

# SPC-21WR2

21.5" Rockchip RK3568 Fanless Stainless Steel Chassis  
Touch Panel PC with IP65

## Quick Reference Guide

1<sup>st</sup> Ed – 22 January 2026

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## Document Amendment History

Revision	Date	By	Comment
1 <sup>st</sup>	January 2026	Avalue	Initial Release

## Declaration of Conformity



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 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.

### CE statement

The product(s) described in this manual complies with all application European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

## 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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## Acknowledgements

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All other product names or trademarks are properties of their respective owners.

## Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject to change without notice. It does not represent a commitment on the part of Avalue. This

product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

## A Message to the Customer

### *Avalue Customer Services*

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

### *Technical Support and Assistance*

1. Visit the Avalue website at <https://www.avalue.com/> where you can find the latest information about the product.
2. Contact your distributor or our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

To receive the latest version of the user's manual; please visit our Web site at:

[www.avalue.com](http://www.avalue.com)

## ***Product Warranty (Returns & Warranties policy)***

### **1. Purpose**

Avalue establishes the following maintenance specifications and operation procedures for providing the best quality of service and shortened repair time to our customers.

### **2. Warranty**

#### **2.1 Warranty Period**

Avalue endeavors to offer customers the most comprehensive post-sales services and protection; besides offering a 2-year warranty for standard Avalue products, an extended warranty service can also be provided based on additional request from the customer. Within the warranty period, customers are entitled to receive comprehensive and prompt repair and warranty.

Standard products manufactured by Avalue are offered a 2-year warranty, from the date of delivery from Avalue. For ODM/OEM products manufactured by Avalue or PCBA with conformal coating, will follow up the define warranty of the agreement, otherwise will be offered 1-year warranty for ODM/OEM products but non-warranty for PCBA with conformal coating. For outsourcing parts kit by Avalue (ex: Motherboard, LCD touch panel, CPU, RAM, HDD) are offered a 6-month warranty, and Mobile/Tablet PC battery are offered a warranty of the half year, from the date of delivery by Avalue. Products before the mass production stage, i.e. engineering samples are not applied in this warranty or service policy. For extended warranty and cross-territory services, product defects resulting from design, production process or material are covered by the pre-set warranty period after the date of delivery from Avalue. For non-Avalue products, the product warranty and repair time shall be based on the service standards provided by the original manufacturer; in principle Avalue will provide these products a warranty service for no more than one year.

#### **2.2 Maintenance services within the warranty period**

In the case of Avalue product DOA (Defect-on-Arrival) when the customer finds any defect within 1 month after the delivery, Avalue will replace it with a new product in a soonest way. Except for custom products, once the customer is approved of a Cross-Shipment Agreement, which allows for delivery a new product to the customer before receiving the defective one, Avalue will immediately proceed with new product replacement for the said DOA case. On validation of the confirmed defect, Avalue is entitled to reserve the right whether to provide a new product for replacement. For the returned defective new product, it is necessary to verify that there shall be no bruise, alteration, scratch or marking to the appearance, and that none of the delivered accessories missing; otherwise, the customer will be requested to pay a processing fee. On the other hand, if the new product defect is resulting from incorrect configuration or erroneous use by the user instead of any problem of the hardware itself, the customer will also be requested to pay for relevant handling fees.

## SPC-21WR2

As for other conditions, Avalue will handle defects by way of repair. The customer will be requested to send the defective product to an Avalue authorized service center, and Avalue will return the repaired product back to the customer as soon as possible.

### 2.3 Ruling of an out-of-warranty defect

The following situations are not included in the warranty:

- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident or other causes. Avalue reserves the right for the ruling of the aforementioned situations.
- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules of non-Avalue products and accessories shall be in accordance with standards set up by the original manufacturer. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiration of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number.
- Products before the mass production stage, i.e. engineering samples.

## 3. Procedure for sending for repair

### 3.1 Attain a RMA number

A customer's rejected product returned for repair shall have a RMA (Return Merchandise Authorization) number. Without a RMA number, Avalue will not provide any repair service for the rejected product, and the product will be returned to the customer at customer's cost. Avalue will not issue any notice for the return of the product.

Each returned product for repair shall have a RMA number, which is simply the authorization of the return for repair; it is not a guarantee that the returned goods can be repaired or replaced. For applying for a RMA number, the customer may enter the eRMA webpage of Avalue <https://www.avalue.com/en/member> and log-in with an account number and a password authorized by Avalue. The system will then automatically issue a RMA number.

When applying for the RMA number, it is essential to fill in basic information of the customer and the product, together with detailed description of the problem encountered. If possible, avoid using ambiguous words such as "does not work" or "problematic". Without a substantial description of the problem, it is hard to start the repair and will cause prolonged repair time. Lacking detailed statement of fault steps also makes the problem hard to be identified, sometimes resulting in second-time repairs.

In case the customer can't define the cause of problem, please contact Avalue application engineers. Sometimes when the problem can be resolved even before the customer sends back the product.

On the other hand, if the customer only returns the key parts to Avalue for repair, it is necessary that the serial number of the entire unit is given in the "Problem Description" field, so that warranty period can be ruled accordingly; or Avalue will handle the case as an Out-of- warranty case.

### **3.2 Return of faulty product for repair**

It is recommended that the customer not to return the accessories (manual, connection cables, etc.) with the products for repair, devices such as CPU, DRAM, CF memory card, etc., shall also be removed from the faulty goods before return for repair. If these devices are relevant to described repair problems and necessary to be returned with the goods; please clearly indicate the items included in the eRMA application form. Avalue shall not be responsible for any item that is not itemized. Moreover, make sure the problem(s) are detailed in the "Problem Description" field.

In the list of delivery, the customer may fill-in a value which is lower than the actual value, to prevent customs levying a higher tax over the excessive value of the return goods. The customer shall be held responsible for extra fees caused by this. We strongly recommend that "Invoice for customs purpose only with no commercial value" be indicated on the delivery note. Also for the purpose of expedited handling, please printout the RMA number and put it in the carton, also indicate the number outside of the carton, with the recipient addressing to Avalue RMA Department.

When returning the defective product, please use an anti-static bag or ESD material to pack it properly. In case of improper packing resulting in damages in the transportation process, Avalue reserves the right to reject the un-repaired faulty good at the customer's costs. Furthermore, it is suggested that the faulty goods shall be sent via a door-to-door courier service. The customer shall be held responsible for any customs clearance fee or extra expenses if Air-Cargo is used for the delivery.

In case of a DOA situation of a new product, Avalue will be responsible for the product and the freight. If the faulty goods are within the warranty period, the sender will take responsibility for the freight. For an out-of-warranty case, the customer shall be responsible for the freight of both trips.

