FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

June 2013

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Industry News By Company

Air Liquide To Acquire Electronics Materials Firm Voltaix

Gas supplier Air Liquide of Paris, France, which supplies precursors for semiconductor manufacturing, has agreed to acquire Voltaix Inc of Branchburg, NJ, USA, a manufacturer of materials used in the production of semiconductor devices and advanced solar cells. The acquisition is expected to close later this summer, pending applicable regulatory approvals.

Founded in 1986, Voltaix has expertise in silicon, germanium, and boron chemistries. It operates manufacturing facilities in the USA in Branchburg (New Jersey), High Springs (Florida) and Portland (Pennsylvania) and in South Korea in Sejong-si (South Chungcheong Province), and employs 185 staff.

AMD Details ARM Server Chips In 2014 Roadmap

Advanced Micro Devices (AMD) has announced its server roadmap and revealed details of its 2014 server portfolio. These include an Accelerated Processing Unit (APU) called 'Berlin'; two- and four-socket CPUs called 'Warsaw'; and details on Seattle a 64-bit ARM architecture server processor.

The announcement follows on from AMD announcing the general availability of its Opteron X-Series processors, codenamed Kyoto.

Arm Launches Anti-Piracy Chip

Arm Holdings has teamed up with Hollywood studios to help prevent the piracy of high-definition video content in the next generation of smartphones and tablets.

The Mali-V500 video chip is the first Arm design to incorporate secure video decoding using the company's TrustZone technology, which helps prevent the copying of protected video as it is streamed to or decoded on the phone.

Arm, whose processor designs power most of the world's smartphones and tablets, announced the V500 at the Computex trade fair in Taipei on Monday.

Fraunhofer ISE And Soitec Achieve 43.6% Efficiency With Four-Junction CPV Cell

In an industry project with concentrating photovoltaic (CPV) solar system maker Soitec of Bernin, France, Fraunhofer Institute for Solar Energy Systems (ISE) in Freiburg, Germany is developing a new generation of multi-junction solar cells (for use in CPV power plants) with potential efficiency as high as 50% under concentrated sunlight.

For this, the researchers are replacing the conventional triple-junction III-V solar cell by a new four-junction device. Two dual-junction sub-cell structures are first grown on different III-V compound semiconductor substrates, allowing optimal bandgap combinations tailored to capture a broader range of the solar spectrum (maximizing energy-generating efficiency). Then, using wafer bonding (where the two different semiconductor crystals are compressed together to form covalent bonds at the interface), the sub-cells are fused together so efficiently that the interface promotes current flow through the four-junction solar cell device.

Globalfoundries Joins's IMECs STT-MRAM Project

Imec and Globalfoundries Inc. are continuing their collaboration in developing spin-transfer torque magnetoresistive random access memory (STT-MRAM) technology. Globalfoundries is the first IC manufacturing company to join imec's R&D programme for next-generation memory technologies. The programme includes a fabless company and several worldwide equipment suppliers providing the complete infrastructure necessary for R&D on STT-MRAM.

STT-MRAM technology is a promising high-density alternative to existing memory technologies, like SRAM and DRAM. Together, imec and the programme members aim to explore the potential of STT-MRAM, including performance below 1ns and scalability beyond 10nm for embedded and stand-alone applications.

IBM Develops Millimeter-Wave Chip

Scientists at IBM have developed a phased-array transceiver that includes all of the millimeter-wave components necessary for both high data-rate communications and advanced-resolution radar imaging applications.

Millimeter-wave bandwidth has the ability to support Gb/s wireless communications, expanding opportunities for mobile backhaul, small cell infrastructure, and data center overlay network deployment, according to IBM.

According to Alberto Valdes-Garcia, one of the lead researchers from IBM that worked on the project, the key advance in the new chip is the monolithic integration of all of the necessary components, including transmitter, receiver and all antennas, in a single package. Garcia will present a paper detailing the phased-array transceiver design Tuesday (June 4) at the IEEE Radio Frequency Integrated Circuit Symposium in Seattle.

Intel Works Out 3D NAND Flash Strategy

Speaking at the Imec Technology Forum, Keyvan Esfarjani, technology & manufacturing VP at Intel and co-CEO of IM Flash Technologies (IMFT) revealed some of the thinking behind its 3D NAND strategy. IMFT, the joint venture between Intel and Micron Technologies, is considering how and when to take its NAND flash memory ICs into the third dimension but reckons its development of a 20nm memory cell has bought it a generation or two of 2D scaling.

An industry-wide transition for the nonvolatile NAND flash memory technology from memory cells in a 2D array to strings of NAND transistors integrated monolithically in the vertical direction is now anticipated. These 3D memories are expected to be arranged as a 2D array of vertical semiconductor channels with many levels of gate-all-around (GAA) structures forming the multiple voltage level memory cell transistors.

