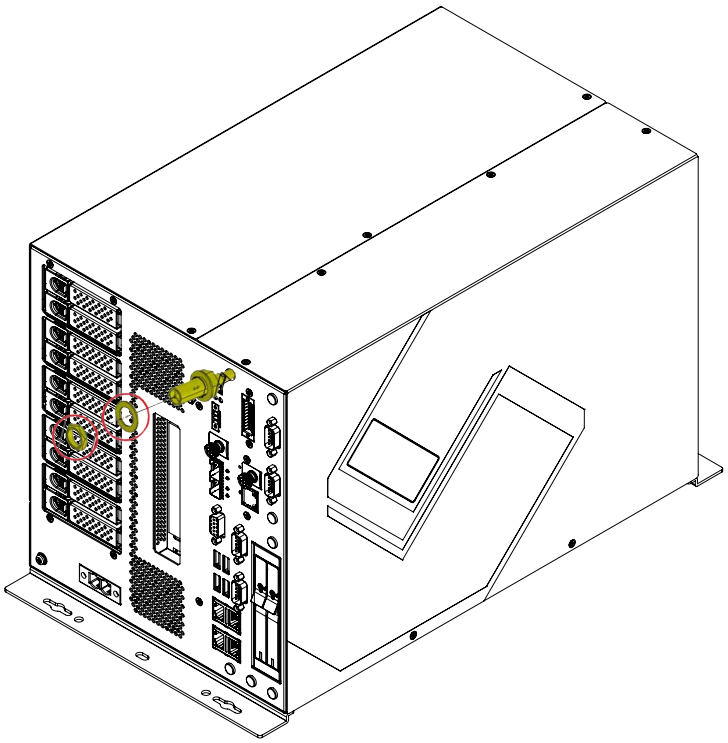


3.9 Installing Antenna Cable

Step 1 Check antenna parts (cable and washers).

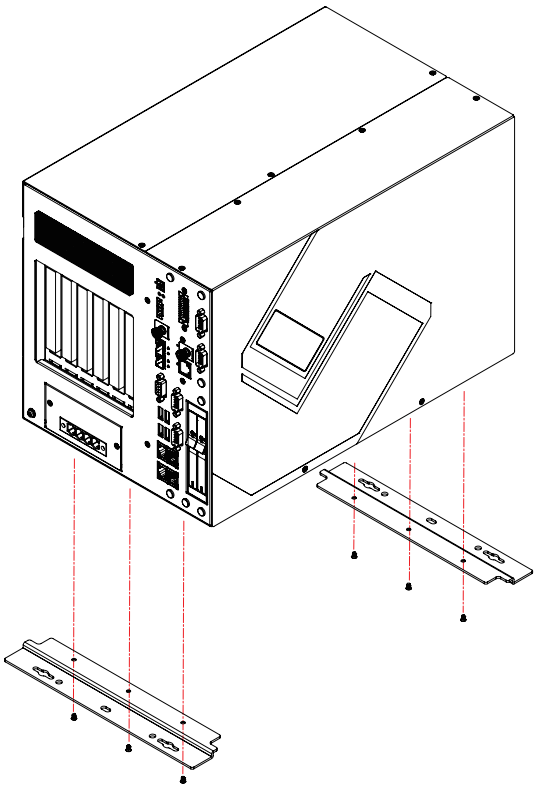


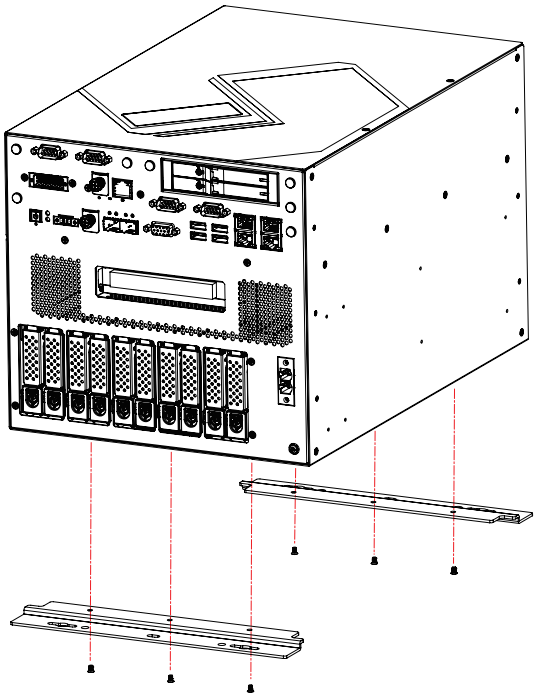
Step 2 Install the antenna.



3.9 Mounting Your ICS-1110S

Install wall mount bracket then fasten six pcs F-M3x5L screw.





4

BIOS SETUP

4.1 BIOS Setup

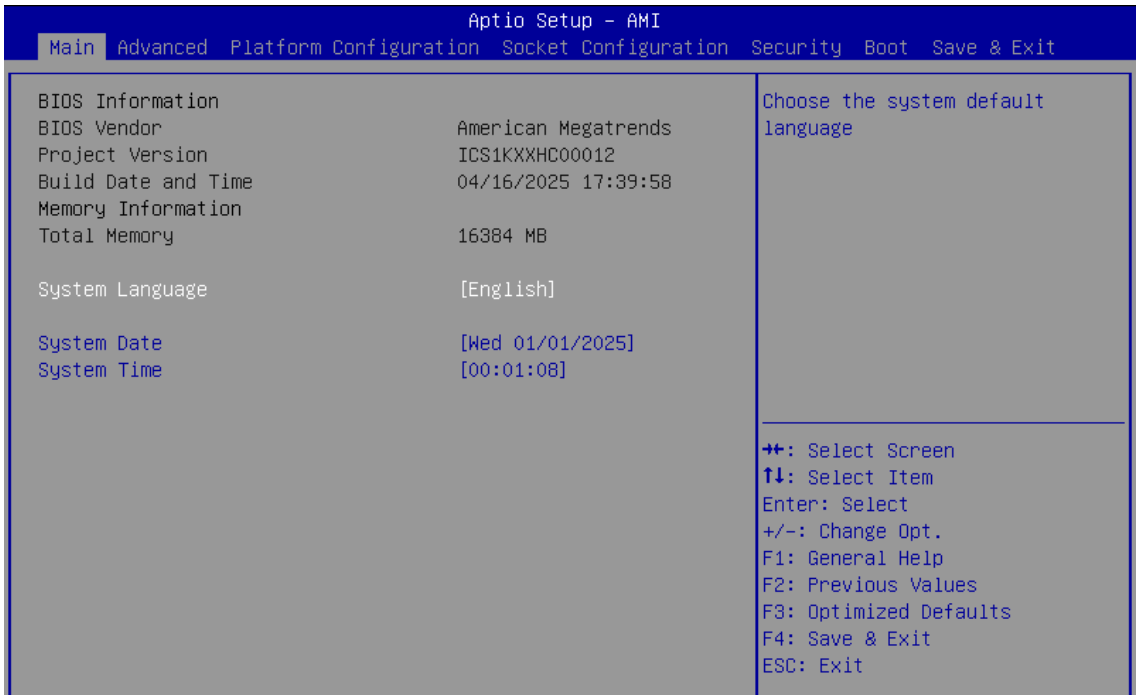


Figure 4-1 : Entering Setup Screen

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 Menu

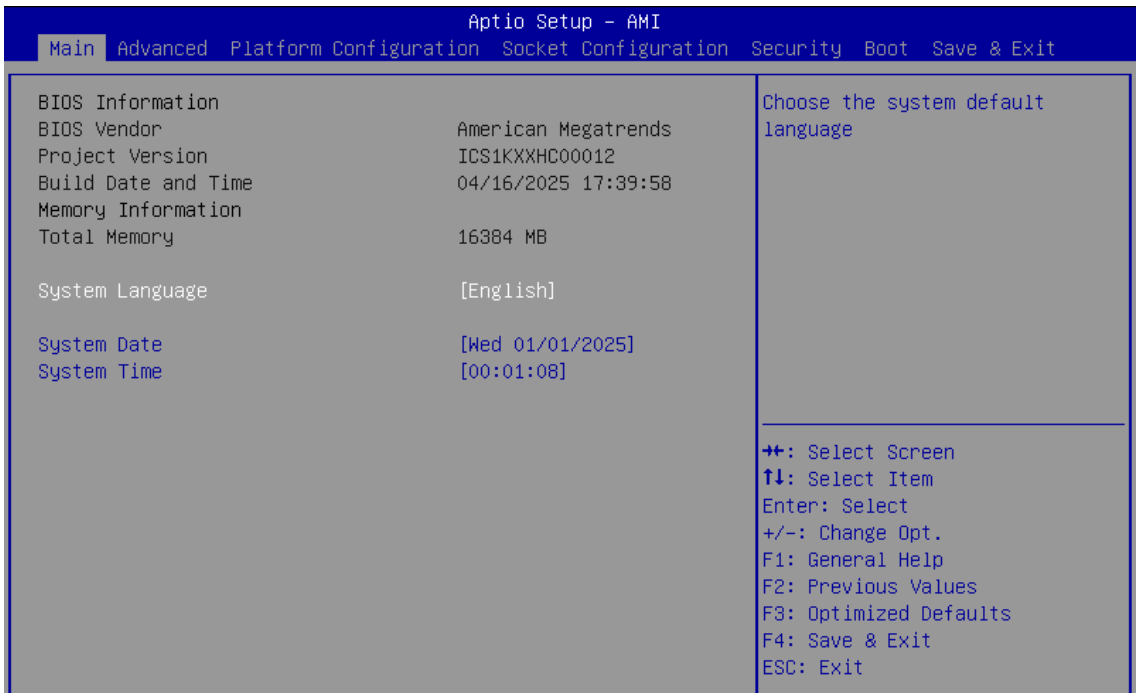


Figure 4-2 : BIOS Main Menu

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.
Default Ranges:
Year: 1998-9999
Months: 1-12
Days: Dependent on month
Range of Years may vary.

System Time

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

4.3 Advanced Menu

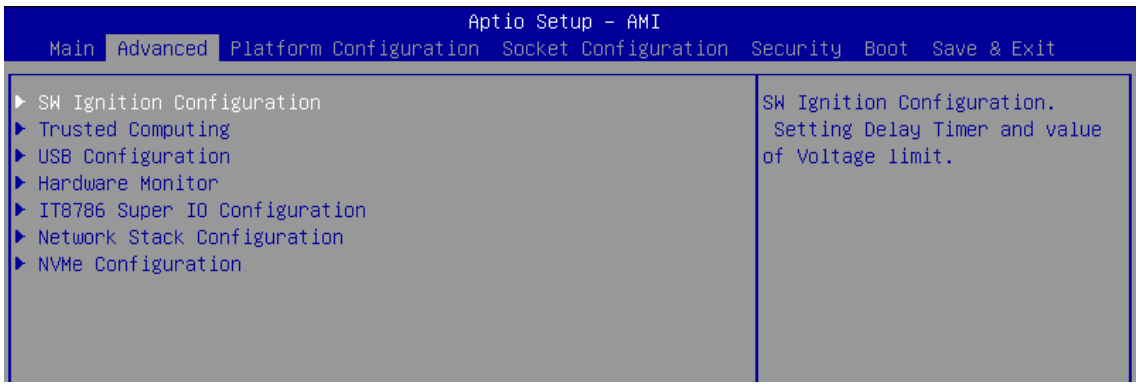


Figure 4-3 : BIOS Advanced Menu

Select advanced tab to enter advanced BIOS setup options, such as SW Ignition ,Trusted Computing, and Super IO configuration.

4.3.1 SW Ignition Configuration

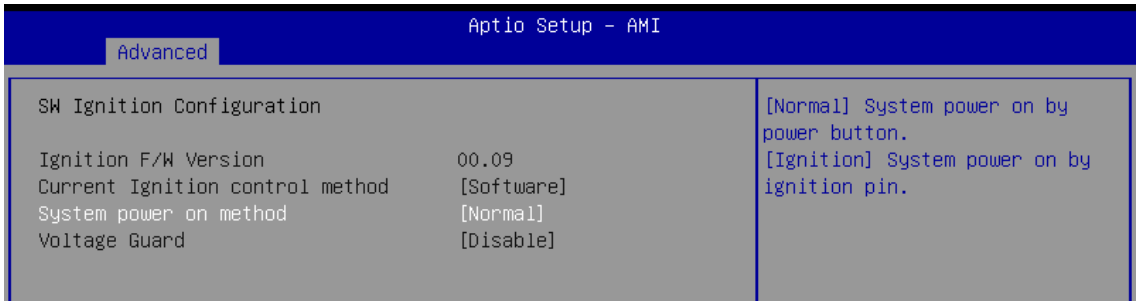


Figure 4-3-1 : SW Ignition Configuration

System power on method
[Normal] System power on by power button.
[Ignition] System power on by ignition pin.
Delay On Timer (Seconds)
The delay time after user trigger ignition on signal (Seconds).
Delay Off Timer (Seconds)
The delay time after user trigger ignition off signal (Seconds).
Force Shutdown Timer (Minutes)
Used to force cut off system power when OS unable gracefully shutdown system successfully.

