Rigetti Computing Selected to Participate in DARPA's Quantum Benchmarking Initiative

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The objective of DARPA's QBI program is to verify and validate that quantum computing can achieve utility-scale operation by 2033.

BERKELEY, Calif., April 03, 2025 (GLOBE NEWSWIRE) -- Rigetti Computing, Inc. (Nasdaq: RGTI) ("Rigetti" or the "Company"), a pioneer in full-stack quantum-classical computing, announced today that it was selected to participate in the Defense Advanced Research Projects Agency (DARPA) Quantum Benchmarking Initiative (QBI). The primary goal of QBI is to determine if any approach to quantum computing can achieve utility-scale operation by 2033. QBI will use a multi-stage approach, Stages A, B, and C, to assess the proposed concepts, with each stage representing an increased level of scrutiny. Rigetti will advance to Stage A, a 6-month performance period focused on the Company's utility-scale quantum computer concept worth up to $1 million upon completion of program milestones.

Rigetti's proposed concept to design and build a Utility-Scale Quantum Computer (USQC) combines the Company's proprietary multi-chip architecture with scalable quantum error correction (QEC) codes. Rigetti's long-time partner and leader in QEC technology, Riverlane, will be collaborating on this project and bringing their expertise to help refine the proposed USQC concept and validate the underlying technology.

DARPA defines a USQC as a system whose computational value exceeds its costs. The dominant factors in the scalability and speed of a USQC are the physical qubit architecture and QEC code. A common QEC technique is surface code, which is embedded onto square lattices of superconducting qubits and requires a significant number of physical qubits. Rigetti's concept will leverage Quantum Low Density Parity Check (qLDPC) codes, which do not require as high of a physical qubit overhead, making them a more efficient QEC technique for scaling towards fault-tolerant systems.

"Rigetti has spent the last decade developing the IP and expertise needed to build and deliver high-performing quantum computers. The DARPA QBI sets out to prove a realistic path to quantum utility, which we believe we are well positioned to deliver," says Dr. Subodh Kulkarni, Rigetti CEO. "The DARPA QBI program is closely aligned with Rigetti's technology roadmap, which includes building out our QEC capabilities and developing fault-tolerant architectures."

Rigetti's quantum computers are based on superconducting qubits, which are a leading modality due to their fast gate speeds and the ability to leverage well-established semiconductor manufacturing techniques. The Company has made several breakthroughs in the superconducting qubit industry that will be the backbone of its roadmap to higher qubit count systems. This includes a novel chip fabrication technique -- Alternating Bias Assisted Annealing (ABAA) -- that enables precise qubit frequency targeting, and innovative multi-chip architecture technology. In recent years Rigetti has deployed quantum systems that leverage vertical I/O, multiple layers of signal lines, and the ability to connect qubits on separate chips with high fidelity.

"Both the performance of our currently deployed 84-qubit Ankaa-3 system at 99.0% ISWAP gate fidelity, and our bold roadmap taking us to 100+ qubits with a 2x reduction in error rates along with qLDPC code puts us in a strong position to to meet DARPA's 2033 target," says David Rivas, Rigetti CTO.

Rigetti's strategy to achieve a USQC focuses on implementing an efficiently-scaling qLDPC code in hardware. This will deliver the best of both worlds: the fastest quantum computing modality running the most efficient codes, natively. Rigetti plans to combine these technologies and manufacture quantum integrated circuits capable of natively running qLDPC codes, and reach the high qubit counts and performance metrics needed for utility-scale applications.

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. In 2021, Rigetti began selling on-premises quantum computing systems with qubit counts between 24 and 84 qubits, supporting national laboratories and quantum computing centers. Rigetti's 9-qubit Novera™ QPU was introduced in 2023 supporting a broader R&D community with a high-performance, on-premises QPU designed to plug into a customer's existing cryogenic and control systems. 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.

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Cautionary Language and 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 with respect to quantum computing achieving utility-scale operation by 2033, obtaining the full $1 million dollars of value from Stage A of the QBI award, expectations related to the QBI award to deliver a utility-scale quantum computer to DARPA, expectations related to QBI award to work with Riverlane, expectations related to the feasibility of combining Rigetti's proprietary multi-chip architecture with scalable quantum error correction (QEC) codes, expectations related to the collaboration between Rigetti and Riverlane to refine the proposed Utility-Scale Quantum Computer concept, belief that Rigetti's IP and expertise positions Rigetti to deliver on the QBI program, belief that Quantum Low Density Parity Check (qLDPC) codes are a more efficient QEC technique for scaling towards fault-tolerant systems, belief that the Rigetti's ABAA technique and multi-chip architecture technology will be result in higher qubit count systems, expectations for Rigetti's roadmap, such as 100+ qubits with a 2x reduction in error rates, and the roadmap putting Rigetti in position to meet DARPA's 2033 target. 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 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, 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, 2024 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.