Chipsee

Industrial PC

AIO-RK3576-101

PN: CS12800-RK3576-101A

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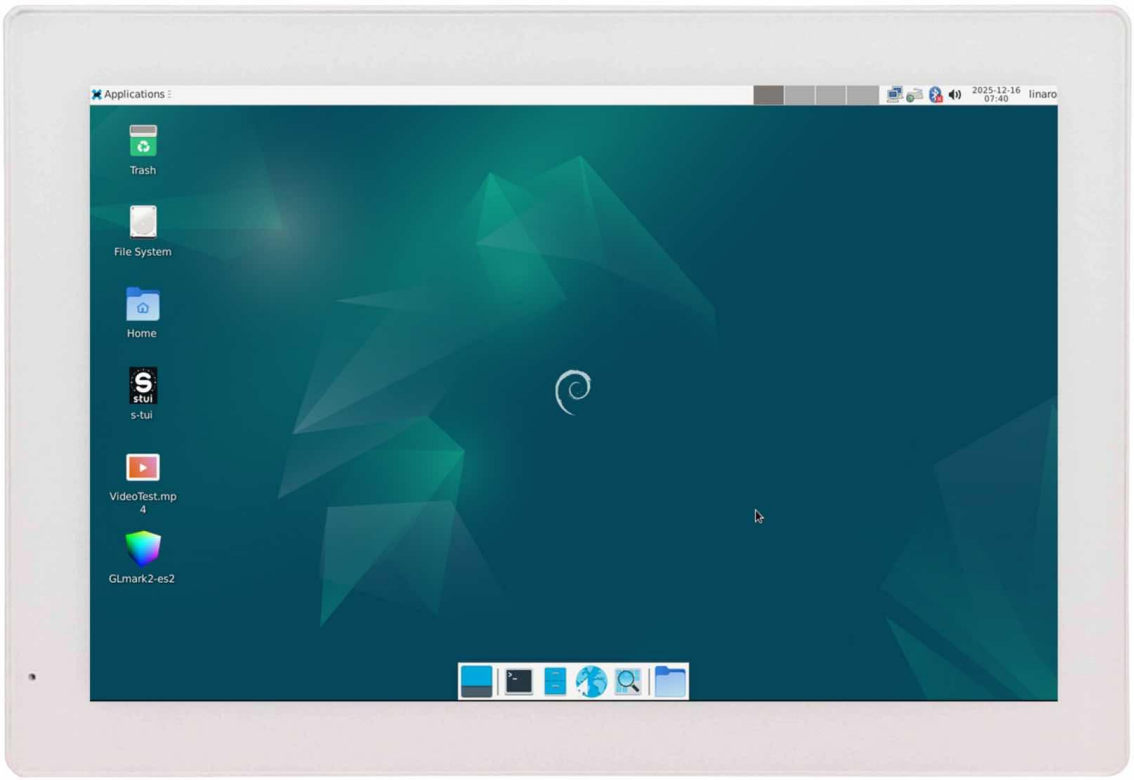
Contents

AIO-RK3576-101

Front View



Rear View


Chipsee
PN:CS12800-RK3576-101A
OS:Debian 12
SN:2025123180016517
https://chipsee.com
Origin:Made in China

Side View 1

Side View 2


Chipsee
PN:CS12800-RK3576-101A
OS:Debian 12
SN:20251231800165l7
https://chipsee.com
Origin:Made in China

Product Overview

The AIO-RK3576-101 all in one PC (PN: CS12800-RK3576-101A) is a Linux-based touchscreen Single Board Computer (SBC) powered by the Rockchip RK3576 CPU. It has a 6 TOPS(Sparsity)@INT8 NPU. It is designed for industrial and embedded applications, especially those requiring reliability and flexibility.

Its case is plastic, very light to mounted to a fixed place as a smart control center. The case is available in Black / White color.

This single board computer features a 10.1” IPS display with a maximum brightness of 400 cd/m^2. The touch screen is a responsive capacitive screen and supports multi touch. It can be used directly as a human-machine interface (HMI) or embedded control terminal.