4.3.2 Trusted Computing

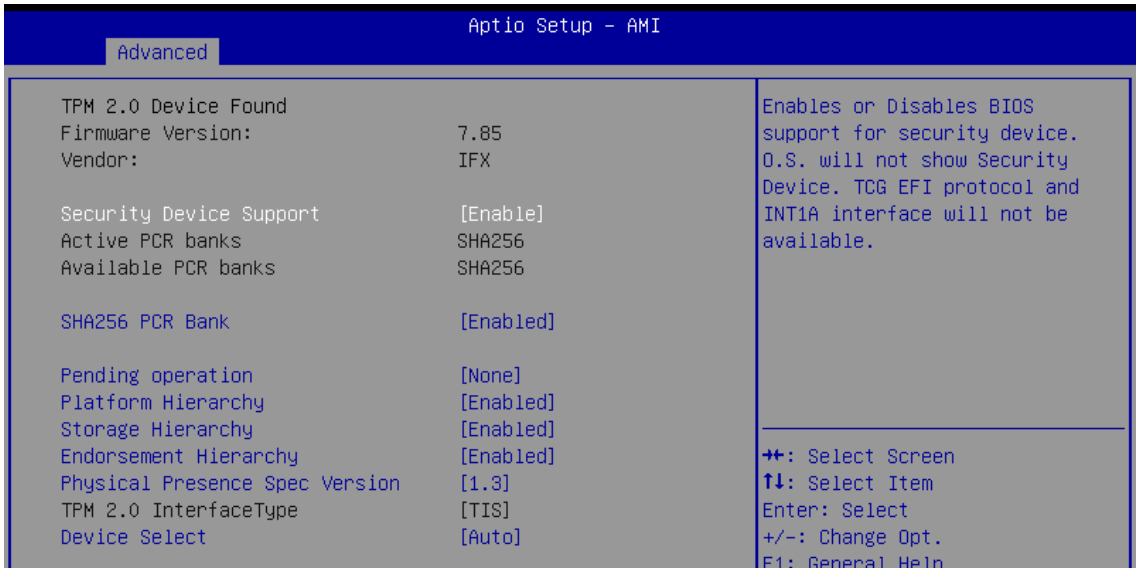


Figure 4-3-2 : Trusted Computing

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

4.3.3 USB Configuration

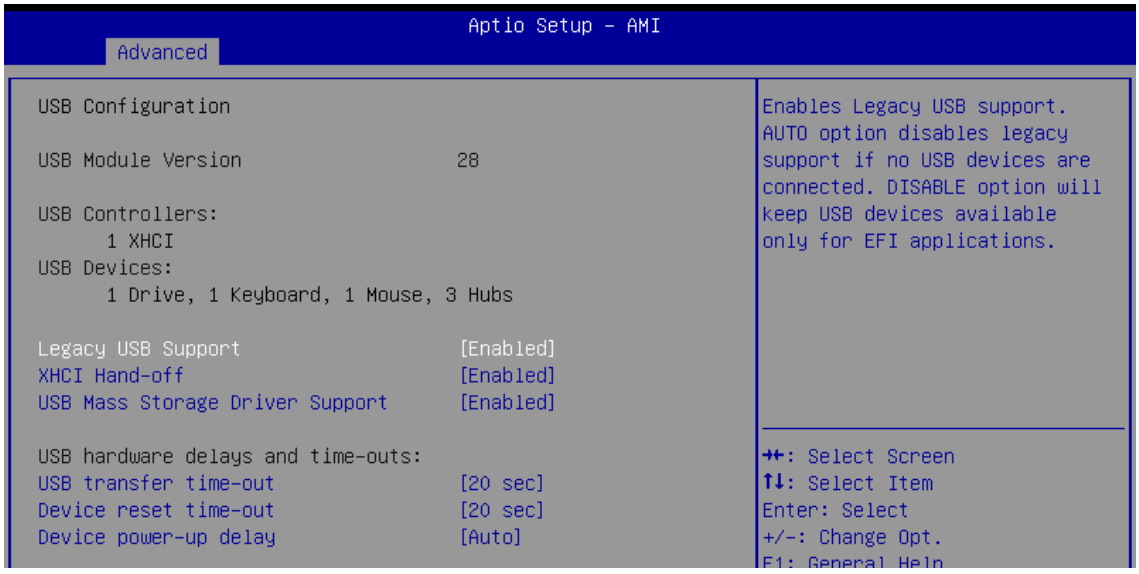


Figure 4-3-3 : USB Configuration

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 OSes 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.

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 Hub descriptor.

4.3.4 Hardware Monitor

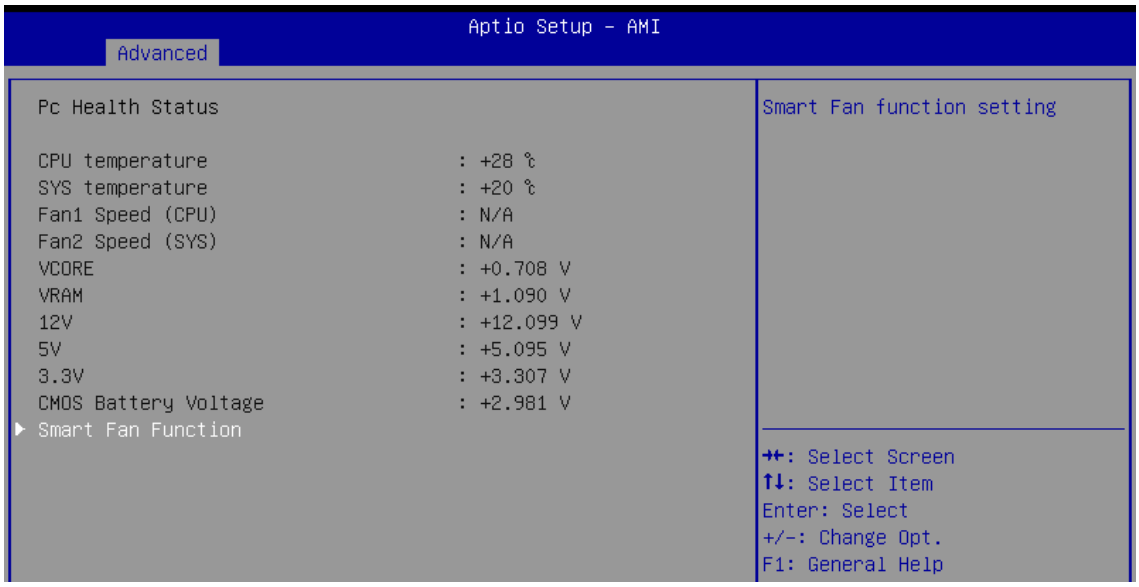


Figure 4-3-4 : Hardware Monitor

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

4.3.4.1 Smart Fan Function

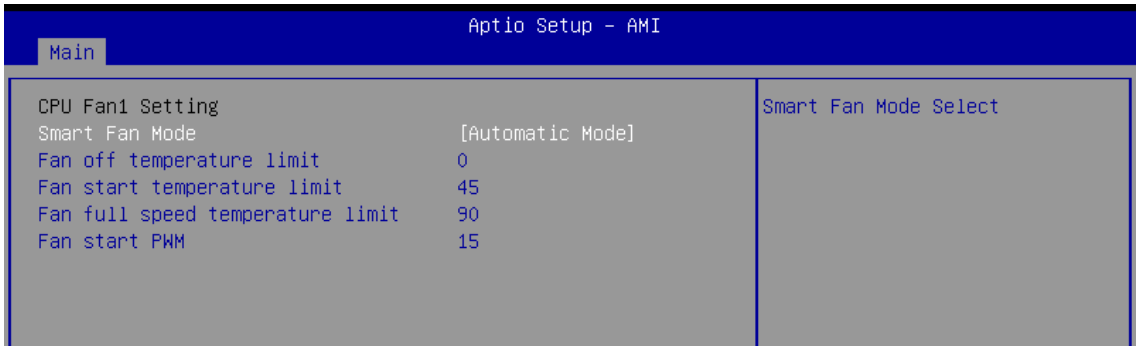


Figure 4-3-4-1 : Smart Fan Function

Smart Fan X Mode
Smart Fan Mode Select
Fan off temperature limit
Fan will off when temperature lower than this limit
Fan start temperature limit
Fan will work when temperature higher than this limit
Fan full speed temperature limit
Fan will full speed when temperature higher than this limit
Fan start PWM
Fan will start with this PWM value.

4.3.5 IT8786 Super IO Configuration

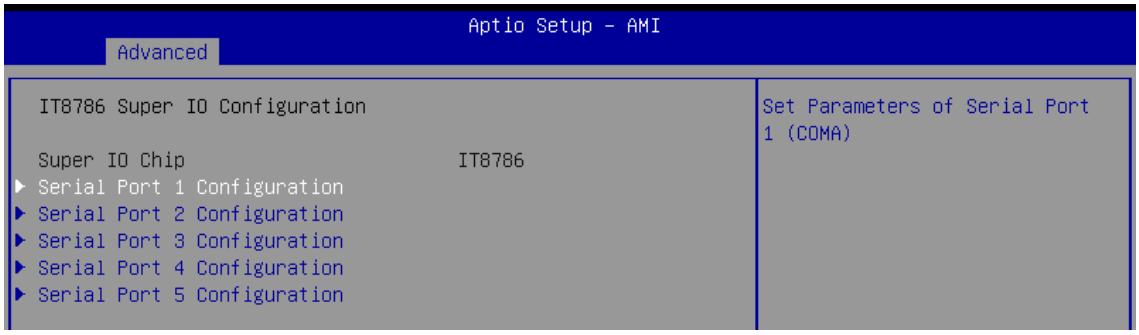


Figure 4-3-5 : IT8786 Super IO Configuration

Control Serial Port 1-5 port Configuration.

4.3.5.1 Serial Port X Configuration

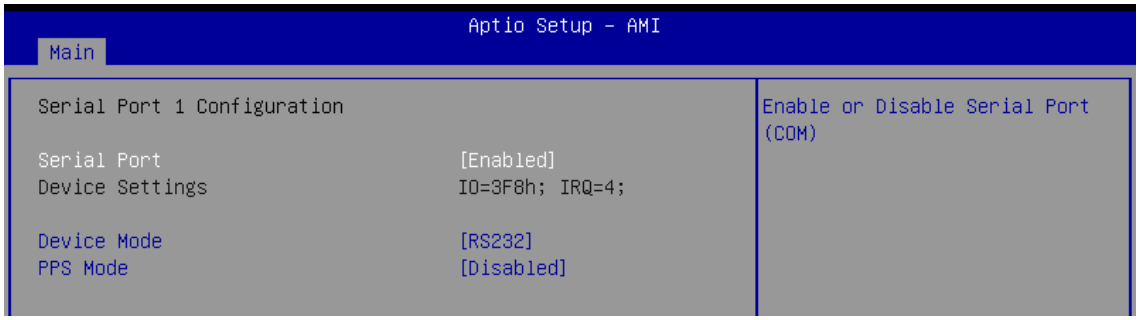


Figure 4-3-5-1 : Serial Port X Configuration

Serial Port

Enable or Disable Serial Port (COM)

Device Mode

Select Device Mode.

PPS Mode

Enable or Disable PPS.

4.3.6 Network Stack Configuration

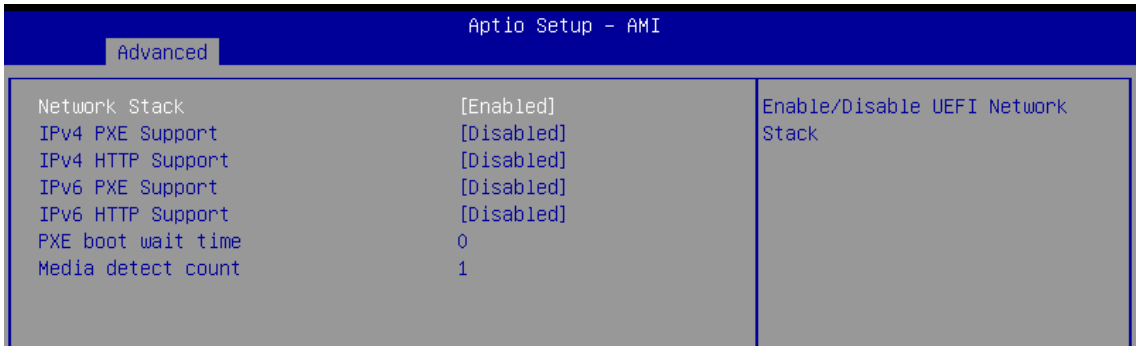


Figure 4-3-6 : Network Stack Configuration

Network Stack

Enable/Disable UEFI Network Stack

IPv4 PXE Support

Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

IPv4 HTTP Support

Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

IPv6 PXE Support

Enable/Disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

IPv6 HTTP Support

Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

PXE boot wait time

Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

Media detect count

Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

4.3.7 NVMe Configuration

Figure 4-3-7 : NVMe Configuration

Display NVMe controller and Drive information.

