THE INTERNATIONAL MEETING FOR HPC, SIMULATION, BIG DATA
27 & 28 June 2017 - 12th edition
Ecole Polytechnique, Palaiseau, France

Teratec Forum: walk through the stands

The TERATEC Forum takes its summer quarters for its 12th edition on 27 and 28 June in the campus of the Ecole Polytechnique in Palaiseau, France.

To be discovered along the stands : Every year, the exhibition area proposes the latest innovations of the exhibitors, suppliers of technologies and innovative SMEs who will show their achievements. In total, about a hundred companies and partners, the best of HPC, digital simulation and Big Data!

The exhibitors' offer at a glance *(as of 30 Mai)*

ACTIVEEON   Stand 18

Press contact: Veronika TSIARESHCHANKA, Chargée de marketing et communication
Tel. : +33(0)9 88 77 76 67 - Mail : veronika@activeeon.com

ActiveEon is an open source ISV offering orchestration solutions to automate and scale IT workloads and transition to the cloud. With jobs distribution and parallelization allowing acceleration of business processes and reduction of infrastructure costs, ActiveEon enables digital transformation of IT, big data and Internet of Things (IoT).

★★★ **Preview:**

ActiveEon offers ProActive, a software suite of 3 products available in SaaS mode:

Workflows & Scheduling: a complete workload scheduler that distributes applications to simplify their execution, featuring a workflow orchestrator and a resource manager, and supporting secured data transfer and license cost optimization;

Big Data Automation allows big data distribution and acceleration in R language, Spark, Hadoop, Matlab, Scilab and others on clusters, grids and clouds;
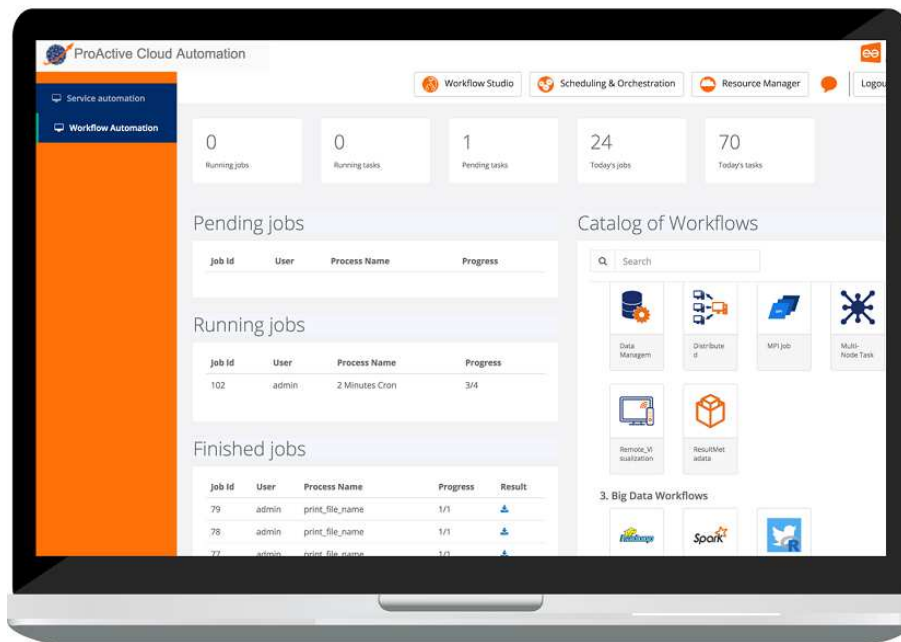
and **Cloud Automation**, compatible with Docker, automates complex and multi-VM application management and deployment, handling hybrid clouds on multiple private and public accounts.
ActiveEon, initially French ISV is now located in UK (London), USA (San José) and Senegal (Dakar). ActiveEon headquarters are in Sophia Antipolis technological park (French Riviera, between Nice and Cannes).
ActiveEon is working with large customer accounts worldwide, such as: L'Oréal, CNES, CEA, Amadeus, La Française Asset Management, Médiametrie, Legal & General (UK), JoyGlobal (USA), Home Office (UK), and many more.

This year, Legal & General, a worldwide insurance company, has chosen ActiveEon to adapt and accelerate its risk-weighted asset calculations to new regulations such as Solvency II using ActiveEon's Workflows & Scheduling.

Meet ActiveEon team at Teratec 2017 for a custom demo of Workflows & Scheduling, Big Data Automation and Cloud Automation solutions, or to see our case studies.

