

QBiX-Lite-TGLA1135G7-A1 (QL-1135A-SI)

QBiX-Lite 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
Bracket for Wall Mount (25HB1-SD4000-R0R)	2
Screws for Wall Mount M3.0*L6.0 (25KS9-130600-S0R)	4
PSU ADP 19.5V 135W 100-240VAC (25EP4-201352-C1S)	1
Power Cord (Optional, by region)	1
Thermal Pad for Memory (25ST3-200086-T5R)	1
SATA Cable (25CRI-180002-S9R)	1
Screws for 2.5" HDD #2-M3x4L (25KS2-13004G-S0R)	8
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.**

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.

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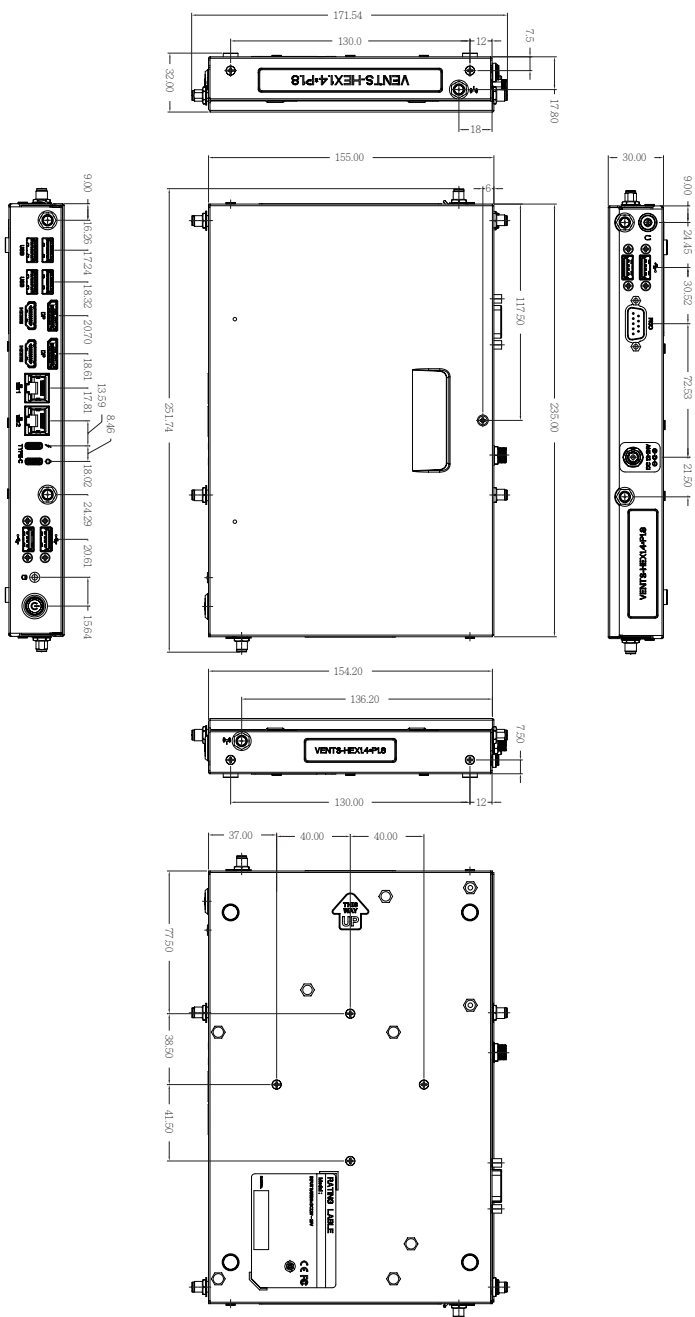
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Chapter 1

Chapter 1 - Product Specifications



1.1 Specifications

System	QBiX-Lite-TGLA1135G7-A1 (QL-1135A-SI)
Dimension	System Size : 234W x 155D x 30H (mm)
CPU	Intel® Core™ i5-1135G7 Processor 10nm SuperFin, 4 cores, 8 threads, up to 4.2 GHz
Chipset	SoC
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB Support Dual channel DDR4 3200 MHz memory modules
Ethernet	2 x GbE LAN Ports (Intel® I219V and Intel® I211AT)
Graphic support	Integrated Graphics Processor - Intel® Iris® Xe Graphics: 2 x HDMI 2.0 ports, supporting a maximum resolution of 4096x2304 @60Hz 2 x DP 1.4 ports, supporting a maximum resolution of 7680x4320 @60Hz 1 x DP 1.4 through USB type C (8k), supporting a maximum resolution of 7680x4320 @60Hz (4 independent display outputs)
Audio	Realtek® Audio Codec
Storage	1 x 2.5" HDD/SSD (SATA 6Gb/s)
Expansion Slots	1 x 2280 M.2 M-Key (PCIe x2, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x 3052 M.2 B-Key with SIM slot (Support 5G)
Front I/O	1 x USB type C (USB 3.2 Gen 2x1, DP Alt Mode & PD Out -30W) (-100W requests to use 250W adapter) 1 x USB type C (USB 3.2 Gen 2x1, PD input-100W) 4 x USB 3.2 Gen 2x1 2 x HDMI 2 x DP 2 x RJ45 LAN Ports 2 x USB 2.0 1 x HDD LED 1 x Power button with LED 2 x External Antenna Holes (Optional)

System	QBiX-Lite-TGLA1135G7-A1 (QL-1135A-SI)
Rear I/O	1 x COM Port (RS-232) 2 x USB 2.0 1 x Headphone Jack 1 x Screw type DC Jack 2 x External Antenna Holes (Optional)
Side I/O	1 x External Antenna Hole (on each side)
TPM	—
Power	+12V~24VDC (Adapter 19.5V/135W)
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, 1 Grms, random, 5 ~ 500 Hz, 1 hr / Per Axis, with SSD/M.2 2242 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 Including: Bracket for Wall Mount x 2 : 25HB1-SD4000-R0R Screws for Wall Mount x 4 : 25KS9-130600-S0R PSU ADP 19.5V 135W 100-240VAC x 1 : 25EP4-201352-C1S Power Cord : Optional (by region) Thermal Pad for Memory x 1 : 25ST3-200086-T5R SATA Cable x 1 : 25CRI-180002-S9R Screws for 2.5" HDD x 8 : 25KS2-13004G-S0R
Order Information	System : 6BQL1135AMR-SI (Box packing)

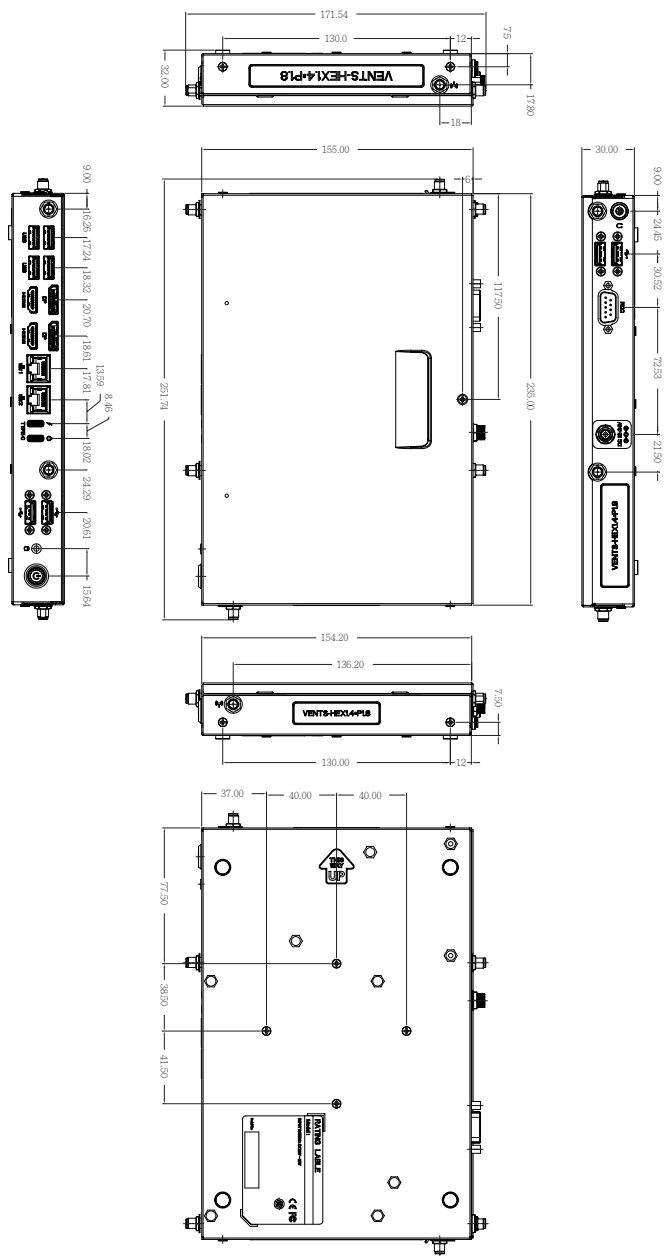
※ Note 1 : Either using DC IN or USB Type C (USB3CM) power in for your design or application. It does not support hot swap.

※ Note 2 : When plug-in 100W adapter into USB Type C (USB3CM) port, power max of USB Type C (USB3CP) would restrict to 36W (12V/3A) only, to maintain stable of the system.

