FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

October 2019

Contents Page

Industry News By Company

Elmos To Sell Silicon Microstructures To TE Connectivity

TE Connectivity will acquire Silicon Microstructures, the Milpitas, California-based MEMS pressure sensor manufacturer from German semiconductor company Elmos Semiconductor.

Elmos acquired Silicon Microstructures in 2001. Established 25 years, the company has its own MEMS fab in California, where it develops and manufactures MEMS pressure and flow sensors for the industrial and automotive sectors. This includes products for ultra-low pressures, very high pressures, harsh environments and space-constrained applications.

Silicon Microstructures is also expanding its presence in the medical sector, with products such as IntraSense. This family of piezoresistive MEMS pressure sensors is used in invasive medical devices for in-vivo pressure measurement.

France Announces €5bn Push For Tech Start-ups

President Emmanuel Macron announced on Tuesday that France has drummed up €5bn of capital from institutional investors to pour into tech companies over the next three years, as the country tries to grow more billion-euro start-ups.

France has tapped asset managers and insurers including Axa, Natixis, Aviva and Allianz, and is courting international investors, to help address one of the main obstacles to the development of its tech ecosystem: a lack of sufficient growth capital to help start-ups expand into multibillion-euro companies.

Speaking ahead of France Digitale Day, Mr Macron said in a speech on Tuesday evening at the Elysée Palace that €2bn will be invested in France-based venture capital funds focusing on late-stage investments.

Huawei & Arm Meet Behind Closed Doors

SHENZHEN, China — Executives from Arm, Arm China and HiSilicon (Huawei's chip division) met behind closed doors on Wednesday morning (Sept. 25th) at the Intercontinental Hotel in Shenzhen, and when they emerged they stood for a group photo that said more about the US-China trade war than anything the three companies had actually said in four months. That snapshot served to reassure the Chinese media and the local electronics industry of the continuing cooperation among Arm, Arm China and Huawei.

Arm now maintains that nothing has really changed, despite what BBC reported last May. In that report, BBC revealed an internal memo that Arm issued to all employees, including in its China subsidiary, instructing them to stop "all active contracts, support entitlements, and any pending engagements" with Huawei and its subsidiaries.

New Integrated Point-Of-Load Regulator Increases Efficiency For High-Density Applications

Munich, Germany – 23 September 2019 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces the new OptiMOS™ IR3826(A)M integrated point-of-load DC-DC voltage regulator. It is a fully integrated and highly efficient device in two versions (IR3826AM for 16 A and IR3826M for 23 A) for applications such as netcom router and switches, datacom, telecom base stations, server and enterprise storage.

The voltage regulator can operate from an input voltage of 12 V (5 V to 17 V) and provide up to 16 A or 23 A continuous current. It enables high-switching-frequency operations with enhanced efficiency and reduced power losses compared to previous generations of Infineon's offering. Furthermore, the device supports high switching frequency of up to 1.5 MHz for small PCB size and less capacitors.

Both current ratings are offered in PQFN package with 5 mm x 6 mm footprint for easy scalability. Parts are pin-compatible to the previous product offerings to allow risk-free efficiency upgrade with minimum design effort.

The IR3826(A)M solves the heat challenge without or with minimum airflow in thermally constrained application designs such us 3.3 V or 5 V supply voltages. Additionally, it supports applications that operate with high ambient temperature, e.g., 85˚C for telecom.

Infineon And Synopsys Collaborate To Accelerate Artificial Intelligence In Automotive Applications

Mountain View, California, and Munich, Germany – 17 September 2019 – Artificial intelligence (AI) and neural networks are becoming a key factor in developing safer, smart and eco-friendly cars. In order to support AI-driven solutions with its future automotive microcontrollers, Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) has started a collaboration with Synopsys, Inc. (Nasdaq: SNPS). Next generation AURIX™ microcontrollers from Infineon will integrate a new high-performance AI accelerator called Parallel Processing Unit (PPU) that will employ Synopsys' DesignWare® ARC® EV Processor IP.

AI and neural networks are fundamental building blocks for future automated driving applications such as object classification, target tracking, or path planning. Furthermore, they play an important role in optimizing many other automotive applications, helping to reduce the cost of ECU systems, improving their performance and accelerating time-to-market. For example, they enable an optimized engine auto-calibration and reduce the number of sensors by producing accurate mathematical models of the physical reactions occurring in a system. At the same time, however, AI applications require much higher computing power than standard algorithms.

Synopsys Launched Its Next Gen of Embedded Vision Processors

Synopsys has launched its latest generation of embedded vision processors with deep neural network (DNN) accelerator delivering what it claims is an industry-leading 35 TOPS (tera operations per second) performance for artificial intelligence (AI) intensive edge applications. Also introduced is a functional safety processor version for automotive advanced driver assist systems (ADAS), radar/lidar, and automotive sensor system on chip (SoC) development.

