SMART RUGGED

Product Comparison Chart

Rugged, Reliable, Secure SSDs

	T5EN U.2	T5EN M.2	T5E	S5E	T5PF	T5PFLC	M4 & M4P	M1HC
Form Factor	PCIe	PCIe	SATA	SATA	SATA	SATA	SATA	SATA
NAND Flash Type	3D TLC	3D TLC	3D TLC & pSLC	SLC	3D TLC	3D TLC	MLC	MLC
Capacity Range	480GB – 7680GB for 3D TLC 160GB – 2560GB for pSLC	480GB – 3840GB for 3D TLC 160GB – 1280GB for pSLC	120GB – 3840GB for TLC 40GB – 1280GB for pSLC	60GB – 480GB	480GB – 3840GB	240GB – 1920GB	240GB – 1920GB	1TB – 8TB
Read/Write Performance	3200MB/s Read, 1600MB/s Write	3200MB/s Read, 1600MB/s Write	530MB/s Read 530MB/s Write	530MB/s Read 530MB/s Write	400MB/s Read 400MB/s Write	400MB/s Read 400MB/s Write	500MB/s Read 260MB/s Write 525 MB/s Read for M4P 500 MB/s Write for M4P	480MB/s Read 480MB/s Write
Reliability								
MTBF	2M hours,Telcordia 25°C	2M Hours,Telcordia 25°C	2M Hours, Telcordia 25°C	2M Hours, Telcordia 25°C	2M Hours, Telcordia 25°C	2M Hours, Telcordia 25°C	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	1 in 10^{17} bits read	1 in 10^{15} bits read	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	10 years @ 25°C	1 year at 55°C 10 years at 40°C for M4P	12 months @ 30°C
Endurance	TLC: 1,000 TDW pSLC: 10,000 TDW	TLC: 1,000 TDW pSLC: 10,000 TDW	1,000 TDW	40,000 TDW	2,100 TDW	2,100 TDW	1,200 TDW	250 TDW
Power Loss Protection	pFail	No pFail	pFail	pFail	pFail	pFail	pFail	Fast Flush of Cached Data
Warranty	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) Commercial (0°C to 70°C)	Industrial (-40°C to 85°C) Commercial (0°C to 70°C)	Industrial (-40°C to 85°C) Commercial (0°C to 70°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	-45°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	-55°C to 95°C
Operating Shock	50G, (11ms duration, half sine wave)	50G, (11ms duration, half sine wave)	50g half-sine, 11 ms, 3 shocks along each axis	50g half-sine, 11 ms, 3 shocks along each axis	50g half-sine, 11 ms, 3 shocks along each axis	50g half-sine, 11 ms, 3 shocks along each axis	50g half-sine, 11 ms, 3 shocks along each axis	1000g half-sine, 0.5 ms
Operating Vibration	10G(Peak, 10~2000Hz)	10G(Peak, 10~2000Hz)	16.4g rms, 15~2000Hz	16.4g rms, 15~2000Hz	16.4g rms, 15~2000Hz	16.4g rms, 15~2000Hz	16.4g rms, 15~2000Hz	16.3g rms, 10~2000Hz
Relative Humidity	5% - 95% non-condensing	5% - 95% non-condensing	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)	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)	30,480 m (100,000 ft)
Conformal Coating			Optional	Optional	Optional	Optional	Optional	Optional
Security (Protection & Data Elimination)								
ATA password			■	■	■	■	■	■
AES 256b	■	■	■	■	■	■	■	■
Write Protect	■	■	■	■	■		■	■
External HW trigger	■	■	■	■	■		■	■
Erase Key and flash	■	■	■	■	■		■	■
TCG Opal 2.0	■	■	■	■	■	■		
FIPS 140-2					■	■		
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	■	■	■	■				

Applications for all SMART RUGGED Products: Industrial, Defense, Data Recording, Mission Critical, Surveillance and Telemetry

05.21.21/SMARTRuggedCompShart/Rev.5

SMART® Modular Technologies