6T Large Model AI Box

- AIBOX-3576
- AIBOX-3588
- AIBOX-3588S

V1.0 2025-4-30

T-CHIP INTELLIGENCE TECHNOLOGY

Product features

High-performance octa-core 64-bit AIOT processor

RK3576/RK3588/RK3588S2, the new octa-core 64-bit AIOT processor, features a big.LITTLE architecture, an advanced lithography process, and a frequency of up to 2.2 GHz/2.4GHz.

8K video decoding/video encoding

AIBOX-3576 support 8K@30fps/4K@120fps video decoding (H.265/HEVC, VP9, AVS2, AV1) and 4K@60fps video encoding (H.265/HEVC, H.264/AVC). AIBOX-3588/AIBOX-3588S support 8K@60fps H.265/VP9 video decoding and 8K@30fps video encoding (H.265/H.264). Support simultaneous encoding and decoding.

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 series, ChatGLM series, Qwen series, Phi series.

Multiple deep learning frameworks

RKNN models can be imported and exported; Support a variety of deep learning frameworks, including TensorFlow, TensorFlow Lite, PyTorch, Caffe, ONNX and Darknet. It also supports the development of custom operators.

Product features

Powerful network communication capability/operating system

Support dual Gigabit Ethernet, high-speed and stable network communication; It supports Linux system, and the system is safe and stable to meet the needs of different application scenarios.

Abundant expansion interfaces

Supports 2 × Gigabit Ethernet, 2 × USB3.0, 1 × TF Card, 1 × Type-C, 1 × HDMI2.0, 1 × Console and other expansion interfaces, making it easy to connect various external devices.

All-aluminum alloy enclosure for heat dissipation

The industrial-grade all-metal enclosure with aluminum alloy structure for thermal conduction. The side of the top cover features a grille design for efficient heat dissipation. The compact, exquisite device operates stably and meets the needs of various industrial-grade applications.

A wide range of applications

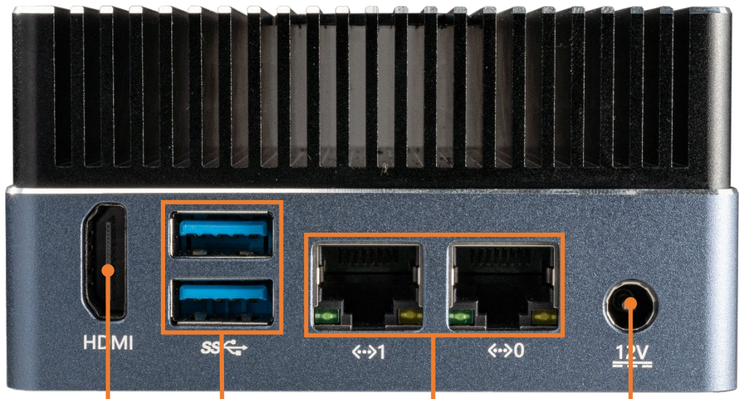
The device is widely used in intelligent surveillance, AI education, services based on computing power, edge computing, private deployment of large models, and data security and privacy protection.

