

RSC-W910

RISC Nuvoton W90P910 ARM9 CPU Module

Quick Installation Guide



3rd Ed – 20 December 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.

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A Message to the customer

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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:

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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:

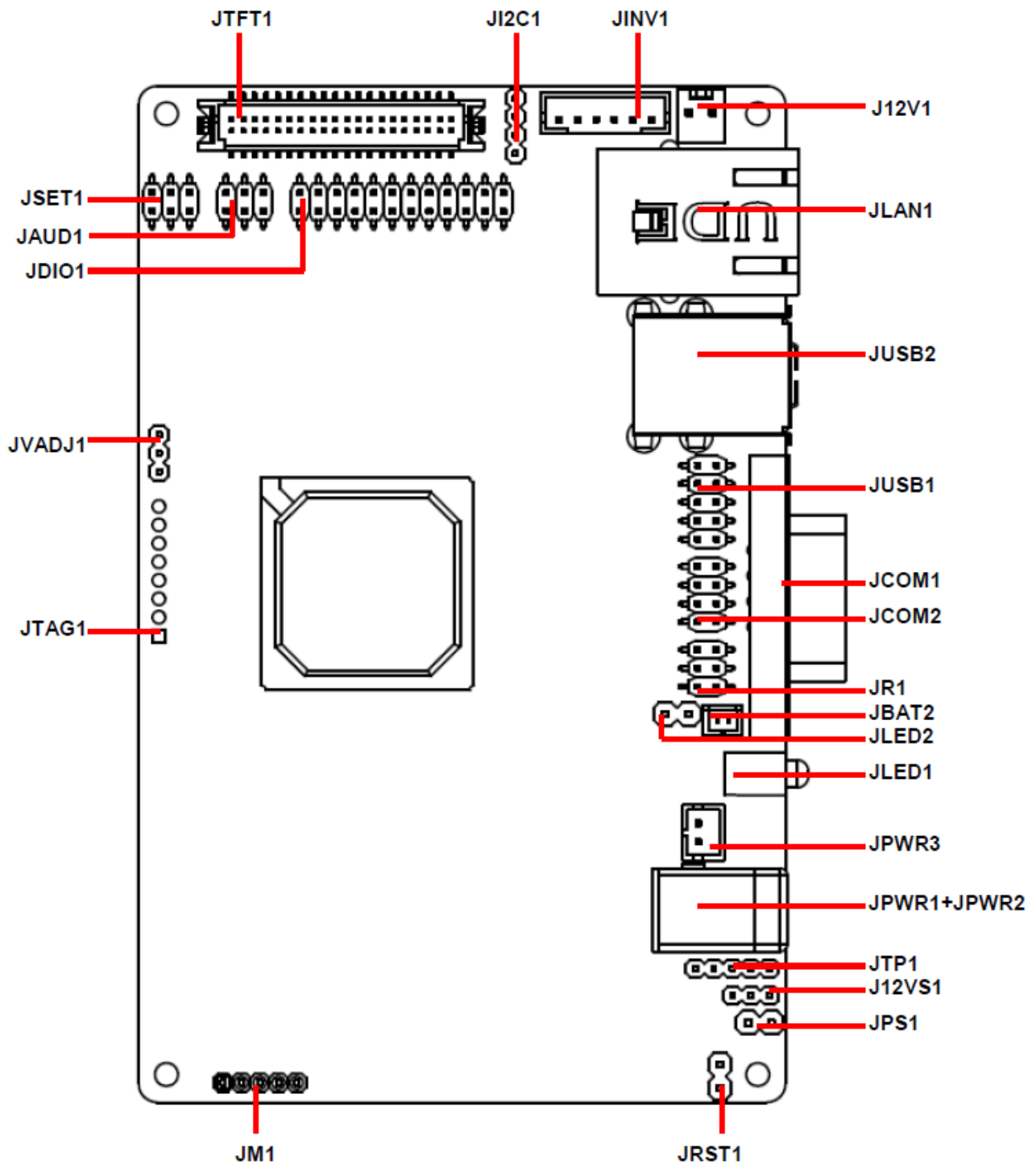
- 1 x RSC-W910 Micro Module
- 1 x Quick Installation Guide for RSC-W910
- 1 x CD-ROM contains the followings:
 - WinCE 6.0 BSP
 - Linux BSP (Kernel version 2.6.17.14)
- 1 x Cable set contains the followings:
 - 1 x Audio Cable
 - 1 x USB Cable
 - 1 x COM Cable



