

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

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Abstracts

The global Quantum Random Number Generator 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 Generator 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 Generator 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 Generator 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 Generator 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 Generator Card production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Quantum Random Number Generator 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 Generator Card that contribute to its increasing demand across many markets.

Highlights and key features of the study

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

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

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

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

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

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

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

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

This report profiles key players in the global Quantum Random Number Generator 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 Generator 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 Generator Card Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

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

Contents

1 SUPPLY SUMMARY

- 1.1 Quantum Random Number Generator Card Introduction
- 1.2 World Quantum Random Number Generator Card Supply & Forecast
 - 1.2.1 World Quantum Random Number Generator Card Production Value (2021 & 2025 & 2032)
 - 1.2.2 World Quantum Random Number Generator Card Production (2021-2032)
 - 1.2.3 World Quantum Random Number Generator Card Pricing Trends (2021-2032)
- 1.3 World Quantum Random Number Generator Card Production by Region (Based on Production Site)
 - 1.3.1 World Quantum Random Number Generator Card Production Value by Region (2021-2032)
 - 1.3.2 World Quantum Random Number Generator Card Production by Region (2021-2032)
 - 1.3.3 World Quantum Random Number Generator Card Average Price by Region (2021-2032)
 - 1.3.4 North America Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.5 Europe Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.6 China Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.7 Japan Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.8 South Korea Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.9 Southeast Asia Quantum Random Number Generator Card Production (2021-2032)
 - 1.3.10 China Taiwan Quantum Random Number Generator Card Production (2021-2032)
- 1.4 Market Drivers, Restraints and Trends
 - 1.4.1 Quantum Random Number Generator Card Market Drivers
 - 1.4.2 Factors Affecting Demand
 - 1.4.3 Quantum Random Number Generator Card Major Market Trends

2 DEMAND SUMMARY

- 2.1 World Quantum Random Number Generator Card Demand (2021-2032)
- 2.2 World Quantum Random Number Generator Card Consumption by Region
 - 2.2.1 World Quantum Random Number Generator Card Consumption by Region (2021-2026)

2.2.2 World Quantum Random Number Generator Card Consumption Forecast by Region (2027-2032)

2.3 United States Quantum Random Number Generator Card Consumption (2021-2032)

2.4 China Quantum Random Number Generator Card Consumption (2021-2032)

2.5 Europe Quantum Random Number Generator Card Consumption (2021-2032)

2.6 Japan Quantum Random Number Generator Card Consumption (2021-2032)

2.7 South Korea Quantum Random Number Generator Card Consumption (2021-2032)

2.8 ASEAN Quantum Random Number Generator Card Consumption (2021-2032)

2.9 India Quantum Random Number Generator Card Consumption (2021-2032)

3 WORLD MANUFACTURERS COMPETITIVE ANALYSIS

3.1 World Quantum Random Number Generator Card Production Value by Manufacturer (2021-2026)

3.2 World Quantum Random Number Generator Card Production by Manufacturer (2021-2026)

3.3 World Quantum Random Number Generator Card Average Price by Manufacturer (2021-2026)

3.4 Quantum Random Number Generator Card Company Evaluation Quadrant

3.5 Industry Rank and Concentration Rate (CR)

3.5.1 Global Quantum Random Number Generator Card Industry Rank of Major Manufacturers

3.5.2 Global Concentration Ratios (CR4) for Quantum Random Number Generator Card in 2025

3.5.3 Global Concentration Ratios (CR8) for Quantum Random Number Generator Card in 2025

3.6 Quantum Random Number Generator Card Market: Overall Company Footprint Analysis

3.6.1 Quantum Random Number Generator Card Market: Region Footprint

3.6.2 Quantum Random Number Generator Card Market: Company Product Type Footprint

3.6.3 Quantum Random Number Generator Card Market: Company Product Application Footprint

3.7 Competitive Environment

3.7.1 Historical Structure of the Industry

3.7.2 Barriers of Market Entry

3.7.3 Factors of Competition

3.8 New Entrant and Capacity Expansion Plans

3.9 Mergers, Acquisition, Agreements, and Collaborations

4 UNITED STATES VS CHINA VS REST OF THE WORLD

4.1 United States VS China: Quantum Random Number Generator Card Production Value Comparison

4.1.1 United States VS China: Quantum Random Number Generator Card Production Value Comparison (2021 & 2025 & 2032)

4.1.2 United States VS China: Quantum Random Number Generator Card Production Value Market Share Comparison (2021 & 2025 & 2032)

4.2 United States VS China: Quantum Random Number Generator Card Production Comparison

4.2.1 United States VS China: Quantum Random Number Generator Card Production Comparison (2021 & 2025 & 2032)

4.2.2 United States VS China: Quantum Random Number Generator Card Production Market Share Comparison (2021 & 2025 & 2032)

