EC-R3576PC FD

Low-power large-model Computer

V1.0 2024-10-14

T-CHIP INTELLIGENCE TECHNOLOGY

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.

Built-in 6TOPS powerful computing power NPU

Supports mixed operations such as INT4/INT8/INT16, and can achieve network model transformation based on TensorFlow/MXNet/PyTorch and other frameworks.

8K@30fps Decoding/4K@60fps Encoding

It supports 8K@30fps/4K@120fps decoding (H.265/HEVC, VP9, AVS2, AV1) , 4K@60fps decoding (H.264/AVC), 4K@60fps encoding (H.265/HEVC, 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, and Qwen1.5-1.8B.Support Docker container management technology.

Product features

Various operating systems

Support Android 14, Linux OS, and Buildroot+QT. 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.

A wide range of expansion interface

A wide range of expansion interface options includes HDMI2.1, Gigabit Ethernet, USB3.0, USB2.0, and Type-C (OTG/DP1.4).

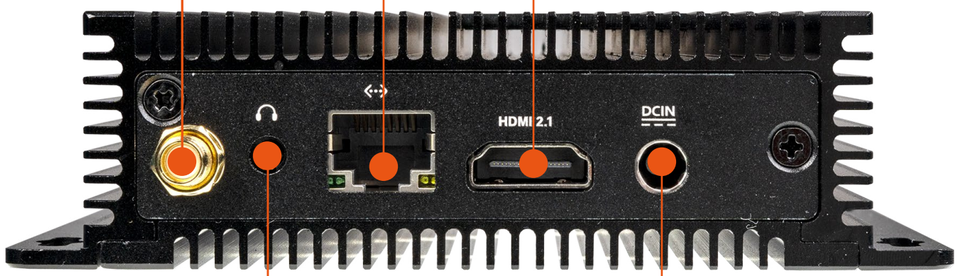
A wide range of applications

It is widely used in edge computing, local deployment of large models, intelligent digital signage, cloud terminal products, industrial PCs, automotive electronics, and more.

Specifications

Specifications		
Basic Specifications	SOC	Rockchip RK3576
	CPU	Octa-core 64-bit processor (4×A72 + 4×A53), up to 2.2GHz
	GPU	G52 MC3 @ 1GHz, support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, with high-performance 2D acceleration hardware embedded
	NPU	6 TOPS NPU, support mixed operations of INT4/8/16/FP16/BF16/TF32
	Decoding/ Encoding	Decode: 8K@30fps/4K@120fps: H.265/HEVC, VP9, AVS2, AV1, 4K@60fps: H.264/AVC Encode: 4K@60fps: H.265/HEVC, H.264/AVC
	RAM	LPDDR4/LPDDR4x (4GB/8GB/16GB optional)
	Storage	eMMC (16GB/32GB/64GB/128GB/256GB optional), UFS2.0 (optional)
	Storage Expansion	1 × M.2 (Scalable 2242 PCIe NVMe/SATA SSD) (Inside the Computer), 1 × TF Card
	Power	DC 12V (5.5mm×2.1mm, support 12V~24V wide voltage input)
	Power consumption	Normal: 1.32W(12V/110mA), Max: 8.4W(12V/700mA), Min: 0.024W(12V/2mA)
	OS	Android14, Linux OS, Buildroot+QT
	Software support	· Support the privatization deployment of ultra-large-scale parametric models under the Transformer architecture, such as Gemma-2B, ChatGLM3-6B, Qwen-1.8B, Phi-3-3.8B 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	116.0mm × 105.2mm × 31.5mm
	Weight	≈0.43kg
	Environment	Operating Temperature: -20℃- 60℃ Storage Temperature: -20℃- 60℃ Storage Humidity: 10% ~ 90%RH (non-condensing)
Interface Specifications	Internet	1 × Gigabit Ethernet (1000Mbps/RJ45), 2.4GHz/5GHz Dual-band WiFi (802.11a/b/g/n/ac), Bluetooth 5.0
	Video output	1 × HDMI2.1 (4K@120fps), 1 × DP1.4 (4K@120fps)
	Watchdog	External watchdogs
	USB	1 × USB3.0, 1 × USB2.0
	Expansion interface	1 × Type-C (OTG/DP1.4), 1 × 3.5mm Audio jack (Support MIC recording, American Standard CTIA)

Interface description



Antenna
WiFi

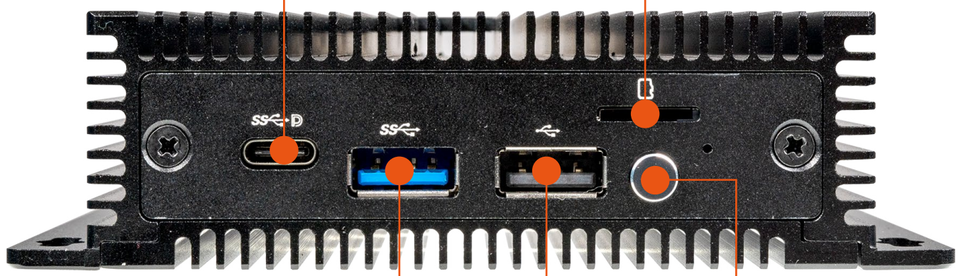
Gigabit
1000Mbps

HDMI2.1
4K@120fps

Audio Jack
3.5mm

Recovery Key
(inside the audio jack)

