

EBM-CDV

5.25" Intel Cedarview Atom Mini Module

Quick Installation Guide



1st Ed – 18 May 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.

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

Copyright © 2012 Avalue Technology Inc., ALL RIGHTS RESERVED.

No part of this document may be reproduced, copied, translated, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the prior written permission of the original manufacturer.

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.

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/>

Headquarters and Branch

Avalue Technology Inc.

7F, 228, Lian-cheng Road, Chung Ho City, Taipei, Taiwan

Tel: +886-2-8226-2345

Fax: +886-2-8226-2777

Information: sales@avalue.com.tw

Service: service@avalue.com.tw

Avalue USA

Avalue Technology Inc.

200 Tornillo Way, Suite 210, Tinton Falls,
NJ 07712

Tel: +1-732-578-0200

Fax: +1-732-578-0250

Information: sales@avalue-usa.com

Service: support@avalue-usa.com

Avalue Europe

Avalue Europe A/S

Moelledalen 22C, 3140
Aalsgaarde, Denmark

Tel: +45-7025-0310

Fax: +45-4975-5026

Information: sales.europe@avalue.com.tw

Service: service.europe@avalue.com.tw

BCM Advanced Research

BCM Advanced Research an Avalue Company

7 Marconi, Irvine, CA92618

Tel: +1-949-470-1888

Fax: +1-949-470-0971

Information: BCMSales@bcmcom.com

Web: www.bcmcom.com

Avalue China

Avalue Technology Inc.

Room 805, Building 9, No.99 Tianzhou Rd.,
Caohejing Development Area,

Xuhui District, Shanghai

Tel: +86-21-5169-3609

Fax: +86-21-5445-3266

Information: sales.china@avalue.com.cn

Service: service@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.

1.2 Packing List

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

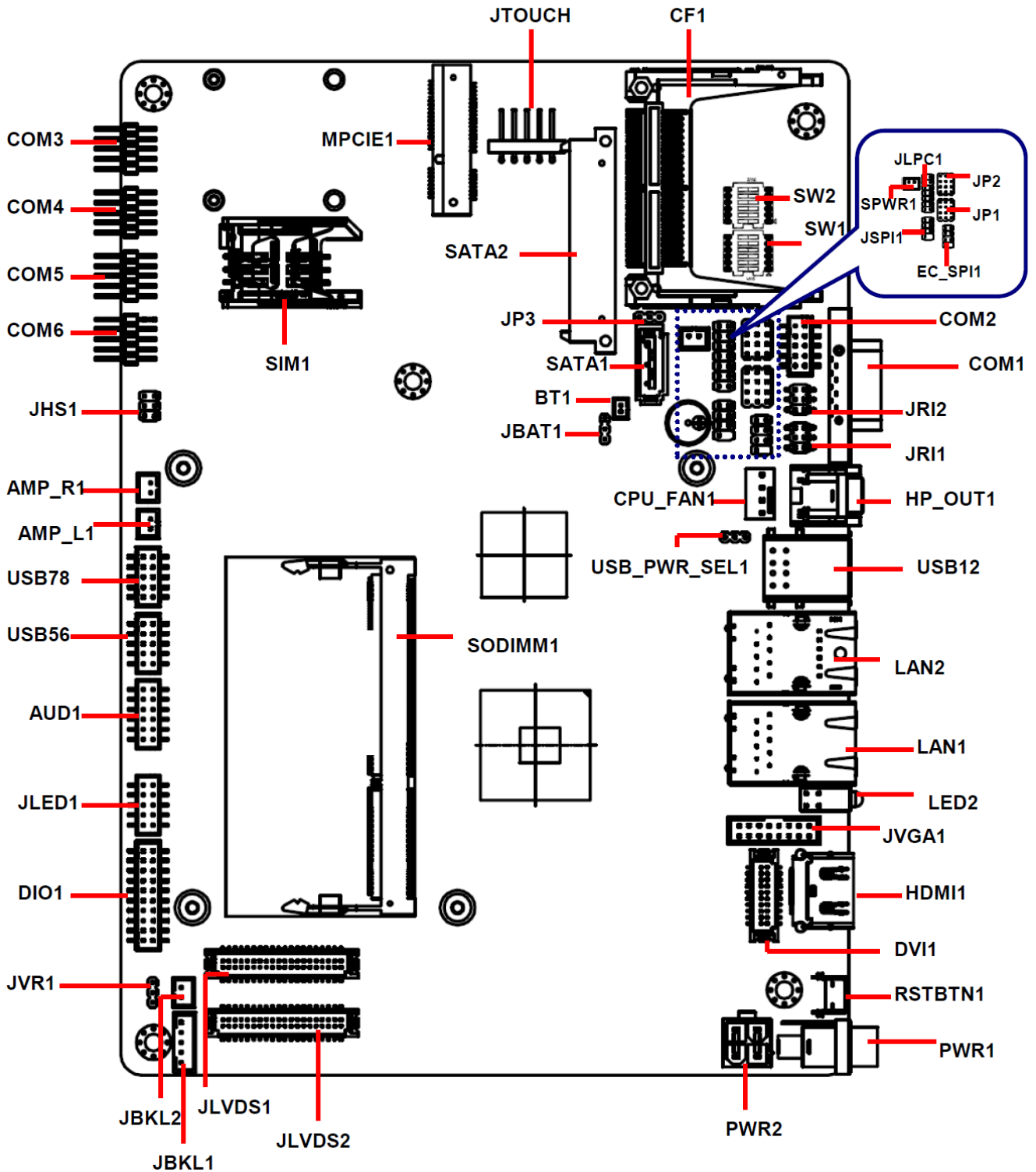
- 1 x EBM-CDV 5.25" Intel Cedarview Atom Mini Module
- 1 x DVD-ROM or CD-ROM contains the followings:
 - User's Manual (this manual in PDF file)
 - Ethernet driver and utilities
 - VGA drivers and utilities
 - Audio drivers and utilities



If any of the above items is damaged or missing, contact your retailer.

2. Hardware Configuration

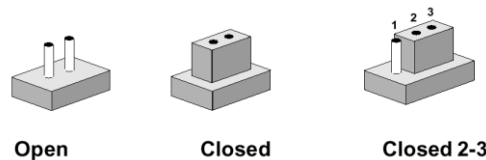
2.1 Product Overview



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
JBAT1	Clear CMOS	3 x 1 header, pitch 2.00mm
JP1	Serial port 1 – RS232/ 422/ 485 mode select	4 x 3 header, pitch 2.00mm
JP2	Serial port 2 – RS232/ 422/ 485 mode select	4 x 3 header, pitch 2.00mm
JP3	SATA Power select	3 x 1 header, pitch 2.00mm
JRI1	Serial port 1 pin9 signal select	3 x 2 header, pitch 2.00mm
JRI2	Serial port 2 pin9 signal select	3 x 2 header, pitch 2.00mm
JVR1	LCD backlight brightness adjustment	3 x 1 header, pitch 2.00mm
SW1	Serial port 1/ 2 – RS232/ 422/ 485 mode select	DIP switch 6pin
SW2	Multi-function select	DIP switch 6pin
JHS1	Handset Speaker Out selector	3 x 2 header, pitch 2.00mm

EBM-CDV Quick Installation Guide

USB_PWR_SEL1	USB Power select	3 x 1 header, pitch 2.00mm
---------------------	------------------	----------------------------

