National Research University «Higher School of Economics»
International Laboratory for Supercomputer Atomistic Modelling and Multi-Scale Analysis

School-Workshop
«Approaches to new supercomputer architectures in the post-Moore's law era»

11 Dec 2017
Tikhonov Moscow Institute of Electronics and Mathematics (MIEM HSE)
34 Tallinskaya Ulitsa, Moscow

PROGRAMM

Overview reports

11-00 – 11-20
New technologies of high-speed data transmission
A.S. Semenov (JSC NICEVT)

11-20 – 11-40
Programming model Charm++ and its applicability in the exa-scale era
A.S. Frolov (JSC NICEVT)

11-40 – 12-00
2017 – the beginning of active competition of server processors
V.V. Stegailov (JIHT RAS/HSE/MIPT)

Hybrid supercomputer Desmos

12-00 – 12-20
The work of the supercomputer Desmos: user policies
G.S. Smirnov (JIHT RAS/HSE/MIPT)

12-20 – 12-30
Analysis of statistics on the supercomputer Desmos deployment
E.S. Dlinnova (HSE)

12-30 – 12-50
The efficiency of the supercomputer Desmos for the problems of molecular modeling: the usage of GPU accelerators and parallel data output
N.D. Kondratyuk (JIHT RAS/HSE/MIPT)

12-50 – 14-00 LUNCH

New types of microprocessors

14-00 – 14-15
ARM architecture: from mobile devices to supercomputers
V.P. Nikolskiy (HSE/JIHT RAS)

14-15 – 14-30
Influence of the balance of computing performance and the memory speed on the efficiency of calculations of the electronic structure: comparison of Intel, AMD и Nvidia processors
V.S. Vecher (HSE/JIHT RAS/MIPT)

14-30 – 14-45
Comparison of the libraries for fast Fourier transform FFTW and EML on servers with processors Elbrus 4S and Elbrus 8S
A.V. Timofeev (JIHT RAS/HSE/MIPT)

14-45 – 15-00
Applicability of the Epiphany processor architecture for implementing the parallel algorithm of classical molecular dynamics
V.P. Nikolskiy (HSE/JIHT RAS)

Architecture and software of the Angara network

15-00 – 15-15
Optimization of MPI-process mapping for clusters with Angara interconnect
M.R. Khalilov (HSE)

15-15 – 15-30
Resource allocation policies on clusters with the Angara network
A.V. Mukosey (JSC NICEVT)

15-30 – 15-50
Features of the implementation of MPI library based on MPICH for the Angara network
D.A. Polyakov (JSC NICEVT)

Round table

15-50 – 18-00
Discussion of development prospects and news of supercomputing technologies:
1. Angara User Group project development.
2. Results of 2017: conferences PPAM-2017, RSD-2017, НСКФ-2017, SC-2017.
2. Parallel I/O technologies.

18-00
Closing of the School-Workshop