ECM-QM57

Intel® Core™ i7/i5/Celeron 3.5" Micro Module with Intel® QM57 Chipset

Quick Installation Guide

1st Ed – 30 August 2010

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 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.

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.

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/

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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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:

- 1 x 3.5" ECM-QM57 Micro Module
- 1 x Quick Installation Guide for ECM-QM57
- 1 x AUX-032 daughter board
- 1 x DVD-ROM contains the followings:
    — User's Manual (this manual in PDF file)
    — Ethernet driver and utilities
    — VGA drivers and utilities
    — Audio drivers and utilities
- 1 x Cable set contains the followings:
    — 1 x Audio cable (12pin, 2.0mm pitch)
    — 1 x USB cable (10P/2.54mm-10P/2.0mm)
    — 1 x Serial ATA cable (7-pin, standard)
    — 1 x Serial ATA cable (15-pin, 2P/2.0mm)

# 2. Hardware Configuration

ECM-QM57 Quick Installation Guide

2.1 Product Overview
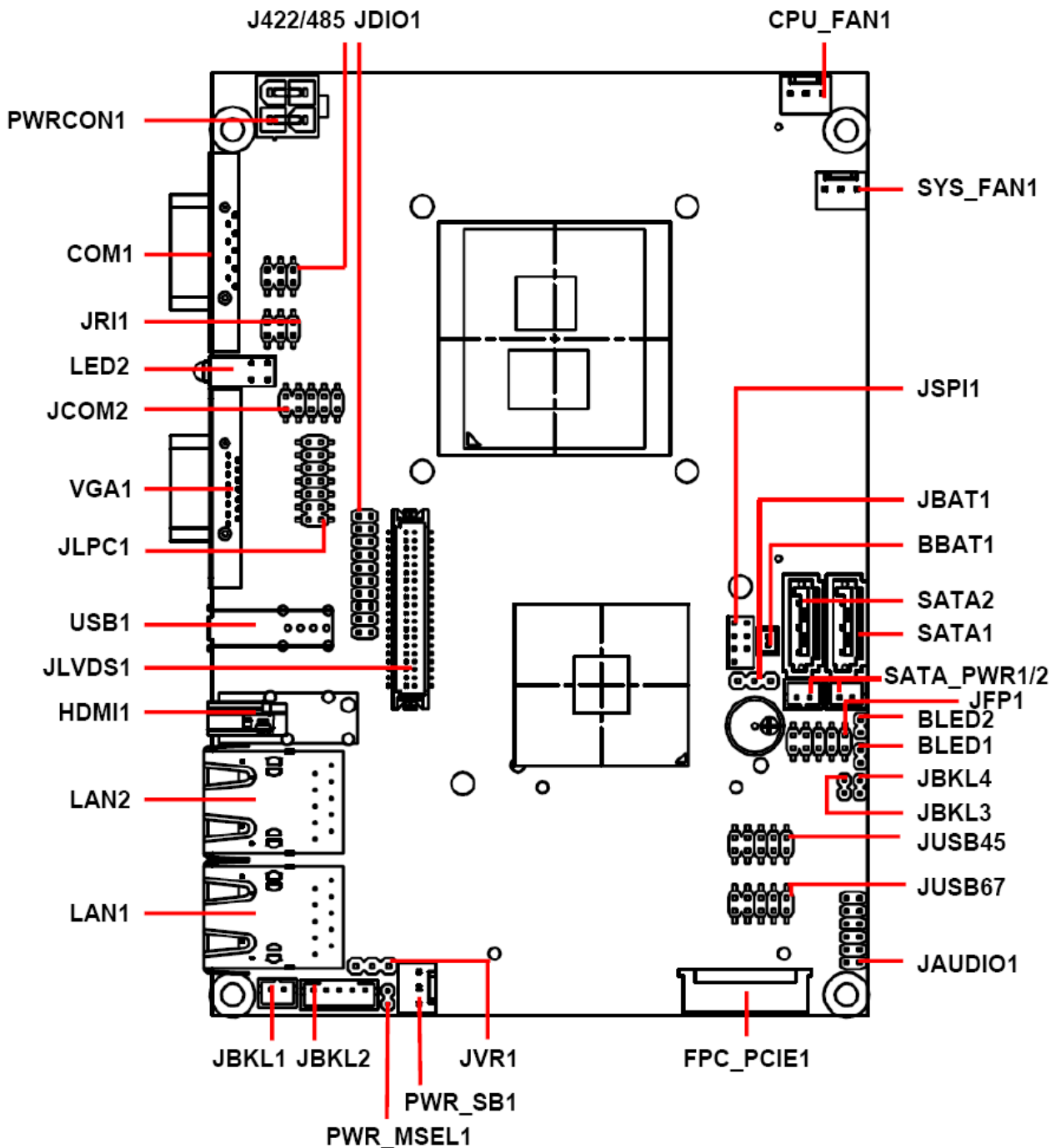
2.2 Jumper and Connector List

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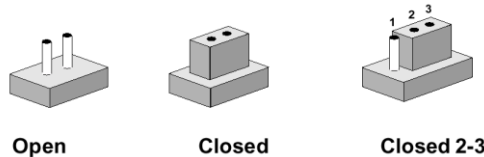
The jumper settings are schematically depicted in this manual as follows:

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
JBAT1	Clear CMOS	3 x 1 header, pitch 2.54 mm
JRI1	Serial port 1 pin 9 signal select	3 x 2 header, pitch 2.0 mm
PWR_MSEL1	Input power select	2 x 1 header, pitch 2.54 mm

