

FlashNAS™ ZFS

RZ-3U16 Series

Rugged ZFS Network Attached 3U Storage System Redundant Controllers - 128 TB Expandable to 1,920 TB with 8 TB Disks

Rugged FlashNAS ZFS Storage

FlashDisk RZ-3U16 is a rugged version of the commercial ZX-3U16 with the same performance levels and Fibre Channel and iSCSI host support. However, these “COTS Rugged” ZFS storage systems are designed to store and protect data in harsh operating environments: tolerating levels of dust, moisture, shock and vibration not possible with standard commercial units - at far less expense than fully rugged systems. It supports 16 SAS disks (HDDs or SSDs) per shelf and provides up to 128 TB of storage in the base unit, expandable to 1,920 TB. The front door is crafted of 3/4-inch milled aluminum to provide rigidity, structural integrity and prevent flying-object hazards. It also contains a heavy-duty filter to trap dust particles and provide a moisture shield to protect internal components. The door also features a dust and raindrop seal. An optional 1U mounting tray is available that permits front access for normally rear services, saves three feet behind the unit and increases structural integrity.



*FlashNAS ZFS RZ-3U16.
Expandable to 240 disks with fourteen 3U expansion shelves.*

Winchester Systems combines durable, redundant hardware technology with OpenSolaris and the ZFS file system to provide superior data protection and reliability. Sporting controllers, power supplies and fans that are modular, redundant and hot-swappable, the FlashNAS ZFS hardware platform is purpose-built for continuous availability and long-term durability. The revolutionary ZFS file system adds end-to-end error detection and correction, self-healing, and advanced SSD optimization features for unsurpassed protection of data integrity throughout the storage system. Building on this foundation, Winchester Systems FlashNAS ZFS adds advanced functions such as storage-pool mirroring and remote replication.

RZ-3U16 Rugged Features

Milled Aluminum Door: 3/4" milled aluminum provides rigidity and structural integrity - plus dust and raindrop seal.

Reusable Air Filter: Dust and moisture protection, field proven in harsh environments, washable.

Auto Power On: Unit restarts after brownouts and blackouts.

Transit Case: Field deployable transit case available.

Choice of Finish: Doors and trays painted or anodized neutral black, US Army green, US Navy grey or custom color.

Batteryless Operation: For fire safety, storage system unit runs without Lithium Ion battery and data written only to disk.

SSDs for Vibration Resistance: SSDs are finally affordable and offer capacity to 2 TB each.

Copper or Optical Cables: For iSCSI 10 GbE systems, choose between Copper or Fibre connectivity.



Rugged 1U mounting tray fully extends for rear service access from the front.

Rugged FlashNAS ZFS RZ-3U16 Durability, Availability & Protection

Simple to Deploy: Save time in critical deployments.

CIFS/NFS/AFP Unified Security Model: Seamlessly share files across OS platforms.

Redundant Controllers: Redundant active-active failover controllers, with automatic fail-back, deliver enterprise-class uptime.

End-to-End Data Integrity: Self healing architecture detects and repairs silent data errors using independent multi-level checksums.

ZFS RAID Levels: 0, 1, 5, 6, 50, 60.

MPIO: Multi-pathing data access for automated failover and load balancing.

Hot-Swap Components: Hot-swap controllers, disks, power supplies and fans.

Hot-Spare Disks: Standby disks that are ready to be automatically rebuilt to replace failed disks - and disks that are signalling imminent failure.

Expandable Storage Pools: Created from multiple RAID sets and easily expanded.



Rugged unit on mounting tray with aluminum ball-bearing rails fully extended for rear access.

SSD Cache Data Acceleration: SSDs can be used as high speed cache to accelerate read and write performance.

Pool Mirroring: Synch and asynch mirroring of storage pools between FlashNAS ZFS systems.

Unlimited Snapshots: Snapshots take no additional space until contents of a file share or volume change. The number of snapshots is limited only by disk capacity.

Data Compression: Algorithms use variable size blocks based on data characteristics and results in typical data compression of 2x to 5x.

Remote Replication: Asynchronous replication between two FlashNAS ZFS servers via optional encrypted link.

Thin Provisioning: Create large virtual volumes and auto-allocate physical space as needed.

Disk Roaming: Disks can be removed and reinstalled in any order - especially handy for initializing a disaster recovery site.

Mixed NAS & SAN: Supports iSCSI and FC volumes with LUN masking for data protection on same storage systems as NAS shares.

Simple GUI and CLI: Manage RAID sets, storage pools, snapshots, mirrors, replication, compression and more via web browser or command line interface.