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

2. Hardware Configuration

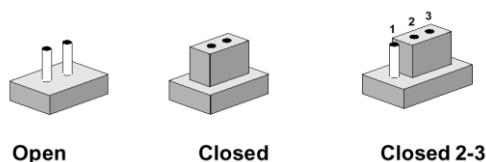
2.1 Product Overview



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

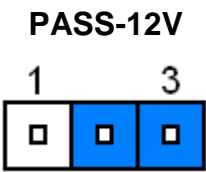
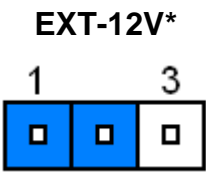
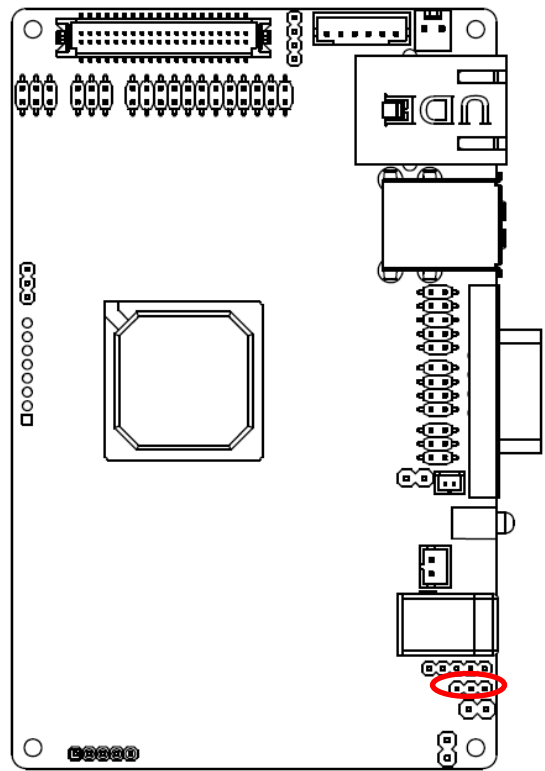
Label	Function	Note
J12VS1	Inverter power select	3 x 1 header, pitch 2.0mm
JM1	AT/ATX power mode select (Pin 4-5)	5 x 1 header, pitch 2.0mm
JR1	RS-232/485 mode select	3 x 2 header, pitch 2.0mm
JSET1	Boot ROM/ Flash data bus width	3 x 2 header, pitch 2.0mm
JVADJ1	+5V, +3.3V ADJ power mode select	3 x 1 header, pitch 2.0mm

Connectors

Label	Function	Note
J12V1	+12V power connector for inverter	2 x 1 wafer, pitch 2.54mm
JAUD1	Audio connector	3 x 2 header, pitch 2.0mm
JBAT2	Battery connector	2 x 1 wafer, pitch 1.25mm
JCOM1	Serial Port 1 connector	D-sub 9-pin, male
JCOM2	Serial Port 2 connector	4 x 2 header, pitch 2.0mm
JDIO1	Digital Input/ Output connector	12 x 2 header, pitch 2.0mm
JINV1	Inverter power connector & BL_PWM	6 x 1 wafer, pitch 2.0mm
JI2C1	I2C connector	4 x 1 header, pitch 2.0mm
JLAN1	10/100 Mbps Ethernet connector	RJ-45
JLED1	Power indicator	
JLED2	Power indicator connector	2 x 1 header, pitch 2.54mm
JRST1	(Reserved)	2 x 1 header, pitch 2.54mm
JTFT1	TFT panel connector	HIROSE DF13-40DP-1.25V
JPS1	ATX power button connector	2 x 1 header, pitch 2.54mm
JPWR1	Power connector (Optional, co-lay with JPWR2)	DC JACK 3P 2.5mm
JPWR3	Power connector	2 x 1 wafer, pitch 2.0mm
JTAG1	(Reserved for Debug)	
JTP1	Touch panel connector	5 x 1 header, pitch 2.0mm
JUSB1	USB 0&1 connector	5 x 2 header, pitch 2.0mm
JUSB2	USB 2&3 connector	

2.3 Setting Jumpers & Connectors

2.3.1 Inverter power select (J12VS1)

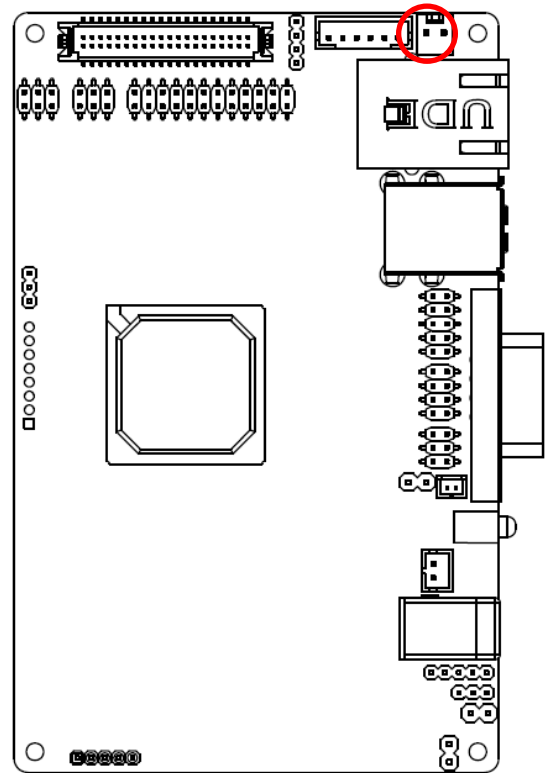


NOTE:

EXT-12V : JINV1 pin1 = J12V1 input voltage
Pass-12V : JINV1 pin1 = JPWR1 input voltage

