FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

Apple to Aqcuire Intel's Modem Business

SAN FRANCISCO — Apple will pay about $1 billion to acquire Intel's smartphone modem business, signaling that, despite a settlement reached with longtime supplier Qualcomm in April, Apple still has designs on its own silicon for 5G.

Roughly 2,200 Intel employees will join Apple as a result of the deal, which is expected to close in the fourth quarter, the companies said. The combination of acquired patents and Apple's own existing wireless technology patent portfolio will give Apple more than 17,000 wireless technology patents.

The deal was announced on the same day that Intel raised its sales estimate for the year after reporting better-than-expected second quarter results.

Kevin Krewell, a principal analyst at Tirias Research, said Apple has long wanted to build its own modem to go along with its A Series processors and its internally developed GPU. "It makes perfect sense for Apple to buy that business from Intel to accelerate its internal development plans," Krewell said. "For Intel, it gets to recoup at least some fraction of the multi-billion dollar investment in the modem business.

Iota, Anterix Plan Licensed Sub-Gigahertz Networks

Move over, LoRa and Narrowband IoT (NB-IoT); two new competitors see a space that you are missing. Iota Communications and Anterix are buying spectrum in the 800- to 900-MHz bands to create new licensed networks for the Internet of things.

The two rivals are leveraging work at the U.S. Federal Communications Commission to reorganize part of the sub-gigahertz spectrum. Both Iota, focused on building automation, and Anterix, targeting utilities, have significant spectrum holdings already and financing in progress, but neither has networks up and running yet.

It's early days for both companies, which are still defining their service-level products. For that reason, they have not come on the radar for analysts who cover the low-power, wide-area networks (LPWANs) that LoRa and NB-IoT currently dominate and where the HaLow version of Wi-Fi is debuting this year.

Dialog Semiconductor Adds Bluetooth(R) Low Energy Connectivity to Samsung Galaxy Fit;

LONDON, UK / ACCESSWIRE / July 24, 2019 / Dialog Semiconductor plc (XETRA: DLG), a provider of highly integrated power management, AC/DC power conversion, charging and Bluetooth(R) low energy technology, today announced that Samsung has implemented Dialog's wireless microcontroller unit (MCU) in its latest Galaxy Fit.

The Galaxy Fit is a slim and fashionable fitness tracker that enables users to reach their fitness goals with its intuitive tracking features. It tracks a wide range of activities and offers enhanced sleep analysis and stress management technology for users to monitor their wellbeing throughout the day.

Samsung designed the Galaxy Fit band to be easy for users to interact with while on the go, which meant it needed to sync with smartphones to allow users to receive alerts and messages. Additionally, because the device is easy to style and comfortable to wear all week long, it also required a solution that would support seamless smartphone connectivity while conserving energy to extend battery life. Samsung found its solution

with the DA14697, a wireless microcontroller unit within Dialog's DA1469x SmartBond(TM) line that is ideal for wearable devices.

Imaging Bolsters Quarterly Results

Announcing its Q2 2019 results today, STMicroelectronics said it returned to sequential growth thanks to its specialized imaging sensors, as well as from RF products in end-modules, silicon carbide MOSFETs and digital automotive. However, the global slowdown in car registrations has impacted its legacy automotive market.

ST's Q2 2019 net revenue was $2.17 billion, which is up 4.7% quarter on quarter but down 4.2% compared to the same quarter last year. Despite the automotive market turmoil, Jean-Marc Chery, president & CEO of STMicroelectronics said he was expecting 15.3% sequential growth for the third quarter, which some analysts noted is a record quarterly growth figure for ST in recent years.

On image sensing, Chery said ST had at least an imaging sensor and/or MEMS device in all of the top 10 smartphones currently on the market. He added, "We had multiple wins for motion and pressure sensors in the flagship models from many of the world's top smartphone and wearable manufacturers. We also continued to earn design wins and ramp shipments for our time of flight sensors, analog products and RF products for 4G front-end modules."

Qualcomm's Gloomy Outlook Sends Shares Sliding

Chipmaker Qualcomm laid bare the effects of a slowdown in the global smartphone market and tensions between the US and China on Wednesday, disappointing investors with weak sales guidance for the rest of the year.

The US company blamed "continued weakness in China", where it said phonemaker Huawei was gaining market share. It also pointed to slowing global demand for 4G devices, as the market prepares to transition to next generation 5G wireless technology.

The market was "not seeing the usual seasonal uptick" from device makers preparing for the holiday season, it said.

