

Rockchip

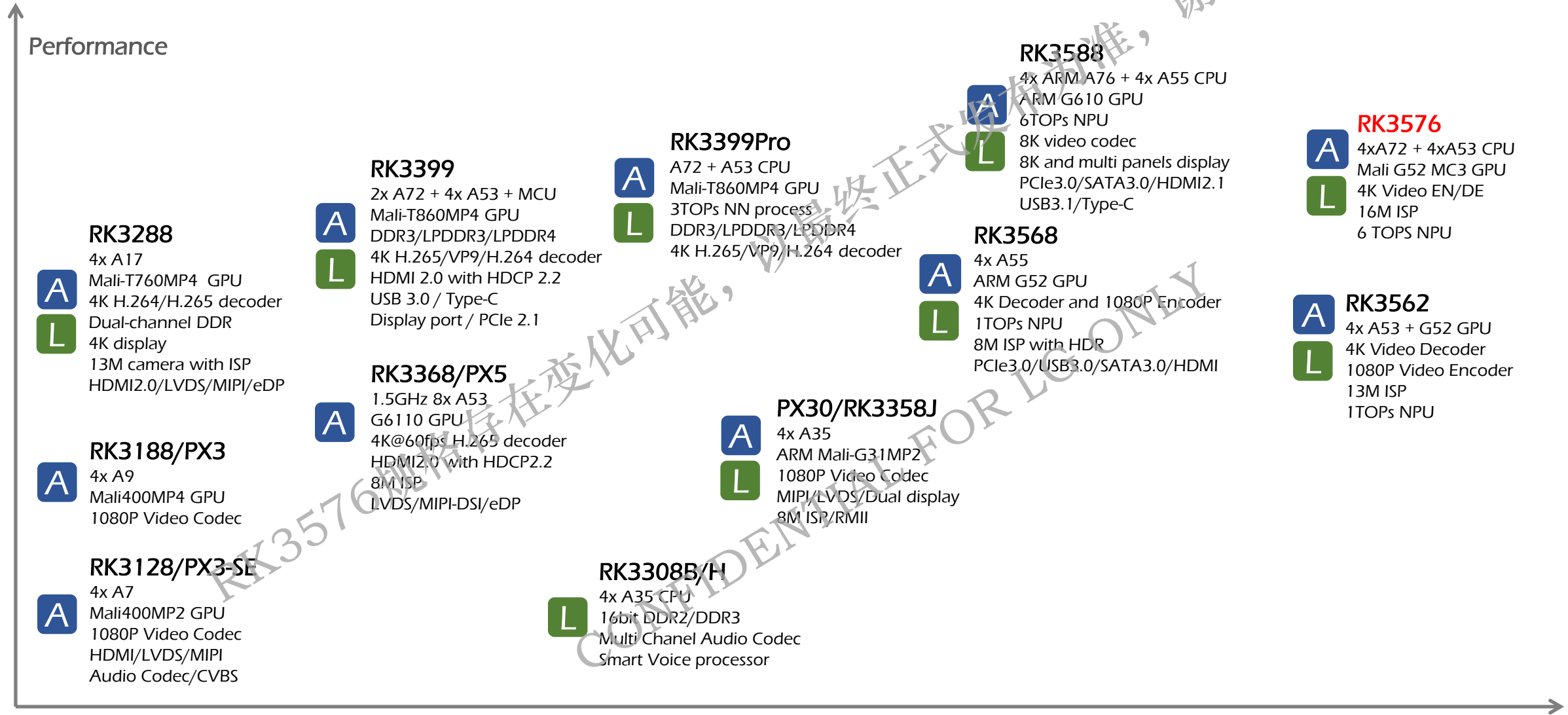
RK3576

RK3576规格存在变化可能，以最终正式发布为准，谢谢！

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Rockchip SoC Roadmap for AIOT

A Android
 L Linux



RK3576 Application Processor

Core

- Quad A72 + Quad A53 CPU
- Cortex M0 (400MHz) MCU for user
- ARM Mali G52 MC3 GPU
- 6 TOPS NPU with INT4/8/16/FP16/BF16/TF32

Memory

- 32-bit LPDDR4/LPDDR4x/LPDDR5
- UFS 2.1 w/ HS-G3 (12Gbps)
- FSPI (Octa), eMMC 5.1, SDMMC 3.0
- Local Bus

Multimedia

- Up to 4K@120fps H.265/H.264/AV1/VP9/AVS2 decoders
- Dual 4K@30fps H.264/H.265 encoders
- 4K@30fps MJPG decoder and encoder

Display

- Supports [4K@120+2.5K@60+FHD@60](#)
- HDMI 2.1 (@4K120)/eDP 1.3 (@4K60) Combo TX
- MIPI DSI-2 TX @ 4K60
- DisplayPort 1.4 TX @ 4K120
- EPD (Electronic Paper Display) TX @ 2560x1920
- Parallel interface (RGB888) TX @ 1080P60

Video Input

- 16M Pixel ISP with HDR (up to 140dB)

- Dual MIPI CSI-2 with D-PHY (4x1, 2x2)
- One MIPI CSI-2 with C/D-PHY (4x1)
- One DVP 8/10/12/16-bit

