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High-Performance Computing (HPC) as a Service Market Research Report - Global Forecast 2030

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Description:

Market Overview

Global High Performance Computing Market is estimated to reach USD 63.12 Billionby 2030, registering an 7.30% CAGR during the forecast period (2022-2030).

High Performance Computing (HPC) is the practice of aggregating computing power in a desktop computer/workstation to solve major problems in science, engineering, or business. Major discoveries in science and engineering depend on organizations having access to new high-performance computing tools.

High-performance computing (HPC) systems can convert complex data into digital models that help researchers and engineers understand data and how something would look and perform in the real world. They are the backbone of simulation, modeling, high-end big data analytics, and AI workloads. Scientists use HPCs to tackle massive problems ranging from mapping the human brain and predicting the path of a hurricane to finding new sources of energy, vaccines for global pandemics, and simulating supernovas.

COVID-19 Analysis

The COVID-19 pandemic onset has aggressively accelerated digitization across the globe. High Performance Computing (HPC) remains a major attribute of the solid research strengths. Companies transpire substantial investments for strong sectarian expertise in technology with their proximity to Asian markets. The investment spans data centers and cloud computing companies.

Industry experts assert that HPC promises great potential in diverse areas, such as scientific research and military applications. Innovative industry players have actively started looking for increasing high performance computing application areas. This, as a result, is providing a huge impetus to the high performance computing market, allowing it to garner significant traction and investments.

Market Dynamics

Drivers

Widespread High Performance Computing Applications

The global high performance computing market is witnessing significant traction. Researchers have been successfully using HPC systems to fast-track scientific discovery and make critical advances. Additionally, increasing implementations of high performance computers to detect recurring patterns drive the market growth exponentially. Rising demand for HPC systems from sectors such as BFSI, IT & telecommunications, retail, manufacturing, healthcare, energy & utilities, transportation fosters the growth of the market.

Opportunities

High Performance Computing Opportunities

BFSI, IT & telecommunications, retail, manufacturing, healthcare, energy & utilities, transportation sectors present significant opportunities for the HPC market growth. Increasing application areas of high performance computing systems, such as Naval Surface Warfare Center (NSWC) Crane and others, are expected to increase the HPC market size.

HPC systems are critical to the mission of the NSWC Crane and of the DoD as a whole. Furthermore, HPC advantages, such as standardized information technology security & management practices, improved utilization & cost efficiency, and greater accessibility and ease-of-use for end-users, are estimated to foster the HPC as a service market.

Restraints & Challenges

High Prices of HPC to Restrict Market Growth

Despite lucrative growth opportunities, the high performance computing market faces some underlying challenges. High costs of HPC systems are a major factor restricting the growth of the market. While HPC systems have reshaped some industries and enabled others, their large up-front costs and planning difficulties make it difficult for smaller

organizations to have access to one.

The limited availability of HPC systems to address some of the biggest problems the world has ever faced challenges the growth of the market. Organizations around the globe are attempting to solve HPC-sized problems without the right tools in place.

Segment Overview

High Performance Computing (HPC) Market is segmented into Components, Deployment, Verticals, and Regions.

Server Segment to Witness Significant Demand

The component segment is sub-segmented into the server, storage, networking devices, and software. Among these, the server segment dominates the market. The segment is assessed to grow at a 12% CAGR during the assessment period. At the same time, networking devices are projected to be the fastest-growing segment during the assessment period.

On-Premise – the Largest Deployment Method

The deployment segment is sub-segmented into on-premise and on-cloud. On-Premise is the largest deployment segment. The on-cloud segment is estimated to be the fastest-growing deployment method for HPC in years to come.

BFSI Vertical Holds the Largest Market Share

The verticals segment is sub-segmented into BFSI, IT & telecommunications, retail, manufacturing, healthcare, energy & utilities, transportation, and others. Among these, BFSI dominates the market and is expected to grow by an 8% CAGR during the review period. On the other hand, IT & Telecommunication and Healthcare segments are expected to register the highest CAGR during the forecast period.

North America is the Largest Regional Segment

By region, the market is bifurcated into the Americas (US, Canada, Mexico, Rest-of-North America) and South America, Europe (the UK, Germany, France, Italy, and Rest-of-Europe), Asia Pacific (China, Japan, India, South Korea, and Rest-of-the-APAC), and Rest-of-the-World. Among these, North America accounts for the largest market share, followed by Europe and the APAC region, respectively.

Regional Analysis

North America to Maintain its Leading Position

North America leads the global high performance computing market and would continue to maintain its market position throughout the assessment period. Factors such as technological advancements and high numbers of supercomputing development facilities drive the HPC market size in the region. Moreover, key technology providers such as IBM Corporation, Intel, Google, and several others in the region act as a key growth propeller for the market.

