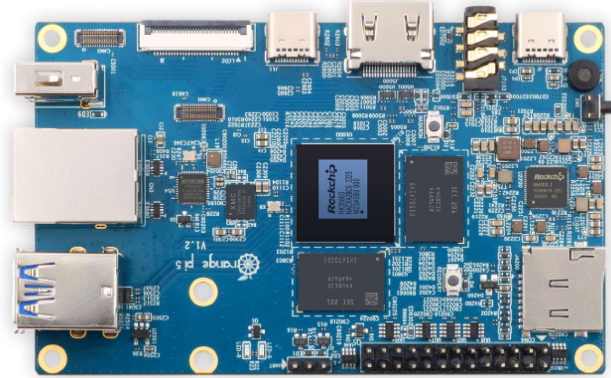


# Orange Pi 5 (4GB/8GB/16GB)







## *Orange Pi 5 Memory Upgrade, 32GB Available for Pre-order*

*More memory than ever before for heavy-duty applications*

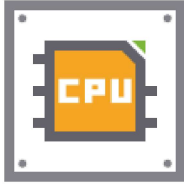
[More info](#)



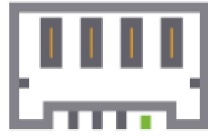


-  Rockchip RK3588S octa-core 64-bit processor
-  Main frequency up to 2.4GHz
-  4GB/8GB/16GB(LPDDR4/4X)
-  Support 8K video codec

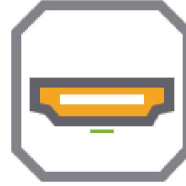
# Product introduction



8-core 64-bit  
processor



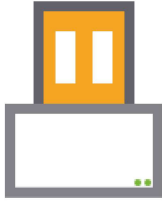
4GB/8GB/16GB  
(LPDDR4/4X)



HDMI 2.1



Gigabit LAN port



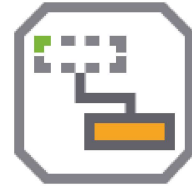
USB2.0/3.0



Type-C power  
supply



TF card slot



26pin headers

Orange Pi 5 uses Rockchip RK3588S new generation 8-core 64-bit processor, quad-core A76+quad-core A55, with 8nm process design, up to 2.4GHz main frequency, integrated ARM Mali-G610 GPU, embedded high-performance 3D/2D image acceleration module, built-in NPU with 6Tops computing power, with 4GB/8GB/16GB (LPDDR4/4X), and up to 8K display processing capability.