New Cloud Automation portal

ANEO   Stand 43

Press contact: Wilfried KIRSCHENMANN, Manager HPC & Big Data
Tel: 06 85 44 67 73 - Mail: wkirschenmann@aneo.fr

ANEO deeply believes that collective intelligence maximizes the success rate in the implementation of transformation projects with its clients. Our ambition is to bring high value to companies and their people by leveraging on human intelligence and top nutch technologies.

Major player in numerical simulation since its creation in 2002, our main difference consists in our ability to create specific tools to any type of environment with a fine balance between performance, user friendliness and maintenability. Our expertise allows us to develop turnkey solutions to intensive computation users integrating both software and hardware characteristics: **implementation and optimization of HPC applications, modelization and dynamic implementation of computer vision algorithms, high performance data analytics**

The TERATEC 2017 forum will be a fantastic opportunity to present our latest achievements and confront them to HPC experts :

- **HIPE:** Hierarchic Image Processing Engine. The aim of this internal research project is to create a SaaS platform in which any user could compose dynamically (drag & drop) an image processing and/or machine learning stream. In addition, it should be possible to launch the resulted application both on x86 CPU and GPU without any manual intervention.

- **#MOOCLive:** Study of online courses users. This research project #MOOCLive, funded by the ANR (French National Research Agency), aims at developing a MOOC Factory for training in Public and Global Health. In this project, ANEO provides a detailed understanding of participants and their usages, using machine learning algorithms.

- **FPGA project:** Our various achievements have allowed us to acquire an important experience in parallel architectures such as Components off-the-Shelf (COTS) : Intel x86 multicore or AMD, IBM POWER architecture, ARM low-power chips, NVIDIA GPUs or AMDs or Intel's Xeon Phi. In addition, our experience in the compilation, vectorization or SMT (Simultaneous Multithreading) aspects allowed us to face many languages and tools. In order to broadening this expertise, we have launched this internal R&D project to fully explore the potential of FPGA cards.

Also, we will present on our stand a demonstrator which is to show in real time the execution of a parallel computation on a supercomputer. The demonstrator will indicate the active nodes and where tasks are being executed at a given time. In our example, the application will be executed on a cluster of 16 nodes, based on Raspberrypi 3 cards.

Finally, **Wilfried KIRSHENMANN, Manager and Co-head for the HPC activity at ANEO**, will participate in the workshop "Precision and numerical stability in HPC simulations" as a speaker.

AS+ Groupe EOLEN   Stand 3

Press contact: Gwendoline ODDO, Chargée de Communication
Tel : 01 46 12 10 34 - Mél : gwendoline.oddo@eolen.com
www.eolen.com

ATEMPO an ASG Technologies Company -   Stand 28

Press contact Hervé Collard - Vice President of Product Management
Tél : 06 48 51 31 15 -Mél : herve.collard@asg.com
www.atempo.com

Software Solutions for Data Protection
Business continuity is all about the high availability of your IT. From disaster recovery to end-user search and restore, from bare-metal recovery to long-term retention, Atempo solutions are here for your data.

Stop by at Stand 28 to discover ASG-Digital Archive (ADA) V3.9.
Archive or Backup ?
Big Data is disruptive for data protection solutions, especially for unstructured data. Our latest release, ADA V3.9 proposes an alternative to traditional backup solutions in environments with high volumes of unstructured data, and combines very high performance open format archiving, backup, and restore capabilities, with a very large panel of supported storages.
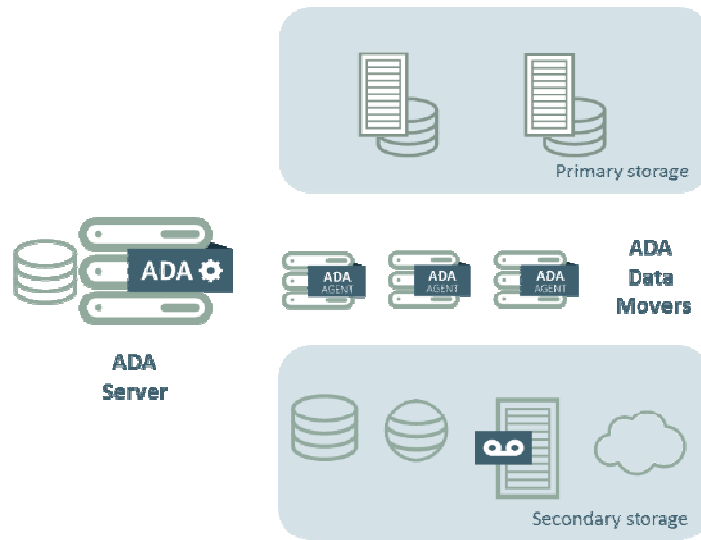
Performances

Version 3.9 focuses on developing ADA's capacities to integrate with intelligent storage mechanisms from various vendors. For instance, by interfacing with the storage to backup, ADA can leverage advanced snapshot technologies and combine it with smart parallelization and load balancing of data movement. Such integration greatly improves archiving and backup performances, and optimizes infrastructure needs.

