

## HA3969 Series High Performance RAID Arrays

*Affordable storage with onboard iSCSI and FC/SAS enhances performance and scalability*

### Available models

#### HA3969 SFF 2U 24 Bays

- Small form factor: space-saving design and high density capacity
- Ideal for making the most of SSD performance
- For 2.5" drives and SSDs

#### HA3969 12/16/24 LFF Bays

- Large form factor for budget-savvy SMB deployment
- Best cost to performance value

### Powerful performance made affordable

- Up to 550K IOPS ensures ample compute bandwidth for diverse applications and tasks, as well as large networks/user groups
- Throughput reaches 5,500MB/s read and 1,900MB/s write - accelerating major storage jobs and easily handling even intense workloads to enhance efficiency

### SSD Cache

- Accelerated read performance for hot data
- Up to four SSDs per controller
- Rapid warm up and reduced wear
- Large SSD cache pool capacity: up to 3.2TB

### Hybrid host interconnect by default

- All systems feature four 1Gb/s iSCSI ports to ensure more than sufficient connectivity to clients, servers, and other storage arrays
- Choose module host interface from 8Gb/s or 16Gb/s Fibre Channel, 10Gb/s iSCSI, or 6Gb/s or 12Gb/s SAS to go alongside the default 1Gb/s iSCSI ports

HA3969 series storage systems deliver among the best cost to performance ratios for SMB users of all entry-level RAID solutions. Models available in diverse form factors: **12-bay**, **16-bay**, and compact **24-bay**. All include 1Gb/s iSCSI ports per controller to expand networking and connectivity – an architecture created with surveillance applications in mind, which need fast interconnect to multiple clients. Up to 316 drives in LFF and 360 in SFF may be attached via JBOD enclosures to each system. With 6TB drive support, that means up to 1.9PB in capacity made available.

### Performance design for your suitable budget for SMB

HA3969 system, entry-level enterprise-class storage system designed with unprecedented in-segment performance. Available for single, dual controller and Turbo performance models to meet different budget for SMB.

Performance	Single Controllable	Dual Controllable
IOPS	380K	550K
Read (MB/s)	5,500	
Write (MB/s)	1,900	

\* The performance applies to different form factors.

### High scalability

HA3969 systems support as many as 360 drives through compatible expansion enclosures. Scalability is a much more cost-effective solution than buying additional storage systems, resulting in additional savings.



# HA3969 Series High Performance RAID Arrays

## Multiple cache protection solutions

- Maintenance free super capacitors and a flash module provide a safe and reliable power source for cached memory if main power supply is disrupted
- Hot-swappable BBU (backup battery unit) with flash module stores data should the system suddenly shutdown or experience a power outage
- Choose BBU or super capacitors based on your needs and budget

## Affordable from the start and growing with you

- Compatible with a wide range of JBOD expansion enclosures, including high density 4U 60-bay units
- Up to 316 drives in LFF and 360 in SFF per system, with support for 6TB drives – a total of up to 1.9PB in capacity brings you lots of space for future storage growth

## Enterprise-class data services

- Include licenses for snapshot, volume copy/mirror, and thin provisioning
- Support features such as automated storage tiering to leverage SSD speed and enhanced remote replication disaster recovery (with optional licenses)
- Self-encrypting drives (SEDs) provide cost-effective protection for archived data alongside secure and simple media deletion

## Easy to use by everyone in your team

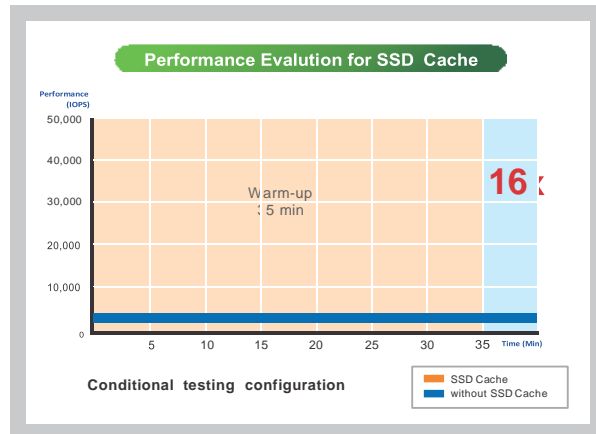
- Exclusive SANWatch 3.0 browser-based GUI features an intuitive and simple design that team members can quickly pick up and make the most of without extensive training
- User interface integrates all system functions to promote full utilization

