

# mITX-Q170A (MDQ17BI)

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Mini-ITX Motherboard

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
mITX-Q170A MB	1
SATA power cable	1
I/O Bracket	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	○	○	○	○	○	○

○ : 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

## Table Contents

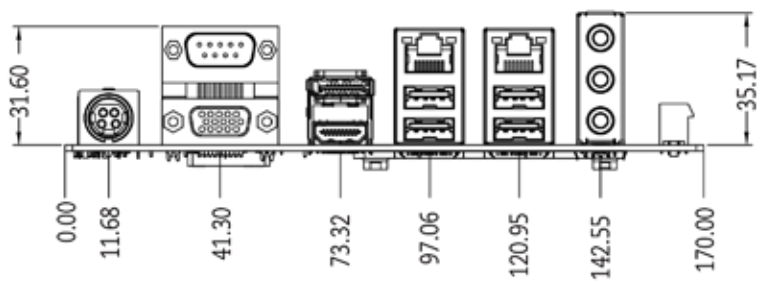
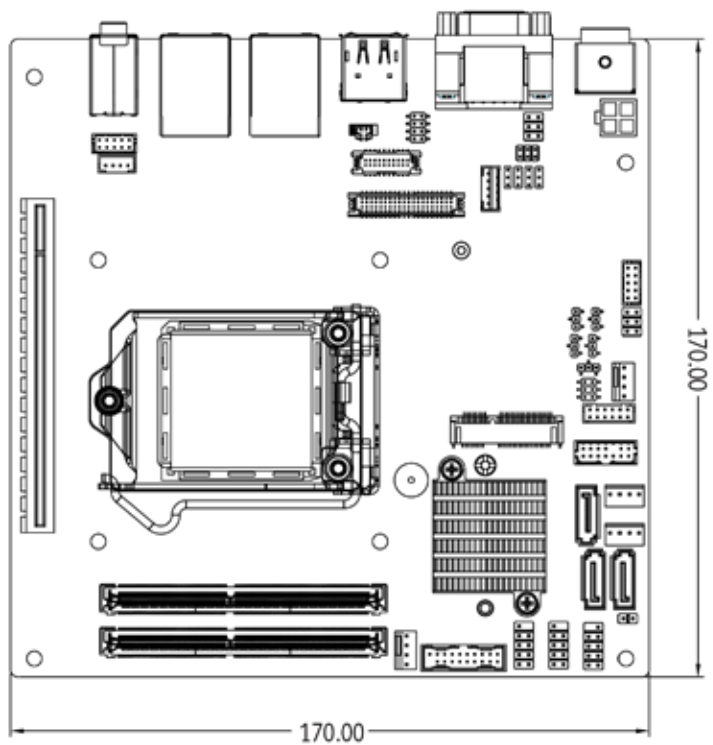
<b>Mini-ITX Motherboard</b>	<b>1</b>
<b>User's Manual 1st Ed</b>	<b>1</b>
Copyright Notice .....	2
Acknowledgement .....	3
Packing List.....	4
About this Document .....	5
Safety Precautions .....	6
FCC Statement.....	8
China RoHS Requirements (CN).....	9
China RoHS Requirement (EN) .....	10
<b>Chapter 1 - Product Specifications mITX-Q170A</b>	<b>13</b>
1.1 Specifications .....	15
<b>Chapter 2 – Hardware Information</b>	<b>17</b>
2.1 Jumpers and Connectors .....	18
2.2.1 AT_CN (AT/ATX power mode select jumper) .....	21
2.2.2 Battery .....	22
2.2.3 BKL_CN (Back light brightness control connector).....	23
2.2.4 CLR_CMOS.....	24
2.2.5 COM2 (Serial Port header).....	25
2.2.6 CPU_FAN (CPU fan connector) .....	26
2.2.7 DC_IN (DC In JACK Connector) .....	27
2.2.6 DC_IN2 (ATX 2x2 pin power connector).....	28
2.2.9 EDP (Embedded Display Port Connector).....	29

2.2.6	F_Audio (Front audio header) .....	30
2.2.11	F_USB 30 (USB 3.0 header) .....	31
2.2.12	F_USB 20_1 (USB 2.0 header) .....	32
2.2.13	F_USB 20_2 (USB 2.0 header) .....	33
2.2.14	GPIO_CNT .....	34
2.2.15	JCOM11, JCOM21 (COM11 & COM21 RI# pin RI#/5V/12V Select) .....	35
2.2.16	JCOM12 (COM1 RS-232/RS-422/RS-485 Select) .....	36
2.2.17	JCOM22 (COM2 RS-232/RS-422/RS-485 Select) .....	37
2.2.18	JRS21, JRS22, JRS23, JRS24 (RS21, RS22, RS23, RS24 select jumper for serial port) .....	38
2.2.19	JRS 11-14 (RS11-14 select jumper for serial port) .....	39
2.2.20	LSW (LVDS resolution jumper) .....	40
2.2.21	LVDS (LVDS connector).....	41
2.2.22	SATAIII_0, SATAIII_1, SATAIII_2 (SATA 6GB/S Connector) .....	42
2.2.23	SATAPW_1, SATAPW_2 (SATA 6GB/S Power Connector) .....	43
2.2.24	SPK_OUT (Speaker out Connector).....	44
2.2.25	SYS_FAN (System Fan Connector) .....	45
2.2.26	SYS_PANEL (Front Panel Header).....	46
2.2.27	TPM_LPC (Trusted Platform Module Connector).....	47

# Chapter 1

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## Chapter 1 - Product Specifications mITX-Q170A



## 1.1 Specifications

Motherboard	mITX-Q170A
Form Factor	Mini-ITX 170W x 170D (mm)
CPU	Support for 6/7th Generation Intel® Core™ i7 processors/ Intel® Core™ i5 processors/Intel® Core™ i3 processors/ Intel® Pentium®processors/Intel® Celeron® processors in the LGA1151 package TDP under 65W L3 cache varies with CPU
Socket	1 x LGA 1151
Chipset	Intel® Q170 Express Chipset
Memory	2 x DDR4 SO-DIMM sockets supporting up to 32 GB of system memory Dual channel memory architecture Support for DDR4 2666/2400 MHz memory modules
Ethernet	2 x GbE LAN ports (Intel® i219LM and Intel® i211AT)
Video	Integrated Graphics Processor - Intel® HD Graphics support: 1 x HDMI port, supporting a maximum resolution of 4096x2160@30 Hz 1 x DP port, supporting a maximum resolution of 4096x2160@60 Hz 1 x eDP port, supporting a maximum resolution of 3840x2160@60 Hz 1 x LVDS port, supporting a maximum resolution of 1920 x 1080@60Hz
Audio	Realtek ALC269 High Definition Audio
Storage	3 x SATA 6Gb/s ports
Raid	Intel® SATA RAID 0/1/10/5
Expansion Slots	1 x PCIe x16 (Gen3 x16 bus) slot 1 x M.2 Slot 2242/2280 Storage SATA 1 x Mini PCIe (Full Size PCIe & USB)

Motherboard	mITX-Q170A
Internal I/O	1 x 4-pin ATX main power connector 3 x SATA 6Gb/s connectors 2 x SATA power connectors 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 4 x USB 2.0/1.1 headers 2 x USB3.0 headers 1 x AT/ATX Mode jumper 1 x COM header (RS-232/422/485 and RI/5V/12V) 1 x Clear CMOS jumper 1 x GPIO (4 in/ 4 out) 1 x Backlight Control header 1 x LVDS/eDP connector (option) 1 x 2W Speaker out header
Rear I/O	3 x Audio jacks (Line in, Line out, Mic in) 1 x COM (RS-232/422/485 and RI/5V/12V) 1 x HDMI 1 x Display Port 1 x VGA 2 x RJ45 4 x USB3.0 1 x DC Jack (+12V/+19V/+24Vdc)
TPM	1 x TPM Header
OS Compatibility	Windows 10 (x64) Windows 7 (x64)
PSU Connectors	1 x DC-in (+12/+19/+24Vdc) 1 x 4-pin ATX power connector
Operating Properties	Operating temperature: 0°C to 60°C Operating humidity: 0-90% (non-condensing) Non-operating temperature: -20°C to 70°C Non-operating humidity: 0%-95% (non-condensing)
Packing Content	BOX Packing Capacity: 10pcs Carton size: 460x345x203 (mm) Content: IO Shield x 1 (12AIO-MDH114-00R) SATA Power cable x 1 (25CRI-200B02-K1R)
Order Information	Motherboard: 9MDQ17BIMR-SI

