

# mITX-H110B

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Mini-ITX Motherboard – mITX-H110B

User's Manual 1st Ed

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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-H110B 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	○	○	○	○	○	○
<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	○	○	○	○	○	○
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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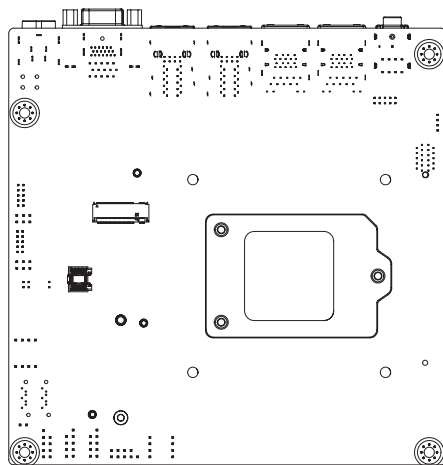
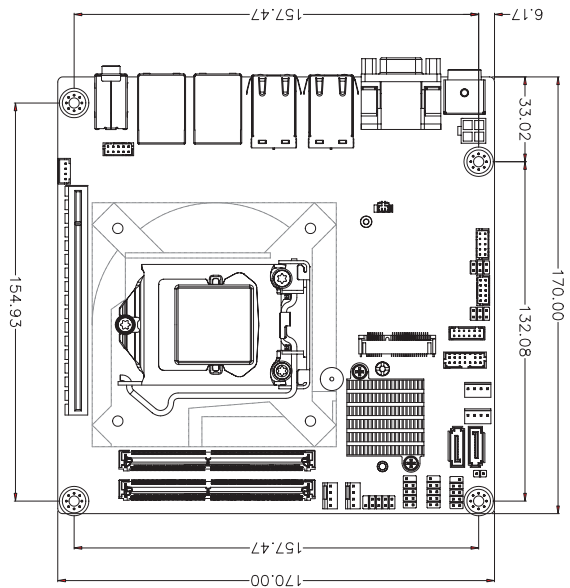
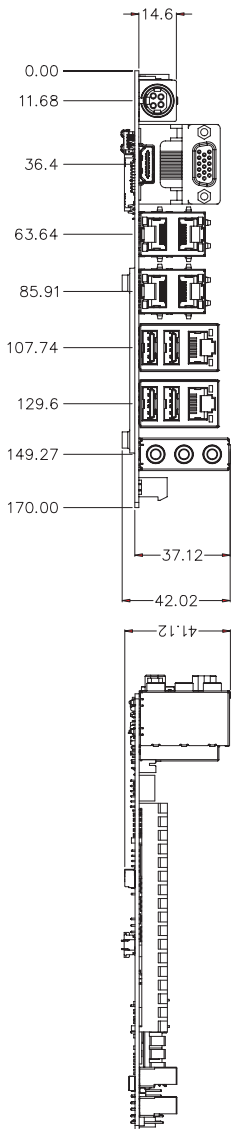
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# Chapter 1

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## Chapter 1 – Product Specifications



## 1.1 Specifications

Motherboard	mITX-H110B
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® H110 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	6 x GbE LAN ports (1 x Intel® i219V and 5 x Intel® i211AT)
Video	Integrated Graphics Processor - Intel® HD Graphics support: 1 x HDMI port, supporting a maximum resolution of 4096x2160@30 Hz 1 x D-Sub port, supporting a maximum resolution of 1920x1200@60 Hz
Audio	Realtek ALC269 High Definition Audio
Storage	3 x SATA 6Gb/s ports
Raid	—
Expansion Slots	1 x PCIe x16 (Gen3 x16 bus) slot 1 x M.2 Slot 2242/2280 Storage SATA 1 x Full-size mSATA slot
Internal I/O	1 x 4-pin ATX main power connector 2 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 6 x USB 2.0/1.1 headers 2 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 2W Speaker out header

Motherboard	mITX-H110B
Rear I/O	3 x Audio jacks (Line in, Line out, Mic in) 1 x HDMI 1 x D-Sub 6 x RJ45 4 x USB3.0 1 x DC Jack (+12V/+19V/+24Vdc)
TPM Header	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)
Board size	Mini ITX, 170mm x 170mm (6.7" x 6.7")
Order information	Motherboard: 9MH110AIMR-SI

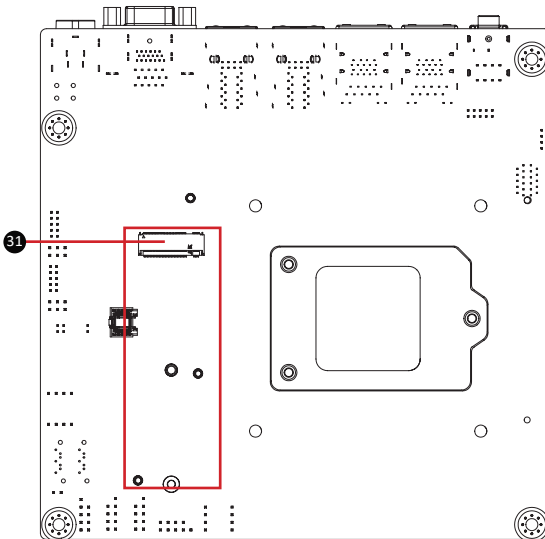
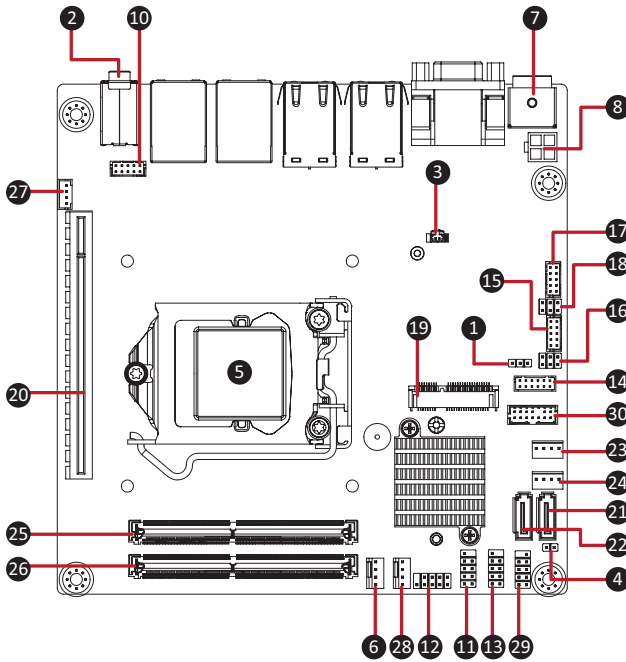