ADA strong points
- Workflow integration and flexibility
- Open architecture
- Process performance optimization
- Vendor agnostic solution

Our engagements
- Secure your data in the short term for Disaster Recovery and for long term retention
- Free up space on your expensive primary storages and control your needs for additional storage
- Move your data where you need it to enable direct access and sharing between local and distant teams
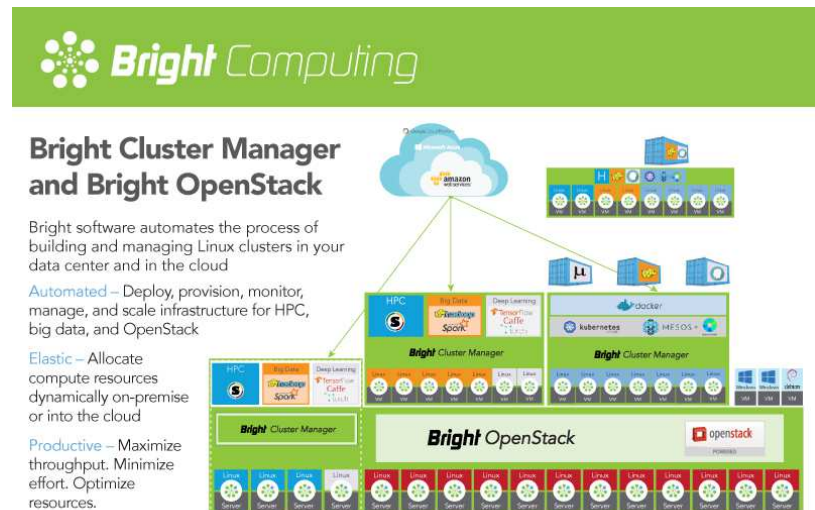
BRIGHT COMPUTING   Stand 4

Press contact: Rachel Chicken, Marketing Manager EMEA
Tel: +44 7788 567 604 - Mail : rachel.chicken@brightcomputing.com

Bright Computing offers comprehensive software solutions for provisioning and managing HPC, big data, and OpenStack private clouds to many professional sectors including academia, government, finance, manufacturing, pharmaceuticals, oil and gas. Bright technology is deployed around the world, helping organisations run their businesses and research. Our clients include some of the most respected global companies such as Boeing, Intel, NASA, and Stanford University. Amazon, Cisco, Cray and Dell are among our partner network.

At Teratec Forum receive a demo on Bright Cluster Manager for HPC, Bright Cluster Manager for Big Data, and Bright OpenStack. At Bright we make it easy to deploy, manage & operate infrastructure in the data center and in the cloud: http://www.brightcomputing.com/request-a-demo

CEA DAM ÎLE-DE-France Stand 9

Press contact: Florence Poirier
Tél. +(33)1 69 26 55 54 - Mail : florence.poirier@cea.fr

In order to fulfil the increasing needs of high performance computing power for numerical simulation, CEA and its CCRT industrial partners share a petascale supercomputer, designed by Bull, Atos technological brand. This supercomputer, Cobalt, commissioned in spring 2016, has a computing power of 1,5 petaflops. Hosted in the TGCC facility ("Très grand centre de calcul du CEA"), in Bruyères-le-Châtel, it is operated by the CEA DAM Île-de-France teams.
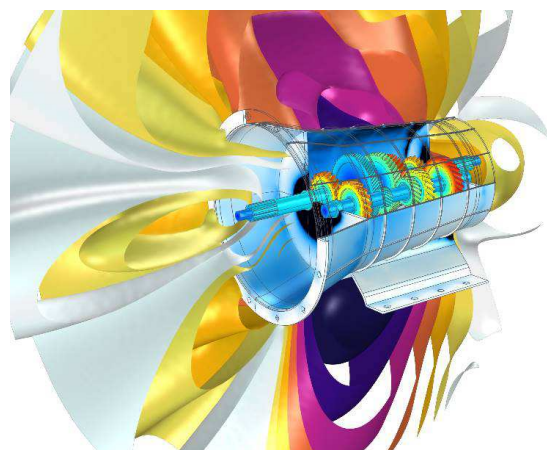

Le supercalculateur Cobalt. © CEA

With Cobalt, the CCRT industrial partners – Airbus Safran Launchers, Cerfacs, EDF, IFP Énergies nouvelles, Ineris, IRSN, L'Oréal, Safran Aero Boosters, Safran Aircraft Engines, Safran Helicopter Engines, Safran Tech, Synchrotron Soleil, Thales, Thales AleniaSpace, Valeo – as well as CEA and France Génomique Consortium – supported by the "Programme Investissements d'Avenir" – have access to outstanding computing resources to develop their projects.

