SMART RUGGED Product Comparison Chart

Rugged, Reliable, Secure SSDs

SMART® Modular Technologies

		T5EN		T5E		S5E	T5PF	T5PFLC	M4 & M4P	M1HC
Interface		PCIe		SATA		SATA	SATA	SATA	SATA	SATA
Form Factor		U.2	M.2 2280	2.5"	M.2 2280					
NAND Flash Type		3D TLC	3D TLC	3D TLC	3D TLC	SLC	3D TLC	3D TLC	MLC	MLC
Capacity	**3D TLC**	480GB - 7,680GB	480GB - 3,840GB	120GB - 3,840GB	120GB - 1,920GB	60GB - 480GB	1,920GB - 3,840GB	240GB - 1,920GB	240GB - 1,920GB	1TB - 8TB
	pSLC	160GB - 2560GB	160GB - 1280GB	40GB - 1280GB	40GB - 640GB	N/A	N/A	N/A	N/A	N/A
Sustained Read/Write Performance		3200MB/s Read, 1600MB/s Write		520MB/s Read, 500MB/s Write		530MB/s Read, 490MB/s Write	500MB/s Read, 470MB/s Write	500MB/s Read, 470MB/s Write	500MB/s Read, 260MB/s Write 525 MB/s Read for M4P, 500 MB/s Write for M4P	520MB/s Read 500MB/s Write
Reliability										
MTBF		2M hours, Telcordia 25°C		2M hours, Telcordia 25°C		2M Hours, Telcordia 25°C	2M Hours, Telcordia 25°C[1]	2M Hours, Telcordia 25°C[1]	3M Hours >2M Hours for M4P	1.5M Hours
Data Reliability		1 in 10^{17} bits read		1 in 10^{17} bits read		1 in 10^{17} bits read	1 in 10^{17} bits read	1 in 10^{17} bits read	M4P: up to 120 bits in 2K bytes M4: up to 66 bits in 1K bytes	1 in 10^{15} bits read
Data Retention		10 years @ 25°C		10 years @ 25°C		10 years @ 25°C	10 years @ 25°C	10 years @ 25°C	1 year at 55°C 10 years at 40°C for M4P	12 months @ 30°C
Endurance	**3D TLC**	1,000 TDW		1,000 TDW		30,000 TDW	2,100 TDW	2,100 TDW	M4P: 2,100 TDW M4: 1,200 TDW	250 TDW
	pSLC	10,000 TDW		10,000 TDW		N/A	N/A	N/A	N/A	N/A
Power Loss Protection		pFail	No pFail	pFail	No pFail	pFail	pFail	pFail	pFail	Fast Flush of Cached Data
1 Year		1 Year		1 Year		1 Year	1 Year	1 Year	1 Year	1 Year
Environmental										
Operating Temperature		Industrial (-40°C to 85°C)		Industrial (-40°C to 85°C)		Industrial (-40°C to 85°C)	Industrial (-40°C to 85°C)	Industrial (-40°C to 85°C) Commercial (0°C to 70°C)	-40°C to 85°C	-40°C to 85°C
Storage Temperature		-45°C to 95°C		-55°C to 90°C		-55°C to 95°C	-55°C to 95°C	-55°C to 95°C	-55°C to 95°C	-55°C to 95°C
Operating Shock		50g half-sine, 11 ms, 3 shocks along each axis[3]		50g half-sine, 11 ms, 3 shocks along each axis[3]	50g half-sine, 11 ms, 3 shocks along each axis[3]	50g half-sine, 11 ms, 3 shocks along each axis	50g half-sine, 11 ms, 3 shocks along each axis[3]	50g half-sine, 11 ms, 3 shocks along each axis[3]	50g half-sine, 11 ms, 3 shocks along each axis	1000g half-sine, 0.5 ms
Operating Vibration		10g rms, 10-2000Hz[3]		16.4g rms, 10-2,000 Hz	10g rms, 10-2000Hz[3]	16.4g rms, 10-2,000 Hz	16.4g rms, 10-2,000 Hz[3]	16.4g rms, 10-2,000 Hz[3]	16.4g rms, 10-2,000 Hz	16.4g rms, 10-2,000 Hz
Relative Humidity		5% - 95% non-condensing[3]		5% - 95% non-condensing		5% - 95% non-condensing	5% - 95% non-condensing	5% - 95% non-condensing	5% - 95% non-condensing	5% - 95% non-condensing
Altitude		24,384 m (80,000 ft)[3]		24,384 m (80,000 ft)		24,384 m (80,000 ft)	24,384 m (80,000 ft)	24,384 m (80,000 ft)	24,384 m (80,000 ft)	24,384 m (80,000 ft)
Conformal Coating		Optional		Optional		Optional	Optional	Optional	Optional	Optional
Security (Protection & Data Elimination)										
ATA password		N/A	N/A	■	■	■	■	■	■	■
AES 256b		■	■	■	■	■	■	■	■	■
Write Protect		■	■	■	Optional	■	■		■	■
External HW trigger		■	■	■		■	■		■	■
Erase Key and flash		■	■	■		■	■		■	■
TCG Opal 2.0		■	■	■	■	■	■	■		
FIPS 140-2							■[4]	■[4]		
MIL Erase Sequences										
NSA-9-12		■	■	■		■			■	■
DoD NISPOM 5220.22-M		■	■	■		■	■		■	■
DoD NISPOM 5220.22-M-Sup 1		■	■	■		■	■			■
NSA/CSS Manual 130-2		■	■	■		■	■		■	■
NSA/CSS Manual 9-12		■	■	■		■	■		■	■
Army AR 380-19		■	■	■			■		■	
Navy NAVSO P-5239-26		■	■	■		■	■		■	■
Air Force AFSSI-5020		■	■	■		■	■			■
RCC –TG IRIG 106-07		■	■	■		■				

[1]Estimated. Official MTBF pending
[2]Based on 128 KByte block transfers and continuous, sequential writes to the drive. The number does not include file system overhead, which may vary depending on the file system. The total life span of the drive depends on both the write endurance numbers and MTBF. TDW → Total Drive Writes = (Terabytes Written) *1000 / (Drive Capacity GB)
[3]Testing Pending
[4]FIPS 140-2 Inside