

# **E6-EVBA**

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COM Express Evaluation board

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# Packing List

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

Item	Quantity
E6-EVBA	1
I/O Shield	1
SATA cable	1

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

## About this Document

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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](http://GIGAIPC.com) for the latest version of this document.

## Safety Precautions

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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

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### **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	○	○	○	○	○	○
Wires & Connectors for External Connections	○	○	○	○	○	○
<p>○ : 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</p>						

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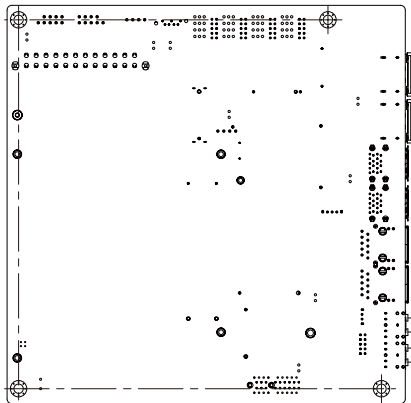
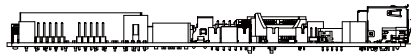
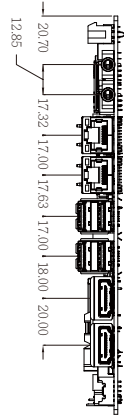
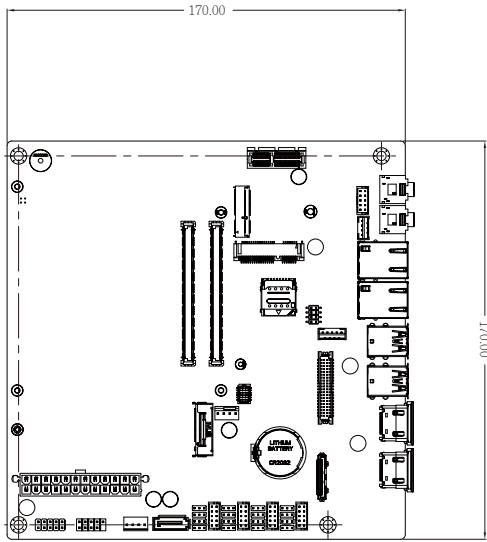
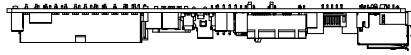
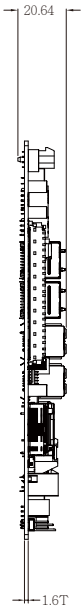
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# Chapter 1

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## Chapter 1 - Product Specifications



## 1.1 Specifications

Evaluation Board	E6-EVBA (CICC1)
Form Factor	Mini-ITX form factor 170W x 170D (mm)
Compatible models	PICMG COM Express® R3.0 Type 6 pinout compatible  Support module as follows: CE6-6412A
Ethernet	2 x GbE LAN Ports (Realtek® RTL8111H)
Graphics	Integrated Graphics Processor: 2 x HDMI 2.0 port, supporting a maximum resolution of 4096x2160 @60Hz 1 x LVDS port, supporting a maximum resolution of 1920x1200 @60Hz 1 x eDP port, supporting a maximum resolution of 3840x2160 @60Hz * eDP connector is alternative with LVDS port, only one can be worked at the same time  (3 independent display outputs)
Audio	Realtek® ALC897
Storage	1 x SATA 6Gb/s Port
Expansion Slots	1 x PCIe x1 (Gen 3x1) 1 x 2280 M.2 M-Key (SATA 6Gb/s) 1 x 2230 M.2 E-Key (PCIe x1, USB 2.0) 1x Full-size Mini PCIe with SIM slot
Internal I/O	1 x 24 pin ATX main power connector 1 x SATA Power connector 1 x System fan header 1 x Front panel header 1 x Front panel audio header 4 x COM headers (RS-232/422/485 & RI/5V/12V) 1 x Backlight Control header 1 x Speaker out header 2 x USB 2.0 headers 1 x Buzzer

Evaluation Board	E6-EVBA (CICC1)
Rear I/O	2 x Audio Jacks (Line out, Mic in) 2 x HDMI 2 x RJ45 LAN Ports 3 x USB 3.2 Gen 1 1 x USB 2.0
OS Compatibility	Windows 10 (x64)
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)

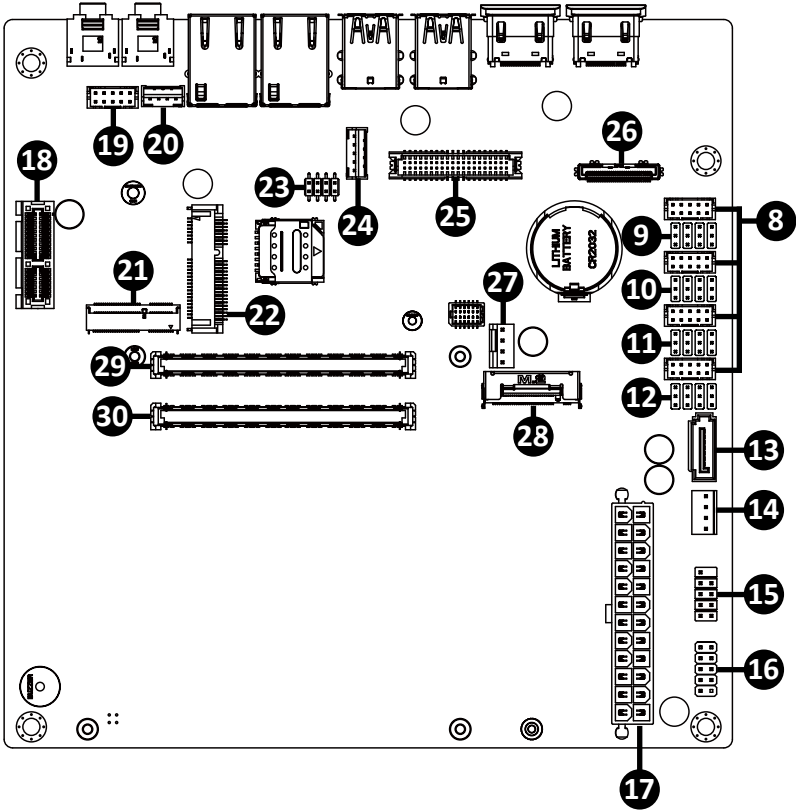
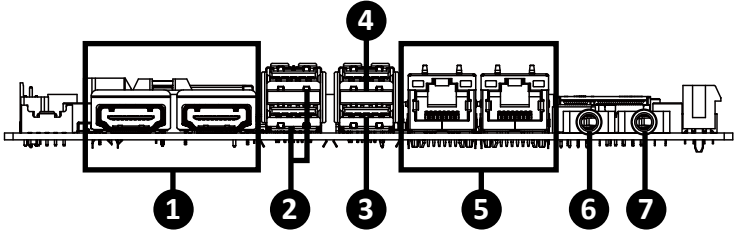


# Chapter 2

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## Chapter 2 – Hardware Information

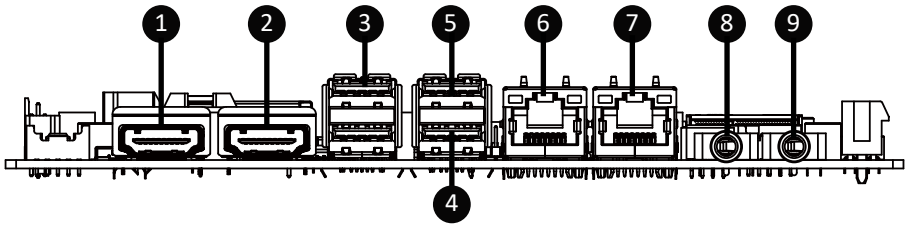
## 2.1 Jumpers and Connectors



No	Code	Description
1	HDMI1 HDMI2	HDMI connector
2	USB31_1	USB 3.2 Gen 1 connector
3	USB31_2	USB 3.2 Gen 1 connector
4		USB 2.0 connector
5	LAN1 LAN2	2 x RJ45 LAN Ports
6	HP_OUT	1 x Audio jack (Line out)
7	MIC_IN	1 x Audio jack (Mic in)
8	COM1 COM2 COM3 COM4	COM headers (RS-232/422/485 & RI/5V/12V)
9	JRS11, JRS12 JRS13, JRS14	RS-232/422/485 select jumper for COM1 port
10	JRS21, JRS22 JRS23, JRS24	RS-232/422/485 select jumper for COM2 port
11	JRS31, JRS32 JRS33, JRS34	RS-232/422/485 select jumper for COM3 port
12	JRS41, JRS42 JRS43, JRS44	RS-232/422/485 select jumper for COM4 port
13	SATA0	SATA 6Gb/s connector
14	SATAPWR	SATA power connector
15	F_USB2_1	USB 2.0 header
16	SYS_Panel	Front panel header
17	ATX	24-pin ATX main power connector

No	Code	Description
18	PCIEX1	1 x PCIe x1 (Gen3 x1 bus) slot
19	FP_AUDIO	Front panel audio header
20	SPKR	Speaker out connector
21	M2E	M.2 Slot, 2230 E-Key
22	MPCIE	Mini PCIE connector
23	LSW	LVDS resolution jumper
24	BKL_CN	Backlight Control header
25	LVDS	LVDS connector
26	EDP	Embedded Display Port connector
27	SYS_FAN	System fan connector
28	M2M	M.2 Slot, 2280 M-Key
29	CEP_M	COM Express connector ROW A/B
30		COM Express connector ROW C/D

