Impulse C Tools Accelerate HD Video Processing Development on Xilinx FPGAs

Hardware-accelerated solutions for consumer and automotive applications to be highlighted in Las Vegas, January 8-9, 2009

What: Impulse C-to-FPGA for HD Video: "Finding Nemo" Object Tracking Demo
Where: Consumer Electronics Show, South Hall, Xilinx Booth 4-35171MP
When: January 8-9, 2009

Kirkland, WA – January 7, 2009 – Impulse Accelerated Technologies joins Xilinx, Inc. to showcase fast prototyping and development of real-time HD video processing applications. In an FPGA-enabled video processing demonstration, HD video is processed in real-time to identify and track a specific object. In this case, an inexpensive, low-power Xilinx FPGA is used to track and highlight "Nemo" as he moves through the scenes of Pixar's *Finding Nemo*.

This same technology extends to other applications in entertainment, home security and automotive. For example, a specific football player can be instantly identified and highlighted during a game. In an automotive application, highway signs could be identified and automatically read for important information.

The Impulse "Finding Nemo" demonstration represents a moderate (20 hour) effort by a software engineer with little prior experience in video processing. This application showcases the ability of the FPGA to provide a flexible, single-chip solution for high-throughput video processing. The Impulse C-to-FPGA tools enable video application developers to configure on-board hardware using software programming methods.

The introduction of a C-language tool set specifically designed for video applications helps open up FPGAs for wider group of software/hardware developers, and enables new categories of high-throughput applications to be moved into FPGAs for system integration and improved performance, at reduced power and cost.

According to Brian Durwood, Impulse co-founder and COO, "FPGAs today can handle entire embedded systems, including functions typically assigned to DSPs and microprocessors. With Impulse C, these C functions are consolidated onto one cooler-running, parallel processing FPGA."

Impulse will conduct live demonstrations of its C-to-FPGA solutions for streaming video in the Xilinx booth at CES. The demonstrations will include the "Finding Demo" real-time object recognition application, using the Xilinx Video Starter Kit and Xilinx Spartan™ 3A FPGA device. Impulse will also demonstrate a dual-processor video filtering application implemented on a Xilinx Virtex™-5 FX130 FPGA device.

For the object recognition demonstration, Impulse representatives will show how the Impulse CoDeveloper tools and libraries can be used to integrate C-language streaming video image filters with the Xilinx Platform Studio™ and Xilinx System Generator™ tools. This advanced tool flow allows video algorithm developers to create complete video processing applications without the need to write low-level hardware descriptions.

Automatic C-to-FPGA hardware generation and pipeline optimization features will be highlighted in this demonstration.

In the dual-PowerPC demonstration application, two FPGA-embedded PowerPC processors are combined with closely-coupled FPGA accelerators, written in C, that perform image processing functions including inverse discrete cosine transform (IDCT), YUV to RGB color conversion, and run-time configurable video image filtering. One of the PowerPCs runs an embedded operating system including an embedded web server and display driver, while the second PowerPC is dedicated to video decoding and real-time image filtering. High-speed serial interfaces are used to communicate video data directly between the two processors and the configurable filters, demonstrating the high performance and scalability of FPGA-based embedded computing.

About Impulse

Impulse provides software-to-FPGA solutions for embedded and high performance computing. Impulse solutions are used to accelerate the development and deployment of high-throughput applications in domains that include defense, aerospace, automotive and consumer electronics. For more information about Impulse C-to-FPGA solutions, visit www.ImpulseC.com or call 425-605-9543.