

QBiX-Expert-RPLA1340PH-A1

QBiX-Expert-RPLA1320PEH-A1

QBiX-Expert Industrial Embedded System
Quick Start Guide

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Packing List

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

Item	Quantity
System kit	1
1 x 2-pin Terminal Blocks Male Plug (25IO0-EC3812-D2R)	1
1 x 4-pin Terminal Blocks Male Plug (25IO0-2ESDV0-D2R)	1
2.5" HDD screw, M3x4L (25KS2-13004G-S0R)	8
Thermal pad for SSD (25ST3-260200-T5R)	2
Thermal pad for Memory (25ST3-200086-T5R)	1

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.

Users may refer to the GIGAIPC.com for the latest version of this document.

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.**
19. This equipment and PoE's peripheral device are restricted for indoor usage.

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



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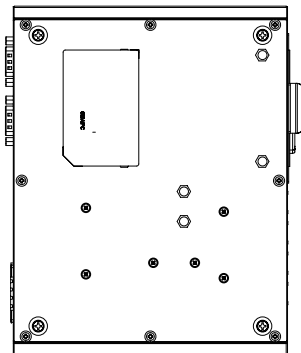
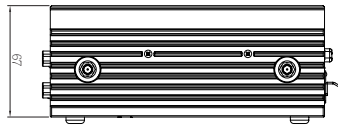
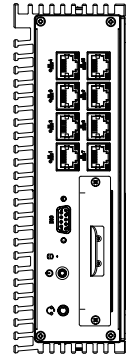
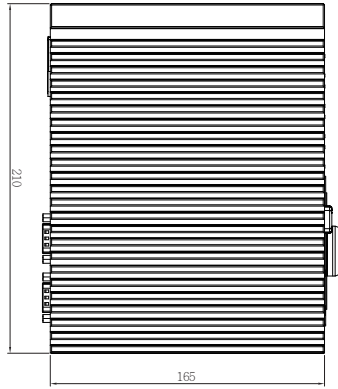
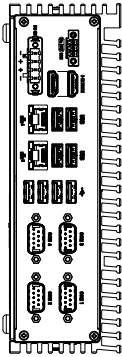
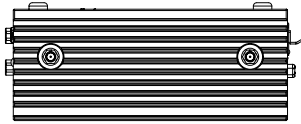
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Chapter 1

Chapter 1 - Product Specifications



1.1 Specifications

System	QBiX-Expert-RPLA1340PH-A1	QBiX-Expert-RPLA1320PEH-A1
Dimension	System Size : 210.36W x 165D x 65H (mm)	
CPU	Intel® Core™ i5-1340P Processor Intel 7, 12 cores, 16 threads, up to 4.6 GHz	Intel® Core™ i3-1320PE Processor Intel 7, 8 cores, 12 threads, up to 4.5 GHz
Chipset	SoC	
Memory	2 x DDR5 SO-DIMM sockets, Max. Capacity 64 GB Support Dual channel DDR5 5200 MHz memory modules	
Ethernet	2 x 2.5GbE LAN Ports (Intel® I226V) 4 x GbE LAN Ports (Intel® I226V) 4 x GbE LAN Ports with PoE support (Intel® I226V)	
Graphic support	Integrated Graphics Processor - Intel® Iris Xe Graphics eligible/Intel® UHD Graphics for 13th Gen Intel® Processors: 2 x HDMI 2.0 ports, supporting a maximum resolution of 4096x2160 @60Hz (2 independent display outputs)	
Audio	Realtek® ALC269	
Storage	2 x Swappable 2.5" HDD/SSD (SATA 6Gb/s)	
Expansion Slots	1 x 2280 M.2 M-Key (PCIe Gen4x4) 1 x 2230 M.2 E-Key (WiFi/BT) 1 x 3052 M.2 B-Key with SIM slot	
Front I/O	4 x RJ45 LAN Ports with PoE 4 x RJ45 LAN Ports 1 x GPIO (8 bits) 1 x HDD LED 1 x Power button with LED 1 x Combo audio jack (Headphone & Headset)	
Rear I/O	2 x RJ45 LAN Ports 1 x COM Port (RS-232/422/485 & RI/5V/12V) 3 x COM Ports (RS-232/422/485) 4 x USB 3.2 Gen 1 4 x USB 2.0 2 x HDMI 1 x Ignition support (3pin) 1 x 4-pin Terminal Block	

System	QBiX-Expert-RPLA1340PH-A1	QBiX-Expert-RPLA1320PEH-A1
Side I/O	4 x External Antenna Holes (wifi/5G)-optional	
TPM	Onboard TPM 2.0 security chip INFINEON SLB9672XU2.0	
Power	+19~36VDC	
Operation Temperature	Operating temperature: 0°C to 50°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-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 Grms, Sine, 10 ~ 500 Hz, 1 Oct/min, 1 hr / Per Axis	
Shock During Operation	Operation: IEC 60068-2-27, 50 Grms, half sine, 11 ms duration, With SSD	
Packaging Content	Carton size: 572 x 321 x 372 (mm) Packing Capacity: 4pcs Including: 2-pin Terminal Blocks Male Plug x 1 (P/N: 25IO0-EC3812-D2R) 4-pin Terminal Blocks Male Plug x 1 (P/N: 25IO0-2ESDV0-D2R) Screw For 2.5" HDD M3x4L x 8 (P/N: 25KS2-13004G-S0R) Thermal Pad for SSD x 2 (P/N: 25ST3-260200-T5R) Thermal Pad for Memory x 1 (P/N: 25ST3-200086-T5R)	
Order Information	6BQE1340AMR-SI (Box packing)	6BQE1320AMR-SI (Box packing)

NOTE 1 :

When using 19V Power DC in, total PoE could support to 45W.

When using 24V or 36V Power DC in, total PoE could support to 50W.

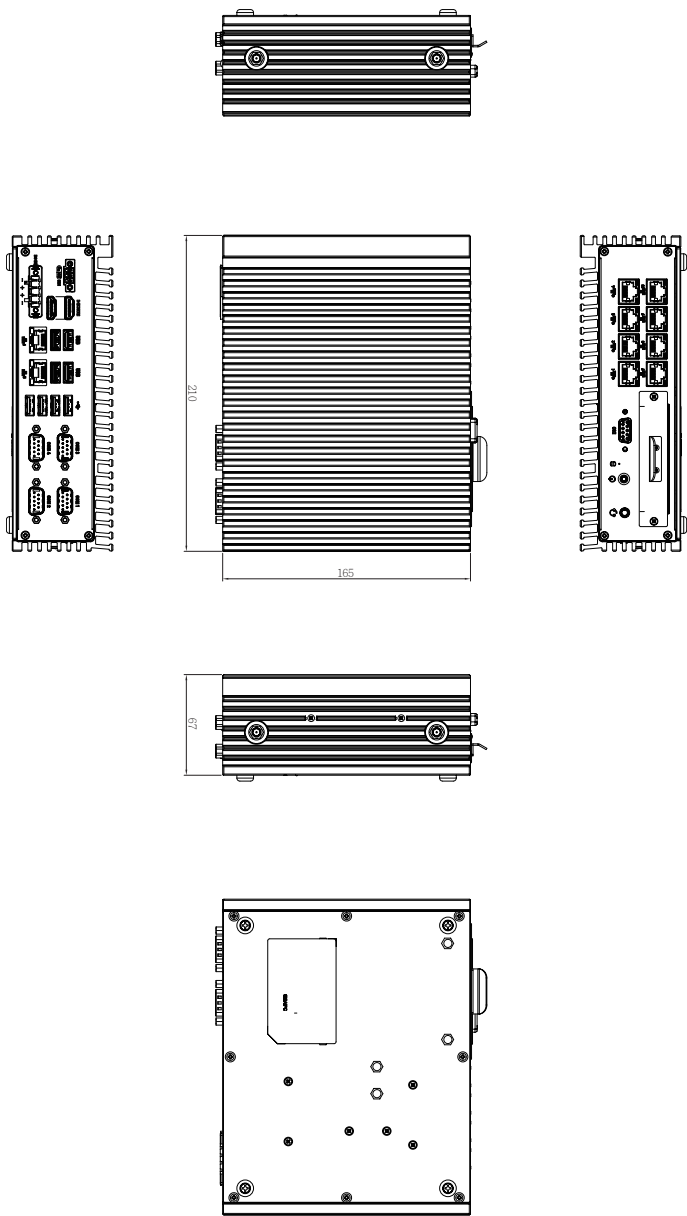
NOTE 2 :

For 4-pin terminal block, please make sure each pin need to be connected, to keep the system operating normally.

Chapter 2

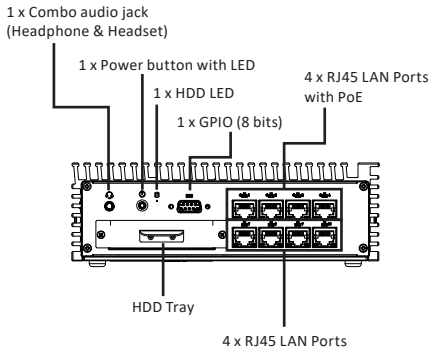
Chapter 2 – QBiX-Expert Industrial System Kit

2.1 Dimension

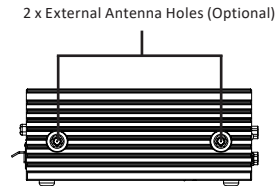


2.2 Getting Familiar with Your Unit

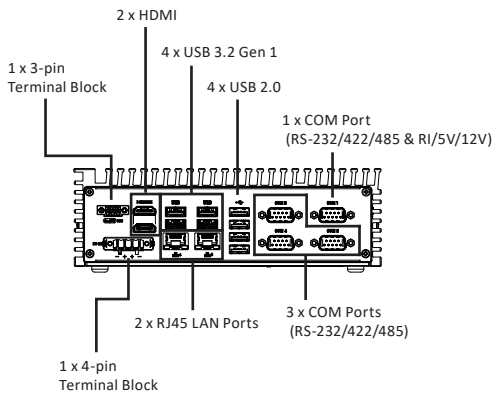
[Front Side]



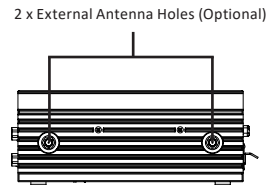
[Left Side]



[Rear Side]



[Right Side]



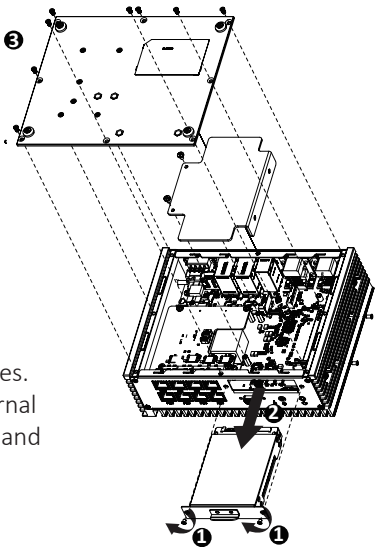
*** NOTE :** For 4-pin terminal block, please make sure each pin need to be connected, to keep the system operating normally.

