

Spartan-IIE FPGAs: The Gateway to Consumer Digital Convergence

Residential
Gateways

200 Mhz
FPGAs
DLLs

Home
Networking
PCI 64/66

Wireless

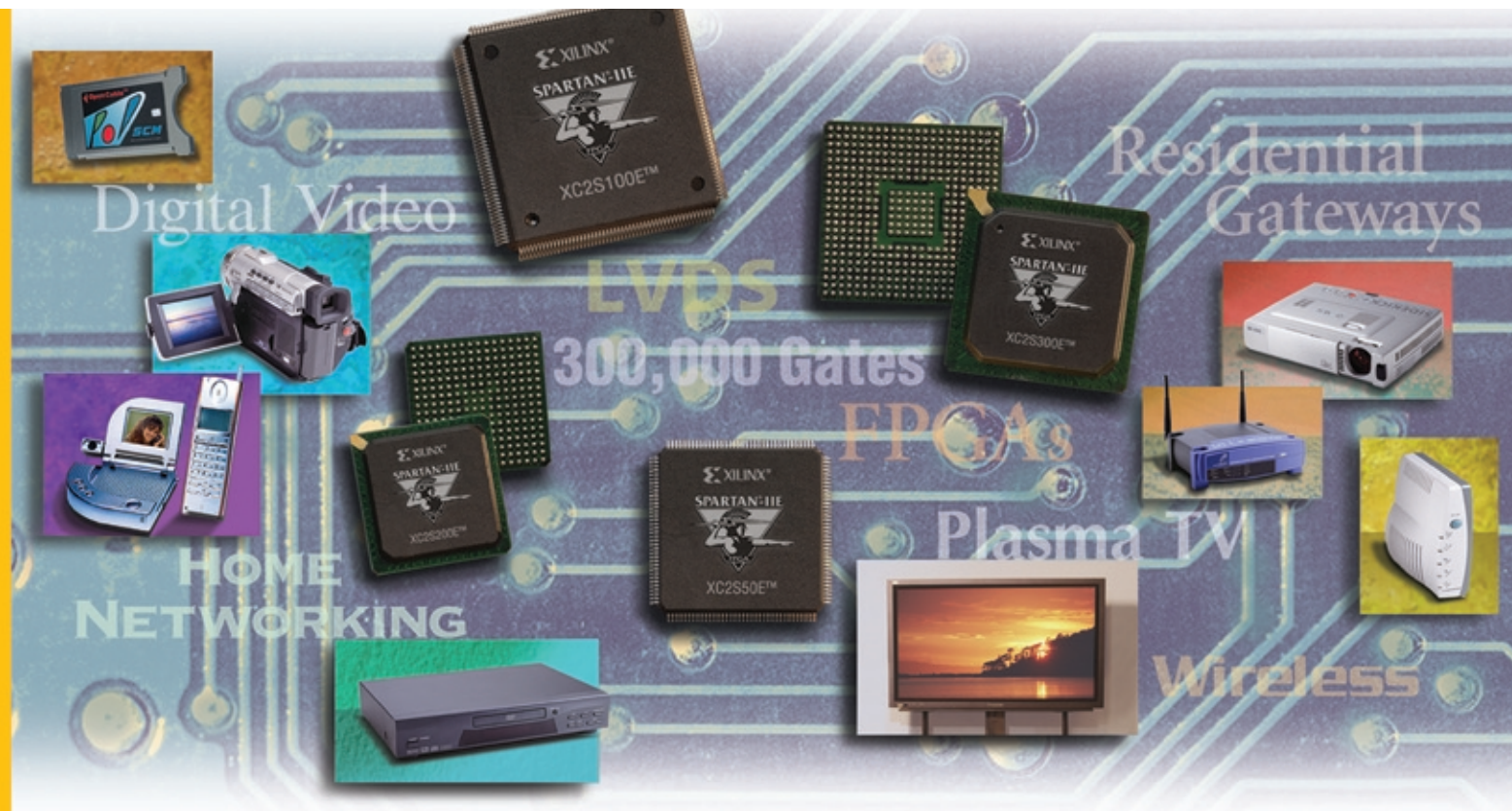
300,000
Gates

DIGITAL
VIDEO
LVDS

Select I/O



Your Key to Total Cost Management



The Gateway to Consumer Digital Convergence

Consumer electronics systems today are on the cutting edge of innovation, integrating a wide range of new features and capabilities — many stand-alone products are now being combined into complex systems with digital audio, digital video, and data communication capabilities. This consumer digital convergence trend poses tremendous design challenges to product developers and corporations:

- accelerated product obsolescence
- increasing cost pressures
- rapidly evolving standards
- shifting market requirements
- regionalization
- intense competition



These design challenges require new design methods and product development strategies. To be successful in this dynamic marketplace, you need a dynamic solution:

- A flexible and robust solution providing the system features and IP to design for dynamic consumer markets
- A solutions that allows you to easily upgrade your designs as market needs change
- A solution that provides total cost management

You need the Spartan-IIe FPGA solution — there is no faster or lower-risk way to develop next-generation products for the consumer digital convergence market.

