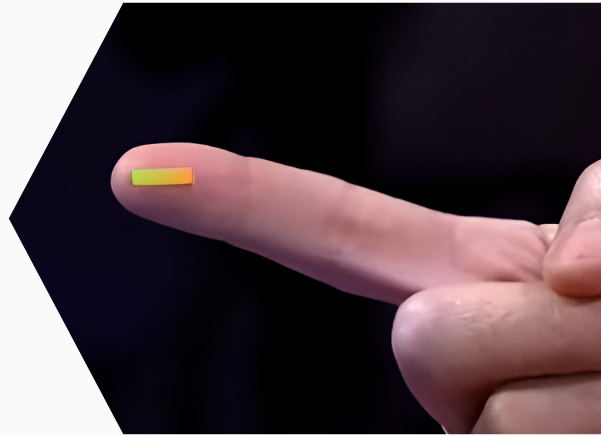




 **Western Digital**

Enterprise SSDs - Empowering AI





BiCS8 NAND flash die

Western Digital innovation

For more than 50 years, Western Digital has empowered large-scale data management. From the first commercial SSD to the latest highest density NAND flash die, we revolutionize how businesses harness their data.

24% ↑

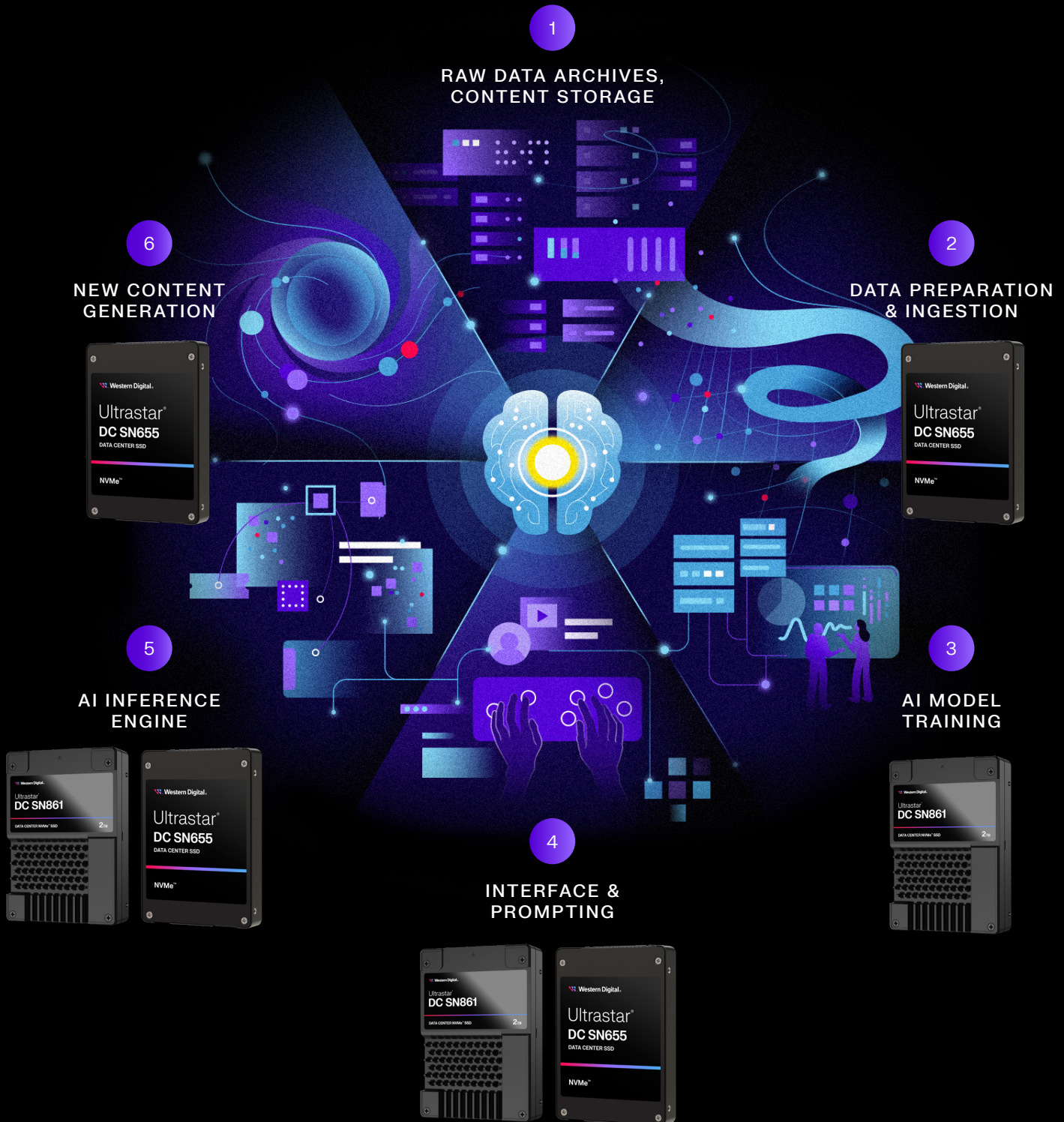
Storage Demands

