

QBiX-DR-AMLA7433REH-A1 (DR-7433A-SI)

Industrial Embedded System
Quick Start Guide

Copyright Notice

This document is copyrighted, 2025. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, Beijer assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

GIGAIPC reserves the right to make changes in the product design without notice to its users.

Acknowledgement

All other products' name or trademarks are properties of their respective owners.

- Microsoft Windows is a registered trademark of Microsoft Corp.
- Intel, Pentium, Celeron, and Xeon are registered trademarks of Intel Corporation
- Core, Atom are trademarks of Intel Corporation
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

All other product names or trademarks are properties of their respective owners.

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
System	1
Terminal Blocks for DC IN, 1 x 3P (P/N: 25IO0-5ESDV0-D2R)	1
Terminal Blocks for SW, 1 x 2P (P/N: 25IO0-EC3500-D2R)	1
Terminal Blocks for GPIO, 1 x 10P (P/N: 25IO0-EC3810-D2R)	1
HDD screw M3x4L (P/N : 25984G-1C014-S00)	4

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Safety Precautions

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

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.

13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
17. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

FCC Statement

Warning!



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

Caution:

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

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

High Temperature Warning

- (1) This equipment is intended to be used in Restrict Access Location. The access can only be gained by Skilled person or by Instructed person who have been instructed about the metal chassis of the equipment is so hot that Skilled person have to pay special attention or take special protection. Only authorized by well trained professional person can access the restrict access location.
- (2) External metal parts are hot!! Before touching it, special attention or protection is necessary



Table Contents

Industrial Embedded System	1
Quick Start Guide	1
Copyright Notice	2
Acknowledgement	3
Packing List.....	4
About this Document	5
Safety Precautions	6
FCC Statement.....	8
High Temperature Warning	8
 Chapter 1 - Product Specifications	 13
1.1 Specifications	15
 Chapter 2 – QBiX-DR-AMLA7433REH-A1 (DR-7433A-SI)	 17
2.1 Dimension	18
2.1 Dimension - including wall mount brackets.....	19
2.2 Getting Familiar with Your Unit.....	20
2.3 A) Wireless Module : How to safely install the Module (Wireless Module inclusion may vary based on local distribution)	22
2.4 B) 5G module Installation: How to safely install the module (5G Module inclusion may vary based on local distribution).....	23
2.5 C) M.2 SSD Installation: How to safely install the M.2 2280 SSD	24

2.6	D) Memory removal: DDR5 SO-DIMM	25
2.7	HDD Installation	26
2.8	Antenna Installation (Antenna inclusion may vary based on local distribution)	27
2.9	Din Rail Bracket Installation	28
2.10	Wall mount Bracket Installation.....	29
2.11	Cable Pin-define	30
2.12	Safety and Regulatory Information.....	31

Chapter 3 – Motherboard Pin Define 32

3.1	Jumpers and Connectors	33
3.2.1	DC_IN (DC IN 1x3-pin Terminal Block).....	36
3.2.2	M2M (M.2 Slot, M-Key, NGFF2280).....	37
3.2.3	COM3 (Serial port header, RS-232/422/485 & RI/5V/12V) ..	38
3.2.4	JCOM3 (RI# pin RI#/5V/12V Select jumper for COM3 Port).....	39
3.2.5	CAN_BUS (CANBus header)	40
3.2.6	SYS_PANEL (Front panel header)	41
3.2.7	GPIO_CN (General Purpose input/output header)	42
3.2.8	M2B (M.2 Slot, B-Key, NGFF 3052/3042)	43
3.2.9	SODIMM (DDR5 SO-DIMM Slot)	44
3.2.10	SATA (SATA 6Gb/s Connector).....	45
3.2.11	USB_V (Vertical USB2.0 connector)	46
3.2.12	AT_CN (AT/ATX mode select jumper).....	47
3.2.13	SATAPW (SATA power connector).....	48
3.2.14	BAT (Battery cable connector).....	49
3.2.15	M2E (M.2 Slot, E-key, NGFF2230)	50
3.2.16	COM2 (Serial Port connector (RS-232/422/485 &	

RI/5V/12V))	51
3.2.17 COM1 (Serial Port connector (RS-232/422/485 & RI/5V/12V))	52
3.2.18 USB_LAN2 (LAN Connector (top) + USB 2.0 Connector (bottom))	53
3.2.19 USB_LAN1 (LAN Connector (top) + USB 3.2 Gen 1 Connector (bottom))	54
3.2.20 HP_MIC (Headphone & Headset Combo Jack)	55
3.2.21 HDMI (HDMI Connector)	56
3.2.22 VGA (DB-15 VGA Connector)	57
3.2.23 PWR_SW (Remote Control connector)	58
3.2.24 PWR_BUTTON (Power button with LED)	58

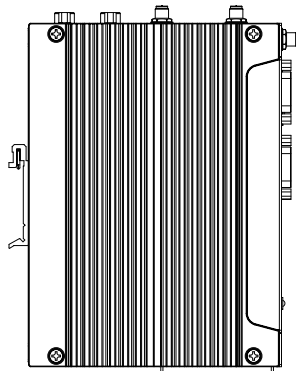
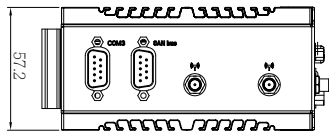
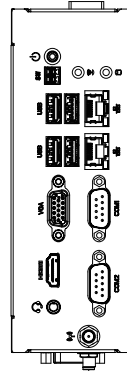
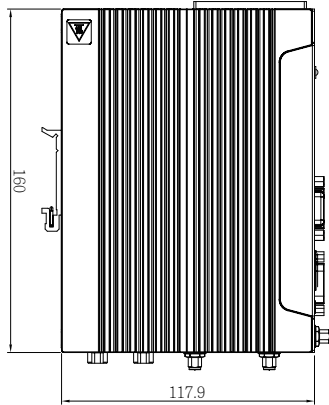
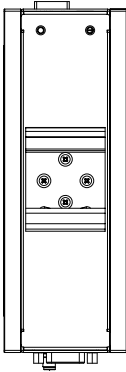
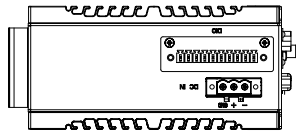
Chapter 4 – BIOS 59

4.1 Introduction	60
4.2 The Main Menu	61
4.3 Advanced	62
4.3.1 TPM Configuration	63
4.3.2 CPU Configuration	65
4.3.3 Memory Configuration	66
4.3.4 SATA Configuration	67
4.3.5 IT8786 Super IO Configuration	68
4.3.6 Hardware Monitor	69
4.3.7 S5 RTC Wake Settings	70
4.3.8 Network Stack Configuration	71
4.3.9 NVMe Configuration	72
4.3.10 Offboard SATA Controller Configuration	73
4.3.11 Digital IO Port Configuration	74

4.3.12	Tls Auth Configuration	75
4.3.13	Intel(R) Ethernet Controller I226-IT - 10:FF:E0:B9:30:8F (MAC address may varied based on different motherboard)	76
4.3.14	Intel(R) Ethernet Controller I226-IT - 10:FF:E0:B9:30:90 (MAC address may varied based on different motherboard)	77
4.4	Chipset	78
4.5	Security	80
4.6	Boot.....	83
4.7	Save & Exit	84

Chapter 1

Chapter 1 - Product Specifications



1.1 Specifications

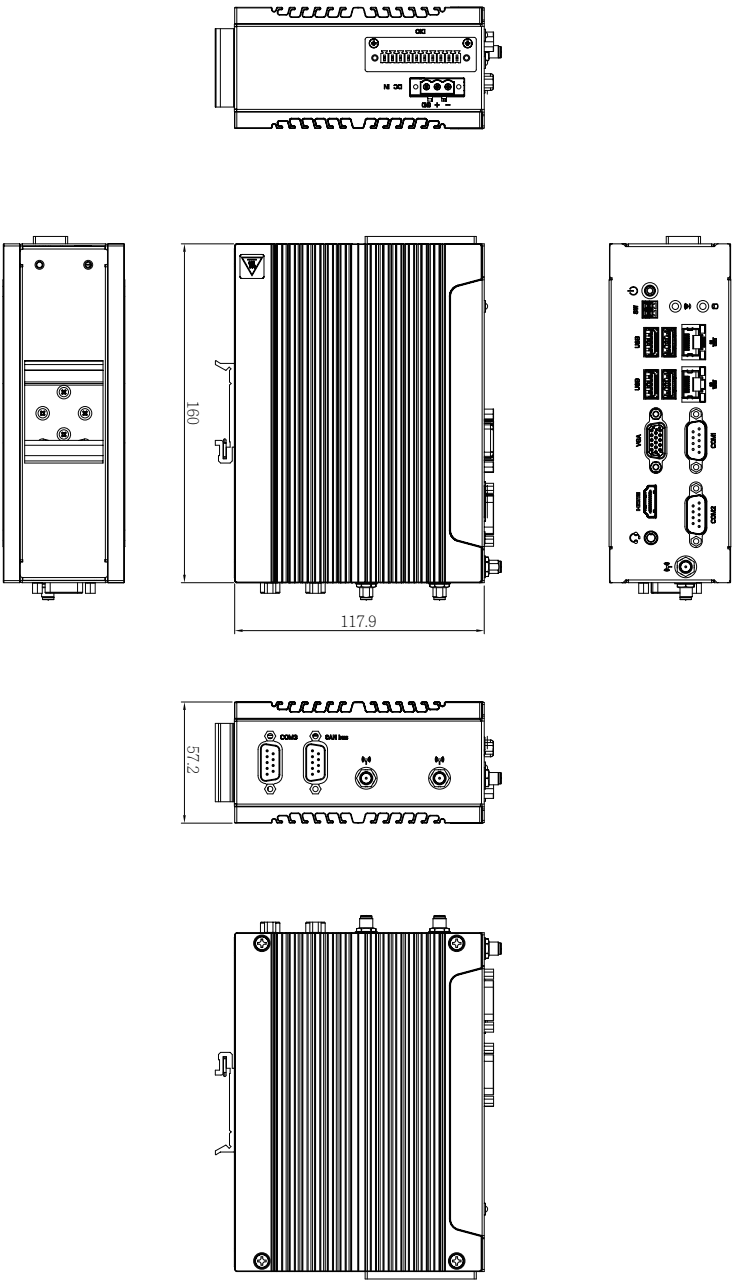
System	QBiX-DR-AMLA7433REH-A1 (DR-7433A-SI)
Dimension	System Size : 160W x 118D x 62.6H(mm)
CPU	Intel® Atom® x7433RE Processor Intel 7, 4 cores, up to 3.40 GHz
Memory	1 x DDR5 SO-DIMM sockets, Max. Capacity 16 GB Support Single channel DDR5 4800 MHz memory modules
Ethernet	2 x 2.5GbE LAN Ports (Intel® I226IT)
Graphic support	Integrated Graphics Processor- Intel® UHD Graphics: 1 x HDMI 2.0 port, supporting a maximum resolution of 4096x2160 @60Hz 1 x VGA port, supporting a maximum resolution of 1920x1200 @60Hz (2 independent display outputs)
Audio	Realtek® ALC269
Storage	1 x 2.5" HDD/SSD (SATA 6Gb/s)
Expansion Slots	1 x 2280 M.2 M-Key (PCIe Gen3x1, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x 3052/3042 M.2 B key with SIM Slot –4G/5G Support 1 x Vertical USB 2.0
Front I/O	2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1 2 x USB 2.0 1 x HDMI 1 x VGA 2 x COM Ports (RS-232/422/485 & RI/5V/12V) 1 x Power button with LED 1 x WiFi/HDD LED 1 x Remote control connector 1 x Combo audio jack (Headphone & Headset) 1 x External Antenna Hole (Optional)
Rear I/O	1 x Din Rail Mounting Support

System	QBiX-DR-AMLA7433REH-A1 (DR-7433A-SI)
Side I/O	1 x GPIO (8 bits) 1 x 3-pin Terminal Block 1 x COM Port (RS-232/422/485 & RI/5V/12V) 1 x CANBus 2 x External Antenna Holes (Optional)
TPM	Onboard TPM 2.0 security chip Nuvoton NPCT764AABYX
Power	+9V~36VDC (Full Range)
Operation temperature	Operating temperature: -20°C to 70°C Operating humidity: 40°C @ 20-95% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 60°C @ 95% (non-condensing) Use wide temperature range memory and storage
Vibration During Operation	Operation: IEC 60068-2-64, 3 Grms, random, 5 ~ 500 Hz, 1 hr / Per Axis, With SSD/M.2 2280 Non-operation: IEC 60068-2-6, 2 G, Sine, 10 ~ 500 Hz, 1 Oct/min, 1 hr / Per Axis
Shock During Operation	Operation: IEC 60068-2-27, 50 G, half sine, 11 ms duration, With SSD
Packaging Content	Carton size: 416 x 409 x 347 (mm) Packing Capacity: 6pcs Single Box size: 308 x 191 x 130 (mm) Including: Terminal Blocks for DC IN, 1*3P x 1 (P/N: 25IO0-5ESDV0-D2R) Terminal Blocks for SW, 1*2P x 1 (P/N: 25IO0-EC3500-D2R) Terminal Blocks for GPIO, 1*10P x 1 (P/N: 25IO0-EC3810-D2R) HDD screw M3x4L x 4 (P/N: 25984G-1C014-S00)
Order Information	System: 6BDR7433AMR-SI (Box packing) (Built in Components: Please contact with your sales representative for more information or e-mailed to : sales@gigaipc.com)

