

**SOFTWARE.
HARDWARE.
COMPLETE.**



Oracle's Full Line of Integrated Sun Servers,
Storage, and Networking Systems

See Beyond the Limits

ORACLE®



| See Beyond the Limits

Many enterprises are managing demanding applications and accessing increasing amounts of data. You need computing power that matches your needs and budget, where and when it matters most. Oracle's Sun solutions can support your business needs from end to end, throughout the lifecycle of your datacenter.

More than 40 years of systems and storage expertise and innovative thinking have gone into creating the Sun servers and storage. These innovations offer some of the most reliable, scalable, and energy-efficient systems in the industry, which are the core building blocks for enterprise, Web and high-performance computing (HPC) infrastructures. Oracle's complete portfolio of Sun products includes servers, storage, software, networking products, and integrated systems that deliver the most-innovative, performance-optimized solutions for the datacenter. These systems help datacenter managers reduce costs, conserve energy, and operate more efficiently. Such breakaway IT economics allow customers to run their applications with speed, simplicity, and savings.

Oracle's solutions are built on open standards to work with your existing infrastructure and can help your company grow. An open approach to storage offers enterprise reliability and scalability at one-tenth the cost of other solutions. The open source Oracle Solaris Zettabyte File System (ZFS) and award-winning Sun storage hardware solutions provide incredible data integrity and can significantly reduce downtime. Innovative Sun hardware delivers up to 4 times the performance of competitive servers for as little as one-fifth the cost. Sun networking solutions eliminate the bottleneck and ensure cross-functional bandwidth for optimal performance. And with Sun open solutions, you can accomplish more in less space, using less power, while spending less.



The Right Solutions for Your Needs

The deployment of IT resources is vital to enterprises. You want to plan your IT projects carefully so that you can select the right servers, storage products, and infrastructure to make your network as efficient as possible. An open and scalable design approach lets you mix and match Sun compute, storage, and network components so that all resources in the datacenter work as a powerful and integrated system, driving better efficiency across the IT infrastructure and supporting your business needs from end to end.

Enterprise Solutions

Consolidating storage farms and single-application servers onto fewer, high-performance systems can be the key to positioning your business for the future. Oracle offers industry-leading, ecoefficient solutions based on enterprise applications and/or consolidation and virtualization needs. These solutions are designed to address IT issues and business needs related to cost reductions, increased efficiencies, and ecosustainability.

Virtualization Solutions

Your company can save money, energy, and space by taking advantage of Oracle's complete desktop-to-datacenter virtualization portfolio. Our virtualization solutions can help you make more of your IT resources than ever before. Sun server and storage platforms have the power and throughput to make virtualization and consolidation real advantages for your business.

Web Infrastructure Solutions

In today's Web 2.0 world, you need network applications and services that help you connect, develop, and grow your communities. To fully exploit the Web's potential, you need time-tested solutions that provide the speed, flexibility, and performance to enable implementation in a matter of weeks. For enterprises focused on increasingly important Web-based services, Sun systems and storage provide all you need to build, optimize, and protect your Web-tier infrastructure throughout your entire datacenter lifecycle.

Additionally, the dynamic new combination of MySQL, the world's most popular open source database, and the support of Oracle services can make any business datacenter more effective than ever—especially when running on industry-leading Sun servers.

HIGHLIGHTS

- Oracle offers a complete portfolio of Sun products that combines servers, storage, software, and networking to deliver the most-innovative, performance-optimized solutions for the datacenter.
- Sun SPARC Enterprise servers offer the highest reliability, availability, and serviceability (RAS), seamless scalability, world-record performance, and unmatched investment protection.
- Sun x86 servers run on Intel or AMD processors and offer the flexibility of running Oracle Solaris, Windows, Linux, Oracle Enterprise Linux, Oracle VM and VMware operating systems.
- Sun Blade systems offer high performance and are designed to handle any size workload in a small footprint.
- Sun Unified Storage Systems help enterprises realize up to a 75 percent cost savings over traditional storage solutions.
- StorageTek tape libraries, tape virtualization, tape drives, tape media, and tape device software are world-class solutions that scale to over 70 petabytes.

Enterprise High-Performance Computing Solutions

HPC continues to penetrate the enterprise, leading to reduced product development cycles, faster decisions, and more-intelligent “what if” scenarios. Sun servers and storage products can revolutionize your IT infrastructure regardless of your business focus. If your organization relies on computing with large volumes of critical data, you’ll find Oracle’s HPC solutions an ideal choice. Oracle offers a comprehensive portfolio of products, solutions, and services for all your HPC needs. You can tackle the biggest computing challenges as effectively as possible with Sun systems.

Sun Ecoinnovation Solutions

If your company is ready to minimize energy costs and reduce its environmental impact, talk to us about innovative Sun solutions that you can deploy today. We can help you transform your technology infrastructure into a more ecofriendly datacenter with our simple, three-step approach: assess, optimize, and virtualize. Plus, with our award-winning, ecologically sound Sun servers, going green is easy.


Warranty Programs

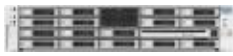



Visit oracle.com/sun/warranty for information on Oracle’s global warranty support for Sun products.










Sun Servers Product Guide





Designed with your business in mind, Sun servers provide the performance, scalability, energy efficiency, and cost-effectiveness that help you meet your business needs in HPC, virtualization, and eco- or energy efficiency. With Oracle's complete family of Sun servers—Sun Blade servers, SPARC Enterprise servers, x86 servers, and Netra servers—a truly flexible IT ecosystem is a reality.





SPARC ENTERPRISE ENTRY-LEVEL				
				
Name	Sun SPARC Enterprise T5120 Server	Sun SPARC Enterprise T5220 Server	Sun SPARC Enterprise M3000 Server	Sun SPARC Enterprise T5140 Server
Processor/CPU	4-core 1.2 GHz, 8-core 1.2 GHz, 8-core 1.4 GHz, or 8-core 1.6 GHz UltraSPARC T2 processors; one processor per system, max. 64 threads	4-core 1.2 GHz, 8-core 1.2 GHz, 8-core 1.4 GHz, or 8-core 1.6 GHz UltraSPARC T2 processors; one processor per system, max. 64 threads	Quad-core or dual-core 2.75 GHz SPARC64 VII processor; one processor per system; two simultaneous threads per core	4-, 6-, and 8-core 1.2-GHz or 8-core 1.4-GHz UltraSPARC T2 Plus processors; two processors per system, max. 128 threads
Memory	Up to 128 GB	Up to 128 GB	Up to 64 GB	Up to 128 GB
Mass storage				
Internal disk	Up to eight 146 GB or 300 GB 2.5 in. SAS drives, depending on selected backplane or up to four 32 GB 2.5 in. SATA SSDs	Up to sixteen 146 GB or 300 GB 2.5 in. SAS drives, depending on selected backplane or up to eight 32 GB 2.5 in. SATA SSDs	Up to four 300 GB SAS disks	Up to eight 146 GB or 300 GB 2.5 in. SAS drives, depending on selected backplane or up to four 32 GB 2.5 in. SATA SSDs
External disk and tape	oracle.com/storage	oracle.com/storage	Direct, SAS attached to Sun StorageTek disk arrays using the built-in external SAS port (two-lane)	oracle.com/storage
Network	Four 10/100/1,000 Mb/sec Ethernet ports; up to 2x optional 10 GbE XAUI connections	Four 10/100/1,000 Mb/sec Ethernet ports; up to 2x optional 10 GbE XAUI connections	Four GbE ports	Four 10/100/1,000 Mb/sec Ethernet ports; up to 2x optional 10 GbE XAUI connections
Power/cooling				
Power	Two hot-swappable AC 720 W "Climate Saver" power supply units, providing N+1 redundancy, come standard. Also available is a DC 660 W power supply unit.	Two hot-swappable AC 750 W or 1,100 W power supply units, providing N+1 redundancy. Also available are DC 1,200 W power supply units.	Up to two hot-swappable power supply units	Two hot-swappable AC 760 W or DC 660 W power supply units, providing N+1 redundancy
Operating temperature	Sea level to 2,953 ft. (900 m): 41°F to 95°F (5°C to 35°C)	Sea level to 2,953 ft. (900 m): 41°F to 95°F (5°C to 35°C)	At sea level: 41°F to 95°F (5°C to 35°C)	Sea level to 3,000 ft. (900 m): 41°F to 95°F (5°C to 35°C)
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C); IEC 60068-2-1 Test Ab and 60068-2-2 Test Bb	-40°F to 149°F (-40°C to 65°C); IEC 60068-2-1 Test Ab and 60068-2-2 Test Bb	-4°F to 140°F (-20°C to 60°C), 93% relative humidity, noncondensing	-40°F to 149°F (-40°C to 65°C)
Rack units	1U	2U	2U	1U
Physical specifications				
Height	1.746 in. (44 mm)	3.49 in. (88 mm)	3.43 in. (87 mm)	1.746 in. (44 mm)
Width	16.75 in. (425 mm)	16.75 in. (425 mm)	16.77 in. (426 mm)	16.75 in. (425 mm)
Depth	28.125 in. (714 mm)	28.125 in. (714 mm)	25.91 in. (658 mm)	28.125 in. (714 mm)
Weight	Approximately 40 lb. (18 kg)	Approximately 55 lb. (25 kg)	Max. 55.12 lb. (25 kg)	37 lb. (16.78 kg)
Operating system	Oracle Solaris 10 8/07, Oracle Solaris 10 5/08, Oracle Solaris 10 10/08, Oracle Solaris 10 5/09, Oracle Solaris 10 10/09	Oracle Solaris 10 8/07, Oracle Solaris 10 5/08, Oracle Solaris 10 10/08, Oracle Solaris 10 5/09, Oracle Solaris 10 10/09	Minimum OS support: Solaris 10 10/08 (Update 6 or higher) Note: Solaris 10 10/08 (Updates 6, 7, 8) requires no patches for 2.75GHz support	Oracle Solaris 10 8/07, Oracle Solaris 10 5/08, Oracle Solaris 10 10/08, Oracle Solaris 10 5/09, Oracle Solaris 10 10/09
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