COMSOL France Stand 22

Contact on the show: Mme Sana LOUSSAIEF
Press contact: Margot Chevret
Tél : 04 76 46 49 01 - Mél: margo.chevret@comsol.fr

COMSOL is a global provider of simulation software for product design and research to technical enterprises, research labs, and universities. Its **COMSOL Multiphysics® product** is an integrated software environment for creating physics-based models and simulation apps. A particular strength is its ability to account for coupled or multiphysics phenomena. Add-on products expand the simulation platform for electrical, mechanical, fluid flow, and chemical applications.

Interfacing tools enable the integration of **COMSOL Multiphysics® simulations** with all major technical computing and CAD tools on the CAE market.

Simulation experts rely on the **COMSOL Server™ product** to deploy apps to their design teams, manufacturing departments, test laboratories, and customers throughout the world.

Founded in 1986, COMSOL employs more than 480 people in 21 offices worldwide and extends its reach with a network of distributors. www.comsol.fr/contact. www.comsol.fr/contact

INRIA Stand 23

Press contact: David Loureiro
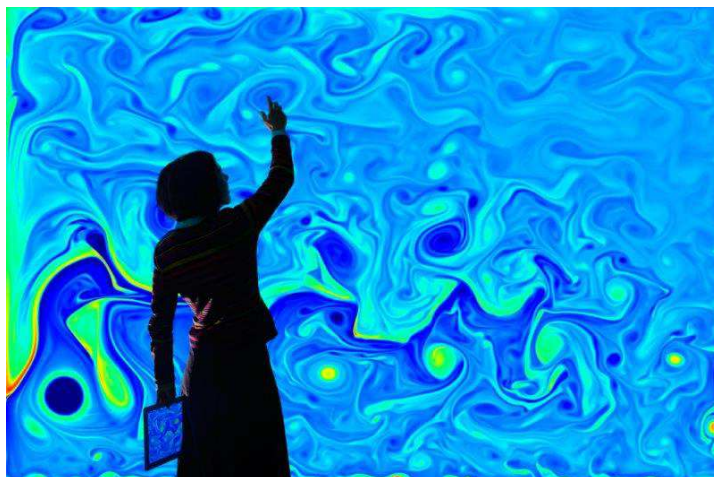Tél : +33 6 77 05 20 61 - Mail : david.loureiro@inria.fr

Inria, the French National Institute for computer science and applied mathematics, promotes "scientific excellence for technology transfer and society" and aims to explore original approaches with its partners in industry and academia.

This year Inria is partner of the European Research Café which will be dedicated to European research projects and initiatives in the fields of scientific computing, HPC, and Big Data.

Besides, Inria will present on its booth a selection of its key technologies in these domains:
• Simgrid is dedicated to the simulation of parallel and distributed applications allowing the detection of anomalies, the prediction of computing time, or the management of hard/soft architecture problems.
• MUMPS is one of the leading numerical solvers for linear algebra on the market. It combines state of the art parallelism and high processing capabilities, while limiting computing time and usage of the computing resources.
• StarPU allows the effective use of parallel architectures permitting the programmers to focus on their algorithms thanks to optimized usage of the various processors/accelerators and the minimization of data movements.
Lastlly, two Inria researchers will present their respective work during the workshops on "Precision and numerical stability in HPC simulations" and "Big Data for materials sciences".

Chercheuse devant un modèle de circulation océanique à très haute résolution

NEC   Stand 5

Press Contact: Dr. Oliver Tennert, Director HPC Solutions and Marketing EMEA
Mél : Oliver.Tennert@emea.net.com
Site Web: www.nec.com

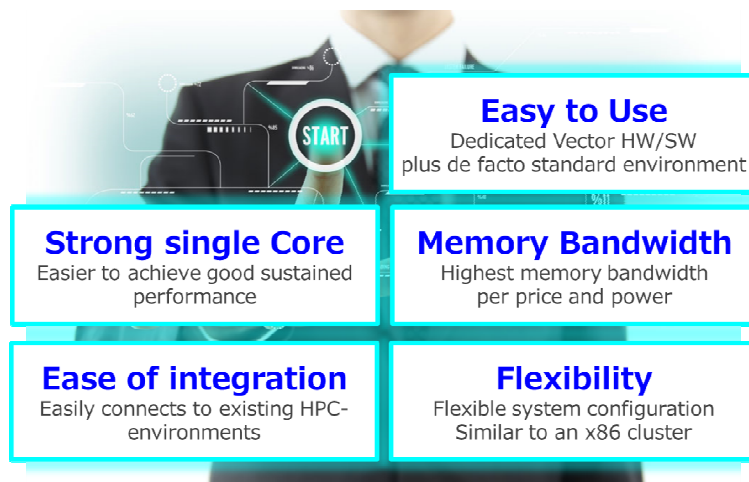### **The Future of Vector Processing: The Aurora Project**

