

# Tyrone Opslag D1-2QF-12

2U 12-bay high performance 4Gbps FC-SAS RAID system (supports both SAS and SATA drives)



## Feature Highlights

1. Dual-ported 4Gbps FC with load-balancing & fail-over for the high availability
2. Supports Snapshot
3. Support 4 x SAS JBODs expansion (Up to 80 drives for one RAID controller)
4. RAID 6, 60
5. Volume sharing
6. Web-based management
7. On-line volume expansion & migration
8. HDD S.M.A.R.T. enabled
9. Windows VSS support
10. One volume can be shared by as many as 16 hosts
11. Host access control for volumes
12. Disk auto spindown support

## Performance

- Single port : 400MB/sec
- Dual ports : 800MB/sec
- IOPS : 70,000

## Key Components

1. FC-SAS RAID Controller
  - (a) Intel Xscale IOP341
  - (b) 1GB ~ 2GB DDRII 533 DIMM
  - (c) 32MB Flash
2. UARTs : serial console and UPS
3. Fast Ethernet port for management
4. Drive-side : SAS(3.0Gb/s), SATAII(3Gb/s), SATAI(1.5Gb/s)
5. Host-side : 4Gbps FC controller with dual ports support
6. LCM & Enclosure monitor processors
7. Optional Battery backup module

## 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 16 PDs included in one volume group
4. Global and dedicated hot spare disks
5. Write-through or write-back cache policy
6. Multiple RAID volumes support
7. Configurable RAID stripe size
8. Online volume expansion
9. Instant RAID volume availability
10. Auto volume rebuilding
11. On-line volume migration

## Advanced Data Protection

1. Snapshot : built-in snapshot with rollback enabled
  - Writable Snapshot Volumes
  - Snapshot enabled up to 16 volumes, each logical volume supports up to 32 snapshot volumes, total 512 snapshot volumes per controller
  - VSS support
2. Off-line array roaming
3. Smart faulty sector relocation
4. Battery backup support (optional)

## Power & Environment

- AC input : 100-240V ~ 8A-4A 550W 1+1 with PFC (Auto Switching)
- DC output : 3.3V-28A; 5V-30A; 12V-35A
- Operating Temperature : 10°C to 40°C
- Relative Humidity : 5% to 95% non-condensing

## Dimension

1. 2U 19-inch rackmount chassis
2. 447(W) x 550(D) x 87(H) mm (17.6 x 21.6 x 3.42 inches)

## Enclosure Monitoring

1. S.E.S. support for standard enclosure management
2. UPS management via the specific serial port
3. Fan speed monitoring fan x2
4. Redundant power supply monitor
5. 3.3V, 5V and 12V voltage monitor
6. Thermal sensors x 3 on the controller board (for the processor, bridge and host channel chip)
7. Thermal sensor x 3 (up to 24) in enclosure.
8. Expanded D1-3QJ-16 SAS/SATA JBODs status monitor

## Management Interface

1. Management UI via serial console, SSH telnet, and secured Web (HTTPS)
2. Online system firmware upgrade mechanism
3. Event notification via Email , SNMP trap , windows & browser, pop-up Messenger , Syslog
4. Run-time IO transactions recording
5. Basic operation via LCM

## Host Connection

1. 2 x SFP FC host ports support independent access, fail-over or load-balancing
2. Microsoft Multipath I/O (MPIO) support
3. LUN Access control : Read-Write & Read-Only
4. Multiple target nodes support (multiple aliases)
5. Up to 32 host connections
6. Up to 16 hosts for one volume
7. Support Windows, Linux, MAC OS

## Drive Support

1. SCSI-3 compliant
2. Multiple IO transaction processing
3. Tagged command queuing
4. Hard drive S.M.A.R.T. enabled
5. SAS expansion port connecting up to 4 D1-3QJ-16 SAS JBODs
6. Up to 80 SAS/SATA drives per controller

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www.tyronesystems.com

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### Netweb Technologies

B-1/ A25, 2nd Floor, Mohan Co-Operative Industrial Estate, Mathura Road, New Delhi - 110044  
Tel : +91 11 29942258 | Email : info@netwebindia.com | Website : www.netwebindia.com