

# QBiP-3965A

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3.5" SBC Boards  
User's Manual 1st Ed

## Copyright Notice

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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
QBiP-3965A	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

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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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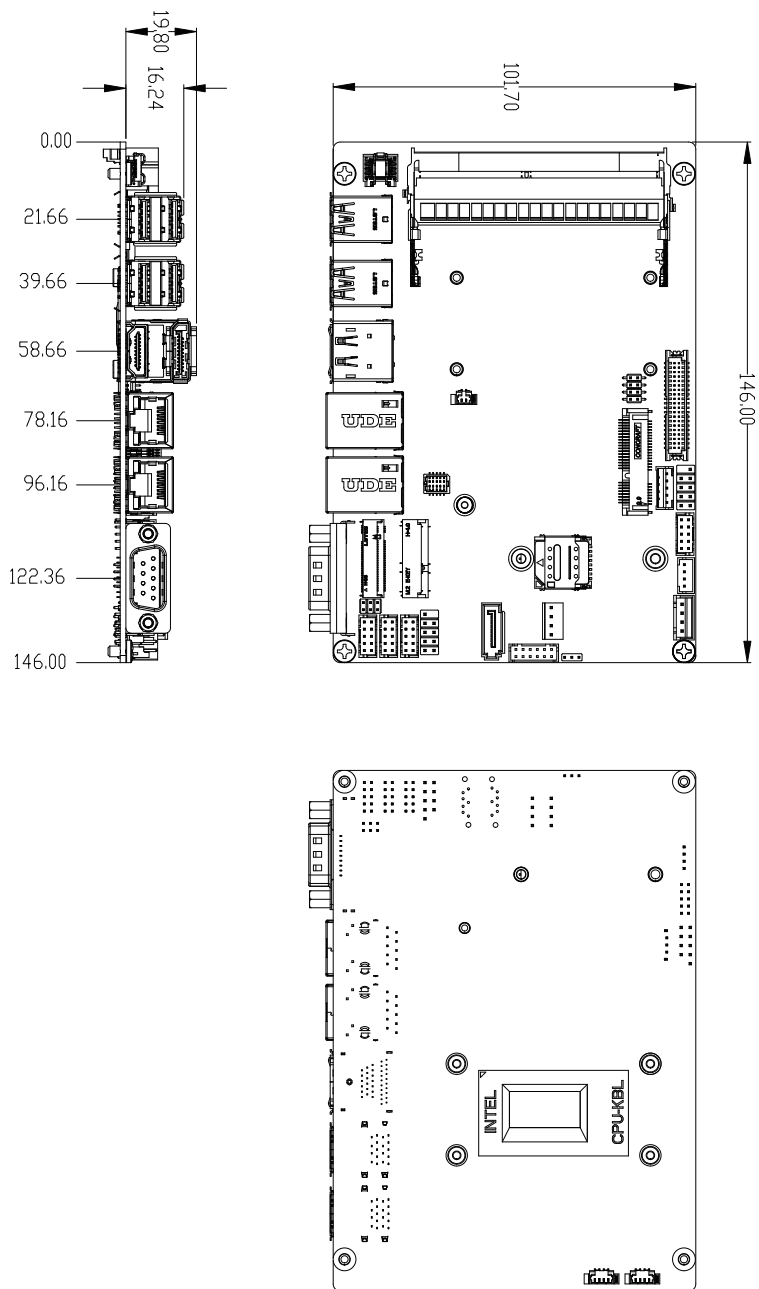
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# Chapter 1

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## Chapter1 - Product Specifications QBiP-3965A



## 1.2 Specifications- QBiP-3965A

Motherboard	QBiP-3965A
Form Factor	3.5" SBC 146W x 101.7Dmm
CPU	Intel® Celeron® 3965U Processor 14nm, 2 cores, 2 threads, 2.2 GHz TDP 15W
Socket	1 x FCBGA1356
Chipset	—
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 32 GB Support Dual channel DDR4 2133 MHz memory modules
Ethernet	2 x GbE LAN Ports (Intel® I219V and Intel® I211AT)
Video	Integrated Graphics Processor - Intel® HD Graphics 610: 1 x HDMI 2.0 port, supporting a maximum resolution of 4096x2160 @60Hz 1 x DP port, supporting a maximum resolution of 4096x2160 @60Hz 1 x LVDS port, supporting a maximum resolution of 1920x1080 @60Hz  (3 independent display outputs)
Audio	Realtek® Audio Codec
Storage	1 x SATA 6Gb/s port
Raid	Intel® SATA RAID 0/1
Expansion Slots	1 x 2280 M.2 M-Key (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/4G module

