

Microdisplay Market Size and Share Outlook - Forecast Trends and Growth Analysis Report (2025-2034)

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Report description:

The global microdisplay market reached a value of about USD 1.93 Billion in 2024. The market is further anticipated to grow at a CAGR of nearly 19.70% in the forecast period of 2025-2034 to attain a value of USD 11.65 Billion by 2034.

North America is the leading region in the global microdisplay market. The growing use of ICT technology in the education industry is changing conventional classroom teaching, which, in effect, is boosting the regional market growth. High spending on the military by the United States government is contributing to increased spending on microdisplay technologies, like night vision HUDs and thermal imaging.

The Asia Pacific is projected to see the highest growth rate in the forecast period. The involvement of leading market players including Sony Corporation, LG Electronics Inc., and Toshiba Corporation is expected to fuel the market development in the Asia Pacific in the coming years.

Key Trends and Developments

Growing applications of AR and VR technology; development of flexible and transparent microdisplays; rising trend of miniaturisation; and increasing preference for OLED microdisplays are favouring the microdisplay market expansion.

January 2025

Aledia unveiled the availability of its latest microLED technology based on 3D gallium nitride (GaN) on silicon nanowires. This paves the way for the next generation of smart displays by delivering enhanced brightness and energy efficiency compared to 2D LEDs, superior pixel density and resolution, and improved battery life.

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September 2024

Sony Semiconductor Solutions Corporation (SSS) announced the upcoming release of the ECX350F, a 0.44-type Full HD resolution OLED Microdisplay combining the smallest 5.1 μm pixels (approximately 5,000 ppi) with the industry's highest brightness of up to 10,000 cd/m². The OLED microdisplay is designed for use in augmented reality (AR) glasses.

May 2024

VueReal announced the launch of ColourFusion microDisplay, an innovative augmented reality (AR) display revolutionising colour precision and visual clarity. The microdisplay integrates advanced full colour microLED technology, LCOS systems, and an image quality enhancement algorithm to deliver high grayscale, high resolution, and unprecedented low power consumption for use in the aerospace, consumer electronics, automotive, medical, and industrial sectors.

August 2023

Sony Semiconductor Solutions Corporation (SSS) announced the release of the ECX344A, a high-definition and large-size 1.3-type OLED Microdisplay with 4K resolution. The microdisplay, delivering 4K resolution with a 1.3-type large-size display, is intended for use in augmented reality (AR) and virtual reality (VR) head-mounted display applications.

Rising applications of AR and VR technology

The rising applications of AR and VR technology in diverse sectors, ranging from food and beverages to warehouse management, are driving the microdisplay market development. Microdisplays are crucial in VR and AR devices such as VR headsets, smart glasses, and AR lenses to provide immersive and high-quality visual experiences.

Development of flexible and transparent microdisplays

The development of flexible and transparent microdisplays amid the growing demand for more dynamic, versatile, and integrated display solutions is aiding the market. As flexible microdisplays can conform and bend as per surfaces, they enable designers to create customised and unique display sizes and shapes for use in foldable devices, smart textiles, and fashion accessories.

Growing trend of miniaturisation

The growing trend of miniaturisation, especially in sectors such as wearables, automotive, medical devices, and consumer electronics, is surging the demand for microdisplays to maintain high-resolution screens with improved brightness, resolution, and colour accuracy. Advancements in materials and processes aimed at facilitating the miniaturisation of microdisplays are expected to further drive the market in the coming years.

Increasing preference for OLED microdisplays

There is a rising preference for OLED microdisplays as they boast lightweight and compact design, energy efficiency, high brightness and contrast, fast refresh rate, low power consumption, and wide operation temperature range, boosting their utilisation in applications in diverse end-use sectors, ranging from consumer electronics to medical devices.

