Thematic Investing/ European Technology Hardware

Quantum Computing: Back-to-School qu-bites #5

Industry momentum remains strong as public debuts, private funding and sovereign support continue to accelerate. During the summer, companies reported progress in infrastructure, QEC, validation of quantum advantage and alternative qubit modalities as part of increased commercialisation efforts.

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Summer was busy for the quantum industry; we summarise the latest key developments across M&A, listings and fundraising, Hardware, software and scientific developments, geopolitical as well as provide feedback from our meeting with Quantinuum's CEO and key updates from the Q2 reporting season.

In this edition:

- **Q2 earnings provided a broad update across the listed quantum computing sector,** while most companies remain loss-making and revenues are modest, commercial announcements point towards continued progress.
- **IPOs remain a key funding route,** with IQM beginning dual trading in the US and Helsinki, Pasqal began Nasdaq trading, and Chinese photonic TuringQ and control electronics player SEEQC filling for IPOs.
- **The industry continues to attract megarounds,** with Chinese superconducting player SpinQ and Atom Computing both raising c$300M.
- **Infrastructure and supply chain partnerships continue to emerge,** with Quantinuum partnering with Oracle and Diraq and Equinix on cloud infrastructure, and QuantWare partnering with Maybell to improve cooling/power efficiency at scale.

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- **Investors should view signs of quantum advantage and enterprise adoption as potential key catalysts for the industry,** with IBM and partners publishing three papers on quantum advantage & validation and Chinese Origin Wukong reaching 1M tasks.
- **Less established modalities are showing encouraging progress, while connectivity remains a key bottleneck,** SAXON Q shows manufacturing progress on diamond-based nitrogen-vacancy, Silicon Spin player Diraq announces demonstration of 8-qubit array, Phonons approach could potentially solve qubit connectivity, scaling systems beyond 1M qubits and IBM announces progress on connecting cryogenic systems to operate jointly.
- **Geopolitical corner.** The US is reportedly seeking to increase annual defence quantum spending by 68% to $567m, Infleqtion launches America's Quantum Space Initiative, China to establish industry standards for quantum and broadens its ecosystems through new Shanghai hub and Israel launches a sovereign quantum program.

Links to Barclays Quantum Research

- Quantum Computing: monthly qu-bites #4, 15 June 2026 – previous monthly
- Quantum Computing: The race is on, 18 November 2025 – Primer
- Quantum Computing: Friend, not foe, 18 November 2025 – Technology deep dive
- Quantum Computing: Feedback from the road, 15 December 2025 – Feedback on company visits
- Quantum Computing: Correcting the biggest investor myths around quantum, 6 February 2026 – Feedback from conversations with investors.

Feedback from our meeting with Quantinuum

In end of August, we spoke with Raj Hazra, CEO of Quantinuum (public, not covered), to discuss the company's progress towards fault-tolerant quantum computing, growing commercial adoption and investor perspectives following its IPO process. The discussion reinforced Quantinuum's focus on building a full-stack quantum platform while driving enterprise deployments and broader ecosystem development. Below we outline the key takeaways from his comments.

- **Commercialisation is the central strategic thesis.** A consistent theme from management was that quantum computing must be developed alongside customers rather than in isolation. Quantinuum believes the biggest winners will be those that build ecosystems, developer adoption and enterprise workflows before fault tolerance fully arrives. Management highlighted growing engagement from pharma, chemicals and financial services customers, while also arguing that future data centres will increasingly combine classical and quantum workloads with CPUs, GPUs and QPUs working together. The company's focus on commercial deployments and data centre integration (see more on their Oracle partnership later in the note) reflects a strategy centred on creating customer value rather than simply achieving technical milestones. One interesting example of current applications was that AI systems today often rely on exploring vast numbers of possible relationships and variables, which requires enormous compute resources. He suggested quantum could help make this process more efficient by reducing the search space and directing AI towards more relevant solutions.

