ORB*express*® ▶FPGA

Objective Interface's ORB*express* FPGA
for Xilinx Virtex FPGAs

CORBA communications implemented directly in hardware
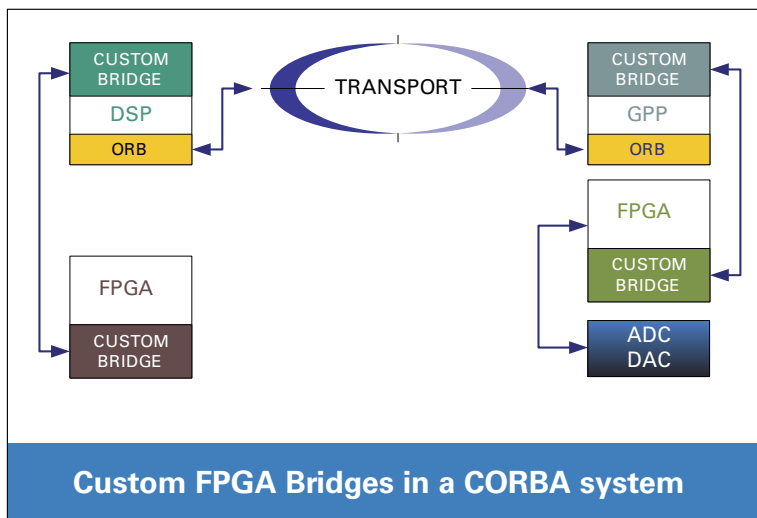
What is ORB*express* FPGA?

ORB*express* FPGA for the Xilinx Virtex series is a lightweight hardware implementation of CORBA targeted for the Virtex-4 and Virtex-5 series of FPGAs. ORB*express* FPGA supports standards-based CORBA operations and all data types. All CORBA message processing is performed directly in FPGA hardware; no GPP is required and the FPGA is not limited to co-processor models of operation.
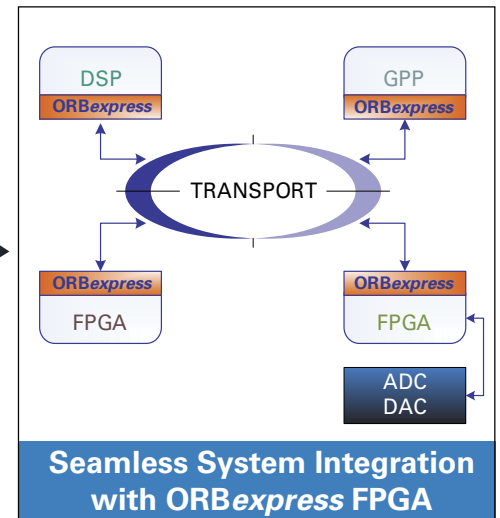
Migrate Functionality from GPP to FPGA at Any Time

Because ORB*express* FPGA maintains true location transparency, application functionality can migrate to or from an FPGA at any point in the design cycle. For example, the application can be initially prototyped on a workstation and, over time, application objects can be migrated to the FPGA as the hardware design matures. The top-level CORBA application remains unchanged throughout the entire process.

- **High-performance, small footprint**
- **CORBA communications in hardware without CORBA expertise**
- **Migrate functionality from GPP to FPGA at any time**
- **Design, simulate and implement CORBA into FPGAs with your existing tools and methodology**
- **Full support for dynamic partial reconfiguration**
- **Reduces costs – use an off-the-shelf standards-based hardware abstraction layer**
- **Easy integration and interoperability of FPGAs, GPPs and DSPs in a single system**

BEFORE

Custom FPGA Bridges in a CORBA system

AFTER

Seamless System Integration with ORB*express* FPGA

High-Performance, Small Footprint

ORB*express* FPGA meets timing for aggressive FPGA clock rates and processes CORBA messages with sub-microsecond latency. The instantiated FPGA hardware is compact and occupies only a small fraction of the available LUTs (Look-Up Tables) even in Xilinx's smallest Virtex-4 FPGA.

Full Support for Dynamic Partial Reconfiguration

ORB*express* FPGA is designed from the ground up to fully support dynamic partial reconfiguration. Lightweight VHDL (VHSIC Hardware Description Language) wrappers generated by the ORB*express* IDL compiler allow CORBA-enabled FPGA application blocks to dynamically disconnect from the ORB and reconnect after reconfiguration is complete. This occurs without interfering with ORB operations or other FPGA logic.

Design, Simulate and Implement CORBA Communications into FPGAs with Your Existing Tools and Methodology

ORB*express* FPGA works with your existing FPGA design and verification tools and your existing design methodology—no new tools or tool frameworks are required. ORB*express* FPGA implementation files are provided as VHDL source and synthesized netlist. RTL-level simulation libraries are provided for all netlist-based modules to support fast, efficient simulation.

ORB*express* FPGA Tool Support

About Objective Interface

Objective Interface products, sold worldwide, are used in a variety of real-time, high-performance and embedded applications, including communication systems, mission critical avionics systems, network management, vehicle control and management systems, software defined radios, telecommunication systems, process control systems and nuclear fusion ignition facilities.

Enables CORBA Communications in Hardware without Requiring CORBA Expertise

Deploying the ORB*express* FPGA ORB and creating CORBA-enabled FPGA applications does not require special CORBA expertise. The ORB cores and IDL compiler handle the details of CORBA communications and provide a simple, well-documented interface to the FPGA designer.

Low Adoption Costs

ORB*express* FPGA isolates the software programmer from the details of FPGA design and the FPGA designer from the details of CORBA and object oriented programming. Thus cross-discipline training is minimal. Additionally, ORB*express* FPGA provides a re-usable standards-based Hardware Abstraction Layer; eliminating the need to develop communication protocols for every project. Engineering resources can focus on the details of the application.

Free Training

Comprehensive training and the first year of maintenance and support are included with every developer's license at no additional cost, to ensure that you are well-trained and successful in the use of ORB*express* FPGA.

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