

News Byte

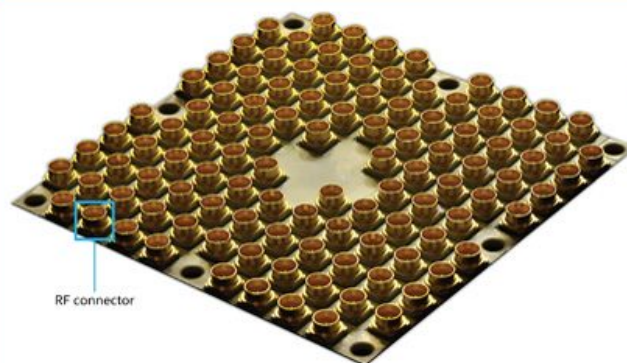
May 2, 2018

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INTEL'S 49-QUBIT PROCESSOR

During his keynote at CES 2018 in January, Intel CEO Brian Krzanich unveiled our 49-qubit superconducting quantum test chip, code-named "**Tangle Lake**." The 3-inch by 3-inch chip and its package is now in the hands of Intel's quantum research partner QuTech in the Netherlands for testing at low temperatures. Quantum computing is heralded for its potential to tackle problems that today's conventional computers can't handle. Scientists and industries are looking to quantum computing to speed advancements in areas like chemistry or drug development, financial modeling, and even climate forecasting.

TOP



WORTH ITS WEIGHT IN GOLD

There are 108 radio frequency (RF) connectors on Tangle Lake that carry microwave signals into the chip to operate the quantum bits (qubits). They are made of gold, which is excellent for anti-corrosion and signal transmission.

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At CES 2018 in January, Intel CEO Brian Krzanich predicted that quantum computing will solve problems that today take months or years for our most powerful supercomputers to resolve. Krzanich then unveiled [Intel's 49-qubit superconducting quantum test chip](#), code-named "Tangle Lake."

Quantum computing is heralded for its potential. Leaders in scientific and industrial fields are hopeful quantum computing will speed advances in chemistry, drug development, financial modeling and climate change.

More: [Quantum Computing at Intel](#) | [A Quantum Computing Primer](#) | [More Intel Explainers](#)

Quantum computations use quantum bits (qubits), which can be in multiple states at the same time – quite different from digital computing's requirement that data be either in one state or another (0 or 1, for example). Running a large number of calculations in parallel opens a future where complex problems can be solved in much less time on a quantum computer compared with a traditional digital device.

But while quantum computing has great potential, the field is in its infancy. And it will take many generations of qubit increases for quantum computers to begin solving the world's challenges.

"In the quest to deliver a commercially viable quantum computing system, it's anyone's game," said Mike Mayberry, corporate vice president and managing director of Intel Labs. "We expect it will be five to seven years before the industry gets to tackling engineering-scale problems, and it will likely require 1 million or more qubits to achieve commercial relevance."

A small step in the quantum computing journey, the 3-inch-square Tangle Lake test chip is already in testing with Intel's quantum research partner QuTech in the Netherlands.

Tags: [Intel Explainers](#), [Quantum Computing](#), [QuTech](#)

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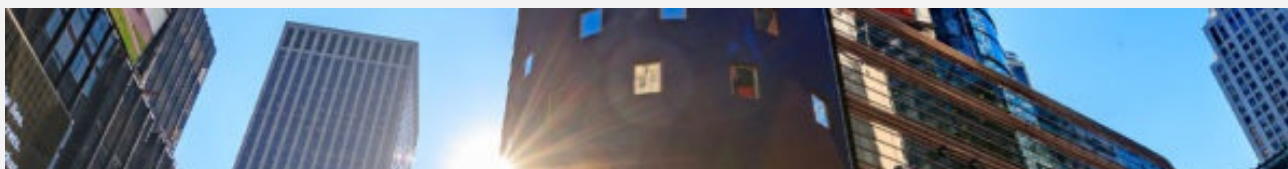
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