Connectors

Label	Function	Note
CF1	Compact Flash card connector	
COM1	Serial Port 1 connector	D-sub 9 pin, male
CPU_FAN	CPU fan connector	3 x 1 wafer, pitch 2.54mm
SODIMM1	204-pin DDR3 SODIMM socket	
AUD1	Audio connector	6 x 2 wafer, pitch 2.00mm
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm
JBKL2	LCD Inverter connector	2 x 1 wafer, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 wafer, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 wafer, pitch 2.00mm
COM4	Serial Port 4 connector	5 x 2 wafer, pitch 2.00mm
COM5	Serial Port 5 connector	5 x 2 wafer, pitch 2.00mm
COM6	Serial Port 6 connector	5 x 2 wafer, pitch 2.00mm
DIO1	General purpose I/O connector	10 x 2 wafer, pitch 2.00mm
JLED1	LED indicator connector1	5 x 2 wafer, pitch 2.00mm
LED2	HDD/Power LED indicator	
JLVDS1	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm
JLVDS2	LVDS Connector	DIN 40-pin wafer, pitch 1.25mm
JTOUCH	Touch panel connector	5 x 1 header, pitch 2.54mm
USB12	USB connector 1&2	
USB56	USB connector 5&6	5 x 2 wafer, pitch 2.00mm
USB78	USB connector 7&8	5 x 2 wafer, pitch 2.00mm
DVI1	DVI connector	10 x 2 wafer, pitch 1.25mm
LAN1	RJ-45 Ethernet 1	
LAN2	RJ-45 Ethernet 1	
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
AMP_R1	AMPLIFIER_R1	2 x 1 wafer, pitch 2.00mm
AMP_L1	AMPLIFIER_L1	2 x 1 wafer, pitch 2.00mm
MPCIE1	Mini-PCI connector 1	
JLPC1	LPC connector	7 x 2 header, pitch 2.00mm
PWR1	Power connector	
PWR2	Power connector	2 x 2 wafer, pitch 4.2mm
RSBTN	Reset button	
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
EC_SPI1	EC_Program	4 x 2 header, pitch 2.00mm
SPWR1	SATA Power connector 1	2 x 1 wafer, pitch 2.00mm
SATA1	Serial ATA connector 1	

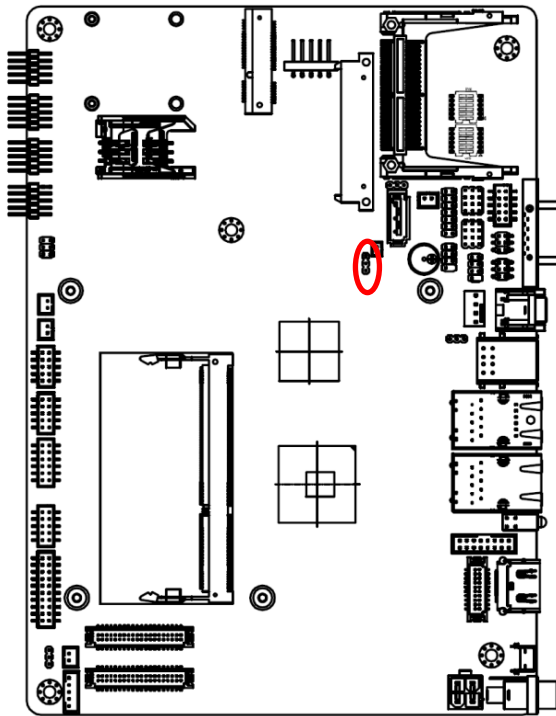
Quick Installation Guide

SATA2	Serial ATA connector 2	
SIM1	SIM card slot	
HDMI1	HDMI connector	
HP_OUT1	Handphone_out connector	
JVGA1	VGA connector	8 x 2 wafer, pitch 2.00mm

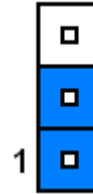
EBM-CDV Quick Installation Guide

2.3 Setting Jumpers & Connectors

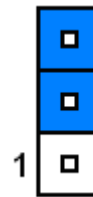
2.3.1 Clear CMOS (JBAT1)



Protect*

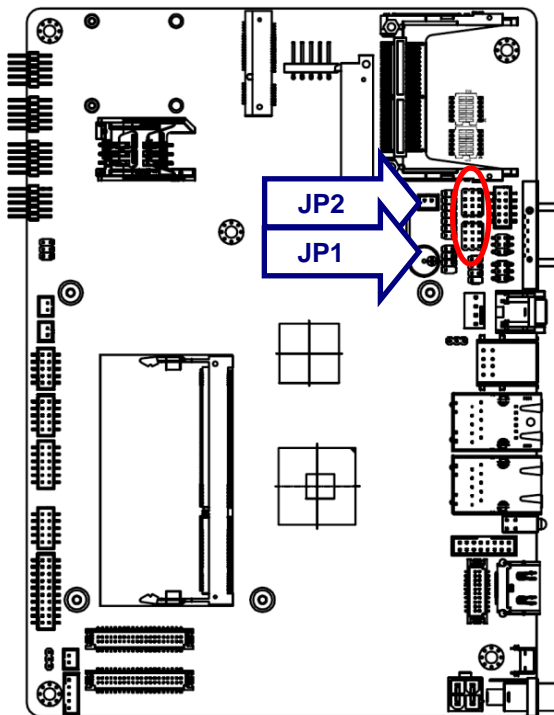


Clear CMOS

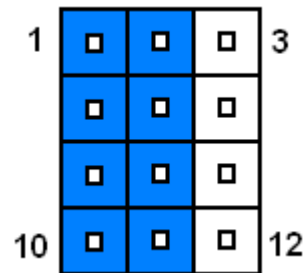


* Default

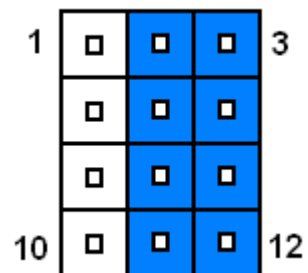
2.3.2 Serial port 1/ 2 RS-232/ 422/ 485 mode select (JP1/ JP2)



RS-232*

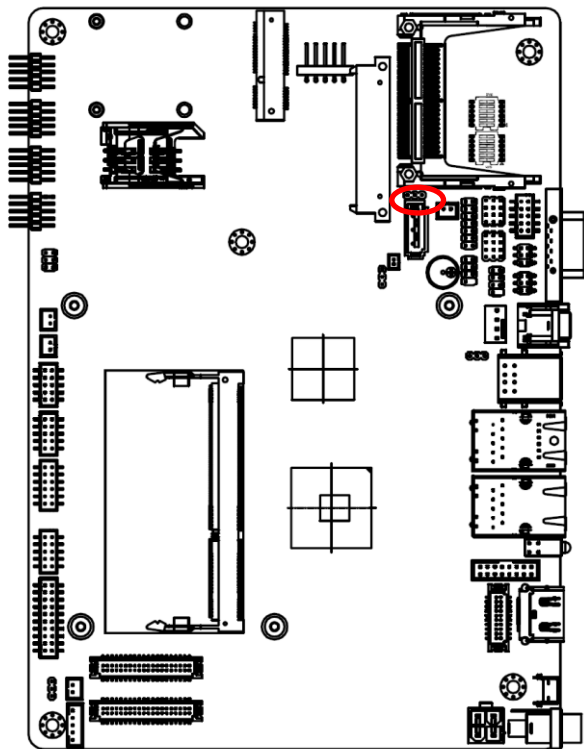


RS-422/ 485

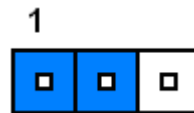
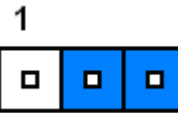


* Default

2.3.3 SATA Power select (JP3)

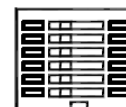
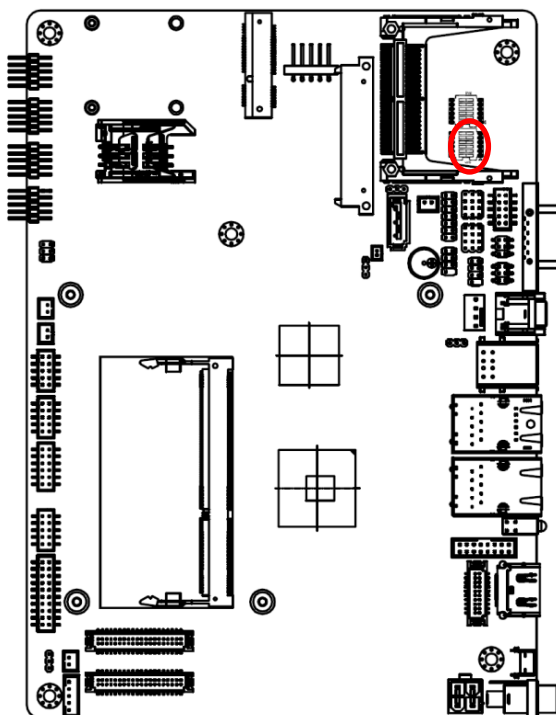


