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High-Performance Computing Infrastructure for South East Europe's Research Communities

HP-SEE Newsletter

HP-SEE
High-Performance Computing Infrastructure for South East Europe's Research Communities

HP-SEE provides new user communities in SEE fast track access to regional HPC resources

Starting from July 2012, HP-SEE project opens a continuous call for proposals from new user communities for a fast track access to HPC resources available in the South-East Europe.

Researchers from the region are invited to apply for support in porting their scientific applications to resources such as HPC Clusters with Intel-based CPUs, IBM POWER6 CPUs, PowerXCell 8i CPUs, NVIDIA GPUs, interconnected with Gigabit Ethernet or Infiniband. The resources for the fast track access are currently provided by resource centers in Bulgaria, Serbia, Romania and Moldova. Selected applications will be given access to HPC resources and will benefit from the technical support of HP-SEE experts during a two-months period.

The resources offered for this call are limited to 16 CPU cores per run and 4x480 GPUs cores per run.

The call is open to scientific communities not previously associated with the HP-SEE project, coming from the following countries: Greece, Bulgaria, Romania, Hungary, Serbia, FYR of Macedonia, Albania, Bosnia and Herzegovina, Montenegro, Moldova, Armenia, Georgia, and Azerbaijan.

The proposals will be evaluated by scientific and technical experts provided by the HP-SEE project.

The main evaluation criteria for proposals will be:

- Scientific relevance
- Technical feasibility
- Capacity of reaching the proposal goals during the allocation period
- The need for HPC resources
- Impact of the expected results on creating opportunities for the applicant to apply for access to larger HPC resources

Starting from 2 July 2012, applications can be submitted online at the fast track access website: http://survey.ipb.ac.rs/hp-see-fast-track. The status of applications and the list of accepted projects will be published on the HP-SEE web site. The complete description of the application and evaluation process is available online at: http://www.hp-see.eu/hp-see-fast-track.

HP-SEE to launch a pilot call of access to regional HPC resources

The HP-SEE project intends to open a pilot call for proposals, for access to HPC resources available in the region of South East Europe. The call is addressed to scientists of the region in the fields of Computational Chemistry, Computational Physics, Life Sciences, Earth and Space Sciences, and Engineering. Via this call the HP-SEE project will make it possible for regional scientists from the above-mentioned scientific disciplines to have access to the national HPC systems available in South East Europe.

The resource architectures that will be available for this call span from a BlueGene/P Supercomputer, x86 based HPC clusters with high speed interconnect, to clusters with GPUs, and will be provided by Bulgaria, FYR of Macedonia, Hungary, Romania and Serbia.

The call will be opened in September 2012 and access to resources will start at the end of 2012 / beginning of 2013 for a duration of 1 year.

Eligible applicants are scientists affiliated with academic or research institutions from Greece, Bulgaria, Romania, Hungary, Serbia, FYR of Macedonia, Albania, Bosnia & Herzegovina, Montenegro, Moldova, Armenia, Georgia, and Azerbaijan. Representatives from the Industrial sector can participate as collaborators in open research projects lead by members of academic or research institutions.

Further details on the call, procedures and detailed evaluation criteria will be available on the HP-SEE project web site at: http://www.hp- see.eu/pilot-call

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South Caucasus NRENs are now IPv6 enabled

IPv6 is designed to replace IPv4 by offering a much larger address space and improved features especially on security and the automatic addressing. Following the exhaustion of IPv4 blocks on February 2011, efforts on enabling IPv6 reached at the highest level among all the IT community. And following the World IPv6 Launch event organized on 6 June 2012, major Internet service providers (ISPs), home networking equipment manufacturers, and web companies around the world are coming together to permanently enable IPv6.

The HP-SEE community has been working on enabling IPv6 in parallel to worldwide efforts: both NRENs from Armenia (NAS RA) and Azerbaijan (AzRENA) aggregated their IPv6 blocks from RIPE at the beginning of 2012. Following the first attempts on enabling IPv6 in their backbones, these IP blocks became visible in global routing table by April 2012. In other words, South Caucasus NRENs are now connected to global internet via IPv6 also. The next step for HP-SEE NOC team is to get the services IPv6 enabled and get the institutes and universities IPv6 enabled.

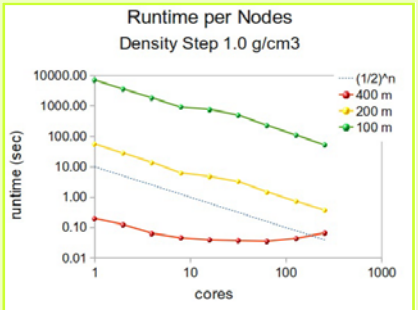
HP-SEE and LinkSCEEM-2 signed Memorandum of Understanding

A Memorandum of Understanding between HP-SEE and LinkSCEEM-2 projects was signed in April 2012, setting a framework of collaboration in the following activities:

- *Training & Advanced knowledge dissemination*, including the organization of HPC schools, trainings & workshops
- *Policy-related actions*, such as the exchange of know-how regarding Resource Exchange models, the setting up national HPC task forces / similar bodies, developing dialogue on future European HPC landscape, and identification of resource sharing models .
- *Applications, porting, and optimisation actions*, such as identifying new applications of relevance for the Eastern Mediterranean & SEE region, the sharing of data on application surveys & tools, the sharing of documentation on application porting and optimization, exchange of codes for application benchmarking.
- *HPC operations*, i.e. sharing of know-how regarding operational solutions.
- *Technologies*, i.e. exchange of data on new programming languages / techniques, exchange of information on design and operation of power-efficient HPC centers, exchange of information on best-practices for procurement and actual procurement use-cases / examples.

