

Key Driver Transforming The Quantum Random Number Generator Market 2025: Rising Cybersecurity Threats Fuel Demand

The Business Research Company's Quantum Random Number Generator (QRNG) Global Market Report 2025 – Market Size, Trends, And Global Forecast 2025-2034

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/EINPresswire.com/ -- What Does The

Data On The [Quantum Random Number Generator Market Size](#) Indicate?

The quantum random number generator qrng market is projected to experience substantial growth, escalating from \$0.24 billion in 2024 to \$0.39 billion in 2025, representing a compound annual growth rate CAGR of 60.1%. This increase over the historical period can be attributed to a



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heightened demand for secure encryption within defense and financial services, rising concerns regarding data privacy, the developing trend of quantum computing startup investments, along with the pressing need for robust security solutions.

How Is The Quantum Random Number Generator Market Likely To Expand In The Near Future?

The QRNG market size is expected to experience exponential growth in the years to come, predicted to surge to \$2.55 billion by 2029, indicating a compound annual growth rate CAGR of 59.8%. This growth over the

forecast period can be associated with the escalating use of cloud-based services calling for robust random number generation, a rising need for true randomness in AI training and simulation applications, expanding digital transformation across sectors, and increasing regulatory pressure to adopt stronger cryptographic standards, along with an upsurge in cyber threats. Key trends forecasted in this period comprise advancements in photonic-based QRNG technology, integration of QRNGS into hardware security modules, collaboration between quantum startups and semiconductor companies, and the emergence of hybrid random number

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What Major Factors Are Projected To Drive The Growth Of The Quantum Random Number Generator Market?

The quantum random number generator QRNG market is expected to be propelled mainly by the rising frequency of cyberattacks. Cyberattacks refer to premeditated attempts by individuals or groups to infiltrate the information systems of individuals, organizations, or governments. The increasing dependence on digital systems has created more vulnerable targets for hackers to exploit. Quantum random number generators QRNGs help offer protection against cyberattacks by producing genuinely unpredictable encryption keys, making it considerably more difficult for hackers to break into secure systems. For instance, in 2023, a record 880,418 cybercrime allegations were reported by the American public to the Internet Crime Complaint Center IC3 resulting in estimated financial losses exceeding \$12.5 billion, indicating a rise of 22% in reported losses and an approximately 10% increase in complaints compared to 2022. These factors, therefore, drive the quantum random number generator QRNG market.

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Which Are The Key Industry Players In The Quantum Random Number Generator Market?

Notable companies operating in the quantum random number generator QRNG market include Thales Group, SK Telecom Co. Ltd., Palo Alto Networks Inc., Toshiba Digital Solutions Corporation, Quantinuum Ltd., ID Quantique SA, Terra Quantum AG, MicroCloud Hologram Inc, QuintessenceLabs Pty Ltd, Quside Technologies S.L., Qrypt Inc., QNu Labs Pvt Ltd, KETS Quantum Security Ltd, Quantropi Inc., Quantum Dice Ltd, Qutools GmbH, Crypta Labs Ltd, Quantum Computing Inc., Quantum eMotion Corp., and QuantumCTek Co.Ltd.

What Are The Emerging [Trends In The Quantum Random Number Generator Market?](#)

Major companies operating in the quantum random number generator QRNG market are focusing on the development of technological advancements, such as post-processed random number generators, in order to enhance quality of randomness, ensure cryptographic security, and improve compatibility with existing digital systems. For example, Quantum Dice Ltd., a UK-based quantum technology company, launched a next generation of its APEX quantum random number generator QRNG in October 2023, ensuring trusted cybersecurity through its patented DISC protocol, making it ideal for data centers and telecommunications hubs.

How Is The Quantum Random Number Generator Market Segmented?

The market is divided based on:

1 By Type: Peripheral Component Interconnect Express PCIe Type, Universal Serial Bus USB

Type

2 By Deployment: Cloud Based, On-Premises

3 By Application: Banking, Financial Services And Insurance, Telecommunications, Datacenters, Gaming And Lotteries, Research Institutions, Other Applications

Subsegments include:

1 By Peripheral Component Interconnect Express PCIe Type: Low Bandwidth Pcie QRNG, Industrial-Grade Pcie QRNG, High Bandwidth Pcie QRNG, Embedded Pcie QRNG For Data Centers

2 By Universal Serial Bus USB Type: Portable USB QRNG, Secure USB QRNG For Cryptographic Applications, High-Speed USB QRNG, Consumer-Grade USB QRNG.

What Are The Regional Insights Into The Quantum Random Number Generator Market?

North America was the largest regional market in 2024 for the quantum random number generator. Meanwhile, Asia-Pacific is expected to be the fastest-growing region in the forecast period. The market report covers regions including Asia-Pacific, Western Europe, Eastern Europe, North America, South America, Middle East, and Africa.

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