Market Segmentation

Microdisplays are small screen having micro-level resolution as well as a horizontal panel size of less than two inches. These

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displays achieve lower production costs and power dissipation, produce large images from a compact and lightweight device and can also incorporate display chip drivers. OLED-on-silicon technology has been introduced by manufacturers in recent years, offering enhanced image quality through high-resolution, bi-directional, and ultra-low-power microdisplays. OLED microdisplays have also attracted enormous popularity with the growing use of technology in augmented reality (AR) and virtual reality (VR) applications.

Based on product, the market can be divided into following:

- Near-to-Eye (NTE) Devices
- Head-Up Display (HUD)
- Projector
- Others

The market breakup on the basis of technology can be as follows:

- Liquid Crystal Display (LCD)
- Liquid Crystal on Silicon (LCOS)
- Organic Light Emitting Diode (OLED)
- Digital Light Processing (DLP)

The resolution of the microdisplay can be categorised as follows:

- Lower Than HD
- HD
- FHD
- Higher Than FHD

On the basis of brightness, the industry can be segmented into:

- Less Than 500 Nits
- 500-1,000 Nits
- More Than 1,000 Nits

Based on end-uses, the market is divided into the following:

- Consumer
- Industrial and Enterprise
- Automotive
- Military, Defence, and Aerospace
- Sports and Entertainment
- Retail and Hospitality
- Medical
- Education
- Others

Based on Region, the market is divided into the following:

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- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Market Analysis

Microdisplay provides various features over direct-view screens, like CRTs and flat-panel LCDs. As a result, they are integrated into a wide variety of consumer products, including modern 3G wireless networking devices, digital camera systems, wireless DVD players, and wearable PCs. In addition, microdisplay is used in a variety of industries, ranging from military and defence to industrial to medical and educational. In military applications, for example, aircraft OEMs and military aviation regulators are proposing the implementation of head-up displays (HUDs) in military aircraft to avoid crash accidents. In addition, major companies are investing in research and development (R&D) in the production of next generation microdisplays with advanced technologies including optical waveguides as well as micro-electromechanical laser scanning (MEMS) systems.

Competitive Landscape

Key microdisplay market players are focusing on technological advancements to develop microdisplays with improved colour accuracy, resolution, and energy efficiency. Microdisplay companies are also investing in cost-effective manufacturing techniques to enhance the availability of transparent and flexible microdisplays for use in applications such as smart clothing, wearable technology, and AR glasses.

Kopin Corporation

Kopin Corporation, founded in 1984 and headquartered in Massachusetts, United States, is a leading provider of high-performance micro-displays and application-specific optical solutions for use in applications such as enterprise, defence, consumer, training and simulation, and medical. Its technology portfolio includes ultra-small Active-Matrix Liquid Crystal displays (AMLCD), Organic Light Emitting Diode (OLED) displays, Liquid Crystal on Silicon (LCOS) displays, Micro Light Emitting Diode (Micro-LED) displays, and various low-power ASICs.

Himax Technologies, Inc.

Himax Technologies, Inc., founded in 2001 and headquartered in Tainan City, Taiwan, is a fabless semiconductor solution provider and a leader in display driver ICs and timing controllers. The company also designs and manufactures controllers for in-cell Touch and Display Driver Integration (TDDI) single-chip solutions, LED driver ICs, touch sensor displays, power management ICs, LED driver ICs, and LCoS micro-displays for automotive HUD and AR devices.

eMagin, Inc.

eMagin, Inc., headquartered in New York, United States, and founded in 1996, is a leader in OLED microdisplays and virtual imaging technologies. The company is engaged in designing, developing, manufacturing, and marketing OLED on silicon displays and virtual imaging products for the commercial, defence, industrial, and medical sectors.

Jasper Display Corp.

Jasper Display Corp., headquartered in California, United States, and founded in 2010, is a prominent designer of SLM (Spatial

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Light Modulators) and high-speed Full HD (FHD, ~2 million pixels) microdisplays. It is also a pioneer in the X-on-Silicon business model and offers wafers, finished microdisplays, controllers, and die packs to its customers.

Other key players in the microdisplay market include Sony Semiconductor Solutions Corporation, and Seiko Epson Corporation, among others.

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