# Chapter 2

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## Chapter 2 – Hardware Information

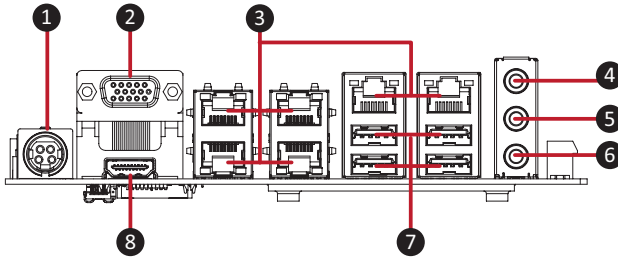
## 2.1.1 Jumpers and Connectors



No	Code	Description
1	AT_CN	AT/ATX power mode select jumper
2	AUDIO	Audio Line In, Line Out, Mic-in ports
3	BATTERY	Battery cable connector
4	CLR_CMOS	Clear CMOS jumper
5	CPU_SLOT	Intel® LGA1151 socket
6	CPU_FAN	CPU fan connector
7	DC_IN	DC In Jack
8	DC_IN2	ATX 2x2 pin power connector
10	F_AUDIO	Front audio header
11	FUSB20_1	USB 2.0 header
12	FUSB20_2	USB 2.0 header
13	FUSB20_3	USB 2.0 header
14	GPIO_CNT	General Purpose input/ output header
15	COM1	Serial port header
16	JCOM11	Default COM1 is RI pin, can select RI/5V/12V
17	COM2	Serial port header
18	JCOM21	Default COM2 is RI pin, can select RI/5V/12V
19	Mini PCIe Slot	mSATA Connector M.2 slot 2422/2880 storage SATA
20	PCIE16X	PCIE x16 slot
21	SATAIII_0	SATA 6Gb/s connector
22	SATAIII_1	SATA 6Gb/s connector
23	SATAPW_1	SATA 6Gb/s power connector
24	SATAPW_2	SATA 6Gb/s power connector

No	Code	Description
25	SODIMM1	DDR4 SO-DIMM slot #1
26	SODIMM2	DDR4 SO-DIMM slot #2
27	SPK_OUT	Speaker out connector
28	SYS_FAN	System fan connector
29	SYS_PANEL	Front panel header
30	TPM_LPC	TPM connector
31	M2_M	M.2 Slot, M-Key, SATA 6Gb/s & PCIe, Supports NGFF-2280 Card

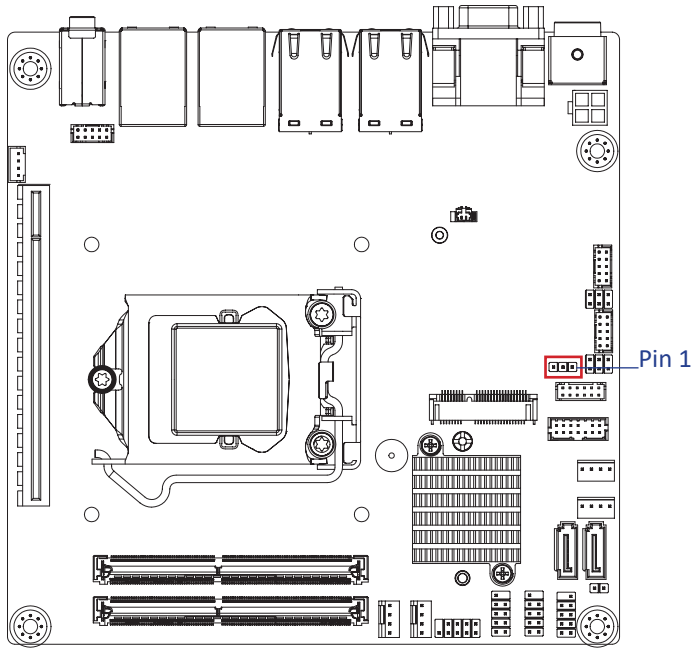
### 2.1.1.2 I/O



No	Code	Description
1	DC_IN	DC In Jack
2	VGA	VGA D-sub port
3	LAN	GbE LAN port
4	Line-in	Line-in Port
5	Line-out	Line-out Port
6	Mic-in	Mic-in Port
7	USB30	USB 3.0 ports
8	HDMI	HDMI 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

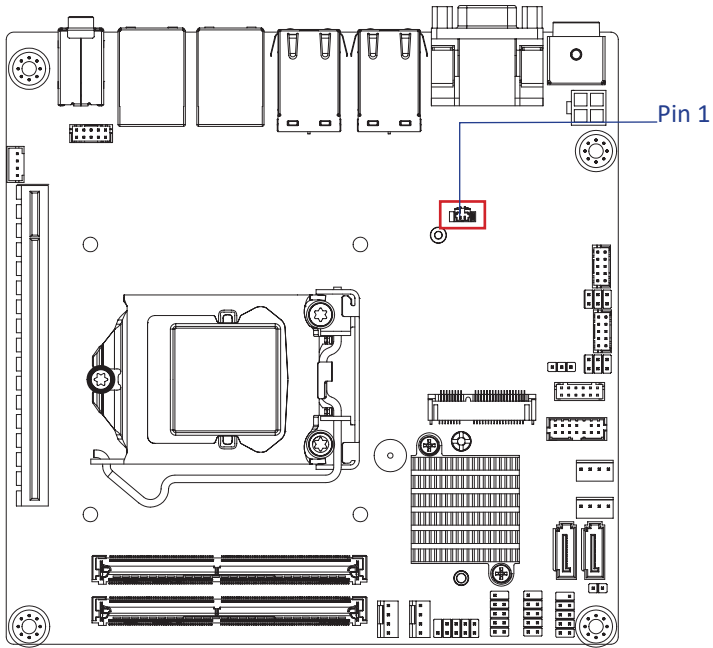
Jumper setting

1-2 Close : AT mode.

