QBiX-Lite-AMDA2314H-A1 (QL-2314A-SI)

QBiX-Lite Industrial Embedded System
Quick Start Guide

Copyright Notice

Acknowledgement

Packing List

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

Item	Quantity
Power Cord (Optional, by region)	1
PSU ADP 19V 65W 100-240VAC (25EP1-100651-A3S)	1
Bracket Wall Mount (25HBA-160520-S9R)	2
Wall Mount Screw M3.0*L6.0 (25KS9-130600-S0R)	4
HDD Screw #2-M3x4L (25KS2-13004G-S0R)	4
SATA Cable (25CF4-160000-S9R)	1
Thermal pad for M.2 WiFi module (25ST3-223220-Z0R)	1
Thermal pad for Memory (25ST3-200086-T5R)	1
Exsiccator (10g)	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 product should be connected by means of a power cord to a socket-outlet with earthing connection.

20. 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.

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.

Table Contents

QBiX-Lite Industrial Embedded System Quick Start Guide 1

Copyright Notice 2

Acknowledgement 3

Packing List 4

About this Document 5

Safety Precautions 6

FCC Statement 8

Chapter 1 - Product Specifications 13

1.1 Specifications 15

Chapter 2 – QBiX-Lite-AMDA2314H-A1 (QL-2314A-SI) Industrial Embedded System Kit 17

2.1 Dimension 18

2.2 Getting Familiar with Your Unit 19

2.3 A) Memory Installation: DDR4 SO-DIMM 21

2.4 B) Mini PCIe Card Installation: How to safely install the Mini PCIe Card 22

2.5 C) Wireless Module: How to safely install the Module (Wireless Module inclusion may vary based on local distribution) 23

2.6 D) M.2 SSD Installation: How to safely install the M.2 2280 SSD 24

2.7 E) 2.5” HDD/SSD installation: How to install 2.5” HDD/SSD 25
2.8 Antenna Installation (Antenna inclusion may vary based on local distribution) 26
2.9 Wall mount Bracket Installation..... 27
2.10 VESA mount Bracket Installation 28
2.11 DB9 COM Pin Define 29
2.12 Support 30
2.13 Safety and Regulatory Information..... 31

Chapter 3 – Hardware Information 32
3.1 Jumpers and Connectors 33
3.2.1 HDMI2_1, HDMI4_3 (HDMI Connector) 36
3.2.2 LAN1, LAN2 (LAN Connector) 37
3.2.3 USB32_1 (USB 3.2 Gen 2x1 Connector) 38
3.2.4 BKL_CN (Backlight Control header) 39
3.2.5 SPKR (Speaker out connector) 40
3.2.6 F_AUDIO (Front panel audio header) ..... .41
3.2.7 SODIMM1, SODIMM2 (DDR4 SO-DIMM slot)..... 42
3.2.8 SATAPW (SATA power connector)..... 43
3.2.9 SATA (SATA 6Gb/s connector) 44
3.2.10 F_USB2_2 (USB 2.0 header) 45
3.2.11 F_USB2_1 (USB 2.0 header) 46
3.2.12 GPIO_CNT (General purpose input/output header)... 47

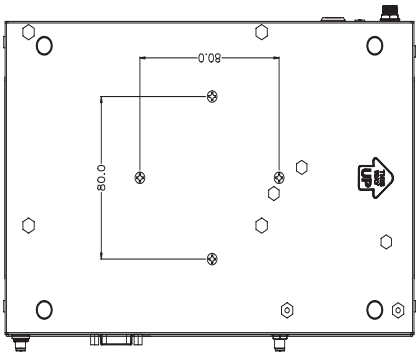
3.2.13 SYS_PANEL (Front panel header) 48
3.2.14 M2M (M.2 Slot, 2280 M-key) 49
3.2.15 AT_CN (AT/ATX mode select jumper) 50
3.2.16 COM1, COM2, COM3, COM4 (Serial port header) 51
3.2.17 MPCIE (Mini PCIE slot) 52
3.2.18 DC IN (DC IN 1 x 4pin power connector) 53
3.2.18 M2E (M.2 Slot, 2230 E-key) 54
3.2.19 JCOM1 (RI pin RI/5V/12V Select jumper for COM1 port) .. 55
3.2.20 Battery (Battery Connector) 56
3.2.21 CPU_FAN (CPU FAN connector) 57
3.2.22 SYS_FAN (System FAN connector) 58
3.2.23 EDP (Embedded Display port connector) 59

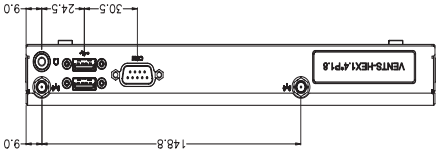
Chapter 4 – BIOS 60
4.1 Introduction 61
4.2 The Main Menu 62
4.3 Advanced 63
4.3.1 TPM Configuration 64
4.3.2 Super IO Configuration 65
4.3.3 Hardware Monitor 66
4.3.4 CPU Configuration 67
4.3.5 Network Stack Configuration 68
4.3.6 S5 RTC Wake Settings 69
4.3.7 NVMe Configuration 70
4.3.8 SATA Configuration 71

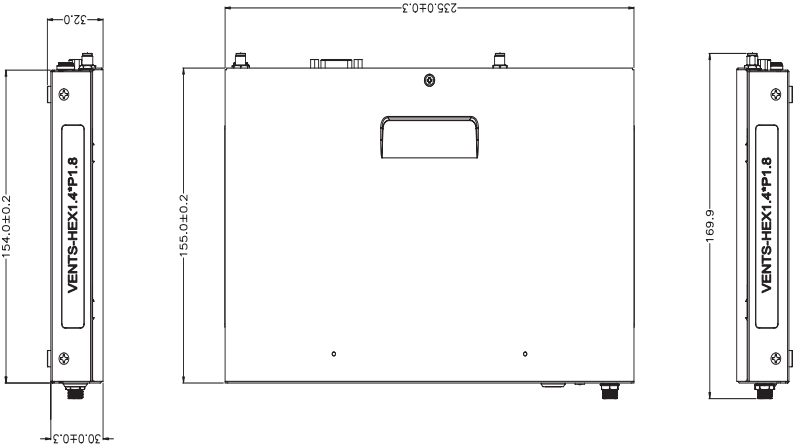
4.3.9 OffBoard SATA Controller Configuration 72
4.3.10 Realtek PCIe GBE Family Controller (MAC : 10:FF:E0:3D: 69:7A) (MAC address may varied based on different motherboard) 73
4.3.11 Realtek PCIe GBE Family Controller (MAC : 10:FF:E0:3D: 69:7B) (MAC address may varied based on different motherboard) 74
4.4 Chipset 75
4.5 Security 76
4.6 Boot..... 79
4.7 Save & Exit 80

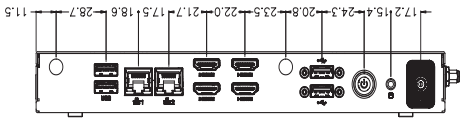
Chapter 1

Chapter 1 - Product Specifications


80.0
80.0


9.0
24.5
30.5
VENTS-HEX1.4*P1.8
9.0
148.8


32.0
154.0±0.2
VENTS-HEX1.4*P1.8
30.0±0.3
235.0±0.3
155.0±0.2
169.9
VENTS-HEX1.4*P1.8


11.5
28.7
18.6
17.5
21.7
22.0
23.5
20.8
24.3
15.4
17.2

1.1 Specifications

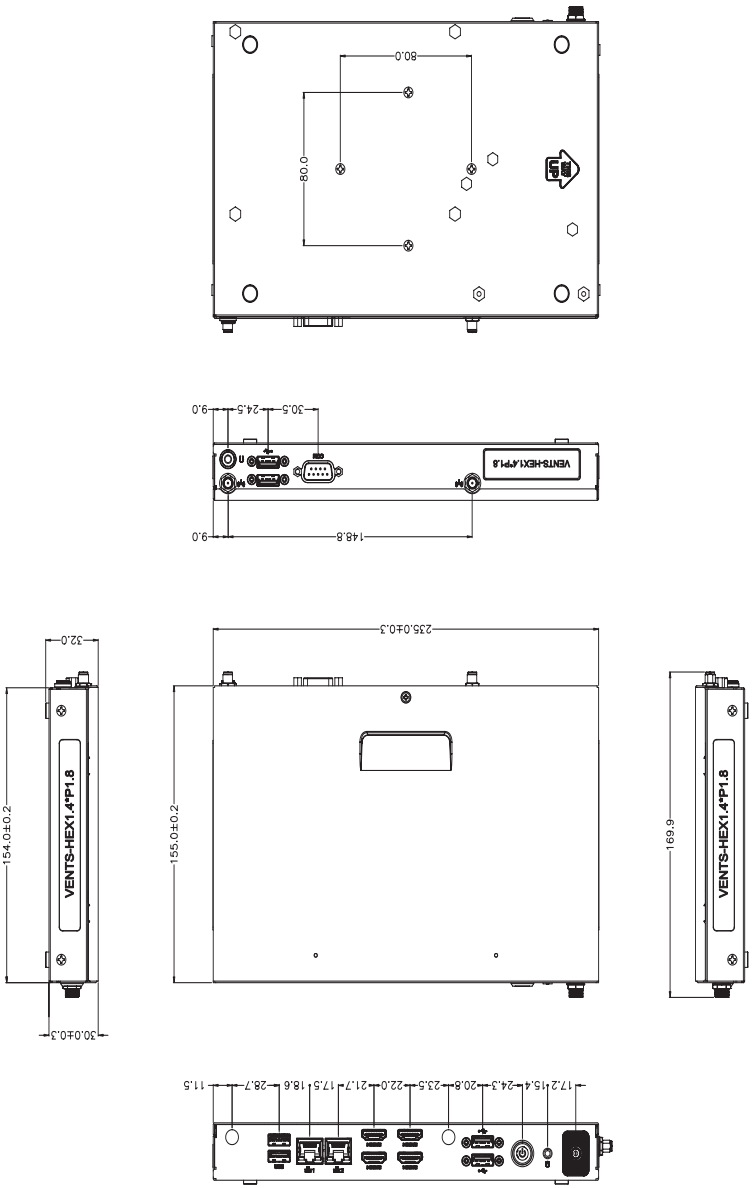
System	QBiX-Lite-AMDA2314H-A1 (QL-2314A-SI)
Dimension	System Size : 234W x 155D x 30H (mm)
CPU	AMD Ryzen™ R2314 Embedded Processor 14nm, 4 cores, 4 threads, 2.1 GHz, up to 3.5 GHz
Chipset	SoC
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB Support Dual Channel DDR4 2677 MHz memory modules
Ethernet	2 x GbE LAN Ports (Realtek RTL8111H-CG)
Graphic support	Integrated Graphics Processor - AMD Radeon™ Graphics: 4 x HDMI 2.0 ports, supporting a maximum resolution of 4096x2160 @60Hz *Support EDID emulation with AMD graphic driver/utility (4 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 Gen3x4, SATA 6Gb/s) 1 x 2230 M.2 E-Key (WiFi/BT) 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0)
Front I/O	2 x RJ45 LAN Ports 2 x USB 3.2 Gen 2x1 2 x USB 2.0 4 x HDMI 1 x Power button with LED 1 x HDD LED 1 x Screw type DC Jack
Rear I/O	1 x COM Port (RS-232/422/485 & RI/5V/12V) 2 x USB 2.0 1 x Headphone jack 2 x External Antenna Holes (Optional)
Side I/O	—
TPM	Onboard TPM 2.0 security chip INFINEON SLB9665TT2.0
Power	+9V~36VDC (Adapter 19V/65W)

System	QBiX-Lite-AMDA2314H-A1 (QL-2314A-SI)
Operation Temperature	Operating temperature: 0°C to 50°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, 1 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: 481 x 300 x 375 (mm) Packing Capacity: 5pcs Single Box size: 336 x 279 x 90 (mm) Including: Bracket for Wall Mount x 2 (P/N: 25HBA-160520-S9R) + Screw x 4 (P/N: 25KS9-130600-S0R) HDD screw M3x4Lx 4 (P/N: 25KS2-13004G-S0R) Thermal pad for M.2 WiFi module x 1 (P/N: 25ST3-223220-Z0R) Thermal pad for Memory x 1 (P/N: 25ST3-200086-T5R) PSU ADP 19V 65W 100-240VAC x 1 (P/N: 25EP1-100651-A3S) Power Cord : Optional (by region) SATA Cable x 1 (P/N: 25CF4-160000-S9R)
Order Information	System : 6BQL2314AMR-SI

Chapter 2

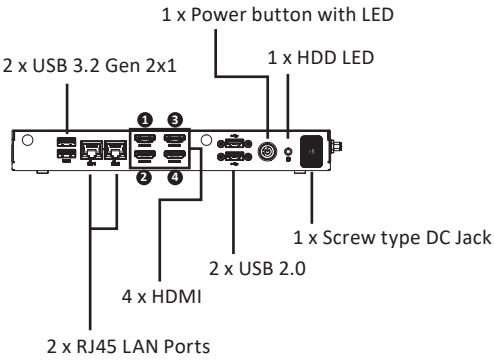
Chapter 2 – QBiX-Lite-AMDA2314H-A1 (QL-2314A-SI)
Industrial Embedded System Kit

2.1 Dimension



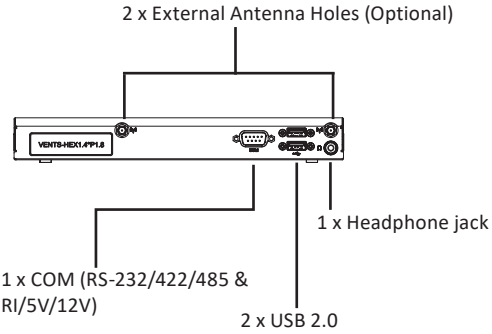
2.2 Getting Familiar with Your Unit

[Front I/O Side]



[Left Side]

[Rear I/O Side]

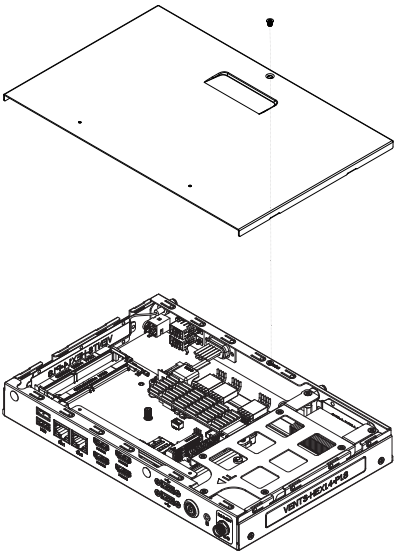


[Right Side]

[Install]

* Before opening the chassis, make sure to unplug the power cord.
* Remove the screw to open the chassis.

