

# Finding NVMe SSDs That Fit



Whether your applications spawn hundreds of data pulls from disparate databases or your infrastructure is built to accommodate immense scale, Micron NVM Express™ (NVMe™) SSDs can satisfy the most demanding environments.

This guide explores some of the key differences between our 7300 and 9300 NVMe SSDs so you can choose the right one for your needs.

## Features to Focus On

NVMe SSDs are predominately used for the highest performance, most demanding applications and workloads in the data center. Their historically high cost and high performance have limited mainstream adoption.

Micron's NVMe SSD portfolio broadens NVMe SSD adoption through a wide range of configuration options, form factors, capacities and capabilities.

When deciding which Micron NVMe SSD is best for your environment, focus on three key areas:

- **Features** such as single or dual ports, namespaces or ground-up design to support system boot or high performance.
- **Physical characteristics** like form factor, height and power draw.
- **Capabilities** including endurance, capacity, performance (IOPS and GB/s) and relative cost.

## Micron's NVMe SSDs

Micron's broad NVMe SSD portfolio helps enable more applications and workloads to take advantage of the benefits of NVMe flash storage, accelerating the data center and the cloud.

### 7300 Family

The Micron 7300 family of mainstream NVMe SSDs substantially broadens our NVMe SSD portfolio. The 7300 family includes additional form factors, ports, capacities, and prices that enable volume deployment.

### 9300 Family

The Micron 9300 family of NVMe SSDs is designed from the ground up for extreme performance (IOPS and GB/s) and capacity. Targeted squarely at the most demanding workloads, the 9300 family delivers when microseconds matter.

# How to Choose the Right NVMe SSD for Your Data Center

## Features to Compare

Basic design elements — number of ports, dedicated boot form factor, number of supported NVMe namespaces — can all play a role in deciding which NVMe SSD is right for your environment. The importance of specific features depends on your current infrastructure and your future plans (expansion, compaction, growth, retirement, what remains local and what migrates to the cloud).

### Micron 7300

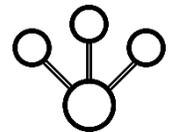
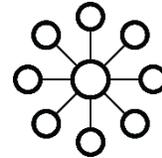


### Micron 9300



**Design:** Micron 7300 SSDs are designed for mainstream, business-critical workloads that demand affordable results. Our 9300 series excels with the most demanding tasks where performance is paramount.

**Implementation:** Performance king? Choose the 9300. Balancing performance and budget? The 7300 may be the best fit.



**Ports:** The number of data paths from the host to the SSD.

**Implementation:** Single port: In-server storage, distributed applications. Dual port: Path redundant, external controller storage.

1 or 2

1



**Namespaces:** Multiple namespaces enable hardware-level, drive segmentation.

**Implementation:** Useful when sharing NVMe SSDs (less workload interaction, reduces 'noisy neighbors').

1

Up to 32



**Dedicated Boot:** 7300 is available in an M.2 form factor. Both the 7300 and 9300 are bootable, providing data center features for platform startup.

**Implementation:** 7300 M.2 lets you save a main storage slot in your platform. It requires an M.2 socket.

Yes  
(M.2)

No  
(U.2)

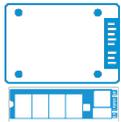
## Physical Characteristics

The physical characteristics of an NVMe SSD are also important, such as form factor (U.2 hot swap, dedicated boot), height, power draw and endurance.

### Micron 7300

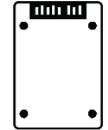
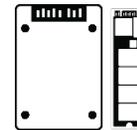


### Micron 9300



**Form Factor:** U.2 is standard for hot-pluggable, hot-swappable storage. M.2 is typical for boot devices.

**Implementation:** Using an all-NVMe platform (boot, data, cache) can help unify storage.



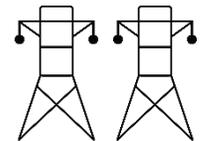
**Height:** U.2 form factor enables either 7mm or 15mm height.

**Implementation:** 7mm height means more SSDs fit into the same rack width chassis; 15mm height enables greater power and heat dissipation with increased capacity.



