CloudSpeed Ultra™ Gen. II SATA SSD

Data Center Grade Flash Storage

Features:

- Capacity offerings: 1.6TB, 800GB and 400GB
- Optimized for mixed-use, latency-sensitive write operations
- 1.6TB version capable of 32,000 4K write IOPS; fewer servers to deliver I/O performance
- QoS – average write latency at 56µ (microseconds)
- Low power consumption compared to traditional HDDs
- Data loss protection with power failure protection
- Includes the innovative Guardian Technology™ Platform for improved flash endurance and data integrity/protection
- MTBF = 2 Million hours
- Cryptographically signed firmware
- Works within existing infrastructure – 6Gb/s SATA interface

Specialized for the following workloads:

- Demanding QoS, Latency-Sensitive Applications and Databases
- IaaS, PaaS, and SaaS infrastructure
- NoSQL Performance Acceleration
- DBaaS, MySQL, PostgreSQL Transaction Processing
- OpenStack
- Software-Defined Storage
- E-Commerce, micropayments

Elastic Infrastructure Powers Cloud and Software-Defined Storage

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 needs to leverage 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.

Storage Price/Performance is Necessary for Cloud Economics

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.

CloudSpeed Ultra Gen. II for Cloud Economics

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

CloudSpeed Ultra Gen. II SATA SSD – up to 1.6TB capacity - breaks the sub-$1 per gigabyte barrier for performance-optimized SATA SSDs. SanDisk price/performance value is achieved by leveraging CloudSpeed Ultra performance that enables cloud storage and compute density without the sacrifice of a low latency QoS or write operations.

For use in mixed-use workload environments with write operations, CloudSpeed Ultra performs 32,000 4K write IOPS with an average write latency of 56 microseconds.

CloudSpeed provides for an overall lower total cost of ownership (TCO) based on the ability to achieve storage and compute density for elastic cloud computing.

SanDisk®
a Western Digital brand

CloudSpeed Ultra™ Gen. II 2.5″ SATA SSD

Performance	
Interface	SATA 6Gb/s
Sequential Read/Write (MB/s)**	Up to 530/460 MB/s[1]
Random Read/Write (IOPS)	Up to 76K/32K IOPS[2]
Average Write Latency	56µ (microseconds)
99.9% QoS Random Write Latency 4K Q1	80µ (microseconds)[2]
99.9% QoS Random Write Latency 4K Q32	3850µ (microseconds)[2]
99.9% QoS Random Read Latency 4K Q1	130µ (microseconds)[2]
99.9% QoS Random Read Latency 4K Q32	3190µ (microseconds)[2]
Capacity	
15nm MLC User Capacities*	400GB, 800GB and 1.6TB
Reliability	
Data Reliability (BER)	1 unrecoverable error in 10^{18}***** read[3]
MTBF***	2 Million Hours
Data Fail Recovery	Flexible Redundant Array of Independent Memory Elements (FRAME) Technology
Power Fail Recovery	Write cache immunity with in-flight data protection
Temperature Monitoring	S.M.A.R.T. warning with performance throttling
Warranty****	The lesser of 5 years or maximum endurance used
Endurance	
DWPD (Random Workload)****	1.8 DWPD[4] for 5 years -or- 3 DWPD[4] for 3 years
PBW (Random Workload)****	400GB: 1.31 800GB: 2.63 1.6TB: 5.26
Power	
Vcc	5.0V +10%/-5%
Active (Typ)	3.8W average sequential write 2.6W average sequential read
Idle	1.3W
Environmental	
Shock (operating)	1000g @ 1.0 msec, 1 shock along each axis, X, Y, Z, in each direction
Vibration (operating)	3.22 *g* rms 5-1,000 Hz
Operating Temperature	0° C to 70° C (internal)
Storage Temperature	-40° C to 95° C
Humidity	5% to 95%, non-condensing, relative humidity[5]
Altitude	-1,000 feet to 15,000 feet
Mechanical	
Length	100.2 mm
Width	69.85 mm
Height	7.17 mm

(1) Based on a 128KB transfer rate
(2) Based on 4KB transfer rate
(3) The JEDEC 64.8 specification requires 1 in 10^{17} for enterprise-class SSDs
(4) Endurance based on 100% 4K random workload
(5) Based on MIL-STD 810-F, Method 507.4

CloudSpeed Ultra™ Gen. II 2.5″ SATA SSD - Ordering Information

Part Number	Capacity
SDLF1DAM-400G-1Hxx	400GB
SDLF1DAM-800G-1Hxx	800GB
SDLF1CRM-016T-1Hxx	1.6TB

xx - Pack Out Option: OEM/Hyperscale: A1
                                    Channel: A2

Contact information

datacentersales@sandisk.com

Western Digital Technologies, Inc.
951 SanDisk Drive
Milpitas, CA 95035-7933, USA
T: 1-866-744-2165

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SanDisk®

At SanDisk, we're expanding the possibilities of data storage. For more than 25 years, SanDisk's ideas have helped transform the industry, delivering next generation storage solutions for consumers and businesses around the globe.