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China Semiconductor Market for Automotive by Component (Microcontroller, Power Semiconductor, Sensor & MEMS Device, Memory Chip, Analog & Mixed Signal IC), Global & China Semiconductor Export, Alternate Destination - Trends and Strategic Recommendation

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Abstracts

In 2024, China’s exports of automotive semiconductors reached USD 419.15 billion in 2024, from USD 280.81 billion in 2020, with a CAGR of 8.9%, driven by increased sales of autonomous and electric vehicles.

China’s semiconductor market for the automotive sector is experiencing substantial investment from both domestic and global companies. Major players such as SMIC, Huawei’s HiSilicon, YMTC, BYD Semiconductor, and Tsinghua Unigroup are leading domestic efforts, while international firms like Intel, Samsung, and SK Hynix are expanding their presence through joint ventures and new fabrication plants. The Chinese government supports the market with the National Integrated Circuit Industry Investment Fund (“Big Fund”), local government funds, subsidies, tax breaks, and low-interest loans, all aimed at achieving self-sufficiency and a complete supply chain. As global demand for advanced electronics and automotive technologies surges, China exports semiconductors worldwide, often using Hong Kong as a trade hub. The rise of modern vehicles, primarily electric and connected cars, has significantly increased the demand for semiconductors, as these vehicles require advanced chips for powertrain control, advanced driver assistance, infotainment, and battery management. Consequently, the automotive sector has become a key driver of semiconductor growth in China.

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Memory chips are the second-largest segment in China’s automotive semiconductor market.

Memory chips rank second in the Chinese automotive semiconductor market. These chips also hold the second-largest position in the global semiconductor industry due to soaring demand for data storage and processing, driven by AI, data centers, consumer electronics, and advanced automotive technologies. Memory chips are vital for storing and retrieving data in electronic devices, enabling everything from application execution to real-time system operations—an essential requirement for modern vehicles that rely on significant amounts of data for infotainment, ADAS, and autonomous driving features. Memory chips are extensively used in high-end infotainment systems, ADAS, and digital instrument clusters in cars. Electric and autonomous vehicles demand even more memory due to their complex computing and data processing needs. China is focusing on boosting domestic production of mature-node chips while also making significant advancements in advanced memory technology, particularly in NAND and DRAM, with companies like YMTC and CXMT leading the way. YMTC has developed advanced 3D TLC NAND chips that compete with global leaders like Samsung and Micron, while CXMT has produced and released G4 DDR5 DRAM. SMIC has also manufactured 7 nm chips for Huawei’s Mate 60 Pro.

India is the second-largest importer of semiconductors from China.

India is the second-largest importer of electronics, integrated circuits, and memory chips worldwide. This is primarily due to the country’s robust electronics sector, digitalization, and the lack of large-scale domestic semiconductor manufacturing. In 2024, imports of electronic integrated circuits from China alone reached USD 6.1 million. These components are essential in the automotive sector for advanced features such as infotainment, ADAS, telematics, and digital instrument clusters, which require significant memory and processing power. The Indian market for advanced automotive features is rapidly growing, driven by rising consumer demand for connectivity, safety, and electrification. The adoption of EVs and connected cars is accelerating, supported by government initiatives like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme. Investment in India’s electronics and semiconductor ecosystem is also on the rise, with both domestic and international companies expanding production and R&D. The government has launched incentive programs such as the Production-Linked Incentive (PLI) scheme for electronics manufacturing, further increasing demand for imported memory and integrated circuits as local supply struggles to keep pace. Recent examples include automakers like Tata Motors and Mahindra integrating more sophisticated electronics into their latest models, reflecting

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the broader trend of technology-driven growth in India’s automotive and electronics sectors.

Research Coverage:

The report provides an in-depth analysis of the China semiconductor market for automotive, focusing on various types, including microcontrollers, power semiconductors, sensors & MEMS devices, memory chips, and analog & mixed-signal integrated circuits. It examines export trends, the impact of trade policies and restrictions, and the diversification of the semiconductor industry away from China. The report also explores alternative manufacturing destinations, offering a comparative analysis of these locations, along with the challenges and strategies associated with the transition.

Additionally, the report assesses the effects of the global automotive sector on the semiconductor market and presents a future outlook. It includes detailed information about the major factors driving growth in China’s semiconductor market. A thorough analysis of key industry players provides insights into their business overviews, product offerings, key strategies, contracts, partnerships, agreements, new product launches, mergers, and acquisitions.

Key Benefits of Buying this Report:

The report provides valuable information for market leaders and new entrants regarding revenue estimates for both the overall automotive semiconductor market in China and its sub-segments. It will assist stakeholders in understanding the competitive landscape, positioning their businesses more effectively, and planning appropriate go-to-market strategies. Additionally, the report offers insights into the current market conditions and highlights key drivers, restraints, challenges, and opportunities within the industry.

The report provides insights into the following points:

Analysis of critical drivers (increased domestic investments in semiconductors), restraints (shortage of manufacturing facilities for 12 mm machines), opportunities (substantial investments by

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