www.lumi-supercomputer.eu #lumisupercomputer #lumieurohpc

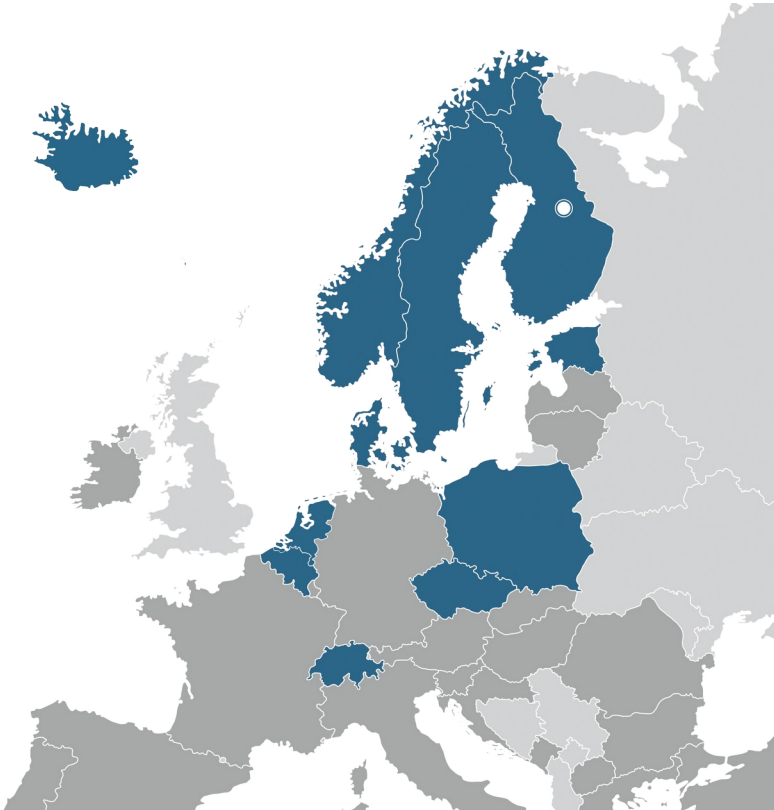
Speakers:
Emanuele Vitali (CSC)
Jorik van Kemenade (SURF)

EuroHPC
Joint Undertaking

LUMI

A unique collaboration between eleven LUMI consortium countries and the EU to build and operate a world-class supercomputer.

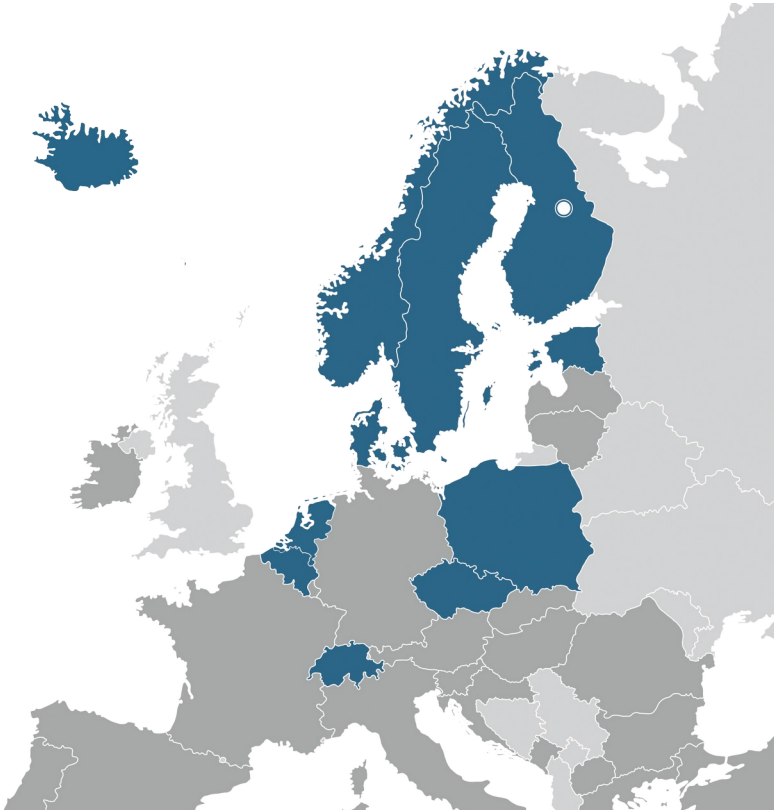
LUMI research infrastructure provides a high-quality, cost-efficient and environmentally sustainable HPC ecosystem based on true European collaboration.



