

EMX-CDD

Intel® Atom™ D2550 Process + NM10 Chipset
Mini ITX Motherboard

Quick Installation Guide



1st Ed – 23 August 2013

FCC Statement



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at:

<http://www.avalue.com.tw/>

1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

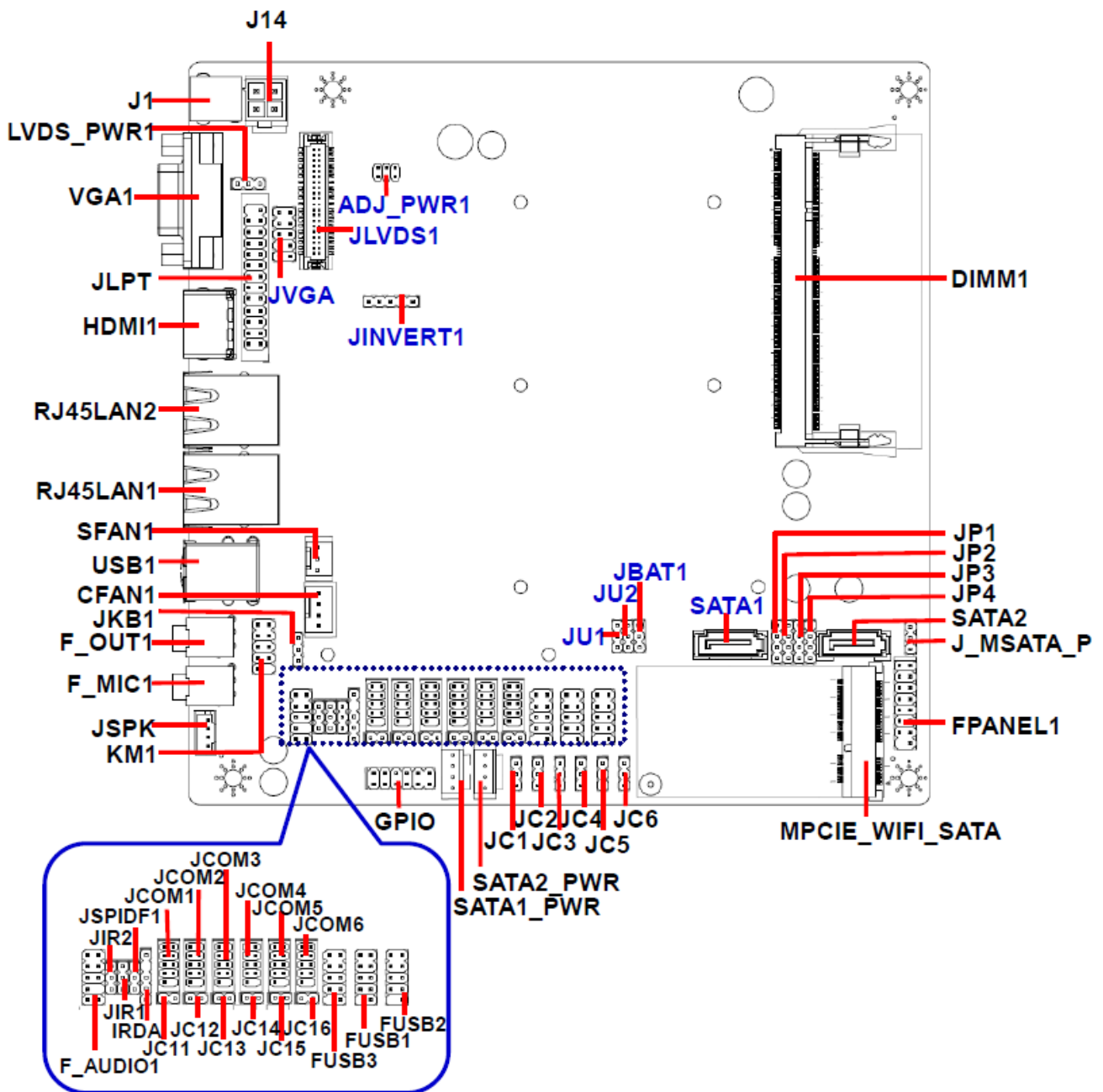
1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- Quick Installation Guide X 1
- Driver/Utility CD X 1
- Serial ATA Signal Cable X 1
- Serial ATA Power Cable X 1
- Screw X 2
- Motherboard X 1

2. Hardware Configuration

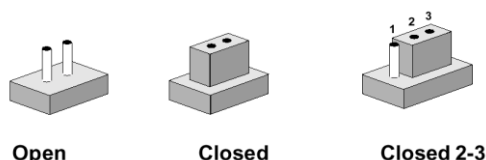
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board’s jumpers and connectors.

Jumpers

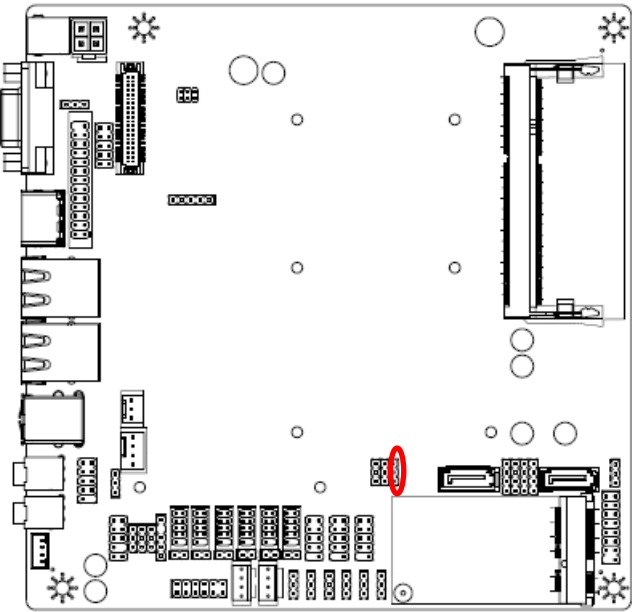
Label	Function	Note
LVDS_PWR1	Jumper for LVDS PWR selection	1 x 3 header, pitch 2.54 mm
JP1~4	Jumper for MPCIE_WIFI_SATA	1 x 4 header, pitch 2.54 mm
ADJ_PWR1	Jumper for inverter power	2 x 3 header, pitch 2.00 mm
JKB1	Keyboard power select jumper	1 x 3 header, pitch 2.54 mm
JIR1~2	Jumper for COM2, IR selection	1 x 3 header, pitch 2.54 mm
JC1~6	Jumper for Serial port 1~6 selection	1 x 3 header, pitch 2.54 mm
JC11~16	Serial port 1~6 – RI, USE JC1~6 PIN 9 selector	1 x 2 header, pitch 2.54 mm
JU1~2	Jumper for FUSB2, MINIPCIE selection	1 x 3 header, pitch 2.54 mm
JBAT1	Clear CMOS	1 x 3 header, pitch 2.54 mm
J_MSATA_P	Jumper for MSATA PWR selection	1 x 3 header, pitch 2.54 mm