Connectors

Label	Function	Note
BBAT1	Battery connector	2 x 1 wafer, pitch 1.25 mm
BLED1	CFAST LED connector 1	2 x 1 header, pitch 2.0 mm
BLED2	CFAST LED connector 2	2 x 1 header, pitch 2.0 mm
COM1	Serial port 1 connector	D-sub 9-pin, male
CPU_FAN1	CPU fan connector	3 x 1 wafer, pitch 2.54 mm
FPC_PCIE1	PCIE slot	
HDMI1	HDMI connector	
J422/485	Serial port 1 in RS-422/485 mode	3 x 2 header, pitch 2.0 mm
JAUDIO1	Audio connector	7 x 2 header, pitch 2.0 mm
JBKL1	+12V power connector	2 x 1 wafer, pitch 2.0 mm
JBKL2	LCD inverter connector	5 x 1 wafer, pitch 2.0 mm
JBKL3	LED backlight adjustment connector 1	2 x 1 header, pitch 2.0 mm
JBKL4	LED backlight adjustment connector 2	2 x 1 header, pitch 2.0 mm
JCOM2	Serial port 2 connector	5 x 2 header, pitch 2.0 mm
JDIO1	General purpose I/O connector	10 x 2 header, pitch 2.0 mm
JFP1	Miscellaneous setting connector	5 x 2 header, pitch 2.0 mm
JLPC1	Low pin count interface	7 x 2 header, pitch 2.0 mm
JLVDS1	LVDS connector	
JSPI1	SPI connector	4 x 2 header, pitch 2.0 mm
JUSB45	USB connector 8 & 9	5 x 2 header, pitch 2.0 mm
JUSB67	USB connector 10 & 11	5 x 2 header, pitch 2.0 mm
JVR1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.54 mm
LAN1/ LAN2	RJ-45 Ethernet connector	
LED2	LED connector	
PWR_SB1	5VSB connector in ATX	3 x 1 wafer, pitch 2.54 mm
PWRCON1	Power connector	2 x 2 wafer, pitch 4.2 mm
SATA_PWR1	SATA power connector	2 x 1 wafer, pitch 2.0 mm
SATA_PWR2	SATA power connector	2 x 1 wafer, pitch 2.0 mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SYS_FAN1	System fan connector	3 x 1 wafer, pitch 2.54 mm
USB1	USB connector 2	
VGA1	VGA connector	D-sub 15-pin, female

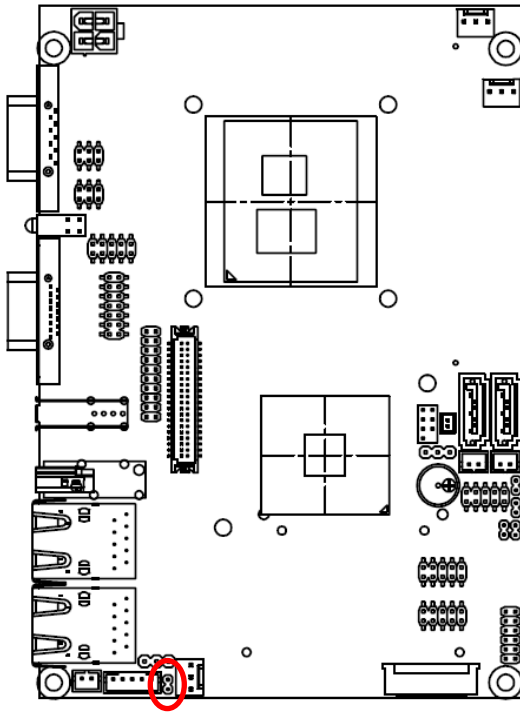## 2.3 Setting Jumpers & Connectors

2.3.1 Clear CMOS (JBAT1)

Protect*

Clear CMOS
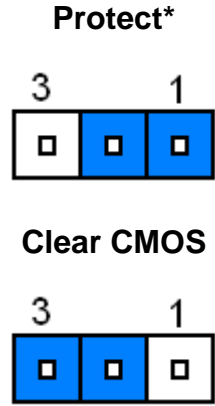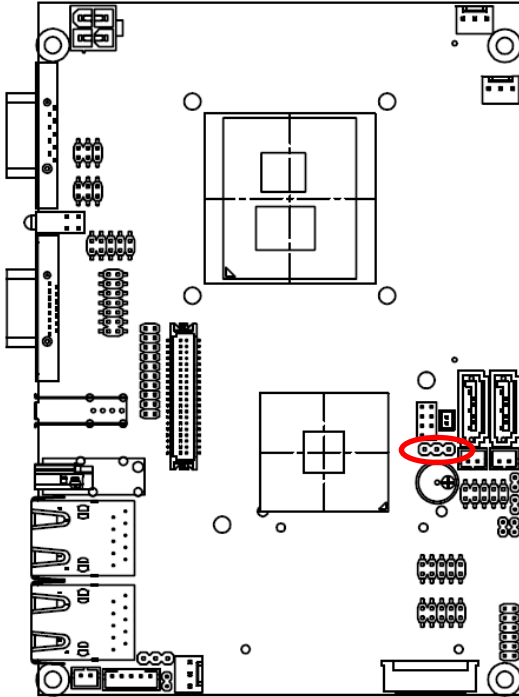
* **Default**

