EC-A3576JD4

Low-power large-model computer

V1.0 2024-9-9

Product features

High-performance Octa-core 64-bit AIOT processor, RK3576

RK3576, the new octa-core 64-bit AIOT processor, features a big.LITTLE architecture (4×A72 +4×A53), an advanced lithography process, and a frequency of up to 2.2 GHz. It ensures strong support for high-performance computing and multitasking.

4K@120fps high frame rate video decoding

It supports 4K@120fps decoding (H.265/HEVC, VP9, AVS2, and AV1), 4K@60fps decoding (H.264/AVC), and 4K@60fps encoding (H.265/HEVC and H.264/AVC).

The private deployment of large language models

Support the private deployment of ultra-large-scale parameter models under the Transformer architecture, including large language models such as Gemma-2B, LlaMa2-7B, Qwen1.5-1.8B. Support Docker container management technology.

Multiple deep learning frameworks

Support traditional network architectures such as CNN, RNN, and LSTM;
a variety of deep learning frameworks, including TensorFlow, PyTorch, MXNet, PaddlePaddle, and ONNX, as well as custom operator development.
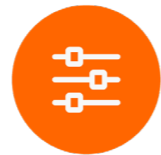
Product features

Various operating systems

Support Android 14, Linux OS, and Buildroot. These provide safe and stable systems for product research and production.

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, PCIe2.0, USB 3.0, RS485, RS232, CAN, TF Card, SIM Card, Type-C and other expansion interfaces, convenient for connecting various external devices.

