

CCD-07WR2

7" Panel PC

Quick Reference Guide

1st Ed – 25 October, 2022

Copyright Notice

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Federal Communication Commission Interference Statement

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**

Notice:

- (1) **A Unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.**
- (2) **Use only shielded cables to connect I/O devices to this equipment.**
- (3) **Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

FCC RF Radiation Exposure Statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65 and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When nearby persons has to be kept to ensure RF exposure compliance, in order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm.

WARNING

“CAUTION – Use suitable mounting apparatus to avoid risk of injury.”

“CAUTION – This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures”

“CAUTION –Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.”

“CAUTION - Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.”

“WARNING – To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.”

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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.

1.2 Packing List

- 1 x CCD-07WR2 Panel PC
- 1 x Power adapter
- 1 x Power cord



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

1.3 System Specifications

Component	
Mother Board	ACP-RK3568
CPU	RK3568_Quad-core Cortex-A55 up to 2.0GHz_ Mali-G52 GPU
Memory	2GB DDR4 on board
Power Supply	DC in
Camera	2MP Camera with Digital Microphone
Wireless LAN	AW-CM276NF_ac/a/b/g/n_2x2
Bluetooth	5.0
Operating System	Android 11, Debian 10
Storage	
Other Storage Device	32GB eMMC
Panel	
LCD Panel	7" MIPI Panel
Resolution	600 x 1024
Touch Screen	7" USB P-CAP Touch
Touch Controller	EETI_ECX80W32
External I/O	
DC in Power jack	JDCIN1: Power Jack_90D Pwr-in 12V~24V
HDMI Port	JHDMI1: HDMI Port_90D
USB Port	JUSB1: USB Type A Host (3.0)_90D JUSB2: USB Type A Host (3.0)_90D
Lan Port	JLAN1: 10/100/1000 Lan port_90D
Audio Port	JHP1: Headphone Jack_90D
Reset button	Reset button_90D
Speaker	1.3W Speaker x1 (Left side) PS: From the HW side, only one issue needs to be pointed out here, because the serious shortage of TI TPA2012D2RTJT, we decided to put only 1 Audio Amplifiers instead. But of course, after the supply chain is getting stable later on, we will follow our original specification with dual Audio Amplifiers.
Mechanical	
Power Type	12V~24V wide voltage DC input
Power Connector Type	DC jack
Dimension	190.86 x 123.61 x 30.5 mm
Weight	0.5 kg
Fanless	Yes

CCD-07WR2

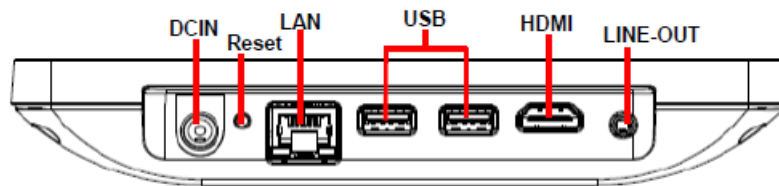
OS Support	Androd 11 / Debian 10
Reliability	
EMI Test	CE FCC class B, RED
Safety	2014/35/EU EN 62368-1: 2014+A11: 2017 (Second Edition) Low Voltage Directive
Dust and Rain Test	<ol style="list-style-type: none"> 1. PSD: 0.00454G²/Hz, 1.5 Grms 2. Operation mode 3. Test Frequency: 5-500Hz 4. Test Axis: X,Y and Z axis 5. 30 minutes per each axis 6. IEC 60068-2-64 Test:Fh 7. Storage : CF or SSD
Vibration Test	<ol style="list-style-type: none"> 1 Test Acceleration : 2G 2 Test frequency : 5~500 Hz 3 Sweep : 1 Oct/ per one minute. (logarithmic) 4 Test Axis : X,Y and Z axis 5 Test time :30 min. each axis 6 System condition : Non-Operating mode 7. Reference IEC 60068-2-6 Testing procedures
Mechanical Shock Test	<ol style="list-style-type: none"> 1. PSD: 0.026G²/Hz, 2.16 Grms 2. Non-operation mode 3. Test Frequency: 5-500Hz 4. Test Axis: X,Y and Z axis 5. 30 min. per each axis 6. IEC 60068-2-64 Test:Fh
Drop Test	<ol style="list-style-type: none"> 1. Wave form : Half Sine wave 2. Acceleration Rate : 10g for operation mode 3. Duration Time : 11ms 4. No. of Shock : Z axis 300 times 5. Test Axis: Z axis 6. Operation mode 7. Reference IEC 60068-2-29 Testing procedures Test Eb : Bump Test
Operating Temperature	<ol style="list-style-type: none"> 1 One corner , three edges, six faces 2 ISTA 2A, IEC-60068-2-32 Test:Ed
Operating Humidity	0°C ~ 40°C
Storage Temperature	40°C @ 95% Relative Humidity, Non-condensing
Other Test	-20°C ~ 60°C



Note: Specifications are subject to change without notice.

