



# Smart Router

- | EC-R3588RT
- | EC-R3588RT 2G5
- | EC-R3588RT 10G

V1.0 2024-6-25

T-CHIP INTELLIGENCE TECHNOLOGY





# Product features



## New-gen AIoT SoC RK3588

RK3588 is Rockchip's new-gen flagship AIoT SoC with an 8nm lithography process. It features an octa-core 64-bit CPU and a frequency of up to 2.4 GHz. Integrated with an ARM Mali-G610 MP4 quad-core GPU, the powerful RK3588 delivers more optimized performance in various AI application scenarios.



## 6 TOPS powerful computing power

Equipped with a powerful NPU delivering 6 TOPS of computing power, it supports INT4/INT8/INT16 mixed operation and framework switching of TensorFlow/MXNet/PyTorch/Caffe.



## 8K HD video decoding and multi-channel video output

The device supports 8K@60fps H.265/VP9 video decoding, delivering a real 8K HD-quality display and delicate picture quality. It supports one channel of 8K HDMI 2.1, one channel of 4K HDMI 2.0, and one channel of 8K DP output. This versatile configuration meets the demands of multi-display scenarios.



## Gigabit Ethernet + 2.5G high-speed Ethernet

The multi-core receive side scaling (RSS) and DPDK ensure high bandwidth and low latency. These enable faster network data transfer, seamless multimedia streaming, and enhanced real-time communication. It also offers customization for WAN and LAN usage and supports up to 16K jumbo frames. This capability significantly improves the machine vision industry.

# Product features



## Firefly edge computing gateway management system

With a rich array of resource graphs, the system can effortlessly monitor and track system information, such as network traffic, CPU load, memory, and disk usage. It supports a variety of mainstream industrial protocols, including MQTT and Modbus TCP/RTU for edge computing.



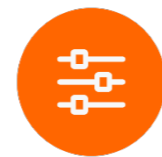
## Fanless design and excellent passive heat dissipation

The device features an industrial-grade, all-metal enclosure with an aluminum alloy construction for efficient passive heat dissipation. Its fanless design contributes to silent operation. It boasts resistance to shocks and dust and operates within a wide temperature range (-20°C to 60°C) for uninterrupted 24/7 stability, meeting various industrial needs.



## OpenWRT and various operating systems

It supports multiple operating systems, such as OpenWRT, Android, and Linux OS, providing a secure and stable system environment for product development and production and meeting the needs of different users.



## Abundant interface options

Equipped with USB3.0, USB2.0, Type-C (USB3.0 OTG/DP1.4), HDMI2.1, HDMI2.0, M.2 E-KEY (expandable WiFi6/Bluetooth), M.2(SATA) expansion interfaces, and more, it meets the peripheral expansion needs of various scenarios.

