**1.92TB, 960GB, 480GB, 240GB, 120GB | 0.1 DW/D
2.5-inch | M.2 2280 SATA 6Gb/s**

Features & Benefits

- Enterprise-grade SATA 6Gb/s SSD designed specifically for boot & edge applications
- Capacity points of 120GB[1] to 1.92TB in a 7mm 2.5-inch or M.2 2280 form factor
- Optimized sustained performance
  —Sequential read throughput up to 510MiB/s
  —Sequential write throughput up to 475MiB/s
- 2 million hours MTBF[4]
- Self-encrypting TCG OPAL 2.01 with Instant Secure Erase
- 5-year limited warranty

Applications & Workloads

- Enterprise Boot
- Video Streaming, Video-on-Demand
- Audio Streaming
- File Servers
- Read-intensive Applications

The Right Choice for Server Boot Drives

Built on Western Digital 64-layer 3D NAND, the Ultrastar® DC SA210* SATA SSD is Western Digital's first SSD purpose-built for enterprise boot and edge applications. The Ultrastar DC SA210 offers outstanding value and provides the best alternative to enterprise boot HDDs. With capacities as low as 120GB and up to 1.92TB, you can choose the right capacity point for your operating system and logging requirements. End-to-end data protection and LDPC error correction mechanisms provide greater reliability and help support a five-year warranty. Ultrastar DC SA210 has been validated to operate with Windows Server® 2012/2016 and various versions of the enterprise Linux® operating systems.

A Natural SSD for Edge Computing & Read-intensive Environments

Edge computing is pushing applications, like content delivery, away from centralized data centers and closer to those who are consuming the content. In such environments, data access speed is essential. The Ultrastar DC SA210 delivers up to 510MiB/s sequential read throughput and 64K IOPS random read performance to unleash the full potential of your server grade system and its high-end CPU capabilities. Such applications can also benefit from higher capacity offerings.

The Ultrastar DC SA210 is designed to be cost-optimized and offer sufficient endurance for read-intensive environments. It is architected to minimize the probability of data loss due to unexpected power loss yet still be a cost-effective alternative to traditional enterprise SSDs that rely on costly hold-up capacitors.

To address encryption requirements, the Ultrastar DC SA210 supports self-encryption drive (SED) capability compliant with TCG OPAL 2.01 to protect data from unauthorized access. The DC SA210 also includes Instant Secure Erase functionality to speed and simplify drive redeployment and retirement.

M.2 and 2.5-inch Form Factor Support

Ultrastar DC SA210 supports the M.2 2280 form factor, which is becoming much more widely implemented within 1U and blade servers and broadly adopted by motherboard manufacturers. The M.2 means a much smaller physical footprint and is quickly becoming the de-facto SSD-only form factor. Additionally, the Ultrastar DC SA210 is available in 2.5-inch to serve as a true drop-in replacement for mechanical HDDs. Both form factors are offered across all five capacity points, from the smallest at 120GB to the largest at 1.92TB.

Features & Benefits

	Performance	Reliability	Rigorous Testing	Security
Feature	Optimized performance for read-intensive applications	LDPC error correction mechanisms and data path protection	Server & software interoperability	SED functionality
Benefit	Increased lifecycle, reducing total cost of ownership	Adds additional reliability to your data	Western Digital system integration testing ensures quality and broad platform compatibility	TCG Opal 2.0.1 and Instant Secure Erase help keep your data safe

*Previously known as Ultrastar SA210

Specifications

Configuration	2.5-inch	M.2 2280
Model # / Part #	HBS3A1919A7E6B1 / 0TS1652 HBS3A1996A7E6B1 / 0TS1651 HBS3A1948A7E6B1 / 0TS1650 HBS3A1924A7E6B1 / 0TS1649 HBS3A1912A7E6B1 / 0TS1648	HBS3A1919A4M4B1 / 0TS1657 HBS3A1996A4M4B1 / 0TS1656 HBS3A1948A4M4B1 / 0TS1655 HBS3A1924A4M4B1 / 0TS1654 HBS3A1912A4M4B1 / 0TS1653
Interface	SATA 6Gb/s	
Capacity[1]	1.92TB, 960GB, 480GB, 240GB, 120GB	
Form Factor	2.5-inch	M.2 2280
Endurance[2] (Drive Writes per Day (DW/D))	0.1 (JESD219 Workloads) 0.7 (128KiB Sequential Workloads)	
Maximum Terabytes Written (TBW, JESD219 workload)	1.92TB: 350 / 960GB: 175 / 480GB: 87 / 240GB: 43 / 120GB: 21	
Flash Memory Technology	3D TLC NAND	
Sustained Performance[3]		
Sequential Read (max MiB/s, 128KiB, QD32)	510	
Sequential Write (max MiB/s, 128KiB, QD32)	475	
Random Read (max IOPS, 4KiB, QD32)	64K	
Random Write (max IOPS, 4KiB, QD32)	5K	
Mixed Random Read/Write (max IOPS) 70%R/30%W, 4KiB, QD32 90%R/10%W, 4KiB, QD32	11K 21K	
Latency (ms, 4KiB Random Read QD1, typical)	0.15	
Reliability		
Unrecoverable Bit Error Rate (UBER)	1 in 10^{17}	
MTBF[4]	2M hours	
Annual Failure Rate (AFR)4	0.44%	
Limited Warranty[5]	5 years	
Data Retention	3-month at 40°C	
Power		
Requirement (DC +/- 5%)	5V	3.3V
Active (W, max)	3.8 (write), 2.65 (read)	3.8 (write), 3 (read)
Idle (W)	0.43	
Physical		
z-height (mm, max)	7.0	<1.92TB: 2.23 1.92TB: 2.38
Dimensions (width x depth, mm)	69.85 × 100.2	22 × 80
Weight (g, max)	<960GB: 37.4 ≥960GB: 59.7	7
Environmental		
Operational Temperature[6]	0° – 70°C	
Non-operating Temperature	-55° – 85°C	

How to read the Ultrastar model number

HBS3A1996A7E6B1 = 960GB 2.5-inch cased SSD

H = Western Digital
B = Ultrastar for Boot and Edge Applications
S = Standard
3A = 3D NAND (TLC)
19 = Max capacity in series (1.92TB)
96 = Capacity of this model (19=1.92TB, 96=960GB) (48=480GB, 24=240GB, 12=120GB)

A = Generation code
7 = z-height (7=7mm, 4=<4mm)
E6 = Interface/Form Factor (E6=SATA 6Gb/s 2.5-inch, M4=SATA 6Gb/s M.2 2280)
B = Boot/Edge Use
1 = Encryption capable, TCG Opal 2.01

Western Digital®