	SPARC ENTERPRISE ENTRY-LEVEL	SPARC ENTERPRISE MIDRANGE		
				
Name	Sun SPARC Enterprise T5240 Server	Sun SPARC Enterprise T5440 Server	Sun SPARC Enterprise M4000 Server	Sun SPARC Enterprise M5000 Server
Processor/CPUs	4-, 6-, and 8-core 1.2 GHz, 8-core 1.4 GHz, 8-core 1.6 GHz UltraSPARC T2 Plus processors; two processors per system, max. 128 threads	One to four UltraSPARC T2 Plus processors per system, max. 256 threads; 8-core 1.2 GHz, 1.4 GHz, or 1.6 GHz	Mix and match up to four SPARC64 VI dual-core or SPARC64 VII quad-core processors; SPARC64 VI: 2.15 GHz; SPARC64 VII: 2.53 GHz	Mix and match up to eight SPARC64 VI dual-core or SPARC64 VII quad-core processors; SPARC64 VI: 2.15 GHz; SPARC64 VII: 2.53 GHz
Memory	Up to 256 GB	Up to 512 GB	Up to 256 GB	Up to 512 GB
Mass storage				
Internal disk	Up to sixteen 146 GB or 300 GB 2.5 in. SAS drives, depending on selected backplane or up to eight 32 GB 2.5 in. SATA SSDs	Up to four 146 GB or 300 GB 2.5 in. SAS drives or up to four 32 GB 2.5 in. SATA SSDs	Up to two 2.5 in. SAS boot disks	Up to four internal 2.5 in. SAS boot disks
External disk and tape	oracle.com/storage	oracle.com/storage	Direct, SAN or NAS attached to Sun StorageTek compatible tape libraries, flash array, and disk arrays, including StorageTek 3X00, 5X00, 6X00, 9X00, and Jx000 families and Sun Storage F5100 Flash Array	Direct, SAN or NAS attached to Sun StorageTek compatible tape libraries, flash array, and disk arrays, including StorageTek 3X00, 5X00, 6X00, 9X00, and Jx000 families and Sun Storage F5100 Flash Array
Network	Four 10/100/1,000 Mb/sec Ethernet ports; up to 2x optional 10 GbE XAUI connections	Four 10/100/1,000 Mb/sec Ethernet ports; up to 2x optional 10 GbE XAUI connections, four 8-lane PCIe, two 8-lane PCIe slots with 16-lane connectors and two additional 8-lane PCIe or 10 Gb/sec Ethernet expansion slots	Two GbE; up to four PCIe slots, one PCI-X slot; up to 25 PCIe or PCI-X slots with external I/O expansion unit	Two GbE; up to eight PCIe slots, two PCI-X slots; up to 50 PCIe or PCI-X slots with external I/O expansion unit
Power/cooling				
Power	Two hot-swappable AC 1,100 W power supply units, providing N+1 redundancy. Also available are DC 1,200 W power supply units.	Four hot-swappable AC 1,120 W redundant (2 + 2) power supply units	100–240 V AC; two power cords	100–240 V AC; four power cords
Operating temperature	Sea level to 3,000 ft. (900 m): 41°F to 95°F (5°C to 35°C)	41°F to 95°F (5°C to 35°C)	41°F to 95°F (5°C to 35°C)	41°F to 95°F (5°C to 35°C)
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)	-4°F to 140°F (-20°C to 60°C)	-4°F to 140°F (-20°C to 60°C)
Rack units	2U	4U	6U	10U
Physical specifications				
Height	3.49 in. (88 mm)	6.92 in. (176 mm)	10.34 in. (26.3 cm)	17.33 in. (44.02 cm)
Width	16.75 in. (425 mm)	17.5 in. (445 mm)	17.48 in. (44.4 cm)	17.33 in. (44 cm)
Depth	28.125 in. (714 mm)	24.9 in. (633 mm)	31.9 in. (81 cm)	31.9 in. (81 cm)
Weight	52.5 lb. (23.81 kg)	Approximately 88 lb. (40 kg)	185 lb. (84 kg)	275 lb. (125 kg)
Operating system	Oracle Solaris 10 8/07, Oracle Solaris 10 5/08, Oracle Solaris 10 10/08, Oracle Solaris 10 5/09, Oracle Solaris 10 10/09	Oracle Solaris 10 OS 8/07 plus patches or later	SPARC64 VII (2.53GHz): Solaris 10 (8/07) or later; SPARC64 VI (2.15GHz): Solaris 10 (11/06) or later Note: Solaris 10 (10/08) or Solaris 10 (8/07) require Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster	SPARC64 VII (2.53GHz): Solaris 10 (8/07) or later; SPARC64 VI (2.15GHz): Solaris 10 (11/06) or later Note: Solaris 10 (10/08) or Solaris 10 (8/07) require Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




SPARC ENTERPRISE HIGH-END			
			
Name	Sun SPARC Enterprise M8000 Server	Sun SPARC Enterprise M9000 Server—32 CPU	Sun SPARC Enterprise M9000 Server—64 CPU
Processor/CPU	Mix and match up to 16 SPARC64 VI dual-core or SPARC64 VII quad-core processors; SPARC64 VI: 2.28 GHz to 2.4 GHz; SPARC64 VII: 2.88 GHz	Mix and match up to 32 SPARC64 VI dual-core or SPARC64 VII quad-core processors; SPARC64 VI: 2.28 GHz to 2.4 GHz; SPARC64 VII: 2.88 GHz	Mix and match up to 64 SPARC64 VI dual-core or SPARC64 VII quad-core processors; SPARC64 VI: 2.28 GHz to 2.4 GHz; SPARC64 VII: 2.88 GHz
Memory	Up to 1 TB	Up to 2 TB	Up to 4 TB
Mass storage			
Internal disk	Up to 16 internal 2.5 in. SAS boot disks, four per IOU	Up to 32 internal 2.5 in. SAS boot disks, four per IOU	Up to 64 internal 2.5 in. SAS boot disks, four per IOU
External disk and tape	External direct, SAN or NAS attach to Sun StorageTek-compatible tape libraries and disk arrays, including Sun StorageTek 3000, 5000, 6000, and 9000 families of storage arrays	External direct, SAN or NAS attach to Sun StorageTek-compatible tape libraries and disk arrays, including Sun StorageTek 3000, 5000, 6000, and 9000 families of storage arrays	External direct, SAN or NAS attach to Sun StorageTek-compatible tape libraries and disk arrays, including Sun StorageTek 3000, 5000, 6000, and 9000 families of storage arrays
Optical Drive	N/A	N/A	N/A
Network	Up to 32 PCIe slots per system; up to 112 PCIe or PCI-X slots with the optional external I/O expansion unit	Up to 64 PCIe slots per system; up to 224 PCIe or PCI-X slots with the optional external I/O expansion unit	Up to 128 PCIe slots per system; up to 288 PCIe or PCI-X slots with the optional external I/O expansion unit
Power/cooling			
Power	200–240 V AC single-phase, three 30 A power cords; 208 V AC 3-phase DELTA, two 50 A direct-wired power connections; 415 V AC 3-phase, two 30 A direct-wired power connections, double power cords for dual power grid support	200–240 V AC single-phase, five 30 A power cords; 208 V AC 3-phase DELTA, two 50 A direct-wired power connections; 415 V AC 3-phase, two 30 A direct-wired power connections, double power cords for dual power grid support	200–240 V AC single-phase, five 30 A power cords; 208 V AC 3-phase DELTA, two 50 A direct-wired power connections; 415 V AC 3-phase, two 30 A direct-wired power connections, double power cords for dual power grid support
Operating temperature	41°F to 89.6°F (5°C to 32°C)	41°F to 89.6°F (5°C to 32°C)	41°F to 89.6°F (5°C to 32°C)
Nonoperating temperature	32°F to 122°F (0°C to 50°C)	32°F to 122°F (0°C to 50°C)	32°F to 122°F (0°C to 50°C)
Rack units	N/A	N/A	N/A
Physical specifications			
Height	70.9 in. (180 cm)	70.9 in. (180 cm)	70.9 in. (180 cm)
Width	29.5 in. (75 cm)	33.5 in. (85 cm)	65.9 in. (167.4 cm)
Depth	49.6 in. (126 cm)	49.6 in. (126 cm)	49.6 in. (126 cm)
Weight	1,543 lb. (700 kg)	2,072 lb. (940 kg)	4,145 lb. (1,880 kg)
Operating system	SPARC64 VI (2.28 GHz, 2.4 GHz): Oracle Solaris 10 11/06 or later; SPARC64 VII (2.88 GHz): Oracle Solaris 10 10/08 or Oracle Solaris 10 8/07 with the Oracle Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster	SPARC64 VI (2.28 GHz, 2.4 GHz): Oracle Solaris 10 11/06 or later; SPARC64 VII (2.88 GHz): Oracle Solaris 10 10/08 or Oracle Solaris 10 8/07 with the Oracle Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster	SPARC64 VI (2.28 GHz, 2.4 GHz): Oracle Solaris 10 11/06 or later; SPARC64 VII (2.88 GHz): Oracle Solaris 10 10/08 or Oracle Solaris 10 8/07 with the Oracle Solaris 10 10/09 Patch Bundle and the Sun Alert Patch Cluster
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




