

CYPRESS

64Mb to 512Mb

HyperRAM™ 2.0/3.0

MEMORY

HyperRAM is a high-speed, low-pin-count, low-power self-refresh Dynamic RAM (DRAM) for high-performance embedded systems requiring expansion memory for scratchpad or buffering purposes.

HyperRAM products support JEDEC JESD251 profile compliant HyperBus and Octal xSPI interfaces that draw upon the legacy features of both parallel and serial interface memories, while enhancing system performance and ease of design, as well as reducing system cost. The low-pin count architecture make HyperRAM especially suitable for power and board space constrained applications requiring off-chip external RAM.

Introduced in 2015, HyperRAM now has a broad ecosystem support from leading MCU, MPU and FPGA chipset partners and customers. Optimized HyperBus memory controller is available from multiple third-party IP vendors.



OCTAL xSPI RAM

64Mb to 512Mb | 400 MBps



HYPERRAM™ 2.0

64Mb to 512Mb | 400 MBps



HYPERRAM™ 3.0

256Mb | 800 MBps



HYPERBUS™ INTERFACE

- HyperBus is a high-bandwidth, 12 pin interface that transfers information at double data rate (DDR), delivering bandwidth of up to 400 MBps.
- The HyperBus interface enables a small 48-mm² 24-ball package which shares a common footprint with HyperFlash products.
- HyperBus is supported by a wide ecosystem of host controllers and memory types.

DRAM AND FLASH ON THE SAME BUS

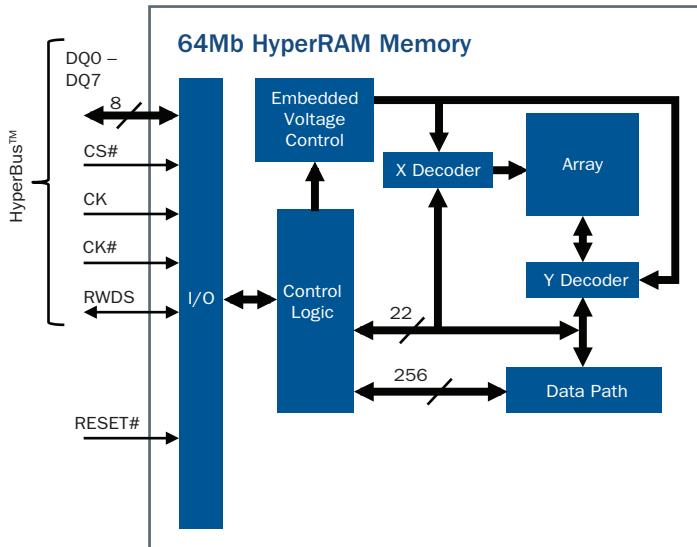
- Reducing pin count simplifies design complexity and decreases system cost.
- HyperFlash and HyperRAM 2.0 can be placed on the same bus and only require 13 pins for data transactions (12-pin HyperBus + 1 additional chip select for the second memory device).

HIGH RELIABILITY

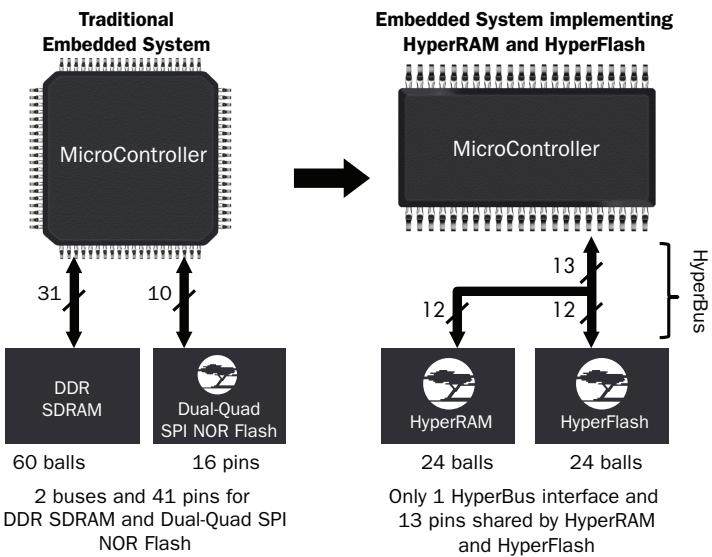
- An extended-industrial and Auto-Grade 1, 2 temperature ranges.
- AEC-Q100-qualified parts and PPAP support available.

TARGET APPLICATIONS

- Automotive Instrument Clusters, Infotainment & Telematics Systems.
- Industrial Machine Vision.
- Industrial and Consumer HMI Display Panels.
- Consumer Wearable Devices.
- Communication Modules.



64Mb HyperRAM Memory Block Diagram



Operating on a Single HyperBus Simplifies Designs and Reduces Pin Count

HYPERRAM 2.0 MEMORY DEVICE PORTFOLIO

FAMILY	DATA BUS WIDTH	INTERFACE	SPEED	VOLTAGE	DENSITY	MPN	BANDWIDTH	TEMPERATURE RANGE	PACKAGE
HYPERRAM 2.0	8-bit	HyperBus (x8)	200 MHz	1.8V	64Mb	S27KS0642	200 MHz	I, V, A, B	24-ball BGA (6 mm x 8 mm)
					128Mb	S70KS1282	200 MHz	I, V, A, B	
					256Mb	S80KS2562	200 MHz	I, V, A, B, M	
					512Mb	S80KS5122	200 MHz	I, V, A, B, M	
			200 MHz, 166 MHz	3.0V	64Mb	S27KL0642	200 MHz, 166 MHz	I, V, A, B	
					128Mb	S70KL1282	200 MHz, 166 MHz	I, V, A, B	
		Octal xSPI RAM	200 MHz	1.8V	64Mb	S27KS0643	200 MHz	I, V, A, B	
					128Mb	S70KS1283	200 MHz	I, V, A, B	
					256Mb	S80KS2563	200 MHz	I, V, A, B, M	
			200 MHz, 166 MHz	3.0V	512Mb	S80KS5123	200 MHz	I, V, A, B, M	
					64Mb	S27KL0643	200 MHz, 166 MHz	I, V, A, B	
					128Mb	S70KL1283	200 MHz, 166 MHz	I, V, A, B	
HYPERRAM 3.0	16-bit	HyperBus Extended I/O (x16)	200 MHz	1.8V	256Mb	S80KS2564	200 MHz	I, V	49-ball BGA (8 mm x 8 mm)
					512Mb	S80KS5124	200 MHz	I, V	

I = Industrial (-40°C to +85°C)

V = Industrial Plus (-40°C to +105°C)

A = Auto Grade 3 (-40°C to +85°C)

B = Auto Grade 2 (-40°C to +105°C)

M = Auto Grade 1 (-40°C to +125°C)



GET STARTED NOW

To learn more about HyperRAM Memory products, visit <http://www.cypress.com/HyperRAM>

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