

Global Quantum Random Number Cryptographic Card Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

<https://marketpublishers.com/r/G25E3BC861A9EN.html>

Date: July 2026

Pages: 140

Price: US\$ 3,480.00 (Single User License)

ID: G25E3BC861A9EN

Abstracts

According to our (Global Info Research) latest study, the global Quantum Random Number Cryptographic Card market size was valued at US\$ 167 million in 2025 and is forecast to a readjusted size of US\$ 236 million by 2032 with a CAGR of 5.0% during review period.

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 is a detailed and comprehensive analysis for global Quantum Random Number Cryptographic Card market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Quantum Random Number Cryptographic Card market size and forecasts, in consumption value (\$ Million), sales quantity (K Pcs), and average selling prices (US\$/Pcs), 2021-2032

Global Quantum Random Number Cryptographic Card market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (K Pcs), and average selling prices (US\$/Pcs), 2021-2032

Global Quantum Random Number Cryptographic Card market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (K Pcs), and average selling prices (US\$/Pcs), 2021-2032

Global Quantum Random Number Cryptographic Card market shares of main players, shipments in revenue (\$ Million), sales quantity (K Pcs), and ASP (US\$/Pcs), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Quantum Random Number Cryptographic Card

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Quantum Random Number Cryptographic Card market based on the following parameters - company overview, sales quantity, revenue, 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.

Market Segmentation

Quantum Random Number Cryptographic Card market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Quantum Random Number Generator Card

Quantum Random Number Cryptographic Card

Quantum-Enhanced Cryptographic Card

Quantum-Resistant / Post-Quantum Cryptographic Card

Market segment by Hardware Configuration

PCIe Quantum Random Number Cryptographic Card

Board-level QRNG Card

USB / External QRNG Module

Chip-level QRNG Module

Market segment 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

Market segment 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

Major players covered

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

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Quantum Random Number Cryptographic Card product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Quantum Random Number Cryptographic Card, with price, sales quantity, revenue, and global market share of Quantum Random Number Cryptographic Card from 2021 to 2026.

Chapter 3, the Quantum Random Number Cryptographic Card competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Quantum Random Number Cryptographic Card breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Quantum Random Number Cryptographic Card market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Quantum Random Number Cryptographic Card.

Chapter 14 and 15, to describe Quantum Random Number Cryptographic Card sales channel, distributors, customers, research findings and conclusion.

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