FutureHorizons
The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Industry News By Company

AMD Hits 13-Year High As Next-Gen Xbox Sparks Rally

Shares in Advanced Micro Devices surged to a 13-year high on Monday after Microsoft announced its next-generation Xbox will run on chips made by the semiconductor group.

Microsoft said on Sunday, ahead of the annual E3 gaming expo, it will use a custom-designed processor and graphics card from AMD in the next iteration of its gaming console, which is codenamed "Project Scarlett". It was another win for AMD, which also beat out rivals such as Nvidia to make chips for Sony's next PlayStation.

AMD already makes the chip architectures for the Xbox One and PlayStation 4. "Project Scarlett" is scheduled to launch during the 2020 holiday season.

Imec Doubles Energy Density Of Its Solid-State Batteries

Research center Imec has said it has doubled the energy density of its solid-state Li-metal battery cell and started scaling up a pilot line for manufacturing the cells, paving the way for longer range electric vehicles.

Making the announcement at the European Electric Vehicle Batteries Summit in Berlin this week, Imec said its battery cell has achieved an energy density of 400 Wh/liter at a charging speed of 0.5C (2 hours). The organization's engineering roadmap for solid-state batteries says it will surpass wet Li-ion battery performance and reach 1000Wh/L at 2-3C by 2024.

Today's rechargeable Li-ion battery technology still has room for improvement, but not enough to significantly improve the range and autonomy of electrical vehicles. Hence, Imec's researchers are working to replace the wet electrolyte with a solid material, which provides a platform to further increase the energy density of the cell beyond that of cells based on liquid electrolyte.

Infineon's New 80 V DC-DC Buck LED Driver IC Offers Excellent Dimming Performance

Munich, Germany – 3 July 2019 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) introduces the new LED driver IC ILD8150/E. It features an innovative hybrid dimming mode technology for achieving 0.5 percent of the target current. With its supply voltage range from 8 V DC up to 80 V DC, the driver IC provides a high safety voltage margin for applications operating close to safe extra-low voltage (SELV) limits. The driver IC is ideally suited for general and professional LED lighting applications with high dimming requirements.

The ILD8150/E offers a deep dimming performance without flicker and prevents audible noise. A PWM input signal between 250 Hz and 20 kHz controls the LED current in analog dimming output mode from 100 to 12.5 percent and from 12.5 to 0.5 percent in hybrid dimming mode, with a flicker-free modulation frequency of 3.4 kHz. The digital PWM dimming detection with high resolution and the low power shutdown perfectly

match the ILD8150/E to microcontrollers. The device also has a dim-to-off function and a pull-down transistor to avoid LED glowing in dim-to-off mode.

ST Launches High-End Dual-Core MCUs

STMicroelectronics has launched new STM32H7 dual-core microcontrollers which it claims are the industry's highest-performing Arm Cortex-M general-purpose MCUs, combining performance, power-saving features and enhanced cyber protection.

The new devices are based on a 480 MHz version of the Cortex-M7, the highest performing member of Arm's Cortex-M family and add a 240 MHz Cortex-M4 core. The MCUs are said to set new speed records at 1327 DMIPS and 3224 CoreMark executing from embedded Flash. ST's Chrom-ART Accelerator delivers an extra boost to graphics performance. To maximize energy efficiency, each core operates in its own power domain and can be turned off individually when not needed.

Developers can upgrade existing applications through flexible use of the two cores. They can add a sophisticated user interface to an application such as a motor drive formerly hosted on a single-core Cortex-M4 MCU by migrating legacy code to the STM32H7 Cortex-M4 with the new GUI running on the Cortex-M7. Another example is to boost application performance by offloading intensive workloads such as neural networks, checksums, DSP filtering, or audio codecs.

For seamless mobile connectivity: Infineon Introduces World's First Certified NFC Type 4B Tag

Munich and Stuttgart, Germany – 25 June 2019 –NFC* tags are undergoing a renaissance: users are increasingly tapping smartphones on tags to access digital information and services. Yet reliable data exchange remains one of the major challenges for a positive user experience. Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) enables seamless connectivity by providing handset manufacturers with reference tags for interoperability testing with all types of internationally standardized NFC protocols. Infineon's latest NFC reference tags, which are based on the SECORA™ Pay security solution, have been successfully approved under the NFC Forum Certification Program. This confirms their compliance with the Type 4A Tag and the Type 4B Tag.

