EMX-B75

Intel® Core™ i7/ i5/ i3/ Pentium®/ Celeron® Mini ITX Motherboard with Intel® B75 Chipset

Quick Installation Guide

4th Ed – 13 September 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 UNDESIRED 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 INSTATLLED 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.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

Copyright Notice

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.

EMX-B75 Quick Installation Guide

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/

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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
- IO Shield
- COM Cable X 1
- VGA Cable X 1
- Screw X 2
- Motherboard X 1

2. Hardware Configuration

2.1 Product Overview
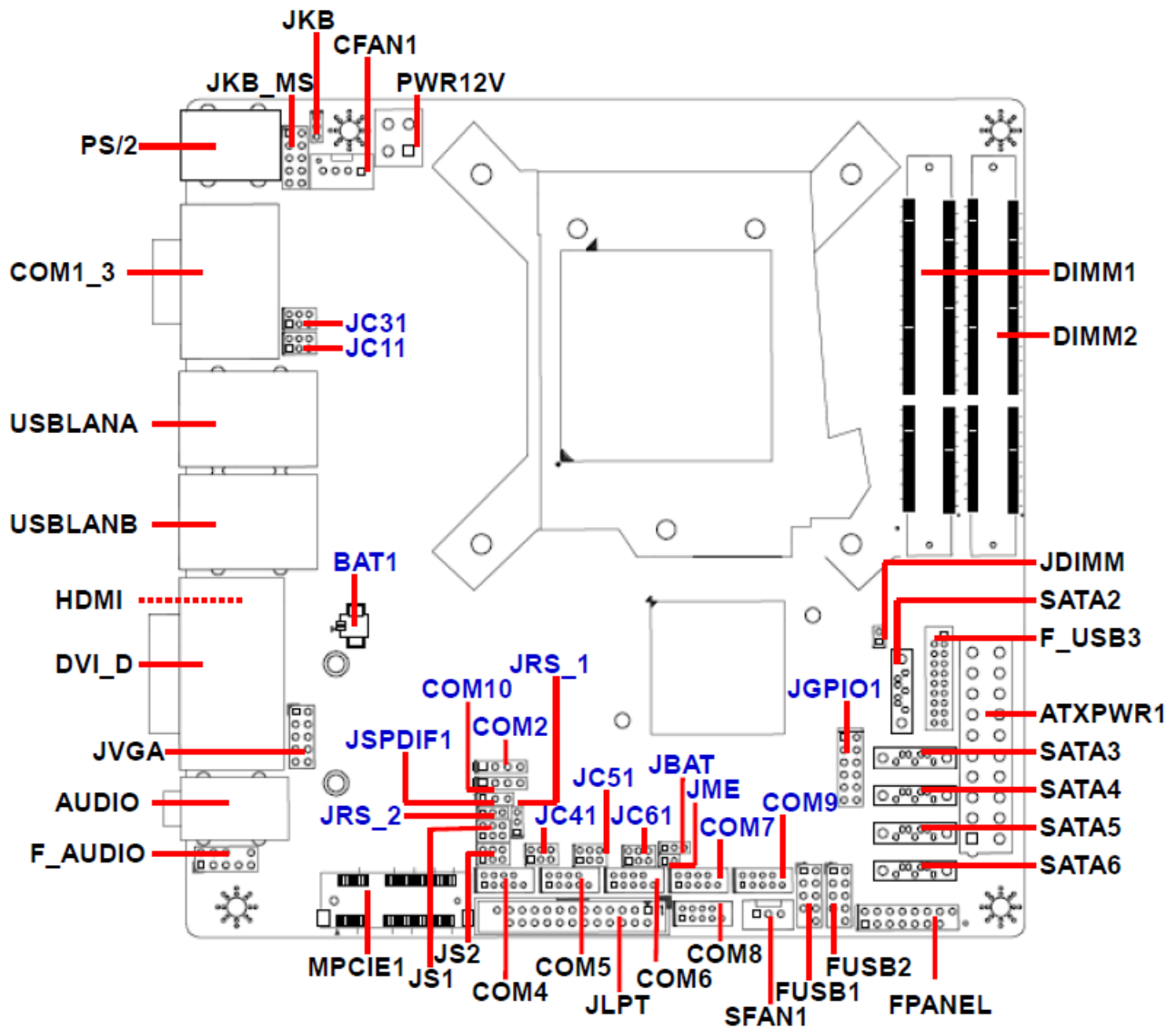
2.2 Jumper and Connector List

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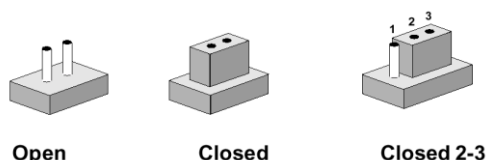
The jumper settings are schematically depicted in this manual as follows:

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
JS1/JS2	mSATA/Mini PCIe function Jumper	3 x 1 header, pitch 2.00 mm
JBAT	Clear CMOS	3 x 1 header, pitch 2.00 mm
JME	ME update	2 x 1 header, pitch 2.00 mm
JC11/31/41/51/61	Serial port 1/3/4/5/6 – Normal, 5V,12V PIN 9 selector	3 x 2 header, pitch 2.00 mm
JRS_1	Serial port 2 in RS-422-485 mode	3 x 1 header, pitch 2.00 mm
JRS_2	Serial port 10 in RS-422-485 mode	3 x 1 header, pitch 2.00 mm
JKB_MS	PS/2 keyboard & mouse connector	5 x 2 header, pitch 2.54 mm
JKB	Keyboard power select jumper	3 x 1 header, pitch 2.00 mm
JDIMM	DDR3L using	2 x 1 header, pitch 2.00 mm

