

Flash Performance for Every Mainstream Application

The Nimble Adaptive Flash array is the industry's only predictive hybrid flash array. It combines a flash-optimized architecture with InfoSight™ Predictive Analytics to deliver data velocity by closing the app-data gap. Get Adaptive Flash performance and non-stop availability, at one third the TCO of other hybrid flash arrays.

Speed with Efficiency

Purpose-built flash architecture delivers sub-ms performance with unparalleled efficiency. And it's five times faster than other hybrid solutions.

Adaptive Service Levels

Assign, or change, the service level of an application at the click of a button.

- **Auto Flash:** High performance for mainstream applications
- **All Flash:** Guaranteed flash performance for the most performance sensitive applications
- **Minimal Flash:** Optimized for lowest cost of capacity

Non-Disruptive Scalability and Flexibility

Independently grow the capacity and performance of an array and scale the amount of flash to suit any application. Scale-out to Petabytes at sub millisecond latency with up to 4 arrays managed as one.

Absolute Resiliency

- **99.9997% measured availability** through predictive analytics and “no single point of failure” hardware and software design.
- **Triple+ Parity RAID:** Tolerate three simultaneous drive failures plus additional protection from intra-drive parity and integrated sparing.
- **SmartSecure encryption:** Application-granular, FIPS-certified encryption, and secure data shredding provides end-to-end security for data at rest and on-the-wire when replicated offsite.

Simple to Manage

- Storage is pre-configured and optimized for applications out-of-the-box. Tasks like selecting RAID-level, media layout, aggregations and reserves are no longer required. Initial configuration and set-up can be completed in less than two hours. Routine storage management operations can be completed in minutes.
- Manage storage at VM-level granularity using VMware vVols or through a vCenter plugin.
- Integration and certification with major hypervisors, applications, and infrastructure components.

Nimble Storage CS-Series Arrays

The **CS210, CS215, and CS235** provide value and capacity for small to medium-sized IT organizations or remote offices, for mixed mainstream workloads.

The **CS300** is ideal for midsize IT organizations or distributed sites of larger organizations. It offers the best capacity per \$ for mixed mainstream workloads and for virtual server consolidation.

The **CS500** offers higher performance for larger-scale deployments or IO-intensive mixed mainstream workloads and provides the best performance and IOPS per \$.

The **CS700** is designed for consolidating multiple large-scale critical applications with aggressive performance demands.

Performance and Scalability

- Scale-up capacity and performance non-disruptively in an array
- Scale-out with up to four arrays managed as one
- Multiple petabytes and 500K IOPS at sub-ms latency



One Third the TCO of Legacy Hybrid Flash

- Write to disk at flash like speeds through write serialization
- Inline compression and zero pattern elimination
- Integrated data protection efficiency
- Ground-up design efficiently leveraging flash as a cache



Absolute Resiliency

- Non-stop availability measured at 99.9997%
- Triple+ parity RAID
- Application granular encryption and secure data shredding



“Our customers see large data sets, small data sets and diverse workloads. Nimble’s CS700 and all-flash expansion shelf combine to offer customers a means of covering lots of ground in terms of both performance and capacity, within an attractively small data center footprint.”

Jeff Thomas
Director of IT Operations
MarkLogic

Product Specifications

Product Family	Ultimate Performance Scale-Out Cluster ^{1,7}				Extreme Performance Family				High Performance Family				Base Performance Family				Value Array Family		
	CS700				CS700				CS500				CS300				CS210	CS215	CS235
Raw Disk Capacity, Base (TB) ²	2,448	12	24	36	48	72	12	24	36	48	72	12	24	36	48	72	8	12	24
Min. Usable Capacity (TB) ⁴	1,784	8	16	25	33	50	8	16	25	33	50	8	16	25	33	50	4	8	16
Effective Capacity, Base (TB) ²	1,794-3,568	8-16	16-32	25-50	33-66	50-100	8-16	16-32	25-50	33-66	50-100	8-16	16-32	25-50	33-66	50-100	4-8	8-16	16-32
Effective Capacity, Maximum (TB) ^{2,3,5}	3,568	808	824	842	858	892	808	824	842	858	892	808	824	842	858	892	140	302	428
Max Number of Disk Expansion Shelves	24	up to 6				up to 6				up to 6				1	3 ^s	3 ^s			
Base/Max Flash Capacity per Array (GB)	30,720	3,200 to 7,680				1,200 to 7,680				480 to 3,840				160 to 640	320 to 1,200	480 to 1,200			
Max Supported Flash with All-Flash Shelf (GB)	192,000	38,400				38,400				16,000				NA	NA	NA			
Power Requirement (Watts)	13,000	650				600				500				450	500	500			

