HYY Technology Co.,Ltd

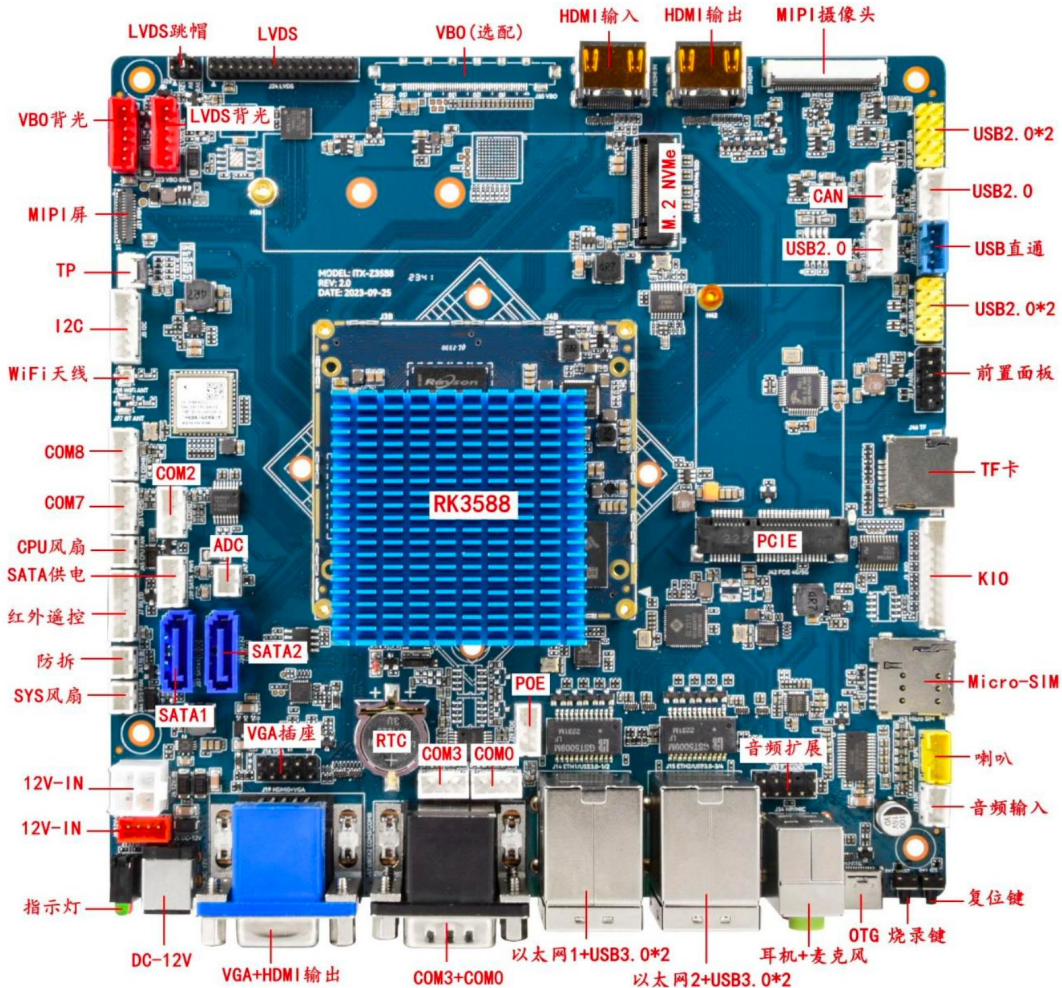# Product specification

3588-NAS

3588-NAS Product introduction

➢ 3588-NAS is an embedded 8K artificial intelligence board developed by HYY based on the core module SOM3588 designed by Rockchip, with the core of the new generation flagship chip RK3588 8-core (A76x4+A55x4) 64-bit processor of Rockchip; The main frequency is up to 2.4GHz, the integrated quad-core Mali-G610 GPU, and the AI accelerator NPU with built-in 6.0TOPs computing power. With strong performance and ultra-low power consumption, it can bring more optimized performance for various AI application scenarios.

➢ 3588-NAS supports multi-channel 8K video output and 4K video input 8K@60fps H.265/VP9 video decoding and 8K@30fps H.265/H.264 video coding, can be coded and decoded simultaneously, up to 32 channels 1080P@30fps Decoding and 16-way 1080P@30fps code;The powerful video encoding and decoding ability can make the picture 8K HD, and the picture quality is more exquisite.

