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designing smart products

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VITO spin-off develops the first drone management platform for the international drone industry

The increasing number of drones creates the need for a management platform in order to monitor and integrate them into the airspace in a safe and easy way. A spin-off of VITO offers the perfect solution for this. Together with the founders of Flight Plus, entrepreneurs with extensive experience in the aviation sector, VITO is finalising a first round of funding.

Letting drones fly everywhere and safely

The VITO spin-off will soon launch the very first management platform in the market that will integrate commercial drones (RPAS – Remotely Piloted Aircraft Systems) safely into the airspace. All commercial drone users will have to register and will then see where they are allowed

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to fly and which regulations apply.

Via this platform, air traffic control services and government institutions can control and monitor all commercial drone flights. The platform will also allow drone companies to use the airspace in a controlled manner. Moreover, by simplifying the administrative procedures, these drone companies can automatically register all the necessary information and send it to the relevant authorities. A tool that will save time and money.

"VITO has extensive knowledge and expertise in remote sensing and related applications. Drones are being used more and more in this respect. For example for checking high voltage power lines. A safe integration of these drones is essential in this respect and we are convinced that this platform



offers the perfect solution for this", says Walter Eevers, Director Valorisation and Strategic Partnership at VITO.

Strong interest from the aviation sector

Based on current contacts and agreements with the authorities and stakeholders from the United Kingdom, Belgium and The Netherlands, the first version will be tested in these countries, with the intention to systematically integrate the software in the rest of Europe

in a next phase. Drone manufacturers are also interested. They see the potential of the platform to let drones fly safely, under applicable law. They believe in this technology and want to be the first to offer the platform to their customers. EuroUSC also wants to be the first in its domain. EuroUSC is originally a British drone inspection company with offices all over Europe. *"EuroUSC™ is excited with the launch of this unique platform that allows commercial drone operators and air traffic controllers to make use of the same airspace. This is a brand new technology that will only reduce the administration without compromising on safety. This platform is good news for the safety and privacy of everyone",* says Michael Maes, EuroUSC.



European recognition alongside Airbus

Flight Plus and VITO are the inventors of this software. Flight Plus has years of experience in the administrative process-

Barco Silex - VC-2 Low Delay video codec

During the IBC broadcasting show in Amsterdam, Barco Silex demonstrated their new VC-2 LD successfully with a very positive return of potential users.

BarcoSilex

Low-complexity compression enables you to upgrade to higher-quality video, such as 4K, without heavy investment in new infrastructure. High-quality video formats offer a better viewing experience, so they will take a growing share of the market. But they also threaten to make part of the current infrastructure

obsolete and force you to invest in more bandwidth in your IP network or more expensive SDI cabling.

Unless you can make clever use of video compression.

Take the production infrastructure, for example. There is a trend towards transporting video over IP networks, and IP is gaining ground in the SDI-dominated contribution channels. The Joint Task

Force on Networked Media (JT-NM) also aims to build future production environments based on Ethernet/IP networks.

But UHD video at 60Hz requires up to 12 Gbit/s – too much even for the widely supported 10 Gbit/s Ethernet. So should you consider deploying even higher bandwidth network infrastructure? Or postpone your UHD plans? Not necessarily. Adding a lightweight, low-cost compression to your equipment can save the day. With a 4:1 compression, it would even become possible to transport up to three channels of 4k60 video in parallel over a 10 Gbit/s link. Likewise, a mezzanine compression can

ing of permits to fly drones, worldwide drone legislation, flight operations and Air Traffic Management (ATM).

"With our background in aviation, we know better than anyone that safety and flight coordination are essential to avoid, or if necessary solve conflicts in the airspace. We make our experience available to the drone industry in a friendly and accessible manner so that it can be used in a safe manner in the European sky", says Andres Van Swalm, CEO.

In cooperation with VITO and Luciad, Flight Plus has developed the first version of this software platform that immediately received the runner-up award at the prestigious SESAR SWIM master class 2014, a competition organised by the European aviation programme SESAR (Single European Sky ATM Research). It was the only application that won a prize, and moreover, they were only preceded by the European giant Airbus.

Product launch

Over several weeks we will announce the name of the platform to the international market. In a press release there will be referred to a website of a blog with more information on the product launch. ■

also upgrade legacy SDI infrastructure. It would allow, e.g. to transport 4k60 video over 3G-SDI, or 1080p60 video over a common HD-SDI.

