



CSB2-N10SPK3

| RISC-V Server

V1.0 2026-5-26

FIREFLY TECHNOLOGY



Product features



10 Computing Nodes, Providing Strong Computing Power

The server is built-in with 10 SpacemiT K3 computing nodes, and the number of computing nodes is optional. Each node adopts an 8-core X100 + 8-core A100 processor with a maximum main frequency of 2.4GHz and a peak computing power of 60TOPS (SquareINT4), capable of running 30B large models.



Supports Mainstream Linux Distribution Build Systems

Supports mainstream build systems such as Open Build Server and Koji. Its native compilation performance is over 7 times higher than X86 QEMU, with cost performance improved by 15 times compared with equivalent-spec X86 devices.



Complete RISC-V Hardware Virtualization

Supports RISC-V hardware virtualization. It delivers CPU and memory virtualization capabilities via the RVH1.0 extension, interrupt virtualization through the RV AIA extension, and peripheral virtualization with the RV IOMMU extension.



Higher-Level Security Defense Technology

Supports M/S/U three-level privileges, defends against Spectre, Meltdown and other vulnerability attacks at the hardware level, adopts RISC-V PMP/ePMP and dedicated IOPMP mechanisms to establish high-level security protection, supports secure boot, secure storage and signature verification, and integrates AES, SHA, RSA, SM2, SM3 and SM4 algorithms.

Product features



Bundled BMC Management System

Equipped with an intelligent BMC management system, it enables real-time monitoring, software and hardware configuration, troubleshooting, anomaly alarms, system upgrades and remote O&M. Secondary development is also available.



Remote RISC-V Debugging Function

It supports remote automatic flashing, remote serial port debugging, remote SSH, WEB IDE and remote desktop, delivering an out-of-the-box remote debugging environment.



Ultra-high Energy Efficiency Ratio

The overall power consumption of the server ranges from approximately 150W to 300W. Its computing performance is comparable to that of a mid-range X86 server, delivering a 60% reduction in electricity costs compared with X86 servers at the same performance level.



Wide Range of Application Scenarios

Widely applicable to intelligent computing servers, edge computing, local deployment of large models, smart city, smart healthcare, smart industry, intelligent security and other related products and fields.

Specifications



Specifications		
Technical Specifications	Server form	2U rack-mounted computing power server
	Architecture	RISC-V architecture
	Number of nodes	10 distributed computing nodes + 1 control node
	Compute nodes	8-core X100™ 64-bit RISC-V AI processor SpacemiT Key Stone K3, with a maximum main frequency of 2.4GHz. A single node delivers 130K DMIPS of general-purpose computing power and fully complies with the RVA23 Profile. Its single-core SpecInt2006 exceeds 9.0/GHz, with performance equivalent to ARM-A76.
	Codec	Video Encoding: 4K@90fps H.265/H.264 Video Decoding: 4K@180fps H.265/H.264/VP9
	Control nodes	Octa-core 64-bit processor RK3588, main frequency up to 2.4GHz, the highest computing power is 6TOPS
	AI performance	600 TOPS (60T × 10, SquareINT4). It supports the RVV vector instruction set, native FP8 inference and multimodal algorithm acceleration. A single node can run 30B local models, with model performance exceeding 10 Tokens/S@30B, enabling deployment of all AI algorithms and models.
	RAM	32GB LPDDR5 × 10 (8/16/32GB)
	Storage	128GB UFS2.2 × 10
	Storage expansion	3.5-inch/2.5-inch SATA3.0 SSD hard drive slot × 6 (Supports hot swapping; BMC can directly operate the hard drive, and computing child nodes can indirectly access the hard drive through the network sharing method provided by BMC)
	PCIe expansion slot	Supports 1 × half-height half-length PCIe 2.0 x4 standard slot (signal rate: PCIe 2.0 x1)
	Power	Single power supply (default) / Redundant dual power supplies optional
	Fan module	4 high-speed cooling fans
BMC	The BMC management system is integrated with the web-based management interface, supporting Redfish, VNC, NTP, monitoring advanced and virtual media, and the BMC management system can be redeveloped	
Physical Specifications	Size	Standard 2U rack servers: 487.9mm × 530.59mm × 88.8mm
	Installation requirements	IEC 297 Universal Cabinet Installation: 19 inches wide and 800 mm deep and above Retractable slideway installation: The distance between the front and rear holes of the cabinet is 543.5mm~848.5mm
	Full weight	Server net weight: 11.5kg, total weight with packaging: 13.7kg
	Environment	Operating Temperature: 0°C ~ 42°C, Storage Temperature: -40°C ~ 60°C, Operating Humidity: 5% ~ 80%RH (non-condensing)
Interface Specifications	Internet	2 × 10G Ethernet (SFP+), 2 × Gigabit Ethernet (RJ45), 1 × Gigabit Ethernet (RJ45, MGMT is used as BMC management network)
	Console	1 × Console (RJ45, BMC debug serial port, baud rate 115200)
	Display	1 × VGA (maximum resolution 1080P, BMC management display)
	USB	2 × USB3.0 (Lower USB port is USB3.0 OTG, supporting BMC upgrade via USB flash drive) 1 × USB2.0 (Internal USB2.0 port, maintains appearance integrity and enables expansion of internal dongles, Bluetooth, Wi-Fi modules, etc.)
	Button	1 × Reset, 1 × UID, 1 × Power