Key Applications

- Human Machine Interface HMI
- Edge AI
- Process Control
- Process Monitoring
- HMI
- IIoT node
- Environmental Monitoring
- PLC
- Automotive applications
- Smart Home

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 AIO-RK3576-101 from the official Chipsee Store or from your nearest distributor.

Operating System

This product comes with a pre-installed Debian Linux. Chipsee software engineers have created all the drivers, so every hardware feature is readily available for any standard development tool.

If your project requires a different OS, please **Contact us**, and we'll make a customized version that suits your needs.

Optional Features

M.2 NVMe Module

The product has a M.2 2230/2242 M-key, PCIe Gen 3.0 x1 slot for a NVMe SSD, M.2 SSD is optional and can be selected when placing an order.

The AIO-RK3576-101 all in one PC does not include the NVMe SSD by default.

Important note: M.2 NVMe SSD cannot be used with 4G/LTE together.

4G/LTE Module

The product has a Mini-PCIe slot, you can install a 3G/4G/LTE/GPS module to it if you need 3G/4G/LTE/GPS.

The AIO-RK3576-101 all in one PC does not include the 3G/4G/LTE/GPS module by default. This module is optional and can be selected at the Chipsee store during the ordering process.

Important note: M.2 NVMe SSD cannot be used with 4G/LTE together.

RS232/RS485/CAN/Relay

The product's RS232/RS485/CAN/Relay can be configured in the factory, these options are supported:

- 2 x RS232, 1 x RS485, 0 x CAN, 1 x Relay **(default)**
- 1 x RS232, 2 x RS485, 0 x CAN, 1 x Relay
- 1 x RS232, 1 x RS485, 1 x CAN, 1 x Relay
- 2 x RS232, 1 x RS485, 1 x CAN, 0 x Relay

Please contact us if you need option 2,3 or 4.

> **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.

Hardware Features

The AIO-RK3576-101 all in one PC offers a broad range of performance and connectivity options for scalable integration, providing expandability according to future needs.

Some of the key features are listed in the table below.

AIO-RK3576-101	
CPU	Rockchip RK3576J, Quad-core Cortex-A72 (1.6GHz) + Quad-core Cortex-A53 (1.4GHz)
RAM	4GB LPDDR5
eMMC	64GB
Storage	Internal M.2 NVMe connector for SSD (optional), MicroSD Card
M2	M.2 2230/2242 M-key, PCIe Gen 3.0 x1 **(optional)**
MicroSD card	1 x TF(micro SD) card slot
NPU	6 TOPS(Sparsity)@INT8
Display	10.1” IPS LCD, 1280 x 800 px, brightness 400 cd/m^2
Touch	10-point capacitive touch with 1.0mm Armored Glass
USB	1 x USB 3.0 type-A Host, 1 x USB 2.0 type-A Host, 1 x USB type-C OTG (USB-C can’t be used together with USB-A 3.0 port)
LAN	1 x Giga LAN (no support for PoE)
Audio	3.5mm Audio In/Out Connector, 2W Speaker Internal, Internal Front Microphone
Buzzer	Onboard Buzzer, driven by GPIO
RTC	High accuracy RTC with farad capacitor, can work 1 week after power off (default). High accuracy RTC with lithium coin battery, can work 3 years after power off (optional).
GPIO	N/A
WiFi/BT	Integrated WiFi/BT Module
HDMI	N/A
Power Input	15V to 30V DC
Current	600mA max at 15V, 500mA typical at 15V
Power Consumption	9W Max, 7.5W typical
Relay	1 x relay with “Normally Connected” and “Normally Open” output
RS232	2 x RS232
RS485	**Default** 1 x RS485; up to 2 x RS485 **(optional)**

AIO-RK3576-101	
CAN	**Default** 0 x CAN; **Optional** 1 x CAN FD BUS. Arbitration Bit Rate up to 1Mbps, Data Bit Rate up to 8Mbps
3G/4G/LTE/GPS	Internal 4G/LTE module supported, not mounted by default
Working Temperature	From -20°C to +70°C
OS	Debian 12
Dimensions	260.54 x 178.54 x 26.9mm
Weight	620g
Mounting	VESA, Stand
Plastic Case Color	Black / White
Certification	CE, ROHS

Key Features

Power Input

The AIO-RK3576-101 all in one PC can be powered by an input voltage of 15V to 30V DC.