# Specifications

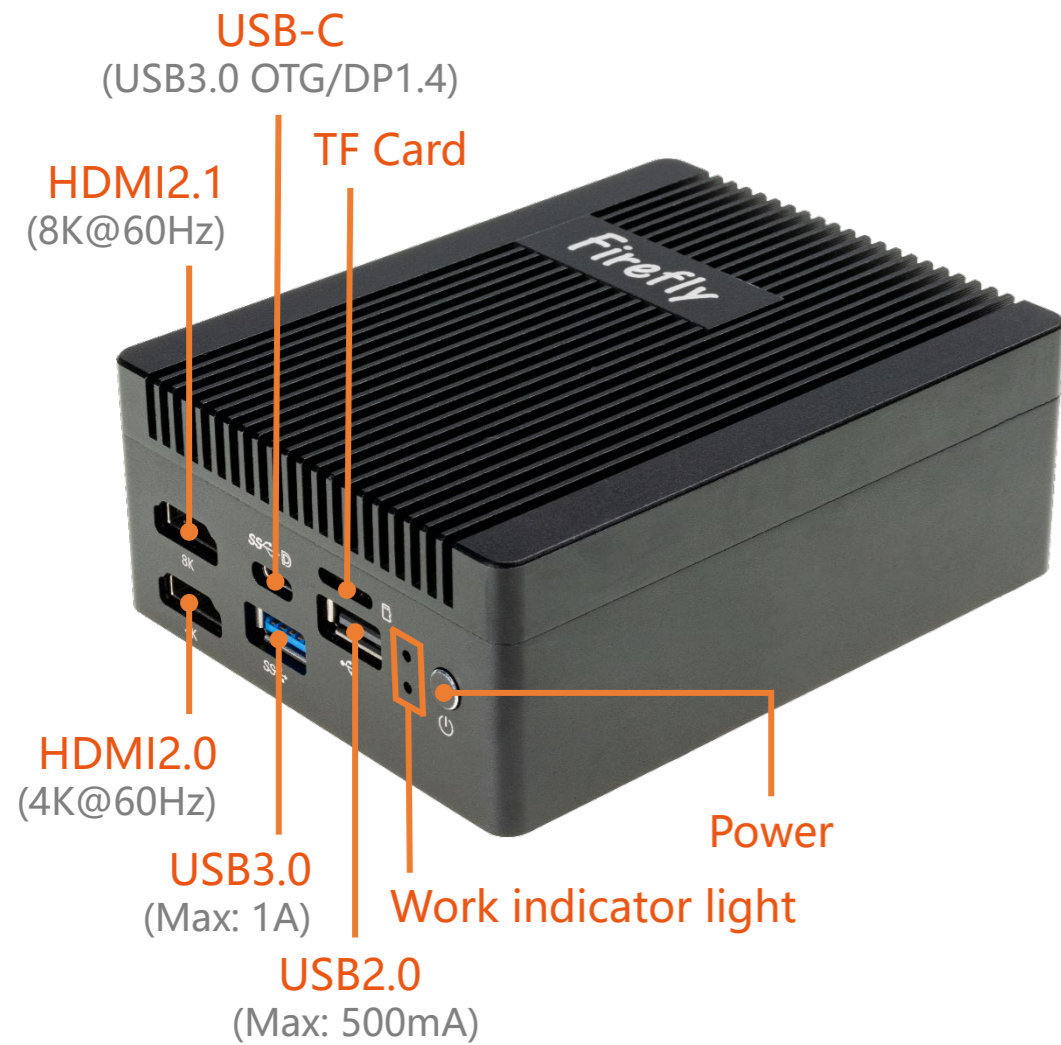


		EC-R3588RT	EC-R3588RT 2G5	EC-R3588RT 10G
Basic Specifications	CPU	RK3588, Octa-core 64-bit (4*Cortex-A76+4*Cortex-A55), up to 2.4GHz		
	GPU	ARM Mali-G610 MP4 Quad-core GPU, supports OpenGL ES3.2/OpenCL 2.2/Vulkan1.1, 450 GFLOPS		
	NPU	Equipped with a powerful NPU delivering 6 TOPS of computing power, it supports INT4/INT8/INT16 mixed operation and framework switching of TensorFlow/MXNet/PyTorch/Caffe		
	VPU	Hard decoding: 8K@60fps H.265/VP9/AVS2, 8K@30fps H.264 AVC/MVC, 4K@60fps AV1, 1080P@60fps MPEG-2/-1/VC-1/VP8 Hard encoding: 8K@30fps H.265/H.264		
	RAM	4GB/8GB/16GB/32GB LPDDR4		
	Storage	32GB/64GB/128GB/256GB eMMC		
	Storage Expansion	1 * M.2 SATA/PCIe NVMe SSD(2242) (inside the computer), 1 * TF Card Slot		
	Power	DC 12V (5.5*2.1mm, support 9V~36V wide voltage input)		
	Power consumption	Max: 14.4W(12V/1200mAh) Normal: 3.6W(12/300mAh) Min: 0.048W(12V/4mAh)	Max: 15.6W(12V/1300mAh) Normal: 6W(12V/500mAh) Min: 0.048W(12V/4mAh)	Max: 24W(12V/2000mAh) Normal: 12W(12V/1000mAh) Min: 0.048W(12V/4mAh)
	OS	Android, Linux OS, OpenWRT		
	Software support	Equipped with Firefly edge computing gateway management system for the Industrial Internet of Things: 1) With a rich array of resource graphs, the system can effortlessly monitor and track system information, such as network traffic, CPU load, memory, and disk usage. 2) It includes system setting tools such as OTA and OTG upgrades, software log management, WebTTY, NTP, and firewall. It supports a variety of mainstream industrial protocols, including MQTT and Modbus TCP/RTU for edge computing. 3) The system supports the import and export of custom physical modeling(LUA scripts). It integrates seamlessly with IoT cloud services like EMQX, Alibaba Cloud, and Huawei Cloud, facilitating easy connection and management of field devices.		
	Size	113mm * 88mm * 42 mm	113mm * 88mm * 54 mm	113mm * 88mm * 58.5 mm
Environment	Operating Temperature: -20°C ~ 60°C, Storage Temperature: -20°C ~ 70°C, Operating Humidity: 10% ~ 90%RH(non-condensing)			
Interface Specifications	Gigabit Ethernet	2-way	2-way	2-way
	2.5G Ethernet	1 way	5-way	1 way
	10G SFP+ Fiber port	without	without	2-way
	WiFi	WiFi6/BT5.2 can be expanded via M.2	without	WiFi6/BT5.2 can be expanded via M.2
	Video output	1 * HDMI2.1(8K@60Hz), 1 * HDMI2.0(4K@60Hz), 1 * DP1.4(8K@30Hz, output via Type-C)		
	Audio output	1 * 3.5mm Audio jack(Support MIC recording, American Standard CTIA)		
	USB	1 * USB3.0 (Max: 1A), 1 * USB2.0 (Max: 500mA), 1 * USB-C (USB3.0 OTG/DP1.4)		

