15.36TB – 400GB | 3D TLC
2.5-inch SFF | SAS 12Gb/s

Highlights

- 2nd generation 3D TLC NAND flash for ultra-high performance and endurance
- 12Gb/s SAS interface for maximum throughput
- Advanced power-loss and data-management technology
- Self-encrypting models conform to TCG's Enterprise specification

Applications

- Ultra-high performance tier-0 enterprise storage
- Enterprise-class servers and high performance computing (HPC)
- Software-defined storage (SDS)
- Online transaction processing (OLTP)
- Finance and e-commerce
- Database analytics

Maximize Storage and Server Scalability with SAS SSDs

Data is transforming the world and growing at an exponential pace. The SAS interface continues its dominance in traditional enterprise storage arrays, making the ever-increasing volume of data rapidly and reliably available. Storage solutions depend on SAS's protection features, such as dual-port failover for redundancy, and SAS's high reliability to power mission-critical applications such as ERP, OLTP, OLAP, and more.

Designed with a dual-port 12Gb/s SAS interface for seamless integration into enterprise environments, the Ultrastar® DC SS530 SAS SSD is available in capacities from 400GB to 15.36TB[1], double the capacity of prior generations. Delivering performance up to 440,000 random read and 320,000 random write IOPS—best in class among current 12Gb/s SAS SSDs—the Ultrastar DC SS530 can help to drive faster data analytics, drive higher productivity, and power business decision-making.

Proven Architecture with Industry-Leading Quality and Reliability

Ultrastar DC SS530 leverages the proven architecture of the prior generation Ultrastar SS300 with second generation 3D TLC NAND flash memory. The Ultrastar DC SS530 achieves an extraordinary 0.35% annual failure rate (AFR) or 2.5 million hours mean-time-between-failure (MTBF). DC SS530 offers three endurance options of 1, 3 and 10 drive writes per day (DW/D) to meet the most stringent data center requirements.

Help keep confidential data secure by deploying self-encrypting drive technology that supports Trusted Computing Group (TCG) Enterprise standards for security services and FIPS 140–2 validation for cryptographic-enabled drives that are required for certain government applications. The Ultrastar DC SS530 is backed by a five-year limited warranty or the maximum petabytes (PB) written (based on capacity), whichever comes first.

Trust Your Storage Systems with SSD Products Developed by Experts in Enterprise Storage

Ultrastar SAS SSDs leverage decades of proven enterprise storage expertise in Serial Attached SCSI (SAS) design, reliability, firmware, customer qualification, and system integration. The synergistic relationship between the new throughput-enhancing SSDs and traditional HDDs provides cost-effective, end-to-end enterprise-class storage options that deliver reliability, compatibility, capacity, cost savings, and system performance. This combination makes Ultrastar storage drives an ideal choice to help meet escalating reliability, endurance, and performance requirements in the most demanding data center environments.

Features & Benefits

	Feature / Function	Benefits
Performance	• SAS 12Gb/s interface • 3D TLC NAND flash memory • Up to 2150 / 2120 MiB/s sequential R/W • Up to 440K / 320K IOPS random R/W	• 12G Active-Active Dual port & 12G single/dual port for enhanced reliability • Highest read/write performance among dual-port 12Gb/s SAS SSDs at 14W operating power • Maximum throughput and IOPS for ultra-fast access to data
Power	• 9, 11 & 14 Watt options	• Higher IOPS performance with higher power options
Capacity	• 400GB to 15.36TB	• More capacity in standard form factor with lower Watts/TB
Reliability	• 0.35% AFR (2.5M hours MTBF) • 1E-17 bit error rate • Power loss data management • Unlimited reads, up to 59PB writes • T10 end-to-end data protection	• Reduced field replacement effort • Enhanced error detection and correction for optimal data integrity • Assures data integrity during power failure • Support for extreme write-intensive applications • Protection against flash die failures
Security Features	• Instant Secure Erase models (Crypto Sanitize) • TCG + FIPS encryption models	• Enables swift drive redeployment and retirement • Hardware-based encryption helps protect data from unauthorized use

