

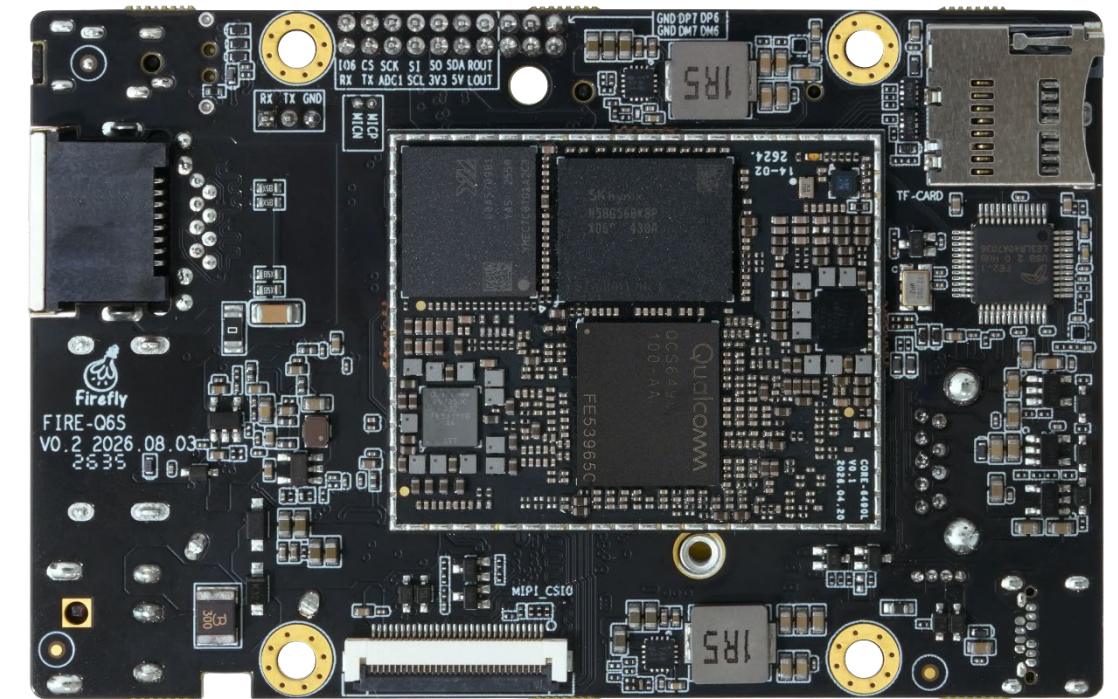


Firefly Q6490A

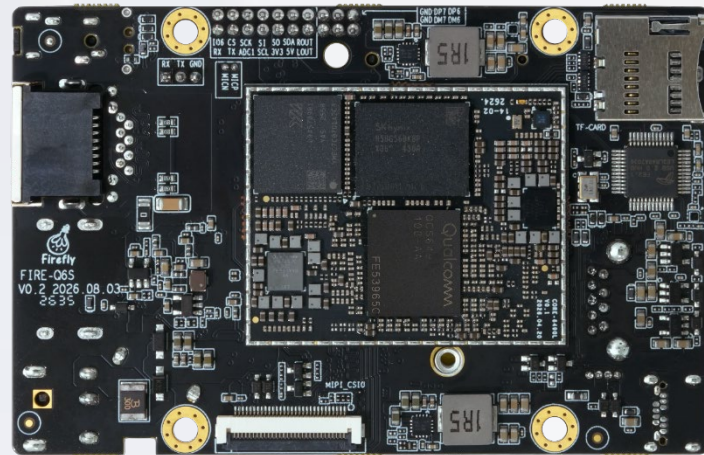
Qualcomm QCS6490 Open-Source Motherboard

V0.2 2026-9-22

FIREFLY TECHNOLOGY



Product features



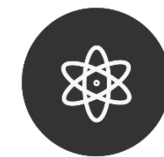
Octa-core Heterogeneous Processor QCS6490

Adopts Qualcomm QCS6490 octa-core 64-bit heterogeneous processor, built on ARM architecture with advanced 6nm process technology and a clock frequency up to 2.7 GHz, delivering powerful support for high-performance computing and multi-task processing.