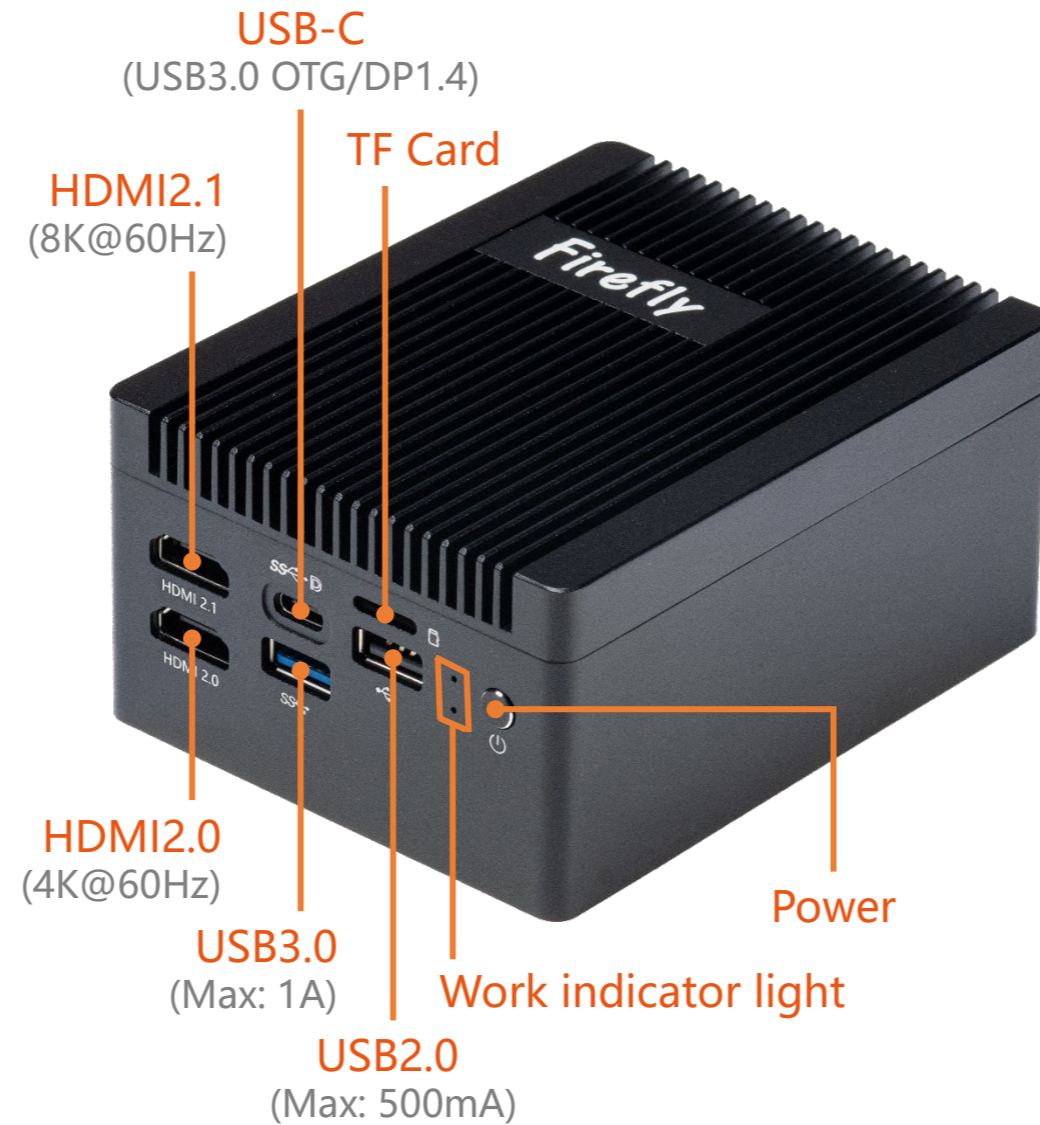


# Interface description

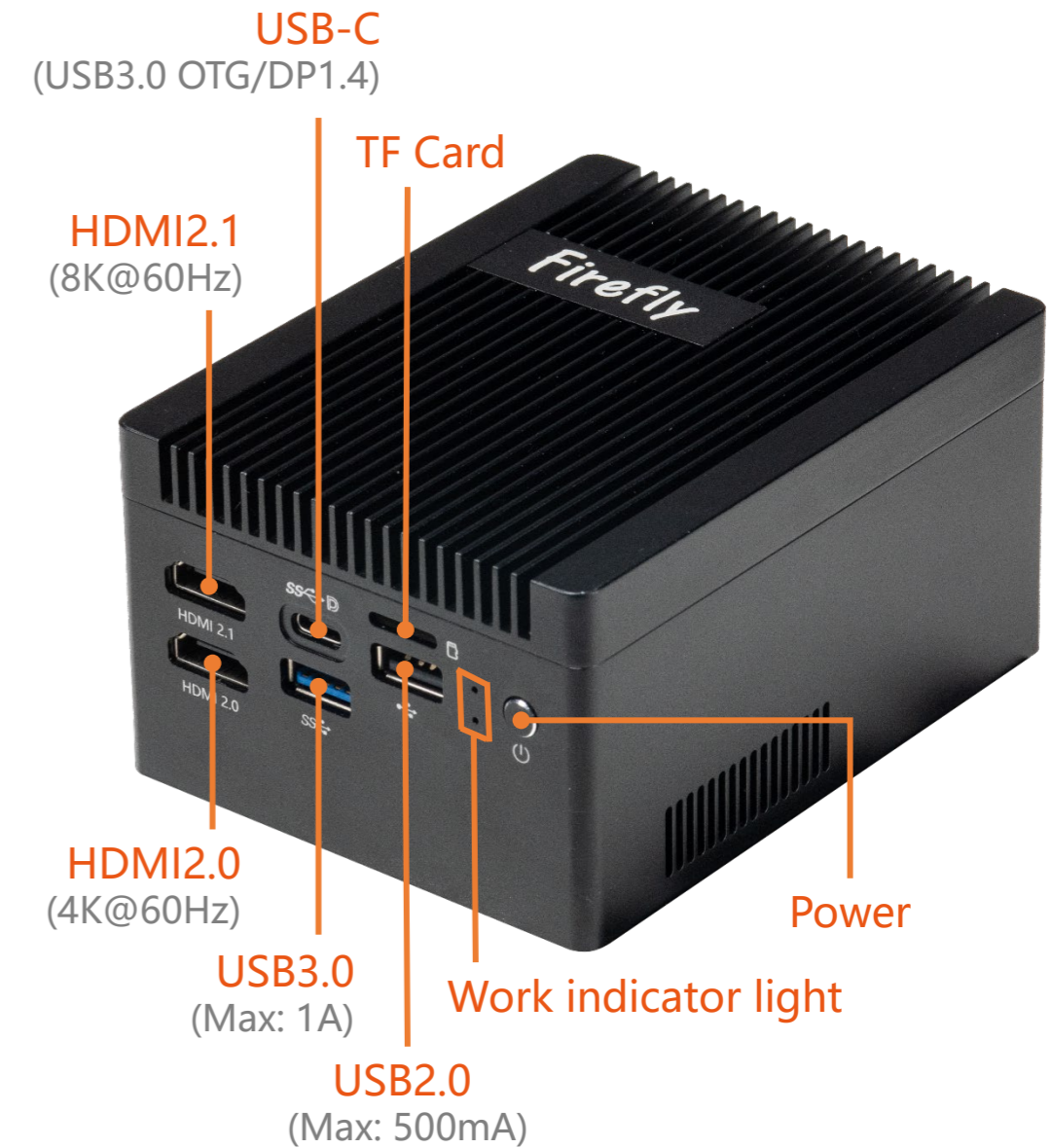
## Front interface