* Default



Signal	PIN
SATA_PWR1	1
SATA1 P7	2
GND	3

2.3.4 Serial port 1/ 2 – RS232/ 422/ 485 mode select (SW1)



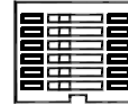
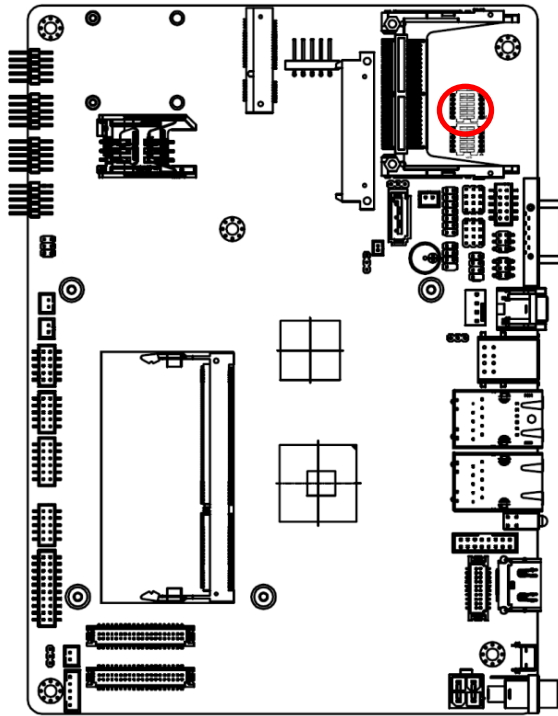
In Serial Port 1 mode

	RS-232	RS-422	RS-485
1	ON	OFF	OFF
2	OFF	ON	OFF
3	OFF	OFF	ON

In Serial Port 2 mode

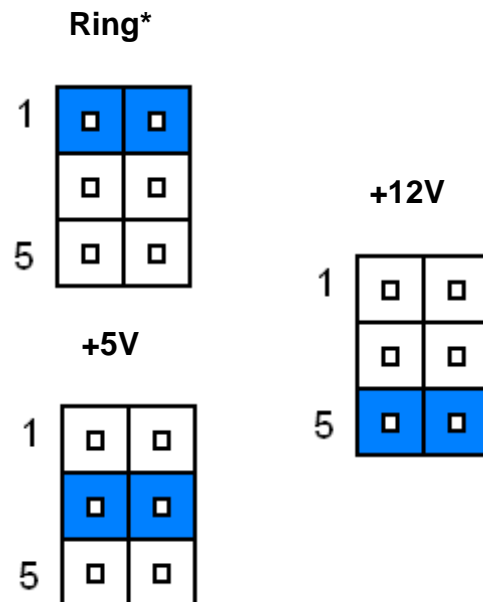
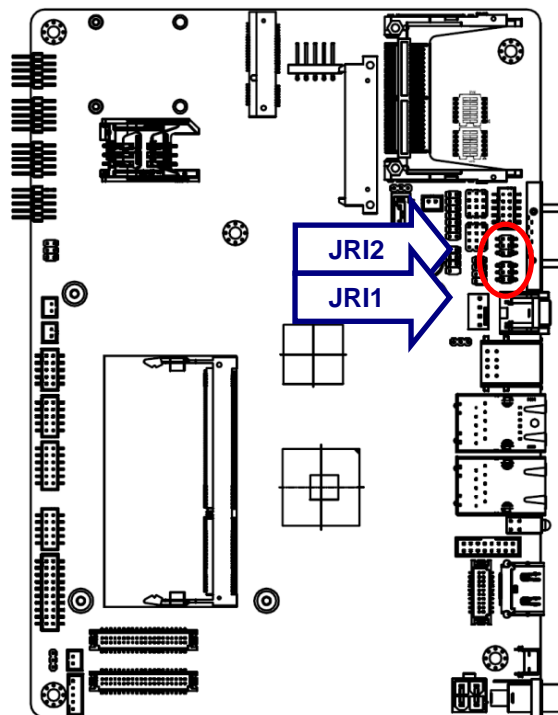
	RS-232	RS-422	RS-485
4	ON	OFF	OFF
5	OFF	ON	OFF
6	OFF	OFF	ON

EBM-CDV Quick Installation Guide
2.3.5 Multi-function select (SW2)



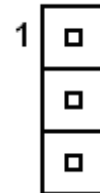
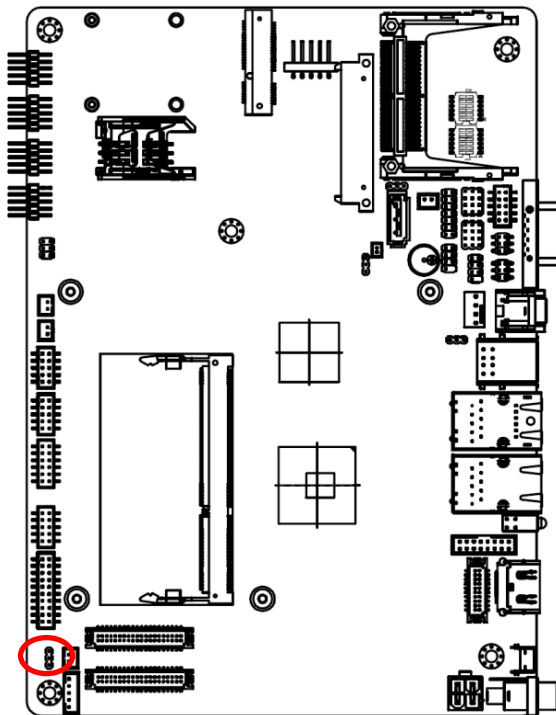
	ON	OFF
1	AT SEL	ATX SEL
2	CF Master	CF Slave
3	Touch off	Touch on
4	Touch: 4W	Touch: 5W
5	GPIO38:L	GPIO38:H
6	GPIO39:L	GPIO39:H

2.3.6 Serial port 1/ 2 pin9 signal select (JR11/ JR12)



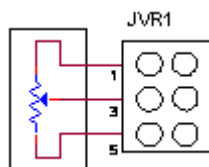
* Default

2.3.7 LCD backlight brightness adjustment (JVR1)



Signal	PIN
+5V	1
VBRIGHT	2
GND	3

* Default



Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

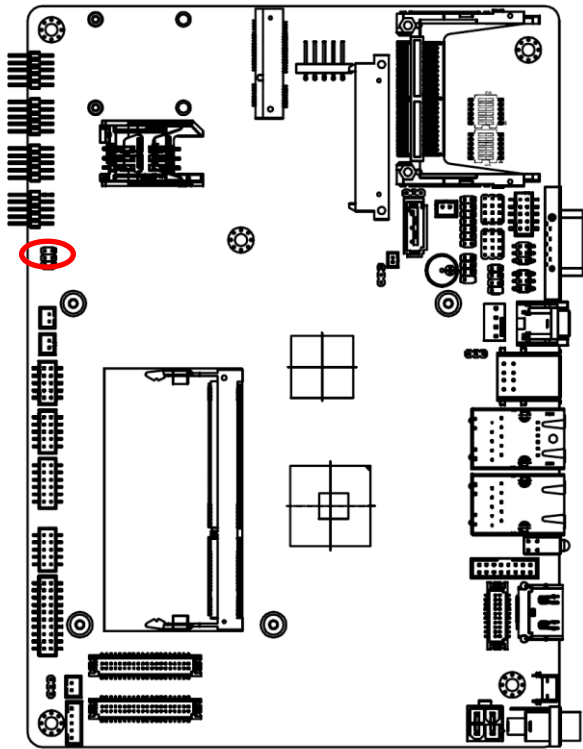


Note:

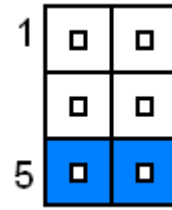
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by JBKL1. Please see the JBKL1 section for detailed circuitry information.