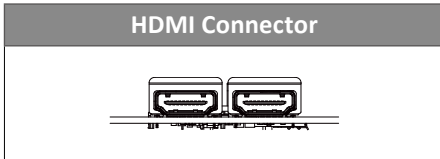
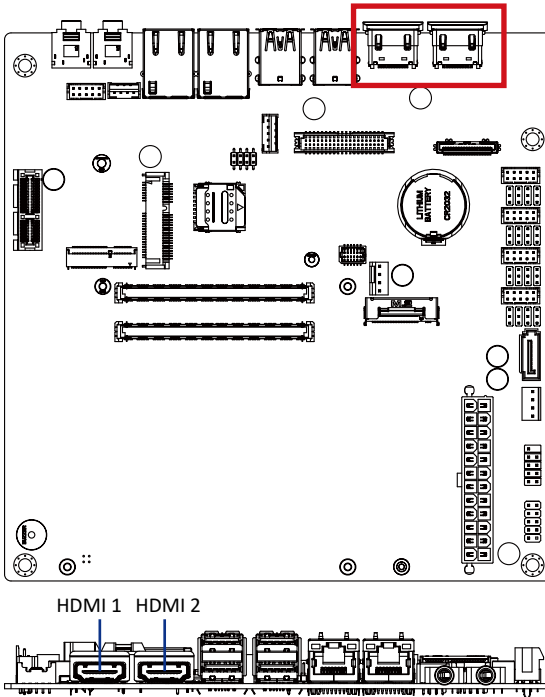
## 2.1.1 Rear I/O Connector



No	Code	Description
1	HDMI1	HDMI connector
2	HDMI2	HDMI connector
3	USB31_1	USB 3.2 Gen 1 connector
4	USB31_2	USB 3.2 Gen 1 connector
5		USB 2.0 connector
6	LAN1	1 x GbE LAN Port
7	LAN2	1 x GbE LAN Port
8	HP_OUT	1 x Audio jack (Line out)
9	MIC_IN	1 x Audio jack (MIC in)

## 2.2.1 HDMI1, HDMI2 (HDMI connector)

1

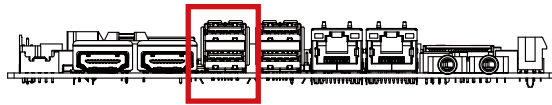
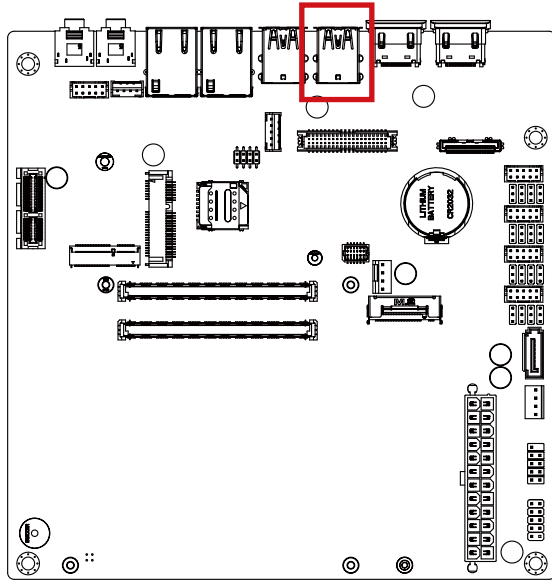


Connector PN	Vendor
1165-2CG04-24P	TCONN

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

## 2.2.2 USB31\_1 (USB 3.2 Gen 1 connector)

2



USB Connector



Connector PN

UEA11121-8FS6-4F  
ABA-USB-079-K01

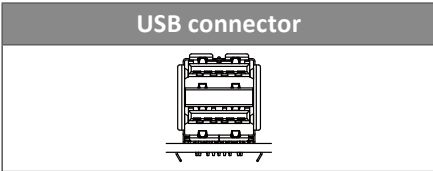
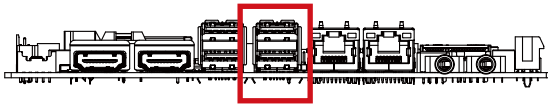
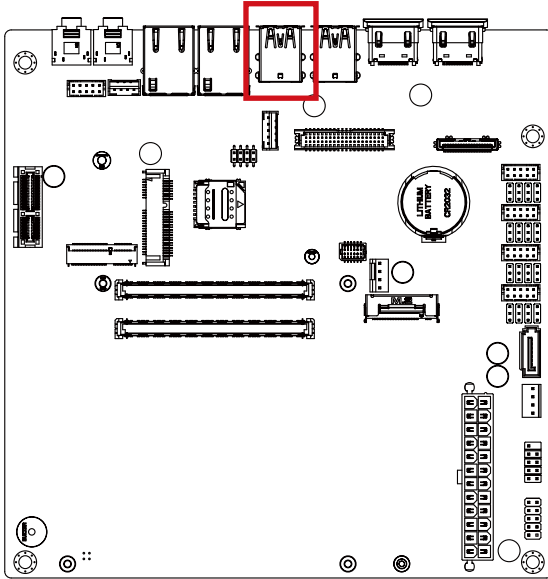
Vendor

FOXCONN  
LOTES

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

### 2.2.3 USB31\_2 (USB 2.0 (top) & USB 3.2 Gen 1 (bottom) connector)

3 4



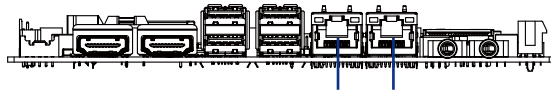
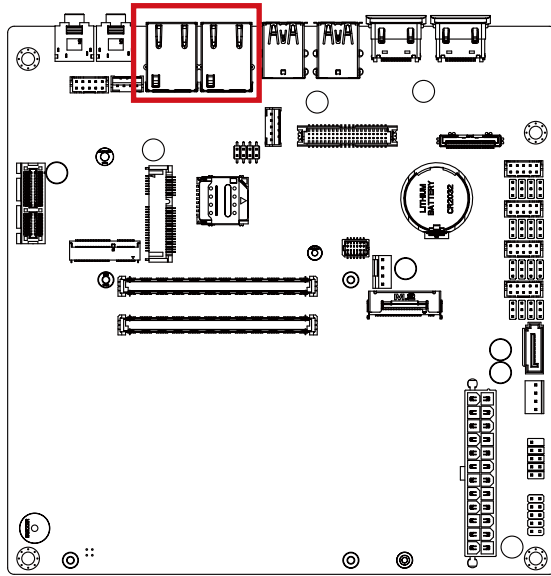
Connector PN	Vendor
UEA11121-UHS6-4F	FOXCONN

USB 2.0 Connector		USB 3.2 Gen 1 Connector	
Pin No.	Definition	Pin No.	Definition
1	5V	1	5V
2	D1n	2	D1n
3	D1p	3	D1p
4	GND	4	GND
		5	USB3_RX1n
		6	USB3_RX1p
		7	GND
		8	USB3_TX1n
		9	USB3_TX1p



## 2.2.4 LAN1, LAN2 (GbE LAN connectors)

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LAN 1 LAN 2

### GbE LAN Connector



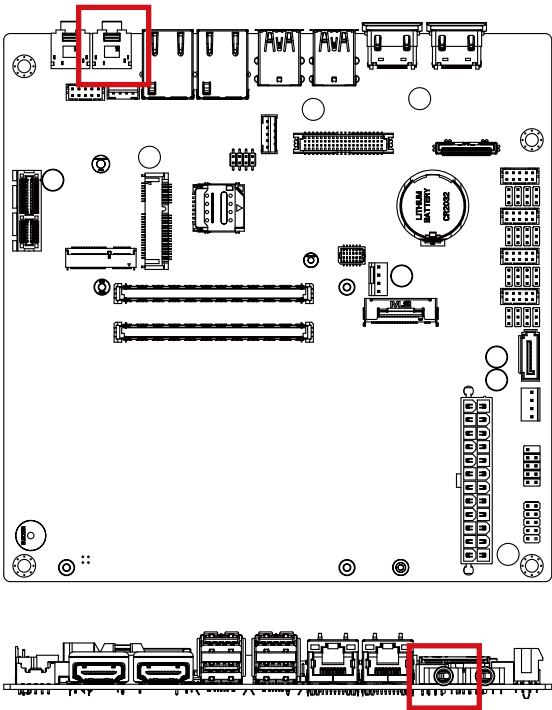
State	Description
Orange On	1Gbps data rate
Green On	100Mbps data rate
Off	10Mbps data rate