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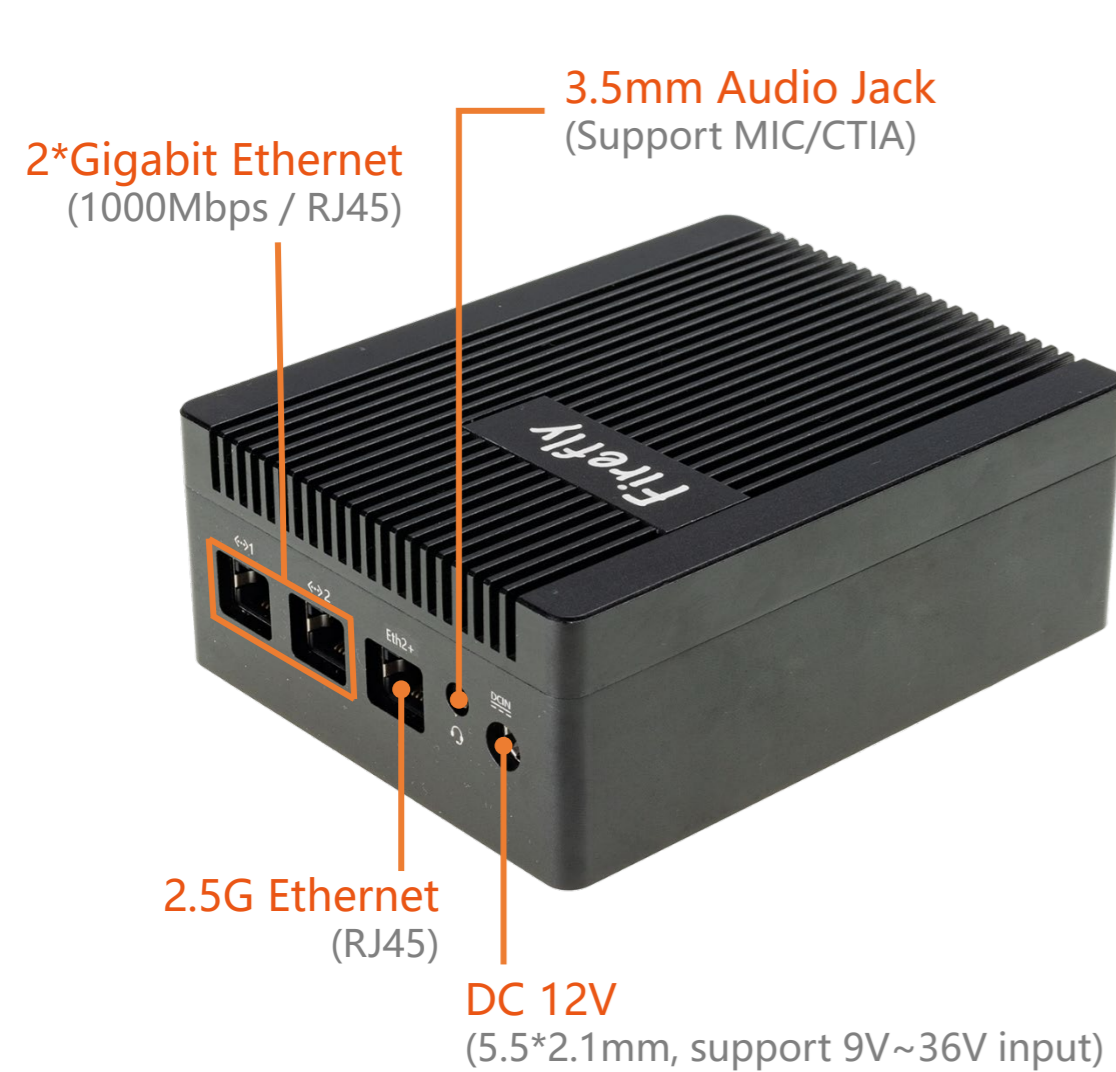
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