

# **ECM-VX900** A.2.

**3.5" VIA VX900 Micro Module**

## **Quick Installation Guide**



**1<sup>st</sup> Ed – 23 April 2012**

### 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.

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### 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

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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

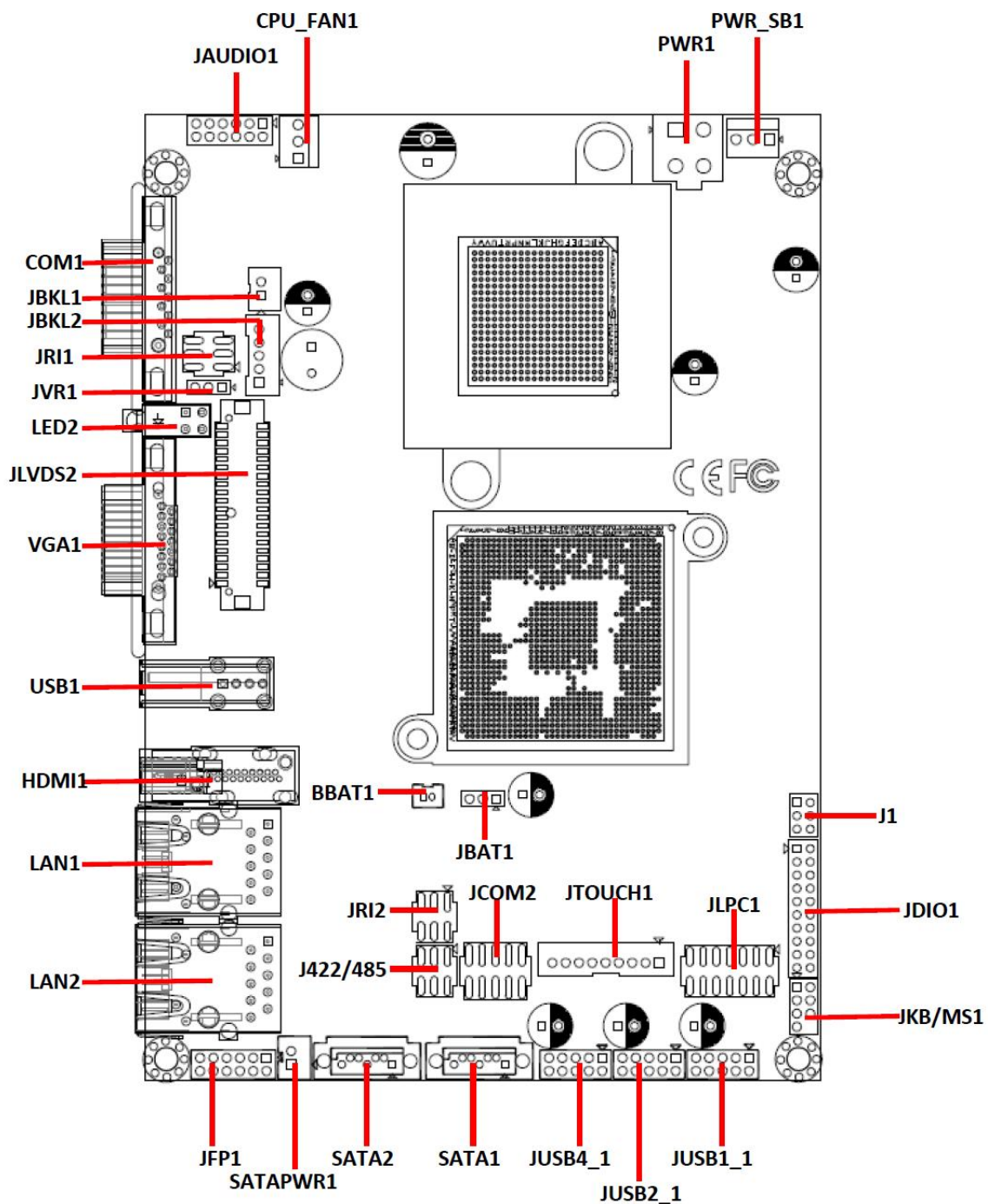
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x 3.5" ECM-VX900 Micro Module
- 1 x Quick Installation Guide for ECM-VX900
- 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)

