Rigetti Computing Wins Innovate UK Competition to Deliver a 24-qubit Quantum Computing System to the National Quantum Computing Centre

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The proposed 24-qubit quantum computing system will be based on Rigetti's fourth generation Ankaa™-class architecture and will be made available to NQCC researchers for testing, benchmarking, and exploratory applications development.

LONDON, Feb. 05, 2024 (GLOBE NEWSWIRE) -- Rigetti UK Limited, a wholly owned subsidiary of Rigetti Computing, Inc. (Nasdaq: RGTI) ("Rigetti" or the "Company"), a pioneer in full-stack quantum-classical computing, today announced that it was awarded a Small Business Research Initiative (SBRI) grant delivered by Innovate UK and funded by the National Quantum Computing Centre (NQCC) to develop and deliver a quantum computer to the NQCC. Rigetti proposes to deploy a 24-qubit quantum computer based on the Company's fourth generation Ankaa™-class architecture. The system will be deployed at NQCC's Harwell Campus, which is due to open in 2024 and will serve as NQCC's landmark facility to support world-class quantum computing research in the UK.

The proposed system will feature the hallmarks of Rigetti's recently launched 84-qubit Ankaa-2 system, including tunable couplers and a square lattice. This new chip architecture enables faster gate times, higher fidelity, and greater connectivity compared to Rigetti's previous generations of quantum processing units (QPUs). The Ankaa-2 system has achieved a 98% median 2-qubit fidelity, a 2.5x improvement in error performance compared to the Company's previous QPUs, and a 2-qubit gate time of 68 nanoseconds — the shortest gate time demonstrated by a Rigetti QPU.

Rigetti's software development tools for designing and running quantum programs will be deployed with the 24-qubit system, giving NQCC researchers access to pyQuil® to create and execute quantum computing algorithms, Quilc™ to compile and optimize algorithms, and Quil-T™ for pulse-level control. The 24-qubit system will also include Tsunamis™, Rigetti's industry-leading control systems. Tsunamis are cloud-ready and tuned for hybrid performance. The system will be made available over Rigetti Quantum Cloud Services (QCS™).

"It's a great honor to be one of the first quantum computing companies awarded with the contract to establish a quantum computer at the NQCC's landmark facility. We are thrilled that the NQCC selected our Ankaa-class system to pursue world-class research to push the boundaries of quantum technology. We believe that the speed at which we are reducing error rates on our Ankaa systems shows us that we have a clear path towards our goal of hitting 99% fidelity," says Dr. Subodh Kulkarni, Rigetti CEO.

As part of the implementation, in addition to Rigetti's Tsunami control systems, Riverlane plans to integrate elements of its Quantum Error Correction Stack, including a new generation of its quantum computer control system 'Deltaflow.Control', to execute the individual control and readout of Rigetti's 24-qubit system. Riverlane also plans to develop and deliver a new software platform 'Aqueduct' designed to conduct the automation and efficient data management of complex, scalable quantum experiments.

"Controlling qubits is a complex challenge but one that we must tackle to correct the errors found in quantum computers and allow them to scale to the point where they do something useful for society. By integrating our control system 'Deltaflow.Control' with Rigetti's system, we hope to gain a deeper understanding of how to build scalable quantum error correction technologies tailored to large-scale systems like Rigetti's," says Steve Brierley, Riverlane Founder & CEO.

Congratulating the testbed competition winners, Dr. Michael Cuthbert, NQCC's Director, commented, "NQCC seeks to accelerate the development of the UK's quantum computing capabilities and infrastructure. There is a growing realization across the industry that quantum developers need access to the hardware to engineer scalable solutions for a full-stack quantum computer. Once built, these system-level prototypes will help the NQCC and its collaborators to understand the unique characteristics of different hardware approaches, establish appropriate metrics for each qubit architecture, and explore the types of applications that benefit most from each technological approach. That will feed directly into the NQCC's ongoing engagement with organizations across academia, industry and government to develop use cases for early-stage quantum computers, and to identify the innovations that will be needed to accelerate the development and adoption of this transformative technology."

Once the Rigetti quantum computer is operational it will be made available to NQCC researchers for testing, benchmarking, and exploratory applications development.