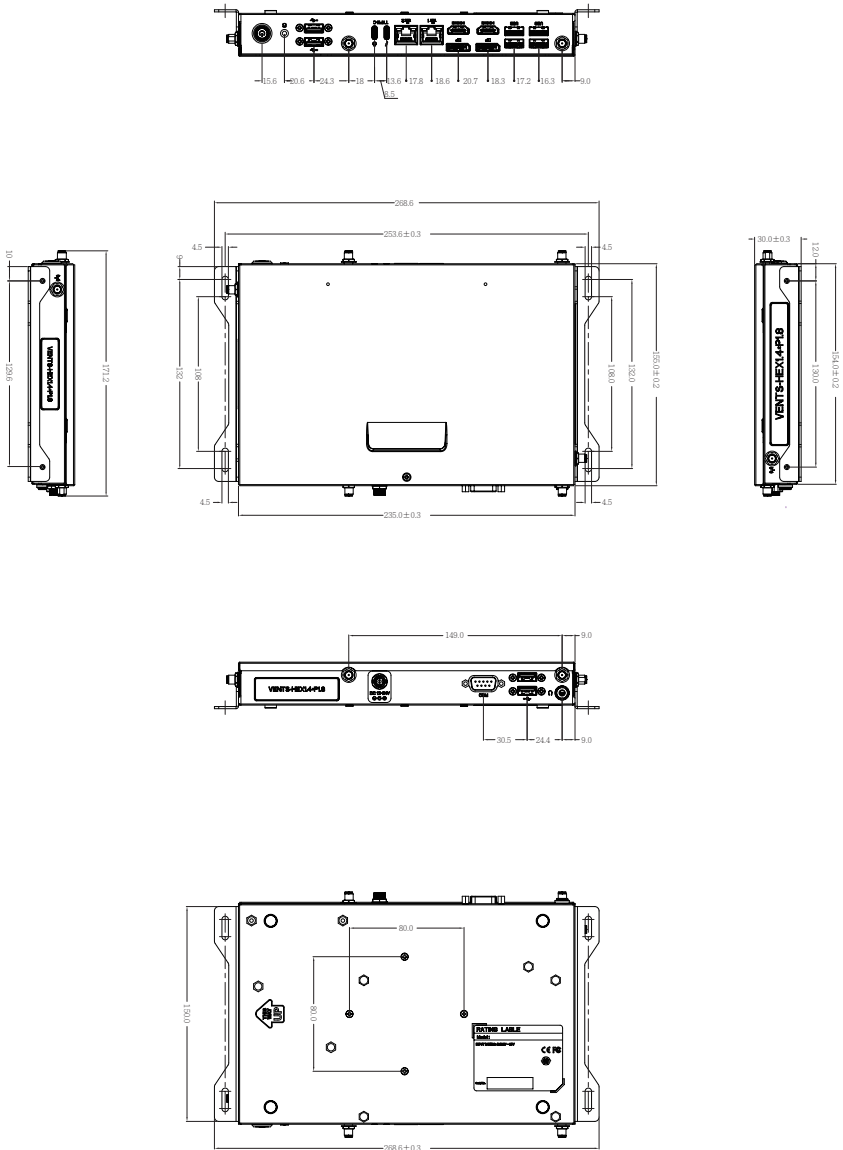
Chapter 2

Chapter 2 – QBiX-Lite-TGLA1135G7-A1 (QL-1135A-SI) Industrial Embedded System Kit

2.1 Dimension



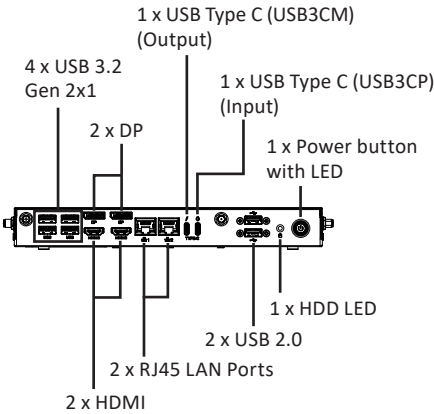
2.1 Dimension - including wall mount brackets



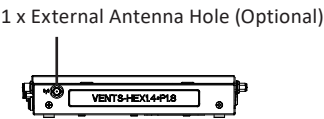
NOTE : The wall mount bracket will be shipped as an accessory instead of assembled on the system.
Above dimension drawing including wall mount brackets is for reference only.

2.2 Getting Familiar with Your Unit

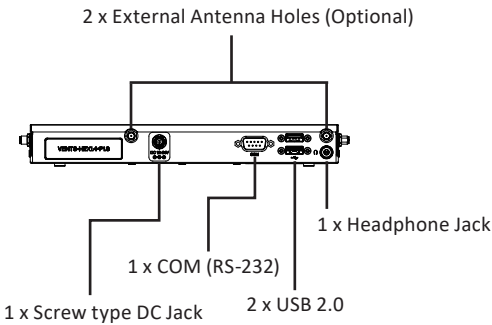
[Front I/O Side]



[Left Side]



[Rear I/O Side]



[Right Side]

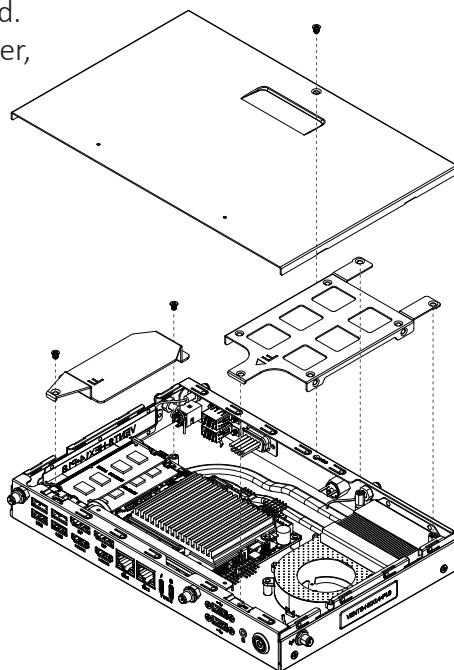


※ Note 1 : Either using DC IN or USB Type C (USB3CM) power in for your design or application.
It does not support hot swap.

※ Note 2 : When plug-in 100W adapter into USB Type C (USB3CM) port, power max of
USB Type C (USB3CP) would restrict to 36W (12V/3A) only, to maintain stable of the system.

[Install]

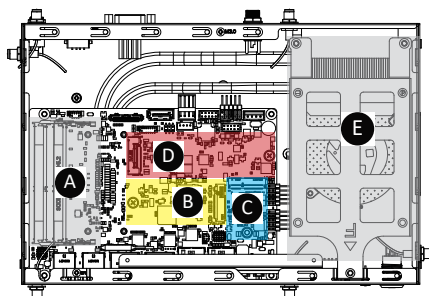
- * Before opening the case, make sure to unplug the power cord.
- * Before Connecting the power, make sure to fasten the case securely.



[Bottom PCB Side]

	Information
A	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB, Support Dual Channel DDR4 3200 MHz
B	1 x 3052 M.2 B-Key with SIM Slot (Support 5G)

	Information
C	1 x 2230 M.2 E-Key
D	1 x 2280 M.2 M-Key (PCIe x2, SATA 6Gb/s)
E	2.5" Hard drive/ SSD

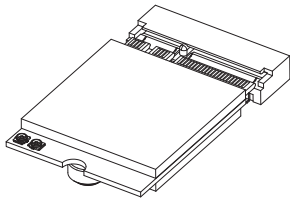


2.3 A) Wireless Module: How to safely install the Module (Wireless Module inclusion may vary based on local distribution)

1

Carefully insert the wireless module into the M.2 slot

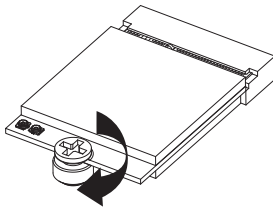
小心地將無線模組安裝於M.2插槽中。



2

Lock the screw in the middle.

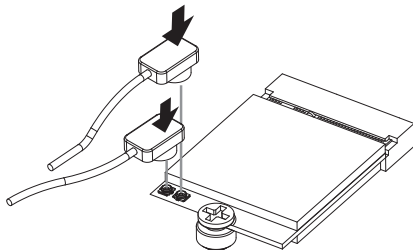
鎖入固定於無線模組中央頂端的螺絲。



3

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

向下安裝連結於無線模組左側頂端天線。

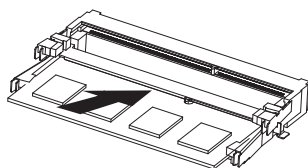


2.4 B) Memory Installation: DDR4 SO-DIMM

1

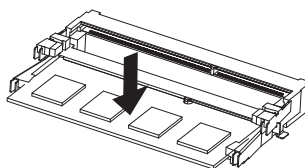
Carefully insert SO-DIMM memory modules.

小心地由下至上將 SO-DIMM 記憶體安裝於記憶體插槽。

**2**

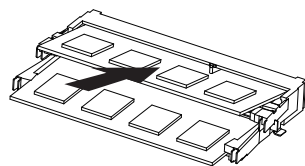
Push down until the modules click into place.

當記憶體固定於插槽後，再輕輕下壓至定點。

**3**

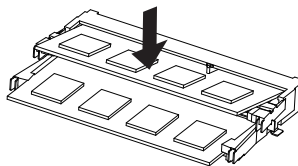
Carefully insert SO-DIMM memory modules.

安裝下層記憶體後，重覆前述動作安裝上層記憶體。

**4**

Push down until the modules click into place.

當記憶體固定於插槽後，再輕輕下壓至定點。

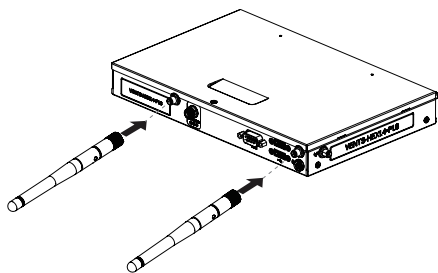


2.5 Antenna Installation (Antenna inclusion may vary based on local distribution)

1

Carefully insert the antennas into the connectors.

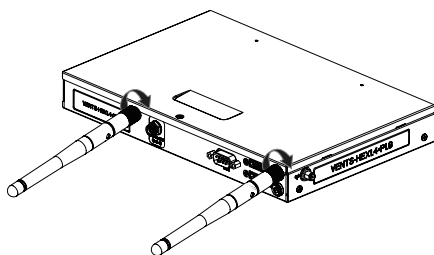
小心地將天線插入天線插孔中。



2

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

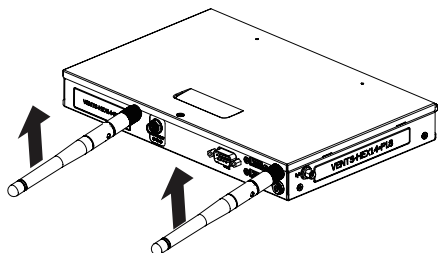
握住天線接頭底端，按順時針方向將天線旋入插孔中牢牢固定。



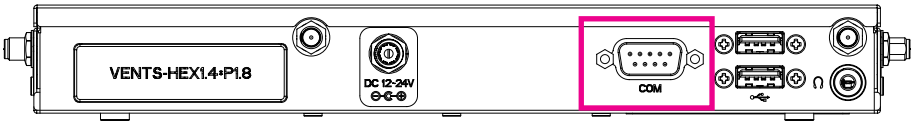
3

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

栓緊後請將天線拉起朝上呈垂直狀。



2.6 DB9 COM Pin Define



DB9 COM	
25CF8-120600-S9R	
Pin No.	Pin Define
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

2.7 Support

- For a list of tested memory, M.2, 2.5" SSD, wireless adapters and OS supported, go to: <http://www.gigaipc.com>
- To download the latest drivers and BIOS updates, go to: <http://www.gigaipc.com>
- For product support, go to: <http://www.gigaipc.com>

2.8 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.

