

Edge Ai Hardware Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The edge AI hardware market is projected to grow from 1,056 million units to reach 2,716 million units over the next five years. It is expected to grow at a CAGR of 20.3% during the forecast period. Rapid growth in edge computing products and services and increasing real-time low latency on edge devices are significant factors for the edge AI hardware market growth. Notably, the need for edge computing in IoT and dedicated AI processors for on-device image analytics are promising areas of market advancement in edge AI devices.

Key Highlights

An edge AI device is an advanced system that processes and powers artificial intelligence-based robots and devices. Data processing is possible with this equipment by integrating artificial intelligence into it and improving its performance. The significant opportunities for the edge AI hardware market include the growing demand for IoT-based edge computing solutions, the rising adoption of 5G networks to bring IT and telecom together, and dedicated AI processors for on-device image analytics. The demand for edge AI is growing due to Industry 4.0's widespread deployment across all sectors. The burgeoning penetration of artificial intelligence, IoT & 5G technologies across varied industry verticals, including BFSI, government, hospitality, retail, and consumer goods, is speculated to support the growth of the edge AI Hardware industry. The possibility of performing AI inference without transferring data has generated huge demand for the edge AI Hardware market. Businesses can cut operating costs in critical situations when accuracy and latency are crucial due to the increase in edge AI devices.

A trend in the edge AI hardware market anticipated to have a beneficial effect in the following years is the rise in demand for smart homes and smart cities. People can now control their homes from anywhere in the world using smart devices. Smart cities are being built using cutting-edge technology like AI, machine learning, big data, and blockchain. Because these technologies are becoming more prevalent across a wide range of industries, smart cities worldwide are increasingly adopting them. This pattern fuels the market for edge AI hardware.

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Security concerns related to edge AI devices are a restraining factor hindering the market's growth. The risk occurs at the local level, where edge AI functions primarily. Since it is open source to any online breaching from determined individuals, human error at the local level is prone to data loss. There is also a significant variation in machine types that are compatible with Edge AI programming, while some are incompatible. Unfortunately, it's likely for faults and failures to happen when incompatible machines work together, which restrains the market.

The edge artificial intelligence (AI) hardware sector was significantly impacted by COVID-19 as nearly every nation chose to shut down all manufacturing facilities. The government has implemented several stringent measures to stop the virus from spreading, including halting the manufacturing and sale of non-essential commodities and obstructing international trade. However, with the current situation, all the industries are reopened, and Edge AI companies are producing some of the best artificial intelligence solutions, which are expected to drive the market positively in the future.

Edge AI Hardware Market Trends

Increase Demand for Smart Homes and Smart Cities

Smart cities are complex structures that incorporate various systems to support a human's life cycle. Smart healthcare, smart transportation, smart manufacturing, smart buildings, smart energy, and smart farming are just a few examples of these systems.

As these AI technologies are becoming more prevalent across various industries, smart cities are gradually adopting them worldwide. More people are becoming intrigued by the idea of a smart home as smart cities become more common. The need for automated services in people's daily lives is expected to rise as more people relocate to cities. Smart homes are evolving from a luxury to a need. Due to the increasing demand for smart homes and smart cities, the edge AI hardware market is anticipated to expand throughout the next five years.

Globally, governments are utilizing cutting-edge technologies to handle the crucial issue of safeguarding the security and protection of residents. To take advantage of the opportunities presented by urbanization, many nations have developed programs to transform their cities into smart cities. Operational efficiencies, environmental sustainability, and the creation of new services for residents are all made possible by smart cities. For instance, the United Arab Emirates has started a program to make its cities smart cities. The UAE government has also laid out a general blockchain strategy for improved security, immutability, resilience, and transparency. Drones and surveillance cameras are two leading-edge AI hardware deployed by government organizations for this purpose.

Edge devices have become increasingly innovative because of increased edge computing power and the sparing use of deep learning and machine learning. Edge AI enables devices to deliver real-time insights and predictive analytics without sending data to distant cloud servers. Now, many companies are utilizing this by putting intelligent solutions in manufacturing. Manufacturers may be informed of problems in their supply chain and proactively avoid unplanned downtime with the help of the many industrial IoT devices installed in modern factories, which increases demand for the edge AI hardware market.

Asia-Pacific to be the Fastest Growing Region

Asia-Pacific region is expected to experience the highest growth rate in the global edge AI hardware market due to the advent of 5G in the region and the increasing number of IoT-incorporated devices. The growing penetration of smartphones in China, Japan, India, and South Korea is expected to increase the adoption of AI hardware market adoption.

China is the largest market in the region, followed by Japan. The presence of several significant vendors in the automobile, electronics, and semiconductor companies, who are investing significantly in AI technology, is driving the growth of the edge AI

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hardware market in the region. China's edge AI industry has seen explosive growth in innovation in the last year for edge computing and hardware solutions through the number of patents filed, which shows that China's industries are innovating rapidly.

During one month between June and July, the Beijing Municipal Commission of Economy and Information Technology counted around 4,040 AI companies in China. Besides, the presence of many manufacturing companies makes the region an attractive market for industrial robots that implement AI technology. Such trends strive for the demand for the edge AI hardware market. Wearable devices also play a significant role in the increasing demand for integration with vision processing units to accelerate AI tasks. Cisco Systems estimates that the number of connected wearable devices could reach 1,105 million units by the end of 2022. End-user industries like manufacturing, telecommunications, and automotive have huge potential in the region, creating a huge demand for the AI hardware market shortly.

Edge AI Hardware Market Competitor Analysis

The edge AI hardware market is moderately fragmented by players with technological expertise in AI technology, and the global market is expected to be consolidated. Intel Corporation, NVIDIA Corporation, Qualcomm Inc., Samsung Electronics Co. Ltd, Huawei Technologies Co. Ltd, Google Inc., MediaTek Inc., Xilinx Inc., Imagination Technologies Limited, and Microsoft Corporation are some of the major players present in the current market. However, several prominent AI startups like Cambricon Technology, Horizon Robotics, Hailo Technologies, and Habana Labs are expected to compete with the key players on the AI inferencing side.

In November 2022, Network solutions provider Lumen Technologies began expanding its portfolio of Edge Computing Solutions into the Asia-Pacific Region, which will include its Edge Bare Metal pay-as-you-go hardware solution for servers, taking advantage of sites in Singapore and Japan.

In October 2022, Kneron bagged USD 50 million in funding for next-gen AI hardware solutions. The company plans to use the funds to accelerate its research and development to produce next-gen AI inference modules. Kneron anticipates increased adoption of on-device edge AI technology in the future. This involves placing AI computing power onto devices that include hardware rather than within cloud software.

Additional Benefits:

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

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