



# XCubeSAN

XS7200

**QSAN™**



## Highlights

### New Architecture Platform

- 5<sup>th</sup> generation Intel® Xeon® processor D-1500 family eight cores
- Latest 12Gb SAS 3.0 technology
- High speed NTB channel for HA synchronization
- Two 10GbE iSCSI (RJ45) ports onboard
- Memory protection using super capacitor with M.2 flash module

### Performance & Scalability

- Up to 14,300MB/s (read) and 10,000MB/s (write) stable throughput
- Up to 1,300K+ IOPS
- Up to 16 16Gb FC ports
- Up to 20 10GbE iSCSI ports
- Expand up to 10 expansion units with over 3PB capacity

### Innovated SANOS 3.0 operating system with enterprise storage features

- QSnap (Writeable snapshot)
- QReplica (Remote replication with traffic shaping)
- QThin (Thin provisioning)
- QCache (SSD caching)
- QTiering (Auto tiering)

### High Availability

- Dual active controller design
- Redundant, hot swap components
- Firmware upgrade with zero downtime

### High Security

- iSCSI Force Field to protect from mutant DDoS network attack
- Support SED drive



## Next Generation Hybrid Storage

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XCubeSAN product family targets SMB businesses with limited budget and wanting for enterprise-class storage features. XS7200 series integrates the first Xeon SOC processor – Xeon® processor D-1500 series that is optimized for enterprise SAN and Cloud storage along with native 12Gb SAS 3.0 technology to build up the next generation storage platform to the highest standard. The heart and soul of XCubeSAN product family is QSAN SANOS 3.0 operating system, which is optimized to support QCache (SSD Caching) and QTier (auto tiering) to fully leverage the advantages of SSD drives. XS7200 series also features real time wear level indicator to provide early warning and prevent data loss.

## Accelerate Enterprise Application Performance

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Mission-critical applications such as OLTP applications, virtualized data center, and HPC usually require direct access to block-level devices, heavy IO workloads and low IO latency. With QSOE 2.0 technology and next generation storage platform, XS7200 series can accomplish that and beyond. Leveraging the powerful Intel® Xeon multicore processor to offload iSCSI stack and Fibre Channel stack to a dedicated core to accelerate performance and further reduce IO latency. QSOE 2.0 can boost performance by 50% and deliver sustained high performance to enable all your mission critical business applications and remove your storage performance bottlenecks.

## Unlock the Efficiency of Private Cloud

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Private cloud is enterprises' top choice to enhance IT efficiency without risking data security. XS7200 series is the essential shared storage for clustered servers for building up private cloud infrastructure. Deep integration with VM hypervisors further increases the efficiency of IT As A Service and reduce the total cost of ownership.



## Uncompromising Availability for Business Continuity

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Reliability and availability are two basic requirements for enterprise storage. No one wants to lose business continuity. The worst scenario can result in expensive outage costs and possible legal proceedings with liability claims. XS7200 series comes with active-active dual controller design and the most reliable hardware architecture. Both controllers can deliver services at the same time. If one controller fails, the other controller can take over in seconds and continue providing services. Besides, all critical hardware modules are designed with redundancy and hot-swap capability for easy on-site maintenance.

## Storage Efficiency for Limited IT Budget

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The birth of flash storage has changed the face of disk drive market. With QTier (QSAN Automatic Tiering) technology, XS7200 series can help you put the right data at the right place in the right time and allow you to reduce storage costs and management overhead while increasing performance and capacity. Big data analytics, data mining, business intelligence and trend analysis are the target applications because they have different data retention and usage characteristics.

## High Bandwidth and Reliable Fibre Channel Capabilities

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XS7200 series supports up to 16x 16Gb Fibre Channel ports using QLogic Gen5 FC controller silicon, which provides unmatched operational efficiency at 3 Watts per port and port-isolation design for high reliability. Low latency I/O and high bandwidth characteristics are perfect for backup, data mining, streaming I/O and virtual desktop infrastructure applications. When deploying all flash drives in XS7200 series, it's recommended to use 16Gb Fibre Channel host boards.





