

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 Statistics 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.

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

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

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

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 FI?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

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

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

Asia Pacific

China

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)

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

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

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL ADVANCED PACKAGING & ASSEMBLY MARKET, BY PACKAGING TECHNOLOGY

- 5.1 2.5D IC Packaging
- 5.2 3D IC Packaging
- 5.3 Fan-Out Wafer-Level Packaging (FOWLP)
- 5.4 Flip-Chip Packaging
- 5.5 System-in-Package (SiP)
- 5.6 Chiplet Integration

6 GLOBAL ADVANCED PACKAGING & ASSEMBLY MARKET, BY PACKAGING MATERIAL

- 6.1 Substrates
- 6.2 Interposers
- 6.3 Encapsulation Materials
- 6.4 Thermal Interface Materials

7 GLOBAL ADVANCED PACKAGING & ASSEMBLY MARKET, BY ASSEMBLY PROCESS

- 7.1 Wafer-Level Assembly
- 7.2 Die Attach
- 7.3 Wire Bonding
- 7.4 Testing & Burn-In

8 GLOBAL ADVANCED PACKAGING & ASSEMBLY MARKET, BY END USER

- 8.1 Consumer Electronics
- 8.2 Automotive & EVs
- 8.3 Data Centers & HPC
- 8.4 Industrial IoT
- 8.5 Aerospace & Defense

9 GLOBAL ADVANCED PACKAGING & ASSEMBLY MARKET, BY GEOGRAPHY

9.1 North America

9.1.1 United States

9.1.2 Canada

9.1.3 Mexico

9.2 Europe

9.2.1 United Kingdom

9.2.2 Germany

9.2.3 France

9.2.4 Italy

9.2.5 Spain

9.2.6 Netherlands

9.2.7 Belgium

9.2.8 Sweden

9.2.9 Switzerland

9.2.10 Poland

9.2.11 Rest of Europe

9.3 Asia Pacific

9.3.1 China

9.3.2 Japan

9.3.3 India

9.3.4 South Korea

9.3.5 Australia

9.3.6 Indonesia

9.3.7 Thailand

9.3.8 Malaysia

9.3.9 Singapore

9.3.10 Vietnam

9.3.11 Rest of Asia Pacific

9.4 South America

9.4.1 Brazil

9.4.2 Argentina

9.4.3 Colombia

9.4.4 Chile

9.4.5 Peru

9.4.6 Rest of South America

9.5 Rest of the World (RoW)

9.5.1 Middle East

9.5.1.1 Saudi Arabia

- 9.5.1.2 United Arab Emirates
- 9.5.1.3 Qatar
- 9.5.1.4 Israel
- 9.5.1.5 Rest of Middle East
- 9.5.2 Africa
 - 9.5.2.1 South Africa
 - 9.5.2.2 Egypt
 - 9.5.2.3 Morocco
 - 9.5.2.4 Rest of Africa

10 STRATEGIC MARKET INTELLIGENCE

- 10.1 Industry Value Network and Supply Chain Assessment
- 10.2 White-Space and Opportunity Mapping
- 10.3 Product Evolution and Market Life Cycle Analysis
- 10.4 Channel, Distributor, and Go-to-Market Assessment

11 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 11.1 Mergers and Acquisitions
- 11.2 Partnerships, Alliances, and Joint Ventures
- 11.3 New Product Launches and Certifications
- 11.4 Capacity Expansion and Investments
- 11.5 Other Strategic Initiatives

12 COMPANY PROFILES

- 12.1 Amkor Technology Inc.
- 12.2 Taiwan Semiconductor Manufacturing Company Limited (TSMC)
- 12.3 Advanced Semiconductor Engineering Inc. (ASE)
- 12.4 Intel Corporation
- 12.5 JCET Group Co. Ltd.
- 12.6 Samsung Electronics Co. Ltd.
- 12.7 Chipbond Technology Corporation
- 12.8 ChipMOS Technologies Inc.
- 12.9 Powertech Technology Inc.
- 12.10 TongFu Microelectronics Co. Ltd.
- 12.11 Siliconware Precision Industries Co. Ltd. (SPIL)
- 12.12 Huatian Technology

- 12.13 STATS ChipPAC Pte. Ltd.
- 12.14 Nepes Corporation
- 12.15 UTAC Holdings Ltd.
- 12.16 Walton Advanced Engineering
- 12.17 Tianshui Huatian Technology Co. Ltd.
- 12.18 King Yuan Electronics Co. Ltd.

List Of Tables

LIST OF TABLES

- Table 1 Global Advanced Packaging & Assembly Market Outlook, By Region (2023-2034) (\$MN)
- Table 2 Global Advanced Packaging & Assembly Market Outlook, By Packaging Technology (2023-2034) (\$MN)
- Table 3 Global Advanced Packaging & Assembly Market Outlook, By 2.5D IC Packaging (2023-2034) (\$MN)
- Table 4 Global Advanced Packaging & Assembly Market Outlook, By 3D IC Packaging (2023-2034) (\$MN)
- Table 5 Global Advanced Packaging & Assembly Market Outlook, By Fan-Out Wafer-Level Packaging (FOWLP) (2023-2034) (\$MN)
- Table 6 Global Advanced Packaging & Assembly Market Outlook, By Flip-Chip Packaging (2023-2034) (\$MN)
- Table 7 Global Advanced Packaging & Assembly Market Outlook, By System-in-Package (SiP) (2023-2034) (\$MN)
- Table 8 Global Advanced Packaging & Assembly Market Outlook, By Chiplet Integration (2023-2034) (\$MN)
- Table 9 Global Advanced Packaging & Assembly Market Outlook, By Packaging Material (2023-2034) (\$MN)
- Table 10 Global Advanced Packaging & Assembly Market Outlook, By Substrates (2023-2034) (\$MN)
- Table 11 Global Advanced Packaging & Assembly Market Outlook, By Interposers (2023-2034) (\$MN)
- Table 12 Global Advanced Packaging & Assembly Market Outlook, By Encapsulation Materials (2023-2034) (\$MN)
- Table 13 Global Advanced Packaging & Assembly Market Outlook, By Thermal Interface Materials (2023-2034) (\$MN)
- Table 14 Global Advanced Packaging & Assembly Market Outlook, By Assembly Process (2023-2034) (\$MN)
- Table 15 Global Advanced Packaging & Assembly Market Outlook, By Wafer-Level Assembly (2023-2034) (\$MN)
- Table 16 Global Advanced Packaging & Assembly Market Outlook, By Die Attach (2023-2034) (\$MN)
- Table 17 Global Advanced Packaging & Assembly Market Outlook, By Wire Bonding (2023-2034) (\$MN)
- Table 18 Global Advanced Packaging & Assembly Market Outlook, By Testing & Burn-

In (2023-2034) (\$MN)

Table 19 Global Advanced Packaging & Assembly Market Outlook, By End User (2023-2034) (\$MN)

Table 20 Global Advanced Packaging & Assembly Market Outlook, By Consumer Electronics (2023-2034) (\$MN)

Table 21 Global Advanced Packaging & Assembly Market Outlook, By Automotive & EVs (2023-2034) (\$MN)

Table 22 Global Advanced Packaging & Assembly Market Outlook, By Data Centers & HPC (2023-2034) (\$MN)

Table 23 Global Advanced Packaging & Assembly Market Outlook, By Industrial IoT (2023-2034) (\$MN)

Table 24 Global Advanced Packaging & Assembly Market Outlook, By Aerospace & Defense (2023-2034) (\$MN)

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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