India 5G Chipset Market, By Type (Application Specific Integrated Circuit, Radio Frequency Integrated Circuit, Millimeter Wave Integrated Circuit, Cellular Integrated Circuit), By Frequency (Sub-6 GHZ, 26-39 GHZ, Above 39 GHZ), By Deployment Type (Smartphone, Connected Vehicles, Connected Devices, Broadband Access Gateway Devices), By End User (Energy & Utilities, Manufacturing, IT & Telecommunication, Media & Entertainment, Transportation & Logistics, Others), By Region, Competition, Forecast & Opportunities, 2020-2030F

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Report description:

India 5G Chipset Market was valued at USD 6.99 Billion in 2024 and is expected to reach USD 23.37 Billion by 2030 with a CAGR of 22.10% during the forecast period.

A 5G chipset is a specialized semiconductor component designed to enable devices to connect to and operate within 5G networks, the fifth generation of wireless communication technology. These chipsets integrate multiple functions, such as signal processing, modulation, and transmission, to support faster data speeds, lower latency, and greater connectivity reliability compared to previous generations like 4G.

The 5G chipset handles both the high-frequency millimeter waves used in 5G and the lower-frequency bands, making it capable of offering ultra-fast internet speeds, enhanced mobile broadband, and improved device connectivity. These chipsets typically feature advanced technologies like MIMO (Multiple Input, Multiple Output), beamforming, and carrier aggregation, which enhance network performance and capacity.

In smartphones, tablets, and other devices, the 5G chipset works in conjunction with software to optimize data traffic, manage

network connections, and ensure seamless communication between devices and the network. As 5G networks evolve, chipsets also continue to incorporate support for new 5G standards, offering better energy efficiency and supporting diverse applications such as IoT (Internet of Things), augmented reality (AR), and autonomous vehicles. In essence, 5G chipsets play a pivotal role in unlocking the full potential of 5G technology across industries and consumer devices.

Key Market Drivers

Government Initiatives and Policy Support

The Indian government's proactive approach toward the development of 5G technology plays a crucial role in driving the growth of the 5G chipset market. Recognizing the potential of 5G to transform the country's digital landscape and its economic benefits, the Indian government has rolled out several initiatives to facilitate the deployment of 5G networks. These efforts are accelerating the need for 5G chipsets across multiple industries.

One of the key drivers is the National Digital Communication Policy (NDCP) 2018, which outlines ambitious goals to enhance broadband connectivity across India. The policy emphasizes the need to accelerate the adoption of 5G technology to bolster India's digital infrastructure. Additionally, the government has prioritized the auctioning of 5G spectrum, creating a conducive environment for telecom operators to roll out 5G networks. This directly impacts the 5G chipset market, as telecom operators require advanced chipsets to ensure seamless network connectivity.

The Indian government has also supported the development and manufacturing of indigenous 5G technologies through initiatives like the Atmanirbhar Bharat (Self-Reliant India) campaign, which seeks to boost domestic production. Under this initiative, the government is encouraging research and development in the semiconductor and telecommunications sectors, including 5G chipsets. By reducing reliance on foreign imports and fostering local innovation, the policy is expected to drive the growth of the domestic 5G chipset market. Moreover, the launch of 5G trials and pilot programs by Indian telecom companies such as Reliance Jio, Airtel, and Vodafone Idea has provided a practical foundation for the implementation of 5G technology across the country. These trials are contributing to the early adoption of 5G-enabled devices, further increasing the demand for 5G chipsets. The government's active involvement in both policy creation and infrastructure development provides the necessary momentum for the 5G chipset market to thrive.

To the regulatory framework, the government's focus on the development of 5G use cases such as smart cities, connected transportation, agriculture, and industrial automation is expected to generate considerable demand for 5G chipsets. These initiatives align with India's broader economic goals, aiming to position the country as a leader in digital technology and innovation.

Proliferation of IoT Devices and Applications

The rapid expansion of the Internet of Things (IoT) is one of the most significant drivers of the 5G chipset market in India. IoT, which involves the connection of billions of devices through the internet, is poised to revolutionize industries ranging from agriculture to healthcare, manufacturing, and logistics. The proliferation of IoT devices requires advanced network capabilities that 5G technology can provide, with its high-speed data transfer and low-latency characteristics.