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Connectors		
Label	Function	Note
FPANEL1	Front Panel Switches	2 x 8 header, pitch 2.54 mm
MPCIE_WIFI_SATA	PCIE signal selector	
HDMI1	HDMI connector	
J1	ATX power connector for DC 12V input	
JSPK	Speaker connector	1 x 4 wafer, pitch 2.00 mm
J14	DC power-in connector	2 x 2 header, pitch 4.20 mm
JCOM1~6	Serial port 1~6 connector	2 x 5 header, pitch 2.00 mm
GPIO	General Purpose I/O	2 x 6 header, pitch 2.54 mm
JLVDS1	LVDS connector	2 x 20 wafer, pitch 1.25 mm
SATA1~2	Serial ATA connector 1~2	
SATA1~2_PWR	SATA Power connector 1~2	1 x 4 header, pitch 2.54 mm
F_MIC1	Mic-in audio jack	3.5mm phone jack
F_OUT1	Line-out audio jack	3.5mm phone jack
RJ45LAN1~2	LAN port 1~2	
F_USB1~3	USB connector 1~3	2 x 5 header, pitch 2.54 mm
USB1	USB connector	
SFAN1	System Fan connector	1 x 3 wafer, pitch 2.54 mm
CFAN1	CPU Fan connector	1 x 4 wafer, pitch 2.50 mm
JLPT	Printer	2 x 12 header, pitch 2.54 mm
DIMM1	DDR3 SODIMM socket	
VGA1	VGA connector	
JVGA	VGA connector	2 x 5 header, pitch 2.54 mm
JINVERT1	Inverter connector	1 x 5 header, pitch 2.54 mm
KM1	Keyboard & Mouse connector	2 x 5 header, pitch 2.54 mm
F_AUDIO1	Front Panel Audio Connection Header	2 x 5 header, pitch 2.54 mm
JSPIDF1	Sony/Philips Digital Interface	1 x 5 header, pitch 2.54 mm
IRDA	IRDA connector (not supported)	1 x 5 header, pitch 2.00 mm

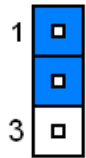
2.3 Setting Jumpers & Connectors

2.3.1 Clear CMOS (JBAT1)

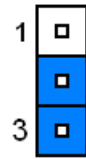


* Default

Normal*

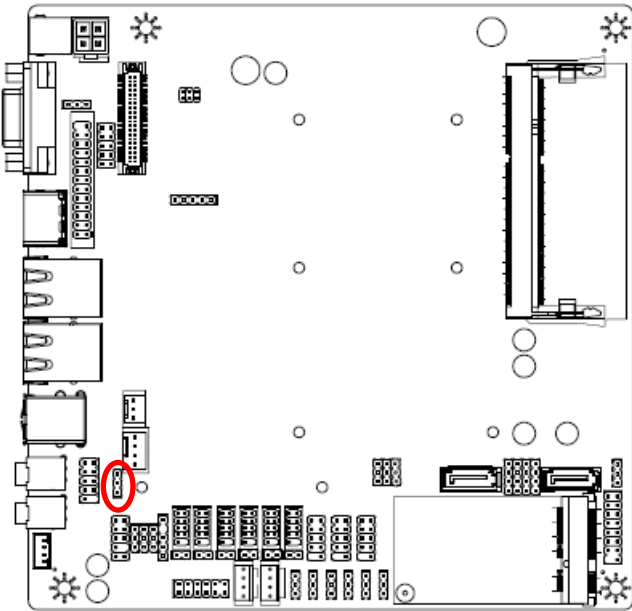


Clear CMOS



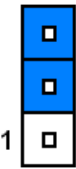
Pin	Define
1-2	Normal
2-3	Clear CMOS

2.3.2 Keyboard power select jumper (JKB1)

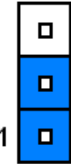


* Default

Disabled*



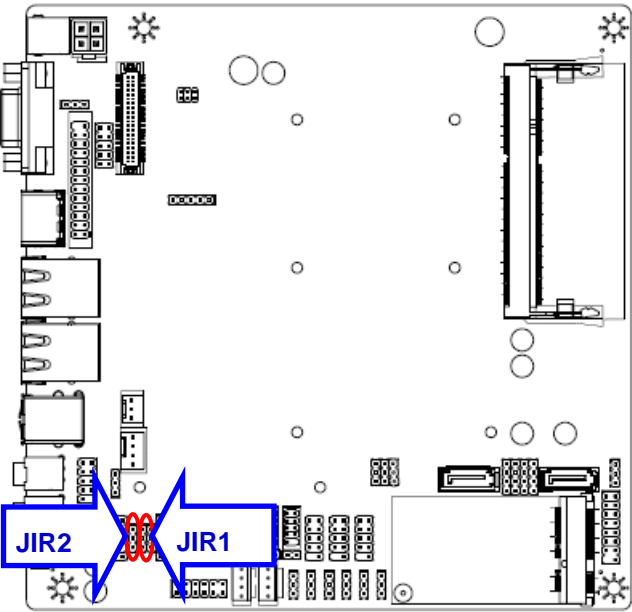
Enabled



Pin	Define
1-2	Disabled
2-3	Enabled

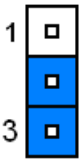
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2.3.3 Jumper for COM2, IR selection (JIR1~2)

