EMB-9675/9676/9678 Series

Intel® Pentium® M / Celeron® M Mini ITX Main Board

Quick Installation Guide

2nd Ed – 24 January 2006

Part No. 2017967501R

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.

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Headquarters
Evalue Technology Inc.
7F, 228, Lian-cheng Road,
Chung Ho City, Taipei,
Taiwan
Tel : +886-2-8226-2345
Fax : +886-2-8226-2777
http://www.evalue-tech.com
E-mail: service@evalue-tech.com

Europe Branch Office
Evalue Europe A/S
Stenholtsvej 13,
3480 Fredensborg,
Denmark
Tel : +45-7025-0310
Fax : +45-4975-5026
http://www.evalue-tech.com
E-mail: service.europe@evalue-tech.com

China Branch Office
Evalue Technology Shanghai Inc.
Room 909, 9F, Section B, No.900,
Yisan Road, Caohejing Hi-tech Park,
Shanghai 200233, China
Tel : +86-21-5423-4170
Fax : +86-21-5423-4171
http://www.evalue-tech.com
E-mail: service.china@evalue-tech.com

US Branch Office
Evalue Technology Inc.
Suite 210, 200 Tornillo Way,
Tinton Falls, NJ 07712
USA
Tel: +1-732-578-0200
Fax: +1-732-578-0250
http://www.evalue-tech.com
E-mail: service.usa@evalue-tech.com

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Evalue, or which have been subject to misuse, abuse, accident or improper installation. Evalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Evalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Evalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Evalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Contents

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:

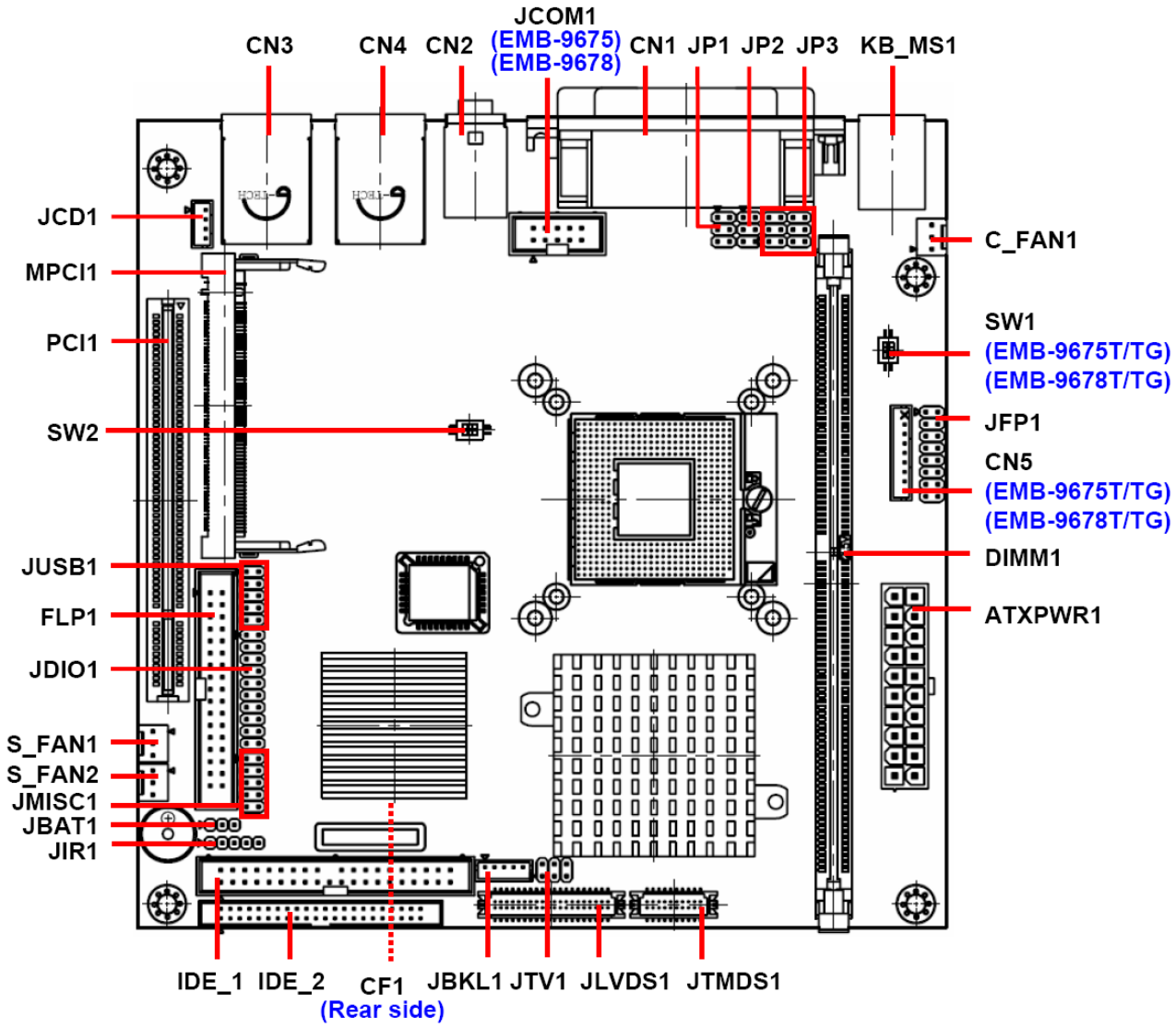
- 1 x EMB-9675/9676 Intel Socket 478/479 Pentium® M/Celeron® M Mini ITX Main Board (Onboard Intel® Celeron® M 600 MHz with 0K L2 Cache or Intel® Processor at 800 MHz for EMB-9678 Series)
- 1 x Quick Installation Guide for EMB-9675/9676/9678
- 1 x CD-ROM or DVD-ROM contains the followings:
  - User's 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 IDE HDD cable (40-pin, pitch 2.54mm)
  - 1 x IDE HDD cable (44-pin, pitch 2.0mm)
  - 1 x FDD cable (34-pin, pitch 2.54mm)
  - 1 x Serial port cable with 3 DB9P(M) (10-pin, pitch 2.54mm) (EMB-9676 series only)
  - 1 x I/O shield
- 1 x Pentium® M CPU cooler (EMB-9675/9676 series only)