During the last years NEC x86-systems dominated the HPC-market, with GPUs and many-core-systems recently making their inroads. But this period is coming to an end, and it is again time for a differentiated complementary HPC-targeted system. NEC will develop such a system.

For HPC-applications it is not the compute-power of the CPU which counts, it is the speed with which the CPU can exchange data with the memory, the so-called memory-bandwidth. If it is neglected the CPUs will wait for data, the performance will decrease.

One other but really overwhelming problem is the increasing power-consumption of systems. The power consumption will grow with the frequency of the CPU, is the dominant reason why frequencies are stagnating, if not decreasing between product generations. There are more cores, but individual cores of an architecture are getting slower, not faster!

The first incarnation of a completely refurbished product line will be available soon. We call this "Project Aurora", and we strongly believe there is a need for such differentiated and HPC-targeted architecture. At times of stagnating core-performance of standard components, the NEC system is a clear alternative for quite some application fields.

NEC has learned the lessons from the past, and the new product will address these quite distinctively. It is easy to deduct the necessary features of the refurbished product line from the lessons learned in the past combined with the opportunities resulting from the advanced chip design technologies, summarized in one viewgraph:

NUMSCALE   Stand 44

Press contact:: Pascale Perrot - Ingénieur commerciale
Tél : 01 69 15 43 87 - Mob : 07 71 93 73 40 - Mail : pascale.perrot@numscale.com

Numscale specializes in software solutions for high performance computing for both industrial and research applications.

Our mission is to offer innovative development tools, consulting on software optimization techniques and on the optimal choice of architecture to facilitate the development of high performance, portable applications.
We propose software solutions to help R&D teams working on very diverse applications, to fully exploit the full power of the latest computer architectures, from the latest smartphones to massively parallel supercomputers.

Our software solutions allow developers working on image and signal processing, computer vision, simulation, machine learning, robotics, data intelligence and statistics to achieve the highest possible performance and precision.

As active members of the ISO C++ normalization committee, we also offer training courses in vectorization, parallelization, HPC, GPUs and in the C, C++ and MATLAB programming languages.

OPENTEXT   Stand 26

Press contact: Betty Berthol -Hotwire
Tel: +33 (0) 1 43 12 55 55 - Mail: betty.berthol@hotwirepr.com

Enable your digital strategy with powerful analytics and data visualization solutions that deliver insights for smarter decisions

While structured data, often created by machines for machines, quantitative facts, information, opinions, conclusions, interesting, and potentially most valuable, are often hidden in unstructured formats. OpenText™ Analytics Suite 16 provides the powerful reporting, analytics, and data visualization technology that organizations need to build high-scale, on-demand, data-driven applications.

Analytics Suite 16 comprises OpenText™ Big Data Analytics and OpenText™ Information Hub (iHub). Working in tandem, the two products offer an integrated platform for data preparation, data exploration, advanced analytics and interactive data visualizations; Analytics Suite 16 can be deployed on-premises, in the cloud, or in a hybrid environment.

Analytics Suite 16 seamlessly integrates with enterprise applications, and ships with a wide and growing range of data connectors and integration APIs, including JSAPI, IDAPI, and REST V2. It delivers easy-to-understand, mobile-friendly business analytics that let you track, report, and analyze your data in real time.