2.3.2 Serial port 1 pin 9 signal select (JRI1)

+5V

Ring*

+12V
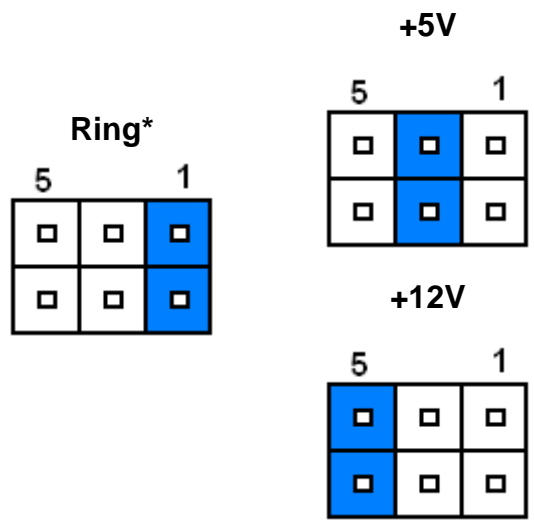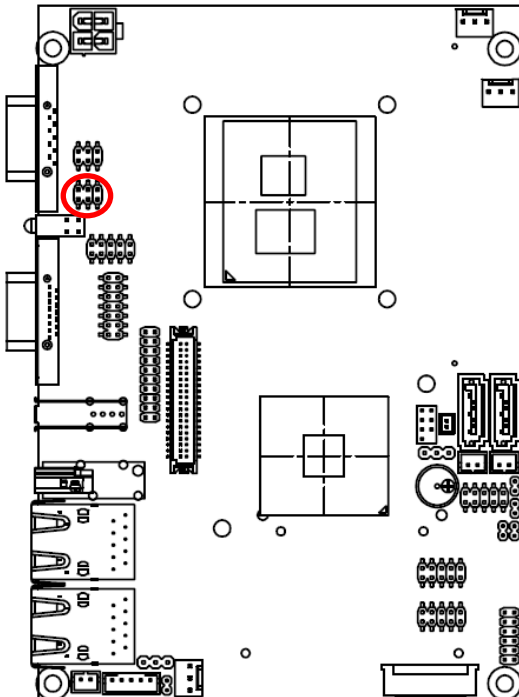
* **Default**

2.3.3 AT/ ATX Input power select (PWR_MSEL1)

AT*
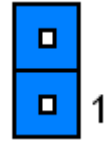
ATX

* Default
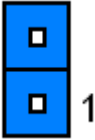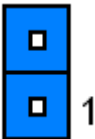
2.3.4 5VSB connector in ATX (PWR_SB)
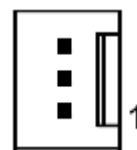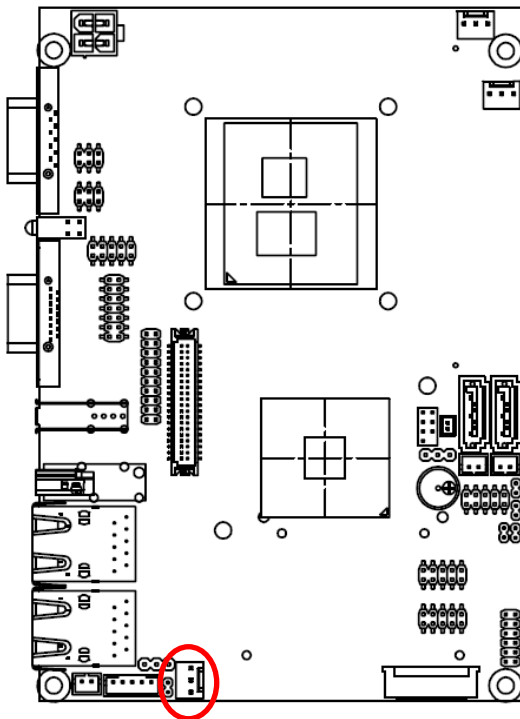
Signal	PIN
ATX5VSB	3
GND	2
PSON	1

2.3.4.1 Signal Description –AT/ATX mode & Input power type

| Input power type	Power-ON Mode	Description
AT Type	**AT Mode** (PWR_MSEL1) 	Use AT type power input, and set the board in AT mode.
	ATX Mode (PWR_MSEL1) 	Use AT type power input, and set the board in ATX mode.
ATX Type (PWR_SB) 	**AT Mode** (PWR_MSEL1) 	Use ATX type power input, and set the board in AT mode.
	ATX Mode (PWR_MSEL1) 	Use ATX type power input, and set the board in ATX mode.

2.3.5 Battery connector (BBAT1)
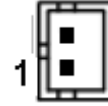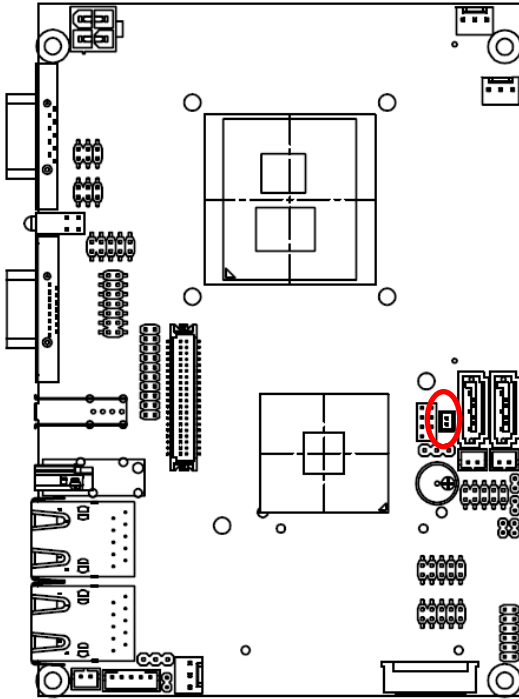
Signal	PIN
GND	2
VBAT	1

2.3.6 CFAST LED connector (BLED1/ BLED2)
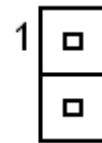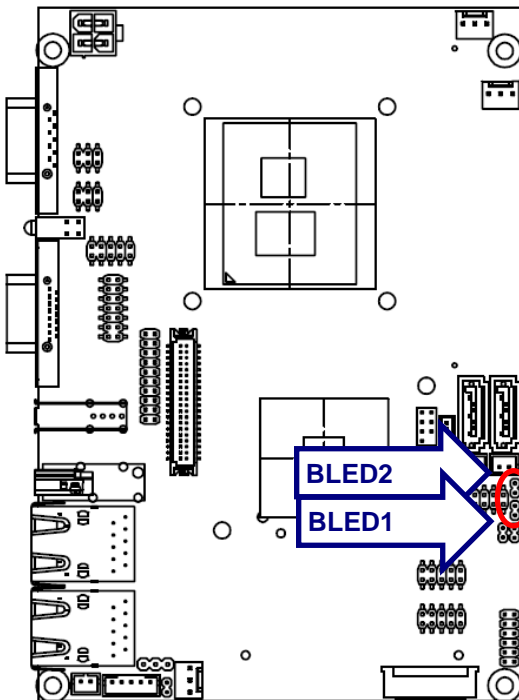
Signal	PIN
GND	2
BLED1/ BLED2	1