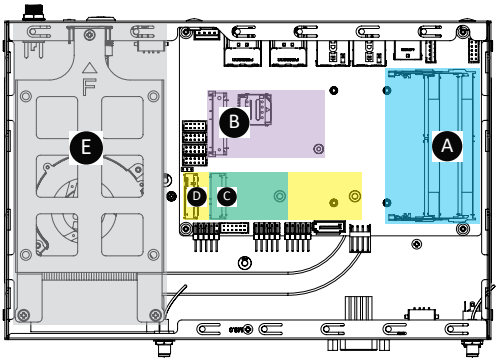
* Before Connecting the power, make sure to fasten the chassis securely.
* Secure the chassis with the previously removed screws.



[Bottom PCB Side]

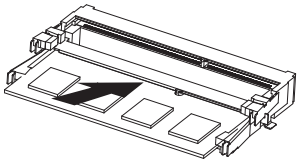
	Information
A	2 x DDR4 SO-DIMM sockets
B	1 x Mini PCIe slot with SIM slot
C	1 x M.2 slot 2230 E-key

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

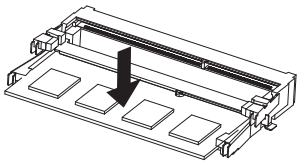


2.3 A) Memory Installation: DDR4 SO-DIMM

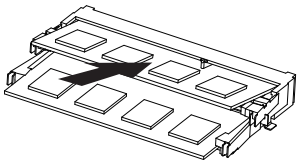
1. Carefully insert SO-DIMM memory modules.



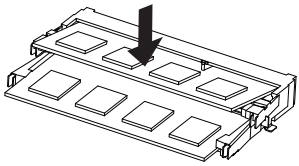
2. Push down until the modules click into place.



3. Carefully insert SO-DIMM memory modules.



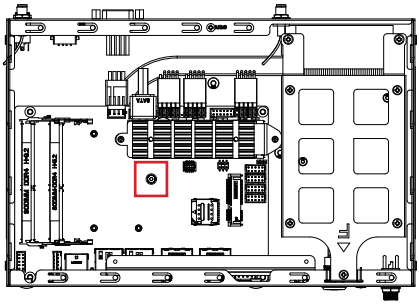
4. Push down until the modules click into place.



2.4 B) Mini PCIe Card Installation: How to safely install the Mini PCIe Card

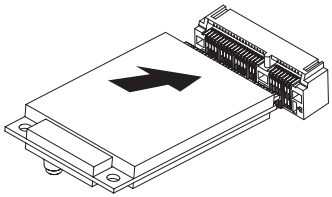
1

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



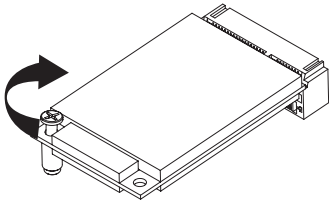
2

Carefully insert the Mini PCIe Card into the slot.



3

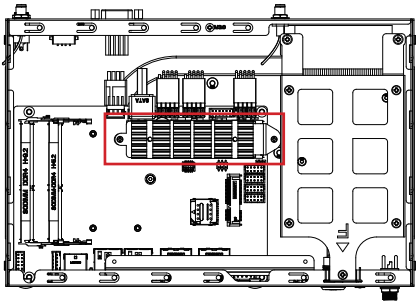
The Mini PCIe Card is secured in place with screw in the left corner.



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

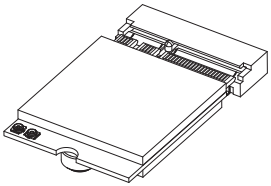
1

Remove the M.2 Heatsink.



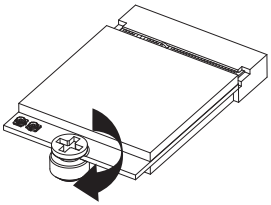
2

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



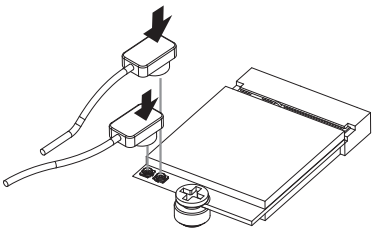
3

Lock the screw in the middle.



4

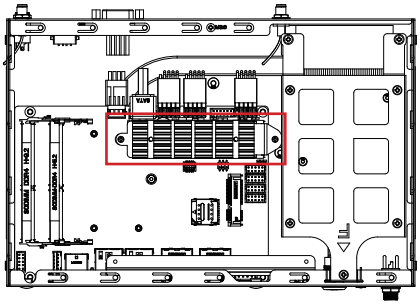
Install the antenna on the left side of the connection wireless module down.



2.6 D) M.2 SSD Installation: How to safely install the M.2 2280 SSD

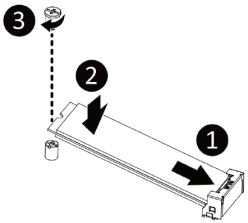
1

Remove the M.2 Heatsink.



2

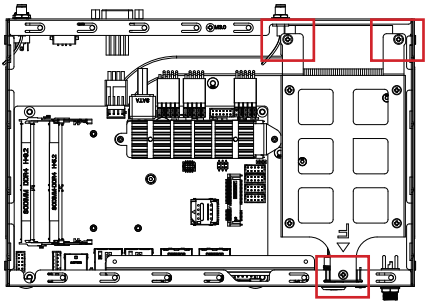
Carefully insert the M.2 SSD into the slot, and secure with the screw.



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

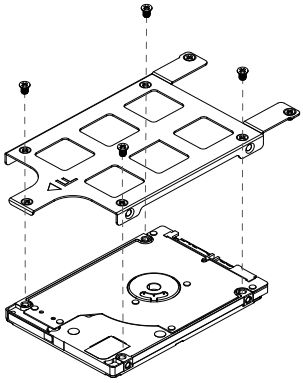
1

Remove 3 screws from the HDD Tray.



2

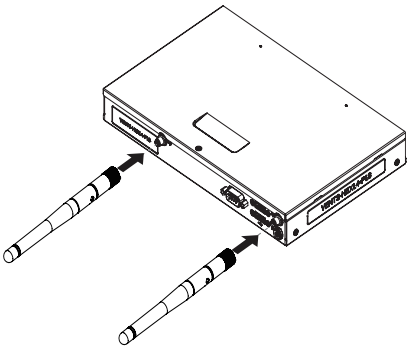
Secure 2.5" HDD/SSD on the HDD Tray with 4 screws.
(The gold finger must face up)



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

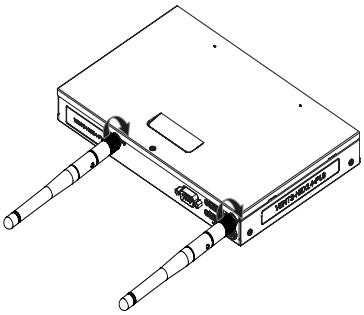
1

Carefully insert the antennas into the connectors.



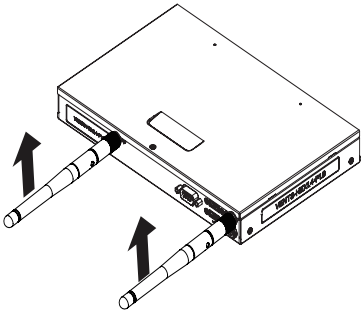
2

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



3

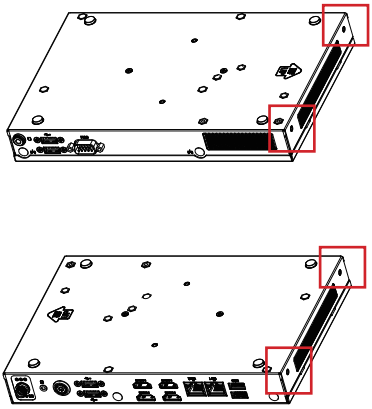
Flip up the antenna heads so that they are perpendicular to the machine.



2.9 Wall mount Bracket Installation

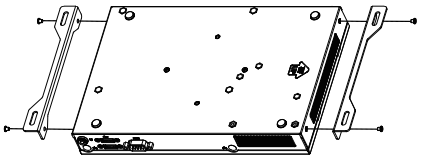
1

Remove the screws that are pre-installed on both sides of the chassis.



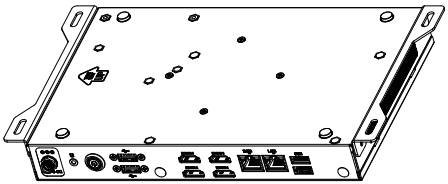
2

Install the wall mount brackets using the screws included in the accessory kit.



3

Wall mount bracket installation completed.



4

Suggest screws as below for different type of surface.

Concrete wall

Electric drill

Wall anchors
ST3.2 x 30mm

Self-tapping screw
ST3.2 x 25mm

Wooden wall

Self-tapping screw
ST3.2 x 25mm

Machine

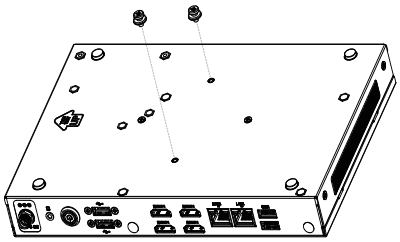
Machine screw
M3 x 10mm pan head, with Spring washer + flat washer

2.10 VESA mount Bracket Installation

❶

Lock 2 screws on the bottom cover.

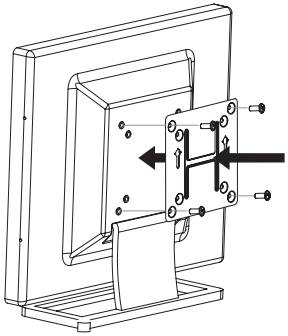
Screws type : M3-3L x 2pcs, including in the optional kit.



❷

Attach the VESA mount to the rear of a compatible display using the screws provided.

VESA hole patterns : 75 x 75mm and 100 x 100mm
Screws type : M4-10L x 4pcs

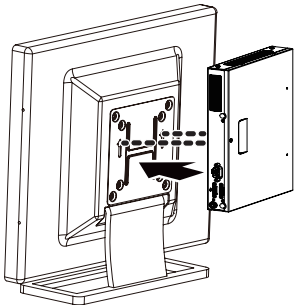


NOTE : The VESA mount brackets are the optional parts.

❸

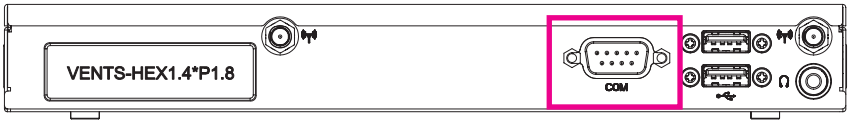
The QBiX-Lite can now be mounted by sliding the device into place.

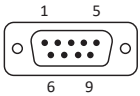
When installing the equipment on the back of the monitor, please keep stability in mind. (Recommended for monitors that weigh 6kg or less.)



NOTE : The VESA mount brackets are the optional parts.

2.11 DB9 COM Pin Define



DB9 COM	
	
25CF8-180620-S9R	
Pin No.	Pin Define
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

2.12 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

2.13 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.

