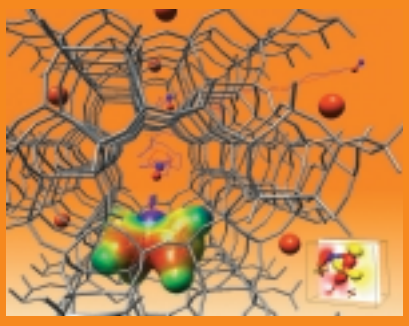
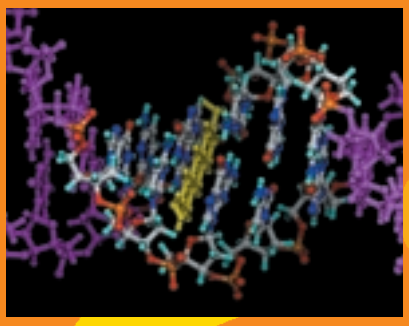
Success Story

SGI Japan Supplies Kyoto University's Institute for Chemical Research with the Country's Largest Supercomputer





Complete Switch from Vector-Based to Scalar-Based System for Conducting Post-Genome Research

In August 2001 SGI Japan announced that it received an order from the Institute for Chemical Research (ICR) at Kyoto University for a supercomputer system that would be one of the biggest in Japan. While continuing to use the existing system, ICR began in mid-September 2001 to build a new scalar-based system for its scientific research on genomic data. The new system has been fully operational since January 2002.

Advanced Research at the Long-Established Institute

The prototype for ICR was the special chemistry research institute founded in 1915 in the College of Science at Kyoto Imperial University. The institute originally specialized in the research and manufacture of Salvarsan and other medical supplies. In 1926 ICR was established with the objective of studying the principles and applications of special phenomena related to chemistry. Since its foundation, ICR has achieved significant outcomes in the fields of basic and applied chemistry. ICR has also expanded its research facilities and extended its research to a number of other areas. Today, interdepartmental efforts to make progress in chemistry continue.

An 800-CPU System—One of the Largest in Japan

The operation of SGI Japan's latest supercomputer system began in ICR's Bioinformatics Center, which had long been a client of SGI Japan. The center first installed a 2-CPU CRAY Y-MP2E vector supercomputer in 1992, when the institute was reorganized.

The introduction of the supercomputer made possible a new approach to analyzing biological phenomena based on molecular networks. In 1997 the old system was replaced by a 4-CPU CRAY T94 system, a 128-CPU SGI® 2000 series system, and two 32-CPU Power Challenge™ servers. These systems were then replaced by SGI Japan's massively parallel 800-CPU supercomputer system.

The center ordered an SGI® Origin® 3000 series system, a state-of-the-art high-end group of products unveiled by SGI Japan in August 2001. The system comprises a high-speed SGI® Origin® 3800 server to be used for computational chemistry (512 CPUs), an Origin 3800 server to be used for computational biology (256 CPUs), and an SGI® Onyx® 3400 server (32 CPUs). This is a large-scale, massively parallel supercomputer system—consisting of 1,016 CPUs—which includes another manufacturer's systems. In addition, it is equipped with SGI® TP9400 RAID storage with a capacity of 35TB, allowing the system to fully respond to the rapidly increasing amount of data and number of calculations required for complex analyses.

The old operating system, composed of scalar and vector supercomputers, has been integrated into the massively parallel, scalar Origin 3000 series supercomputer system, which has excellent cost performance and extensibility.

Evaluating SGI's 10 Years of Collaboration with ICR

The new supercomputer system was introduced at ICR because the processing ability of the previous system was no longer sufficient. ICR needed the system to advance research on life science, especially in genome informatics, which requires enormous calculation capacity. The current system provides a desirable research environment with easy access to a high-performance supercomputer for a range of researchers, including experimental researchers.

Bioinformatics Center, Institute for Chemical Research

The system is connected to a high-speed network that enables it to integrate fast computation and graphics processing. It can also be used to run a wide assortment of computational chemistry software programs and to conduct research and aid in the development of the genome database systems related to molecular biology.

ICR's decision to adopt the supercomputer system was based on SGI Japan's track record of system delivery and operation assistance over the past decade, ever since CRAY systems were used. SGI Japan engineers have continued to provide advanced technical assistance, helping researchers use computers effectively in genome research as well as developing and supplying bioinformatics software programs through joint research with ICR. SGI Japan also provides support to the GenomeNet system, run by the Bioinformatics Center. Through such assistance, the stable operation of GenomeNet—which is frequently accessed by genome researchers around the world—can be secured 24 hours a day, 365 days a year.

SGI Japan was able to obtain the order from ICR not only because of the high performance of SGI® products, but also because of the company's reputation for supporting academic research by providing engineers and setups that positively promote genome research.

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