



## EXTENSIVE FORM FACTORS, PCIe GEN4 PERFORMANCE,<sup>1</sup> AND LEADING-EDGE SECURITY

Servers are rapidly migrating from legacy data center technologies to NVMe and flash-optimized form factors to maximize performance, reduce costs and provide a secure platform for virtualization, containers, cloud, software-defined storage and more.

Throughout these changes, one thing has remained constant — storage demands continue to increase radically. And those demands aren't letting up. Meeting the challenge requires forward-thinking storage — storage that easily fits into different platforms, storage performance tuned for your workloads and storage that is highly secure. Storage like the Micron 7400 SSD.

### Solid-State Storage Optimized for Growing, Evolving Infrastructure

Driven by hardware-level security, the Micron 7400 SSD with NVMe delivers PCIe Gen4 performance and the world's broadest PCIe Gen4 NVMe SSD portfolio for data center infrastructure innovation,

It is a flexible line of data center SSDs supporting standard server storage (U.3), cloud and 1U platforms (performance and density focused), and system boot (M.2).



U.3: 7mm and 15mm



E1.S: 5.9mm, 15mm and 25mm



M.2: 22 x 80mm and 22 x 110mm

## Micron 7400 SSD KEY BENEFITS

### World's Broadest SSD Portfolio for Data Center Infrastructure Innovation

The Micron 7400 is available in the industry's broadest variety of form factors<sup>2</sup>, including U.3, M.2, and E1.S — all designed to help you balance the evolving capacity, power and thermal needs for your data center.<sup>3</sup>

With a wide capacity<sup>4</sup> range from 400GB to 7.68TB, the Micron 7400 SSD supports applications from boot to high-capacity storage and is the only PCIe Gen4 U.3 form factor in both 7mm and 15mm. It is also the only PCIe Gen4 M.2 22 x 80mm with power loss protection — specifically designed for server boot use.

### PCIe Gen4 Performance That Scales

The Micron 7400 delivers two times the throughput of our last-generation mainstream SSD<sup>5</sup> with NVMe, along with 128 namespaces to maximize scalability in virtual environments. It is fully backwards compatible with PCIe Gen3 systems for more flexibility.

### At the Leading Edge of Security<sup>6</sup> With Hardware-Driven Performance

The Micron 7400 supports trusted industry standards to enable integration with your encryption key management solution to provide seamless authentication and management of Self-Encrypting Drive (SED) assets.

### Micron and the Open Compute Project (OCP)

OCP enables innovation while applying the benefits of open source and open collaboration to hardware. Micron has supported industry standards for decades, and the 7400 is our first OCP-capable, EDSFF SSD.

1. In this document, we use the terms performance, IOPS and MB/s interchangeably.  
 2. Based on commonly available, similar use SSDs with NVMe as of the date of this document's publication.  
 3. Refers to the combination of capacities, endurance classes and form factors.  
 4. Unformatted. 1GB = 1 billion bytes. Formatted capacity is less.  
 5. Comparison based on 7.68TB 7300 PRO U.2 and 7.68TB 7400 PRO U.3. Other form factors and capacities may show different results.  
 6. 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.

## Evolving Threats Managed With State-of-the-Art Security Features

The Micron 7400 SSD offers a robust complement of proven security features built over generations of Micron data center SSDs. In addition, it offers seven new security features that help address emerging concerns as data and data-driven applications are virtualized, moved to the cloud or containerized.

7400 SSD Feature	Benefit
<b>Secure Execution Environment</b>	Includes dedicated security processing hardware with physical isolation for security-related function isolation
<b>Asymmetric Roots of Trust</b>	Enables authenticated revocation of root keys (in immutable ROM)
<b>Strong Asymmetric Key Support</b>	Uses standard, National Institute of Standards and technology (NIST)-approved algorithms with 208-bit/3072-bit RSA keys
<b>RSA Delegation Key Support</b>	Enables customers to maintain ownership of RSA keys
<b>Secure Boot</b>	Helps ensure firmware integrity on running platform
<b>Key-Based Firmware Update</b>	Validates firmware using public key-based authentication prior to firmware update
<b>Key-Based Privileged Access</b>	Protects against unauthorized privileged SSD function execution with public key-based authorization

## Built From the Ground Up for Mainstream Workloads

The Micron 7400 is optimized for mainstream NVMe SSD workloads, including SQL and NoSQL databases, block and object stores, VDI and server virtualization, and cloud storage. With its PCIe Gen4 NVMe interface and vertically integrated architecture, the Micron 7400 SSD brings powerful performance to seven physical form factors with end-to-end validation.

