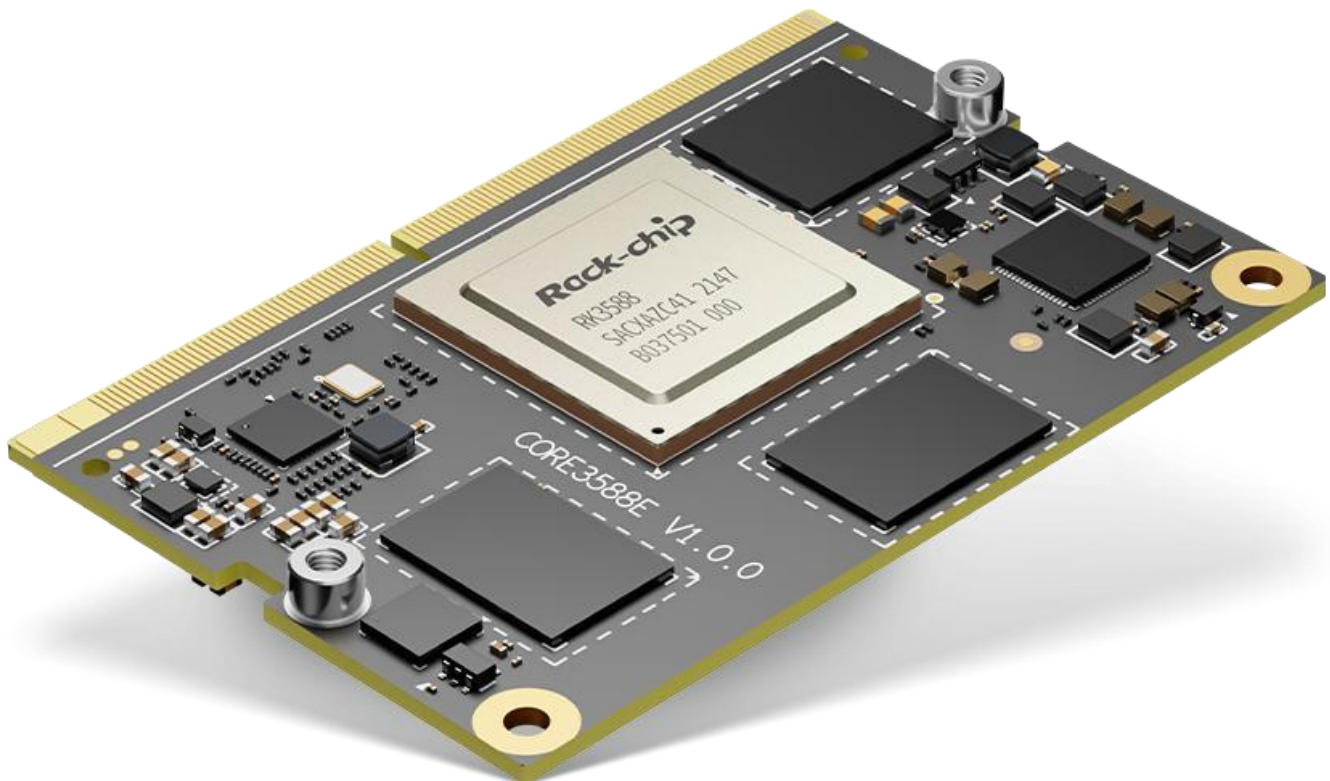


Compact and High-performance SoM for AIoT

Powered by RK3588's cutting-edge quad-core CPU architecture, Mixtile Core 3588E packs a punch in a compact system-on-module (SoM). With blazing fast 6 TOPS AI performance enabled by the Cortex-A76 and Cortex-A55 cores, Core 3588E readily handles demanding workloads like high-res video encoding/decoding, graphics processing, and running AI apps.

Core 3588E can decode 8K video at up to 60fps in H.264, H.265, and VP9 formats, and can encode 8K video at up to 30fps in H.264 and H.265 formats. Its dedicated imaging engines provide premium visual experience.

