

FLAT PANEL DISPLAYS - PHOTONICS NEWSLETTER

August 2007 - Ken Gilleo - www.ET-Trends.com

MARKET & BUSINESS INFORMATION

Sumitomo Chemical to Acquire Cambridge Display - Sumitomo Chemical Company (CDT) and Cambridge Display Technology today jointly announced that they have entered into a definitive merger agreement whereby Sumitomo Chemical will acquire CDT. Cambridge Display has been a pioneer in new display technology for many years. They are a developer of several technologies based on polymer organic light emitting diodes (P-



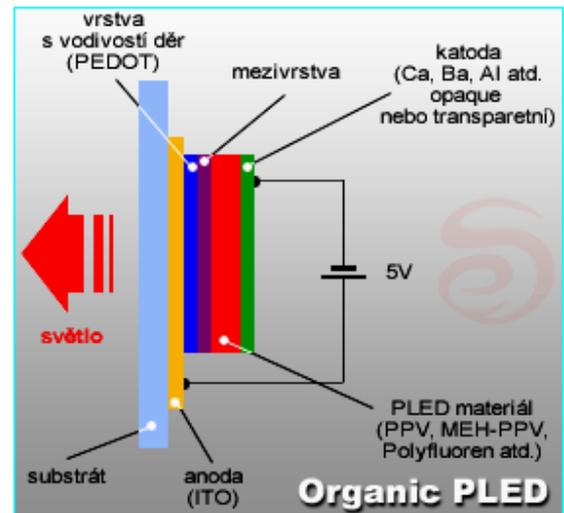
OLEDs). Under the merger agreement, Sumitomo Chemical will acquire all outstanding shares of CDT common stock at a price of \$12 per share in cash, for an aggregate purchase price of approximately **\$285-million**. The merger consideration represents a 107% premium over CDT's 90-day average closing share price and a 95% premium over CDT's closing share price of \$6.15 on July 30. In recent years, Sumitomo has positioned its display materials business as one of its strategically important business areas and an area of focus for our business resources. OLEDs are expected to see considerable market growth in the future as next-generation materials for flat panel displays and lighting applications, and our company is actively engaged in the development of new materials and the improvement of device technologies. They have built a close cooperative relationship with CDT up to this point, and the complete integration of both companies' technological and intellectual assets through this acquisition will make it possible to greatly accelerate development. Source: OLED Info.com

OLED Status - But just how well is organic light emitting diode technology faring? We're still waiting for OLED displays to provide great picture quality as well and energy efficiency in a very thin profile package. A big issue is whether OLED can be priced competitively in a very tough market and can it overcome some of the shortcomings in the near-term. The competition doesn't want to see the technology succeed in the over-heated display market. Sharp just announced the thinnest profile LCD large flat panel display and specifically notes that it is to stave off the coming of OLED into the market. We've been hearing about the potential for OLED for several years now and Sony, Samsung (see 40" OLED TV above) and Seiko Epson have demonstrated prototype OLED panels. Sony is placing a lot of emphasis on OLED and indicated that it will be the first out of the gate with an OLED computer monitor late in 2007 or early in 2008, and small televisions in the 11" to 27" wide range shortly thereafter. Sony is not quoting a price but some industry experts think that the small monitors could cost somewhere between \$800 and \$1,000. It's rumored that Toshiba is expected to start selling 30-inch OLEDs in 2009. One major obstacle is the life span of the panel itself and its reliability factor. The organic materials used in OLEDs need further advances to be realistic for the TV market. The OLEDs currently used in cell phone displays are lasting 5,000 to 10,000 hours. But, LCD and plasma are claiming 50,000 to 60,000 hours of life



to half brightness and Panasonic is now boasting 100,000 hour for a plasma panel that is expected sometime next year. The OLED problems seem like a deal breaker, but Nano Markets claims the OLED TV market should be worth about \$42-million in 2008, \$436 million in 2009, and \$1.2 billion by 2010. Source: Display Daily.

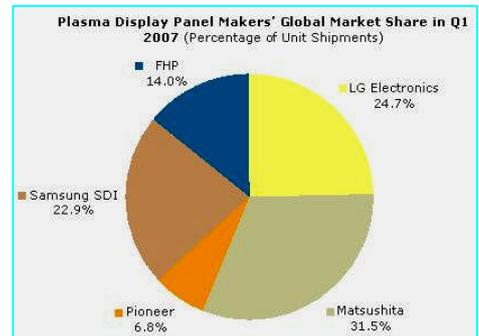
OLED/PLED Fading? - The OLED display area has been reorganizing itself during the past year and things are still shaking out. OSD has been manufacturing and marketing Large Molecule passive matrix OLED products since 2003. These popular products have been designed into communication systems, industrial control systems and many types of consumer electronics. But, OSD announced that it is withdrawing its entire PLED module line from the marketplace. Recently several of the world's largest PLED panel manufacturers have announced their withdrawal from PLED production because of financial reasons. The withdrawal of these suppliers will have a direct effect on the availability of critical components that sustain OSD's PLED module production. OSD will continue to offer an extensive line of TFT, Small Molecule OLED and monochrome LCD display modules. Source: Display Technology.



