Global 8-bit Microcontroller - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Global 8-bit Microcontroller Market is expected to register a CAGR of 4.7% during the forecast period.

Key Highlights
- One of the most popular electronic components, 8-bit microcontrollers have a wide range of uses in practically every industry vertical. These systems are increasingly necessary for the computing power required by modern electronic devices. Processing unit consumption has increased due to a result of the ongoing rise in sales of electronic gadgets. Over the past few decades, the microcontroller market has experienced rapid expansion, with 8-bit microcontrollers seeing the highest level of volume demand.
- Additionally, an increase in demand for 8-bit microcontrollers is anticipated as they lower the price of medical devices and also deliver reliable readings and medical data. Manufacturers of medical equipment are predicted to significantly increase their need for 8-bit microcontrollers in the near future.
- A digital signal processor is one highly specific application of an 8-bit microcontroller. Incoming analog signals frequently contain some level of noise. Noise, in this sense refers to uncertain values that are difficult to convert to conventional digital values. An incoming noisy analog signal can be transformed into an even outgoing digital signal by a microcontroller using its ADC and DAC.
- Due to the high demand for automotive and industrial applications, 8-bit microcontrollers are maintaining their market dominance. Additionally, new applications for 8-bit MCUs have emerged as a result of advancements in design, motor control, smart energy management, and the need for ethernet and wireless communication.
- Additionally, they are frequently found in office equipment, including printers, fax machines, photocopiers, and scanners, as well as Smart meters, ATMs, and security systems. In spite of this, more advanced 8-bit microcontrollers carry out essential tasks in robots, medical equipment, spaceships, automobiles, and ocean-going vessels. Microcontrollers can control the functioning of an artificial heart, kidney, or other organs in medical applications. They may also play a crucial role in the operation of prosthetic devices.

- Even today, the 8-bit microcontroller is a great, portable design that offers excellent capabilities in a comparatively tiny form factor. It is often used by experts and amateurs alike for designs where the amount of the data is not the main concern because it is affordable and well-documented. Even while 8-bit microcontrollers are suitable for some applications, they lack some of the durability of 16-bit or 32-bit microcontrollers.
- The vast supply chain disruptions caused by the COVID-19 pandemic had a significant impact on all areas of business and commerce. A global scarcity of microcontrollers that affects the automobile industry and other sectors was the result of several forces coming together. Additionally, the pandemic has caused a sharp increase in demand for microcontrollers in the automotive sector. A critical part of the electronic control units utilized in contemporary infotainment systems, advanced driver assistance systems (ADAS), antilock braking systems (ABS), and other electronic stability systems, 8-bit microcontrollers (MCUs) are in short supply.

8 - bit Microcontroller Market Trends

Residential Appliances and Consumer Electronics to Witness a Significant Market Share

- Process shrinkage has been used to expand the functionality of 8-bit low-pin-count (LPC) microcontrollers, enabling them to support more applications than ever before at a lower cost. Despite several application categories, consumer electronics and household appliances are anticipated to experience significant market demand shortly.
- While different customer needs in the sector present challenges to the market, the consumer electronics and industrial sectors are anticipated to develop significantly and at a robust rate. Microcontrollers have a large market owing to smartphones and smart clothing. Thus, the need for microcontrollers is greatly impacted by the rising use of smartphones and wearable technology. According to Ericsson, there were 6,259 million smartphone users as of 2021, which is predicted to rise to 7,690 million by 2027.
- In addition, the use of 8-bit microcontrollers in consumer electronics and home appliances like washing machines and microwaves is being driven by the trend toward home automation and the rising need for tiny gadgets. In addition, it is projected that the increasing use of heating, ventilation and air conditioning (HVAC) systems in hospitals, schools, airports, and other business and residential buildings will benefit the global market.
- The extremely low power consumption and incorporated high-performance analog characteristics of 8-bit MCUs make them ideal for devices like smoke detectors, thermostats, and glass breakage detection systems. For such smart sensor applications, built-in wireless networking capabilities are also very helpful for enhancing home automation, remote monitoring, and control. Because of how quickly these applications are developing, some experts predict that by 2027, MCUs used in sensors and machine-to-machine applications will make up 95% of all devices connecting to the Internet.
- When universal Triac-driven motors are replaced with permanent magnet or brushless DC (BLDC) motors, performance and drive efficiency dramatically increase in washing machines. Shorter washing cycles are made possible by sophisticated control methods based on 8-bit MCUs and permanent magnet or BLDC motors, which save energy and lessen water usage.
- Wearables, smoke detectors, thermostats, and glass breakage detection systems are a few examples of smart devices that greatly benefit from the integrated high-performance analog capabilities and extremely low power consumption of 8-bit MCUs. 8-bit microcontrollers are frequently used in smart thermostats as a low-cost, energy-efficient option. The residential sector is the primary market for smart thermostat use in smart homes. According to HCL, 10% of residences worldwide will be smart homes by 2025.