- **Quantinuum believes its advantage comes from a full-stack approach and superior system architecture.** Management repeatedly emphasised that winning quantum computing is not about a single hardware metric but about combining hardware, software, error correction and customer trust (given their early relationships). The company sees differentiation in its trapped-ion architecture through higher fidelity, longer coherence times and stronger error-correction capabilities, arguing these factors are ultimately more important than raw gate speed. Quantinuum also highlighted its roadmap progression from H2 to Helios, Sol and Apollo as evidence of a methodical approach to scaling fault-tolerant systems while continually derisking key technologies. Management also reiterated their engineering triumph on their Quantum Charged Coupled Device (QCCD) which introduced a junction in their architecture, serving as a proof of concept for their grid approach in future machine generations.

- **Investor education remains a major opportunity following the IPO process.** Management noted that many investors remain overwhelmed by the noise, competing claims and technical complexity across the quantum computing sector. As a result, discussions are often focused on which modality will win, how to assess technological progress and what differentiates one platform from another. Quantinuum's response has been to simplify the narrative around commercial outcomes, execution credibility and platform breadth. The company believes investors should evaluate quantum leaders through commercial traction, ecosystem development and long-term platform potential rather than focusing solely on qubit counts or isolated benchmark results.

Q2 Quantum earnings summary

From a thematic perspective the Q2 reporting season provided one of the broadest sets of financial disclosures yet across the listed quantum computing universe. While most companies remain loss-making and revenue bases are still relatively small, results and commercial announcements generally pointed to improving commercial adoption and technological progress of quantum systems. We highlight key developments below:

We do not cover any of the stocks in this section and information is provided only to assess commercial progress of the industry.

- **IonQ (public, not covered).** Trapped-ion player IonQ reported Q2 revenue of US$80.1m, up 287% YoY, driven by quantum computer deployments, cloud utilisation and continued growth in commercial and international customers, while net loss was $1,867.7 million. The company raised its FY2026 revenue outlook to US$280-290m and highlighted that its performance obligations increased 297% YoY.

  From a commercial perspective, the company highlighted the completion of the SkyWater acquisition as well as the acquisition of Nexus Photonics, adding integrated photonic capabilities (potentially expanding quantum networking applications and interconnects). The company also announced partnerships to extend defence and security capabilities with Anduril (private, not covered) and Sandia National Laboratories. Interestingly, the company also announced the expansion of its security portfolio with a new QKD product. In September, IonQ announced the launch of their 256 qubit system Superion, using the first chips fabricated at SkyWater and controlling qubits with electronics integrated on the chip rather than with laser systems, which according to the company reduce cost x qubit by more than 300x across their roadmap.

- **Quantinuum (public, not covered).** The trapped-ion company completed its IPO in June this year raising $1.7bn in gross proceeds. Quantinuum reported Q2 revenue of US$8m, up 279% YoY, and increased its FY2026 outlook. GAAP net loss was $597 million. The company ended the quarter with approximately US$2.1bn of cash and investments following its IPO.

  The company highlighted continued progress towards fault-tolerant quantum computing, including improvements in logical qubit performance on its Helios system, demonstrating five-nines logical fidelity with a novel QEC code family. The company also announced a strategic partnership with Oracle (covered by Raimo Lenschow) to deploy Helios through Oracle Cloud Infrastructure (which we discuss in more detail later in this report) and with HPE (covered by Tim Long) to advance the development of quantum-classical solutions.

- **Infleqtion (public, not covered).** Neutral-atom and quantum sensing company Infleqtion reported revenue of $13.5 million, up 157% YoY and increased its FY2026 outlook to approximately $45.1 million. Net loss was approximately $24.7M. The U.S. Department of Commerce selected Infleqtion for a Letter of Intent providing for up to $100 million. Management highlighted continued momentum across government, defence and commercial programmes, reflecting growing demand for both quantum computing and quantum sensing solutions.

Quantum sensing was a major driver of YoY growth in Q2, given the execution of NASA's Quantum Gravity Gradiometer program. On the quantum computing side, Infleqtion mentioned they remain on track to reach 30 logical qubits in 2026 and expect to deploy a quantum computer in Illinois Quantum & Microelectronics Park in 2027 with a modular architecture allowing for more than 50 logical qubits.