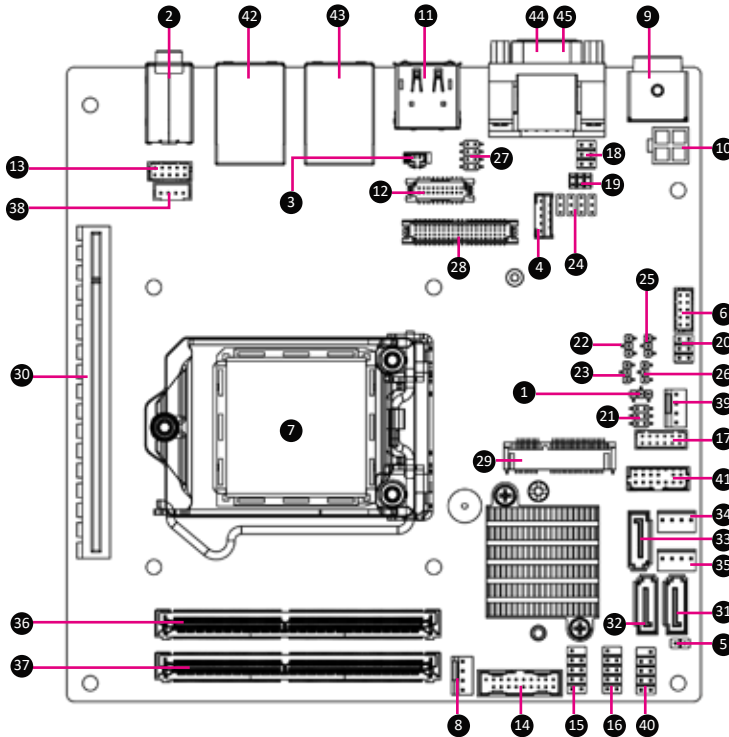


# Chapter 2

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## Chapter 2 – Hardware Information

## 2.1 Jumpers and Connectors



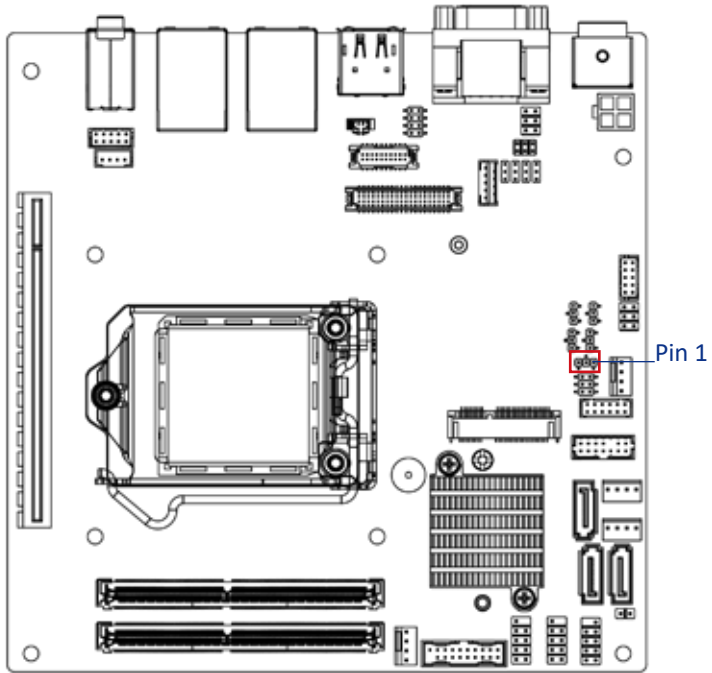
No	Code	Description
1	AT_CN	AT/ATX power mode select jumper
2	AUDIO	Audio Line Out port
3	BATTERY	Battery cable connector
4	BKL_CN	Back light brightness control connector
5	CLR_CMOS	Clear CMOS jumper
6	COM2	Serial port header

No	Code	Description
7	U1	Intel LGA1151 socket
8	CPU_FAN	CPU fan connector
9	DC_IN	DC In Jack
10	DC_IN2	ATX 2x2 pin power connector
11	HDMI_DP	Display port & HDMI port
12	EDP	Embedded Display Port connector
13	F_AUDIO	Front audio header
14	FUSB30	USB 3.0 header
15	FUSB20_1	USB 2.0 header
16	FUSB20_2	USB 2.0 header
17	GPIO_CNT	General Purpose input/output header
18	JCOM11	COM11 RI# pin RI#/5V/12V Select
19	JCOM12	COM1 RS-232/RS-422/RS-485 Select
20	JCOM21	COM21 RI# pin RI#/5V/12V Select
21	JCOM22	COM2 RS-232/RS-422/RS-485 Select
22	JRS21	RS21 select jumper for serial port
23	JRS24	RS24 select jumper for serial port
24	JRS11-14	RS11-14 select jumper for serial port
25	JRS22	RS22 select jumper for serial port
26	JRS23	RS23 select jumper for serial port
27	LSW	LVDS resolution jumper
28	LVDS	LVDS connector
29	MINI_PCIE	MINI PCIE connector

No	Code	Description
30	PCIE16X	PCIE x16 slot
31	SATAIII_0	SATA 6Gb/s connector
32	SATAIII_1	SATA 6Gb/s connector
33	SATAIII_2	SATA 6Gb/s connector
34	SATAPW_1	SATA 6Gb/s power connector
35	SATAPW_2	SATA 6Gb/s power connector
36	SODIMM1	DDR4 SO-DIMM slot#1
37	SODIMM2	DDR4 SO-DIMM slot#2
38	SPK_OUT	Speaker out connector
39	SYS_FAN	System fan connector
40	SYS_PANEL	Front panel header
41	TPM_LPC	TPM connector
42	USB30_LAN2	USB 3.0 ports + GbE LAN port
43	USB30_LAN1	USB 3.0 ports + GbE LAN port
44	VGA(Bottom)	VGA port
45	COM1 (TOP)	Serial port

## 2.2.1 AT\_CN (AT/ATX power mode select jumper)

1



AT/ATX power mode select jumper



Connector PN

PH03N33BAAA00

Vendor

HORNGTONG

Pin No.

Definition

1

AT MODE

2

Detect

3

ATX MODE

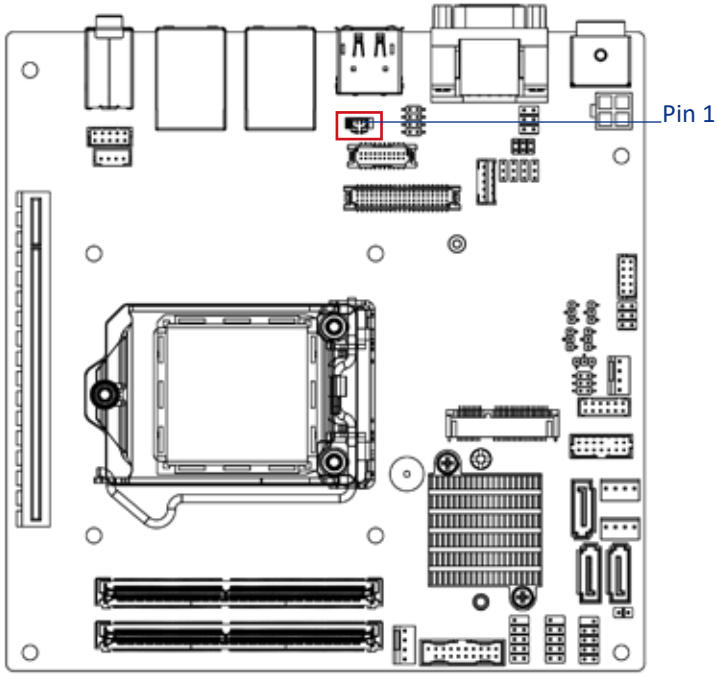
Jumper setting

1-2 Close : AT mode.

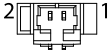
2-3 Close : ATX mode.(Default setting)

## 2.2.2 Battery

3



Battery Cable Connector



Connector PN

85205-0270L

A1250WV-S-02PC

Vendor

ACES

JOINT-TECH

Pin No.

