



Future Horizons Newsletter

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Contents Page

Industry News by Company	Page 03 - 06
Industry News & Trends	Page 07 - 09
East European News & Trends	Page 10 - 11
World Economic Round Up	Page 12
Future Horizons & Industry Events	Page 13

Industry News By Company

[AMD, Nvidia GPU Battle Heats Up](#)

SAN JOSE, Calif. — The first battles between AMD's Polaris and Nvidia's Pascal are now being waged, but it's too early to tell who will win the war of the new graphics processors.

"I've done testing but it's a little goofy...[because] we are not in a position to compare the fastest with the fastest," said Dean McCarron, principal of Mercury Research, a veteran tracker of GPUs.

The first Polaris product out is the Radeon RX480, but AMD positions it as a midrange graphics card. Its performance is "right on top of the Nvidia GTX 970 and a touch behind its GTX 1060 — but they are all very close in game frame rates," said McCarron who uses his own suite of test games in a class of benchmarks that he says is somewhat subjective.

[Analog Devices Buys Cybersecurity Unit Of Sypris Electronics](#)

Analog Devices is adding cybersecurity to its arsenal with the acquisition of the cyber security solutions (CSS) business of Sypris Electronics LLC.

The CSS business of Sypris Electronics is considered to be a leader in secure system and software products and technology. For more than 50 years, Sypris has built a proven track record of delivering high-assurance information security services to the world's most demanding customers, including military and government organisations needing to protect against sophisticated nation-state level threats and attacks.

With this transaction, ADI enhances its aerospace and defence capabilities in the area of secure radio communications, bolsters its portfolio of system hardware and software-based cryptographic technologies, and adds a cybersecurity software and services business that supports our ability to offer more comprehensive high-performance analogue solutions across multiple market segments such as Internet of Things (IoT), industrial, automotive, among other things.

[Analogix Acquired By Chinese Consortium For \\$500 Million](#)

Analogix Semiconductor have been one of my favorite companies of recent years, getting their exciting technology into a bunch of devices driving them into a totally new direction. Well, they've been acquired by a consortium led by Shanhai Capital for a whopping \$500 million. analogix-acquired-chinese-consortium-500-million_04 The \$500 million deal is considerable, as it's one of the largest in recent history for the semiconductor industry, where billions of dollars are flowing through the market and into chipmakers. The chips that Analogix make are incredibly important, as they can drive high-res, multi-display and multiple peripherals through a single USB connector with no lag - it's impressive, to say the least. Analogix make makes high-speed, mixed-signal chips for applications used in mobile devices, virtual/augmented reality (VR/AR), and other high-performance electronic products. Customers include Apple, Samsung, LG, Microsoft, Google, Lenovo,

Dell, HP, ASUS, and HTC. The majority of the company's engineering resources are in Beijing, reports VentureBeat.

Apple Debuts Three Custom Chips

SAN JOSE, Calif. – Apple's products announced today pack at least three new chips including its first wireless SoC to date, showing the company's increasing silicon prowess.

The company's largest and most complex effort remains the iPhone application processor. The 64-bit A10 Fusion in the iPhone 7 and 7 Plus packs 3.3 billion transistors.

The SoC adopts ARM's Big.little approach, using two high performance cores running 40% faster and two high efficiency cores at one-fifth the power consumption of the A9 SoC in the iPhone 6. It also sports a six-core GPU that's 50% faster than graphics in the A9.

Cisco Plans To Cut 5,500 Workers

Cisco Systems Inc. is cutting 5,500 employees—7% of its workforce—in the networking company's latest reaction to market shifts, including customers favoring software over hardware.

The reduction beginning this quarter renews a pattern of midsummer moves to shed costs and make room to hire employees with new talents.

The job cuts, disclosed with its fiscal fourth-quarter financial results, mark the most dramatic move yet by Chief Executive Chuck Robbins, who a year ago assumed a position held for two decades by John Chambers, who remains the company's chairman.

The San Jose, Calif.-based company said it would reinvest the savings from the job cuts into businesses that it expects to grow, including its own software and service offerings. Cisco said it plans to record pretax charges of up to \$700 million for severance and termination benefits.