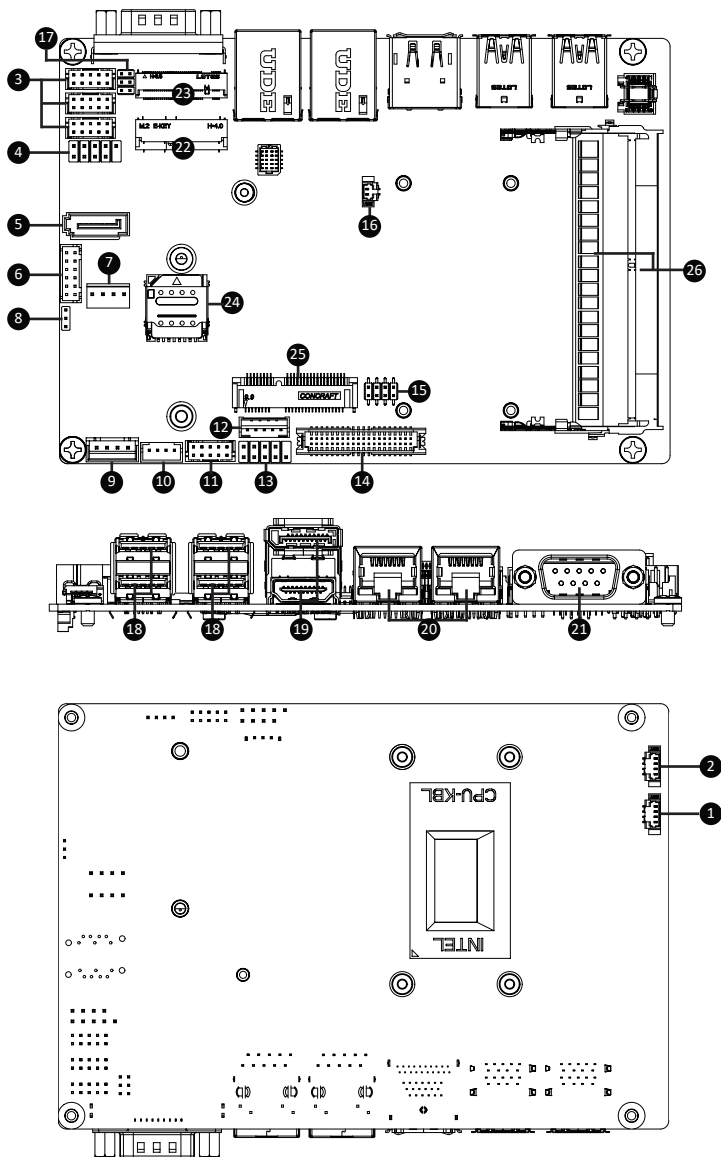
Motherboard	QBiP-3965A
Internal I/O	1 x 4-pin box power connector (+9V~36VDC) 1 x SATA Power header 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 1 x 2W Speaker out header 2 x USB 2.0 headers 3 x COM headers (RS-232) 1 x Backlight Control header 1 x AT/ATX mode select jumper 1 x GPIO (8-bits) & SMBUS header
Rear I/O	1 x COM Port (RS-232/422/485 & RI/5V/12V) 1 x HDMI 1 x Display Port 2 x RJ45 LAN Ports 4 x USB 3.2 Gen 1
TPM	1 x TPM Header
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