4.3.8 Intel(R) Virtual RAID on CPU

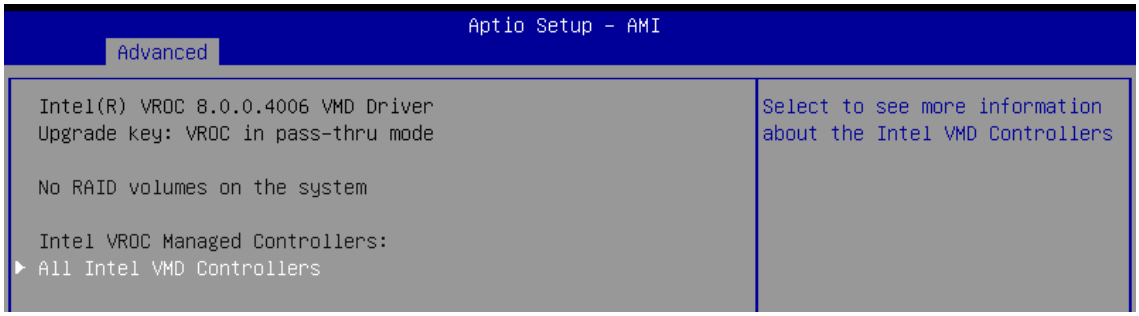


Figure 4-3-8 : Intel(R) Virtual RAID on CPU

Display RAID information and select storage device build RAID type.

4.4 Platform Configuration

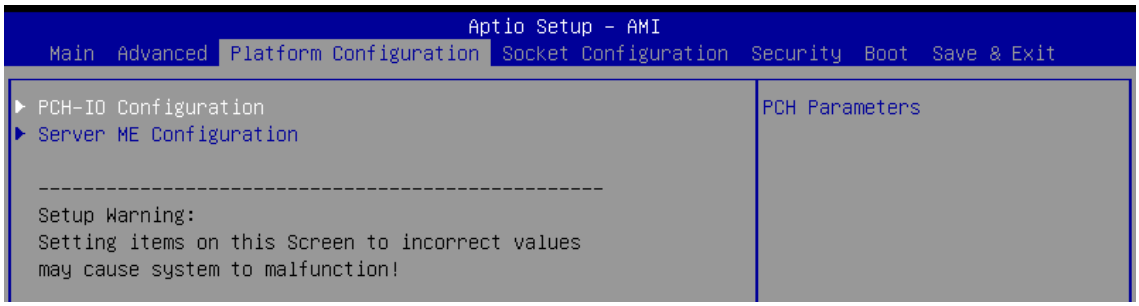


Figure 4-4 : Platform Configuration

Select Platform Configuration tab to enter Platform Configuration BIOS setup options, such as PCH-IO Configuration,and Server ME Configuration.

4.4.1 PCH-IO Configuration

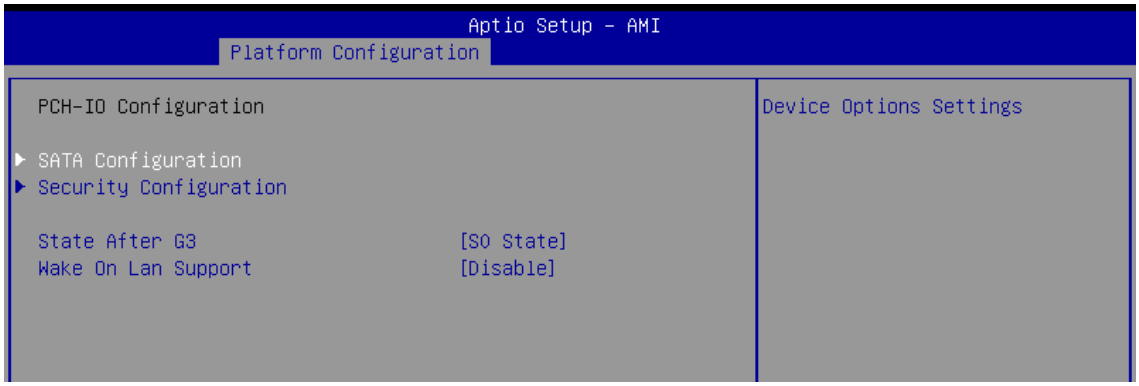


Figure 4-4-1 : PCH-IO Configuration

SATA Configuration
Controller SATA Configuration.
Security Configuration
Security Configuration settings.
State After G3
Specify what state to go to when power is re-applied after a power failure S0 / S5 State.
Wake On Lan Support
Enable or Disable Wake On Lan Support.

4.4.1.1 SATA Configuration

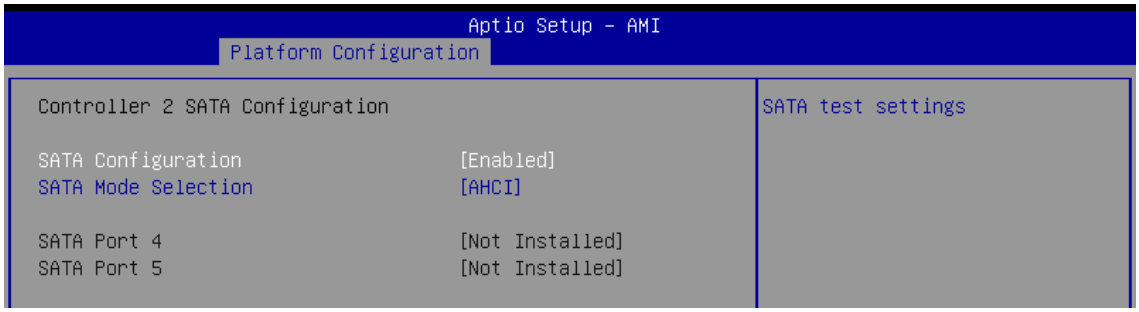


Figure 4-4-1-1 : SATA Configuration

SATA Configuration
Enable/Disable SATA Device.
SATA Mode Selection
Select SATA controller operate mode AHCI / RAID.

4.4.1.2 Security Configuration

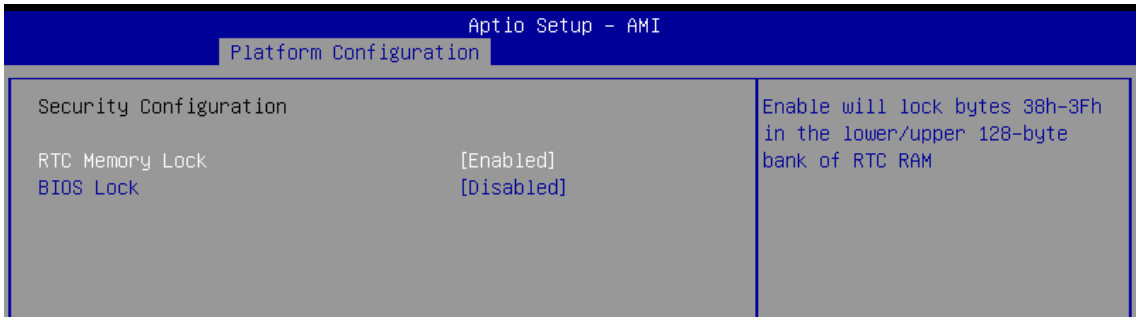


Figure 4-4-1-2 : Security Configuration

RTC Memory Lock

Enable or Disable will lock of RTC RAM.

BIOS Lock

Enable/Disable the BIOS Lock Enable feature.

4.4.2 Server ME Configuration

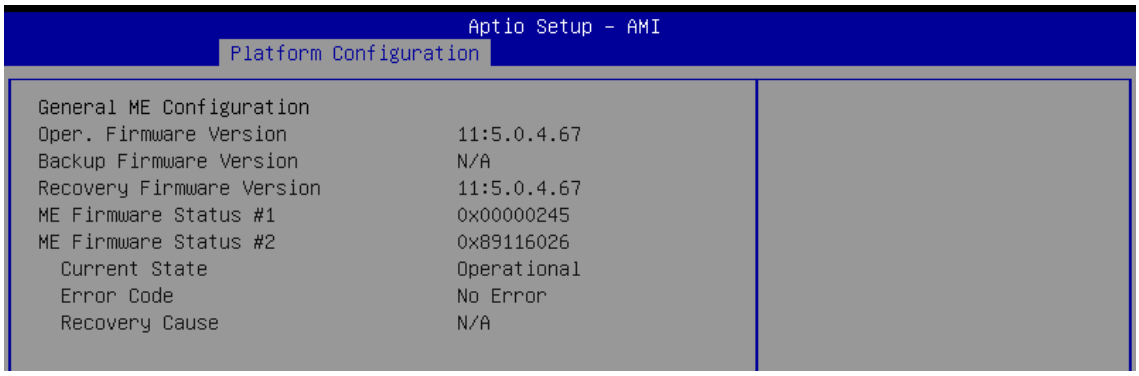


Figure 4-4-2 : Server ME Configuration

Display Server ME Configuration information.

4.5 Socket Configuration

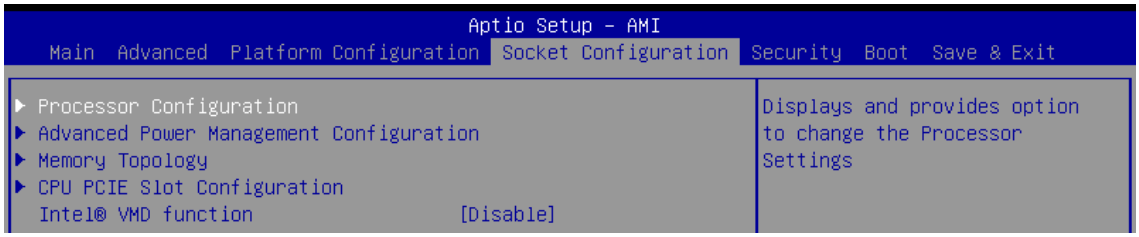


Figure 4-5 : Socket Configuration

Select Socket Configuration tab to enter Socket Configuration BIOS setup options, such as Processor Configuration, Advanced Power Management Configuration, and Memory Topology.

Intel® VMD function

Enable/Disable Intel® VMD function.

4.5.1 Processor Configuration

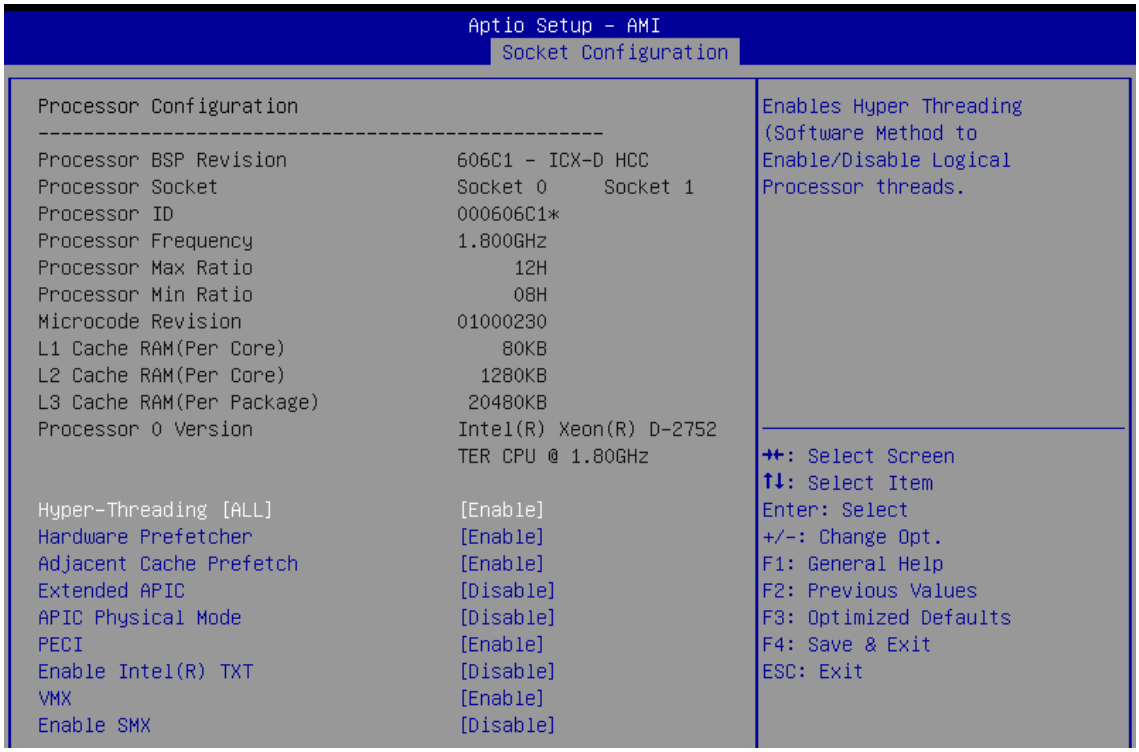


Figure 4-5-1 : Processor Configuration

Hyper-Threading [ALL]
Enable or Disable Hyper-Threading Technology.

