FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

Apple Talks About Sole Sourcing From TSMC

TAIPEI — At its 30th anniversary celebration this week, Taiwan Semiconductor Manufacturing Co. (TSMC) hosted a forum of key customers including semiconductor CEOs and Apple chief operating officer Jeff Williams.

Williams provided a rare glimpse into TSMC's role as the sole supplier of Apple's A11 application processor and where he sees the electronics industry going in the next ten years.

From now to TSMC's ramp up of 7nm process technology in 2018, TSMC will probably remain the sole source of application processors for Apple, according to independent analyst Andrew Lu, who writes reports for information provider Smartkarma.

Dialog Semiconductor To Acquire Silego For $306 Million In Bid For The Iot

As with many recent acquisitions in the semiconductor industry, Dialog stated that they acquired Silego in order to expand into the IoT.

Silego is an industry leader in configurable mixed-signal ICs (CMICs) which are well-suited for IoT designs because the same chip can be configured for different applications to support the ever-changing wireless protocols of IoT devices around the world. Dialog, meanwhile, is an industry leader in power management ICs for mobile devices and hopes that the addition of Silego's CMICs will help designers get their products to market faster.

"The acquisition of Silego brings a highly complementary technology to Dialog. What Silego has developed is truly unique - a mixed-signal platform which customers can configure to their design requirements on the fly, drastically reducing the time to bring their products to market" - Jalal Bagherli, CEO of Dialog

Intel, G'foundries Bring 10, 7nm to IEDM

SAN JOSE, Calif. — Intel and Globalfoundries will describe their 10nm and 7nm process nodes, respectively at the International Electron Devices Meeting (IEDM) in December. The event also will host papers pointing to new directions in memories, medical and flexible electronics and transistors beyond today's FinFETs.

Intel will discuss several aspects of its 10nm node first unveiled in March. It sports FinFETs with a 7nm fin width at a 34nm pitch and a 46nm fin height made using self-aligned quadruple patterning. A 204 Mbit SRAM made in the process packs separate high-density, low voltage and high-performance cells that measure from 0.0312µm2 to 0.0441µm2.

The 12-metal interconnect layers in the node can support multiple threshold voltages. Compared to its 14nm process, the 10nm node sports NMOS and PMOS current that is 71 percent and 35 percent greater. Cobalt wires in the lowest two metal layers offer up to 10x improvement in electro-migration and a 2x reduction in via resistance.

Lam's Coventor Buy Boosts MEMS Manufacturing

SAN JOSE, Calif.—Why did Lam Research, a semiconductor fab equipment supplier, acquire Coventor, a software house hawking software to design microelectromechanical system (MEMS) chips and sub-10 nanometer semiconductors such as 3D finFETs?

Analysts fully expected for Coventor to be absorbed by Lam Research, only to surface as a Lam software offering. But at SEMI's MEMS & Sensor Executive Congress 2017 (MSEC) here the companies reported that they are staying in separate headquarters, depending more the synergy of co-designing hardware for software and visa versa to give them a competitive edge over the competition.

"Coventor started out as a MEMS design software company, focused on the design of micron sized 3D structures on MEMS chips," Stephen Breit, Coventor's vice president of MEMS operations, told EE Times at MSEC. "But now a significant share of our business is designing nanometer-sized 3D semiconductors, mainly supporting the previously unserved process integration and development market."

Qualcomm Claims Victory In 5G Ultrafast Wireless Race

Qualcomm's is claiming a world first in the race to bring ultrafast wireless technology to the market by showcasing the first working 5G data connection to a mobile device.

The demonstration, conducted in Qualcomm's San Diego labs and released in a video at a Hong Kong event on Tuesday, will up the ante against rivals such as Intel and Huawei in the battle for the next generation of mobile broadband.

In the test, Qualcomm's Snapdragon X50 NR modem chipset achieved speeds of up to 1 gigabit, or 1,000 megabits, per second — several times faster than the 4G LTE wireless networks that are used by today's smartphones.

STMicroelectronics Reveals Compact Contactless Module with boostedNFC™ Technology, Extending Secure Payment to Wearables

STMicroelectronics (NYSE: STM) , a global semiconductor leader serving customers across the spectrum of electronics applications, is delivering the technology for easy and secure contactless transactions using the ever more popular wristbands or fashionwear like watches or jewelry. The market-unique ST53G System-in-Package solution combines the Company's industry-leading expertise in Near Field Communication (NFC) and secure-transaction chips.