[Install]

How to open the chassis cover

- Step 1 : loosen the screws on the HDD Tray.
- Step 2 : Pull-out the HDD tray.
- Step 3 : remove 8 screws on the bottom cover to open the chassis.

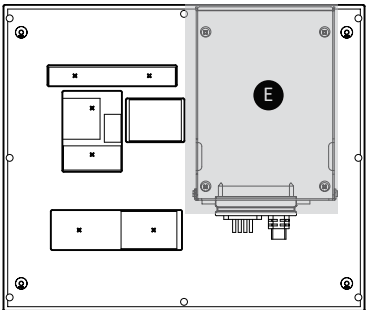
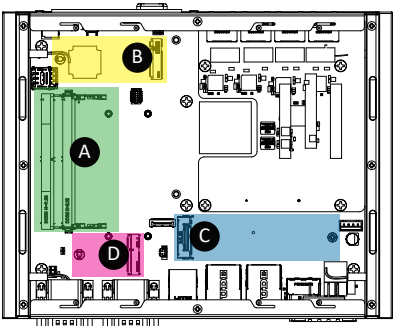
- * Before you disconnect any cable, you need to power off the device at least 10 minutes.
- * Before you open chassis to exchange an internal component, you need to power off the device and let the device cool down at least 10 minutes.



[Bottom PCB Side]

	Information
A	2 x DDR5 SO-DIMM sockets
B	1 x M.2 slot 3052 B-Key with SIM slot

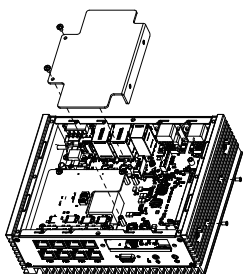
	Information
C	1 x M.2 slot 2280 M-Key
D	1 x M.2 slot 2230 E-Key
E	support 2 x 2.5" Hard drive/SSD



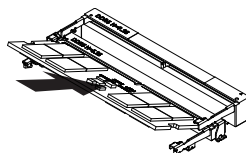
2.3 A) Memory Installation: DDR5 SO-DIMM

1

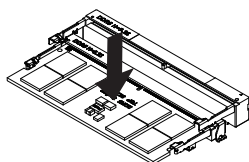
Remove the memory bracket with 4 screws.

**2**

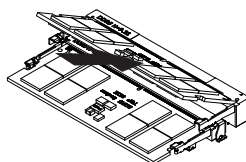
Carefully insert SO-DIMM memory modules.

**3**

Push down until the modules click into place.

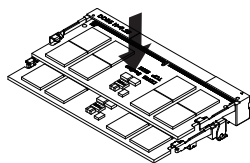
**4**

Carefully insert SO-DIMM memory modules.



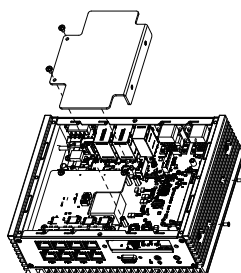
5

Push down until the modules click into place.



6

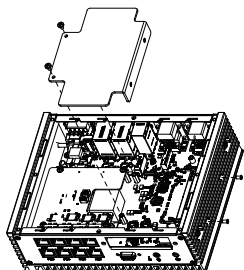
Remove the release paper on the memory bracket, and assemble the memory bracket with 4 screws. Make sure the thermal pad is fully compacted with the memory.



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

1

Remove the memory bracket with 4 screws.

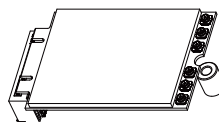


2

Remove the screw from the screw hole.

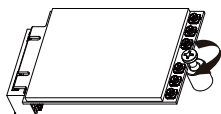
(Location : MSO3)

Carefully insert the 5G module into the slot.



3

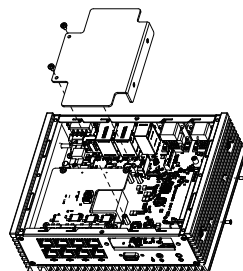
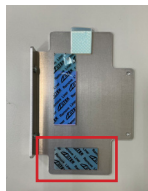
Lock the screw in the middle.



4

Remove the release paper and secure the heatsink.

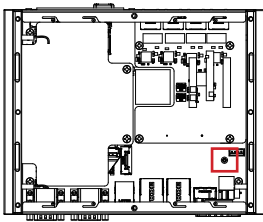
Make sure the thermal pad is fully compacted with the module.



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

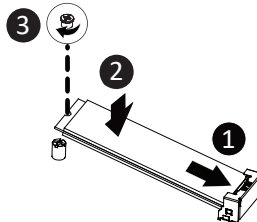
1

Remove the screw from the screw hole.
(Location : MSO2)



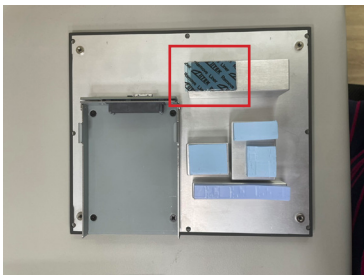
2

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



3

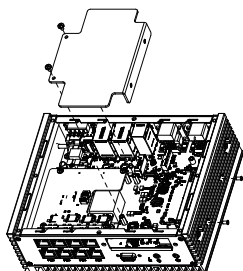
Remove the release paper and secure the bottom cover.
Make sure the thermal pad is fully compacted with the
module.



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

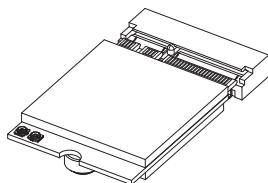
1

Remove the memory bracket with 4 screws.



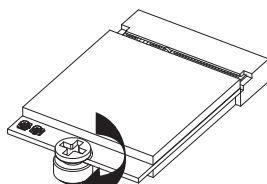
2

Remove the screw from the screw hole. (Location : MS01)
Carefully insert the wireless module into the M.2 slot.



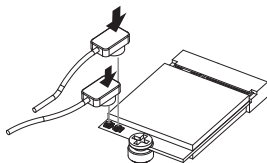
3

Lock the screw in the middle.



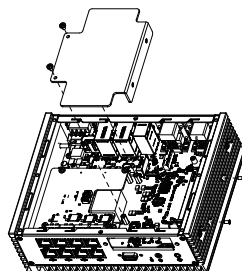
4

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



5

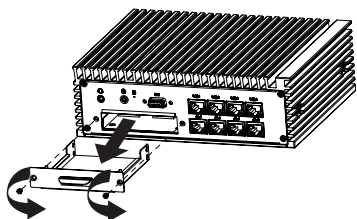
Remove the release paper and secure the heatsink. Make sure the thermal pad is fully compacted with the module.



2.7 E) 2.5" HDD/SSD installation: How to install 2.5" HDD/SSD

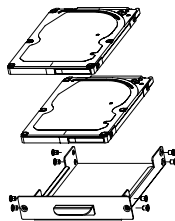
1

Remove 2 screws to remove the HDD bracket.



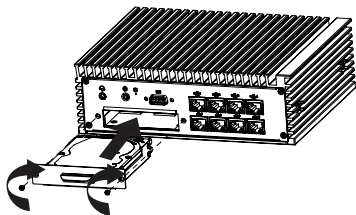
2

Secure 4 screws for each 2.5" HDD.
If only one 2.5" HDD, please install it at the bottom.



3

Install the HDD bracket , and secure with 2 screws.

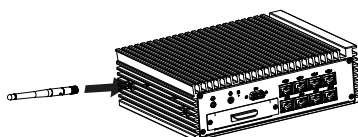


2.8 Antenna Installation (Antenna inclusion may vary based on local distribution)

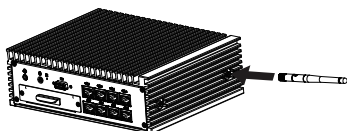
1

Carefully insert the antennas into the connectors.

[Left side]

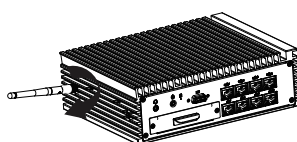


[Right side]

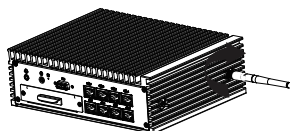
**2**

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

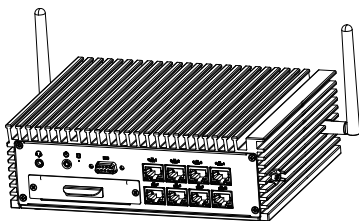
[Left side]



[Right side]

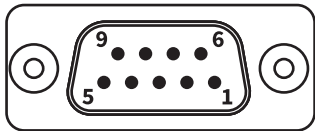
**3**

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



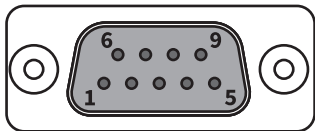
2.9 Connector Pin-define

1. DB9 COM



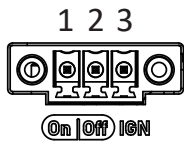
DB9 Pin	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	DCD	TXD-	D-
2	RXD	TXD+	D+
3	TXD	RXD+	-
4	DTR	RXD-	-
5	GND		
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	RI	-	-

2. DBP DIO



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	5V

3. Power Ignition switch



DBP DIO Pin	Pin Name
1	Ignition
2	Power button
3	GND

2.10 Support

- For AVL list, go to: <http://www.gigaipc.com>
- To download the latest drivers, go to: <http://www.gigaipc.com>
- For product support, go to: <http://www.gigaipc.com>

2.11 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.