Specifications

		AIBOX-3576	AIBOX-3588	AIBOX-3588S
Basic Specifications	SOC	Rockchip RK3576	Rockchip RK3588	Rockchip RK3588S2
	CPU	Octa-core 64-bit processor (4×A72+ 4×A53), main frequency up to 2.2GHz	Octa-core 64-bit processor (4× Cortex-A76+4×Cortex-A55), main frequency up to 2.4GHz	
	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	ARM Mali-G610 MP4 quad-core GPU, supports OpenGL ES3.2/ OpenCL 2.2/Vulkan1.1, 450 GFLOPS	
	NPU	6 TOPS NPU, supports INT4/INT8/INT16 /FP16/BF16/TF32 mixed operations	6 TOPS NPU, supports INT4/INT8/INT16 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	Integrated 48MP ISP with HDR&3DNR	
	Codecs	Decode: 8K@30fps/4K@120fps: H.265/ VP9/AVS2/AV1 4K@60fps: H.264/AVC Encode: 4K@60fps: H.265/HEVC/H.264/ AVC	Decode: 8K@60fps/4K@120fps H.265/ VP9/AVS2 8K@30fps H.264 AVC/MVC 4K@60fps AV1 1080P@60fps MPEG-2/-1/VC-1/ VP8 Encode: 8K@30fps H.265/H.264	Decode: 8K@60fps H.265/VP9/AVS2 8K@30fps H.264 AVC/MVC 4K@60fps AV1 1080P@60fps MPEG-2/-1/VC-1/ VP8 Encode: 8K@30fps H.265/H.264
	RAM	LPDDR4 (4GB/8GB/16GB optional)	LPDDR4 (4GB/8GB/16GB/32GB optional)	LPDDR5 (4GB/8GB/16GB/32GB optional)
	Storage	eMMC (16GB/32GB/64GB/128GB/256GB optional), UFS2.0 (Only AIBOX-3576 is optional)		
	Storage Expansion	1 × M.2 (Inside the computer, expandable SATA3.0/PCIe NVMe SSD, support 2242/2260/2280), 1 × TF Card		
	Power	DC 12V/2A (5.5 × 2.1mm)		
	Power consumption	Normal: 1.2W(12V/100mA) Max: 7.2W(12V/600mA) Min(Sleep): 0.072W (12V/6mA)	Normal: 2.64W(12V/220mA) Max: 14.4W(12V/1200mA) Min(Sleep): 0.18W(12V/15mA)	Normal: 1.26W(12V/105mA) Max: 13.2W(12V/1100mA) Min(Sleep): 0.18W(12V/15mA)
	OS	Linux		
	Software support	• Support the privatization deployment of ultra-large-scale parametric models under the Transformer architecture, such as Gemma 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	93.4mm × 93.4mm × 50mm		
	Weight	≈ 500g		
	Environment	Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH (non-condensing)		
Interface Specifications	Ethernet	2 × Gigabit Ethernet (1000Mbps/RJ45)		1 × Gigabit Ethernet (1000Mbps/RJ45)
	Video output	1 × HDMI2.1 (4K@120fps)	1 × HDMI2.1 (8K@60fps)	
	USB	2 × USB3.0 (Max: 1A), 1 × Type-C (Firmware flashing)	2 × USB3.0 (Max: 1A), 1 × Type-C (Can be used as a firmware flashing port. Set to USB2.0 HOST after booting up)	
	Button	1 × Power, 1 × MaskRom		
	Other interfaces	1 × Console (Debug serial)		

Interface description

AIBOX-3576



Interface description

AIBOX-3588

Power button

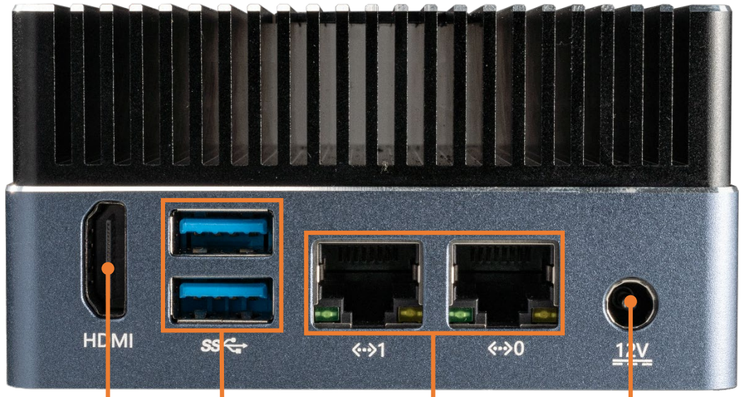
Work indicator

MaskRom

TF Card

Type-C
(Can be used as a firmware flashing port.
Set to USB2.0 HOST after booting up)

Console
(Debug serial)



HDMI2.1
(8K@60fps)

2×USB3.0
(Max:1A)

2×Gigabit Ethernet
(RJ45/1000Mbps)

DC 12V
(5.5×2.1mm)

Interface description

AIBOX-3588S

Power button

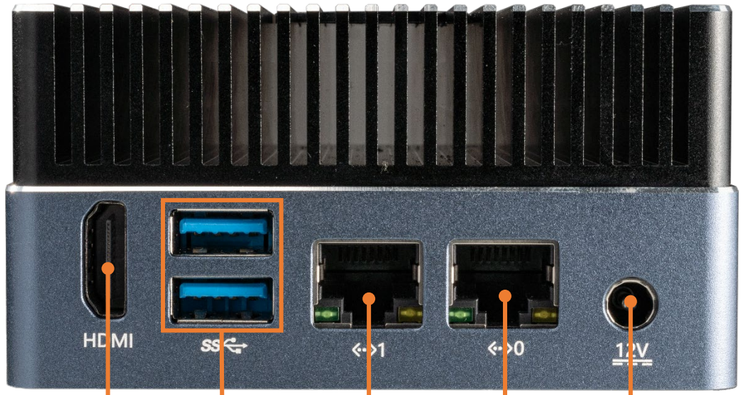
Work indicator

MaskRom

TF Card

Type-C
(Can be used as a firmware flashing port.
Set to USB2.0 HOST after booting up)

Console
(Debug serial)



HDMI2.1
(8K@60fps)