4.3 United States VS China: Quantum Random Number Generator Card Consumption Comparison

4.3.1 United States VS China: Quantum Random Number Generator Card Consumption Comparison (2021 & 2025 & 2032)

4.3.2 United States VS China: Quantum Random Number Generator Card Consumption Market Share Comparison (2021 & 2025 & 2032)

4.4 United States Based Quantum Random Number Generator Card Manufacturers and Market Share, 2021-2026

4.4.1 United States Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (States, Country)

4.4.2 United States Based Manufacturers Quantum Random Number Generator Card Production Value (2021-2026)

4.4.3 United States Based Manufacturers Quantum Random Number Generator Card Production (2021-2026)

4.5 China Based Quantum Random Number Generator Card Manufacturers and Market Share

4.5.1 China Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (Province, Country)

4.5.2 China Based Manufacturers Quantum Random Number Generator Card Production Value (2021-2026)

4.5.3 China Based Manufacturers Quantum Random Number Generator Card Production (2021-2026)

4.6 Rest of World Based Quantum Random Number Generator Card Manufacturers and

Market Share, 2021-2026

4.6.1 Rest of World Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (State, Country)

4.6.2 Rest of World Based Manufacturers Quantum Random Number Generator Card Production Value (2021-2026)

4.6.3 Rest of World Based Manufacturers Quantum Random Number Generator Card Production (2021-2026)

5 MARKET ANALYSIS BY TYPE

5.1 World Quantum Random Number Generator Card Market Size Overview by Type: 2021 VS 2025 VS 2032

5.2 Segment Introduction by Type

5.2.1 Quantum Random Number Generator Card

5.2.2 Quantum Random Number Cryptographic Card

5.2.3 Quantum-Enhanced Cryptographic Card

5.2.4 Quantum-Resistant / Post-Quantum Cryptographic Card

5.3 Market Segment by Type

5.3.1 World Quantum Random Number Generator Card Production by Type (2021-2032)

5.3.2 World Quantum Random Number Generator Card Production Value by Type (2021-2032)

5.3.3 World Quantum Random Number Generator Card Average Price by Type (2021-2032)

6 MARKET ANALYSIS BY HARDWARE CONFIGURATION

6.1 World Quantum Random Number Generator Card Market Size Overview by Hardware Configuration: 2021 VS 2025 VS 2032

6.2 Segment Introduction by Hardware Configuration

6.2.1 PCIe Quantum Random Number Cryptographic Card

6.2.2 Board-level QRNG Card

6.2.3 USB / External QRNG Module

6.2.4 Chip-level QRNG Module

6.3 Market Segment by Hardware Configuration

6.3.1 World Quantum Random Number Generator Card Production by Hardware Configuration (2021-2032)

6.3.2 World Quantum Random Number Generator Card Production Value by Hardware Configuration (2021-2032)

6.3.3 World Quantum Random Number Generator Card Average Price by Hardware Configuration (2021-2032)

7 MARKET ANALYSIS BY RANDOM NUMBER GENERATION RATE

7.1 World Quantum Random Number Generator Card Market Size Overview by Random Number Generation Rate: 2021 VS 2025 VS 2032

