FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

June 2022

Contents Page

Industry News By Company

Major Milestones For Arm Systemready In Driving Ecosystem Standards

The data center market is a thriving and innovative one, but to continue to scale the industry needs to tackle issues around fragmentation, finding the right balance between standardization where it makes sense, and differentiation where it matters. Arm introduced the SystemReady program in 2020 to address these challenges, supported by a broad set of partners from across the ecosystem. SystemReady provides a formal set of compute platform definitions to cover a range of systems from the cloud to IoT and edge, helping software 'just work' seamlessly across a vibrant, diverse ecosystem of Arm-based hardware.

Today, we're sharing some significant milestones for the SystemReady program, including some exciting "firsts" in the Arm-based server and virtual machine space:

Astrocast buys Hiber to boost IoT business

Astrocast has agreed to acquire all of Hiber's shares, and Hiber's shareholders also agreed to invest €10.45m in Astrocast's upcoming public offering.

Hiber provides asset monitoring and tracking solutions to industrial customers, through satellite-connected devices that allow customers to monitor and track assets in remote locations. Its services include wellhead monitoring for major oil and gas companies and asset tracking for off-grid worksites in sectors such as agriculture, forestry, and mining. Its business model is based on multi-year subscriptions covering sensors, network hardware, satellite connectivity and a dashboard.

The acquisition of Hiber expands Astrocast's distribution strategy by establishing a direct-to-end user sales channel and ccelerates Astrocast's OEM strategy by increasing the development of additional satellite-enabled IoT devices

Infineon And Pmdtechnologies Develop 3D Depth-Sensing Technology For Magic Leap 2 – Enabling Advanced Cutting-Edge Industrial And Medical Applications

Munich, Germany – 30 May 2022 – Augmented reality (AR) applications are about to fundamentally change the way we live and work. Later this year, AR pioneer Magic Leap is expected to introduce its newest AR device, the Magic Leap 2. Designed specifically for enterprise use, Magic Leap 2 will be among the most immersive enterprise AR headsets in the market. With industry-leading optics and powerful computing in an ergonomic design, Magic Leap 2 will enable operators to work more efficiently, help companies optimize complex processes, and allow staff to seamlessly collaborate. One of the key features of Magic Leap 2 is the 3D indirect-Time-of-Flight (iToF) depth sensing technology that was co-developed by Infineon Technologies AG (FSE: IFX / OTCQX: IFNNY) and pmdtechnologies ag (pmd).

Magic Leap 2 demonstrates the potential of the REAL3™ 3D Image Sensor. The new and improved IRS2877C Time-of-Flight imager captures the physical environment around the user and helps the device to understand and finally interact with it. Thanks to the 3D imager's VGA resolution, many different objects can be detected in detail**.**

Renesas To Buy Reality AI For Embedded And Tinyml Products In Non-Visual Sensing

Tokyo-based Renesas Electronics will acquire Reality Analytics (Reality AI) of Columbia, Maryland, in an all-cash transaction, the companies announced Thursday.

News of the deal sent Renesas shares down 2%. Shares dropped 8% over the last five days reaching $5.36 late Thursday.

The deal is expected to close by year's end and has been approved by the boards of both companies. Renesas was founded in 2002 and has nearly 21,000 employees. Reality was founded in 2016 and lists a staff of eight officers on its website.

Renesas said in a statement that the acquisition will enhance its endpoint AI capability to help system developers make their products ready for what it calls the Artificial Intelligence of Things. Renesas now makes software to allow AI to be embedded into its low-power microcontrollers and microprocessors.

Buying Reality AI will allow Renesas to expand its in-house ability to provide hardware and software endpoints for the industrial internet of things, consumer and auto applications.

Reality offers embedded AI and tinyML products for non-visual sensing in auto, industrial and commercial products. It also provides Reality AI Tools software to support this non-visual sensor data.

SiPearl, the Euro-processor designer, has agreed to joint technical and business development with Nvidia.

The companies will develop a proxy platform for porting activities and SVE workload analysis combining the strengths of SiPearl CPU (such as HBM memory) and NVIDIA GPU (including massive parallelism and throughput).

The collaboration will include joint efforts with third-party European research institutions on elements such as SoC and NoC simulation capabilities in open-source and research-oriented modeling tools.

On the software side, the two companies will accelerate the development and growth of the Arm HPC ecosystem working closely with several European Centres of Excellence.

