

Advanced Packaging Market Set to USD 61.3 Billion by 2033, Driven by Innovations in Semiconductor and Microelectronics

Advanced packaging drives electronics innovation with compact, energy-efficient solutions, meeting global demand across industries by 2033.

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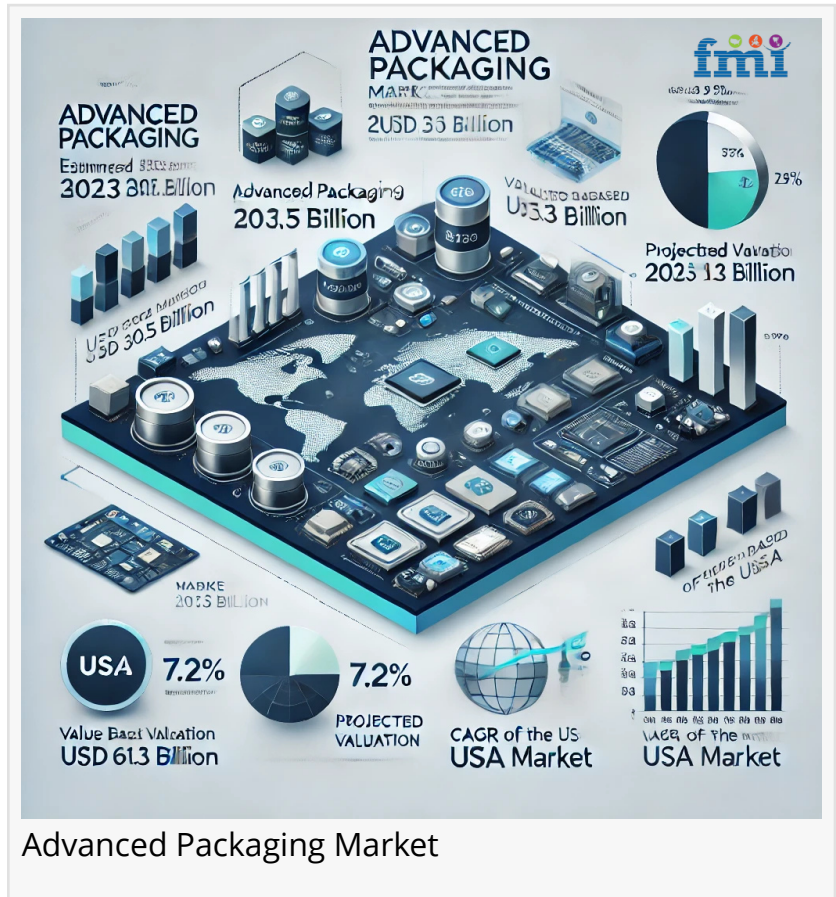
EINPresswire.com/ -- The global [advanced packaging market](#) is projected to grow at a robust CAGR of 7.2% during the forecast period from 2023 to 2033. In 2023, the market is valued at USD 30.5 billion and is expected to double, reaching USD 61.3 billion by 2033.

The Advanced Packaging Market refers to the segment of the semiconductor industry focused on innovative techniques for integrating and assembling electronic components, such as chips and circuits, to enhance their performance, efficiency, and functionality. Advanced packaging technologies address the growing demand for miniaturized, high-performance, and energy-efficient electronic devices.

With increasing demand from various industries within the semiconductor sector, integrated circuit packaging has consistently evolved in terms of product features, energy efficiency, and integration capabilities.

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Technologies such as flip-chip and wafer-level packaging have experienced steady growth due to



their extensive application in high-end smartphones and tablets, which demand compact designs and precise power management.

The redistribution layer methodology was initially developed to enable fan-in area array packaging for limited chip arrays. Over time, this technique has spurred advancements in innovative packaging technologies, including through-silicon via (TSV)-based interposers, wafer-level packaging, chip stacking, and fan-out packaging.

Fan-out wafer-level packaging (FOWLP) has emerged as a leading technology, driven by the growing demand for consumer electronics. Its unique features, such as substrate-less packaging and low thermal resistance, have made it highly popular across the globe. Unlike traditional wire bonding or flip-chip bumps, FOWLP uses direct integrated circuit connections and short interconnects based on thin-film metallization, delivering exceptional performance with minimal parasitic effects.

This advanced packaging method is a key innovation in the microelectronics industry. It enables the development of large substrate formats and heterogeneous integration through technological advancements. FOWLP supports multiple die packaging, package-on-package configurations, and the integration of passive components into redistribution layers.

Notably, it can incorporate a supercapacitor for energy storage, a piezo-based harvester, and a power control unit, enabling the creation of highly miniaturized energy harvester systems. Such innovations position fan-out wafer-level packaging as a critical driver of future growth in the semiconductor and microelectronics sectors.

Top Trends Driving Global Sales of Advanced Packaging Solutions

Miniaturization of Electronic Devices Set to Propel Market Growth by 2033

Advanced packaging is rapidly gaining traction worldwide, surpassing traditional semiconductor packaging solutions. This growth is attributed to the miniaturization of electronic devices and the increasing adoption of advanced micro-electromechanical systems (MEMS). The popularity of embedded die packaging solutions is also rising, although high costs and limited yields have historically constrained its use. Innovations in Bluetooth, radio frequency modules, and the advent of WiFi-6 are poised to boost investments in this technology during the forecast period.

