



EC-A1684XJD4

■ Octa-core 32T High-computing AI Embedded Host



V1.0 2024-3-26

T-CHIP INTELLIGENCE TECHNOLOGY

Product features



32TOPS ultra-high computing power AI processor

SOPHON AI processor BM1684X

Hashrate up to: 32TOPS(INT8), 16TFLOPS(FP16/BF16), 2T FLOPS(FP32)



Powerful multi-channel video AI processing performance

It supports up to 32 channels of 1080p H.264/H.265 video decoding, and can process and analyze more than 16 channels of HD video at the same time, meeting the needs of various AI application scenarios.



High throughput, high energy efficiency

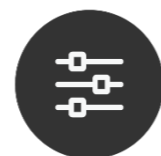
Based on the measured data of INT8 quantitative Batch4, it has higher throughput and energy efficiency ratio than the mainstream intelligent computing module platform in the industry, and has more advantages in performance.



Strong network communication capabilities

It supports dual 1000Mbps Ethernet, 2.4GHz/5GHz dual-band WiFi, and expandable 5G/4G network to meet the needs of different application scenarios.

Product features



Abundant expansion interfaces

Rich interfaces such as RS485, RS232, USB3.0, USB2.0, HDMI are installed on board, which can be easily connected and communicated directly to AI edge computing products.



The algorithm is rich and practical

"Human/vehicle/object" recognition, video structuring, trajectory behavior analysis and other algorithm transplantation, high security and high reliability, flexible application to various product research and development.



Easy-to-use, all-in-one AI toolkit

Sophon SDK is a one-stop deep learning development kit that supports Caffe, Pytorch, Paddle, etc., and supports mainstream network models and custom operator development.



Wide range of application scenarios

Visual computing, edge computing, and general computing power serve industries such as artificial intelligence, smart construction sites, smart transportation, smart classrooms, unmanned supermarkets, and monitoring and security.

