

PICO-G350A

Pico-ITX Boards

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Packing List

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

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 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 | ○ | ○ | ○ | ○ | ○ | ○ |
| Wires & Connectors for External Connections | ○ | ○ | ○ | ○ | ○ | ○ |

○: 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

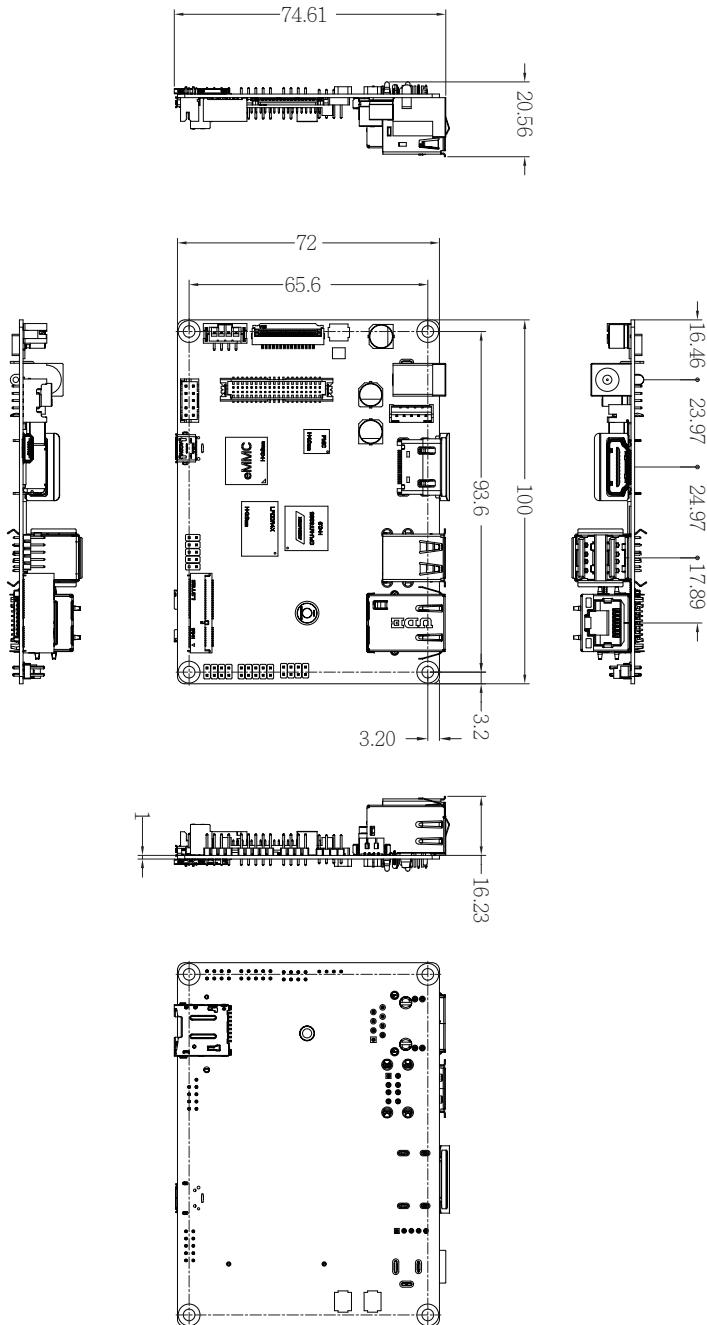
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Chapter 1