It also offers a high degree of configurability with up to 128 namespaces, multiple-sector-size support and standards-based management with low power and reduced total cost of ownership.

7400 SSD Feature	Benefit
<b>U.3 (7mm or 15mm)</b>	7mm or 15mm enclosures to optimize space (7mm) or thermals (15mm), both of which are U.2 compatible
<b>M.2 (22 x 80mm, 22 x 110mm)</b>	Ultracompact M.2 form factors that are well-suited for boot devices
<b>E1.S (5.9mm, 15mm or 25mm)</b>	New EDSFF specification optimized for 1U platforms
<b>Up to 128 Namespaces</b>	Isolated logical blocks of NAND that are separately accessible for noninterfering I/O and multitenancy
<b>Standards-Based Management</b>	In-band and out-of-band (NVMe-MI) management for easy drive health availability
<b>Multiple-Sector-Size Support</b>	Support for 512- and 4096-byte sectors so the Micron 7400 can satisfy multiple platforms
<b>Vertical Integration</b>	Micron-tested 1200 MT/s 3D TLC NAND, NVMe 1.4 4-core CPU controller, firmware and validation for seamless operation
<b>Flex Capacity™ Feature</b>	Easy adjustments to SSD capacity to match different applications and workloads
<b>Power Loss Protection</b>	SSD power holdup mechanism that helps ensure data in flight is properly written when SSD power is lost
<b>Data Path Protection</b>	Helps protect against bit errors as data travels from the PHY to the NAND and back
<b>Adaptive Thermal Monitoring</b>	SSD internal temperature monitoring and power adjustment to ensure operation within thermal limits
<b>Storage Executive Support</b>	Micron-developed SSD management software for easy SSD health monitoring, firmware updates and more
<b>RAIN</b>	Internal SSD NAND redundancy management mechanism that helps protect data against media failure
<b>NVMe-MI over SMBus</b>	Device management that runs before platform software loads
<b>Firmware Activation w/o Reset</b>	Firmware updates without resetting the NVMe subsystem for near-continuous operation
<b>TAA Compliance</b>	Compliance with the Trade Agreements Act (19 U.S.C. & 2501-2581)

## Micron's First SSD With OCP Support

The Open Compute Project (OCP) developed and published specifications that have built a thriving, standardized ecosystem. These specifications help reduce deployment complexity and accelerate innovation by providing common building blocks for cloud and distributed edge architectures. For decades, Micron has supported industry standards, and the Micron 7400 is our first OCP-capable SSD. With both EDSFF form factors and OCP firmware, Micron is driving industry standards that are the foundation for rapid innovation around the globe.