Furthermore, the Type 4B Tag is the first product worldwide certified by the NFC Forum that supports the contactless Type B protocol. It will be introduced during the NFC Forum Member Meeting to be held in Stuttgart, Germany, between 25 and 28 June 2019. Infineon has been a principal member of the international industry association since 2005.

So far, NFC tags have been generally limited to use cases where security is not deemed to be critical – such as sharing URLs or exchanging business cards. However, they offer a host of benefits beyond general information sharing, and can also be combined with security critical payment applications. Their appeal is further increased by native support among a growing number of smartphone operating systems. Users can activate services via NFC connectivity without having to open an app, and thus instantly connect their mobile handset to e.g. smart devices like wearables or access shared services such as

street scooters. This intuitive connectivity makes everyday digital transactions easier for consumers – without compromising on security.

UltraSoc Gets £5M For Hardware-Level Cybersecurity

UK-based embedded analytics firm UltraSoC has secured £5m (about US $6.4 million) in new funding to target hardware level cybersecurity, hire more hardware and software engineers in the UK, and open a data science and machine learning engineering center in Warsaw, Poland.

UltraSoC said it had already established itself as a solution for semiconductor companies needing to understand how their system-on-chip (SoC) products are behaving. While this results in reduced development and debug costs, those same customers are also recognizing the potential for its technology in implementing functional safety and cybersecurity features.

CEO Rupert Baines commented, "This funding round will enable us to grasp that opportunity, which I believe we are uniquely equipped to address."

Industry News & Trends

Optical Group Paves Analog Path To 400G

The growing bandwidth demands on cloud data centers are amplifying the pressure on optical module providers to enable faster connectivity solutions at high volume and low cost. Companies across the optical networking industry from OEMs to contract manufacturers to component providers are diligently working to meet these demands.

Volume scale optical module deployments in cloud data centers will continue to drive the cost structures and supply chain required to propagate the fastest and most cost-effective optical links to businesses and throughout the optical network. Today, 100 Gbit/second links are ramping, but the move to faster speeds is upon us.

Analog circuit technologies in addition to digital signal processing methods will become key enablers for tomorrow's 200G and 400G PAM-4 links. Legacy standards will need to be updated to enable interoperability between new analog solutions and existing digital ones.

5G Enable Connected And Driverless Cars

5G wireless, a global standard for mobile communications over the next decade, is making a foray into an exciting new frontier: collaboration between automotive and communication industries. The automated driving applications encompass unique connectivity requirements, and here, 5G stands out with a combination of ubiquitous coverage, millisecond latency, and geolocation services boasting accuracy in centimeters.

The 5G networking technology — along with the specialized dedicated short-range communications (DSRC) technique — is becoming a key ingredient in the connected car initiative that facilitates collaborative behaviors among cars, cyclists, and pedestrians. According to Gartner Research, there will be 250 million connected vehicles on the road by 2020.

Flexible Batteries For Powering Wearable Devices

Wearable electronics designers will be interested in a new Textile Lithium Battery from researchers at The Hong Kong Polytechnic University (PolyU). With a novel lithium battery technology, researchers have overcome several roadblocks, including energy density, flexibility, mechanical robustness, and cycling stability, associated with developing a bendable lithium battery.

With high energy density, high flexibility, and high reliability, the new Textile Lithium Battery could be used in applications ranging from smartphones and global positioning system (GPS) tracking to health-care monitoring and intelligent textiles as well as a variety of internet of things (IoT) projects.

Demonstrated specs of the new battery, which is less than 0.5 mm thick, include a high energy density of more than 450 Wh/L, high flexibility with a bending radius of less than 1 mm, and a foldability rating of more than 1,000 cycles with marginal capacity degradation. The technology also delivers a fast charging/discharging capability.

Flexible RFID ICs To Tackle Counterfeit Consumer Goods

Chinese packaging materials firm BSN intends to use flexible electronics firm PragmatIC's RFID ICs in a new printing facility focused on anti-counterfeit solutions for fast-moving consumer goods (FMCG), online sales, and pharmaceutical drugs.

BSN is part of the Baoshen Group, one of China's leading packaging material suppliers for footwear, apparel, bags, furniture, cosmetics and accessories, with an annual capacity of 7 billion print items and 1 billion RFID labels. PragmatIC's ConnectIC products will be used in BSN's new Eprint line of RFID products.

