



Industrial PC

PPC-A53-050



PN: CS12720-IMX8MP-050P

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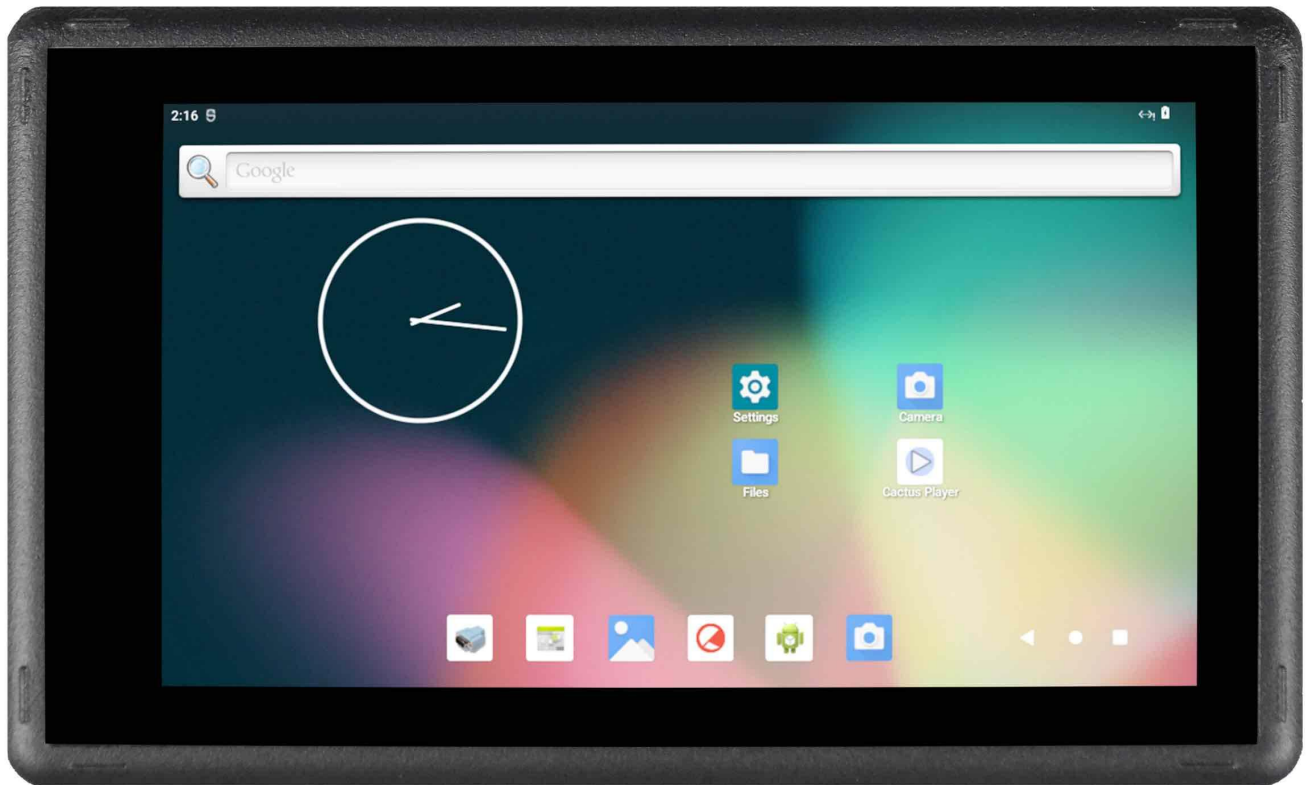
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PPC-A53-050

Front View



Rear View



Side View 1



Side View 2



Product Overview

The Cortex[®]-A53 series PPC-A53-050 (PN: CS12720-IMX8MP-050P) is a high-quality industrial panel PC. This single board computer features a 5" 5-point capacitive touch screen with a resolution of 1280 x 720 pixels and a brightness of 400 cd/m².

Key Applications

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

It is available as a device housed in an aluminum casing with bezels.

