+357 96 030922
info@marketpublishers.com

Global Artificial Intelligence (AI) Hardware Market – Types, Applications and Industry Sectors

https://marketpublishers.com/r/G3F7B76260B0EN.html
Date: May 2025
Pages: 364
Price: US$ 5,490.00 (Single User License)
ID: G3F7B76260B0EN

Abstracts

Artificial Intelligence (AI) Hardware Market Trends and Outlook

Given the significance AI has garnered over the past few years, a number of trends are shaping its performance in the hardware market. The focus on embedding AI capabilities into edge devices, such as smartphones, IoT sensors and vehicles has been growing, owing to which the demand for low-power, high-performance chips, such as edge-optimized GPUs and ASICs has also been increasing. Several companies have seized the initiative in designing customized chips for specific AI workloads (e.g., Google's TPUs & Microsoft's Maia) for improving efficiency and performance, because of which dependence on general-purpose GPUs has reduced. Neuromorphic chips, inspired by the human brain, are another aspect of AI Hardware gaining potentiality of providing better efficiency in cognitive tasks for applications in robotics and autonomous systems.

Another major trend relates to innovations in chip architecture and cooling systems, which is being prioritized to develop energy-efficient hardware for industries targeting reduction of their carbon footprint in AI operations. However, stymying this progressive scenario is the unprecedented level of tariffs now being imposed by the incumbent United States government under President Trump on a number of countries, including China, Taiwan and Vietnam, all major chip producers and exporters. This will undeniably lead to a steep rise in the cost of AI servers, laptops and GPUs to further impact demand negatively.

Global market size for AI Hardware is estimated at US$25 billion in 2024 and is likely to register a 2024-2030 CAGR of 20.5% in reaching a projected US$76.7 billion by 2030. One of the major factors propelling demand for AI Hardware includes growing demand

+357 96 030922
info@marketpublishers.com

for AI applications. An increase in the use of AI across industries, such as healthcare (for diagnostics), automotive (for autonomous vehicles) and retail (for personalized suggestions) has been driving the demand for effective hardware that can support complex algorithms and real-time processing. Further expansion is being enabled by innovations in chip design, such as smaller, more energy-efficient transistors and specialized AI accelerators that allow faster and more efficient computation.

AI-optimized solutions have also gained in demand owing to an exponential growth of data from IoT devices, cloud services and digital platforms, requiring hardware that can handle large-scale processing and analytics. High-tech companies, such as Googe, Microsoft, NVIDIA, Intel and Qualcomm have also been investing heavy amounts towards R&D with the goal of developing cutting-edge AI hardware, further accelerating innovation and market growth. Edge computing is a concept that processes data closer to its source, as in the case of smart devices or autonomous systems, for which compact, efficient AI hardware specific for edge environments is needed, making it another fueling demand for AI hardware.

AI Hardware Regional Market Analysis

With an estimated share of 34% in 2024, North America is the largest global market for AI Hardware. The region is home to major tech giants, such as NVIDIA, Intel, AMD, Apple, Google and IBM, which are prominent producers of AI hardware, such as GPUs and TPUs, in addition to investing heavily in research & development, thereby driving market growth. Statistics indicate that NVIDIA controls over 90% of the worldwide market for data center GPUs. In terms of R&D investment, innovations in AI are being substantially funded by private and public investments, with about 25% of US startup investments in 2023 going to companies engaged in AI. Government initiatives, such as the CHIPS Act, have further boosted semiconductor advancements by contributing almost US$100 million for sustainable chip materials. The adoption rate of AI across industries in North America is also quite rapid, with AI hardware being integrated across the IT, telecommunications, healthcare and automotive sectors. Leading among these is the IT & Telecommunications sector that has been adopting AI hardware for sustaining cloud computing and data centers.

