# Qsan P500H Dual RAID Controller

*10GbE iSCSI dual RAID controller, 10GbE iSCSI-SAS, supports both SAS and SATA drives, backplane solution,*

*the core of Qsan 2-port 10GbE high-availability iSCSI target for the disk arrays ranging from 16-bay to 24-bay.*

## Feature Highlights

1. Hardware iSCSI offload engine inside
2. Dual-active configuration support
3. Cache mirroring through high bandwidth channels
4. Flexible RAID group (RG) ownership management
   - Each RG can be assigned to one of the two P500H controllers
   - Each LUN can be exported from both P500H controller
5. Management port seamless take-over
   - The management port can be transferred smoothly to the other controller with the same IP address
6. Online FW upgrade, no system down time
7. Backward compatible to P210C volume configurations
8. Multiple target iSCSI nodes per controller support
   - Each LUN can be attached to one of 32 nodes from each controller
9. Front-end 2 x 10GbE NIC ports per system with high availability/load balancing/fail-over support
   - Microsoft MPIO, MC/S, Trunking, LACP, & etc.
   - 2 x 10GbE NIC ports support per controller (Optional)
10. SBB Compliant
11. iSCSI jumbo frame support
12. RAID 6, 60
13. QSnap w/o relying on host software
14. Up to 128 sessions support
15. Host access control
16. Configurable N-way mirror for high data protection
17. On-line volume migration with no system down-time
18. HDD S.M.A.R.T. enabled for SATA drives
19. iSCSI header/data digest support
20. SATAII drive Backward-compatible (Optional)
21. SAS JBOD expansion support
22. Disk auto spindown support
23. Hot pluggable BBM support (Optional)

### Performance Per System

Throughput: 1200 MB/sec
IOPS: 210,000 IO/sec (Dual), 110,000 IO/sec (Single)

## Key Components

1. SBB-compliant controller form factor
2. CPU: Intel Xscale IOP 81342 1.2GHz (Chevelon dual core)
3. Memory: 2GB ~ 4GB DDRII 533 DIMM support
4. UARTs: support for serial console management and UPS
5. Fast Ethernet port: for Web-based management use
6. Backend: Up to 24 SAS 3.0Gb/s, or SATA 1.0, 1.5Gb/s or SATA 2.0, 3Gb/s disks support
7. Front-end: One 10GbE ports per controller
   - Two 10GbE ports support per controller (Optional)
8. LCM support for easy management use
9. SAS JBOD expansion port for capacity expansion
10. QMUX board support for SATA drives (Optional)
11. Hot pluggable battery backup module support (Optional)

## RAID & Volume Operation

1. RAID level: 0,1,0+1,3,5,6,10,30,50, 60 and JBOD
2. Up to 1024 logical volumes in the system
3. Up to 32 PDs can be included in one RAID group
4. QSnap: built-in Qsan writable snapshot feature
   - Up to 32 QSnap for one logical volume
   - Up to 16 logical volumes can be setup with QSnap function
   - Rollback mechanism
   - Microsoft VSS compliant
5. Global and dedicated hot spare disks
6. Write-through/Write-back cache policy for different application usage
7. Multiple RAID volumes support
8. Configurable RAID stripe size
9. Online volume expansion
10. Instant RAID volume availability
11. Auto volume rebuilding
12. On-line volume migration
13. On-line disk roaming
14. Instant volume configuration restoration

## Advanced Data Protection

1. Dual-active controller configuration
2. Cache mirroring
3. QSnap utility
4. Microsoft Windows Volume Shadow Copy Services (VSS) support
5. Local N-way mirror
6. On-line array roaming
7. Hot pluggable battery backup module support (Optional)

## Enclosure Monitoring

1. S.E.S. support for standard enclosure management
2. UPS management via the specific serial port
3. Fan speed monitoring fan x 3~5
4. Redundant power supply monitor
5. 3.3V, 5V and 12V voltage monitor
6. Thermal sensors x 5 on the controller board
7. Thermal sensor x 3 (up to 24) in enclosure.
8. Status report of the managed SAS/SATA JBODs

## Management Interface

1. Management UI via serial console, SSH telnet, HTTP WebUI and secured Web (HTTPS).
2. Online system firmware upgrade mechanism
3. Event notification via Email, SNMP trap, browser pop-up windows, Syslog, and Windows Messenger.
4. Run-time IO transactions recording
5. Built-in LCD module to control most enclosure components
6. iSNS & DHCP support
7. CHAP authentication mechanism support

## Host & Drive Connection

1. 2 x 10GbE ports support independent access, fail-over or load-balancing (802.3ad port trunking, LACP) for one high-availability iSCSI subsystem empowered by P500H.
2. MC/S feature support
3. Microsoft Multipath IO (MPIO) support
4. iSCSI jumbo frame support
5. CHAP authentication enabled
6. iSCSI multiple target mode support: 32 multiple nodes support
7. SCSI-3 compliant
8. Multiple IO transaction processing
9. Tagged command queuing
10. Access control: Read-Write & Read-Only
11. S.M.A.R.T. enabled for SATA drives
12. Up to 128 sessions
13. Up to 16 hosts clustered for one volume
14. Compatible with Windows, Linux, Solaris, & MAC Operation Systems
15. iSCSI Data/Header digest support

## Chassis Integration

Controller form factor
Dimension: 19.9 cm x 2.4 cm x 29.2 cm (W x H x D)

Through AirMax connector to connect the following signal to back plane: SAS, SATA 2.0, Ethernet, console/COM port, LCM, LED (HDD active/faulty, host busy, status), button (mute, system default, LCM, & etc.)