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

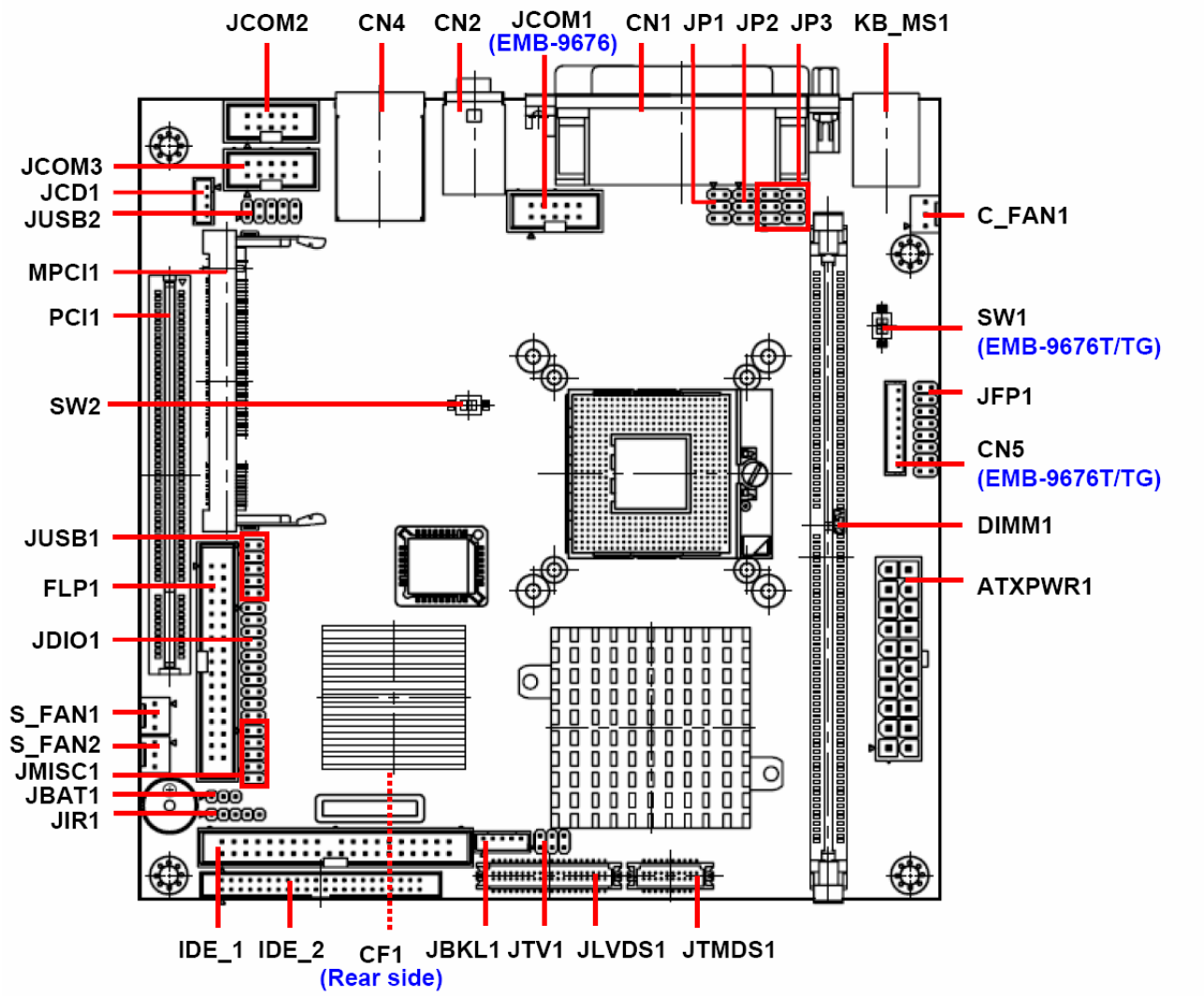
2. Hardware Configuration

2.1 Product Overview

2.1.1 EMB-9675/9678



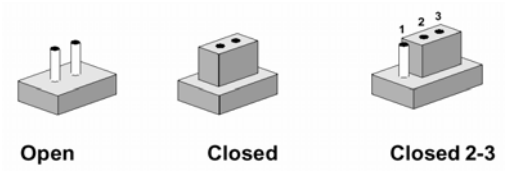
2.1.2 EMB-9676


JCOM2
CN4
CN2
JCOM1
(EMB-9676)
CN1
JP1
JP2
JP3
KB_MS1
JCOM3
JCD1
JUSB2
MPCI1
PCI1
SW2
JUSB1
FLP1
JDIO1
S_FAN1
S_FAN2
JMISC1
JBAT1
JIR1
C_FAN1
SW1
(EMB-9676T/TG)
JFP1
CN5
(EMB-9676T/TG)
DIMM1
ATXPWR1
IDE_1
IDE_2
CF1
(Rear side)
JBKL1
JTV1
JLVDS1
JTMDS1