4K Video Encoding and Decoding

Supports 4K@60fps H.265/H.264/VP9 video decoding, 4K@30fps H.265/H.264 video encoding, and concurrent processing of 4K decoding and 1080P encoding.



Integrated Adreno 643 GPU

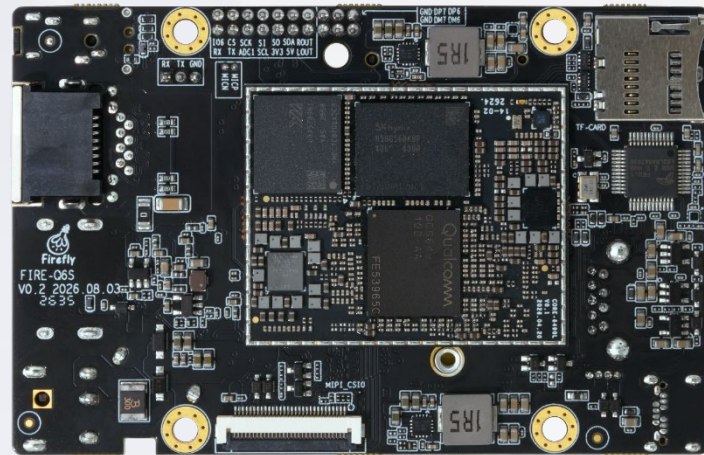
Comes with integrated Adreno 643 GPU, supporting OpenGL ES 3.2, Vulkan 1.x, OpenCL 2.0 and DX FL12 graphics APIs. It efficiently handles tasks such as graphics rendering and image processing to meet visualization display requirements for edge scenarios.



Built-in 12 TOPS NPU

Comes with built-in 12 TOPS NPU, supporting mixed computation of INT4/INT8/INT16/FP16. It enables intelligent data processing, speech recognition and image analysis to satisfy edge computing AI application requirements for most terminal devices.

Product features



Dual-Screen Extended / Mirror Display

On-board 1×MIPI-CSI, 1×MIPI-DSI and 1×HD 2.0 interfaces. It supports video output up to 4K@30Hz and enables dual-screen mirror and extended display.



Comprehensive Software Ecosystem

Built upon the Qualcomm Linux software stack, it features native compatibility with the Ubuntu system. It comes with the built-in QNN inference framework and supports mainstream deep-learning frameworks including TensorFlow, PyTorch, MXNet, Keras and Caffe.



Rich Expansion Interfaces

It features expansion interfaces including PCIe 3.0, USB 3.0, USB 2.0, MIPI-CSI, MIPI-DSI, HD 2.0, SPI, I2C and UART to meet peripheral expansion requirements for diverse scenarios.



