

QBiP-1605B

3.5" SBC Boards- QBiP-1605B User's Manual
1st Ed

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Packing List

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

Item	Quantity
QBiP-1605B	1
SATA power cable	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.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

GIGAIPC Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯 醚 (PBDE)
印刷电路板 及其电子组件	○	○	○	○	○	○
外部信号 连接器及线材	○	○	○	○	○	○

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出

SJ/T 11363-2006 标准规定的限量要求。

备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products GIGAIPC Main Board/ Daughter Board/ Backplane

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	O	O	O	O	O	O
Wires & Connectors for External Connections	O	O	O	O	O	O

O : The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.
X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.
Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

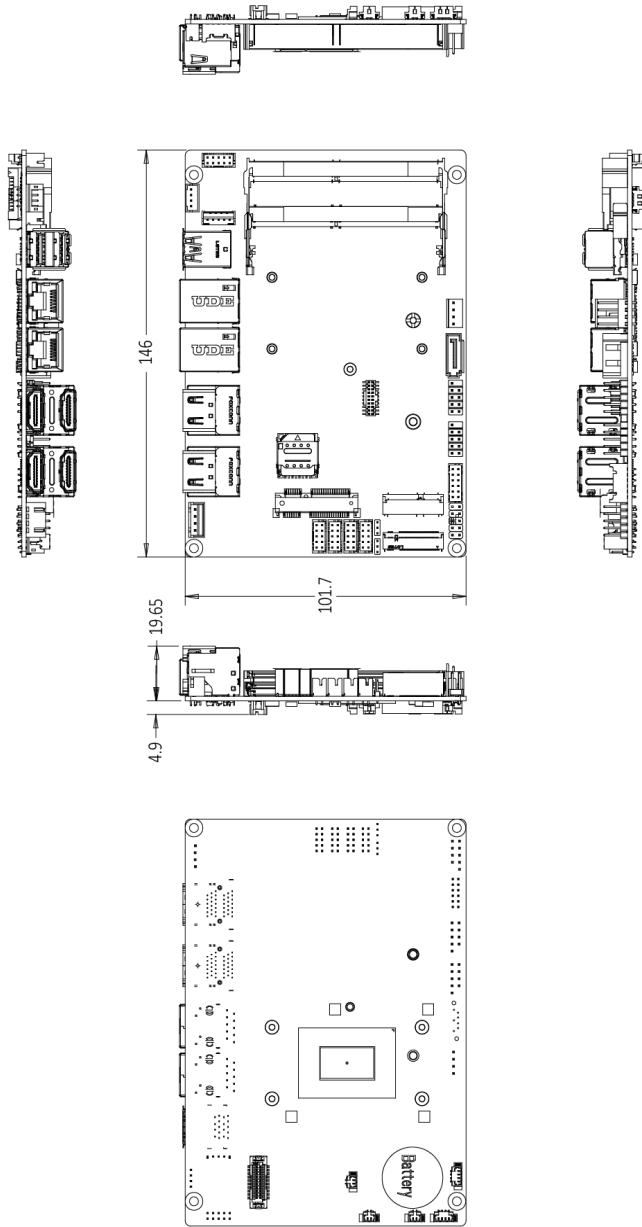
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Chapter 1

Chapter1 - Product Specifications QBiP-1605B



1.1 Specifications- QBiP-1605B

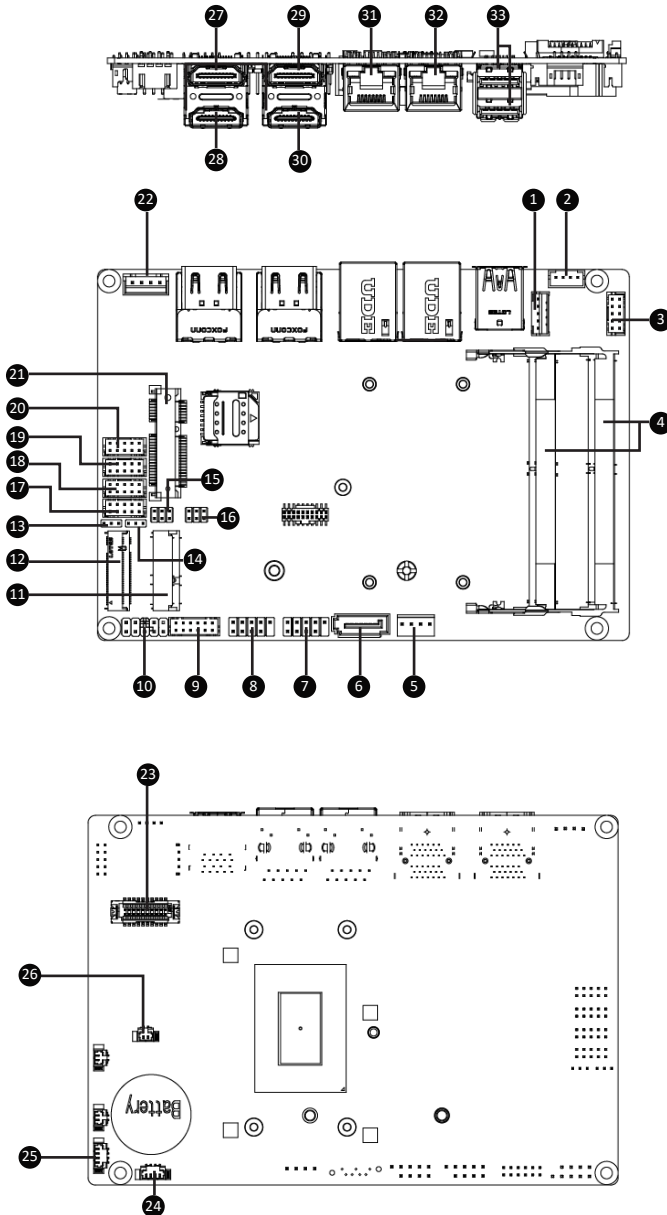
Motherboard	QBiP-1605B
Form Factor	3.5" SBC 146W x 101.7Dmm
CPU	AMD Ryzen™ V1605B Embedded Processor 14nm, 4 cores, 8 threads, 2.0 GHz, up to 3.6 GHz TDP 25W 2MB of shared L2 plus 4MB of shared L3 total
Package	FP5 Type 1
Chipset	SoC
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 32 GB Support Dual channel DDR4 2400/2133 MHz memory modules
Ethernet	2 x GbE LAN Ports (Realtek® RTL8111HS)
Video	Integrated Graphics Processor - AMD Radeon™ Vega 8 Graphics 4 x HDMI port, supporting a maximum resolution of 4096x2160 @60Hz 1 x eDP port, supporting a maximum resolution of 3840x2160 @60Hz (Share from HDMI)
Audio	Realtek® Audio Codec
Storage	1 x SATA 6Gb/s Port
Raid	—
Expansion Slots	1 x 2280 M.2 M-Key (PCIe x4, SATA 6Gb/s) 1 x 2230 M.2 E-Key 1 x Full-size Mini PCIe with SIM slot (PCIe x1 + USB2.0) -- support 3G module

