

C-to-FPGA Integration Accelerates DSP Prototyping by ten

Northwich, Cheshire, 2nd September 2010. Kane Computing Ltd (KCL), today announced that the popular Impulse C to FPGA tool set, that they sell in the UK has now been integrated to Stone Ridge Technology products. The integration enables software developers to write HLL (High Level Language) signal, imaging or data processing algorithms that rapidly compile to optimized RTL (run time language) targeting Stone Ridge's RDX-11 FPGA board and development kit. For designs with significant non-sequential logic the speed improvements can be 10 – 100x. Compared to hand coded RTL methodologies, the design entry can take two thirds the time and iterations one eighth the time.

According to recent research, up to 1/3 of design teams are considering using an HLL to develop applications for hardware. The most common languages mentioned are C-based. The reasons given are time to prototype, plentiful existing intellectual property, and the fact that the increasing gate count of modern FPGAs makes manual design methods too slow for populating entire systems on a chip. Users from NASA to Wall Street are deploying HLL programmed FPGAs for applications such as image capture and financial feed processing.

Applications currently in use at Stone Ridge using ImpulseC center around high-speed feeds of data, images or signals. The integration to the new RDX development kit brings to reconfigurable computing C programmable cutting-edge FPGA technology with high bandwidth and ample memory to achieve maximum processing power. Specifically regarding accelerated network processing, Stone Ridge boards work with Impulse C to enable software developers to move critical path network interface processes to hardware, where they run faster in multiple streams without the overhead of an operating system.

The integration provides C based links to hardware features and busses on the FPGA and RDX-11 board such that software developers can accelerate on the board without writing hardware controllers. Processes run as custom streaming cores in dedicated FPGA hardware without an operating system, to maximize throughput and reduce power consumption. Packet data integrity is increased when compared to microprocessor based single- or dual-stream solutions.

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"Many of our customers were interested in C-based tools. Impulse is a natural choice because of its broad based adoption across many industries and its place in the market." commented Vincent Natoli, President of Stone Ridge Technology; he continued *"We think the option of C-based algorithm development via Impulse's products will open the door to high performance reconfigurable computing on FPGAs to many groups not trained in HDL's. Network processing solutions in particular, which we've investigated in some detail, will benefit from ANSI-C configurable hardware accelerated solutions that can shave off 10's of microseconds of latency and deliver improved robustness under load."*

The Stone Ridge/Impulse collaboration is an example of hardware/software co-design where the computational resources are optimized for the software problem being addressed. System teams can contact Stone Ridge and Impulse to evaluate this high-throughput, high-data integrity solution for their specific applications.

About Impulse

Impulse Accelerated Technologies (www.ImpulseC.com) provides C-to-FPGA tools, training and custom solutions. Impulse C has been used to design vision systems, financial feed handlers, encryption systems and database grid accelerators. Impulse products are in use at over half of automotive suppliers, eight of the top ten government contractors, most US government agencies and hundreds of R&D labs worldwide.

About Kane Computing

KCL (www.kanecomputing.co.uk) has been providing Image Processing, DSP and high performance computing products for use in industry, education and research since 1987 and is a Texas Instruments Third Party Partner specialising in consultancy and advice on TI development tools/platforms and image processing applications. KCL have extensive knowledge and experience of providing video compression solutions for many industries particularly for digital video security and high quality broadcast applications. KCL has a policy of continual improvement and operates its business in accordance with the requirements of ISO9001:2000.

About Stone Ridge Technology

Stone Ridge Technology's (www.stoneridgetechnology.com) team of physicists, computer scientists and electrical engineers develop and port technical codes to hybrid platforms including multi-core CPU, GPU and FPGAs. The company also offers full systems for reconfigurable computing based on its proprietary FPGA hardware designs. Headquartered in Bel Air, Maryland, the company has focused efforts in the Oil and Gas, Finance and Bio-informatics sectors.

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