Micron® 2550 NVMe™ SSD

NVMe | PCIe Gen4 | M.2



THE WORLD'S MOST ADVANCED CLIENT SSD WITH 232-LAYER NAND[1]

The Micron® 2550 NVMe™ SSD delivers the latest, most advanced NAND technology with outstanding PCIe® Gen4 performance and a superior user experience.[2]

The 2550 SSD is the world's first client SSD from any NAND OEM to incorporate >200-layer-class NAND. It enables fast, responsive applications and consumes extremely little power — driven by several Micron innovations.

Low power consumption dramatically helps extend compute time. The Micron 2550 SSD is designed to meet the rigorous requirements of both the Intel® Modern Standby Partner Platform Component List and the Open Labs' SSD test requirements of Intel's Project Athena.

It is available in 22x30mm, 22x42mm, and 22x80mm form factors and comes in a variety of capacity options ranging from 256GB to 1TB. These options provide OEM system designers the flexibility to build PCs with the right mix of performance, size, weight, and battery life.

WORLD'S MOST ADVANCED 232-LAYER NAND

The Micron 2550 SSD is built with Micron 232-layer NAND for the power efficiency and storage density needed to drive demanding mobile applications.



Micron 2550 SSD form factors

Micron 2550 SSD KEY BENEFITS

The World's First Client SSD From a NAND OEM With >200-Layer NAND

The Micron 2550 SSD is built with Micron's industry-leading 232-layer NAND, delivering density and power advantages. This leading-technology NAND offers 100% higher write bandwidth and more than 75% higher read bandwidth per die than our prior generation and is the world's first six-plane production TLC.[3]

Gen4 Performance That Surpasses the Competition

The Micron 2550 SSD performance surpasses competitors' in PCMark® 10 benchmark scores.[2] This new Micron SSD firmware is optimized for the needs of client devices with features like:

Predictive Cache Optimization: The Micron 2550 SSD actively manages data writes by putting the busiest, most active data in the fastest part of the SSD, the SLC mode cache.

Modern Standby: This breakthrough technology enables devices to quickly wake up from low-power sleep to active working modes.[4]

Superior User Experience for Your Daily Compute

The right user experience is everything in client computing, and users will enjoy the ultra-responsiveness of the Micron 2550 SSD, day in and day out. The Micron 2550 SSD offers excellent PCMark 10 performance scores and long battery life with host memory buffer (HMB) technology.[5]

1. As of the date of this document's publication.
2. Superior user experience refers to higher PCMark 10 benchmark scores. Additional information on PCMark 10 is available here: https://benchmarks.ul.com/pcmark10. Internal Micron PCMark 10 testing metrics exhibit that the Micron 2550 SSD leads competitors' SSDs. Competitors' SSDs are comparable to the Micron 2550 SSD and come from the top five client SSD revenue market share leaders as noted in Forward Insights SSD Supplier Status Q3/22.
3. Based on Micron's 232-layer NAND announcement; see www.micron.com/232 for details.
4. For additional details on Modern Standby, see https://learn.microsoft.com/en-us/windows-hardware/design/device-experiences/functional-overview-summary.
5. Host memory buffer technology enables the SSD to use system memory for SSD internal operations. See https://www.ni.com/en-us/support/documentation/supplemental/17/host-memory-buffer-overview.html for details.

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Leading-edge NAND technology delivers density, power advantages

Micron's advanced 232-layer NAND features the world's first six-plane production TLC NAND — the most planes per die of any NAND flash available.[6] When combined with an independent wordline on each of these six planes, sequential and random input/output operations are improved compared to previous generations of NAND. Additionally, enhanced read concurrency in the NAND executes multiple, simultaneous data reads to deliver higher performance.

Market-leading performance enables faster, more responsive applications

The Micron 2550 SSD enables faster, more responsive applications in mainstream PC platforms, including gaming, consumer, and business client devices. Micron's innovations, such as predictive cache optimization, improve users' experiences and beat competitors in PCMark 10 benchmarks.

Storage that prolongs battery life

Power savings are provided through Micron's optimization of entry and exit into self-initiated, energy-saving states, use of an advanced process node for the controller, and elimination of DRAM via HMB technology. These innovations collectively deliver battery-sipping sleep power consumption under 2.5 milliwatts, active idle power consumption under 150 milliwatts, and active power consumption below 5.5 watts. These advances enable longer battery life for daily computing needs.

The Micron 2550 SSD is also designed to meet the rigorous power-saving requirements of both the Intel Modern Standby Partner Platform Component List and the Open Labs' SSD test requirements of Intel's Project Athena, both of which adhere to very stringent power-efficiency standards.

Micron® 2550 NVMe SSD			
Category	PCIe Gen4 PCs and Notebooks		
Model	Micron 2550 NVMe SSD		
Form Factor (mm)	M.2 (22x30mm, 22x42mm, 22x80mm)		
Interface	PCIe Gen4, NVMe 1.4		
Capacities[7]	**256GB[8]**	**512GB**	**1TB**
Sequential Read (MB/s)[9]	4,500	5,000	5,000
Sequential Write (MB/s)	2,000	4,000	4,000
Random Read (IOPS)[10]	380K	500K	550K
Random Write (IOPS)	400K	600K	600K
Read Latency (TYP)[11]	50µs	50µs	50µs
Write Latency (TYP)	12µs	12µs	12µs
Endurance (TBW)	150TB	300TB	600TB
MTTF (Million Hours)	2	2	2
Sleep/PS4 Power (mW)	<2.5	<2.5	<2.5
Slumber/PS3 Power (mW)	<30	<30	<30
Active Idle Power (mW)	<150	<150	<150
Active Read Power (mW)[12]	<5,500	<5,500	<5,500
Advanced Features	Hardware-based AES 256-bit encryption[13] Power-loss protection (data at rest) RAIN & S.M.A.R.T. Power-loss signal support TCG Opal 2.01, TCG Pyrite 2.01 Micron Storage Executive management tool		

Micron 2550 SSD Part Numbers

MT FD K **BA** **512** T GE - 1 BK 1 **A** AB

Drive Form Factor
BA = M.2 (22mmx80mm)
CD = M.2 (22mmx42mm)
BK = M.2 (22mmx30mm)

Drive Capacity
256 = 256GB
512 = 512GB
1T0 = 1024GB

Security Features
A = Non-SED[14] TCG Pyrite
5 = SED TCG Opal

6. As of the date of this document's publication. See Micron's 232-layer NAND announcement at www.micron.com/232 for details.
7. Unformatted capacity. 1GB = 1 billion bytes; formatted capacity is less.
8. 256GB version anticipated to be available mid-2023.
9. Sequential workloads measured at the fresh-out-of-box state (FOB, see https://www.snia.org/education/online-dictionary/F for details), SSD unformatted; SSD write cache enabled; NVMe power state 0; measured using FIO with a 128KB transfer size and a queue depth of 32.
10. Random workloads measured at FOB, SSD unformatted; SSD write cache enabled; NVMe power state 0; measured using FIO with a 4KB transfer size and a queue depth of 512.
11. Read/write latency: 4KB transfer size, queue depth 1.
12. Active read power <4,600mW for 22x30mm and 22x42mm form factors.
13. No 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.
14. SED = self-encrypting drive.

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