Russian Academy of Sciences
Program Systems Institute

Creation of a geographically distributed computing system in the interests of implementing SKIF-GRID — SKIF-Polygon program activities

SKIF-GRID

The project to create a geographically distributed SKIF-Polygon computing system is being implemented within the bounds of the Union State SKIF-GRID Program of Grid Soft Hardware Development and Application for High-performance (Supercomputer) SKIF Series Computing Systems.

Project executors: Program Systems Institute of the RAN; participant organizations of the SKIF-Polygon project.

The project objective: SKIF-Polygon deployment and maintenance, SKIF-Polygon being a pilot segment of a geographically distributed system (GRID-system) that is to network the SKIF-GRID program parti-cipants' computer installations. As a result of implementing the project a GRID-system is to be created to provide basis for:

- debugging and testing the middleware intended for organizing different aspects of distributed computing;
- testing and debugging distributed applications and performing distributed computations.

SKIF-Polygon organosation

Executor organizations participating in the project play one of the following parts in relation to the SKIF-Polygon system:

- **SKIF-Polygon control center (MCC)** that is a SKIF-Polygon participant controlling SKIF-Polygon formation processes and access to it, as well as safe joint use of its resourses by all the project participants;

- **SKIF-Polygon site** that is a SKIF-Polygon participant contributing some of its computer installation resources as part of SKIF-Polygon for SKIF-Polygon users' work.

- **SKIF-Polygon user** that is a SKIF-Polygon participant using the SKIF-Polygon resources for conducting research and development within the bounds of SKIF-GRID program activities implementation.

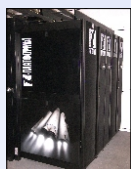## Supercomputers included in the SKIF-Polygon project

SKIF MSU
Peak performance —- 60 Tflops.
Location —- RCC MSU (Research Computing Centre for Lomonosov MSU, Moscow)
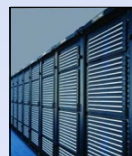
SKIF K-1000M
Peak performance — 5 Tflops.
Location —- United Institute of Informatics Problems of the National Academy of Sciences of Belarus, Minsk

SKIF Ural
Peak performance — 16 Tflops.
Location —- South Ural State University, Chelyabinsk.

SKIF K-500
Peak performance — 0,7 Tflops.
Location —- United Institute of Informatics Problems of the National Academy of Sciences of Belarus, Minsk