- **D-Wave (public, not covered)** reported Q2 revenue of US$3.1m, broadly stable YoY, but bookings increased 59% YoY while first-half bookings rose more than 1000% to US$35.5m. Net loss for the second quarter of 2026 was $48.0 million. The company also disclosed US$40.7m of remaining performance obligations, pointing to a growing contracted revenue base. Commercial customers accounted for 62% of quarterly revenue, up from 45% a year earlier. The company also disclosed QCaaS revenue for H1 26, totalling $1.3 million vs $0.3m for H1 25.

  The company announced a new gate-model roadmap delivering 17, 49 and 181 physical qubit systems through 2026-2028, with the latter with an expected x2,000 error reduction factor over the physical error rate. By 2030 they expect to have completed a 10 logical qubit system and by 2032 of 100 logical qubit systems. On their annealing business, the company also announced a new roadmap which involves packaging and superconducting interconnect technologies to scale the annealing architectures to multi-chip fabrics.

- **Rigetti (public, not covered).** Rigetti reported Q2 revenue of $5.1M and GAAP net loss of $52.6 million. Management highlighted progress on its superconducting roadmap and ongoing system development efforts. As with several peers, the focus remains on improving hardware performance and scaling capabilities.

  On the commercial side, the company announced an expanded collaboration with HPE and the Pittsburg Superconducting Center to develop hybrid quantum-classical supercomputers. The company also reported progress on its Cepheus-1-108Q system, currently operating at approximately 99.9% median single-qubit gate fidelity, approximately 99.1% median two-qubit gate fidelity, and approximately 60 nanosecond gate speeds, according to the company. At 9-qubit and 36-qubit level, Rigetti has demonstrated 99.8% and 99.6% median two-qubit gate fidelities, respectively. The company continues to invest in dilution refrigeration capacity and in their chiplet-based architecture.

- **Xanadu (public, not covered).** Photonic quantum computing company Xanadu reported revenue of $1.5 million, slightly up from $1.1m in Q2 25, with the YoY increase driven by DARPA Stage B revenue and net loss of $42.1 million. The company continues to focus on scaling its photonic hardware platform while expanding commercial engagement and research activities (e.g. Oak Ridge National Laboratory, Rolls-Royce, Lockheed Martin). From a technical milestone perspective, Xanadu achieved an average edge-coupling loss of 0.085 dB per facet (meaning they can move photons on and off chips with a very small loss), increased foundry fabrication runs and published algorithmic advances on quantum read-only memory.

- **Horizon Quantum (public, not covered).** Horizon Quantum reported its first earnings results as a publicly listed company following its March Nasdaq debut. The company did not report any revenues, reported a net loss for Q2 2026 of $115.2 million and suggested that cash generated from the exercise of Public Warrants improved the company’s financial runway. On the commercial and technical side, the company announced a key milestone with Beryllium, a

quantum programming language allowing developers to focus on sophisticated quantum applications rather than implementation details on quantum mechanics. They also have announced a collaboration with Quantum Machines (private, not covered) on calibration technologies designed to reduce downtime and improve operational stability.

Quantum M&A, listings and fundraising

IQM begins dual trading in the US and Helsinki, Pasqal begins trading on Nasdaq

Finnish full-stack superconducting quantum computing company IQM (public, not covered) began trading on Nasdaq in July following completion of its previously announced SPAC transaction. IQM is one of Europe's leading quantum hardware developers, with a growing installed base of quantum systems across research institutions and government-backed programmes. The transaction presents the first European listing, (IQM shares are also available via the Nasdaq Helsinki). The company has a substantial commercial scale already with 26 full-stack quantum computers sold, 17 delivered globally, and proven integration directly alongside AI supercomputers and high-performance data centers. IQM also published its Q2 results, highlighting a EUR 40 million investment into industrial expansion of their proprietary fab, doubling production capacity for up to 30 full-stack quantum computers per year. In addition, the company noted key partnerships in 2026 including NVIDIA (covered by Tom O'Malley) qubit calibration using NVIDIA Ising AI models as well as a collaboration with HPE to accelerate hybrid enterprise environments.

