

Global Advanced Semiconductor Packaging Market to Reach USD 72.5 Bn by 2031, with an Estimated of CAGR of 8% (2023-2031)

Advancements in 5G, AI, and IoT is Driving the Global Advanced Semiconductor Packaging Market: Report by The Niche Research

WILMINGTON, DELAWARE, UNITED STATES, December 4, 2023 /EINPresswire.com/ -- Advanced semiconductor packaging has emerged as an important path to creating more powerful processors. Given the rising



importance of semiconductors industry, it is vital to understand the scope for advanced packaging innovation and its consequences for the global semiconductor sector. Traditional packaging is a subset of advanced packaging. It is not a single packing strategy, but rather a collection of techniques to chip packaging that improve computing capabilities while decreasing power consumption and cost. Fan-out wafer-level packaging and three-dimensional packaging, for example, are two separate packaging approaches that are both regarded as sophisticated packaging techniques.

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Global Advanced Semiconductor Packaging Market Snapshot

Market Value in 2022 : USD 35.6 Billion Market Value Forecast 2031: USD 72.5 Billion Growth Rate 8 % Historical Data 2015-2021 Base Year 2022 Forecast Data 2023-2031

Driver: Increasing demand for advanced packaging solutions in consumer electronics, 5G infrastructure, artificial intelligence, and IoT devices has driven market growth Challenges : Advanced packaging technologies are often complex and require specialized

expertise, which can lead to higher development and production costs. Opportunities: Sustainability concerns are pushing the industry to develop environmentally friendly packaging materials and processes.

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Global Advanced Semiconductor Packaging Market Trends

• The semiconductor industry has continued to invent new forms of advanced packaging since IBM and Motorola released the first BGA packages in the 1980s. The primary underlying trend in advanced packaging has been the integration or packing of more features and circuit blocks into smaller places, all while functioning at higher speeds. In order to accommodate this form of feature packing, the industry has created a variety of semiconductor packaging designs that allow for the continuous integration of various features.

 Consumers are increasingly demanding powerful, multi-functional electronic devices with great performance and speed that are also small, portable, and affordable. This poses tough technological and production challenges for semiconductor companies as they explore novel methods to provide improved performance and functionality in a tiny, low-cost device.
 Semiconductor industries are looking forward to provide a comprehensive platform of wafer level technology solutions such as fan-in and fan-out wafer level packaging which has all led to demand of advanced semiconductor packaging market.

• Although advanced packaging is becoming more widespread as the expense and difficulty of integrating everything onto a planar SoC becomes more difficult and expensive with each successive node, guaranteeing that these packed devices work properly and yield appropriately is not so simple. A number of these factors are pushing the semiconductor industry towards advanced packaging.

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Key Takeaways from the Global Advanced Semiconductor Packaging Market

• The end uses of its numerous technologies drive the advanced semiconductor packaging industry. With a market share of over 60%, fan-out wafer-level packaging has highest share in the global advances packaging market in 2022. Fan-out packaging is less expensive than stacking and is designed for strong heat resistance as well as a tiny form factor. These characteristics make it suitable for mobile applications, which are projected to drive the majority of its demand.

• Over the forecast period, 3-D packaging is expected to be the fastest growing segment in the global advanced semiconductor packaging market. 3-D stacked memory is being integrated with logic chips for high-performance devices with high bandwidth requirements, such as high-bandwidth memory (HBM) and processing in memory with HBM (PIM-HBM). Significant demand for 3-D stacked memory is expected to arise from data-center servers, which require high capacity and speed, as well as graphics accelerators and network devices, which require the most memory and processing bandwidth available.

Packaging has traditionally been a labor-intensive and low-value-add stage in the

semiconductor production process. Several leading advanced packaging companies are headquartered in the United States, such as Amkor, which has advanced packaging capacity in Asia to capitalize on the benefits of reduced labor costs and closeness to electronics assembly factories, the eventual destination of most chips. Around 81 percent of worldwide advanced packaging capacity is now situated in a range of Asian nations, giving the Asia Pacific region the largest share of the advanced semiconductor packaging market.

• China has a thriving advanced semiconductor packaging market, which will help the country create a strong advanced packaging industry. According to a recent survey, China is home to around 22% of all innovative packaging facilities in the globe. When measured by installed capacity, those advanced packaging facilities account for an estimated 38 percent of the global advanced packaging industry, the highest share of any nation. Large U.S. semiconductor firms have chosen to put their sophisticated packaging operations in China, which has contributed to China's packaging strength. For example, semiconductor companies located in the United States, such as Onsemi, Qorvo, and Micron, all have high-volume sophisticated packaging operations in China.

Key Developments in the Global Advanced Semiconductor Packaging Market In August 2023, Taiwan Semiconductor Manufacturing Company (TSMC) announced its investment of roughly US\$2.9 billion in a state-of-the-art chip packaging factory in Taiwan, despite increasing worldwide demand.

In August 2023, Intel increases investment in advanced chip packaging. Its 3D Foveros packaging method, a spin on 3D stacking, will be employed in its future Meteor Lake chips. Intel is transitioning to a "chiplet" architecture with Meteor Lake, which will allow many chips made on various processes to be bundled together.

Some of the players operating in the global advanced semiconductor packaging market are

- o Amkor Technology
- o ASE
- o AT&S
- o Chipbond Co., Ltd.
- o ChipMOS TECHNOLOGIES INC.
- o Intel Corporation
- o Jiangsu Changdian Technology Co., Ltd. (JCET Global)
- o Powertech Technology Inc
- o Samsung
- o SHINKO ELECTRIC INDUSTRIES CO., LTD.
- o Taiwan Semiconductor Manufacturing Company, Limited.
- o Unimicron
- o Other Industry Participants

Global Advanced Semiconductor Packaging Market By Type o Wafer Level

- o Fan In
- o Fan Out
- o 2.5D Stacking
- o 3-D Stacking
- o Chip Scale Packages
- o Embedded Die Substrate
- o System-in-package
- o MEMS and Micro-System Packaging
- o Others

By End User Industry

- o Healthcare
- o Automotive
- o Aerospace
- o Defense
- o Consumer Electronics
- o IT and Telecommunication
- o Others

By Region

o North America (U.S., Canada, Mexico, Rest of North America)

o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe)
o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific)
o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)

o Latin America (Brazil, Argentina, Rest of Latin America)

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