Global Microprocessor 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 global Microprocessor market is expected to register a CAGR of around 6.8% over the forecast period, owing to the growing popularity of 5G and high-performance computing devices.

Key Highlights
A microprocessor is a microcomputer's controlling unit, built on a chip, capable of performing Arithmetic Logic Unit (ALU) operations and communicating with other devices linked to it. A microprocessor comprises a Control Unit, a Register Array, and an ALU. The ALU performs arithmetic and logical operations, the Control Unit supervises the flow of data and instructions through the computer, and the Register Array stores accumulators and data. The microprocessor performs Fetch, Decode, and Execute in the provided sequence.
The market is predicted to develop due to increased usage of cloud-based applications, data centers, advancements in artificial intelligence and machine learning technologies, and demand for home appliances and autos. In addition, the growing demand for Augmented Reality and Virtual Reality apps and devices, as well as digital cameras and gaming consoles, is propelling the worldwide microprocessor market forward.
IT infrastructure, UPS (uninterruptible power supply) systems, power distribution units (PDUs), and cooling units are all included in any microprocessor's micro-data center. The multiple benefits of adopting micro-data centers, such as decreased transactional costs, high functionality, and high storage, are expected to propel the microprocessor market internationally. Micro-data centers are in high demand due to the rapid interchange of data via IoT-connected devices worldwide. These micro-data centers provide optimum efficiency by drastically lowering energy usage, resulting in widespread acceptance across industries.
The rapid rise of the Internet of Things is one significant reason for promoting microprocessor usage (IoT). IoT technologies enable microprocessors because it is now technically and economically feasible to collect data from a far wider range of things than was before conceivable. Companies frequently misjudge the complexity and volume of data generated by IoT products and platforms,

necessitating the deployment of solutions to help them manage and interpret all of the data they are now collecting.
The COVID-19 epidemic has had a devastating influence on the global microprocessor industry. Due to a shortage of parts, the entire supply chain was disrupted in the first quarter of 2020. The electronics manufacturing industry is a major source of manufactured exports for several East Asian nations, including China, South Korea, Taiwan, Malaysia, Singapore, the Philippines, Thailand, and Vietnam. Furthermore, the electronics supply chain crosses economies, with China functioning as a primary supplier of intermediate electronics parts to several Southeast Asian electronics sectors. Plans to quarantine workers, delayed plant openings and store shutdowns, travel disruptions, and ongoing uncertainty among citizens have either canceled or delayed many chips and foundry construction, causing delays in production and supply of MPUs; furthermore, also increasing the cost of the units.

Microprocessor Market Trends

Consumer Electronics Segment to drive the Market Growth

Microprocessors are increasingly being used in consumer electronics applications such as desktop PCs, smartphones, tablets, and servers because of their fast processing speed, small size, and ease of maintenance. This multipurpose electronic processing device may be configured to accomplish 3 billion activities per second, transport data swiftly between memory regions, and conduct sophisticated mathematical calculations such as floating-point operations. The rising consumer electronic segment will favor the Microprocessor Market, contributing to market growth and progress for the market under consideration.
Gaming demand in the Asia Pacific has grown dramatically in the last 18 months, and all eyes are on the region's prospects. With more fingers on screens, keyboards, and controllers than ever before, the region now accounts for 49% of worldwide consumer gaming spending, with China, Japan, and South Korea accounting for three of the top four consumer gaming markets. The region was predicted to have 1.62 billion gamers by the end of 2021, representing 55% of all players worldwide, up from 1.2 billion in 2019, according to Google for Games. The growing gaming market in the region will contribute to the growth of smartphones, Gaming consoles, and VR/AR devices, ultimately influencing the growth of microprocessors in the region.
The popularity of smartphones and tablets in recent years has influenced PC demand. Microprocessor and GPU market growth has been impacted by the portability and performance of new-generation smartphones and tablets. When compared to those utilized in smartphones and tablets, PC processors and GPUs are usually more expensive. Desktop PCs have significantly declined in the PC category, as more users chose portable devices such as smartphones and tablets for day-to-day tasks. Furthermore, because PCs have a long lifecycle and cannot be replaced in a short time, there is a growth in overall demand for the smartphone industry, which can be easily upgraded to improved technology quickly.
Operators around the Asia Pacific are leveraging the scale and utility of mobile networks and services to help large and small businesses implement new digital solutions by Industry 4.0 goals, in which 5G and IoT will play significant roles. According to the GSMA's Mobile Economy Report 2021, the second phase of 5G network rollouts has commenced in the area, marked by several 5G-related activities in India, Indonesia, and Malaysia. The region's expanding 5G network capabilities will enhance the smartphone, tablet, TV, AR/VR, and other consumer electronics markets, thus boosting the researched market in the region.
However, the COVID-19 pandemic is a setback to the global chip and semiconductor industry. The lockdowns and uncertainty caused by the pandemic resulted in supply chain disruptions and delay in the completion of many foundries. This has also resulted in the global shortage of chips and microprocessors units such as CPU, GPU, etc., which has also hiked the prices of these components. However, with the improving situation, it is anticipated that the Microprocessor market will be on track by the end of 2022.

