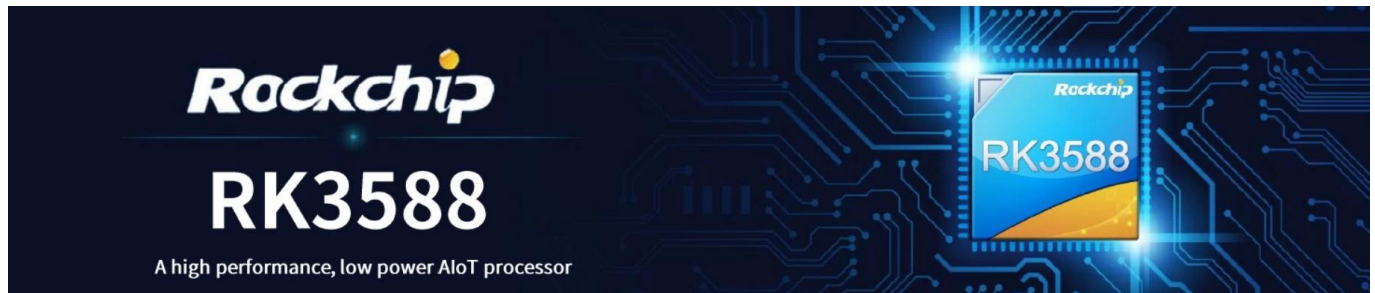


Android TV Box with Rockchip RK3588 for AI Applications



Specifications

Model No.	Rockchip RK3588 Android TV Box
CPU	Rockchip RK3588 Octa-Core ARM, Quad-Core Cortex-A76 @2.4GHz and Quad-Ccore Cortex-A55@1.8GHz
GPU	ARM Mali-G610 MC4, OpenGL ES 1.1/2.0/3.1/3.2, Vulkan 1.1, 1.2, OpenCL 1.1,1.2,2.0 Embedded high performance 2D image acceleration module
NPU	6 TOPS (Supports int4/int8/int16/FP16/BF16/TF32 Acceleration)
RAM	4GB LPDDR4X (2GB*2, Supports up to 32GB)
ROM	32G
WiFi	Built-in WiFi Module, 802.11 ax/ac/a/b/g/n
OS	Android 12
Bluetooth	Bluetooth 5.0

Hardware Interface

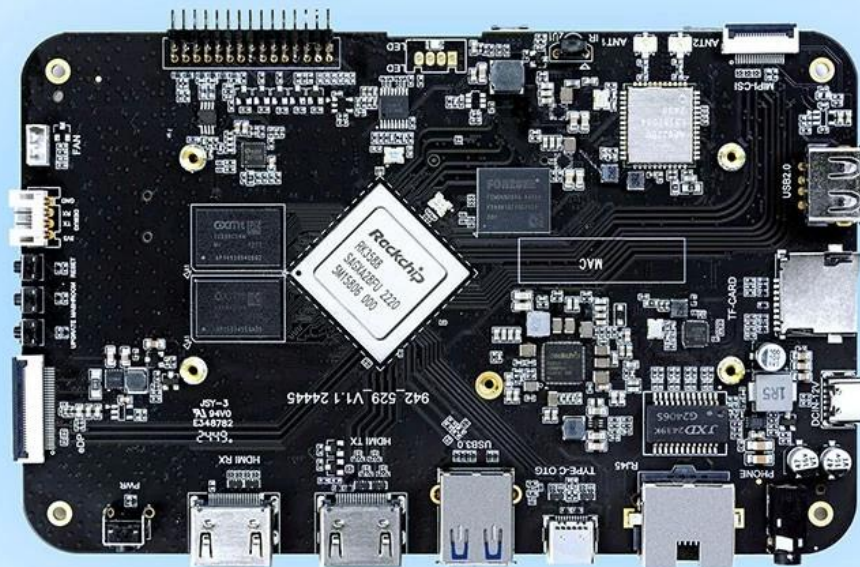
Power input	Type-C Port (12V/2A)
Storage Extension	1*TF Card Slot 1*PCIE Hard Disk Data Port
Remote Control	1* Infrared Remote Control Receiver
RTC Battery	CR1220 Button Battery Onboard
Serial Port	2*UART Serial Port
Ethernet	1* 10/100/1000 Mbps RJ45 Port
WiFi	Built-in WiFi Module, 802.11 ax/ac/a/b/g/n
USB Port	1*USB3.0 Port 1*USB2.0 Port 1* USB2.0 Port Reserved 4-Pin socket
LED Indicator	1*Three-Color LED Indicator
LCD Interface	1*Four-Channel 32-Pin Sequential MIPI interface 1*Dual-cChannel 30-Pin Sequential EDP interface
Video Output Interface	1*HD Output Port, Support HD 2.1 up to 8K@60Hz output 1*DP Output Port, Support DP1.4 up to 4K@60Hz output
Video input	1*MIPI-CSI (dual-channel) 1*HD input Port, Supports up to HD 2.0 4K@60Hz input 1*MIC
Audio interface	1*L/R, Left and Right Sound Channel Output (3.5mm Headset Port) 1*SPK 7*GPIO, 3.3V Voltage 4*I2C, 3V Voltage, Support Touch Screen
Other interfaces	1*ADC 2*PWM 1*5V Cooling Fan