Intel Buys GPS Mobile Unit From ST-Ericsson

ST-Ericsson, a dead joint venture of STMicroelectronics and Ericsson, has sold its GPS mobile business to Intel Corp.

In a press release, STMicroelectronis stated that ST-Ericsson is selling the assets and intellectual property rights (IPR) associated with its mobile connectivity global navigation satellite system (GNSS) business to a leading semiconductor company. The company, however, didn't reveal the name of the buyer.

But later on, Intel confirmed that it has bought the assets. This marks as Intel's first buy under the leadership of CEO Brian Krzanich.

Mentor Graphics Acquires Software Products Business Of SoftJin

Mentor Graphics Corporation, a US-based technology firm, has acquired the photomask and lithography related software products business of Bangalore-based SoftJin Technologies Pvt Ltd for an undisclosed amount. Nishith Desai Associates acted as the legal counsel for SoftJin for the transaction.

Mentor Graphics deals in electronic hardware and software design solutions, providing products and consulting services. Established in 1981, it reported revenues of about $1,090 million in the last fiscal year.

Established in 2000, SoftJin is an Indian technology company that provides customised software and design solutions, enabling semiconductor design and manufacturing. It offers customised Electronic Design Automation (EDA) software development solutions using a combination of EDA building blocks and custom software services. Its business model comprises a mix of high-end R&D services and differentiated software products.

Mentor Graphics, Samsung Enhance 14nm PDKs

Mentor Graphics Corp. and Samsung Electronics have announced their collaboration in enhancing Mentor's Calibre nmDRC and Calibre nmLVS rule decks used by Samsung in its 14nm IC manufacturing process. The performances of the optimised process design kits (PDKs) are now 50 per cent better than their previous releases.

According to the companies, the redesigned decks offer faster turnaround and reduce customer's data centre costs by reducing compute platform memory requirements. While cycle time is important for every process node, with the significant increase in design sizes at 14nm, continuous performance optimisation of verification run times is especially

Mems Chips Bring Revolution To STMicro

In March 2005 Benedetto Vigna met representatives of Nintendo about a new gaming project codenamed "Revolution".

Mr Vigna, head of the analogue and sensors division at French chipmaker STMicro, had an idea to use a new type of semiconductor called Micro Electro Mechanical Systems for a games console controller, as the chip could be used to track physical movement.

Revolution turned out to be the Wii console, the first to use physical sensors instead of joysticks. Mems technology, in turn, marked a revolution of another kind for the flagging European semiconductor industry.

Over the past decade Europe has lost much of its share in the traditional semiconductor market to rivals in Asia and the US that either had lower costs or a technology lead.

Samsung Announces Industry-First 45 nanometer Embedded Flash Logic Process Development

Samsung Electronics Co., Ltd., a world leader in advanced semiconductor solutions, today announced the industry's first 45 nanometer (nm) embedded flash ("eFlash") logic process development. Samsung successfully implemented the new process into the smart card test chip, which means that this process technology fulfills the stringent quality requirements of the security solution market and can be successfully deployed on a commercial scale.

"Samsung's 45nm eFlash logic process has the potential to be broadly adopted into various components for security solutions and mobile devices, including smart card IC, NFC IC, eSE (embedded secure element) and TPM (Trusted platform module)," said Taehoon Kim, vice president of marketing, System LSI Business, Samsung Electronics. "The excellent performance from this smart card test chip will help solidify our leadership in the security IC market."

Singapore's Electronics Sector Set To See Potential Growth

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Still, analysts say Singapore has some catching up to do with its North Asian counterparts, who are further ahead in this mobile technology game.

ST Unveils Energy-Efficient Power Devices

STMicroelectronics has announced what it boasts as its latest generation of energy-efficient power devices that minimize the environmental impact of equipment such as telecom or computing systems, solar inverters, industrial automation and automotive applications. The STripFET VII DeepGATE MOSFETs claim to deliver the best conducting efficiency among currently available 80V and 100V devices, while switching efficiency is also increased. In addition, the devices help to simplify designs and reduce equipment size and cost by allowing system power and efficiency targets to be met using fewer devices in small package sizes, ST noted.

Joint Venture To Offer Low-Cost ERT Solutions

Visual solutions provider ViewSonic Corp. is forming a joint venture with Hanvon Technology Co. Ltd. The resulting company is ViewSonic Hanvon Touch Technology Corp., which will focus on developing electromagnetic resonance (ERT) screen module for e-government solutions, e-signatures, e-paper orders, and digital education application markets.

The companies believe that their joint venture will be able to provide top-of-the-line but inexpensive solutions for customers who want to add the functionality of digital signatures or handwritten notes to their products.

