

Next Generation Computing Market Forecasts to 2034 – Global Analysis By Component (Services, Software, Hardware and Other Components), Type, Offering, Enterprise Size, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Next Generation Computing Market is accounted for \$415.9 billion in 2026 and is expected to reach \$1911.3 billion by 2034 growing at a CAGR of 21.0% during the forecast period. The Next Generation Computing Market refers to the evolving landscape of advanced technologies that surpass current computing capabilities, promising enhanced performance, efficiency, and innovation. This market encompasses a spectrum of cutting-edge technologies such as quantum computing, artificial intelligence, edge computing, and advanced networking solutions. Quantum computing leverages the principles of quantum mechanics to perform complex computations at unprecedented speeds, while artificial intelligence integrates machine learning and deep learning algorithms to enable machines to mimic human intelligence.

According to the Flexera 2020 State of the Cloud Report', a significant growth in cloud spending was noticed by 27% of business leaders during the outbreak.

Market Dynamics:

Driver:

Growing reliance on edge computing

Edge computing addresses the limitations of traditional cloud computing by processing data closer to the source, reducing latency and enhancing real-time processing

capabilities. As the Internet of Things (IoT) expands, generating massive volumes of data from interconnected devices, edge computing becomes essential for efficient data management and analysis. This paradigm shift is crucial for applications requiring low-latency responses, such as autonomous vehicles, smart cities, and industrial automation. Moreover, edge computing not only improves performance but also minimizes the need for extensive data transfers to centralized cloud servers, optimizing bandwidth usage.

Restraint:

High initial costs

The integration of advanced computing technologies, such as quantum computing, artificial intelligence, and edge computing, requires substantial investments in both hardware and software infrastructure. The initial financial outlay for acquiring and implementing these cutting-edge technologies can be prohibitive, particularly for smaller businesses and organizations with limited budgets. Additionally, the costs associated with training personnel to operate and maintain these sophisticated systems further contribute to the economic challenges. This financial burden impedes the seamless transition to next-generation computing for many enterprises, limiting their ability to harness the transformative potential of these technologies.

Opportunity:

Advancements in quantum computing

Quantum computing leverages the principles of quantum mechanics, utilizing quantum bits or qubits to perform computations at unprecedented speeds and tackle complex problems that traditional computers struggle with. The potential to solve intricate mathematical equations, optimize complex systems, and simulate molecular interactions holds immense promise for industries such as finance, healthcare, and materials science. As research and development in quantum computing progress, there is a growing anticipation of achieving quantum supremacy, where quantum computers surpass the computational capabilities of classical computers for specific tasks.

Threat:

Lack of standardization

Emerging technologies like quantum computing, artificial intelligence, and edge computing often lack universally accepted frameworks and protocols, leading to a fragmented ecosystem. This absence of standardization complicates collaboration between different technologies and vendors, making it challenging for businesses to adopt and scale next-generation computing solutions. The lack of common standards also raises concerns regarding data portability and system compatibility, limiting the flexibility for organizations to choose and switch between different computing technologies.

Covid-19 Impact:

The increased reliance on remote work and digital communication has accelerated the demand for advanced computing technologies, such as cloud computing and artificial intelligence, to support the evolving needs of a distributed workforce. However, on the other hand, economic uncertainties and budget constraints induced by the pandemic have slowed down investments in certain high-cost next-generation computing initiatives. Supply chain disruptions and logistical challenges have affected the production and deployment of hardware components, leading to delays in projects.

The software segment is expected to be the largest during the forecast period

Software segment dominated the largest market share throughout the projected period. Artificial intelligence, in particular, is playing a pivotal role with machine learning algorithms and deep learning models becoming integral for data analysis, automation, and decision-making processes. The development of sophisticated software that can harness the capabilities of quantum computing is also contributing to this surge, enabling the solution of complex problems at unprecedented speeds. Furthermore, software plays a crucial role in optimizing and managing the functionalities of edge computing, allowing for real-time data processing and analysis at the source.

The optical computing segment is expected to have the highest CAGR during the forecast period

Optical Computing segment is expected to have the highest CAGR during the forecast period due to its potential to revolutionize traditional computing architectures. Optical computing leverages light particles or photons instead of traditional electronic signals to perform computations, offering the promise of significantly faster processing speeds and reduced energy consumption. Additionally, the inherent parallelism of optical systems enables the simultaneous handling of vast amounts of data, overcoming the limitations

of sequential processing in classical computers.

Region with largest share:

Asia Pacific region commanded the largest market share over the extrapolated period due to region's robust investment in research and development, particularly in countries like China, Japan, and South Korea. These nations have strategically allocated funds to propel innovation in emerging technologies, including quantum computing, artificial intelligence, and high-performance computing. China, in particular, has made significant strides in quantum computing research and development, aiming to establish itself as a global leader in this transformative field.

Region with highest CAGR:

Asia Pacific region is projected to hold profitable growth over the feasible period. The country's commitment to quantum information science and the development of quantum communication networks has contributed to the Asia Pacific region's prominence in the quantum computing landscape. Moreover, rapid urbanization and the expansion of smart cities in countries like Singapore and South Korea are driving the need for sophisticated computing capabilities in areas such as edge computing, IoT, and data analytics.

Key players in the market

Some of the key players in Next Generation Computing market include Advanced Micro Devices, Inc, Amazon Web Services Inc., Cisco Systems, Inc, Dell Inc, Google Inc., Hewlett Packard Enterprise, IBM Corporation, Intel Corporation, Microsoft Corporation, NVIDIA Corporation and Oracle Corporation.

Key Developments:

In July 2023, Moody's and Microsoft have partnered strategically to co-create next-generation data, analytics, research, collaboration, and risk solutions for financial services, which would be built by combining Microsoft's Azure OpenAI Service, Fabric, and Teams with Moody's proprietary data, analytics, and research and has been designed to enhance insights into corporate intelligence and risk assessment.

In July 2023, Equinix, GDS, Microsoft, and a consortium of AirTrunk and TikTok-owner ByteDance were selected to operate the Singapore-based 80 MW data center by the

Singapore Economic Development Board and the Infocomm Media Development Authority, which would support the adoption of next-generation computing solutions in the APAC region.

In June 2023, Google LLC partnered with T-Mobile to empower 5G and edge computing capabilities, enabling enterprises to increase their digital transformation. After this partnership, T-Mobile would connect the 5G ANS suite of public, private, and hybrid 5G networks with Google Distributed Cloud Edge (GDC Edge) to help customers have next-generation 5G applications such as AR/VR experiences.

Components Covered:

Services

Software

Hardware

Other Components

Types Covered:

Optical Computing

Memory Based Computing

Thermodynamic Computing

Energy Efficiency Computing

Approximate And Probabilistic Computing

Brain Type Computing

Quantum Computing

High Performance Computing

Other Types

Offerings Covered:

On Premise

Cloud Based

Other Offerings

Enterprise Sizes Covered:

Large Enterprises

Small & Medium Sized Enterprise

Other Enterprise Sizes

End Users Covered:

Energy And Power

Healthcare

Transportation And Logistics

Other End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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