The total power consumption is about 9W Max, 7.5W typical, depending on the load and brightness.

The power input connector is a 3.4mm O.D x 1.7mm I.D x 9.5mm DC connector, the products also ships with a 3.4x1.7mm to 5.5x2.1mm connector. You can use either 3.4x1.7 or 5.5x2.1 DC power plug. For a proper DC power adapter, refer to the figure below.

Power Input

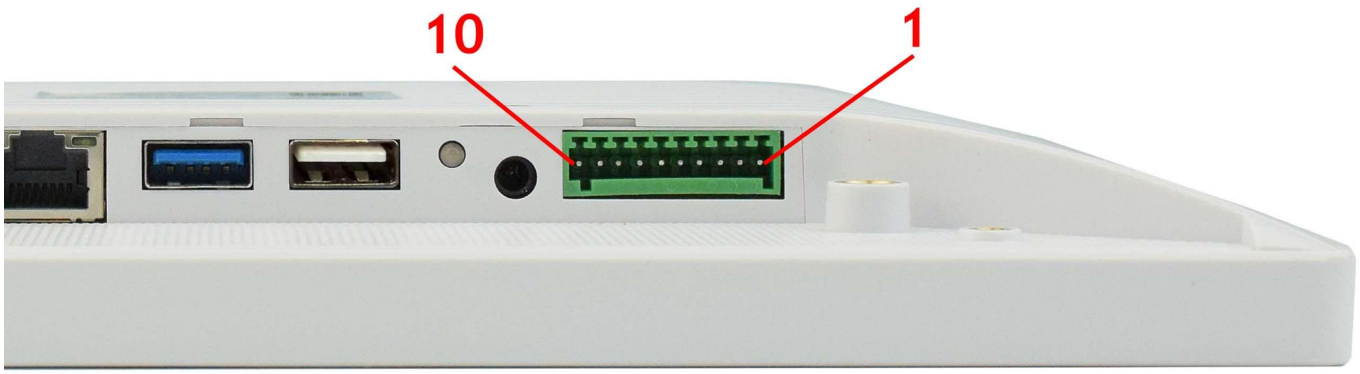
Power Adapter

Connectivity

There are many connectivity options available on the AIO-RK3576-101. It has 1 x USB 3.0 type-A Host, 1 x USB 2.0 type-A Host, 1 x USB type-C OTG (USB-C can't be used together with USB-A 3.0 port), 1 x Giga LAN (no support for PoE) (RJ45) Ethernet connector supporting up to 1 Gbps.

RS232/RS485/Relay Connector

The serial communication interfaces (RS485, RS232, and Relay) are routed to a **10-pin 2.5mm connector**, as illustrated on the figure below.



RS232/RS485/Relay Connector

The table below offers more detailed description of every pin and its definition:

RS232 / RS485 / Relay Pin Definition:			
Pin Number	**Definition**	**Description**	**OS Node**
Pin 1	GND	System Ground	
Pin 2	RS232_0_RXD	CPU UART0, RS232 RXD signal	/dev/ttyFIQ
Pin 3	RS232_0_TXD	CPU UART0, RS232 TXD signal	
Pin 4	RS232_2_RXD	CPU UART2, RS232 RXD signal Can be set as CAN0_H or RS485_2+(A)	/dev/ttyS2
Pin 5	RS232_2_TXD	CPU UART2, RS232 TXD signal Can be set as CAN0_L or RS485_2-(B)	
Pin 6	RS485_3+	CPU UART3, RS485 +(A) signal	/dev/ttyS3
Pin 7	RS485_3-	CPU UART3, RS485 –(B) signal	
Pin 8	Relay NO	Relay Normally Open	
Pin 9	Relay COM	GPIO4_A2, Relay Common Can be set as CAN0 H	/dev/relay
Pin 10	Relay NC		