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

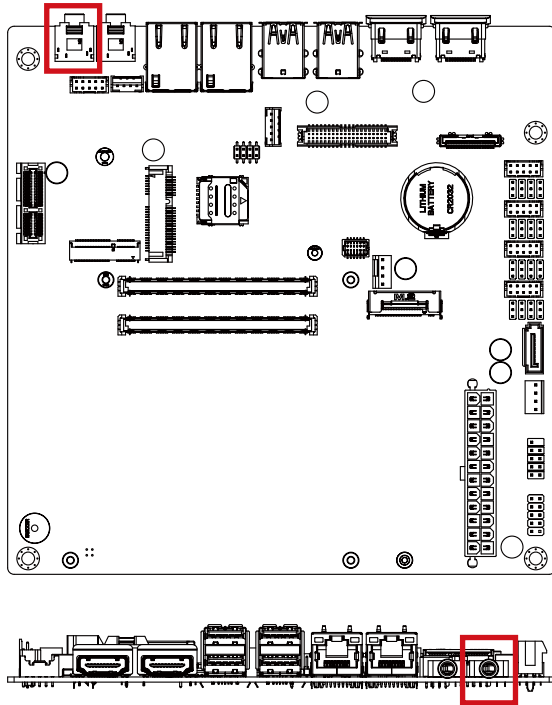
Connector PN	Vendor
RT7-GB-0003	UDE

## 2.2.5 HP\_OUT (Line out connector)

6

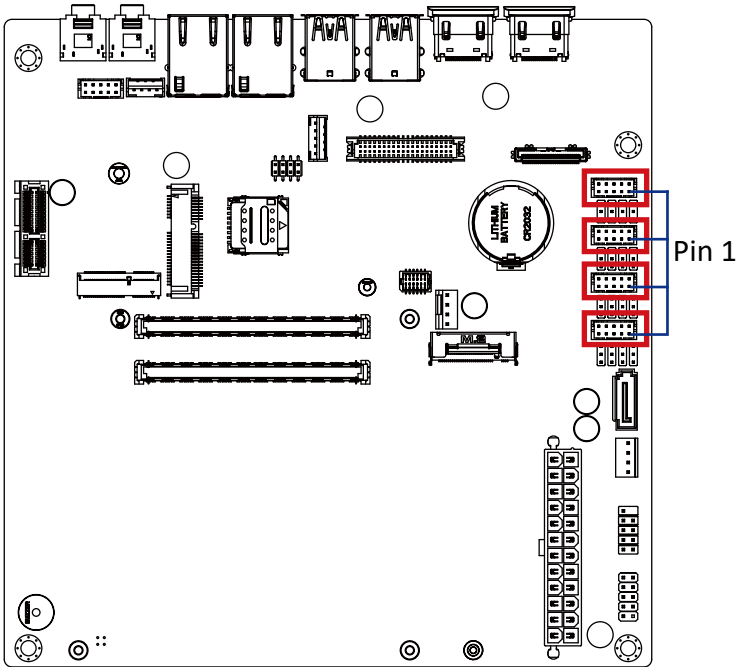


## 2.2.6 MIC\_IN (Mic in connector)

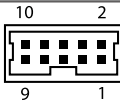
**7**

## 2.2.7 COM1~4 (COM headers (RS-232/422/485 & RI/5V/12V))

8



Serial Port Cable 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	-	-

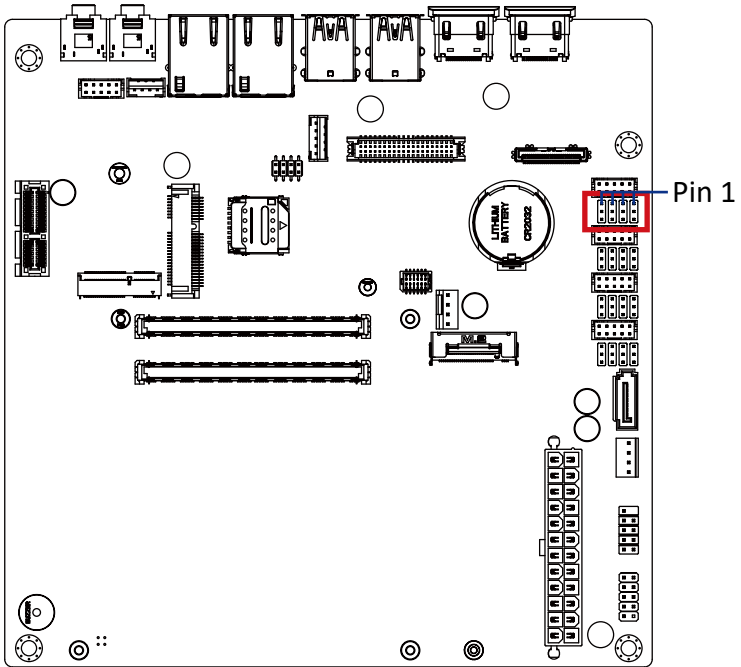
Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

Connector type

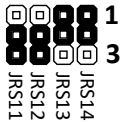
2x5pin header, pitch 2.0mm

## 2.2.8 JRS11~14 (RS-232/422/485 select jumper for COM1 port)

9



JRS11-14 Jumper



RS-232 (Default-setting)

Connector PN

220-96-03GB01

Vendor

PINREX

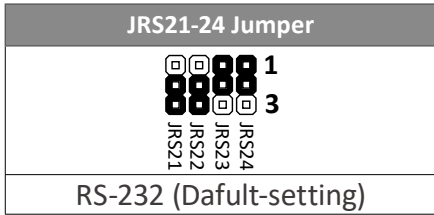
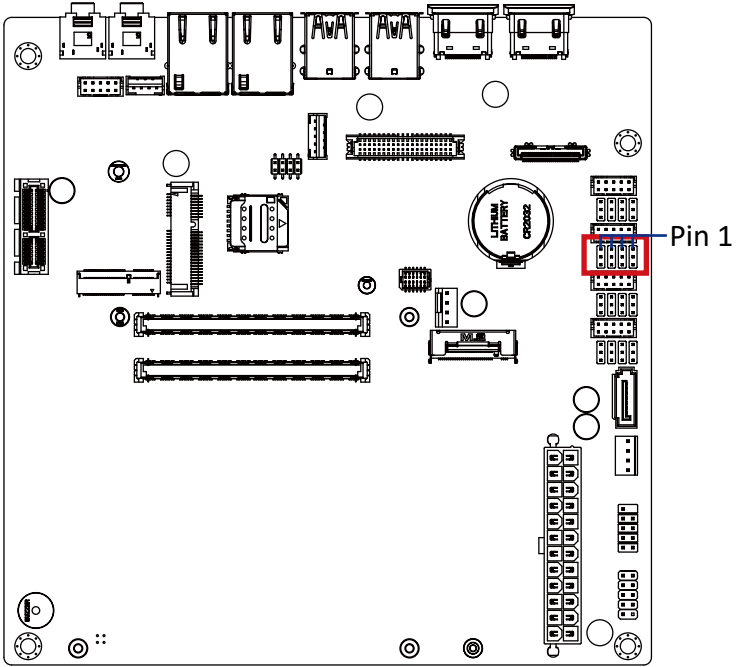
Connector type

1x3pin header, pitch 2.0mm

Mode	RS-422 Full Duplex	Pure RS-232	RS-485 Half Duplex	RS-485 Half Duplex	RS-422 Full Duplex	RS-485 Half Duplex
Status	1T/1R RS-422	3T/5R RS-232 (Default)	1T/1R RS-485, TX ENABLE Low Active	1T/1R RS-485, TX ENABLE High Active	1T/1R RS-422 with termination resistor and bias resistor.	1T/1R RS-485 with termination resistor and bias resistor. TX ENABLE Low Active
Jumper Setting						

## 2.2.9 JRS21~24 (RS-232/422/485 select jumper for COM2 port)

10

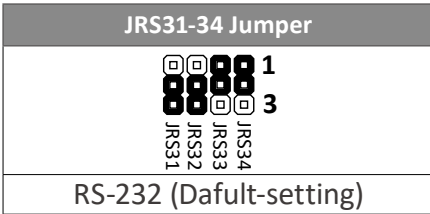
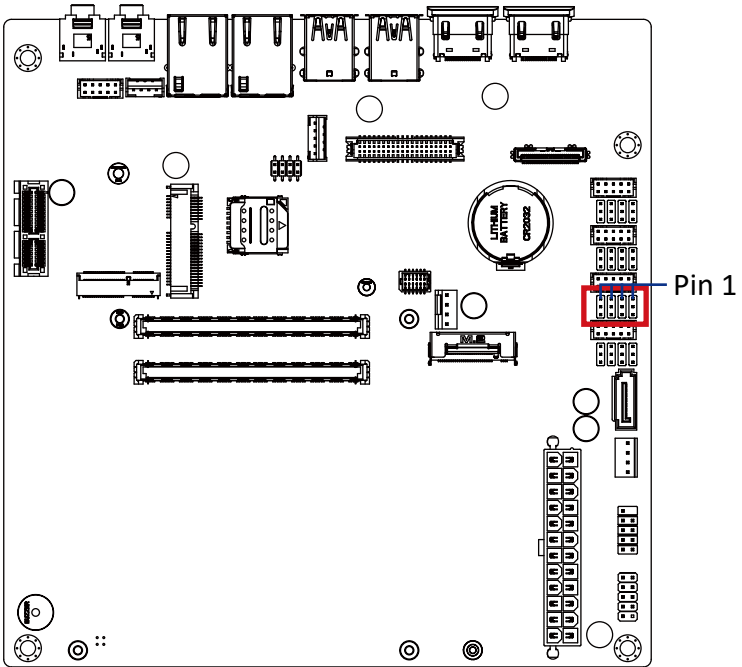


Connector PN	Vendor
220-96-03GB01	PINREX
Connector type	
1X3pin header, pitch 2.0mm	

Mode	RS-422 Full Duplex	Pure RS-232	RS-485 Half Duplex	RS-485 Half Duplex	RS-422 Full Duplex	RS-485 Half Duplex
Status	1T/1R RS-422	3T/5R RS-232 (Default)	1T/1R RS-485, TX ENABLE Low Active	1T/1R RS-485, TX ENABLE High Active	1T/1R RS-422 with termination resistor and bias resistor.	1T/1R RS-485 with termination resistor and bias resistor. TX ENABLE Low Active
Jumper Setting						

## 2.2.10 JRS31~34 (RS-232/422/485 select jumper for COM3 port)

11



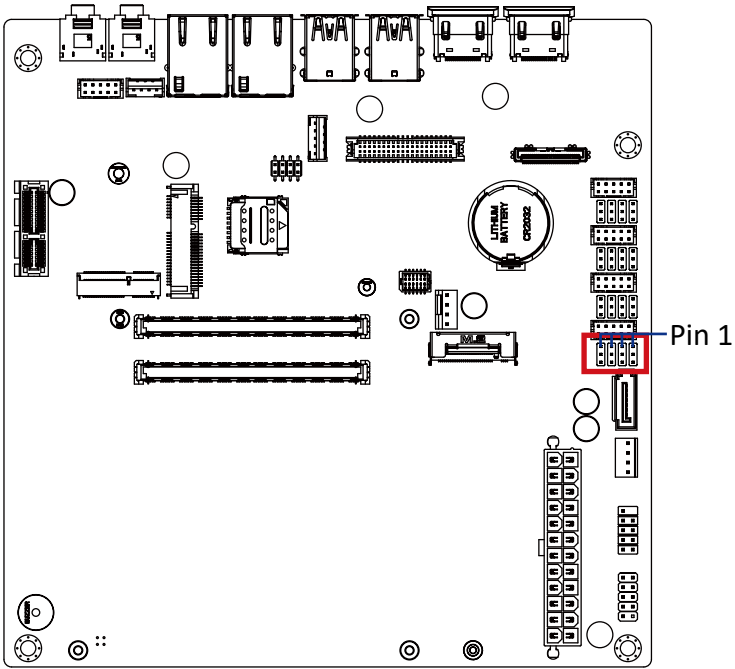
Connector PN	Vendor
220-96-03GB01	PINREX

