

Industrial PC

PPC-A72-156-C



PN: CS19108R156P

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PPC-A72-156-C

Front View



Rear View



Side View 1



Side View 2



PPC-A72-156-C Product Overview

Product Overview

The Cortex[®]-A72/53 series PPC-A72-156-C (PN: CS19108R156P) is a high-quality industrial panel PC. This single board computer features a 15.6" ten-point capacitive touch screen with a resolution of 1920 x 1080 pixels and brightness of 250 cd/m².

Key Applications

- Human Machine Interface HMI
- Mobile Applications
- Video Processing
- Machine Learning
- Video Gaming
- Process Control
- Process Monitoring
- ATM...

It is available both as an embedded solution and as a device hosed in an aluminum casing with bezels, thus facilitating different installation options:

- Installation on an industrial cabinet
- Integration with the existing equipment

The PPC-A72-156-C Industrial Panel PC is based around the powerful CS-SOM-RK3399 System on Module (SoM), powered by the Rockchip RK3399 low-power processor which integrates a dual-core Cortex[®]-A72 and a quad-core Cortex[®]-A53 with a separate NEON coprocessor.

The RK3399 supports multi-format video decoders and has a high-performance dual-channel external memory interface (DDR3/DDR3L/LPDDR3/LPDDR4) capable of sustaining demanding memory bandwidths. It also provides a complete set of peripheral interfaces.

PPC-A72-156-C Ordering Options

Ordering Options

Chipsee products can be customized during the ordering process. The product will be shipped with the pre-installed factory defaults if no extra requirements are specified. The table in the Hardware Features section provides information about the default options bundled with the product.



Note

You can order PPC-A72-156-C from the official Chipsee Store or from your nearest distributor.

Operating System

This product comes with a pre-installed OS of your choice. Please see the list below for the supported OSes, which can be also obtained from the Software Documentation section, along with the detailed installation instructions.

- Buildroot Linux Qt5.14*
- Android 7.1
- Debian 10
- * (Formerly Chipsee Linux) Based on buildroot that has been integrated with:
 - 1. Chipsee Hardware Test Application
 - 2. An initialization script for GPIO/Buzzer/Audio
 - 3. Multiple libraries, such as the libQt5Sql to develop Qt application with SQL
 - 4. Various packages, such as the ntfs-3g to use NTFS file system



Warning

The Software Documentation section provides a detailed instruction on how to install different OSes on your own. However, bear in mind that Chipsee can't take the responsibility of inadequate installation procedure. If you "brick" your device, please contact Chipsee Technical Support at support@chipsee.com for further assistance

PPC-A72-156-C **Optional Features**

Optional Features

The PPC-A72-156-C Industrial Panel PC does not include 4G/LTE module by default. The module is optional and can be selected at the Chipsee store during the ordering process.



Warning

Installation, repair, and maintenance tasks should be performed by trained personnel only. Chipsee does not bear any responsibility for damage caused by inadequate handling of the product. PPC-A72-156-C Hardware Features

Hardware Features

The PPC-A72-156-C Industrial Panel PC offers a broad range of performance and connectivity options for scalable integration, providing expandability to meet future needs. Some of the key features are listed in the table below.

PPC-A72-156-C				
СРИ	Rokchip RK3399, Dual-core Cortex-A72 (1.8GHz), Quad-core Cortex-A53 (1.4GHz)			
RAM	4GB DDR3			
еММС	16GB			
Storage	TF Card, Supports up to 32GB SDHC			
Display	15.6" LCD, 1920 x 1080, High Brightness: 250 cd/m ²			
Touch	10-point capacitive touch screen			
USB	4 x USB 2.0 HOST, 1 x USB 3.0 HOST, 1 x USB Type-C			
LAN	1 x RJ45, GbE			
Audio	3.5mm Audio Out Connector, 2W Internal Speaker			
Buzzer	Yes			
RTC	Yes			
RS232	5 x RS2321			
RS485	2 x RS485 (4 at most, 1 debug port)1			
GPIO	8 Channels			
WiFi/BT	Integrated WiFi/BT Module			
НДМІ	1 x HDMI			
4G/LTE	Supported, Optional			
Power Input	From 15V to 36V			
Current at 15V	800mA Max			
Power Consumption	12W Typical			
Working Temperature	From 0°C to +70°C			
OS	Android 7.1			
Dimensions	402 x 251 x 45mm			
Weight	3200g			
Mounting	VESA & Panel methods			

PPC-A72-156-C Hardware Features

Table 179 Key Features

1(1,2)This product has 7 x UART channels in total. The default configuration is 5 x RS232 and 2 x RS485. UART can be swapped between RS232 and RS485 modes easily, so if you need different RS232/RS485 configuration, please get in touch with the Chipsee Technical Support at **support@chipsee.com**

PPC-A72-156-C Power Input

Power Input

The PPC-A72-156-C Industrial Panel PC can be powered by a wide range of input voltages: From 15V to 36V DC. The power input connector is a **3-pin**, **3.81mm terminal**. The polarity and the pinout is clearly marked on the housing of the product as shown on the figure below.