Definition

1

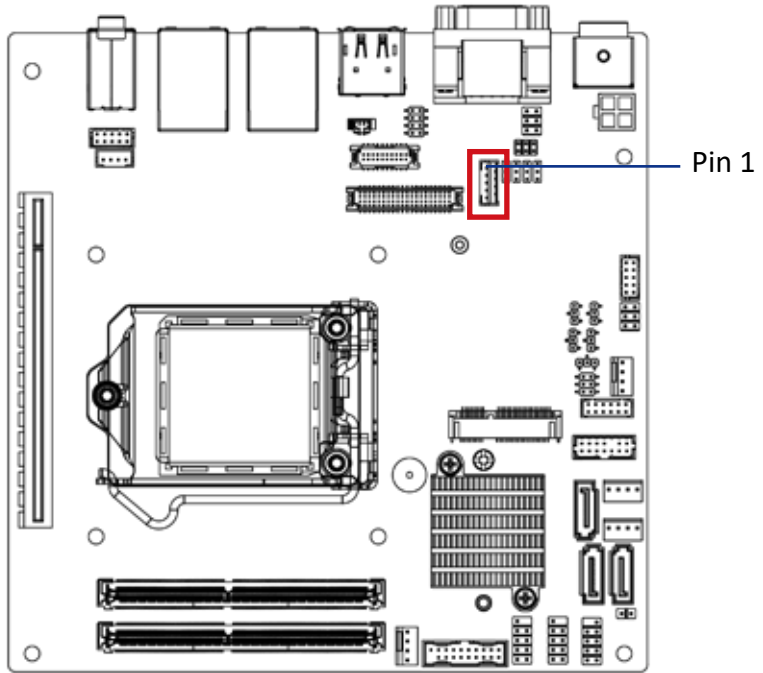
3.3V

2

GND

## 2.2.3 BKL\_CN (Back light brightness control connector)

4



Back light brightness control connector



Connector PN

Vendor

85205-0270L

ACES

A1250WV-S-02PC

JOINT-TECH

Pin No.

Definition

1

5V

2

PWM

3

Back Light Enable

4

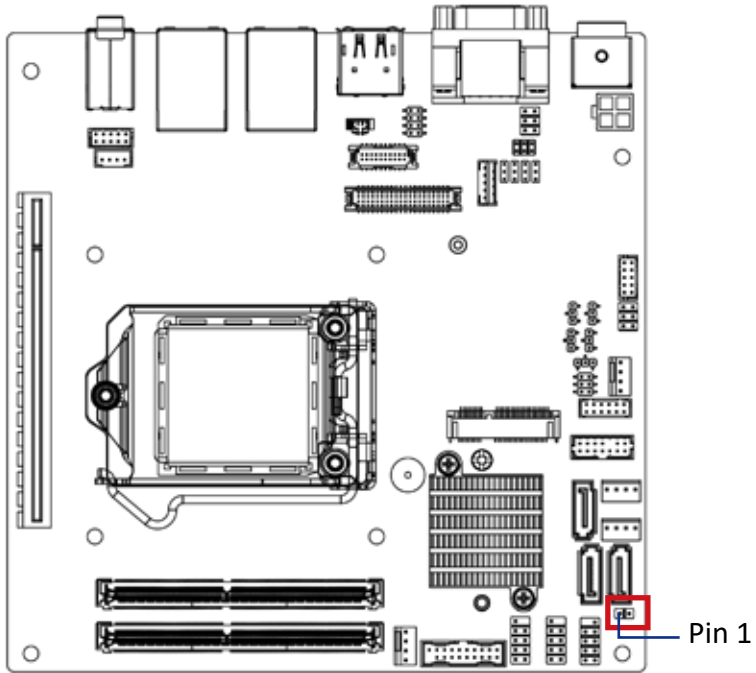
GND

5

12V

## 2.2.4 CLR\_CMOS

5



Clear COMS Jumper	
1	2

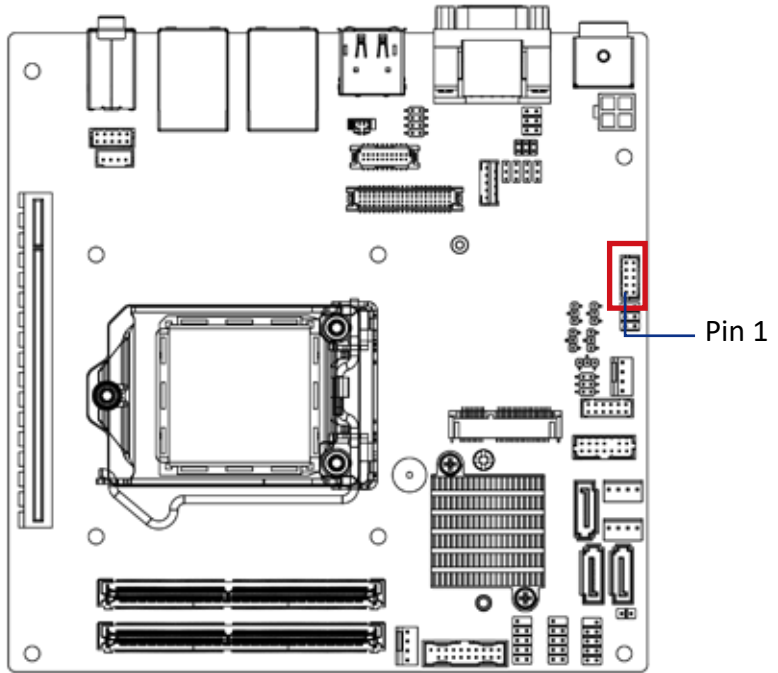
Connector PN	Vendor
210-91-02GB01	PINREX
PH02R23BAZ000	HORNGTONG

Pin No.	Definition
1	Clear CMOS
2	GND
Open: Normal Operation (Default setting) Close: Clear COMS data.	

