FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

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Contents Page

Industry News By Company

Dialog Semiconductor to Acquire Creative Chips adding Industrial IoT Products to its Portfolio

Dialog Semiconductor plc (XETRA:DLG), a leading provider of power management, charging, AC/DC power conversion, Wi-Fi and Bluetooth(R) low energy technology, today announced it has signed a definitive agreement to acquire Creative Chips GmbH, a prominent supplier of Integrated Circuits (ICs) to the Industrial Internet of Things (IIoT) market.

Headquartered in Bingen close to Frankfurt, Germany, with an additional design center in Dresden, Creative Chips is a fabless semiconductor company with a growing IC business supplying a broad portfolio of industrial Ethernet and other mixed-signal products to top-tier, blue-chip manufacturers of industrial and building automation systems. The technology is optimized to efficiently connect large numbers of IIoT sensors to industrial networks. Building on its long-established custom IC business, Creative Chips is also developing a range of highly complementary standard IO-Link IC products, driving broader connectivity in the Industry 4.0 revolution.

New Technology For Mature Applications: CoolSiC™ MOSFET Evaluation Board For Motor Drives Up To 7.5 kW

Munich, Germany – 6 November 2019 – Silicon carbide (SiC) is en route to mainstream for applications like photovoltaic and uninterruptable power supplies. Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) is now targeting the next group of applications for this wide bandgap technology: The evaluation board EVAL-M5-E1B1245N-SiC will help to pave the way for SiC in motor drives and help strengthening Infineon's market position as #1 for industrial SiC. It was developed to support customers during their first steps in designing industrial drives applications with a maximum of 7.5 kW motor output.

The evaluation board comprises an EasyPACK™ 1B with CoolSiC™ MOSFET (FS45MR12W1M1_B11), a 3-phase AC connector, EMI filter, rectifier and a 3-phase output for connecting the motor. Based on the Modular Application Design Kit (MADK) the board is equipped with the Infineon standard M5 32-pin interface which allows the connection to a control unit such as the XMC DriveCard 4400 or 1300. Its input voltage covers the range of 340 to 480 V AC.

The new member of the MADK family is optimized for general purpose drives as well as for servo drives with very high frequency. It features the EasyPACK 1B in Sixpack configuration with a 1200 V CoolSiC MOSFET and a typical on-state resistance of 45 mΩ. The power stage contains sensing circuits for current and voltage; it is equipped with all assembly elements for sensorless field oriented control (FOC). The EVAL-M5-E1B1245N-SiC has a low inductive design, integrated NTC temperature sensors and a lead-free terminal plating, which makes it RoHS compliant.

CoolGaN Infineon Expands Its CoolGaN™ Portfolio With Two Industrial-Grade Devices: The 400 V And The CoolGaN 600 V

Munich, Germany – 29 October 2019 – Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) broadens its CoolGaN TM series with two devices. The CoolGaN 400 V device (IGT40R070D1 E8220) is tailored for premium HiFi audio systems where end users demand every detail of their high resolution sound tracks. These have been conventionally addressed by bulky linear or tube amplifiers. With the CoolGaN 400 V switch as class D output stage, audio designers are able to deliver excellent listening experience to their prospective audio fans. The CoolGaN 600 V industrial-grade device (IGLD60R190D1) enables performance and cost optimization for low- and mid-power applications, such as in the area of low-power SMPS and telecom rectifiers. Every product within the Infineon CoolGaN family meets JEDEC standards.

The CoolGaN 400 V switch enables smoother switching and more linear class D output stage by offering low/linear C oss, zero Q rr, and normally-off swich. Ideal class D audio amplifiers offers zero percent distortion and 100 percent efficiency. What impairs the linearity and power loss is highly dependent on switching characteristics of the switching device. Infineon's CoolGaN breaks through the technology barrier by introducing zero reverse recovery charge in the body diode and very small, linear input and output capacitances. The resulting benefit to the end users is more natural and wider soundstage audio experience.

SoftAtHome and Qualcomm Technologies Team up to Transform Home Gateways into 5G-Ready Services Platforms

SoftAtHome (G22), a leading software company for connectivity, pay TV, smart home and analytics today announced that SoftAtHome software products can be integrated and supported on the Qualcomm® Networking Pro 1200 platform, and are on display in both Companies booths at BBWF 2019.

The Qualcomm Networking Pro 1200 platform is designed to offer the most complete set of Wi-Fi networking capabilities for today's complex and densely populated connected home environments. With SoftAtHome's connected-home products (Connect'ON, Wifi'ON, Secure'ON and Eyes'ON) integrated, the combined solution can deliver best-of-breed ultra-broadband services and wireless connectivity solutions. These include advanced data analytics available to broadband carriers and deployed in a wide range of carrier gateways and extenders managed by SoftAtHome software.

Samsung Electronics Develops Industry's First '12-Layer 3D-TSV' Packaging Technology

Samsung Electronics has also secured semiconductor packaging technology that will distance itself further from its competitors. It developed '12-layer 3D TSV (Through-silicon via)' technology that increases the capacity of a memory while maintaining the size of a chip.