Hardware Prefetcher
To turn on/off the MLC streamer prefetcher.

Adjacent Cache Prefetch
To turn on/off the MLC Spatial Prefetcher.

Extended APIC
Enable/disable extended APIC support.

APIC Physical Mode
Enable/Disable the APIC physical destination mode.

PECI
PECI in trust bit Enable/Disable..

Enable Intel(R) TXT
To enable the Intel TXT option.

VMX
Enables the Vanderpool Technology, takes effect after reboot.

Enable SMX
Enables Safer Mode Extensions.

4.5.2 Advanced Power Management Configuration

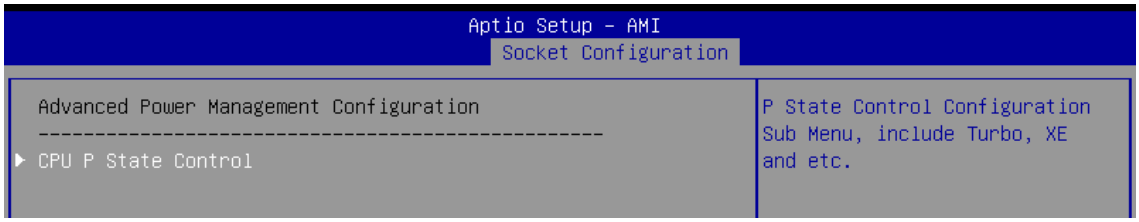


Figure 4-5-2 : Advanced Power Management Configuration

Provides option to change the Power Management Settings.

4.5.2.1 CPU P State Control

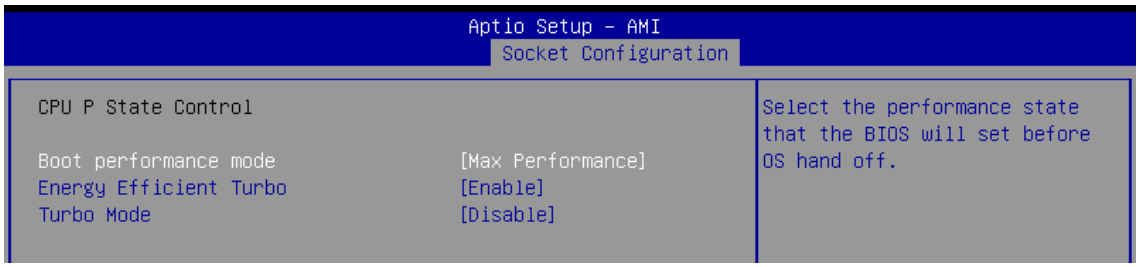


Figure 4-5-2-1 : CPU P State Control

Boot performance mode
Select the performance state that the BIOS will set before OS hand off.
Energy Efficient Turbo
Energy Efficient Turbo Enable/Disable.
Turbo Mode
Enable/Disable processor Turbo Mode (requires EMTTM enabled too).

4.5.3 Memory Topologyn

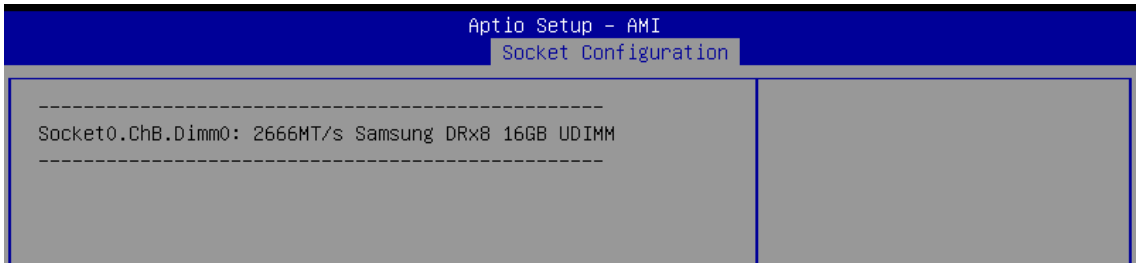


Figure 4-5-3 : Memory Topologyn

Displays memory topology with DIMM population information.

4.5.4 CPU PEG Slot X

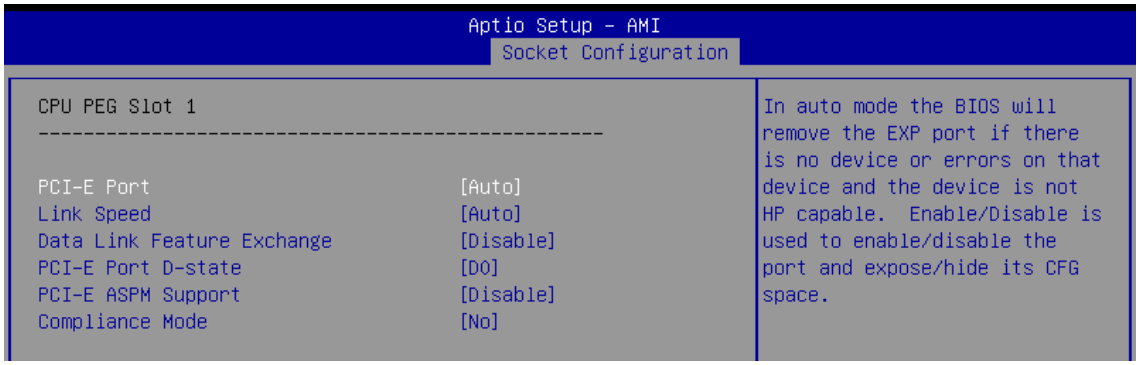


Figure 4-5-4 : CPU PEG Slot X

PCI-E Port

Enable/Disable the PCI-E port.

Auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable.

Link Speed

Choose Link Speed for this PCIe port.

Data Link Feature Exchange

Enable/Disable data link feature negotiation in the Data Link Feature Capabilities (DLFCAP) register.

PCI-E Port D-state

Set to D0 for normal operation, D3Hot to be in low-power state.

PCI-E ASPM Support

This option can disable ASPM support in a PCIe root port.

Compliance Mode

Enable/Disable Compliance Mode for this PCIe port.

4.6 Security Function

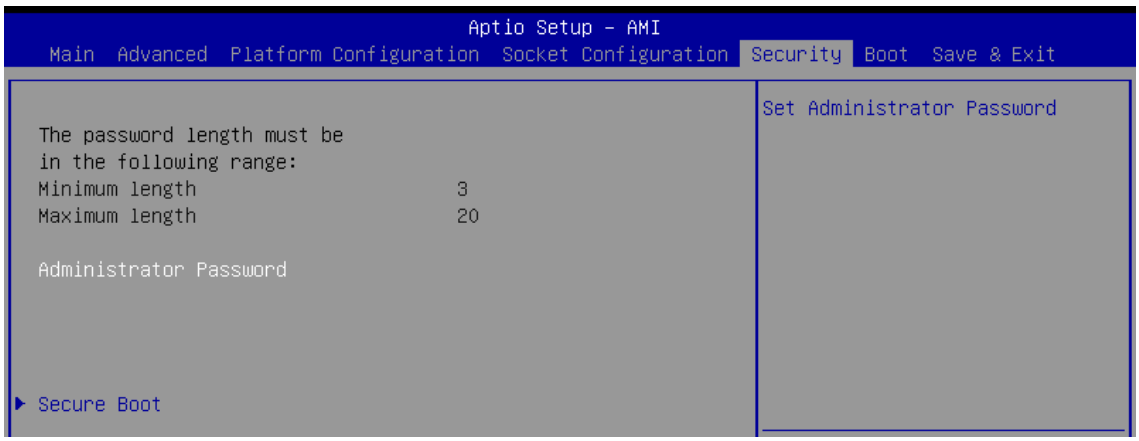


Figure 4-6 : BIOS Security Menu

Administrator Password
Set administrator password.

4.6.1 Security Boot

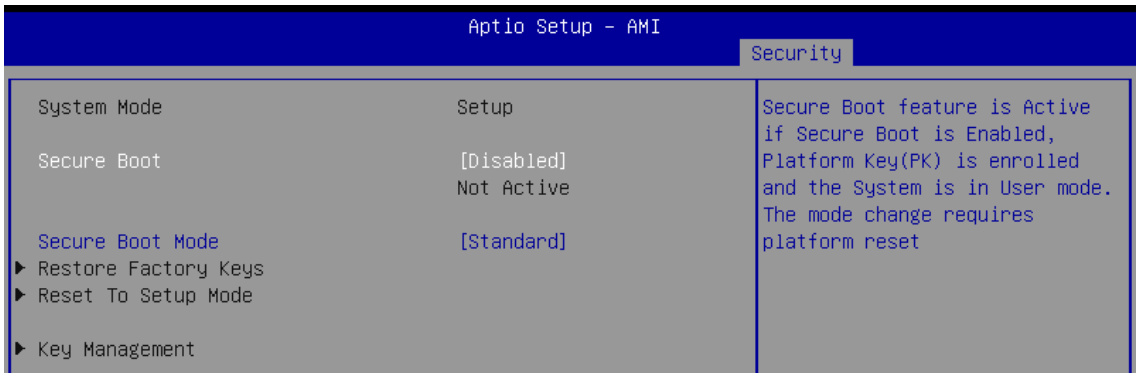


Figure 4-6-1 : Security Boot

Secure Boot
Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode
Secure Boot mode options: Standard or Custom.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication
Restore Factory Keys
Force System to User Mode. Install factory default Secure Boot key databases
Reset To Setup Mode
Delete all Secure Boot key databases from NVRAM
Key Management
Enables expert users to modify Secure Boot Policy variables without variable authentication

4.7 Boot Function

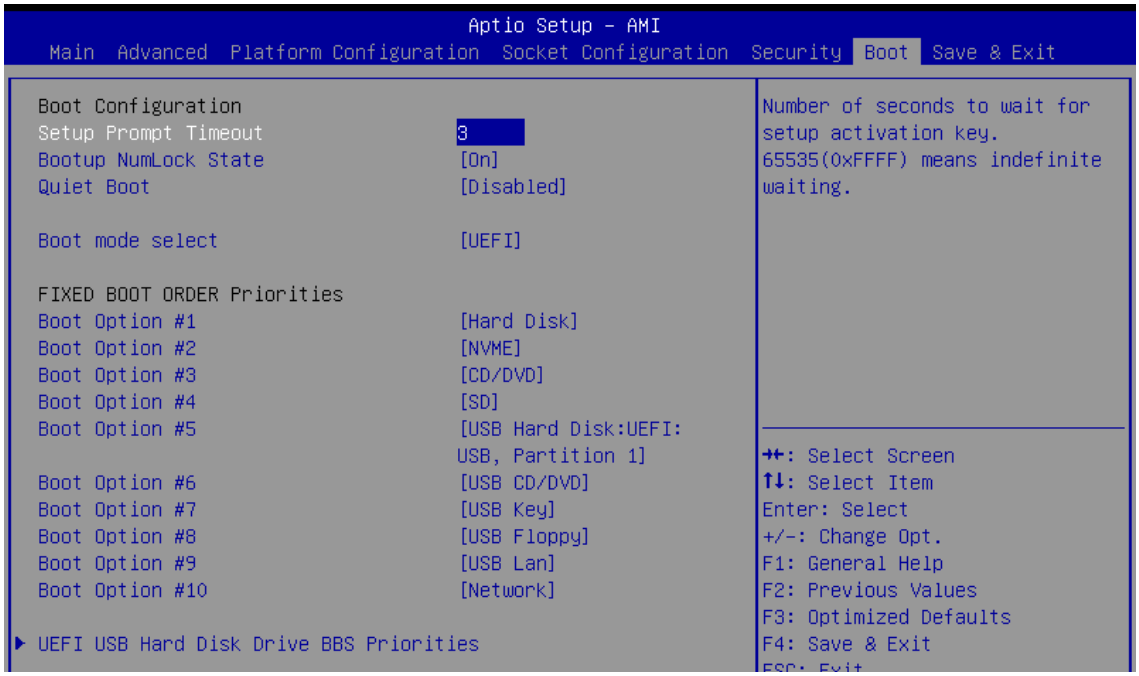


Figure 4-7 : BIOS Boot Menu

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 mode select

Select boot mode LEGACY/UEFI.