### **3.3 Maintenance Charge**

Avalue will charge a moderate repair fee for the following conditions:

- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident

## SPC-21WR2

or other causes. Avalue reserves the right for the ruling of the aforementioned situations.

- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules for non-Avalue products and accessories shall be in accordance with standards set up by the original supplier. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiry of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number
- Products before the mass production stage, i.e. engineering samples.
- In case the products received are examined as NPF (No Problem Found) within the warranty period, the customer shall be responsible for the freight of both trips.
- Please contact your local distributor to examine in advance to prevent unnecessary freight cost.

For system failure of out-of-warranty products, Avalue will provide a quotation prior to repair service. When the customer applies for the cost, please refer to the Quotation number. In case the customer does not return the DOA product that has already been replaced by a new one, or the customer does not sign back the quotation of the out-of-warranty maintenance, Avalue reserves the right of whether or not to provide the repair service. In case the customer does not reply in 3 months, Avalue shall directly scrap or return the product back to customer at customer's cost without further notice to the customer.

### **3.4 Maintenance service of phased-out products**

For servicing phased-out products, Avalue provides an extended period, starting the date of phase-out, as a guaranteed maintenance period of such products, for continuance of the maintenance service to meet customer's requirements. In case of unexpected factors causing Avalue to be unable to repair/replace a warranted but phased-out product, Avalue will, depending on the availability, upgrade the product (free of charge with continued warranty period as of the original product), or, give partial refund (based on the length of the remaining warranty period) to solve this kind of problem.

### **3.5 Maintenance Report**

On completion of repair of a defective product, a Maintenance Report indicating the maintenance result and part(s) replaced (if any) will be sent to the customer together with the product. If the customer demands an additional maintenance analysis report, a service fee of various level will be charged depending on the warranty status. In case the analysis result shows that the defect attributes to Avalue's faulty design or process, the analysis fee will be exempted.

### 4. Service Products

Avalue provides service products to manage with different customer needs. Should you have any need, please consult to Avalue Sales Department.

#### **Defect Analysis Report (DAR)**

Avalue provides DAR (Defect Analysis Report) services aiming to elevating customer satisfaction. A DAR includes defect cause identification/verification/suggestion and improvement precautions, with instructions on correct usage for the avoidance of any reoccurrence.

#### **Upgrade Service**

Avalue is capable to provide system upgrade service for customization requirements. This upgrade service is applicable for main parts, such as CPU, memory, HDD, SSD, storage devices; also replacements motherboards of systems. Please contact Avalue sales for details to evaluate the possibility of system upgrade service and obtain information of lead time and price.

## Safety Instructions

### Safety Precautions

Before installing and using this device, please note the following precautions.

1. Read these safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Disconnected this equipment from any AC outlet before cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
8. Use a power cord that has been approved for using with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to

## SPC-21WR2

avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

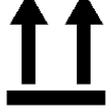
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel. If one of the following situations arises, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

14. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

15. Equipment intended only for use in a RESTRICTED ACCESS AREA.

## Explanation of Graphical Symbols

	Warning	A WARNING statement provides important information about a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Caution	A CAUTION statement provides important information about a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or in damage to the equipment or other property.
	Note	A NOTE provides additional information intended to avoid inconveniences during operation.
		Direct current.
		Alternating current
		Stand-by, Power on
		FCC Certification
		CE Certification
		Follow the national requirements for disposal of equipment.
		Stacking layer limit
		This side up

		<p>Fragile Packaging</p>
		<p>Beware of water damage, moisture-proof</p>
		<p>Carton recyclable</p>
		<p>Handle with care</p>
		<p>Follow operating instructions of consult instructions for use.</p>
		<p><b>WARNING</b></p> <ul style="list-style-type: none"> <li>● <b>INGESTION HAZARD:</b> This product contains a button cell or coin battery.</li> <li>● <b>DEATH</b> or serious injury can occur if ingested.</li> <li>● A swallowed button cell or coin battery can cause <b>Internal Chemical Burns</b> in as little as <b>2 hours</b>.</li> <li>● <b>KEEP</b> new and used batteries <b>OUT OF REACH</b> of <b>CHILDREN</b>.</li> <li>● <b>Seek immediate medical attention</b> if a battery is suspected to be swallowed or inserted inside any part of the body.</li> </ul>

## Disposing of your old product

### **WARNING:**

There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short the external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

### **CAUTION:**

- Lithium Battery Caution: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type. Dispose batteries according to manufacturer's instructions.
- Disposal of a BATTERY into fire or a hot oven, or mechanically crushing or cutting of a BATTERY, that can result in an EXPLOSION
- Leaving a BATTERY in an extremely high temperature surrounding environment that can result in an EXPLOSION or the leakage of flammable liquid or gas.
- A BATTERY subjected to extremely low air pressure that may result in an EXPLOSION or the leakage of flammable liquid or gas.

### **Mise en garde!**

AVERTISSEMENT : Il existe un risque d'explosion si la batterie est mal manipulée ou remplacée de manière incorrecte. Remplacez uniquement par le même type de batterie. Ne le démontez pas et ne tentez pas de le recharger en dehors du système. Ne pas écraser, percer, jeter au feu, court-circuiter les contacts externes ou exposer à l'eau ou à d'autres liquides. Jetez la batterie conformément aux réglementations locales et aux instructions de votre fournisseur de services.

### **MISE EN GARDE:**

- Pile au lithium Attention : Danger d'explosion si la pile n'est pas remplacée correctement. Remplacer uniquement par un type identique ou équivalent. Jetez les piles conformément aux instructions du fabricant.
- L'élimination d'une BATTERIE dans le feu ou dans un four chaud, ou l'écrasement ou le découpage mécanique d'une BATTERIE, pouvant entraîner une EXPLOSION
- Laisser une BATTERIE dans un environnement à température extrêmement élevée pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.
- UNE BATTERIE soumise à une pression d'air extrêmement basse pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.