Connectors

Label	Function	Note
ATXPWR1	ATX Power Input Connector	10 x 2 header, pitch 4.20 mm
PWR12V	Power connector	2 x 2 wafer, pitch 4.20 mm
FPANEL	Front Panel Switches	8 x 2 header, pitch 2.54 mm
JSPDIF1	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54 mm
JLPT	Printer	2 x 13 header, pitch 2.54 mm
HDMI	HDMI connector	
DVI-D	DVI-D connector	
F_AUDIO	Front Panel Audio Connection Header	2 x 5 header, pitch 2.54 mm
AUDIO	Audio connector	
COM1_3	Serial port 1_3 connector	
COM2/10	Serial port 2/10 connector	4 x 1 header, pitch 2.54 mm
COM4~9	Serial port 4~9 connector	5 x 2 header, pitch 2.00 mm
JGPIO1	General Purpose I/O	6 x 2 header, pitch 2.54 mm
USBLANA/B	USB and RJ45LAN Connector A/B	
PS/2	Keyboard and Mouse	
F_USB1/2	USB Connector 1/2 - USB2.0	5 x 2 header, pitch 2.54 mm
F_USB3	USB Connector 3 - USB3.0	10 x 2 header, pitch 2.00 mm
SATA2~6	Serial ATA connector 2~6	
SFAN1	System Fan connector	3 x 1 wafer, pitch 2.54 mm
CFAN1	CPU Fan connector	4 x 1 wafer, pitch 2.54 mm
JVGA	VGA connector	5 x 2 header, pitch 2.54 mm
MPCIE1	Mini-PCIe	
DIMM1	DDR3 SODIMM connector1	
DIMM2	DDR3 SODIMM connector2	

2.3 Setting Jumpers & Connectors

2.3.1   mSATA/Mini PCIe function Jumper (JS1/JS2)

* Default

MPCIE*	MSATA

JS1

JS2

1   5   1   5
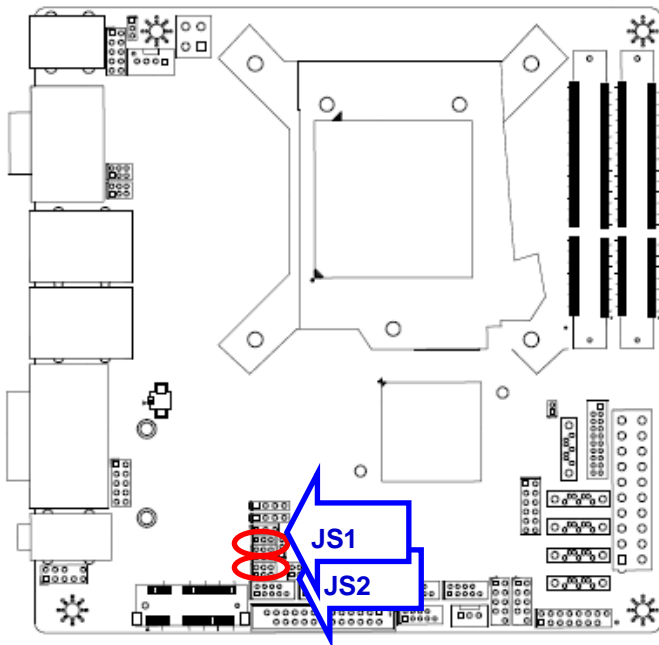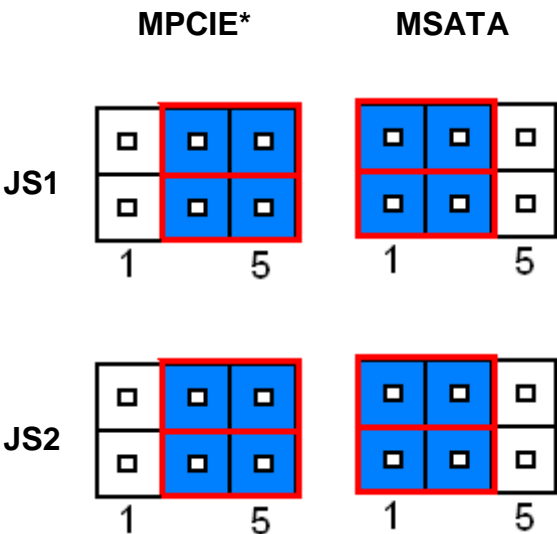
Pin	Pin	Define
1-3	2-4	M-SATA
3-5	4-6	MINIPCIE

2.3.2   Clear CMOS (JBAT)

* Default

Normal*

1   3

Clear

1   3
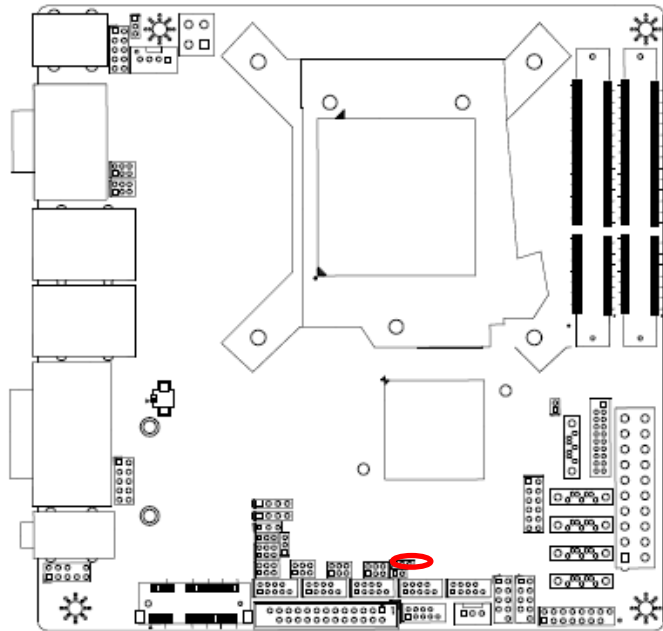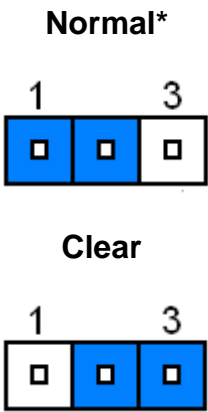
Pin	Define
1-2	Normal
2-3	Clear