Expansion Shelves

	HDD Expansion Shelves				SSD Expansion Shelf	
	ES1-H25	ES1-H45	ES1-H65	ES1-H85	ES1-H90T	ES1-AFS
Raw Disk Capacity (TB) ²	15	30	45	60	90	NA
Min. Usable Capacity (TB) ⁴	11	23	34	45	66	NA
Effective Capacity (TB) ^{2,5}	11-22	23-46	34-68	45-90	66-132	NA
Flash Capacity (GB) ⁶	160 / 480	300 / 960	600 / 960	1,600	1,920	up to 30,720TB
SAS Connectivity Per Controller	2x 6Gb SAS (2 modules/shelf)					2x 6Gb SAS (2 modules/shelf)
Power Requirement (Watts)	400					200

Physical and Environmental Specifications

Dimensions	5.2"H x 17.2"W x 26.5"D 13.2 cm x 43.7 cm x 67.3 cm 3 Rack Units
Weight	76 lbs. / 34.5 kg
Weight (All-Flash Shelf)	55 lbs. / 25 kg
Operating Temperature	50° - 95° F (10° - 35° C)
Non-Operating Temperature	32° - 104° F (0° - 40° C)
Operating Humidity	8 - 90%
Non-Operating Humidity	5 - 95%

Notes

- Maximum performance configuration consists of 4x CS700 arrays, each with 1x ES1-AFS all-flash expansion shelf and 6x ES1-H85 capacity expansion shelves.
- Raw and effective capacities are calculated using Base 10 (i.e., 1 TB = 1,000,000,000,000 bytes) after excluding space for parity, spares, and system overhead; the range represents 0 to 2x compression.
- Maximum capacity is the capacity of the base array and maximum number of expansion shelves.
- Minimum usable capacity denotes the base capacity available to users once parity, spares and system overhead are deducted from overall raw capacity. Compression factor increases overall effective capacity.
- Compression rates vary across applications. 2x compression factor reflected in upper range of effective capacity (based on actual compression rates seen by customers.)
- Each array controller has 2x 1GbE ports built in. Additional network interface options vary, per array family.
- Max flash capacity shown accounts for SSD capacity included with each ES1 expansion shelf.
- Max capacity for CS215 includes two ES1-H90T expansion shelves and one ES1-H25 expansion shelf.
- Max capacity for CS235 includes three ES1-H90T expansion shelves (requires NimbleOS 2.3).
- Larger flash capacity listed for ES1-HxB variants

Supported Protocols and Network Connectivity

Supported Protocols	CS700		CS600		CS300		CS235		CS215		CS210	
	Fibre Channel	ISCSI	Fibre Channel	ISCSI	Fibre Channel	ISCSI	Fibre Channel	ISCSI	Fibre Channel	ISCSI	Fibre Channel	ISCSI
Number of Available Interface Cards (per array controller)	3	3	3	3	3	3	3	3	3	2	2	2
Dual-port 1GbE (on board) ⁸	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)	1 (included)
Dual-port 1GbE (optional)	N/A	2 only	2 only	2 only	2 only	2 only	2 only	2 only	2 only	2 only	2 only	1 (included)
Dual-port 10GbBaseT (optional)	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 (included)
Dual-port 10Gb SFP+ (optional)	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 (included)
Dual-port 16Gb FC (optional)	2 or 3	1 or 2	1 only	1 only	1 only	1 only	1 only	1 only	1 only	1 only	1 only	N/A
On-Board 6Gb SAS Connectivity Per Controller	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	2x 4-lane	1x 4-lane	1x 4-lane	1x 4-lane



211 River Oaks Parkway San Jose, CA 95134
 Phone: 877-364-6253; 408-432-9600
 Email: info@nimblestorage.com
www.nimblestorage.com



© 2016 Nimble Storage, Inc. Nimble Storage, the Nimble Storage logo, CASL, IntoSight, SmartStack, and NimbleConnect are trademarks or registered trademarks of Nimble Storage. All other trade names are the property of their respective owners. DS-CSS-0216