# Content

<b>1. Getting Started</b>	<b>15</b>
1.1 Safety Precautions	15
1.2 Packing List	15
1.3 System Specifications	17
1.4 System Overview	20
1.4.1 I/O View	20
1.5 System Dimensions	21
1.5.1 Front and Rear side	21
<b>2. Hardware Configuration</b>	<b>22</b>
2.1 ACP-RK3568 Overviews	23
2.2 ACP-RK3568 Connector list	24
2.3 Ethernet LED behavior	24
2.4 Evaluation Cable Kit (Optional)	25
2.5 ACP-RK3568 Connectors settings	26
2.5.1 Touch button board connector (JTB1)	26
2.5.2 General purpose I/O connector (JDIO1)	27
2.5.3 RS-485 connector (JRS485)	27
2.5.4 Camera connector (JCAM1)	28
2.5.5 A-MIC connector (JAMIC1)	28
2.5.6 DC Power-in connector (DCIN2)	29
2.5.7 Speaker connector (JSPK1)	29
2.5.8 Sensor connector (JSENSE)	30
2.5.9 Debug connector (JDBG1)	30
2.5.10 Serial port 1 connector (JCOM1)	31
2.5.11 RTC Battery connector (JRTC)	31
2.5.12 MIPI Port (JMIPI)	32
2.5.13 7" Touch Panel connector (J7TP1)	33
<b>3. Maintenance &amp; Troubleshooting</b>	<b>34</b>
<b>4. Operating the Device</b>	<b>39</b>

# 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 installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
1	SPC-21WR2	1
2	VESA Screws	4



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

### Purposes and Applications

SPC-21WR2 is a 21.5" fanless stainless steel panel PC designed for reliable operation in semi-industrial and hygienically sensitive environments. This lightweight and slim panel PC is ideal for applications where space, cleanliness, and durability are priorities. With 5-sided IP65 protection and an optional M12 waterproof I/O configuration, the SPC-21WR2 is suitable for use in kitchen display systems (KDS), industrial automation HMI terminals, laboratory dashboards, and retail ordering stations.

### Unpacking

**Note:**

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the Avalue reseller or vendor the product was purchased from or contact an Avalue sales representative directly by sending an email to [sales@avalue.com](mailto:sales@avalue.com)

To unpack the flat bezel panel PC, follow the steps below.

**WARNING!**

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the fiat bezel panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 2: Open the outside box.

Step 3: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 4: Open the inside box.

Step 5: Lift the panel PC out of the boxes.

Step 6: Remove the peripheral parts box from the main box.

## 1.3 System Specifications

System Information	
<b>SBC</b>	ACP-RK3568
<b>Processor</b>	RK3568_Quad-core Cortex-A55 up to 2.0GHz_ Mali-G52 GPU
<b>System Memory</b>	2GB DDR4 on board
<b>System Fan</b>	Fanless design
<b>Wireless LAN</b>	Option for: <ul style="list-style-type: none"> <li>• AW-CM276NF_ac/a/b/g/n_2x2 WIFI 802.11 b/g/n, WLAN_BT Combo Module</li> <li>• 2 x RF Cable 11.4 SMA(M)-IPEX IV 35cm</li> <li>• 2 x WiFi Antenna 2.4GHz/5GHz/6-7.1GHz</li> </ul>
<b>Bluetooth</b>	BT 5.0
<b>Operating System</b>	Android14, Debian 11
<b>Expansion Card</b>	Micro SD card slot
Storage	
<b>Other Storage Device</b>	32GB eMMC
Panel	
<b>LCD Size</b>	21.5", FHD
<b>Resolution</b>	1920x1080
<b>Pixel pitch</b>	0.24795 (H) x 0.24795 (V) mm
<b>Luminance</b>	250 cd/m <sup>2</sup>
<b>Contrast ratio</b>	3000
<b>Viewing angle</b>	89 (U), 89 (D), 89 (L), 89 (R)
<b>Touch Type</b>	Projective capacitive multi-touch up to 10 points
<b>Touch Controller</b>	EETI
Rear I/O	
<b>Serial Port</b>	<ul style="list-style-type: none"> <li>• Default w/o COM</li> <li>• Option for 1 x M12 8-pin (male) COM1 (RS-232(default) by TX/RX), RS-485 supports in different cable (by OEM request), with waterproof cover and chain</li> </ul>
<b>USB Port</b>	<ul style="list-style-type: none"> <li>• Default 2 x USB</li> <li>• Option for 1 x M12 8-pin (male) for 2 x USB 2.0 with waterproof cover and chain</li> </ul>
<b>LAN Port</b>	<ul style="list-style-type: none"> <li>• Default 1 x LAN 10/100/1000 Lan port</li> <li>• Option for 1 x M12 8-pin (male) for LAN with waterproof cover and chain</li> </ul>

## SPC-21WR2

<b>HDMI Port</b>	<ul style="list-style-type: none"> <li>● Default 1 x HDMI (no M12 option)</li> </ul>
<b>Audio Port</b>	<ul style="list-style-type: none"> <li>● Default 1 x Headphone Jack for Line Out (no M12 option)</li> </ul>
<b>Reset Button</b>	<ul style="list-style-type: none"> <li>● Default 1 x Reset (no M12 option)</li> </ul>
<b>Switch</b>	1 x Power Switch on side
<b>DC in Connector</b>	<ul style="list-style-type: none"> <li>● Default 1 x Power Jack</li> <li>● Option for 1 x M12 4-pin (male) for DC power with waterproof cover and chain</li> </ul>
<b>Power Requirement</b>	
<b>DC Input Voltage</b>	+12V~24V DC in (+19V~24V for M12 model)
<b>Power Mode</b>	Default is AT
<b>Power Button</b>	1 x Power switch on side
<b>Power Connector Type</b>	Option for 1 x M12 4-pin (male) for DC power with waterproof cover and chain
<b>Power Adapter</b>	KDS model: AC/DC adapter 19V/3.78A Screw Type M12 model: AC/DC adapter 24V/2.5A 90 Plug Type)
<b>Mechanical</b>	
<b>Dimension</b>	541.6 x 348.6 x 47mm
<b>Weight</b>	10.7 kg
<b>Construction-Front</b>	Stainless steel
<b>Construction- Rear</b>	Stainless steel
<b>Thermal Solution</b>	Fanless
<b>Reliability</b>	
<b>Dust and Rain Test</b>	5-side IP65 (Full system IP66/ IP69K for M12 model)
<b>Vibration Test</b>	<p>Random Vibration Operation</p> <p>1 Test PSD : 0.00454G<sup>2</sup>/Hz , 1.5 Grms</p> <p>2 System condition : operation mode</p> <p>3 Test frequency : 5~500 Hz</p> <p>4 Test axis : X,Y and Z axis</p> <p>5 Test time : 30 minutes per each axis</p> <p>6 IEC60068-2-64 Test Fh</p> <p>7 Storage : SSD or M.2 SSD</p> <p>Sine Vibration test (Non-operation)</p> <p>1 Test Acceleration : 2G</p> <p>2 Test frequency : 5~500 Hz</p> <p>3 Sweep : 1 Oct/ per one minute. (logarithmic)</p> <p>4 Test Axis : X,Y and Z axis</p> <p>5 Test time :30 min. each axis</p>