Compilation scenario

The server supports mainstream distributed build systems such as Open Build Server and Koji. The single-node compilation performance is 7 times higher than that of X86 Qemu, and the cost performance is improved by 15 times compared with X86 servers of the same specification.

The screenshot shows the Open Build Service (OBS) web interface. At the top, there is a navigation bar with 'Open Build Service' logo, 'Watchlist', and a search box. Below the navigation bar, the breadcrumb path is 'Projects / home:Admin:k3-demo / Overview'. The main content area has a sub-navigation bar with 'Overview', 'Repositories', 'Monitor', 'Requests', 'Users', 'Subprojects', 'Project Config', 'Attributes', 'Meta', and 'Status'. The 'Overview' tab is active, showing the 'K3 OBS Demo Project' details. It includes a description: 'Demo project for video recording on k3 multi-node workers' and three action buttons: '+ Create Patchinfo', 'Edit Project', and 'Delete Project'. Below this, there are two main sections: 'Packages' and 'Build Results'. The 'Packages' section shows a table with 3 entries, sorted by 'Changed' time. The 'Build Results' section shows a 'riscv_demo' build with a 'succeeded: 3' status.

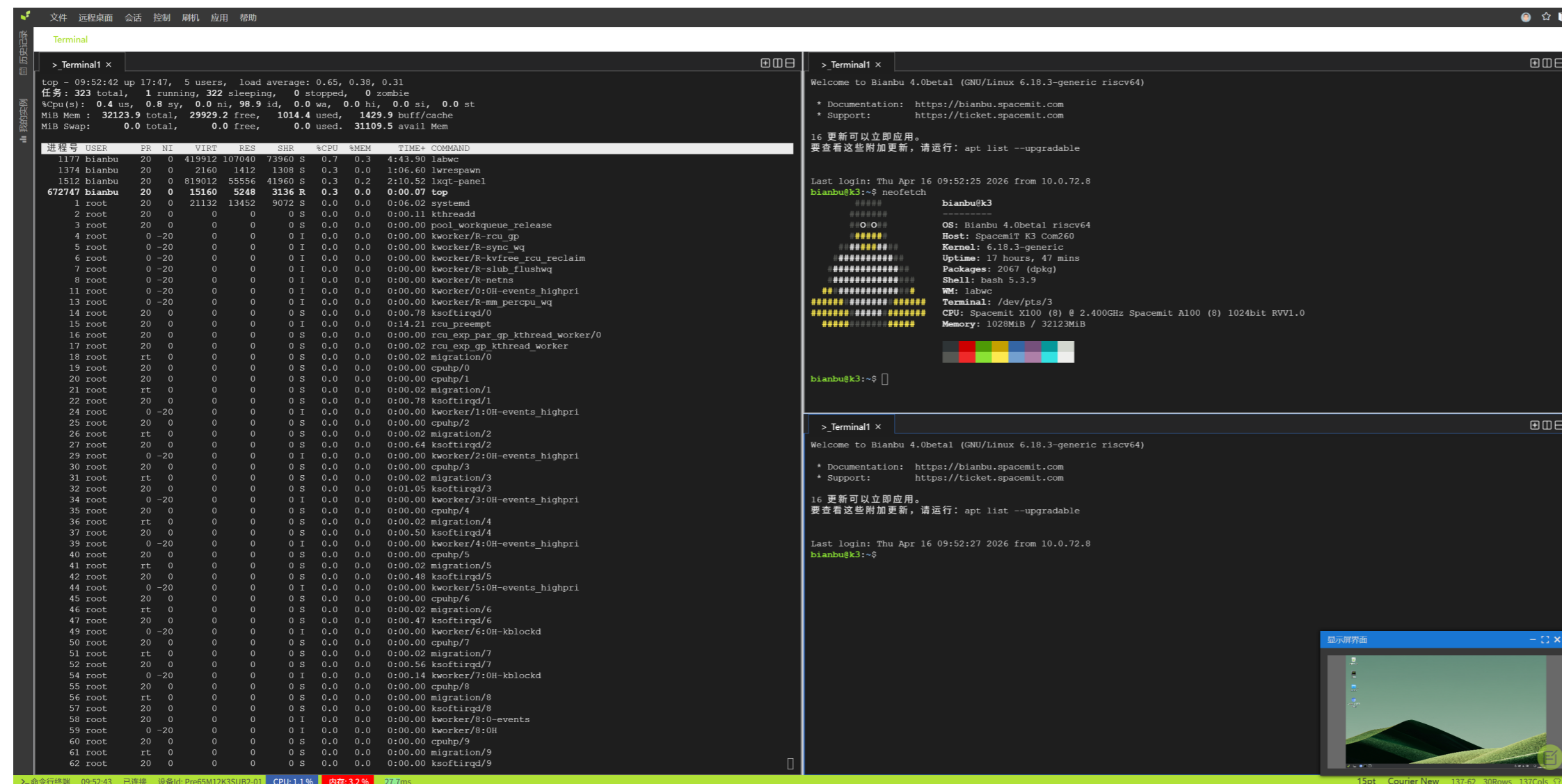
Name	Changed
demo-hello	22 minutes
demo-info	18 minutes
demo-time	22 minutes