1.4 System Overview

1.4.1 Bottom View

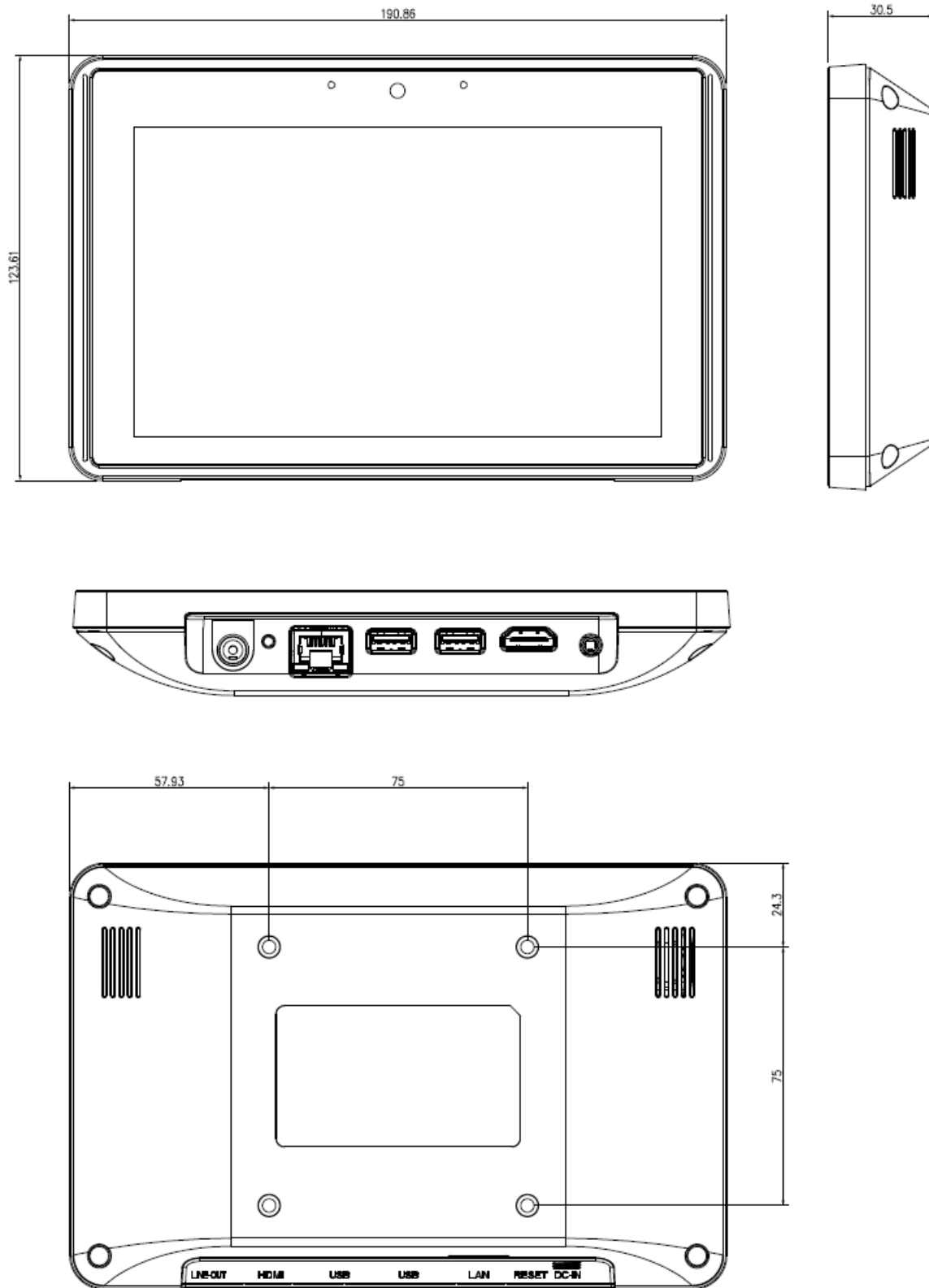


Connectors

Label	Function	Note
LINE-OUOT	Audio line-out connector	
HDMI	HDMI connector	
USB	2 x USB 3.0 connector	
LAN	RJ-45 Ethernet	
Reset	Reset button	
DCIN	DC power-in connector	

1.5 System Dimensions

1.5.1 Front and Rear side



(Unit: mm)

2. Hardware Configuration

For advanced information, please refer to:

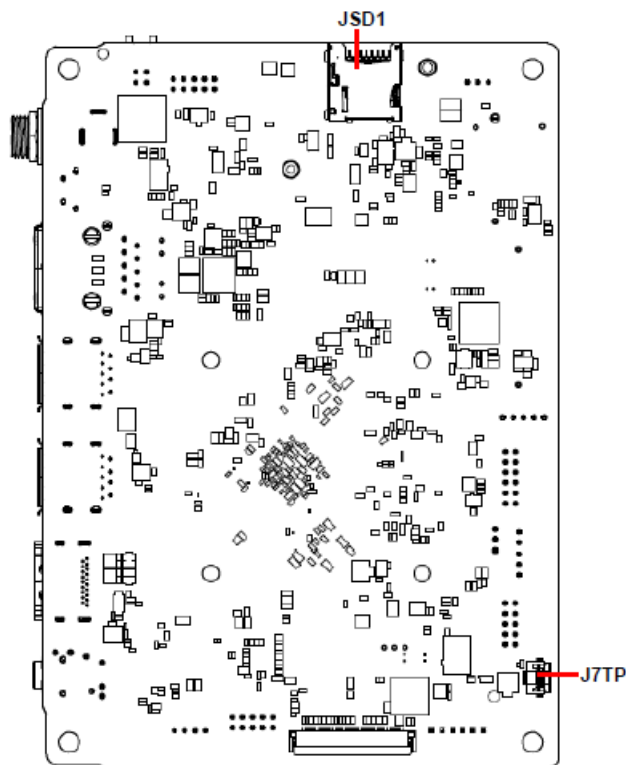
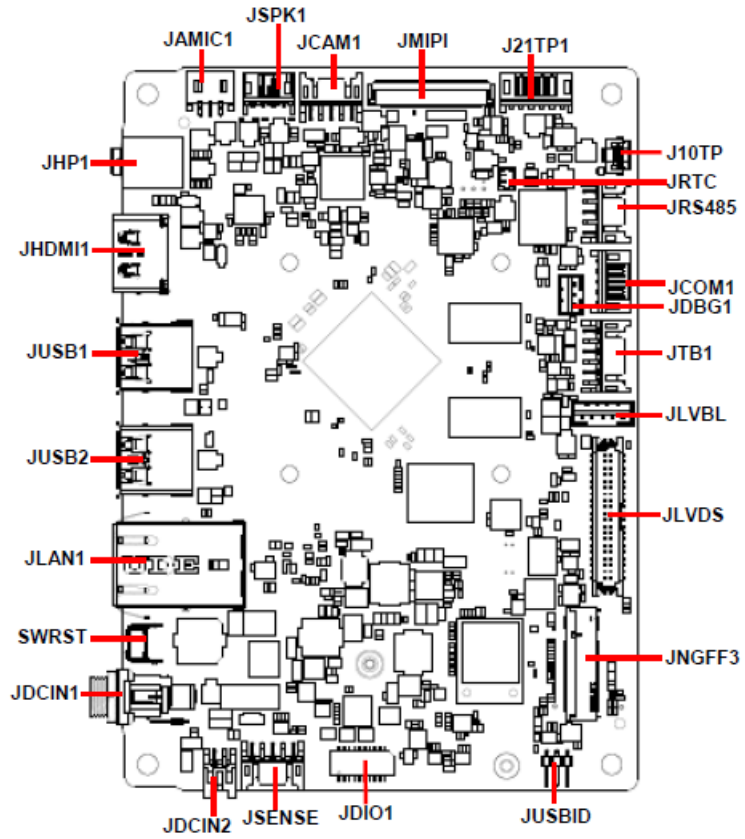
- 1- ACP-RK3568 included in this manual.



Note: If you need more information, please visit our website:

<http://www.avalue.com.tw>

2.1 ACP-RK3568 Overviews



2.2 ACP-RK3568 Connector list

Jumpers

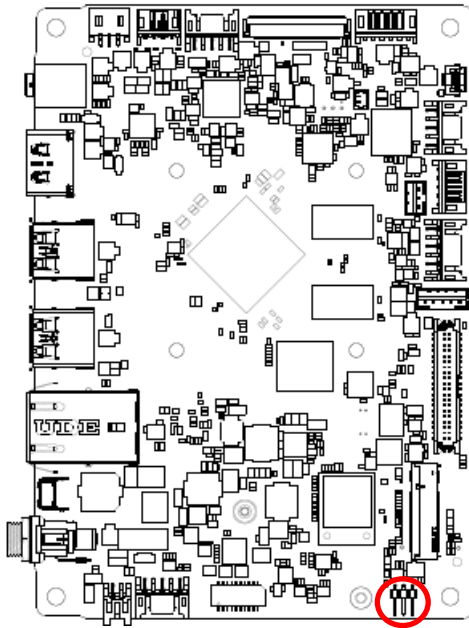
Label	Function	Note
JUSBID	OTG ID select	3 x 1 header, pitch 2.00 mm

