



IllinoisRocstar Analyzes the Benefits of Supercomputing Power to Optimize Performance and Increase Profits



THE PROBLEM

IllinoisRocstar performs computational engineering analysis for commercial industries and U.S. government agencies. Using integrated simulation software, the members of IllinoisRocstar employ first-principles based physics for high-fidelity numerical analysis of fluid flows, combustion, materials, structures, and their interactions in complex changing geometries. Supercomputer-scale simulations are the fundamental tool used by scientists and researchers at IllinoisRocstar and extreme computing power is required to run their simulations and analyze the massive datasets.

THE CHALLENGE

The scientists and researchers at IllinoisRocstar are using advanced computation and simulation techniques to understand the implications of three-dimensional fluid-structure interactions on the design and application of engineered devices. The company needed a customized supercomputing solution to do scientific computing using MPI-parallel simulation codes developed in-house. "We were buying time from National Center for Supercomputing Applications (NCSA), and it became obvious that we could do better selling that time to our clients using our own machine, and backfilling with outside time. Small businesses require cost-effective solutions—the most computing power for the money," said Mark Brandyberry, Partner, and COO, at IllinoisRocstar.

THE SOLUTION

When the growth in workload brought a need for more computing resources, the research team sought to find the best price and highest-performance computing platform to meet the facility's computing needs. IllinoisRocstar had specific cluster and component requirements to run custom scientific parallel applications analyzing computational fluid dynamics, solid mechanics, fluid-structure-interaction, combustion, and heat transfer. The company took a comprehensive look at the top HPC companies. After careful consideration, IllinoisRocstar chose the AMAX ClusterMax Apex high performance supercomputer

“AMAX worked with us to develop a custom HPC solution that met all our scientific computing requirements. The workmanship on the system was excellent, the value exceptional and post-sale support prompt and efficient.”

Mark Brandyberry, Partner, COO, IllinoisRocstar

cluster solution, which is ideal for large-scale deployments that integrate the latest CPU-based computing technologies and require maximum availability and extreme scalability, to power its data-intensive simulation applications. The customized ClusterMax Apex features Intel's quad-core Nehalem EX processors and quad data-rate InfiniBand.

"We compared Dell, HP, and Sun against AMAX, and would have included IBM if they would have bothered to respond to us," said Mark Brandyberry. "AMAX in the end beat Dell by about 10% on price, and delivered a solid turnkey solution, where we would have had to assemble the Dell cluster ourselves. Additionally, HP and Sun were non-competitive on price and all the large vendors wanted to soak us for support fees, which we did not need."

As a result of the ClusterMax Apex supercomputing solution, IllinoisRocstar has been able to provide the same services to its clients that they were previously outsourcing, and make a profit on it instead of spending capital outsourcing the work. It enabled the company to have a much better turnaround with no external queues for jobs to wait in. IllinoisRocstar also has more control of their workflow with faster simulations and more accurate results—so they can deliver on existing contracts faster, increase the facility's return on investment and improve the potential for securing new long-term contracts.

ABOUT AMAX

Founded in 1979, AMAX is a leading provider of innovative high performance computing and comprehensive appliance manufacturing solutions. The company applies a unique combination of engineering expertise with an open standards-based approach to dramatically increase IT infrastructure ROI for a broad range of customers. Global organizations, including some of the world's best-known brands, use AMAX offerings to solve complex computing challenges, meet product development demands, integrate virtualization applications, reduce energy consumption, and stay competitive. AMAX is proud to be ISO 9001 Certified and China Compulsory Certified. The company headquarters is in Fremont, CA with offices in Richardson, TX, Taipei, Taiwan, and Suzhou and Shanghai China. For more information on products and services, go to <http://www.amax.com>.