At Barco Silex, we have been comparing compression codecs, looking for the one that is best suited to this application. A clear champion is SMPTE 2042, also known as VC-2, and more precisely the High Quality Low Delay profile.

VC-2 LD was originally conceived at the research labs of the BBC. As a line-based intra-frame codec, it achieves latencies down to a few image lines. The com-

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The Start-up Scene in the DSP Valley Ecosystem

The start-up scene in the DSP Valley ecosystem has a long lasting tradition. As early as 1978, a first start-up has been spun-off from KULeuven, the Catholic University of Leuven in Flanders. This first start-up was LISCO: Leuven Integrated Systems Company. Shortly after, LISCO merged with the Silvar, Silicon Valley Research, to become the new company Silvar-Lisco. From there it evolved into Mentor Graphics European Development Center, Frontier Design, a Philips division Adelante and finally ARM. The example of Lisco is nicely illustrating what is common to many start-ups in the DSP Valley ecosystem.

First of all, many start-ups in this highly technological environment **originate at the universities** (KULeuven, Ghent University, Free University of Brussels or TU/Eindhoven) or at the Flemish strategic research centers such as imec, performing world class research in micro/nano-electronics and related application domains. Nowadays, also iMinds, the other strategic research center, active in the ICT-domain, is a leading player in generating start-up initiatives. Successful companies like Ansem, Easics, ICSense or MinDCet, to name a few, originate from KULeuven.

There are some very good reasons why so many start-ups are being created from the research community: of course, there is a lot of world-class technical know-how available. This is being combined with professional support from the respective tech transfer offices. And last but not least, the different universities have their own seed fund: e.g. KULeuven runs the Gemma-Frisius fund, in very close cooperation with leading local banks like KBC or BNP Paribas Fortis. Ghent University has the Baekelandt Fund. In other cases, the research institutes work closely together with specialized local Venture Capital players.

A second characteristic of the start-up scene is how most of them have been **successful** and still are active today, but **under a different organization**. Only

a minority (Ansem, ICSense, MinDCet...) is still independent as in their early days.

It is clear that these start-ups have **attracted a lot of investment money into the region**, often securing these high tech activities in the long term. And **is it a drawback or an advantage to see these technology pearls go into foreign hands?** They certainly did not disappear, and a lot of money which was brought into the region, was re-invested in new initiatives, creating an even richer ecosystem.

Not to forget, also **large industrial multinationals** have a **strong contribution to the start-up scene in the DSP Valley ecosystem**: e.g. in 3 years, Microsoft has the ambition to create 30 new start-ups generating an employment of 300 people in the health application domain through their Microsoft Innovation Center. It is evident that most of these start-ups will be active in ICT enabled health application, some of them also using sensors and micro/nano-electronics as key enabling technologies.

And at the Dutch side of the DSP Valley ecosystem, Philips is playing a very important role: they have generated start-ups like Silicon Hive (now Intel), Intrinsic-ID, ... Philips technology has been the starting base for the very promising Belgian-Swiss start-up Biocartis, pioneering with desktop point-of-care systems for molecular diagnostics for personalized medicine.

But last and certainly not least: Philips has spun off activities that have grown to large multinational companies themselves, and even world leaders in their market and now feeding a whole ecosystem in their own: Assembleon, FEI Microscope, and finally he biggest success of all: ASML!

Best regards,
Peter Simkens
Managing Director



MathWorks Announces Release 2015b of the MATLAB and Simulink Product Families



MathWorks introduced Release 2015b (R2015b) with a range of new capabilities in MATLAB and Simulink. In addition to new features in MATLAB and Simulink, R2015b includes updates and bug fixes to 83 other products.

