Micron® **Flash** Memory Support for Intel® FPGA Platforms

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

	Code and Data Storage				Passive Config[1]		
	SPI NOR		**NAND**	**e.MMC**	**SPI NOR**	**Parallel NOR**	**NAND**
Family	**MT25QL**	**MT25QU**	**MT29F**	**MTFC**	**MT25Q**	**MT28EW**	**MT29F**
Density	128Mb-1Gb	512Mb-2Gb	1Gb–32Gb	4GB–128GB	128Mb–2Gb	128Mb–1Gb	1Gb
Voltage	3V	1.8V	3V / 1.8V	3V	1.8V or 3V	1.8V, 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	166/133 MHz	Asynch	
Width	x1, x2, x4		x8	x1, x4, x8	x1, x2, x4	x8, x16	x8
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							
Stratix® 10		✔	(P)	✔			✔²
Arria® 10	✔	✔		✔			
Arria V	✔		✔	✔			
Cyclone® V	✔		✔	✔			
Intel High-End FPGA Family							
Stratix 10					✔	✔	✔
Stratix V					✔	✔	✔
Stratix IV					✔	✔	✔
Stratix III					✔	✔	✔
Intel Mid-Range FPGA Family							
Arria 10					✔	✔	✔
Arria V					✔	✔	✔
Arria II					✔	✔	✔
Intel Low-Cost FPGA Family							
Cyclone 10					(P)	✔	
Cyclone V					✔	✔	✔
Cyclone IV FPGA					✔	✔	✔
Cyclone III					✔	✔	✔

Please verify exact configuration and specification with your Intel or Micron representative. (P) *Pending validation. 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. Also supports x16.*

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Micron® DRAM Memory Support for Intel® FPGA Platforms

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		DDR4	DDR3	DDR3L¹	DDR2	DDR	SDRAM	LPDDR2	LPDDR3	RLDRAM®3	RLDRAM®2	HMC
Micron DRAM	Family	MT40A	MT41J	MT41K	MT47	MT46	MT48	MT42	MT52	MT44	MT49	MT43
	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	2GB
	Voltage (Core)	1.2V	1.5V	1.35V/1.5V	1.5V	2.5V	3.3V	1.2V		1.35V	1.8V	1.2V
	Speed²	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	15 Gb/s
	Width	x8, x16					x8, x16, x32	x32		x18, x36		x64
	Temperature/Grade	Commercial, Industrial, Automotive							Wireless (-30°C to 85°C)	Commercial, Industrial		Commercial
	Packages/Modules	UDIMM, RDIMM, LRDIMM, SODIMM, BGA				TSOP, BGA		BGA, PoP		BGA		BGA
Intel FPGA Family	**Intel FPGA SoC**											
	Stratix® 10	✔	✔	✔						✔		✔
	Arria® 10	✔	✔	✔						✔		✔
	Arria V		✔		✔			✔				
	Cyclone® V		✔		✔							
	Intel High-End FPGA Family											
	Stratix 10	✔³	✔³	✔³						✔		✔
	Stratix V	✔	✔		✔					✔	✔	✔
	Stratix IV	✔	✔		✔	✔					✔	
	Intel Mid-Range FPGA Family											
	Arria 10	✔³	✔³	✔³				✔	✔	✔		✔
	Arria V		✔		✔			✔			✔	
	Intel Low-Cost FPGA Family											
	Cyclone 10 GX		✔	✔					✔			
	Cyclone V		✔	✔	✔			✔				
	Cyclone IV				✔	✔						
	Intel Nonvolatile FPGA Family											
	MAX® 10		✔	✔	✔			✔				

Please verify exact configuration and specification with your Intel or Micron representative. ℗ *Pending validation. 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. The maximum memory speed is dependent on the maximum frequency supported by the FPGA family. See the FPGA family data sheet for the maximum speeds.
3. x4 width supported.

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