	<p>6 System condition : Non-Operating mode</p> <p>7. Reference IEC 60068-2-6 Testing procedures</p> <p>Package Vibration Test:</p> <p>1 Test PSD : 0.026G<sup>2</sup>/Hz , 2.16 Grms</p> <p>2 Test frequency : 5~500 Hz</p> <p>3 Test axis : X,Y and Z axis</p> <p>4 Test time : 30 minutes per each axis</p> <p>5 IEC 60068-2-64 Test Fh</p>
<b>Mechanical Shock Test</b>	<p>1 Wave form : Half Sine wave</p> <p>2 Acceleration Rate : 10g for operation mode</p> <p>3 Duration Time : 11ms</p> <p>4 No. of shock : Z axis 300 times</p> <p>5 Test Axis : Z axis</p> <p>6 operation mode</p> <p>7 Reference IEC 60068-2-27 testing procedures</p> <p>Test Eb : Shock Test</p>
<b>Drop Test</b>	<p>Package drop test</p> <p>Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed</p> <p>Test Ea : Drop Test</p> <p>1 Test phase : One corner, three edges, six faces</p> <p>2 Test high : 96.5cm</p> <p>3 Package weight : 3.4 Kg</p> <p>4 Test drawing</p>
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F), by flow = 0.5
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)

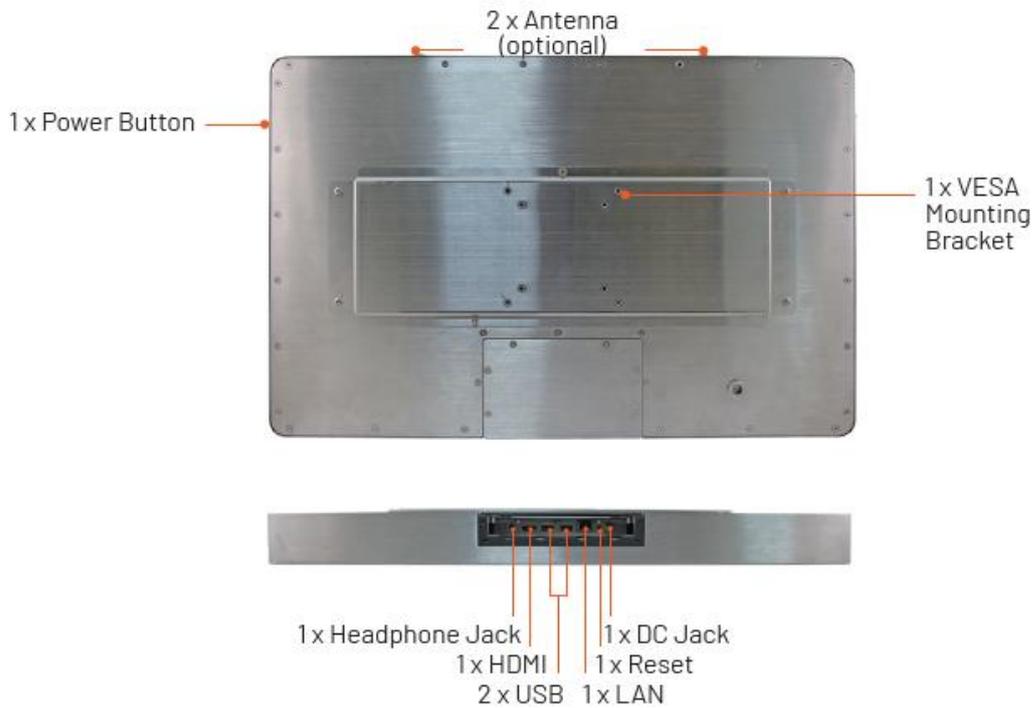


**Note:**

Specifications are subject to change without notice.