Figure 572: Power Input

Note that the "+" sign represents the positive power input, and it is printed both at the casing and as a silk-screen on a PCB of the embedded version. The "-" terminal is shorted to the ground.

Power Input Definition				
Pin Number	Definition	Description		
Pin 1	Positive Input	DC Power Positive Terminal		
Pin 2	Negative Input	DC Power Negative Terminal		
Pin 3	Ground	Power System Ground		

Table 180 Power Connector



The system ground "**G**" is connected to power negative "-" on board.

PPC-A72-156-C Touch Screen

Touch Screen

The PPC-A72-156-C Industrial Panel PC uses a 10-point capacitive touch screen.



Attention

A capacitive touch screen is susceptible to power noise and Electromagnetic Radiation (EMR). It may cause LCD ripples or even capacitive touch malfunction. If using a capacitive multi-touch test application, you might notice the touch points float erratically across the display. There are several solutions to this problem:

- 1. Use a high-quality Power Adapter Unit (PSU) with low EMR. You can also provide power from a battery.
- 2. Make sure that the PPC-A72-156-C Power Input connector (pin 3) is properly connected to the Power System Ground to provide sufficient EMI shielding and eliminate the problem entirely.
- 3. Bad GND problem can also be confirmed by touching pin 3 of the Power Input connector with one hand while operating the capacitive touch screen with the other hand. In this case, the operator's body acts as the Power System Ground.

PPC-A72-156-C Connectivity

Connectivity

DB9 Connectors

The PPC-A72-156-C Industrial Panel PC has 6 x DB9 connectors that are configured as RS232 by default as shown on the figure below. You can configure **COM3/COM4/COM5/COM6** as RS485. If you need different RS232/RS485 configuration, contact the Chipsee Technical Support at **support@chipsee.com**.

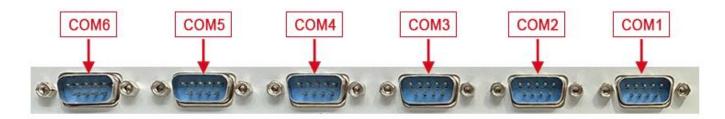


Figure 573: DB9 Connectors

USB Connectors

There are 4 x dual **USB 2.0 HOST connectors** onboard, as shown on the figure below.



Figure 574: USB 2.0 HOST Connectors

There is also 1 x **USB 3.0 HOST connector** and 1 x **USB Type-C connector**, as shown below.



Figure 575: USB 3.0 HOST Connector

PPC-A72-156-C USB Connectors



Figure 576: USB Type-C Connector

PPC-A72-156-C LAN Connectors

LAN Connectors

LAN (RJ45) connector provides Ethernet connectivity over standardized Ethernet cables as shown the figure below. The integrated Ethernet interface supports up to 1 Gbps data throughput.



Figure 577: RJ45 LAN Connector



Use CAT5 or better cables to achieve full data throughput over maximum distance defined by the 1000BASE-T standard (100m).

PPC-A72-156-C WiFi & BT Module

WiFi & BT Module

The PPC-A72-156-C Industrial Panel PC is equipped with the popular **Realtek RTL8723 WiFi/BT module** that supports BT/BLE 4.0 (with backward compatibility), as well as 802.11bgn 2.4 GHz Wireless LAN (WLAN).

The product includes an SMA connector for an external WiFi/BT antenna, as illustrated in the figure below.



Figure 578: WiFi+BT Antenna

PPC-A72-156-C 4G/LTE Module

4G/LTE Module

The PPC-A72-156-C Industrial Panel PC is equipped with a **mini-PCle connector** that can connect to a 4G/LTE module. The customer will also need a SIM Card Holder and a 4G/LTE Antenna Connector to ensure 4G/LTE works on the PPC-A72-156-C.



Figure 579: SIM Card Holder



Attention

The product does not come shipped with the 4G/LTE module by default.

