

Wafer Fabrication Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Size (65 nm, 45 nm, 32nm, 22 nm, 14 nm, 10 nm, 7nm), By Fabrication Process (The Back End of Line Processing, The Front End of Line Processing), By End-User (Integrated Device Manufacturer, Foundry, Memory), By Region, By Competition, 2020-2030F

Market Report | 2025-11-27 | 180 pages | TechSci Research

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Report description:

Market Overview

The Global Wafer Fabrication Market, valued at USD 74.83 Billion in 2024, is projected to experience a CAGR of 6.20% to reach USD 107.36 Billion by 2030. Wafer fabrication involves the complex multi-step process of manufacturing integrated circuits on semiconductor wafers, forming the foundational components of electronic devices. The market's growth is primarily driven by the expanding demand for advanced semiconductor devices across emerging applications such as artificial intelligence, 5G connectivity, and autonomous vehicles.

Key Market Drivers

The burgeoning landscape of emerging advanced technologies and the relentless pursuit of semiconductor manufacturing process advancements stand as pivotal drivers propelling the global wafer fabrication market. The escalating demand for specialized chips catering to artificial intelligence, 5G connectivity, and autonomous vehicles significantly influences wafer fabrication volumes and complexity. For instance, according to SEMI, September 2024, Global Semiconductor Industry Plans to Invest \$400 Billion in 300mm Fab Equipment Over Next Three Years, SEMI Reports, 300mm fab equipment spending is projected to grow by 24% to US\$123.2 billion in 2025, driven by the increasing demand for artificial intelligence chips used in data centers and edge devices.

Key Market Challenges

A substantial challenge impeding the growth of the global wafer fabrication market is the significant capital expenditure required for establishing and upgrading advanced manufacturing facilities. Developing and maintaining state-of-the-art fabs necessitates

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immense financial outlays, encompassing the cost of land, construction, and specialized equipment. This high barrier to entry and expansion restricts the number of new market entrants and limits the pace at which existing manufacturers can increase capacity or transition to smaller process nodes, which are crucial for producing advanced semiconductor devices.

Key Market Trends

Heterogeneous Integration and 3D Packaging Expansion addresses the limitations of traditional 2D scaling by combining diverse functional blocks, such as logic, memory, and sensors, into a single, more compact, and higher-performing package. This approach enables enhanced functionality and performance-per-watt in advanced semiconductor devices crucial for high-performance computing, artificial intelligence, and mobile applications.

Key Market Players

- Taiwan Semiconductor Manufacturing Company Limited
- Samsung Electronics Co., Ltd.
- Intel Corporation
- GlobalFoundries Inc.
- United Microelectronics Corporation
- SK Hynix Inc.
- Micron Technology, Inc.
- Semiconductor Manufacturing International Corporation
- STMicroelectronics International N.V.
- NXP Semiconductors N.V.

Report Scope:

In this report, the Global Wafer Fabrication Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

-□Wafer Fabrication Market, By Size:

- o 65 nm
- o 45 nm
- o 32nm
- o 22 nm
- o 14 nm
- o 10 nm
- o 7nm

-□Wafer Fabrication Market, By Fabrication Process:

- o The Back End of Line Processing
- o The Front End of Line Processing

-□Wafer Fabrication Market, By End-User:

- o Integrated Device Manufacturer
- o Foundry
- o Memory

-□Wafer Fabrication Market, By Region:

- o North America
 - United States
 - Canada
 - Mexico
- o Europe
 - France
 - United Kingdom
 - Italy
 - Germany

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- India
- Japan
- Australia
- South Korea
- o South America
- Brazil
- Argentina
- Colombia
- o Middle East & Africa
- South Africa
- Saudi Arabia
- UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the Global Wafer Fabrication Market.

Available Customizations:

Global Wafer Fabrication Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

-□ Detailed analysis and profiling of additional market players (up to five).

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