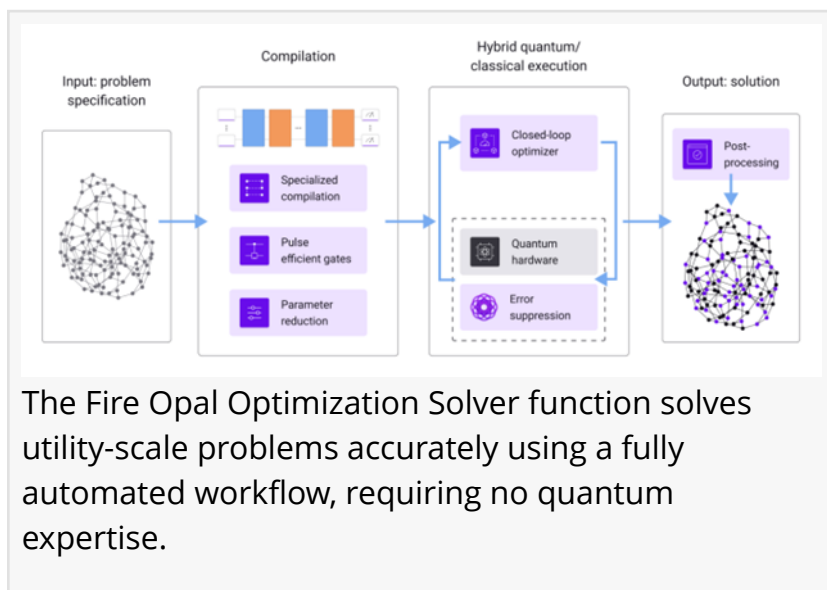


Q-CTRL's Fire Opal Among First Qiskit Functions Delivering Utility-Scale Performance to Global Quantum Developers

Q-CTRL's Fire Opal Among First Qiskit Functions Delivering Utility-Scale Performance to the Global Quantum Developer Community

IEEE QUANTUM WEEK, MONTRÉAL, CANADA, September 16, 2024 /EINPresswire.com/ -- Q-CTRL, the global leader in quantum infrastructure software, today announced that it offers two services via IBM's new Qiskit Functions Catalog to simplify application development and performance management services.



Q-CTRL's performance-management software, Fire Opal, improves the usability and capability of quantum computing by reducing errors and abstracting the details of how to operate hardware for peak performance. Errors in quantum computers constitute one of the biggest bottlenecks in the technology's advancement today. Managing these errors consumes a significant amount of time for hardware vendors and end users seeking to achieve meaningful results on the path to quantum advantage.

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Now we take another major step as we bring our performance management and quantum-optimization capabilities to the world's largest quantum developer community through Qiskit Functions.”

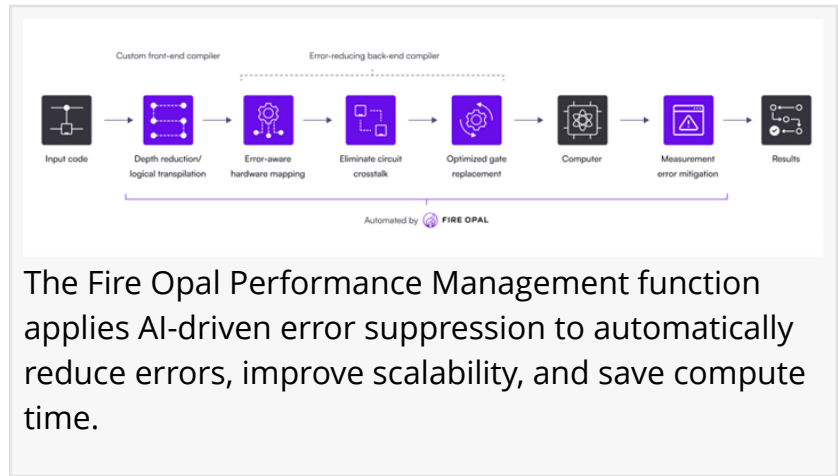
Michael J. Biercuk, CEO and Founder of Q-CTRL

Q-CTRL technology first appeared as a native integration in IBM's Pay-as-you-go plan in December 2023 and recently expanded to support the next generation of IBM Quantum systems with utility-scale IBM Heron processors. Today's

new offering, an expansion available via the Qiskit Functions Catalog, for the IBM Quantum Network of more than 250 Fortune 500 companies, academic institutions, research labs, and

startups is designed to make using Fire Opal seamless within their existing development workflows.