Wide Range of Application Scenarios

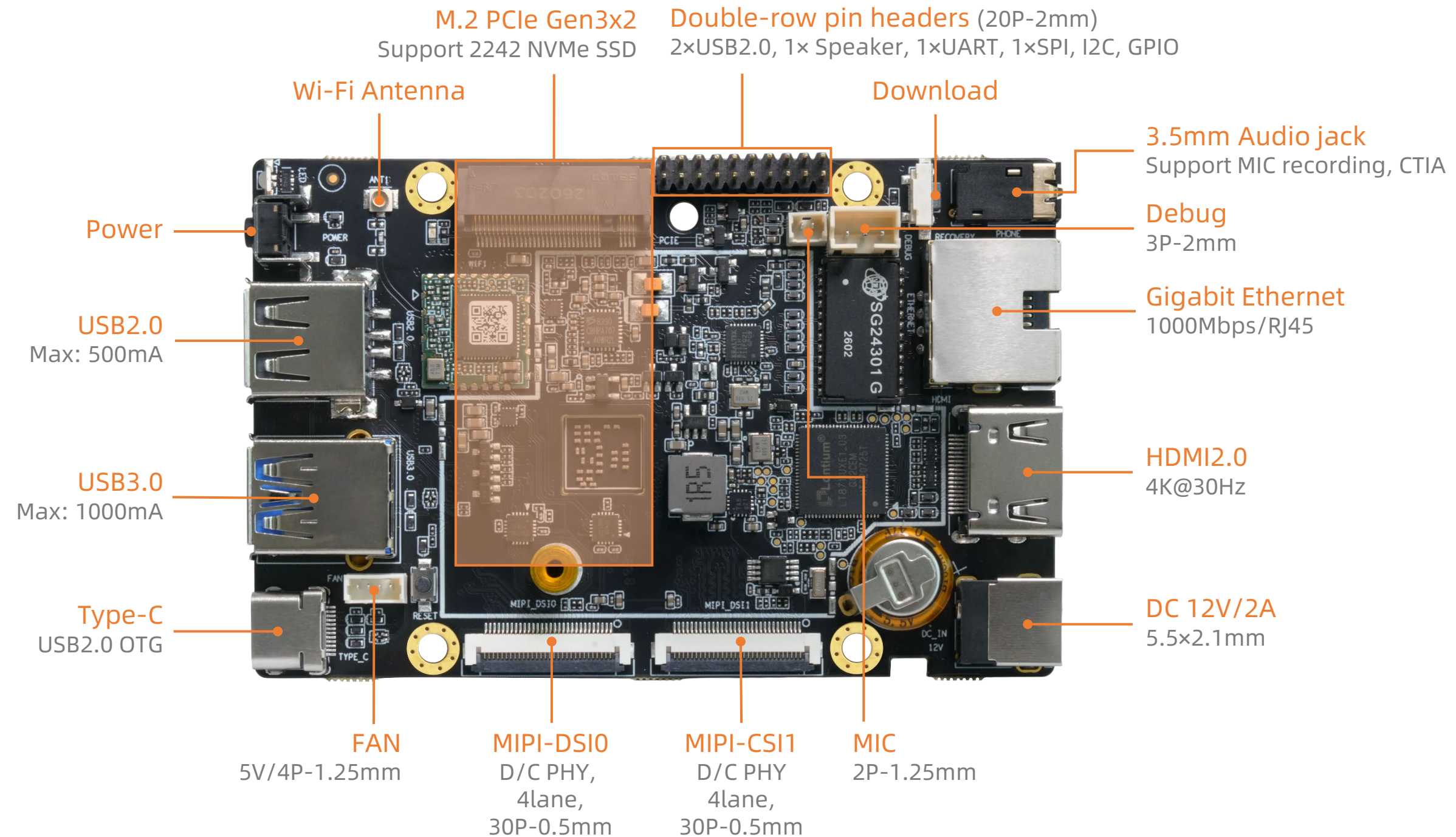
Widely applicable to edge computing, private deployment of end-side large models, robots, industrial visual inspection, intelligent security, vehicle multi-camera perception, smart retail and other industry sectors.

