LUMI AI Factory Selects IQM's Staged Path to Europe's First Superconducting Quantum Computer With Logical Qubits

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- The upgrade path contains three stages from IQM´s Halocene product line to enable a logical qubit system.
- The quantum computer, as part of the LUMI AI Factory initiative, is jointly owned by the participating countries of Finland, Czechia, Norway and Poland, and jointly funded by the EuroHPC Joint Undertaking.
- The system will be installed at CSC – IT Center for Science in Finland and integrated into the LUMI-AI computing environment to form a hybrid HPC, AI, and quantum computing platform.
- The deployments are in line with IQM's development roadmap for fault-tolerant quantum computing by 2030.

ESPOO, Finland--(BUSINESS WIRE)--Sep. 10, 2026-- IQM Quantum Computers (Nasdaq: IQMX) today announced its upgrade path for a logical-qubit-capable quantum computer. The deployment to the LUMI AI Factory, led by CSC – IT Center for Science, will support R&D efforts toward fault-tolerant quantum computing and advancements in hybrid computing.

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The system, named LUMI-IQ, is an integral part of the wider LUMI AI Factory initiative, and is jointly funded by the EuroHPC Joint Undertaking and the participating countries: Finland, Czechia, Norway, and Poland. LUMI-IQ will be hosted in CSC's new data center in Kajaani, Finland.

LUMI-IQ will be delivered in three steps: the first installation of an IQM Halocene H4 system in 2027 with 150 physical qubits and early quantum error correction capabilities. The system will be upgraded in 2028 to lower logical error rates and enable real time error correction. The final upgrade is installation of IQM Halocene H5 system in 2029. These upgrades equip the system towards early fault tolerant quantum computing.

After the final upgrade, LUMI-IQ will be capable of fast real time feedback sustaining logical qubits and enabling full logical operations between the qubits, including lattice surgery and T-gate teleportation. With distance 3 surface code and colour code, the system will enable computations with up to 9 logical qubits. Additionally, the is capable encoding logical qubits up to distance 11 with surface code and distance 9 with color code.

Logical qubits created by combining multiple physical qubits through quantum error correction are significantly more stable and reliable than physical qubits alone, making them essential to running the longer, more complex calculations required for real-world quantum applications.

This phased delivery reflects IQM's development roadmap toward fault-tolerant quantum computing, delivering error-corrected systems with high-precision logical qubits. It allows customer a capital efficient way to benefit from IQM´s ambitious error correction roadmap and a continuous integration into their existing compute infrastructure.

"Owning an upgradeable quantum computer let´s CSC and the LUMI AI Factory integrate the system into their own AI and HPC infrastructure. That's what lets a real ecosystem grow: researchers building on infrastructure they control, inside one of the most capable computing environments anywhere," said Jan Goetz, CEO and Co-founder of IQM Quantum Computers. "That kind of ownership is exactly what Europe needs right now — not just access to quantum computing, but the ability to shape its direction, build local expertise, and push the frontiers of advanced computing."

The system will be integrated into the LUMI-AI computing environment. Together, LUMI-IQ and LUMI-AI will form a leading hybrid computing platform, enabling workloads that combine HPC, AI, and quantum computing.

This integrated approach is expected to enable new forms of scientific workloads that combine traditional simulation, machine learning, and quantum algorithms — opening new research avenues for European end-users.

"The greatest potential lies in combining the complementary strengths of AI, high-performance computing, and quantum computing. Logical qubits make quantum calculations more reliable, while AI and HPC provide the scale, data processing and orchestration needed around them. The LUMI AI Factory allows European researchers to develop innovative hybrid approaches in a world-class computing environment," said Kimmo Koski, CEO of CSC – IT Center for Science.

About IQM Quantum Computers

IQM Quantum Computers (Nasdaq: IQMX) is a global leader in superconducting quantum computers, delivering full-stack quantum systems and cloud platform access to enterprises, research institutions, universities, high-performance computing centers, and

national laboratories worldwide. IQM's open, modular architecture allows customers to own, operate, and integrate quantum systems directly into their own infrastructure, building lasting technical capability rather than relying solely on remote access. Founded in 2018, IQM is headquartered in Espoo, Finland, with major operations in Munich, Germany, and has sold more quantum systems than any other manufacturer to date. IQM employs over 450 people and operates across Europe, Asia, and North America. IQM is the first publicly listed European quantum company on Nasdaq Stock Market.

About CSC – IT Center for Science

CSC is a Finnish center of expertise in ICT that provides world-class services for research, education, culture, public administration, and enterprises, to help them thrive and benefit society at large. www.csc.fi

LUMI AI Factory:

The LUMI AI Factory is a leading-edge service infrastructure and expert support centre designed to accelerate AI innovation across Europe. The LUMI AI Factory delivers a seamless, open AI solution that integrates world-class supercomputing, high-value data, and top-tier AI expertise. It is the biggest AI Factory of the European Union. www.lumi-ai-factory.eu

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