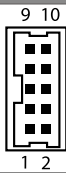


## 2.2.5 COM2 (Serial Port header)

6



Serial Port Cable Connector



Connector PN

725-81-10TW00

Vendor

PINREX

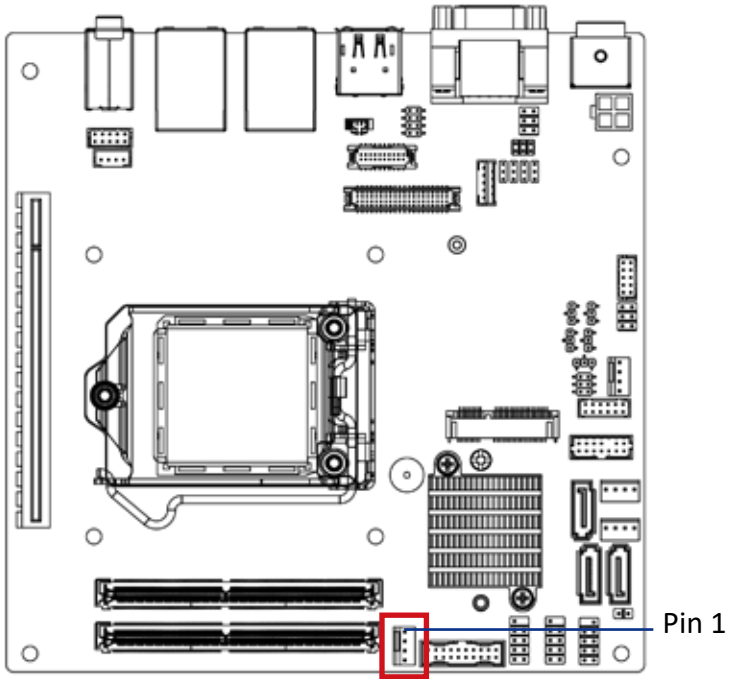
A2004WV-2X05P46


JOINT-TECH

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

## 2.2.6 CPU\_FAN (CPU fan connector)

8



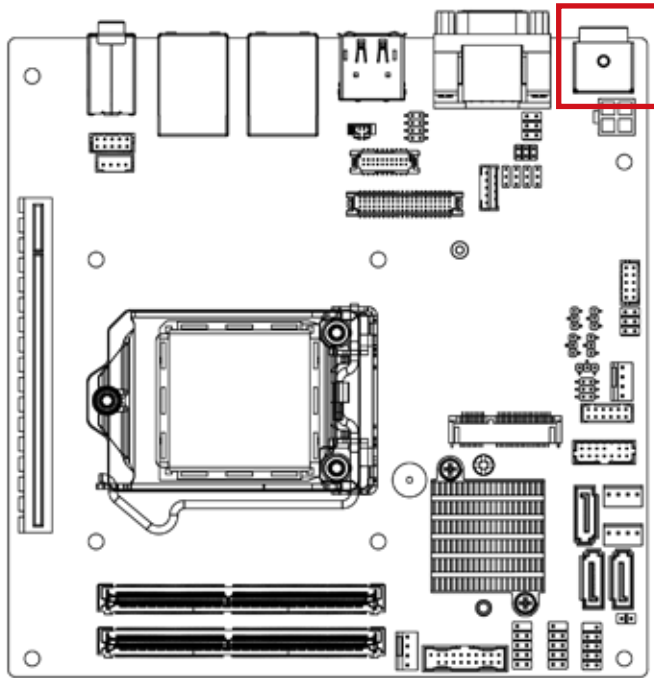
CPU FAN
1

4

Connector PN	Vendor
744-81-045W11	PINREX
WF04R22WJQ195	HORNGTONG

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

## 2.2.7 DC\_IN (DC In JACK Connector)

9



DC JACK Connector



Connector PN

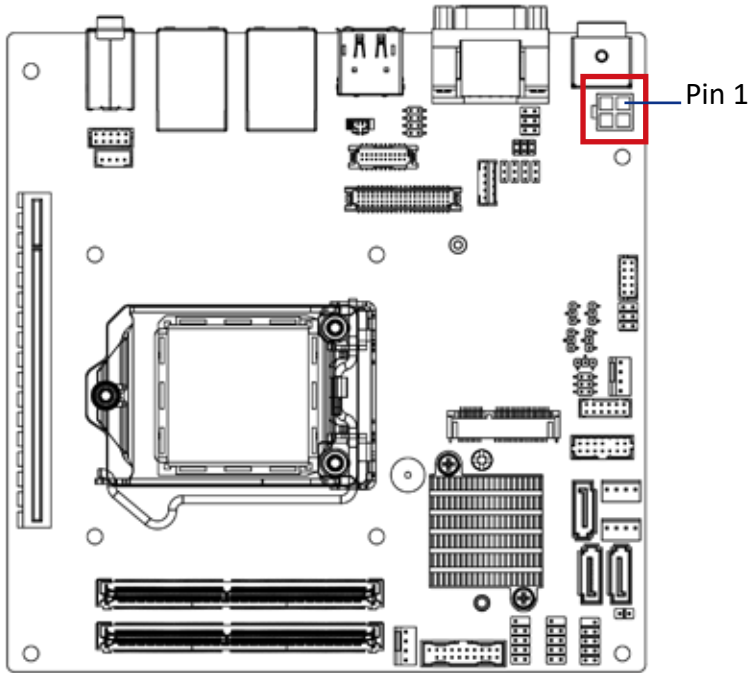
2MJ-3422A110

Vendor

SINGATRON

## 2.2.6 DC\_IN2 (ATX 2x2 pin power connector)

10



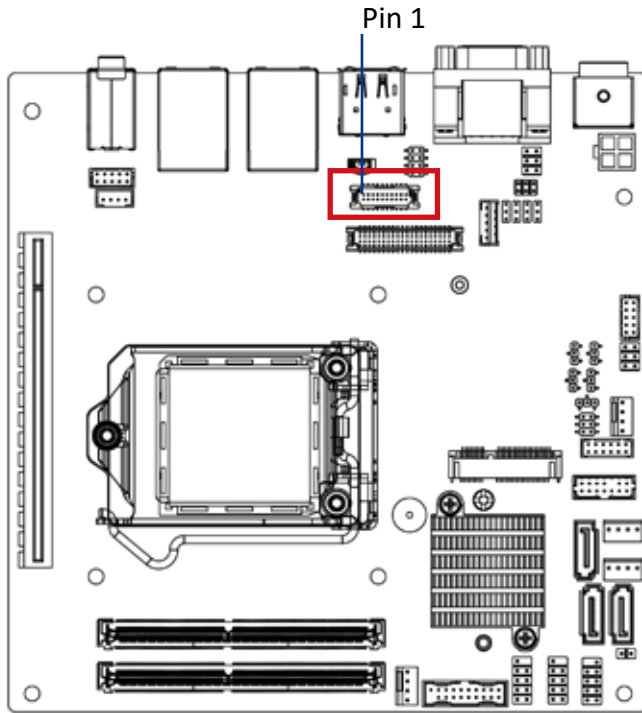
Power Connector	
3	1
4	2

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

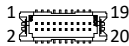
Connector PN	Vendor
740-81-04TW56	PINREX
25104A0400B3-93LF	ATRC

## 2.2.9 EDP (Embedded Display Port Connector)

12



Embedded Display Port connector



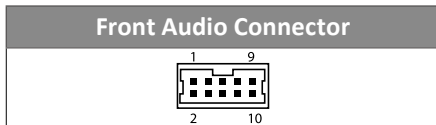
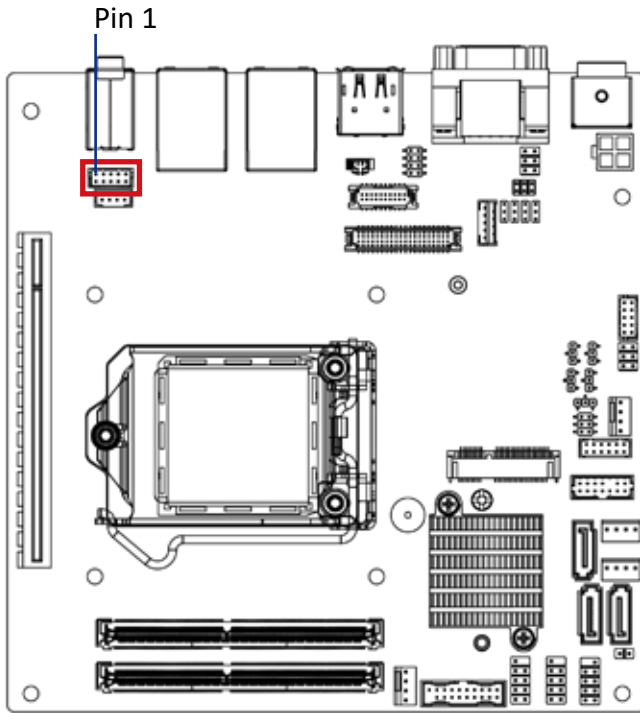
Pin No.	Definition	Pin No.	Definition
1	GND	11	eDP_1+
2	GND	12	eDPAUX-
3	eDP_0-	13	GND
4	eDP_3-	14	eDPAUX+
5	eDP_0+	15	eDP_2-
6	eDP_3+	16	GND
7	GND	17	eDP_2+
8	eDPSW *	18	HDP
9	eDP_1-	19	5V
10	GND	20	3.3V

**Note:** \* Please ensure pin 8 is connected to Ground.

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

## 2.2.6 F\_Audio (Front audio header)

13

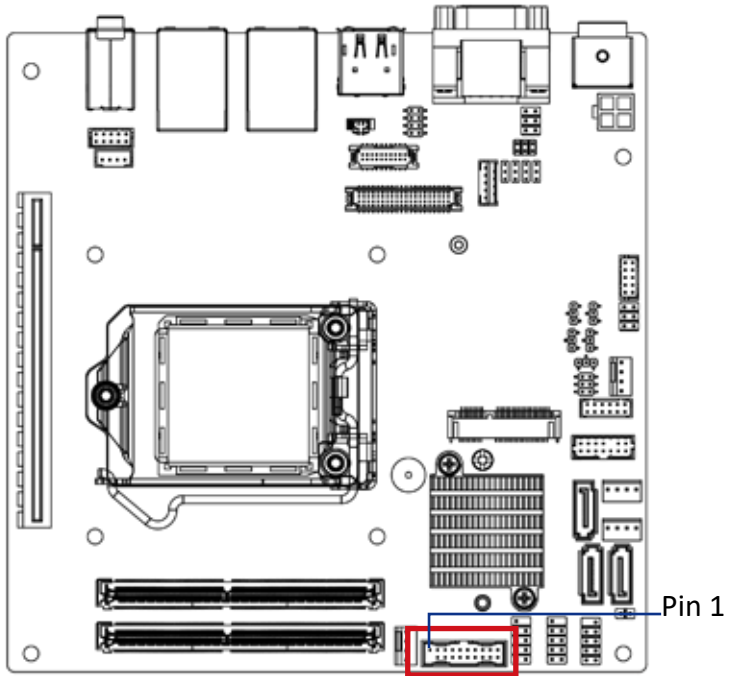


Pin No.	Definition	Pin No.	Definition
1	MIC_L	6	GND
2	GND	7	FAUDIO_JD
3	MIC_R	8	No Connect
4	Detect	9	HPOUT_L
5	HPOUT_R	10	GND

