

# **Rigid-Flex PCB Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2024 – 2032**

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## **Abstracts**

The Global Rigid-Flex PCB Market reached USD 22.1 billion in 2023 and is projected to grow at 10.9% CAGR from 2024 to 2032. This growth is driven by the increasing adoption of high-density circuit solutions, particularly as industries like IoT, wearables, and medical technology continue to advance. The demand for rigid-flex PCBs is rising as industrial electronics expand, especially in sectors like factory and building automation, where these PCBs play a crucial role in improving system performance and reducing space requirements.

Rigid-flex PCBs are integral to industrial automation systems, where they are used in applications such as robotics, control units, and human-machine interfaces (HMIs). Their flexibility, compact design, and durability make them ideal for these complex systems, allowing for efficient wiring in tight spaces while ensuring reliable operation under continuous use. Similarly, in building automation systems that manage lighting, HVAC, and security, rigid-flex PCBs allow high-density component mounting, facilitating the development of smarter, more efficient systems.

However, the market faces challenges, including the high manufacturing complexity and cost associated with rigid-flex PCBs. The production process involves several intricate steps, including bonding flexible and rigid layers, creating multi-layered structures, and ensuring precise alignment to avoid defects. These added complexities result in higher production costs, as manufacturers need to use specialized materials, advanced equipment, and longer processing times to ensure the boards meet the required performance standards.

The market is segmented by product type, with multi-layer flex PCBs holding the largest share. This segment is expected to reach USD 7.4 billion by 2023, driven by the

growing need for compact, high-density solutions across industries such as automotive, aerospace, and consumer electronics. Multi-layer flex PCBs are particularly valued for their enhanced flexibility and durability, making them ideal for applications that require miniaturization and complex circuit designs.

The rigid-flex PCB market is also segmented by end-use industries, including aerospace and defense, automotive, consumer electronics, industrial, IT and telecommunications, healthcare, and others. Among these, the consumer electronics sector holds the largest market share, driven by increasing demand for miniaturization and advanced technology in devices like smartphones, wearables, and smart home products. The adoption of rigid-flex PCBs in consumer electronics is fueled by the need for compact, reliable, and durable components capable of supporting high-performance, space-constrained designs.

U.S. rigid-flex PCB market generated 77.86% share in 2023. The growth of the U.S. rigid-flex PCB industry is fueled by the rising demand in sectors such as advanced consumer electronics, automotive electronics, and aerospace. The expansion of the IoT and the increasing need for smaller, more efficient devices have significantly boosted the demand for high-performance, compact rigid-flex PCBs. In particular, the automotive industry, including the electric vehicle (EV) segment, is increasingly adopting rigid-flex PCBs due to their durability and space-saving advantages.

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