



PRODUCT BRIEF



Western Digital® CL SN520 NVMe™ SSD

Fueling Innovation for Next-Generation Commercial Applications

With design flexibility and a scalable NVMe architecture, the Western Digital® CL SN520 NVMe™ SSD delivers a robust solution to fuel current and future generations of innovative IoT applications. Western Digital's NVMe SSDs offer a significant performance increase over SATA based SSDs while optimizing power consumption as low as 1.6W¹. The Western Digital CL SN520 NVMe SSD is a cost-effective, small form factor, reliable and rugged storage solution with capacities from 128GB to 512GB.

Powerful Construction Ideal for Commercial Applications

The Western Digital CL SN520 NVMe SSD is a PCIe Gen3 x2 storage solution designed for applications that require high performance, low capacities and small M.2 2280 and M.2 2242 form factors. Customers can take advantage of the following features:

Key Benefits and Features:

- 0°C – 85°C Operating Temperature
- Up to 400 TBW Endurance
- Extended Longevity
- 5 Year Limited Warranty
- Read Speeds up to 1,700MB/s
- 128GB – 512GB Capacities in either an M.2 2242 or M.2 2280 Form Factor

- **Multiple M.2 Design Options:** A form factor as small as M.2 2242 and a Gen3 x2 solution means greater flexibility, particularly for lane limited chipsets and for designing with a wide variety of motherboard and chipset configurations, where footprint is limited.
- **Wide Operating Temperature of 0°C – 85°C:** Applications like in-flight entertainment systems, factory 2.0 / machinery automation, edge gateways tend to operate within high operating temperature range, but companies are often required to invest both resources and power to maintain system cool. A wide operating temperature of up to 85°C means that Western Digital CL SN520 NVMe SSDs can reduce the need for cooling investment and enable applications to run longer with minimal heat sink and airflow requirements.
- **Endurance as up to 400 TBW:** With new applications that generate large data sets, or alternatively work around the clock, SSDs must handle high write intensive workloads. Data intensive applications like surveillance and gateways need a more write capable drive. The Western Digital CL SN520 NVMe SSD's high endurance capability allows applications to write a significant amount of data over the life of the drive.
- **Longevity:** Customers building for commercial applications value supply continuity and long availability cycles. Based on a fully integrated solution which includes an in-house controller, 64-layer 3D NAND, firmware and validation, the Western Digital CL SN520 NVMe SSD offers an extended longevity, for an efficient supply and a long-term availability.
- **Reliability and Ruggedness:** Commercial applications require high error resistance to maintain a stable operational environment. The Western Digital CL SN520 NVMe SSD provides low 10⁻¹⁷ UBER. For applications like factory automation, and industrial equipment where more ruggedness is required, the Western Digital CL SN520 NVMe SSD complies with industry standard JESD22-B103B and supports operating vibration of up to 20G (20–2,000Hz, linear sweep).
- **Performance:** Based on PCIe Gen3 x2, the CL SN520 NVMe SSD delivers high performance with sequential read and write speeds of up to 1,700 MB/s and 1,450 MB/s respectively, as well as random read and write speeds of up to 275K/270K IOPS².

Summary

The Western Digital CL SN520 NVMe SSD enables high endurance, wide temperatures and high performance for the most demanding commercial and industrial applications. With M.2 small form factors, capacities up to 512GB and extended supply longevity, the Western Digital CL SN520 NVMe SSD delivers a robust, reliable, and future-ready storage solution.

¹ Average maximum operating consumption is measured while the SSD is continuously processing sequential write commands for at least 10 seconds.
² For 512GB model.

