

IBM and State of Illinois to Build National Quantum Algorithm Center in Chicago with Universities and Industries

Anchored by next-generation IBM Quantum System Two in Illinois Quantum and Microelectronics Park, new initiative will advance useful quantum applications as industries move towards quantum-centric supercomputing



YORKTOWN HEIGHTS, N.Y. and CHICAGO, Dec. 12, 2024 /PRNewswire/ -- Today, IBM (NYSE:[IBM](#)) and Illinois Governor JB Pritzker announced a collaboration to establish the new National Quantum Algorithm Center in the Illinois Quantum and Microelectronics Park (IQMP) in Chicago.

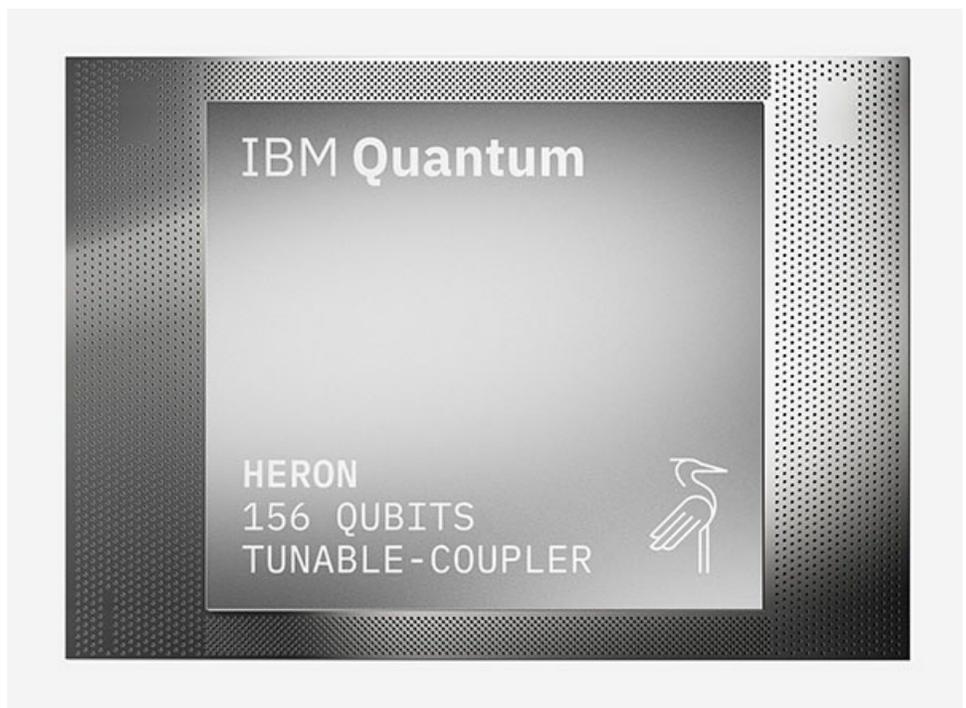
Anchored by IBM and other quantum computing pioneers including the University of Chicago and the University of Illinois Urbana-Champaign, the center will be fueled by IBM's next-generation quantum computer, IBM Quantum System Two, which the company plans to deploy in Chicago in the coming year.

IBM Quantum System Two within the IQMP will be powered by IBM Quantum Heron, which can execute utility-scale algorithms beyond the capabilities of brute-force, classical simulation methods. Users will be able to leverage this system with Qiskit, IBM's performant quantum software, which is designed to be able to extend the length and complexity of quantum circuits to extract accurate results for problems of scientific and research value.

These capabilities will enable Illinois' growing ecosystem of quantum innovators across academia, national labs, and industries to discover how quantum-centric supercomputing could be used for complex industry challenges. As the next evolution of high-performance computing, IBM's vision of quantum-centric supercomputing will integrate quantum and classical computers with performant software to break apart problems, allowing each architecture to solve parts of a complex algorithm for which it is best suited. Ultimately, this is engineered for users to run applications that are inaccessible or difficult for each computing paradigm on its own.

"We are proud of the progress we have made to bring useful quantum technology to the world, and this new partnership with the State of Illinois and its thriving innovation ecosystem brings us one step closer to defining the future of computing," said **Arvind Krishna, Chairman and CEO, IBM**. "With IBM's best performing quantum hardware and software in the heart of Illinois' innovation network, together we can truly unlock the potential of quantum computing to solve the world's hardest problems."

"We're making Illinois the global quantum capital and the center for job growth in the quantum industry – a true center of innovation with the power to solve the world's most pressing and complex challenges and create jobs and investment for our state," said **Governor JB Pritzker**. "The groundbreaking National Quantum Algorithm Center in Illinois represents a transformative step forward, whose impact will reverberate throughout the tech industry and beyond. I'm grateful to the leadership at IBM and our university and other industry partners for their ongoing efforts to accelerate quantum computing across our state."



Within the National Quantum Algorithm Center, quantum information experts, experimentalists, and domain experts across industries will share a unified objective to uncover yet unknown algorithms that leverage quantum-centric computing, including those which combine quantum and classical supercomputing resources across workflows. These teams will explore rigorous experimentation to determine how to execute workloads for complex, industry challenges and within future hybrid supercomputing architectures.

To help drive new algorithm discovery, IBM will leverage its leadership as a pioneer in bringing useful quantum computing to the world with its existing relationships with Illinois academic and industry leaders, including long-standing collaborations with the University of Chicago, the University of Illinois Urbana-Champaign, and members of the Chicago Quantum Exchange and the U.S. Economic Development Administration-designated Bloch Quantum Technology Hub.

"IBM's decision to engage more deeply with our vibrant Illinois quantum ecosystem marks a new phase in the development of quantum information technologies," said **Paul Alivisatos, President of the University of Chicago**. "UChicago faculty and students will be able to deepen and expand their work in this area in collaboration with IBM scientists, colleagues from other universities, and many interested companies. The development of new algorithms is the next step to demonstrating effective quantum computations across a wide range of important problems and sectors."

"We're thrilled to partner with IBM to bring the National Quantum Algorithm Center to life and look forward to hosting its state-of-the-art Quantum Computer as part of the IQMP," said **Harley Johnson, Director and CEO of the Illinois Quantum and Microelectronics Park, and Founder Professor in Mechanical Science and Engineering, U. of I.** "The IQMP is building upon Illinois' strong existing ecosystem of top-tier talent, research centers, universities and more to further establish our state as a global hub for quantum, and all of the economic growth and technological advancement that comes with it. The National Quantum Algorithm Center will be a place where innovators can realize the potential quantum computing holds to solve some of our most complex problems, and we're grateful to have IBM as a part of our campus."

"The great promise of quantum innovation is being realized through powerful partnerships with industry leaders like IBM connecting further to our universities, national labs, and state government," said **Rashid Bashir, Dean of The Grainger College of Engineering at the University of Illinois Urbana-Champaign.** "Our collaborative ecosystem is perfectly positioned to lead the National Quantum Algorithm Center through world-renowned faculty and students, and an entrepreneurial spirit that answers the most pressing questions of our time."

"The announcement of the National Quantum Algorithm Center in collaboration with IBM and some of our brightest higher education institutions is a pivotal moment in Illinois' trajectory toward becoming a world leader in quantum research and development," said **John Atkinson, Chairman of Intersect Illinois.** "Thanks to the planning, foresight and execution of our Team Illinois partners — including Governor JB Pritzker and his administration, the Illinois Department of Commerce and Economic Opportunity and the state's unmatched quantum ecosystem — we are well positioned to ensure the investment and job creation generated by this industry stays right here in Illinois."

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