Boot Option Priorities

Sets the system boot order.

4.8 Save & Exit

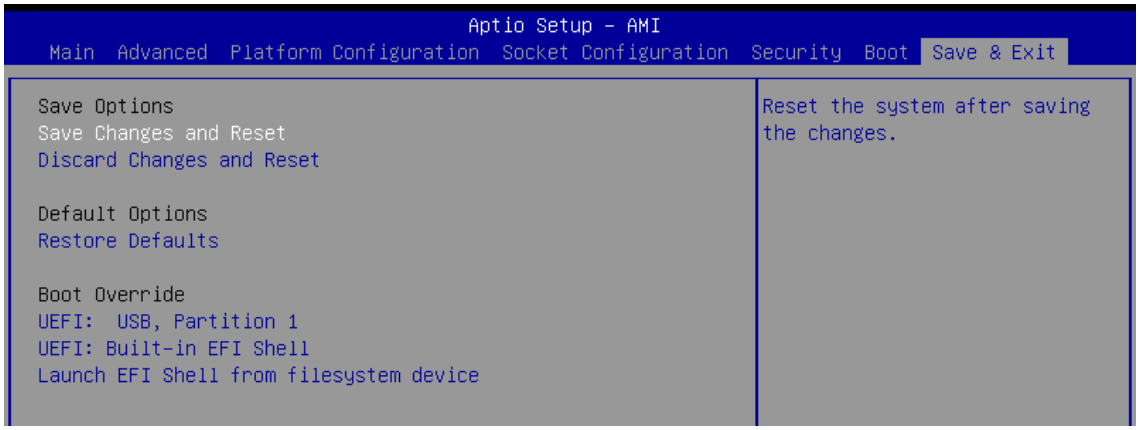


Figure 4-8 : BIOS Save & Exit Menu

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Restore Defaults

Restore/Load Default values for all the setup options.

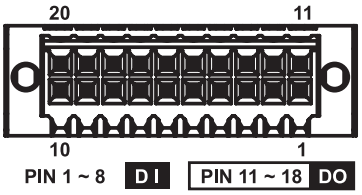
APPENDIX A : Isolated DIO Guide

A.1 Function Description

The ICS-1110S offers two 16-bit Isolated DIO 20-pin terminal block connector, a watchdog timer.

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

DIO definition is shown below :

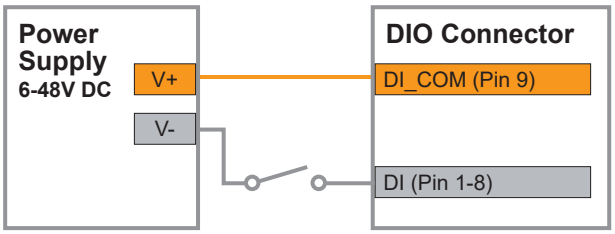


Pin No.	Isolated DIO	Non-Isolated DIO Definition	Pin No.	Isolated DIO Definition	Non-Isolated DIO Definition
1	DI 0	DIO 0	11	DO 0	DIO 8
2	DI 1	DIO 1	12	DO 1	DIO 9
3	DI 2	DIO 2	13	DO 2	DIO 10
4	DI 3	DIO 3	14	DO 3	DIO 11
5	DI 4	DIO 4	15	DO 4	DIO 12
6	DI 5	DIO 5	16	DO 5	DIO 13
7	DI 6	DIO 6	17	DO 6	DIO 14
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

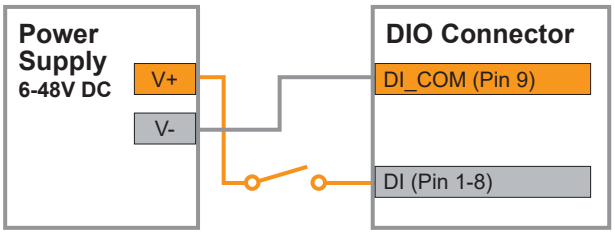
A.2 Isolated DIO Signal Circuit

DI reference circuit :

Sink Mode
(NPN)

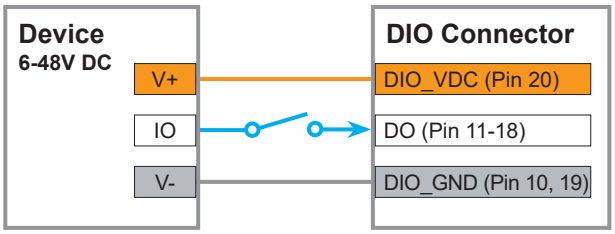


Source Mode
(PNP)

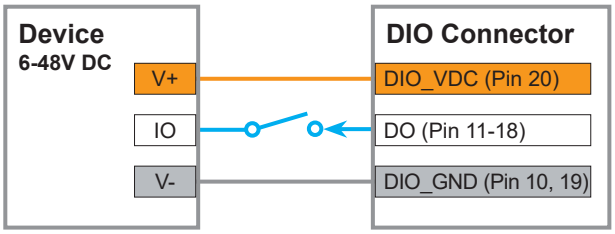


DO reference circuit :

Sink Mode
(NPN, Default)



Source Mode
(PNP)

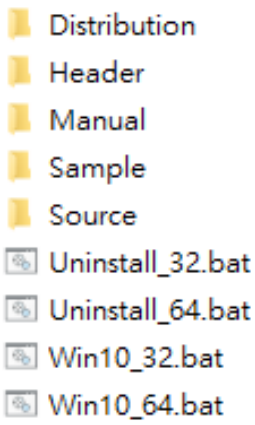


A.3 Software Package Contain

- Distribution folder include x32 and x64 versions, use batch file for installation.
  There are included as fallowed :
    Win10_32.bat, and Win10_64.bat :
      Installation for driver, and
    Uninstall_32.bat, and Uninstall_64.bat :
      Uninstallation for driver
  Run batch file as Administrator.

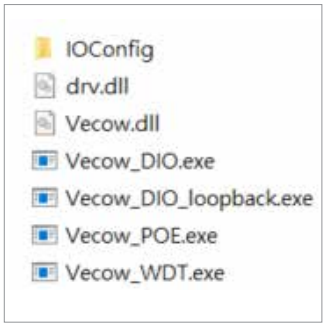
Make sure Windows version before installation.

- Header folder include head file for software developer or System Integration.
- Manual folder include API description.
- Sample folder include sample program, driver library, and API library for Windows/Linux
- Source folder include sample program source code that compile on Visual Studio 2008/Ubuntu18.04.

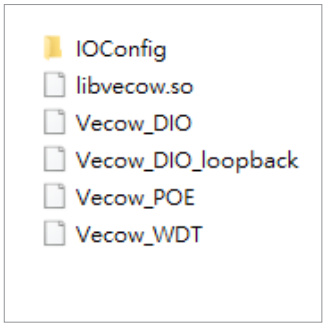


A.4 Sample

Execute demo tool.



Windows



Linux

Sample, as shown below :

```
DIO sample version : v1.0.0609.0608
Load Vecow.dll at least v1.8.1409.0608
Vecow.dll Version : v1.8.1409.0608
Config : IO port  I - Isolated DIO
         IO port II - Non-Isolated DIO(GPIO)

Choose IO : (1/2)
```

Vecow_DIO

```
DIO loopback sample version : v1.0.1509.0608
Load Vecow.dll at least v1.8.1409.0608
Vecow.dll Version : v1.8.1409.0608
Config : IO port  I - Isolated DIO
         IO port II - Non-Isolated DIO(GPIO)

How many IO temp_port : (1/2)
```

Vecow_DIO_loopback

```
COMPORT sample version : v1.0.0309.0608
Load Vecow.dll at least v1.8.1409.0608
Vecow.dll Version : v1.48.0701.0000
PCB_ver = B

COMPORT1 mode : RS232
COMPORT2 mode : RS232
COMPORT3 mode : RS232
COMPORT4 mode : RS232
Choose port : (1~4) 1
COMPORT1 mode selection: 0:RS232
                         1:RS422-5W
                         2:RS422-9W
                         3:RS485
                         4:Loopback
Select port mode : 0
Set COMPORT mode success!
```

Vecow_COMPORT

B

APPENDIX B : Software Functions

B.1 Driver API Guide

In Header folder, Vecow.h and VecowLinux.h contain usabled API for Windows/Linux.

BOOL initial_SIO(BYTE Isolate_Type, BYTE DIO_NPN)

Initial machine for IO and watch dogtimer.

Isolate_Type : DIO type.

1 : Isolated DIO;

0 : Non-Isolated DIO(GPIO).

DIO_NPN : DI/DO type.

1 : PNP (Source) mode for European rule;

0 : NPN (Sink) mode for Japanese rule.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Driver not exists, or version is too old, or machine not match).

BOOL get_IO1_configuration(BYTE *Iso, BYTE *DI_mode, BYTE *DO_mode, WORD *Mask)
BOOL get_IO2_configuration(BYTE *Iso, BYTE *DI_mode, BYTE *DO_mode, WORD *Mask)

Get DIO configuration (by variable)

Isolate_Type : DIO type.

1 : Isolated DIO;

0 : Non-Isolated DIO(GPIO).

DI_mode ([7:0]) : DI type, pin setting by hexadecimal bitmask only for Isolated DIO.

0xFF : PNP (Source) mode for European rule;

0 : NPN (Sink) mode for Japanese rule.

DO_mode : DO type only for Isolated DIO.

1 : PNP (Source) mode for European rule;

0 : NPN (Sink) mode for Japanese rule.

Mask ([15:0]): In/Out, pin setting by hexadecimal bitmask only for Non-Isolated DIO(GPIO).

1 : Output;

0 : Input

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error, or call by pointer error, or hardware problem).

BOOL set_IO1_configuration(BYTE Iso, BYTE DI_mode, BYTE DO_mode, WORD Mask)
BOOL set_IO2_configuration(BYTE Iso, BYTE DI_mode, BYTE DO_mode, WORD Mask)

Set DIO configuration.
Isolate_Type : DIO type.
1 : Isolated DIO;
0 : Non-Isolated DIO(GPIO).
DI_mode ([7:0]) : DI type, pin setting by hexadecimal bitmask only for Isolated DIO.
0xFF : PNP (Source) mode for European rule;
0 : NPN (Sink) mode for Japanese rule.
DO_mode : DO type only for Isolated DIO.
1 : PNP (Source) mode for European rule;
0 : NPN (Sink) mode for Japanese rule.
Mask ([15:0]) : In/Out, pin setting by hexadecimal bitmask only for Non-Isolated DIO(GPIO).
1 : Output;
0 : Input
Return :
TRUE (1) : Success.
FALSE (0) : Fail (Initial error or hardware problem).

BOOL get_DIO1(BYTE *DO_data, BYTE *DI_data)
BOOL get_DIO2(BYTE *DO_data, BYTE *DI_data)

Get isolated DIO output(DO) and input (DI).
DI ([7:0]) : Input state, pin setting by hexadecimal bitmask.
1 : High;
0 : Low.
DO ([7:0]) : Output state, pin setting by hexadecimal bitmask.
1 : High;
0 : Low.
Return :
TRUE (1) : Success.
FALSE (0) : Fail (Initial error or hardware problem).
FALSE (0) : Fail (Initial error or hardware problem).

BOOL set_DIO1(BYTE DO_data)
BOOL set_DIO2(BYTE DO_data)

Set isolated DIO output(DO).
DO ([7:0]) : Output state, pin setting by hexadecimal bitmask.
1 : High;
0 : Low.
Return :
TRUE (1) : Success.
FALSE (0) : Fail (Initial error or hardware problem).
FALSE (0) : Fail (Initial error or hardware problem).

BOOL get_GPIO1(WORD *GPIO_data)

Get GPIO.

GPIO_data ([15:0]) : GPIO state, pin setting by hexadecimal bitmask.

1 : High;

0 : Low.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error or hardware problem).

BOOL set_GPIO1(WORD GPIO_data)

Set GPIO.

GPIO_data ([15:0]) : GPIO state, pin setting by hexadecimal bitmask.

1 : High;

0 : Low.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error or hardware problem).

BOOL get_WDT(DWORD *WDT)

Get watchdog timer setup.

WDT : watchdog timer setup.