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About Rigetti
Rigetti is a pioneer in full-stack quantum computing. The Company has operated quantum computers over the cloud since 2017 and serves global enterprise, government, and research clients through its Rigetti Quantum Cloud Services platform. The Company's proprietary quantum-classical infrastructure provides high performance integration with public and private clouds for practical quantum computing. Rigetti has developed the industry's first multi-chip quantum processor for scalable quantum computing systems. The Company designs and manufactures its chips in-house at Fab-1, the industry's first dedicated and integrated quantum device manufacturing facility. Learn more at www.rigetti.com.

About Riverlane
Riverlane's mission is to make quantum computing useful sooner, starting an era of human progress as significant as the industrial and digital revolutions. To achieve this, Riverlane is building the Quantum Error Correction Stack to comprehensively control qubits and correct the billions of real-time data errors that prevent today's generation of quantum computers from achieving useful scale. Riverlane's customers are governments, quantum computer hardware companies and world-leading research labs. Investors include leading venture capital funds Molten Ventures, Amadeus Capital Partners and Cambridge Innovation Capital; the UK's national security investment fund (NSSIF); high-performance computing leader Altair; and the University of Cambridge.

Cautionary Language Concerning Forward Looking Statements

Certain statements in this communication may be considered “forward-looking statements” within the meaning of the federal securities laws, including but not limited to, expectations with respect to the Company’s business and operations, including its expectations related to the Innovate UK SBRI award to deliver a 24-qubit quantum computer to the NQCC and NQCC researchers’ results in testing, expectations with respect to the reduction of error rates and path towards the Company’s goal of hitting 99% fidelity, expectations related to benchmarking and exploratory applications development using Rigetti’s system; and integration of elements of Riverlane’s Quantum Error Correction Stack and software platform, Aqueduct, and error correction results related to integration with Rigetti’s system. Forward-looking statements generally relate to future events and can be identified by terminology such as “commit,” “may,” “should,” “could,” “might,” “plan,” “possible,” “intend,” “strive,” “expect,” “intend,” “will,” “estimate,” “believe,” “predict,” “potential,” “pursue,” “aim,” “goal,” “outlook,” “anticipate,” “assume,” or “continue,” or the negatives of these terms or variations of them or similar terminology. Such forward-looking statements are subject to risks, uncertainties, and other factors which could cause actual results to differ materially from those expressed or implied by such forward-looking statements. These forward-looking statements are based upon estimates and assumptions that, while considered reasonable by Rigetti and its management, are inherently uncertain. Factors that may cause actual results to differ materially from current expectations include, but are not limited to: Rigetti’s ability to achieve milestones, technological advancements, including with respect to its roadmap, help unlock quantum computing, and develop practical applications; the ability of Rigetti to complete ongoing negotiations with government contractors successfully and in a timely manner; the potential of quantum computing; the ability of Rigetti to obtain government contracts and the availability of government funding; the ability of Rigetti to expand its QCS business; the success of Rigetti’s partnerships and collaborations; Rigetti’s ability to accelerate its development of multiple generations of quantum processors; the outcome of any legal proceedings that may be instituted against Rigetti or others; the ability to continue to meet stock exchange listing standards; costs related to operating as a public company; changes in applicable laws or regulations; the possibility that Rigetti may be adversely affected by other economic, business, or competitive factors; Rigetti’s estimates of expenses and profitability; the evolution of the markets in which Rigetti competes; the ability of Rigetti to execute on its technology roadmap; the ability of Rigetti to implement its strategic initiatives, expansion plans and continue to innovate its existing services; disruptions in banking systems, increased costs, international trade relations, political turmoil, natural catastrophes, warfare (such as the ongoing military conflict between Russia and Ukraine and related sanctions and the state of war between Israel and Hamas and related threat of a larger regional conflict), and terrorist attacks; and other risks and uncertainties set forth in the section entitled “Risk Factors” and “Cautionary Note Regarding Forward-Looking Statements” in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022 and Quarterly Reports on Form 10-Q for the quarters ended March 31, 2023, June 30, 2023 and September 30, 2023, and other documents filed by the Company from time to time with the SEC. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and the Company assumes no obligation and does not intend to update or revise these forward-looking statements other than as required by applicable law. The Company does not give any assurance that it will achieve its expectations.