[Case Study]

AMAX Provides Engineering Leadership as a True Full-Service Technology Partner to the Lincoln Financial Group

The Challenge

Headquartered in Philadelphia, the Lincoln Financial Group is a Fortune 500 company offering a diverse range of financial services and insurance solutions. Their four major lines of business include life insurance, retirement services, medical insurance and investments. Much of Lincoln's competitive edge comes from the ability to run Monte Carlo financial-risk algorithms on the various sets of data they own to determine investment ROI & trends, market predictions, portfolio demographics, insurance risks, to name a few. The accuracy of these calculations translates directly into Lincoln's ability to forecast returns for their shareholders as well as maximize the company's profit while strategically minimizing risk. Because of the size and complexity of the immense data sets that Lincoln depends on, Lincoln is consistently deploying the fastest, most powerful technology platforms for data processing and analytics in order to maintain their position as a trusted market leader.

The Problem

In the financial world, data is king. Being able to process and analyze massive amounts of data quickly and accurately to recognize trends, risks and profit can determine the success of a company. Once Lincoln Financial Group realized the complex Monte Carlo analytics they wanted to run would take months or years to process on CPU-only machines, they made it an imperative to integrate high performance computing (HPC) options. Parallel-computing using NVIDIA® Tesla® GPU accelerators was the ideal solution that would allow Lincoln to process their data efficiently and give them results while they were still relevant and actionable.

The Solution

After reviewing a range of companies including Tier 1 server providers, Lincoln chose AMAX as a technology partner to develop their risk-analysis platforms due to AMAX's engineering services including initial architecture design consulting, ability to design towards highly-customized software requirements, quality-driven ISO:9001 manufacturing, and "cutting-edge systems powered by NVIDIA Tesla K20X GPU accelerators based on the advanced NVIDIA Kepler™ computing architecture" according to Paul Musienko, UNIX/DB Systems Administrator at Lincoln.

Lincoln required a high-performance GPU compute architecture for their in-house developed application that would interact with MySQL databases running NFS storage. Lincoln needed more than just a hardware partner but an experienced HPC technology partner with the engineering capability to design and build a performance-driven cluster architecture that would also be compatible with their customized proprietary software, which was developed using the NVIDIA CUDA® parallel computing platform and programming model. "AMAX spent a few meetings with us to shake out details including server roles, specific build details, HPC configuration, testing after install,"

said Musienko. “Meetings were highly detail-oriented, brief and efficient.” The final configuration was a powerful and efficient 23-node high-performance GPU cluster including two head nodes, two NFS storage servers for runtime storage, three MySQL DB servers for business input/output processing and 16 compute nodes running NVIDIA Tesla K20X GPU accelerators, logically split into sections of Development, UAT and Production Areas. The performance of this GPU cluster allowed them to process complex jobs in hours versus the weeks or months it would take with CPU-only platforms. In addition, Lincoln had very strict project deadlines needing a turnaround time of 6 weeks. They were very pleased that AMAX was able to deliver a total turnkey solution on-time as promised, including a full range of value-add services including onsite installation and support with no sacrifices to manufacturing quality that AMAX customers have come to expect. AMAX truly showed its partnership spirit by continued responsiveness once the cluster was in use to ensure the cluster was functioning optimally and to quickly address any issues and needs that arose. Throughout the process, AMAX proved to be a dedicated full-service technology partner, from providing initial engineering design recommendations and consulting on available relevant technologies, to building the highest-quality solution thoroughly tested at the component-system-rack level, to onsite installation services and post-sales responsiveness and diligent follow through.

> “AMAX delivered hardware for our Equity Risk Management Group’s Monte Carlo-based financial market simulation analysis. It was done under pressure of project time limits as well as technological requirements to use next-generation NVIDIA Tesla K20X GPU accelerators,” said Musienko. “AMAX engineers demonstrated flexibility and high technical level of attention to our custom Grid design needs, since all the software was developed ‘in house’ and required detail custom implementation. Technical support is very responsive and detail-oriented. Definitely, we plan to buy more from AMAX.”

For more information on AMAX’s high-performance GPU clusters for the financial industry, please visit the ClusterMaxTM SuperG-xF GPU cluster page or visit www.amax.com/gpu. For more information on Lincoln Financial Group, please visit www.lfg.com.