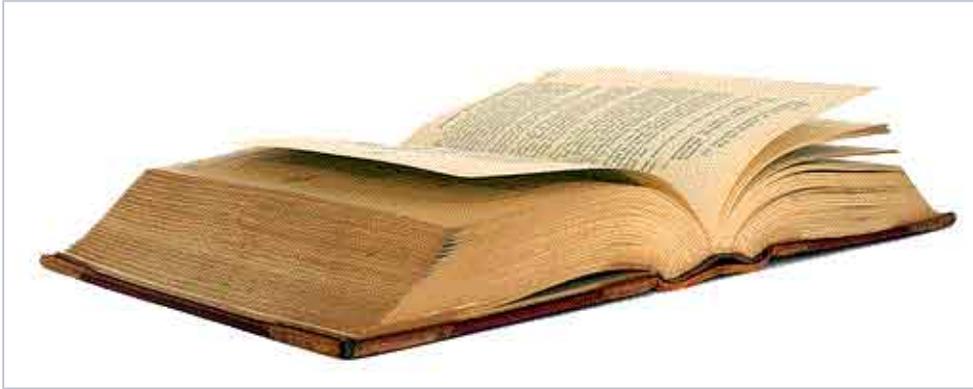


HPC at CINECA: User Documentation



The new Galileo100 Infrastructure

We are pleased to announce that the new infrastructure Galileo100 will start its pre-production phase on Monday, August 9th. The full production is expected in September 2021.

The new Infrastructure is co-funded by the European ICEI (Interactive Computing e-Infrastructure) project, it is a system engineered by DELL and consists of:

- 528 computing nodes 2 CPU Intel CascadeLake 8260, with 24 cores each, 2.4 GHz, 384 GB RAM and 36 additional nodes with 2x NVIDIA GPU V100 with 100Gbs Infiniband interconnection
- 77 computing server OpenStack for cloud computing, 2x CPU 8260 Intel CascadeLake, 24 cores, 2.4 GHz, 768 GB RAM, with 100Gbs Ethernet interconnection.
- 20 PB of active storage accessible from both cloud and HPC nodes.
- 5 PB of fast storage for HPC system.
- 1 PB Ceph storage for Cloud (full NVMe/SSD)

More information are available in the [GALILEO100 User Guide](#).

Quantum Computing @ CINECA

From March 1st 2021, CINECA made available, free of charge, computing hours selected from the most advanced and mature quantum computing technologies currently available on the market to all Italian universities and research centers.

In particular, it will be possible to access **Quantum annealing resources**, the use of which is possible thanks to the recent collaboration agreements between CINECA and the leading company in the quantum annealing sector, D-WAVE, which currently owns one of the most powerful quantum annealers in the world. Through the agreement, CINECA will make calculation hours available to the Italian scientific community both **on the new D-WAVE computer**, Advantage, which has a QPU of over 5000 qubits, and **on the hybrid D-WAVE machines**, modern supercomputers that combine the power of quantum annealers with HPC resources, increasing the computing power of the machines to allow users to solve combinatorial optimization problems using a maximum of one million binary variables (equivalent, therefore, to a quantum annealer with one million qubits).

The agreement provides for a total of 55 hours to be distributed monthly between now and the end of the year (approximately 5 hours per month). Each hour is interchangeable with 20 hours of calculation on hybrid systems.

Quantum annealing resources will be awarded upon submission of an IS CRA-C project. Also, it will be possible to access HPC resources for emulation of quantum computing environments.

[More information.](#)