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## **Invest in Photonics points VCs to leading investment areas in photonics across multiple industries**

- **International two-day conference revealed Zetabyte data communications, diagnostic healthcare, competitive manufacturing and sustainable clean energy as major areas driving opportunities in photonics**
- **The global photonics market with an estimated 8 – 10 per cent annual growth rate expected to reach EUR 480Bn by 2015**

**Bordeaux, France, December 20, 2012** – Invest in Photonics® 2012, the two-day international business partnering convention focused exclusively on photonics VC investment, today announces that participation at the December 12 – 13 event hosted for venture capitalists and the international photonics communities rose, despite a tough investment decade in photonics.

Industry leaders, VCs, photonics specialists, market analysts and trade representatives from across Europe, the U.S and Asia joined the 19 companies selected for the special funding session. This raised attendance to 150, up around 20 per cent from the 2010 biennial event. The total funding targeted by selected companies also increased to USD 90m (EUR 72m), more than doubling earlier funding targets.

Photonics is a global market estimated at EUR 300Bn (USD 395Bn) and is expected to reach EUR 480bn (USD 632bn) by 2015, according to SPIE world market figures. The world market underwrites 1.7m jobs. The market in Europe, made up of approximately 5,000 SME and 1000 research institutes, is estimated at EUR 60bn. In Europe, Germany leads with 20 per cent of the market, followed by France and the UK each with 14 per cent [Source: Photonics 21].

However, according to analysts, photonics remains an industry that is not easy to segment due to the large amount of industry overlap. As an enabling technology, photonics is often commercialized outside of its industry. This makes it challenging for VCs to evaluate opportunities.

“Invest in Photonics is the only venue that informs VCs about future applications in photonics which we back by providing them with market data from diverse economic sectors,” said Invest in Photonics chairman Giorgio Anania. “The photonics industry will have a major impact on a range of industries. We bring the key players together to help make this happen.”

In order to point VCs towards attractive opportunities in emerging markets, analysts and speakers from world-leading companies focused on three fast growth markets: Consumer goods, Cleantech and Healthcare, plus Asia. Topics covered included: The early diagnosis of diseases through new detection methods, communication and data infrastructure in the 21<sup>st</sup> century, consumer devices, LED (light emitting diodes) lighting, lasers, advanced displays and sensors, 3D IC packaging, micro-fabrication of glass and PCB, and solar energy.

“Photonics is ubiquitous yet often invisible,” said Steve Anderson, industry and market analyst for SPIE (the international society for optics and photonics), in his opening



address. "It is a light-based enabling technology that underpins just about everything from consumer devices to cleantech, and from communications to life sciences."

"Smartphones, for example, are made using 13 different laser-based machinery, contain photonics components and are enabled using fiber optic technology," noted Anderson. "A significant number of commercially successful companies that rely on photonics technology do not associate themselves with the photonics industry," he added.

Several speakers spoke about the market for lasers, which, according to Anderson, continues to exhibit strong growth for certain types of products, in particular fiber lasers. These are being adopted faster than any other laser technology in history. For directed energy, lasers allow processing by the single unit, versus batch, enabling customization or adaptation to upstream process changes. Lasers enable the processing of difficult materials, like glass, ceramics, plastics, metals and alloys. For green processes, laser ablation is a dry process that avoids the use/disposal of dangerous chemicals that would be required for wet/dry etching. For some applications (marking, scribing), the parts don't even need cleaning, which would otherwise waste water or solvents.

Francois Valencony, general manager at Merieux Development, and Eric Mottay, president & CEO of Amplitude Systemes, also discussed the growth potential of ultra fast lasers in medical and other large volume applications.

Another hot technology highlighted during the conference was LED, especially for lighting. LED currently represents half the sales involved in backlighting in televisions and mobile devices. A 13 per cent compound growth is expected over the next two years. It is estimated to grow from USD 11.4Bn in 2012 to USD 17Bn in 2018 (Source: Yole Developpement "Status of the LED Industry").

"LED is unlike any other lighting technology in history," said Hans Nikol, vice-president LED Innovation and Strategy at Philips Lighting. "Today, every light technology from the candle to fluorescent and halogen co-exists. We strongly believe that LED will wipeout previous existing lighting technologies."

Another emerging area is integrated photonics, doing with light what has been previously achieved with electronics. "Areas where photonics can provide solutions include the necessity to reduce the power consumption of running and cooling computer servers, as well as routers that are becoming increasingly more power hungry," said Pierre Billardon, president Carl Zeiss France. "Other markets are reducing the cost of healthcare and improving the early detection of debilitating diseases, like Alzeheimers.

In terms of opportunities in solar, Raffi Garabedian, chief technical officer at First Solar, pointed VCs to four areas offering investment potential: Incremental technological developments that can improve the dominant platform technologies with minimal factory retooling; metrologies for improved quality and process controls in manufacturing; balance of system controls for low cost power conversion, grid integration and controls and prediction and forecasting: disruptive new photovoltaic technologies with promise of low system costs and improved efficiency.

Ian Jenks, chairman of Intune Networks, said that in a world moving to Zetabyte communications, photonics will be important in solving problems associated with the need to develop new architectures that will be required to scale virtualized networks economically.

Regarding Asia, analysts acknowledged the lead that many Asian companies have in certain areas of photonics. Lead areas cited in particular were AMOLED, where Samsung



and LG Display are well-established, followed by several emerging companies from around Asia. China has the top capacity in LED reactors even though it only started producing in 2009. Participants voiced concerns about IP protection.

Nevertheless, following Billardon's presentation of Zeiss' successful entry two years ago into fast-growth markets providing medical equipment to hospitals in tier 2 cities, such as Chengdu, he said: "China is a great business opportunity. Go there!"

The 2012 Invest in Photonics selected company award went to Belgian-based Ovizio Imaging Systems, a company developing digital holography for quantitative microscopic imaging platforms.

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### **About Invest in Photonics®**

Invest in Photonics® is the only international partnering convention focused exclusively on leading investments in photonics. 2012 will see the third Invest in Photonics, the biennial event where investors are presented with the most innovative, credible and profitable business ventures in photonics. The two-day event creates strategic investment opportunities by bringing together institutional investors and venture capitalists in conjunction with the world's experts in photonics, industry leaders, analysts, and entrepreneurs in a single venue. Early stage companies seeking seed funding, development and later stage financing can successfully network with qualified international panels of investors and potential partners to further business projects. Featuring recognized speakers from world leading companies, Invest in Photonics' conferences provide the highest quality data on market trends and engages participants in informational exchanges on photonics developments.

Photonics has become an integral part of daily life. Due to its high enabling power, it has vast application in and continues to revolutionize fields like health, cleantech, lighting and consumer applications. As one of five key enabling technologies the European Commission has designated for Europe's future prosperity, Invest in Photonics is a strategic program within that technological framework. The event, co-organized by the Bordeaux Chamber of Commerce, ALPhA (Aquitaine Laser Photonics and Applications) technology cluster and CEA, the largest government-funded technological research organization in France, takes place in Bordeaux, France, host of the Laser Mégajoule and a region recognized as a center for photonics.