

**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

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- 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.

### Table of Contents:

Table of Contents
Chapter 1 Executive Summary
Market Outlook
Scope of Report
Market Summary
Market Dynamics and Growth Factors
Emerging Technologies
Segmental Analysis
Regional Analysis
Conclusion
Chapter 2 Market Overview
Current Market Overview
Future Outlook
Macroeconomic Factors Analysis
GDP Growth
Inflation

Interest Rates  
Geopolitical Risks  
Trade Policies  
Government Incentives  
Impact of the U.S.-China Trade War  
Supply Chain Disruptions  
Innovation and R&D Challenges  
Strategic Responses  
Value Chain Analysis  
Component Development  
Manufacturing and Assembly  
Distribution and Logistics  
Application and Deployment  
Ongoing Support and Performance Optimization  
Porter's Five Forces Analysis  
Bargaining Power of Suppliers  
Bargaining Power of Buyers  
Potential for New Entrants  
Level of Competitiveness  
Availability of Substitutes  
Chapter 3 Market Dynamics  
Takeaways  
Market Dynamics  
Market Drivers  
Continued Popularity of Consumer Electronics  
AI-Powered IoT Solutions  
5G Applications  
Market Restraints/Challenges  
High Initial Investment  
Surge in Geopolitical Tensions  
Market Opportunities  
Government Initiatives  
Demand for EVs  
Chapter 4 Regulatory Landscape  
Overview  
Regulatory Scenario for Semiconductor Chips  
Chapter 5 Emerging Technologies and Patent Analysis  
Overview  
Emerging Technologies  
3D Chip Stacking (3D ICs)  
GAA Transistors  
Patent Analysis  
Regional Patterns  
List of Patent Grants  
Key Findings  
Chapter 6 Market Segment Analysis  
Segmentation Breakdown

## Market Breakdown by Type

Takeaways

Logic ICs

Memory Chips

Analog ICs

Microprocessors

Sensors

Other Types

## Market Breakdown by Node Size

Takeaways

90 nm-28 nm

>280 nm

Other Node Sizes

## Market Breakdown by Application

Takeaways

Mobile

Consumer Electronics

Automotive

Industrial

IT and Telecommunications

Healthcare

Aerospace and Defense

Other Applications

## Geographic Breakdown

## Market Breakdown by Region

Takeaways

North America

Europe

Asia-Pacific

Latin America

Middle East and Africa

## Chapter 7 Competitive Landscape

Takeaways

### Market Ecosystem Analysis

Component Suppliers

Semiconductor Chip Manufacturers

OEMs

Semiconductor Chip Distributors

Service Providers

Analysis of Key Companies

Intel Corp.

Samsung Electronics

TSMC

Nvidia Corp.

Broadcom Inc.

Strategic Analysis

Recent Developments

Takeaways

ESG Performance in the Semiconductor Chip Industry

Environmental Impact

Social Impact

Governance Impact

Status of ESG in the Semiconductor Chip Industry

Concluding Remarks from BCC Research

Chapter 9 Appendix

Research Methodology

References

Abbreviations

Company Profiles

ADVANCED MICRO DEVICES INC.

BROADCOM

INFINEON TECHNOLOGIES AG

INTEL CORP.

MICRON TECHNOLOGY INC.

NVIDIA CORP.

NXP SEMICONDUCTORS

QUALCOMM TECHNOLOGIES INC.

RENESAS ELECTRONICS CORP.

SAMSUNG

SK INC.

SMIC

STMICROELECTRONICS

TAIWAN SEMICONDUCTOR MANUFACTURING CO. LTD.

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