GIM application

The GIM application for the inversion of gravity anomalies was tested, using MPI in the HPCG system of IICT-BAS, Bulgaria. The scalability of GIM was analyzed and compared with previous results based on OpenMP.



"Day of open doors for students in field of mathematics and informatics", Organization of a short HPC centre tour for a group of students in IICT-BAS

As part of the annual conference "European Student Conference in Mathematics - EUROMATH - 2012", the Institute of Information & Communication Technology (IICT-BAS), opened its doors to students, who had the opportunity to familiarize themselves with the institute, its activities and computational resources. The purpose of this introduction has been to encourage future work of young minds in the field of mathematics and informatics, as well as in the use of high performance computing resources.

The introduction of the project activities was performed by Assoc. Prof. Emanouil Atanassov and Assoc. Prof. Todor Gurov in the Institute of Information and Communications Technologies - BAS. The students, about 100, visited HPC centre at the IICT-BAS.

HP-SEE's Bioinformatics Portal

SZTAKI has recently opened up for the wider HP-SEE Life Sciences community the gUSE/WS-PGRADE based HP-SEE Bioinformatics Portal, which is accessed via the following link:
http://ls-hpsee.nik.uni-obuda.hu:8080/liferay-portal-6.0.5

The portal is hosted at the Obuda University and maintained by MTA SZTAKI. It already offers as online services two ported bioinformatics applications:
DeepAligner - http://wiki.hp-see.eu/index.php/DeepAligner and
DiseaseGeneMapper—http://wiki.hp-see.eu/index.php/DiseaseGene

Both researchers and developers from HP-SEE's LifeSciences VRC are encouraged to use the portal. The HP-SEE Bioinformatics portal can be used as a simple user friendly interface for the available supercomputing infrastructures and also as open service facility for additional services. User and Developer documentation on how to use the Portal are available at:
http://hpseewiki.ipb.ac.rs/index.php/HP-SEE_Bioinformatics_Portal

From now on HP-SEE application developers can develop and include their workflows as pluggable online services into the HP-SEE Bioinformatics portal. Although until recently only NIIF's supercomputing infrastructure and the old SEE-GRID-SCI infrastructure have been connected to the HP-SEE Bioinformatics portal, this can be easily extended to other available infrastructure if maintainers receive such requests.

HP-SEE outcomes were presented in ICRI2012 & RIDE2012

HP-SEE was presented with two posters in two important international events:

The **International Conference on Research Infrastructures (ICRI 2012)** was held on 21-23 March 2012 in Copenhagen, under the auspices of the Danish Presidency of the European Council, co-organized by the Danish Ministry of Science, Innovation and Higher Education and the European Commission. ICRI 2012 provided important input to the European strategy and to the implementation of the next EU Framework Programme "Horizon 2020", supporting the strengthening of a global ecosystem of research infrastructures. The joint HP-SEE & SEERA-EI poster was specially designed for the exhibition there and gained a lot of interest.

The **Research Infrastructure Dissemination Event (RIDE 2012)** was an important part of the jubilee 35th MIPRO convention with over 1,000 visitors and 600 papers from all over the world in the scientific program.

About 20 ESFRI Roadmap, RI and other EU and national strategic projects showed up to present and disseminate their achievements. HP-SEE was disseminated in two exhibition booths at RIDE (http://www.mipro.hr/RIDE2012/ELink.aspx). Project participants from Bulgaria and Hungary provided presentations and scientific talks about HP-SEE's infrastructure and applications as well as project results during the DC-VIS - Distributed Computing and Visualization Systems section of the MIRO 2012 Conference. The Jubilee 35th International Convention on Information and Communication Technology, electronics and microelectronics was held on 21-25 May 2012, in Opatija, Croatia.

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HP-SEE, High-Performance Computing Infrastructure for South East Europe's Research Communities works across strategic lines of action to link existing and upcoming HPC facilities in South East Europe in a common infrastructure, and to provide operational solutions for it, as well as HPC user and applications support . As a complementary action, the project has established and maintains two GÉANT links for Southern Caucasus. The initiative opens the South East European HPC infrastructure to a wide range of new user communities, including those of less-resourced countries, fostering collaboration and providing advanced capabilities to researchers, with an emphasis on strategic groups in computational physics, computational chemistry and life sciences.

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