The consortium continues a solid tradition of collaboration in HPC training and education, user support and data management services.

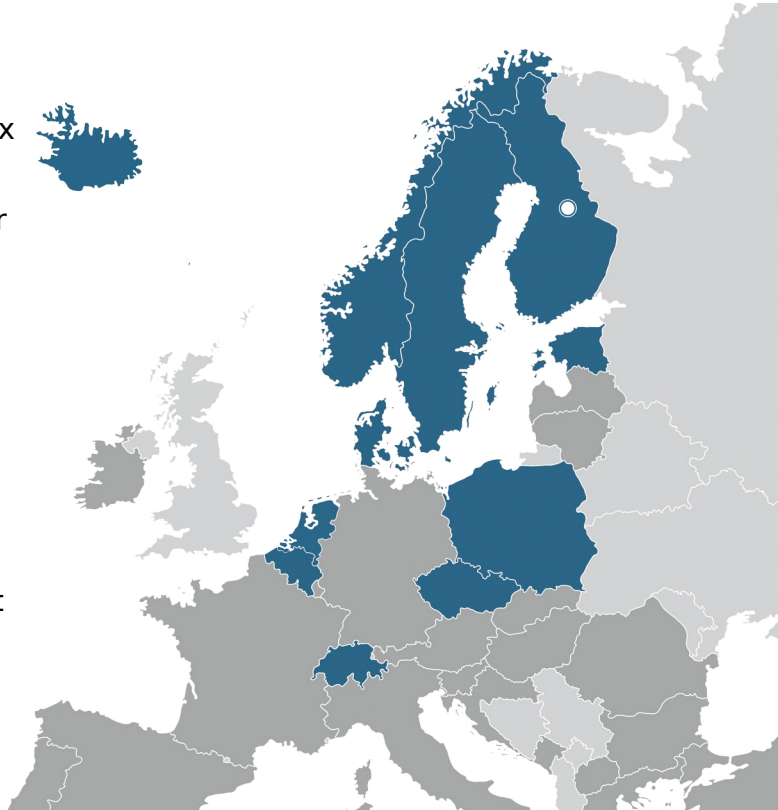
The resources of LUMI will be allocated per the investments. The share of the EuroHPC JU (50%) will be allocated by a peer-review process and available for all European researchers.