7.2 Segment Introduction by Random Number Generation Rate

7.2.1 Low-speed QRNG Cryptographic Card

7.2.2 Medium-speed QRNG Cryptographic Card

7.2.3 High-speed QRNG Cryptographic Card

7.2.4 Ultra-high-speed QRNG Cryptographic Card

7.3 Market Segment by Random Number Generation Rate

7.3.1 World Quantum Random Number Generator Card Production by Random Number Generation Rate (2021-2032)

7.3.2 World Quantum Random Number Generator Card Production Value by Random Number Generation Rate (2021-2032)

7.3.3 World Quantum Random Number Generator Card Average Price by Random Number Generation Rate (2021-2032)

8 MARKET ANALYSIS BY APPLICATION

8.1 World Quantum Random Number Generator Card Market Size Overview by Application: 2021 VS 2025 VS 2032

8.2 Segment Introduction by Application

8.2.1 Government, Defense and Critical Infrastructure

8.2.2 Banking, Payment and Data Security

8.2.3 Telecom Operators and Quantum-secure Communication Networks

8.2.4 Cloud, Data Center and Server Security

8.2.5 Industrial Internet, Energy, Power and IoT Terminals

8.3 Market Segment by Application

8.3.1 World Quantum Random Number Generator Card Production by Application (2021-2032)

8.3.2 World Quantum Random Number Generator Card Production Value by Application (2021-2032)

8.3.3 World Quantum Random Number Generator Card Average Price by Application (2021-2032)

9 COMPANY PROFILES

9.1 ID Quantique

9.1.1 ID Quantique Details

9.1.2 ID Quantique Major Business

9.1.3 ID Quantique Quantum Random Number Generator Card Product and Services

9.1.4 ID Quantique Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.1.5 ID Quantique Recent Developments/Updates

9.1.6 ID Quantique Competitive Strengths & Weaknesses

9.2 QuantumCTek

9.2.1 QuantumCTek Details

9.2.2 QuantumCTek Major Business

9.2.3 QuantumCTek Quantum Random Number Generator Card Product and Services

9.2.4 QuantumCTek Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.2.5 QuantumCTek Recent Developments/Updates

9.2.6 QuantumCTek Competitive Strengths & Weaknesses

9.3 Toshiba Digital Solutions

9.3.1 Toshiba Digital Solutions Details

9.3.2 Toshiba Digital Solutions Major Business

9.3.3 Toshiba Digital Solutions Quantum Random Number Generator Card Product and Services

9.3.4 Toshiba Digital Solutions Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.3.5 Toshiba Digital Solutions Recent Developments/Updates

9.3.6 Toshiba Digital Solutions Competitive Strengths & Weaknesses

9.4 NEC

9.4.1 NEC Details

9.4.2 NEC Major Business

9.4.3 NEC Quantum Random Number Generator Card Product and Services

9.4.4 NEC Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.4.5 NEC Recent Developments/Updates

9.4.6 NEC Competitive Strengths & Weaknesses

9.5 Quside Technologies

9.5.1 Quside Technologies Details

9.5.2 Quside Technologies Major Business

9.5.3 Quside Technologies Quantum Random Number Generator Card Product and Services

- 9.5.4 Quside Technologies Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
- 9.5.5 Quside Technologies Recent Developments/Updates
- 9.5.6 Quside Technologies Competitive Strengths & Weaknesses
- 9.6 QuintessenceLabs
 - 9.6.1 QuintessenceLabs Details
 - 9.6.2 QuintessenceLabs Major Business
 - 9.6.3 QuintessenceLabs Quantum Random Number Generator Card Product and Services
 - 9.6.4 QuintessenceLabs Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
 - 9.6.5 QuintessenceLabs Recent Developments/Updates
 - 9.6.6 QuintessenceLabs Competitive Strengths & Weaknesses
- 9.7 Quantum Dice
 - 9.7.1 Quantum Dice Details
 - 9.7.2 Quantum Dice Major Business
 - 9.7.3 Quantum Dice Quantum Random Number Generator Card Product and Services
 - 9.7.4 Quantum Dice Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
 - 9.7.5 Quantum Dice Recent Developments/Updates
 - 9.7.6 Quantum Dice Competitive Strengths & Weaknesses
- 9.8 KETS Quantum Security
 - 9.8.1 KETS Quantum Security Details
 - 9.8.2 KETS Quantum Security Major Business
 - 9.8.3 KETS Quantum Security Quantum Random Number Generator Card Product and Services
 - 9.8.4 KETS Quantum Security Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
 - 9.8.5 KETS Quantum Security Recent Developments/Updates
 - 9.8.6 KETS Quantum Security Competitive Strengths & Weaknesses
- 9.9 QNu Labs
 - 9.9.1 QNu Labs Details
 - 9.9.2 QNu Labs Major Business
 - 9.9.3 QNu Labs Quantum Random Number Generator Card Product and Services
 - 9.9.4 QNu Labs Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
 - 9.9.5 QNu Labs Recent Developments/Updates
 - 9.9.6 QNu Labs Competitive Strengths & Weaknesses
- 9.10 Qrypt

- 9.10.1 Qrypt Details
- 9.10.2 Qrypt Major Business
- 9.10.3 Qrypt Quantum Random Number Generator Card Product and Services
- 9.10.4 Qrypt Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
- 9.10.5 Qrypt Recent Developments/Updates
- 9.10.6 Qrypt Competitive Strengths & Weaknesses
- 9.11 Quantum Computing Inc.
- 9.11.1 Quantum Computing Inc. Details
- 9.11.2 Quantum Computing Inc. Major Business
- 9.11.3 Quantum Computing Inc. Quantum Random Number Generator Card Product and Services
- 9.11.4 Quantum Computing Inc. Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
- 9.11.5 Quantum Computing Inc. Recent Developments/Updates
- 9.11.6 Quantum Computing Inc. Competitive Strengths & Weaknesses
- 9.12 Suzhou China-Core Technology
- 9.12.1 Suzhou China-Core Technology Details
- 9.12.2 Suzhou China-Core Technology Major Business
- 9.12.3 Suzhou China-Core Technology Quantum Random Number Generator Card Product and Services
- 9.12.4 Suzhou China-Core Technology Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
- 9.12.5 Suzhou China-Core Technology Recent Developments/Updates
- 9.12.6 Suzhou China-Core Technology Competitive Strengths & Weaknesses
- 9.13 Hefei GZ iChip Technology
- 9.13.1 Hefei GZ iChip Technology Details
- 9.13.2 Hefei GZ iChip Technology Major Business
- 9.13.3 Hefei GZ iChip Technology Quantum Random Number Generator Card Product and Services
- 9.13.4 Hefei GZ iChip Technology Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)
- 9.13.5 Hefei GZ iChip Technology Recent Developments/Updates
- 9.13.6 Hefei GZ iChip Technology Competitive Strengths & Weaknesses
- 9.14 Shenzhen KD Quantum Information Technology
- 9.14.1 Shenzhen KD Quantum Information Technology Details
- 9.14.2 Shenzhen KD Quantum Information Technology Major Business
- 9.14.3 Shenzhen KD Quantum Information Technology Quantum Random Number Generator Card Product and Services

