



XCubeSAN
XS5200

QSAN™



Highlights

New Architecture Platform

- 5th generation Intel[®] Xeon[®] processor D-1500 family quad 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 flash module

Performance & Scalability

- Up to 11,000MB/s (read) and 8,000MB/s (write) stable throughput
- Up to 1,000K+ 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

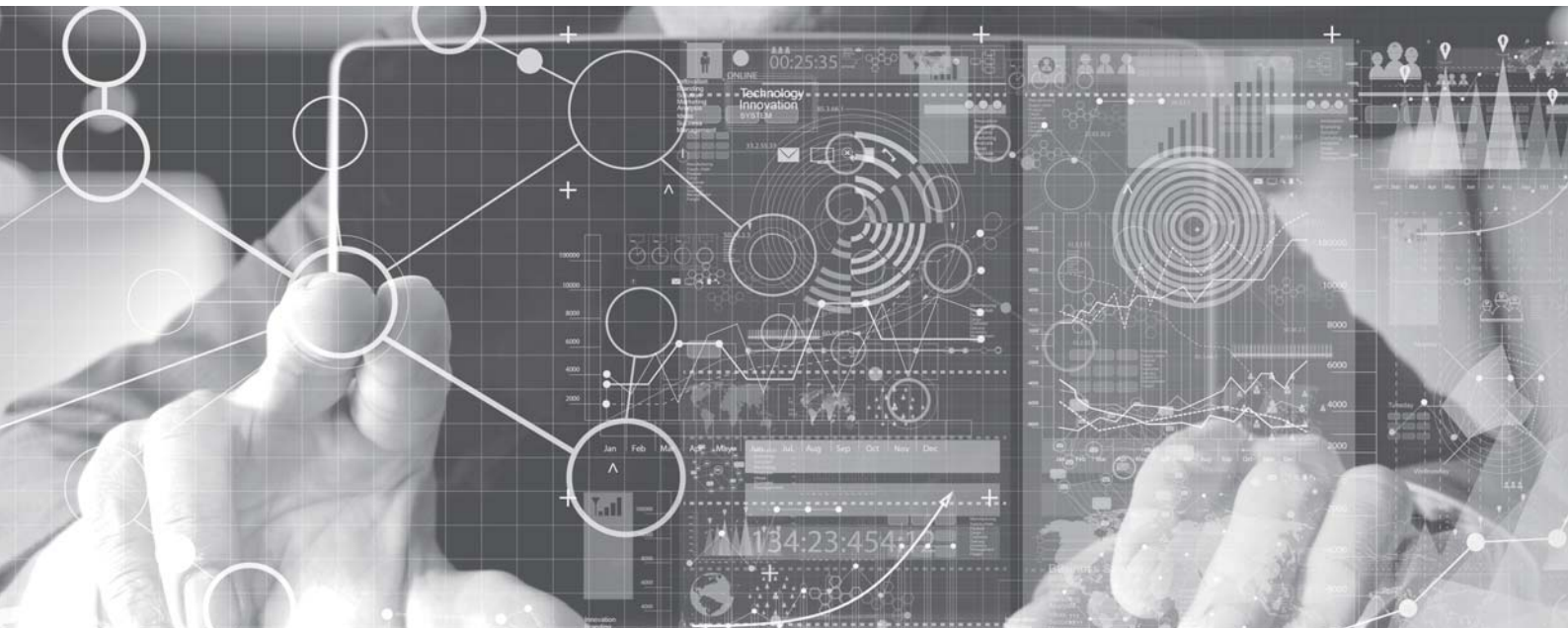
- iSCSI Force Field to protect from mutant DDoS network attack
- Support SED drive

Next Generation Hybrid Storage

TXCubeSAN product family targets SMB businesses with limited budget and wanting for enterprise-class storage features. XS5200 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. XS5200 series also features real time wear level indicator to provide early warning and prevent data loss.

Best Video Storage Solution

The business community at large has embraced HD video. The digital video is rapidly evolving to 4K and beyond, but their adoption and consumption creates immense stress and challenges for the storage domains. Next generation storage networking such as 16Gb Fibre Channel and 10Gb iSCSI are ideal tools to solve 2K/4K video entertainment requirements such as editing, rendering, streaming and broadcasting. XS5200 series offers super wide bandwidth up to 16x 16Gb FC ports and 20x 10Gb iSCSI ports through innovative dual host board design. Stable 11,000MB/s throughput supports multiple concurrent streams of 2K, 4K, HD and 3D content without dropping frames.





