

# FutureHorizons



The Global Semiconductor Industry Analysts

## **Future Horizons Newsletter**

**March 2021**

## **Contents Page**

<b>Industry News by Company</b>	<b>Page 03 - 05</b>
<b>Industry News &amp; Trends</b>	<b>Page 06 - 07</b>
<b>East European News &amp; Trends</b>	<b>Page 08 - 09</b>
<b>World Economic Round Up</b>	<b>Page 10</b>
<b>Future Horizons &amp; Industry Events</b>	<b>Page 11</b>

## **Industry News By Company**

### **[IBM Brings 8-Bit AI Training to Hardware](#)**

At ISSCC, IBM Research presented a test chip which represents the hardware manifestation of its years of work on low-precision AI training and inference algorithms. The 7nm chip supports 16-bit and 8-bit training, as well as 4-bit and 2-bit inference (32-bit or 16-bit training and 8-bit inference are the industry standard today).

Reducing precision can slash the amount of compute and power required for AI computation, but IBM has a few other architectural tricks up its sleeve which also help efficiency. The challenge is to reduce precision without negatively affecting the computation's result, something IBM has been working on for a number of years at the algorithm level.

AI Hardware Center was set up in 2019 to support the company's target of increasing AI compute performance 2.5x per year, with an ambitious overall goal of 1000x performance efficiency (FLOPS/W) improvement by 2029. Ambitious performance and power targets are necessary since the size of AI models, and the amount of compute required to train them, is growing fast. Natural Language Processing (NLP) models in particular are now trillion-parameter behemoths, and the carbon footprint that goes along with training these beasts has not gone unnoticed.

### **[New Imotion™ Smartdriver Family IMD110 With Three-Phase Gate Driver Offers Integration And Flexibility](#)**

Munich, Germany – 16. February 2021 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNYY) introduces the new IMD110 SmartDriver series. The smart motor controller family combines the iMOTION™ Motion Control Engine (MCE) with a three-phase gate driver in a compact package. The integrated gate driver is based on the company's unique silicon-on-insulator (SOI) technology, it can drive a wide variety of MOSFETs and IGBTs in variable speed drives. The family uses the latest MCE 2.0, which provides a ready-to-use motor and, optionally, PFC control. Applying the MCE for controlling the motor, customers can focus on their system design. Key target applications are motors in major home appliances as well as fans and pumps.

Infineon's field-proven MCE 2.0 implements highly efficient field-oriented control (FOC) in sensorless or hall based motor inverters. The wide operating voltage of the SOI gate driver addresses battery and mains powered motors and delivers market-leading robustness and reliability. An integrated voltage regulator enables several supply schemes and helps to achieve a reduced bill of material (BOM). IMD110 devices are pre-certified for applications requiring functional safety according to UL/IEC 60730 (Class B).

### **[LF Energy And Sony CSL Partner On Green Energy Microgrid Initiative](#)**

LF Energy and Sony Computer Science Laboratories (CSL) have announced Hyphae, a microgrid initiative to automate peer-to-peer distribution of renewable energy. The goal of Hyphae is to make microgrids more efficient and the overall grid more carbon-neutral.

Microgrids are segments of larger grids that can disconnect from the larger grid to operate independently. One of the biggest benefit of microgrids is seen to be the resilience they can afford in response to grid disturbances or failures. They also provide a mechanism for attaching renewable energy systems to the grid at large.

In an interview with EE Times, Shuli Goodman, executive director at LF Energy, and Kotaro Jinushi, business development manager at Sony CSL (a subsidiary of Sony Corp.), highlighted how their collaboration directs the industrial market toward the goal of building an interoperable AC- and DC-ready microgrid that is autonomous, off-grid operational, and able to connect to an electrical distribution grid with utility oversight.

### **[Panasonic Set To Buy US Supply Chain Software Company For \\$6.5bn](#)**

OSAKA -- Panasonic is set to acquire U.S. software company Blue Yonder, which mainly focuses on supply chain management, Nikkei has learned. The deal is expected to cost about 700 billion yen (\$6.5 billion).

The Japanese company wants to expand hardware that combines software, sensors and other devices to help companies improve operational efficiencies.

The move marks a major change in the business model of the manufacturing industry, which until now has been based on selling goods.

Multiple sources familiar with the matter confirmed that negotiations are in the final stage, but added that there is still a chance the two sides will not reach an agreement.

### **[Renesas Targets IoT, Mixed Signal Expansion with Dialog Purchase](#)**

Renesas Electronics Corp. and Dialog Semiconductor said they have agreed to the former buying all the latter's share's for €4.9 billion in cash (about \$5.9 billion).

