Image Signal Processor and Vision Processor - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 120 pages | Mordor Intelligence

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Report description:

The Image Signal Processor and Vision Processor Market is expected to register a CAGR of 6.9% during the forecast period.

Key Highlights
- The market holds enormous growth potential for premium products like smartphones and the use of cameras and drones for surveillance applications. Furthermore, a surge in the usage of VPUs in security and surveillance cameras, unmanned aerial vehicles (UAVs), and automobiles, among other application areas, is driving the market's growth.
- The growing demand for high computational capability, rising demand for computer vision applications, increasing adoption of artificial intelligence and machine learning technologies, and growing need for ASICs are the principal factors that drive market growth.
- The primary determinant influencing the growth of the automotive sector is the adoption of electric and non-electric vehicles provided with advanced driver-assistance systems (ADAS) and infotainment systems. Increasing advancement and innovation in image signal processors and vision processors for ADAS systems are expected to boost market growth. For instance, in January this year, Light and Cadence Design Systems Inc. unveiled the deployment of the Cadence Tensilica Vision Q7 DSP in Light's Clarity Depth Perception Platform, which enables high-resolution long-range, depth perception utilizing industry-standard cameras to assist advanced driver-assistance systems.
- Although image signal and vision processors offer high performance, their production costs are substantial. It is related to increased cost since producing SoCs requires higher money. This factor raises the customer's ultimate price range and may impede market growth.
- The COVID-19 pandemic slowed the manufacture of several items in the image signal processor and vision processor production equipment industry owing to the continued lockdown in several global regions. Lockdown measures reduced the demand for electronic gadgets, which had a global impact on the semiconductor sector. The continued decline in worldwide demand and

automobile export shipments negatively impacted the market, which is expected to slow the demand for semiconductor manufacturing equipment in the long run.

Image Signal Processor & Vision Processor Market Trends

Consumer Electronics to Hold Dominant Share of the Market

- The increasing deployment of ISPs and VPUs in VR products, smartphones, drones, etc., boost the image signal processor and vision processor market for consumer electronics. The increasing demand to bring superior products with upgraded consumer experience and excellent functionalities drive OEMs' adoption of ISPs and VPUs.
- Constant innovations in consumer electronics products, inducing advanced features and functionalities, coupled with increasing product launches by market players, add to the rising demand for these processors. For instance, in March this year, STMicroelectronics launched a new line of high-resolution Time-of-Flight (ToF) sensors for smartphones and similar devices. The VD55H1 is the first member of the 3D family, a sensor that maps three-dimensional objects by determining the separation between more than half a million points.
- Fast processors, connectivity, superior camera quality, and applications make smartphones the most thriving consumer electronic devices in terms of their adoption. Unlike current phones, future smartphones will leverage innovations such as high-speed connectivity, machine-learning chips, AI capabilities, and more powerful processing power.
- VPUs, which use dedicated AI chipsets, enhance the user experience by inducing the AI computing capacity in the devices. Growing demand for premium smartphones due to advanced characteristics, such as higher security, faster computing, low latency, and less dependence on connectivity, is expected to encourage the adoption of dedicated AI chips.

APAC to Register Highest CAGR During Forecast Period

- In subsequent years, the Asia-Pacific image signal processor and vision processor market is expected to face profitable development possibilities. This region's demand is attributed to the presence of multiple start-ups of AI processors, which are likely to give the VPU businesses with significant development possibilities soon. Besides, the region is home to primary producers of drones and intelligent camera suppliers that integrate VPUs into their goods.
- The image signal processor and vision processor market is driven principally by the expanding adoption of machine vision systems and a different range of vertical industries, including consumer electronics and automotive. Also, it is assumed that the arrival of AI and machine learning technologies required to program the systems will help market growth.
- The market demand is increasing in the Asia-Pacific due to increasing production capacities of the electronic industry in countries such as China and Japan, among others. For example, the total production value of the electronics industry in Japan reached close to JPY 11 trillion in 2021. The sector encompasses consumer electronic equipment, industrial electronic equipment, and electronic components and devices.
- Furthermore, Japan's growing merger, acquisition, expansion, and collaboration activities also assist the market's growth. For example, TSMC planned to open its first factory in Japan in October last year in collaboration with Sony. Sony is the world's largest manufacturer of image sensors used in cell phone cameras and other applications. The total investment is estimated to be around 800 billion USD.
- Several robots with vision capabilities are progressively being introduced across the automotive and manufacturing businesses for multiple purposes, including quality control, product inspection, assisting in the various production stages, and security and monitoring, among others. Besides, the growing advancement in cars, in particular autonomous vehicles, are supposed to impact the industry positively.

Image Signal Processor & Vision Processor Industry Overview

The image signal processor and vision processor market is moderately competitive and consists of several major players. Some major players operating in the market include STMicroelectronics, Texas Instruments Incorporated, Sigma Corporation, Semiconductor Components Industries LLC, and Fujitsu Ltd. These important market players with a noticeable share in the market are concentrating on expanding their customer base across different countries. They leverage strategic collaborative initiatives to improve their market share and enhance profitability.

In September 2022, Visionary.ai, an image processing technology provider, announced the release of a real-time video denoiser that enhances video picture quality. It has the potential to improve the working circumstances of the vast proportion of the nearly 7 billion image sensors produced each year.

In February 2022, STMicroelectronics' announced the launch of the Intelligent Sensor Processing Unit (ISPU), which combines a Digital Signal Processor (DSP) suited to run AI algorithms and MEMS sensors on the same silicon. A full-precision floating-point unit is included, as well as a fast four-stage pipeline, 16-bit variable-length instructions, and a single-cycle 16-bit multiplier. The interrupt response takes four cycles.

Additional Benefits:

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

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