Samsung Electronics Takes 3D Memory To New Heights With Sixth-Generation V-NAND SSDs For Client Computing

Samsung Electronics, the world leader in advanced memory technology, today announced that it has begun mass producing 250-gigabyte (GB) SATA solid state drive (SSD) that integrates the company's sixth-generation (1xx-layer) 256-gigabit (Gb) three-bit V-NAND for global PC OEMs. By launching a new generation of V-NAND in just 13 months, Samsung has reduced the mass production cycle by four months while securing the industry's highest performance, power efficiency and manufacturing productivity.

"By bringing cutting-edge 3D memory technology to volume production, we are able to introduce timely memory lineups that significantly raise the bar for speed and power efficiency," said Kye Hyun Kyung, executive vice president of Solution Product & Development at Samsung Electronics. "With faster development cycles for next-

generation V-NAND products, we plan to rapidly expand the markets for our high-speed, high-capacity 512Gb V-NAND-based solutions."

X-FAB 180nm CMOS Automotive Process Now at French Plant

X-FAB Silicon Foundries has announced the availability of its high-voltage 180nm CMOS semiconductor process for automotive applications, XH018, at the company's production facility in France. The company had XH018 in production at its fab in Malaysia. Ramping up in France means the company has dual sourcing for all its 180nm processes, including its RF-SOI processes.

The manufacturing plant, located in Corbeil-Essonnes just outside Paris, is the company's largest in Europe, with 15,000 square meters of cleanroom area, and capacity for an additional 9,000m2 that can be equipped for future demand.

Rudi De Winter, X-FAB's CEO, commented, "We are very pleased that our XH018 high-voltage process, currently running in our high volume fab in Malaysia, has now been successfully installed also in France. With this, we now have a dual source for our main 180nm platform, and the capacity needed to serve the increasing demands of our customers."

Industry News & Trends

Startup Claims 100 Tops/W In Simulation

In his spare time, an engineer at Tektronix sketched out a novel deep-learning accelerator, and now his two-person startup is the latest example of the groundswell of enthusiasm that deep learning is generating.

Behdad Youssefi defined an SRAM with specialized cells that can handle the matrix multiplication, quantization, storage and other jobs needed for an inference processor. After four years solo work on the concept originally planned as a PhD thesis, he formed startup Areanna with a colleague at Tektronix and a Berkeley professor as an advisor.

In Spice simulations the design delivers more than 100 tera-operations/second/watt when recognizing handwritten digits using 8-bit integer math. Youssefi claims it could beat Google's TPU in computational density by an order of magnitude.

GDDR Market Could be Transformed by Emerging Applications

When you need something faster than DRAM but can't justify high-bandwidth memory (HBM), GDDR is just right.

As an incumbent memory historically used primarily in graphics cards for high-end PCs, particularly those for gamers, the last couple of years have seen GDDR technology hit a "Goldilocks zone" of sorts with uptake in emerging use cases such as artificial intelligence (AI), autonomous vehicles, and 5G networking — all of which need speed and high performance.

Shane Rau, research vice president, computing semiconductors at IDC, said GDDR has always been a preceding derivative of the next mainstream memory standard, but now that we're at GDDR6, there are signs the technology is proliferating somewhat compared to previous iterations. HBM still remains too expensive, "whereas GDDR6, being a derivative of mainstream memory in speed and cost ... has started to fill an expanding pan of solutions.

Tech Titans In The Driving Seat

Representatives from internet and cloud-computing giants Facebook, Amazon, Microsoft, and Google were at Semicon West earlier this month, roaming the show floor, sitting in on presentations, and kicking the tires on the newest fab tools and semiconductor processing techniques. It's not completely unprecedented that a few people from one of the big hyperscalers or the other attend a semiconductor show, but it's unusual when they all show up en masse like that. Something's up.

"Hardware is sexy again," said G. Dan Hutcheson, the veteran semiconductor capital equipment analyst who is chairman and CEO of market watcher VLSI Research. "People tend to assume that it's all software now. But, you know, software runs best on hardware."

The hyperscalers' presence — and their deep pockets — was like a ray of sunshine for what might otherwise have been a dreary event for an industry in the midst of a

significant downturn. The appearance of engineers from these firms in such large numbers was proof-positive that, despite the semiconductor industry's unenviable current position on the supply-demand curve, there is a very bright light at the end of the tunnel: Many, many more chips will be made."

Transceiver Chip Enables Systems Beyond 5G

A group of researchers have created a wireless transceiver chip enabling transmission of signals beyond 100 GHz at lower cost and energy consumption than current systems. Those frequencies are far higher than anything considered for 5G cellular communications, meriting the researchers' description of the device as "beyond 5G."