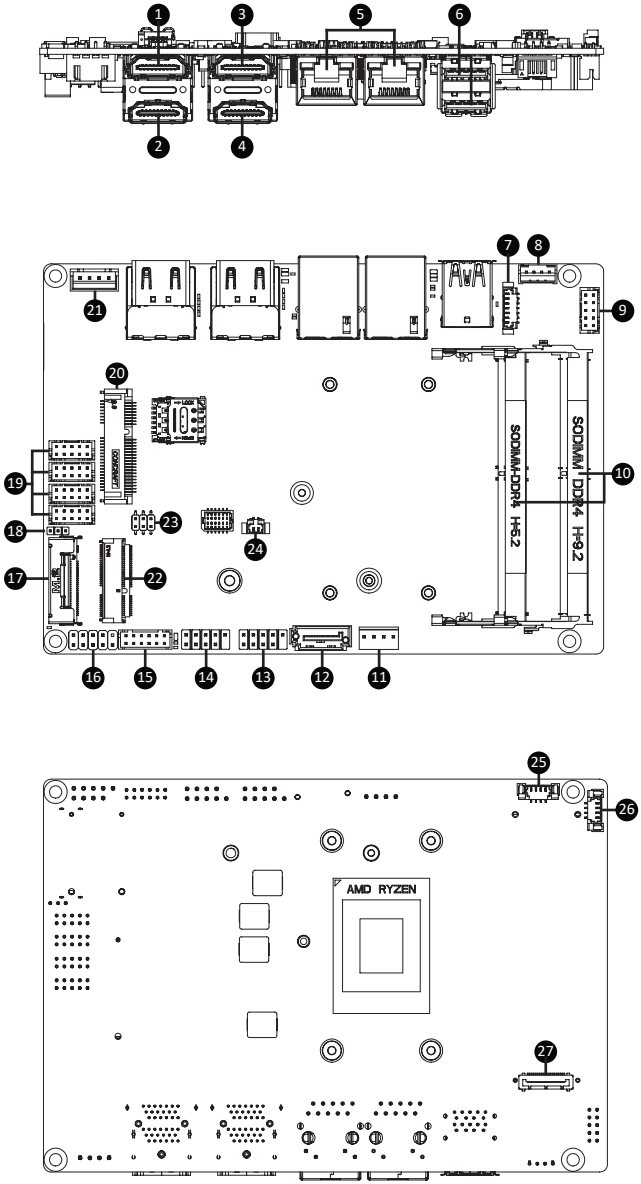
HDMI™
HIGH DEFINITION MULTIMEDIA INTERFACE

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

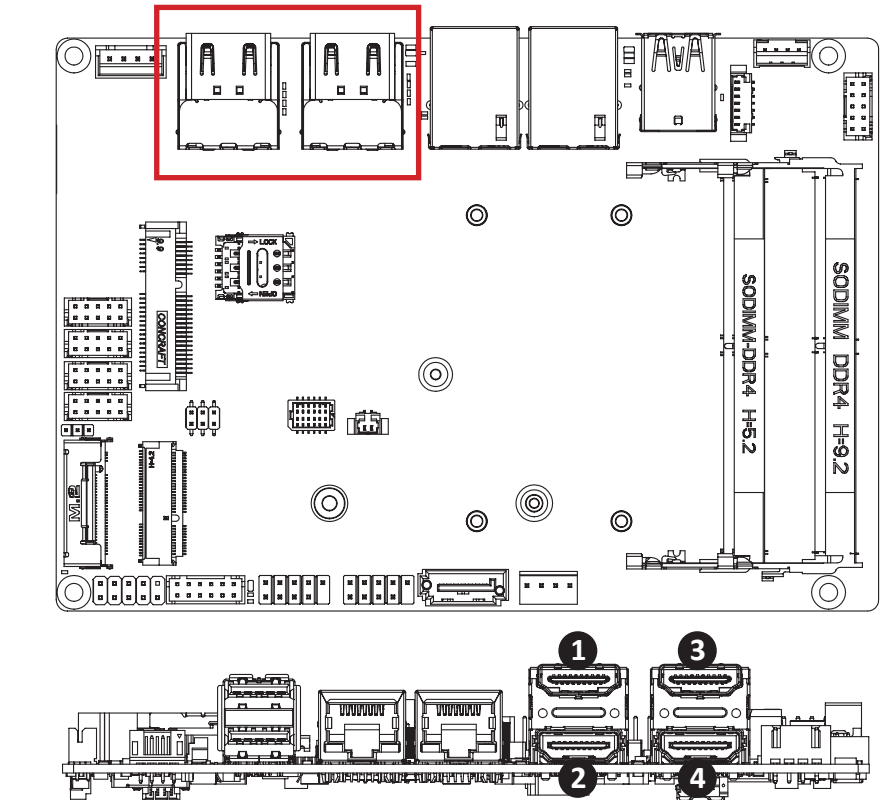
3.1 Jumpers and Connectors



No	Code	Description
1	HDMI2_1	HDMI 2 connector
2		HDMI 1 connector
3	HDMI4_3	HDMI 4 connector
4		HDMI 3 connector
5	LAN1, LAN2	LAN connectors
6	USB32_1	USB 3.2 Gen 2x1 connector
7	BKL_CN	Backlight control header
8	SPKR	Speaker out connector
9	F_AUDIO	Front Audio connector
10	SODIMM1 SODIMM2	DDR4 SO-DIMM Slot
11	SATAPWR	SATA power connector
12	SATA	SATA 6Gb/s connector
13	F_USB2_2	USB 2.0 header
14	F_USB2_1	USB 2.0 header
15	GPIO_CNT	General Purpose input/output header
16	SYS_PANEL	Front panel header
17	M2M	M.2 Slot, 2280 M-key
18	AT_CN	AT/ATX mode select jumper
19	COM1, COM2, COM3, COM4	Serial port header COM1 : RS-232/422/485 & RI/5V/12V COM2 : RS-232/422/485 COM3, COM4 : RS-232
20	MPCIE	Mini PCIE slot

No	Code	Description
21	DC_IN	DC IN 1x4 pin power connector
22	M2E	M.2 Slot, 2230 E-key
23	JCOM1	RI pin RI/5V/12V Select jumper for COM1 port
24	BATTERY	Battery cable connector
25	CPU_FAN	CPU fan connector
26	SYS_FAN	System fan connector
27	EDP	Embedded Display Port Connector

3.2.1 HDMI2_1, HDMI4_3 (HDMI Connector)

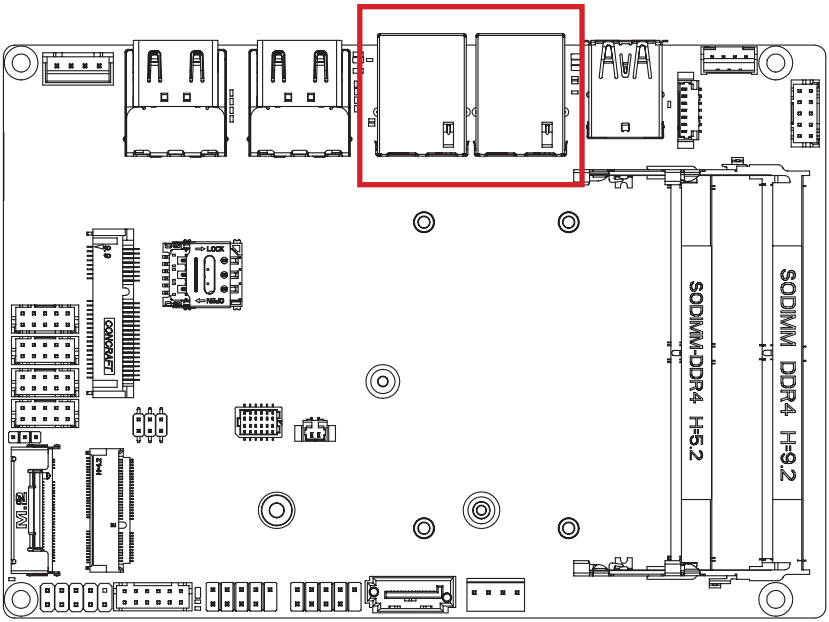


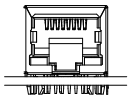
Pin No.	Definition	Pin No.	Definition
1	TX2p	20	TX2p
2	GND	21	GND
3	TX2n	22	TX2n
4	TX1p	23	TX1p
5	GND	24	GND
6	TX1n	25	TX1n
7	TX0p	26	TX0p
8	GND	27	GND
9	TX0n	28	TX0n
10	CLKp	29	CLKp
11	GND	30	GND

Pin No.	Definition	Pin No.	Definition
12	CLKn	31	CLKn
13	NC	32	NC
14	NA	33	NA
15	DDC Clock	34	DDC Clock
16	DDC Data	35	DDC Data
17	GND	36	GND
18	5V	37	5V
19	Hot Plug Detect	38	Hot Plug Detect

3.2.2 LAN1, LAN2 (LAN Connector)

❺



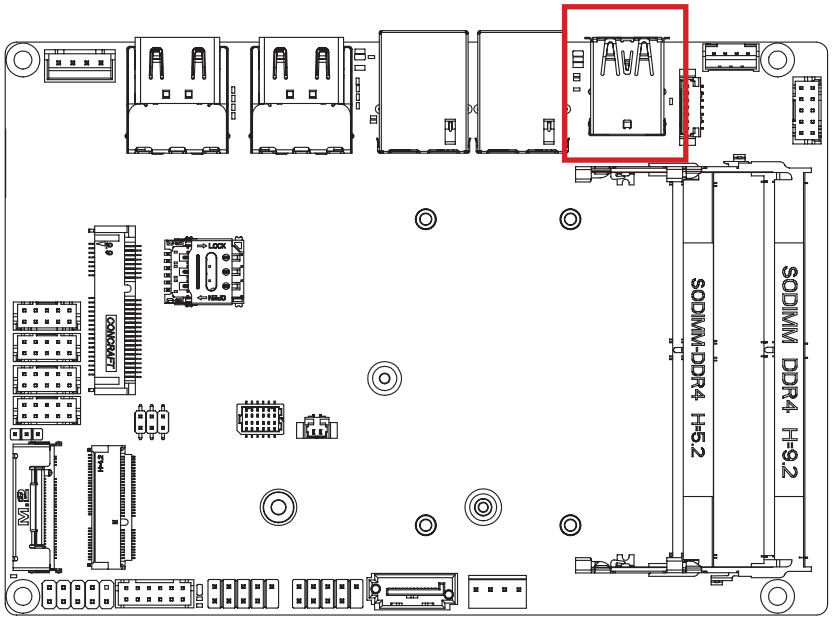
LAN connector


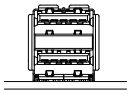
State	Description
Orange On	1Gbps data rate
Green On	100Mbps data rate
Off	10Mbps data rate

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

3.2.3 USB32_1 (USB 3.2 Gen 2x1 Connector)

6

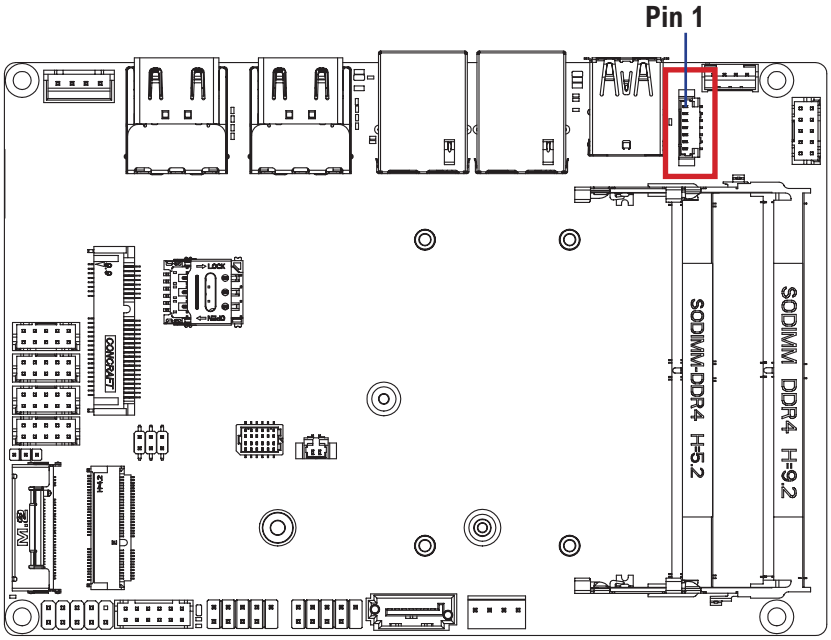


USB 3.2 Gen 2x1 connector


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

3.2.4 BKL_CN (Backlight Control header)

7



Backlight Control connector
1 7

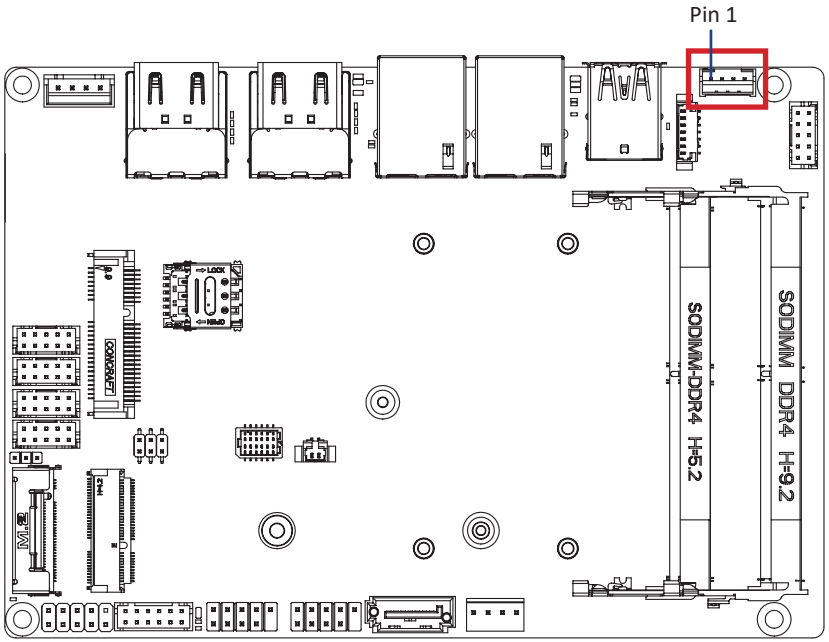
Connector PN	Vendor
85205-0770N	ACES
A1250WV-S-07PC	JOINT-TECH