Motherboard	QBiP-1605B
Internal I/O	1 x 4-pin box power connector (DC in +9V~36VDC) 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 1 x 2W Speaker out header 1 x SATA Power header 4 x USB 2.0 headers 1 x GPIO (8-bits) & SMBUS header 2 x COM headers (RS-232) 2 x COM headers (RS-232/422/485 & RI/5V/12V) 1 x Backlight Control header 1 x AT/ATX mode select jumper 1 x eDP/HDMI jumper 1 x Buzzer
Rear I/O	4 x HDMI 2 x RJ45 LAN Ports 2 x USB 3.2 Gen 1
TPM	Onboard TPM 2.0 security chip INFINEON SLB9665TT2.0
OS Compatibility	Windows 10 (x64)
PSU Connectors	1 x 4-pin box power connector (+9V~36V Full Range)
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)

Chapter 2

Chapter 2 – Hardware Information

2.1 Jumpers and Connectors

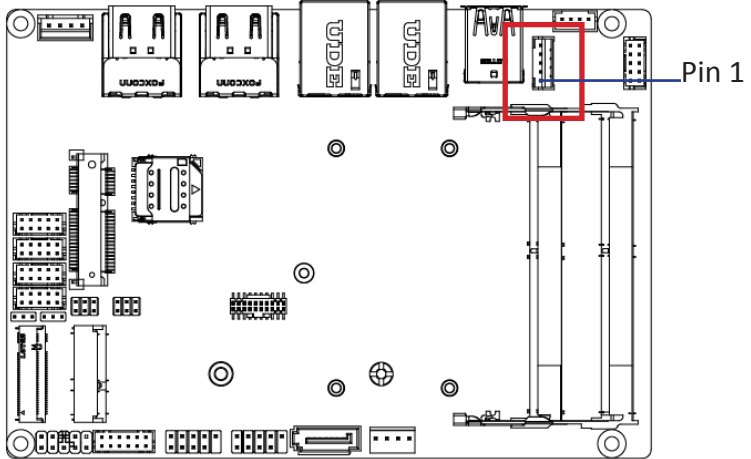


	Code	Description
1	BKL_CN	Backlight Control connector
2	SPKR	Speaker out connector
3	F_AUDIO	Audio line-out port
4	SODIMM1, SODIMM2	DDR4 SO-DIMM slot#1/slot#2
5	SATAPWR	SATA 6Gb/s Power Connector
6	SATA	SATA 6Gb/s Connector
7	FUSB20_2	USB 2.0 header x 1
8	FUSB20_1	USB 2.0 header x 1
9	GPIO_CNT	General Purpose input/output header
10	SYS_PANEL	Front panel header
11	M2E	M.2 E-Key for WiFi NGFF
12	M2M	M.2 M Key for NVME/SATA
13	AT_CN	AT/ATX mode select jumper
14	HDMI/eDP_CN	HDMI/eDP mode select jumper
15	JCOM2	COM2 RI pin RI/5V/12V Select
16	JCOM1	COM1 RI pin RI/5V/12V Select
17	COM4	RS-232 COM Serial port header
18	COM3	RS-232 COM Serial port header
19	COM2	COM2 RS-232/422/485, and 5V/12V/RI COM Serial port header
20	COM1	COM1 RS-232/422/485, and 5V/12V/RI COM Serial port header
21	MPCIE	Mini PCIE for 3G/4G module

	Code	Description
22	DC_IN	DC IN 1x4-pin power connector
23	EDP	eDP connector (*The HDMI3's Function is Disabled, during eDP Function Enabled)
24	CPU_FAN	CPU Fan connector
25	SYS_FAN	System Fan connector
26	Battery	Battery connector
27	HDMI1	HDMI Connector
28	HDMI2	HDMI Connector
29	HDMI3	HDMI Connector (*The HDMI3's Function is Disabled, during eDP Function Enabled)
30	HDMI4	HDMI Connector
31	LAN2	LAN Connectors
32	LAN1	LAN Connectors
33	USB3	USB 3.2 Gen 1