	BLADE CHASSIS		ULTRASPARC BLADE SERVERS	
				
Name	Sun Blade 6000 Modular System	Sun Blade 6048 Modular System	Sun Blade T6320 Server Module	Sun Blade T6340 Server Module
Processor/CPUs	UltraSPARC, Intel Xeon, AMD Opteron	UltraSPARC, Intel Xeon, AMD Opteron	UltraSPARC T2 (1.2 GHz, 1.4 GHz, or 1.6 GHz)/ up to 1 CPU, up to 8 cores, security cypher per core, max. 64 threads	UltraSPARC T2 Plus (1.2 GHz or 1.4 GHz)/up to 2 CPUs, up to 16 cores, security cypher per core, max. 128 threads
Memory	Up to 256 GB on a single blade/up to 2.56 TB per chassis	Up to 256 GB on a single blade/more than 12 TB per chassis	Up to 128 GB	Up to 256 GB
Mass storage				
Internal disk	Sun Blade 6000 Disk Module	N/A	<ul style="list-style-type: none"> * Eight 3 Gb/sec SAS/SATA interfaces using the LSI SAS1068E controller * Four SAS interfaces to each of the small form factor (SFF) SAS/SATA drive bays with RAID 0,1 support * Four SAS interfaces to the midplane * Support drive with 32GB Solid State Disks, 146GB 10,000 rpm SAS, 300GB 10,000 rpm SAS, 500GB 7,200 rpm SATA 	<ul style="list-style-type: none"> * Six 3 Gb/sec SAS/SATA interfaces using the LSI SAS1068E Controller * One SAS interface to each of the small form factor (SFF) SAS/SATA drive bays with RAID 0, 1 support * Four SAS interfaces to the midplane * Support drive with 32GB Solid State Disks, 146GB 10,000 rpm SAS, 300GB 10,000 rpm SAS, 500GB 7,200 rpm SATA
External disk and tape	Sun's portfolio of disk and tape storage products	Sun's portfolio of disk and tape storage products	<ul style="list-style-type: none"> * Sun Blade 6000 Disk Module * Sun's portfolio of disk and tape storage products 	<ul style="list-style-type: none"> * Sun Blade 6000 Disk Module * Sun's portfolio of disk and tape storage products
Network	Each server module has a direct connection to two PCIe Express Modules for discrete I/O connectivity and two Network Express Modules for aggregate I/O connectivity	Each server module has a direct connection to two PCIe Express Modules for discrete I/O connectivity and two Network Express Modules for aggregate I/O connectivity	<ul style="list-style-type: none"> * Two 10/100/1,000Base-T Ethernet ports using the Intel 82571EB GbE transceiver * One dedicated 10/100Base-T Ethernet port for the management network * Two optional 10 GB XAUI Ethernet ports through the addition of a dual-channel 10 GbE fabric expansion modules 	<ul style="list-style-type: none"> * Two 10/100/1,000Base-T Ethernet ports using the Intel 82571EB GbE transceiver * One dedicated 10/100Base-T Ethernet port for the management network * Two optional 10 GB XAUI Ethernet ports through the addition of a dual-channel 10 GbE fabric expansion modules
Power/cooling				
Power	Power (n+n) high-efficiency, hot-swappable, load-sharing, load-balancing power supplies	Power (n+n) high-efficiency, hot-swappable, load-sharing, load-balancing power supplies	N/A; function of chassis	N/A; function of chassis
Operating temperature	41° F to 90° F (5° C to 32° C)	41°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)
Rack units	10U	Unibody rack design, four shelves in 42U space	N/A	N/A
Physical specifications				
Height	17.25 in. (438.15 mm)	81.61 in. (2,073 mm)	1.75 in. (44.45 mm)	1.75 in. (44.45 mm)
Width	17.50 in. (444.50 mm)	23.88 in. (606.5 mm)	12.88 in. (327.15 mm)	12.88 in. (327.15 mm)
Depth	27.25 in. (692.15 mm)	40.34 in. (1,024.58 mm)	19.56 in. (496.82 mm)	19.56 in. (496.82 mm)
Weight	350 lb. (159 kg) fully configured	2,300 lb. (1,043 kg) fully configured	17.3 lb. (7.86 kg)	20 lb. (9.1 kg)
Operating system	N/A	N/A	Oracle Solaris	Oracle Solaris
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty





X86 BLADE SERVERS				
				
Name	Sun Blade X6270 Server Module	Sun Blade X6275 Server Module	Sun Blade X6240 Server Module	Sun Blade X6440 Server Module
Processor/CPU	Intel Xeon (2.93 GHz)/up to 2 CPUs, up to 8 cores	Intel Xeon (2.93 GHz)/up to 4 CPUs per blade with 2 per node, up to 16 cores per blade with 8 per node	AMD Opteron (2.6 GHz)/up to 2 CPUs, up to 12 cores	AMD Opteron (2.6 GHz)/up to 4 CPUs, up to 24 cores
Memory	Up to 144 GB	Up to 192 GB	Up to 128 GB	Up to 256 GB
Mass storage				
Internal disk	<ul style="list-style-type: none"> Four SAS interfaces to the midplane, two to each NEM Four hot-swappable SFF SAS or SATA drive bays IDE Compact Flash (Type I and II) interface Support for Flash Solid State Disks 	One 3 Gb/sec SATA interface to a Sun Flash Module (per compute node)	<ul style="list-style-type: none"> Four SAS interfaces to the midplane, two to each NEM Four hot-swappable SFF SAS or SATA drive bays IDE Compact Flash Module Interface (Type 1) Support for Flash Solid State Disks 	<ul style="list-style-type: none"> Four SAS interfaces to the midplane, two to each NEM IDE Compact Flash Module Interface (Type I)
External disk and tape	<ul style="list-style-type: none"> Sun Blade 6000 Disk Module Sun's portfolio of disk and tape storage products 	<ul style="list-style-type: none"> Sun's portfolio of disk and tape storage products 	<ul style="list-style-type: none"> Sun Blade 6000 Disk Module Sun's portfolio of disk and tape storage products 	<ul style="list-style-type: none"> Sun Blade 6000 Disk Module Sun's portfolio of disk and tape storage products
Network	<ul style="list-style-type: none"> Two 10/100/1,000Base-T Ethernet ports using the Intel 82575EB GbE Controller One dedicated 10/100Base-T Ethernet port for the management network 	<ul style="list-style-type: none"> One 4x QDR IB port to the NEM slot (per compute node) — Sun Blade X6275 IB Model One 10/100/1,000Base-T Ethernet port (per compute node) using the Intel 82567 GbE Controller One (shared) 10/100Base-T Ethernet port for the management network One (x8) PCIe 2.0 link (per compute node) to a PCIe Express Module slot 	<ul style="list-style-type: none"> Two 10/100/1,000Base-T Ethernet ports using the Intel 82575EB Controller One dedicated 10/100Base-T Ethernet port for the management network 2x PCIe links to 2 EMs and 2x PCIe links to 2 NEMs 	<ul style="list-style-type: none"> Two 10/100/1,000Base-T Ethernet ports using the Intel 82575EB Controller One dedicated 10/100Base-T Ethernet port for the management network 2x PCIe links to 2 EMs and 2x PCIe links to 2 NEMs
Power/cooling				
Power	N/A; function of chassis	N/A; function of chassis	N/A; function of chassis	N/A; function of chassis
Operating temperature	41°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)	-40°F to 149°F (-40°C to 65°C)
Rack units	N/A	N/A	N/A	N/A
Physical specifications				
Height	12.87 in. (327 mm)	12.87 in. (327 mm)	1.75 in. (44.45 mm)	1.75 in. (44.45 mm)
Width	1.7 in. (44 mm)	1.7 in. (44 mm)	12.88 in. (327.15 mm)	12.88 in. (327.15 mm)
Depth	20.16 in. (512 mm)	20.16 in. (512 mm)	19.56 in. (496.82 mm)	19.56 in. (496.82 mm)
Weight	17.4 lb. (7.9 kg)	20.61 lb. (9.4 kg) max.	17.41 lb. (7.9 kg)	18.12 lb. (8.22 kg)
Operating system	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




	X86 ENTRY-LEVEL	X86 ENTERPRISE-LEVEL		
				
Name	Sun Fire X2270 Server	Sun Fire X4140 Server	Sun Fire X4240 Server	Sun Fire X4440 Server
Processor/CPU s	One or two Intel Xeon Processors 5500 Series	One or two Six-Core AMD Opteron processors	One or two Six-Core AMD Opteron processors	One or two Six-Core AMD Opteron processors
Memory	12 DDR3 DIMM slots (6 DIMM slots per CPU socket); supports from 2 GB (1 x 2 GB) to 96 GB (12 x 8 GB) of memory	16 DDR2 DIMM slots (8 DIMM slots per CPU socket); supports from 4 GB (2 x 2 GB) to 128 GB (16 x 8 GB) of memory	16 DDR2 DIMM slots (8 DIMM slots per CPU socket); supports from 4 GB (2 x 2 GB) to 128 GB (16 x 8 GB) of memory	32 DDR2 DIMM slots (8 DIMM slots per CPU socket); supports from 4 GB (2 x 2 GB) to 256 GB (32 x 8 GB) of memory
Mass storage				
Internal disk	<ul style="list-style-type: none"> * Up to four hot-pluggable 3.5 in. SATA disk drives, 4 TB max.: 1 TB, 500 GB 7,200 rpm * Up to four hot-pluggable 3.5 in. SSDs, 128 GB max.: 32 GB * Up to two Sun Flash modules, 48 GB max.: 24 GB 	<ul style="list-style-type: none"> * Up to eight 2.5 in. SAS HDDs with add-on SAS HBA, 146 GB, 300 GB 10,000 rpm * Up to four 2.5 in. SATA SSDs, 32 GB 	<ul style="list-style-type: none"> * Up to sixteen 2.5 in. SAS HDDs with add-on SAS HBA, 146 GB, 300 GB 10,000 rpm * Up to eight 2.5 in. SATA SSDs, 32 GB 	<ul style="list-style-type: none"> * Up to eight 2.5 in. SAS HDDs with add-on SAS HBA, 146 GB, 300 GB 10,000 rpm * Up to four 2.5 in. SATA SSDs, 32 GB
External disk and tape	Sun StorageTek 2000, 2000, 3000, 3000 SCSI, FC, J4000, and 6000 family of arrays, Sun Storage 7000, Sun StorageTek 9000 system, LTO 4 SCSI and SAS desktop and rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 SCSI rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 3000, 3000 FC, 5000, J4000, and 6000 family of arrays, Sun StorageTek 9000 system, LTO 4 SCSI and SAS rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, LTO 4 SCSI desktop, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL24 autoloader SCSI, FC, and SAS, SL48 autoloader SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, L1400 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 3000, 3000 FC, 5000, J4000, and 6000 family of arrays, Sun StorageTek 9000 system, LTO 4 SCSI and SAS rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, LTO 4 SCSI desktop, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL24 autoloader SCSI, FC, and SAS, SL48 autoloader SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, L1400 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 3000, 3000 FC, 5000, J4000, and 6000 family of arrays, Sun StorageTek 9000 system, LTO 4 SCSI and SAS rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, LTO 4 SCSI desktop, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL24 autoloader SCSI, FC, and SAS, SL48 autoloader SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, L1400 SCSI and FC, SL3000 FC, and SL8500 FC
Optical drive	N/A	One DVD+/-RW drive (PATA based)	One DVD+/-RW drive (PATA based)	One DVD+/-RW drive (PATA based)
Network	Two 10/100/1,000Base-T Ethernet ports, one serial RJ-45 port, one PCIe 2.0 slot	Four 10/100/1,000Base-T Ethernet ports, three PCIe slots	Four 10/100/1,000Base-T Ethernet ports, six PCIe slots	Four 10/100/1,000Base-T Ethernet ports, six PCIe slots
Power/cooling				
Power	Single nonredundant power supply: 100–240 V AC	Dual redundant, hot-swappable power supply: 100–120 V/200–240 V AC (50/60 Hz)	Dual redundant, hot-swappable power supply: 100–120 V/200–240 V AC (50/60 Hz)	Dual redundant, hot-swappable power supply: 90–264 V AC (47–63 Hz)
Operating temperature	41°F to 95°F (5°C to 35°C)	41°F to 95°F (5°C to 35°C), 10% to 90% relative humidity, noncondensing	41°F to 95°F (5°C to 35°C), 10% to 90% relative humidity, noncondensing	41°F to 95°F (5°C to 35°C), 10% to 90% relative humidity, noncondensing
Nonoperating temperature	-40°F to 154°F (-40°C to 68°C)	-40°F to 149°F (-40°C to 70°C), up to 93% relative humidity, noncondensing	-40°F to 149°F (-40°C to 70°C), up to 93% relative humidity, noncondensing	-40°F to 158°F (-40°C to 70°C), up to 93% relative humidity, noncondensing
Rack units	1U	1U	2U	2U
Physical specifications				
Height	1.7 in. (43 mm)	1.746 in. (44 mm)	3.49 in. (88 mm)	3.46 in. (87.85 mm)
Width	17.2 in. (436 mm)	16.75 in. (426 mm)	16.75 in. (426 mm)	16.75 in. (425.5 mm)
Depth	25.6 in. (650 mm)	28.125 in. (714 mm)	28.125 in. (714 mm)	28 in. (711.2 mm)
Weight	Max. 27.2 lb. (13.3 kg)	Minimum 36.49 lb. (16.55 kg) Max. 40.90 lb. (18.55 kg)	Minimum 45.52 lb. (20.65 kg) Max. 56.77 lb. (25.75 kg)	Minimum 56.33 lb. (25.55 kg) Max. 263.05 lb. (8.60 kg)
Operating system	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

