



## Micron Delivers High-Performance Data Center SSD to Power the Most Demanding Workloads

January 9, 2023

### New Micron 9400 SSD delivers best-in-class performance and capacity

BOISE, Idaho, Jan. 09, 2023 (GLOBE NEWSWIRE) -- Micron Technology, Inc., (Nasdaq: MU), today announced the Micron 9400 NVMe™ SSD is in volume production and immediately available from channel partners and to global OEM customers for use in servers requiring the highest levels of storage performance. The Micron 9400 is designed to manage the most demanding data center workloads, particularly in artificial intelligence (AI) training, machine learning (ML) and high-performance computing (HPC) applications. The drive delivers an industry-leading 30.72 terabytes (TB) of storage capacity, superior workload performance versus the competition, and 77% improved input/output operations per second (IOPS).<sup>1</sup> The Micron 9400 is the world's fastest PCIe Gen4 data center U.3 drive shipping <sup>2</sup> and delivers consistently low latency at all capacity points.<sup>3</sup>

"High performance, capacity and low latency are critical features for enterprises seeking to maximize their investments in AI/ML and supercomputing systems," said Alvaro Toledo, vice president and general manager of data center storage at Micron. "Thanks to its industry-leading 30TB capacity and stunning performance with over 1 million IOPS in mixed workloads, the Micron 9400 SSD packs larger datasets into each server and accelerates machine learning training, which equips users to squeeze more out of their GPUs."

### Industry-leading 30TB capacity maximizes storage density

The Micron 9400 SSD's industry-leading capacity of 30TB doubles the maximum capacity of Micron's prior-generation NVMe SSDs. A standard two-rack-unit 24-drive server loaded with 30.72TB Micron 9400 SSDs provides total storage of 737TB per server. By doubling capacity per SSD, Micron is enabling enterprises to store the same amount of data in half as many servers.

This maximizes IT resources and budgets by reclaiming valuable rack space and reducing maintenance costs and time required to manage hardware — freeing up IT teams to innovate. The extreme capacity is designed to handle modern, data-intensive workloads while providing the room to scale as needed.

### Leading storage performance excels in a range of environments from AI to cloud

The Micron 9400 SSD sets a new performance standard for PCIe Gen4 storage by delivering 1.6M IOPS for 100% 4K random reads.

The Micron 9400's capacity and performance enable larger datasets and accelerate epoch time, the total number of iterations of data in one cycle for training machine learning models — leading to more efficient utilization of graphics processing units (GPUs).

While many SSDs are designed for pure read or write use cases, the Micron 9400 was designed with real-world applications in mind. Mixed workloads are prevalent in many data center applications, including caching, online transaction processing, high-frequency trading, AI, and performance-focused databases requiring extreme performance.

For mixed read and write workloads, the Micron 9400 also outperforms the competition, providing:

- 71% higher IOPS for 90% read and 10% write workloads, surpassing 1 million IOPS<sup>4</sup>
- 69% higher IOPS for 70% read and 30% write workloads, surpassing 940,000 IOPS<sup>4</sup>

In testing scenarios, the Micron 9400 SSD excelled in mixed workload performance compared against competitors' high-performance NVMe SSDs. The results show:

- **For RocksDB**, a storage database renowned for its high performance and used for latency-sensitive, user-sensitive applications like spam detection or storing viewer history, the 9400 delivered up to 23% higher performance and up to 34% higher workload responsiveness<sup>5</sup>
- **For Aerospike Database**, an open-source NoSQL database optimized for flash storage, the Micron 9400 demonstrated up to 2.1 times higher peak performance and superior responsiveness. Aerospike Database underpins time-critical web applications like fraud detection, recommendation engines, real-time payment processing and stock trading — meaning the 9400 can deliver faster results for these time-sensitive use cases<sup>5</sup>
- **For NVIDIA Magnum IO GPUDirect Storage** which enables a direct memory access data transfer path between GPU memory and storage, the Micron 9400 beat the competition by delivering 25% better performance in a busy system with compute-bound tasks — a critical improvement for AI environments<sup>6</sup>
- **For multi-tenant cloud architectures**, the Micron 9400 delivers more than double the overall performance of a competitor's performance-focused SSD and up to 62% better response time <sup>6</sup>

“As the world’s most innovative organizations continue to adopt cloud and digital-first strategies, WEKA and our partners are focused on removing obstacles to data-driven innovation,” said Liran Zvibel, co-founder and chief executive officer of WEKA. “High-performance, high-capacity storage like the Micron 9400 SSD provides the critical underlying technology to accelerate access to data and time to insights that drive tremendous business value.”