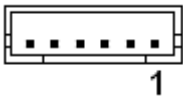
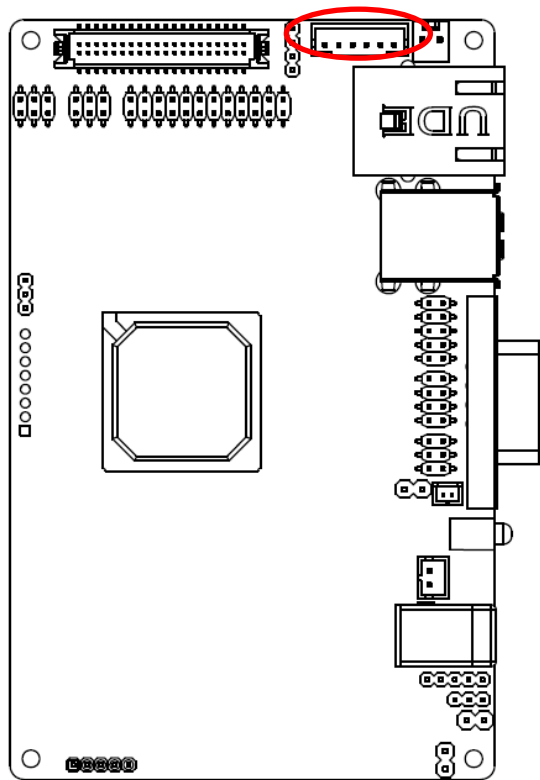
* Default

2.3.2 +12V power connector for inverter (J12V1)



Signal	PIN
ETX-12V	1
GND	2

2.3.3 Inverter power connector & BL_PWM (JINV1)



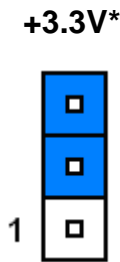
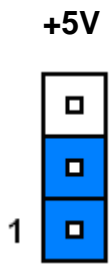
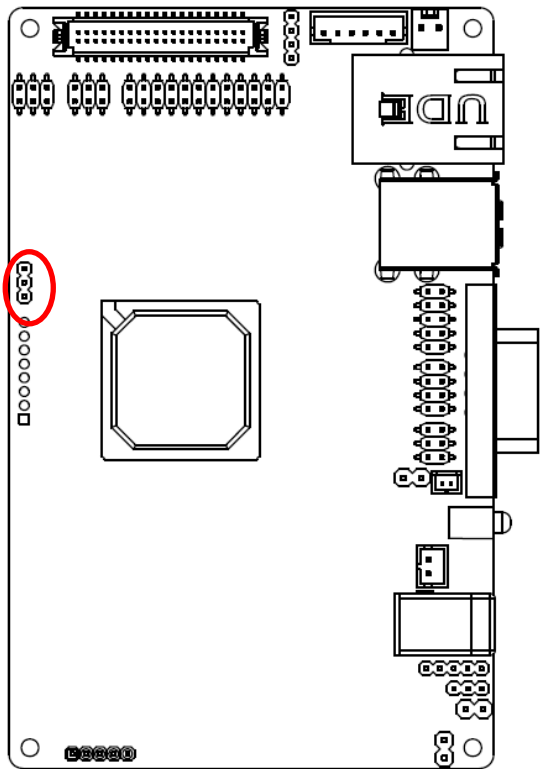
Signal	PIN
+12V	1
GND	2
BL_ON_OFF	3
BL_ADJ_VOL	4
+5V	5
BL_ADJ_PWM	6



NOTE:

Please see the JVADJ1 section for detailed circuitry information of Pin 4.

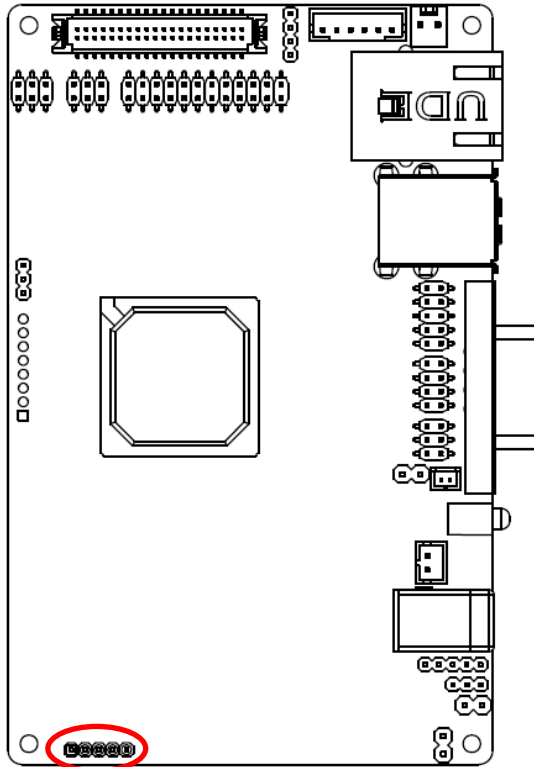
2.3.4 +5V, +3.3V ADJ power mode select (JVADJ1)



* Default

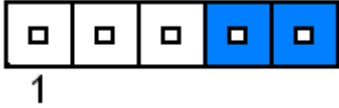
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2.3.5 AT/ATX power mode select (JM1)

