

QUANT HYPERRACK XR82136



8U | BAREBONE + DUAL EXPANSION ENCLOSURES | HIGH-AVAILABILITY ENTERPRISE STORAGE PLATFORM

The Quant HyperRack XR82136 is an 8U modular enterprise-class storage system that integrates one active-active controller chassis with two high-density disk expansion enclosures.

Leveraging Intel® Xeon® 64-bit multicore processors, the Intel Multi-core 64 bit processor, and Quant's proprietary VRAID 3.0 and HASS™ (Hard Disk Active Stabilization System) technologies, the XR82136 delivers industry-leading reliability, intelligent fault recovery, and data protection.

With 65 × 24 TB enterprise HDDs = 1.56 PB raw capacity active, expandable to 2.136 PB (89 drives), it ensures continuous 24 × 7 operation for AI, big-data analytics, video surveillance, and cloud virtualization environments.

KEY FEATURES

Active-Active Dual Controller Design

- Dual controllers operate in full load-sharing mode, processing I/O simultaneously.
- Cache Mirroring via PCIe link maintains 1 + 1 redundancy: zero data loss during failover.
- Controller failover latency < 30ms, ensuring seamless application continuity.

VRAID 3.0 Intelligent RAID Technology

- Delta Reconstruction – rebuilds only invalid data blocks after disk recovery, 90 % faster.
- Delta Synchronization – skips already written blocks, allowing live I/O during sync.
- Read Error Correction – auto-repairs bad sectors on the fly.
- Permanent RAID Metadata Protection with multiple redundant copies.
- RAID Roaming – migrate arrays to other systems without data loss.

HASS™ Predictive Disk-Health Analytics

- Proactive Health Checks and real-time SMART data tracking.

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- AI-based trend analysis reduces HDD failure rates by > 80 %.
- Automated alerts for pre-failure replacement.

High-Reliability Hardware Architecture

- Intel® 64-bit multicore server platform + ECC DDR4 memory + 64-bit storage OS.
- Hot-swappable modules: controllers, PSUs, BBUs, fans, HDDs.
- 1 + 1 redundant BBU protects write-cache data during power loss.
- Sequential disk spin-up minimizes inrush current.
- Over-temperature and NMI protection with auto-shutdown and safe-mode.
- Automatic restart after power restoration.

Energy-Efficient Design

- Platinum 1 + 1 PSUs (> 80 % efficiency) with cold-standby recovery.
- Dynamic CPU frequency scaling + temperature-controlled fan speed for lower power draw.
- Intelligent I/O prediction cache reduces HDD load and power consumption.

Cross-Platform Management

- Web GUI / CLI / SNMP / SSH / Telnet / Serial management.
- Quant Control Suite™ for Windows®, Linux®, and macOS® environments.
- Distributed management — control multiple systems from a single interface.

SYSTEM CONFIGURATION

COMPONENT	QTY	CAPACITY (24 TB DRIVES)	NOTES
Barebone Controller Chassis	1	24 × 24 TB = 576 TB	Dual controllers + RAID logic
Expansion Enclosures	2	24 × 24 TB × 2 = 1,152 TB	12 Gb/s SAS dual-path connectivity
Active Drives Used	65 / 72	1.56 PB Raw	7 spares reserved for hot swap
Expandable Capacity	-	Up to 2.136 PB (89 × 24 TB)	Future growth ready

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TECHNICAL SPECIFICATIONS

FEATURE	DESCRIPTION
Model	Quant HyperRack XR82136
Form Factor	8U Rackmount (19" Standard) – Barebone + 2 Expansions
Processor	Intel Multi-core 64 bit processor
Chipset	Intel® C621A + ASPEED AST2600 BMC
Memory	Standard 64 GB ECC DDR4 (Expandable to 1 TB / 4 TB LRDIMM)
Drive Bays	72 Total (65 Active Drives Used)
Raw Capacity	≈ 1.56 PB active / 2.136 PB max
Drive Interface	12 Gb/s SAS / 6 Gb/s SATA (dual expander backplane)
RAID Levels	0, 1, 5,10, 6, + hot spare support
RAID Features	Delta Reconstruction, Delta Sync, Read Repair, Metadata Protection
Network Ports	2 × 1 GbE RJ-45 + Opt. 2 × 10 GbE SFP+ + 1 × IPMI
PCIe Expansion	3 × PCIe 3.0 x16 + 3 × PCIe 3.0 x8
M.2 Slots	2 × M.2 (PCIe 3.0 x4 / SATA 6 Gb/s 2280/22110)
Protocols	iSCSI, CIFS, NFS
LUN Support	Up to 1024 Logical Volumes
Power Supply	AC 100–240 V, 1 + 1 Redundant 1200 W Platinum
Cooling	2 + 1 Redundant Adaptive Speed Fans
Power Consumption	< 1200 W @ Full Load (72 HDDs)
Management	Web GUI, CLI, SNMP, SSH, Telnet, Serial, Email/SMS Alerts
Operating Temp / Humidity	+5 °C to +35 °C / 10 %–90 % (non-cond.)

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TECHNICAL SPECIFICATIONS

FEATURE	DESCRIPTION
Dimensions (W×D×H)	440 × 680 × 175 mm (8U Total Stack)
Weight	78 kg
Certifications	CE, UL, FCC, ISO 14001:2015
Country of Origin	Malaysia
Warranty	3 Years

PERFORMANCE BENCHMARKS

METRIC	TYPICAL VALUE
Sequential Read	> 10 GB/s
Sequential Write	> 8 GB/s
Random I/O (SSD Cache Enabled)	> 850 K IOPS
RAID Rebuild Speed	3 × Faster via Delta Sync
Controller Failover	< 30ms (Zero Data Loss)

APPLICATIONS

- AI & Machine Learning — Dataset staging and GPU training storage
- Big Data & Analytics — Object and block data repositories
- Media Production / Surveillance — 4K/8K multi-stream archive
- Enterprise Backup / DR — Central replication and retention
- Cloud Infrastructure — Virtualized storage for VM and container pools

