

Micron® Flash Memory Support for Intel® FPGA Platforms

Save yourself time and money—Micron memory comes *validated* on Intel FPGA platforms

	Product	Code and Data Storage				Passive Config ¹							Active Config
		SPI NOR		NAND	e.MMC	SPI NOR		Parallel NOR			NAND	Parallel NOR	
Micron Flash	Family	N25Q ² / MT25QL	MT25QU	MT29F	MTFC	N25Q ²	MT25Q	MT28GU ²	P30/P33 ²	M29W ²	M29EW ²	MT29F	P30/P33 ²
	Density	128Mb-1Gb	512Mb-2Gb	1Gb-32Gb	4GB-128GB	32Mb-1Gb	128Mb-2Gb	256Mb-1Gb	64Mb-1Gb	16Mb-256Mb	256Mb-1Gb	1Gb	64Mb-1Gb
	Voltage	3V	1.8V	3V 1.8V	3V	1.8V or 3V		1.8V	1.8V, 3V	3V	1.8V, 3V		
	Read Speed	Up to 133 MHz	166 MHz	Asynch	4.41/4.51/5.0 SDR/DDR 52 MHz, HS200, HS400	108 MHz	166/133 MHz	133 MHz, burst	52 MHz, page	Asynch			52 MHz, page
	Width	x1, x2, x4		x8	x1, x4, x8	x1, x2, x4		x16		x8, x16		x8	x16
	Temperature/Grade	Industrial, Automotive				Automotive, Industrial, Wireless		Industrial, Automotive					
	Packages	S08W, S016, DFN, BGA		TSOP, BGA	100/153/169-ball BGA	S08W, S016, DFN, BGA		TSOP, BGA					
	Intel SoC Family												
	Arria® 10	✓	✓	✓	✓								
	Arria V	✓		✓	✓								
	Cyclone® V	✓		✓	✓								
Intel High-End FPGA Family													
Intel FPGA Family	Stratix® 10						p ³					p ³	
	Stratix V					✓	✓	✓	✓	✓	✓	✓	
	Stratix IV					✓	✓	✓	✓	✓	✓	✓	
	Stratix III					✓	✓	✓	✓	✓	✓	✓	
	Intel Mid-Range FPGA Family												
	Arria 10					✓	✓	✓	✓	✓	✓	✓	
	Arria V					✓	✓	✓	✓	✓	✓	✓	
	Arria II					✓	✓	✓	✓	✓	✓	✓	
Intel Low-Cost FPGA Family													
	Cyclone V					✓	✓	✓	✓	✓	✓	✓	
	Cyclone IV FPGA					✓	✓	✓	✓	✓	✓	✓	✓
	Cyclone III					✓	✓	✓	✓	✓	✓	✓	✓

Please verify exact configuration and specification with your Intel or Micron representative.

1. Intel PFL + CPLDs (MAX® II and MAX V devices) enables Micron Quad SPI, parallel NOR and NAND to interface with any Arria, Cyclone or Stratix series FPGAs for extended capacity and performance.

2. EOL pending; please contact your Micron representative for details. 3. Pending validation.

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Micron® DRAM Memory Support for Intel® FPGA Platforms

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Micron DRAM	Product	DDR4	DDR3	DDR3L ¹ / DDR3L-RS ²	DDR2	DDR	SDRAM	LPDDR2	LPDDR3	RLDRAM ^{®3}	RLDRAM ^{®2}	
	Family	MT40A	MT41J	MT41K	MT47	MT46	MT48	MT42	MT52	MT44	MT49	
	Density	4Gb, 8Gb	1Gb, 2Gb, 4Gb	1Gb, 2Gb, 4Gb	1Gb, 2Gb	256Mb, 512Mb	64Mb, 128Mb, 256Mb	512Mb, 1Gb, 2Gb, 4Gb, 8Gb, 16Gb	8Gb, 16Gb, 32Gb	576Mb, 1Gb	288Mb, 576Mb	
	Voltage (Core)	1.2V	1.5V	1.35V/1.5V	1.5V	2.5V	3.3V	1.2V	1.2V	1.35V	1.8V	
	Speed	625–1333 MHz	400–1066 MHz	400–1066 MHz	200–533 MHz	167–200 MHz	133–167 MHz	333–400 MHz	800–933 MHz	800–1066 MHz	300–533 MHz	
	Width	x8, x16					x8, x16, x32	x32		x18, x36		
	Temperature/ Grade	Commercial, Industrial, Automotive							Wireless (-30°C to 85°C)		Commercial, Industrial	
	Packages/ Modules	UDIMM, RDIMM, LRDIMM, SODIMM, BGA				TSOP, BGA		BGA, PoP		BGA		
Intel FPGA Family												
<i>Intel FPGA SoC</i>												
Arria [®] 10	✓	✓	✓	✓				✓	✓	✓		
Arria V			✓	✓			✓					
Cyclone [®] V			✓	✓								
<i>Intel High-End FPGA Family</i>												
Stratix [®] 10	p ³		p ³									
Stratix V		✓	✓	✓					✓	✓		
Stratix IV		✓	✓	✓		✓				✓		
<i>Intel Mid-Range FPGA Family</i>												
Arria 10	✓	✓	✓	✓			✓		✓	✓		
Arria V		✓	✓ ¹	✓			✓			✓		
<i>Intel Low-Cost FPGA Family</i>												
Cyclone V		✓	✓	✓			✓					
Cyclone IV				✓		✓						
Cyclone III				✓		✓	✓					
<i>Intel Nonvolatile FPGA Family</i>												
MAX [®] 10		✓	✓	✓			✓					

Please verify exact configuration and specification with your Intel or Micron representative.

1. DDR3L is compatible with operation at 1.5V. Note that some density and speed combinations may be available only as 1.35V part numbers, but these meet the specification for operation at 1.5V.

2. DDR3L-RS SDRAM is a low-current, self-refresh version, via a TCSR feature, of the DDR3L SDRAM device.

3. Pending validation.

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