Dialog Semiconductor Enters Gallium Nitride (GaN) Market With First Integrated Devices Targeting Fast Charging Power Adapters

London, United Kingdom - August 25, 2016 - Dialog Semiconductor plc (XETRA:DLG), a provider of highly integrated power management, AC/DC power conversion, solid state lighting (SSL) and Bluetooth(R) low energy technology, today announced and is demonstrating its first gallium nitride (GaN) power IC product offering, using Taiwan Semiconductor Manufacturing Corporation's (TSMCs) 650 Volt GaN-on-Silicon process technology.

The DA8801 together with Dialog's patented digital Rapid Charge(TM) power conversion controllers will enable more efficient, smaller, and higher power density adapters compared to traditional Silicon field-effect transistor (FET) based designs today. Dialog is initially targeting the fast charging smartphone and computing adapter segment with its GaN solutions, where it already enjoys more than 70 percent market share with its power conversion controllers.

EnSilica Teams With Baysand To Provide ASIC Ultrashuttle-65 Multi-Project Wafer Customers With Configurable IP Solutions

EnSilica, a leading independent provider of semiconductor solutions and IP, has teamed with BaySand, the leader in application configurable ASICs, to provide customers of BaySand's newly launched ASIC UltraShuttle-65 multi-project wafer (MPW) customers with a range of IP solutions that can be configured to their specific application requirements. The IPs will comprise EnSilica's eSi-RISC processor cores, eSi-Connect processor peripherals, eSi-Crypto encryption and eSi-Comms communications IP solutions as well hardware accelerators.

EnSilica's automated flow allows complex CPU sub-systems to be delivered to customers in a matter of days. This sub-system can include single or multiple eSi-RISC processor cores with JTAG debug, and a range of peripherals and timers as well as encryption accelerator cores to enable secure boot and communication. The system is built around standard multi-layer AMBA AHB bus fabric generated as part of the automated flow. Additional APB, AHB, AXI buses can be included to allow the easy integration of the customer's own IP cores. This design flow allows EnSilica processor sub-systems to be delivered to customers well ahead of the first ASIC UltraShuttle-65 MPW run in October 2016.

Globalfoundries Preps 12nm FDSOI Process

Globalfoundries Inc. has announced a next-generation FDSOI process to follow on from the 22FDX process that is nearing production. The company has also announced the presence of EDA and IP companies Cadence and Synopsys within the FDXelerator ecosystem development program for FDSOI.

FDSOI, standing for fully depleted silicon on insulator, is an alternative to the FinFET chip manufacturing style favored by Intel and foundry TSMC. Much of the original research for SOI was conducted by IBM before being carried forward by STMicroelectronics. Now Samsung at 28nm and Globalfoundries at 22nm are working to bring FDSOI into production. The companies claim that FDSOI, despite more expensive engineered wafers as a starting point offers advantages in terms of scalability from low-voltage, low-power up to high performance.

Osram To Focus On Semiconductors Again

Newly named Ledvance (since July 2016), Osram's general lighting lamps business is to be acquired by a Chinese consortium consisting of the strategic investor IDG, the Chinese lighting company MLS and the financial investor Yiwu, for just over €400 million.

As well as the cash transaction, the consortium will pay Osram additional royalties for license agreements of trademark rights. Through the transaction, both parties expect to benefit from a significantly larger sales and distribution network, as well as sourcing synergies.

Lighting company MLS is one of the leading companies in the area of LED-based consumer products in China. It hopes to significantly expand its position in the global

lighting market through the transaction. Ledvance in return will gain improved access to the Chinese growth market as a result of this transaction.

Samsung Stretches Smartphone Lead Over Apple In Q2

Apple and Xiaomi have lost further ground in the fiercely competitive smartphone market, according to quarterly sales figures, with lesser known Chinese brands stealing a march on the former industry stars.

The leader Samsung has also stretched its advantage over Apple, selling 32m more smartphones than the iPhone maker in the second quarter compared with 24m more than Apple a year earlier, according to worldwide second-quarter sales figures for smartphone makers from Gartner, the research firm. They show those for the iPhone fell for a third consecutive period. They dropped 7.7 per cent to 44.4m units from 48m in the same three months in 2015.

Apple enjoyed a strong quarter in Eurasia, Africa and eastern Europe, but that was offset by a 26 per cent drop in sales in China, which has been the company's growth engine, and other mature Asian markets.