Connectors

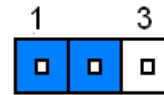
Label	Function	Note
JHP1	Audio line-out connector	
JHDMI1	HDMI connector	
JUSB1/2	2 x USB 3.0 connector	
JLAN1	RJ-45 Ethernet connector	
JDCIN1	DC Power-in connector	
JDCIN2	DC Power-in connector	2 x 2 wafer, pitch 2.00 mm
J21TP1	21" Touch Panel connector	6 x 1 FPC, pitch 0.50 mm
J10TP	10" Touch Panel connector	6 x 1 FPC, pitch 0.50 mm
JSPK1	Speaker connector	4 x 1 wafer, pitch 2.00 mm
SWRST	Reset Button	
JNGFF3	M.2 B-Key socket for WWAN	
JRTC	RTC Battery connector	2 x 1 wafer, pitch 1.25 mm
JSENSE	Sensor connector	5 x 2 wafer, pitch 2.00 mm
JDIO1	General purpose I/O connector	10 x 2 wafer, pitch 1.00 mm
JCAM1	Camera connector	5 x 2 wafer, pitch 2.00 mm
JCOM1	Serial port 1 connector	5 x 1 wafer, pitch 2.00 mm
JRS485	RS-485 connector	5 x 2 wafer, pitch 2.00 mm
JTB1	Touch button board connector	6 x 2 wafer, pitch 2.00 mm
JAMIC1	A-MIC connector	3 x 1 wafer, pitch 2.00 mm
JMIPI	MIPI Port	40 x 1 FPC, pitch 0.30 mm
JDBG1	Debug connector	3 x 1 wafer, pitch 2.00 mm
JLVDS	LVDS connector	40 x 1 FPC, pitch 0.50 mm
JLVBL	Backlight connector	5 x 1 wafer, pitch 2.00 mm
JSD1	Micro SD card slot	
J7TP1	7" Touch Panel connector	6 x 1 FPC, pitch 0.50 mm

2.3 ACP-RK3568 Jumpers & Connectors settings

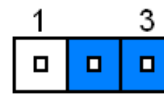
2.3.1 OTG ID select (JUSBID)



HOST*

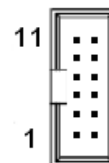
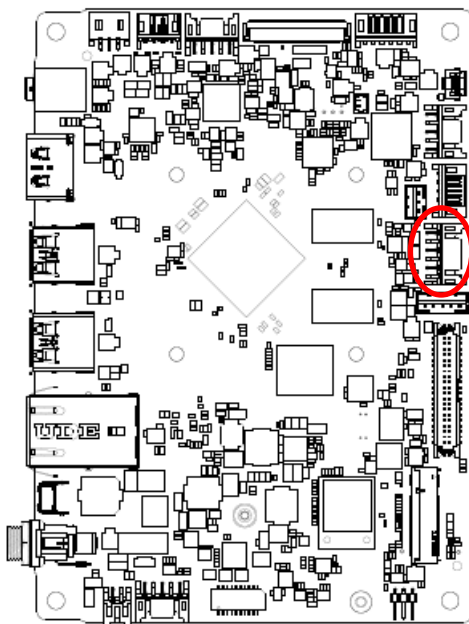


Client Mode



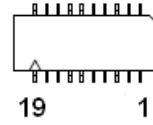
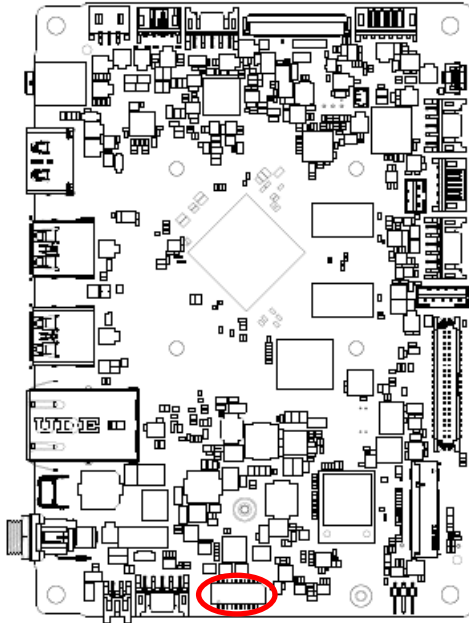
* Default

2.3.2 Touch button board connector (JTB1)



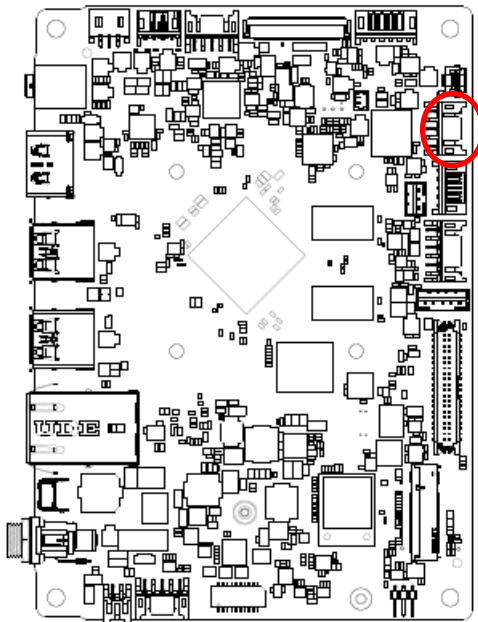
Signal	PIN	PIN	Signal
LED_GREEN_R	11	12	LED_ORANGE_R
BU_BR-3V	9	10	BU7_3V
PWRBTN_3V	7	8	BU_BR+3V
VOL_UP_3V	5	6	VOL_DOWN_3V
LINUX_SW	3	4	BU1_TV_3V
PWR_JTB1	1	2	GND

