Semiconductor Bonding Market Expected to Reach $1.27 billion by 2031

The semiconductor bonding market was valued at $0.88 billion in 2021, and is estimated to reach $1.27 billion by 2031, growing at a CAGR of 3.6%

WILMINGTON, DE, UNITED STATES, December 2, 2025 /EINPresswire.com/ -- The global semiconductor bonding market share is expected to witness considerable growth in coming years, owing to increase in demand for semiconductor bonding solutions across consumer electronics and automotive sectors, especially in Asia-Pacific and North America, due to rise in demand for machine vision cameras in non-industrial sectors paired with the rise in investment by prime players in these regions.

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Autonomous automobiles, connected vehicles, and electrified vehicles, which have boosted demand for MEMS, LEDs, photodiodes, image sensors, power devices, and other components, have all been made possible by semiconductor bonding. Automobile manufacturers are also utilizing MEMS and optoelectronics in a wide range of passenger safety applications, such as airbag systems, vehicle dynamics systems, active suspension systems, and engine management systems, as a result of the growing concerns regarding the safety of drivers and passengers. These automobile assemblies need high-precision packaging, which bonding equipment can provide. Therefore, it is anticipated that the use of technologically improved bonding equipment for the assembly of car electronics will spur the semiconductor bonding market's growth during the forecast period.

The increase in demand for nano-sized components for miniature electronics components is driving the growth of the global semiconductor bonding market. Furthermore, the semiconductor bonding market for semiconductor bonding is expanding, as stacked die technology is increasingly used in IoT devices, as well as increased use of semiconductor devices such as ICs and sensors in electric and hybrid vehicles sectors, which are likely to drive semiconductor bonding market size during the forecast period. However, one of the major challenges limiting the growth of global semiconductor bonding is the high ownership cost during the forecast period. On the contrary, the increased demand for 3D semiconductor assembly & packaging and the growing adoption of IoT and AI in the automotive sector is expected to give profitable prospects for market growth during the forecast period.

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According to the semiconductor bonding market analysis, the die-to-die bonding segment was the highest contributor to the Semiconductor Bonding Market Analysis market in 2021, whereas the MEMS Sensors and LED segments collectively accounted for around 64.0%% semiconductor bonding market share in 2021. The surge in demand for gold wire bonding, semiconductor wafer bonding, and 3D semiconductor assembly-based solution has led to the growth of the automotive and consumer electronics segments, thereby enhancing the semiconductor bonding market growth.

The outbreak of COVID-19 significantly impacted the growth of the semiconductor bonding industry, owing to a significant impact on prime semiconductor bonding market players. Conversely, a rise in demand for electric vehicles and security solutions in the automotive sector is anticipated to drive the semiconductor bonding market growth post-pandemic. However, the lack of availability of a professional workforce due to partial and complete lockdowns implemented by governments restrained the growth of the machine vision market. On the contrary, emerging economies significantly witnessed the need for biomedical solutions that are expected to boost the semiconductor bonding market trends.

The semiconductor bonding market is analyzed across type, process type, bonding technology, wafer bonding technology, application, and region. By type, the wafer bonder segment accounted major share in the market. Based on process type, the die to die bonding segment dominated the market in 2021 and is expected to follow the same during the forecast period. By bonding technology, the die bonding technology segment secures a major share in market during the year 2021. In addition, by region, the Asia-Pacific region is expected to grow at a high CAGR during the forecast period.

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KEY FINDINGS OF THE STUDY

In 2021, the wafer bonder segment accounted for maximum revenue and is projected to grow at a notable CAGR of 3.03% during the forecast period.
The die-to-die bonding and wafer-to-wafer bonding segments collectively accounted for around 87.3% market share in 2021.
The die-bonding technology segment is projected to grow at a CAGR of 3.75% during the forecast period.
The Asia-Pacific region accounted major share of the semiconductor bonding market in 2021 and is expected to grow at a high CAGR of 4.56% during the forecast period of 2022-2031.

The key players profiled in the report include ASM Pacific Technology, BE Semiconductor Industries N.V., Panasonic Corporation, Fasford Technology, Shinkawa Ltd, EV Group, SUSS MicroTech SE, Kulicke & Soffa Industries, Palomar Technologies, Shibaura Mechatronics, TDK Corporation, Tokyo Electron Limited, Mitsubishi Heavy Industries Machine Tools, Mycronic Group, INTEL Corporation, Skywater, and Tessera Technologies, Inc. Semiconductor bonding market players have adopted various strategies such as product launch, collaboration, partnership, joint venture, and acquisition to expand their foothold in the global semiconductor bonding market. For instance, in June 2022, Intel and CEA-Leti optimized a hybrid direct-bonding, self-assembly process for D2W (Die-to-Wafer) bonding that has the potential to increase the alignment accuracy as well as fabrication throughput by several thousand dies per hour. The approach uses capillary forces of a water droplet to align dies on the target wafer. In addition, in May 2022, SkyWater Technology and Adeia announced ZiBond direct bonding and DBI hybrid bonding technology and IP to enhance next-generation devices for commercial and government applications. This technology adds to SkyWater's developing heterogeneous integration platform solutions in its Florida facility, which also includes silicon interposer and fan-out wafer-level packaging (FOWLP) technologies.

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