In August, neutral-atom quantum computing Pasqal began trading on the Nasdaq. According to the company announcement, Pasqal intends to deploy the additional capital across the priorities that define its next stage of growth: expanding the manufacturing and deployment of its quantum processing units ("QPUs"), advancing its technology roadmap toward fault-tolerant quantum computing, broadening access to its cloud and software platform, deepening integration with classical high-performance computing infrastructure and scaling its commercial operations globally. Both transactions expand the universe of listed quantum companies[1].

- **Implications:** Both transactions expand the universe of listed of pure-play quantum companies. Access to public markets remains a key enabler for the sector given the significant capital requirements associated with scaling hardware platforms and progressing towards commercial scale fault-tolerant quantum computing.

TuringQ files for Chinese IPO

According to The Quantum Insider[2], Chinese photonic quantum computing company TuringQ (private, not covered) filed for a listing on Shanghai's STAR Market, becoming one of the latest quantum computing companies seeking access to public capital markets. Founded in 2021, the company focuses on photonic quantum computing, a modality that uses photons to process quantum information. The filing reflects growing efforts among Chinese quantum companies, while also providing public investors with exposure to China's domestic quantum ecosystem. According to The Quantum Insider, the listing follows the updated STAR Market rules from the Shanghai Stock Exchange in April, recognising quantum as an emerging industry and providing a clearer regulatory framework.

- **Implications:** We continue to see public market activity expanding beyond North America and Europe, highlighting the increasingly global nature of the quantum ecosystem. In our view, the proposed IPO reinforces China's overall commitment to developing a domestic quantum ecosystem and suggests local capital markets are becoming a more important source of funding, beyond VC and government-led funding.

[1] https://www.pasqal.com/newsroom/pasqal-and-bleichroeder-acquisition-corp-ii-complete-business-combination/

[2] https://thequantuminsider.com/2026/08/07/turingq-joins-chinas-ipo-pipeline-as-quantum-firms-push-toward-commercialization/

Control electronics player SEEQC files for IPO

Quantum infrastructure company SEEQC (private, not covered) filed a registration statement with the SEC for a proposed initial public offering[3]. The company develops superconducting cryogenic control electronics (chips) designed to integrate classical computing functions and operate alongside quantum processors at extremely low temperatures, reducing the communication challenges between quantum hardware and classical systems. The filing represents another example of quantum supply-chain companies accessing capital markets rather than quantum computer hardware developers alone.

- **Implications:** We believe the filing highlights growing investor recognition that enabling technologies could become increasingly valuable as quantum systems scale. Integrating quantum and classical systems remains one of the key bottlenecks to reach fault-tolerant systems. If superconducting quantum computing scales, integrated cryogenic control and readout electronics could become a crucial layer of the value chain.

Chinese superconducting player SpinQ raises c$300M

Chinese superconducting quantum computing company SpinQ (private, not covered) has raised RMB2bn (c$297m) since the beginning of the year to support development of fault-tolerant quantum computing technologies[4]. The financing is among the larger disclosed funding rounds in China's quantum sector and will support continued investment in advancing domestic quantum computing capabilities and expanding its international outreach, as the company systems serve in more than 40 countries according to the company. The round follows broader efforts by China to strengthen strategic technologies considered important for long-term technological competitiveness.

- **Implications:** We view the transaction as further evidence of continued funding momentum within China's quantum ecosystem and, in our opinion, reinforces the increasingly strategic nature of quantum computing development, with governments and domestic investors continuing to allocate significant capital towards the industry.

