EC-A3588SJD4 AI

| AI Computer

V1.1   2025-11-3

T-CHIP INTELLIGENCE TECHNOLOGY

Product features

A new generation of AIoT chip RK3588S

Adopting Rockchip's new AIoT chip RK3588S, 8nm LP process. It is equipped with an octa-core 64-bit CPU with a frequency of up to 2.4GHz. Integrated ARM Mali-G610 MP4 quad-core GPU can bring better performance to various AI application scenarios.

6TOPS computing power NPU

Built-in powerful NPU, computing power up to 6TOPS. It supports INT4/INT8/INT16/FP16 hybrid computing, which can perform intelligent data processing, speech recognition, and image analysis to meet the needs of edge computing AI applications in most terminal devices.

8K HD video decoding and encoding

Supports 8K@60fps H.265/VP9, 8K@30fps H.264 video decoding, and 8K@30fps H.265/H.264 video encoding. Support the same compilation and interpretation.

The private deployment of large language models

Support the privatization deployment of ultra-large-scale parametric models under the Transformer architecture, such as Deepseek-R1 series, Gemma series, Llama series, ChatGLM series, Qwen series, Phi series and other large language models.

Product features

Multiple deep learning frameworks

It supports traditional network architectures such as CNN, RNN, and LSTM, and supports the import and export of RKNN models; Support a variety of deep learning frameworks, including TensorFlow, TensorFlow Lite, PyTorch, Caffe, ONNX and Darknet.

Various operating systems

It supports Android, Ubuntu, Debian, Buildroot and other operating systems, supports UEFI boot, and provides a safe and stable system environment for product development and production to meet the needs of different users.

Industrial-grade metal enclosure with efficient fanless passive cooling

The device features an industrial-grade, all-metal enclosure with an aluminum alloy structure for efficient heat dissipation. Its fanless design contributes to silent operation, ensuring 24/7 uninterrupted and stable performance.

Abundant expansion interfaces

Equipped with HDMI2.1, USB3.0, RS485, RS232, CAN, TF Card, SIM Card, Type-C and other expansion interfaces, convenient for connecting various external devices.
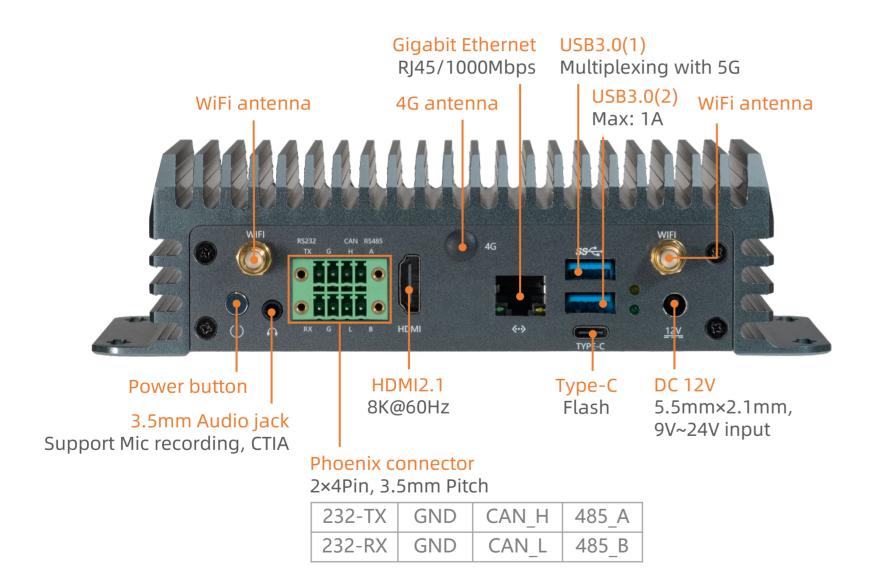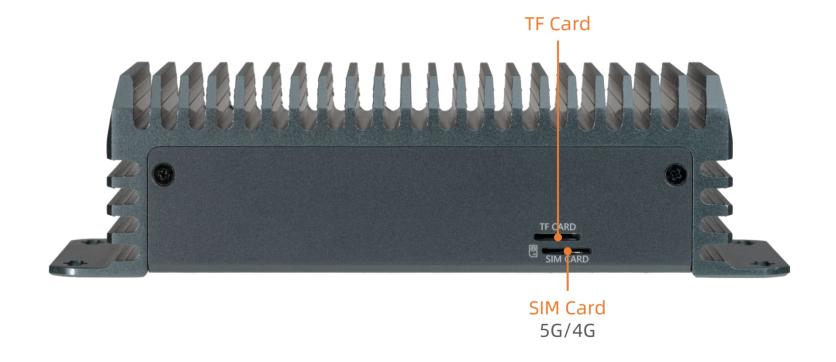
Specifications