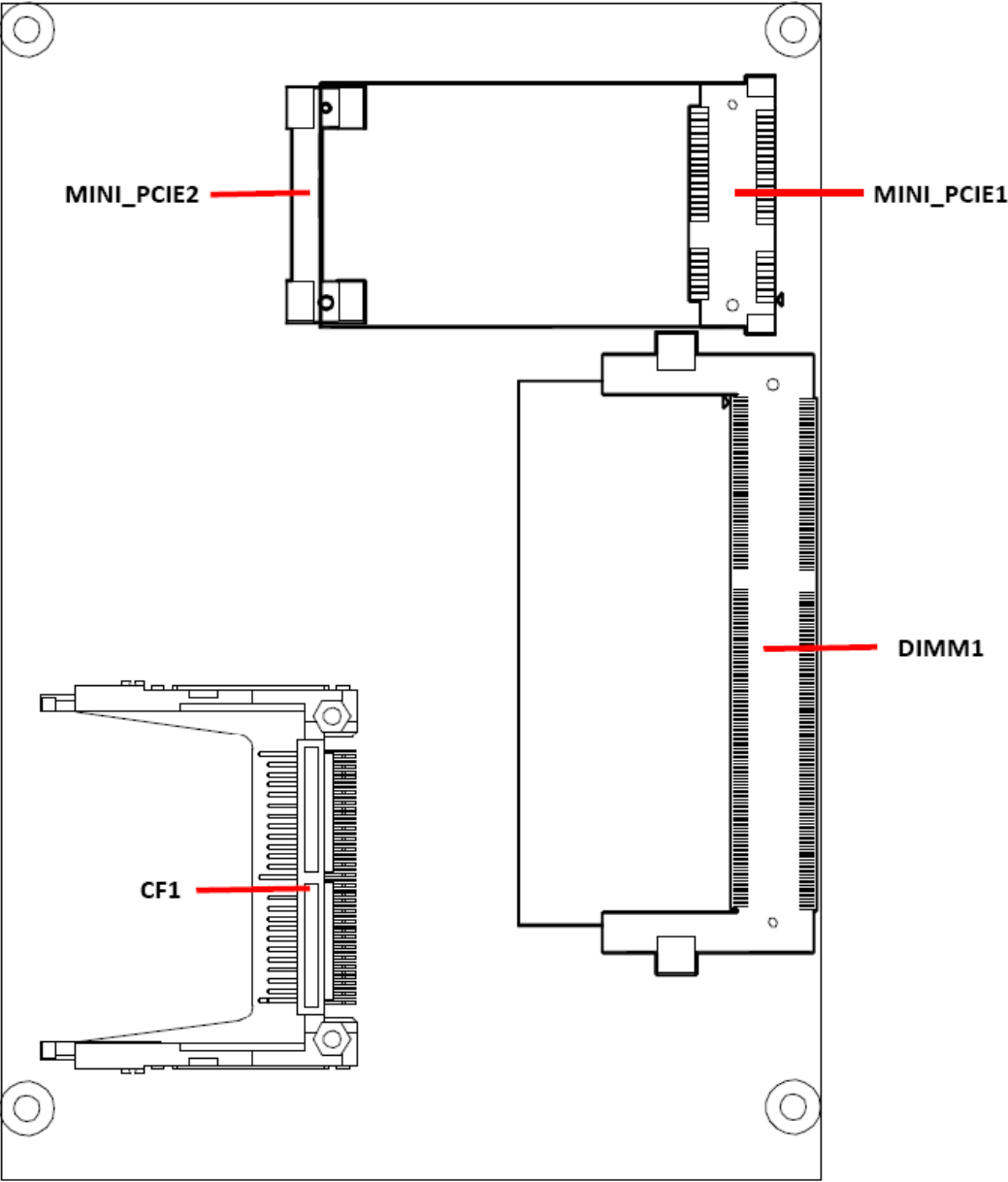
## 2. Hardware Configuration

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## 2.1 Product Overview



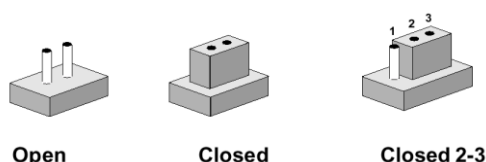
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### 2.2 Jumper and Connector List

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
<b>JBAT1</b>	Clear CMOS	3 x 1 header, pitch 2.00 mm
<b>JFP1</b>	Multi-purpose connector	6 x 2 header, pitch 2.0 mm
<b>JRI1</b>	Serial port 1 (COM1) signal selector	3 x 2 header, pitch 2.0 mm
<b>JRI2</b>	Serial port 2 (COM2) signal selector	3 x 2 header, pitch 2.0 mm



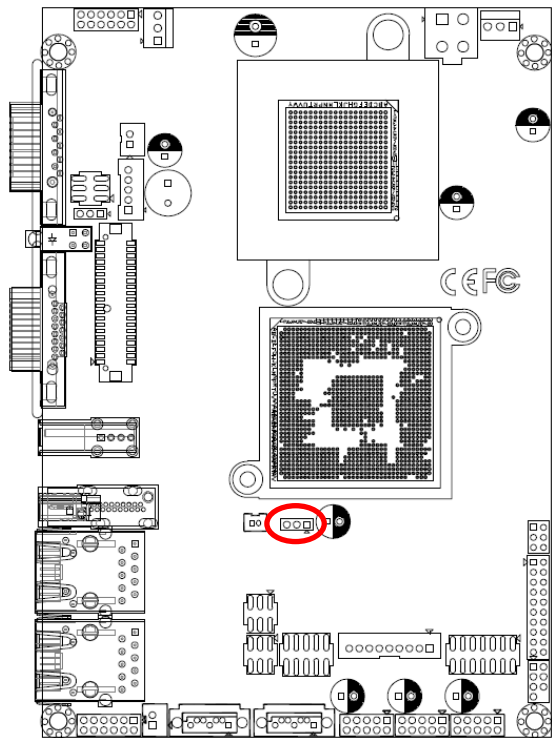
## Connectors

Label	Function	Note
<b>BBAT1</b>	Battery connector	2 x 1 wafer, pitch 1.25 mm
<b>COM1</b>	Serial port 1 connector	D-sub 9-pin, male
<b>CF1</b>	CF card connector	CF type II 50 pin
<b>CPU_FAN1</b>	CPU fan connector	3 x 1 wafer, pitch 2.54 mm
<b>DIMM1</b>	204-pin DDR3 SODIMM socket	
<b>HDMI1</b>	HDMI connector	
<b>J422/485</b>	Serial port 2 in RS-422/485 mode	3 x 2 header, pitch 2.0 mm
<b>JAUDIO1</b>	Audio connector	6 x 2 header, pitch 2.0 mm
<b>JBKL1</b>	+12V power connector	2 x 1 wafer, pitch 2.0 mm
<b>JBKL2</b>	LCD inverter connector	5 x 1 wafer, pitch 2.0 mm
<b>JCOM2</b>	Serial port 2 connector	5 x 2 header, pitch 2.0 mm
<b>JDIO1</b>	General purpose I/O connector	10 x 2 header, pitch 2.0 mm
<b>JKB/MS1</b>	PS2 KB/MS connector	4 x 2 header, pitch 2.0 mm
<b>JLPC1</b>	Low Pin count connector	7 x 2 header, pitch 2.0 mm
<b>JLVDS2</b>	LVDS Connector	20 x 2 box, pitch 1.25 mm
<b>JTOUCH1</b>	Touch Panel Connector	9 x 1 wafer box, pitch 2.00 mm
<b>JUSB1-1</b>	USB connector 0 & 1	5 x 2 header, pitch 2.0 mm
<b>JUSB2-1</b>	USB connector 2 & 3	5 x 2 header, pitch 2.0 mm
<b>JUSB4-1</b>	USB connector 4 & 5	5 x 2 header, pitch 2.0 mm
<b>JVR1</b>	LCD backlight brightness adjustment	3 x 1 header, pitch 2.00 mm
<b>J1</b>	SPI Connector	3 x 2 header, pitch 2.00 mm
<b>LAN1/ LAN2</b>	RJ-45 Ethernet connector	
<b>LED2</b>	LED connector	
<b>MINI_PCIE1</b>	PCI Express connector	52 header
<b>MINI_PCIE2</b>	PCI Express latch	
<b>PWR_SB1</b>	5VSB connector in ATX	3 x 1 wafer, pitch 2.54 mm
<b>PWR1</b>	Power connector	2 x 2 wafer, pitch 4.2 mm
<b>SATA1</b>	Serial ATA connector 1	
<b>SATA2</b>	Serial ATA connector 2	
<b>SATAPWR1</b>	Serial ATA power connector 1	2 x 1 wafer, pitch 2.00 mm
<b>USB1</b>	USB connector 6	
<b>VGA1</b>	VGA connector	D-sub 15-pin, female

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2.3 Setting Jumpers & Connectors