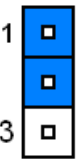


* Default

IR*



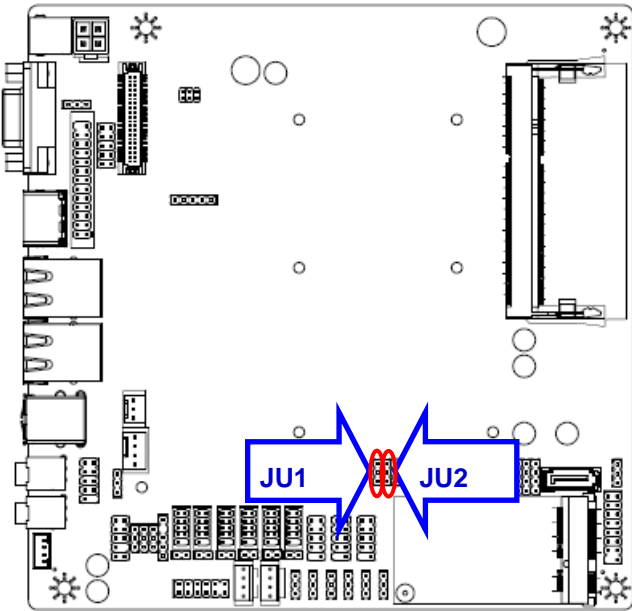
COM



Pin	Define
1-2	COM
2-3	IR

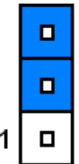
Note: IR is not functional.

2.3.4 Jumper for FUSB2, MINIPCIE selection (JU1~2)

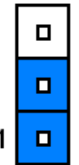


* Default

FUSB2*



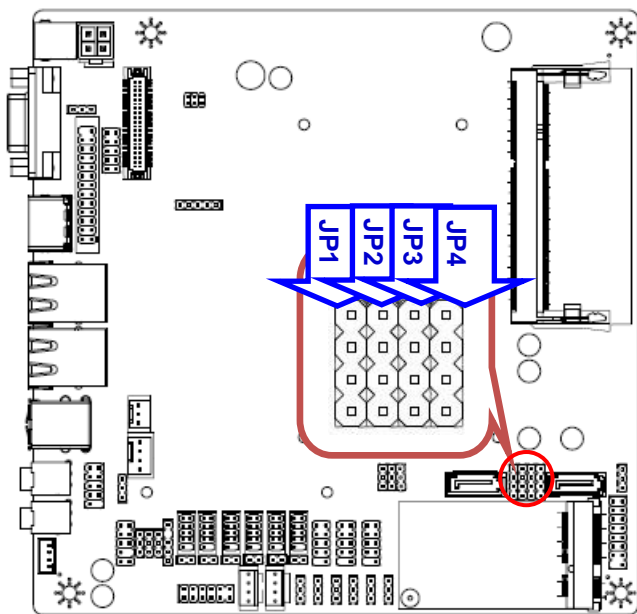
MINIPCIE



Pin	Define
1-2	FUSB2
2-3	MINIPCIE

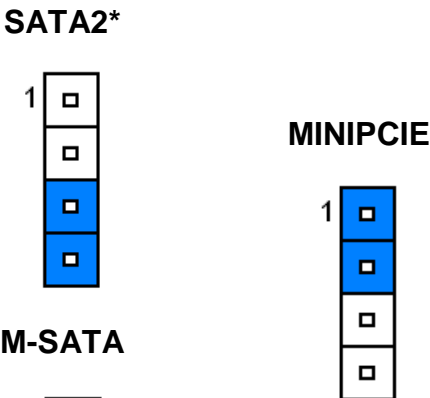
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2.3.5 Jumper for MPCIE_WIFI_SATA (JP1~4)



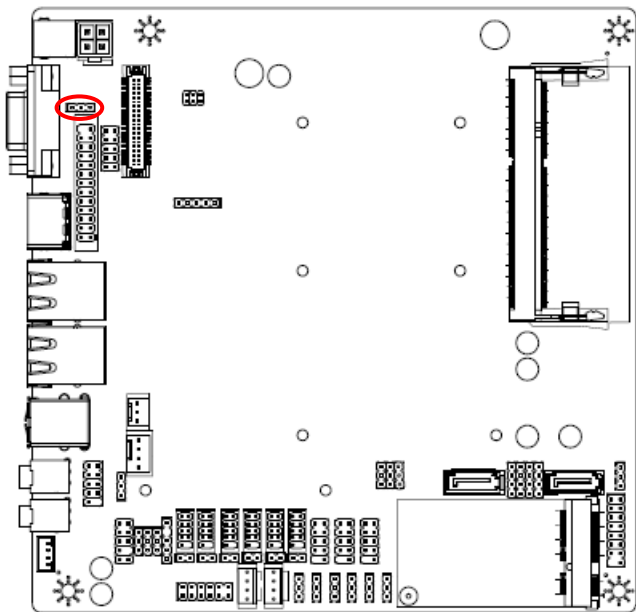
* Default

Note: SATA 2 bond together with M-SATA, it can only work either way at one time.

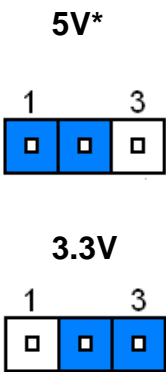


PIN	Define
1-2	MINIPCIE
2-3	M-SATA
3-4	SATA2

2.3.6 Jumper for LVDS power (LVDS_PWR1)



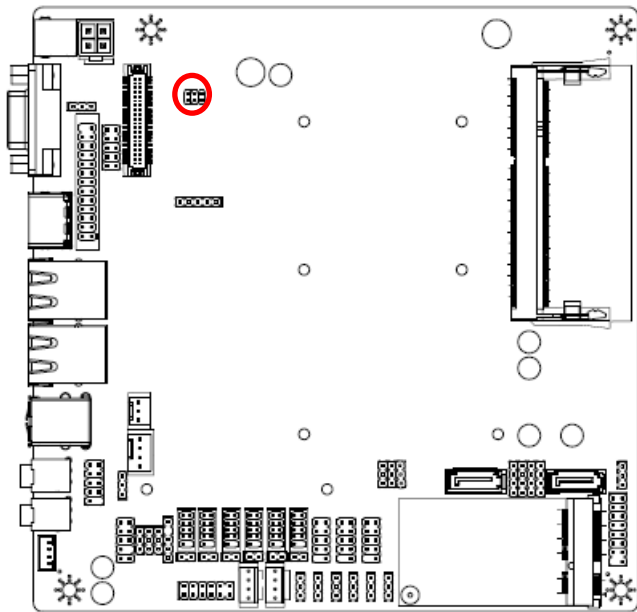
* Default



Pin	Define	Max current
1-2	5V	1A
2-3	3.3V	1A

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2.3.7 Jumper for inverter power (ADJ_PWR1)



