

# PICO-G350A

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Pico-ITX Boards

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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
PICO-G350A MB	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	○	○	○	○	○	○
<p>○: 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。</p> <p>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。</p> <p>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。</p>						

# 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
<p>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.</p> <p>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.</p> <p>Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p>						

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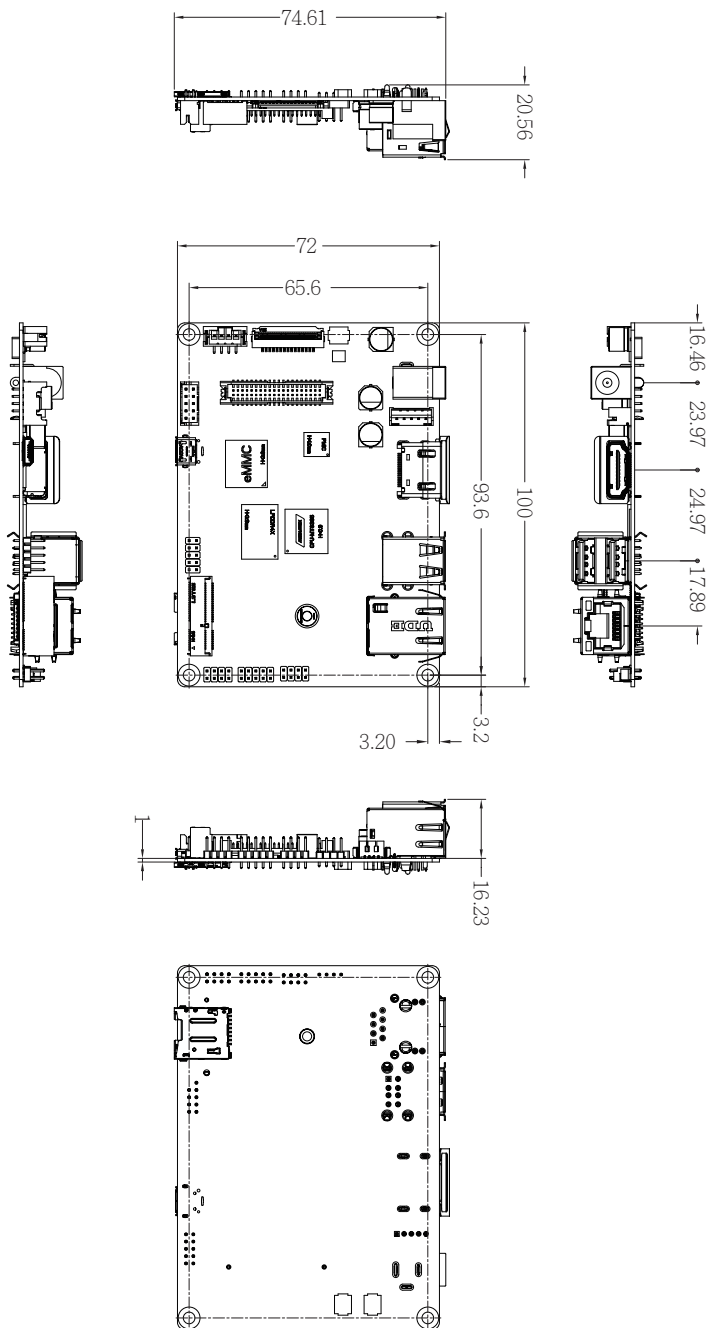
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# Chapter 1

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## Chapter 1 - Product Specifications



## 1.1 Specifications

Motherboard	PICO-G350A
Form Factor	PICO-ITX 100W x 72Dmm
CPU	MT8365 Arm® Quad-Core Cortex®-A53 up to 2.0GHz
Memory	LPDDR4X 4GB (on board)
Ethernet	Integrated 100M Ethernet
Video	Integrated Graphics Processor – Mali-G52: 1 x HDMI port, supporting a maximum resolution of 1280x720 or 1920x1080 (The monitor must use 30Hz to have 1920x1080 resolution) 1 x LVDS port, supporting a maximum resolution of 1366x768 @24bit or 18bit (Optional) 1 x MIPI-DSI (Optional)
Audio	Integrated - Audio codec and amplifier
Storage	eMMC 8GB (on board)
Expansion Slots	1 x 2230 M.2 E-Key, support AW-CB451NF-D (IEEE 802.11a/b/g/n/ac Wireless LAN 2T2R and Bluetooth 5.1 Combo Module)
Internal I/O	1 x Front panel header 1 x Front panel audio header 1 x Speaker header (2W/ 4ohm) 2 x UART 2 x USB 2.0 header (host) 1 x USB 2.0 header (OTG) 1 x GPIO (8 bits) header 1 x MIPI-DSI (Optional) 1 x Micro SD slot
Front I/O	1 x OTG USB (internal micro-USB Connector)
Rear I/O	1 x DC In power Jack - System adapter 12~24V 2 x USB 2.0 Ports (Host) 1 x RJ45 LAN Port 1 x HDMI
OS Compatibility	Support Yocto OS

