



Xilinx Spartan™-3E FPGAs

The World's Lowest-Cost FPGAs for Gate-Centric Designs

Designers of gate-centric solutions face a common problem — increasing design functionality while also minimizing device costs. This has often meant sacrificing either features or cost-effectiveness.

The Spartan-3E FPGA family offers the low cost and platform features you're looking for, making it ideal for gate-centric programmable logic designs. Spartan-3E is the seventh family in the groundbreaking low-cost Spartan Series and the third Xilinx family manufactured with advanced 90nm process technology. Spartan-3E FPGAs deliver up to 1.6 million system gates, up to 376 I/Os, and a versatile platform FPGA architecture with the lowest cost per-logic in the industry. This combination of state-of-the-art low-cost manufacturing and cost-efficient architecture provides unprecedented price points and value.

The features and capabilities of the Spartan-3E family are optimized for high-volume and low-cost applications and the Xilinx supply chain is ready to fulfill your production requirements. We're ready when you are.



Spartan-3E Low-Cost Features

The Spartan-3E family reduces system cost by offering the lowest cost-per-logic of any FPGA family, supporting the lowest-cost configuration solutions including commodity serial (SPI) and parallel flash memories, and efficiently integrating the functions of many chips into a single FPGA.

Advanced, Low-Cost Features

- Five devices with 100K to 1.6M system gates
- From 66 to 376 I/Os with package and density migration
- Up to 648 Kbits of block RAM and up to 231 Kbits of distributed RAM
- Up to 36 embedded 18x18 multipliers for high-performance DSP applications
- Up to eight Digital Clock Managers

Cost-Saving System Interfaces and Solutions

- Support for Xilinx Platform Flash as well as commodity serial (SPI) and byte-wide flash memory for configuration
- Easy-to-implement interfaces to DDR memory
- Support for 18 common I/O standards, including PCI 33/66, PCI-X, mini-LVDS, and RSDS

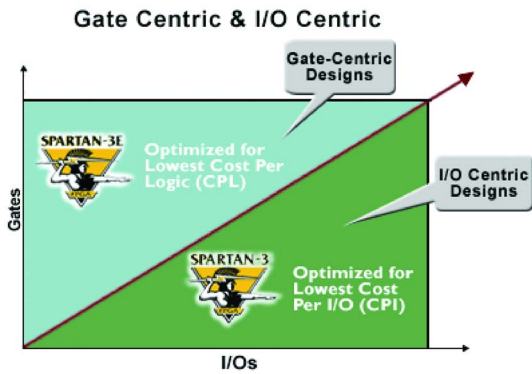
Industry-Leading Design Tools and IP

- ISE design tools to shorten design and verification time
- Hundreds of pre-verified, pre-optimized Intellectual Property (IP) cores and reference designs
- ChipScope Pro™ system-debugging environment

Easy-to-Use, Low-Cost FPGA Development Systems

- Complete Spartan-3E Starter Kit available for only \$149 USD
- Includes XC3S500E FPGA, SPI Flash, 32Mb DDR memory and support for USB2.0
- Get more information about all Spartan-3™ Series development boards at www.xilinx.com/s3eboards





Spartan-3E FPGAs — Cost-Optimized Custom Logic for All Applications

Together, the Spartan-3E and Spartan-3 FPGA families provide the lowest-cost programmable solutions for designs from 50K to 5 million system gates and up to 784 I/Os. Each family is optimized to provide the best ratio of gates to I/O for your application; Spartan-3E is optimized for gate-centric applications and Spartan-3 is optimized for I/O-centric applications.

While Spartan-3 Series FPGA families deliver superior performance in digital consumer applications, the resulting advanced features and capabilities benefit all high-volume/low-cost applications.

Spartan-3E FPGA Family					
	XC3S100E	XC3S250E	XC3S500E	XC3S1200E	XC3S1600E
System Gates	100K	250K	500K	1,200K	1,600K
Logic Cells	2,160	5,508	10,476	19,512	33,192
Block RAM Bits	72K	216K	360K	504K	648K
Distributed RAM Bits	15K	38K	73K	136K	231K
DCMs	2	4	4	8	8
Multipliers	4	12	20	28	36
I/O Standards	18	18	18	18	18
Max Single Ended I/O	108	172	232	304	376
Max Differential I/O Pairs	40	68	92	124	156
Package and I/O Offerings					
	XC3S100E	XC3S250E	XC3S500E	XC3S1200E	XC3S1600E
VQ100 14 x 14 mm	66	66			
CP132 8 x 8 mm		92	92		
TQ144 20 x 20 mm	108	108			
PQ208 28 x 28 mm		158	158		
FT256 17 x 17 mm		172	190	190	
FG320 19 x 19 mm			232	250	250
FG400 21 x 21 mm				304	304
FG484 23 x 23 mm					376

Spartan-3E Platform Features

The FPGA for Low-Cost Systems

- 18x18-bit embedded multipliers for efficient DSP
- Configurable 18K block RAMs
- Up to 8 on-chip Digital Clock Managers to support multiple system clocks
- 4 I/O Banks; Support for 18 I/O standards, including RSDS, LVDS
- Guaranteed density migration; Numerous parts in the same package

Spartan-3E Low-Cost Features

Through the use of 90nm process technology, 300mm wafers, and application-driven architecture choices, the Spartan-3E family offers the lowest cost-per-logic in the industry and extends the use of FPGAs into volumes and applications previously reserved for mask-programmed ASICs. The typical volume to cross over from FPGAs to ASICs for production is now more than 250K units.

In addition to low unit costs, the Spartan-3E family includes many features to reduce overall system cost. For example, Spartan-3E devices add support for a commodity serial (SPI) and parallel flash memory to reduce configuration memory costs. Other Spartan-3E features reduce system cost by integrating the functions of many discrete chips into a single FPGA:

- PCI 33/66 compliance and PCI-X compatibility, support for mini-LVDS and RSDS I/O standards — eliminates discrete interface solutions
- Embedded Digital Clock Management — eliminates discrete DLLs/PLLs, phase shifters
- Embedded hardware multipliers — implements low-cost DSP

Take the Next Step

Visit our website www.xilinx.com/spartan3e or call your local sales office or distributor for more information about Spartan-3E FPGAs. To start your design immediately, download your free ISE WebPACK™ design tools at www.xilinx.com/ise. To begin evaluating Spartan FPGAs, order your hardware development board at www.xilinx.com/s3eboards

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FORTUNE 2005
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