* Default

5V*

1 5

5V

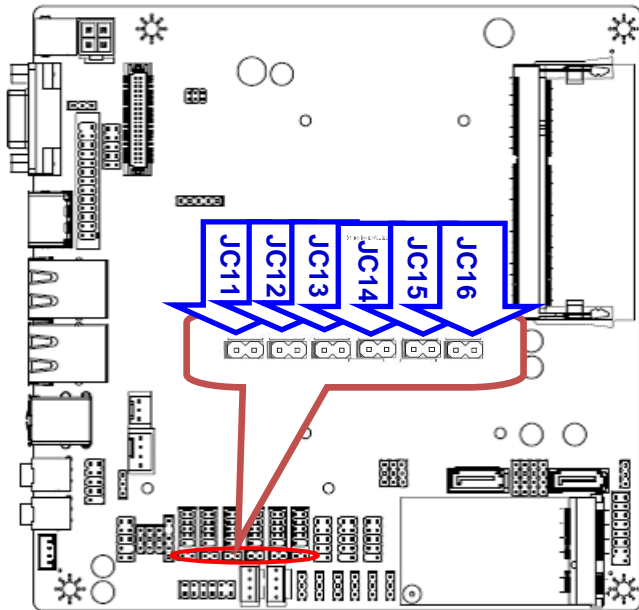
1 5

0

1 5

PIN	Define	Max current
1-2	5V	1A
3-4	5V	1A
5-6	0	1A

2.3.8 Serial port 1~6 – RI, USE JC1~6 PIN 9 selector (JC11~16)



* Default

RI*

1

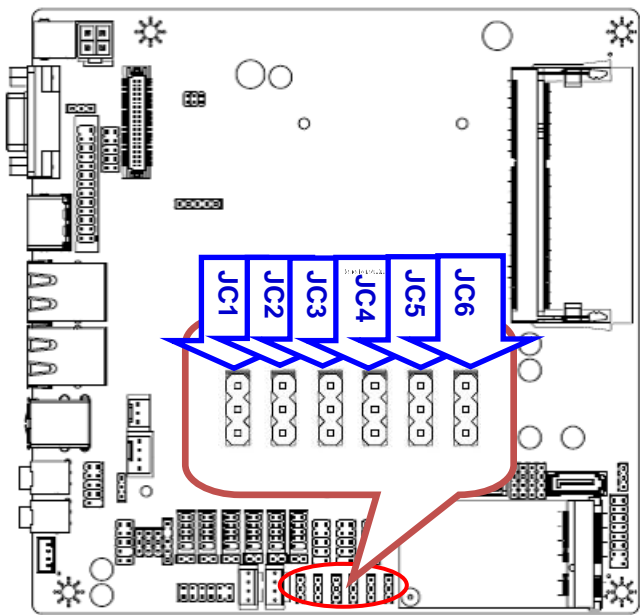
USE JC1_JC6

1

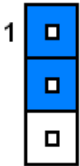
PIN Option	Define
CLOSE	RI
OPEN	USE JC_JC6

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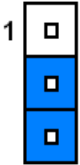
2.3.9 Jumper for Serial port 1~6 selection (JC1~6)



+5V

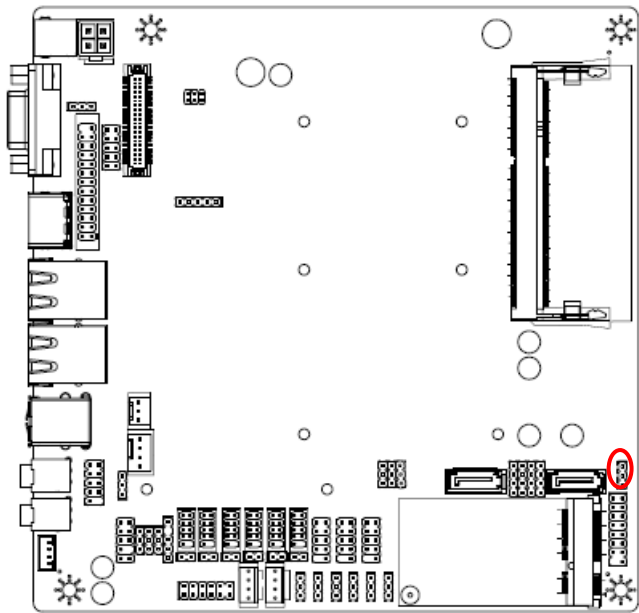


+12V

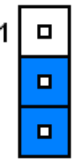


PIN	Define	Max current
1-2	+5V	1A
2-3	+12V	1A

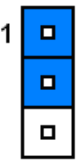
2.3.10 Jumper for MSATA PWR selection (J_MSATA_P)



M_PCIE*



M_SATA

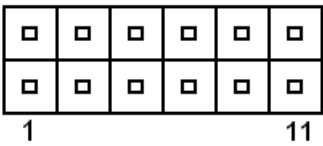
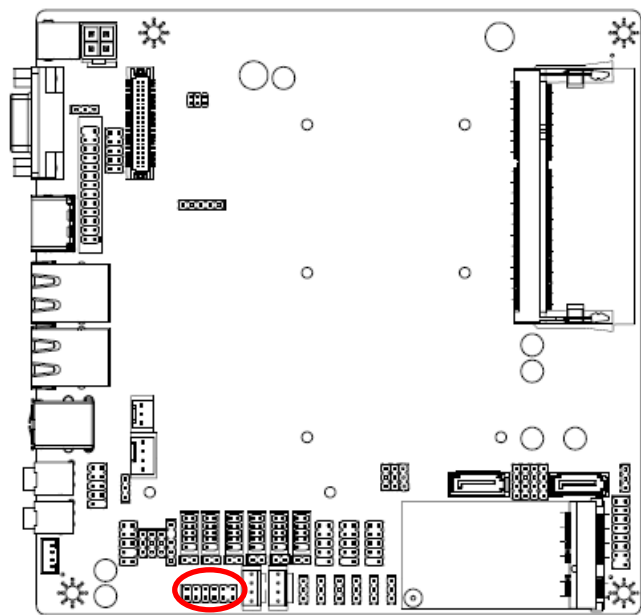


