

# Quantum Computing Market to Skyrocket to \$8.79B by 2031, Driven by Cloud, AI, and Hardware Innovation

*Global quantum computing adoption accelerates with government funding, enterprise investments, and breakthroughs in cloud and hardware solutions.*

AUSTIN, TX, UNITED STATES, December 19, 2025 /EINPresswire.com/ -- According to DataM



Quantum computing is no longer just research, it's transforming industries, unlocking massive computational power and shaping the future of digital innovation worldwide."

*DataM Intelligence*

Intelligence, the global [quantum computing market](#) reached US\$ 650.1 million in 2022 and is projected to surge to US\$ 8,788.8 million by 2031, expanding at a robust CAGR of 38.9% during the forecast period 2024-2031. This exceptional growth is fueled by rising investments from governments and private enterprises, rapid advancements in quantum hardware and software, and the growing availability of quantum computing through cloud-based platforms. North America currently leads the market due to strong R&D funding, early enterprise adoption, and the presence of major technology

players, while quantum hardware and cloud-based quantum services represent the leading segments due to their scalability and commercialization readiness.

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<https://www.datamintelligence.com/download-sample/quantum-computing-market>

## Recent Key Developments

-In December 2025, the U.S. Department of Energy (DOE) launched the Genesis Mission, signing collaboration deals with 24 leading tech companies including Microsoft, Google, AWS, and Nvidia to accelerate scientific research and innovation in quantum computing and related foundational technologies.

-In December 2025, RIKEN and NVIDIA unveiled two new supercomputers designed to accelerate AI and quantum computing research, boosting Japan's infrastructure for cutting edge

scientific and computational workloads

-In November 2025, NVIDIA introduced NVQLink™, a system architecture for tightly coupling GPU computing with quantum processors to build accelerated hybrid quantum supercomputer systems that support advanced quantum applications.

#### Key Highlights from the Report

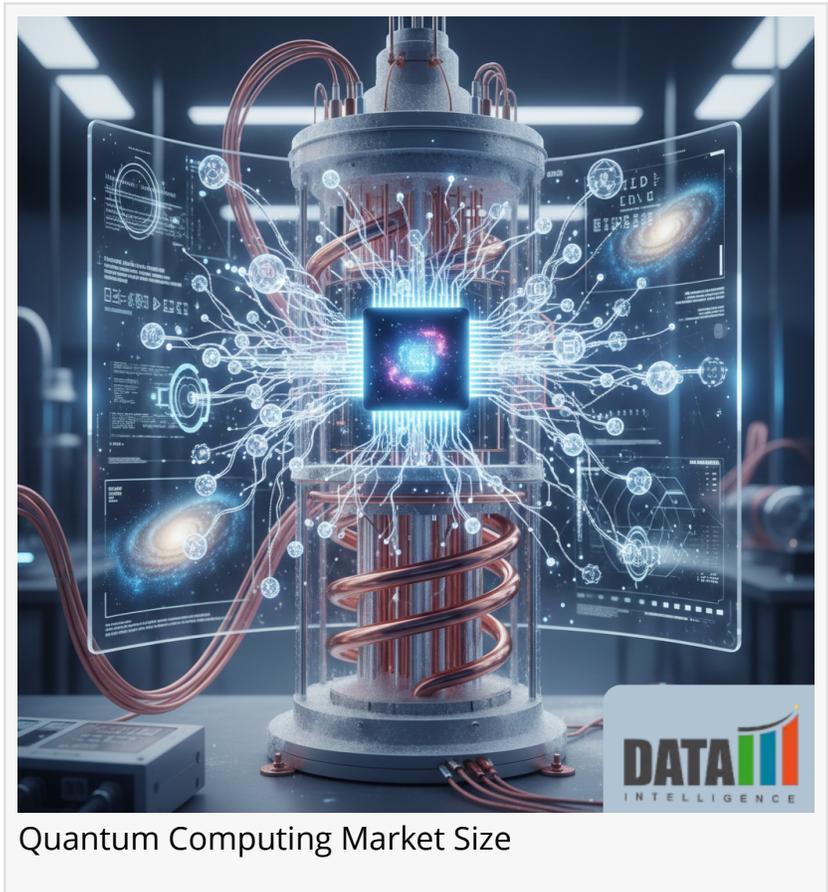
- The quantum computing market is projected to grow at an exceptional CAGR of 38.9% through 2031.
- Cloud-based quantum computing platforms are accelerating enterprise access and adoption.
- North America dominates the market due to strong public-private investments in quantum R&D.
- Quantum hardware innovations, especially superconducting and trapped-ion systems, are gaining momentum.
- Growing demand from pharmaceuticals, BFSI, and energy sectors is driving commercial use cases.
- Strategic collaborations between technology firms and research institutions are shaping the competitive landscape.

