FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

AEPONYX Eyes 5G Networks

AEPONYX, the startup building the integrated photonics with MEMS devices, has closed a new $10 million funding round. The Montreal, Canada-based firm is picking telecom and 5G networks as the first market vertical for its tunable transceiver designs.

The company employs fast-tuning and ultra-small MEMS devices and silicon nitride photonics to create optical transceivers for dense wave division multiplexing (DWDM) communications over single fiber-optic links. That's crucial in facilitating high data rates in small form factor fiber-optic gear.

The use of ultra-small MEMS also lowers latency and power consumption in high-speed data applications. AEPONYX's planar micro-optical switch chips are based on a platform that combines silicon photonics with MEMS technology. Besides telecom and 5G, AEPONYX is eying its silicon photonics on MEMS technology for quantum computing, LiDARs, and sensors.

Arm v9: First New Architecture in a Decade Doubles Down on AI and Security

Arm has launched a major architecture revision, Arm v9, which provides additional features for security, confidential computing and AI as well as boosting overall performance. Arm said it expects v9 to deliver more than 30% performance uplift in the next two mobile and infrastructure generations. AI features, thus far most typically available with GPUs, will be available across the company's GPUs, CPUs, and NPUs.

The previous architecture from Arm, v8, launched a decade ago, and Arm expects v9 to dominate computing silicon from IoT to supercomputing applications for the next 10 years.

"Even I still marvel at how pervasive our technology has become," said Arm CEO Simon Segars. "In a years' time, our partners will have shipped a cumulative total of 200 billion chips. Putting that in context, half of that number, the first 100 billion took 26 years to reach the market. If our prediction is correct, the second 100 billion chips will have shipped in just five years. Our objective is to allow the broadest set of developers to write fast, run fast on Arm."

Dialog Semiconductor Adds Multi-Channel Input Capability to New Nanoamp GreenPAK™ Device

London, United Kingdom – March 15, 2021 – Dialog Semiconductor plc (XETRA:DLG), a leading provider of battery and power management, Wi-Fi®, Bluetooth® low energy, and Industrial edge computing solutions, today announced the expansion of their popular GreenPAK™ solution suite with the SLG46811, the market's smallest GreenPAK device to include an I2C communication interface.

The GreenPAK products are extremely cost effective programmable mixed-signal ASICs that are customer designed with GreenPAK Designer Software. The GreenPAK products

feature in many cases sub uA active current consumption, nano second response times, schematic based design and simulation, and tools that allow prototyping and programming when connected to a standard PC USB port. GreenPAK products are widely adopted in the industry with hundreds of millions of units shipped annually to many of the large and trend setting IoT, computing and industrial OEM's.

The SLG46811 integrates traditional GreenPAK programmable logic with new shift register macrocells, a multichannel sampling analog comparator and a 92 x 8-bit pattern generator, all within a small 1.6mm x 1.6mm package.

Intel Surprises With $20B Expansion Of Foundry Business

Intel is going to dive headlong into the foundry business, starting with a $20 billion investment in not one but two fabs in Arizona. New CEO Pat Gelsinger said the company is establishing the contract manufacturing endeavor as a standalone business called Intel Foundry Services.

IFS will be run by Randhir Thakur, a longtime executive at Applied Materials who joined Intel in 2017 to manage the company's global supply chain; he most recently held the title of chief supply chain officer. Thakur will report directly to Gelsinger.

That Intel is getting deeper into foundry services is exactly the opposite of what some Intel critics wanted to hear for a lot of reasons. Once considered the most advanced chip maker in the world, Intel's manufacturing operations have stumbled; the company has been eclipsed by Taiwan Semiconductor Manufacturing Company (TSMC) and Samsung, and it will be exceedingly difficult to catch up. Partly to compensate for those stumbles, Intel itself is committed to using other foundries (those plans have not changed at all). Building and operating fabs is fabulously expensive and risky. Even though Intel's doing some limited foundry work now, being a foundry is both a business model and a technological approach, neither of which Intel has ever excelled at. At a macro level, manufacturing moves to countries with trailing economies for reasons.

Qualcomm Extends The Leadership Of Its 7-Series With The Snapdragon 780G 5G Mobile Platform

Qualcomm Technologies, Inc. announced the latest addition to its 7-series portfolio, the Qualcomm® Snapdragon™ 780G 5G Mobile Platform. Snapdragon 780G is designed to deliver powerful AI performance and brilliant camera capture backed by the Qualcomm Spectra™ 570 triple ISP and 6th generation Qualcomm® AI Engine, allowing users to capture, enhance, and share their favorite moments seamlessly. This platform enables a selection of premium-tier features for the first time in the 7-series, making next generation experiences more broadly accessible.