Atom Computing raises more than $300M in Series C

Atom Computing (private, not covered), a neutral atom company, raised more than $300m to accelerate deployment of fault-tolerant neutral-atom quantum computers, including a $100M Series C and a $100M Letter of Intent from the US Department of Commerce[5]. The funding follows Atom Computing's continued participation in DARPA's Quantum Benchmarking Initiative (QBI) program and builds on its strategic partnership with Microsoft (Raimo Lenschow). The company has emerged as one of the leading neutral-atom developers and has been actively pursuing error-corrected architectures alongside commercial system deployments, with the company announcing the first demonstration of quantum error correction on a neutral atom platform, similar to Google's announcement on Willow's results demonstrating that increasing the size of a logical qubit reduced the logical error rate. The funding will support engineering, manufacturing and commercialisation initiatives as the company scales its technology platform.

- **Implications:** The financing highlights continued investor confidence in neutral-atom quantum computing and the significant capital requirements associated with scaling hardware platforms. In our view, the transaction also reinforces the growi

[3] https://www.businesswire.com/news/home/20260629077919/en/SEEQC-Files-Registration-Stat
Initial-Public-Offering

[4] https://thequantuminsider.com/2026/06/30/spinq-raises-rmb-1-billion-fault-tolerant-quantum-

[5] https://thequantuminsider.com/2026/06/17/atom-computing-raises-more-than-300-million-to-
of-fault-tolerant-neutral-atom-quantum-computers/



logical qubits and fault-tolerant roadmaps across the industry, as a large number of physical qubits does not necessarily translate into reliable computational power.

PsiQuantum announces a $125m DARPA agreement

PsiQuantum (private, not covered) announced[6] a $125m agreement with DARPA under the QBI program to support development of utility-scale photonic quantum computing systems. PsiQuantum, together with Microsoft, remain the only 2 companies to be at Stage C (the last stage) of the Quantum Benchmarking Initiative (QBI) program that aims to independently validate different quantum computing approaches. Both companies were part of QBI's precursor program, Underexplored Systems for Utility-Scale Quantum Computing (US2QC). The agreement provides substantial government funding to advance the company's photonic quantum computing roadmap and invest in the infrastructure needed to develop utility-scale quantum systems.

- **Implications:** In our view, the agreement highlights the increasingly important role governments are playing in accelerating quantum computing development. Similar to recent US CHIPS Act initiatives, the award reinforces quantum computing's growing strategic importance and suggests sovereign funding will likely remain an important complement to private capital.

[6] https://www.psiquantum.com/news-import/psiquantum-signs-125-million-agreement-with-darpa

Hardware, software and scientific developments

Quantinuum partners with Oracle, Diraq with Equinix on cloud infrastructure

In August, Quantinuum (public, not covered) announced[7] a multi-year partnership with Oracle to make its Helios trapped-ion quantum computer available through Oracle Cloud Infrastructure (OCI). Under the agreement, OCI customers will be able to access Quantinuum's quantum hardware alongside Oracle's existing AI and high-performance computing (HPC) infrastructure. The companies also plan to explore hybrid quantum-AI applications across areas such as materials discovery, pharmaceuticals, logistics, energy and financial modelling. Oracle expects to launch a preview of its OCI quantum service in the coming months, providing managed cloud access to Quantinuum's hardware and software development tools. According to the companies, the partnership is intended to simplify enterprise access to quantum computing and support the development of hybrid quantum-classical workflows.

In another news in August, Australian quantum computing startup Diraq (private, not covered) has partnered with Equinix (covered by Brendan Lynch) to deploy an eight-qubit silicon spin quantum computer inside a commercial data centre in Sydney, marking Australia's first quantum computer hosted in a commercial facility and the world's first silicon spin quantum system operating in a shared data centre environment. The installed computer will feature a silicon chip with 8 qubits with cryogenic cooling and control electronics self-contained. Diraq's architecture is designed to integrate into existing data centre infrastructure with minimal modifications, consuming less than 20kW of power and enabling future scaling through chip upgrades rather than wholesale infrastructure replacement.

