FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

Cadence, Imec Disclose 3-nm Effort

SAN JOSE, Calif. — Cadence Design Systems and the Imec research institute disclosed that they are working toward a 3-nm tapeout of an unnamed 64-bit processor. The effort aims to produce a working chip later this year using a combination of extreme ultraviolet (EUV) and immersion lithography.

So far, Cadence and Imec have created and validated GDS files using a modified Cadence tool flow. It is based on a metal stack using a 21-nm routing pitch and a 42-nm contacted poly pitch created with data from a metal layer made in an earlier experiment.

Imec is starting work on the masks and lithography, initially aiming to use double-patterning EUV and self-aligned quadruple patterning (SAQP) immersion processes. Over time, Imec hopes to optimize the process to use a single pass in the EUV scanner. Ultimately, fabs may migrate to a planned high-numerical-aperture version of today's EUV systems to make 3-nm chips.

Denso Commits to Rejuvenated Renesas

PARIS — Denso Corp., based in Japan and one of the world's largest Tier Ones, announced Friday a tenfold increase in its share of Renesas Electronics from 0.5% to 5%.

With this commitment, Denso bestows a tacit endorsement of the topline recovery accomplished by a once-beleaguered Japanese automotive chip company. Denso's move also reflects the current thinking among carmakers and Tier Ones who are scrambling to compete in a nascent but ever-accelerating automated vehicle race.

Denso explained during the announcement that in developing "competitive vehicle control systems in new fields such as automated driving," the company considers it "essential to further enhance collaboration with semiconductor manufacturers that have profound experience and expertise."

Better Sound For Smart Home Applications: Infineon Acquires Merus Audio

Munich, Germany, and Copenhagen, Denmark – 20 February 2018 – Infineon Technologies today announced the acquisition of Merus Audio. The Copenhagen-based start-up was founded in 2010 by Hans Hasselby-Andersen and Mikkel Hoyerby. Merus Audio creates energy-efficient integrated audio amplifier solutions. They maximize audio performance and battery playback time for smart home and battery-powered speakers while minimizing heat and design space. After the integration of Merus Audio, Infineon will be able to offer its customers a comprehensive and leading-edge Class-D Audio amplifier portfolio addressing the most demanding applications. The technology complements Infineon's existing PowIRAudio™ product line for power levels below ~70 Watt.

"The move strengthens our ability to offer customers fully integrated system solutions for smart speakers", said Andreas Urschitz, Division President of Power Management &

Multimarket at Infineon. “Merus Audio’s innovative audio amplifier technology very well complements Infineon’s existing sensor and audio processing expertise.”

Qualcomm Extends Its Embedded Computing Portfolio And Brings Its Premium Tier Processors For Cutting-Edge Iot Applications

Qualcomm Incorporated (NASDAQ: QCOM) today announced that its subsidiary, Qualcomm Technologies, Inc., introduced the Qualcomm® Snapdragon™ 820E embedded platform and extended its embedded computing portfolio to support premium tier, cutting edge applications for the Internet of Things (IoT). The solution showcases how Qualcomm Technologies uses its mobile expertise in both computing and connectivity for commercial IoT products. The Snapdragon 820E embedded platform is designed to support connected computing, and powerful yet power-efficient multicore processing for computer vision, artificial intelligence and immersive multimedia – all in one package for next generation of IoT applications such as virtual reality, digital signage, smart retail, robotics and more.

The Snapdragon 820E embedded platform is being made available globally by third party distributors, initially through Arrow Electronics, for 10 years from commercial sample (until 2025). With the new DragonBoard™ 820c development board offered by Arrow Electronics, end customers and ecosystem participants can begin their evaluation and invention with the Snapdragon 820E embedded platform.

Samsung Expected To Cut OLED Investment

As two of the technology world’s fiercest rivals, Samsung Electronics and Apple usually have something to gain from the other’s misfortune.That logic, however, stops at display panels; specifically the latest generation of organic light-emitting diode, or OLED, screens for mobile phones and tablets.

The South Korean group is a key manufacturer of OLED screens, which Apple has tapped into for its most recent smartphone, the iPhone X.But sluggish sales of the Apple device have left Samsung swimming in overcapacity, analysts say.