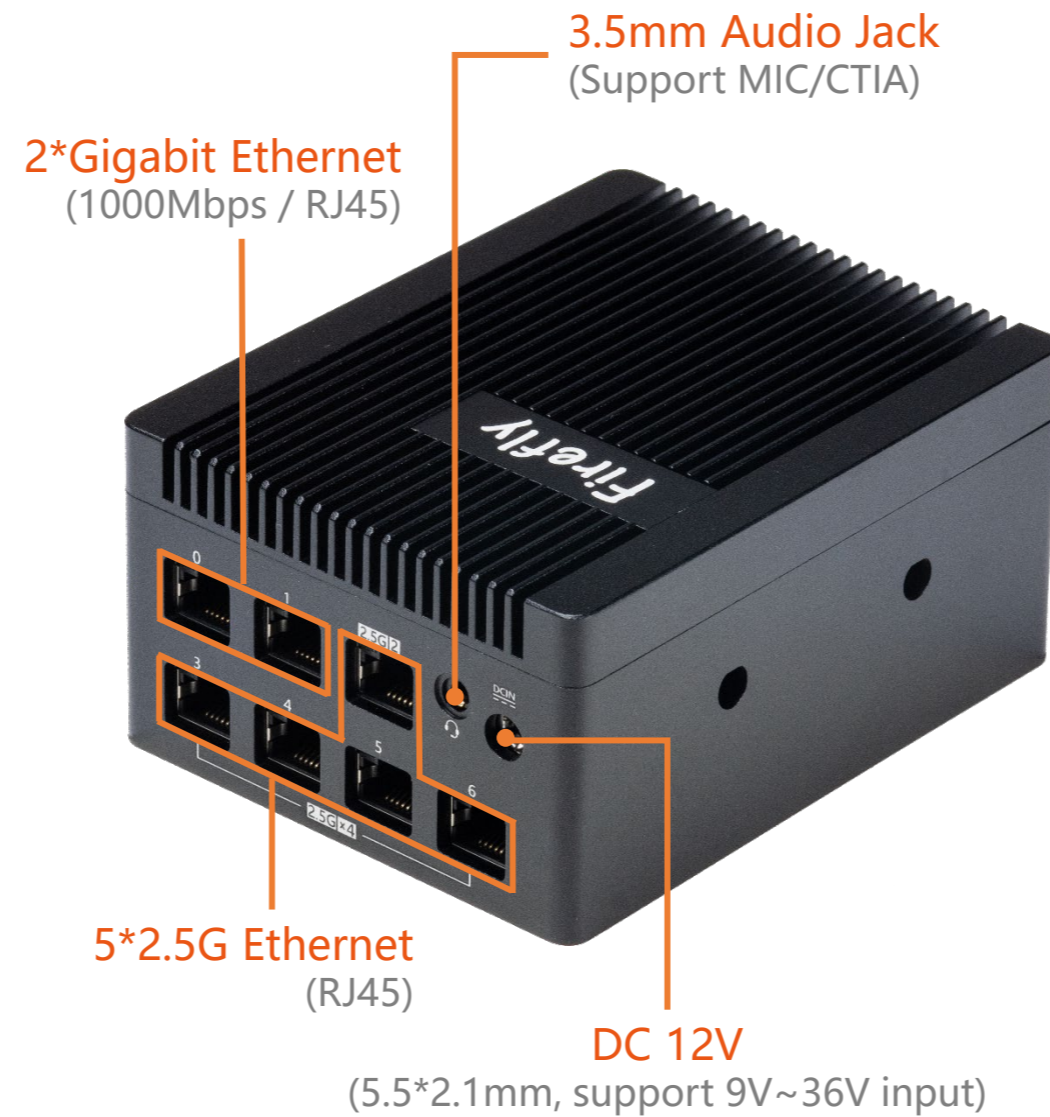
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# Interface description