Q-CTRL released [two Qiskit Functions services](#) that build on the knowledge gained from last year's native integration of Fire Opal. Both are turnkey and engineered so users can leverage the benefits of quantum computers without the need to be an expert in quantum hardware.



Performance Management: For users looking to run larger circuits at peak performance, using more gates and qubits on the device, this Function enables users to scale by automatically applying AI-driven error suppression to circuits without overhead.

Optimization Solver: For users interested in addressing utility-scale optimization problems, this solver leverages a noise-aware workflow to achieve high-quality solutions on IBM quantum hardware without directly encountering a quantum circuit. By employing Q-CTRL's validated performance management and other [novel methods](#) under the hood, problems at full device scale - up to 156 qubits today - are solvable while abstracting the complexity of the computation.

"We were thrilled to lead the industry as the first ISV to integrate with a major quantum cloud platform when we launched our performance management software natively on IBM Quantum Services last year. Now we take another major step as we bring our performance management and quantum-optimization capabilities to the world's largest quantum developer community through Qiskit Functions. We're grateful to our partners at IBM and excited to help the industry mature through deverticalization alongside our new colleagues," said Michael J. Biercuk, CEO and Founder of Q-CTRL.

"Recent advances in quantum hardware and software have given us a performant and reliable platform. Quantum advantage is just around the corner and with Qiskit Functions and Q-CTRL now the global ecosystem of developers and computational scientists can easily leverage quantum optimization in their workflows. We are thrilled to see what the community does with these powerful new tools," said Jay Gambetta, IBM Fellow and Vice President, IBM Quantum.

These technologies have already been leveraged in workflows by IBM's clients across applications from medical research to communications and energy-grid design.

"I'm excited to see the capabilities we have already tested from Q-CTRL surfaced within IBM Quantum services. This integration will make it easier to use performance management within

my existing workflow." - Ruihao Li, Quantum Research Data Scientist, Cleveland Clinic.

"Using Q-CTRL's performance management software, we validated the efficacy of a novel quantum machine learning method on IBM hardware. The performance gave us confidence that in the coming years, quantum will play a crucial role in our commercial operations." Hiroshi Yamauchi, Senior Manager, Research Institute of Advanced Technology, SoftBank Corp.

The availability of Q-CTRL's Fire Opal technology in the Qiskit Functions Catalog comes on the back of a major expansion of the company's integration partnerships with hardware vendors across the ecosystem spanning multiple qubit modalities.

IBM Quantum Network members can [contact Q-CTRL](#) to gain access to the Performance Management and Optimization Solver through the Qiskit Functions Catalog on the IBM Quantum Platform.

About Q-CTRL

Q-CTRL's quantum control infrastructure software for R&D professionals and quantum computing end users delivers the highest performance error-correcting and suppressing techniques globally and provides a unique capability accelerating the pathway to the first useful quantum computers and quantum sensors. Q-CTRL operates a globally leading quantum sensing division focused on software-level innovation for strategic capability. Q-CTRL also has developed Black Opal, an edtech platform that enables users to quickly learn quantum computing. □□

Founded by Michael J. Biercuk in 2017, Q-CTRL has pioneered the quantum infrastructure software segment and has become the leading product-focused software company in the broader quantum sector. Q-CTRL has been an inaugural member of the IBM Quantum Network startup program since 2018, and its performance management software now runs natively on IBM quantum computers. The company has international headquarters in Sydney, Los Angeles, Berlin, and Oxford.

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