In India, IoT adoption is growing rapidly, driven by the demand for smarter, more efficient technologies across various sectors. In agriculture, for example, IoT applications are enabling smart farming solutions such as precision irrigation, soil monitoring, and automated machinery. These IoT systems require reliable, high-bandwidth communication to transmit data between devices in real time. 5G chipsets, with their ability to handle a massive number of connections and high-speed data transmission, are crucial for the widespread deployment of IoT devices in these sectors. Similarly, in smart cities, IoT applications such as traffic management, energy optimization, and environmental monitoring rely on constant communication between devices and sensors. 5G technology is well-suited to handle the massive number of IoT devices that will be deployed in these environments, providing the necessary infrastructure to ensure uninterrupted data flow and connectivity. This demand for 5G-enabled IoT solutions will significantly boost the market for 5G chipsets in India.

In the industrial sector, IoT is also driving the demand for 5G chipsets. Industry 4.0, which focuses on automation, real-time monitoring, and smart manufacturing, depends heavily on 5G networks to ensure the seamless operation of connected machines and sensors. 5G chipsets are essential for enabling the low-latency, high-speed data transfer that these applications require. Furthermore, the growing adoption of wearables, smart home devices, and connected healthcare technologies also contributes to the expanding demand for 5G chipsets. As more IoT devices are developed and deployed, the need for efficient, high-performance

chipsets that can support 5G connectivity will continue to rise, thus driving market growth. By 2025, over 100 million smart home devices, including smart thermostats, security cameras, and appliances, are expected to be deployed in Indian homes. Over 50 million industrial IoT devices (such as sensors, actuators, and connected machinery) are expected to be in use across various sectors, including manufacturing, energy, and logistics.

Technological Advancements and Miniaturization

Technological advancements and the ongoing miniaturization of semiconductor components are key factors that are shaping the India 5G chipset market. The development of cutting-edge technologies in the semiconductor industry has enabled the creation of smaller, more efficient, and cost-effective 5G chipsets. These advancements are critical in enabling the wide-scale adoption of 5G devices, such as smartphones, tablets, IoT devices, and wearable technology.

One of the significant trends in the 5G chipset market is the shift towards smaller and more powerful chipsets. As semiconductor manufacturing processes improve, chipmakers can integrate more features into compact packages. This miniaturization allows for the production of 5G chipsets that are not only more powerful but also consume less energy, which is essential for mobile devices and IoT applications. Smaller chipsets also enable manufacturers to produce more compact and lightweight devices, meeting consumer demand for sleek and portable products. Additionally, advancements in semiconductor fabrication technologies, such as 7nm and 5nm process nodes, have made it possible to produce more efficient chipsets with higher performance levels. These innovations have a direct impact on the efficiency and capabilities of 5G chipsets. For example, the use of advanced technologies such as System-on-Chip (SoC) architecture allows 5G chipsets to combine multiple functionalities, such as modem, processor, and radio frequency (RF) components, into a single compact chip. This not only reduces the size and cost of the chip but also enhances its performance, making it more suitable for a wide range of 5G-enabled devices.

The development of 5G chipsets that support multiple 5G frequency bands and spectrum technologies, such as mmWave and sub-6GHz, also plays a significant role in driving market growth. As more telecom operators in India deploy 5G infrastructure, the need for chipsets that can support various frequency bands becomes essential. This flexibility enhances the marketability of 5G devices and contributes to the growing adoption of 5G chipsets in India.

Key Market Challenges

High Cost of 5G Chipsets

One of the key challenges facing the India 5G chipset market is the high cost of 5G chipsets, which can hinder widespread adoption, especially in price-sensitive markets. While 5G technology offers numerous benefits such as faster speeds, lower latency, and better connectivity, the advanced chipsets required to support these capabilities come with a significant price tag. This cost challenge affects various stakeholders, including device manufacturers, telecom operators, and consumers, potentially slowing the rollout of 5G networks and devices.