	RISC-V K3	x86 qemu-user
Specifications	X100 @ 2.4GHz	INTEL(R) XEON(R) GOLD 6548Y+ @2.5GHz
Build Threads	8 threads	8 threads
Build Target	linux-6.18	linux-6.18
Build Time	22m 28s	2h 50m



RISC-V Software porting

Pre-installed with a full Linux distribution, it delivers out-of-the-box RISC-V software ecosystem adaptation and compatibility verification capabilities. It supports seamless integration with CI/CD systems to implement end-to-end automated testing for the RISC-V software ecosystem.



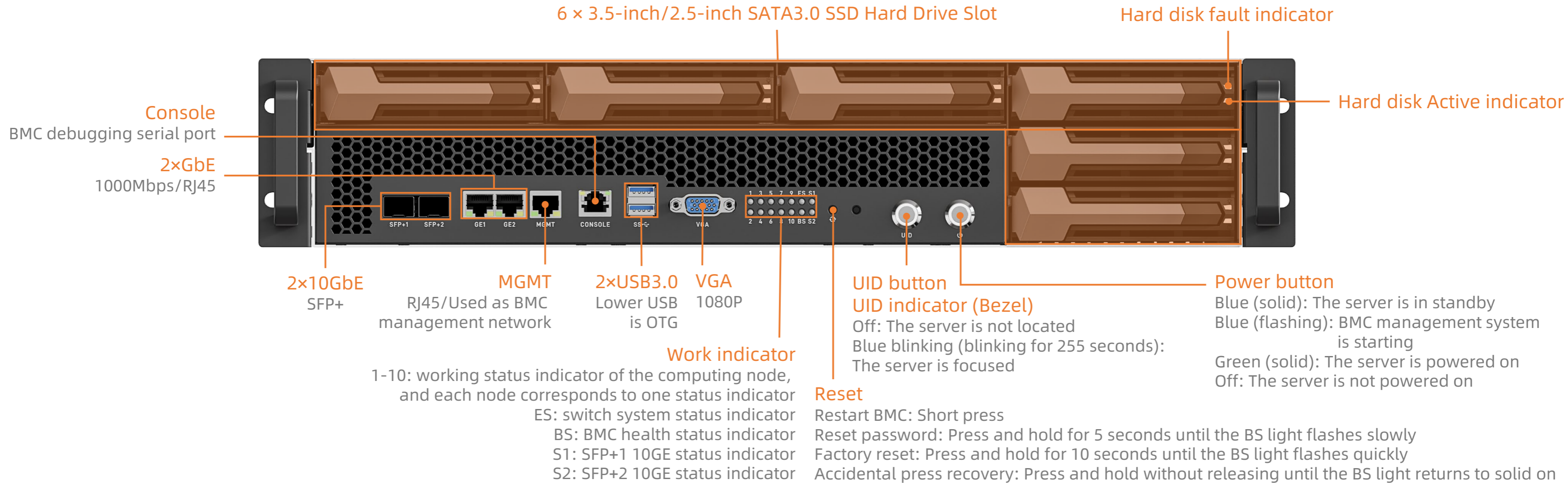
Supports the following scenarios:

- Automatic firmware flashing and upgrade
- Remote SSH Terminal
- Remote serial port debugging
- Remote desktop operation
- Remote file management
- Remote Web IDE debugging

Interface description



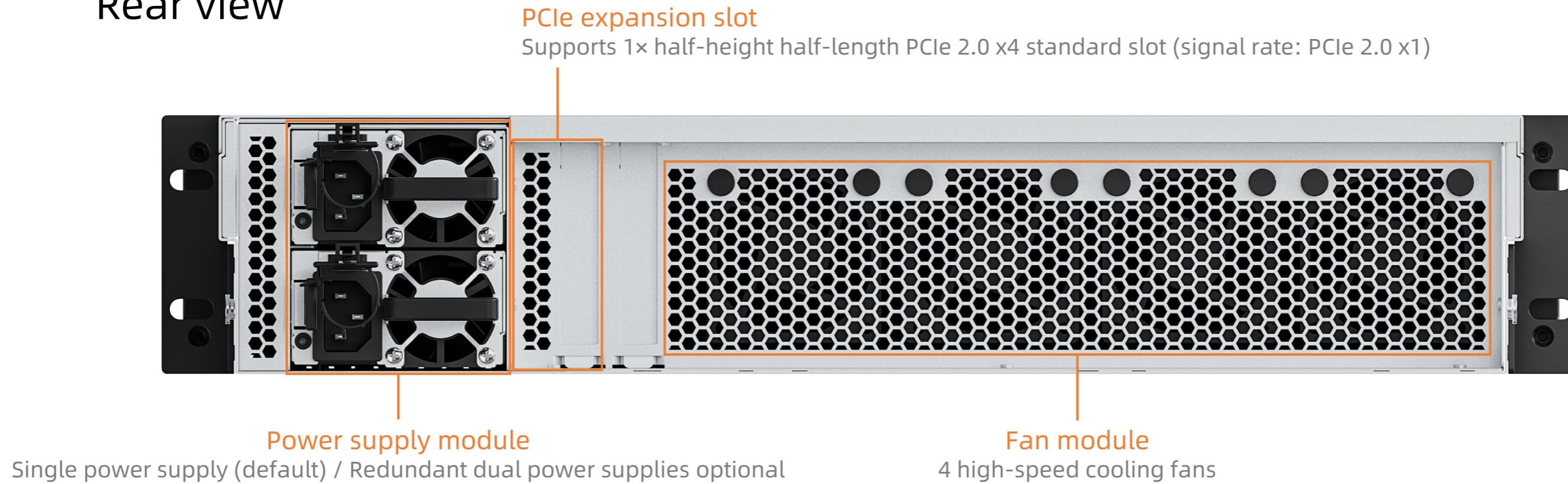
Front view



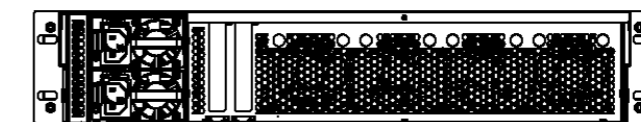
