Aug 12, 2026 – Aug 13 · Daily Brief

Quantinuum's revenue grew 279% in its first quarter as a listed company

41 items · 8 sources | PDF | This issue's roundup is free

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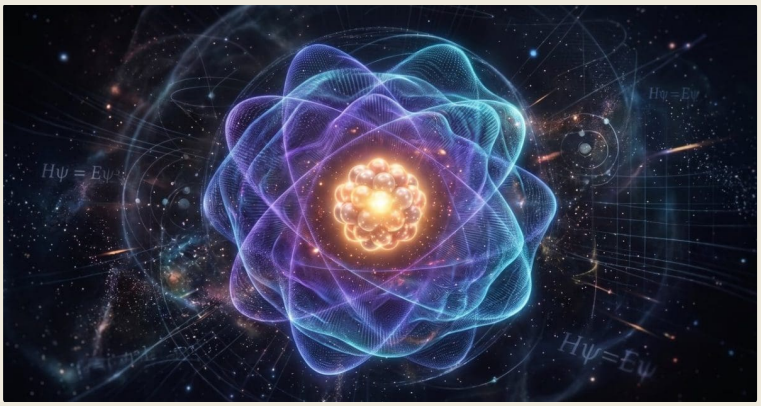
CURRENTSOTA

Physical qubits	1,180
2Q fidelity	99.99%
Logical qubits	96 LQ

Quantum hardware SOTA table →

01 Other

Three Things Today



1 **Error source tracing in superconducting qubits** An MIT team decomposed correlated errors in superconducting qubits into two independent sources: cosmic rays and cryocooler vibrations[20]—distinguishing environmental noise by specific physical mechanism, providing targets for error suppression.

2 **Quantinuum's first earnings report post-IPO** Q2 2026 revenue grew 279% year-over-year, IPO raised $1.7 billion, and Oracle cloud integration was announced[5]—

commercialization and capital both validating the trapped-ion route.

3 **Saab and Royal Navy complete quantum-timing radar trial** Cold-atom quantum clocks integrated into an operational radar network for the first time, with synchronization across multiple sites[9]—quantum sensing moving from lab to battlefield, defense applications accelerating.

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02 Hardware

Hardware Frontier

Superconducting

Qubit errors traced to cosmic rays and cryocooler vibrations Researchers at MIT and Lincoln Laboratory decomposed correlated errors in superconducting qubits into two independent sources: cosmic rays and cryocooler vibrations[20]. The researchers experimentally distinguished these two types of correlated errors

by physical mechanism. Compared with the current superconducting state of the art (e.g., Google Willow's T_1 of about 100 μs), this work does not directly improve fidelity, but it provides clear targets for error suppression. Impact: superconducting quantum computing companies (IBM, Rigetti, etc.) can design shielding and vibration-isolation schemes based on this, with the timescale likely to be reflected in hardware iterations within 1–2 years.

Neutral Atoms

Zapata Quantum and QuEra collaboration targets megaquop-class system by 2028 Zapata Quantum announced a collaboration with QuEra to develop applications for QuEra's planned megaquop-class (million quantum operations) system to be offered via AWS in 2028[16][41]. The source did not disclose the logical qubit count of the system, nor a multiple comparison with current levels. Technical implication: the cycle repetition rate of the neutral-atom route (typically 1–10 Hz) remains a shortcoming; the 2028 target requires substantial improvements in repetition rate and error-correction efficiency. Ecosystem impact: if achieved, it will attract more application developers to position early in the neutral-atom ecosystem.

Quantum Timing

Cold-atom quantum clocks integrated into operational radar network for the first time

Saab UK, Aquark Technologies, and the UK Royal Navy DCTO completed the world's first quantum-timing radar trial, integrating cold-atom quantum clocks across multiple sites[9]. The trial was conducted in June 2026 at multiple locations in the UK, with participation from QinetiQ and Dstl. Technical implication: the trial integrated cold-atom quantum clocks into an operational radar network and completed field validation; the source did not disclose stability or cross-site synchronization performance metrics. Ecosystem impact: quantum sensing (rather than computing) is the first to land in defense applications; startups such as Aquark have gained military endorsement, and follow-on orders may appear within 12–24 months.