Discover how the combination of OpentText InfoFusion and OpenText Analytics Suite can process, cross, analyze any type of content in order to transform Big Content into Big Value.
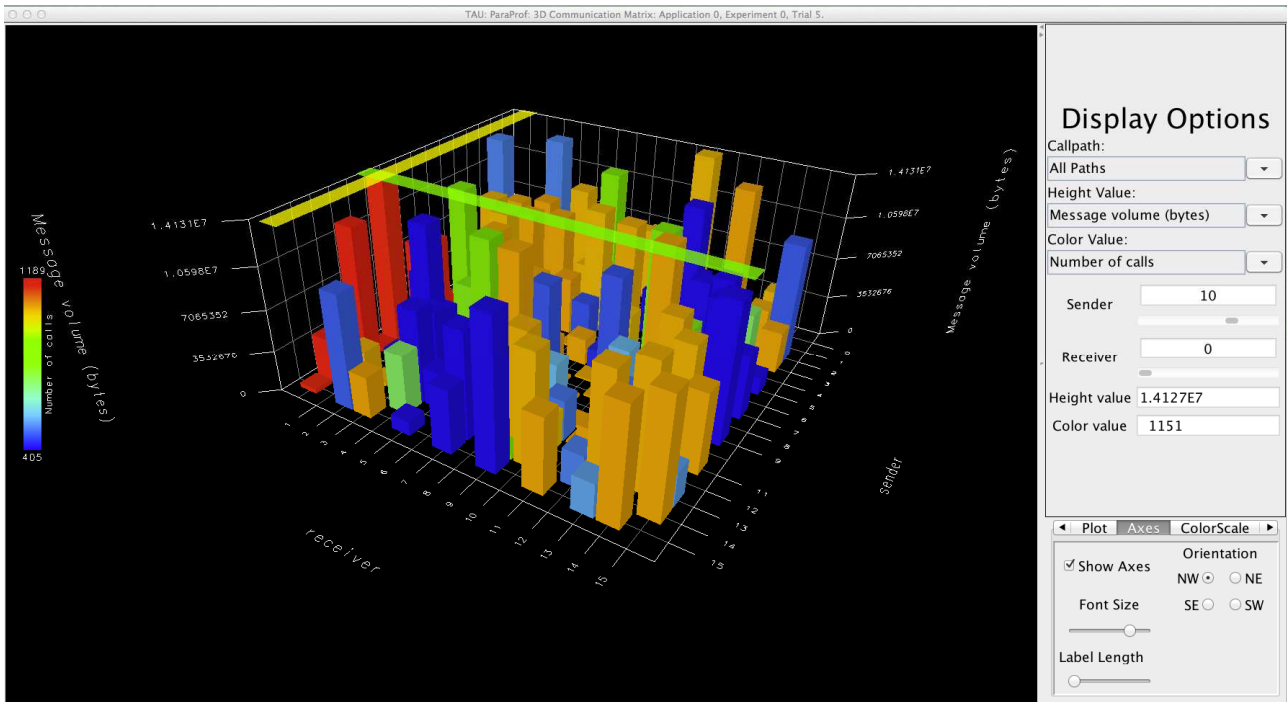
PARATOOLS   Stand 33

Contact : Jean-Baptiste BESNARD, Manager et responsable technique
Tel.: +33 (0)1 60 81 08 91 - Mail: info@paratools.fr

ParaTools est une société de consulting expert en HPC. Notre spécialité est d'apporter un support à des développements complexes liés au calcul haute performance (HPC). Notre mission est de fournir une expertise en HPC à nos clients, en leur permettant de tirer le meilleur profit des nouvelles architectures de calcul. Pour ce faire, nous reposons sur des équipes hautement spécialisées et fortement impliquées dans la recherche HPC.

Notre ambition est de se positionner différemment des sous-traitances habituelles, en proposant des prestations sur mesure pour nos clients ayant des besoins HPC pointus et exigeants. Dans cette démarche qualité, nous dédions un expert à chaque prestation, et réalisons des documents hebdomadaires de progression. Cela assure à nos clients une maitrise optimale des choix techniques, tout en documentant et facilitant l'intégration des produits logiciels que nous livrons.

ParaTools participe activement au développement de MPC (http://mpc.paratools.com), produit originellement développé par le CEA. MPC est le seul moteur d'exécution européen respectant les standards MPI et OpenMP, optimisé pour les architectures Many-Cores. Ces travaux sur les couches exécutives et réseaux des machines HPC nous apportent une connaissance fine du comportement des applications sur les supercalculateurs. De plus, ParaTools a été fondé aux États-Unis par des chercheurs en profilage des applications parallèles et est construit autour de l'outil de profilage TAU (paratools.com/tau), un outil réputé dans son domaine et visant à optimiser les applications HPC. De tels outils nous permettent de caractériser finement des applications parallèles afin de mieux les adapter aux nouvelles architectures.

Forte de son expérience pointue dans le domaine du HPC et de ses outils, ParaTools, au travers d'une équipe passionnée, offre un service sur-mesure et de qualité et compétitif. Nous vous invitons à venir rencontrer nos spécialistes sur notre stand. Nous nous feront un plaisir de discuter avec vous de nos solutions associées aux défis du calcul Exaflopique.

