

# **Neuromorphic Computing Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028F Segmented By Offering (Hardware, Software), By Deployment (Edge Computing, Deploy Computing), By Technology (MMES and Non-MEMS), By End-User (Automotive, Healthcare, Consumer Electronics, Military & Defense and Industrial), By Region and Competition**

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## **Abstracts**

Global Neuromorphic Computing market is foreseen to expand at an instant stride throughout the forecast period. Rise in demand for artificial intelligence and machine learning will develop the effectiveness and performance of the instruments as the combination of these two is expected to revolutionize the business field by providing necessitating discernment to make smart conclusions. These devices are in elevated demand as they have several advantages over customary devices such as image recognition, fraud detection, speech recognition, among others. Artificial intelligence technology discovers application in various multifarious industries incorporating defense, medical, telecom, utility, entertainment, telecom, food & beverages, among others.

Neural computing is the advancement of computers based on systems found in the human brain and nervous system. Harnessing the vast potential and power of the human brain, neuroimaging computing can function as effectively as the human brain without major gaps in software deployment. One technological advance that has ignited technical importance in neural computing is the development of artificial neural network(ANN) models.

The automobile firms have been unfavorably impacted by the pandemic. The undertaking of neural computing gadgets opens with the establishment of a synthetic neural network, counting on lots of tens of tens of millions of neurons. These neurons are like neurons inside the human brain. Neural computers are amazing ordinary for their fast reaction machine because their processing may be very fast. Compared to conventional computers, neural computers are designed to artwork like the human mind and so their fast reaction gadget is a massive lead for industry. Neuromorphic generation can be applied in defense systems in combination with artificial intelligence and device studying to increase computing strength and deliver analytical outcomes to speed up selection-making in wartime. Further, neuromorphic generation is notably greater power green and might boom the mobility, staying energy, and portability of generation that infantrymen can set up inside the area. For example, Intel deliberated to apply neuromorphic technology to drone cameras with the resource of installing a Loihi chip that might obtain organic signs from the camera and process them like biological thoughts, extensively speeding up the drone's perception.

The image processing segment of the market is anticipated to dominate in 2023, with a revenue share of more than 50%. This can be recognized to the rising adoption of computer vision in a variety of industries, including automotive, healthcare, and media and entertainment. For example, medical imaging is one of the most crucial applications of image processing. Advancements in image sensors and other processing technologies are expected to drive revenue growth in the image processing segment during the forecast period. The signal-processing application segment depicted for high percentage of the overall market share in 2022 and is expected to increase remarkably over the forecast period. The rising demand for managing audio & acoustics signals is significantly contributing to the growth of the signal-processing segment. With the rapidly increasing implementation of Artificial Intelligence and Machine Learning in the IT enterprise, the data processing segment is projected to extend during the forecast period. Automated machine learning is one of the most distinguished AI trends among businesses.

Instead of standard bit-precise calculations, neuromorphic hardware consequences in probabilistic models that are simple, powerful, reliable, and data-efficient in terms of computation since the brain is highly stochastic in nature. Neuromorphic hardware is certainly better suitable for cognitive applications than preciseness computing.

## Rising Acceptance of Artificial Intelligence (AI) and Automation Systems

The brain is essentially the supervisor of neuromorphic computing. It utilizes artificial neurons and links to process information, which allows it to be more energy-efficient and scalable than traditional computing.

