

Telecom Electronic Manufacturing Services Market Assessment, By Type [Engineering and Electronics Design, Contract Manufacturing, Test and Validation, Sourcing & Supply Chain Management, Others], By Organization Size [Large Scale, SMEs], By Application [Computing Devices and Equipment, Data Centers and Storages, Transceivers and Transmitters, Others], By Region, Opportunities, and Forecast, 2017-2031F

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Abstracts

Global telecom electronic manufacturing services (EMS) market size was valued at USD 401 billion in 2023, the market is forecasted to reach a value of USD 865.85 billion by 2031, displaying a CAGR of 10.1% from 2024 to 2031. Telecom electronic manufacturing service involves outsourcing the production of electronic components and devices for the telecommunications industry to a specialized manufacturing service provider. This includes the design, assembly, testing, and packaging of products like routers, switches, and communication equipment.

Traditionally, the global market for telecom electronics manufacturing services consisted of companies engaged in producing electronic products, primarily assembling components on printed circuit boards (PCBs) and providing box builds for original equipment manufacturers (OEMs). Originating over five decades ago, the market initially focused on executing manufacturing designs from government, defense, and research institutions. Over time, it expanded to accommodate escalating demands that surpassed volume capacities within OEMs.

Today, OEMs and original design manufacturers (ODMs) recognize greater value in



telecom EMS companies, leading to expanded involvement beyond mere manufacturing services. This includes product design and development, testing, aftersales services (including repair, remanufacturing), marketing, and comprehensive product lifecycle management. While conventionally, 3C (Computer, Communication, and Consumer Electronics) products dominated EMS market revenue, the advent of the digital age, characterized by a growing reliance on data, automation, and artificial intelligence, has significantly increased the demand for embedding electronics across telecom industry.

Globally, small and medium enterprises (SMEs) and micro, small, and medium enterprises (MSMEs) increasingly embrace third-party manufacturing services to circumvent substantial capital investments in production lines. They leverage the design expertise and manufacturing capabilities of service providers. According to the International Finance Corporation (IFC), approximately 65 million firms, constituting about 40% of formal micro, small, and medium enterprises in developing nations, face unmet financial needs. Given that a significant portion of businesses worldwide falls under the category of small and medium enterprises, especially in developing countries, their reliance on manufacturing service providers is expected to play a pivotal role in shaping the future growth trajectory of the electronic manufacturing services (EMS) market.

Robust 5G Infrastructure Establishment Contributing Significant Market Growth

Establishing a robust 5G infrastructure significantly influences telecom electronic manufacturing services (EMS) by driving demand for advanced equipment. As 5G networks require specialized and high-performance components, EMS providers are pivotal in manufacturing these technologically advanced devices. The deployment of 5G technology necessitates the production of diverse components, such as data storage, antennas, base stations, and small cells, fostering growth in the EMS sector. The increased complexity and sophistication of 5G networks amplifies the importance of outsourcing manufacturing to specialized EMS providers. Companies offering tailored solutions for 5G-related equipment manufacturing stand to benefit, as telecom operators globally seek efficient and reliable partners to meet the demands of the evolving telecommunications landscape. This dynamic relationship between the establishment of robust 5G infrastructure and the demand for specialized electronic manufacturing services underscores the intertwined growth of these two sectors.

GSMA estimates indicate that Greater China led in 5G adoption in 2021, with 29% of mobile users utilizing this new standard. North America and Europe followed with 13%



and 4% respectively. Predictions suggest North America will surpass China by 2025, achieving 63% 5G adoption, while other regions are expected to maintain their reliance on 4G. Notably, Saudi Arabia, represented by Saudi Telecom, boasts the most extensive 5G coverage and anticipates connecting 45 million new 5G-supported IoT devices by 2030. Other nations at the forefront of 5G adaptation include Spain, Italy, Australia, Canada, the UK, South Korea, and Finland.

Demand for Advanced Semiconductors Facilitating Telecom EMS Market

The escalating demand for advanced semiconductors significantly impacts the telecom EMS market. As telecommunications technologies evolve, there's a growing need for high-performance chips and integrated circuits that power modern communication devices. Advanced semiconductors are pivotal in developing IoT devices and other cutting-edge telecommunications equipment. EMS providers are experiencing increased pressure to incorporate the latest semiconductor technologies into their manufacturing processes to meet the demands of telecom companies. The surge in data-intensive applications and the widespread adoption of 5G requires semiconductors with enhanced processing capabilities and increased energy efficiency. This trend is reshaping the landscape of electronic manufacturing services, pushing providers to invest in state-of-the-art semiconductor manufacturing capabilities. As the telecom industry continues to rely on advanced semiconductor components for innovation, EMS providers that can efficiently integrate these technologies into their production processes are poised to capitalize on the expanding market demand.

The CHIPS Act allocates USD 280 billion in expenditures over the next decade, primarily focusing on scientific research and development (R&D) and commercialization, accounting for USD 200 billion. Within this, USD 52.7 billion is earmarked for semiconductor manufacturing, R&D, and workforce development, complemented by an additional USD 24 billion in tax credits to incentivize chip production. An allocation of USD 3 billion is designated for programs targeting leading-edge technology and enhancing wireless supply chains. This comprehensive funding strategy aims to bolster the semiconductor industry, fostering innovation, advancing manufacturing capabilities, and reinforcing workforce development while promoting critical technologies and securing the wireless supply chain.