#### Overview of the Quantum Computing Market

The quantum computing market is rapidly evolving from a research-intensive domain into a commercially viable technology ecosystem with transformative potential across industries. Quantum computing leverages quantum bits (qubits) that use principles of superposition and entanglement to solve complex problems far beyond the capabilities of classical computers. This paradigm shift is redefining computational limits in areas such as cryptography, drug discovery, materials science, financial modeling, logistics optimization, and climate simulation. As enterprises increasingly seek faster decision-making, higher accuracy, and computational efficiency, quantum computing is emerging as a foundational technology for next-generation digital infrastructure.

#### Market Segmentation

By component, the quantum computing market is segmented into hardware, software, and services. Quantum hardware forms the backbone of the market and includes superconducting qubits, trapped ions, quantum annealers, and photonic systems. Hardware remains the



dominant segment due to continuous investments in improving qubit stability, coherence time, and scalability. Meanwhile, quantum software and services are gaining traction as enterprises seek algorithm development, quantum-as-a-service (QaaS), and system integration support to bridge the skills gap.

By deployment mode, the market is divided into on-premises and cloud-based quantum computing. Cloud-based deployment is witnessing faster growth as it lowers entry barriers for enterprises by eliminating the need for costly infrastructure and specialized maintenance. Leading cloud platforms now offer remote access to quantum processors, simulators, and hybrid quantum-classical workflows, enabling experimentation and early-stage commercial applications.

By end-user, the market spans BFSI, healthcare and pharmaceuticals, energy and utilities, manufacturing, aerospace and defense, and academia and research institutions. The BFSI sector leads adoption due to quantum computing's ability to optimize portfolios, manage risk, and detect fraud. Healthcare and pharmaceuticals follow closely, leveraging quantum algorithms for molecular modeling, drug discovery, and personalized medicine development.

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### Regional Insights

North America holds the largest share of the global quantum computing market, supported by strong government funding initiatives, advanced research infrastructure, and the presence of leading technology companies. The United States, in particular, has established itself as a global hub for quantum innovation through national quantum programs, defense-related research, and enterprise-led pilot projects across finance, healthcare, and logistics.

Europe represents a rapidly growing regional market, driven by collaborative research programs, academic-industry partnerships, and supportive regulatory frameworks. Countries such as Germany, the UK, and France are investing heavily in quantum research to strengthen technological sovereignty and industrial competitiveness. The Asia-Pacific region is expected to witness the fastest growth rate, fueled by aggressive investments from China, Japan, and South Korea in quantum hardware development, national laboratories, and commercial applications across manufacturing and telecommunications.

### Market Dynamics

#### Market Drivers:

The primary drivers of the quantum computing market include the growing complexity of data-intensive problems, increasing limitations of classical computing, and rising demand for advanced optimization and simulation capabilities. Government-backed funding programs and national quantum initiatives are accelerating research and commercialization. Additionally, the integration of quantum computing with artificial intelligence, machine learning, and cloud

platforms is expanding its relevance across multiple industries.

#### Market Restraints:

Despite strong growth potential, the market faces challenges such as high development costs, limited availability of skilled quantum professionals, and technical hurdles related to qubit stability and error correction. The lack of standardized frameworks and interoperability across quantum platforms also restrains widespread adoption, particularly among small and medium-sized enterprises.

#### Market Opportunities:

Significant opportunities lie in the development of industry-specific quantum algorithms, hybrid quantum-classical solutions, and scalable error-corrected systems. Emerging use cases in climate modeling, energy optimization, cybersecurity, and advanced materials research are expected to unlock new revenue streams. As quantum hardware matures, commercialization opportunities will expand rapidly across enterprise and government sectors.

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#### Reasons to Buy the Report

- Gain in-depth insights into market size, growth trends, and future outlook through 2031.
- Understand key technology advancements shaping quantum hardware and software ecosystems.
- Identify high-growth applications and end-user industries driving market demand.
- Analyze regional opportunities and competitive dynamics across major economies.
- Support strategic decision-making with data-driven forecasts and market intelligence.

#### Frequently Asked Questions (FAQs)

- How big is the global quantum computing market today?
- Who are the key players in the global quantum computing market?
- What is the projected growth rate of the quantum computing market during the forecast period?
- What is the market forecast for quantum computing through 2031?
- Which region is estimated to dominate the quantum computing industry over the forecast period?

#### Company Insights

- IBM
- Google
- Microsoft
- Intel
- D-Wave Systems
- Rigetti Computing

- IonQ

## Conclusion

The quantum computing market is entering a pivotal phase marked by rapid technological progress, increasing enterprise engagement, and strong public-sector support. With exponential growth projected through 2031, quantum computing is poised to redefine problem-solving across industries by unlocking unprecedented computational power. As hardware matures, software ecosystems expand, and real-world applications scale, quantum computing will transition from experimental innovation to a critical pillar of the global digital economy.

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