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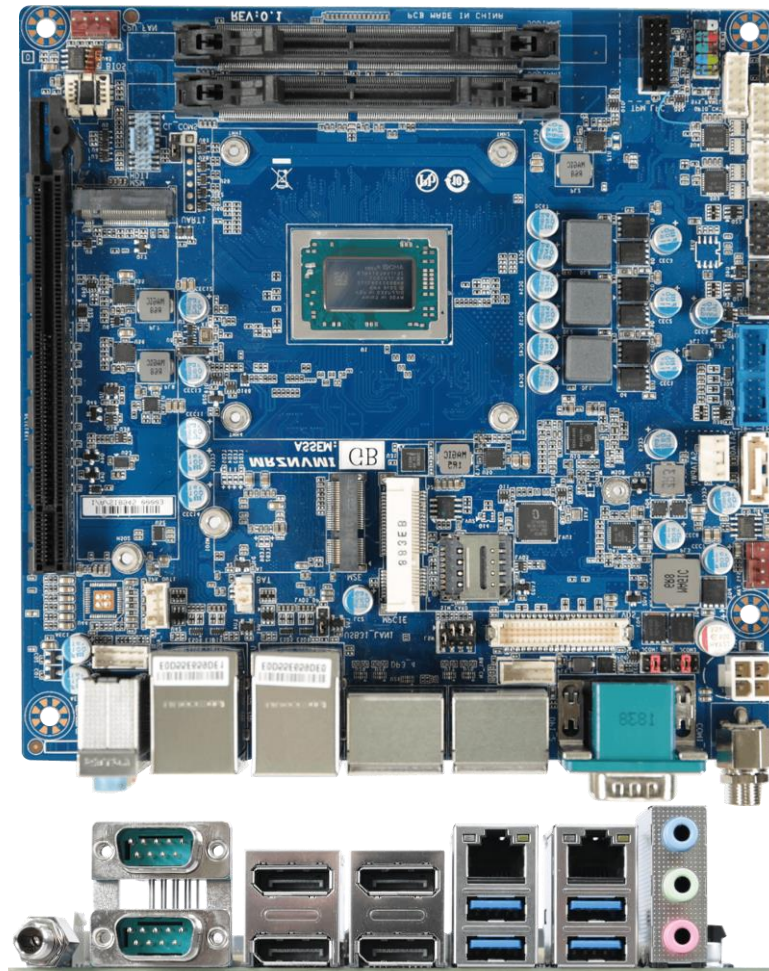


Manual

GIGAIPC

mITX-1605A

Industrial Mini-ITX Motherboard with AMD® Ryzen® V1000 Series Processor



Note: a separate manual / datasheet is available for each version

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mITX-1605A (MRZNVMI)

Thin Mini-ITX Motherboard

User's Manual 1st Ed

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Packing List

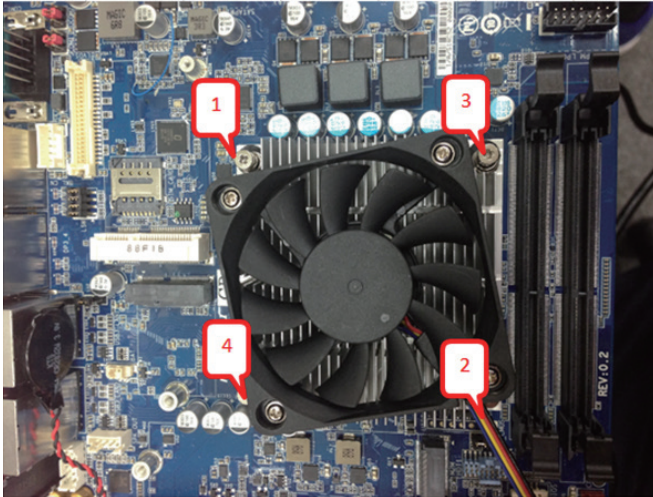
Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
mITX-1605A MB	1
SATA power cable	1
I/O Bracket	1
mITX-V1000 Fan Sink	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Assembly Sequence

Material fan-sink.



Torque	2.2 ~ 2.8 kgf-cm
Assembly action	
1>	Fix the heat sink with your hand to correct the corresponding hole position, and fix the heat sink as shown in the figure above.
2>	According to the above assembly sequence, the correct torque is used to lock the heat sink.
3>	When removing, please reverse (spinning from position 4) to remove

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 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

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	○	○	○	○	○	○
<p>○ : 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>						

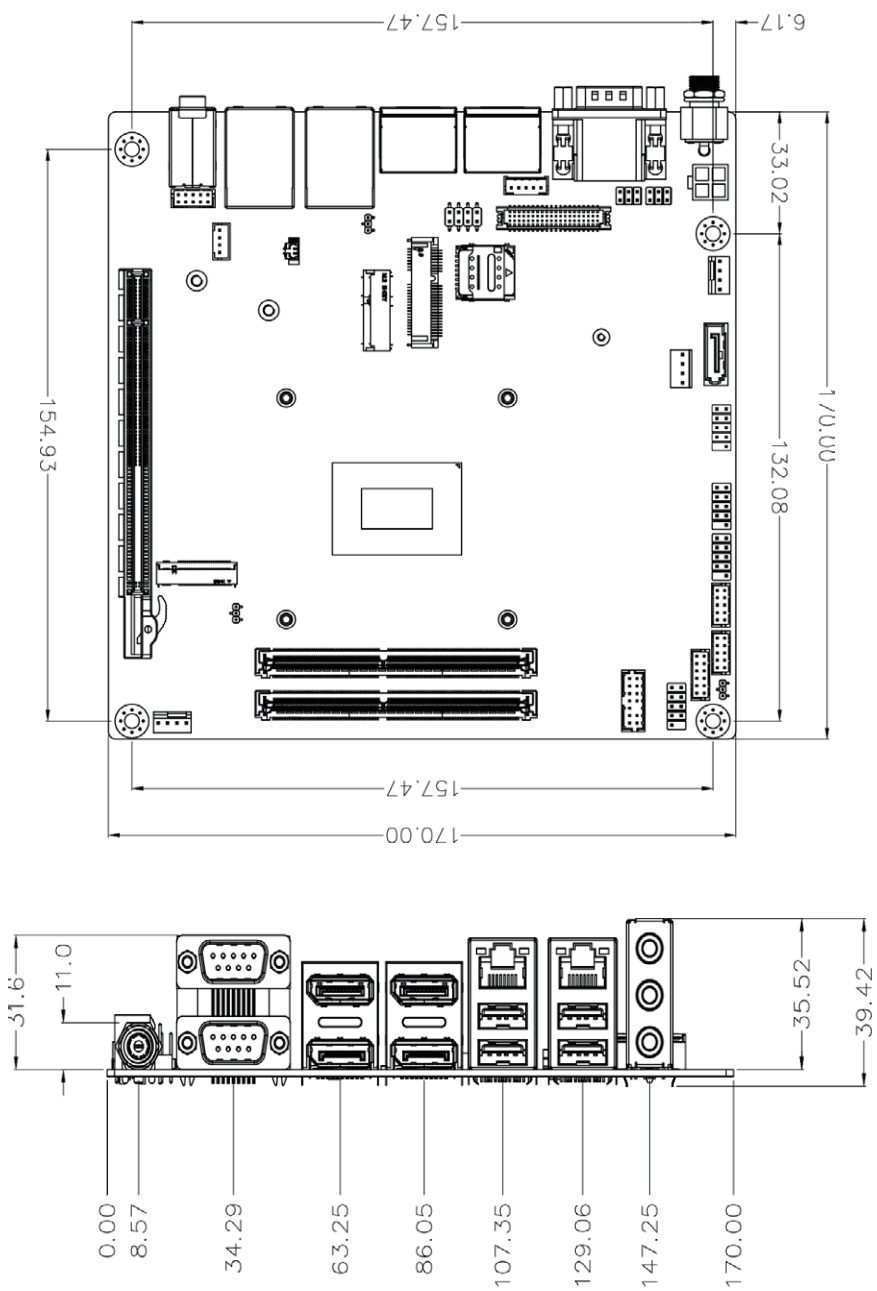
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Chapter 1