Motherboard	PICO-G350A
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)

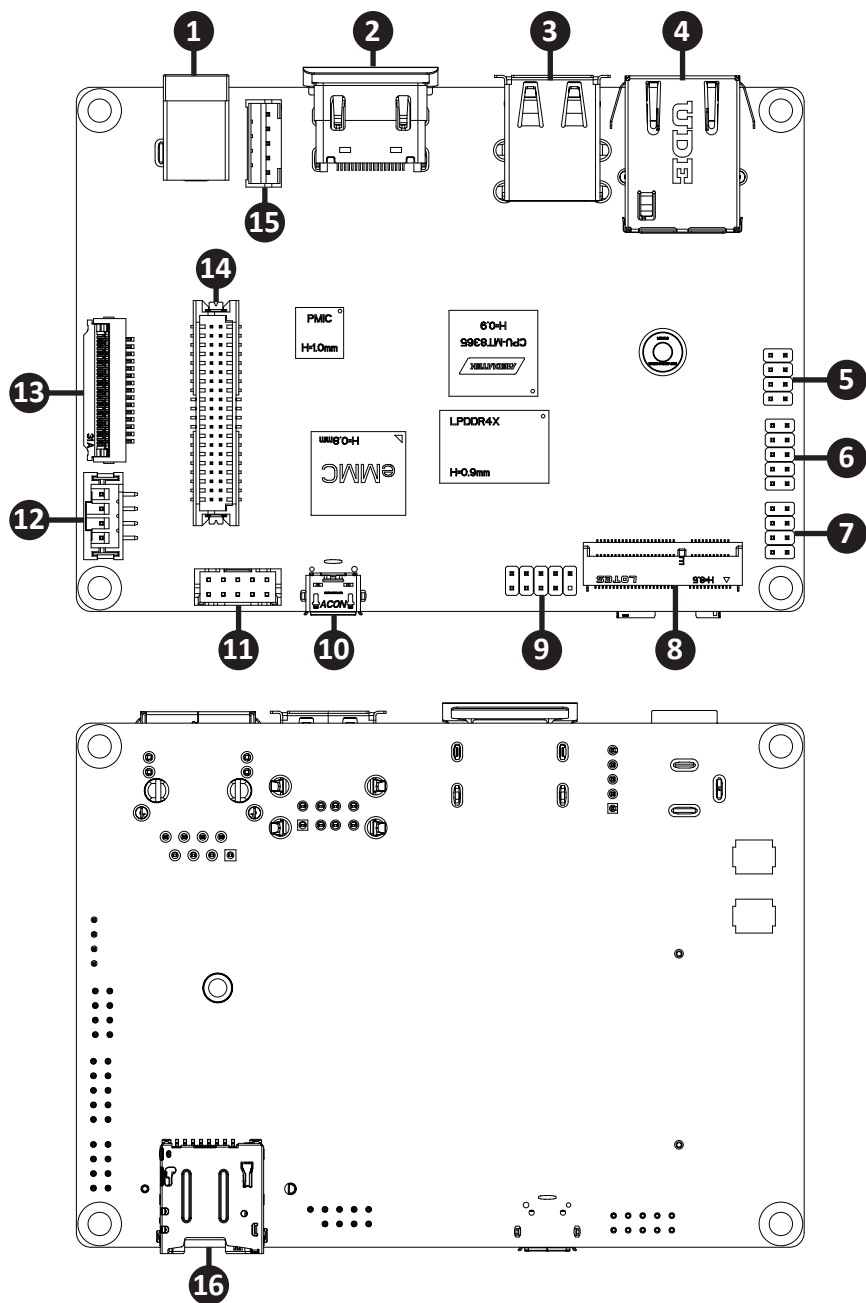


## Chapter 2

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### Chapter 2 – Hardware Information