For device manufacturers, the high cost of 5G chipsets directly impacts the price of 5G-enabled smartphones and other consumer electronics. In India, where a large portion of the population is highly price-sensitive, the premium associated with 5G-enabled devices may limit their affordability and accessibility. Many consumers may opt to stick with their existing 4G devices, which are more affordable and meet their needs for everyday mobile applications. As a result, the penetration of 5G-enabled devices may be slower than expected, impeding the mass adoption of 5G technology.

The high cost of 5G chipsets is also a challenge for telecom operators who are tasked with upgrading their networks to support 5G. Telecom providers need to invest in infrastructure, including upgrading base stations and adding more fiber optic cables, in addition to purchasing expensive 5G chipset-equipped equipment. While some telecom operators have already committed to rolling out 5G services, the high initial investment costs required to implement 5G infrastructure could delay or limit the speed of deployment in certain regions of India, particularly in rural and underserved areas. Furthermore, in a market where India is working to reduce its dependency on foreign semiconductor manufacturers, the high cost of importing advanced 5G chipsets from global suppliers adds an additional financial burden. Local manufacturers may face challenges in scaling production to meet demand and lowering prices, as they often lack the advanced manufacturing capabilities that international companies possess. Although the Indian government has taken steps to encourage local manufacturing, it will take time to build sufficient domestic capabilities to produce 5G chipsets at competitive prices.

Thus, the high cost of 5G chipsets remains a significant barrier to the rapid and widespread adoption of 5G technology in India, making it crucial for both the government and industry players to find ways to reduce costs through local production, innovation,

and economies of scale.

Limited Availability of 5G Spectrum and Infrastructure Challenges

Another major challenge for the India 5G chipset market is the limited availability of 5G spectrum and the related infrastructure challenges. Although the government has conducted spectrum auctions for 5G, the process has been slow, and there are still concerns about the availability and allocation of sufficient spectrum to support nationwide 5G deployment. In addition, the existing telecommunications infrastructure in India, particularly in rural and remote areas, is not always equipped to handle the demands of 5G technology, further complicating the adoption of 5G chipsets.

The scarcity of available spectrum is one of the primary reasons for this challenge. Spectrum is a limited resource, and in India, there is significant competition for different frequency bands, including those for 5G, which are essential for ensuring smooth and fast network connectivity. The government needs to allocate enough spectrum in appropriate frequency ranges, such as mid-band and mmWave, to support high-speed data transfer and low-latency communication, which are hallmarks of 5G technology. However, the auction process for 5G spectrum has been sluggish, and the lack of adequate spectrum availability could delay the rollout of 5G services and, by extension, the widespread adoption of 5G chipsets in India. Additionally, India's existing telecom infrastructure, particularly in rural and remote regions, is not fully equipped to handle the high data throughput and low-latency requirements of 5G networks. To support 5G, telecom operators need to invest in upgrading base stations, installing additional fiber optic cables, and deploying advanced equipment, which can be both costly and time-consuming. In urban areas, where the demand for high-speed data is concentrated, operators have been able to start deploying 5G networks. However, in rural areas, which account for a large portion of the Indian population, the lack of sufficient infrastructure and high costs of upgrading network capabilities will likely slow the progress of 5G deployment.

This limited infrastructure and availability of spectrum pose a direct challenge to the India 5G chipset market. Without a robust 5G network infrastructure, there will be limited opportunities for devices with 5G chipsets to operate at full capacity. Even if consumers and businesses adopt 5G-enabled devices, the lack of adequate network coverage could result in subpar performance, making it difficult to realize the full potential of 5G technology. Furthermore, telecom operators and device manufacturers are also facing uncertainty regarding the technical standards and regulatory frameworks for 5G networks in India. As the 5G ecosystem is still evolving, there is a need for more clarity in terms of policies, spectrum pricing, and operational guidelines, which can affect the overall deployment of both infrastructure and chipsets.

