The world's most advanced mainstream PCIe Gen4® data center SSD[1]

The Micron 7500 SSD is the world's most advanced mainstream PCIe Gen4 data center SSD and the first with 200+ layer NAND.

It is built with leading-edge technology to deliver low and consistent QoS latency, superior performance across a wide range of workloads, and offers broad support for Open Compute Project (OCP) features in standard firmware.

Improve storage performance with leading NAND[2] and enable openness with standard OCP features

Micron 232-layer NAND provides increased workload performance and power efficiency through a low-voltage NAND interface and 6-plane architecture with independent wordline read (iWL). A broad range of Open Compute Project (OCP) features are standard.

Micron creates a new class of sub-1ms 6x9 latency drives[3]

Low, consistent latency helps improve performance in multi-tenant, cloud workloads and in latency-sensitive database workloads like online transaction processing, recommendation engines, real-time analytics, content distribution and financial trading.

Accelerate your workloads with class-leading Gen4 speed

The 7500 SSD is a versatile solution that delivers the performance required by complex and critical business workloads.

Micron 7500 SSD Key Benefits

Leading edge Micron technology and NAND with broad OCP support[4] brings efficiency, security[5], and openness

The Micron 7500 SSD is the world's first mainstream, data center SSD to ship with 200+ layer NAND, which delivers increased performance and improved power efficiency.

This SSD embraces security and openness, by offering FIPS 140-3 Level 2 and TAA-compliant options, Micron's Secure Execution Environment[6] (SEE) and broad OCP 2.0 features support on standard firmware.

Low and consistent latency enables rapid, reliable responsiveness for demanding data center workloads

The Micron 7500 SSD is a new class of mainstream, data center SSD.

It delivers consistently low, sub-1ms 6x9 QoS read latency to enable fast, reliable responsiveness that demanding workloads can count on.

In addition, it excels with mixed workloads, demonstrating up to 82% better performance in a 70/30 read/write mix than its competition.

Superior performance for demanding workloads

The Micron 7500 brings class-leading performance in random mixed and sequential workloads.

Micron 7500 NVMe SSD (U.3/U.2), 15mm

A NEW CLASS OF SUB-1ms DATA CENTER SSDs

The Micron 7500 creates a new class of low and consistent QoS latency in mainstream SSDs.

This new, sub-1ms latency threshold helps bring better service levels and improve results to a broad range of data center workloads.

1. Statement refers to the combination of NAND layer count, QoS 6x9 latency, performance, Open Compute Standard (OCP) 2.0 support, and security. Competitive comparisons for Gen 4 U.2/U.3 mainstream competitive SSD suppliers with at least 10% data center SSD market share as of August '23 as noted in Forward Insights analyst report SSD Supplier Status_Q2/Q3.
2. Only Micron 232-layer NAND enables NV-LPDDR4, an advanced, low-voltage interface that delivers per bit power savings of more than 30% compared to legacy interfaces.
3. Micron testing shows that the Micron 7500 SSD offers sub-1ms latency in 6x9s QoS with 4K 100% random read up to and including QD128.
4. The Micron 7500 SSD complies with most, but not all, requirements of the Open Compute Project Datacenter NVMe SSD Specification 2.0r21.
5. No hardware, software or system can provide absolute security under all conditions. Micron assumes no liability for lost, stolen or corrupted data arising from the use of any Micron products, including those products that incorporate any of the mentioned security features.
6. An isolated security processor within the SSD controller.

The Micron 7500 SSD is the world's most advanced mainstream, data center SSD

The world's first mainstream SSD to use 200+ layer NAND, this leading NAND enables increased performance and power efficiency, including a low-voltage interface that delivers 30% per-bit transfer savings and a 6-plane architecture with independent wordline read (iWL) for up to 50% faster random read results.[7,8]

The Micron 7500 SSD is a secure drive for an open world. It provides broad OCP 2.0 support in standard Micron 7500 SSD firmware as well as compelling security features including:

Micron 7500 SSD Feature	Benefit
Micron's Secure Encrypted Environment (SEE)	A dedicated, isolated security processing hardware with physical isolation for security-related functions. Physical isolation helps protect against attacks.
Government-focused Security Options	FIPS 140-3, Level 2 and TAA compliant options for federal government procurement requirements.[9]
Security Flexibility	Self-Encrypting Drive (SED) TCG Opal 2.01 with AES-256 hardware-based data encryption and non-SED options available to help meet varied security deployment needs. Secure boot features helps ensure firmware integrity on a running platform and defends against malware. Key-based firmware update validates firmware using public key-based authentication prior to firmware update (malware protection. Strong asymmetric key support using standard, National Institute of Standards and technology (NIST)-approved algorithms with 208-bit/3072-bit RSA keys for standardized, strong key support.
Key-Based Firmware Update	Validates firmware using public key-based authentication prior to firmware update (malware protection).

A new class of sub-1ms 6x9 latency SSDs has been created[10]

With this class-leading, sub-1ms 6x9 latency, the Micron 7500 SSD is a perfect match for workloads that benefit from low, consistent latency.

Workload	Micron 7500 advantage	Workload	Micron 7500 advantage
100% read	Up to 83% better	RocksDB 4KB random read	Up to 54% better
90% read, 10% write	Up to 75% better		
80% read, 20% write	Up to 80% better	RocksDB 4KB random read while writing	Up to 49% better
70% read, 30% writ	Up to 82% better		

Micron 7500 SSD latency advantages

Accelerate your workloads with class-leading, PCIe Gen4 speed[11]

Whether you are designing and building systems for AI, databases, content delivery / streaming delivery, real-time analytics, social media applications, cloud computing, virtualization, and more – the Micron 7500 SSD delivers superior performance.