## Back interface



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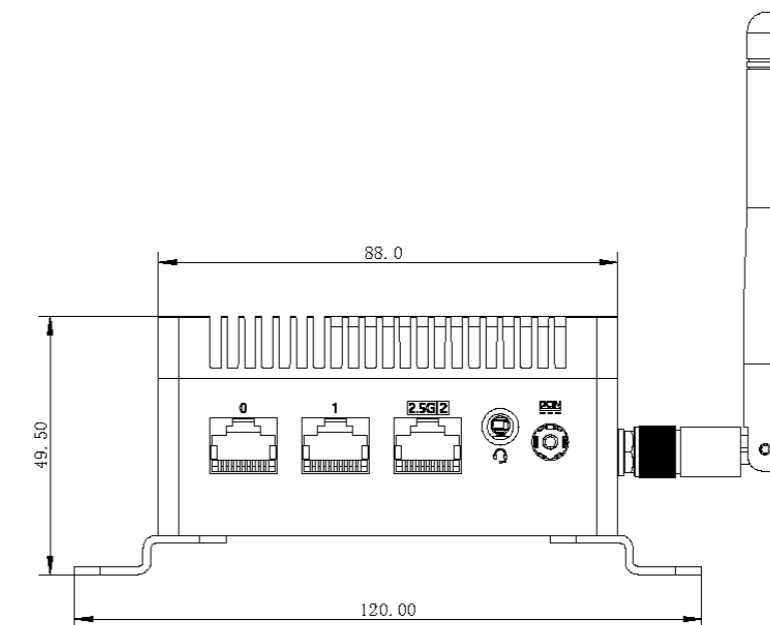
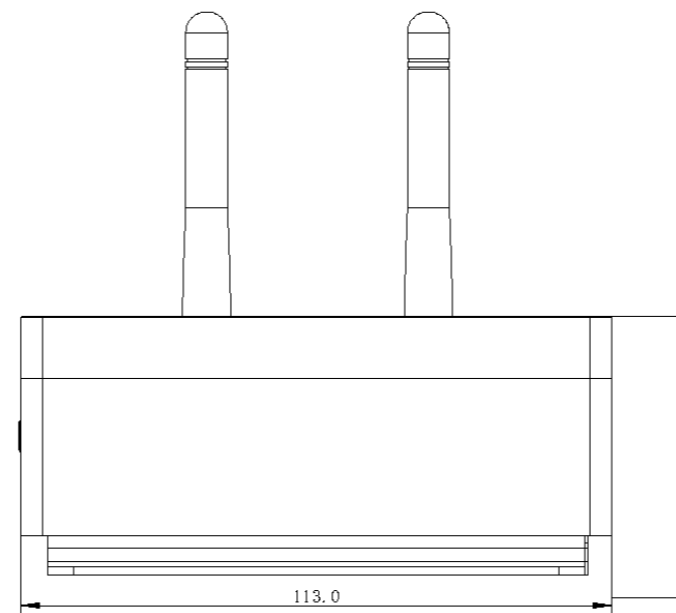
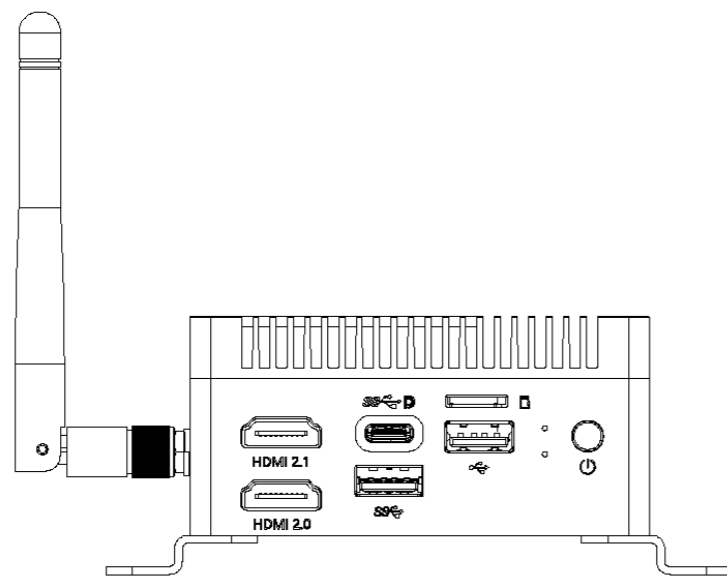
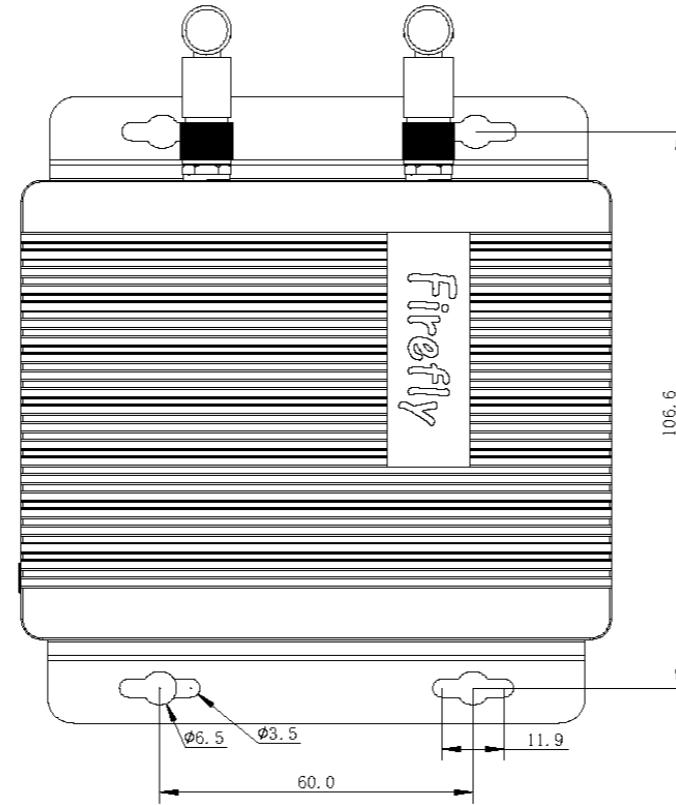