Silicon-Based Quantum

Hidden disorder in silicon quantum computers

According to an institutional press release (not peer-reviewed), new research reveals the existence of invisible disorder sources in silicon-based quantum dots[38]. The work is at the characterization level and does not provide new fidelity figures. The current practical bottleneck lies in qubit-to-qubit fluctuations caused by disorder. Ecosystem impact: for silicon-route

companies such as Diraq and SQC, disorder control is key to manufacturing consistency, but the source did not provide quantitative metrics on how far they remain from the fault-tolerance threshold.

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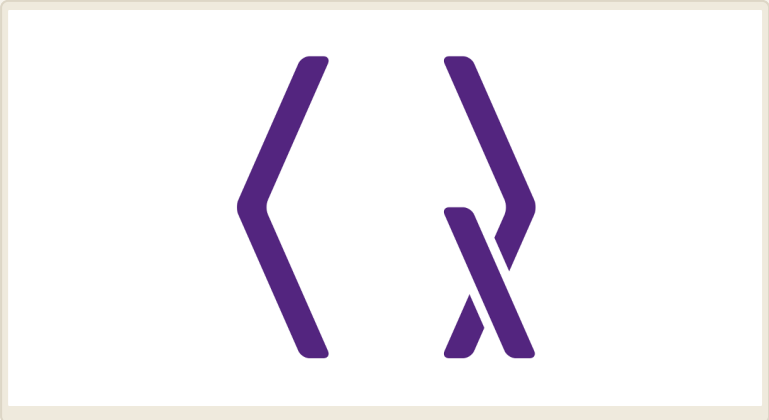
03 Algorithms

Algorithms and Software



Quantum Algorithms

Quantum thermal-state preparation algorithm with efficiency guarantees Researchers proposed an algorithm for efficiently preparing quantum thermal states and ground states using a single ancillary qubit, with theoretical guarantees[14]. Technical implication: thermal-state preparation is a fundamental subroutine for quantum simulation and sampling; the algorithm provides efficiency guarantees and requires only a single ancillary qubit, with low hardware overhead. Ecosystem impact: directly valuable to developers of quantum chemistry and optimization

algorithms, but still requires validation on real hardware before practical use.

Unconditional quantum advantage with shallow circuits A paper published in the journal Quantum proves that, under the premise that the number of random input bits available to classical circuits is bounded, there exists a class of sampling problems solvable by constant-depth quantum circuits but not by any bounded-fanin constant-depth classical circuit[25]. Technical implication: this is a quantum-advantage proof that does not rely on cryptographic assumptions, requiring extremely shallow circuit depth, but the separation conclusion is limited to the case where classical circuits have bounded random bits. Ecosystem impact: provides theoretical support for demonstrating quantum advantage on near-term quantum devices and may influence the design of quantum computational supremacy experiments.

Quantum Software

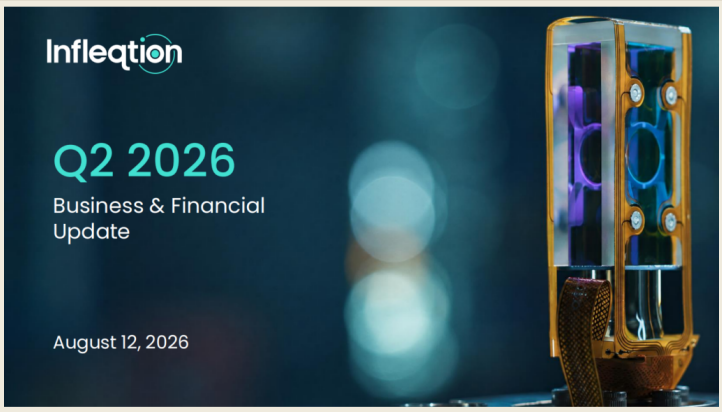
Generative machine learning accelerates quantum computing Researchers demonstrated in Quantum Science and Technology that generative machine learning methods accelerate quantum-centric supercomputing, with perturbation theory used to measure computational improvements[15]. Technical implication: generative models are applied to intermediate steps of quantum computation,

reducing classical computational overhead. Ecosystem impact: practical value for quantum-classical hybrid workflows; the source did not specify the hardware environment used for validation.

QuSquare benchmark suite released Researchers launched QuSquare, a scalable, quality-oriented benchmark suite for pre-fault-tolerant quantum devices[23]. Technical implication: the suite targets pre-fault-tolerant devices and emphasizes scalable, quality-oriented evaluation dimensions; the source did not address comparisons with existing benchmarks such as quantum volume. Ecosystem impact: provides third-party evaluation tools for quantum hardware procurers and may influence cloud platform selection.