2.3.3 General purpose I/O connector (JDIO1)



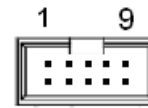
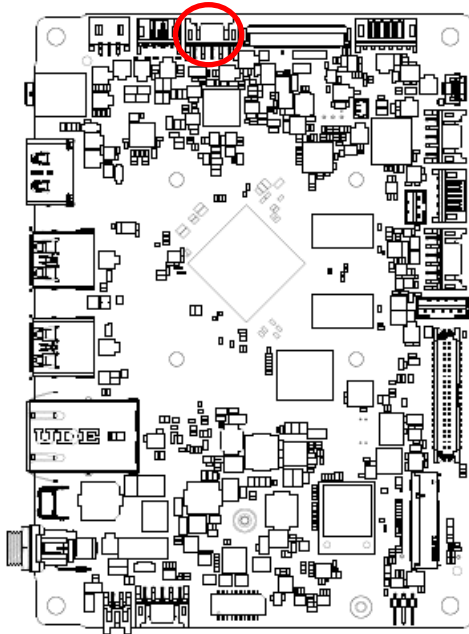
Signal	PIN	PIN	Signal
DIO_GP10	1	2	DIO_GP20
DIO_GP11	3	4	DIO_GP21
DIO_GP12	5	6	DIO_GP22
DIO_GP13	7	8	DIO_GP23
DIO_GP14	9	10	DIO_GP24
DIO_GP15	11	12	DIO_GP25
DIO_GP16	13	14	DIO_GP26
DIO_GP17	15	16	DIO_GP27
I2C_2_LV_SDA	17	18	I2C_2_LV_SCL
+V5S_DIO	19	20	GND

2.3.4 RS-485 connector (JRS485)



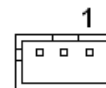
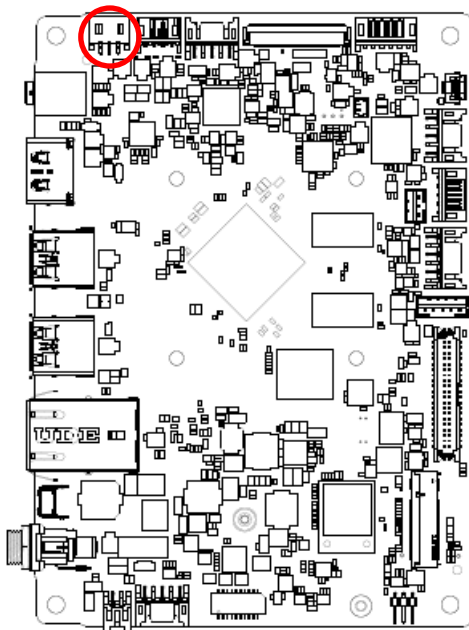
Signal	PIN	PIN	Signal
GND	2	1	GND
NC	4	3	485_422TX1+
NC	6	5	485_422TX1-
RS232_RX4	8	7	NC
RS232_TX4	10	9	+PWR_RS485

2.3.5 Camera connector (JCAM1)



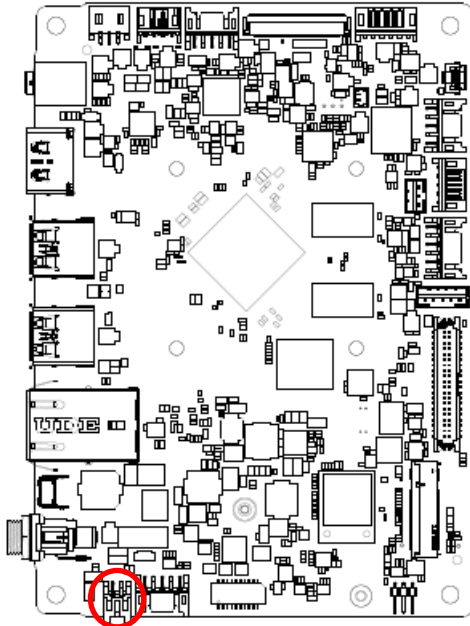
Signal	PIN	PIN	Signal
GND	1	2	GND
GND	3	4	GND
USB2_HOST3_DP_R	5	6	PDM_SDI1_DMIC_R
USB2_HOST3_DM_R	7	8	PDM_CLK1_DMIC_
+CAM_VCC (5V level)	9	10	+DMIC_VCC (3V level)

2.3.6 A-MIC connector (JAMIC1)



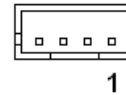
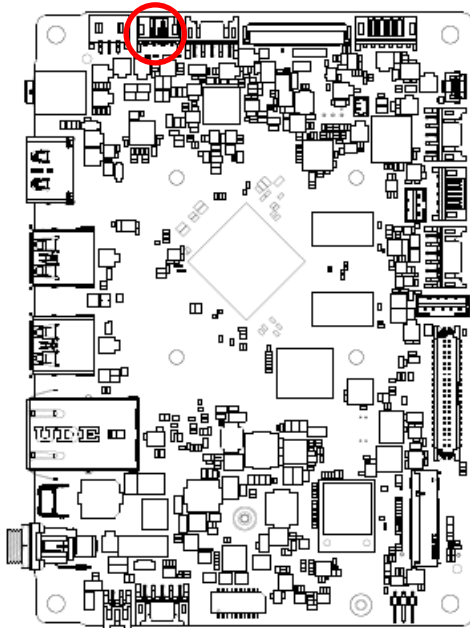
Signal	PIN
GND	1
AMIC_IN	2
MIC_JD#	3