Connector type
1x3pin header, pitch 2.0mm

Mode	RS-422 Full Duplex	Pure RS-232	RS-485 Half Duplex	RS-485 Half Duplex	RS-422 Full Duplex	RS-485 Half Duplex
Status	1T/1R RS-422	3T/5R RS-232 (Default)	1T/1R RS-485, TX ENABLE Low Active	1T/1R RS-485, TX ENABLE High Active	1T/1R RS-422 with termination resistor and bias resistor.	1T/1R RS-485 with termination resistor and bias resistor. TX ENABLE Low Active
Jumper Setting						

## 2.2.11 JRS41~44 (RS-232/422/485 select jumper for COM4 port)

12



JRS41-44 Jumper
RS-232 (Default-setting)

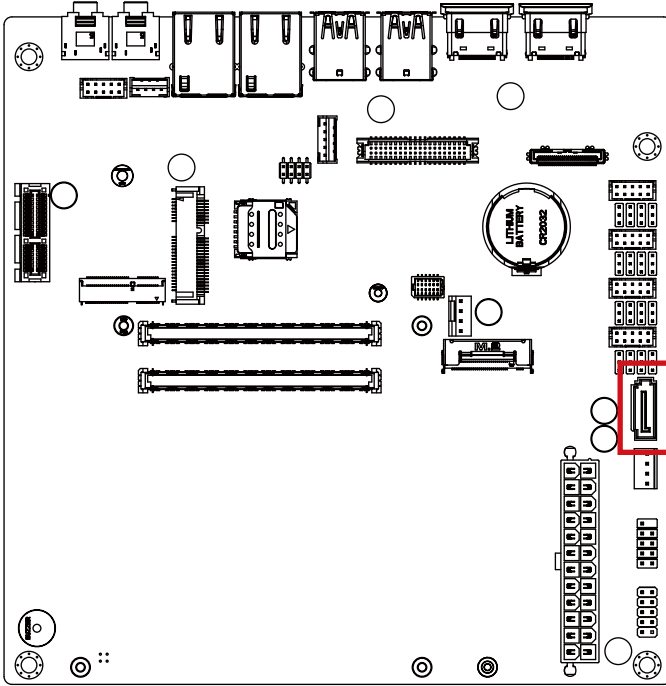
Connector PN	Vendor
220-96-03GB01	PINREX
Connector type	
1x3pin header, pitch 2.0mm	

Mode	RS-422 Full Duplex	Pure RS-232	RS-485 Half Duplex	RS-485 Half Duplex	RS-422 Full Duplex	RS-485 Half Duplex
Status	1T/1R RS-422	3T/5R RS-232 (Default)	1T/1R RS-485, TX ENABLE Low Active	1T/1R RS-485, TX ENABLE High Active	1T/1R RS-422 with termination resistor and bias resistor.	1T/1R RS-485 with termination resistor and bias resistor. TX ENABLE Low Active
Jumper Setting						



## 2.2.12 SATA0 (SATA 6Gb/s connector)

13



SATA 6Gb/s Connector



Connector PN

WAT3M-07A1G3BU4W
ABA-SAT-054-S15

Vendor

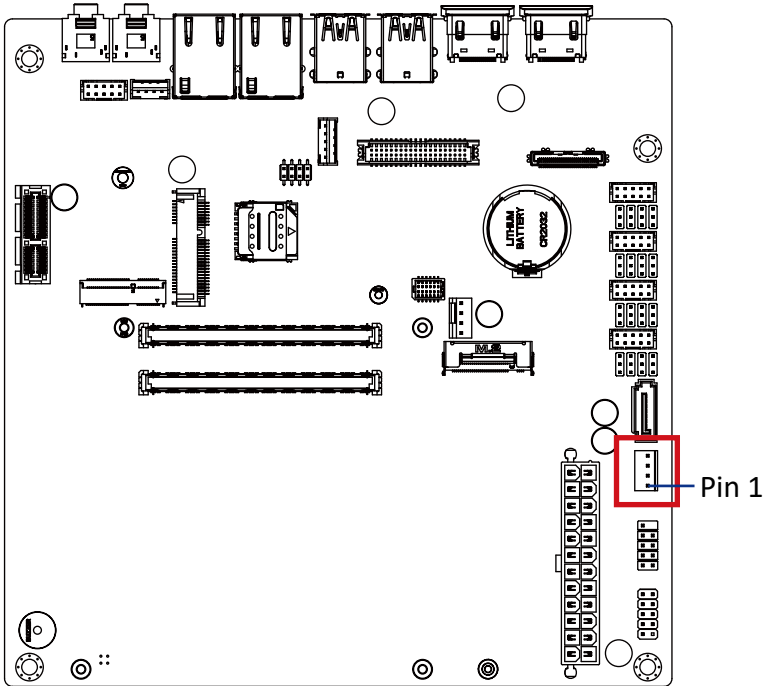
WINWIN
LOTES

Pin No. Definition

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

## 2.2.13 SATAPWR (SATA power connector)

14



Hard Disk Power Connector



Connector PN

743-81-04TW00

Vendor

PINREX

Connector type

1x4pin header, pitch 2.54mm

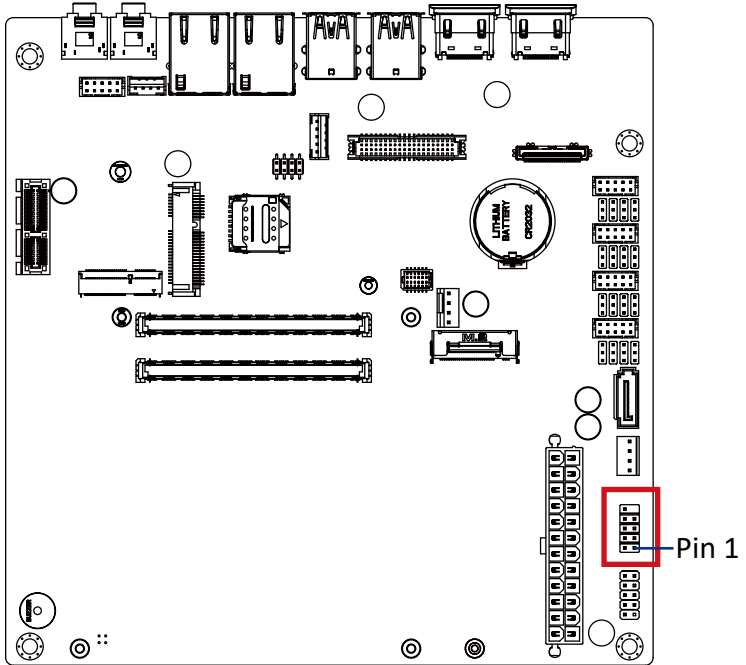
Pin No.

Definition

1	12V
2	GND
3	GND
4	5V

## 2.2.14 F\_USB2\_1 (USB 2.0 header)

15



USB 2.0 Header



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

Connector PN

Vendor

210-92-05GB04

PINREX

PH10R53BAZ009

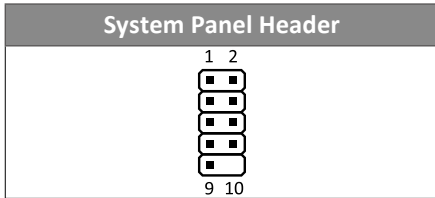
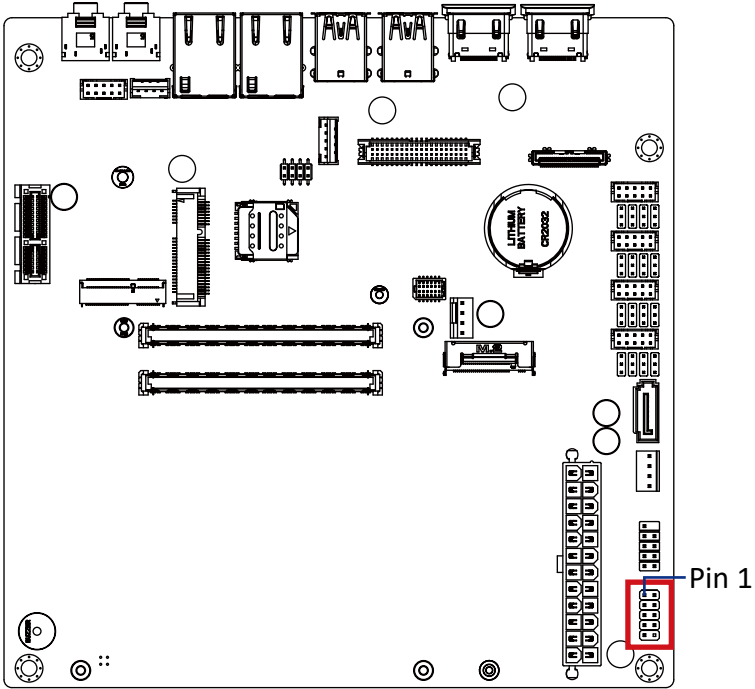
HORNGTONG