## 1.4 System Overview

### 1.4.1 I/O View

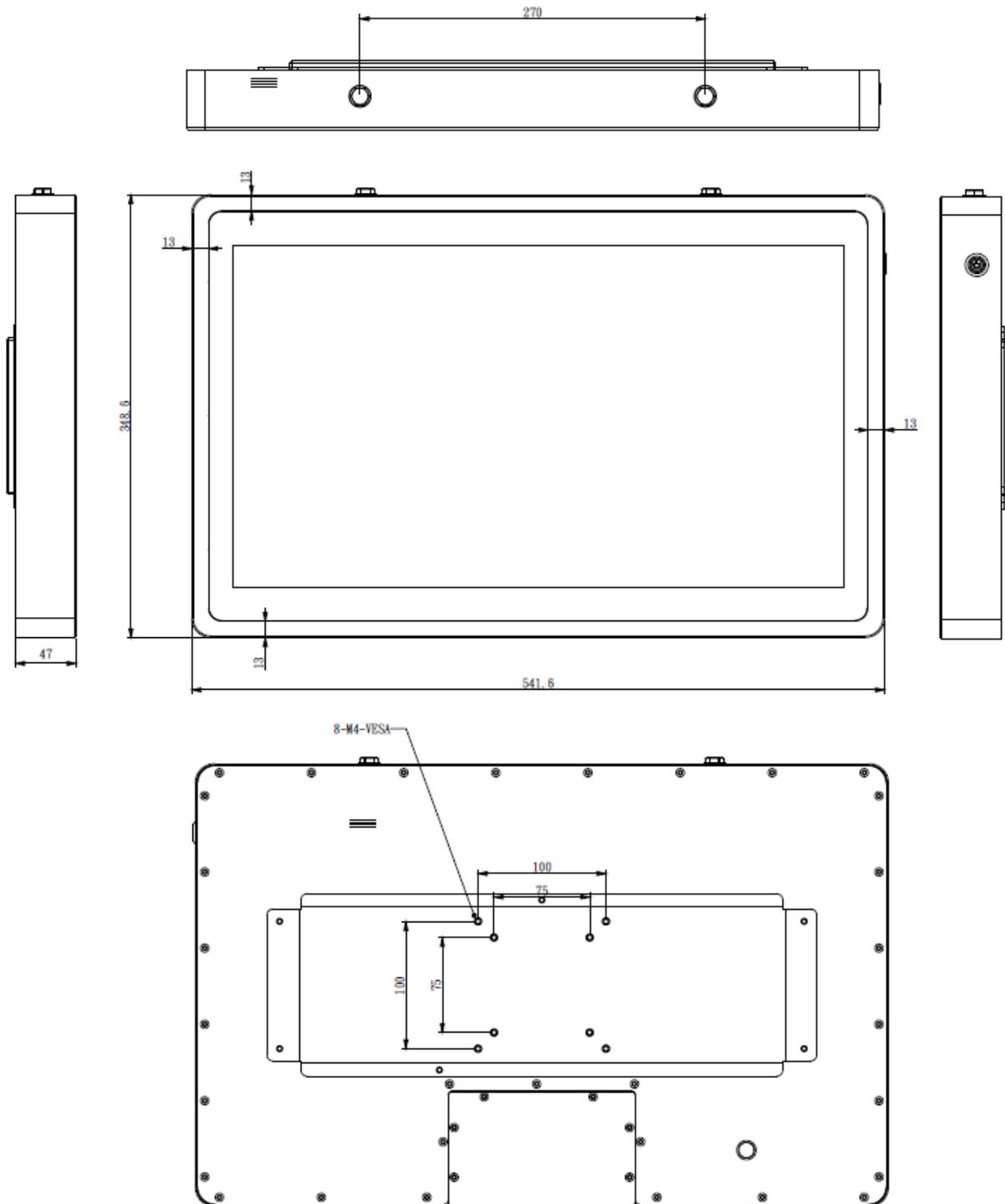


#### Connectors

Label	Function	Note
<b>Power Button</b>	Power button	
<b>VESA Mounting Bracket</b>	VESA mounting bracket	
<b>Headphone Jack</b>	Headphone jack for Line Out	
<b>HDMI</b>	HDMI connector	
<b>USB</b>	2 x USB 3.0 connector	
<b>LAN</b>	RJ-45 Ethernet	
<b>Reset</b>	Reset button	
<b>DC Jack</b>	DC power jack	
<b>Antenna(optional)</b>	2 x antenna holes(optional)	

## 1.5 System Dimensions

### 1.5.1 Front and Rear side



(Unit: mm)

# 2. Hardware Configuration

For advanced information, please refer to:

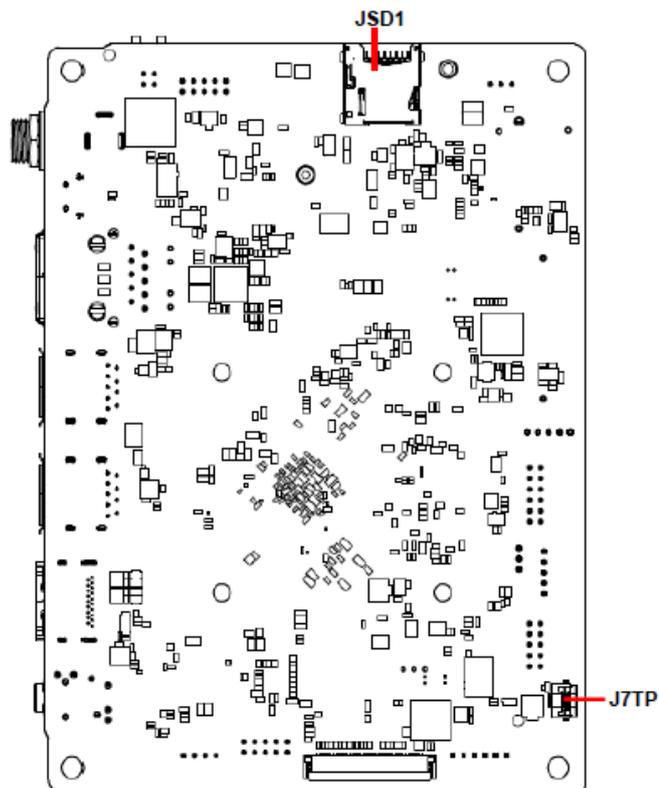
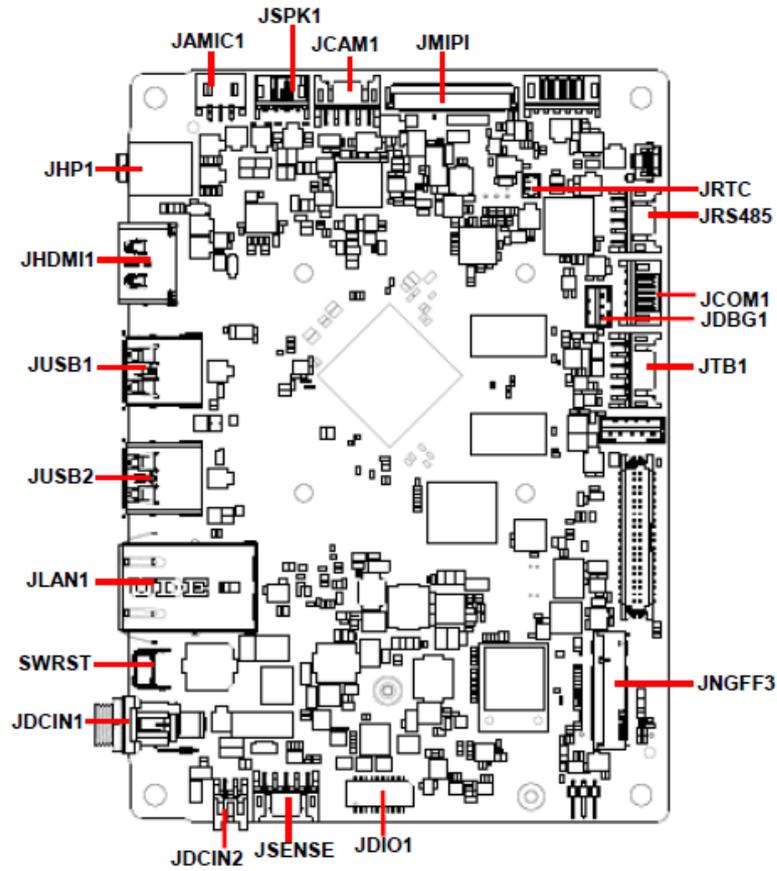
- 1- ACP-RK3568 included in this manual.



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

[www.avalue.com](http://www.avalue.com)

## 2.1 ACP-RK3568 Overviews



## 2.2 ACP-RK3568 Connector list

### 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
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/DMIC connector	5 x 2 wafer, pitch 2.00 mm
JCOM1	Serial port 1 connector	5 x 1 wafer, pitch 2.00 mm
JRS485	RS232/RS485 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
JSD1	Micro SD card slot	
J7TP1	7" Touch Panel connector	6 x 1 FPC, pitch 0.50 mm

## 2.3 Ethernet LED behavior

### LAN LED indicator definition

Number	Label	LED color	Indication	Meaning
1	Data Rate	Green/Orange	Off	10 Mbits/sec data rate is selected
			Green on	100 Mbits/sec data rate is selected
			Orange on	1000 Mbits/sec data rate is selected
2	Link/ACT	Yellow	Off	LAN link is not established
			Yellow on	LAN link is established
			Yellow Blinking	LAN active is occurring

