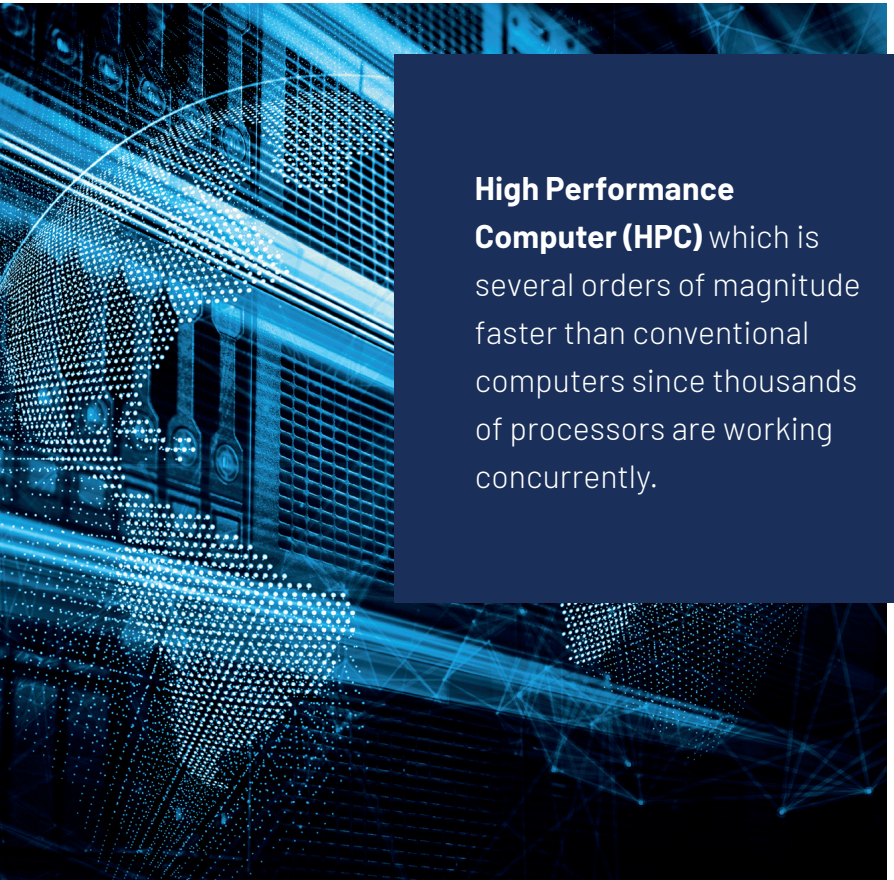


HPC @hu
Competence Centre

From Science to Innovation

KIFÜ
Governmental Agency
for IT Development

Supercomputers for competitive advantage!



High Performance Computer (HPC) which is several orders of magnitude faster than conventional computers since thousands of processors are working concurrently.

The supercomputer

The use of HPC has become the rule when it comes to time and resource sensitive research, tests, simulations, AI based developments and in processing big data sets.

For example:

- weather forecast, climate research,
- transport management,
- pharmaceutical research, drug design,
- precision medical science,
- materials science, material design,
- production optimalisation, process management,
- plant breeding,
- biomass utilisation.

When mechanical engineering design is made with the use of 3-D modelling, the next step is virtual testing which has become a customer expectation. This is a quick and cost-effective way of determining how the planned machines, components and equipment will handle the pressure and what their potential longevity might be.

For example:

- machine and component manufacturing
- design of energetics, factories, plants, wiring systems
- design in architecture, building energy performance and environmental modelling
- statics and mechanical design, modelling
- fluid mechanics design and testing.

In fields where large data sets need to be processed and analysed high-performance computing is quickly becoming indispensable.

For example:

- data analysis,
- flow management,
- production optimalisation,
- 3-D modelling,
- rendering videos and animation,
- AI based applications.