2.3.1 Clear CMOS (JBAT1)



Protect\*

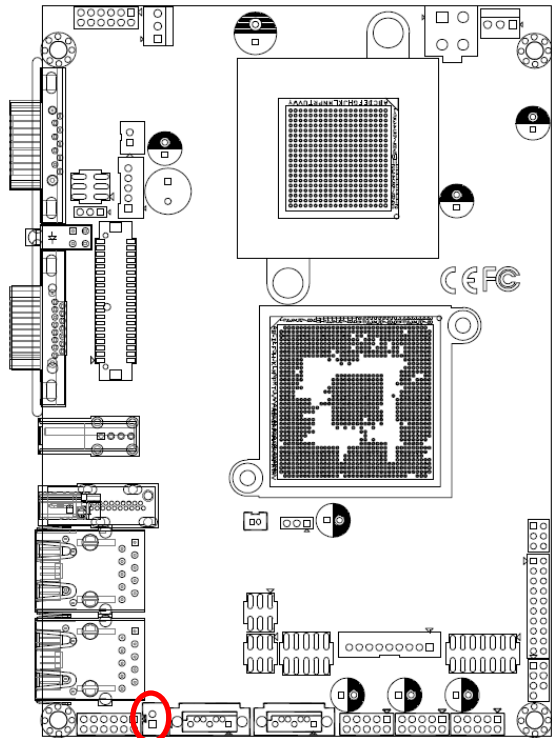


Clear CMOS



\* Default

2.3.2 Serial ATA power connector (SATAPWR1)

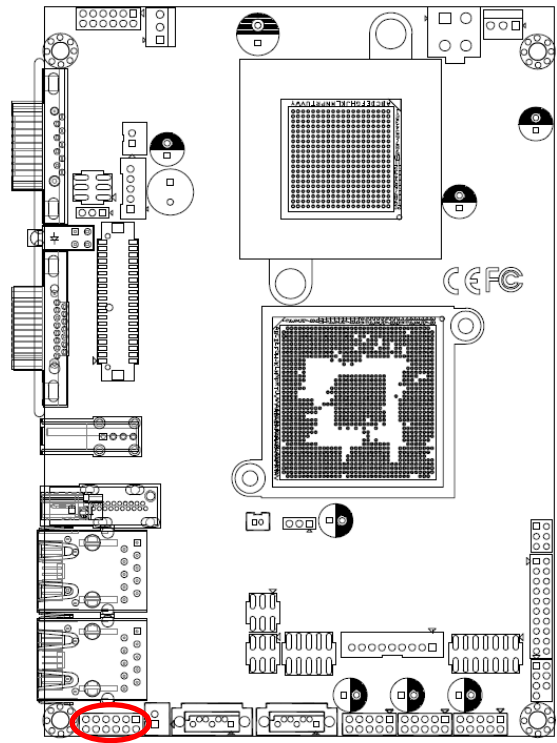


Signal	PIN
+5V	2
GND	1

\* Default

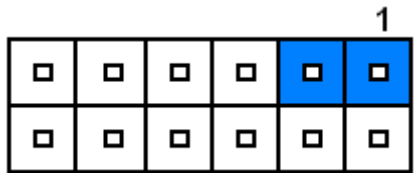
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2.3.3 Multi-purpose connector (JFP1)



\* Default

AT mode\*

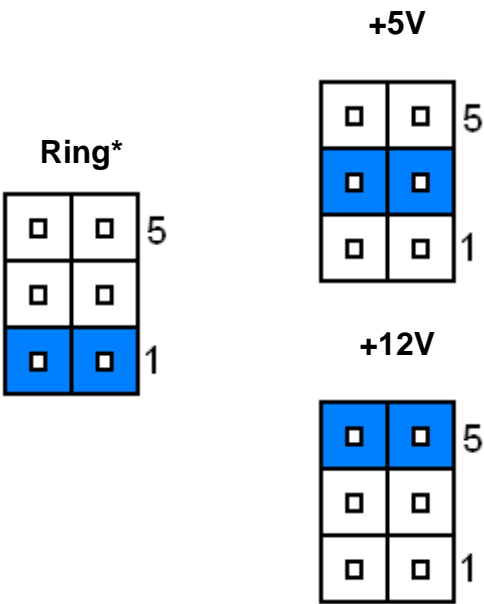
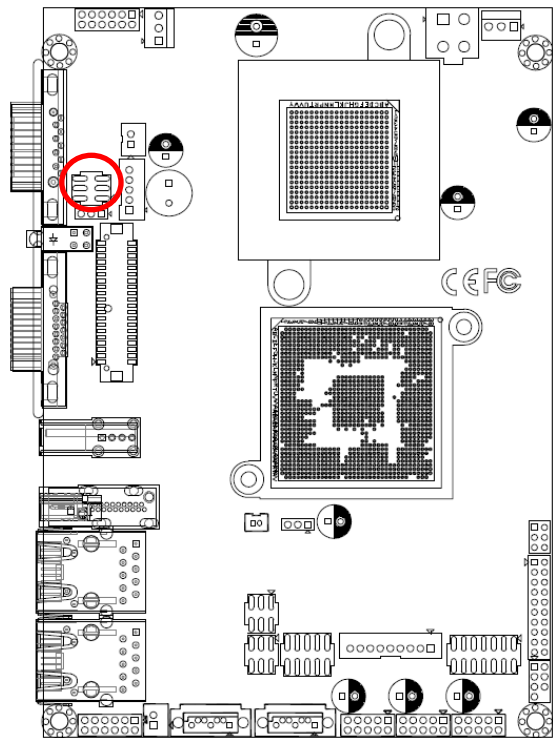


Signal	PIN	PIN	Signal
PWRBTN#	1	2	GND
AUTO_PWR_ON	3	4	GND
-RST_SW	5	6	GND
CF_SEL#	7	8	GND
PWR_LED+	9	10	PWR_LED
HD_LED+	11	12	HD_LED

