SUN ZFS STORAGE 7X20 APPLIANCES

DELIVERING BEST-IN-CLASS PERFORMANCE, EFFICIENCY, AND ORACLE INTEGRATION

KEY FEATURES

- Advanced, intuitive management tools
- Hybrid Columnar Compression, which delivers 10x to 50x compression ratios
- Data compression and inline deduplication
- Optimized storage hierarchy with Hybrid Storage Pool architecture
- High-performance NAS storage appliance
- Extensive SAN storage capabilities (unified storage)
- Exceptional results for leading standard benchmarks: SPC-1, SPC-2, and SPECsfs
- Support for 1.6 TB read flash SAS-2 SSD and 900 GB SAS-2 boot drives, provided by the Sun ZFS Storage 7420

KEY BENEFITS

- Reduced complexity and simplified storage management
- High performance and high availability
- Reduced storage footprint, energy use, and cost with Hybrid Columnar Compression for Oracle Database
- Storage efficiency with integrated software

Oracle's Sun ZFS Storage 7X20 appliances meet the most demanding enterprise storage requirements while delivering compelling economic advantages. Oracle's intelligent Hybrid Storage Pool architecture, a feature of Oracle ZFS Storage Appliance, and advanced compression technologies enable significant performance advantages while lowering capital costs. A unique set of management and analytics tools reduce time and complexity, lowering operating costs, and simplifying management.

Sun ZFS Storage Appliance

Sun ZFS Storage Appliance is Oracle's preferred NAS storage system with unified storage capability for enterprise environments. It offers a rich set of enterprise-class data services, industry-leading performance, and Oracle Hybrid Columnar Compression. These systems also feature a comprehensive and intuitive user interface, and the analytics environment is unmatched in the industry in terms of its ease of use and simplicity. You can reduce operating expenses dramatically by reducing management time and complexity. The Sun ZFS Storage Appliance design automatically optimizes performance over storage tiers, delivering breakthrough performance and simplifying storage management. The Sun ZFS Storage Appliance offers compelling economics along with extreme performance and efficiency for enterprise storage.

A Range of Configurations

The Sun ZFS Storage Appliance family offers three configurations that deliver higher performance at costs lower than traditional storage solutions. They do this by using cost-effective components managed under the high-performance Hybrid Storage Pool architecture and providing a rich set of base software features. The Sun ZFS Storage Appliance configuration includes dual cluster options for maximum availability. Each configuration comes bundled with the same software for system troubleshooting and performance optimization: data protocols, compression, and DTrace Analytics, a feature of Sun ZFS Storage Appliance.

Sun ZFS Storage 7120

This easy-to-install storage appliance is ideal for small enterprises, departments, and remote offices of large corporations. It delivers 3.3 TB to 177 TB of raw capacity and provides

customers with easy-to-use enterprise data management functionality at an entry-level cost.

Sun ZFS Storage 7320

The Sun ZFS Storage 7320 redefines midrange storage for enterprises, with simplified management, performance, efficiency, and seamless expansion to meet growth needs. It provides a high-availability, entry-level cluster option with scalability up to 432 TB raw capacity, and supports Hybrid Storage Pool architecture that can be configured with up to 4 TB of read-optimized cache and optional write-optimized cache for enhanced application performance.

Sun ZFS Storage 7420

The Sun ZFS Storage 7420 is ideal for data-intensive business applications and for virtualized environments that require multiple data services and heterogeneous file sharing. Available in single or cluster configurations, it can expand to nearly 3.4 PB of raw capacity for extreme scalability.

Cluster Configurations

For customers who require maximum protection against downtime, Oracle's Sun ZFS Storage 7320 and Sun ZFS Storage 7420 appliances support a two-node cluster configuration with no single points of failure. These cluster configurations feature active-active architecture that enables high performance and high availability to maximize business productivity.