POVM range determines stable quantum state estimation A study found that in continuous-variable systems, informational completeness does not guarantee the stability of quantum state estimation; the range of the POVM (positive operator-valued measure) is the key factor[17]. Technical implication: clarifies the theoretical boundary of quantum state tomography. Ecosystem impact: guiding significance for state estimation in quantum metrology and sensing.

Industry and Ecosystem



Earnings and Funding

Quantinuum Q2 revenue up 279%, IPO raised $1.7 billion Quantinuum (NASDAQ: QNT) released its first earnings report after listing: Q2 2026 revenue grew 279% year-over-year, IPO raised $1.7 billion, and Oracle cloud integration was announced[5]. Technical implication: the source provided only the 279% year-over-year growth rate, without disclosing absolute revenue amounts or composition. Ecosystem impact: as the leader of the trapped-ion route, its commercialization speed will affect the valuation of the entire segment; Oracle cloud integration adds a new cloud distribution channel.

Infleqtion Q2 revenue up 116%, full-year guidance raised to $43 million Infleqtion (NYSE: INFQ) announced Q2 results: revenue grew 116% year-over-year, full-year guidance raised to $43 million, and disclosed a $100 million CHIPS Act

letter of intent[13]. Incremental information: compared with the previous day's report, new details on the CHIPS Act LOI show expectations for government funding to arrive. Ecosystem impact: a neutral-atom company receiving government semiconductor funding support indicates that quantum technology is being incorporated into chip strategy.

D-Wave receives up to CAD 300,000 from Canada's NRC D-Wave received up to CAD 300,000 in funding from the National Research Council of Canada's Applied Quantum Computing Challenge program to develop next-generation graph embedding algorithms and software[8]. Technical implication: graph embedding is a key bottleneck in quantum annealing applications; the funding amount is small but symbolically significant. Ecosystem impact: D-Wave continues to deepen the annealing route, differentiating from the gate-model route.

Partnerships and Ecosystem

Davidson and Strangeworks collaborate on hybrid quantum defense optimization Aerospace contractor Davidson and quantum orchestration platform Strangeworks announced a collaboration focused on quantum optimization for military mission planning, unveiled at the 2026 Space and Missile Defense Symposium[6]. Technical implication: hybrid quantum-classical

optimization for military mission planning, at the application-exploration stage. Ecosystem impact: defense contractors are beginning to integrate quantum software, and Strangeworks gains an entry point into the defense sector.

ORIENTOM partners with Fondazione LINKS and softwareQ on quantum computing for finance South Korea's ORIENTOM signed an MoU with Italy's LINKS Foundation and is collaborating with softwareQ to develop financial applications[11][37]. Technical implication: feasibility validation of quantum algorithms in the financial sector. Ecosystem impact: a Korean quantum software company partnering separately with an Italian research institution and softwareQ, targeting banking and insurance, but no specific performance figures yet.

BLOQ Quantum partners with Srirama Engineering College on quantum education India's BLOQ Quantum signed an MoU with Srirama Engineering College in Andhra Pradesh to establish the first quantum computing education program in the Tirupati region[7]. Ecosystem impact: quantum talent spreading to second-tier cities, building workforce reserves for India's quantum industry.

Qunova appoints CFO and two business development executives Quantum computing company Qunova announced the appointment of

a CFO and two business development executives[39]. Ecosystem impact: the startup is expanding its commercialization team, signaling that fundraising or product launches may be near.

Sui co-founder developing $10 quantum-safe hardware wallet card A co-founder of the Sui blockchain is developing a quantum-safe hardware wallet card with a target price of $10[40]. Technical implication: integrating post-quantum cryptography into a low-cost hardware wallet to address the threat quantum computing poses to blockchains. Ecosystem impact: the cryptocurrency industry is beginning to prepare for quantum attacks, which may drive PQC adoption in consumer-grade hardware.