Jumper settings

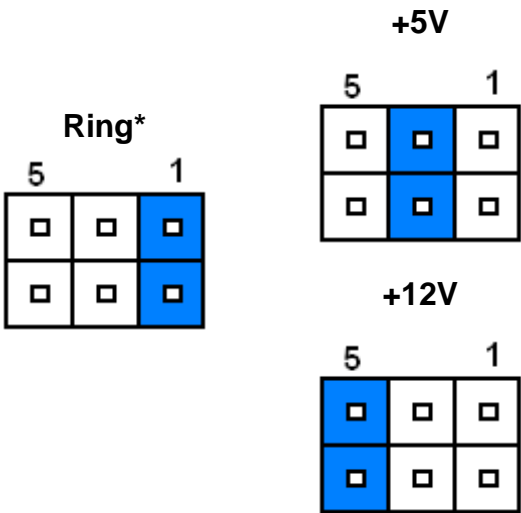
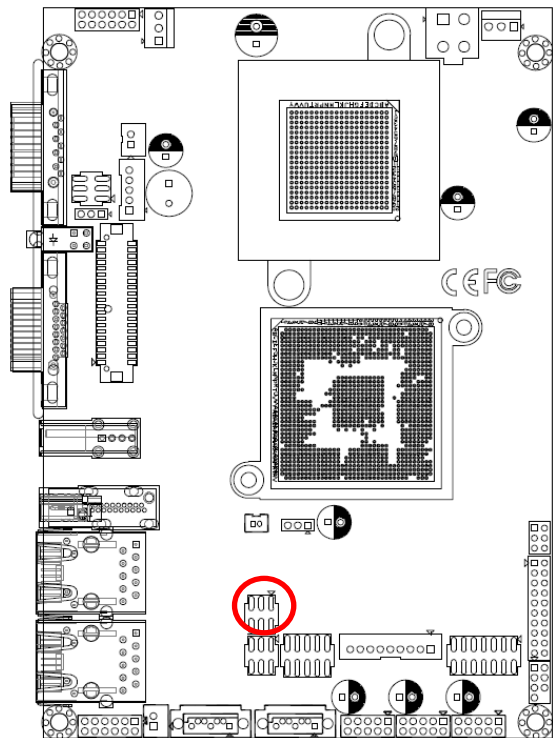
PIN	Signal
1-2	PWBT
1-3	AT PWR MODE
5-6	RST#
7-8	CF SEL Short Master Open Slave (Default)
9-10	PWR-LED
11-12	HDD-LED

2.3.4 Serial port 1 (COM1) signal selector (JRI1)



\* Default

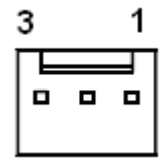
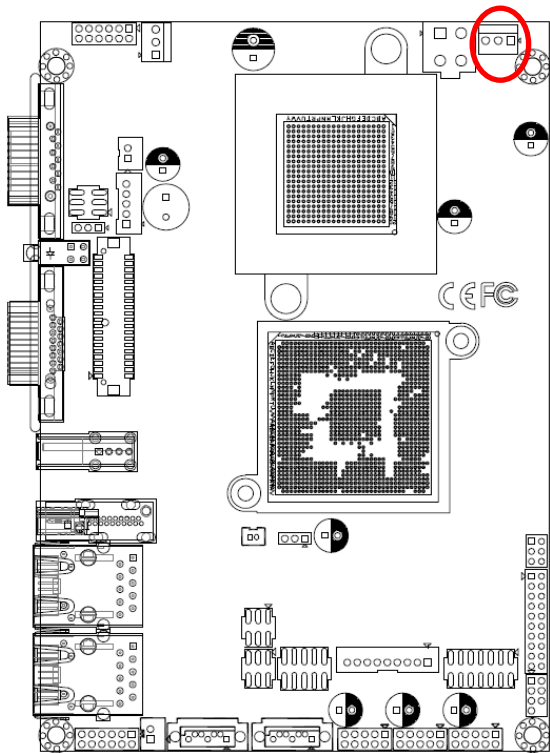
2.3.5 Serial port 2 (COM2) signal selector (JRI2)



\* Default

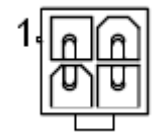
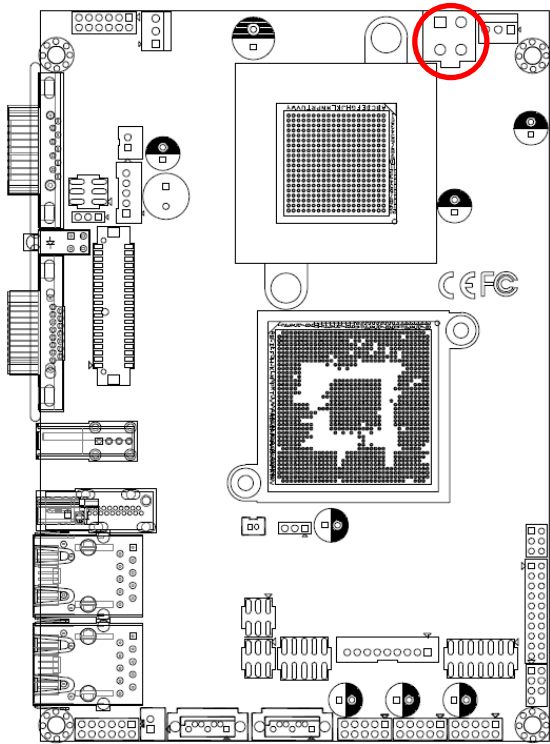
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2.3.6 5VSB connector in ATX (PWR\_SB1)



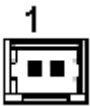
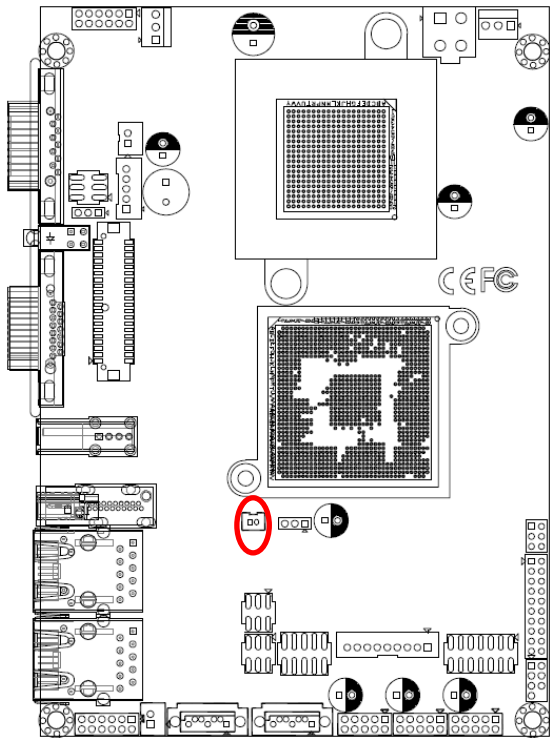
Signal	PIN
ATX5VSB	3
GND	2
PSON	1

2.3.7 Power connector (PWR1)



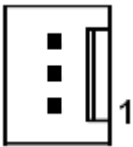
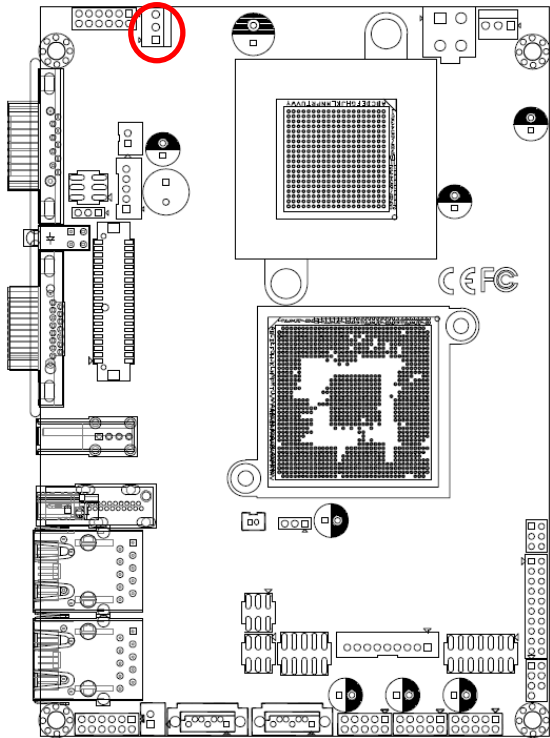
Signal	PIN	PIN	Signal
GND	1	2	GND
+VIN	3	4	+VIN