Sun ZFS Storage Appliance Software	
Included Features	**Details**
Oracle's Intelligent Storage Protocol	Oracle Database 12*c* sends metadata to the Sun ZFS Storage Appliance about each I/O, enabling storage to dynamically tune itself for optimal performance
File system	Oracle Solaris ZFS (128-bit addressability)
File-level protocol	NFS v2/v3/v4, CIFS, HTTP, WebDAV, FTP/SFTP/FTPS
Block-level protocol	ISCSI, Fibre Channel, iSER, SRP, IP over InfiniBand, RDMA over InfiniBand
Data compression	Four levels of data compression available
Oracle Hybrid Columnar Compression	3x to 5x reduction in storage footprint for customers with an existing Oracle Database for OLTP, data warehousing, or mixed workloads
Data deduplication	Inline, block-level deduplication
Monitoring	DTrace Analytics (for system tuning and debugging); dashboard monitoring for key system performance metrics; plug-in for Oracle Enterprise Manager 10*g* and Oracle Enterprise Manager Cloud Control 1.0
Automated serviceability	"Phone home" capability with automatic case creation, configurable alerts
RAID	Striping, mirroring, triple-mirroring single-parity RAID, double-parity RAID, triple-parity RAID, wide stripes
Remote management	HTTPS, SSH, SNMP v1/v2c, IPMI
Snapshots	Read only, restore, Microsoft Volume Shadow Copy Support (VSS)
Directory services	NIS, AD, LDAP
Data security	Checksum data and metadata, antivirus quarantine
Network services	NTP, DHCP, SMTP
Backup	NDMP v3/v4, ZFS NDMP
Local replication	Replication within same Sun ZFS Storage appliance configuration (single or cluster)
Separately Licensed Features	**Details**
Clones	Writable snapshots
Remote replication	Replication from one Sun ZFS Storage appliance product to another. 1:N, N:1, manual, scheduled, continuous

Oracle Snap Management Utility for Oracle Database	Fast, efficient, and automatic way to back up, restore, clone, and provision Oracle Database when one or more are stored on a Sun ZFS Storage appliance.

Sun ZFS Storage Appliance Configurations

	Key Requirement	Maximum Storage Capacity	Space (Rack Units)	Write Optimized Flash	Read Optimized Flash	Cluster Option
Sun ZFS Storage 7120	Low-priced entry-level system with enterprise features	225 TB	2U/controller, 4U or 2U/disk shelf	73 GB	N	N
Sun ZFS Storage 7320	Mid-level enterprise storage with advanced capabilities	576 TB	1U/controller, 4U or 2U/disk shelf	Up to 1.8 TB	Up to 4 TB per active-active cluster	Y
Sun ZFS Storage 7420	Best price/performance high-end enterprise storage	3.4 PB	3U/controller, 4U or 2U/disk shelf	Up to 10.5 TB	Up to 12.8 TB per active-active cluster	Y

Sun ZFS Storage Appliance Specifications

	Sun ZFS Storage 7120	Sun ZFS Storage 7320	Sun ZFS Storage 7420
Architecture	Single controller only with integrated storage and optional disk shelf expansion.	Single controller or dual controller HA cluster with external disk shelf storage (stated specs assume active-active cluster)	Single controller or dual controller HA cluster with external disk shelf storage (stated specs assume active-active cluster)
Processor	1x 4-core 2.4 GHz Intel® Xeon® processor	Up to 4x 4-core 2.4 GHz Intel® Xeon® processors	8x 8-core 2.0 GHz or 10- core 2.4 GHz Intel® Xeon® processors
Main memory	48 GB	192 GB to 288 GB	1 TB or 2 TB
Read flash cache	Not available	0–4 TB	0–12.8 TB
Storage Configurations			
Configuration options	• 3.3 TB to 225 TB scalability • Base controller contains 11 HDDs and one SSD write accelerator • Option to add 0–2 additional disk shelves • 24 HDDs per additional disk shelf	• 6 TB to 576 TB scalability • Attach 1–6 disk shelves for storage • Choose 20 or 24 HDDs per disk shelf • If 20 HDDs, choose 0–4 SSD write accelerators per disk shelf	• 6 TB to 3.4 PB scalability • Attach 1–36 disk shelves for storage • Choose 20 or 24 HDDs per disk shelf • If 20 HDDs, choose 0–4 SSD write accelerators per disk shelf
Disk shelf / HDD options	• DE2-24C: SAS-2 3.5" 7,200 RPM (3 TB, 4 TB) HDDs • DS2: SAS-2 3.5" 15,000 RPM (300 GB or 600 GB) HDDs • DE2-24P: SAS-2 2.5" 10,000 RPM (300 GB or 900 GB) HDDs		
Standard and Optional Interfaces			
Integrated network	Four 10/100/1000 Base-T Ethernet ports		
Optional network connectivity	Quad Gigabit Ethernet UTP; Dual 10 GigE, QDR InfiniBand HCA, 8 Gb FC HBA		
Optional tape backup HBA	Dual channel 8 Gb FC HBA		