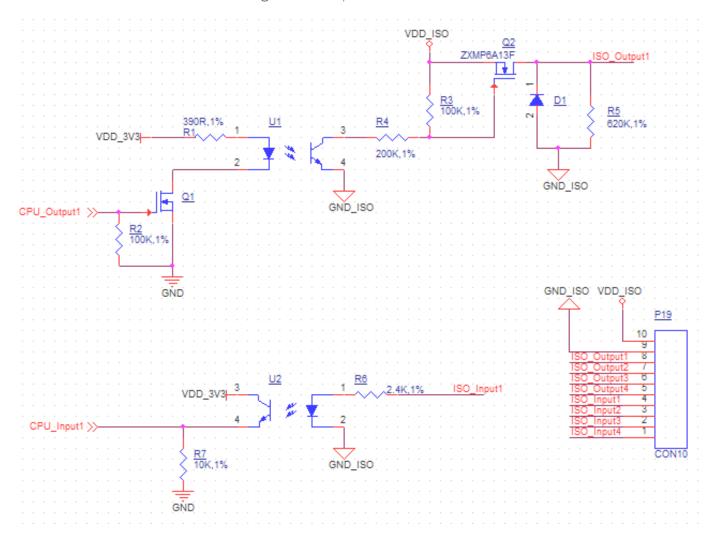
PPC-A72-156-C Expansion Connector

Expansion Connector

The PPC-A72-156-C Industrial Panel PC has 1 x **Expansion Connector** (closed by default), as shown on the figure below. This connector has connected to isolated GPIO signals. The table below gives details about the definition of every Pin.



Figure 580: Expansion Connector



Isolated GPIO reduced schematic

Expansion Connector Pinout				
PIN	Function	PIN	Function	
1	VDD, Isolated Power Input (+5V – +24V)	2	GND_ISO	
3	OUT1	4	OUT2	
5	OUT3	6	OUT4	
7	IN1	8	IN2	
9	IN3	10	IN4	

PPC-A72-156-C **Expansion Connector**

Table 181 Expansion Connector Pinout



Warning

Since the PCB traces of the port are connected to the processor directly, be careful not to cause electrostatic discharge or over voltage on the pins, as it may damage the processor. Take all the necessary precautions while working with electrostatic-sensitive equipment.

PPC-A72-156-C TF Card Slot

TF Card Slot

The PPC-A72-156-C Industrial Panel PC features 1 x **TF Card (micro SD) slot**. It can address up to 32GB of memory.



Figure 581: TF (micro SD) Card Slot



The product does not come shipped with the TF Card by default.

PPC-A72-156-C Audio Connectors

Audio Connectors

The PPC-A72-156-C Industrial Panel PC features some audio peripherals, as well. It has 1 \times **3.5mm audio output jack**.



Figure 582: Audio Out Connector

PPC-A72-156-C HDMI Connector

HDMI Connector

The PPC-A72-156-C Industrial Panel PC is equipped with 1 x **HDMI connector**. The HDMI connector allows connecting an additional (external) monitor. HDMI output resolution can be configured by the software.



Figure 583: HDMI Connector

PPC-A72-156-C Power Button

Power Button

The PPC-A72-156-C Industrial Panel PC has a power button, as shown on the figure below. You can use the button to power ON or OFF the industrial PC.



Figure 584: Power button

Measurements and Mounting Procedure

The outer mechanical dimensions of PPC-A72-156-C are 402 x 251 x 45mm (W x L x H).

The PPC-A72-156-C Industrial Panel PC can be mounted with 8 x M4 screws or $4 \times M4$ screws using the VESA (100x100cm or 75x75cm) and Panel mounting methods, enabling simplified installation onto any standard mounting fixture.

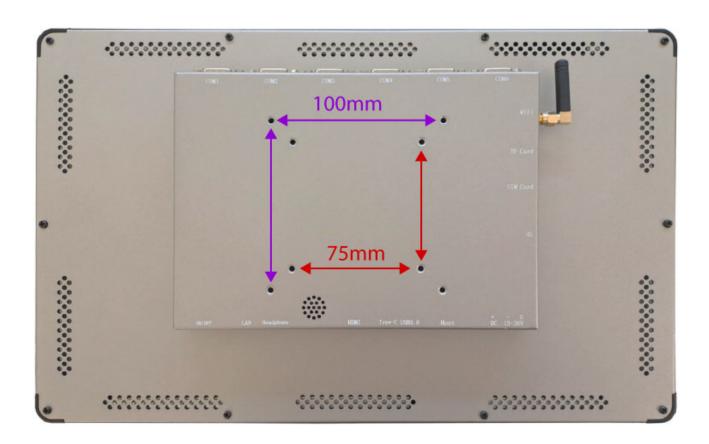


Figure 585: Mounting Method



Please make sure the display is not exposed to high pressure when mounting into an enclosure.

You can find detailed information about mounting in the Mount IPC Guide.

PPC-A72-156-C 3D Model

3D Model

PPC-A72-156-C 3D model can be viewed in the online doc in a web browser, **if you are reading from the PDF** version, please visit the online doc PPC-A72-156-C, select hardware documentation, drag the navigation bar to the 3D Model section.

PPC-A72-156-C Disclaimer

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