Western Digital.

Ultrastar® DC SN200

DATA SHEET

NVMe™ DATA CENTER SSDs

HH-HL AIC NVMe SSD
7.68TB, 6.4TB, 3.84TB, 3.2TB, 1.92TB, and 1.6TB

2.5-inch U.2 NVMe SSD
7.68TB, 6.4TB, 3.84TB, 3.2TB, 1.92TB, 1.6TB, 960GB and 800GB

Highlights

- High-performance PCIe Gen 3 & NVMe 1.2 compliant
- Storage capacity up to 7.68TB in both 2.5-inch U.2 and HH-HL add-in card (AIC) form factors
- Ultra-low consistent latency
- Dual port (2×2) support for 2.5-inch drives for highly available system designs
- Superior enterprise-grade reliability: Flash-aware RAID, end-to-end data path protection, advanced ECC, secure erase, PowerSafe™ power-loss protection

Applications & Workloads

- Highest performance tier enterprise storage
- Databases supporting mission critical applications
- Cloud and Hyperscale computing
- Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP)
- High Frequency Trading (HFT)
- Virtualization

NVMe™ SSDs for Application Acceleration

Western Digital extends its technology leadership with the introduction of the Ultrastar® DC SN200* solid-state drives (SSDs). Ultrastar DC SN200 NVMe™ SSDs deliver a new level of performance and capacity for Enterprise, Cloud and Hyperscale environments. Enabling faster intelligence in the expanding digital data demands of business applications, Ultrastar DC SN200 SSDs are a reliable resource for fast access to critical data. Ultrastar DC SN200 SSDs double the speed of the previous generation within the same power envelope. By offering exceptional 580,000 mixed read/write random 70/30 4KiB I/O performance on the 6.4TB HH-HL add-in card (AIC), Ultrastar DC SN200 SSDs enable OLTP applications to scale to new levels.

Ultra-Low Latency and High Quality of Service (QoS)

To meet Tier 1 enterprise service level agreements (SLAs), data center managers need high QoS from their storage infrastructure. Ultrastar DC SN200 delivers a 30% improvement over its predecessor providing consistent low latency as the device reaches its highest levels of throughput. The combination of high throughput performance and predictable low latency delivers extreme performance for today's data intensive applications.

High Density Supports Data Growth

Delivering capacities up to 7.68TB in both form factors for 1 drive write per day (DW/D) and 6.4TB for 3 DW/D endurance ratings, Ultrastar DC SN200 delivers twice the density as its predessor. In fact, at 7.68TB this product family delivers the highest density in both 2.5-inch U.2 and HH-HL add-in card (AIC) form factors amongst NVMe-compliant devices at the time of its market introduction, providing swift access to even more data.

Enterprise Storage Experience in Dual Port

Ultrastar SSDs leverage decades of enterprise storage design expertise in high performance and high reliability to deliver our first dual-port NVMe SSD 2.5-inch drive. The dual-port feature supports two redundant paths to an SSD, ensuring access to data in the event of a failure in the data path. The dual-port option, which includes scatter gather list (SGL), is available in all models of the Ultrastar DC SN200 2.5-inch U.2 drive.

Ultrastar Quality and Reliability

Ultrastar DC SN200 SSDs extend the company's long-standing tradition of performance and reliability leadership. A balanced combination of new and proven technologies enables high reliability and availability to customer data. Ultrastar drives are backed by a 5-year limited warranty and an array of technical support and services, which may include customer and integration assistance. Western Digital is dedicated to providing a complete portfolio of storage products to satisfy today's monumental computing needs.

Features & Benefits

	Performance	Capacity & Endurance	Reliability	Integration
Feature	• Up to 1.2M IOPS (4KiB) • Up to 580K IOPS mixed (R/W) random workloads (4KiB)	• 800GB to 7.68TB capacities • Endurance optimized or Capacity optimized options	• UBER of < 1 in 10^{17} • Dual-port 2×2 U.2 support • PowerSafe power-loss protection	NVMe compliant
Benefit	Use as top tier storage to accelerate databases and high frequency workloads	Broad portfolio offering the most value based on workload requirements	Enterprise-grade reliability helps reduce service incidents to help lower support costs	Standard NVMe driver support for ease of system integration