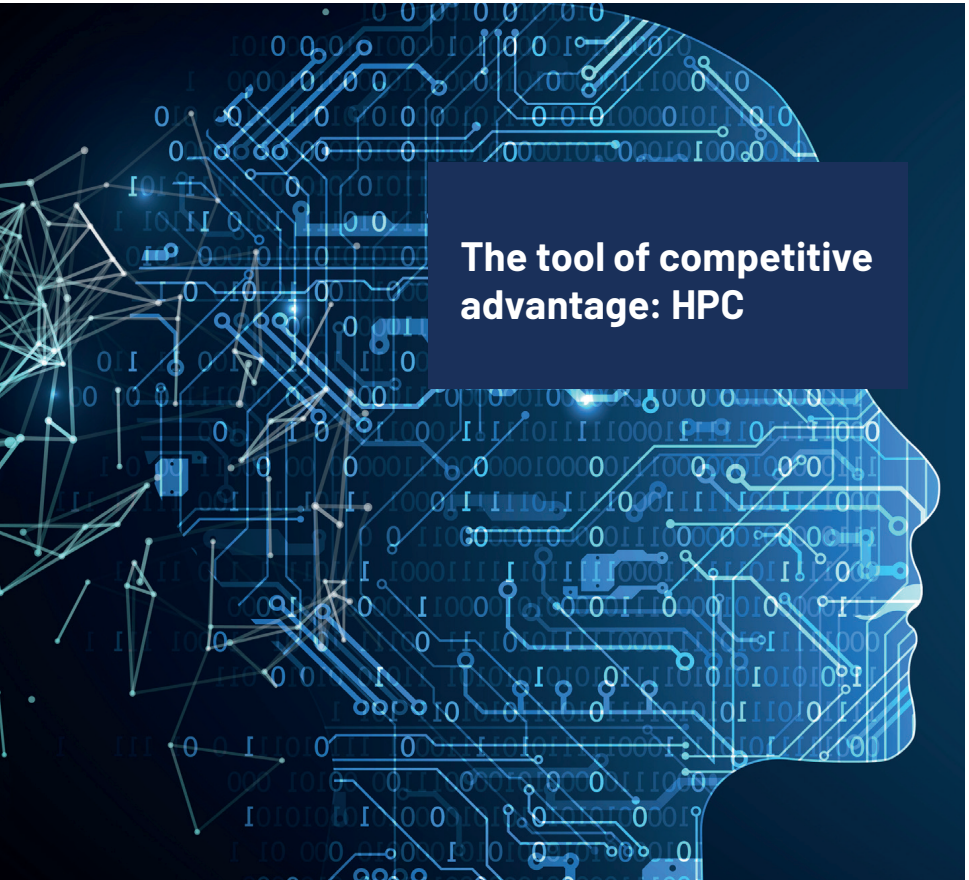


The result of the previously unimaginable level of computing, simulations and research is among other things a rationalised operation and a quicker and cheaper development. The use of supercomputers in handling and analysing large data sets results in savings in time, money and human resources. Therefore, exploiting the advantages provided by High-performance computing is an indispensable element of remaining competitive.

High-performance computing in Hungary

The Governmental Agency for IT Development (KIFÜ) has been providing supercomputer services since 2001 for institutes of higher education, research centres and for representatives of the Hungarian industrial sector working in research and development. Currently one of Central Europe's most modern supercomputers named Komondor is available for customers. It has a 5-petaflop capacity and the necessary software background, maximal security and full customer service and support functions.





HPC Competence Centre

Access to and customer support of the Hungarian High-performance computing capacity is provided by the HPC Competence Centre.

Services of the HPC Competence Centre:

- personalised advice and guidance in the optimal usage of HPC,
- customer support in all stages of the application,
- organisation of knowledge transfer events,
- building a domestic HPC community, stopping the fragmentation of research knowledge and competencies, facilitating knowledge transfer between researchers,
- supporting the development of international professional relationships,
- facilitating relationships between academy and industrial actors and
- quick reaction time in cases of error reporting.

EXCLUSIVE Professional **(immediate access with flexible reservation)**	Flexible reservation enables our customers to have flexible access to their dedicated resources anytime between the start and finish time. We recommend this solution to our users who are working on projects with many subtasks that are interdependent and the run times are difficult or cannot be planned ahead. This option provides maximum flexibility for the user regarding resource utilization.
EXCLUSIVE Advanced **(immediate access for continuous use with a fixed time window)**	As part of the continuous use the user can freely use the exclusive resource within the start and finishing time set out in the contract, there is no need for setting up time windows. This is an ideal option for users who wish to do computing work outside of normal working hours, but their project has a well-defined starting and finishing time.
EXCLUSIVE Standard **(immediate access for intermittent use with fixed time window reservation)**	With this option the resources as set out in the contract are immediately available in the necessary quantity and quality in the previously fixed time window (for example exclusively within set working hours) The package provides exclusive use of resources for the advanced user, and as a result the available resources are billed even if they were partially or totally unused.
PRIORITY **(priority access with flexible reservation)**	In case the user does not have an immediate need for dedicated resources, but would prefer to have quick results following the submission of their request, they have the opportunity as part of the priority access to have high priority assigned to their tasks and to be placed at the front of the queue. This option does not exclude the possibility of a certain amount of waiting but it provides enhanced flexibility for the user.
ECONOMY **(access with flexible reservation)**	We recommend the Economy option for users looking for cost-efficient solutions, especially in cases of complex multi-stage projects, where resource intensive tasks are expected to have long multi-day run times, but they do not require priority to run their tasks.

Supercomputers for competitive advantage!

Further information available at **www.hpc.kifu.hu**.
For queries: **hpc@kifu.gov.hu**.

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EURO

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