2.3.3   ME update (JME)
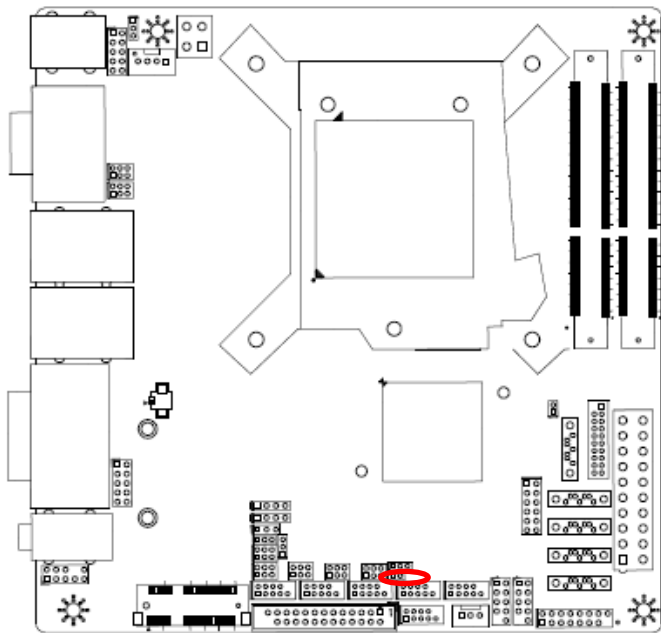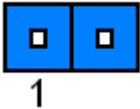
Refresh the ME*

Can't refresh the ME
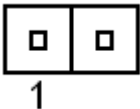
* Default

2.3.4   Serial port 1/3/4/5/6 – Normal, 5V, 12V PIN 9 selector (JC11/31/41/51/61)
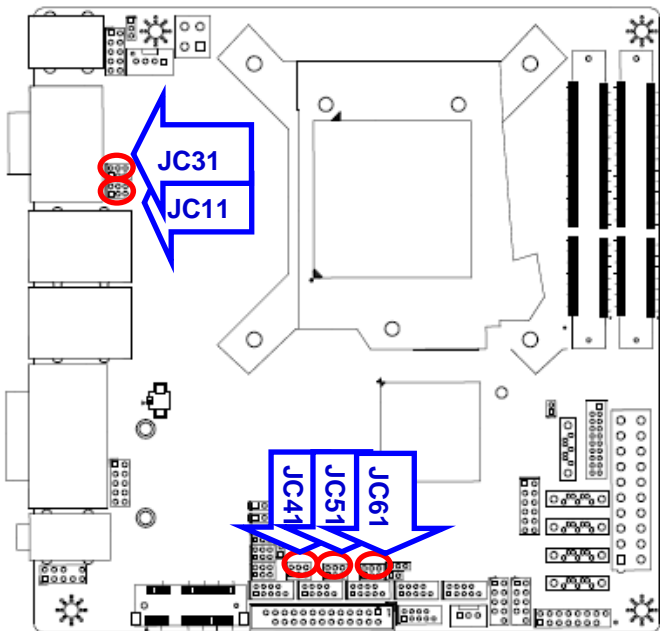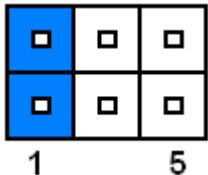
Normal*

5V
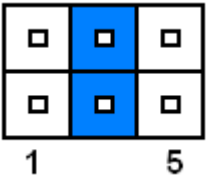
12V
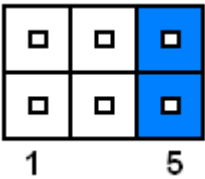
PIN	Define
1-2	Normal
3-4	5V
5-6	12V

* Default

2.3.5 Serial port 2 in RS-422-485 mode (JRS_1)
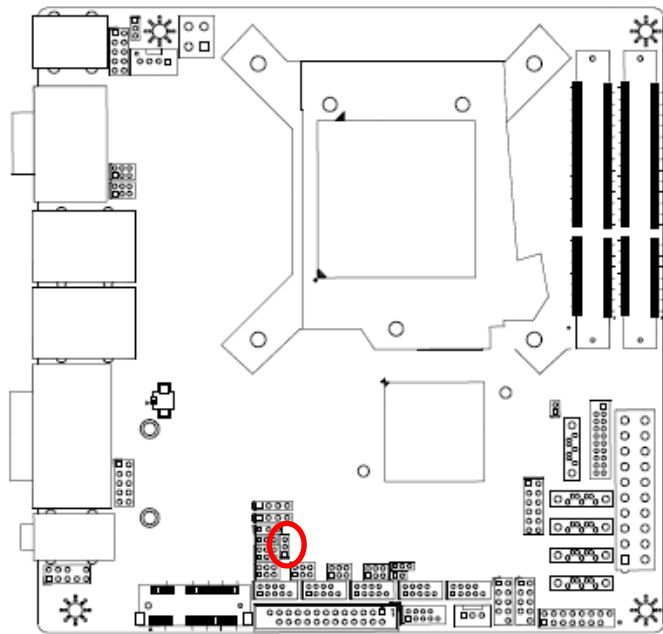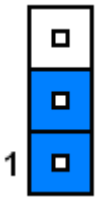
RS422*
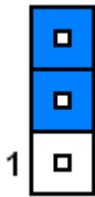
RS485

* Default

Pin	Define
1-2	RS422
2-3	RS485

2.3.6 Serial port 10 in RS-422-485 mode (JRS_2)
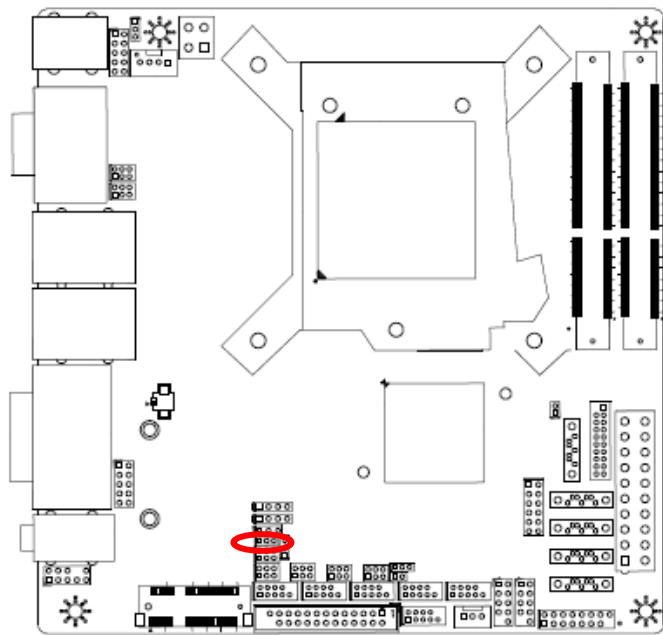
RS422*

RS485

* Default
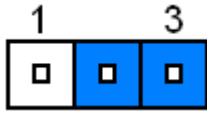
Pin	Define
1-2	RS422
2-3	RS485

