FutureHorizons

The Global Semiconductor Industry Analysts

Future Horizons Newsletter

April 2020

Contents Page

Industry News By Company

30 Years Of Cadence India

It has been a journey of what I consider excellence in execution and innovation for us at Cadence India. Like many of the early multinational company entrants to the country, we started out in the late 1980s and early 1990s as a resource center for our corporate headquarters in the United States. This was the exploratory phase, focused on building the team, ramping up infrastructure, and showing we could succeed with a few selected projects.

The biggest challenge during this phase was the hiring of talent. When we visited campuses for this purpose, we discovered that not many students even knew about VLSI design, so training had to start from scratch. In 1994, we partnered with IIT Kanpur for a three-month training program, half of which was at the college and half at the Cadence office in Noida, near Delhi. After training, the new hires were deployed on projects we were working on for our parent.

The engagement with universities that began back then persists today. We currently have roughly 350 colleges and universities enrolled in the Cadence University Program in India. Globally, we reach more than 30,000 students each year through Cadence University Programs.

Ahren Innovation Capital Invests In Rockley Photonics

London and Oxford, 12 March 2020 – Rockley Photonics is delighted to announce Ahren Innovation Capital as an investor. Ahren is an investment fund that focuses on transformational companies at the intersection of deep tech and deep science. Its four broad fields of activity include the brain and artificial intelligence; genetics and platform technologies; space and robotics; and efficient energy. Ahren's goal is to build a new wave of transformational companies that will change the world for the better.

Rockley's silicon photonics platform enables fundamental advances to be made across multiple mega-trend markets. The technology has great potential within sensor applications, where low-cost integrated optics solutions are sought for applications in areas such as in machine vision and environmental sensing; use cases that will each have a significant positive impact on society. Its technology also boosts performance in high-density communications applications, such as datacenter compute connectivity, 5G infrastructure and AI cluster compute environments, where using photonics eliminates the performance constraints of traditional electrical connections.

Openlicht Is Developing The Light Of Tomorrow: Light Innovation Thanks To Open Source And Artificial Intelligence (AI)

Infineon Technologies AG is supervising the project in close cooperation with Bernitz Electronics GmbH, Deggendorf Institute of Technology and the Technical University of Dresden.

The results are now being made public and include the prototype of a smart lighting system based on artificial intelligence. It automatically adjusts the light in the room to the user's position and activity, such as reading or watching TV, learns the person's preferences and can even respond to a certain degree to circumstances it has not learned previously.

The solution developed in the project is based on open source approaches like openHAB, a smart home system, and machine learning libraries. Use of freely available development environments, software frameworks and low-cost hardware solutions enables integration of a wide range of different sensor data and further development of existing results by the community.

Silicon Labs to Acquire Redpine's Design Centre in Hyderabad

Silicon Labs said it will acquire Redpine Signals' Wi-Fi and Bluetooth assets, its development center of around 200 people in India and its extensive patent portfolio for $308 million in cash.

With the acquisition, Silicon Labs hopes to do two things. The first is to bring Redpine's existing products into the sales channel and drive IoT revenue growth. The company expects $20 million in incremental revenue on an annualized basis for FY2020, and targeting $100 million revenue by 2023 for all its wireless products for the IoT. The other is to rely on the India-based team to accelerate its product development for Wi-Fi 6.

The acquisition includes Bluetooth classic IP (including extended data rate) for audio applications including wearables, hearables, voice assistants and smart speakers. Silicon Labs told EE Times that as part of the deal, the company also acquired Redpine's microcontroller (MCU) business, along with real-time location services technology.

MagnaChip Sells Off Foundry Biz for $435M

MagnaChip Semiconductor Corp. said it is selling its Foundry Services Group and the larger of its two 8-inch wafer fabs to a pair of capital companies in a deal with a total value of about $435 million.

The buyer is a special-purpose company in South Korea established by the venture firms Alchemist Capital Partners Korea Co. and Credian Partners, Inc., specifically to buy those MagnaChip operations. SK Hynix is a limited partner (as is the Korean Federation of Community Credit Cooperatives).