Software Performance

Video&Audio CODEC	<p>Decoding Performance:</p> <p>Supports MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP9, VP8, MVC and AV1@MMU embedded real-time video decoding;</p> <p>Multi-channel parallel decoding, supporting lower resolutions;</p> <p>H.264 AVC/MVC Main10 L6.0: support 8K@30fps(7680*4320);</p> <p>VP9 Profile0/2 L6.1: Support 8K@60fps(7680*4320));</p> <p>H. 265 HEVC/MVC Main10 L6.1: support 8K@60fps(7680*4320);</p> <p>AVS2 Profile 0/2 L10.2.6: Support 8K@60fps(7680*4320);</p> <p>AV1 main configuration file 8/10bit L5.3: Support 4K@60fps(3840*2160);</p> <p>The MPEG-2 supports up to MP: 1080p@60fps(1920*1088);</p> <p>The MPEG-1 supports up to MP: 1080p@60fps(1920*1088);</p> <p>VC-1 supports up to AP level3: 1080p@60fps(1920*1088);</p> <p>VP8 version2 1080p@60fps(1920*1088)</p> <p>Multi-Channel Audio Decoding: MP3,AAC,FLAC,WAV and other mainstream audio formats.</p>
Ethernet	<p>Module: RTL8111HS</p> <p>Performance: Support 10/100/1000 Mbps, providing stable and fast wired connection performance.</p> <p>Function: Support auto-negotiation function to automatically identify and configure network speed and duplex mode.</p>
WiFi & BT	<p>Module: AP6275P</p> <p>WiFi specifications:</p> <p>Support 802.11ax/ac/a/b/g/n for high-speed wireless network connectivity of up to 2.4 Gbps.</p> <p>Support 2.4GHz and 5GHz dual frequency bands, optimize signal intensity and interference minimize.</p> <p>Support MU-MIMO technology to improve the data transmission efficiency during multi-user connection.</p> <p>BT specifications:</p> <ul style="list-style-type: none"> BT 5.0, support all traditional BT features and high-speed transmission. Support BLE (bluetooth low energy) technology. Support multiple BT devices to connect simultaneously, ensuring stable connections and efficient communication..
Display Output	<p>HDMI_TX supports up to 8K@60fps(7680x4320).</p> <p>EDP supports up to 4K@60fps(3840x2160).</p> <p>MIPI_CSI supports up to 4K@60fps(3840x2160).</p> <p>DP(type-c) supports up to 4K@ 60fps(3840x2160).</p> <p>Can be applied scene multi-screen display, different screen multi-display.</p>
Input source	<p>HDMI_RX supports up to 4K@60fps(3840*2160).</p> <p>MIPI_DSI(for camera)</p> <p>Suitable for PIP (picture-in-picture),conference machines and embedded external input source applications.</p>
RTC	<p>Chipset: HYM8563</p> <p>This chip can maintain time operation through an external battery when the system is powered off, making it suitable for any application scenario that requires continuous tracking of time after power failure. It has basic alarm and timer functions, allowing you to set wake-up commands, which can be applied to timed on/off operations.</p>

High-Performance AI Development Board

The RK3588 is a flagship AIoT chip built on 8nm LP process, featuring an octa-core CPU (up to 2.4GHz), ARM Mali-G610 MP4 GPU, and a 6TOPs NPU for AI acceleration. It also integrates a 48MP ISP with HDR & 3DNR, supporting major deep learning frameworks for enhanced AI performance.