Connector type

2x5pin header, pitch 2.54mm

## 2.2.15 SYS\_PANEL (Front panel header)

16



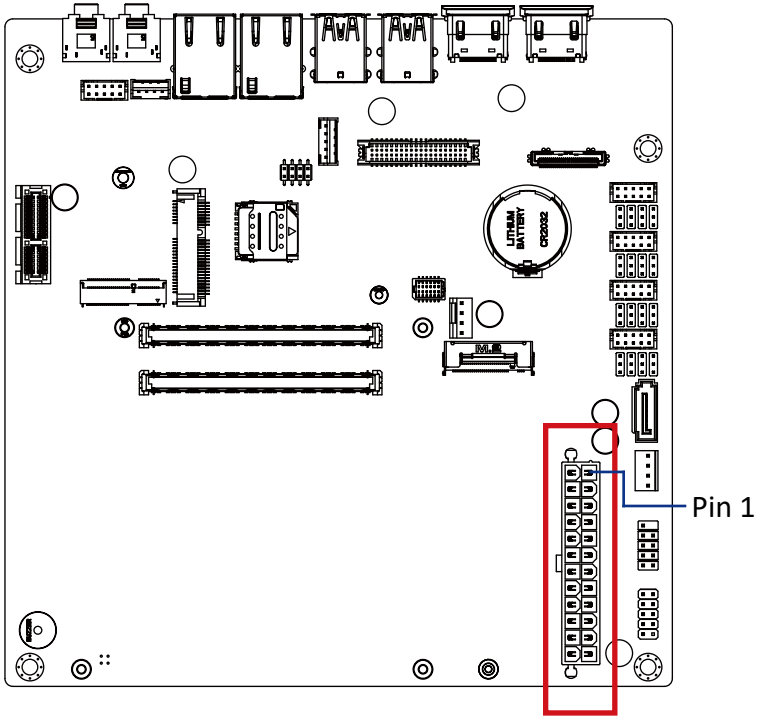
Pin No.	Definition
1	HD-P
2	MPD-P
3	HD-N
4	MPD-N
5	GND
6	POWER-ON
7	Reset
8	GND
9	Reserved
10	NC

Connector PN	Vendor
210-92-05GW5W	PINREX

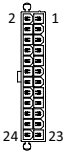
Connector type
2x5pin header, pitch 2.54mm

## 2.2.16 ATX (24-pin ATX main power connector)

17



ATX power Connector



Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	5V	16	PS_ON
5	GND	17	GND
6	5V	18	GND
7	GND	19	GND
8	Power Good	20	NC
9	5VSB	21	5V
10	12V	22	5V
11	12V	23	5V
12	3.3V	24	GND

Connector PN

740-96-245B70

Vendor

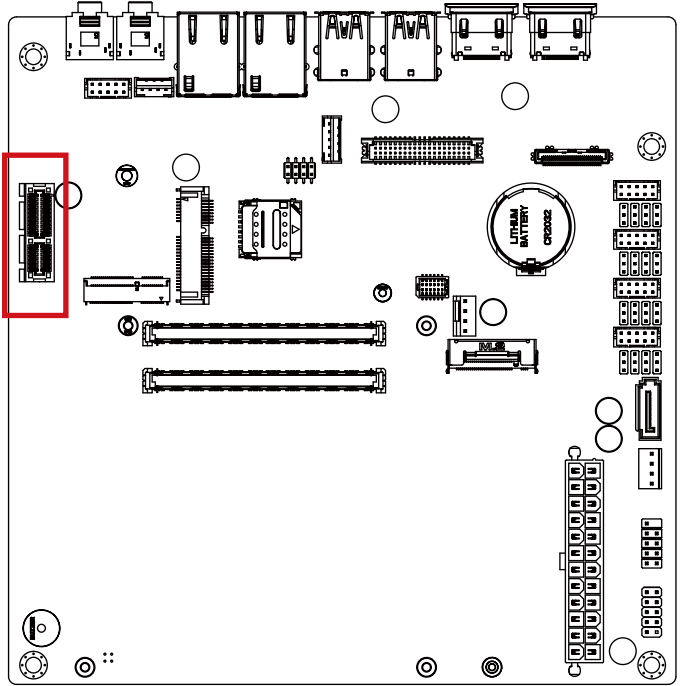
PINREX

Connector type

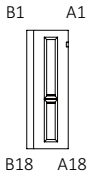
2x12pin connector, pitch 4.2mm

## 2.2.17 PCIEX1 (PCIe x1 (Gen 3x1 bus) slot)

18

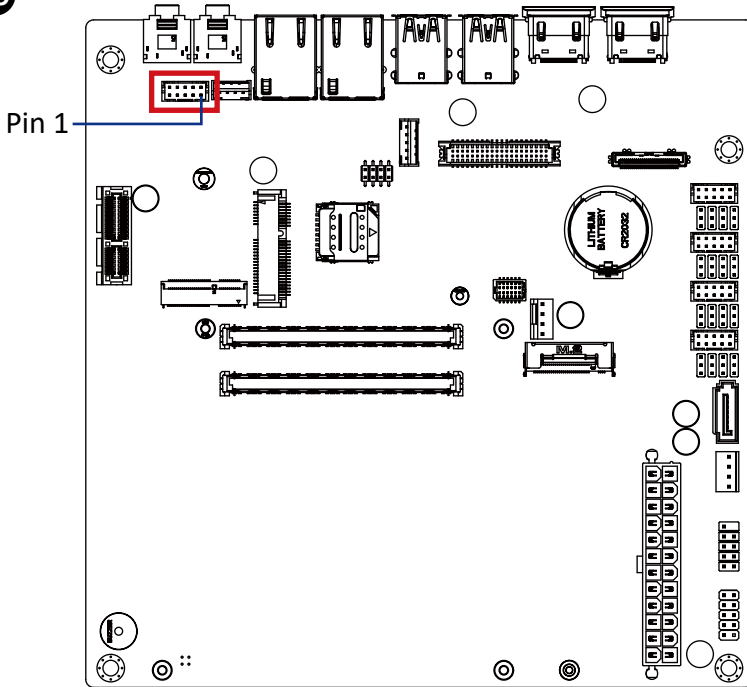


PCIEX1 connector



## 2.2.18 FP\_AUDIO (Front panel audio header)

19



Front Audio Connector



Pin No.	Definition	Pin No.	Definition
1	MIC_Left	6	GND
2	GND	7	Jacksense Detect
3	MIC_Right	8	NC
4	Detect	9	LINE_Left
5	LINE_Right	10	GND

Connector PN

Vendor

725-81-10TW00

PINREX

A2004WV-2X05P46

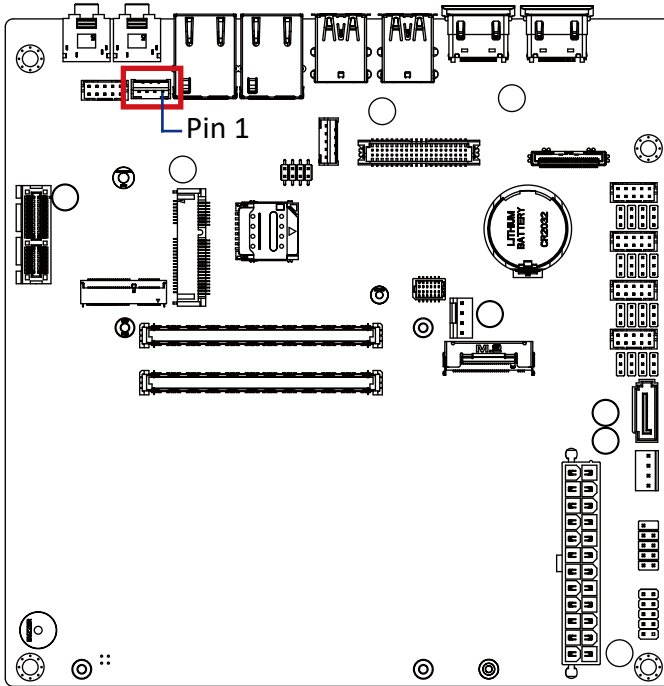
JOINT-TECH


Connector type

2x5pin header, pitch 2.0mm

## 2.2.19 SPKR (Speaker out connector)

20



Speaker out Connector		
4		1

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

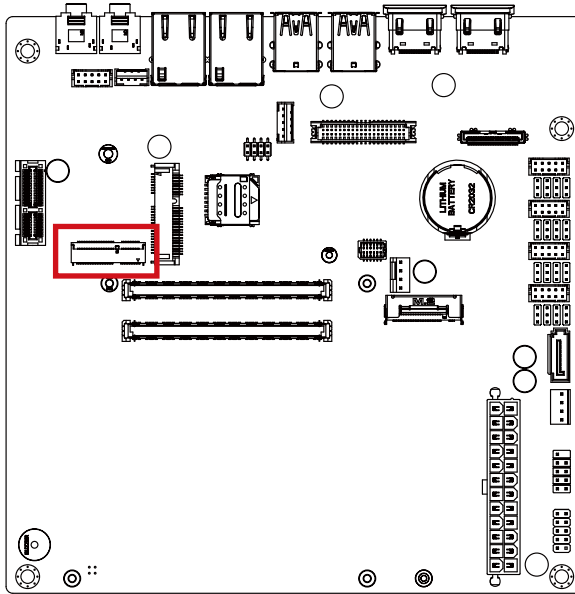
Connector PN	Vendor
721-81-045W00	PINREX
A2001WV-04P146	JOINT-TECH

Connector type
1x4pin header, pitch 2.0mm

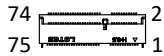


## 2.2.20 M2E (M.2 Slot, 2230 E-key)

21



M.2 E Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3.3V
3	D1p	4	3.3V
5	D1n	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	GND	14	NC
15	NC	16	NC
17	NC	18	GND
19	GND	20	NC
21	NC	22	NC
23	NC		