"Since introducing the Snapdragon 7-series three years ago, more than 350 devices have launched based on 7-series mobile platforms. Today, we are continuing this momentum by introducing the Snapdragon 780G 5G Mobile Platform," said Kedar Kondap, vice president, product management, Qualcomm Technologies, Inc. "Snapdragon 780G was designed to bring in-demand, premium experiences to more users around the world."

STMicroelectronics and OQmented to Jointly Develop, Manufacture, and Market Advanced MEMS Mirror-Based Laser-Beam Scanning Solutions

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, and OQmented, a deep-tech startup focused on MEMS[1]-mirror technology, have agreed to collaborate on the advancement of the technology for Augmented Reality and 3D-sensing markets. The joint effort aims to build on the expertise of both companies to advance the technology and products behind the leading MEMS-mirror-based laser-beam scanning (LBS) solutions in the market.

ST, a world leader in the design, manufacture, and sales of a broad portfolio of MEMS sensors, actuators, and related components including drivers, controllers, and laser-diode drivers, is contributing its vast MEMS design and manufacturing resources to the collaboration.

Industry News & Trends

Imagination Launches IMG Labs Incubator for Next-generation Semiconductor IP

LONDON, March 26, 2021 — Imagination Technologies announces IMG Labs, a specialist division tasked with developing breakthrough innovations fundamental to new, advanced semiconductor products.

IMG Labs' mission is to understand and accelerate future trends in the semiconductor industry, translating these into new licensable technologies that will enable world-leading products for Imagination's partners. Headed up by Tim Mamtora, IMG Labs' initial focus is on AI, GPU, heterogeneous compute, and ray tracing.

Tim Mamtora, Chief of Innovation, Imagination Technologies, says; "IMG Labs is Imagination doubling down on what it does best, core R&D for new technology that our customers want and need. The creation of Labs further demonstrates our long-standing commitment to developing commercial IP products that offer unique differentiation for customers. It enables our partners to be first to market with cutting-edge solutions and the exceptional quality that they have come to expect."

Global Chip Shortage Means Thinner New-Car Supply, Higher Prices

The thin line between just-in-time auto manufacturing and an idled production plant has become crystal clear again with the spreading effects of a global semiconductor chip shortage and other logistical problems.

That there's a chip shortage isn't news. We reported last month that the shortage would likely mean that a million fewer cars will be built around the world, costing the industry $61 billion in this quarter alone. The problem stems from a change in who the semiconductor manufacturers are making chips for right now.

At the start of the pandemic a year ago, automakers reduced their orders, thinking that they wouldn't be able to build as many new cars as they originally thought. When the market rebounded, automakers discovered that chip suppliers were busy fulfilling orders for computers and gaming consoles, given that the companies building consumer electronics didn't see a pandemic-related decline. Just the opposite, in fact.

Imec Unveils Ultrasound Sensor Using Optomechanical Silicon Photonic Waveguide

Imec has presented an ultrasound sensor in silicon photonic technology with ultra-sensitivity owing to an optomechanical waveguide. In a recent paper published on Nature Photonics, Imec claimed this waveguide has "a tiny 15 nm air gap between two movable parts" which are fabricated using new CMOS-compatible processing. The 20 μm small sensor has a noise equivalent pressure below 1.3 mPa Hz−1/2 in the measured range of 3–30 MHz, dominated by acoustomechanical noise. The sensitivity is two orders of magnitude larger than for piezoelectric elements of an identical size, Imec said.

The low detection limit can improve the trade-off between imaging resolution and depth for ultrasound applications. It is essential for photoacoustic imaging, where pressures are up to three orders of magnitude lower than in conventional ultrasound imaging techniques. It can also enable low-pressure applications like through-skull functional brain imaging.

Clinatec Leverages NIR Light to Slow Down Parkinson's Disease

Parkinson's disease cannot be cured, but French biomedical research center Clinatec has designed a neuroprotective approach leveraging near-infrared (NIR) light to reduce or slow down the neurodegenerative process. The core of the 10-year research program is the first clinical trial on parkinsonian patients in the first half of 2021.

Parkinson's disease is a progressive neurodegenerative disease that causes dopaminergic neurons to die. More than 10 million people worldwide are currently living with Parkinson's disease, according to the Parkinson's Foundation. Men are 1.5 time more likely to be affected than women.