RS232 / RS485 / Relay Pin Definition:			
		Relay Normally Connected Can be set as CAN0 L	

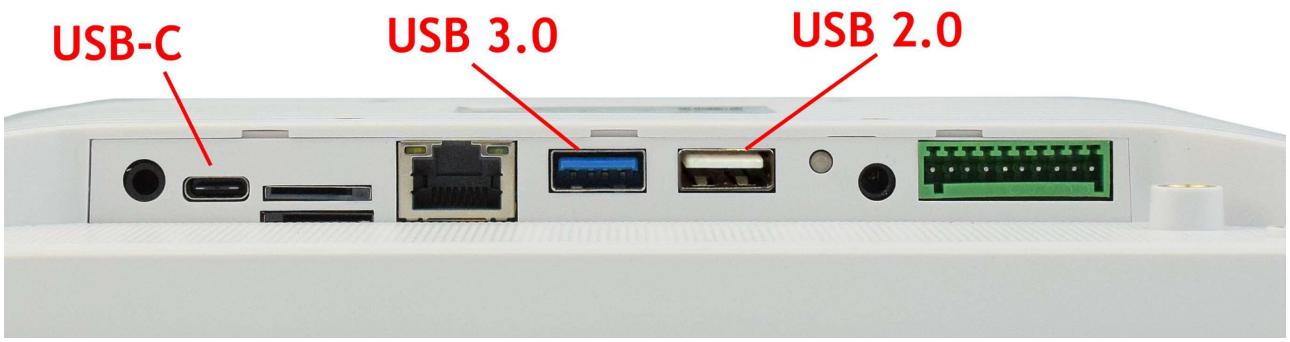
RS232/RS485/Relay Connector

Attention

1. The RS232_2 can be set as the RS485 signal (1 x RS232 + 2 x RS485 + 1 x Relay). If you need it to work as RS485, please **Contact us** before shipping.
2. The RS232_2 can be set as the CAN signal (1 x RS232 + 1 x RS485 + 1 x CAN + 1 x Relay). If you need it to work as CAN, please **Contact us** before shipping.
3. The Relay can be set as the CAN signal (2 x RS232 + 1 x RS485 + 1 x CAN + 0 x Relay). If you need it to work as CAN, please **Contact us** before shipping.
4. RS485_3 automatically controls input/output direction. It does not need software control.
5. The 120Ω match resistor for the RS485 is **not mounted** by default.
6. The Relay Max switching voltage is 125VAC or 60VDC. The maximum switching current is 1A. Rated load is 0.3A at 125VAC and 1A at 30VDC.

USB

There are 1 x USB 3.0 type-A Host, 1 x USB 2.0 type-A Host, 1 x USB type-C OTG (USB-C can't be used together with USB-A 3.0 port) onboard, as shown in the image below.



USB3.0 HOST and Type-C Connectors

Note

- External USB peripherals like a USB disk or USB mouse or keyboard can connect to the USB type-A HOST.
- You can download software to the Rockchip eMMC using the Type-C.
- USB-C can't be used together with USB-A 3.0 port. USB-C port is designed for flashing operating system image, USB-C will be disabled after entering operating system.

M.2 Connector

The product has an **optional** M.2 2230/2242 M-key, PCIe Gen 3.0 x1 connector. You can attach an M.2 NVME drive to expand the product's capability. If you need the M.2 slot please contact us before placing an order.

> **Note**
>
> M.2 NVMe SSD cannot be used with 4G/LTE together.

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.

This product doesn't support PoE(Power over Ethernet).

RJ45 LAN Connectors

Note

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

3G/4G/LTE/GPS Module

The AIO-RK3576-101 all in one PC is equipped with a **mini-PCIe connector** that can connect a 3G/4G/LTE module.

4G/LTE module is **optional**. If you place an order with 4G module included, we will also add a SIM card holder and a 3G/4G/LTE antenna to ensure 3G/4G/LTE works on the AIO-RK3576-101.

SIM card does **NOT** support hot plug. **Power off** before inserting or removing SIM card.

