

IBM Presents First Commercial Quantum Computer

Written by Frederick Douglas
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IBM takes to a consumer electronics show to present what it claims is the first "integrated universal approximate quantum computing system" for commercial use in the world-- the Q System One.



The Q System One is housed inside a dramatic glass cube, and features what Big Blue describes as "a sophisticated, modular and compact design optimized for stability, reliability and continuous commercial use." It promises to address one of the challenges involved in quantum computing, namely maintaining the quality of qubits (aka quantum bits, the superposition of 1s and 0s making the basic units of quantum computing) used in quantum calculations. Qubits are apparently delicate creatures, and are easily affected by vibrations, temperature fluctuations and magnetic waves.

The need for stable qubits explains the glass case, since it makes for a sealed airtight environment. It is 2.7m tall and 2.7m wide, and opens using "roto-translation," a motor-driven rotation around 2 displaced axes IBM claims simplifies system maintenance and eventual upgrades. In addition, a series of independent aluminium and steel frames both unify and decouple the cryostat, control electronics and exterior casing to prevent vibration interference affecting the aforementioned qubits.

That said, the Q System One will not be for sale, at least for the near future. Instead, clients can access the system through an IBM Q Quantum Computation Centre in New York, set to open later this year. The centre already has two customers, energy giant ExxonMobil and the CERN research laboratory, and includes all the high performance computing systems and a high availability datacentre required to work alongside quantum computing.

"The IBM Q System One is a major step forward in the commercialization of quantum

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computing," IBM says. "This new system is critical in expanding quantum computing beyond the walls of the research lab as we work to develop practical quantum applications for business and science."

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