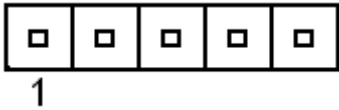


* Default

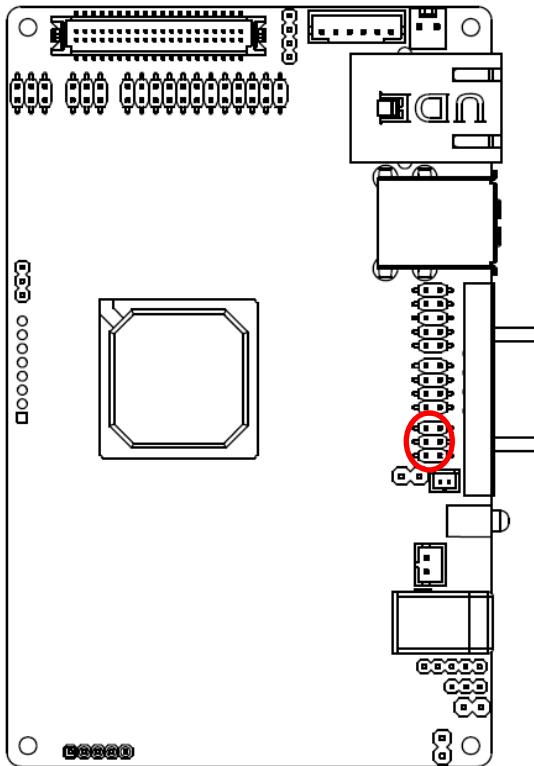
ATX*



AT

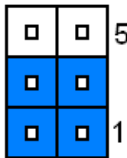


2.3.6 RS-232/485 power mode select (JR1)

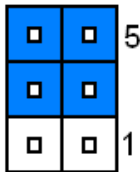


* Default

RS-232*



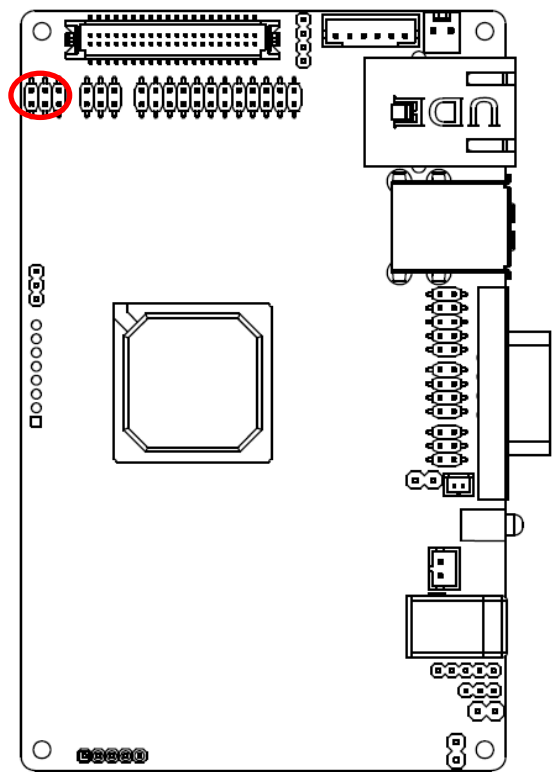
RS-485



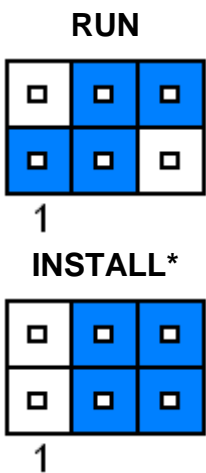
NOTE:

When JR1 is setting in RS-232 mode, pin2 & pin4 of JCOM2 will enable as RS-232 mode.
When JR1 is setting in RS-485 mode, pin7 & pin8 of JCOM2 will enable as RS-485 mode.

2.3.7 Boot ROM/ Flash data bus width (JSET1)



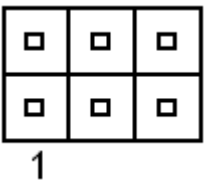
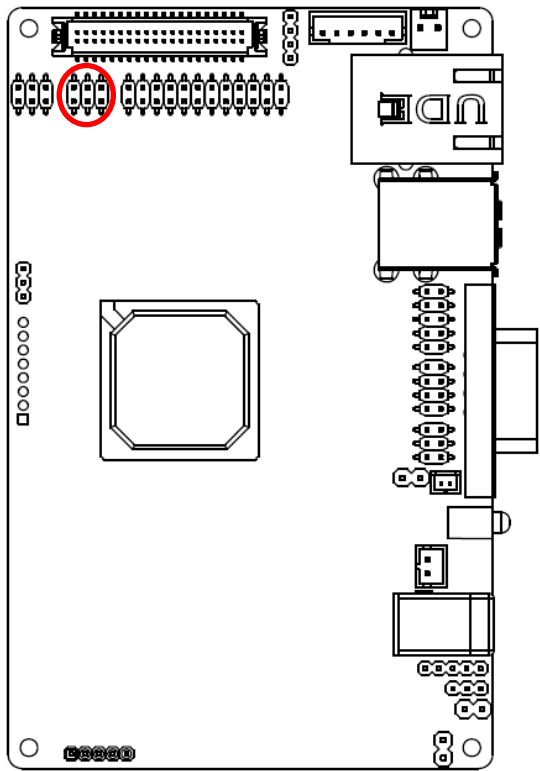
* Default



NOTE:

Set the jumper in INSTALL mode and connect RSC-W910 to host PC, and then turn on RSC-W910 to flash Boot loader.

