10-node 160T Cluster Server

- CSB1-N10S1688
- CSB1-N10R3588
- CSB1-N10R3576

V1.0 2024-11-27

T-CHIP INTELLIGENCE TECHNOLOGY

Product features

160TOPS powerful computing power

The total computing power of the server is up to 160TOPS, with 10 built-in distributed computing nodes + 1 control node, and a single node is equipped with octa-core AI processor.

Powerful multi-channel video processing capabilities

It supports up to 160 channels of H.265/H.264 1080p@30fps video decoding and 100 channels of H.265/H.264 1080p@30fps video encoding.

Supports the private deployment of large language models

It supports the privatization and deployment of ultra-large-scale parametric models under the Transformer architecture, such as Gemma-2B, ChatGLM3-6B, Qwen-1.8B and other large language models. Supports Docker containerized management technology.

Supports a variety of deep learning frameworks

Support traditional network architectures such as CNN, RNN, LSTM, etcSupports multiple deep learning frameworks such as TensorFlow, PyTorch, PaddlePaddle, ONNX, Caffe, etc., and supports custom operator development.

Product features

Secure and high-speed network communication

It has 2×10 Gigabit Ethernet ports, 2×Gigabit Ethernet ports, and 1×BMC management network interface, so that network communication has a higher speed.

Standard 1U rack server

Highly dense and tightly deployed, with 10 computing modules per unit; The standard 1U rack server chassis design perfectly matches most types of cabinets in the data center.

Equipped with BMC management system

Equipped with BMC intelligent management system, it can easily complete real-time monitoring, software configuration, hardware management, troubleshooting, system upgrade, and can provide secondary development.

Wide range of application scenarios

It is widely used in intelligent computing servers, edge intelligent computing boxes, industrial computers, intelligent network cameras, AIOT, intelligent security and other types of products and fields.

Specifications

		CSB1-N10S1688	CSB1-N10R3588	CSB1-N10R3576
Technical Specifications	Server form	1U rack-mounted computing power server		
	Framework	ARM architecture		
	Number of nodes	10 distributed computing nodes (up to 80 ARM cores) + 1 control node		
	Compute nodes	Octa-core 64-bit processor BM1688, main frequency up to 1.6GHz	Octa-core 64-bit processor RK3588, main frequency up to 2.4GHz	Octa-core 64-bit processor RK3576, main frequency up to 2.2GHz
	Control nodes	Octa-core 64-bit processor RK3588, main frequency up to 2.4GHz, the highest computing power is 6TOPS		
	AI computing power	160TOPS (INT8)	60TOPS (INT8)	60TOPS (INT8)
	RAM	8GB LPDDR4 × 10 (Number of compute nodes) (Optional: 4GB/8GB/16GB)	16GB LPDDR4 × 10 (Number of compute nodes) (Optional: 4GB/8GB/16GB/32GB)	8GB LPDDR4 × 10 (Number of compute nodes) (Optional: 4GB/8GB/16GB)
	Storage	32GB eMMC × 10 (Number of compute nodes)(Optional: 16GB/32GB/64GB/128GB/256GB)	256GB eMMC × 10 (Number of compute nodes)(Optional: 16GB/32GB/64GB/128GB/256GB)	64GB eMMC × 10 (Number of compute nodes)(Optional: 16GB/32GB/64GB/128GB/256GB)
	Storage Expansion	3.5-inch/2.5-inch SATA3.0/SSD hard drive slot × 1 (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)		
	Power	550W AC power supply (Input: 90V AC~264V AC, 47 Hz~63 Hz, 8A) (Hot swappable not supported)		
	Fan module	6 high-speed cooling fans		
Physical Specifications	Size	420.0mm(L) × 421.3mm(W) × 44.4mm(H)		
	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: 8.1kg, total weight with packaging: 10.3kg		
	Environment	Operating Temperature: 0°C ~ 45°C, Storage Temperature: -40°C ~ 60°C, Operating Humidity: 5% ~ 90%RH(non-condensing)		
Software Specifications	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		
	Large model	The private deployment of ultra-large-scale parameter models under the Transformer architecture, including large language models such as Gemma-2B, ChatGLM3-6B, Qwen-1.8B.		
	Deep learning	Traditional network architectures such as CNN, RNN, and LSTM; a variety of deep learning frameworks, including TensorFlow, PaddlePaddle, Caffe and ONNX, as well as custom operator development Docker container management technology		
Interface Specifications	Internet	2 × 10G Ethernet (SFP+), 2 × Gigabit Ethernet (RJ45), 1 × Gigabit Ethernet (RJ45, MGNT 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 (The lower USB is USB3.0 OTG, and the BMC can be upgraded OTG by using a USB flash drive)		
	Button	1 × Reset, 1 × UID, 1 × Power button		
	Other interfaces	1 × RS232 (DB9, baud rate 115200),1 × RS485 (DB9, baud rate 115200)		