## 2.4 Evaluation Cable Kit (Optional)

Part Number: BCC-OFT-CABLE-05R

### Cable List

Cable Function	Spec. Description	Q'ty
<b>RS-232</b>	RS-232 Cable DB-9(M)- 5P/2.0 20cm	1
<b>RS232/RS485</b>	RS232/ RS-485 Cable DB-9(M)- 2x5P/2.0 23cm	1
<b>DC In</b>	Power cable DC JACK4P/2.0 15cm	1
<b>USB Camera/D-MIC</b>	USB Cable 2x5P/2.0 to 8P/0.8 10cm	1
<b>Keypad</b>	12P/2.0 25cm	1
<b>GPIO</b>	DB25(M)-1.0/20P 15cm	1
<b>Speaker</b>	2P 4ohm 3W 28*31*15 17cm	2

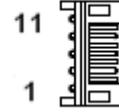
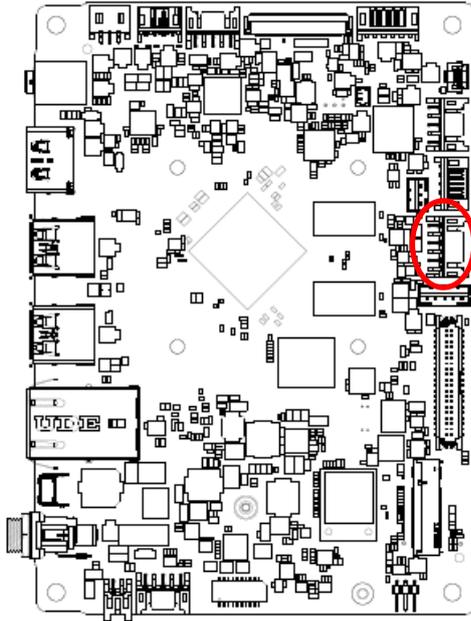
### \*RTC Battery

Warning: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."

Attention: Risque d'explosion si la batterie est remplacée par un type incorrect. Jetez les piles usagées selon les instructions.

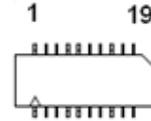
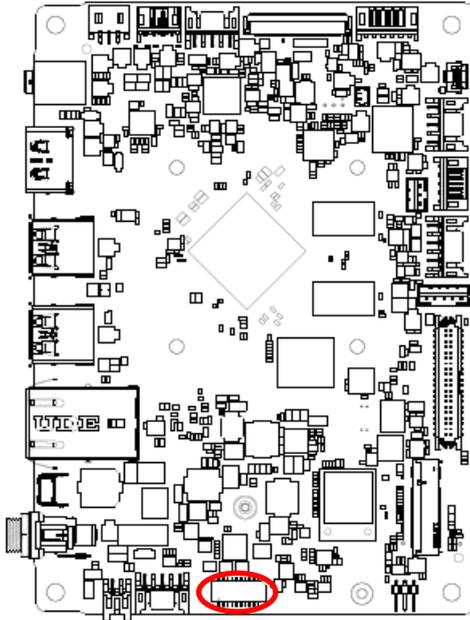
## 2.5 ACP-RK3568 Connectors settings

### 2.5.1 Touch button board connector (JTB1)



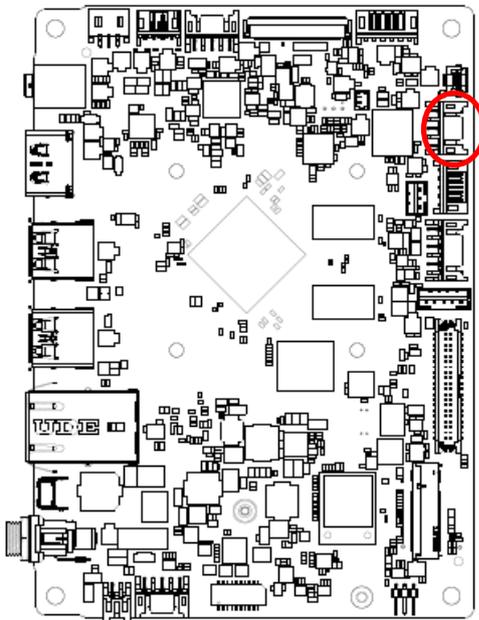
Signal	Signal	PIN
Reset button	LINUX_SW	3
	+5V	1
VOL_UP	VOL_UP	5
	+5V	1
VOL_DOWN	VOL_DOWN	6
	+5V	1
Power button	PWRBTN	7
	+5V	1
BRIGHTNESS+	BU_BR+	8
	+5V	1
BRIGHTNESS-	BU_BR-	9
	+5V	1
LED_ORANGE (Power off)	LED_ORANGE	12
	GND	2
LED_GREEN (Power on)	LED_GREEN	11
	GND	2
For internal use only	BU1	4
	BU7	10

2.5.2 General purpose I/O connector (JDIO1)



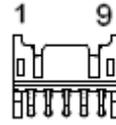
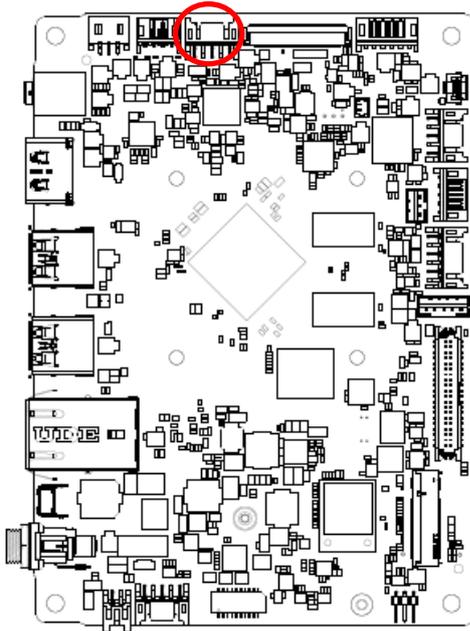
Signal	PIN	PIN	Signal
DIO_GP10	1	2	DIO_GP20
DIO_GP11	3	4	DIO_GP21
DIO_GP12	5	6	DIO_GP22
DIO_GP13	7	8	DIO_GP23
DIO_GP14	9	10	DIO_GP24
DIO_GP15	11	12	DIO_GP25
DIO_GP16	13	14	DIO_GP26
DIO_GP17	15	16	DIO_GP27
I2C_2_LV_SDA	17	18	I2C_2_LV_SCL
+5V	19	20	GND