AI Hardware Market Analysis by Type

Other than being the largest, with a 2024 share estimated at 55.3%, the global market for Processors in AI Hardware, including GPUs, TPUs, CPUs & ASICs, is also anticipated to be the fastest growing, likely to register a compounded annual rate of

+357 96 030922
info@marketpublishers.com

22% between 2024 and 2030. Managing compute-intensive tasks, such as training and inference for machine learning models, has rendered Processors to become the mainstay of AI systems, with GPUs standing a head above other types of Processors. The significance of these devices in the areas of automotive, finance, healthcare and IT is well-recognized. Instances of the same comprise the use of CPUs and GPUs to power data centers for cloud-based AI services and utilizing ASICs and TPUs in specific applications, such as autonomous vehicles and Google's AI services. Another major factor for the dominance of Processors is the range of chips on offer (GPUs, CPUs, ASICs, FPGAs and TPUs) that can fulfil diverse AI requirements, such as training, inference, edge computing and real-time processing, which allows to cover a wide spectrum of the market.

AI Hardware Market Analysis by Application

Machine Learning (ML) constitutes the primary application for AI Hardware on a worldwide basis, estimated to account for a share of 41.8% in 2024. In addition, the market for AI Hardware in this application area will also register the fastest 2024-2030 CAGR of 21.7%. ML is considered to be the heart of AI systems in terms of reinforcing most AI applications, such as deep learning, neural networks and predictive analytics, all of which need massive computing power. This further drives the requirement for AI hardware, such as GPUs, TPUs and ASICs. The adoption of ML across a broad range of industries has also become quite common, including in automotive for autonomous driving, finance for fraud detection, healthcare for diagnostics and retail for recommendation systems. Studies have indicated that in 2023, nearly 70% of global organizations have taken recourse to ML for data analytics, which has further propelled hardware demand for training and inference.

AI Hardware Market Analysis by Industry Sector

With an estimated share of 33.3% in 2024, the global demand for AI Hardware by sector is led by IT & Telecommunications, a key factor for which is high demand for data processing. AI hardware forms a major component of this sector, allowing enormous data volumes generated by cloud computing, 5G networks and IoT devices to be processed efficiently. The major players in the IT & telecom sector, such as AWS, Microsoft Azure and Google Cloud make wide use of AI hardware for AI-as-a-service (AIaaS) platforms, with about 60% of worldwide data center AI hardware spending in 2023 being accounted for by this area, courtesy the deployment of NVIDIA GPUs and Intel AI chips by hyperscale data centers. AI hardware is widely used for real-time network management, predictive maintenance and 5G optimization by

+357 96 030922
info@marketpublishers.com

telecommunications companies, as in the case of AI processors handling traffic routing and detecting anomalies that further need high-performance chips. The integration of AI by IT & telecom firms into customer service (chatbots), cybersecurity (threat detection) and operational efficiency (automation) are necessitating the demand for diverse AI hardware, ranging from edge processors for IoT to ASICs for specialized tasks, giving credence to the sector's leading market position.

Artificial Intelligence (AI) Hardware Market Report Scope

This global report on Artificial Intelligence (AI) Hardware analyzes the market based on hardware type, application type and industry sector for the period 2021-2030 with projections from 2024 to 2030 in terms of value in USD. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2023

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US$

Companies Mentioned: 14

Artificial Intelligence (AI) Hardware Market by Geographic Region

North America (United States, Canada and Mexico)

Europe (Germany, United Kingdom, France, Italy, Netherlands, Spain, Russia, Switzerland and Rest of Europe)

Asia-Pacific (China, Japan, India, Australia, Singapore, South Korea and Rest of Asia-Pacific)

South America (Brazil, Argentina, Colombia, Chile, Peru and Rest of South

+357 96 030922
info@marketpublishers.com

America)

Middle East & Africa (United Arab Emirates, South Africa, Egypt, Saudi Arabia, Morocco, Kuwait, Qatar and Rest of Middle East & Africa)