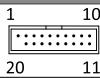
Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

## 2.2.11 F\_USB 30 (USB 3.0 header)

14



USB 3.0 Header



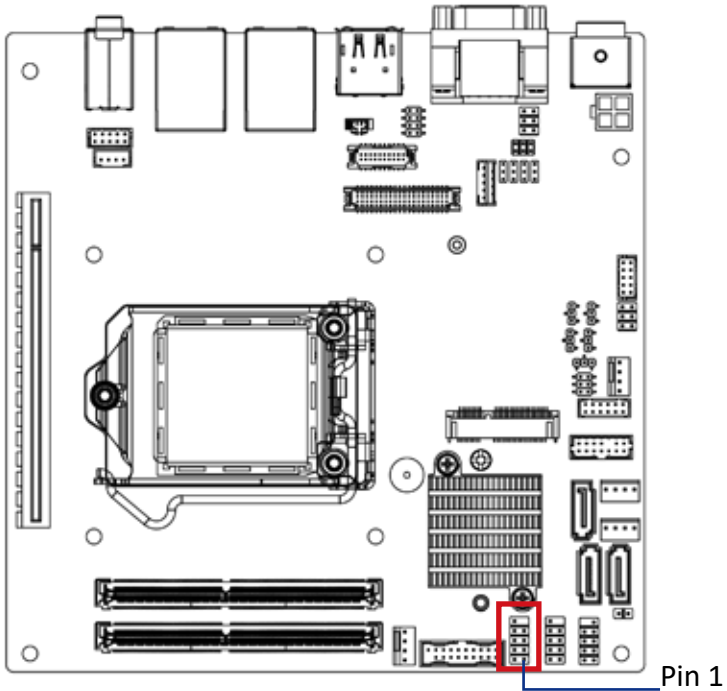
Pin No.	Definition
1	Power
2	P1_RX-
3	P1_RX+
4	GND
5	P1_TX-
6	P1_TX+
7	GND
8	P1_D-
9	P1_D+
10	OC
11	P2_D+
12	P2_D-

Pin No.	Definition
13	GND
14	P2_TX+
15	P2_TX-
16	GND
17	P2_RX+
18	P2_RX-
19	Power
20	No Pin

Connector PN	Vendor
52X-80-20GU65	PINREX
WUIR-19A9N4BU3W	WINWIN

## 2.2.12 F\_USB 20\_1 (USB 2.0 header)

15



USB 2.0 Header	

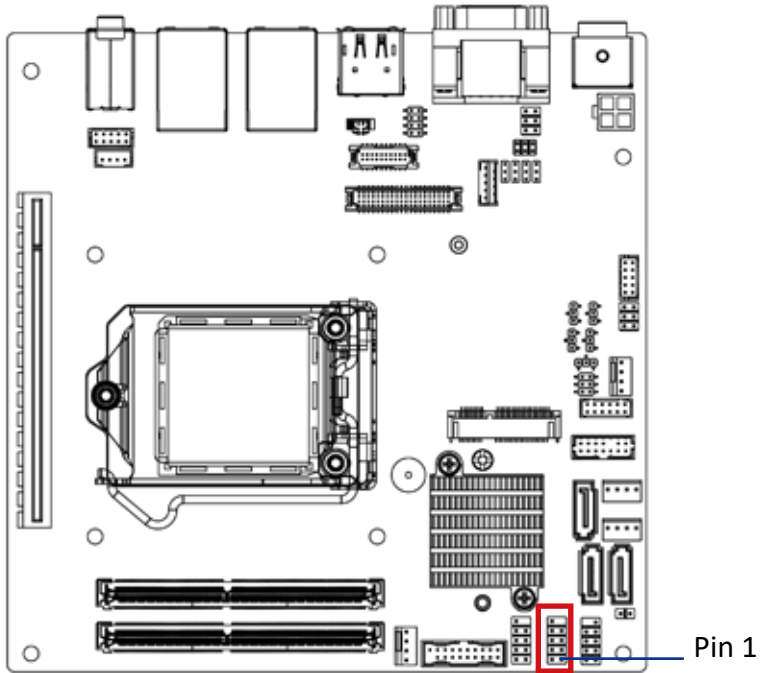
Connector PN	Vendor
210-92-05GB04	PINREX
PH10R53BAZ009	HORNGTONG

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



## 2.2.13 F\_USB 20\_2 (USB 2.0 header)

16



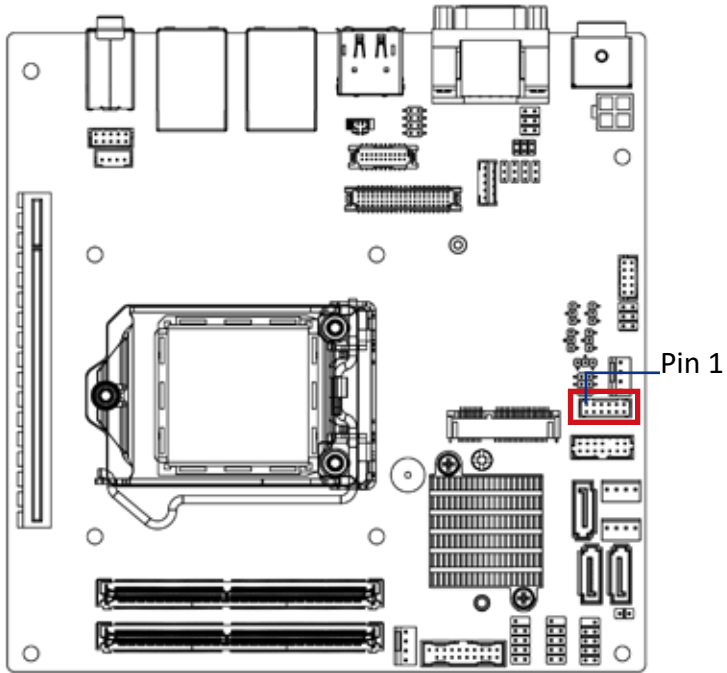
USB 2.0 Header	

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

## 2.2.14 GPIO\_CNT

17



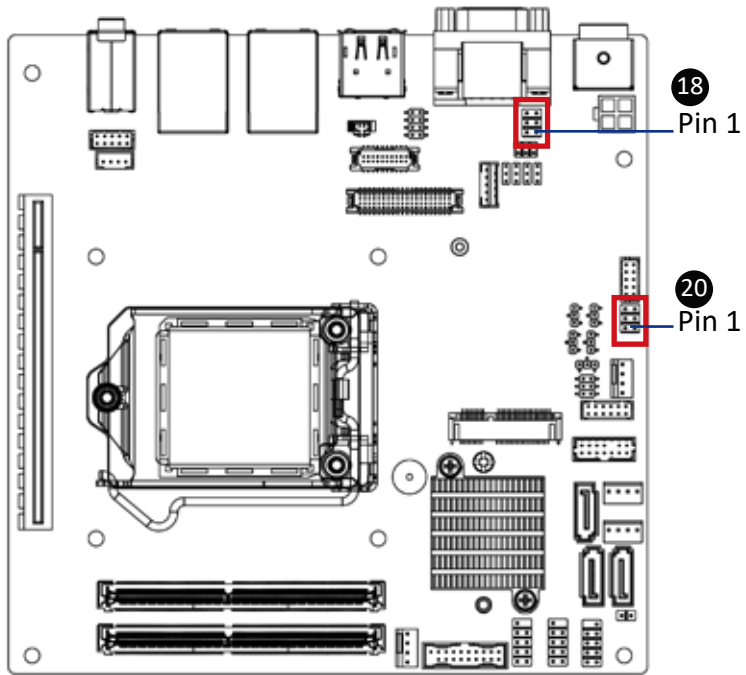
GPIO Connector	

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

Pin No.	Definition
1	GPO1
2	GPI1
3	GPO2
4	GPI2
5	GPO3
6	GPI3
7	GPO4
8	GPI4
9	SMB_CLK
10	SMB_DATA
11	5V
12	GND