2.3.7 PS/2 keyboard & mouse connector (JKB_MS)
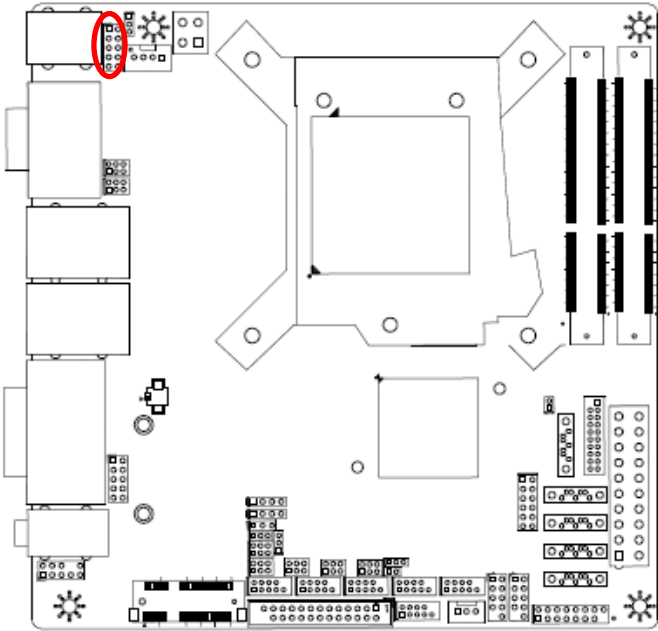
KBCLK
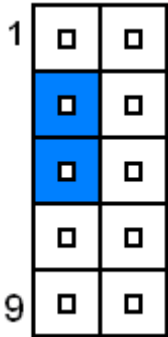
KBDATA
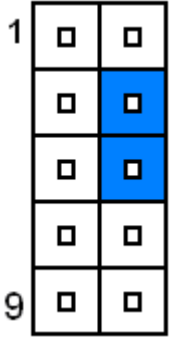
MSCLK
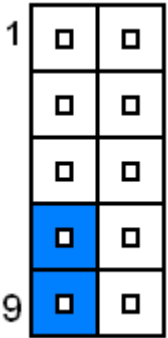
MSDATA
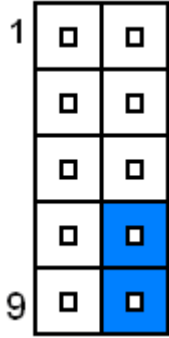
PIN	Define	PIN	Define
1	VCC5V	2	GND
3	KBCLK-	4	KBDATA-
5	KBCLK+	6	KBDATA+
7	MSCLK-	8	MSDATA-
9	MSCLK+	10	MSDATA+

2.3.8   Keyboard power select jumper (JKB)

5V*
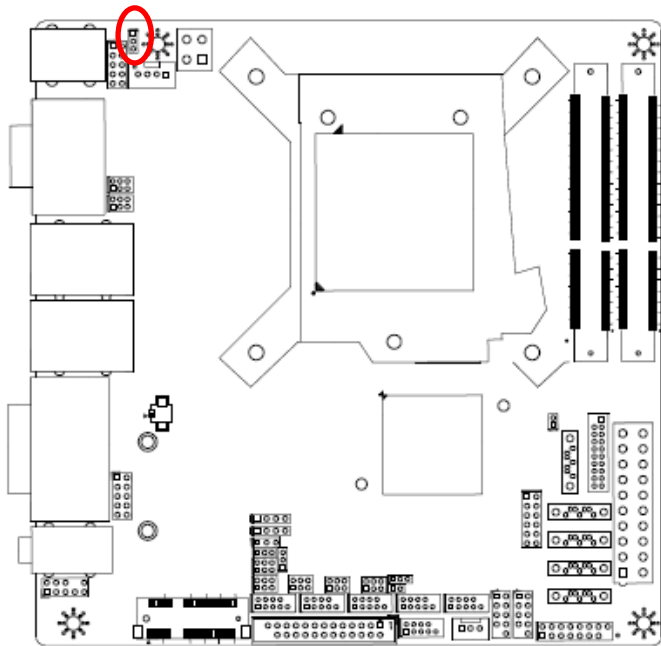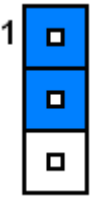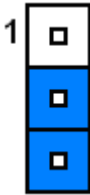
5VSB

* Default

Pin	Define
1-2	5V
2-3	5VSB

2.3.9   DDR3L using (JDIMM)
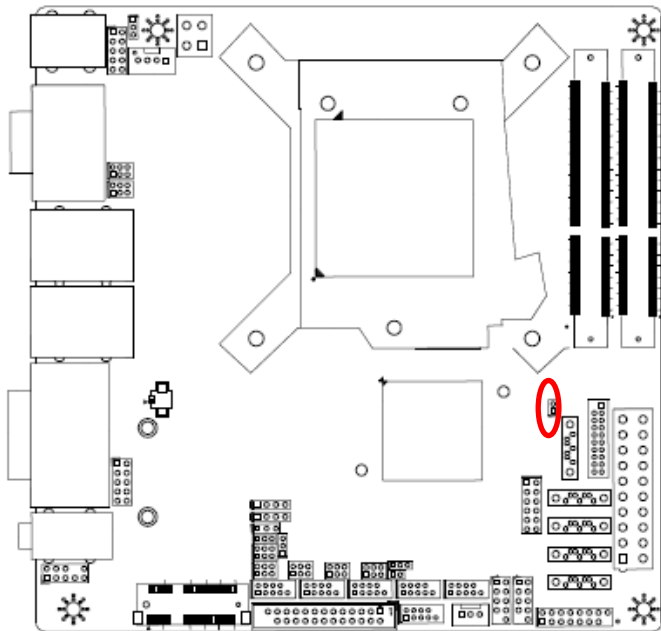
DDR3*

DDR3L

* Default
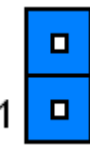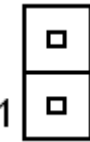
Pin	Define
Open	DDR3L
Close	DDR3

