

FPGAs Are Changing the Consumer Marketplace

Our latest, low cost, high performance FPGAs are ideal for high volume, dynamically changing, consumer applications such as home networking.



by Wim Roelandts, CEO, Xilinx

The market for all types of electronic consumer products is growing constantly and changing rapidly. New products are being developed faster than ever before to meet the demands of consumers, while new standards quickly obsolete yesterday's innovations. Now, more than ever before, companies must adapt quickly to a changing marketplace and bring new innovations to consumers at an ever increasing rate. To remain competitive, many consumer-oriented companies now recognize the enormous benefits of programmable logic for accelerating their time to market and increasing the life span of their products.

Programmable Logic Thrives on Change

Xilinx technology is gaining momentum in the consumer marketplace because programmable logic devices (PLDs) are ideal in applications where standards are constantly changing. By designing with PLDs, companies can quickly make last minute design changes, keep new products on schedule, and evolve along with the current standards. In addition, our FPGAs now have advanced features, high performance, and low prices – all essentials needed to meet the requirements for high volume consumer designs. For example, our FPGAs now operate with clock rates exceeding 800Mbps, with huge gate capacities, 800MHz I/O capability, delay-locked loop clock management, and many other advanced features – and you can purchase a 100K gate Spartan-II device for less than \$10.

With programmable logic, you can begin your system design long before your full design specification is finalized. Then, even after your product is in your customers' hands, you can make changes as needed to keep your product in the market longer. For example, using our Internet Reconfigurable Logic™ (IRL) capability, you can change your hardware design, in the field, over the Internet. You can add features, fix bugs, or adapt to new standards without replacing your hardware. The possibilities of this technology are enormous. Companies that

use this capability will have a significant advantage over their competition, because they can reduce costs, offer unique features, and provide better service.

Innovation Is the Key

The consumer marketplace requires low cost, high volume devices, and in the past, ASICs were the best choice for consumer-oriented designs. However, the price, performance, and features of our latest generation Spartan-II FPGAs are now competitive with ASICs, and our FPGAs bring the added benefits of fast development, lower up-front costs (no NRE charges), reprogrammability, remote field upgradability, and off-the-shelf delivery – all significant advantages in today's fast-paced marketplace. Our technology innovations have opened the consumer marketplace to programmable logic.

The developers of consumer products have not been our usual customers, however, so many are not aware of the most recent advances that are fundamentally changing the industry. Therefore, we must be innovative in our approach to find and support these developers, and help them to understand and use our solutions.

To meet the challenge of supporting consumer-oriented designers, we have taken bold steps to provide unique and valuable services, over and above our core technologies. To focus our efforts, and to be most effective, we have targeted the key consumer markets where we can be of most benefit.

Home Networking

One key market is home networking – a huge emerging market where many different standards are competing for dominance. In the near future, a wide assortment of intelligent appliances and systems

for the home will all need to work together through some sort of network. To manage your household, your computer will need to interface with your refrigerator, your entertainment center, your alarm system, your environmental controls, and other devices, some not even invented yet. Long before these futuristic applications become commonplace, you will need an efficient way to connect all of the computers and peripherals you already own – many households today have three or more computers, with various peripherals, spread throughout the home.

It's easy to build a network infrastructure (wiring) into a new home. But, for the vast majority of existing homes, the dedicated wiring is not already in place. That's why there are many competing networking methods: power lines, phone lines, radio/wireless, and infrared are all possible networking media that do not require dedicated wiring. Each of these possibilities represents a new standard you must be aware of if you intend to compete in this dynamic and lucrative marketplace.

eSP – Emerging Standards and Protocols

Because the home networking marketplace is still very young, and somewhat chaotic, we found that we could be a great benefit to you by creating a clearinghouse for the latest networking information – the Xilinx eSP Web portal. We are already actively involved in all of the key standards-making committees, and we continue to develop easy-to-use networking reference designs, so we decided to share what we know with you – to save you time and effort, to keep you informed about all of the important standards, and to help you make the best possible choices.

