

DATA SHEET

UltraStor[®] ES3160 P4 Enterprise iSCSI Storage



The Intelligent Enterprise Failover Redundant RAID Storage

The UltraStor ES3160 P4 comes with Active-Active Dual Redundant iSCSI RAID controller for maximum data protection and it delivers industry's leading GbE iSCSI performance designed for mission critical and data intensive applications to meet the data storage requirements across the most demanding environments. The ES3160 P4, the first Dual Active-Active intelligent iSCSI RAID System introduced to the award-winning UltraStor Enterprise RAID Series are designed for the cost-effective 3Gbps SATA or the high-performance SAS disks. The UltraStor[™] ES3160 P4 delivers unparalleled performance, protection, flexibility, scalability, expandability, and return on investment in a shared storage environment taking advantage of the standard ethernet network infrastructure.

UltraStor[™] ES Versatility

The UltraStor ES3160 P4 provides users for dual active-active RAID protection, high bandwidth cache mirroring, seamless management, multiple target nodes, high availability, and load-balancing. With 4x Gigabit Ethernet ports per system connected to the hosts, either working independently or MPIO (Multipath I/O) together, the UltraStor ES3160 P4 delivers up to 200,000 IOPS and 800MB of data throughput per second. UltraStor ES3160 P4 supports high-performance SAS and high-capacity SATA drives with up to 16x drives in single enclosure, and the system also allows for storage expansion for up to 3x more enterprise JBOD storage arrays via the available Mini-SAS JBOD (SFF-8088) storage expansion port.

IP SAN Storage

Equipping with quad-port iSCSI per RAID controller, and compatible with the industry standard Ethernet interfaces, Ultrastor ES3160 P4 is the ideal IP SAN storage solution for disk-to-disk backup and shared SAN environments. Certified by Microsoft Multipath I/O, Ultrastor SAN minimized downtime with clustering and makes high capacity storage available shared by multiple numbers of servers. The Ultrastor ES3160 P4 provides perfect blends of performance, RAID protection, and manageability that designed for centralized SAN environments.

Easy Management

The UltraStor[™] ES Series is an enterprise grade high-performance storage system yet its storage management is intelligent and simple with easy to use WebGUI RAID management and built-in remote control capable of managing, monitoring, and reconfiguring via standard web browser via TCP/IP in real-time anywhere in the world.

Power Redundancy

The UltraStor ES3160 P4, equips with two 80-Plus certified 500W/600W power supplies, is expandable and scalable for up to over 100TB with 3x enterprise JBOD subsystems. UltraStor[™] ES Series keeps your workloads and critical applications running 24x7 without hardware failure interruption through the deployment of robotic power and cooling management with its redundant hot-swappable power supplies (2x) and high-efficiency cooling fans (4x). The ES3160 P4 Dual Active-Active GbE iSCSI solution was developed to provide massive expansion capabilities with maximum data protection and improved cooling efficiency to reduce operating costs.

Feature Highlights

- Dual Active-Active enterprise RAID controllers
- Supports SATA 1.0/2.0/3.0 and SAS hard disks
- Web Storage Management makes IT stuff's work easier
- Built in remote access for event log & e-mail notification
- Supports RAID 0,1,3,5,5+S,6,6+S & JBOD
- Supports up to 80 disks storage expansion via SFF8088 Mini-SAS
- Supports mutple RAID volumes, on-line volume expansion & migration
- Windows VDS/VSS/MPIO support, host access control, & CHAP
- SBB (Storage Bridge Bay) 2.0 compliant
- Dual hot-swappable redundant 80 PLUS power supplies



Service and Support

The Ultrastor ES3160 P4 support options offer flexibility and peace of mind. Customers count on Enhance Technology's enterprise-class support and world wide local based service center to keep information available and operations running. The Ultrastor ES3160 P4 includes a standard 3-year warranty with a 30-day money back guarantee, 30-day unit exchange. Customers can also choose to upgrade to a premium level of service which includes three years of advanced parts replacement, an emergency loaner unit for populated solutions, and optional 8x5 next-business-day on-site responses.

