Data Center Accelerator Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Global Data Center Accelerator Market is expected to register a CAGR of 14.98% over the forecast period. The growing demand for artificial intelligence in HPC data centers and the increasing usage of cloud-based services likely drive the data center accelerator market over the coming years.

Key Highlights
From scientific discoveries to artificial intelligence (AI), modern data centers are crucial to solving some of the world's most critical challenges. These advanced data centers are transforming to increase networking bandwidth and optimize workloads like artificial intelligence. Datacenter administrators also expect a lower total cost of ownership, lower power, and new services.
The ever-increasing demands on the data center are pushing existing infrastructure to its limit, driving the need for adaptable solutions that can optimize performance across a broad range of workloads and extend the lifecycle of existing infrastructure, thus, ultimately reducing TCO. Players have been actively expanding their product portfolio to capture this demand and gain market recognition.
Further, most computing system growth would stem from higher demand for AI applications at cloud computing data centers. At these locations, GPUs are now used for almost all training applications. However, as ASICs enter the market, GPUs would likely become more customized to meet the demand for Deep Learning (DL). In addition to ASICs and GPUs, FPGAs would also have a crucial role in future AI training, primarily for specialized data center applications that must reach the market quickly or require customization, such as those for prototyping new DL applications.
The lack of feasibility of providing to small businesses, limiting its utilization scope to medium and large organizations, and the increased cost of these accelerators are expected to act as market restraints.
The COVID-19 pandemic has posed additional stress on the overall economy across sectors. It has also shifted focus towards a digital economy. One of China's top cloud computing providers, Alibaba Cloud, is investing billions in building next-generation data

centers to support digital transformation needs in a "post-pandemic world. In April last year, Alibaba Cloud announced it would invest RMB 200 billion (USD 28.99 billion) in core technologies and future-oriented data centers over the next three years.

Data Center Accelerator Market Trends

FPGA Processor Type Segemnt is Expected to Hold Significant Market Share

The data center accelerator market for field-programmable gate arrays (FGPA)-based accelerators are expected to offer attractive growth opportunities for the market. FPGAs (field programmable gate arrays) are pre-fabricated silicon devices that can be programmed electrically (post-manufacturing) to become almost any digital system. They are an array of configurable logic blocks (CLBs) connected with programmable interconnects and can be reprogrammed to the desired application requirements after manufacturing.
Field programmable gate arrays (FPGAs) are one of the preferred digital implementation platforms in a profusion of industrial applications, and extensions and improvements are continuously included in devices. Also, while FPGA-based accelerators are slowly being adopted in mainstream computing owing to the benefits of performance/consumption and enhanced ease of use, a lot of work is still being processed to support the evolution toward an adaptive-acceleration data center.
FPGAs combine the best parts of processor-based systems and application-specific integrated circuits (ASICs), which drives the adoption of FPGA chips across all industries. Additionally, for low-to-medium volume productions, FPGAs provide cheaper solutions and faster time to market, compared to ASIC, which usually requires a lot of time and capital resources to obtain the first device.
Another factor driving the growth of the FPGA market is the demand for extensive application computation, which gives a new direction to the FPGA industry. Moreover, cloud computing and data processing in data centers are significant application areas for FPGAs. FPGAs can improve the performance of large-scale data systems. FPGAs offer faster data processing by connecting network and storage systems with tailored high-bandwidth, low-latency connections. According to Cisco Systems, In the last year, the cloud data center IP traffic reached 19.5 zettabytes.
The rise in the demand for optimization in big data analytics is one of the primary drivers for the market. To execute operations in parallel for real-time performance, prominent tech companies like Google and Amazon, which derive consumer insights through big data analytics, increase their dependence on FPGAs to make business decisions.

Asia-Pacific is Expected to Hold Significant Market Growth

Asia-Pacific is anticipated to be the principal contributor of data center accelerator to global demand as the region undergoes vast investments for better and quicker IT infrastructure. For instance, according to Cisco Systems, Australia creates up to 4% of the global data center market. Big multinational players, like AirTrunk and Equinix, build hyper-scale data centers in Melbourne and Sydney. Such developments are anticipated to drive market growth.
According to Xilinx, a chip maker, India seems confident with the government's push to get global companies to store local user data. This is expected to provide a huge business opportunity to players offering chips to server makers in India. In addressing this high demand, Xilinx hires more engineers at its R&D facility in Hyderabad, in addition to Alveo. This data center accelerator card can increase performance in cloud and on-premise data centers and a broad range of applications, including AI inference.
Emerging AI workloads further propel the data center market in the region, particularly those data centers hosting programmable co-processors that can support graphic chips used for parallel processing of machine learning tasks.
Players in the market strengthen their competitiveness through various growth strategies, such as the innovation of products, new collaborations, investments into new production facilities, increased R&D, and exploration of overseas markets.
In February this year, Fujitsu announced that it had been selected by Japan's new energy and industrial technology development

organization for the "Green Innovation Fund Project/Construction of Next Generation Digital Infrastructure" project in the field of "Technology Development of the Next Generation Green Data Center" (NEDO). The Fujitsu Group's contribution to this national initiative aims to strengthen the development of advanced computing and network technologies that play an essential role in society's digital infrastructure, as well as to promote the use of total solutions globally, with the ultimate goal of achieving its commitment to delivering a more sustainable society through innovation.

Data Center Accelerator Market Competitor Analysis

The Data Center Accelerator Market could be more cohesive due to the presence of both global players and small and medium-sized enterprises. The major players in the market are Intel Corporation, NVIDIA Corporation, Advanced Micro Devices Inc., Achronix Semiconductor Corporation, and Xilinx Inc. (Advanced Micro Devices Inc.), among others. Players in the market are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

May 2022 - AMD has announced the completion of its acquisition of Pensando Systems for about USD 1.9 billion. Pensando's distributed services platform would add a high-performance data processing unit (DPU) and software stack to AMD's data center product range, which is currently being used at scale by cloud and business clients such as Goldman Sachs, IBM Cloud, Microsoft Azure, and Oracle Cloud.
February 2022 - Alphawave IP, one of the leading global providers of high-speed connection for the global technological infrastructure, announced a collaboration with Intel Foundry Services ("IFS"). Alphawave IP has joined the IFS Accelerator - IP Alliance as an anchor member to offer advanced connectivity solutions for joint clients using IFS.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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