2.3.8 Battery connector (BBAT1)



Signal	PIN
+V3.3A	1
GND	2

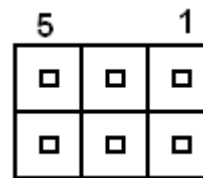
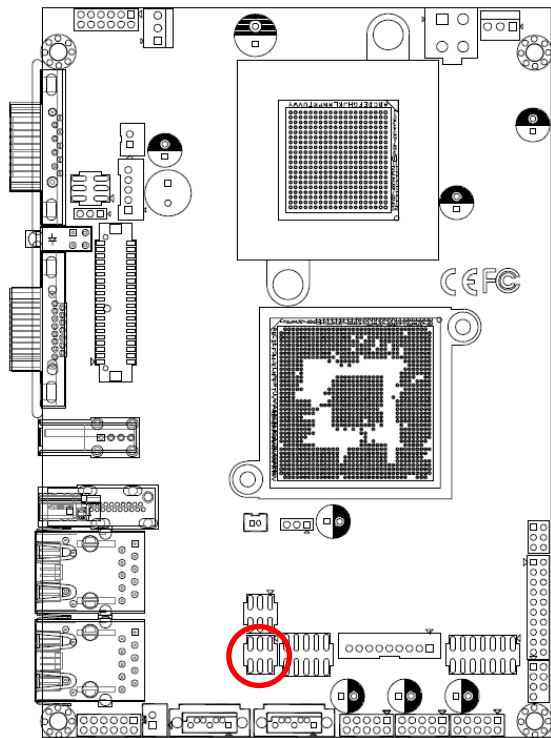
2.3.9 CPU fan connector (CPU\_FAN1)



Signal	PIN
FAN_TACHOIN	3
+V12S	2
GND	1

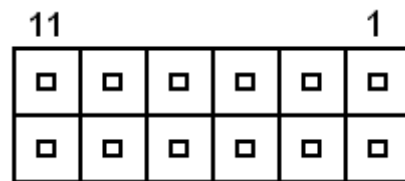
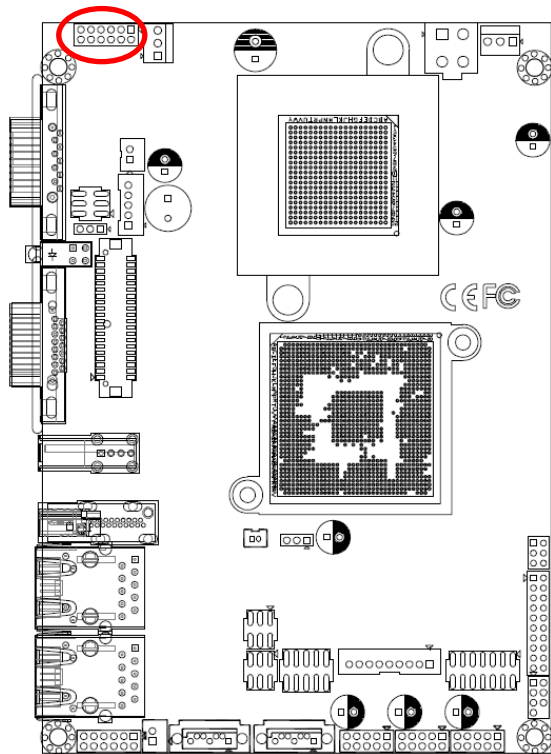
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2.3.10 Serial port 2 in RS-422/485 mode (J422/485)



Signal	PIN	PIN	Signal
485RX-	2	1	485TX-
485RX+	4	3	485TX+
GND	6	5	+5V

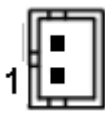
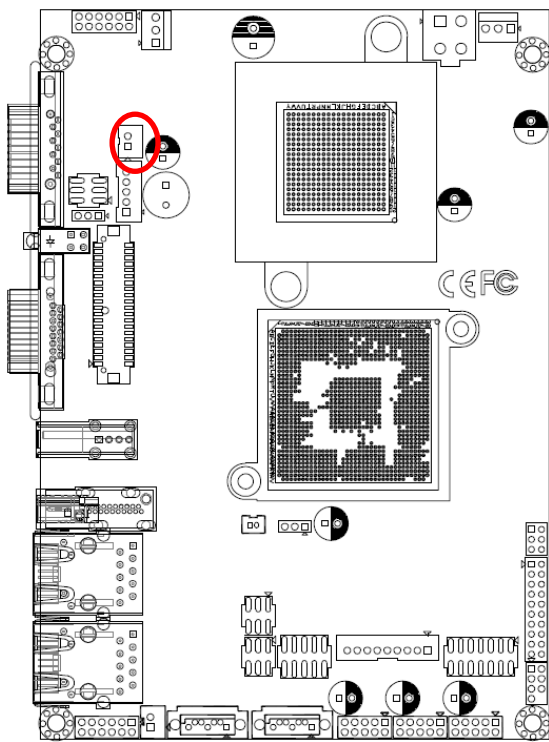
2.3.11 Audio connector (JAUDIO1)



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

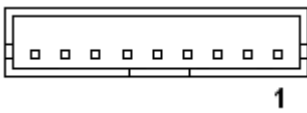
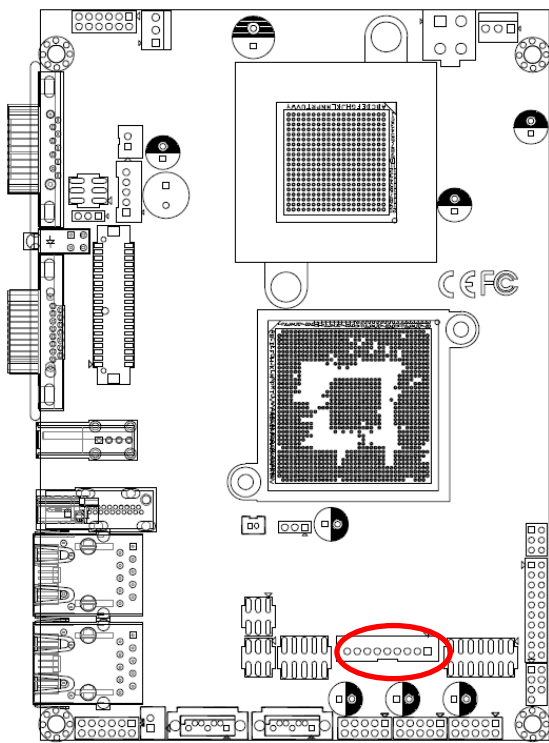


