

LCoS Display - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The LCoS Display Market is expected to register a CAGR of 16.15% during the forecast period.

Key Highlights

- The liquid crystal on silicon (LCoS) panels has long been used as a light amplitude modulator for projection display applications. The LCoS panel can also be used as a pure phase modulator with proper liquid crystal mode and arrangement of incident light polarization. It also functions as a dynamic diffractive element.
- The demand for hand-held consumer electronics has increased over the years. However, the small size of the screen limited their usage. This resulted in using ultra-portable or pico projectors that allowed consumers to enjoy a large-screen experience in portable electronics, such as smartphones, notebook computers, digital media players, game consoles, and cameras.
- Therefore, the companies are offering LCoS panels and displays and are developing simple parallel processing to enable the most minor and highest resolution light modulating chips used in ultra-portable or pico projectors, which is driving the incorporation of LCoS technology in projectors.
- Pico projectors have applications in various industries. For instance, in the defense and aerospace industries, a pico projector can assist the armed forces with a 3D projection of the real-time location of enemy deployments, bunker locations, and plot charts of the sea or land-based enemies when integrated with devices.
- VDCDS, one of the world's leading providers of innovative display systems, has provided more than 5,000 simulation and training display systems (which primarily include ruggedized and motion-capable LCoS) as a contractor on multiple Federal contracts to support the Air Force, Marines, National Guard, Navy, and commercial businesses in the United States.
- However, compared to competitive technologies like LCD and LED, the cost of technology is hindering the market. In addition, LCoS microdevices are challenging to manufacture, because of which several companies, including Intel, have abandoned their efforts after consistently low yields in manufacturing.

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Liquid Crystal on Silicon (LCos) Display Market Trends

Head-mounted Displays to Witness Huge Demand for LCoS Systems

- Head-mounted devices for AR/VR applications are a significant segment that uses LCoS displays. These AR/VR headsets are used for consumer and enterprise/industrial purposes. Companies like Omnivision and Himax Technologies were the two major suppliers of LCoS Technology for products of companies like Magic Leap, Google, and Microsoft.
- The market is flooded with several HMDs that provide minimal to fully immersive HMDs. LCoS competes with other technologies in this segment, like DLP, AMOLED, and LCD. LCoS has been the preferred choice for HMD providers who provide a semi-immersive experience.
- HMDs have seen significant development in recent years. Apple has been developing new augmented reality products and is significantly investing resources. For instance, in June 2022, Apple won a patent for a multimodal audio system and future HMD and smart glasses.
- HMDs are still in their early stages; thus, various suppliers are coming together to develop platforms that device manufacturers can use. However, trends are slowly moving toward a fully immersive experience, as there has been a surge in AR/VR content in the form of videos and games. Moreover, with the availability of 5G, companies are likely to be able to stream high-resolution content, which is required for a truly immersive AR/VR experience.
- Further, companies are integrating LCoS Displays in head-mounted equipment such as Infrared Cameras. For instance, in January 2022, Zeiss released DTI 3/25, the company's second thermal imaging camera developed primarily for hunting. This integrates a high-resolution HD LCOS display combined with 0.5 zoom increments for detailed images for reliable spotting.

North America to Hold Significant Market Share

- North America is expected to cater to a significant market share with its major production sites of various automotive brands and innovation trends in military and defense.
- The government regulations in the developed regions of North America are increasingly favoring automotive innovations and technologies that support the development of the LCoS display market.
- Additionally, the increasing development in the military and defense segment is further creating a demand for the LCoS display market over the forecast period. For instance, in May 2022, BAE Systems launched the LiteWave lightweight head-up display, designed to be easy to install in the cockpits of a wide variety of commercial and military aircraft.
- Further, the military budget is the largest portion of the discretionary United States federal budget allocated to the Department of Defense, or more broadly, the portion of the budget that goes to any military-related expenditures. For FY 2023, the Department of Defense has requested a budget of USD 773 billion, which is 4.1% more than the budget requested in FY2022.
- The United States (US) is one of the world's biggest aerospace, defense, and space markets. According to SIPRI, the US remains the highest spender on defense capability globally in 2021, with USD 801 billion dedicated to the military, constituting 38 percent of the total military spending worldwide.

Liquid Crystal on Silicon (LCos) Display Industry Overview

The market is highly concentrated, with significant players dominating most of the market. There are a few LCoS technology providers in the market, like OmniVision Technologies Inc., Hamamatsu Photonics KK, HOLOEYE Photonics AG, and a few LCoS

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display devices manufacturers JVC Kenwood USA Corporation, Sony Corporation, and Microsoft Corporation. The strategies adopted by them include,

- June 2022 - Kopin Corporation, a leading developer and high-resolution microdisplays and display subassemblies provider for defense, industrial, consumer, enterprise, and medical products, announced that it had received new orders for Organic Light Emitting Diode (OLED) displays and silicon backplane products for a new customers applications.
- January 2022 - Zeiss released DTI 3/25, the company's second thermal imaging camera developed primarily for hunting. This integrates a high-resolution HD LCOS display combined with 0.5 zoom increments for detailed images for reliable spotting.

Additional Benefits:

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

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