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System-on-Chip (SoC) Market by Core Count (Single-core, Dual-core, Quad-core, Hexa-core, Octa-core), Core Architecture (ARM, X86, RISC-V), Device (Smartphone, Tablet, Laptop, Smart TV & STB, Infotainment System, Router, Gateway) - Global Forecast to 2029

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Abstracts

The System-on-Chip (SoC) market is expected to be worth USD 138.46 billion in 2024 and is estimated to reach USD 205.97 billion by 2029, growing at a CAGR of 8.3% between 2024 and 2029. Advanced driver-assistance systems form an important contributor to the growth of SoC in autonomous vehicles. The use of IIoT applications, such as predictive maintenance, asset tracking, and automated production lines, is dependent on SoCs due to real-time data processing and connectivity. Due to its widespread implementation, rapid use of artificial intelligence and machine learning technologies is behind a boom in the demand for system-on-chips. In addition to this, the high design and manufacturing costs will impede the pace of innovation of products and diminish their variety, which will consequently limit the growth of the entire SoC market.

“Healthcare vertical segment to grow at a significant rate during the forecast timeline.”

The healthcare segment of SoCs is also growing steadily and innovatively, with the demand for medical devices advanced and a need for customized health solutions offered remotely. Here, the SoC is designed in view of the unique requirements of medical applications, such as high reliability, low power consumption, strict regulatory compliance, and others. These chips are employed in a large assortment of medical equipment including respiratory devices, patient monitors, imaging systems, implantable

cardiac devices, and other specialized medical technologies along with vital sign monitoring devices. This segment contains key offering SoCs from Texas Instruments Incorporated (US), Analog Devices, Inc. (US), and STMicroelectronics (Switzerland), developing application-specific SoCs for different healthcare applications.

Increasing focus on remote patient monitoring and telemedicine has led to a raised demand for more compact devices that consume power efficiently and could feed the same data back to the care providers. For instance, in July 2023, Ambiq (US) introduced Apollo4 Lite and Apollo4 Blue Lite SoCs to improve battery life and functionality of medical devices. These SoCs are ideal for digital health applications that include patient monitoring, digital stethoscopes, and continuous glucose and blood pressure monitoring. Adoption of SoCs in medical devices helps the patients and healthcare providers to monitor health, analyse data and prescribe proper treatment. As medical devices become more complex and feature-rich, healthcare SoCs are evolving to incorporate more advanced functionalities.

“Quad-core segment to hold the high market share during the forecast period”

Quad-core SoC accounts for the largest market share of overall SoC. quad-core SoCs offer more critical computing, balanced power consumption, and really demonstrate strong energy efficiency, particularly for devices that require a high level of computing performance. The product category falls mainly within mid-range to high-end smartphone, tablet, laptop segments and growing use cases within IoT devices and automotive infotainment systems. For instance, Synaptics Incorporated (US) launched its Synaptics Astra platform with SL-series quad-core SoCs based on Arm architecture, for industrial edge IoT, consumer and enterprise applications in April 2024. The AI-native compute platform uses the open-source AI framework and scalable hardware to provide sensing, processing and connectivity for the IoT system. SoCs at Quad Core performance with 'low power consumption allow the designs to balance performance with low power consumption, therefore suitable for virtually any consumer, IoT, edge, or industrial application. The use of quad-core SoCs in applications is growing steadily because of the increased complexity of mobile applications and requirements for multitasking in portable devices.

“North America is expected to hold for significant share during the forecast timeline with manufacturers focusing on product developments.”

North America is projected to account for significant market share during the forecast period. North America, particularly the United States, is at the forefront of technological

innovation in the semiconductor industry. The growth is majorly driven by the presence of major players developing SoCs in the region including Intel Corporation (US), Advanced Micro Devices, Inc. (US), Broadcom (US), and NVIDIA Corporation (US). These players are extensively focusing on new product development and launches to cater to high demand for global cloud service providers in the market. The North American market benefits from a supportive environment from government that promotes semiconductor industry growth. For instance, the US Department of Commerce announced investment worth USD 8.5 billion under agreement with Intel Corporation (US) for manufacturing of chips and their chain in America in March 2024. This funding will result in producing more chips, which would be manufactured locally, thereby supporting the SoC market of this region in the long run.

Extensive primary interviews were conducted with key industry experts in the System-on-Chip market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below: The break-up of the profile of primary participants in the System-on-Chip (SoC) market:

By Company Type: Tier 1 – 40%, Tier 2 – 35%, and Tier 3 – 25%

By Designation: C-Level Executives – 20%, Directors – 30%, Others - 50%

By Region: North America – 30%, Europe – 20%, Asia Pacific – 40%, ROW-10%

The report profiles key players in the System-on-Chip market with their respective market ranking analysis. Prominent players profiled in this report are Qualcomm Technologies, Inc. (US), MediaTek Inc. (Taiwan), Samsung (South Korea), Apple Inc. (US), Broadcom (US), Intel Corporation (US), Advanced Micro Devices, Inc. (US), NVIDIA Corporation (US), HiSilicon (China), Microchip Technology Inc. (US), NXP Semiconductors (Netherlands), Infineon Technologies AG (Germany), Texas Instruments Incorporated (US), Renesas Electronics Corporation (Japan), STMicroelectronics (Switzerland), among others.

Apart from this, QuickLogic Corporation (US), UNISOC (Shanghai) Technologies Co., Ltd. (China), RealTek Semiconductor Corp. (Taiwan), Ambarella International LP (US), Novatek Microelectronics Corp. (Taiwan), Espressif Systems (China), GreenWaves Technologies (France), InCore (India), Ambiq (US), Morse Micro (Australia), Mindgrove

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Tech. (India), Efinix (US), Kneron, Inc. (US), Esperanto Technologies (US), SiFive, Inc. (US), are among a few emerging companies in the System-on-Chip (SoC) market.

Research Coverage: This research report categorizes the System-on-Chip (SoC) market based on core count (single-core, dual-core, quad-core, hexa-core, octa-core, others), core architecture (ARM, x86, RISC-V, others), vertical (consumer electronics, automotive, network infrastructure, computing & data storage, healthcare, industrial, others), and region (North America, Europe, Asia Pacific, RoW). The report describes the major drivers, restraints, challenges, and opportunities pertaining to the System-on-Chip (SoC) market and forecasts the same till 2029. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the SoC ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall System-on-Chip market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

Analysis of key drivers (growing trend of SoC in automotive industry, surging adoption of IoT and connected devices, and proliferation of AI and machine learning technologies to drive the demand for SoCs), restraints (high design and manufacturing costs impede SoC market expansion and power consumption issues), opportunities (5G rollout accelerates SoC integration in networking devices, smart home technology adoption propels SoC market expansion, and rising demand for SoCs in industrial automation and robotics fields), and challenges (talent shortage hampers SoC innovation and production and rapid technological changes challenge SoC longevity) influencing the growth of the System-on-Chip market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the System-on-Chip market.

Market Development: Comprehensive information about lucrative markets – the

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report analysis the System-on-Chip market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the System-on-Chip market

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Qualcomm Technologies, Inc. (US), MediaTek Inc. (Taiwan), Samsung (South Korea), Apple Inc. (US), Broadcom (US), among others in the System-on-Chip market

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