AComIn

AComIn:
Advanced Computing for Innovation

FP7 Capacity Programme
Research Potential of Convergence Regions

LSSC-2013 ORGANISATION REPORT

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Summary: Report about the organisation of the 9th International Conference

"Large-Scale Scientific Computations" LSSC'13,

3-7 June 2013, Sozopol, Bulgaria

Status: Final report

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Start date of the project: 01/10/2012   **Duration: 42 months**

BULGARIAN
ACADEMY
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IICT

Report about the AComIn Supported Event LSSC 2013

Name and type of the event:

9th International Conference

LSSC'13, "Large-Scale Scientific Computations"

Biannual event organised in Bulgaria since 1995

http://parallel.bas.bg/Conferences/SciCom13/

Accompanying event: **NSPDE'13, Symposium on "Numerical Solution of Partial Differential Equations"**

Place, dates:

Sozopol, Bulgaria

3-7 June 2013, LSSC

7-8 June 2013, NSPDE

Programming and Organising Committees:

The Programme Committee of the event consists of 27 members representing leading universities and research institutes from Austria, Bulgaria, Denmark, Germany, Italy, Poland, Sweden and USA.

The Local Organising Committee consists of the following members all from IICT:

Gergana Bencheva

Petya Boyanova

Ivan Georgiev

Krassimir Georgiev

Silvia Grozdanova – Conference Secretary

Nikola Kosturski

Ivan Lirkov

Maria Lymbery

Svetozar Margenov – Chairman

Stanislav Stoykov

Yavor Vutov

Participants /number, types/:

From IICT: 25, 23 of them researchers

Bulgarian participants outside IICT: 19 researchers

Foreign participants: 110, including 5 Plenary Invited Speakers

Invited participants: 9, 2 of them supported by AComIn

Short description:

A wide range of recent achievements in the field of scalable numerical methods, algorithms and their applications is addressed during the conference. The meeting provides a forum for exchange of ideas between scientists, who develop and study numerical methods and algorithms, and researchers, who apply them for solving real life problems. The following major scientific topics, all related to the *AComIn* project activities are included: Hierarchical, adaptive, domain decomposition and local refinement methods; Robust preconditioning algorithms; Monte Carlo methods and algorithms; Numerical linear algebra; Control systems; Large-scale computations of environmental biomedical and engineering problems; High-performance algorithms for engineering problems; Parallel algorithms and performance analysis.

Scientific Programme:

The Scientific Programme of the conference is available at:

http://parallel.bas.bg/Conferences/SciCom13/Scientific_Program.pdf

Scientific Programme of the *AComIn*-related activities:

The Scientific Programme of the event includes 5 Plenary Invited talks, 11 Special Sessions and Sessions of Contributed Talks. 6 of the Special Sessions are directly related to the AComIn project activities.

The Plenary Invited lecturers gave the following talks:

- **Joseph Pasciak**, Variational Formulations of Problems Involving Fractional Order Differential Operators

- **Gundolf Haase**, Multiple-GPU AMG Solver Environment for Biomedical Applications

AComIn-related papers presented at the event and published after peer review:

The following **ten AComIn-related papers** will be published in the LSSC'13 proceedings to appear as a special volume of Springer LNCS in 2014:

- P. Schwaha, M. Nedjalkov, S. Selberherr, J.M. Sellier, I. Dimov, R. Georgieva, Stochastic Formulation of Newton's Acceleration

- J. M. Sellier, M. Nedjalkov, I. Dimov, S. Selberherr, The Role of Annihilation in a Wigner Monte Carlo approach

- P. Koprinkova-Hristova, Adaptive Critic Design and Heuristic Search for Optimization

- O. Roeva, S. Fidanova, V. Atanassova, Hybrid ACO-GA for Parameter Identification of an *E. coli* Cultivation Process Model

- S. Margenov, S. Stoykov, Y. Vutov, Numerical Homogenization of Heterogeneous Anisotropic Linear Elastic Materials

- S. Stoykov, S. Margenov, Nonlinear Forced Vibration Analysis of Elastic Structures by Using Parallel Solvers for Large-Scale Systems

- E. Atanassov, D. Georgiev, T. Gurov, A. Karaivanova, and Y. Nikolova, Distributed system for query processing with Grid authentication

- R. Hristova, S. Ivanovska, and M. Durchova, Performance Analysis of the Regional Grid Resources for an Environmental Modeling Application

- M. Lymbery, Robust Balanced Semi-Coarsening Multilevel Preconditioning of Bicubic FEM Systems

- T. Tashev, V. Monov, Large-Scale Simulation of Non-Uniform Load Traffic in Studying the Throughput of a Crossbar Packed Switch.

Assessment of the added-value of the event to the *AComIn* scientific, networking and dissemination objectives:

The support, provided by *AComIn* to LSSC'13, enabled:

- To cover the local expenses of several worldwide known scientists giving top level plenary and key note invited talks.

- To support a part (10 from 25) of the participants from IICT.

The conference materials included the *AComIn* flyer informing the participants about the objectives and specific activities of the project. The *AComIn* support is acknowledged in the LSSC'13 Book of Abstracts as well as at the conference website.

Changes in the financial planning of the AComIn support spending (if any):

There were no changes in the budget plan, approved by the AComIn Executive Board.

Reason for the changes during the actual event implementation: N/A

Event organiser:

15 June 2013

Svetozar Margenov