

DATA SHEET

UltraStor™ ES3160 FS

High-availability & Active-active
Enterprise 4G Fibre Channel RAID Storage



Fault Tolerance RAID Storage

The UltraStor™ ES3160 FS is equipped with Active-Active Dual RAID controllers for maximum data protection and data high-availability. Featuring 2x 4G Fibre Channel per controller, users can attach ES3160 FS to multiple servers to ensure data accessibility with high-performance and full Fibre Channel bandwidth. In addition to the ES3160 FS's dual RAID controllers and I/O modules, the dual redundant power supplies and cooling modules are also hot-swappable and can be replaced easily on the field, providing the ultimate redundancy and reliability for mission critical and data intensive applications to meet the most demanding storage needs.

Expand as Your Grow

Utilizing sixteen (16) hot-swappable disk trays, the ES3160 FS can host up to 32TB of capacity. However, the storage capabilities don't stop there. Unlike many storage systems, the ES3160 FS can easily grow far beyond the "limitations" of its drive capacity. Each ES3160 FS system can also be expanded with additional RAID protected data storage of up to 128TB (Raw) with 3 x ES3160 JS SAS interface JBOD storage systems.



Enterprise Class Storage Solution

Enhance Technology is devoted to deliver the highest quality storage solutions by offering SATA/SAS hard disks populated and fully tested in an intensive environment on every ES3160 FS product, meaning that you can easily integrate the system into your IT infrastructure right out of the box. The preferred service plan---EnhacneCARE SSP ensures peace-of-mind for customers with support and service options such as 1-Year Free Advance Replacement Program, and On-site support* on top of the standard 3-Year depot repair warranty.

Professional Management

Managing an ES3160 FS storage system is easy. With its cross platform user friendly GUI management, it's easy to configure and administer the ES3160 FS. Its web-based GUI interface helps manage, monitor and control the system via a standard web browser anywhere at anytime. It also can be setup to receive real-time system failure notification in Email with no additional software is needed.



Energy-Efficient

The ES3160 FS equips with 80-Plus 500W dual redundant power supply to keep your workloads and critical applications running without hardware failure interruption and ensure system reliability and data availability. With the Energy-efficient power supply, the ES3160 FS becomes an environmental friendly storage system that helps user to reduce utility and cooling cost due to excess heat generated by the power supply.

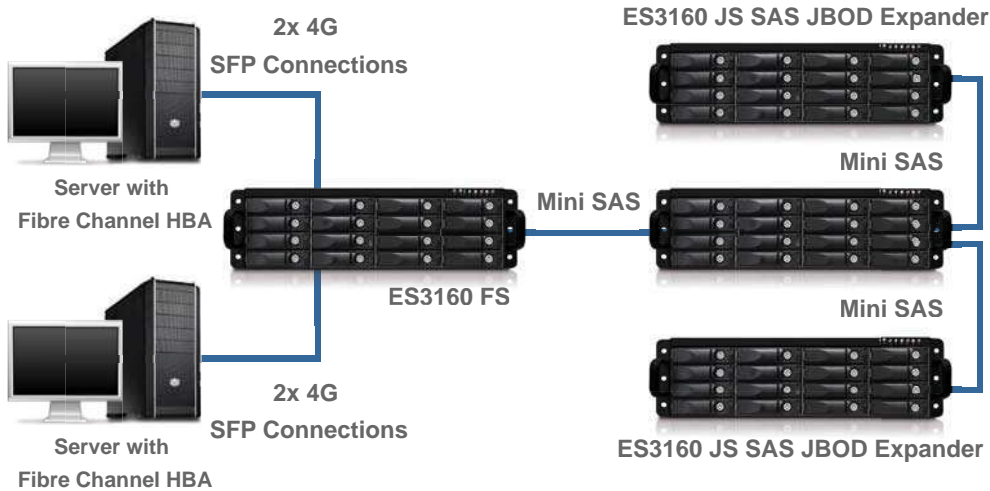
* The On-site support service can be purchased, please check with your dealer for availability in your location.



