

Camera Module - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Camera Module Market size is estimated at USD 39.82 billion in 2024, and is expected to reach USD 49.24 billion by 2029, growing at a CAGR of 4.34% during the forecast period (2024-2029).

Key Highlights

-A camera module is a product that takes photos and videos from devices like smartphones, automobiles, smart home appliances, etc. It is widely used in video conferencing, security systems, and real-time monitoring as a video input device. It comprises image sensors, an IR-cut filter, an actuator (AF/OIS), a lens set, a lens mount, etc. Module assembly brings all these components together into a module.

-The ADAS market's increasing adoption of self-driving or autonomous vehicles is a primary growth factor. For instance, according to Intel, global car sales are expected to reach over 101.4 million units in 2030, and autonomous vehicles are expected to account for about 12% of car registrations by 2030.

-The increasing construction activities globally provide lucrative opportunities for incorporating security systems wherein cameras are widely used. According to Statistics Norway, Housing Starts in Norway increased to 2,777 units in May from 1,929 units in April of 2022. Furthermore, in January 2022, the Norwegian municipality of Stavanger gave Swedish construction company Skanska a USD 85.5 million (NOK 750 million) contract to develop a new municipal town center. The Storhaug neighborhood of Stavanger is expected to receive the LervikQuarter development project. The 26,000 m2 structure would have parking places, a primary school, a kindergarten, offices, a grocery shop, a multipurpose hall, and other amenities.

-The rising number of terrorist attacks and organized crimes globally, expanding adoption of IP cameras, and rising adoption of IoT-based security systems are primarily driving the demand for security cameras in residential and commercial establishments. For instance, according to the Office for National Statistics (UK), in 2021/22, with a crime rate of 129 per 1,000 people, Cleveland, in Northeast England, had the highest crime rate of all the police force areas in England and Wales.

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- Compact camera modules are complex systems involving various disciplines, technologies, and processes. The supply chain of CCMs is witnessing complexities against the backdrop of overlaps between the activities of CCM's sub-component manufacturing companies. Challenges in realizing robust CCM technology further add to the complexity of the market's ecosystem, thereby creating challenges for the evolution of the technology.
- Furthermore, factors such as the higher cost of camera modules and overhead costs such as maintenance also challenge the studied market's growth, especially in developing or underdeveloped regions, wherein consumer price sensitivity is higher.

Camera Module Market Trends

Mobile Segment to Hold a Notable Market Share

- The growing sales of smartphones across economies with slower technological developments and budgets have propelled the market for camera modules. According to Ericsson, at the end of 2022, 6.6 billion smartphone subscriptions were estimated, accounting for about 79% of all mobile phone subscriptions. This is expected to reach 7.8 billion in 2028, accounting for around 84% of all mobile subscriptions.
- Moreover, according to GSMA, smartphone subscribers in North America are anticipated to reach 328 million by 2025. Additionally, by 2025, the region may also witness an increase in mobile phone subscriber penetration rates (86%) and the Internet (80%). Furthermore, by 2025, Europe is estimated to register the highest internet penetration rate (82%) and smartphones (88%). All these factors contribute positively to the studied market's growth.
- The increasing demand to improve cameras' resolution across smartphones of all ranges has enabled several manufacturers to launch new sensors and camera modules. For instance, in January 2023, Samsung introduced its latest 200-megapixel (MP) image sensor, the ISOCELL HP2, with improved pixel technology and full-well capacity to improve mobile images in premium smartphones. The new sensor packs 200 million 0.6-micrometer pixels in a 1/1.3" optical format, a sensor size commonly used in 108MP main smartphone cameras, enabling consumers to experience even higher resolutions in the latest high-end smartphones without larger camera bumps in their devices.
- Moreover, currently, most smartphones use CMOS (Complementary Metal-Oxide Semiconductor) image sensors instead of CCD (Charge-Coupled Device). CMOS uses less power than CCD, which makes it highly suitable for mobile devices. Also, in November 2022, SmartSens Technology, a CMOS image sensor supplier, introduced SC520XS, a 0.7-micron pixel, 52-MP CMOS Image Sensor for high-end smartphone cameras.
- Further, smartphone vendors are developing advanced cameras in their mobile phones, which drives the camera module market. For instance, in July 2022, Xiaomi announced an extended camera sensor in its new Mi 12S Ultra flagship smartphone. It comes with a huge new feature: a 1-inch camera sensor, which is relatively giant for a smartphone.

Asia-Pacific to Dominate the Market

- The widespread presence of electronics, semiconductor, and automobile manufacturing companies, as well as an increase in consumers' purchasing power of the population, is fueling the growth of the compact camera modules market in the Asia-Pacific. The region has witnessed a change in smartphone adoption and smart surveillance systems, thus propelling the deployment of compact camera modules to cater to a booming consumer electronics manufacturing sector.
- For instance, according to GSMA, smartphone subscription in the Asia-Pacific region is anticipated to reach 94% by 2030, compared to 76% in 2022. Furthermore, unique mobile subscribers are also anticipated to grow significantly, from 1.73 billion in 2022 to 2.11 billion in 2030. All these factors together create a favorable outlook for the growth of the studied market in the Asia Pacific region.

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- The region's rapidly growing consumer electronics industry also helps create a positive growth scenario for the market as camera modules are increasingly being integrated into consumer electronic devices for different segments. China already has one of the largest consumer electrical industries in the world. Moreover, according to IBEF, the Indian appliances and consumer electronics industry reached USD 9.84 billion in 2021 and is estimated to more than double to reach USD 21.18 billion by 2025.
- Further, automation in the region is expected to augment the camera module market during the forecast period as automation and industrial robotic solutions uses camera module for various purposes. For instance, the Chinese government's programs, such as the Made in China 2025 plan, promote R&D in factory automation and technology investments. As most of the automation equipment is imported from other countries, the 'Made in China' initiative aims to expand the country's domestic production of automation equipment.
- The healthcare sector in the region has also shown a significant adoption of digitization. Hence, it is expected to drive the demand for the market studied as an ideal solution for next-generation single-use endoscopes. Healthcare has emerged as one of the largest sectors in India, according to IBEF. The healthcare market in the country is expected to reach USD 372 billion by 2022, driven by increasing income, better health awareness, lifestyle diseases, and growing access to insurance. Thus, the growing demand for medical devices also augments the demand for camera modules for use in many such devices.

Camera Module Industry Overview

The camera module market is moving towards a fragmented stage as the growing demand is attracting new players to enter the market. The growing presence of prominent manufacturers in the camera module industry is expected to intensify competitive rivalry during the forecast period. Market incumbents, such as Cowell E Holdings Inc., Fujifilm Corporation, and Sony Corporation, considerably influence the overall market.

In May 2023, Sharp introduced the Aquos R8 Pro, which features a 1" Leica image sensor. It has a 47.2MP 1-inch Sony IMX989 primary camera with a Summicron lens as opposed to a 50.3MP 1/1.55-inch camera with a 19 mm focal length equivalent. Additionally, they are fueled by a 4,570 mAh battery and a Qualcomm Snapdragon 8 Gen 2 chipset with LPDDR5x RAM and UFS 4.0 storage.

In April 2023, Samsung Electro-Mechanics announced that it would release a 200-megapixel-class camera module with improved image stabilization features that are more than twice as good. The company also wants to target the market with unique technologies for taking high-quality photos and videos. This product's 3.0-degree image stabilization angle is twice as good as the existing products' 1.5-degree stabilization angle. Among the smartphones with OIS features currently on the market, it offers the highest level globally.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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