SKIF-Cyberia
Peak performance — 12 Tflops.
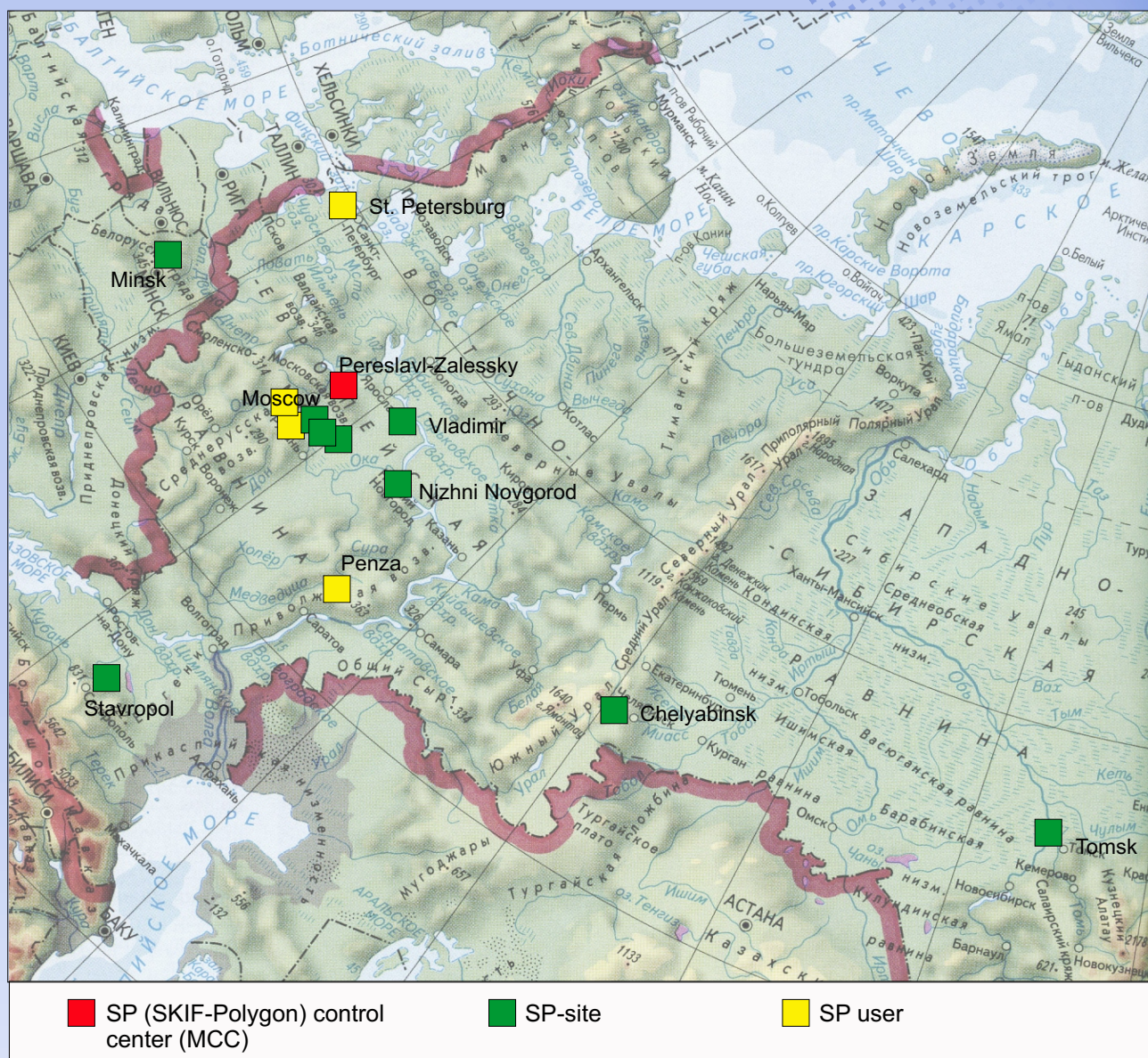Location —- Tomsk State University, Tomsk.

SKIF Monomakh
Peak performance — 4,7 Tflops.
Location —- Vladimir State University, Vladimir

Total peak performance: about 100 Tflops

SKIF-Polygon participants

- 🟥 SP (SKIF-Polygon) control center (MCC)
- 🟩 SP-site
- 🟨 SP user

SKIF-Polygon control center (MCC):
Program Systems Institute of RAS, the city of Pereslavl-Zalessky

SKIF-Polygon sites:
- Institute of Problems of Chemical Physics of RAS, the city of Chernogolovka — 60 Gflops
- United Institute of Informatics Problems of the National Academy of Sciences of Belarus, Minsk — 5,7 Tflops (0,7Tflops+5Tflops)
- North Caucasian State Technical University, the city of Stavropol — 14,2 Gflops
- Tomsk State University, the city of Tomsk — 12 Tflops
- Vladimir State University, the city of Vladimir — 4,7 Tflops
- South Ural State University, the city of Chelyabinsk — 16 Tflops
- Geophysical Center of the Russian Academy of Sciences, Moscow — 144 Gflops
- Research Computing Centre for M.V. Lomonosov Moscow State University, Moscow — 60 Tflops
- N.I. Lobachevsky State University of Nizhni Novgorod — 2,7 Tflops

SKIF-Polygon users:
- A.N. Belozersky Institute of Physico-Chemical Biology of M.V. Lomonosov MSU, Moscow
- Penza State University, the city of Penza
- St. Petersburg Atom Energo Project research and development institute (FGUP SPbAEP), St. Petersburg
- N.N. Semenov Institute of Chemical Physics of RAS, Moscow.

The entry list is planned to be expanded.