MATLAB Product Family

- MATLAB updates include:
 - New execution engine that runs MATLAB code faster
 - Graph and directed graph functions for creating, analyzing, and visualizing graphs and networks
 - Add-On Explorer - a single interface for adding community-authored

and MathWorks toolboxes, apps, functions, models, and hardware support

- Hardware support for iOS sensors, Raspberry Pi 2, and BeagleBone Black
- MATLAB Compiler SDK: Deployable MATLAB components for integration with applications written in Python
- Statistics and Machine Learning Toolbox: SVR (support vector regression) and Gaussian processes (Kriging) for fitting models, PCA feature transformation in the Classification Learner app, and GPU acceleration of 65 functions

- Parallel Computing Toolbox: GPU acceleration for functions in Statistics and Machine Learning Toolbox including probability distributions, descriptive statistics, and hypothesis testing; and additional MATLAB functions
- Image Processing Toolbox: Gabor and box filtering, C code generation for 20 functions with MATLAB Coder, and improved grayscale morphology and filtering performance
- Computer Vision System Toolbox: 3-D point cloud processing, including geometric shape fitting, normal vector estimation and visualization
- Database Toolbox: Faster database read and write
- Control System Toolbox: 2-DOF PID controller tuning

intoPIX - TICO Alliance Moves Forward With SMPTE For Transporting UHD-4K Over IP And SDI and Adds New Members



The rapidly growing membership reflects the importance of TICO® to ease the move to 4K and IP within Broadcast Production facilities

The TICO Alliance has announced that their standardization work is moving rapidly forward and that new companies are joining the group. IBC2015 will see more TICO implementations.

"The efforts done by the Alliance are increasing in importance and will help Broadcasters to fully benefit from a

seamless, integrated and high-quality Ultra-HD Live production ecosystem from SDI to IP" observed Jean-Baptiste Lorent, manager of the Alliance. *"The mission of the Alliance is to enhance live IP systems by increasing efficiency and reducing cost for both HD and 4K/UHD video thanks to the TICO lightweight compression technology. TICO enables 4K/UHD to be transported over the current 3G-SDI and the 10GbE IP-based infrastructures."*

Standardizing TICO across the industry and guaranteeing interoperability

The recently created TICO Alliance is working on an open and collaborative way with industry organizations, including SMPTE, VSF, and JT-NM (Joint Task Force on Networked Media) and want to guarantee an interoperable adoption. intoPIX TICO compression and its mapping over 3G-SDI and over SMPTE2022

5/6/7 are in the process of becoming a registered disclosure document (RDD) through SMPTE.

The leading broadcast industry organizations want to create an easy path to move UHD over the existing SDI infrastructure and the IP Networks. TICO lightweight compression delivers unrivalled quality with an extremely low latency of few pixel lines running on low cost FPGA chips and being also fast in CPU for 4K or even 8K.

More companies joining the Alliance

The newest members of the TICO Alliance include Deltacast, EVS, Media Global Links and Tektronix. Christian Dutilleux, CEO of Deltacast said: *"Our customers can smoothly evolve from standard to standard, without changing their application. TICO is part of those new standards and is very appealing, especially because*

- **Robust Control Toolbox:** Robust tuning with systune and the Control System Tuner app for automatically tuning robust controllers for plants with uncertain parameters

Simulink Product Family

- Simulink updates include:
 - New UI in scopes for viewing and debugging signals with cursors and measurements
 - Referenced projects for creating reusable components and simplifying large modeling projects
 - Always-on tuning of block parameters and workspace variables during simulation
 - Multilingual block names, signal names, and MATLAB Function comments for use across Simulink, Stateflow and Simulink Coder
- **Stateflow:** Messages - new objects that carry data and that can be queued

- **Simscape:** Two-Phase Fluid block library and simulation speed improvements for switched-linear systems
- **Simulink Design Optimization:** Faster parameter estimation and response optimization with Simulink Fast Restart

Signal Processing and Communications

- **Antenna Toolbox:** Analysis of infinite arrays and visualization of E-H fields
- **LTE System Toolbox:** Release 12 downlink 256 QAM modulation for small cells, Release 11 multicell zero power CSI-RS patterns, and enhanced waveform generation

Code Generation

- **MATLAB Coder:** C code generation for cell arrays
- **Embedded Coder:** Quick configuration of models to generate efficient, reusable code

- **HDL Coder:** Run-time hardware parameter tuning for Xilinx Zynq and Altera SoC FPGA using the AXI4 interface
- **Simulink PLC Coder:** Code generation for Siemens TIA Portal IDE, and support for global variables in Siemens TIA Portal and STEP 7 IDEs

Verification and Validation

- **Simulink Design Verifier:** C code S-function analysis and Model Advisor run-time error checks
- **Simulink Test:** Creation of test cases with inputs generated by Simulink Design Verifier, and tool qualification with DO Qualification Kit and IEC Certification Kit
- **Polyspace Bug Finder:** Security checks to detect code vulnerabilities, and on-the-fly display of results

R2015b is available immediately worldwide.

its ecosystem is defined for mix SDI and IP environments.”