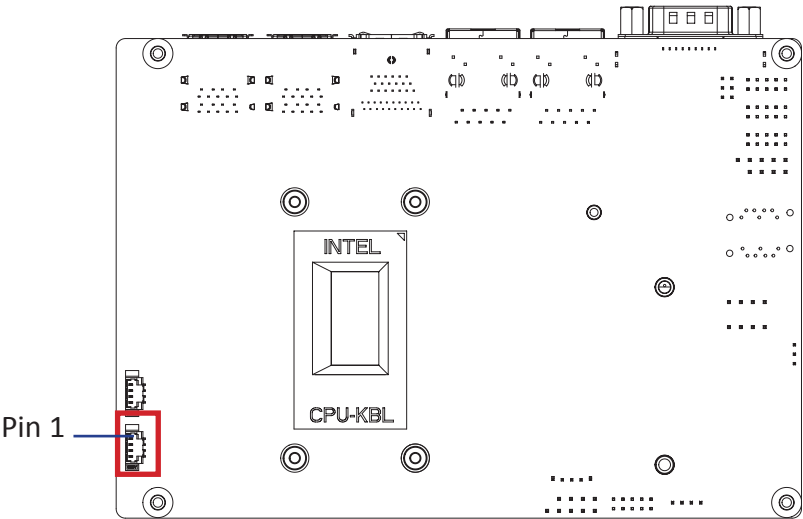


No	Code	Description
1	CPU FAN	CPU FAN connector
2	SYS FAN	System FAN connector
3	COM2 COM3 COM4	Serial port header
4	FUSB	USB 2.0 header
5	SATAIII0	SATA 6Gb/s Connector
6	GPIO_CNT	General purpose input/output header
7	SATAPW1	SATA power connector
8	AT_CN	AT/ATX mode select jumper
9	DC_IN	DC IN 1x4-pin power connector
10	SPK_OUT	Speaker out connector
11	FP_Audio	Front Audio connector
12	BKL_CN	Backlight Control connector
13	SYS_PANEL	Front panel header
14	LVDS	LVDS connector
15	LSW	LVDS resolution jumper
16	BATTERY	Battery cable connector
17	JCOM1	COM1 (COM RI pin RI/5V/12V Select)
18	RUSB1 RUSB2	USB 3.0 Connector
19	HDMI2_DP	HDMI connector (Bottom) & DP connector (Top)
20	LAN1, LAN2	LAN connector

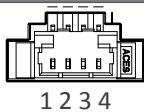
No	Code	Description
21	COM1	Serial Port connector
22	M2E1	M.2 Slot, E-key, NGFF2230, WiFi & Bluetooth module
23	M2M1	M.2 Slot, SATA/PCIe x4, NGFF2280
24	SIM_CARD	SIM Card slot
25	MPCIE	Mini PCIe full size, support 3G/4G module
26	SODIMM1 SODIMM2	DDR4 SO-DIMM Slot

### 2.2.1 CPU FAN (CPU FAN connector)

1



CPU FAN connector

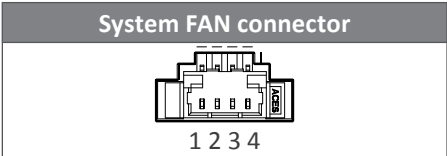
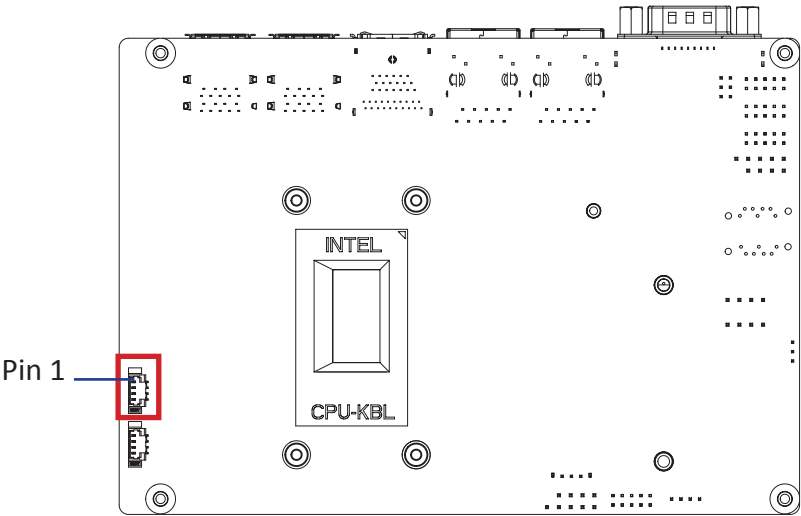


Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

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

## 2.2.2 System FAN (System FAN connector)

2

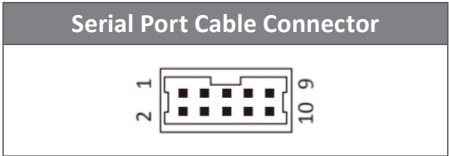
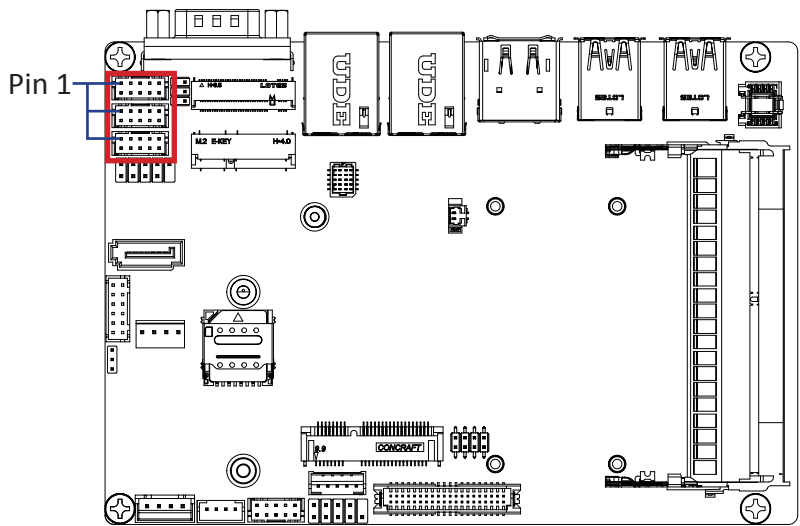


Connector PN	Vendor
85205-0470N	ACES
A1250WV-S-04PC	JOINT-TECH

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

### 2.2.3 COM2, COM3, COM4 (Serial port header)

3

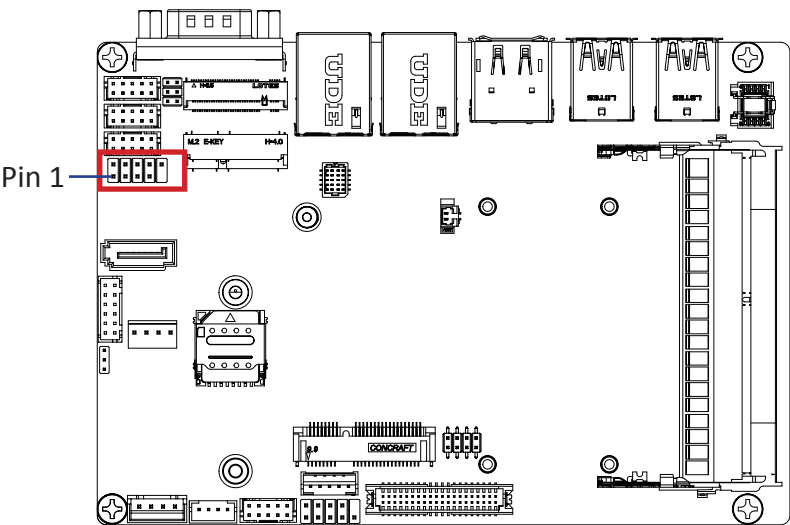


Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

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

# 2.2.4 FUSB (USB 2.0 header)

4



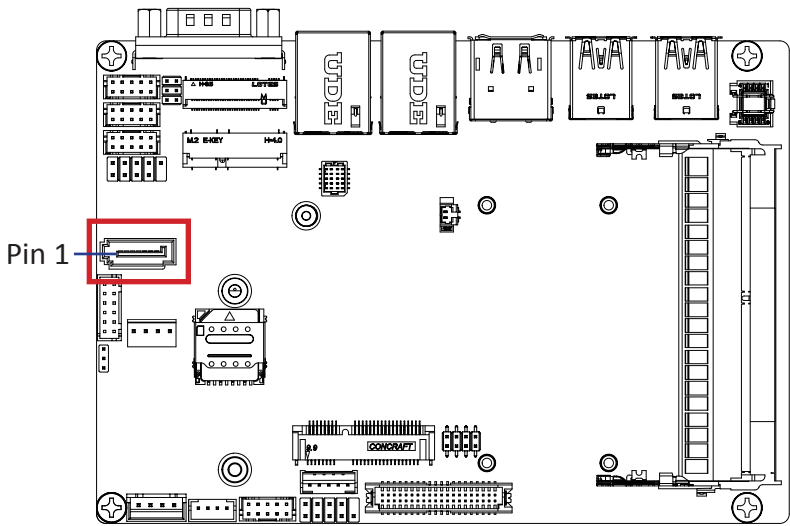
USB 2.0 Header	
2	10
1	9

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

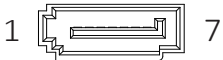
Pin No.	Definition
1	5V
2	5V
3	DX-
4	DY-
5	DX+
6	DY+
7	GND
8	GND
9	No Pin
10	No Connect