X86 ENTERPRISE-LEVEL			
  			
Name	Sun Fire X4450 Server	Sun Fire X4640 Server	Sun Fire X4170 Server
Processor/CPU s	Two or four Intel Xeon Processors 7200, 7300, or 7400 Series	Four or eight Six-Core AMD Opteron processors	One or two Intel Xeon Processors 5500 Series
Memory	32 DDR2 DIMM slots (8 DIMM slots per CPU socket); supports from 4 GB (2 x 2 GB) to 256 GB (32 x 8 GB) of memory	64 DDR2 DIMM slots (8 DIMM slots per CPU socket); supports from 4 GB (2 x (2 x 1 GB)) to 512 GB (8 x (8 x 8 GB)) of memory	18 DDR3 DIMM slots (9 DIMM slots per CPU socket); supports from 6 GB (3 x 2 GB) to 144 GB (18 x 8 GB) of memory
Mass storage			
Internal disk	* Up to eight 2.5 in. SAS HDDs with add-on SAS HBA, 146 GB, 300 GB 10,000 rpm * Up to six 2.5 in. SATA SSDs, 32 GB	* Up to four 2.5 in. SAS HDDs, 146 GB, 300 GB 10,000 rpm, 73 GB 15,000 rpm	* Up to eight 2.5 in. SAS HDDs, 146 GB, 300 GB 10,000 rpm * Up to eight 2.5 in. SATA SSDs, 32 GB
External disk and tape	Sun StorageTek 2000, 2000, 3000, 3000 SCSI, FC, J4000, and 6000 family of arrays, Sun StorageTek 9000 system, LTO 4 SAS and SCSI desktop and rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, L1400 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 3000, 3000 FC, 5000, J4000, and 6000 family of arrays, Sun StorageTek 9000 system, LTO 4 SCSI SAS rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, LTO 4 SCSI, SAS desktop, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI FC, and SAS, SL24 SCSI, FC, and SAS autoloader, SL48 SCSI, FC, and SAS autoloader, Sun StorageTek SL500 SCSI and FC, L1400 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 2000, 3000, 3000 SCSI, FC, J4000, and 6000 family of arrays, Sun Storage 7000, Sun StorageTek 9000 system, LTO 4 SAS and SCSI desktop and rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, Sun StorageTek SL500 SCSI and FC, SL3000 FC, and SL8500 FC
Optical Drive	One EIDE DVD+/-RW drive	Standard DVD+/-ROM in every server	One DVD+/-RW drive (SATA based)
Network	Four integrated 10/100/1,000Base-T Ethernet ports, six internal MD2 Low Profile PCIe slots	Four 10/100/1,000Base-T Ethernet ports, RJ-45 connectors, with support for teaming and failover	Four 10/100/1,000Base-T Ethernet ports, one RJ-45 port, three PCIe 2.0 slots
Power/cooling			
Power	Dual-redundant, hot-swappable power supplies; 90–264 V AC	2+2 redundant, hot-swappable power supplies: 4x 100–240 V AC	Dual redundant, hot-swappable power supplies: 90–264 V AC
Operating temperature	37°F to 90°F (5°C to 32°C)	41°F to 90°F (5°C to 32°C)	41°F to 95°F (5°C to 35°C)
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C)	-4°F to 140°F (-20°C to 60°C)	-40°F to 158°F (-40°C to 70°C)
Rack units	2U	4U	1U
Physical specifications			
Height	3.45 in. (87.85 mm)	6.9 in. (176 mm)	1.71 in. (43.43 mm)
Width	17.54 in. (445.71 mm)	17.5 in. (445 mm)	16.75 in. (425.5 mm)
Depth	28.88 in. (733.65 mm)	24.75 in. (629 mm)	28.0 in. (711.2 mm)
Weight	56.3 lb. (25.5 kg)	88 lb. (40 kg)	36 lb. (16.36 kg)
Operating system	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

X86 ENTERPRISE-LEVEL			
  			
Name	Sun Fire X4270 Server	Sun Fire X4275 Server	Sun Fire X4540 Server
Processor/CPU s	One or two Intel Xeon Processors 5500 Series	One or two Intel Xeon Processors 5500 Series	Two Six-Core AMD Opteron processors
Memory	18 DDR3 DIMM slots (9 DIMM slots per CPU socket); support from 6 GB (3 x 2 GB) to 144 GB (18 x 8 GB) of memory	18 DDR3 DIMM slots (9 DIMM slots per CPU socket); support from 6 GB (3 x 2 GB) to 144 GB (18 x 8 GB) of memory	16 DDR2 DIMM slots (8 DIMM slots per CPU socket); support from 32 GB (16 x 2 GB) to 64 GB (16 x 4 GB) of memory
Mass storage			
Internal disk	<ul style="list-style-type: none"> * Up to sixteen 2.5 in. SAS HDDs, 146 GB, 300 GB 10,000 rpm * Up to sixteen 2.5 in. SATA SSDs, 32 GB 	<ul style="list-style-type: none"> * Up to twelve 3.5 in. SAS HDDs, 300 GB, 400 GB 15,000 rpm * Up to twelve 3.5 in. SATA HDDs, 1,000 GB 7,200 rpm * Up to twelve 3.5 in. SATA SSDs, 32 GB 	Up to forty-eight 3.5 in. SATA II disk drives, 250 GB, 500 GB, 1,000 GB 7,200 rpm
External disk and tape	Sun StorageTek 2000, 2000, 3000, 3000 SCSI, FC, J4000, and 6000 family of arrays, Sun Storage 7000, Sun StorageTek 9000 system, LTO 4 SAS and SCSI desktop and rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL500 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 2000, 3000, 3000 SCSI, FC, J4000, and 6000 family of arrays, Sun Storage 7000, Sun StorageTek 9000 system, LTO 4 SAS and SCSI desktop and rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, SDLT 600 desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL500 SCSI and FC, SL3000 FC, and SL8500 FC	Sun StorageTek 2000, 3000, 6000, J4000, and 9000 family of arrays, LTO 4 SCSI, SAS rackmount, DAT 72 SCSI desktop, DAT 72 1U rackmount, LTO 3 SCSI desktop, LTO 3 2U rackmount, LTO 4 SCSI and SAS desktop, SDLT 600 SCSI desktop, SDLT 600 2U rackmount, SL24 SCSI, FC, and SAS, SL48 SCSI, FC, and SAS, SL500 SCSI and FC, SL3000 FC, and SL8500 FC
Optical Drive	One DVD+/-RW drive (SATA based)	N/A	N/A
Network	Four 10/100/1,000Base-T Ethernet ports, one RJ-45 port, six PCIe 2.0 slots	Four 10/100/1,000Base-T Ethernet ports, one RJ-45 port, six PCIe 2.0 slots	Four 10/100/1,000Base-T Ethernet ports, one RJ-45 connector, three PCIe slots
Power/cooling			
Power	Dual redundant, hot-swappable power supplies: 100–120/200–240 V AC	Dual redundant, hot-swappable power supplies: 100–120/200–240 V AC	Dual redundant, hot-swappable power supply: 200–220 V AC at 10 A, 100–110 V with three PSUs
Operating temperature	41° F to 95° F (5° C to 35° C)	41° F to 95° F (5° C to 35° C)	37° F to 90° F (5° C to 32° C), altitude (operating) up to 3,048 m, altitude (nonoperating) up to 12,000 m
Nonoperating temperature	-40° F to 158° F (-40° C to 70° C)	-40° F to 158° F (-40° C to 70° C)	-40° F to 149° F (-40° C to 65° C), up to 93% relative humidity, noncondensing, 100° F (38° C) max. wet bulb
Rack units	2U	2U	4U
Physical specifications			
Height	3.34 in. (84.84 mm)	3.45 in. (87.6 mm)	6.75 in. (175 mm)
Width	16.75 in. (425.5 mm)	17.19 in. (436.5 mm)	17 in. (445 mm)
Depth	28.0 in. (711.2 mm)	30.0 in. (762.0 mm)	29 in. (736 mm)
Weight	49 lb. (22.27 kg)	65 lb. (29.54 kg)	170 lb. (88 kg) max. with rack kits
Operating system	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Oracle VM, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, Microsoft Windows Operating System
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

