

AI Chips Market Forecasts to 2034 – Global Analysis By Chip Type (GPU (Graphics Processing Unit), CPU (Central Processing Unit), FPGA (Field Programmable Gate Array), ASIC (Application-Specific Integrated Circuit) and Custom Accelerators), Function, Technology, Application, End User and By Geography

<https://marketpublishers.com/r/A585AE5F90B6EN.html>

Date: April 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: A585AE5F90B6EN

Abstracts

According to Statistics MRC, the Global AI Chips Market is accounted for \$39.6 billion in 2026 and is expected to reach \$273.2 billion by 2034 growing at a CAGR of 27.3% during the forecast period. AI chips are advanced processors created to handle AI-related tasks, including neural networks, deep learning, and machine learning. Different from conventional CPUs, GPUs, TPUs, and FPGAs provide extensive parallel processing, allowing quicker computations and higher efficiency. These chips are crucial for robotics, autonomous cars, NLP, and data centers. They minimize latency, improve energy usage, and enable real-time analytics. With AI becoming integral to various sectors, the need for high-performance, optimized AI chips is surging, pushing advancements in chip design and architecture innovations.

According to the IndiaAI Mission (Government of India initiative), India has already deployed 38,000 GPUs to strengthen AI compute capacity, directly supporting the AI chip ecosystem. This mission is part of a broader national strategy to reduce reliance on imports and build domestic semiconductor capability, with AI chips at the center of this effort.

Market Dynamics:

Driver:

Demand for high-performance computing

Increasing high-performance computing demands for AI tasks are a key market driver. Complex applications such as deep learning, NLP, and computer vision need extensive parallel processing. GPUs, TPUs, and other AI chips efficiently manage these workloads, accelerating computations and improving precision. Research, cloud computing, and big data analytics amplify the need for specialized AI hardware. Enterprises focusing on AI infrastructure adopt these chips for faster training, real-time decision-making, and scalable solutions. Consequently, the rising HPC requirements continue to fuel the growth and innovation in the AI chip market globally.

Restraint:

High cost of AI chips

Expensive AI chips are a major market constraint. Developing high-performance GPUs, TPUs, and custom processors involves significant R&D and production costs. This price barrier makes it difficult for smaller businesses to adopt AI hardware, restricting deployment in various projects. Additionally, the overall cost of AI infrastructure, such as data centers and servers, rises with expensive chips. As a result, the adoption of AI technology slows in cost-sensitive sectors and regions. Market growth is limited until lower-cost, efficient AI chip solutions emerge, making advanced computing accessible to a wider range of organizations globally.

Opportunity:

Expansion of edge AI and IoT applications

The rise of edge AI and IoT creates opportunities for AI chip growth. Processing data locally on edge devices reduces latency and network dependency, requiring compact and energy-efficient chips. Sectors like smart cities, manufacturing, retail, and logistics increasingly adopt edge AI for automation, predictive maintenance, and real-time insights. AI chips designed for edge computing support on-device learning and rapid inference. With the increasing adoption of connected devices and demand for instant processing, manufacturers can develop specialized AI chips for edge and IoT applications, accessing a fast-growing and lucrative market segment.

Threat:

Rapid technological obsolescence

The AI chip market faces threats from rapid technological change. Constant innovations in chip architecture, performance, and energy efficiency can render existing chips obsolete quickly. Companies investing in older technologies may see diminished returns and shortened product lifespans. Continuous innovation is required to remain competitive, pressuring R&D teams. End-users also face frequent upgrades and higher costs. This rapid pace introduces uncertainty, disrupts long-term business strategies, and may slow AI chip adoption. Financial risks for manufacturers and users increase, making the market vulnerable to obsolescence and pushing continuous technological advancement as a necessity.

Covid-19 Impact:

The COVID-19 crisis affected the AI chip market in multiple ways. Manufacturing halts, disrupted supply chains, and shipping delays slowed chip production and raised costs temporarily. At the same time, the pandemic increased reliance on AI-driven technologies in healthcare, remote work, cloud computing, and online services, raising demand for advanced AI chips. Businesses invested more in AI infrastructure to enable automation, analytics, and virtual operations. Despite initial production setbacks, the pandemic emphasized the critical role of AI chips, accelerating their adoption and encouraging innovations in performance, efficiency, and next-generation chip design for long-term market growth.