Product Specifications



1.1 Specifications

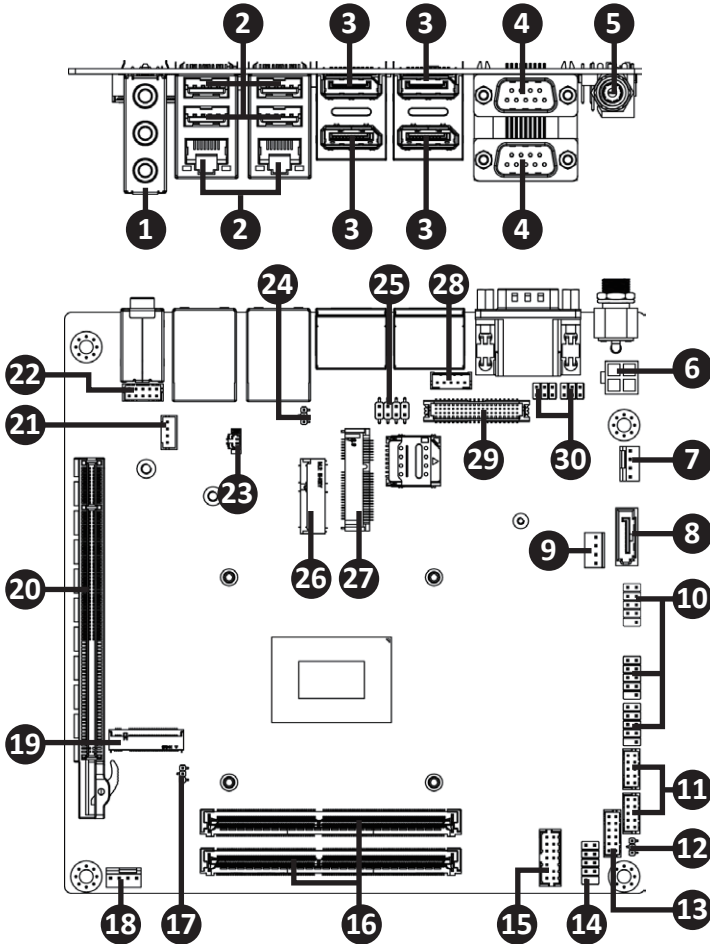
Motherboard	mITX-H110A
Form Factor	Mini-ITX 170W x 170D (mm)
CPU	AMD® RYZEN™ V1605B Embedded Processor up to 3.6GHz TDP 25W 2MB of shared L2 plus 4MB of shared L3 total
Socket	1 x FP5 BGA
Chipset	—
Memory	2 x DDR4 1.2V SO-DIMM sockets supporting up to 32 GB of system memory Up to 2400Mhz Max. memory capacity 32GB
Ethernet	2 x GbE LAN ports (Realtek® RTL8111HS)
Video	Integrated Graphics Processor - AMD Radeon™ Vega 8 Graphics 4 x DP port, supporting a maximum resolution of 4096x2160 @ 60Hz 1 x LVDS port, supporting a maximum resolution of 1080P (switch from DP)
Audio	Realtek ALC269 controller High Definition Audio
Storage	1 x SATA 6Gb/s port
Expansion Slots	1 x PCIe x16 (X8 bus) slot 1 x Mini PCIe (Full Size PCIe & USB) 1 x M.2 slot: - M-key - SATA 6Gb/s - Supports NGFF-2280 cards 1 x M.2 slot: - E-key - Supports NGFF-2230 Combo cards

Motherboard	mITX-H110A
Internal I/O	1 x 4-pin ATX power connector 1 x SATA 6Gb/s connector 1 x SATA power connector 1 x CPU fan header 1 x System fan header 1 x Front panel header 1 x Front panel audio header 1 x Speaker out header 6 x USB 2.0 header 2 x COM headers (RS-232) 1 x LPC/TPM header 1 x GPIO (4 in/ 4 out) 1 x Backlight Control header 1 x LVDS connector (Switch from DP) 1 x LVDS/ DP Jumper 1 x AT mode jumper 1 x CMOS battery
Rear I/O	3 x Audio jacks (Line in, Line out, Mic in) 2 x COM (RS-232/422/485 and RI/5V/12V) 4 x DP 2 x RJ45 4 x USB3.0 1 x DC Jack (+12V~24Vdc)
TPM	1 x TPM Header
OS Compatibility	Windows 10 (x64)
PSU Connectors	1 x DC-in +12~24V Vdc (full Range) 1 x 4-pin ATX power connector 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: 551 x 470 x 230 (mm) Content: IO Shield x 1 (12AIO-MRZNV0-00R) SATA Power cable x 1 (25CRI-200B02-K1R) Fansink x 1 (12SF2-01A077-00R)

Chapter 2

Chapter 2 – Hardware Information

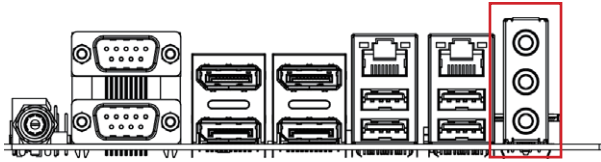
2.1 Jumpers and Connectors



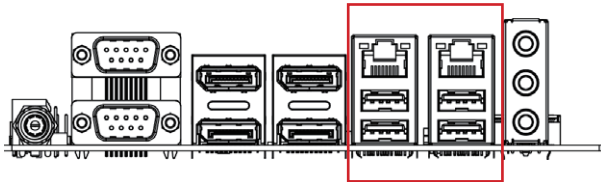
No	Code	Description
1	AUDIO	Audio Line Out port
2	USB3_LAN2, USB3_LAN1	USB 3.0 ports + GbE LAN port
3	DP3_4, DP1_2	Display ports
4	COM1_2	Serial ports
5	DC_IN1	DC-In Jack Connector
6	DC_IN2	ATX 2x2 pin power connector
7	SYS_FAN	System fan connector
8	SATA1	SATA 6Gb/s connector
9	SATAPW1	SATA 6Gb/s power connector
10	F_USB2_3, F_USB2_1, F_USB2_2	USB 2.0 header
11	COM3, COM4	Serial ports header
12	AT_CN	AT/ATX power mode select jumper
13	GPIO_CNT	General Purpose input/output header
14	SYS_PANEL	Front panel header
15	TPM_LPC	TPM connector
16	SODIMM1, SODIMM2	DDR4 SO-DIMM slot#1/slot#2
17	CLR_CMOS	Clear CMOS jumper
18	CPU_FAN	CPU fan connector
19	M2_M	M.2 M-key
20	PCIE16X	PCIE x16 slot
21	SPK_OUT	Speaker out connector

No	Code	Description
22	F_AUDIO	Front Panel audio header
23	BAT	Battery cable connector
24	LVDS_DP	LVDS/DP Jumper
25	LSW	LVDS resolution jumper
26	M2E	M.2 E-key
27	MINI_PCIE	MINI PCIE connector
28	BKL_CN	Back light brightness control connector
29	LVDS	LVDS connector
30	JCOM1, JCOM2	COM1/2 RI# pin RI#/5V/12V Select

2.2.1 AUDIO (Audio line-out port)

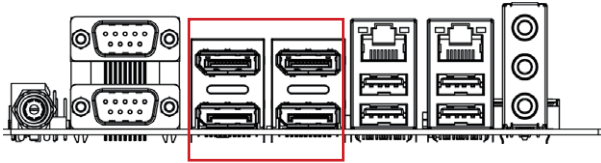
1

2.2.2 USB3_LAN2, USB3_LAN1 (USB 3.0 ports + Gbe LAN port)

2

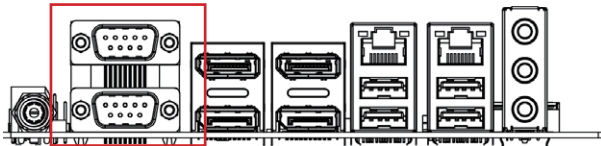
2.2.3 DP3_4, DP1_2 (Display ports)