#### **Improved energy efficiency reduces environmental impact**

A major consideration for data center operators is the combination of workload performance and the amount of energy consumed. Higher energy efficiency means there is more throughput for the energy consumed to complete the work. The Micron 9400’s 77% better IOPS per watt reduces power consumption and therefore operational expenses, carbon footprint and environmental impact.

“Supermicro designs innovative servers that provide maximum performance, configurability, and power savings to tackle the growing customer demand for increased capacity and efficiency,” said Wally Liaw, co-founder and senior vice president of business development at Supermicro. “The Micron 9400 SSD delivers an immense storage volume of over 30TB into every drive while simultaneously supporting optimized workloads and faster system throughput for advanced applications.”

#### **Various capacities offer enterprises flexible deployment**

The Micron 9400 SSD is available in a U.3 form factor that is backwards-compatible with U.2 sockets and comes in capacities ranging from 6.4TB to 30.72TB. These options provide data center operators the flexibility to deploy the most energy efficient storage while matching their workloads with the right blend of performance, capacity and endurance.<sup>7</sup> This versatile SSD is built to manage critical workloads whether in on-premises server farms or in a multi-tenant shared cloud infrastructure, and can be flexibly deployed in hyperscale, cloud, data center, OEM and system integrator designs.

Visit [micron.com/9400](https://micron.com/9400) for more information.

#### **Resources**

- **Product page:** [Micron 9400 NVMe SSD](#)
  - [Technical resources](#)
- **Blog:** [Micron 9400 NVMe SSD: The New Leader for Data Center Workloads](#)
- **Product brief:** [Best-in-Class Capacity and Performance: The Micron 9400 NVMe SSDs Tame the Most Demanding Data Center Workloads](#)

#### **About Micron Technology, Inc.**

We are an industry leader in innovative memory and storage solutions transforming how the world uses information to enrich life *for all*. With a relentless focus on our customers, technology leadership, and manufacturing and operational excellence, Micron delivers a rich portfolio of high-performance DRAM, NAND and NOR memory and storage products through our Micron® and Crucial® brands. Every day, the innovations that our people create fuel the data economy, enabling advances in artificial intelligence and 5G applications that unleash opportunities — from the data center to the intelligent edge and across the client and mobile user experience. To learn more about Micron Technology, Inc. (Nasdaq: MU), visit [micron.com](https://micron.com).

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<sup>1</sup> Measured in IOPS/watt and compared against Micron’s previous generation SSD, the 9300 NVMe SSD. The Micron 9300 SSD delivered 0.85M IOPS per 16 watts (0.0941 IOPS/watt) as compared against 1.6M IOPS per 17 watts (0.0531 IOPS/watt), which equals a 77% improvement.

<sup>2</sup> The Micron 9400 NVMe SSD leads in at least three out of four corners in four-corners performance testing (namely random read, random write, sequential read, sequential write) against competitive U.2/U.3 SSDs from major suppliers having over 10% market share as per Forward Insights’ SSD Insights Q4/22 report.

<sup>3</sup> The Micron 9400 SSD has 5x9s latencies that are less than 420 µs for 4k random reads. These 4k random reads are greater than 1.2M IOPs at a queue depth of 128.

<sup>4</sup> Comparison against the data center NVMe SSD from the next leading competitor, based on data center market share data as noted in [Forward Insights’ SSD Supplier Status Q2/22](#) report. Performance measured using 7.68TB SSDs at a queue depth of 256 with FIO (additional details on FIO are available here: <https://fio.readthedocs.io/en/latest/>)

<sup>5</sup> Compared against three performance-focused NVMe SSDs from competitors