A wide range of applications

It is widely used in: edge computing, large model localization, smart commercial display, cloud terminal products, industrial control computer, automotive electronics and other industries.
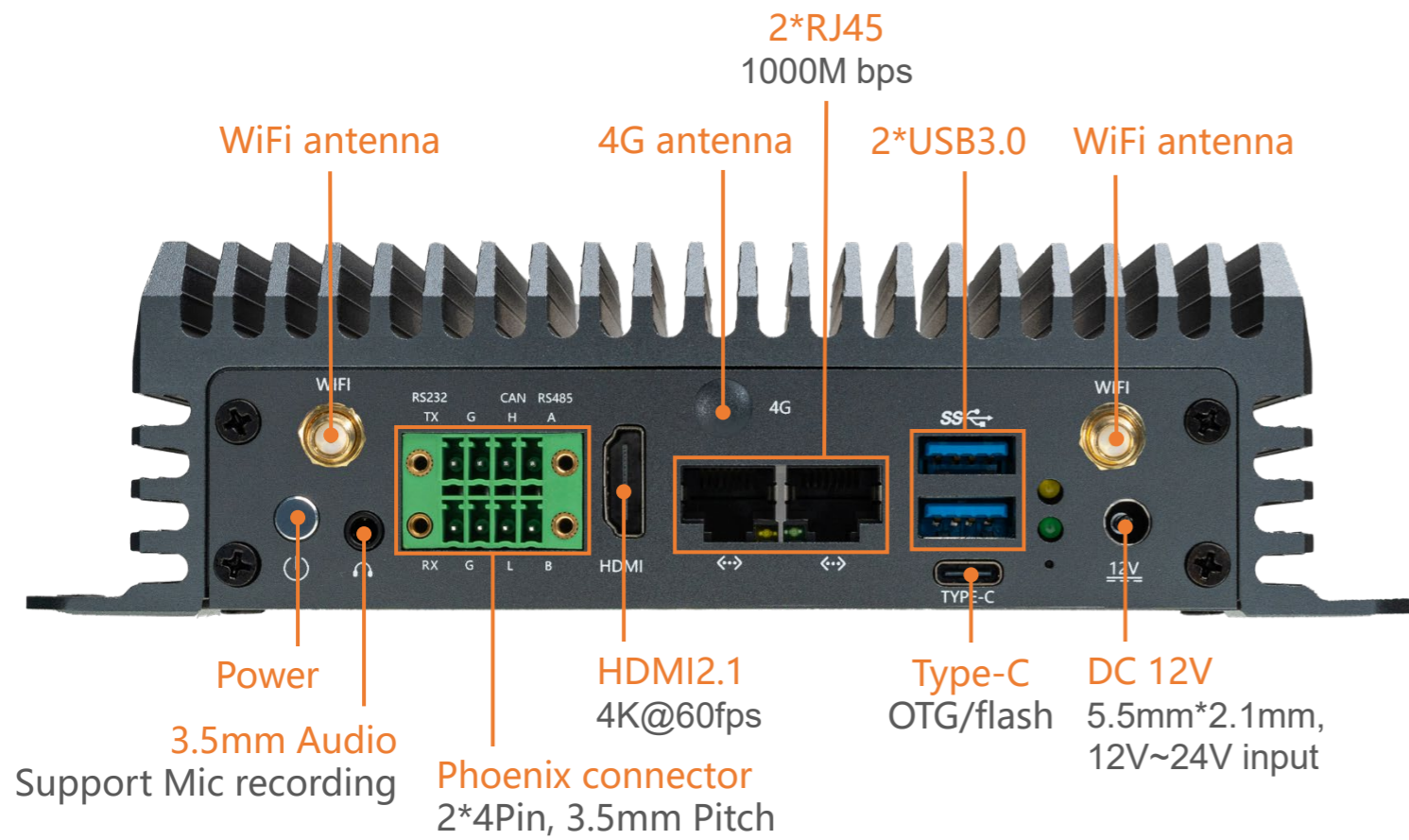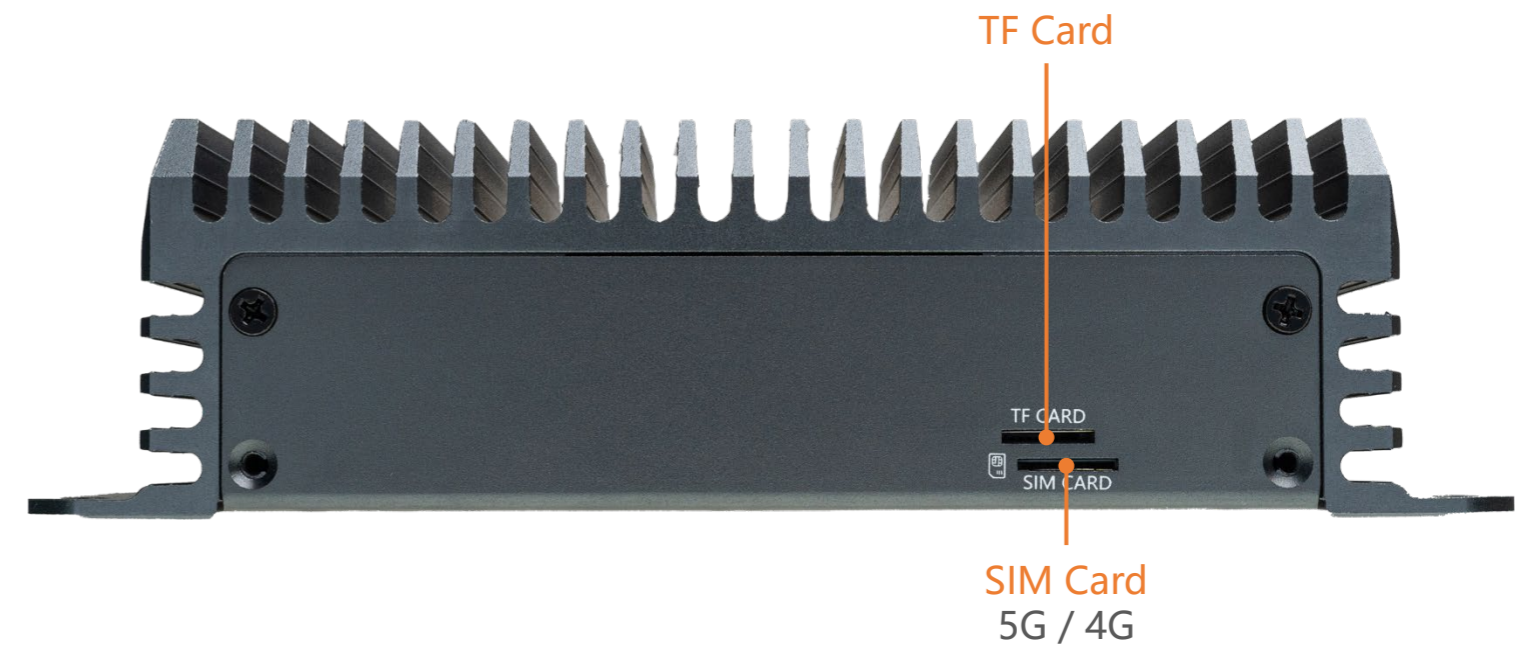
Specifications

