Networking Comes Home

A silent revolution is happening — the revolution of home networking. And while this revolution should give us no cause for concern, it does, however, hold the promise of forever changing and improving our lives.

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Although much hype, confusion, and unfulfilled promises have surrounded networking in the home, it is clear that the technology is here to stay and will continue to grow and evolve. Consumers are now becoming sufficiently motivated to take on the numerous challenges of understanding and installing complex hardware and software to create home networks. Although this motivation has come primarily from the desire to share expensive resources such as Internet access, printers, and scanners with multiple PCs, it has set the stage for the revolution.

Living the Digital Life

Hand-in-hand with the home networking revolution is the invasion of the digital lifestyle. Consumers are becoming more aware of the higher quality, performance, and accuracy offered by anything that is "digital." The trend of digitizing all media, audio, video, and data has not only enabled a higher quality experience, but has also brought about the additional benefits of increased portability and the ability to easily share media.

The cost benefits from sharing resources may serve as a catalyst for consumers to build home networks, but the real benefits of home networking will be the enhanced entertainment experience and productivity that consumers will enjoy through the sharing of all digitized media.

Future Gazing

So, what is the networked home going to look like five years from now? Beyond the basics of sharing data, it's hard to say exactly which direction it will take. It is virtually impossible to fully understand the implications and benefits that will be derived from the networked home. Years ago, no one could have predicted that a collection of globally connected computers – the Internet/World Wide Web – would grow to become such an integral component of our everyday lives.

Can something as simple as the ability to share files or media really impact our lives? Ask the music industry (and soon the video industry) as they grapple with rampant sharing of media across the Internet. File-sharing programs like Napster and Gnutella are causing the entire music industry to rethink their business models.

So, why is Xilinx, the pioneer of programmable logic, dedicating such a large section of *Xcell* to home networking? Actually, nothing could be more natural or appropriate. Programmable logic has already played an essential role in catalyzing the growth and rapid evolution of the Internet. Used throughout the Internet switching infrastructure, reprogrammable FPGAs have allowed pioneering manufacturers to successfully navigate the ever-changing standards and protocols evolving in the virtual marketplace.

Because home networking is in its infancy, standards are still evolving. It's clear that programmable logic will play a central role in this "new" networking application. Programmable logic provides the flexibility and fast time-to-market required to enable this market to evolve and mature.

Home Networking Smorgasbord

In this issue of *Xcell*, we are covering many of the new and emerging home-networking technologies and products, including broadband access, residential gateways, information appliances, voice and data convergence, and wireless LANs. In each article, the reader will learn how Xilinx programmable logic solutions provide flexible, cost-effective solutions with all the traditional benefits of fast time to market.

In this issue, you will also find an article dedicated to Bluetooth™ networking – a new low-power wireless technology designed to "cut the cord" on the personal computer peripherals. Over recent time, Bluetooth wireless technology has become the leading wireless standard of a new networking paradigm – the personal area network. PANs allow all your information appliances to communicate with one another – not only in the house, but also on the road and in the workplace. Xilinx solutions are already playing a prominent role in the deployment of products based upon the Bluetooth standard, and Xilinx will continue to play an even greater role as this wireless protocol continues to evolve to support higher data rates and other feature sets in the future.

Because home networking technologies are evolving and changing almost daily, it is almost certain that once this issue of *Xcell* is published, many sections of the text will soon be either outdated or obsolete. As of this writing, new wireless standards, such as UWBD (Ultra Wideband) technology, the Bluetooth protocol, and IEEE 802.11b (also known as Wi-Fi), are challenging some of the "new" existing standards. Furthermore, the next version of USB standards, v2.0, has arrived on the scene providing data transfer rates that are 40 times faster than the previous version USB 1.1.

Conclusion

As an on-going supplement to articles published in *Xcell*, and as a means to remain current, Xilinx has established a Web portal called eSP (emerging Standards and Protocols) to keep design engineers up-to-date on this new and exciting technology. This Web portal is an industry first, and is dedicated to accelerating all phases of the product development schedule by providing education on these new standards in conjunction with intellectual property and key reference designs. Now, staying current on the most competitive home networking technologies is just a mouse click away at *www.xilinx.com/esp/*.

We hope you enjoy this special section in the *Xcell Journal*. In future issues, we plan to continue to keep you updated on the most significant and current events in home networking technologies – and all the other new and exciting applications where Xilinx solutions can be found.