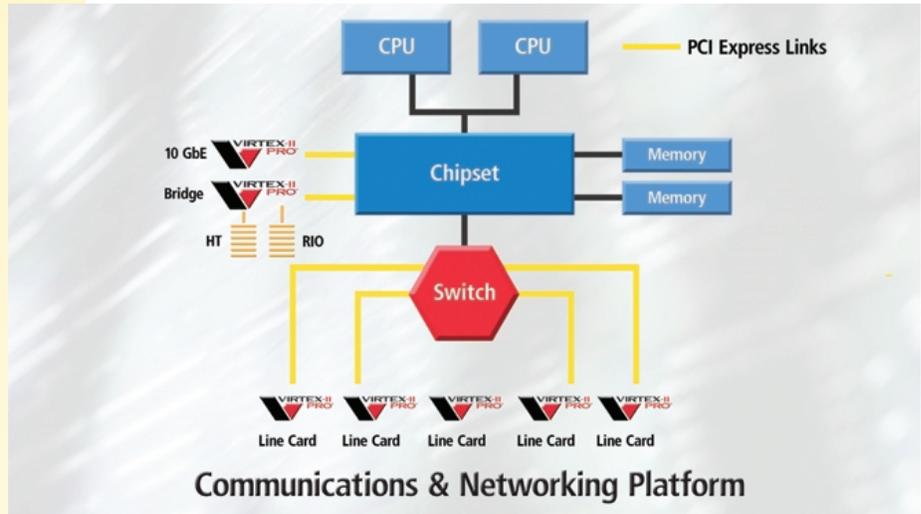




## RealPCI Express Core

The PCI bus is the most popular interface used in almost every electronic system. PCI Express™ is taking PCI to the 21st century by offering a serial solution. PCI Express solves the scalability and reliability limitations inherent in the PCI centralized arbitration scheme to enable designers to achieve the necessary bandwidth in today's high performance applications.

The PCI Express™ technology gives you up to 20X improvement in speed compared to PCI, while maintaining software backward compatibility, thus preserving your software investment. The Xilinx® RealPCI Express core is compatible with the new PCI Express standard, adopted by the PCI Special Interest Group (PCI-SIG). Our Virtex-II Pro™ Platform FPGAs, with the industry's fastest FPGA fabric, up to 24 3.125 Gbps Rocket I/O™ transceivers, Digital Clock Managers, and abundant BlockRAM make it all possible.



### Key Benefits

The Xilinx RealPCI Express solution is a combination of two leading technologies: the PCI Express specification and Virtex®-II Pro FPGAs. It provides user-configurable options, excellent flexibility, and Xilinx Smart-IP™ technology that guarantees critical timing. The key benefits include:

- **Real Availability** – This is the world's first PCI Express solution, available today. It enables your computing and communications platforms to achieve the highest level of performance using advanced serial I/O technology.
- **Real Performance** – The Rocket I/O 3.125 Gbps transceivers on the Virtex-II Pro FPGAs, give this core a line rate of 2.5 Gbps in a single lane configuration.
- **Real Flexibility** – The inherently programmable nature of the FPGA allows you to continually modify your design, as your performance and interoperability requirements evolve, reducing your risk in adopting the new standard.
- **Faster Time to Market** – This core accelerates the development of a new class of bandwidth-hungry applications such as DVD-quality streaming video, graphic-intensive video games for PCs and notebooks, and high-end 10G Ethernet NIC cards for servers. Today, there is simply no other comparable way to develop PCI Express applications with minimal impact to your overall system development cycle.