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 2.54mm
JP1	COM1 pin 9 signal select	3 x 2 header, pitch 2.0mm
JP2, JP3	COM1 RS-232/422/485 select	3 x 2 header, pitch 2.0mm 4 x 3 header, pitch 2.0mm
SW1	4/5/8-wire touch screen select (EMB-9675T/TG, EMB-9676T/TG, EMB-9678T/TG)	Switch
SW2	Reserved	Switch

Connectors

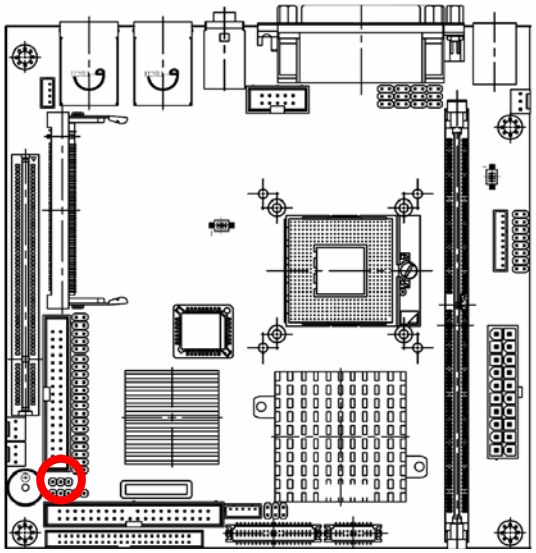
Label	Function	Note
ATXPWR1	ATX Power connector	ATX power connector
C_FAN1	CPU fan connector	3 x 1 wafer, pitch 2.54mm
CF1	CF card connector	
CN1	Parallel port connector Serial port 1 connector VGA connector	D-sub 25-pin, female D-sub 9-pin, male D-sub 15-pin, female
CN2	Audio connector	Phone Jack X 3
CN3	RJ-45 Ethernet / USB 4 & 5 connector	(EMB-9675/9678 series)
CN4	RJ-45 Ethernet / USB 0 & 1 connector	
CN5	4/5/8-wire touch screen connector (EMB-9675T/TG, EMB-9676T/TG, EMB-9678T/TG)	9 x 1 wafer, pitch 2.0mm
DIMM1	184-pin DDR SDRAM DIMM socket	
FLP1	Floppy connector	17 x 2 header, pitch 2.54mm
IDE_1	Primary IDE connector	20 x 2 header, pitch 2.54mm
IDE_2	Secondary IDE connector	22 x 2 header, pitch 2.0mm
JBKL1	LCD inverter connector	5 x 1 wafer, pitch 2.0mm
JCD1	CD-ROM audio input connector	4 x 1 wafer, pitch 2.0mm
JCOM1	Serial port 2 connector (EMB-9675/9676/9678)	5 x 2 header, pitch 2.54mm
JCOM2	Serial port 3 connector (EMB-9676 series)	5 x 2 header, pitch 2.54mm
JCOM3	Serial port 4 connector (EMB-9676 series)	5 x 2 header, pitch 2.54mm
JDIO1	Digital input/output connector	10 x 2 header, pitch 2.54mm
JFP1	Front panel connector	8 x 2 header, pitch 2.54mm
JIR1	IrDA connector	5 x 1 header, pitch 2.54mm
JLVDS1	LVDS connector	HIROSE DF13-40DP-1.25V
JMISC1	Miscellaneous setting connector	5 x 2 header, pitch 2.54mm
JTMDS1	TMDS connector	HIROSE DF13-20DP-1.25V
JTV1	TV out connector	3 x 2 header, pitch 2.54mm
JUSB1	USB connector 2 & 3	5 x 2 header, pitch 2.54mm
JUSB2	USB connector 4 & 5 (EMB-9676 series)	5 x 2 header, pitch 2.54mm

Connectors

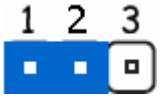
Label	Function	Note
KB_MS1	PS/2 Keyboard & mouse connector	6-pin Mini-DIN x 2
MPCI1	Mini PCI slot	
PCI1	PCI slot	
S_FAN1,S_FAN2	System fan connector 1 & 2	3 x 1 wafer, pitch 2.54mm

2.3 Setting Jumpers & Connectors

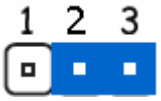
2.3.1 Clear CMOS (JBAT1)



Protect*

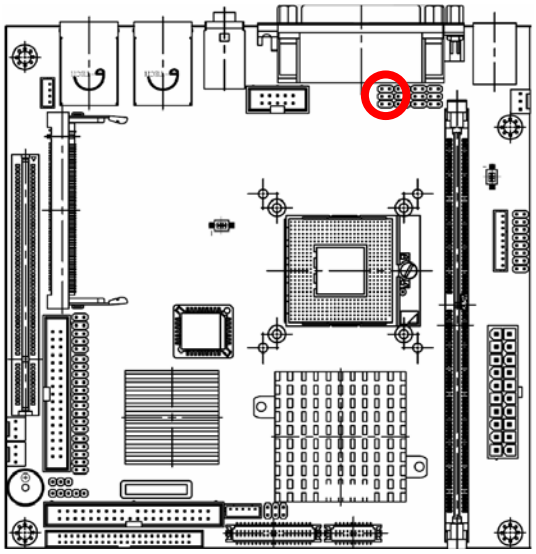


Clear CMOS

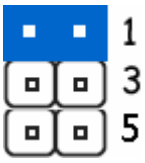


*** Default**

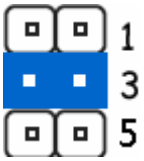
2.3.2 COM1 Pin 9 Signal Select (JP1)