The ConnectIC family, released earlier this year, provides connectivity solutions using HF RFID proximity identification aimed at smart packaging, and targets markets such as food and beverage, personal and home care, pharmaceutical and healthcare.

Putting Neural Networks Back to Analog

Aspinity, a Pittsburg-based startup founded in 2015, is launching Tuesday a Reconfigurable Analog Modular Processor platform, or RAMP. The ultra-low power, analog processing platform is designed to first detect, analyze and classify raw sensor data — in the analog domain. Once it distinguishes data (a voice, an alarm, a change in vibrational frequency or magnitude, etc.) from background noise, RAMP hands off the data for digitization.

The upshot of this "analyze-first-in-analog" approach is that it "reduces the power required at the edge by up to 10x and the volume of data handled by up to 100x for always-on applications," according to Aspinity. The startup claims that RAMP can play a key role in battery-operated, always-on sensing devices for consumer, smart home, IoT and industrial markets.

Mike Demler, senior analyst at The Linley Group told EE Times, "RAMP's most distinctive feature is its extreme low power. Drawing just 10 microamps during active operation is quite a feat for an analog chip

East European News & Trends

Government-Owned Giants Buy Into Software Developer

CommIT Capital, a VC fund owned by Russia's national telecom operator, Rostelecom, and a venture investing arm of the VEB Bank called VEB Innovations have agreed to invest $4.6m in Brain4Net, a domestic software developer, Firrma.ru reported.

In this funding round, VEB Innovations is acquiring 13.3% of the developer, and CommIT Capital expects to get 6.7%.

In the previous round closed in August 2018, Brain4Net raised $2.5m from a consortium that brought together CommIT Capital and Typhoon Digital Development, another venture fund.

New contactless Device "sees" Through Human Tissues

Researchers at BioPhysMed-NN, a private company in Nizhny Novgorod, in the mid-Volga area, have developed a device that is said to be able to help diagnose one's damaged tissues. What appears to beat much of the existing competition is the ability of the instrument to "see" a damaged area from a distance, even through bandage or clothes. No physical contact with the body is required.

According to Dr. Andrey Martusevich who heads the company, it's microwave sounding that is at the heart of the development. Unlike conventional methods, such as X-ray or ultrasound, the technology helps pierce through any material, including those on heavily burned skin areas. Early diagnostics of melanoma (a skin tumor) is also possible. Prospective use of the technology may include cosmetic applications.

Russian AI-Enabled Teddy Bear Readies For U.S. Market

A new Russian edtech project called Mishka AI has successfully launched domestic sales of its toys and is planning expansion into the U.S. market by the beginning of next year, Firrma.ru reported.

Mishka AI is a smart stuffed toy with a built-in children's content supply platform powered by artificial intelligence technology.

The Mishka developer was fully sold out of its inaugural 1,200 toy batch back in March 2019, with Russia accounting for 90% of customers and the rest gone to the United States, Europe, and the former Soviet Union countries. At this point, the teddy bear "speaks" Russian only. Following $97,000 worth of starting sales, the Russian company hopes to sell another 10,000 teddy bears by the end of this year.

Telecom Colossus Invests In Safe City And Improved Environment

Rostelecom, the national telecom operator, announced the purchase of a 51% stake in a Russian company called KorKlass. The seller was Forpost, another domestic company owned by Anton Cherepennikov. The telecom operator opted not to disclose the deal's value.

KorKlass owns and develops a platform that enables the creation of a special hardware and software complex called "Safe City." Following the transaction the national operator now expects to boost its competencies in ensuring multi-strata public security and environmental safety.

The KorKlass products include data analysis centers to monitor Russian regions, tools to develop environmental monitoring solutions, and Internet of Things (IoT) solutions as part of broader smart city concepts

Yandex Steps Up Carputer Sales

Yandex, one of Russia's leading IT companies, earlier this summer launched carputer sales with preinstalled proprietary services through third-party retailers. MTS, a leading domestic telecom operator, is now Yandex's first retail partner, the Russian business daily Vedomosti reported.

Before the partnership Yandex was only selling carputers online all on its own.

MTS outlets are now offering a system that has both Yandex and MTS services preinstalled.

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, the Russian business daily Kommersant reported. 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.

World Economic Round Up

Donald Trump's obsession with currency manipulation has reached a new high. The president's latest tweet on the subject last week suggested the US should "match" what he called a "big currency manipulation game" played by Europe and China. Worryingly, his outburst followed recent moves by US institutions to focus more on currency manipulation.

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 2019

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

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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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