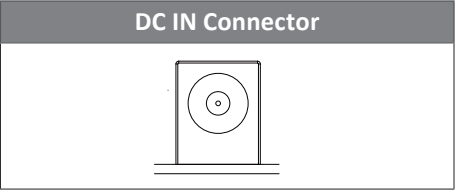
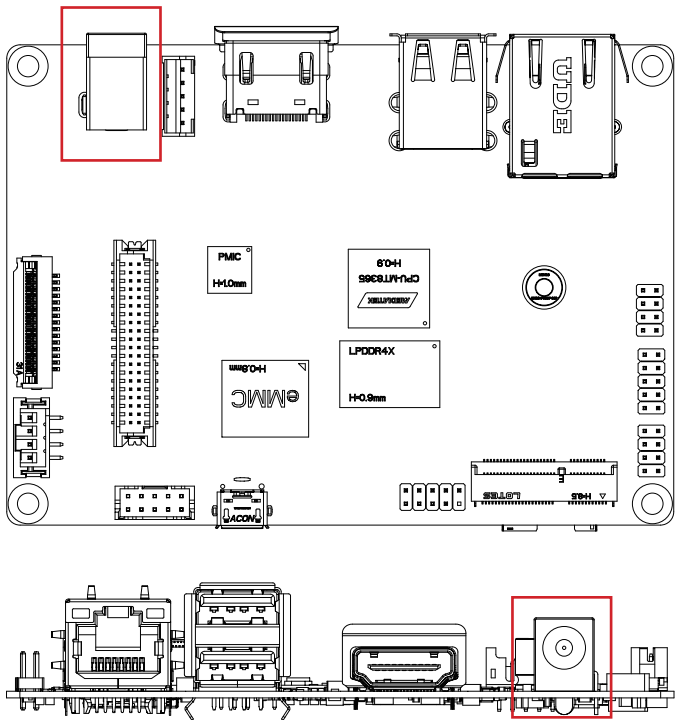
## 2.1 Jumpers and Connectors



No	Code	Description
1	DC_IN	DC IN connector
2	HDMI	HDMI connector
3	RUSB	USB 2.0 connector
4	LAN	LAN connector
5	SYS_PANEL	Front panel header
6	GPIO	General purpose input / ouput header
7	UART	UART connector
8	M2E	M.2 Slot, 2230 E-key, Secure digital input/output interface (SDIO)
9	FUSB	USB 2.0 headers
10	USB	Micro USB 2.0 connector
11	FP_AUDIO	Front Audio connector
12	SPKR	Speaker out connector
13	MIPI	Mobile Industry Processor Interface
14	LVDS	LVDS Connector
15	BKL_CN	Backlight Control connector
16	SD	Micro SD slot

## 2.2.1 DC\_IN (DC IN connector)

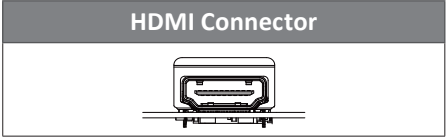
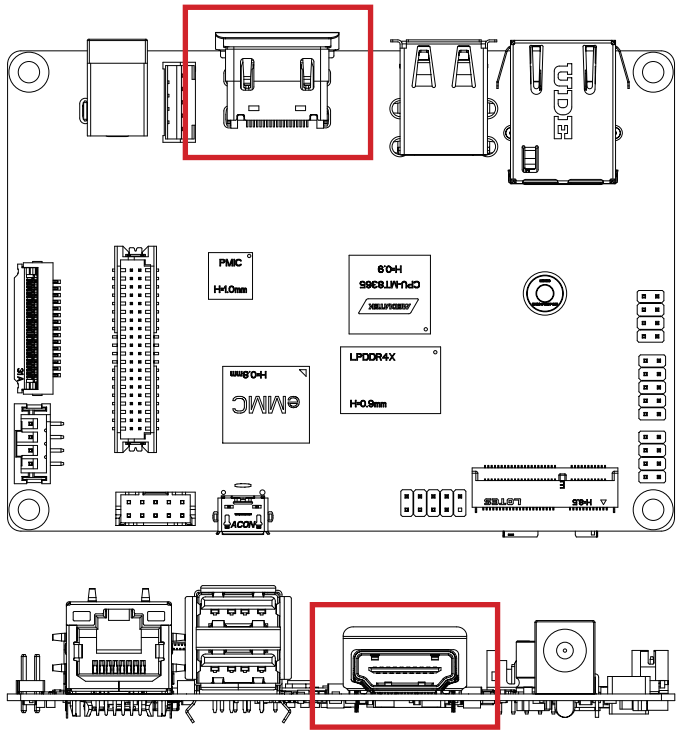
1