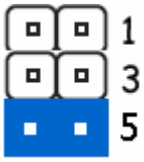
Ring*



+5V

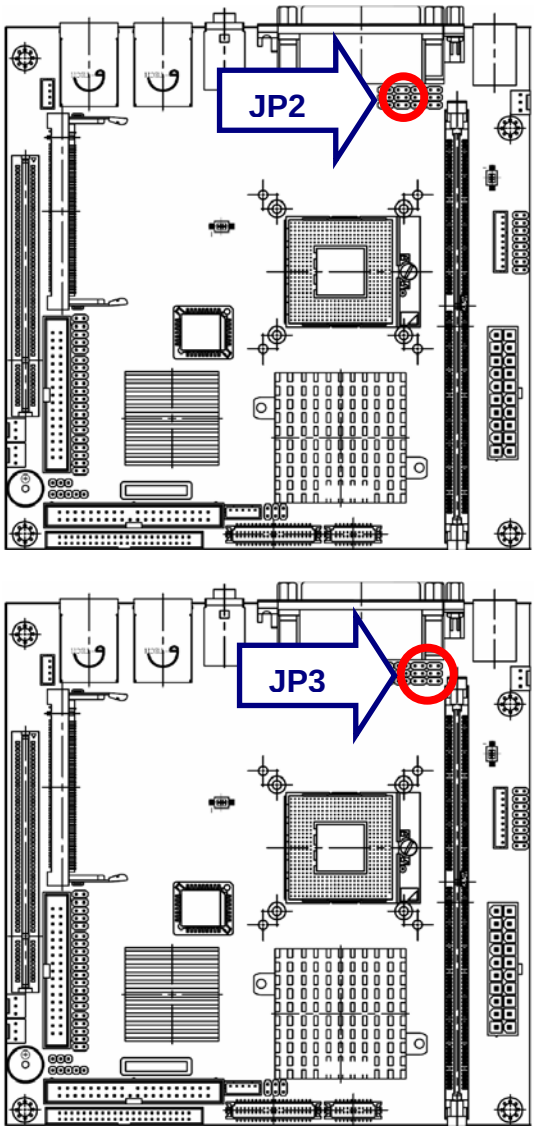


+12V



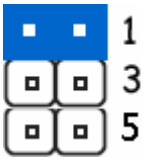
*** Default**

2.3.3 COM1 RS-232/422/485 Select (JP2, JP3)

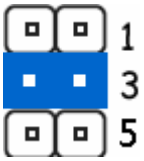


(JP2)

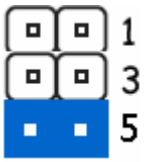
RS-232*



RS-422

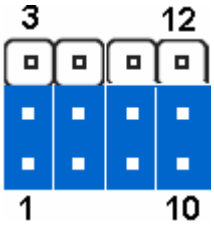


RS-485

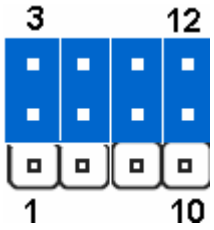


(JP3)

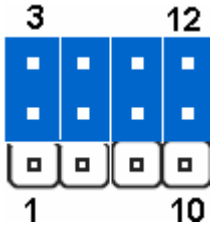
RS-232*



RS-422

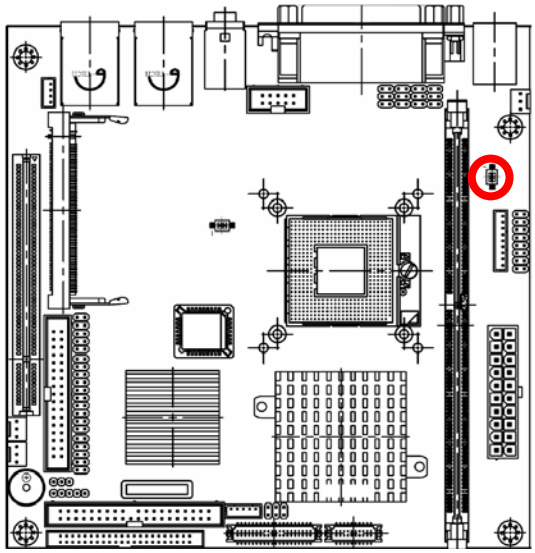


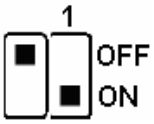
RS-485



*** Default**

2.3.4 4/5/8-wire Touch Screen Select (SW1) (EMB-9675T/TG, EMB-9676T/TG, EMB-9678T/TG)