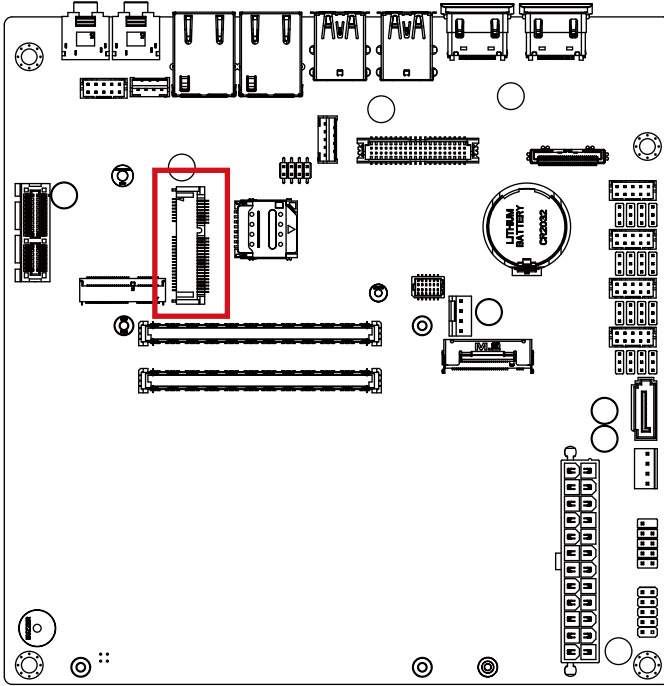
Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	PCIE_TXp	34	NC
37	PCIE_TXn	36	NC
39	GND	38	NC

41	PCIE_RXp	40	NC
43	PCIE_RXn	42	NC
45	GND	44	NC
47	PCIE_CLOCKp	46	NC
49	PCIE_CLOCKn	48	NC
51	GND	50	SUSCLK
53	PCIE Clock Request	52	PCIRST
55	PCIE wake up	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	PERST
69	GND	68	NC
71	NC	70	NC
73	NC	72	3.3V
75	GND	74	3.3V

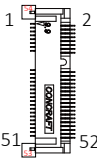
Connector PN	Vendor
80152-8521	BELLWETHER
2E0BC21-S85BE-7H	FOXCONN
APCI0095-P002A	LOTES

## 2.2.21 MPCIE (Mini PCIE connector)

22



Mini PCIe Connector



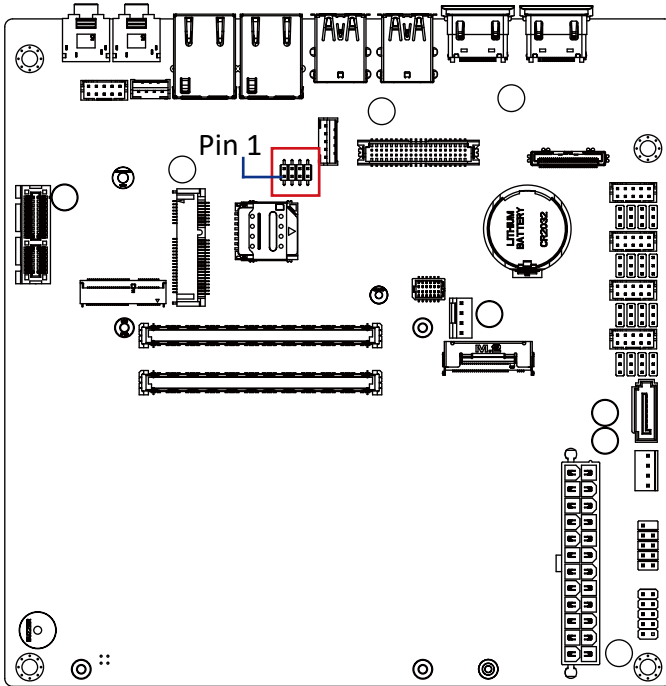
Pin No.	Definition	Pin No.	Definition
1	PCIE WAKE	2	3.3V
3	NC	4	GND
5	NC	6	NC
7	PCIE Clock Request	8	SIM VCC
9	GND	10	SIM DATA
11	PCIE Clock n	12	SIM Clock
13	PCIE Clock p	14	SIM Reset
15	GND	16	UIM VPP3
17	NC	18	GND
19	NC	20	WLAN_DISABLE
21	GND	22	Reset

















Pin No.	Definition	Pin No.	Definition
23	PCIE RXn	24	3.3V
25	PCIE RXp	26	GND
27	GND	28	NC
29	GND	30	SMB Clock
31	PCIE TXn	32	SMB DATA
33	PCIE TXp	34	GND
35	GND	36	USB Dn
37	GND	38	USB Dp
39	3.3V	40	GND
41	3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	NC	52	3.3V
53	GND	54	GND

Connector PN	Vendor
AS0B221-S99Q-7H	FOXCONN

## 2.2.22 LSW (LVDS resolution jumper)

23



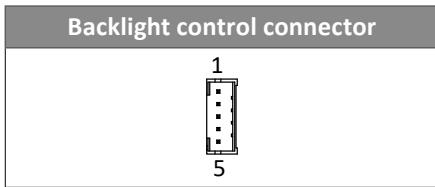
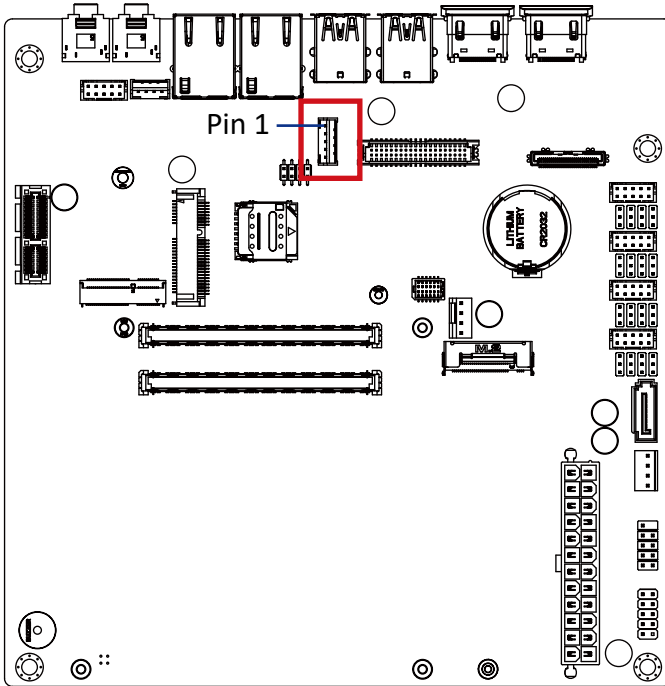
LVDS Resolution Jumper			
Jumper Setting	Resolution	Jumper Setting	Resolution
1 	800 x 600 18bit	1 	1366 x 768 24bit
1 	1024 x 768 18bit	1 	1440 x 900 24bit
1 	1024 x 768 24bit	1 	1400 x 1050 24bit
1 	1024 x 600 18bit	1 	1600 x 900 24bit
1 	1280 x 800 18bit	1 	1680 x 1050 24bit
1 	1280 x 960 18bit	1 	1600 x 1200 24bit
1 	1280 x 1024 24bit	1 	1920 x 1080 24bit
1 	1366 x 768 18bit	1 	1920 x 1200 24bit

Connector PN	Vendor
222-97-04GBE1	PINREX

Connector type
2x4pin header, pitch 2.0mm

## 2.2.23 BKL\_CN (Backlight Control header)

24

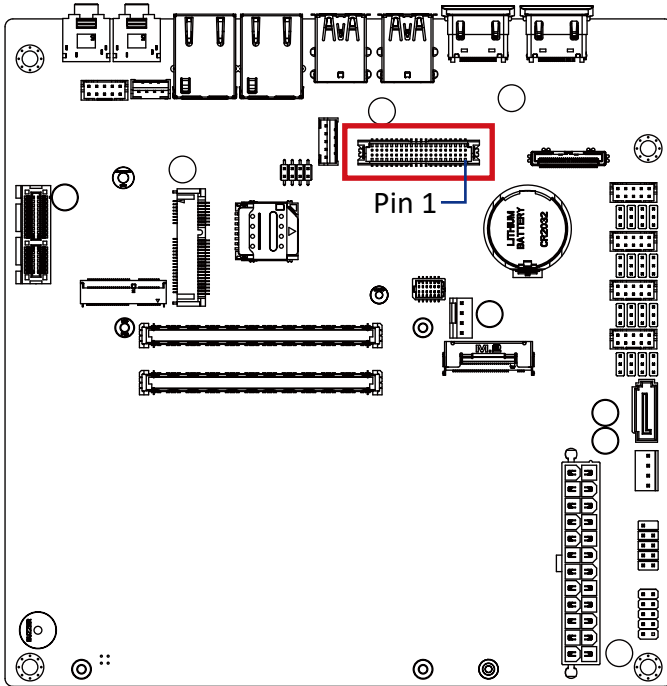


Connector PN	Vendor
721-81-05TW00	PINREX
A2001WV-05P146	JOINT-TECH
Connector type	
1x5pin header, pitch 2.0mm	

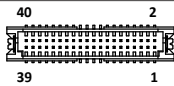
Pin No.	Definition
1	12V (5V optional)
2	PWM
3	Backlight Enable
4	GND
5	12V

## 2.2.24 LVDS (LVDS connector)

25



**LVDS Connector**



Pin No.	Definition	Pin No.	Definition
1	3.3V	21	A5p
2	5V	22	A4p
3	3.3V	23	A5n
4	5V	24	A4n
5	SPECO	25	GND
6	SPEDO	26	GND
7	GND	27	A7p
8	GND	28	A6p
9	A1p	29	A7n
10	A0p	30	A6n
11	A1n	31	GND
12	A0n	32	GND
13	GND	33	CLK2p
14	GND	34	CLK1p

