



## Best-in-Class Capacity and Performance: The Micron 9400 NVMe SSDs Tame the Most Demanding Data Center Workloads.<sup>1</sup>

The Micron 9400 SSD sets a new performance benchmark for PCIe® Gen4 storage. Decades of experience have led to an SSD that packs in over 30TB of usable capacity, outperforms competitors up to 2.3 times in mixed workloads and improves power efficiency up to 77%.<sup>2</sup>

Take advantage of an SSD designed for high capacity, leading performance and power efficiency. Manage critical workloads like caching, database acceleration, online transaction processing (OLTP), high-frequency trading (HFT), and artificial intelligence (AI) training.

The Micron 9400 SSD enables these workloads and more for flexible deployment in hyperscale, cloud, data center, OEM and system integrator designs.



U.2/U.3: 15mm

## MICRON 9400 SSD: KEY BENEFITS

### Leading capacity requires fewer servers to capitalize on immense data

The Micron 9400 SSD has industry-leading capacity of 30TB, doubling the maximum capacity of Micron's prior-generation performance NVMe SSD.<sup>3</sup>

Increased capacity per SSD means that the same amount of data can be stored in half as many servers. That means half as many servers to procure and half as many servers to manage. Free IT resources to innovate — not manage hardware.

### Leading storage performance that impacts real-world applications

The Micron 9400 SSD enables up to 2.3X higher mixed workload IOPS than the other leading competitor.<sup>4</sup> Micron's mixed, random performance frees workloads to power through demand spikes in content delivery networks (caching), AI training and performance-focused databases.

### Higher power efficiency that reduces total cost of ownership (TCO)<sup>4</sup> compared to prior SSD generation

A major component of the total cost of ownership is a combination of workload results (IOPS) and the amount of power consumed (in watts).<sup>5</sup> Higher power efficiency means you get more throughput (higher IOPS) for the energy consumed (watts) to do that work.

The Micron 9400 has up to 77% better power efficiency<sup>6</sup> than our prior-generation SSD. The 9400 SSD improves power efficiency and helps you save money while reducing your environmental impact.

[micron.com/9400](https://micron.com/9400)

1. Among Data Center U.2/U.3 SSDs with PCIe Gen4. Performance is defined as throughput (GB/s) or input/output operations per second (IOPS). 30TB capacity is the highest U.2/U.3, SSD capacity available on the open market at the time of this document's initial publication. Unformatted capacity. 1GB = 1 billion bytes, formatted capacity is less. Efficiency is defined as performance per watt. 77% efficiency improvement is vs. the Micron 9300 SSD.
2. Other leading data center NVMe SSD is based on data center market share as noted in Forward Insights SSD Supplier Status Q4/22 report. Performance measured using 7.68TB SSDs at queue depth (QD) = 256 with FIO (additional details on FIO are available here: <https://fio.readthedocs.io/en/latest/>). 77% refers to Micron's prior generation NVMe SSD.
3. References to Micron's prior generation SSD are to the Micron 9300 NVMe SSD.
4. Performance measured using 7.68TB SSDs at queue depth (QD) = 256 with FIO (additional details on FIO are available here: <https://fio.readthedocs.io/en/latest/>).
5. Additional information about TCO can be found here: <https://www.gartner.com/en/documents/3847267>
6. 7.68TB SSDs: Micron 9400 SSD: 94,100 4K random read IOPS/watt vs 53,100 IOPS/watt for prior generation Micron 9300 NVMe SSD.

## Industry-leading 30TB capacity maximizes storage density

The Micron 9400 SSD brings the storage density modern workloads and data centers demand. It offers up to 30TB, twice the maximum capacity of our prior-generation SSD. Increased capacity per SSD simplifies data management by using half as many servers to help reclaim valuable rack space (and reduce maintenance costs).

A standard 2U 24-drive server with 24x 30.72TB Micron 9400 SSDs provides a storage density of 368TB per rack unit (U).<sup>7</sup> Extending this extreme capacity across the data center enables additional room to make growth easier to manage.

## Storage performance that impacts real-world applications

The Micron 9400 SSD is optimized for high-performance workloads that require strong mixed performance and massive capacity. These workloads cover a large range of core data center needs: caching, database acceleration, online transaction processing, high-frequency trading, artificial intelligence training, content delivery (caching), and performance-focused databases that thrive on extreme performance.

The Micron 9400 SSD produces mixed workload performance that is up to 2.3X greater than the leading competitor.

- 90% read, 10% write: 1.7X higher IOPS
- 80% read, 20% write: 2.0X higher IOPS
- 70% read, 30% write: 2.3X higher IOPS

## Higher power efficiency helps reduce the total cost of ownership (TCO)

Higher power efficiency means getting more performance for the energy consumed. This is a major contributor to reducing TCO.<sup>7</sup> The Micron 9400 SSD has up to 77% better power efficiency than our prior-generation SSD. Increasing power efficiency can lower your carbon footprint and reduce environmental impact.