Samsung Electronics announced today that it has developed the industry's first 12-layer 3D-TSV technology. This technology stacks and interconnects 12 DRAM chips that have the thickness of less than half of the thickness of a paper so that they can exchange electric signals with each other.

This technology is mostly used for packaging HBMs (High Bandwidth Memory). Unlike current DRAMs, HBM is directly attached to the side of a CPU or a GPU and helps with processing information. Its major role is to reduce power consumption and increases operation speed of a CPU. As a result, next-generation HBM needs to implement high capacity even through limited chip size.

8-layer 3D-TSV was the highest number of layers until Samsung Electronics has come out with 12-layer 3D-TSV technology. Through 12-layer 3D-TSV technology, capacity of a HBM is now increased by 1.5 times while the size of a chip remains the same.

Industry News & Trends

Silicon Carbide: A Tug-Of-War

Silicon carbide (SiC) has excellent properties as a semiconductor material, especially for power conversion and control. However, SiC is extremely rare in the natural environment. As a material, it was first discovered in tiny amounts in meteorites, which is why it is also called "semiconductor material that has experienced 4.6 billion years of travel."

Yole Development's recently published "Power Silicon Carbide (SiC): Materials, Devices and Applications - 2019 Edition" report predicts that, by 2024, the market for SiC power semiconductors will grow to $2 billion by 2024, at an annual growth of 29%. The automotive market is undoubtedly the foremost driver, with around 50% of total device market share in 2024.

Kneron Reveals Customers, Teases Next-Gen AI Chip

Kneron, the San Diego and Taipei-based AI algorithm, core IP and fabless chip company, is working with industrial PC manufacturer Aaeon to create an AI accelerator card for edge applications based on the company's first chip, the KL520. The M2AI-2280-520 card will accelerate AI models in IoT, smart home, security and mobile devices.

Aaeon is the first company to announce it is using the KL520, while Kneron has previously announced customer wins for its facial recognition model, including systems integrator TIIS, which has built it into a security system for the public banks of Taiwan. Company sources said that Kneron made around $5 million in revenue in 2019, a stark contrast to many edge AI chip companies who are not yet market-ready.

"Aaeon has used our chip and put it into a form factor that's easy to insert into a pre-exisiting design," said Kneron chief commercial officer Adrian Ong.

Brain Implant Mobilises Tetraplegic

Seemingly the stuff of science fiction, a laboratory in Grenoble, France, has developed an implantable wireless device which has enabled a 28-year old tetraplegic patient to walk and control both arms using a brain computer interface and exoskeleton. In the long term, this technology is expected to give greater mobility to individuals with severe motor disabilities.

Tetraplegia is caused by a lesion on the spinal cord that prevents the nervous system from controlling all four limbs. To return mobility to patients with this disability, medical doctors, physicians and researchers at Clinatec, the CEA laboratory in Grenoble operated within Grenoble university hospital, have developed a device to control a four-limb exoskeleton that records and decodes brain signals. The device, developed at CEA, is an implant; it records brain activity in real-time and those impulses are used to drive the exoskeleton.

For the first time, the tetraplegic patient was able to walk and control both arms using this neuroprosthetic which records, transmits, and decodes brain signals. The results of the clinical study under the Brain Computer Interface (BCI) Project at Clinatec were published last week in The Lancet Neurology journal.

Print-In-Place Technique Allows For Printed Electronics On Skin

Electrical engineers at Duke University announced that they have developed a fully print-in-place technique for electronics that can work on sensitive surfaces such as human skin and paper. The new techniquecould advance medical devices printed on materials such as skin or bandages that include biosensors and embedded electronic tattoos.

“For direct or additive printing to ever really be useful, you’re going to need to be able to print the entirety of whatever you’re printing in one step,” said Aaron Franklin, the James L. and Elizabeth M. Vincent Associate Professor of Electrical and Computer Engineering at Duke, in a press release. “Some of the more exotic applications include intimately connected electronic tattoos that could be used for biological tagging or unique detection mechanisms, rapid prototyping for on-the-fly custom electronics, and paper-based diagnostics that could be integrated readily into customized bandages.”

University Develops AI That Tracks Suspects Between Cameras

LONDON — A novel neural network developed at the University of Surrey for the re-identification of people in video surveillance footage is small enough to be deployed on edge devices such as security cameras, its inventors say. They also claim it is more adept at the task than human camera operators.

The new neural network, OSNet, uses 2.2 million parameters, a very small number in the context of deep learning. Many other person re-identification (ReID) networks are based on the classic image recognition algorithm ResNet-50, which uses 24 million parameters.

This means it can be done on the edge, instead of in the cloud, which would save bandwidth that otherwise would have been consumed by transmitting large quantities of video footage to the data centre.

Should a Smartphone Control Your Car?

Smartphones already rule our lives and the world we live in. But should they also take over safety-critical systems?