Picture Quality

- Deinterlace, De-noise, Zoom Manage Engine, Sharpness
- Edge Smoothing, DCI-HIST, 3D-LUT, ACM, HDR

High speed interface

- One USB 3.2 Gen1 supports type-C AltMode with DP
- One PCIe 2.1/SATA 3.1/USB 3.2 Gen1 combo port
- One PCIe 2.1/SATA 3.1 combo port
- Dual RGMII interfaces

Security

- ARM TrustZone security extension
- Secure boot / key ladder / OTP
- Cipher engine (RSA, ECC, HASH, DES, AES, SHA, SM)

Other

- CAN FD, I²C, SPI, UART, GPIO
- I2S/TDM/PCM (2x 4T4R, 3x 2T2R), 2x 8CH PDM, 2x S/PDIF
- ASRC (2x 2CH + 2x 4CH)

Package

- FCCSP, 16x17mm, 0.65pitch (TBD)

Availability

- ES in 2023Q4

RK3576

High-end
Octa-core

6 TOPS NPU

4K Video Codec

Super ISP

Rich high-speed
interface

Multiple display

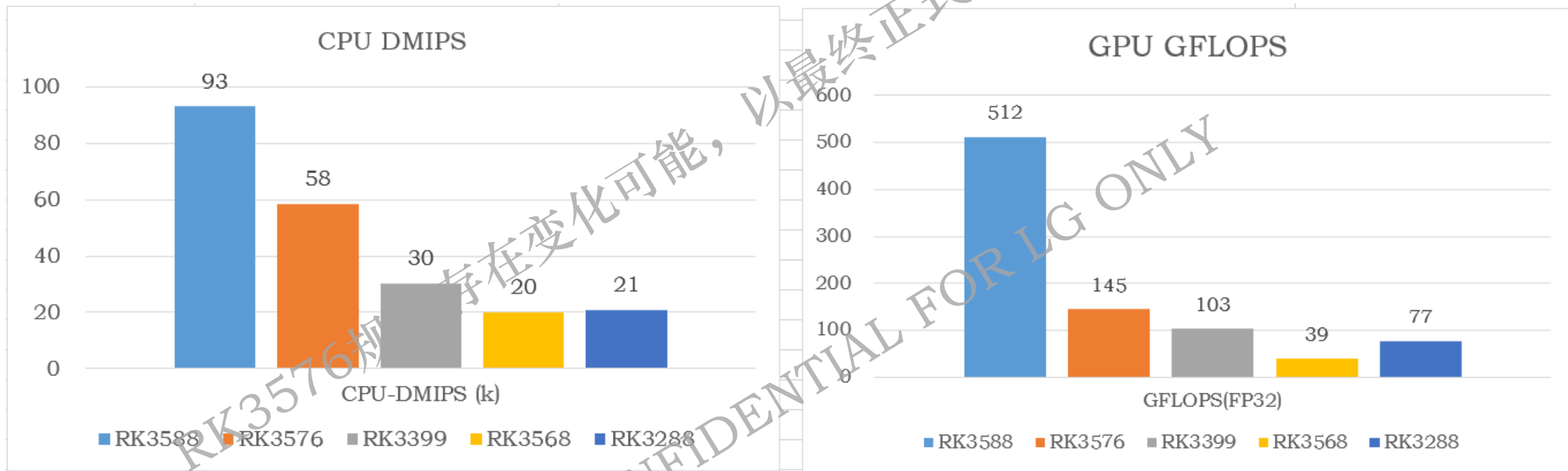
Application

- Tablet
- AIOT
- ARM PC
- ENK
- AUTO

RK3576 comparison

Item	RK3588	RK3576	RK3399	RK3568	RK3288
CPU	Quad A76 @ 2.2GHz + Quad A55 @ 1.8GHz	Quad A72 @ 2.2GHz + Quad A53 @ 1.8GHz	Dual A72 @ 1.8GHz + Quad A53 @ 1.4GHz	Quad A55 @ 1.8GHz	Quad A17 @ 1.6GHz
CPU-DMIPS	93k	58k	30k	20k	21k
GPU	G610 MC4 @ 1GHz	G52 MC3 @ 1GHz	T864 @ 800MHz	G52 MC1 @ 800MHz	T764 @ 600MHz
GFLOPS(FP32)	512	145	103	39	77
NPU(TOPS)	6.0	6.0	0.0	1.0	0.0
DRAM	LP4/LP4X-4266/LP5-5500 Data-bus: 64-bit @ 32GB	LP4/LP4X-4266/LP5-4800 Data-bus: 32-bit @ 16GB	DDR3/LP3-1866/LP4-1866 Data-bus: 64-bit @ 4GB	DDR3/LP3-2133 DDR4/LP4/LP4X-3200 Data-bus: 32-bit @ 8GB	DDR3-1333/LP2/LP3-1066 Data-bus: 64-bit @ 8GB
Flash	eMMC 5.1 - HS400	eMMC 5.1 - HS400 /UFS 2.1 G3	eMMC 5.1 - HS400	eMMC 5.1 - HS200	eMMC 4.5
Video	D: 8K60-H264/H265/VP9/AVS2 D: 4K60-AV1 E: 8K30-H264/H265	D: 4K120-H264/H265/VP9 D: 4K120-AV1/AVS2 E: 4K30-H264/H265	D: 4K60-H264/H265/VP9 E: 2K30-H264	D: 4K60-H264/H265/VP9 E: 2K60-H264/H265	D: 4K60-H264 E: 2K30-H264
