

# Comprehensive automotive-qualified memory and storage solutions



As a leading automotive memory supplier for over 30 years, Micron's state-of-the-art automotive-compliant memory solutions have been on the road for trillions of miles—enabling the automotive industry to realize its most innovative ideas. Our wealth of experience and dedicated automotive team bring an essential in-depth understanding of the industry.

Micron's comprehensive automotive product portfolio provides a single source for volatile and nonvolatile memory, with compliance to key specifications that include:

- IATF 16949/AEC-Q100
- Continuous improvements
- 8D for non-conformities
- ISO 26262 ASIL-D certification

## A long-term partner, dedicated to our customers' success

Micron continuously invests in the market, leveraging close customer relationships to ensure current and future products align with demanding industry needs.

Our dedicated automotive architecture team stays abreast of the most advanced automotive application trends to ensure the right technology is available to our customers at the right time.

Our customer labs provide proactive design support from concept through prototype and production. The labs are stocked with advanced test and measurement equipment and are strategically located to foster collaboration throughout the product lifecycle.

Our strong partnerships and close collaboration with chipset vendors ensures a total, fully validated solution that is optimized for automotive manufacturers.

## Applications

### Advanced driving assistance systems

- Street sign detection and recognition
- Adaptive cruise control
- Collision avoidance
- Pedestrian detection
- Fog vision, night vision
- Parking assistance
- Lane-keeping warning
- Drowsy driver detection
- Surround view
- C-V2X/5G
- Black box

### Cluster/dashboard

- Digital instrument gauges
- Heads-up display
- Driver information

### In-vehicle infotainment (IV)

- Navigation systems
- Radio, satellite radio, DVD
- E-call, voice recognition
- Gesture recognition
- Driver state monitoring
- Rear seat entertainment

## Continuous innovation to meet automotive needs

With a comprehensive suite of volatile and nonvolatile memories, Micron provides a single source for all automotive segments. For these segments, best-in-class quality is essential and non-negotiable. Micron's worldwide fabs and backend processes have been defined for automotive from the ground up. All Micron automotive products are manufactured to the highest quality and reliability standards and support an extended temperature range of -40°C up to 125°C. Our products have been qualified to AEC-Q100 standard and are manufactured in ISO/TS-certified locations.

## SAFER memories—the industry's safest solution

With the introduction of the industry's first and only ASIL-D certified ISO 26262-compliant LPDDR5 memory, Micron continues to lead in delivering the industry's best-in-class solutions. The LPDDR5 product family supports both systematic and random fault coverage with out-of-the box ASIL-B support offering considerable performance, power, and capacity savings over traditional implementations. Additionally, Micron's SAFER LPDDR5 random fault coverage features enable a very short fault detection time interval—optimal for the most demanding functional safety applications. Supported by a dedicated Functional Safety Office, Micron's functional safety roadmap extends beyond LPDDR5 and includes upcoming generations of LPDDR4 and storage product families that will provide expanded support for functional safety—an increasingly important requirement as autonomous capabilities expand.

## Unwavering commitment to the automotive market

Micron has a dedicated fab to support product longevity. Located in Manassas, U.S., this site manufactures our long-lifecycle products to ensure supply continuity for the automotive markets. Delivering both a leading-edge, state-of-the-art auto memory and storage portfolio with the associated lifecycle support places Micron in a class by itself and further underscores our continued commitment to this market.

Product Family	Series	Bus Width	Density Range	Supply Voltage	IT Temp Ranges	Automotive-Grade Temp Ranges	Package Options
<b>DRAM</b>							
DDR4	MT40	x8, x16	4-16Gb	1.2V	-40/95°C	-40/125°C	FBGA
DDR3 <sup>2</sup>	MT41	x8, x16	1-8Gb	1.35V, 1.5V	-40/95°C	-40/125°C	FBGA
DDR2 <sup>2</sup>	MT47	x8, x16	512Mb-2Gb	1.8V	-40/95°C	-40/105°C	FBGA
LPDDR5	MT62	x16, x32, x64	16-128Gb	0.5V, 1.05V	-40/95°C	-40/125°C	FBGA
LPDDR4 <sup>2</sup>	MT53	x16, x32, x64	4-128Gb	0.6V, 1.1V	-40/95°C	-40/125°C	FBGA, PoP
LPDDR2 <sup>2</sup>	MT42	x16, x32	512Mb-2Gb	1.2V	-40/85°C	-40/125°C	FBGA
LPDDR	MT46	x16, x32	512Mb-1Gb	1.8V	-40/85°C	-40/105°C	FBGA
<b>NAND</b>							
NAND SLC	MT29F	x1, x2, x4, x8, x16	1-16Gb	1.8V, 3.3V	-40/85°C	-40/105°C	TPGA, VFBGA, TSOP
<b>Managed NAND</b>							
e.MMC 4.41/4.51	MTFC	x8	4GB	3.3V	-40/85°C	-40/105°C	LBGA, TFBGA
e.MMC 5.0, 5.1	MTFC	x8	8-256GB	1.8V, 3.3V	-40/85°C	-40/115°C	WFBGA, TFBGA, VBGA, TBGA, VFBGA, LBGA, LFBGA
<b>NOR</b>							
Xccela™ Flash	MT35X	x1, x8	256Mb-2Gb	1.8V, 3V	-	-40/125°C	TPBGA
Serial	MT25Q	x1, x2, x4	128Mb-2Gb	1.8V, 3V	-	-40/125°C	WPDFN, SO8W, SO16W, TPBGA
Twin-Quad Serial	MT25T	x1, x2, x4, x8	256Mb-1Gb	3V	-	-40/105°C	SO16W, TPBGA
Parallel SLC	MT28EW/ MT28FW	x8, x16	1-2Gb	3V	-	-40/105°C	LBGA, TSOP
<b>MCP</b>							
SLC NAND + LPDDR2	MT29A	NAND: x16 LP2: x32	4Gb+2Gb, 4Gb+4Gb	1.8V	-40/85°C	-40/105°C	VFBGA
SLC NAND + LPDDR4	MT29G	NAND: x8 LP4: x16	4Gb+4Gb, 8Gb+8Gb 16Gb+16Gb	1.8V	-40/85°C	-40/105°C	VFBGA
<b>SSD</b>							
PCIe Gen3	2100AI, 2100AT	x4	64GB-1TB	3.3/1.2/9V (BGA), 3.3V (M.2)	-40/95°C	-40/105°C	BGA, M.2 2230
<b>UFS</b>							
UFS 2.1	MTFC	x2	32-256GB	1.8/3.3V	-40/95°C	-40/105°C	TFBGA
UFS 3.1	MTFC	x2	64-512GB	1.2/3.3V	-40/95°C	-40/115°C	LFBGA

Notes: 1. 256Mb SDR, x8 and x16 only. 2. Ultra temperature availability based upon newest process node. Contact your local sales representative with questions. For automotive usage cases only.

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