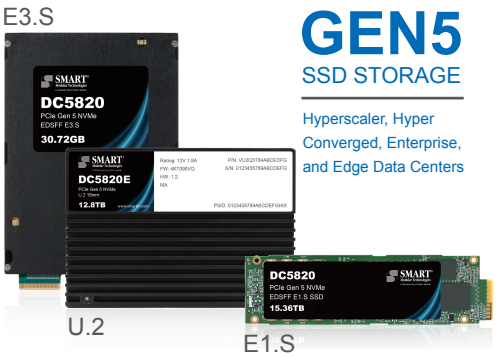
SMART® Modular Technologies
A PENGUIN SOLUTIONS® BRAND

DC5820/E | PCIe NVMe | OCP Cloud Spec 2.0

Advanced Data Center SSD Storage for Telecom/Edge Embedded Switches and Enterprise/File Server

SMART's PCIe Gen5 NVMe SSDs are designed to deliver high performance and optimal power efficiency across a wide range of applications including Telecom/Edge Embedded Switches and Enterprise/File Server Storage.

The Gen 5 devices are over twice the performance as Gen 4 devices and have reduced latency to ensure QoS and performance consistency. A wide range of enterprise features and specifications including NVMe 2.0 and OCP Data Center SSD 2.0 are supported. The DC5820 also operates in a PCIe 4.0 mode for inventory flexibility. The DC5820E offers enhanced endurance with up to 3 DWPDs for high workload applications.



GEN5
SSD STORAGE

Hyperscaler, Hyper Converged, Enterprise, and Edge Data Centers

Applications & Workloads

- Database
- Searching, Indexing, CDN
- Cloud and Hyper-scale Computing
- High Performance Software-defined Storage
- Deep Learning and Big Data Analytics
- High Performance Storage System
- ERP, SAP HANA
- BOSS, Banking, Taxing
- High Frequency Trading
- Online Payment

Benefits of SMART Gen5 SSDs

- PCIe 5 x 4 (PCIe 4 x 4 mode), NVMe 2.0
- 970MB/s Power Efficiency
- 2700 KIOPS
- Sequential R/W: 14GB/s/10GB/s
- Write Latency R/W: 55/9µs

Product Family Overview

Model	Form Factor	Capacity	DWPD
DC5820	EDSFF E1.S SSD	3.84TB, 7.68TB, 15.36TB	1
	EDSFF E3.S SSD		
	U.2 SSD	3.84TB, 7.68TB, 15.36TB, 30.72TB	
DC5820E	EDSFF E1.S SSD	3.2TB, 6.4TB, 12.8TB	3
	EDSFF E3.S SSD		
	U.2 SSD		