3



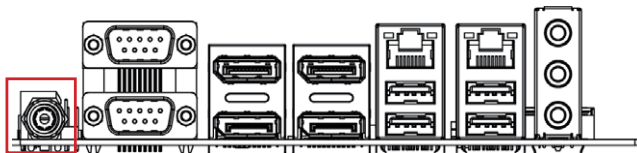
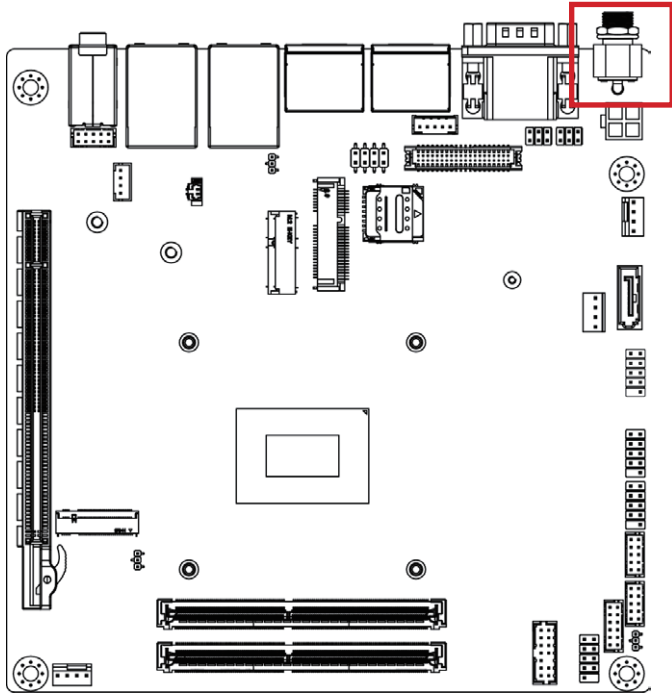
2.2.4 COM1_2 (Serial ports)

4



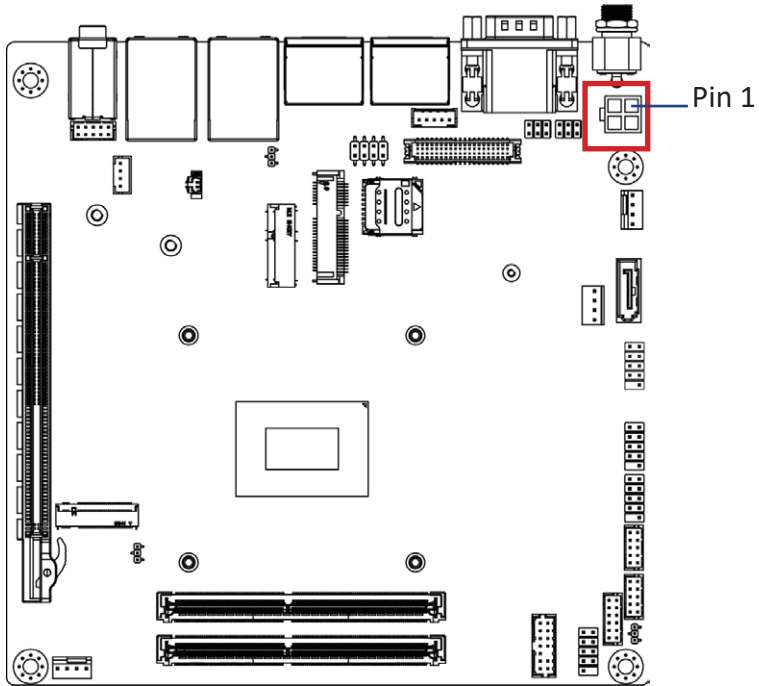
2.2.5 DC_IN (DC In JACK Connector)

