



HP and Arizona State University Demo Flexible, Unbreakable Displays

PALO ALTO, Calif., Dec. 8, 2008 – HP and the Flexible Display Center (FDC) at Arizona State University (ASU) today announced the first prototype of affordable, flexible electronic displays.

Editorial contacts:

Elisa Greene, HP
+1 650 857-4958
Elisa.greene@hp.com

Laura Wandke
Hill & Knowlton for HP
+1 415 281-7164
laura.wandke@hillandknowlton.com

Erica Beaudry
Impress Public Relations for
Flexible Display Center
+1 602 687 7745
erica@impress-pr.com

HP Media Hotline
+1 866 266 7272
pr@hp.com
www.hp.com/go/newsroom

Hewlett-Packard Company
3000 Hanover Street
Palo Alto, CA 94304
www.hp.com

Flexible displays are paper-like computer displays made almost entirely of plastic. This technology enables displays to become easily portable and consumes less power than today's computer displays. Popular applications for the technology could include electronic paper and signage.

The production feat is a milestone in the industry's efforts to create a mass market for high-resolution flexible displays. Plus, from an environmental standpoint, the displays leapfrog conventional display processes by using up to 90 percent less materials by volume.

Mass production of such displays can enable production of notebook computers, smart phones and other electronic devices at much lower costs since the display is one of the more costly components.

The unbreakable displays were created by the FDC and HP using self-aligned imprint lithography (SAIL) technology invented in [HP Labs](#), HP's central research arm. SAIL is considered "self aligned" because the patterning information is imprinted on the substrate in such a way that perfect alignment is maintained regardless of process-induced distortion.

SAIL technology enables the fabrication of thin film transistor arrays on a flexible plastic material in a low-cost, roll-to-roll manufacturing process. This allows for more cost-effective continuous production, rather than batch sheet-to-sheet production.

"The display HP has created with the FDC proves the technology and demonstrates the remarkable innovation we're bringing to the rapidly growing display market," said Carl Taussig, director, Information Surfaces, HP Labs. "In addition to providing a lower-cost process, SAIL technology represents a more sustainable, environmentally sensitive approach to producing electronic displays."

Production of flexible displays

The first practical demonstration of the flexible displays was achieved through

collaborative efforts between the FDC and HP as well as other FDC partners including DuPont Teijin Films and E Ink. To create this display, the FDC produces stacks of semiconductor materials and metals on flexible Teonex® Polyethylene Naphthalate (PEN) substrates from DuPont Teijin Films.

HP then patterns the substrates using the SAIL process and subsequently integrates E Ink's Vizplex™ imaging film to produce an actively addressed flexible display on plastic. E Ink's Vizplex bi-stable electrophoretic imaging film enables images to persist without applied voltage, thereby greatly reducing power consumption for viewing text.

"Producing a photolithography-free, flexible active-matrix display is an excellent example of the Flexible Display Center's world-class development and manufacturing infrastructure," said Shawn O'Rourke, director, Engineering, Flexible Display Center at Arizona State University. "It demonstrates how multiple industry partners can collaborate on innovative solutions, including roll-to-roll compatible technology that addresses the rapidly growing market for flexible electronics."

"Flexible electronic displays are playing an increasingly important role in the global high-tech industry, serving as the crucial enabling technology for a new generation of portable devices, including e-readers and similar products designed to combine mobility with compelling user interfaces," said Vinita Jakhanwal, principal analyst, Small and Medium Displays, iSuppli. "We expect the flexible display market to grow from \$80 million in 2007 to \$2.8 billion by 2013. The Flexible Display Center at Arizona State University is a key participant in helping to develop the technology and manufacturing ecosystem to support this market."

HP SAIL technology is one example of the technologies available for licensing from the [HP Intellectual Property Licensing Group](#).

Further information about DuPont Teijin Films is available at www.dupontteijinfilms.com.

About ASU Flexible Display Center

The FDC is a government-industry-academia partnership that's advancing full-color flexible display technology and fostering development of a manufacturing ecosystem to support the rapidly growing market for flexible electronic displays. FDC partners include many of the world's leading providers of advanced display technology, materials and process equipment. The FDC is unique among the U.S. Army's University centers, having been formed through a 10-year cooperative agreement with Arizona State University in 2004. This adaptable agreement has enabled the FDC to create and implement a proven collaborative partnership model with more than 20 engaged industry members, and to successfully deploy world-class wafer-scale R&D and GEN-II display-scale pilot production lines for rapid flexible display technology development and manufacturing supply chain commercialization. More information about FDC is available at www.flexdisplay.asu.edu.

About HP

HP, the world's largest technology company, provides printing and personal computing products and IT services, software and solutions that simplify the technology experience for consumers and businesses. HP completed its acquisition of EDS on Aug. 26, 2008.

More information about HP (NYSE: HPQ) is available at <http://www.hp.com/>.

Note to editors: More news from HP, including links to RSS feeds, is available at <http://www.hp.com/hpinfo/newsroom/>.

This news release contains forward-looking statements that involve risks, uncertainties and assumptions. If such risks or uncertainties materialize or such assumptions prove incorrect, the results of HP and its consolidated subsidiaries could differ materially from those expressed or implied by such forward-looking statements and assumptions. All statements other than statements of historical fact are statements that could be deemed forward-looking statements, including but not limited to statements of the plans, strategies and objectives of management for future operations; any statements concerning expected development, performance or market share relating to products and services; anticipated operational and financial results; any statements of expectation or belief; and any statements of assumptions underlying any of the foregoing. Risks, uncertainties and assumptions include the execution and performance of contracts by HP and its customers, suppliers and partners; the achievement of expected results; and other risks that are described in HP's Quarterly Report on Form 10-Q for the fiscal quarter ended July 31, 2008 and HP's other filings with the Securities and Exchange Commission, including but not limited to HP's Annual Report on Form 10-K for the fiscal year ended October 31, 2007. HP assumes no obligation and does not intend to update these forward-looking statements.

© 2008 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.