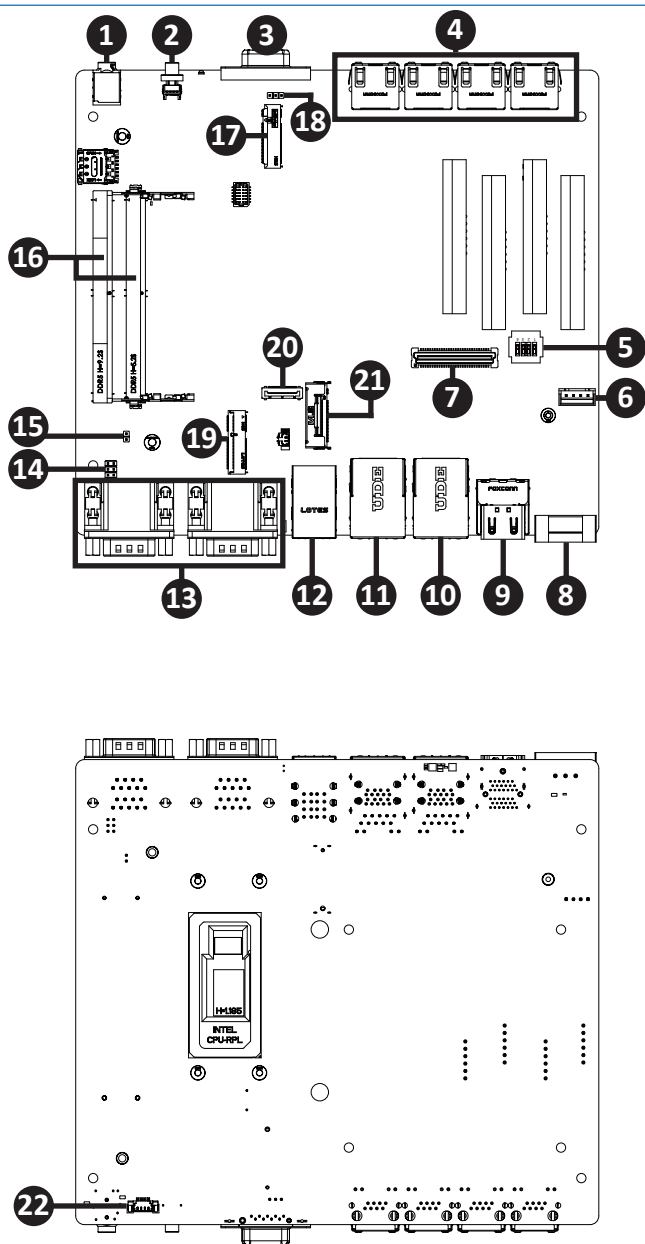


At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Chapter 3

Chapter 3 – Hardware Information

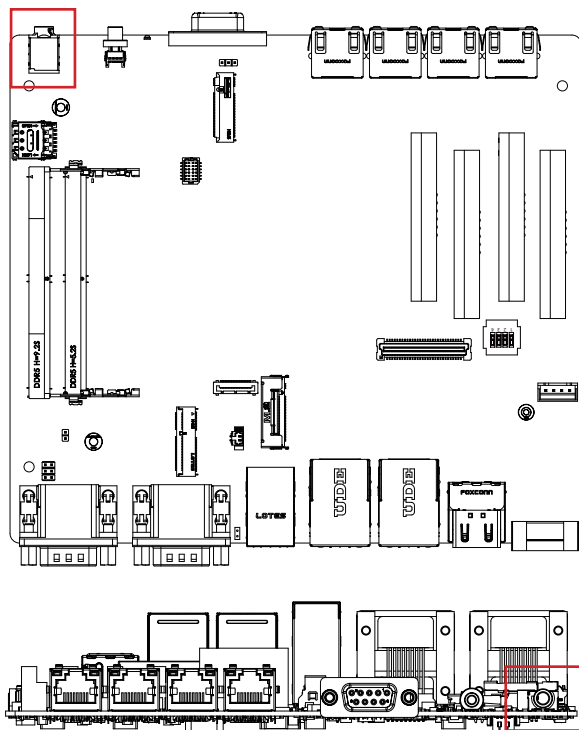
3.1 Jumpers and Connectors



No	Code	Description
1	HP	Headphone Jack
2	PWR_BT	Power button with LED
3	GPIO_CNT	General purpose input / ouput connector
4	LAN1, LAN2 LAN3, LAN4	LAN Connector with PoE support
5	SW1	DIP Switch for Ignition time setting
6	DC_IN	DC IN 1x4 pin power connector
7	RISER	Expansion for LAN Ports
8	IGN_SW	Ignition Switch connector
9	HDMI2_21	HDMI connector
10	USB3_LAN6	LAN Connector (Top)
		USB 3.2 Gen 1 Connector (Bottom)
11	USB3_LAN5	LAN Connector (Top)
		USB 3.2 Gen 1 Connector (Bottom)
12	USB20_1	USB 2.0 connector
13	COM1_2 COM3_4	Serial Ports COM 1 : RS-232/422/485 & RI/5V/12V COM2~4 : RS-232/422/485
14	JCOM1	COM 1 (COM RI# pin RI#/5V/12V Select)
15	ME_DIS	ME Disable jumper
16	SODIMM1 SODIMM2	DDR5 SO-DIMM Slots
17	M2B	M.2 slot, 3052 B-Key
18	AT_CN	AT/ATX power mode select jumper

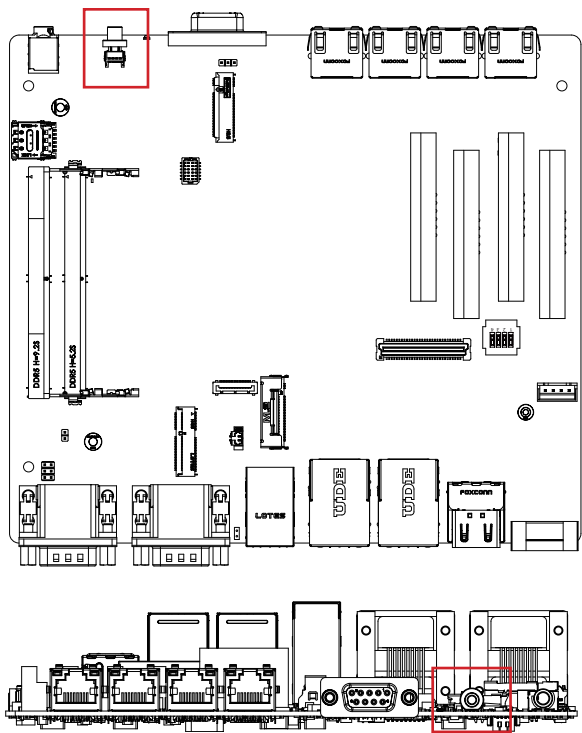
No	Code	Description
19	M2E	M.2 Slot, 2230 E-key
20	SATA	SATA 6Gb/s connector
21	M2M	M.2 Slot, 2280 M-key
22	CPU_FAN	CPU fan connector

3.2.1 HP (Headphone Jack)

1

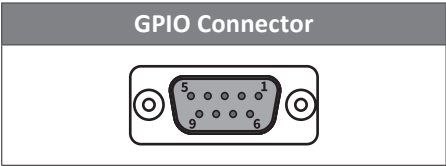
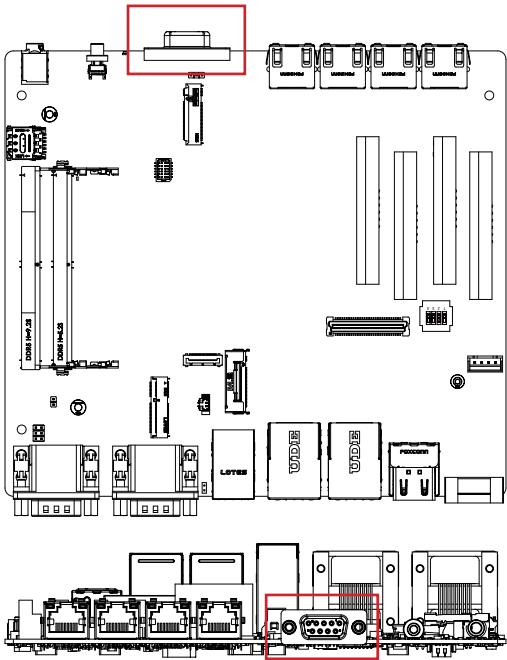
3.2.2 PWR_BT (Power button with LED)

2



3.2.3 GPIO_CNT (General purpose input/out connector)

3

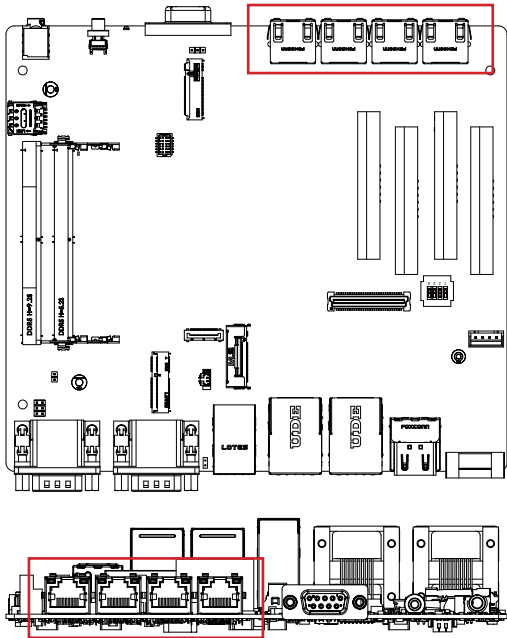


Connector PN	Vendor
SM40D1S1122113N0	FENYING

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	5V

3.2.4 LAN1, LAN2, LAN3, LAN4 (LAN Connector with PoE support)

4



LAN Connector

18



Link / Activity LEDConnection/ Speed LED

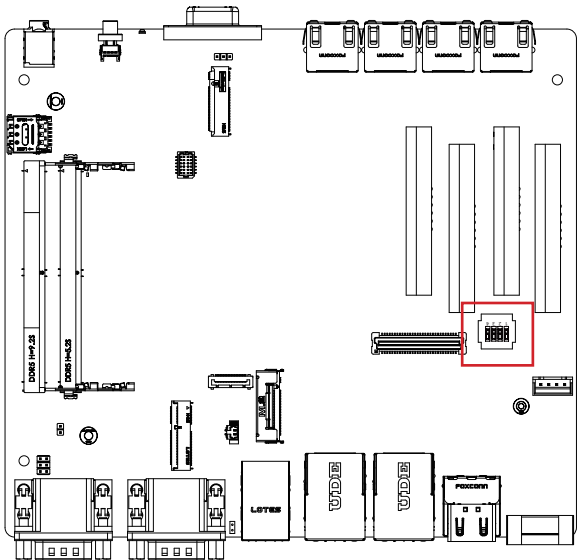
Pin No.	Definition
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB+
7	BI_DD+
8	BI_DD-

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

Connector PN	Vendor
JM37115-LAFF-4F	FOXCONN

3.2.5 SW1 (DIP Switch for Ignition time setting)

5

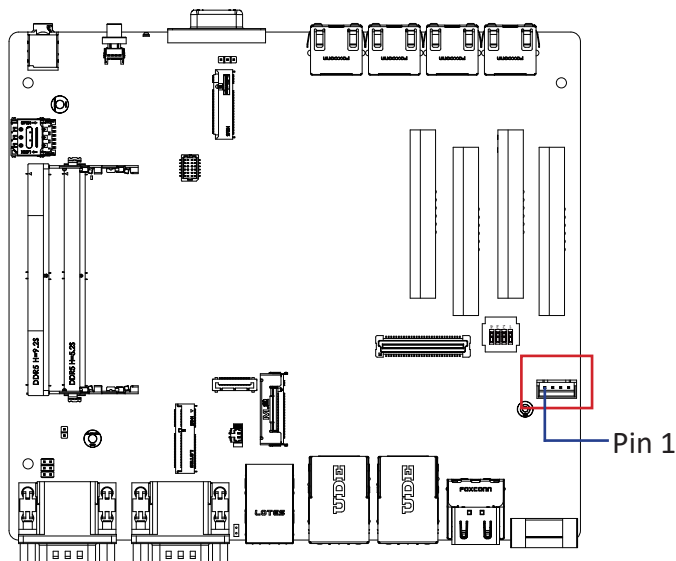


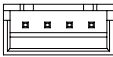
DIP switch setting					
SW1	SW2	SW3	SW4	Time Delay	Switch setting
1	1	1	1	N/A (Default setting)	
1	1	1	0	42m52s	
1	1	0	1	14m39s	
1	1	0	0	9m05s	
1	0	1	1	6m25s	
1	0	1	0	4m57s	