* Default

Pin	Define
1-2	M_SATA
2-3	M_PCIE

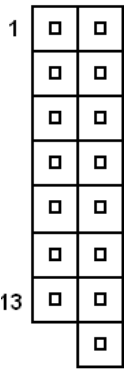
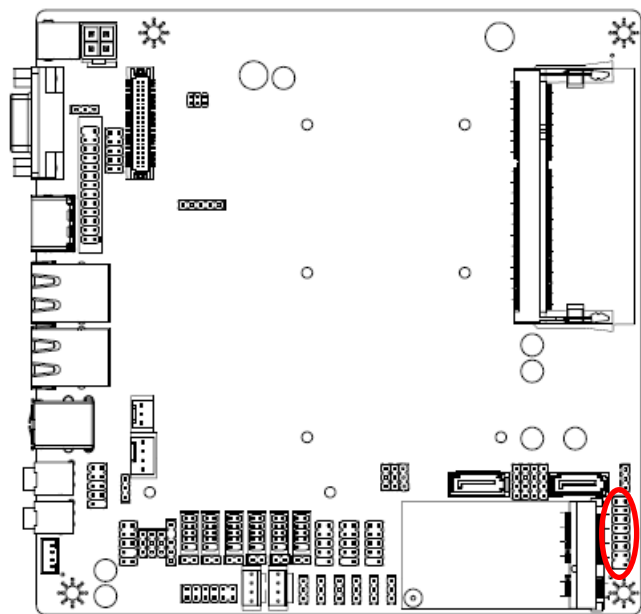
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2.3.11 General Purpose I/O (GPIO)



Signal	PIN	PIN	Signal
+5V	1	2	+12V
GPIO	3	4	GPIO
GPIO	5	6	GPIO
GPIO	7	8	GPIO
GPIO	9	10	GPIO
GND	11	12	GND

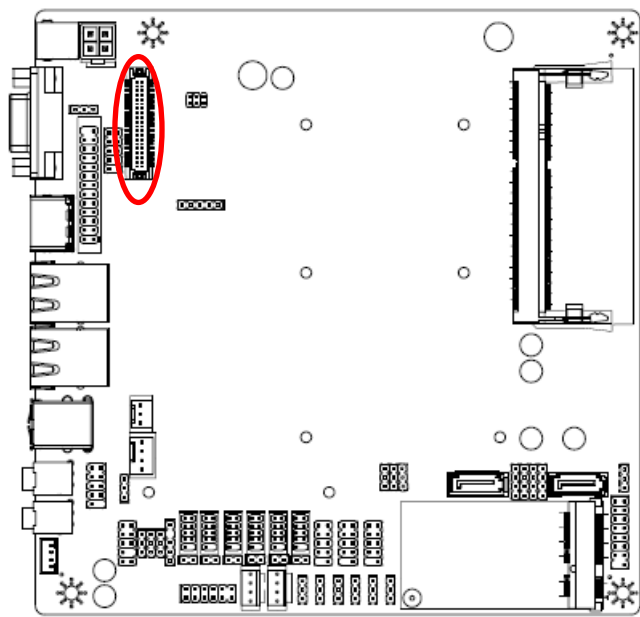
2.3.12 Front Panel Switches (FPANEL1)



Signal	PIN	PIN	Signal
5VSB	1	2	+HD_LED
+P_LED	3	4	-HD_LED
-P_LED	5	6	PS_ON
+SPEAK	7	8	-PS_ON
NC	9	10	RESET
NC	11	12	-RESET
-SPEAK	13	14	+SLPLED
		16	-SLPLED

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2.3.13 LVDS connector (JLVDS1)

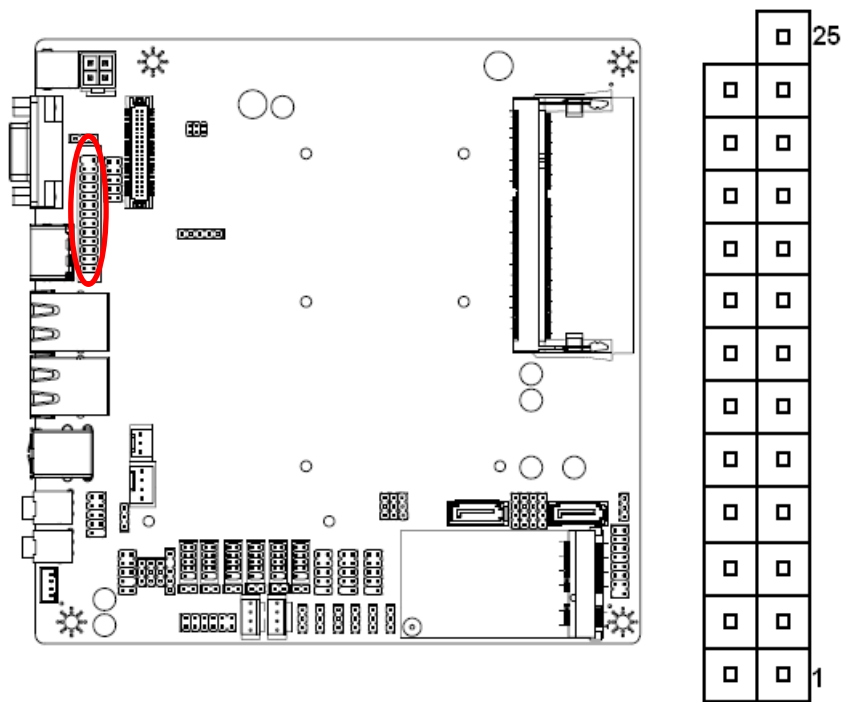


Signal	PIN	PIN	Signal
VDDPAEA	2	1	VDDPAEA
GND	4	3	GND
VDDPAEA	6	5	VDDPAEA
NC	8	7	LVDS0_N0
NC	10	9	LVDS0_P0
GND	12	11	GND
NC	14	13	LVDS0_N1
NC	16	15	LVDS0_P1
GND	18	17	GND
NC	20	19	LVDS0_N2
NC	22	21	LVDS0_P2
GND	24	23	NC
NC	26	25	LVDS0_CLKN
NC	28	27	LVDS0_CLKP
GND	30	29	GND
LVDS_DDCPDATA	32	31	LVDS_DDCPCLK
GND	34	33	GND
NC	36	35	LVDS0_N3
NC	38	37	LVDS0_P3
LVDS_VCON	40	39	NC

Note: Mapping connector DF13-40DS-1.25C
(1.0mm).