PNY   Stand 41

Press contact:: Guillaume Garatain Field Marketing Manager
Tel.: +33 (0)5 56 13 75 29 - Mob : +33 (0)6 22 85 46 07 - Email : ggaratain@pny.eu

PNY will present during Teratec 2017, its solutions for High-Performance Computing and Deep-Learning, highlighting the way these two different fields are converging and merging.

The world's largest enterprise technology companies have chosen servers based on NVIDIA GPUs. There are now more than 400 GPU-optimized high-performance computing applications, and all of the top 10 HPC applications are now GPU optimized. The number of deep learning developers has tripled in two years to 400,000.

PU server solutions using NVIDIA Tesla and Quadro GPU technology are now provided by PNY Technologies Europe (PNY EU) across the markets of HPC, VDI, Deep Learning and VCA. Over the past 15 years, the EMEA Company has established itself as the one-stop shop for enterprises and institutes that are seeing fast growing demand for GPGPU computing, desktop virtualization, and VCA server solutions.

PNY EU's in-house supply chain capability and its partnership with NVIDIA on Tesla and Quadro GPU products have enabled PNY EU to be positioned as one of the leaders in the professional GPU server business. PNY EU is and will be working closely also with different solution providers in the segments of HPC, Deep Learning and VDI in order to deliver competitive, industry-specific solutions.
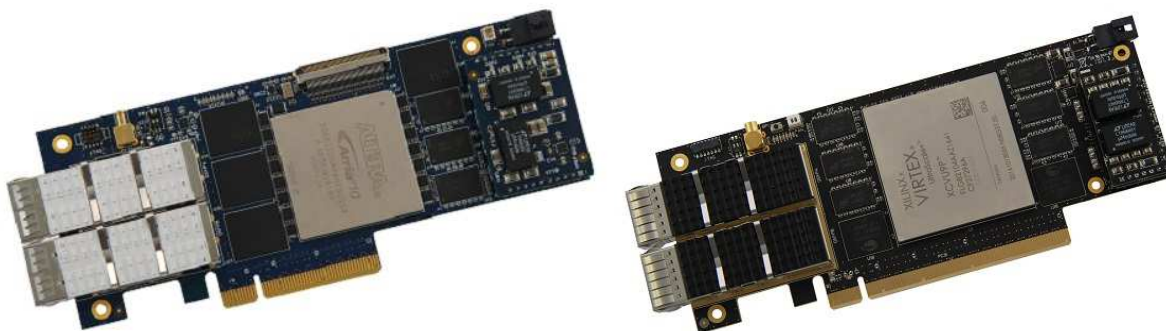
PNY EU focuses on not only the GPU server hardware technology but also professional services. PNY EU has developed its relations with regional partners across EMEA to ensure all-around provisioning of after-sales support, including but not limited to advanced RMA program and next-business-day on-site maintenance. Customers of PNY EU benefit from promotion programs, dedicates sales/pre-sales enablement support, in view of the opportunity of becoming a key player in the GPU server market.

One live Deep-Learning Demo with Apy and Creative Space Lab is planned, in order to demonstrate the power of the new GP100 graphics boards.

ReFLEX CES Stand 65

Press contact: Clémence LAVAINE
Tel: 01 698 702 55_ext 215 - Mel : clavaine@reflexces.com

ReFLEX CES designs and produces custom embedded systems and boards, since 2000.
The company, which now counts 100+ people, is recognized for its expertise in high-speed applications, analog and hardened systems. ReFLEX CES thus has become a leading partner with major industrial companies.
ReFLEX CES facilitate the adoption of the FPGA technology with its leading edge FPGA-based custom embedded and complex systems. ReFLEX CES FPGA network platforms enables indeed a better flexibility and ease of programming. That offers a faster and most powerful board, and reduces the customers' technology risks.

- ■ **At Forum Teratec, ReFLEX CES will present its newest products :**
  - **XpressGXA10-LP1150**, a low profile PCIe Network Processing FPGA Board, with a Intel PSG Arria 10 GX FPGA

  - **XpressVUP-LP9PT**, a low profile PCIe Network Processing FPGA Board, with a Xilinx Virtex UltraScale+ FPGA

They both are designed for HPC, Finance and Networking Applications, the XpressGXA10 being specialized in Ultra Low Latency applications
ReFLEX CES also will present an OpenCL demo on its XpressGXA10 board

Upcoming : Stratix 10 board, the newest Intel FPGA on the market ! Do not hesitate to often check the website www.reflexces.com or contact the sales team sales@reflexces.com for more information
Visit booth 65 !