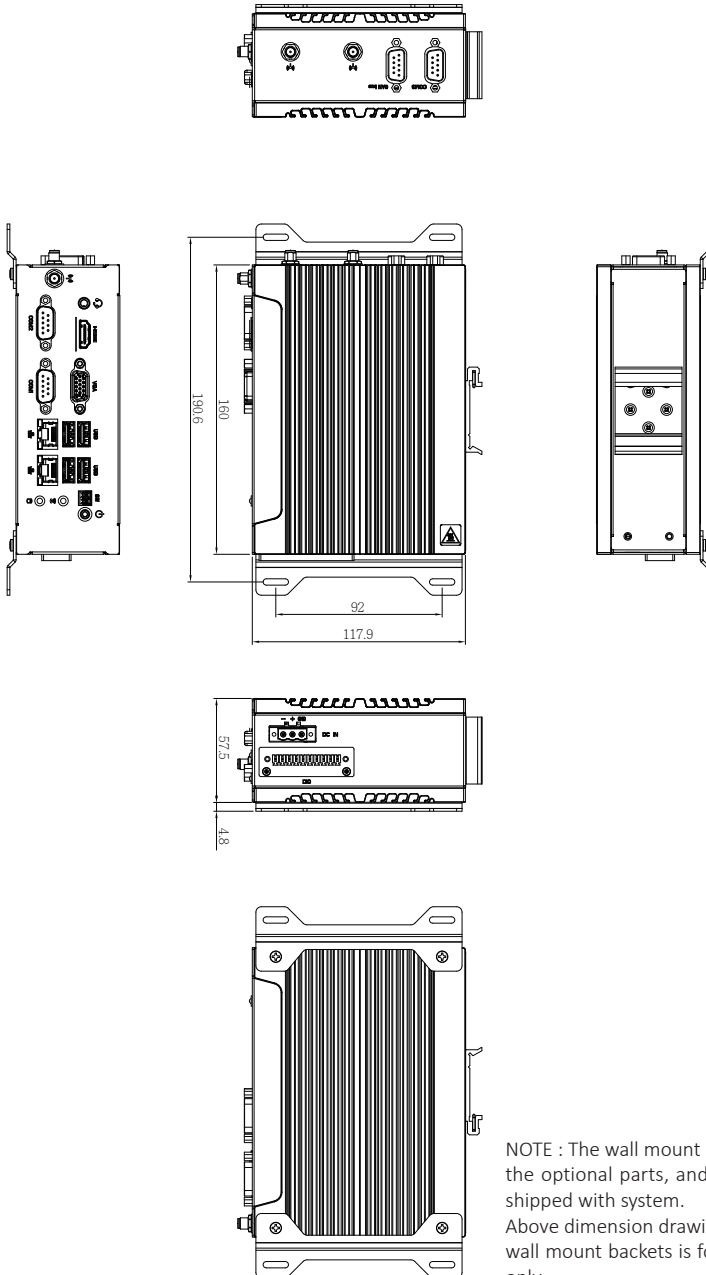
Chapter 2

Chapter 2 – QBiX-DR-AMLA7433REH-A1 (DR-7433A-SI)

2.1 Dimension



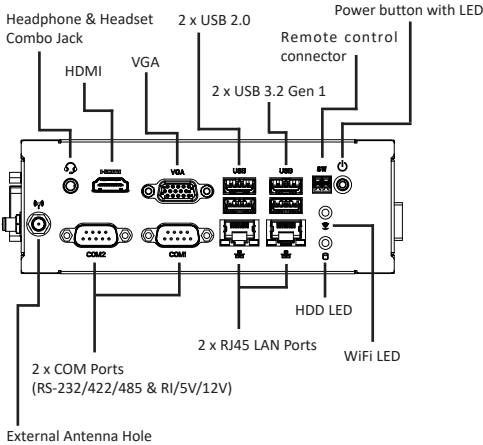
2.1 Dimension - including wall mount brackets



NOTE : The wall mount brackets are the optional parts, and will not be shipped with system.
Above dimension drawing including wall mount brackets is for reference only.

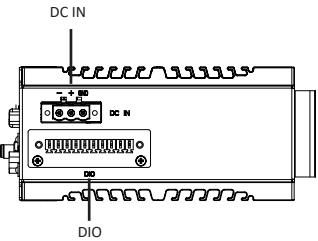
2.2 Getting Familiar with Your Unit

[Rear I/O Port on Board]

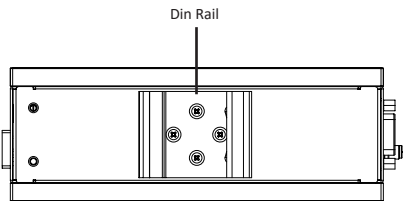


*NOTE : COM1 & COM2 RI/5V/12V setting are supported by BIOS selection. (please refer to Page 68)

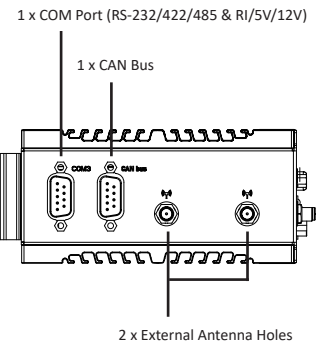
[Side IO Down side]



[Front Side]



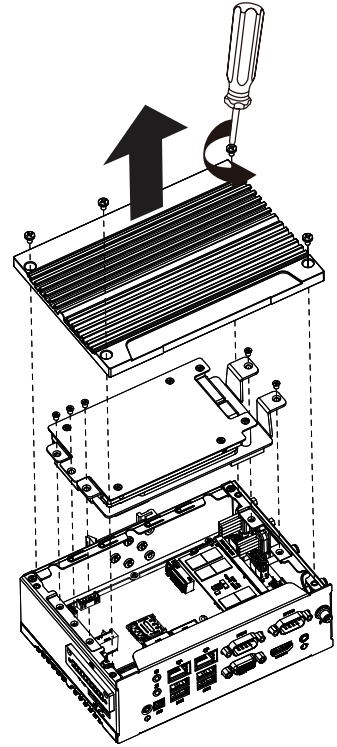
[Side IO Top Side]



*NOTE : COM3 RI/5V/12V setting are supported by jumper setting. (please refer to Page 39)

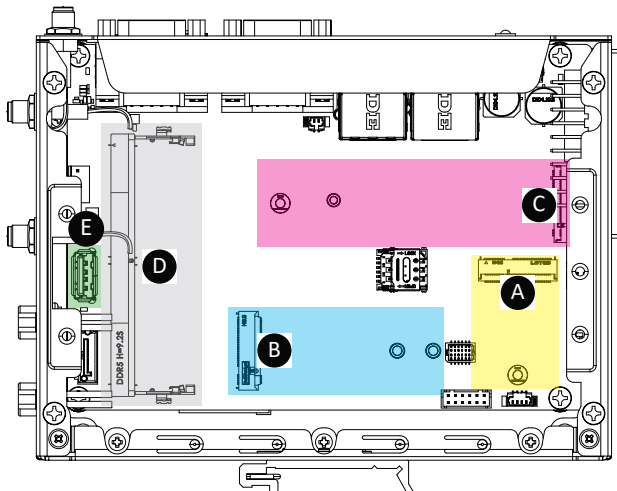
[Installation]

- * Before opening the case, make sure to unplug the power cord.
- * 打開機殼前，請確實移除電源。
- * Before Connecting the power, make sure to fasten the case securely.
- * 接上電源前，請確實將機殼完整鎖附。



[Bottom PCB Side]

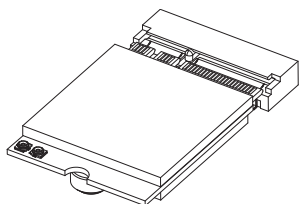
	Information
A	M.2 2230 E-Key connector
B	M.2 3052/3042 B-Key connector
C	M.2 2280 M-Key connector
D	DDR5 SO-DIMM Slot
E	USB 2.0 Vertical connector



2.3 A) Wireless Module : How to safely install the Module (Wireless Module inclusion may vary based on local distribution)

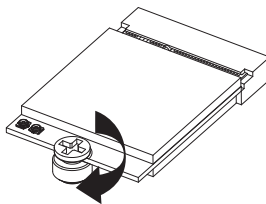
1

Carefully insert the wireless module into the M.2 slot.



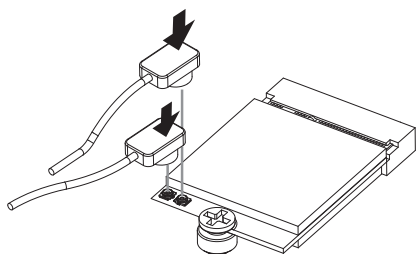
2

Lock the screw in the middle.



3

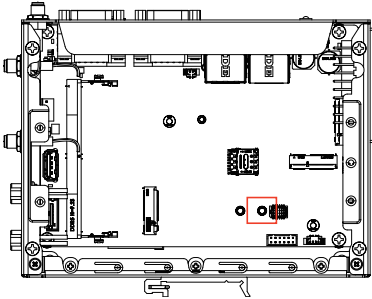
Install the antenna on the left side of the connection wireless module down.



2.4 B) 5G module Installation: How to safely install the module (5G Module inclusion may vary based on local distribution)

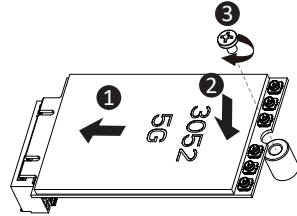
1

Remove the screw from the screw hole.



2

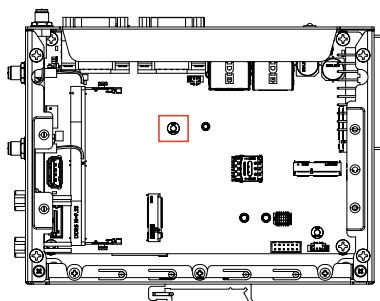
Carefully insert the 5G module into the slot, and secure with the screw.



2.5 C) M.2 SSD Installation: How to safely install the M.2 2280 SSD

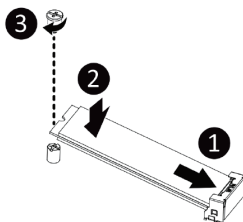
1

Remove the screw from the screw hole.



2

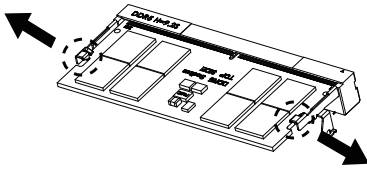
Carefully insert the M.2 SSD into the slot, and secure with the screw.



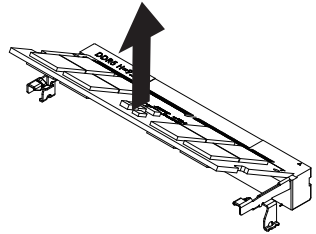
2.6 D) Memory removal: DDR5 SO-DIMM

1

Gently pull the levers on both sides of the memory module outward.

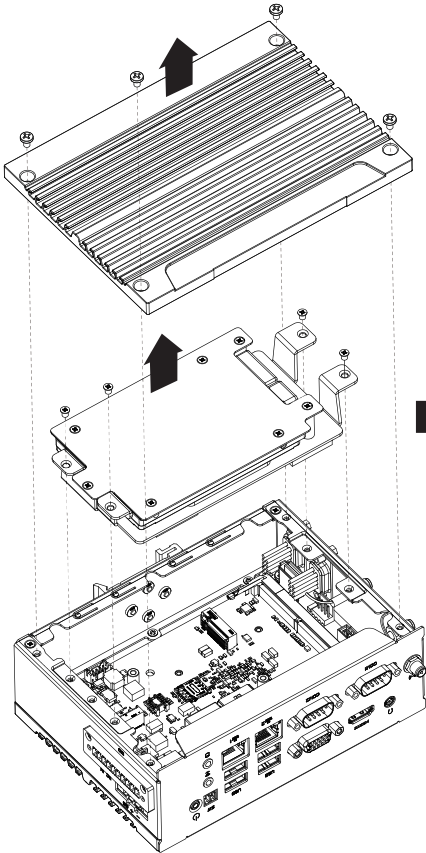
**2**

The memory module will release and pop out from the slot, and carefully remove it from the slot.