Specifications



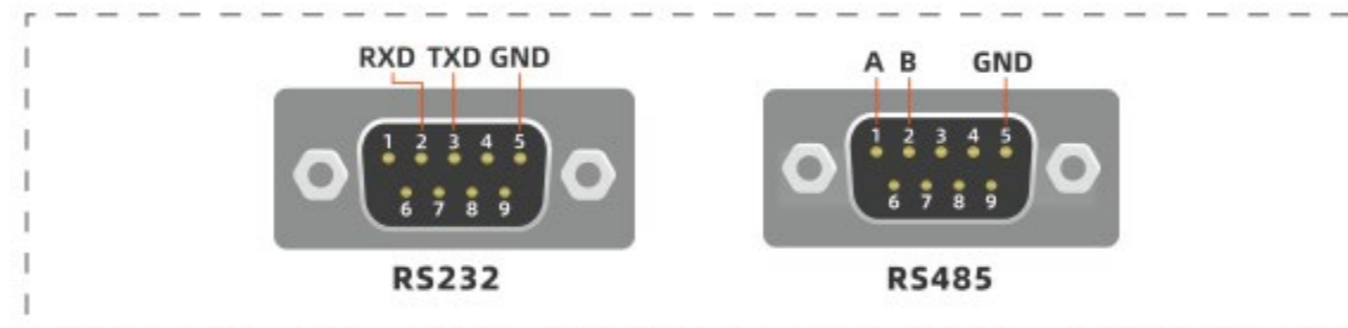
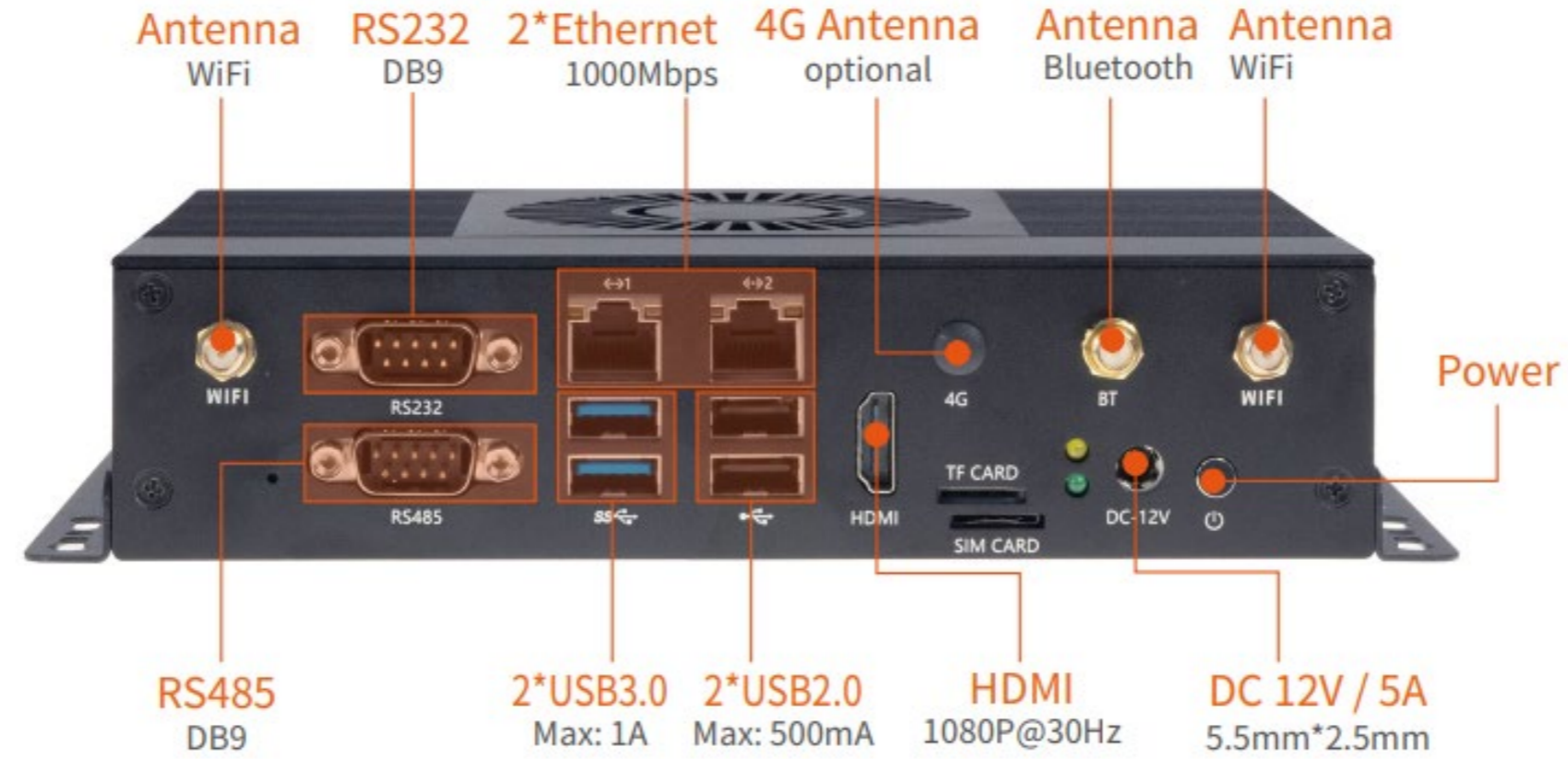
Basic parameters	
SOC	SOPHON BM1684X
CPU	Integrated high-performance octa-core ARM A53, 12nm process, with a frequency of up to 2.3GHz
TPU	Built-in tensor calculation module TPU Computing power up to: 32TOPS (INT8), 16TFLOPS (FP16/BF16), 2TFLOPS (FP32) Support TensorFlow/Caffe/PyTorch/Paddle/ONNX/MXNet/Tengine/DarkNet and other mainstream programming frameworks
Encoding/decoding	Support 32-channel H.265/H.264 1080p@25fps video decoding, 32-channel 1080P@25fps HD video full-process processing (decoding + AI analysis) Supports 12-channel H.265/H.264 1080p@25fps video encoding
RAM	12GB/16GB LPDDR4
Storage	32GB/64GB/128GB eMMC
Expand storage	M.2 SATA SSD(2242), 1 * TF Card Slot
Power	DC 12V (DC 5.5×2.5mm)
Power consumption	Normal: 24W(12V/2000mA), Max: 42W(12V/3500mA)
System	Linux
Size	210mm * 130mm * 44.5mm
Weight	≈ 1.3 kg
Environment	Operating Temperature: -20°C ~ 60°C, Storage Temperature: -20°C ~ 70°C, Storage Humidity: 10% ~ 90%RH(non-condensing)