EBM-CDV Quick Installation Guide

2.3.8 Handset Speaker Out selector (JHS1)

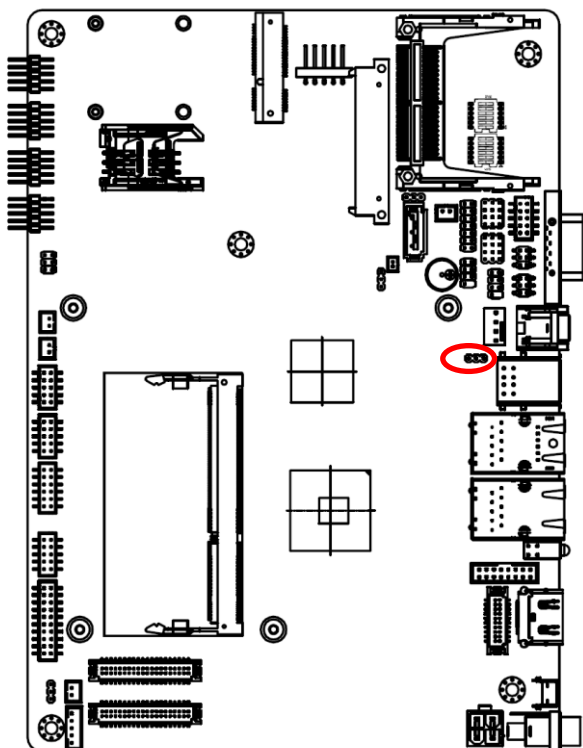


* Default

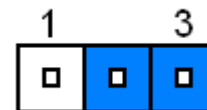
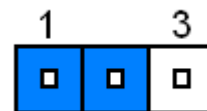


Signal	PIN	PIN	Signal
HS_MIC+	1	2	HS_MIC-
HS_OUT+	3	4	GND
HOOK	5	6	GND

2.3.9 USB Power select (USB_PWR_SEL1)

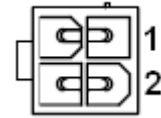
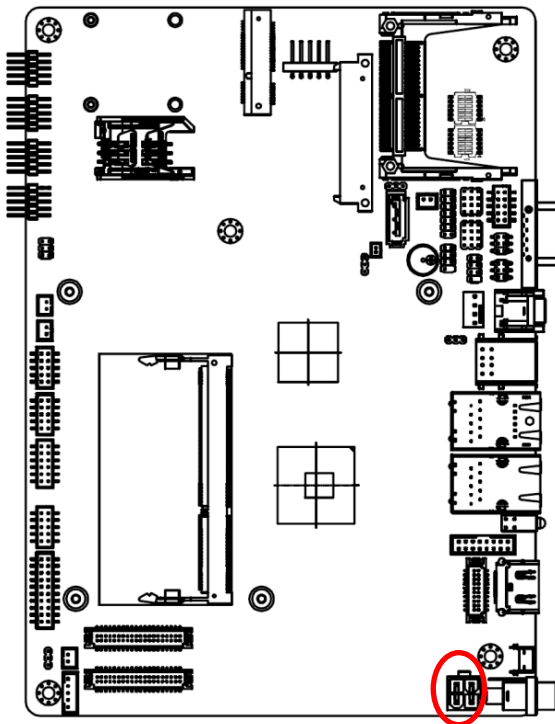


* Default



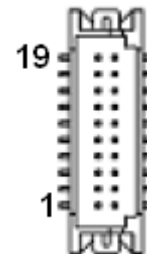
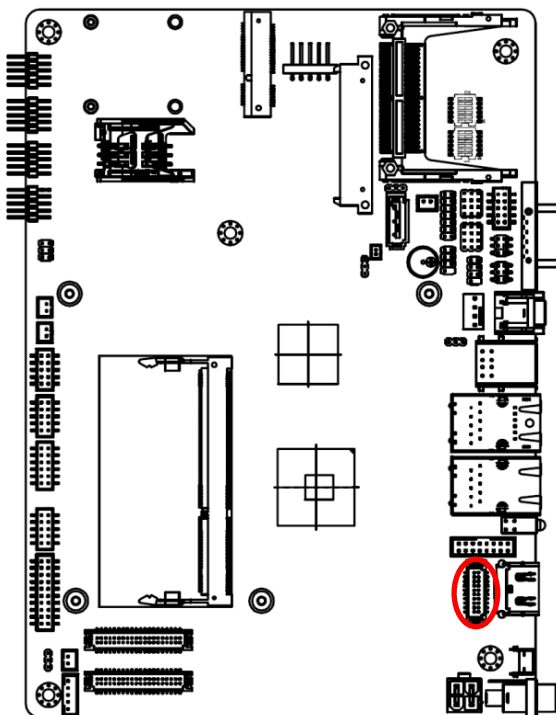
Signal	PIN
+V5A	1
USB_EN	2
+V5S	3

2.3.10 Power connector (PWR2)



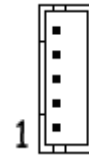
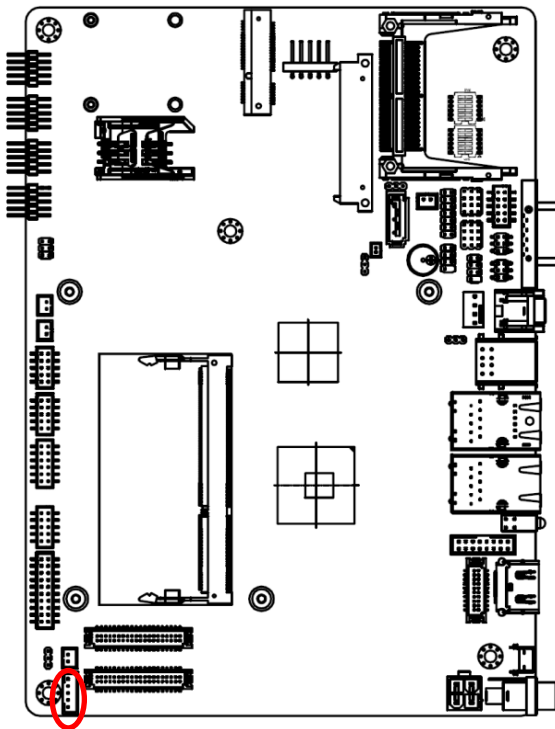
Signal	PIN	PIN	Signal
VIN	3	1	VIN
GND	4	2	GND

2.3.11 DVI connector (DVI1)



Signal	PIN	PIN	Signal
DVI_TXP2	19	20	DVI_CLK_P
DVI_TXN2	17	18	DVI_CLK_N
NC	15	16	GND
NC	13	14	HDMI_SCLK
DVI_TXP1	11	12	HDMI_SDATA
DVI_TXN1	9	10	HDMI_HPD
NC	7	8	NC
NC	5	6	NC
DVI_TXP0	3	4	GND
DVI_TXN0	1	2	+V5_CRT_HDMI

EBM-CDV Quick Installation Guide
2.3.12 LCD Inverter connector (JBKL1)



Signal	PIN
+5V	5
VBRIGHT	4
BKLEN	3
GND	2
+12V	1



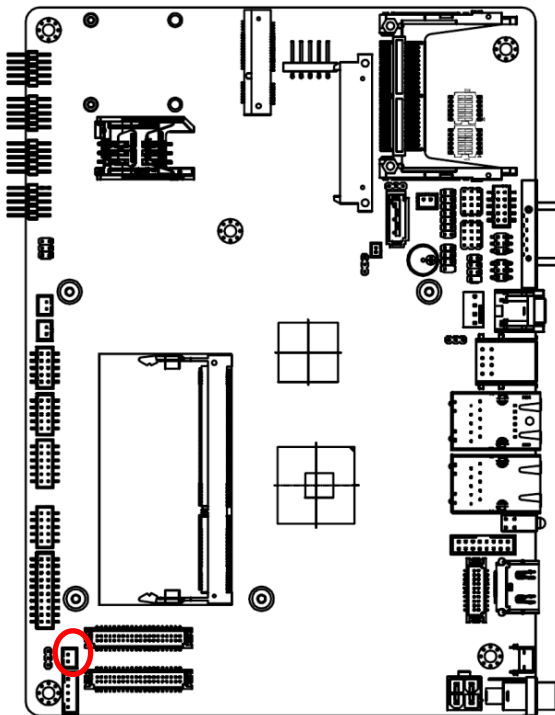
Note:

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.

