



IRL Makes Console Switching Faster and More Reliable.

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One of the most pressing concerns facing Information Systems Managers today is managing the volume and diversity of servers under their authority. As corporations increase the number of servers they deploy, the infrastructure needed to support this growth requires more efficient management of physical space, server information, and staff time.

Administrators have recognized the importance of reducing the amount of space occupied by computing and peripheral devices, and as a result, are implementing console

switches to manage and operate multiple servers from a single console. This provides more space for servers, routers, hubs, and printers by reducing the quantity of keyboards, monitors, and mice.

Apex, the market leader in console switches, chose Xilinx to provide the FPGAs to create their next generation switch. By using Xilinx FPGAs and the Xilinx Internet Reconfigurable Logic (IRL) technologies, Apex could develop a console switch that can be upgraded with new services or functionality, in the field, without having to supply customers with new boards or EPROM chips. Not only does this provide convenience for their installed base of customers, it

also provides flexibility for developing and rapidly deploying new services and for remotely reconfiguring data in the console switch.

Faster Time-to-Market

By populating the console switch with Xilinx FPGAs, Apex engineers developed 80% of the base solution to get the system up and running. Then, by the time the switches were deployed to customers, the remaining 20% of the code was completed and transmitted to the systems in the field. This gave Apex a lead in deploying the product to the field before the competition—a real time-to-market advantage and a key benefit for their customers.

Flexibility and High Throughput

In most customer environments, the console switch is located in the same facility as the servers, but with the flexibility offered by Xilinx FPGAs, the console can be located anywhere in the world. With the Apex Emerge2000, for remote access server control, you can manage the graphical consoles of your server population from any location.

The basic architecture is based on the PCI bus (Figure 1). By using two Xilinx FPGAs in each Emerge2000, one for PCI communications that is loaded at power-up and remains loaded, and the other FPGA loaded dynamically at run time, Apex console switches never have to break the PCI communication. The Xilinx PCI core provides up to 33 MHz operation, is easy to use, and is easy to migrate to other PCI cores with higher bus widths if the need arises.

Xilinx also provides an easy migration path from low to high density devices allowing Apex to include more robust features in their console switch products as their requirements evolve.

Rapid Prototype Development

By employing Xilinx FPGA technology, the Apex engineers could continue developing

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the design right up to the time of board delivery. Once the boards became available, the engineers could load the FPGA configuration at the work bench and verify the design. If they had used custom ASICs, it would have required much more time to complete the design. In addition, due to the ability to remotely upgrade the design over the Internet, the engineers were able to ship the product early, with the assurance that any new features could easily be added in the field.



Technical Support from Xilinx

Support from a supplier is a critical path item, often overlooked when designers view supplier technology. Obtaining the most up-to-date information, in a precise format, can become a critical factor when moving at the rapid pace our market demands. The Xilinx support organization is fast and responsive, and delivered the lat-

Conclusion

Xilinx FPGAs, along with the Xilinx IRL technologies, allows companies like Apex to build flexible, next-generation equipment that can be upgraded over the Internet. The time to market advantages are obvious and the unique design possibilities are limited only by your imagination.

About Apex

Apex designs, manufactures and markets stand-alone electronic switching systems and integrated server cabinet solutions for the client/server computing environment. Apex supplies stand-alone switching systems to some of the largest PC manufacturers in the industry for integration into their product offerings, providing switching systems to OEMs (Compaq, Dell, IBM, and Hewlett-Packard) representing 43 percent of all PC servers and 66 percent of all "super" servers shipped worldwide. Go to <http://www.apex.com> for more information.

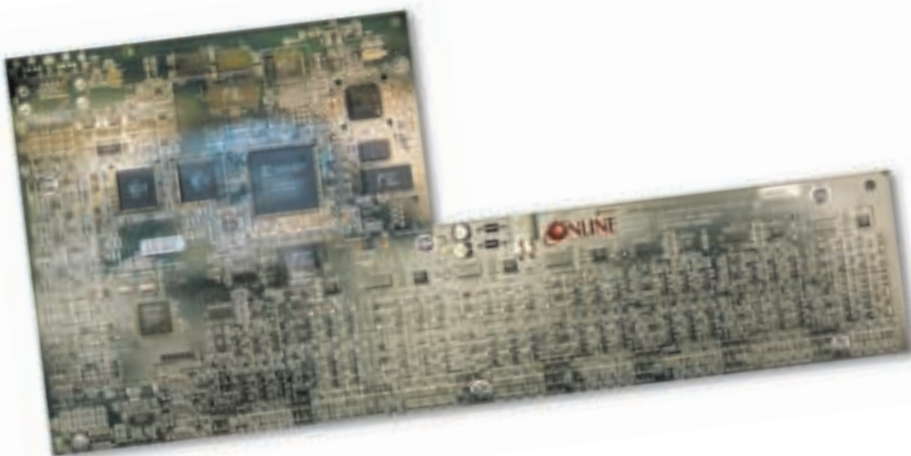


Figure 1 - The Emerge2000 board