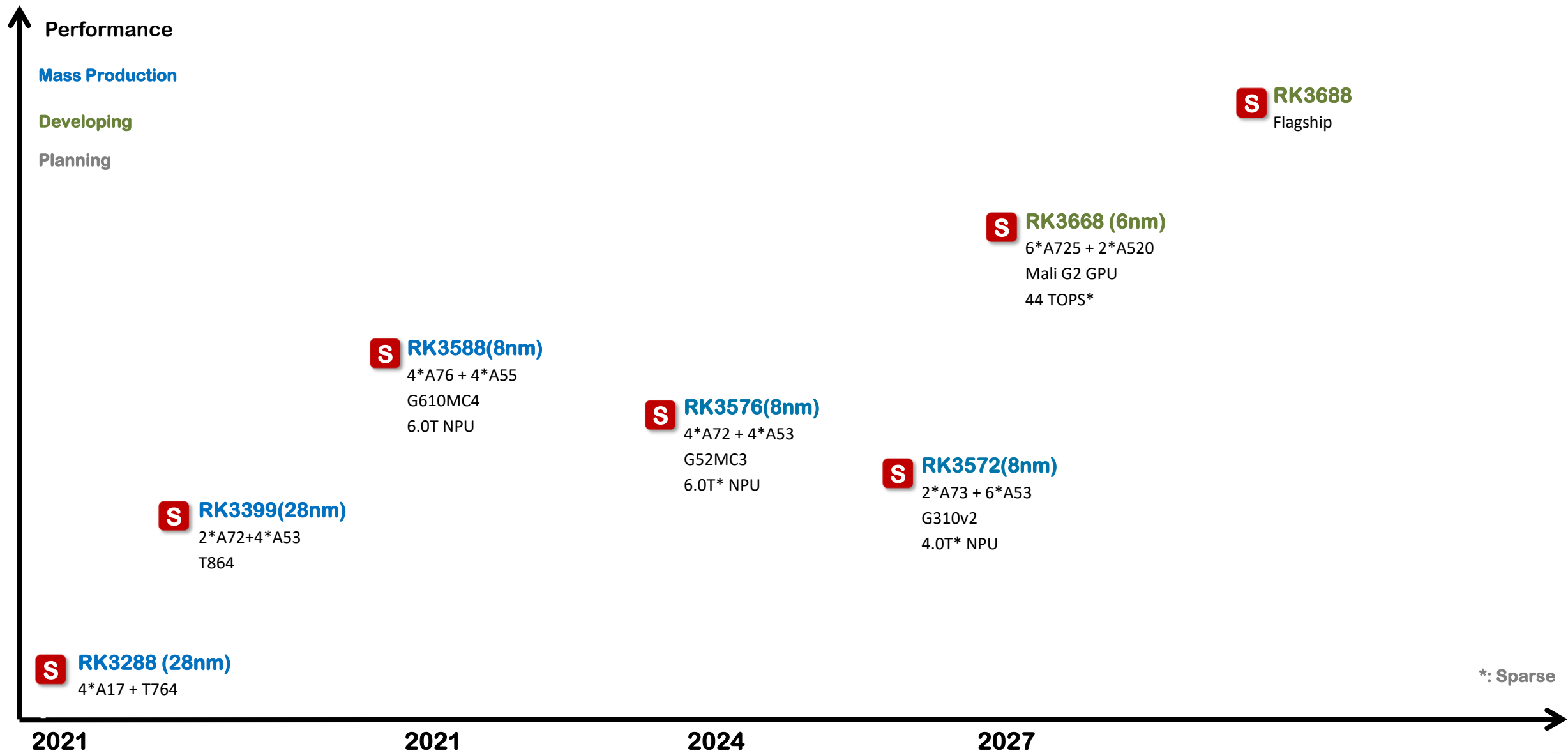




RK3668 Application

Confidential





RK3668 specification

● Core

- 6*A725 + 2*A520
- ARM Mali G2Pro MC4 (1.23TFLOPS, virtualization)
- 44 TOPS Sparse NPU

● Memory

- 64-bit LPDDR5x-8533, 96-bit LPDDR6-10667
 - ✓ Max LP6 bandwidth: 4-channel, 128GB*0.88=112GB*0.8=90GB
- eMMC 5.1 w/ HS400, SDIO 3.0 w/ HS200, NVMe, SFC
- UFS 4.0, 2-lane, Gear5B

