India Semiconductor Market Segmented By Component (Memory Devices, Microprocessors, Analog IC, Sensors, Discrete Power Devices, Others), By Application (IT & Telecom, Automotive, Consumer Electronics, Other Industries), By Type (Extrinsic Semiconductor, Intrinsic Semiconductor), By Region, Competition Forecast & Opportunities, 2029F

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Report description:

India Semiconductor Market was valued at USD 34.42 billion in 2023 and is anticipated to project robust growth in the forecast period with a CAGR of 24.32%. The market is robust because of the increasing demand for electronic products by consumers in their day-to-day life and is further driven by government initiatives to promote electronic manufacturing. These factors are driving the growth of the India Semiconductor Market in the forecast period.

Semiconductors are materials with conductivities intermediate between conductors and nonconductors or insulators. Semiconductors are made of pure elements like silicon or germanium, as well as compounds such as gallium arsenide or cadmium selenide. Small amounts of impurities are added to pure semiconductors in a process known as doping, causing large changes in the material's conductivity. Additionally, numerous items, such as computers, cellphones, appliances, gaming equipment, and medical devices, employ semiconductors.

The Rise of Artificial Intelligence, Machine Learning, and IoT

Everything from bomb detectors to smart glasses is made with the help of semiconductor technology. The demand for semiconductors is projected to be driven by the ongoing efforts of semiconductor chip manufacturers to fulfill the demands of IoT and AI. The Internet of Things is the next generation of computing devices embedded in everyday objects that can send and receive data, including wearable devices, smart home devices, and factory equipment." AI and machine learning aid semiconductor companies in enhancing accuracy using metrology readings and tool-sensor data, which allows machine learning. Therefore, with the rise of Artificial Intelligence, Machine Learning, and IoT, there is an increase in the semiconductor market.

Rapid Acceleration Toward Industry 4.0 and Penetration of Industry 5.0

Industry 4.0 has enormous potential to enhance productivity, minimize waste, boost product quality, increase industrial flexibility, reduce prices, and unleash a slew of efficiencies. One of the most significant developments in Industry 4.0 is vision equipment, which accesses massive data sets using data analytics technologies to identify and assess issues in defective products. Industry 5.0 enables even more customization to meet customer needs and signal the end of the traditional one-size-fits-all manufacturing approach. Automation enhances production capacity by enabling manufacturers to handle difficult design challenges and effectively incorporate client requirements. Industry 5.0 is the next level of human-machine cooperation, integrating human intelligence and advanced cognitive computing to guarantee the highest levels of productivity, security, and environmental protection in manufacturing. These elements are likely to propel the development of machine vision systems in the semiconductor industries.

5G Communication Infrastructure Deployment

The ultra-low latency and high reliability of 5G technology are critical for high-tech innovators. As of 2022, 153 countries and territories are investing in 5G and are in various stages of development, including 5G trials, licensee acquisition, planning, and 5G network launch and deployment. The Internet of Things (IoT), automation, connectivity, edge technologies, artificial intelligence (AI), and a wide range of new connected smart devices and applications are all made accessible by 5G. The development of higher-performing ultra-flat wafers, which are needed to power these devices, will drive semiconductor production facilities to keep up with the new 5G infrastructure. Hence, the aforementioned factors open opportunities for semiconductor industries.

Government Initiatives

The Government of India has initiated several initiatives for the development of the electronics sector in the country, which directly impacts the market of semiconductors across the country in the forecasted years. For instance, the union government has approved the National Policy on Electronics (NPE). The main goal of the policy was to achieve revenues of about USD 400 billion by 2020 with an investment worth USD 100 billion and provide employment to around 28 million by the end of 2020. The National Policy on Electronics aimed at achieving a turnover of USD 55 billion in the chip design and embedded software industry and USD 80 billion in exports in the sector. Additionally, the Union government of India planned to set up over 200 electronic manufacturing clusters across the country.

Furthermore, initiatives by the union government to boost the semiconductor Market of India are:

-On 23rd February 2023, the Government of India announced the plan for the construction of two chip-making facilities, which is expected to cost more than USD 3.95 billion.

-In 2022, The Government of India has approved around three semiconductor manufacturing plant projects worth USD 31.64 million under the Electronic Manufacturing Clusters (EMC) scheme.