Connector PN	Vendor
2DC-0005B200	SINGATRON

# 2.2.2 HDMI (HDMI connector)

2

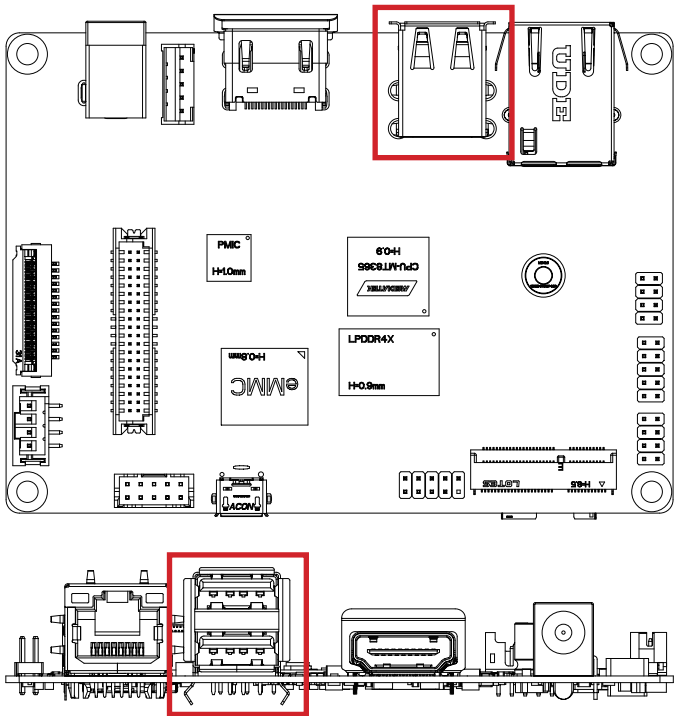


Connector PN	Vendor
1165-2CG04-24P	TCONN

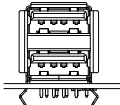
Pin No.	Definition	Pin No.	Definition
1	HDMI_D2p	11	GND
2	GND	12	HDMI_CLKn
3	HDMI_D2n	13	CEC
4	HDMI_D1p	14	NC
5	GND	15	HDMI_SCL
6	HDMI_D1n	16	HDMI_SDA
7	HDMI_D0p	17	GND
8	GND	18	5V
9	HDMI_D0n	19	HDMI_HPD
10	HDMI_CLKp		

### 2.2.3    RUSB (USB 2.0 connector)

3



USB 2.0 Connector

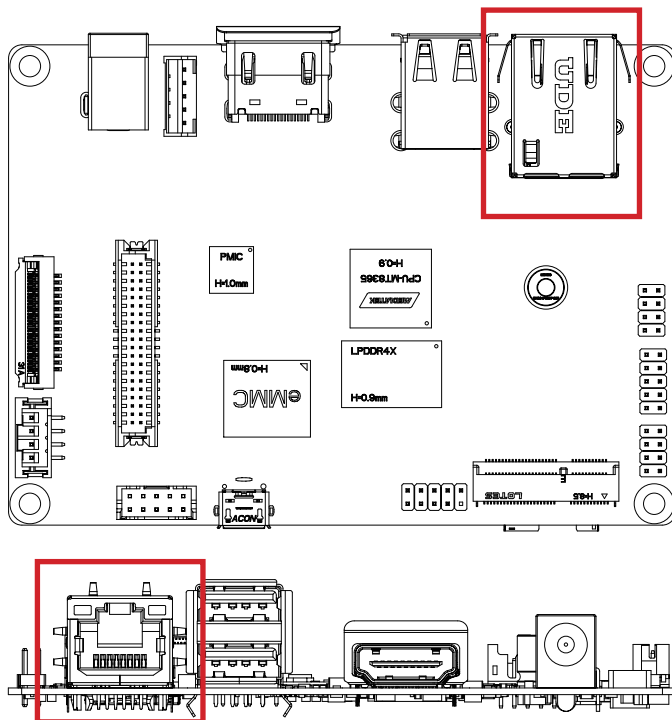


Connector PN	Vendor
UB11121-8FDH-4F	FOXCONN

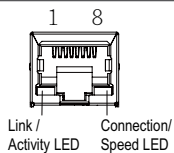
Pin No.	Definition
1	5V
2	D1n
3	D1p
4	GND
5	5V
6	D2n
7	D2p
8	GND

