



日本語

Sign In

| Register

Search aldec.com


[SOLUTIONS](#) [PRODUCTS](#) [EVENTS](#) [COMPANY](#) [BLOG](#) [SUPPORT](#) [DOWNLOADS](#)
[Home](#) > [Solutions](#) > High Performance Computing


SOLUTIONS

[FPGA Design](#)
[Functional Verification](#)
[Hardware Emulation Solutions](#)
[Prototyping](#)
[FPGA Embedded Solutions](#)
[DO-254 Compliance](#)
[Specialized Applications](#)
[High Performance Computing](#)
[Computer Vision](#)
[Encryption & Security](#)
[Genome Alignment](#)
[High Frequency Trading](#)
[Large Scale HPC](#)
[Embedded HPC](#)

RELATED PRODUCTS

[Riviera-PRO](#)
[HES-DVM](#)
[HES-US-440](#)
[TySOM Boards](#)
[TySOM™ EDK](#)

High Performance Computing

Advancements in FPGA silicon, tool flows and IPs have proven FPGAs to be the ideal solution for accelerating complex computational applications for solving science, engineering and business problems. The inherent reprogrammability of FPGAs, deep pipelining structures and massive parallel compute resources favor the ever-evolving technology of High Performance Computing (HPC) algorithms and applications in areas including Genomics, Cryptography, Computer Vision, Neural Networks, Big Data, High Frequency Trading. Moreover, with the same or even better results FPGA can dramatically reduce power consumptions and give a place for future upgrades and modifications.

For over 30 years Aldec provided the tools for FPGA design and verification, and so gained the deep knowledge of FPGA technology, industry standards, tool chains, hardware programming languages and verification methodologies. Our mission is to share this experience with you in your journey to deploy the most power efficient HPC solution available today. Unlike other vendors that provide bare hardware we will support your migration process to FPGA with development tools, reusable modules and advisory services for the first time success. Aldec's HPC turnkey solutions include three elements that are needed for accelerating and deploying HPC algorithms with scalable FPGA-based hardware.

- FPGA-based accelerators
- Reference designs and integration services
- HDL/RTL code design and simulation tools

FPGA

Accelerators

Every customer's needs are different and depend on the projects, therefore Aldec has developed a portfolio of FPGA accelerator boards to meet various

expectations. Currently Aldec provides several board configurations that can cope with acceleration of the most demanding and sophisticated algorithms that fall in two main categories - [Large Scale HPC](#) and [Embedded HPC](#).



Derived from the family of [HES prototyping boards](#), the FPGA accelerators were designed and optimized for large scale HPC applications. In order to address growing needs of embedded HPC, Aldec designed a special family of compact [TySOM boards](#) that utilize Xilinx Zynq devices which integrate both ARM Cortex processors and FPGAs structures in one chip.



Quick Integration

Short bring-up time of algorithm mapped to FPGA and quick integration with the main application is what software developers need and request. In Aldec we understand HPC

business and software development models as well as FPGA design processes, so we are competent to provide integration solutions enabling you to take advantage of FPGA technology and avoid hiring a team of hardware experts. The integration solutions include reusable software and hardware components such as [HES Proto-Axi](#) interface and advisory services to spread our knowledge and expertise. Aldec's close cooperation with FPGA chip vendors and extensive knowledge of their toolchains used for algorithm implementation will make your transition to FPGA efficient and problemless.

Services & Reference Designs

We believe in reusability. Aldec provides customers with many reference designs for both [Large Scale HPC](#) and [Embedded HPC](#) platforms. Our customers do not have to start projects from



scratch but can reuse available designs significantly shortening their projects ramp up. If this is not enough, Aldec with 30+ years expertise in FPGA/ASIC technology can provide you with custom engineering services and help with:

- Building a complete system optimized for your application
- Integrating your algorithms with FPGA hardware infrastructure
- Converting an algorithm to the FPGA



FPGA Design and Simulation tools

Users who are looking for a complete FPGA development ecosystem will benefit from cooperation with Aldec with its FPGA accelerator boards and RTL development/simulation tools such

as [Riviera-PRO](#) – a high performance mixed-language (VHDL/Verilog/SystemVerilog/SystemC) simulator with Python testbench support for FPGAs.

Benefits

- **Tailor-made hardware platforms** - users can choose from large portfolio of FPGA boards for large scale and embedded HPC.
- **Scalability** - algorithm kernels replication is facilitated with support of multi-FPGA and multi-board configurations
- **Quick integration & short bring-up** with reusable components, processes and reference designs
- **Complete development environment** including RTL simulators and integration with FPGA vendor tools
- **Integration services** for customers needing FPGA expertise Aldec offers engineering services



Solutions

FPGA Design
Functional Verification
Hardware Emulation Solutions
Hardware Prototyping
Requirements Management
FPGA Embedded Solutions
DO-254 Compliance
Specialized Applications
High Performance Computing

Technical Resources

Recorded Webinars
White Papers
Blog
Application Notes

What's New

Press Releases
Events

Let Us Help You

Contact Us
Ask Aldec
Customer Portal

©2024 Aldec, Inc. All Rights Reserved.



[Legal](#) | [Privacy](#) | [Site Map](#) | [RSS Feeds](#) | [Feedback](#)