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Advanced Packaging & Assembly Market Forecasts to 2034 – Global Analysis By Packaging Technology (2.5D IC Packaging, 3D IC Packaging, Fan-Out Wafer-Level Packaging (FOWLP), Flip-Chip Packaging, System-in-Package (SiP) and Chiplet Integration), Packaging Material, Assembly Process, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Advanced Packaging & Assembly Market is accounted for $37.1 billion in 2026 and is expected to reach $61.9 billion by 2034 growing at a CAGR of 6.6% during the forecast period. Advanced semiconductor packaging and assembly play a vital role in enhancing chip performance, size reduction, and energy efficiency. These techniques combine several dies within one enclosure through methods like system-in-package, 2.5D integration, and 3D stacking architectures. Use of innovative materials, accurate interconnects, and effective heat dissipation ensures durability and optimal operation in dense configurations. Increasing needs across electronics, automotive systems, and artificial intelligence accelerate advancements in packaging technologies. Moreover, such packaging minimizes latency and strengthens integration, supporting complex, high-speed semiconductor products. Ongoing development emphasizes affordability, mass production capability, and eco-friendly approaches to meet changing industry demands and technological progress worldwide.

According to SEMI, the global semiconductor packaging materials market was valued at approximately $26 billion in 2023 and is forecast to reach $30 billion by 2028, driven by advanced packaging technologies such as fan-out wafer-level packaging, panel-level packaging, and system-in-package solutions.

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Market Dynamics:

Driver:

Rising demand for high-performance computing

The increasing reliance on high-performance computing significantly fuels the growth of the advanced packaging and assembly market. Technologies such as artificial intelligence, big data analytics, and cloud infrastructure demand superior processing capabilities and energy efficiency. Packaging solutions like 2.5D and 3D stacking enhance data transfer speeds while lowering power consumption and delays. These advancements enable integration of multiple functions within a compact footprint. As digital transformation expands across industries, the need for efficient and powerful semiconductor systems grows, driving continuous innovation in packaging methods and strengthening the market’s expansion globally.

Restraint:

High manufacturing costs

Elevated production expenses act as a significant barrier to the growth of the advanced packaging and assembly market. Implementing advanced techniques like 2.5D and 3D integration demands costly machinery, specialized materials, and precise manufacturing conditions. The intricate nature of combining multiple chips further raises fabrication and testing costs. Many smaller companies find it difficult to allocate sufficient capital for such investments, restricting their involvement in the market. These financial constraints can also lead to higher product prices, affecting customer adoption. Consequently, high costs limit large-scale implementation and slow overall market expansion.

Opportunity:

Advancements in automotive electronics and EVs

The progress in automotive electronics and the rising use of electric vehicles generate strong opportunities for the advanced packaging and assembly market. Vehicles today depend on advanced semiconductor systems for safety, energy management, and connectivity features. Packaging technologies help ensure reliability, efficient heat handling, and compact structures. With the growth of electric mobility and self-driving

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technologies, the demand for high-quality semiconductor components increases. This trend drives the need for innovative packaging solutions that meet strict automotive requirements, creating new avenues for market expansion and technological development.

Threat:

Rapid technological obsolescence

Fast-paced technological changes represent a major threat to the advanced packaging and assembly market. Ongoing advancements in semiconductor design shorten product lifespans, causing packaging methods to become outdated quickly. Companies are required to continuously invest in new technologies to remain competitive. Inability to keep up can lead to reduced market presence and financial losses. Moreover, constant upgrades raise costs and create uncertainty regarding returns on investment. This rapid evolution places significant pressure on manufacturers, making it difficult to maintain long-term growth and stability in the advanced packaging industry.

Covid-19 Impact:

The COVID-19 outbreak influenced the advanced packaging and assembly market in both negative and positive ways. Early in the pandemic, restrictions and supply chain interruptions slowed semiconductor production and reduced access to essential materials. Many manufacturing units faced operational limitations, impacting productivity. On the other hand, rising demand for electronics, online services, and remote work technologies increased the need for advanced packaging solutions. Greater dependence on digital systems encouraged investment in data processing and computing infrastructure. Consequently, the market gradually rebounded, with future growth driven by ongoing digitalization and expanding technological requirements across industries.

The substrates segment is expected to be the largest during the forecast period

The substrates segment is expected to account for the largest market share during the forecast period because of their fundamental function in supporting and connecting semiconductor components. They serve as a base that links chips to circuit boards while maintaining reliable signal transmission and power flow. As semiconductor designs become more complex and advanced packaging methods like system-in-package and 3D integration gain traction, the need for efficient substrates continues to

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rise. Their contribution to compact design, increased component density, and effective heat management strengthens their importance, making them the leading segment within the advanced packaging ecosystem.