www.lumi-supercomputer.eu/get-started/

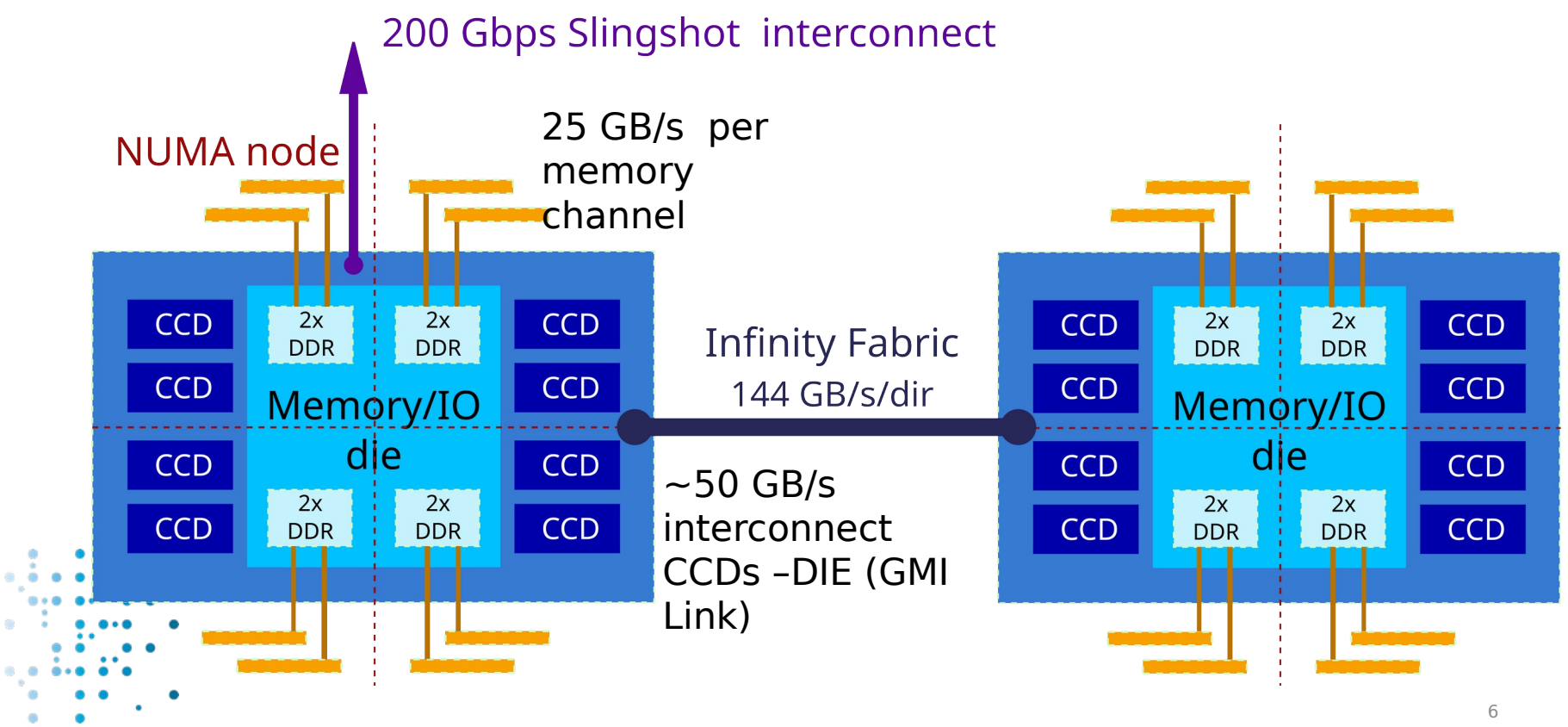


LUMI - Hardware

- **LUMI-G**: 2978 nodes with 1 AMD EPYC 7A53 CPU and 4 AMD MI250x accelerators (512 GB + 4x128 GB RAM)
- **LUMI-C**: 2048 nodes with 2 64-core AMD EPYC 7763 CPUs (1888x 256GB, 128x 512 GB and 32x 1TB)
- **LUMI-D**: 8 4TB CPU nodes and 8 nodes with 8 A40 GPUs each for visualization
- **LUMI-F**: 8 PB Lustre flash-based file storage (>2 TB/s)
- **LUMI-P**: 4 20 PB hard disk based Lustre file systems (4x 240 GB/s)
- **LUMI-O**: 30 PB object based file system
- **LUMI-L**: 4 user access nodes with two AMD Rome CPUs each for ssh access and some for web access via Open OnDemand
- All linked together with a HPE Cray Slingshot 11 interconnect

