C-to-FPGA Integration Accelerates Prototyping 10X

<u>Time-to-prototype, application performance, and hardware usage optimized by well integrated tools and high-memory, high-throughput FPGA-based platforms</u>

Bel Air, MD -- 31 August 2010 -- Stone Ridge Technology today announced integration to the popular Impulse C-to-FPGA toolset. The integration enables software developers to write HLL (high level language) algorithms that rapidly compile to optimized RTL (register transfer logic) targeting the Stone Ridge RDX-11 FPGA board and development kit. For applications 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 Impulse C 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.

"Many of our customers have expressed interest in C-based tools," said Vincent Natoli, President of Stone Ridge Technology. "Impulse C is a natural choice because of its broad adoption across many industries and its place in the market for FPGA tools. We believe the option of C-based algorithm development via Impulse products will open the door to high performance reconfigurable computing on FPGAs to many groups not trained in HDLs. Network processing solutions in particular, which we've investigated in some detail, will benefit from C-language configurable hardware accelerated solutions that can

shave off tens of microseconds of latency and deliver improved robustness under load."

The Stone Ridge and 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.

Developers can purchase Impulse C or Stone Ridge boards from the respective manufacturers. Also, Impulse and Stone Ridge have preconfigured systems available that include all the hardware and software a development team will need to create a first application and deploy it in hardware. Systems include eight hours of remote training and the option of having algorithms professionally refactored for multi-streaming parallelism. On-site training and installation are available.

About Impulse
Founded in 2002, Impulse Accelerated Technologies 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. www.ImpulseAccelerated.com

About Stone Ridge Technology
Founded in 2005, Stone Ridge Technology's 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. www.stoneridgetechnology.com

Media Contacts:

Brian Durwood, Impulse Accelerated Technologies, Inc.
 (425) 605-9542 #109
brian.durwood@ImpulseAccelerated.com

Vincent Natoli, Stone Ridge Technology
(410) 670-4535
vnatoli@stoneridgetechnology.com

Graphics and captions:

The RDX-11 uses cutting-edge FPGA technology, high bandwidth and ample memory to achieve maximum processing power.

Impulse C provides part of the solution by enabling software developers to easily move network packet DP parsing and critical algorithms such as a matching and strategy set to hardware.