## Micron 7400 SSD Key Specifications

U.3		7400 PRO: U.3 Read-Intensive, 1 Drive Write per Day				7400 MAX: U.3 Mixed-Use, 3 Drive Writes per Day			
<b>Capacity</b>		<b>960GB</b>	<b>1.92TB</b>	<b>3.84TB</b>	<b>7.68TB</b>	<b>800GB</b>	<b>1.6TB</b>	<b>3.2TB</b>	<b>6.4TB</b>
<b>Performance<sup>7,8</sup></b>	<b>Seq. Read (MB/s)</b>	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600
	<b>Seq. Write (MB/s)</b>	1,000	2,200	3,500	5,400 <sup>9</sup>	1,000	2,200	3,500	5,400 <sup>9</sup>
	<b>Rand. Read (IOPS)</b>	240,000	430,000	800,000	917,000	240,000	430,000	800,000	917,000
	<b>Rand. Write (IOPS)</b>	60,000	81,000	125,000	128,000	122,000	224,000	348,000	363,000
	<b>70/30 Rand. Read/Write (IOPS)</b>	105,000	174,000	275,000	300,000	159,000	276,000	455,000	610,000
	<b>Latency (TYP, µs)</b>	75 (read) 25 (write)	75 (read) 15 (write)	75 (read) 15 (write)	75 (read) 15 (write)	75 (read) 25 (write)	75 (read) 15 (write)	75 (read) 15 (write)	75 (read) 15 (write)
<b>Endurance (Total bytes written in PB)<sup>10</sup></b>		1,700 6,700	3,500 14,400	7,000 25,700	14,000 48,900	4,300 8,000	8,700 16,400	17,500 31,800	35,000 62,800
E1.S <sup>10</sup>		7400 PRO: E1.S Read-Intensive, 1 Drive Write per Day				7400 MAX: E1.S Mixed-Use, 3 Drive Writes per Day			
<b>Capacity</b>		<b>960GB</b>	<b>1.92TB</b>	<b>3.84TB</b>		<b>800GB</b>	<b>1.6TB</b>	<b>3.2TB</b>	
<b>Performance</b>	<b>Seq. Read (MB/s)</b>	6,600	6,600	6,600		6,600	6,600	6,600	
	<b>Seq. Write (MB/s)</b>	1,000	2,200	3,500		1,000	2,200	3,500	
	<b>Rand. Read (IOPS)</b>	240,000	430,000	800,000		240,000	430,000	800,000	
	<b>Rand. Write (IOPS)</b>	60,000	81,000	125,000		122,000	224,000	347,000	
	<b>70/30 Rand. Read/Write (IOPS)</b>	105,000	174,000	275,000		159,000	276,000	455,000	
	<b>Latency (TYP, µs)</b>	75 (read) 25 (write)	75 (read) 15 (write)	75 (read) 15 (write)		75 (read) 25 (write)	75 (read) 15 (write)	75 (read) 15 (write)	
<b>Endurance (Total bytes written in PB)<sup>10</sup></b>		1,700 6,700	3,500 14,400	7,000 25,700		4,300 8,000	8,700 16,400	17,500 31,800	
M.2		7400 PRO: M.2 Read-Intensive, 1 Drive Write per Day				7400 MAX: M.2 Mixed-Use, 3 Drive Writes per Day			
<b>Capacity</b>		<b>480GB<sup>11</sup></b>	<b>960GB<sup>11</sup></b>	<b>1.92TB</b>	<b>3.84TB</b>	<b>400GB<sup>11</sup></b>	<b>800GB<sup>11</sup></b>	<b>1.6TB</b>	<b>3.2TB</b>
<b>Performance</b>	<b>Seq. Read (MB/s)</b>	4,400	4,400	4,400	4,400	4,400	4,400	4,400	4,400
	<b>Seq. Write (MB/s)</b>	530	1,000	2,000	2,200	530	1,000	2,000	2,200
	<b>Rand. Read (IOPS)</b>	120,000	230,000	420,000	650,000	120,000	230,000	420,000	650,000
	<b>Rand. Write (IOPS)</b>	21,000	43,000	81,000	100,000	55,000	118,000	172,000	206,000
	<b>70/30 Rand. Read/Write (IOPS)</b>	45,000	105,000	160,000	200,000	75,000	153,000	261,000	360,000
	<b>Latency (TYP, µs)</b>	85 (read) 45 (write)	85 (read) 25 (write)	85 (read) 15 (write)	85 (read) 15 (write)	85 (read) 45 (write)	85 (read) 25 (write)	85 (read) 15 (write)	85 (read) 15 (write)
<b>Endurance (Total bytes written in PB)<sup>10</sup></b>		800 3,800	1,700 6,700	3,500 14,400	7,000 25,700	2,100 4,100	4,300 8,000	8,700 16,400	17,500 31,800

