

Equal1 Achieves Major Milestone as a Top Patent Holder In Silicon Quantum Computing

Equal1 announces 25 U.S. and international patents granted and an additional 17 patents pending

SAN CARLOS, CA, UNITED STATES, January 24, 2023 /EINPresswire.com/ -- [Equal1](#), the silicon quantum computing company, today announced that with 25 U.S. and international patents granted and an additional 17 patents pending, Equal1 is now one of the top patent holders in quantum computing globally. The ability to utilize existing state-of-the-art semiconductor manufacturing processes for quantum is an area of critical strategic importance as the industry scales to real-world quantum computing.



Equal1 leverages commercially available semiconductor technology to deliver quantum computing solutions that empower businesses to overcome data-intensive AI challenges today.

Unlike competing qubit technologies such as superconducting or trapped ion, which require immense custom manufacturing and ultra-low temperature cryogenic cooling facilities, Equal1 has integrated an entire quantum computer and system onto a single silicon chip. Built on commercial silicon CMOS processes, Equal1 [Quantum-on-Chip](#) processors (QPUs), today proven in three generations of silicon, produce quantum computers with unmatched performance and efficiency and in a breakthrough compact rack-based form factor.



Computing performance has always advanced mainly through advances in silicon, and quantum computers will be no different."

Jason Lynch, CEO of Equal1

"While the first generation of quantum technologies have proven quantum computing is possible, equally, they have proven that they cannot scale or commercialize. Scalability

is the reason the industry is shifting to quantum silicon," said Jason Lynch, CEO of Equal1. "Computing performance has always advanced mainly through advances in silicon, and quantum computers will be no different. This is why being a top patent holder in silicon quantum computing is critical in the next phase of scaling and commercializing quantum computing."

Equal1 is the first quantum company to successfully fabricate quantum-on-chip processors using standard commercial CMOS processes. Proven in silicon, our third-generation quantum processor integrates an entire quantum system—qubits, control, and read-out—on a single

silicon chip. CMOS is the only technology that can commercially and technically scale to millions of qubits needed for high-performance quantum computing.

Equal1 patents are in fundamental areas of silicon-powered quantum computing. Patents include core cryoCMOS technology, quantum device structure, qubit control, quantum AI and neural networks, quantum error correction, and system integration innovations to produce quantum computers that are compact, powerful, and efficient. Several patents below illustrate the importance of the Equal1 portfolio.

US11214484: "Planar quantum structures utilizing quantum particle tunneling through local depleted well." This patent covers the basic Equal1 qubit structure of a single qubit as well as the architecture to scale to 2D quantum dot arrays, critical to the ability to scale to millions of qubits. This patent addresses a core issue facing quantum computing—scalability.

US11202526: "Reprogrammable quantum processor architecture incorporating quantum error correction." This patent covers Equal1's proprietary error correction methodology, which combines classical, quantum, and AI techniques to produce on-chip, on-the-fly error correction to preserve quantum information. Real-time on-chip error correction is essential as qubits scale to create large-scale quantum computers.

US11423322: "Integrated quantum computer incorporating quantum core and associated classical control circuitry." Every other quantum solution uses technology external to the qubit arrays to manage, control and measure the qubits. This patent covers a Quantum Processor Unit with quantum cores and classic circuitry integrated on a single chip, meaning control and measurement operate at the speed of quantum processing.

Editors Notes

About Quantum Computing

Quantum computing taps nature's operating system, quantum mechanics, to unlock exponential computer performance.

Classical computing calculates with transistors that represent either 0 or 1: they scale linearly with Moore's law. Quantum computing calculates with qubits, which can represent 0 and 1 simultaneously. Quantum computing performance scales exponentially in proportion to the number of entangled qubits.

Quantum will attack the most complex problems: quantum simulations in molecular chemistry, optimization, or prime factorization. Factoring a 2,048-bit prime number with a supercomputer takes about one trillion years. With quantum, it takes about one minute.

Quantum and AI

Equal1's quantum computing processors will remake AI and machine learning. AI is transforming every aspect of our lives, from self-driving vehicles to AI-designed drugs. However, the amount of

energy required by these applications means that AI is now a material and growing contributor to global carbon output and global warming. Equal1's quantum computing technology will enable vastly better performance at a fraction of the energy.

Quantum and Climate

Meeting the 2050 net-zero emissions goal that countries will only be possible with breakthrough advances in climate technology. Today's supercomputers are unable to solve many of these challenges.

Quantum computing will change the game in helping develop breakthrough climate technologies. McKinsey & Co believes quantum computing can revolutionize the fight against climate change, transforming the technologies and economics of decarbonization and becoming a major factor in limiting global warming to the target temperature of 1.5°C.

[About Equal1](#)

Equal1 leverages commercially available semiconductor technology to deliver quantum computing solutions that empower businesses to overcome data-intensive AI challenges today.

With its much smaller carbon footprint, our scalable, cost-effective technology provides a quantum computing path that will impact the trajectory of AI. This means we enable our customers to leverage the power of AI to develop useful, real-world solutions. www.equal1.com

References:

<https://www.pistoiaalliance.org/pistoia-webinars/application-of-quantum-computing/>

<https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/quantum-computing-just-might-save-the-planet>

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