Connector type
1x7pin header, pitch 1.25mm

Pin No.	Definition
1	NC
2	NC
3	VDD
4	GND
5	GND
6	12V
7	12V

3.2.5 SPKR (Speaker out connector)

8



Speaker out connector
1 2 3 4

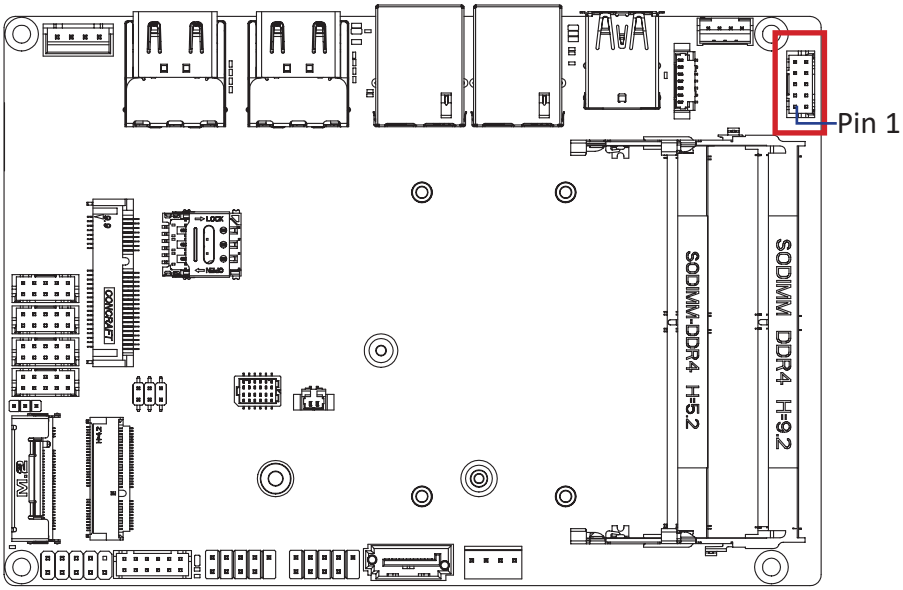
Connector PN	Vendor
A2001WV-04P146	JOINT-TECH

Connector type
1x4pin header, pitch 2.0mm

Pin No.	Definition
1	Speaker Out R+
2	Speaker Out R-
3	Speaker Out L-
4	Speaker Out L+

3.2.6 F_AUDIO (Front panel audio header)

9



Front panel audio header
9 10 1 2

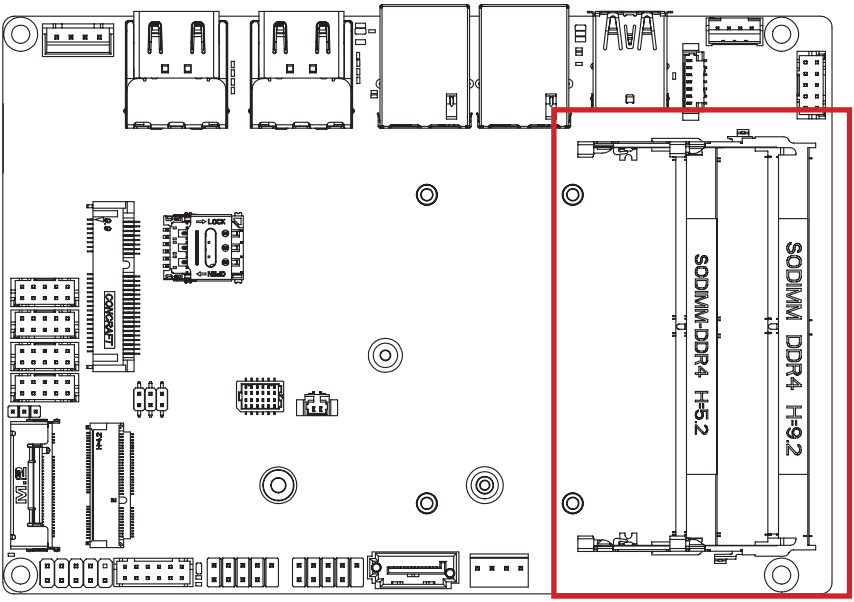
Connector PN	Vendor
725-81-10TW00	PINREX

Connector type
2x5pin header, pitch 2.0mm

Pin No.	Definition	Pin No.	Definition
1	MIC-Left	2	GND
3	MIC-Right	4	NC
5	HPOUT_ Right	6	MIC_JD
7	FAUDIO_JD	8	NC
9	HPOUT_Left	10	HPOUT_JD

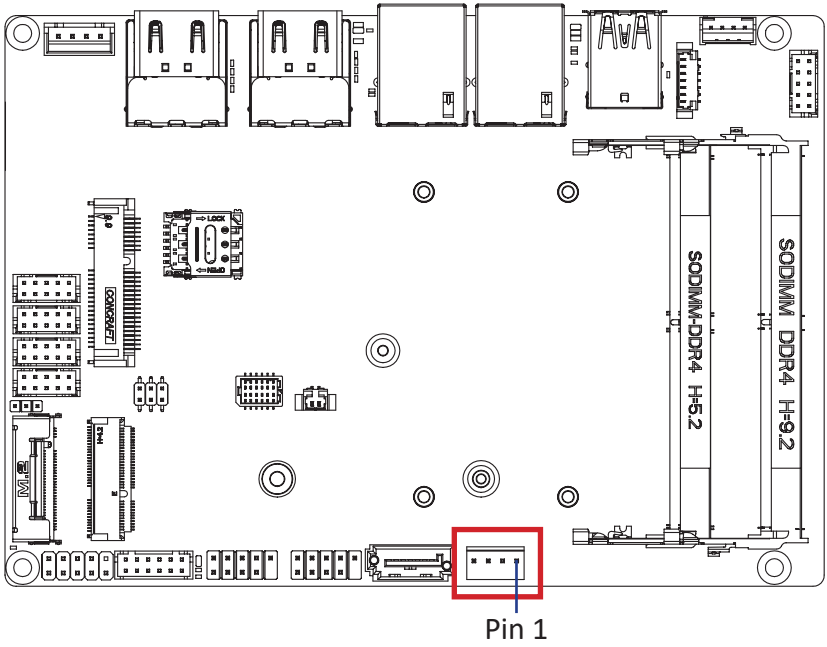
3.2.7 SODIMM1, SODIMM2 (DDR4 SO-DIMM slot)

10



3.2.8 SATAPW (SATA power connector)

11



Hard Disk Power Connector
4 ■■■■ 1

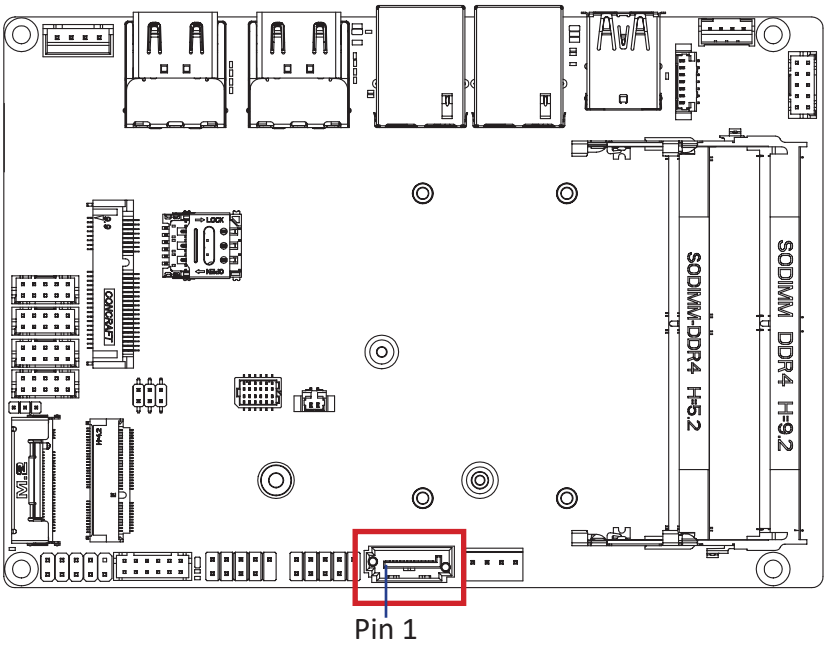
Connector PN	Vendor
743-91-045W00	PINREX

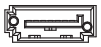
Connector type
1x4pin header, pitch 2.54mm

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

3.2.9 SATA (SATA 6Gb/s connector)

12

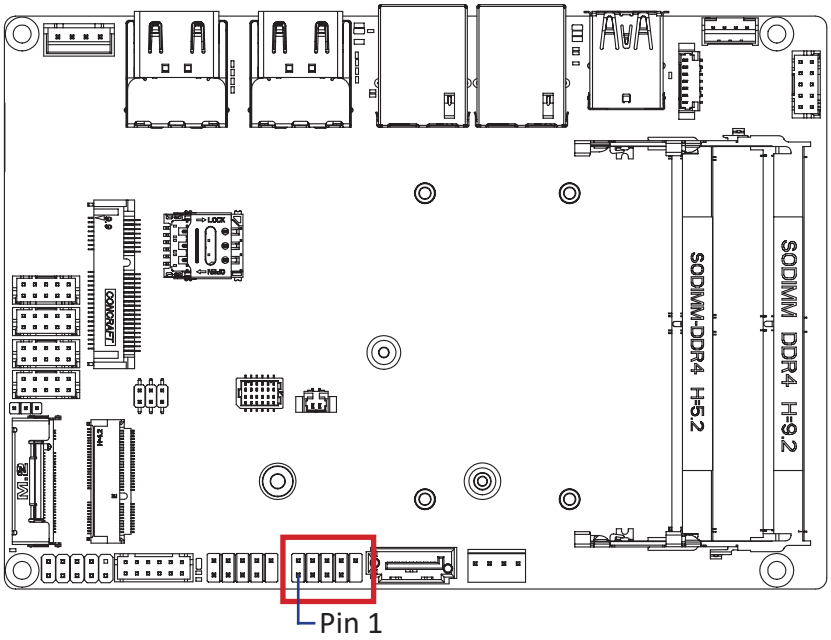


SATA 6Gb/s Connector
1  7

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

3.2.10 F_USB2_2 (USB 2.0 header)

13



USB 2.0 header

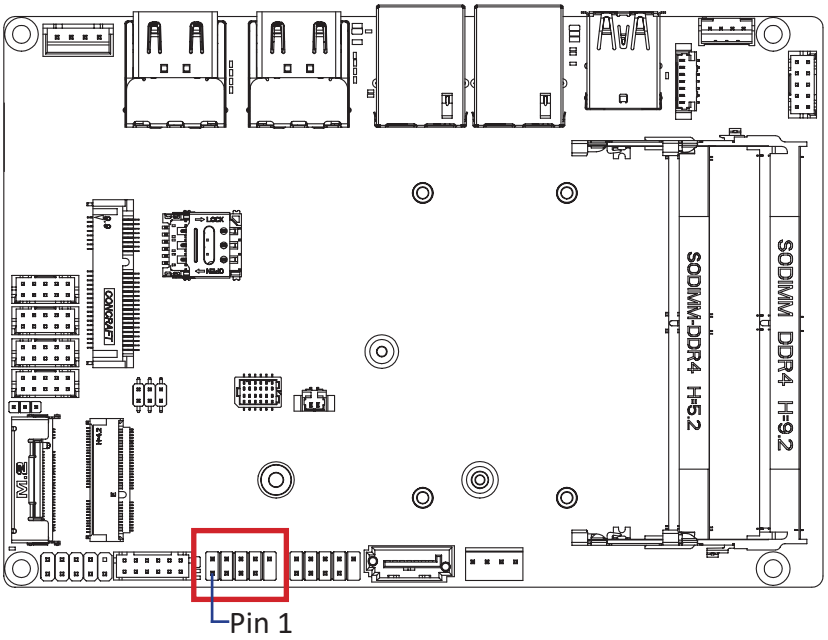

Connector PN	Vendor
210-92-05G117	PINREX

Connector type
2x5pin header, pitch 2.54mm

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

3.2.11 F_USB2_1 (USB 2.0 header)

14



USB 2.0 header
2 10 1 9

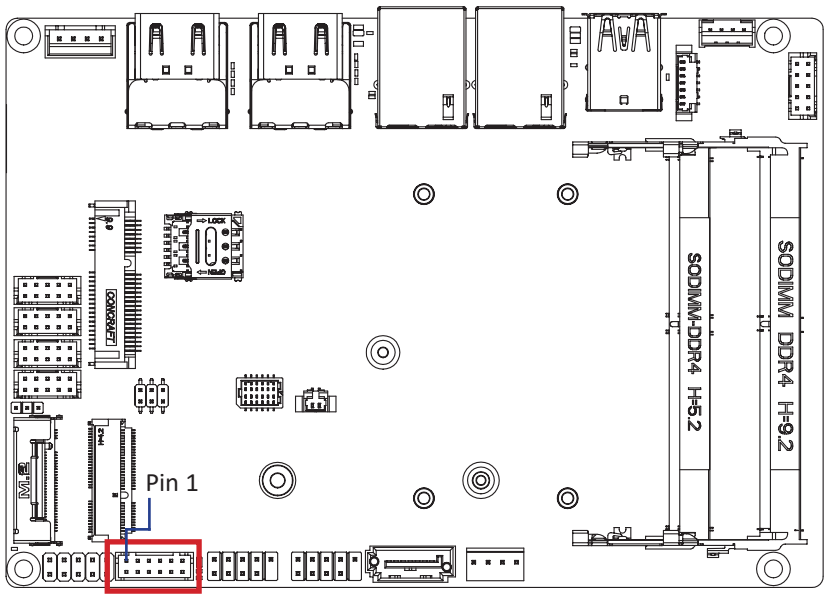
Connector PN	Vendor
210-92-05G117	PINREX