Chapter 1 - Product Specifications



1.1 Specifications

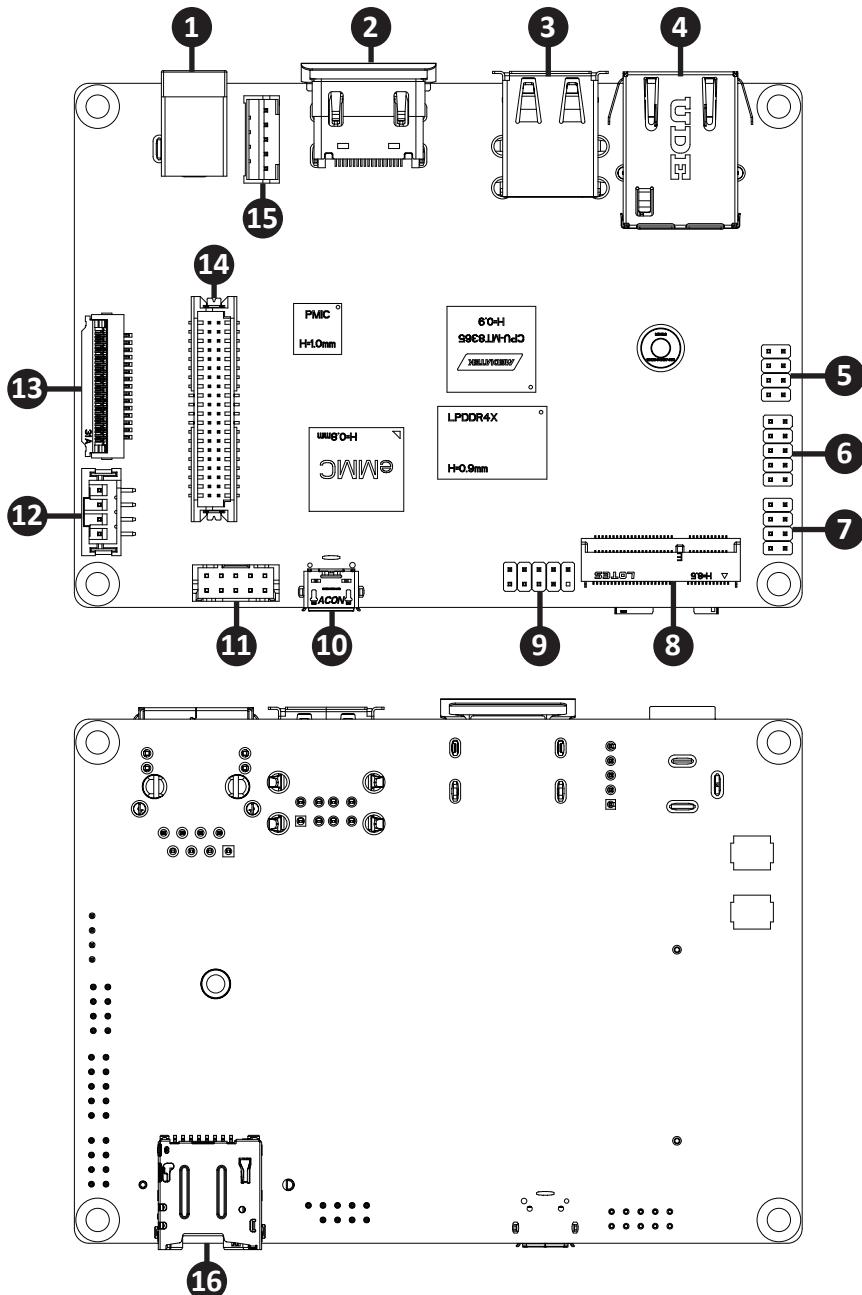
| Motherboard | | PICO-G350A |
|------------------|--|------------|
| Form Factor | PICO-ITX 100W x 72Dmm | |
| CPU | MT8365 Arm® Quad-Core Cortex®-A53 up to 2.0GHz | |
| Memory | LPDDR4X 4GB (on board) | |
| Ethernet | Integrated 100M Ethernet | |
| Video | Integrated Graphics Processor – Mali-G52: 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

Chapter 2 – Hardware Information

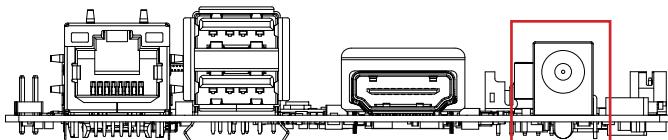
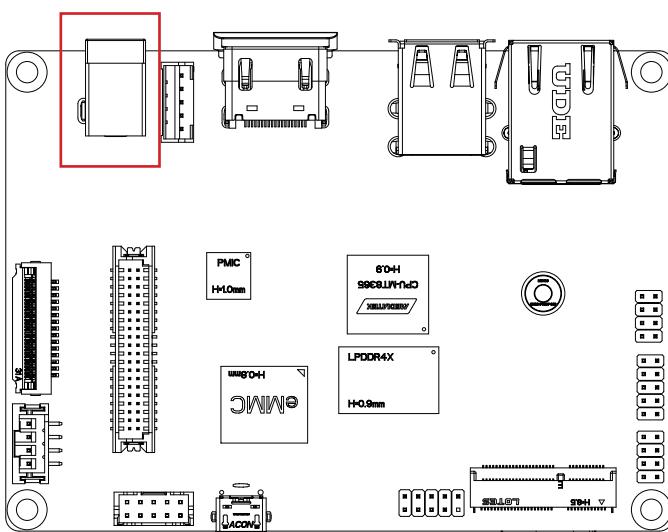
2.1 Jumpers and Connectors



| 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)