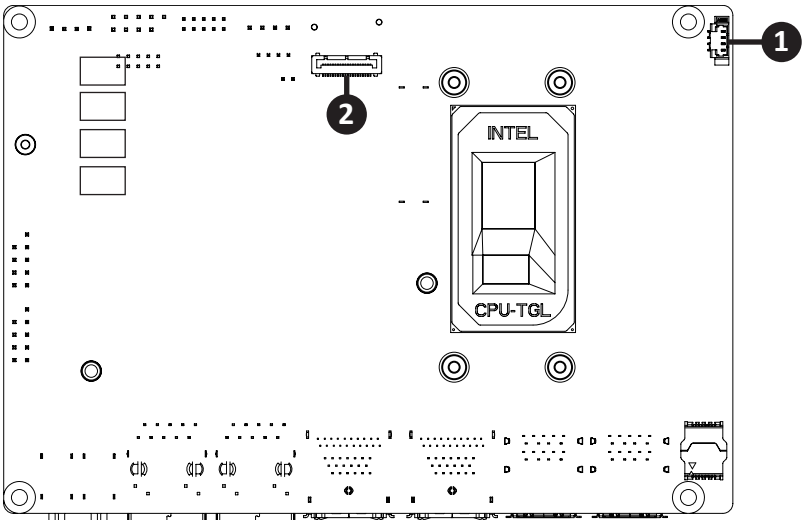
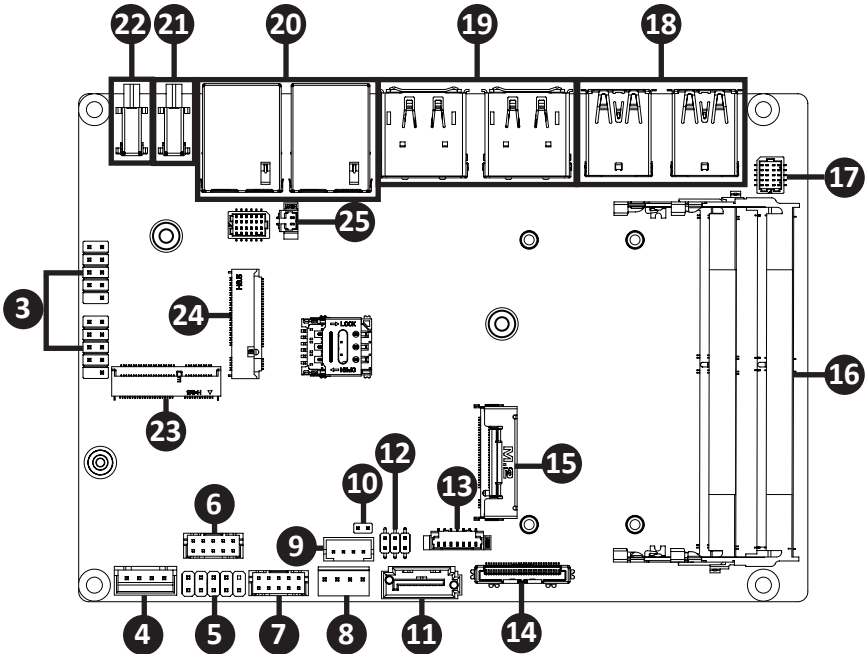


At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Chapter 3

Chapter 3 – Hardware Information

3.1 Jumpers and Connectors

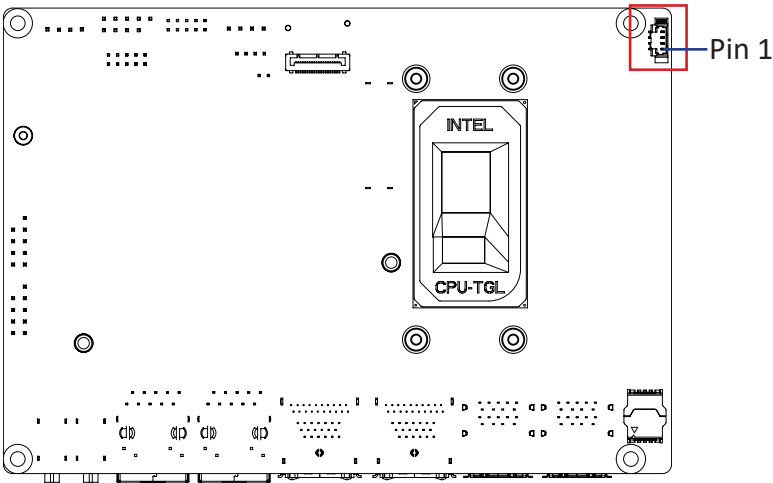


No	Code	Description
1	CPU_FAN2	CPU fan connector
2	EDP	Embedded Display Port Connector
3	FUSB1, FUSB2	USB2.0 headers
4	DC_IN	DC IN 1x4 pin power connector
5	SYS_PANEL	Front panel header
6	COM2	Serial port header (RS-232)
7	FP_AUDIO	Front Audio connector
8	SATAPWR	SATA power connector
9	SPKR	Speaker out connector
10	ME	ME Enable jumper
11	SATA0	SATA 6Gb/s connector
12	JCOM1	COM 1 (COM RI# pin RI#/5V/12V Select)
13	EDP_PWR	Embedded Display Port power connector
14	PCIE_X4	PCIe Gen3 x4 connector
15	M2M	M.2 Slot, SATA/PCIex2, NGFF 2280
16	SODIMM1 SODIMM2	DDR4 SO-DIMM Slot
17	TPM	Trusted Platform Module connector
18	USB31_1 USB31_2	USB 3.2 Gen 2x1 connector
19	HDMI_DP_1 HDMI_DP_2	DP connector (Top) HDMI connector (Bottom)
20	LAN1, LAN2	LAN connector

No	Code	Description
21	USB3CM	USB 3.2 Gen 2x1 Type C connector (Output)
22	USB3CP	USB 3.2 Gen 2x1 Type C connector (Input)
23	M2E	M.2 Slot, E-key, NGFF2230, WiFi & Bluetooth module
24	M2B	M.2 Slot, B-key, NGFF3052
25	BATTERY	Battery cable connector

3.2.1 CPU_FAN2 (CPU fan connector)

1



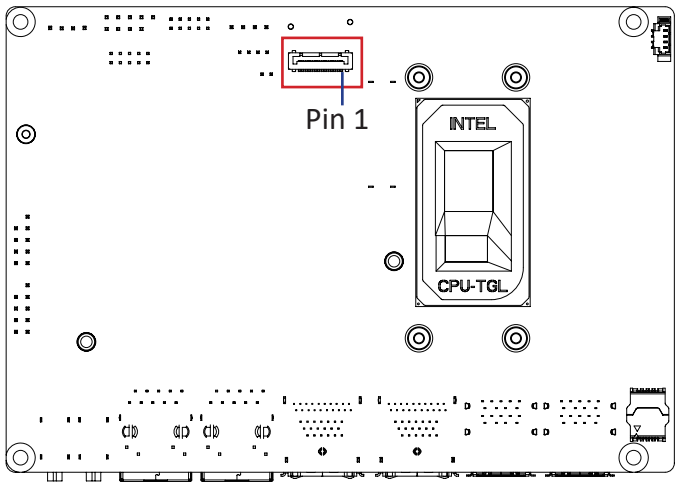
CPU fan Connector	
	

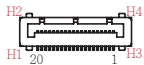
Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

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

3.2.2 EDP (Embedded Display Port Connector)

2



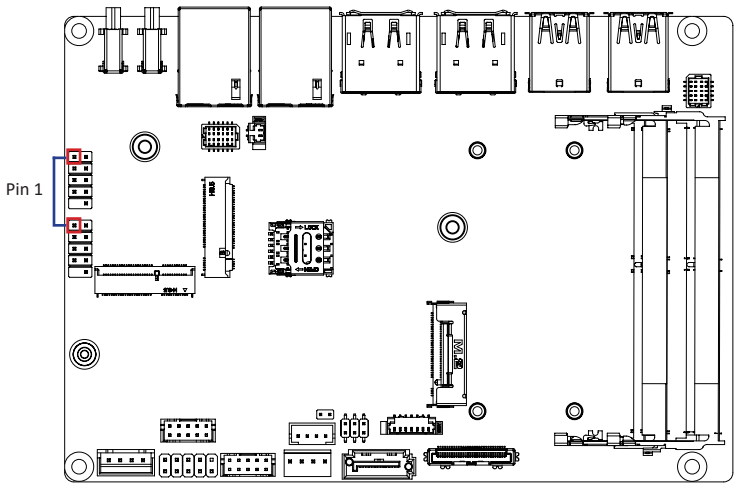
Embedded Display Port Connector			
			
Pin No.	Definition	Pin No.	Definition
1	GND	13	GND
2	EDP_TX0-	14	EDP_AUX-
3	EDP_TX0+	15	EDP_AUX+
4	GND	16	NC
5	EDP_TX1-	17	Hotplug Detect
6	EDP_TX1+	18	Backlight Enable
7	GND	19	GND
8	EDP_TX2-	20	Backlight cotrol

Pin No.	Definition	Pin No.	Definition
9	EDP_TX2+	21	H1
10	GND	22	H2
11	EDP_TX3-	23	H3
12	EDP_TX3+	24	H4