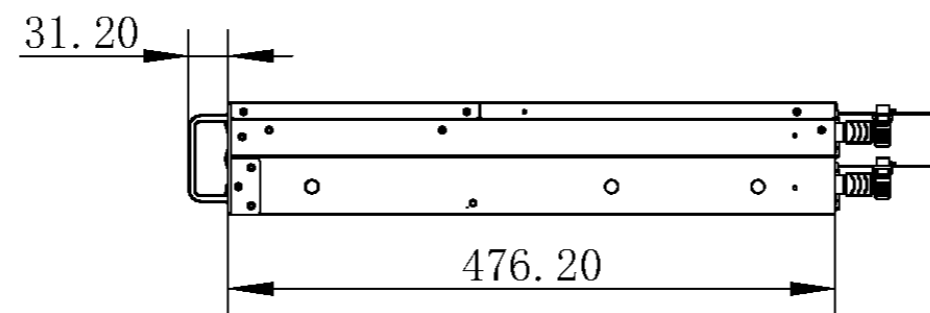
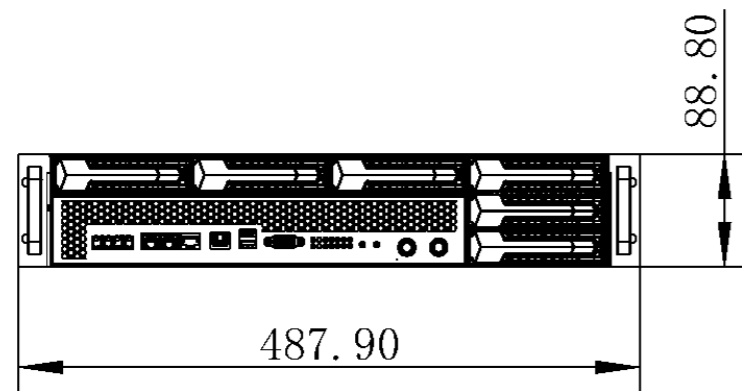
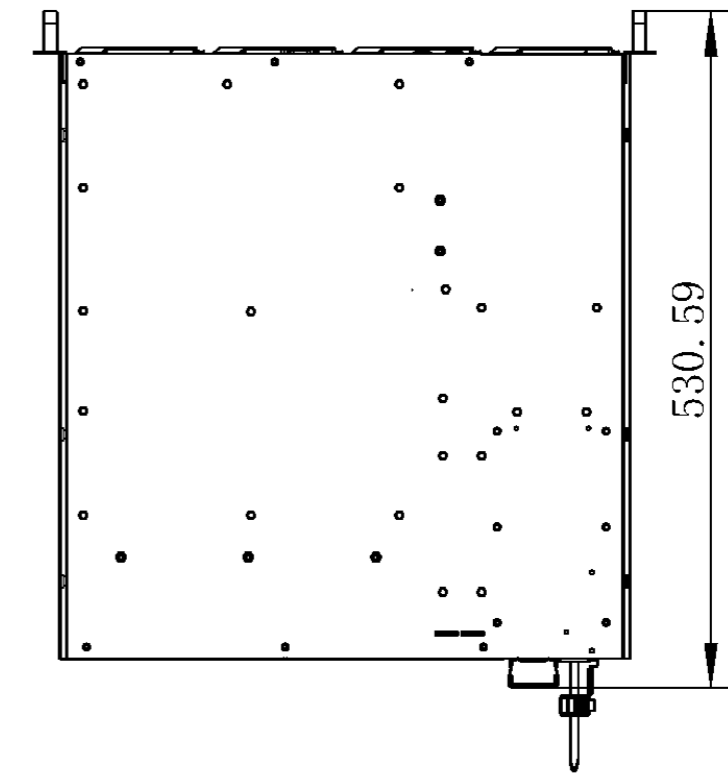
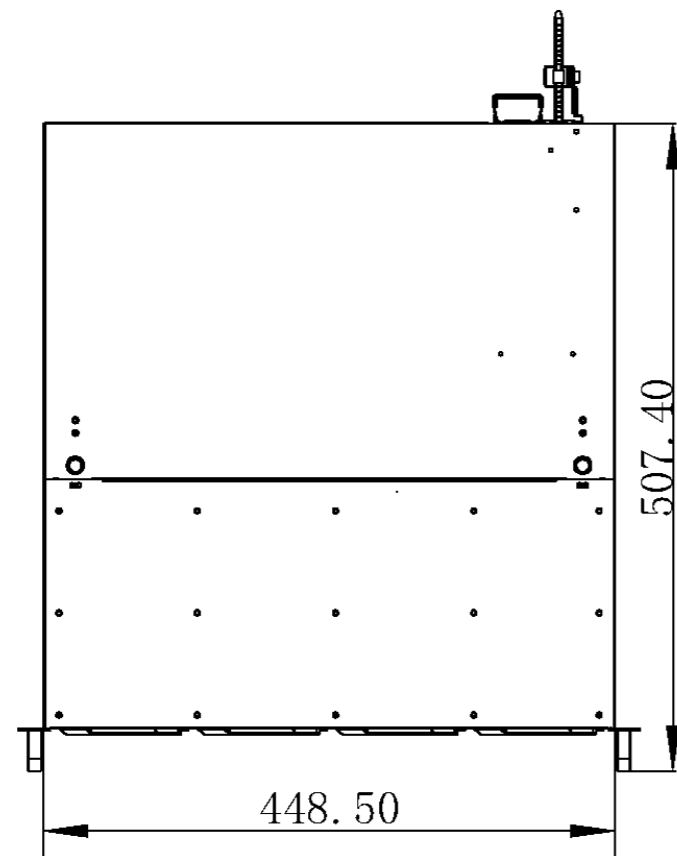
Interface description



Rear view





Dimension







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