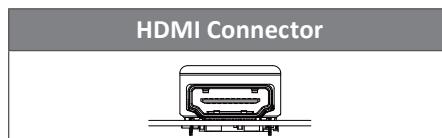
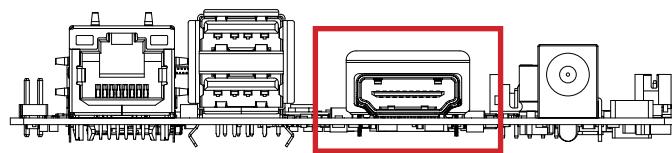
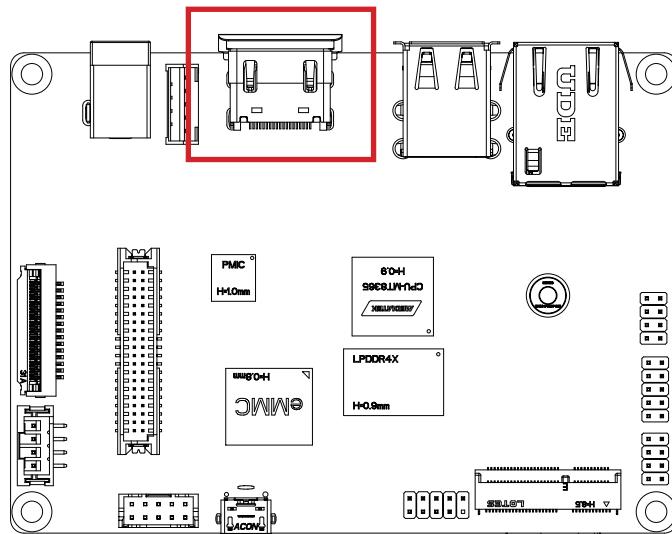
1



| DC IN Connector | Connector PN | Vendor |
|-----------------|--------------|-----------|
| | 2DC-0005B200 | SINGATRON |

2.2.2 HDMI (HDMI connector)

2

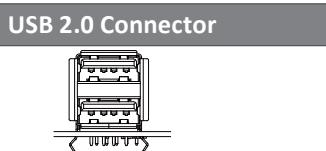
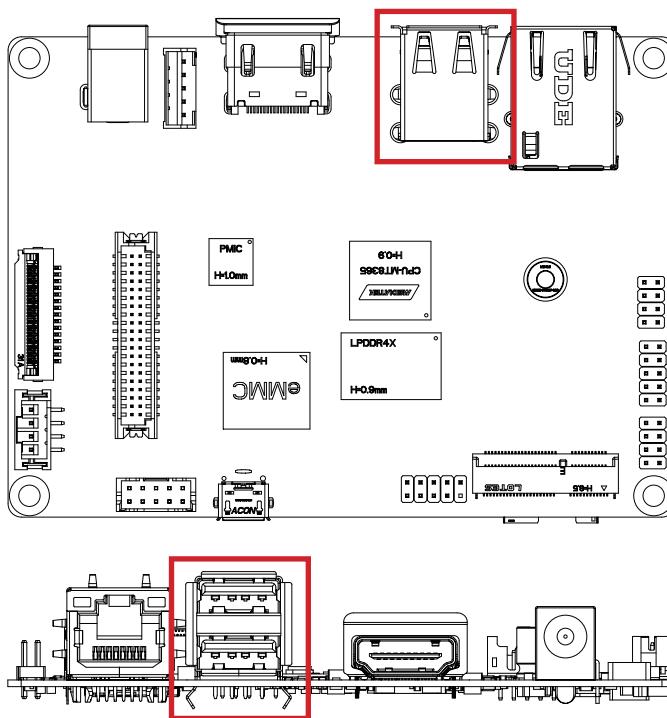