Key Market Trends

Increase in Affordable 5G Devices

A significant market trend in the India 5G chipset market is the rising availability of affordable 5G-enabled devices. As demand for 5G connectivity increases among consumers, especially in a price-sensitive market like India, the ability to provide cost-effective 5G smartphones and other consumer electronics has become a key focus for manufacturers. Historically, 5G smartphones were priced at a premium, limiting their accessibility to a small segment of the population. However, with advancements in chipset technology and economies of scale, the price of 5G devices has begun to decrease, making them more accessible to a broader range of consumers.

Chipset manufacturers are playing a crucial role in this trend by producing more affordable and efficient 5G chipsets. Many major semiconductor players, including Qualcomm, MediaTek, and Samsung, have developed chipsets designed specifically for the mid-range and budget smartphone segments, which are expected to be the primary drivers of 5G adoption in India. For example, Qualcomm's Snapdragon 4-series and MediaTek's Dimensity 700 and 800 series are designed to provide 5G support at a fraction of the price of their high-end counterparts. These chipsets offer a balance of performance and cost, making 5G technology more accessible to consumers in emerging markets. Moreover, as India has one of the largest mobile user bases in the world, telecom operators and manufacturers are actively collaborating to lower the price of 5G-enabled devices. As production volumes increase, the cost per unit is expected to continue decreasing, further driving down the overall cost of 5G devices. This trend is expected to be particularly important in India, where affordability is a critical factor in consumer purchasing decisions. The reduction in prices is expected to stimulate mass adoption of 5G smartphones, leading to an increase in the demand for 5G chipsets across the country.

In addition to smartphones, other consumer electronics, such as tablets, wearables, and IoT devices, are also benefiting from affordable 5G chipsets. As the demand for connected devices grows, the need for affordable 5G chipsets that can power these

devices will continue to rise, expanding the market beyond mobile phones. The market for 5G devices in India is expected to reach USD 10 billion by the end of 2025, driven by the growing demand for affordable 5G smartphones and IoT devices. Over 60% of new smartphone sales in India are expected to be 5G-enabled devices, with a significant portion being budget-friendly models by the end of 2025.

Emergence of 5G-Enabled IoT Devices

The growing adoption of the Internet of Things (IoT) is a major trend driving the demand for 5G chipsets in India. 5G technology offers a substantial advantage in supporting IoT devices, as it can handle a large number of devices connected simultaneously with minimal latency and high-speed data transfer. The rise of smart cities, industrial IoT (IIoT), and smart home technologies is creating new opportunities for 5G chipsets to be embedded into a wide range of IoT devices, including sensors, connected vehicles, wearables, and home appliances.

In India, there is a significant push towards the development of smart cities, which rely on a robust IoT infrastructure to improve urban living through technology. For example, smart traffic management systems, automated waste management, and energy-efficient street lighting are becoming more common in urban areas, and all of these applications require high-speed, reliable communication between devices. 5G chipsets are well-suited for these tasks, as they can support the high device density and low latency requirements of IoT systems. Furthermore, in sectors like agriculture, 5G-powered IoT devices are being used to implement precision farming techniques, such as smart irrigation systems and real-time soil monitoring. In the healthcare sector, the use of IoT-enabled wearable devices for continuous patient monitoring is on the rise, and these devices also require 5G capabilities to transmit large amounts of real-time data without delay. As these applications expand across various sectors, the demand for IoT devices powered by 5G chipsets will continue to surge.

In the industrial domain, Industry 4.0 applications, including autonomous manufacturing, robotics, and supply chain automation, depend heavily on reliable, high-speed communication. 5G chipsets are crucial for these applications, offering the low-latency and high-bandwidth necessary for seamless operation. This expansion of 5G-enabled IoT devices presents a tremendous growth opportunity for the chipset market, with new use cases and industries driving demand.

The continued proliferation of IoT devices and applications across both urban and rural areas in India will be a driving force for 5G chipset growth, as they require advanced, low-power chipsets capable of supporting a range of connected devices.

Segmental Insights

Deployment Type Insights

The Smartphone held the largest market share in 2024. Smartphones dominated the India 5G chipset market due to several key factors, primarily driven by the widespread consumer demand for mobile connectivity, affordability, and the rapid expansion of 5G networks across the country.

