QSIP Innovation Intelligence Digest – September 2024

Quantum Sweden Innovation Intelligence Digest (QSIID) is a curated monthly newsletter with external quantum innovation business news from around the globe.

Quantinuum, the world's largest and leading integrated quantum computing company, unveiled its roadmap to universal, fault-tolerant quantum computing by 2030. The roadmap materially accelerates the path to commercial quantum computing systems with the potential to unlock a trillion-dollar market and enable AI to help solve some of the world's most pressing problems. In parallel, Quantinuum in partnership with Microsoft announced a series of milestones and integrations.
Read more here.

Microsoft and Quantinuum report that a quantum computer has now successfully used quantum error correction, for the first time, by repeatedly correcting its own mistakes mid-calculation thus improving its results.

"Error correction is working; this is huge," says computer scientist Krysta Svore of Microsoft. "This is the direction we need to go for reliable quantum computing."
Read more here.

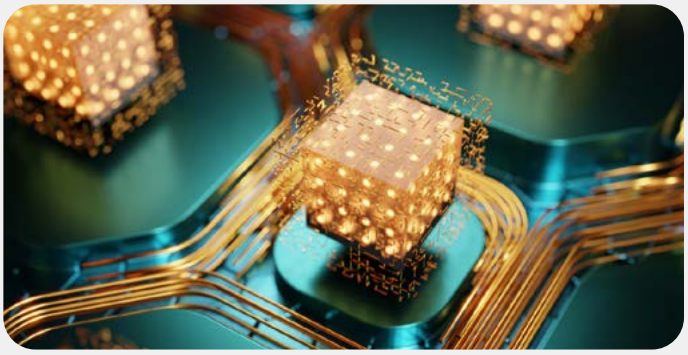
For more in depth coverage of Microsoft's progress with logical qubits and its Azure Quantum software read their blog from Sep 10.
Read more here.

Google claims similar breakthrough on Sep 11, making quantum error correction the newest race in quantum computing, read more from MITs technology review.
Read more here.

Boeing plans to deploy a small satellite in 2026 to test quantum internet technology necessary for connecting more advanced sensors and computers worldwide. According to Boeing, testing this capability in space is key to expanding quantum networks beyond simple point-to-point communication, thus enabling more precise measurements from sensors that could be fed directly into more powerful quantum computers.
Read more here.

Q-CTRL announced at Quantum World Congress in Tysons, Virginia (10 Sep 2024), that their performance-management software, Fire Opal, will be natively integrated into four of the world's most advanced quantum computing platforms — IBM Quantum services, Rigetti Quantum Cloud Services (QCS®), Oxford Quantum Circuits (OQC) Cloud QCaaS devices, and Diraq's Silicon quantum processors.
Read more here.

The US Department of Commerce released a rule regarding export controls for advanced technologies, including quantum technologies. The controls are effective September 6, 2024, though there is a 60-day delay for some quantum related controls.
Read more here.



During a recent TEDx Talk, Christian Tutschku, a leading expert in quantum technologies discussed the exciting potential of quantum computing in solving complex problems that stump even the most powerful classical computers.

Tutschku began by drawing a contrast between conventional and quantum computers, explaining that classical computers operate on a "deterministic paradigm of calculation" using binary systems of zeros and ones. In contrast, "a quantum computer is completely different. It's a probabilistic scheme of calculation," Tutschku stated.
Read more here.

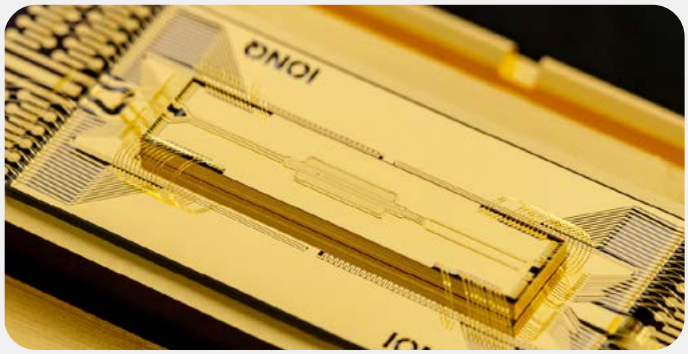
Fraunhofer IPMS and partners announce the first 10-qubit quantum computer prototype with advanced CMOS integration. The Fraunhofer led superconducting quantum chips project, QSolid, is supported by the German Ministry of Education and Research and intends to scale the system to control 30 qubits by 2026.
Read more here.

The change in government in the UK has led to a shift in priorities, including a cut in funding for deep tech projects, which has led some industry leaders to warn that these cuts could push companies to seek investment overseas, thus weakening the UK's position. This paradigm shift for the UK underscores the importance of sustained governmental support in order for countries to remain competitive.
Read more here.

Xiphera, Ltd, a Finnish company designing and implementing hardware-based security solutions, has announced a project for developing quantum-resilient Authenticated Boot and Hardware Root of Trust solutions for space-grade semiconductor architectures. The development project is partially financed by the European Space Agency, as part of its General Support Technology Program (GSTP) and the solutions have been designed in close co-operation with Frontgrade Gaisler, a leading Swedish developer of space-grade electronics.
Read more here.

IBM predicts first quantum attacks as soon as the next decade, 2030s – due to the fast pace at which the technology is developing. The risks to the world's security systems increase exponentially due to the increased power of a quantum computer in comparison to traditional computers.
Read more here.

Picture fom IonQ.



IonQ has announced the delivery of an innovative ion trap to its European quantum data center in Quantum-Basel. The delivery marks a milestone for the company, but also for European busi ess, government agencies, and research institutes, as they will benefit from the enterprise-grade direct access to their systems when developing applications in AI, finance, and chemistry.
Read more here.

Quantistry and IQM Quantum Computers announce MoU to explore hybrid quantum solutions for the chemical and material industry.

"Through this collaboration, IQM and Quantistry are combining their technical expertise to integrate cutting-edge quantum systems into QuantistryLab, Quantistry's chemical simulation platform. This synergy is poised to boost QuantistryLab's capabilities, enabling users to tackle use cases of industrial interest with even greater efficiency and accuracy."
Read more here.

Astrolight, Aquark Technologies, Phantom Photonics, and SECQAI, have all participated in the first round of NATO DIANA's international acceleration program at Deep Tech Lab - Quantum at BioInnovation Institute. They will all continue to phase 2 of the acceleration programme where all companies will receive EUR 300,000 and a tailored program to further boost their commercialization and adoption success.
Read more here.

Chalmers Next Labs has announced that the open-source stack Tergite for the WACQT quantum computer is available to the public.
Read more here.

Find out more about Tergite **here.**

QET Sweden AB - the first spin-out from WACQT-IP has now been registered. The company is based on IP from researchers at Chalmers related to a Travelling Wave Parametric Amplifier (TWPA), a cryoperm shield, a local coil and pump coupling, all in one package. This gives amplification with near-quantum-limited noise performance, while minimising the thermal load to the cryostat, the required space in the fridge and the number of components. The company is owned by WACQT-IP, VHORN Enterprises AB, Scalinq AB, and Per Delsing. If you want to know more about the company, **see more here** or contact Hampus Renberg Nilsson: **hampus@qetsweden.com.**

QSIP – Empowering Sweden's Quantum Innovation Future
