

Prism is Advanced Linux Visualization Solution

A new computing system combines the best of cluster and supercomputer technology.

By Rhonda Duey, Exploration Editor, E&P

SGI has unveiled Silicon Graphics Prism, a complete, advanced visualization system for Linux specifically designed to help technical experts address critical problems.

Silicon Graphics Prism combines standards-based Intel Itanium 2 processors with the Linux operating environment and SGI's advanced graphics technology. It can economically address situations as small as team rooms while scaling up to address globally dispersed organizations.

Typical commodity graphics systems today must break the vast amounts of data used in visualization settings into smaller chunks for graphics processing – a process that's time-consuming and imperfect. This new product was designed to address terabyte-sized, highly complex data as a single image, increasing the speed at which users can grasp complex relationships within their data and leading ideally to deeper understanding of the issues.

"Imagine sorting through a pack of 1,000 postcard-sized images and then pasting them together to form a mosaic of the whole," said Shawn Underwood, director of product marketing for the Visual Systems Group at SGI. That's essentially what is done with distributed processing across an array of commodity boxes. It's slow and imperfect.

"With Prism, you see the whole picture instantly," he said.

Silicon Graphics Prism also avoids the sticker shock of other systems by utilizing industry-standard hardware and by reducing the number of operating systems, graphics cards, nodes and processors.

"If we were going to run a 400-GB model on a PC graphic cluster with a 512-GB capacity, we'd need 256 nodes, 512 processors, 256 copies of Linux, 256 graphics cards, 256 distinct 2-GB memory caches and one 256-port router switch," said Bill Bartling, senior director, Energy & Sciences for SGI. "That's not to mention one hell

of a frustrated systems administrator trying to keep this thing alive."

Silicon Graphics Prism, on the other hand, can handle the same model with one node, 32 to 64 processors, one copy of Linux, four graphics cards, one single-system shared memory segment and SGI's internal NUMAflex architecture.

"Right out of the chute, we need less than 10% of the processors, 255 fewer copies of Linux and 252 fewer graphics cards," Bartling said. "And you see the whole picture, not just parts."

The system is built on a foundation of SGI NUMAflex shared-memory architecture, giving it the large, complex data memory functionality needed in today's real-time technical environments. A combination of Intel Itanium 2 processors, the Linux operating system and standards-based graphics accelerators from ATI make the system powerful yet economical. Other components include an array of visual computing products from the SGI Onyx family and a host of OpenGL visualization software development tools.

In addition to lower cost and smaller footprint, Silicon Graphics Prism will help oil companies shorten

the exploration cycle time dramatically, Bartling said.

"If it was going to take me a year to generate a prospect before, I can now do 12," he said. "And I can do 12 with a lot more precision."

Collecting data has never been the problem, Bartling said; it's knowing what to do with it that's the problem. And with new types of data such as time-lapse seismic, passive seismic and reservoir monitoring, a data explosion is about to occur. The system enables interpreters to bring large volumes of data into real-time computing.

"Before we had all of this new information, and we didn't know what to do with it; we just stuck it in a database and got to it eventually," Bartling said. "If we can assess, view and make decisions from that data all at one time, we're able to dramatically improve our business processes."

This is easier than methods of the past.

"Our problem has never been our ability to generate information," he said. "If we were to sit down with 400 GB of seismic data on an Excel spreadsheet, eventually we'd be able to understand it."

For more information, visit Booth 2006, Hall A or www.sgi.com/products/visualization. ●

PGS Releases New Velocity Analysis Software

PGS's new time velocity analysis tool 9 (tVAT) offers a complete suite of interactive linked windows for the picking, editing and visualizing of 3-D velocity fields. It can be used to evaluate isotropic and anisotropic velocity parameters. From isotropic 2nd order to Optimized 6th order NMO with VII, the tVAT toolkit can be used to evaluate all the NMO curves currently offered in PGS time imaging technology without compromise.

A few of the features included in tVAT are: interchangeable horizon-based and location-based coherence analysis, interactive move-out application on cdp gathers, dual scan NMO and ETA parameter analysis and instantaneous stack response displays. All the windows are linked and integrated with a sophisticated automatic coherence picker.

The interchangeable horizon-based and location-based coherence analysis can allow for horizon-based velocity analysis along selected horizons on interest while picking the remainder of the velocity field using the more conventional location-based coherence panels. The geophysicist is never required to stop velocity analysis to change package or parameterization.

The composite stack display gives the geophysicist a method of evaluating the stack response of the velocity field as it is being modified. This affords very detailed analysis of subtle stack response issues for targeted and global velocity analysis. ●



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