

AI Chip Market By Offerings (GPU, CPU, FPGA, NPU, TPU, Trainium, Inferentia, T-head, Athena ASIC, MTIA, LPU, Memory {DRAM (HBM, DDR)}, Network {NIC/Network Adapters, Interconnects}), Function (Training, Inference), & Region - Global Forecast to 2032

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Report description:

The AI chip market is projected to grow from USD 203.24 billion in 2025 to USD 564.87 billion by 2032; it is expected to grow at a compound annual growth rate (CAGR) of 15.7% from 2025 to 2032.

<https://mnmimg.marketsandmarkets.com/Images/artificial-intelligence-chipset-market-img-overview.webp>

"The neural processing unit (NPU) segment is projected to record a high growth rate during the forecast period."

The neural processing unit (NPU) segment is expected to record a high growth rate in the AI chip market from 2024 to 2029. The market growth is attributed to the increasing adoption of high-end smartphones, AI PCs, and laptops, which require dedicated AI capabilities at the edge. The NPUs help accelerate neural network processing to perform AI-driven tasks, including advanced AI image processing and natural language processing. Market players are extensively focusing on developing high-end NPU solutions to stay competitive in the market. For instance, in September 2023, Apple Inc. (US) launched the iPhone 15 Pro series, featuring the A17 Pro chip. The new AI processor is equipped with a dedicated 16-core Neural Engine, capable of performing 35 trillion operations per second (TOPS). Such significant product developments and launches are expected to amplify the adoption of NPUs in the market over the forecast period.

"The machine learning segment is expected to account for significant market share throughout the forecast period."

The machine learning segment of the AI chip market is expected to capture a significant market share. AI chips are crucial in

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processing large datasets to enable predictive analytics, supporting real-time decision-making, as they are optimized for machine learning tasks such as training and inference. For this category of AI chips, the foremost drivers of adoption were flexibility and scalability of machine learning models within autonomous systems and personalized recommendations. This AI chip is widely used in many sectors, including cloud services, healthcare, finance, automotive, and retail. Companies are developing powerful AI chips to support machine learning capabilities, which enable business insights, improve customer experience, and enhance overall efficiency. For instance, Google (US) announced Trillium in May 2024 as its sixth-generation TPU. It focuses on its cloud platform, featuring an onboard accelerator for accelerating machine learning workloads. Enterprises that have adopted TPUs widely bring machine learning power to predictive analytics, personalization, and operational efficiency. This represents increasing dependence on AI chips in this domain. As businesses seek to harness the power of data for insights, efficiencies, and enhanced customer experiences, demand is surging for machine learning capabilities.

"The US is expected to hold the largest share of the North American market during the forecast period."

The US is expected to hold the largest share of the AI chip market in North America. The presence of prominent technology firms and data center operators is driving the AI chip market across North America. The region hosts companies such as NVIDIA Corporation (US), Intel Corporation (US), Advanced Micro Devices, Inc. (AMD) (US), Google (US); and cloud service providers include Amazon Web Services, Inc. (AWS) (US), Microsoft Azure (US), and Google Cloud (US). For instance, in April 2024, Google (US) announced a USD 3 billion investment to expand its data centers across the US. These data centers are further supported by AI infrastructure, enabling them to provide real-time services worldwide. The region also hosts several startups established in the area to provide AI chips for data centers, including SAPEON Inc. (US), Tenstorrent (Canada), Taalas (Canada), Kneron, Inc. (US), and SambaNova Systems, Inc. (US). North America has a well-established technological infrastructure that supports advanced AI research and development. There are many modern data centers in this region, equipped with state-of-the-art AI hardware. They may include GPUs, TPUs, and specialized AI chips. The presence of large-scale data centers and leading AI chip developers in the region is driving the growth of the AI chip market.

Extensive primary interviews were conducted with key industry experts in the AI chip market to determine and verify the market size for various segments and subsegments, which were gathered through secondary research. The breakdown of primary participants for the report is shown below.

The study draws insights from a range of industry experts, including component suppliers, Tier 1 companies, and OEMs. The break-up of the primaries is as follows:

-□By Company Type - Tier 1 - 45%, Tier 2 - 32%, and Tier 3 - 23%

-□By Designation - C-level Executives - 30%, Directors - 45%, and Others - 25%

-□By Region - Asia Pacific - 26%, Europe - 40%, North America - 22%, and RoW - 12%

Note: Other designations include technology heads, media analysts, sales managers, marketing managers, and product managers.

The three tiers of companies are based on their total revenues as of 2024: Tier 1: >USD 1 billion, Tier 2: USD 500 million to 1 billion, and Tier 3: <USD 500 million.

Prominent players profiled in this report include NVIDIA Corporation (US), Intel Corporation (US), Advanced Micro Devices, Inc. (US), Micron Technology, Inc. (US), Google (US), Samsung (South Korea), SK HYNIX INC. (South Korea), Qualcomm Technologies, Inc. (US), Huawei Technologies Co., Ltd. (China), Apple Inc. (US), Imagination Technologies (UK), Graphcore (UK), Cerebras (US).

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Apart from this, Mythic (US), Kalray (France), Blaize (US), Groq, Inc. (US), HAILO TECHNOLOGIES LTD (Israel), GreenWaves Technologies (France), SiMa Technologies, Inc. (US), Kneron, Inc. (US), Rain Neuromorphics Inc. (US), Tenstorrent (Canada), SambaNova Systems, Inc. (US), Taalas (Canada), SAPEON Inc. (US), Rebellions Inc. (South Korea), Rivos Inc. (US), and Shanghai BiRen Technology Co., Ltd. (China) are among a few emerging companies in the AI chip market.

Report Coverage

The report defines, describes, and forecasts the AI chip market based on type, technology, frequency, application, and region. It provides detailed information regarding drivers, restraints, opportunities, and challenges influencing the growth of the AI chip market. It also analyzes competitive developments, including acquisitions, product launches, expansions, and strategic actions taken by key players to expand in the market.

Reasons to Buy This Report

The report will help market leaders/new entrants in the market with information on the closest approximations of revenue for the overall AI chip market and its subsegments. The report will help stakeholders understand the competitive landscape and gain more insight to position their business better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market, providing them with information on key drivers, restraints, opportunities, and challenges.

The report will provide insights into the following pointers:

Analysis of key drivers (Surging use of GPUs and ASICs in AI servers), restraints (Computational workloads and high power consumption by AI chips), opportunities (Increasing investments in AI-enabled data centers by cloud service providers), and challenges (Supply chain disruptions) in the AI chip market.

-□Product development/Innovation: Detailed insights on upcoming technologies, research & development activities, and product launches/enhancements in the AI chip market.

-□Market Development: Comprehensive information about lucrative markets; the report analyzes the AI chip market across various regions.

-□Market Diversification: Exhaustive information about new products launched, untapped geographies, recent developments, and investments in the AI chip market.

-□Competitive Assessment: In-depth assessment of market share, growth strategies, and offering of leading players such as NVIDIA Corporation (US), Intel Corporation (US), Advanced Micro Devices, Inc. (US), Micron Technology, Inc. (US), Google (US), Samsung (South Korea), SK HYNIX INC. (South Korea), Qualcomm Technologies, Inc. (US), Huawei Technologies Co., Ltd. (China), among others in the AI chip market.

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