Challenges: Complex Design and Multiple Firms and Activities

Hardware design and software development are the two subcategories of semiconductor design. The hardware design process includes the definition and specification of products, system design, integrated circuit design, and post-silicon validation. To provide instructions directly to a chip, firmware must be created. A form of a lower-level program called firmware works to create designs by evading an end device's operating system. To uncover problems early, improve overall system-level performance, and shorten marketing time, design becomes a more iterative process as it becomes more complex-especially for leading players.

Impact of COVID-19: Increase in Demand for Wireless Communication

COVID-19 has caused the semiconductor industry to mobilize quickly and make short-term decisions with long-term significance. The global supply chains that raw material, assembly, test, packaging, and equipment suppliers and partners form with semiconductor businesses are extremely complicated. India's need for wireless communication services is anticipated to expand as a result of factors including rising internet usage, cloud service demand, and video streaming. In addition, the COVID-19 pandemic is anticipated to raise the demand for digital transformation, as well as technologies including 5G, IoT, AI, and intelligent edge computing for long-term optimization. The overall semiconductor industry, however, is expected to increase as a result of the COVID-19 impact on semiconductor supply and demand.

Recent Developments & Investments:

-The Union Government introduced a USD 9.43 billion incentive program for semiconductor fabrications and design, with up to 50% government co-funding. In addition, the government approved around USD 10 billion-dollar production-linked incentives

schemes to encourage semiconductor and display manufacturing and a design-linked initiative (DLI) scheme to increase global and domestic investment related to design software, IP rights, etc.

- The Indian government has set up several electronic parks and clusters in the eastern states to promote investment in the sector and attract leading players in the industry. Companies such as Wipro, Tata Consultancy Services, and Infosys have a significant presence in the region, providing opportunities for growth and development of the semiconductor industry.
- In 2022, a significant joint venture happened between Vedanta and Foxconn to build a semiconductor and display production facility in Gujarat. The central government approved worth USD 9.27 billion for the expansion of India's semiconductor and display manufacturing ecosystem.
- In 2021, the Indian Institute of Technology (BHU), Varanasi, signed an agreement with Applied Materials India Pvt. Ltd, the Indian subsidiary of materials engineering firm Applied Materials, Inc., to conduct research on semiconductors.

Market Segmentation

The India Semiconductor Market is divided into components, applications, and type. Based on components, the market is segmented into memory devices, microprocessors, analog IC, sensors, discrete power devices, and others. Based on application, the market is divided into IT & telecom, automotive, consumer electronics, and other industries. Based on type, the market is segmented into extrinsic semiconductors and intrinsic semiconductors. The market analysis studies the regional segmentation to devise regional market segmentation, divided among South India, North India, West India, and East India.

Company Profiles

Broadcom India Private Limited, Chiplogic Semiconductor Services Private Limited, Tata Elxsi Limited, Continental Device India Pvt. Ltd, MosChip Technologies Limited, NXP Semiconductors India Private Limited, eInfoChips Private Limited, ASM Technologies Ltd, Masamb Electronics Systems Private Limited, Semi-Conductor Laboratory, Saankhya Labs Private Limited, ROHM Semiconductor India Pvt. Ltd, Infineon Technologies India Private Limited, Renesas Electronics India Private Limited, and STMicroelectronics Private Limited are among the major players that are driving the growth of the India Semiconductor Market.

Report Scope:

In this report, the India Semiconductor Market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

- India Semiconductor Market, By Component:
  - Memory Devices
  - Microprocessors
  - Analog IC
  - Sensors
  - Discrete Power Devices
  - Others
- India Semiconductor Market, By Application:
  - IT & Telecom
  - Automotive
  - Consumer Electronics
  - Other Industries
- India Semiconductor Market, By Type:
  - Extrinsic Semiconductor
  - Intrinsic Semiconductor
- India Semiconductor Market, By Region:
  - South India
  - North India
  - West India
  - East India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India Semiconductor market.

Available Customizations:
With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
-Detailed analysis and profiling of additional market players (up to five).

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(Note: The companies list can be customized based on the client's requirements.)
The data given for any year represents the market during the period, i.e., 1st April of the former year to 31st March of the latter year. E.g.: For FY2023E, the data represents the period, from 1st April 2022 to 31st March 2023.

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