## 2.2.5 SATAIII0 (SATA 6Gb/s Connector)

5



SATA Connector



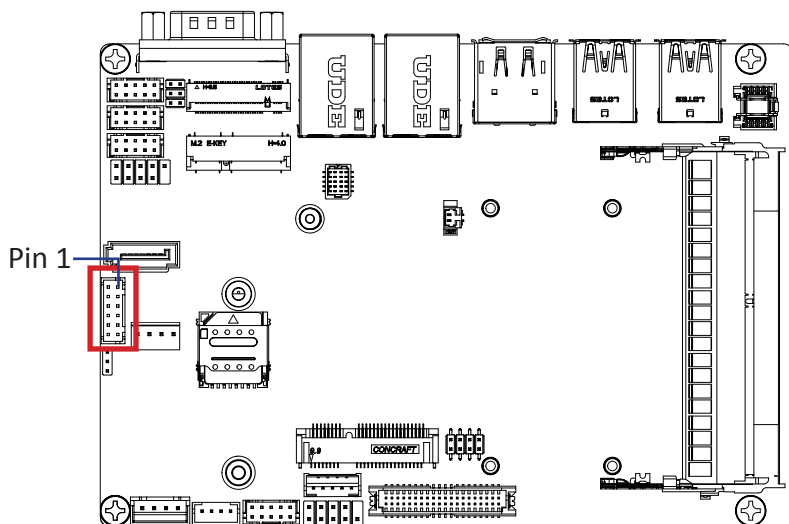
SATAIII0

Connector PN	Vendor
WATM-07ABNB2BAUW3	WINWIN
770-83-07SW19	PINREX


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

### 2.2.6 GPIO\_CNT (General Purpose input/output header)

6



**GPIO Connector**



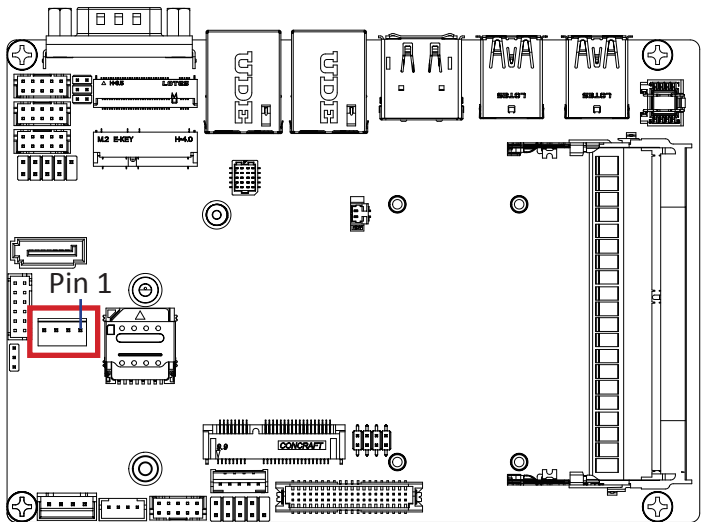
The diagram shows a rectangular connector with four pins labeled: 1 (top right), 2 (top left), 11 (bottom right), and 12 (bottom left). The pins are arranged in a 2x2 grid.

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

Pin No.	Definition	ITE8786E		IO Read/ Write	Value	Read/ Write	Default	Voltage	Current	
		0x87, 0x01,0x55,0x55								
1	GPO1	1	GPO_1	GP77	0xA06	Bit 7	Read/ Write	High	3.3V	8mA
2	GPI1		GPO_2	GP76	0xA06	Bit 6	Read/ Write	High	3.3V	8mA
3	GPO2		GPO_3	GP75	0xA06	Bit 5	Read/ Write	High	3.3V	8mA
4	GPI2		GPO_4	GP74	0xA06	Bit 4	Read/ Write	High	3.3V	8mA
5	GPO3		GPI_1	GP73	0xA06	Bit 3	Read		3.3V	8mA
6	GPI3		GPI_2	GP72	0xA06	Bit 2	Read		3.3V	8mA
7	GPO4		GPI_3	GP71	0xA06	Bit 1	Read		3.3V	8mA
8	GPI4		GPI_4	GP70	0xA06	Bit 0	Read		3.3V	8mA
9	SMB_CLK	5V							5V	Max. 0.7A
10	SMB_DATA									
11	5V									
12	GND									

