OKEANOS SUPERCOMPUTER

COMPUTATIONAL RESEARCH GRANTS

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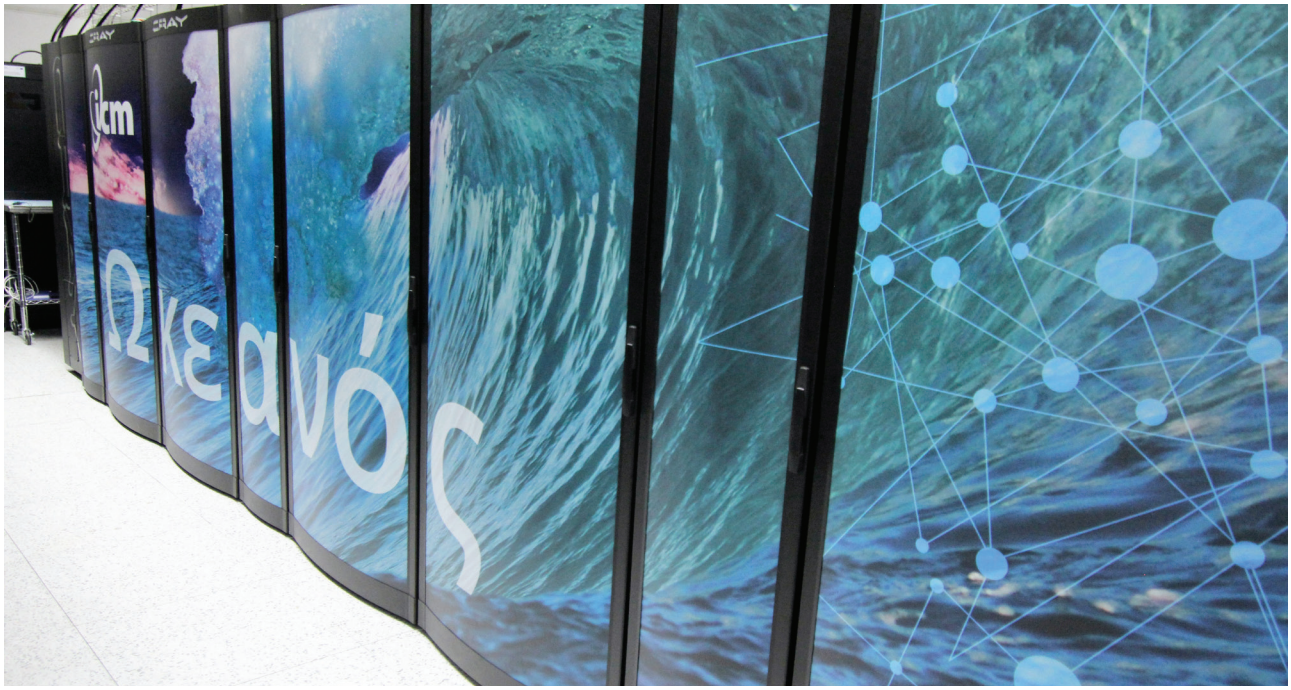
THE OKEANOS SUPERCOMPUTER

Starting July 2016 ICM UW will grant researchers access to the Okeanos supercomputer – a Cray XC40 large-scale computing system. Okeanos comprises more than 1000 compute nodes, each node containing two 12-core Intel Xeon Haswell processors and 128 GB of RAM. All nodes of the system are connected with the ultra-scalable Cray Aries interconnect with Dragonfly topology.



The system built by Cray Inc. in response to ICM's strict and demanding requirements has become a unique High Performance Computing (HPC) solution in Poland. The system is characterised by very high computational power, as well as outstanding graph analytics capability and extreme performance on data-intensive workloads. Okeanos is best suited for large-scale computations, which require several thousand cores and several tens of terabytes of memory in a single run. Supporting such large-scale computations is the primary purpose of the Okeanos supercomputer.

Okeanos together with the Big Data analytics and storage systems installed at ICM's new data centre in Warsaw form the coherent and complementary IT infrastructure of the OCEAN Competence Centre.

TYPES OF COMPUTATIONAL RESEARCH GRANTS

Access to the Okeanos supercomputer will primarily be granted to scientists whose research requires the use of massively parallel computations. Three types of grants will be awarded, the details of which are presented below.

Type A Grants: Grand Challenges

Type A grants are intended for teams applying for computational time in excess of 2 million core-hours. Projects will be selected through an open call, published twice a year. Information about current calls will be published on ICM web pages. Proposals will be subject to formal, technical and scientific evaluations drawn up by the Advisory Panel composed of scientists from different fields of computational sciences. Computational projects classified as type A grants will be carried out in close cooperation with ICM. Each project will be individually supervised by an HPC specialist from ICM. Computing resources for type A grants are granted for one year.

Type B Grants: Standard

Type B grants are intended for teams applying for computational time not exceeding 2 million core--hours. The call for proposals for type B grants is continuously open. Proposals will be subject to formal, technical and scientific evaluations drawn up by the Advisory Panel composed of scientists from different fields of computational sciences. Computing resources for type B grants are granted for one year.

Type C Grants: Test

Type C grants are intended for teams applying for small computing resources on the level of 20,000 core-hours, for testing their applications or computational models. The main purpose of type C grants is to gather the information necessary to apply for computational grants of type A or B. The call for proposals for type C grants is continuously open. Proposals are subject to formal and technical evaluations. Computing resources for type C grants are granted for 6 months.

SUPPORT LEVELS

User support for computational grants on the Okeanos system will be provided on three levels.

Level 1: emergency assistance, providing basic information about the usage of computational systems;

Level 2: covers the first level of support and additionally assistance in software porting and running simulations;

Level 3: covers second level of support and additionally development and opitmisation of parallel applications and tools.

Type A grants will be covered by support at 2nd level by default.

Type B and C grants will be covered by support at 1st level by default.

The third level of support may be obtained by teams interested in closer cooperation with ICM through preparing and submitting proposals, running joint R&D projects and writing joint publications on research results.

PROPOSALS EVALUATION AND ACCESS CRITERIA

Formal, technical and scientific evaluation will be based on:

- scientific significance of the proposed research,
- justification for the use of High Performance Computing resources,
- the applicant's and team's ability to implement the project,
- technical feasibility of implementing the project on the Okeanos system, including the availability of tools and currently available resources.

In the case of scientific teams, which were already running their calculations at ICM in the past, the course and scientific results of previous computational grants will be also taken into account.

Cutting-edge research requiring large-scale computational resources will be favoured.

The evaluation of proposals will last about 1 month. In the case of applications for type A grants this period is counted from the closing date for submitting proposals for the given call. The evaluation period for type B and C grants can be shorter, depending on the number of pending applications.

ICM reserves the right to award less than the requested amount of computing resources or provide access to other computing systems than requested.

REPORTING RESULTS

The use of the resources allocated to a computational grant is subject to mandatory reporting. A written report covering results of computations needs to be submitted after the completion of the grant. Grants of types A and B will require a full scientific report while grants of type C will require only a simplified technical report. The Principal investigator of the grant will be informed about the final report submission deadline. Timely submission of the report and its acceptance is a prerequisite for applying for future computational grants.