Interface description

Front view

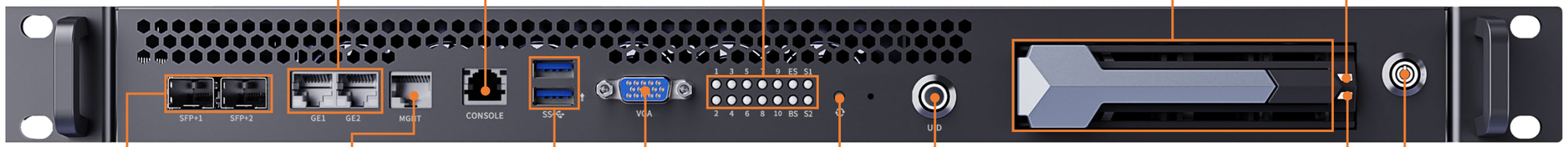
Work indicator
1-10: working status indicator of the computing node, and each node corresponds to one status indicator
ES: switch system status indicator
BS: BMC health status indicator
S1: SFP+1 10GE status indicator
S2: SFP+2 10GE status indicator

2×GE
1000Mbps/RJ45

Console
BMC debugging serial port

3.5-inch/2.5-inch SATA3.0/SSD Hard Drive Slot

Hard disk fault indicator



2×10GE
SFP+

MGNT
RJ45/Used as BMC management network

2×USB3.0
Lower USB is OTG

VGA
1080P

Reset
Restart BMC: Short press
Reset password: Press and hold for 5 seconds until the BS light flashes slowly
Factory reset: Press and hold for 10 seconds until the BS light flashes quickly
Accidental press recovery: Press and hold without releasing until the BS light returns to solid on

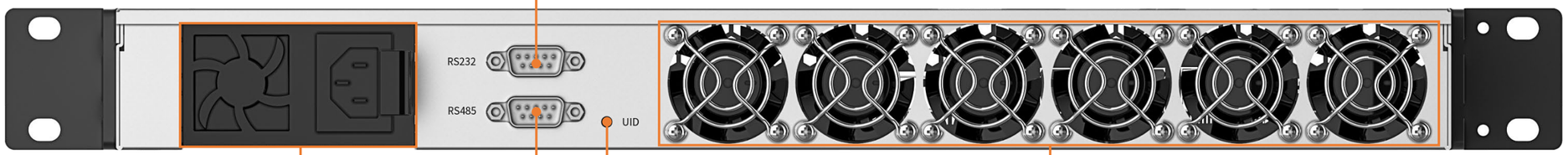
UID button
UID Indicator (Bezel)
Off: The server is not located
Blue blinking (blinking for 255 seconds): The server is focused

Hard disk Active indicator

Power button
Blue (solid): The server is in standby
Blue (flashing): BMC management system is starting
Green (solid): The server is powered on
Off: The server is not powered on

Rear view

RS232
DB9, baud rate 115200



Power module
550W AC power supply
(90V AC ~ 264V AC, 47 Hz ~ 63 Hz, 8A)

RS485
DB9, baud rate 115200

UID indicator
Off: The server is not located
Blue blinking (blinking for 255 seconds): The server is focused

Fan module
6 high-speed cooling fans

Dimension

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