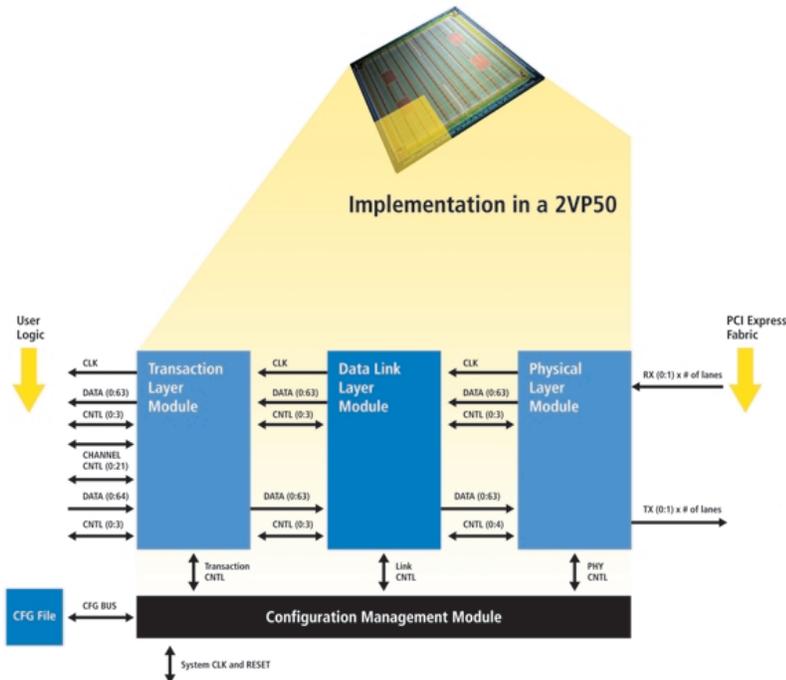
To get higher System interconnect performance, safely and quickly, there is no better solution than the Xilinx PCI Express cores and Virtex-II Pro FPGAs. Xilinx is the first supplier of PCI Express solution, and we will continually enhance the core, to add new features, such as required to support the networking extension and to meet all evolving specification changes.



## Features

The key features of the RealPCI Express core include:

- Protocol and electrical compatibility to the PCI Express Base Specification v1.0
  - Complete endpoint solution includes physical, link, transaction, and configuration management modules
- 2.5 Gbps line speed in single lane (x1) configurations
  - 64-bit internal data path running at 31.25 MHz
- Offers common packet interface for user applications or bridging logic
  - Supports packet-oriented data transfer
  - Synchronous point-to-point communication
  - Upstream and downstream flow control
  - Channelization support
  - Efficient link bandwidth utilization
  - Error detection and recovery
  - Supports maximum payload of 4K bytes
  - Design verified by a Xilinx proprietary testbench



## Applications

The Xilinx RealPCI Express core is ideally suited for a broad range of computing and communications applications with an emphasis on performance, cost, scalability, feature extensibility, and mission critical reliability. Applications include PC and server motherboards, add-in cards, 10 Gbps Ethernet NIC cards, high-end graphics boards, medical imaging applications, chip-to-chip and backplane interconnections.

## Get Your PCI Express Core Today

For the latest details, or to download the core, visit

[www.xilinx.com/pciexpress](http://www.xilinx.com/pciexpress), or call your Xilinx representative.

For more information about other Xilinx connectivity solutions visit the Xilinx connectivity central at [www.xilinx.com/connectivity](http://www.xilinx.com/connectivity).

### LogiCORE™ Facts

#### Core Specifics

Supported Devices Family	Virtex-II Pro			
Resources used for PCI Express	I/O	LUTs	FFs	BlockRAMs
	One Rocket I/O Transceiver	7649	5527	16
Special Features	Virtex-II Pro Rocket I/O, Digital Clock Manager, BlockRAM			

#### Provided with Core

Documentation	Xilinx PCI Express v1.0 Design Guide, Quick Start Guide, Product Specification, Instantiation Template
Design Files	Verilog Simulation Model, Xilinx Generic Netlist Format (ngo netlist)
Constraints File	User Constraints File (.ucf)

#### Design Tool Support

HDL Synthesis Tool (Verilog only)	Synplify Synplify Xilinx XST, Synopsys FPGA Express
Xilinx Implementation Tools	Foundation/Alliance v.4.2iSP3
Verification Tools	Cadence Verilog – XL, Synopsys VCS, Model Technology ModelSim

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