Based on the ARCv2 RISC instruction set architecture, the new DesignWare ARC EV7x vision processors feature a 1, 2 or 4-core heterogeneous architecture which integrates vector DSP, vector FPU, and neural network accelerator to enable a variety of intelligent automotive and consumer applications with integrated AES encryption. The optional DNN accelerator scales from 880 to 14,080 MACs to enable a system that delivers up to 35 TOPS performance in 16-nanometer (nm) FinFET process technologies under typical conditions, four times the performance of the previous generation ARC EV6x processors.

TSMC, Arm Show 3DIC Made Of Chiplets

SANTA CLARA, Calif. — TSMC provided a peek at its plans for packaging three-dimensional chips that push performance higher, power consumption lower and transistor density further, as Moore's Law loses steam.

The world's largest foundry joined with partner Arm to announce their new 7nm chiplet system using TSMC's advanced packaging at TSMC's Open Innovation Platform Ecosystem Forum in Santa Clara, Calif., last week.

The proof-of-concept chiplet system was made with multiple Arm cores and TSMC's Chip-on-Wafer-on-Substrate (CoWoS) packaging to demonstrate technologies for building a high-performance computing SoC operating at 4GHz in a 7nm FinFET process.

Rather than the typical SoC with system components arranged on a single die, a chiplet system is optimized for modern HPC processors that partition large multi-core designs into smaller chipsets. This approach allows each chiplet — each die in a package of multiple dice — to be built in different process technologies. The approach is expected to deliver better yields and overall cost-effectiveness.

MIPS' Future In Doubt After CEO Leaves Wave

Wave Computing, an AI startup based in Campbell, Calif., quietly swapped out its company chief in early September without a public announcement. Wave's website now shows that Art Swift, who became Wave's CEO last May, is already gone. It lists Sanjai Kohli as the new CEO.

Neither Wave Computing nor the new CEO responded to our request for an interview. EE Times, however, caught up with Swift, Wave's former CEO, over the last weekend. He told us that he left Wave on Sept. 2nd. That means his CEO tenure at Wave lasted less than four months.

Asked why he left Wave, Swift said, “I had a disagreement with the [Wave] board on a short-term fund-raising strategy.” He declined to elaborate.

The sudden change in top management gives little confidence to anyone — including Wave’s customers, MIPS licensees and developers in “MIPS Open” community.

Industry News & Trends

Australia Seeks Investment From European Electric Carmakers

Europe should invest in Australia to secure supplies of the raw materials it needs for electric car batteries in order to avoid relying completely on China, a mining official from Western Australia has warned.

The region is holding talks with European companies to encourage them to buy into its rich resources of lithium, cobalt and rare earths, which are critical for clean energy, according to Western Australia's Minister for Mines Bill Johnston.

The European Commission has said Europe will need up to 25 battery "gigafactories" by 2025 to meet the demands of its carmakers as they shift towards electric cars. But Europe produces almost no lithium, cobalt or graphite, the raw materials needed for lithium-ion batteries, all of which are found in Australia.

Jio Jolt To India's Broadband Market

Asia's richest man Mukesh Ambani changed India's mobile market forever when he launched the operator Reliance Jio three years ago. Now he's to attempt the same for broadband, according to Benjamin Parkin in Mumbai.

Reliance's service, launched this month, promises ultrafast speeds, lower prices and even free TVs for annual subscribers. India's fragmented broadband market seems ripe for the taking. Reliance Jio plans to compete with existing providers such as Bharti Airtel and sign up new users, with an initial target of 20m homes and 15m businesses.

This might appear small fry compared to the huge changes Jio brought to India's mobile market. Since launching in 2016, it has attracted 340m customers, forced some incumbents like Vodafone to consolidate and others, like his brother Anil's Reliance Communications, out of the sector altogether.

Silicon Carbide: A Love-Hate Relationship

Silicon carbide (SiC) has excellent properties as a semiconductor material, especially for power conversion and control. However, SiC is extremely rare in the natural environment. As a material, it was first discovered in tiny amounts in meteorites, which is why it is also called "semiconductor material that has experienced 4.6 billion years of travel."

Yole Development's recently published "Power Silicon Carbide (SiC): Materials, Devices and Applications - 2019 Edition" report predicts that, by 2024, the market for SiC power semiconductors will grow to $2 billion by 2024, at an annual growth of 29%. The automotive market is undoubtedly the foremost driver, with around 50% of total device market share in 2024.

Will the wafer shortage continue?

In the past couple of years, wafer supply shortages have been a major bottleneck restricting SiC industry growth. Combined with increasing market demand, many players, including fabs, have recognized the need to expand their investments to fill the supply chain.