DIP switch setting					
1	0	0	1	4m09s	
1	0	0	0	3m34s	
0	1	1	1	42s	
0	1	1	0	41s	
0	1	0	1	40s	
0	1	0	0	38s	
0	0	1	1	37s	
0	0	1	0	36s	
0	0	0	1	35s	
0	0	0	0	34s	

3.2.6 DC_IN (DC IN 1x4 pin power connector)

6

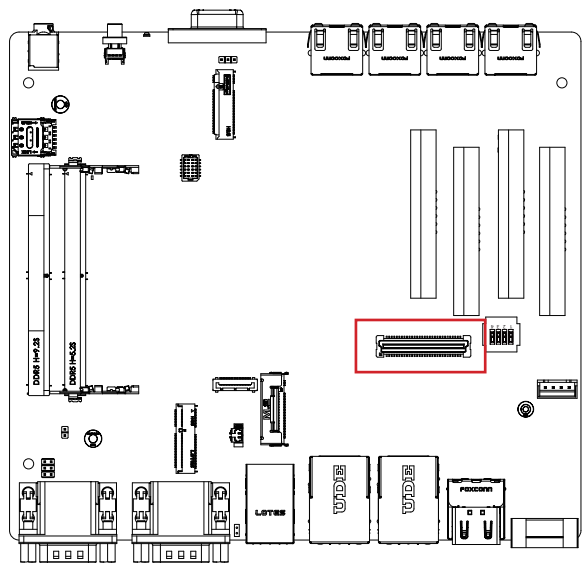


DC IN connector	
	
1 2 3 4	
Pin No.	Definition
1	GND
2	Power
3	Power
4	GND

Connector PN	Vendor
753-81-04TW00	PINREX
Connector type	
1x4pin connector, pitch 2.5mm	

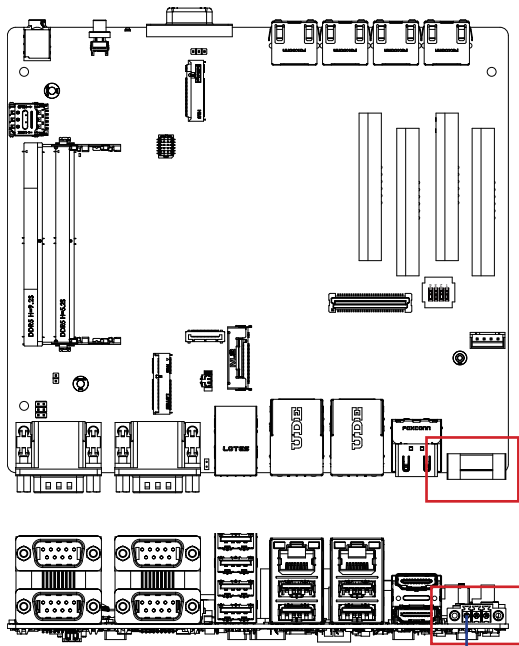
3.2.7 RISER (Expansion for LAN Ports)

7



3.2.8 IGN_SW (Ignition Switch connector)

8



Pin 1

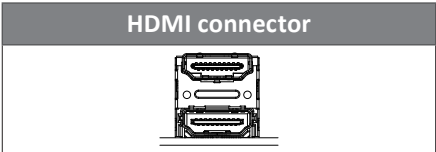
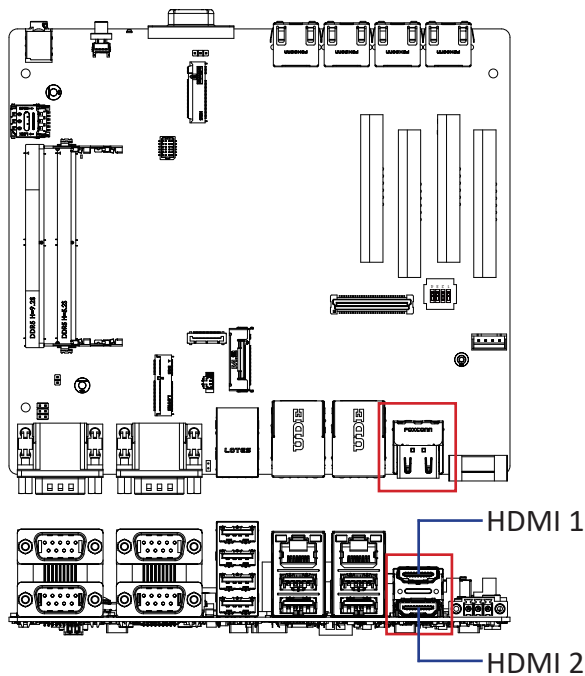
Ignition switch connector

Connector PN	Vendor
ECH350RM-03P	DINKLE

Pin No.	Definition
1	Ignition
2	Power button
3	GND

3.2.9 HDMI2_21 (HDMI connector)

9

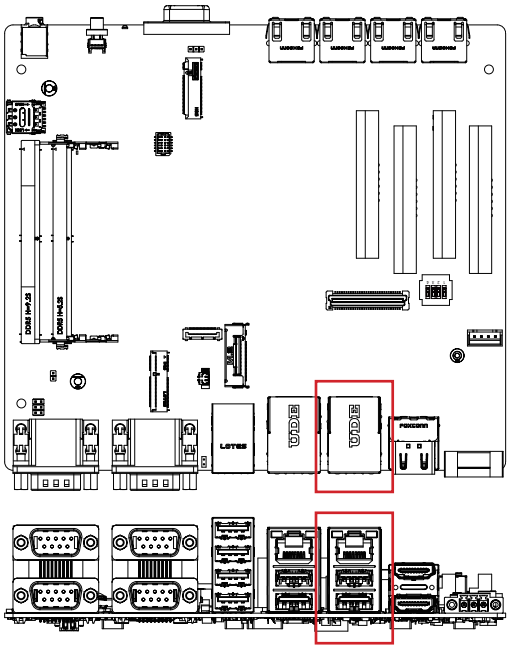


Connector PN	Vendor
QJ11191-DFB1-4F	FOXCONN

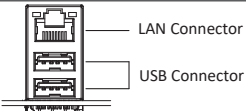
Pin No.	Definition	Pin No.	Definition
1	HDMI_D2+	11	GND
2	GND	12	HDMI_CLK-
3	HDMI_D2-	13	NC
4	HDMI_D1+	14	NC
5	GND	15	HDMI_SCL
6	HDMI_D1-	16	HDMI_SDA
7	HDMI_D0+	17	GND
8	GND	18	5V
9	HDMI_D0-	19	HDMI_HPD
10	HDMI_CLK+		

3.2.10 USB3_LAN6 (USB 3.2 Gen 1 + 2.5GbE LAN Connector)

10



USB & LAN Connector



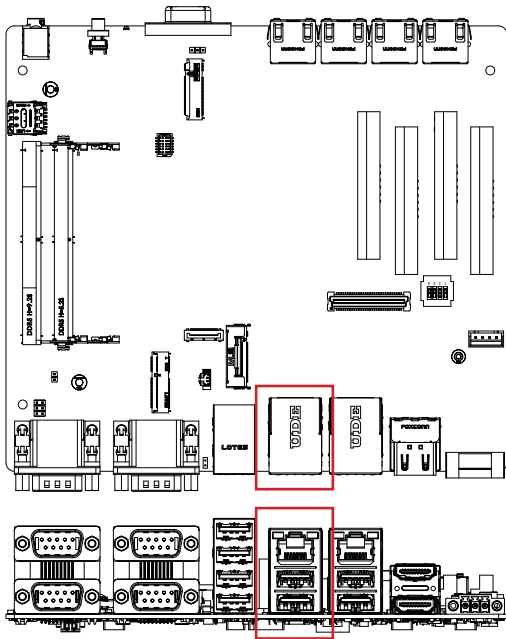
USB Connector			
Pin No.	Definition	Pin No.	Definition
1	5V	10	5V
2	D1n	11	D0n
3	D1p	12	D0p
4	GND	13	GND
5	USB3_RX1n	14	USB3_RX2n
6	USB3_RX1p	15	USB3_RX2p
7	GND	16	GND
8	USB3_TX1n	17	USB3_TX2n
9	USB3_TX1p	18	USB3_TX2p

LAN Connector			
Pin No.	Definition	Pin No.	Definition
1	TX1+	4	TX3-
2	TX1-	5	TX2-
3	TX2+	7	TX4+
6	TX3+	8	TX4-

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

3.2.11 USB3_LAN5 (USB 3.2 Gen 1 + 2.5GbE LAN Connector)

11



USB & LAN Connector

LAN Connector

USB Connector

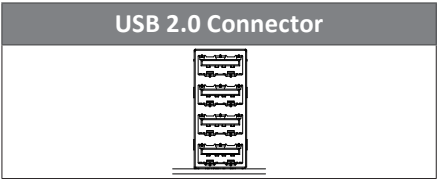
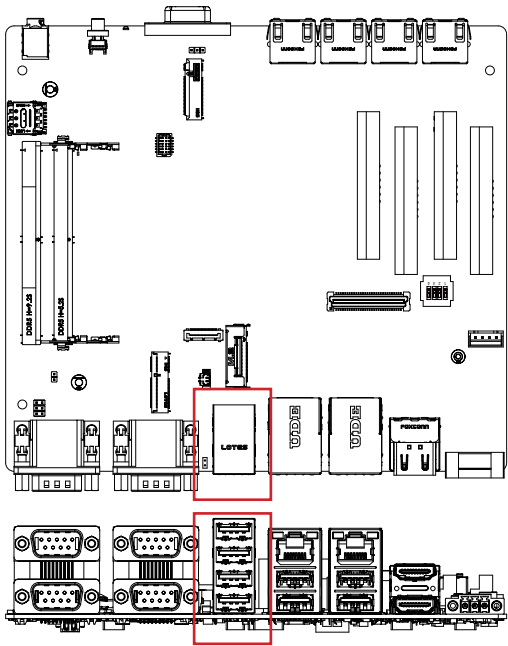
USB Connector			
Pin No.	Definition	Pin No.	Definition
1	5V	10	5V
2	D1n	11	D0n
3	D1p	12	D0p
4	GND	13	GND
5	USB3_RX1n	14	USB3_RX2n
6	USB3_RX1p	15	USB3_RX2p
7	GND	16	GND
8	USB3_TX1n	17	USB3_TX2n
9	USB3_TX1p	18	USB3_TX2p

LAN Connector			
Pin No.	Definition	Pin No.	Definition
1	TX1+	4	TX3-
2	TX1-	5	TX2-
3	TX2+	7	TX4+
6	TX3+	8	TX4-