*Previously known as Ultrastar SN200 and SN260

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Specifications

Configuration	HH-HL Add-in Card (AIC)		U.2 Drive	
Interface	PCIe 3.0 x8 NVMe 1.2		PCIe 3.0 x4 or 2×2 NVMe 1.2	
Form Factor	HH-HL add-in card		U.2 2.5-inch drive	
Capacity[1]	6.4TB / 3.2TB / 1.6TB	7.68TB / 3.84TB / 1.92TB	6.4TB / 3.2TB / 1.6TB / 800GB	7.68TB / 3.84TB / 1.92TB / 960GB
Endurance (Drive Writes per Day)[2]	3	1	3	1
Flash Memory Technology	15nm MLC NAND			
Performance[3]				
Sequential Read (max MiB/s, 128KiB)	6,170		3,350	
Sequential Write (max MiB/s, 128KiB)	2,200		2,100	
Random Read (max IOPS, 4KiB)	1,200,000		835,000	
Random Write (max IOPS, 4KiB)	200,000	75,000	200,000	75,000
Mixed Random Read/Write (max IOPS 70%R/30%W, 4KiB)	580,000	240,000	550,000	240,000
Write Latency[4] (µs)	20		20	
Reliability				
Uncorrectable Bit Error Rate (UBER)	< 1 in 10^{17}		< 1 in 10^{17}	
MTBF[5]	2M hours		2M hours	
Annual Failure Rate[5] (AFR)	0.44%		0.44%	
Limited Warranty[6]	5 years		5 years	
Data Retention	3-month at 40°C		3-month at 40°C	
Power				
Requirement (DC +/- 5%)	3.3V (aux) & 12V		3.3V (aux) & 12V	
Operating (W, max)	25		25	
Idle (W)	9		9	
Physical				
z-height (mm)	14.49		15	
Dimensions (width x depth, mm)	167.65 × 68.9		100.45 × 69.85	
Weight / without bracket (g, max)	230 / 229		184 / NA	
Environmental				
Operating Temperature	0° to 55°C (Ambient)		0° to 70°C (Case)	
Non-operating Temperature	-40° to 85°C		-40° to 85°C	

[1] One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (one billion bytes), and one terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting, system software, and other factors.

[2] Endurance rating based on DW/D using 4KiB random write workload over 5 years

[3] Performance will vary by capacity point, or with the changes in useable capacity. Consult product manual for further details. All performance measurements are in full sustained mode and are peak values. Preliminary and subject to change. 1MiB=1,048,576 bytes or 2^{20}, 1KiB= 1,024 bytes or 2^{10}.

[4] Average Write Latency at 4KiB QD=1

[5] MTBF and AFR targets are based on a sample population and are estimated by statistical measurement and acceleration algorithms under median operating conditions. MTBF and AFR rating do not predict an individual drive's reliability and do not constitute a warranty.

[6] The warranty for the product will expire on the earlier of (i) the date when the flash media has reached one-percent (1%) of its remaining life or (ii) the expiration of the time period associated with the Product.

Model # / Part

HUSMR7676BHP3Y1 / 0TS1353
HUSMR7638BHP3Y1 / 0TS1352
HUSMR7619BHP3Y1 / 0TS1351
HUSMR7664BHP301 / 0TS1304
HUSMR7632BHP301 / 0TS1303
HUSMR7616BHP301 / 0TS1305
HUSMR7676BDP3Y1 / 0TS1357
HUSMR7638BDP3Y1 / 0TS1356
HUSMR7619BDP3Y1 / 0TS1355
HUSMR7696BDP3Y1 / 0TS1354
HUSMR7664BDP301 / 0TS1317
HUSMR7632BDP301 / 0TS1308
HUSMR7616BDP301 / 0TS1307
HUSMR7680BDP301 / 0TS1306

How to Read the Ultrastar Model Number

HUSMR7664BHP301
H = Western Digital
U = Ultrastar
S = Standard
MR = Mixed use & Read intensive
76 = Max capacity in series (7.6TB)
64 = Capacity of this model (6.4TB)
B = Generation code (2nd)
H = Form Factor (HH-HL vs D. for U.2)
P3 = Interface (PCIe 3.0)
0 = Endurance
(0=3 DW/D, Y=1 DW/D)
1 = NVMe compatible

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