



ACTIVESTOR 5000 PARALLEL STORAGE CLUSTER High-Performance Parallel Storage for Linux Clusters



The growth of Linux clusters being used to tackle high-performance computing challenges has led to the need for data storage systems capable of servicing fully-parallel compute systems. Panasas® ActiveStor Parallel Storage Clusters contain the only storage architecture that is specifically designed to accelerate the performance of applications deployed on Linux clusters.

The object-based Panasas ActiveScale® operating environment meets the demands of massively parallel data movement by offering scalable performance and capacity. With their exceptional ease-of-management and a single global namespace, Panasas storage is truly accelerating time-to-results for engineers and scientists.

Panasas ActiveStor 5000 Parallel Storage Clusters

Unsurpassed interactive performance and capacity

The ActiveStor 5000 family of parallel storage clusters delivers industry-leading storage performance and ease-of-management for High Performance Computing batch and interactive applications. Batch applications typically access very large files in a sequential fashion while interactive applications mostly require more random access patterns with smaller file sizes. ActiveStor 5000 storage delivers a unified storage solution that excels in delivering results for both of these workloads.

The latest addition to this product family is the ActiveStor 5200 parallel storage cluster. It packs 20TB of disk and 20GB of RAM into a 4U shelf and delivers up to 350MB/s of throughput. With linear scalability of capacity and throughput, it provides up to 200TB of storage, 200GB of RAM and 3.5GB/s of throughput from a standard 42U rack. For environments not requiring the maximum available storage capacity, the ActiveStor 5150 and 5100 storage cluster delivers the same outstanding performance at a lower capacities.

This industry-leading storage solution for HPC cluster environments is further enhanced by the ActiveScale® Operating Environment.



Panasas storage shelves contain 11 blade modules. Shelves can be configured with up to 1-3 DirectorBlade modules (providing metadata services) and 8-10 StorageBlade modules (providing intelligent data storage).

FEATURES AND BENEFITS

DirectFLOW® Protocol:

- **Maximizes Performance**
Provides faster time-to-results due to faster application runtime
- **Increases Productivity**
Ensures maximum application utilization as jobs run in parallel therefore more jobs are completed in less time

Single Global Namespace:

- **Reduces IT Support**
Simplifies storage management and provides seamless scalability as the size and number of jobs to be processed increases

Scalable NFS and CIFS:

- **Easy to Integrate**
Supports existing Unix and Windows environments
- **Superior Performance**
Clustered NFS and CIFS with unlimited scalability

ActiveScale Failover HA Software:

- **Maximizes Availability**
Ensures constant data access

ActiveImage Snapshots:

- **Maximizes Manageability**
Easy, instant backup and restore

Panasas ActiveScale Operating Environment

Maximum application performance and data reliability

The third generation of the industry-leading parallel storage architecture for high performance computing brings additional capabilities to Panasas ActiveStor clustered storage. At the heart of the ActiveScale OS is the PanFS parallel file system which turns files into smart data objects and then dynamically distributes data activity across Panasas StorageBlade® modules. This object-based storage clustering architecture enables parallel data paths between StorageBlade modules and client nodes, eliminating the inherent performance and capacity bottlenecks of traditional file systems.

The ActiveScale operating environment also dramatically lowers the cost of managing data storage by supporting Terabytes (TBs) to Petabytes (PBs) of data capacity growth all within a single, easily managed namespace.

Recent enhancements to the object-based file system and memory architecture significantly improve performance and offer even faster time to results. ActiveScale operating environment provides many new proactive selfmanagement features that make it the most robust storage operating environment available today.

ActiveScan software ensures continuous system performance by monitoring the data objects, data parity, the disk media and the disk drive attributes. If a potential problem is detected, data can be moved to other StorageBlade modules to eliminate the need for reconstruction.

As the premier offering in the Panasas product line the ActiveStor 5000 also includes ActiveScale Failover and Activelmage as standard features. ActiveScale Failover enables seamless failover of metadata services and the storage network to ensure continuous performance and access to data. Activelmage delivers easy, instant backup and instantaneous restore through an efficient snapshot implementation that only records incremental differences between snapshots.

Accelerate Time to Results and Maximize ROI from Your HPC Environment

Panasas offers comprehensive storage solutions for all HPC environments and delivers the highest bandwidth and I/O performance; scalable performance and capacity; and simple unified management. Built on an object-based architecture and optimized to meet the unique needs of Linux cluster customers, the Panasas integrated hardware and software solution has been deployed in hundreds of Linux cluster installations around the globe, helping organizations accelerate their time to results and maximize ROI from their clustered high performance computing environments.

MODEL	RAW CAPACITY PER 4U SHELF	CACHE PER SHELF	CAPACITY PER 42U RACK
5100	10 TB	20 GB	100 TB
5150	15 TB	20 GB	150 TB
5200	20 TB	20 GB	200 TB

Shelf Power Specifications

- **Power Rating**
 - Output rating 950W
 - Input power rating 1200W
- **AC Power**
 - Typical operating current 4.4A @208VAC
 - Maximum in rush current 30A
 - Maximum current 7A @208VAC
- **Thermal Rating**
 - 4000 BTU/max

Shelf Environmental

- **Ambient Temperature**
 - Operating temperature +10C to +35C
 - Non-operating temperature -20C to 70C
- **Relative Humidity**
 - Operating relative humidity 10% to 90%
 - Non-operating relative humidity 5% to 95%
- **Altitude**
 - -150m to 2440m

Shelf Physical Specification

- Height 17.78 cm/7 in/4U
- Width 48.26 cm/19 in
- Depth 66.04 cm/26 in
- Weight 150lbs

Rack System Specifications

- **Configuration**
 - Supports up to 10 Panasas shelves
 - Can be configured from 1 shelf to 10 shelves
- **Power Distribution Units**
 - 4 Pre-wired PDU units 208/240 volts
 - Support redundant power grids
- **Rack Physical**
 - 42U high
 - 1800 lbs



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