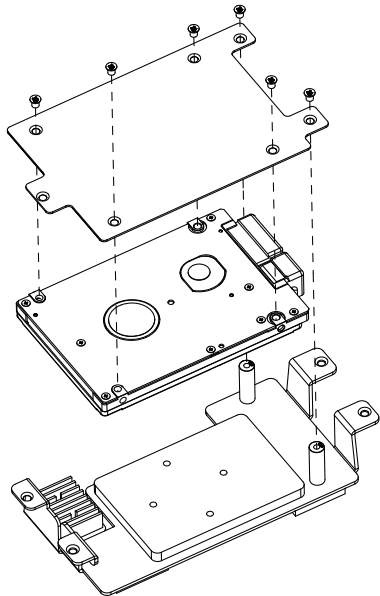


2.7 HDD Installation

1



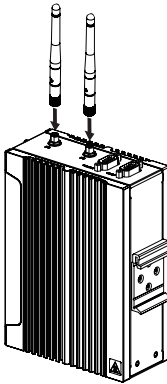
2



2.8 Antenna Installation (Antenna inclusion may vary based on local distribution)

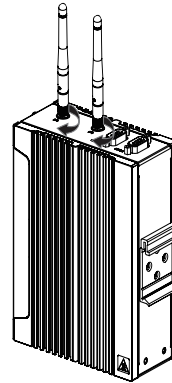
1

Carefully insert the antennas into the connectors.



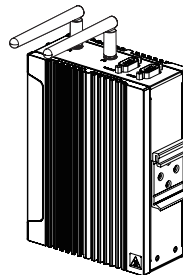
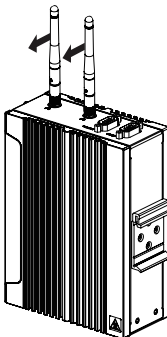
2

Turn the antennas clockwise until they are completely secure on the connectors.



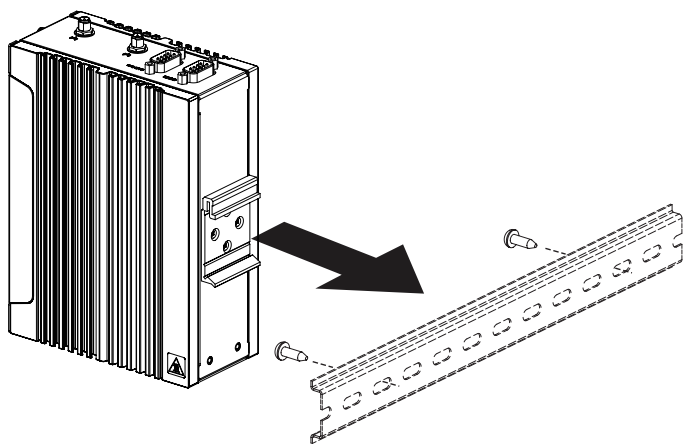
3

Flip up the antenna heads so that they are perpendicular to the machine.

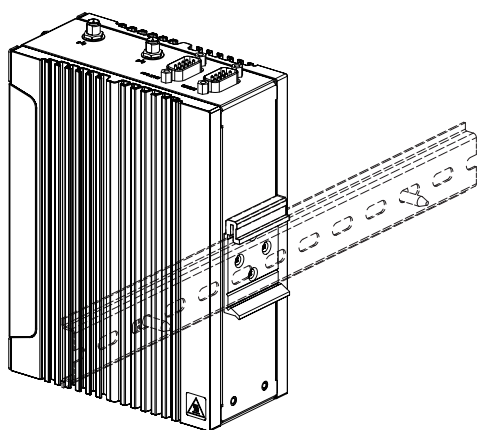


2.9 Din Rail Bracket Installation

1



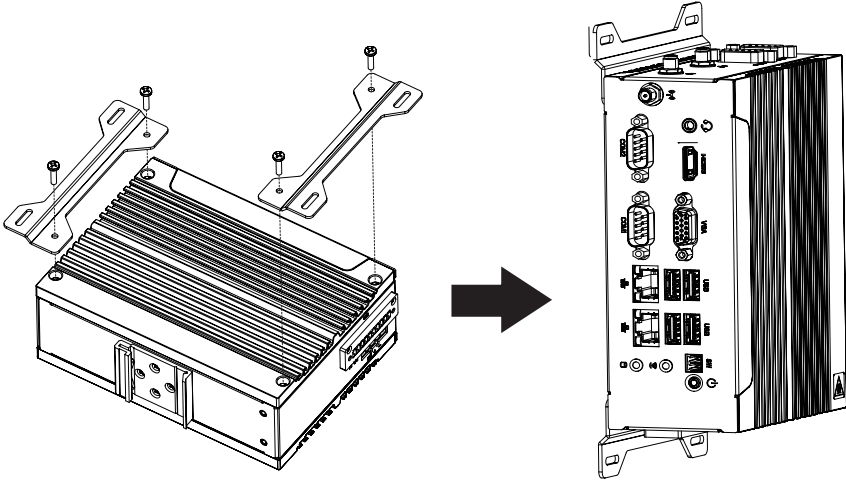
2



2.10 Wall mount Bracket Installation

1

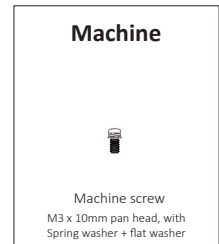
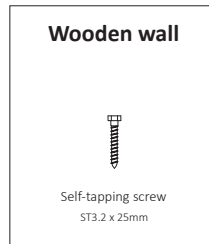
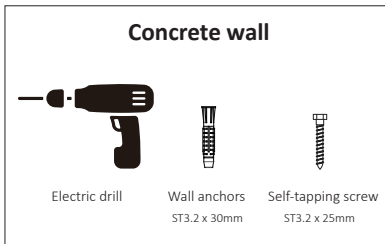
Remove 4 screws on the top cover, then install wall mount brackets with those 4 screws.



NOTE : The wall mount brackets are the optional parts, and will not be shipped with system.

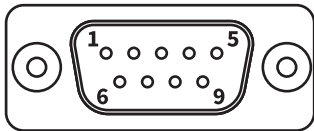
2

Suggest screws as below for different type of surface.



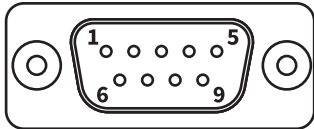
2.11 Cable Pin-define

1. DB9 COM (25CF8-250620-S9R)



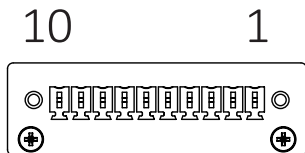
DB9 Pin	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	DCD	TXD-	D-
2	RXD	TXD+	D+
3	TXD	RXD+	-
4	DTR	RXD-	-
5	GND		
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	RI	-	-

2. CANBus (25CF8-220600-S9R)



CANBus Pin	Pin Name
1	NC
2	CAN_Low
3	GND
4	NC
5	NC
6	NC
7	CAN_High
8	NC
9	NC

3. DBP DIO (25CR5-15060C-S9R)



DBP DIO Pin	Pin Name
1	GPIO-output_1
2	GPIO-input_1
3	GPIO-output_2
4	GPIO-input_2
5	GPIO-output_3
6	GPIO-input_3
7	GPIO-output_4
8	GPIO-input_4
9	GND
10	5V

2.12 Safety and Regulatory Information

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible.

Disposal of used Batteries must be in accordance with local environmental regulations.

Failure to use the included Power Adapter may violate regulatory compliance and may expose the user to safety hazards.

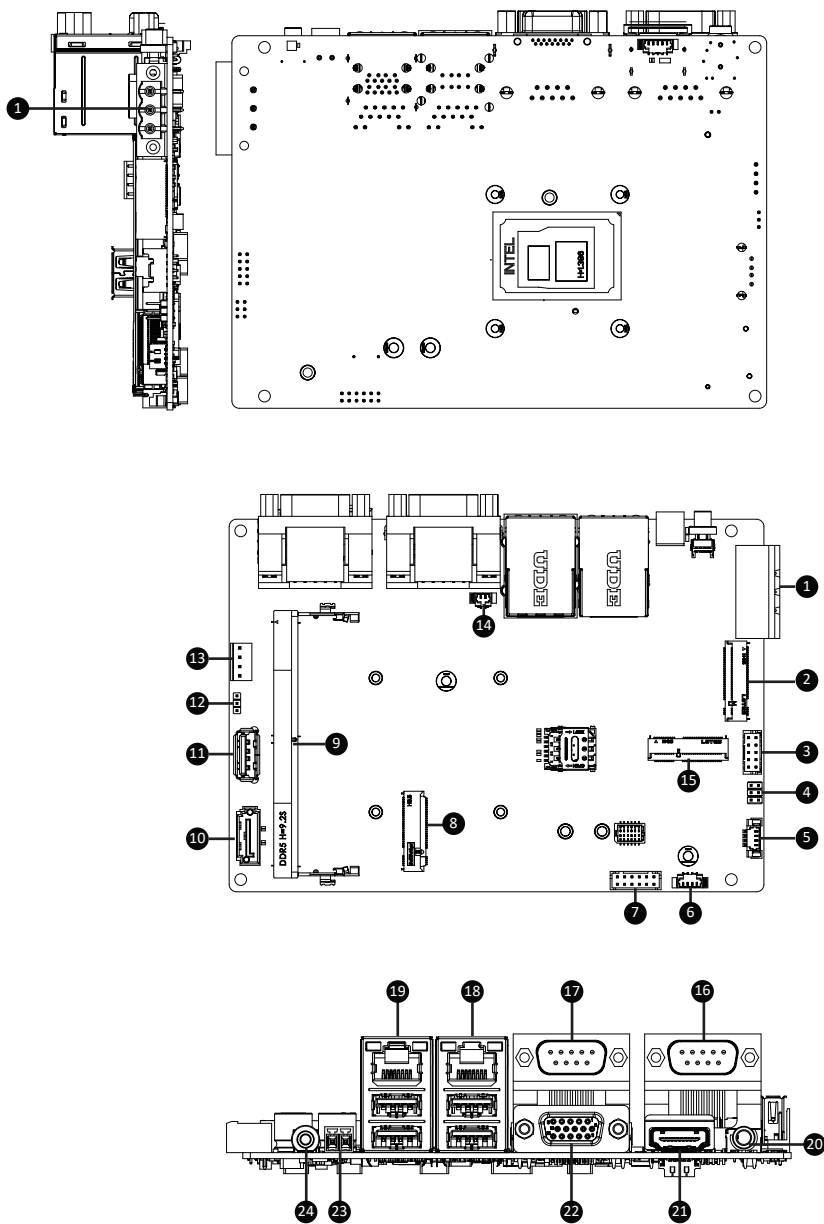


At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Chapter 3

Chapter 3 – Motherboard Pin Define

3.1 Jumpers and Connectors

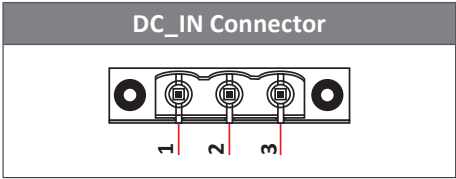
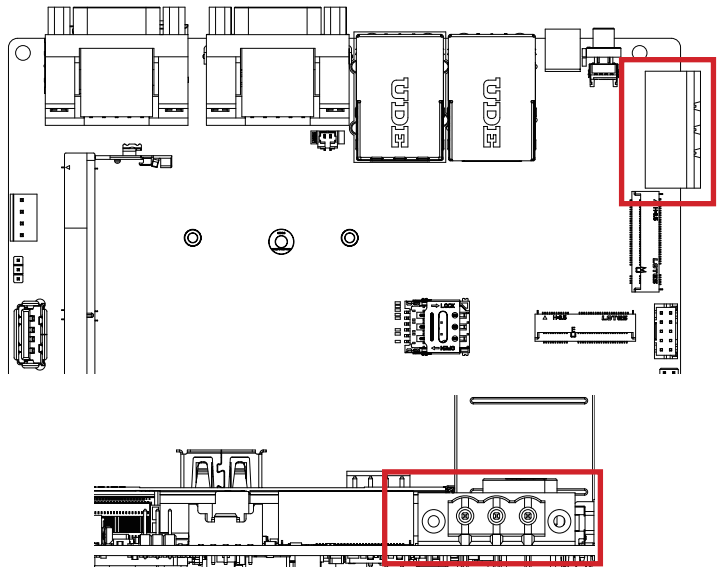


	Code	Description
1	DC_IN	DC IN 1 x 3-pin Terminal block (Side)
2	M2M	M.2 Slot, M-Key, NGFF 2280
3	COM3	Serial port header (RS-232/422/485 & RI/5V/12V)
4	JCOM3	RI# pin RI#/5V/12V Select jumper for COM3 Port
5	CAN_BUS	CANBus header
6	SYS_PANEL	Front panel header
7	GPIO_CN	General purpose input/output header
8	M2B	M.2 Slot, B-Key, NGFF 3052/3042
9	SODIMM	DDR5 SO-DIMM Slot
10	SATA	SATA 6Gb/s Connector
11	USB_V	Vertical USB 2.0 connector
12	AT_CN	AT/ATX mode select jumper
13	SATAPW	SATA power connector
14	BAT	Battery cable connector
15	M2E	M.2 Slot, E-key, NGFF 2230
16	COM2	Serial Port connector, COM Port (RS-232/422/485 & RI/5V/12V) *RI/5V/12V setting are supported by BIOS selection.
17	COM1	Serial Port connector, COM Port (RS-232/422/485 & RI/5V/12V) *RI/5V/12V setting are supported by BIOS selection.
18	USB_LAN2	LAN Connector (Top)
		USB 2.0 Connector (Bottom)