5



2.2.6 DC_IN2 (ATX 2x2 pin power connector)

6



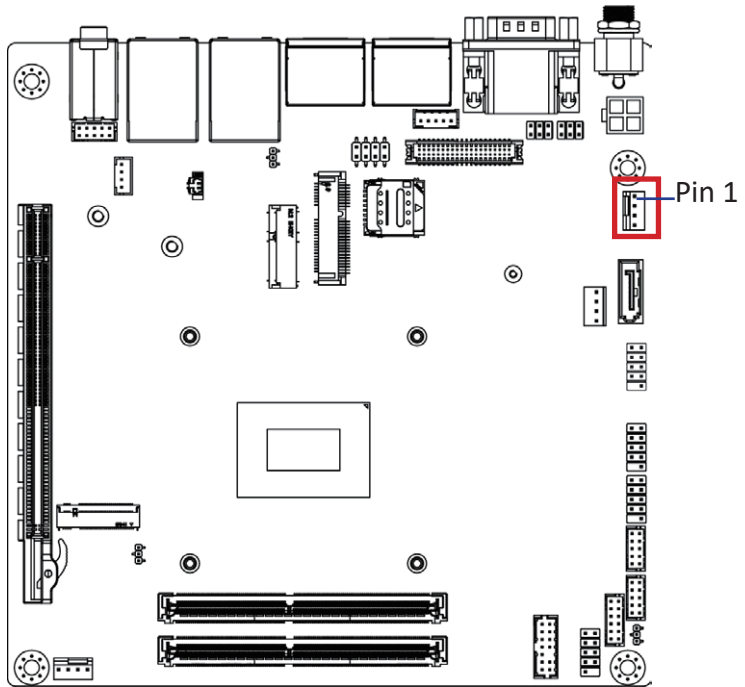
Power Connector	
3	1
4	2

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

Pin No.	Definition
1	GND
2	GND
3	+12V ~ +24V
4	+12V ~ +24V

2.2.7 SYS_FAN (System Fan Connector)

7



System FAN

1



4

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

Connector PN

744-81-045R11

WF04R22RJQ105

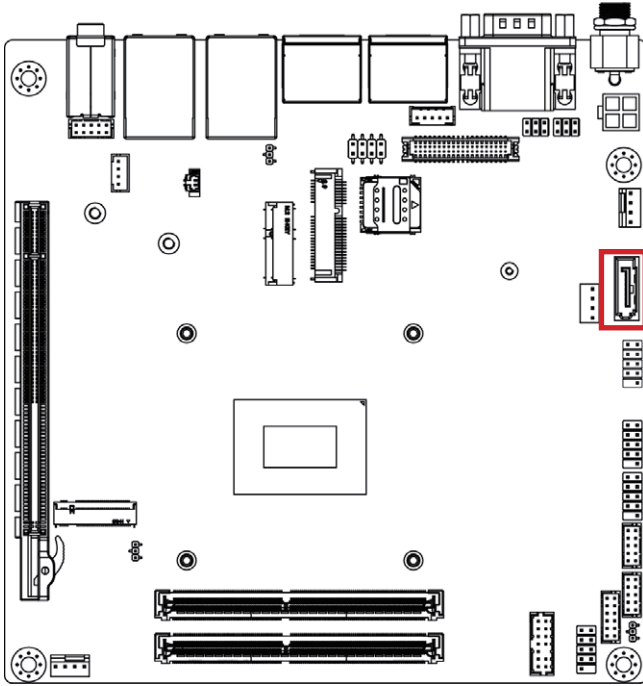
Vendor

PINREX

HORNGTONG

2.2.8 SATA1 (SATA 6GB/S Connector)

8

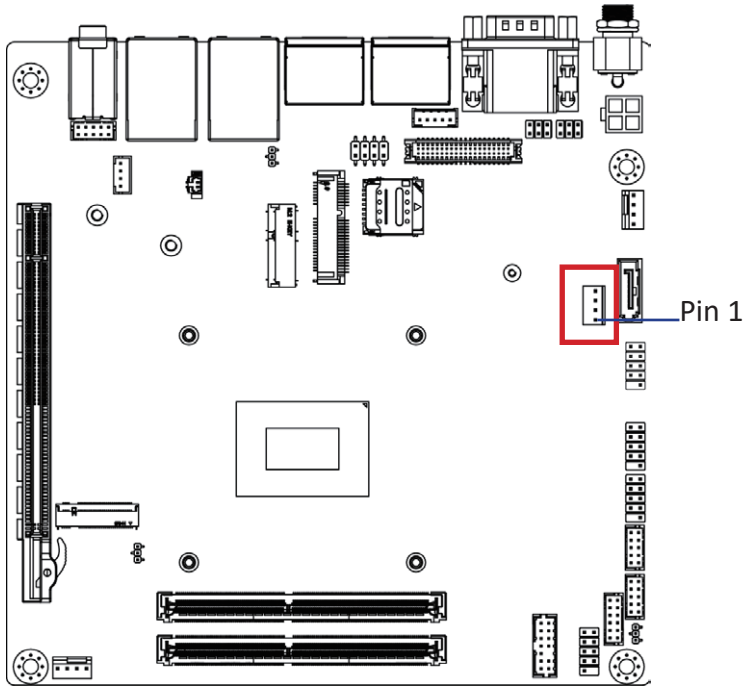


SATA Connector			
Pin No.	Definition	Pin No.	Definition
1	GND	2	A+
3	A-	4	GND
5	B-	6	B+
7	GND		

SATAIII_1,SATAIII_0	
Connector PN	Vendor
WATM-07ABNB2BAUW3	WINWIN
770-83-07SW19	PINREX
SATAIII_2	
Connector PN	Vendor
ASAT0014-P008C	LOTES

2.2.9 SATAPW1 (SATA 6GB/S Power Connector)

9



Hard Disk Power Connector



Pin No.	Definition
1	12V
2	GND
3	GND
4	5V

Connector PN

Vendor

743-81-04TW00

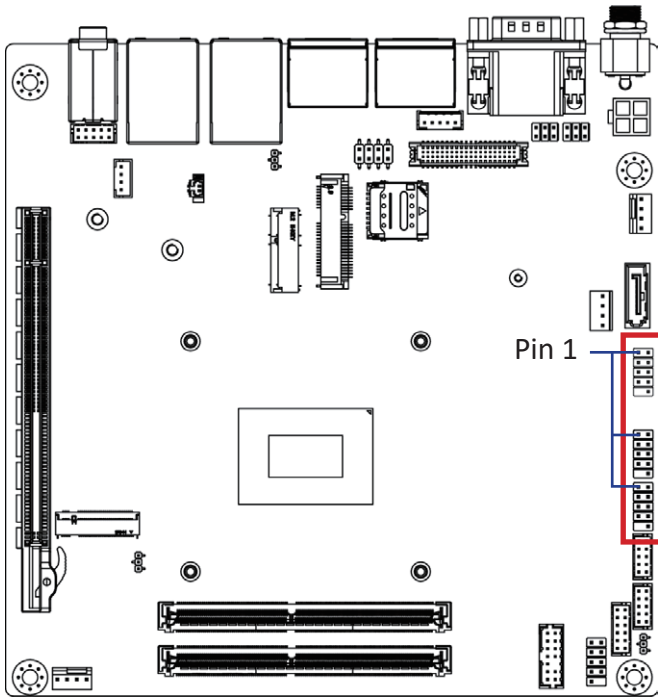
PINREX

WF04Q2-3BJQ000

HORNGTONG

2.2.10 F_USB2_3, F_USB2_1, F_USB2_2 (USB 2.0 header)

10



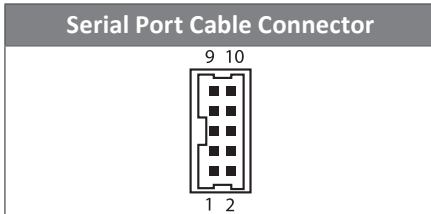
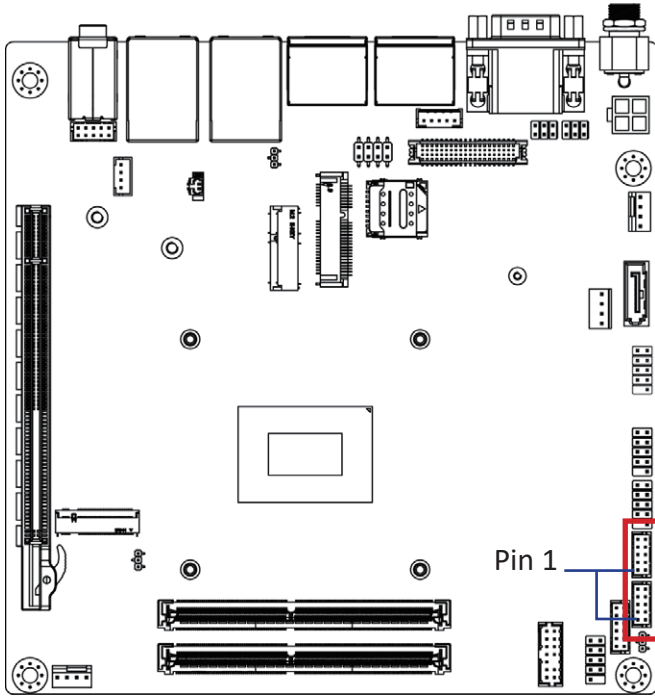
USB 2.0 Header	
Pin No.	Definition
1	5V
2	5V
3	DX-
4	DY-
5	DX+

Pin No.	Definition
6	DY+
7	GND
8	GND
9	No Pin
10	No Connect

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

2.2.11 COM3, COM4 (Serial Port header)

11

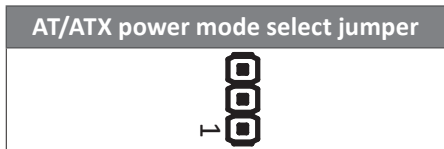
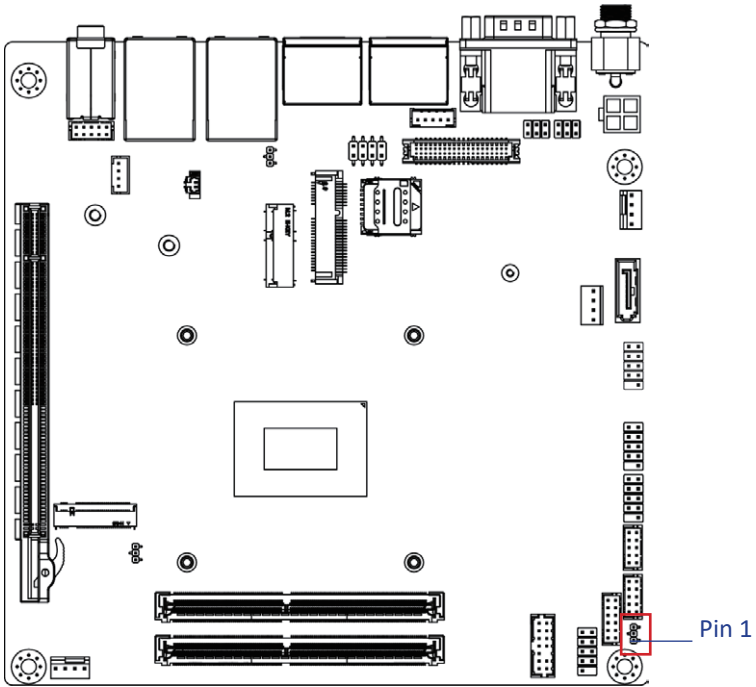