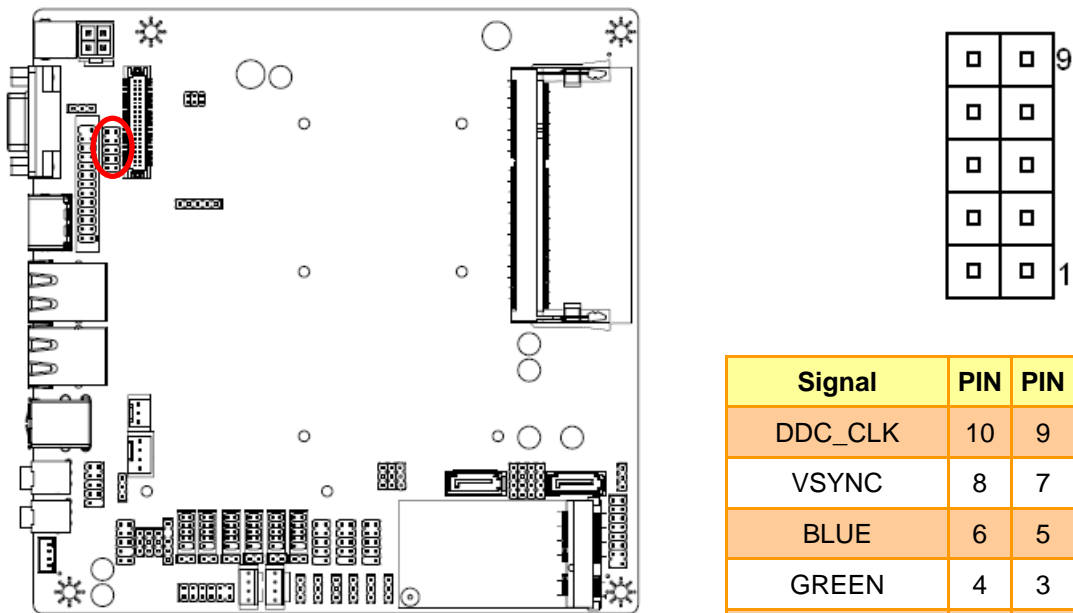
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2.3.14 Printer (JLPT)



Signal	PIN	PIN	Signal
		25	SLCT
GND	24	23	PE
GND	22	21	BUSY
GND	20	19	ACK
GND	18	17	PD7
GND	16	15	PD6
GND	14	13	PD5
GND	12	11	PD4
GND	10	9	PD3
SLIN	8	7	PD2
INIT	6	5	PD1
ERR	4	3	PD0
AFD	2	1	STB

2.3.15 VGA connector (JVGA)

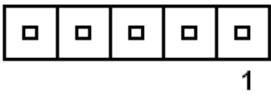
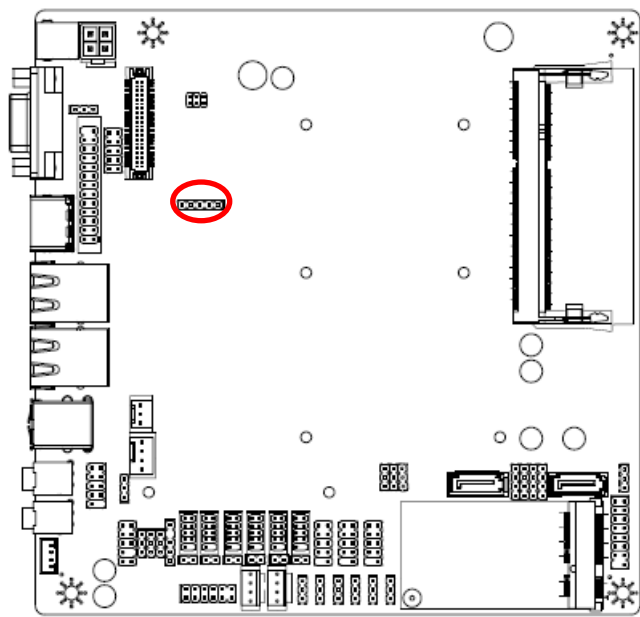


Signal	PIN	PIN	Signal
DDC_CLK	10	9	DDC_DATA
VSYNC	8	7	HSYNC
BLUE	6	5	GND
GREEN	4	3	GND
RED	2	1	GND

Note: It can only use either D-SUB connector or Pin Header.

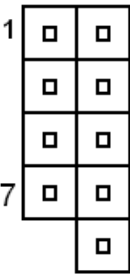
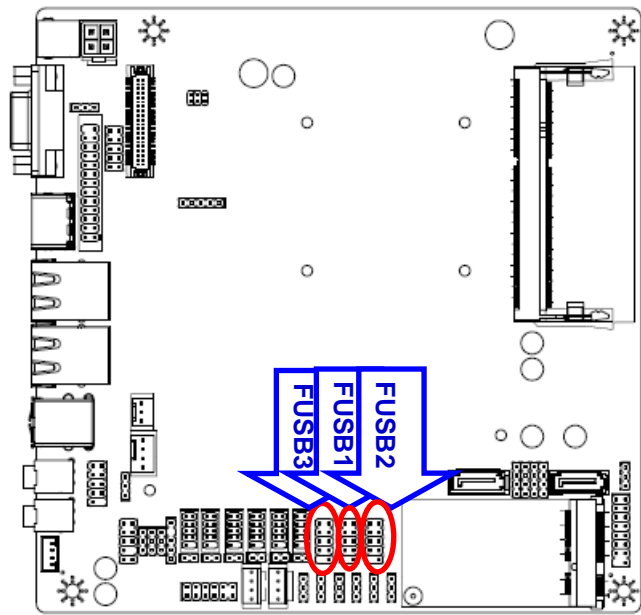
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2.3.16 Inverter connector (JINVERT1)