2.2.1 BKL_CN (Backlight Control connector)

1



Backlight Control connector

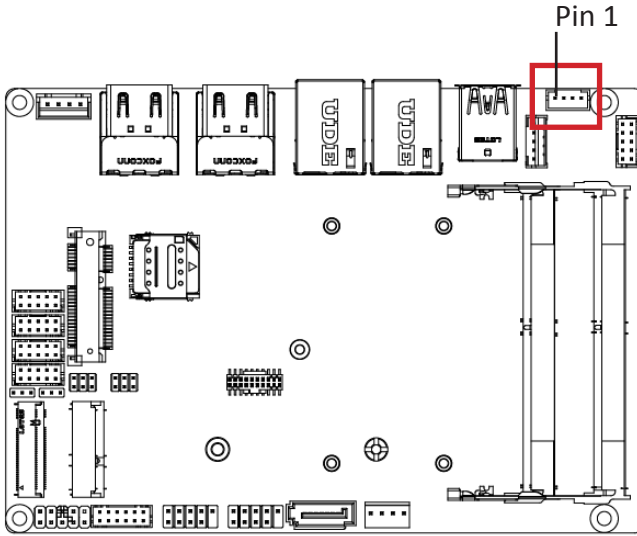


Connector PN	Vendor
721-81-05TW00	PINREX
A2001WV-05P146	JOINT-TECH

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

2.2.2 SPK_OUT (Speaker out connector)

2



Speaker out connector



Connector PN

721-81-045W00

A2001WV-04P146

Vendor

PINREX

JOINT-TECH

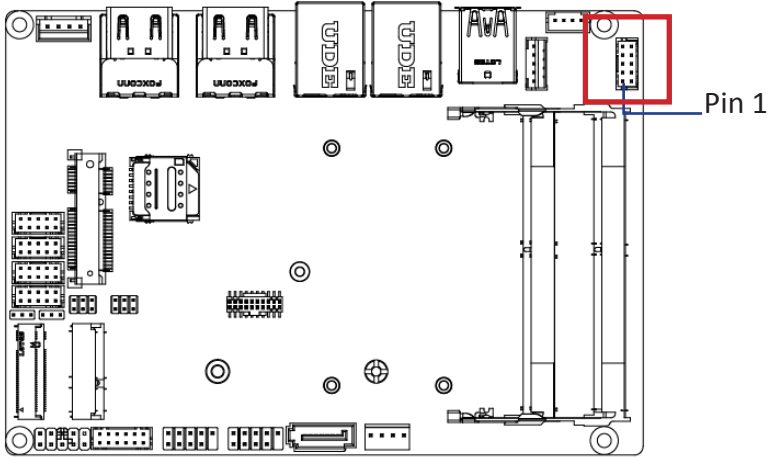
Pin No.

Definition

1	Speaker Out R+
2	Speaker Out R-
3	Speaker Out L-
4	Speaker Out L+

2.2.3 F_Audio (Audio line-out port)

3



F_Audio Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

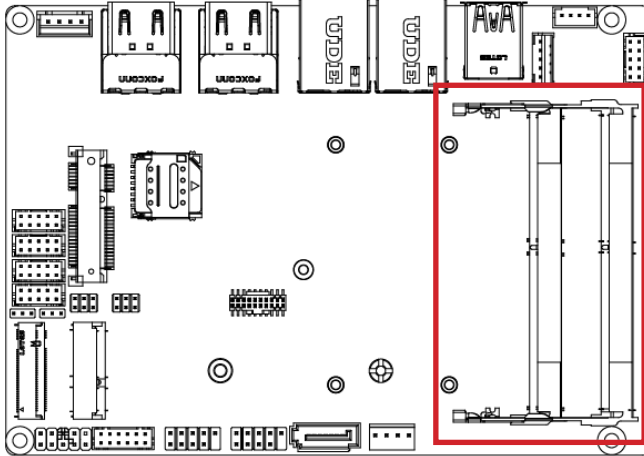
PINREX

JOINT-TECH

Pin No.	Definition	Pin No.	Definition
1	F_MIC1_L	2	GND
3	F_MIC1_R	4	F_AUDIO_DET
5	F_HP_R	6	F_MIC_JD
7	FAUDIO_JD	8	NC
9	F_HP_L	10	F_HP_JD

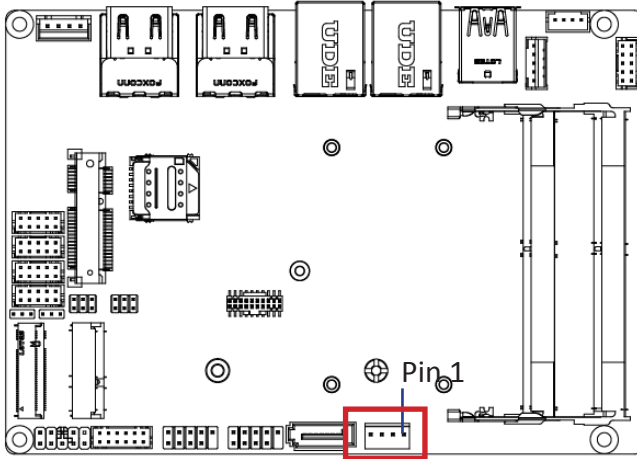
2.2.4 SODIMM1, SODIMM2 (DDR4 SO-DIMM slot#1/ slot#2)