Connector type
2x5pin header, pitch 2.54mm

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

3.2.12 GPIO_CNT (General purpose input/output header)

15



GPIO Connector

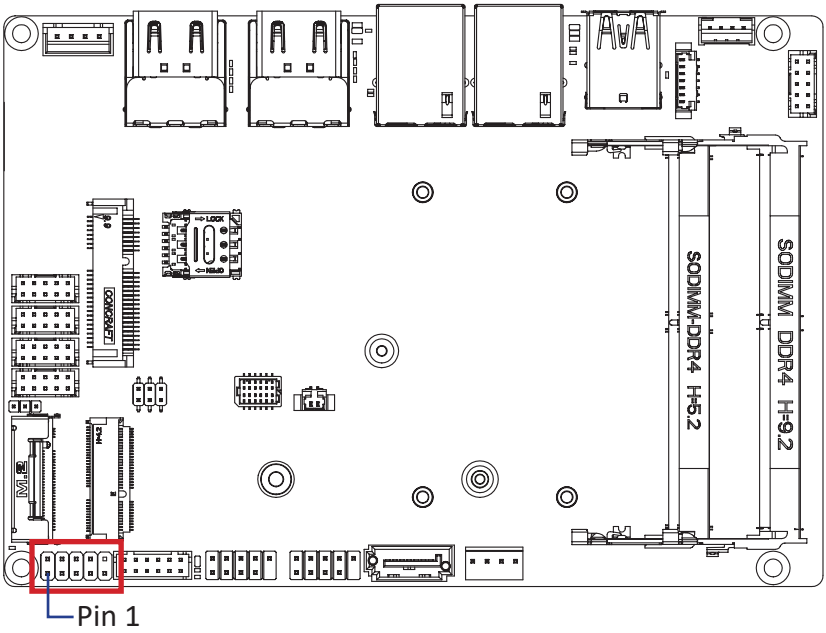

Pin No.	Definition
1	GPIO-input_1
2	GPIO-output_1
3	GPIO-input_2
4	GPIO-output_2
5	GPIO-input_3
6	GPIO-output_3
7	GPIO-input_4
8	GPIO-output_4
9	SMBus Clock
10	SMBus DATA
11	5V
12	GND

Connector PN	Vendor
725-81-12TW00	PINREX

Connector type
2x6pin header, pitch 2.0mm

3.2.13 SYS_PANEL (Front panel header)

16



System Panel Header
2 10 1 9

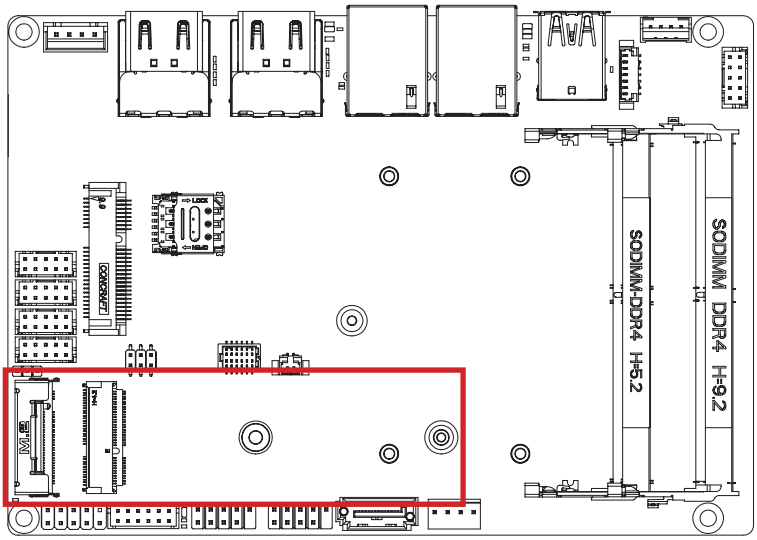
Connector PN	Vendor
210-92-05GW5W	PINREX

Connector type
2x5pin header, pitch 2.54mm

Pin No.	Definition
1	HDD LED+
2	Power LED+
3	HDD LED-
4	Power LED-
5	GND
6	Power Button+
7	Reset Button
8	Power Button-
9	No Connect
10	No Pin

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

17



M.2 M Key Connector


Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	GND	4	3.3V
5	RX3n	6	NC
7	RX3p	8	NC
9	GND	10	M2_LED
11	TX3n	12	3.3V
13	TX3p	14	3.3V
15	GND	16	3.3V
17	RX2n	18	3.3V
19	RX2p	20	NC
21	GND	22	NC
23	TX2n	24	NC
25	TX2p	26	NC
27	GND	28	NC
29	RX1n	30	NC
31	RX1p	32	NC
33	GND	34	NC
35	TX1n	36	NC

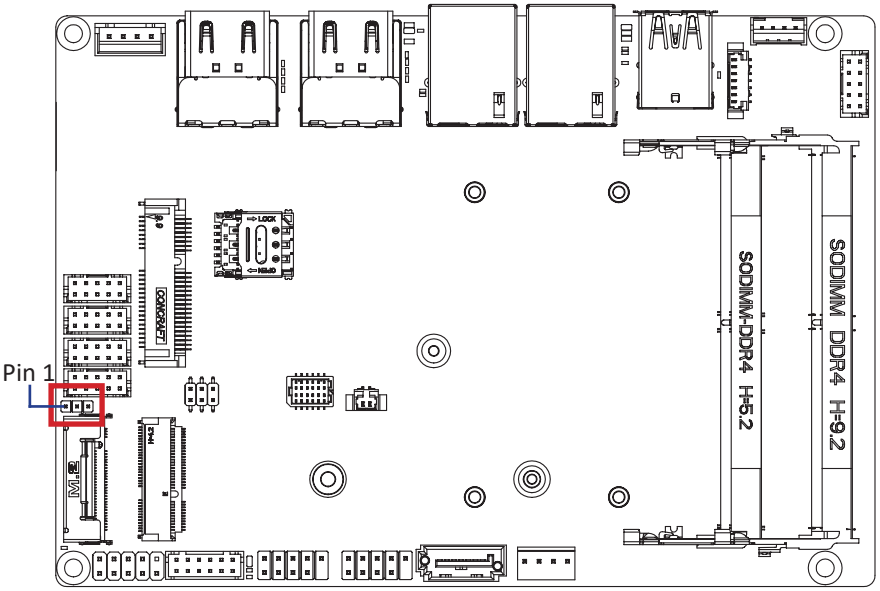
Pin No.	Definition	Pin No.	Definition
37	TX1p	38	DEVSLP
39	GND	40	NC
41	SATA_RXp	42	NC
43	SATA_RXn	44	NC
45	GND	46	NC
47	SATA_TXn	48	NC
49	SATA_TXp	50	PLT_RST
51	GND	52	CK_REQ
53	CLK_n	54	PCIE_WAKE#
55	CLK_p	56	NC
57	GND	58	NC

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

3.2.15 AT_CN (AT/ATX mode select jumper)

18



AT/ATX mode select jumper	
	1-2 Close : AT mode.
	2-3 Close : ATX mode. (Default setting)

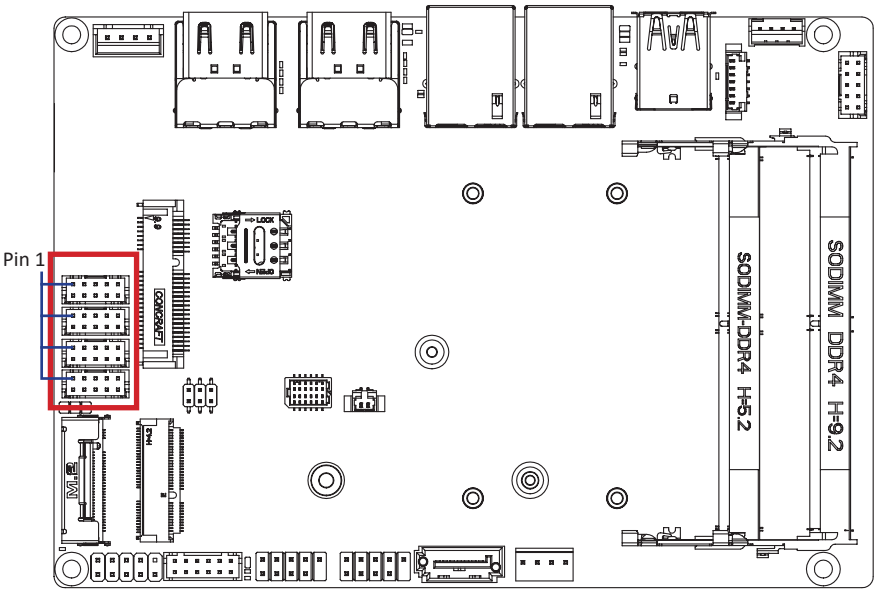
Pin No.	Definition
1	AT mode
2	Detect
3	ATX mode

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

Connector type
1x3pin header, pitch 2.0mm

3.2.16 COM1, COM2, COM3, COM4 (Serial port header)

19



Serial Port Connector


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
A2004WV-2X05P46	JOINT-TECH

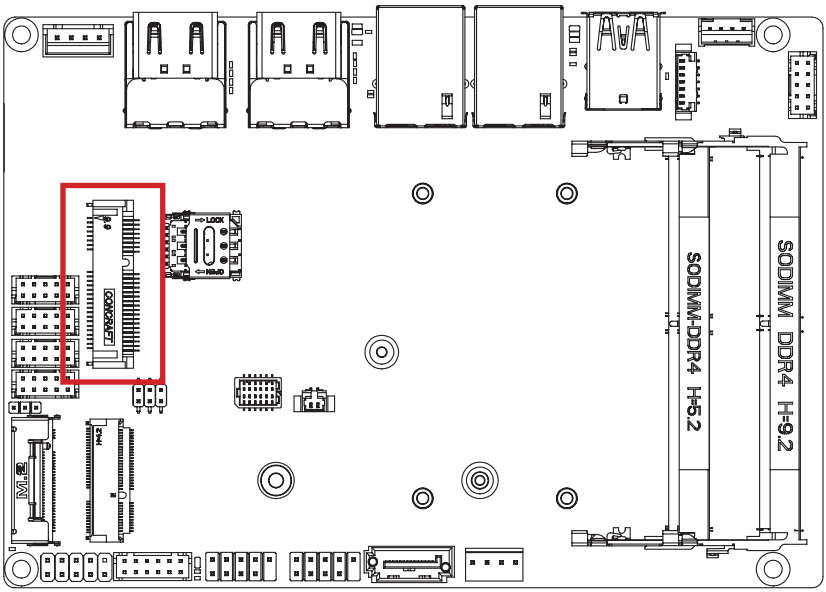
Connector type
2x5pin header, pitch 2.0mm

Note :

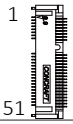
COM1 : Support RS-232/422/485 & RI/5V/12V, for RI/5V/12V jumper setting, please see P. 41
COM2 : Support RS-232/422/485
COM3, COM4 : Support RS-232

3.2.17 MPCIE (Mini PCIE slot)

20



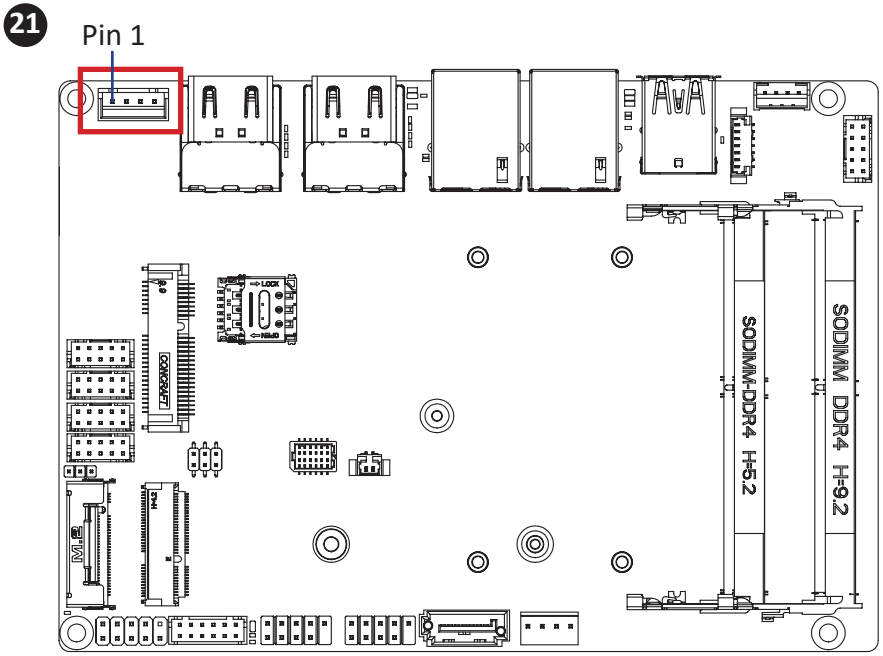
Mini PCIe Connector



Pin No.	Definition	Pin No.	Definition
1	PCIE_WAKE#	2	3.3V
3	NC	4	GND
5	NC	6	1.5V
7	PCIE_ CLKREQ#	8	SIM_PWR
9	GND	10	SIM_DATA
11	PCIE_CLKn	12	SIM_CLK
13	PCIE_CLKp	14	SIM_RST
15	GND	16	SIM_VPP
17	NC	18	GND
19	NC	20	PCIE_DISABLE
21	GND	22	PCIRST#
23	PCIE_RXn	24	3.3V
25	PCIE_RXp	26	GND
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PCIE_TXn	32	SMBDATA
33	PCIE_TXp	34	GND
35	GND	36	USBD-
37	GND	38	USBD+
39	3.3V	40	GND
41	3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1.5V
49	NC	50	GND
51	NC	52	3.3V