No curative treatment exists today. Symptomatic treatments can ease the symptoms, but neither cure nor slow down the progression of the disease. Neuroprotection in Parkinson's disease has become a key area of research to delay or prevent the death of dopaminergic neurons. "There is a real need for innovative therapies to slow down the neurodegenerative process, and light could be the solution," said Cécile Moro, Clinatec project manager, CEA-Leti, at last week's Leti Photonics Workshop.

Georgia Tech Readies 'Wireless Power Grid' for 5G

Researchers at the Georgia Institute of Technology have devised a novel way to harvest 5G frequencies at 28GHz to power IoT nodes, in effect turning them into a "wireless power grid."

The Rotman lens-based rectifying antenna (dubbed the rectenna) was developed such that it could be produced on a flexible substrate with 3D printing, and thus easily incorporated into an IoT node.

The Rotman lens is key for beamforming networks and is frequently used in radar surveillance systems to see targets in multiple directions without physically moving the antenna system.

The inkjet-printed prototype of a mm-wave harvester allows devices to pull energy from 5G wireless communication systems out of the air and convert it into electricity. (Source: Christopher Moore, Georgia Tech)

However, the researchers point out, to harvest sufficient power to supply low-power devices at long ranges, large aperture antennas as needed. The drawback with large antennas, unfortunately, is that they have a narrowing field of view. This prevents their operation if the antenna is widely dispersed from a 5G base station.

East European News & Trends

New Russian VC Fund Sets Sights On Later-Stage Tech Start-Ups

AltaIR Capital, a Russian venture firm founded by entrepreneur Igor Ryabenkiy, has launched what is expected to emerge as a $300m fund to support start-ups at advanced development stages, Vc.ru reported.

The new fund called AltaIR ABO will invest in 30-50 start-ups across the world over the next three years. So far, the founders have raised more than $50m for the fund.

The Russian company will focus on the following tech areas: FinTech, distributed teams' productivity and efficiency, insurance, digital medicine, EdTech, artificial intelligence, and machine learning.

Russia Considers Tax Benefits To Support Domestic IT Sector

The Ministry of Digital Development recently proposed reducing companies' corporate taxes by the amounts of their expenditures on domestic software and computer equipment.

The proposal, which is currently being considered at higher Cabinet levels, is part of proposed measures to support the domestic IT sector, the US-Russia Business Council quoted the Russian business daily Vedomosti as reporting. Other recent proposals have included a moratorium of regulatory checks of domestic IT companies and a requirement for foreign IT companies to pay individual income taxes for Russian software developers they employ remotely.

The government currently provides subsidized loans to companies that buy domestic software and computer equipment. In 2020, the government reduced employer social security contributions for domestic IT companies from 14% to 7.6% and the corporate tax from 20% to 3%.

New 3D Printer Can Print Anything From Wind Generator Blade To Aircraft

Engineers at Moscow-based MPEI University (aka Moscow Power Engineering Institute) have showcased a prototype 3D printer for making large objects. According to Naked Science, the new device can print as big a part as a user wishes. The technology may benefit such strategic sectors as aerospace, automotive, shipbuilding, and wind energy.

With conventional 3D printers, a part is manufactured inside the device, which limits the size of an object to be printed. The bigger a part a user needs, the larger a printer he should use.

In the new MPEI-driven Roboprint project, components are printed outside the master printer, a solution that brings no limitations at all and is reported to be able to print a part that is ten or hundred times bigger than the printer.

The MPEI team has developed a multi-flow printing technology with a swarm of printing robots at the core. Special radio navigation sensors are placed on moving platforms to coordinate the action of all swarm elements. The master printer is a wheeled platform with the printing part of the system on it. Guided by sensor-generated coordinates, the

master platform moves where something must be printed. The printing surface where a part is made is located above the printer, so the printer's head nozzle faces upwards.

World Economic Round Up

The US economy emerged quickly from the depths of the crisis triggered by coronavirus lockdowns this spring, but full recovery remains out of reach. Official figures show the economy grew at a record 7.4% percentin the three months to 30 September from the prior quarter, when it suffered a severe decline. But output remained 2.9 percentlower compared to the same period a year ago. The US was not hit as badly as many places this spring, when countries around the world went into lockdown. The economy shrank 9 percent in the second quarter, compared to a roughly 20 percent contraction in the UK, 13.8 percent decline in France and 9.7 percent fall in Germany.

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 2021

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – November 2021
- Industry Forecast Briefing, London – September 2021

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

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

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Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY November 2021
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 12th September 2021

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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