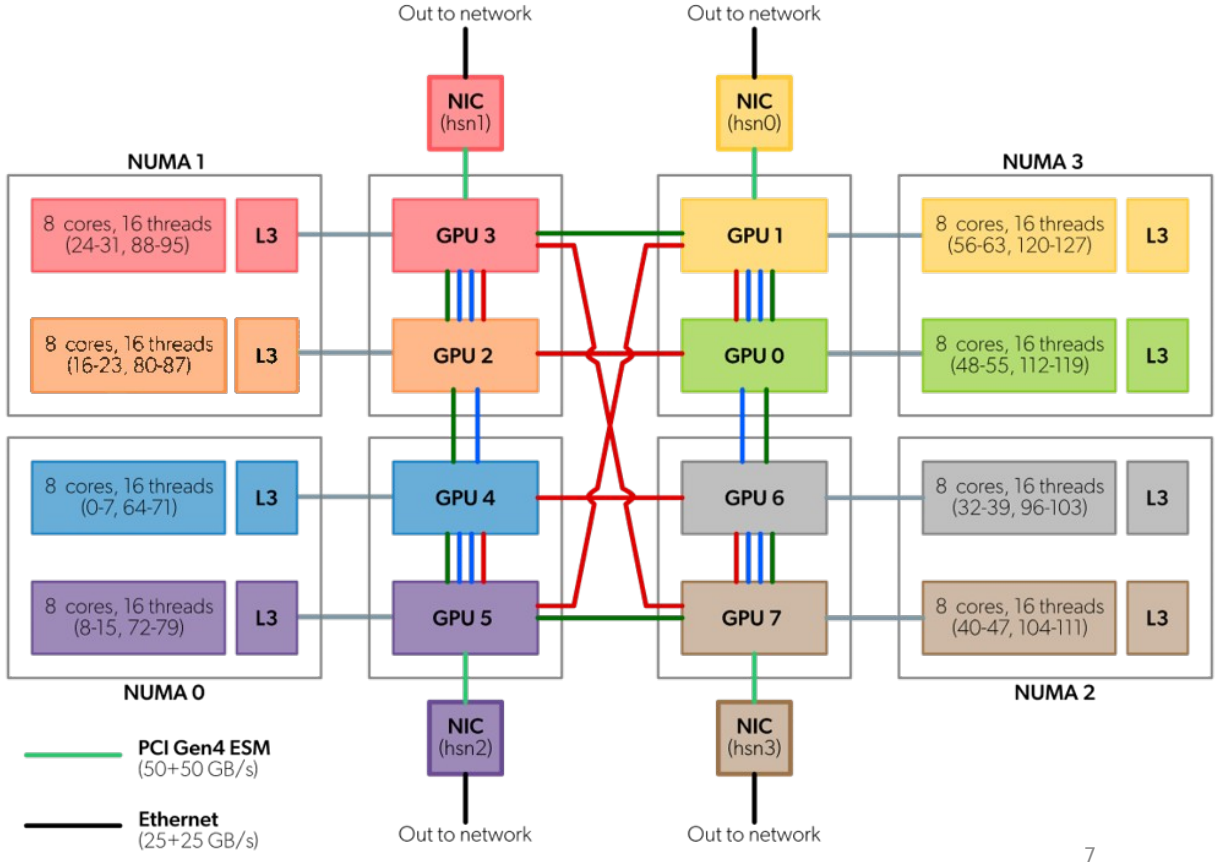


LUMI C - Hardware



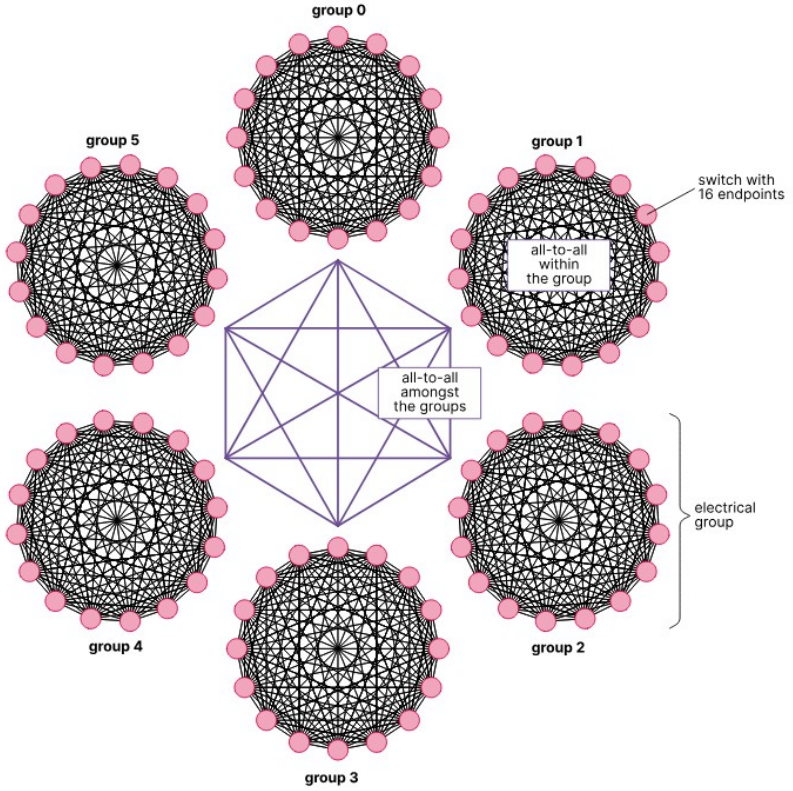
LUMI G - Hardware

- MI250X is built with 2 chiplets
- Chiplet memory has 64GB each, 1.6TB/s Bandwidth
- Bandwidth between chiplets is only 200GB/s



LUMI - Network

- Dragonfly topology
  - 16 switch ports connect to nodes, 48 to other switches
  - 16 or 32 switches in a group with all-to-all connection between the switches in a group
  - Groups are then also connected in an all-to-all way
  - Possible to build large networks where nodes are only 3 hops between switches away on an uncongested network



LUMI User Support Team

LUMI User Support and a centralized help-desk by the distributed LUMI User Support Team

- The model is based on a network of dedicated LUMI experts: each partner provides one full-time person for the task
- User Support Team also provides end-user training, maintain the software portfolio and user documentation of the system

LUMI User Support Team

LUMI User Support main activities

- Help desk from Monday to Friday 9-19 EE(S)T
- User documentation
- Computational environment
- User training
- Benchmarking, porting, optimization consultancy

LUMI User Support Team

Computational environment

The LUMI software stacks contain the software that are already installed on LUMI.

- **CrayEnv** offers the Cray Programming Environment (PE)
- **LUMI** is an extensible software stack that is mostly managed through EasyBuild.