	Code	Description
19	USB_LAN1	LAN Connector (Top)
		USB 3.2 Gen 1 Connector (Bottom)
20	HP_MIC	Headphone & Headset Combo Jack
21	HDMI	HDMI connector
22	VGA	VGA Connector
23	PWR_SW	Remote Control connector
24	PWR_BUTTON	Power button with LED

3.2.1 DC_IN (DC IN 1x3-pin Terminal Block)

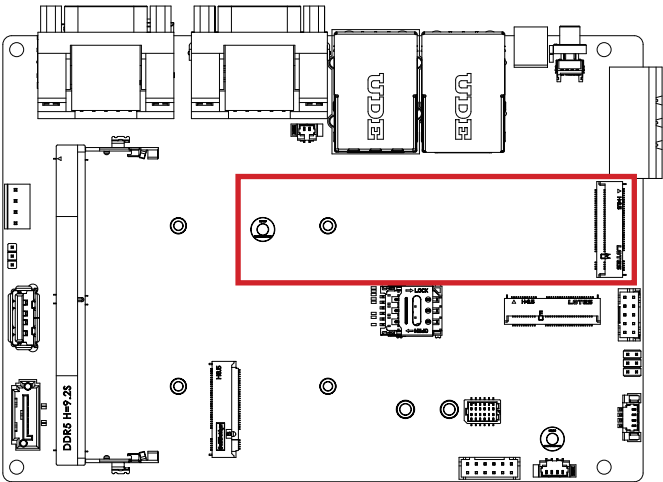
1



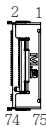
Pin No.	Definition
1	CH_GND
2	DCVIN
3	GND

3.2.2 M2M (M.2 Slot, M-Key, NGFF2280)

2



M.2 M Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	GND	4	3.3V
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2_LED
11	NC	12	3.3V
13	NC	14	3.3V
15	GND	16	3.3V
17	NC	18	3.3V
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC

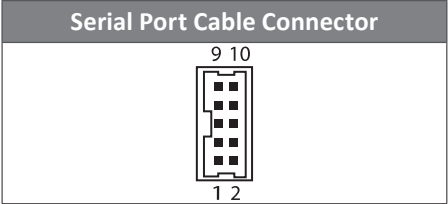
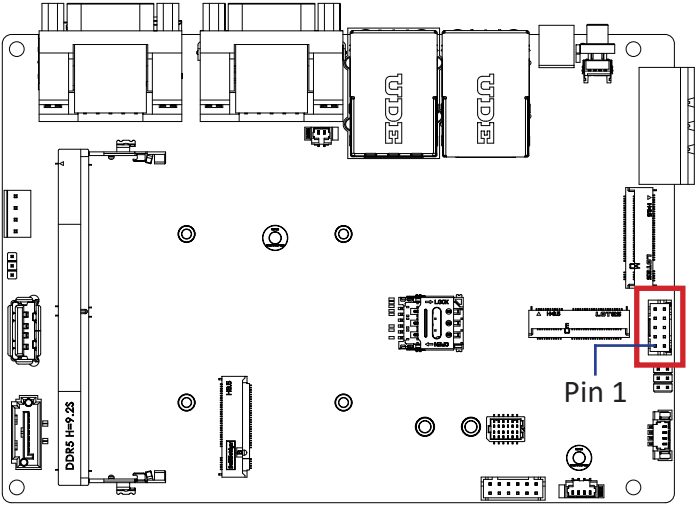
Pin No.	Definition	Pin No.	Definition
37	NC	38	GND
39	GND	40	NC
41	PCIE_SATA_RXp	42	NC
43	PCIE_SATA_RXn	44	NC
45	GND	46	NC
47	PCIE_SATA_TXn	48	NC
49	PCIE_SATA_TXp	50	PLT_RST
51	GND	52	CLK_REQ
53	CLK_Dn	54	PCIE_WAKE#
55	CLK_Dp	56	NC
57	GND	58	NC

Pin No.	Definition	Pin No.	Definition
67	NC	68	NC
69	M.2_PEDET	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

Connector PN	Vendor
80159-8521	BELLWETHER

3.2.3 COM3 (Serial port header, RS-232/422/485 & RI/5V/12V)

3

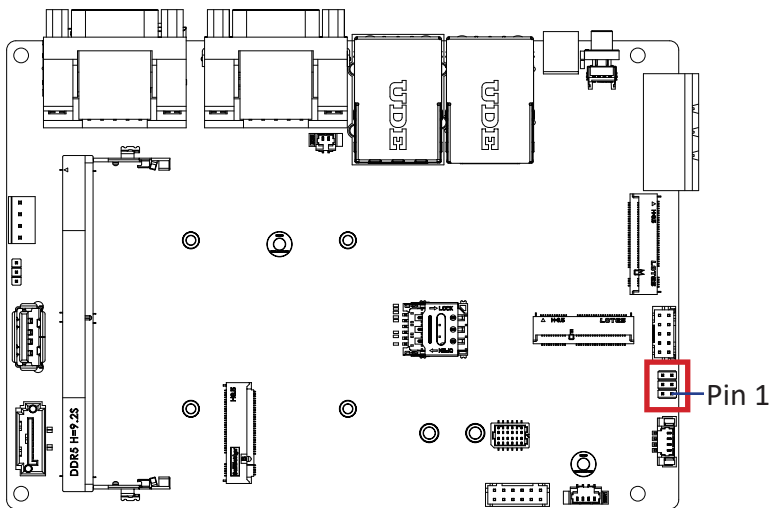


Pin No.	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	RXD	TXD+	D+
2	DCD	TXD-	D-
3	DTR	RXD-	—
4	TXD	RXD+	—
5	DSR	—	—
6	GND	—	—
7	CTS	—	—
8	RTS	—	—
9	No Connect	—	—
10	RI/5V/12V	—	—

Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

3.2.4 JCOM3 (RI# pin RI#/5V/12V Select jumper for COM3 Port)

4

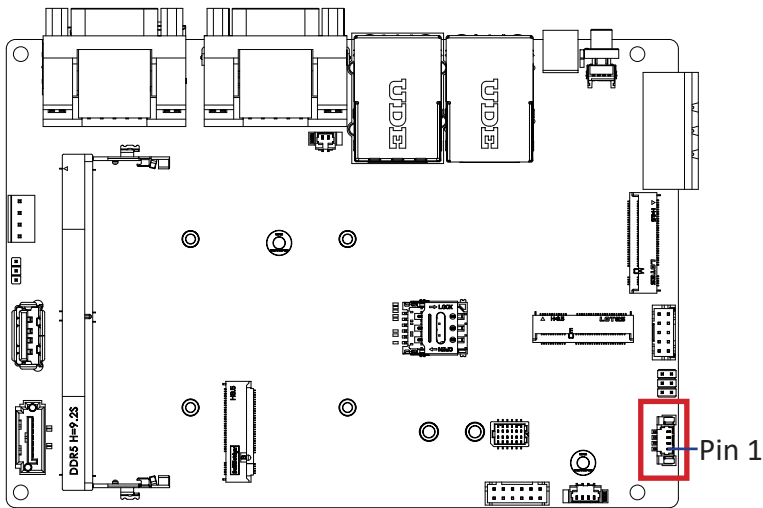


JCOM3 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)
	5-6 Close: 12V (Power COM)

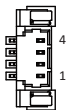
Connector PN	Vendor
220-97-03GB01	PINREX
PH06N53BAZ000	HORNGTONG

3.2.5 CAN_BUS (CANBus header)

5



CAN Bus Connector

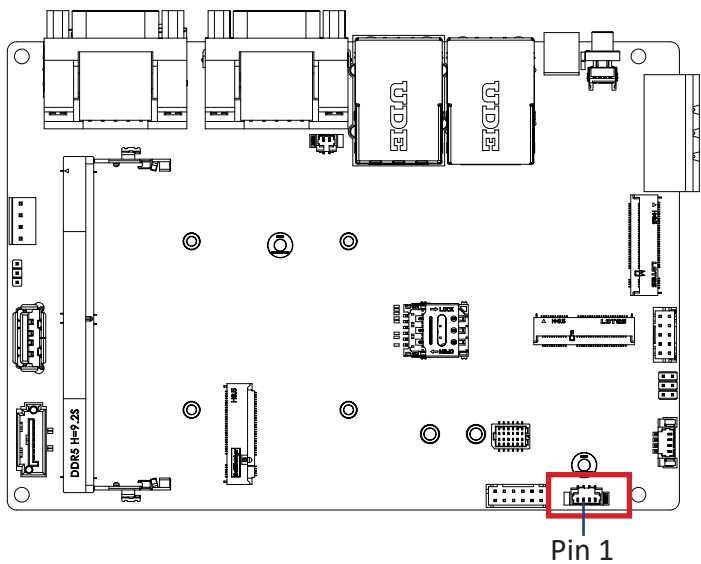


Pin No.	Definition
1	GND
2	CAN_High
3	CAN_Low
4	5V

Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

3.2.6 SYS_PANEL (Front panel header)

6



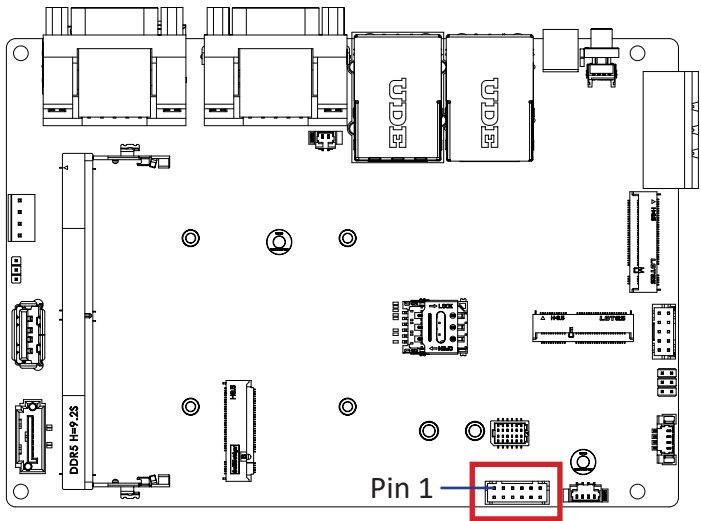
System Panel Header

Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

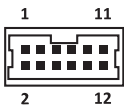
Pin No.	Definition
1	HD-
2	HD+
3	+V3.3A_FUSE
4	WIFI_LED

3.2.7 GPIO_CN (General Purpose input/output header)

7



GPIO Connector



Connector PN

725-81-12TW00

A2004WV-2X06P46

Vendor

PINREX

JOINT-TECH

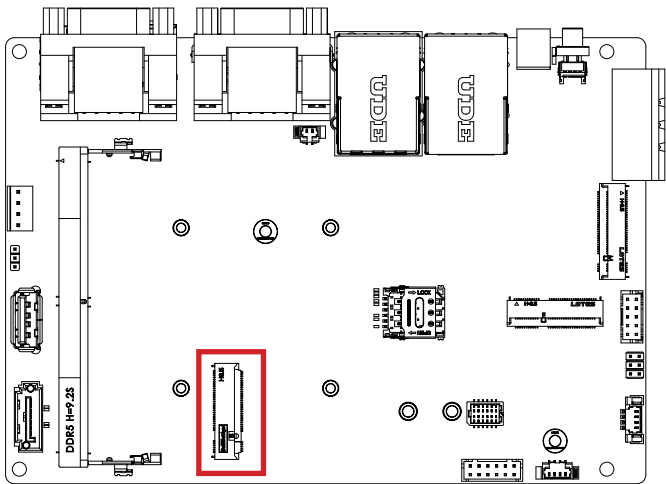
Pin No.

