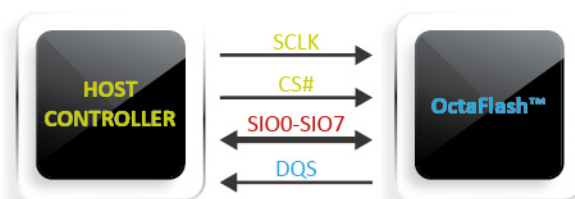# MACRONIX

OctaBus™ Family

The new-generation Macronix OctaBus Memory is a portfolio of extreme speed memory products built on Serial Peripheral Interface (SPI) and command protocol, providing extendable I/O capability. Expanding from current Quad I/O to OctaFlash™ (8 I/O) will efficiently broaden our Serial NOR Flash throughput. Macronix OctaBus Memory (8 I/O) also retains the user interface compatible with the ordinary single I/O Serial NOR Flash, which can sustain users' experience in using Serial NOR Flash with minimum efforts.

This breakthrough product incorporates flash memory to the high performance, low pin count solutions. The OctaBus extended SPI Flash to 8 I/O interface, meanwhile support JEDEC standard-JESD251 and JESD216 specification. The extreme 250MH frequency and DTR operation, enhances the Flash data throughput from existing 100MB/s up to 500MB/s, dramatically improving system performance.

Function Safety Certification

OctaFlash™ family provides functional safety features

- Functional Safety ISO26262 ASIL B Compliant & ASIL D Ready
- Data Integrity Features
  - ✓ ECC : Single-bit Error Corrects and Double-bit Error Detected (SECDED).
  - ✓ Data Transmission Errors : Parity check for command/address/data bus over the flash interface.
  - ✓ ECS (Error Corrected Signal) : H/W pin to provide error bits status.
  - ✓ ECC Status Register : Fully record the data integrity checking result.

/ **OctaBus™ Interface** /

OctaFlash™

OctaFlash solution (UM/LM series) is designed to meet the growing demand for "instant-on" performance and real-time system responsiveness in automotive, industrial and consumer applications. Macronix's OctaFlash™ provides ultra-high performance through operating at frequencies up to 250MHz with a fast latency access time of 80 nanoseconds (ns), sequential byte reads as fast as 2ns and a maximum read throughout of 500 megabytes per second (MB/s).

www.macronix.com

Concurrent Operation OctaFlash™

OctaFlash UW/LW memory family features a multi-bank architecture with concurrent operation and densities ranging from 64Mb to 2Gb. This distinct architecture enables read access from one memory bank while simultaneously writing to another.

This is an ideal solution for Over-The-Air (OTA) update applications, enabling systems to continue operating during the OTA update process; furthermore, systems can also 'roll back' to the previous version of firmware in the event of OTA failure or if there is any data corruption experienced.

3D NOR OctaFlash™

As automotive-electronics systems become more powerful and their arrays of safety and infotainment systems evolve rapidly, the demand for code-storage capacity, in the form of NOR flash memory, has never been greater. Existing 2D NOR structures, however, are no longer sufficient to meet the storage needs of these highly complex automotive applications, and any alternatives to NOR flash are inadequate to deliver the performance, reliability, low-latency, and instant-on capabilities required for new-vehicle designs. To meet this demand, Macronix is now leveraging its NOR flash expertise and manufacturing prowess to bring to market 3D NOR flash. Not only will these new flash memories maintain the inherent performance and reliability features of NOR but also provide unprecedented scalability, capacities several times those of 2D NOR in the same footprint, and significant cost benefits due to the well-established "die stacking" process Macronix has used successfully for several years in manufacturing its 3D NAND devices

Comprehensive Product Portfolio

	OctaFlash UM/LM series		Concurrent Operation OctaFlash UW/LW series		3D NOR OctaFlash UD/LD Series NEW!	
	3V	1.8V	3V	1.8V	3V	1.8V
8Gb					✓	✓
4Gb					✓	✓
2Gb	✓	✓	✓	✓	✓	✓
1Gb	✓	✓	✓	✓	✓	✓
512Mb	✓	✓	✓	✓		
256Mb	✓	✓	✓	✓		
128Mb				✓		
64Mb				✓		
All available in temperature grades of 85 °C / 105 °C / 125 °C						

● Mass Production   ● Sample in Q3 2025

Applications

- Domain Control System
- Zone Control System
- Automotive Cluster
- Automotive ADAS
- Car Infotainment
- Data Communication Module (Telematics, Emergency)
- Digital Camera
- Smart Home Appliances, Speaker

8X I/O DTR 250MHz — 500 MB/s

QSPI DTR 100MHz — 100 MB/s

SPI SPR 33MHz — 15 MB/s

0.00   Throughout (MB/s)