Country-wise Insights

USA: Pioneering Advanced Packaging Technologies

The USA advanced packaging market is forecast to reach USD 9.9 billion by 2033, registering a CAGR of 6.6% from 2023 to 2033. Key players in the country are heavily investing in research and development facilities to innovate advanced packaging technologies such as flip-chip scale

packages, flip-chip ball grid arrays, and fan-out wafer-level packaging.

For example, in May 2021, Intel Corporation announced a USD 3.5 billion investment in New Mexico to enhance its advanced packaging capabilities. Intel's groundbreaking 3D packaging technology, Foveros, offers higher computing performance and is expected to create significant growth opportunities for manufacturers.

United Kingdom: Advanced Packaging Demand Soars

The advanced packaging market in the United Kingdom is anticipated to be valued at USD 1.7 billion by 2033, with a CAGR of 5.6% during the forecast period. The presence of prominent companies developing cutting-edge technologies is driving demand.

For instance, WHP Engineering was awarded a contract in June 2019 to construct state-of-the-art cleanrooms in Oxfordshire for Satellite Applications Catapult. This project, which employs ISO Class 7-compliant cleanroom solutions, is intended to bolster the country's space sector by supporting advanced satellite manufacturing.

China: A Global Leader in Semiconductor Packaging

China's advanced packaging market is projected to reach USD 15.5 billion by 2033, growing at a CAGR of 8.7% from 2023 to 2033. The country's semiconductor industry is expanding rapidly, fueled by demand from data centers and artificial intelligence applications.

Chinese manufacturers are also focusing on increasing their market share in North America and meeting the needs of fabless vendors by expanding production capacities. This proactive approach ensures a strong foothold in the global advanced packaging sector.

South Korea: Advancing Chip Technology

South Korea's advanced packaging market is forecast to be worth USD 3.7 billion by 2033, creating an incremental opportunity of USD 1.9 billion over the next decade. Companies in South Korea are pushing technological boundaries to attract a larger client base.

In February 2020, HANA Micron developed a wafer-level packaging process that increases chip wiring thickness by four times. This innovation is intended to facilitate the production of fast-charging integrated circuits, further driving demand for advanced packaging.

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Competition Landscape

Ten to fifteen big firms presently controlling the global advanced packaging market include Intel Corporation, ASE Technology Holding Co. Ltd., Jiangsu Changjiang Electronics Technology Co., Ltd., Amkor Technology Inc., Nepes Corporation, ChipMOS Technologies, Inc., Powertech Technology Inc., China Wafer Level CSP Co., Ltd., King Yuan Electronics Corp., HANA Micron Inc., and FlipChip International LLC among others.

The market is predominantly driven by half way point revenue due to the requirement for cutting-edge technology and quick-responding devices. Given the increasing need for unique solutions for numerous applications, these companies have a persistent competitive edge in this market. The industry is expected to benefit from ongoing advancements in tablets, smartphones, wireless communications, and other technologies. Few of the recent developments in the advanced packaging market are

- In October 2022, Amkor Technology declared their dedication to supporting initiatives in the Europe automotive sector. They are predicted to engage in enhanced semiconductor manufacturing in order to speed up the creation of technologies such as advanced driver assistance systems and infotainment for the automobile industry. In August 2022, Intel Corporation, a USA-based maker of integrated circuits, announced that the Meteor Lake, Arrow Lake, and Lunar Lake processors were produced by utilizing Foveros technology. The latest high-end graphics processing units (9GPUs) were built using embedded multi-die interconnect bridge (EMIB) and cutting-edge Foveros technology.
- In November 2021, Amkor Technology, a USA-based developer of innovative packaging, revealed plans to establish a cutting-edge facility in Bac Ninh, Vietnam. It is anticipated that the plant will offer unique methods for package assembly and testing facilities to other semiconductor and fabrication companies throughout the world.
- In August 2021, Amkor Technology disclosed their efforts to create cellular advancements using innovative packaging methods. In order to encapsulate radio frequency front end modules for 5G solutions and smartphones, the company is developing a double-sided molded ball grid array.

Advanced Packaging Market Outlook by Category

By Type:

- Flip Chip Scale Package
- Flip Chip Ball Grid Array
- Wafer Level Chip Scale Packaging
- 5D/3D
- Fan Out Wafer-level Packaging
- Others

By End User:

- Consumer Electronics
- Healthcare
- Industrial
- Aerospace and Defense
- Automotive
- Other

By Region:

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East & Africa

Authored by:

Ismail Sutaria (Lead Consultant, Packaging and Materials) has over 8 years of experience in market research and consulting in the packaging & materials industry. Ismail's strength lies in identifying key challenges faced by the client and offering logical and actionable insights to equip the clients with strategic decision-making power.

Ismail has been an instrumental part of several transformational consulting assignments. His key skills include competitive benchmarking, opportunity assessment, macroeconomic analysis, and business transformation advisory. Ismail is an MBA holder in Marketing and has a Bachelor's Degree in Mathematics.

Have a Look at Trending Research Reports on Packaging Domain:

The global [semiconductor packaging market size](#) is projected to grow at a CAGR of 6.5% between 2023 and 2033, totaling around USD 53.7 billion by 2033.

The [consumer electronics packaging market sales](#) is anticipated to rise at a CAGR of 4.5% through 2034. The industry is projected to surpass USD 30.4 billion by 2034.

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Contact Us:

Future Market Insights Inc.
Christiana Corporate, 200 Continental Drive,
Suite 401, Newark, Delaware - 19713, USA
T: +1-347-918-3531
For Sales Enquiries: sales@futuremarketinsights.com
Website: <https://www.futuremarketinsights.com>

Ankush Nikam
Future Market Insights, Inc.
+ +91 90966 84197

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