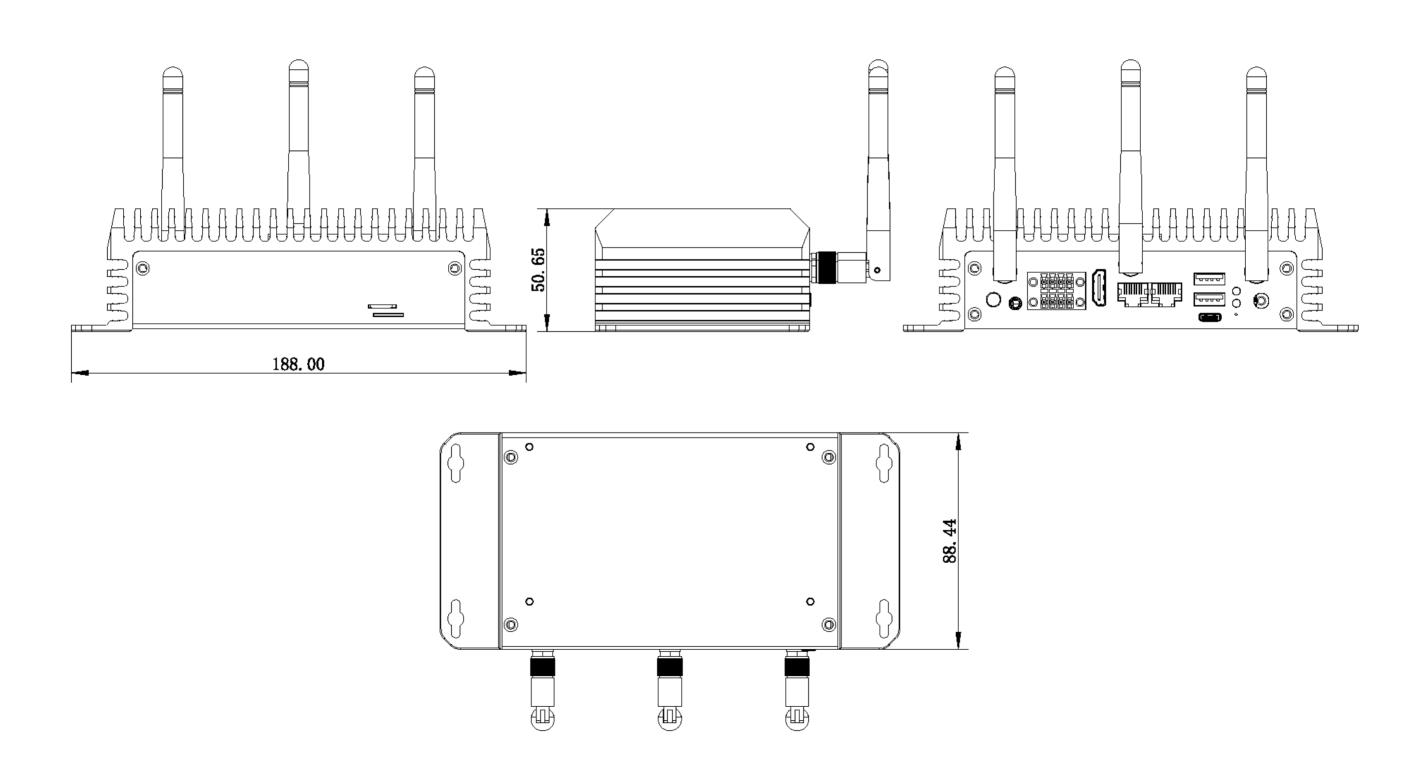| Specifications		
Basic Specifications	SOC	Rockchip RK3588S
	CPU	Octa-core 64-bit (4×Cortex-A76 + 4×Cortex-A55), 8nm advanced process, with a frequency of up to 2.4GHz
	GPU	ARM Mali-G610 MP4 quad-core GPU, support OpenGL ES3.2/OpenCL 2.2/Vulkan1.1, 450 GFLOPS
	NPU	6 TOPS, support INT4/INT8/INT16/FP16 hybrid computing
	Codecs	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 H.265/H.264
	RAM	8GB/16GB/32GB 64-bit LPDDR5
	Storage	16GB/32GB/64GB/128GB eMMC
	Storage expansion	1 × M.2 M-KEY (Expandable SATA3.0/PCIe NVMe 2242/2260/2280 SSD, multiplexed with USB3.0(1); Inside the computer, it is not mounted by default), 1 × TF Card
	Power	DC 12V (5.5mm × 2.1mm, support 9V~24V wide voltage input)
	Power consumption	Normal: 2.76W(12V/230mA), Max: 11.39W(12V/950mA), Min(Sleep): 0.6W(12V/50mA)
	OS	Android, Ubuntu Desktop, Ubuntu Server, Debian, Buildroot, RTLinux, Kirin Linux * Supports UEFI boot mode
	Software support	Support the privatization deployment of ultra-large-scale parametric models under the Transformer architecture, such as Deepseek-R1 series, Gemma series, Llama series, ChatGLM series, Qwen series, Phi series and other large language models. It supports traditional network architectures such as CNN, RNN, and LSTM, and supports the import and export of RKNN models; Support a variety of deep learning frameworks, including TensorFlow, TensorFlow Lite, PyTorch, Caffe, ONNX and Darknet. It also supports the development of custom operators. Support Docker container management technology.