Unit : second (Range : 0 ~ 65535 sec, 1093 ~ 65535 min (=65580 ~ 3932100 sec)).

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error, or call by pointer error, or hardware problem).

BOOL set_WDT(DWORD WDT)

Set watchdog timer setup.

WDT : watchdog timer setup.

Unit : second (Range : 0 ~ 65535 sec, 1093 ~ 65535 min (=65580 ~ 3932100 sec)).

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error, or setup 0, or hardware problem).

BOOL cancel_WDT()

Cancel watchdog timer.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error or hardware problem).

FALSE (0) : Fail (Driver not exists, or version is too old, or out of range error).

BOOL config_COMPORT(BYTE *PORT_NUM)

Set COMPORT configuration.

A. PORT_NUM : Usable COMPORT number.
   Range : 1~6.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error, or setup 0, or hardware problem).

BOOL set_COMPORT_mode(BYTE port, BYTE mode, BYTE term)

Set COMPORT mode.

B. port : which port set.
   Range : 1~6.

C. mode : Usable COMPORT number.
   0 : RS232 mode;
   1 : RS422-5Wire mode.
   2 : RS422-9Wire mode;
   4 : RS485 mode.
   4 : Loopback mode.

D. term : Termination enable for RS422/RS485 mode.
   1 : Enable;
   0 : Disable.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error or hardware problem).

BOOL get_COMPORT_mode(BYTE port, BYTE *mode, BYTE term)

Get COMPORT mode.

E. port : which port get.
   Range : 1~6.

F. mode : Usable COMPORT number.
   0 : RS232 mode;
   1 : RS422-5Wire mode.
   2 : RS422-9Wire mode;
   4 : RS485 mode.
   4 : Loopback mode.

G. term : Termination enable for RS422/RS485 mode.
   1 : Enable;
   0 : Disable.

Return :

TRUE (1) : Success.

FALSE (0) : Fail (Initial error or hardware problem).

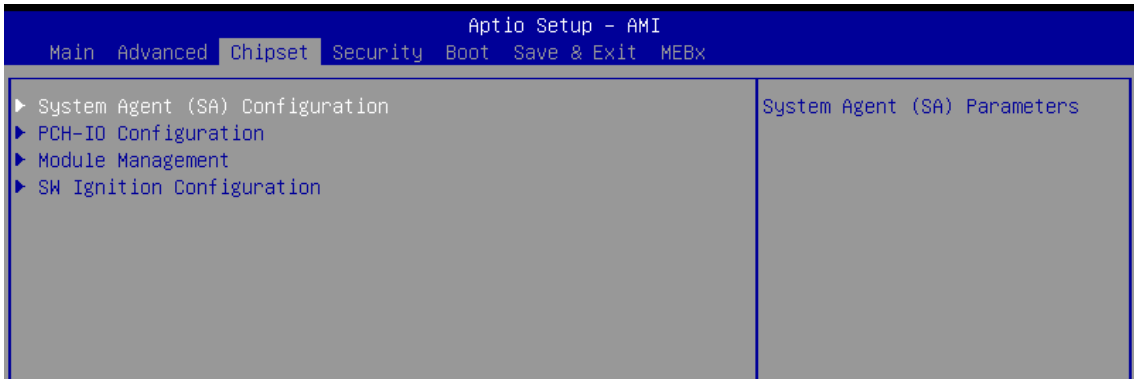
APPENDIX C : RAID Functions

C.1.1 VMD Mode for RAID

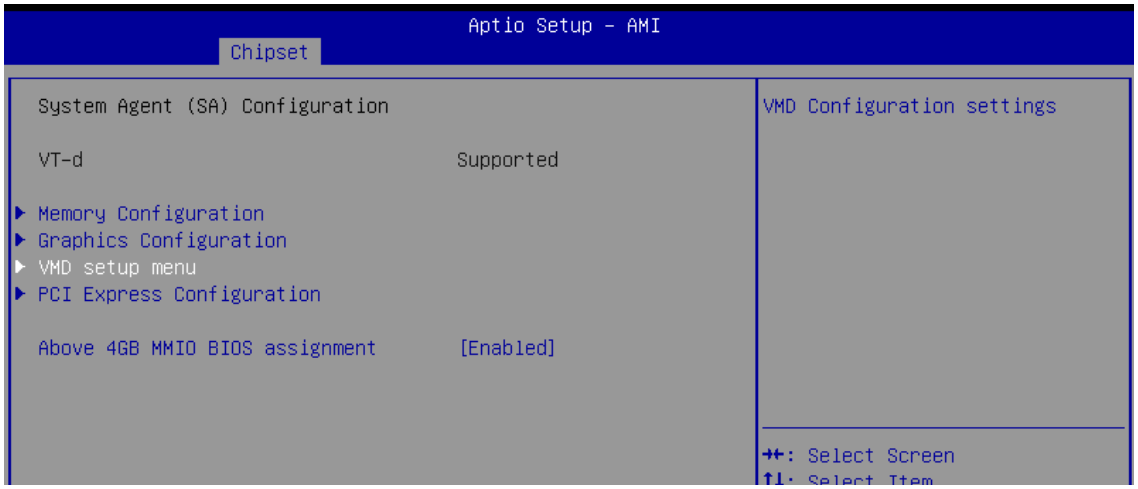
Please set Enable VMD controller as Enabled on BIOS menu.

Chipset → System Agent (SA) Configuration → VMD setup menu→ Enable VMD controller → Enabled → Save Changes and Reset.

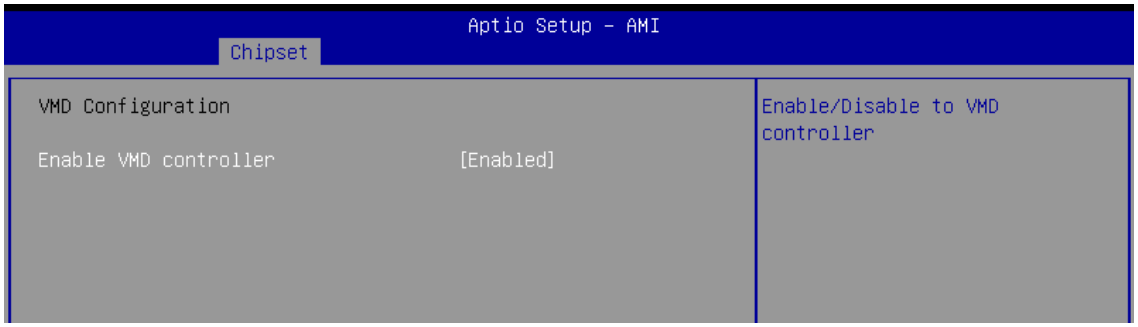
1. Select System Agent (SA) Configuration.



2. Select VMD setup menu.

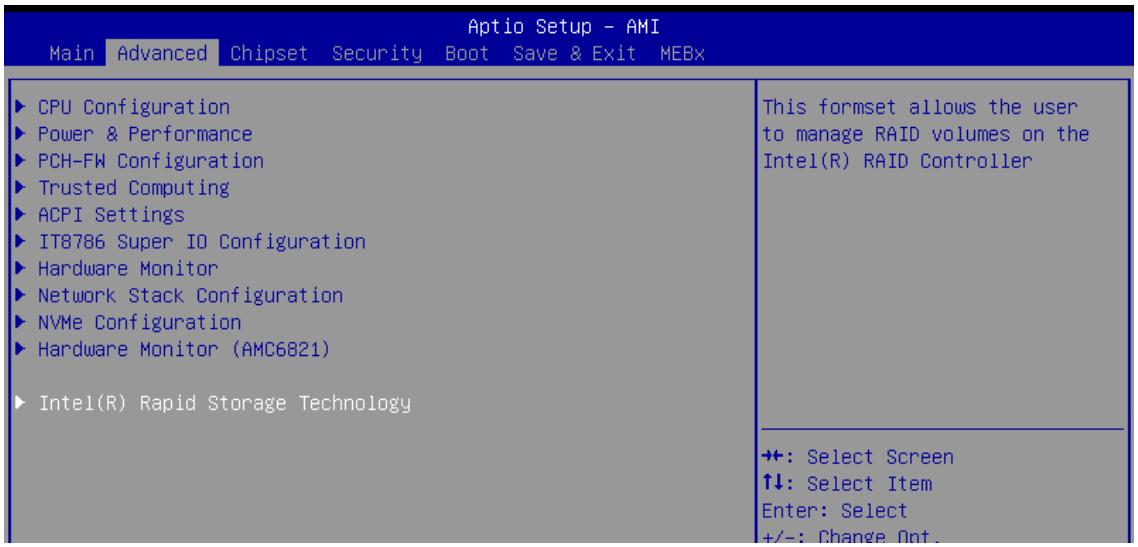


3. Enabled VMD controller. Then Save Changes and Reset.

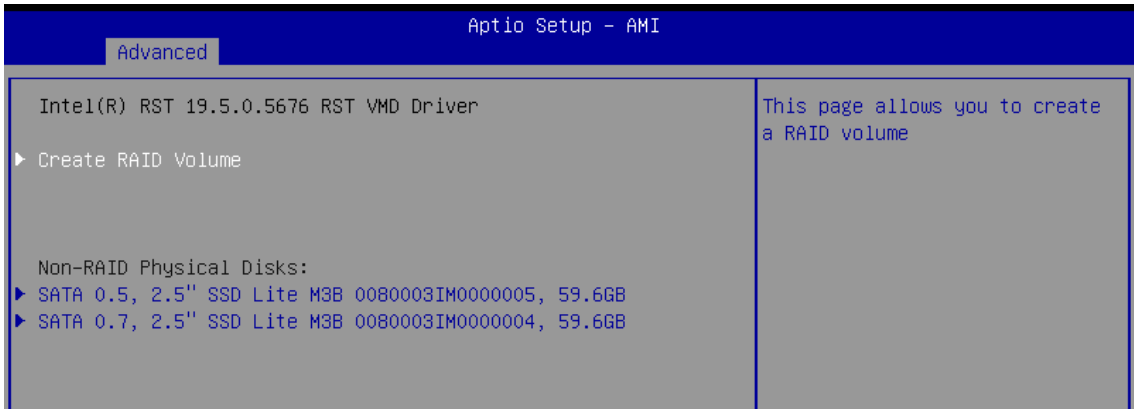


C.1.2 UEFI Mode for RAID

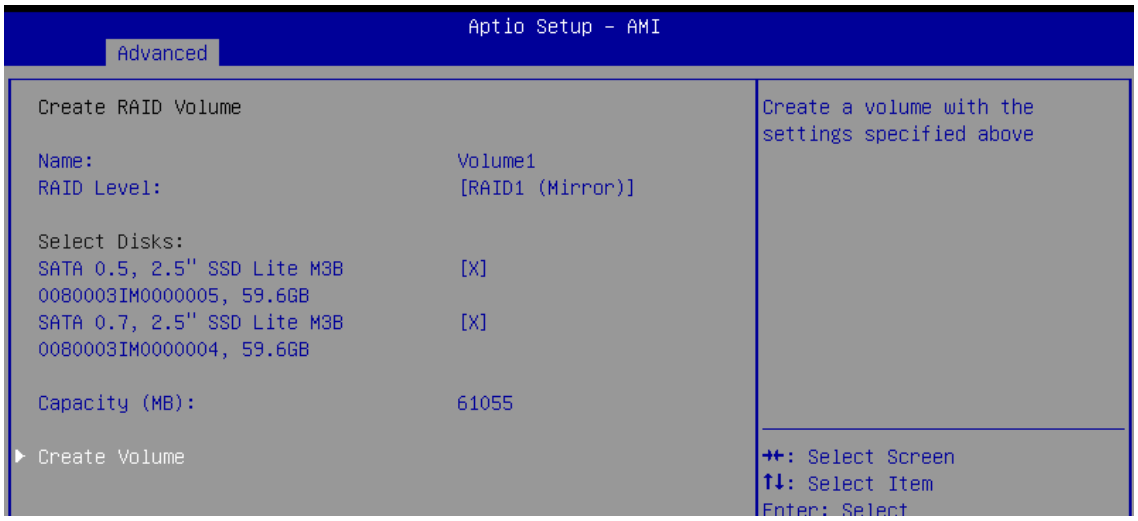
1. Into BIOS menu again, select Intel(R) Rapid Storage Technology on BIOS menu.
Advanced → Intel(R) Rapid Storage Technology



2. Select Create RAID Volume on BIOS menu.
This system is featured 2 M.2 Key M for NVMe SSD, and 4 SATA slots for HDD.
Please note. Storage device M.2 and SATA cannot be mixed to create a RAID Volume.