Connector PN	Vendor
AS0B221-S99Q-7H	FOXCONN

3.2.18 DC IN (DC IN 1 x 4pin power connector)



DC IN power connector
DC_IN 1 4

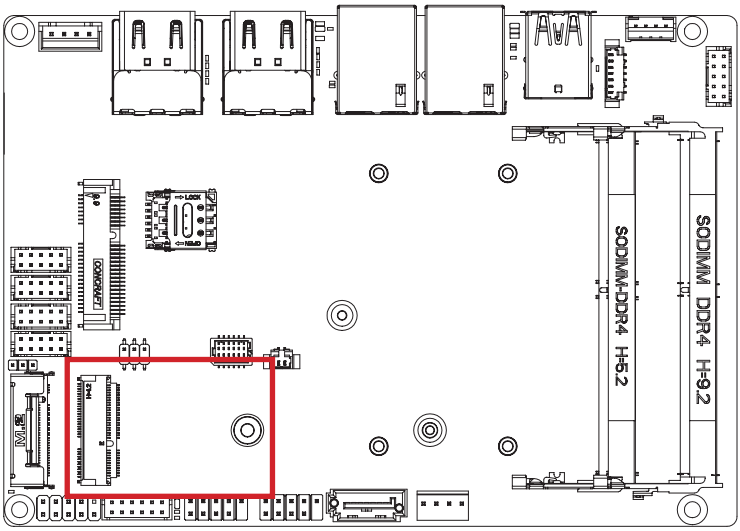
Connector PN	Vendor
753-81-04TW00	PINREX

Connector type
1x4pin header, pitch 2.5mm

Pin No.	Definition
1	GND
2	POWER IN
3	POWER IN
4	GND

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

22



M.2 E Key Connector

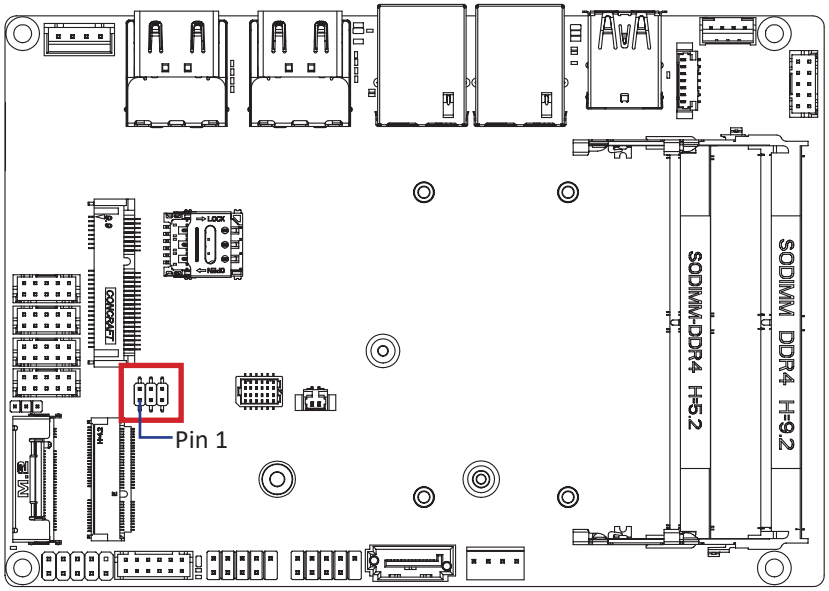
Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	USB_Dp	4	3.3V
5	USB_Dn	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC		

Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	WLAN_TXp	34	NC
37	WLAN_TXn	36	NC
39	GND	38	NC
41	WLAN_RXp	40	NC
43	WLAN_RXn	42	NC
45	GND	44	NC
47	CLK_Dp	46	NC
49	CLK_Dn	48	NC
51	GND	50	SUSCLK
53	CLK_REQ	52	PCIE_RST
55	PCIE_WAKE	54	BT_Disable#
57	GND	56	WLAN_ 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
80152-4221	BELLWETHER

3.2.19 JCOM1 (RI pin RI/5V/12V Select jumper for COM1 port)

23



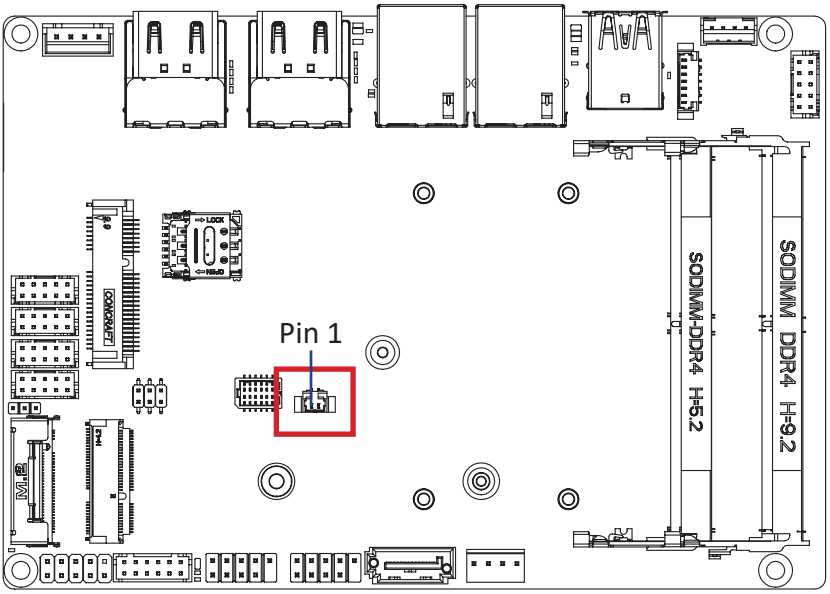
JCOM1 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)
	5-6 Close: 12V (Power COM)

Connector PN	Vendor
222-97-03GBE1	PINREX

Connector type
2x3pin header, pitch 2.0mm

3.2.20 Battery (Battery Connector)

24

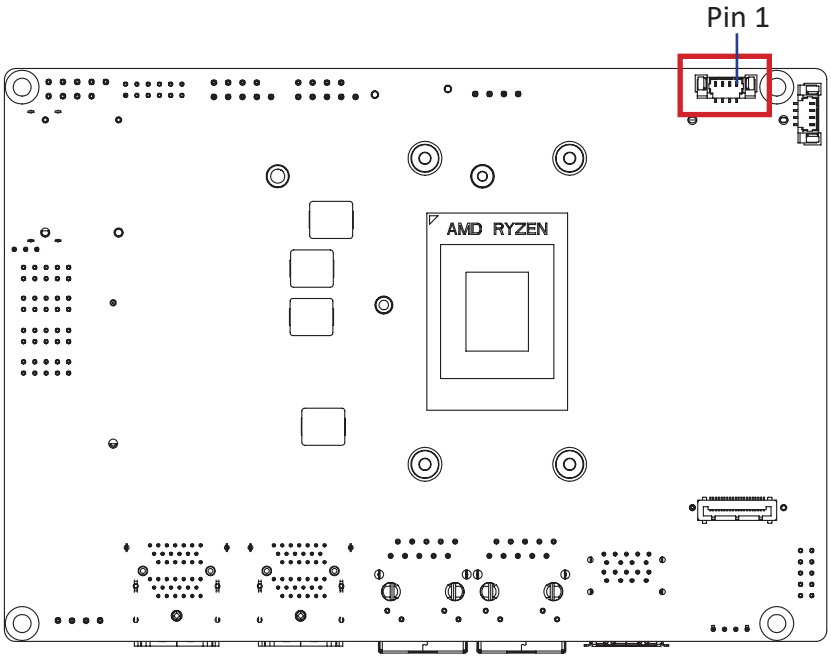


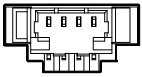
Battery Connector
 1 2

Pin No.	Definition
1	3V
2	GND

3.2.21 CPU_FAN (CPU FAN connector)

25



CPU FAN connector
4 3 2 1 

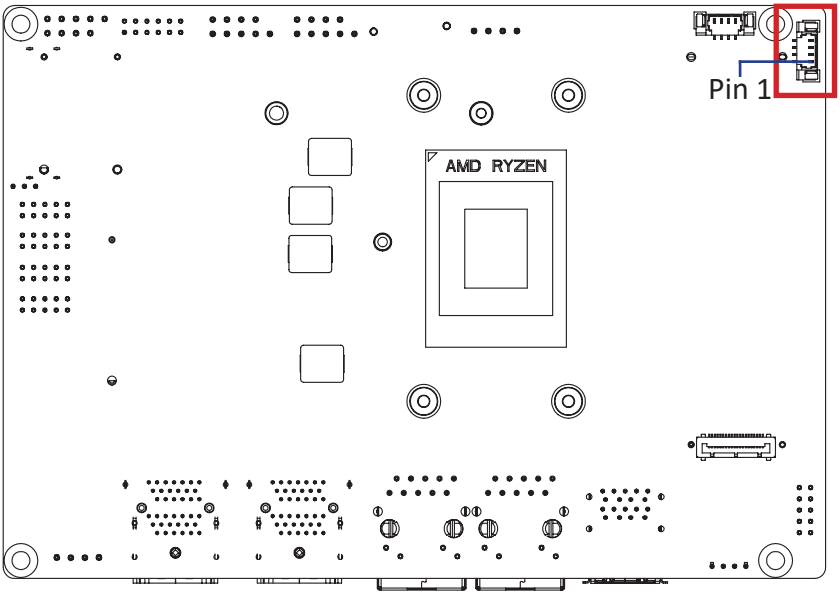
Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

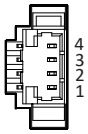
Connector type
1x4pin header, pitch 1.25mm

Pin No.	Definition
1	GND
2	12V
3	Detect
4	Speed Control

3.2.22 SYS_FAN (System FAN connector)

26



System FAN connector


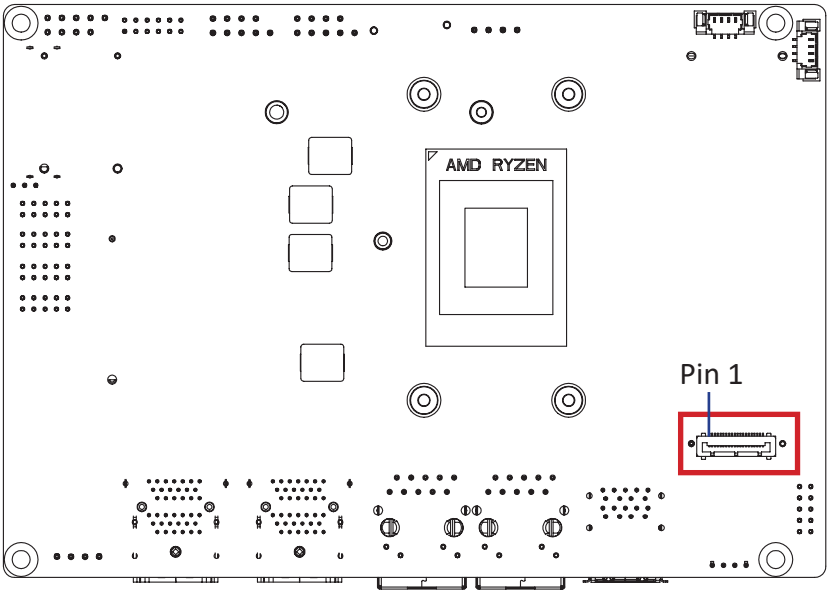
Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

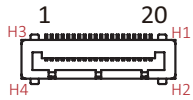
Connector type
1x4pin header, pitch 1.25mm

Pin No.	Definition
1	GND
2	12V
3	Detect
4	Speed Control

3.2.23 EDP (Embedded Display port connector)

27



Embedded Display Port Connector


Pin No.	Definition	Pin No.	Definition
1	GND	13	GND
2	EDP_TX0-	14	EDP_AUX-
3	EDP_TX0+	15	EDP_AUX+
4	GND	16	EDP_Detect
5	EDP_TX1-	17	Hotplug Detect
6	EDP_TX1+	18	Backlight Enable
7	GND	19	GND
8	EDP_TX2-	20	Backlight control
9	EDP_TX2+	21	H1 -> GND
10	GND	22	H2 -> GND

Pin No.	Definition	Pin No.	Definition
11	EDP_TX3-	23	H3 -> GND
12	EDP_TX3+	24	H4 -> GND

Connector PN	Vendor
115B20-100020-G4-R	STARCONN

Connector type
1x20pin header, pitch 0.5mm

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

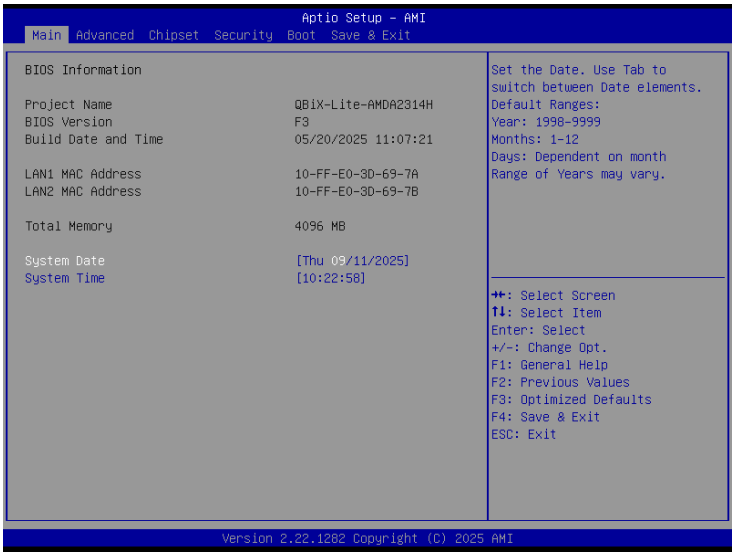
Once the system is power on, press the <DEL> key as soon as possible to access into BIOS Setup program.