2.3.12 +12V power connector (JBKL1)



Signal	PIN
GND	2
+12V	1

2.3.13 Touch Panel connector (JTOUCH1)

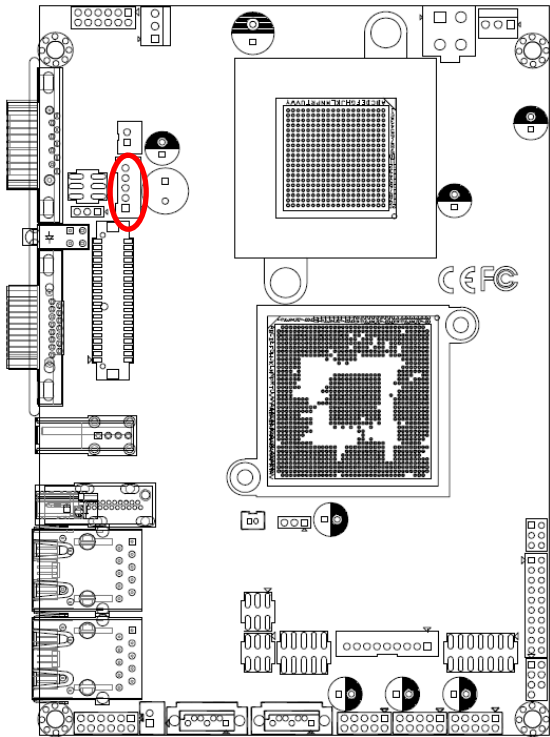


Signal	PIN	4-Wire	5-Wire	8-Wire
X+	1	NA	NA	Right Sense
X-	2	NA	NA	Left Sense
Y+	3	NA	NA	Bottom Sense
SENSE	4	NA	Sense	Top Sense
X+	5	Right	LR	Right Excite
X-	6	Left	LL	Left Excite
Y+	7	Bottom	UR	Bottom Excite
Y-	8	Top	UL	Top Excite
TOUCH_GND	9	GND	GND	GND



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2.3.13 LCD Inverter Connector (JBKL2)



Signal	PIN
+V5S	5
L_BKLT_CTRL_R	4
LVDS_BKLT_EN	3
GND	2
+V12S	1

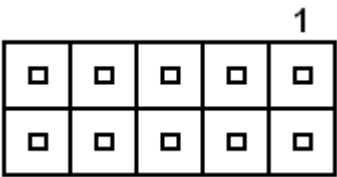
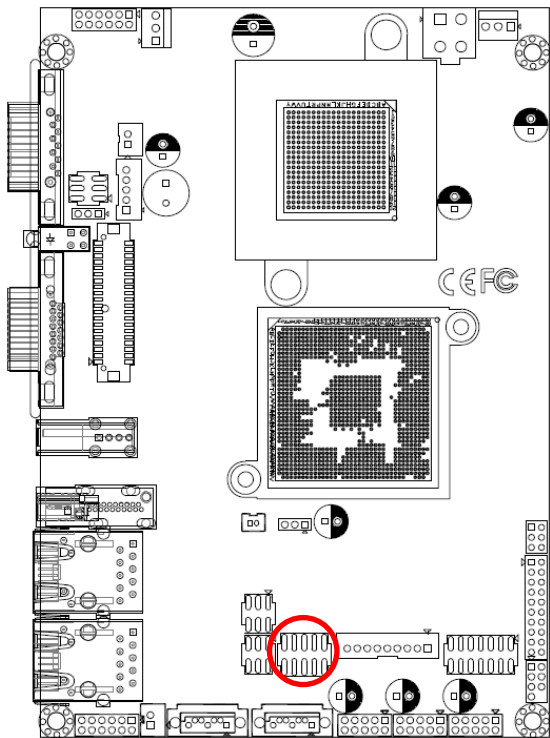


**Note:**  
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JVR1**. Please see the **JVR1** section for detailed circuitry information.

2.3.13.1 Signal Description – LCD Inverter Connector (JBKL2)

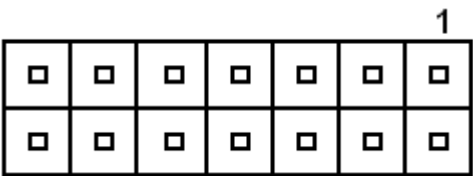
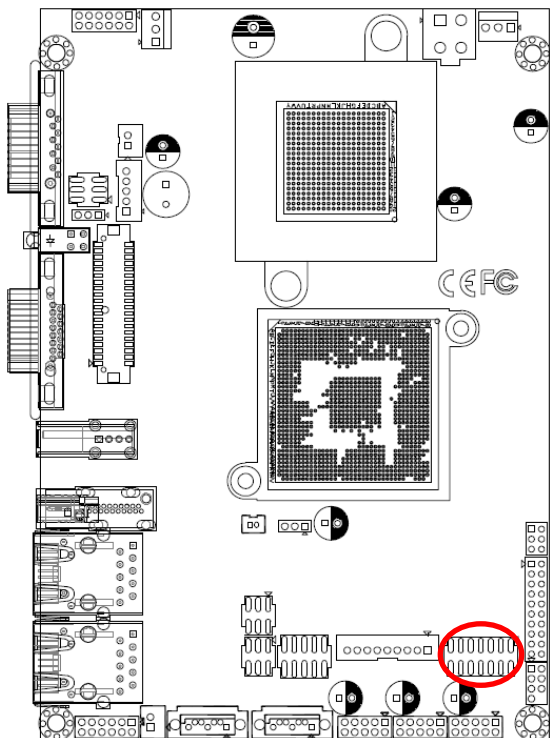
Signal	Signal Description
L_BKLT_CTRL_R	Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W)
BLEN	LCD backlight ON/OFF control signal

2.3.14 Serial port 2 connector (JCOM2)



Signal	PIN	P N	Signal
DCD#_2	1	2	RxD_2
TxD_2	3	4	DTR#_2
GND	5	6	DSR#_2
RTS#_2	7	8	CTS#_2
RI#_2	9	10	NC