## 2.2.7 SATAPW1 (SATA power connector)

7



Hard Disk Power Connector



Connector PN

743-81-04TW00

WF04Q2-3BJQ000

Vendor

PINREX

HORNGTONG

Pin No.

Definition

1

12V

2

GND

3

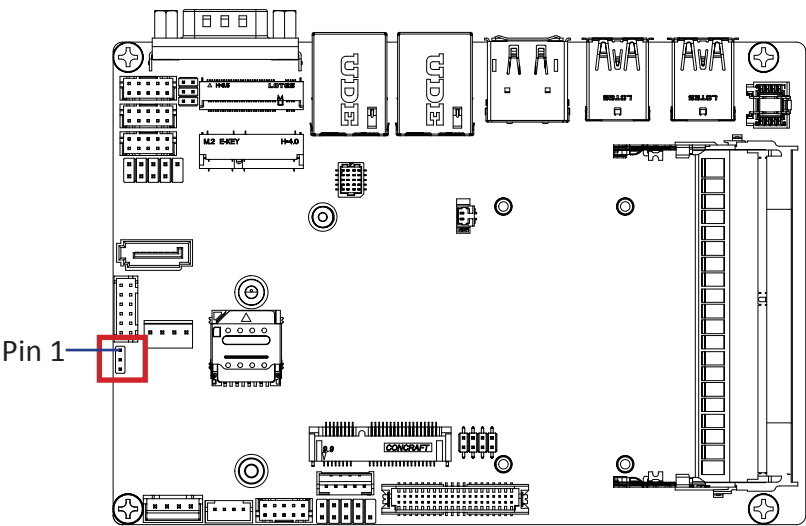
GND


4

5V

# 2.2.8 AT\_CN (AT/ATX mode select jumper)

8



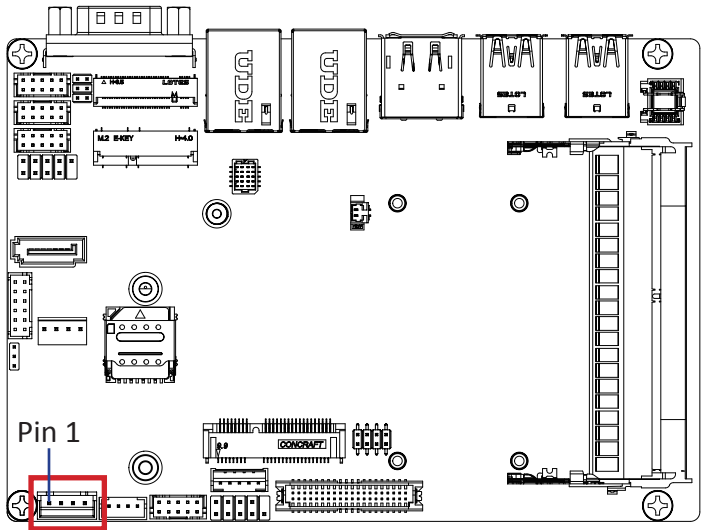
AT/ATX mode select jumper	
	

Connector PN	Vendor
220-96-03GB01	PINREX
PH03N2-7BAN000	HORNGTONG

Pin No.	Definition
1	AT MODE
2	TXD5
3	ATX MODE
Jumper setting	
1-2 Close : AT mode.	
2-3 Close : ATX mode.(Default setting)	