As consumers become increasingly comfortable with making secure transactions using their smart devices, traditional card manufacturers want to extend their offers into contactless wearable products for uses such as payments, ticketing, and access control. These can be difficult to implement within tight size and cost constraints, because conventional separate NFC-radio and security chips demand extra space and complicate design. In addition, wearable form factors reduce the options to small antennas that can restrict communication performance.

ST's new ST53G System-in-Package overcomes these barriers by combining a miniaturized and enhanced NFC radio with a secure banking chip in one compact 4mm x 4mm module. The Company's industry-leading, proprietary boostedNFC™ technology allows wearables with small antennas to deliver a great user experience when interacting with card readers over typical contactless distances.

TSMC Expects 10nm Demand To Soar

TAIPEI — Taiwan Semiconductor Manufacturing Co. (TSMC) expects demand for its 10nm products to soar this year while its largest customer, Apple, ramps up production of the iPhone X.

"We expect the N10 (TSMC's designation for 10nm) to contribute about 10 percent of our full-year 2017 wafer revenue," TSMC Co-CEO CC Wei said at an event in Taipei to announce the company's third-quarter revenue. The outlook for the world's biggest foundry has improved from three months ago, when the company said it expected 10nm sales to account for 10 percent of its second-half revenue.

Based on the latest forecast, TSMC would log $3.2 billion from sales of 10nm chips in 2017. The company started 10nm production in the second quarter of this year, lagging its largest foundry rival, Samsung, by about four months. TSMC has become the sole supplier of Apple's application processors after snatching the business away from Samsung

Industry News & Trends

Researchers Print Transistors Made of 2D Nanomaterials

While video display manufacturers are furiously trying to devise a practical means to manufacture thin-film transistors (TFTs) with the goal of reducing the cost of monitors, TVs, smartphone screens, and the like, a group of researchers in Ireland have just announced a printing process for creating two-dimensional transistors on thin-film materials that could make displays so cheap that they would be literally disposable.

A possible application might be packaging for perishables (e.g., a container of yogurt) that displays an expiration-date countdown. Or white wine labels that alert you when the contents are the optimum temperature for drinking. Or imagine if the wrapping for your 7-Eleven breakfast burrito could alert you when your bus or your Lyft is about to arrive.

Samsung Secures IoT Node-to-Cloud

SAN FRANCISCO — Samsung announced a soup-to-nuts security offering for the Internet of Things. It is part of the Korean giant's ambitions to carve out a business in chips for IoT end nodes and gateways as well as cloud services that include machine learning.

As the next step in that direction, Samsung will start shipping a suite of secure IoT products in November. They span modules with a hardware root-of-trust to encryption and authentication of over-the-air software updates, applications, and cloud services.

"We believe that security will become a strong value proposition in this space and it will only get stronger … [overall,] our strategy is that we want to be an IoT company internally and externally," said James Stansberry, general manager of Samsung's Artik IoT group.

Monolithic 3D: Promise, Challenges

BURLINGAME, Calif. — Monolithic 3D integration shows promise as a way to create faster, cheaper, smaller chips. But despite interest from several quarters, most efforts are still in a research stage with significant work ahead in proving the technology and building an ecosystem for it.

That was the take away from the annual S3S conference here where ARM, CEA-Leti, DARPA, Mentor Graphics and Qualcomm presented work in the field. M3D aims to carve diverse functions into blocks stacked vertically in one or more die, however most approaches have not yet demonstrated commercial viability.

The Leti European research insitute has worked for several years on Cool Cube, an approach for vertically stacking transistors. IBM, Qualcomm and STMicroelectronics are among Leti's partners on the project. While it holds promise, it has yet to show how it can scale to problems such as global routing in a full M3D chip.

Optical Communication Coming To Silicon Chips

The huge increase in computing performance in recent decades has been achieved by squeezing ever more transistors into a tighter space on microchips.

However, this downsizing has also meant packing the wiring within microprocessors ever more tightly together, leading to effects such as signal leakage between components, which can slow down communication between different parts of the chip. This delay, known as the "interconnect bottleneck," is becoming an increasing problem in high-speed computing systems.

One way to tackle the interconnect bottleneck is to use light rather than wires to communicate between different parts of a microchip. This is no easy task, however, as silicon, the material used to build chips, does not emit light easily, according to Pablo Jarillo-Herrero, an associate professor of physics at MIT.

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Iot Gets Wake Up Call From Reaper

Vendors waiting to add effective security measures to their IoT devices may be too late--the Reaper is coming.

