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:

IRF_contact@hpc2n.umu.se
LTU_contact@hpc2n.umu.se
MIUN_contact@hpc2n.umu.se
SLU_contact@hpc2n.umu.se
UMU_contact@hpc2n.umu.se

Welcome to contact us!

Email: info@hpc2n.umu.se

Phone: +46 (0)90-786 76 66

Web: www.hpc2n.umu.se

LinkedIn:

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

YouTube:

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

HPC2N

HIGH PERFORMANCE COMPUTING CENTER NORTH

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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 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.

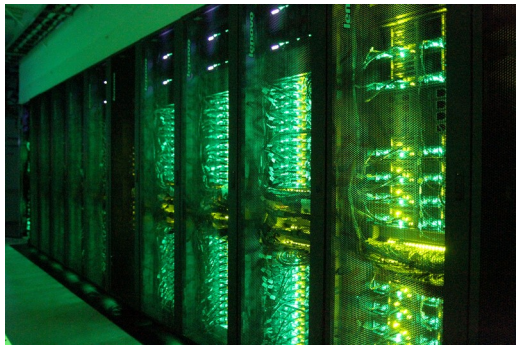
Services and resources @ HPC2N:

- 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 the summer of 2016 and extended with Skylake and V100 nodes during 2018. It was **further extended with AMD Zen3 and A100 nodes** in 2023, and is currently planned to be regularly updated with new hardware.



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

Kebnekaise is a **highly heterogeneous system**, consisting of

- Intel Xeon E5-2690v4 (Broadwell) nodes with 48 cores each and 128 GB/node memory
- Intel Xeon Gold 6132 (Skylake) nodes with 48 cores each and 192 GB/node memory
- Intel Xeon E7-8860v4 (Broadwell) nodes with 72 cores and 3072 GB/node memory
- Intel Xeon E5-2690v4 nodes with Nvidia K80 GPUs (4 or 2 per node)
- Intel Xeon Gold 6132 nodes with Nvidia V100 GPUs
- AMD Zen3 nodes with Nvidia A100 GPUs (2 per node)

Currently (summer 2023)

- 553 nodes
- More than 135TB memory
- 16504 CPU cores
- 501760 CUDA cores
- 12800 Tensor cores

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 eSSENCE programme, HPC2N participates in several international R&D projects

Training

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

- **Using Python in an HPC environment**, 1 December 2023
- **Introduction to Git**, 13-17 November 2023
- **Introduction to running R, Python, and Julia in HPC**, 17-19 October 2023
- **Workshop: Matlab in HPC**, 11, 18, 25/26 September 2023
- **Introduction to Kebnekaise**, 21 September 2023

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.