High Performance Computing for Defense & Intelligence

The world's most energy-efficient high performance computer systems. True linear scaling to 5,832 processors delivering up 8.2 TFlops in a single, self-contained, self-cooling cabinet. Deploy anywhere. No Data Center required.

Massively Parallel Systems delivery best-in-class performance for Signal Processing, Data Sorting, Database Caching and more.

Delivered FLOPS -- 3D FFT

The SiCortex Mission: to build the world's most energy-efficient computers. SiCortex High-Performance Computers have been designed from the silicon up for the specific requirements of HPC computing – a unique architecture that supports the established Linux software environment. This specialized architecture enables SiCortex computers to produce breakthrough delivered performance at the lowest power consumption in the industry. Combined with their truly linear scalable architecture, small footprint, and minimal heat output, SiCortex computers are the ideal platform to meet the demanding requirements of national defense and intelligence multiprocessor applications.
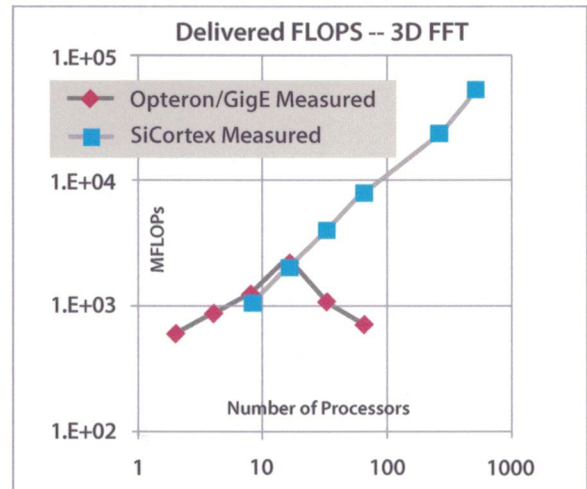
"I have a tight 'power envelope' in which to work. After a two-hour recompiling effort, SiCortex delivered the same results as our IBM systems, for 90% less electricity. The advantage was similar when we compared SiCortex to our Crays. SiCortex wins hands down."

– Mr. X., SiCortex National Intelligence Customer

Application Advantages

The unique SiCortex architecture offers unmatched delivered performance, price/performance, performance/watt advantages when compared to conventional Intel/AMD cluster systems. And unlike conventional systems, SiCortex computers scale linearly for applications written to take advantage of parallel processing.

A few examples:

Fast-Fourier Transformations (FFT, 3D-FFT): The unique ability for SiCortex to scale linearly (see chart above) makes it possible to run radar, sonar, and other signal processing applications far faster than possible with conventional Intel/AMD based architectures.

Database Search & Sorting: The SiCortex SC5832 currently ranks #9 in the HPCC Random-Access benchmark (GUPS), in a field dominated by Top500 installations, out-performing supercomputers at a fraction of the cost and power requirement. SiCortex ranks #1 in results/kWatt for this benchmark by a wide margin.

Applications needing rapid access to huge datasets: SiCortex systems offer the greatest I/O access and fastest communication fabric of any cluster system.