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

3.2.12 USB20_1 (USB 2.0 connector)

12



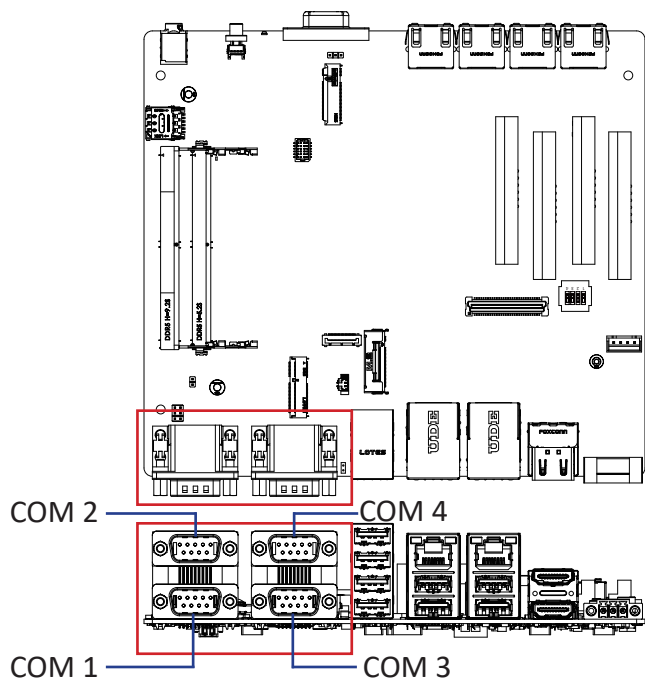
Pin No.	Definition
1	5V
2	D1n
3	D1p
4	GND
5	5V
6	D2n
7	D2p
8	GND
9	5V
10	D3n

Pin No.	Definition
11	D3p
12	GND
13	5V
14	D4n
15	D4p
16	GND

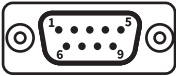
Connector PN	Vendor
UB1112C-Q8DF-4F	FOXCONN

3.2.13 COM1_2, COM3_4 (Serial Ports)

13



Serial Port Connector

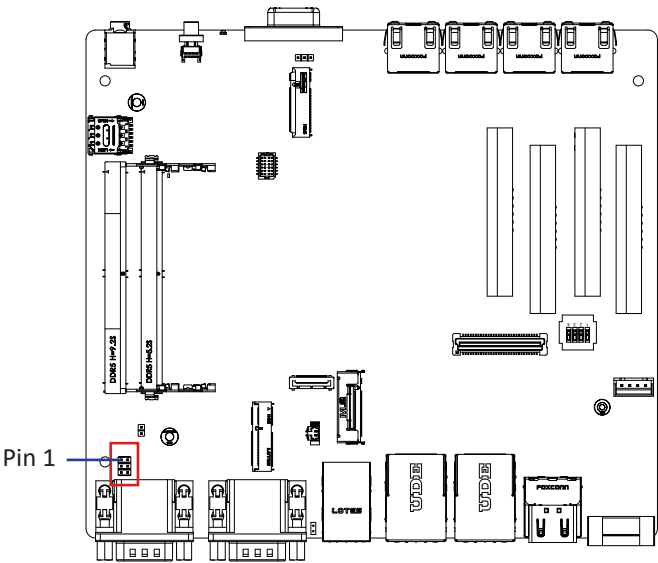


Pin No.	RS-232	RS-422 Full Duplex	RS-485 Half Duplex
1	DCD	TXD-	D-
2	RXD	TXD+	D+
3	TXD	RXD+	—
4	DTR	RXD-	—
5	GND		
6	DSR	—	—
7	RTS	—	—
8	CTS	—	—
9	RI	—	—

Connector PN	Vendor
D20HB1102002P6JN	FENYING

3.2.14 JCOM1 (COM1 RI# pin RI#/5V/12V Select)

14



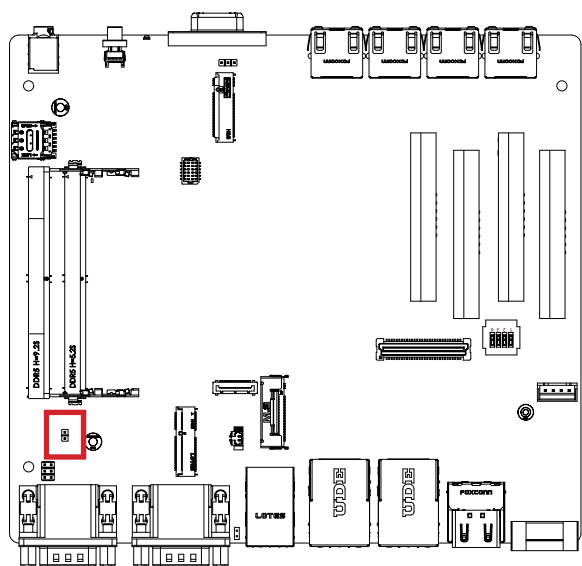
JCOM1 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM) (Default-Setting)
	5-6 Close: 12V (Power COM)

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

Connector type
2x3pin connector, pitch 2.0mm

3.2.15 ME_DIS (ME Disable jumper)

15

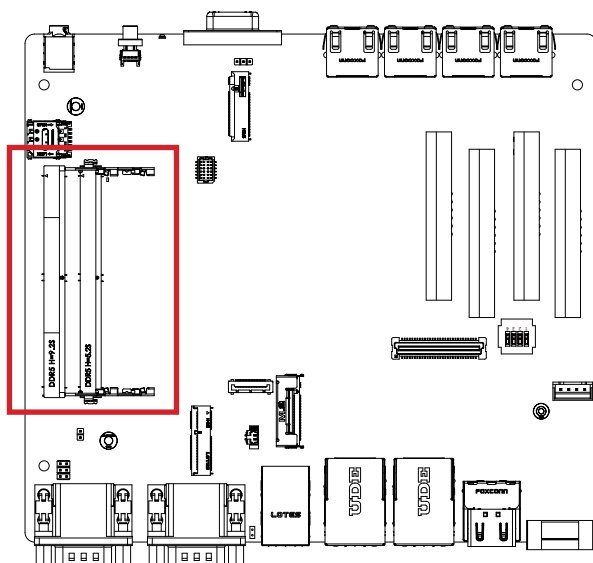


ME Disable Connector	
ME Disable jumper	
	Default
	Enable

Connector PN	Vendor
220-96-02GBK1	PINREX
Connector type	
1x2pin connector, pitch 2.0mm	

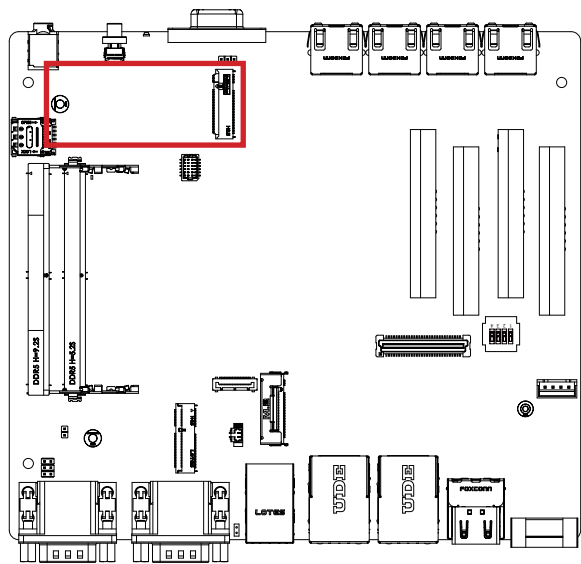
3.2.16 SODIMM1, SODIMM2 (DDR5 SO-DIMM Slots)

16

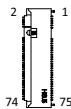


3.2.17 M2B (M.2 slot, 3052 B-Key)

17



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		

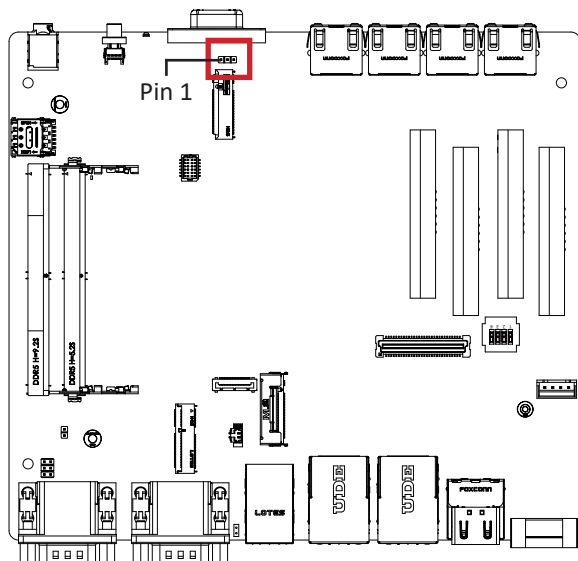
Pin No.	Definition	Pin No.	Definition
21	NC	20	NC
23	NC	22	NC
25	M2B_DRP	24	NC
27	GND	26	WWAN_Disable2
29	USB3_RXN	28	NC
31	USB3_RXP	30	SIM_RST#
33	GND	32	SIM_CLK

Pin No.	Definition	Pin No.	Definition
35	USB3_TXN	34	SIM_DATA
37	USB3_TXP	36	SIM_PWR
39	GND	38	BootSelect
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

3.2.18 AT_CN (AT/ATX power mode select jumper)

18



AT/ATX power mode select jumper

1  3

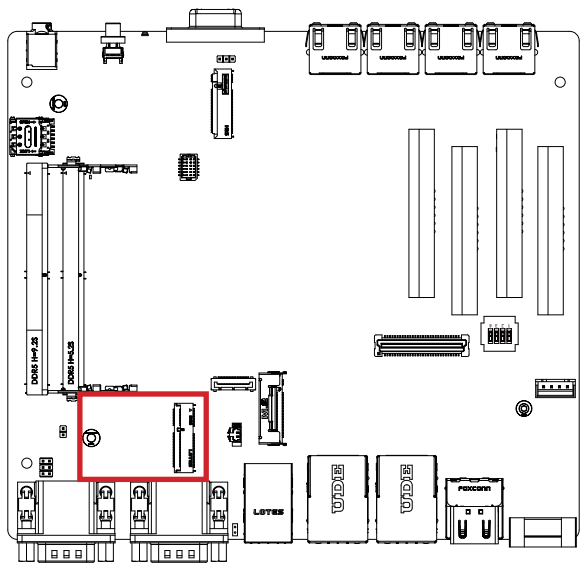
Pin No.	Definition
1	AT MODE
2	TXD5
3	ATX MODE
Jumper setting	
1-2 Close : AT mode.	
2-3 Close : ATX mode.(Default setting)	

Connector PN	Vendor
220-96-03GB001K	PINREX
A2015WV-03P6T	JOINT-TECH

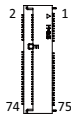
Connector type
1x3pin connector, pitch 2.0mm

3.2.19 M2E (M.2 Slot, 2230 E-key)

19



M.2 E Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3V
3	USB_D+	4	3V
5	USB_D-	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC		