The agreement follows press speculation and holding statements issued by both companies separately on Sunday to confirm they were in talks. The companies said today the transaction has been unanimously approved by the boards of directors of both companies and is expected to close by the end of calendar year 2021, subject to regulatory clearance, including anti-trust in relevant regions, such as CFIUS, followed by UK a court hearing and sanction.

In a webcast today, Hidetoshi Shibata, president and CEO of Renesas, and Jalal Bagherli, CEO of Dialog, presented their rationale for the acquisition and answered questions from analysts. It was evident that Renesas is targeting expansion of its internet of things (IoT), power management, and connectivity solutions offer in conjunction with its microcontrollers.

## Class-D Amplifier For High-Definition Automotive Audio From Stmicroelectronics Adds Diagnostics For Safety Alerting

The HFDA801A from STMicroelectronics is a high-resolution audio amplifier that is specifically designed for compact, cost-effective automotive applications.

The HFDA801A is a 2MHz switching pulse-width modulation (PWM) Class-D amplifier with a quad-bridge configuration. An integrated high-performance digital-to-analog converter (DAC) ensures hi-fi quality sound under any load condition, with noiseless turn-on/turn-off and without creating any output artifacts. With a signal-to-noise ratio of 121dB, 120dB dynamic range, and only 10 $\mu$ V output noise, the HFDA801A delivers an extraordinary level of audio performance from an inexpensive small form-factor component.

The feedback configuration with integrated L-C low-pass filter provides an ultra-wide flat frequency response up to 80kHz and minimizes dependence on external components. The wide bandwidth allows use in high-definition (HD) audio applications, letting designers rely on excellent linearity and low distortion that are independent of the inductor and capacitor quality.

## **Industry News & Trends**

### **[RPM Developer Infinitesima Ships First 3D system](#)**

Infinitesima has built what it describes as a 3-D version of its rapid probe microscope (RPM). Infinitesima has shipped one of these new designs to Belgian technology consultancy Imec, which collaborated on its development.

The company's RPMs are used in semiconductor metrology. The RPM applies a probe microscopy technique that, the company suggests, enables much faster data acquisition rates. The RPM is said to use a "fundamentally different" atomic force measurement technique that, when combined with an interferometric measurement system, can achieve picometer precision and speeds greater than 10x faster than those achieved by conventional atomic force microscope (AFM) techniques.

Jenny Goulden, Infinitesima's product marketing director, told EE Times "a commercial product that incorporates this functionality will be launched in the fourth quarter of 2021."

### **[Assessing Technologies For A Social Distancing Wearable](#)**

Social distancing is a cornerstone of COVID-19 mitigation; it continues to play a vital role in reducing the risk of virus exposure and spread. While world health authorities have established that 6 feet (2 meters) is a safe distance, designing devices to assist consumers with social distance awareness and alerts has proven challenging because their core functionality relies on accurate, low-latency distance measurements.

In a recent collaboration, Altran worked together with semiconductor company Renesas to develop an intelligent wearable device/platform and prototype a social distancing wristband based on ultra-wideband (UWB) technology. The wristband alerts the wearer when a second device is detected within a user-specified "safe" distance. This article shares insights from phase one of that project: the process of evaluating wireless protocols to meet requirements for accurate distance measurement while keeping other key platform requirements, such as power efficiency, size and user experience, in balance.

### **[Altium And AWS Collaborate To Advance Electronic Design](#)**

Altium LLC is committed to bringing transformation to the electronics industry through a digital platform that connects design to the supply chain and the manufacturing floor. To achieve this goal, Altium selected Amazon Web Services (AWS) to host Altium 365, the cloud platform for collaborative printed-circuit board (PCB) design and realization.

The Altium 365 cloud-based platform and Altium Designer elevates PCB design by creating seamless collaboration points across the development process, making it the most connected design experience in the industry. This streamlines the product development process and allows engineers and designers to create smart and connected electronic products faster than ever before.

With Altium 365, users can bring together the stakeholders and participants in the electronic design process — even if they do not have Altium Designer — while keeping IPs secure and designs under control. Altium 365 provides a completely new way to share, visualize, and mark up PCB designs for all stakeholders involved, from design managers to manufacturers, while allowing other designers to connect to the same PCB design with Altium Designer to author changes.

### **Automakers Will Go Fabless**

Today, no one would question a semiconductor company that designs but doesn't make its own chips. How is that different from an automaker that designs but doesn't make its own cars? It isn't. Automakers will go fabless.

As AMD co-founder and past CEO Jerry Sanders once remarked “Real men have fabs.” The only conclusion I draw from that statement is that semiconductor fabrication is perhaps the one example in nature of human males competing for bragging rights as to who has the smallest feature size.

