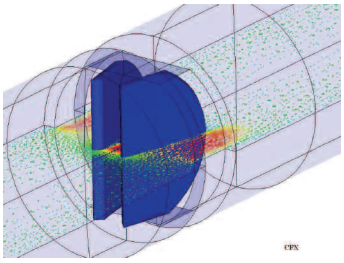
Industry Brief

SGI Biomedical Solutions

SGI® Systems Excel in Biomedical Sciences

Features

- Complete visualization, data lifecycle and HPC ecosystem
- Breakthrough performance in standards-based environment
- Interactive large data visualization for biomedical innovation



Velocity vectors on a horizontal slice through the St. Jude Heart valve roughly halfway through its opening, courtesy of European Union Project BLOODSIM

SGI has over 15 years experience partnering with medical device manufacturers to provide the best in reliable compute power for both clinical service and medical research. Today, the world's leading clinician-scientists demand access to the same scalability and superior performance of the award winning SGI® Altix® family of servers.

The SGI® Altix® 3000 server is the most scaleable Linux® server for the most demanding biomedical applications. The raw power of Intel® Itanium® 2 processors allows fast, 64-bit multiprocessing, and the global shared-memory architecture provides faster turnaround and throughput of the largest and most complex datasets such as the application of Human Genome information to medical practice at Memorial Sloan-Kettering Cancer Center. "We have had excellent professional interactions with SGI over the years and are now using the new Altix system to speed computational biology research using human genome information as a foundation for the emerging field of systems biology," Dr Chris Sander, Director, Computational Biology Center at MSKCC.

SGI's best-of-class visualization technology is helping researchers such as Dr. Terry Peters of Robarts Research Institute combine pre-op, real-time imagery and computational models to better understand their data. SGI comprehensive visualization solutions allow researchers to see their data regardless of environment, understand it quickly, and move forward in their research and treatments. SGI driven immersive collaborations facilitate information transfer in many multi-disciplinary and educational projects. "Our work requires significantly faster computation times in the simulation of organ function than is required in designing and refining image-guided surgical procedures. This made SGI Altix the clear choice…" Dr Terry Peters, Robarts Research Institute.

Molecular Imaging

SGI systems deliver a unique blend of compute and visualization performance and enable unprecedented real-time capabilities. SGI's storage philosophy of minimizing data movement while maximizing data access speeds image analysis workflows to the point where

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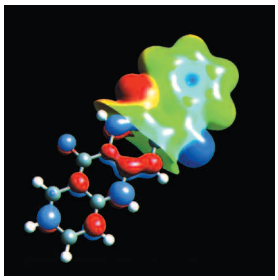


radiologists can process and visualize data quickly enough to work statistically, mining the collected imagery of 20 years of depositions into PACS archives. This capability opens new horizons for retrospective analysis of treatment outcome as well as robust historical survey based medical teaching.

Computer Assisted Surgery and Detection

SGI technologies facilitate virtual and enhanced visual procedures for improved preoperative planning and simulations. These techniques reduce the need for more invasive diagnostic and surgical procedures, lowering both the costs and the risks to the patient and speeding time to treatment. Many investigators and manufacturers of computer- aided surgery devices and surgical simulators rely on these unique SGI capabilities to remove the physical constraints of the O.R. and provide unlimited computing to their clients. “Thanks to this new SGI advance and visualization software written by the Manchester Visualisation Centre, I can now view intricate three-dimensional medical scans right in the operating theater on a simple laptop machine. I can see all around a tumor before I attempt to remove it. One day, this type of three-dimensional visualization in the operating room will become commonplace.” Dr. Rory McCloy, University of Manchester

Medical Image Management

SGI® InfiniteStorage solutions derive from decades of dealing with the world’s largest data repositories in government agencies resulting in a unique ability to address the new demands on PACS systems combined with the necessity for privacy protection in an integrative environment. SGI's reputation for performance, flexibility, and reliability extends from our entry-level disk arrays to larger, enterprise-class storage systems and custom SANs.

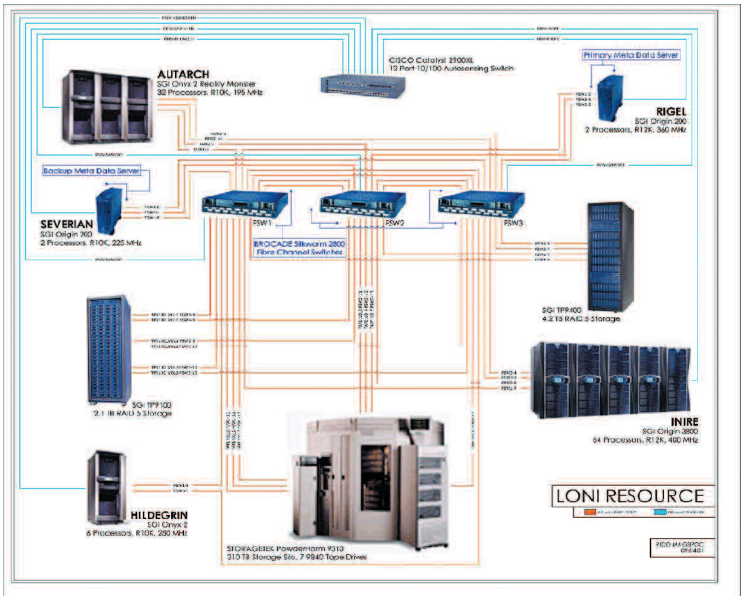
SGI systems integrate the capabilities required for the storage, display, and sharing of images across networks. High-end UNIX® servers from SGI provide multi-terabyte level storage capacity, as well as very fast access to the large repositories of images and medical data of smaller institutions. “CXFS has allowed us to carry out multiple projects simultaneously using the same data on different systems, tremendously increasing our productivity while reducing nonproductive waiting time and system downtime.” Dr. Arthur Toga, UCLA

Biomedical Engineering

Advanced modeling is increasingly important in the engineering and certification of indwelling medical devices such as stents and cardiac rhythm management equipment. As the modeling paradigm grows to include the multiphysics associated, for instance, with flow in deforming arterial environments, increasingly powerful computers are required for their timely solution. The SGI Altix family of servers provide the huge contiguous memory coupled with scalable 64-bit processing that enable multi-disciplinary design optimization for biomedical engineering and manufacturing as demonstrated by the solution of a 111-million degree of freedom model in partnership with ANSYS.

If you would like more information about SGI products or how SGI can help you achieve your research goals, please contact:

www.sgi.com/industries/sciences/medical



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