XCubeSAN

XS5212



The Perfect SAN Storage for Mission-Critical Environments

QSAN XS5212 Series is the high performance, simple, secure, scalable and affordable SAN storage systems for enterprise. It is an ideal solution to the applications of mission critical data center, high performance computing, virtualization integration, or media and entertainment environments.

Product Highlights

- High Performance SAN storage system with Dual-Active (Active/Active) controller
- High availability design with no single point of failure
- 5th generation Intel® Xeon® 4-core processor, up to 128GB RAM per controller
- Latest 12Gb SAS 3.0 technology
- Built-in 10GbE iSCSI
- Up to 12,000MB/s sequential read and 8,000MB/s sequential write throughput. up to 1.5 million sequential IOPS
- Scale up solution supports over 6.7PB of raw storage capacity
- QSAN SANOS (SAN Operating System) 4.0
- Advanced Storage Management
  - Thin Provisioning
  - SSD Cache (read and write cache)
  - Auto Tiering
  - Snapshot
- Flexible I/O host cards for iSCSI SAN or Fibre Channel SAN
- Local clone and remote replication for disaster recovery
- Virtualization support for VMware VAAI, Microsoft Hyper-V ODX, and Citrix
- Cache-to-Flash memory protection technology

Application Areas

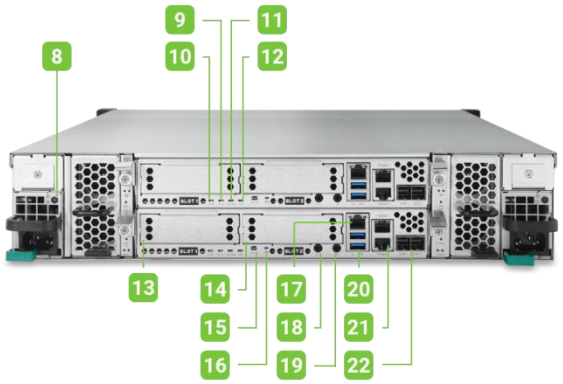
With the next generation storage platform, the XS5200 series is positioned to provide excellent values for customers and can deliver ultra-high performance for both throughput and IOPS to enable all kinds of enterprise applications, such as

- Mission critical database applications : real-time transactional database (Exchange server, SQL server, RDBMS, DB2), OLTP (On-Line Transaction Processing)
- Consolidation a virtualization : virtualized data center, VMware, Hyper-V, Citrix
- Large-scale surveillance : mega structure (shopping mall/skyscraper), public transportation (airport/train station/highway), secure and smart city infrastructure
- Private cloud computing and big data analytics
- Science and HPC (High Performance Computing)
- Corporate analytic or decision-making applications : CRM (Customer relationship management), data warehousing, EAI (Enterprise Application Integration)

XS5212 Product Specifications

Appearance





1. Enclosure Power Button / LED	7. Disk Drive Status LED	13. Host Card Slot 1 (host card is an optional part)	19. Service Port
2. UID (Unique Identifier) Button / LED	8. Power Supply Unit – PSU Indicator and Beep Off Button	14. Host Card Slot 2 (host card is an optional part)	20. USB Port
3. Enclosure Access LED	9. Controller Status LED	15. Buzzer Mute Button	21. 10GbE iSCSI Port
4. Enclosure Status LED	10. Master / Slave LED (only for dual controllers)	16. Reset to Factory Default Button	22. 12Gb/s SAS Wide Port
5. USB Port	11. Dirty Cache LED	17. Management Port	
6. Disk Drive Power LED	12. UID (Unique Identifier) LED	18. Console Port	

