

WHAT IS HIGH PERFORMANCE COMPUTING?

Supercomputers enables the use of parallelism, whose principle is to distribute a complex calculation over several (up to hundred thousand) processing units.

High Performance Computing refers to the use of supercomputers or clusters to perform complex calculations. A supercomputer consist of several processing units, connected together.

Performance are measured with floating-point operations per second (FLOPS). Today, supercomputers reach the exaFLOPS, corresponding to millions of personal computers.

THE EUROPEAN HPC ENVIRONMENT

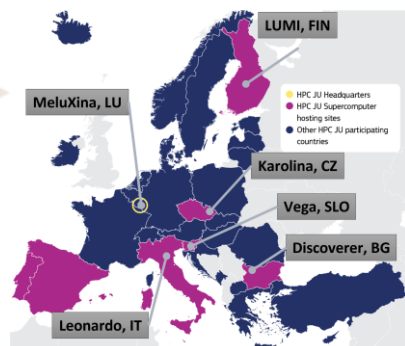
EUROHPC

Joint Undertaking (JU)

Partnership between 33 European countries to make Europe a world leader in supercomputing and support the digital transformation of its economy.

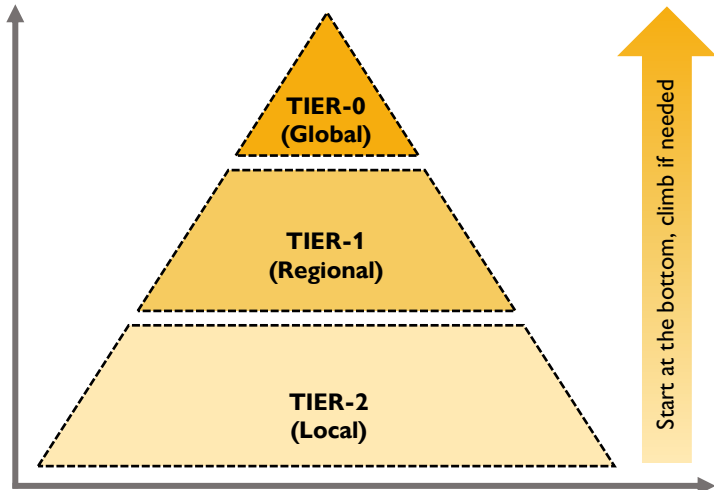
Funding of world-class supercomputers in Europe.

EuroCC project :
National Competence Center in each country to promote and facilitate HPC uptake.



PUBLIC-FUNDED BELGIAN SUPERCOMPUTERS

Performance (FLOPS)



Number of clusters

LUMI

3rd Supercomputer in the world in June 2023 (0.4 exaFLOPS), installed in Finland. Belgium automatically get 7% of its compute time (more via JU calls).
www.lumi-supercomputer.eu/

Lucia

Operated by Cenaero, a public research center in Wallonia.
tier1.cenaero.be

Hortense

Operated by the VSC in Flanders.
www.vscenrum.be/compute

Clusters of the Vlaams Supercomputer Centrum (VSC)

www.vscenrum.be/



Clusters of the Consortium des Équipements de Calcul Intensif (CÉCI)

www.ceci-hpc.be/



HPC STARTING KIT

By EuroCC Belgium

www.enccb.be

contact@enccb.be



HOW TO START?

Create an account
in your regional organization

VSC

[docs.vscenrum.be/en/latest/access/
getting_access.html](https://docs.vscenrum.be/en/latest/access/getting_access.html)

CÉCI

login.ceci-hpc.be/init/

Tier-1 and Tier-0
Regular call for compute time:
submit a project.

Text tutorial

CÉCI: bit.ly/3oMw3ji

VSC: bit.ly/3OYJe4r

Video tutorial

youtu.be/o41r0mFaURU

youtu.be/z98ua6bx00k

MobaXterm

mobaxterm.mobatek.net/

Visual Studio Code

code.visualstudio.com/

Login to a cluster
using your favorite SSH client
(using terminal on Linux/Unix)

Submit a job
using a workload manager

SLURM or PBS

Use bash scripts to submit
your job, depending on the
computational resources
needed.

Text tutorial

CÉCI: bit.ly/43iHo2G

VSC: bit.ly/43sLMj

Video tutorial

youtu.be/BhEpEpLwwbQ

TRAININGS

On-site/hybrid/webinar:

- VSC: www.vscenrum.be/vsctraining
- CÉCI: www.ceci-hpc.be/training.html
- LUMI: www.enccb.be/training#LUMI
- Europe: hpc-portal.eu/upcoming-events-courses

Video recording and clips

- EuroCC portal: www.enccb.be/TrainingVideos
- VSC and CÉCI youtube channels
www.youtube.com/@vschpc
www.youtube.com/@CECIandCISMHPC

MORE INFO

EuroCC Belgium is the national competence
center on HPC in Belgium.
Find more information on www.enccb.be



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