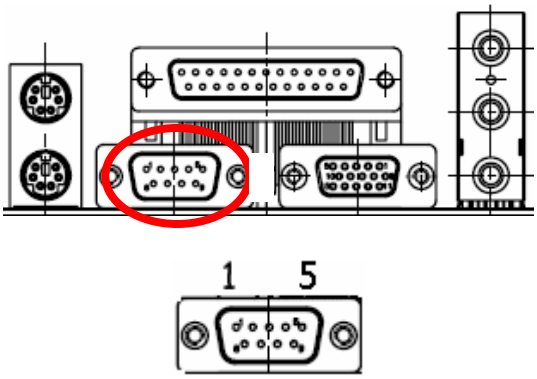




Wire	BIT1	BIT2
* 4, 8	OFF	ON
5	ON	OFF

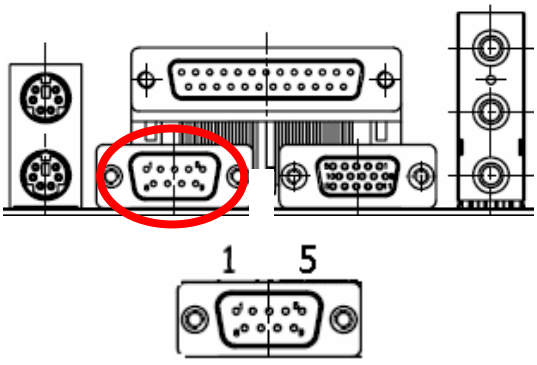
*** Default**

2.3.5 Serial Port 1 Connector in RS-232 Mode (CN1)



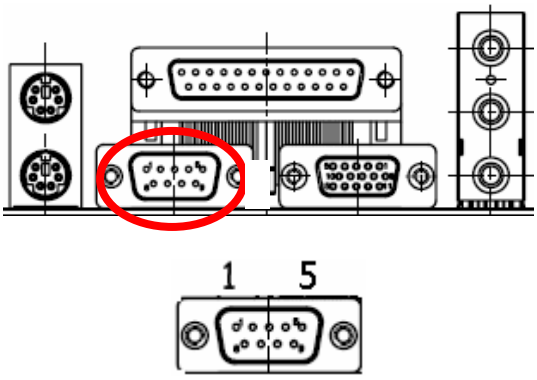
Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI/+5V/+12V	9	10	NC

2.3.6 Serial Port 1 Connector in RS-422 Mode (CN1)



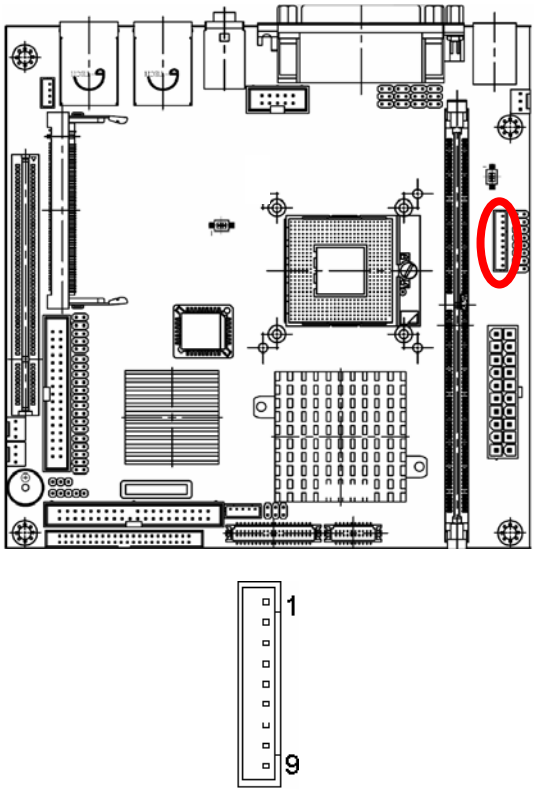
Signal	PIN	PIN	Signal
TxD-	1	2	RxD+
TxD+	3	4	RxD-
GND	5	6	NC
NC	7	8	NC
NC	9	10	NC

2.3.7 Serial Port 1 Connector in RS-485 Mode (CN1)



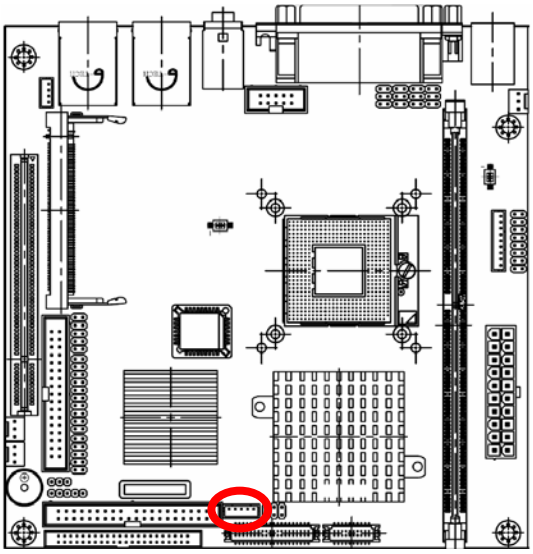
Signal	PIN	PIN	Signal
DATA-	1	2	NC
DATA+	3	4	NC
GND	5	6	NC
NC	7	8	NC
NC	9	10	NC

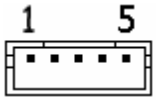
2.3.8 4/5/8-Wire Touch Screen Connector (CN5) (EMB-9675T/TG, EMB-9676T/TG, EMB-9678T/TG)



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

2.3.9 LCD Inverter Connector (JBKL1)





Signal	PIN
+12V	1
GND	2
ENBKL	3
VR	4
+5V	5

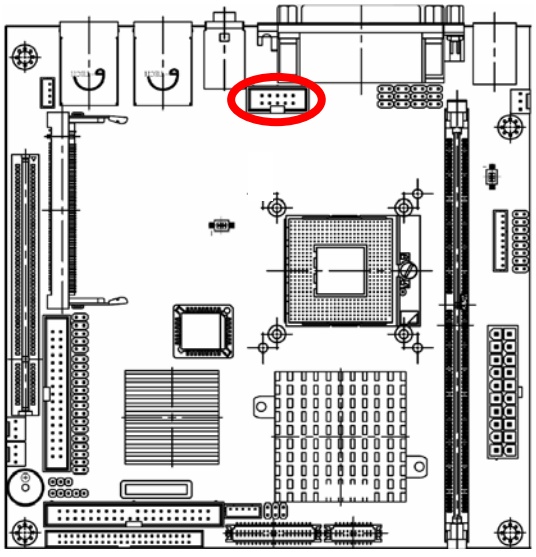
Note:

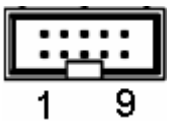
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JMISC**. Please see the **JMISC** section for detailed circuitry information.