The CAT-1 modules support 4G/LTE by default and GPS **optionally**, if you need GPS with a CAT-1 module, please contact us before placing an order.

The CAT-4 Quectel EC25 module supports GPS. If you need GPS/GNSS feature please contact us before placing an order.

SIM Card Direction

Attention

The product does not come shipped with the 3G/4G/LTE module by default. If you need to use 3G/4G/LTE, you can contact us when placing an order, we can install the necessary hardware for you.

USB-C shares signal with 4G/LTE module, please unplug the USB-C cable while using 4G/LTE module. If you have the USB-C occupied, the 4G/LTE module will be disabled by default.

TF Card Slot

The AIO-RK3576-101 all in one PC features 1 x **TF Card (micro SD) slot** that can be used to expand storage, as shown in the image below (note the direction of the TF card).

TF Card Slot

Warning

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

Audio Connector

The product features 3.5mm audio connector as shown in the image below.

Audio Connector

It supports both audio in and audio out.

Internal Speaker

The product also has an internal 2W speaker, meaning you can play music without an earphone, the sound can be played from the product directly.

Front Microphone

At the upper edge of the product there is an internal front microphone, it can pick up the voice as an input of audio.

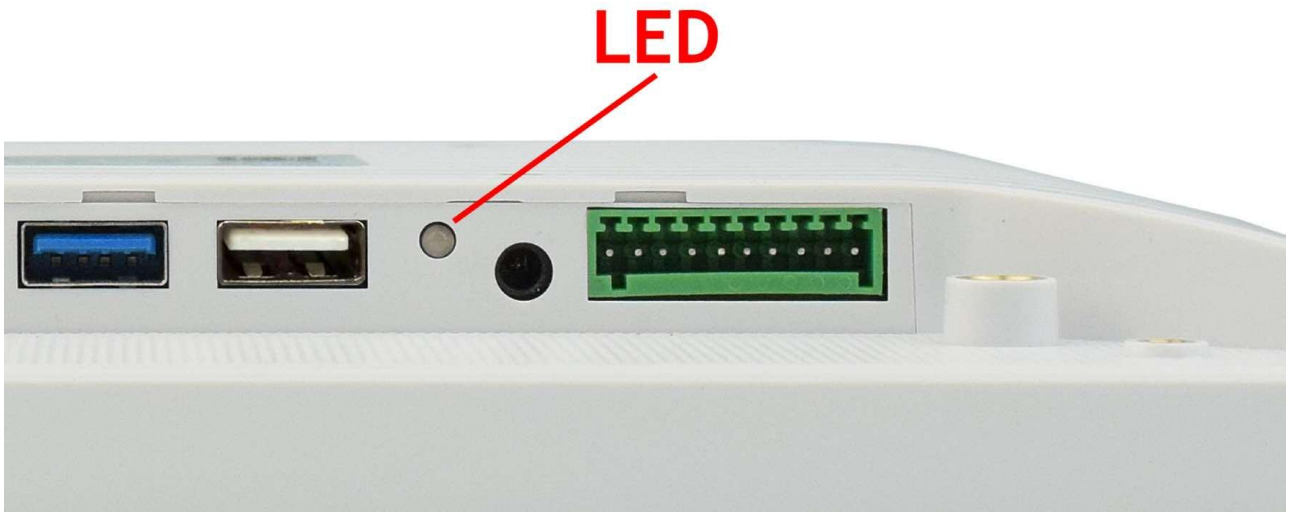
Buzzer

The product has an internal buzzer, suitable for playing beep sounds for alarms.