2.5.3 RS-485 connector (JRS485)



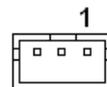
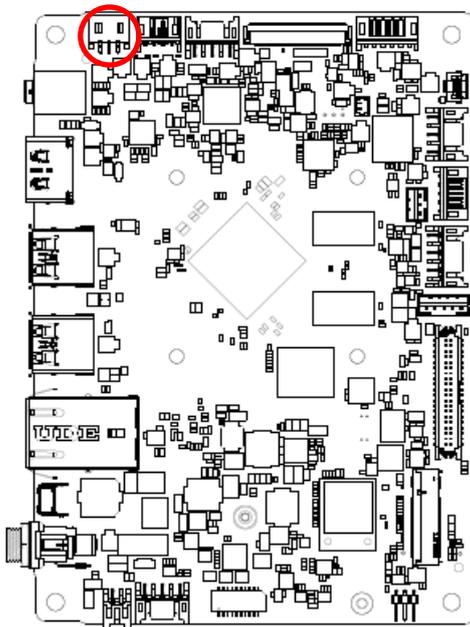
Signal	PIN	PIN	Signal
GND	2	1	GND
NC	4	3	DATA+
NC	6	5	DATA-
RS232_RX4	8	7	NC
RS232_TX4	10	9	+5V

2.5.4 Camera connector (JCAM1)



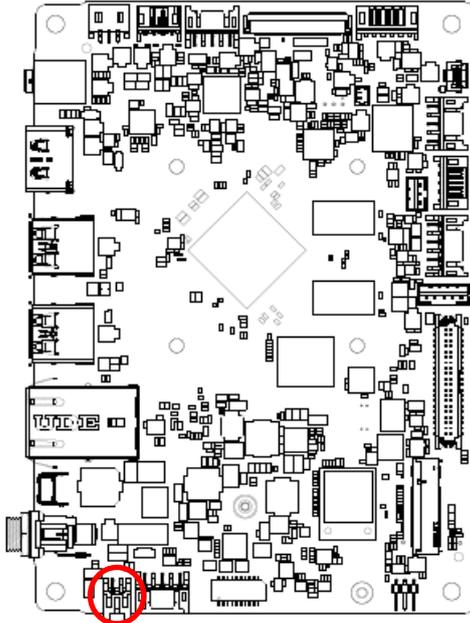
Signal	PIN	PIN	Signal
GND	1	2	GND
GND	3	4	GND
USB2_HOST3_DP_R	5	6	PDM_SDI1_DMIC_R
USB2_HOST3_DM_R	7	8	PDM_CLK1_DMIC_
+CAM_VCC (5V level)	9	10	+DMIC_VCC (3V level)

2.5.5 A-MIC connector (JAMIC1)



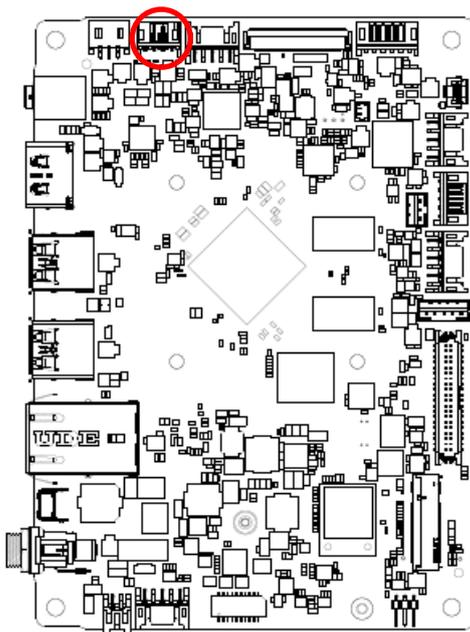
Signal	PIN
GND	1
AMIC_IN	2
MIC_JD#	3

### 2.5.6 DC Power-in connector (DCIN2)



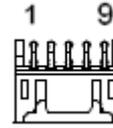
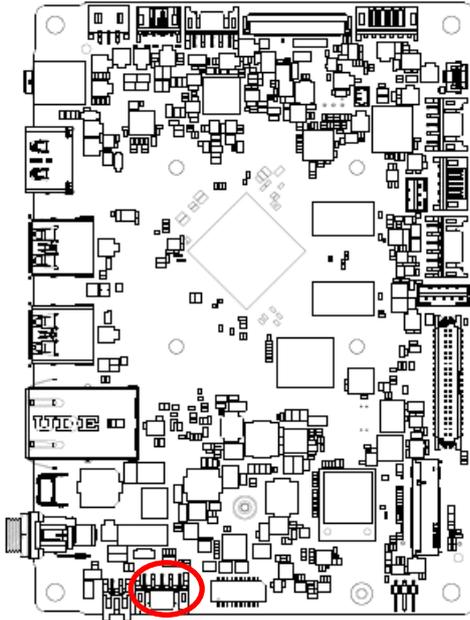
Signal	PIN	PIN	Signal
+12V_24ADPIN	1	3	+12V_24ADPIN
GND	2	4	GND

### 2.5.7 Speaker connector (JSPK1)



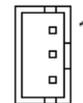
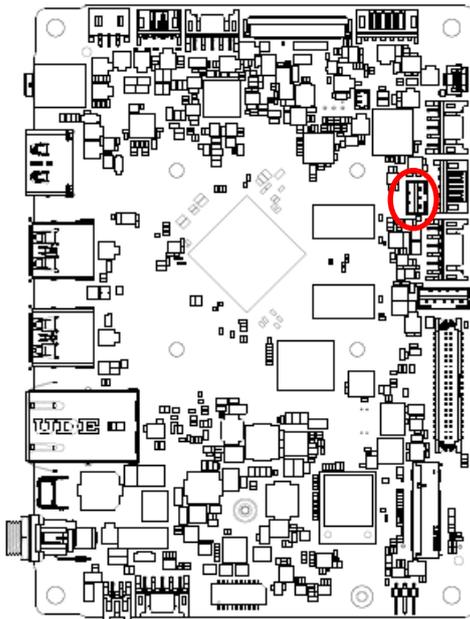
Signal	PIN
SPK_L+	1
SPK_L-	2
SPK_R+	3
SPK_R-	4

2.5.8 Sensor connector (JSENSE)



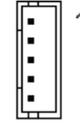
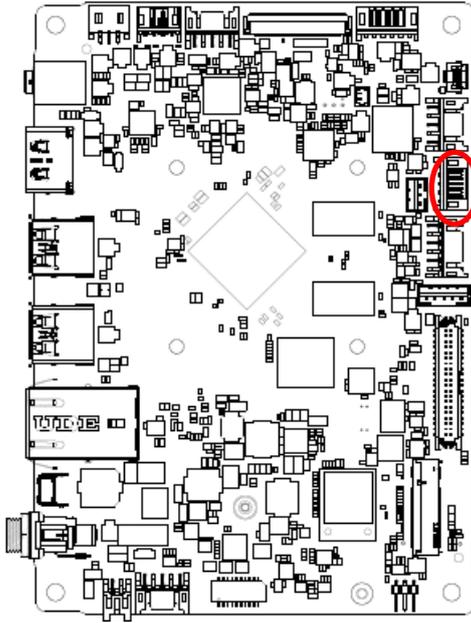
Signal	PIN	PIN	Signal
GND	1	2	GND
SENSE0_IRQ_R	3	4	SENSE2_IRQ_R
I2C3_SDA_3.3V_CONN	5	6	I2C5_SDA_3.3V_CONN
I2C3_SCL_3.3V_CONN	7	8	I2C5_SCL_3.3V_CONN
+3V	9	10	+3V