RK3588
Octa-core CPU



Mali-G610
MC4 1GHz GPU



6Tops
NPU



8K Codec
H.265 HEVC



4~32GB RAM
8~128GB ROM



WiFi6
1000M LAN



BT5.x



Android/Linux

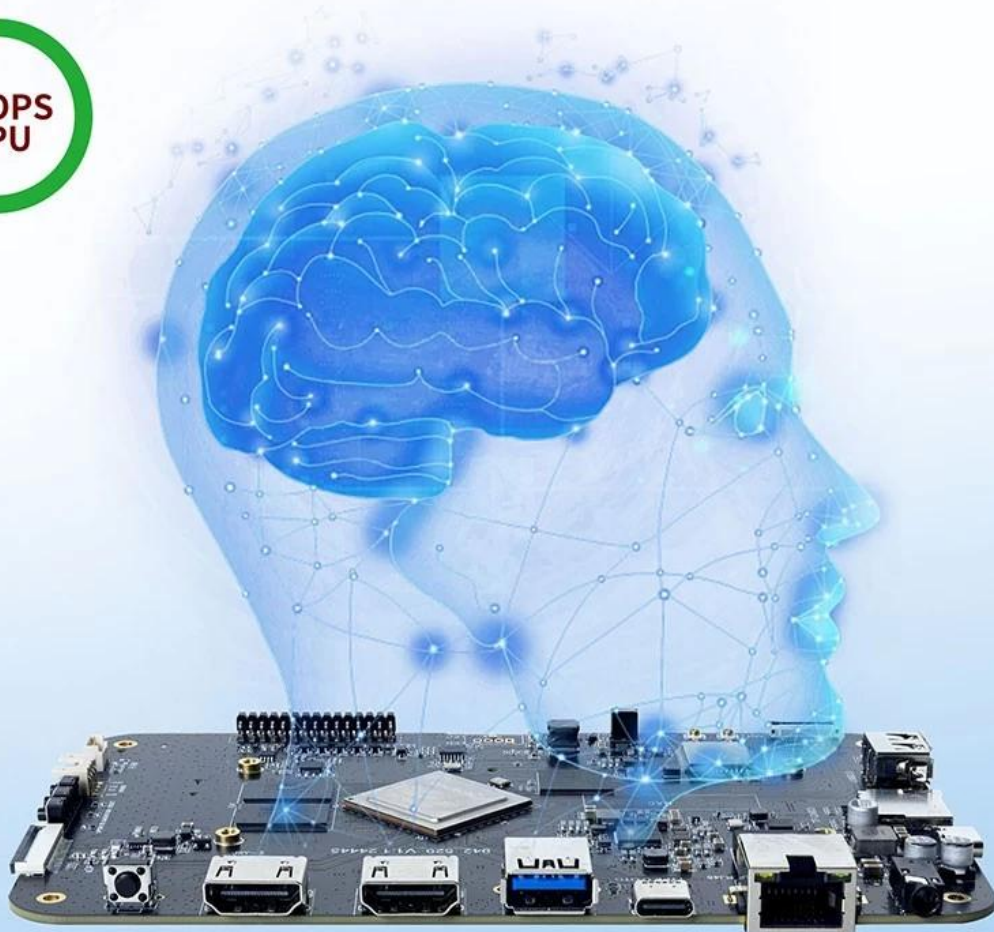
RK3588---Next-Generation Flagship AIoT CPU

Powered by the RK3588 octa-core 64-bit chipset, with ARM Mali-G610 MP4 GPU and 6TOPs AI NPU for superior AI performance and expanded possibilities.



6 TOPS Powerful Computing Boosts AI Applications

Powerful NPU with 6TOPS performance, supporting INT4/INT8/INT16 operations. Compatible with TensorFlow, MXNet, PyTorch, Caffe, and more. Efficiently accelerates convolution and traditional image processing operations like Gaussian filter, median filter, Laplacian, and Sobel, ideal for edge computing and vision control applications.



8K Video Encoding & Decoding

Supports 8K@60fps H.265/VP9 decoding and 8K@30fps H.265/H.264 encoding, with up to 32x 1080P@30fps decoding and 16x 1080P@30fps encoding. Delivers stunning 8K video quality.