Xiaomi's worldwide sales edged slightly higher during the period, but its market share dropped two percentage points to 4.5 per cent as it fell further behind larger rival Huawei and was overtaken by Oppo, another Chinese competitor. Gartner said that Xiaomi, which has long been tipped as a challenger to more established brands, has felt the pressure in markets including India, and has lost ground in the race to launch eye-catching new

Industry News & Trends

[Flexible Skin Patch Monitors Blood Alcohol From Sweat](#)

Soon, people might have to slap on a temporary tattoo before a night on the town.

Engineers at the University of California San Diego have developed a flexible wearable sensor that accurately monitors blood alcohol level in a person's sweat within 15 minutes. The device can be worn on the skin and could be used by doctors and police officers for continuous, non-invasive and real-time monitoring of blood alcohol content.

Blood alcohol concentration is the most accurate indicator of a person's alcohol level, but measuring it requires pricking a finger. Breathalysers, which are the most commonly used devices to indirectly estimate blood alcohol concentration, are non-invasive, but they can give false readouts or can be fooled into detecting a lower alcohol level if a person uses mouthwash before taking the test.

The device developed at UC San Diego consists of a temporary tattoo—which sticks to the skin, induces sweat and electrochemically detects the alcohol level—and a portable flexible electronic circuit board, which is connected to the tattoo by a magnet.

[Software Learns To Perfectly Mimic Handwriting](#)

Past efforts to replicate anyone's handwriting have resulted in a font that, quite frankly, doesn't fool anyone since the outcome look like they were generated by a computer. Well, those days are long gone.

University College London (UCL) computer scientists have developed software which may spark the comeback of the handwritten word by analysing the handwriting of any individual and accurately replicating it.

The scientists have created 'My Text in Your Handwriting,' a programme which semi-automatically examines a sample of a person's handwriting, which can be as little as one paragraph, and generates new text saying whatever the user wishes, as if the author had handwritten it themselves.

[Wintel Reunites In Mixed Reality](#)

SAN FRANCISCO -- Intel and Microsoft will collaborate on what they call a mixed-reality platform for Windows 10. The effort along with new depth-sensing cameras from Intel injected excitement into the keynote at the annual Intel Developer Forum here, but fell short of defining a new Wintel platform of the magnitude of the declining PC.

Intel will contribute a wireless head-mounted display to the effort, making its hardware and software freely available late next year. Project Alloy uses Intel's RealSense 3D cameras to enable users to move with six degrees of freedom and use their hands to control virtual spaces.

In a demo of Alloy, a user walked among virtual rooms. Typical of the state of such systems, the user had difficulty at one point pushing a large virtual button with hands that

often appeared pixelated. However, later he was able to use his finger as a tool to shape a virtual object turning on a virtual lathe.

Tiny Solar Cells Could Power Personal Devices

DUBLIN—Researchers at the University of Wisconsin-Madison have created high-performance, micro-scale lateral solar cells that could be used for wearable medical sensors, smartwatches, and even auto-focusing contact lenses.

The group created a densely packed, side-by-side array of miniature electrodes on top of transparent glass that separates the light-harvesting and charge-conducting functions. With a fill factor of 60%, the cells achieve a conversion efficiency of 5.2%, compared to 1.8% for other lateral cell designs.

"From a fabrication point of view, it is always going to be easier to make side-by-side structures," says Hongrui Jiang, a UW-Madison professor of electrical and computer engineering and an author on the paper. "Top-down structures need to be made in multiple steps and then aligned, which is very challenging at small scales. We easily beat all of the other lateral structures.

Intel Unveils Plans For Artificial-Intelligence Chips

Intel Corp. signaled it wants a bigger role in artificial intelligence, revealing plans to modify a line of chips to target a fast-growing market turning into a battleground for technology suppliers.

The company told technology developers Wednesday that it plans next year to deliver a new version of the Xeon Phi processor—a product line previously targeted at scientific applications—with added features designed to accelerate tasks associated with what Silicon Valley calls artificial intelligence.

Intel said the technology will help accelerate a technique called deep learning, increasingly used for tasks such as interpreting speech, identifying objects in photos and piloting autonomous vehicles.

Why Electric Cars Will Be Here Sooner Than You Think

In 2015, about one in every 150 cars sold in the U.S. had a plug and a battery. But mass adoption of electric vehicles is coming, and much sooner than most people realize.

In part, this is because electric cars are gadgets, and technological change in gadgets is rapid.