Artificial Intelligence (AI) Hardware Market by Hardware Type

Processors

Network

Memory

Storage

Artificial Intelligence (AI) Hardware Market by Application Type

Machine Learning

Computer Vision

Natural Language Processing

Expert Systems

Artificial Intelligence (AI) Hardware Market by Industry Sector

IT & Telecommunications

BFSI

Healthcare

Retail

Automotive

+357 96 030922
info@marketpublishers.com

Others

+357 96 030922
info@marketpublishers.com

Contents

PART A: GLOBAL MARKET PERSPECTIVE

1. EXECUTIVE SUMMARY
A Roundup on Artificial Intelligence (AI) Hardware
Types of Artificial Intelligence (AI) Hardware
Major Applications of Artificial Intelligence (AI) Hardware
Artificial Intelligence (AI) Hardware by Industry Sectors
Key Market Trends of Artificial Intelligence (AI) Hardware
Expansion of AI Data Centers on the Card
Edge AI Computing: 'Cutting Edge' of AI Technology
Demand for Specialized AI Chips and Accelerators Increasing
Autonomous Systems Powered by AI Gaining Traction
Quantum AI and Next-Gen Computing Set to Transform Specific Tasks
AI Hardware Startups and Investments On the Rise
Role of AI in Cybersecurity and Privacy Expanding
2. INDUSTRY LANDSCAPE
Global Artificial Intelligence (AI) Hardware Market Outlook
Growth Drivers of Artificial Intelligence (AI) Hardware Market
Cloud AI and AI-as-a-Service (AIaaS) On the Rise
Crucial Influencing Factors
Market Impacts
Improvements in AI Chips and Accelerators
Crucial Influencing Factors
Market Impacts
Demand for AI-Powered Applications Increasing
Crucial Influencing Factors
AI in Autonomous Vehicles and Advanced Driver Assistance Systems (ADAS)
Healthcare Based on AI
AI in Retail and Personalization
Market Impacts
Edge AI and On-Device Processing Expanding
Crucial Influencing Factors
Market Impacts
AI Infrastructure Investments by Governments and Organizations Increasing
Crucial Influencing Factors
Market Impacts
Cybersecurity's Adoption of AI Growing

+357 96 030922
info@marketpublishers.com

Crucial Influencing Factors
Market Impacts
Contest Between AI Hardware Startups and Semiconductor Manufacturers
Crucial Influencing Factors
Market Impacts
AI Hardware Subject to Ethical and Regulatory Considerations
Crucial Influencing Factors
Market Impacts
Challenges Inhibiting AI Hardware Market Growth and Mitigating Strategies
Disruptive Semiconductor Supply Chains Being Further Marred by Several Factors
Impact on the Industry
Strategies for Mitigating Challenges
Prohibitive Pricing of AI Hardware Deters Development and Deployment
Impact on the Industry
Strategies for Mitigating Challenges
Concerns Related to High Power Consumption and Sustainability
Impact on the Industry
Strategies for Mitigating Challenges
Challenges Concerning Ethics, Privacy and Regulations
Impact on the Industry
Strategies for Mitigating Challenges
AI Model Deployment a Complex Process and How Hardware Optimization Helps
Impact on the Industry
Strategies for Mitigating Challenges
AI Hardware's Limited Lifespan and Unfettered Technological Changes
Impact on the Industry
Strategies for Mitigating Challenges
AI Hardware and Cybersecurity
Impact on the Industry
Strategies for Mitigating Challenges
Dearth of AI Expertise and Skills
Impact on the Industry
Strategies for Mitigating Challenges
How AI Hardware is being Adopted by Industry?
Artificial intelligence (AI) Hardware Industry – SWOT Analysis
Strengths
Weaknesses
Opportunities
Threats

