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DSP/FPGA Co-Processing Demonstrates 20X Acceleration using Software-to-Hardware Design Flow

Impulse C-to-FPGA compiler and 3L Diamond tools combine to accelerate signal processing in a hybrid DSP/FPGA multiprocessing system

Kirkland Washington and Edinburgh Scotland — May 22, 2008 — Impulse Accelerated Technologies Inc. and 3L Limited today announced a technology partnership allowing DSP application developers to create accelerated algorithms for high-performance embedded systems, using software development methods for both DSP and FPGA devices.

To demonstrating this capability, 3L engineers created an accelerated signal correlation application using the 3L Diamond and Impulse CoDeveloper tools, and targeting a Sundance Multiprocessor Technology Ltd. board. The Sundance board includes a Texas Instruments C6416T DSP processor, a Xilinx FPGA and 256Mbytes of SDRAM. The result was a 20X acceleration over the DSP software-only version, without the need to write low-level hardware descriptions.

3L Diamond is a development tool for high-performance multiprocessing and design partitioning. The tool is used in applications where multiple processing elements must be combined to meet required levels of power/performance. These processing elements can include DSPs, FPGAs and standard processors.

Impulse CoDeveloper is a compiler and related design tools that allow C-language applications to be quickly and efficiently retargeted to FPGA-based platforms, for embedded systems, signal processing, and high performance computing. The Impulse C-to-FPGA compiler generates hardware outputs compatible with the 3L Diamond FPGA multiprocessing tools

Standard software development tools for DSPs and standard processors are powerful and well-developed, but they usually address systems with only one processor. 3L Diamond provides a method of designing and debugging large, complex applications with many distinct processors. Similarly, the Impulse CoDeveloper tools dramatically simplify the creation of FPGA hardware modules and processor peripherals from C-language descriptions.

According to Hendri Veldman, Software Director for 3L, "FPGA co-processors can accelerate signal processing and other applications dramatically over DSP-only implementations. 3L Diamond and Impulse CoDeveloper represent a highly productive environment for large-scale DSP and FPGA co-design."

"The Impulse and 3L tools are entirely complementary," stated David Pellerin, Founder and CTO of Impulse. "By developing an integration path between these tools, we are providing to our common customers a new and powerful alternative for system partitioning and high-level design."

Availability

Impulse CoDeveloper and 3L Diamond are available now, and the integration add-on between the tools is available at no charge to Impulse and 3L customers. Perpetual, annual and floating licenses of the Impulse and 3L tools are available from the respective vendors.

About Impulse

Impulse products allow developers of advanced embedded, DSP and image processing systems to rapidly move applications originating in ANSI C to FPGA coprocessors. The Impulse CoDeveloper tools are in use by software and hardware application developers worldwide. For more information on Impulse C-to-FPGA software, or to register for a free web seminar, visit www.ImpulseC.com.

About 3L

Multiprocessor software company 3L Limited has been providing multiprocessor software development systems worldwide since 1987. 3L Diamond provides an easy to use, flexible environment where DSP plus FPGA technologies can be quickly leveraged and applied to demanding signal processing applications. For more information about 3L products, visit www.3L.com.

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