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Quantum Computing Market Forecasts to 2032 – Global Analysis By Component (Hardware, Software and Services), Deployment Mode, Technology, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Quantum Computing Market is accounted for $1.5 billion in 2025 and is expected to reach $10.4 billion by 2032 growing at a CAGR of 31.5% during the forecast period. Quantum computing is a revolutionary form of computation that leverages the principles of quantum mechanics to process information. Unlike classical computers that use bits (0 or 1), quantum computers use quantum bits or qubits, which can exist in multiple states simultaneously due to superposition. Qubits can also be entangled, allowing complex correlations that enable powerful parallel computations. This allows quantum computers to solve certain problems—like factoring large numbers or simulating molecules—exponentially faster than traditional systems. Though still in development, quantum computing holds immense potential in fields such as cryptography, material science, and artificial intelligence, offering transformative capabilities beyond classical limits.

According to an analyst survey, there could be a demand for around 10,000 quantum skilled workers and a supply of fewer than 5,000 by 2025.

Market Dynamics:

Driver:

Rising Demand for High-Performance Computing

The surging demand for high-performance computing (HPC) is significantly propelling

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growth in the quantum computing market. HPC's limitations in handling complex simulations and massive data volumes are accelerating investment in quantum technologies. This shift is driving innovation in quantum processors, enhancing capabilities for industries like pharmaceuticals, cybersecurity, and climate modeling. Increased funding and collaborations between academia and industry are further catalyzing quantum advancement, positioning it as a strategic frontier for next-generation computational power.

Restraint:

High Cost of Development

The high cost of quantum computing development presents a significant barrier to market growth. Building and maintaining quantum systems requires substantial financial investment in specialized hardware, research, and skilled talent. This restricts entry to only a few well-funded players, slowing innovation and competition. Smaller enterprises struggle to participate, delaying diverse application development and market expansion. Consequently, commercialization becomes uneven, hindering widespread adoption and limiting the technology's transformative potential.

Opportunity:

Advancements in Quantum Hardware and Algorithms

Breakthroughs in quantum hardware and algorithms are unlocking new dimensions in computational speed, scalability, and accuracy—fueling rapid growth in the quantum computing market. Enhanced qubit stability, error correction, and quantum supremacy benchmarks are attracting significant investments across industries. Algorithmic advancements are broadening use cases in optimization, machine learning, and cryptography, while hardware innovations enable more reliable quantum systems. Together, they're accelerating commercialization, inspiring collaboration across academia, tech, and enterprise sectors.

Threat:

Technical Challenges and Fragility of Qubits

The quantum computing market faces substantial setbacks due to technical challenges and the fragile nature of qubits. Their susceptibility to environmental interference leads

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to frequent computational errors and limits scalability. Maintaining qubit coherence demands complex infrastructure, raising operational costs and slowing practical deployment. These limitations hinder the commercialization of quantum systems, delay innovation, and restrain investor confidence, ultimately impeding the widespread adoption and growth of quantum technologies across industries.

Covid-19 Impact

The COVID-19 pandemic had a dual impact on the quantum computing market. While hardware development faced delays due to global supply chain disruptions, the crisis accelerated demand for quantum solutions in drug discovery, molecular modeling, and logistics. Companies offered cloud-based quantum access for pandemic-related research, boosting awareness and adoption. This shift emphasized quantum computing's strategic value, prompting increased investments and positioning it as a resilient technology for future global challenges.

The trapped ions segment is expected to be the largest during the forecast period

The trapped ions segment is expected to account for the largest market share during the forecast period as their precise control enables scalable architectures and parallel processing, accelerating algorithm execution and reducing error rates. Innovations like the "enchilada trap" and microwave-driven gates enhance performance while lowering power dissipation. These advancements position trapped ions as a cornerstone for building fault-tolerant quantum systems, driving commercial viability and attracting investments across sectors like cryptography, simulation, and optimization.

The cryptography segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the cryptography segment is predicted to witness the highest growth rate, because quantum systems threaten classical encryption, industries are investing in post-quantum cryptography and Quantum Key Distribution (QKD) to safeguard data. This urgency accelerates innovation, funding, and collaboration across cybersecurity, finance, and defense sectors. The cryptography segment not only enhances quantum computing's relevance but also positions it as a critical enabler of next-generation security infrastructure, fostering long-term market expansion.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share due to strong government support, increasing research investments, and a growing tech-savvy population. Countries like China, Japan, and India are heavily investing in quantum technologies for applications in cybersecurity, healthcare, and finance. Collaborations between academic institutions and tech companies are fostering innovation, while the rising demand for high-performance computing solutions fuels market growth. This momentum is positioning Asia Pacific as a global hub for quantum computing development.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, owing to robust investments from tech giants, government initiatives, and a thriving startup ecosystem. The region’s advanced research infrastructure and collaboration between academia and industry are accelerating innovation. Applications across sectors like healthcare, finance, and cybersecurity are expanding, enabling faster data processing and enhanced problem-solving capabilities. This transformative technology is fostering competitive advantage and positioning North America as a leader in quantum innovation and commercialization.

Key players in the market

Some of the key players profiled in the Quantum Computing Market include IBM, Google (Alphabet Inc.), Microsoft, Intel Corporation, D-Wave Systems, Rigetti Computing, IonQ, Honeywell Quantum Solutions, Alibaba Group, Baidu Inc., Zapata Computing, Xanadu, QC Ware, PsiQuantum, Fujitsu, Toshiba, Quantinuum, Atos and Quantum Circuits Inc.

Key Developments:

In January 2025, Microsoft and OpenAI reaffirmed their strategic alliance—first forged in 2019—extending through 2030 and underpinned by mutual exclusivity and shared benefits. Microsoft retains exclusive access to OpenAI’s intellectual property for integration into its flagship tools like Copilot, while OpenAI’s API remains exclusively available via Azure and the Azure OpenAI Service.

In September 2024, Intel Corp. and Amazon Web Services (AWS) recently deepened their multi-year, multi-billion-dollar strategic collaboration. the collaboration brings together Intel's leading-edge chip fabrication strengths with AWS’s cloud infrastructure

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leadership, aiming to drive innovation across AI applications, reduce costs, and support critical U.S. semiconductor manufacturing initiatives—all reinforcing each company's ecosystem and strategic long-term growth.

Components Covered:

- Hardware
- Software
- Services

Deployment Modes Covered:

- On-Premises
- Cloud-Based

Technologies Covered:

- Superconducting Qubits
- Photonic Quantum Computing
- Trapped Ions
- Topological Qubits
- Quantum Annealing

Applications Covered:

- Simulation
- Quantum Chemistry

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- Optimization
- Cryptography
- Machine Learning
- Other Applications

End Users Covered:

- Healthcare & Pharmaceuticals
- Banking, Financial Services and Insurance (BFSI)
- Transportation & Logistics
- IT & Telecom
- Aerospace & Defense
- Chemicals
- Energy & Power
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe

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- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

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Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as

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per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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