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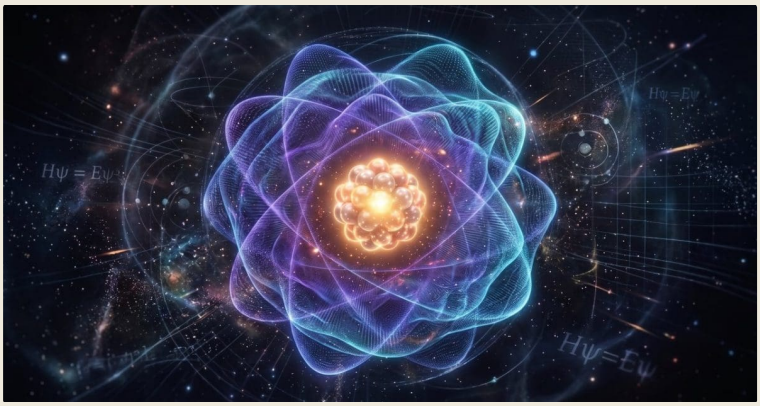
05 Other

Academic Frontier



Photon subtraction: three-level emitters coupled to chiral waveguides npj Quantum Information published a paper using three-level

emitters coupled to chiral waveguides to implement photon subtraction[4]. Technical implication: photon subtraction is a key operation for non-Gaussian state preparation; the success rate and efficiency of the scheme were not disclosed. Ecosystem impact: potential value for continuous-variable quantum computing and quantum communication.

MIT observes competing phases of quantum electrons MIT physicists observed quantum electrons assembling into competing phases in a material, analogous to liquid and solid water coexisting[19]. Technical implication: provides a new perspective for understanding strongly correlated electron systems. Ecosystem impact: fundamental research; long-term potential to influence quantum materials design.

Entanglement scaling transitions from power law to logarithmic A study found that the scaling of entanglement with subsystem size can transition from power law to logarithmic, revealing phase-transition information[21]. Technical implication: provides a new tool for phase classification in quantum many-body systems. Ecosystem impact: theoretical progress with guiding significance for quantum simulation.

New photonic chip dynamically controls light beams A new photonic chip uses quantum information processing principles to dynamically

manipulate light beams, achieving full control over the multi-dimensional Poincaré sphere[22]. Technical implication: full control of spatial modes of light beams on a chip. Ecosystem impact: potential applications in optical communications and quantum information encoding.

Quantum integrated source photon yield improved by 2.58× A new multiplexed source architecture increases multi-photon generation probability by 2.58×[24]. Technical implication: improves light-source efficiency in photonic quantum computing, though conditional fidelity and end-to-end loss must be noted. Ecosystem impact: reference value for photonic-route companies such as PsiQuantum and Xanadu.

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06 Impact

Today's Impact

1 **Quantinuum earnings reinforce trapped-ion commercialization lead** Revenue growth of 279% and Oracle cloud integration indicate

that the trapped-ion route is gaining traction in commercialization[5]. Investors should watch whether subsequent quarterly revenue growth can be sustained, and actual usage of the cloud integration.

2 **Quantum sensing lands first in defense** The Saab and Royal Navy trial demonstrates that cold-atom clocks can be integrated into operational networks[9], which is closer to deployment than quantum computing. Defense contractors and quantum sensing startups may receive more contracts.

3 **Superconducting qubit error source tracing provides a roadmap for hardware improvement** MIT's work separating cosmic-ray and vibration contributions[20] enables companies such as IBM and Rigetti to improve shielding and vibration isolation in a targeted manner, potentially improving coherence times within 1–2 years.

4 **Neutral-atom 2028 target triggers application development race** The Zapata–QuEra collaboration targeting a megaquop-class system[16][41] is prompting application developers to position early, potentially accelerating the maturity of the neutral-atom ecosystem.

5 **Post-quantum cryptography penetrates consumer level** The $10 quantum two-factor authentication card under development by a

Mysten Labs co-founder[40] shows rising urgency in the cryptocurrency industry regarding the quantum threat, though the card has not yet been productized or mass-produced.

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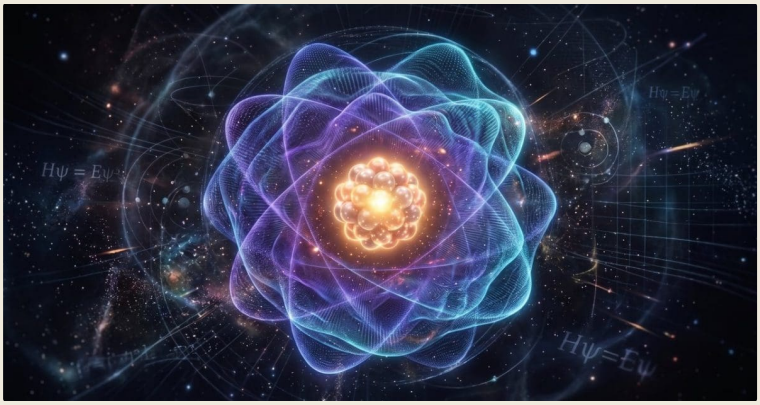
07 Other

