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Mobile System-on-Chip (SoC) Market Forecasts to 2030 – Global Analysis By Core Type (Quad-core, Hexa-core, Octa-core, Deca-core & Higher and Other Core Types), Core Architecture, Connectivity, Performance Category, Application and By Geography

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Abstracts

According to Stratistics MRC, the Global Mobile System-on-Chip (SoC) Market is accounted for $0.85 billion in 2024 and is expected to reach $3.15 billion by 2030 growing at a CAGR of 19.4% during the forecast period. A Mobile System-on-Chip (SoC) is an integrated circuit that combines essential smartphone or tablet components into a single chip. It includes the CPU (processor), GPU (graphics), RAM controller, modem (for connectivity), ISP (image signal processor), AI engine, and other specialized processors. Designed for power efficiency and compactness, mobile SoCs optimize performance while minimizing energy consumption.

According to Ericsson's mobility report, 5G mobile subscriptions are expected to surpass 1.5 billion globally by the end of 2023, creating substantial demand for advanced SoC solutions that can support high-speed data processing and efficient power management.

Market Dynamics:

Driver:

Growing smartphone penetration

Emerging markets like India, Southeast Asia, and Africa witness rapid smartphone adoption, driving the need for cost-effective yet high-performance SoCs. Meanwhile,

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premium segments demand advanced AI, 5G, and gaming capabilities, pushing innovation in flagship SoCs. With smartphones becoming essential for communication, work, entertainment, and e-commerce, manufacturers continuously develop faster, energy-efficient, and feature-rich SoCs. This surge in demand encourages chipmakers to enhance production and R&D, further propelling market expansion.

Restraint:

Complex manufacturing processes

Mobile SoC manufacturing is complex due to the integration of multiple components like CPU, GPU, AI engine, modem, ISP, and memory controller on a single, compact chip. Advanced nanometer-scale fabrication requires high-precision lithography, extensive R&D, and expensive foundries. Also, challenges include low yield rates, high defect risks, and supply chain constraints. This hampers market growth by increasing production costs, limiting supply, and causing delays.

Opportunity:

Increasing 5G networks

Consumers demand faster connectivity, lower latency, and improved efficiency, pushing smartphone manufacturers to adopt 5G-capable SoCs. This fuels innovation in processing power, AI, and power efficiency. SoC makers are investing in advanced 5G chipsets to meet demand. Additionally, the rise of IoT, cloud gaming, and AI-driven applications further accelerates 5G SoC adoption, making it a key factor in the next-generation smartphone and mobile computing ecosystem.

Threat:

Thermal & power constraints

Mobile SoCs face thermal and power constraints due to the need for high performance in compact, battery-powered devices. As processors become more powerful, they generate more heat, requiring efficient cooling solutions. Excessive heat can lead to thermal throttling, reducing performance and affecting user experience. Power-hungry SoCs drain batteries quickly, limiting usage time. These challenges hamper market growth by increasing design complexity, R&D costs, and limiting advancements in high-performance computing.

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Covid-19 Impact:

The covid-19 pandemic disrupted the mobile SoC market, causing supply chain bottlenecks, chip shortages, and production delays due to factory shutdowns. Demand initially declined as smartphone sales dropped, but later surged with increased reliance on remote work, online learning, and digital entertainment. The accelerated adoption of 5G, AI-driven applications, and gaming smartphones partially offset losses. However, rising logistics costs, geopolitical tensions, and raw material shortages continued to impact the market, driving reshoring efforts and investment in semiconductor manufacturing.

The quad-core segment is expected to be the largest during the forecast period

The quad-core segment is expected to account for the largest market share during the forecast period. A quad-core mobile SoC offers a balance of performance, power efficiency, and cost-effectiveness. With four CPU cores, it enables smooth multitasking, better gaming performance, and faster app execution compared to dual-core processors. It efficiently distributes workloads, reducing power consumption and heat generation. They are also more affordable SoCs, making them ideal for cost-conscious consumers.

The smartphones segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the smartphones segment is predicted to witness the highest growth rate. In smartphones, a Mobile SoC integrates the CPU, GPU, modem, AI engine, ISP, and memory controller into a single chip, ensuring high performance, power efficiency, and compact design. It enables fast processing, advanced gaming, AI-driven photography, 5G connectivity, and smooth multitasking. Smartphone SoCs range from budget-friendly to flagship-grade, catering to different user needs.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share due to high smartphone adoption, 5G rollout, and a strong semiconductor ecosystem. Countries like China, India, South Korea, and Taiwan dominate production and consumption. China leads in smartphone manufacturing (Huawei, Xiaomi), while Taiwan (TSMC) and South Korea (Samsung) are key chipmakers. India’s growing

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mobile market boosts demand for cost-effective SoCs. Government initiatives, such as 'Make in India' and China's chip independence efforts, drive investments.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR driven by strong demand for premium smartphones, 5G expansion, and AI-powered devices. The U.S. is home to leading SoC developers like Qualcomm (Snapdragon), Apple (A-series), and NVIDIA, with advanced R&D and innovation. Canada supports growth through semiconductor research. The region benefits from early technology adoption, high consumer spending, and strong telecom infrastructure.

Key players in the market

Some of the key players in mobile system-on-chip (SoC) market include Qualcomm Technologies, Inc., Samsung Electronics Corporation, Apple Inc., Intel Corporation, Shanghai Technologies Corporation, Broadcom Inc., NVIDIA Corporation, Marvell Technology Group Ltd., STMicroelectronics, Texas Instruments Inc., NXP Semiconductors, Renesas Electronics Corporation, Fujitsu Semiconductor Limited, Google, MediaTek Inc., HiSilicon, Spreadtrum Communications and Allwinner Technology Corporation.

Key Developments:

In February 2025, MediaTek has unveiled the Dimensity 7400 and Dimensity 7400X, designed to enhance AI processing, gaming performance, and power efficiency in smartphones and foldable devices. Both chipsets are built on TSMC's 4nm (N4P) process technology, ensuring improved energy efficiency and extended battery life.

In October 2024, Qualcomm introduced the Snapdragon 8 Elite Mobile Platform, heralded as the world's fastest mobile system-on-a-chip (SoC). This platform is powered by the second-generation Qualcomm Oryon™ CPU, featuring an octa-core configuration with two prime cores clocked at up to 4.32 GHz and six performance cores at up to 3.53 GHz.

Core Types Covered:

- Quad-core

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Hexa-core

Octa-core

Deca-core & Higher

Other Core Types

Core Architectures Covered:

ARM-based SoCs

x86-based SoCs

RISC-V-based SoCs

Other Core Architectures

Connectivities Covered:

4G LTE SoCs

5G SoCs

Wi-Fi & Bluetooth-only SoCs

Other Connectivities

Performance Categories Covered:

Flagship SoCs

Mid-range SoCs

Entry-level SoCs

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Applications Covered:

- Smartphones
- Tablets
- Wearable Devices
- IoT Devices
- Automotive
- Edge Computing Devices
- Other Applications

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain

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- Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific
- South America
  - Argentina
  - Brazil
  - Chile
  - Rest of South America
- Middle East & Africa
  - Saudi Arabia
  - UAE
  - Qatar
  - South Africa
  - Rest of Middle East & Africa

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What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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