Semiconductor Chips: Applications and Impact of Shortage

Market Research Report | 2025-09-17 | 156 pages | BCC Research

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Report description:

Description

Report Scope
The report analyzes the semiconductor chip market, which is segmented by node size, type, and application. Node sizes include above 280nm, 220nm-180nm, 90nm-28 nm, and others. Types include logic ICs, memory chips, microprocessors, analog ICs, sensors, and others. Application segments include IT and telecommunications, healthcare, logistics, retail, aerospace and defense, industrial, consumer electronics, automotive, and others.
The report covers the semiconductor market in North America, Europe, Asia-Pacific, Latin America, and the Middle East and Africa (MEA). It evaluates the market's drivers and challenges, emerging technologies, and innovations in material design and performance. The study concludes with an analysis of leading companies and their offerings. The base year for the study is 2024, with projections for 2025 through 2030, including compound annual growth rates (CAGRs) for the forecast period.
Report Includes
- 57 data tables and 48 additional tables
- In-depth analysis of the global market for semiconductor chips, along with their applications and the impact of their shortage
- Analyses of the global market trends, with revenue data from 2024, estimates for 2025, forecast for 2026, 2028, and projected CAGRs through 2030
- Estimates of the size and revenue prospects of the global market, and a corresponding market share analysis by microchip type, application industry, node size and region
- Facts and figures pertaining to market dynamics, technological advancements, regulations, prospects and the impacts of macroeconomic variables
- Insights derived from Porter's Five Forces model, global supply chain analyses and case studies
- Patent analysis, featuring key granted and published patents
- Overview of sustainability trends and ESG developments, with emphasis on consumer attitudes, as well as the ESG risk ratings and practices of leading companies

- Analysis of the industry structure, including companies' market shares and rankings, strategic alliances, M&A activity and a venture funding outlook
- Profiles of the leading companies,including Intel Corp., Samsung Electronics, Taiwan Semiconductor Manufacturing Co. (TSMC), Nvidia Corp., Broadcom Inc.

Executive Summary

Summary:

The global market for semiconductor chips is expected to grow from $737.2 billion in 2025 and is projected to reach $1.6 trillion by the end of 2030, at a compound annual growth rate (CAGR) of 16.1% during the forecast period of 2025 to 2030.

A semiconductor chip is an electronic device designed to perform multiple functions by manipulating electrical signals. Nearly 80% of semiconductor chips are made of silicon. These chips are considered the brain of smartphones, computers, and EVs. These chips are made of billions of transistors and other components on a single piece of semiconductor substrate to perform a range of electronics functions such as memory storage, signal amplification, and processing. Semiconductor devices can show variable resistance, passing current more easily in a single direction.

Demand for high-performance and energy-efficient chips is increasing in nearly every industry and sector, due to the rise of smart devices, automation, and digitalization of industrial solutions. In addition, the increase in government initiatives supporting domestic chip production in developing economies such as India and South Africa is accelerating market expansion. Continuous advances in semiconductor chip design and materials such as gallium nitride (GaN) and silicon carbide (SiC) are enhancing the speed, efficiency, and power handling of advanced devices.

Despite its promising outlook, the semiconductor chips market faces challenges, such as the high capital investment required for building and expanding fabrication facilities (fabs) and complex manufacturing processes. Furthermore, geopolitical conflicts, U.S. tariffs, and growing tensions between the U.S. and China have impacted the global supply chain, resulting in a decline in market growth. However, sustained investment in R&D, along with government initiatives such as the U.S. CHIPS Act and the Made in India Initiative, is propelling the growth of the global market for semiconductor chips.

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