4



2.2.5 SATAPW (SATA 6 Gb/s power connector)

5



Hard Disk Power Connector



Connector PN

743-81-04TW00

Vendor

PINREX

WF04Q2-3BJQ000

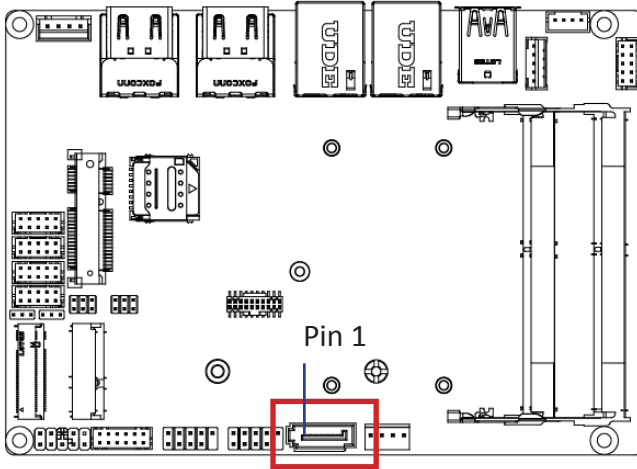
HORNGTONG

Pin No. Definition

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

2.2.6 SATA (SATA 6 Gb/s connector)

6



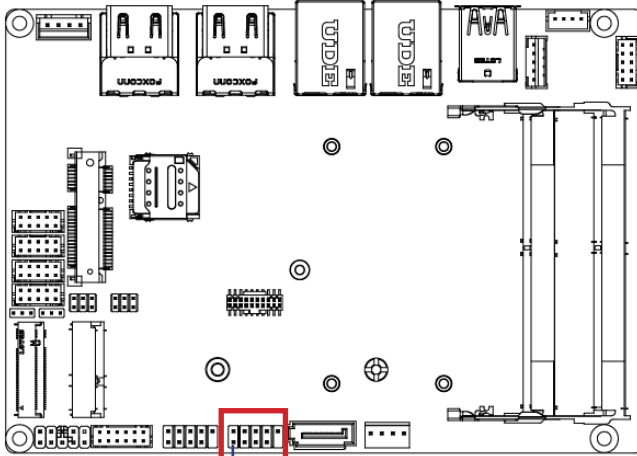
SATA 6Gb/s Connector



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

2.2.7 FUSB2_2 (USB 2.0 header)

7



Pin 1

USB 2.0 Header



Connector PN

210-92-05G117

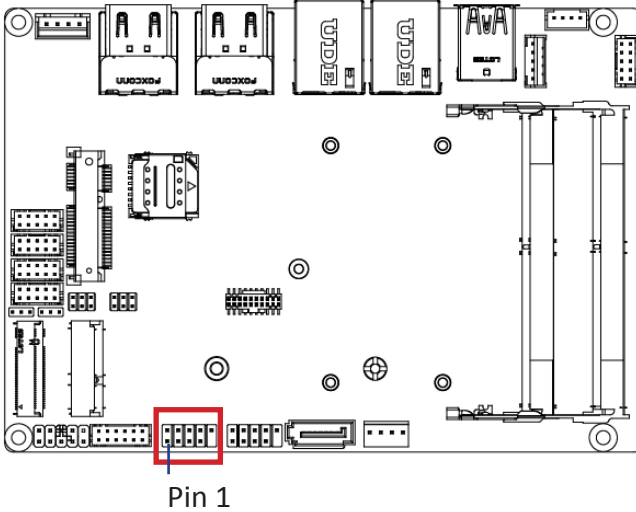
Vendor

PINREX

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

2.2.8 FUSB2_1 (USB 2.0 header)

8



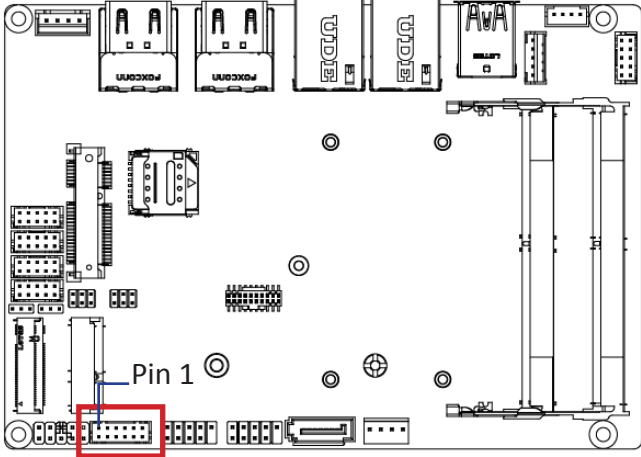
USB 2.0 Header

Connector PN	Vendor
210-92-05G117	PINREX

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

2.2.9 GPIO_CNT (General purpose input/output header)

9



GPIO Connector

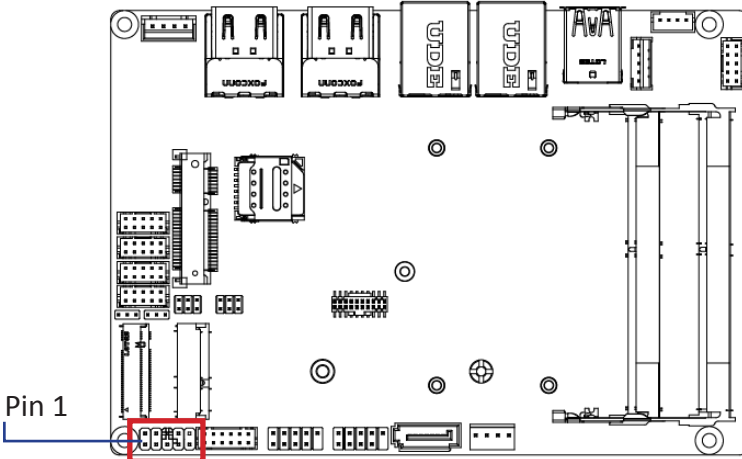


Connector PN	Vendor
725-81-12TW00	PINREX
A2004WV-2X06P46	JOINT-TECH

Pin No.	Definition	Pin No.	Definition
1	GPI_0	2	GPO_0
3	GPI_1	4	GPO_1
5	GPI_2	6	GPO_2
7	GPI_3	8	GPO_3
9	SMB_IO_CLK	10	SMB_IO_DATA
11	3.3V	12	GND

