

”Magne” – the world’s strongest commercial quantum computer

QUANTUM TECHNOLOGY

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Denmark and the Nordic region aim at becoming world leaders in quantum technology

Inspired by Norse mythology, the new quantum computer is named Magne. It will be a so-called level 2 quantum computer that operates using logical quantum bits (also known as *qubits*), granting access to much more reliable calculations. This makes Magne the strongest commercial quantum computer in the world to date.

Unlike level 1 quantum computers, which exclusively operate with physical qubits, a level 2 quantum computer is characterized by also using so-called logical qubits. This enables it to perform longer, more complex, and reliable calculations.

A level 1 quantum computer can be compared to a car that can only drive on straight and smooth roads. At level 2, the car is equipped with improved steering and shock absorbers, allowing it to navigate more winding and uneven roads.

With Magne, we’re one step closer to using quantum computers for more practical purposes. Additionally, a quantum computer like Magne can be utilized to develop the next generation of quantum computers – that is, level 3 – which has yet to be realized.

Magne provides unique opportunities to develop new solutions to some of society’s biggest problems:

- Development of new materials for the green transition, such as for Power-to-X or new types of sustainable batteries, as well as improved understanding of global warming.
- Development of better medicine and increased understanding of biological systems – including how DNA is damaged during cell death, e.g., during chemotherapy.
- Solve complex optimization problems, such as in route optimization and supply chain planning.
- Simulations within the financial sector, e.g., for risk modeling or financial forecasts.
- New development opportunities and interaction with artificial intelligence and traditional supercomputers, such as new algorithms.

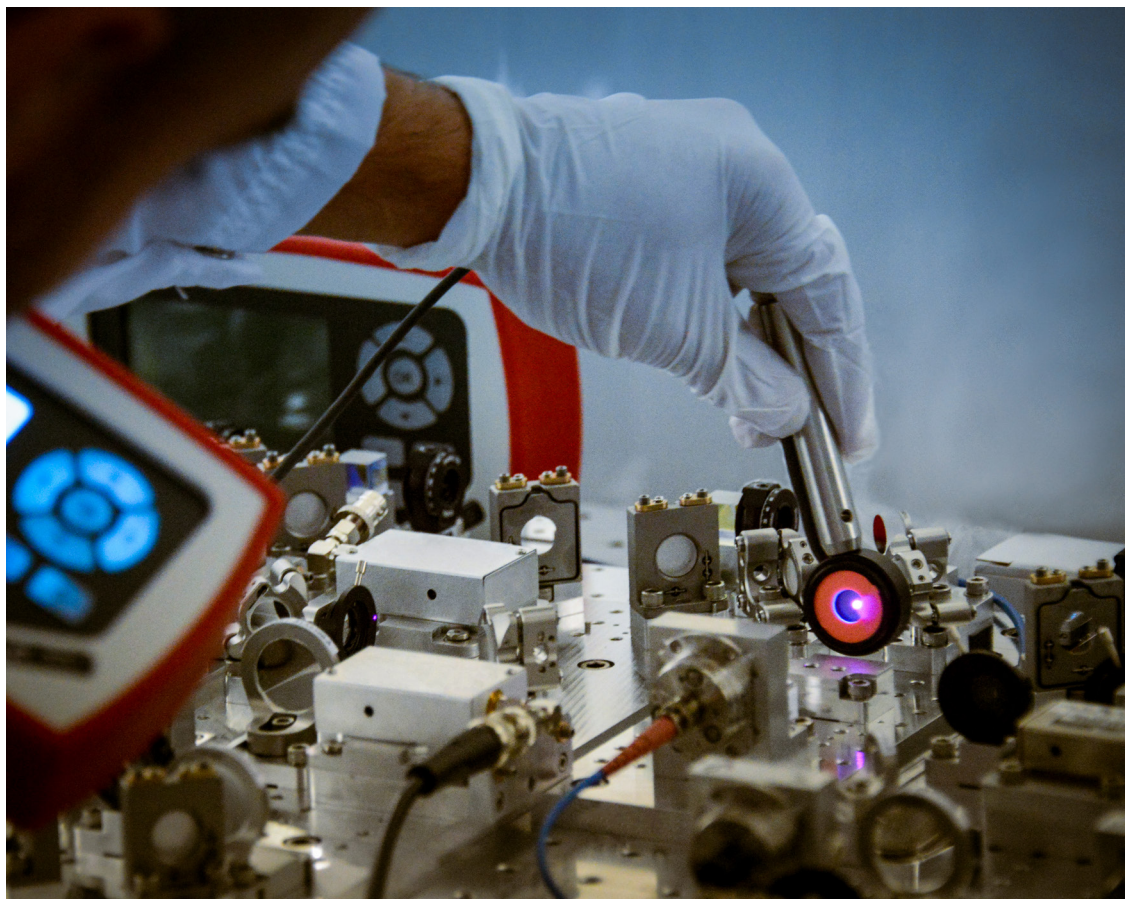


Photo: Atom Computing

The new quantum computer will benefit researchers, companies working with quantum technology, as well as the end-users, who can use the computations Magne can perform. The latter includes larger industrial companies, banks, consulting firms, startups, and other smaller businesses within artificial intelligence who want to test quantum algorithms.

Magne will be 100% Danish-owned by the newly established company QuNorth, which will be responsible for purchasing, building, and operating the new quantum computer. QuNorth will also serve researchers and businesses with the new technology and work diligently to attract talent and investment to the Nordic region. The components for Magne will be delivered through a partnership between Atom Computing and Microsoft. Atom Computing will build and deliver Magne, while Microsoft will integrate its Azure software, which will be tailored to Atom Computing's neutral atoms technology.