Connector PN	Vendor
725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

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

2.2.12 AT_CN (AT/ATX power mode select jumper)

12



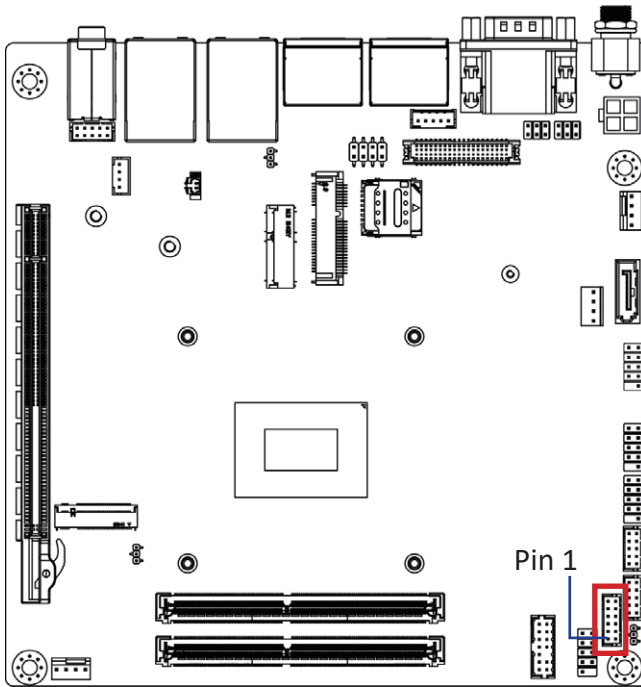
Connector PN	Vendor
PH03N33BAAA00	HORNGTONG

Pin No.	Definition
1	AT MODE
2	Detect
3	ATX MODE

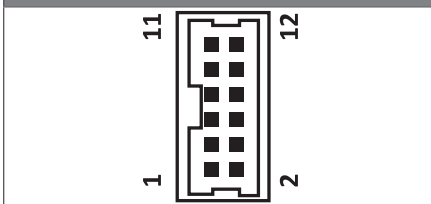
Jumper setting
 1-2 Close : AT mode.
 2-3 Close : ATX mode. (Default setting)

2.2.13 GPIO_CNT (General purpose input/output connector)

13



GPIO Connector



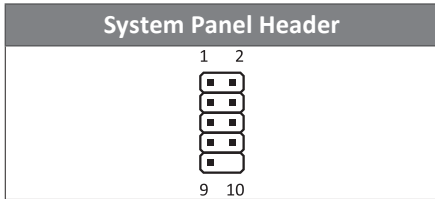
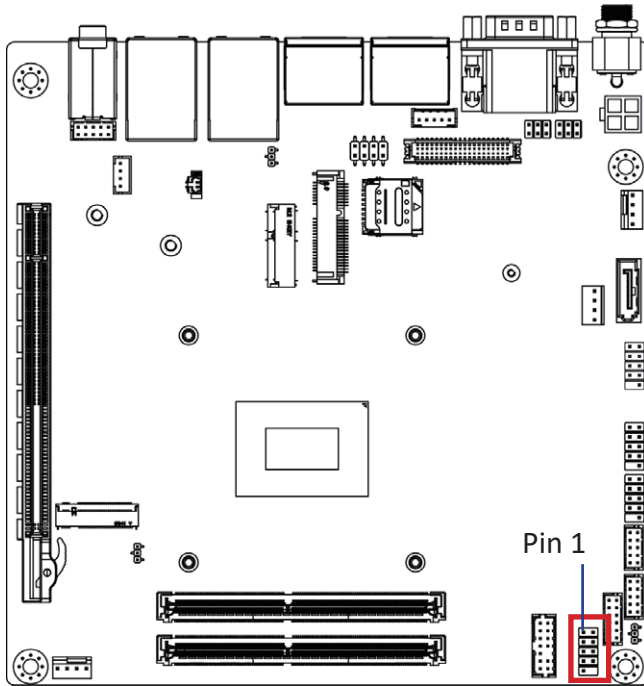
Pin No.	Definition
1	GPO1
2	GPI1
3	GPO2
4	GPI2
5	GPO3
6	GPI3

Pin No.	Definition
7	GPO4
8	GPI4
9	SMB_CLK
10	SMB_DATA
11	5V
12	GND

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

2.2.14 SYS_PANEL (Front Panel Header)

14

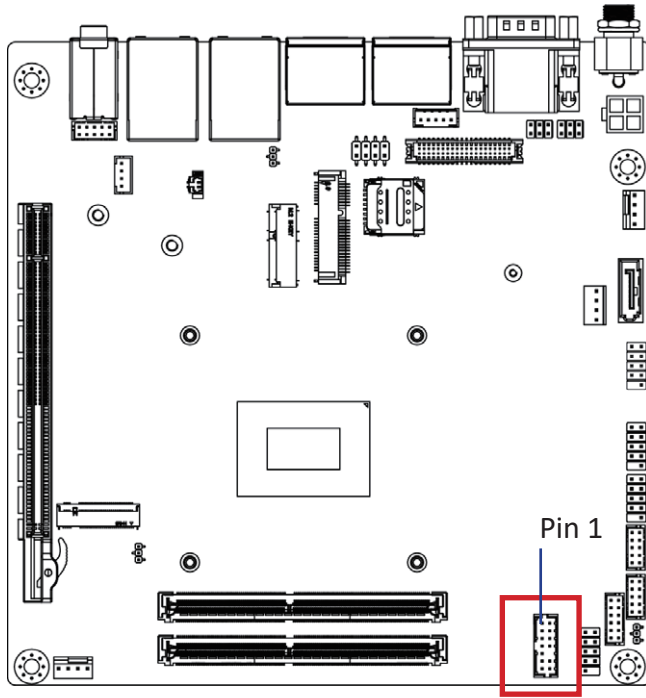


Connector PN	Vendor
210-92-05G111	PINREX

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

2.2.15 TPM_LPC (Trusted Platform Module Connector)

15



TPM Module Connector



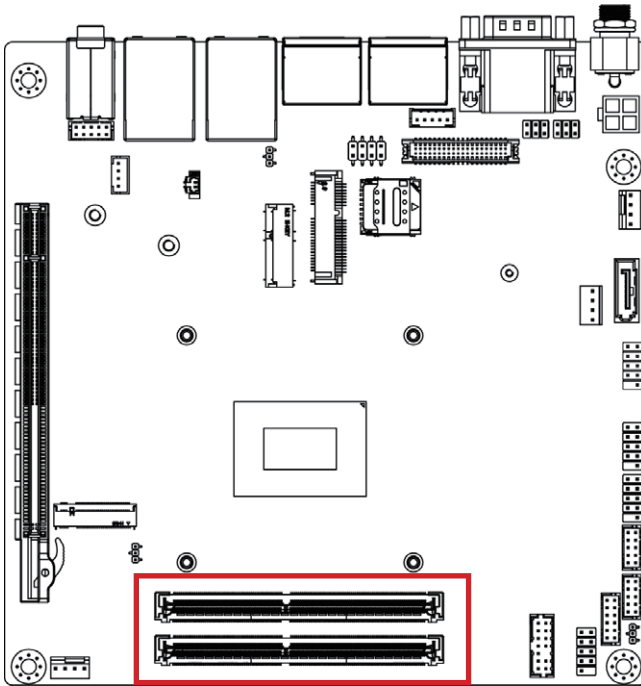
Pin No.	Definition
1	LPCCLK
2	3VDUAL
3	TPM RST
4	VCC3
5	LAD0
6	IRQ_SERIAL
7	LAD1
8	TPM_DET
9	LAD2
10	NC

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

Connector PN	Vendor
52M-90-14GBE7	PINREX

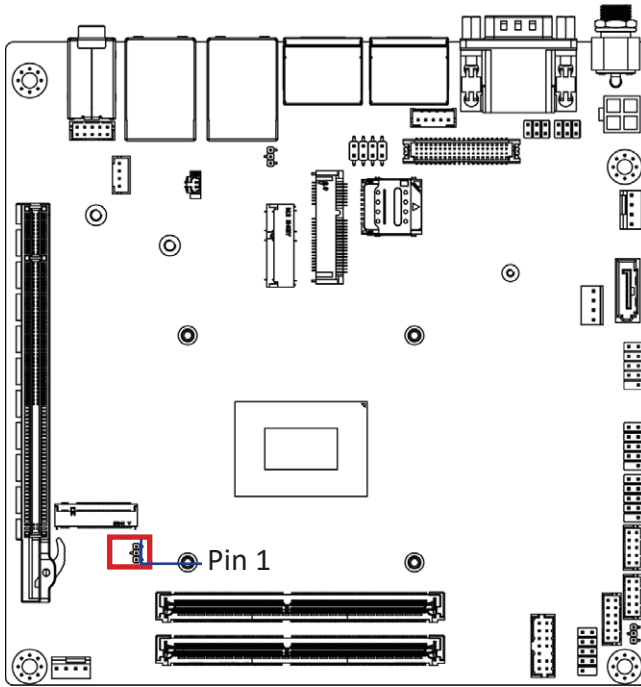
2.2.16 SODIMM1, SODIMM2 (DDR4 SO-DIMM slot#1/ slot#2)

