

PCB - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

Market Report | 2024-02-17 | 152 pages | Mordor Intelligence

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Report description:

The PCB Market size is estimated at USD 76.12 billion in 2024, and is expected to reach USD 93.87 billion by 2029, growing at a CAGR of 4.28% during the forecast period (2024-2029).

The market is witnessing rapid growth because most modern electronic devices contain printed circuit boards (PCBs), thereby reducing the sizes of all products and making them more cost-effective. PCB (printed circuit board) is a key electronic component that supports the assembly of other electronic components and boosts circuit interconnection. It is called the "mother of electronic products", and it is vital to the electronics industry. 5G, the Internet of Things, the Internet of Vehicles, the industrial Internet of Things (IIoT), and artificial intelligence are leading the current trends and developments surrounding electronic products.

Key Highlights

- With the maturing demand for electronics, there was a significant decline in the sales of consumer electronics till the end of FY 2023. There has been a decreased demand for smartphones, cameras, PCs, and tablets due to inflation, low demand for consumer electronics, and macroeconomic uncertainties. The global demand for smartphones and tablets experienced flat growth in 2023, which led to a decline in the orders for PCBs. However, the demand is expected to gain traction in 2024.
- Miniaturization of electronic components has made it possible to build small portable and handheld computer devices that can be carried anywhere. As a result, smaller and lighter devices with high processing capacities are becoming more wearable since their components can be easily embedded (for example, in clothing bags) and carried around for long periods of time.
- The increasing demand for printed circuit boards (PCBs) can be attributed to the growing needs of various end-user industries. PCBs are critical components of modern electronic devices, including smartphones, tablets, laptops, and gaming consoles. As the demand for these devices continues to rise, the demand for high-quality PCBs is also rising in order to support their functionalities.
- The growing concerns regarding electronic waste, like printed circuit boards (PCBs), need to be addressed immediately. PCBs

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contain various hazardous materials, including lead, mercury, cadmium, and brominated flame retardants. When improperly disposed of, these substances can leach into the soil and water, thereby posing a threat to human health and the environment.

-The COVID-19 pandemic affected the global semiconductor market. The lockdowns and closures of semiconductor plants during the pandemic led to an extreme shortage of supply. Government precautions to support automotive and semiconductor sectors across the world gradually revived the industry in the post-pandemic era.

Printed Circuit Board (PCB) Market Trends

Consumer Electronics Segment is Expected to Hold a Significant Market Share

- PCBs have proven to be highly suitable for portable consumer electronics due to their small size and lightweight characteristics. The growth and efficiency of the PCB assembly industry can be attributed to the significant reliance of consumer electronic products on well-designed and assembled printed circuit boards. By incorporating high-performance PCBs effectively, various consumer electronic devices can be optimized to carry out everyday tasks seamlessly. The indispensability of PCBs extends to a wide range of consumer electronics, such as smartphones, televisions, laptops, and gaming consoles, owing to their compact design and capability to accommodate intricate circuitry.

- As the evolution of consumer electronic devices progresses, the printed circuit boards (PCBs) and processing systems that drive them have also advanced. Today, users of consumer electronics prioritize practical aspects such as durability, processing speed, and battery life. They seek devices that are resistant to shattering, waterproof, and designed to withstand damage. Flexible printed circuit boards (PCBs), also referred to as flex circuit boards, are being incorporated into the designs of consumer electronic products to meet these demands.

- Flex circuit boards possess a higher degree of physical elasticity compared to conventional PCBs, enabling manufacturers to install them around corners and bends with minimal wiring. As a result, devices that incorporate flex PCBs can endure more severe conditions and minimize the risk of connection damage and contamination. While flex PCBs have been primarily utilized in medical, military, and aerospace fields, consumer electronics OEMs are now creating more robust devices with flex circuit boards.

- The integration of rigid-flex PCBs in folded mobile phones is expected to increase due to the flexible components that support the bending mechanism without affecting the device's functionality. Furthermore, the growth of the market for these PCBs may be driven by the rapid advancements in smartphone technologies. The increasing adoption of smartphones across the world and the continuous breakthroughs in smartphone technologies are expected to contribute to the growth of rigid-flex PCBs.