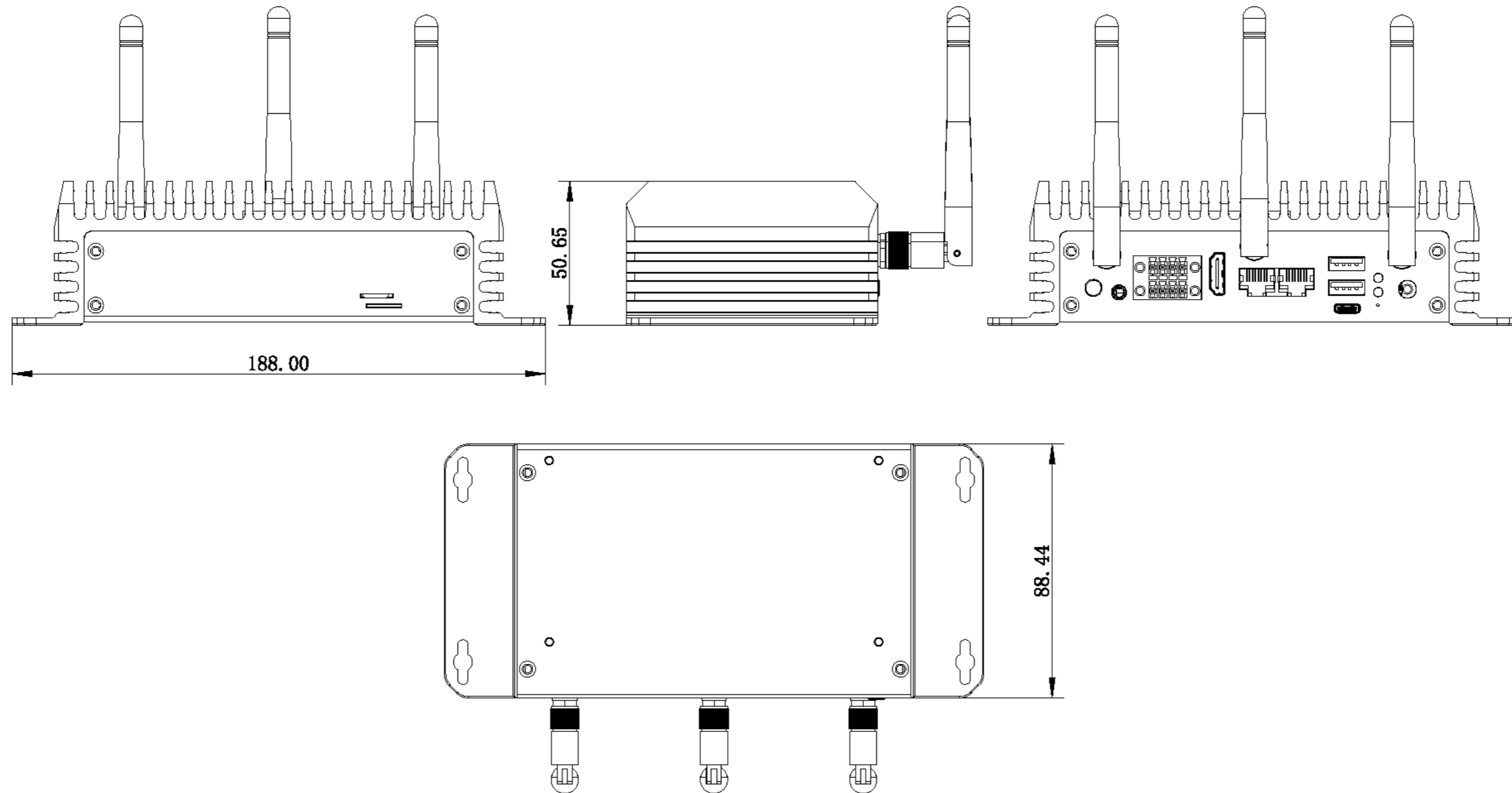| Specifications		
Basic Specifications	SOC	Rockchip RK3576
	CPU	Octa-core 64-bit processor (4×A72 + 4×A53), main frequency up to 2.2GHz
	GPU	G52 MC3 @ 1GHz, supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, embedded high-performance 2D acceleration hardware
	NPU	6 TOPS NPU, supports INT4/8/16/FP16/BF16/TF32 mixed operations
	ISP	Built-in 16 million pixel ISP, support low-light noise reduction, support RGB-IR sensor, support up to 120dB HDR, AI-ISP to improve low-noise image effect
	Encoding/ Decoding	Decoding: 4K@120fps: H.265/HEVC, VP9, AVS2, AV1, 4K@60fps: H.264/AVC Encoding: 4K@60fps: H.265/HEVC, H.264/AVC
	RAM	LPDDR4/LPDDR4x (4GB/8GB optional)
	Storage	eMMC (16GB/32GB/64GB/128GB/256GB optional), UFS2.0 (Optional)
	Storage Expansion	1 * M.2 (Expandable SATA 3.0/PCIe NVMe SSD, supports 2242/2260/2280) (inside the computer)
	Power	DC 12V (5.5mm*2.1mm, support 12V~24V wide voltage input)
	Power consumption	Normal: 2.16W (12V/180mA), Max: 7.8W(12V/650mA), Min: 0.84W(12V/70mA)
	OS	Android14, Linux OS, Buildroot
	Software support	· Support the privatization deployment of ultra-large-scale parametric models under the Transformer architecture, such as Gemma-2B, LlaMa2-7B, ChatGLM3-6B, Qwen1.5-1.8B and other large language models · Support traditional network architectures such as CNN, RNN, and LSTM, and support a variety of deep learning frameworks, including TensorFlow, PyTorch, MXNet, PaddlePaddle, ONNX, and Darknet.It also supports the development of custom operators · Support Docker container management technology