| Connector PN | Vendor |
|----------------|--------|
| 1165-2CG04-24P | TCONN |

| 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

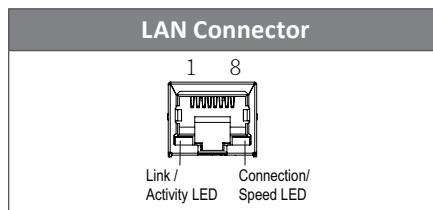
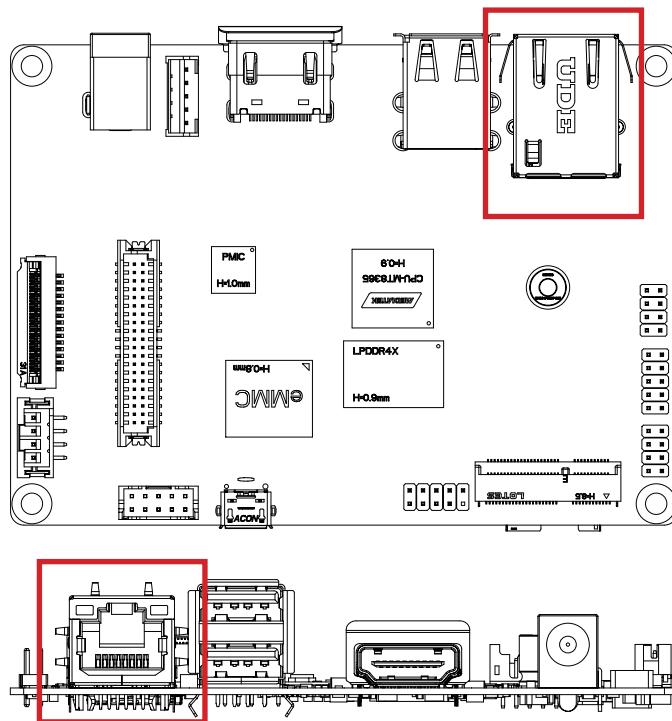


| Connector PN | Vendor |
|-----------------|---------|
| UB11121-8FDH-4F | FOXCONN |

| 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



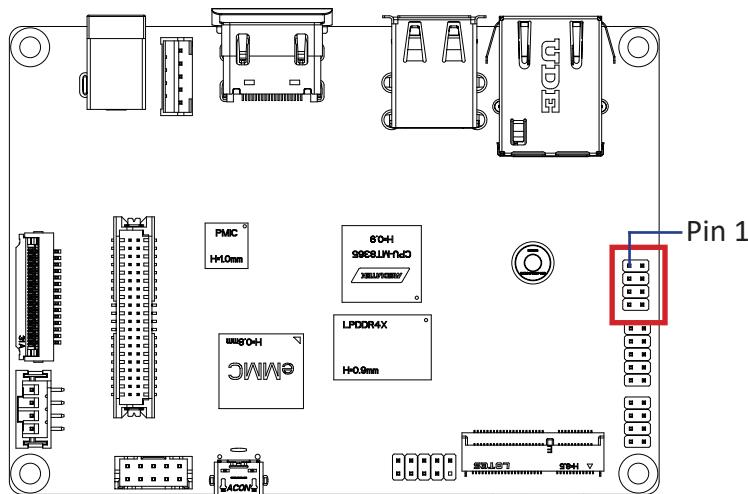
| State | Description |
|-----------|-------------------|
| Orange On | 1Gbps data rate |
| Green On | 100Mbps data rate |
| Off | 10Mbps data rate |