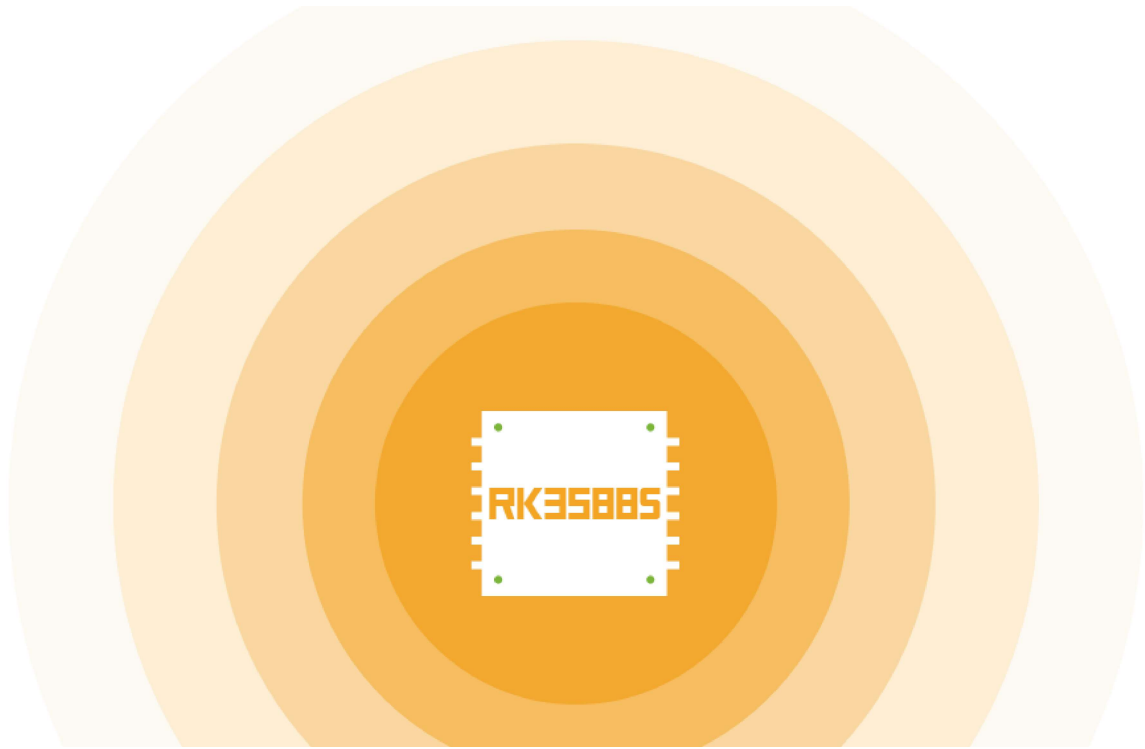
Orange Pi 5 provides abundant interfaces, including HDMI output, GPIO interface, M.2 PCIe2.0, Type-C, Gigabit LAN port, 2\*USB2.0, 1\*USB3.0, etc.; It can be widely used in tablets, edge computing, artificial intelligence, cloud computing, AR/VR, intelligent security, smart home and other fields, covering AIoT various industries.

Orange Pi 5 supports Orange Pi OS (Droid) , the official operating system developed by Orange Pi, as well as Android12 and Debian11.

## Feature

### Rockchip RK3588S A new generation AIoT chip

Using 8nm LP process, it is faster and consumes less power, bringing superior performance to various AI application scenarios.



