

3D Semiconductor Packaging Market by Technology (3D Through silicon via, 3D Package on Package, 3D Fan Out Based, 3D Wire Bonded),by Material (Organic Substrate, Bonding Wire, Leadframe, Encapsulation Resin, Ceramic Package, Die Attach Material),by Industry vertical (Electronics, Industrial, Automotive & Transport, Healthcare, IT & Telecommunication, Aerospace & Defense)- Global Opportunity Analysis and Industry Forecast, 2014-2022

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## **Abstracts**

Global 3D semiconductor packaging market size is expected to garner \$8.9 billion by 2022, growing at a CAGR of 15.7% from 2016 to 2022. 3D semiconductor packaging refers to an advanced packaging technology of semiconductor chips in which two or more layers of active electronic components are stacked together and interconnected vertically as well as horizontally to perform as a single device. This technology possesses various advantages over other advanced packaging technologies such as reduced space consumption, decreased power loss, better overall performance, and enhanced efficiency.

A special feature of 3D packaging design that distinguishes it from other advanced packaging methods is that it mounts the die on top of each other unlike side-by-side mounting of 2D packaging, which consecutively acquires less space, and results in the formation of more compact chips and aids the growing demand for circuit miniaturization. Furthermore, overall less cost of as compared to other advanced packaging technology options gives an edge and fuels its adoption in memory chip stacking, I/O DRAMS, and high bandwidth applications. The need for miniaturization of memory chips, high bandwidth requirements in electronic circuits, and reduced cost



than other advanced packaging technologies are prime factors, which foster the demand in 3D packaging industry.

The need to control the chip designing cost, which plays a major role in overall price of electronic devices; increase in demand for miniaturized circuits; and short replacement period of electronics products, which are constituted of integrated circuits manufactured with 3D packaging technology are the major factors that drive the growth in the 3D semiconductor packaging industry. However, high cost required to establish a 3D semiconductor packaging facility hinders the growth opportunities in 3D semiconductor packaging industry and this is anticipated to grow the overall 3D semiconductor packaging market size to three folds of the current value. On the contrary, the growth in trend of Internet of Things (IoT) and increase in number of wireless devices are opening new opportunities which will increase 3D semiconductor packaging market share in overall advanced packaging market. The ongoing 3D semiconductor packaging market trends suggest that the market will witness a double-digit growth in next five to six years.

The global 3D semiconductor packaging market is segmented on the basis of technology, materials, industry vertical, and geography. Based on technology, the 3D semiconductor packaging industry is segmented into 3D through silicon via, 3D package on package, 3D fan out based, 3D wire bonded, and others. By materials, the 3D semiconductor packaging market is classified into organic substrate, bonding wire, leadframe, encapsulation resin, ceramic package, die attach material, and others Furthermore, the 3D semiconductor packaging industry is categorized on the basis of industry vertical, which includes electronics, industrial, automotive & transport, healthcare, IT & telecommunication, aerospace & defense, and others. Geographically, it is divided into North America, Europe, Asia-Pacific, and LAMEA.

The key players profiled in the report include Amkor Technology, ASE group, Siliconware Precision Industries Co., Ltd., Jiangsu Changjiang Electronics Technology Co. Ltd., S?SS MicroTec AG., International Business Machines Corporation (IBM), Intel Corporation, Qualcomm Technologies, Inc., STMicroelectronics, and Taiwan Semiconductor Manufacturing Company.

## POTENTIAL BENEFITS FOR STAKEHOLDERS:

This report provides an in-depth analysis of the global 3D semiconductor packaging market along with current 3D semiconductor packaging market trends and future estimations to identify lucrative investment opportunities

This report identifies the key drivers, opportunities, and restraints that shape the market along with their impact analysis



Porter's Five Forces analysis highlights the potency of buyers and suppliers that participate in this market to facilitate better business decisions for stakeholders and strengthen their supplier and buyer networks

Market estimation of geographical regions is based on the current market scenario and future trends.

#### MARKET SEGMENTATION

The market is segmented on the basis of technology, materials, industry vertical, and geography.

BY TECHNOLOGY

- 3D Through Silicon Via
- 3D Package on Package
- 3D Fan Out Based
- 3D Wire Bonded

Others (Flip Chip and Hybrid)

## BY MATERIAL

**Organic Substrate** 

**Bonding Wire** 

Leadframe

**Encapsulation Resins** 

Ceramic Packages

Die Attach Material



Others (Underfill Materials and Solder Balls)

BY INDUSTRY VERTICAL			
Electronics			
Industrial			
Automotive & Transport			
Healthcare			
IT & Telecommunication			
Aerospace & Defense			
		Others (Media & Entertainment and Renewable Energy Resources)	
BY GEOGRAPHY			
North America			
U.S.			
Canada			
Mexico			
Europe			
UK			
Germany			

France



Italy		
Rest of Europe		
Asia-Pacific		
China		
Japan		
Taiwan		
South Korea		
India		
Rest of Asia-Pacific		
LAMEA		
Latin America		
Middle East		
Africa		
KEY PLAYERS		
Amkor Technology		
ASE Group	ASE Group	
Siliconware Precision Industr	ries Co., Ltd.	
Jiangsu Changjiang Electron	ics Technology Co. Ltd.	

S?SS MicroTec AG.



	international Business Machines Corporation (IBM)	
	Intel Corporation	
	Qualcomm Technologies, Inc.	
	STMicroelectronics	
	Taiwan Semiconductor Manufacturing Company	
Other players in the value chain include (profiles not included in the report)		
	Sony corp.	
	SAMSUNG electronics co. ltd.	
	Advanced Micro Devices, Inc.	
	Cisco	



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SAMSUNG Electronics Co. Ltd.

Advanced Micro Devices, Inc.

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FIGURE 75. ASE GROUP: COMPANY SNAPSHOT



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