The wafer-level assembly segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the wafer-level assembly segment is predicted to witness the highest growth rate because of its efficiency and scalability advantages. By packaging devices directly at the wafer level, it enables streamlined production and cost optimization. This method improves device performance and supports smaller form factors, which are essential for modern electronics like smart devices and IoT products. It also minimizes material consumption and enhances manufacturing productivity. As the demand for compact, high-functioning electronic components rises, wafer-level assembly is becoming increasingly important, contributing significantly to the market's accelerated expansion.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share as a result of its well-established semiconductor industry and presence of major manufacturing players. Key countries including China, Taiwan, South Korea, and Japan contribute significantly through their advanced production facilities and innovation capabilities. Strong demand from industries like electronics, automotive, and telecom supports regional growth. Moreover, supportive government policies, access to skilled labor, and ongoing investments in semiconductor development enhance its competitive advantage. These elements collectively ensure that Asia-Pacific remains the leading region in the global advanced packaging and assembly market.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, supported by significant investments in cutting-edge semiconductor technologies. The region benefits from major technology firms, advanced research infrastructure, and increasing demand for AI and high-performance computing solutions. Government support for local chip manufacturing and supply chain strengthening further enhances growth prospects. Expanding use of advanced packaging in industries such as data centers, automotive systems, and defense also contributes to rising demand. Together, these elements make North America the most rapidly expanding region in the

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global advanced packaging and assembly industry.

Key players in the market

Some of the key players in Advanced Packaging & Assembly Market include Amkor Technology Inc., Taiwan Semiconductor Manufacturing Company Limited (TSMC), Advanced Semiconductor Engineering Inc. (ASE), Intel Corporation, JCET Group Co. Ltd., Samsung Electronics Co. Ltd., Chipbond Technology Corporation, ChipMOS Technologies Inc., Powertech Technology Inc., TongFu Microelectronics Co. Ltd., Siliconware Precision Industries Co. Ltd. (SPIL), Huatian Technology, STATS ChipPAC Pte. Ltd., Nepes Corporation, UTAC Holdings Ltd., Walton Advanced Engineering, Tianshui Huatian Technology Co. Ltd. and King Yuan Electronics Co. Ltd.

Key Developments:

In April 2026, Intel Corp plans to invest an additional $15 million in AI chip startup SambaNova Systems, according to a Reuters review of corporate records, as the semiconductor company deepens its focus on artificial intelligence infrastructure. The proposed investment, which is subject to regulatory approval, would raise Intel’s ownership stake in SambaNova to approximately 9%.

In May 2025, Samsung Electronics announced that it has signed an agreement to acquire all shares of Fl?ktGroup, a leading global HVAC solutions provider, for €1.5 billion from European investment firm Triton. With the global applied HVAC market experiencing rapid growth, the acquisition reinforces Samsung’s commitment to expanding and strengthening its HVAC business.

In October 2024, TSMC and Amkor Technology, Inc. announced that the two companies have signed a memorandum of understanding to collaborate and bring advanced packaging and test capabilities to Arizona, further expanding the region’s semiconductor ecosystem. Under the agreement, TSMC will contract turnkey advanced packaging and test services from Amkor in their planned facility in Peoria, Arizona.

Packaging Technologies Covered:

- 2.5D IC Packaging
- 3D IC Packaging

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Fan-Out Wafer-Level Packaging (FOWLP)

Flip-Chip Packaging

System-in-Package (SiP)

Chiplet Integration

Packaging Materials Covered:

Substrates

Interposers

Encapsulation Materials

Thermal Interface Materials

Assembly Processes Covered:

Wafer-Level Assembly

Die Attach

Wire Bonding

Testing & Burn-In

End Users Covered:

Consumer Electronics

Automotive & EVs

Data Centers & HPC

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- Industrial IoT
- Aerospace & Defense

Regions Covered:

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - United Kingdom
  - Germany
  - France
  - Italy
  - Spain
  - Netherlands
  - Belgium
  - Sweden
  - Switzerland
  - Poland
  - Rest of Europe

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  - Japan
  - India
  - South Korea
  - Australia
  - Indonesia
  - Thailand
  - Malaysia
  - Singapore
  - Vietnam
  - Rest of Asia Pacific
- South America
  - Brazil
  - Argentina
  - Colombia
  - Chile
  - Peru
  - Rest of South America
- Rest of the World (RoW)

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- Middle East
  - Saudi Arabia
  - United Arab Emirates
  - Qatar
  - Israel
  - Rest of Middle East
- Africa
  - South Africa
  - Egypt
  - Morocco
  - Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations

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- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

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10 STRATEGIC MARKET INTELLIGENCE

11 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

12 COMPANY PROFILES

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List Of Tables

LIST OF TABLES

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Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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