Display	Max 8K P60 4Kx3+2Kx1 DSIx2+eDPx2+DPx2 EPD/RGB888	Max 4K P60 2.5K+2.5K+2K or 4K+2K HDMI/EDP+DP+DSI EPD/RGB888	Max 4K P60 4K+2.5K HDMI+EDP+DP+DSI EDP /RGB888	Max 4K P60 4K+2K+1080P DSI/LVDSx2+EDP+HDMI EPD/RGB888	Max 4K P60 4K+2.5K HDMI+EDP+LVDSx2+DSIx2 EDP /RGB888
Camera	ISP: 16MP x2 MIPI: 4Lane x4	ISP: 16MP x1 MIPI: 4Lane x2 + DVP	ISP: 14MP x2 MIPI: 4Lane x2 + DVP	ISP: 8MP x1 MIPI: 4Lane x2 + DVP	ISP: 14MP x1 MIPI: 4Lane x2 + DVP
Connectivity	PCIex5/USB3/SATA/TypeCx2 GMACx2	PCIex2/USB31/SATAx2/TypeCx1 GMACx2/CAN x2/I3Cx2	PCIex1/USB3/TypeCx2	PCIex3/USB3/SATA/GMACx2	USB2x3/GMACx1
Package	FCBGA1088L, 23x23mm ball pitch = 0.7mm		FCBGA828, 21x21mm ball pitch = 0.65mm	FCCSP636L, 19x19mm ball pitch = 0.65mm	FCBGA636, 19x19mm ball pitch = 0.65mm

RK3576 features (1)





更强的计算能力

- 四核A72+四核A53, 频率高至2.2GHz, 计算性能强劲
- NEON协处理器可用于SIMD类计算
- 145 GFLOPS的GPU可以支持有效的异构计算、鱼眼矫正
- 支持6 TOPS NPU, 更多算子, 双核架构支持并行计算

更强的图像处理能力

- 16MP ISP, 支持低光降噪
- 支持RGB-IR sensor
- 支持最高120dB HDR
- AI-ISP提升低噪声度的图像效果

更低的功耗, 更长的续航

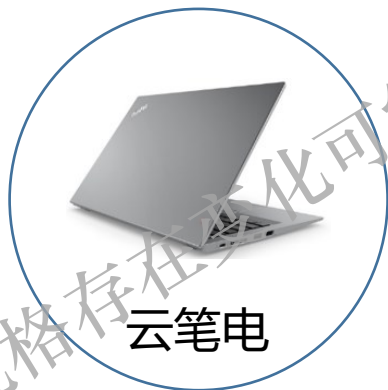
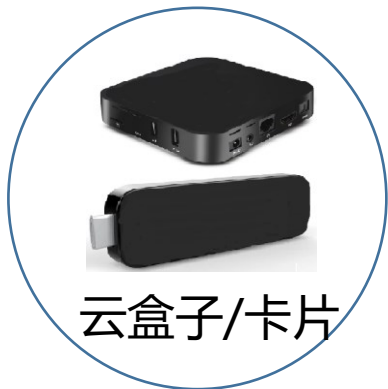
- 先进制程, 保证高性能的同时带来更低功耗
- 低功耗待机模式 (3.8V @ 0.5mA 左右)

更高的扩展能力

- 支持PCIe接口WiFi, 图传更快速

RK3506

RK3326



RK3568

RK3288

RK3538

RK3188

RK3528

RK3566

- **更强的显示能力**
 - 支持H265 YUV422/YUV444解码能力，满足无损类产品应用
 - 支持4K显示、4K UI，HDMI/DP/MIPI等多种显示接口，最多支持三屏显示
 - RK PQ，多种增强画质算法，给用户带来更好的阅读体验
- **更高的产品性能**
 - 8核CPU，且有A72大核心，高频率等带来高计算能力
 - 支持UFS v2.1，超高数据读取速度 (12Gbps)
 - LP4/4X-4266和LP5-4800，高速率，更大带宽
 - 支持PCIe WiFi，更快的网络存取速度
 - 支持TypeC、SATA、USB3等高速接口
- **更低的功耗，更长的续航**
 - 先进制程，保证高性能的同时带来更低功耗
 - 低功耗待机模式 (3.8V @ 0.5mA 左右)，有利于笔电类产品
- **丰富的方案经验**
 - 近10年云终端方案经验，与主流设备厂商都有合作
 - 从入门到高端，方案规格齐全，满足不同产品需求
 - 成熟的Linux、Android SDK

Thank You!

Contact Us

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The Rockchip logo features the word "Rockchip" in a bold, blue, sans-serif font. A small yellow and orange gradient circle is positioned above the letter "i".

瑞芯微电子

SH603893

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