2.2.10 SYS_PANEL (Front panel header)

10



System Panel Header



Connector PN

210-92-05G111

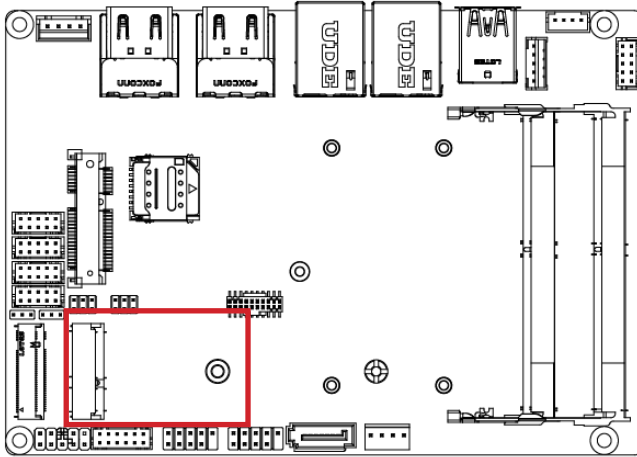
Vendor

PINREX

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

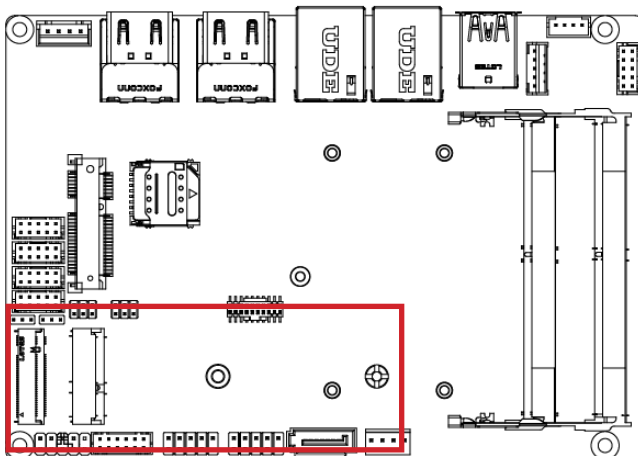
2.2.11 M2E (M.2 E-key for WiFi NGFF)

11



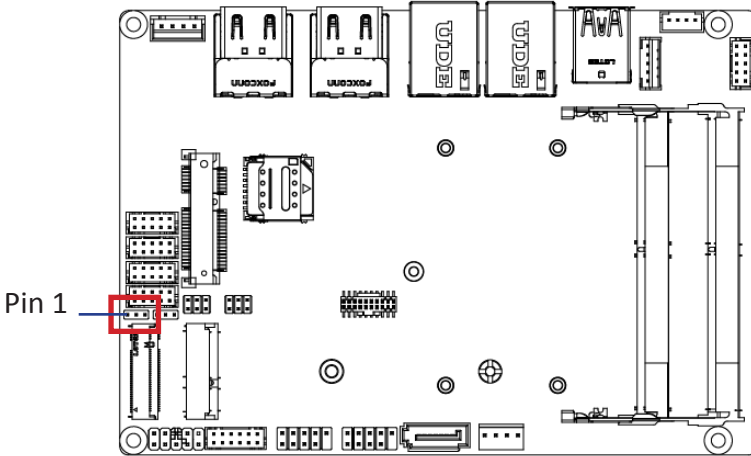
2.2.12 M2M (M.2 M key for NVME/SATA)


12



2.2.13 AT_CN (AT/ATX power mode select jumper)

13

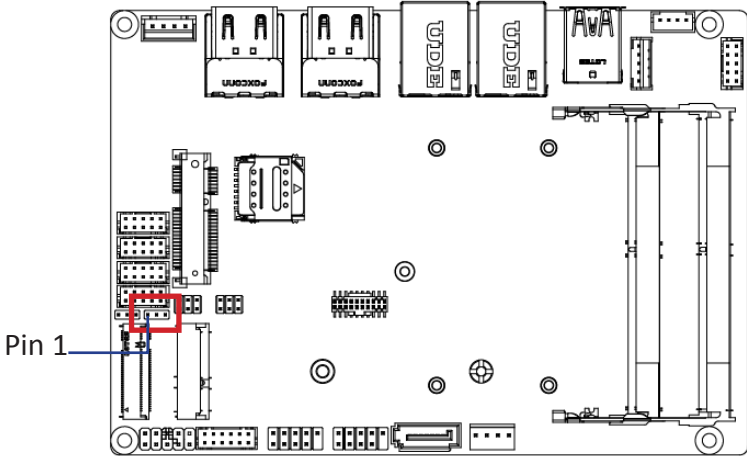


AT/ATX power mode select jumper	
	1-2 Close : AT mode.
	2-3 Close : ATX mode. (Default setting)

Pin No.	Definition
1	AT
2	COMM
3	ATX

2.2.14 HDMI/eDP_CN (HDMI/eDP mode select jumper)

14

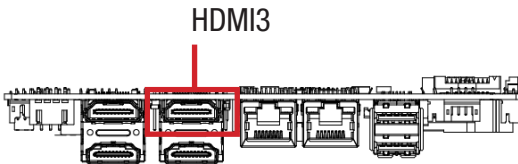


Pin 1

HDMI/eDP mode select jumper

	1-2 Close: HDMI mode. (Default setting, HDMI3 I/O is Enable)
	2-3 Close: eDP mode. (HDMI3 I/O Port is Disable)

