

Technology Innovation Redefined



Innovative. That's how we like to describe our 3D NAND technology. Our 3D NAND is the first to use an innovative floating gate cell process architecture to offer 3X the capacity of existing planar NAND technologies while providing better performance and reliability.

With the growing demands of consumer devices, client computing, enterprise storage and data center deployments, this kind of higher-capacity, higher-performance NAND flash technology is a must. Our 3D NAND helps you make what seemed impossible, possible — bringing more efficient and reliable client, enterprise and mobile innovations to life.

Enabling the Entire Ecosystem

We're working with strategic partners throughout the mobile and enterprise segments to bring the revolutionary benefits of 3D NAND to the entire ecosystem. Our collaborative efforts with innovators like you are leading to better solutions for all involved.

Key Benefits

- **Pack in More Capacity:** Get 3X the capacity of existing planar NAND products to enable up to a 2TB gum stick-sized SSD with our MLC 3D NAND and a 3.5TB gum stick-sized SSD with our TLC 3D NAND and more than 8TB with MLC 3D NAND and 10TB with TLC 3D NAND in standard 2.5-inch SSDs.
- **Boost Performance:** Achieve significantly higher read/write bandwidth and I/O speeds, as well as improved random read performance, thanks to our 3D NAND's fast 4K read mode.
- **Save Power:** Reduce power consumption in standby mode thanks to 3D NAND's new sleep mode features that cut power to inactive NAND die (even when other die in the same package are active).

Why Micron 3D NAND?

1. High Capacities

Get the performance you need with some of the highest-capacity NAND die available — thanks to our 32-stack storage tiers.

2. Proven Technology

Build with confidence knowing that you're designing in 3D NAND devices based on floating gate cell technology — which enables better performance, quality and reliability compared to competing solutions and has been proven in the industry for nearly three decades.

3. NAND Expertise

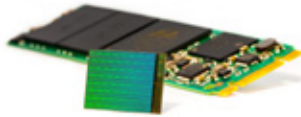
Set your next innovation apart with a world leader in NAND flash design by your side. Our NAND experts understand the ins and outs of end applications and are focused on enabling a thriving ecosystem that fully embraces flash technology — and therefore reaps its unprecedented performance benefits, driving your innovations forward and fast.



Best-Fit Applications

3D NAND is ideal for fueling higher-density, low-cycle applications like:

- Enterprise storage
- Cloud storage
- Consumer storage
- Client SSDs
- Embedded
- Mobile
- Automotive



Key Specifications

Technology	MLC	TLC
Density	32GB (256Gb)	48GB (384Gb)
Process Node, Bit/Cell	3D, 2b/c	3D – 3b/c
Speed Grade	533 MT/s and 667 MT/s	533 MT/s and 667 MT/s
Page Size	16,384 + 2208 bytes	16,384 + 2208 bytes
Pages Per Block	1024	1536
Block Size	16,384K + 2208K bytes	27,888K bytes
Blocks x Plane	548 x 4	548 x 4
¹ PROG (TYP/MAX)	1300µs/2500µs	1630µs/5000µs
P/E Cycle	3K + read retry	1500 LDPC/500 BCH
ECC/Codeword	72b/1KB BCH or LDPC	LDPC/72 bit BCH
¹ BERS (TYP/MAX)	15ms/45ms	15ms/45ms
¹ R (TYP)	77µs	100µs
¹ SNAP	40µs	53µs
ONFI Compliance	4.0	4.0
V _{CCQ} (V _{CC} = 3.3V)	1.2V , 1.8V	1.2V , 1.8V
Packages	Die, BGA, TSOP	Die, BGA
TSOP Package Options	48-pin TSOP (SDP, DDP)	–
BGA Package Options	BGA132 (SDP, DDP, QDP, 8DP, 16DP)	BGA132 (SDP, DDP, 3DP, QDP, 8DP, 16DP)

3D NAND vs. Existing Planar NAND

Micron's innovative 3D NAND flash memory uses floating gate cells for a unique architecture that lets you break through density limitations and enable performance and endurance that exceeds the conventional planar NAND architecture. Our 3D NAND stacks 32 cell layers vertically to achieve 256Gb multilevel cell die that can enable gum stick-sized SSDs with more than 2TB of storage — that's 3X the capacity of existing planar NAND solutions.

Contact Us

With more than three decades of memory development expertise and a full portfolio of NAND flash memory, we are your best choice for 3D solutions. Contact your Micron sales representative with questions or for samples and support.

Base Part Numbers

Standard MLC Part	Density	Package	Features
MT29F256G08CBCBWP-10:B	32GB	SDP TSOP	Standard
MT29F256G08CBCBBJ4-37:B	32GB	SDP BGA	Standard
MT29F512G08CFBWP-10:B	64GB	DDP TSOP	Standard
MT29F512G08CECBJ4-37:B	64GB	DDP BGA	Standard
MT29F512G08CEHBBJ4-3R:B	64GB	DDP BGA	FortisFlash
MT29F1T08CMCBJ4-37:B	128GB	QDP BGA	Standard
MT29F1T08CMHBBJ4-3R:B	128GB	QDP BGA	FortisFlash
MT29F2T08CUHBBM4-3R:B	256GB	8DP BGA	FortisFlash
Standard TLC Part	Density	Package	Features
MT29F384G08ECBBJ4-37:B	48GB	SDP	Standard
MT29F384G08EBHBBJ4-3R:B	48GB	SDP	FortisFlash
MT29F768G08ECBBJ4-37:B	96GB	DDP	Standard
MT29F768G08EBHBBJ4-3R:B	96GB	DDP	FortisFlash
MT29F1T208ECBBJ4-37:B	144GB	3DP	Standard
MT29F1T208ECHBBJ4-3R:B	144GB	3DP	FortisFlash
MT29F1T08EMCBJ4-37:B	192GB	QDP	Standard
MT29F1HT08EMHBBJ4-3R:B	192GB	QDP	FortisFlash
MT29F3T08EUHBBM4-3R:B	384GB	8DP	FortisFlash
MT29F6T08ETHBBM5-3R:B	768GB	16DP	FortisFlash

Note: FortisFlash features enable higher endurance than standard MLC/TLC without the usage limitations of enterprise parts.

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