Benoit Fevrier, CTO, EVS said: “With the steady transition to IP and the need to move 4K/UHD and even higher resolutions and frame rates in the future, precise compression is essential to next-generation video production and dis-

tribution. TICO is an important step in this evolution and we’re committed to developing the standard and to the larger IP-based live ecosystem.”

John Dale III, Director, Media Global Links said: “It looks like TICO Lightweight Compression could enable some compelling new solutions for managing UHD

links within and outside the studio while providing a great balance between performance and cost.”

Jean Lapierre, senior director of engineering, Matrox Video said: “As the industry migrates to UHD, 4K and beyond, Matrox Video is committed to building cost-effective hardware and software that meet the needs of our OEMs for SDI, IP and hybrid solutions. TICO offers a unique and compelling compression technology that is efficient for both existing and evolving infrastructures.”

Charlie Dunn, general manager, Video Product Line, Tektronix said: “By joining the TICO Alliance, we are continuing to demonstrate our leadership in enabling the transition to 4K/UHD and IP. TICO compression technology effectively balances quality, bit rate and latency to keep data rates for 4K content below 10G.”

4K60p over a single 3G-SDI



3 x 4K60p over 10G IP



Test & Measurement Solutions wins two prestigious awards from National Instruments



Alliance Partner of the Year 2015 for EMEA - Outstanding Technical Resources Gold Partner Level

Test & Measurement Solutions has received the Regional Partner of the Year for EMEA (Europe, Middle East, India, and Africa Region) award at the National Instruments (NI) annual NIWeek Conference held in Austin, Texas (US). In addition, the company also landed the award for “Most Outstanding Technical Resources” for the second year in a row.

The EMEA Partner of the Year Award is designated for Alliance Partner companies who exhibit the highest level of excellence. With this award, NI honors Test & Measurement Solutions’ commitment to partnership and growth. The Outstanding Technical Resources Award recognizes partner companies for achievement through available NI-certified resources.

Those partner companies with the most Certified Architects and Developers who support NI customers in their integration and consulting projects receive this honor each year.

More than 25 years of excellence

Test & Measurement Solutions has been an NI Alliance Partner for over 25 years, and continues to grow its expertise in LabVIEW, NI TestStand, and embedded applications. Currently we employ more than 40 NI Certified engineers, including 14 Architects and 2 Certified

Professional trainers. As an NI Gold Alliance Partner, Test & Measurement Solutions helps NI customers provide various services, such as feasibility studies, engineering, turnkey solutions, validation and service & support.

The company’s multidisciplinary solution expertise and in-depth knowledge of NI software—such as LabVIEW—and modular hardware such as PXI instrumentation enables the creation of turnkey solutions for a wide range of test, measurement, inspection, assembly and control applications.



Picture (left to right): Ajit Gokhale-Senior Vice President-Product Marketing(NI), Robert Morton-Vice President Sales & Marketing EMEA(NI), Theo Engels-Account Manager, Kurt Hensen-CEO, Maciej Szupienko-CTO Poland, Tom Oyen-Project Engineer, Francis Griffiths-Senior Vice President Regional Sales & Marketing(NI)

ICsense reports record growth

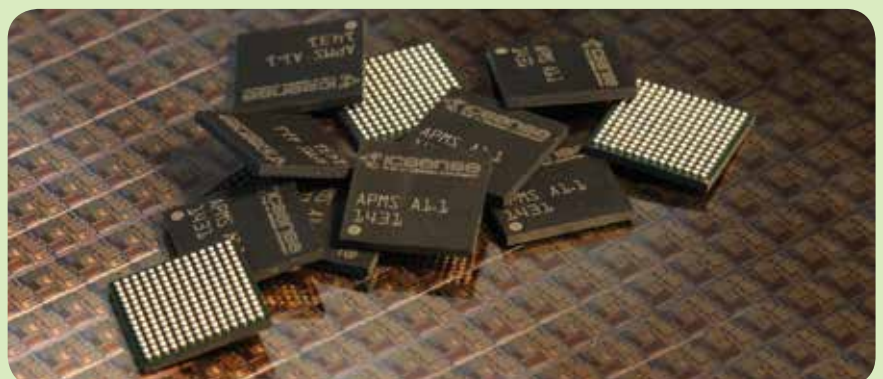
IC design and supply company ICsense concludes its 10th year of operation with 37% EBITDA growth