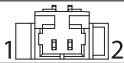
2-3 Close : ATX mode.(Default setting)

## 2.2.2 Battery

3



**Battery Cable Connector**



**Connector PN**

85205-0270L

A1250WV-S-02PC

**Vendor**

ACES

JOINT-TECH

**Pin No.**

1

2

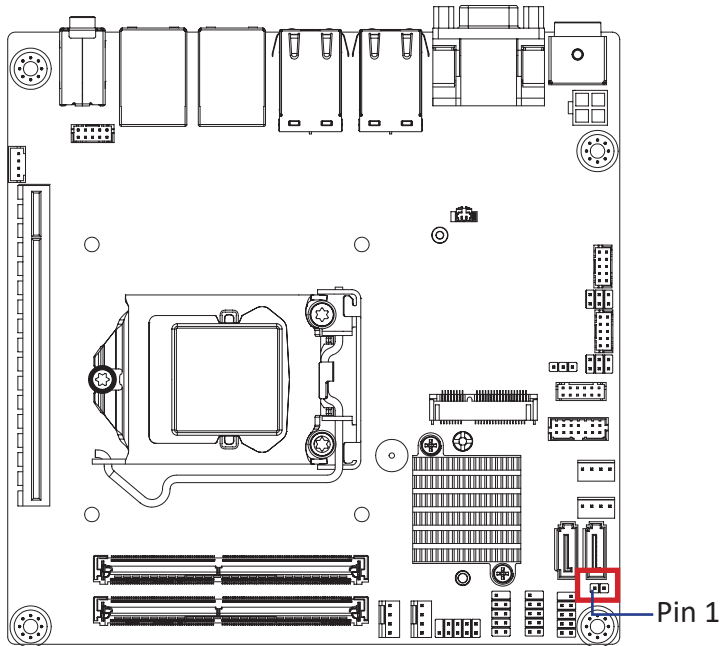
**Definition**

3.3V

GND

## 2.2.3 CLR\_CMOS

4



### Clear COMS Jumper

1  2

### Connector PN

210-91-02GB01  
PH02R23BAZ000

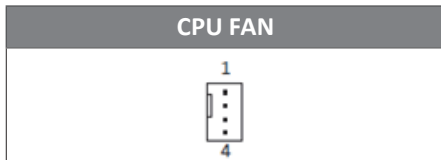
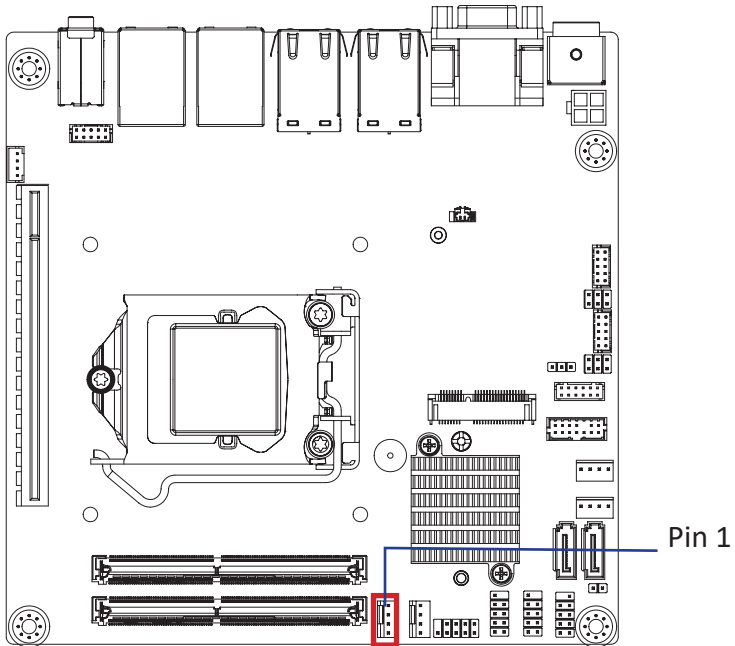
### Vendor

PINREX  
HORNGTONG

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

## 2.2.4 CPU\_FAN (CPU fan connector)

6



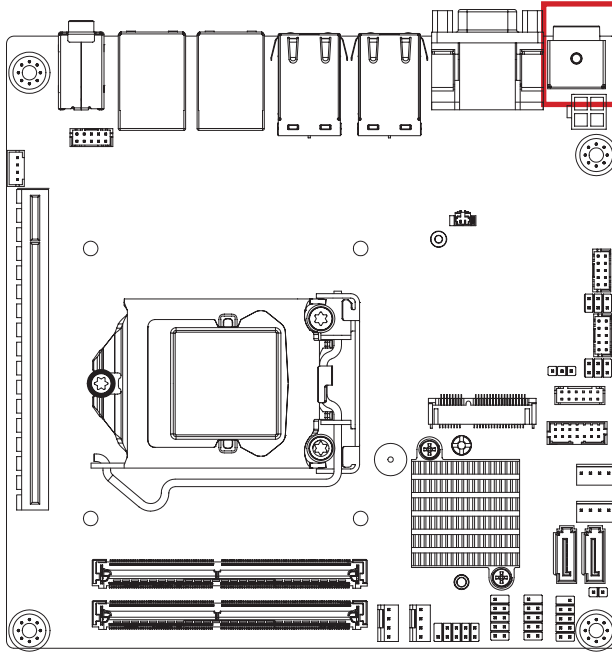
Connector PN	Vendor
744-81-045W11	PINREX
WF04R22WJQ195	HORNGTONG