	NETRA ULTRASPARC RACKMOUNT			NETRA X86 RACKMOUNT
				
Name	Sun Netra T2000 Server	Sun Netra T5220 Server	Sun Netra T5440 Server	Sun Netra X4200 M2 Server
Processor/CPU	UltraSPARC T1 (1.0 or 1.2 GHz)/ 1 CPU, up to 8 cores	UltraSPARC T2 (1.2 GHz)/1 CPU, up to 8 cores	UltraSPARC T2 Plus (1.2 and 1.4 GHz)/ up to 2 CPUs, up to 16 cores	AMD Opteron (2.2 GHz dual-core or 1.8 GHz quad-core)/up to 2 CPUs, up to 8 cores
Memory	Up to 64 GB	Up to 64 GB	Up to 256 GB	Up to 32 GB
Mass storage				
Internal disk	Up to four 146 GB or 300 GB (without DVD or two HDD with DVD)	Up to four internal 146 GB or 300 GB (without DVD or two HDD with DVD)	Up to twelve 146 GB or 300 GB 2.5 in. 10,000 rpm	Up to four 146 GB or 300 GB 2.5 in. 10,000 rpm SAS (without DVD or two HDD with DVD)
External disk and tape	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products
Optical drive	One DVD+/-RW drive	One DVD+/-RW drive	One DVD+/-RW drive	One DVD+/-RW drive
Network	Four 10/100/1,000Base-T Ethernet ports	Four 10/100/1,000 Mb/sec Ethernet ports, up to 2x optional 10 GbE XAU connections	Four 10/100/1,000 Mb/sec Ethernet ports, up to 2x optional 10 GbE XAU connections	Four 10/100/1,000 Mb/sec Ethernet ports
PCI slots	3 PCI-X (FH/FL and 1x HL) and 1 PCIe (low profile)	3 PCIe (1x FH/FL) and 2 PCI-X (FH, 1x FL, 1x HL)	2 PCI-X (FH/FL) and 8 PCIe (2x FH/FL) slots	3 PCI-X (FH/FL and 1x HL) and 1 PCIe (low profile)
Power/cooling				
Power	DC: -48 V DC or -60 V; AC: 100–240 V AC, 50–60 Hz	DC: -48 V DC or -60 V; AC: 100–240 V AC, 50–60 Hz	DC: -48 V DC or -60 V; AC: 100–240 V AC, 50–60 Hz	DC: -48 V DC or -60 V DC; AC: 100–240 V AC, 50–60 Hz
Operating temperature	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C), short term 23°F to 131°F (-5°C to 55°C)
Nonoperating temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Rack units	2U	2U	4U	2U
Physical specifications				
Height	3.5 in. (89 mm)	3.43 in. (87.1 mm)	6.86 in. (174.2 mm)	3.5 in. (89 mm)
Width	16.7 in. (424 mm)	17.52 in. (445 mm)	17.52 in. (445 mm)	17.4 in. (442 mm)
Depth	20 in. (508 mm)	20.71 in. (526 mm)	20.87 in. (530 mm)	20 in. (508 mm)
Weight	35 lb. (16 kg)	38.5 lb. (17.5 kg)	72.6 lb. (33 kg)	35 lb. (16 kg)
Operating system	Oracle Solaris	Oracle Solaris	Oracle Solaris	Oracle Solaris, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, Microsoft Windows Operating System
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




	NETRA X86 RACKMOUNT	NETRA ATCA BLADES		
				
Name	Sun Netra X4250 Server	Sun Netra CT900 ATCA Blade Server	Sun Netra CP3060 ATCA Blade Server	Sun Netra CP3260 ATCA Blade Server
Processor/CPU's	Intel Xeon (2.3 GHz)/up to 2 CPU's, up to 8 cores	UltraSPARC, AMD Opteron, Intel Xeon	UltraSPARC T1 (1.0 GHz)/up to 1 CPU, up to 8 cores	UltraSPARC T2 Plus (1.2 GHz)/up to 1 CPU, up to 8 cores
Memory	Up to 64 GB	N/A; memory resides on blades	Up to 16 GB	Up to 32 GB
Mass storage				
Internal disk	Up to four 146 GB or 300 GB 2.5 in. 10,000 rpm SAS (without DVD or two HDD with DVD)	HDD resides on the blades	AMC.3 80 GB HDD	Dual SAS on rear RTM with support for two hot-swappable 146 GB HDDs
External disk and tape	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products
Optical drive	One DVD+/-RW drive			
Network	Four 10/100/1,000 Mb/sec Ethernet ports	* Dual 10/100/1,000Base-T Ethernet ports; support for 16 G or 10 G switch fabric * Support for 1 G or 10 G switch fabric	Dual 10/100/1,000Base-T Ethernet base fabric interfaces and dual 1,000Base-T Ethernet extended fabric interfaces	Eight Ethernet channels: two 1 G channels for base fabric, two 1 G or 10 G for extended fabric, three 1 G for Zone 3 (ARTM implementation-specific), one for front panel (1 G)
PCI slots	3 PCIe (1x FH/FL) and 2 PCI-X (FH, 1x FL, 1x HL)			
Power/cooling				
Power	DC: -48 V DC or -60 V; AC: 100–240 V AC, 50–60 Hz	DC: -48 V DC or -60 V	Power is a function of the CT900	Power is a function of the CT900
Operating temperature	41°F to 104°F (5°C to 40°C), short term 23°F to 131°F (-5°C to 55°C)	41°F to 104°F (5°C to 40°C); short term 23°F to 131°F (-5°C to 55°C)	41°F to 104°F (5°C to 40°C); short term 23°F to 131°F (-5°C to 55°C)	41°F to 104°F (5°C to 40°C); short term 23°F to 131°F (-5°C to 55°C)
Nonoperating temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Rack units	2U	12U (14-slot)	N/A (ATCA Blade)	N/A (ATCA Blade)
Physical specifications				
Height	3.43 in. (87.1 mm)	21 in. (533 mm)	12.7 in. (322.25 mm)	12.7 in. (322.25 mm)
Width	17.52 in. (445 mm)	17.7 in. (444 mm)	11 in. (280 mm)	11 in. (280 mm)
Depth	20.71 in. (526 mm)	19 in. (482 mm)	1.18 in. (30 mm)	1.18 in. (30 mm)
Weight	38.5 lb. (17.5 kg)	150 lb. (69 kg)	15 lb. (7 kg)	15 lb. (7 kg)
Operating system	Oracle Solaris, Microsoft Windows, Linux, VMware	Oracle Solaris, Microsoft Windows	Oracle Solaris	Oracle Solaris
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

NETRA ATCA BLADES			
			
Name	Sun Netra CP3250 ATCA Blade Server	Sun Netra CP3020 ATCA Blade Server	Sun Netra CP3220 ATCA Blade Server
Processor/CPU	Intel Xeon (2.13 GHz)/up to 2 CPU, up to 8 cores	AMD Opteron (1.8 GHz)/up to 1 CPU, up to 2 cores	AMD Opteron (1.8 GHz)/up to 1 CPU, up to 4 cores
Memory	Up to 24 GB	Up to 8 GB	Up to 32 GB
Mass storage			
Internal disk	Dual SAS on rear RTM with support for two hot-swappable 146-GB HDDs as well as SAS HDD support through AMC site	Two 2.5 in. SAS drives	Dual SAS on rear RTM with support for two hot-swappable 146 GB HDDs as well as SAS HDD support through dual AMC sites
External disk and tape	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products	Sun's complete line of disk and tape storage products
Network	Two GbE channels for base fabric, two 1 GbE and 10 GbE channels for extended fabric, two RS-232 serial ports routed to the front and rear	Two 10/100/1,000Base-T management ports, two 1,000Base-T base fabric, two 1000-series extended fabric; one RS-232C serial port, parallel N/A	Two GbE channels: two channels for base fabric, two 10 GbE channels for extended fabric, two RS-232 serial ports routed to the front and rear, 10 Gb/sec XAUI Ethernet (eight-lane PCIe)
Power/cooling			
Power	Power is a function of the CT900	Power is a function of the CT900	Power is a function of the CT900
Operating temperature	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C)	41°F to 104°F (5°C to 40°C)
Nonoperating temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Rack units	N/A (ATCA Blade)	N/A (ATCA Blade)	N/A (ATCA Blade)
Physical specifications			
Height	12.7 in. (322.25 mm)	12.7 in. (322.25 mm)	12.7 in. (322.25 mm)
Width	11 in. (280 mm)	11 in. (280 mm)	11 in. (280 mm)
Depth	1.18 in. (30 mm)	1.18 in. (30 mm)	1.18 in. (30 mm)
Weight	15 lb. (7 kg)	15 lb. (7 kg)	15 lb. (7 kg)
Operating system	Oracle Solaris, Microsoft Windows, Linux	Oracle Solaris, Linux	Oracle Solaris, Microsoft Windows, Linux
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




Product Reference Guide—Sun Storage


Sun storage solutions from Oracle are built on open standards to work with your existing infrastructure. Sun's innovative use of industry-standard hardware delivers two to three times the density, using 50 percent less in power and cooling than competing closed storage. With Sun's open storage solutions, you can accomplish more in less space, while consuming less power.





Open Storage Solutions




SUN STORAGE F5100 FLASH ARRAY			
			
Name	20 Flash Modules	40 Flash Modules	80 Flash Modules
Capacity			
Capacity	480 GB	960 GB	1,920 GB
Domains	4	4	4
I/O performance			
Random read IOPS (4,000)	397,000 IOPS	795,000 IOPS	1.6 million IOPS
Random write IOPS (4,000)	304,000 IOPS	610,000 IOPS	1.2 million IOPS
Throughput			
Sequential read rate	3.2 GB/sec	6.4 GB/sec	12.8 GB/sec
Sequential write rate	2.4 GB/sec	4.8 GB/sec	9.7 GB/sec
Latency			
Read latency	0.41 ms	0.41 ms	0.41 ms
Write latency	0.28 ms	0.28 ms	0.28 ms
Interfaces			
Ports	16 x 4-wide SAS-1 (64 channels)	16 x 4-wide SAS-1 (64 channels)	16 x 4-wide SAS-1 (64 channels)
Zoning	Yes	Yes	Yes
Power			
Input		100–120 V AC or 200–240 V AC	
Idle	129 W	157 W	213 W
Active	228 W	281 W	386 W
Power backup		4 energy storage modules	
Reliability			
MTBF	3 million hours	3 million hours	3 million hours
Endurance (50% read/50% write)	Approximately 6 years	Approximately 6 years	Approximately 6 years
Redundant power and fans	Yes	Yes	Yes
Physical specifications			
Height	1.746 in. (44 mm)—1U	1.746 in. (44 mm)—1U	1.746 in. (44 mm)—1U
Width	16.750 in. (425 mm)	16.750 in. (425 mm)	16.750 in. (425 mm)
Depth	28.125 in. (714 mm)	28.125 in. (714 mm)	28.125 in. (714 mm)
Weight	35 lb. (15.9 kg)	35 lb. (15.9 kg)	35 lb. (15.9 kg)


Open Storage Solutions (continued)

SUN STORAGE F5100 FLASH ARRAY			
			
Name	20 Flash Modules	40 Flash Modules	80 Flash Modules
Environmental			
	Operating		Nonoperating
Temperature	5°C to 35°C		-40°C to 65°C
Relative humidity	0–90%, 27 C max.		10–93%, 35°C max.
Altitude	3,000 m		12,000 m
Acoustic		55.4 dB	
Other			
Backup	4 energy storage modules	4 energy storage modules	4 energy storage modules
Weight	35 lb (15.9 kg)	35 lb (15.9 kg)	35 lb (15.9 kg)
Management	StorageTek Common Array Manager software	StorageTek Common Array Manager software	StorageTek Common Array Manager software
Warranty/service	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