The PPC-A53-050 Industrial Panel PC is based around the powerful i.MX8MP System on Chip (SoC), powered by the NXP i.MX8MP low-power processor which integrates a quad-core Cortex[®]-A53 1.6GHz processor.

The i.MX8MP supports multi-format video decoders and has a high-performance LPDDR4 4GB RAM capable of sustaining demanding memory bandwidths. It also provides a complete set of peripheral interfaces.

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 the [PPC-A53-050](#) 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 also be obtained from the [Software Documentation](#) section, along with the detailed installation instructions.

- Android 12
- Yocto Linux Qt 6.3

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.

Optional Features

Does not support 4G/LTE module.



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-A53-050	
Dimensions	PPC-A53-050 (PN: CS12720-IMX8MP-050P): 138.55 x 84.70 x 27.10mm
Weight	PPC-A53-050 (PN: CS12720-IMX8MP-050P): 310g
Mounting	PPC-A53-050 (PN: CS12720-IMX8MP-050P): Panel, VESA

Table 80 Key Features

-
- 1 USB3.0 port and USB-C port share one node and cannot be used together. In Linux USB3.0 HOST is enabled by default; in Android USB-C OTG is enabled by default. You can change this config by software in the operating systems, e.g.: disable USB3.0 HOST then enable USB-C OTG in Linux, or vice versa in Android.
 - 2(1,2) This product has 3 x CPU UART, 1 x USB UART by default, 4 x UART terminals (RS232/RS485) at most. The default configuration is 2 x RS232 and 2 x RS485, including 1 RS232 debug port. There is 1 x CAN (**default**) and 2 x CAN at most, there is 1 x RS485 that can be configured to CAN. UART can be swapped between RS232 and RS485 modes easily, if you need a different RS232/RS485/CAN configuration, please get in touch with the Chipsee Technical Support at support@chipsee.com when placing an order.

Power Input

The PPC-A53-050 Industrial Panel PC can be powered by a wide range of input voltages: From 6V to 36V DC. The power input connector is a **3-pin, 3.81mm terminal**. The polarity and the pinout is shown in the figure below.




Power Input

Note that the “+” sign represents the positive power input, it is printed 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

Power Input Definition		
Pin 2	Negative Input	DC Power Negative Terminal
Pin 3	Ground	Power System Ground


Table 81 Power Connector

 **Note**

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

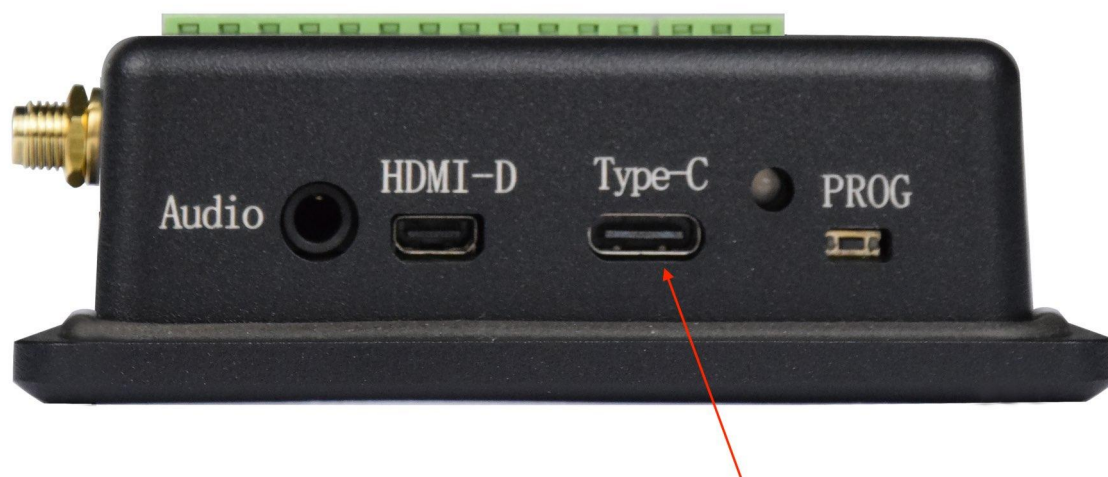
Touch Screen

The PPC-A53-050 Industrial Panel PC uses a 5-point capacitive touch screen. The touch layer is connected through I2C.