9.14.4 Shenzhen KD Quantum Information Technology Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.14.5 Shenzhen KD Quantum Information Technology Recent Developments/Updates

9.14.6 Shenzhen KD Quantum Information Technology Competitive Strengths & Weaknesses

9.15 QuDoor Quantum Technologies

9.15.1 QuDoor Quantum Technologies Details

9.15.2 QuDoor Quantum Technologies Major Business

9.15.3 QuDoor Quantum Technologies Quantum Random Number Generator Card Product and Services

9.15.4 QuDoor Quantum Technologies Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.15.5 QuDoor Quantum Technologies Recent Developments/Updates

9.15.6 QuDoor Quantum Technologies Competitive Strengths & Weaknesses

9.16 TuringQ

9.16.1 TuringQ Details

9.16.2 TuringQ Major Business

9.16.3 TuringQ Quantum Random Number Generator Card Product and Services

9.16.4 TuringQ Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.16.5 TuringQ Recent Developments/Updates

9.16.6 TuringQ Competitive Strengths & Weaknesses

9.17 Shanghai XT Quantum Technology

9.17.1 Shanghai XT Quantum Technology Details

9.17.2 Shanghai XT Quantum Technology Major Business

9.17.3 Shanghai XT Quantum Technology Quantum Random Number Generator Card Product and Services

9.17.4 Shanghai XT Quantum Technology Quantum Random Number Generator Card Production, Price, Value, Gross Margin and Market Share (2021-2026)

9.17.5 Shanghai XT Quantum Technology Recent Developments/Updates

9.17.6 Shanghai XT Quantum Technology Competitive Strengths & Weaknesses

10 INDUSTRY CHAIN ANALYSIS

10.1 Quantum Random Number Generator Card Industry Chain

10.2 Quantum Random Number Generator Card Upstream Analysis

10.2.1 Quantum Random Number Generator Card Core Raw Materials

10.2.2 Main Manufacturers of Quantum Random Number Generator Card Core Raw Materials

10.3 Midstream Analysis

10.4 Downstream Analysis

10.5 Quantum Random Number Generator Card Production Mode

10.6 Quantum Random Number Generator Card Procurement Model

10.7 Quantum Random Number Generator Card Industry Sales Model and Sales Channels

10.7.1 Quantum Random Number Generator Card Sales Model

10.7.2 Quantum Random Number Generator Card Typical Distributors

11 RESEARCH FINDINGS AND CONCLUSION

12 APPENDIX

12.1 Methodology

12.2 Research Process and Data Source

12.3 Disclaimer

List Of Tables

LIST OF TABLES

Table 1. World Quantum Random Number Generator Card Production Value by Region (2021, 2025 and 2032) & (USD Million)

Table 2. World Quantum Random Number Generator Card Production Value by Region (2021-2026) & (USD Million)

Table 3. World Quantum Random Number Generator Card Production Value by Region (2027-2032) & (USD Million)

Table 4. World Quantum Random Number Generator Card Production Value Market Share by Region (2021-2026)

Table 5. World Quantum Random Number Generator Card Production Value Market Share by Region (2027-2032)

Table 6. World Quantum Random Number Generator Card Production by Region (2021-2026) & (K Pcs)

Table 7. World Quantum Random Number Generator Card Production by Region (2027-2032) & (K Pcs)

Table 8. World Quantum Random Number Generator Card Production Market Share by Region (2021-2026)

Table 9. World Quantum Random Number Generator Card Production Market Share by Region (2027-2032)

Table 10. World Quantum Random Number Generator Card Average Price by Region (2021-2026) & (US\$/Pcs)

Table 11. World Quantum Random Number Generator Card Average Price by Region (2027-2032) & (US\$/Pcs)

Table 12. Quantum Random Number Generator Card Major Market Trends

Table 13. World Quantum Random Number Generator Card Consumption Growth Rate Forecast by Region (2021 & 2025 & 2032) & (K Pcs)

Table 14. World Quantum Random Number Generator Card Consumption by Region (2021-2026) & (K Pcs)

Table 15. World Quantum Random Number Generator Card Consumption Forecast by Region (2027-2032) & (K Pcs)

Table 16. World Quantum Random Number Generator Card Production Value by Manufacturer (2021-2026) & (USD Million)