Workload	Micron 7500 advantage	Workload	Micron 7500 advantage
100% random read	Up to 15% higher	RocksDB 4KB random read	Up to 59% higher
100% random write	Up to 71% higher		
100% sequential read	Up to 8% higher	RocksDB 4KB random read while writing	Up to 2.1x higher
100% sequential write	Up to 49% higher		

Micron 7500 SSD performance advantages

7. See https://investors.micron.com/news-releases/news-release-details/micron-ships-worlds-first-232-layer-nand-extends-technology for additional information.
8. As of the time of this document's publication, only Micron 232-layer NAND enables NV-LPDDR4, an advanced, low-voltage interface that delivers per bit power savings of more than 30% compared to legacy interfaces.
9. All features not available on all models. Contact your Micron sales representative for more information.
10. Based on Micron internal testing using Flexible IO Tester (FIO) using a 4KB IO size and QD=128, see https://fio.readthedocs.io/en/latest/fio_doc.html for additional information on FIO. RocksDB statements based on Micron internal testing using RocksDB version 8.1.1 comparing 4KB random read and 4KB random read while writing workloads. See https://fio.readthedocs.io/en/latest/fio_doc.html for additional information on RocksDB.
11. Based on public information available at the time of this document's publication. RocksDB statements based on Micron internal testing using RocksDB version 8.1.1 comparing 4KB random read and 4KB random read while writing workloads. See https://fio.readthedocs.io/en/latest/fio_doc.html for additional information on RocksDB.
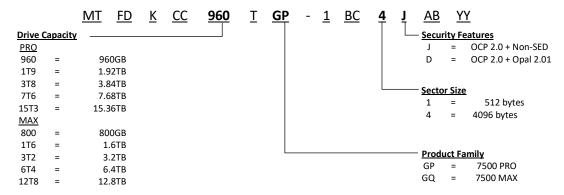
Micron 7500 SSD Key Specifications

U.3		7500 PRO: U.3/U.2 Read-Intensive, 1 Drive Write per Day					7500 MAX: U.3/U.2 Mixed-Use, 3 Drive Writes per Day				
Capacity[12]		960GB	1.92TB	3.84TB	7.68TB	15.36TB	800GB	1.6TB	3.2TB	6.4TB	12.8TB
Performance[13]	Seq. Read (MB/s)	6,800	6,800	6,800	7,000	7,000	6,800	6,800	6,800	7,000	7,000
	Seq. Write (MB/s)	1,400	2,700	5,300	5,900	5,900	1,400	2,700	5,300	5,900	5,900
	Rand. Read (K IOPS)	800	1,000	1,100	1,100	1,100	800	1,000	1,100	1,100	1,100
	Rand. Write (K IOPS)	85	145	180	215	250	145	270	390	400	410
	70/30 Rand. Read/Write (K IOPS)	130	260	350	450	530	200	370	510	650	700
	Latency (TYP, μs)[14]	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)	70 (read) 15 (write)
Endurance (total bytes written in TB)[15]		1,752	3,504	7,008	14,016	28,032	4,380	8,760	17,520	35,040	70,080

Micron 7500 SSD: Common Features		
Basic Attributes	Interface	PCIe Gen4 1x4, NVMe v2.4b
	NAND	Micron 200+ layer 3D TLC NAND
Reliability	MTTF[16]	MTTF: 2.0M hours @ 0–55°C and 2.5M hours @ 0–50°C
	UBER	<1 sector per 10^{18} bits read
	Warranty	5 years
Environmental Characteristics	Power	Sequential read (average RMS value): 15.5W (PRO and MAX) Sequential write (average RMS value): 18.3W (PRO and MAX)
	Operating Temp.	0-70°C (FOOTNOTE: If SMART temperature exceeds 77°C, performance will be throttled)

Notes: All values provided are for reference only and are not warrantied 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. Actual lifetime will vary by workload.

Micron 7500 SSD Part Numbers

Micron 7500 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. See the parts catalog at micron.com/7500 for more information.

MT FD K CC **960** T **GP** - 1 BC **4** J AB YY

Drive Capacity

PRO
960 = 960GB
1T9 = 1.92TB
3T8 = 3.84TB
7T6 = 7.68TB
15T3 = 15.36TB

MAX
800 = 800GB
1T6 = 1.6TB
3T2 = 3.2TB
6T4 = 6.4TB
12T8 = 12.8TB

Security Features
J = OCP 2.0 + Non-SED
D = OCP 2.0 + Opal 2.01

Sector Size
1 = 512 bytes
4 = 4096 bytes

Product Family
GP = 7500 PRO
GQ = 7500 MAX

12. Unformatted. 1GB = 1 billion bytes. Formatted capacity is less.
13. 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 queue depth of 32; Random READ workloads measured using FIO with a queue depth of 256 (1,100,000 IOPS statement based on 4K sector size; Random WRITE workloads measured using FIO with a queue depth of 128.
14. Latency values measured with random workloads using FIO, 4KB transfers, queue depth = 1; TYP = median, 50th percentile.
15. Actual lifetime will vary by workload. Total bytes written calculated assuming drive is 100% full (user capacity) with workload of 100% random aligned 4KB. Refer to percentage used in the SMART/Health information (Log Identifier 02h) to check the device life used.
16. Product achieves MTTF based on population statistics not relevant to individual units.