TERATEC Forum 2013

JUNE 25 & 26, 2013 – ECOLE POLYTECHNIQUE – PALAISEAU, FRANCE - 8th EDITION

THE INTERNATIONAL MEETING FOR SIMULATION AND HIGH PERFORMANCE COMPUTING

"Innovation by simulation"

Major event dedicated to Simulation and HPC in France and Europe, the TERATEC Forum will gather the best international experts in simulation and high performance computing. It reaffirms the strategic importance of these technologies for developing industrial competitiveness and innovation capacities.

The TERATEC Forum welcomes more than 1000 attendees, highlighting the technological and industrial dynamism of HPC and the essential role that France plays in this field. The participation and the testimony of advanced industrial users and technology leaders, the diversity and the high level of the technical workshops, the representativeness of exhibitors and the innovation offers displayed, are of major interest for all concerned by simulation and high-performance computing.

June 25 and 26, the TERATEC Forum provides a substantial program:

Tuesday, June 25 - Plenary sessions
**Technological challenges and variety of usages of numerical simulation,
Vector of Innovation and Competitiveness**

The plenary sessions will be dedicated to industrial strategies and public policies on HPC and simulation and will illustrate the increasing variety of usages of supercomputing. This day will gather leading technology providers and industrial users as well as highly innovative SMEs.

Have already confirmed their participation, Prof. Charbel FARHAT, from Stanford University, who will present an overview of the evolution of HPC, Dr. Sudip DOSANJH, U.S. Department of Energy, Jean-François MINSTER, Scientific Director of Total, David LECOMBER, CTO Allinea and Ewan BIRNEY, Director of the European Bioinformatics Institute. They will be joined by other speakers who will present major technological innovations in the field of simulation.

We will also have the participation of public officials, including **Louis GALLOIS, Commissaire Général à l'Investissement**, which will close the debates of the day.

Wednesday, June 26 – Technical workshop
Emerging technologies and new areas of application of HPC

Wednesday June 26, the main market players and recognized experts will be involved in workshops whose aim is to present and discuss emerging technologies and new areas of application of HPC. This year we'll propose:

- Three workshops technology oriented: Complex systems, Energy efficiency of HPC systems, Big data and HPC.

- Three workshops usage oriented: Materials simulation, HPC in biology and health, Modeling and simulation for sustainable cities.

A1 - Embedded and Mechatronics Complex Systems: Trends and Challenges
. Chaired by: Jacques DUYSENS (SILKAN), Gérard POIRIER (DASSAULT-AVIATION) et Christian SAGUEZ (TERATEC)
This workshop will be dedicated to technologies, methods & state-of-the-art tools for complex mechatronics embedded systems design and optimization. This workshop will address the strategic vision of research labs, industrials from the aeronautical sector, but also techno-providers in the hardware field (leading-edge embedded high performance computing technologies) and software (new algorithms paradigms).

A2 - Materials Simulation
. Chaired by: Gilles ZERAH (CEA)
This workshop intends to review current engineering practices in three industrial fields for which this type of simulation is particularly relevant: mechanics, chemicals, and biotechnology. We will present simulations performed on the CEA's Tera 100 supercomputer to demonstrate the possibilities of HPC under such extreme conditions. The workshop will conclude with a presentation of CECAM and its network of European researchers.

A3 - Big Data and HPC
. Chaired by: Ange CARUSO and Georges HEBRAIL (EDF) and Guillaume COLIN DE VERDIERE (CEA)
The Big Data session will try to cast a light on the challenges arising from large volumes and short processing times in relation with their HPC needs. Actors from the scientific and industrial worlds will illustrate those two aspects. They will also explain the relation between HPC and their Big Data usage.

A4 - Energy Efficiency of HPC systems
. Chaired by: Marie-Christine SAWLEY (INTEL)
This session proposes to focus on the latest technology advances targeted for the largest HPC centres, on the techniques based on system software for power control and on the potential role played by the application layer. On this last point in particular, some of the latest research topics on power aware algorithms, characterisation techniques for energy profiling and load balancing methods will be presented.

A5 - HPC in Biology and Health
. Chaired by: François BALLET (MEDICEN) and Christian SAGUEZ (TERATEC)
The aim of this workshop organized in partnership with the MEDICEN competitiveness cluster is to bring a general foundation for future initiatives combining healthcare and HPC in two specific fields of application: integrative biology (particularly in research and design of new medications), the use of medical imaging and virtual reality techniques.

A6 - Modeling and simulation to support sustainable cities
. Chaired by: Vincent COUSIN (ADVANCITY) and Etienne DE POMMERY (ESI)
This workshop organized in partnership with the ADVANCITY competitiveness cluster will call on specialists from various fields—city planning, architecture, construction techniques, natural hazards, and atmospheric pollution modeling—to attempt to determine how modeling and simulation can be applied to the transformation of cities.

SCILAB TEC'13 - fifth edition of the Scilab Users' Day
Every year Scilab-Enterprises gives its users the opportunity to share their experience with Scilab open source software. Many professionals, industrial and institutional actors will present their feedbacks, the evolution of theirs tools and practices with Scilab.

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Tuesday 25 & Wednesday 26 - Exhibition
The main players in HPC involved on about sixty booths

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During these two days, there will be an exhibition covering the whole HPC industry. Systems manufacturers and software vendors, integrators and distributors, service providers, academic and laboratory researchers, public and private sector developers will present their latest HPC innovations.

- <u>Exhibitors list</u> (updated April 8, 2013)

ACTIVEON - ALINEOS - ALLIANCE SERVICES PLUS - ALLINEA SOFTWARE - ALTAIR ENGINEERING - ALTRAN - ALYOTECH - ANSYS France - BARCO - BULL - CAPS ENTREPRISE - CARRI SYSTEMS - CEA - CLUSTERVISION - COMMUNICATION & SYSTEMES - DATADIRECT NETWORKS - DELL - EMC - ENGIN SOFT - ESI GROUP - EUROTECH - EXASCALE COMPUTING RESEARCH LAB - FUJITSU - GENCI - HEWLETT PACKARD- IBM - IFPEN - INRIA - INTEL - IRT SYSTEMX - KALRAY - NAFEMS - NETAPP - NICE SOFTWARE - NVIDIA - OPENSIDES - OXALYA - PANASAS - RITTAL - ROGUE WAVE - SCILAB - SGI - SILKAN - SOGETI HIGH TECH - ST MICROELECTRONICS - SYSFERA - SYSTEMATIC - SYSTEMX IRT - TERATEC - TOTALINUX - TRANSTEC

A Systematic Paris-Region Village at the heart of 2013 Teratec Forum
You will be able to discuss with new innovative companies from the SYSTEMATIC competitiveness cluster and Working Groups: from the Systems Design and Development Tools WG, but also from the Free & Open Source Software WG and the Smart Energy Management WG. All these innovative players are very active today to meet the future HPC industrial challenges and give a new societal momentum in this context.

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Conferences, workshops and events program on:
www.teratec.eu/gb/forum

About TERATEC

TERATEC is an organization of 86 industrial and technology companies, universities and research laboratories, created at the initiative of CEA and a group of large industrial players to create a European technopole dedicated to high-performance simulation and computing , with the aim to unit all of the industrial and academic players, providers and users, to facilitate access to the most powerful systems, to promote the field and boost its appeal by facilitating creation and economic development.

Located south of Paris in the heart of Arpajonnais and facing the Very Large Computing Center of CEA (TGCC), the TERATEC Campus regroups on the same site all the elements of an HPC ecosystem, industrial research laboratories, training institute, technology companies, services activities, with an incubator and a business center.

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