Specifications

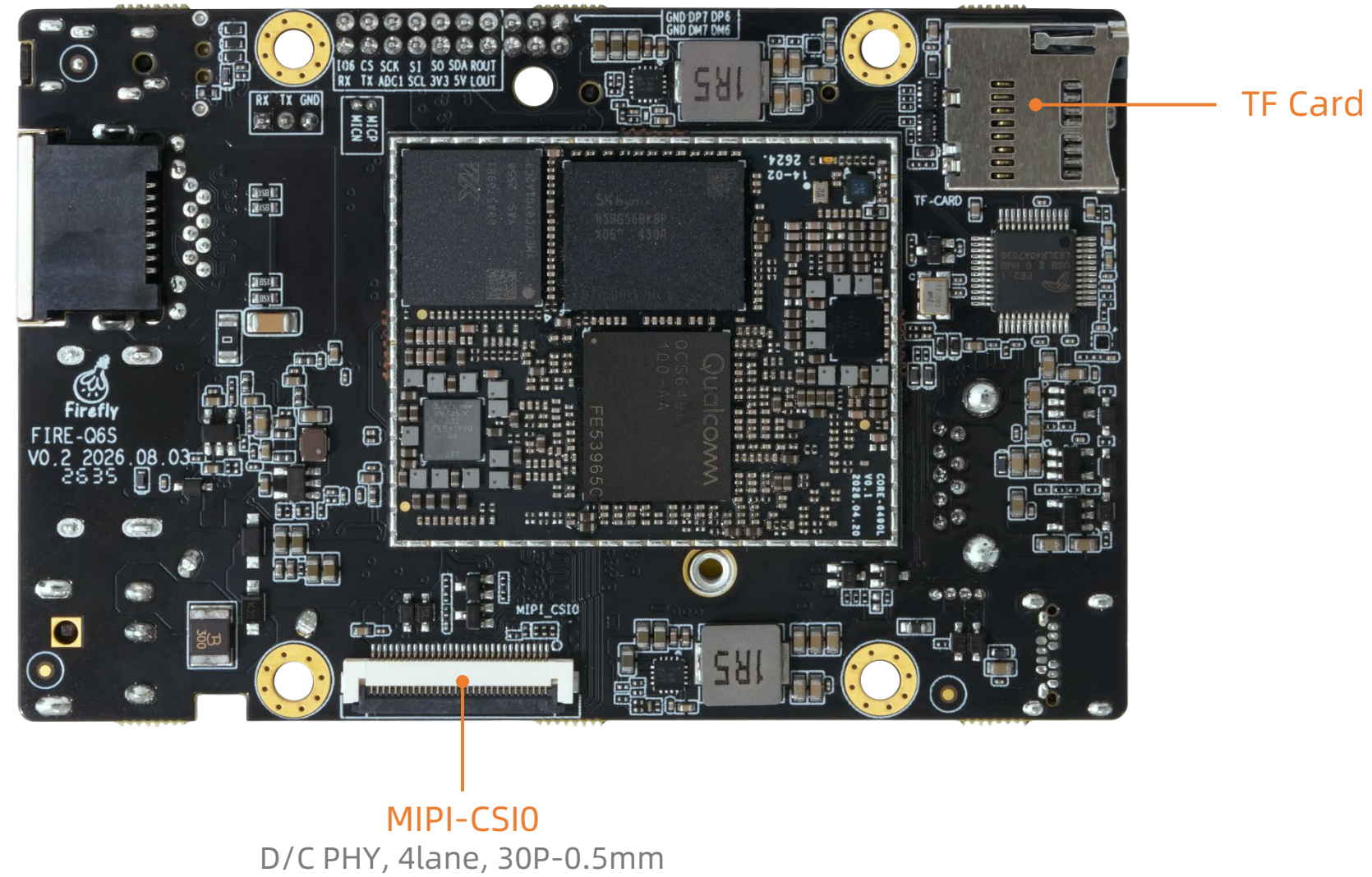


Specifications		
Basic Specifications	SOC	Qualcomm QCS6490
	CPU	Qualcomm Kryo CPU: Octa-core 64-bit processor (1×Kryo Prime 2.7GHz + 3×Kryo Gold 2.4GHz + 4×Kryo Silver 1.9GHz), built on advanced 6nm process, max frequency up to 2.7GHz
	GPU	Adreno 643 GPU, supports OpenGL ES 3.2, Vulkan 1.x, OpenCL 2.0, DX FL12
	NPU	Hexagon 770 NPU, 12 Dense TOPS
	ISP	Spectra 570L ISP, Zero Shutter Lag (ZSL) mode: 64MP / 36MP+22MP / 3×22MP @30fps, Non-Zero Shutter Lag (non-ZSL) mode: 192MP
	Codec	Video Decoding: 1×4K@60fps/2×4K@30fps/4×1080P@60fps (H.265/HEVC, H.264/AVC, VP9) Video Encoding: 1×4K@30fps/4×1080P@60fps (H.265/HEVC, H.264/AVC) Video Concurrency: 1080P@60fps decoding + 1080P@60fps encoding / 4K@30fps decoding + 1080P@30fps encoding
	RAM	4GB/8GB LPDDR5
	Storage	64GB eMMC
	Expansion Storage	1 × M.2 M-KEY (expandable for PCIe Gen3 x2 2242 NVMe SSD), 1 × TF Card
	Power Supply	DC 12V/2A (5.5mm × 2.1mm)
	Power Consumption	Normal: 3.6W(12V/300mA), Max: 9.6W(12V/800mA), Min(Sleep): 0.6W(12V/50mA)
	OS	Qualcomm Linux, Ubuntu