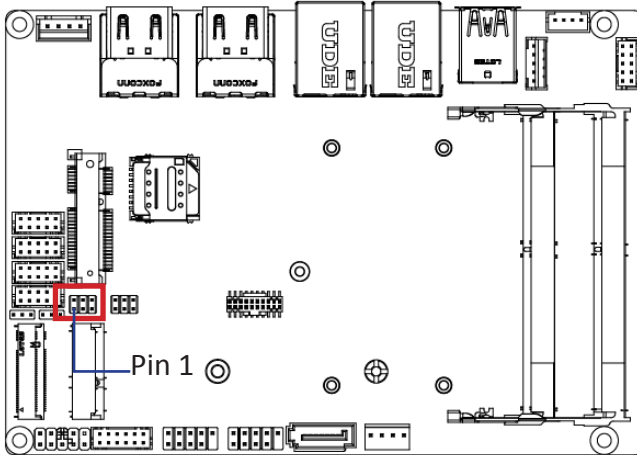
Pin No.	Definition
1	HDMI
2	COMM
3	eDP



HDMI3

2.2.15 JCOM2 (COM2 RI pin RI/5V/12V Select)

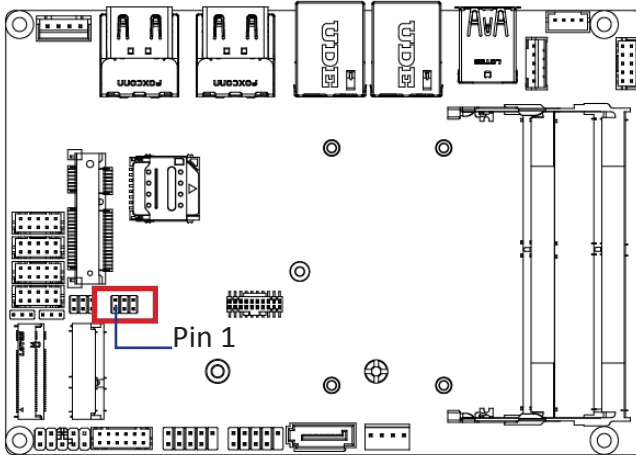
15



JCOM11 Jumper Select	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM) Default
	5-6 Close: 12V (Power COM)

2.2.16 JCOM1 (COM1 RI pin RI/5V/12V Select)

16

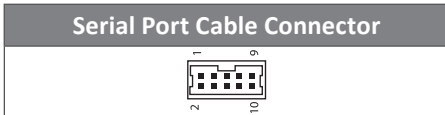
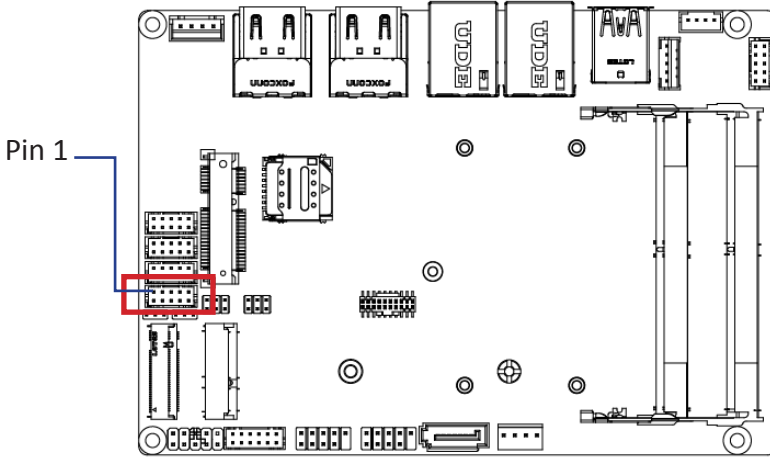