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

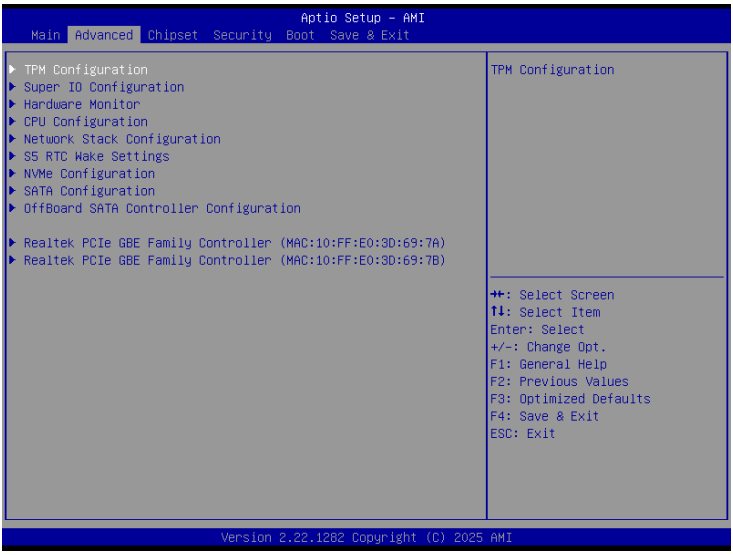
The main menu shows the basic system information.
Use arrow keys to move among the items.



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
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)

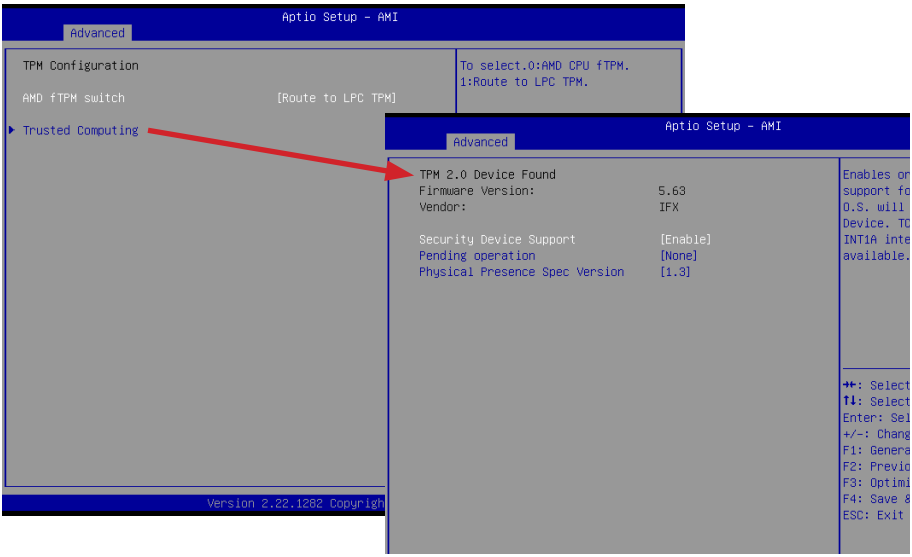
4.3 Advanced

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.



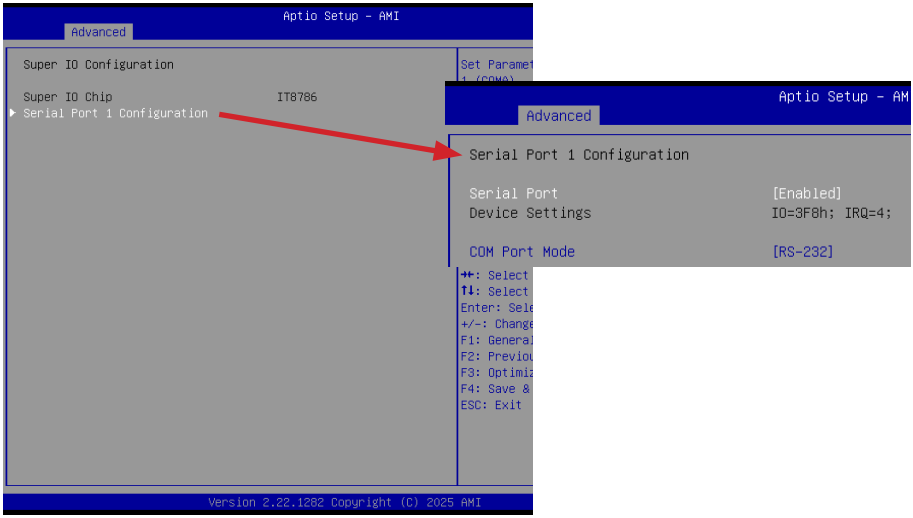
4.3.1 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



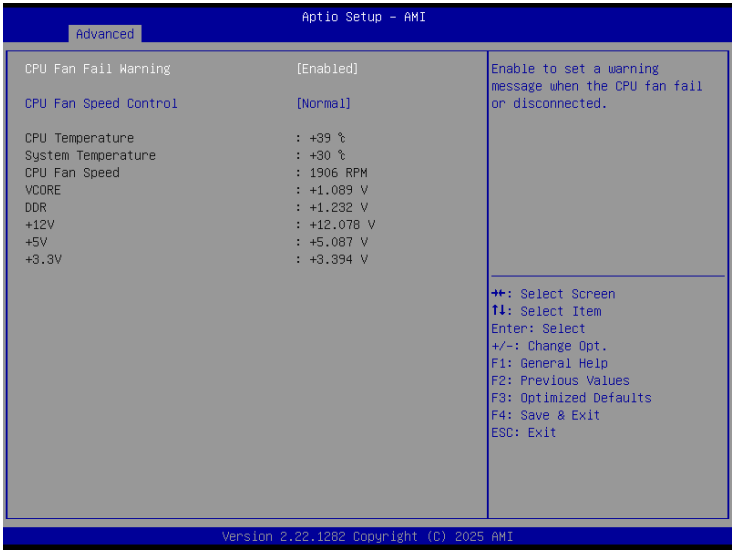
Item	Description
AMD fTPM switch	**AMD CPU fTPM : Enables AMD CPU firmwarm TPM** **Route to LPC TPM : Enables to route to LPC TPM (Default setting)**
Trusted Computing	Security Device Support : **Enabled : Enables TPM feature (Default setting)** **Disabled : Disables TPM feature** Pending operation : **None : No execution will be conducted (Default setting)** **TPM clear : Set to clear data on TPM** Physical Presence Spec Version : Choose PPI spec version **Option items : 1.2 or 1.3 (Default setting)**

4.3.2 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** 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

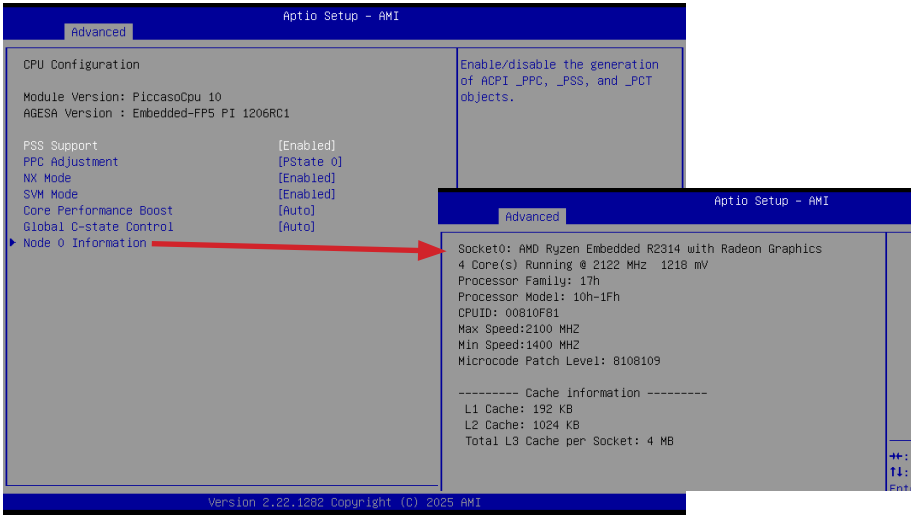
4.3.3 Hardware Monitor



Item	Description
CPU Fan Fail Warning	**Enabled : Enables CPU FAN Fail warning alert function (Default setting)** **Disabled : Disables CPU FAN Fail warning alert function**
CPU Fan Speed Control	**Normal : Fan speed set by BIOS default (Default setting)** **Full Speed : Set Fan operates at full speed**
CPU Temperature	Shows current CPU temperature
System Temperature	Shows current system temperature
CPU Fan Speed	shows current CPU Fan speed

4.3.4 CPU Configuration

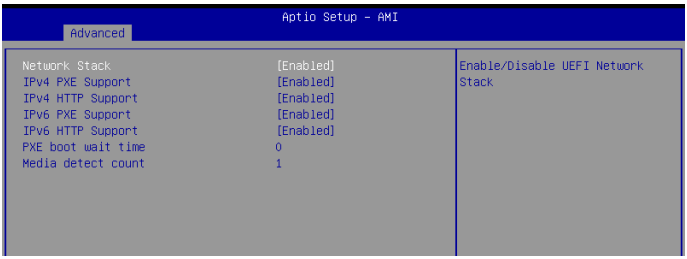
This submenu shows detailed CPU informations.



Item	Description
PSS Support	Allows you to get PState information **Enabled : Enables to get PState information (Default setting)** **Disabled : Disables to get PState information**
PPC Adjustment	To adjust the PState of the CPU **Option items : PState 0 (Default setting), PState 1, PState 2**
NX Mode	Enables or Disables the No-execute page-protection function. **Enabled : Enables NX Mode (Default setting)** **Disabled : Disables NX Mode**
SVM Mode	Enables or Disables the CPU virtualization funtion. **Enabled : Enables SVM Mode (Default setting)** **Disabled : Disables SVM Mode**
Core Performance Boost	To let CPU transits to a higher frequency. **Disabled : Disables Core Performance Boost** **Auto : System will automatically allocate its' frequency (Default setting)**
Global C-state Control	Command CPU to enter into low power consumption mode when CPU is under idle mode. **Enabled : Enables Global C-states Control** **Disabled : Disables Global C-states Control** **Auto : System will automactically detect (Default setting)**
Node 0 Information	Shows AMD CPU information

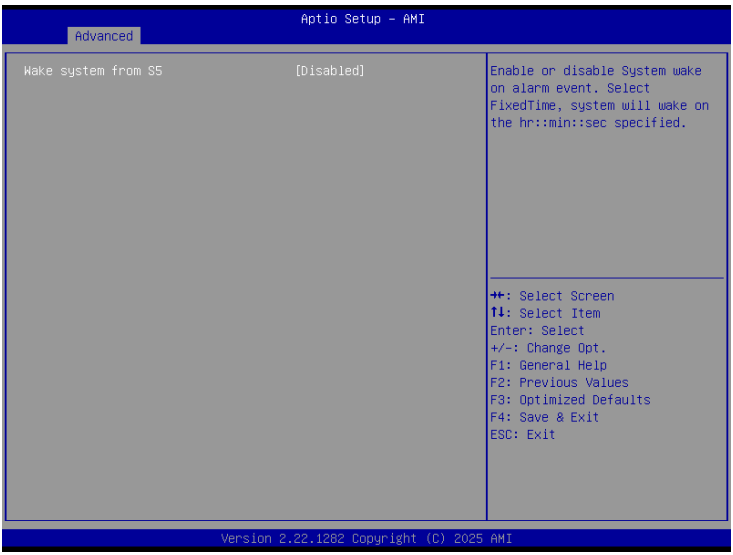
4.3.5 Network Stack Configuration

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 HTTP Support** **Enabled : Enables IPv4 HTTP 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 HTTP Support** **Enabled : Enables IPv6 HTTP 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.