PIN	Signal	Max current
1	12V	1A
2	GND	
3	BLEN	
4	PWM	
5	5V	1A

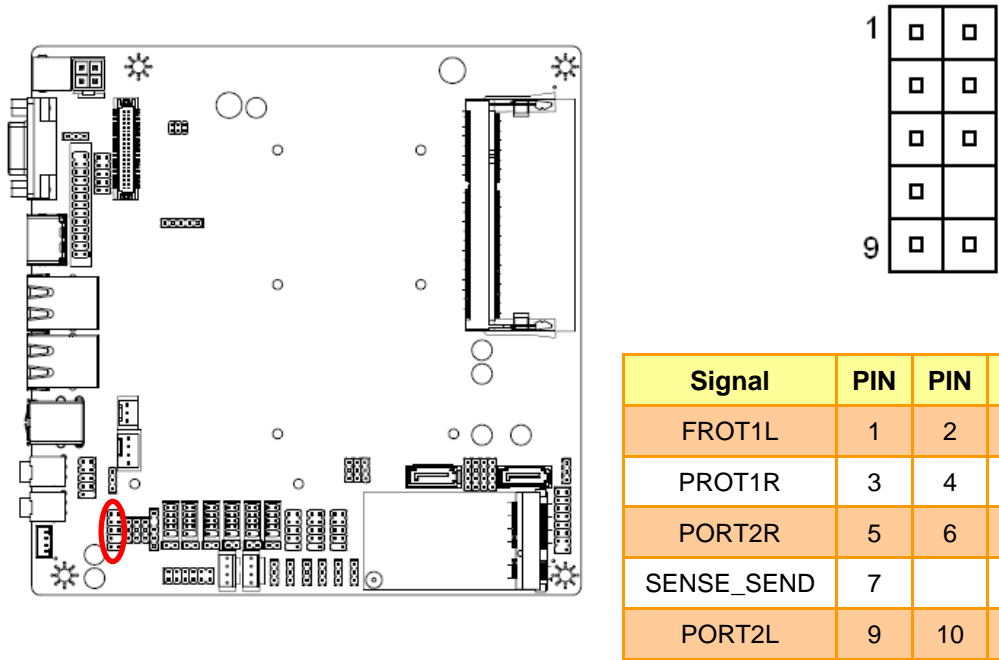
2.3.17 USB Connector 1~3 - USB2.0 (FUSB1~3)



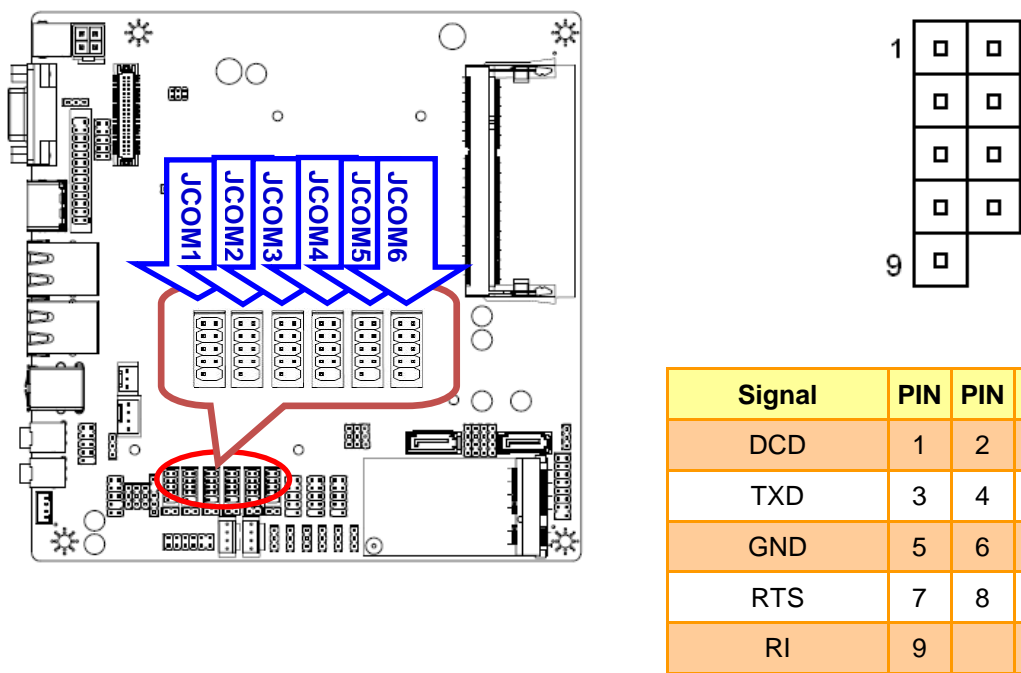
Signal	PIN	PIN	Signal
VCC	1	2	VCC
DATA-	3	4	DATA-
DATA+	5	6	DATA+
GND	7	8	GND
		10	GND

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2.3.18 Front Panel Audio Connection Header (F_AUDIO1)

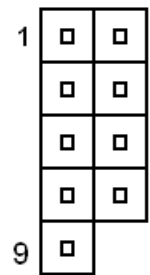
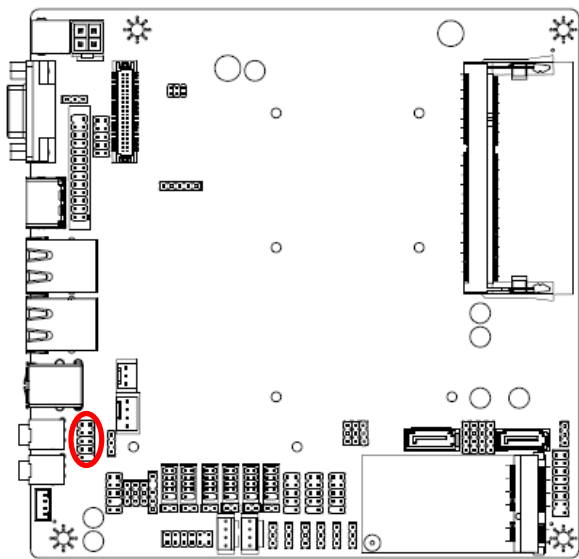