Key Features

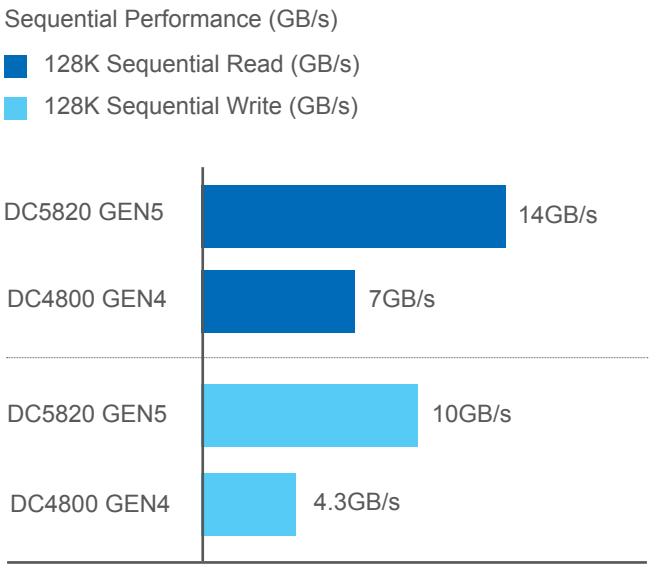
Reliability

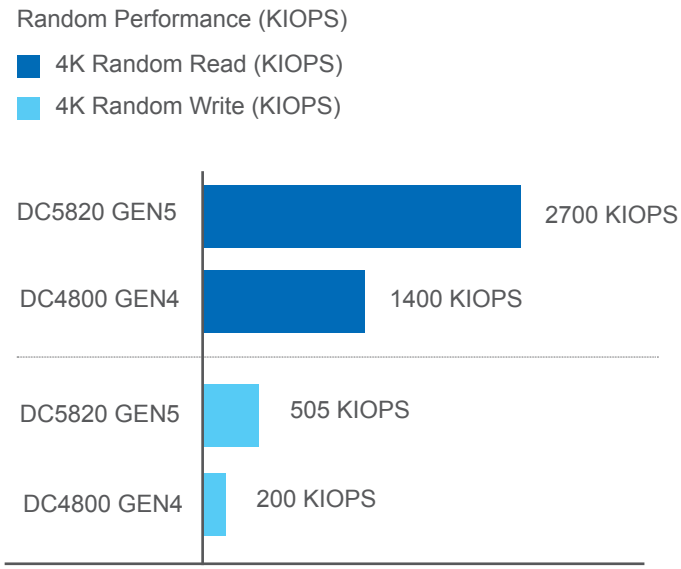
- Telemetry
- Firmware Upgrade without Reset
- Persistent Event Log
- Latency Statistics & High Latency Logging
- SR-IOV
- Timestamp, Weighted Round Robin
- 8TB/s Enterprise TRIM

Enterprise Features

- TCG Opal2.0
- 128K Atomic Write
- AES 256 Data Encryption
- Sanitize
- Full Data Path and Power Failure Protection
- Secure Download and Secure Boot
- NVMe-MI 1.2b (ARP)

PCIe Gen5 vs. PCIe Gen4





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Specifications

	DC5820			DC5820E			
	EDSFF E1.S	EDSFF E3.S	U.2	EDSFF E1.S	EDSFF E3.S	U.2	
NAND Type	eTLC						
Performance							
Host Interface Rate (maximum)	PCIe Gen5 x4						
Capacities	3.84TB 7.68TB 15.36TB	3.84TB 7.68TB 15.36TB	3.84TB 7.68TB 15.36TB 30.72TB	3.2TB 6.4TB 12.8TB	3.2TB 6.4TB 12.8TB	3.2TB 6.4TB 12.8TB	
Sequential Read (maximum)	14000 MB/s						Thread Count = 1 Queue Depth = 128 IO Size = 128KB 1MB/s=2^{20} Byte/s
Sequential Write (maximum)	10000 MB/s						
Random Read Performance (KIOPS)	2700 KIOPS						Thread Count = 1 Queue Depth = 128 IO Size = 4KB Sustained
Random Write Performance (KIOPS)	505 KIOPS			725 KIOPS			
Random Read Latency (µs)	8/57						Thread Count = 1 Queue Depth = 1 IO Size = 4KB Typical
Random Write Latency (µs)	9/9						
Environmental							
Operating Temperature	Commercial: 0°C to +70°C						
Storage Temperature	-40°C to +85°C						
ESD (Human Body Model)	+/-4 kV						
Electrical Specification							
Supply Voltage Min | Max (V)	12V (-20%, +10%)						
Active Power Consumption (W)	PCIe Gen 5 Mode			PCIe Gen 4 Mode			
	Read	Write	Idle (Max)	Read	Write	Idle (Max)	
3.84TB/3.2TB	< 15	< 16	< 7.8	< 12	< 14	< 7.8	
7.68TB/6.4TB	< 18	< 20	< 7.8	< 12	< 17	< 7.8	
15.36TB/12.8TB	< 19	< 20	< 7.8	< 12	< 17	< 7.8	
Reliability, Mechanical							
MTBF (Hours)	>= 2M						
UBER	1 Sector per 10^{17} Read						
Retention	2 Months @ 40°C (EOL)						
DWPD 5 yrs 7% OP	1			3			
Enclosure	9.5mm	7.5mm	15mm	9.5mm	7.5mm	15mm	

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For more information, please visit: **www.smartm.com**

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