2.3.10   General Purpose I/O (JGPIO1)
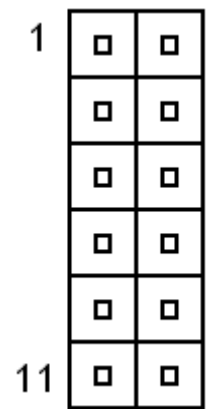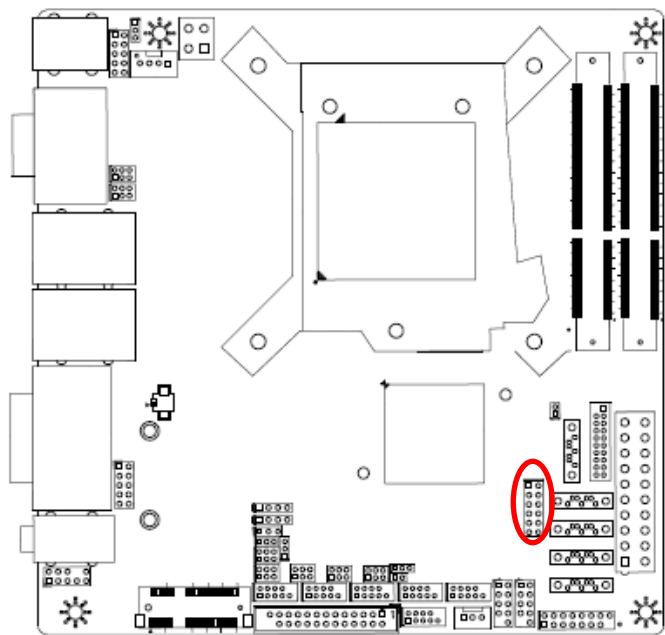
Signal	PIN	PIN	Signal
+5V	1	2	+12V
GPIO	3	4	GPIO
GPIO	5	6	GPIO
GPIO	7	8	GPIO
GPIO	9	10	GPIO
GND	11	12	GND

2.3.11   VGA connector (JVGA1)
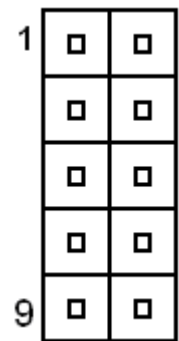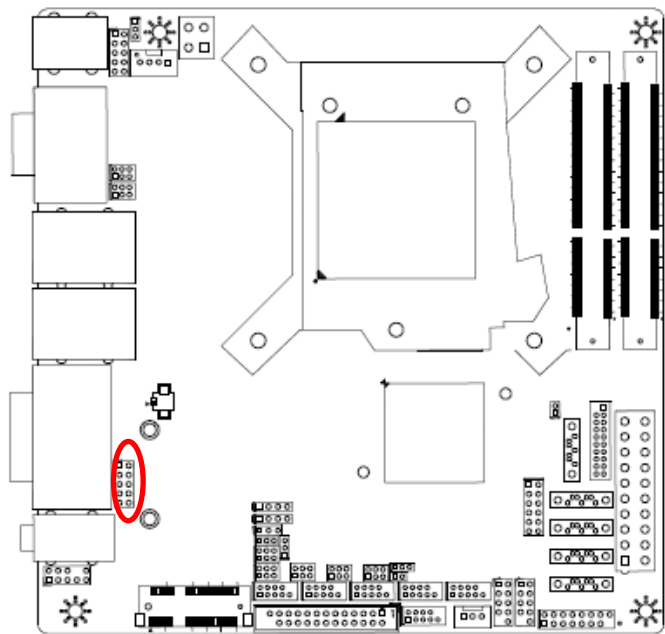
Signal	PIN	PIN	Signal
GND	1	2	R
GND	3	4	G
GND	5	6	B
HSYNC	7	8	VSYNC
DDC_DATA	9	10	DDC_CLK

2.3.12 Serial port 4~9 connector (COM4~9)
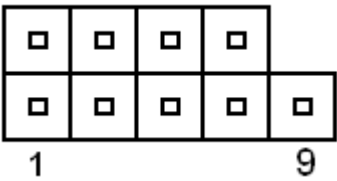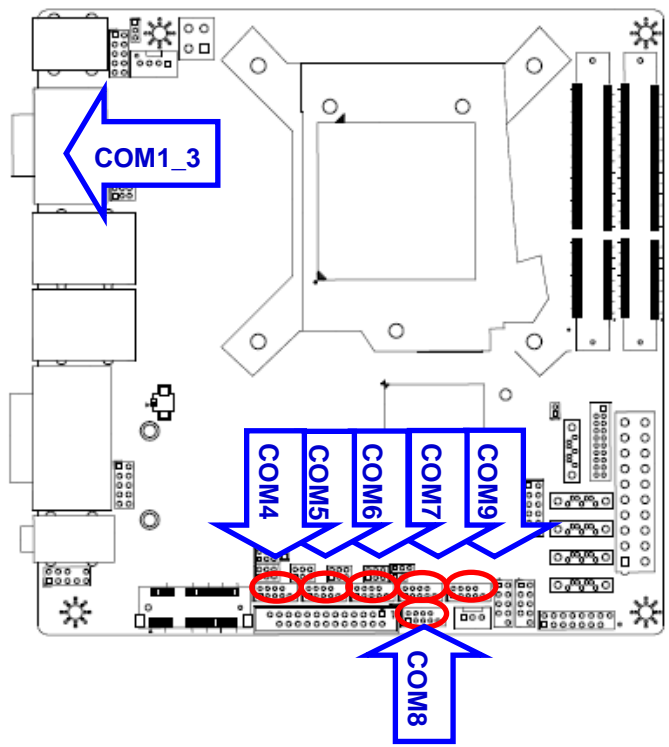
Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	RTD
GND	5	6	DSR
RTS	7	8	CTS
Normal	9		

Note:

Serial Port Function	Serial Port number
RS 232 with 5V/12V	COM1, COM3~COM6
RS 232 without voltage	COM7, COM8, COM9

2.3.13 Serial port 2/10 connector (COM2/10)
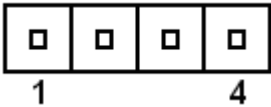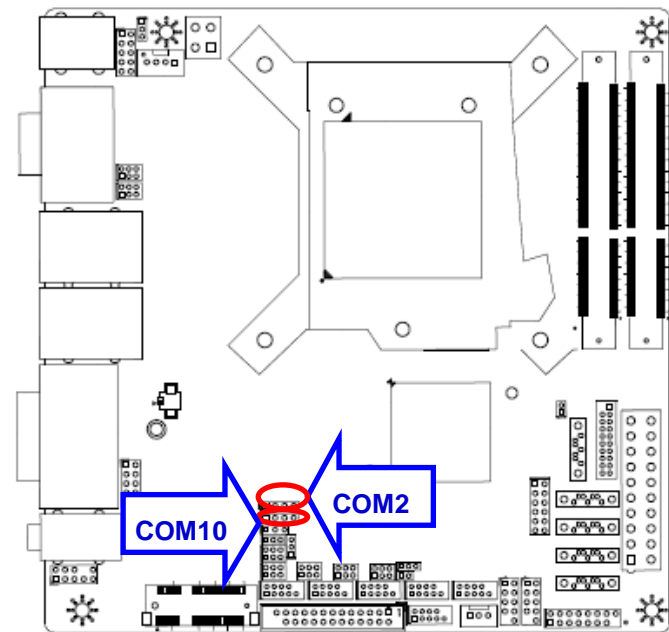
PIN	Signal
1	RS485_TX-
2	RS485_TX+
3	RS422_RX-
4	RS422_RX+