Their ultimate goal is more ambitious than merely going beyond 5G; it's to create a technological path that will enable wireless systems to compete with fiber optics.

The team from the Nanoscale Communication Integrated Circuits (NCIC) Labs at the University of California, Irvine (UCI, have created a 4.4 millimeter-square chip capable of processing digital signals significantly faster and being more energy-efficient than anything available today. It does this by utilizing a unique digital-analog architecture which significantly relaxes digital processing requirements by modulating the digital bits in the analog and radio-frequency domains. The researchers claimed that in using the approach they've overcome the limitations of Moore's Law.

Memory Makers Setting Up to Handle Hyperscale Demands

There's never been more pressure on memory to meet the demands of new applications — everything from edge computing and the Internet of things (IoT) to increasingly smarter phones and smart cars. There's also artificial intelligence (AI) and machine learning, both of which are becoming a big part of next-generation platforms being developed by the major hyperscale players — the Googles, Facebooks and Amazons of the world.

All of them are expecting a great deal of innovation from the broad electronics industry and the memory makers, whether it's further improvements to incumbent memories such as DRAM and NAND flash — or making emerging memories that incorporate novel materials commercially viable as part memory devices for new computing architectures. But despite their deep pockets, it's unlikely any of the companies will ever invest in manufacturing equipment to make their own memory devices, and they're not interested in paying a premium price. If DRAM still does the job, they're not going to pay five dollars more per device for an emerging memory because at this scale, it adds up quickly.

A Step Closer To Optical Quantum Computers

While we often hear about the limitations of pushing the boundaries of semiconductor manufacturing process technologies to meet the needs of higher and higher levels of computing performance, optical circuits are evolving as one potential way of addressing the challenge.

Announcements from two research groups on this subject caught my eye, one led by the Technical University of Munich whose work could pave the way for quantum sensors

and transistors, and another from Stanford University whose work on photon diodes could influence the development of neuromorphic computing using light-based components.

While these are both still very much in the research phase, I think it's worth highlighting these pieces of research to see where we could potentially address the needs of high-performance computing in many applications, including artificial intelligence (AI

East European News & Trends

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 Russian business daily Kommersant reported.

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.

National Telco Seeks To Smarten House Security And Entrance

Rostelecom, the national telecom operator, is developing a residential services ecosystem to be marketed directly to households and house managing companies, Firrma.ru reported. The product, called Rostelecom Key, includes services for house video surveillance and a smart door phone, all to be controlled via a mobile app.

At stage two of the project, face recognition and voice control technologies may be added to video cameras and intercoms.

Yandex And Hyundai Test Driverless Cars

Yandex, a leading Russian IT company, and Hyundai Mobis, a subsidiary of Korea's Hyundai Motor Group, have unveiled a prototype autonomous car on the next year's Hyundai Sonata model chassis, Firrma.ru reported. The first driverless Sonata is currently being tested on a driving range and will soon hit the Moscow city roads.

Yandex has plans to work with other new models by Hyundai and another Korean car manufacturer, Kia.

Russian Tech Exports Increase, But Remain "Insignificant"

Technology exports from Russia increased by 19% to a total of $1.4bn in 2018 while technology imports declined 7.3% to $3.1bn, the Higher School of Economics (HSE) found in its new study, reported by the U.S.-Russia Business Council.

Although Russia spent more on technology imports than it earned from exporting its technologies, the deficit contracted to $1.7bn in 2018 from $2.1bn in 2017. In 2001-2018, technology exports from Russia increased 5.8 times while imports increased 7.7 times.

In 2018, engineering services comprised nearly half of Russia's foreign trade in technologies. The HSE noted that developed economies' share in Russia's technology exports increased to 58.9% in 2018 from 40% in 2013. In 2018, the United States was the largest importer of Russian technologies and related services ($224.3m) and the second largest exporter of technologies to Russia ($420.1m) after Germany ($505.4m).

World Economic Round Up

Turkey's new central bank governor has signalled an impending interest rate cut, arguing that the bank has "room to manoeuvre" on monetary policy as inflation falls. Murat Uysal was promoted to the head of the bank earlier this month after Recep Tayyip Erdogan, the Turkish president, sacked his predecessor over a dispute about the pace and depth of rate cuts

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

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 11th November 2019
- Industry Forecast Briefing, London – 17th September 2019

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

Telephone: +44 1732 740440
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Industry Events

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MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY 11th November 2019
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 17th September 2019

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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