2.3.7 CPU fan connector (CPU_FAN1/ SYS_FAN1)
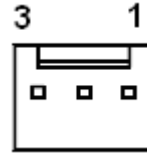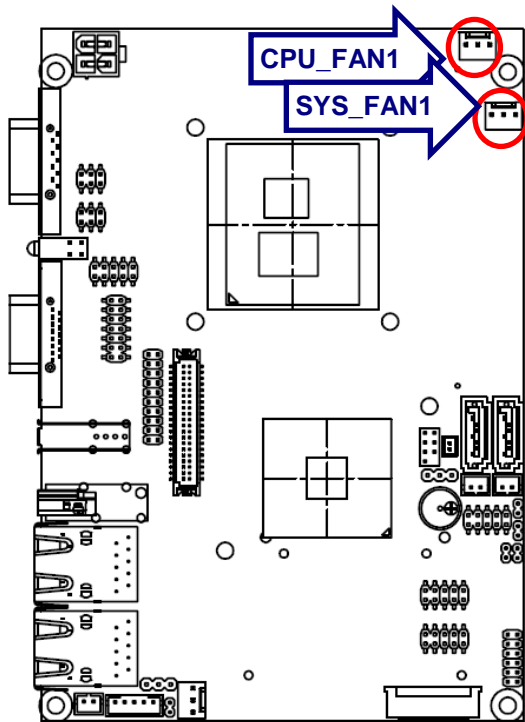
Signal	PIN
GND	1
CPU_FAN_PWR/ SYS_FAN_PWR	2
CPUFANIN/ SYSFANIN	3

2.3.8 Serial port 1 in RS-422/485 mode (J422/485)
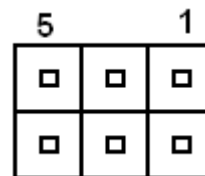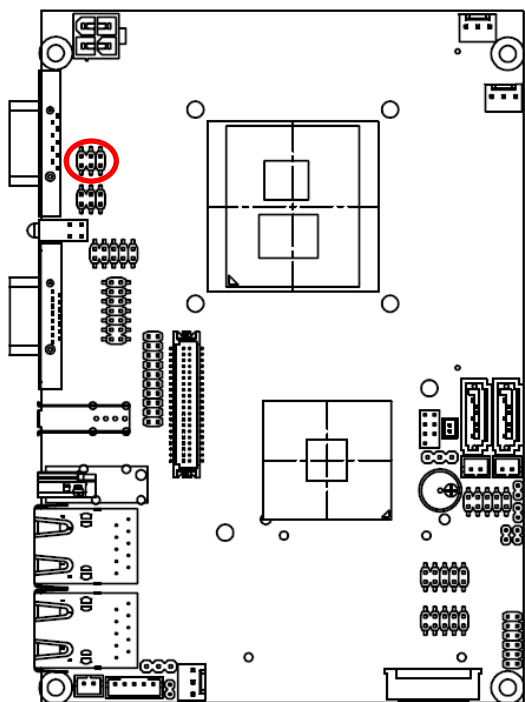
Signal	PIN	PIN	Signal
485RX-	2	1	485TX-
485RX+	4	3	485TX+
GND	6	5	+5V

2.3.9   Audio connector (JAUDIO1)
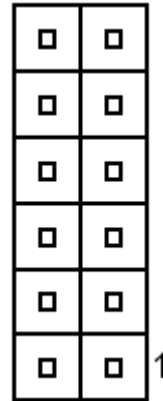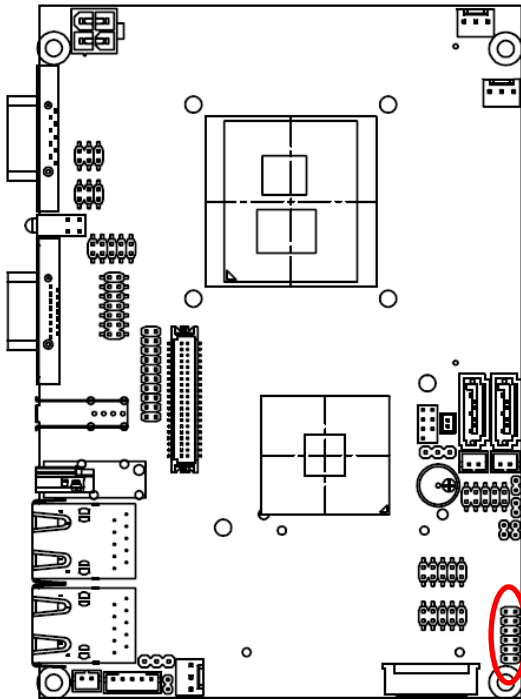
Signal	PIN	PIN	Signal
GND	12	11	MIC1_JD
LIN1_JD	10	9	FRONT_JD
MIC1_L	8	7	MIC1_R
LIN1_L	6	5	LIN1_R
GND	4	3	GND
FRONT_L	2	1	FRONT_R

2.3.10 +12V power connector (JBKL1)
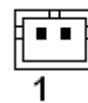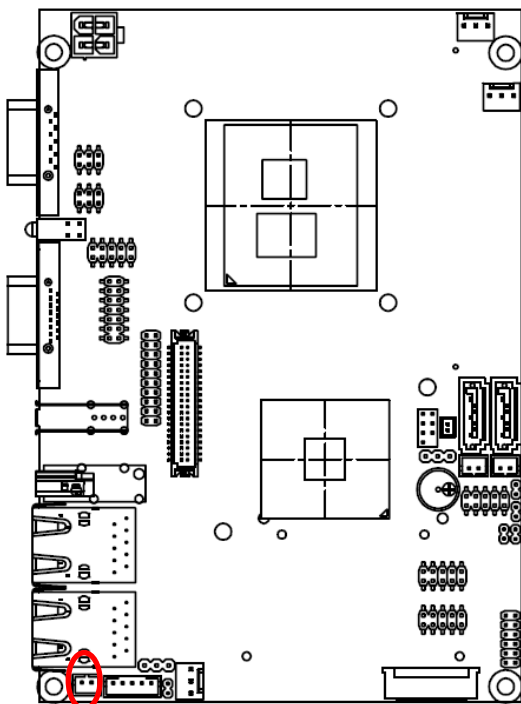
Signal	PIN
+12V	1
GND	2