Magnachip was formed in 2004 when SK Hynix spun out all of its non-memory IC operations. In the spinout, MagnaChip took with it a total of five wafer fabrication facilities. As of recently, it was down to three – the one it just sold, which is located in Cheongju, another in Cheongju, and the final one in Gumi.

The factory that MagnaChip is divesting is designated as Fab 4. Fab 4 is an analog and mixed signal fab that as of last August was responsible for over 70 percent of MagnaChip's total wafer manufacturing capacity, according to one source.

Industry News & Trends

Scottish Startup Hints At Holography Revival

ST. ANDREWS, Scotland — Holography is coming back. Not in the familiar sci-fi movie form of, for example, Princess Leia and R2D2, but as a commercial head-up display (HUD) for next-generation vehicles to aid drivers and passengers.

Armed with a digital mastering technology, Ceres Holographics, here, claims that its Holographic Optical Elements (HOE) hold the key to enable car OEMs and Tier Ones to design a HUD dreamed of since the 1980s. The automotive industry has been itching for a transparent display that can display navigation information on the windshield, sparing the driver the distraction of looking away from the road.

Ceres is confident that its holographic technology can overlay bright, wide field-of-view information onto a curved windshield, using a significantly smaller projector package than anyone has previously been able to develop.

Over the years, carmakers have tried various technologies to generate on-screen images, ranging from CRT and LED to "combiners" using optical waveguides. But none really took off, Ceres CEO Andy Travers told EE Times. "Conventional technology needs a projector package that's too big to fit inside a dashboard," he noted.

Brain-Inspired Chip Enables Efficient 'Electronic Nose

Researchers from Intel and Cornell University have developed an "electronic nose" system that can detect 10 different chemicals as accurately as a state-of-the art deep learning system, but with very little training required. The experiment shows that electronic nose systems could take advantage of neuromorphic computing's easy/quick training ('self-learning') and low power operation, and allows some interesting insight into one potential use case of neuromorphic technology.

Intel researchers, working with olfactory neurophysiologists from Cornell, built a system that uses Intel's Loihi neuromorphic chip to process the data from an array of chemical sensors. A neuroscience-derived algorithm developed by the team predicts whether chemicals such as ammonia, acetone and methane — chemicals which are associated with precursors to explosives, narcotics and certain polymers — are present. The test setup was able to "smell" these chemicals accurately, even in the presence of many other scents.

The test system was trained on a single sample of each smell, and each new target smell didn't affect the ability to detect smells the system previously learned. Compared to a state-of-the-art deep learning system, which required 3,000 samples of training data to reach the same prediction accuracy, training the neuromorphic system was much quicker and made use of the low-power nature of the hardware.

SMIC Graduating From 14nm To Something Sort Of Akin To 7nm

Published reports that SMIC is preparing a 7-nanometer production process are incorrect. The error is understandable, however, as it is based on favorable comparisons SMIC has been making between its newest process technology (called N+1) and rivals' 7nm processes.

With Donald Trump's trade war nowhere near a resolution, Chinese semiconductor designers are shut out of the world's most advanced manufacturing facilities. That puts pressure on Chinese foundries — particularly SMIC, the largest fabrication facility in China — to catch up. SMIC's most advanced line in production has a 14 nm process. Had the company jumped from 14nm to 7nm, that would have been an extraordinary leap.

That's not quite what's going on, however. During SMIC's recent fiscal year report conference, the company's co-CEO Liang Mong Song revealed a new version of the 14nm process the company calls N+1. A SMIC spokesman told EE Times China that N+1 was expected to go into limited production in the fourth quarter.

H Is For Hydrogen | And Holograms | And High Performance Computing

Supercomputers. The US Department of Energy just announced what will be the fastest supercomputer in the world by far. Supercomputing is a prestigious market, and a highly competitive one for the companies that make processing chips. With the latest round of new supercomputers, there was a clear – and somewhat unexpected – winner.

Also, holograms. They might be making a comeback, and we might seen be seeing them in our cars. We've got an interview with a company trying to make that happen.