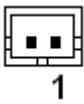
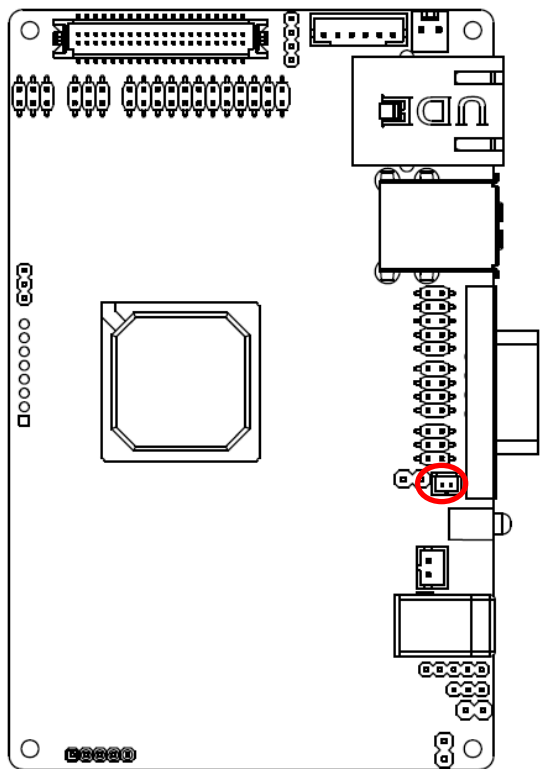
2.3.8 Audio connector (JAUD1)



Signal	PIN	PIN	Signal
LINEOUT_R	1	2	LINEOUT_L
GND	3	4	GND
MIC_IN	5	6	GND

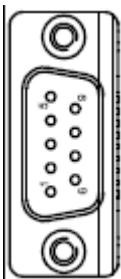
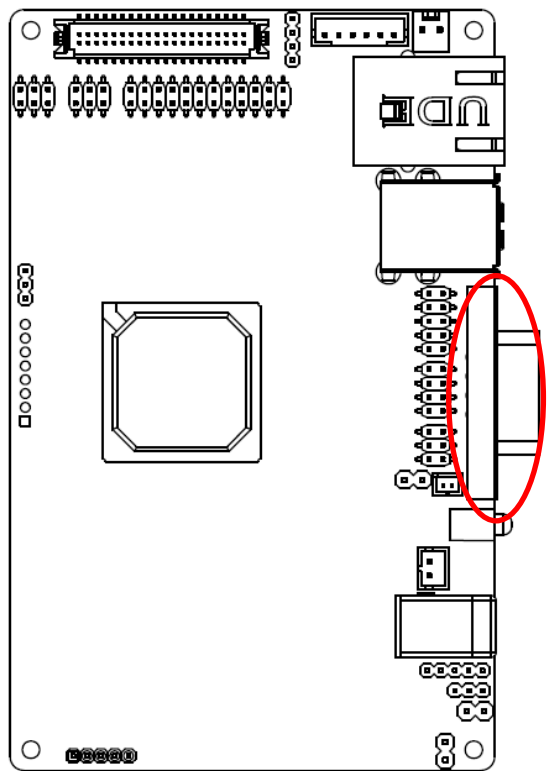
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2.3.9 Battery connector (JBAT2)



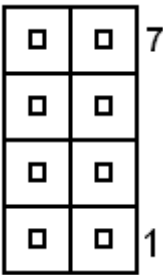
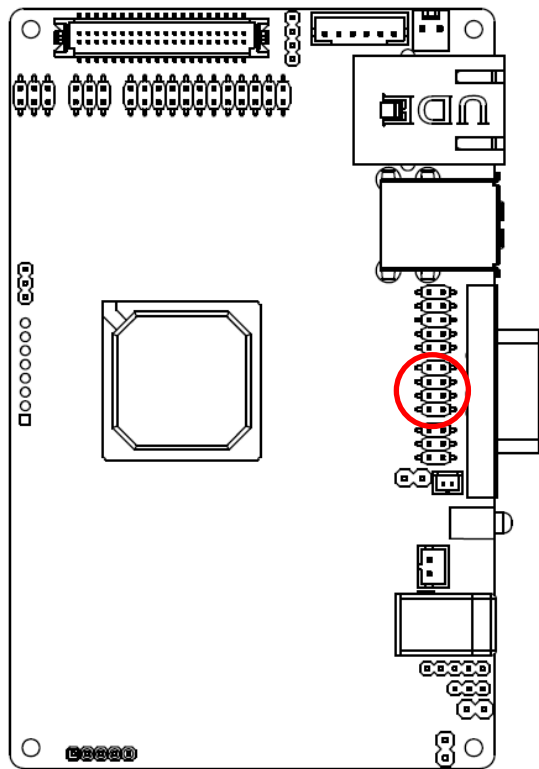
Signal	PIN
GND	2
+VBAT	1

2.3.10 Serial Port 1 connector (JCOM1)



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

2.3.11 Serial Port 2 connector (JCOM2)



Signal	PIN	PIN	Signal
485DA-	8	7	485DA+
GND	6	5	GND
TxD2	4	3	TxD0
RxD2	2	1	RxD0



NOTE:

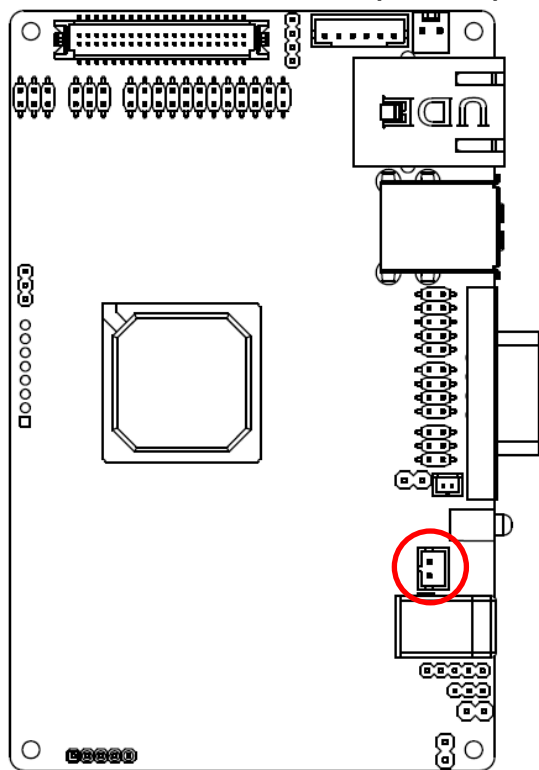
Pin1 & pin3 (RxD0/TxD0) are debug pins, you can get debug message by cross over cable.

Pin2 & pin4 (RxD2/TxD2) are RS-232 signals.

Pin7 & pin8 (485DA+/485DA-) are RS-485 signals.

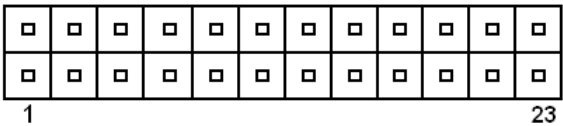
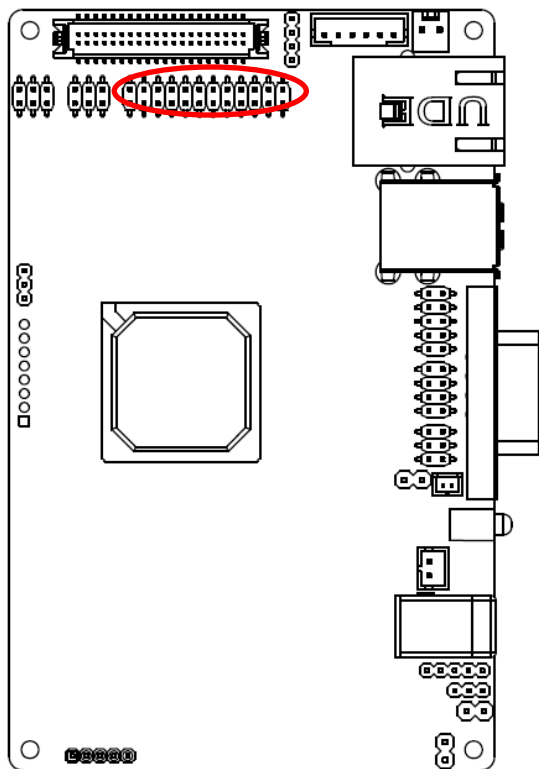
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2.3.12 Power connector (JPWR3)



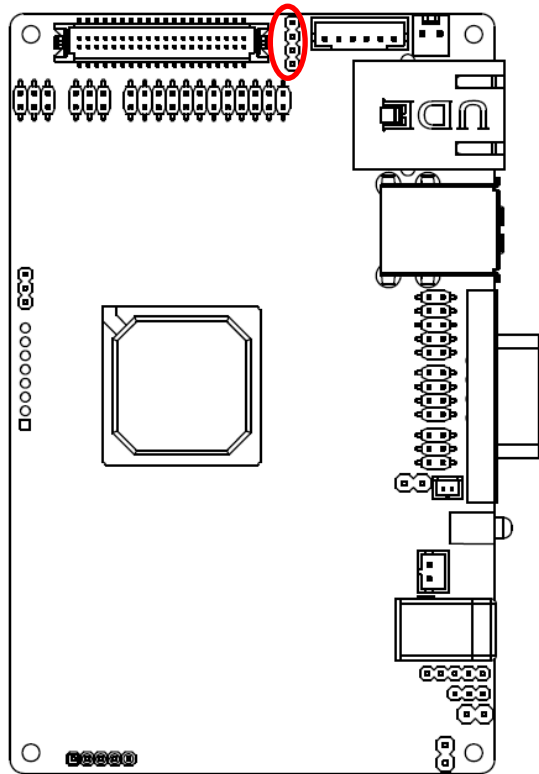
Signal	PIN
GND	2
PWR_IN	1

2.3.13 Digital Input/ Output connector (JDIO1)



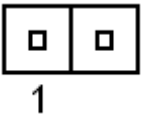
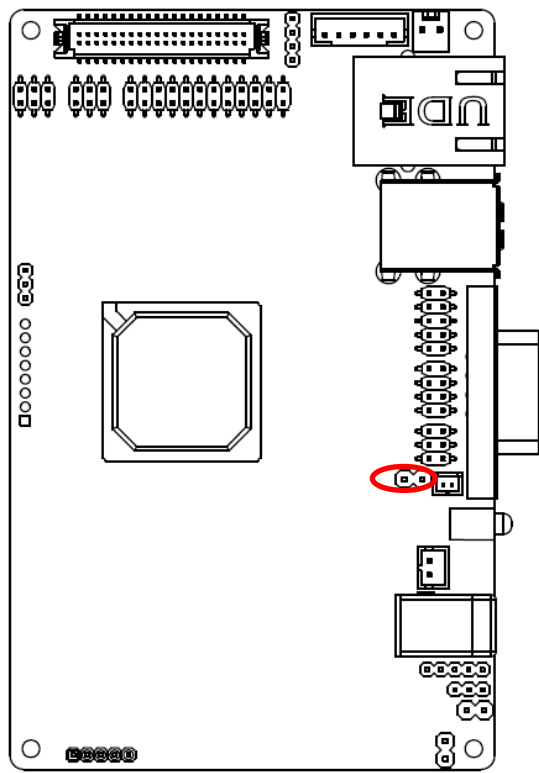
Signal	PIN	PIN	Signal
GPO0	1	2	GPI0
GPO1	3	4	GPI1
GPO2	5	6	GPI2
GPO3	7	8	GPI3
GPO4	9	10	GPI4
GPO5	11	12	GPI5
GPO6	13	14	GPI6
GPO7	15	16	GPI7
GPOA0	17	18	GPIA0
GPOA1	19	20	GPIA1
NC	21	22	NC
+5V	23	24	GND

