# Rigetti Computing Announces Next-Generation 40Q and 80Q Quantum Systems

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The company will collaborate with Deloitte and Strangeworks to explore near-term industry applications

BERKELEY, Calif., Dec. 15, 2021 (GLOBE NEWSWIRE) -- Rigetti Computing, a pioneer in hybrid quantum-classical computing, today introduced its next-generation “Aspen-M” 80-qubit quantum computer into private beta. Aspen-M is the world’s first commercial multi-chip quantum processor, solving a critical scaling challenge in the race toward fault-tolerant quantum computing. The Aspen-M processor leverages Rigetti’s proprietary multi-chip technology and is assembled from two 40-qubit chips.

In addition, Rigetti announced it is collaborating with Deloitte, a multinational professional services company, and Strangeworks, a leading managed quantum service provider, to explore quantum applications in material simulation, optimization, and machine learning using Rigetti’s new scalable processors.

Separately, a new Aspen system based on a single-chip 40-qubit processor will be released today for general availability on Rigetti Quantum Cloud Services, the Strangeworks Ecosystem, and Amazon Braket.

These latest Rigetti Aspen superconducting processors incorporate improvements in scale, speed, and fidelity—three metrics critical to unlocking broad commercial value. In addition to more than doubling the processor size over its previous generation, the systems powered by these processors deliver a 2.5x speedup in quantum processing times and reduce readout errors by up to 50 percent, drastically improving the reliability of quantum program results.

“With these systems, we’ve reached a critical milestone in the emerging quantum advantage era,” said Chad Rigetti, founder and CEO of Rigetti Computing. “Our machines are now at a scale and speed where they can process the real-world data sets that underpin high-impact applications. We believe these systems give researchers and enterprises the best platform to pursue quantum advantage on real problems.”

In one example using publicly available benchmark data from the New York Stock Exchange, the company performed a machine learning classification task that predicted whether the stock market would close higher or lower the following day. Results on both the 40Q and 80Q systems demonstrated quantum processing capabilities competitive with industry standard classical machine learning models. This example is an early demonstration of Rigetti’s scale advantage, and it sets the stage for addressing problems of even greater computational complexity that remain inaccessible to existing classical computers.

In another early benchmark, the company targeted an optimization problem with 65 variables that was able to run on the Aspen-M system in under 5 minutes. Quantum algorithms of this scale are too large to simulate with classical computers, making Rigetti QCS what we believe to be the most broadly accessible platform for large-scale quantum algorithm development. This type of variational algorithm can be applied to a range of industry use cases including supply chain, logistics, and network optimization.

“As quantum computing continues to advance, organizations should explore the potential of quantum technologies to understand how they can advance their business models in the future,” said Scott Buchholz, quantum computing leader, government and public services chief technology officer, and managing director, Deloitte Consulting LLP. “At Deloitte, we are collaborating with diverse technology providers and our clients to apply our combination of business and technology experience to define, design and engineer a tech-forward future. As part of this joint effort, we are looking forward to exploring Rigetti’s new architecture jointly with Strangeworks to help clients define the right set of questions that will advance their stories.”

“The scalability and speed of Rigetti’s new processors is impressive and opens the door to new possibilities for quantum application developers and researchers,” said William Hurley, founder and CEO of Strangeworks. “This kind of computing power enables enterprise-sized companies, like Deloitte, to apply quantum computing to problems of real importance. We’re excited to work together with Deloitte and Rigetti to usher in a new era for quantum application development.”

Rigetti expects the Aspen-M system to be publicly available in Q1 2022.

**About Rigetti Computing**

Rigetti Computing 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 ultra-low latency integration with public and private clouds for high-performance 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. Rigetti was founded in 2013 by Chad Rigetti and today employs more than 140 people with offices in the United States, U.K., and Australia.

Rigetti Computing announced in October it has entered into a definitive merger agreement with Supernova Partners Acquisition Company II, Ltd. (“Supernova II”) (NYSE:SNII), a publicly traded special purpose acquisition company. When the transaction closes, the publicly traded company will be named Rigetti Computing, Inc. and its common stock is expected to be listed on the NYSE under the ticker “RGTI.” Learn more at www.rigetti.com.

**About Deloitte**

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**About Strangeworks**

Headquartered in Austin, Texas, Strangeworks is a group of experienced serial entrepreneurs, enterprise software developers, and quantum physicists who seek to humanize quantum computing and make it accessible to everyone. By guiding companies through the confusion of quantum computing, Strangeworks helps accelerate the integration of this new technology in corporations, universities, and enterprises.

To learn more about how Strangeworks can accelerate your quantum journey visit https://strangeworks.com or start learning for free on Strangeworks QC™, available at https://quantumcomputing.com.

**About Supernova II**

Supernova II is led by Michael Clifton, who was most recently a technology investor at The Carlyle Group; Robert Reid, a long-time senior partner at Blackstone; Spencer Rascoff, a serial entrepreneur who co-founded Hotwire, Zillow, dot.LA and Pacaso and who led Zillow as CEO for nearly a decade; and Alexander Klabin, founder and CEO of Ancient and former managing partner, co-CIO and co-founder of Senator Investment Group.