2.3.12.1 Signal Description – LCD Inverter Connector (JBKL1/ JBKL2)

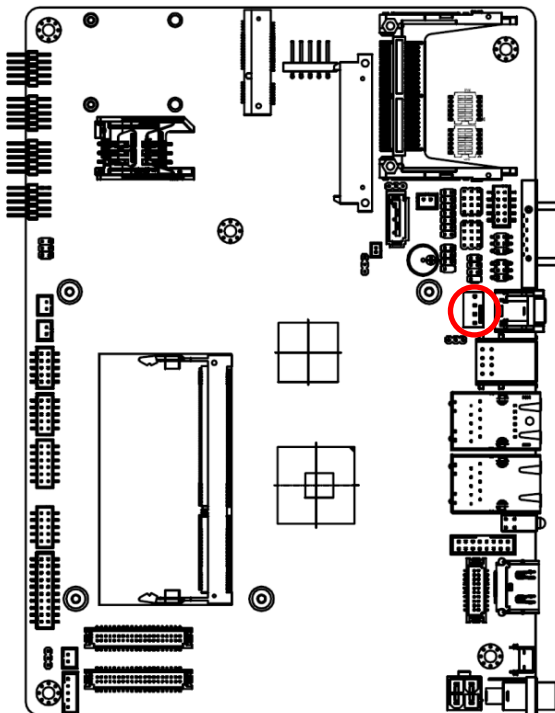
Signal	Signal Description
BRIGHT	$V_{adj} = 0.75V \sim 4.25V$ (Recommended: $4.7K\Omega$, $>1/16W$)
BKL_ON	LCD backlight ON/OFF control signal

2.3.13 LCD Inverter connector (JBKL2)



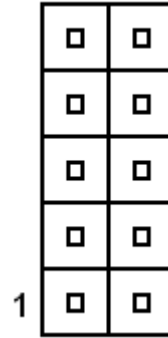
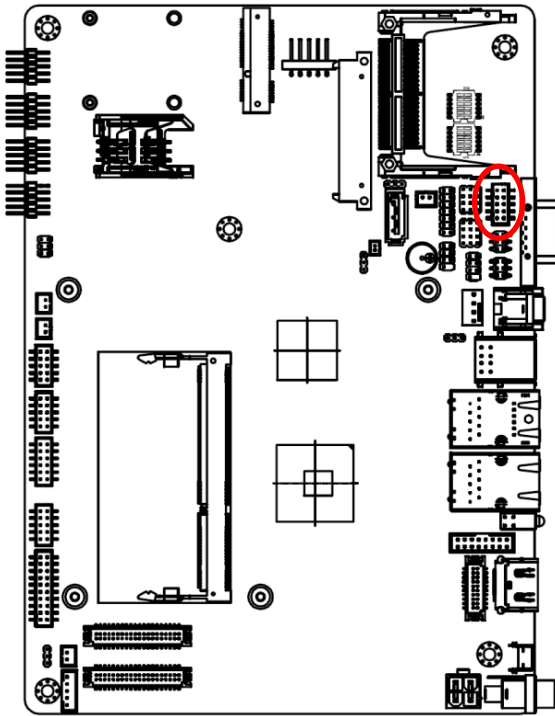
Signal	PIN
+12V	2
GND	1

2.3.14 CPU fan connector (CPU_FAN1)



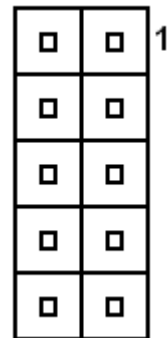
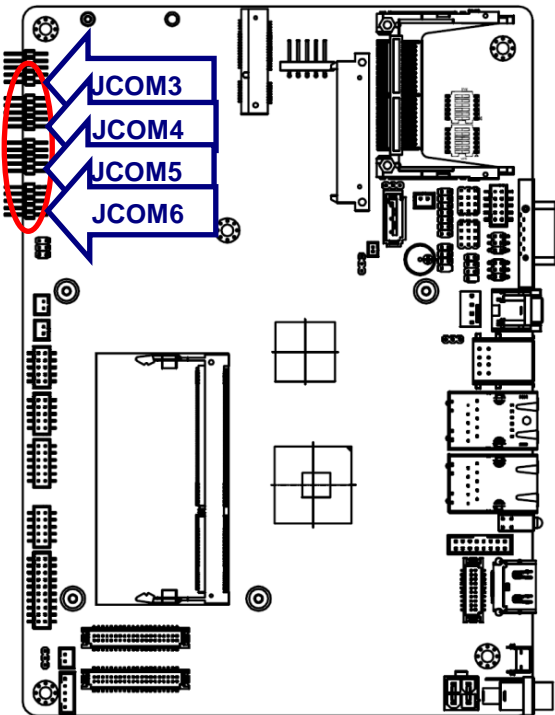
Signal	PIN
+V3P3S	4
EC_TACH0	3
+12V	2
GND	1

EBM-CDV Quick Installation Guide
2.3.15 Serial port 2 connector (COM2)



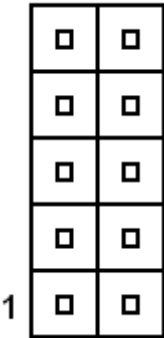
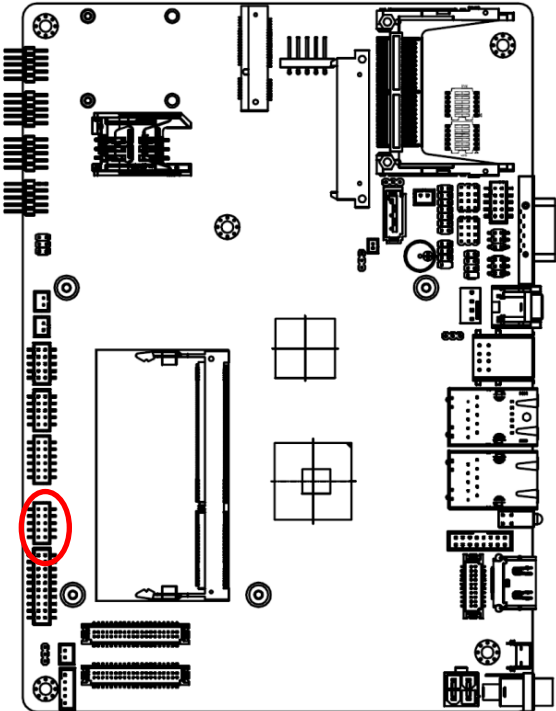
Signal	PIN	PIN	Signal
NRIB#	9	10	NC
NRTSB#	7	8	NCTSB#
GND	5	6	NDSRB#
COM2-3	3	4	COM2-4
COM2-1	1	2	COM2-2

2.3.16 Serial port 3/ 4/ 5/ 6 connector (COM3/ COM4/ COM5/ COM6)



Signal	PIN	PIN	Signal
RXD	2	1	DCD#
DTR#	4	3	TXD
DSR#	6	5	GND
CTS#	8	7	RTS#
NC	10	9	RI#

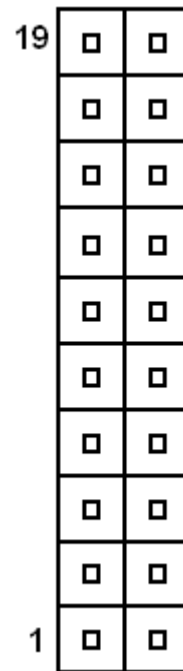
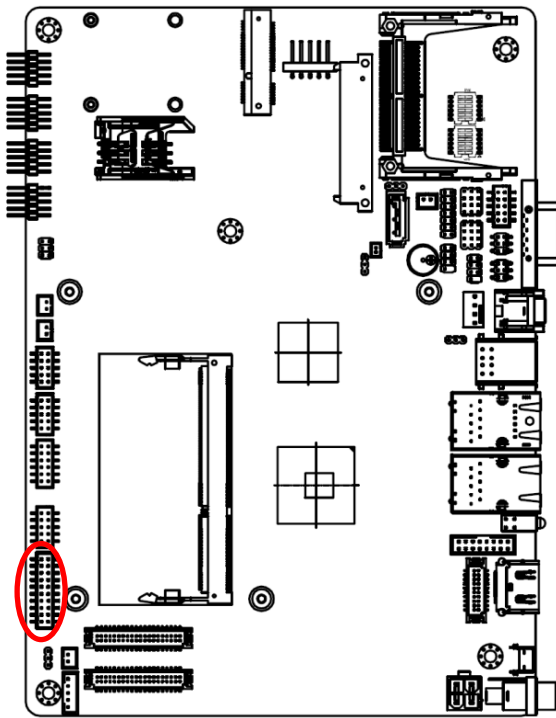
2.3.17 LED indicator connector (JLED1)