2.3.11 LCD backlight brightness adjustment (JVR1)
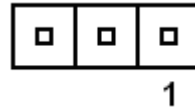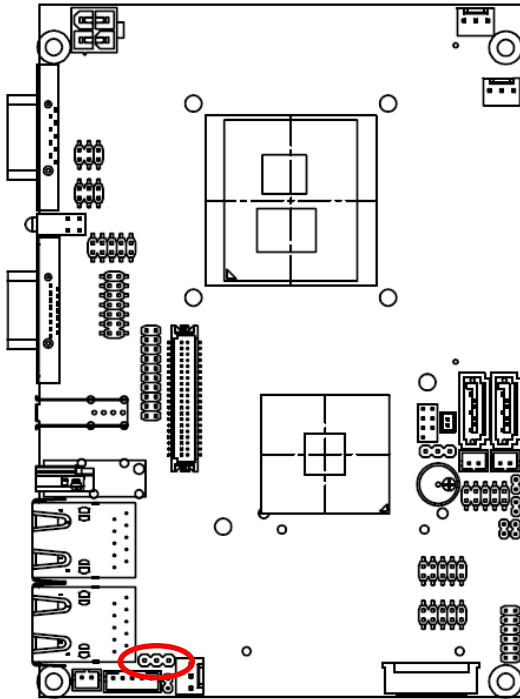
Signal	PIN
+5V	1
BRIGHT	2
GND	3

JVR1

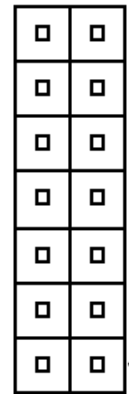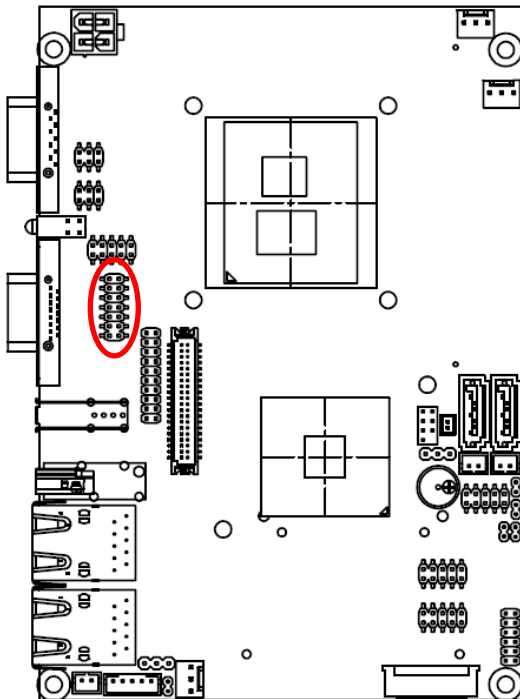JBKL2 Pin4
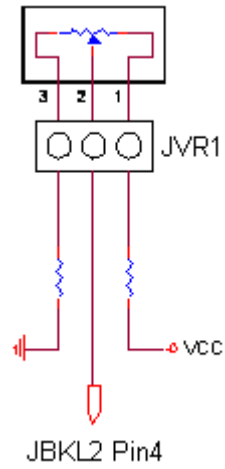
Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

2.3.12 Low pin count connector (JLPC1)

Signal	PIN	PIN	Signal
GND	14	13	+5V
GND	12	11	+5V
GND	10	9	INT_SERIRQ
CLK_LPC	8	7	LPC_AD3
LPC_FRAME#	6	5	LPC_AD2
PLT_RST#	4	3	LPC_AD1
+3.3V	2	1	LPC_AD0

2.3.13　LCD Inverter Connector (JBKL2)
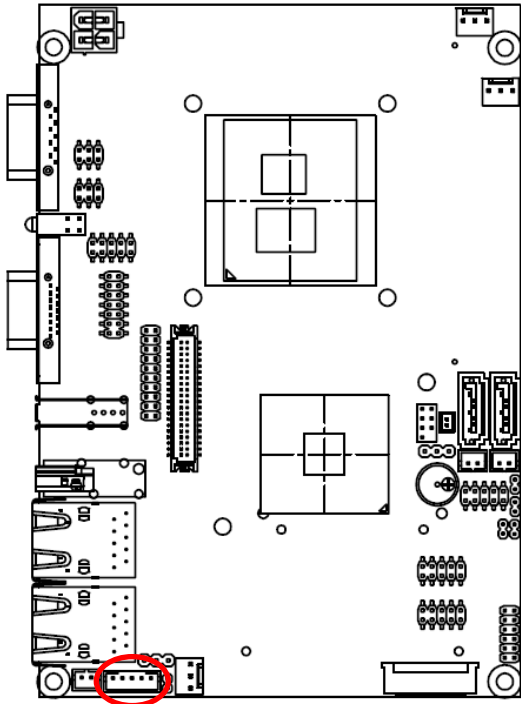
Signal	PIN
+12V	1
GND	2
BLEN	3
L_BKLT_CTRL_R	4
+5V	5

Note:

For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JVR1**. Please see the **JVR1** section for detailed circuitry information.
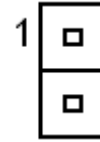
2.3.13.1　Signal Description – LCD Inverter Connector (JBKL2)