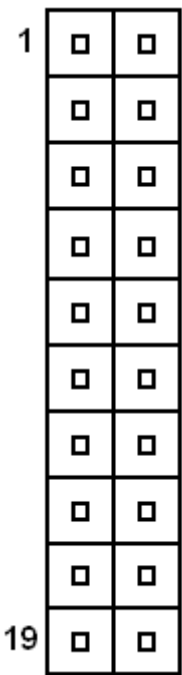
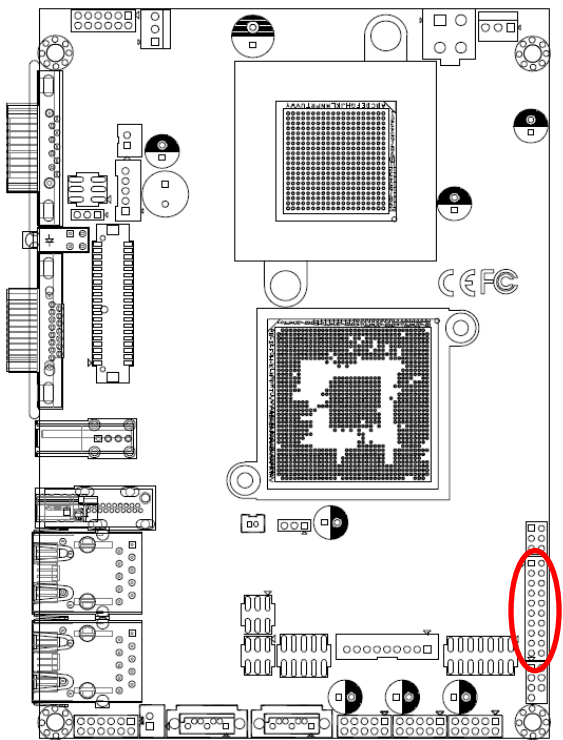
2.3.15 Low Pin Count connector (JLPC1)



Signal	PIN	PIN	Signal
AD0	1	2	+V3.3S
AD1	3	4	RST#
AD2	5	6	FRAME#
AD3	7	8	CLK
SERIRQ	9	10	GND
+V5S	11	12	GND
+V5A	13	14	GND

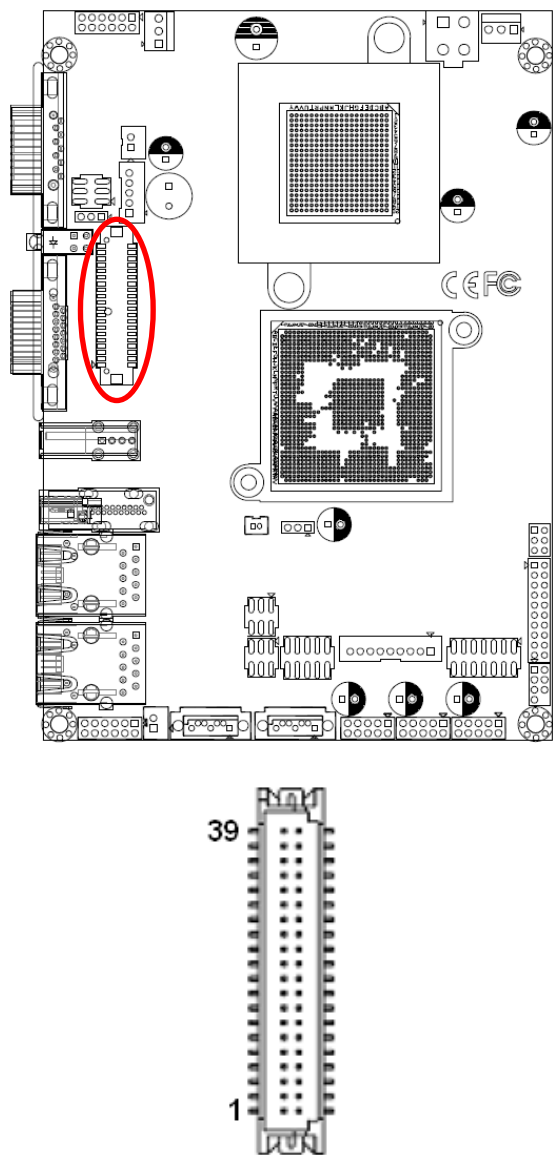
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2.3.16 General purpose I/O connector (JDIO)



Signal	PIN	PIN	Signal
DIO_OUT0	1	2	DIO_IN0
DIO_OUT1	3	4	DIO_IN1
DIO_OUT2	5	6	DIO_IN2
DIO_OUT3	7	8	DIO_IN3
DIO_OUT4	9	10	DIO_IN4
DIO_OUT5	11	12	DIO_IN5
DIO_OUT6	13	14	DIO_IN6
DIO_OUT7	15	16	DIO_IN7
SMB_CK	17	18	SMB_DT
GND	19	20	+5V

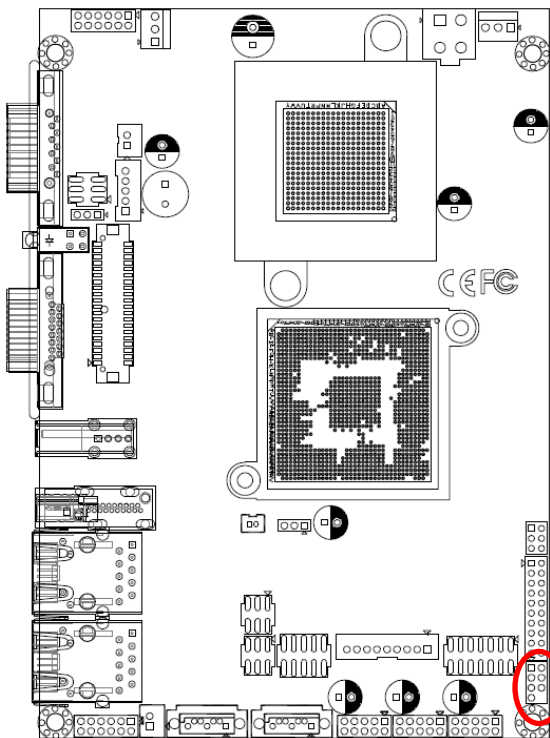
2.3.17 LVDS connector (JLVDS2)