## Scalable Performance and Capacity to Harness Your Digital Universe

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XS7200 series can grow with your businesses. Dual host board design allows you to purchase the 2<sup>nd</sup> host board to increase performance and bandwidth when business expands. Extra storage capacity can be easily acquired through 2x high speed 12Gb mini SAS HD ports per SAN controller to connect to XCubeDAS expansion enclosures. Up to 446 drives support, XS7200 series can have enormous capacity expansion potential, which makes it a perfect candidate for backup/archives application, big data application, and 2K/4K digital image processing applications (media & entertainment, surveillance).



## Simplify Virtual Storage Environment

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XS7200 series is highly integrated with leading virtualization hypervisors. It is certified by VMware vSphere with VAAI support that includes Hardware Assisted Locking (ATS), Block Zero, Full Copy, and Thin Provisioning. It is also certified by Windows Server 2012 R2 with Windows ODX support. All these features make XS7200 series an ideal candidate in virtualized datacenters to help provision, migrate and manage storage faster and more efficiently and allow hypervisor to run more VMs.



## Highest-Level Data Security

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Although SAN storage usually has its own storage networking environment, remote replication using iSCSI connection is still prone to all sorts of Internet network attacks especially mutant DDoS. XS7200 series has gone through rigorous network attack tests using the latest Spirent security appliance. QSAN iSCSI Force Field makes sure iSCSI target protocol stack is robust enough and smart enough to fend off any kinds of malicious attempts.

Gartner market research estimates in the near future all drives will be hardware encrypted. XS7200 series supports self-encrypting drives (SEDs), which can protect from data theft, drive lost and misplacement. SEDs have no performance impact and data can be securely erased much faster than traditional drive wipe methods. Any illegal tampering with the key will render all data on the drive destroyed and inaccessible.

## Green and Efficient Memory Protection

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In case of emergence and power outage, data in memory cache need to be protected for data consistency and integrity. X7200 series supports Copy-to-Flash technology with a M.2 flash module and super capacitor module. When outage strikes, cache data will be written to M.2 flash module drawing power from super capacitor module. Super capacitors are environment-friendly and require no maintenance and are more resistant to temperature variation. Both modules can be hot swap with zero downtime.



# Hardware Specification

Model name	XS7212-D (dual) XS7212-S (single)	XS7216-D (dual) XS7216-S (single)	XS7224-D (dual) XS7224-S (single)	XS7226-D (dual) XS7226-S (single)
RAID Controller	Dual-active or Single-upgradable controller			
Host Channels (per controller)	Host board 1 : 1GbE iSCSI (RJ45) x4 ports 10GbE iSCSI (SFP+) x4 ports 16Gb FC (SFP+) x4 ports  Host board 2 : 1GbE iSCSI (RJ45) x4 ports 10GbE iSCSI (SFP+) x4 ports 16Gb FC (SFP+) x4 ports			
	10GbE iSCSI (RG45) x2 ports onboard 1GbE management port x1 port onboard			
Processor	Intel Xeon D-1500 family eight cores			
Memory (per controller)	DDR4 ECC 16GB, up to 64GB			
Hard Drive Interface	Native 12Gb SAS backplane 3.5" SAS, NL-SAS HDD 2.5" SAS, NL-SAS HDD 2.5" SAS, SATA SSD (6G MUX board for 2.5" SATA SSD only)			
Expansion Channels (per controller)	Two mini SAS HD (SFF-8644) ports onboard			
Expansion Enclosure	XCubeDAS XD5300 series 12Gb SAS JBOD J300Q series 6Gb SAS JBOD			
Max. Expansion Enclosures	10			
Max. drives	446			
Form Factor	2U 12bays	3U 16bays	4U 24bays	2U 26bays
Dimension (H x W x D)	19" Rackmount	19" Rackmount	19" Rackmount	19" Rackmount
	88 x 438 x 515 mm	130.4 x 438 x 515 mm	170.3 x 438 x 515 mm	88 x 438 x 491 mm
LCM module	USB LCM module (optional')			
Power Supply	80 PLUS Platinum two redundant 770W (1+1) AC Input 100~127V 10A, 50-60Hz 200~240V 5A, 50-60Hz DC Output +12V 63.4A +5VSB 2.0A			
Fan Module	Two hot pluggable/redundant fan modules			