Smartphones are the most commonly used device for mobile connectivity in India, with the largest mobile user base globally. The demand for 5G-enabled smartphones has surged as consumers seek faster internet speeds, improved video streaming quality, and enhanced mobile experiences. As India transitions to 5G, smartphones are expected to remain the primary device for accessing high-speed mobile networks, further driving the need for 5G chipsets. Telecom operators are also aggressively promoting 5G services, which encourages consumers to upgrade to 5G-compatible smartphones to take full advantage of the technology.

The availability of affordable 5G smartphones is a significant factor contributing to the dominance of smartphones in the 5G chipset market. Leading chipset manufacturers like Qualcomm, MediaTek, and Samsung have developed cost-effective 5G chipsets, enabling smartphone manufacturers to produce budget-friendly 5G devices. This aligns with the price-sensitive nature of the Indian market, where consumers are looking for value-oriented options. With 5G chipsets now being available for mid-range and budget smartphones, a larger segment of the population can afford 5G devices, thus expanding the market size and further solidifying smartphones as the dominant segment.

Smartphones serve as a gateway to a wide array of 5G-enabled services, including entertainment, gaming, IoT applications, and digital payments, making them central to India's 5G rollout. The smartphone remains the most versatile device for consumers to access the full potential of 5G connectivity, reinforcing its dominant role in the chipset market.

Regional Insights

South India held the largest market share in 2024. South India dominated the India 5G chipset market due to a combination of

factors related to infrastructure development, technological adoption, industrial growth, and government support. The region has emerged as a hub for both technology and manufacturing, which has significantly contributed to its leadership in the 5G chipset market.

South India is home to several major technology and semiconductor companies, including large players in the mobile device and chipset manufacturing sectors. Cities like Bengaluru, Hyderabad, and Chennai are recognized as key tech hubs with a high concentration of IT companies, research and development centers, and global tech giants like Qualcomm, Intel, and MediaTek having significant operations. These centers foster innovation and technological advancements, making South India a key region for the development and deployment of 5G chipsets.

Infrastructure readiness in South India plays a pivotal role. The region has already seen extensive investments in network infrastructure, including fiber-optic cables and advanced telecom facilities, which are necessary for 5G deployment. Leading telecom operators, such as Reliance Jio and Airtel, have launched 5G trials and network rollouts in cities like Chennai, Hyderabad, and Bengaluru, creating an environment that supports the mass adoption of 5G technology. This infrastructure advantage accelerates the demand for 5G chipsets in mobile devices, broadband access gateways, and other connected devices.

South India's industrial landscape is diverse and includes manufacturing, automotive, and healthcare sectors, all of which benefit from 5G technology. The region is increasingly adopting 5G for use cases such as smart manufacturing, autonomous vehicles, and telemedicine, further driving demand for 5G-enabled devices and chipsets.

Key Market Players

- Qualcomm Incorporated
- Samsung Electronics Co., Ltd.
- Huawei Technologies Co., Ltd.
- Intel Corporation
- NVIDIA Corporation
- Broadcom Inc.
- Ericsson AB
- Texas Instruments Inc.

Report Scope:

In this report, the India 5G Chipset Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

- India 5G Chipset Market, By Type:
  - Application Specific Integrated Circuit
  - Radio Frequency Integrated Circuit
  - Millimeter Wave Integrated Circuit
  - Cellular Integrated Circuit
- India 5G Chipset Market, By Frequency:
  - Sub-6 GHZ
  - 26-39 GHZ
  - Above 39 GHZ
- India 5G Chipset Market, By Deployment Type:
  - Smartphone
  - Connected Vehicles
  - Connected Devices
  - Broadband Access Gateway Devices
- India 5G Chipset Market, By End User:
  - Energy & Utilities
  - Manufacturing
  - IT & Telecommunication
  - Media & Entertainment

- Transportation & Logistics
- Others

India 5G Chipset 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 5G Chipset Market.

Available Customizations:

India 5G Chipset Market report with the given market data, Tech Sci 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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