SUN FLASH ACCELERATOR F20	
	
Name	Sun Flash Accelerator F20
Storage type	Low-profile PCIe card
Storage capacity	96 GB
Read/write performance	100,000/84,000 IOPS
Domains	four
Flash type (NAND)	single-level cell
Internal disk controller	Interface: SAS-1 Ports: 2 x 4 wide Disks supported: 8


SUN STORAGE 7000 UNIFIED STORAGE SYSTEMS				
				
Name	Sun Storage 7110 Unified Storage System	Sun Storage 7210 Unified Storage System	Sun Storage 7310 Unified Storage System	Sun Storage 7410 Unified Storage System
Processor/CPUs	1.9 GHz quad-core AMD Opteron processor	Two 2.3 GHz quad-core AMD Opteron processors	Up to two 2.3 GHz quad-core AMD Opteron processors per node	Six-core AMD Opteron processors per node
Memory	Up to 8 GB RAM	Up to 64 GB	Up to 64 GB per node	128 GB to 256 GB
Mass storage				
Max. storage	Up to 4.2 TB	48 TB (48 in. x 3.5 in. 1 TB disks) and up to 142 TB with two J4500 arrays	96 TB	288 TB
SSD	N/A	Write: Up to 2 SSDs Read: N/A	Write: Up to 16 SSDs for cluster configuration Read: Up to 6 per node (600 GB total)	Write: Up to 16 SSDs for cluster configuration Read: Up to 6 per node (600 GB total)
Network				
Integrated network	Four 10/100/1,000Base-T Ethernet ports	Four 10/100/1,000Base-T Ethernet ports	Four 10/100/1,000Base-T Ethernet ports	Four 10/100/1,000Base-T Ethernet ports
Optional network connectivity	Dual GigE UTP; Dual GigE MMF; Quad Gigabit Ethernet UTP; Dual 10 GigE Fiber XFP (requires fiber transceiver)	Dual GigE UTP; Dual GigE MMF; Quad Gigabit Ethernet UTP; Dual 10 GigE Fiber XFP (requires fiber transceiver)	Dual GigE UTP; Dual GigE MMF; Quad Gigabit Ethernet UTP; Dual 10 GigE Fiber XFP (requires fiber transceiver)	Dual GigE UTP; Dual GigE MMF; Quad Gigabit Ethernet UTP; Dual 10 GigE Fiber XFP (requires fiber transceiver)
Optional tape backup HBA	Dual-channel 4 Gb FC HBA; dual-channel Ultra320 SCSI HBA	Dual-channel 4 Gb FC HBA; dual-channel Ultra320 SCSI HBA	Dual-channel 4 Gb FC HBA; dual-channel Ultra320 SCSI HBA	Dual-channel 4 Gb FC HBA; dual-channel Ultra320 SCSI HBA
Power/cooling				
Power	100–120 V/200–240 V (50/60 Hz)	200–220 V AC at 10 A, 100–110 V with three PSUs	100–120 V/200–240 V AC (50/60 Hz)	100–200 V/200–240 V (50/60 Hz)
Operating temperature (single, nonrack system)	41°F to 95°F (5°C to 35°C), 10% to 90% relative humidity, noncondensing	37°F to 91°F (5°C to 32°C), 10% to 90% relative humidity, noncondensing, 27°C max. wet bulb	-40°F to 149°F (-40°C to 70°C), up to 90% relative humidity, noncondensing	41°F to 95°F (5°C to 35°C), 10% to 90% relative humidity, noncondensing
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C), up to 93% relative humidity, noncondensing	-40°F to 149°F (-40°C to 65°C), up to 93% relative humidity, noncondensing, 38°C max. wet bulb	-40°F to 149°F (-40°C to 70°C), up to 93% relative humidity, noncondensing	-40°F to 158°F (-40°C to 70°C), up to 93% relative humidity, noncondensing
Rack units	2U	4U	One per node, four per storage array	Two per node, four per storage array
Physical specifications				
Height	3.49 in. (88 mm)	6.75 in. (175 mm)	1.746 in. (44 mm)	3.46 in. (87.85 mm)
Width	16.75 in. (426 mm)	17 in. (445 mm) 19: rack mountable	16.75 in. (426 mm)	16.75 in. (425.5 mm)
Depth	28.125 in. (714 mm)	29 in. (736 mm)	28.125 in. (714 mm)	28 in. (711.2 mm)
Weight	56.77 lb. (25.75 kg)	170 lb. (88 kg) max. with rack units	40.90 lb. (18.55 kg)	63 lb. (28.6 kg)
Operating system	Oracle VM, VMware	Oracle VM, VMware	Oracle VM, VMware	Oracle VM, VMware
Warranty/services	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty




SUN STORAGE J4000 EXPANSION ARRAYS			
			
Name	Sun Storage J4200 Array	Sun Storage J4400 Array	Sun Storage J4500 Array
I/O module	Dual and single SAS I/O modules	Dual and single SAS I/O modules	Single SAS I/O module
Host interfaces/ link speeds	Three or six 3 Gb/sec SAS ports per tray	Three or six 3 Gb/sec SAS ports per tray	Four 3 Gb/sec SAS ports per tray
RAID levels	HW (with RAID HBA): RAID levels 0, 1, 10, 1E, 5, 6, 50, 5EE, 60 SW (with Oracle Solaris Zettabyte File System): RAID levels 0, 1, 5, 6	HW (with RAID HBA): RAID levels 0, 1, 10, 1E, 5, 6, 50, 5EE, 60 SW (with Oracle Solaris Zettabyte File System): RAID levels 0, 1, 5, 6	HW (with RAID HBA): RAID levels 0, 1, 10, 1E, 5, 6, 50, 5EE, 60 SW (with Oracle Solaris Zettabyte File System): RAID levels 0, 1, 5, 6
Drive capacity	Scales from 2 to 12 HDDs per tray	Scales from 12 to 24 HDDs per tray	Fully populated with 48 SATA HDDs per tray
Dynamic capacity expansion	2 to 48 drives, 146 GB to 48 TB	12 to 192 drives, 876 GB to 192 TB	48 to 192 drives, 24 TB to 192 TB
Disk drives			
Form factor	3.5 in.	3.5 in.	3.5 in.
Interface	SAS and SATA II	SAS and SATA II	SATA II
Supported drive types	SAS drives: 146 GB, 300 GB, 450 GB; 15,000 rpm SATA II drives: 250 GB, 500 GB, 750 GB, 1 TB; 7,200 rpm	SAS drives: 146 GB, 300 GB, 450 GB; 15,000 rpm SATA II drives: 500 GB, 750 GB, 1 TB; 7,200 rpm	500 GB, 750 GB, 1 TB; 7,200 rpm
Software			
Management software	Sun Storage Common Array Manager Sun StorageTek RAID Manager Software (PDF)	Sun Storage Common Array Manager Sun StorageTek RAID Manager Software (PDF)	Sun Storage Common Array Manager Sun StorageTek RAID Manager Software (PDF)
Operating system	Oracle Solaris (SPARC and X86), Microsoft Windows Server, SuSE Linux Enterprise Server, Red Hat Enterprise Linux	Oracle Solaris (SPARC and X86), Microsoft Windows Server, SuSE Linux Enterprise Server, Red Hat Enterprise Linux	Oracle Solaris (SPARC and X86), Microsoft Windows Server, SuSE Linux Enterprise Server, Red Hat Enterprise Linux
Power/cooling			
Power AC	106.54 VA	110.62 VA	110 VA
Power DC	100.4 W	100 W	1100 W max.
Heat output	352.8 W (1,204 BTU/hr.)	662 W (2,123 BTU/hr.)	1,020 W (3515 BTU/hr.)
Rack units	2U	4U	4U
Warranty/service	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty



	SUN FIRE X4500 STORAGE SERVERS
	
Name	Sun Fire X4540 Server
Processor options	
Processor	Two 6-core AMD Opteron processors only, (Model 2356 Rev F 2.3 GHz)
Cache	128K L1, 512K L2 each core, and 2 MB L3 shared by all four cores
Memory	
Memory type	DDR2 675 MHz (PC3200) registered DIMMs with ECC (128 bit plus ECC data bus)
Memory capacity	16 DDR2 DIMM slots (8 per processor); 64 GB max. with 2 CPUs and 4 GB DIMMs, standard 32 GB
Hard disk	
Hard disk supported	48 hot-swappable, 3.5 in. SATA II disk
RAID configurations	SW RAID enabled by RAID-Z in Oracle Solaris Zettabyte File System for RAID 0, 1, 0+1, 5, and RAID z2 for RAID 6
Standard/integrated interfaces	
Network	Four 10/100/1,000Base-T Ethernet ports, RJ-45 connector
Network management	One dedicated 10/100 Base-T Ethernet port, RJ-45 connector
Power/cooling	
Power	200–220 V AC at 10 A, 100 V–110 V with three PSUs
Operating temperature	41°F to 90°F (5°C to 32°C), Altitude (operating): up to 3,048 m Altitude (nonoperating): up to 12,000 m
Nonoperating temperature	-40°F to 149°F (-40°C to 65°C), up to 93% relative humidity, noncondensing, 38°C max. wet bulb
Rack units	4U
Physical specifications	
Height	6.75 in. (175 mm)
Width	17 in. (445 mm), 19 in. rack mountable
Depth	29 in. (736 mm)
Weight	170 lb. (88 kg) max. with rack kits
Operating system	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, Microsoft Windows Operating System
Warranty/service	oracle.com/sun/warranty









Workgroup, Modular and Enterprise Datacenter Disk Storage


STORAGETEK 2500 ARRAYS			
			
Name	StorageTek 2510 Array	StorageTek 2530 Array	StorageTek 2540 Array
Controller card	Dual and single iSCSI RAID controller	Dual and single SAS RAID controller	Dual and single FC RAID controller
Cache size (with ECC protection)	512 MB or 1 GB per controller	512 MB or 1 GB per controller	512 MB or 1 GB per controller
Host interfaces/link speeds	Two to four 1 Gb/sec iSCSI ports per controller tray	Three to six 3 Gb/sec SAS ports per controller tray	Two to four 4 Gb/sec FC ports per controller tray
Drive capacity	5 to 48 drives	5 to 48 drives	5 to 48 drives
Supported drives			
SAS (15,000 rpm)	300 GB, 450 GB, 600 GB	300 GB, 450 GB, 600 GB	300 GB, 450 GB, 600 GB
SATA (7,200 rpm)	500 GB, 750 GB, 1 TB	500 GB, 750 GB, 1 TB	500 GB, 750 GB, 1 TB
RAID levels	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 6, 10	0, 1, 3, 5, 6, 10
Power/cooling			
Power AC	515 W (+5 V at 19 A/+12 V at 35 A)	515 W (+5 V at 19 A/+12 V at 35 A)	515 W (+ 5 V at 19 A/+12 V at 35 A)
Power DC	17 A max. operating (-42 to -60 V DC)	17 A max. operating (-42 to -60 V DC)	17 A max. operating (-42 to -60 V DC)
Heat output	460 W (1,571 BTU/hr.)	460 W (1,571 BTU/hr.)	460 W (1,571 BTU/hr.)
Rack units	2U	2U	2U
Operating system	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
NEBS certified	Yes (AC and DC)	Yes (AC and DC)	Yes (AC and DC)
Warranty/service	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