Definition

1	GPIO-output_1
2	GPIO-input_1
3	GPIO-output_2
4	GPIO-input_2
5	GPIO-output_3
6	GPIO-input_3
7	GPIO-output_4
8	GPIO-input_4
9	SMBus Clock
10	SMBus DATA
11	5V
12	GND

3.2.8 M2B (M.2 Slot, B-Key, NGFF 3052/3042)

8

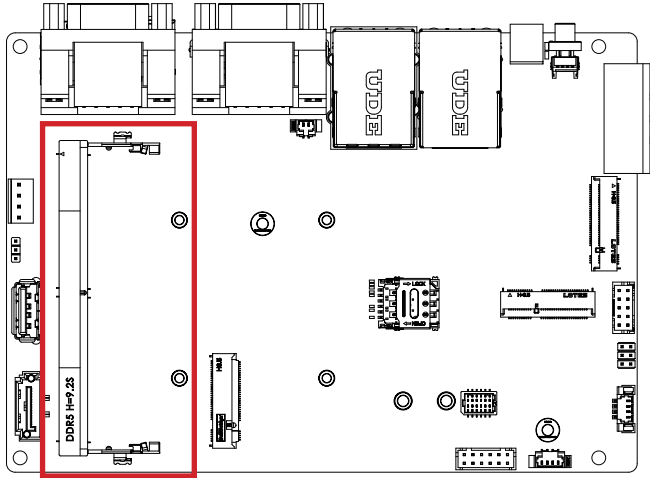


M.2 B-Key Connector			
Pin No.	Definition	Pin No.	Definition
1	3.3V	2	3.3V
3	GND	4	3.3V
5	GND	6	WWAN_PWR_OFF
7	USB D+	8	WWAN_Disable
9	USB D-	10	LED
11	GND		
Pin No.	Definition	Pin No.	Definition
21	NC	20	NC
23	NC	22	NC
25	M2B_DRP	24	NC
27	GND	26	WWAN_Disable2
29	USB3 RXn	28	NC
31	USB3_RXp	30	SIM_RST#
33	GND	32	SIM_CLK
35	USB3_TXn	34	SIM_DATA

Pin No.	Definition	Pin No.	Definition
37	USB3_TXp	36	SIM_PWR
39	GND	38	NC
41	PCIE_RXn	40	NC
43	PCIE_RXp	42	NC
45	GND	44	NC
47	PCIE_TXn	46	NC
49	PCIE_TXp	48	NC
51	GND	50	PLT_RST
53	CLK_n	52	CK_REQ
55	CLK_p	54	PCIE_WAKE
57	GND	56	NC
59	NC	58	NC
61	NC	60	NC
63	NC	62	NC
65	NC	64	NC
67	GPP_RESET	66	NC
69	M2B_DET	68	NC
71	GND	70	3.3V
73	GND	72	3.3V
75	NC	74	3.3V
Connector PN		Vendor	
80149-8521		BELLWETHER	
2E0BC21-S85BB-7H		FOXCONN	

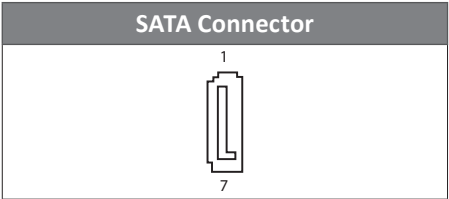
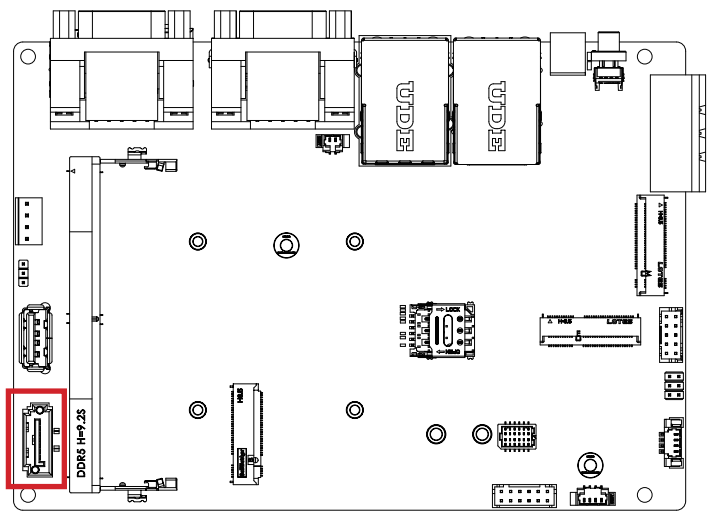
3.2.9 SODIMM (DDR5 SO-DIMM Slot)

9



3.2.10 SATA (SATA 6Gb/s Connector)

10

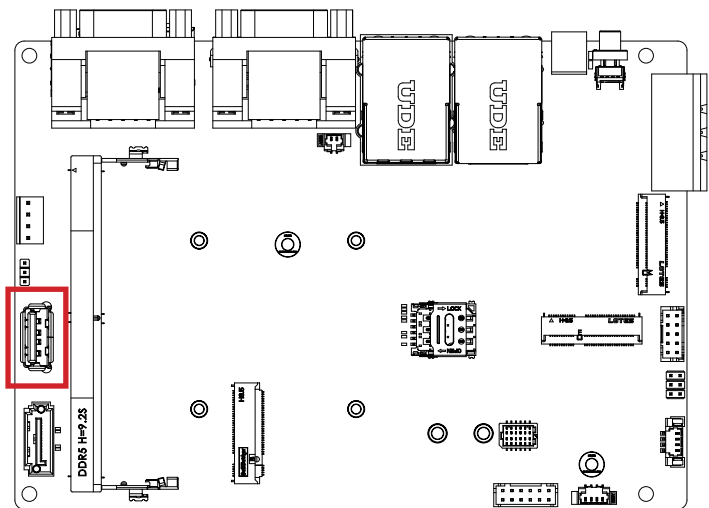


Connector PN	Vendor
WATF-07DBLBA1UW	WINWIN

Pin No.	Definition
1	GND
2	TXp
3	TXn
4	GND
5	RXn
6	RXp
7	GND

3.2.11 USB_V (Vertical USB2.0 connector)

11



USB 2.0 connector



Pin No.	Definition
1	5V
2	D1n
3	D1p
4	GND

Connector PN

UB0112C-4FH9-4H

Vendor

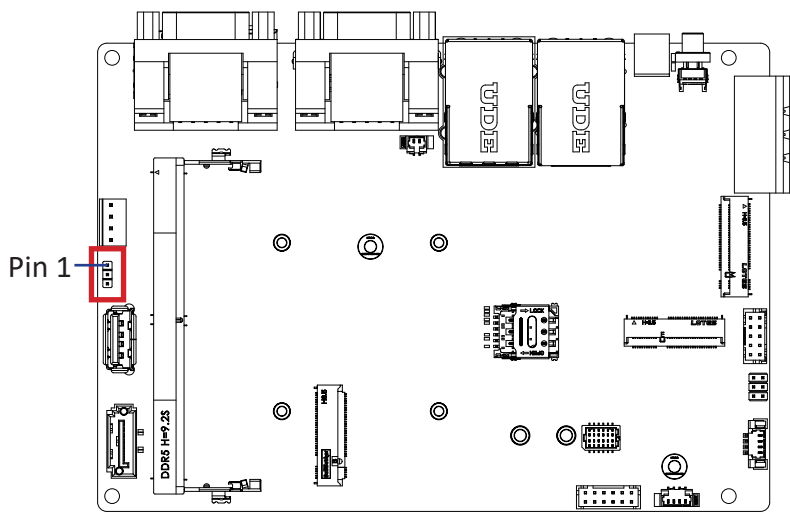
FOXCONN

UB0112C-4HH9-4F

FOXCONN

3.2.12 AT_CN (AT/ATX mode select jumper)

12



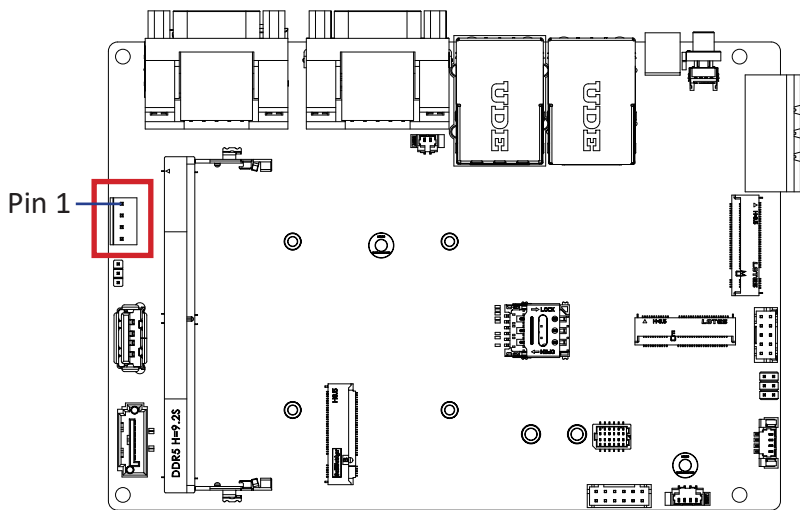
AT/ATX mode select jumper	
	

Connector PN	Vendor
220-96-03GB01	PINREX
PH03N2-7BAN000	HORNGTONG
220-96-03GB001K	PINREX

Pin No.	Definition
1	AT MODE
2	Detect
3	ATX MODE
Jumper setting 1-2 Close : AT mode. 2-3 Close : ATX mode. (Default setting)	

3.2.13 SATAPW (SATA power connector)

13



Hard Disk Power Connector



Connector PN

743-81-04TW00

WF04Q2-3BJQ000

Vendor

PINREX

HORNGTONG

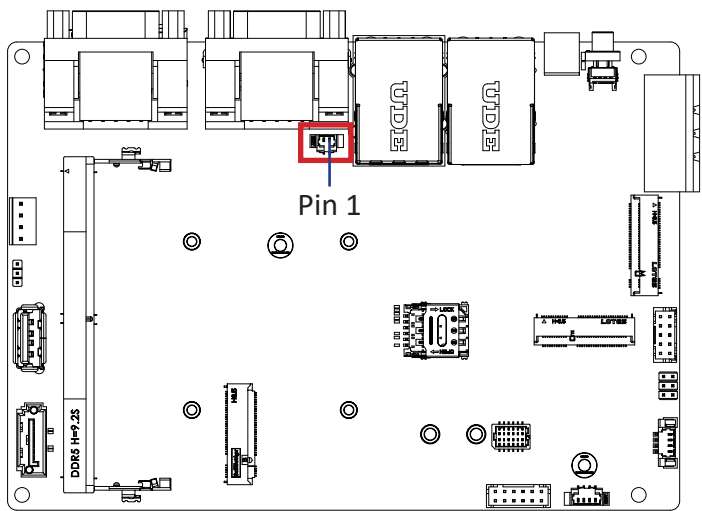
Pin No.

Definition

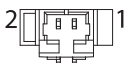
1	NC
2	GND
3	GND
4	5V

3.2.14 BAT (Battery cable connector)

14



Battery Cable Connector

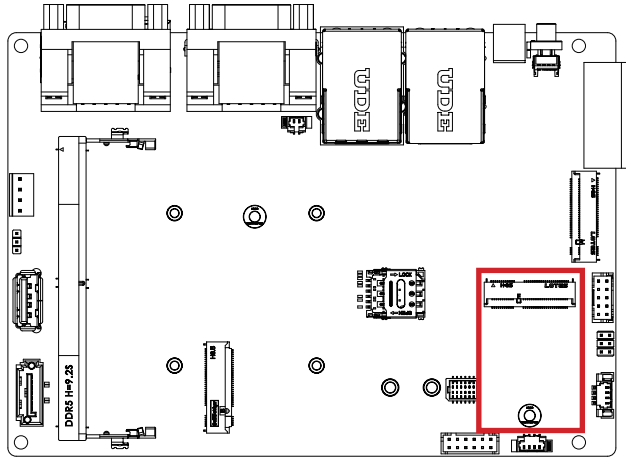


Connector PN	Vendor
85205-0270L	ACES
A1250WV-S-02PC	JOINT-TECH

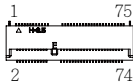
Pin No.	Definition
1	3.3V
2	GND

3.2.15 M2E (M.2 Slot, E-key, NGFF2230)

15



M.2 E Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	USBp	4	3.3V
5	USBn	6	WiFi_LED
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	BT_LED
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC		

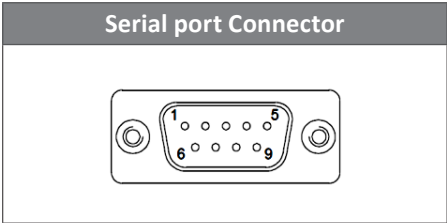
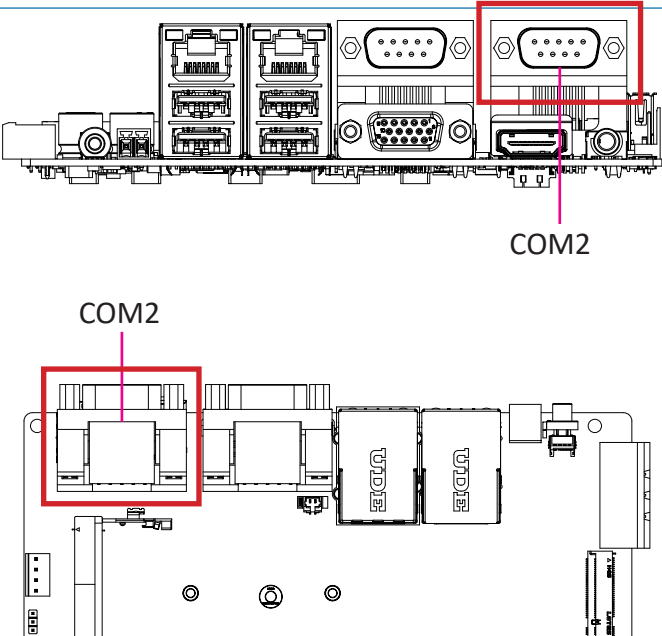
Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	PCIE_TXp	34	NC
37	PCIE_TXn	36	NC
39	GND	38	NC

41	PCIE_RXp	40	NC
43	PCIE_RXn	42	NC
45	GND	44	NC
47	PCIE_CLKp	46	NC
49	PCIE_CLKn	48	NC
51	GND	50	SUSCLK
53	PCIE_CLKREQ	52	Reset
55	PCIE_WAKE	54	BT_Disable#
57	GND	56	WiFi_Disable#
59	NC	58	NC
61	NC	60	NC
63	GND	62	NC
65	NC	64	NC
67	NC	66	NC
69	GND	68	NC
71	NC	70	NC
73	NC	72	3.3V
75	GND	74	3.3V