Table 17. Production Value Market Share of Key Quantum Random Number Generator Card Producers in 2025

Table 18. World Quantum Random Number Generator Card Production by Manufacturer (2021-2026) & (K Pcs)

Table 19. Production Market Share of Key Quantum Random Number Generator Card Producers in 2025

Table 20. World Quantum Random Number Generator Card Average Price by Manufacturer (2021-2026) & (US\$/Pcs)

Table 21. Global Quantum Random Number Generator Card Company Evaluation Quadrant

Table 22. World Quantum Random Number Generator Card Industry Rank of Major Manufacturers, Based on Production Value in 2025

Table 23. Head Office and Quantum Random Number Generator Card Production Site of Key Manufacturer

Table 24. Quantum Random Number Generator Card Market: Company Product Type Footprint

Table 25. Quantum Random Number Generator Card Market: Company Product Application Footprint

Table 26. Quantum Random Number Generator Card Competitive Factors

Table 27. Quantum Random Number Generator Card New Entrant and Capacity Expansion Plans

Table 28. Quantum Random Number Generator Card Mergers & Acquisitions Activity

Table 29. United States VS China Quantum Random Number Generator Card Production Value Comparison, (2021 & 2025 & 2032) & (USD Million)

Table 30. United States VS China Quantum Random Number Generator Card Production Comparison, (2021 & 2025 & 2032) & (K Pcs)

Table 31. United States VS China Quantum Random Number Generator Card Consumption Comparison, (2021 & 2025 & 2032) & (K Pcs)

Table 32. United States Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (States, Country)

Table 33. United States Based Manufacturers Quantum Random Number Generator Card Production Value, (2021-2026) & (USD Million)

Table 34. United States Based Manufacturers Quantum Random Number Generator Card Production Value Market Share (2021-2026)

Table 35. United States Based Manufacturers Quantum Random Number Generator Card Production (2021-2026) & (K Pcs)

Table 36. United States Based Manufacturers Quantum Random Number Generator Card Production Market Share (2021-2026)

Table 37. China Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (Province, Country)

Table 38. China Based Manufacturers Quantum Random Number Generator Card Production Value, (2021-2026) & (USD Million)

Table 39. China Based Manufacturers Quantum Random Number Generator Card

Production Value Market Share (2021-2026)

Table 40. China Based Manufacturers Quantum Random Number Generator Card Production, (2021-2026) & (K Pcs)

Table 41. China Based Manufacturers Quantum Random Number Generator Card Production Market Share (2021-2026)

Table 42. Rest of World Based Quantum Random Number Generator Card Manufacturers, Headquarters and Production Site (State, Country)

Table 43. Rest of World Based Manufacturers Quantum Random Number Generator Card Production Value, (2021-2026) & (USD Million)

Table 44. Rest of World Based Manufacturers Quantum Random Number Generator Card Production Value Market Share (2021-2026)

Table 45. Rest of World Based Manufacturers Quantum Random Number Generator Card Production, (2021-2026) & (K Pcs)

Table 46. Rest of World Based Manufacturers Quantum Random Number Generator Card Production Market Share (2021-2026)

Table 47. World Quantum Random Number Generator Card Production Value by Type, (USD Million), 2021 & 2025 & 2032

Table 48. World Quantum Random Number Generator Card Production by Type (2021-2026) & (K Pcs)

Table 49. World Quantum Random Number Generator Card Production by Type (2027-2032) & (K Pcs)

Table 50. World Quantum Random Number Generator Card Production Value by Type (2021-2026) & (USD Million)

Table 51. World Quantum Random Number Generator Card Production Value by Type (2027-2032) & (USD Million)

Table 52. World Quantum Random Number Generator Card Average Price by Type (2021-2026) & (US\$/Pcs)

Table 53. World Quantum Random Number Generator Card Average Price by Type (2027-2032) & (US\$/Pcs)

Table 54. World Quantum Random Number Generator Card Production Value by Hardware Configuration, (USD Million), 2021 & 2025 & 2032

Table 55. World Quantum Random Number Generator Card Production by Hardware Configuration (2021-2026) & (K Pcs)

Table 56. World Quantum Random Number Generator Card Production by Hardware Configuration (2027-2032) & (K Pcs)

Table 57. World Quantum Random Number Generator Card Production Value by Hardware Configuration (2021-2026) & (USD Million)

Table 58. World Quantum Random Number Generator Card Production Value by Hardware Configuration (2027-2032) & (USD Million)

Table 59. World Quantum Random Number Generator Card Average Price by Hardware Configuration (2021-2026) & (US\$/Pcs)

Table 60. World Quantum Random Number Generator Card Average Price by Hardware Configuration (2027-2032) & (US\$/Pcs)

Table 61. World Quantum Random Number Generator Card Production Value by Random Number Generation Rate, (USD Million), 2021 & 2025 & 2032