Hardware Specifications

Architecture	Dual (Active-Active)
CPU	
Processor	Intel® Xeon® 64-bit Quad-Core (8-core processor models are also available)
Memory	
System Flash	-
Memory Module Pre-installed	8GB DDR4 ECC DIMM (per controller)
Total Memory Slots	4 (per controller)
Memory Expandable up to	128GB (per controller)
Storage	
Drive Bays	3.5" Slot x 12
Maximum Drive Bays with Expansion Unit	420
Compatible Drive Type	3.5" SAS HDD / SAS SED HDD, 3.5" NL-SAS HDD / NL-SAS SED HDD, 2.5" SAS SSD / SAS SED SSD 2.5" SATA SSD / SATA SED SSD (*), 2.5" SAS HDD / SAS SED HDD, 2.5" NL-SAS HDD / NL-SAS SED HDD (*) 6Gb MUX board needed for 2.5" SATA drives in dual controller system
Drive Interface	SAS 12Gb/s
Maximum Internal Raw Capacity	216TB(*) (*) The capacity is based on 18TB, larger capacity is allowed when larger drive is available in the future.
Maximum Raw Capacity with Expansion Units	7,560TB(*) (*) The capacity is based on 18TB, larger capacity is allowed when larger drive is available in the future.
Hot Swappable Drive	Yes
External Port	
USB 2.0 Port	1 (Front)
USB 3.0 Port	2 (Rear)
Others	UPS Port x 1, Console Port x 1
Connectivity Port	
1GbE RJ45 LAN Port	1 (Onboard Management Port)
10GbE RJ45 LAN Port	2 (Onboard) / 2 iSCSI (Option: HQ-10G2T)
10GbE SFP+ LAN Port	4 iSCSI (Option: HQ-10G4S2)
25GbE SFP28 LAN Port	2 iSCSI (Option: RHCE25P2)
16Gb SFP+ Fibre Channel	4 (Option: HQ-16F4S2) / 2 (Option: HQ-16F2S2)
32Gb SFP28 Fibre Channel	2 (Option: RHCF32P2)

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Expansion Port	
12Gb/s SAS Wide Port	2 (Onboard)
Host Card Expansion	
Gen3x8 Slot	1
Gen2x4 Slot	1
Appearance	
Dimension (H x W x D) (mm)	88 x 438 x 515
Chassis Form Factor	19" Rackmount 2U 12 Bay
Net Weight (kg)	16.4
Gross Weight (kg)	18.8
Memory Protection	
Cache-to-Flash Module	Yes
Battery Backup Module + Flash Module	Yes
Others	
System Fan	4 pcs
Replaceable System Fan	Yes
Power Recovery	Yes
Scheduled Power On/Off	-
Wake on LAN/WAN	Yes
Power Supply Unit / Adapter	770W/850W x 2 (80 PLUS Platinum)
Redundant Power Supply	Yes
AC Input Power Voltage	100V-240V
Power Frequency	50-60 Hz, Single Phase
Power Consumption	407W
British Thermal Unit	1,388BTU
LCM Support	Yes
Environment Temperature	
Operating Temperature	0°C to 40°C
Storage Temperature	-10°C to 50°C
Operating Relative Humidity	20% to 80% non-condensing
Non-operating Relative Humidity	10% to 90%
Certification	
Certifications	CE, FCC, BSMI, VCCI, KCC
Warranty	
Standard Warranty	3 years Battery backup module / Super capacitor module : 1 year

Software Specifications

Operating System	• 64bit embedded Linux
Storage Management	• RAID level 0 ,1 ,0+1 ,3 ,5 ,6 ,10 ,30 ,50, 60, and N-way mirror • RAID EE level 5EE, 6EE, 50EE, and 60EE • Flexible storage pool ownership • Thin Provisioning (QThin) with space reclamation • SSD Cache (QCache[1]) • Auto Tiering (QTiering[1]) • Global, local, and dedicated hot spares • Write-through and write-back cache policy • Online disk roaming • Spreading RAID disk drives across enclosures • Background I/O priority setting • Instant RAID volume availability • Fast RAID rebuild • Online storage pool expansion • Online volume extension • Online volume migration[2] • Auto volume rebuilding • Instant volume restoration • Online RAID level migration • SED & ISE drive support • Video editing mode for enhanced performance • Disk drive health check and S.M.A.R.T. attributes • Storage pool parity check and media scan for disk scrubbing • SSD wear lifetime indicator • Disk drive firmware batch update • Volume QoS (Quality of Service) • Advanced disk awareness

