AI Boards	ROC-RK3588S-PC	ITX-3588J 8K AI
SoC	**RockChip RK3588S**	**RockChip RK3588**
CPU	8-core 64-bit (4×Cortex-A76+4×Cortex-A55), 8nm lithography process frequency up to 2.4GHz	8-core 64-bit (4×Cortex-A76+4×Cortex-A55) , 8nm lithography process, frequency up to 2.4GHz
GPU	-ARM Mali-G610 MP4 quad-core GPU -Support OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS	-ARM Mali-G610 MP4 quad-core GPU -Supports OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS
NPU	-NPU computing power up to 6 TOPS -Support INT4/INT8/INT16 mixed operation, -Support framework switching of TensorFlow / MXNet / PyTorch / Caffe	-NPU computing power is up to 6 TOPS, Supports INT4/INT8/INT16 mixed operation, -Supports framework switching of TensorFlow / MXNet / PyTorch / Caffe / etc.
Storage	16GB/32GB/64GB/128GB eMMC	16GB/32GB/64GB/128GB eMMC
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, support H.265 / H.264 *Achieve up to 32-channel 1080P@30fps decoding and 16-channel 1080P@30fps encoding	**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)	4GB/8GB/16GB 64bit LPDDR4/LPDDR4x/LPDDR5 (Up to 32GB optional)
Camera	2 × 2 lane MIPI-CSI input or 1×4 lane MIPI-CSI -Integrated 48MP ISP with HDR&3DNR	The integrated 48MP ISP with HDR&3DNR supports dual MIPI-CSI camera input.
OS	-Android：Android 12.0 -Linux：Ubuntu Desktop, Ubuntu Server, Debian11, Buildroot, RTLinux -Kylin Linux, UOS, etc. *Supports UEFI Boot	-Android: Android 12.0 -Linux: Ubuntu Desktop, Ubuntu Server, Debian11, Buildroot, RTLinux, Kylin Linux, UOS * Supports UEFI Boot
Wireless	-Support 2.4GHz, 5GHz dual-band WiFi, 802.11 a/b/g/n/ac protocol -Support Bluetooth 4.2 (BLE)	-2.4GHz/5GHz dual-band WiFi6, -Bluetooth 5.0, supports 5G/4G LTE expansion
Power Consumption	-Idle: ≈0.42W (12V/35mA) -Typical: ≈2.25W (12V/190mA) -Max: ≈12W (12V/1000mA)	Idle: ≈1.35W (12V/110mA) Typical: ≈4.8W (12V/400mA) Max: ≈20W (12V/1700mA
Price	-4GB+32GB, $219 / 1279 RMB - 8G+64GB, $299 / 1779 RMB -16G+128GB $ 409 / 2479 RMB (Taobao Price)	-4GB+32GB: 2779 RMB on taobao - 6GB + 64GB: 3279 RMB - 16GB + 128GB: 3979 RMB). They have 4G & 5G module and antenna

AI Boards	ROC-RK3588S-PC	ITX-3588J 8K AI	TB-RK3399ProD
SoC	**RockChip RK3588S**	**RockChip RK3588**	**RockChip RK3399Pro**
CPU	8-core 64-bit (4×Cortex-A76+4×Cortex-A55), 8nm lithography process frequency up to 2.4GHz	8-core 64-bit (4×Cortex-A76+4×Cortex-A55) , 8nm lithography process, frequency up to 2.4GHz	Big.Little architecture: Dual Cortex-A72 + Quad Cortex-A53, 64-bit CPU Frequency is up to 1.8GHz
GPU	-ARM Mali-G610 MP4 quad-core GPU -Support OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS	-ARM Mali-G610 MP4 quad-core GPU -Supports OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS	Mali-T860MP4 GPU, OpenGL ES1.1/2.0/3.0/3.1, OpenVG1.1, OpenCL, DX11 Supports AFBC (ARM Frame Buffer Compression)
NPU	-NPU computing power up to 6 TOPS -Support INT4/INT8/INT16 mixed operation, -Support framework switching of TensorFlow / MXNet / PyTorch / Caffe	-NPU computing power is up to 6 TOPS, Supports INT4/INT8/INT16 mixed operation, -Supports framework switching of TensorFlow / MXNet / PyTorch / Caffe / etc.	Support 8-bit/16-bit Inference Support TensorFlow、TensorFlow lite、Pytorch、Caffe、Mxnet、Darknet、Onnx Model NPU 3.0
Storage	16GB/32GB/64GB/128GB eMMC	16GB/32GB/64GB/128GB eMMC	16GB/32GB eMMC
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, support H.265 / H.264 *Achieve up to 32-channel 1080P@30fps decoding and 16-channel 1080P@30fps encoding	**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	4K VP9 and 4K 10bits H265/H264 video decoders, up to 60fps 1080P other video decoders (VC-1, MPEG-1/2/4, VP8) 1080P video encoders for H.264 and VP8 Video post processor: de-interlace, de-noise, enhancement for edge/detail/color **Display:** HDMI2.0(Type-A) for 4K/60fps with HDCP1.4/2.2 Display Port 1.2(Type-A), up to 4K@60fps MIPI interface, support 1920*1080@60fps eDP1.3, support 2K@60fps
RAM	4GB/8GB/16GB 64bit LPDDR4/LPDDR4x/LPDDR5 (Up to 32GB optional)	4GB/8GB/16GB 64bit LPDDR4/LPDDR4x/LPDDR5 (Up to 32GB optional)	3GB/6GB LPDDR3
Camera	2 × 2 lane MIPI-CSI input or 1×4 lane MIPI-CSI -Integrated 48MP ISP with HDR&3DNR	The integrated 48MP ISP with HDR&3DNR supports dual MIPI-CSI camera input.	Support dual channel MIPI-CSI camera interface, Maximum 13Mpixel or dual 8Mpixel）
OS	-Android：Android 12.0 -Linux：Ubuntu Desktop, Ubuntu Server, Debian11, Buildroot, RTLinux -Kylin Linux, UOS, etc. *Supports UEFI Boot	-Android: Android 12.0 -Linux: Ubuntu Desktop, Ubuntu Server, Debian11, Buildroot, RTLinux, Kylin Linux, UOS * Supports UEFI Boot	Pre-installed Android and Linux system, support dual system boot and one-button OS switching Android 9.0
Wireless	-Support 2.4GHz, 5GHz dual-band Wi-Fi, 802.11 a/b/g/n/ac protocol -Support Bluetooth 4.2 (BLE)	-2.4GHz/5GHz dual-band WiFi6, -Bluetooth 5.0, supports 5G/4G LTE expansion	Support 2.4G WiFi, support 802.11b/g/n potocol Support Bluetooth4.2
Power Consumption	-Idle: ≈0.42W (12V/35mA) -Typical: ≈2.25W (12V/190mA) -Max: ≈12W (12V/1000mA)	Idle: ≈1.35W (12V/110mA) Typical: ≈4.8W (12V/400mA) Max: ≈20W (12V/1700mA	------
Price	-4GB+32GB, $219 / 1279 RMB - 8G+64GB, $299 / 1779 RMB -16G+128GB $ 409 / 2479 RMB (Taobao Price)	-4GB+32GB: 2779 RMB on taobao - 6GB + 64GB: 3279 RMB - 16GB + 128GB: 3979 RMB). They have 4G & 5G module and antenna	Around: 1900 RMB