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

3.2.3 FUSB1, FUSB2 (USB2.0 headers)

3



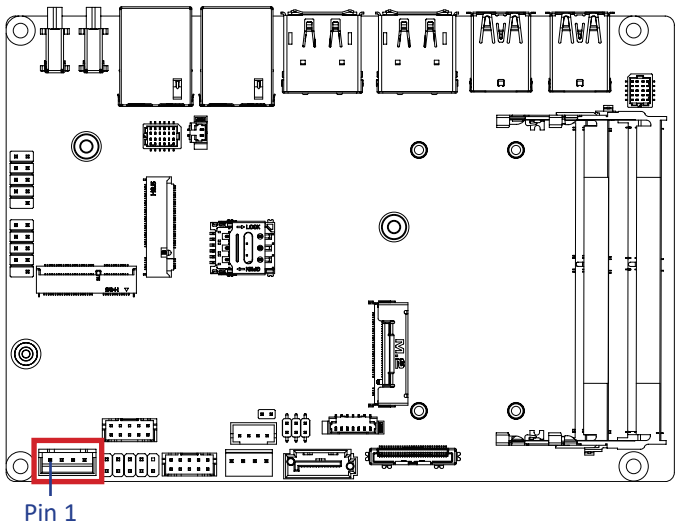
USB 2.0 Header	
1	2
3	4
5	6
7	8
9	10

Connector PN	Vendor
210-92-05GB04	PINREX
PH10R53BAZ009	HORNGTONG

Pin No.	Definition
1	5V
2	5V
3	DL-
4	DR-
5	DL+
6	DR+
7	GND
8	GND
9	No Pin
10	No Connect

3.2.4 DC_IN (DC IN 1x4 pin power connector)

4



DC IN 1x4 pin power connector

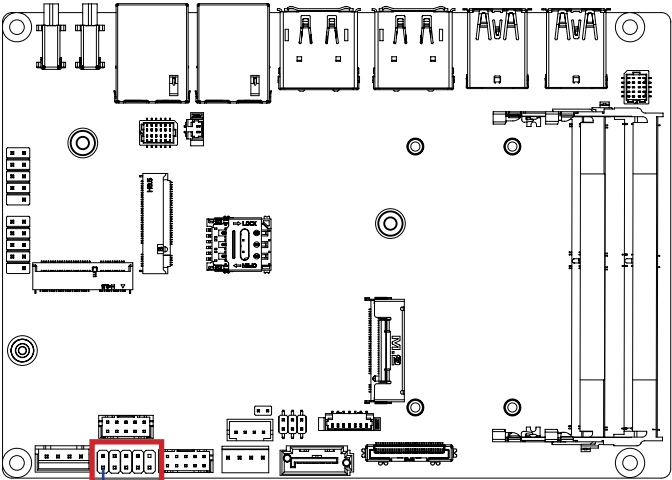
1 2 3 4

Connector PN	Vendor
753-81-04TW00	PINREX

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

3.2.5 SYS_PANEL (Front panel header)

5



Pin 1

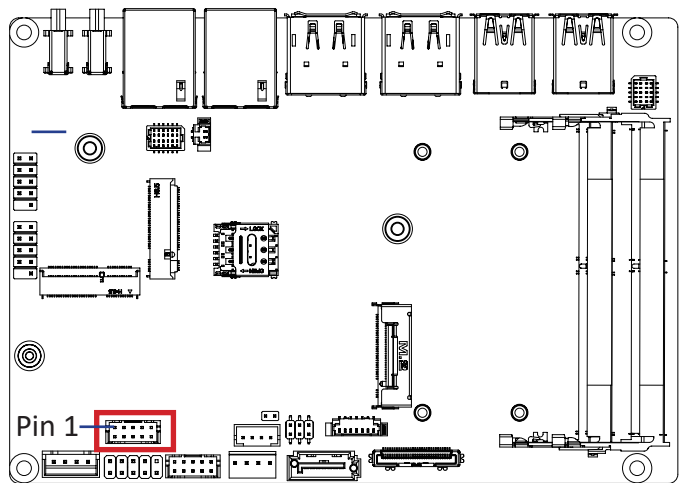
System Panel Header	
2	10
1	9

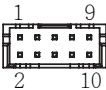
Connector PN	Vendor
210-92-05G111	PINREX
210-92-05GW5W	PINREX

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

3.2.6 COM (Serial port header, RS-232)

6



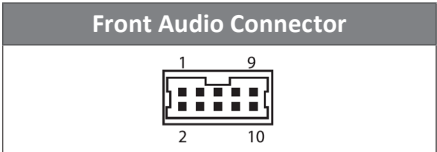
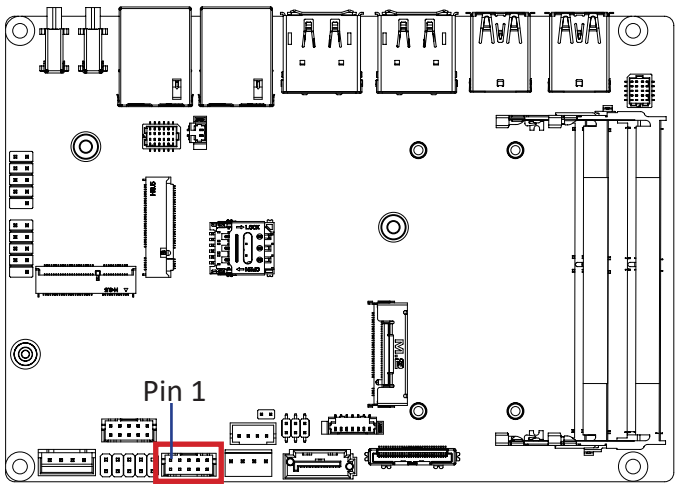
Serial Port Cable Connector	
	

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

Pin No.	Definition	Pin No.	Definition
1	RXD	6	GND
2	DCD	7	CTS
3	DTR	8	RTS
4	TXD	9	No Connect
5	DSR	10	RI/ 5V/ 12V

3.2.7 FP_AUDIO (Front Audio connector)

7

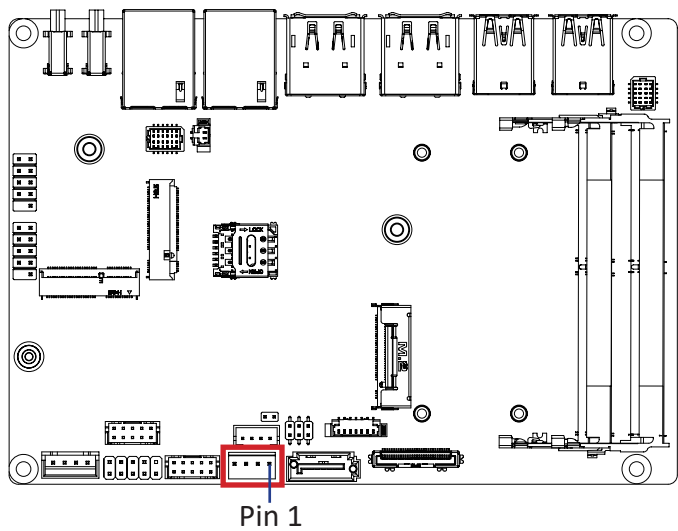


Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

Pin No.	Definition	Pin No.	Definition
1	MIC_L	6	MIC_JD
2	GND	7	FAUDIO_JD
3	MIC_R	8	No Connect
4	Detect	9	HPOUT_L
5	HPOUT_R	10	GND

3.2.8 SATAPWR (SATA power connector)

8

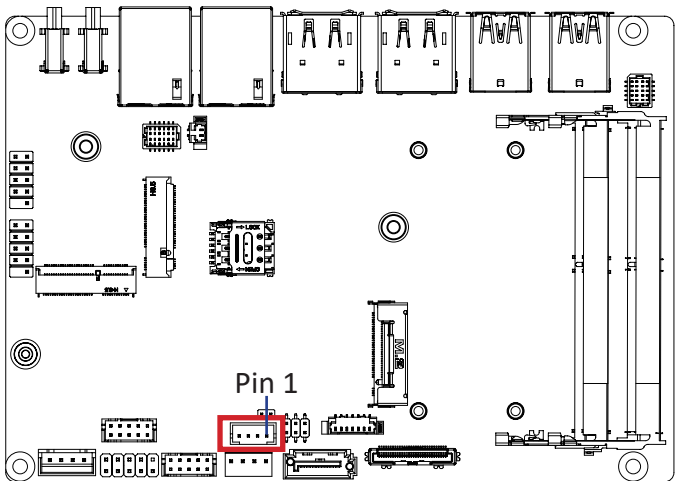


Hard Disk Power Connector	
4 3 2 1	
	
Pin No.	Definition
1	12V
2	GND
3	GND
4	5V

Connector PN	Vendor
743-91-045W00	PINREX
A2540WR-04PR6NG1N10G	JOINT-TECH

3.2.9 SPKR (Speaker out connector)

9

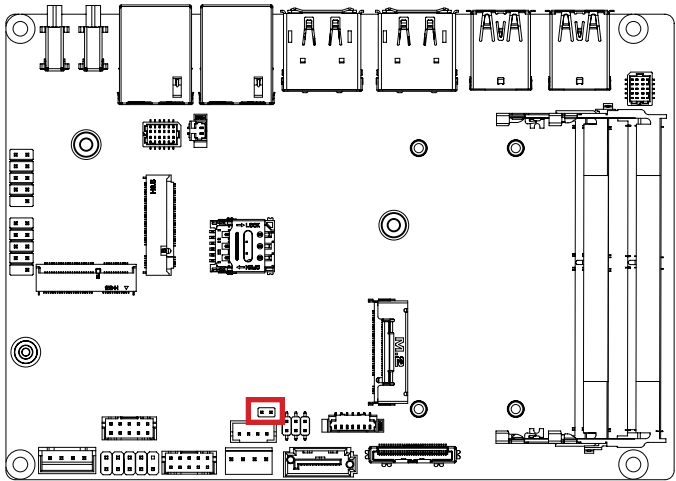


Speaker out Connector	
4321	
Pin No.	Definition
1	Speaker Out L+
2	Speaker Out L-
3	Speaker Out R-
4	Speaker Out R+