## 2.2.4 LAN (LAN connector)

4



### LAN Connector



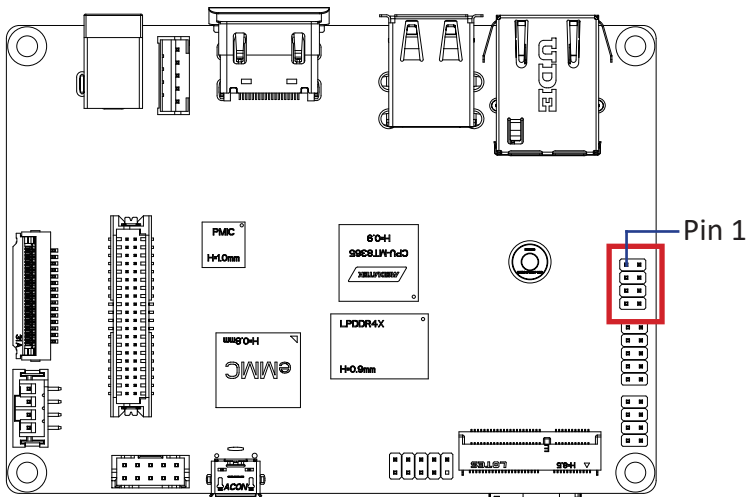
Pin No.	Definition
1	MD0p
2	MD0n
3	MD1p
4	GND
5	GND
6	MD1n
7	GND
8	GND

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

Connector PN	Vendor
RT7-144A8U4F	UDE

# 2.2.5    SYS\_PANEL (Front panel header)

5



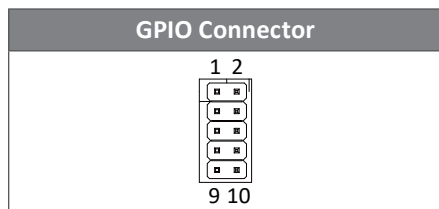
System Panel Header
<div><div>1 2</div><div><div></div><div></div><div></div><div></div></div><div>7 8</div></div>

Pin No.	Definition
1	Power key
2	GND
3	System reset
4	GND
5	Volume up
6	GND
7	Volume down
8	GND

Connector PN	Vendor
PH08N53BAZ000	HORNGTONG
Connector type	
2x4pin header, pitch 2.0mm	



6



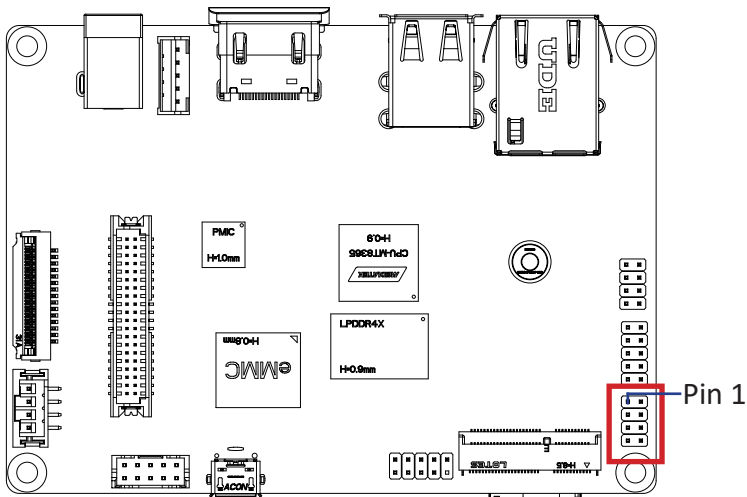
Pin No.	Definition
9	NC
10	GPIO_output 7