Signal	PIN	PIN	Signal
GND	9	10	PWRBTN#
+V3P3A	7	8	LED2_ACT
+V3P3A	5	6	LED1_ACT
+V3P3S	3	4	HDD_LED#
+V3P3S	1	2	GND

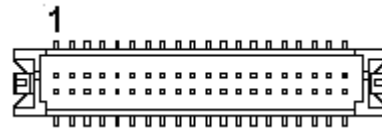
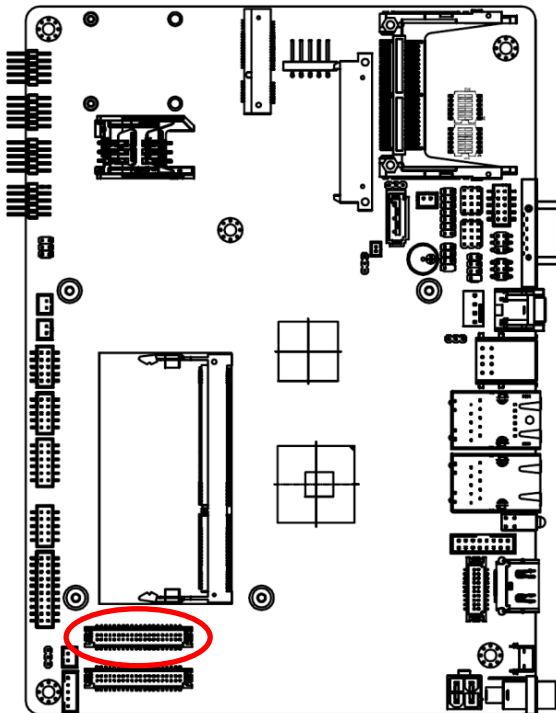
EBM-CDV Quick Installation Guide

2.3.18 General purpose I/O connector (DIO1)



Signal	PIN	PIN	Signal
DO0	1	2	DO0
DO1	3	4	DO1
DO2	5	6	DO2
DO3	7	8	DO3
DO4	9	10	DO4
DO5	11	12	DO5
DO6	13	14	DO6
DO7	15	16	DO7
SMB_DATA	17	18	SMB_CLK
+5V	19	20	GND

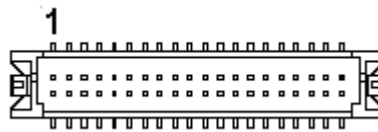
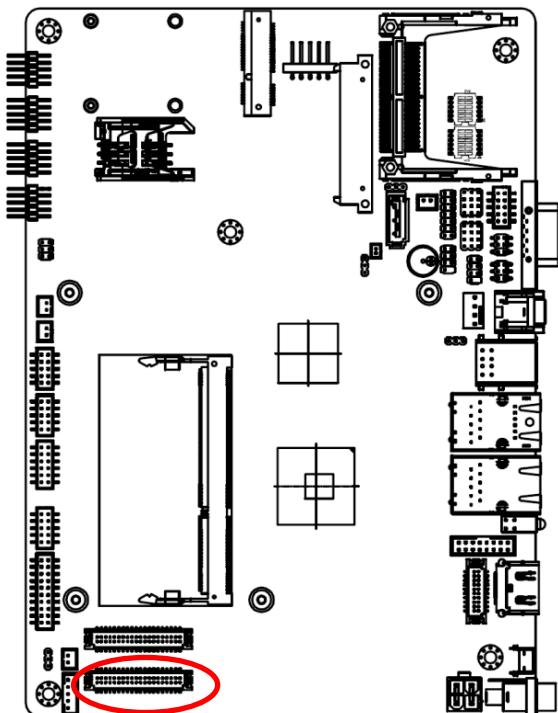
2.3.19 LVDS connector (JLVDS1)



Signal	PIN	PIN	Signal
+V5S	2	1	+V3P3S
+V5S	4	3	+V3P3S
DDC_DATA	6	5	DDC_CLK
GND	8	7	GND
A_DATA0	10	9	A_DATA1
A_DATA0#	12	11	A_DATA1#
GND	14	13	GND
A_DATA2	16	15	A_DATA3
A_DATA2#	18	17	A_DATA3#
GND	20	19	GND
NC	22	21	NC
NC	24	23	NC
GND	26	25	GND
NC	28	27	NC
NC	30	29	NC
GND	32	31	GND
LVDS1A_CLK	34	33	NC
LVDS1A_CLK#	36	35	NC
GND	38	37	GND
+V12S	40	39	+V12S

EBM-CDV Quick Installation Guide

2.3.20 LVDS connector (JLVDS2)



Signal	PIN	PIN	Signal
+V5S	2	1	+V3P3S
+V5S	4	3	+V3P3S
DDC_DATA	6	5	DDC_CLK
GND	8	7	GND
DATA0_P	10	9	DATA1_P
DATA0_N	12	11	DATA1_N
GND	14	13	GND
DATA2_P	16	15	DATA3_P
DATA2_N	18	17	DATA3_N
GND	20	19	GND
DATA4_P	22	21	DATA5_P
DATA4_N	24	23	DATA5_N
GND	26	25	GND
DATA6_P	28	27	DATA7_P
DATA6_N	30	29	DATA7_N
GND	32	31	GND
CLK1_P	34	33	CLK2_P
CLK1_N	36	35	CLK2_N
GND	38	37	GND
+V12S	40	39	+V12S



Note: Single/Dual 24-bit LVDS

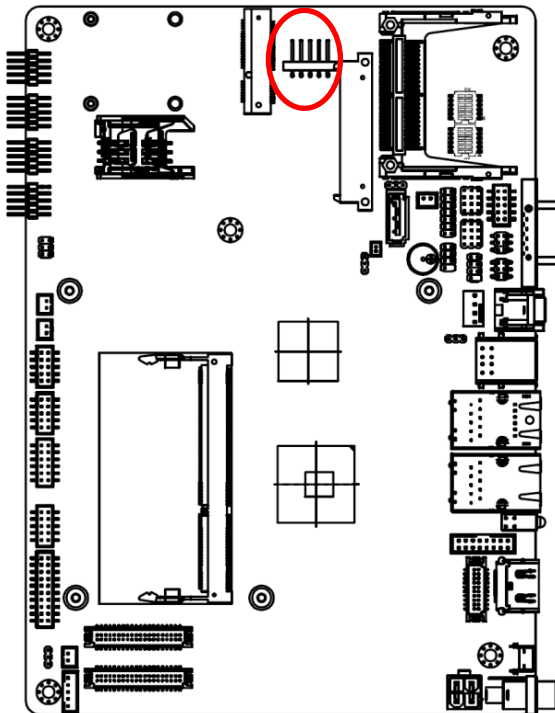
- CRT's resolution < LCD's resolution.

If we boot from CRT & LCD, the resolution is fixed by CRT's resolution.

If we boot from LCD only and plug the CRT in the OS, LCD works well but the CRT will have wrong resolution.
- CRT's resolution > LCD's resolution.

Everything is fine.

2.3.21 Touch panel connector (JTOUCH)

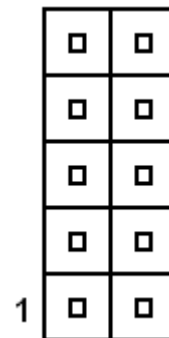
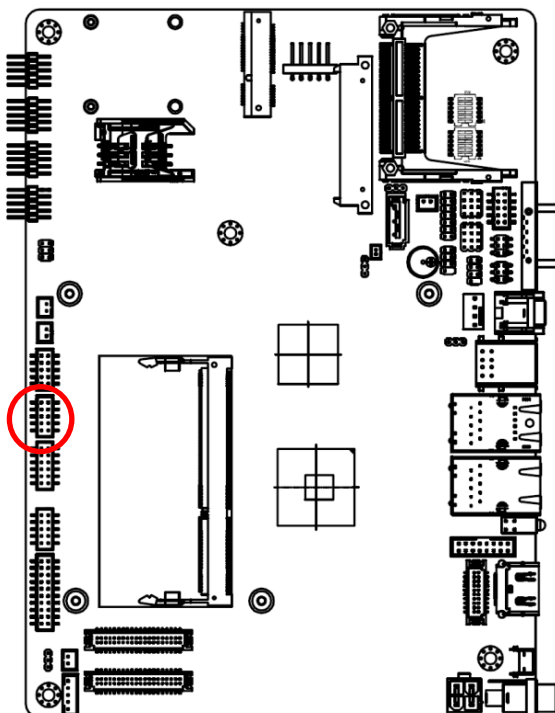