- **Local software stack** for local organizations to manage their own software installation

LUMI User Support Team

User training

- In collaboration with HPE and AMD
  - LUMI-C environment and architecture
  - LUMI-G hardware and programming environment
  - Hackathons
  - More specific trainings: AI course, Profiling and Optimization, …

LUMI User Support Team

Porting & optimization

- CoE (HPE & AMD) + LUST effort
- 6 projects in 2022-2023: QuantumEspresso, Megatron-LM, SLIM, tmLQCD & PLEGMA, GPAW
- 5 projects in 2023-2024: TurboGAP, Vlasiator, Genesis, HMSC & SIESTA
- 5 projects in 2024-2025: Elmer, FLEXI/Galaexi, SOD2D, Exciting, SPH-EXA

    - Consultancy
    - Testing
    - Optimization

LUMI

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EuroHPC Joint Undertaking

The acquisition and operation of the EuroHPC supercomputer is funded jointly by the EuroHPC Joint Undertaking, through the European Union's Connecting Europe Facility and the Horizon 2020 research and innovation programme, as well as the Participating States FI, BE, CH, CZ, DK, EE, IS, NL, NO, PL, SE.

Leverage from the EU 2014–2020

European Union
European Regional Development Fund

REGIONAL COUNCIL OF KAINUU

Special LUMI coffee break next week.

Engin Kayraklioglu (HPE) will give a presentation on Scalable Parallel Programming with Chapel: From Multicore CPUs to GPU-Powered Supercomputers.

Wednesday, 15 October 2025 at 16:00 EEST (15:00 CEST).