Asia-Pacific Dominates the Telecom EMS Market

Asia-Pacific predominantly dominates the telecom EMS market. This is attributed to several factors contributing to the region's leadership in electronic manufacturing.



Countries such as China, Taiwan, South Korea, and Japan have emerged as key players in the global EMS landscape. Asia Pacific's dominance is fueled by its wellestablished electronics manufacturing infrastructure, cost-effective labor, and a robust ecosystem of suppliers and components.

Moreover, the region has been at the forefront of technological advancements and innovation, making it a preferred destination for telecom companies outsourcing their manufacturing needs. The presence of major original equipment manufacturers (OEMs) and a skilled workforce further solidifies Asia Pacific's position in the Telecom EMS market. The dynamic growth of the telecommunications sector in the Asia Pacific region, coupled with its manufacturing prowess, positions it as a powerhouse in meeting the demands of electronic manufacturing services for the telecom industry.

China, recognized as the world's largest exporter of electronic products, particularly portable computers and mobile phones, plays a pivotal role in the global electronics market. As of June 2020, the electronics manufacturing sector in China boasted 43,981 industrial enterprises, employing a substantial workforce of 13,289,000 (CALSS, 2020). Among these enterprises, 57% were engaged in the manufacturing of electrical machinery and equipment, providing jobs for 5,150,000 workers. The remaining 43% encompassed communication equipment manufacturers, computers, and other electronic devices, contributing to a workforce of 8,139,000. This data underscores China's significant presence and impact within the expansive realm of the electronics manufacturing sector.

Government Initiatives

The PLI scheme of various countries promoted the domestic manufacturing and export of electronic products, providing companies with incentives based on incremental sales compared to the base year. For instance, India's significant electronic manufacturing sector, the Large-Scale Electronic Manufacturing (LSEM) sector, has been allocated a substantial sum of approximately USD 5 billion under this initiative. This allocation has spurred increased investments in the sector, attracting global electronics giants like Samsung and Apple, which have established manufacturing facilities in India.

Key government initiatives to enhance domestic production in electronics and IT hardware include the Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS), offering financial incentives for their production. The Modified Electronics Manufacturing Clusters (EMC 2.0) initiative aims to create world-class infrastructure for electronics manufacturing. Additionally, the government has



liberalized foreign direct investment, allowing up to 100% FDI for electronics manufacturing.

Impact of COVID-19

The emergence of the coronavirus significantly impacted the demand for electronic manufacturing services, mainly due to the pandemic's severe repercussions on the global electronics supply chain. Key players in the market experienced substantial revenue declines due to the COVID-19 pandemic.

Moreover, the pandemic had detrimental effects on the electronics manufacturing industry in 2020, attributed to disrupted supply chains for components, restricted technology movement, worksite coordination challenges, cybersecurity concerns, and under-absorption of fixed costs. Companies encountered shortages of specific electronic components like capacitors, connectors, memory (DRAM and Flash), and LCD panels. Consequently, productivity levels were reduced across facilities during the initial two quarters of 2020, with Jabil Inc. reporting operating capacities at approximately 65-70%.

While the impact on the electronics manufacturing industry was expected to be more extensive if the virus affected major industrial countries beyond Germany, India, China, and the U.S., long-term prospects indicated a robust recovery. Anticipated increases in product development and demand across healthcare, automotive, computer, and communication sectors were projected. Remote monitoring electronic devices played a crucial role in sustaining business operations during lockdowns, exemplified by Benchmark Electronics, Inc.'s partnership with DnaNudge in September 2020 to produce DnaNudge's re-engineered lab-free RT-PCR COVID-19 testing system at scale.

Key Players Landscape and Outlook

The telecom electronic manufacturing services market is expanding due to the increasing emphasis placed by companies worldwide on establishing 5G infrastructure. Furthermore, the market expansion is exponentially facilitated by investments made by companies to enhance research and development resources, engage in collaboration projects, bolster marketing efforts, and expand distribution networks. These factors collectively contribute to the rapid expansion of the market.

In October 2022, Rockwell Automation Inc. disclosed the finalization of a definitive



agreement to acquire CUBIC, a specialist in modular systems for constructing electrical panels. This partnership anticipates delivering advantages such as expedited time to market, facilitating broader plant-wide applications for intelligent motor control, and generating smart data to enhance sustainability and productivity across a diverse customer base.