32GB Large RAM & 128GB EMMC

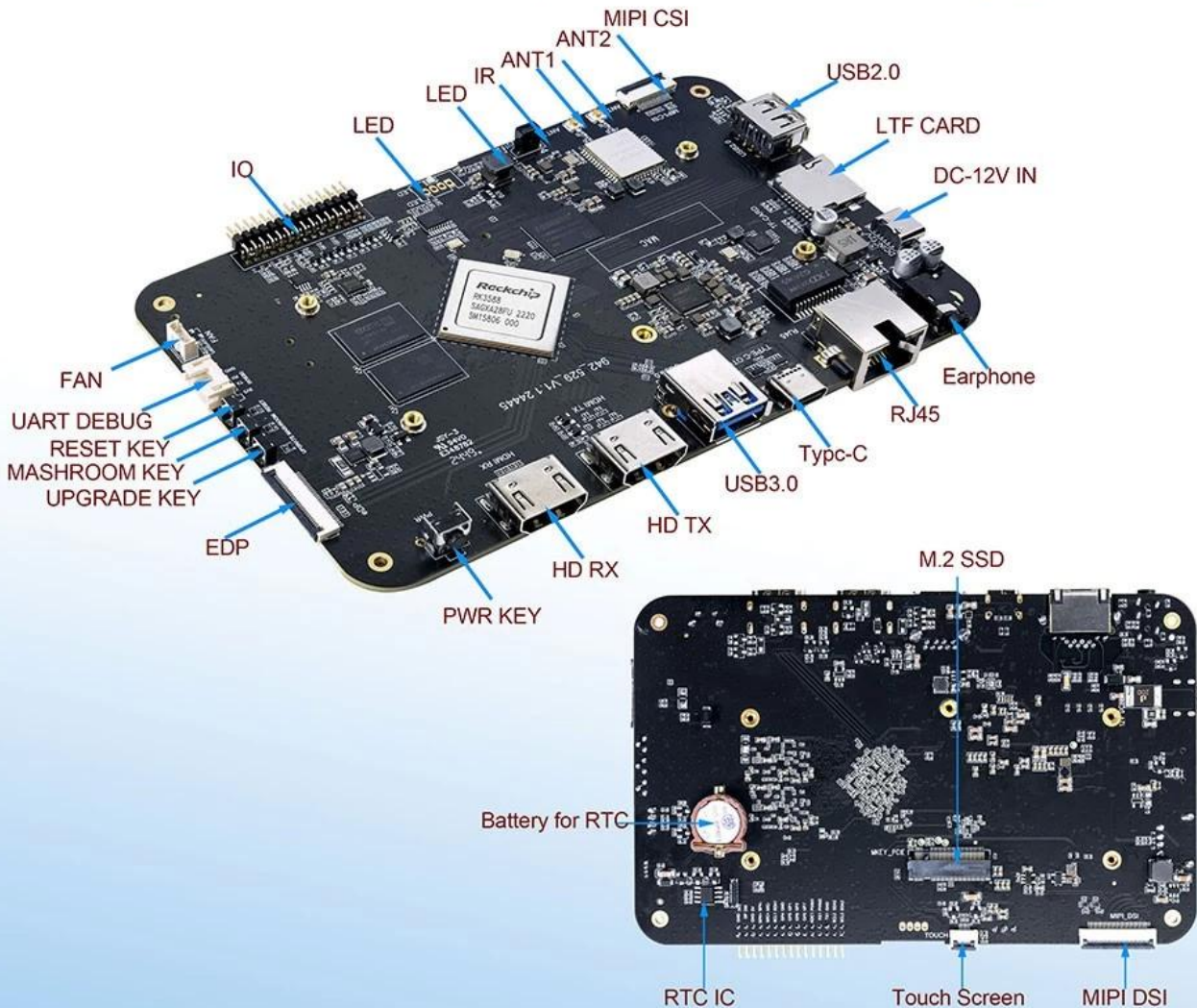
Up to 32GB RAM and 128GB eMMC storage, surpassing previous memory limits for faster response and meeting the demands of high-memory, high-storage applications.



32GB
128GB

Rich Expansion Interfaces

Multiple video output and input interfaces support simultaneous 8K@60fps video output and 4K@60fps video input. It also supports quad-screen display for high-definition interactive scenarios. The board offers rich expansion interfaces for diverse industry applications.



Powerful Network

Onboard Gigabit Ethernet, dual-band WiFi 6 (2.4GHz/5GHz), and Bluetooth 5.3 ensure seamless network connectivity and flexible support for various application needs.