Buttons and Status LED

Status LED

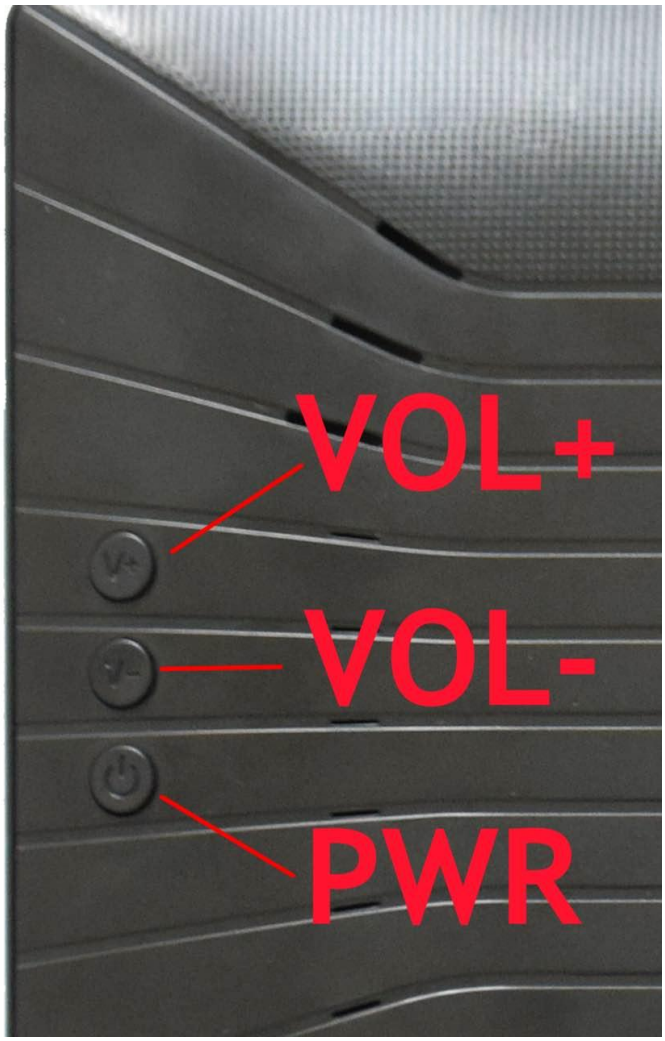
This product has a status LED. The LED turns RED after power on, turns GREEN when the system is booted. It can be controlled by software to flash YELLOW when the CPU is working.



Status LED

Buttons

There are 3 buttons on the back side: Volume+, Volume- and PWR. as the image below shows.



Buttons

What every button does:

Vol+

Volume up and boot mode button.

1. Before powering on, press and hold the Vol+ button, then apply power: the product will boot from USB-C port for flashing OS image.
2. After powering on, adjust volume up. Turn on the screen (if screen is turned off to save power).

Vol-

Volume down button.