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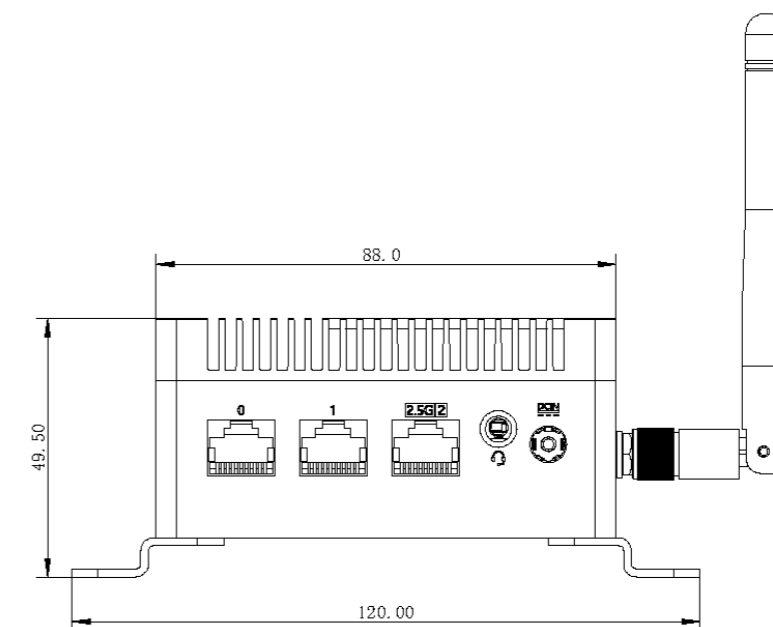
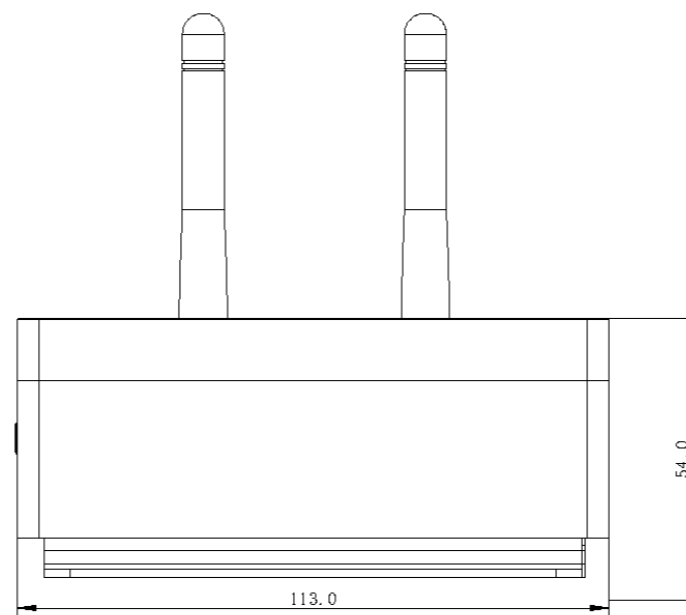
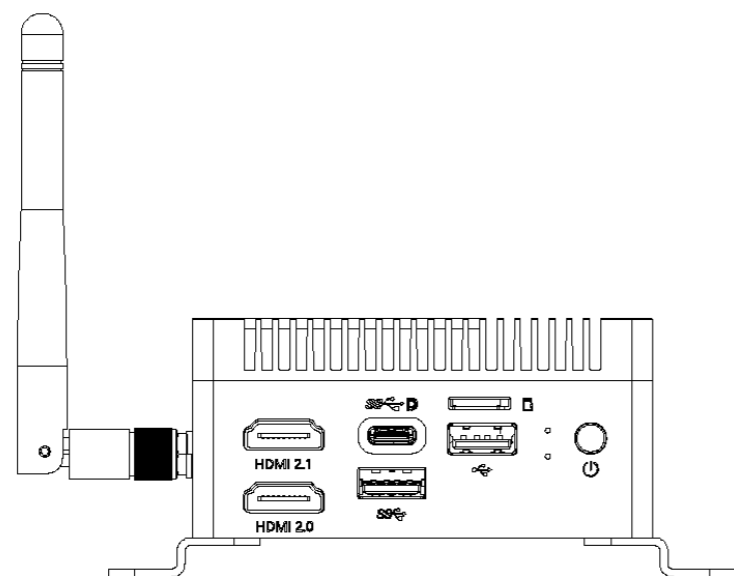
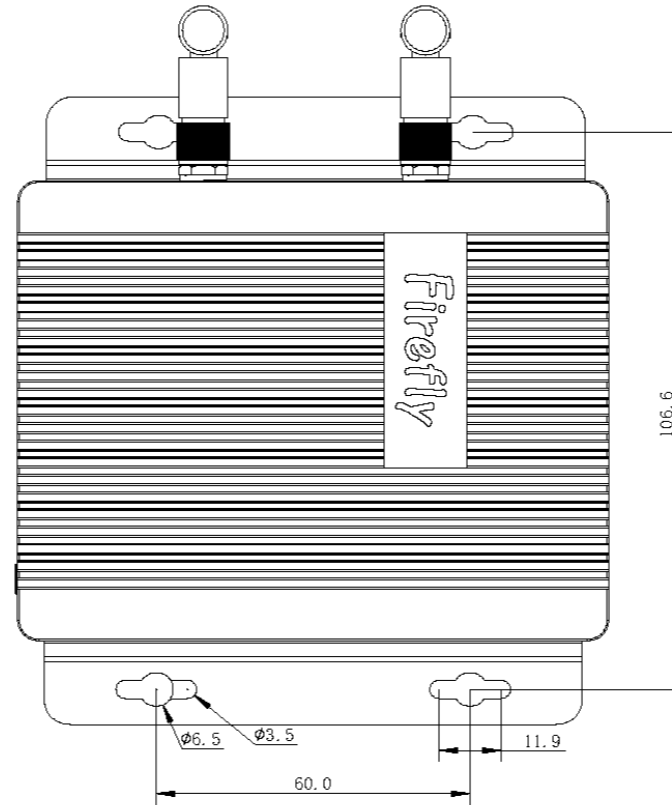
# Dimension