16



2.2.17 CLR_CMOS (Clear CMOS jumper)

17



Clear COMS Jumper



Connector PN

210-91-02GB01
PH02R23BAZ000

Vendor

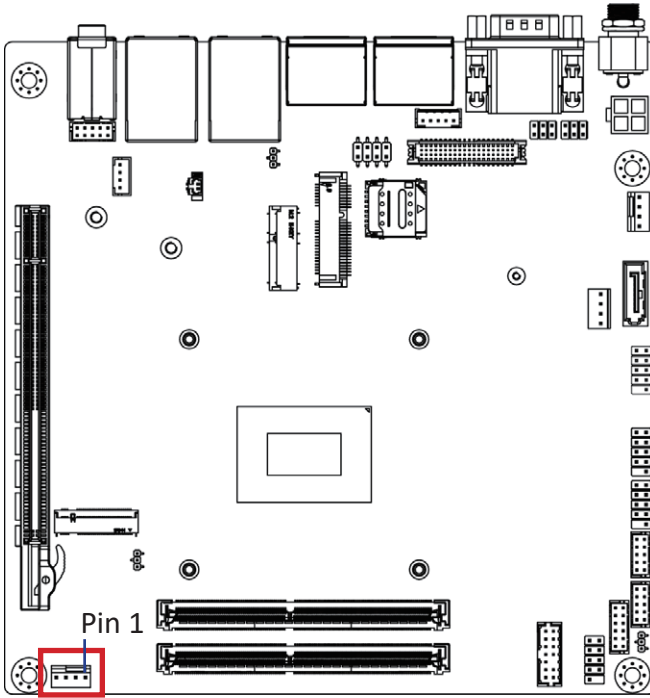
PINREX
HORNGTONG


Pin No. Definition

Pin No.	Definition
1	GND
2	RTCVDD_C
3	No Connect
1-2 Close: Clear COMS data. 2-3 Close: Normal Operator (Default setting)	

2.2.18 CPU_FAN (CPU fan connector)

18



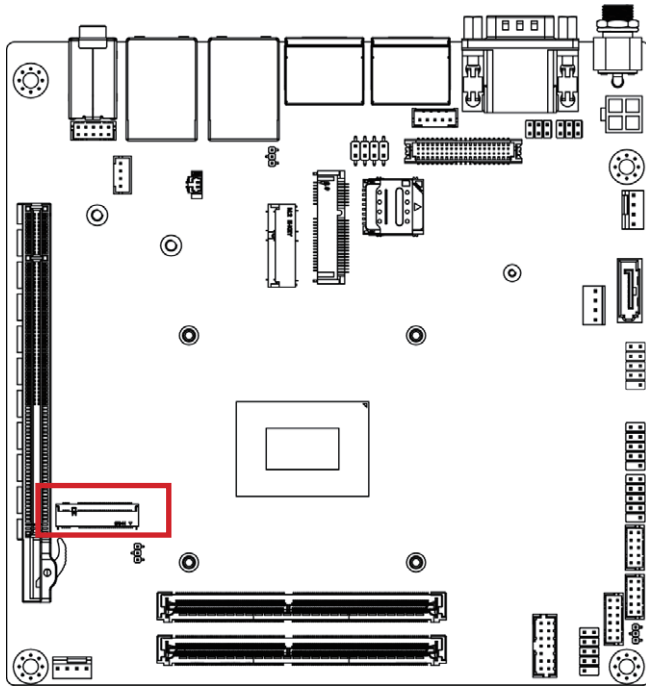
CPU FAN	
4	 1

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

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

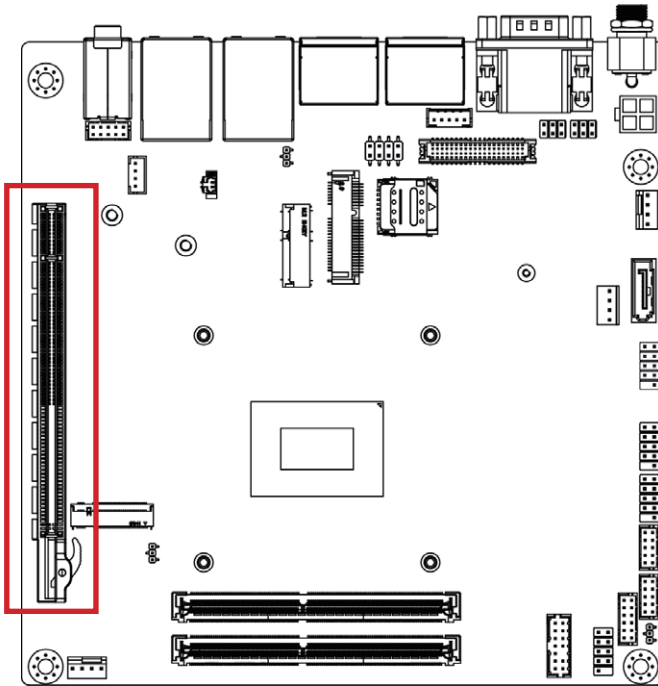
2.2.19 M2M (M.2 M-key)

19



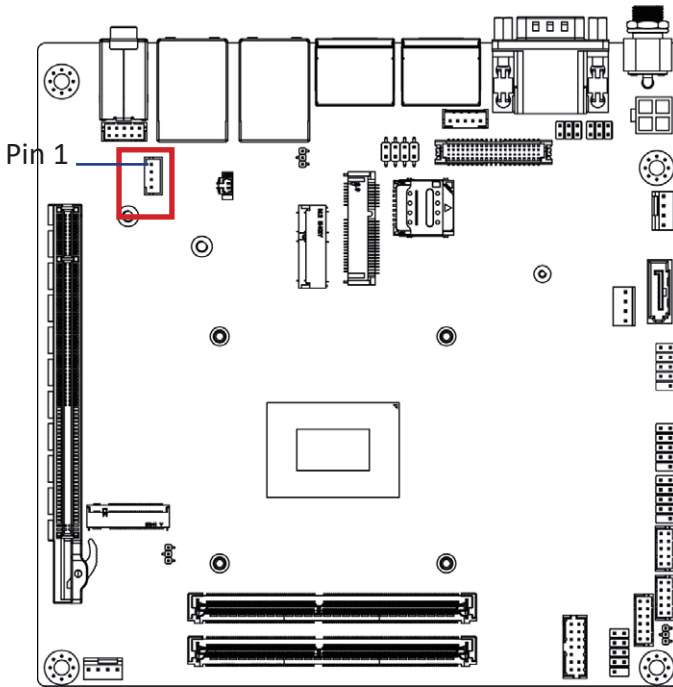
2.2.20 PCIEX16 (PCIe x16 slot)