2.2.9 DC\_IN (DC IN 1x4-pin power connector )

9



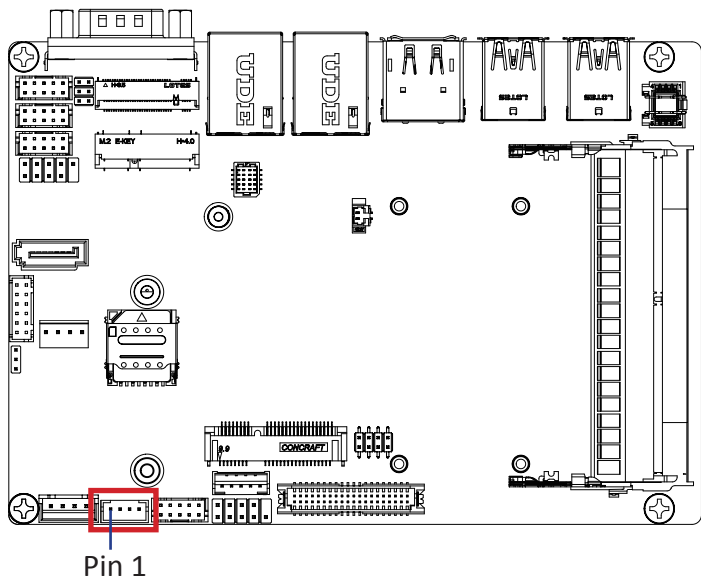
DC in connector	
1	4

Connector PN	Vendor
753-81-04TW00	PINREX

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

## 2.2.10 SPK\_OUT (Speaker out connector)

10



Audio Amplifie Connector	
1	4

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

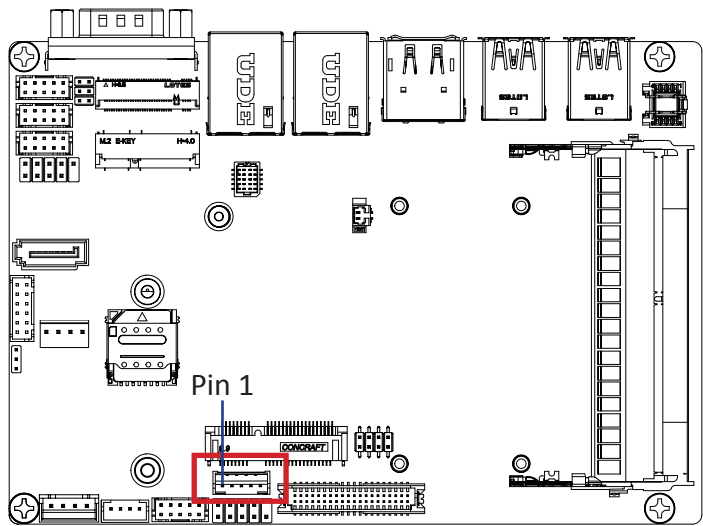
Connector PN	Vendor
721-81-045W00	PINREX
A2001WV-04P146	JOINT-TECH

11

A diagram of a 10-pin D-sub connector. The pins are arranged in two rows of five. The top row is numbered 1 to 5 from left to right, and the bottom row is numbered 6 to 10 from left to right. The connector has a D-shaped shield on the right side.

## 2.2.12 BKL\_CN (Backlight Control connector)

12



Backlight Control connector



Connector PN

721-81-05TW00

A2001WV-05P146

Vendor

PINREX

JOINT-TECH

Pin No.