- Ericsson reported that the worldwide tally of its smartphone mobile network subscriptions was nearly 6.4 billion in 2022, and it is expected to exceed 7.7 billion by 2028. China, India, and the United States are leading in terms of the highest number of smartphone mobile network subscriptions. Ericsson's findings emphasize that although sales leveled off in 2022, the increasing average selling price of smartphones is predicted to strengthen the market in the coming years. These significant developments are set to enhance the market's prospects.

Asia-Pacific Region is Expected to Witness Significant Growth

- The Asia-Pacific region has been dominating the PCB market, owing to the presence of top manufacturers and players in China, Taiwan, South Korea, and Japan. With the rapid development of China's electronics industry, many Chinese PCB manufacturers have emerged as leading players in the global PCB market. Chinese PCB manufacturers hold a total market share of 54.76% in the Asia-Pacific region. These manufacturers offer a wide range of services and capabilities, including PCB design, fabrication, and assembly, along with competitive pricing and fast turnaround times. Some of the major players are JLCPCB, Graperain, Fulltronics, YMS PCB Assembly, and Hitech Circuits.

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- At present, there are about 2,500 PCB manufacturers in China. The PCB industry in China is mainly distributed across the Pearl River Delta, the Yangtze River Delta, and the Bohai Rim. These areas are the hubs of large market components, good transportation conditions, and smooth water and electricity conditions.
- The major reasons driving the growth of the PCB market in China are lower overall costs and higher management efficiencies. Although China's demographic dividend is coming to an end, the labor cost is still lower than that of Japan, South Korea, Taiwan, the European Union, and the United States. China's environmental protection schemes, trade unions, and welfare sectors consume relatively less funds. In addition, as the world's largest manufacturing country, China's PCB industry has a complete industrial chain ranging from copper foil to glass fiber, resin, copper-clad laminates, and PCBs.
- Benefiting from gaining its position as the world's largest PCB producer and the vigorous development of downstream electronic terminal products, China's PCB industry is witnessing a rapid trend of development and growth. The electronic information industry is a strategic and leading pillar for China's key industrial development. The PCB industry, being the cornerstone of the development of the electronic information industry, has become one of the most revered sectors in China. In recent years, China has promulgated policies such as "Encouraging Imported Technologies and Products (2016 Edition)" and "Industrial Structure Adjustment Guidance Catalog (2019 Edition)" to encourage the development of the PCB industry.
- Empirical data from reputable industry associations underscores Taiwan's continued dominance on the global PCB production values. Taiwan held a market share of 15.31% and a market revenue value of USD 11.05 billion in 2022, and the country is expected to register a CAGR of 3.66% during the forecast period. South Korean PCB manufacturers have now surpassed their Japanese counterparts, securing the third position in the regional market.
- According to the insightful analysis provided by the Taiwan Printed Circuit Association (TPCA), Japanese and South Korean PCB industries, by leveraging their design prowess in terminal products, have strategically transitioned from low to mid-range products. The focus has shifted toward high-technology realms, such as flexible boards and PCBs with elevated technical thresholds. Japan has now emerged as the second-largest global producer of flexible boards and the third-largest producer of traditional PCBs that are widely applied in critical sectors, such as semiconductors, communications, and automotive electronics.

Printed Circuit Board (PCB) Industry Overview

The PCB market is highly fragmented, with the presence of major players like Jabil Inc., Wurth Elektronik Group (Wurth Group), TTM Technologies Inc., Becker & Muller Circuit Printing GmbH, and Advanced Circuits Inc. The major players in the market are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantages.

- November 2023 - Jabil Inc. opened its third production facility in the city of Chihuahua, Mexico, marking a milestone in the company's continued growth and commitment to the region. The plant, with an area of more than 250,000 square feet, will play a critical role in supporting customers across the energy, automotive, transportation, healthcare, digital print, and retail industries. This new facility would enhance operational efficiency and flexibility, as well as boost the region's ability to deliver high-quality products.
- November 2023 - Wurth Elektronik Group launched the research project called HyPerStripes. It primarily focuses on flexible and stretchable PCBs with roll-to-roll processing capacities to enable virtually "endless" electronics with fine miniaturized structures. The HyPerStripes (hybrid integrated high-performance electronic stripes) project addresses these limitations by developing technologies and production processes for long, smart, and flexible electronic systems that can replace conventional cables. The aim of this project is to develop stretchable circuit carriers in lengths of more than one meter for providing cost-effective products and maintaining the corresponding manufacturing technologies.

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