



Dell Lightning File System

The Dell Lightning File System (Lightning FS) is a software-defined, parallel file system engineered to power the next era of AI.

Unmatched Performance and Efficiency

Lightning FS delivers record-breaking throughput and performance density, ensuring your most demanding AI workloads don't get held back by data bottlenecks. Its innovative design provides direct data access to NVMe devices, bypassing traditional CPU-bound designs and write caches that choke performance. This results in near line-speed efficiency for both sequential and random reads, accelerating AI training and inference. By keeping GPUs fully utilized across mixed I/O profiles, you can achieve faster model training and more responsive AI pipelines.

Scalability and Predictability

As your AI ambitions grow, your infrastructure should grow with you. Lightning FS provides predictable, near-linear scalability, allowing you to expand seamlessly as you add nodes. This consistency means you can confidently plan for future bandwidth and GPU feeding rates without re-architecting your data layer. This system is built to scale to environments with tens of thousands of GPUs and aggregate throughput needs greater than four TB/s.

Innovative Architecture

Lightning FS is built on a modern, fabric-bound architecture that avoids the bottlenecks common in legacy designs. This hardware-agnostic approach allows the system to seamlessly integrate with advancements in underlying servers and fabrics, unlocking enhanced performance and efficiency from day one. Its forward-thinking design, featuring redirect-on-write semantics and native indexing, ensures your investment gains value over time.

Cost and Energy Efficiency

Lightning FS helps you do more with less. By achieving target throughput with fewer nodes, it helps reduce hardware sprawl, data center space, and cooling requirements. This streamlined footprint improves energy efficiency and lowers the total cost of ownership (TCO). For extreme-scale environments where efficiency is critical, Lightning FS offers a smarter path to achieving your performance goals.

Part of the Dell Portfolio

Lightning FS complements PowerScale and ObjectScale as an ultra-fast storage solution for the most extreme workloads. It is an integral component of a comprehensive AI storage portfolio that optimizes cost, performance, and manageability across all your AI initiatives. With end-to-end services spanning design, deployment, and ongoing support, Dell Technologies ensures you achieve rapid time to value and sustained success.

	PowerEdge R660	PowerEdge R6715
Chassis	1U rack server	
CPU	Intel Xeon Platinum 8452Y 2G, 36C/72T	AMD EPYC 9845 2.10GHz, 160C/320T
CPU Sockets	2 sockets	1 socket
Memory Capacity	1024GB DDR5 5600MT/s	1152GB DDR5 6400MT/s
Maximum Storage Capacity (raw TB)	240TB NVMe	
Drive Bays	16 x E3.S	
Boot Options	BOSS-N1 controller card + with 2 M.2 960GB (RAID 1)	
Networking	2x Nvidia ConnectX-7 Single Port 400GbE	3x Nvidia ConnectX-7 Single Port 400GbE
Management	iDRAC9, OpenManage portfolio	iDRAC10, OpenManage portfolio



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