System-Level Features and IP

Spartan-IIe FPGAs are designed with all the necessary capabilities for you to create a cost-optimized, flexible, feature-rich digital convergence product.

- Support for 19 I/O standards (including LVDS, HSTL, and PCI).
- Our XtremeDSP initiative provides nearly one billion MACs/sec per dollar.
- DLLs, distributed RAM, and a wide range of IP for digital convergence products, including embedded processor soft cores.

For a complete list, visit www.xilinx.com/ipcenter

This rich feature set in a cost-optimized solution allows digital convergence designers to meet or exceed their combined performance, cost, and time-to-market requirements much more easily than with an ASIC.

Upgradability

The Spartan-IIe family gives you the ability to upgrade your systems both in the lab during the design cycle and after deployment in the field.

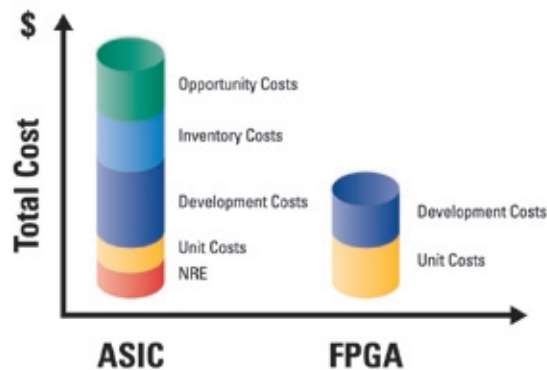
- Future proof your products by instantly reprogramming the FPGAs to perform new functions, quickly fix bugs, or adapt to changing market conditions
- Create universal boards that can be upgraded to serve many different markets, depending on the design you put in the FPGA
- Upgrade systems remotely by using the Xilinx Internet Reconfigurable Logic (IRL™) capability, without having to dispatch a technical crew to the field



Total Cost Management

Spartan-IIE FPGAs address cost management in ways that can easily offset any unit cost disadvantage relative to ASICs.

- FPGAs have no non-recurring engineering (NRE) costs
- FPGAs can have much lower development costs
- FPGAs have relatively low inventory costs (they are easily re-deployed to a variety of applications)
- ASICs have very large 'opportunity costs,' or costs that result from lost market opportunities due to the ASIC's long production lead times, inflexibility to accommodate changing market conditions, and inability of individual ASICs to be used in multiple applications.

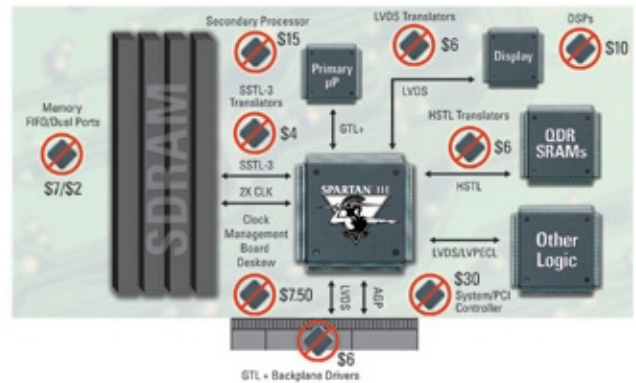


FPGAs offer a cost advantage throughout a product's life cycle.

- Design & debug: Spartan-IIE FPGAs allow for co-development of hardware and software, fewer engineering man hours, and no NRE charges
- Production: The Spartan-IIE solution is cost-optimized both in silicon and in packaging, allows you to eliminate multiple discrete components on your board, and is a standard product with no need to stock separate parts for each application, as you would with an ASIC.
- Life cycle management: With Spartan-IIE FPGAs, you don't have obsolete inventory because re-programmable FPGAs can easily be re-deployed to other applications. In addition, Spartan-IIE based systems can have their time-in-market extended through local or remote design upgrades that require no change in physical hardware.



Spartan-IIE FPGAs also offer a direct cost advantage due to the extensive system features that have been built into them, allowing you to replace multiple discrete parts in your system with the FPGA. You are often able to save enough from discrete part elimination to pay for the FPGA itself, meaning you get the industry's most advanced FPGA solution for free!