Connector PN	Vendor
721-81-045W00	PINREX
A2001WV-04P146	JOINT-TECH

3.2.10 ME (ME Enable jumper)

10

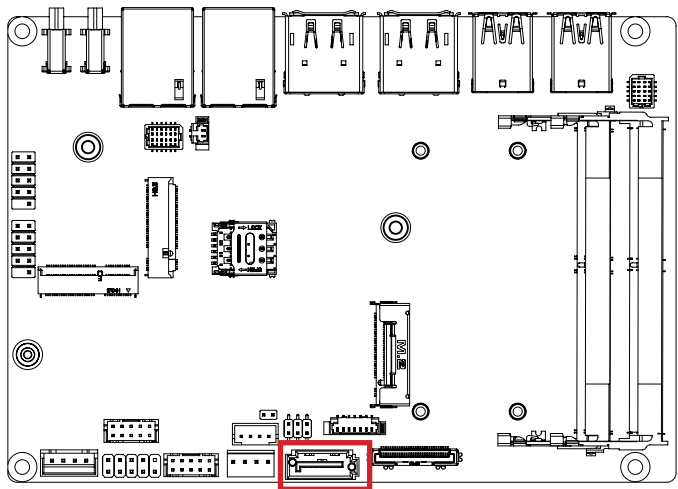


ME Enable Connector	
ME Enable jumper	
	Enable (Default)
	Disable (Close)

Connector PN	Vendor
220-96-02GB01	PINREX

3.2.11 SATA0 (SATA 6Gb/s connector)

11



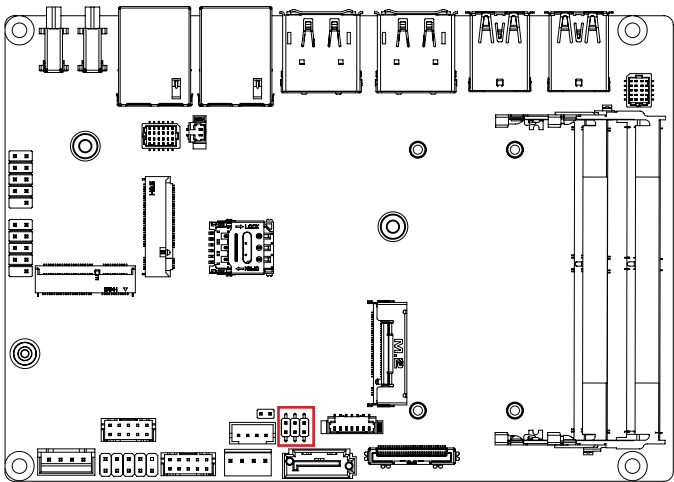
SATA Connector	

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

Connector PN	Vendor
WATF-07DBLBA1UW	WINWIN

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

12

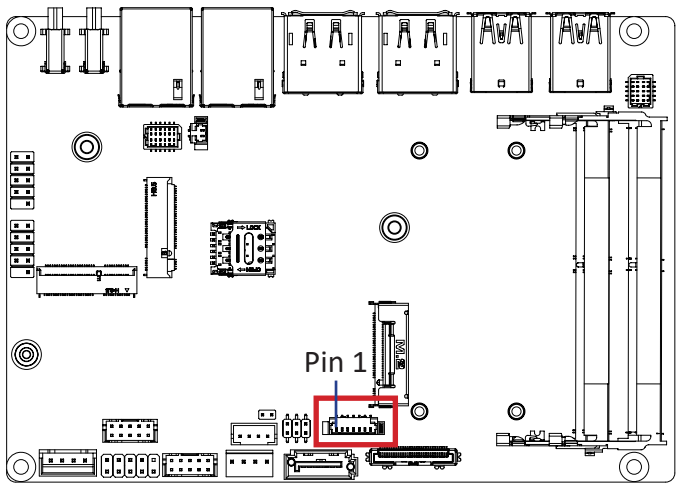


JCOM1 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM) (Default-Setting)
	5-6 Close: 12V (Power COM)

Connector PN	Vendor
222-97-03GBE1	PINREX

3.2.13 EDP_PWR (Embedded Display Port power connector)

13



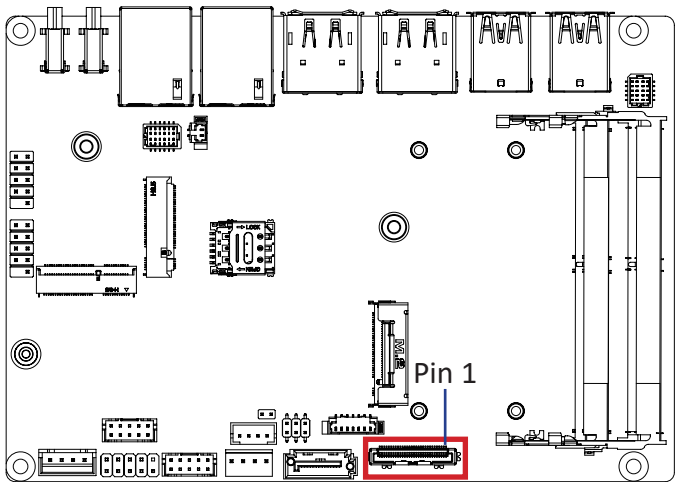
Embedded Display Port power connector

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

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

3.2.14 PCIE_X4 (PCIe Gen3 x4 connector)

14



PCIe Gen3 x4 Connector



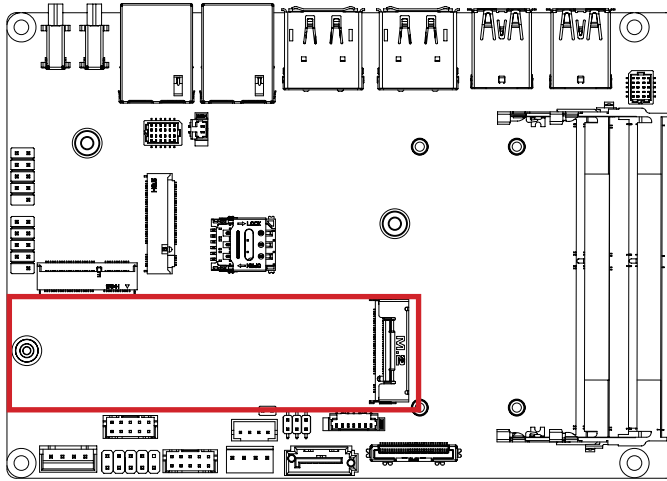
Pin No.	Definition	Pin No.	Definition
1	TX3_DP	2	TX3_DN
3	GND	4	TX2_DP
5	TX2_DN	6	GND
7	TX1_DP	8	TX1_DN
9	GND	10	TX0_DP
11	TX0_DN	12	GND
13	RX3_DP	14	RX3_DN
15	GND	16	RX2_DP
17	RX2_DN	18	GND
19	RX1_DP	20	RX1_DN

Pin No.	Definition	Pin No.	Definition
21	GND	22	RX0_DP
23	RX0_DN	24	CK_REQ
25	CLK_DP	26	CLK_DN
27	SMB_CLK	28	SMB_DATA
29	PLT_RST#	30	PCIE_WAKE#

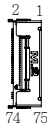
Connector PN	Vendor
115B30-000040-G4-R	STARCONN

3.2.15 M2M (M.2 Slot, SATA/PCIeX2, NGFF 2280)

15



M.2 M Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	GND	4	3.3V
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2_LED
11	NC	12	3.3V
13	NC	14	3.3V
15	GND	16	3.3V
17	NC	18	3.3V
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	PCIE_RXN	30	NC
31	PCIE_RXP	32	NC
33	GND	34	NC
35	PCIE_TXN	36	NC
37	PCIE_TXP	38	DEVSLP

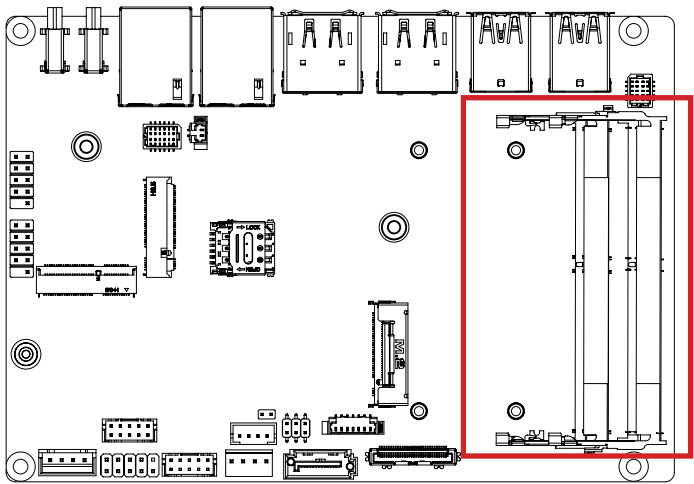
Pin No.	Definition	Pin No.	Definition
39	GND	40	SMB Clock
41	SATA_RXP	42	SMB DATA
43	SATA_RXN	44	SMB ALERT
45	GND	46	NC
47	SATA_TXN	48	NC
49	SATA_TXP	50	PLT_RST
51	GND	52	CK_REQ
53	CLK_N	54	PCIE_WAKE#
55	CLK_P	56	NC
57	GND	58	NC

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

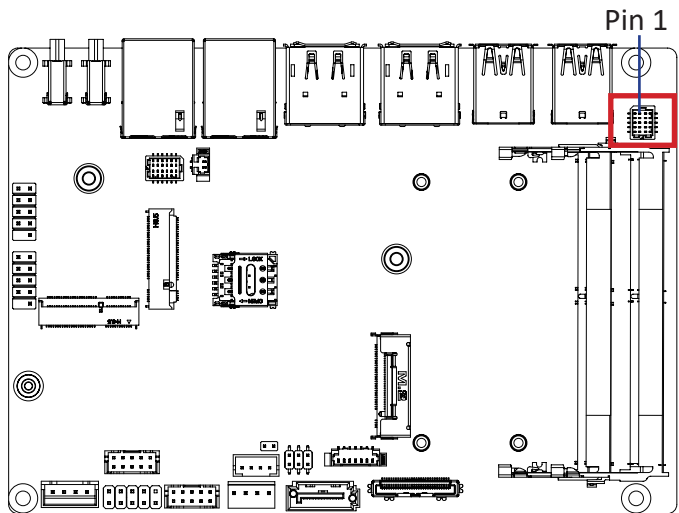
3.2.16 SODIMM1, SODIMM2 (DDR4 SO-DIMM Slot)