Signal	PIN
UL	1
UR	2
PROBE	3
LR	4
LL	5



NOTE: Under 4W situation
UL=X+, UR=Y+, LR=Y-, LL=X-

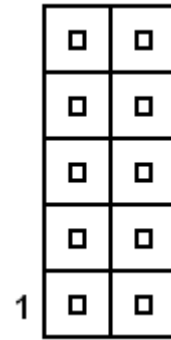
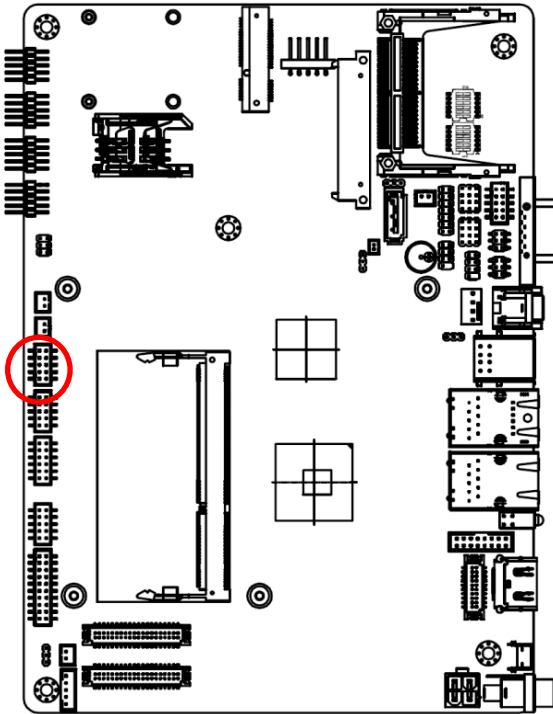
2.3.22 USB connector 5&6 (USB56)



Signal	PIN	PIN	Signal
GND	9	10	GND
GND	7	8	GND
USB_PP5	5	6	USB_PP4
USB_NP5	3	4	USB_NP4
+VCC_USB45	1	2	+VCC_USB45

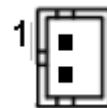
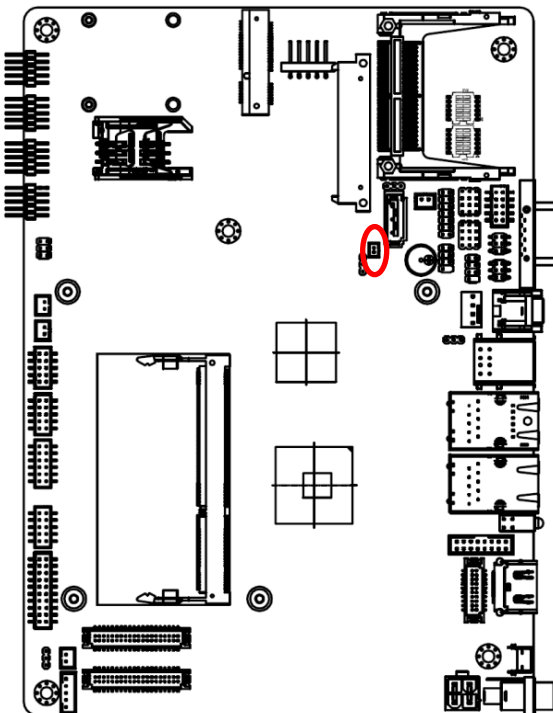
EBM-CDV Quick Installation Guide

2.3.23 USB connector 7&8 (USB78)



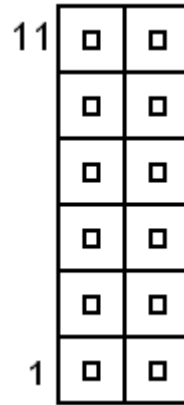
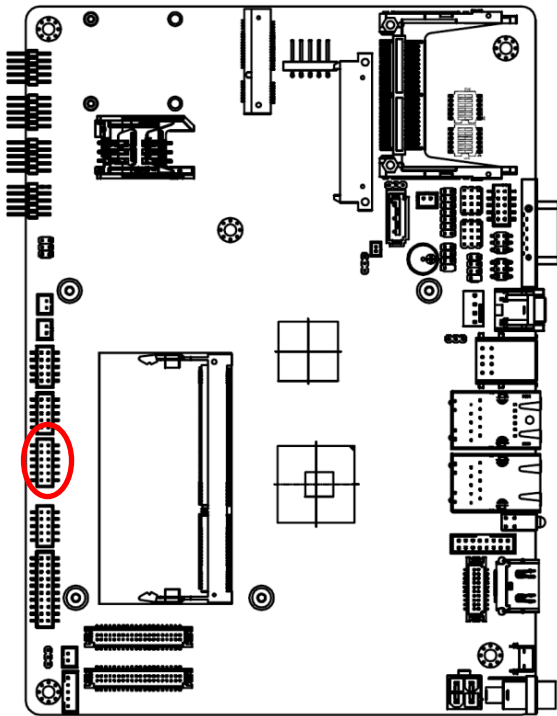
Signal	PIN	PIN	Signal
GND	9	10	GND
GND	7	8	GND
USB_PP7	5	6	USB_PP6
USB_NP7	3	4	USB_NP6
+VCC_USB6	1	2	+VCC_USB6

2.3.24 Battery connector (BT1)



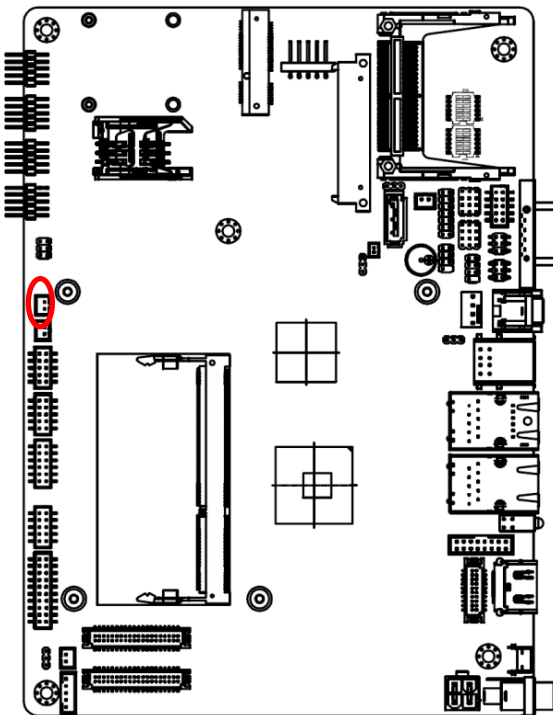
Signal	PIN
VBAT	1
GND	2

2.3.25 Audio connector (AUD1)



Signal	PIN	PIN	Signal
GND	11	12	MIC1_JD
LINE1_JD	9	10	FRONT_JD
MIC_LIN	7	8	MIC_RIN
LINE1_LIN	5	6	LINE1-RIN
GND	3	4	GND
LINEOUT_L	1	2	LINEOUT_R

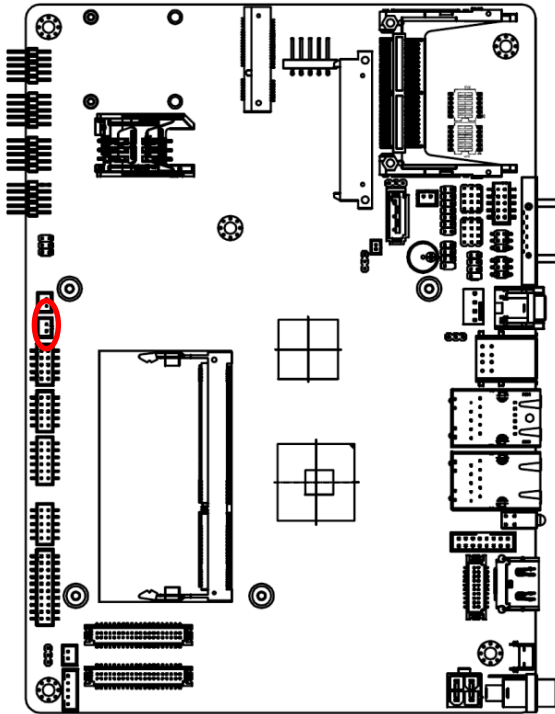
2.3.26 AMPLIFIER_R1 (AMP_R1)