Soon: Mobile Phones With Flexible Screens

Mobile phones with flexible organic light-emitting diode screens could soon be heading your way LG Display Co. 034220.SE -0.97% said Monday it will showcase a five-inch flexible OLED display at the Society for Information Display exhibition this week in Canada.

While visitors to this year's Consumer Electronics Show in Las Vegas are likely to have seen mobile devices with flexible screens when fellow Korean company Samsung Electronics Co. 005930.SE -0.73% unveiled prototypes, such next-generation screens are a first for LG.

Indian-American's Invention Charges Phones In 20 Secs

Indian-American teen Eesha Khare has invented a revolutionary tiny device, called the supercapacitor, that could charge your smartphone in just 20 seconds.

The 18-year old high school student won Rs.27.17 lakh ($50,000) at the Intel International Science and Engineering Fair (ISEF) in Phoenix, Arizona this week. Her invention was honoured as one of two winners of the Intel Foundation Young Scientist Awards.

The energy storage device can pack a lot of energy into a tiny space, allowing gadgets to charge faster. The gadgets can last till 10,000 cycles, compared to conventional batteries which are only1,000 cycles.

Camera-Less 3D Image Capturing

If someone would tell you that you can make 3D images without a camera, would you believe it? A technique developed by researchers from the University of Glasgow's School of Physics and Astronomy can prove to you that this is possible.

"Single-pixel detectors in four different locations are used to detect light from a data projector, which illuminates objects with a rapidly-shifting sequence of black-and-white patterns similar to crossword puzzles. When more of the white squares of these patterns overlap with the object the intensity of the light reflected back to the detectors is higher. A series of projected patterns and the reflected intensities, are used in a computer algorithm to produce a 2D image," Miles Padgett, Kelvin Chair of Natural Philosophy at the University and team lead of the research group, explained.

New LED Could Change Electronics Industry

This past week, Philips introduced an intelligent LED light bulb that could transform the consumer electronics industry. The company calls its smart bulbs the Hue 1.1 which has a "geofencing" feature, among others.

Yes, smart LED bulbs now have version numbers (1.1) just as iPhones do. Geofencing lets the light change colors, as well as, turn on or off when the user arrives at home or at the office. As stated on the Philips website, Hue users "don't ever worry if [they've]

switched [their] lights off or not. Just walk out the front door and they'll switch themselves off".

Wolfson New Vision Is With Washing Machines You Can Talk To

Wolfson Microelectronics Plc (WLF) survived three "innovate or die moments" four years ago, said Chief Executive Officer Mike Hickey. Now, the semiconductor developer has a vision of its future in voice-activated consumer products including smartphones, fridges and washing machines.

"Voice command is now a reality and the technology is in a place where you don't have to be in science fiction for that to happen," Hickey said in an interview. "We think we can enable that technology and we are a key part of getting that happening."

Zinc-Air Battery To Replace Lithium-Ion

The call for an inexpensive alternative to the conventional lithium-ion batteries may be answered by a recent study by Stanford University scientists. The scientists were able to create an advanced zinc-air battery, which they say has higher catalytic activity and durability than batteries made with more expensive platinum and iridium catalysts.

"There have been increasing demands for high-performance, inexpensive and safe batteries for portable electronics, electric vehicles and other energy storage applications," said Hongjie Dai, a professor of chemistry at Stanford and lead author of the study. "Metal-air batteries offer a possible low-cost solution."

Home Gesture Recognition System Built!

Computer scientists at the University of Washington claimed that it's possible to use WiFi signals around us to detect specific movements without needing sensors on the human body or cameras. They have developed gesture-recognition technology, called WiSee, which could one day allow you to put off your home lights by simply swiping your finger in the air.

If the researchers are to be believed then "by using an adapted WiFi router and a few wireless devices in the living room, users could control their electronics and household appliances from any room in the home with a simple gesture."

Successful Growth Of 2D Semiconductor Opens Way To Invisible Electronics

SCIENTISTS at Rice University and Oak Ridge National Laboratory (ORNL) have found a way to control the growth of uniform atomic layers of the semiconductor molybdenum disulfide (MDS).

MDS is considered one of the materials at the core of an area of study around two-dimensional electronics. The goal of 2D electronics is to make working components and devices which are so small they would be invisible to the naked eye.

The research, which combined experimental and theoretical work, aimed to see if large, high-quality, atomically thin MDS sheets could be grown in a chemical vapour deposition (CVD) furnace, and then to analyse their characteristics.

New System Could Lead To Faster Memory Chips

Researchers at MIT have combined ferroelectric materials — the kind often used for data storage — with graphene, a two-dimensional form of carbon, to form a hybrid technology that could eventually lead to computer and data-storage chips that pack more components in a given area and are faster and less power-hungry.