	Software Support	Supports private deployment of ultra-large-parameter models under Transformer architecture, including large language models such as Deepseek-R1, Gemma, Llama, Qwen and Phi series. Supports QNN AI inference framework and multiple deep-learning frameworks: TensorFlow, TensorFlow Lite, PyTorch, MXNet, Keras, Caffe.
	Dimension	93.0mm × 60.14mm × 12.16mm
	Weight	≈55g
	Environment	Operating Temperature: -20°C ~ 60°C, Storage Temperature: -20°C ~ 70°C, Operating Humidity: 10% ~ 90%RH (No condensation)
Interface Specifications	Network	1 × Gigabit Ethernet (1000 Mbps/RJ45) On-board Wi-Fi6 & Bluetooth5.2 combo module
	Video Input	2 × MIPI D-PHY v1.2/C-PHY v1.2 (4Lane, 30Pin-0.5mm), supports simultaneous image capture from 2 cameras
	Video Output	1 × MIPI-DSI (D-PHY 1.2/C-PHY 1.2, 4-Lane, max resolution 4K@30Hz) 1 × HD2.0 (max resolution 4K@30Hz) Supports dual-screen different-display / dual-screen same-display
	Audio	1 × 3.5mm Audio Jack (supports MIC recording, CTIA standard), 1 × MIC (2Pin-1.25mm)
	USB	1 × USB3.0 (5Gbps, USB-A, max: 1A), 1 × USB2.0 (USB-A, max: 0.5A), 2 × USB2.0 (broken out via double-row pin header), 1 × Type-C (USB2.0 OTG)
	Antenna	1 × Wi-Fi Antenna
	Button	1 × Power, 1 × Download
	Other Interfaces	1 × double-row pin header (20Pin-2mm, break out: 2 × USB2.0, 1 × Speaker, 1 × SPI, 1 × UART, I2C, GPIO), 1 × FAN (5V, 4P-1.25mm), 1 × Debug (3Pin-2mm)