**Additional Information and Where to Find It**

Supernova Partners Acquisition Company II ("Supernova") (NYSE: SNII) has filed a registration statement on Form S-4 with the Securities Exchange Commission (the "SEC"), which includes a proxy statement/prospectus, that will be both the proxy statement to be distributed to holders of Supernova's common shares in connection with its solicitation of proxies for the vote by Supernova's shareholders with respect to the proposed business combination and other matters as may be described in the registration statement, as well as the prospectus relating to the offer and sale of the securities to be issued in the business combination. After the registration statement is declared effective, Supernova will mail a definitive proxy statement/prospectus and other relevant documents to its shareholders. This communication does not contain all the information that should be considered concerning the proposed business combination and is not intended to form the basis of any investment decision or any other decision in respect of the business combination. Supernova's shareholders and other interested persons are advised to read, when available, the preliminary proxy statement/prospectus included in the registration statement and the amendments thereto and the definitive proxy statement/prospectus and other documents filed in connection with the proposed business combination, as these materials will contain important information about Rigetti Holdings, Inc. ("Rigetti"), Supernova and the business combination. When available, the definitive proxy statement/prospectus and other relevant materials for the proposed business combination will be mailed to shareholders of Supernova as of a record date to be established for voting on the proposed business combination. Shareholders will also be able to obtain copies of the preliminary proxy statement, the definitive proxy statement and other documents filed with the SEC, without charge, once available, at the SEC's website at www.sec.gov, or by directing a request to Supernova's secretary at 4301 50th Street NW, Suite 300 PMB 1044, Washington, D.C. 20016, (202) 918-7050.

**Participants in the Solicitation**

Supernova and its directors and executive officers may be deemed participants in the solicitation of proxies from Supernova's shareholders with respect to the proposed business combination. A list of the names of those directors and executive officers and a description of their interests in Supernova is contained in Supernova's prospectus dated March 3, 2021 relating to its initial public offering, which was filed with the SEC and is available free of charge at the SEC's website at www.sec.gov. To the extent such holdings of Supernova's securities may have changed since that time, such changes have been or will be reflected on Statements of Change in Ownership on Form 4 filed with the SEC. Additional information regarding the interests of such participants will be contained in the proxy statement/prospectus for the proposed business combination when available.

Rigetti and its directors and executive officers may also be deemed to be participants in the solicitation of proxies from the shareholders of Supernova in connection with the proposed business combination. A list of the names of such directors and executive officers and information regarding their interests in the proposed business combination will be included in the proxy statement/prospectus for the proposed business combination when available.

**No Offer or Solicitation**

This communication does not constitute (i) a solicitation of a proxy, consent or authorization with respect to any securities or in respect of the proposed business combination or (ii) an offer to sell, a solicitation of an offer to buy, or a recommendation to purchase any security of Supernova, Rigetti, or any of their respective affiliates.

**Forward-Looking Statements**

Certain statements in this communication may be considered forward-looking statements. Forward-looking statements generally relate to future events and can be identified by terminology such as "pro forma", "may", "should", "could", "might", "plan", "possible", "project", "strive", "budget", "forecast", "expect", "intend", "will", "estimate", "anticipate", "believe", "predict", "potential" 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 Supernova and its management, and Rigetti and its management, as the case may be, are inherently uncertain. Factors that may cause actual results to differ materially from current expectations include, but are not limited to: the outcome of

any legal proceedings that may be instituted against Supernova, Rigetti, the combined company or others following the announcement of the business combination and any definitive agreements with respect thereto; the inability to complete the business combination due to the failure to obtain approval of the shareholders of Supernova or to satisfy other conditions to closing; changes to the proposed structure of the business combination that may be required or appropriate as a result of applicable laws or regulations or as a condition to obtaining regulatory approval of the business combination; the ability to meet stock exchange listing standards following the consummation of the business combination; the risk that the Business Combination disrupts current plans and operations of Rigetti as a result of the announcement and consummation of the Business Combination; the ability to recognize the anticipated benefits of the business combination, which may be affected by, among other things, competition, the ability of the combined company to grow and manage growth profitably, maintain relationships with customers and suppliers and retain its management and key employees; costs related to the business combination; changes in applicable laws or regulations; the possibility that Rigetti or the combined company 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 implement its strategic initiatives, expansion plans and continue to innovate its existing services; the impact of the COVID-19 pandemic on Rigetti's business; and other risks and uncertainties set forth in the section entitled "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements" in the registration on Form S-4 and proxy statement/prospectus discussed above and other documents filed with Supernova from time to time with the SEC.

Nothing in this communication should be regarded as a representation by any person that the forward-looking statements set forth herein will be achieved or that any of the contemplated results of such forward-looking statements will be achieved. You should not place undue reliance on forward-looking statements, which speak only as of the date they are made. Neither Supernova nor Rigetti undertakes any duty to update these forward-looking statements.