Note:

Serial Port Function	Serial Port number
RS 422/485	COM2 , COM10

2.3.14　　System Fan connector (SFAN1)
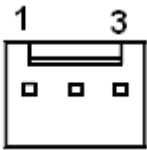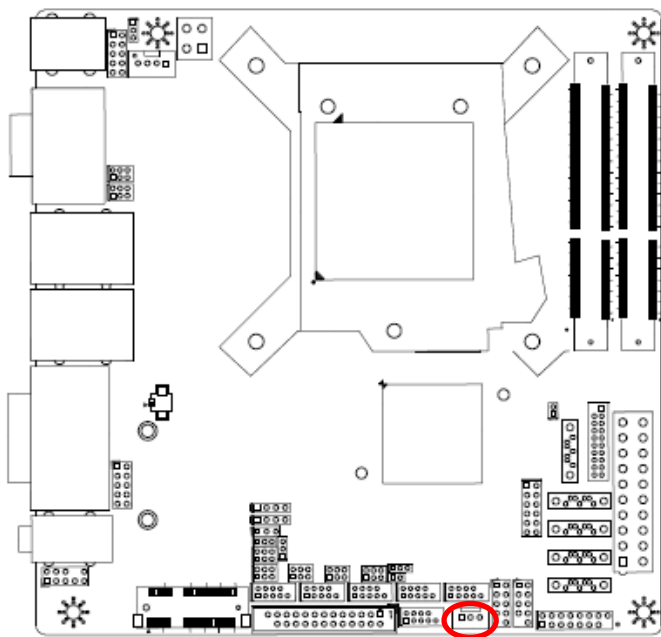
PIN	Signal
1	RPM
2	+12V
3	Ground

2.3.15　　CPU Fan connector (CFAN1)
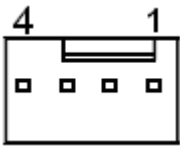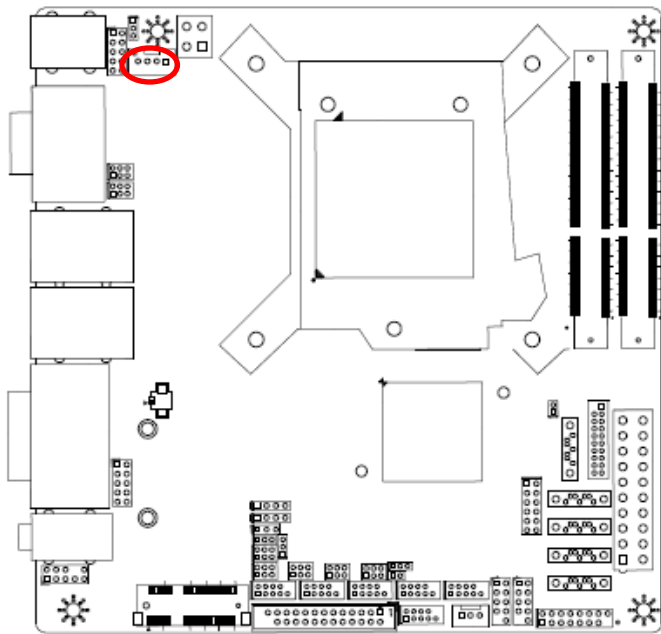
PIN	Signal
1	Ground
2	+12V
3	RPM
2	Control

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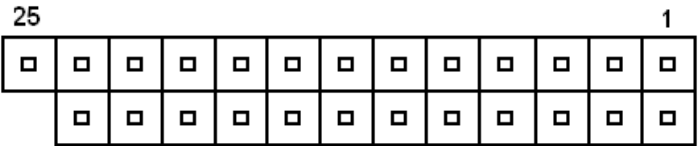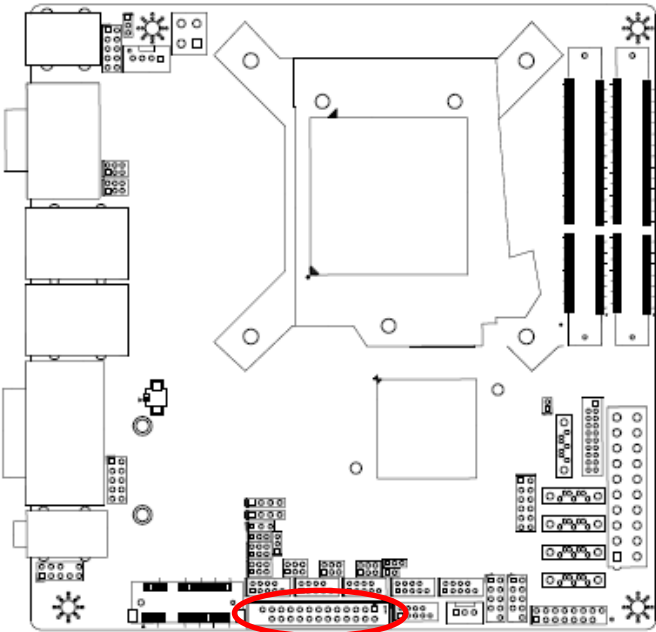
Signal	PIN	PIN	Signal
STB	1	2	AFD
PD0	3	4	ERR
PD1	5	6	INIT
PD2	7	8	SLIN
PD3	9	10	GND
PD4	11	12	GND
PD5	13	14	GND
PD6	15	16	GND
PD7	17	18	GND
ACK	19	20	GND
BUSY	21	22	GND
PE	23	24	GND
SLCT	25		