## Environmentally-minded green design

- Energy efficient components include SoC processor and 80 PLUS power supplies
- Intelligent drive and fan spindown minimize redundant energy consumption

## Storage acceleration with SSD Cache

HA3969 systems support large high speed SSD cache pools. SSD Cache speeds up read performance for priority data, and boosts cache pool capacities up to 3.2TB. As many as four SSDs per controller can be used, including SATA disks. In addition to faster read speeds, SSD Cache reduces performance impact compared to spin-drive caches with rapid warm up and less drive wear. Configuring and managing SSD Cache pooling is easy via the intuitive SANWatch UI.



- \* SSD Cache speeds up read performance by up to 16 times for frequently-accessed data stored in the cache pool.
- \* Actual performance gains can vary depending on customer applications.

## Hybrid host interface with onboard iSCSI

HA3969 models incorporate four 1Gb/s iSCSI ports on each controller by default, which can be added to by choosing 8Gb/s or 16Gb/s Fibre Channel, 6Gb/s or 12Gb/s SAS, or 10Gb/s iSCSI to go alongside them. As deployments strive for maximum efficiency and resource consolidation, a hybrid host interface design is of great value, as it supports better performance as well as wider connectivity.

## Super capacitor or BBU with flash for data protection

Super capacitors do not require replacement and cover the life of the system, ensuring emergency cache power to prevent mission-critical data loss. Alternatively, customers can choose the flexibility of a hot-swappable backup battery unit (BBU) with flash, which also safeguards against downtime due to power outages.

## Comprehensive data services

Affordable for smaller businesses, the HA3969 series offers enterprise-grade data services such as snapshot and volume copy/mirror to make multiple backups simple and quick. Thin provisioning helps with intelligent storage utilization, while optional 4-level automated storage tiering is the solution you need to leverage high speed drives for frequently-used data. For security and backup, remote replication offers dependable disaster recovery by creating offsite datasets that stay operational even if your main location goes offline. Compatibility with SED (self-encrypting drives) delivers unbreakable defense against disk theft or misplacement and also expedites data deletion.