Connector PN	Vendor
220-97-05GB01	PINREX

Connector type
2x5pin header, pitch 2.0mm

# 2.2.7    UART (UART connector)

5



UART Connector

1 2

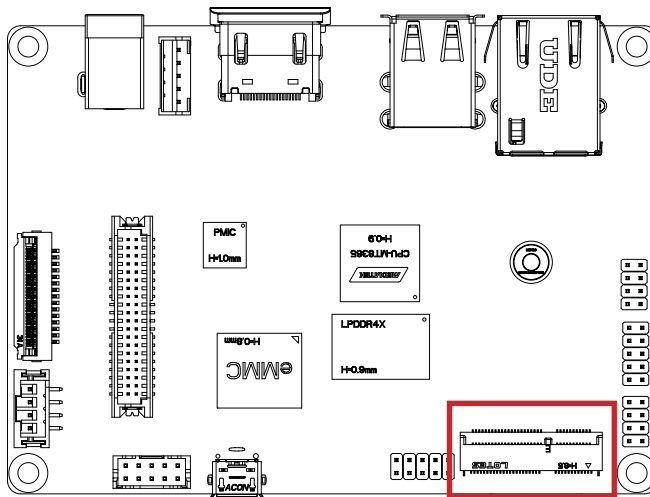
7 8

Pin No.	Definition
1	+3.3V
2	+3.3V
3	TXD0
4	TXD1
5	RXD0
6	RXD1
7	GND
8	GND

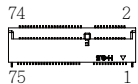
Connector PN	Vendor
PH08N53BAZ000	HORNGTONG
Connector type	
2x4pin header, pitch 2.0mm	

## 2.2.8 M2E (M.2 Slot, 2230 E-key, Secure digital input/output interface (SDIO))

8



M.2 E Key Connector



Pin No.	Definition	Pin No.	Definition
1	GND	2	3V
3	NC	4	3V
5	NC	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	1.8V
21	NC	22	1.8V
23	SDIO_DS		

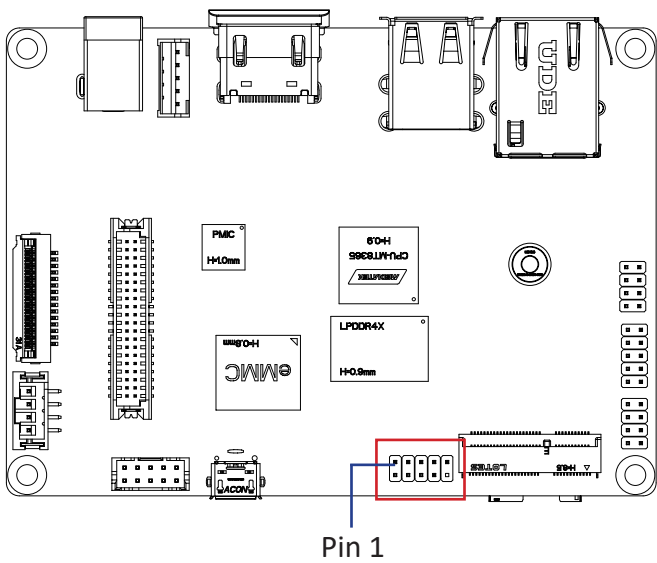
Pin No.	Definition	Pin No.	Definition
33	GND	32	NC
35	SDIO_D1	34	NC
37	SDIO_D0	36	NC
39	GND	38	NC

41	SDIO_Clock	40	NC
43	SDIO_Command	42	NC
45	GND	44	I2S_DI
47	SDIO_D3	46	I2S_D0
49	SDIO_D2	48	I2S_Bitclock
51	GND	50	I2S_LRCK
53	Clock request	52	I2S_PERST
55	WiFi_INT	54	NC
57	GND	56	NC
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
APC10095-P002A	LOTES
80152-8521	BELLWETHER
2E0BC21-S85BE-7H	FOXCONN

# 2.2.9 FUSB (USB 2.0 headers)

9

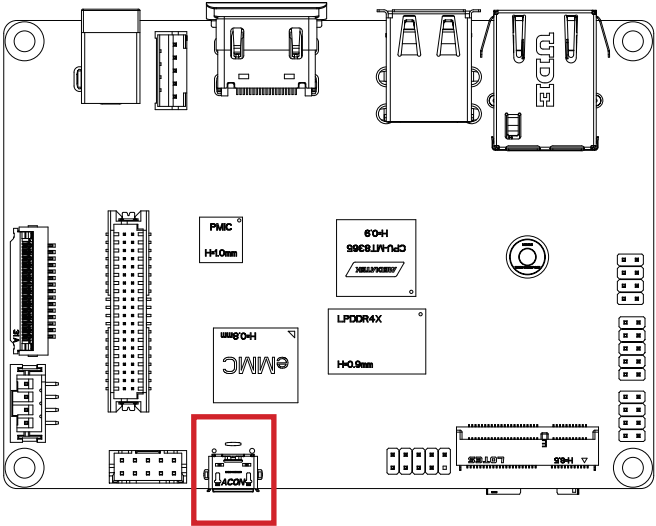


USB 2.0 Header	
1 2	
Pin No.	Definition
1	5V
2	5V
3	DXn
4	DYn
5	DXp
6	DYp
7	GND
8	GND
9	No Connect
10	No Pin