## 2.2.15 JCOM11, JCOM21 (COM11 & COM21 RI# pin RI#/5V/12V Select)

18 20



JCOM11, JCOM21 Jumper

	<p>1-2 Close: 5V (Power COM)</p>
	<p>3-4 Close: RI (Stand COM, Default-setting)</p>
	<p>5-6 Close: 12V (Power COM)</p>

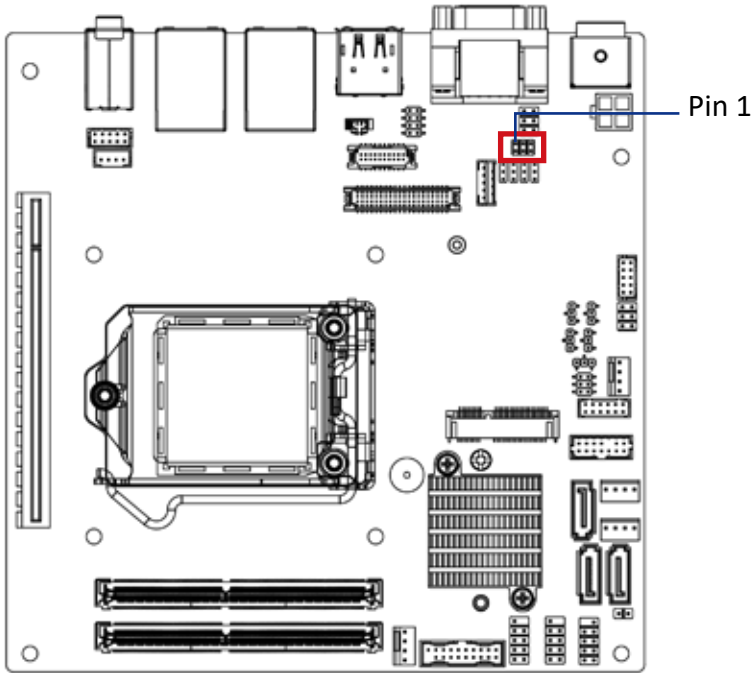
Connector PN







Vendor

220-97-03GB01	PINREX
PH06N53BAZ000	HORNGTONG

## 2.2.16 JCOM12 (COM1 RS-232/RS-422/RS-485 Select)

19



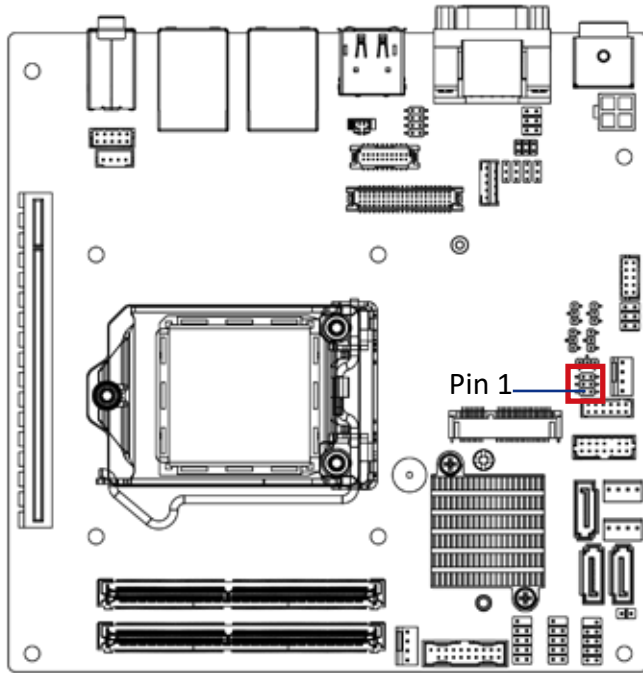
JCOM12 Jumper	
1  5 2  6	1-2 Close: RS-232 (Default-setting)
1  5 2  6	3-4 Close: RS-422
1  5 2  6	5-6 Close: RS-485

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

Pin No.	Definition
1	RX232
2	RX
3	RX422
4	RX
5	RX485
6	RX

## 2.2.17 JCOM22 (COM2 RS-232/RS-422/RS-485 Select)

21



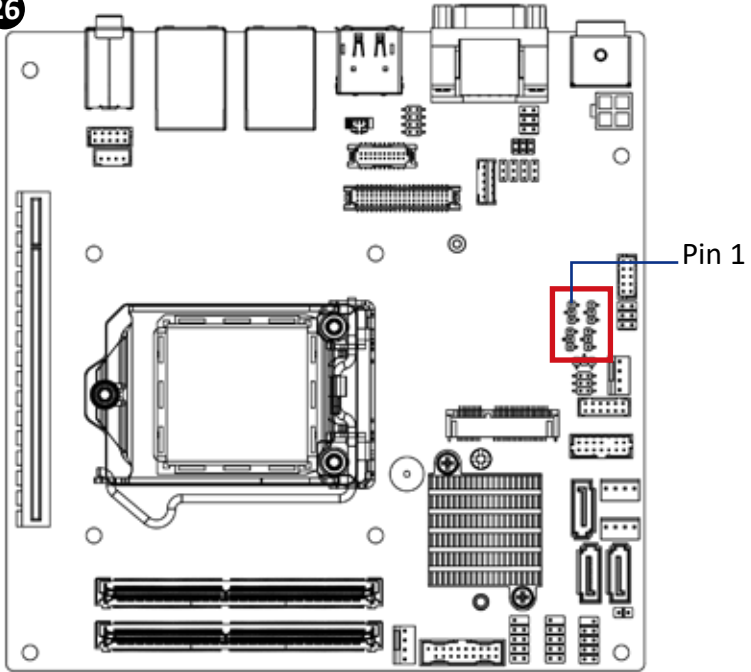
JCOM22 Jumper	
	1-2 Close: RS-232 (Default-setting)
	3-4 Close: RS-422
	5-6 Close: RS-485

Pin No.	Definition
1	RX232
2	RX
3	RX422
4	RX
5	RX485
6	RX

Connector PN	Vendor
222-97-03GBE1	PINREX

## 2.2.18 JRS21, JRS22, JRS23, JRS24 (RS21, RS22, RS23, RS24 select jumper for serial port)

22 23 25 26

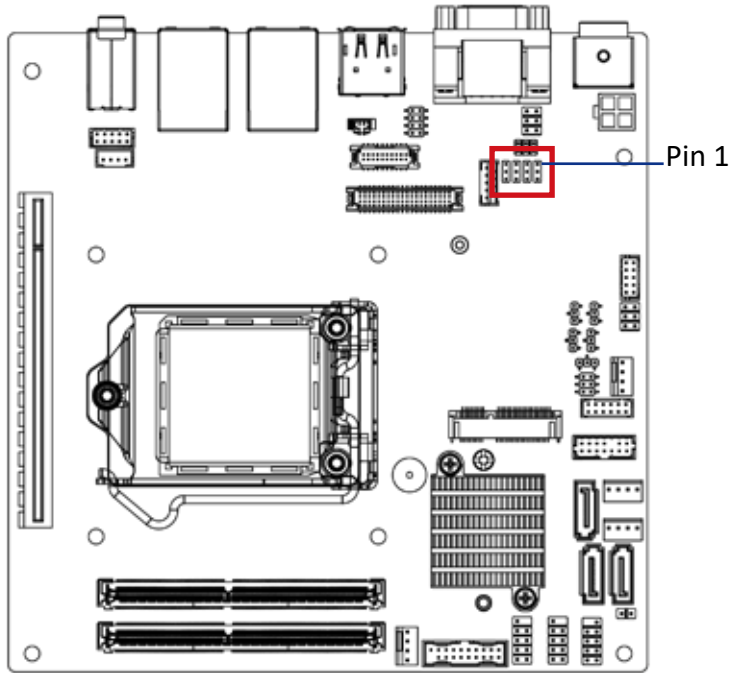


JRS21, JRS22, JRS23, JRS24	
1-2 Close: RS-422/RS-485	
2-3 Close: RS-232 (Default-setting)	

Connector PN	Vendor
PH03N33BAAA00	HORNGTONG

## 2.2.19 JRS 11-14 (RS11-14 select jumper for serial port)

24



JRS 11-14 Jumper



1-2 Close:  
RS-422/RS-485

2-3 Close:  
RS-232 (Default-setting)