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



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

7



DC JACK Connector



Connector PN

2MJ-3422A110

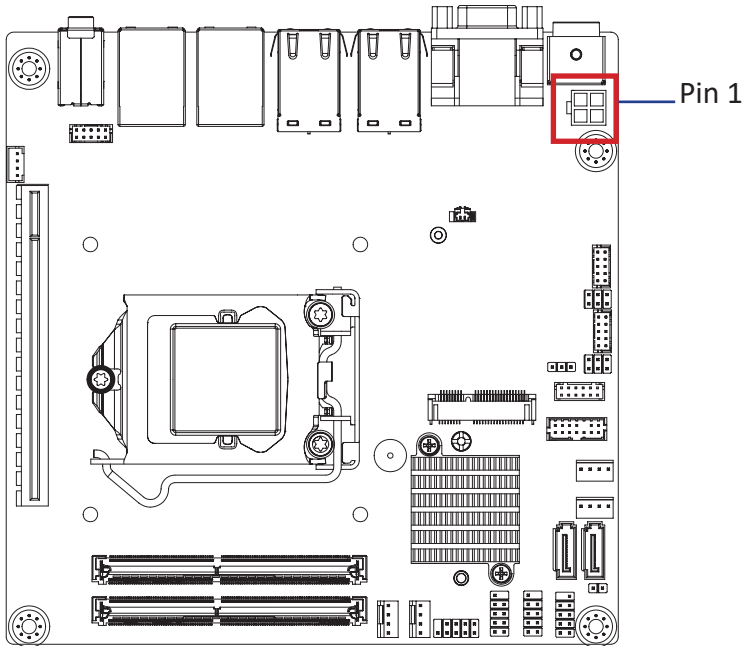
Vendor


SINGATRON

**Note: \*Connect only to a properly wired and ground outlet.**

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

8



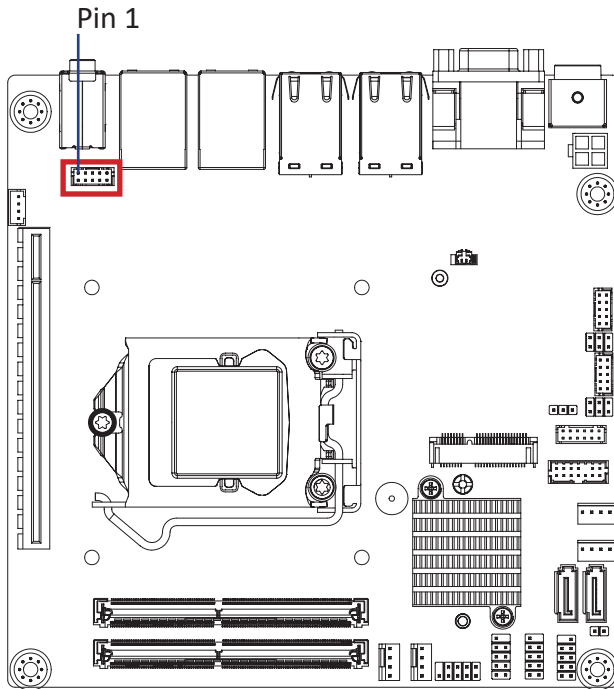
Power Connector	
	
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

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

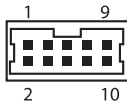
**Note: \*Connect only to a properly wired and ground outlet.**