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

| Connector PN | Vendor |
|--------------|--------|
| RT7-144A8U4F | UDE |

2.2.5 SYS_PANEL (Front panel header)

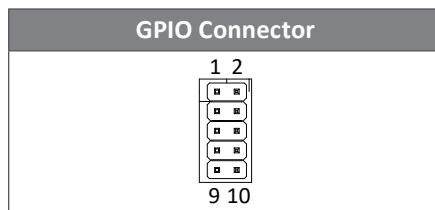
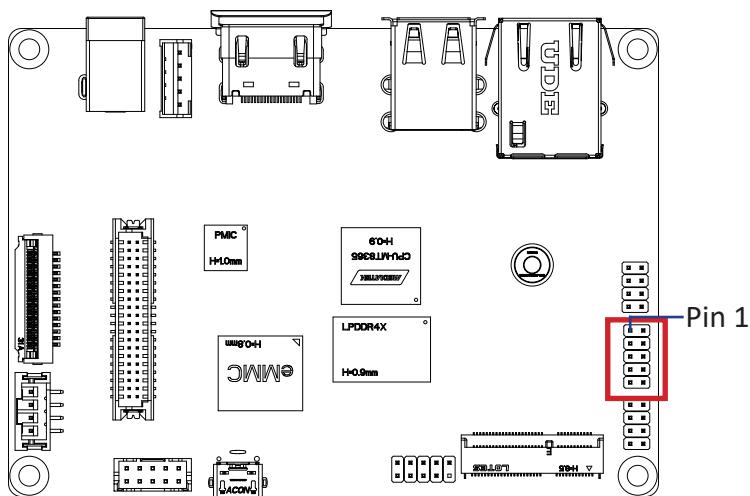
5



| System Panel Header | | Connector PN | Vendor |
|---------------------|--------------|---------------|----------------------------|
| 1 2 | | PH08N53BAZ000 | HORNGTONG |
| Connector type | | | 2x4pin header, pitch 2.0mm |
| Pin No. | Definition | | |
| 1 | Power key | | |
| 2 | GND | | |
| 3 | System reset | | |
| 4 | GND | | |
| 5 | Volume up | | |
| 6 | GND | | |
| 7 | Volume down | | |
| 8 | GND | | |

2.2.6 GPIO_CNT (General Purpose input/output header)

6



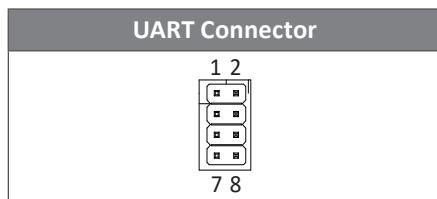
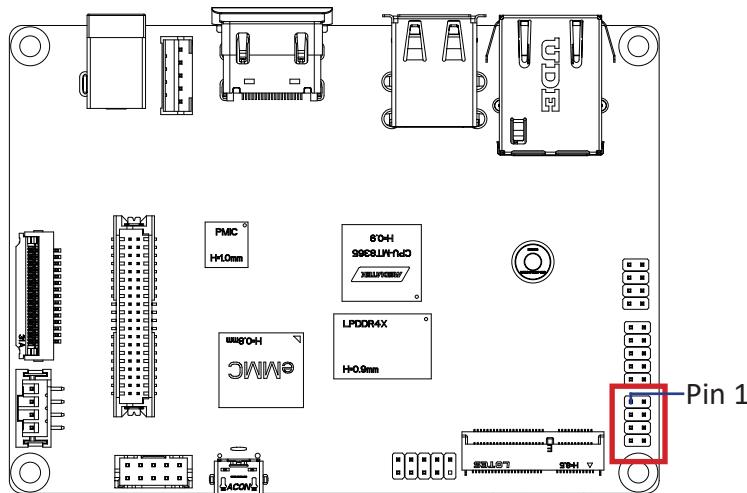
| Pin No. | Definition |
|---------|---------------|
| 1 | GPIO_output 0 |
| 2 | GPIO_output 4 |
| 3 | GPIO_output 1 |
| 4 | GND |
| 5 | GPIO_output 2 |
| 6 | GPIO_output 5 |
| 7 | GPIO_output 3 |
| 8 | GPIO_output 6 |