Definition

1

5V

2

PWM

3

Backlight Enable

4

GND

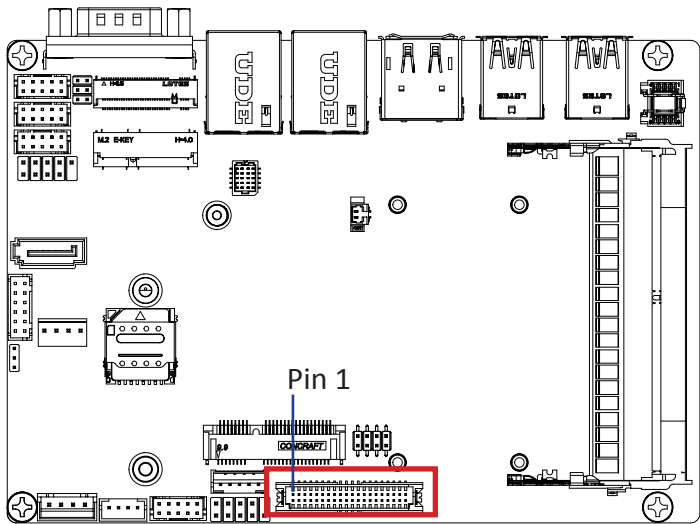
5

12V



# 2.2.14 LVDS (LVDS connector)

14



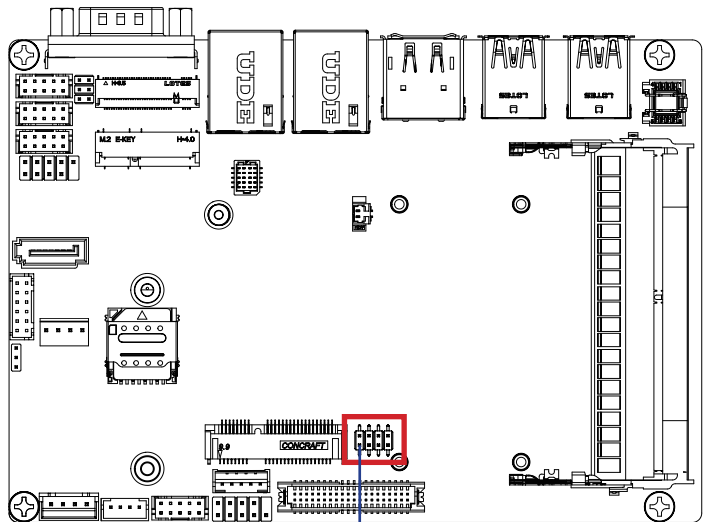
LVDS Connector	
1	39
2	40

Pin No.	Definition	Pin No.	Definition
1	3.3V	21	A5+
2	5V	22	A4+
3	3.3V	23	A5-
4	5V	24	A4-
5	SPE0	25	GND
6	SPED0	26	GND
7	GND	27	A7+
8	GND	28	A6+
9	A1+	29	A7-
10	A0+	30	A6-
11	A1-	31	GND
12	A0-	32	GND
13	GND	33	CLK2+
14	GND	34	CLK1+
15	A3+	35	CLK2-
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

2.2.15 LSW (LVDS resolution jumper)

15



Pin 1

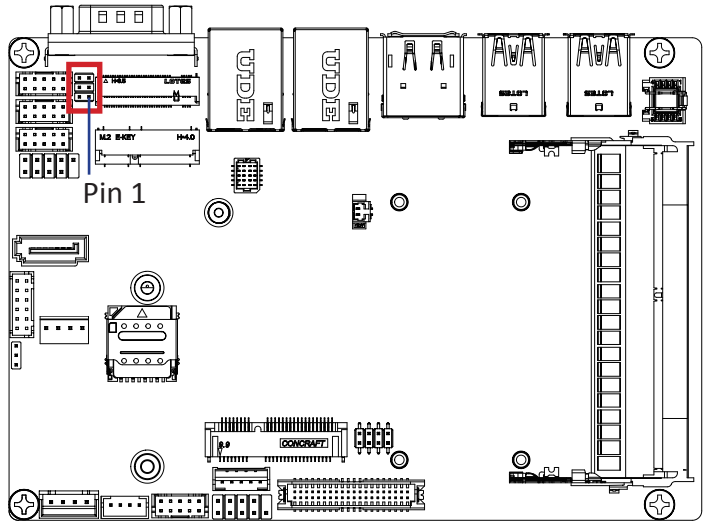
LVDS Resolution Jumper			
Jumper Setting	Resolution	Jumper Setting	Resolution
1 0000 8	800 x 600 18bit	1 0000 8	1366 x 768 24bit
1 0000 8	1024 x 768 18bit	1 0000 8	1440 x 900 24bit
1 0000 8	1024 x 768 24bit	1 0000 8	1400 x 1050 24bit
1 0000 8	1024 x 600 18bit	1 0000 8	1600 x 900 24bit
1 0000 8	1280 x 800 18bit	1 0000 8	1680 x 1050 24bit
1 0000 8	1280 x 960 18bit	1 0000 8	1600 x 1200 24bit
1 0000 8	1280 x 1024 24bit	1 0000 8	1920 x 1080 24bit
1 0000 8	1366 x 768 18bit	1 0000 8	1920 x 1200 24bit




Connector PN	Vendor
222-97-04GBE1	PINREX

### 2.2.16 BATTERY (Battery cable connector)

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

17



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

Connector PN	Vendor
220-97-03GB01	PINREX
PH06N53BAZ000	HORNGTONG