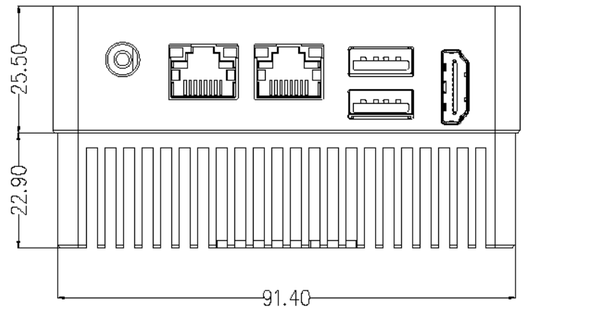
2×USB3.0
(Max:1A)

Non-functional

Gigabit Ethernet
(RJ45/1000Mbps)

DC 12V
(5.5×2.1mm)

Dimension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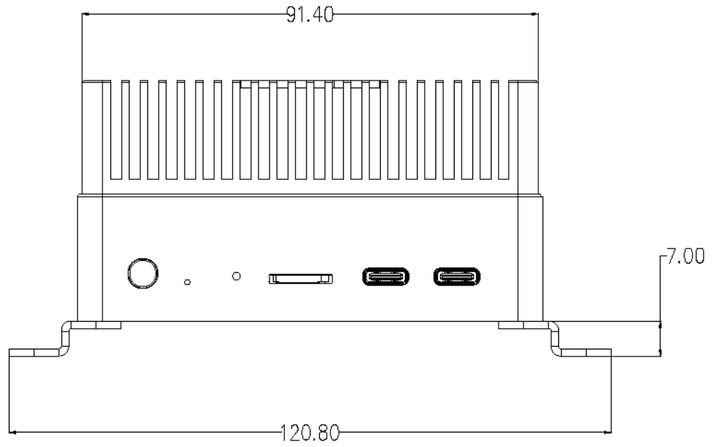
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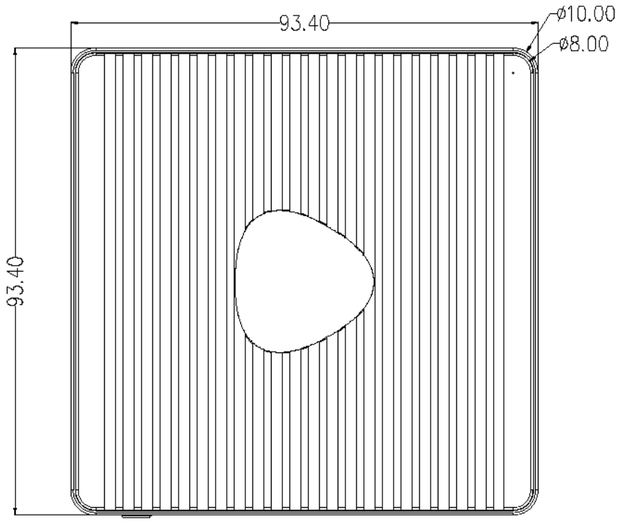
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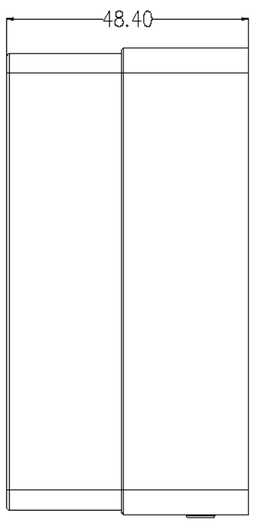
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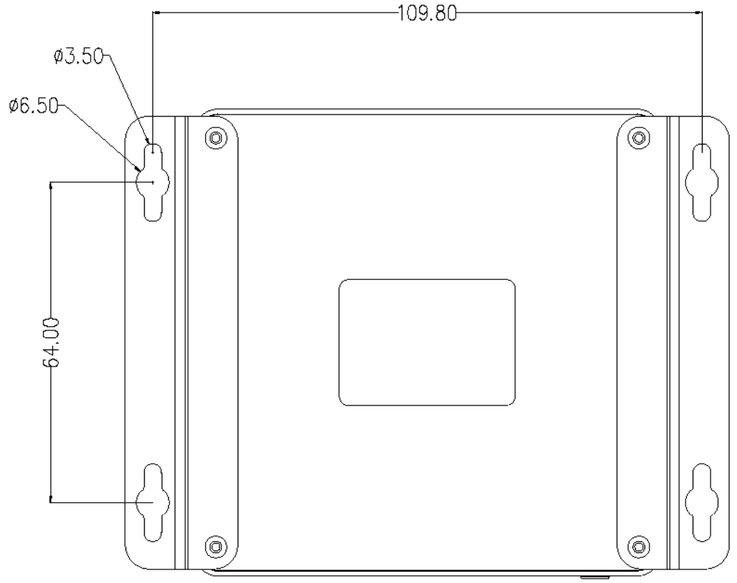
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