

Semiconductor Equipment Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 146 pages | Mordor Intelligence

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Report description:

The semiconductor equipment market is expected to reach a value of USD 142.53 billion in 2027, registering a CAGR of 4.08% during the forecast period. The global semiconductor industry is driven by the simultaneous growth of smartphones and other devices, such as advanced consumer electronics, and the growth of the automotive industry.

Key Highlights

These industries are driven by technology transitions such as wireless technologies (5G) and artificial intelligence. Several factors, including a steady rise in the demand for high-performance and low-cost semiconductors, drive the market with varying impacts over the short, medium, and long term.

The deployment of 5G is expected to be one of the key factors driving the market. This is because the expansion of 5G would lead to the expansion of the wireless industry and enable innovations like augmented reality, mission-critical services, fixed wireless access, and the Internet of Things.

Furthermore, with the gradual transitions in the semiconductor industry, such as the miniaturization of nodes and wafer sizes, the demand for increasing the wafer sizes for ultra-large-scale integration technologies has fostered the growth of semiconductor equipment. Moreover, fab manufacturers are shifting process monitors from bare wafers to production wafers due to the higher cost and inspection challenges faced by wafer miniaturization.

The global demand for 300 mm silicon wafers is strong, and the demand for 200 mm has also seen a surge in recent years.

According to SEMI, 200 mm fabs are gearing up to add over 600,000 wafers per month across the world during 2017-2022. Such trends are further expected to act as catalysts for the growth of the market studied.

The COVID-19 pandemic disrupted the supply chains and production processes of semiconductors worldwide, especially in China, during the first half of 2020. The primary reason was a labor shortage, during which several semiconductor companies suspended operations. This created a crunch for end-product companies that depend on semiconductors.

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Semiconductor Equipment Market Trends

Increasing Demand for Consumer Electronic Devices

Consumer electronics is the fastest-growing segment and contributes significantly to market expansion. The growth of smartphones, which is predicted to increase with population growth, is the key driving force for this market. Consumer electronics drive the industry due to the increased demand for products such as tablets, smartphones, laptop computers, and wearable gadgets. As semiconductor technology advances, new market areas, such as machine learning, are rapidly being integrated. Due to ongoing improvements in items, including cars, medical equipment, smart devices, smart homes, and wearables, semiconductor integration has become a widespread phenomenon. Additionally, the trend of combining semiconductors into a single chip is expanding due to the consumers' desire for small-sized devices. The machinery used to manufacture semiconductors is gaining momentum since it makes it possible to assemble semiconductors on a single chip. There were approximately 8.2 billion mobile subscriptions by the end of 2021. This is anticipated to reach nearly 9.1 billion by the end of 2027. The percentage of mobile broadband subscriptions may rise from 84% to 93% at the same time. By the end of the forecast period, there are expected to be 6.7 billion unique mobile customers, up from 6.1 billion at the end of 2021. Smartphone-related subscriptions are still increasing. There were 6.3 billion at the end of 2021, making up nearly 77% of all mobile phone subscriptions. By 2027, this is anticipated to increase to 7.8 billion, or 87% of all mobile subscribers. The semiconductor equipment market is driven by the demand for quicker and more effective memory solutions. These semiconductors are becoming more complicated and can handle intensive memory operations. Overall, the market is seeing significant investments due to the increased reliance on IP solution providers.

Asia-Pacific Expected to Hold Significant Market Share

The semiconductor equipment is highly concentrated in a few countries, and sales of this equipment are very limited or non-existent outside some major countries. China has grown significantly as an essential producer of mature semiconductor technologies. On the other hand, the Chinese government continues to prioritize the semiconductor industry as a driver of economic growth and technological leadership. It is expected to add roughly 40% of the new global capacity by 2030. Further, in April 2022, Teradyne Inc., a leading supplier of automated test equipment, announced the shipment of the 7,000th unit of its J750 semiconductor test platform to Nations Technologies, a leading microcontroller unit (MCU) and security integrated circuit (IC) chip maker in China. The growing adoption of smart electronic devices that improve manufacturing opportunities and the significant integration of electronics into various applications are the key factors driving the growth of semiconductor equipment in Japan. Moreover, the incorporation of IoT, artificial intelligence, and connected devices into various end-user industries are expected to drive the semiconductor equipment market in the Country. Due to the robust demand for chips used in vehicles and high-performance computing devices, Taiwan is expected to become the world's largest spender on front-end chip manufacturing equipment this year, according to the international trade group SEMI. Taiwanese fab equipment spending is expected to rise by 52% yearly to USD 34 billion. South Korea and other major hubs for foundries are increasingly investing and incentivizing to expand the industry presence of their respective countries. In addition, the Ministry of Trade, Industry, and Energy announced that chip exports are expected to double to USD 200 billion by 2030. Furthermore, the government seeks to build a "K-Semiconductor belt" that stretches dozens of kilometers south of Seoul and brings together chip designers, manufacturers, and suppliers. These plants aim to sharpen South Korea's competitive edge in the global semiconductor industry and localize major semiconductor materials and equipment

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supplies with key semiconductor companies and their suppliers working in clusters amid a global chip shortage.

Semiconductor Equipment Market Competitor Analysis

The intensity of competitive rivalry is moderately high in the semiconductor equipment market. Firm specialization is driven by the high R&D investments and capital expenditures required to compete in the SME industry. Some key players are Applied Materials Inc., ASML Holding Semiconductor Company, and KLA Corporation. A few recent developments in this market are:

May 2022: SCREEN Holdings increased its efforts to reduce the environmental impact of the semiconductor industry. However, as reliance on semiconductor devices has grown, the environmental impact created by the manufacturing processes has become a shared concern for the semiconductor industry. With this challenge in mind, SCREEN SPE agreed to join the Sustainable Semiconductor Technologies and Systems research program led by IMEC, a world-leading innovator. The program is designed to help the semiconductor industry reduce its overall environmental impact.

February 2022: United Microelectronics Corporation (UMC), a Taiwanese global semiconductor foundry, announced its plans to build a new advanced manufacturing facility in Singapore. The new facility would be built next to its existing plant, known as Fab12i, in Pasir Ris. The total investment for the planned project was USD 5 billion. The new wafer fab facility would have a monthly capacity of 30,000 wafers, with production expected to start in late 2024. According to UMC, it would also be one of the most advanced semiconductor foundries in Singapore and will produce 22 nm and 28 nm chips.?

Additional Benefits:

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

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