SUN STORAGE 6000 ARRAYS			
			
Name	Sun Storage 6180 Array	Sun Storage 6580 Array	Sun Storage 6780 Array
Controller card	Dual RAID controller	Dual RAID controller	Dual RAID controller
Cache size (with ECC protection)	4 GB per array	8 or 16 GB per array	8 or 16 GB per array (32 GB coming 1H2010)
Host interfaces/link speeds	Four or eight 4 Gb/sec or 8 Gb/sec FC ports per controller tray	Eight 4 Gb/sec or 8 Gb/sec FC ports per controller tray	Eight or sixteen 4 Gb/sec or 8 Gb/sec FC ports per controller tray
Drive capacity	5 to 112 drives	5 to 256 drives	5 to 448 drives
Supported drives			
FC (15,000 rpm)	300 GB, 450 GB, 600 GB (coming soon)	300 GB, 450 GB, 600 GB (coming soon)	300 GB, 450 GB, 600 GB (coming soon)
SATA (7,200 rpm)	500 GB, 750 GB, 1 TB	500 GB, 750 GB, 1 TB	500 GB, 750 GB, 1 TB
RAID levels	0, 1, 3, 5, 6 (p+q), 10	0, 1, 3, 5, 6 (p+q), 10	0, 1, 3, 5, 6 (p+q), 10
Power/cooling			
Power AC	115 V at +3 A/240 V at +2 A	240 V at +2 A/115 V at +5 A	240 V at + 2A/115 V at + 5A
Power DC	17 A max. operating (-42 to -60 V DC)	N/A	N/A
Heat output	460 W (1,571 BTU/hr.)	540 W (1,842 BTU/hr.)	540 W (1,842 BTU/hr.)
Rack units	3U controller tray, 3U expansion tray	3U controller tray, 3U expansion tray	3U controller tray, 3U expansion tray
Operating system	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
NEBS certified	Yes (AC and DC)	No	No
Warranty/service	oracle.com/sun/warranty	oracle.com/sun/warranty	oracle.com/sun/warranty

STORAGETEK 9000 SYSTEMS		
		
Name	StorageTek 9990V System	StorageTek 9985V System
System capacity		
Internal storage (with 1 TB drives)	1,134.5 TB	236.3 TB
Number of disks (with spares)	5 to 1,152	1 to 240
Hot spares (max.)	1 to 16	1 to 16
RAID levels	1, 1+0, 5, 6	1, 1+0, 6
Drive types	73 GB 15,000 rpm, 146 GB 15,000/10,000 rpm, 300 GB 10,000 rpm	73 GB 15,000 rpm, 146 GB 15,000/10,000 rpm, 300 GB 10,000 rpm
External storage support (total)	247 PB	96 PB
System performance		
System IOPS	3.5 M/sec	12 m/sec
Aggregate internal bandwidth	106 GB/sec (68 GB/sec data, 38 GB /sec control)	13.3 GB/sec (8.5 GB/sec data, 4.8 GB/sec control)
Data cache	512 GB	128 GB
Control memory	Up to 32 GB	Up to 16 GB
Physical interfaces (max.)	FC ports 0-224, ESCON ports 0-112, FICON ports 0-112, Virtual ports 1,024 per physical port	FC ports 48, ESCON ports 24, FICON ports 24
Operating system		
Open systems	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System	Oracle Solaris, Oracle Enterprise Linux, Red Hat Enterprise Linux, Novell SUSE Enterprise Linux, VMware, Microsoft Windows Operating System
Mainframe	MVS/ESA, MVS/XA, VM/ESA,VSE/ESA, z/OS.e, z/VM, zVSE; Red Hat Enterprise Linux for S/390 and zSeries; TPF	IBM OS/390, MVS/ESA, MVS/XA, VM/ESA, VSE/ESA, z/OS, z/OS.e, 750 GB, 7,200 rpm drives 170 TB z/VM, zVSE; Red Hat Enterprise Linux for S/390 and zSeries; TPF
Power/cooling		
9990V control frame	Heat: 1.69 kW Power: 1.75 kVA	60 Hz: 200 V, 208 V, or 230 V 50 Hz: 200 V, 220 V, 230 V, or 240 V
9990V array frame	Heat: 30.20 kW Power: 32.53 kVA	
Dimensions and weight	56.3 lb. (25.5 kg)	88 lb. (40 kg)
9990V control frame	Height: 75.60 in. (192 cm) Width: 30.77 in. (78.2 cm) Depth: 36.42 in. (92.5 cm) Weight: 1,571 lb. (713 kg)	Height: 78.76 in. (200.2 cm) Width: 23.62 in. (60 cm) Depth: 41.31 in. (105.0 cm)
9990V array frame	Height: 75.60 in. (192 cm) Width: 25.59 in. (65 cm) Depth: 36.42 in. (92.5 cm) Weight: 8,080 lb. (4,000 kg)	
Warranty/service	oracle.com/sun/warranty	oracle.com/sun/warranty

TAPE LIBRARIES					
					
Name	StorageTek SL8500 Modular Library System	StorageTek SL3000 Modular Library System	StorageTek SL500 Modular Library System	StorageTek SL48 Tape Library	StorageTek SL24 Tape Autoloader
Max. throughput/hr., native; alternative tape drives provide varying throughput rates	T10000B (448 drives, 120 MB/sec): 193.5 TB/hr.	T10000B (56 drives, 120 MB/sec): 24.5 TB/hr.	LTO 4 (18 drives, 120 MB/sec): more than 7.7 TB/hr.	LTO 4 (120 MB/sec): 864 GB/hr.	LTO 4 (120 MB/sec): 432 GB/hr.
Max. capacity, native; alternative tape drives provide varying capacities	T10000B (70,000 slots): 70 PB	T10000B (5,925 slots): 5.9 PB	LTO 4 (575 slots): 460 TB	LTO 4 (48 slots): 38.4 TB	LTO 4 (24 slots): 19.2 TB
Max. number of cartridge slots	70,000 slots	5,925 slots	575 slots, LTO only; 494 slots mixed media	48 slots	24 slots
Number and type of tape drives	Up to 64 drives (min. configuration) or up to 448 drives (max. configuration) of any combination of supported drives, including T10000 B (FICON, FC); T9840D (FICON, FC); LTO 4 (FC)	Up to 56 drives of any combination of supported drives, including T10000 B (FICON, FC); T9840D (FICON, FC); LTO 4 (FC)	1 to 18 drives, including LTO 4 (SCSI/FC)	Up to two full-height or four half-height drives, including LTO 4 (SCSI, FC)	One full-height or two half-height drives, including LTO 4 (SCSI, FC, SAS)
Supported host platforms	Oracle Solaris, Microsoft Windows, UNIX, Linux, Z/OS	Oracle Solaris, Microsoft Windows, UNIX, Linux, Z/OS	Oracle Solaris, Microsoft Windows, UNIX, Linux	Oracle Solaris, Microsoft Windows, UNIX, Linux	Oracle Solaris, Microsoft Windows, UNIX, Linux
Any-Cartridge Any-Slot technology	Yes	Yes	Yes	No	No
Dimensions (H x W x D)	Min. configuration: 93.15 in. x 67.3 in. x 109.0 in. (236.6 cm x 170.81 cm x 276.9 cm)	Min. configuration: 77.5 in. x 36 in. x 48 in. (1.97 cm x 91.4 cm x 122.1 cm)	Min. configuration: 14.0 in. x 18.9 in. x 33.14 in. (35.6 cm x 48.0 cm x 81.1 cm)	Out-of-box: 6.9 in. x 17.5 in. x 30.6 in. (17.5 cm x 44.5 cm x 77.7 cm)	Out-of-box: 3.4 in. x 17.5 in. x 30.65 in. (8.7 cm x 44.5 cm x 7.8 cm)
Weight	Min. configuration: 4,309 lb. (1,954 kg)	Min. configuration: 796 lb. (361.1 kg)	Min. configuration: 76.4 lb. (34.56 kg)	Out-of-box: 65.91 lb. (29.9 kg)	Out-of-box: 34.3 lb. (15.6 kg)

TAPE DRIVES			
			
Name	StorageTek T10000B Tape Drive	StorageTek T9840D Tape Drive	StorageTek LTO 4 Tape Drive
Average file access time	62 sec	16.5 sec	57 sec
Data transfer rate, native	120 MB/sec	30 MB/sec	120 MB/sec (80 MB/sec half-height)
Capacity, native (uncompressed)	1 TB	75 GB	800 GB
Interface	2 Gb FICON, 4 Gb FC (automation, rackmount)	2 Gb FC, FICON, ESCON (automation, rackmount)	Ultra 320 SCSI, SAS (half-height), Ultra 320 SCSI, 4 Gb FC (automation)
Dimensions—automation (H x W x D)	3.5 in. x 5.75 in. x 16.75 in. (8.89 cm x 14.61 cm x 42.55 cm)	3.25 in. x 15.0 in. (8.3 cm x 38.1 cm)	5.7 in. x 1.6 in. x 8.1 in. (14.47 cm x 4.1 cm x 20.82 cm)

TAPE ENCRYPTION	
	
Name	StorageTek Crypto Key Management System 2.0
Components	Consists of a cluster configuration (2-20) of Sun Fire rackmounted servers running Oracle Solaris 10 and each containing a Sun Crypto Accelerator 6000 card
Standards/drives supported	FIPS 140-2 security requirements; CCM-AES-256 encryption; up to 3,000 drives (T10000B, T9840D, or LTO 4) and 1,000,000 keys from a single KMS cluster