Connector PN

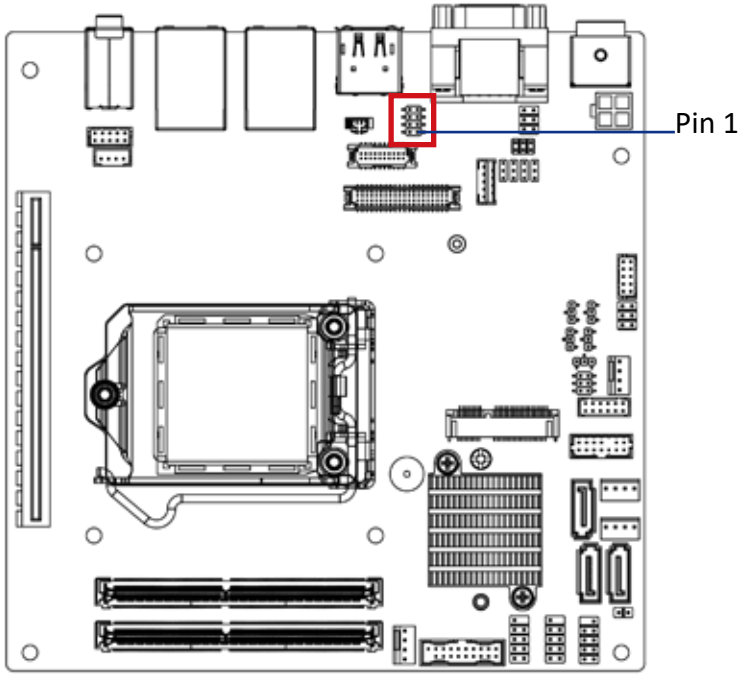
220-96-03GB01  
PH03N2-7BAN000

Vendor

PINREX  
HORNGTONG

## 2.2.20 LSW (LVDS resolution jumper)

27



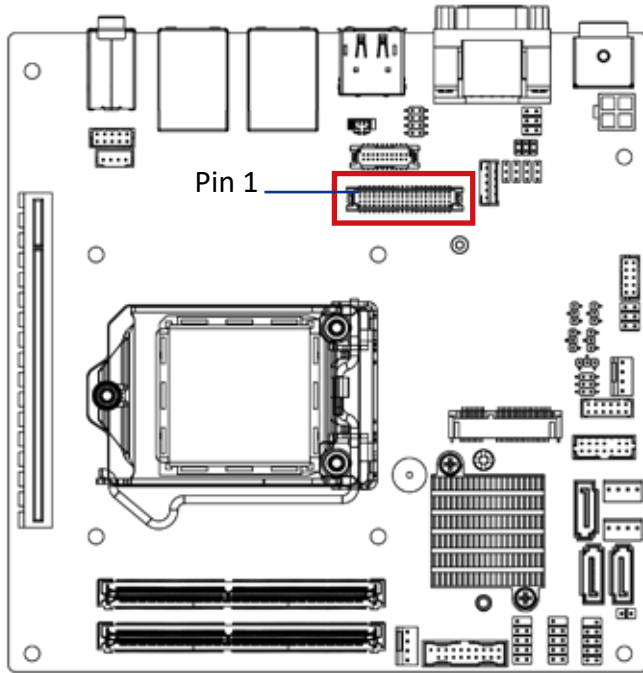
LVDS Resolution Jumper			
Jumper Setting	Resolution	Jumper Setting	Resolution
	800 x 600 18bit		1366 x 768 24bit
	1024 x 768 18bit		1440 x 900 24bit
	1024 x 768 24bit		1400 x 1050 24bit
	1024 x 600 18bit		1600 x 900 24bit
	1280 x 800 18bit		1680 x 1050 24bit
	1280 x 960 18bit		1600 x 1200 24bit
	1280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

Connector PN	Vendor
222-97-04GBE1	PINREX

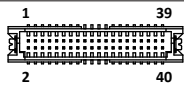


## 2.2.21 LVDS (LVDS connector)

28



LVDS Connector



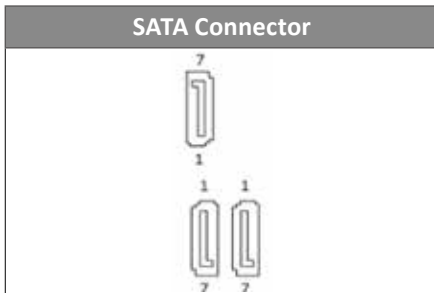
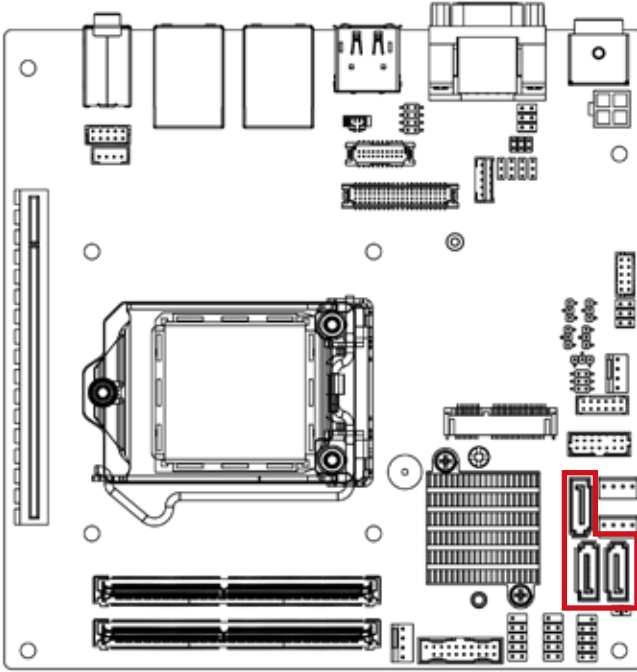
Pin No.	Definition	Pin No.	Definition
1	3.3V	21	A5+
2	5V	22	A4+
3	3.3V	23	A5-
4	5V	24	A4-
5	SPE0	25	GND
6	SPED0	26	GND
7	GND	27	A7+
8	GND	28	A6+
9	A1+	29	A7-
10	A0+	30	A6-

Pin No.	Definition	Pin No.	Definition
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

## 2.2.22 SATAIII\_0, SATAIII\_1, SATAIII\_2 (SATA 6GB/S Connector)

33



Pin No.	Definition	Pin No.	Definition
1	GND	2	A+
3	A-	4	GND
5	B-	6	B+
7	GND		

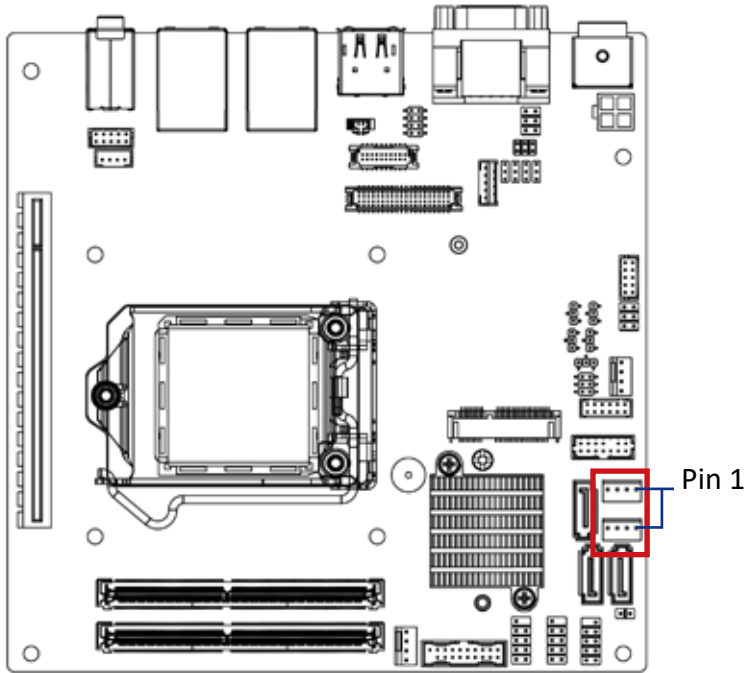
SATAIII_1,SATAIII_0	
Connector PN	Vendor
WATM-07ABNB2BAUW3	WINWIN
770-83-07SW19	PINREX