Open System Architecture

Multi-system compatibility supporting Android 12 and Debian 11, with deep customization of the Linux kernel for remote upgrades and management, enhancing operational efficiency and ease.



Main Features

- *The CPU is RK3588 Octa-core ARM processor (Quad Core Cortex-A76 and Quad Core Cortex-A55), with a maximum main frequency up to 2.4 GHz. It features with quad core Mali-G610 GPU, NPU computing power reaches 6TOPs with powerful performance.
- *Manufacturing process: 8nm LP.
- *With various LCD screen interfaces: four-channel MIPI, dual-channel EDP.
- *Touch screen supporting the I2C interface.
- *Support for TF card or PCIE drives as an additional storage extension.
- *With multiple input and output extension, dual-channel UART serial port and seven-channel GPIO for input and output.
- *With Android 12 OS

The **Android TV Box with Rockchip RK3588 for AI Applications** is an advanced device

engineered to meet the needs of entertainment, AI processing, and commercial display technologies. Combining exceptional hardware with cutting-edge software, it provides unparalleled functionality and performance for diverse applications.

Powered by Rockchip RK3588

At its core, the TV box features the powerful **Rockchip RK3588 Octa-Core processor**, which combines four high-performance Cortex-A76 cores with four energy-efficient Cortex-A55 cores. This balanced architecture ensures seamless multitasking and reliable operation even under heavy workloads. The integrated **Mali-G610 MP4 GPU** delivers outstanding graphics performance, enabling smooth 8K Ultra HD playback and real-time AI processing.

Exceptional 8K Ultra HD Support

This TV box supports **8K Ultra HD resolution**, offering crystal-clear visuals, vibrant colors, and lifelike detail. Whether you're streaming high-definition movies or presenting dynamic digital content, it guarantees an immersive viewing experience. With HDR10+ compatibility, the device enhances contrast and brightness, making it a perfect choice for entertainment enthusiasts and professional displays.

AI-Powered Applications

The integration of advanced AI capabilities allows this device to perform tasks such as **facial recognition, object detection, and speech processing** with remarkable efficiency. It's ideal for smart home systems, retail analytics, and automation solutions, where AI processing plays a critical role in enhancing user experiences and operational effectiveness.

Android Platform for Versatility

Running on **Android OS**, the TV box offers a user-friendly interface and access to an extensive library of apps from the Google Play Store. This platform provides flexibility for customization and development, making it suitable for personal entertainment, education, and professional use cases.

High-Speed Connectivity and Expandability

The device is equipped with **dual-band WiFi, Bluetooth 5.0, Ethernet**, and multiple ports, including **HDMI, USB-C, and PCIe**, ensuring compatibility with various peripherals. This versatility makes it easy to connect external devices, expand storage, or integrate into complex systems. Its **WiFi 6 support** ensures ultra-fast and stable internet connectivity for lag-free streaming and downloads.

Energy-Efficient Design

Despite its powerful hardware, the Android TV Box is designed to minimize power consumption, making it an environmentally friendly choice for businesses and households. Its robust build and compact design further enhance its appeal, ensuring durability and ease of installation in any setup.

Applications Across Industries

The versatility of the Rockchip RK3588-powered TV box makes it suitable for a wide range of applications, including:

- **Home Entertainment:** Stream movies, play games, and access smart home features with ease.
- **Digital Signage:** Display vibrant advertising or informational content in retail and public spaces.
- **AI Development:** Use the device for machine learning, data analysis, or software prototyping.
- **Education and Training:** Deliver interactive learning experiences with high-resolution content and AI integration.

Ease of Use and Customization

The intuitive Android interface ensures that users of all skill levels can set up and operate the device effortlessly. Developers benefit from access to comprehensive SDKs and tools, enabling quick integration and customization for specific needs.

Why Choose This Android TV Box?

The [**Android TV Box with Rockchip RK3588**](#) combines exceptional performance, advanced AI processing, and state-of-the-art graphics capabilities in a single device. It's perfect for users seeking a reliable solution for streaming, digital displays, and intelligent applications.

Conclusion

For anyone looking to elevate their entertainment setup or implement AI-driven solutions, this TV box offers the perfect blend of power, versatility, and efficiency. With its cutting-edge features and robust design, it's a must-have for tech enthusiasts and professionals alike.