- **Implications:** In our view, the announcements reinforce that the path to commercialisation depends not only on improvements in quantum hardware, but also on the broader software and infrastructure stack needed to integrate quantum and classical computing resources. We continue to see hybrid quantum-classical computing as an early route to enterprise adoption, with cloud providers playing an important role in reducing barriers to access. Even in the NISQ era, demand for cloud-based quantum computing resources appears to be growing as companies begin experimenting with quantum algorithms and assessing potential future applications. We believe early engagement could prove valuable, as first-mover advantages may emerge in sectors where useful quantum applications are ultimately realised.

IBM and partners publish three papers on quantum advantage & validation

In July, IBM (covered by Raimo Lenschow), in collaboration with UChicago, Qedma and Algorithmq (last two private, not covered), published[8] three papers presenting evidence of quantum advantage. Although we note there's no industry consensus on the definition, we would describe quantum advantage the point when a quantum computer demonstrates superiority over classical systems in specific tasks of useful nature, and new approaches to validating quantum computing results. The studies explored different approaches to this problem, including built-in error-detection techniques, advanced error-mitigation methods and new validation frameworks. In separate experiments, the researchers reported quantum computations in regimes where leading classical simulation methods struggled to provide reliable answers, while also introducing methods designed to increase confidence in the results produced.

[7] https://www.quantinuum.com/press-releases/quantinuum-and-oracle-partner-to-accelerate-hybrid-quantum-compute-adoption-on-oracle-cloud-infrastructure

[8] https://www.ibm.com/quantum/blog/quantum-advantage

- **Implications:** Validating a quantum advantage claim remains a difficult exercise as often they can't be replicated with other quantum systems. If replication and validation become more streamlined and reliable, particularly for classically hard computations, we could see greater investor confidence in future claims of quantum advantage, which could also act as a key investment catalyst/proof of concept for the industry, in our view.

IBM announces progress on connecting cryogenic systems to operate jointly

In August IBM (covered by Raimo Lenschow) announced the successful connection and operation of two modular cryogenic systems designed to support future large-scale fault-tolerant quantum computers. According to the company, the two modules can be cooled below 15 millikelvin and provide up to 12x more wiring capacity than IBM's most widely used quantum systems today. The new architecture is designed to enable the interconnection of multiple quantum processors through IBM's "L-coupler" technology, which allows separate quantum chips to communicate and operate as part of a larger quantum computer. IBM plans to deploy Nighthawk processors within the modules later this year, with the company's roadmap targeting systems with at least 1,000 programmable qubits by 2027 and its fault-tolerant Quantum Starling system by 2029

- **Implications:** In our view, interconnects continue to represent a key bottleneck for the superconducting modality, as larger systems increasingly rely on linking multiple chips, control electronics and cryogenic infrastructure together. Each additional interconnect can introduce noise and error sources, making scalability more challenging relative to some alternative modalities.

Phonons could solve qubit connectivity and scale systems beyond 1M qubits

Researchers from University of Warwick and NRC Canada proposed[9] a new chip architecture concept called Quantum Phononic Links, or QPLs, designed to enable long-range communication between qubits on a semiconductor chip, aiming to improve connectivity, one of the key challenges to scaling quantum computers. This approach uses sound-like vibrations, or phonons, travelling through an advanced material called compressively strained germanium on silicon (cs-GoS), to transfer quantum information between qubits that may be physically far apart. This approach, based on using Germanium hole spin qubits, in theory could allow qubit connectivity across semiconductor chips up to 300mm in diameter. For context, companies within the silicon spin modality have been mostly exploring microwave-mediated coupling for qubit connectivity.

- **Implications:** One of the key barriers to scaling quantum computers is connectivity, as large-scale systems are expected to require coordination across very large numbers of qubits. Unlike approaches based on microwaves (e.g. the approach most silicon spin companies have been approaching) the proposed QPL architecture is built directly into the semiconductor material that hosts the qubits, which could make it more compact, although we acknowledged this is still a very nascent area of research.