2.3.14 I2C connector (JI2C1)



Signal	PIN
GND	4
I2C_SDA	3
I2C_SCL	2
+3V	1

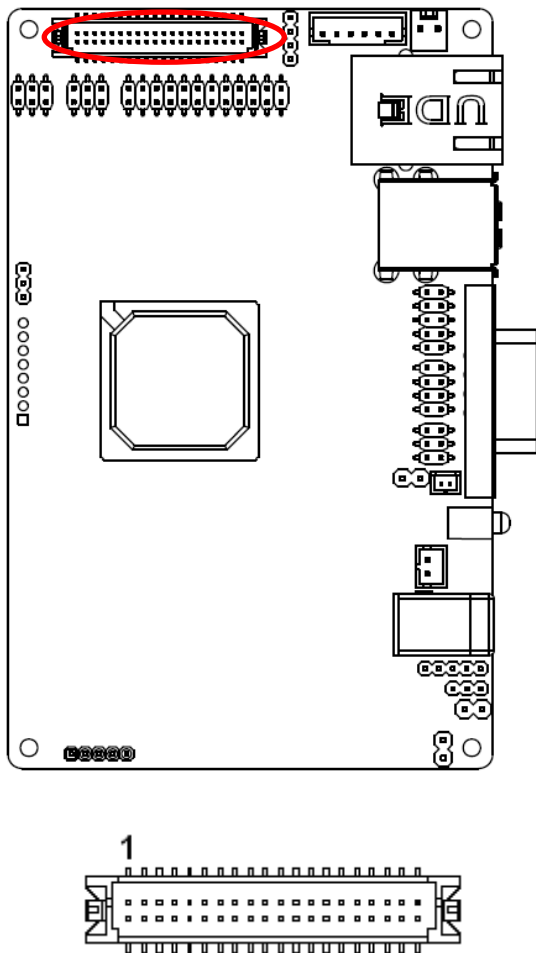
2.3.15 Power indicator connector (JLED2)



Signal	PIN
+3.3V	1
GND	2

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2.3.16 TFT panel connector (JTFT1)

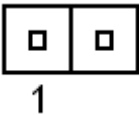
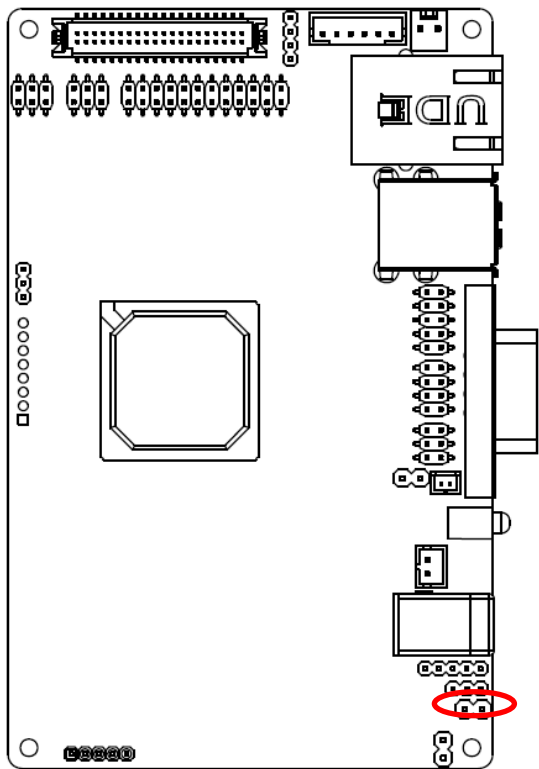


Signal	PIN	PIN	Signal
+5V	1	2	+5V
GND	3	4	GND
+3.3V	5	6	+3.3V
NC	7	8	GND
NC	9	10	NC
B0	11	12	B1
B2	13	14	B3
B4	15	16	B5
NC	17	18	NC
G0	19	20	G1
G2	21	22	G3
G4	23	24	G5
NC	25	26	NC
R0	27	28	R1
R2	29	30	R3
R4	31	32	R5
GND	33	34	GND
SHCLK	35	36	VSYNC
LDEMOD	37	38	HSYNC
ENBLK	39	40	NC