**CPU** 8-core 64 core architecture,  
4\*Cortex-A76 + 4\*Cortex-A55

**4x**

**Improvement**

RK3588S

RK3399

**GPU** ARM Mali-G610

**8x**

**Improvement**

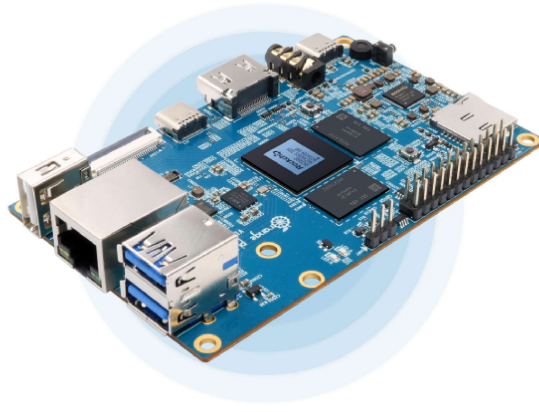
RK3588S

RK3399

**NPU** 6Tops AI computing power

Support INT4/INT8/INT16 hybrid computing, empowering various AI scenarios

**4GB/8GB/16GB, more memory options to meet different needs**



1

**4GB**

2

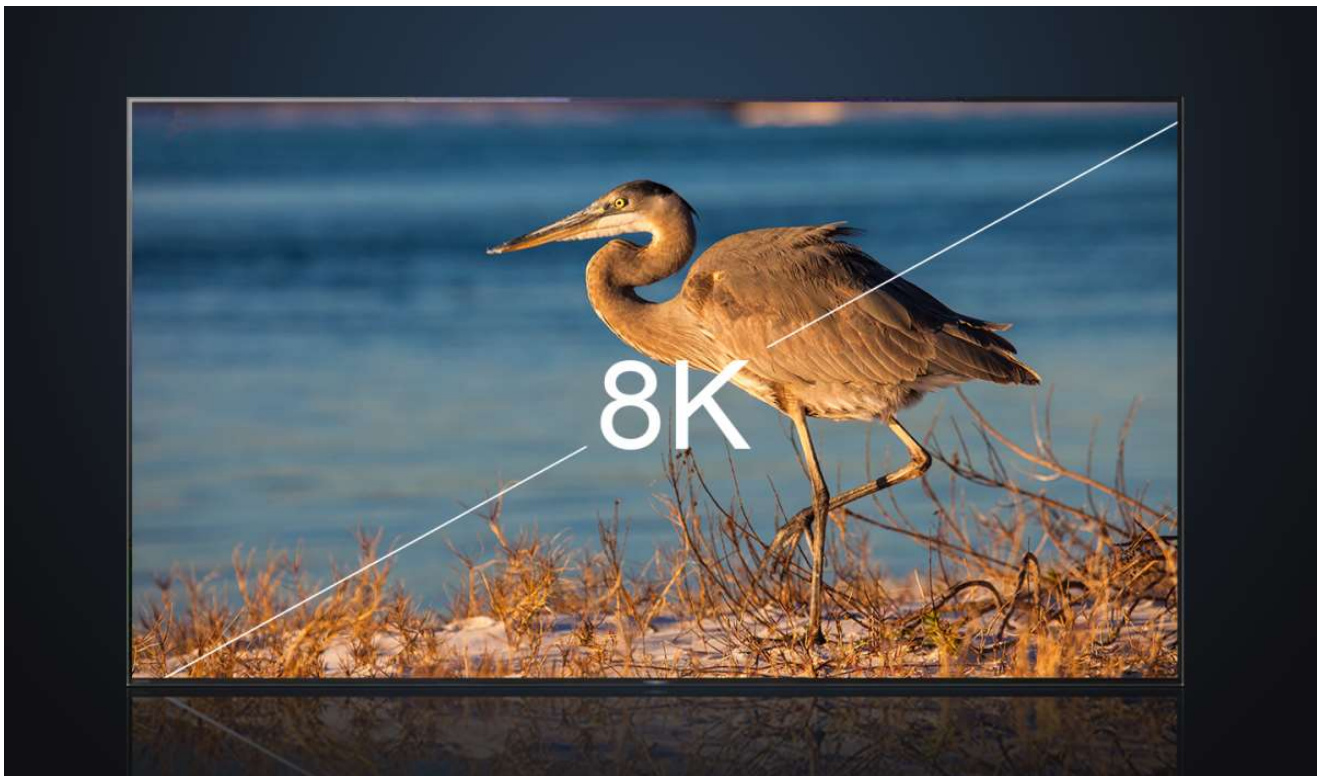
**8GB**

3

**16GB**

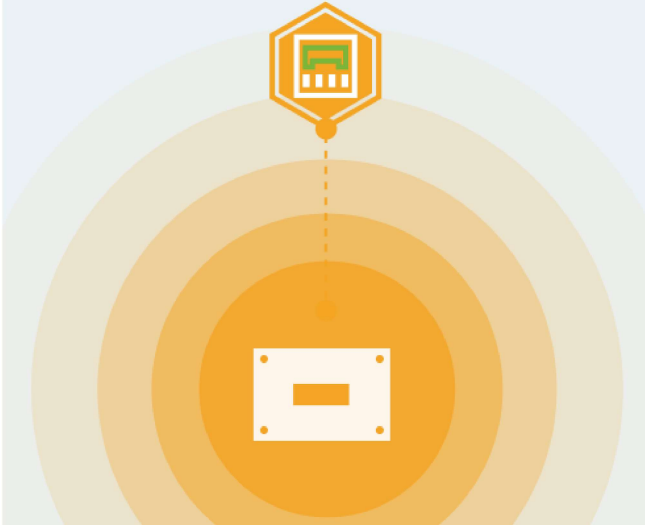
## **8K** video codec for clearer images

Up to support 8K @ 60fps, the powerful video codec allows for clearer images and more detailed picture quality.