16

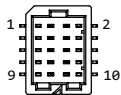


3.2.17 TPM (Trusted Platform Module Connector)

17



TPM Module Connector



Connector PN

87216-1004-06

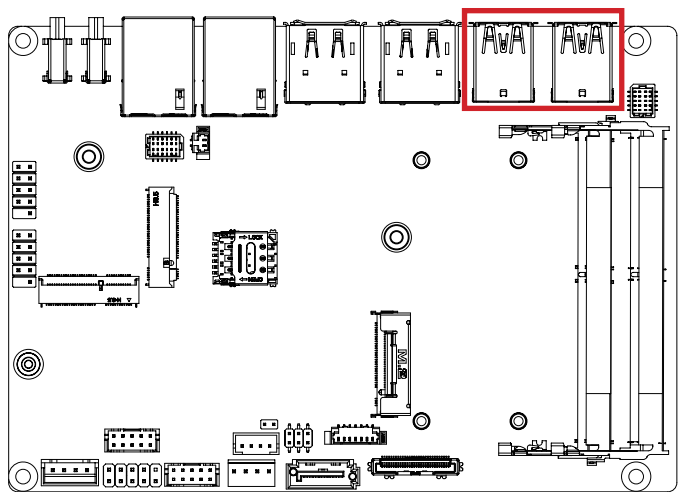
Vendor

ACES

Pin No.	Definition	Pin No.	Definition
1	TPM_CLK	2	GND
3	SPI_CS	4	TPM_SO
5	TPM_RST#	6	TPM_SI
7	NC	8	NC
9	3.3V	10	NC

3.2.18 USB31_1, USB31_2 (USB 3.2 Gen 2x1 Connector)

18



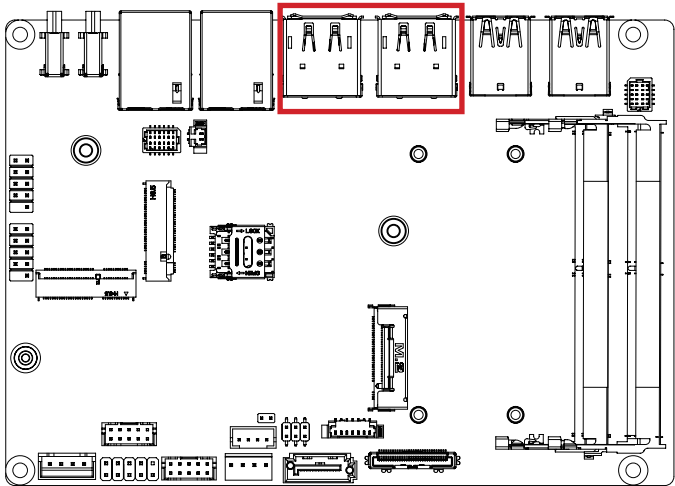
USB Connector

Connector PN	Vendor
18-A5950-6A33-A	TCONN

Pin No.	Definition	Pin No.	Definition
1	5V	10	5V
2	USB_D-	11	USB_D-
3	USB_D+	12	USB_D+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+

3.2.19 HDMI_DP_1, HDMI_DP_2 (HDMI (Bottom) & DP (Top) connector)

19



HDMI & DP Connector



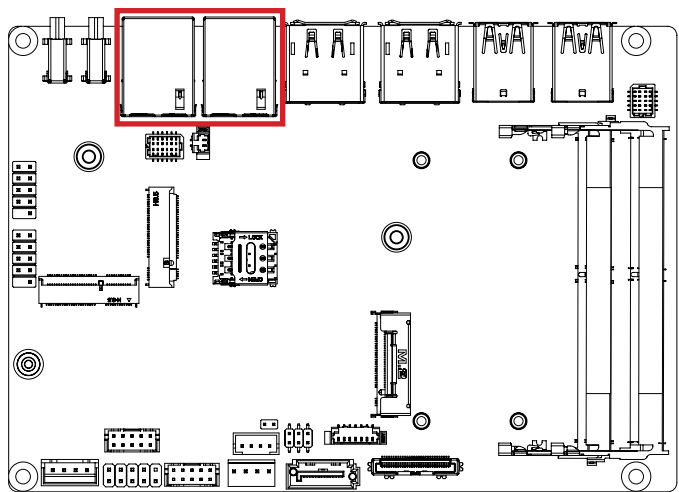
HDMI Connector			
Pin No.	Definition	Pin No.	Definition
1	HDMI_D2+	13	NC
2	GND	14	NC
3	HDMI_D2-	15	HDMI_SCL
4	HDMI_D1+	16	HDMI_SDA
5	GND	17	GND
6	HDMI_D1-	18	5V
7	HDMI_D0+	19	HDMI_HPD
8	GND		
9	HDMI_D0-		
10	HDMI_CLK+		
11	GND		
12	HDMI_CLK-		

DP Connector			
Pin No.	Definition	Pin No.	Definition
1	DATA_0P	11	GND
2	GND	12	DATA_3N
3	DATA_0N	13	CONFIG1
4	DATA_1P	14	GND
5	GND	15	AUX_P
6	DATA_1N	16	GND
7	DATA_2P	17	AUX_N
8	GND	18	DP HPD
9	DATA_2N	19	NC
10	DATA_3P	20	DP PWR

Connector PN	Vendor
DPHDDPHD0172201AN0	FENYING

3.2.20 LAN1, LAN2 (LAN Connector)

20



LAN Connector

81

Pin No.	Definition
1	TX+_D1
2	TX-_D1
3	RX+_D2
4	BI+_D3
5	BI-_D3
6	RX-_D2
7	BI+_D4
8	BI-_D4

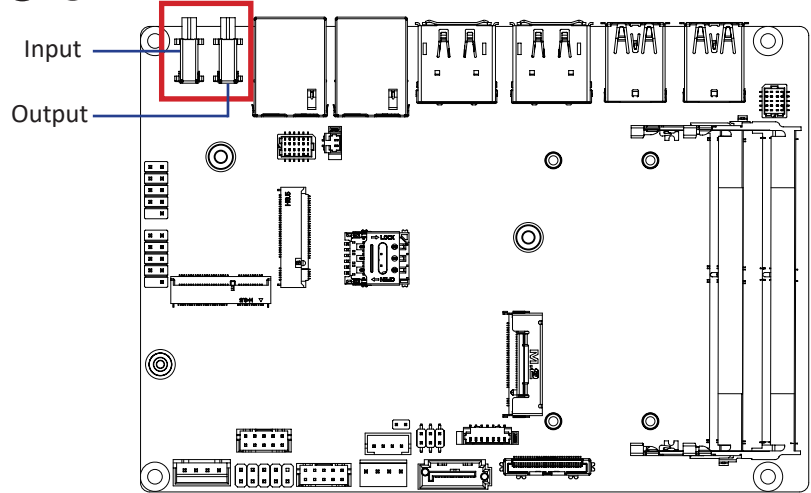
State	Description
Orange On	1Gbps data rate
Green On	100Mbps data rate
Off	10Mbps data rate

Connector PN	Vendor
RB1-GB-0008	UDE

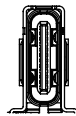
3.2.21 USB3CM (USB 3.2 Gen 2x1 Type C connector)

3.2.22 USB3CP (USB 3.2 Gen 2x1 Type C connector)

21 22



USB Type C Connector



Connector PN

WU3CR-
24A5L1CU5T41

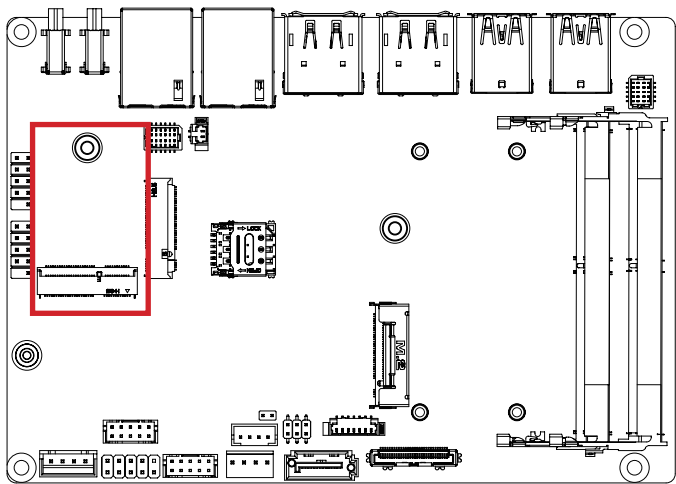
Vendor

WINWIN

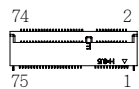
Pin No.	Definition	Pin No.	Definition
A1	GND	B1	GND
A2	TX1+	B2	TX2+
A3	TX1-	B3	TX2-
A4	VBUS	B4	VBUS
A5	CC1	B5	CC2
A6	D+	B6	D+
A7	D-	B7	D-
A8	NC	B8	NC
A9	VBUS	B9	VBUS
A10	RX2-	B10	RX1-
A11	RX2+	B11	RX1+
A12	GND	B12	GND

3.2.23 M2E (M.2 Slot, E-key, NGFF2230, WiFi & Bluetooth module)

23



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	BT_WAKE
21	NC	22	NC
23	NC		

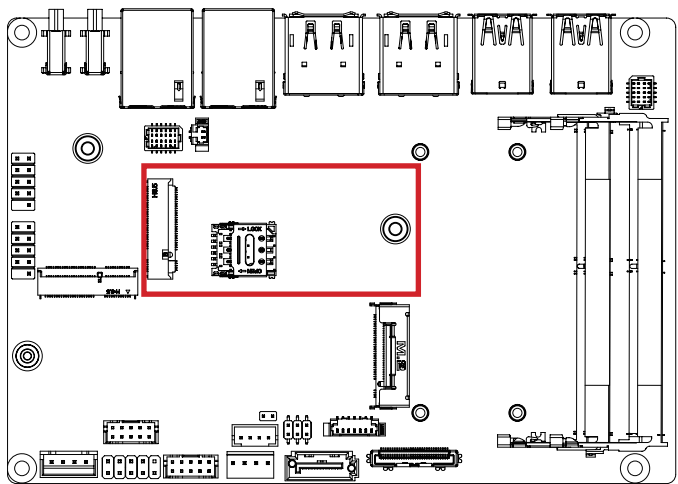
Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	WLAN_TXP	34	NC
37	WLAN_TXN	36	NC
39	GND	38	CL_RST#