 **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-A53-050 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 problems 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.



USB Type-C Port



Warning

Be careful not to touch surrounding electronic components accidentally while plugging USB devices into the embedded IPC version.

LAN Connectors

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

No support for Power over Ethernet (PoE) feature on this model.



RJ45 LAN Connector

Note

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

TF Card Slot

The PPC-A53-050 Industrial Panel PC features 1 x **TF Card (micro SD) slot**. TF Card can address up to 128GB of storage.



TF (micro SD) Card Slot

Note

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

HDMI Connector

The PPC-A53-050 Industrial Panel PC is equipped with 1 x HDMI-D 2.0 (Micro-HDMI) Out connector. The HDMI connector allows connecting an additional (external) monitor. HDMI output resolution can be configured by the software.



HDMI Connector

PROG Button

The PPC-A53-050 Industrial Panel PC has one button on the board marked as PROG, as shown in the figure below. It controls how the device will be booted.

To boot from SD card, press and hold the PROG button, then connect the power supply, after a few seconds, you can see the system boot from SD card, then you may release the button.

When the button is not pressed while powering up, the PPC-A53-050 will boot normally from eMMC.



PROG Button

Mounting Procedure

You can mount PPC-A53-050 with VESA mounting ([guide](#)): 2 x M4 screws, enabling simplified installation onto any standard mounting fixture.

You can also mount PPC-A53-050 with panel mounting method ([guide](#)).

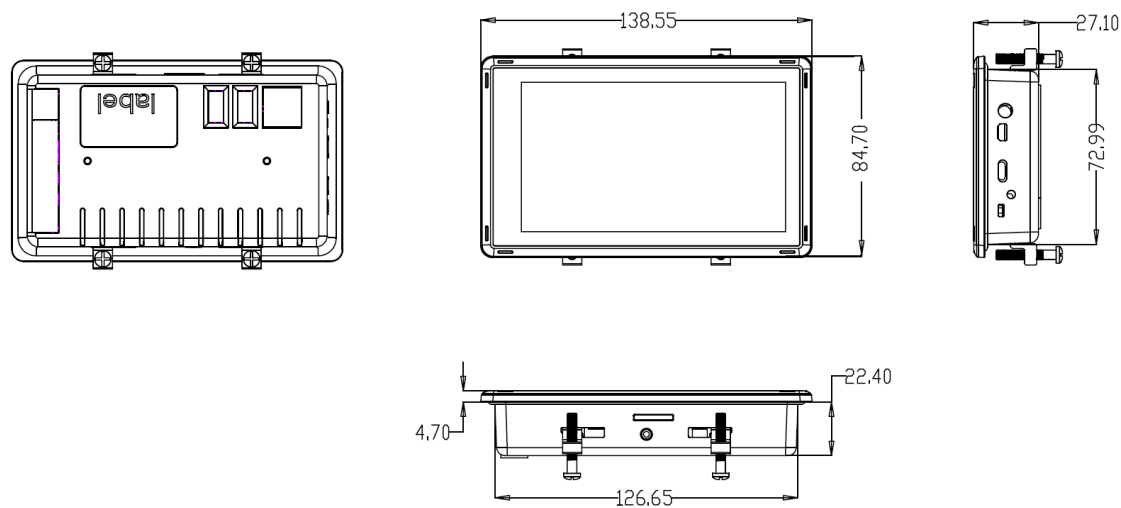


Attention

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

Mechanical Specifications

For PPC-A53-050, the outer mechanical dimensions are 138.55 x 84.70 x 27.10mm (W x L x H).



Dimensions (PPC-A53-050)

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