SMART RUGGED™

Product Comparison Chart

Rugged, Reliable, Secure SSDs

SMART® Modular Technologies
A PENGUIN SOLUTIONS® BRAND

	T6EN			T6CN			T5EN		T5E		S5E	T5PF	T5PFLC
Interface	PCIe			PCIe			PCIe		SATA		SATA	SATA	SATA
Form Factor	E1.S	U.2	M.2 2280	E1.S	U.2	M.2 2280	U.2	M.2 2280	2.5”	M.2 2280	2.5”	2.5”	2.5”
NAND Flash Type	3D TLC			3D TLC			3D TLC	3D TLC	3D TLC	3D TLC	SLC	3D TLC	3D TLC
Capacity	960GB – 7,680GB	960GB – 15,360GB	960GB – 7,680GB	960GB – 7,680GB	960GB – 15,360GB	960GB – 7,680GB	3D TLC: 480GB - 3,480GB pSLC: 160GB - 1,280GB	3D TLC: 480GB - 1,920GB pSLC: 160GB - 640GB	3D TLC: 120GB - 3,840GB pSLC: 40GB - 1,280GB	3D TLC: 120GB - 1,920GB pSLC: 40GB - 640GB	60GB - 480GB	480GB - 3,840GB	2.5”: 120GB - 1.920GB M.2: 240GB - 960GB
Sustained Read/Write Performance	3,500MB/s Read 3,000MB/s Write	3,500MB/s Read 3,000MB/s Write	3,200MB/s Read 3,200MB/s Write	3,500MB/s Read 3,000MB/s Write	3,500MB/s Read 3,000MB/s Write	3,200MB/s Read 3,200MB/s Write	3,200MB/s Read, 1,600MB/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
Reliability													
MTBF	2M Hours, Telcordia 20°C			2M Hours, Telcordia 20°C			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]
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	1 in 10^{17} bits read	1 in 10^{17} bits read
Data Retention	10 years @ 25°C			10 years @ 25°C			10 years @ 25°C		10 years @ 25°C		10 years @ 25°C	10 years @ 25°C	10 years @ 25°C
Endurance	I-Temp: 9,600 TBW (with 15,360GB)			C-Temp: 16,800 TBW (with 15,360GB) I-Temp: 9,600 TBW (with 15,360GB)			3D TLC: 625 TDW pSLC: 6,250 TDW		3D TLC: 1,000 TDW pSLC: 10,000 TDW		30,000 TDW	2,100 TDW	2,100 TDW
Power Loss Protection	U.2 & E1.S only			U.2 & E1.S only			pFail	No pFail	pFail	No pFail	pFail	pFail	No pFail
Warranty	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) Commercial (0°C to 70°C)			Industrial (-40°C to 85°C)		Industrial (-40°C to 85°C) Commercial (0°C to 70°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)
Storage Temperature	Industrial (-55°C to 95°C)			Commercial (-40°C to 85°C) Industrial (-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	-55°C to 95°C
Operating Shock	50G (11 ms duration, half sine wave)[3]			50G (11 ms duration, half sine wave)[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[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]
Operating Vibration	10G (peak, 10-2000Hz)[3]			10G (peak, 10-2000Hz)[3]			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]
Relative Humidity	5% - 95% non-condensing[3]			5% - 95% non-condensing[3]			5% - 95% non-condensing[3]		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)[3]			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)
Conformal Coating	Optional			Optional			Optional		Optional		Optional	Optional	Optional
Security (Protection & Data Elimination)													
ATA password				■					■	■	■	■	■
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]Design Specification. Testing Pending
[4]FIPS 140-2 Inside