SAXON Q shows manufacturing progress on diamond-based nitrogen-vacancy

German quantum computing company SAXON Q (private, not covered) announced[10] the commercial availability of its SXQ128 and SXQ512 diamond-based NV-centre quantum computing systems. Nitrogen-vacancy (NV) centres are atomic defects in diamond that can be

[9] https://pubs.aip.org/aip/apq/article/3/2/026115/3394745/Quantum-phononic-links-for-on-chip-long-range
[10] https://thequantuminsider.com/2026/07/21/saxon-q-diamond-nv-center-quantum-computers/

used as qubits and, unlike many competing modalities, can operate at room temperature without cryogenic cooling or vacuum infrastructure. According to the company, the SXQ128 and SXQ512 are the first commercial NV-centre systems to exceed 10 qubits, offering 128 and 512 qubits, respectively, while fitting within a standard server rack. The company also highlighted several key performance metrics, including qubit fidelity of up to 99.92% (for single-qubit), conversion yields above 85% versus industry norms of 1-10%, and claiming a 6-10x better energy efficiency relative to GPU-based approaches. The systems are designed around a modular multi-core architecture, with deployments already in operation at the German Aerospace Center (DLR) and Fraunhofer IWU.

- **Implications:** We view this announcement as an important milestone for the diamond NV-centre modality, which has historically faced manufacturing scalability challenges. In our view, one of the most interesting characteristics of the modality is its room-temperature operation and standard data centre deployment, which could potentially lower infrastructure requirements relative to other modalities. While the announcement hasn't been third-party benchmarked, it suggests that the modality continues to make progress and reinforces the increasingly diverse set of architectures competing to reach fault-tolerant quantum computing.

Silicon Spin player Diraq announces demonstration of 8-qubit array

Australian quantum computing company Diraq (private, not covered) announced[11] the demonstration of a scaled 8 qubit silicon spin qubit array fabricated at imec using standard semiconductor manufacturing processes (imec's 300mm CMOS-compatible manufacturing platform). This builds on the company announcement late last year which proved the viability of individual and two-qubit building blocks, by scaling to larger arrays (eight-qubit linear array). Silicon spin quantum computing stores quantum information in the spin of individual electrons within silicon devices and aims to leverage existing CMOS semiconductor infrastructure rather than relying on bespoke fabrication techniques. According to the company, the demonstration shows that large qubit arrays can be manufactured using industrial foundry processes, while maintaining key performance metrics and not requiring a significant increase in sensor count, wiring density or thermal load. In other news, Diraq has also opened its first US lab in Chicago.

- **Implications:** We continue to view silicon spin as one of the most scalable quantum computing modalities due to its compatibility with existing semiconductor manufacturing infrastructure. We believe demonstrations using commercial foundries such as imec are particularly important because they could de-risk manufacturability and improve the cost profile of quantum systems. If silicon spin players can continue improving performance metrics while scaling qubit count and leveraging established semiconductor supply chains, the modality could potentially see a faster path to commercial scale production compared to other qubit modalities.

QuantWare partners with Maybell to improve cooling/power efficiency at scale

QuantWare (private, not covered) announced[12] a partnership with Maybell Quantum (private, not covered) to ensure compatibility between its VIO-40K superconducting processor architecture, which can accommodate +10,000 qubits in a single cryogenic system, and Maybell's ColdCloud cryogenic cooling infrastructure. The collaboration focuses on co-designing quantum processors and cooling systems to maximise compute-per-watt

[11] https://thequantuminsider.com/2026/07/09/diraq-demonstrates-scaled-foundry-fabricated-silicon-based-qubit-array-made-at-imec/

[12] https://quantware.com/news/quantware-and-maybell-partner-to-maximize-compute-per-watt-performance-of-vio-40k-systems

performance for future large-scale quantum computers. According to the companies, QuantWare's VIO architecture is designed to support superconducting systems with up to 10,000 qubits within a single cryogenic environment through a chiplet-based approach, while Maybell's ColdCloud platform claims to use 90% less power and water compared to conventional systems and up to 80% less helium-3 requirements per qubit. Maybell targets its first commercial ColdCloud deployment in 2027, ahead of QuantWare's planned VIO-40K deployment in 2028.