## Micron 9400 SSD Key Specifications

U.2/U.3		Micron 9400 PRO Read-Intensive, 1 Drive Write per Day			Micron 9400 MAX Mixed-Use, 3 Drive Writes per Day		
Capacity		7.68TB	15.36TB	30.72TB	6.40TB	12.80TB	25.60TB
Performance <sup>7</sup> (4K random 128Ksequential)	Seq. Read (MB/s)	7,000	7,000	7,000	7,000	7,000	7,000
	Seq. Write (MB/s)	7,000	7,000	7,000	7,000	7,000	7,000
	Rand. Read (IOPS)	1,600,000	1,600,000	1,500,000	1,600,000	1,600,000	1,500,000
	Rand. Write (IOPS)	300,000	300,000	300,000	600,000	600,000	550,000
	70/30 Rand. Read/Write (IOPS)	770,000	780,000	770,000	930,000	940,000	900,000
	Latency (typical, µs) <sup>8</sup>	69 (read) 10 (write)	69 (read) 10 (write)	69 (read) 10 (write)	69 (read) 10 (write)	69 (read) 10 (write)	69 (read) 10 (write)
Endurance (total bytes written in TB)	4K Rand.	14,016	28,032	56,064	35,040	70,080	140,160
	128K Seq.	58,300	104,500	201,200	74,200	143,100	282,600
Basic Attributes	Interface	PCIe Gen4 1x4 NVMe (v1.4)					
	NAND	Micron 176-layer 3D TLC NAND					
Reliability	MTTF	2 million device hours					
	UBER	<1 sector per 10 <sup>17</sup> bits read					
	Warranty	5 years					
Environmental Characteristics	Power Consumption (average, watts, RMS) <sup>9</sup>	128K Seq. Read 14 128K Seq. Write 19 4K Rand. Read 17 4K Rand. Write 21 4K Rand. 70/30 Read/Write 21	128K Seq. Read 16 128K Seq. Write 21 4K Rand. Read 19 4K Rand. Write 25 4K Rand. 70/30 Read/Write 23	128K Seq. Read 17 12K8 Seq. Write 23 4K Rand. Read 21 4K Rand. Write 25 4K Rand. 70/30 Read/Write 24	128K Seq. Read 14 128K Seq. Write 19 4K Rand. Read 17 4K Rand. Write 21 4K Rand. 70/30 Read/Write 18	128K Seq. Read 16 128K Seq. Write 21 4K Rand. Read 19 4K Rand. Write 24 4K Rand. 70/30 Read/Write 20	128K Seq. Read 17 128K Seq. Write 23 4K Rand. Read 21 4K Rand. Write 25 4K Rand. 70/30 Read/Write 21
	Operating Temp.	0-70°C					

Note: All values provided are for reference only and are not warranted values. For warranty information, visit <https://www.micron.com/support/sales-support/returns-and-warranties/enterprise-ssd-warranty> or contact your Micron sales representative. Values represent the theoretical maximum endurance for the given transfer size and type. The endurance will vary by workload. Performance values measured at 25 watts.

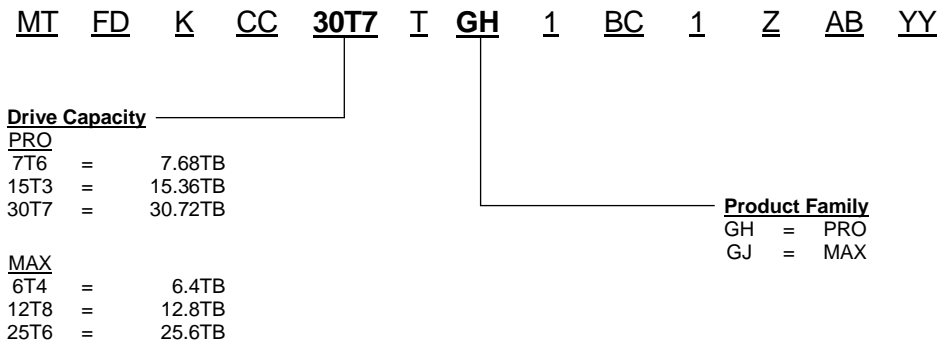
7. Performance measured under the following conditions: Steady-state as defined by SNIA Solid State Storage Performance Test Specification Enterprise v1.1; Drive write cache enabled; NVMe power state 0; Sequential workloads measured using FIO with a 128K IO size and a queue depth of 32; Random read workloads measured using FIO with a 4K IO size and queue depth of 256; Random write workloads measured using FIO with a 4K IO size and a queue depth of 128.

8. Latency values measured with random workloads using FIO, 4KB transfers, queue depth = 1; Typical latency = median, 50th percentile.

9. RMS = Root Mean Square.

Micron 9400 SSD Part Numbers

Micron 9400 SSD part number information is provided below for configuration-dependent values (shown in **bold**). Other part number values in the example part number are fixed. Visit [micron.com/9400](https://micron.com/9400) for a list of valid part numbers.



[micron.com/9400](https://micron.com/9400)

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