Also known as IoT Troop, the Reaper IoT botnet is already two million devices strong and growing, built using software that targets and exploits known IoT device security flaws. IoT botnets use the collected bandwidth of a vast number of compromised IoT devices is utilized by hackers for nefarious purposes that often include distributed denial-of-service (DDoS) attacks. They represent significant threats to the stability and safety of both the burgeoning IoT industry, even the Internet as we know it. We’ve already seen what IoT botnets are capable of, and Reaper has now become the largest of its kind.

The code at the heart of Reaper is a descendent of what was used by the Mirai IoT botnet, which amassed an army of compromised devices commandeering as many as 10 million IP addresses. Mirai wreaked havoc during two massive DDoS attacks last year. The first of these assailed the DNS provider Dyn and succeeded in taking 1,200 websites offline,

including Amazon, Twitter, Spotify, and Github. The second Mirai attack managed to effectively deny Internet service to the entire country of Liberia.

East European News & Trends

New Smart Wristband Attracts Investors

AURA Devices, a start-up developing smart wristbands to gauge the wearer's weight and other parameters, has raised $105+K as a convertible loan at a seed investment stage from a group of yet-unspecified Russian investors. Each of the investors will now own about 10% of the start-up, Firrma.ru reported, citing AURA Devices founder and CEO Stanislav Gorbunov.

The new investment will be reportedly used to fine-tune a prototype to an industrial-quality level and to make first inroads into a number of markets. At the heart of the AURA Band technology is bio-impedance analysis that enables the gathering of data on any change in the composition of the wearer's body.

Study: Number Of SMEs In Russia Remains Low

A new Institute for Integrated Strategic Research (IISR) report on small- and medium-sized enterprises (SMEs) in Russia found that the growth rate for SMEs remains low despite what the Russian government has widely touted as its significant support for small businesses, the US-Russia Business Council reported, citing a publication by Kommersant.

The number of SMEs has grown only 1.3% to 5.8 million to date this year, with all of that growth coming from microenterprises (businesses with 15 or fewer employees). The study found that the number of small enterprises (16-100 employees) actually shrank by 1.6%, while the number of medium-sized businesses (101-250 employees) fell by 3.4%. Moscow and St. Petersburg have seen the highest rates of growth in SMEs this year, with the number of small business increasing 5.2% and 3.8%, respectively.

Russian Oil Giant Sources Domestic Technology From State-Owned Fund

This year Rosneft, Russia's largest government-owned oil company, was one of the key customers for technologies that come from a government fund called National Intellectual Development, aka Innopraktika, Firrma reported.

The Russian oil giant is reported to have inked $4.5m worth of agreements with Innopraktika earlier this year, a total of five contracts. A Rosneft subsidiary, the Arctic Scientific Center, signed three more contracts worth $1.7m.

Under the contracts, the customer is expecting new domestic technologies for geological surveys, oil field exploration and consulting services. The largest contract ($2m) is paying for technology for a Rosneft project in West Siberia.

Young VC Fund Supports Young Start-Ups

TealTech Capital, a very young Russian venture fund set up in January 2017, has already invested in four medical start-ups in Russia. All the four deals are closed, news portal Firrma.ru reported, citing a source at the fund.

Below is a brief description of each of the investees (which were also established in early 2017):

SDA Labs is developing a mobile app that would contain information which should help the user assess the efficacy and safety of a broad range of medicines.

Safety Bracelet is working on a new wristband to monitor the health status of the elderly. The new gadget is primarily expected to help identify life-threatening conditions in seniors, and send the information to family and/or a monitoring center.

Scientists Push For New Way Of Non-Volatile Memory Development

Russian scientists at Moscow-based Phystech (MIPT), a leading technology university, in partnership with their Korean colleagues earlier this year developed a new method which is expected to help create a promising new type of non-volatile memory.

At the heart of the technique is control of oxygen concentration in tantalum oxide films which are developed using plasma-enhanced atomic layer deposition (PEALD). The researchers have published the results of their work in English in ACS Applied Materials and Interfaces.

Resistive switching memory, or ReRAM, appears to be a promising new way of storing and processing information. It's built on technology that changes resistance in memory cells by voltages applied. So, a cell's low or high resistance could be used to store data.

World Economic Round Up

In May, the World Bank expected Polish Gross Domestic Product (GDP) to reach 3.3 percent in 2017 and 3.2 percent in 2018. Economic growth at 4 percent, fiscal deficit below 3 percent, and inflation under control - all of this means that the Polish economy is in good shape. In the medium-term, however, the economy faces certain risks. For instance, entrepreneurs are already struggling to find workers - an issue that could become exacerbated by the lower retirement age that was put in place in October this year.

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 2017

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – March 2018
- Industry Forecast Briefing, London – 16th January 2018

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

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MARCH 2018
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 16th January 2018

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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