Altix® UV Customer Testimonials

"With a total of 4352 cores and 18TB of main memory the Altix UV systems at HLRN will be among the largest scale-up systems in the world."

–HLRN

Customer
HLRN (Germany)

Altix UV System Ordered
544 sockets (4352 cores) / 18TB memory (in two systems)

Mission
HLRN (North German Supercomputing Alliance) is a consortium of the six North-German states Berlin, Bremen, Hamburg, Mecklenburg-Vorpommern, Niedersachsen and Schleswig-Holstein, established in 2001. HLRN covers the huge demand for computing resources in the domains of environmental research, climate and ocean modeling, engineering applications like aerodynamics and ship building, as well as in fundamental research of physics, chemistry, and the life sciences. Their two SGI Altix ICE 8200EX based clusters are currently #43 and #44 on the Top 500 list of supercomputing sites (June, 2009).

Technology Challenge
"While our current Altix ICE clusters are perfectly suited for massively parallel applications, our new Altix UV systems will be used for MPI applications requiring a large main memory capacity. Due to Altix UV's large address space, we also expect OpenMP applications to scale perfectly on Altix UV."

Why UV?
"In contrast with other systems, Altix UV gives us the unique possibility to handle our user demand for varying ratios of memory per core. This gives us more flexibility in assigning jobs to the system than was previously possible. With a total of 4352 cores and 18TB of main memory the Altix UV systems at HLRN will be among the largest scale-up systems in the world."

Overall Perspective
"Our Altix ICE-based clusters meet the needs of HLRN users running classical MPP applications scaling up to thousands of MPI tasks with a moderate memory demand per task. These include quantum chromo-dynamics, molecular dynamics and climate modeling. With our new Altix UV systems we will be able to address the requirements of those HLRN customers that do not fit into this category. Altix UV will be primarily used for memory-intensive challenges found in materials science (using density functional theory with hybrid functionals), crystallography, astrophysics, computational fluid dynamics and computational fluid dynamics and meteorology. Our scientists are looking forward to making new discoveries with their new Altix UV systems."

THE UNIVERSITY of TENNESSEE

"This flexibility will allow us to configure a system uniquely capable of analyzing and visualizing petascale data sets, promising users new levels of scientific understanding."

– University of Tennessee

Customer
University of Tennessee (USA)

Altix UV System Ordered
128 sockets (1024 cores) / 4TB memory

Mission
The new Center for Remote Data Analysis and Visualization (RDAV) is a partnership between the University of Tennessee (UT), Lawrence Berkeley National Laboratory, the University of Wisconsin, the National Center for Supercomputing Applications at the University of Illinois, the National Institute for Computational Sciences and Oak Ridge National Laboratory (ORNL). Funded by the National Science Foundation (NSF), managed by UT and installed at ORNL, RDAV establishes a new, state-of-the-art visualization and data analysis center aimed at interpreting the massive amounts of data produced by today's most powerful supercomputers. To address this need, RDAV will provide remote visualization and image generation, data and statistical analysis, workflow systems and a variety of software services, making it a leading visualization and data analysis center with the nation's broadest user community.

Technology Challenge
"Many scientific data analysis challenges require the use of algorithms that cannot be deployed on more traditional distributed memory systems. Shared-memory processing will allow us to overcome this barrier, analyzing data from computer simulations with many complex variables, such as weather or climate modeling; analyzing large amounts of data coming from experimental facilities like ORNL's Spallation Neutron Source; and aggregating and interpreting input from a large number of sensors distributed over a wide geographic region. Shared memory systems will also give us the capability to study large bodies of text and aggregations of documents."

Why Altix UV?
"The new SGI system can independently scale processor count, memory, and I/O to very large levels in a single system running standard Linux. This flexibility will allow us to configure a system uniquely capable of analyzing and visualizing petascale data sets, promising users new levels of scientific understanding."

Overall Perspective
"As a leading computing institution with the world's first academic petaflop, the University of Tennessee is challenged with the task of solving some of the nation's largest data understanding and visualization issues. Our just-ordered Altix® UV system promises to significantly enhance the capabilities of the NSF to 'see and understand' large volumes of data produced on the NSF's TeraGrid, thanks to Altix UV's unique shared memory architecture."