| 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

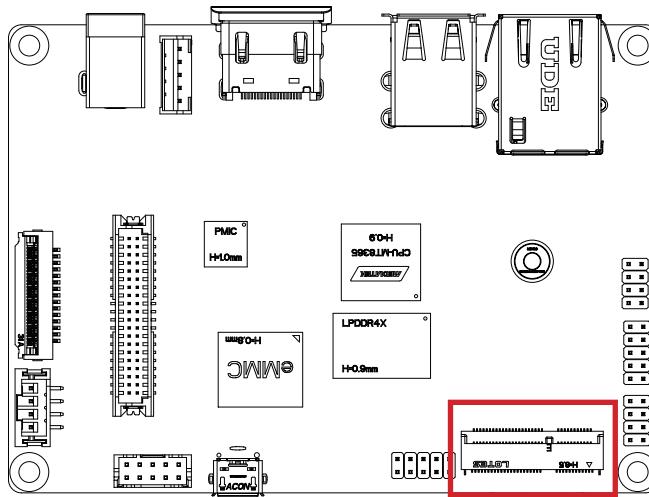


| Connector PN | Vendor |
|----------------------------|-----------|
| PH08N53BAZ000 | HORNGTONG |
| Connector type | |
| 2x4pin header, pitch 2.0mm | |

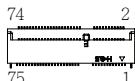
| Pin No. | Definition |
|---------|------------|
| 1 | +3.3V |
| 2 | +3.3V |
| 3 | TXD0 |
| 4 | TXD1 |
| 5 | RXD0 |
| 6 | RXD1 |
| 7 | GND |
| 8 | GND |

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 | | |

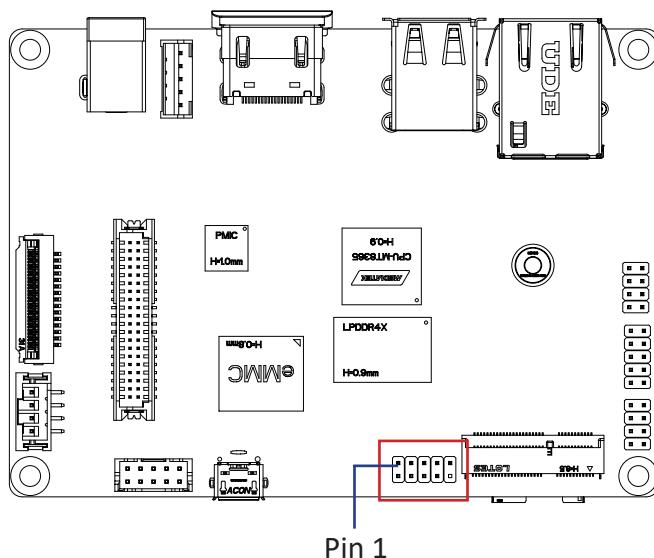
| Pin No. | Definition | Pin No. | Definition |
|---------|------------|---------|------------|
| 33 | GND | 32 | NC |
| 35 | SDIO_D1 | 34 | NC |
| 37 | SDIO_D0 | 36 | NC |
| 39 | GND | 38 | NC |

| | | | |
|----|---------------|----|--------------|
| 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 |
|------------------|------------|
| APCI0095-P002A | LOTES |
| 80152-8521 | BELLWETHER |
| 2E0BC21-S85BE-7H | FOXCONN |

2.2.9 FUSB (USB 2.0 headers)

9



USB 2.0 Header

1 2

Connector PN

220-97-05GB19

PINREX

PH10N53BAZ009

HORNGTONG

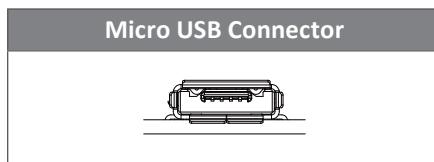
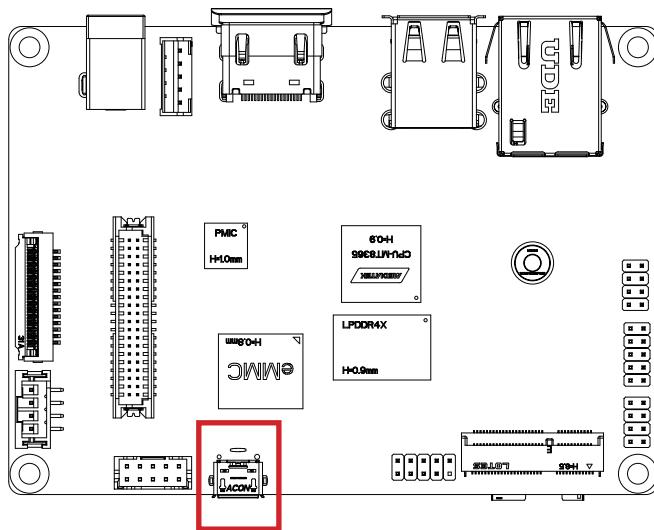
Connector type

