The Gateway to Consumer Digital Convergence

XILINX®

Spartan-IIE FPGAs For Consumer Digital Convergence Applications

SPARTAN™-IIE FPGA

Designing cutting-edge consumer electronics products has never been more challenging. You are faced with rapidly changing consumer demands, shifting product standards, reduced product life cycles, and intense time-to-market pressures. One growing market trend intensifying these design pressures is the combination of digital audio, video, and data capabilities in individual products. This *consumer digital convergence* of audio, video, and data capabilities requires that you get your products to market quickly, at low cost, and with enough flexibility to allow them to have an extended time in market. Applications such as digital video, wireless networking, and broadband access require your designs to be easily modified as new standards are introduced. This is not possible with traditional ASIC technologies.

The new Spartan™-IIE FPGA solution gives you the devices, the development tools, and the intellectual property you need to quickly design low-cost, next-generation consumer digital convergence products that can easily adapt to any evolving standard. Your designs can even be modified in the lab or remotely, in the field, without replacing any hardware. Imagine the possibilities.

Spartan-IIE FPGA System Solutions

The Spartan-IIE FPGA family includes five different devices ranging from 50,000 to 300,000 system gates in a variety of small, cost–effective packages. The total solution includes:

- SelectI/O™
  - 19 I/O standards
  - Differential I/O and single-ended I/O
- Advanced System Clock Management
  - Four delay-locked loops (DLLs)
- SelectRAM+™ Memory
  - Distributed RAM
  - True dual-port block RAM
  - High-speed external memory interface
- Xilinx ISE 4.1i (Integrated Software Environment) Software
  - Flexible design entry
  - Push-button performance
  - Comprehensive verification
  - ASIC-like flows
- IP Solutions
  - Reference designs, soft processors, XtremeDSP capability, CORE Generator™ software
- eSP (Emerging Standards and Protocols) Solutions
  - Web portal providing solutions for digital video, home networking, and other applications
- Global 24-hour Support

Spartan-IIE Product Matrix

Device	XC2S50E	XC2S100E	XC2S150E	XC2S200E	XC2S300E
System Gates	50K	100K	150K	200K	300K
Logic Cells	1,728	2,700	3,888	5,292	6,912
Block RAM Bits	32K	40K	48K	56K	64K
Distributed RAM Bits	24K	38K	55K	75K	98K
DLLs	4	4	4	4	4
I/O Standards	19	19	19	19	19
Max Differential I/O Pairs	84	86	114	120	120
Max Single Ended I/O	182	202	263	289	329
Packages	TQ 144	TQ 144			
	PQ 208	PQ 208	PQ 208	PQ 208	PQ 208
	FT 256	FT 256	FT 256	FT 256	FT 256
		FG 456	FG 456	FG 456	FG 456

The Benefits are Compelling

Spartan-IIE FPGAs provide the performance, advanced features, and cost optimization you need to create consumer digital convergence products that fulfill today's requirements and tomorrow's promise. There simply is no better way to create new products, get them to market as quickly as possible, and keep them profitable for a longer time. Here's what you get with the cost-optimized Spartan-IIE FPGA family:

Enhanced Connectivity — Our advanced LVDS, Bus LVDS, and LVPECL differential I/O capabilities, in addition to support for 16 other I/O standards, allow you to accommodate a variety of I/O requirements.

XtremeDSP Capabilities — The high-performance digital signal processing (DSP) capability of the Spartan-IIE solution allows you to easily develop new consumer digital convergence products without the need for costly discrete DSP components.

Soft Core Processors — Soft processor cores from Xilinx and AllianceCORE™ partners allow you to integrate a variety of system functions into a single device in a very gate-efficient format.
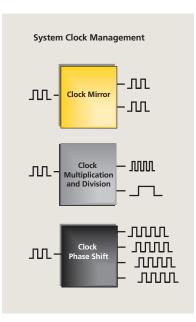
Easy Upgrades in the Lab or in the Field — The Spartan-IIE family gives you the unique ability to not only upgrade your systems in the lab during the design cycle, but also to upgrade them in the field, from a remote location, without replacing any hardware. We call this our IRL™ (Internet Reconfigurable Logic) capability. You can't do this with traditional ASIC devices.
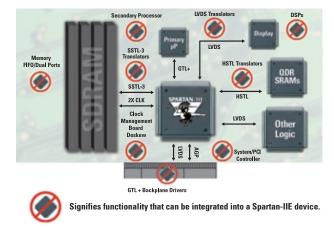
Advanced System Clock Management

The Spartan-IIE DLLs allow you to multiply, divide, and mirror the incoming clock, on chip and off chip. Combining DLL output with our system interfaces provide the ability to drive multiple clocks onto the board with various I/O standards. You can also phase shift and de-skew the clock on chip.
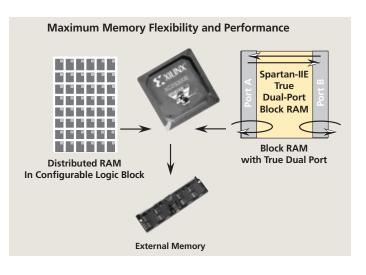

System Clock Management

Spartan-IIE – System Integration

Signifies functionality that can be integrated into a Spartan-IIE device.