Specifications

Form Factor: 3U 16 disks low profile 19" Rackmount

EnhanceRAID RAID Controller:

- Intel IOP 81342 1.2GHz
- 1GB ~ 2GB DDRII 533 DIMM
- UARTs for serial console management and UPS
- Dedicated Fast Ethernet port For Web-UI
- Backend: SAS 3.0Gb/s, SATA 1.0, 1.5Gb/s or SATA 2.0, 3Gb/s disks
- LCM supported for easy management use
- Battery backup support (Optional)

RAID:

- RAID level: 0,1,0+1,3,5,6,10,30,50, 60 and JBOD
- Up to 1024 logical volumes in the system
- Global and dedicated hot spare disks
- Write-through or write-back cache policy for different application usage
- Dedicated or shared cache allocation for volume usage
- Multiple RAID volumes support
- Configurable RAID stripe size
- Online volume expansion
- Instant RAID volume availability
- Auto volume rebuilding
- On-line volume migration

Advanced Data Protection

- QSnap – built in snapshot with rollback enabled
- Local N-way mirror
- Off-line array roaming
- Smart faulty sector relocation
- Battery backup support (optional)

Host Interface:

- Four GbE Ethernet ports and one Mini-SAS SFF8088 expansion port per RAID controller

Storage Capacity:

- Scaleable up to 32TB raw (16x2TB) per system
- Maximum expandable capacity up to 80 disks with 160TB raw (80x2TB)

Management:

- Management UI via: Serial console, SSH telnet, or HTTP Web UI
- Event notification via: Email, SNMP trap, Browser pop-up windows, Syslog, or Windows Messenger
- Online system firmware upgrade mechanism
- Built-in LCD module to control most enclosure components
- iSNS & DHCP support
- CHAP authentication mechanism support

Supported Operating System:

- Windows Server 2000, Windows Server 2003, Windows Server 2008, Windows XP, Windows Vista
- Mac OSX 10.4, Mac OSX 10.5, Xserver, Red Hat Enterprise

Physical & Environment:

- Operating Temperature 10°C ~ 35°C
- Non-Operating Temperature -10°C ~ 50°C
- Relative Humidity 5% to 95% non-condensing

Power Supply:

- Hot swappable dual redundant 80-PLUS power (Standard)
- AC Input: 90-264V 47/63 Hz - Output: 2x500W


Cooling:

- Four hot-swappable high-speed cooling fans

Dimension (H x W x D): 5.25" x 19" x 21.5"

Weight (w/o disks): 70Lbs

Safety Regulations: CE, FCC, UL, RoHS



Cross-platform Web Management
The user-friendly Web Graphical User Interface(GUI) allows users to deploy and manage the disk array from virtually anywhere at anytime with simple internet access, no additional management software ever needed.

Compatibility

Validated SATA 3.5" HDDs:

(Brand & Model, Model Number, Capacity, RPM Speed, Interface, Cache Memory, Native Command Queuing)

- Hitachi Deskstar E7K500, HDS725050KLA360, 500GB, 7200RPM, SATA II, 16M
- Hitachi Deskstar P7K500, HDP725050GLA360, 500GB, 7200RPM, SATA II, 16M
- Hitachi Deskstar E7K1000, HDE721010SLA330, 1TB, 7200RPM, SATA 3.0Gb/s, 32MB
- **Hitachi Ultrastar A7K2000, HUA722020ALA330, 2TB, 7200RPM, SATA 3.0Gb/s, 32MB**