The new system works by controlling waves called surface plasmons. These waves are oscillations of electrons confined at interfaces between materials; in the new system the waves operate at terahertz frequencies. Such frequencies lie between those of far-infrared light and microwave radio transmissions, and are considered ideal for next-generation computing devices.

3D Printed Batteries Enable Tiny Devices

A research team based at Harvard University and the University of Illinois at Urbana-Champaign has demonstrated a way of 3D printing lithium-ion microbatteries the size of a grain of sand. These printed microbatteries could supply electricity to tiny devices in different sectors such as the medical and communication industries, including designs that have been put on hold for lack of a battery small enough to fit the device, yet provide enough stored energy to power them.

To make the microbatteries, the team printed precisely interlaced stacks of tiny battery electrodes, each less than the width of a human hair.

Lukoil's New Fiberglass Tubing Expected To Ward Off Rust And Last 25 Years

A subsidiary of Lukoil, a major Russian oil producer, is using new fiberglass oil well tubing in its corrodible injection wells in Northwest Russia, reports Usinsk.eu, a regional portal in the Republic of Komi.

Lukoil-Usinskneftegaz is reported to pioneer the use of such tubing on its fields. For example, it has been recently installed in four reservoir pressure maintenance wells on Lukoil's Vozeiskoye oil field.

Vozeiskoye has been developed in Komi in Northwest Russia since the mid-1970s. Its oil reserves are estimated to be around 350 million tons.

According to Maksim Grishaev, the Lukoil subsidiary's chief technologist, waters with a lot of mechanical impurities have to be pumped to maintain reservoir pressure. "This aggressive medium adds to corrodibility substantially when we use standard steel tubing. The problem is however eliminated when we replace that with fiberglass, which shows high resistance to aggressive chemicals," he explained.

Monocrystal Improves Properties Of Single-Crystalline Silicon Solar Cells

Monocrystal, a Russian company based in Stavropol, in the Northern Caucasus, announced it has developed a new chemical additive for cost-effective alkaline texturing of single-crystalline silicon solar cells.

The new product, called eco-Tex, is said to possess increased solubility and wettability properties and therefore ensure a high quality of texturing irrespective of the quality of silicon wafers used in the process.

The company underscored that compared to the conventional IPA technique, new texturing leads to an at least 25% reduction of production costs, an improved result that leaves no stains or fingerprints, an enhanced homogeneity of the end structure, and a range of other advantages.

Four Russian Tech Start-Ups Join Masschallenge's Best And Brightest

Late last month, MassChallenge, a nonprofit organization that runs a $1m annual global start-up competition, hand-picked 128 first-round winners to join its 2013 Accelerator Program. Four Russian start-ups had made it to the 2013 MassChallenge class, East-West Digital News, the international resource on Russian digital industries, reported last week.

Dressformer has developed a mobile technology platform for online retailers and individual consumers, enabling the user to virtually "try on" clothing prior to purchase, and receive personal and/or professional feedback on their choices prior to buying.

Qbaka offers a tool made to discover and monitor errors that occur in Javasñript code stemming from differences between browsers, operating systems, and plugins in which Javasñript runs.

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World Economic Round Up

The International Monetary Fund (IMF) said it expects the world economy to grow 3.3 percent this year, little changed from the 3.2 percent expansion recorded in 2012, with much of that due to the performance of large developing economies. The IMF said the global economy is experiencing a "three-speed" recovery, with Europe lagging behind the U.S. and large developing economies, and acting as a drag on growth. According to the Organisation for Economic Co-operation and Development's (OECD) the major developed economies are gradually gaining momentum led by faster growth in Japan and the United States. The annual rate of inflation across developed economies fell to its lowest level in 3½ years in April, a development opening the way for leading central banks to continue to shore up weak growth through stimulus measures.

The latest economic news by country to include USA, Europe, UK, Japan, China, Asia Pacific and India can be found each month in our Semiconductor Monthly Report.

Industry Events 2013

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 16th September 2013
- Industry Forecast Briefing, London – 23rd July 2013
- International Electronics Forum – 2- 4th October

To book your place on any of our events please contact us on:

Telephone: +44 1732 740440
Email: mail@futurehorizons.com

Download Future Horizons Full Events Calendar Here

Industry Events

Semicon West 9 – 11 July 2013

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MARK YOUR CALENDER FOR THE NEXT
INDUSTRY FORECAST BRIEFING
TUESDAY 23rd JULY 2013
AND
SILICON CHIP INDUSTRY WORKSHOP
MONDAY 17th JUNE 2013
BOTH BEING HELD AT
NH HARRINGTON HALL HOTEL, LONDON
AND
INTERNATIONAL ELECTRONICS FORUM
2-4 OCTOBER
Crowne Plaza
Dublin, Blanchardstown, Ireland

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