# Software Specification

Model name	XS7212-D (dual) XS7212-S (single)	XS7216-D (dual) XS7216-S (single)	XS7224-D (dual) XS7224-S (single)	XS7226-D (dual) XS7226-S (single)
iSCSI	QSOE 2.0 (QSAN Storage Offload Engine) Jumbo frame, CHAP authentication Virtual LAN, iSNS support			
FC	QSOE 2.0 (QSAN Storage Offload Engine) FCP-2 & FCP-3 support Auto detect speed and topology, Topology support : Point-to-point, Fabric			
RAID & Volume	RAID level 0,1,0+1,3,5,6,10,30,50, 60, JBOD, N-way mirror Global and dedicated hot spare Write-through or write-back cache policy Online volume expansion Instant RAID volume availability Auto volume rebuilding On-line volume migration without system downtime QThin (Thin provisioning) QCache (SSD Caching) - optional¹ Fast Rebuild Support SED² (Self Encrypting Drive) Disk health check Parity check Batch disk firmware upgrade			
High Availability	Dual-Active RAID controllers Cache mirroring through high bandwidth channels (NTB) Flexible pool ownership management Management port seamless take-over Online firmware upgrade with zero system down time (Dual-controller mode only) Multi-path & load-balancing support (Microsoft MPIO, MC/S, Trunking, LACP)			
Advanced Data Protection	QReplica (Remote replication) QSnap (Writable snapshot) Volume cloning (Local replication) Microsoft Windows Volume Shadow Copy Services (VSS) Configurable N-way mirror Online disk roaming Instant volume restoration Memory protection : Copy-to-Flash BBM (Hot pluggable battery backup module) : up to 32GB memory Super Capacitor (Hot pluggable module) : up to 16GB memory Network UPS			



<b>Security</b>	Secured Web (HTTPS), SSH (Secure Shell) iSCSI Force Field to protect from mutant network attack CHAP and mutual CHAP ISE (Instant Secure Erase for SSD drive) Support SED <sup>2</sup> (Self Encrypting Drive)
<b>Data Efficiency</b>	QThin (Thin provisioning) QTiering (Auto tiering) - optional <sup>1</sup>
<b>Management</b>	USB LCM, serial console, CLI support, online firmware upgrade HTTP Web UI, secured Web (HTTPS), SSH telnet, LED indicators, iSNS, S.E.S., S.M.A.R.T., Wake-on-LAN, Wake-on-SAS
<b>Networking</b>	DHCP, static IP, NTP, Trunking, LACP, VLAN, jumbo frame (up to 9000 bytes)
<b>Notification &amp; Monitor</b>	Email; SNMP trap; browser pop-up windows; Syslog; Windows Messenger Disk monitor including SSD wear level indicator Volume monitor Performance monitor System monitor Enclosure monitor
<b>OS Support</b>	Windows 7/8/10, Windows Server 2008, 2008 R2, 2012, 2012 R2 Red Hat Enterprise Linux 5/6; Solaris 10/11; Mac OS 10.6 or greater
<b>Virtualization</b>	VMware (VAAI); Hyper-V (ODX, Offloaded Data Transfer); Citrix
<b>Green</b>	80 PLUS Platinum energy-efficient power supplies Wake-on-LAN to turn on or wake up the system only when necessary Auto disk spin down

## Warranty & Regulatory

<b>Warranty</b>	System : 3 years Battery backup module : 1 year SuperCapacitor module : 1 year
<b>Regulatory</b>	CE, FCC, BSMI, CB, KCC

## Operating Environment

<b>Temperature</b>	Operating temperature 0 to 40°C Shipping temperature -10°C to 50°C
<b>Relative Humidity</b>	Operating relative humidity 20% to 80% non-condensing Non-operating relative humidity 10% to 90%

1. Optional means the feature needs to be purchased separately.
2. SED support will be provided in later firmware release.



## QSAN Technology, Inc.

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