2x5pin header, pitch 2.0mm

| 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 |

2.2.10 USB (Micro USB 2.0 connector)

10

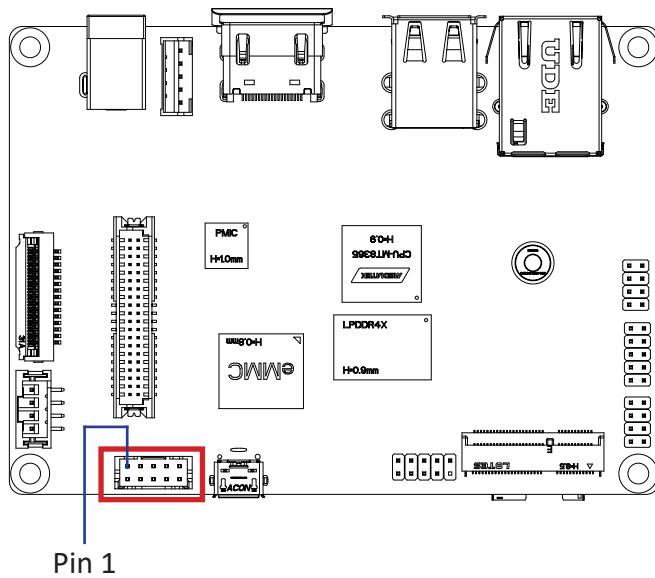


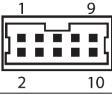
| Connector PN | Vendor |
|--------------|--------|
| MUE40-5G7200 | ACON |

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

2.2.11 FP_AUDIO (Front Audio connector)

11

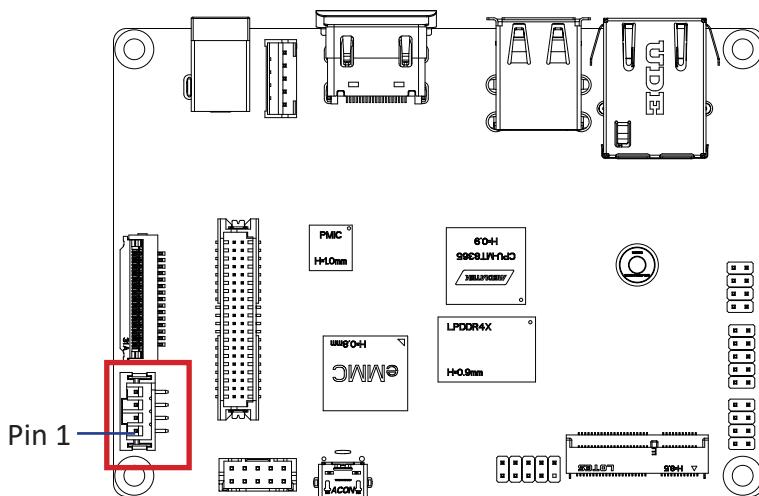


| Front Audio Connector | |
|---|---------------------|
|  | |
| Pin No. | Definition |
| 1 | HP_Right |
| 2 | AGND |
| 3 | HP_MIC |
| 4 | AGND |
| 5 | HP_Reference |
| 6 | HP_Reference |
| 7 | HP_Jacksense Detect |
| 8 | NC |
| 9 | HP_Left |
| 10 | NC |

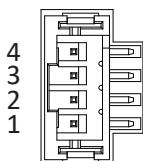
| Connector PN | Vendor |
|----------------------------|--------|
| 725-81-10TW00 | PINREX |
| Connector type | |
| 2x5pin header, pitch 2.0mm | |

