



Enterprise SSD SAS
products - Line Card



		Optimus™ Eco	Optimus™	Optimus™ Ultra	Optimus™ Ultra+	Lightning® Write-Intensive	Lightning® Mixed-Use	Lightning® Read-Intensive
Market								
Form Factor		2.5”	2.5”	2.5”	2.5”	2.5”	2.5”	2.5”
Interface		6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS
Flash Type		19nm MLC	24nm MLC	24nm MLC	24nm SLC	24nm SLC	24nm SLC	24nm MLC
Capacity (GB)		200GB-2TB*	2.5”: 200GB-1.6TB*	150GB - 1.2TB*	100GB - 800GB*	200GB - 400GB*	200GB - 800GB*	400GB - 1600GB*
Sequential Read/Write (MB/s)		500/500**	500/500**	500/500**	500/500**	450/250**	385-450/220**	310-410/140**
Random Read/Write (IOPS)		90K/35K	100K/50K	100K/50K	100K/60K	118K/33K	100K/11K-16K	78K/4K-8K
Operating Temperature		0 to 70 °C	0 to 70 °C	0 to 70 °C	0 to 70 °C	0 to 60° C	0 to 60° C	0 to 60° C
Active Power (Typ.)		7W	7W	7W	7W	5.9W	5.9W	5.9W
Endurance	DWPD (Random/ Sequential Workload)	Up to 1.6TB: 3-7 2TB: 1-6	10-25	25-33	50			
	TBW (Random/ Sequential Workload)	400GB: 2,219-5,031TBW 800GB: 4,439-10,062TBW 1.6TB: 8,878-20,124TBW 2TB: 3,731-20,124TBW	200GB: 3,928-8,904TBW 400GB: 7,857-17,809TBW 800GB: 15,713-35,617TBW 1.6TB: 31,428-71,234TBW	150GB: 6,342-8,904TBW 300GB: 12,685-17,809TBW 600GB: 25,370-35,617TBW 1.2TB: 50,740-71,235TBW	100GB: 8,057-8,904TBW 200GB: 16,115-17,809TBW 400GB: 32,230-35,617TBW 800GB: 64,460-71,235TBW	200GB: 9.1–43.8PBW 400GB: 18.3–87.6PBW	200GB: 3.65–23.7PBW 400GB: 7.3–47.5PBW 800GB: 14.6–94.9PBW	400GB: 1.3–1.7PBW 800GB: 2.6–3.5PBW 1600GB: 5.25–7PBW
	Performance Throttling	N/A	N/A	N/A	N/A	√	√	√
Reliability	Reliability (BER)	1 in 10 ¹⁷	1 in 10 ¹⁷	1 in 10 ¹⁷	1 in 10 ¹⁷	1 in 10 ¹⁷	1 in 10 ¹⁷	1 in 10 ¹⁶
	ECC	2-level BCH	2-level BCH	2-level BCH	2-level BCH	12 bits/512 bytes (BCH)	12 bits/512 bytes (BCH)	12 bits/265 bytes (BCH)
	Data Fail Recovery	F.R.A.M.E.	F.R.A.M.E.	F.R.A.M.E.	F.R.A.M.E.	√	√	√
	Backup Power Circuitry	Discrete capacitors	Discrete capacitors	Discrete capacitors	Discrete capacitors	Capacitor backed cache (CBC)	Capacitor backed cache (CBC)	Capacitor backed cache (CBC)
	Temperature Throttling	√	√	√	√	N/A	N/A	N/A
	MTBF	2.5M hrs	2.5M hrs	2.5M hrs	2.5M hrs	2M hrs	2M hrs	2M hrs
Security	Advanced Encryption Standard	AES-256	AES-256	AES-256	AES-256	N/A	N/A	N/A
	TCG Enterprise	√	√	√	√	N/A	N/A	N/A
Warranty		5 years	5 years	5 years	5 years	5 Years	5 Years	3 Years

Specifications for Optimus and CloudSpeed products are subject to change without notice.
*1 GB = 1,000,000,000 bytes. Actual user capacity less.
**Up to stated speed. Based on internal testing; performance may vary depending upon drive capacity, host device, OS and application. 1 megabyte (MB) = 1 million bytes.

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Enterprise SSD SATA products - Line Card



		CloudSpeed 1000	CloudSpeed 1000E
Market			
Form Factor		2.5"	2.5"
Interface		6Gb/s SATA	6Gb/s SATA
Flash Type		19nm MLC	19nm MLC
Capacity (GB)		120GB - 960GB*	100GB - 800GB*
Sequential Read/Write (MB/s)		450/350**	450/350**
Random Read/Write (IOPS)		80K/25K	80K/30K
Operating Temperature		0 to 70 °C	0 to 70 °C
Active Power (Typ.)		5.2W	5.2W
Endurance	DWPD (Random/Sequential Workload)	1-6	3-7
	TBW (Random/Sequential Workload)	120GB: 233-1,258TBW 240GB: 466-2,515TBW 480GB: 933-5,031TBW 960GB: 1865-10,062TBW	100GB: 555-1,258TBW 200GB: 1,110-2,515TBW 400GB: 2,219-5,031TBW 800GB: 4,439-10,062TBW
	Performance Throttling	N/A	N/A
Reliability	Reliability (BER)	1 in 10 ¹⁷	1 in 10 ¹⁷
	ECC	75 bit/512 byte	75 bit/512 byte
	Data Fail Recovery	F.R.A.M.E.	F.R.A.M.E.
	Backup Power Circuitry	Discrete capacitors	Discrete capacitors
	Temperature Throttling	√	√
	MTBF	2.5M hrs	2.5M hrs
Security	Advanced Encryption Standard	AES-256	AES-256
	TCG Enterprise	N/A	N/A
Warranty		5 years	5 years

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**Up to stated speed. Based on internal testing; performance may vary depending upon drive capacity, host device, OS and application. 1 megabyte (MB) = 1 million bytes.
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