How ES3160 FS Can Work for You

Fault Tolerance Storage Solution

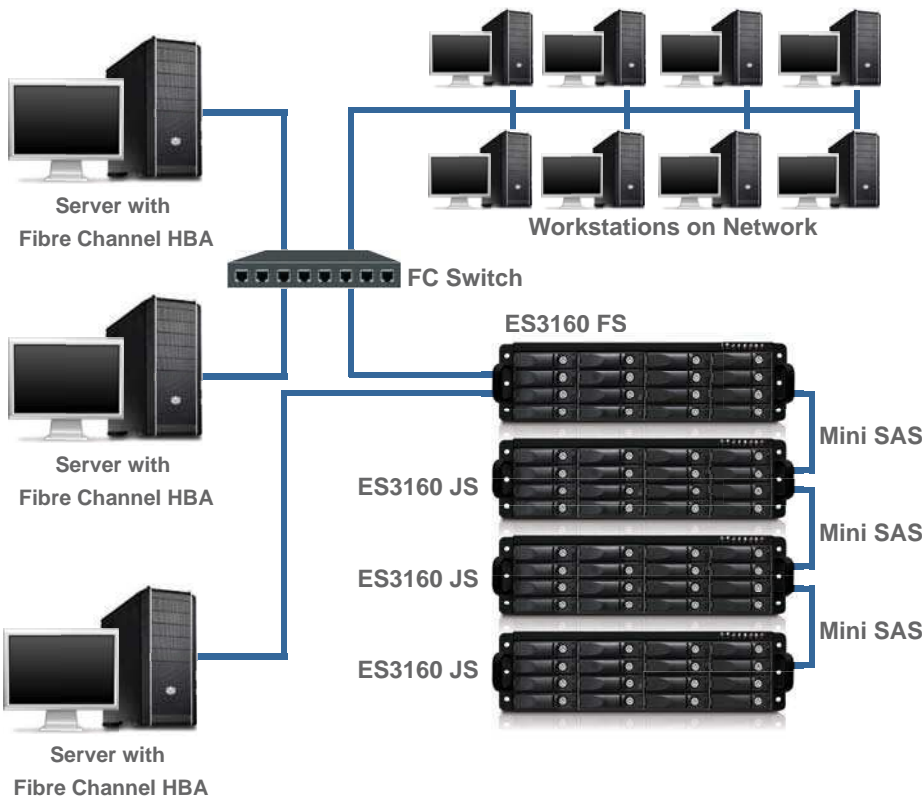
The UltraStor ES3160 FS can provide users for dual active RAID protection, high Fibre Channel bandwidth, high-availability, load-balancing and superior performance. The ES3160 FS can connect to multiple target servers via ethernet network, meaning that accessing your data can be done through multiple Fibre Channel connections. With the UltraStor ES3160 FS, businesses can benefit from its high availability, scalability, and sustainability for advance storage applications such as SQL/Exchange storage, high performance backup, or virtualization computing.



- Two servers with Fibre Channel HBA connects to UltraStor ES3160 FS via SFP connections.
- Two servers have access to UltraStor ES3160 FS simultaneously for fault tolerance.
- UltraStor ES3160 FS expands to another three SAS/SATA JBOD enclosures through Mini SAS SFF-8088.
- Up to four full capacity storage systems.

