RIKEN Scales Quantum-Supercomputing in Japan with Quantinuum System Upgrade

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Quantinuum's H2 quantum computer to expand the scope and accuracy of pharmaceutical and materials science research using the Reimei-Fugaku hybrid compute platform

Tokyo, Japan, April 14th, 2026 —Quantinuum, a leading quantum computing company, today announced that RIKEN, Japan's premier national research institute, has procured its System Model H2 quantum computer to scale the capability of "Reimei-Fugaku," a hybrid quantum-supercomputer platform in Japan.

The Reimei-Fugaku platform represents the frontier of computing technology. Launched in the spring of 2025, it combines Quantinuum's "Reimei" quantum system with RIKEN's "Fugaku," one of the world's fastest supercomputers—more formally known as a high-performance computing (HPC) system.

Now, the hybrid compute platform is getting a substantial upgrade. Earlier this month, Quantinuum delivered its H2 system to RIKEN's research facility near Tokyo, where assembly is already underway to replace its predecessor, System Model H1, which Reimei has been based on to date. The newer-generation, 56-qubit system is engineered for high-fidelity operations that can reduce time-to-solution, enable larger workloads, and support higher-value applications.

Technology leaders see hybrid compute systems as a practical way to overcome the limits of classical HPC. By combining the significant data-processing power of HPC with a quantum computer's ability to model complex molecules and materials, researchers could be enabled to solve specialized mathematical problems that are impractical for classical systems to handle alone.

Researchers have already demonstrated this potential using the current Reimei-Fugaku platform. In a workflow with relevance potentially extending to future pharmaceutical applications, they successfully simulated biomolecular reactions at an accuracy that would be infeasible for HPC to achieve in isolation.

With multiple studies in chemistry and materials science already underway on the platform, this H2 upgrade is expected to accelerate research and unlock even more complex scientific discoveries across disciplines.

Dr. Mitsuhisa Sato, Division Director of the Quantum-HPC Hybrid Platform Division, RIKEN Center for Computational Science, said: "Since its installation in February 2025, Reimei H1 has been widely used by JHPC-quantum users and has delivered significant results, thanks to its high fidelity and flexible qubit connectivity. The upgrade to H2 is exactly what we have been eagerly anticipating, and with its 56 qubits, we expect it to play a key role in demonstrating quantum advantage through quantum–HPC hybrid computing."

Dr. Rajeeb Hazra, President and CEO of Quantinuum, said: "We believe RIKEN's decision to continue adopting Quantinuum systems to meet its ambitious objectives is a validation of our technology roadmap and a reflection of the success of our valued partnership. With Quantinuum and RIKEN's combined leadership in quantum and HPC, respectively, we expect to continue pushing the boundaries of computing to address some of the most critical and complex challenges facing science and industry today."

This development reflects the continued progress of Quantinuum and RIKEN's collaboration to advance quantum-HPC hybrid infrastructure in Japan. Quantinuum intends to continue working with the country's research community to accelerate real-world use cases and contribute to the growth of its quantum ecosystem.

About RIKEN

RIKEN, a National Research and Development Agency, is Japan's leading national comprehensive research institution renowned for high-quality research in a diverse range of scientific disciplines. Founded in 1917, initially as a private research foundation, RIKEN has grown rapidly in size and scope, today encompassing a network of world-class research centers and institutes across Japan.

About Quantinuum

Quantinuum is a leading quantum computing company offering a full-stack platform designed to make quantum computing deployable in real-world environments. The company has commercially deployed multiple generations of quantum systems built on the well-established QCCD architecture, which it has implemented with novel designs and capabilities to achieve the industry's highest accuracy levels based on average two-qubit gate fidelity.[i] Quantinuum has active engagements with market leaders

across pharmaceuticals, material science, financial services, and government and industrial markets.

The company has a global workforce of approximately 700 employees, including top scientists and researchers. Over 70% of its technology team hold PhDs. Quantinuum's headquarters is in Broomfield, Colorado, with additional facilities across the United States, United Kingdom, Germany, Japan, and Singapore.

For more information, please visit www.quantinuum.com.

[i] As of December 31, 2025.