Technology is evolving and growing more rapidly than ever, so are the demands for storing and accessing all the data that powers it. IDC expects an annual data growth rate of 24% resulting in an incredible 394ZB of data being generated in 2028.*

* SOURCE: IDC GLOBAL DATASPHERE FORECAST, 2024-2028, MAY 2024, US52076424

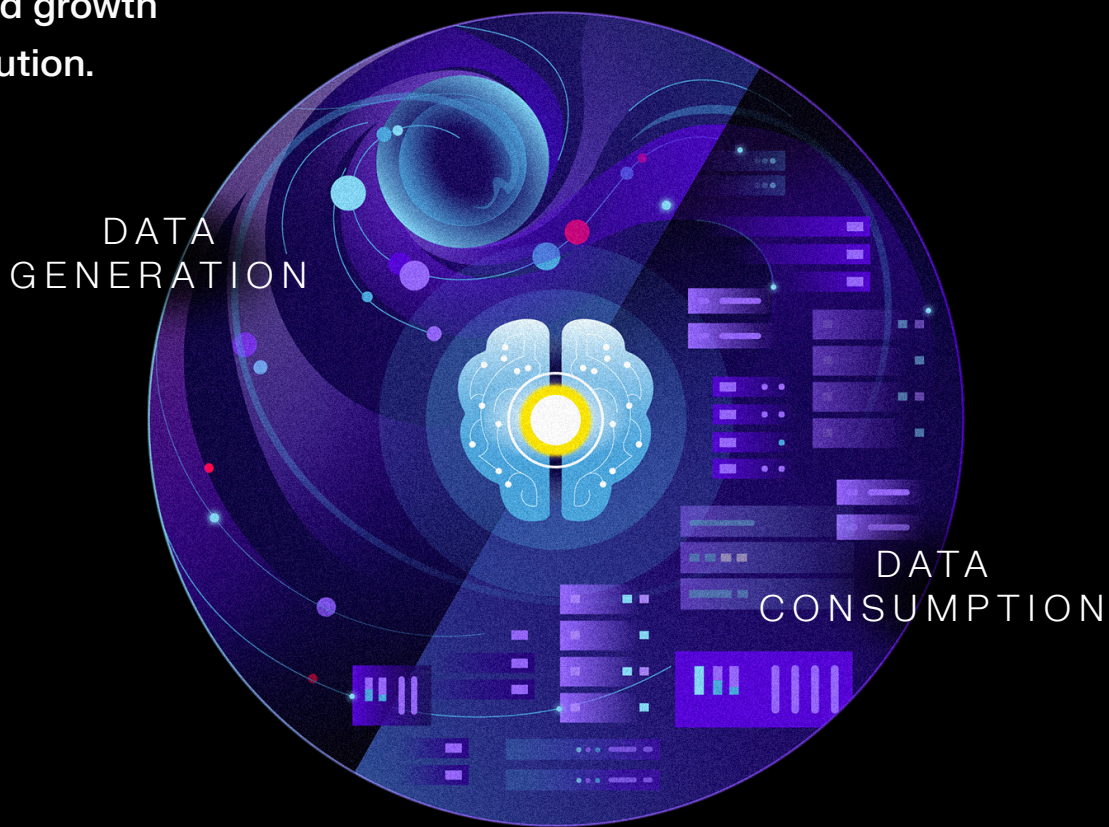
The AI Data Cycle

The AI Data Cycle consists of 6 key stages—Western Digital’s COMPUTE and STORAGE class enterprise SSDs are strategically aligned to support several of these stages.