2.3.7 DC Power-in connector (DCIN2)



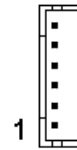
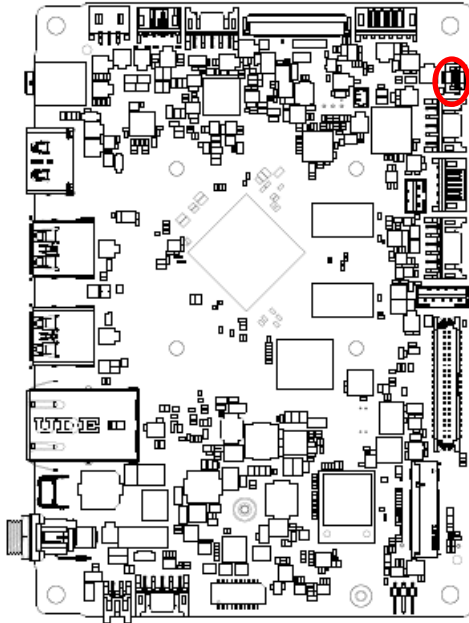
Signal	PIN	PIN	Signal
+12V_24ADPIN	1	3	+12V_24ADPIN
GND	2	4	GND

2.3.8 Speaker connector (JSPK1)



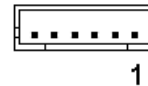
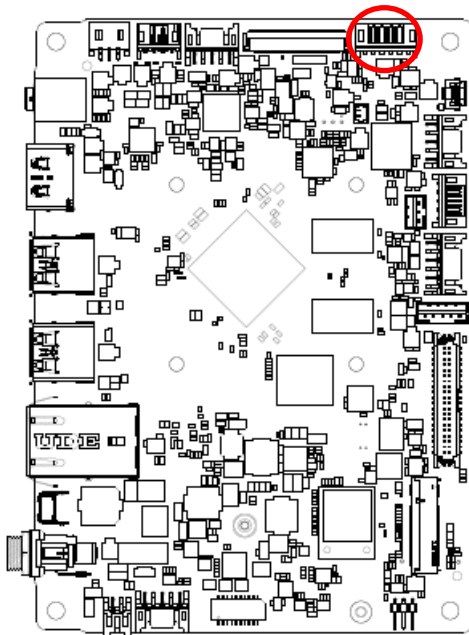
Signal	PIN
SPK_L+	1
SPK_L-	2
SPK_R+	3
SPK_R-	4

2.3.9 10" Touch Panel connector (J10TP)



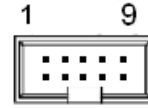
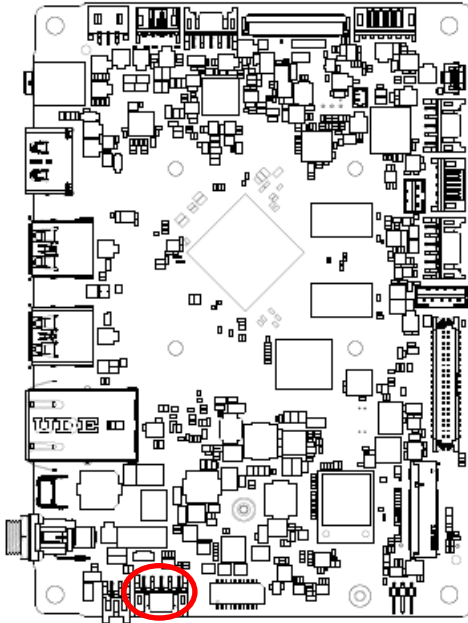
Signal	PIN
NC	6
GND	5
GND	4
USB2_10TP_DP	3
USB2_10TP_DM	2
+USB_5V_TS	1

2.3.10 21" Touch Panel connector (J21TP1)



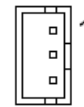
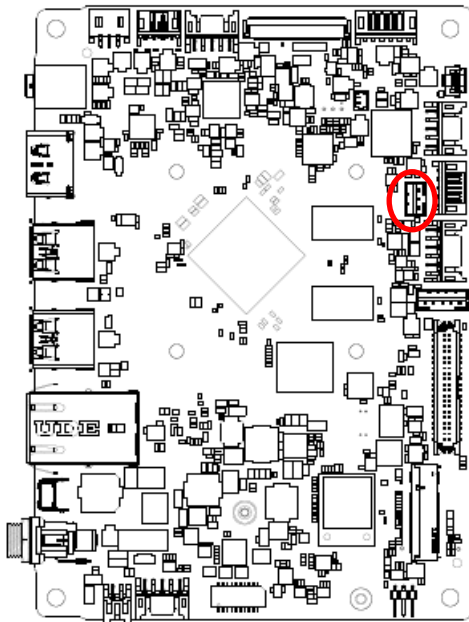
Signal	PIN
+USB_5V_TS	1
USB2_21TP_DM_R	2
USB2_21TP_DP_R	3
GND	4
GND	5
GND	6