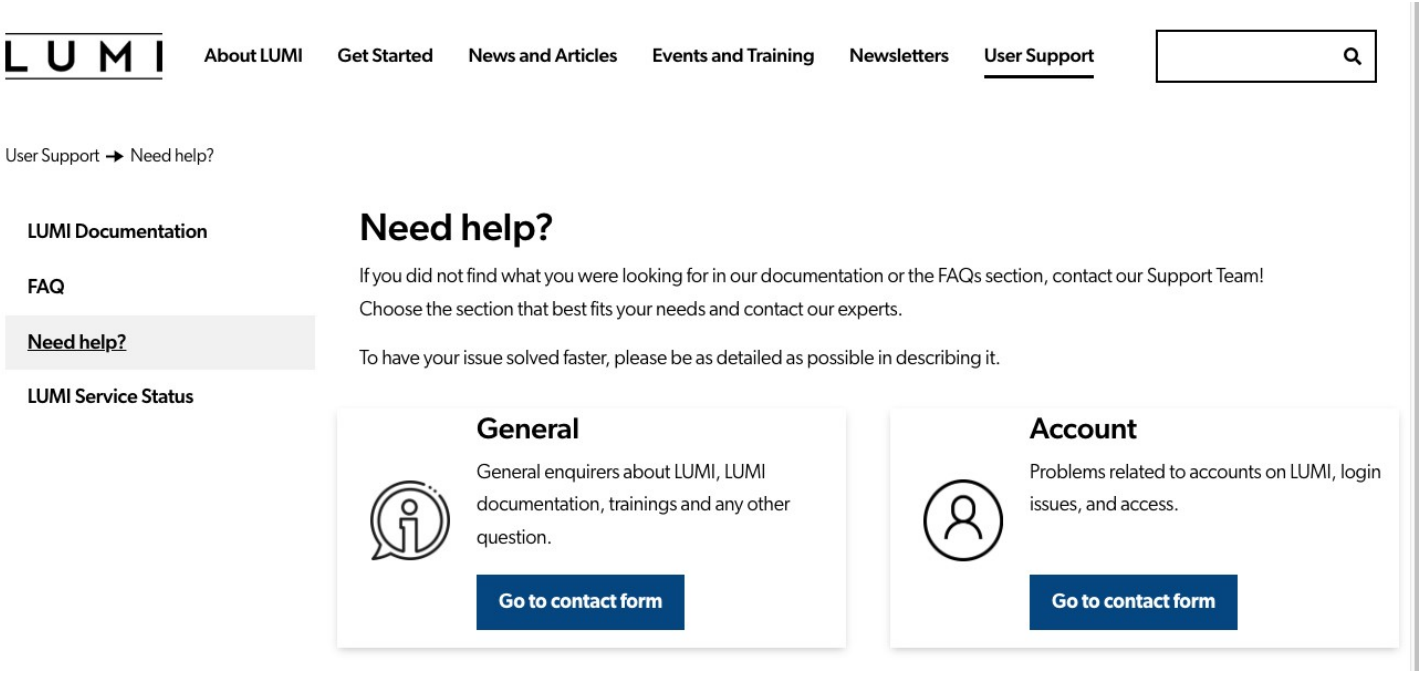
How to join the virtual coffee break:The Zoom link for the meeting can be found below:

https://cscfi.zoom.us/j/65727034273?pwd=VEdtY2trVUVKTEhxajZMbFhETWV2Zz09

Or you can use Meeting ID: 657 2703 4273 & Passcode: 418045

L1 and basic L2 support: How to contact us

- Contact: lumi-supercomputer.eu/user-support/need-help
- Please do not use the email address to open a new ticket