Connector PN	Vendor
APCI0095-P002A	LOTES
80152-8521	BELLWETHER

3.2.16 COM2 (Serial Port connector (RS-232/422/485 & RI/5V/12V))

16

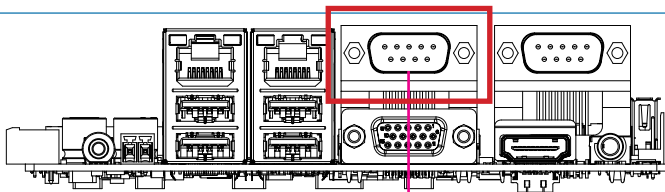


Pin No.	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	DCD	TXD-	D-
2	RXD	TXD+	D+
3	TXD	RXD+	—
4	DTR	RXD-	—
5	GND		
6	DSR	—	—
7	RTS	—	—
8	CTS	—	—
9	RI	—	—

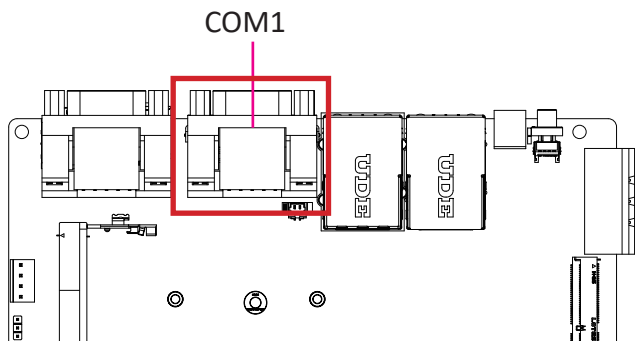
*NOTE : RI/5V/12V are supported by BIOS selection.
(please refer to Page 68)

3.2.17 COM1 (Serial Port connector (RS-232/422/485 & RI/5V/12V))

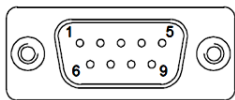
17



COM1



Serial port Connector

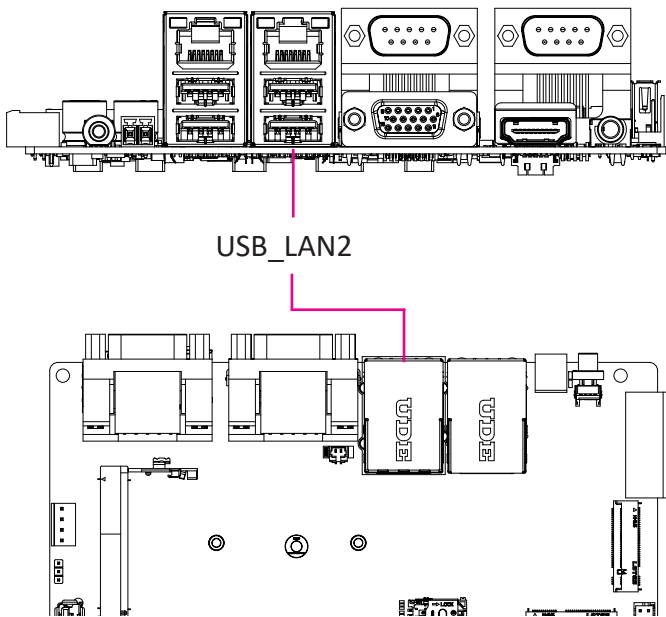


Pin No.	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	DCD	TXD-	D-
2	RXD	TXD+	D+
3	TXD	RXD+	—
4	DTR	RXD-	—
5	GND		
6	DSR	—	—
7	RTS	—	—
8	CTS	—	—
9	RI	—	—

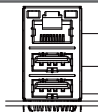
*NOTE : RI/5V/12V are supported by BIOS selection.
(please refer to Page 68)

3.2.18 USB_LAN2 (LAN Connector (top) + USB 2.0 Connector (bottom))

18



USB & LAN connector



LAN Connector

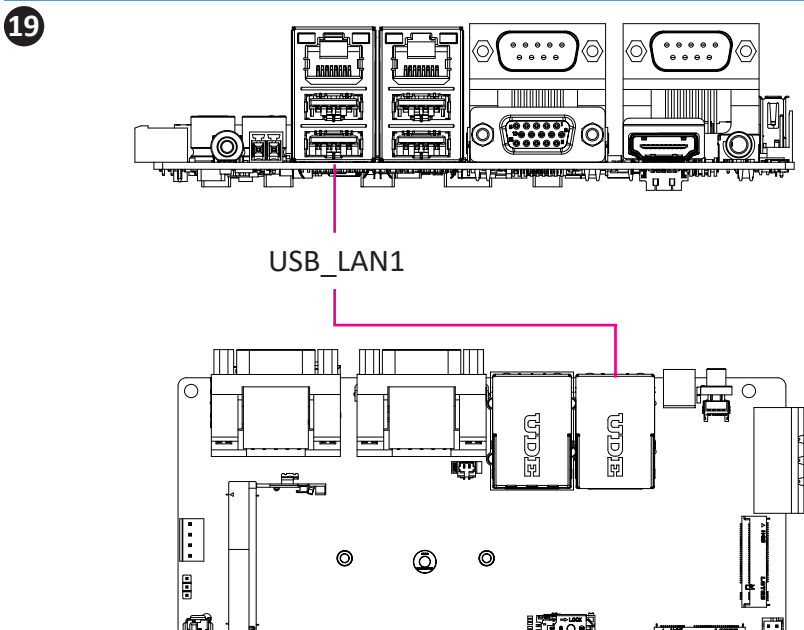
USB 2.0 Connector

USB Connector			
Pin No.	Definition	Pin No.	Definition
1	5V	5	5V
2	D1n	6	D0n
3	D1p	7	D0p
4	GND	8	GND

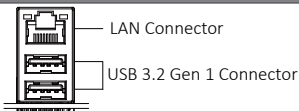
LAN Connector			
Pin No.	Definition	Pin No.	Definition
1	GND	6	BI_DC-
2	BI_DA+	7	BI_DB-
3	BI_DA-	8	BI_DD+
4	BI_DB+	9	BI_DD-
5	BI_DC+	10	GND

State	Description
Orange On	2.5Gbps data rate
Green On	1Gbps data rate
Off	100M & 10Mbps data rate

3.2.19 USB_LAN1 (LAN Connector (top) + USB 3.2 Gen 1 Connector (bottom))



USB & LAN connector



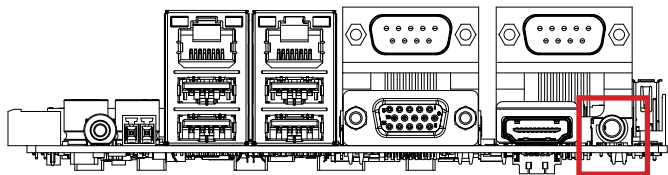
USB Connector			
Pin No.	Definition	Pin No.	Definition
1	5V	10	5V
2	D1n	11	D0n
3	D1p	12	D0p
4	GND	13	GND
5	USB3_RX1n	14	USB3_RX2n
6	USB3_RX1p	15	USB3_RX2p
7	GND	16	GND
8	USB3_TX1n	17	USB3_TX2n
9	USB3_TX1p	18	USB3_TX2p

LAN Connector			
Pin No.	Definition	Pin No.	Definition
1	GND	6	BI_DC-
2	BI_DA+	7	BI_DB-
3	BI_DA-	8	BI_DD+
4	BI_DB+	9	BI_DD-
5	BI_DC+	10	GND

State	Description
Orange On	2.5Gbps data rate
Green On	1Gbps data rate
Off	100M & 10Mbps data rate

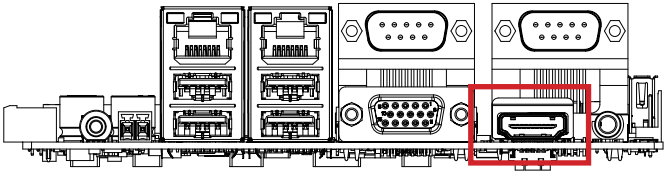
3.2.20 HP_MIC (Headphone & Headset Combo Jack)

20

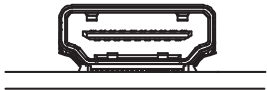


3.2.21 HDMI (HDMI Connector)

21



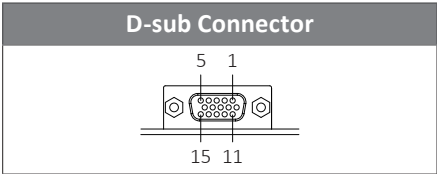
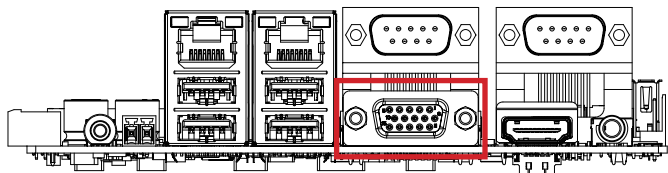
HDMI Connector



Pin No.	Definition	Pin No.	Definition
1	TX2p	11	GND
2	GND	12	CLKn
3	TX2n	13	NC
4	TX1p	14	NC
5	GND	15	SCL
6	TX1n	16	SDA
7	TX0p	17	GND
8	GND	18	5V
9	TX0n	19	Hot Plug Detect
10	CLKp		

3.2.22 VGA (DB-15 VGA Connector)

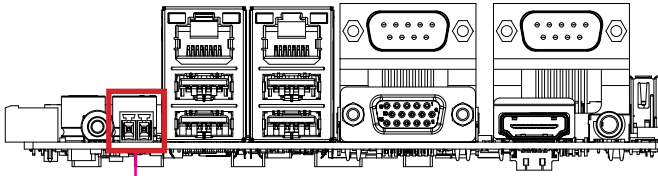
22



Pin No.	Definition	Pin No.	Definition
1	Red	9	5V
2	Green	10	GND
3	Blue	11	NC
4	NC	12	DDCSDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDCSCL
8	GND		

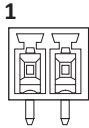
3.2.23 PWR_SW (Remote Control connector)

23



Power Switch

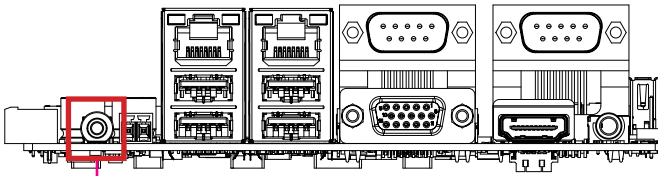
Remote Control connector



Pin No.	Definition
1	PWRBTSW
2	GND

3.2.24 PWR_BUTTON (Power button with LED)

24



Power Button with LED

Chapter 4

Chapter 4 – BIOS

4.1 Introduction

BIOS (Basic input/output system) provides hardware detailed information and boot-up options, which include firmware to control, set-up and test all hardware settings. Therefore, BIOS is the communication bridge between OS/application software and hardware.

4.1.1 How to Entering into BIOS menu

Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

4.1.2 Function Keys to setup in BIOS Setup program

Function keys	Description
→←	Select Screen
↑↓	Select Item
Enter	Execute command or enter the submenu
+	Increase the numeric value or make changes
—	Decrease the numeric value or make changes
F1	General Help
F2	Previous Values
F3	Load Optimized Defaults Settings
F4	Save changes & Exit the BIOS Setup program
ESC	Exit the BIOS Setup program

4.2 The Main Menu

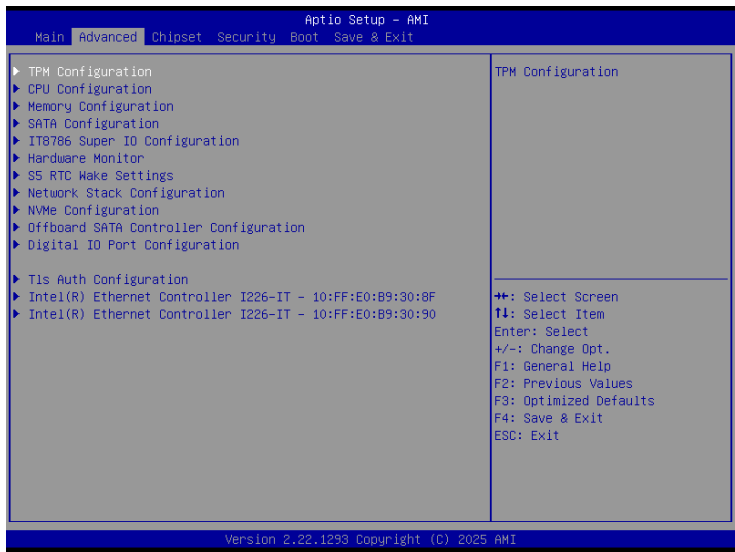
The main menu shows the basic system information.
Use arrow keys to move among the items.



Items	Description
Project Name	Shows Project name information
BIOS Version	Shows the BIOS version of the system
Build Date and Time	Shows the Build Date and Time when the BIOS was created.
LAN1 MAC Address	Shows LAN1 MAC Address information
LAN2 MAC Address	Shows LAN2 MAC Address information
Total Memory	Shows the total memory size of the installed memory
ME FW version	Shows TXE firmware version
System Date	Set the Date for the system (Format : Week - Month - Day - Year)
System Time	Set the time for the system (Format : Hour - Minute - Second)

4.3 Advanced

The Advanced menu is to configure the functions of hardware settings through submenu. Use arrow keys to move among the items, and press <Enter> to access into the related submenu.



