

Rockchip RK3588 Octa-Core 8K Ultra HD 4K TV SoC



Key Features

Rockchip RK3588 4K TV SoC	Rockchip RK3588 8核 ARM, 2核 Cortex-A76 @2.4GHz 2核 Cortex-A55@1.8GHz
CPU	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
GPU	2D 3D 4K
NPU	6 TOPS(int4/int8/int16/FP16/BF16/TF32 混合)
RAM	4GB LPDDR4X(2GB*2, 支持 32GB)
Cache	32G
WiFi	支持 WiFi 6E, 802.11 ax/ac/a/b/g/n
OS	支持 Linux 12
接口	支持 5.0

Connectivity & I/O

电源	C口 (12V/2A)
存储	1*TF 存储
扩展	1*PCIE 支持 NVMe SSD
接口	1* 千兆网口
RTC	CR1220 实时时钟
串口	2*UART 串口
网络	1* 10/100/1000Mbps RJ45 网口
WiFi	支持 WiFi 6E, 802.11 ax/ac/a/b/g/n
USB	1*USB3.0 接口 1*USB2.0 接口 1* USB2.0 接口 支持 4K 视频
LED	1*3色 LED 灯
LCD	1*4路 32路 MIPI 摄像头 1* 支持 c口 30W 快充 EDP 显示屏
显示	1*HD 接口, HD 2.1 支持 8K@60Hz 视频 1*DP 接口, DP1.4 支持 4K@60Hz 视频 1*MIPI-CSI(摄像头)
摄像头	1*HD 接口, 支持 HD 2.0 4K@60Hz 视频
接口	1* 接口 1*L/R, 支持 3.5mm 耳机
音频	1*SPK 7*GPIO, 3.3V 接口 4*I2C, 3V 接口, 支持 I2S
其他	1*ADC 2*PWM 1*5V 接口

Additional Information

Codec: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP9, VP8, MVC AV1@MMU

Codec & Resolution

H.264 AVC/MVC Main10 L6.0: 8K@30fps(7680*4320);
VP9 Profile0/2 L6.1: 8K@60fps(7680*4320);
H.265 HEVC/MVC Main10 L6.1: 8K@60fps(7680*4320);
AVS2 0/2 L10.2.6: 8K@60fps(7680*4320);
AV1 8/10bit L5.3: 4K@60fps(3840*2160);
MPEG-2 MP: 1080p@60fps(1920*1088);
MPEG-1 MP: 1080p@60fps(1920*1088);
VC-1 AP 3: 1080p@60fps(1920*1088);
VP8 2: 1080p@60fps(1920*1088)

Codec

Codec: MP3, AAC, FLAC, WAV
Codec: RTL8111HS
Speed: 10/100/1000Mbps
Codec: AP6275P

WiFi

WiFi: 2.4Gbps
2.4GHz 5GHz
MU-MIMO

Resolution

Resolution: LT 5.0
BLE
BT
HDMI TX: 8K@60fps(7680x4320)
EDP: 4K@60fps(3840x2160)
MIPI CSI: 4K@60fps(3840x2160)
DP(type-c): 4K@60fps(3840x2160)

Resolution

Resolution: HDMI RX: 4K@60fps(3840*2160)
MIPI DSI
PIP(picture-in-picture)

RTC

RTC: HYM8563
RTC: HYM8563

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.



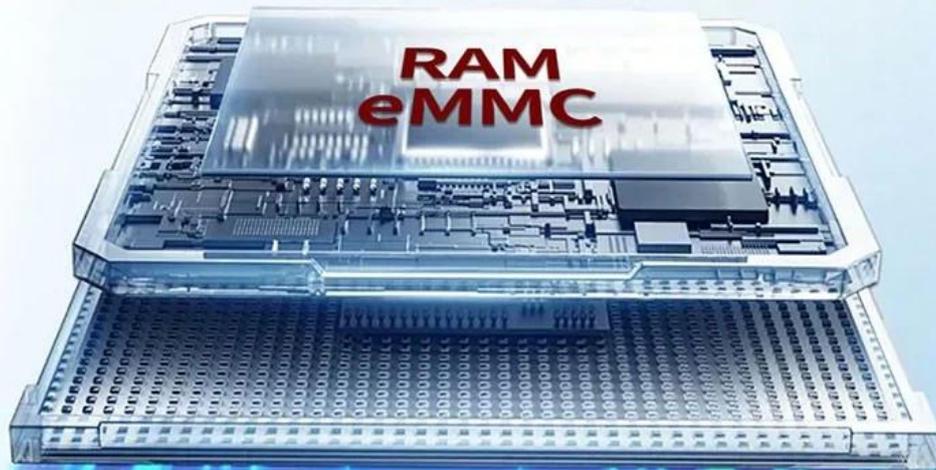
8K Video Encoding & Decoding

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.



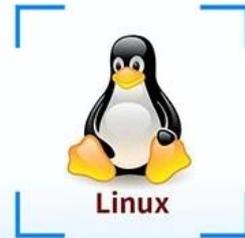
Powerful Network

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.



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*CPU □ RK3588 □□□□ ARM □□□□(Quad Core Cortex-A76 □ Quad Core Cortex-A55)□□ □□ □ □□□□ □□ 2.4GHz□□□. □□ □□ Mali-G610 GPU□ □□□□ □□□ NPU □□□ □□□ □□□□ 6TOP□ □□□□□.

*□□ □□: 8nm LP.

*□□□ LCD □□ □□□□□: 4□□ MIPI, □□ □□ EDP.

*I2C □□□□□□ □□□□ □□□□□.

*□□ □□□□ □□□□ TF □□ □□ PCIE □□□□□ □□□□□.

*□□ □□ □ □□ □□, □□ □□ UART □□ □□ □ □□ □ □□□ 7□□ GPIO□ □□□□□.

*□□□□□ 12 OS □□

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Rockchip RK3588 □□

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