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

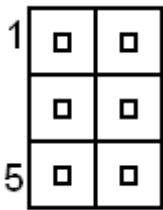
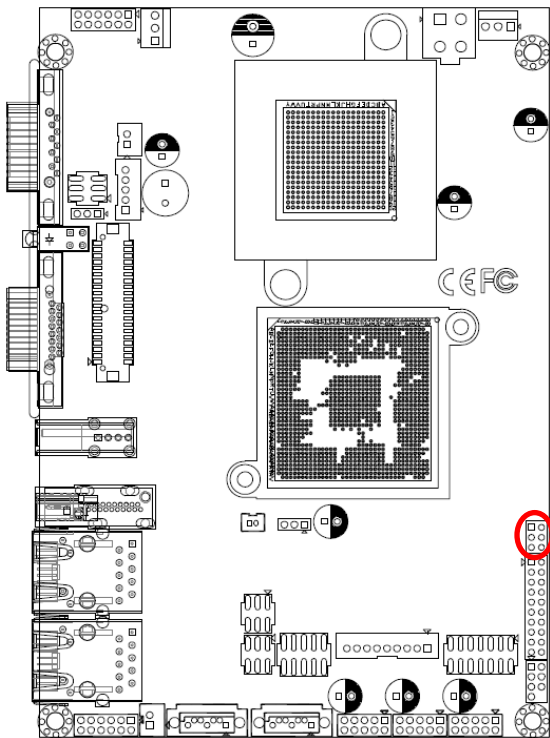
ECM-VX900 Quick Installation Guide

2.3.18 PS2 KB/MS connector (JKB/MS1)



Signal	PIN	PIN	Signal
KB_DT	1	2	KB_CK
GND	3	4	PS2PWR
MS_DT	5	6	MS_CK
NC	7		

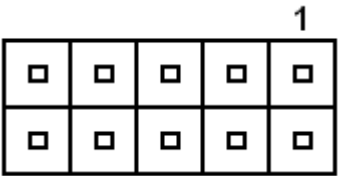
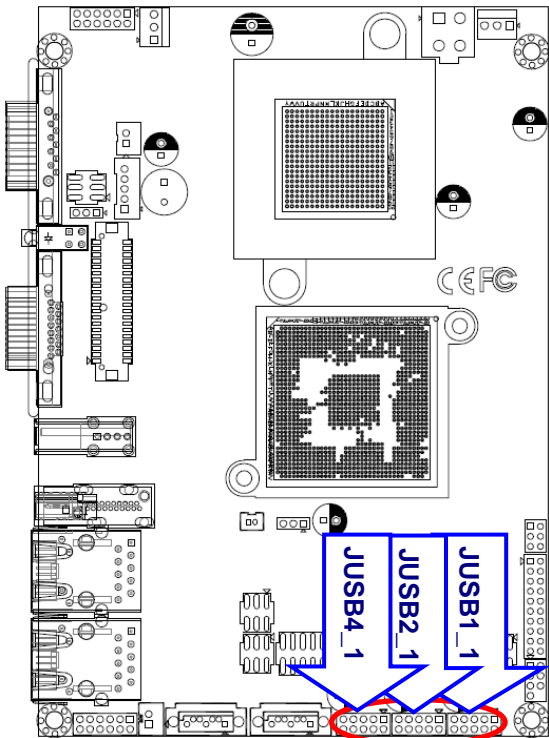
2.3.19 SPI connector (J1)



Signal	PIN	PIN	Signal
+V3.3A	1	2	GND
SS0	3	4	CLK
DI	5	6	DO

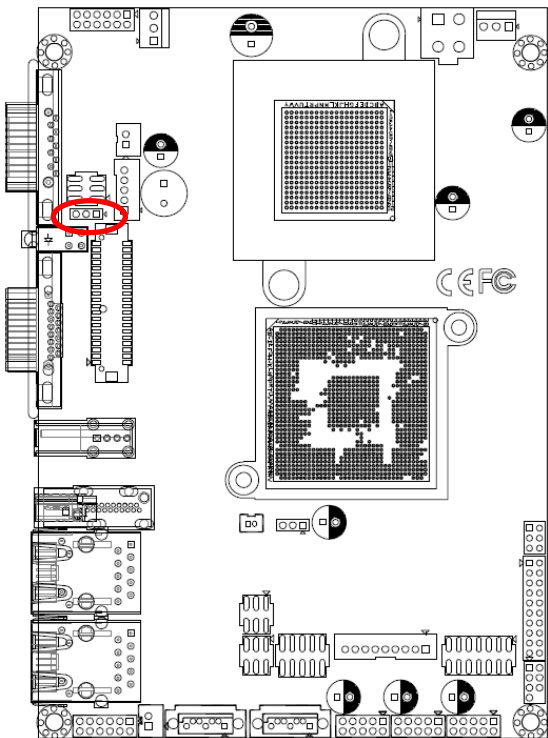
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2.3.20 USB connector 0 & 1/ 2 & 3/ 4&5 (JUSB1\_1/ JUSB2\_1/ JUSB4\_1)

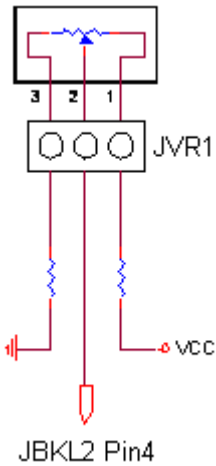


Signal	PIN	PIN	Signal
+5V	1	2	GND
N1/ N2/N4	3	4	GND
P1/ P2/P4	5	6	P0/ P3/P5
GND	7	8	N0/ N3/N5
GND	9	10	+5V

2.3.21 LCD backlight brightness adjustment (JVR1)



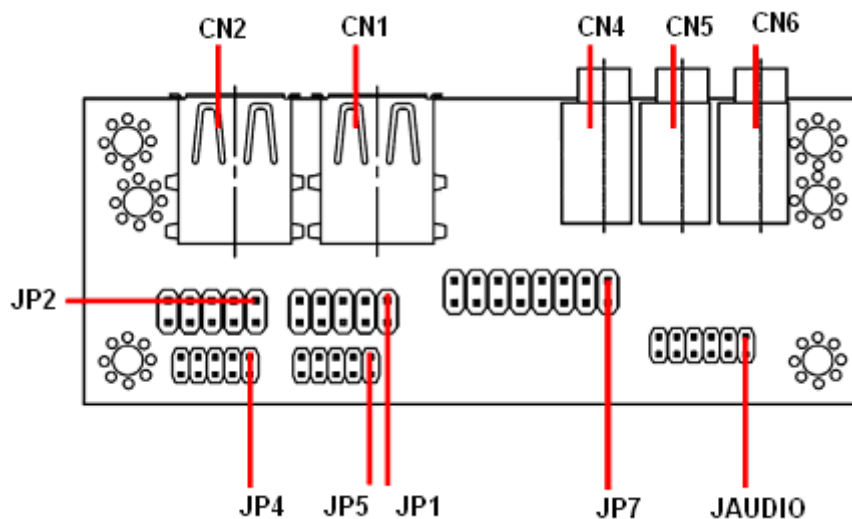
Signal	PIN
+5V	1
L_BKLT_CTRL_R	2
GND	3



Variation Resistor  
(Recommended: 4.7KΩ,  
>1/16W)

## 2.4 Audio / USB Daughter Board (AUX-032) 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

## ECM-VX900 Quick Installation Guide

### 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 damage USB devices.

#### 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