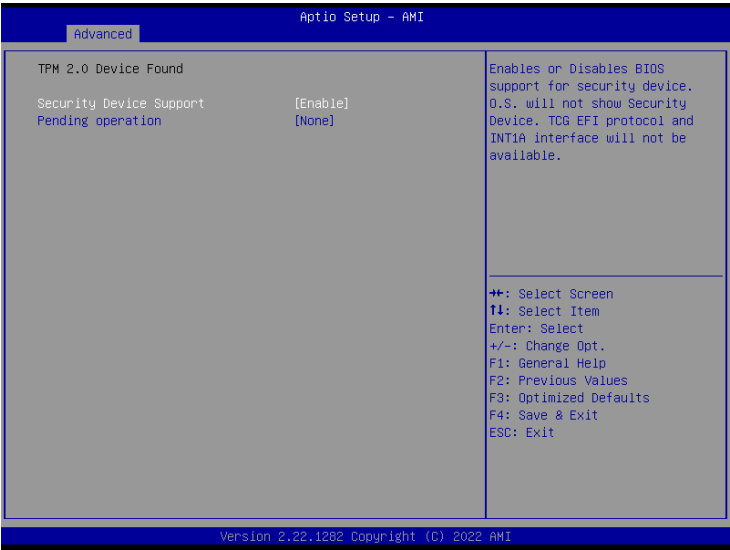
4.3.1 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



Item	Description
TPM Device Selection	PTT : Internal TPM dTPM : External TPM (When using External TPM module or having TPM chip on MB) (Default setting)

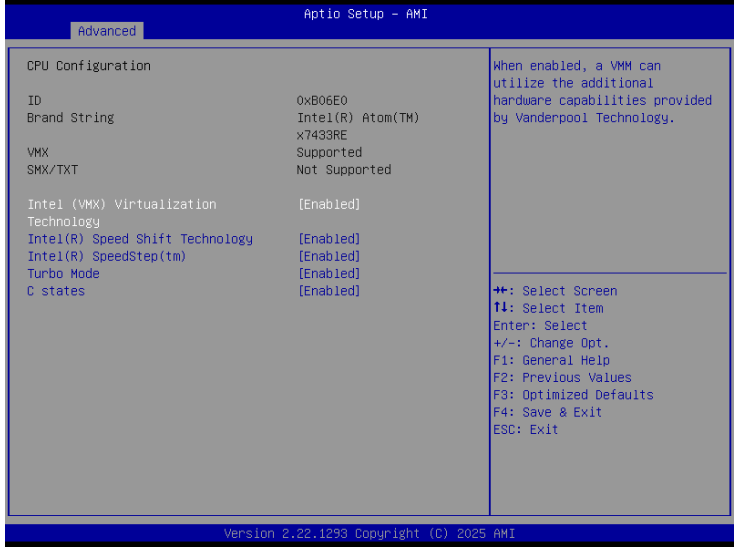
Trusted Computing : Shows TPM information, and TPM module configuration setting.



Item	Description
Security Device support	Enabled : Enables TPM feature (Default setting) Disabled : Disables TPM feature
Pending operation	None : No execution will be conducted (Default setting) TPM clear : Set to clear data on TPM

4.3.2 CPU Configuration

This submenu shows detailed CPU informations.



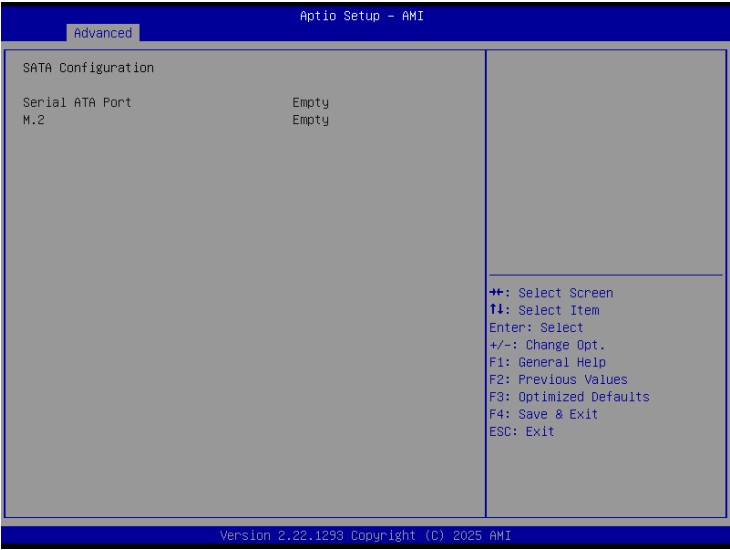
Item	Description
Intel (VMX) Virtualization Technology	Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. Enabled : Enables Intel Virtualization Technology (Default setting) Disabled : Disables Intel Virtualization Technology
Intel(R) Speed Shift Technology	To speed up CPU frequency transition time from basic frequency to maximum frequency. Enabled : Enables Intel(R) Speed Shift Technology (Default setting) Disabled : Disables Intel(R) Speed Shift Technology
Intel(R) SpeedStep(tm)	According to Intel CPU loading, Intel SpeedStep Technology will automatically adjust the CPU voltage and core frequency to decrease heat and power consumption for power saving. Enabled : Enables Intel SpeedStep Technology (Default setting) Disabled : Disables Intel SpeedStep Technology
Turbo Mode	Enabled : Enables Turbo Mode (Default setting) Disabled : Disables Turbo Mode
C-states	Command CPU to enter into low power consumption mode when CPU is under idle mode. Enabled : Enables C states (Default setting) Disabled : Disables C states

4.3.3 Memory Configuration



Item	Description
In-Band ECC Support	Enable or Disable In-Band ECC Support function. Disabled : Disables In-Band ECC Support. Enabled : Enables In-Band ECC Support.

4.3.4 SATA Configuration



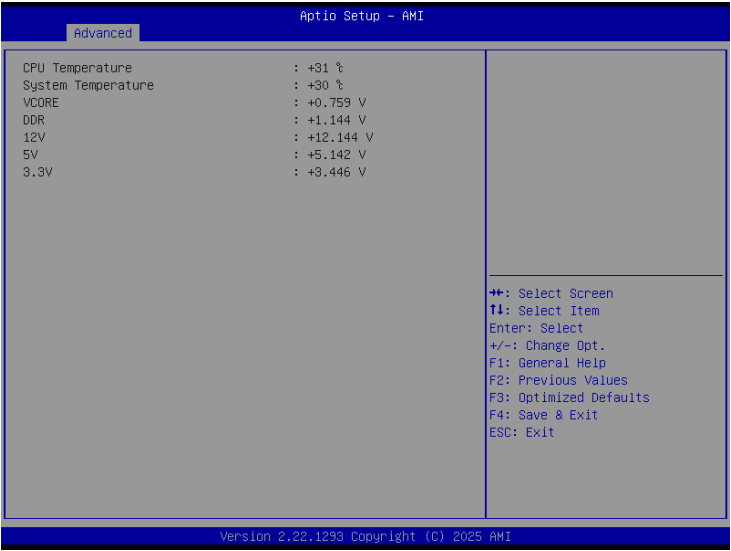
Item	Description
Serial ATA Port	shows 2.5" SATA HDD/SSD information
M.2	shows M.2 SATA interface SSD information

4.3.5 IT8786 Super IO Configuration



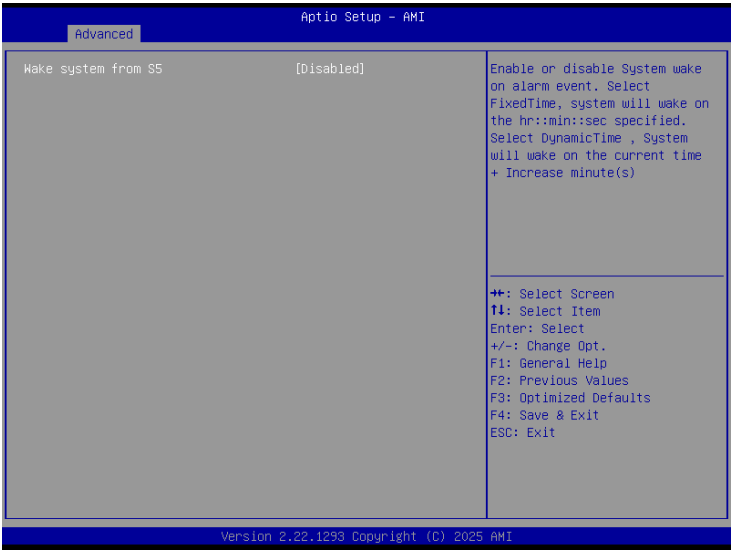
Item	Description
Serial Port 1 Configuration	Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port Select Power : Option items : Disabled (Default setting), 5V, 12V
Serial Port 2 Configuration	Device settings : Display the specified Serial Port base I/O address and IRQ COM Port Mode : Choose RS-232, RS-422, or RS-485 feature
Serial Port 3 Configuration	Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port Device settings : Display the specified Serial Port base I/O address and IRQ COM Port Mode : Choose RS-232, RS-422, or RS-485 feature

4.3.6 Hardware Monitor



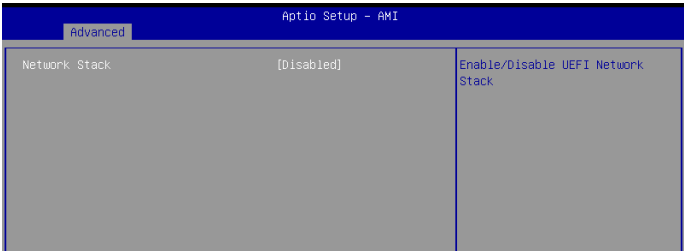
Item	Description
CPU temperature	Shows current CPU temperature
System temperature	Shows current system temperature

4.3.7 S5 RTC Wake Settings

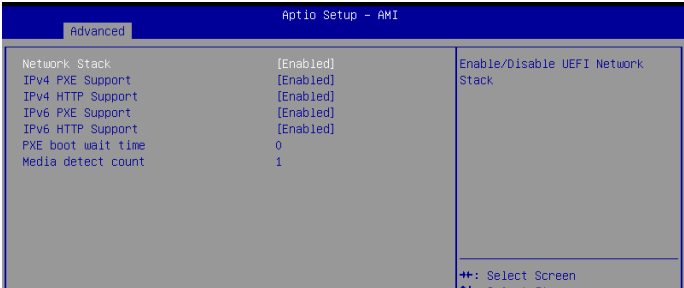


Item	Description
Wake system from S5	Enable or Disable System to wake on a specific time. Disabled : Disables system to wake on a specific time (Default setting) Fixed Time : Enables system to wake on a specific time (Format : hr : min : sec)

4.3.8 Network Stack Configuration



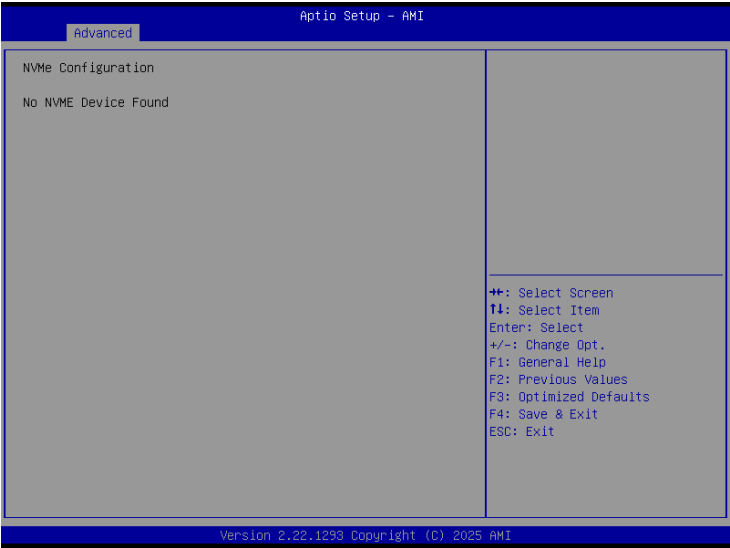
When Network stack is enabled :



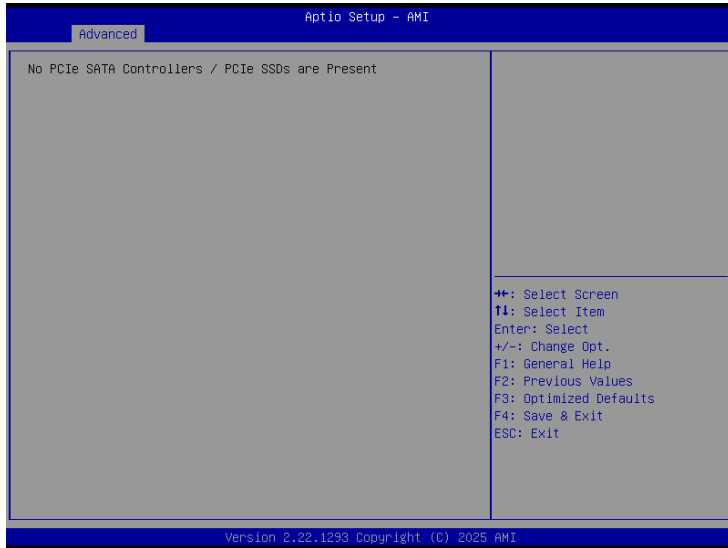
Item	Description
Network Stack	When system is power on, install LAN driver under UEFI mode Disabled : Disables UEFI Network Stack (Default setting) Enabled : Enables UEFI Network Stack
IPv4 PXE Support	When Network stack is enabled : Disabled : Disables Ipv4 PXE Support Enabled : Enables Ipv4 PXE Support
IPv4 HTTP Support	When Network stack is enabled : Disabled : Disables Ipv4 PXE Support Enabled : Enables Ipv6 PXE Support
IPv6 PXE Support	When Network stack is enabled : Disabled : Disables Ipv6 PXE Support Enabled : Enables Ipv6 PXE Support
IPv6 HTTP Support	When Network stack is enabled : Disabled : Disables Ipv6 PXE Support Enabled : Enables Ipv6 PXE Support
PXE boot wait time	Wait time in seconds, or use ESC key to abort the PXE boot.
Media detect count	Number of times the presence of media will be checked.