2.3.11 Sensor connector (JSENSE)



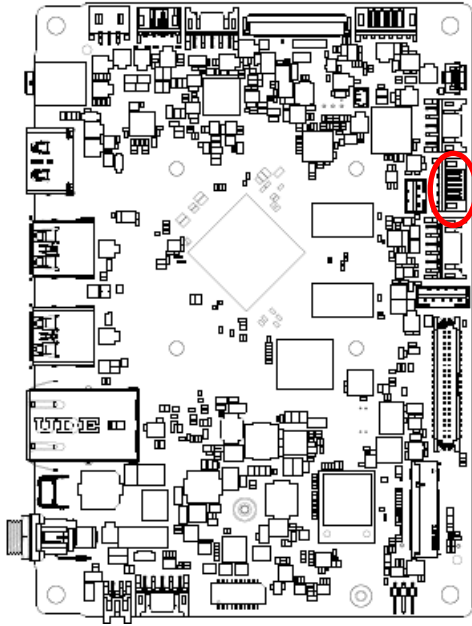
Signal	PIN	PIN	Signal
GND	1	2	GND
SENSE0_IRQ_R	3	4	SENSE2_IRQ_R
I2C3_SDA_3.3V_CONN	5	6	I2C5_SDA_3.3V_CONN
I2C3_SCL_3.3V_CONN	7	8	I2C5_SCL_3.3V_CONN
+3VS_SEN_CONN	9	10	+3VS_SEN_CONN

2.3.12 Debug connector (JDBG1)



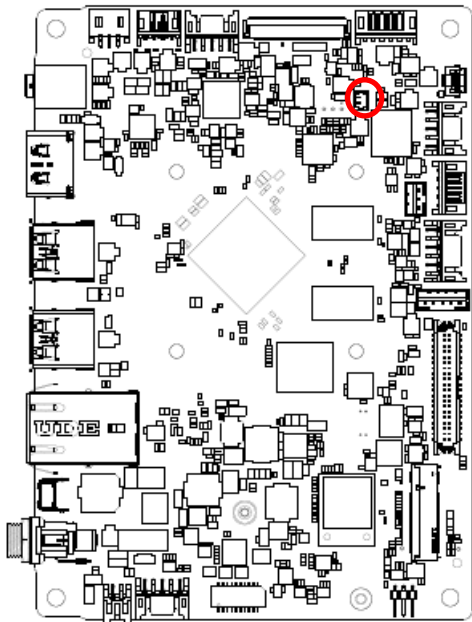
Signal	PIN
DEBUG_TX2_CON	1
DEBUG_RX2_CON	2
GND	3

2.3.13 Serial port 1 connector (JCOM1)



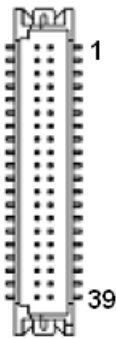
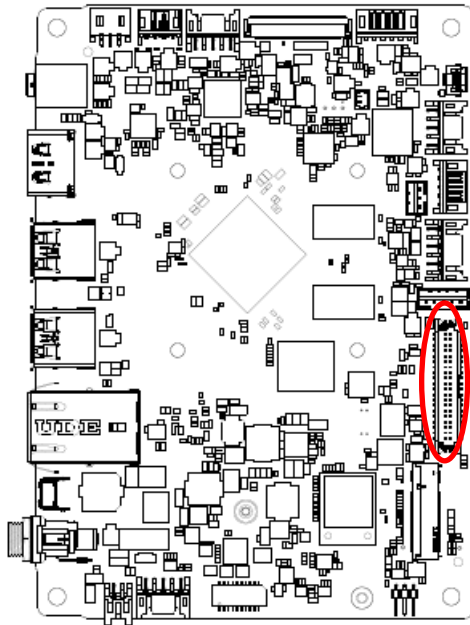
Signal	PIN
GND	1
NC	2
NC	3
RS232_RX3	4
RS232_TX3	5

