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Impulse Joins Xilinx ESL Initiative

C-to-FPGA tools critical component of new initiative to attract software programmers to FPGAs, Impulse provides floating point support as first milestone

Kirkland, WA – March 13, 2006 – Impulse Accelerated Technologies™ today announced its participation in, and endorsement of, the newly-created Xilinx ESL Initiative. This initiative (www.xilinx.com/esl) has been created by Xilinx and its ecosystem partners to empower software programmers and current FPGA users with detailed information and technical resources related to the emerging field of Electronic System Level (ESL) design. Impulse also announced today delivery of ESL Starter Kits supporting Xilinx Virtex-4 Platform FPGAs, the first deliverable resulting from the ESL collaboration between the two companies.

The ever-increasing complexity of modern electronic systems has led to increased demand for higher levels of design abstraction. ESL provides the solution by combining software-oriented methods of design capture and modeling with tools for the automatic translation of design concepts to actual hardware/software platforms, including FPGA-based platforms. C-to-hardware tools are an important part of the ESL landscape, and provide the means to express applications, both hardware and software, using a language familiar to a large majority of application programmers.

The *2006 EE Times ACE award nominated* Impulse C™ tools support ESL and C-to-hardware design flows by allowing applications to be compiled into optimized FPGA logic and accelerated by as much as 300X over traditional embedded processor implementations.

“The best way to attract software developers to FPGA platforms is by making software-to-hardware compilation easier. Our focus continues to be on providing C-based tools that do not require low-level FPGA design skills. The Xilinx ESL initiative helps spread the message that software-to-hardware is a practical and productive method of design.”

The Xilinx ESL Initiative is aimed at educating current and new FPGA users about ESL and software-to-hardware design flows, as well as fostering technical and marketing collaboration between Xilinx and ESL providers. One of the first products of this collaboration is floating point support in the Impulse C-to-FPGA tools. The extended dynamic range and precision offered by floating-point arithmetic can be a requirement for many applications, including signal processing algorithms for graphics, advanced wireless communications, instrumentation, industrial control, audio and medical imaging applications, as well as for FPGA-based

supercomputing. Using Impulse C, software programmers are now able to generate Xilinx floating-point hardware from standard C-language statements. Both single and double-precision floating-point is supported, through the automatic inference of Xilinx IEEE-754 standard compliant floating-point IP libraries.

“ESL tools for FPGAs empower software-centric designers to explore ideas in programmable hardware through abstracted design methods, and is a key element of our ESL Initiative,” said Steve Lass, director of Software Product Marketing at Xilinx. “By adding direct support for Xilinx floating-point libraries to its C-to-FPGA tools, Impulse continues to demonstrate its strong commitment to making FPGAs accessible to software application developers at all levels.”

The Impulse C tools can be used in combination with existing, HDL-based FPGA tools, or can be used as a primary method of design entry. For applications involving embedded MicroBlaze™ or PowerPC™ processor cores, the Impulse C compiler is capable of automatically generating the required hardware/software communication channels using the fast simplex link (FSL), Auxiliary Processor Unit (APU) controller, and other Xilinx interfaces. The Impulse compiler generates outputs that are fully compatible with the latest Xilinx devices, including Virtex™-4 Platform FPGAs, as well as the Xilinx Integrated Software Environment (ISE™) and Platform Studio tool suites.

Embedded software application developers and scientific application programmers can use Impulse C to quickly and easily create FPGA application accelerators, without the need to understand low-level FPGA hardware or have any prior hardware design experience. Using these tools, software programmers today are describing, partitioning, optimizing and compiling their applications for use with the most advanced FPGA-based platforms. These platforms range from relatively simple, single-chip FPGA prototyping and reference boards to high-end cluster computing systems such as the Cray XD1™ FPGA-accelerated supercomputer.

Pricing & Availability

ESL Starter kits are now available from Impulse in support of the Xilinx ESL Initiative. The newest Starter Kit is based on the Xilinx Virtex-4 platform and includes a one year license of the Impulse C software, the Prentice Hall textbook *Practical FPGA Programming in C*, a Nu Horizons FX-12 development board, Xilinx Embedded Development Kit, and two hours of factory consultation. The Virtex-4 Impulse C ESL Starter Kit is priced at $2,995. Visit www.ImpulseC.com/xilinx for additional information.

About Xilinx ESL Initiative

The Xilinx ESL Initiative is a multi-faceted program aimed at proliferating high-level design methodologies and tool flows for FPGAs. The goal is to make it easier for hardware designers and software programmers to leverage Xilinx programmable devices for their next generation systems. Xilinx and participating companies are focused on improving ease of use, quality of results and interoperability standards through technical collaboration, cooperative marketing and joint educational activities. For more information about the Xilinx ESL Initiative, visit www.xilinx.com/esl.

About Impulse

Founded in 2002, Impulse provides design tools that enable true software programming of FPGA devices using the C language. The Impulse C tools allow FPGA algorithms to be developed and debugged using popular C/C++ development environments, including Microsoft Visual Studio™ and GCC-based tools. The Impulse C software-to-hardware compiler translates C-language processes to low-level FPGA-hardware, while optimizing the generated logic and identifying opportunities for parallelism. The compiler analyzes untimed C code and collapses multiple C statements and operations into single-clock instruction stages, and is capable of unrolling loops and generating loop pipelines to exploit the extreme levels of parallelism possible in an FPGA. The integrated Application Monitor™ generates debugging visualizations for highly-parallel, multi-process applications, helping system designers identify dataflow bottlenecks and other areas for acceleration.