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

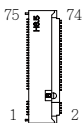
Connector PN	Vendor
APCI0095-P002A	LOTES
80152-8521	BELLWETHER

3.2.24 M2B (M.2 Slot, B-key, NGFF3052)

24



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		

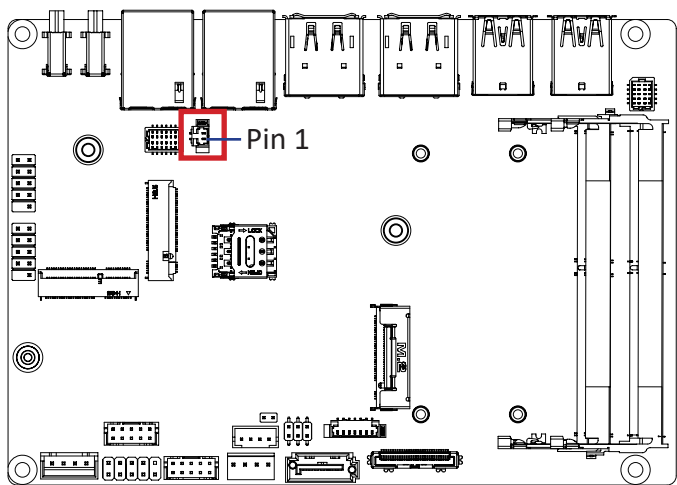
Pin No.	Definition	Pin No.	Definition
21	NC	20	NC
23	M2B_WAKE	22	NC
25	M2B_DRP	24	NC
27	GND	26	WWAN_Disable2
29	USB3_RXN	28	NC
31	USB3_RXP	30	SIM_RST#
33	GND	32	SIM_CLK
35	USB3_TXN	34	SIM_DATA

Pin No.	Definition	Pin No.	Definition
37	USB3_TXP	36	SIM_PWR
39	GND	38	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

3.2.25 BATTERY (Battery cable Connector)

25



Battery cable Connector	
	2 1

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

Pin No.	Definition
1	3.3V
2	GND

Chapter 4

Chapter 4 – BIOS

4.1 Introduction

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

4.1.1 How to Entering into BIOS menu

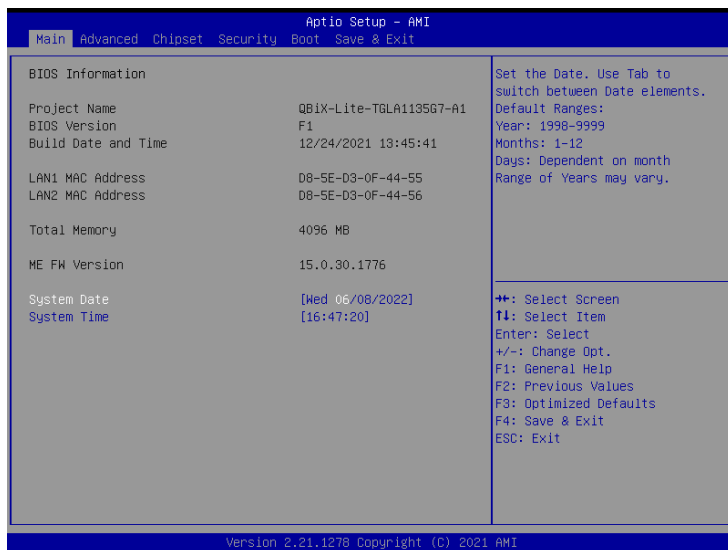
Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

4.1.2 Function Keys to setup in BIOS Setup program

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

4.2 The Main Menu

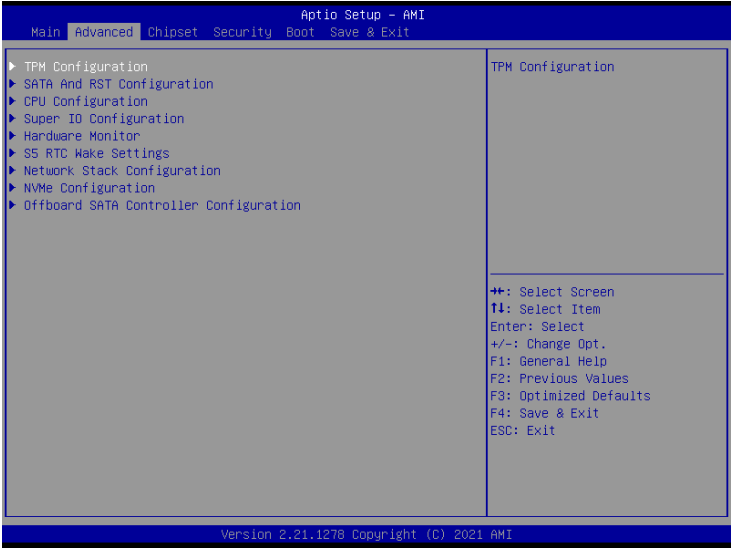
The main menu shows the basic system information.
Use arrow keys to move among the items.



Items	Description
Project Name	Shows Project name information
BIOS Version	Shows the BIOS version of the system
Build Date and Time	Shows the Build Date and Time when the BIOS was created.
LAN1 MAC Address	Shows LAN1 MAC Address information
LAN2 MAC Address	Shows LAN2 MAC Address information
Total Memory	Shows the total memory size of the installed memory
ME FW version	Shows 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.



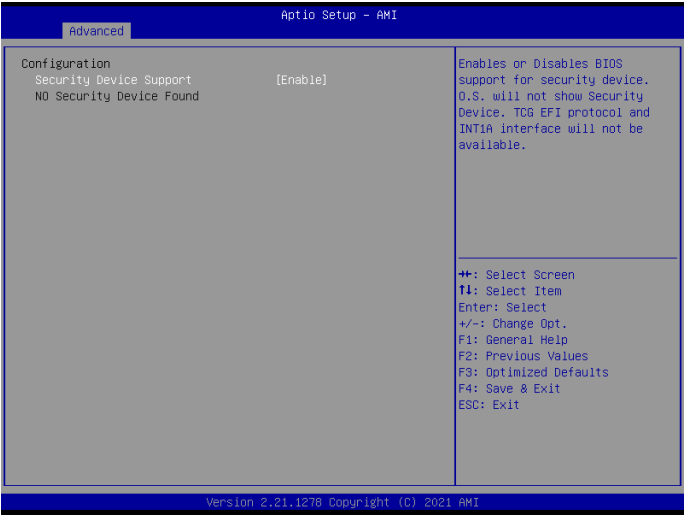
4.3.1 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



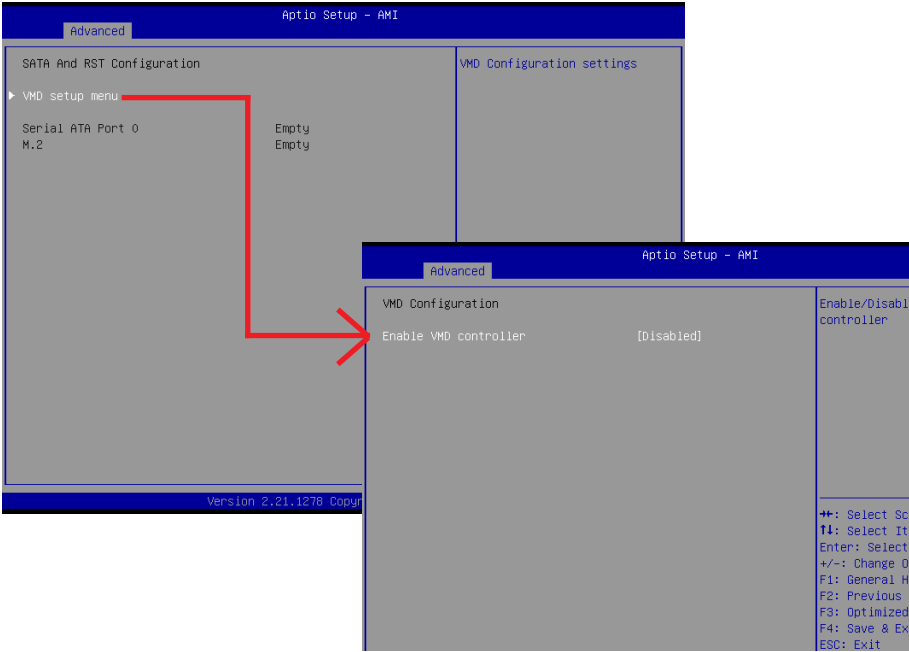
Item	Description
TPM Device Selection	PTT : Internal TPM dTPM : External TPM (When using External TPM module or having TPM chip on MB) (Default setting)

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

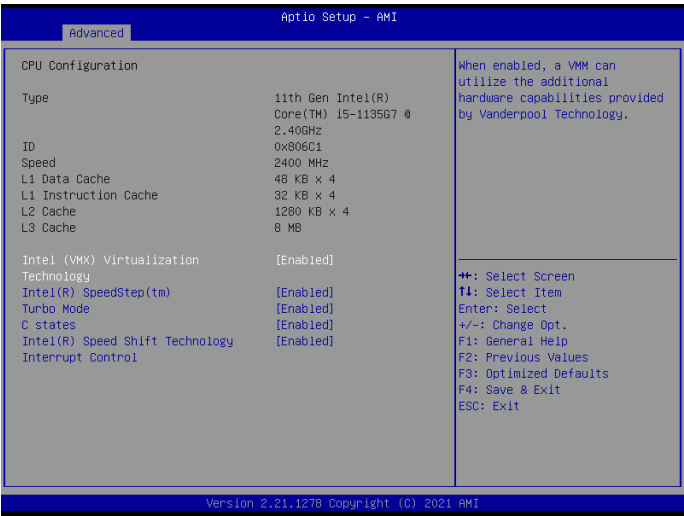
4.3.2 SATA And RST Configuration



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 ()	shows 2.5" SATA HDD/SSD information
M.2	shows M.2 SATA interface SSD information