The GPU (graphics processing unit) segment is expected to be the largest during the forecast period

The GPU (graphics processing unit) segment is expected to account for the largest market share during the forecast period because they efficiently manage parallel processing tasks, crucial for AI and machine learning operations. They enable faster model training and inference in deep learning, NLP, and computer vision applications. Their extensive use in research centers, cloud services, and enterprise data centers reinforces their leading position. With superior computational speed, scalability, and adaptability, GPUs are favored by AI developers and organizations over CPUs, FPGAs, ASICs, and custom accelerators.

The 3D packaging / chiplets segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the 3D packaging / chiplets segment is predicted to witness the highest growth rate because they stack multiple chip elements vertically, boosting processing speed, energy efficiency, and integration density. This technique minimizes interconnect delays, improves thermal management, and supports demanding AI workloads. As AI applications require higher computational complexity and bandwidth, 3D packaging enables scalable, modular, and power-efficient chip solutions. Its ability to enhance performance while reducing size and energy use drives its rapid market adoption.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to its strong technology ecosystem, advanced semiconductor fabrication, and significant R&D spending. Widespread AI adoption in industries like healthcare, automotive, finance, and cloud computing strengthens this position. Supportive infrastructure, government initiatives, and skilled workforce further boost market leadership. Continuous advancements in high-performance, energy-efficient AI chips drive innovation, while the presence of major manufacturers and research centers makes North America a key hub for AI chip development and deployment.

Region with highest CAGR:

Over the forecast period, the Asia-Pacific region is anticipated to exhibit the highest CAGR, driven by rapid AI adoption, increasing R&D investments, and expanding semiconductor manufacturing infrastructure. Key countries such as China, Japan, and South Korea are applying AI across healthcare, automotive, finance, and industrial sectors. Government initiatives, a large market base, and emerging startups further propel growth. The region's emphasis on innovation, efficient production, and advanced AI chip development accelerates market expansion.

Key players in the market

Some of the key players in AI Chips Market include NVIDIA, Advanced Micro Devices (AMD), Intel, Google, IBM, Apple, Qualcomm, Samsung, NXP Semiconductors, Broadcom, Huawei, Micron Technology, SK Hynix, Cerebras, Graphcore, Imagination Technologies, AWS (Amazon) and TSMC.

Key Developments:

In April 2026, Intel Corp plans to invest an additional \$15 million in AI chip startup SambaNova Systems, according to a Reuters review of corporate records, as the semiconductor company deepens its focus on artificial intelligence infrastructure. The proposed investment, which is subject to regulatory approval, would raise Intel's ownership stake in SambaNova to approximately 9%.

In March 2026, NVIDIA and Marvell Technology, Inc. announced a strategic partnership to connect Marvell to the NVIDIA AI factory and AI-RAN ecosystem through NVIDIA NVLink Fusion™, offering customers building on NVIDIA architectures greater choice and flexibility in developing next-generation infrastructure. The companies will also collaborate on silicon photonics technology.

In February 2025, NXP Semiconductors has acquired AI chip startup Kinara in a \$307 million all-cash agreement. NXP said the acquisition would enable it to “enhance and strengthen” its ability to provide scalable AI platforms by combining Kinara's NPUs and AI software with NXP's solutions portfolio. Kinara develops programmable neural processing units (NPUs) for Edge AI applications, including multi-modal generative AI models.

Chip Types Covered:

GPU (Graphics Processing Unit)

CPU (Central Processing Unit)

FPGA (Field Programmable Gate Array)

ASIC (Application-Specific Integrated Circuit)

Custom Accelerators

Functions Covered:

Training Workloads

Inference Workloads

Technologies Covered:

System-on-Chip (SoC)

System-in-Package (SiP)

Multi-Chip Module (MCM)

3D Packaging / Chiplets

Applications Covered:

Machine Learning

Robotics & Autonomous Systems

Edge AI

End Users Covered:

Consumer Electronics

Automotive

Healthcare

Industrial & Manufacturing

BFSI (Banking, Financial Services, Insurance)

IT & Telecom

Defense & Aerospace

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

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

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL AI CHIPS MARKET, BY CHIP TYPE