2.3.16.1 Signal Description – TFT Panel Connector (JTFT)

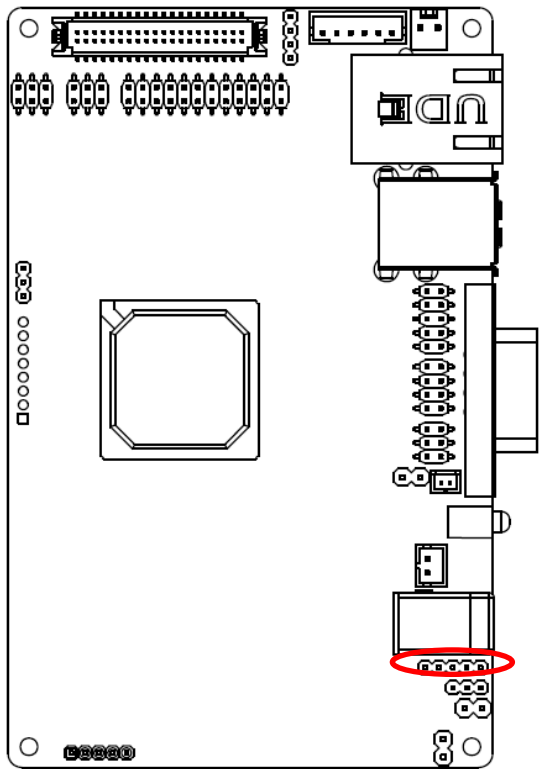
Signal	Description
B [0:5]G[0:5]R[0:5]	Flat panel data output for 18 bit TFT flat panels. The flat panel data and control outputs are all on-board controlled for secure power-on/off sequencing
SHCLK	Shift Clock. Pixel clock for flat panel data
HSYNC	Flat panel equivalent of horizontal synchronization
VSYNC	Flat panel equivalent of vertical synchronization
LDEMOD	Multipurpose signal, function depends on panel type. May be used as AC drive control signal or as BLANK# or Display Enable signal
ENBKL	Enable backlight signal. This signal is controlled as a part of the panel power sequencing

2.3.17 ATX power button connector (JPS1)



Signal	PIN
PS-SIGN	1
GND	2

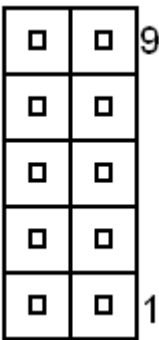
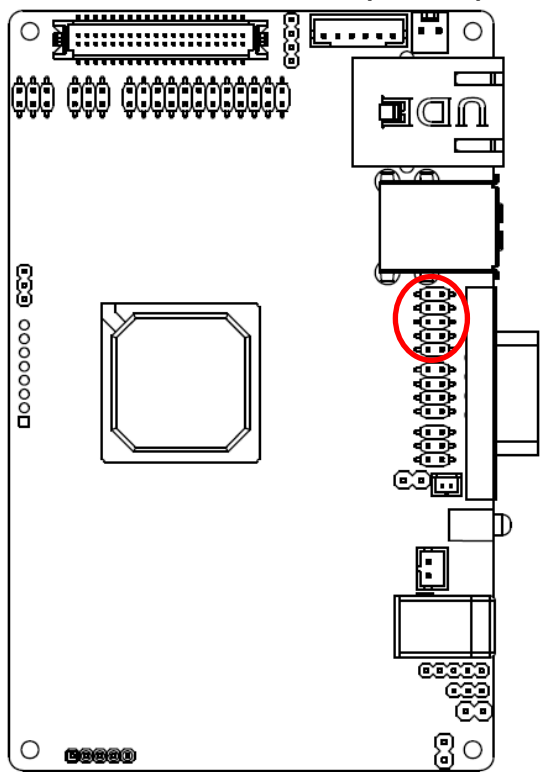
2.3.18 Touch panel connector (JTP1)



Signal	PIN
XP_A	1
YP_A	2
XM_A	3
YM_A	4
PROBE	5

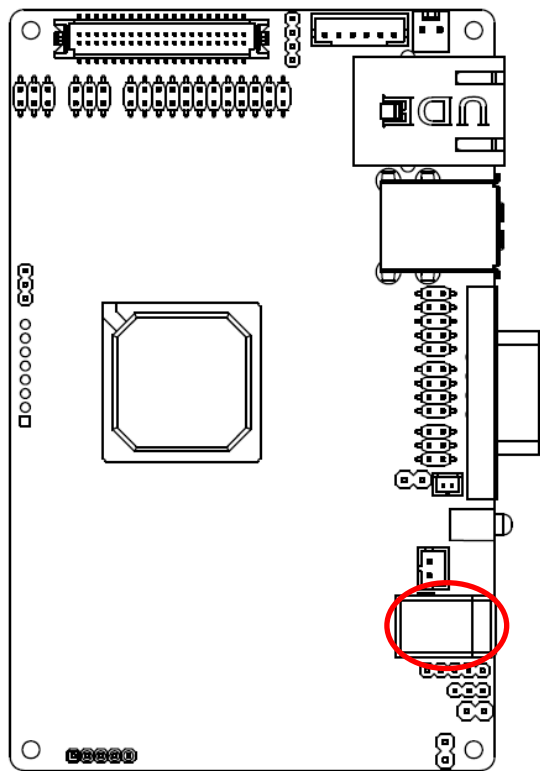
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2.3.19 USB 0&1 connector (JUSB1)



Signal	PIN	PIN	Signal
+VUSB01	10	9	GND
D1-	8	7	GND
D1+	6	5	D0+
GND	4	3	D0-
GND	2	1	+VUSB01

2.3.20 Power connector (JPWR1/ JPWR2)



JPWR1

Signal	PIN
PWR_IN	1
GND	2
SW	3

JPWR2

Signal	PIN
PWR_IN	1
GND	2

* Default