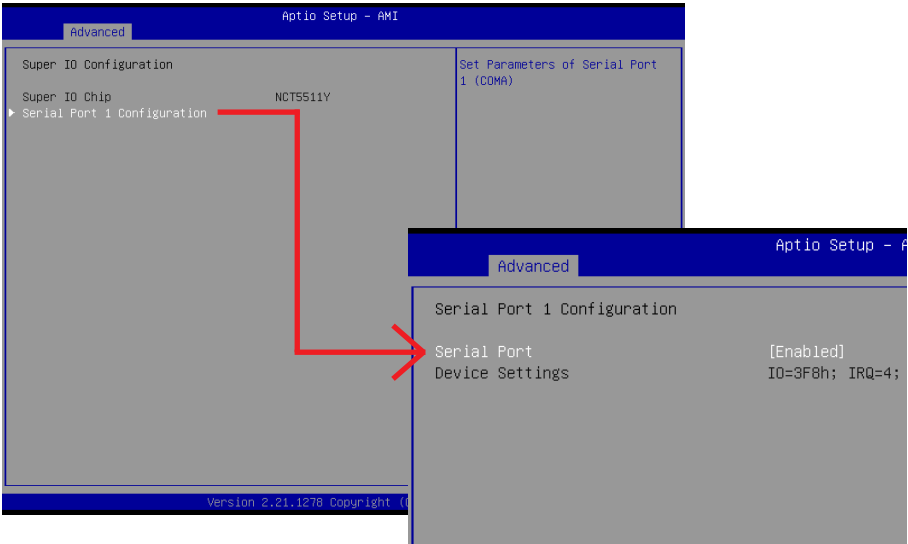
4.3.3 CPU Configuration

This submenu shows detailed CPU informations.



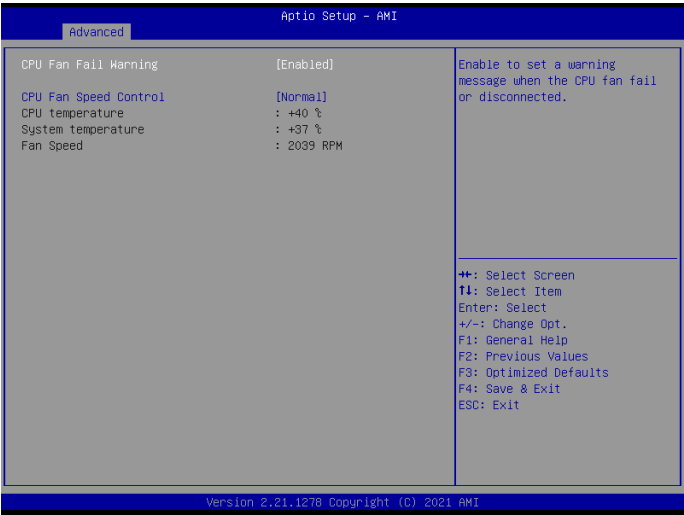
Item	Description
Intel (VMX) Virtualization Technology	Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. Enabled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

4.3.4 Super I/O Configuration



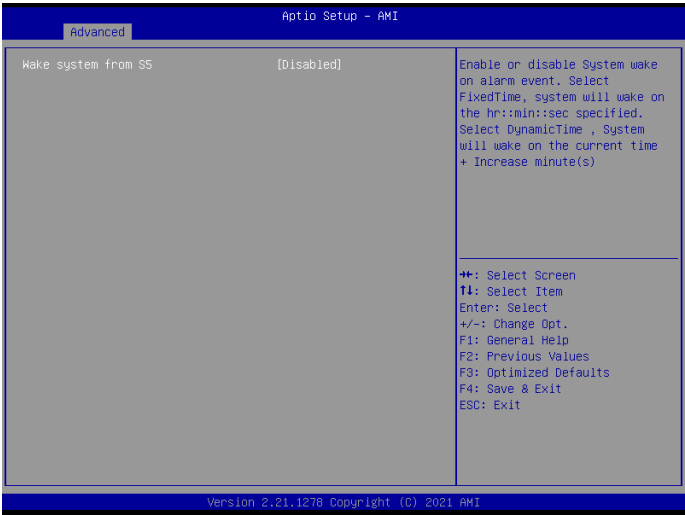
Item	Description
Super IO Chip	Shows Super I/O chip model
Serial Port 1 Configuration	Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port Device settings : Display the specified Serial Port base I/O address and IRQ

4.3.5 Hardware Monitor



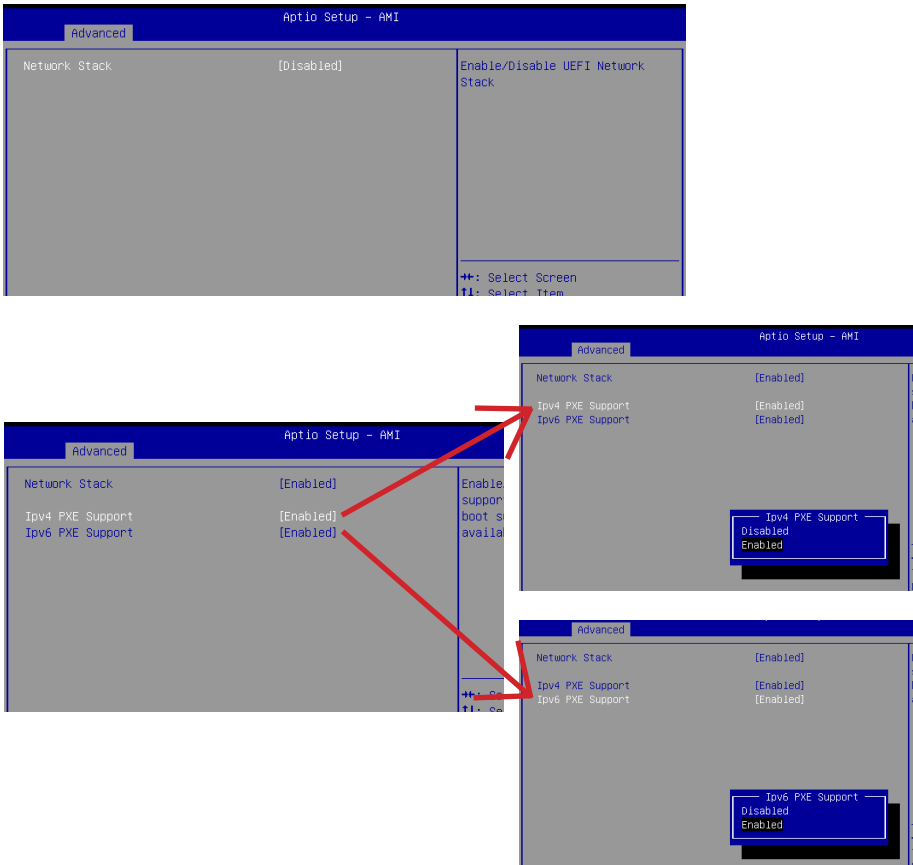
Item	Description
CPU Fan Fail Warning	Enabled : Enables CPU FAN Fail warning alert function (Default setting) Disabled : Disables CPU FAN Fail warning alert function
CPU Fan Speed Control	Normal : Fan speed set by BIOS default (Default setting) Full Speed : Set Fan operates at full speed
CPU temperature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

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



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
Ipv6 PXE Support	When Network stack is enabled : Disabled : Disables Ipv6 PXE Support Enabled : Enables Ipv6 PXE Support

4.3.8 NVMe Configuration

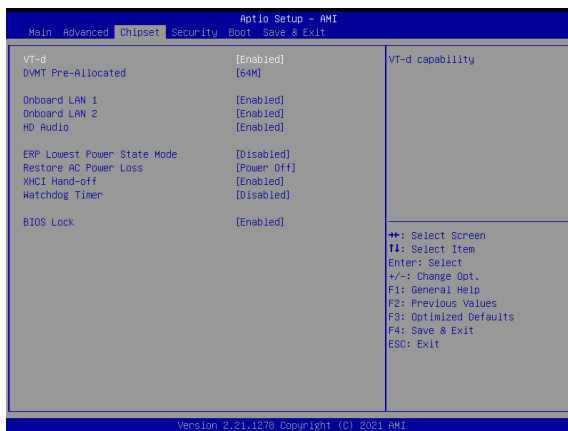
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



4.3.9 Offboard SATA Controller Configuration

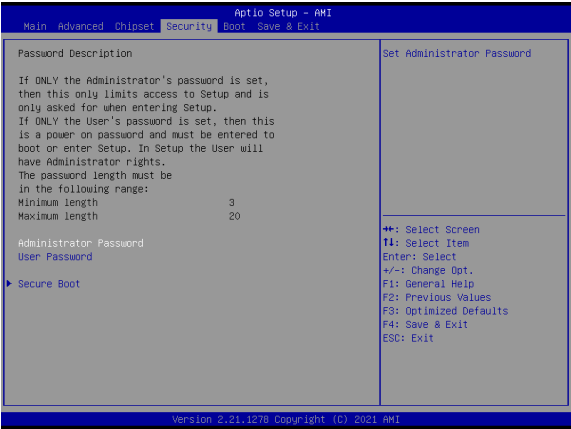


4.4 Chipset



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(Default setting), 128M, 256M
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 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
XHCI Hand-off	Enable/Disable XHCI Hand-off function Enabled : Enables XHCI Hand-off function (Default setting) Disabled : Disables XHCI Hand-off function
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

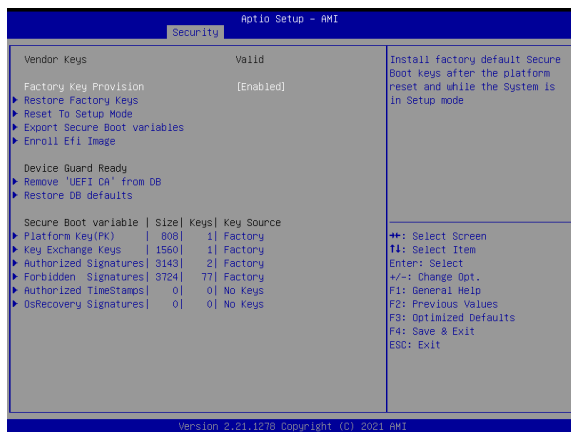
4.5 Security



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
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
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	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)