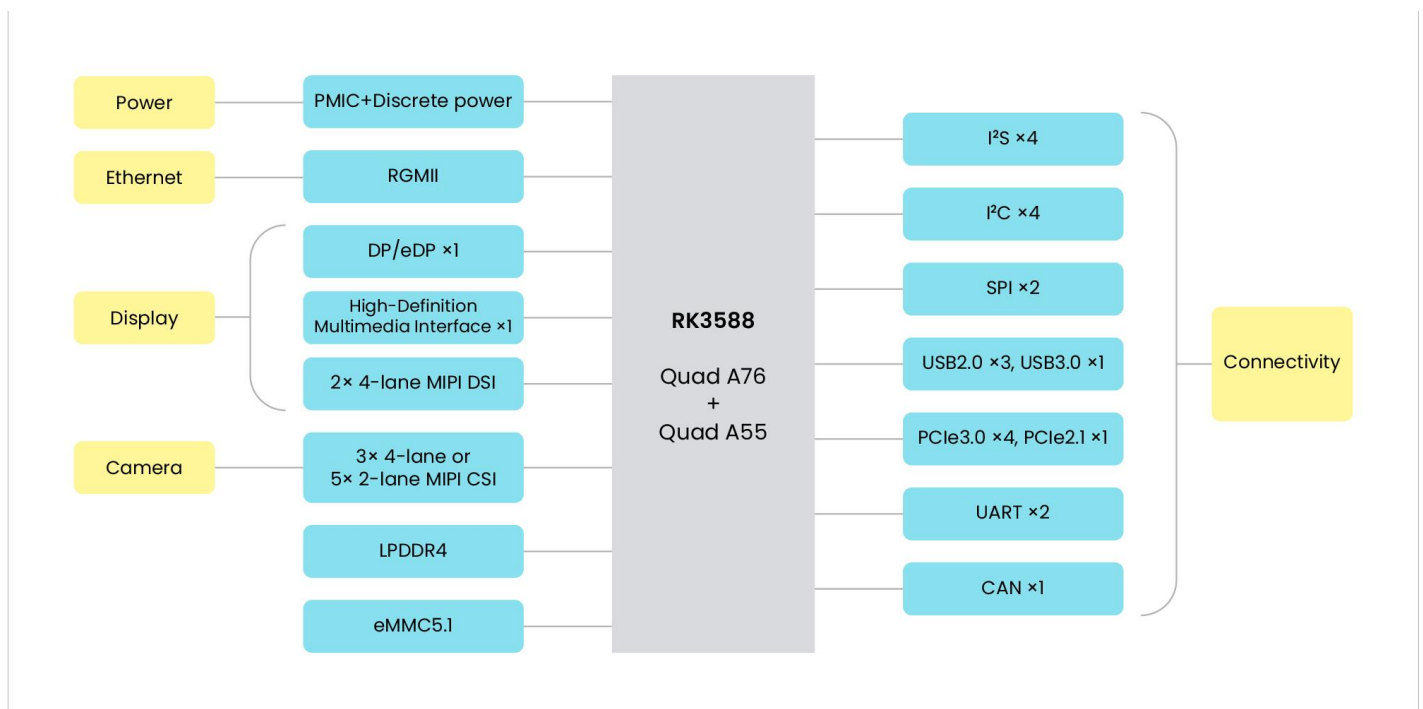
Core 3588E sets a new bar for I/O connectivity with PCIe 3.0 4-lane and PCIe 2.1 1-lane interfaces. This high-bandwidth connection allows you to build leading-edge designs for ARM-based PCs, Edge Computing devices, personal mobile internet devices, and more.



Highlights

- Excellent video processing capabilities
 - 8Kp60 video decoding (H.264/H.265/VP9)
 - 8Kp30 video encoding (H.264/H.265)
 - JPEG encoding and decoding
- Robust image processing capabilities
 - High Dynamic Range (HDR)
 - 3A
 - LSC
 - 3DNR, 2DNR
 - Sharpening
 - Dehaze
 - Fisheye correction
 - Gamma correction
 - Image preprocessor and postprocessor
- Strong AI performance
 - 6 TOPS
 - INT4/INT8/INT16/FP16
 - TensorFlow/MXNet/PyTorch/Caffe
- High-speed interfaces: PCIe 3.0 x4 lanes + PCIe 2.1 x1 lane

Block diagram



Technical specifications

CPU	Quad-core Cortex-A76 (2.4 GHz) + Quad-core Cortex-A55, Neon and FPU
GPU	Arm Mali-G610 MP4 with support for OpenGL ES3.2, OpenCL 2.2, Vulkan1.2
NPU	RK NN, 6 TOPS NPU with support for TensorFlow, Caffe, TFLite, PyTorch, ONNX NN, Android NN
Memory	4 GB, 8 GB, 16 GB, or 32 GB 64-bit LPDDR4
Storage	32 GB, 64 GB, or 128 GB eMMC 5.1 flash storage
Supported OS	Debian 11, Android 11, Ubuntu 22.04, and Armbian 23.07
Supply power	5 V DC
Video codec	8Kp60 video decoding (H.264/H.265/VP9) 8Kp30 video encoding (H.264/H.265)
Display	1x High-Definition Multimedia Interface interface + 1x DP/eDP combo interface, up to 7680 x 4320@60 Hz for High-Definition Multimedia Interface and DP, and 3840 x 2160@60 Hz for eDP
Camera	3x 4-lane or 5x 2-lane MIPI CSI interfaces @ 2.5 Gbps/lane
ISP	48M ISP, HDR
Network	10/100/1000 BASE-T
USB	1x USB 3.0 (Gen1), 3x USB 2.0
PCIe	PCIe 3.0 x4 + PCIe 2.1 x1
Others	<ul style="list-style-type: none">• UART DEBUG x1, UART+flow control x2• SPI x2 • I²C x4• CAN x1 • I²S x4• SD 4.0, SDHOST 4.0, and SDIO 3.0• PWM x3, GPIO x15
Connector	260-pin SO-DIMM edge connector, compatible with Jetson TX2 NX
OTP	Size: 8K
Optional accessory	<u>Heatsink fan</u>
Dimensions	69.6 mm x 45 mm
Temperature	<ul style="list-style-type: none">• Operating: 0°C to 80°C• Storage: -20°C to 85°C
Relative humidity	<ul style="list-style-type: none">• Operating: 10% to 90%• Storage: 5% to 95%