Spartan-II PCI Development Kit

Insight Electronics has introduced a Spartan-II PCI Development Kit to help you jumpstart your next 32-bit PCI design.

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When Xilinx introduced the Spartan™-II FPGA family in January 2000, they not only offered the lowest cost FPGA devices with system-level features, they also enabled programmable logic to effectively replace off-the-shelf ASSP devices for 32-bit PCI applications. Combined with the proven PCI32 LogiCORE™ interface from Xilinx, the Spartan-II PCI solution was the common-sense choice for most PCI designs.

Unfortunately, designers wishing to target a Spartan-II device for a PCI project, were not able to prototype their design with an off-the-shelf PCI platform. Insight Electronics recognized the need for this type of development board, and introduced the Spartan-II PCI Development Kit. The kit includes a Spartan-II prototype board, single-use Spartan PCI32 LogiCORE license, Windows driver development software, one-day (eight hours) of Insight Design Services support, reference designs, Windows-based applications, example Windows 98/NT drivers, source code, and hardware documentation. The demonstration board is based on the 150K-gate Spartan-II FPGA, in a 208-pin plastic quad flat package (PQFP).

Implementing the full initiator/target PCI interface in the FPGA only consumes about ten percent of the logic resources, leaving approximately 135K gates for custom user back ends. Unlike other PCI prototype cards, the Spartan-II PCI board does not contain back-end application circuits to complicate your custom design. Instead, all user I/Os are brought out to expansion connectors for easy access and interfacing. This allows your designs to be quickly implemented, config-
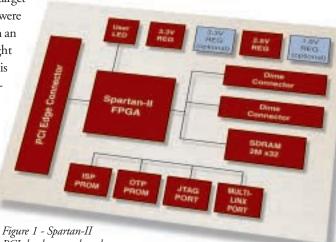
ured, and tested. Figure 1 shows a block diagram of the Spartan-II PCI card included in the kit.

The New Reference Design Center

In addition to the Spartan-II FPGA, the PCI board also includes the new Xilinx XC18V01 in-system programmable configuration PROM. This allows PCI application designs to be quickly downloaded multiple times to the board and saved in non-volatile memory.

Figure 1 - Spartan-II PCI development board

With this re-configurable feature, Insight is including access to its new Reference Design Center. At the Reference Design Center, owners of the Spartan-II PCI kit can download pre-configured PCI application designs and run them on the demonstration board. Developed by Insight Design Services, these off-the-shelf application designs can be used as is, or can be customized to meet certain application needs. In addition to providing reference design bit streams and their associated source code files, the Reference Design Center also provides example Windows drivers and Windows-based application programs. Both drivers and application pro-

grams are provided with C++ source code so you can understand how the examples work.

To assist in the development and debugging of Windows device drivers, the Spartan-II PCI Kit includes Compuware's NuMega driver development software. The NuMega package simplifies the task of writing and configuring Windows drivers through a series of GUI windows.

The Xilinx Spartan 32/33 PCI Core

The Insight Spartan-II PCI Development Kit includes the new single-use version of the Xilinx Spartan-only 32-bit, 33 MHz PCI core. The single-use license allows the kit owner to support a single production PCI core implementation. If multiple PCI core solutions are required, then the core license can be upgraded to an unlimited license for a nominal fee. The 32-bit Spartan PCI core is configured and downloaded through the Xilinx PCI Lounge. The downloadable core netlist is fully PCI v2.2 compliant and supports initiator and target functions with zero-wait-state burst operation.

Conclusion

By providing exactly what is needed to complete a PCI design, the Spartan-II PCI Kit meets the demands of both experienced and new designers of programmable logic-based PCI interfaces. Several versions of the Spartan-II PCI Development Kit are available from Insight Electronics. Prices range from $145 for a PCI card only kit, to $3,995 for the complete Spartan-II PCI Development Kit. For more information, go to www.insightelectronics.com/solutions/kits/xilinx/spartan-iipci.html.