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# Dimension

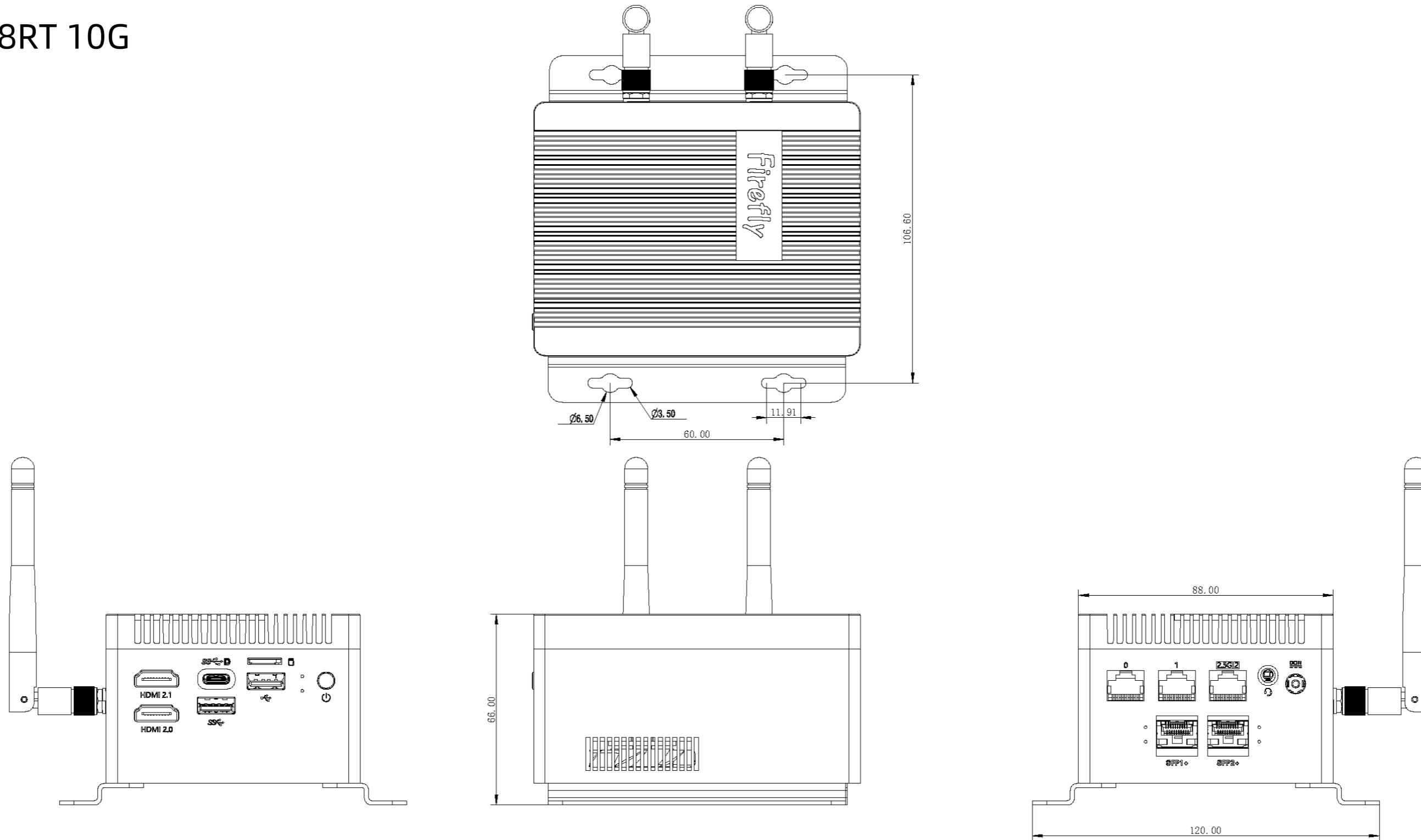
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# Dimension

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