	Size	188.0mm × 88.44mm × 50.65mm
	Weight	Net weight of computer: 0.79kg, Total weight with package: 1.15kg
	Environment	Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH (non-condensing)
Interface Specifications	Internet	Ethernet: 1 × RJ45 (1000Mbps) WiFi: Extend WiFi/Bluetooth module through M.2 E-KEY (2230), support 2.4GHz/5GHz dual band WiFi6 (802.11a/b/g/n/ac/ax),Bluetooth5.2 4G: Extend 4G LTE via Mini PCIe (Reused with 5G) 5G: Extend 5G via M.2 B-KEY (Reused with 4G and USB3.0(1), not mounted by default)
	Video output	1 × HDMI2.1 (8K@60Hz)
	Audio output	1 × 3.5mm Audio jack (Support MIC recording, American Standard CTIA)
	USB	2 × USB3.0 (Max: 1A; UP: USB3.0(1), reused with 5G; DOWN: USB3.0(2)), 1 × Type-C (Flash)
	Other interfaces	1 × SIM Card 1 × Phoenix connector (2×4PIN, 3.5mm pitch): 1 × RS485, 1 × RS232, 1 × CAN 2.0

Interface description

WiFi antenna

Gigabit Ethernet
RJ45/1000Mbps

4G antenna

USB3.0(1)
Multiplexing with 5G

USB3.0(2)
Max: 1A

WiFi antenna

TF Card

Power button

3.5mm Audio jack
Support Mic recording, CTIA

HDMI2.1
8K@60Hz

Type-C
Flash

DC 12V
5.5mm×2.1mm,
9V~24V input

SIM Card
5G/4G

Phoenix connector
2×4Pin, 3.5mm Pitch

232-TX	GND	CAN_H	485_A
232-RX	GND	CAN_L	485_B

Dimension

188.00

50.65

88.44

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Contact Us
(+86)18688117175

E-mail
global@t-firefly.com

Website
https://en.t-firefly.com/

Address
Room 2101, Hongyu Building, #57 Zhongshan 4Rd, East District, Zhongshan, Guangdong, China.