Signal	Signal Description
L_BKLT_CTRL_R	Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W)
BLEN	LCD backlight ON/OFF control signal

2.3.14 LED backlight adjustment connector (JBKL3/ JBKL4)
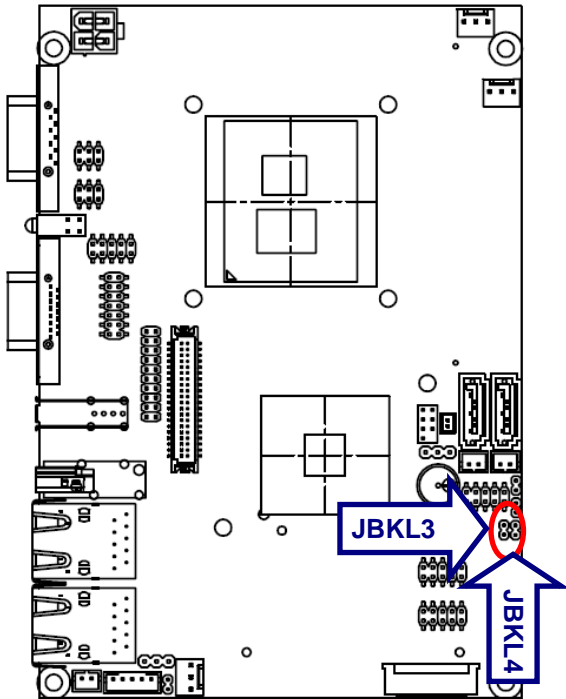
Signal	PIN
GPIO7/ DGPU_HPD_INTR#	1
GND	2

2.3.15 Serial port 2 connector (JCOM2)
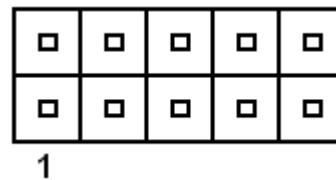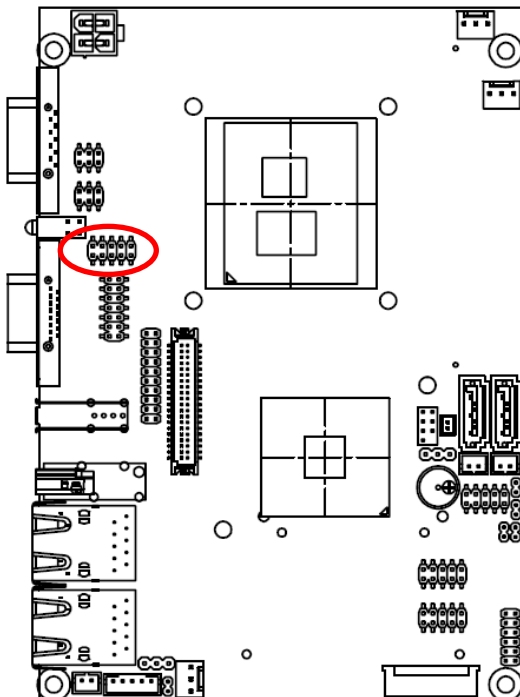
Signal	PIN	PIN	Signal
DCD2	1	2	RxDD2
TxDD2	3	4	DTR2
GND	5	6	DSR2
RTS2	7	8	CTS2
RI2	9	10	NC

2.3.16 General purpose I/O connector (JDIO)
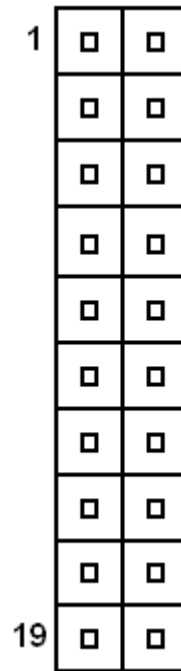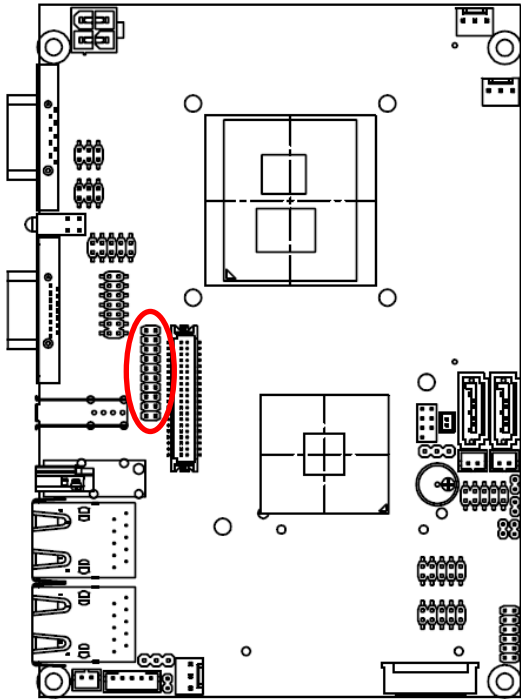
Signal	PIN	PIN	Signal
DIO_GP20	1	2	DIO_GP10
DIO_GP21	3	4	DIO_GP11
DIO_GP22	5	6	DIO_GP12
DIO_GP23	7	8	DIO_GP13
DIO_GP24	9	10	DIO_GP14
DIO_GP25	11	12	DIO_GP15
DIO_GP26	13	14	DIO_GP16
DIO_GP27	15	16	DIO_GP17
SMBCLK_MAIN	17	18	SMBDATA_MAIN
GND	19	20	+5V