High-performance Fibre Channel SAN

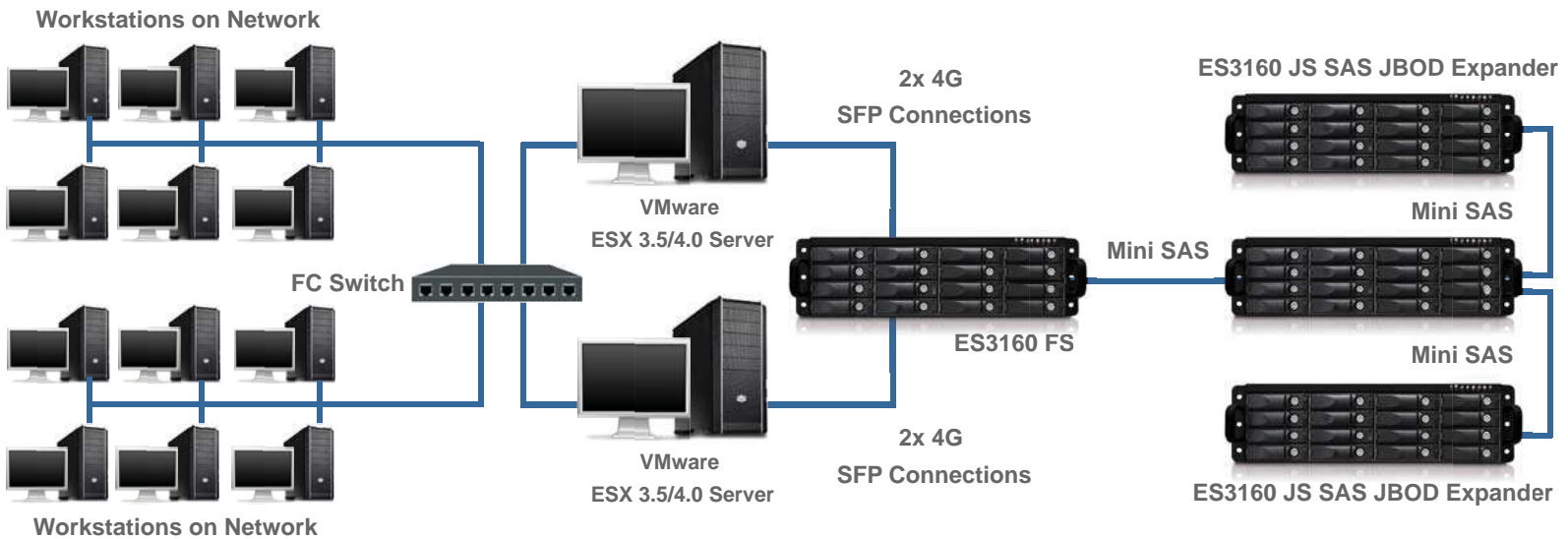
Equipped with 2x 4G Fibre Channel per controller and compatible with the industry standard Fibre Channel switches, the ES3160 FS is the ideal Fibre Channel SAN storage solution for disk-to-disk backup and shared SAN environments. Compatible with Microsoft Multipath I/O, ES3160 FS minimized downtime with clustering and makes high capacity storage available shared by a numbers of servers. The ES3160 FS provides perfect blends of performance, RAID protection, and manageability designed for centralized SAN environments.



- UltraStor ES3160 FS connected to two servers via Fibre Channel switch and attached to one server via SFP connection.
- Three servers have access to UltraStor ES3160 FS at same time for fault tolerance.
- Workstations on network share ES3160 P4 and expansion storage capacity.
- UltraStor ES3160 FS expands to another three SAS/SATA JBOD enclosures through Mini SAS SFF-8088.
- Up to four full capacity storage systems.

Virtualization Storage Solution

Where economy meets flexibility with the UltraStor ES3160 FS; ES3160 FS is compatible with VMware ESX 3.5 and 4.0 servers for virtualization storage applications. The ES3160 FS's expandability allows users to add more storage capacity as their business grows while helping organizations to lower IT cost, simplify operations and improve resource utilization.



- UltraStor ES3160 FS connected to two VMware ESX 3.5 or ESX 4.0 servers via SFP connections for high bandwidth and fault tolerance.
- UltraStor ES3160 FS expands to another three SAS/SATA JBOD enclosures through Mini SAS SFF-8088 that provides massive capacity of storage for VMware ESX servers.
- Workstations on network share and with access to the data on ES3160 FS and its expansion storage through VMware ESX servers that connected through a Fibre Channel switch.