North America to Hold the Largest Market Share

- Throughout the forecast period, innovation in several industries, including communication, consumer electronics, and

automotive, is anticipated to drive the North American market for 8-bit microcontrollers.
- One of the world's main centres for automobile production is North America. The expansion of the local economy affected both the sales of passenger cars and commercial vehicles. Innovations in various industries, including communication, consumer electronics, and automotive, are projected to be the main drivers of the North American market for 8-bit microcontrollers over the forecast period. The significant demand for high-end applications across key end-user sectors makes this area one of the top consumers of microcontrollers. For instance, 8-bit microcontrollers are motivated by hybrid and autonomous vehicles.
- Due to the high demand for premium equipment across a wide range of key end-user applications, this region is one of the largest consumers of 8-bit microcontrollers. For instance, one of the factors boosting the market for 8-bit microcontrollers is the rising demand for electric, hybrid, and self-driving cars. In addition, the increasing adoption of e-bicycles and mopeds is anticipated to aid the market.
- Another industry that supports the expansion of the market in this area is industrial automation. Mitsubishi Electric & Electronics USA Inc. has introduced CAN microcontroller families in the North American need that range in size from 8 to 32 bits and are all targeted at automotive sector applications.
- Three new families of microcontrollers being developed by GM in the United States with seven chip suppliers will minimize the number of unique chips in future cars by 95%. The new microcontrollers will consolidate many tasks performed by separate chips off of. The functions presently performed by different chips will be reduced by the new microcontrollers, increasing quality and predictability while lowering cost and complexity. Up to 10 million new microcontrollers will be produced annually in high capacity.
- Smartphones, industrial automation, and smart infrastructure devices, such as meters, communications, and electric vehicles, are also the key drivers for the growth of microcontrollers in North America, especially the United States.

8 - bit Microcontroller Industry Overview

The 8-bit microcontrollers market is dominated by global players, like Microchip and Renesas, which are expected to retain their present position over the forecast period. Major firms with a sizable market share are concentrating on growing their consumer base internationally. These businesses rely on smart joint ventures to enhance their market share and profitability. With global players heavily focusing on 16-bit and 32-bit microcontrollers, the investment in this space is slowing down. Therefore, existing players enjoy low competition.

- June 2022 - Microchip Technology Inc. announces the AVR-IoT Cellular Mini Development Board based on the AVR128DB48 8-bit microcontroller (MCU). This solution provides a robust platform for building sensor and actuator nodes on 5G narrowband IoT networks. The AVR-IoT Cellular Mini Development Board is a small form factor board. It is ideal for developers who want to connect IoT devices to an available 5G network.
- June 2022 - Metalenz, the first company to commercialize meta-optics, and STMicroelectronics, a global semiconductor leader serving customers across the spectrum of electronics applications, announced that ST's currently released VL53L8 direct Time-of-Flight (dToF) sensor is the highly anticipated market debut of the meta-optics devices developed through their partnership, which was disclosed in June 2021.

Additional Benefits:

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

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