JCOM11 Jumper Select

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

2.2.17 COM1 (Serial port header)

17

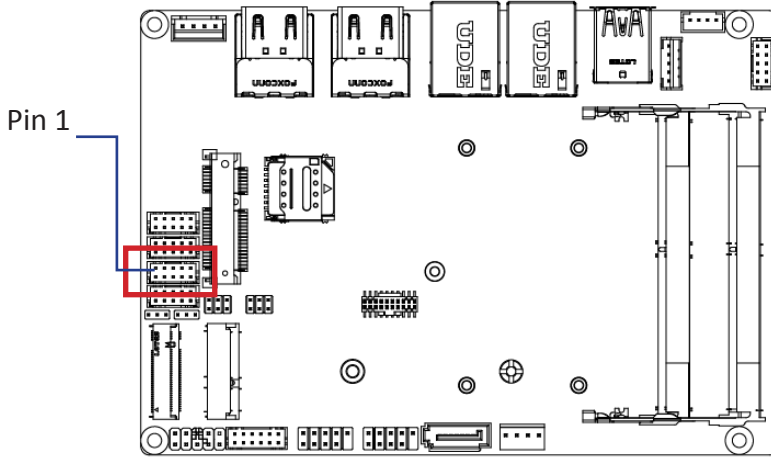


Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

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

2.2.18 COM2 (Serial port header)

18



Serial Port Cable Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

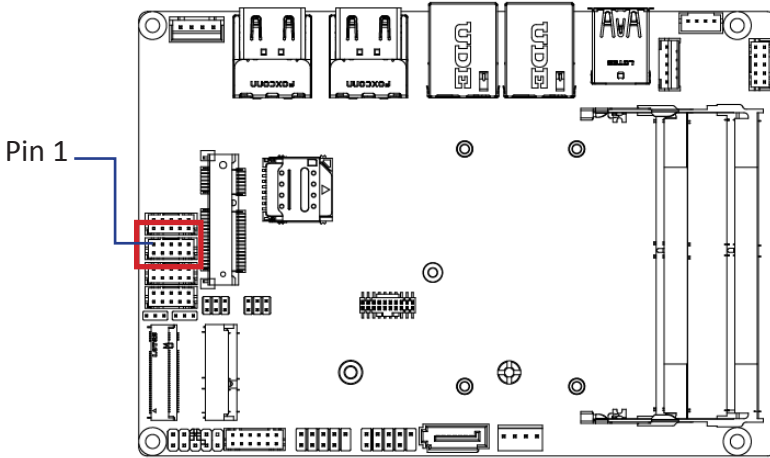
PINREX

JOINT-TECH

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

2.2.19 COM3 (Serial port header)

19



Serial Port Cable Connector



Connector PN

725-81-10TW00

Vendor

PINREX

A2004WV-2X05P46

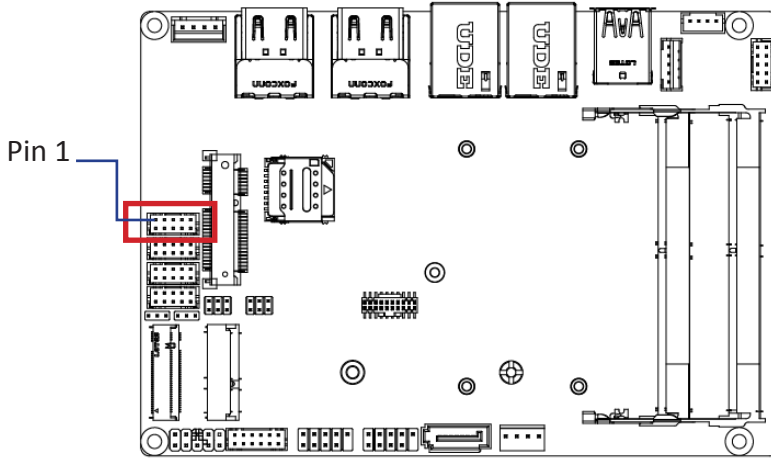
JOINT-TECH

Pin No. Definition

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

2.2.20 COM4 (Serial port header)

20



Serial Port Cable Connector



Connector PN

725-81-10TW00

Vendor

PINREX

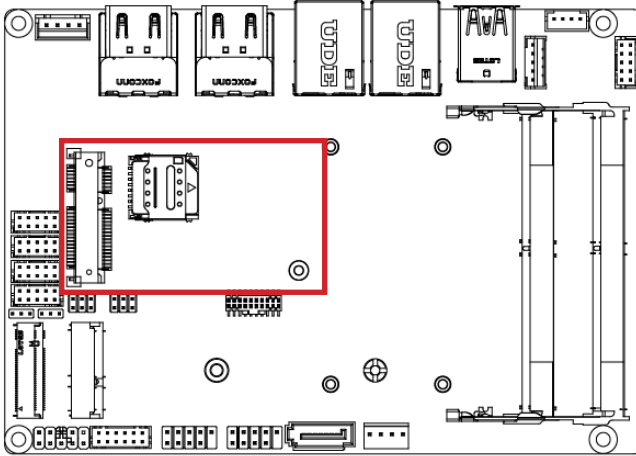
A2004WV-2X05P46

JOINT-TECH

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

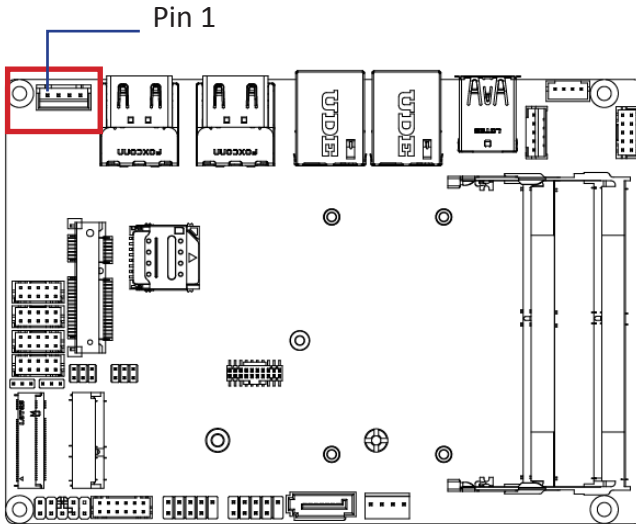
2.2.21 MPCIE (Mini PCIE for 3G/4G module)

