Huawei KunLun Mission Critical Server

KunLun V5
Technical Specifications

Leading Transformation Towards x86 Mission Critical Servers

KunLun Mission Critical Server

Openness is the IT industry trend. For a long time, enterprises have used closed mission critical servers that incur high O&M costs and hinder service innovation. They do not meet enterprises' strategic development requirements in digital economy era. Enterprises need to move their mission critical computing to open architectures. The new era for mission critical servers has come.

Based on the x86 open ecosystem, Huawei KunLun mission critical servers deliver industry-leading high performance and reliability. Compared to closed mission critical servers, KunLun has obvious advantages in terms of flexibility, interoperability, and cost-effectiveness. It helps enterprises accelerate service innovation and take the lead in the digital economy era.

KunLun Mission Critical Server

Application Scenario

KunLun supports both single-node scale-up and multi-node scale-out and incorporates Huawei's innovative RAS 2.0 technology, featuring high stability and reliability, flexible consolidation, and open ecosystem:

Stable and reliable

Innovative RAS 2.0 technology, proactive failure analysis engine (PFAE), intelligent memory guarding system (IMG), and online memory module replacement, ensuring service continuity. (Note 1)

Flexible consolidation

Support for scale-up and scale-out, delivering 40% higher performance than RISC servers; physical and logical partitioning, flexibly meeting service requirements.

Open ecosystem

Cooperating with the world's top partners in building open, comprehensive industry chains and E2E solutions, improving the economic efficiency of mission critical computing and enterprises' IT ROI.

Database
Compatible with mainstream databases such as Oracle DB/IBM DB 2/SQL Server, 30% lower TCO and 40% higher performance

In-memory computing
Certified for operating full-series SAP HANA of 512 GB to 16 TB, massive data real-time interaction and insight

HPC fat node
Support for 18x single-node computing resources, 25x memory bandwidth, and ns-level transmission latency for higher service processing efficiency

Cloud computing & virtualization
Elastic computing resources, unified management, and strong interoperability, simplifying O&M complexity

Note 1: KunLun 9008/9016 supports memory module hot swap in SAP HANA scenarios. This hot swap feature is under R&D for KunLun 9008 V5 adopting a brand-new processor. KunLun 9008 V5 is planned to support CPU and memory module hot swap when it adopts the second-generation Intel® Xeon Scalable Processor (codename: Cascade Lake).

Highlights

Stable and reliable
RAS 2.0 proactive fault management for service continuity

- Multi-layer fault-tolerant architecture: fault-tolerant chips, firmware, and OSs, fully-redundant architecture, avoiding single point of failures.
- Proactive failure analysis engine (PFAE): OS-independent fault information collection and analysis, component-level proactive fault warning, locating, isolation, and replacement.
- Online memory module maintenance: Core components such as memory modules can be maintained without shutting down the server, maximizing server uptime. (Note 1)
- Modular design for easy maintenance without opening the chassis cover: Tool-free maintenance, 8-inch touch-LCD for efficient diagnosis and maintenance, greatly improving O&M efficiency.

Flexible consolidation
Service-oriented partition management and on-demand computing resource allocation

- KL-Par partitioning: K-Par physical partitioning and L-Par logical partitioning, allowing flexible partitioning, maximizing resource utilization.
- Industry-leading performance: Industry-leading performance proven in SPEC CPU2006 and online transaction processing capability, 40% higher than closed mission critical servers.

Open ecosystem
Comprehensive industry chain support, E2E solution capabilities

- Complete, mature industry chain: Compatible with mainstream databases (Oracle DB/IBM DB2/SQL Server/SAP HANA), middleware, and OSs (Red Hat Linux/SUSE Linux/Windows Server). Cooperates with partners to promote industry chain development and meet enterprises' core requirements.
- Comprehensive solution capabilities: Huawei has a professional solution development team that provides one-stop services from consulting, planning, to after-sales O&M. Its extensive UNIX to Linux migration experience helps enterprises accelerate their transformation to open mission critical computing.
- Better economic benefits of mission critical computing: Compared with conventional UNIX servers, KunLun reduces TCO by over 30% and brings higher IT ROI.

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KunLun 9008 V5 Product Specifications

Category	Item	KunLun 9008 V5
Basic configuration		One system compute enclosure (SCE) and one central management enclosure (CME) (Note 1)
Processors		2/4/6/8 Intel® Xeon® Scalable processors (Skylake) with a maximum TDP of 205 W
Memory		96 DDR4 DIMM slots and up to 12 TB memory capacity
Local storage		Up to 48 x 2.5-inch SAS/SATA HDDs or 40 x 2.5-inch NVMe SSDs; supports external storage of M.2 drives (supporting hardware RAID)
RAID		RAID 0, 1, 10, 5, 50, 6, or 60; optional supercapacitor for power-off protection for the cache; RAID state transition; RAID configuration memory; self-diagnosis; web-based remote configuration
LOM network ports		2 x 10GE + 2 x GE ports
PCIe expansion		Up to 18 PCIe 3.0 slots
Partitioning	Physical partitioning K-Par	Two physical partitions are supported.
	Logical partitioning (L-Par)	Up to 40 logical partitions per host; 1–96 CPU cores and 1 GB to 4 TB memory capacity per partition; online expansion of CPUs, DIMMs, and drives
Management		Provides comprehensive management features such as fault diagnosis, automated O&M, and hardware security hardening; supports mainstream standard interfaces such as SNMP and IPMI 2.0, facilitating integration with third-party management software; provides remote management interfaces based on HTML5 and VNC KVM; supports features such as Agentless to simplify management. Optionally configured with Huawei eSight management software to provide advanced management features such as automated firmware upgrade, enabling smart and automated entire-lifecycle management
Resource Expansion Enclosure (REE)	PCIe slots	Up to 30 standard PCIe 3.0 slots
	Drives	Up to 12 x 2.5-inch SAS HDDs/SSDs
	RAID	RAID 0, 1, 10, 5, 50, 6, or 60; optional supercapacitor for power-off protection for the cache; RAID state transition; RAID configuration memory; self-diagnosis; web-based remote configuration
DVD drive		Up to one SATA DVD-RW drive
Cabinet door		Acoustic door with an 8-inch LCD touchscreen for local management (management enclosure required)
Fan Modules		Eight hot-swappable counter-rotating fan modules in N+1 redundancy mode
Power supply units	System compute enclosure	Four hot-swappable PSUs in N+N redundancy mode: 2000 W AC Titanium, 2500 W DC Platinum, or 3000 W AC Platinum
	Central management enclosure (CME) and REE	By default, each chassis is configured with two AC PSUs that support 1+1 redundancy.
Mechanical specifications	Dimensions	Cabinet with acoustic doors (H x W x D): 2000 mm x 600 mm x 1550 mm SCE (H x W x D): 325.4 mm x 447 mm x 840 mm CME (H x W x D): 86.1 mm x 447 mm x 750 mm
Environmental specifications	Temperature	Operating temperature: 5°C to 40°C (41°F to 104°F) (ASHRAE Class A3 compliant)
OS and virtualization software		Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), Microsoft Windows Server, VMware ESX For details, visit http://support.huawei.com/onlinetoolsweb/ftca.

Note 1: Supports delivery of basic features without a CME. A CME is required for delivery of advanced features such as logical partitioning.

- Up to 8 CPUs, 224 cores, and 12 TB memory
- Standard cabinet