



12Gb/s SAS Enterprise 2.5" SSDs

## Lightning® Gen. II Product Family of SAS SSDs

Maximum bandwidth and performance for a variety of write-intensive, mixed-use and read-intensive applications

### Lightning Ultra™ Gen. II SSD Application Workloads

- High Performance Computing (HPC)
- Oil and Gas
- Life Sciences
- Aerospace
- Engineering
- Media Editing
- Analytics
- Indexing
- Database Logging

### Lightning Ascend™ Gen. II SSD Application Workloads

- On-Line Transaction Processing (OLTP) Databases
- Financial Transactions
- E-Commerce
- Email/Messaging
- Virtual Desktop Infrastructure (VDI)
- Collaboration

### Lightning Eco™ Gen. II SSD Application Workloads

- Web Servers
- Data Warehousing
- Media Streaming
- Virtual Tape Libraries (VTL)
- Video on Demand (VOD)
- Web-Based Applications
- File Servers

The new Lightning® Gen. II product family of 12Gb/s SAS SSDs doubles interface speed providing the highest performance for mission-critical hyperscale, cloud and virtualized data center application workloads. This next generation of Lightning SSDs offer capacities ranging from 200GB – 1.6TB with random read/write performance up to 190K/100K and sequential read/write speeds of up to 1000/600 MB/s. These SSDs utilize the latest 19nm SLC and eMLC NAND flash technology combined with an innovative parallel processing architecture to deliver industry-leading, predictable performance, superior reliability and maximum value.

### Lightning Ultra™ Gen. II SAS SSDs

Lightning Ultra™ Gen. II SAS SSDs offer industry-leading predictable performance with high availability for the analysis of large data sets. Available in 19nm SLC capacities from 200GB – 800GB<sup>2</sup> and with random read/write performance of up to 190K/100K IOPS and sequential read/write speed of up to 1000/600 MB/s<sup>1</sup>. These SSDs are designed for write-intensive applications such as High Performance Computing (HPC), Big Data Analytics, Data Warehousing, Database Logging, Media Editing, and Indexing with a heavy workload comprised of a 50/50 read/write mix. This SSD offers 25 full drive writes per day (DWPD) with a limited 5 year warranty<sup>4</sup>.

### Lightning Ascend™ Gen. II SAS SSDs

Lightning Ascend™ Gen. II SAS SSDs offer superior reliability with high speed data transfer rates where quick access to data is essential. Available in 19nm eMLC capacities from 200GB – 1.6TB<sup>2</sup> and with random read/write performance of up to 190K/80K IOPS and sequential read/write speed of up to 1000/600 MB/s<sup>1</sup>. These SSDs are designed for mixed-use applications such as On-line Transaction Processing (OLTP) Databases, Email/Messaging, E-Commerce, Virtual Desktop Infrastructure, and Collaboration, with a typical workload comprised of a 70/30 read/write mix. This SSD offers 10 full drive writes per day (DWPD) with a limited 5 year warranty<sup>4</sup>.

### Lightning Eco™ Gen. II SAS SSDs

Lightning Eco™ Gen. II SAS SSDs offer solid I/O cost to performance benefits with low latency data access for high quality of service (QoS). Available in 19nm eMLC capacities from 1TB – 1.6TB<sup>2</sup> and with random read/write performance of up to 180K/35K IOPS and sequential read/write speed of up to 1000/500 MB/s<sup>1</sup>. These SSDs are designed for read-intensive applications such as Data Warehousing, Media Streaming, Video on Demand (VOD), Web-based Applications, Virtual Tape Libraries (VTL) and File Servers, with a heavy read workload comprised of a 90/10 read/write mix. This SSD offers 3 full drive writes per day (DWPD) with a limited 5 year warranty<sup>4</sup>.

**Lightning® Gen. II Product Family of 12Gb/s SAS 2.5" SSDs**  
**Preliminary Specifications subject to change**

	Lightning Ultra™	Lightning Ascend™	Lightning Eco™
<b>Performance</b>			
Interface	12Gb/s SAS		
Interface Ports	Dual full-duplex		
Sequential Read/Write (MB/s) <sup>1</sup>	Up to 980/740	Up to 980/600	Up to 980/600
Random Read/Write (IOPS) (4K-single port)	Up to 199K/115K	Up to 195K/100K	Up to 195K/80K
Capacity	SLC	eMLC	eMLC
19nm User Capacities	200GB, 400GB, 800GB	200GB, 400GB, 800GB, 1.6TB	800GB, 1.6TB
<b>Reliability</b>			
Sector Sizes	512, 520, 4K bytes/sector, T10-DIF 1, DIF 2 Support		
Data Reliability (UBER)	<1 sector in 10 <sup>19</sup> bits read	<1 sector in 10 <sup>18</sup> bits read	<1 sector in 10 <sup>17</sup> bits read
MTBF <sup>3</sup>	2.5 Million Hours		
Warranty <sup>4</sup>	The lesser of 5 years or maximum endurance used		
<b>Endurance</b>			
DWPD (Random Read)	25 DWPD	10 DWPD	3 DWPD
<b>Power</b>			
Idle	3.9W		
Active (Typ)	5.9W		
<b>Environmental</b>			
Shock	1000 g half-sine, 0.5 msec, 3 shocks along each axis, X, Y, Z, in each direction		
Vibration	2.17 g rms, 7-800 Hz		
Operating Temperature	0° C to 60° C		
Storage Temperature	-40° C to 85° C		
Humidity	5% to 95%, non-condensing, relative humidity		
Altitude	5486.4 m [18,000 ft]		
<b>Mechanical</b>			
Length	100.45 mm		
Width	70.1 mm		
Height	15.0 mm		
Weight	0.238 Kg		

**Lightning Ultra™ Gen. II SAS SSDs - Ordering Information**

**Capacity & Part Number**

(200GB) - SDLTMDKW-200G-5Cxx

(400GB) - SDLTMDKW-400G-5Cxx

(800GB) - SDLTMDKW-800G-5Cxx

**Lightning Ascend™ Gen. II SAS SSDs - Ordering Information**

(200GB) - SDLTODKM-200G-5Cxx

(400GB) - SDLTODKM-400G-5Cxx

(800GB) - SDLTODKM-800G-5Cxx

(1.6TB) - SDLTOCKM-016T-5Cxx

**Lightning Eco™ Gen. II SAS SSDs - Ordering Information**

(800GB) - SDLTODKR-800G-5Cxx

(1.6TB) - SDLTOCKR-016T-5Cxx

**xx - Pack Out Option:**

Generic/Sample: A1    10 Pack: 02    Bulk Pack: 03

Specifications subject to change without notice.

(1) Based on direct attached SAS performance testing, performance may be lower depending upon host device, OS and application.

(2) 1 gigabyte (GB) = 1 billion bytes. Some capacity not available for data storage.

(3) MTBF - Mean Time Between Failures based on parts stress analysis.

(4) The earlier of (I) five (5) years or (II) the time at which such Product unit's total cumulative data recorded on such unit at its S.M.A.R.T. attribute (log page 2Fh, parameter 25) or log page 11h, parameter 1 (Percentage Used Endurance Indicator) reaches 100% of the Product unit's endurance value. For more warranty information, please visit kb.sandisk.com.

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