Database Caching: SiCortex systems provide up to 8TB of fast access memory, providing an extremely fast and powerful caching engine for large applications.
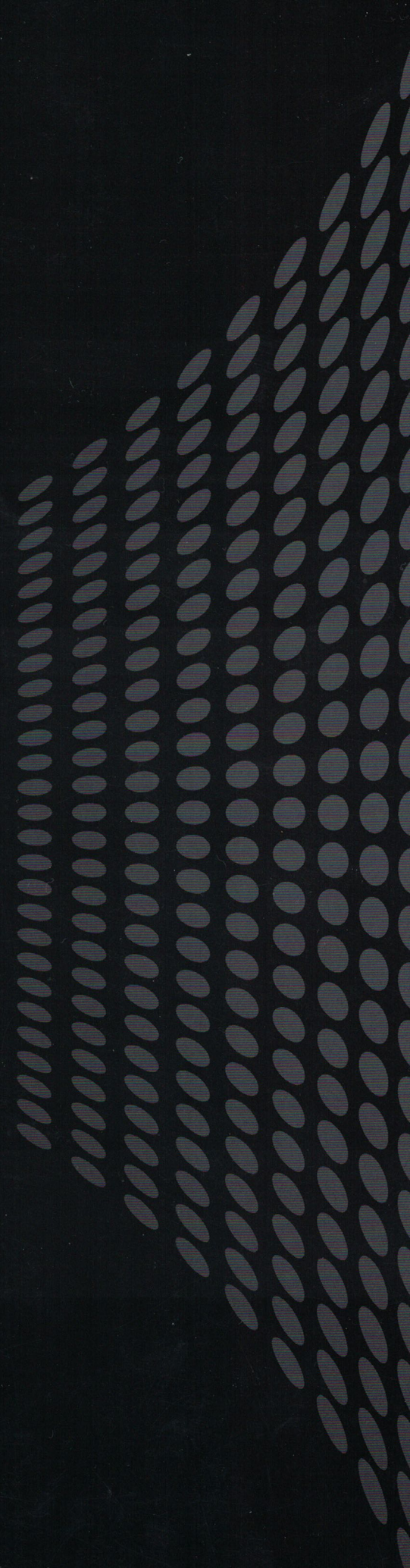
Best Integer Performance/watt in the industry. No other systems compare.

Best performance for solving **Sparse-matrix** equations, such as PETSc-based applications.

SiCortex Computers: Achieve More, Consume Less.

FAST ESP™
The world's most intelligent, secure, high-performance search platform

EMC²
where information lives®

Five years ago, enterprise customers were delighted when EMC Corporation introduced its Centera active archive solution for online fixed content such as x-rays, email archives and CAD/CAM designs. Instead of having to rely on ponderous tape or optical back-up systems, storage administrators could now get sub-second access to data stored anywhere in their archives, thanks to Centera's cost-effective disk-based solution. But EMC saw untapped potential in Centera's metadata – which is why the leader in information management and storage teamed up with FAST InStream to add powerful embedded search, retrieval and reporting capabilities to its next-generation Centera family.

Enterprise Archive Solution Packs More Punch With Search Software that Mines the Metadata

Background

Nobody knows data management and storage like EMC Corporation. The company is a trusted provider of information infrastructure, helping organizations of every size to keep their most critical digital information protected, secure, and continuously available. In 2002, EMC launched its Centera series of disk-based storage solutions to provide cost-effective retention, protection, and disposition of a wide range of fixed content – including x-rays, voice archives, electronic documents, email archives, check images, and CAD/CAM designs. As the world's first content addressed storage (CAS) solution, EMC Centera provides fast, easy online access with assured content authenticity and petabyte scalability.

Challenge

Despite Centera's early wins, EMC managers knew they were not tapping the solution's full potential. (They also knew competitors would not be far behind.) It became clear that Centera's rich mother lode of metadata could be put to better use. "We began thinking, if we're going to attach rich metadata with the content, what

great things could you do with it?", explains Scott Nyman, Senior Product Manager, Centera Engineering. The key was not how many queries per second the system could handle or how quickly it could retrieve a document. Instead, a storage administrator's big concern was what type of data was in the archives. For example, in a hospital setting, how much of the archived data contained MRI scans and how much held patients' records? Knowing what was there would help storage administrators decide how to manage old data spanning multiple apps, for example, or how to identify data that would have to be quarantined because of M&A activity. It was only a short step from there to see that Centera could also offer usage-based reporting and billing – an invaluable benefit for customers as IT departments tighten the cost tourniquet.

Solution

The Centera team decided to look for an OEM partner whose search technology could make the most of the metadata. They lost no time in identifying the premier vendors of search technology and setting strict performance criteria. The indexing and query