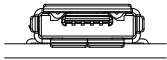
Connector PN	Vendor
220-97-05GB19	PINREX
PH10N53BAZ009	HORNGTONG
Connector type	
2x5pin header, pitch 2.0mm	

2.2.10 USB (Micro USB 2.0 connector)

10



Micro USB Connector



Connector PN

MUE40-5G7200

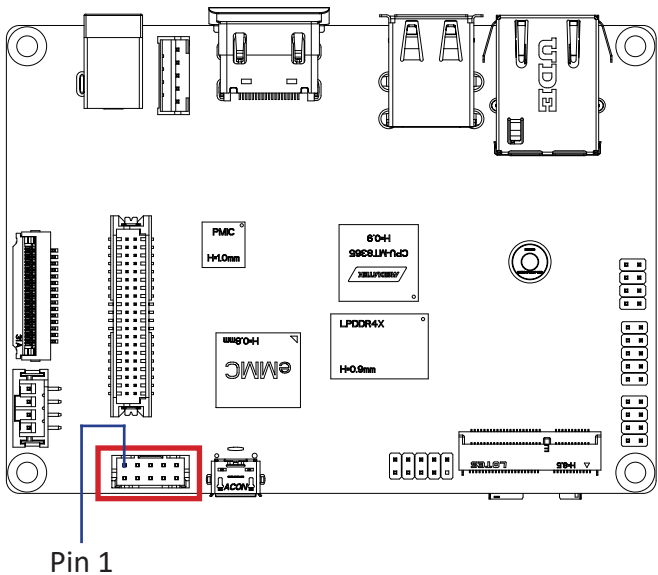
Vendor

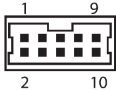
ACON

Pin No.	Definition
1	5V
2	D1n
3	D1p
4	ID#
5	GND

## 2.2.11 FP\_AUDIO (Front Audio connector)

11

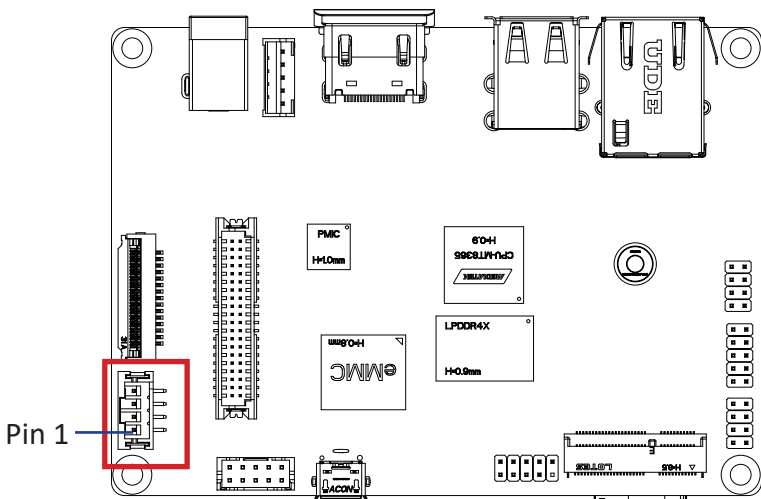


Front Audio Connector	
	
Pin No.	Definition
1	HP_Right
2	AGND
3	HP_MIC
4	AGND
5	HP_Reference
6	HP_Reference
7	HP_Jacksense Detect
8	NC
9	HP_Left
10	NC

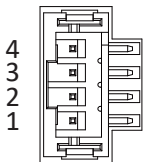
Connector PN	Vendor
725-81-10TW00	PINREX
Connector type	
2x5pin header, pitch 2.0mm	