2.3.14 RTC Battery connector (JRTC)



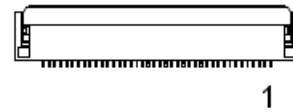
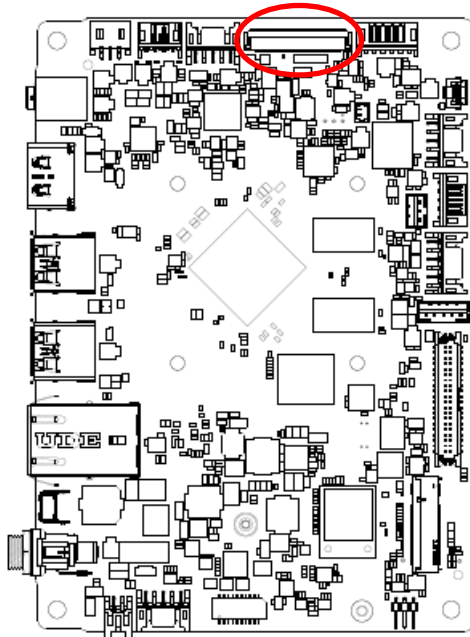
Signal	PIN
+V_BAT	1
GND	2

2.3.15 LVDS connector (JLVDS)



Signal	PIN	PIN	Signal
+V3.3S_LVDS	2	1	+5V_LVDS
+V3.3S_LVDS	4	3	+5V_LVDS
NC	6	5	NC
GND	8	7	GND
TXO1+	10	9	TXO0+
TXO1-	12	11	TXO0-
GND	14	13	GND
TXO3+	16	15	TXO2+
TXO3-	18	17	TXO2-
GND	20	19	GND
TXE1+	22	21	TXE0+
TXE1-	24	23	TXE0-
GND	26	25	GND
TXE3+	28	27	TXE2+
TXE3-	30	29	TXE2-
GND	32	31	GND
TXEC+	34	33	TXOC+
TXEC-	36	35	TXOC-
GND	38	37	GND
+11V2S_BL	40	39	+11V2S_BL

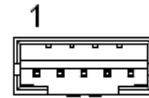
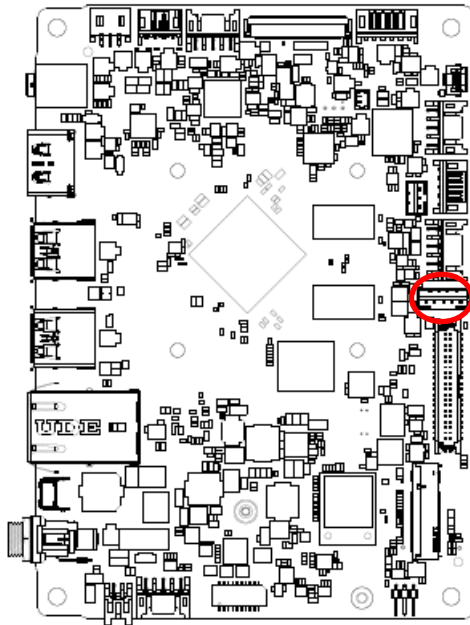
2.3.16 MIPI Port (JMIPI)



Signal	PIN
+3VS_DSI	1
+3VS_DSI	2
+3VS_DSI	3
GND	4
DSI_RESET#_3V3	5
NC	6
GND	7
MDSI_A_DN0_R	8
MDSI_A_DP0_R	9
GND	10
MDSI_A_DN1_R	11
MDSI_A_DP1_R	12
GND	13
MDSI_A_CLKN_R	14

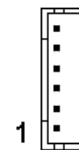
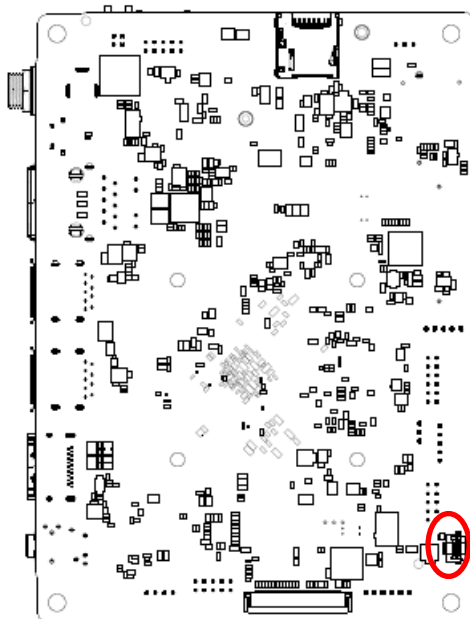
Signal	PIN
MDSI_A_CLKP_R	15
GND	16
MDSI_A_DN2_R	17
MDSI_A_DP2_R	18
GND	19
MDSI_A_DN3_R	20
MDSI_A_DP3_R	21
GND	22
NC	23
NC	24
GND	25
NC	26
NC	27
NC	28
PANEL_LEDK	29
GND	30
PANEL_LEDK	31
PANEL_LEDK	32
NC	33
NC	34
NC	35
NC	36
NC	37
PANEL_LEDK	38
PANEL_LEDK	39
PANEL_LEDK	40

2.3.17 Backlight connector (JLVBL)



Signal	PIN
+11V2S_21BL	1
+11V2S_21BL	2
EN_BL	3
PWM_BL	4
GND	5

2.3.18 7" Touch Panel connector (J7TP1)



Signal	PIN
GND	6
+USB_5V_TS	5
USB2_7TP_DM	4
USB2_7TP_DP	3
NC	2
NC	1