I imagine Lisa Su, AMD's CEO since October 2014, has never lost sleep over the company's now “fabless” status and considering the share price performance under Su's tenure, neither have AMD's shareholders. Taking the short ride from AMD headquarters in Santa Clara, California, to Apple in Cupertino, we find Tim Cook presiding over a company with a greater than \$2 trillion market capitalization which also has no semiconductor fabs. I suspect he loses no sleep over this either.

## **East European News & Trends**

### **Sberbank To Breathe New Life In Deceased Russian Hybrid?**

Sberbank, Russia's largest savings bank, has taken over Yo-Engineering, the developer of a widely touted and then abandoned Russian hybrid car project called Yo-Mobil, the Russian business daily Kommersant reported.

Yo-Engineering CEO is Andrei Ginzburg who once led the development of the Yo-Mobil. Prior to the deal the owner of Yo-Engineering was KG Impex, an electric vehicle developer based in Belarus.

Sberbank has reportedly confirmed the closing of the transaction; no information regarding its value has been disclosed at this stage.

The bank expects to use the newly acquired team and its competencies to support the development of Sberbank's self-driving technology platform called Sber Automotive Technologies (SberAutoTech).

### **Russia's Cryptocurrency Industry Expands**

Russian business players have recently imported the largest-ever shipment of IT equipment into the country. The equipment is used for earning cryptocurrency – a computer process referred to as “mining,” the Russian business daily Kommersant reported.

An estimated \$60m worth of equipment can purportedly support Russia's entire cryptocurrency mining industry for three months. The equipment's origin has not been disclosed.

Large purchases of cryptocurrency mining equipment are unusual due to risks related to cryptocurrency's changing value. Some experts have attributed Russia's purchase to an increasing global shortage of mining equipment and cryptocurrency's growing value in recent months.

### **Russian Company Builds Domestic Servers On Intel Architecture**

Sitronics, a Russian telecom equipment maker, is reportedly investing \$2.7m in R&D and manufacture of its proprietary servers that would use Intel chips.

A spokesman for Sitronics was quoted as saying foreign chips have been chosen because Russian ones “do not meet technical requirements yet.”

The investor has plans to set up production on the premises of Element, an asset of Rostec, the government-owned umbrella company for technology development, and AFK Sistema, a large domestic private company. An inaugural production run is scheduled for the first six months of this year, followed, hopefully, by serial production on an as-ordered basis. Sitronics believes its future servers will be in demand across Russia's telecom sector and government customers.



## Drones That Fly On Liquid Nitrogen?

Researchers at the University of Samara in the Lower Volga region are working on new power systems that use nonconventional fuel, the Russian news daily Rossiyskaya Gazeta reported.

Their new cryogenic engine is expected to use liquid nitrogen or liquefied natural gas as fuel. The developers believe it's an ideal engine to propel eco-friendly motor vehicles in protected natural reserves and also drones for a range of special operations.

With the system, drones could stay invisible for infrared tracking devices as they wouldn't leave thermal traces in the sky—unlike the current drones that are propelled by internal combustion engines or electric motors. The new power system project may take three-to-four years to complete.

## **World Economic Round Up**

The The Federal Reserve (Fed), won't raise rates until its goals of maximum employment and sustained 2 percent inflation have been reached—a scenario officials have described as a long way off. The updated economic projections Fed officials will release Wednesday, after the conclusion of the policy meeting, should show they expect the labour market and inflation to rebound faster than they anticipated in December. The European Central Bank will step up efforts to contain borrowing costs that have surged amid brighter prospects for the U.S. economy and a relaxed stance from the Federal Reserve, aiming to shore up the flagging eurozone economy. A sluggish rollout of Covid-19 vaccines in continental Europe has triggered a return of social restrictions that are delaying the region's recovery from last year's historic downturn, even as a US\$1.9 trillion fiscal stimulus looks set to turbocharge U.S. economic growth.

*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 – March 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](mailto:mail@futurehorizons.com)*

[Download Future Horizons Full Events Calendar Here](#)

### **Industry Events**

- 

**MARK YOUR CALENDER FOR THE NEXT**

**SILICON CHIP INDUSTRY WORKSHOP**

**March 2021**

**AND**

**INDUSTRY FORECAST BRIEFING**

**September 2021**

**BOTH BEING HELD AT**

**HOLIDAY INN KENSINGTON FORUM, LONDON**

**Follow Us On Twitter**

For weekly semiconductor news and updates follow us on Twitter.

Future Horizons Ltd, • Blakes Green Cottage, Stone Street Seal TN15 0LQ • England 11

Tel: +44 1732 740440 • Fax: +44 1732 740442

Affiliates in Europe, India, Israel, Japan, Russian, San Jose California, USA

e-mail: [mail@futurehorizons.com](mailto:mail@futurehorizons.com) • [www.futurehorizons.com](http://www.futurehorizons.com)