Enable Mission-Critical Applications

Mission-critical applications such as OLTP applications, virtualized data center, and HPC usually require direct access to drives (block-level devices), heavy IO workloads and low IO latency. With QSOE 2.0 technology and next generation storage platform, XS5200 series can accomplish just that. Leveraging the powerful Intel® Xeon multicore processor to offload iSCSI stack and Fibre Channel stack to a dedicated core to accelerate performance and reduce IO latency. QSOE 2.0 can boost performance by 50% and deliver stable high performance to enable all your mission critical business applications and remove your performance bottleneck.



Uncompromising Availability for Business Continuity

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. XS5200 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

The birth of flash storage has changed the face of disk drive market. With QTier (QSAN Automatic Tiering) technology, XS5200 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..

Scalable Performance and Capacity to Harness Your Digital Universe

XS5200 series can grow with your businesses. Dual host board design allows you to purchase the 2nd 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, XS5200 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).

Simple to Deploy and Simple to Manage

With the flexibility and luxury of dual host board design and complete form factor support, XS5200 series can be deployed to all kinds of IT environments according to business growth and application needs. It gives you the highest host port density and consolidation capability. Intuitive and user-friendly management interface simplifies administration efforts and costs.



Simplify Virtual Storage Environment

XS5200 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 XS5200 series a 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

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. XS5200 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. XS5200 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

In case of emergence and power outage, data in memory cache need to be protected for data consistency and integrity. X5200 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	XS5212-D (dual) XS5212-S (single)	XS5216-D (dual) XS5216-S (single)	XS5224-D (dual) XS5224-S (single)	XS5226-D (dual) XS5226-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 (RJ45) x2 ports onboard 1GbE management port x1 port onboard			
Processor	Intel Xeon D-1500 family quad cores			
Memory (per controller)	DDR4 ECC 8GB, up to 32GB			
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 ¹)			
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	XS5212-D (dual) XS5212-S (single)	XS5216-D (dual) XS5216-S (single)	XS5224-D (dual) XS5224-S (single)	XS5226-D (dual) XS5226-S (single)
iSCSI	<p>QSOE 2.0 (QSAN Storage Offload Engine)</p> <p>Jumbo frame, CHAP authentication</p> <p>Virtual LAN, iSNS support</p>			
FC	<p>QSOE 2.0 (QSAN Storage Offload Engine)</p> <p>FCP-2 & FCP-3 support</p> <p>Auto detect speed and topology,</p> <p>Topology support : Point-to-point, Fabric</p>			
RAID & Volume	<p>RAID level 0,1,0+1,3,5,6,10,30,50, 60, JBOD,</p> <p>N-way mirror</p> <p>Global and dedicated hot spare</p> <p>Write-through or write-back cache policy</p> <p>Online volume expansion</p> <p>Instant RAID volume availability</p> <p>Auto volume rebuilding</p> <p>On-line volume migration without system downtime</p> <p>QThin (Thin provisioning)</p> <p>QCache (SSD Caching) - optional¹</p> <p>Fast Rebuild</p> <p>Support SED² (Self Encrypting Drive)</p> <p>Disk health check</p> <p>Parity check</p> <p>Batch disk firmware upgrade</p>			
High Availability	<p>Dual-Active RAID controllers</p> <p>Cache mirroring through high bandwidth channels (NTB)</p> <p>Flexible pool ownership management</p> <p>Management port seamless take-over</p> <p>Online firmware upgrade with zero system down time (Dual-controller mode only)</p> <p>Multi-path & load-balancing support (Microsoft MPIO, MC/S, Trunking, LACP)</p>			
Advanced Data Protection	<p>QReplica (Remote replication)</p> <p>QSnap (Writable snapshot)</p> <p>Volume cloning (Local replication)</p> <p>Microsoft Windows Volume Shadow Copy Services (VSS)</p> <p>Configurable N-way mirror</p> <p>Online disk roaming</p> <p>Instant volume restoration</p> <p>Memory protection : Copy-to-Flash</p> <p>BBM (Hot pluggable battery backup module) : up to 32GB memory</p> <p>Super Capacitor (Hot pluggable module) : up to 16GB memory</p> <p>Network UPS</p>			

Security	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 ² (Self Encrypting Drive)
Data Efficiency	QThin (Thin provisioning) QTiering (Auto tiering) - optional ¹
Management	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
Networking	DHCP, static IP, NTP, Trunking, LACP, VLAN, Jumbo frame (up to 9000 bytes)
Notification & Monitor	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
OS Support	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
Virtualization	VMware (VAAI); Hyper-V (ODX, Offloaded Data Transfer); Citrix
Green	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

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

Operating Environment

Temperature	Operating temperature 0 to 40°C Shipping temperature -10°C to 50°C
Relative Humidity	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.



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