DC 12-24V
5.5*2.1mm



USB-C
USB3.0 OTG / DP1.4
Max：2000mA

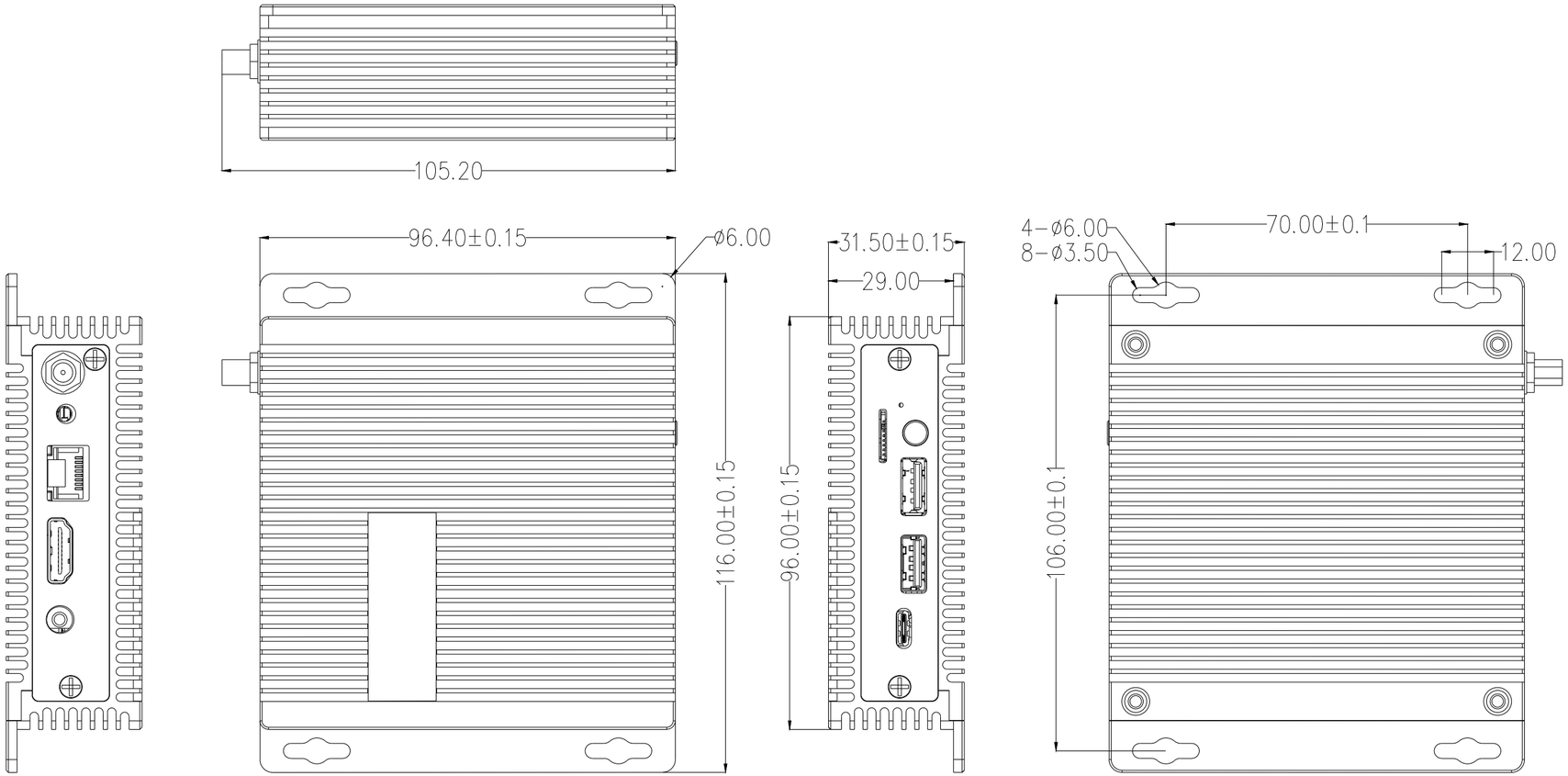
TF Card

USB3.0
Max:1A

USB2.0
Max:500mA

Power

Dimension


105.20
96.40±0.15
ø6.00
116.00±0.15
31.50±0.15
29.00
96.00±0.15
4-ø6.00
8-ø3.50
70.00±0.1
12.00
106.00±0.1

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