Micron® 5400 SSD

SATA | M.2 | 2.5-in

Micron Delivers the Industry's Most Advanced Data Center SATA SSD

The Micron 5400 SATA SSD is the world's first 176-layer data center SATA SSD, built on the stable and proven architectural foundation of Micron's SATA experience delivered over 11 generations. It gives customers the best of both worlds — the latest NAND combined with proven capability. Building SATA-based servers with the industry's most advanced data center SATA SSD simplifies the transition to flash-based storage with stability, simplicity and performance.[1]

Because the Micron 5400 SSD offers the industry's broadest portfolio of data center SATA SSDs, it gives you more options so that you can get more out of every SATA socket in your servers.[2] The Micron 5400 offers reliability (MTTF) and endurance ratings that are 50% higher than the other leading data center SATA SSDs — all backed by Micron's standard 5-year data center SSD warranty.[3] The Micron 5400 SSD is available in capacities ranging from 240GB (for robust boot) to 7.68TB data drives.[4]

Additional firmware-based security options like TCG Enterprise and TCG Opal combine with integrated, hardware-based AES 256-bit encryption for full performance plus extra security and peace of mind.[5]

Micron 5400 SSD

MICRON 5400 SSD: KEY BENEFITS

Get more out of SATA in your servers

The Micron 5400 SSD is the world's first 176-layer data center SATA SSD. The 5400 SSD offers the industry's broadest portfolio of data center SATA drives, more than enough performance to saturate typical network bandwidth (≤50 GbE), and best-in-class write performance (sequential and random) among mixed-use data center SATA SSDs.[6]

Easy to qualify

This is Micron's 11th-generation SATA drive, now with 176-layer NAND. It offers a proven and stable architecture trusted for generations by all major server OEMs, and it continues to be used in new server designs.[7]

It enables easy replacement of 10K and 7.2K HDDs with straightforward compatibility.

More usable life and fewer field failures

The Micron 5400 offers reliability (MTTF) and endurance ratings that are 50% higher than the other leading data center SATA SSD — all backed by Micron's standard 5-year data center SSD warranty.[8]

1. Stability and simplicity based on SATA interface compatibility – additional information is available here https://sata-io.org/interoperability-frequently-asked-questions. Most advanced based on 176-layer NAND, variety of form factors, and write performance.
2. The Micron 5400 SSD is available in 14 capacity, form factor, endurance, and security configurations with power-loss, and data path protection. The closest similar use, data center, SATA SSD offers 12 combinations at the time of this document's publication.
3. Other leading data center SATA SSD supplier as noted in Forward Insights, SSD Supplier Status Q1/22 report; 50% higher ratings based on public information available at the time of publication
4. Unformatted. 1GB = 1 billion bytes. Formatted capacity will be less.
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. Based on 128K sequential and 4K random, QD=32 measured performance.
7. Forward insights SSD Insights Q1/22.
8. See https://www.micron.com/support/sales-support/returns-and-warranties/

Get more out of SATA servers

Maintaining old infrastructure can be expensive. Building new SATA servers or upgrading the ones you already own with the Micron 5400 SSD can be the solution.

The Micron 5400 SSD is the world's first 176-layer data center SATA SSD. It offers the industry's broadest portfolio of data center SATA SSDs, ranging from a compact 240GB M.2 boot drive to a high-capacity 7.68TB 2.5-inch data drive that offers more than enough performance to saturate common Ethernet network bandwidth up to 50Gbps.[9]

The Micron 5400 MAX SSDs offer best-in-class sequential and random write performance[10] with the capacity and endurance options that enable easy replacement of 10K RPM and 7200 RPM hard disk drives. The Micron 5400 SSD can help you optimize every SATA socket in your servers to get more out of your workloads, backed by over 50 technical papers on data center SATA SSDs on www.micron.com.

The Micron 5400 is a feature-rich, data center SSD designed to keep your existing infrastructure going strong.

Micron 5400 SSD Feature	Benefit
AES 256-bit encryption	Helps keep data secure without a performance impact
TCG Enterprise & Opal 2.0 options	Works with the security you already know
Power loss signal support and power hold-up circuit	Helps protect data in flight and data at rest from unexpected power loss
Enterprise data path protection	Helps ensure data accuracy (for both application data and meta data)
Storage Executive support	Micron's SSD management tool helps you maintain control
5-year warranty	Micron standard data center SSD warranty

Table 1: Micron 5400 SSD Features

Qualify quickly and easily

Micron has been designing, manufacturing and supporting data center SATA SSDs since 2009, making the Micron 5400 our 11th-generation data center SATA SSD.[11] This extensive expertise helps make qualification smooth, fast and easy.

The Micron 5400, built on a proven, stable architecture that has been trusted by major server manufacturers for generations, is now built with Micron's 176-layer NAND. Millions of SSDs based on the same architecture have shipped since 2017. This experience, combined with Micron's NAND and SSD manufacturing expertise, has put Micron among the leading data center SATA SSD suppliers for the last five years.