2.3.9.1 Signal Description – LCD Inverter Connector (JBKL1)

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

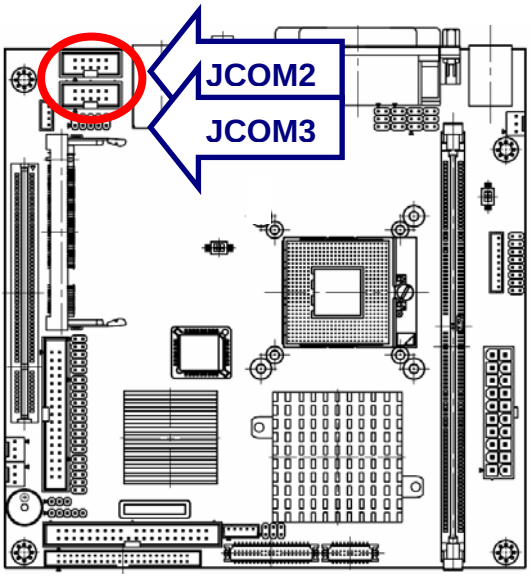
2.3.10 Serial Port 2 Connector (JCOM1) (EMB-9675/9676/9678)

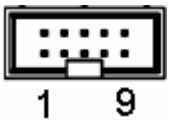




Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

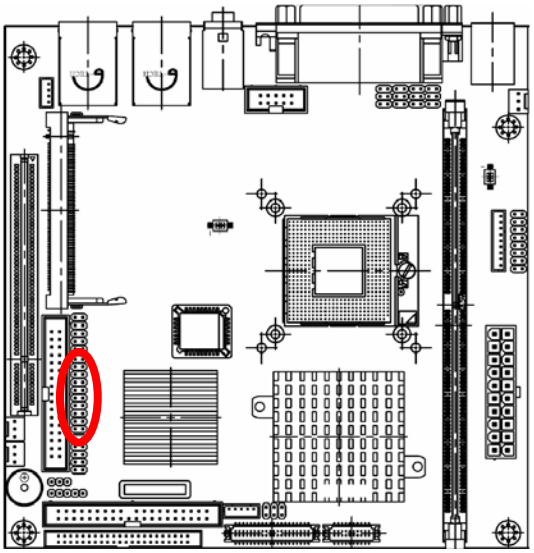
2.3.11 Serial Port 3/4 Connector (JCOM2, JCOM3) (EMB-9676 Series)

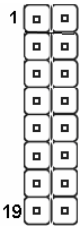




Signal	PIN	PIN	Signal
DCD	1	2	RxD
TxD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

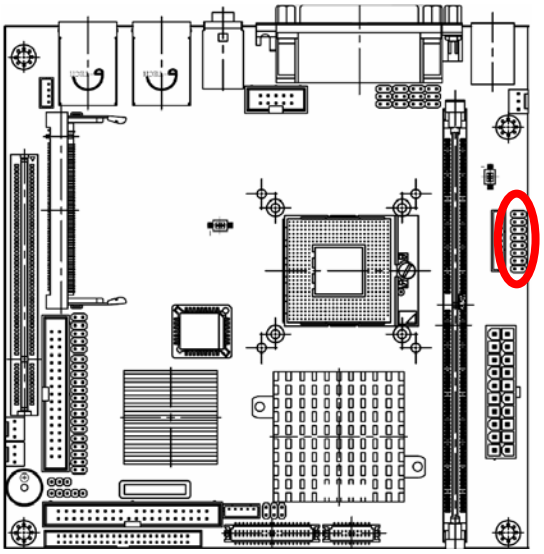
2.3.12 Digital Input / Output Connector (JDIO1)

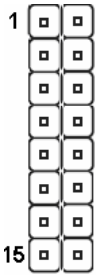




Signal	PIN	PIN	Signal
DIO0	1	2	DIO10
DIO1	3	4	DIO11
DIO2	5	6	DIO12
DIO3	7	8	DIO13
DIO4	9	10	DIO14
DIO5	11	12	DIO15
DIO6	13	14	DIO16
DIO7	15	16	DIO17
SMB_CLK_S	17	18	SMB_DATA_S
GND	19	20	+5V

2.3.13 Front Panel Connector (JFP1)



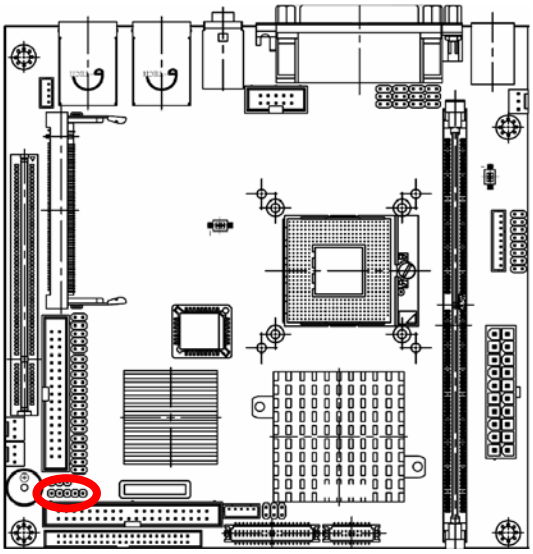


Signal	PIN	PIN	Signal
RESET	1	2	SYS_LED+
GND	3	4	SYS_LED-
HDD_LED+	5	6	PWR_LED+
HDD_LED-	7	8	PWR_LED-
VCCSB	9	10	SUS_LED+
PWR_BUT	11	12	SUS_LED-
SUS_BUT	13	14	SPK+
GND	15	16	SPK-