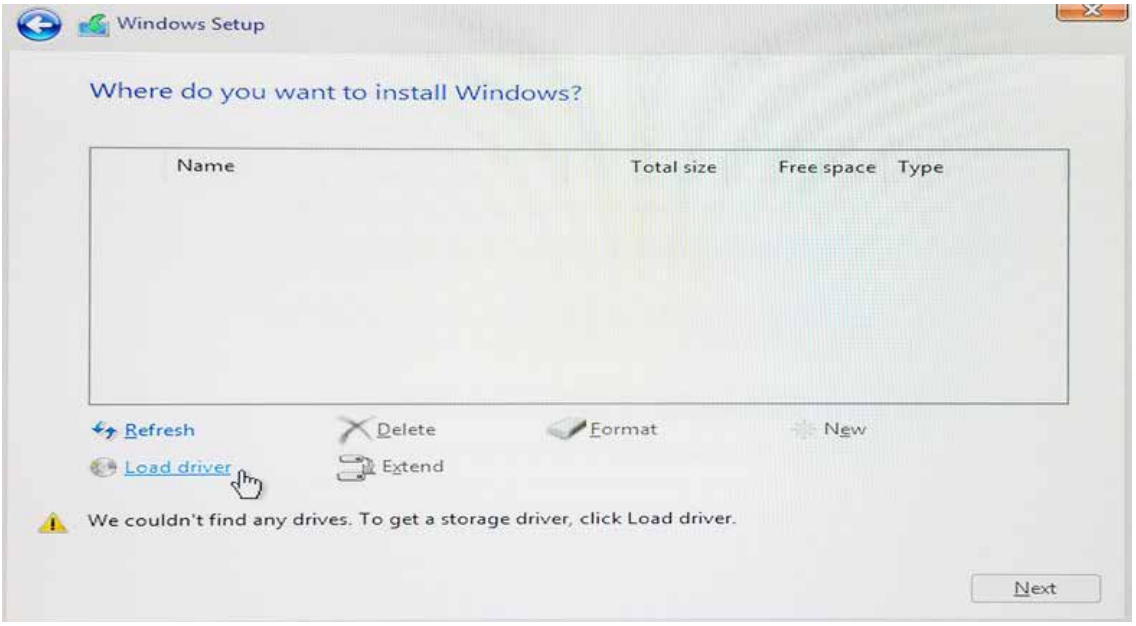
3. Select disks to create RAID Volume, then Save Changes and Reset to install OS.



C.2 OS Installation

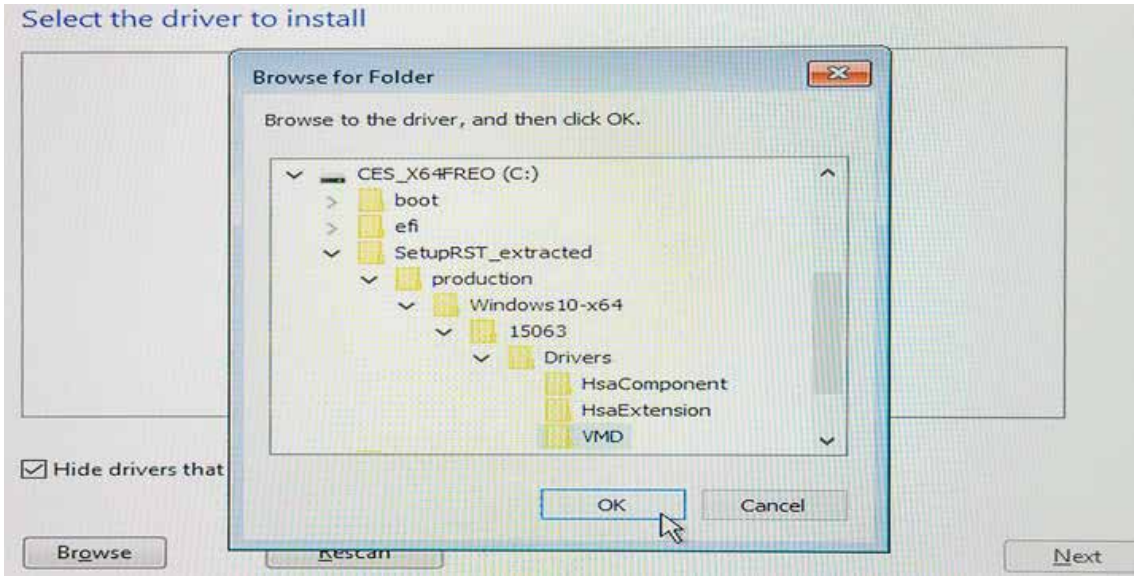
This system is featured 2 M.2 Key M for NVMe SSD, and 4 SATA slots for HDD. We used SATA HDD for Windows 10 OS installation as an example.

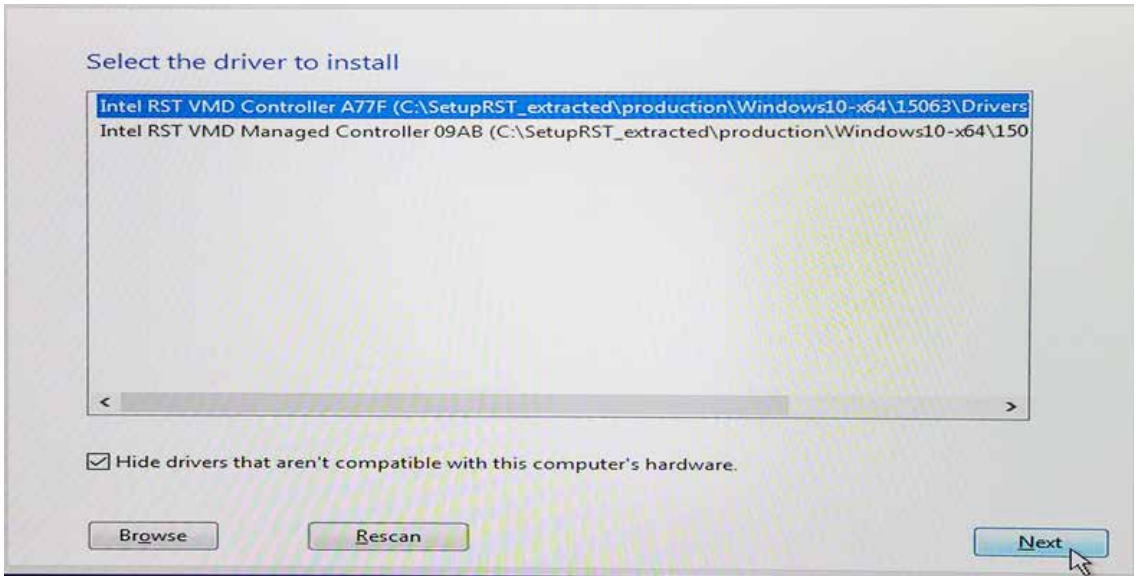
Please note. After Enabled VMD controller needs to load the IRST driver first before it can read the hard disk.



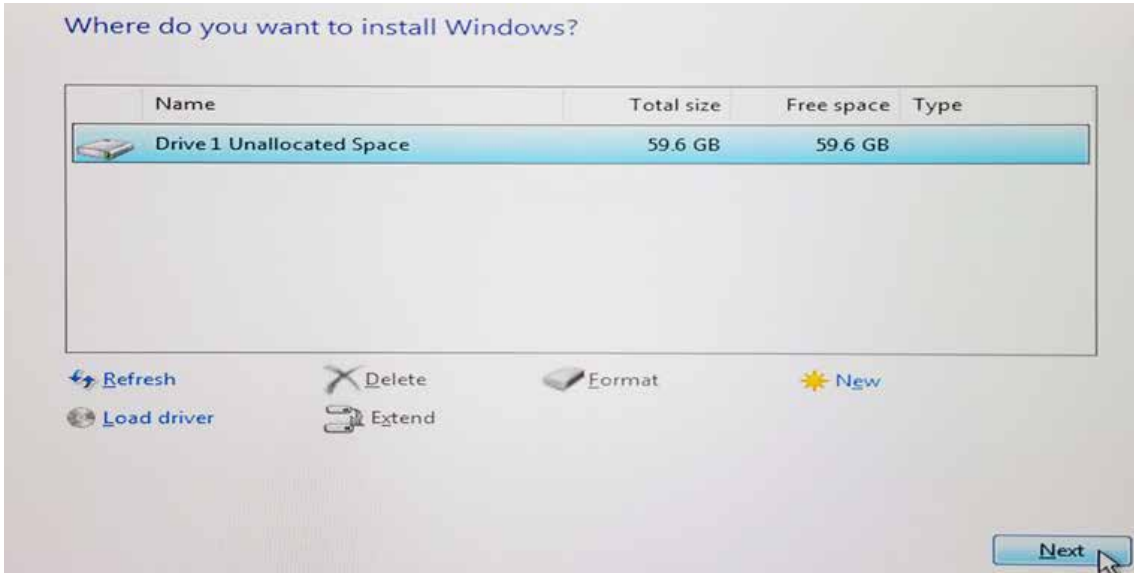
You can find the latest information and software directly from Intel's website.
http://www.intel.com/p/en_US/support/highlights/chpsts/imsm
Download driver "SetupRST.exe" and decompress it.
You can refer to Intel official teaching.
https://www.intel.com/content/www/us/en/support/articles/000094664/technologies/intel-rapid-storage-technology-intel-rst.html
Open Windows PowerShell or CMD and navigate to the location of the SetupRST.exe file.

Enter the following command to extract:
./SetupRST.exe -extractdrivers SetupRST_extracted.
After extraction, a "SetupRST_extracted " folder will be created, then put the folder on the USB drive used for installing Windows.
Loading driver and install it when installing Windows.





Then you can select the hard drive and install the OS.



C.3 To Install All Device Drivers of the System

The instructions are as follows:
1. Install Chipset driver
2. Install VGA driver
3. Install ME driver (if available)
4. Install Network driver
5. Install Audio driver

C.4 To Install "Intel Rapid Storage Technology" driver

You can get the software from driver CD.
Also, you can find the latest information and software directly from Intel's website.

http://www.intel.com/p/en_US/support/highlights/chpsts/imsm

Install "SetupRST.exe"

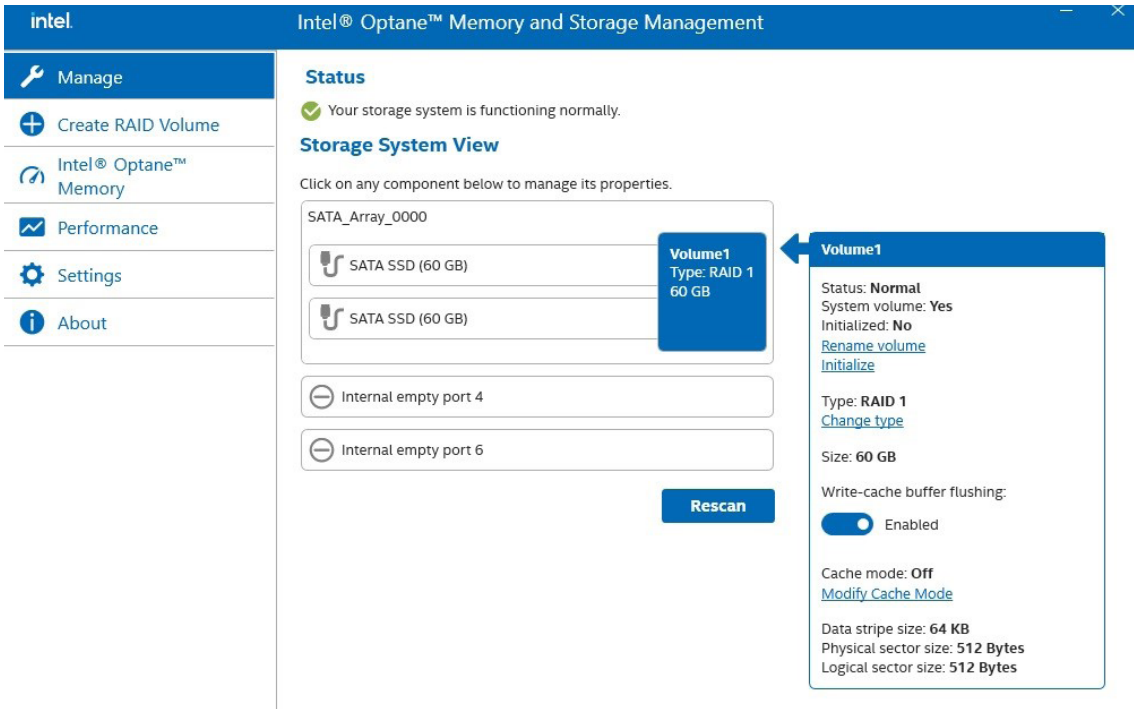
The RAID environment has been done when you completed the steps above.
At this point, the basic RAID Volume setup steps have concluded.