1. After powering on, adjust volume down. Turn on the screen (if screen is turned off to save power).

PWR

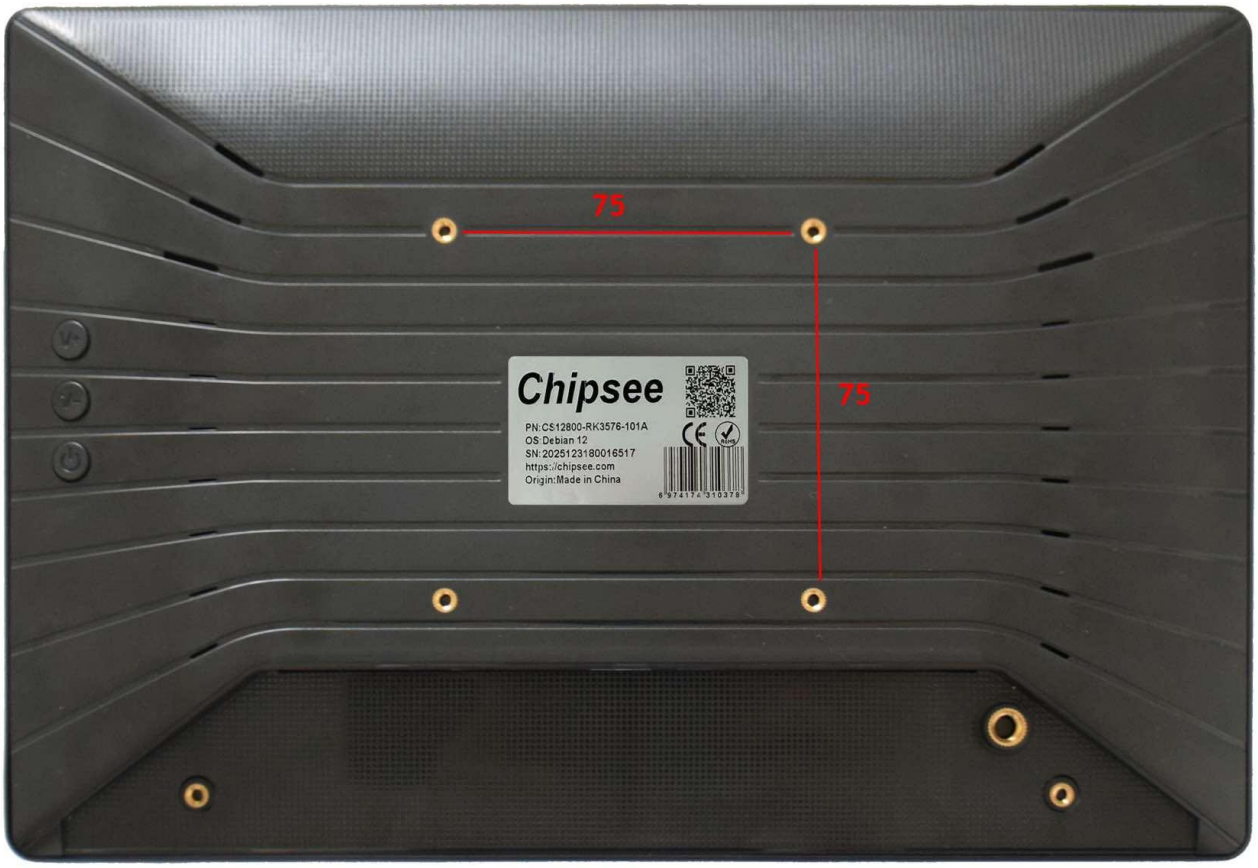
Power button.

1. Before powering on: press to power on the PC (if set to manual boot).
2. After powering on: hold 6 seconds to force power off.

> **Note**
>
> You can switch between auto boot and manual boot in the operating system software.

Mounting Procedure

You can mount AIO-RK3576-101 with the Vesa (75 x 75mm) and Stand mounting methods, as shown in the figures below.



VESA mounting

The product also ships with a base stand, if you don't need the stand you can contact us when placing orders.

(The keyboard and mouse are **NOT** included in the product.)

