Hitachi Vantara

Datasheet

Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

The Hitachi Vantara Advanced Server DS9000 series scalable servers are optimized to tackle the most demanding IT challenges. They deliver the highest levels of scalability, availability, reliability and performance, to power business-critical applications such as in- memory databases, artificial intelligence, LLMs and machine learning.

The Power Behind Your Digital Transformation

To take advantage of the latest developments in artificial intelligence (AI), data analytics and machine learning, organizations require an infrastructure with high reliability, extreme performance and agile scalability. Hitachi Advanced Server DS9000 series servers deliver on those requirements with a unique modular architecture. This architecture allows systems to be configured and scaled

to meet the needs of a wide variety of application workloads, from in-memory data analytics processing to virtualization and hybrid cloud.

Hitachi Advanced Server DS9000 series servers are built on a common compute module, based on two Intel Xeon Scalable processors per module. Because of this, each DS9000 model can be smoothly upgraded to the next, preserving your investment in hardware and software as you grow, and making reconfiguration and scaling simple. Compute modules can be individually configured to support a variety of internal compute and storage options.

The DS9000 server family is the ideal platform to deliver the high availability and scalability needed for Hitachi's solutions for business-critical applications.

- **Hitachi Solution for the SAP HANA Platform** makes full use of the huge memory capacity of DS9000 to deliver real-world business benefits from data analytics.

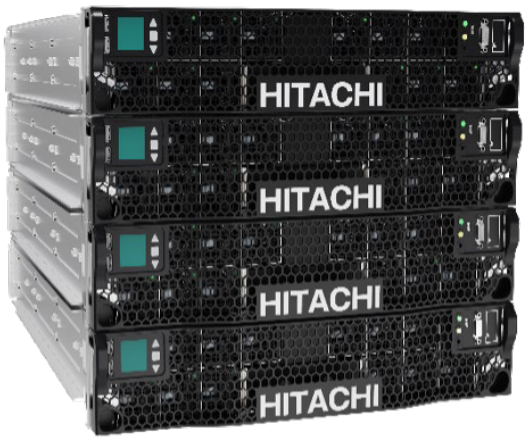
  Learn more →

- **Hitachi Solution for Databases** relies on the powerful performance and massive I/O capacity of the DS9000 series. Meet demanding service level agreements (SLAs) and support rapidly changing workloads, including Oracle Database, and enable your business to thrive and grow.

  Learn more →

Rely on the DS9000 series to power your business-critical applications, including in-memory database environments, artificial intelligence and machine learning. Hitachi Advanced Server DS9000 systems provide

a flexible foundation that not only meets existing requirements but also scales to meet future needs of your IT department.



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Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9020	DS9040	DS9080
Design			
Form Factor	2U	4U	8U
Procesors			
Name	4th Gen Intel® Xeon® Scalable processors		
Numbers	2 (max 120 cores/240 threads)	4 (max 240 cores/480 threads)	6, 8 (max 480 cores/960 threads)
Type	8400, 6400, 5400, 4400 series	8400, 6400 series	
Cores available per processor	8 to 60		
Base Frequency	1.7 to 3.7 GHz	1.9 to 3.7 GHz	
Max Turbo Frequency	3.2 to 4.2 GHz	3.4 to 4.2 GHz	
L3 shared cache per processor	22.5 to 112.5 MB		
Architecture			
Chipset	Intel® C741 chipset (Emmitsburg)		
Ultra Path Interconnect (UPI)	Intel® UPI 2.0: 2-4 usable links per socket, up to 16GT/s	Intel® UPI 2.0: 2-3 usable links per socket, up to 16GT/s	Intel® UPI 2.0: 4 usable links per socket (3 links only for 6-sockets), up to 16GT/s
Scalability	From 2 to 8 sockets by 2-socket increment		
Hardware partitioning	No	Yes	No
Memory			
DIMM slots	32	64	Up to 128
Min/max DRAM	128 GB up to 8 TB (32 x 256 GB1)	256 GB up to 16 TB (64 x 256 GB1)	512 GB up to 32 TB (128 x 256 GB1)
DRAM type	16 GB, 32 GB, 64 GB, 96 GB DDR5 RDIMM / 128GB, 256GB1 DDR5 RDIMM-3DS		
Maximum memory capacity	8 TB (16 x 256 GB)	16 TB (32 x 256 GB)	32 TB (64 x 256 GB)
Embedded I/O Ports			
Management ports	Management interface 1 x 1GbE (RJ45) per hardware partition		
USB ports	2 x USB 3.1	4 x USB 3.1	8 x USB 3.1
Video port	1 VGA port per hardware partition		
Serial port	1 serial port per hardware partition		

