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Edge Artificial Intelligence Chips Market Forecasts to 2030 – Global Analysis By Chip Type (Central Processing Unit (CPU), Graphics Processing Unit (GPU), Application-Specific Integrated Circuit, Field Programmable Gate Arrays, Neural Processing Units and Other Chip Types), Device Type, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Edge Artificial Intelligence Chips Market is accounted for $21.7 billion in 2024 and is expected to reach $136.9 billion by 2030 growing at a CAGR of 35.9% during the forecast period. Semiconductor devices known as edge artificial intelligence (AI) chips allow real-time data processing on edge devices such as industrial sensors, smartphones, Internet of Things devices, and driverless cars. To carry out machine learning models, these processors make use of hardware accelerators such as Tensor Processing Units (TPUs), Neural Processing Units (NPUs), or Graphics Processing Units (GPUs). They are perfect for battery-operated devices because they handle activities like image identification, natural language processing, and predictive analytics while using very little power. Because edge AI chips improve privacy by processing data on-device, they are essential for applications like smart surveillance, healthcare monitoring, and autonomous driving.

Market Dynamics:

Driver:

Surge in data generated in various industries

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As the volume of data from IoT devices, social media platforms, and e-commerce continues to escalate, the need for efficient data processing at the edge becomes paramount. Edge AI chips enable real-time data processing, reducing latency and enhancing performance for applications such as autonomous vehicles, industrial automation, and smart cities. This trend is expected to continue driving the demand for Edge AI chips, as businesses strive to leverage data for improved decision-making and operational efficiency.

Restraint:

High power consumption

Edge devices often operate on battery power, making energy efficiency a key concern. The high computational requirements of AI algorithms can lead to increased power consumption, limiting the practicality of edge AI solutions in certain applications. Addressing this challenge requires continuous advancements in chip design to optimize power efficiency without compromising performance hampering the growth of the market.

Opportunity:

Growing demand for real-time processing and low latency in applications

Industries such as healthcare, automotive, and manufacturing require immediate data processing to support critical functions, such as real-time diagnostics, autonomous driving, and predictive maintenance. Edge AI chips enable these applications by processing data locally, reducing the time required for data transmission to centralized servers. This opportunity is expected to drive innovation and growth in the edge AI chip market, as organizations seek to enhance their operational capabilities.

Threat:

Limited on-device training

Edge devices often have constrained resources, making it challenging to perform complex training tasks for AI models. This limitation can restrict the functionality and adaptability of edge AI solutions, as they may rely on pre-trained models that cannot be updated in real-time. Addressing this threat requires the development of more efficient training algorithms and hardware architectures that can support on-device learning

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while minimizing resource consumption.

Covid-19 Impact

The Covid-19 pandemic had a mixed impact on the Edge Artificial Intelligence Chips market. On one hand, the shift to remote work and the increased reliance on digital infrastructure accelerated the adoption of edge AI solutions for applications such as remote monitoring and telemedicine. On the other hand, economic uncertainties and budget constraints caused by the pandemic led to delays in some projects and investments. Despite these challenges, the long-term impact is expected to be positive, with continued growth driven by the ongoing digital transformation and the need for resilient and efficient data processing capabilities.

The central processing unit (CPU) segment is expected to be the largest during the forecast period

The central processing unit (CPU) segment is expected to account for the largest market share during the forecast period. CPUs are integral components of edge AI systems, providing the necessary computational power to process AI algorithms and handle diverse workloads. The versatility and widespread adoption of CPUs across various industries contribute to their dominant position in the market. As edge AI applications continue to expand, the demand for powerful and efficient CPUs is expected to grow, further solidifying their market leadership.

The speech recognition segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the speech recognition segment is predicted to witness the highest growth rate owing to the increasing adoption of voice-activated assistants, smart speakers, and conversational AI applications drives the demand for advanced speech recognition technologies. Edge AI chips play a crucial role in enabling real-time speech processing, enhancing user experiences, and supporting hands-free operations. This trend is expected to propel the growth of the speech recognition segment, making it one of the fastest-growing areas in the edge AI chip market.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to North America's advanced technological infrastructure, strong

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presence of leading AI companies, and high adoption rate of edge computing solutions drive the demand for edge AI chips. The region's focus on innovation and continuous investment in research and development further support the market's growth. North America is poised to maintain its leadership position in the edge AI chip market throughout the forecast period.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR owing to rapid urbanization, increasing digitalization, and the expansion of the IT and telecom sectors in countries like China and India drive the demand for edge AI solutions. The region's growing number of connected devices and rising awareness of data security and privacy contribute to the market's robust growth. The Asia Pacific market is set to experience significant expansion, driven by technological advancements and evolving business practices.

Key players in the market

Some of the key players in Edge Artificial Intelligence Chips market include ADLINK Technology Inc., Advanced Micro Devices, Inc., Alphabet Inc., Amazon.com, Inc., Apple Inc., Arm Limited, Edge Impulse, HiSilicon(Shanghai) Technologies Co Limited, Huawei Technologies Co., Ltd., Intel Corporation, Microsoft Corporation, Mythic, NVIDIA Corporation, Qualcomm Technologies, Inc. Samsung and Synaptics Incorporated.

Key Developments:

In January 2025, ADLINK Technology Inc., unveiled its new “DLAP Supreme Series”, an edge generative AI platform. By integrating Phison’s innovative aiDAPTIV+ AI solution, this series overcomes memory limitations in edge generative AI applications, significantly enhancing AI computing capabilities on edge devices.

In January 2025, Amazon launched the all-new Echo Spot in India, making it the latest addition to its line-up of Alexa-enabled Echo devices. Echo Spot is a sleek new smart alarm clock, featuring a variety of custom-designed clock faces, colourful display options, and four newly-added alarm sounds.

Chip Types Covered:

Central Processing Unit (CPU)

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Graphics Processing Unit (GPU)

Application-Specific Integrated Circuit

Field Programmable Gate Arrays

Neural Processing Units

Other Chip Types

Device Types Covered:

Consumer Devices

Enterprise Devices

Applications Covered:

Image Recognition

Speech Recognition

Natural Language Processing

Autonomous Vehicles

Predictive Maintenance

Smart Cities & IoT Devices

Other Applications

End Users Covered:

Consumer Electronics

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- Automotive
- Healthcare
- Industrial
- Retail & E-commerce
- Telecommunications
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific

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- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar
- South Africa
- Rest of Middle East & Africa

What our report offers:

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- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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