



# Albireo SANblox™

For Enterprise IT Organizations



Is your IT budget tighter than ever? If your organization is like others we've talked to, you're focussed on lowering storage cost, reducing footprint, and dropping administrative costs. Data deduplication and compression together offer the best means of helping you achieve these goals for your storage infrastructure. Why wait to fix this

problem when it's only going to get worse over time? Permabit Albireo SANblox provides an immediate solution. A high performance data reduction appliance for ANY all-flash, hybrid, or HDD SAN-attached primary storage array, SANblox delivers inline data deduplication and compression savings for any array within a matter of hours.

## Permabit Albireo SANblox

The SANblox appliance delivers typical 6:1 data reduction rates in primary storage environments, reducing the effective cost of storage and improving storage array performance. SANblox combines Permabit data reduction software with trusted Red Hat® Enterprise Linux, Red Hat Enterprise Linux High Availability, and Emulex® Fibre Channel software to ensure compatibility, easy management, and supportability with any Fibre Channel SAN.

*SANblox delivers immediate, high-performance data reduction to your Fibre Channel SAN-based arrays.*

Because SANblox operates as a separate physical appliance, it is able to deliver predictable, high-performance data reduction without impact to back-end storage operations. It can also be applied selectively to data sets that will benefit from data reduction, while remaining out of the data path of those that do not compress or deduplicate.

The unique modular approach of SANblox leverages the existing management features of the array (such as thin provisioning, snapshots, and replication) to minimize the number of new administration tasks required. Unlike gateway products that perform write-back caching to mask poor performance, SANblox always commits data to storage before a write is acknowledged. Writes are never acknowledged before being persistently stored, and both data and metadata are maintained in the enterprise storage device. This improves data safety because once a write completes, data is immediately under the protection of the array.

## ALBIREO SANBLOX



## HIGHLIGHTS

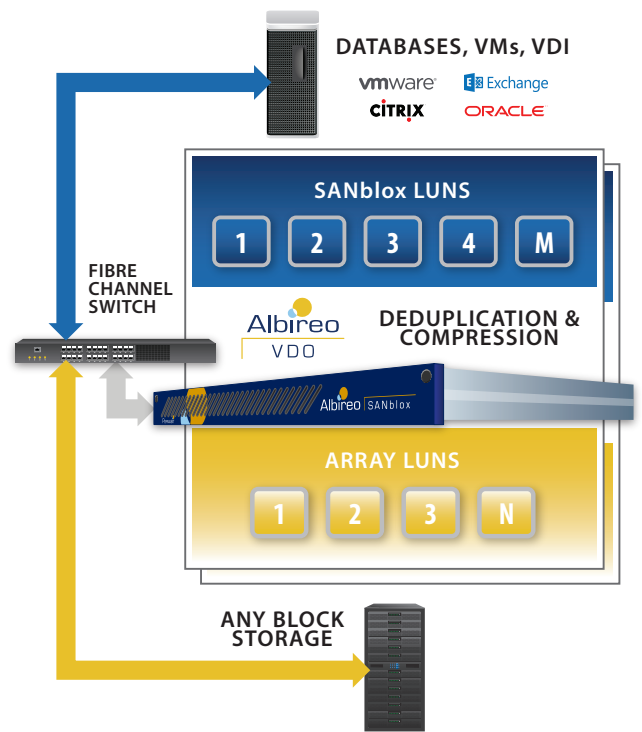
- ▶ **Act Now:**  
Add data reduction to any SAN array today!
- ▶ **Slash Costs:**  
Spend less on capacity and performance with inline data deduplication and compression.
- ▶ **Meet Performance Goals:**  
Deliver greater, consistent performance by increasing the effective capacity of cache.
- ▶ **No System Performance Impact:**  
Offload data reduction operations to a dedicated resource.
- ▶ **Stay Safe:**  
Provide the reliability, availability, and serviceability of seamless HA.
- ▶ **It's Easy:**  
Plug in and configure with point-and-click administration tools.
- ▶ **For Any Storage Type:**  
Optimized for all-flash, hybrid, and HDD storage arrays.

## SANblox Architecture

SANblox delivers fine-grained (4 KB block) inline deduplication, and compression for a best-in-class combination of efficiency and performance. An easy to use, web-based interface allows administrators to aggregate storage array LUNs into a pool of deduplicated and compressed storage. This storage pool can be carved up and presented as SANblox LUNs for use by any application. When data is written to SANblox, Permabit's software monitors all write requests that come down from the SANblox LUNs. Albireo VDO manages the new blocks and uses deduplication technology to identify duplicates. HIOPS Compression™ then compresses any unique blocks before they are written to the storage device. From then on, the software keeps track of stored data and manages it in a way that is seamless to the user. Data reduction through block-level deduplication and compression increases the amount of usable storage of the underlying device and accelerates performance by increasing the effective capacity of caching layers in the storage array.

SANblox is configured in HA pairs to provide transparent failover. Data reliability is assured because all data is immediately written to back-end block storage with no write caching.

A suite of management tools allows administrators to easily provision and monitor SANblox through command line tools, a web-based user interface, or using SMTP-based event monitoring.



### Permabit Albireo SANblox — LX Node at a Glance

CPU:	Intel® Xeon® E5-1650v2		
RAM:	128 GB		
FC Ports:	4 x 16 Gb (Emulex)		
Maximum Usable Capacity:	256 TiB		
Maximum Supported LUNs:	256		
Random IO (4K IOPS):	Read: 230,000	Write: 111,000	Mixed RW70: 180,000
Sequential Throughput:	Read: 1045 MB/s	Write: 800 MB/s	
Minimum Latency:	Read: 300 µs	Write: 400 µs	
Reliability:	All data/metadata is written to backend storage before writes are acknowledged. No data is cached on SANblox.		
Availability:	Seamless High Availability provides transparent failover in under 30 seconds.		
Serviceability:	SMTP alerting and transparent upgrades of software and hardware components.		
Physical Characteristics:	Form Factor: 1U rackmount	Width: 17.2" (437 mm) Depth: 19.98" (507 mm) Height: 1.7" (43 mm)	Weight: 38 lbs (16.5 kg)
Power:	Voltage: 100-240V, 50-60 Hz	Watts: 330	Amps: 4.5 max
Operating Temperature:	10°C to 35°C (50°F to 95°F)		
Operating Relative Humidity:	8% to 90% (non-condensing)		

### Certifications

Electromagnetic Emissions:	FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A
Electromagnetic Immunity:	EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)
Power Supply Efficiency:	80 Plus Gold Certified



[www.permabit.com](http://www.permabit.com) • [info@permabit.com](mailto:info@permabit.com)  
[@Permabit](https://twitter.com/Permabit) [www.linkedin.com/company/permabit](https://www.linkedin.com/company/permabit)  
 One Alewife Center, Suite 410, Cambridge, MA 02140  
 P: 617.252.9600 • F: 617.252.9977