On the hardware side, the companies will work together to make sure the Nvidia accelerated computing and networking portfolio continue to work seamlessly with SiPearl ‘Rhea’ and future CPUs.

.

Industry News & Trends

BOE Yet To Receive Approval From Apple To Manufacture Iphone 14 OLED Panels

BOE is yet to receive approval from Apple to manufacture OLED panels for the upcoming iPhone 14 smartphones series, TheElec has learned.

The company was caught having changed the circuit width of the thin film transistors on the OLED panels it made for iPhone 13 earlier this year, people familiar with the matter said.

This was done without Apple's approval in a likely bid to increase the yield rate, they said.

BOE could not receive any orders from Cupertino for OLED panels on the iPhone 14 series because of this, they added.

The Chinese display panel sent a C-level executive and employees to Apple's headquarters following the incident to explain why they changed the circuit width of the transistors.

Migrating Manufacturing To Industry 5.0 With The Help Of 5G

A private 5G network with connections to sensors to automate, monitor and provide predictive maintenance for factory equipment is now installed at the Digital Manufacturing Institute and the National Center for Cybersecurity in Manufacturing (MxD) in Chicago, where it will serve as a real-world model for companies investigating the potential benefits of Industry 4.0 technologies and applications.

The network, covering MxD's Factory Floor Lab, is one of the first indoor private 5G deployments in the U.S., according to Betacom, a provider of private 5G wireless networks and managed services, which installed the 5G network in partnership with Airspan Networks, a 5G radio access network vendor, and Druid Software, a provider of 5G core software. Betacom is managing the network for MxD through its cloud-based Security and Service Operations Center (SSOC) built on Zero Trust security design principles.

Ultra-Thin Electrode For 1nm Atomic Transistors

Researchers in Korea have developed a 2D electrode that can be used for the next generation of 2D atomic transistors with features smaller than 1nm.

The team at the Korea Institute of Science and Technology (KIST) led by Dr. Do Kyung Hwang of the Center for Opto-Electronic Materials and Devices and Professor Kimoon Lee of the Department of Physics at Kunsan National University (President: Jang-ho Lee) succeeded in implementing two-dimensional semiconductor-based electronic and logic devices controlled by a new ultra-thin electrode material (Cl-SnSe2).

This is a breakthrough as it allows single device performs the functions of both N-type and P-type devices, so there is no need to manufacture the N-type and P-type devices separately.

First Room-Temperature Quantum Computer In Supercomputing Centre

The world's first room-temperature diamond-based quantum computer, developed in Germany, has been installed on-site in a supercomputing facility in Australia.

The installation at the Pawsey Supercomputing Research Centre uses a rack mounted quantum computer developed by German-Australian start-up Quantum Brilliance. This uses a synthetic diamond chip with nitrogen vacancies to provide the quantum processing.

This is the first integration of quantum computing systems in a supercomputing centre, and will be used to demonstrate and test hybrid models of quantum and classical computing by pairing the quantum accelerator with Setonix, Pawsey's HPE Cray Ex supercomputer.

Broadcom Aims For Full Stack With VMware

This week saw another big acquisition story with news that Broadcom intends to buy VMware for $61 billion. This is clearly a push by Broadcom to go full stack from processor to application, but is this going to be a good strategy, given the competition from players like Red Hat or the Kubernetes approach?

Under the deal, Broadcom Software Group will rebrand and operate as VMware, incorporating Broadcom's existing infrastructure and security software solutions as part of an expanded VMware portfolio. Broadcom said the acquisition will advance its strategy to "to build the world's leading infrastructure technology company, with track record of acquiring established, mission-critical platforms."

VMware is an established provider of multi-cloud services and virtualization technology, an innovation it says positively transformed x86 server-based computing. VMware played a key role in the software-defined data center, and in virtualizing networking and storage, before evolving to a hybrid cloud and digital workspace.

Arm Aims New Image Signal Processor At Iot Embedded Computer Vision Apps

Computer vision is almost always the first application that comes to mind when anyone starts talking about industrial IoT applications, and its increasing appeal means that image sensing and processing capabilities need to be embedded in a variety of device form factors and footprints.

Mohamed Awad, VP of IoT and Embedded at Arm said in a blog post this week that the company kept that in mind while developing the Mali-C55 image signal processor, what he described as the smallest and most configurable image signal processor from Arm. The successor to the Mali-C-52, the new processor covers just half the silicon area size of previous product generations, he said.