Table 62. World Quantum Random Number Generator Card Production by Random Number Generation Rate (2021-2026) & (K Pcs)

Table 63. World Quantum Random Number Generator Card Production by Random Number Generation Rate (2027-2032) & (K Pcs)

Table 64. World Quantum Random Number Generator Card Production Value by Random Number Generation Rate (2021-2026) & (USD Million)

Table 65. World Quantum Random Number Generator Card Production Value by Random Number Generation Rate (2027-2032) & (USD Million)

Table 66. World Quantum Random Number Generator Card Average Price by Random Number Generation Rate (2021-2026) & (US\$/Pcs)

Table 67. World Quantum Random Number Generator Card Average Price by Random Number Generation Rate (2027-2032) & (US\$/Pcs)

Table 68. World Quantum Random Number Generator Card Production Value by Application, (USD Million), 2021 & 2025 & 2032

Table 69. World Quantum Random Number Generator Card Production by Application (2021-2026) & (K Pcs)

Table 70. World Quantum Random Number Generator Card Production by Application (2027-2032) & (K Pcs)

Table 71. World Quantum Random Number Generator Card Production Value by Application (2021-2026) & (USD Million)

Table 72. World Quantum Random Number Generator Card Production Value by Application (2027-2032) & (USD Million)

Table 73. World Quantum Random Number Generator Card Average Price by Application (2021-2026) & (US\$/Pcs)

Table 74. World Quantum Random Number Generator Card Average Price by Application (2027-2032) & (US\$/Pcs)

Table 75. ID Quantique Basic Information, Manufacturing Base and Competitors

Table 76. ID Quantique Major Business

Table 77. ID Quantique Quantum Random Number Generator Card Product and Services

Table 78. ID Quantique Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 79. ID Quantique Recent Developments/Updates
Table 80. ID Quantique Competitive Strengths & Weaknesses
Table 81. QuantumCTek Basic Information, Manufacturing Base and Competitors
Table 82. QuantumCTek Major Business
Table 83. QuantumCTek Quantum Random Number Generator Card Product and Services
Table 84. QuantumCTek Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)
Table 85. QuantumCTek Recent Developments/Updates
Table 86. QuantumCTek Competitive Strengths & Weaknesses
Table 87. Toshiba Digital Solutions Basic Information, Manufacturing Base and Competitors
Table 88. Toshiba Digital Solutions Major Business
Table 89. Toshiba Digital Solutions Quantum Random Number Generator Card Product and Services
Table 90. Toshiba Digital Solutions Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)
Table 91. Toshiba Digital Solutions Recent Developments/Updates
Table 92. Toshiba Digital Solutions Competitive Strengths & Weaknesses
Table 93. NEC Basic Information, Manufacturing Base and Competitors
Table 94. NEC Major Business
Table 95. NEC Quantum Random Number Generator Card Product and Services
Table 96. NEC Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)
Table 97. NEC Recent Developments/Updates
Table 98. NEC Competitive Strengths & Weaknesses
Table 99. Quside Technologies Basic Information, Manufacturing Base and Competitors
Table 100. Quside Technologies Major Business
Table 101. Quside Technologies Quantum Random Number Generator Card Product and Services
Table 102. Quside Technologies Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)
Table 103. Quside Technologies Recent Developments/Updates
Table 104. Quside Technologies Competitive Strengths & Weaknesses
Table 105. QuintessenceLabs Basic Information, Manufacturing Base and Competitors

Table 106. QuintessenceLabs Major Business

Table 107. QuintessenceLabs Quantum Random Number Generator Card Product and Services

Table 108. QuintessenceLabs Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 109. QuintessenceLabs Recent Developments/Updates

Table 110. QuintessenceLabs Competitive Strengths & Weaknesses

Table 111. Quantum Dice Basic Information, Manufacturing Base and Competitors

Table 112. Quantum Dice Major Business

Table 113. Quantum Dice Quantum Random Number Generator Card Product and Services

Table 114. Quantum Dice Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 115. Quantum Dice Recent Developments/Updates

Table 116. Quantum Dice Competitive Strengths & Weaknesses

Table 117. KETS Quantum Security Basic Information, Manufacturing Base and Competitors

Table 118. KETS Quantum Security Major Business

Table 119. KETS Quantum Security Quantum Random Number Generator Card Product and Services

Table 120. KETS Quantum Security Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 121. KETS Quantum Security Recent Developments/Updates

Table 122. KETS Quantum Security Competitive Strengths & Weaknesses

Table 123. QNu Labs Basic Information, Manufacturing Base and Competitors

Table 124. QNu Labs Major Business

Table 125. QNu Labs Quantum Random Number Generator Card Product and Services

Table 126. QNu Labs Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 127. QNu Labs Recent Developments/Updates