You may not be as glued to your phone as a certain Twitter-addicted President we could name, but face it: we all know you don’t leave home without it.

For apps developers and hardware system engineers, the ubiquity of smartphones naturally makes the device a compelling platform to run their apps and control their systems.

Smartphones can already lock up houses and cars remotely, as well as turn the lights on and off, and manage the window shades. We use them to answer the door and monitor heart rates.

The Importance Of Thermal Management For Power Devices

Understanding the thermal performance of integrated circuits, whether they are microcontrollers, FPGAs, or processors, has always been essential to avoid the overheating that can cause circuit malfunctions. The miniaturization of electronic systems and the diffusion of components that generate a lot of heat, such as LEDs, make the role of thermal analysis more and more important as a tool to guarantee the good functioning and reliability of products.

Unfortunately, however, the electronics industry does not yet seem to be fully prepared for this new challenge: in fact, component manufacturers often provide very scarce information on the thermal behavior of their devices, sometimes limiting themselves to the simple fact of dissipation overall expressed in Watts. In all this, software solutions allow solving design problems at a thermal level to improve performance.

East European News & Trends

5G Operators Pushed To Use Domestic Hardware That Has Yet To Emerge

The Russian Government recently approved a roadmap under the National Project on Digital Economy which requires that Russian operators of fifth-generation telecom networks (5G) use domestic servers.

The rationale behind the decision is that funds allocated for the Digital Economy should be used to support domestic producers rather than "go to foreign companies," the Russian business daily RBC reported, citing government sources with knowledge of the developments.

The Cabinet plans to spend $10bn to develop 5G networks in Russia by 2024. In addition to supporting domestic producers, using domestic server equipment is expected to protect 5G operators from possible sanctions-related disruptions in imported component supplies.

Kaspersky Lab Develops Anti-Drone System

Kaspersky Lab, a Russian IT company, has unveiled a system that can protect a corporate or household owner's territory against drone intrusion, Nplus1.ru reported.

The new system is said to be able to spot an approaching drone using cameras, radar, lidar or microphones, identify the type/model of the drone, and send towards it radio noise that disrupts its connection with the operator and causes it to land.

The solution can monitor a range of objects simultaneously; however, one neutralization station can only disrupt the operation of one drone that flies singly, or several of those if they fly in a pack—it's because the system's antennas create a narrowly channeled signal.

American Start-Up Opens R&D Office In Moscow

A U.S. computer vision start-up called Occipital is launching an R&D office in Moscow. To make it possible, it has absorbed the team of GeoCV, a start-up with Russian roots, EWDN reported.

"By joining the teams we will enable new computer vision applications, which bring value to consumers and businesses," said Gleb Krivovyaz, GeoCV co-founder and CTO.

"Teaching devices to see and understand the world in 3D is a fundamental element for the next era of computing [of which] we're just scratching the surface," he added.

According to the U.S. company, it is not acquiring GeoCV as a company and does not intend to support its products. The ex-GeoCV team will instead "be focused on advancing existing Occipital product lines."

Sberbank And Microsoft Pool Efforts In Artificial Intelligence And Robotics

Sberbank and Microsoft Research (MSR) announced a joint project that will research into ways of using Microsoft artificial intelligence (AI) solutions in robotics. The goal of this project is to train robots to interact with physical objects the way humans do.

Research engineers from Sberbank will be working alongside their MSR colleagues in Redmond, U.S. The team is set to look for optimal ways of controlling manipulators. At the core of the effort is Microsoft's AI platform that offers a combination of machine learning (including reinforcement learning) and simulation modeling in virtual reality to create autonomous AI systems capable of operating in real world.

Reinforcement learning is an area of machine learning where software agents learn by interacting with an environment, natural or virtual, which acts as "coach".

Russia Steps Up Support Of Cutting-Edge Tech

RVC, Russia's government-owned fund of funds for innovation, announced the start of a new competition to pick partners eligible for government grants. This time, the grantees will be what RVC refers to as "leading research centers" (LRCs) and "corporate leaders", or LRCs' industrial partners, which form partnerships to develop products, services and platform solutions based on disruptive digital technologies.

These advanced tech priorities include artificial intelligence, big data, robotics, sensors, quantum tech, distributed ledger systems, wireless communications tech, disruptive manufacturing processes, virtual and augmented reality, and some others.

The new RVC program will benefit Russian-based researchers that have international collaboration experience in advanced tech focused R&D.

World Economic Round Up

Russia's central bank has cut its key interest rate from 7 to 6.5 percent, citing a sharp drop in inflation amid tepid economic growth. The cut was the fourth this year, but came in at twice the size of the three previous ones, surprising a majority of analysts who had expected a 0.25 percent reduction. The reduction was the largest in two years and took rates to their lowest level since before the 2014 Russian financial crisis, when governor Elvira Nabiullina raised them to 17 percent and switched the rouble to a free float

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 2020

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – 16th March 2020
- Industry Forecast Briefing, London – 15th January 2020

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 16th March 2020
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 15th January 2020

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

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