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5G Chipset Market Assessment, By Type [Radio Frequency Integrated Circuits, System-on-Chips, Application-Specific Integrated Circuits, Cellular Integrated Circuits, millimeter-wave Integrated Circuits], By Operational Frequency [Sub-6GHz, mmWave], By Processing Node [Less Than 10 nm, Between 10-28 nm, Above 28 nm], By Industry [Telecommunication, Consumer Electronics, Media & Entertainment, Transportation & Logistics, Manufacturing, Healthcare, Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Global 5G chipset market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. With projected revenue of approximately USD 36.7 billion in 2022, the market is forecasted to reach a value of USD 138.9 billion by 2030, displaying a robust CAGR of 18.1% from 2023 to 2030.

5G chipsets enable high-quality video streaming, online gaming, and real-time communication by providing upgraded mobile broadband with much faster download and upload rates. They allow decreased power usage, which increases battery life. Furthermore, the reduced latency of 5G enables applications such as remote surgery and realistic virtual experiences. The 5G chipset market is rapidly expanding, fueled by rising demand for high-speed data and low-latency applications like IoT and AR/VR. Also, the global expansion of 5G network deployments creates opportunities and

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competitive innovation among chip makers is fueling market expansion by pushing technological and affordability breakthroughs.

As 5G networks expand worldwide, there is a growing demand for compatible chipsets in smartphones, IoT devices, and infrastructure equipment. This expansion fuels chipset adoption and innovation, propelling the 5G chipset market's growth and ushering in transformative technologies and applications. In 2022, there were 127,509 5G deployments in 128 countries, up from 85,602 in 112 nations in the previous year. Starlink provided rapid satellite internet, ranking first in certain locations. However, 5G availability varied, with the United States reaching 54.3%, while several nations relied on 2G and 3G connections, however, the list has shrunk dramatically since 2021.

For instance, in July 2023, MediaTek introduced the Dimensity 6100+ SoC in its Dimensity 6000 series, which provides power-efficient 5G connection, AI camera technology, 10-bit displays, and 108MP camera compatibility for mainstream 5G products.

Low-Latency Demands Propel 5G Chipset Market

Low latency demands from crucial applications like telemedicine and driverless cars drive the 5G chipset market. Telemedicine requires real-time contact between doctors and patients to provide proper diagnosis and treatment. Similarly, the safety of autonomous cars is dependent on split-second judgments. 5G chipsets enable ultra-low latency, enabling near-instantaneous data transfer, to satisfy these criteria. As these sectors grow, the need for 5G chipsets that provide reliable, low-latency communication becomes critical. It encourages chip makers to engage in R&D, resulting in creative solutions that cater to these latency-sensitive applications, driving the 5G chipset market forward.

For example, in September 2023, MediaTek and TSMC jointly developed MediaTek's flagship Dimensity chip using TSMC's advanced 3nm technology. The partnership aims to deliver high-performance, low-power SoCs for various devices starting in H2 2024.

Smart City Innovation Driving the 5G Chipset Market

The fast growth of smart infrastructure and smart cities is increasing demand for 5G chipsets. These ambitious ideas rely significantly on high-speed, low-latency 5G networks to improve urban life through data-driven services and automation. Advanced chipsets are required to handle huge data volumes and allow real-time decision-making

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in smart traffic management, autonomous vehicles, energy-efficient utilities, and remote monitoring. As these projects spread internationally, the 5G chipset market sees increased demand, with manufacturers attempting to build chipsets capable of powering the backbone of these revolutionary efforts, propelling the 5G chipset market's growth.

For example, in November 2023, Qorvo earned significant design wins in 5G smartphones, Wi-Fi equipment, and automotive platforms in partnership with MediaTek, increasing connectivity options for a variety of devices and applications .

Dominance of Sub-6GHz in 5G Chipset Market

Sub-6GHz is huge in 5G chipsets as it allows 5G to function in more areas. It is like a 5G engine, which may cover a wide range of geography, from towns to rural areas. Sub-6GHz chipsets help the gadgets connect to 5G without breaking the budget. It acts as the glue that holds 4G and 5G together, ensuring the internet functions properly. As a result, Sub-6GHz is driving the growth of 5G chipset market as it expands 5G availability while keeping it inexpensive for everyone.