## 2.2.7 F\_Audio (Front audio header)

10



Front Audio Connector



Connector PN

725-81-10TW00

A2004WV-2X05P46

Vendor

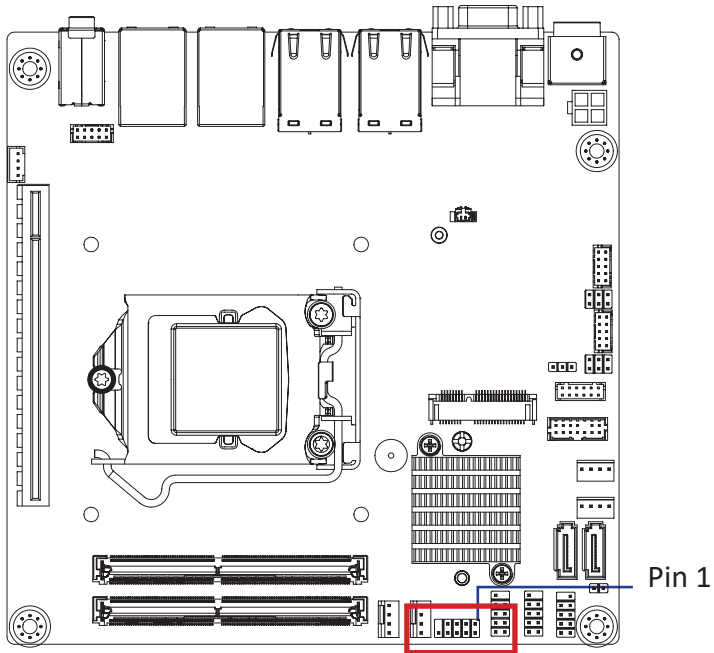
PINREX

JOINT-TECH

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

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

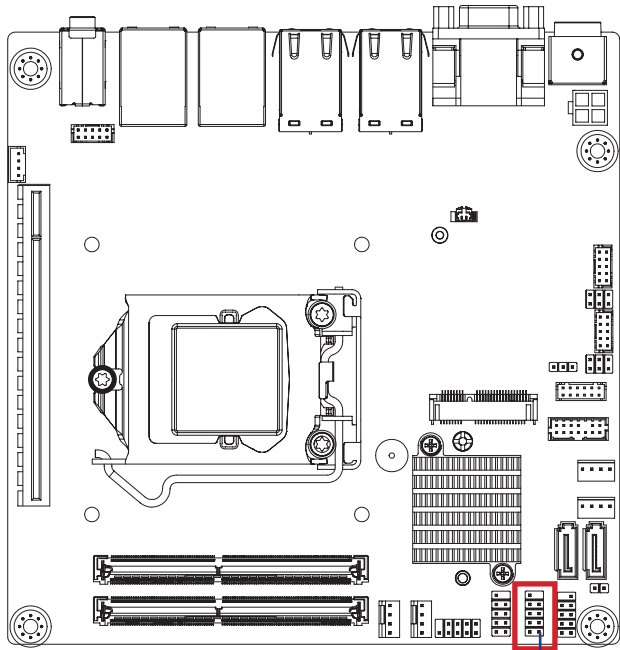
11



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		

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

12



Pin 1

USB 2.0 Header



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

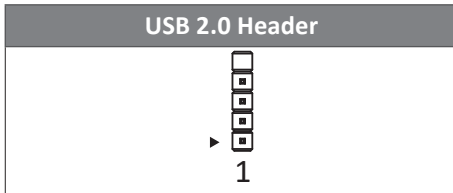
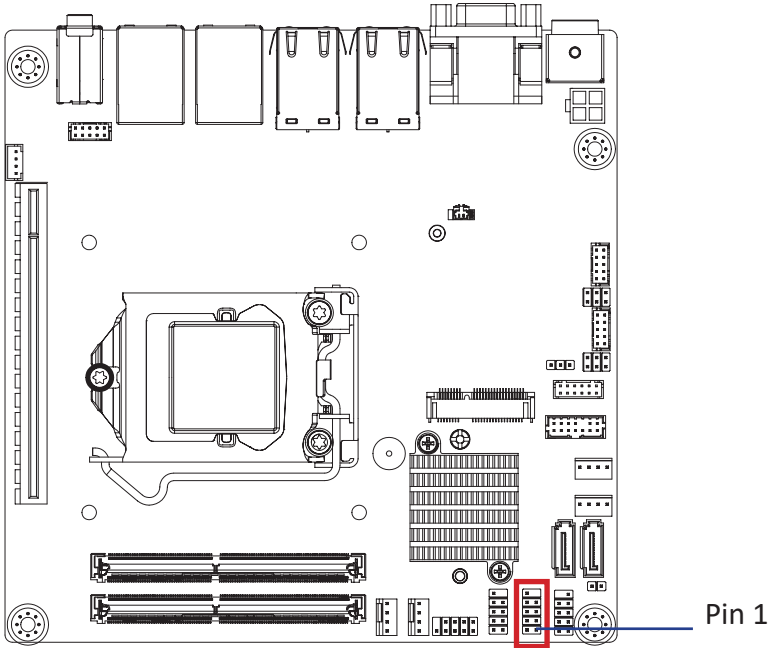
Connector PN

Vendor

210-92-05GB04	PINREX
PH10R53BAZ009	HORNGTONG

## 2.2.10 F\_USB 20\_3 (USB 2.0 header)

13

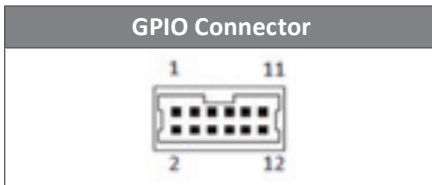
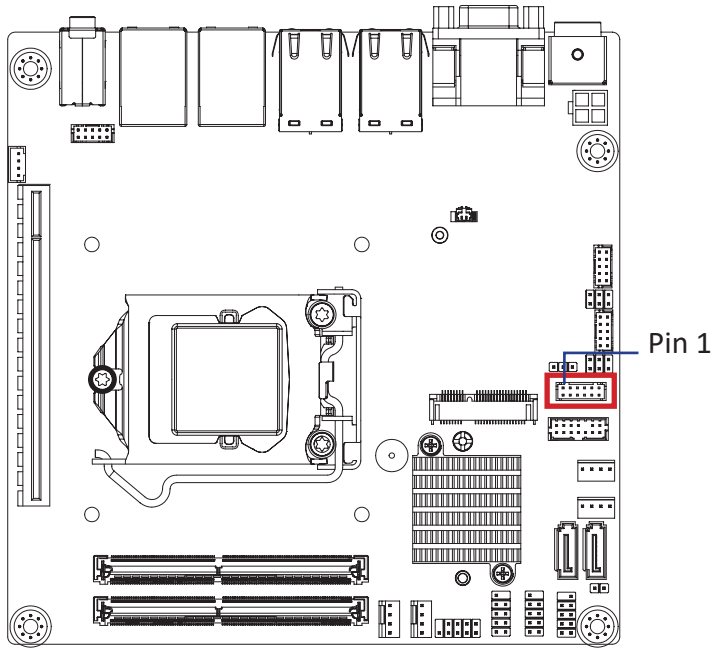