2.3.17   USB Connector 1/2 - USB2.0 (FUSB1/2)
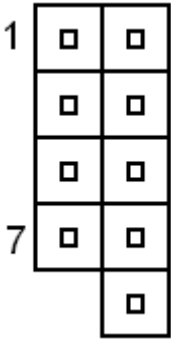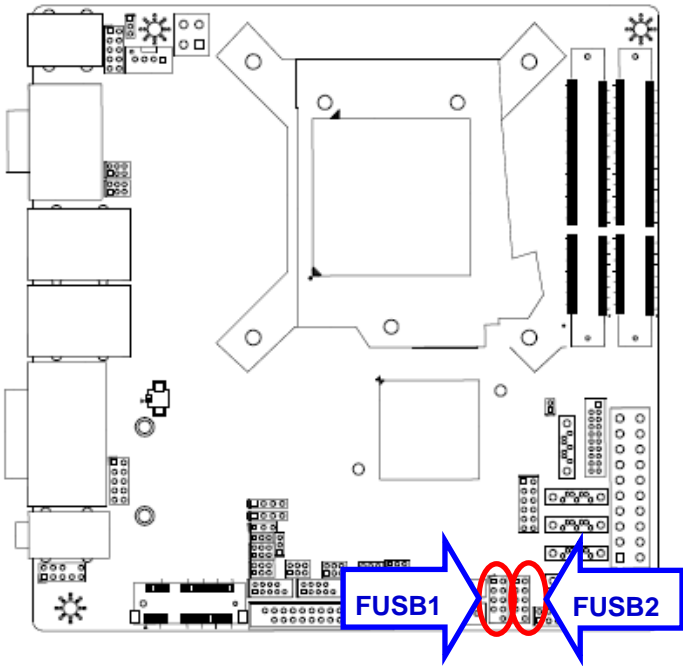
Signal	PIN	PIN	Signal
VCC	1	2	VCC
Data_0-	3	4	Data_1-
DATA_0+	5	6	DATA_1+
GND	7	8	GND
		10	GND

2.3.18   USB Connector 3 - USB3.0 (F_USB3)
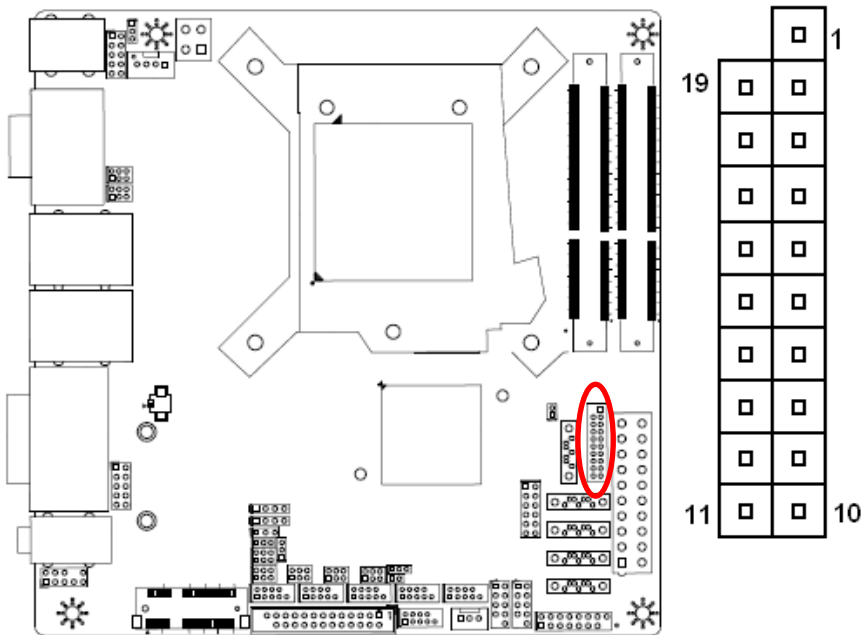
Signal	PIN	PIN	Signal
		1	VCC
VCC	19	2	SSRX-
SSRX-	18	3	SSRX+
SSRX+	17	4	GND
GND	16	5	SSTX-
SSTX-	15	6	SSTX+
SSTX+	14	7	GND
GND	13	8	D-
D-	12	9	D+
D+	11	10	ID

2.3.19   Front Panel Switches (FPANEL)
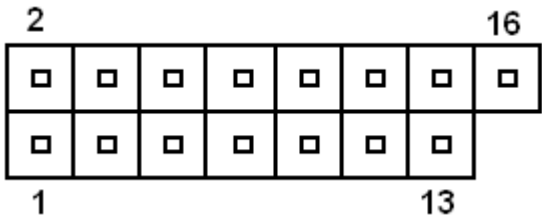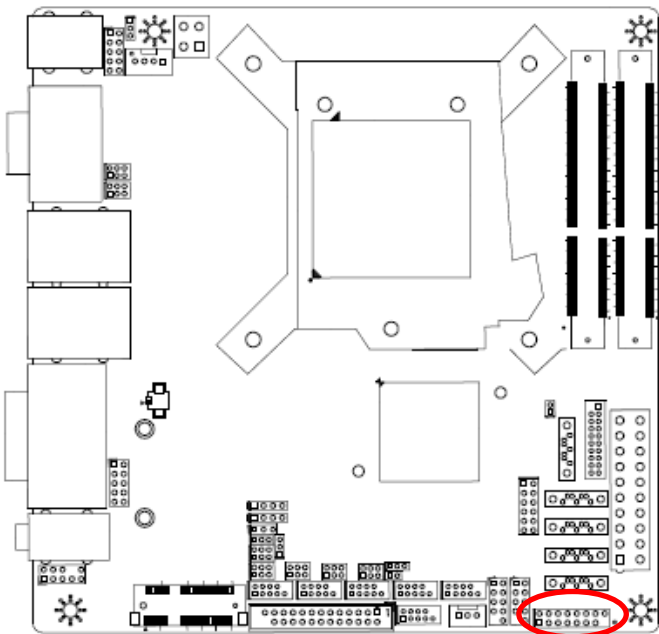
Signal	PIN	PIN	Signal
5VSB	1	2	+HD_LED
+P_LED	3	4	-HD_LED
-P_LED	5	6	PS_ON
+SPEAK	7	8	-PS_ON
NC	9	10	RESET
NC	11	12	-RESET
-SPEAK	13	14	+SLPLED
		16	-SLPLED

2.3.20   Sony/Philips Digital Interface (JSPDIF1)
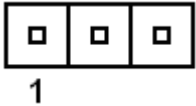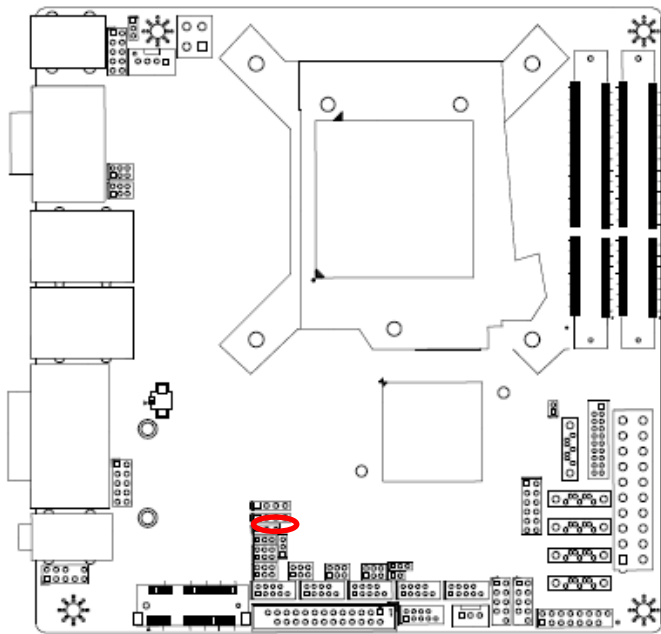
PIN	Signal
1	VCC5V
2	OUT
3	GND