2.5.9 Debug connector (JDBG1)



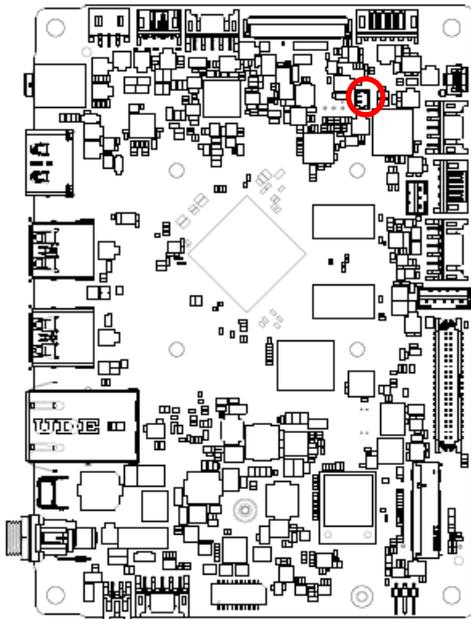
Signal	PIN
DEBUG_TX2_CON	1
DEBUG_RX2_CON	2
GND	3

### 2.5.10 Serial port 1 connector (JCOM1)



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

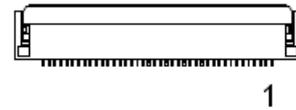
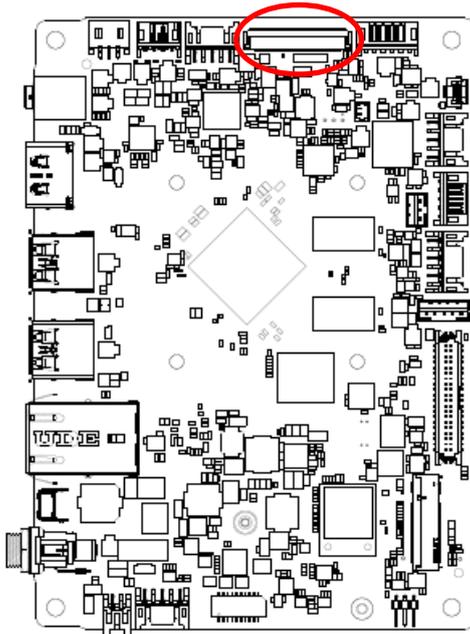
### 2.5.11 RTC Battery connector (JRTC)



Signal	PIN
+VDD_RTC	1
GND	2

# SPC-21WR2

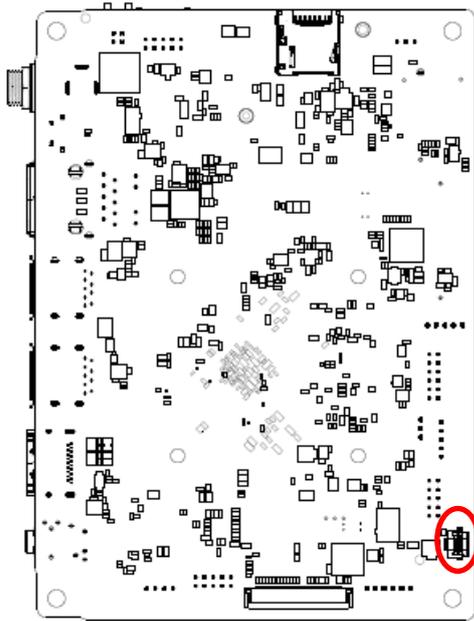
## 2.5.12 MIPI Port (JMIPI)



Signal	PIN
+3.3V	1
+3.3V	2
+3.3V	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

2.5.13 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

# 3. Maintenance & Troubleshooting

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## System Maintenance Introduction

If the components of the product fail they must be replaced.

Please contact the system reseller or vendor to purchase the replacement parts. Please follow the safety precautions outlined in the sections that follow:

## General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

1. Follow the electrostatic precautions outlined below whenever the device is opened.
2. Make sure the power is turned off and the power cord is disconnected whenever the product is being installed, moved or modified.
3. To prevent the risk of electric shock, make sure power cord is unplugged from wall socket. To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
4. Do not apply voltage levels that exceed the specified voltage range. Doing so may cause fire and/or an electrical shock. 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.
5. Electric shocks can occur if the product chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
6. Do not drop or insert any objects into the ventilation openings of the product.
7. If considerable amounts of dust, water, or fluids enter the device, turn off the power supply immediately, unplug the power cord, and contact your dealer or the nearest service center.
8. This equipment is not suitable for use in locations where children are likely to be present.
9. DO NOT:
  - Drop the device against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object.
  - In a site where the ambient temperature exceeds the rated temperature.

## Anti-Static Precautions

### **WARNING:**

Failure to take ESD precautions during the installation of the product may result in permanent damage to the product and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the product. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the product is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- Wear an anti-static wristband: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- Self-grounding: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- Use an anti-static pad: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- Only handle the edges of the electrical component. When handling the electrical component, hold the electrical component by its edges. Please ensure the following safety precautions are adhered to at all times.
  1. Follow the electrostatic precautions outlined below whenever the device is opened.
  2. Make sure the power is turned off and the power cord is disconnected

## Maintenance and Cleaning

When maintaining or cleaning the product, please follow the guidelines below.

### **WARNING:**

- For safety reasons, turn-off the power and unplug the panel PC before cleaning.
- If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.

### Maintenance and Cleaning

Prior to cleaning any part or component of the product, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.

## Cleaning Tools

Some components in the panel PC may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the panel PC.

- Cloth: Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the device.
- Water or rubbing alcohol: A cloth moistened with water or rubbing alcohol can be used to clean the device.
- Using solvents: The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- Vacuum cleaner: Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.
- Cotton swabs: Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- Foam swabs: Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

# 4. Operating the Device

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The Multi-Touch mode was pre-installed on the Panel PC and need tools for any customizations. Should you have specific requirements or encounter scenarios where a customized touch mode is necessary, we recommend reaching out to your local distributors, Avalue technical support team, or Avalue customer service representatives. These professionals can provide tailored guidance and assistance to address any unique needs related to Multi-Touch mode adjustments.