Realize extended usable life and fewer field failures

Extend the life of your servers and deploy with the confidence that comes from SSDs with reliability (MTTF) and endurance ratings that are 50% higher than the other leading data center SATA SSD – all backed by Micron's standard 5-year data center SSD warranty.

The mixed-use Micron 5400 MAX SSDs offer up to 5 drive writes per day (DWPD) while similar use SATA data center SSDs typically only offer 3 DWPD. The Micron 5400 read-intensive PRO SSDs offer up to 1.5 DWPD compared to similar use SATA data center SSDs, which only offer up to 1 DWPD.[12]

9. Based on standard 2U, 24-drive chassis. Number of Micron 5400 SSDs to saturate network will vary based on SSD used.
10. Based on public specifications for similar use, data center, SATA SSDs available on the open market as of the date of this document's publication.
11. See https://investors.micron.com/latest-news?a4c408e2_field_nir_news_category%5Bvalue%5D%5B0%5D=4186&a4c408e2_items_per_page=10&a4c408e2_widget_id=a4c408e2&a4c408e2_year%5Bvalue%5D=_none&form_build_id=form-Nui7LuWd74Cm_QEyZMHg8ID5RLy0ZZeYQWfHrJ_JHm8&form_id=widget_form_base&page=30
12. Based on public specifications for similar use, data center, SATA SSDs available on the open market as of the date of this document's publication

Micron 5400 SSD Key Specifications[13]

		5400 Boot	5400 PRO Read-Intensive						5400 MAX Mixed-Use			
Form Factor	**2.5-inch (7mm)**		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	M.2 (22x80mm)	✓	✓	✓	✓							
Capacity		**240 GB**	**240 GB**	**480 GB**	**960 GB**	**1.92 TB**	**3.84 TB**	**7.68 TB**	**480 GB**	**960 GB**	**1.92 TB**	**3.84 TB**
Performance[14]	**Seq. Read (MB/s)**	540	540	540	540	540	540	540	540	540	540	540
	Seq. Write (MB/s)	290	350	520	520	520	520	520	520	520	520	520
	Rand. Read K IOPS	62	75	95	95	95	95	93	95	95	94	95
	Rand. Write K IOPS	12	37	37	33	33	30	10.5	58	65	63	34
Endurance (expressed in drive writes per day, DWPD)[15]		1.0	1.5	1.5	1.5	1.5	1.5	0.6	5.0	5.0	5.0	3.4

Micron 5400 SSD: Common Features		
Basic Attributes	**Interface**	SATA (6 Gb/s)
	NAND	Micron 176-layer 3D TLC NAND
Reliability	**MTTF**	3 million device hours
	UBER	<1 sector per 10^{17} bits read
	Warranty	5 years
Environmental Characteristics	**Power**	Sequential read: <3.0W active average Sequential write: <3.9W active average
	Operating Temp.	0-70°C
Physical Characteristics	**Size (L x W x H)**	2.5-inch: 100.45mm x 69.85mm x 7.00mm M.2: 80mm x 22mm x 3.8mm
	Weight	2.5-inch: <70g M.2: <10g
Advanced Features		AES 256-bit encryption, TCG Enterprise configurability, TCG Opal 2.0 configurability, power-loss protection for data-at-rest and in-flight, data center-class data path protection for user and meta data, secure firmware, adaptive thermal monitoring, hot-plug support, Storage Executive SSD management tool, RAIN

Notes: All values provided are for reference only and are not warrantied values. For warranty information, visit www.micron.com/support/sales-support/returns-and-warranties/enterprise-ssdwarranty or contact your Micron sales representative.

13. 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/ or contact your Micron sales representative.
14. Performance values are steady-state as defined by SNIA Solid State Storage Performance Test Specification Enterprise v1.1; Drive write cache enabled. Sequential workloads measured using FIO with a queue depth of 32; Random READ workloads measured using FIO with a queue depth of 32. Latency values measured with random workloads using FIO, 4KB transfers and queue depth = 1.
15. Values represent the theoretical maximum endurance for the given transfer size and type. Actual lifetime will vary by workload; refer to the percentage used as shown in the SMART/Health information Identifier; actual lifetime will vary by workload; total bytes written calculated assuming the drive is 100% full (user capacity) with a workload of 100% random data, aligned to 4KB boundaries.

Micron 5400 SSD Part Numbers

Micron 5400 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 part catalog at micron.com/5400 for more information.

MT FD D **AK** **480** T **GA-** 1 BC 1 **6** AB YY

Drive Form Factor

AK	=	(2.5-inch, 7mm)
AV	=	M.2 (22x80mm)

Drive Capacity

240	=	240GB
480	=	480GB
960	=	960GB
1T9	=	1.92TB
3T8	=	3.84TB
7T6	=	7.68TB

Security Features

Z	=	Non-SED
5	=	SED TCG Opal SSC
6	=	SED TCG Enterprise SSC

Product Family

GC	=	BOOT
GA	=	PRO
GB	=	MAX

micron.com/5400

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