Higher Productivity

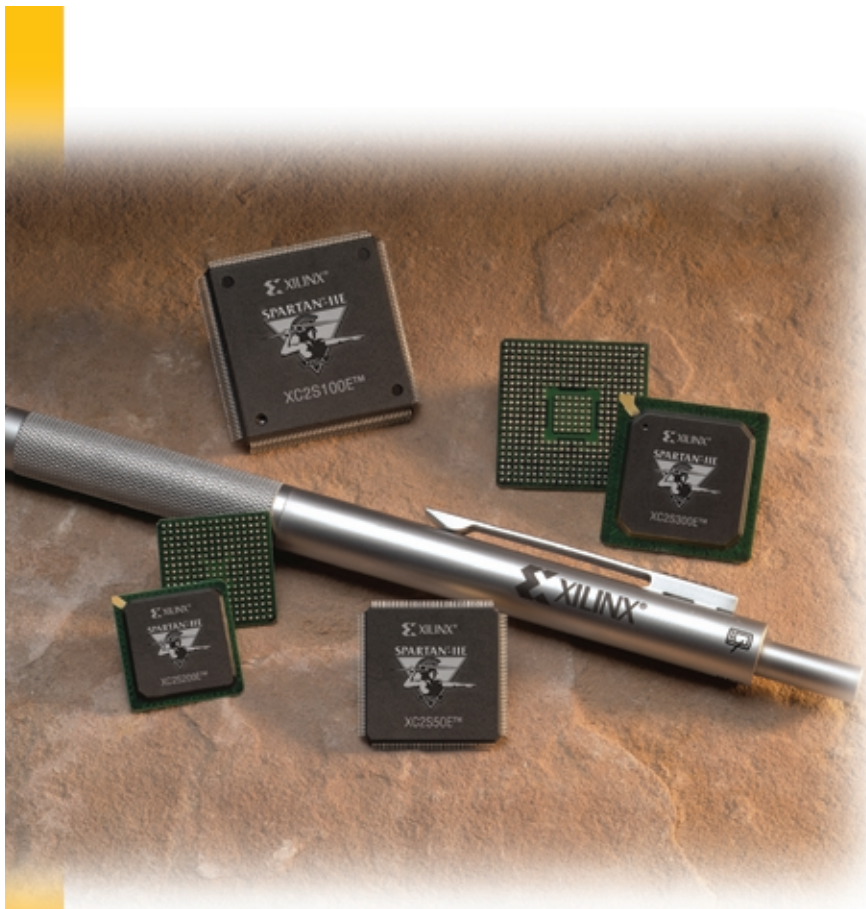
The Spartan-IIE solution includes industry-leading design tools. With the Xilinx ISE 4.1i Integrated Software Environment, including the free WebPACK™ version, you get the easiest to use, push-button design performance, the best compilation, and the most rapid time to market of any competing logic solution, all within a streamlined ASIC-like design methodology. The ultra-fast, user-friendly ISE 4.1i software (www.xilinx.com/ise) supports the entire range of Xilinx programmable products including XC9500 and CoolRunner® CPLDs, all Spartan Series cost-optimized FPGAs, and all Virtex™-series Platform FPGAs.



See for Yourself

The Spartan-IIE FPGA solution offers unprecedented levels of system integration, bringing advanced system capabilities to cost-sensitive consumer digital products. The combination of flexibility, features, and advanced design tools in a cost-optimized solution is a major advance for designers striving to meet the challenges of the consumer digital convergence market. See www.xilinx.com/spartan2e3 for further information on this unique programmable logic solution.





Robust Feature Set

- Flexible on-chip memory
Distributed and Block Memory (up to 64Kbits)
- 4 Digital Delay Lock Loops per device
Efficient chip level/ board level clock management
- SelectI/O Technology
Interface to all major bus standards
HSTL, GTL, SSTL, LVDS, LVPECL, etc.
- Full PCI compliance
- System speeds over 200 MHz

Extensive Design Support

- Complete suite of design tools
- Extensive IP core support
- Compile designs in minutes

Advantages over ASICs

- No costly NRE charges
- Much shorter development times
- No time consuming vector generation needed
- Lower design and verification costs
- Field upgradable
- No lengthy prototype or production lead times
- Low inventory costs



Spartan-III Family	Logic Cells	Max System Gates	CLB Array	Total CLBs	Max I/O	Distributed RAM (bits)	Block RAM (Kbits)
XC2S50E	1,728	50K	16 x 24	384	182	24,576	32K
XC2S100E	2,700	100K	20 x 30	600	202	38,400	40K
XC2S150E	3,888	150K	24 x 36	864	263	55,296	48K
XC2S200E	5,292	200K	28 x 42	1,176	289	75,264	56K
XC2S300E	6,912	300K	32 x 48	1,536	329	98,304	64K



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