

Reconfigurable Computing Solutions for Quantitative Finance

Summary

Reconfigurable computing solutions from SRC Computers provide powerful energy-efficient processing for the finance market in a much smaller footprint and with significantly reduced total cost of ownership over microprocessor-based clusters.

- Orders of magnitude more performance for compute-intensive financial applications
- Power consumption and cooling costs reduced by 90%



Challenges

The financial community has been using quantitative finance for many years and would like to make decisions in “real time” based on market data, risk management and data mining research. In order to minimize risk, the compute algorithms are applying ever more sophisticated mathematics that is exponentially driving up the computation demands of financial houses. Computationally intensive financial applications such as these have historically run on large grids or clusters requiring high expensive power, cooling and IT support costs.

The challenge of real-time monitoring of market data is how to “instantaneously” provide data to computational programs, and the goal is to figure out how to reduce delays of microseconds to nanoseconds. Many organizations are looking to new computing technology to help reduce the computational time-to-solution as well as the size, power and cooling of their large compute systems.

⇒ *Replace racks of traditional servers with a single SRC system*

⇒ *100x performance gain on the Black-Scholes European Option Call algorithm*

⇒ *Greatly reduced power consumption of just 18 Watts*

Solutions

SRC MAPstation™ workstations and Scalable Systems & Servers can greatly accelerate transaction applications, data mining and real-time data encryption for financial sector applications. SRC Computers is currently developing solutions for the financial sector based on the powerful cost-effective Series I MAP® processor. An example of such a performance gain is shown using the Black-Scholes European Option Call algorithm, one of the most important mathematical tools in the modern theory of finance. The use of the Series I MAP processor on the Black-Scholes algorithm delivers a large performance gain of more than 100x at greatly reduced power consumption of just 18 Watts over leading microprocessor-based systems.



System Attributes

Attributes of SRC scalable computing solutions that help achieve significant application performance gains include:

- MAP processors, the SRC reconfigurable compute element, that deliver orders of magnitude speedup over microprocessors, use very low power and generate very little heat
- Real-time encryption of data as it streams through the system with near zero latency
- Rotating Common Memory (RCM) that can store terabytes of historical market data and deliver the data to compute at a sustained rate of 3.6 GBytes/sec
- GPIOX Cards that can have up to six parallel ethernet data paths in or out of Series H MAP processors and provide packets of data to compute in less than 10 nanoseconds
- Global Common Memories (GCM) that can read memory access patterns defined by an application and deliver the data to a MAP processor at 3.6 GBytes/sec. Example use:
 - The reuse of computed data defined for data structures in Gbytes of data in complicated Monte Carlo applications
- Processor-to-processor communication bandwidths of 3.6 GBytes/sec

Find Out More

Contact SRC Computers today to find out how you can get more performance per watt over traditional microprocessor-based systems. **Call (719) 262-0213** or **e-mail sales@srccomputers.com** to speak with our applications experts. Please also visit our web site at **www.srccomputers.com**.



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