ICsense, a leading mixed-signal ASIC design and supply company, today announced the financial results of its 10th fiscal year. The company reports 37% operating cash flow growth, a 16% increase in revenue, and a team expansion to 55. This growth affirms its position as the largest fab-independent mixed-signal IC design group in Europe. The achievements were acknowledged by business analysts such as Ernst &

Young (“most promising company 2014”-nomination), Deloitte (Fast50) and Trends (Gazelle).

ICsense’s latest financial year was the strongest ever as a result of a growing customer base worldwide (especially Japan and the US) and as a consequence of its reputation for first silicon success. CEO Bram De Muer comments; “We particularly saw a strong demand in automotive ISO26262 com-



Recognition of a successful strategy

"NI is pleased to recognize Test & Measurement Solutions as the EMEA Alliance Partner of the year," comments Armando Valim, Alliance Partner Network Program Manager. "Based on the evaluation of three main areas—resources, revenue and relationship—this recognition clearly showcases Test & Measurement Solutions ability to provide industry-leading solutions to the technology challenges of our customers."

"This award serves as a valuable recognition of both our successful multi-disciplinary solution strategy towards customer needs and our long term investment in the partnership with NI", adds Kurt Hensen, CEO of Test & Measurement Solutions. "Furthermore, the Gold Award Outstanding Technical Resource—our second in a row—is the crowning achievement of our continued investment in the best possible education for our engineers. This allows us to offer effective and flexible solutions in line with real market needs. As the industry evolves so will our operations and expertise."

pliant ASIC design and supply projects for i.a. crankshaft, drive by wire and vehicle communication (CAN, SENT, J1850 interfaces). These come in addition to the specialised medical designs (ISO 13485) such as an advanced electronic therapy adherence patch and industrial ASICs where functional safety is key (IEC61508)."

ICsense has doubled its digital IC design team to tackle the increasing amount of digital signal processing required in today's ASICs. In Q4, the company will move to a larger office able to accommodate close to 100 engineers and with a lab space of over 90m². In addition, ICsense has added an HR manager and a financial and supply coordinator.

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pression ratio can be configured up to 4 times visually lossless, although the complexity and its associated costs are low.

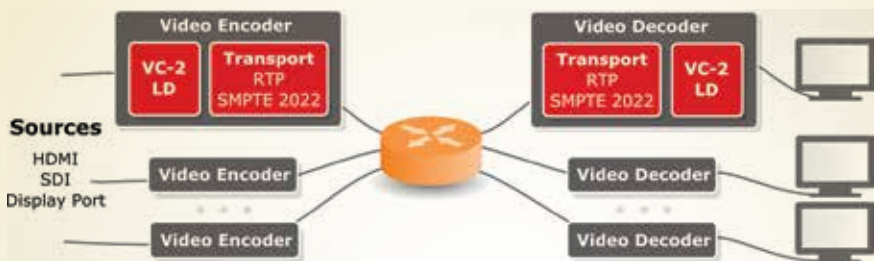
A key distinguishing feature of VC-2 is that it is a standardized and open technology, designed to avoid patent infringements. So it can be easily included in video production equipment as a hardware or software solution, without the potential costs, legal uncertainties, and practical difficulties of including other comparable codecs. Also the

transport of VC-2 is under standardization and will ease interoperability of the broadcast equipment.

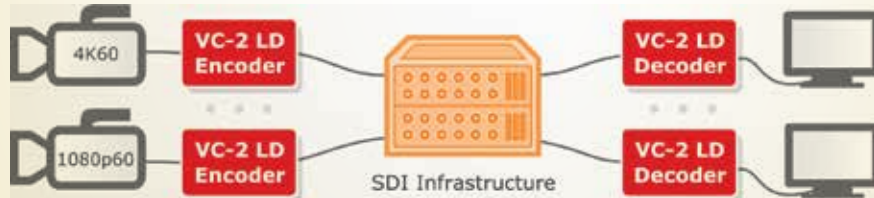
So for those in the AV industry that are confronted with the choice between an expensive bandwidth upgrade or postponing to offer UHD, there is a middle way: a light upgrade of your equipment to add low-complexity compression. VC-2 LD has all that it takes for a smooth transition to 4K, whether on IP networks or over SDI links.

