Europe Neuromorphic Chip Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The European neuromorphic chip marketplace is experiencing excessive increase because of the growing call for artificial intelligence and customer preference for small-sized merchandise primary to the requirement of miniaturization of ICs. And the market is expected to register a CAGR of 40.4 % during the forecast period 2022 - 2027.

Key Highlights
With the appearance of intelligent technology, smart sensors are getting used in lots of end-consumer industries like automotive, electronics, and medical. The increase of neuromorphic chip marketplace is hindered because of the gradual tempo of development, notwithstanding heavy R&D investments and rising complexities of hardware designing.
Implementing neuromorphic chips throughout extensive end-customers, including medical, navy, protection, etc., is possible in this region. Current deep-mastering strategies and related hardware face numerous hurdles, including the economics of Moore's Law, which makes it appreciably hard for a start to compete withinside the AI space, restricting competition.
Meanwhile, the market needs extra real-time speech popularity and translation performance, real-time video understanding, and real-time view for robots and cars. Several programs require extra intelligence that mixes sensing and computing.
The prominent features driving the adoption of neuromorphic chipsets include low power consumption, stochastic operations, pattern recognition, fault tolerance, faster computation, and scalability. The concept of emulating neurons on a chip should improve operations and make business decisions cost-effective and reliable.
The outbreak of COVID-19 has created unprecedented circumstances resulting in many deaths and risk of community spreading throughout the world. This created a need for desperate measures to detect the disease at an early stage via various medically proven methods like chest computed tomography (CT) scan, chest X-Ray, etc., to prevent the virus from spreading across the community. Developing deep learning models for analyzing these kinds of radiological images is a well-known methodology in computer-based medical image analysis.

Europe Neuromorphic Chip Market Trends

AI based chips to be on demand

Artificial Intelligence (AI) is witnessing significant corporate investment, and the market of chips is receiving increasing interest and attention from the markets. End-users already adopt many applications, and numerous emerging applications are expected to happen in the short term.
The AI accelerators are leading the region because of the computing limitations of CPUs. Available AI accelerators are GPUs, Application-Specific Integrated Circuits (ASICs), and Field-Programmable Gate Arrays (FPGAs). GPUs have many parallel processing cores, which give them a significant advantage for processing AI training and inference.
Neuromorphic chips are poised to be the prominent option concerning parallelism, energy efficiency, and performance. They can handle both AI inference and training in real-time. Moreover, edge training is possible through neuromorphic chips. However, learning methodologies should improve their accuracy.
Neuromorphic hardware is transferring out of the studies lab with a convergence of pursuits and desires from the sensing, computing, and reminiscence fields. Joint ventures are being formed and decade-length investigations tasks, including the European Unions Human Brain are being launched.
Neuromorphic recognition and computation can solve many of AI's current problems while opening up new applications for decades to come. With an ecosystem of research and innovation, Europe is well-positioned to advance a culture of science and capitalize on technological opportunities.

United Kingdom to record growth in Neuromorphic Chips

The European region, mainly the United Kingdom, is also expected to witness growth in neuromorphic chips due to government projects, investments from vendors, etc. Several long-term research projects are attracting collaborations for advancements in neuromorphic technology. Also, Italy, Germany, France, Portugal, and other countries are also focusing on improving the growth of neuromorphic chips in various business areas.
Also, the NeurONN research project funded by H2020's EU research and innovation program with a core subject, "Energy-efficient bio-inspired devices accelerate the route to brain-like computing," brought together some prominent European research and academic institutions. The project is planned for a duration of 36 months (January 2020 - December 2022).
Local vendors in the region are also focusing on the development of neuromorphic chips through funding from various venture capitalists in the market. Such investments are expected to shape the market in terms of innovation.
Further, the United Kingdom's Advanced Processor Technologies Group at the University of Manchester runs on a low-grade supercomputer referred to as SpiNNaker. It stands for Spiking Neural Network Architecture. It is assumed to stimulate so-called cortical microcircuits, subsequently the human mind cortex, and assist us in recognizing complicated illnesses like Alzheimer's.
A study by Chip AI and Strathclyde University in the United Kingdom found that the ability to process large amounts of data in today's data-driven world is critical. Critical tasks such as pattern recognition and image classification are well suited for artificial neural networks (ANN) are inspired by neuromorphic computing approaches that target the physical implementation of brains and ANNs.

Europe Neuromorphic Chip Market Competitor Analysis

The Europe neuromorphic Chip Market is moderately fragmented with the presence of key players such as Brain Corporation, Intel Corporation, Qualcomm, IBM Corporation, General Vision Inc., Lockheed Martin Corporation, Innatera Nanosystems BV, and more. These companies are investing and innovating new products for the expansion of the market in various applications.

August 2021: IBM Corporation We've unveiled details about the upcoming new IBM AI Telum processor, designed to bring deep learning algorithms to enterprise workloads to help prevent fraud in real-time. Telum is the first IBM processor to include built-in acceleration for in-transaction AI inference.
September 2021 - Intel added Loihi 2, its second-era neuromorphic studies chip, and Lava, an open-supply software program framework for growing neuro-stimulated applications. Its creation alerts Intel's ongoing development in advancing neuromorphic technology.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

Table of Contents:

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