Pin No.	Definition
1	5V
2	DX-
3	DX+
4	GND
5	No Pin

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

## 2.2.11 GPIO\_CNT

14



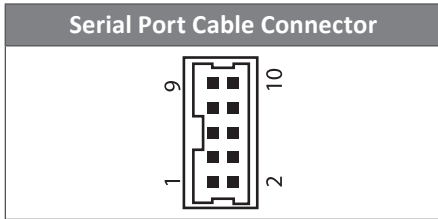
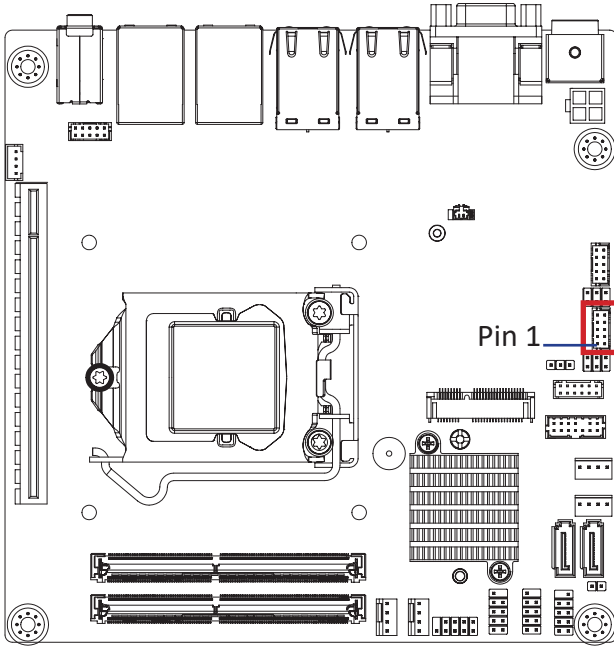
Pin No.	Definition
1	GPO1
2	GPI1
3	GPO2
4	GPI2
5	GPO3
6	GPI3
7	GPO4
8	GPI4

Pin No.	Definition
9	SMB_CLK
10	SMB_DATA
11	5V
12	GND

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

## 2.2.12 COM1 (Serial Port header)

15



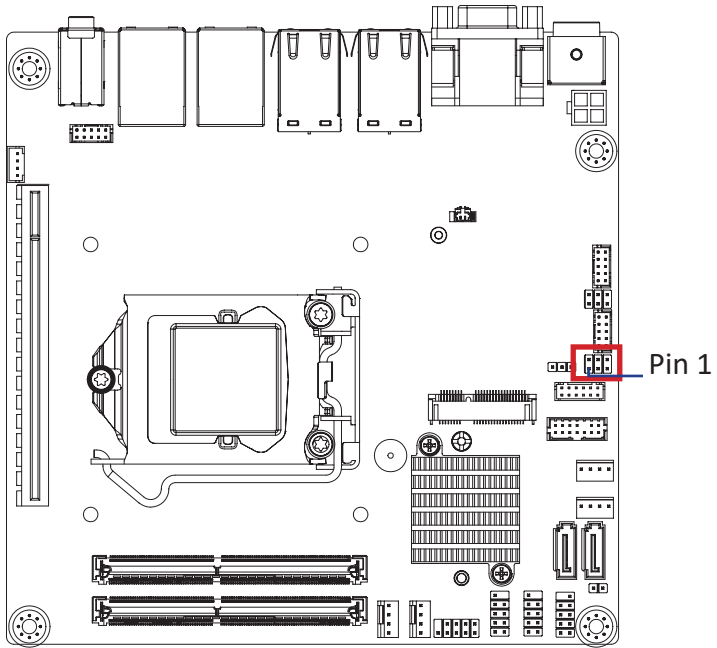
Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

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



## 2.2.13 JCOM11 (Default COM1 is RI pin, can select RI/5V/12V)

16

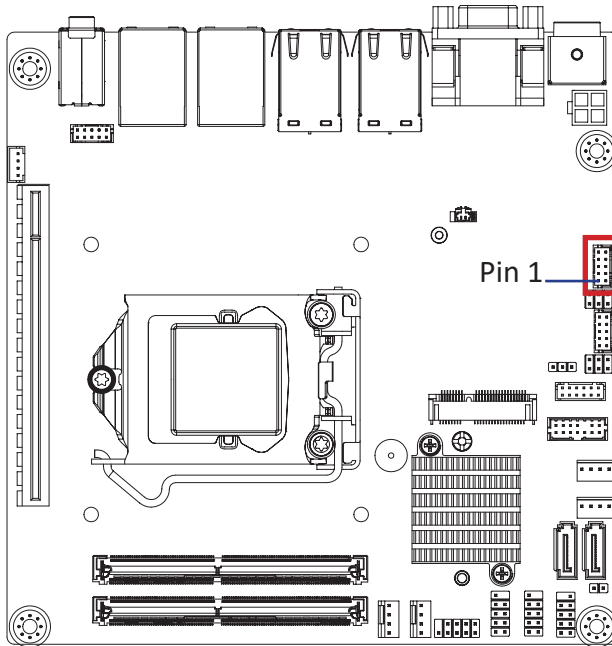


JCOM11 Jumper	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)
	5-6 Close: 12V (Power COM)

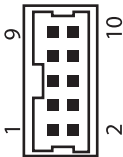
Connector PN	Vendor
220-97-03GB01	PINREX
PH06N53BAZ000	HORNGTONG

