

# Next-Gen Computing Market to Hit \$782.1 Bn by 2030, Driven by AI & Cloud Demand

*Next-generation computing is transforming industries through enhanced speed, intelligence, & scalability, driven by AI, quantum tech, and advanced architectures*

WILMINGTON, DE, UNITED STATES, November 20, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research [Next Generation Computing Market](#) Size, Share, Competitive Landscape and Trend Analysis Report, by Component (Hardware, Software, Services), by Offering (Cloud Based, On Premise), by Type (High Performance Computing, Quantum Computing, Brain Type Computing, Approximate And Probabilistic Computing, Energy Efficiency Computing, Thermodynamic Computing, Memory Based Computing, Optical Computing, Others), by Enterprise Size (Smes, Large Enterprises), by End Use Industry (Bfsi, Healthcare, Space And Defence, Energy And Power, Transportation And Logistics, Chemicals, Academia, Government, Telecom, Others): Global Opportunity Analysis and Industry Forecast, 2020 - 2030, The next generation computing market size was valued at USD 132.53 billion in 2020, and is expected to reach USD 782.10 billion by 2030, growing at a CAGR of 19.4% from 2021 to 2030.

The Next Generation Computing Market is evolving rapidly as organizations seek faster, more powerful, and more energy-efficient computing technologies. Advancements such as quantum computing, neuromorphic processors, and high-performance edge systems are reshaping how data is analyzed and decisions are made in real time. These innovations are enabling breakthroughs in healthcare, finance, manufacturing, cybersecurity, and scientific research.

Growing digitalization, rising data volumes, and the increasing complexity of AI workloads are accelerating demand for next-generation architectures. Governments and enterprises are investing heavily in R&D to build future-ready computing ecosystems capable of solving problems beyond the capability of traditional systems. As a result, the market is witnessing strong momentum, supported by strategic partnerships, pilot deployments, and expanding commercial applications.

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One of the primary drivers of the market is the rapid adoption of artificial intelligence across industries. Complex AI models require immense computational power, pushing enterprises to

adopt advanced GPUs, quantum systems, and AI-optimized hardware. This demand is further boosted by autonomous systems, smart cities, and industrial automation.

Quantum computing is emerging as a transformative technology, providing exponential performance improvements for simulation, optimization, and encryption tasks. Increased funding from technology giants and government initiatives is accelerating commercialization timelines, although scalability challenges persist.

Edge computing is also reshaping market dynamics by moving processing closer to data sources. This shift is reducing latency, improving real-time analytics, and supporting applications such as autonomous vehicles, remote healthcare, and IoT-powered manufacturing. The integration of AI at the edge further enhances operational efficiency.

However, the market faces significant challenges, including infrastructure complexity, the high cost of deployment, and the need for highly skilled professionals. Security concerns related to quantum-enabled attacks and advanced data processing environments also pose risks for enterprises.

Despite these challenges, technological maturity, expanding pilot projects, and growing industry-standardization efforts are expected to accelerate adoption. Continuous innovation from semiconductor companies, cloud providers, and research organizations will shape the competitive landscape over the coming years.

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The market is segmented by technology (quantum computing, neuromorphic computing, edge computing hardware, high-performance computing), by component (hardware, software, and services), and by end-use industry (healthcare, BFSI, manufacturing, energy, IT & telecom, and government). Quantum and AI-optimized hardware represent the fastest-growing segments, driven by strong demand for high-speed computation and complex data processing capabilities.

The on-premise segment accounted for the largest market share in 2020 and is expected to maintain its dominance throughout the forecast period, driven by its strong advantages such as enhanced data security and better control over sensitive information. However, the cloud segment is projected to experience the fastest growth in the coming years, as it eliminates the need for upfront IT infrastructure investment. With data hosted on cloud servers, cloud deployment is increasingly preferred by small and medium-sized enterprises, thereby boosting the demand for next-generation computing solutions.

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North America leads the next-generation computing market due to strong technological

infrastructure, large-scale AI adoption, and substantial investments in quantum and cloud computing. Major tech companies and research institutions in the U.S. continue to push innovation, making the region a global hub for advanced computing development.

Asia-Pacific is emerging as the fastest-growing region, driven by rapid digital transformation, government-backed R&D programs, and rising semiconductor manufacturing capabilities. China, Japan, and South Korea are heavily investing in AI chips, quantum research, and supercomputing facilities, creating a strong foundation for future growth.

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Report Summary:

This report gives an in-depth profile of some key market players in the [Next Generation Computing industry](#) are IBM Corporation, Amazon Web Services Inc., Alibaba Group Holding Limited, Cisco Systems, Google Inc., HPE, Intel Corporation, Oracle Corporation, Atos SE and Intel Corporation. This study includes market trends, market analysis, and future estimations to determine the imminent investment pockets.

Report Key Findings:

- By component, the solution segment dominated the Internet of Things Industry in 2020. However, the service segment is expected to exhibit significant growth during the forecast period.
- On the basis of offering, the on premise segment accounted for the highest revenue of market in 2020; however, the cloud segment is expected to witness the highest growth rate during the forecast period.
- Depending on organizational size, the large scale segment generated the highest revenue in 2020. However, the SMEs segment is expected to witness the highest growth rate in the near future.
- By Type, the high performance computing segment dominated the next generation computing industry in 2020. However, the energy efficiency computing segment is expected to exhibit significant growth during the forecast period.
- Depending on end user industry, the government segment generated the highest revenue in 2020. However, the government segment is expected to witness the highest growth rate in the near future
- Region wise, the next generation computing industry was dominated by North America. However, Asia-Pacific is expected to witness significant growth in the coming years.

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