

HPC2N – collaboration in the north

We are a **collaboration between universities and research institutes** who form a competence network for high performance and parallel computing, grid and cloud computing, scientific visualization and virtual reality (VR), as well as effective mass-storage solutions, in Northern Sweden.

HPC2N is hosted by Umeå University and is part of NAISS.



HPC2N is mainly based in MIT-huset, Umeå University, Umeå, Sweden. This is where the hardware resources are located, as well as the majority of our staff.

Partners:



Each HPC2N partner has a part-time coordinator responsible for local activities. The HPC2N partner coordinators also identify and give support for new projects and HPC2N users.

HPC2N partner coordinators:

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Documentation:

<https://docs.hpc2n.umu.se>

LinkedIn:

<https://se.linkedin.com/company/hpc2n>

YouTube:

<https://www.youtube.com/user/HPC2N/>

HPC2N

HIGH PERFORMANCE COMPUTING CENTER NORTH



A competence center with resources and expertise in :

- Scalable and parallel HPC
- Large-scale storage facilities
- Grid and cloud computing
- Software for e-Science applications
- All levels of user support

HPC2N is part of NAISS and hosted by:



UMEÅ UNIVERSITY

HPC2N

HIGH PERFORMANCE COMPUTING CENTER NORTH



HPC2N at a glance

Primary objective: to raise the national and local level of HPC competence and transfer HPC knowledge and technology to new users in academia and industry.

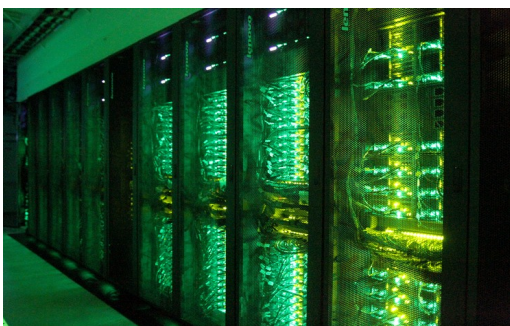
Services and resources @ HPC2N:

- HPC resources and e-Infrastructure
- National Data Science Node in "Epidemiology and Biology of Infections" (DDLs)
- Large-scale storage facilities (Project storage, WLCG storage (dCache), Tape)
- Grid and cloud computing (WLCG NT1, Swedish Science Cloud)
- Training and support for our users
- A wide range of scientific software, applications, libraries, and compilers available

HPC2N – High Performance Computing Center North: provides a wide spectrum of services ranging from scalable and parallel HPC resources and e-Infrastructure to documentation, education and user training programs reflecting HPC2N's **strong commitment to national and local HPC users** as well as new users in emerging areas.

Kebnekaise

The main HPC2N computing resource was deployed in 2016 and has been extended several times since then: Skylake and V100 nodes (2018), AMD Zen3 and A100 nodes (2023), AMD Zen4, MI100, A6000, L40s, and H100 nodes (2024). **Kebnekaise will be continuously upgraded, as old hardware gets retired.**



For scalable parallel performance, the system is equipped with high bandwidth, low latency FDR/EDR InfiniBand interconnects.

Kebnekaise is a **highly heterogeneous system:**

- Intel Xeon Gold 6132 (Skylake) nodes with 28 cores and 192 GB/node memory
- Intel Xeon E7-8860v4 (Broadwell) nodes with 72 cores and 3072 GB/node memory
- AMD Zen3 nodes with 128 cores and 1026 GB/node memory
- AMD Zen4 nodes with 256 cores and 644 GB/node memory
- Intel Xeon Gold 6132 nodes with Nvidia V100 GPUs
- AMD Zen3 nodes with Nvidia A100 GPUs (2/node)
- AMD zen3 node with AMD MI100 GPUs
- AMD zen4 node with Nvidia A6000 GPUs
- AMD zen4 nodes with Nvidia L40s GPUs (2 or 6 per node)
- AMD zen4 nodes with Nvidia H100 SXM5 GPUs (4/node)
- AMD zen4 nodes with Nvidia A40 GPUs (8 per node)



R&D activities @ HPC2N

- HPC2N and SciLifeLab are **part of the Wallenberg National Program for Data-Driven Life Science** (DDLs)
- Together with the Department of Computing Science and as a partner of the eSENCE programme, HPC2N participates in several international R&D projects



WLCG
Worldwide LHC Computing Grid



Training

HPC2N offers a **wide range of courses on topics relevant for our users.**

- **Using Python in an HPC environment**, 5-6 December 2024
- **Introduction to Git**, 25-29 November 2024
- **Introduction to running R, Python, Julia, and Matlab in HPC**, 22-25 October 2024
- **Introduction to Kebnekaise**, 16 September 2024
- **Introduction to Linux**, 16 September 2024

An updated list is on our website:



Get started with HPC2N

- Would you like to begin using our resources?
- Do you have any questions about HPC2N and how we can help you?
- Would you like to arrange a training seminar for your group?

Contact us! We are happy to answer your questions or set up a meeting with you to discuss what we can do! Using HPC2N is free for anyone associated with Swedish academia.