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Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9020	DS9040	DS9080
I/O Options			
PCIe slots (hot swap)	Up to 4 PCIe Gen5 x8 and 3 PCIe Gen5 x16 or up to 5 PCIe Gen5 x16	Up to 8 PCIe Gen5 x8 and 6 PCIe Gen5 x16 or up to 10 PCIe Gen5 x16	Up to 16 PCIe Gen5 x8 and 10 PCIe Gen5 x16 or up to 20 PCIe Gen5 x16
NIC adapters	1GbE, 10GbE, 25GbE, 100GbE, 200GbE (2 or 4 ports per NIC according to model)		
FC Host Bus adapters	32, 64Gbps: 2 ports per HBA*		
RAID M.2 adapters	RAID 0/1 card hosting 2 x M.2 NVMe SSDs		
Storage			
M.2 slots (hot swap)	2 x M.2 NVMe SSDs	4 x M.2 NVMe SSDs	8 x M.2 NVMe SSDs
Optional E1.S SSD box	Up to 8 x E1.S 5.9 mm NVMe SSDs (hot swap)	Up to 16 x E1.S 5.9 mm NVMe SSDs (hot swap)	Up to 32 x E1.S 5.9 mm NVMe SSDs (hot swap)
SAN	Any Ethernet and FC compliant external array (Dell EMC, Hitachi Vantara, NetApp, PureStorage...)		
Graphical Processor Units			
Quantity	Up to 2 GPUs	Up to 4 GPUs	Up to 8 GPUs
Security			
Security features	TPM 2.0 (check for availability), Secure boot, Root-of-Trust, Trusted Execution Architecture		
Power Supply			
Power Supply Unit (PSU)	80 PLUS Titanium, up to 96% efficiency		
PSU slots (hot swap)	2 per 2-socket server module (1+1 redundancy)		
PSU cable types	C19-C20, 20 A		
Max power output per PSU	2200 W or 3000 W, according to configuration		
Rated voltage and frequency ranges	100-120 V / 200-240 V @ 50-60 Hz		
Cooling			
Fans (hot swap)	12 fans per 2-socket server module (N+1 redundancy)		
Physical Specifications			
Dimensions (H x W x D) (max)	89 mm (2U) x 447 mm (19") x 855 mm	177 mm (4U) x 447 mm (19") x 855 mm	355 mm (8U) x 447 mm (19") x 855 mm
Weight	Up to 40 kg	Up to 80 kg	Up to 160 kg
Operating constraints	Ambient air temperature: +10°C to +35°C, gradient 20°C/hour Relative humidity (non-condensing): 20% to 60%, gradient 5%/hour Elevation: above sea level and below 2500 m		

Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9020	DS9040	DS9080
OS and Software			
Operating Systems	SuSE® Linux Enterprise Server, Red Hat® Enterprise Linux®, VMware® vSphere (ESXiTM), Microsoft® Windows Server, Oracle Linux®		
System Management			
BMC server management processor	Aspeed AST2600		
Remote management	Redfish® API, web GUI server Hardware Console based on OpenBMC, HTML5 remote console display, virtual drives		
Management software	Ansible® playbooks and Zabbix™ templates		
Availability and RAS Features			
RAS features	Integrated features to prevent, detect and correct various memory, CPU, I/O, system and UPI errors		
Serviceability	Hot swap devices: PSUs, PCIe blades, fans, NVMe drives DIMMs and CPUs serviceable without extracting the whole server		
Warranty and Services			
Standard warranty	3 years		
Warranty extension	Under specific contract		
Maintenance services	Bronze, Silver, Gold, 24x7 Service Level Agreements (SLAs)		
Other services	Factory industrialization services(rack integration: servers: storage, network, software) On- site installation and integration services		
Regulations and Safety			
Compliance	Global: CB, RoHS, REACH, WEEE Per country: CE, ErP Lot 9, CSA, ICES-003, FCC, BIS, BSMI, VCCI, KC, RCM, ... (consult Hitachi Vantara sales representative for exhaustive list)		

[1] 256GB: check availability with your sales representative

Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9160
Design	
Form factor	19U
Processors	
Name	4th Gen Intel® Xeon® Scalable processors
Numbers	10, 12, 14 and 16 (max 960 cores / 1920 threads)
Type	8400, 6400 series
Cores per processor	8 to 60
Base frequency	1.9 to 3.7 GHz
Max Turbo Frequency	3.4 to 4.1 GHz
L3 shared cache per processor	22.5 to 112.5 MB
Architecture	
Chipset	Intel® C741 chipset (Emmitsburg)
Ultra-Path Interconnect (UPI)	Intel® UPI 2.0: 4 links per socket (up to 16GT/s)
Scalability	10 to 16 processors
Hardware partitioning	Yes
Memory	
DIMM slots	Up to 256
Min/max DRAM	640 GB up to 64 TB (256 x 256 GB1)
DRAM type	32GB, 64GB, 96GB DDR5 RDIMM / 128GB, 256GB[1] DDR5 RDIMM-3DS
Maximum memory capacity	64 TB
Embedded IO Ports	
Management ports	Management interface 1 x 1GbE (RJ45) per HW partition
USB ports	2 x USB 3.1
Video port	1 VGA port per HW partition
Serial port	1 serial port per HW partition

Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9160
I/O Options	
PCIe slots (hot swap)	Up to 32 PCIe Gen5 x8 and 24 PCIe Gen5 x16, or up to 40 PCIe Gen5 x16Up to 20 PCIe Gen5 x16
NIC adapters	1GbE, 10GbE, 25GbE, 100GbE, 200GbE (1,2 or 4 ports per NIC according to model)
FC Host Bus adapters	32, 64Gbps: 2 ports per HBA[2]
RAID M.2 adapters	RAID 0/1 card hosting 2 x M.2 NVMe SSDs
Storage	
M.2 slots (hot swap)	16 x M.2 NVMe SSDs
Optional SSD Box	Up to 64 x E1.S 5.9 mm NVMe SSDs (hot swap)
	Optional RAID card (RAID 0, 1, 5, 6, 00, 10, 50 and 60) 8 GB cache, JBOD capable
SAN	Any ethernet and FC compliant external array (Dell EMC, Hitachi Vantara, NetApp, PureStorage...)
Graphical Processor Units	
Quantity	Up to 16 GPUs
Security	
Security features	TPM 2.0 (check for availability), Secure boot, Root-of-Trust, Trusted Execution Architecture
Power Supply	
Power Supply Unit (PSU)	80 PLUS Titanium, up to 96% efficiency
PSU slots (hot swap)	2 per 2-socket server module (1+1 redundancy)
PSU cable types	C19-C20, 20 A
Max power output per PSU	2200 W or 3000 W, according to configuration
Rated voltage and frequency ranges	100-120 V / 200-240 V @ 50-60 Hz
Cooling	
Fans (hot swap)	12 fans per 2-socket server module (N+1 redundancy)
Physical Specifications	
Dimensions (H x W x D)	842 mm (19U) x 447 mm (19") x 855 mm
Weight	up to 415 kg
Operating constraints	Ambient air temperature: +10°C to +35°C, gradient 20°C/hour Relative humidity (non-condensing): 20% to 60%, gradient 5%/hour Elevation: above the sea level and below 2500 m