And hydrogen energy. Climate change has to be mitigated, and Europe is determined to lead the way. We'll discuss a new program recently announced by the European Commission to encourage the development of hydrogen energy.

If Car Keys Are Apps, API Security Is Key

EDINBURGH, Scotland — Now that apps on smartphones have become the mother of all digital commerce, companies are feverishly rolling out app-based products and services – digital car key apps and car-sharing services, for example — that promise consumers optimum convenience with minimum hassle. The only fly in the ointment is security.

One way to combat the vulnerabilities now present in app-based digital car keys is to throw more hardware at the problem. Tech suppliers such as NXP Semiconductors are offering car OEMs automotive-qualified Secure Element and NFC chipsets, with plans for an extra layer of security in digital car keys by adding Bluetooth Low Energy (BLE) and Ultra-Wide Band (UWB). NXP is a member of the Car Connectivity Consortium (CCC), a cross-industry organization. The CCC is spearheading the automotive industry's initiative to standardize "smartphone-to-car connectivity" solutions.

East European News & Trends

Start-Up Tech Aids Remote Work And Training

As the COVID-19 pandemic is spreading and threatening to claim thousands of new lives, more and more regions move to a painful but unavoidable self-isolation regime. That makes it tremendously important for educational organizations of all levels and companies whose employees now have to work remotely from home to rapidly and successfully adapt to distanced interaction. Let's take a look at a couple of interesting projects that are being developed by resident start-ups at the Ingria Technopark in St. Petersburg.

A company called SpeakerGuru is offering virtual reality (VR) as an environment, in which to remotely train employees in soft skills —a combination of social skills, communication skills, attitudes, career attributes, etc. that enable people to work well with others and achieve their goals.

SpeakerGuru is working on custom VR solutions for professional development based on their multi-user VR technology. The team's product makes it possible for employees to learn and work together in virtual reality from anywhere in the world simultaneously.

Russian Start-Up Develops Coronavirus Test System

A young Russian company called DRD Biotech is developing an express test system to identify the coronavirus, the Skolkovo Foundation announced.

The new test system is said to require no extra equipment, take within ten minutes to complete, and cost about $1.25 apiece.

The Skolkovo Foundation is helping its resident company by facilitating access to the blood specimens of patients positively diagnosed for the Covid-19; by making sure the future test system rapidly undergoes all registration procedures and government testing rounds, including clinical trials; and by streamlining customs procedures to deliver reagents from the afflicted regions of China, the U.S., and Europe.

Russian Microchips Come As Competitor To Intel Products?

Syntacore, a domestic developer of next gen microprocessors and microcontrollers based on RISC-V open-source architecture, is making chips that are believed to have the potential to challenge the solutions currently used widely in computers and mobile devices.

The team thinks that RISC-V could come as a competitive alternative to such global standards as Intel's x86, used in chips for laptops and some servers, and ARM, Ltd.'s ARM that powers smartphones and lots of other consumer electronic gadgets.

World Economic Round Up

With each passing day, the 2008 global financial crisis increasingly looks like a mere dry run for today's economic catastrophe. The short-term collapse in global output now underway already seems likely to rival or exceed that of any recession in the last 150 years. Even with all-out efforts by central banks and fiscal authorities to soften the blow, asset markets in advanced economies have cratered, and capital has been pouring out of emerging markets at a breathtaking pace. A deep economic slump and financial crisis are unavoidable. The key questions now are how bad the recession will be and how long it will last. Until we know how quickly and thoroughly the public-health challenge will be met, it is virtually impossible for economists to predict the endgame of this crisis.

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 – 15th June 2020
- Industry Forecast Briefing, London – 15th September 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

-

MARK YOUR CALENDER FOR THE NEXT

SILICON CHIP INDUSTRY WORKSHOP
MONDAY 15th June 2020
AND
INDUSTRY FORECAST BRIEFING
TUESDAY 15th January 2020

BOTH BEING HELD AT

HOLIDAY INN KENSINGTON FORUM, LONDON

Follow Us On Twitter

For weekly semiconductor news and updates follow us on Twitter.