Table 128. QNu Labs Competitive Strengths & Weaknesses

Table 129. Qrypt Basic Information, Manufacturing Base and Competitors

Table 130. Qrypt Major Business

Table 131. Qrypt Quantum Random Number Generator Card Product and Services

Table 132. Qrypt Quantum Random Number Generator Card Production (K Pcs), Price

(US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 133. Qrypt Recent Developments/Updates

Table 134. Qrypt Competitive Strengths & Weaknesses

Table 135. Quantum Computing Inc. Basic Information, Manufacturing Base and Competitors

Table 136. Quantum Computing Inc. Major Business

Table 137. Quantum Computing Inc. Quantum Random Number Generator Card Product and Services

Table 138. Quantum Computing Inc. Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 139. Quantum Computing Inc. Recent Developments/Updates

Table 140. Quantum Computing Inc. Competitive Strengths & Weaknesses

Table 141. Suzhou China-Core Technology Basic Information, Manufacturing Base and Competitors

Table 142. Suzhou China-Core Technology Major Business

Table 143. Suzhou China-Core Technology Quantum Random Number Generator Card Product and Services

Table 144. Suzhou China-Core Technology Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 145. Suzhou China-Core Technology Recent Developments/Updates

Table 146. Suzhou China-Core Technology Competitive Strengths & Weaknesses

Table 147. Hefei GZ iChip Technology Basic Information, Manufacturing Base and Competitors

Table 148. Hefei GZ iChip Technology Major Business

Table 149. Hefei GZ iChip Technology Quantum Random Number Generator Card Product and Services

Table 150. Hefei GZ iChip Technology Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 151. Hefei GZ iChip Technology Recent Developments/Updates

Table 152. Hefei GZ iChip Technology Competitive Strengths & Weaknesses

Table 153. Shenzhen KD Quantum Information Technology Basic Information, Manufacturing Base and Competitors

Table 154. Shenzhen KD Quantum Information Technology Major Business

Table 155. Shenzhen KD Quantum Information Technology Quantum Random Number Generator Card Product and Services

Table 156. Shenzhen KD Quantum Information Technology Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 157. Shenzhen KD Quantum Information Technology Recent Developments/Updates

Table 158. Shenzhen KD Quantum Information Technology Competitive Strengths & Weaknesses

Table 159. QuDoor Quantum Technologies Basic Information, Manufacturing Base and Competitors

Table 160. QuDoor Quantum Technologies Major Business

Table 161. QuDoor Quantum Technologies Quantum Random Number Generator Card Product and Services

Table 162. QuDoor Quantum Technologies Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 163. QuDoor Quantum Technologies Recent Developments/Updates

Table 164. QuDoor Quantum Technologies Competitive Strengths & Weaknesses

Table 165. TuringQ Basic Information, Manufacturing Base and Competitors

Table 166. TuringQ Major Business

Table 167. TuringQ Quantum Random Number Generator Card Product and Services

Table 168. TuringQ Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 169. TuringQ Recent Developments/Updates

Table 170. TuringQ Competitive Strengths & Weaknesses

Table 171. Shanghai XT Quantum Technology Basic Information, Manufacturing Base and Competitors

Table 172. Shanghai XT Quantum Technology Major Business

Table 173. Shanghai XT Quantum Technology Quantum Random Number Generator Card Product and Services

Table 174. Shanghai XT Quantum Technology Quantum Random Number Generator Card Production (K Pcs), Price (US\$/Pcs), Production Value (USD Million), Gross Margin and Market Share (2021-2026)

Table 175. Shanghai XT Quantum Technology Recent Developments/Updates

Table 176. Shanghai XT Quantum Technology Competitive Strengths & Weaknesses

Table 177. Global Key Players of Quantum Random Number Generator Card Upstream (Raw Materials)

Table 178. Global Quantum Random Number Generator Card Typical Customers

Table 179. Quantum Random Number Generator Card Typical Distributors

List Of Figures

LIST OF FIGURES

Figure 1. Quantum Random Number Generator Card Picture

Figure 2. World Quantum Random Number Generator Card Production Value: 2021 & 2025 & 2032, (USD Million)

Figure 3. World Quantum Random Number Generator Card Production Value and Forecast (2021-2032) & (USD Million)

Figure 4. World Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 5. World Quantum Random Number Generator Card Average Price (2021-2032) & (US\$/Pcs)

Figure 6. World Quantum Random Number Generator Card Production Value Market Share by Region (2021-2032)

Figure 7. World Quantum Random Number Generator Card Production Market Share by Region (2021-2032)

Figure 8. North America Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 9. Europe Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 10. China Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 11. Japan Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 12. South Korea Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 13. Southeast Asia Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 14. China Taiwan Quantum Random Number Generator Card Production (2021-2032) & (K Pcs)

Figure 15. Quantum Random Number Generator Card Market Drivers

Figure 16. Factors Affecting Demand

Figure 17. World Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 18. World Quantum Random Number Generator Card Consumption Market Share by Region (2021-2032)