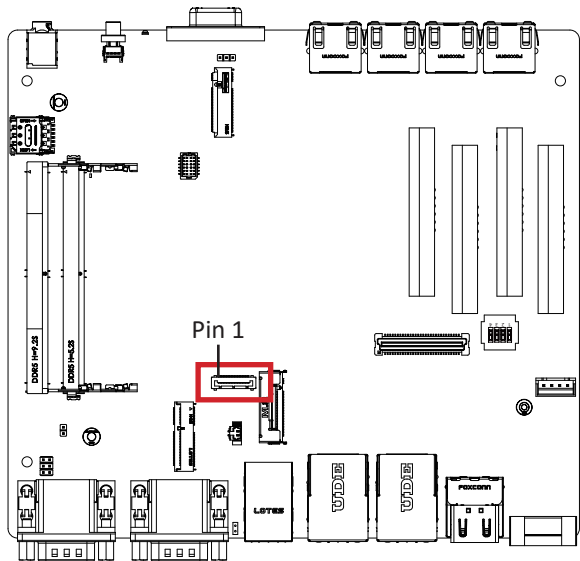
Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	WLAN_TXP	34	NC

37	WLAN_TXN	36	NC
39	GND	38	CL_RST#
41	WLAN_RXP	40	CL_DATA
43	WLAN_RXN	42	CL_CLK
45	GND	44	NC
47	CLK_DP	46	NC
49	CLK_DN	48	NC
51	GND	50	SUSCLK
53	CLK_REQ	52	PLT_RST#
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	3V
75	GND	74	3V

Connector PN	Vendor
APCI0095-P002A	LOTES
80152-8521	BELLWETHER

3.2.20 SATA (SATA 6Gb/s connector)

20



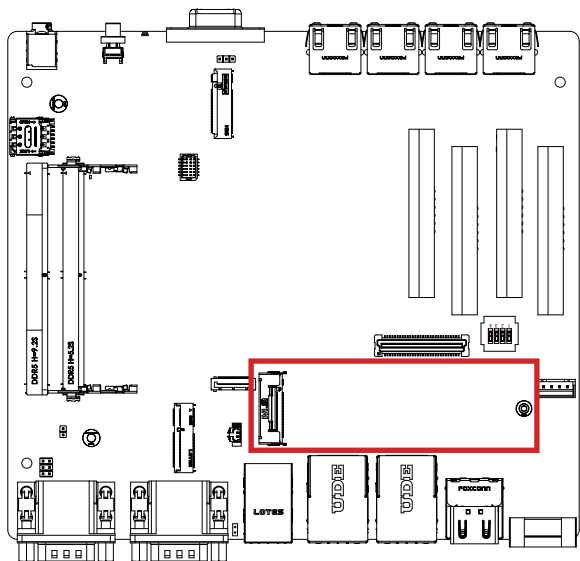
SATA Connector	
1	20

Pin No.	Definition	Pin No.	Definition
1	GND	11	SATA1_RXN0
2	SATA0_TXP0	12	SATA1_RXP0
3	SATA0_TXN0	13	GND
4	GND	14	GND
5	SATA0_RXN0	15	5V
6	SATA0_RXP0	16	5V
7	GND	17	5V
8	SATA1_TXP0	18	5V
9	SATA1_TXN0	19	5V
10	GND	20	5V

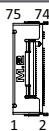
Connector PN	Vendor
115B20-100020-G4-R	STARCONN
Connector type	
1x20pin connector, pitch 0.5mm	

3.2.21 M2M (M.2 Slot, 2280 M-key)

21



M.2 M Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	GND	4	3.3V
5	PCIE_RX3_DN	6	NC
7	PCIE_RX3_DP	8	NC
9	GND	10	M2_LED
11	PCIE_TX3_DN	12	3.3V
13	PCIE_TX3_DP	14	3.3V
15	GND	16	3.3V
17	PCIE_RX2_DN	18	3.3V
19	PCIE_RX2_DP	20	NC
21	GND	22	NC
23	PCIE_TX2_DN	24	NC
25	PCIE_TX2_DP	26	NC
27	GND	28	NC
29	PCIE_RX1_DN	30	NC
31	PCIE_RX1_DP	32	NC

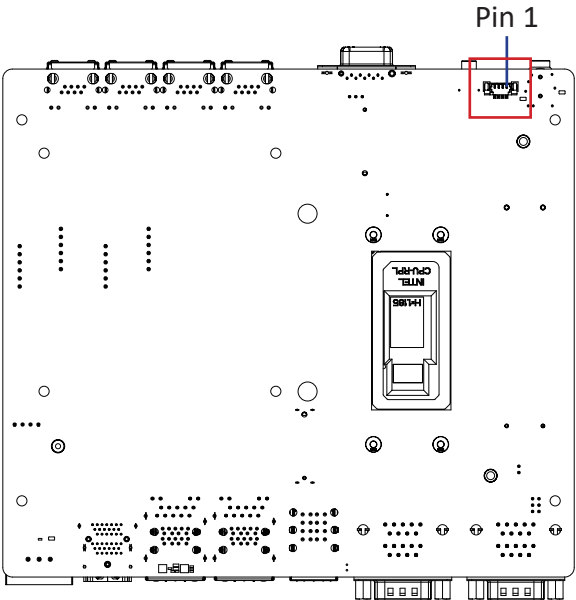
Pin No.	Definition	Pin No.	Definition
33	GND	34	NC
35	PCIE_TX1_DN	36	NC
37	PCIE_TX1_DP	38	DEVSLP
39	GND	40	SMB Clock
41	PCIE_RX0_DN	42	SMB DATA
43	PCIE_RX0_DP	44	SMB ALERT
45	GND	46	NC
47	PCIE_TX0_DN	48	NC
49	PCIE_TX0_DP	50	PLT_RST
51	GND	52	CK_REQ
53	CLK_N	54	PCIE_WAKE#
55	CLK_P	56	NC
57	GND	58	NC

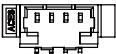
Pin No.	Definition	Pin No.	Definition
67	NC	68	SUSCLK
69	M2_SSD_Detect	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

Connector PN	Vendor
2E0BC41-C85CM-LH	FOXCONN

3.2.22 CPU_FAN (CPU fan connector)

22



CPU fan Connector	
4321 	
Pin No.	Definition
1	GND
2	12V
3	Detect
4	Speed control

Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH
Connector type	
1x4pin connector, pitch 1.25mm	

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

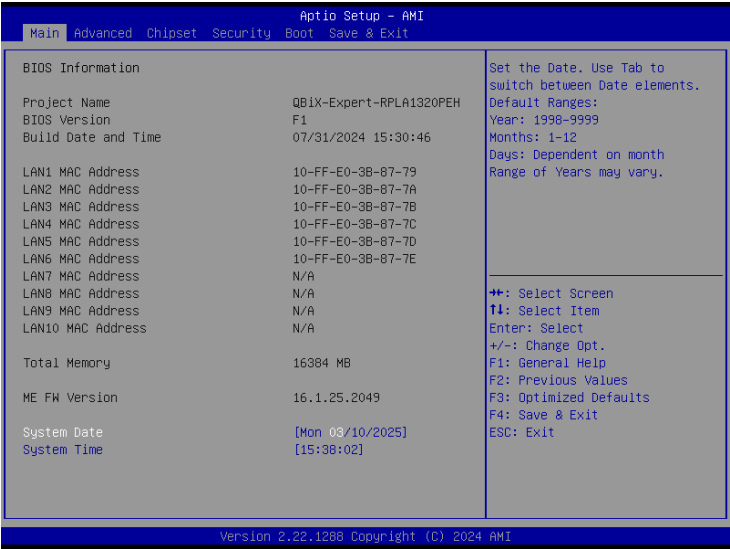
Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

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.

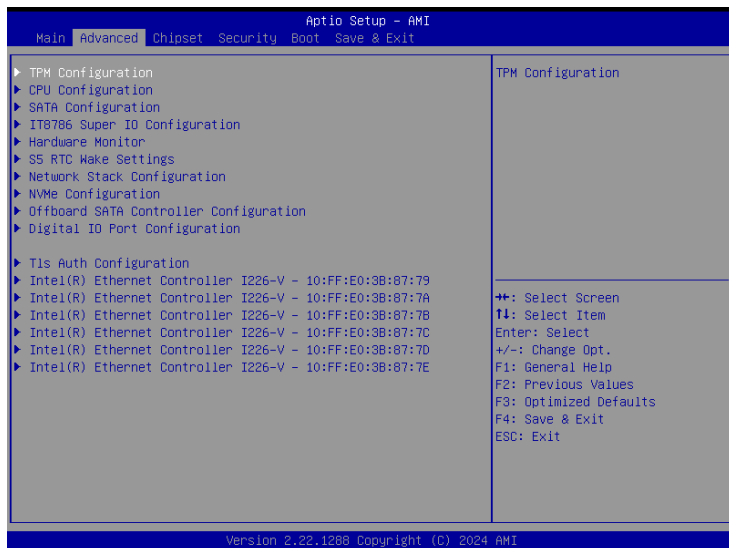


Items	Description
Project Name	Shows Project name information
BIOS Version	Shows the BIOS version of the system
Build Date and Time	Shows the Build Date and Time when the BIOS was created.
LAN1 MAC Address	Shows LAN1 MAC Address information
LAN2 MAC Address	Shows LAN2 MAC Address information
LAN3 MAC Address	Shows LAN3 MAC Address information
LAN4 MAC Address	Shows LAN4 MAC Address information
LAN5 MAC Address	Shows LAN5 MAC Address information
LAN6 MAC Address	Shows LAN6 MAC Address information
LAN7 MAC Address	Shows LAN7 MAC Address information
LAN8 MAC Address	Shows LAN8 MAC Address information
LAN9 MAC Address	Shows LAN9 MAC Address information

LAN10 MAC Address	Shows LAN10 MAC Address information
Total Memory	Shows the total memory size of the installed memory
ME FW version	Shows ME 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)

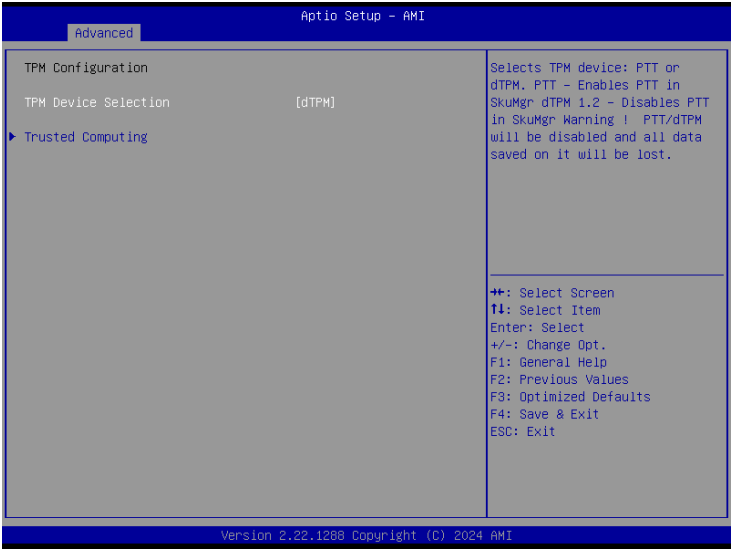
4.3 Advanced

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)

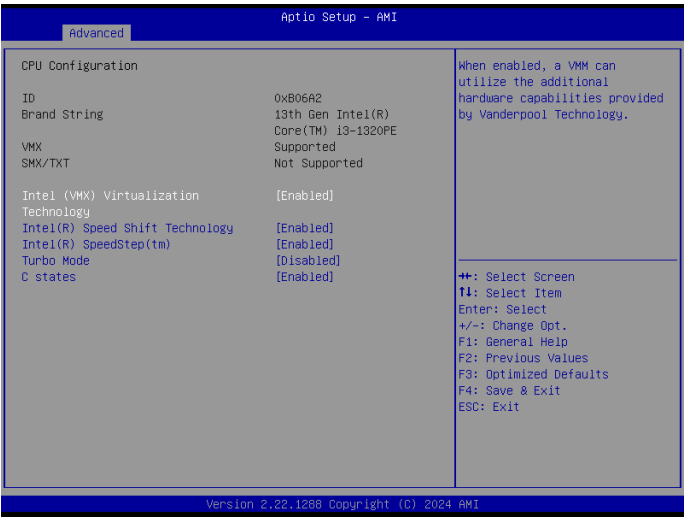
Trusted Computing : Shows TPM information, and TPM module configuration setting.