20



2.2.21 SPK_OUT (Speaker out Connector)

21



Audio Amplifie Connector



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

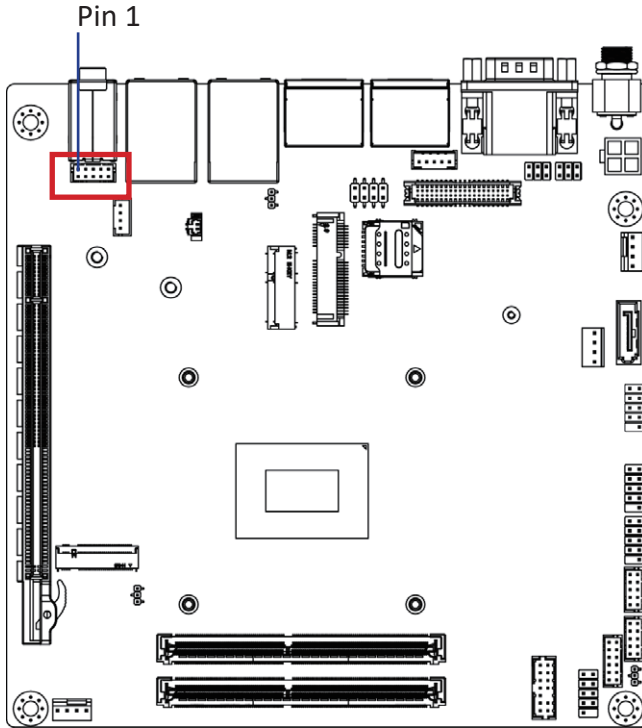
Connector PN

Vendor

721-81-045W00	PINREX
A2001WV-04P146	JOINT-TECH

2.2.22 F_Audio (Front audio header)

22



Front Audio Connector



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

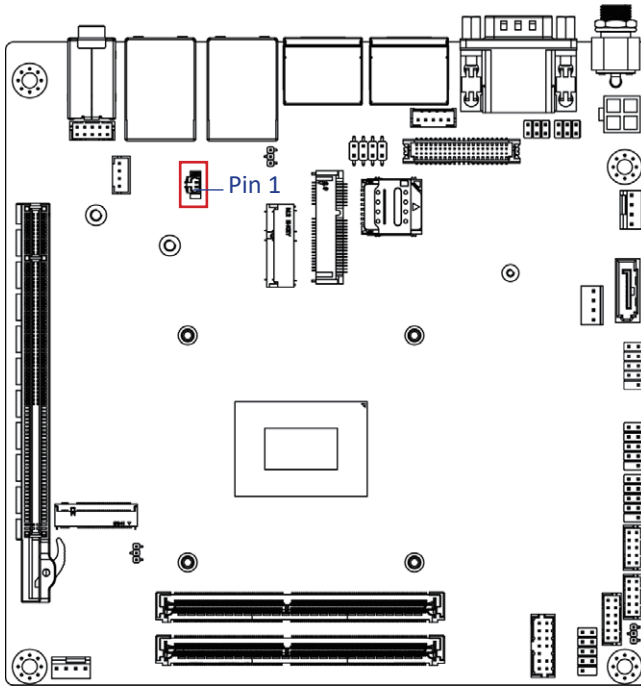
Connector PN

Vendor

725-81-10TW00	PINREX
A2004WV-2X05P46	JOINT-TECH

2.2.23 BAT (Battery Cable connector)

23



Battery Cable Connector



Connector PN

85205-0270L

Vendor

ACES

A1250WV-S-02PC

JOINT-TECH

Pin No.

Definition

1

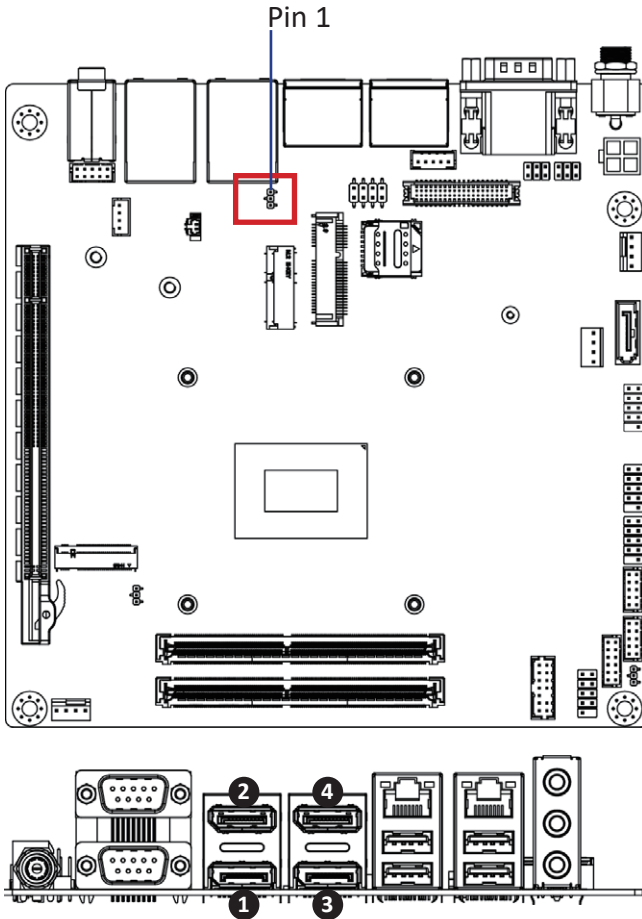
3.3V

2

GND

2.2.24 LVDS_DP (LVDS/DP jumper)

12



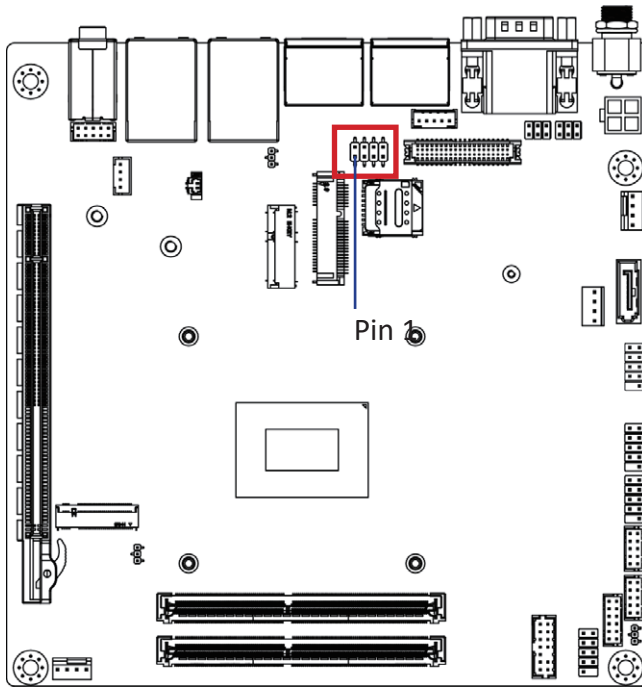
LVDS_DP Jumper	

Connector PN	Vendor
200-72-PBGB03	PINREX

Pin No.	Definition
1	No Connect
2	GPU_SEL
3	GND
1-2 Close: DP4 DP Mode (Default)	
2-3 Close: DP4 LVDS Mode	

2.2.25 LSW (LVDS resolution jumper)

27

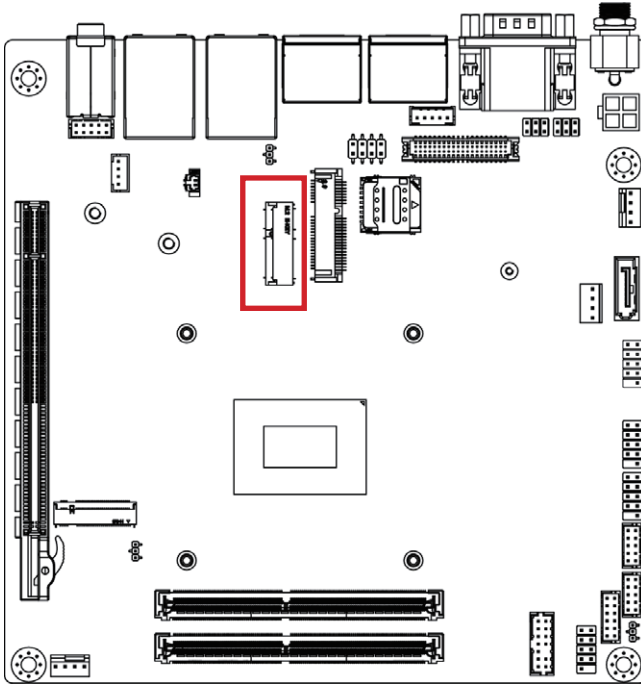


LVDS Resolution Jumper			
Jumper Setting	Resolution	Jumper Setting	Resolution
	800 x 600 18bit		1366 x 768 24bit
	1024 x 768 18bit		1440 x 900 24bit
	1024 x 768 24bit		1400 x 1050 24bit
	1024 x 600 18bit		1600 x 900 24bit
	1280 x 800 18bit		1680 x 1050 24bit
	1280 x 960 18bit		1600 x 1200 24bit
	1280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