Ultrastar® **DC SS530**

Specifications

	10DW/D	3DW/D	1DW/D
Model Number x in Model Number denotes Encryption level: 0 = Instant Secure Erase 1 = TCG Encryption 4 = No Encryption, Secure Erase 5 = TCG + FIPS	WUSTM3232ASS20x WUSTM3216ASS20x WUSTM3280ASS20x WUSTM3240ASS20x	WUSTR6464ASS20x WUSTR6432ASS20x WUSTR6416ASS20x WUSTR6480ASS20x WUSTR6440ASS20x	WUSTR1515ASS20x WUSTR1576ASS20x WUSTR1538ASS20x WUSTR1519ASS20x WUSTR1596ASS20x WUSTR1548ASS20x

Configuration

	10DW/D	3DW/D	1DW/D
Interface	SAS 6/12Gb/s supports wide port @ 12Gb/s		
Capacity[1]	3.2TB / 1.6TB / 800GB / 400GB	6.4TB / 3.2TB / 1.6TB / 800GB / 400GB	15.36TB / 7.68TB / 3.84TB / 1.92TB / 960GB / 480GB
Endurance (Drive Writes per Day – DW/D)[2]	10	3	1
Maximum Terabytes Written (TBW)[2]	59,690 / 29,410 / 15,220 / 7,630	36,170 / 17,520 / 9,410 / 4,700 / 2,350	30,110 / 15,050 / 6,790 / 3,760 / 1,880 / 940
Form Factor	2.5-inch 15mm SFF		
Flash Memory Technology	3D TLC NAND		

Performance[3]

	10DW/D	3DW/D	1DW/D
Read Throughput (max MiB/s, Seq 128KiB)	2,150	2,150	2,150
Write Throughput (max MiB/s, Seq 128KiB)	2,120	2,120	2,120
Read IOPS (max, Rnd 4KiB)	440,000	440,000	440,000
Write IOPS (max, Rnd 4KiB)	320,000	240,000	100,000
Mixed IOPS (70/30 R/W, max, 4KiB)	430,000	330,000	190,000
Read/Write Latency[4] (µs, avg)	92 / 26	92 / 27	92 / 36

Reliability

Unrecoverable Bit Error Rate (UBER)	1 in 10^{17}
MTBF[5] (M hours)	2.5
Annualized Failure Rate[5] (AFR)	0.35%
Availability (hrs/day x days/wk)	24×7
Limited Warranty[6]	5 years

Power

Requirement (+/- 5%)	+5 VDC, +12VDC
Operating (W, typical)	9, 11, 14
Idle (W, average)	3.2

Physical Size

z-height (mm)	15
Dimensions (width x depth, mm)	70.1 × 100.45
Weight (g, max)	175

Environmental

Operating Temperature[7]	0° to 75°C
Non-operating Temperature	-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. Subject to change. 1MiB=1,048,576 bytes or 2^{20}, 1KiB= 1,024 bytes or 2^{10}.

[4] Average R/W latency at 4KiB QD=1
[5] MTBF and AFR specifications are based on a sample population and are estimated by statistical measurements and acceleration algorithms under typical operating conditions for this drive model. MTBF and AFR ratings 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.
[7] Internal drive temperature as measured via the drive's temperature sensor.

How to Read the Ultrastar Model Number

Example: WUSTR6464ASS201=6.4TB, SAS 12Gb/s, TCG

W = Western Digital
U = Ultrastar
S = Standard
TR = NAND type/endurance (TM=TLC/mainstream endurance, TR= TLC/read-intensive)
64 = Full capacity (6.4TB)
64 = Capacity of this model (15=15.2TB, 76=7.6TB, 38=3.84TB 32=3.2TB, 19=1.92TB, 16=1.6TB, 96=960GB, 80=800GB, 48=480GB, 40=400GB)

A = Generation code
S = Small form factor (2.5" SFF)
S2 = Interface, SAS 12Gb/s
1 = Encryption setting (0=Instant Secure Erase, 1=TCG Enterprise encryption, 4=No encryption/Secure Erase, 5 = TCG+FIPS)

Western Digital.