AI and automation systems are progressively being improved in a form of industries, including healthcare, manufacturing, and transportation. These systems involve powerful computing systems that can process large amounts of data in real-time. Neuromorphic computing is well-suited for these applications, as it can provide the power and efficiency that these systems need. The technology is widely accepted in various industries mainly in FMCG, retail, and manufacturing. The rising acceptance of artificial intelligence and automation systems is projected to drive the Neuromorphic computing market. The increasing acceptance of AI and automation system in various industries such as industrial, medical, IT & telecommunication, aerospace, military & defense, automotive, consumer electronics, and other sectors, will boost the demand for the neuromorphic computing market during the forecast period, 2024 – 2028. Neuromorphic computing provides benefits such as fast parallel processing with minimum power requirement. It also removes the need for back-and-forth data movement between components in the von Neumann architecture, which is expected to drive its adoption for image and signal processing applications. Besides, it's expected adoption in consumer electronics, automotive, healthcare, and military & defense sectors will also be highly responsible for driving the market growth. The growing demand for artificial intelligence and systems gaining knowledge of technologies has improved the use of software programs in neuromorphic computing. Artificial intelligence and automation technologies will improve the worldwide economic system and increase international prosperity at a time when ageing and declining fertility are serving as increase efforts. AI and Automation technologies are elevated to lift the global economy and strengthen global prosperity, at a time when aging and deteriorating birth rates are acting as an effort on growth. Contemporary progress in neuromorphic research is accredited in part to the extensive and increasing use of AI, machine learning, neural networks, and deep neural network architectures in consumer and enterprise technology. Neuromorphic technology is commonly benefited in deep accelerators, next-generation semiconductors, transistors, and autonomous systems, such as robotics, drones, self-driving cars, and artificial intelligence. There are diverse technology that are taken into consideration for the implementation of neuromorphic chips for brain-primarily based robotics and sensible robotic systems and the attractiveness of neuromorphic computing for safety determinations together with studies development, will offer market members several prospects over the forecast period.

## Growing Adoption of Autonomous Vehicles

Neuromorphic computing can support autonomous vehicles better detect and avoid obstacles, as well as recognize objects and respond to changing conditions.

Neuromorphic computing helps autonomous vehicles in processing visual information more proficiently. Conventional computing architectures demand a lot of time and power to process visual data, but neuromorphic computing takes minimal power consumption in processing visual data in real-time. Neuromorphic computing is more proficient in recognizing objects on the roads and recognizing them from their environment. This occurs because of neuromorphic computing fully functioning as the human brain, which has expertise at recognizing objects and patterns.

In autonomous vehicles, Neuromorphic helps in detecting and avoiding obstacles by processing data from multiple sensors simultaneously. For example, neuromorphic computing can combine data from cameras, lidar, radar, and other sensors to produce a more precise and thorough picture of the vehicle's surroundings.

At last, the growing acceptance of autonomous vehicles is expected to drive the global neuromorphic computing market. Neuromorphic technology is basically used in autonomous systems, such as drones and AI. The increasing adoption of automation systems and AI in various industries such as automotive will increase the demand for the neuromorphic computing market. The acceptance of neuromorphic computing for security purposes and research development will provide numerous opportunities for the global neuromorphic computing market and is predicted to rise substantially in the coming years.

## Market Segmentation

On the basis of Offering, the market is segmented into Hardware, Software. On the basis of Deployment, the market is segmented into Edge Computing and Deploy Computing. On the basis of Technology, the market is segmented into MMES and Non-MEMS. On the basis of End-User, the market is segmented into Automotive, Healthcare, Consumer Electronics, Military & Defense, and Industrial. The market analysis also studies the regional segmentation to devise regional market segmentation, divided among North America, Europe, Asia-Pacific, South America, and Middle East & Africa.

## Company Profiles

IBM Corporation, Intel Corporation, Samsung Electronics Co. Ltd, Brain Corporation, General Vision Inc, HRL Laboratories LLC, Vicarious (Alphabet Inc.), CEA-Leti, Knowm Inc, BrainChip Holdings Ltd, are among the major players that are driving the growth of the global Neuromorphic computing market.

#### Report Scope:

In this report, the global Neuromorphic computing market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### Neuromorphic computing Market, By Offering:

Hardware

Software

#### Neuromorphic computing Market, By Deployment:

Edge Computing

Deploy Computing

#### Neuromorphic computing Market, By Technology:

MMES

Non-MEMS

#### Neuromorphic computing Market, By End-User:

Automotive

Healthcare

Consumer Electronics

Military & Defense

Industrial

Neuromorphic computing Market, By Region:

Asia-Pacific

China

Japan

India

Australia

South Korea

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Spain

Italy

Middle East & Africa

Israel

Turkey

Saudi Arabia

UAE

South America

Brazil

Argentina

Colombia

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the global Neuromorphic computing market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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