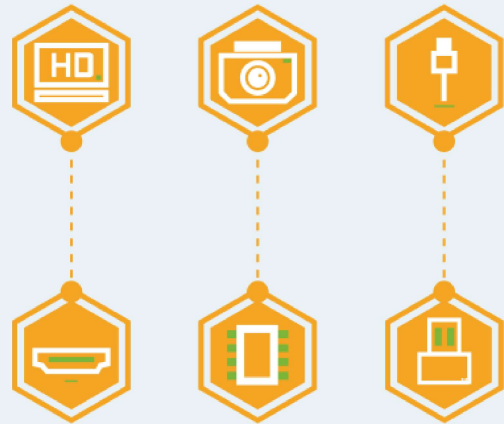
### Gigabit Ethernet

On-board 1000Mbps Ethernet for stronger and more stable network connection and higher transmission speed.



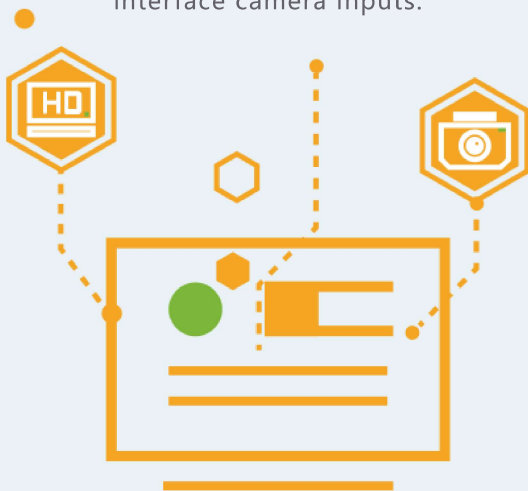
### Rich interfaces, easy to expand

Gathering all kinds of popular interfaces such as MIPI D-PHY, MIPI CSI, USB3.0, USB2.0, Type-C, HDMI2.1, M.2 PCIe2.0, Gigabit Ethernet, etc.



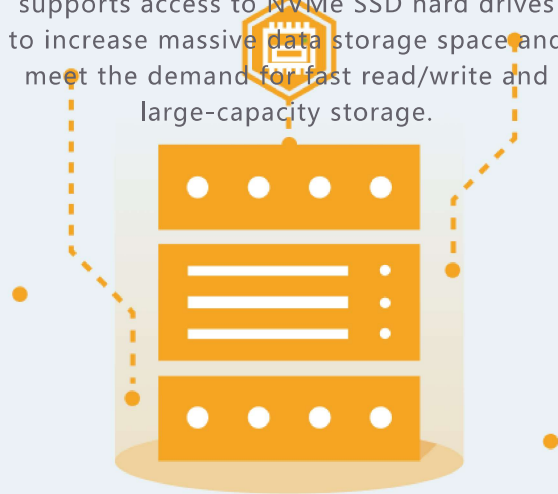
### Multi-channel input and output

Support HDMI 2.1 8K video output, USB-C (DP1.4), dual MIPI D-PHY video output for multi-screen display, support three MIPI interface camera inputs.