The Xilinx eSP Web portal provides you with comprehensive solutions to accelerate



the development of your products based upon emerging standards and protocols. At our eSP website, you'll find:

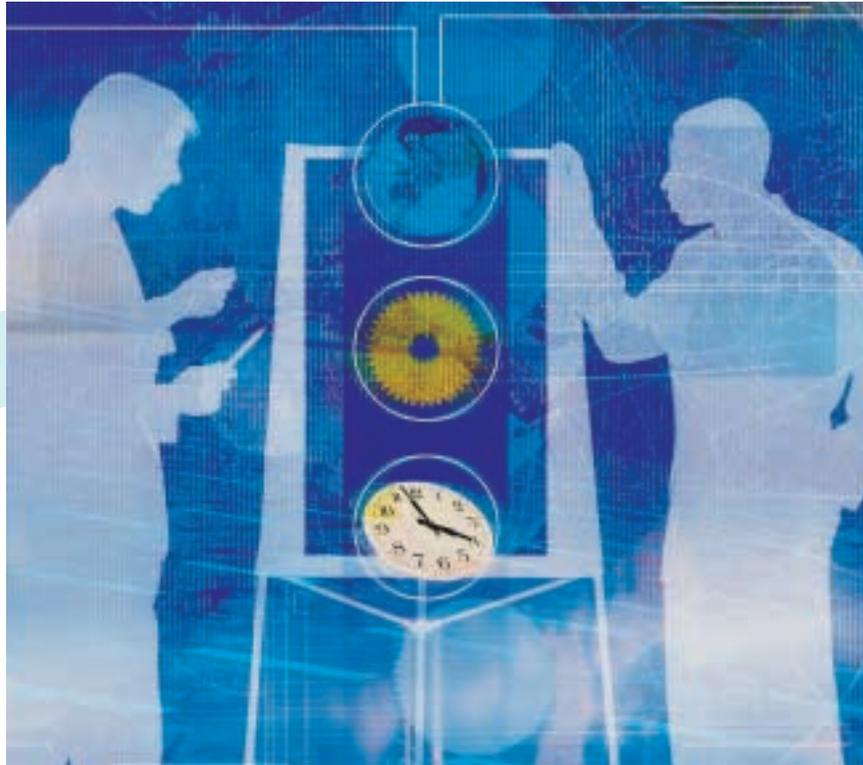
- **Updates to industry standards and protocols** – Keeping you well informed as the standards continue to evolve.
- **Reference Designs** – Saving you the risk and effort of creating new designs by giving you system solutions that fully comply with the latest standards and protocols, while maintaining flexibility for easily upgrading to the next generation standards.
- **System Block Diagrams** – Giving you a head start with detailed solutions and system block diagrams for home networking technologies.
- **Standards Tutorials and Reference Materials** – Explaining how the different technologies work together to create a home networking environment.
- **Application Notes and White Papers** – Providing detailed information on how to efficiently use specific technologies.
- **A forum for discussing home networking technologies** – Offering you fast and accurate answers from the most qualified experts.
- **Strategic Alliances** – Giving you access to our partners, including ASSP vendors, mixed-signal solution providers, intellectual property providers, software providers, design services providers, memory vendors, processor vendors, and others.

Home Networking Trade Shows

In a further effort to help you understand the dynamics of the home networking marketplace, we recently organized a trade show and invited industry experts to discuss the relevant issues. The show (held in

Santa Clara California, in February, 2001) was a big success.

Xilinx is in a unique position to promote and educate the home networking marketplace; we are unbiased, because our tech-



nology supports all the emerging standards. By bringing people together, and freely distributing relevant information, we intend to provide you with a key service in addition to our technology.

The Xilinx Difference

Innovation is the lifeblood of Xilinx, and we make great efforts to create an atmosphere where innovation is nurtured and rewarded. This is a key reason why Xilinx is a worthy partner in your design efforts. We are innovative at every level of the company, and our overall effectiveness is constantly improving. I believe one good idea is worth more than thousands of hours of hard work.

By definition, innovation is change – and people don't like change. It is usually risky, and always influenced by unknown factors. So, to be innovative, we must overcome the fear of change and minimize the risks of

stepping outside our normal boundaries. At Xilinx, we do this by creating a supportive environment where failure is accepted and expected as a necessary part of any creative effort. We encourage all our

employees to be creative in their jobs, not just the engineers who are developing unique new technologies. Innovation at every level of Xilinx has a profound impact on you, because we are always striving for excellence in everything we do.

Xilinx was ranked number 14 out of the Fortune 100 Best Companies to Work for in America. Our attrition rate is about one third of that for other companies here in Silicon Valley, which indicates that Xilinx is a company that cares about people. Our culture makes Xilinx not

only a great place to work, it also makes Xilinx a great company to work with.

Conclusion

Xilinx is dedicated to providing the products and services you need to be competitive in the consumer marketplace. Working with us is the fastest and easiest way to get your new product to market ahead of your competition.

Within the next 10 years, you will find programmable logic devices used in almost every piece of electronic equipment. The advantages of programmable logic are overwhelming, and they increase dramatically with each new generation. Decreasing costs, increasing performance, unique new features, and design flexibility – combined with fast and efficient development tools – give you compelling reasons to use programmable logic for all your designs.