The VC-2 LD is very well suited for different applications like:

Video Transport over IP networks



High Resolution video over SDI cabling



About ICsense

ICsense is Europe's premier IC design company focused on right first time program execution. ICsense's core business is ASIC design and supply and custom IC design for automotive (ISO26262), medical (ISO13485), industrial (IEC61508) and consumer (ISO9001) applications. ICsense has the largest fab-independent European design group with world-class expertise in analog, mixed-signal and high-voltage IC design. The company supplies high quality, cost-efficient custom ASIC solutions and has built an enviable reputation for tackling first-of-a-kind design projects.

"In the first half of 2015 alone, we have won 2 long-term supply contracts where we will develop and supply a custom mixed-signal ASIC exclusively for these customers. These project wins fit perfectly in our 5-year plan to double

our revenue by expanding the exclusive ASIC design and supply business on top of our custom IC design services," concludes Bram De Muer.

GreenPeak launches its first Smart City application for assisted car parking in China



Partnership with Dusun Electron introduces low cost, intelligent car park application to reduce parking congestion and to increase revenues for car park operators

GreenPeak Technologies, the leading low power RF semiconductor company, and Dusun Electron Ltd, a rapidly growing electronic company focusing on development of wireless internet technology and pioneering the Internet of Things (IoT) industry in China, today announced their partnership with the launch of their first Smart City assisted parking application that addresses the growing parking problems in China's larger cities.



The number of cars in Beijing has grown quickly as urbanization and modernization have progressed. Today, the capital has over 5 million registered vehicles and only 1.5 million available parking spaces. Chinese ministries are launching major programs focused upon achiev-

ing sustainable urban development. The Chinese Smart City initiatives, driven by national and local governments, are intended to improve efficiency of cities and aim to achieve environmental, economic and social sustainability through the systematic integration of ICT solutions into their planning, design, operations and management.

GreenPeak Technologies and Dusun Electron have launched a Smart Parking application for smart phones that guides car drivers to an available parking space. Based on individually selected criteria such as the walking distance to the destination from the parking space and the parking tariff selected, the application guides the user to the nearest available parking space in just a few clicks. Inside the parking lot, every parking space is equipped with a wireless sensor that detects if the parking space is empty and reflects availability in floor and row signage on car guidance displays. GreenPeak Technologies has developed the sensor technology, the radio chip and the networking technology. Building on this, Dusun Electron has developed the cloud infrastructure and Smart Parking application. The gateway sends the parking availability information to the cloud environment where the data is analyzed for display in the mobile app and parking location signage.

GreenPeak's solution provides the low cost communication system and easy to install software. One of the GreenPeak advantages is the long battery life of over 5 years for the wireless sensors. GreenPeak's patented radio technology guarantees best range and optimal signal quality, even in concrete and steel parking lot structures.

The benefits for car park operators are significant: low cost installation due to absence of wiring, low cost maintenance due to long battery life, easy

and reliable operation due to the self-learning algorithms in the sensors, and high detection reliability. Additionally, the system provides opportunities to further enhance the application with value added services (e.g. flexible/peak pricing and online reservation system) to further optimize revenues. The first implementation of the system is developed for use in the Smart City program of the city of Wuxi, Jiangsu province.

