Personal up to Peta-Super-Computing

Using FPGA-Based Proc Boards™

Key Features

- Processing power may reach over 100 x CPU cores per FPGA even when using large multiple-FPGAs/Proc Board matrix
- Up to 97% less power consumption than CPU cores
- Low Latency
- Hi-level intuitive development tools
- Up to 32 PROCessing unit per personal computer
- Design security
- Up to 272 GB DRAM per personal computer (Up to 16GB per PROCessing unit)
- Direct connection to standard interfaces
- Support for custom interfaces with direct connection as 3D-torus and other application specific topologies
- ProceV: up to 366Gb/s inter-board/computer throughput

Target Applications

- High Frequency Trading
- Life science Applications
- DSP (Digital Signal Processing) and HPRC (High Performance Reconfigurable Computing)
- High-speed low latency networking and network analysis
- Surveillance, Machine Vision and Imaging
- High performance acquisition systems
- ASIC and SoC Prototyping
- Complex HDL algorithm and IPs validation

Overview

GiDEL’s innovative FPGA-based Proc Boards™ provide supercomputing solution combining superior performance at ultra low power consumption. The Proc boards were designed for high performance and maximal flexibility to meet application specific needs. The Novo-G, the world’s largest declared FPGA based supercomputer, exemplifies the combination of performance and flexibility to achieve supercomputing acceleration for diverse calculation-intensive research applications using GiDEL Proc boards.

Development Tools

The ProcHILs, based on an intuitive interface, enables to use Simulink as a design entry tool to achieve full system performance while the algorithm developer does not require any knowledge of HDL language. In addition, the ProcHILs enables to significantly accelerate Simulink simulation

Other high-level design entry options, such as C++, are available via GiDEL’s partners.

GiDEL unique IPs enable customized multiple parallel data streaming to feed computational processing according to the algorithm needs. The main benefits are:

- Simplification of design and enhanced system performance.
- Design compatibility and migration amongst legacy and future GiDEL Proc boards.

For HDL design GiDEL’s ProcWizard generates automatically the following:

- HDL user modules/entities template with the necessary host/memory and other wrapper to the application use.
- Device constraints (e.g., timing, pin-outs).
- C++ class(es) application driver(s) enable simultaneous accesses of multiple applications, each to its' dedicated section of the FPGA / Proc board.
- Interface documentation in HTML or MS Word.

For debug tools contact GiDEL.

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