## 2.2.12 SPKR (Speaker out connector)

12



Audio Amplifier Connector



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

Connector PN

A2001WV-S-04PD01

Vendor

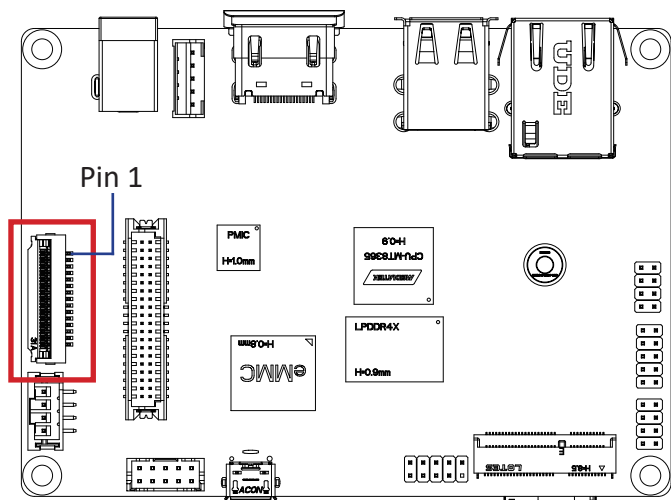
JOINT-TECH

Connector type

1x4pin header, pitch 2.0mm

# 2.2.13 MIPI (Mobile Industry Processor Interface)

13



MIPI Connector

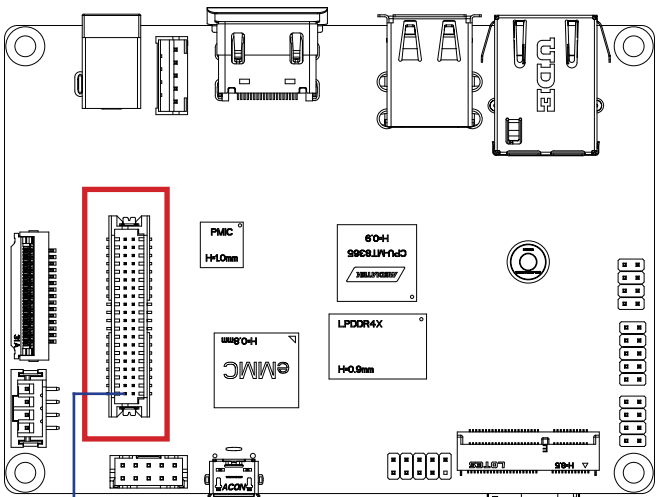
Connector PN	Vendor
50503-01501-001	ACES
Connector type	
1x15pin header, pitch 1.0mm	

Pin No.	Definition	Pin No.	Definition
1	GND	9	A0p
2	A1n	10	GND
3	A1p	11	SCL
4	GND	12	SDA
5	CLKn	13	GND
6	CLKp	14	+3.3V
7	GND	15	+3.3V
8	A0n		



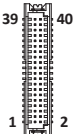
## 2.2.14 LVDS (LVDS connector)

14



Pin 1

LVDS Connector



Pin No.	Definition	Pin No.	Definition
1	3.3V	21	NC
2	5V	22	NC
3	3.3V	23	NC
4	5V	24	NC
5	NC	25	GND
6	NC	26	GND
7	GND	27	NC
8	GND	28	NC
9	A1+	29	NC
10	A0+	30	NC
11	A1-	31	GND
12	A0-	32	GND
13	GND	33	NC
14	GND	34	CLK1+
15	A3+	35	NC

Pin No.	Definition	Pin No.	Definition
16	A2+	36	CLK1-
17	A3-	37	GND
18	A2-	38	GND
19	GND	39	12V
20	GND	40	12V

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

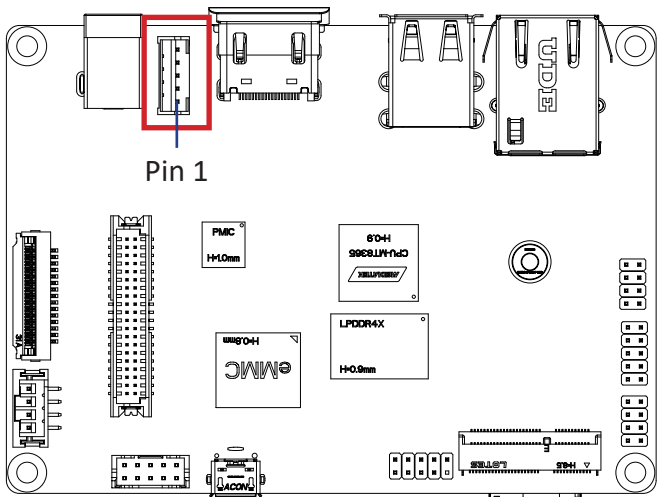
Connector type
2x20pin header, pitch 1.25mm

For each model support LVDS function.  
But below model no need to add.  
A0~A3 is odd channel 0~3, A4~A7 is even channel.

Note: \*The LVDS output connector of the unit is only intended to be connected to an UL/IEC/EN approval equipment with fire enclosure.

## 2.2.15 BKL\_CN (Backlight Control connector)

15



Backlight Control Connector



Pin No.	Definition
1	5V (12V optional)
2	PWM (3.3V)
3	Backlight enable (3.3V)
4	GND
5	12V

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

## 2.2.16 SD (Micro SD slot)

**16**