



Applied Materials Breakthrough To Bring OLED Displays to Tablets, PCs and TVs

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- *New Applied Materials MAX OLED™ solution enables OLED display manufacturing on larger glass panels, bringing the superior display technology found in high-end smartphones to tablets, PCs and TVs*
- *Patented OLED pixel architecture and dramatically different manufacturing approach improve all types of OLED displays, making them even brighter, clearer, more energy-efficient and longer-lasting*
- *The integrated system combines the OLED deposition and encapsulation technologies needed to mass-produce superior OLED displays*

SANTA CLARA, Calif., Nov. 21, 2024 (GLOBE NEWSWIRE) -- Applied Materials, Inc. today introduced the MAX OLED™ solution, a patented OLED pixel architecture and revolutionary display manufacturing technology designed to bring the superior OLED displays found in high-end smartphones to tablets, PCs and eventually TVs.

OLED is the display technology of choice for the world's leading smartphone manufacturers because it offers superior display quality, light and flexible form factors, and durability. However, until today, it has proven challenging to scale OLED display manufacturing to the larger glass panels used to make displays for tablets, PCs and TVs.

Applied's MAX OLED solution makes it easier to scale OLED manufacturing from Gen 6* glass substrates to Gen 8* substrates, which are approximately two times larger, and beyond. In addition, the MAX OLED solution deposits OLED materials in a new way that increases pixel brightness and resolution, reduces display energy consumption, and lengthens display lifetime.

The MAX OLED solution has strong customer interest, with repeat orders from multiple leading display manufacturers. Additionally, Applied will supply a MAX OLED solution to Samsung Display, a leading global manufacturer of OLED and QD-OLED panels. Samsung Display will be bringing in an alpha system to assess this new technology.

"The consumer electronics industry has been waiting for a breakthrough that can bring OLED technology to the hundreds of millions of tablets, PCs and TVs sold each year," said Dr. Brian Shieh, Group Vice President and General Manager of Applied's Display and Flexible Technology business. "We are proud to be partnering with Samsung Display to help bring this revolutionary technology to the global marketplace."

Making OLED Displays Brighter, Longer-Lasting and More Energy-Efficient

OLED displays are difficult to manufacture because the materials used to emit red, green and blue are fragile and ruined by any exposure to air or moisture. Applied's MAX OLED solution is a breakthrough technology that deposits and encapsulates each pixel individually using a specially designed maskless process. Applied's approach is precise, fast and superior at maintaining the purity of delicate OLED materials.

Applied's proprietary solution uses selective deposition to enable excellent pixel placement accuracy, more than doubling the amount of OLED material per area as compared to previous technologies. The technology can increase OLED display brightness by as much as 3X and increase resolution by as much as 2.5X, to approximately 2,000 pixels per square inch. The solution can also reduce display power consumption by more than 30 percent and increase display lifetime by up to 5X.

"Applied Materials has developed a true breakthrough in OLED manufacturing technology that will enable better OLED displays at more attractive prices," said Ross Young, Co-founder and CEO of Display Supply Chain Consultants (DSCC). "This technology has the potential to accelerate OLED adoption in a range of markets, from tablets and PCs to automobiles and micro-displays for AR/VR, creating a catalyst for the entire display industry."

New OLED Pixel Architecture, Process Recipe and Integrated Materials Solution

The MAX OLED solution is more than equipment: it begins with a proprietary pixel architecture built using a patented manufacturing recipe that results in best-in-class OLED pixels and displays. The manufacturing system combines a number of critical manufacturing modules in a single, high-vacuum system that protects the delicate OLED materials from the environment and reduces yield-killing particles. The MAX OLED system integrates display glass handling, multiple OLED deposition steps, and OLED encapsulation. Many of the core technologies used by the MAX OLED solution have already been proven by Applied in making large-area LCD screens at panel sizes up to Gen 10.5*.

The MAX OLED solution reduces the energy consumption of OLED display fabs, requires significantly less OLED materials, and eliminates the need for mask cleaning chemicals, thereby reducing the environmental impact of display manufacturing.

A Growing OLED Display Opportunity

Applied is already the world's largest provider of display manufacturing equipment, with a broad portfolio of products spanning CVD** and PVD** deposition, CVD thin-film encapsulation, and eBeam testing and inspection. The MAX OLED solution is expected to more than double Applied's served addressable market opportunity in OLED display manufacturing.

*Gen 6 glass panel surface area = 2.78 square meters; Gen 8 surface area = 5.5 square meters; Gen 10 surface area = 9.9 square meters
**PVD = physical vapor deposition; CVD = chemical vapor deposition

Forward-Looking Statements

This press release contains forward-looking statements, including those regarding anticipated benefits of our new products and technologies, expected growth and trends in our businesses and markets, industry outlooks and demand drivers, technology transitions, and other statements that are not historical facts. These statements and their underlying assumptions are subject to risks and uncertainties and are not guarantees of future performance. Factors that could cause actual results to differ materially from those expressed or implied by such statements include, without limitation: failure to realize anticipated benefits of our new products and technologies; the level of demand for semiconductors and for our products and technologies; customers' technology and capacity requirements; the introduction of new and innovative technologies, and the timing of technology transitions; market acceptance of existing and newly developed products; the ability to obtain and protect intellectual property rights in technologies; our ability to ensure compliance with applicable law, rules and regulations; and other risks and uncertainties described in our SEC filings, including our recent Forms 10-Q and 8-K. All forward-looking statements are based on management's current estimates, projections and assumptions, and we assume no obligation to update them.

About Applied Materials

Applied Materials, Inc. (Nasdaq: AMAT) is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality. At Applied Materials, our innovations make possible a better future. Learn more at www.appliedmaterials.com.

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A photo accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/8d0fc91b-33c4-41c3-9dca-3dcea6e988e2>



The MAX OLED™ solution from Applied Materials



Applied Materials' MAX OLED™ solution is a patented OLED pixel architecture and revolutionary display manufacturing technology designed to bring the superior OLED displays found in high-end smartphones to tablets, PCs and eventually TVs.

Source: Applied Materials, Inc.