Asia Pacific Account for fastest growing Market

The Asia-Pacific region commands a significant market share and is predicted to grow fastest over the forecast period. The increased use of smartphones and other devices in the region, such as laptops, mobile phones, desktop computers, and tablets, is credited with the increase. Due to factors such as fast digitalization, increased penetration of high-tech gadgets, and progress of automotive electronics, developing economies such as China and India are also helping market expansion. Furthermore, increased Internet of Things (IoT) usage, large government IT investment, and rising demand for cloud-based services are expected to drive the regional market throughout the projection period.
However, the recent global spread of the COVID-19 pandemic has severely impeded the regional market's steady expansion. The Chinese market, in particular, is projected to be severely impacted as several production sites remain shuttered due to the Coronavirus. However, now that China's Coronavirus situation has stabilized, the market is expected to recover quickly.
From Alibaba to Baidu, Chinese internet firms have been building their chips; a move considered progress toward China's goal of increasing local capabilities in a crucial technology. Due to continued trade difficulties and geopolitical considerations, China is pursuing chip and semiconductor self-sufficiency. China outlined seven technology fields in its 14th five-year plan, including artificial intelligence, quantum computing, semiconductors, and space.
India's DIR-V program, which aims to accelerate the country's semiconductor ecosystem by mass-producing next-generation indigenous microprocessors, was recently revealed. By December 2023, the Indian government hopes to have achieved heavy-grade commercial silicon production and design victories. In the same vein, the government has inked five Memorandums of Understanding with companies such as Sony India, ISRO, BEL, and others to promote the usage of the Shakti and Vega RISC-V microprocessors, which were created in-house.
Intel's ambitious efforts to reclaim world leadership in advanced chip manufacturing would rely on competitor Taiwan Semiconductor Manufacturing Co. technology (TSMC). According to PCMag, Intel said its new CPU roadmap would take advantage of a tile-based architecture that combines chip technology from both Intel and external foundries during an investor meeting in February 2022. Intel's computer CPU processors will have their processing technology stacked with silicon from other businesses starting in 2024.

Microprocessor Market Competitor Analysis

The Microprocessor Market is Highly concentrated due to the high initial investments and is dominated by a few major players. Some of the key players in the market are Intel, Nvidia, Qualcomm, etc. Some recent development in the market includes:

April 2022 - AMD, NVIDIA's closest GPS competitor, plans to release its next-generation RDNA 3 GPUs at the 5nm node by the end of 2022. The RTX 40 series from NVIDIA will be the closest in performance to AMD's upcoming GPUs.
February 2022 - During its 2022 Investors Day presentation, Intel revealed some new facts about its next CPU roadmap. It'll be a step forward from the 12th Generation Alder Lake processors. It will include up to eight upgraded P cores and sixteen E cores, which is twice as many as the 12900K. According to the company, Intel expects a double-digit performance gain over the current 12th Generation Core Alder Lake CPUs.

Additional Benefits:

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

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