"The Smart Car Parking system is an integrated solution that combines gateways, sensors, cloud infrastructure and the Smart Parking application. A single gateway can connect up to 200 sensors, which is a cost effective solution as the price of our sensors start at \$15 per unit and gateway at \$25," says Tiny CAO, Vice President of Dusun Electron. *"The Smart Parking system is a very important cooperative project with GreenPeak. Based on the Dusun Electron Smart Parking system for big data analysis, we can provide practical and detailed comprehensive data for urban construction parking management to urban government, which includes usage rates for city parking areas, density of parked city vehicles, analysis of expected garage building requirements, etc."*

"A critical key to solving congestion problems is by better organizing traffic. Streamlining the process for people to find parking spaces is essential for enhanced and controlled vehicle routing and reducing unnecessary traffic. This new system requires a small investment and provides a tremendous improvement," says Cees Links, Founder and CEO of GreenPeak Technologies. *"Working with an experienced partner like Dusun Electron allows us to offer an effective total solution and a large improvement on the parking experience. Both companies are committed to ground breaking Smart City innovations that will deliver efficient and stress-free parking."* ■

Dekimo and QSpin consolidate consultancy offering

Dekimo is an independent supplier of electronic services in the Benelux, covering the whole value chain from design to production with facilities all over Belgium. QSpin offers consultancy services in embedded software, with offices in Louvain-La-Neuve (LLN) and Gent.

Next to its standard project and production offering, Dekimo has seen a grow-

ing customer demand for flexible staffing as an additional service. Up to now, this demand has mostly been addressed by Dekimo's partner QSpin. This offering will now be streamlined and consolidated through the creation of a new entity "Dekimo Experts" in Flanders. As a consequence, QSpin Gent will become Dekimo Experts Gent. At the same time, a new office will be opened in Leuven

to support further expansion. Dekimo Experts Leuven will be run by Geert Adriaens, who has a solid track record in this business.

QSpin LLN and the two Dekimo Experts offices will each cover their respective region in Belgium. Existing customers will continue to be served as before. In relation to the further expansion of the consultancy activities, Dekimo Experts has also recently started operating in the Eindhoven area to serve the Dutch market. ■



Achilles Design and Kipando present smart bicycle lock at Eurobike in Friedrichshafen



Kipando is an intelligent bike lock that connects with your smartphone for locking, unlocking and localisation of your bike. In combination with a bike sharing app, it reduces the cost and increases the convenience of sharing bikes among different users.

the availability of bicycles by eliminating barriers to riding a bike. Together with Achilles Design, Kipando is developing a **next generation bike sharing solution** consisting of three components: a **smart bicycle lock**, a **smartphone app** for the users of the shared bicycles and an **online management platform** for the operator of the bike sharing program.

infrastructure. The robustness of the lock, its ease of use and the possibility to fix it to any standard bike makes it the ideal solution for B2B bike sharing programs. The lock generates its own energy (solar) and also functions without a connection to the cloud. The user can open the bike lock by using the smartphone app, a pin code or a smart card.



The smart bike lock was presented on "Eurobike" in Friedrichshafen, generating international attention and great interest from bike sharing companies, local & regional authorities and global bike locking brands. ■

Kipando believes cycling is one of the key solutions in a changing perception of mobility. Kipando aims to increase

This total solution **allows anyone to set up a bike sharing program** of any size without the need for additional



University of Antwerp - Change-centric Quality Assurance Changes as first-class citizens during software development



Quality software has long been synonymous with software “without bugs”. Today, however, quality software has come to mean “easy to adapt” because of the constant pressure to change. Software teams seek for a delicate balance between two opposing forces: striving for reliability and striving for agility. In the former, teams optimize for perfection; in the latter they optimize for ease of change.

The **ANSYMO** (University of Antwerp) and **SOFT** (University of Brussels) research groups are investigating ways to reduce this tension between reliability and agility. Together, we seek to make changes the primary unit of analysis during quality assurance and as such we expect to speed up the release process without sacrificing the safety net of quality assurance.

The following are examples of the problems that we address:

- *Monitoring the test process.* Determine the impact of changes on both the test and production code, to persuade team members to increase test activities. Demonstrate that the test process itself meets quality guidelines (e.g., every bug fix is covered by a regression test).
- *Deciding what to re-test.* Instead of running all tests for a given release, run only those tests that are potentially affected by a given change. This allows for instant feedback on the changes that cause tests to fail, saving valuable time in identifying the precise location of a bug.
- *Monitoring the bug database.* Verify whether anomalies occur in the bug database (e.g., wrong severity, assigned to wrong product or component). Assure that all severe bugs have been fixed before a release.
- *Deciding bug assignment.* Once bugs have been reported, determine who is the best person in the team to handle the request. Use historical information to reliably estimate the time it will take to fix the bug.
- *Monitoring code changes.* Monitor changes as they are made in the edi-

tor or as they are committed to the version repository. Use documented traceability links and past co-change information to recommend related code that should be changed accordingly (e.g., XML configuration files).