Maximum Ports Per System			
1 GbE/10 GbE/I B/FC	12/4/4/6	16/4/4/4	56/24/16/24
Environmental			
Nonoperating temperature/humidity (standalone, nonrack system)	-40°C to 70°C (-40°F to 158°F), up to 93% relative humidity, noncondensing		
Altitude (operating)	Up to 3,000 m, temperature is derated by 1 C per 300 m of elevation above 900 m *except in China markets where regulations may limit installations to a maximum altitude of 2 km		
Regulations (Meets or Exceeds the Following Requirements)			
Safety	UL 60950-1 2nd Ed, EN60950-1:2006 2nd Ed, CB Scheme with all country differences	UL 60950-1 2nd Ed, EN60950-1:2006 2nd Ed, CB Scheme with all country differences	IEC 60950, UL/CSA 60950, EN60950, CB Scheme with all country differences
RFI/EMI	FCC CFR 47 Part 15 Class A, EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 300-386		
Immunity	EN55024:1998+A1:2001:+A2:2003		
Physical Dimensions			
Height	87.12 mm (3.43 in.)	43.43 mm (1.71 in.)	129.85 mm (5.1 in)
Width	425.45 mm (16.75 in.)	425.5 mm (16.75 in.)	436.5 mm (17.2 in.)
Depth	762.0 mm (30.0 in.)	685.8 mm (27.0 in.)	732 mm (28.8 in.)
Weight	29.54 kg (65 lbs.)	16.36 kg (36 lbs)	38.5 kg (85 lbs) max
Disk shelves*	DS2	DE2–24C	DE2–24P
EIA rack units	4	4	2
H x W x D	6.88 in. x 17.52 in. x 23.39 in. (174.8 mm x 445.0 mm x 594 mm)	6.89 in. x 19 in IEC x 24.8 in. (175 mm x 483 mm IEC x 630 mm)	3.46 in. x 19 in. IEC x 24.8 in. (87.9 mm x 483 mm IEC x 630 mm)
Weight (max, all drives)	110.23 lb. (50 kg)	101.41 lb. (46 kg)	52.91 lb. (24 kg)

*Note: Sun/Oracle disk shelves and disk enclosure models are the only supported storage for Sun ZFS Storage Appliance.

Power and Thermal			
Item Description		**Typical**	**Maximum**
Sun ZFS Storage 7120 (controller only)	Power (w)	378 w	1,236 w
	Thermal (BTU/hr)	1,290 BTU/hr	4,212 BTU/hr
Sun ZFS Storage 7320 (controller only)	Power (w)	331 w	873 w
	Thermal (BTU/hr)	1,129 BTU/hr	2,977 BTU/hr
Sun ZFS Storage 7420 (controller only)	Power (w)	1,752 w	2,341 w
	Thermal (BTU/hr)	5,975 BTU/hr	7,988 BTU/hr
DS2	Power (w)	426 w	912 w
	Thermal (BTU/hr)	1,453 BTU/hr	3,112 BTU/hr
DE2-24C	Power (w)	469 w	699 w
	Thermal (BTU/hr)	1,600 BTU/hr	2,385 BTU/hr
DE2-24P	Power (w)	325 w	699 w
	Thermal (BTU/hr)	1,108 BTU/hr	2.385 BTU/hr
Note: The Sun ZFS Storage 7420 is compatible with 200–240 v AC sources only. All other items listed above are compatible with 100–120 v AC or 200–240 v AC sources.			

Contact Us

For more information about Sun ZFS Storage Appliances please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

Oracle is committed to developing practices and products that help protect the environment

Hardware and Software, Engineered to Work Together

ORACLE