**Power:** Mainstream NVMe SSDs draw less power than high-performance NVMe SSDs.

**Implementation:** Limited power available? The 7300 draws less. Power less of a concern? Look to other factors.



**Endurance:** SSD endurance is rated in drive fills per day (DFPD).

**Implementation:** The 7300 and 9300 families both support two endurance classes: 3 DFPD (7300 MAX, 9300 MAX) and 1 DFPD (7300 PRO, 9300 PRO).

1 or 3

1 or 3

## Workloads Affect Capabilities

NVMe SSD capabilities can have a direct influence on workload and application use and results. Workloads that write a substantial amount of data may need more endurance, while mixed I/O may need less. Boot drives may need less capacity, while data storage and acceleration SSDs may need more. Performance (random IOPS and sequential MB/s) can vary as can initial purchase cost.

### Micron 7300

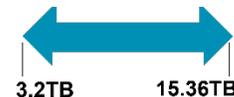


### Micron 9300



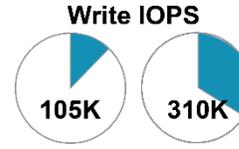
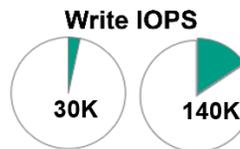
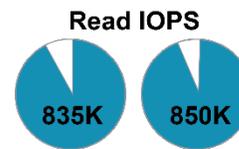
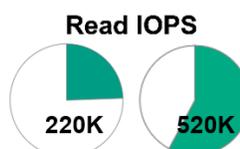
**Capacity:** The 7300 and 9300 are available in a wide range of capacities.

**Implementation:** 7300 capacity ranges from 400GB in the M.2 (boot up) form factor to 7.68TB in the U.2 form factor. The 9300 ranges from 3.2TB to 15.36TB in the U.2 form factor. Choose the capacity you need to store today's data while looking ahead at your data growth rates.



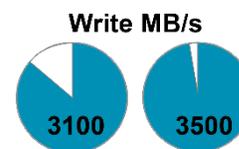
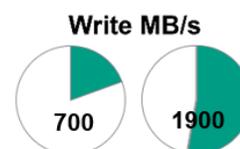
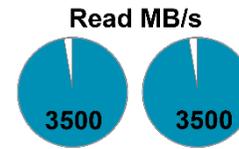
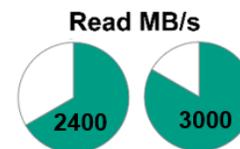
**Random Performance:** Measured in IOPS with a 4K transfer size, random performance can vary with capacity and form factor (U.2 form factors).

**Implementation:** A workload's I/O size, its placement patterns and the results you need are good gauges for read and write IOPS. As with capacity, consider current and future needs.



**Sequential Performance:** Measured in GB/s or MB/s with a 128K transfer size, sequential performance can vary with capacity and form factor (data shown is for U.2 form factor).

**Implementation:** Similar to random performance, placement patterns and needs are good gauges for read and write speed—current and future.



## Selecting the Right Micron NVMe SSD

Multiple factors influence NVMe SSD selection: physical characteristics (form factor, height, power draw), basic capabilities (endurance, capacity, performance), and price. Your specific needs will determine which factors are most important to you. Micron's broad NVMe SSD portfolio helps you take advantage of the benefits of NVMe flash storage by enabling precise application and workload matching — accelerating the data center and the cloud.

Learn more about Micron's complete NVMe SSD lineup at [www.micron.com/nvme](http://www.micron.com/nvme).

©2020 Micron Technology, Inc. All rights reserved. All information herein is provided on an "AS IS" basis without warranties of any kind, including any implied warranties, warranties of merchantability or warranties of fitness for a particular purpose. Micron, the Micron logo, and all other Micron trademarks are the property of Micron Technology, Inc. All other trademarks are the property of their respective owners. Products are warranted only to meet Micron's production data sheet specifications. Products, programs and specifications are subject to change without notice. Rev. B 07/2020 CCM004-676576390-11342