Already licensed by Japan's Renesas Electronics, an existing Arm customer for IoT-focused processors, the Mali-C55 supports multi-camera capability for up to eight separate inputs, image resolutions up to 8K and a maximum image size up to 48 megapixels, with low power consumption, translating to lower costs. Combining multiple units allows for applications like video conferencing. The Mali-C55 also works under a variety of lighting and weather conditions, and can process images of fast-moving objects to such a degree that it can read a license plate on a car going 75 mph.

East European News & Trends

InGaAs/AlGaAS Nanowires On Slicon

Researchers based in Russia report on molecular beam epitaxy (MBE) of indium gallium arsenide (InGaAs) quantum dots/wires (QDs/QWs) in aluminium gallium arsenide (AlGaAs) nanowires (NWs) on silicon (Si) "for the first time" [Rodion R. Reznik et al, Phys. Status Solidi RRL, p2200056, 2022].

The research team at St. Petersburg State University, Alferov University, Institute for Analytical Instrumentation RAS, Ioffe Physical Technical Institute RAS, and National Research University Higher School of Economics, have previously studied MBE synthesis of GaAs QDs inside AlGaAs nanowires on silicon.

The researchers comment that these hybrid nanostructures were effective sources of single photons in a wavelength range of 750–800nm. Thus, they constitue "promising candidates for use in quantum cryptography and alkali metal (e.g. rubidium or cesium)-based atomic clock adjustments."

Russian Team Develops Novel Material For Storage Batteries

Researchers at the Center for Energy Science and Technology, which is a department of Skoltech University in Moscow, have offered a simple and scalable method of increasing the capacity of a wide range of cathode materials to be used in metal-ion storage batteries.

Research results may find their way into a possible new generation of advanced rechargeable energy storage devices.

At the core of the new approach is treating cathodes with reducing agents solutions, specifically alkali metal salts derived from aromatic molecules. Several types of such agents that come from substances like naphthalene were proven to be suitable.

New Russian Man-Made Hip Joint May Never Require Replacement

Scientists at the Perm Polytechnic University in the West Urals are reported to have developed an improved model of a hip joint endoprosthesis. Interim research results have been published in English in Journal of Machinery Manufacture and Reliability 2021.

The new prosthetic device consists of an organic part, which comprises a carbon fiber based composite and phenol-formaldehyde resin as a binder, and a metallic part (titanium).

In a comment on the research a scientific team member and engineering designer at Perm Polytechnic, Egor Razumovsky, said that the international competition typically taps no other material but metal alloys to make prostheses. They look good, but there's one problem. As different parts of such a prosthetic device rub and grind mechanically against each other as the person moves, this leaves microdust particles that cause inflammatory reactions in the surrounding tissue.

#

Cancer-Detecting Light-Emitting Proteins Developed

Russian scientists at the Krasnoyarsk Research Center and the Siberian Federal University have developed new artificial hybrid proteins that are capable of rapidly pinpointing oncology markers in a patient's blood.

If cancer is identified, the proteins are said to be able to proactively send out a bioluminescent signal a physician could use to diagnose the case.

Experiments reportedly revealed that the proteins were stable and active enough, and also impervious to negative temperatures.

World Economic Round Up

Compounding the damage from the COVID-19 pandemic, the Russian invasion of Ukraine has magnified the slowdown in the global economy, which is entering what could become a protracted period of feeble growth and elevated inflation, according to the World Bank's latest Global Economic Prospects report. This raises the risk of stagflation, with potentially harmful consequences for middle- and low-income economies alike. Global growth is expected to slump from 5.7 percent in 2021 to 2.9 percent in 2022— significantly lower than 4.1 percent that was anticipated in January. It is expected to hover around that pace over 2023-24, as the war in Ukraine disrupts activity, investment, and trade in the near term, pent-up demand fades, and fiscal and monetary policy accommodation is withdrawn.

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 2022

Future Horizons Events

- Silicon Chip Industry Training Seminar – London – March 2022
- Industry Forecast Briefing, London – September 2022

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

-

MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY March 2022
AND
INDUSTRY FORECAST BRIEFING
TUESDAY September 2022

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

Follow Us On Twitter

For weekly semiconductor news and updates follow us on Twitter.