+357 96 030922
info@marketpublishers.com

Strategic AI Hardware Industry Analysis
Porter's Five Forces Analysis
PESTEL Analysis
Market Entry & Startup Strategies for AI Hardware Market
Market Entry Strategies
Startup Trends
AI Hardware Startups Analysis by Region
Artificial Intelligence (AI) Hardware Supply Chain Analysis
Critical Bottlenecks and Geopolitical Risks in the AI Hardware Supply Chain
Escalating Trade Restrictions and Geopolitical Tensions
Strategic Overreliance on TSMC for Advanced AI Chip Manufacturing
Global Semiconductor Supply Constraints
Limited Production Capacity of High Bandwidth Memory
Emerging Trends Shaping the Future of the AI Hardware Supply Chain
Strategic Investment in Semiconductor Infrastructure
Regionalization and Supply Chain Diversification
Next-Generation AI Chip Architectures
3. COMPETITIVE LANDSCAPE
Market Positioning of Key AI Hardware Companies
Market Share Analysis of Artificial Intelligence (AI) Hardware
AI Hardware Market Share Analysis by Product
AI Hardware Market Share Analysis by Company
SWOT Analysis for Market Leaders of AI Hardware
Pricing Analysis of Artificial Intelligence Hardware
Comparison of Custom AI Chips and ASICs Costs with General-Purpose AI Chips
AI Hardware-as-a-Service (HaaS) and Subscription-Based Pricing Models
Pricing of AI Edge Hardware and AI-Embedded Devices
Production Growth and Competition Causing AI Chip Costs to Decline
Demand-Supply Imbalance Leading to Cost Increases of High-Performance AI GPUs
Supply Chain Constraints Increasing AI Hardware Costs
Pricing Trends for the Near Future
An Exhaustive Analysis of AI Hardware in Untapped Markets
Small & Mid-Sized Businesses (SMBs)
Wearable Devices and Smart IoT Sensors
Edge Computing in Promising Markets
Personalized AI Assistants
Quantum Computing + AI Fusion
AI Hardware for LegalTech and Financial Auditing
Smart Cities and Urban Infrastructure

+357 96 030922
info@marketpublishers.com

Ethical and Explainable AI
Telecom Networks and 5G
Space and Defense Applications
LegalTech and Financial Auditing
Key Market Players
ADVANCED MICRO DEVICES, INC. (UNITED STATES)
APPLE, INC. (UNITED STATES)
BRAINCHIP HOLDINGS LTD. (AUSTRALIA)
CAMBRICON TECHNOLOGIES CORP LTD (CHINA)
DELL TECHNOLOGIES, INC. (UNITED STATES)
GOOGLE LLC (UNITED STATES)
GRAPHCORE LTD (UNITED KINGDOM)
HUAWEI TECHNOLOGIES CO LTD (CHINA)
INTEL CORPORATION (UNITED STATES)
KALRAY SA (FRANCE)
LIGHTON SAS (FRANCE)
NVIDIA CORP (UNITED STATES)
QUALCOMM TECHNOLOGIES, INC. (UNITED STATES)
SAMSUNG ELECTRONICS CO LTD (SOUTH KOREA)
4. KEY BUSINESS & PRODUCT TRENDS
Important Recent Industry Activity
April 2025
SNSA Awards Frontgrade Gaisler a Contract to Commercialize SoC Device for Space Applications
April 2025
Network Optix Optimizes its Software with Intel Processors
April 2025
Siemens Healthineers Demonstrates AI-Rad Companion software powered by Intel Xeon Scalable processors
April 2025
Kamiwaza's AI Orchestration Engine Powered by Intel® Gaudi® 3 AI accelerators and Intel® Xeon® 6 processors
More developments included in the main report
Recent Major Product Launches by the Market Leaders
5. GLOBAL MARKET OVERVIEW
Global Artificial Intelligence (AI) Hardware Market Overview by Type
Artificial Intelligence (AI) Hardware Type Market Overview by Global Region
Processors
Network

+357 96 030922
info@marketpublishers.com

Memory
Storage
Global Artificial Intelligence (AI) Hardware Market Overview by Application
Artificial Intelligence (AI) Hardware Applications Market Overview by Global Region
Machine Learning
Computer Vision
Natural Language Processing
Expert Systems
Global Artificial Intelligence (AI) Hardware Market Overview by Industry Sector
Artificial Intelligence (AI) Hardware in Industry Sector Market Overview by Global Region
IT & Telecommunications
BFSI
Healthcare
Retail
Automotive
Other Industry Sectors