● Multimedia

- H.265/H.264/VP9/AV1/AVS2 etc., up to 8K@120
- 8K@60 video encoders with H.264/H.265, 10-bit/YUV444

● Display

- Multiple display up to 2*8K60 or 6*4K60
- Two HDMI2.1/eDP V1.4/DP Combo interface w/ DSC
- One MIPI-DSI TX, 4 lanes w/ DSC
- One TypeC with USB 3.2 gen 2x1 and DP

● Video Input

- Dual 24M + One 16M ISP with HDR&3DNR, 140dB HDR, LFM, 4-cell, FEC
- 4*MIPI CSI-2 (1*4-lane/3-trio or 2*2-lane/2-trio, C/D-PHY) and DVP interface
- AVSP (Any View Stitching Processor)
- FEC (Fish Eye Correction)
- VDPP (Picture Quality)

- VPSS (Video Sub-system)

- DFS (Depth From Stereo)

● High speed interface

- One USB 3.2-10G (DRD) with type-C & DP
- One USB 2.0 OTG & dual USB 2.0 host
- PCIe 5.0 (4 controllers: 1*4-lane+2*2-lane, 2*1-lane)
- PCIe 3.0 (5 controllers, 1*4-lane, 2*2-lane, 2*1-lane)
- Controller: Quad SATA 3.1, Dual USB3.0 DRD, Dual XGMII
- Triple 10-G PHY for PCIe 3.0/SATA/USB3/DP/XGMII combo
- Dual RGMII interface

● Audio

- SAI interface (20-lane), 20-ch ASRC, 2*8-ch PDM

● Safety domain

- Dual M52 (w/ DCLS), Error Detection, BIST, Secure and Fast boot

● Other

- ARM TrustZone (Secure boot/JTAG, key ladder, cipher engine, HDCP)
- I2C, I3C, SPI, UART, GPIO, 6*CAN, DSMC