➢ 3588-NAS supports Ubuntu 20.04, Debian11, Android 12 and other systems, with excellent real-time performance and high stability. In terms of hardware and software, it can add its own unique technology to ensure the stability of the product. It is widely used in ARM PC, edge computing, cloud server, intelligent NVR.   It is equipped with complete development materials and mature application solutions, which can reduce the threshold for customer research and development, Shorten product development cycle.
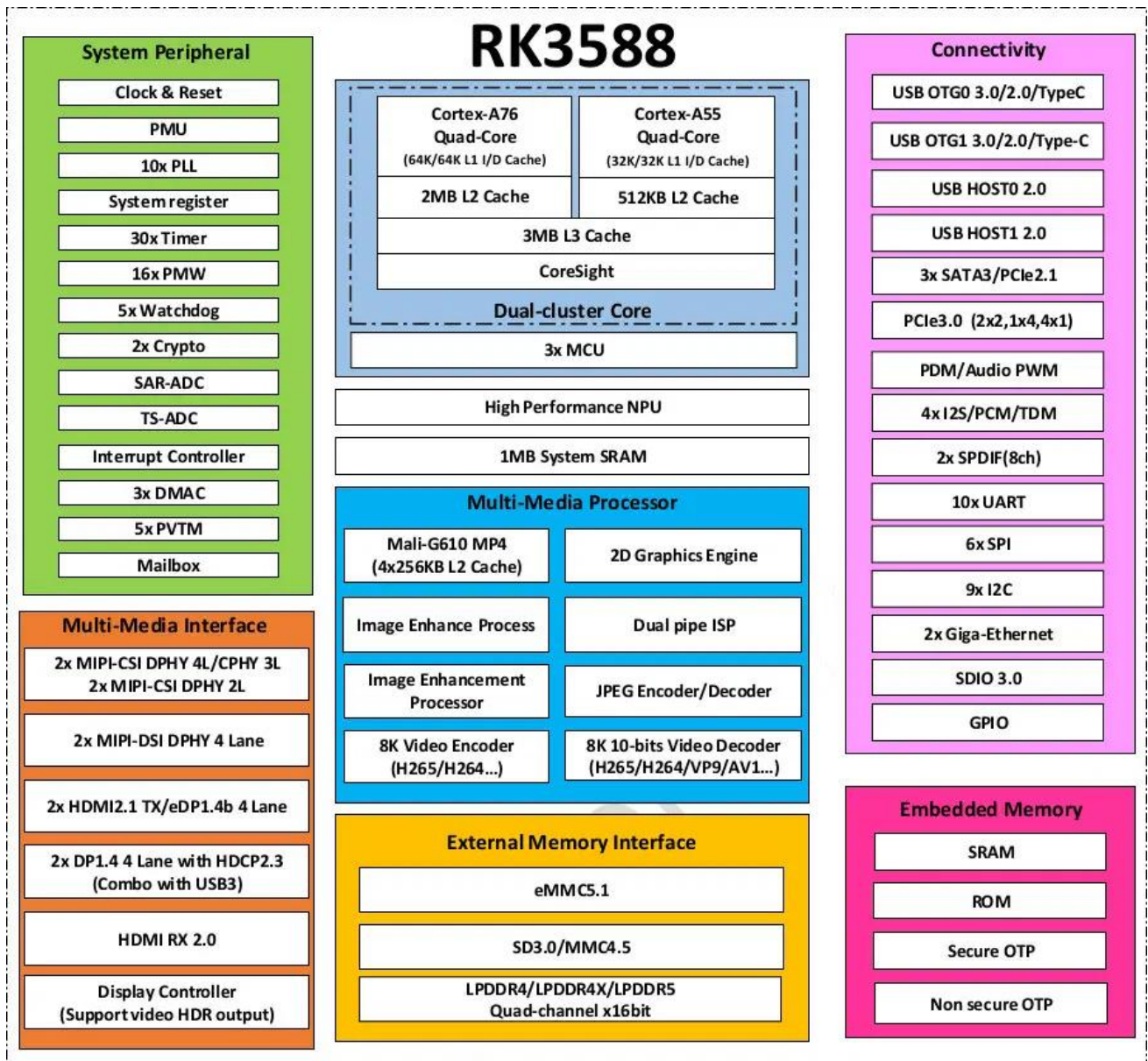
Specifications