### Micron 7400 SSD: Common Features

<b>Basic Attributes</b>	<b>Interface</b>	PCIe Gen4 1x4 NVMe (v1.4)
	<b>Form Factors</b>	U.3 (7mm, 15mm), E1.S (5.9mm, 15mm, 25mm), M.2 (22 x 80mm, 22 x 110mm)
	<b>NAND</b>	Micron 96-layer 3D TLC NAND
	<b>Typ. Latency</b>	Read: M.2: 85µs, U.3, E1.S: 75µs; Write: 25µs
<b>Reliability</b>	<b>MTTF</b>	2 million device hours
	<b>UBER</b>	<1 sector per 10 <sup>17</sup> bits read
	<b>Warranty</b>	5 years
<b>Environmental Characteristics</b>	<b>Power</b>	Sequential read (maximum of all capacities by form factor): U.3: 13.6W / E1.S: 11.5W / M.2: 8.25W Sequential write (maximum of all capacities by form factor): U.3: 22W / E1.S: 12W / M.2: 8.25W
	<b>Operating Temp.</b>	0-70°C

7. Sequential I/O: 128KB transfer size, QD = 128, steady state.

8. Random I/O: 4KB transfer size, QD = 128, steady state.

9. This value for the 7mm version is 4,100.

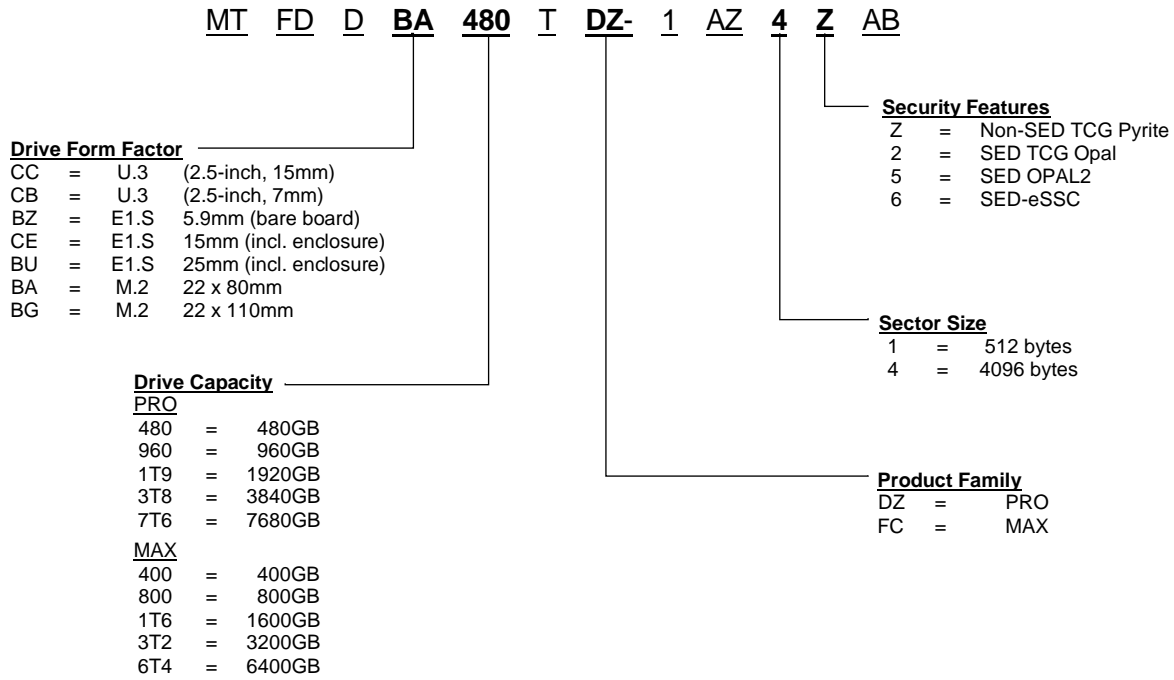
10. First value shown is for 4K random TBW, second value shown is for 128K sequential TBW.

11. M.2 22 x 80mm available in 400GB, 480GB, 800GB and 960GB; M.2 22 x 110mm available in all listed M.2 capacities.

Notes: 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. Actual lifetime will vary by workload. Refer to percentage used in the SMART/Health information (Log Identifier 02h) to check the device life used.

## Part Numbers

The Micron 7400 SSD part numbers are illustrated below. Configuration-dependent sections are shown in **bold** along with their available options. (Other values are fixed.)



[micron.com/7400](https://micron.com/7400)

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