C.5 Manage RAID Volume on "Intel® Optane™ Memory and Storage Management" Software

You can download "Intel® Optane™ Memory and Storage Management" to manage and create RAID Volumes.

You can find it at Microsoft Store.
https://apps.microsoft.com/detail/9MZNG5HZWZ1T?activetab=pivot%3Aoverviewtab&hl=en-us&gl=US

After installation, the created RAID Volume will be displayed here.

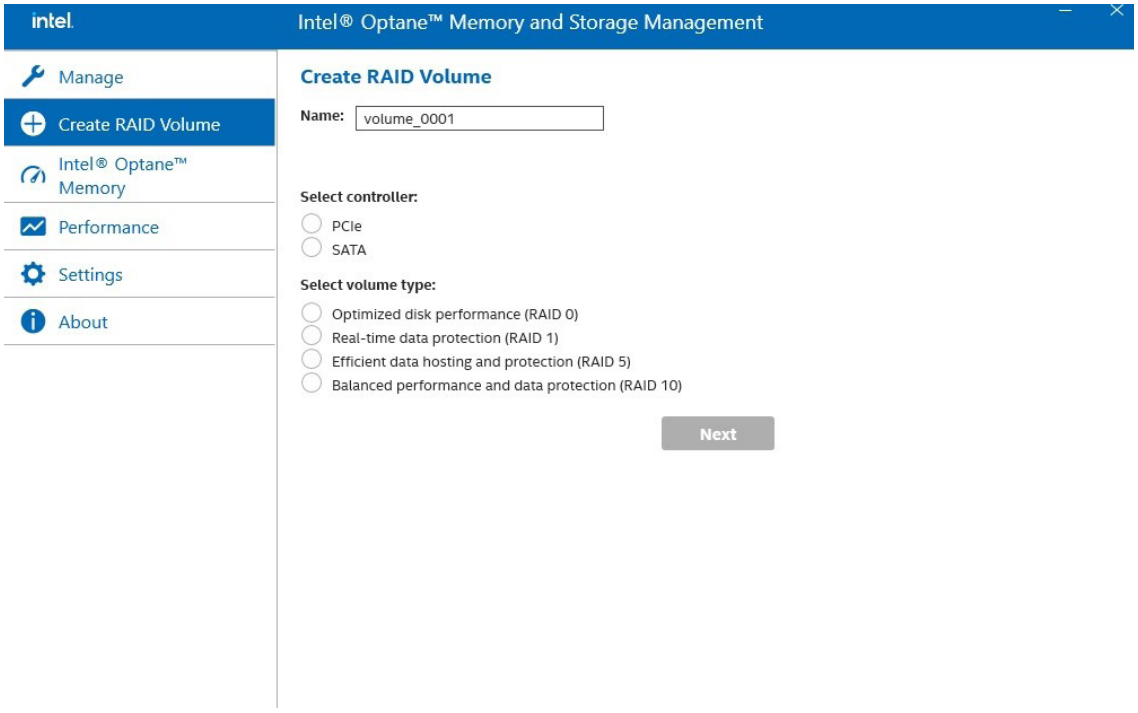


C.6 To Insert SATA HDD for RAID

Please note, you can use additional two SATA ports for SATA HDD, except for mSATA slot. And storage device M.2 and SATA cannot be mixed to create a RAID Volume.

C.7 To Create RAID Volume on "Intel® Optane™ Memory and Storage Management" Software

You can connect additional SATA devices to build RAID Volumes, and use "Intel® Optane™ Memory and Storage Management" Software for management.

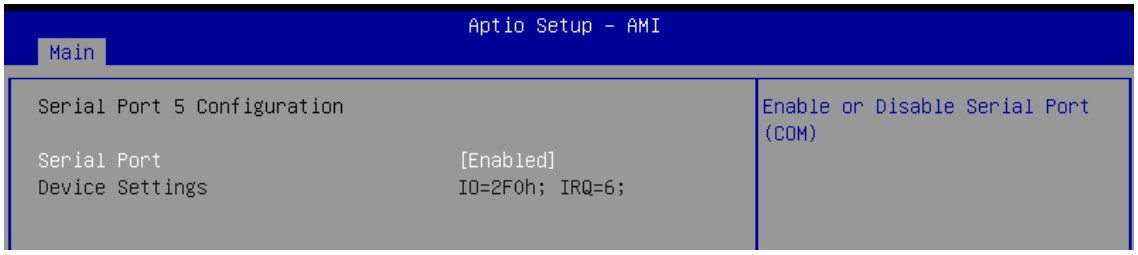


D

APPENDIX D : Setting up Allxon OOB

1. BIOS Setting before using Allxon on system

Enable Allxon OOB Remote Management



2. Setting up Allxon OOB

This section will guide you step-by-step on how to enable and activate OOB Management Services. If you need to use both services (Allxon INB and OOB features), please follow the steps below.

2.1 Enable Allxon INB & OOB Services

2.1.1 Install Allxon Agent on Device

Users can easily initiate the Allxon Agent installation process from their desktop using selected devices from Allxon's hardware partners.

Refer to the following webpage for detailed instructions:
Install Allxon Agent via Command Prompt

2.1.2 Pairing Edge Device to Allxon Portal

- Get Device Pairing Code

Refer to the following webpage for detailed instructions:
Get Device Pairing Code

- Get Add Your Device on Allxon Portal

Refer to the following webpage for detailed instructions:
Add Your Device on Allxon Portal

2.1.3 Enable OOB Enabler on Device

After you have paired and added your device onto Allxon Portal, you will now have the option to also link the OOB Enabler to Allxon Portal.

Refer to the webpage for detailed instructions:
Enable Out-Of-Band Management on Device

2.2 Allxon swiftDR for Power Cycling

Allxon swiftDR Series is a powerful Out-Of-Band remote device management solution to empower disaster recovery. This section details Allxon swiftDR for Power Cycling on Allxon Portal, to introduce Allxon's power-related OOB features.

Refer to the webpage for detailed instructions:
Allxon swiftDR for Power Cycling

3. Troubleshooting Your OOB Enabler

3.1 Network Connectivity Requirements

To get the best out of Allxon Services, ensure you are connected to a stable Internet connection. If your organization restricts Internet communications with the network using a firewall or proxy device, refer to the following webpage for detailed Information:
Allxon Service Port/Protocol and Whitelist Information

APPENDIX E : Power Consumption

Testing Board	ICS-1110S
RAM	64GB * 8
USB-1	USB Microsoft Wired Keyboard 600 1576
USB-2	USB Mouse HP MOFYUO
SATA 0	Apacer AS340X 120GB
Graphics output	VGA
Power plan	Balance(Windows Server 2022 Power plan)
Power Source	Chroma 62006P-100-25
Test Program	BurnInTest V10.2 (Build 1011)

E.1 Intel Xeon D-2752TER (20M Cache, up to 2.80 GHz)

Power on and boot to Windows Server 2022 64-bit (without turbo boost technology)

CPU	Power Input	Standby Mode		Power on and boot to Windows Server 2022 64bit			
				idle status CPU usage less 3%		Run 100% CPU usage	
		Max Current	Max Consumption	Max Current	Max Consumption	Max Current	Max Consumption
Xeon D-2752TER	16V	1.012A	16.19W	6.016A	96.26W	8.517A	136.27W
Xeon D-2752TER	24V	0.745A	17.88W	4.078A	97.87W	5.795A	139.08W
Xeon D-2752TER	36V	0.628A	22.61W	2.850A	102.60W	4.065A	146.34W
Xeon D-2752TER	50V	0.541A	27.05W	2.218A	110.90W	2.931A	146.55W

APPENDIX F : Supported Memory and Storage List

Testing Board	ICS-1110S
Memory Test	MemTest86 V11.3 Build 1000
BurnInTest	V10.2 (Build 1011)

F.1 Tset Item

Channel	Memory Test	Bunin	Reboot
DIMM1~DIMM8	PASS	PASS	PASS

F.2 Supported Non-ECC Memory List

Brand	Info	Test Temp. (Celsius)
InnoDisk 8GB DDR4 3200 U-DIMM	M4U0-8GSX2CEM-H03	25ºC

F.3 Supported ECC Memory List

Brand	Info	Test Temp. (Celsius)
InnoDisk 8GB DDR4 3200 ECC U-DIMM	M4C0-8GSSMCEM-H03	25ºC

F.4 Supported RDIMM ECC Memory List

Brand	Info	Test Temp. (Celsius)
InnoDisk 64GB DDR4 3200 RDIMM	M4R0-CGS7GCEM-H03	25ºC

F.5 Supported Storage Device List

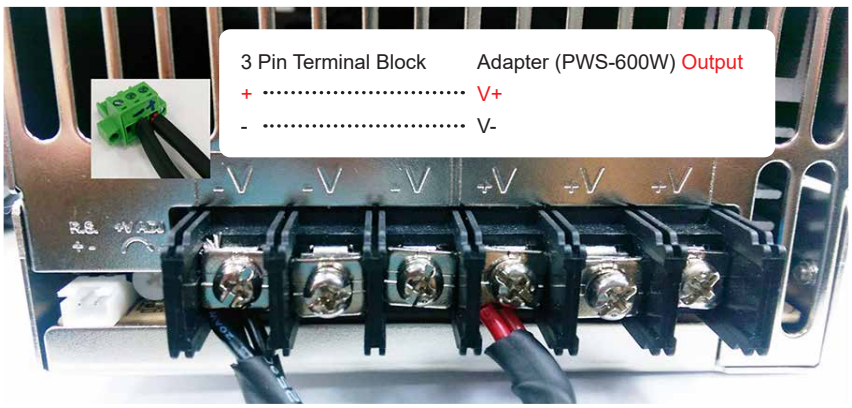
Type	Brand	Model	Capacity
SATA SSD	Apacer	AS340X	120GB
	Innodisk	DES25-C12DK1KCCQL-H03	512GB
	Transcend	TS512GSSD460K	512GB
M.2 PCIe SSD	Innodisk	DGM28-C12DP1KCAEF-H03	512GB
	Transcend	TS512GMTE720T	512GB

APPENDIX G : How to Install Power Supply

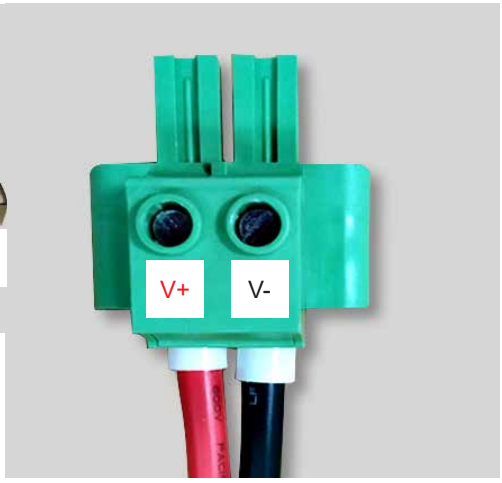
G.1.1 PWS-600W Adapter AC Cable

Adapter (PWS-600W) Input	AC Power Cord
L	BLACK
N	WHITE
⏚	GREEN

G.1.2 PWS-600W Adapter DC Cable

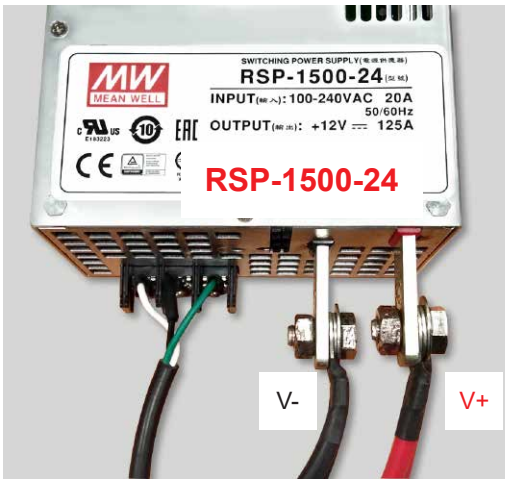


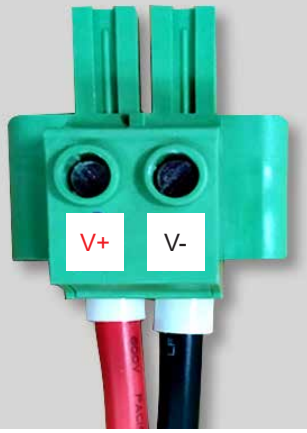
G.2.1 RSP-3000-24 Power Supply



GREEN ····· ⏚
BLACK ····· AC/L
WHITE ····· AC/N

G.2.2 RSP-1500-24 Power Supply





** If more help is needed, please contact Vecow technical support.

Vecow

For further support information, please visit www.vecow.com

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