Editorial Commentary



The most noteworthy item in this issue is Quantinuum's first earnings report after listing: 279% year-over-year revenue growth appears striking, but the source did not disclose absolute amounts or revenue composition, so the actual substance of the growth rate awaits further disclosure. The real signal is the Oracle cloud integration—this adds a new cloud distribution channel. If subsequent quarters can sustain triple-digit growth, it will validate the commercial viability of the trapped-ion route.

Another trend is the rapid advance of quantum sensing in defense. Integrating cold-atom clocks into radar networks, while not involving quantum computing, demonstrates the reliability of quantum technology in real-world systems. Defense contracts typically have short cycles and large amounts, and may become an important source of early revenue for quantum startups. By contrast, quantum computing remains on the eve of commercialization; hardware metrics (such as logical qubit count and repetition rate) will continue to dominate headlines, but the true watershed lies in demonstrating value in specific applications.

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[3] IQT The Quantum Dragon Podcast Episode 88 – It's already blinking red.

[4] Photon subtraction using a three-level emitter coupled to a chiral waveguide

[5] Quantinuum Reports Q2 2026 Results: Revenue Up 279% YoY, $1.7B Traditional IPO, and Oracle Cloud Integration

[6] Davidson and Strangeworks Partner on Hybrid Quantum Defense Optimization

[7] BLOQ Quantum Partners with Srirama Engineering College to Drive Quantum Education in Andhra Pradesh

[8] D-Wave Awarded NRC Funding to Advance Commercial Annealing Algorithms and Software

[9] Saab, Aquark Technologies, and Royal Navy Complete World-First Quantum Timing Radar Trial

[10] Alice & Bob Joins €4.6M MSCA-Backed QuBriC Doctoral Network for Quantum Error Correction

[11] ORIENTOM and Fondazione LINKS Form Research Partnership for Financial Quantum Computing

[12] Yonsei University to Upgrade On-Premises IBM Quantum System One to Next-Generation Nighthawk QPU

[13] Infleqtion Reports Q2 2026 Results: Record Revenue Up 116% YoY, Raised Guidance to $43M, and $100M CHIPS Act LOI

[14] Algorithm guarantees efficient quantum thermal state creation

[15] Machine learning speeds up quantum computer calculations

[16] Zapata Quantum sees value in QuEra's 2028 hardware roadmap

[17] POVM Range Dictates Stable Quantum State Estimation

[18] Researchers can now stress-test language model safety guards

[19] MIT physicists observe quantum electrons building competing phases in a material

[20] Qubit errors traced to two sources, cosmic rays, cooler vibrations

[21] Entanglement scaling can shift from power law to logarithmic

[22] New chip uses quantum effects to control light beams dynamically

[23] New benchmark, QuSquare, tests near-term quantum devices

[24] Quantum integrated sources yield 2.58x more photons than before

[25] Unconditional Quantum Advantage for Sampling with Shallow Circuits

[26] Estrogen-only hormone therapy could lower risk of Alzheimer's

[27] See the 2026 total solar eclipse from around the world

[28] Major COVID study that fueled vaccine skepticism retracted over 'misinformation'

[29] See hundreds of stingrays swarming off the coast of New York

[30] Yale study finds 'Medicare for All' could save $1 trillion and 114,000 lives every year

[31] JWST images illuminate 'black hole stars' at cosmic dawn

[32] No, AI didn't just solve the thorniest problem in math

[33] Stunning new images reveal cosmic cycle of death and rebirth

[34] New JWST images reveal the Lion Nebula in all its glory

[35] Watch today's total solar eclipse live

[36] Could Rocky's musical language in Project Hail Mary actually work?

[37] ORIENTOM and softwareQ Partner on Quantum Computing Applications for Finance

[38] Uncovering the Hidden Disorder in Silicon Quantum Computers

[39] Qunova Appoints CFO and Two Business Development Executives

[40] Sui Co-Founder Works on $10 Quantum-Safe Hardware Wallet Cards

[41] Zapata Quantum and QuEra Partner on Quantum Application Development

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