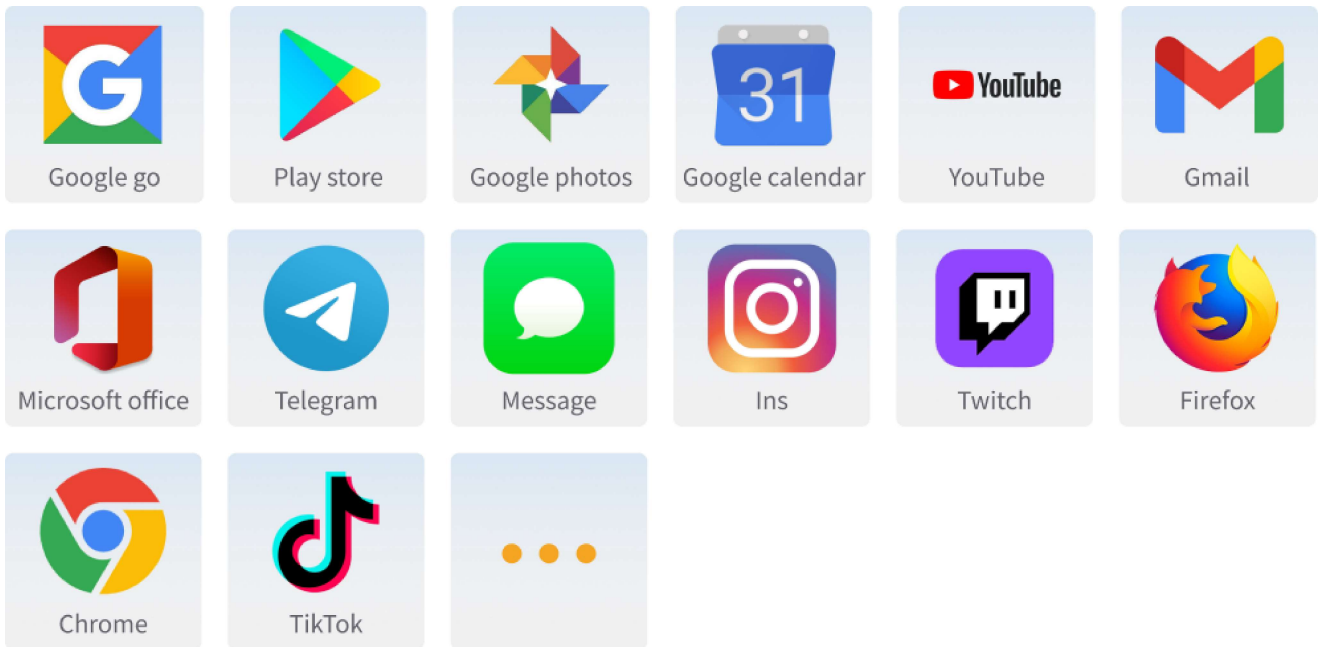
### Supports NVMe SSD hard drives for massive capacity expansion

The onboard M.2 PCIe 2.0 interface supports access to NVMe SSD hard drives to increase massive data storage space and meet the demand for fast read/write and large-capacity storage.



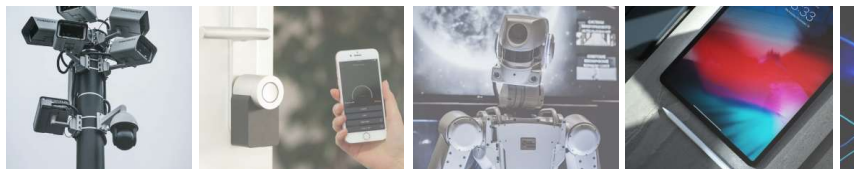
## Supports Orange Pi OS (Droid)

With its self-designed Launcher, it provides users with the same operating habits as a regular computer to the maximum extent. The installation of Aurora Store allows users to run Facebook, Instagram, Twitter, YouTube, Telegram and other applications smoothly.



## Wide range of application scenarios

It can be widely applied to tablets, edge computing, artificial intelligence, cloud computing, AR/VR, intelligent security, smart home and other fields, covering AIoT various industries.