# Technical Specifications



Model name	2U 12 Bays	3U 16 Bays	4U 24 Bays	2U 24 Bays
Form factor	2U 12-bay LFF	3U 16-bay LFF	4U 24-bay LFF	2U 24-bay SFF
Storage controller	Single or Dual-redundant			
Host connectivity (per controller)	2 x 16Gb FC ports, 4 x 8Gb FC ports 2 x 10Gb iSCSI ports (SFP+ or RJ-45) 4 x 1Gb iSCSI ports 2 x 6Gb SAS ports 2 x 12Gb SAS ports			
Onboard iSCSI ports (per controller)	4			
Cache memory (per controller)	2GB, 4GB, 8GB, 16GB	2GB, 4GB, 8GB, 16GB	2GB, 4GB, 8GB, 16GB	2GB, 4GB, 8GB
Max. drives (per system)	12	16	24	
Max. drives (via expansion enclosures)	312	316	324	360
Expansion enclosure (JBOD)	12, 48 or 60 Bays	16, 48 or 60 Bays	16, 48 or 60 Bays	12, 16, 24, 48 or 60 Bays
SAS expansion ports (per controller)	1 x 6Gb/ SAS port			
Cache backup techniques <sup>1</sup>	<ul style="list-style-type: none"> <li>• Super capacitor + Flash module or BBU (hot-swappable) + Flash module</li> </ul>			
Supported drives <sup>2</sup>	<ul style="list-style-type: none"> <li>• SATA: 1TB/2TB/3TB/4TB/6TB/8TB/10TB 7,200RPM</li> <li>• SAS: 300GB/450GB/600GB 15,000RPM</li> <li>• SSD: 120GB/240GB/480GB/1TB</li> </ul>			
Power & Cooling	Power supply: Two redundant 460W; Voltage and Frequency: 100-240 Vac, 50-60Hz Power consumption -2U 12 Bay Dual: 225.6 -2U 12 Bay Single: 158.4 Heat dissipation(BTU/hour): 584			
	Power consumption -3U 16 Bay Dual: 224.4 -3U 16 Bay Single: 187.2 Heat dissipation(BTU/hour): 632		Power consumption -4U 24 Bay Dual: 376.8 -4U 24 Bay Single: 328.8 Heat dissipation(BTU/hour): 1082	
	Power consumption -2U 24 Bay Dual: 283.2 -2U 24 Bay Single: 228 Heat dissipation(BTU/hour): 971			
Green design	<ul style="list-style-type: none"> <li>• 80PLUS power supplies delivering more than 80% energy efficiency</li> <li>• Intelligent multi-level drive spin-down</li> </ul>			
RAID configurations	<ul style="list-style-type: none"> <li>• RAID level 0, 1(0+1), 3, 5, 6, 10, 30, 50, 60 with mixed use of SAS Disks and SAS SSDs.</li> <li>• Up to 32 logical drives and 64 partitions per logical volume</li> <li>• Up to 2048 LUNs</li> </ul>			
Regulatory <sup>3</sup>	<ul style="list-style-type: none"> <li>• Safety : UL, BSMI, CB, EAC</li> <li>• Electromagnetic Compatibility : CE, BSMI, FCC, KC</li> </ul>			
<b>Data Service</b>				
Local Replication (Standard license is default included and advanced is an optional license)	Snapshot	Snapshot images per source volume Snapshot images per system	Standard License: 64 / Advanced License: 256 Standard License: 128 / Advanced License: 4096	
	Volume Copy/Mirror	Source volumes per system Replication pairs per source volume Replication pairs per system	Standard License: 16 / Advanced License: 32 Standard License: 4 / Advanced License: 8 Standard License: 64 / Advanced License: 256	
Thin Provisioning (default included)	"Just-in-time" capacity allocation optimizes storage utilization and eliminates allocated but unused storage space			
Self-encrypting drives	Unique factory encryption secures data plus makes deletion simple and complete			
Remote Replication (optional license)	Replication per source volume: 16 Replication pairs per source volume: 4 Replication pairs per system: 64			
Automated Storage Tiering (optional license)	Two(2) or four(4) storage tiers based on drive types SSD support			
SSD Cache (optional license)	<ul style="list-style-type: none"> <li>• Accelerating data access for random read-intensive environments, such as OLTP</li> <li>• Supports up to four SSDs per controller</li> <li>• Recommended DIMM capacity per controller for SSD Cache pool:</li> </ul>			
	DRAM:2GB	Max SSD Cache Pool Size: 150GB	DRAM:4GB	Max SSD Cache Pool Size: 400GB
	DRAM:8GB	Max SSD Cache Pool Size: 800GB	DRAM:16GB	Max SSD Cache Pool Size: 1,600GB
Availability and Reliability	Redundant, hot-swappable hardware modules Multi-pathing support (EonPath); Device mapper support Cache backup technology: protects cached data during power outage by flushing data into flash memory Port trunking / link aggregation (IEEE 802.3ad), fail-over, jumbo frame			
Protocols	CIFS/ SMB, AFP, NFS, HTTP, HTTPS, FTP, FTPS, Secure FTP, iSCSI (with CHAP authentication) & Fibre Channel, Browser & Software Management. IPv4 & IPv6 via DHCP, Fixed/dynamic IP address, Port trunking/Link Aggregation (IEEE 802.3ad), Jumbo Frames			
OS Support	Microsoft Windows Server 2008 / 2008 R2 / 2012 / 2012 R2 , Microsoft Windows Hyper-V, Red Hat/Oracle Linux, SUSE Linux Enterprise, Sun Solaris, Mac OS X, HP-UX, IBM AIX, VMware, Citrix XenServer, Openstack Cinder			
Warranty	90 Days Technical Support. Optional Upgrade with extended warranty backed by Advance Parts Replacement, Onsite Service 9 x 5 x Next Business Day or 24 x 7 x 4 Onsite Service			