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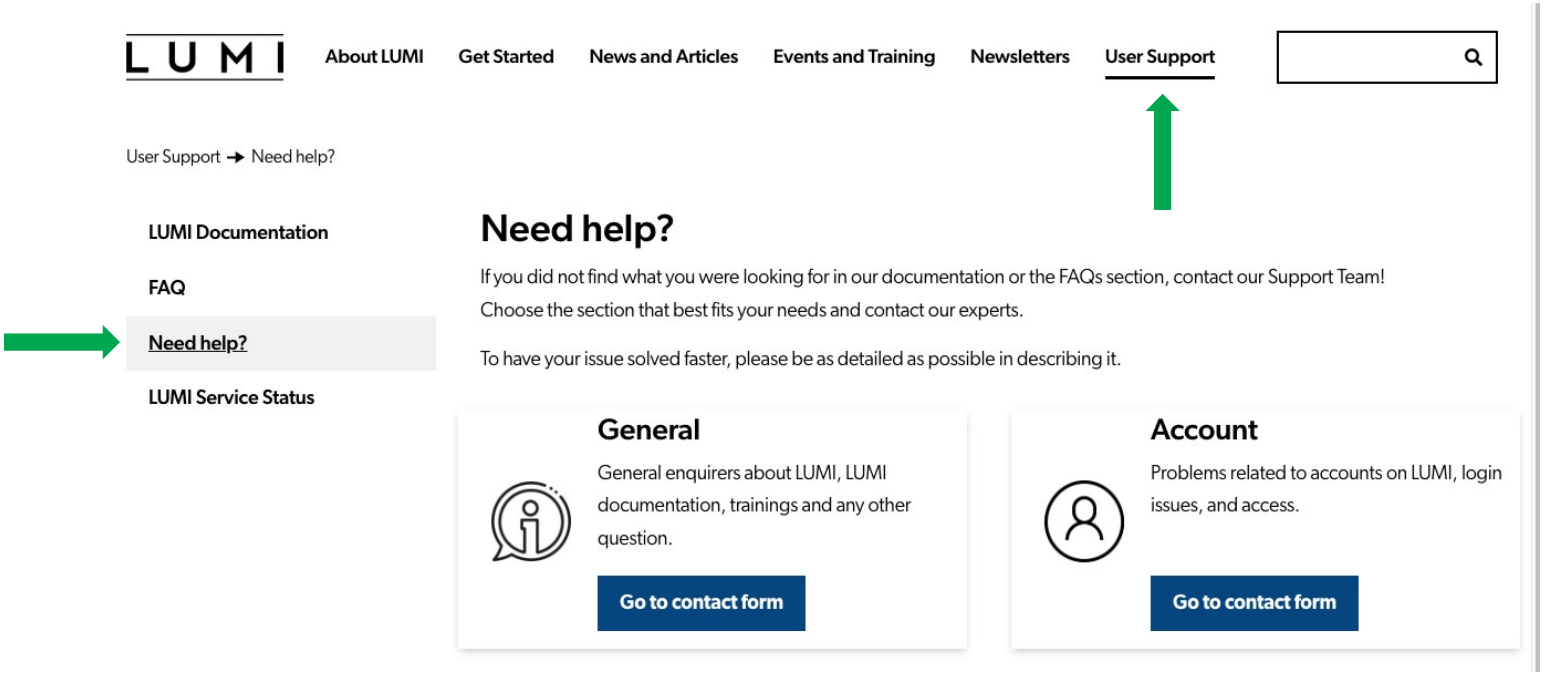

L1 and basic L2 support: How to contact us

LUMI Documentation

Search

Home | First steps | Hardware | Run jobs | Software | Developing | Storage | Help desk

Help desk

- Help desk
- Training and events
- Known issues
- LUMI service status
- Mailing list archive

Help Desk

The LUMI User Support Team (LUST) is here to help!

If you have any questions or problems using LUMI, please do not hesitate to contact us. You may find our contact forms for different issues by clicking the 'Contact us' button:

Contact us

The LUMI helpdesk is open every weekday from Monday to Friday except during Finnish bank holidays:

	CE(S)T	EE(S)T	UTC (Summer)
Start	8:00 AM	9:00 AM	7:00 AM (6:00 AM)
End	6:00 PM	7:00 PM	5:00 PM (4:00 PM)

L1 and basic L2 support: How to contact us