TELLMEPLUS	Stand 53

Press contact: Sophie Mc DONAGH, Marketing & Communication Manager
E-mail: smcdonagh@tellmeplus.com - Tél : +33 6 69 01 17 49
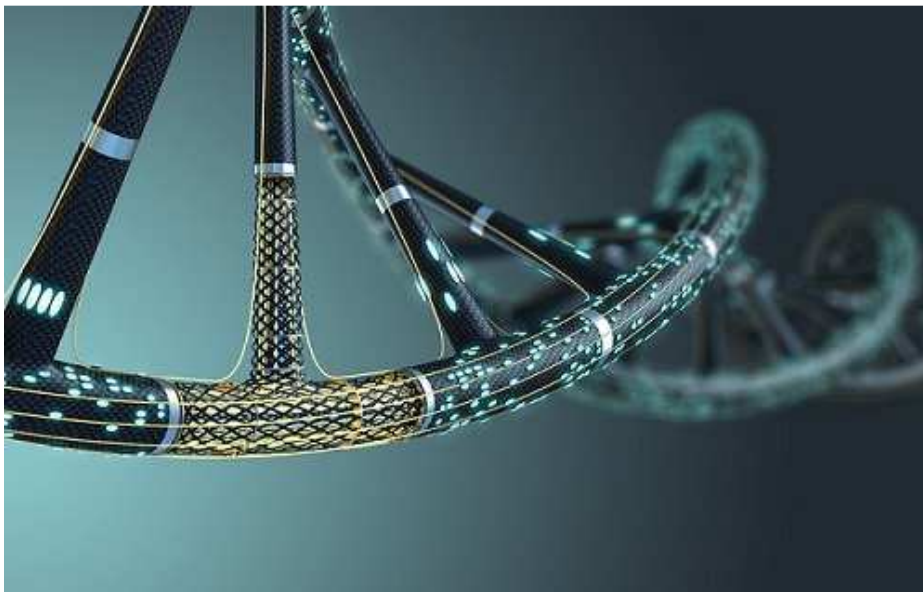
★★★ Preview

With many years of research in the fields of artificial intelligence applied to predictive analysis, Tellmeplus is a software vendor in AI and big data. Its Predictive Objects platform leverages the latest technologies in big data and machine learning to produce predictive models automatically.

Predictive Objects offers high flexibility for operating predictive models that can be deployed in production on internal systems, in the cloud, network equipments, or even embedded in IoT through, for example, an application running on iOS. By embedding intelligence inside objects, they become 'intelligent', able of making real time decisions.

Predictive Objects can help manufacturers easily manage industrial data sets - improve predictive maintenance or optimize industrial processes, availability and assets utilization.

At Forum Teratec, Tellmeplus will showcase the latest features of its Predictive Objects solution, including the Automated Embedded AI and Predictive Objects for IIoT Platforms using case studies and customer references.

TRANSTEC	Stand 03

Press contact: Vincent PFLEGER
Tel: 0 388 551 627 - Mail: vincent.pfleger@transtec.fr

For over 30 years, the goal of transtec is to offer the most cost effective and appropriate solution. With a strong expertise in several areas, such as manufacturing, service as well as HPC, we strive to provide the most efficient solutions for each project. We also offer our own range of maintenance services.
Due to its long experience, transtec acquired the ability to design well thought out and fully optimized solutions on different project sizes. Witness the famous organizations like CERN, CEA, the Fraunhofer institutes and the Max Planck but also companies such as Airbus and Thales Underwater systems listed among our customers.

Our HPC team will be present at the show to present you:

- The distributed high-performance storage with Beegfs
- Demonstration of Bright Cluster Manager, HPC & Big Data tools and cluster solutions as a service.
- Live demonstration of the deployment of a converged Openstack and Ceph solution.
- Discover how to transform your applications into Services for your users through the Nice Software 3D remote visualization tool.
- Cloud for intensive computing through Cluster-As-A-Service solutions
- Further elaboration of solutions and products from the transtec catalog

And of course, Teratec Forum will also propose: plenary sessions, technical workshops, thematics areas, without forgot the six trophies of Numerical Simulation awards, organized in partnership with L'Usine Nouvelle and L'Usine Digitale *(For more information, click* here*)*

Everything you have to know about HPC (High Performance Computing), simulation and Big Data will be at your disposal during the 2 days on the show.

Print your badge for the TERATEC FORUM 2017 on: www.teratec.eu/gb/forum/inscription

To find out more on: Forum Teratec

PRESS Contact	TERATEC Contact
Colette REY	Jean-Pascal JEGU
colette.rey@c-reycom.com	jean-pascal.jegu@teratec.com
Tel : +33 (0)9 51 70 20 57	Tel : +33 (0)9 70 65 02 10
Cell: +33 (0)6 14 73 97 43	Cell: + 33 (0)6 11 44 49 59