The US accounts for the largest HPC market share in the region due to huge technological advances. On the other hand, Canada is expected to witness a high growth rate in the HPC market in the years to come. Additionally, increasing R&D investments and the vast uptake of the HPC technology by government agencies and BFSI sectors in the region boost the high performance computing (HPC) application market.

Europe Holds Second Highest Market Share

Europe accounts for the second-largest share in the global high performance computing market. Substantial investments by market players, alongside the rising initiatives and funding by governments in various countries in this region, positively impact the growth of the high performance computing industry. Moreover, the presence of major players influences the HPC market share in the region.

APAC Derives a Considerable Share in the Global Market

The APAC high performance computing market is propelled by the vast adoption of HPC technology and rapid growth in BFSI, IT & telecommunication, and healthcare sectors. Furthermore, significant advances in high performance computing technology in countries such as India, China, and South Korea boost the adoption, influencing the regional market growth.

Competitive Landscape

Players Focus on Product Development & Expansions

The high performance computing market appears extremely competitive due to the strong presence of well-established industry players. Global technology providers are increasingly facing fierce competition from each other and local firms, who have mastered industry regulations and suppliers. Therefore, eminent players seek opportunities to integrate across the extended value chain while focusing on the expansion, R&D investments, and M&A activities to gain impetus.

Key Companies

IBM Corporation, Hewlett Packard Enterprise Company, Dell, Inc., Microsoft Corporation, Intel Corporation, Fujitsu Ltd, Cisco Systems, Inc., Oracle Corporation, Hitachi Ltd, and Advanced Micro Devices, Inc. are some of the affluent contenders holding sizeable high performance computing market share.

AMAX is a leading global provider of application-tailored cloud, data center, open-architecture platforms, and HPC, deep learning, and OEM server manufacturing solutions designed to achieve the highest efficiency and optimal performance. AMAX is a key trusted solutions provider, delivering the specific metrics for success.

AMAX caters to companies ranging from Fortune 1000 companies seeking significant cost savings through better efficiency for global data centers to a software startup seeking an experienced manufacturing partner to design and

launch a flagship product.

Recent Developments

January 21, 2021 – Atos, a global leader in digital transformation, announced that it is participating in the French government's initiative in developing the national strategy on quantum technologies. The national quantum strategy offers Atos the opportunity to accelerate its Quantum Learning Machine (Atos QLM) expertise to offer the quantum computing benefits in the NISQ (Noisy Intermediate-Scale Quantum) era.

Development of NISQ simulators and accelerators integrated into hybrid high-performance computing platforms such as the Atos QLM and its expertise in high-performance computing. Capitalizing on these expertises, Atos plans to provide a quantum accelerator connected to a supercomputer as early as 2023.

January 20, 2021 – AMAX's HPC and AI Solutions Group launched its NVIDIA A100 GPU Test Drive program to accelerate their high-performance computing (HPC), inference, and training workloads with a test drive of AMAX's AceleMax™ series of NVIDIA GPU-based data center servers.

January 19, 2021 – Nimbix, a leading high-performance computing (HPC) cloud platform provider, announced immediate support for government-approved cloud infrastructures supporting FedRAMP, FIPS 140-2, ITAR, CJJS, and other compliance regimes. Nimbix would use its JARVICE XE and HyperHub platforms to deliver point-and-click HPC-as-a-service.

January 18, 2021 – DigiPlex, a Nordic leader for sustainable, innovative, and secure data centers, announced signing an agreement with Hewlett Packard Enterprise (HPE) to host AI and High-Performance Computing (HPC) technology in its Stockholm data center.

January 07, 2021 – The Science and Technology Facilities Council (STFC) announced a £20 MN investment to upgrade the DiRAC high performance computing facility. The investment would help DiRAC to produce new systems at least 3-5 times more powerful than its existing machines, providing computing capacity that can be used to address immediate and emerging issues such as the COVID-19 pandemic**.**

Report Overview

High performance computing (HPC) market analysis features unique and relevant factors expected to significantly impact the market growth during the forecast period. Detailed information about the high performance computing (HPC) application market helps industry players better understand the market. MRFR's HPC market forecast elaborates on the historical and current trends boosting the growth of the market.

The analysis of COVID-19 impact on the high performance computing (HPC) system market revenue is also included in the report. Regional assessment in the HPC report unlocks a plethora of untapped opportunities in regional and domestic market spaces. Detailed company profiling in the report enables users to evaluate company shares analysis, the scope of the existing & emerging product lines in new markets, pricing strategies, innovation possibilities, and much more.

Segmentation Table

Deployment

- On-Premise
- On Cloud

Vertical

- BFSI
- Manufacturing
- Retail
- Healthcare
- Others

Component

- Storage
- Software
- Server
- Others

Region

- North America
- Europe
- Asia Pacific

- Rest of the World (RoW)

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