Quote for Press Release
"As a leading computing institution with the world's first academic petaflop, the University of Tennessee is challenged with the task of solving some of the nation's largest data understanding and visualization issues with funding from the National Science Foundation (NSF)," said Sean Ahern, Director of the Center for Remote Data Analysis and Visualization. "Our just-ordered Altix® UV system promises to significantly enhance the capabilities of the NSF to 'see and understand' large volumes of data produced on the NSF's TeraGrid, thanks to Altix UV's unique shared memory architecture."

Customer
CALMIP (France)

Altix UV System Ordered
16 sockets (128 cores) / 1TB memory

Mission
CALMIP (CALcul en MIdi-Pyrénées / Computations in Midi-Pyrénées), based at the University of Toulouse, was founded in 1994 by 17 research laboratories in the city of Toulouse and in the Midi-Pyrénées province. Its goal is to promote and broaden the use of new High Performance Computing (HPC) technologies for scientific research. Thirty laboratories are involved in research covering theoretical and molecular physics, computational chemistry, fluid dynamics, astrophysics and atmospheric research.

Technology Challenge
"Computational challenges in such areas as theoretical physics and fluid mechanics require solid, mid-range scalability coupled with huge amounts of memory. As not all real-life problems can be solved by massively parallel scale-out deployments, we needed a system capable of achieving efficiency and high performance at a scale suitable for these applications (~100 cores). In addition, CALMIP serves many scientists who may not be experts in high performance computing and need to run their applications unchanged but with superior performance. This requirement also pointed to the need for a solution with a Single System Image (SSI)."

Why Altix UV?
"Because of its highly extensible SSI approach, delivering performance while balancing processor speed, communication bandwidth and memory capacity, we identified SGI Altix UV as the most efficient and best suited solution available to meet our needs."

Overall Perspective
"Altix UV makes CALMIP the natural choice for scientific research in the Midi-Pyrénées. This is especially the case when you factor in CALMIP's additional capacity capabilities from its 30TF Altix ICE solution. Together, these systems provide our region's scientists local access to much-needed computational resources, complementing what is available at the department-level and national- or European-scale computing centers."

"...we identified SGI Altix UV as the most efficient and best suited solution available to meet our needs."

– CALMIP

Altix UV Customer Testimonials

"A 50x improvement in flops coupled with the best available price/ performance made Altix UV the right choice."

– Institute of Low Temperature Science, Hokkaido University

Customer
Institute of Low Temperature Science, Hokkaido University (Japan)

Altix UV System Ordered
30 sockets (180 cores) / 360GB memory

Mission
The Institute of Low Temperature Science (ILTS) was founded in 1941 as the first research institute affiliated with Hokkaido University to promote interdisciplinary studies on various natural phenomena occurring in the cryosphere. The ILTS is composed of four research divisions—the Water and Material Cycles Division, Frontier Ice and Snow Science Division, Environmental Biology Division and the Pan-Okhotsk Research Center.

Technology Challenge
"To evaluate correctly the role of the Pan-Okhotsk region on global climate change, it is necessary to model and simulate atmospheric circulation, oceanic circulation and changes in sea ice levels. It has become difficult to run increasingly complex and larger models on our existing SGI Origin and Altix systems."

Why Altix UV?
"A 50x improvement in flops coupled with the best available price/performance made Altix UV the right choice. The large SMP server will enable customers to run up to 180 parallel jobs on 180 cores and handle large data sets. The programming support services and system integration services by SGI Japan was also an important factor."

Overall Perspective
"The Sea of Okhotsk is one of the southernmost seasonal sea ice zones in the Northern Hemisphere. Thus, it is expected that the creation of sea ice in the Sea of Okhotsk is very sensitive to global environmental changes. The center's goal is to analyze the impact of global climate change on this region and to predict future changes, by monitoring and modeling the region's atmosphere, oceans, sea ice and continental areas. We look forward to our Altix UV system with support from SGI Japan playing a key role in this endeavor."

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