

November 23, 2009

Press release

Onera chooses SGI supercomputers to enhance its computing power and speed up its scientific research.

Onera (Centre Français de Recherches Aérospatiales), the French aerospace research center, has significantly boosted its computing power by choosing an SGI Altix cluster. This new supercomputer will be used to enhance the precision of Onera's computer simulation models, accelerate its digital simulation processes and adapt its computing resources to the use of massively parallel processing (MPP) technology.

It is built around more than 3,000 processing nodes, versus 512 for its predecessor, with each one offering twice the power, to significantly boost computation speed.

With more than 10 terabytes of memory, it enables Onera's computation codes – such as Elsa for aerodynamic simulation, or Cedre for the simulation of propulsion and the thermal budget for aerospace vehicles – to simulate computation configurations involving more than one billion degrees of freedom. This will enable Onera to meet the multifaceted challenge of sustainable development, for example by simulating noise sources and propagation, precisely analyzing aircraft drag, and reducing jet engine emissions.

Stelvio will be upgraded to 4,352 processors in 2010.

Onera has ordered an SGI Altix® ICE cluster delivering 34 Teraflops of processing power. The new system is named "Stelvio", after the highest mountain pass in Italy (2,758 meters).

Stelvio incorporates 384 SGI Altix® ICE nodes, each comprising two Intel® 8 Xeon processor cores, for a total of 3,072 cores with 14TB of memory. The cluster is connected by an ultra-high-performance dual-plane IB network and an SGI InfiniteStorage 15000 system. Integrating the Data Direct Networks systems for 400TB of disk memory with a Lustre parallel file system, it delivers processing performance of 6GB per second.

The 34-Teraflops Stelvio is one of the ten most powerful computers in France, and in the Top 100 worldwide.

"Stelvio marks a tremendous step forward in our research capabilities," said Paul Levart, IT Director at Onera. "We're very pleased that SGI Computer is also playing a major role in future European collaboration. With the new SGI Altix ICE cluster, Onera has installed a truly world-class high-performance computing (HPC) system."

Pascal Barbolosi, Managing Director of SGI France, added, "Through this contract, we are both proud and honored to be part of Onera's major step forward in HPC. Stelvio will give its users tremendous performance to meet fast-growing demand for computing power, especially with regard to electrical supply and cooling."

Based on the Novell SLES Linux® operating system, the cluster will provide a large share of the computing

power needed by all scientists at Onera. This will significantly enhance the agency's research capabilities across its scientific branches and departments, including:

- **Materials and Structures:** Aeroelasticity and Structural Dynamics, Composite Materials and Structures, Metallic Materials and Structures, .
- **Fluid Mechanics and Energetics:** Fundamental and Applied Energetics, Aerodynamics and Energetics Modeling, Computational Fluid Dynamics and Aeroacoustics, Applied Aerodynamics.
- **Physics:** Electromagnetism and Radar, Physics and Instrumentation .

The bidding process was conducted under French government rules for allocation of public funds. SGI won this contract today after a long, fiercely fought international competition lasting nearly a year. STELVIO will replace the previous Bull computer system.

In charge of this new supercomputer is Onera's Computing, Engineering and Testing Facilities Division (abbreviated "GMT"), manages the center's large computing facilities and networks. It provides technical assistance to the global aerospace industry and research teams, and in particular is responsible for operating Onera's world-class fleet of wind tunnels. This entails continual development of test methods and resources, involving Onera's own scientific departments.

Onera

Onera is the leading aerospace and defense research center in France. A public establishment created in 1946, it reports to the French Ministry of Defense. Onera has over 2,000 employees at eight major facilities, including 1,500 scientists, engineers and technicians. Building on its multidisciplinary expertise and a world-class fleet of test facilities, Onera works for both government and industry, spanning major corporations and small businesses. Onera deploys an innovative partnership-based approach to research, with five times more contract business per researcher than the average in France. In 2008, Onera had revenues of 202 million euros. Onera is a recognized source of innovative solutions, technical expertise and long-term design vision, paving the way for tomorrow's programs. Onera has contributed to some of today's most successful aerospace and defense programs, including the Ariane 5 launcher, Airbus jetliners, Eurocopter helicopters, the Rafale fighter and the Falcon 7X business jet.

SGI

SGI® (Silicon Graphics International Corp.) is a global leader in large-scale clustered computing, clustered storage, HPC and data center enablement and services. SGI is dedicated to solving these industries' most demanding business and technology challenges

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