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
PH Randomization	Enabled : Enables Platform Hierarchy (PH) Randomization. (Default setting) Disabled : Disables Platform Hierarchy (PH) Randomization.

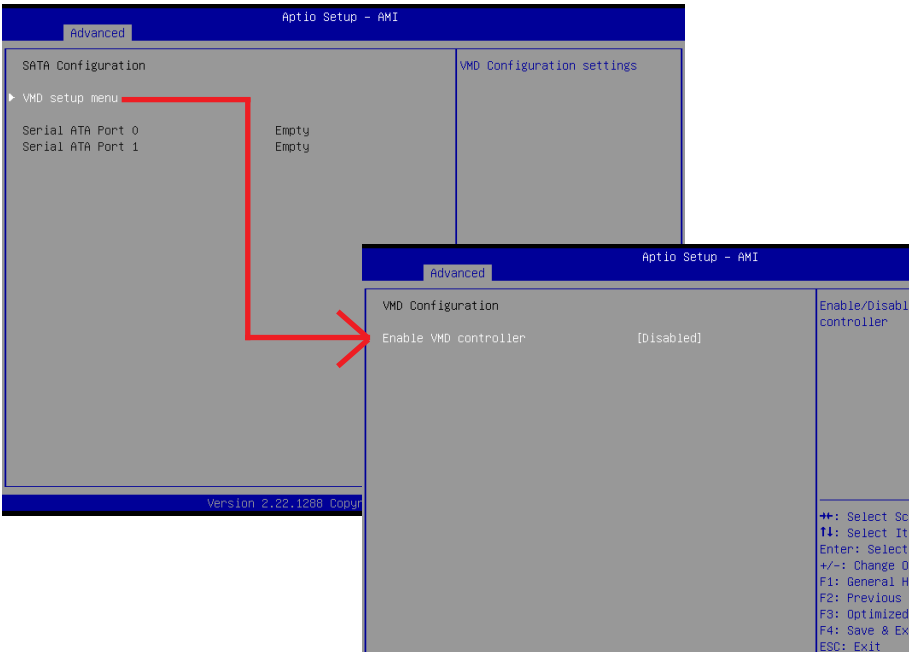
4.3.2 CPU Configuration

This submenu shows detailed CPU informations.



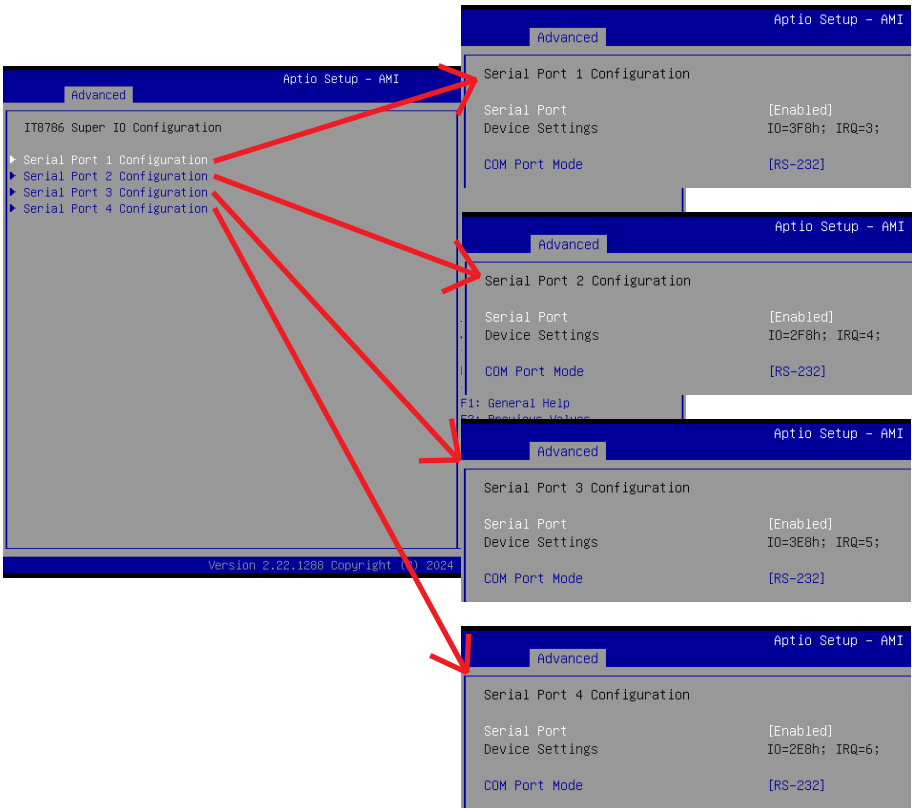
Item	Description
Intel (VMX) Virtualization Technology	Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. Enabled : 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 Interrupt control (Default setting) Disabled : Disables Intel(R) Speed Shift Technology Interrupt control
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 Disabled : Disables Turbo Mode (Default setting)
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 SATA Configuration



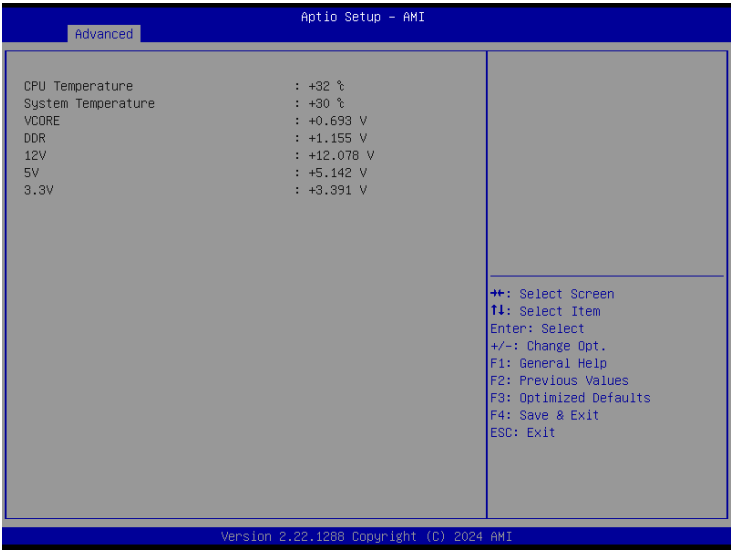
Item	Description
VMD setup menu / Enable VMD controller	Intel VMD feature helps you to control and manage NVMe PCIe SSD. Enabled : Enables Intel VMD feature Disabled : Disables Intel VMD feature (Default setting)
Serial ATA Port 0 Serial ATA Port 1	shows 2.5" SATA HDD/SSD information

4.3.4 IT8786 Super IO Configuration



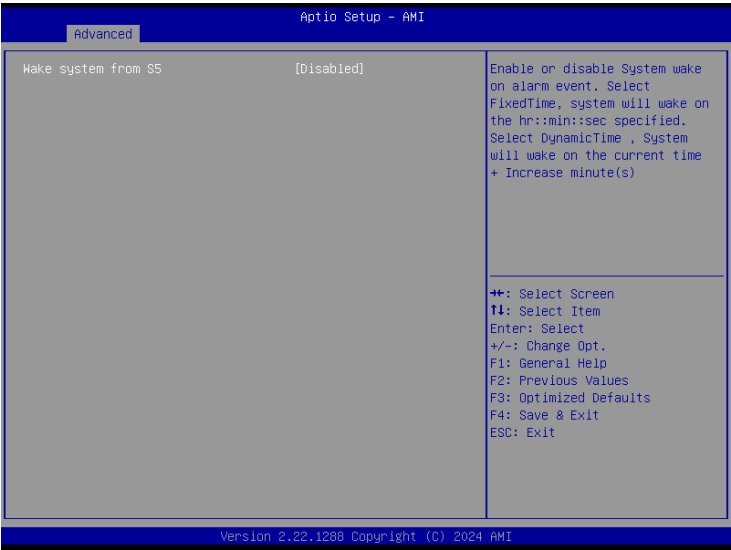
Item	Description
Serial Port 1 Configuration	Press [Enter] to configure advanced items :
Serial Port 2 Configuration	Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port
Serial Port 3 Configuration	Device settings : Display the specified Serial Port base I/O address and IRQ
Serial Port 4 Configuration	COM Port Mode : Choose RS-232, RS-422, or RS-485 feature

4.3.5 Hardware Monitor



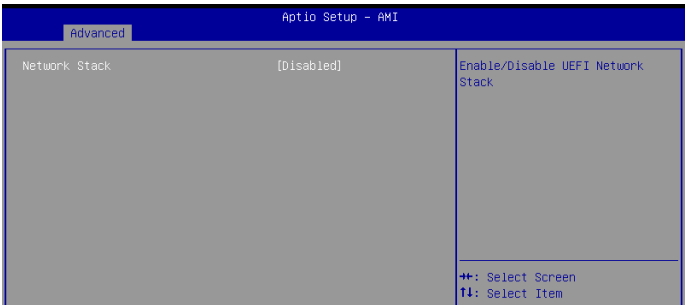
Item	Description
CPU Temperature	Shows current CPU temperature
System Temperature	Shows current system temperature

4.3.6 S5 RTC Wake Settings

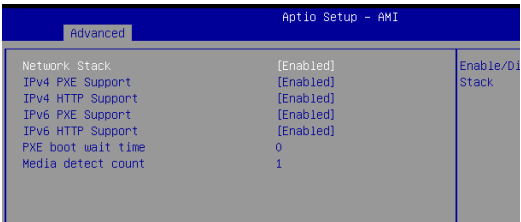


Item	Description
Wake system from S5	Enable or Disable System to wake on a specific time. Disabled : Disables system to wake on a specific time (Default setting) Fixed Time : Enables system to wake on a specific time (Format : hr : min : sec)