4.3.9 NVMe Configuration

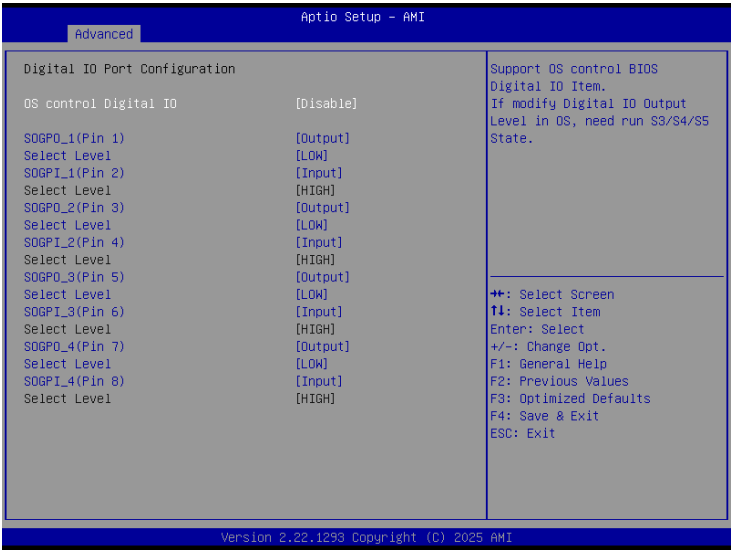
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed



4.3.10 Offboard SATA Controller Configuration

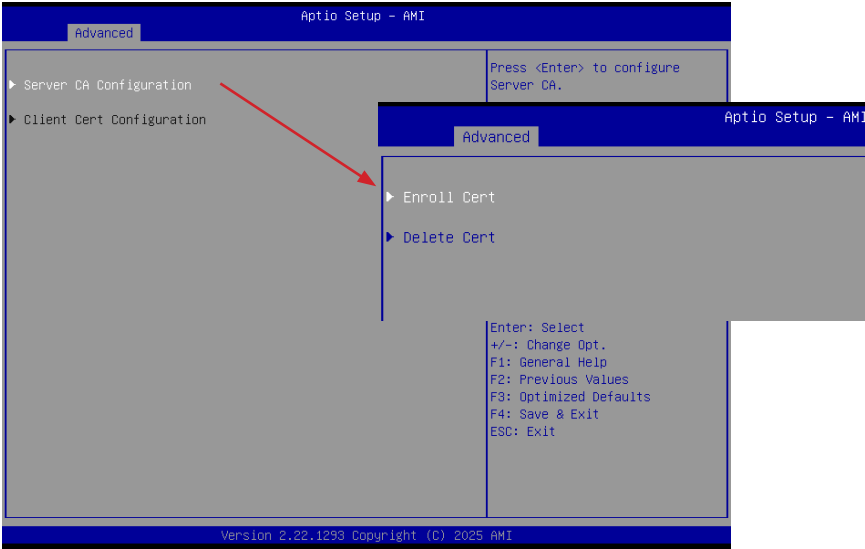


4.3.11 Digital IO Port Configuration



Item	Description
OS control Digital IO	Disabled : If Digital IO Output value/level is modified in OS, they will not be memorized and kept. (Default setting) Enabled : If Digital IO Output value/level is modified in OS, they will be memorized and kept.
SOGPO_1 (Pin 1) SOGPI_1 (Pin 2) SOGPO_2 (Pin 3) SOGPI_2 (Pin 4) SOGPO_3 (Pin 5) SOGPI_3 (Pin 6) SOGPO_4 (Pin 7) SOGPI_4 (Pin 8)	Configure Digital IO Input or Output values for each pin.

4.3.12 Tls Auth Configuration



Item	Description
Enroll Cert	Press [Enter] to configure advanced items : Server CA Configuration : Enroll Cert : 1. Enroll Cert Using File 2. Cert GUID : Input digit character in 11111111-2222-3333-4444-1234567 890ab format. 3. Commit Changes and Exit 4. Discard Changes and Exit

4.3.13 Intel(R) Ethernet Controller I226-IT - 10:FF:E0:B9:30:8F (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



NOTE : MAC address may varied based on different motherboard

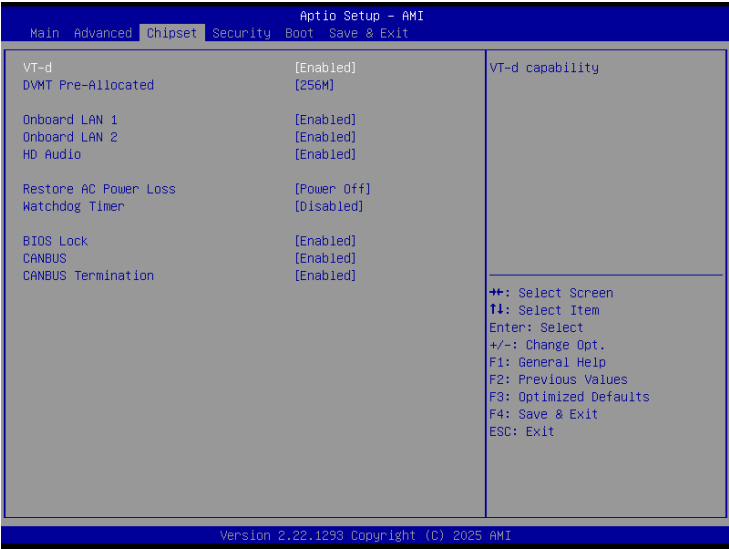
4.3.14 Intel(R) Ethernet Controller I226-IT - 10:FF:E0:B9:30:90
(MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



NOTE : MAC address may varied based on different motherboard

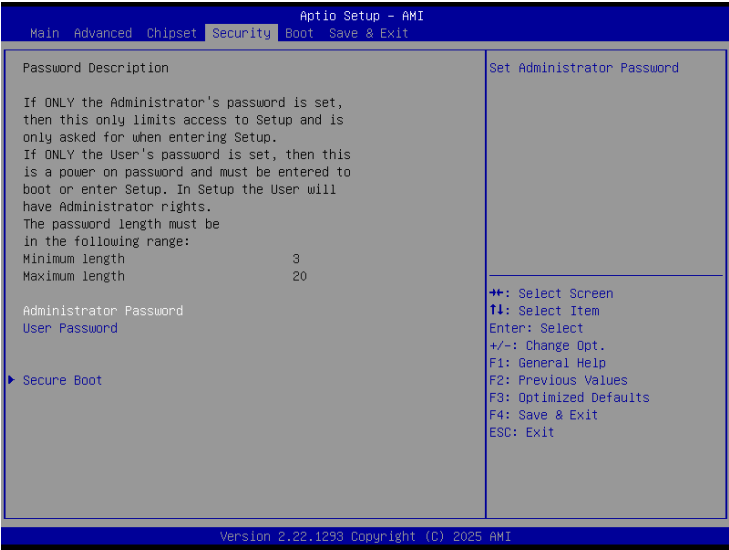
4.4 Chipset



Item	Description
VT-d	Enabled : Enables VT-d function (Default setting) Disabled : Disables VT-d function
DVMT Pre-Allocated	Use DVMT Pre-Allocated to set the amount of system memory which is installed to the integrated graphics processor Option items : 32M, 64M, 128M, 256M (Default setting)
Onboard LAN1 Onboard LAN2	Enable/Disable onboard LAN controller Enable : Enables onboard LAN controller (Default setting) Disable : Disables onboard LAN controller
HD Audio	Enable/Disable onboard audio controller Enable : Enables onboard audio controller (Default setting) Disable : Disables onboard audio controller
Restore AC Power Loss	To set which option the system should returns if a sudden power loss occurred Power off : Do not power on when the power is back (Default setting) Power on : System power on when the power is back Last state : Restore the system to the state before power loss occurs

Watchdog Timer	Enable/Disable Watchdog Timer function Enabled : Enables Watchdog Timer function Disabled : Disabled Watchdog Timer function (Default setting)
BIOS Lock	Enable/Disable BIOS Lock function Enabled : Enables BIOS Lock function (Default setting) Disabled : Disabled BIOS Lock funtion
CANBUS	Enable/Disable CANBUS function Enabled : Enables CANBUS function (Default setting) Disabled : Disabled CANBUS funtion
CANBUS Termination	Enable/Disable CANBUS Termination function Enabled : Enables CANBUS Termination function (Default setting) Disabled : Disabled CANBUS Termination funtion

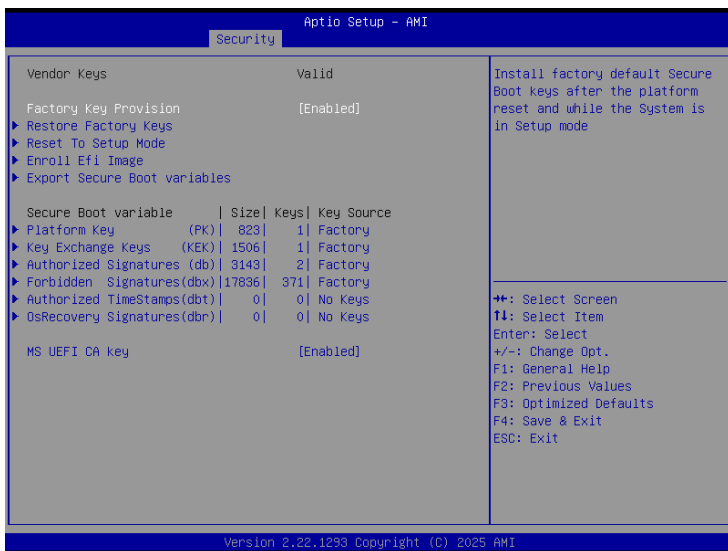
4.5 Security



Item	Description
Administrator Password	To set up Administrator's password Minimum length : 3 Maximum length : 20
User Password	To set up User's password Minimum length : 3 Maximum length : 20
Secure Boot	Press <Enter> to configure the advanced items



Item	Description
Secure Boot	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates Enabled : Enables Secure Boot function Disabled : Disables Secure Boot function (Default setting)
Secure Boot Mode	Standard : Standard mode Custom : Custom mode (Default setting)
Restore Factory Keys	To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings
Reset To Setup Mode	Yes : Agree to setup mode No : Cancel to setup mode
Key Management	Enables expert users to modify Secure boot policy variables without full authentication Press <Enter> to configure the advanced items



Item	Description
Factory Key Provision	Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode Enabled : Enables Factory Key Provision (Default setting) Disabled : Disables Factory Key Provision
Restore Factory Keys	To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings
Reset To Setup Mode	Yes : Agree to setup mode No : Cancel to setup mode
Enroll Efi Image	Allow the image to run in Secure Boot mode
Export Secure Boot variables	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device

Item	Description
Platform Key (PK)	These items allows you to enroll factory defaults or load Certificates from a file.
Key Exchange Keys (KEK)	
Authorized Signatures (db)	
Forbidden Signatures (dbx)	
Authorized TimeStamps (dbt)	
OsRecovery Signatures (dbr)	Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database(db)
MS UEFI CA Key	

4.6 Boot

This Boot menu allows you to set/change system boot options



Item	Description
Full Screen LOGO Show	Enable/Disable full screen LOGO show on POST screen Enabled : Enables Full screen LOGO Show on POST screen Disabled : Disables Full screen LOGO Show on POST screen (Default setting)
Boot Option Priorities	Shows the information of the storage that be installed in the system Choose/set the boot priority

4.7 Save & Exit



Item	Description
Save Changes and Reset	After configuring all the options that you wish to change, choose this option to save all the changes and reboot the system Yes : Agree to save and reset No : Cancel to save and reset
Discard Changes and Reset	Choose this option to reboot the system without saving any changes Yes : Agree to discard changes and reset No : Cancel to discard changes and reset
Restore Defaults	Restore/Load default values for all the setup options Yes : Agree to load optimized defaults No : Cancel to load optimized defaults
Me FW Image Re-Flash	Enable/Disable Me FW image re-flash function Enabled : Enables Me FW image re-flash function Disabled : Disables Me FW image re-flash function (Default setting)