Intelligent security

Smart home and other fields

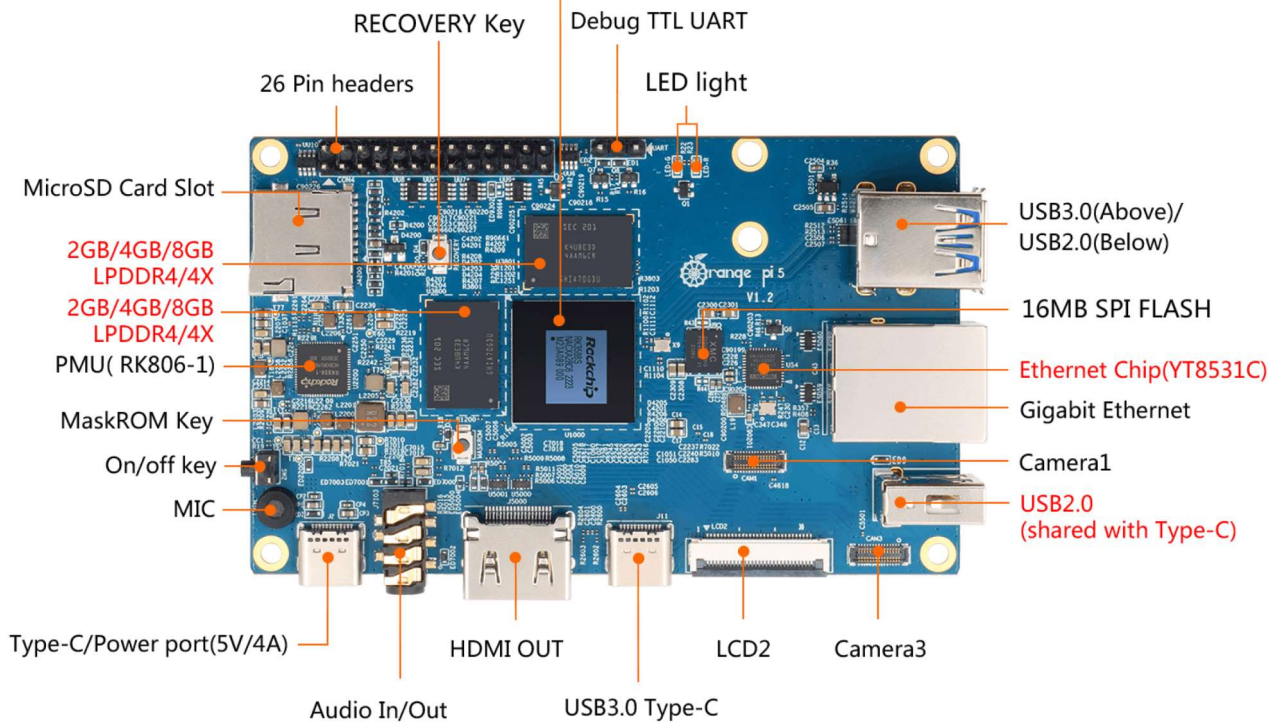
Artificial intelligence

Tablets

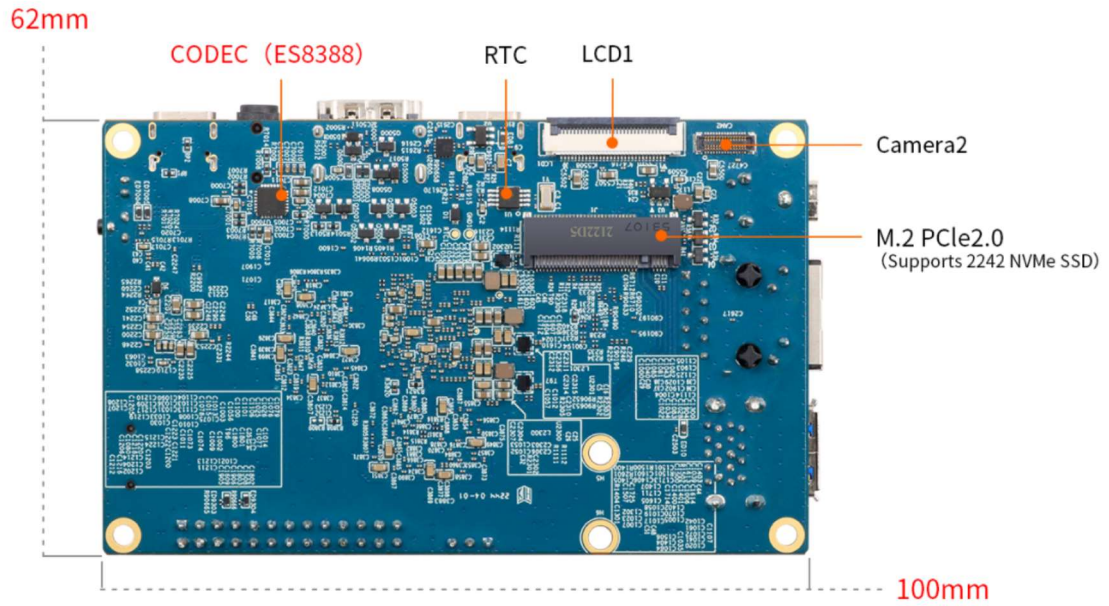
Ec

# Top view

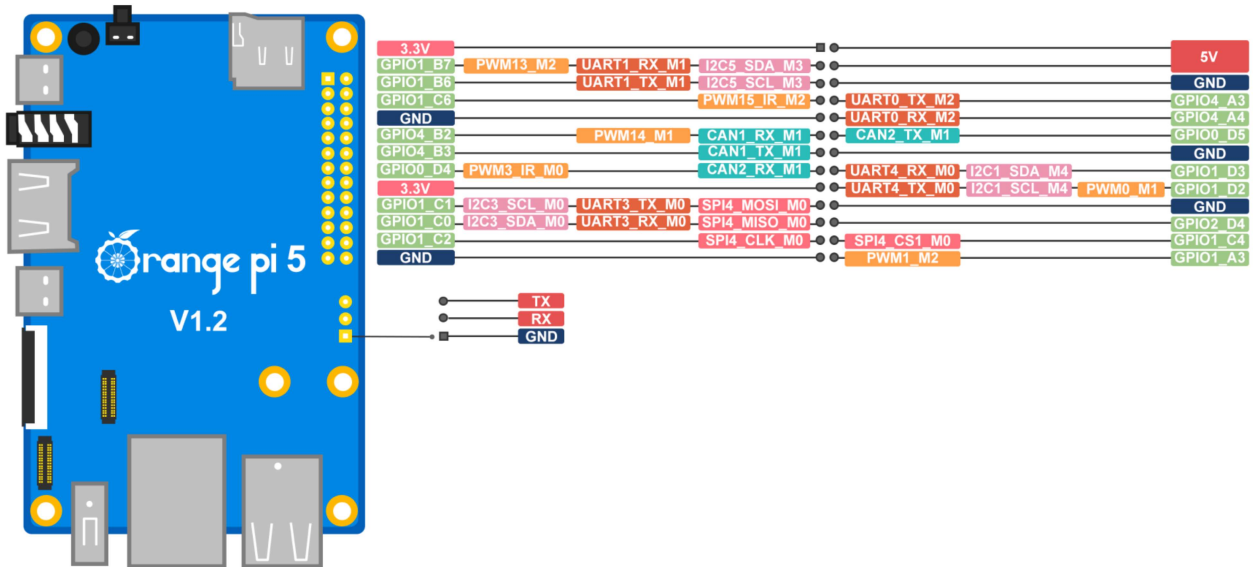
Rockchip RK3588S/2.4GHz  
( 64 bit ARM® Quad Core CortexA76+Quad Core CortexA55 )



# Bottom view



## Orange Pi 5 v1.2 pin definition





# Hardware Specification

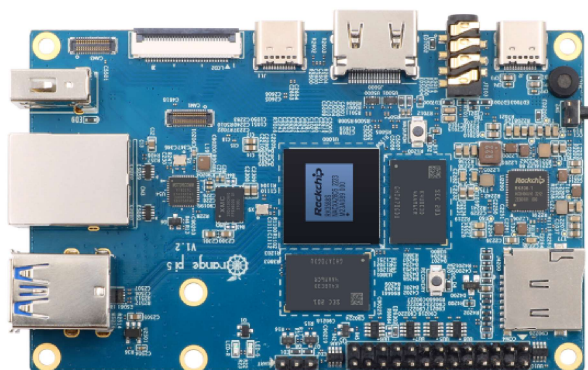
SoC	Rockchip RK3588S (8nm LP process)
CPU	<ul style="list-style-type: none"> <li>• 8-core 64-bit processor</li> <li>• Big.Little Architecture: 4xCortex-A76 and 4xCortex-A55, Big core cluster is 2.4GHz, and Little core cluster is 1.8GHz frequency.</li> </ul>
GPU	<ul style="list-style-type: none"> <li>• Arm Mali-G610 MP4 "Odin" GPU</li> <li>• Compatible with OpenGL ES1.1/2.0/3.2, OpenCL 2.2 and Vulkan 1.2</li> <li>• 3D graphics engine and 2D graphics engine</li> </ul>
NPU	Built-in AI accelerator NPU with up to 6 TOPS, supports INT4/INT8/INT16 mixed operation
PMU	RK806-1
RAM	4GB/8GB/16GB (LPDDR4/4X)
Memory	<ul style="list-style-type: none"> <li>• QSPI Nor FLASH 16MB</li> <li>• MicroSD (TF) Card Slot</li> <li>• M.2 M-KEY Socket</li> </ul>
USB	USB3.0 × 1 USB2.0 × 2 Type-C (USB3.1) × 1
Video Output	<ul style="list-style-type: none"> <li>• HDMI2.1, up to 8K @60Hz</li> <li>• DP1.4 (DisplayPort), DP1.4 and USB3.1 ports are multiplexed, and the port is shared with Type-C</li> </ul>