Contents

1. RESEARCH METHODOLOGY

2. PROJECT SCOPE & DEFINITIONS

3. IMPACT OF COVID-19 ON TELECOM ELECTRONIC MANUFACTURING SERVICES MARKET

4. EXECUTIVE SUMMARY

5. TELECOM ELECTRONIC MANUFACTURING SERVICES MARKET OUTLOOK, 2017-2031F

- 5.1. Market Size & Forecast
- 5.1.1. By Value
- 5.2. By Type
 - 5.2.1. Engineering and Electronics Design
 - 5.2.2. Contract Manufacturing
 - 5.2.3. Test & Validation
 - 5.2.4. Sourcing & Supply Chain Management
 - 5.2.5. Others
- 5.3. By Organization Size
 - 5.3.1. Large Scale
 - 5.3.2. SMEs
- 5.4. By Application
 - 5.4.1. Computing Devices & Equipment
 - 5.4.2. Data Centers & Storages
 - 5.4.3. Transceivers and Transmitters
 - 5.4.4. Others
- 5.5. By Region
 - 5.5.1. North America
 - 5.5.2. Europe
 - 5.5.3. South America
 - 5.5.4. Asia-Pacific
 - 5.5.5. Middle East and Africa
- 5.6. By Company Market Share (%), 2023

6. TELECOM ELECTRONIC MANUFACTURING SERVICES MARKET OUTLOOK,



BY REGION, 2017-2031F

- 6.1. North America*
 - 6.1.1. Market Size & Forecast
 - 6.1.1.1. By Value
- 6.2. By Type
 - 6.2.1. Engineering and Electronics Design
 - 6.2.2. Contract Manufacturing
 - 6.2.3. Test & Validation
 - 6.2.4. Sourcing & Supply Chain Management
 - 6.2.5. Others
- 6.3. By Organization Size
 - 6.3.1. Large Scale
 - 6.3.2. SMEs
- 6.4. By Application
 - 6.4.1. Computing Devices & Equipment
 - 6.4.2. Data Centers & Storages
 - 6.4.3. Transceivers and Transmitters
 - 6.4.4. Others
- 6.5. United States*
 - 6.5.1.1. Market Size & Forecast
 - 6.5.1.1.1. By Value
 - 6.5.2. By Type
 - 6.5.2.1. Engineering and Electronics Design
 - 6.5.2.2. Contract Manufacturing
 - 6.5.2.3. Test & Validation
 - 6.5.2.4. Sourcing & Supply Chain Management
 - 6.5.2.5. Others
 - 6.5.3. By Organization Size
 - 6.5.3.1. Large Scale
 - 6.5.3.2. SMEs
 - 6.5.4. By Application
 - 6.5.4.1. Computing Devices & Equipment
 - 6.5.4.2. Data Centers & Storages
 - 6.5.4.3. Transceivers and Transmitters
 - 6.5.4.4. Others
 - 6.5.5. Canada
 - 6.5.6. Mexico
- *All segments will be provided for all regions and countries covered



- 6.6. Europe
 - 6.6.1. Germany
 - 6.6.2. France
 - 6.6.3. Italy
 - 6.6.4. United Kingdom
 - 6.6.5. Russia
 - 6.6.6. Netherlands
 - 6.6.7. Spain
 - 6.6.8. Turkey
 - 6.6.9. Poland
- 6.7. South America
 - 6.7.1. Brazil
 - 6.7.2. Argentina
- 6.8. Asia-Pacific
 - 6.8.1. India
 - 6.8.2. China
 - 6.8.3. Japan
 - 6.8.4. Australia
 - 6.8.5. Vietnam
 - 6.8.6. South Korea
 - 6.8.7. Indonesia
 - 6.8.8. Philippines
- 6.9. Middle East & Africa
 - 6.9.1. Saudi Arabia
 - 6.9.2. UAE
 - 6.9.3. South Africa

7. MARKET MAPPING, 2023

- 7.1. By Type
- 7.2. By Organization Size
- 7.3. By Application
- 7.4. By Region

8. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE

- 8.1. PESTEL Analysis
- 8.2. Porter's Five Forces Analysis



9. MARKET DYNAMICS

- 9.1. Growth Drivers
- 9.2. Growth Inhibitors (Challenges, Restraints)

10. KEY PLAYERS LANDSCAPE

- 10.1. Competition Matrix of Top Five Market Leaders
- 10.2. Market Revenue Analysis of Top Five Market Leaders (in %, 2023)
- 10.3. Mergers and Acquisitions/Joint Ventures (If Applicable)
- 10.4. SWOT Analysis (For Five Market Players)
- 10.5. Patent Analysis (If Applicable)

11. PRICING ANALYSIS (IF APPLICABLE)

12. CASE STUDIES (IF APPLICABLE)

13. KEY PLAYERS OUTLOOK

- 13.1. Benchmark Electronics Inc
 - 13.1.1. Company Details
 - 13.1.2. Key Management Personnel
 - 13.1.3. Products & Services
 - 13.1.4. Financials (As reported)
 - 13.1.5. Key Market Focus & Geographical Presence
- 13.1.6. Recent Developments
- 13.2. Flex Ltd.
- 13.3. Sanmina Corporation
- 13.4. Jabil Inc.
- 13.5. Celestica Inc.
- 13.6. Wistron Corporation
- 13.7. Kinpo Group
- 13.8. BYD Company Limited
- 13.9. Pegatron Corporation
- 13.10. Plexus Corp

*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work

14. STRATEGIC RECOMMENDATIONS



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