- 5.1 GPU (Graphics Processing Unit)
- 5.2 CPU (Central Processing Unit)
- 5.3 FPGA (Field Programmable Gate Array)
- 5.4 ASIC (Application-Specific Integrated Circuit)
 - 5.4.1 NPU (Neural Processing Unit)
 - 5.4.2 TPU (Tensor Processing Unit)
- 5.5 Custom Accelerators

6 GLOBAL AI CHIPS MARKET, BY FUNCTION

- 6.1 Training Workloads
- 6.2 Inference Workloads

7 GLOBAL AI CHIPS MARKET, BY TECHNOLOGY

- 7.1 System-on-Chip (SoC)
- 7.2 System-in-Package (SiP)
- 7.3 Multi-Chip Module (MCM)
- 7.4 3D Packaging / Chiplets

8 GLOBAL AI CHIPS MARKET, BY APPLICATION

- 8.1 Machine Learning
 - 8.1.1 Deep Learning
 - 8.1.2 Natural Language Processing (NLP)
 - 8.1.3 Computer Vision
- 8.2 Robotics & Autonomous Systems
- 8.3 Edge AI

9 GLOBAL AI CHIPS MARKET, BY END USER

- 9.1 Consumer Electronics
- 9.2 Automotive

- 9.3 Healthcare
- 9.4 Industrial & Manufacturing
- 9.5 BFSI (Banking, Financial Services, Insurance)
- 9.6 IT & Telecom
- 9.7 Defense & Aerospace

10 GLOBAL AI CHIPS MARKET, BY GEOGRAPHY

- 10.1 North America
 - 10.1.1 United States
 - 10.1.2 Canada
 - 10.1.3 Mexico
- 10.2 Europe
 - 10.2.1 United Kingdom
 - 10.2.2 Germany
 - 10.2.3 France
 - 10.2.4 Italy
 - 10.2.5 Spain
 - 10.2.6 Netherlands
 - 10.2.7 Belgium
 - 10.2.8 Sweden
 - 10.2.9 Switzerland
 - 10.2.10 Poland
 - 10.2.11 Rest of Europe
- 10.3 Asia Pacific
 - 10.3.1 China
 - 10.3.2 Japan
 - 10.3.3 India
 - 10.3.4 South Korea
 - 10.3.5 Australia
 - 10.3.6 Indonesia
 - 10.3.7 Thailand
 - 10.3.8 Malaysia
 - 10.3.9 Singapore
 - 10.3.10 Vietnam
 - 10.3.11 Rest of Asia Pacific
- 10.4 South America
 - 10.4.1 Brazil
 - 10.4.2 Argentina

- 10.4.3 Colombia
- 10.4.4 Chile
- 10.4.5 Peru
- 10.4.6 Rest of South America
- 10.5 Rest of the World (RoW)
 - 10.5.1 Middle East
 - 10.5.1.1 Saudi Arabia
 - 10.5.1.2 United Arab Emirates
 - 10.5.1.3 Qatar
 - 10.5.1.4 Israel
 - 10.5.1.5 Rest of Middle East
 - 10.5.2 Africa
 - 10.5.2.1 South Africa
 - 10.5.2.2 Egypt
 - 10.5.2.3 Morocco
 - 10.5.2.4 Rest of Africa

11 STRATEGIC MARKET INTELLIGENCE

- 11.1 Industry Value Network and Supply Chain Assessment
- 11.2 White-Space and Opportunity Mapping
- 11.3 Product Evolution and Market Life Cycle Analysis
- 11.4 Channel, Distributor, and Go-to-Market Assessment

12 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 12.1 Mergers and Acquisitions
- 12.2 Partnerships, Alliances, and Joint Ventures
- 12.3 New Product Launches and Certifications
- 12.4 Capacity Expansion and Investments
- 12.5 Other Strategic Initiatives

13 COMPANY PROFILES

- 13.1 NVIDIA
- 13.2 Advanced Micro Devices (AMD)
- 13.3 Intel
- 13.4 Google
- 13.5 IBM