iSCSI Host Connectivity	• Proven QSOE 2.0 optimization engine • CHAP & mutual CHAP authentication • SCSI-3 PR (Persistent Reservation for I/O fencing) support • iSNS support • VLAN (Virtual LAN) support • Jumbo frame (9,000 bytes) support • Up to 256 iSCSI targets • Up to 512 hosts per controller • Up to 1,024 sessions per controller
Fibre Channel Host Connectivity	• Proven QSOE 2.0 optimization engine • FCP-2 & FCP-3 support • Auto detect link speed and topology • Topology supports point-to-point[3] and loop • Up to 256 hosts per controller
High Availability	• Dual-Active (Active/Active) SAN controllers • Cache mirroring through NTB bus • ALUA support • Management port seamless failover • Fault-tolerant and redundant modular components for SAN controller, PSU, FAN module, and dual port disk drive interface • Dual-ported HDD tray connector • Multipath I/O and load balancing support (MPIO, MC/S, Trunking, and LACP) • Firmware update with zero system downtime
Security	• Secured Web (HTTPS), SSH (Secure Shell) • iSCSI Force Field to protect from mutant network attack • iSCSI CHAP & mutual CHAP authentication • SED & ISE drive support
Storage Efficiency	• Thin Provisioning (QThin) with space reclamation • Auto Tiering (QTiering[1]) with 3 levels of storage tiers
Networking	• DHCP, Static IP, NTP, Trunking, LACP, VLAN, Jumbo frame (up to 9,000 bytes)

Advanced Data Protection	• Snapshot (QSnap), block-level, differential backup
	  • Writeable snapshot support
	  • Manual or schedule tasks
	  • Up to 64 snapshots per volume
	  • Up to 64 volumes for snapshot
	  • Up to 4,096 snapshots per system
	• Remote Replication (QReplica)
	• Synchronous[1], asynchronous, block-level, and differential backup based on snapshot technology
	  • Traffic shaping for dynamic bandwidth controller
	  • Manual or schedule tasks
	  • Auto rollback to previous version if current replication fails
	  • Up to 32 schedule tasks per controller
	• Volume clone for local replication
	• Configurable N-way mirroring
	• Integration with Windows VSS (Volume Shadow Copy Service)
	• Instant volume restoration
	• Cache-to-Flash memory protection[1]
	  • M.2 flash module
	  • Power module: BBM (Battery Backup Module) or SCM (Super Capacitor Module)
	• Support USB UPS and network UPS with SNMP management

Virtualization Certification	• Server Virtualization & Clustering • Latest VMware vSphere certification • VMware VAAI for iSCSI & FC • Windows Server 2012 R2, 2016 Hyper-V certification • Microsoft ODX • Latest Citrix XenServer certification
Easy Management	• USB LCM[1], serial console support, online firmware update • Intuitive Web management UI, secured web (HTTPS), SSH (Secured Shell), LED indicators • S.E.S. support, S.M.A.R.T. support, Wake-on-LAN, and Wake-on-SAS • RESTful API support
Green & Energy Efficiency	• 80 PLUS Platinum power supply • Wake-on-LAN to turn on or wake up the system only when necessary • Auto disk spin-down
Host Operating Systems Support	• Windows Server 2008, 2008 R2, 2012, 2012 R2, 2016 or later • SLES 10, 11, 12 or later • RHEL 5, 6, 7 or later • CentOS 6, 7 or later • Solaris 10, 11 or later • FreeBSD 9, 10 or later • Mac OS X 10.11 or later
Note	[1] The function is optional and is not included in the default package. [2] The feature is based on RAID level migration of disk groups on the fly in thick provisioning pools. [3] 16Gb/32Gb Fibre Channel only supports Point-to-Point topology.

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