



Center for the Neural Basis of Cognition Deploys AMAX's High Performance Computing System to Keep Clinical Data on the Move

THE PROBLEM

The Center for the Neural Basis of Cognition (CNBC) is a joint project of the University of Pittsburgh and Carnegie Mellon, integrating the strengths of the University of Pittsburgh in basic and clinical neuroscience with the strengths of Carnegie Mellon in computer science, biological sciences, electrical and computer engineering, psychology and statistics.

The CNBC maintains a full schedule of scientific activities and was in need of a system that would enable faster turnaround in the computation of brain data. This data transfers in chunks of several gigabytes, which traditional workstations typically do not handle the computation as proficiently as a cluster can. A turnkey solution was required due to the lack of existing infrastructure that would enable the construction of such a cluster. Existing computing resources were slower, less reliable and did not have the capacity required to handle serious computing.

THE SOLUTION

In order to analyze the large mass of brain data, CNBC needed an HPC cluster solution specifically designed to support interactive data analysis on the extreme-scale computing systems. Having had prior experience working with AMAX, CNBC once again chose AMAX's innovative ClusterMax Series HPC cluster to solve their system expansion project requirements.

The ClusterMax system was designed to concentrate tremendous computing power in a simple, scalable format that brings high-availability with open standards-based components.



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>.

“Our business with AMAX always leaves me impressed. Their product knowledge, support and desire to help us find solutions to our problems is a rare find in today's tech industry.”

Anna Hegedus, Director of Computational Resources

It features an unprecedented level of performance utilizing AMAX's twin-node cluster with high-end Intel® Hexacore 3.2Ghz CPUs, with each node containing 16GB of RAM. For this project, the nodes were integrated using the latest InfiniBand QDR fabric for lightning fast 40Gbps performance to allow the ClusterMax to deliver compatible, powerful and stable high performance computing power, which helped CNBC achieve their medical and scientific research goals.

“Running the full automatic segmentation algorithm on the AMAX ClusterMax Series cluster takes almost exactly 15 hours per subject, which is a substantial savings from the previous 24 hours it took running on our previous system,” said Anna Hegedus, Director of Computational Resources. “It should be noted that this is not parallelized code; it's simply faster because of raw computing power and RAM on the AMAX cluster.”

“I've now verified this with two individuals who had T1 volumes that were collected on different scanners and were substantially different. As a result, the 15 hour value should be roughly the same for everyone,” added Anna Hegedus.