## 2.2.14 COM2 (Serial Port header)

17



Serial Port Cable Connector



Connector PN

725-81-10TW00  
A2004WV-2X05P46

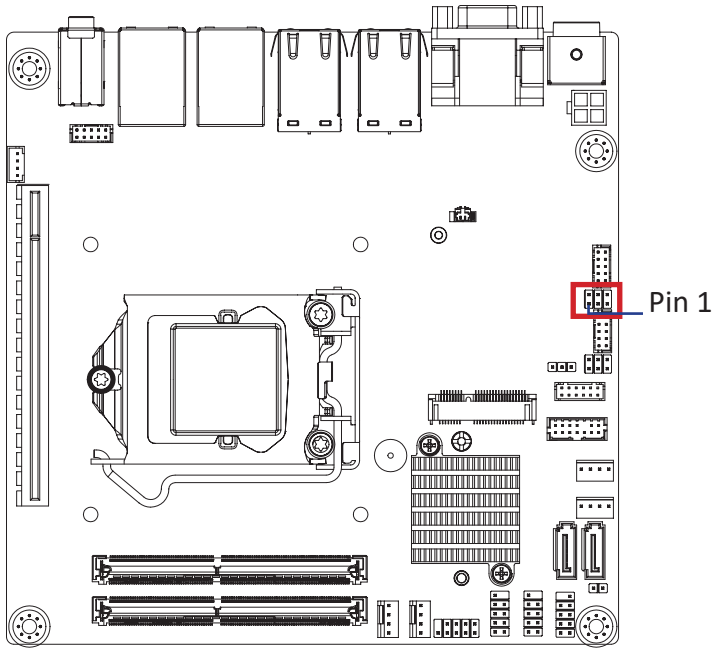
Vendor

PINREX  
JOINT-TECH

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

## 2.2.15 JCOM21 (Default COM2 is RI pin, can select RI/5V/12V)

18

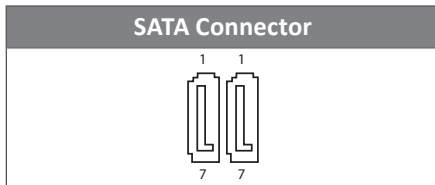
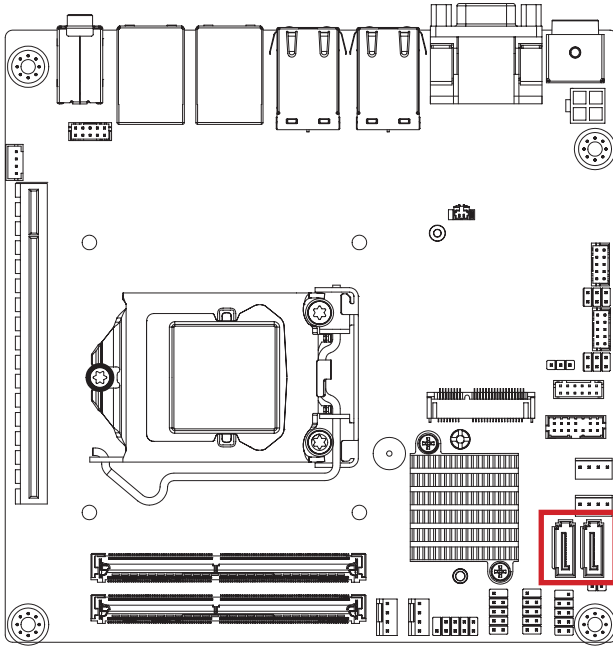


JCOM21 Jumper	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)
	5-6 Close: 12V (Power COM)

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

## 2.2.16 SATAIII\_0, SATAIII\_1 (SATA 6Gb/s Connector)

21 22

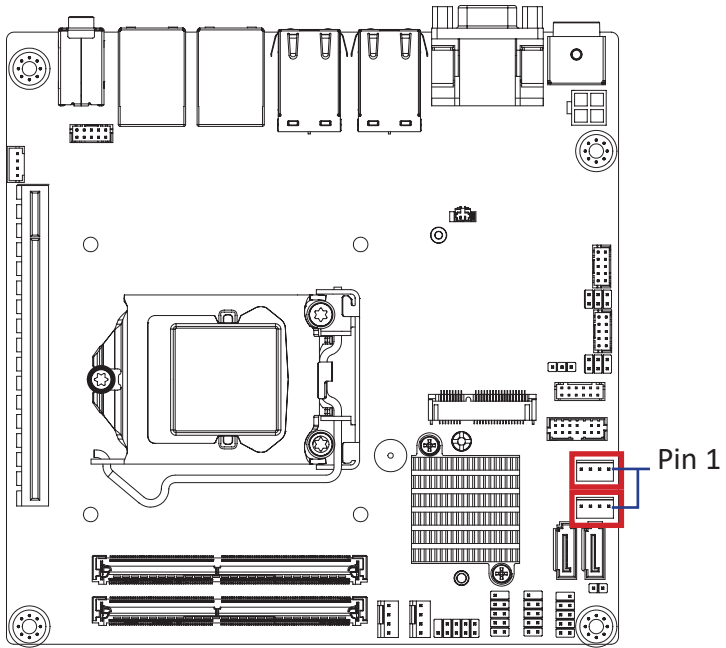


Pin No.	Definition
1	GND
2	A+
3	A-
4	GND
5	B-
6	B+
7	GND

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

## 2.2.17 SATAPW\_1, SATAPW\_2 (SATA 6Gb/s Power Connector)

23 24



Hard Disk Power Connector



Connector PN

743-81-04TW00

WF04Q2-3BJQ000

Vendor

PINREX

HORNGTONG

Pin No.