2.3.21   Power connector (PWR12V)
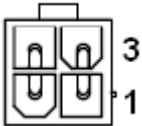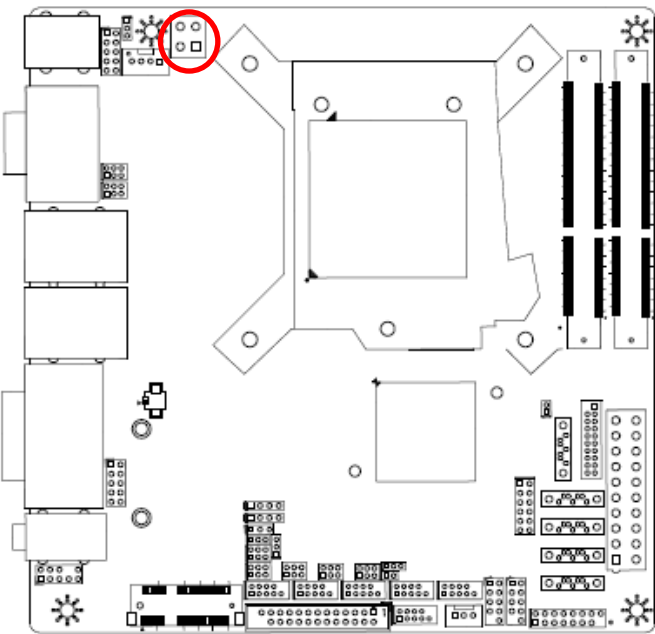
Signal	PIN	PIN	Signal
+12V	4	3	+12V
GND	2	1	GND

2.3.22 ATX Power Input Connector (ATXPWR1)
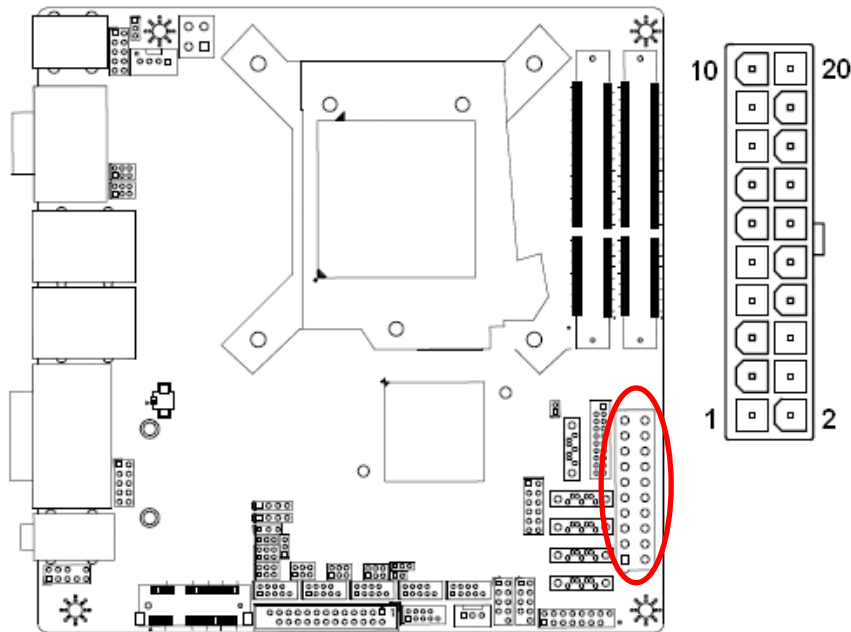
Signal	PIN	PIN	Signal
+12V	10	20	+5V
+5VSB	9	19	+5V
PWR_OK	8	18	-5V
GND	7	17	GND
+5V	6	16	GND
GND	5	15	GND
+5V	4	14	PS-ON
GND	3	13	GND
+3.3V	2	12	-12V
+3.3V	1	11	+3.3V

2.3.23 Front Panel Audio Connection Header (F_AUDIO)
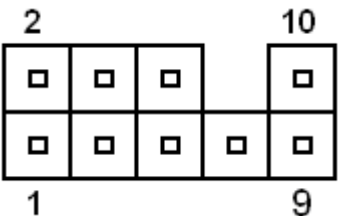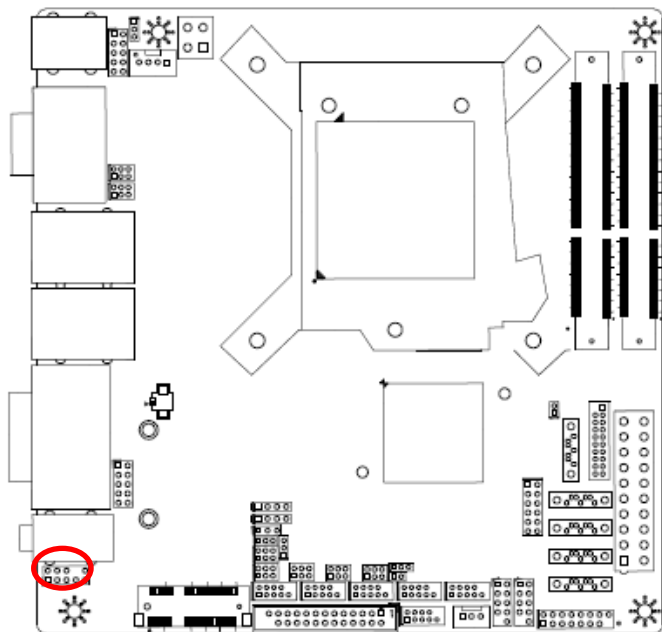
Signal	PIN	PIN	Signal
FRONT_MIC	1	2	GND
VREF_OUT	3	4	5V
FRONT_OUT_R	5	6	AUD_RET_R
GND	7		
FRONT_OUT_L	9	10	AUD_RET_L