Stand mounting

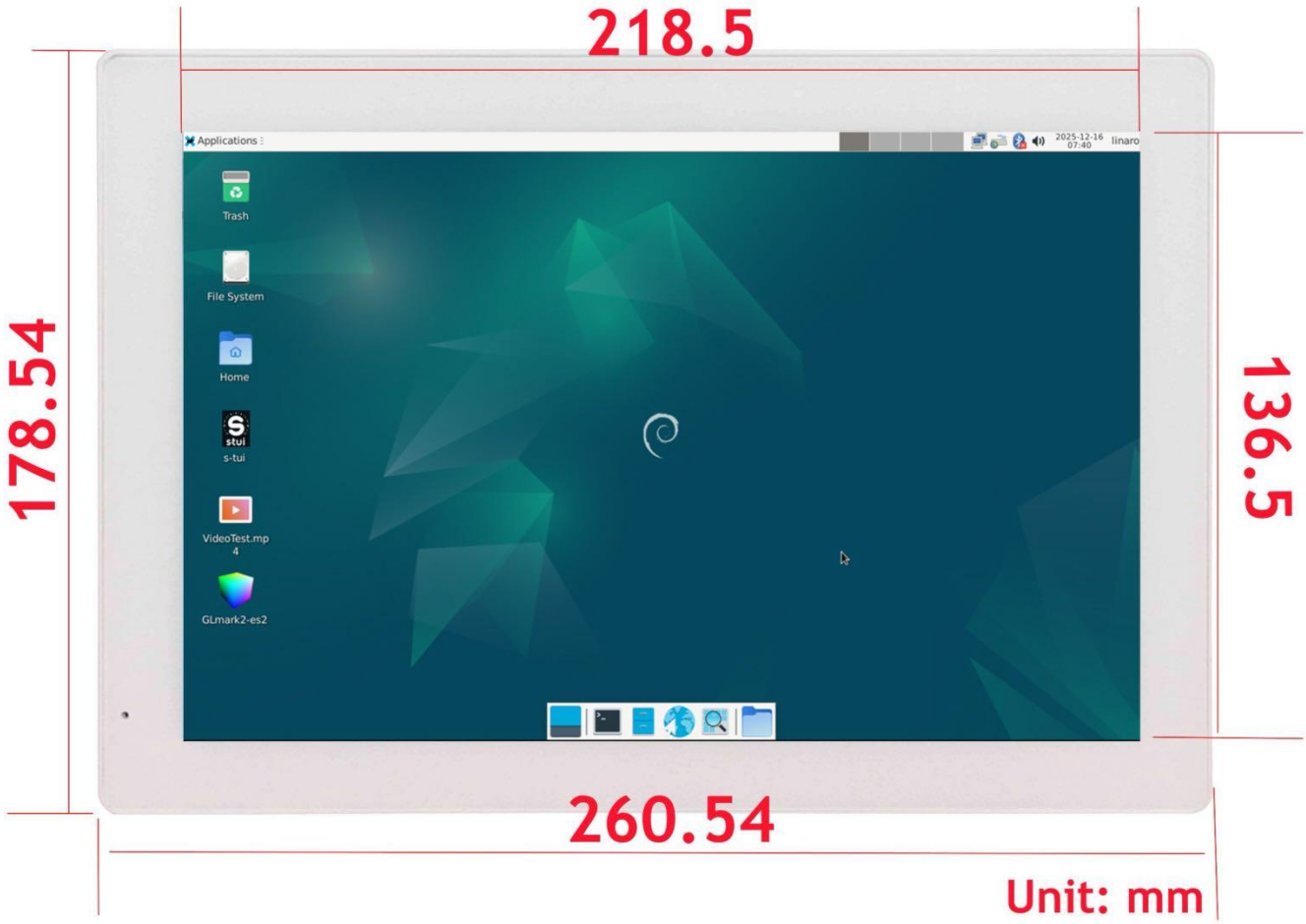
Attention

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

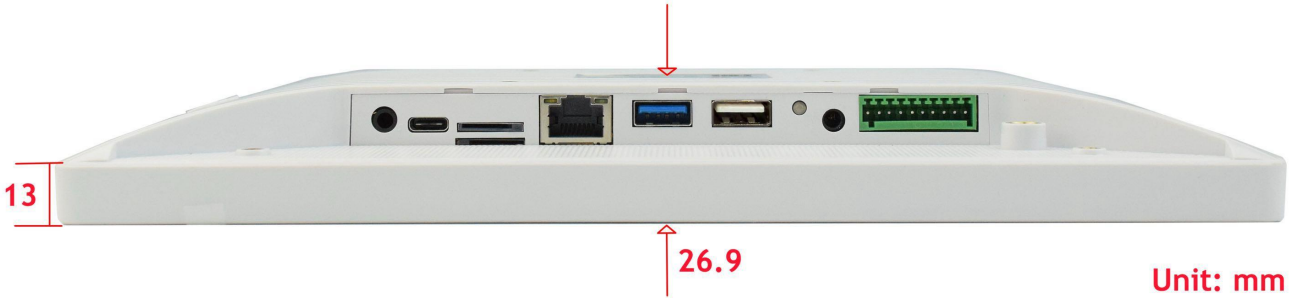
You can find detailed information about mounting in the Mount IPC Guide.

Mechanical Specifications

The outer mechanical dimensions of AIO-RK3576-101 are 260.54 x 178.54 x 26.9mm (W x L x H). Please refer to the technical drawing in the figures below for details related to the specific product measurements.



Front Panel Dimension Technical Drawing



Side Dimension Technical Drawing

3D Model

AIO-RK3576-101 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 AIO-RK3576-101, select hardware documentation, drag the navigation bar to the 3D Model section.

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