Basic Specifications	
SOC	RockChip RK3588
CPU	4x Cortex-A76 and 4x Cortex-A55 2.4GHz
GPU	Arm Mali-G610 MP4 GPU
AI Accelerato	6 TOPS NPU 3.0 (Neural Processing Unit) Supports framework switching of TensorFlow/MxNet/PyTorch/Caffe/etc
ISP	Integrated 48MP ISP with HDR&DNR
VPU	Video decoding: 8K@60fps H.265/VP9/AVS2 8K@30fps H.264/AVC/MVC 4K@60fps AV1 1080P@60fps MPEG-2/-1/VC-1/VP8 Video encoding: 8K@30fps encoding,Supports H.265/H.264 * Achieves up to 32-channel 1080P@30fps decoding and 16-channel 1080p@30fps encoding
RAM	4GB/8GB/16GB/ 64bit LPDDR4/LPDDR4x/LPDDR5(Up to 32GB optional)
Storage	16GB/32GB/64GB/128GB eMMC
Storage Expansion	2x SATA3.0,can expand with 2pcs of SATA3.0 SSD/HDD
Hardware Specifications	
Wireless	2.4GHz/5GHz dual-band WiFi 6,Bluetooth 5.0,supports 5G/4G LTE expansion
Ethernet	2 x GbE(RJ45),one supports POE power supply
Display	Video output: 1 x HDMI2.1 8k 1 x LVDS 30-pin 1 x MIPI-DSI 31-pin 1 x VGA 1080p 1 x VBO 51-pin Video input: 1 x HDMI_IN(4K@60fps),Supports HDCP2.3 * Supports multi-channel 8K video output and 4K video input, up to four-screen output with different displays
Audio	1 x Speaker output 1 x HDMI Audio output 1 x Audio Jack output 1 x Audio Jack input
PCIE	1 x PCIe3.0(4Lane),can expand with standard PCIe3.0 devices

SATA	1 x M.2 PCIE NVME SSD,2 x SATA
USB	4 x USB3.0, 5 x USB2.0
Serial Port	2 x DB9 , 5 x TTL ,
Power	DC12V input(DC5.5x2.1mm)
	POE 48V power input (up to 60w)
Other Interface	1xRS485,1xRS232,1xI2C,1xHeating(12V),6xGPIO
OS/Software	
OS	Android 12.0
	Ubuntu Desktop,Ubuntu Server,Debian11x
	* Supports UEFI Boot
General	
Size	170mm x 170mm
Heat Dissipation	Heat sink installation hole pitch:45mm
Power Consumption	Idle:≈1.35W(12V/110mA)
	Typical:≈4.8W（12V/400mA）
	Max：≈12W (12V/1000mA)
Evironment	Operating Temperature:-20℃-60℃
	Storage Temperature:-20℃-70℃
	Storage Humidity:10%-80%

RK3588

System Peripheral

- Clock & Reset
- PMU
- 10x PLL
- System register
- 30x Timer
- 16x PMW
- 5x Watchdog
- 2x Crypto
- SAR-ADC
- TS-ADC
- Interrupt Controller
- 3x DMAC
- 5x PVTM
- Mailbox

Multi-Media Interface

- 2x MIPI-CSI DPHY 4L/CPHY 3L
  2x MIPI-CSI DPHY 2L
- 2x MIPI-DSI DPHY 4 Lane
- 2x HDMI2.1 TX/eDP1.4b 4 Lane
- 2x DP1.4 4 Lane with HDCP2.3
  (Combo with USB3)
- HDMI RX 2.0
- Display Controller
  (Support video HDR output)

Dual-cluster Core

Cortex-A76 Quad-Core (64K/64K L1 I/D Cache)	Cortex-A55 Quad-Core (32K/32K L1 I/D Cache)
2MB L2 Cache	512KB L2 Cache
3MB L3 Cache	
CoreSight	

- 3x MCU
- High Performance NPU
- 1MB System SRAM

Multi-Media Processor

Mali-G610 MP4 (4x256KB L2 Cache)	2D Graphics Engine
Image Enhance Process	Dual pipe ISP
Image Enhancement Processor	JPEG Encoder/Decoder
8K Video Encoder (H265/H264...)	8K 10-bits Video Decoder (H265/H264/VP9/AV1...)

External Memory Interface

- eMMC5.1
- SD3.0/MMC4.5
- LPDDR4/LPDDR4X/LPDDR5 Quad-channel x16bit

Connectivity

- USB OTG0 3.0/2.0/TypeC
- USB OTG1 3.0/2.0/Type-C
- USB HOST0 2.0
- USB HOST1 2.0
- 3x SATA3/PCIe2.1
- PCIe3.0 (2x2,1x4,4x1)
- PDM/Audio PWM
- 4x I2S/PCM/TDM
- 2x SPDIF(8ch)
- 10x UART
- 6x SPI
- 9x I2C
- 2x Giga-Ethernet
- SDIO 3.0
- GPIO

Embedded Memory

- SRAM
- ROM
- Secure OTP
- Non secure OTP

More help

If you have any questions about our products or services, you can contact us through the following

ways：

Website: http://www.we-signage.com

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