Empowering AI - Enterprise SSDs

Enterprise SSDs are at the heart of the Data Center, supporting both high-performance, low latency compute and high-capacity storage needs, helping maximize the business value of your data while reducing total cost of ownership. Robust and highly optimized storage solutions are essential for AI's continued growth and evolution.



As AI systems process and analyze existing data, they create a self-perpetuating cycle of increased data generation. This leads to further data analysis, fueling even more data generation. Compute class storage can keep high value AI processors at maximum occupancy, while Storage class SSDs cater to large frequently-accessed data sets.

Compute intensive Enterprise SSDs

Several stages in the AI Data Cycle, including AI model training, require high-performance, low latency Compute Enterprise SSDs to keep pace with the latest AI dedicated GPUs.

The Ultrastar DC SN861 NVMe SSDs is a PCIe® Gen 5.0 solution that delivers an up to 3-times performance increase over our Gen 4 enterprise SSDs.

Ultra-low latency, incredible throughput and excellent power efficiency are critical for large language model training, inferencing, and AI service deployment.



Ultrastar® DC SN861 NVMe™

Applications/Environments

- Hyperscale Cloud and Enterprise Datacenters
- Compute Intensive Applications
- Standard Compute, High CPU, High GPU, HPC Workloads
- Big Data, Data Analytics, Data Modeling, Predictive Analysis
- AI/ML, Deep Learning

Features



PCIe Gen 5.0 x 4 (Single Port)



Power Loss Protection, End-to-End Data Path Protection, and TCG security and encryption, FDP (Flexible Data Placement - E1.S only)



U.2: 1.92TB, 3.84TB, 7.68TB (1 DWPD)²
1.60TB, 3.20TB, 6.40TB (3 DWPD)
E1.S: 1.92TB, 3.84TB, 7.68TB (1 DWPD)



Engineered for minimal power consumption, optimizing efficiency and reducing operational costs without compromising performance



Random Read/Write: Up to 3,300 KIOPS³
Random Mixed Read: Up to 1,700 KIOPS
Sequential Write: Up to 7,500 MB/s

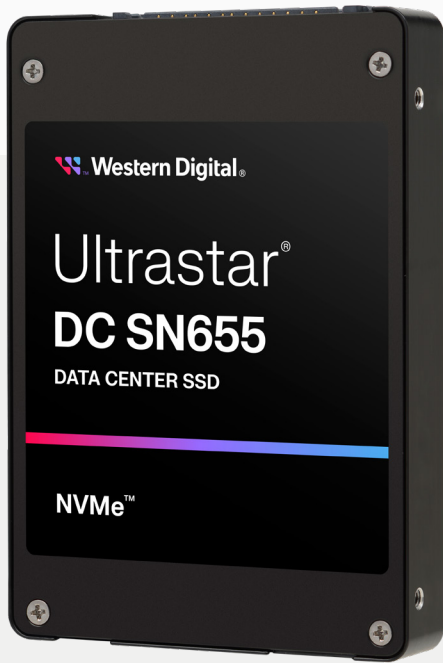


SE/ISE/TCG OPAL

Storage focused Enterprise SSDs

Large AI dataset preparation relies on Storage Class enterprise SSDs to deliver the ideal balance of capacity and performance – expediting data preparation times and enhancing the scalability of AI training.

The Ultrastar DC SN655 features high capacity and balanced performance to address the demands of constantly growing datasets, with optimized total cost of ownership, and a robust architecture that ensures effortless scalability.