OSRAM Opto Semiconductors **More PLED Fading** - OSRAM Opto Semiconductors, one of the world's leading manufacturers of opto-semiconductors, is exiting the passive matrix displays based on organic LEDs (OLED, aka PLED) at the end of the year. The company will focus its OLED activities on market-ready OLED lighting systems. As a result, the display manufacturing line in Penang, Malaysia, will cease production at the end of the year. The 270 employees there will be transferred to other activities within OSRAM Opto Semiconductors including the new LED chip production facility in Penang. Since the end of 2003, OSRAM Opto Semiconductors has been manufacturing and marketing passive matrix displays based on OLEDs under the brand name of Pictiva™. Worldwide demand for the displays, which are used predominantly in communication systems, industrial applications and mobile consumer electronics, has lagged far behind the company's expectations. Against this background, OSRAM Opto Semiconductors has decided to withdraw from the display business and concentrate exclusively on the core business of lighting. Source: Display Technology.

Osram Sells IP - Osram (Germany) has granted Seoul Semiconductors a license to manufacture and sell white LEDs using conversion technology covered by patents owned by Osram subsidiary, Osram Opto Semiconductors. In return, Seoul Semiconductors has granted Osram a license to use housing patents of Seoul Semiconductors. This agreement paves the way for a closer cooperation between the two companies, according to Osram. Conversion technology enables the production of white LEDs using blue emitting InGaN (indium gallium nitride) based chips and a suitable fluorescent converter. The agreement grants Seoul Semiconductors the right to use this Osram intellectual property in white LEDs of all sizes, in all output categories and for all areas of application. Osram has signed royalty bearing license agreements with various companies, including Rohm, Everlight, Lite-On, Harvatek Vishay, Samsung Electronics, Yashin and Citizen. Source: DigiTimes.

PDP Fading Too? - Plasma Display Panel (PDP) manufacturers are finding it increasingly difficult to keep pace as they face intense competition from Liquid Crystal Displays (LCDs) in the consumer and business markets. Yet despite this competition, falling Average Selling Prices (ASPs) are enabling PDPs to enjoy a growth phase in the consumer and business market. However, this period of growth will be short lived, with those same ASP declines causing market revenue to begin to decline starting in 2009, following a peak in 2008. Global PDP revenue will rise to \$8.6-billion in 2007, up 11.8 percent from \$7.7 billion in 2006. Revenue will rise again in 2008, swelling to \$10.2 billion, up 18.5 percent from 2007 because of increased production of 50-inch and larger sizes. Due to increased competition and continuous price pressure, the market will then undergo a revenue contraction, declining to \$8.7-billion by 2011. Source: iSuppli.



SOLID-STATE LIGHTING

Pure-LED Headlights - Audi claims to be the first car manufacturer using LED headlights. The assembly contains low beam headlamps as the main function, consisting of two LED arrays with four active elements each, embedded in a free-form reflector. Three additional LED arrays with two LED chips each are located behind an optical lens; their task is controlling the bright/dark boundary and the range of the headlights. For the high-beam headlight, a four-LED array is located adjacent to the low-beam arrays. Near the lower edge of the assembly, a row of 24 LEDs forms the daytime running light. Further elements of the lighting assembly are printed circuit boards carrying the LED chips and a heat sink. In addition, a blower is provided to keep the LEDs cool and to de-ice the unit. At a current of 1 A, each LED array achieves a luminous flux of 600 lumen, Audi claims. For the future, the company plans to combine the LED technology with other innovative semiconductor-driven headlamp technologies such as swiveling headlights. The assembly will come as an option for the R8 luxury sports car from 2008, the company said. For the deployment of pure LED lights in production cars, Audi has received a special permission from the EU traffic administration. A regulation regarding the use of this technology for vehicles in general is expected for 2008. Source: EE Times Europe.



TECHNOLOGY

TI's 3-D DLP - The Digital Light Processor, the world's most complex MEMS (or MOEMS) chip, has been selling well while the technology is being continually advanced. TI just introduced an enhancement to its DLP projection technology that enables TV sets to display three-dimensional images. Mitsubishi and Samsung are among the first OEMs to implement the technology in their products, according to TI. The 3D TV adopts DLP Cinema technology to living-room dimensions and incorporates a rear projection TV modified to process HD material such as HDTV, HD-DVD or Blu-ray as source. But viewers have to use electronic shutter glasses. The DLP 3D HDTV technology supplies a 60Hz frame rate signal to each eye; internally the device works with a 120Hz frame rate. The 3-D stereoscopic video content is fed to the TV set equipped with the 3-D display via HDMI or DVI port. Left and right stereo images are filtered independently and then sampled in an offset grid pattern. In the display, the resulting views are combined again and appear as spatial image to the viewer. The good news is that the 3D images are great, but the bad news is that you still need to wear 3D glasses. Source: Digital TV.



NEW PRODUCTS

ITECH 40" LCD VIDEO WALL - iTech is bringing the first video wall that blends cutting edge display technology with luxurious interior panels. The 40-inch high brightness LCD video wall comprises only a 0.78-inch seam thickness between the panels. The video wall or digital art wall system is an innovative concept with immense potential for advertising and information sharing. The key features that empower this product are easy installation, simultaneous images from multiple inputs, diverse display effects and size enhancing and minimizing capabilities. The digital art wall can be installed in varying designs depending on the number of LCD panels you wish to install. This 40-inch digital signage using LCD technology produces a WXGA resolution (1366x768 pixels) and a response time of 8-ms. Source: FAST PITCH PRESS.

Sharp still holds the crown for the world's largest FPD, a behemoth 108-inch LCD. Source: Fox News.

