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Supercomputers - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The Supercomputers Market size is estimated at USD 12.10 billion in 2024, and is expected to reach USD 12.15 billion by 2029, growing at a CAGR of 0.09% during the forecast period (2024-2029).

Cloud technology is reshaping the supercomputing landscape, offering parallel applications without the need for specific architectures. As workloads burgeon, supercomputing centers are pivoting to the cloud.

Once the domain of large enterprises, supercomputers are witnessing heightened demand from organizations looking to tackle complex data sets and analytics workloads. Notably, educational and research institutions are increasingly finding access to supercomputing facilities within reach.

Supercomputers empower firms to conduct comprehensive simulations during design phases, significantly reducing physical testing time. These simulations span from multi-disciplinary trade-offs to aircraft aerodynamics.

Supercomputers are pivotal for nations, both in advancing research and bolstering security. Many developed countries are intensifying their efforts to lead in supercomputing, often placing these systems in higher education and government institutions. Governments are leveraging supercomputing capabilities to tackle a range of border challenges.

However, the market faces a significant hurdle in the form of high installation costs and space requirements. Being ten times pricier than standard computers, Supercomputers demand substantial maintenance costs. To mitigate these

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challenges, organizations must appoint specialized teams for oversight, employ dedicated problem-detection applications, and closely monitor overall computer usage. Beyond cost, supercomputers grapple with challenges like size, maintenance, energy consumption, and heat management.

Moreover, the COVID-19 pandemic has spurred a surge in demand for data centers, artificial intelligence, and machine learning, especially from governmental and educational sectors. This heightened demand across related technologies is set to further bolster the need for supercomputers.

Supercomputers Market Trends

Increasing Demand for Higher Processing Power to Drive the Market

Enterprises laden with vast data increasingly turn to data analysis to drive their decisions, a move crucial for maintaining a competitive edge. This shift toward data-driven decision-making is propelling organizations ahead of their peers. Consequently, the supercomputer market is witnessing a surge in demand, driven by the need for enhanced processing power to manage and analyze data effectively.

Furthermore, a notable trend in the supercomputer market is a significant pivot toward cloud-based solutions, especially for storage. Enterprises and research firms are embracing a 'cloud-first' approach, lured by cost benefits and the superior power of cloud solutions over traditional data centers, which come with added overheads like cooling, data management, and certifications.

In the medical realm, applications like CT scans and MRIs demand swift, precise processing, often involving complex algorithms. Supercomputers play a pivotal role here, drastically reducing computing times and accelerating data processing for these medical procedures. This need for rapid and precise data processing is a key driver fueling the growth of the supercomputer market.

Recognizing the pivotal role of supercomputers, governments worldwide are increasingly investing in these systems to bolster their economies and competitiveness. Supercomputers are instrumental in crafting cutting-edge electronic warfare equipment and defense systems.

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Asia-Pacific Expected to Witness Major Growth

In terms of technologies, Asia-Pacific is emerging at a rapid pace. The region's rapid development of supercomputing systems can be attributed mainly to countries such as China and Japan.

Countries such as India play an important role in Asia-Pacific. To build a supercomputing grid with 73 high-performance computing facilities, the National Supercomputing Mission has been launched in this country and is expected to generate USD 730 million in investment by 2023.

Chinese researchers said they had built a prototype quantum computer that could pick out as many as 76 photons by randomly sampling the Gaussian bosons. China's researchers compete to become the leader in this technology with some of the giant US corporations, such as Google, Amazon, and Microsoft.

Emerging countries like India are playing a role in the growth of the Asia-Pacific market. The National Supercomputing Mission has been set up in this country and is investing USD 730 million by 2023 to build a supercomputing network of 73 top-performance computing centers.

According to the report from the French-Korean Conference, South Korea plans to build one of the five fastest exascale supercomputers by 2030, potentially with local chips. Such processing capabilities trends further encourage supercomputing growth in Asia-Pacific.

Supercomputers Industry Overview

The supercomputer market is semi-consolidated due to a few significant players holding a greater market share along with small players. Some key players include HPE, Atos SE, Dell Inc., FUJITSU Corporation, IBM Corporation, Lenovo Inc., and NEC Technologies India Private Limited.

In April 2024, CEA and Eviden the Atos announced the delivery of the EXA1 HE (High Efficiency) supercomputer, based on Eviden’s BullSequana XH3000 technology, Which is designed to meet the needs of the Simulation program run by CEA’s Military Applications Division, the EXA1 HE represents the second

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and most innovative stage in the EXA1 program.

In February 2024, Fujitsu announced the delivery of a new supercomputer system to the Japan Meteorological Agency (JMA) to improve prediction accuracy for typhoons and torrential rains and help authorities develop data-driven plans to provide early warning and evacuation for residents during natural disasters.

Additional Benefits:

The market estimate (ME) sheet in Excel format

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