VIPswitch Partners with Xilinx to Move Beyond ASICs

Remotely programmable chips are a perfect fit for new line of Optical Terabit Routers.

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When engineers at VIPswitch set out to design their newest product, the Open Metro Networks V-MAN 160G optical Terabit switch/router, they were looking for a flexible and cost-effective solution that would enable them to bring their innovative technology to the market, ahead of the competition. The VIPswitch design team also needed the ability to reprogram the system in the field, to provide their customers with upgrades even after installation at the customer facility. VIPswitch found the reprogrammable Xilinx Virtex-II FPGAs met each of these requirements.

"In adopting FPGAs in our designs, rather than ASICs, we are safeguarding ourselves and our customers against costly future upgrades due to the ever changing requirements in this space," said Brian Bowyer, senior vice president of product development and program management at VIPswitch. "With Xilinx FPGAs, our switch/router will be the first that can be fully implemented and reprogrammed without relying on an ASIC. The technologically advanced Virtex-II product family enabled us to overcome cost, dissipation, performance, and footprint issues that are usually found in traditional FPGAs. It was hard to justify the cost of an ASIC when Virtex-II FPGAs offered the best price, reliability, and the smallest footprint. It really provided just what we needed."

VIPswitch also based their selection on the Xilinx Controlled Impedance Technology (XCITE™) feature, which is unique to Virtex-II FPGAs. This capability uses two external reference resistors to hold input and output impedance for hundreds of I/O pins. Benefits include a reduction in on-board resistors that significantly reduce system costs and board re-spins. Eliminating hundreds of resistors using the XCITE technology, VIPswitch designers reduced board real estate and complexity, and increased reliability.

"The XCITE capability enabled our design team to use the board more efficiently, resulting in fewer board re-spins and lower PCB costs," said Yvon Gaudreau, senior manager of hardware development for VIPswitch. "Virtex-II FPGAs provided us with the ideal platform for our design."

"VIPswitch's application of Xilinx FPGAs further demonstrates our penetration into the ASIC market," said Clay Johnson, vice president of the Advanced Product Group for Xilinx. "With ever-increasing bandwidth requirements, system engineers face extreme signal integrity issues. Our XCITE signal integrity technology in the Virtex-II FPGAs dramatically simplifies board design and maximizes system performance."

Conclusion

VIPswitch experienced the many benefits of using Virtex-II devices. Virtex-II FPGAs are the first offering in the new Xilinx Platform FPGA family and represent a flexible solution that integrates a wide variety of hard and soft IP cores on a single device whose hardware and firmware can be upgraded at any time. The programmability of the architecture reduces system development time yet enables a single Platform FPGA to be targeted at multiple applications.

About VIPswitch

VIPswitch is a privately held company with offices in Boston and Montreal. For more information, please visit VIPswitch on the web at: www.VIPswitch.com, send an email to info@VIPswitch.com, or call 800-638-2677.