Figure 19. United States Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 20. China Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 21. Europe Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 22. Japan Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 23. South Korea Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 24. ASEAN Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 25. India Quantum Random Number Generator Card Consumption (2021-2032) & (K Pcs)

Figure 26. Producer Shipments of Quantum Random Number Generator Card by Manufacturer Revenue (\$MM) and Market Share (%): 2025

Figure 27. Global Four-firm Concentration Ratios (CR4) for Quantum Random Number Generator Card Markets in 2025

Figure 28. Global Four-firm Concentration Ratios (CR8) for Quantum Random Number Generator Card Markets in 2025

Figure 29. United States VS China: Quantum Random Number Generator Card Production Value Market Share Comparison (2021 & 2025 & 2032)

Figure 30. United States VS China: Quantum Random Number Generator Card Production Market Share Comparison (2021 & 2025 & 2032)

Figure 31. United States VS China: Quantum Random Number Generator Card Consumption Market Share Comparison (2021 & 2025 & 2032)

Figure 32. United States Based Manufacturers Quantum Random Number Generator Card Production Market Share 2025

Figure 33. China Based Manufacturers Quantum Random Number Generator Card Production Market Share 2025

Figure 34. Rest of World Based Manufacturers Quantum Random Number Generator Card Production Market Share 2025

Figure 35. World Quantum Random Number Generator Card Production Value by Type, (USD Million), 2021 & 2025 & 2032

Figure 36. World Quantum Random Number Generator Card Production Value Market Share by Type in 2025

Figure 37. Quantum Random Number Generator Card

Figure 38. Quantum Random Number Cryptographic Card

Figure 39. Quantum-Enhanced Cryptographic Card

Figure 40. Quantum-Resistant / Post-Quantum Cryptographic Card

Figure 41. World Quantum Random Number Generator Card Production Market Share

by Type (2021-2032)

Figure 42. World Quantum Random Number Generator Card Production Value Market Share by Type (2021-2032)

Figure 43. World Quantum Random Number Generator Card Average Price by Type (2021-2032) & (US\$/Pcs)

Figure 44. World Quantum Random Number Generator Card Production Value by Hardware Configuration, (USD Million), 2021 & 2025 & 2032

Figure 45. World Quantum Random Number Generator Card Production Value Market Share by Hardware Configuration in 2025

Figure 46. PCIe Quantum Random Number Cryptographic Card

Figure 47. Board-level QRNG Card

Figure 48. USB / External QRNG Module

Figure 49. Chip-level QRNG Module

Figure 50. World Quantum Random Number Generator Card Production Market Share by Hardware Configuration (2021-2032)

Figure 51. World Quantum Random Number Generator Card Production Value Market Share by Hardware Configuration (2021-2032)

Figure 52. World Quantum Random Number Generator Card Average Price by Hardware Configuration (2021-2032) & (US\$/Pcs)

Figure 53. World Quantum Random Number Generator Card Production Value by Random Number Generation Rate, (USD Million), 2021 & 2025 & 2032

Figure 54. World Quantum Random Number Generator Card Production Value Market Share by Random Number Generation Rate in 2025

Figure 55. Low-speed QRNG Cryptographic Card

Figure 56. Medium-speed QRNG Cryptographic Card

Figure 57. High-speed QRNG Cryptographic Card

Figure 58. Ultra-high-speed QRNG Cryptographic Card

Figure 59. World Quantum Random Number Generator Card Production Market Share by Random Number Generation Rate (2021-2032)

Figure 60. World Quantum Random Number Generator Card Production Value Market Share by Random Number Generation Rate (2021-2032)

Figure 61. World Quantum Random Number Generator Card Average Price by Random Number Generation Rate (2021-2032) & (US\$/Pcs)

Figure 62. World Quantum Random Number Generator Card Production Value by Application, (USD Million), 2021 & 2025 & 2032

Figure 63. World Quantum Random Number Generator Card Production Value Market Share by Application in 2025

Figure 64. Government, Defense and Critical Infrastructure

Figure 65. Banking, Payment and Data Security

Figure 66. Telecom Operators and Quantum-secure Communication Networks

Figure 67. Cloud, Data Center and Server Security

Figure 68. Industrial Internet, Energy, Power and IoT Terminals

Figure 69. World Quantum Random Number Generator Card Production Market Share by Application (2021-2032)

Figure 70. World Quantum Random Number Generator Card Production Value Market Share by Application (2021-2032)

Figure 71. World Quantum Random Number Generator Card Average Price by Application (2021-2032) & (US\$/Pcs)

Figure 72. Quantum Random Number Generator Card Industry Chain

Figure 73. Quantum Random Number Generator Card Procurement Model

Figure 74. Quantum Random Number Generator Card Sales Model

Figure 75. Quantum Random Number Generator Card Sales Channels, Direct Sales, and Distribution

Figure 76. Methodology

Figure 77. Research Process and Data Source

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