PART B: REGIONAL MARKET PERSPECTIVE

REGIONAL MARKET OVERVIEW
6. NORTH AMERICA
North American AI Hardware Market Overview by Geographic Region
North American AI Hardware Market Overview by Type
North American AI Hardware Market Overview by Application
North American AI Hardware Market Overview by Industry Sector
Country-wise Analysis of North American AI Hardware Market
THE UNITED STATES
United States AI Hardware Market Overview by Type
United States AI Hardware Market Overview by Application
United States AI Hardware Market Overview by Industry Sector
CANADA
Canadian AI Hardware Market Overview by Type
Canadian AI Hardware Market Overview by Application
Canadian AI Hardware Market Overview by Industry Sector
MEXICO
Mexican AI Hardware Market Overview by Type
Mexican AI Hardware Market Overview by Application
Mexican AI Hardware Market Overview by Industry Sector

+357 96 030922
info@marketpublishers.com

7. EUROPE
European AI Hardware Market Overview by Geographic Region
European AI Hardware Market Overview by Type
European AI Hardware Market Overview by Application
European AI Hardware Market Overview by Industry Sector
Country-wise Analysis of European AI Hardware Market
GERMANY
German AI Hardware Market Overview by Type
German AI Hardware Market Overview by Application
German AI Hardware Market Overview by Industry Sector
THE UNITED KINGDOM
United Kingdom AI Hardware Market Overview by Type
United Kingdom AI Hardware Market Overview by Application
United Kingdom AI Hardware Market Overview by Industry Sector
FRANCE
French AI Hardware Market Overview by Type
French AI Hardware Market Overview by Application
French AI Hardware Market Overview by Industry Sector
ITALY
Italian AI Hardware Market Overview by Type
Italian AI Hardware Market Overview by Application
Italian AI Hardware Market Overview by Industry Sector
THE NETHERLANDS
Dutch AI Hardware Market Overview by Type
Dutch AI Hardware Market Overview by Application
Dutch AI Hardware Market Overview by Industry Sector
SPAIN
Spanish AI Hardware Market Overview by Type
Spanish AI Hardware Market Overview by Application
Spanish AI Hardware Market Overview by Industry Sector
RUSSIA
Russian AI Hardware Market Overview by Type
Russian AI Hardware Market Overview by Application
Russian AI Hardware Market Overview by Industry Sector
SWITZERLAND
Swiss AI Hardware Market Overview by Type
Swiss AI Hardware Market Overview by Application
Swiss AI Hardware Market Overview by Industry Sector
REST OF EUROPE

+357 96 030922
info@marketpublishers.com

Rest of Europe AI Hardware Market Overview by Type
Rest of Europe AI Hardware Market Overview by Application
Rest of Europe AI Hardware Market Overview by Industry Sector
8. ASIA-PACIFIC
Asia-Pacific AI Hardware Market Overview by Geographic Region
Asia-Pacific AI Hardware Market Overview by Type
Asia-Pacific AI Hardware Market Overview by Application
Asia-Pacific AI Hardware Market Overview by Industry Sector
Country-wise Analysis of Asia-Pacific AI Hardware Market
CHINA
Chinese AI Hardware Market Overview by Type
Chinese AI Hardware Market Overview by Application
Chinese AI Hardware Market Overview by Industry Sector
JAPAN
Japanese AI Hardware Market Overview by Type
Japanese AI Hardware Market Overview by Application
Japanese AI Hardware Market Overview by Industry Sector
INDIA
Indian AI Hardware Market Overview by Type
Indian AI Hardware Market Overview by Application
Indian AI Hardware Market Overview by Industry Sector
AUSTRALIA
Australia AI Hardware Market Overview by Type
Australia AI Hardware Market Overview by Application
Australia AI Hardware Market Overview by Industry Sector
SINGAPORE
Singaporean AI Hardware Market Overview by Type
Singaporean AI Hardware Market Overview by Application
Singaporean AI Hardware Market Overview by Industry Sector
SOUTH KOREA
South Korean AI Hardware Market Overview by Type
South Korean AI Hardware Market Overview by Application
South Korean AI Hardware Market Overview by Industry Sector
REST OF ASIA-PACIFIC
Rest of Asia-Pacific AI Hardware Market Overview by Type
Rest of Asia-Pacific AI Hardware Market Overview by Application
Rest of Asia-Pacific AI Hardware Market Overview by Industry Sector
9. SOUTH AMERICA
South American AI Hardware Market Overview by Geographic Region

