Global Quantum Processing Units Market: Key Trends, Market Share, Growth Drivers, And Forecast For 2025-2034

The Business Research Company's Quantum Processing Units Global Market Report 2025 – Market Size, Trends, And Global Forecast 2025-2034

The Business Research Company

LONDON, GREATER LONDON, UNITED KINGDOM, June 11, 2025 /EINPresswire.com/ -- What Does The Data On The Quantum Processing Units Market Size Indicate?

Over the past years, the quantum processing units market size has experienced a rapid expansion, escalating from $0.42 billion in 2024 to $0.51 billion in 2025, achieving a compound annual growth rate CAGR of 19.5%. This growth in the historic period can be credited to a number of factors such as academic research funding, early government initiatives, foundational advances in quantum mechanics, the rise of quantum-safe cryptography concerns, and initial breakthroughs in superconducting qubit technology.

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What Growth Pace Can We Expect From The Quantum Processing Units Market In The Years Ahead?

Forecasting into the near future shows that the quantum processing units market won't be slowing down anytime soon. Estimated figures suggest an increase to $1.02 billion by the year 2029, maintaining a CAGR of 19.2%. Factors propelling growth during the forecast period include growing industrial applications, the expansion of cloud-based quantum access, considerable venture capitalist and corporate investments, implementation of national quantum strategies, and a surging demand for high-performance computing alternatives. Furthermore, key trends that are expected to shape the forecast period involve the integration of hybrid quantum-classical computing, the rise of error-correction hardware, the commercialization of quantum-as-a-service QaaS, the development of cross-platform quantum software, and the emergence of open-source quantum toolkits.

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What Stands As The Major Driving Force For The Quantum Processing Units Market?
The increasing demand for enhanced computational power is expected to fuel the growth of the quantum processing unit market in the future. The heightened need for computational prowess—essentially a computer or processor's capability to accurately perform calculations and complete tasks quickly—particularly lies in addressing more complex scientific research problems. This demand allows for an improved quantum processing unit that can handle faster operations and larger qubit arrays, enabling them to tackle more intricate problems and thus expanding their scalability and application capabilities. For instance, in April 2025, the European Commission EC plans to introduce a Cloud and AI Development Act aimed at tripling the European Union's data centre capacity by 2032. At the moment, thirteen AI factories are supporting Europe's supercomputing infrastructure, and an additional seven factories are projected to be established by the end of 2025.

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Who Are The Industry Leaders In The Quantum Processing Units Market?
Leading the pack in the quantum processing units market are a number of major organizations such as Google LLC, Microsoft Corporation, Alibaba Group, Intel Corporation, International Business Machines Corporation, Accenture plc, Honeywell Quantum Solutions, Toshiba Digital Solutions Corporation, NVIDIA Corporation, Quantum Circuits Inc. QCI, IonQ Inc., Atos Quantum, Xanadu Quantum Technologies, Amazon Web Services Inc., D-Wave Quantum Inc., Quantum Brilliance, QuantWare, QuEra Computing Inc., Rigetti Computing Inc., Fujitsu Limited, and Pasqal.

What Innovative Trends Are Currently Shaping The Quantum Processing Units Industry?
A number of major organizations focusing on developing novel products of the quantum processing units market, such as quantum computers, aim to provide solutions to problems that traditional systems have been inefficient in solving. Quantum computers operate on quantum bits qubits instead of the classical bit to process information. A notable exemplar would be International Business Machines Corporation IBM, a US-based technology organization, that rolled out the Osprey processor in November 2022. This unique processor, which uses 433 qubits, is designed with enhanced scalability and reduced error rates, thus enabling more complex quantum computations than its predecessors. Osprey also supports integration into IBM's modular quantum system two architecture, a promising indicator for future large-scale quantum computing systems.

How Is The Quantum Processing Units Market Segmented Geographically?

Exploratory insights into the quantum processing units market's segmentation include divisions by component, technology, deployment mode, application, and end-user. These are then broken down into subsegments, aiming to give a detailed coverage of the market:

1 By Component: Hardware, Software, Services
2 By Technology: Trapped Ions, Superconducting Processors, Photonic Processors, Other Technologies
3 By Deployment Mode: On-Premises, Cloud
4 By Application: Cryptography, Optimization, Machine Learning, Material Science, Other Applications
5 By End User: Banking, Financial Services, and Insurance BFSI, Healthcare, Government, IT and Telecommunications, Other End-Users

Subsegments include hardware components such as superconducting qubits, trapped ion systems, photonic processors, cryogenic control systems, microwave generators, dilution refrigerators, and quantum interconnects. Software elements include quantum programming languages, quantum compilers, simulation software, quantum algorithm libraries, software development kits SDKs, and middleware platforms. Lastly, services extend to quantum consulting services, training and education services, quantum-as-a-service QaaS, integration and deployment services, and maintenance and support services.

What Are The Regional Insights Into The Quantum Processing Units Market?
North America stands as the largest regional segment in the quantum processing units market as of 2024. However, the report provides insights into other regions as well, including Asia-Pacific, Western Europe, Eastern Europe, South America, Middle East, and Africa.

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