One big leap is in batteries. A typical electric vehicle today costs \$30,000 and will go about 100 miles on a charge, if that. Within a year, you'll be able to get double that range for just a little more money.

Tesla Motors Inc. is the standard-bearer, promising a Model 3 vehicle meant to appeal to the masses at \$35,000 without incentives and more than 200 miles of range. By comparison, the average new car in the U.S. today sells for about \$33,000.

3D Composite Promises High-Temp Energy Storage For Evs

Researchers from Penn State University have found a way to prevent the dielectric breakdown and leakage of high-density supercapacitors as they are submitted to the high temperatures found in hybrid and electric vehicles, while increasing their energy density.

While commercial solutions exist based on Biaxially Oriented Polypropylene (BOPP) typically used in hybrid and electric vehicles, they cannot stand up to the high operating temperatures without considerable additional cooling equipment. The researchers managed to increase a polymer's dielectric constant while reducing its propensity to leak energy in the form of heat.

East European News & Trends

[The Rebirth Of Russia's Microelectronics Industry](#)

The Russian company Angstrom is completing the development of new radiation-resistant microchips for use in outer space. In September the manufacturer is planning to begin deliveries to India, its first major export market. This initial delivery will total about 10,000 microchips, and the contract is estimated at \$200,000.

"While India has a full-fledged space program, the country does not have a complete technological cycle for the production of spacecraft and launch vehicles," said Vitali Aryshev, Angstrom's director of communications, when explaining the choice of this market.

Two years ago experts lamented the poor state of the Russian microelectronics sector, which practically had no microchips resistant to space radiation. This situation has been rectified thanks to the tight deadlines to modernize the Russian satellite system, which must be updated in tandem with developments for land-based technologies such as telecommunications systems.

[Samsung SDI To Build \\$358 Mln Car Battery Plant In Hungary By 2018](#)

South Korea's Samsung SDI Co plans to invest about 400 billion won (\$358 million) to build a plant to make electric vehicle batteries in Hungary, joining the race to build capacity and tap European demand at a time of disappointing Chinese demand.

Samsung SDI, whose customers include BMW, said on Tuesday that the proposed factory near Budapest would start production in the second half of 2018 and it would be able to produce batteries used for 50,000 pure electric vehicles (EVs) annually.

The plant will "help us save logistics costs and quickly cope with demand from customers, as European companies have manufacturing bases around Hungary," Samsung SDI, an affiliate of Samsung Electronics, said in a statement.

The company currently produces batteries for BMW's i3 in South Korea. Samsung SDI last year started production at its factory in China, the world's biggest EV market, but subsidy regulations have hampered its sales.

[Nokia : And Tele2 Russia Collaborate On Developing 5G Technologies](#)

Moscow, Russia - Nokia and Tele2 Russia have signed a Memorandum of Understanding to accelerate development of 5G mobile networks in order to meet the future data demands of people, devices and machines. The companies will focus on LTE-Advanced and 5G radio access technologies and applications with the goal of identifying ways to optimize real-time HD video and drive the network automation required for a better customer experience and new Internet of Things services.

Nokia is leading the industry's evolution to 5G networks, driving developments to deliver massive capacity and connectivity with almost no latency in order to support the billions of connected people, devices and things expected in the future. Enabling this ever-more connected world expands the possibilities of consumers and business.

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Can Russians Save Tesla?

The Russian company Cognitive Technologies has developed C-Pilot, an intelligent autonomous driving system that can be installed in cars and other vehicles. The company told RBTH that the technology will be embedded in international automakers systems starting next year, and bulk deliveries of C-Pilot will start in 2019. The Russian developers said that gaining access to world markets was a direct result of a fatal accident with a Tesla car that ran on the autopilot system developed by the Israeli startup, Mobileye. That company and Tesla recently announced the end of their partnership.

World Economic Round Up

World Trade Organization (WTO) has said that Global trade volumes are set to grow by just 1.7 percent this year, the first time in 15 years that international commerce has grown more slowly than the world economy. The forecast, much lower than the WTO's previous estimate of 2.8 percent in April, reflects a slowdown in China and Brazil and also decelerating imports in the United States.

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 2016/17

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 14th November 2016
- Industry Forecast Briefing, London – January 2017

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

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[Download Future Horizons Full Events Calendar Here](#)

Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP

MONDAY 14th NOVEMBER 2016

AND

INDUSTRY FORECAST BRIEFING

JANUARY 2017

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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