● Package

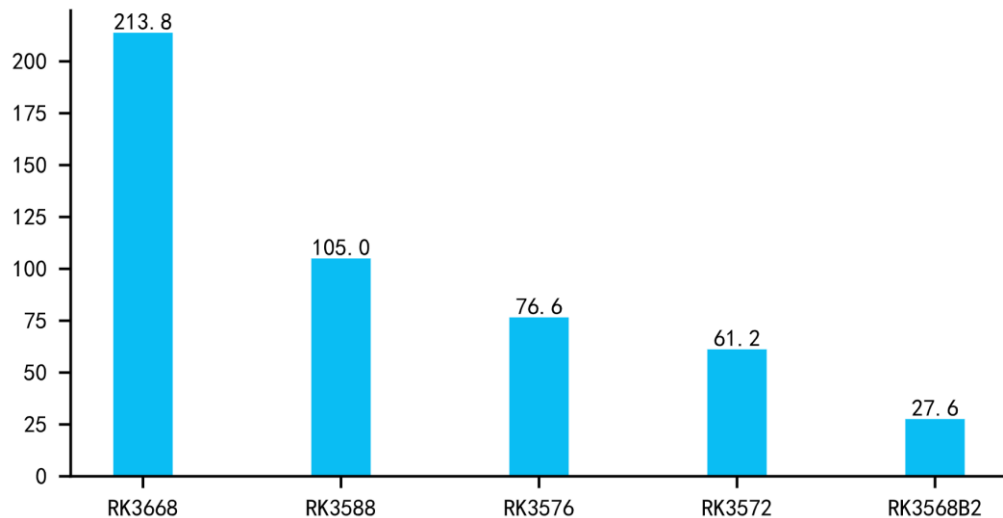
- RK3668: TBD, 0.65 Pitch

● Availability

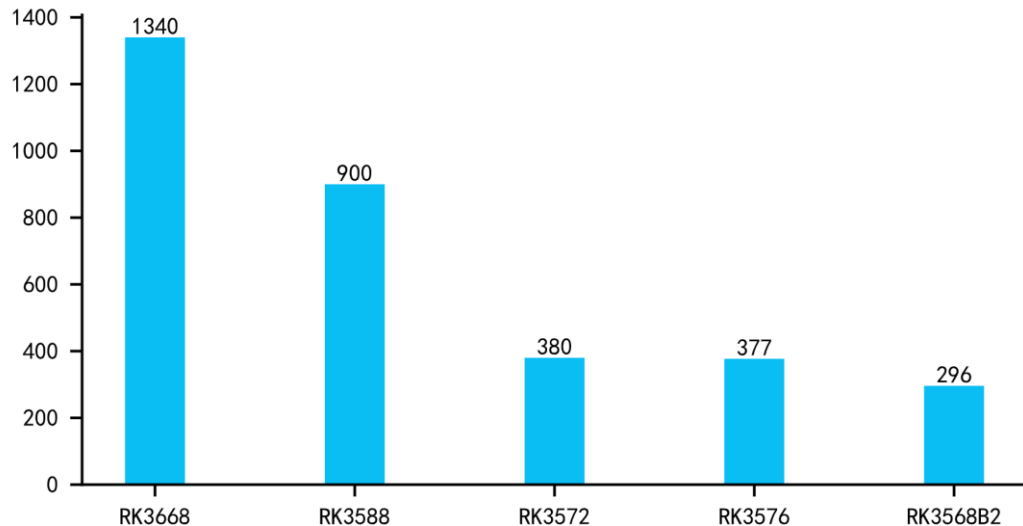
- ES in 2027Q1

*: Sparse

CPU kDMIPS



CPU GB6 Single



ARMv9.2

Improved Security, 系统更安全(RME、MTE、PAC、BTI)

SVE2, 是SVE指令集的超集和扩充, 可变矢量长度编程

Core

6x A725 (最高预计2.5G), 6个大核, 性能更出众

2x A520(最高预计2.2G), 保障低功耗(性能与A73相当)

