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Mitrionics' New Open Bio Project Aims to Accelerate Key Bioinformatics Applications for FPGA Supercomputing

BLAST, Smith-Waterman, & Hidden Markov Models to be Accelerated and Contributed to Open Source Community

Los Angeles, – November 6, 2006 - Mitrionics™, Inc., developer of the Mitrion™ Virtual Processor and software-centric Mitrion-C programming language for FPGA Supercomputing acceleration, today announced the Mitrion-C Open Bio Project, where the company will actively participate in developing FPGA Supercomputing applications such as: BLAST, Smith-Waterman, and Hidden Markov Models for the bioinformatics industry. Applications completed under the Mitrion-C Open Bio Project will run on the Mitrion Virtual Processor (including the Mitrion-accelerated version of the NCBI BLAST application) and be contributed as open source applications to the bioinformatics community. Scientists and developers can download the Mitrion-accelerated NCBI BLAST application and the Mitrion Software Development Kit – Personal Edition at no charge from www.mitrionics.com and use them to participate in the Mitrion-C Open Bio Project to create new applications or work on refining the BLAST application.

The Mitrion-C Open Bio Project is designed to provide a development foundation for a wide range of FPGA Supercomputing bioinformatics applications and also to initiate an open source developer's community to promote future FPGA-accelerated applications for the Mitrion Virtual Processor. Currently, the Mitrion-accelerated BLAST program is being tested for use with the Mitrion Virtual Processor on the SGI® RASC™ RC100 computation blade for the SGI® Altix® family servers. Mitrionics intends to support all FPGA-based computer systems from major vendors that are capable of running supercomputing applications.

“Bioinformatics is one of the most exciting fields in the entire high performance computing market, with many terabytes of sequence data being generated per day,” said Michael Brown, sciences segment manager for SGI. “Mitrionics' Open Bio Project, including the development of open source FPGA accelerated versions of BLASTN and other key algorithms, will give bioscientists more powerful tools with which to analyze the data deluge. The rapid analysis of these massive amounts of data will result in a better scientific understanding of fundamental biological processes and genetic factors that lead to disease.”

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The Mitriion Open Bio Project

The Mitriion Bio Project is a new program from Mitrionics where the company will actively participate in the Development of FPGA accelerated key bioinformatics applications such as various BLAST versions, Smith-Waterman, and Hidden Markov Models. BLAST with an accelerated BLASTN program is the first FPGA Supercomputing application developed under this project. As they are developed, the Mitriion-accelerated applications under the Mitriion-C Open Bio Project will be available to Mitrionics and SGI customers at no charge and also will be contributed to the bioinformatics community as open source through the web site: sourceforge.net. The open source Mitriion port of NCBI BLAST can be modified and refined by scientists and developers by using the Mitriion Software Development Kit (SDK) Personal Edition – also available at no charge from www.mitrionics.com. A commercial version of the Mitriion SDK is available separately and customers have numerous support and training options available from Mitrionics as well.

The Mitriion-Accelerated BLAST Application

Mitrionics chose to use the NCBI BLAST source code and ported key computationally intensive portions of the BLASTN program for nucleotide searches utilizing the Mitriion-C programming language. The result is an accelerated NCBI BLAST with identical user interface, file formats, and output options, making it easy for anyone familiar with NCBI BLAST to get started immediately.

The first version of Mitriion-Accelerated BLAST BLASTN searches shows a 20x faster total run time, wall clock time, per chip compared to a traditional processor. And the performance of the accelerated parts of the search, operating on the FPGA, is 35x faster.

Mitriion BLAST is designed to run on the Mitriion Virtual Processor operating in FPGA (Field Programmable Gate Array)-based computer systems including the SGI® RASC™ RC100 computation blade in SGI® Altix® family servers, built with dual Xilinx Virtex-4 FPGAs. The turnkey BLAST application provides instant FPGA Supercomputing performance acceleration without requiring any development costs, time, or risks by the customer.

About the Bioinformatics Industry

With current revenues at around \$ 840 million, the bioinformatics market is forecasted to become more

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dominant and increase to around \$1.82 billion by 2007, and with a CAGR of about 15 % up until 2010.

(Source: Scope Ltd., BCC, Inc.) The bioinformatics industry is one of the largest segments within supercomputing and stands to benefit significantly from FPGA-based application acceleration.

Bioinformatics is the science of recording, annotation, storage, analysis, and searching/retrieval of molecular information such as gene sequences, protein sequences and structures genetic variation, and cell activity.

This includes databases of the sequences and structural information as well methods to access, search, visualize and retrieve the information. Bioinformatics concerns the creation and maintenance of databases of biological information whereby researchers can both access existing information and submit new entries.

About the Mitriion Platform and Mitriion Virtual Processor

The fine-grained, massively parallel Mitriion Virtual Processor is the core of the Mitriion Platform. It runs software written in the Mitriion-C programming language in FPGAs. This completely eliminates the need for the programmer to master hardware design. The Mitriion Virtual Processor has a unique architecture that lets it be adapted to each program it is running in order to maximize performance. Together with the Mitriion Software Development Kit, it offers a unique solution for developing supercomputing applications for FPGAs on a true software level. This dramatically reduces the total development costs for FPGA-based software acceleration, and more importantly, enables the whole supercomputing industry to benefit from FPGA application acceleration.

About Mitronics

Founded in 2001, Mitronics, Inc. is the technology leader in the exciting new field of FPGA Supercomputing which provides higher processing power and lower energy consumption than clusters of computer systems. The company's Mitriion Virtual Processor and Mitriion Software Development Kit provide cost effective FPGA Supercomputing power to organizations for their most critical applications. The Mitriion Platform is unique from any other FPGA programming solution, because it eliminates the need for circuit design skills, thus making FPGA Supercomputing performance accessible to an entire new market of scientists and developers. Mitronics has key industry relationships with Cray, Nallatech, and Silicon Graphics. For more information, visit the company Web site at www.mitronics.com, or call 310-558-9495, or email: info@mitronics.com.

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