+357 96 030922
info@marketpublishers.com

South American AI Hardware Market Overview by Type
South American AI Hardware Market Overview by Application
South American AI Hardware Market Overview by Industry Sector
Country-wise Analysis of South American AI Hardware Market
BRAZIL
Brazilian AI Hardware Market Overview by Type
Brazilian AI Hardware Market Overview by Application
Brazilian AI Hardware Market Overview by Industry Sector
ARGENTINA
Argentine AI Hardware Market Overview by Type
Argentine AI Hardware Market Overview by Application
Argentine AI Hardware Market Overview by Industry Sector
COLOMBIA
Colombia AI Hardware Market Overview by Type
Colombia AI Hardware Market Overview by Application
Colombia AI Hardware Market Overview by Industry Sector
CHILE
Chilean AI Hardware Market Overview by Type
Chilean AI Hardware Market Overview by Application
Chilean AI Hardware Market Overview by Industry Sector
PERU
Peru AI Hardware Market Overview by Type
Peru AI Hardware Market Overview by Application
Peru AI Hardware Market Overview by Industry Sector
REST OF SOUTH AMERICA
Rest of South America AI Hardware Market Overview by Type
Rest of South America AI Hardware Market Overview by Application
Rest of South America AI Hardware Market Overview by Industry Sector
10. MIDDLE EAST & AFRICA
Middle East & Africa AI Hardware Market Overview by Geographic Region
Middle East & Africa AI Hardware Market Overview by Type
Middle East & Africa AI Hardware Market Overview by Application
Middle East & Africa AI Hardware Market Overview by Industry Sector
Country-wise Analysis of Middle East & Africa AI Hardware Market
UNITED ARAB EMIRATES
United Arab Emirates AI Hardware Market Overview by Type
United Arab Emirates AI Hardware Market Overview by Application
United Arab Emirates AI Hardware Market Overview by Industry Sector
SOUTH AFRICA

+357 96 030922
info@marketpublishers.com

South African AI Hardware Market Overview by Type
South African AI Hardware Market Overview by Application
South African AI Hardware Market Overview by Industry Sector
EGYPT
Egypt AI Hardware Market Overview by Type
Egypt AI Hardware Market Overview by Application
Egypt AI Hardware Market Overview by Industry Sector
SAUDI ARABIA
Saudi Arabian AI Hardware Market Overview by Type
Saudi Arabian AI Hardware Market Overview by Application
Saudi Arabian AI Hardware Market Overview by Industry Sector
MOROCCO
Morocco AI Hardware Market Overview by Type
Morocco AI Hardware Market Overview by Application
Morocco AI Hardware Market Overview by Industry Sector
KUWAIT
Kuwait AI Hardware Market Overview by Type
Kuwait AI Hardware Market Overview by Application
Kuwait AI Hardware Market Overview by Industry Sector
QATAR
Qatar AI Hardware Market Overview by Type
Qatar AI Hardware Market Overview by Application
Qatar AI Hardware Market Overview by Industry Sector
REST OF MIDDLE EAST & AFRICA
Rest of Middle East & Africa AI Hardware Market Overview by Type
Rest of Middle East & Africa AI Hardware Market Overview by Application
Rest of Middle East & Africa AI Hardware Market Overview by Industry Sector

PART C: GUIDE TO THE INDUSTRY

NORTH AMERICA
EUROPE
ASIA-PACIFIC
REST OF WORLD

PART D: ANNEXURE

RESEARCH METHODOLOGY
FEEDBACK

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: Global Artificial Intelligence (AI) Hardware Market – Types, Applications and Industry Sectors

Product link: https://marketpublishers.com/r/G3F7B76260B0EN.html

Price: US$ 5,490.00 (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/G3F7B76260B0EN.html