- *Automating code changes.* Release a new API version with patches that automatically update all existing client code, reducing the number of API versions in the field. Replay code changes that were successful for a given branch on a variant branch, reducing manual branch synchronization.

Cha-Q is an IWT SBO project starting its last year. The basic tool infrastructure is in place and has been validated on open-source projects. In the calendar year 2016 we intend to test the tools under realistic circumstances. That’s why we need your help.

We seek software teams interested in state-of-the-art tooling. In particular, those teams that

- Adopt agile practices (continuous integration, continuous delivery).
- Employ a version control system (SVN, GitHub).
- Track the issues (Bugzilla, JIRA).
- Monitor software quality (unit tests, static analysis, security vulnerabilities).
- Release often (at least internally).

About ANSYMO

ANSYMO is a research group investigating foundations, techniques, methods and tools for the design, analysis and maintenance of so-called software-intensive systems. The nature of these systems, has changed considerably in the last few years. Firstly, the availability of more computational resources, including parallel computation and interactive behavior has enabled one to tackle ever more complex applications. Secondly, the need to consider interactions of software with physical components has led to the study of hybrid systems, adding even more complexity. Finally, the view that a software system is a static entity has given way to the view that software needs evolve, i.e., that changes in requirements or platforms can be accommodated easily. To tackle these challenges, ANSYMO conducts research in four research mutually reinforcing themes: models, languages, evolution and resources.



agency for Innovation
by Science and Technology

Imec Academy - Discover how Photovoltaics will affect our Life and your Business

October 29, Energyville Genk, Belgium

December 1, KU Leuven Technology campus Ghent, Belgium



<http://bit.ly/1KwXxRw>

Solar energy is the key to a sustainable energy future. Cost has gone down tremendously while efficiency is ever-increasing. PV is now a cost effective electricity source in many applications. Further deployment of PV, however,

requires a seamless integration in the electricity grid and in the environment. New opportunities arise at the crossroads of the PV industry and the building, automotive, etc. industry. PV will become transversal through many industries.

This course aims at increasing general awareness about the rationale and economics of PV, its working principle, the production of solar cells and their influence on the grid, and about the various applications of PV. It will give an answer to the following questions:



- Why is solar energy an essential element of the future energy mix?
- How to assess the economics of PV?
- How does PV work?
- Which are the various technologies and with which market segments do they fit?
- Which are the key performance indicators of a PV system and how to interpret them?
- How is a PV system built up, operated and maintained?
- How will the integration of renewables change our electricity grid?
- Should you consider PV for your product or business? Why (not)?
- Enjoy the flight over the landscape of this unique renewable energy!

Get in touch with Altera's MAX 10 FPGA through Arrow's DECA Development Kit in a one-day workshop

Various dates & locations



<http://bit.ly/1KJIMiK>

DECA is a full-featured hardware platform based on the **Altera MAX 10 FPGA**. The DECA Evaluation kit includes many different features and interfaces including a BeagleBone compatible header to tap into a large infrastructure taking I/O expansion to the ultimate level. Coupled with multiple sensors, LEDs, pushbuttons and an on-board USB Blaster II, the DECA Evaluation platform takes integration to the next level.

Whether you're new to FPGAs or an

experienced user, this development kit and the **unique one day hands-on workshops** in the Benelux will get you familiar with the advanced features of this non-volatile MAX 10 FPGA of Altera.

The MAX 10 FPGAs are built on TSMC's 55nm embedded NOR flash technology, enabling instant-on functionality. Integrated features include analog-to-digital converters (ADCs) and dual configuration flash allowing you to store and dynamically switch between two

images on a single chip. Unlike CPLDs, MAX 10 FPGAs also include full-featured FPGA capabilities such as Nios II soft core embedded processor support, digital signal processing (DSP) blocks, and soft DDR3 memory controllers.

The agenda of this workshop:

- Introduction to MAX 10 FPGA Architecture
- Using Altera Development Tools and IP
- Introduction to the DECA Evaluation Board & several hands-on labs



Contact Information

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Dekimo and QSpin consolidate consultancy offering • p. 9

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University of Antwerp - Change-centric Quality Assurance • p. 10

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