



GPU Computing

Headwave | Geophysical Data Analysis

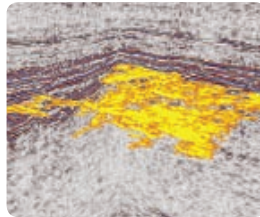
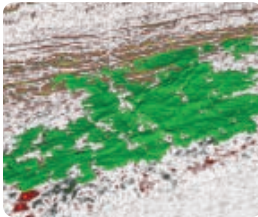
May 24, 2007

CHALLENGE

Oil and gas are becoming increasingly harder to find. Large reservoirs are now found at greater depths and in sediments that are much harder to analyze, like the recent Jack Field discovery in the Gulf of Mexico, which was found at more than 20,000 feet under the sea floor. To interpret and discover these reservoirs it is necessary to acquire and process huge amounts of seismic data. And due to the complexity of the sediment layers, better resolution is needed in the images, which means acquiring even more data.

HEADWAVE

SOLUTION

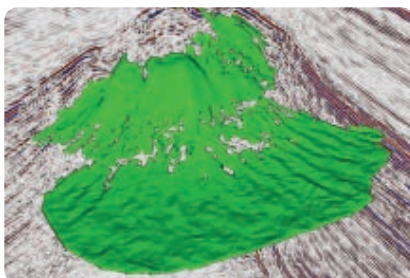


At a time when most people still thought of GPUs as consumer gaming technology, Houston-based Headwave, a company that specializes in geophysical data analysis, began developing a next-generation computing platform that could harness the parallel-processing power of the graphics card.

Headwave solutions, implemented on NVIDIA® GPU computing solutions, allow geophysicists to apply advanced filters to their data and instantly see results even on multi-terabyte datasets. In addition, geophysicists can analyze the original acquired seismic (“pre-stack”) data in multiple dimensions as part of their daily workflow.

Processing of terabyte datasets traditionally required months of manual labor and more months of compute time for number crunching. Headwave brings products to market that allow geophysicists to apply advanced filters to their data – and instantly see results even on multi-terabyte datasets. Using NVIDIA GPU computing solutions, Headwave is able to increase compute rates, and also reduce time spent in manual operations, by 100x.

IMPACT



Working with terabyte data sets in real time would not have been possible without the recent advances in NVIDIA’s GPU computing solutions. Oil and gas company workstations are already outfitted with GPUs, meaning that much of the hardware infrastructure to exploit this technology is already in place. As a result, oil and gas companies are poised to start taking advantage of this new technology.

For more information about NVIDIA GPU computing solutions, visit www.nvidia.com/tesla