2.3.13.1 Signal Description – Front Panel Connecter (JFP1)

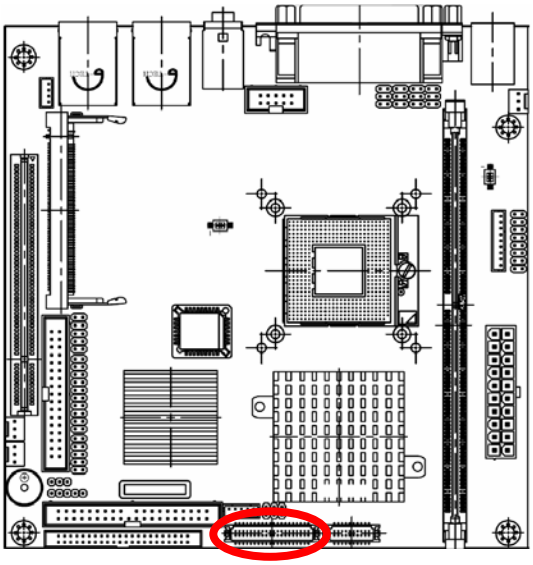
PIN No.	Description
1, 3	Reset SW
2, 4	System LED
5, 7	HDD LED
6, 8	Power-On LED
9, 11	Power SW
10, 12	Suspend LED
13, 15	Suspend SW
14, 16	Speaker

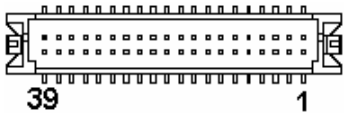
2.3.14 IrDA Connector (JIR1)



Signal	PIN
+5V	1
NC	2
IRRX	3
GND	4
IRTX	5

2.3.15 LVDS Connector (JLVDS1)



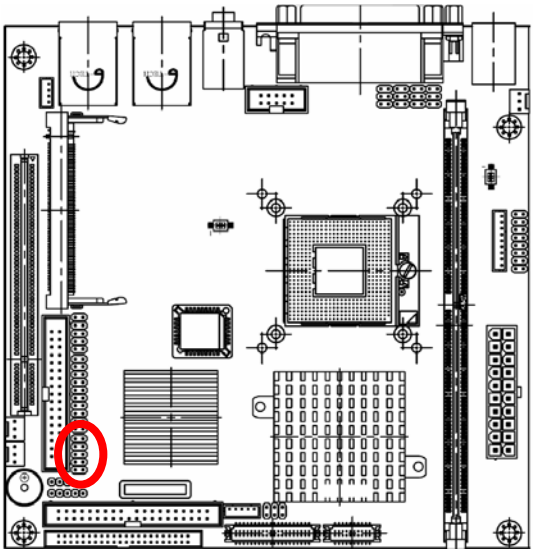


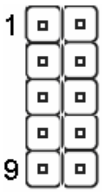
Signal	PIN	PIN	Signal
+5V	2	1	+3.3V
+5V	4	3	+3.3V
I^2C_DAT	6	5	I^2C_CLK
GND	8	7	GND
Txout0	10	9	Txout1
Txout0#	12	11	Txout1#
GND	14	13	GND
Txout2	16	15	Txout3
Txout2#	18	17	Txout3#
GND	20	19	GND
E_Txout0	22	21	E_Txout1
E_Txout0#	24	23	E_Txout1#
GND	26	25	GND
E_Txout2	28	27	E_Txout3
E_Txout2#	30	29	E_Txout3#
GND	32	31	GND
Txclk	34	33	E_Txclk
Txclk#	36	35	E_Txclk#
GND	38	37	GND
+12V	40	39	+12V

2.3.15.1 Signal Description – LVDS Connector (JLVDS1)

Signal	Signal Description
I^2C_DAT, I^2C_CLK	I^2C interface for panel parameter EEPROM. This EERPOM is mounted on the LVDS receiver. The data in the EEPROM allows the EXT module to automatically set the proper timing parameters for a specific LCD panel.

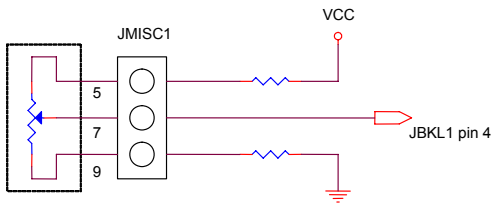
2.3.16 Miscellaneous Setting Connector (JMISC1)



