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Enhancing Decision Making for Oil Production with Intel® Xeon® Processors

Landmark demonstrates improved performance for complex, 3-D earth modeling with the Intel® Xeon® processor E5 family

HALLIBURTON

Landmark Software
& Services

"Organizations today need to explore wider geographic areas, analyze larger volumes of seismic data, and perform more complex calculations on data....By running Landmark DecisionSpace® software on high-performance systems equipped with the Intel® Xeon® processor E5 family, organizations can merge large and complex data sets, resulting in deeper analysis and dynamic visualization of data."

– Bill Agee,
Senior Account Manager North America,
Landmark

Landmark Software and Services, a service line within the Halliburton Drilling and Evaluation Division, offers integrated exploration, drilling, and production software and services for the upstream oil and gas industry. Landmark decided to upgrade the classroom workstations used to train users on its DecisionSpace® software. By replacing the company's systems with Dell Precision* workstations equipped with the Intel® Xeon® processor E5 family, Landmark has enhanced the application performance that users experience, better demonstrating the power of DecisionSpace software to conduct complex data analysis, produce 3-D visualizations, and optimize collaborative decision making.

Challenges

- **Deliver a robust user experience.** Provide trainees with the latest technology for testing real-world problems and experiencing the power of the DecisionSpace multidisciplinary decision-making workflows for energy exploration, drilling, and production.
- **Demonstrate more software capabilities.** Better demonstrate a full range of software capabilities and accelerate execution times for students learning to use DecisionSpace software.

Solution

- **Dell Precision workstations with the Intel Xeon processor E5 family.** Landmark upgraded classroom systems with Dell Precision T7600 workstations equipped with the Intel Xeon processor E5-2600 product family. The systems run DecisionSpace software and Oracle Database* on the Microsoft Windows* 7 operating system.

Technology Results

- **Visualization performance.** The Intel Xeon processor E5 family delivers the raw compute performance and memory capacity to handle complex 3-D visualizations and other processor-intensive tasks.
- **Shorter execution times.** The new processors help accelerate execution times for complex computations, delivering a responsive user experience.

Business Value

- **Improved decision making.** Students learning to use DecisionSpace software on the new workstations can experience the software's ability for delivering complex analysis, visualizations, and optimization of collaborative decision making.
- **Increased technology adoption.** Providing a positive classroom experience helps trainees quickly learn the full capabilities of DecisionSpace software and reduce Landmark customers' time-to-value.

Landmark's DecisionSpace software provides a collaborative work environment for engineers, geologists, geophysicists, earth modelers, and other energy and petroleum team members. Users can view 3-D earth models, share information, and integrate workflows across the cross-functional team. To help these users and their organizations make the most of this sophisticated software, Landmark offers a variety of classes on DecisionSpace software at the company's training facilities.

Recently, Landmark decided to refresh the computer systems used for training. Refreshing classroom systems enables instructors to better demonstrate the full potential of the software. For example, "Some of the complex modeling and 3-D visualization processes were not as fast on the older machines," says Dylan Radford, Landmark geology and geophysics consultant and instructor. "As a result, classroom exercises went slower, too, where these capabilities were used. We really needed new computational systems to demonstrate the latest features and deliver a more responsive experience to students."

Intel Xeon processors deliver the performance needed for complex earth modeling

Upgrading Classrooms with the Intel Xeon Processor E5 Family

After considering a number of hardware platforms, Landmark refreshed systems in two of its five classrooms with Dell Precision T7600 workstations, each equipped with two processors from the Intel Xeon processor E5-2600 product family. The classroom workstations run DecisionSpace software and Oracle Database on the Microsoft Windows 7 operating system. "The Intel Xeon processor E5 family offers far greater raw compute performance and memory capacity than previous-generation processors," says Lynn Kirby, Landmark global inside sales manager, Strategic Alliances. "Moving from a four-core processor to an eight-core processor is key—having twice as many cores per workstation helps accelerate applications significantly."

Addressing the Performance Requirements for Demanding Workloads

The new workstations are well equipped to handle the large, complex earth-modeling workloads that DecisionSpace software customers are running. "Organizations today want to explore wider geographic areas, analyze larger volumes of seismic data, and conduct more manipulations," says Bill Agee, Landmark senior account manager, North America. "Instead of exploring a piece of the Gulf of Mexico, they want the whole Gulf. By running Landmark DecisionSpace software on systems equipped with the Intel Xeon processor E5 family, organizations can handle larger, more complex workloads and bring results to the screen faster than before."

Reducing Execution Times and Providing a More Responsive Classroom Experience

In the classroom, the new workstations are helping to accelerate computations and improve the responsiveness for students. They can now experience the power of DecisionSpace software to visualize and analyze large, real-world data sets, and optimize engineering and operational decisions in cross-disciplinary workflows.

"We have seen a significant improvement in performance using the new systems with the Intel Xeon processor E5 family," says Rick Fuller, Landmark geology and geophysics consultant and instructor. "Some computations that used to take two minutes are now performed in less than half the time. In addition, instructors and students can navigate more smoothly, scrolling through different seismic volumes much faster than before. All of these small changes add up. Overall, we can deliver a much more responsive experience for students."

Demonstrating the Full Capabilities of DecisionSpace Software and Building Loyalty
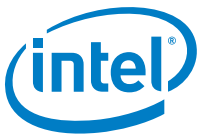
With powerful workstations in the classroom, Landmark is enabling students to experience more of what DecisionSpace software has to offer. "By using new workstations with the Intel Xeon processor E5 family, we have eliminated performance-related limitations to using DecisionSpace software in class," says Radford. "Now we can fully demonstrate the software's powerful modeling and 3–D visualization capabilities. We might also begin to demonstrate even more processor-intense capabilities in the future."

Lessons Learned

For the Landmark training team, conducting the refresh of classroom workstations was a smooth process. "We worked with Dell and Intel to make sure that the new workstations would meet our precise needs, and then relied on internal expertise for a successful deployment," says Lynn Kirby, Landmark global inside sales manager, Strategic Alliances. "Pulling together the right resources and talented people helped deliver a seamless transition."

The training group is now planning to upgrade workstations in additional classrooms. "We intend to standardize our workstations across all of our classrooms," says Agee. "Standardizing will allow Landmark to develop course material that takes full advantage of DecisionSpace software. And of course, moving to the latest Intel processor–based systems will enable all of our instructors and students to experience the best performance possible."

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