Connector PN	Vendor
222-97-04GBE1	PINREX

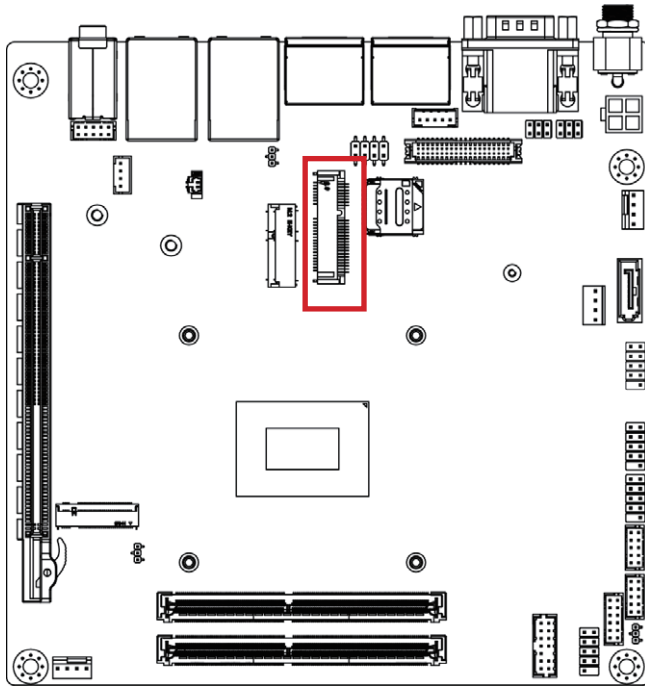
2.2.26 M2E (M.2 E-key)

27



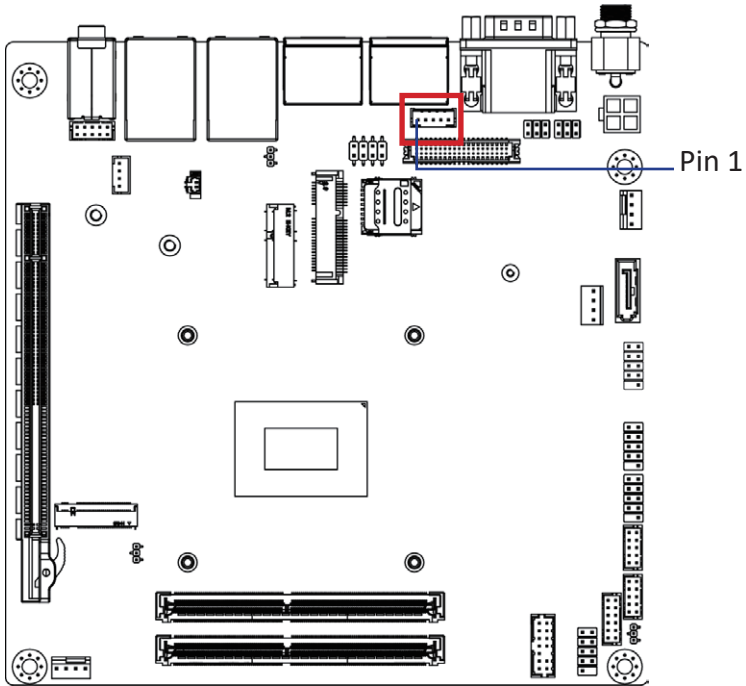
2.2.27 MPCIE (Mini PCI-E)

27



2.2.28 BKL_CN (Back light brightness control connector)

28



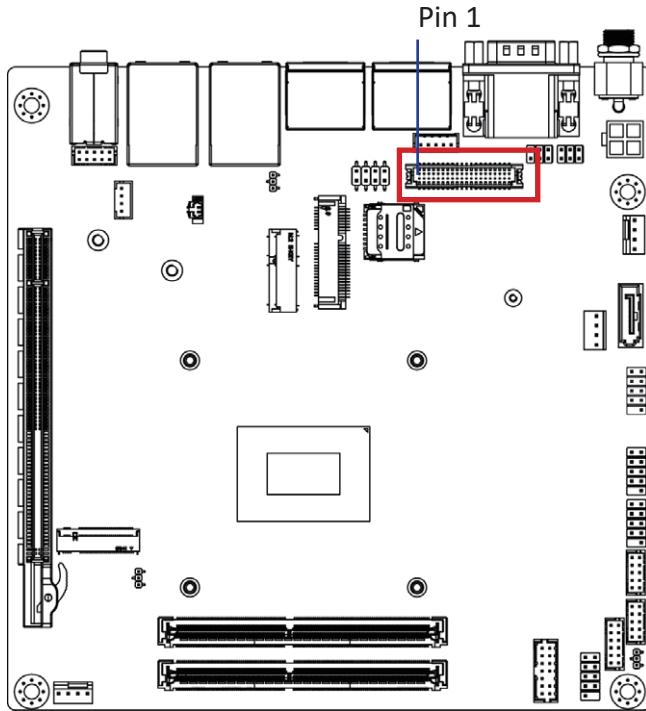
Back light brightness control connector

Connector PN	Vendor
85205-0270L	ACES
A1250WV-S-02PC	JOINT-TECH

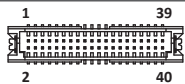
Pin No.	Definition
1	5V
2	PWM
3	Back Light Enable
4	GND
5	12V

2.2.29 LVDS (LVDS connector)

29



LVDS Connector



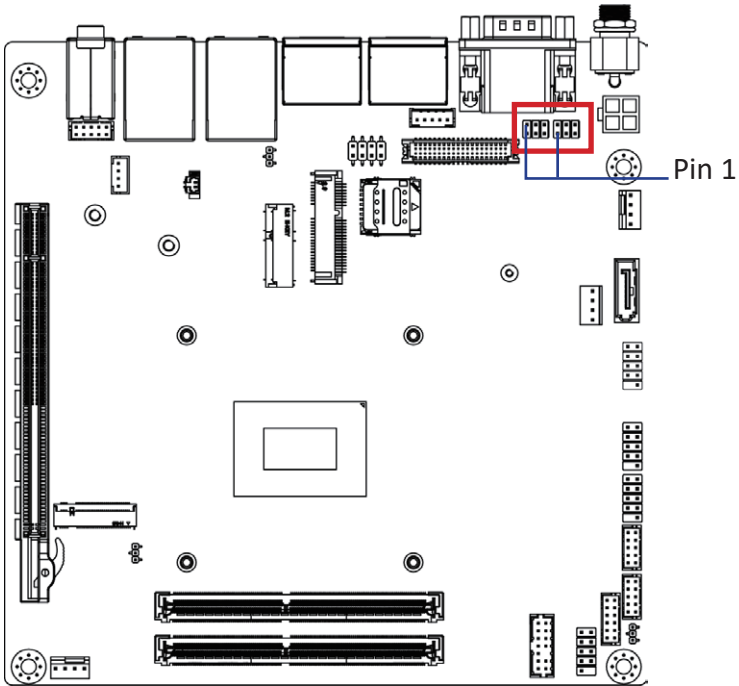
Pin No.	Definition	Pin No.	Definition
1	3.3V	21	A5+
2	5V	22	A4+
3	3.3V	23	A5-
4	5V	24	A4-
5	SPE0	25	GND
6	SPED0	26	GND
7	GND	27	A7+
8	GND	28	A6+
9	A1+	29	A7-
10	A0+	30	A6-

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

2.2.30 JCOM1, JCOM2 (COM1 & COM2 RI# pin RI#/5V/12V Select)

30



JCOM1, JCOM2 Jumper	
	1-2 Close: 5V (Power COM)
	3-4 Close: RI (Stand COM)(Default)
	5-6 Close: 12V (Power COM)

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

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