Wireless, Battery-Free Sensor For Brain Aneurysm Treatment

Researchers have created a new medical sensor that promises to revolutionize the ability of doctors to treat brain aneurysms. The device, which is battery-less, is a capacitive sensor with an inductor. It can be implanted directly in patients' brains and, oddly enough, that's significantly less invasive than the most common treatment the medical profession uses today.

Robert Herbert and Woon-Hong Yeo, both from the Georgia Institute of Technology, described the device in a recent edition of Advanced Science. The work was done with colleagues at Georgia Tech and at Hanyang University in South Korea.

The miniaturization of biomedical sensors coupled with efficient wireless protocols have led to a new generation of medical sensors with a profound impact on the healthcare sector. Even stethoscopes are getting revolutionary updates to better help manage health information.

Taiwan Startup Takes On Gesture Recognition Challenge

It appears that gesture recognition will soon (finally) be coming to smartphones. An IC design startup in Taiwan called KaiKuTek is positioned to be one of the biggest beneficiaries in this new category of human-machine interface (HMI) technology. New gesture-recognition systems are based on 60 GHz radar, and while most vendors of 60 GHz radar ICs build their products using relatively expensive silicon germanium (SiG), KaiKuTek's device is built using standard CMOS.

Google in a blog post at the end of July said it will support two new HMI features — facial recognition and motion sensing — in the upcoming Pixel 4 smartphone. The article pointed out that the new features in the Pixel 4 are the result of the company's Project Soli, run by the company's Advanced Technology and Projects (ATAP) team. The team first began touting its motion sensing technology in 2015.

East European News & Trends

Edtech Emerges As Priority For Investors

A Russian company called Maximum Education is using sophisticated technology to help high school kids prepare for important exams both offline and online.

Set up in 2013, Maximum Education has been focused on ways of enhancing schoolchildren's education. In addition to the unified state exam each school kid has to take before he leaves high school, the company trains children in the English language and computer skills. An unnamed spokesperson for Maximum Education said the company had around $8m in revenue last year and "posted profit" (unspecified though).

Telecom Wants To Digitize Waste Management

MTS, one of Russia's four largest telecom operators, is launching a project aimed at digitizing the collection of household waste. The technology base is a proprietary telematic services platform MTS has invested $16m in.

The pilot project will be implemented in partnership with EkoStroyResurs, a household waste management operator in the region of Samara some 850km southeast of Moscow. The telco is also offering the solution to other waste management companies across Russia's regions.

Shopping By Showing One's Face

Rostelecom, the national telecom operator, is introducing next month its solution for face recognition enabled payments in stores, VC.ru reported, citing knowledgeable sources. Russian Standard, a Russian bank, is partnering with Rostelecom in the effort.

Rostelecom is also the top operator for Russia's Unified Biometric System (UBS). Domestic banks have been collecting biometric data for UBS since July 2018. The system is expected to help the Russians open accounts with banks, seek loans and transfer money on a completely remote basis. Only a handful of banks currently offer UBS-assisted services; the system has about 20,000 entries at this early stage, according to the Central Bank of Russia.

Mobile Operator Invests In 5G Tech

By the end of next year MTS, one of Russia's leading mobile operators, has plans to invest an estimated $1.6m in start-ups that develop 5G tech based solutions. A business incubator will be set up in Moscow to pursue the goal.

The mobile operator is interested in a range of cloud based services in remote gaming, new video streaming formats, Internet of Things solutions, data storage, and some others.

5G Operators Pushed To Use Domestic Hardware That Has Yet To Emerge

The Russian Government recently approved a roadmap under the National Project on Digital Economy which requires that Russian operators of fifth-generation telecom networks (5G) use domestic servers.

The rationale behind the decision is that funds allocated for the Digital Economy should be used to support domestic producers rather than "go to foreign companies," the Russian business daily RBC reported, citing government sources with knowledge of the developments.

The Cabinet plans to spend $10bn to develop 5G networks in Russia by 2024. In addition to supporting domestic producers, using domestic server equipment is expected to protect 5G operators from possible sanctions-related disruptions in imported component supplies.

World Economic Round Up

Almost two years since Donald Trump fired the opening shots in a global trade war, a manufacturing and investment downturn is weighing on the global economy, frightening business and sending financial markets searching for cover. The pivotal moment for the global economy can be traced to the January 2018 World Economic Forum in Davos when Mr Trump sent his allies out with the message that trade tariffs were coming and the "US troops are now coming to the ramparts". Ever since, the global outlook has deteriorated. World growth of 3.8 percent in 2017 is expected by the OECD to decline to 2.9 percent in 2019. Across the world the story is similar: sectors such as manufacturing, highly exposed to global events, are in or close to recession, while wider economies are propped up by still relatively buoyant labour markets and household spending.

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 2019/2020

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 11th November 2019
- Industry Forecast Briefing, London – 21st January 2020

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

-

MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY 11th November 2019
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 21st January 2020

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

Follow Us On Twitter

For weekly semiconductor news and updates follow us on Twitter.