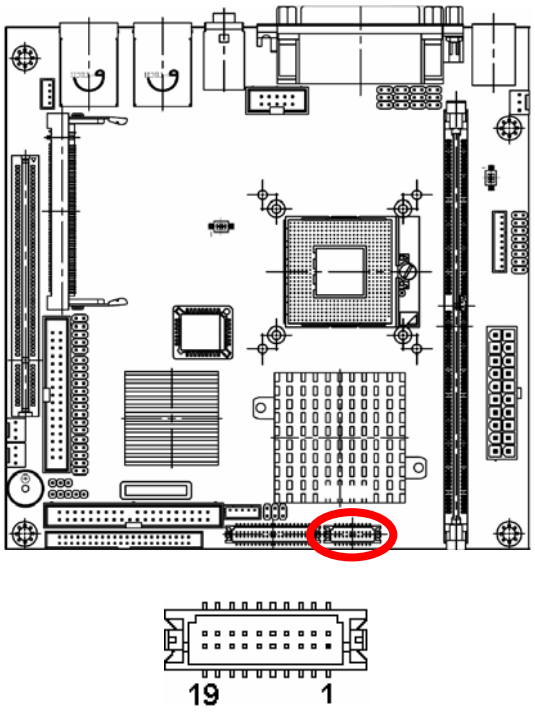


Signal	PIN	PIN	Signal
CASEOPEN#	1	2	VTIN3
GND	3	4	THRMDN
+5V	5	6	+5V
VR	7	8	#MASTER
GND	9	10	GND

2.3.16.1 Signal Description – Miscellaneous Setting Connecter (JMISC1)

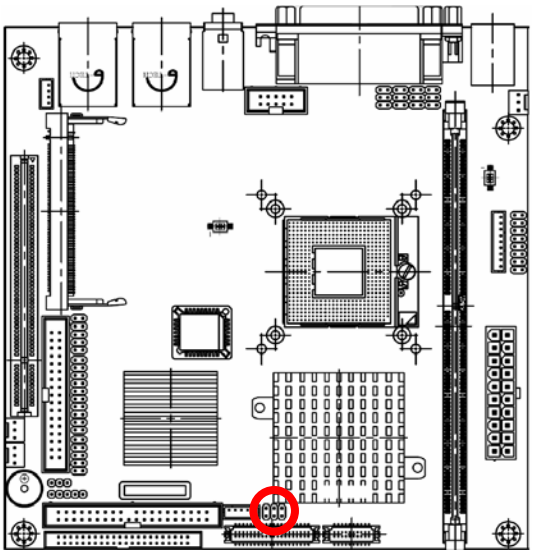
PIN No.	Description
1, 3	Case open detection
5, 7, 9	LCD brightness setting  Variation Resistor (Recommended: 4.7KΩ, >1/16W)
2, 4	Thermal detection
6, 8, 10	CF Master/Slave setting 8-10 short (default: Master)

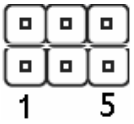
2.3.17 TMDS Connector (JTMDS1)



Signal	PIN	PIN	Signal
+5V	2	1	TDC0#
GND	4	3	TDC0
NC	6	5	NC
NC	8	7	NC
HPDET	10	9	TDC1#
TMDSDATA	12	11	TDC1
TMDSDCLK	14	13	NC
GND	16	15	NC
TLC#	18	17	TDC2#
TLC	20	19	TDC

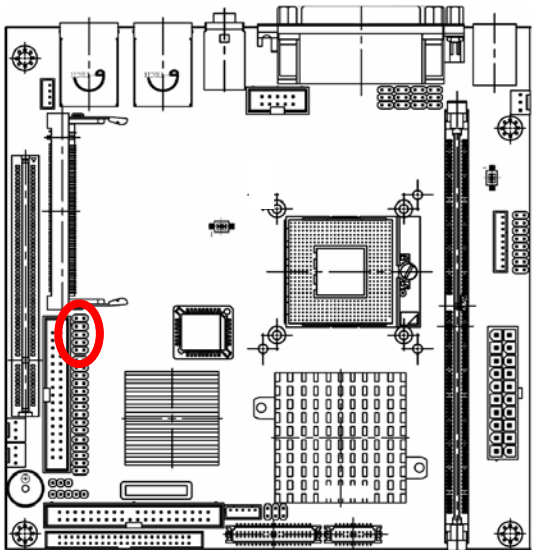
2.3.18 TV Out Connector (JTV1)

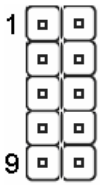




Signal	PIN	PIN	Signal
TVCVB	1	2	GND
TVYFCC2	3	4	TVCFCC2
GND	5	6	GND

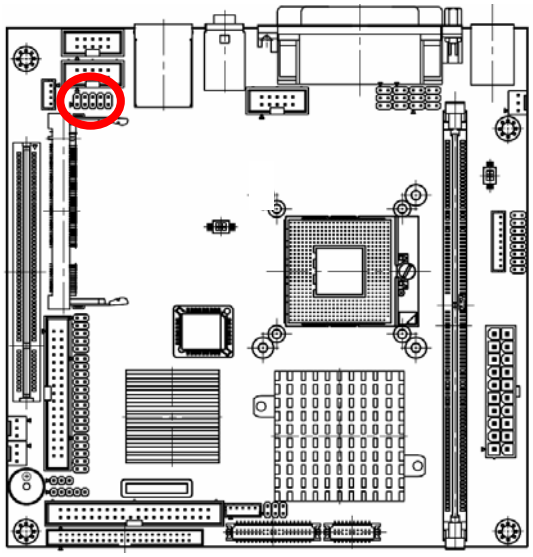
2.3.19 USB Connector 2 & 3 (JUSB1)

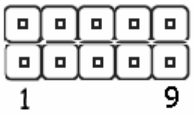




Signal	PIN	PIN	Signal
+5V	1	2	GND
D2-	3	4	GND
D2+	5	6	D3+
GND	7	8	D3-
GND	9	10	+5V

2.3.20 USB Connector 4 & 5 (JUSB2) (EMB-9676 Series)





Signal	PIN	PIN	Signal
+5V	1	2	GND
D4-	3	4	GND
D4+	5	6	D5+
GND	7	8	D5-
GND	9	10	+5V