- 13.6 Apple
- 13.7 Qualcomm
- 13.8 Samsung
- 13.9 NXP Semiconductors
- 13.10 Broadcom
- 13.11 Huawei
- 13.12 Micron Technology
- 13.13 SK Hynix
- 13.14 Cerebras
- 13.15 Graphcore
- 13.16 Imagination Technologies
- 13.17 AWS (Amazon)
- 13.18 TSMC

List Of Tables

LIST OF TABLES

- Table 1 Global AI Chips Market Outlook, By Region (2023-2034) (\$MN)
- Table 2 Global AI Chips Market Outlook, By Chip Type (2023-2034) (\$MN)
- Table 3 Global AI Chips Market Outlook, By GPU (Graphics Processing Unit) (2023-2034) (\$MN)
- Table 4 Global AI Chips Market Outlook, By CPU (Central Processing Unit) (2023-2034) (\$MN)
- Table 5 Global AI Chips Market Outlook, By FPGA (Field Programmable Gate Array) (2023-2034) (\$MN)
- Table 6 Global AI Chips Market Outlook, By ASIC (Application-Specific Integrated Circuit) (2023-2034) (\$MN)
- Table 7 Global AI Chips Market Outlook, By NPU (Neural Processing Unit) (2023-2034) (\$MN)
- Table 8 Global AI Chips Market Outlook, By TPU (Tensor Processing Unit) (2023-2034) (\$MN)
- Table 9 Global AI Chips Market Outlook, By Custom Accelerators (2023-2034) (\$MN)
- Table 10 Global AI Chips Market Outlook, By Function (2023-2034) (\$MN)
- Table 11 Global AI Chips Market Outlook, By Training Workloads (2023-2034) (\$MN)
- Table 12 Global AI Chips Market Outlook, By Inference Workloads (2023-2034) (\$MN)
- Table 13 Global AI Chips Market Outlook, By Technology (2023-2034) (\$MN)
- Table 14 Global AI Chips Market Outlook, By System-on-Chip (SoC) (2023-2034) (\$MN)
- Table 15 Global AI Chips Market Outlook, By System-in-Package (SiP) (2023-2034) (\$MN)
- Table 16 Global AI Chips Market Outlook, By Multi-Chip Module (MCM) (2023-2034) (\$MN)
- Table 17 Global AI Chips Market Outlook, By 3D Packaging / Chiplets (2023-2034) (\$MN)
- Table 18 Global AI Chips Market Outlook, By Application (2023-2034) (\$MN)
- Table 19 Global AI Chips Market Outlook, By Machine Learning (2023-2034) (\$MN)
- Table 20 Global AI Chips Market Outlook, By Deep Learning (2023-2034) (\$MN)
- Table 21 Global AI Chips Market Outlook, By Natural Language Processing (NLP) (2023-2034) (\$MN)
- Table 22 Global AI Chips Market Outlook, By Computer Vision (2023-2034) (\$MN)
- Table 23 Global AI Chips Market Outlook, By Robotics & Autonomous Systems (2023-2034) (\$MN)

Table 24 Global AI Chips Market Outlook, By Edge AI (2023-2034) (\$MN)

Table 25 Global AI Chips Market Outlook, By End User (2023-2034) (\$MN)

Table 26 Global AI Chips Market Outlook, By Consumer Electronics (2023-2034) (\$MN)

Table 27 Global AI Chips Market Outlook, By Automotive (2023-2034) (\$MN)

Table 28 Global AI Chips Market Outlook, By Healthcare (2023-2034) (\$MN)

Table 29 Global AI Chips Market Outlook, By Industrial & Manufacturing (2023-2034) (\$MN)

Table 30 Global AI Chips Market Outlook, By BFSI (Banking, Financial Services, Insurance) (2023-2034) (\$MN)

Table 31 Global AI Chips Market Outlook, By IT & Telecom (2023-2034) (\$MN)

Table 32 Global AI Chips Market Outlook, By Defense & Aerospace (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

I would like to order

Product name: AI Chips Market Forecasts to 2034 – Global Analysis By Chip Type (GPU (Graphics Processing Unit), CPU (Central Processing Unit), FPGA (Field Programmable Gate Array), ASIC (Application-Specific Integrated Circuit) and Custom Accelerators), Function, Technology, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/A585AE5F90B6EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/A585AE5F90B6EN.html>