2.3.17 Miscellaneous setting connector (JFP)
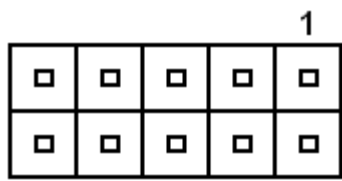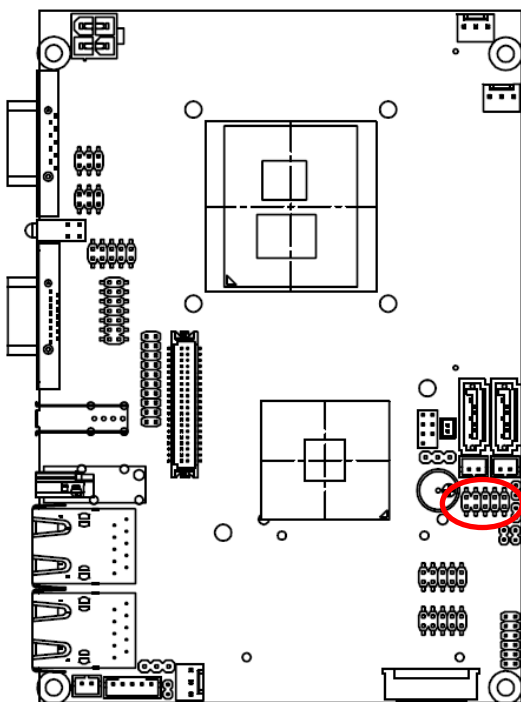
Signal	PIN
PEBT	1
	2
RST#	3
	4
PWR-LED	5
	6
HDD-LED	7
	8
COPEN#	9
	10

2.3.18 SPI connector (JSPI1)
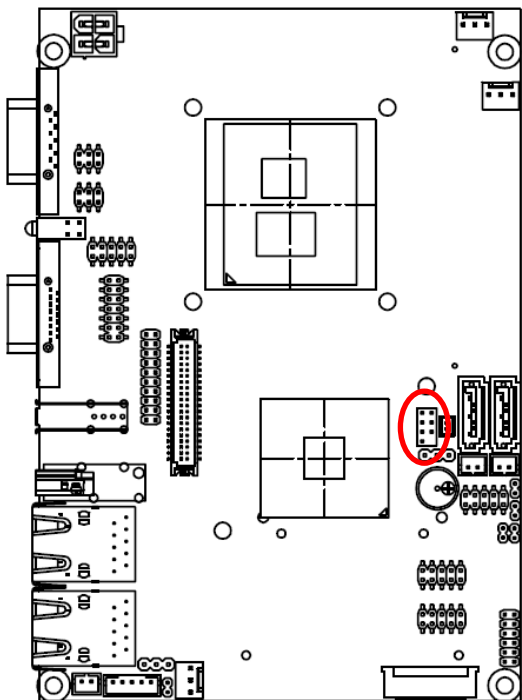
Signal	PIN	PIN	Signal
+3.3V	1	2	GND
SPI_CS#0	3	4	SPI_CLK
SPISO	5	6	SPI_SI
HOLD#_R	7		

2.3.19 LVDS connector (JLVDS1)
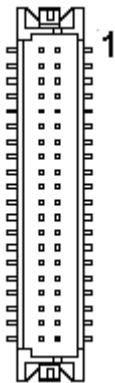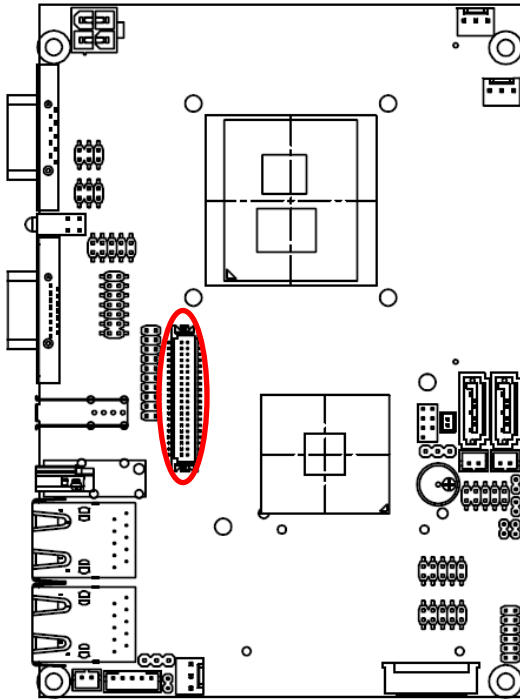
Signal	PIN	PIN	Signal
+5V	2	1	+3.3V
+5V	4	3	+3.3V
LVDS_DDC_DATA	6	5	LVDS_DDC_CLK
GND	8	7	GND
LVDSA_DATA0	10	9	LVDSA_DATA1
LVDSA_DATA0#	12	11	LVDSA_DATA1#
GND	14	13	GND
LVDSA_DATA2	16	15	LVDSA_DATA3
LVDSA_DATA2#	18	17	LVDSA_DATA3#
GND	20	19	GND
LVDSB_DATA0	22	21	LVDSB_DATA1
LVDSB_DATA0#	24	23	LVDSB_DATA1#
GND	26	25	GND
LVDSB_DATA2	28	27	LVDSB_DATA3
LVDSB_DATA2#	30	29	LVDSB_DATA3#
GND	32	31	GND
LVDSA_CLK	34	33	LVDSB_CLK
LVDSA_CLK#	36	35	LVDSB_CLK#
GND	38	37	GND
+12V	40	39	+12V

