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| 2.5-inch U.3, 15mm, NVMe SSD  3.84TB, 7.68TB, 15.36TB1  **Features**  • Western Digital NVMe 1.4 Compliant Controller; PCle® 4.0  • Western Digital BiCS5 3D TLC NAND  • U.3 interface (U.2 Backplane Compatible)  • 1.0 DW/D  • Enterprise features including:  - Power Loss Protection  - End-to-End data Path Protection  - Variable Sector Sizes  - NVMe-MI™ 1.1b  **Applications/ Environments**  • Cloud datacenters  • Scale-out or Software Defined Solutions  • Big Data  • NoSQL or Distributed databases  • AI/ML Deep Learning  • Data Archiving | **Unlocking the Full Potential of Enterprise SSDs**  Western Digital NVMe™ solid state drives provide the trusted performance reliability, and security demanded by enterprise environments. The Ultrastar DC SN655 NVMe SSD expands the Ultrastar SN65x family with a dual-port drive, expanded encryption capabilities, and added performance. Ultrastar NVMe SSDs continue to be the ideal solution for cloud and server providers who need performant, high-capacity, cost-optimized, read-intensive performance for their data-intensive applications.  With dual-port redundancy and failover capability, end-to-end data protection and additional enterprise features, the SN655 helps ensure your data is secure and available when needed. With high-capacity, low-latency performance reaching up to 1.1M IOPs, storage providers are efficiently able to increase capacity for modern applications processing large unstructured datasets for analytics, artificial intelligence, or machine learning. With these workloads growing to gigabytes and even petabytes, storage-optimized Ultrastar NVMe SSDS are reducing time-to-insights of big data and enabling efficient machine learning.  **Features**  The new Ultrastar DC SN655 NVMe SSDs includes the next generation Western Digital NVMe 1.4b controller with PCIe Generation 4.0 interface and Western Digital BiCS5 TLC 3D NAND. NVMe provides hosts low-latency access to direct attached NVMe SSDs or to NVMe-oF™ storage arrays. BiCS5 TLC 3D NAND is the next generation of 3D NAND driving higher bit densities per mm2 for higher capacities than prior generations, up to 15.36TB. Equipped with the latest PCIe Generation 4.0, the SN655 enables performance at scale for increasingly larger application workloads. Designed and built for the standard 2.5” SSD storage infrastructure, the SN655 includes support for U.2 and U.3 backplanes. And with enterprise grade power loss protection, 2.5M MTBF (projected) and 1.0 DW/D with a 5 year limited warranty, cloud and IT managers can deploy and scale their datacenters confidently.  **Emerging Workloads**  Ultrastar DC SN650 and SN655 NVMe SSDs are optimized for cloud and scale- out workloads, providing high capacities, higher QoS consistency, and better utilization for cloud as-a-service offerings, virtualization, and object or file storage. Emerging workloads for big data, artificial intelligence, and machine learning are increasing in size and complexity and are typically stored across distributed, tiered, or disaggregated architectures. The SN65x NVMe SSDs are optimized for moving these large data sets fast and servicing multiple hosts with performance consistency making them the ideal solution for scaling capacity and maximizing GB/watt. |

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| **Product Information** |  |  | |  |
| Capacity1 | 3.84TB | 7.68TB | | 15.38TB |
| Endurance2 |  | 1 DW/D | |  |
| Maximum Petabytes Written | 5.5 | 11 | | 22 |
| Security |  | SE, ISE, TCG | |  |
| Form Factor |  | U.3 15mm | |  |
| Interface |  | PCIe Gen4, NVMe 1.4 | |  |
| **Performance3** |  |  |  | |
| Read Throughput (max GB/s, Seq 128KiB) | 6.8GB/s | 6.8GB/s | 6.8GB/s | |
| Write Throughput (max GB/s, Seq 256KiB) | 2.6GB/s | 2GB/s | 3.7GB/s | |
| Read IOPS (max, Rnd 4KiB) | 1000K | 980K | 1100K | |
| Write IOPS (max, Rnd 4KiB) | 112K | 78K | 125K | |
| Read Latency (μS)4 | 80 | 100 | 100 | |
| Write Latency (μS)4 | 10 | 15 | 10 | |
| **Reliability** |  |  |  | |
| MTBF5 (hours, projected) |  | 2.5M |  | |
| Uncorrectable Bit Error Rate (UBER) |  | 1 in 1017 |  | |
| Annualized Failure Rate5 (AFR, projected) |  | 0.35% |  | |
| Limited Warranty6 (years) |  | 5 |  | |
| **Power** |  |  |  | |
| Requirement (DC, +/- 10%) |  | +12v |  | |
| Operating Modes (typical) |  | 16W, 20W |  | |
| Idle (Average) |  | <8W |  | |
| **Physical Size** |  |  |  | |
| z-height (mm) |  | 15mm |  | |
| Dimensions (width x length, mm) |  | 69.85 x 100.45 |  | |
| **Environmental** |  |  |  | |
| Operating Temperature (Ambient)7 |  | 0°C to 70°C |  | |
| Non-Operating Temperature8 |  | -40°C to 85°C |  | |

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| **Part Number**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Feature | Part Number | Model Number | Capacity1 | DW/D | **z = Encryption Setting** | | SE | 0TS2458 | WUS5EA138ESP7E1 | 3.84TB | 1.0 | 1 = Secure Erase | | SE | 0TS2459 | WUS5EA176ESP7E1 | 7.68TB | 1.0 | 3 = Instant secure erase | | SE | 0TS2460 | WUS5EA1A1ESP7E1 | 15.36TB | 1.0 |  | | ISE | 0TS2461 | WUS5EA138ESP7E3 | 3.84TB | 1.0 |  | | ISE | 0TS2462 | WUS5EA176ESP7E3 | 7.68TB | 1.0 |  | | ISE | 0TS2463 | WUS5EA1A1ESP7E3 | 15.36TB | 1.0 |  | | TCG-Ruby | 0TS2467 | WUS5EA138ESP7E4 | 3.84TB | 1.0 |  | | TCG-Ruby | 0TS2468 | WUS5EA176ESP7E4 | 7.68TB | 1.0 |  | | TCG-Ruby | 0TS2469 | WUS5EA1A1ESP7E4 | 15.36TB | 1.0 |  | | 1One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (one billion bytes), one terabyte (TB) is equal to 1,000GB (one trillion bytes), and one petabyte (PB) is equal to 1,000TB. Actual user capacity may be less due to operating environment.  2Endurance rating based on DW/D using 4KiB 100% random write and JESD 219 workloads over 5 years.  3Based on internal testing. 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.  4Average random read latency at 4KiB, QD=1  5MTBF and AFR specifications will be based on a sample population and are estimated by statistical measurementsand 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.  6The 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.  7Composite temperature reading  8Values are based on ambient temperature. Avoid non- operational exposure to temperatures in excess of 40°C for periods exceeding three months. |



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