只支持64位, 无法直接运行 32 位 APK 或 32 位 ELF 程序

Cache

4MB L3 cache

4MB SLC(System Level Cache) – 芯片内模块共享, 新架构才支持

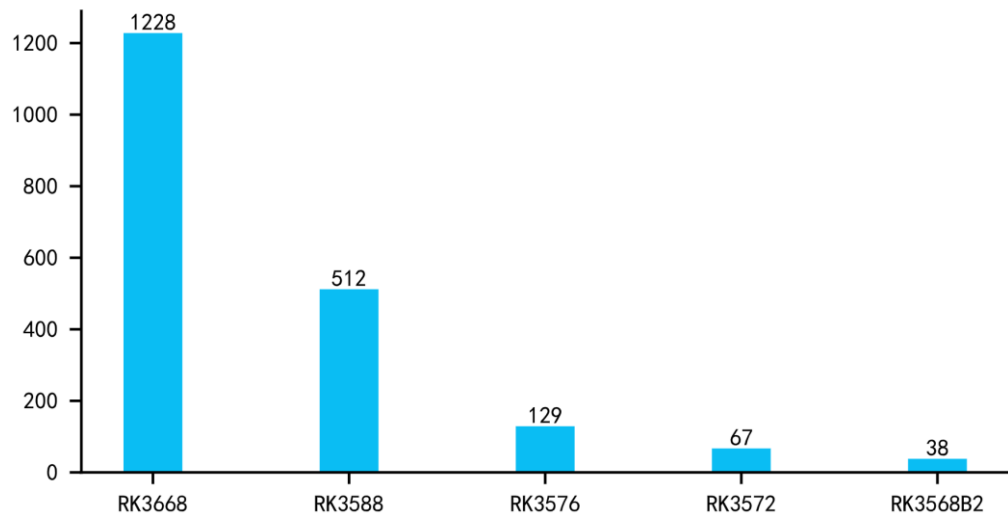
4MB SRAM – 相比其它芯片, 总线带宽大幅增加

Performance

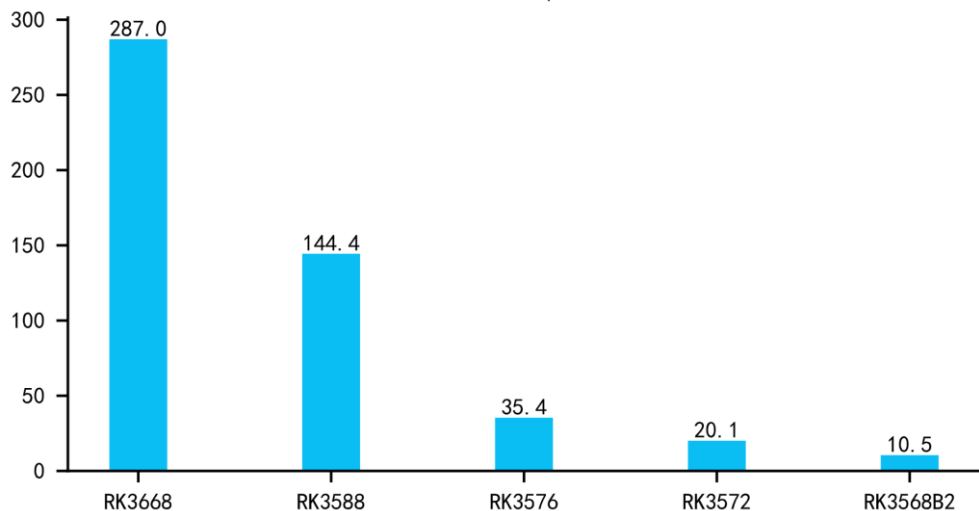
DMIPS数值是多核线性相加, 数值翻倍(A725/A76=1.51)

Geekbench6是(最强)单核性能(A725/A76=1.40)

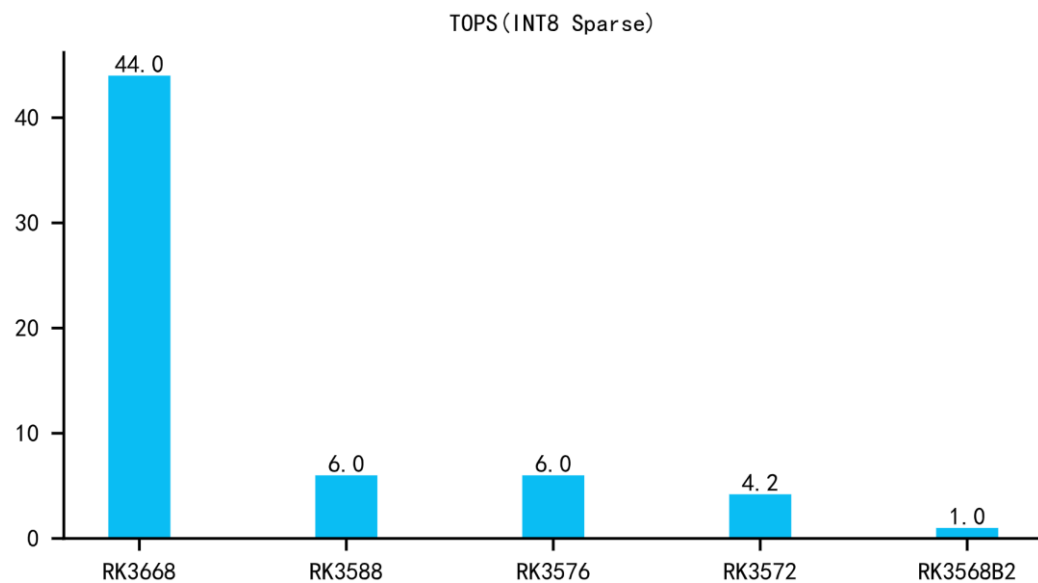
FP32 (GFLOPS)



MH30 (fps)



ARM CSS	CSS(Compute SubSystem) for Mobile，新的命名规则
	截止目前共发布2代CSS (2026年9月，天玑9500)
	ARM Avalon 第5代GPU架构
Core	Mali G2Pro，Quad-core，即第2代计算平台的GPU型号
	最高频率预计1.1GHz
Cache	L2 cache
	4MB SLC(System Level Cache) – 节省带宽和缩小延时
Virtualization	硬件支持，运行虚拟化GPU的性能损耗小
	最多支持16个虚拟机(VMs)
Performance	FP32是由GPU的硬件配置决定，如NPU的MAC数一样
	MH30是GFXBench的测试项，OpenGL ES 3.0，1080P离屏



Core

RK自有IP，不断更新，快速迭代

单核8.8TOPS*

有利于CNN+Transformer同时运行

支持Caffe, Tflite, Pytorch, Onnx NN, Android NN, etc.