2.3.20 USB connector 8 & 9/ 10 & 11 (JUSB45/ JUSB67)
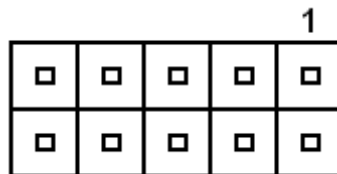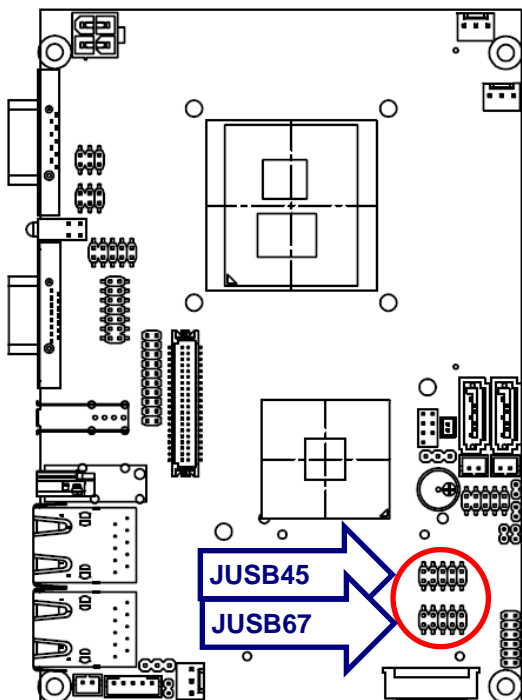
Signal	PIN	PIN	Signal
+5V	1	2	GND
N8/ N10	3	4	GND
P8/ P10	5	6	P9/ P11
GND	7	8	N9 N11
GND	9	10	+5V

2.3.21 Power connector (PWRCON1)
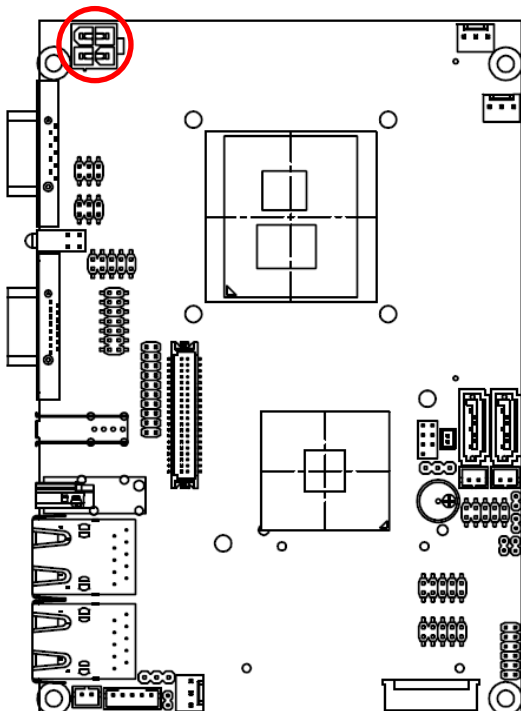
Signal	PIN	PIN	Signal
GND	2	4	VIN
GND	1	3	VIN

2.4   Audio / USB Daughter Board User's Guide

2.4.1   Jumper and Connector Layout
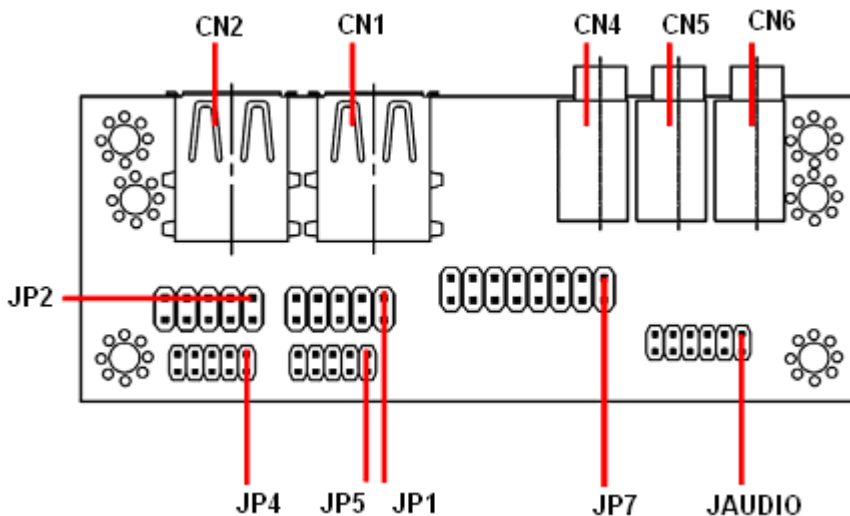
2.4.2   Jumper and Connector List

Connectors

Label	Function	Note
CN1, CN2	USB connector	
CN4	Line out connector	Phone Jack
CN5	Line in connector	Phone Jack
CN6	Mic in connector	Phone Jack
JAUDIO	Audio connector	6 x 2 header, pitch 2.0mm
JP1	2.54mm USB connector	5 x 2 header, pitch 2.54mm
JP2	2.54mm USB connector	5 x 2 header, pitch 2.54mm
JP4	2.0mm USB connector	5 x 2 header, pitch 2.0mm
JP5	2.0mm USB connector	5 x 2 header, pitch 2.0mm
JP7	TV / Audio connector	8 x 2 header, pitch 2.54mm

2.4.3 Setting Jumper and Connector

Audio Connector (JAUDIO)

Signal	PIN	PIN	Signal
OUTR	1	2	OUTL
GND	3	4	GND
INR1	5	6	INL1
MICIN1	7	8	AREF
FRONT-JD1	9	10	LINE1-JD1
MIC1-JD1	11	12	GND

2.54mm USB Connector (JP1)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	+5V

Note: Wrong USB cable configuration with your USB devices might cause your USB devices damaged.

2.54mm USB Connector (JP2)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D3-	3	4	GND
D3+	5	6	D4+
GND	7	8	D4-
GND	9	10	+5V

TV / Audio Connector (JP7)

Signal	PIN	PIN	Signal
Mic In	1	2	Mic Bais
GND	3	4	GND
Line out L	5	6	Line out R
SPK L	7	8	SPK R
Line in L	9	10	Line in R
GND	11	12	NC
TVGND	13	14	NC
TVGND	15	16	COMP

2.0mm USB Connector (JP4)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D3-	3	4	GND
D3+	5	6	D4+
GND	7	8	D4-
GND	9	10	+5V

2.0mm USB Connector (JP5)

Signal	PIN	PIN	Signal
+5V	1	2	GND
D1-	3	4	GND
D1+	5	6	D2+
GND	7	8	D2-
GND	9	10	+5V

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