For instance, in February 2023, Nokia, Qualcomm, and T-Mobile successfully demonstrated 5 Component Carrier 5G sub-6 GHz Carrier Aggregation (5CC CA) data transfer at data speeds surpassing 4.2Gbps. The technology improves mobile operators' data speeds, connection, and coverage.

Asia-Pacific Dominates 5G Chipset Market

Asia-Pacific dominates the 5G chipset market due to its early and extensive adoption of 5G technology. Countries like as South Korea, Australia, and China were among the first to establish commercial 5G networks, owing to favorable government regulations and early spectrum allotment. The region's excellent utilization of mid-band spectrum and massive base station deployment have resulted in improved 5G performance. Furthermore, places like Seoul and Kuala Lumpur have amazing 5G speeds. Asia-Pacific region's leadership is further cemented by its usage of 5G Fixed Wireless Access (FWA) to bridge the digital divide, making it a global powerhouse in the 5G chipset market.

For instance, in August 2023, Qualcomm's Snapdragon X75 5G Modem-RF System established a world record 7.5 Gbps downlink throughput on sub-6 GHz spectrum using 4x carrier aggregation and 1024 QAM, allowing faster and more efficient 5G performance.

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Government Initiatives Acting as Catalyst to the Market

Government initiatives for the 5G chipset market include supporting R&D to stimulate innovation, assuring spectrum availability for 5G networks, and enacting rules that favor local manufacturing. They emphasize security measures to protect key infrastructure, encourage international collaboration in standards development, and support programs to spread 5G connectivity to disadvantaged regions. Furthermore, governments are stimulating private sector investment in 5G technology through grants and tax breaks, while eliminating regulatory barriers to facilitate deployment and acceptance. These efforts seek to foster economic development, technological innovation, and worldwide leadership in 5G technology.

For example, in November 2022, Marvell and Nokia strengthened their collaboration by integrating Marvell's 5nm OCTEON 10 DPU technology into Nokia's ReefShark chipset, increasing mobile operators' 5G network performance and energy efficiency .

Impact of COVID-19

The 5G chipset market seemed promising before COVID-19, with manufacturers investing in innovative technologies to fulfill increased demand. The global 5G rollout was proceeding apace. However, the pandemic disrupted supply chains, affecting productivity at first. After COVID-19, the significance of reliable connections for distant work, healthcare, and education became clear. As a result, expenditures in 5G infrastructure and devices have skyrocketed. The pandemic expedited the introduction of 5G chipsets, critical in facilitating digital transformation and distant communication. The market recovered, with 5G becoming key to global recovery efforts and answering the expanding connectivity demands of a changing world.

Impact of Russia-Ukraine War

The Russia-Ukraine conflict impacts the 5G chipset market and the wider telecommunications sector. The decision by the GSMA for not sponsoring a Russian pavilion at MWC Barcelona illustrates the industry's reaction to geopolitical concerns. The White House's sanctions on Russia, which include limits on critical technology and semiconductors, directly impact the 5G chipset market. While Russia's direct effect on the global semiconductor market is minor, its control over Ukraine is a critical source of neon purification for the manufacture of semiconductors, which raised concerns about interruptions in the semiconductor supply chain, impacting the stability and accessibility

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of critical components in the global 5G chipset market.

Key Players Landscape and Outlook

The 5G chipset market is dominated by companies such as Huawei Technologies, Qualcomm, Nokia, Intel Corporation, and MediaTek. These market leaders foster innovation and competition by providing cutting-edge chipset solutions for the developing 5G ecosystem. As 5G adoption grows worldwide, the market outlook remains positive. The demand for high-speed, low-latency connections for applications such as IoT, autonomous cars, and smart infrastructure drives market expansion. Government efforts, spectrum auctions, and ongoing network installations contribute to the industry's favorable outlook, making it an essential arena for technical innovation and market domination among the big competitors.

In June 2023, Qualcomm unveiled the Snapdragon 4 Gen 2 Mobile Platform, which is aimed at the value market and offers greater performance, 5G connectivity, improved camera capabilities, AI features, and long battery life. The platform's commercial devices are expected in H2 2023.

In August 2023, Nokia, TPG Telecom, and MediaTek showed live 360-degree video streaming in the Metaverse utilizing Nokia 5G technology, TPG spectrum, and MediaTek chipsets, demonstrating 5G's potential for immersive experiences.

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