The Seoul-headquartered group is now expected to “substantially” cut capacity investment in the leading-edge technology. “Samsung built a lot of capacity for OLED expecting strong demand from Apple,” said Sanjeev Rana, an analyst at CLSA in Seoul, who expects the group to cut its OLED investment by half this year. “But sales of the iPhone X have been below disappointing, due to its high price tag. This means Samsung's production facility is facing under-utilisation, at least in the first half of this year.”

STMicro Licenses LDMOS From Chinese Chip Startup

LONDON — STMicroelectronics has licensed laterally diffused metal oxide semiconductor (LDMOS) RF power technology from Innogration Technologies, a Chinese semiconductor company specializing in the design and manufacturing of RF power semiconductor devices, modules, and sub-system assemblies.

Innogration is a start-up founded by Gordon Ma, who in the past worked with Freescale and Infineon and owns various patents on technology that ST wanted access to. Headquartered in Suzhou, China, Innogration claims to be the only commercial company doing vertical integration across multiple RF power semiconductor enablers, including core LDMOS and GaN in device and application areas with the addition of GaAs and VDMOS.

Industry News & Trends

Smartphone Sales in First Ever Decline

The smartphone industry recorded its first ever decline during the fourth quarter of 2017.

On a global market with an output of 407.8 million units, down from 432 million units in the same period in 2016, the only top-five vendors to grow their sales were Huawei and Xiaomi. Curiously, the Gartner market report puts Samsung on top of the sales charts, while previous 2017 fourth quarter sales stats from IDC say Apple are king of the hill, on a slightly smaller overall global market.

Two main reasons factor into the market decline: First, upgrades from feature phones to smartphones have slowed down due to a lack of quality "ultra-low-cost" smartphones and users preferring to buy quality feature phones. Second, replacement smartphone users are choosing quality models and keeping them longer, lengthening the replacement cycle of smartphones. Moreover, while demand for high quality, 4G connectivity and better camera features remained strong, high expectations and few incremental benefits during replacement weakened smartphone sales.

Global Carmakers Race To Lock In Lithium For Electric Vehicles

As Nissan and Mitsubishi Motors rolled out their electric cars for the mass market in 2010, Japanese manufacturers placed enthusiastic bets on a surge in battery demand.

ut the electric vehicle revolution failed to materialise and much of their investments went sour. Nearly a decade later, China and other governments are driving a massive push for a future of electric cars as they try to shift consumers away from combustion engines.

To capture the market for these vehicles, global carmakers from Volkswagen to Tesla are attempting to lock in supplies of raw materials that are needed to increase production of lithium ion batteries, which will power this electric revolution.

Wireless Companies To Start Small With 5G Rollouts

BARCELONA—After a year of promising tests, wireless companies are finally setting deadlines for the rollout of the next wave of technology designed to revolutionize the way machines reach the internet.

A handful of companies in the U.S. and Asia are expected to start offering commercial fifth-generation, or 5G, service as soon as this year. Their plans will dominate much of the agenda at the coming week's Mobile World Congress, the annual confab here where telecom companies and their suppliers meet to strike deals and market themselves.

The optimistic timelines come with a caveat: Most 5G services debuting this year will fall short of carriers' visions of what 5G will ultimately be: cable-quality broadband linking billions of gadgets over the air. Companies like AT&T Inc., T 2.02% Verizon Communications Inc., VZ 1.66% Australia's Optus Pte. Ltd. and Finland's Elisa Oyj will start small, using just one element of a package of 5G engineering standards that are still being written.

China Plans $31.5 Billion IC Industry Fund

TAIPEI — The Chinese government is planning a new 200 billion yuan ($31.5 billion) fund aimed at renewing efforts to kickstart its domestic chip industry and offset a huge trade deficit in imported semiconductors.

The state-backed China Integrated Circuit Industry Investment Fund Co. is in talks with government agencies and corporations, targeting the new financing, according to press reports, citing unidentified people familiar with the matter. Under the reported plan, the fund would begin disbursing money in the second half of 2018.

More money may not be enough to jumpstart China's semiconductor industry, according to Bill McClean, president of market research firm IC Insights.