	Size	188mm * 88.44mm * 50.65mm
	Environment	Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH(non-condensing)
Interface Specifications	Internet	Ethernet: 2*RJ45 (1000Mbps) WiFi: Expand WiFi/BT via M.2 E-KEY (2230), support 2.4GHz/5GHz dual-band WiFi6 (802.11a/b/g/n/ac/ax), BT5.2 4G: Extend 4G LTE (with 5G multiplexing) via Mini PCIe 5G: Extending 5G via M.2 interface (with 4G multiplexing)
	Video output	1 * HDMI2.1 (4K@60fps)
	Audio output	1 * 3.5mm Audio jack (Support MIC recording, American CTIA standard)
	Watchdog	External watchdog
	USB	2 * USB3.0 (Max: 1A)
	Other interfaces	1 * Type-C (OTG/flash), 1 * SIM Card, 1 * Phoenix connector (2*4PIN, 3.5mm pitch): 1 * RS485, 1 * RS232, 1 * CAN 2.0

Interface description

2*RJ45
1000M bps

WiFi antenna

4G antenna

2*USB3.0

WiFi antenna

WIFI

RS232 TX G CAN H RS485 A

4G

SS

WIFI

RX G L B

HDMI

TYPE-C

12V

Power

HDMI2.1
4K@60fps

Type-C
OTG/flash

DC 12V
5.5mm*2.1mm,
12V~24V input

3.5mm Audio
Support Mic recording

Phoenix connector
2*4Pin, 3.5mm Pitch

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

TF Card

TF CARD

SIM CARD

SIM Card
5G / 4G

Dimension

T-CHIP INTELLIGENCE TECHNOLOGY

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