21

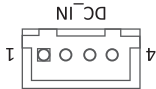


2.2.22 DC IN (DC IN 1 x 4 pin power connector)

22



DC IN power connector



Connector PN

753-81-04TW00

Vendor

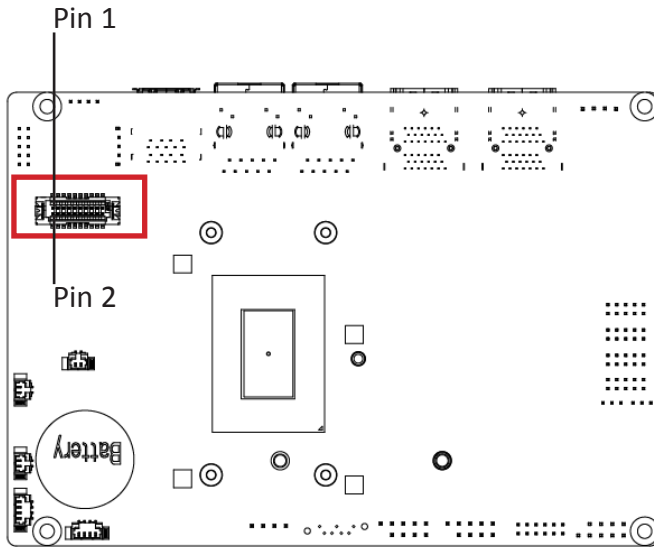
PINREX

Pin No. Definition

Pin No.	Definition
1	GND
2	DCIN
3	DCIN
4	GND

2.2.23 EDP (eDP Connector)

23

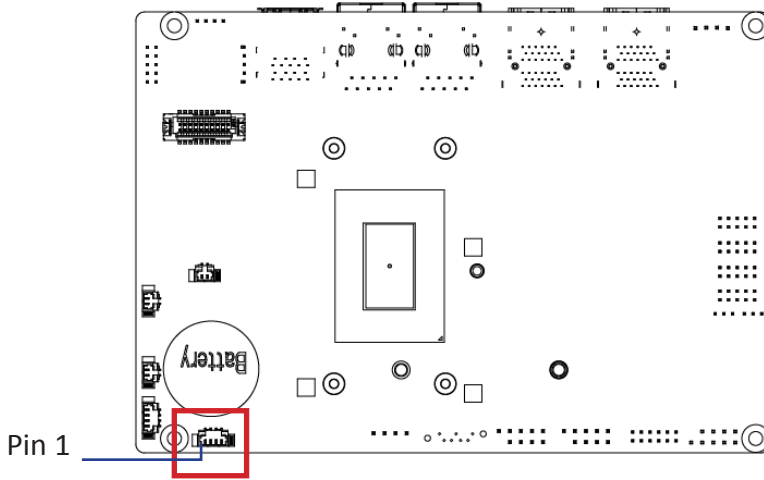


Pin No.	Definition	Pin No.	Definition
1	GND	2	GND
3	EDP_TXN0	4	EDP_TXN3
5	EDP_TXP0	6	EDP_TXP3
7	GND	8	eDP_DET#
9	EDP_TXN1	10	GND
11	EDP_TXP1	12	EDP_AUXN
13	GND	14	EDP_AUXP
15	EDP_TXN2	16	GND
17	EDP_TXP2	18	EDP_HPD
19	5V	20	3.3V

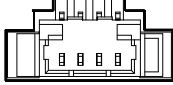
Connector PN	Vendor
50286-02071-001	ACES
A1252WV-SF-2X10PN6BG1G00L	JOINT-TECH

2.2.24 CPU_FAN (System FAN Connector)

24



CPU FAN



1 2 3 4

Connector PN

85205-0470N

A1250WV-S-04PC

Vendor

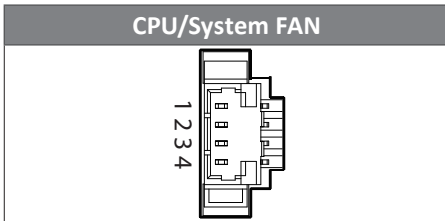
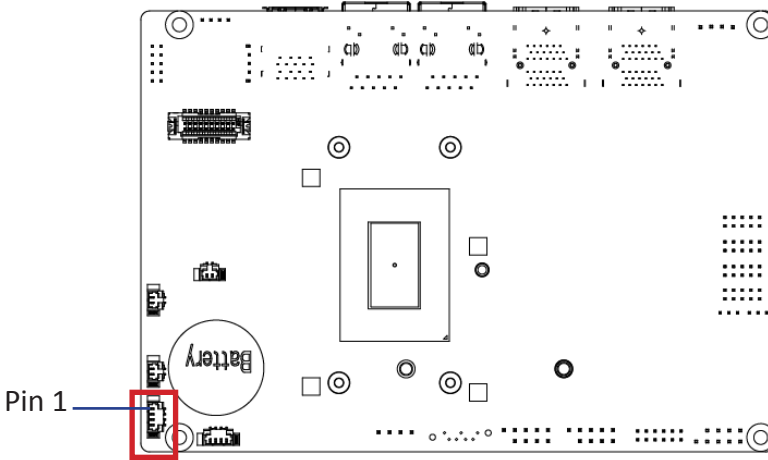
ACES

JOINT-TECH

Pin No.	Definition
1	GND
2	12V
3	FANTECH
4	PWM

2.2.25 SYS_FAN (System FAN Connector)

25

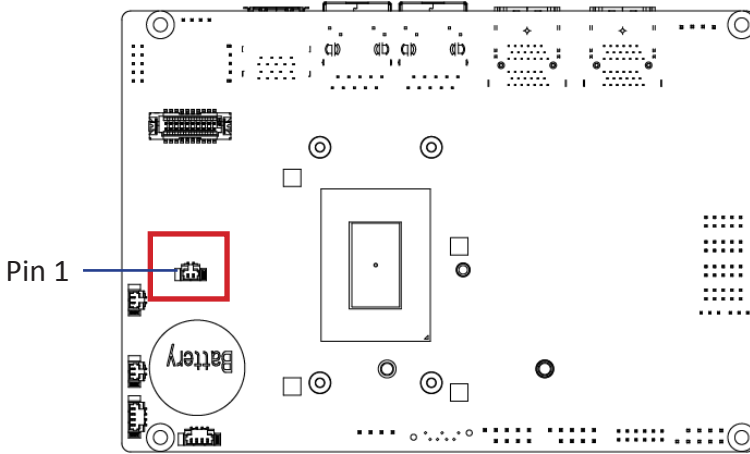


Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

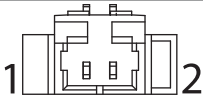
Pin No.	Definition
1	GND
2	12V
3	FANTECH
4	PWM

2.2.26 Battery (Battery Connector)

26

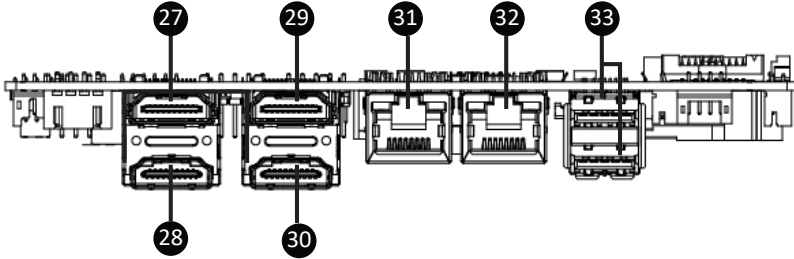


Battery Cable Connector



Pin No.	Definition
1	3.3V RTC
2	GND

2.2.27 IO Connector Information



	Code	Description
27	HDMI 1	HDMI Connector
28	HDMI 2	HDMI Connector
29	HDMI 3	HDMI Connector (*The HDMI's Function is Disabled, during eDP Function Enabled)
30	HDMI 4	HDMI Connector
31	LAN2	LAN Connectors
32	LAN1	LAN Connectors
33	USB3	USB 3.2 Gen 1