	<ul style="list-style-type: none"> <li>• 2 * MIPI D-PHY TX 4Lane, configurable up to 4K @60Hz</li> </ul>
Camera	<ul style="list-style-type: none"> <li>• MIPI CSI 4Lane</li> <li>• 2 * MIPI D-PHY RX 4Lane</li> </ul>
Audio	<p>CODEC: ES8388</p> <ul style="list-style-type: none"> <li>• 3.5mm headphone jack audio input/output</li> <li>• Input: Onboard MIC</li> <li>• HDMI 2.1 eARC</li> </ul>
Ethernet	10/100/1000Mbps Ethernet
Expansion Port	For extending UART, PWM, I2C, SPI, CAN and GPIO interfaces.
M.2 M-KEY Socket Expansion Slot	<p>Support PCIe NVMe SSD</p> <p>Support custom PCIe Wi-Fi6+BT5.0 module</p>
Button	<p>1×MaskROM key</p> <p>1×Recovery key</p> <p>1×On/Off key</p>
Power Source	Support Type-C power supply, 5V @ 4A
LED	<p>Power indicator: red</p> <p>Status indicator: green</p>
Debugging	3 Pin debug serial port (UART)
Supported OS	Orangepi OS (Droid) 、 Orangepi OS (Arch) 、 Ubuntu、 Debian、 Android12

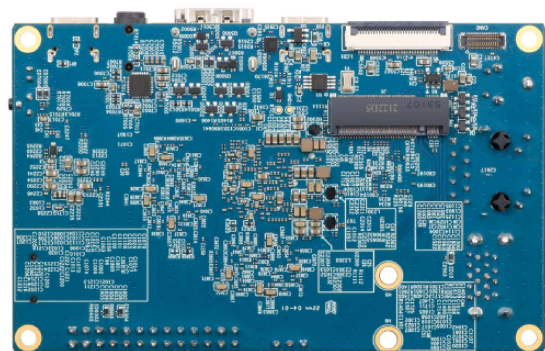
# Appearance specification introduction

Dimension	62mm*100mm
Weight	46g

## Product display



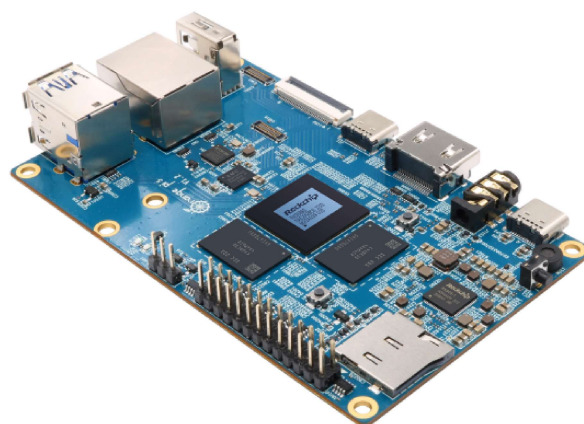
Front



Back



45° angle



45° angle



About Orange Pi



Orange Pi Store



Service & Support



Contact us



Social group