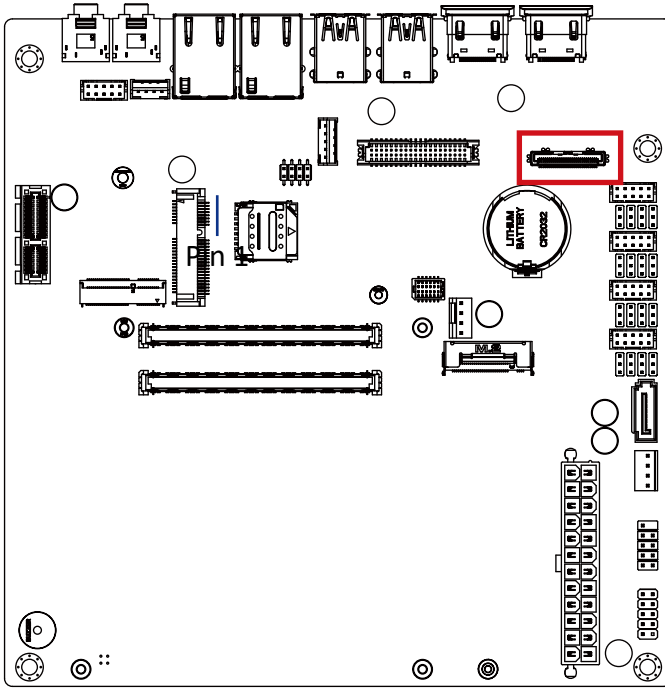
Pin No.	Definition	Pin No.	Definition
15	A3p	35	CLK2n
16	A2p	36	CLK1n
17	A3n	37	GND
18	A2n	38	GND
19	GND	39	12V
20	GND	40	12V

Connector PN	Vendor
712-76-40GWE0	PINREX
A1252WV-SF-2X20PD01	JOINT-TECH

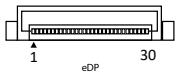
Connector type
2x20pin header, pitch 1.25mm

## 2.2.25 EDP (Embedded Display Port Connector)

26



Embedded Display Port connector



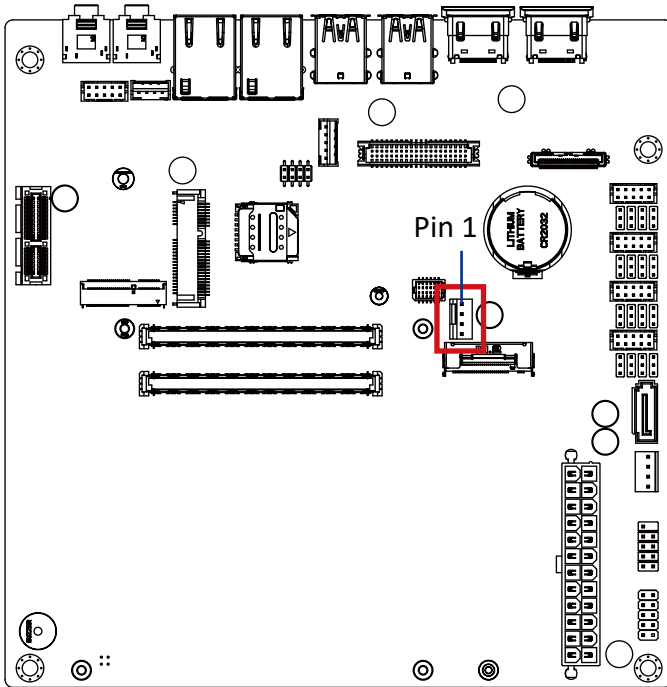
Pin No.	Definition	Pin No.	Definition
1	GND	16	GND
2	TX0n	17	Hot Plug Detect
3	TX0p	18	Backlight Enable
4	GND	19	GND
5	TX1n	20	Backlight controll
6	TX1p	21	GND
7	GND	22	3.3V
8	TX2n	23	3.3V
9	TX2p	24	3.3V

Pin No.	Definition	Pin No.	Definition
10	GND	25	3.3V
11	TX3n	26	GND
12	TX3p	27	5V
13	GND	28	5V
14	AUXn	29	5V
15	AUXp	30	5V

Connector PN	Vendor
115B30-000040-G4-R	STARCONN
Connector type	
1x30pin header, pitch 0.5mm	

## 2.2.26 SYS\_FAN (System fan connector)

27



System FAN connector

1



4

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

Connector PN

744-81-045W11

WF04R22WJQ195

744-81-045W1Z

Vendor

PINREX

HORNGTONG

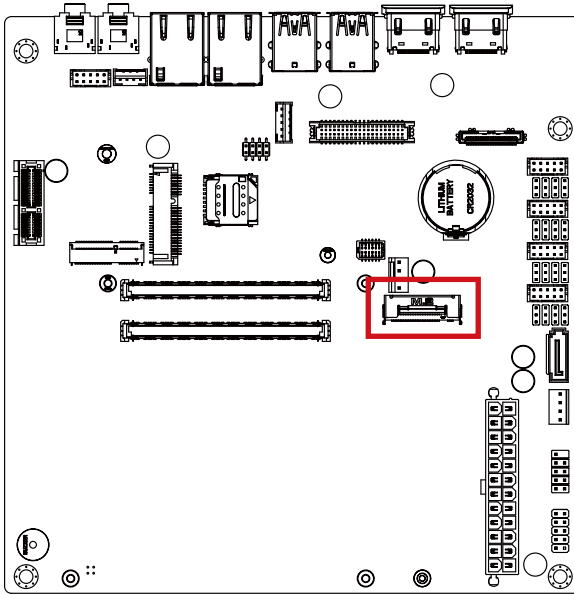
PINREX

Connector type

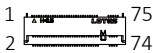
1x4pin header, pitch 2.54mm

## 2.2.27 M2M (M.2 Slot, 2280 M-key)

28



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	SSD LED
11	NC	12	3.3V
13	NC	14	3.3V
15	GND	16	3.3V
17	NC	18	3.3V
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC

Pin No.	Definition	Pin No.	Definition
35	NC	36	NC
37	NC	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	PCI Reset
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC

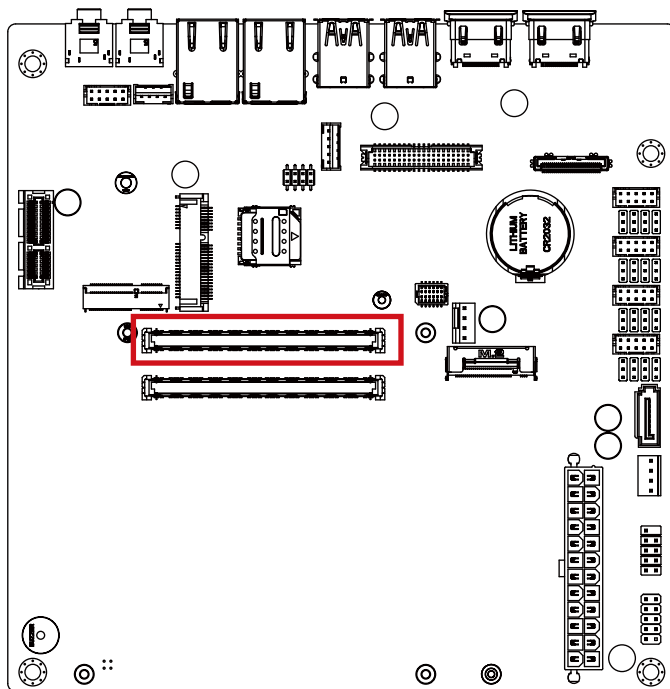
Pin No.	Definition	Pin No.	Definition
67	NC	68	NC
69	NC	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

Connector PN	Vendor
2E0BC41-F85CM-LH	FOXCONN



## 2.2.28 COM Express connector ROW A/B

29



Pin No.	Definition	Pin No.	Definition
A1	GND (FIXED)	B1	GND (FIXED)
A2	NC	B2	NC
A3	NC	B3	ESPI_CS#_R
A4	NC	B4	ESPI_IO0_R
A5	NC	B5	ESPI_IO1_R
A6	NC	B6	ESPI_IO2_R
A7	NC	B7	ESPI_IO3_R
A8	NC	B8	NC
A9	NC	B9	NC
A10	NC	B10	ESPI_CLK_R
A11	GND (FIXED)	B11	GND (FIXED)
A12	NC	B12	PANSHW
A13	NC	B13	SMB_CK
A14	NC	B14	SMB_DATA
A15	PCH_SLP_S3#	B15	SMB_ALERT_n