Specifications

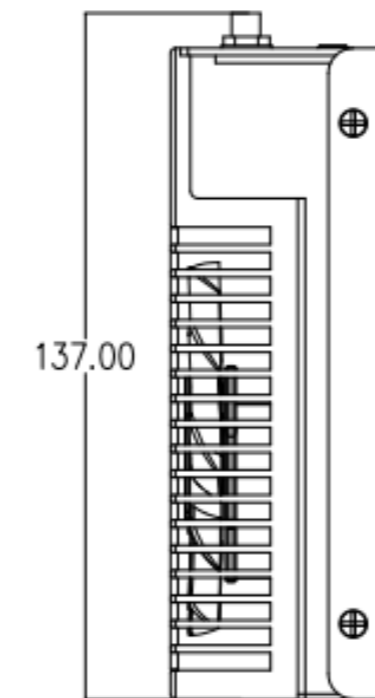
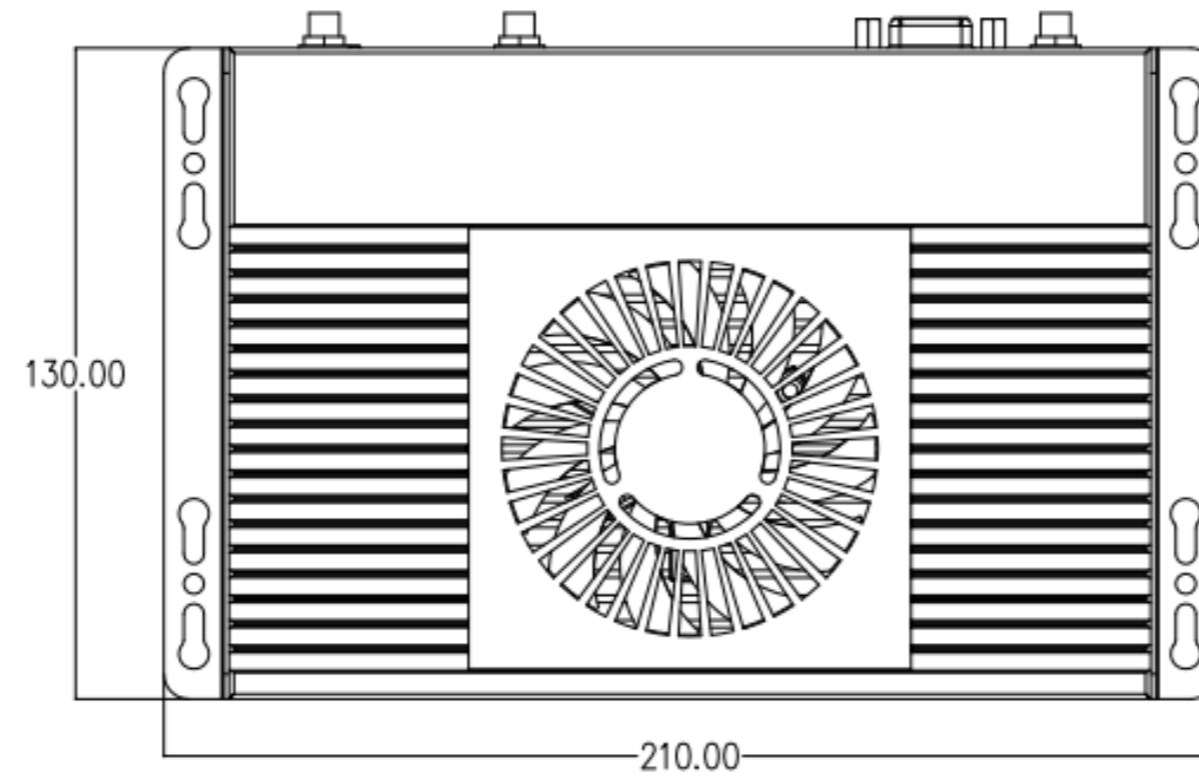
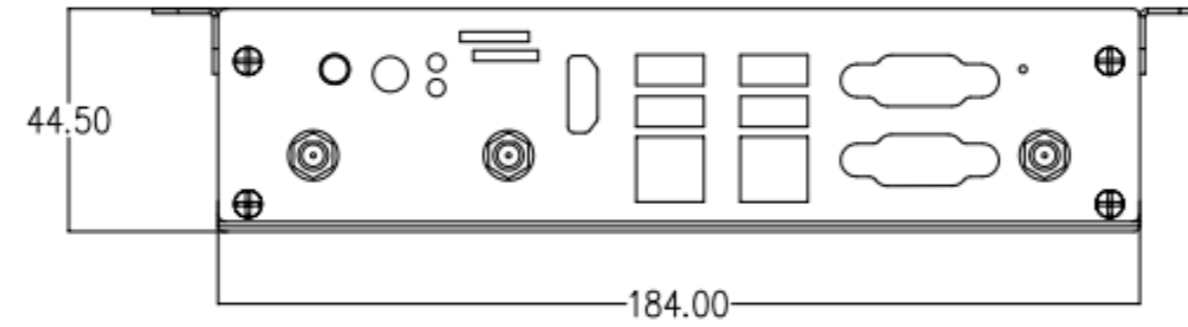


Interface parameters		
Ethernet	2 * Gigabit Ethernet	1000M bps Gigabit Ethernet
WiFi	WiFi//BT/5G/4G	2.4GHz/5GHz dual-band WiFi, 802.11a/b/g/n/ac, expandable 4G LTE (Mini PCIe interface), 5G (M.2 interface)
Video output	1 * HDMI	1080P@30Hz
Audio output	1 * HDMI Audio	1 * HDMI Audio output
USB	2 * USB3.0	Max: 1A
	2 * USB2.0	Max: 500mA
SIM Card	1 * SIM Card Slot	Expand 5G/4G wireless networks
SATA	1 * M.2 SATA3.0	M.2 SATA3.0 interface (expandable 2242 SATA SSD), located inside the host
Antenna	2 * WiFi / 1 * BT / 1 * 4G	Antenna interface
Serial	1 * RS232	DB9 interface
	1 * RS485	DB9 interface
Toolkit	One-stop toolkit	SOPHON SDK is a one-stop deep learning development kit, which provides a series of software tools such as the underlying driver environment, compiler, and inference deployment tool. It supports mainstream frameworks such as Caffe/TF/PyTorch/Mxnet/Paddle, mainstream network models and custom operator development, Docker containerization, and rapid deployment of algorithm applications.

Interface description



Dimension





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