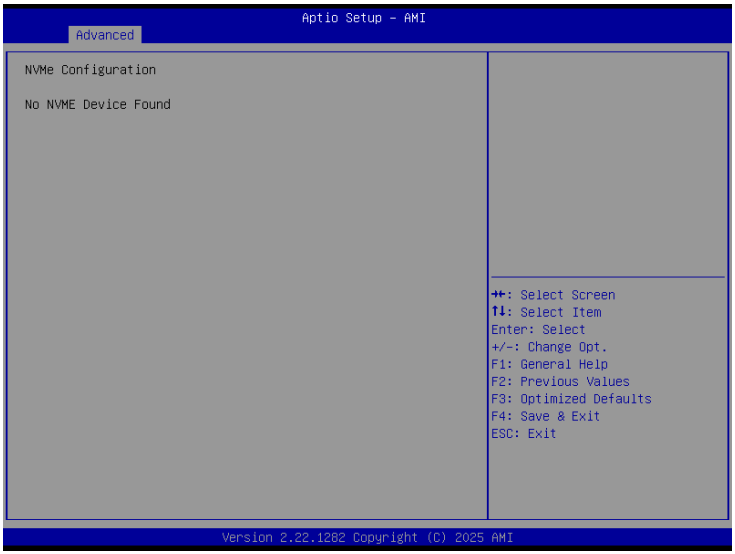
4.3.6 S5 RTC Wake Settings



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)**

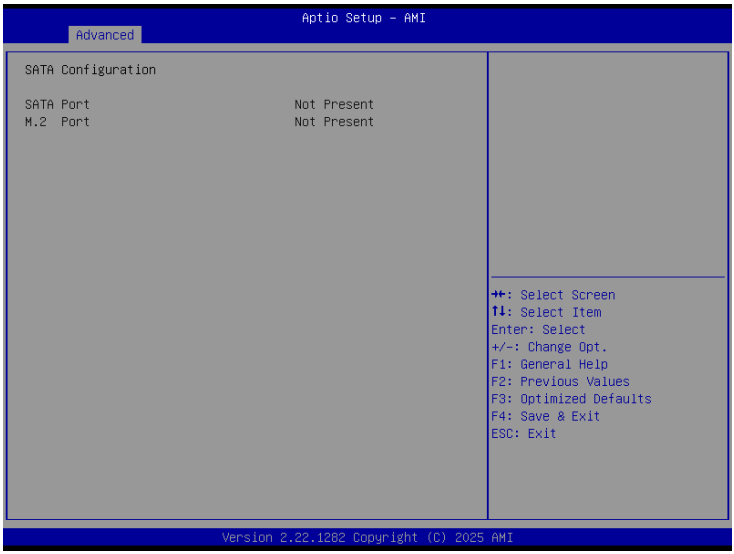
4.3.7 NVMe Configuration

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

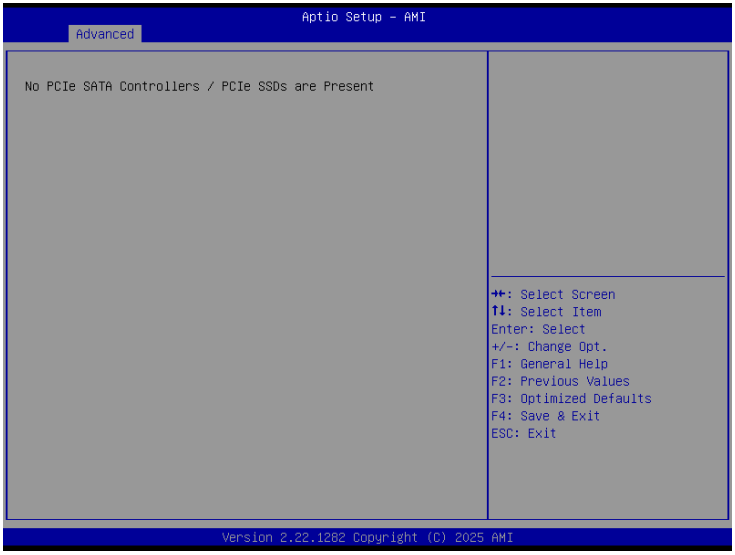


4.3.8 SATA Configuration

SATA Configuration shows information when your SATA interface Storage is installed.

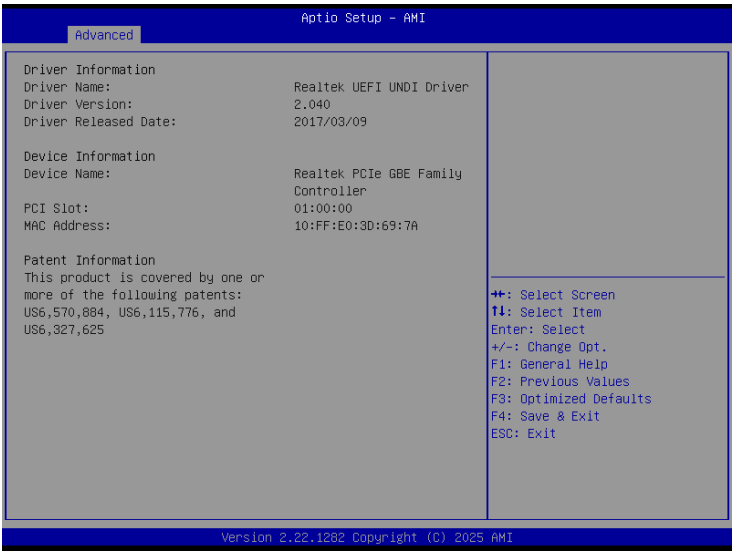


4.3.9 OffBoard SATA Controller Configuration



4.3.10 Realtek PCIe GBE Family Controller (MAC : 10:FF:E0:3D:69:7A) (MAC address may varied based on different motherboard)

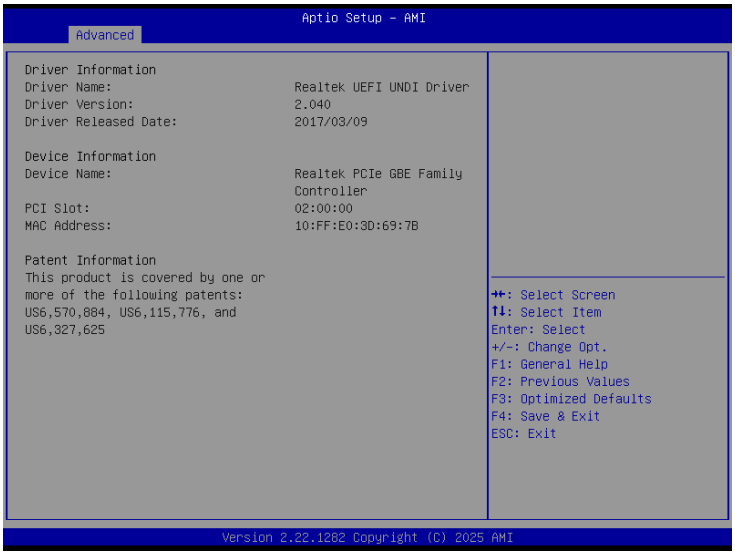
Shows Realtek Ethernet controller information



NOTE：MAC address may varied based on different motherboard

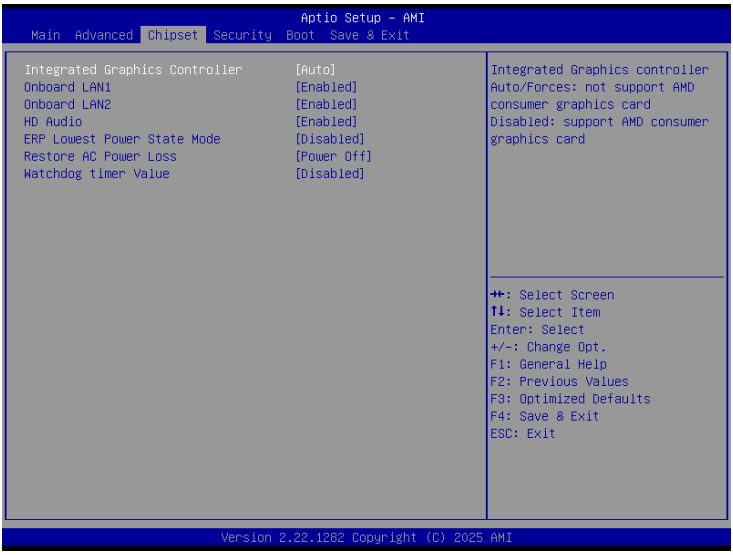
4.3.11 Realtek PCIe GBE Family Controller (MAC : 10:FF:E0:3D:69:7B) (MAC address may varied based on different motherboard)

Shows Realtek Ethernet controller information



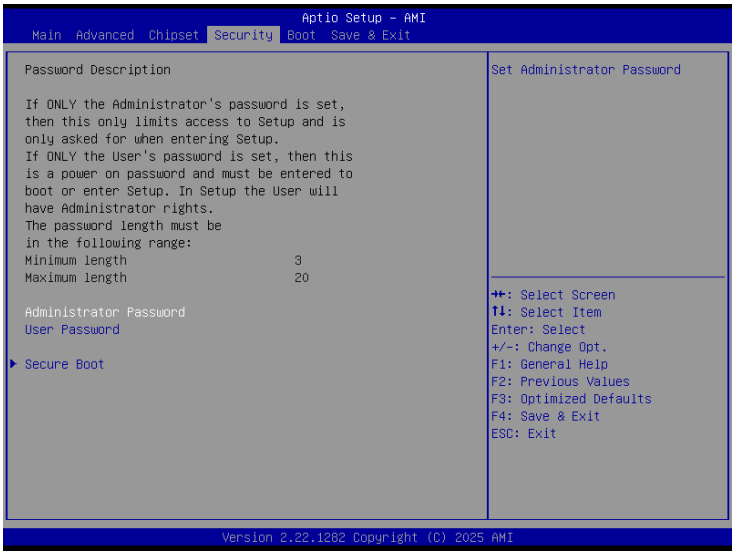
NOTE：MAC address may varied based on different motherboard

4.4 Chipset

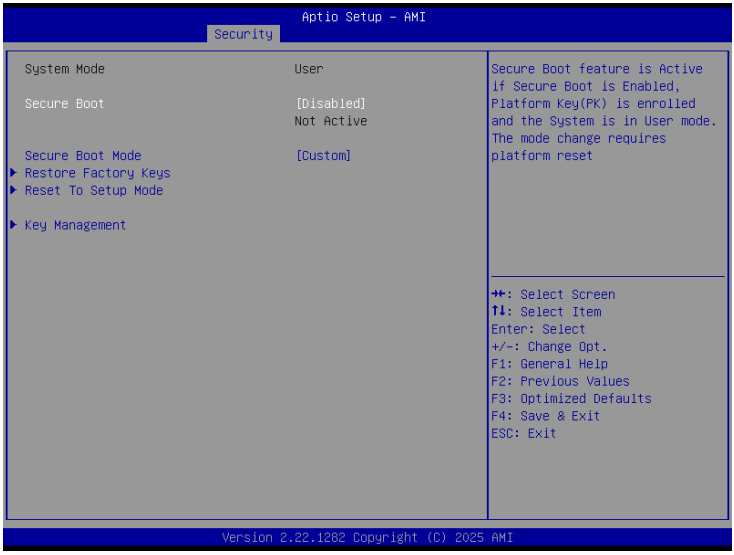


Item	Description
Integrated Graphics Controller	Enables or disables the onboard graphics function **Auto : System will automatically enables or disables the onboard graphics depending on the graphics card being installed. (Default setting)** **Forces : Disables the onboard graphics.**
Onboard LAN1 **Onboard LAN2**	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**
ERP Lowest Power State Mode	Enable/Disable power saving funtion **Enabled : Enables ERP Lowest Power State Mode** **Disabled : Disabled ERP Lowest Power State Mode (Default setting)**
Restore AC Power Loss	To set which option the system should returns if a sudden power loss occured **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 occures**
Watchdog timer Value	Enable/Disable Watchdog Timer function **Option item : Disabled : Disabled (Default setting), 30 Seconds, 60 Seconds**

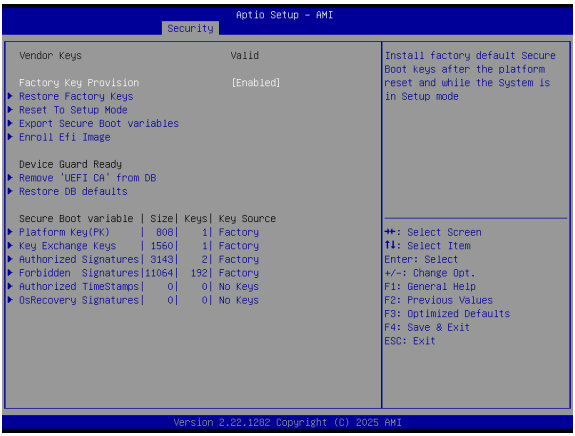
4.5 Security



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**
Export Secure Boot variables	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device
Enroll Efi Image	Allow the image to run in Secure Boot mode
Remove 'UEFI CA' from DB	To remove 'UEFI CA' from database **Yes : Agree to remove 'UEFI CA' from database** **No : Cancel to remove 'UEFI CA' from database**
Restore DB defaults	Restore DB variables to factory defaults **Yes : Agree to restore DB defaults** **No : Cancel to restore DB defaults**

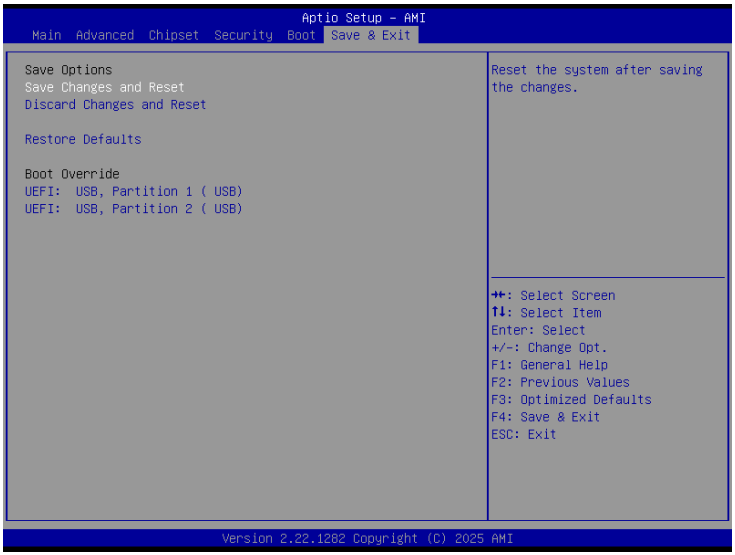
Item	Description
Platform Key (PK)	These items allows you to enroll factory defaults or load Certificates from a file.
Key Exchange Keys	
Authorized Signatures	
Forbidden Signatures	
Authorized TimeStamps	
OsRecovery Signatures	

4.6 Boot

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

Item	Description
Built-in EFI Shell	Enable/Disable Built-in EFI Shell **Enabled : Enables Built-in EFI Shell** **Disabled : Disables Built-in EFI Shell (Default setting)**
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 #1 **Boot Option #2**	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**
Boot Override	Boot override