Service name | Puhti
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Service summary | The Puhti service allows customers to run serial and small to medium sized parallel jobs through a batch queueing system. Puhti includes CPU based nodes with a range of memory, and nodes with Nvidia Volta GPUs (Puhti-AI) for HPC and AI workloads.
Detailed description | Puhti is an Atos Bullsequana X400 supercomputing platform based on Intel Cascade Lake generation processors and Nvidia Volta GPUs. The interconnect is based on Infiniband HDR.

The detailed configuration is:
- In total 682 CPU nodes, with a theoretical peak performance of 1.8 Petaflops
- Each node is equipped with two latest generation Intel Xeon processors, code name Cascade Lake, with 20 cores each running at 2.1 GHz (Xeon Gold 6230)
- Compute nodes have a mix of memory sizes:
  - 192 GB on 564 nodes
  - 384 GB on 100 nodes, with 40 also sporting a 3.2 TB NVMe disk for fast local storage
  - 768 GB on 12 nodes
  - 1.5 TB on 6 nodes
- Interconnect network HDR InfiniBand by Mellanox, nodes connected with 100Gbps HDR100 links
- 4.8 PiB Lustre parallel storage system by DDN

Jobs are submitted to Puhti through a batch queueing system. Puhti can be accessed through Unix shell and X forwarding, and via NoMachine virtual desktop.

Users can:
- develop their own codes (Fortran, C/C++, python, ...),
- install Linux compatible applications via compiling them or by running (singularity) containers
- or utilize CSC’s large scientific software collection.

For code parallelization MPI and OpenMP can be used. CUDA and OpenACC can be used with GPUs. Additionally, mathematical subroutine libraries are available.

The Puhti environment includes tools for debugging and performance analysis.

More details about the service are available at: [https://research.csc.fi/-/puhti](https://research.csc.fi/-/puhti)

**Target audience**

Academic, public and private sector.

**How to obtain the Service**

In order to access and use the service the customer must have a CSC user account and a project, which can be applied for either on an academic or commercial basis. The Puhti service also has to be activated in My CSC.

Academic sector customers:
- The CSC user account, project and service profile can be requested through My CSC ([https://my.csc.fi](https://my.csc.fi))

Customers with special requirements, please contact servicedesk@csc.fi

**Service level & availability**

The Puhti service SLA is specified in accordance with JHS212 recommendations (see [http://docs.jhs-suositukset.fi/jhs-suositukset/JHS212/JHS1212.html](http://docs.jhs-suositukset.fi/jhs-suositukset/JHS212/JHS1212.html)). The availability target and details regarding the SLA are detailed in a separate document linked to from the following page: [https://research.csc.fi/-/puhti](https://research.csc.fi/-/puhti)

**Service hours and user support**

Support to the service is provided through CSC Service Desk channels and under CSC Service Desk policies:
| Phone +358 (0) 94 57 2821 | E-Mail servicedesk@csc.fi |
| Documentation: https://docs.csc.fi | Webpage and contact form https://research.csc.fi/support |

Response time target: within three working days. Resolution time target: within ten working days.

| Pricing | https://research.csc.fi/pricing |
| Certifications | ISO27001 |
| Data protection (GDPR) | The service is not designed to process personal data. A user must not transfer personal data to the service. |
| Client’s responsibilities | Clients of Puhti are responsible for their data and computing |
| Service producer’s responsibilities | As a service producer CSC is responsible for: |
| | Producing and developing the Puhti service. |

| Adjacent services | cPouta, Allas, Mahti |
| Additional services | |
| Service producer | CSC – IT Center for Science Ltd |