

3D IC Market by Type (Stacked 3D, Monolithic 3D), Component (Through-Silicon Via (TSV), Through Glass Via (TGV), Silicon Interposer), Application (Logic, Imaging and Optoelectronics, Memory, MEMS/Sensors, LED, and Others), End User (Consumer Electronics, Telecommunication, Automotive, Military and Aerospace, Medical Devices, Industrial, and Others), and Region 2024-2032

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Abstracts

The global 3D IC market size reached US\$ 17.0 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 84.7 Billion by 2032, exhibiting a growth rate (CAGR) of 18.96% during 2024-2032. The increasing purchase of various compact and advanced consumer electronic products with superior functionality, such as laptops, smartphones, and tablets, represents the prime factor driving the market.

Three-dimensional (3D) integrated circuit (IC) refers to an umbrella term representing a manufacturing technology that involves stacking or integrating different silicon die, chips and wafers together vertically. These materials are further combined into a single package wherein the device is connected via silicon vias (TSVs) and hybrid bonding procedures. It also encompasses 3D wafer-level chip-scale packaging (WLCSP), beam re-crystallization, solid phase crystallization, and wafer bonding as standard technologies used in the stacking process. As compared to two-dimensional (2D) IC, 3D IC offers higher speed, minimized footprint, and better functional density at the same reduced power in a similar smaller area. Apart from this, it provides higher bandwidth, flexibility, and heterogeneous integration, ensures faster signal transitions, and enables better electrical performances. As a result, 3D IC finds extensive applications as a key

component in microelectronics, photonics, logic imaging, optoelectronics, and sensors.

3D IC Market Trends:

The widespread utilization of 3D IC across industries, such as aerospace, automotive and communications and telecom, represents one of the key factors driving the market growth. In line with this, the considerable expansion in the electronics industry on account of the increasing purchase of various compact and advanced consumer electronics products with superior functionality, such as laptops, smartphones, and tablets, is driving the market growth. Moreover, the rising need for advanced electronics architecture and integrated circuits with minimal power consumption properties, is contributing to the market growth. This is further supported by the emerging trend of incorporating ICs and using wafer-level packaging in miniaturized electronic devices, such as gaming consoles and sensors. Additionally, the extensive incorporation of 3D IC in smart home devices, including security locks, thermostats, fan controllers, smart smoke detectors, window sensors, and energy monitors, is favoring the market growth. They are further embedded in diverse healthcare devices, such as small hearing and visual aids and heart monitors. The escalating consumer awareness regarding the multiple product benefits, including better speed, memory, durability, efficiency, performance, and reduced timing delays, is propelling the market growth. Furthermore, the integration of the Internet of Things (IoT) and artificial intelligence (AI) solutions with wireless technologies and the advent of advanced IC packaging systems by manufacturers to improve product production is impelling the market growth. Other factors, such as the fueling need for high-bandwidth memory (HBM) and ongoing product diversification, are positively stimulating the market growth.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global 3D IC market, along with forecasts at the global, regional, and country level from 2024-2032. Our report has categorized the market based on type, component, application and end user.

Type Insights:

Stacked 3D

Monolithic 3D

The report has also provided a detailed breakup and analysis of the 3D IC market based on the type. This includes stacked and monolithic 3D. According to the report,

stacked 3D represented the largest segment.

Component Insights:

Through-Silicon Via (TSV)

Through Glass Via (TGV)

Silicon Interposer

A detailed breakup and analysis of the 3D IC market based on the component has also been provided in the report. This includes through-silicon via (TSV), through glass via (TGV) and silicon interposer. According to the report, through-silicon via (TSV) accounted for the largest market share.

Application Insights:

Logic

Imaging and Optoelectronics

Memory

MEMS/Sensors

LED

Others

The report has also provided a detailed breakup and analysis of the 3D IC market based on the application. This includes logic, imaging and optoelectronics, memory, MEMS/sensors, LED, and others. According to the report, MEMS/sensors represented the largest segment.

End User Insights:

Consumer Electronics

Telecommunication

Automotive

Military and Aerospace

Medical Devices

Industrial

Others

A detailed breakup and analysis of the 3D IC market based on the end user has also been provided in the report. This includes consumer electronics, telecommunication,

automotive, military and aerospace, medical devices, industrial and others. According to the report, consumer electronics accounted for the largest market share.

Regional Insights:

North America

United States

Canada

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets that include North America (the United States and Canada), Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others), Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others), Latin America (Brazil, Mexico, and others), and the Middle East and Africa. According to the report, Asia Pacific was the largest market for 3D IC. Some of the factors driving the Asia Pacific 3D IC market included its rapid expansion in the electronics sector and the increasing purchase of compact consumer electronic products with superior functionality.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global 3D IC market. Detailed profiles of all major companies have also been provided. Some of the companies covered include Advanced Micro Devices Inc., Monolithic 3D Inc., etc. Kindly note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report:

How has the global 3D IC market performed so far and how will it perform in the coming years?

What are the drivers, restraints, and opportunities in the global 3D IC market?

What are the key regional markets?

Which countries represent the most attractive 3D IC markets?

What is the breakup of the market based on the type?

What is the breakup of the market based on the component?

What is the breakup of the market based on the application?

What is the breakup of the market based on the end user?

What is the competitive structure of the global 3D IC market?

Who are the key players/companies in the global 3D IC market?

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