Hitachi Vantara Advanced Server DS9000 Series Scalable Servers

	DS9160
OS and Software	
Operating Systems	Red Hat® Enterprise Linux®, SuSE® Linux Enterprise Server, Oracle Linux®
System Management	
BMC server management processor	Aspeed AST2600
Remote management	Redfish® API, web GUI server Hardware Console based on OpenBMC, HTML5 remote console, virtual drives
Management software	Ansible® playbooks and Zabbix™ templates
Availability and RAS Features	
RAS features	Integrated features to prevent, detect and correct various memory, CPU, I/O, system and UPI errors
Serviceability	Hot swap devices: PSUs, PCIe blades, fans, NVMe drives DIMMs and CPUs serviceable without extracting whole server
Redundancy	PSUs, fans, NVMe drives with RAID
Warranty and Services	
Standard warranty	3 years
Warranty extension	Under specific contract
Maintenance services	Bronze, Silver, Gold, 24x7 Service Level Agreements (SLAs)
Other services	Factory industrialization services (rack integration: servers: storage, network, software) On- site installation and integration services
Regulations and Safety	
Compliance	Global: CB, RoHS, REACH, WEEE Per country: CE, ErP Lot 9, CSA, ICES-003, FCC, BIS, BSMI, VCCI, KC, RCM, ... (consult Hitachi Vantara sales representative for exhaustive list)

[1] 256GB: check availability with your sales representative

[2] 8/16 Gbps supported according to model

UNC and UBox for ultra-scalability up to 16 CPUs

The UBox is a 3U-height chassis embedding two Newly created Intel® Ultra Path Interconnect (Intel® UPI) Node Controllers (UNCs). The new UNC is an Application-Specific Integrated Circuit (ASIC) derived from mainframe technologies and tuned for workloads requiring high performance and large memory footprints. This innovative technology makes it possible to interconnect up to sixteen 2-socket modules allowing to go up to 16-socket SMP systems in a Cache Coherent Non-Uniform Memory Access (CC-NUMA) architecture.

	UBox
Design	
Form factor	3U
Node Controller modules[1]	2
Node Controllers (UNCs)	2
Power Supply Unit (PSU)	80 PLUS Titanium, up to 96% efficiency
PSU slots (hot swap)	2 with 1 + 1 redundancy
Max power output per PSU	2200 W
PSU voltage and frequency range	100-120 V / 200-240 V @ 50-60 Hz
Management module	1
Cooling fans (hot swap)	8, N+1 redundancy
Physical Specifications	
Dimensions (H x L x D)	132 mm (3U) x 447 mm (19") x 801 mm
Weight	35.5 kg
Operating constraints	Ambient air temperature: +10°C to +35°C, gradient 20°C/hour Relative humidity (non-condensing): 20% to 60%, gradient 5%/hour Elevation: above sea level and below 2500 m

[1] Each node controller module includes one UNC, Power Supply Units and fans

About Hitachi Vantara

Hitachi Vantara is transforming the way data fuels innovation. A wholly owned subsidiary of Hitachi, Ltd., we're the data foundation the world's leading innovators rely on. Through data storage, infrastructure systems, cloud management and digital expertise, we build the foundation for sustainable business growth.

Hitachi Vantara
A Hitachi Group Company

Corporate Headquarters
2535 Augustine Drive
Santa Clara, CA 95054 USA
hitachivantara.com | community.hitachivantara.com

Contact Information
USA: 1-800-446-0744
Global: 1-858-547-4526
hitachivantara.com/contact

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