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Factsheet

ACRONYM QSolid

FULL TITLE Quantum computer in the solid state

TOPIC BMBF – Quantencomputer-Demonstrationsaufbauten

ABSTRACT Building a complete quantum computer based on cutting-edge German technology is the goal of the QSolid project. The project centres on quantum bits – or qubits for short – of very high quality, i.e. with a low error rate. The quantum computer will be integrated into Forschungszentrum Jülich's supercomputing infrastructure at an early stage and will contain several next-generation superconducting quantum processors, including a "moonshot" system that has been proven to exceed the computing power of conventional computers. The first demonstrator will go into operation in mid-2024, and will make it possible to test applications as well as benchmarks for industry standards.

Quantum computers promise breakthroughs in materials and drug development and in optimizing traffic management solutions. In future, they could vastly exceed the capabilities of conventional supercomputers for certain tasks. However, the technology is still in its infancy. Although developing a usable quantum computer comes with enormous challenges, it also offers an opportunity to set industry standards and secure intellectual property rights from the outset.

DURATION 60 months (01/01/2022 – 31/12/2026)

PROJECT FUNDING € 76.3 million (of which 89.8 % is funded by the BMBF)

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- Fraunhofer IZM und IPMS (Fraunhofer)
- Karlsruher Institute of Technology (KIT
- Leibniz-Institut für Photonische Technologien e.V. (IPHT)
- Parity Quantum Computing Germany GmbH (ParityQC)
- HQS Quantum Simulations GmbH (HQS)
- Rosenberger HF-Technik (Rosenberger)
- Universität Ulm (UUlm)
- Physikalisch-Technische Bundesanstalt (PTB)
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- Atotech
- Atos science+computing ag (Atos)
- Globalfoundries (GF)
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