Specifications

Model	UltraStor ES3160FS
SKUs	ES3160FS-D
Hard Disks	Number: 16 Interface:SAS RPM: 7200 RPM or 15K RPM Cache: 32MB per drive
Host Interfaces	2-port Fibre Channel SFP + 1-port SAS expansion port per controller
Form Factor	3U low profile 19" Rackmount
RAID	0,1,0+1,3,5,6,10,30,50,60; Up to 1024 logical volumes in the system ; Up to 32 Physical Disks can be included in one RAID group; Up to 512 Snap Shot; Rollback mechanism ; Microsoft VSS compliant ; Global and dedicated hot spare disks ; Supports multiple RAID array and volumes; Online volume expansion; Online disk roaming; Flexible RAID group (RG) ownership management;
Controller	2 x SFP 4G Fibre Channel ports per controller; 1 x SAS Expansion port per controller; 4GB DDRII 533 DIMM; Up to 8GB; Serial console management and UPS; Dedicated Fast Ethernet port For Web-UI; LCM management panel; Battery Backup Unit (Optional)
Storage Expansion	Multiple SAS JBOD expansion supported;
Hot-swappability	16 Hot-swappable drive trays; Dual hot-swappable power supplies; Three hot-swappable fan modules;
Management	Management UI via: Serial console, SSH telnet, or HTTP Web UI; Event notification via: Email, SNMP trap, Browser, Syslog; Online system firmware upgrade mechanism; iSNS & DHCP support; CHAP authentication mechanism support;
Supported OS	Windows Server 2000 / 2003 / 2008 Windows XP / Vista / 7; Mac OSX; Linux VMware ESX/vSPHERE 4.0/4.1; Microsoft Hyper-V; Citrix XenServer
Physical & Environment	Operating Temperature 10°C ~ 35°C; Non-Operating Temperature -10°C ~ 50°C; Relative Humidity 5% to 95% non-condensing
Power & Cooling	Dual redundant 500W 80 PLUS power supply; AC Input: 100-240V 8-5A 47/63 Hz; PSU failure indicate sensor; 3 x hot-swappable high-speed SMART fans;
Dimension (H x W x D)	5.25" x 19" x 21.5"
Weight (w/o disks)	65 Lbs
Safety Regulations	CE, FCC
Warranty	- 3-Year Standard Warranty - 1-Year ARP (Advance Parts Replacement) - 2-Year Standard Warranty Upgrade (Option) - 2-Year ARP Upgrade (Option)

Package Included:

- ES3160FS 3U 16-Bay redundant controller storage system
- Up to 4 pre-configured drive packs
(Each drive pack includes 4 HDDs)
- Rack mounting brackets
- User manual CD
- Accessory box
- Two (2) US standard power cord
- Estimate Package Weight (w/ Drive Installed): 76 ~ 100 Lbs
- Package Dimension (H x W x D): 12" x 28" x 32"

Accessories:

Spare Drives:

- 4x 1TB Enterprise SATA HDD w/Mux Boards and Trays (ES-HDP-4TE)
- 4x 2TB Enterprise SATA HDD w/Mux Boards and Trays (ES-HDP-8TE)
- 4x 1TB 6G 7.2K SAS HDD with Trays (ES-HDP-4TS)
- 4x 2TB 6G 7.2K SAS HDD with Trays (ES-HDP-8TS)
- 4x 3TB 6G 7.2K SAS HDD with Trays (ES-HDP-12TS)
- 4x 300GB 6G 15K SAS HDD with Trays (ES-HDP-1.2TS)
- 4x 450GB 6G 15K SAS HDD with Trays (ES-HDP-1.8TS)
- 4x 600GB 6G 15K SAS HDD with Trays (ES-HDP-2.4TS)

Spare Controller Kit:

- ES3160FS Controller (ES3160CC-FS)

Power Supply:

- Hot-swappable 500W 80+ PSU Module (PS1500G/ES)
- Hot-swappable 600W 80+ PSU Module (PS1600G)

Battery Back Unit:

- Battery Backup Unit for ES3160 (ES3160-BBU)

Spare Fan:

- Hot-swappable Cooling Fan Module (ES3160-F)

SFP Transceiver

- SFP 4G Fibre Channel Transceiver (SFP4GB/F)

Optical Cable:

- 5 meter optical cable (LC/5M)

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