

# 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 <sup>1</sup>		
	SPI NOR		NAND		e.MMC	SPI NOR	Parallel NOR	NAND
<b>Micron Flash</b>	<b>MT25QL</b>	<b>MT25QU</b>	<b>MT29F</b>		<b>MTFC</b>	<b>MT25Q</b>	<b>MT28EW</b>	<b>MT29F</b>
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	
<b>Intel SoC Family</b>								
Stratix® 10		<b>P</b>		<b>P</b>	<b>P</b>			<b>P</b> <sup>2</sup>
Arria® 10	✓	✓		✓	✓			
Arria V	✓		✓	✓	✓			
Cyclone® V	✓		✓	✓	✓			
<b>Intel High-End FPGA Family</b>								
Stratix 10						✓	<b>P</b>	✓
Stratix V						✓	<b>P</b>	✓
Stratix IV						✓	<b>P</b>	✓
Stratix III						✓	<b>P</b>	✓
<b>Intel Mid-Range FPGA Family</b>								
Arria 10						✓	<b>P</b>	✓
Arria V						✓	<b>P</b>	✓
Arria II						✓	<b>P</b>	✓
<b>Intel Low-Cost FPGA Family</b>								
Cyclone V						✓	<b>P</b>	✓
Cyclone IV FPGA						✓	<b>P</b>	✓
Cyclone III						✓	<b>P</b>	✓

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	DDR3L <sup>1</sup>	DDR2	DDR	SDRAM	LPDDR2	LPDDR3	RLDRAM®3	RLDRAM®2	HMC	
<b>Micron DRAM</b>												
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, 4GB	
Voltage (Core)	1.2V	1.5V	1.35V/1.5V	1.5V	2.5V	3.3V	1.2V		1.35V	1.8V	1.2V	
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	15 Gb/s	
Width	x8, x16					x8, x16, x32	x32		x18, x36		x32, 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	
<b>Intel FPGA Family</b>												
<b>Intel FPGA SoC</b>												
Stratix® 10	P	P	P <sup>1</sup>	P				P	P	P	✓	
Arria® 10	✓	✓	✓	✓				✓	✓	✓	✓	
Arria V			✓	✓			✓					
Cyclone® V			✓	✓								
<b>Intel High-End FPGA Family</b>												
Stratix 10	✓		✓								✓	
Stratix V		✓	✓	✓					✓	✓	✓	
Stratix IV		✓	✓	✓	✓					✓		
<b>Intel Mid-Range FPGA Family</b>												
Arria 10	✓	✓	✓	✓			✓		✓	✓	✓	
Arria V		✓	✓ <sup>1</sup>	✓			✓			✓		
<b>Intel Low-Cost FPGA Family</b>												
Cyclone V		✓	✓	✓			✓					
Cyclone IV				✓	✓							
Cyclone III				✓	✓	✓						
<b>Intel Nonvolatile FPGA Family</b>												
MAX® 10		✓	✓	✓			✓					

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

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