

Global Quantum Random Number Cryptographic Card Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Quantum Random Number Cryptographic Card market size is expected to reach \$ 236 million by 2032, rising at a market growth of 5.0% CAGR during the forecast period (2026-2032).

A Quantum Random Number Cryptographic Card is a hardware security module designed for servers, communication equipment, industrial control systems, and security gateways. It is usually deployed in the form of a PCIe card, embedded board, or security module to provide high-quality random number generation, key generation, data encryption and decryption, identity authentication, and secure storage. The product typically integrates a quantum random number generator, cryptographic algorithm chips, security control units, and interface modules to enhance the randomness, security, and attack resistance of conventional cryptographic systems. Compared with a complete quantum key distribution system, a Quantum Random Number Cryptographic Card is more focused on endpoint-side or device-side security enhancement and can be embedded into existing information security, cybersecurity, and data center infrastructure. Under a narrow market scope, Quantum Random Number Cryptographic Cards are typically priced at around USD 5,000?8,000 per card, with global annual sales of about 10,000?30,000 units.

The upstream supply chain of Quantum Random Number Cryptographic Cards mainly includes quantum random number chips or modules, security chips, FPGAs or dedicated cryptographic processors, optoelectronic components, memory, PCBs, interface connectors, power management components, firmware, and cryptographic algorithm software. Among these, the quantum entropy source, cryptographic algorithm implementation, and security certification capability are the key factors determining product performance and differentiation. Midstream companies are responsible for card

design, hardware integration, cryptographic algorithm adaptation, security firmware development, system testing, and industry certification, while also providing server adaptation, key management platform integration, and security system integration according to customer requirements. Downstream applications are concentrated in high-security scenarios such as government, finance, telecom, defense, data centers, energy and power, industrial internet, and cloud security, where customers focus more on security level, stability, compatibility, certification status, and integration with existing cryptographic infrastructure.

This report studies the global Quantum Random Number Cryptographic Card production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Quantum Random Number Cryptographic Card and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Quantum Random Number Cryptographic Card that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Quantum Random Number Cryptographic Card total production and demand, 2021-2032, (K Pcs)

Global Quantum Random Number Cryptographic Card total production value, 2021-2032, (USD Million)

Global Quantum Random Number Cryptographic Card production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Pcs), (based on production site)

Global Quantum Random Number Cryptographic Card consumption by region & country, CAGR, 2021-2032 & (K Pcs)

U.S. VS China: Quantum Random Number Cryptographic Card domestic production, consumption, key domestic manufacturers and share

Global Quantum Random Number Cryptographic Card production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Pcs)

Global Quantum Random Number Cryptographic Card production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Pcs)

Global Quantum Random Number Cryptographic Card production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Pcs)

This report profiles key players in the global Quantum Random Number Cryptographic

Card market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include ID Quantique, QuantumCTek, Toshiba Digital Solutions, NEC, Quside Technologies, QuintessenceLabs, Quantum Dice, KETS Quantum Security, QNu Labs, Qrypt, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Quantum Random Number Cryptographic Card market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (K Pcs) and average price (US\$/Pcs) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Quantum Random Number Cryptographic Card Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Quantum Random Number Cryptographic Card Market, Segmentation by Type:

Quantum Random Number Generator Card

Quantum Random Number Cryptographic Card

Quantum-Enhanced Cryptographic Card

Quantum-Resistant / Post-Quantum Cryptographic Card

Global Quantum Random Number Cryptographic Card Market, Segmentation by Hardware Configuration:

PCIe Quantum Random Number Cryptographic Card

Board-level QRNG Card

USB / External QRNG Module

Chip-level QRNG Module

Global Quantum Random Number Cryptographic Card Market, Segmentation by Random Number Generation Rate:

Low-speed QRNG Cryptographic Card

Medium-speed QRNG Cryptographic Card

High-speed QRNG Cryptographic Card

Ultra-high-speed QRNG Cryptographic Card

Global Quantum Random Number Cryptographic Card Market, Segmentation by Application:

Government, Defense and Critical Infrastructure

Banking, Payment and Data Security

Telecom Operators and Quantum-secure Communication Networks

Cloud, Data Center and Server Security

Industrial Internet, Energy, Power and IoT Terminals

Companies Profiled:

ID Quantique

QuantumCTek

Toshiba Digital Solutions

NEC

Quside Technologies

QuintessenceLabs

Quantum Dice

KETS Quantum Security

QNu Labs

Qrypt

Quantum Computing Inc.

Suzhou China-Core Technology

Hefei GZ iChip Technology

Shenzhen KD Quantum Information Technology

QuDoor Quantum Technologies

TuringQ

Shanghai XT Quantum Technology

Key Questions Answered:

1. How big is the global Quantum Random Number Cryptographic Card market?
2. What is the demand of the global Quantum Random Number Cryptographic Card market?
3. What is the year over year growth of the global Quantum Random Number Cryptographic Card market?
4. What is the production and production value of the global Quantum Random Number Cryptographic Card market?
5. Who are the key producers in the global Quantum Random Number Cryptographic Card market?
6. What are the growth factors driving the market demand?

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