Western Digital.

Ultrastar® DC SA620

1.92TB – 400GB | 15nm MLC
2.5-inch 7mm | SATA 6Gb/s

Highlights

- Capacity from 400GB to 1.92TB
- Optimized to help scale Cloud and Hyperscale environments
- 6Gb/s SATA interface works with existing infrastructure
- Advanced power loss data management technology

Applications/Environments

- Demanding QoS, latency-sensitive applications and databases
- IaaS, PaaS, and SaaS infrastructure
- NoSQL performance acceleration
- DBaaS, MySQL™, PostgreSQL transaction processing
- Social media, web servers
- Software-defined storage
- E-commerce, micropayments

Elastic Infrastructure is Essential for Cloud and Software-Defined Storage Environments

Elastic infrastructure powers databases, mission-critical applications, mobile apps, collaboration, and IT infrastructure. Whether delivered by cloud service providers or cloud-like software-defined storage solutions, elastic infrastructure requires storage performance to enable the type of data services that help run enterprises or enable personal productivity and leisure time.

Storage performance—intensive I/O operations at low response times—is key to enabling transaction processing that is the basis of cloud-based e-commerce, micropayments, in-app purchases, and on-premises software-defined storage to run enterprise latency-sensitive workloads.

Cloud Economics Require Price/Performance

In order for XaaS cloud business models and software-defined storage solutions to flourish, price/performance must be attainable. Though many varieties of proprietary, high-performing storage solutions already exist, cloud service providers and software-defined storage solutions, e.g., hyperconverged infrastructure, architect their systems to maximize the utility of standard, commodity hardware. The ability to achieve maximum performance, while achieving price/performance based on commodity hardware is crucial for cloud delivery on an elastic infrastructure.

Ultrastar DC SA620 SATA SSDs Deliver Economics to Cloud and Hyperscale Data Centers

To help enable elastic infrastructure for the cloud era, Western Digital offers a SATA SSD with price/performance capability to enable cloud and software-defined storage to provide elastic performance for latency-sensitive workloads.

Ultrastar® DC SA620* is a flash-based SATA SSD that offers up to 1.92TB of capacity and works within existing infrastructure. With data center features to support "mission-critical" types of data services, Ultrastar DC SA620 delivers a balance of storage capacity and performance. Delivering up to 52K random mixed 70/30 R/W IOPS and maximum write latencies as low as 56 microseconds, DC SA620 is well-suited to support demanding tiers of service at multi-petabyte capacity levels.

Ultrastar DC SA620 price/performance value is achieved by leveraging enterprise-class performance to enable cloud storage and compute density without the sacrifice of a low latency QoS or write operations. Ultrastar DC SA620 provides an overall lower total cost of ownership (TCO) based on the ability to achieve storage and compute density for elastic cloud computing.

Features & Benefits

	Feature / Function	Benefits
Performance	• 15mm MLC NAND flash memory • 525/460 MB/s sequential R/W • 76K/36K IOPS random R/W • 52K IOPS on 70/30 mixed R/W	• Reliable throughput for cloud and hyperscale environments • Supports fast access to data
Capacity	• 400GB to 1.92TB	• More capacity in standard form factor with lower Watts/TB
Reliability	• 0.44% AFR (2M hours MTBF) • 1E-17 bit error rate • Power loss data management • Guardian Technology™ Platform	• Reduced field replacement effort • Enhanced error detection and correction for optimal data integrity • Assures data integrity during power failure • Supports improved flash endurance and data integrity
Security	• Cryptographically signed firmware	• Protection against unauthorized firmware updates
Integration	• HDD architecture commonality • SATA 6Gb/s interface	• Works in existing infrastructure • Trusted, proven design

*Previously known as Cloudspeed Ultra™ Gen. II and Cloudspeed Eco™ Gen. II from the SanDisk® brand

Specifications

Model Number / Part Number	1.8 DW/D	0.6 DW/D
	SDLF1DAM-400G-1HA1 / 0TS1819	SDLF1DAR-480G-1HA1 / 0TS1791
	SDLF1DAM-800G-1HA1 / 0TS1820	SDLF1DAR-960G-1HA1 / 0TS1792
	SDLF1CRM-016T-1HA1 / 0TS1821	SDLF1CRR-019T-1HA1 / 0TS1793

Configuration

Interface	SATA 6Gb/s	
Capacity[1]	1.6TB / 800GB / 400GB	1.92TB / 960GB / 480GB
Endurance (Drive Writes per Day – DW/D)[2]	1.8 for 5 years -or- 3 for 3 years	0.6 for 5 years -or- 1 for 3 years
Maximum Terabytes Written (TBW)[2]	5,256 / 2,628 / 1,314	2,102 / 1,051 / 526
Form Factor	2.5-inch	
Flash Memory Technology	15nm MLC NAND	

Performance[3]

Sequential Read Throughput (max MiB/s, Seq 128KiB, QD32)	512	
Sequential Write Throughput (max MiB/s, Seq 128KiB, QD32)	445	
Read IOPS (max, Rnd 4KiB, QD32)	76,000	
Write IOPS (max, Rnd 4KiB, QD32)	32,000	16,000
Mixed IOPS (70/30 R/W, max, 4KiB, QD32)	52,000	28,000
Write Latency[4] (µs, max)	56	66

Reliability

Unrecoverable Bit Error Rate (UBER)	1 in 10^{17}	
MTBF[5] (M hours)	2.0	
Annualized Failure Rate[5] (AFR)	0.44%	
Availability (hrs/day x days/wk)	24×7	
Limited Warranty[6]	5 years or Max TBW, whichever occurs first	

Power

Requirement (DC, +10%/- 5%)	+5V	
Operating (W, average sequential)	3.8 (write) / 2.6W (read)	
Idle (W)	1.6	

Physical Size

z-height (mm)	7.17	
Dimensions (width x depth, mm)	69.85 × 100.2	
Weight (g, max)	89.9	

Environmental

Operating Temperature[7]	0° to 70°C	
Non-operating Temperature	-40° to 85°C	

[1] One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (one billion bytes), and one terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting, system software, and other factors.

[2] Endurance rating based on DW/D using 4KiB random write workload over 5 years

[3] Performance will vary by capacity point, or with the changes in useable capacity. Consult product manual for further details. All performance measurements are in full sustained mode and are peak values. Specifications subject to change. 1MiB=1,048,576 bytes or 2^{20}, 1KiB= 1,024 bytes or 2^{10}.

[4] Average write latency at 4KiB QD=1

[5] MTBF and AFR specifications are based on a sample population and are estimated by statistical measurements and acceleration algorithms under typical operating conditions for this drive model. MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

[6] The warranty for the product will expire on the earlier of (i) the date when the flash media has reached one-percent (1%) of its remaining life or (ii) the expiration of the time period associated with the product.

[7] Internal drive temperature as measured via the drive's temperature sensor.

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