Western Digital CL SN520 NVMe SSD Product Features and Specifications

Model Number	SDAPMUW-128G-1022	SDAPMUW-256G-1022	SDAPMUW-512G-1022	SDAPNUW-128G-1022	SDAPNUW-256G-1022	SDAPNUW-512G-1022
Form Factor	M.2 2242 S3-B-M	←	←	M.2 2280 S3-B-M	←	←
Interface	PCIe Gen3 x2 NVMe v1.3	←	←	←	←	←
Formatted Capacity ¹	128GB	256GB	512GB	128GB	256GB	512GB
Performance²						
Sequential Read up to (MB/s)	1,500	1,700	1,700	1,500	1,700	1,700
Sequential Write up to (MB/s)	800	1,300	1,450	800	1,300	1,450
Random Read up to (IOPS)	95K	220K	275K	95K	220K	275K
Random Write up to (IOPS)	90K	170K	270K	90K	170K	270K
Endurance ³ (TBW)	100	200	400	100	200	400
Power⁴						
Peak Power (10μs) (W)	5.3	5.3	5.8	5.3	5.3	5.8
Operating Power (1s) (W)	2.4	2.5	2.6	2.4	2.5	2.6
Low Power (PS3) (mW)	25	←	←	←	←	←
Sleep (PS4) (mW)	2.5	←	←	←	←	←
Supply Voltage (VDC/ ±5%)	3.3	←	←	←	←	←
Reliability						
MTTF ⁵	Up to 12M hours	Up to 8M hours	Up to 5M hours	Up to 12M hours	Up to 8M hours	Up to 5M hours
UBER	10 ⁻¹⁷	←	←	←	←	←
Environmental						
Operating Temperature ⁶	32°F to 185°F (0°C to 85°C)	←	←	←	←	←
Non-Operating Temperature ⁷	-67°F to 185°F (-55°C to 85°C)	←	←	←	←	←
Operating and Non-Operating Vibration	20G, 20–2000 Hz, linear sweep	←	←	←	←	←
Operating and Non-Operating Shock	1,500G @0.5 ms half sine	←	←	←	←	←
Certifications	FCC, UL, TUV, KCC, BSMI, VCCI, C-Tick	←	←	←	←	←
Limited Warranty ⁸	5 years	←	←	←	←	←
Physical Dimensions						
Width	22mm ±0.15mm	←	←	22mm ±0.15mm	←	←
Length	42mm ±0.15mm	←	←	80mm ±0.15mm	←	←
Thickness (max)	2.38mm	←	←	2.38mm	←	←
Weight	4.0g ±1g	←	←	6.5g ±1g	←	←

¹ As used for storage capacity, one gigabyte (GB) = one billion bytes and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment.

² Test Conditions: Performance is based on the CrystalDiskMark 5.2.2 benchmark using a 1000MB LBA range ASUS Z170A desktop with Intel® i7-6700K 4.0GHz, 8GB 2133MHz DDR4. Windows 10 Pro 64-bit using Microsoft StorNVMe driver, secondary drive. Performance may vary based on host device. 1 MB = 1,000,000 bytes. IOPS = input/output operations per second.

³ TBW (terabytes written) values calculated using JEDEC client workload (JESD219) and vary by product capacity.

⁴ Power measurements at 25°C.

⁵ MTTF = Mean Time To Failure based on internal testing and by using Telcordia stress part testing (Telcordia SR-332, GB, 40°C, 12 hours/day). MTTF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTTF does not predict an individual drive's reliability and does not constitute a warranty.

⁶ Operational temperature as reported by device (composite temperature).

⁷ Non-operational storage temperature does not guarantee data retention.

⁸ 5 years or Max Endurance (TBW) limit, whichever occurs first. 5 year warranty in regions not recognizing "limited." See <http://support.wdc.com> for more details.

Western Digital.

5601 Great Oaks Parkway
San Jose, CA 95119, USA
US (Toll-Free): 800.801.4618
International: 408.717.6000

www.westerndigital.com

© 2019 Western Digital Corporation or its affiliates. All rights reserved. Western Digital, and the Western Digital logo are registered trademarks or trademarks of Western Digital Corporation or its affiliates in the US and/or other countries. The NVMe word mark is a trademark of NVM Express, Inc. All other marks are the property of their respective owners. References in this publication to Ultrastar products, programs or services do not imply that they will be made available in all countries. Product specifications provided are sample specifications and do not constitute a warranty. Actual specifications for unique part numbers may vary. Pictures shown may vary from actual products.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

SanDisk:

[SDAPNUW-128G-1022](#) [SDAPNUW-256G-1022](#) [SDAPNUW-512G-1022](#)