TAPE VIRTUALIZATION				
				
Name	StorageTek Virtual Tape Library Value (VTL Prime)	StorageTek Virtual Tape Library Plus (VTL Plus)	StorageTek Virtual Storage Manager (VSM) System—VSM 5e	StorageTek Virtual Storage Manager (VSM) System—VSM 5
Capacity	2.5 to 65 TB (dedupe repository)	8 to 896 (raw), 6 to 630 TB (usable)	800 GB or 1.25 TB	1.25 TB to 90 TB
Host connectivity	iSCSI, FC	FC	Mainframe	Mainframe
Storage connectivity	FC	FC up to 16 (front end), 32 (total)	8 FICON or 16 ESCON, 4 Ethernet IP support	4 FICON (upgradeable to 16), 16 ESCON (upgradeable to 32), 4 Ethernet IP support
Performance	Up to 700 MB/sec	Up to 2,400 MB/sec	15,000 rpm disk drives	15,000 rpm disk drives
Virtual tape libraries/drives/carts	128/1,024/65,000	Up to 256/2,048/131,072	256 virtual tape drives	256 virtual tape drives
Cache	1 to 26 TB		8 GB (physical)/32 GB (effective 4:1 compression)	32 GB (physical)/128 GB (effective 4:1 compression)
Nonvolatile storage (average 4:1 compression before storage)			1,024 MB	1,024 MB
Min. software requirements			HSC 6.1/VTCS 6.1, z/OS 1.1+	HSC 6.1/VTCS 6.1, z/OS 1.1+

TAPE MEDIA



Name	StorageTek T10000 Data Cartridge	StorageTek 9940 Data Cartridge	StorageTek 9840 Data Cartridge
Capacity, native (uncompressed)	120 GB (Sport), 500 GB (T10000A); 240 GB (Sport), 1 TB (T10000B)	60 GB (T9940A), 200 GB (T9940B)	20 GB (T9840A/B), 40 GB (T9840C), 75 GB (T9840D)
Supported tape drives	T10000A, T10000B	T9940A, T9940B	T9840A, T9840B, T9840C, T9840D
Drive compatibility	Read/write	Read/write	Read/write
WORM or VolSafe secure media technology	Yes	Yes	Yes

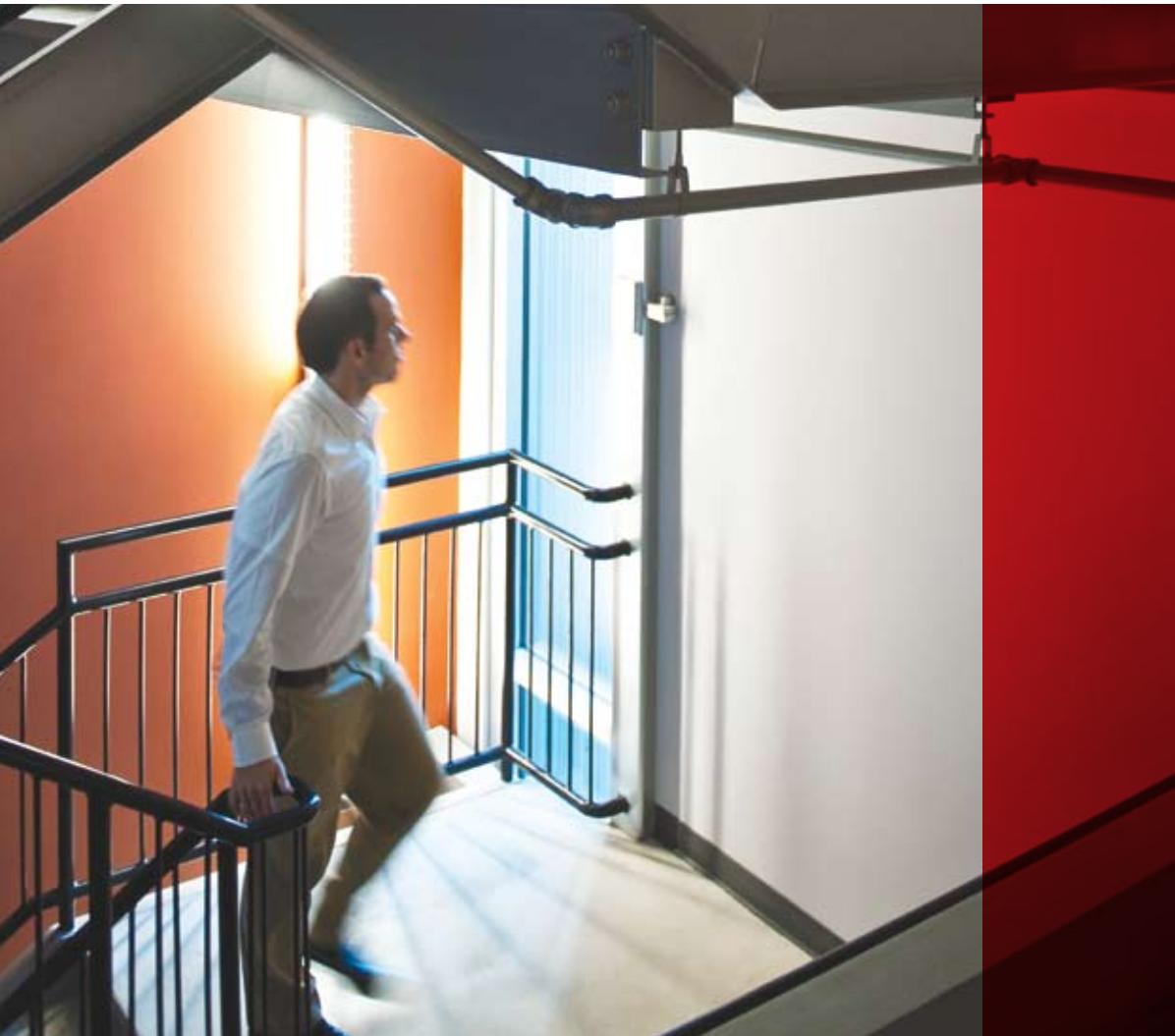
Name	StorageTek LTO Ultrium 4 Data Cartridge	StorageTek LTO Ultrium 3 Data Cartridge
Capacity, native (uncompressed)	800 GB	400 GB
Supported tape drives	LTO 4	LTO 3, LTO 4
Drive compatibility	Read/write	Read/write; LTO 4 at 400 GB, 80 MB/sec
WORM or VolSafe secure media technology	Yes	Yes

Product Reference Guide—Networking

Oracle offers a complete portfolio of Sun networking products for servers and storage for Ethernet, Fibre Channel (FC), and InfiniBand fabrics. These industry-leading fabric solutions provide the foundation for a seamless unification of network infrastructure with servers and storage. As a result, Oracle's end-to-end solutions ensure the highest performance and data integrity of the system.

	INFINIBAND NETWORKING	ETHERNET NETWORKING	STORAGE NETWORKING
Product lines	<ul style="list-style-type: none"> • QDR InfiniBand Datacenter Switches <ul style="list-style-type: none"> - Sun Datacenter IB Switch 648 - Sun Datacenter IB Switch 72 - Sun Datacenter IB Switch 36 • QDR NEMs • QDR host channel adapters 	<ul style="list-style-type: none"> • Virtualized 10 GbE NEMs, 10 GbE and 1 GbE NICs • Ethernet Passthru NEMs designed for blades • Blades' embedded 10GbE Switched NEM 	<ul style="list-style-type: none"> • 8Gb FC HBAs • 3 Gb SAS RAID and 3Gb SAS HBAs • Brocade FC directors and switches • Cisco FC directors and switches
Features	<ul style="list-style-type: none"> • QDR connectivity from 36 to 648 servers/storage systems • Scalability up to 5,000 nodes • Seamless integration with the Sun Blade modular systems • Switches available in an ultraslim, ultradense 1U chassis • Cable aggregation • Low port-to-port latency • Redundant power and cooling for HA 	<ul style="list-style-type: none"> • Virtualized 10 GbE NEM • Seamless integration with the Sun Blade modular systems • In-chassis blade-to-blade communication • Ethernet NICs <ul style="list-style-type: none"> - Choice of 10 GbE or 1 GbE NICs for low-profile for rack and PCIe Express Modules for blades 	<ul style="list-style-type: none"> • Brocade and Cisco FC products complement Sun's storage solutions • Flexible, multiprotocol architecture • High density and performance for large SANs • Scalability • Highest performance • FC high-performance connectivity
Benefits	<ul style="list-style-type: none"> • Reduce the cost and complexity of any size IB cluster deployments • Designed for small and midsize enterprise applications up to superscale HPC deployments • Unrivaled density and capacity • Ultralow QDR latency • Simplify management: replace up to 152 switching elements and thousands of cables • 3:1 cabling reduction 	<ul style="list-style-type: none"> • Virtualized 10 GbE NEM <ul style="list-style-type: none"> - Cost-effective virtualized connectivity for blades to networks and I/O - 10:1 cabling reduction eliminates management and interoperability problems • Ethernet NICs <ul style="list-style-type: none"> - Connectivity, flexibility, and reliability - Link aggregation with low cost - Efficient throughput - Crypto accelerators - Cost-effective temper-proof security 	<ul style="list-style-type: none"> • Datacenter consolidation connectivity for highly available, lossless networking • Simplified connectivity • Reduced congestion between switches • Energy efficiency • Better data access • High-speed transfer rates • Increased bandwidth results
Applications	<ul style="list-style-type: none"> • HPC clusters • Converged datacenter clusters • IB grid architecture • High-performance storage • Clustered databases 	<ul style="list-style-type: none"> • Web and application servers • Databases • Virtualization • Video streaming • Business financial 	<ul style="list-style-type: none"> • SAN consolidation • Data migration • Server/storage consolidation • Enterprise SANs

Product Family Index		Product Index (Alphabetical By Product Name)		Product Index (Alphabetical By Product Name)	
Servers—SPARC Enterprise Entry-Level	4–5	20 Flash Modules	15–16	Sun SPARC Enterprise T5120 Server	4
Servers—SPARC Enterprise Midrange	5	40 Flash Modules	15–16	Sun SPARC Enterprise T5140 Server	4
Servers—SPARC Enterprise High-End	6	80 Flash Modules	15–16	Sun SPARC Enterprise T5220 Server	4
Servers—Blade Chassis	7	Sun Blade 6000 Modular System	7	Sun SPARC Enterprise T5240 Server	5
Servers—UltraSPARC Blade Servers	7	Sun Blade 6048 Modular System	7	Sun SPARC Enterprise T5440 Server	5
Servers—x86 Blade Servers	8	Sun Blade T6320 Server Module	7	StorageTek 2510 Array	20
Servers—x86 Entry-Level	9	Sun Blade T6340 Server Module	7	StorageTek 2530 Array	20
Servers—x86 Enterprise-Level	9–11	Sun Blade X6240 Server Module	8	StorageTek 2540 Array	20
Servers—Netra UltraSPARC Rackmount	12	Sun Blade X6270 Server Module	8	Sun Storage 6180 Array	21
Servers—Netra x86 Rackmount	12–13	Sun Blade X6275 Server Module	8	Sun Storage 6580 Array	21
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		Sun SPARC Enterprise M9000 Server—64 CPU	6		



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