2.3.19 Serial port 1~6 connector (JCOM1~6)



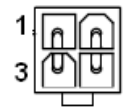
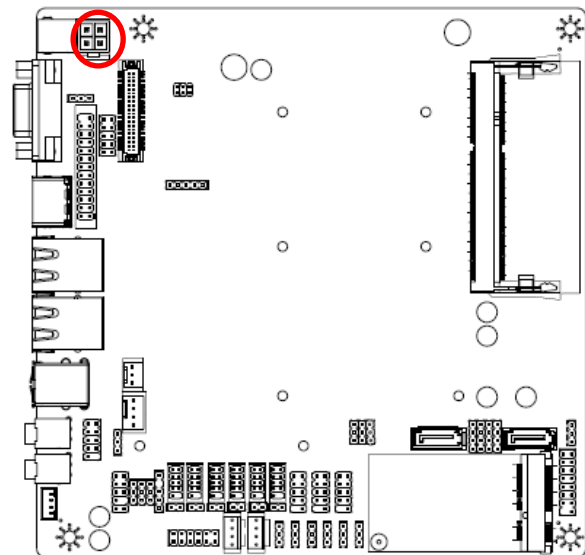
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2.3.20 Keyboard & Mouse connector (KM1)



Signal	PIN	PIN	Signal
MDT	1	2	KB_DATA
MCK	3	4	KB_CLK
GND	5	6	GND
VCC	7	8	VCC
KEY	9		

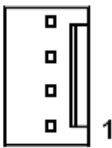
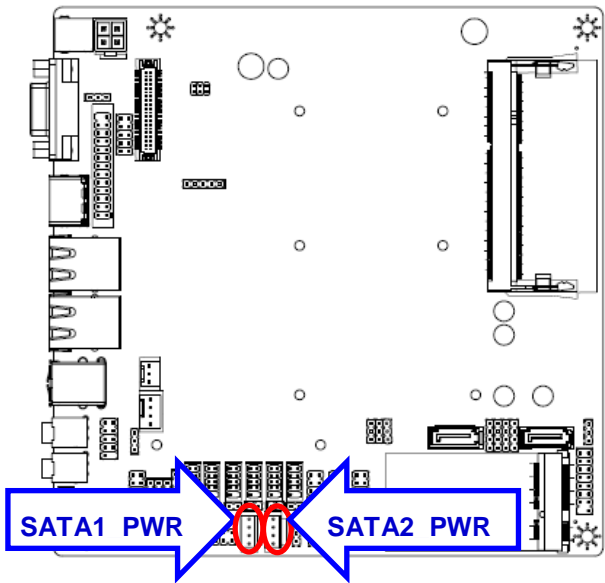
2.3.21 DC power-in connector (J14)



Signal	PIN	PIN	Signal
GND	1	2	GND
+12V	3	4	+12V

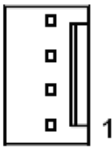
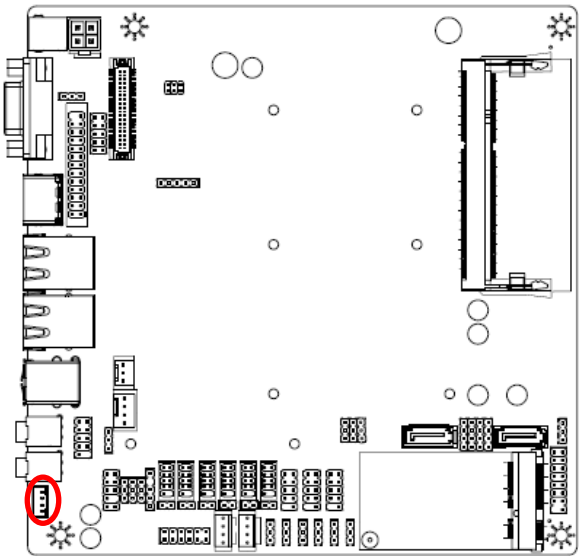
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2.3.22 SATA Power connector 1~2 (SATA1~2_PWR)



PIN	Signal	Max current
4	5V	1A
3	GND	
2	GND	
1	12V	1A

2.3.23 Speaker Headers (JSPK)

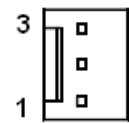
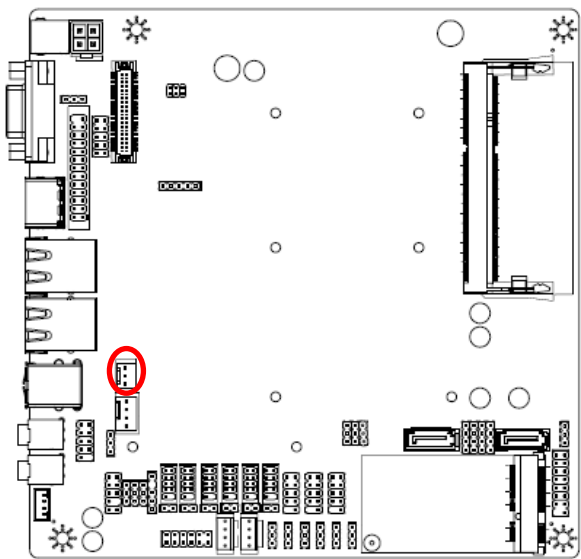


PIN	Signal
4	INTSPR-
3	INTSPR+
2	INTSPL-
1	INTSPL+

Note: Support 3W X 2 speaker.
Mapping Connector PHR-4

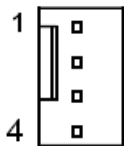
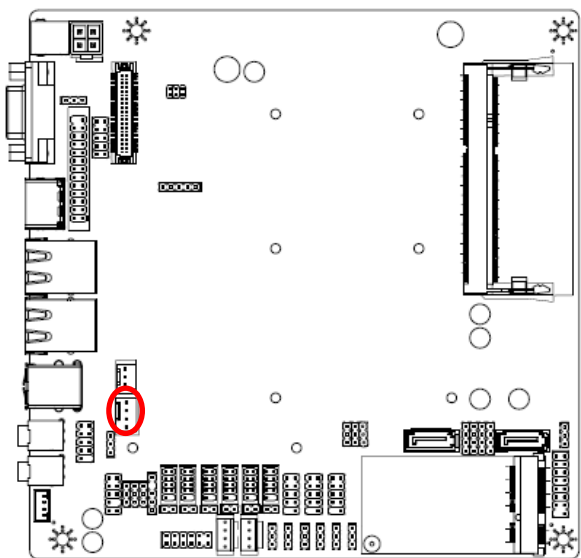
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2.3.24 System Fan connector (SFAN1)



PIN	Signal
3	Ground
2	+12V
1	RPM

2.3.25 CPU Fan connector (CFAN1)



PIN	Signal
1	Ground
2	+12V
3	RPM
4	Control