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- Seagate Barracuda 7200.9, ST3500641AS, 500GB, 7200RPM, SATA 3.0Gb/s, 16M, NCQ
- Seagate Barracuda 7200.11, ST3500320AS, 500GB, 7200RPM, SATA 3.0Gb/s, 32M, NCQ
- Seagate Barracuda 7200.11, ST31000340AS, 1TB, 7200RPM, SATA 3.0Gb/s, 32M, NCQ
- Seagate Barracuda 7200.11, ST31500341AS, 1.5TB, 7200RPM, SATA 3.0Gb/s, 32M, NCQ
- Seagate NL35.2, ST3500641NS, 500GB, 7200RPM, SATA 3.0Gb/s, 16M
- Seagate Barracuda ES, ST3500630NS, 500GB, 7200RPM, SATA 3.0Gb/s, 16M
- Seagate Barracuda ES, ST3750640NS, 750GB, 7200RPM, SATA 3.0Gb/s, 16M
- Seagate Barracuda ES.2, ST31000340NS, 1TB, 7200RPM, SATA 3.0Gb/s, 32M

Seagate
The Spin of Class

- Western Digital Caviar RE2, WD4000YR, 400GB, 7200RPM, SATA 1.5Gb/s, 16M, NCQ
- Western Digital Caviar RE16, WD5000AAKS, 500GB, 7200RPM, SATA 3.0Gb/s, 16M
- Western Digital RE2, WD4000YS, 400GB, 7200RPM, SATA 3.0Gb/s, 16M
- Western Digital RE2, WD5000ABYS, 500GB, 7200RPM, SATA 3.0Gb/s, 16M, NCQ
- Western Digital RE2-GP, WD1000FYPS, 1TB, 7200RPM, SATA 3.0Gb/s, 16M
- **Western Digital RE4, WD2002FYPS, 2TB, IntelliPower, SATA 3.0Gb/s, 64M**
- Western Digital Raptor, WD360GD, 36.7GB, 10000RPM, SATA 1.5Gb/s, 8M
- Western Digital VelociRaptor, WD3000HLFS, 300GB, 10000RPM, SATA 3.0Gb/s, 16M

WD Western
Digital

Validated SAS 3.5" HDDs:

(Brand & Model, Model Number, Capacity, RPM Speed, Interface, Cache Memory)

- Hitachi Ultrastar 15K147, HUS151436VLS300, 36GB, 15000RPM, SAS 3.0Gb/s, 16M
- Hitachi Ultrastar 15K300, HUS153073VLS300, 73GB, 15000RPM, SAS 3.0Gb/s, 16M

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- Seagate Cheetah 15K.4, ST336754SS, 36.7GB, 15000RPM, SAS 3.0Gb/s, 8M
- Seagate Cheetah 15K.5, ST373455SS, 73.4GB, 15000RPM, SAS 3.0Gb/s, 16M
- Seagate Cheetah 15K.5, ST3146855SS, 146.8GB, 15000RPM, SAS 3.0Gb/s, 16M
- Seagate Cheetah 15K.6, ST3450856SS, 450GB, 15000RPM, SAS 3.0Gb/s, 16M
- Seagate Cheetah NS, ST3400755SS, 400GB, 10000RPM, SAS 3.0Gb/s, 16M
- Seagate Barracuda ES.2, ST31000640SS, 1TB, 7200RPM, SAS 3.0Gb/s, 16M
- Seagate Cheetah NS.2, ST3600002SS, 600GB, 10000RPM, SAS 2.0, 6.0Gb/s, 16M
- Seagate Cheetah 15K.7, ST3600057SS, 600GB, 15000RPM, SAS 2.0, 6.0Gb/s, 16MB

Seagate
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Available Models



Model	ES3160 P4	ES3160 P4 Populated
Part No.	ES3160 P4	ES3160 P4-F24T
Interface	Quad GbE iSCSI	Quad GbE iSCSI
Disk No.	16 disks	16 disks
Power Supply	500W Dual Redundant	500W Dual Redundant
Capacity	N/A	24TB ⁽¹⁾
HDDs	N/A	16x1.5TB SATA II HDDs
Warranty	Standard 3 years	EnhanceCARE SSP™ ⁽²⁾

(1) Raw storage capacity under RAID-0 configuration, formatted capacity will vary.

(2) EnhanceCARE SSP (Service and Support Program) only apply to populated solution, please contact your account manager for details.

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