



# Panasas® ActiveStor™



## Parallel NAS Appliance for HPC Workloads

Panasas® ActiveStor™ is the world's fastest parallel storage system, bringing plug-and-play simplicity to large scale storage deployments. Based on a fourth-generation storage blade architecture and the Panasas® PanFS™ storage operating system, ActiveStor delivers unmatched parallel file system performance in addition to the scalability, manageability, reliability, and value required by demanding technical computing organizations in the bioscience, energy, finance, government, manufacturing and other research sectors.

### HIGHLIGHTS

- **Extreme Performance** – High speed, parallel access to a single global namespace
- **High Scalability** – Linearly scales up to 6PB and 150GB/s
- **Ease of Management** – Single point of management; eliminates individual islands of storage
- **Unsurpassed Data Protection** – Object RAID delivers the fastest RAID rebuilds available
- **High Value, Attractive TCO** – Appealing price/performance, investment protection, utilization rates and simplified management

### USE CASES

- **Biosciences** – Next-gen genomic sequencing, molecular modeling
- **Energy** – Seismic processing, migration and interpretation, reservoir simulation
- **Finance** – Risk analysis, monte carlo simulations, tickdata
- **Manufacturing** – EDA simulation, optical correction, thermal modeling, fluid dynamics
- **Research** – Weather simulation, computational chemistry, high energy physics, defense

### Maximum Performance and Scalability

ActiveStor appliances eliminate the bottlenecks found in traditional NAS systems, accelerating application I/O performance by enabling HPC cluster nodes to directly access a single, scalable file system in parallel. Simply add individual blade chassis or entire racks to non-disruptively scale the capacity and performance of the file system as storage requirements grow. This makes it easy to linearly scale capacity to six petabytes and performance to a staggering 150GB/s, the industry's highest single file system throughput per terabyte of enterprise SATA storage.

### Superior Manageability

ActiveStor systems provide a single point of management for a single, scalable file system, allowing storage administrators to focus on managing data instead of their storage systems. Capacity and performance planning, mount point management, and data load balancing across multiple pools of storage are all common administration problems that are easily solved by deploying Panasas storage.

### End-to-End Data Integrity with Object RAID

Key to their high reliability and availability, ActiveStor appliances store data as objects, with RAID performed on a per-file basis as an integral part of PanFS, instead of depending on legacy hardware RAID controllers. Intelligent object RAID optimizes data placement, boosting performance and reliability. In addition to horizontal (blade-based) parity protection, separate vertical (disk-based) parity calculations compensate for media errors, greatly improving drive reliability. ActiveStor systems deliver industry-leading rebuild times, quickly restoring fault tolerance to the system. This robustness makes ActiveStor an ideal choice for a variety of business-critical applications.

### High Value, Attractive TCO

Panasas ActiveStor is available in two models—ActiveStor 12 excels in price/performance while ActiveStor 11 is a high performance, lower cost alternative. Both offer excellent investment protection, increased storage utilization rates and simplified management. As a result, ActiveStor appliances deliver an attractive total cost of ownership while fully addressing the Big Data requirements of even the most I/O intensive technical computing applications.



# Panasas ActiveStor Product Specifications

## PRODUCT ATTRIBUTES

<b>Scale Out Architecture</b>	Network Attached Storage (NAS) appliance consisting of the Panasas ActiveStor storage blade system running the Panasas PanFS storage operating system.
<b>Software Architecture</b>	Panasas PanFS operating system implements a parallel, clustered file system with a single, scalable namespace. PanFS offers a fully journaled, fully distributed and globally coherent read/write cache and stores files as smart data objects, dynamically distributing and load balancing data transfer operations across the blade architecture.
<b>Scalability</b>	Up to 6 Petabytes and 150GB/s or 100,000s IOPS of aggregate performance, accessed by up to 12,000 clients. Throughput and IOPS scale linearly with capacity.
<b>High Availability</b>	No single points of failure. Self-healing design protects against failures throughout the system, including disk, Storage Blade, Director Blade, and power failures. Redundant networking data paths with automatic failover (standard on ActiveStor 12, optional on ActiveStor 11).
<b>Data Protection</b>	Intelligent per-file Object RAID optimizes for file size and performance. RAID constructions are performed in parallel to rapidly restore data protection in case of blade failure. Data and metadata are protected by horizontal (blade) and vertical (disk) parity. End-to-end data parity verification.
<b>Management Features</b>	Single point of management via GUI or CLI, Activelmage snapshots, user & group quotas. System sets up in under ten minutes. System scaling is performed without downtime.
<b>Protocol Support</b>	Panasas® DirectFlow® parallel NFS, NFS v3 (UDP or TCP), CIFS, NDMP, SNMP, LDAP, ADS
<b>Client Support</b>	Linux®, Microsoft® Windows®, UNIX®

## BLADE CHASSIS SPECIFICATIONS

ActiveStor Appliance Model	ActiveStor 11	ActiveStor 12
Supported Blade Configurations (Director Blade + Storage Blade)	1+10, 2+9, or 3+8. Also 0+11 for expansion.	1+10 or 2+9. Also 0+11 for expansion.
Capacity (TB)*	60	40 or 60
Hard Drives (3.5" SATA)*	20	20
ECC Memory (GB of Cache)*	48	92
Max. Throughput, Write*	950MB/s	1600MB/s
Max. Throughput, Read*	1150MB/s	1500MB/s
Networking Switch Modules	One (second optional)	Two
Networking Uplinks per Switch Module	1 x 10GbE SFP+/CX4 or 4 x GbE Copper	1 x 10GbE SFP+/CX4 or 4 x GbE Copper
Additional Networking per Director Blade	2 x 10GbE SFP+	2 x 10GbE SFP+
Network Failover	Optional	Standard
High Availability Link Aggregation	No	Yes
QDR InfiniBand Router Compatibility	Yes	Yes
Power Supply	950W 1+1 redundant auto-switching 100–240VAC (47–63Hz)	950W 1+1 redundant auto-switching 100–240VAC (47–63Hz)
Power Consumption at 208VAC, Typical/Max. In-rush/Max.	4.8A/30A/70A	4.8A/30A/70A
Thermal Rating, Typical (BTU/hr)	3500	3500
Environmentals (Operational)	50–95° F / 10–35° C, 10–90% relative humidity, non-condensing. Derating applies at altitude.	50–95° F / 10–35° C, 10–90% relative humidity, non-condensing. Derating applies at altitude.
Max. Weight	150 lb. / 68 kg.	150 lb. / 68 kg.
Dimensions (HxWxD)	7.0" (4U) x 19.0" x 26" / 17.78 cm x 48.26 cm x 66.04 cm	7.0" (4U) x 19.0" x 26" / 17.78 cm x 48.26 cm x 66.04 cm

\* Assumes a 1+10 Blade Configuration