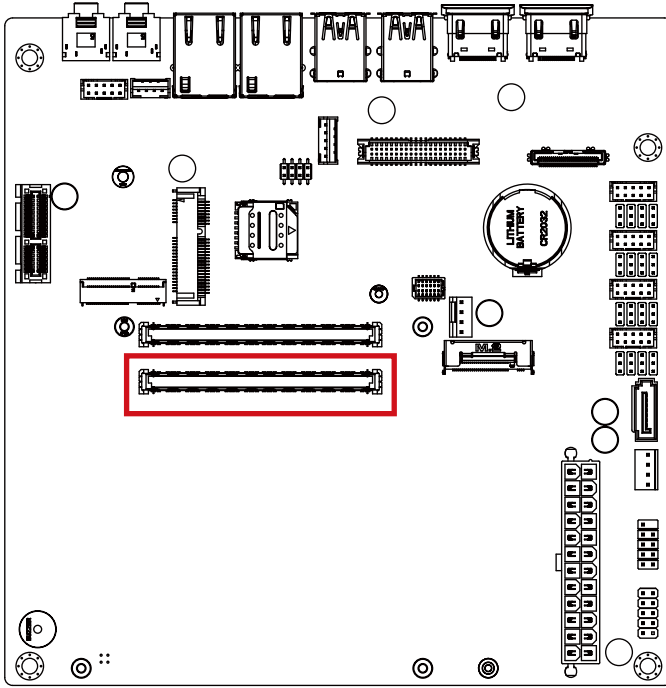
Pin No.	Definition	Pin No.	Definition
A16	SATAIII_TX0p	B16	SATA_M.2_SSD_SLOT1_TX_Dp
A17	SATAIII_TX0n	B17	SATA_M.2_SSD_SLOT1_TX_Dn
A18	PCH_SLP_S4#	B18	ESPI_RST#_R
A19	SATAIII_RX0p	B19	SATA_M.2_SSD_SLOT1_RX_Dp
A20	SATAIII_RX0n	B20	SATA_M.2_SSD_SLOT1_RX_Dn
A21	GND (FIXED)	B21	GND (FIXED)
A22	NC	B22	NC
A23	NC	B23	NC
A24	NC	B24	ATXPWOK
A25	NC	B25	NC
A26	NC	B26	NC
A27	BATLOW#	B27	TP
A28	SATA LED	B28	NC
A29	ACZ_SYNC	B29	NC
A30	ACZ_RST	B30	ACZ_SDINO
A31	GND (FIXED)	B31	GND (FIXED)
A32	ACZ_BITCLK	B32	SPKR
A33	ACZ_SDOOUT	B33	NC
A34	NC	B34	NC
A35	THRMTRIP#	B35	NC
A36	USBP6n	B36	USBP7n
A37	USBP6p	B37	USBP7p
A38	NC	B38	USB_OC3
A39	USBP4n	B39	USBP5n
A40	USBP4p	B40	USBP5p
A41	GND (FIXED)	B41	GND (FIXED)
A42	USBP2n	B42	USBP3n
A43	USBP2p	B43	USBP3p
A44	USB_OC2	B44	USB_OC0
A45	USBP0n	B45	USBP1n
A46	USBP0p	B46	USBP1p
A47	3.3A_RTC	B47	NC
A48	NC	B48	NC
A49	NC	B49	SYS_RESET#
A50	NC	B50	PCIRST1#
A51	GND (FIXED)	B51	GND (FIXED)
A52	NC	B52	NC
A53	NC	B53	NC
A54	PWR LED	B54	M2E_WIFI_RF_KILL_R_N
A55	M.2_WLAN_TX_Dp	B55	M.2_LAN_RX_Dp

Pin No.	Definition	Pin No.	Definition
A56	M.2_WLAN_TX_Dn	B56	M.2_LAN_RX_Dn
A57	GND	B57	MPCIE_W_DISABLE
A58	LAN2_TXp_S	B58	LAN2_RXp_H
A59	LAN2_TXn_S	B59	LAN2_RXn_H
A60	GND (FIXED)	B60	GND (FIXED)
A61	LAN1_TXp_S	B61	LAN1_RXp_H
A62	LAN1_TXn_S	B62	LAN1_RXn_H
A63	PS_ON	B63	5VSB_CTRL
A64	PCIE1_TX_Dp	B64	PCIE1_RX_Dp
A65	PCIE1_TX_Dn	B65	PCIE1_RX_Dn
A66	GND	B66	PCIE_WAKE#
A67	FANPWM5	B67	NC
A68	NC	B68	NC
A69	NC	B69	NC
A70	GND (FIXED)	B70	GND (FIXED)
A71	NC	B71	NC
A72	NC	B72	NC
A73	NC	B73	NC
A74	NC	B74	NC
A75	NC	B75	LNC
A76	NC	B76	NC
A77	LVDS_eDP_VDD_EN	B77	NC
A78	NC	B78	NC
A79	NC	B79	eDP_BKLEN
A80	GND (FIXED)	B80	GND (FIXED)
A81	NC	B81	NC
A82	NC	B82	NC
A83	NC	B83	eDP_BKLTCTL
A84	NC	B84	5VSB
A85	LVDS_RST	B85	5VSB
A86	SPI_TPM_PIRQ_LT_R	B86	5VSB
A87	eDP_HPDP	B87	5VSB
A88	CLK_100M_9ZXL831_Dp	B88	NC
A89	CLK_100M_9ZXL831_Dn	B89	NC
A90	GND (FIXED)	B90	GND (FIXED)
A91	NC	B91	NC
A92	SPI_SO_OUT	B92	NC
A93	M2E_BT_RF_KILL_N	B93	NC
A94	SPI_CLK_OUT	B94	NC
A95	SPI_SI_IN	B95	NC

Pin No.	Definition	Pin No.	Definition
A96	TP	B96	NC
A97	NC	B97	SPI_CS#2_OUT
A98	NC	B98	NC
A99	NC	B99	NC
A100	GND (FIXED)	B100	GND (FIXED)
A101	NC	B101	FAN_PWM4
A102	NC	B102	FANIO4
A103	NC	B103	NC
A104	ATX_12V	B104	ATX_12V
A105	ATX_12V	B105	ATX_12V
A106	ATX_12V	B106	ATX_12V
A107	ATX_12V	B107	ATX_12V
A108	ATC_12V	B108	ATX_12V
A109	ATX_12V	B109	ATX_12V
A110	GND (FIXED)	B110	GND (FIXED)

## 2.2.29 COM Express connector ROW C/D

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Pin No.	Definition	Pin No.	Definition
C1	GND (FIXED)	D1	GND (FIXED)
C2	GND	D2	GND
C3	USB3_RN0	D3	USB3_TN0
C4	USB3_RP0	D4	USB3_TP0
C5	GND	D5	GND
C6	USB3_RN1	D6	USB3_TN1
C7	USB3_RP1	D7	USB3_TP1
C8	GND	D8	GND
C9	USB3_RN2	D9	USB3_TN2
C10	USB3_RP2	D10	USB3_TP2
C11	GND (FIXED)	D11	GND (FIXED)
C12	NC	D12	NC
C13	NC	D13	NC
C14	GND	D14	GND
C15	NC	D15	DDIO_AUXP

Pin No.	Definition	Pin No.	Definition
C16	NC	D16	DDIO_AUXN
C17	NC	D17	NC
C18	NC	D18	NC
C19	PCIE6_MPCIE_RX_DP	D19	PCIE6_MPCIE_TX_DP
C20	PCIE6_MPCIE_RX_DN	D20	PCIE6_MPCIE_TX_DN
C21	GND (FIXED)	D21	GND (FIXED)
C22	NC	D22	NC
C23	NC	D23	NC
C24	eDP_HPD	D24	NC
C25	NC	D25	NC
C26	NC	D26	DDIO_TX0_DP
C27	NC	D27	DDIO_TX0_DN
C28	NC	D28	NC
C29	NC	D29	DDIO_TX1_DP
C30	NC	D30	DDIO_TX1_DN
C31	GND (FIXED)	D31	GND (FIXED)
C32	DDI1_DDC_SCL	D32	DDIO_TX2_DP
C33	DDI1_DDC_SDA	D33	DDIO_TX2_DN
C34	NC	D34	NC
C35	NC	D35	NC
C36	DDI2_DDC_SCL	D36	DDIO_TX3_DP
C37	DDI2_DDC_SDA	D37	DDIO_TX3_DN
C38	NC	D38	NC
C39	DDI2_TX0_DP	D39	DDI1_TX0_DP
C40	DDI2_TX0_DN	D40	DDI1_TX0_DN
C41	GND (FIXED)	D41	GND (FIXED)
C42	DDI2_TX1_DP	D42	DDI1_TX1_DP
C43	DDI2_TX1_DN	D43	DDI1_TX1_DN
C44	DDI2_HPD	D44	DDI1_HPD
C45	NC	D45	NC
C46	DDI2_TX2_DP	D46	DDI1_TX2_DP
C47	DDI2_TX2_DN	D47	DDI1_TX2_DN
C48	NC	D48	NC
C49	DDI2_TX3_DP	D49	DDI1_TX3_DP
C50	DDI2_TX3_DN	D50	DDI1_TX3_DN
C51	GND (FIXED)	D51	GND (FIXED)
C52	NC	D52	NC
C53	NC	D53	NC
C54	NC	D54	NC
C55	NC	D55	NC

Pin No.	Definition	Pin No.	Definition
C56	NC	D56	NC
C57	NC	D57	GND
C58	NC	D58	NC
C59	NC	D59	NC
C60	GND (FIXED)	D60	GND (FIXED)
C61	NC	D61	NC
C62	NC	D62	NC
C63	NC	D63	NC
C64	NC	D64	NC
C65	NC	D65	NC
C66	NC	D66	NC
C67	NC	D67	GND
C68	NC	D68	NC
C69	NC	D69	NC
C70	GND (FIXED)	D70	GND (FIXED)
C71	NC	D71	NC
C72	NC	D72	NC
C73	GND	D73	GND
C74	NC	D74	NC
C75	NC	D75	NC
C76	GND	D76	GND
C77	NC	D77	NC
C78	NC	D78	NC
C79	NC	D79	NC
C80	GND (FIXED)	D80	GND (FIXED)
C81	NC	D81	NC
C82	NC	D82	NC
C83	NC	D83	NC
C84	GND	D84	GND
C85	NC	D85	NC
C86	NC	D86	NC
C87	GND	D87	GND
C88	NC	D88	NC
C89	NC	D89	NC
C90	GND (FIXED)	D90	GND (FIXED)
C91	NC	D91	NC
C92	NC	D92	NC
C93	GND	D93	GND
C94	NC	D94	NC
C95	NC	D95	NC

Pin No.	Definition	Pin No.	Definition
C96	GND	D96	GND
C97	NC	D97	NC
C98	NC	D98	NC
C99	NC	D99	NC
C100	GND (FIXED)	D100	GND (FIXED)
C101	NC	D101	NC
C102	NC	D102	NC
C103	GND	D103	GND
C104	ATX_12V	D104	ATX_12V
C105	ATX_12V	D105	ATX_12V
C106	ATX_12V	D106	ATX_12V
C107	ATX_12V	D107	ATX_12V
C108	ATX_12V	D108	ATX_12V
C109	ATX_12V	D109	ATX_12V
C110	GND (FIXED)	D110	GND (FIXED)