Definition

1

12V

2

GND

3

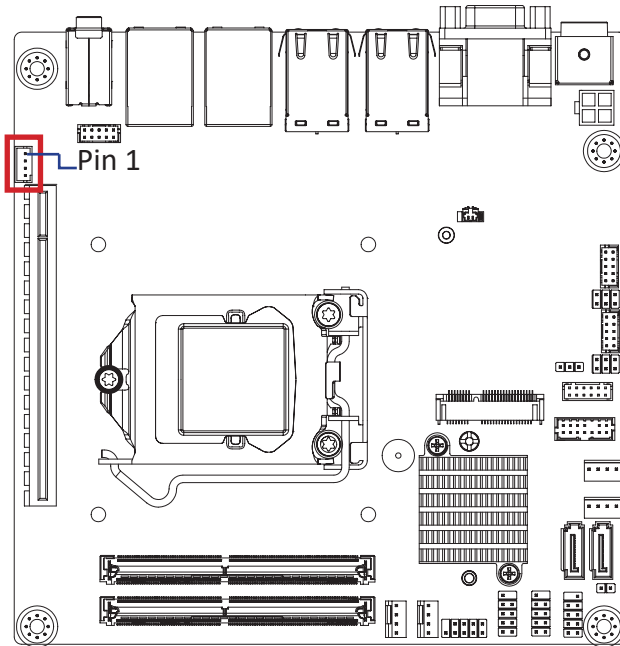
GND

4

5V

## 2.2.18 SPK\_OUT (Speaker out Connector)

27



Audio Amplifier Connector

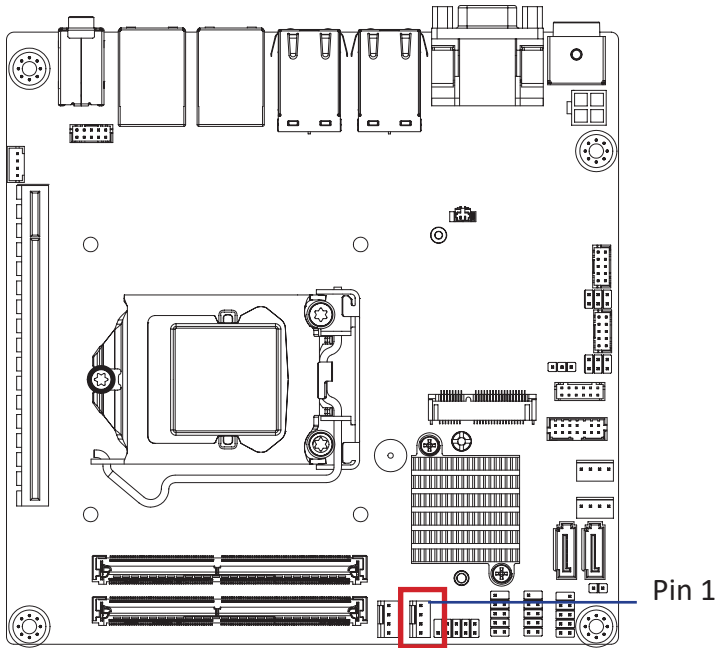


Pin No.	Definition
1	Speaker Out L+
2	Speaker Out L-
3	Speaker Out R-
4	Speaker Out R+

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

## 2.2.19 SYS\_FAN (System Fan Connector)

28



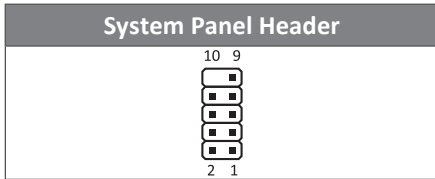
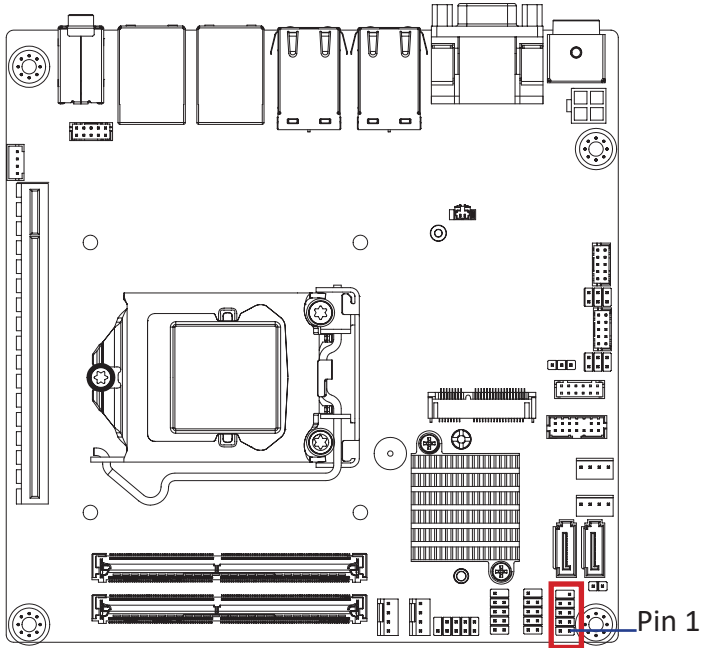
System FAN	

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

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

## 2.2.20 SYS\_PANEL (Front Panel Header)

29



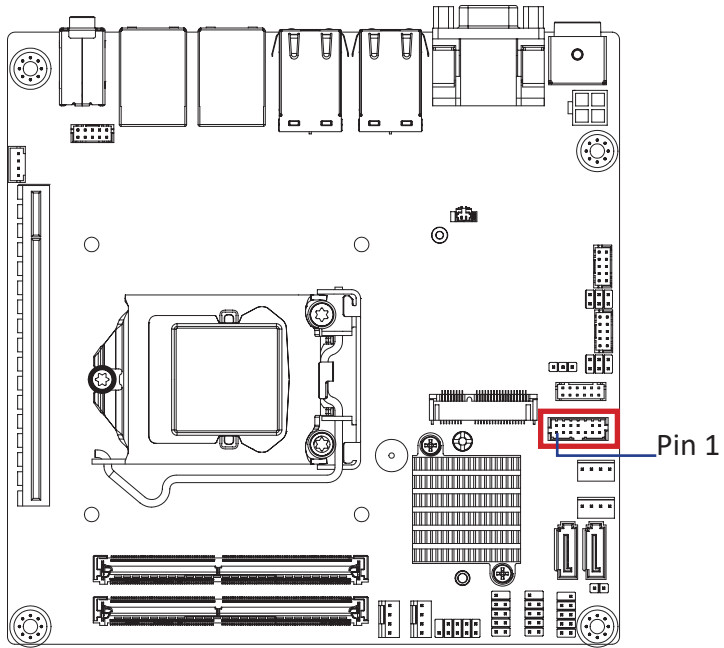
Connector PN	Vendor
210-92-05G111	PINREX

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



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

30



TPM Module Connector



Pin No.	Definition
1	LPCCLK
2	3VDUAL
3	PFM RST
4	VCC3
5	LAD0
6	IRQ_SERIAL
7	LAD1
8	TPM_DET
9	LAD2
10	NC

Pin No.	Definition
11	LAD3
12	GND
13	LFRAME
14	GND

Connector PN	Vendor
52M-90-14GBE7	PINREX

## 2.2.22 M2\_M (M.2 Slot, M-Key, SATA 6Gb/s & PCIe, Supports NGFF-2280/2242 Card)

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