- **Implications:** In our view, the announcement highlights that supporting infrastructure such as chip manufacturing reliability and scalability as well as improved efficiency in cryogenics could become key differentiators and improve the economic viability of future quantum systems. We also see this as encouraging evidence that innovation is occurring not only at the hardware level, but increasingly across the supplier ecosystem. While larger, vertically integrated players such as IBM are developing key components in-house, companies such as QuantWare and Maybell Quantum continue to demonstrate that specialist suppliers are also making progress in addressing critical infrastructure challenges, supporting the development of a more competitive quantum supply chain.

Origin Wukong reaches 1M tasks

According to a Global Times article, Chinese superconducting company Origin Quantum (private, not covered) announced in June that its Origin Wukong superconducting quantum computing platform has surpassed one million completed quantum computing tasks, having served users across 192 countries and 49M remote visits since entering operation more than two years ago. According to the article, the company combines quantum computing services with post-quantum cryptography (PQC) protections, including its "Origin Rock" cryptographic module introduced in 2024. The news followed the company's announcement in May of the launch of their 4th generation quantum system featuring 180 qubits - see our report, Quantum Computing: monthly qu-bites #4.

- **Implications:** We think the announcement provides further evidence that China's quantum ecosystem continues to make progress on developing a broader quantum infrastructure stack (e.g. cloud access, PQC). While we acknowledge task volumes do not compare with performance metrics or quantum advantage with commercial utility, broader usage can help with quantum algorithm experimentation and enterprise adoption.

Geopolitical Corner

United States. According to a Bloomberg article, US lawmakers are reportedly seeking to increase annual defence quantum spending by 68% to $567m as competition with China intensifies. The proposal would add to the Trump administration's previously announced plans to invest more than $2bn directly into the quantum sector. Additionally, in June, the Trump administration[13] also signed two executive orders to accelerate both quantum hardware development and quantum security. The first order aims to strengthen US leadership across quantum computing, sensing and networking, including a government-backed effort to develop a large-scale quantum computer for scientific discovery by 2028 and an update to the National Quantum Strategy focused on commercialization and deployment. The second order accelerates the federal transition to post-quantum cryptography (PQC), setting deadlines for high-value government systems to migrate to quantum-resistant encryption by 2030–31 in response to growing concerns around “harvest now, decrypt later” threats. These measures continue to suggest that quantum technologies are increasingly viewed as strategic national security issues and are climbing up the policy agenda.

United States (Space). Infleqtion (public, not covered) launched[14] America's Quantum Space Initiative, bringing together industry, academic and technology partners including Voyager Technologies, Monarch Quantum, Armada and the University of Colorado Boulder. The initiative aims to accelerate the development of quantum technologies for future space systems spanning sensing/navigation, communications and computing, while establishing a collaborative Quantum Space Hub to support deployment efforts.

China. China continues to expand its quantum ecosystem through both industrial policy and standards development. According to a July article from CGTN, the Ministry of Industry and Information Technology established a national quantum information standards committee to develop standards covering quantum computing, communications, sensing and foundational technologies, promoting high-quality development for the industry. In separate news,[15] Shanghai is also launching a new Quantum hub with 26 founding companies and providing 100M yuan ($14.7M), expanding the quantum ecosystem beyond Hefei and Beijing.

Israel. Israel launched[16] "Project Nexus", a national tender to establish a domestically produced quantum computing platform as part of its broader AI sovereignty strategy. The initiative aims to ensure the country maintains access to a locally developed quantum computer while supporting multiple domestic quantum technologies already under development.

[13] https://www.whitehouse.gov/presidential-actions/2026/06/ushering-in-the-next-frontier-of-quantum-innovation/

[14] https://infleqtion.com/infleqtion-launches-americas-quantum-space-initiative-to-accelerate-the-future-of-quantum-enabled-space-infrastructure/

[15] https://www.scmp.com/tech/tech-trends/article/3359146/shanghai-unveils-quantum-computing-hub-china-races-tech-supremacy

[16] https://thequantuminsider.com/2026/08/05/israel-launches-national-quantum-computer-tender-as-part-of-broader-ai-sovereignty-strategy/

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