Features

INT2/INT3/INT4/INT6/INT8/INT16

FP4/FP6/FP8/FP16等

W1.58A8, W2A8, W2A16, W4A8, W4A16

3D算子: GRID-sample

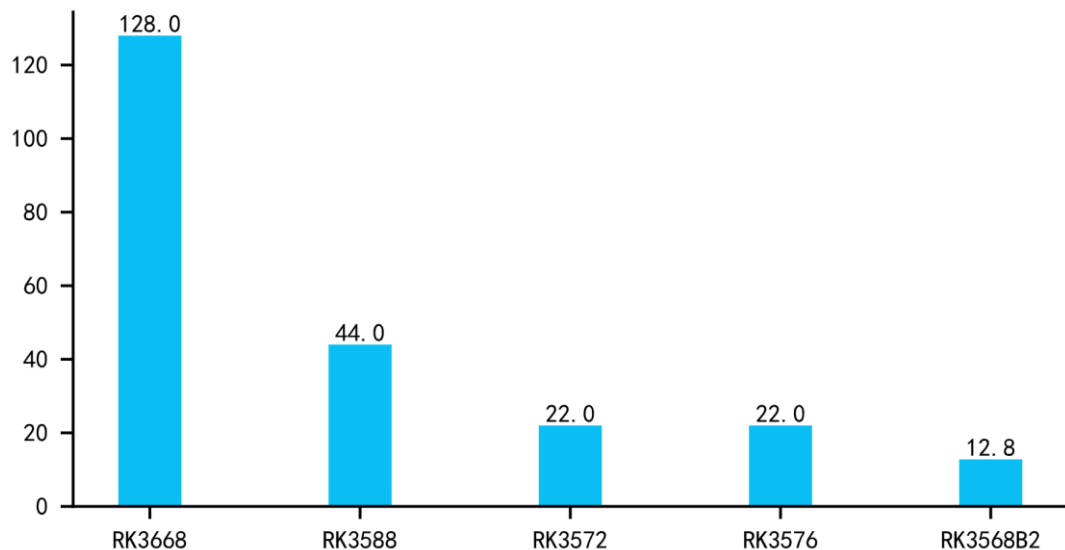
增强MoE支持能力

Speculative Sampling, 投机采样

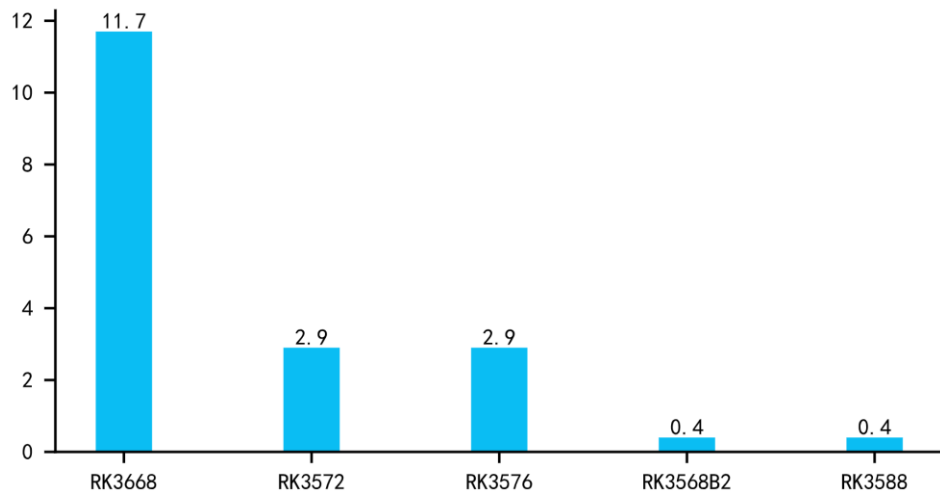


RK3668 Memory

DRAM Max Bandwidth (GB/s)



Flash Max Bandwidth (GB/s)



LPDDR5/5x-8533, 4*16-bit, 68GB/s

DRAM LPDDR6-10667, 4*24-bit, 128GB/s

Up to total 64GB addressing

UFS 4.0, 2-lane, Gear5B(11.7GB/s)

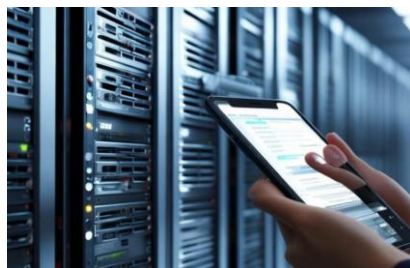
eMMC v5.1

SDMMC

SPI



RK3668 Applications



安卓服务器



交互大屏



NVR



CVR



显控



机器人



NAS



PLC



座舱



BOXPC

Thank You!

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