The advanced capabilities of the Spartan-IIE solution allow you to reduce the number of components and the size of the board itself while reducing costs and preserving system performance.
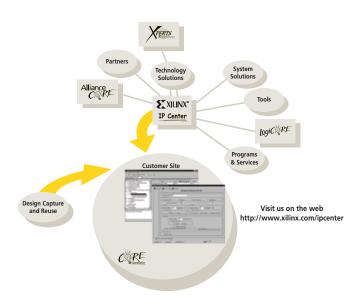
SelectRAM+ Memory

Spartan-IIE devices include both block RAM and distributed RAM. Plus, using the system interface capabilities, you have an excellent interface to high-speed external memories, addressing larger system memory requirements.

Maximum Memory Flexibility and Performance

Distributed RAM In Configurable Logic Block

Spartan-IIE True Dual-Port Block RAM

Block RAM with True Dual Port

External Memory

Leading Development Tools

Our comprehensive ISE Foundation™ and ISE Alliance 4.1i software is the easiest to use in the industry. At the push of a button, the Xilinx ISE 4.1i software allows you to compile 100,000 system gates per minute, providing push-button design turns while still maintaining high system performance.

Our ISE 4.1i software includes HDL and StateCAD™ tools for comprehensive design entry capability, ASIC-like design flows for seamless integration into your design environment, fast compilation times for quick turns, and comprehensive verification tools for fast debugging. In addition, we offer ISE WebPACK™ 4.1i design software, free through the Internet.

Visit us on the web
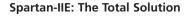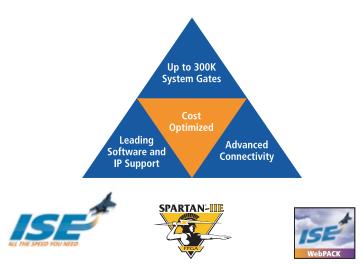**http://www.xilinx.com/ipcenter**

eSP – Solutions for Digital Convergence

The eSP Web portal is the industry's first Web portal dedicated to helping you develop products based on emerging standards and protocols. The eSP site simplifies the task of designing your next product by giving you a complete set of solutions.

The eSP Web portal is a comprehensive resource, delivering a powerful array of solutions and information in a single location. Here's what you'll find:

- Standards Tutorials
- Keeping Current on Innovations
- Ask the Experts
- Application Notes and White Papers
- System Block Diagrams
- Intellectual Property
- Reference Designs

Comprehensive IP Solutions

Xilinx offers the most comprehensive selection of intellectual property solutions for a wide variety of industries and applications, giving you both reduced cost and faster time to market. We provide the following and more:

- Industry-leading IP Libraries and Reference Designs
- XtremeDSP Initiative: Nearly one billion MACs per dollar
- Soft processors: Provide enhanced functionality in a very gate-efficient format
- PCI 64/66, POS-PHY Level 3, Ethernet, and many more
- Xilinx Core Generator software for cataloging and parameterizing IP and cores
- AllianceCORE™ products: Worldwide third-party program for IP cores verified for Xilinx devices
- XPERTS: Xilinx third-party design service program
- The Xilinx IP Center — a portal to all IP news, datasheets, and updates

Spartan-IIE: The Total Solution

Global Services

Xilinx Global Services enables increased productivity and reduces time to market by providing a technical hotline, localized field application engineers, training, a dedicated support website, and professional design services. You are not alone because we help you every step of the way.

SUPPORT SERVICES
Xilinx Global Services

- *Support Engineers*
  – Hot-Line support
  – Local Field Application Engineers

EDUCATION SERVICES
Xilinx Global Services

- *Training*
  – Instructor-led
  – Live e-learning
  – Recorded e-learning

SUPPORT.XILINX.COM
Xilinx Global Services

- *24/7 Web Support*
  – Forums
  – Answers database
  – Problem solvers
  – Web support

DESIGN SERVICES
Xilinx Global Services

- *Design Services*
  – Professional design services
  – XPERTS program

Find Out More

There is no easier, faster, or better way to create consumer digital convergence products, and keep them in the market longer. For more information on the Spartan-IIE FPGA family, visit our website at:
www.xilinx.com/spartan2e

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The Programmable Logic Company℠

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100 BEST COMPANIES TO WORK FOR