Ultrastar DC SN655 Data Center SSD

Applications/Environments

- Cloud datacenters
- Scale-out or Software Defined Solutions
- Big Data
- NoSQL or Distributed databases
- AI/ML Deep Learning
- Data Archiving

Features



PCIe Gen 4.0 x 4 (Dual Port)



U.3: 3.84, 7.68, 15.36, 30.72, 61.44TB (1 DWPD)²



Random Read/Write: Up to 1,100 KIOPS³
Random Mixed Read: Up to 312 KIOPS
Sequential Write: Up to 3,700 MB/s



Power Loss Protection, End-to-End data Path Protection, Variable Sector Sizes, NVMe-MITM 1.1b






The ideal solution for scaling capacity and maximizing GB/watt



SE/ISE/TCG OPAL

Western Digital's technology roadmap is strategically aligned to ensure customers have the most advanced, reliable solutions to stay ahead in the rapidly changing AI landscape.

These new additions to our industry-leading suite of storage products are engineered to power AI now and into the future.

eSSD Comparison Chart				
	 DC SN861	 DC SN861	 DC SN861	 DC SN655
Product Specification				
Application	Compute Intensive: AI/ML, HPC	Compute Intensive: AI/ML, HPC	Compute Intensive: AI/ML, HPC	Storage Focused: AI Big Data Preparation, Standard Compute
Form Factor ¹	E3.S*	U.2 15mm Single Port	E1.S 25mm	U.3 15mm Dual Port
Interface	PCIe Gen 5.0x4 (NVMe 2.0)	PCIe Gen 5.0x4 (NVMe 2.0)	PCIe Gen 5.0x4 (NVMe 1.4b)	PCIe Gen 4.0x4
Capacities ²	1.92TB, 3.84TB, 7.68TB (1 DWPD) 1.60TB, 3.20TB, 6.40TB (3 DWPD)	1.92TB, 3.84TB, 7.68TB (1 DWPD) 1.60TB, 3.20TB, 6.40TB (3 DWPD)	1.92TB, 3.84TB, 7.68TB	3.84, 7.68, 15.36, 30.72, 61.44TB.
Random Read/Write ³ (up to)	3,300 KIOPS*	3,300 KIOPS	2,850K IOPS	1,100K IOPS
Random Mixed Read ³ (up to)	1,700 KIOPS*	1,700 KIOPS	1,300 KIOPS	312 KIOPS
Sequential Write ³ (up to)	7,500 MB/s*	7,500 MB/s	7,000 MB/s	3,700 MB/s
Power Consumption (Avg/Idle)	20W/<5W*	20W/<5W	12W/<5W	16W, 20W/<8W
Drive Writes per Day ⁴	1 DWPD, 3 DWPD	1 DWPD, 3 DWPD	1 DWPD	1 DWPD
Reliability (Projected) (MTBF/UBER/AFR)	2.5M Hours/1 in 10 ¹⁷ /0.35%*	2.5M Hours/1 in 10 ¹⁷ /0.35%	2.5M Hours/1 in 10 ¹⁷ /0.35%	2.5M Hours/1 in 10 ¹⁷ /0.35%
Encryption Options	SE/ISE/TCG OPAL 2.01	SE/ISE/TCG OPAL 2.01	ISE/TCG OPAL 2.01	SE/ISE/TCG Ruby
Features	Power Loss Protection, End- to-End Data Path Protection, and TCG security and encryption	Power Loss Protection, End- to-End Data Path Protection, and TCG security and encryption	Power Loss Protection, FDP (Flexible Data Placement), End- to-End Data Path Protection, and TCG security and encryption	Power Loss Protection, End-to-End data Path Protection, Variable Sector Sizes, NVMe-MITM 1.1b
Limited Warranty ⁵	5 Years	5 Years	5 Years	5 Years

*Final specifications may vary, see datasheet published at launch.

- The U.3 form factor is backward compatible with U.2 backplanes. U.2 is not forward compatible with U.3 backplanes.
- One 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.
- Based 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. IOPS = input/output operations per second. Subject to change.
- Endurance rating based on DW/D using 4KiB 100% random write and JESD 219 workloads over 5 years.
- 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.



Contact Information

For more details and in-depth datasheets,
please contact your local sales manager or
visit [westerndigital.com/ai](https://www.westerndigital.com/ai)

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August 2024

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