"While the Chinese have plenty of money to spend, they are lagging severely on the technology to be competitive," McClean told EE Times. The goals of the new funding effort have almost no chance of success without strong results in both funding and technology, he said. Each of those factors will have equal weight on the final outcome, he added.

Cypress Sees a Future For FRAM

TORONTO — Does ever-emerging Ferroelectric Random Access Memory(FRAM) have a role in autonomous vehicles? Cypress Semiconductor thinks so.

At the Embedded World trade show in Germany this week, the company unveiled a new serial nonvolatile memory family to meet the performance and reliability demands of mission-critical data capture. In an advance telephone briefing with EE Times, Sonal Chandrasekharan, senior director of Cypress' RAM Business Unit, said that the Excelon (FRAM) line was designed specifically for the high-speed nonvolatile data logging needed for autonomous vehicles. More broadly, the new FRAM line has applications in a broad range of advanced automotive and industrial applications.

The Excelon Auto series offers 2-Mb to 4-Mb automotive-grade densities, while the Excelon Ultra series offers 4-Mb to 8-Mb industrial-grade densities. Both families are available in low-pin-count, small-package options. The Excelon Auto series is offered in AEC-Q100 extended temperature options with functional safety (ISO 26262) compliance. "It's the first functional safety-compliant NVRAM in the market," said Chandrasekharan. "It's focused really on the safety requirements within the automotive market."

UK Pumps $35 Million Into 5G Testing

LONDON — The UK government will invest about $35 million into six projects to test 5G across a range of applications, including smart farming with drones, using the IoT to improve healthcare in the home, increasing manufacturing productivity and maximizing the future benefits of self-driving cars.

Each testbed will receive between £2 million and £5 million (about $3 million to $7 million) in government grants as part of a total investment of £41m from private and

other public sector funding, to explore technologies that use high frequency spectrum to deliver internet speeds of over a gigabit per second.

Two of the projects involve Blu Wireless, a developer of mmWave baseband IP. One of these projects is a 5G testbed in Liverpool where the company is part of a consortium that will provide wireless technology to bring gigabit broadband networks to deprived areas, building the foundation for next generation healthcare services in those areas. The other is the AutoAir 5G testbed for connected and autonomous vehicles (CAV), a pilot project for providing high-speed transport (cars, buses and trains) with sufficient real-time network bandwidt

East European News & Trends

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 have 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).

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.

Researchers Develop New Glass Ceramics For Eye-Friendly Lasers

Super-hard and durable glass ceramics with potentially market-winning nonlinear optical properties has been developed in St. Petersburg. It will be used in passive Q switches of human eye friendly lasers.

The ceramics is said to have no volatile and toxic components. The developers are scientists at the S. I. Vavilov State Optical Institute.

Using the new patented synthesis method has helped produce good enough glass ceramics for a range of heavy-duty applications in optical devices for environmental monitoring, rangefinding, and remote diagnostics of industrial and environmental objects.

Russia Backs Medical IT Developers

Russia's Advanced Research Fund (ARF) has been boosting support for developers of IT projects to be used in medicine.

"We're witnessing a growing number of IT projects in the field of medicine. These primarily include mobile apps for telemedicine, nervous disorder diagnostics by analyzing the way a person speaks, rehabilitation following strokes and brain damages, and many others," ARF Deputy CEO Sergei Garbuk was quoted as saying. He is in charge of the IT department at the Fund.

World Economic Round Up

The west's leading economic think tank has warned Donald Trump that a trade war prompted by US protectionism threatens to derail a recovery in global growth, which has reached its highest level in seven years. In its latest interim forecasts, the Paris-based Organisation for Economic Co-operation and Development (OECD) said it expected the world economy to expand by 3.9 percent in both 2018 and 2019 – a 0.3 percentage point upgrade in each year from its last set of predictions in November 2017. The OECD said investment, trade and employment were all playing a part in a broad-based expansion that has prompted growth upgrades for six of the seven G7 countries.

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 2018

Future Horizons Events

- Silicon Chip Industry Training Seminar – London –11th June 2018
- Industry Forecast Briefing, London – 16th September 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

MONDAY 11th June 2018
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 18th September 2018

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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