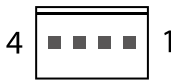
SATAIII_2	
Connector PN	Vendor
ASAT0014-P008C	LOTES

## 2.2.23 SATAPW\_1, SATAPW\_2 (SATA 6GB/S Power Connector)

34 35



Hard Disk Power Connector



Connector PN

743-81-04TW00  
WF04Q2-3BJQ000

Vendor

PINREX  
HORNGTONG

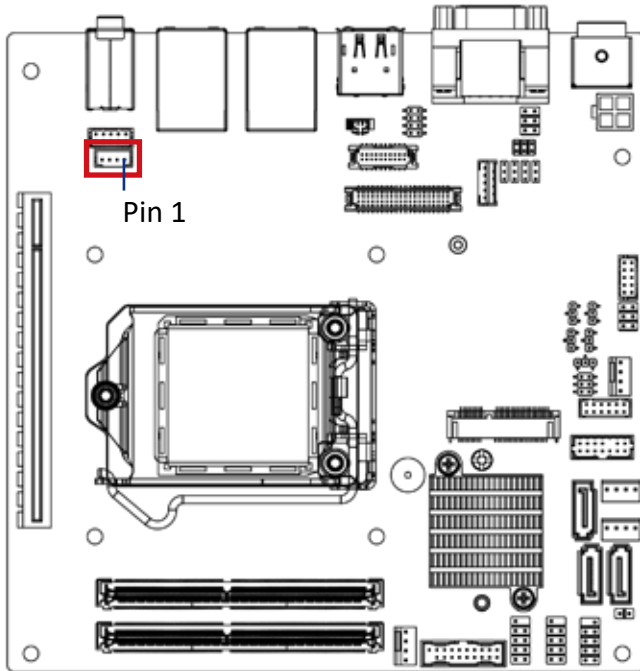
Pin No.

Definition

1	12V
2	GND
3	GND
4	5V

## 2.2.24 SPK\_OUT (Speaker out Connector)

38



Audio Amplifier Connector



Connector PN

721-81-045W00

Vendor

PINREX

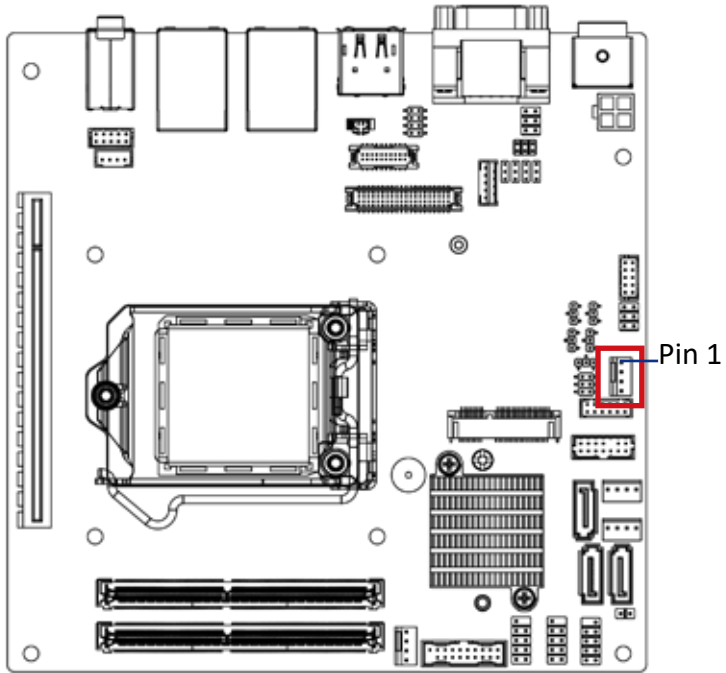
A2001WV-04P146

JOINT-TECH

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

## 2.2.25 SYS\_FAN (System Fan Connector)

39



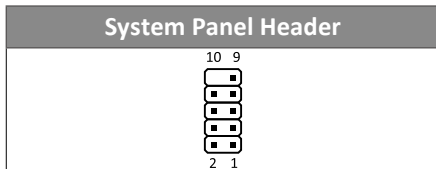
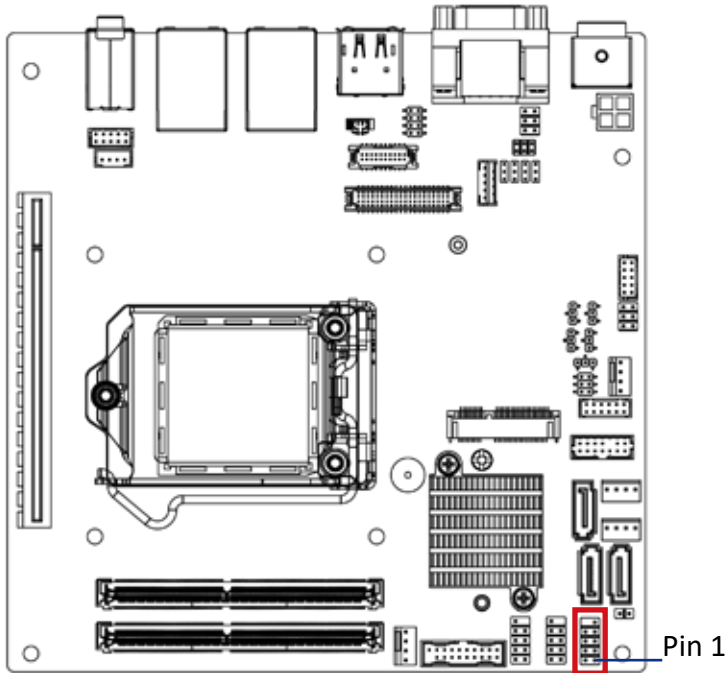
System FAN	

Connector PN	Vendor
744-81-045R11	PINREX
WF04R22RJQ105	HORNGTONG

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

## 2.2.26 SYS\_PANEL (Front Panel Header)

40

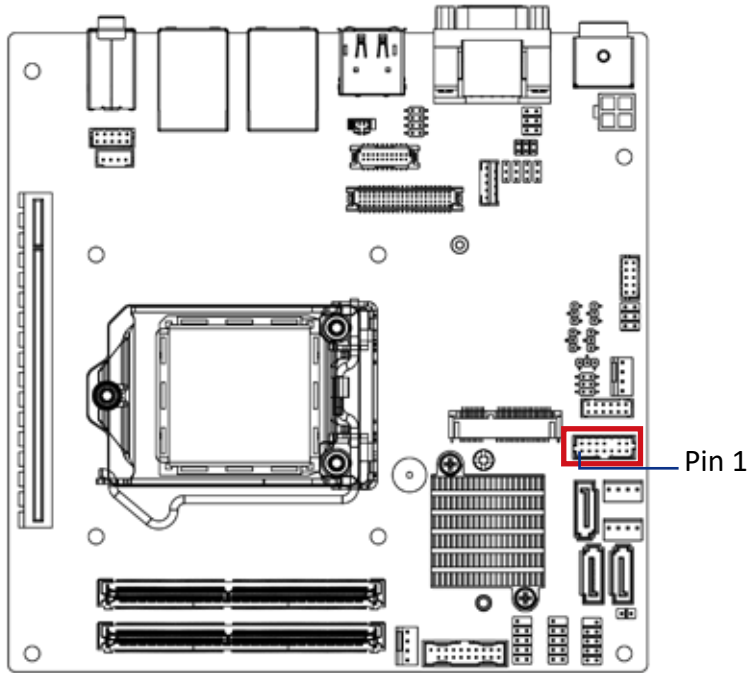


Connector PN	Vendor
210-92-05G111	PINREX

Pin No.	Definition
1	HDD LED+
2	Power LED+
3	HDD LED-
4	Power LED-
5	GND
6	Power Button+
7	Reset Button
8	Power Button-
9	No Connect
10	No Pin

## 2.2.27 TPM\_LPC (Trusted Platform Module Connector)

41



TPM Module Connector



Pin No.	Definition
1	LPCCLK
2	3VDUAL
3	PFM RST
4	VCC3
5	LAD0
6	IRQ_SERIAL
7	LAD1

Pin No.	Definition
8	TPM_DET
9	LAD2
10	NC
11	LAD3
12	GND
13	LFRAME
14	GND

Connector PN	Vendor
52M-90-14GBE7	PINREX