RZ-3U16 ZFS Features

Protection and Availability

- Redundant Controllers in a ZFS NAS
- ZFS end-to-end integrity protection detects and repairs silent data errors
- Snapshots, Mirroring, Replication, Anti-Virus, Data Compression, Disk Roaming, Thin Provisioning, Storage Pool Expansion, SSD Caching, MPIO, LUN Masking, WORM volumes, RAID data protection
- Hot-Swap Components
- Hot Spare Disks

Compatibility

- CIFS/SMB V1; NFS V2, V3, V4; NDMP V2, V3, V4; LDAP V2, V3; HTTP/HTTPS; AFP V2.2.2 and older; iSCSI; SMTP; SNMP V1, V2C, V3; NTP, ICAP, FTP; FTPS; Secure FTP
- Active Directory; LDAP V2, V3; NIS V2
- Windows, UNIX, Linux, Mac OS X, Solaris, AIX, HP-UX
- VMware 5.x certified

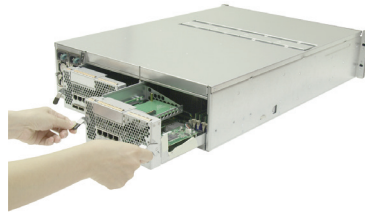
Management and Support

- Easy and intuitive web GUI
- CLI interface
- Ethernet, SNMP, E-Mail Alerts

Warranty and Service

- Three year factory warranty and toll-free hotline during business hours
- Optional on-site service, spares, advance parts replacement, installation and 24x7 service

Rugged FlashNAS ZFS RZ-3U16 “Hot Swap” Components



FlashNAS controllers easily swap out while system continues to run.

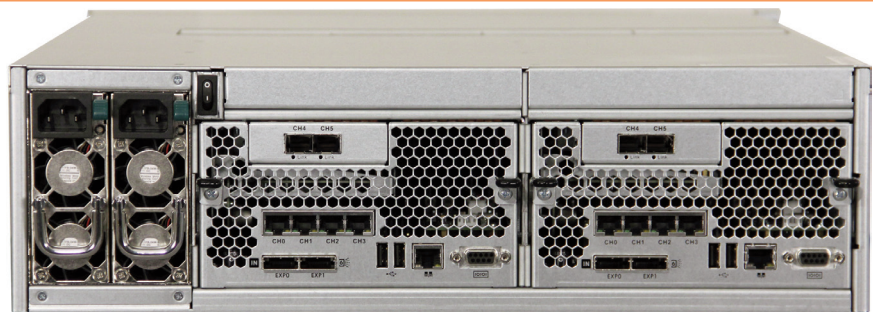
Hot-swap power supplies also permit continuous operation and avoid downtime.



Fans are also easily hot-swapped for non-disruptive service.



Rugged 3U FlashNAS ZFS RZ-3U16 Rear View



FlashNAS ZFS RZ-3U16 rear view, showing 8 iSCSI 1GbE and 4 iSCSI 10GbE ports.

Rugged RZ-3U16 with Expansion



Rugged FlashNAS ZFS RZ-3U16 is easily configured and scales to very large capacities. FlashNAS RZ-3U16 supports up to 240 disk drives using fourteen 3U expansion shelves, providing up to 1,920 TB of data storage capacity using 8 TB disks.

Rugged FlashNAS ZFS RZ-3U16 Summary Specifications

Dimensions (WxDxH)	3U Chassis: 17.6" x 25.6" x 5.2"
Controller	Dual-Redundant Controllers
Maximum Memory	32 GB per controller, standard
iSCSI 1GbE Ports	8 x 1GbE ports included, 8 x 1GbE ports optional
iSCSI 10 GbE ports	4 x 10GbE (SFP+ or RJ45) ports optional
Fibre Channel 16 Gb ports	4 x 16 Gb ports optional
Internal SAS Disk Bays	16
Max. Disks - 3U Shelves	240 (14 x EX-4U16: 16-bay shelves)
Max. Disks - 2U Shelves	232 (9 x EX-4U24: 24-bay shelves)
Disk Drives - 7,200 rpm	2, 3, 4, 6 & 8 TB
Disk Drives - 10K rpm	600, 900 GB & 1.2 TB
SAS SSDs	200, 400, 800 GB MLC
Power Supplies	Redundant 750W AC
AC Power	Dual 90-264VAC, 47-63 Hz
Cooling	4 redundant, hot-swap, temperature-driven fans
Front Panel	Removable with dust filter
Weight	81 pounds fully loaded
Operating Temp.	5 to 35°C (32° F to 95° F)
Non-Operating Temp.	-40° to 60° C
Altitude	0 - 10,000 feet
Operating Humidity	5% to 80%, non-condensing

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