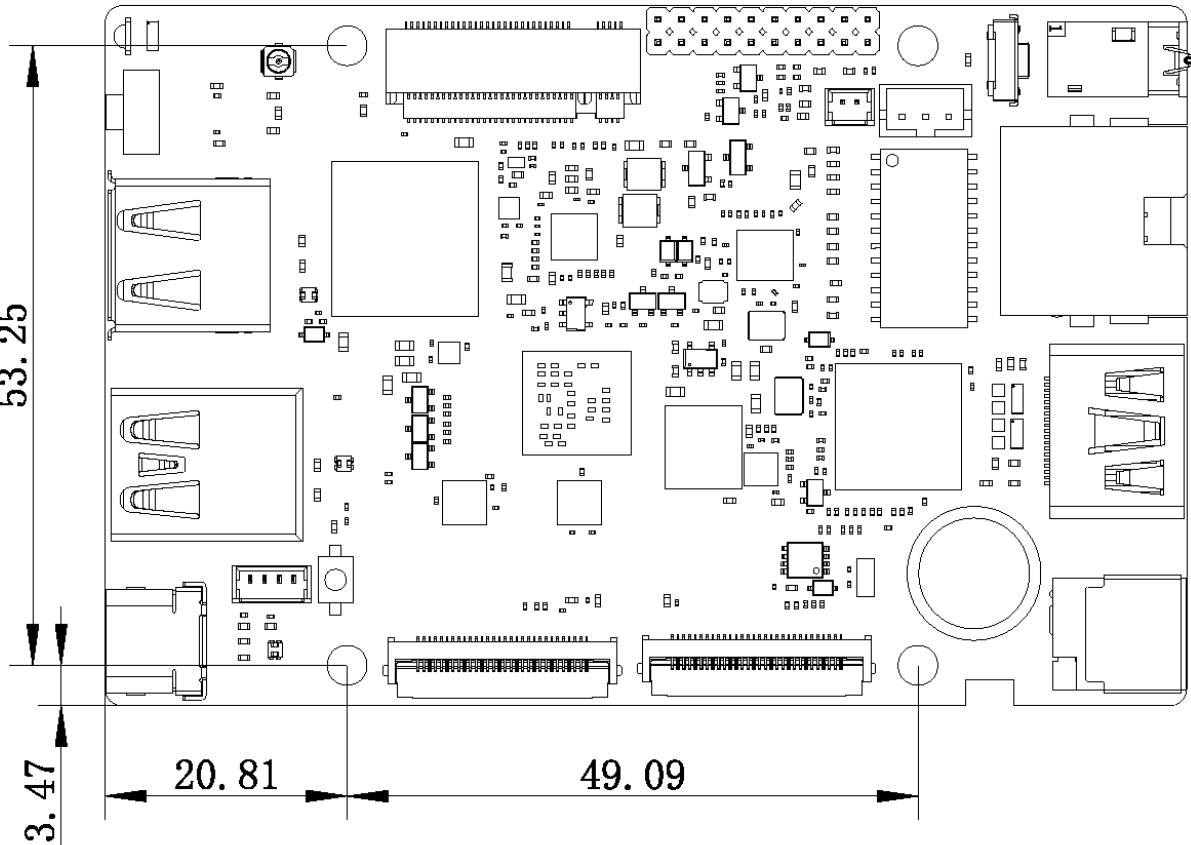
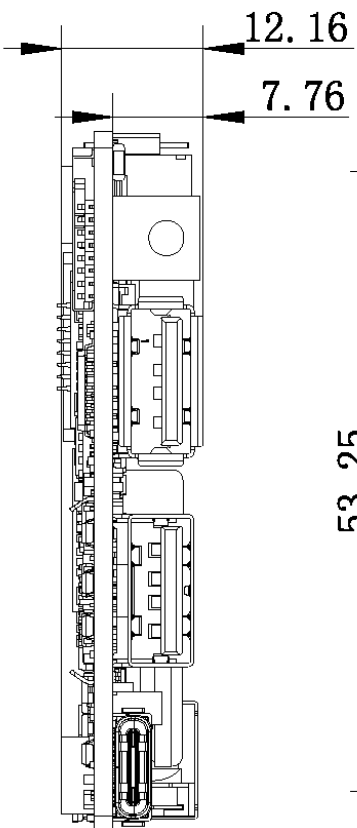
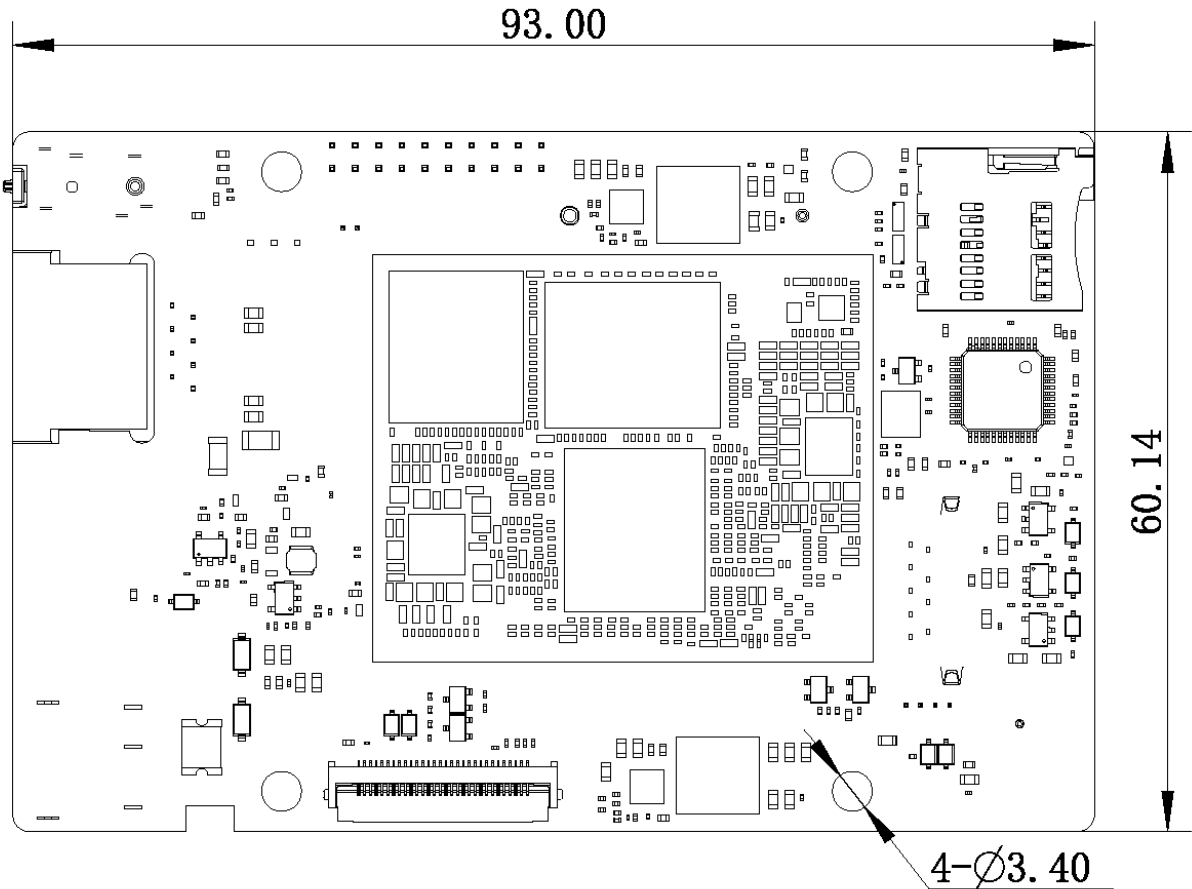
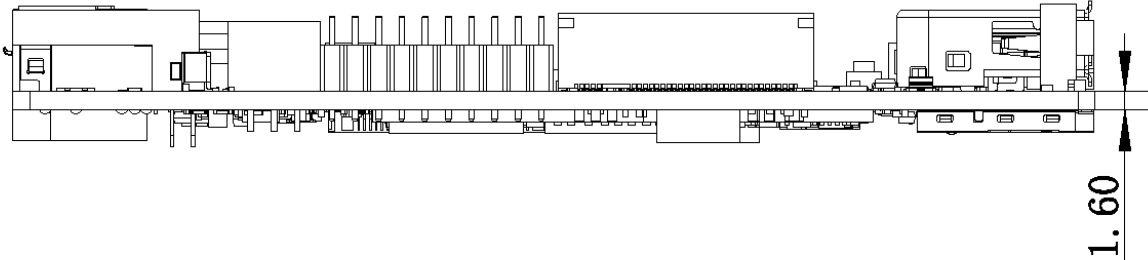
Interface description



Interface description



Dimension





FIREFLY TECHNOLOGY



Contact Us
(+86)18688117175



E-mail
global@t-firefly.com



Website
www.t-firefly.com



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