4.3.7 Network Stack Configuration



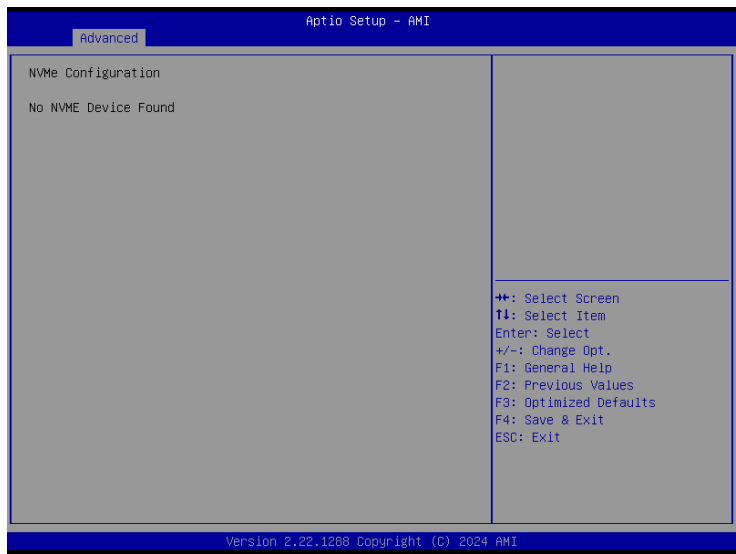
When Network stack is enabled :



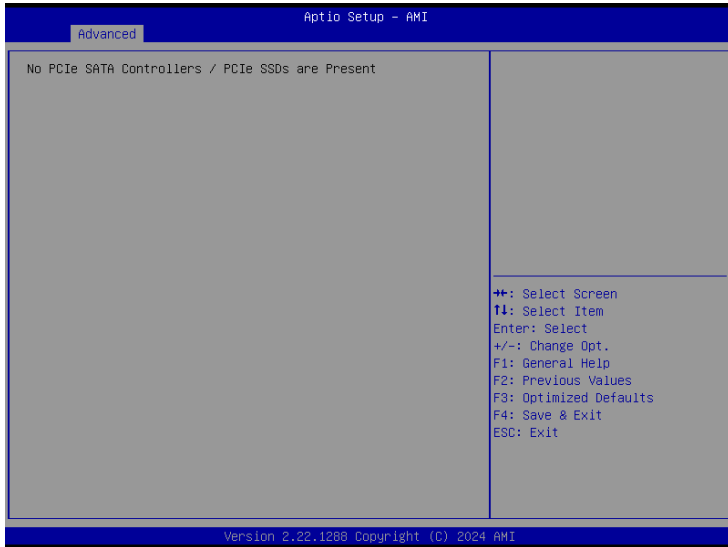
Item	Description
Network Stack	When system is power on, install LAN driver under UEFI mode Disabled : Disables UEFI Network Stack (Default setting) Enabled : Enables UEFI Network Stack
IPv4 PXE Support	When Network stack is enabled : Disabled : Disables Ipv4 PXE Support Enabled : Enables Ipv4 PXE Support
IPv4 HTTP Support	When Network stack is enabled : Disabled : Disables Ipv6 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.

4.3.8 NVMe Configuration

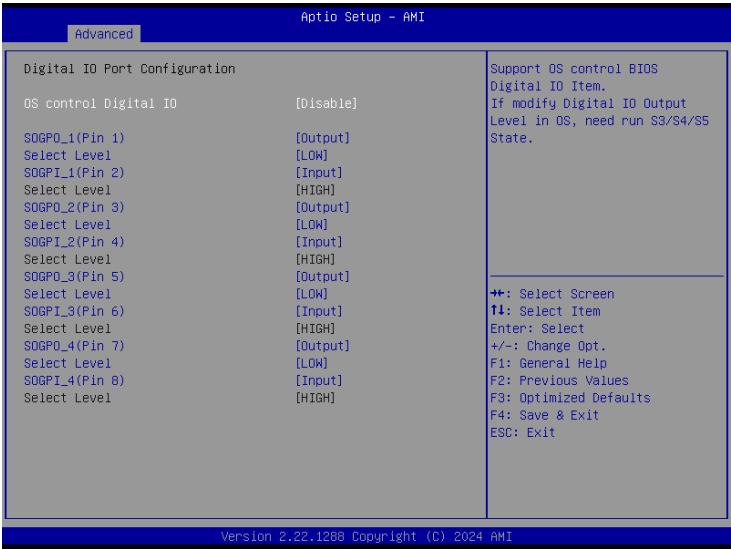
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



4.3.9 Offboard SATA Controller Configuration

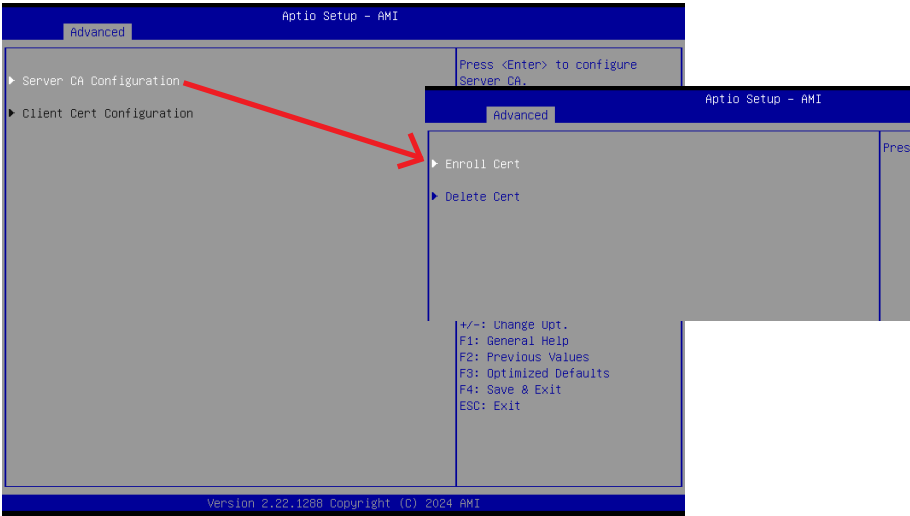


4.3.10 Digital IO Port Configuration



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.

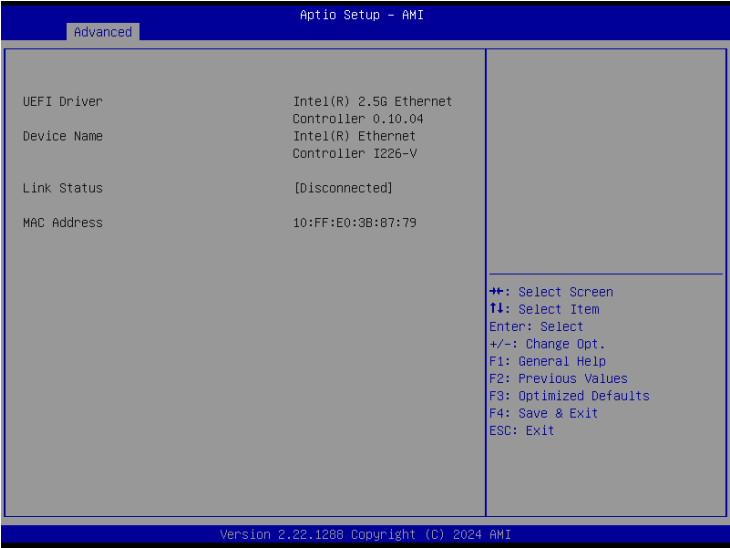
4.3.11 Tls Auth Configuration



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

4.3.12 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:79 (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



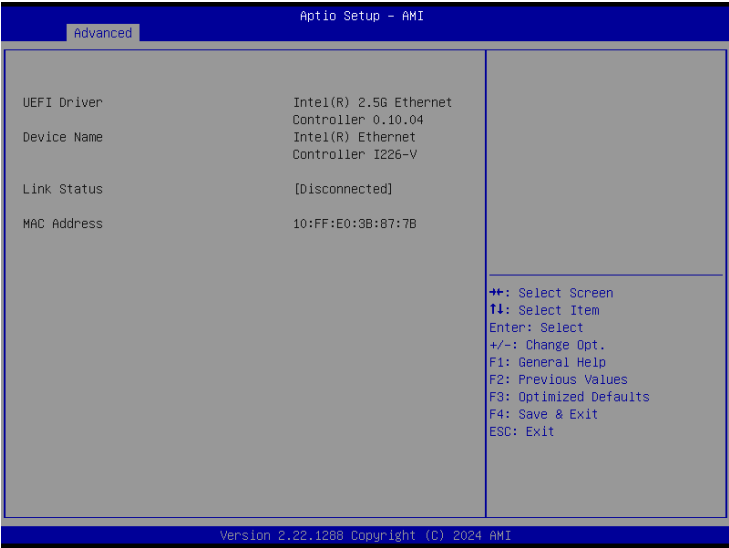
4.3.13 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:7A (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



4.3.14 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:7B (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



4.3.15 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:7C (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



4.3.16 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:7D (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



4.3.17 Intel(R) Ethernet Controller I226-V - 10:FF:E0:3B:87:7E (MAC address may varied based on different motherboard)

Shows Intel Ethernet controller information



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 LAN1,2,3,4 Onboard LAN5 Onboard LAN6 Onboard LAN7,8,9,10	Enable/Disable onboard LAN controller Enabled : Enables onboard LAN controller (Default setting) Disabled : Disables onboard LAN controller
HD Audio	Enable/Disable onboard audio controller Enabled : Enables onboard audio controller (Default setting) Disabled : Disables onboard audio controller
Restore AC Power Loss	To set which option the system should returns if a sudden power loss occurred Power on : System power on when the power is back Power off : Do not power on when the power is back (Default setting) 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

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	

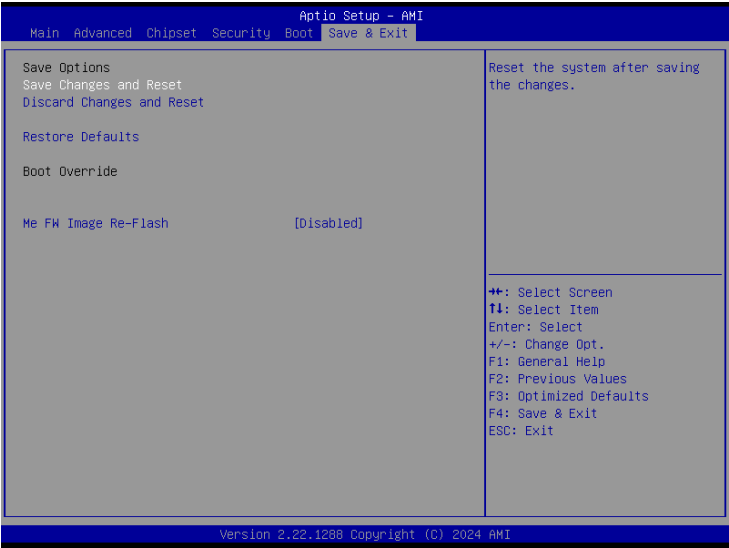
4.6 Boot

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)
Built-in EFI Shell	Enable/Disable Built-in EFI Shell Enabled : Enables Built-in EFI Shell Disabled : Disables Built-in EFI Shell (Default setting)
Boot Option priority	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)