Signal	PIN
AMP_ROUT+	1
AMP_ROUT-	2

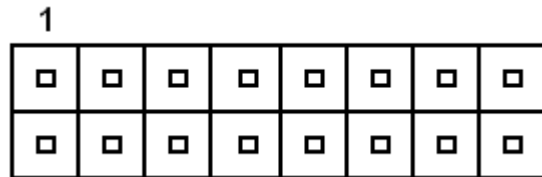
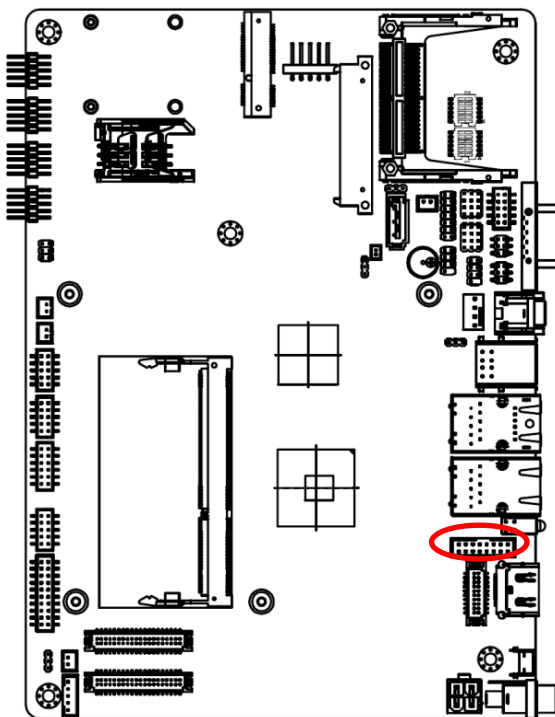
EBM-CDV Quick Installation Guide

2.3.27 AMPLIFIER_L1 (AMP_L1)



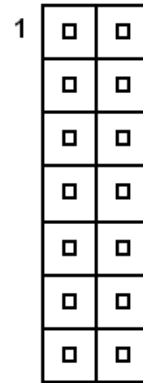
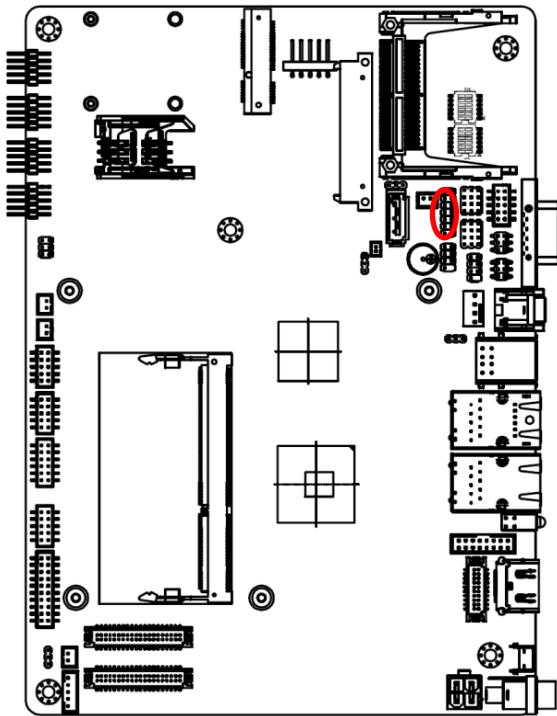
Signal	PIN
AMP_LOUT+	1
AMP_LOUT-	2

2.3.28 VGA connector (JVGA1)



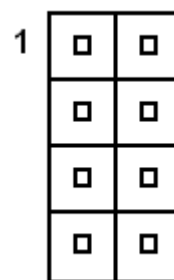
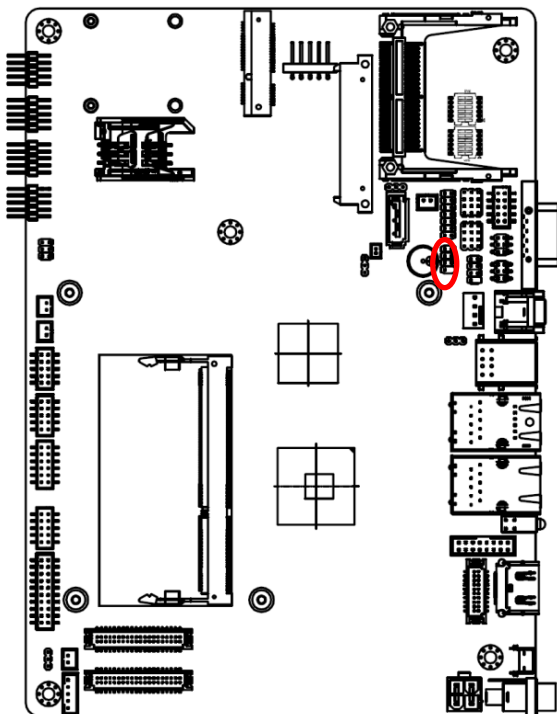
Signal	PIN	PIN	Signal
CRT_R	2	1	+V5_CRT_HDMI
CRT_G	4	3	GND
CRT_B	6	5	NC
NC	8	7	SDT_DDC
GND	10	9	VGA_HS
GND	12	11	VGA_VS
GND	14	13	SCK_DDC
GND	16	15	GND

2.3.29 LPC connector (JLPC1)



Signal	PIN	PIN	Signal
LPC_AD0	1	2	+V3P3S
LPC_AD1	3	4	PLTRST#
LPC_AD2	5	6	LPC_LFRAME#
LPC_AD3	7	8	CLK_PCI_JLPC
SERIRQ	9	10	GND
+V5S	11	12	GND
+V5A	13	14	LPC_LDRQ0#

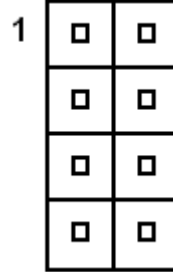
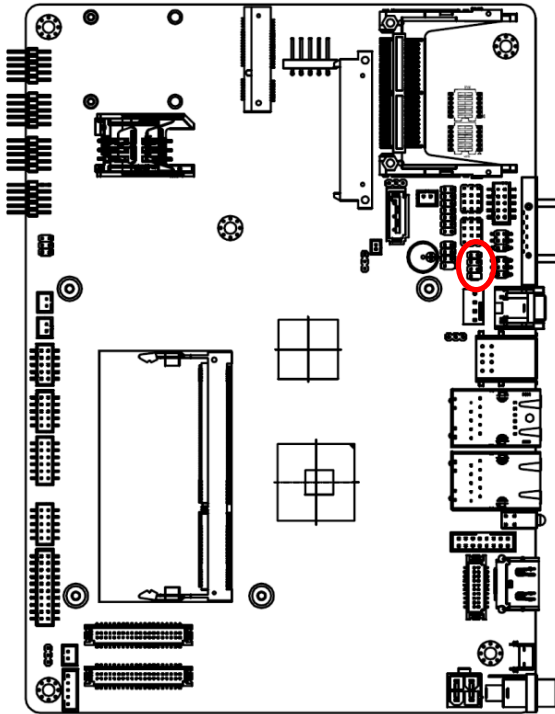
2.3.30 SPI connector (JSPI1)



Signal	PIN	PIN	Signal
+V3P3A_SPI	1	2	GND
SPI_R_CS#	3	4	SPI_CLK
SPI_SO	5	6	SPI_SI
SPI_HOLD#	7	8	

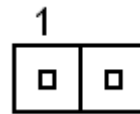
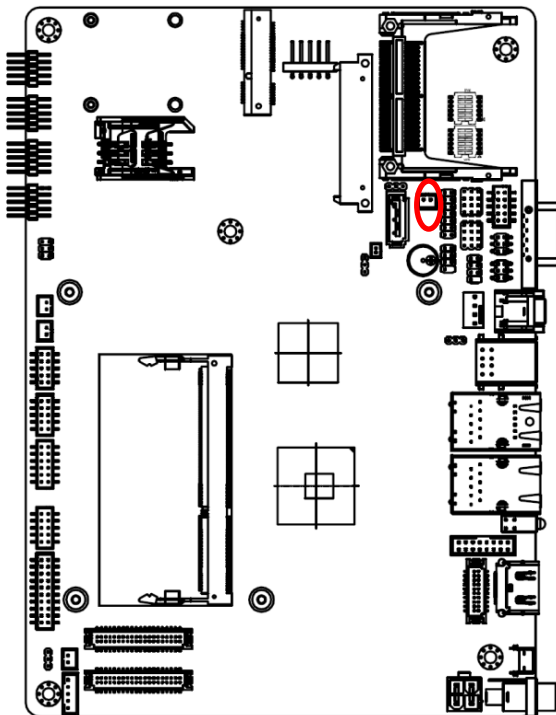
EBM-CDV Quick Installation Guide

2.3.31 EC_Program (EC_SPI1)



Signal	PIN	PIN	Signal
+VSPI_EC	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FMISO	5	6	EC_FMOSI
EC_HOLD#	7		

2.3.32 SATA Power connector 1 (SPWR1)



Signal	PIN
SATA_PWR1	2
GND	1