2.2.12 SPKR (Speaker out connector)

12



Audio Amplify Connector



Connector PN

A2001WV-S-04PD01

Vendor

JOINT-TECH

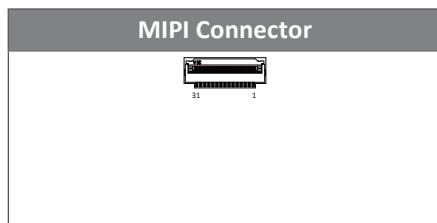
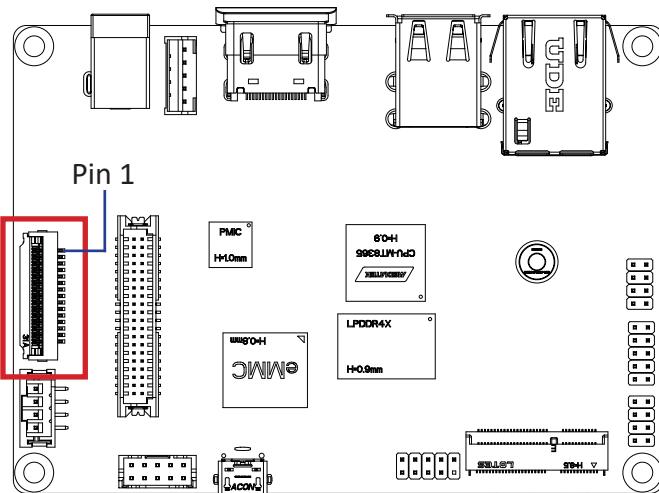
Connector type

1x4pin header, pitch 2.0mm

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

2.2.13 MIPI (Mobile Industry Processor Interface)

13

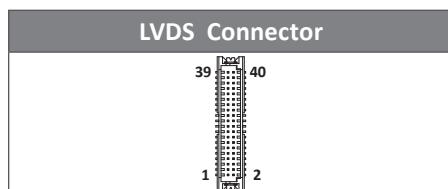
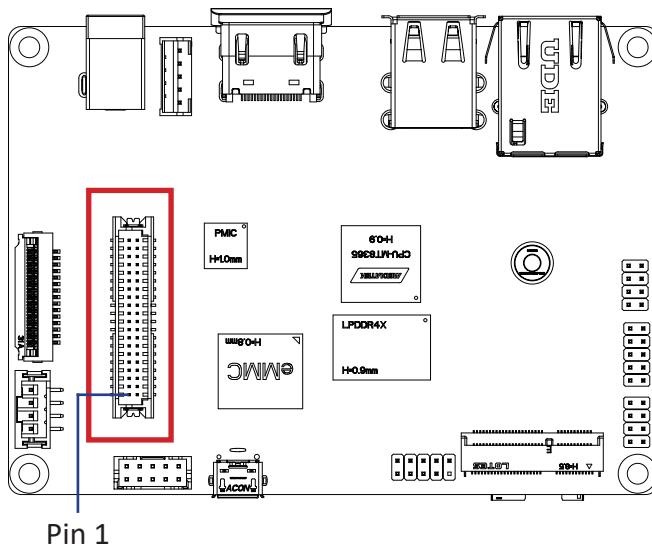


| Connector PN | Vendor |
|-----------------------------|--------|
| 50503-01501-001 | ACES |
| Connector type | |
| 1x15pin header, pitch 1.0mm | |

| 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)

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| 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 |

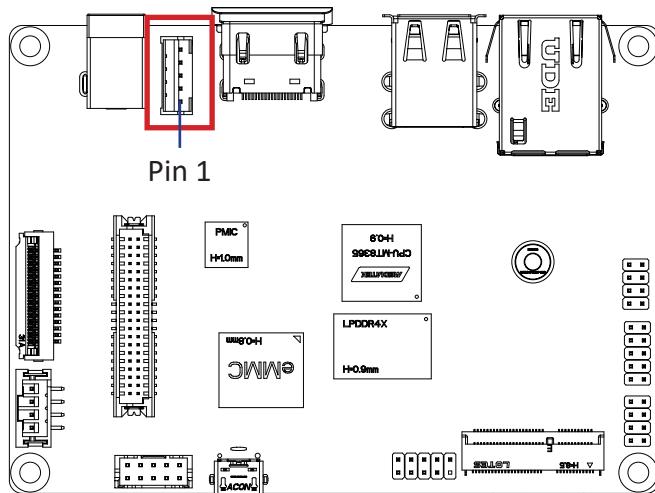
| Connector type |
|------------------------------|
| 2x20pin header, pitch 1.25mm |

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)

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Backlight Control Connector



Connector PN

721-81-05TW00

Vendor

PINREX

A2001WV-05P146

JOINT-TECH

Connector type

1x5pin header, pitch 2.0mm

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

2.2.16 SD (Micro SD slot)

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