

PRESS RELEASE

25. February 2020

AND THE WINNER IS ...

- Accolades for innovative products
- Awards presented in five categories

The embedded awards were presented at the traditional awards ceremony on 25 February 2020. For the 16th time, the most innovative achievements in the categories hardware, software, embedded vision, safety & security and start-ups were selected. The awards were presented by Thomas Preutenborbeck, Vice President Exhibitions of NürnbergMesse and Professor Dr.-Ing. Axel Sikora, chair of the jury and the advisory board of embedded world.

"As in the last years, we were impressed by the large number of highly innovative submissions by embedded systems developers in the various categories addressing the important challenges that lie ahead. Three awards were selected around embedded safety & security, which is a strong statement about the high significance of this field for the future of embedded world. All in all, the jury was spoilt for choice again. We see this as evidence of the kind of innovative strength and dynamism in this sector. The award is a way of thanking and acknowledging the outstanding players from the embedded world," says Professor Sikora. More than 900 exhibitors are present at embedded world this year to present their innovative solutions", Thomas Preutenborbeck added. "For the jury it was a challenging decision to select the winners from among the nominees."

GigaDevice Semiconductor Inc. wins in the category hardware with its new Bumblebee processor core based on the open source RISC-V instruction set architecture.

GigaDevice, a Silver member of the RISC-V Foundation, expands its RISC-V portfolio and provides more options with the goal to differentiate from competitor products by providing high performance, easy to use and cost effective innovative MCU's. GigaDevice's RISC-V MCU is completely new to the market, because not only the RISC-V architecture is new, but also because it is the first time a general purpose MCU being implemented under a RISC-V core. The new product totally differentiates itself from soft-core

Veranstalter Konferenzen
Conference organizer
WEKA FACHMEDIEN GmbH
Richard-Reitzner-Allee 2
85540 Haar b. München, Germany
T +49 89 25556-1349
F +49 89 25556-0349
info@embedded-world.eu
www.embedded-world.eu

Geschäftsführer
CEOs
Kurt Skupin, Wolfgang Materna

Amtsgericht
Registration Number
HRB 119806 München

Veranstalter Fachmesse
Exhibition organizer
NürnbergMesse GmbH
Messegelände
90471 Nürnberg, Germany
T +49 9 11 86 06-0
F +49 9 11 86 06-8228
embedded-world@nuernbergmesse.de
www.embedded-world.de

Vorsitzender des Aufsichtsrates
Chairman of the Supervisory Board
Albert Füracker, MdL
Bayerischer Staatsminister der
Finanzen und für Heimat
Bavarian State Minister of Finance
and Regional Identity

Geschäftsführer
CEOs
Dr. Roland Fleck, Peter Ottmann

Registergericht
Registration Number
HRB 761 Nürnberg

solutions implemented on FPGAs and at the same time approximates ARM based general purpose MCUs.

Crank Software Inc. impresses with UI development tool

Crank Software introduced a unique capability within its Storyboard UI development tool called Hybrid Rendering. Hybrid Rendering enables the rendering of rich user interfaces using multiple graphics accelerators (3DGPU & 2DGPU) all within the same embedded application. This integrated capability is critical for today's battery-driven wearable and IoT-based devices that need to provide users with a rich graphical experience yet take advantage of dramatic power savings whenever possible to extend the life of the device between charges. With Hybrid Rendering, Storyboard-created UIs utilize the multi-GPU hardware found in embedded devices hardware more efficiently, by dynamically looking at the content it is rendering and automatically rendering that content on the fly using the most appropriate GPU for the UI screen.

There is also a Storyboard Lite as an extended configuration of Storyboard, specifically for resource-constrained microcontroller (MCU) platforms.

NewAE Technology Inc wins with ChipArmour in the category Safety & Security

ChipArmour is an open-source library that helps customers develop fault-injection resistant embedded software solutions. Fault injection is one of the most powerful attacks facing embedded systems today, as fault injection allows an attacker the ability to bypass secure boot and other security features. Already in recent years several high-profile examples of fault injection attacks on embedded systems have occurred.

ChipArmour builds software countermeasures against fault injection attacks into easy to use example code. In addition, ChipArmour integrates with existing NewAE Technology Inc products such as ChipWhisperer and ChipSHOUTER to perform advanced verification of the resulting code. This means ChipArmour is not just theoretically safe code, but code that has been tested on a variety of hardware platforms.

ChipArmour has an initial set of API functions defined, which is designed to help in securing bootloader applications. An example usage of ChipArmour is present for the open-source Trusted Firmware-M bootloader, which helps demonstrate how fault injection could bypass this bootloader security mechanism and how ChipArmour can help secure the bootloader.

DC Vision Systems GmbH awarded first prize in the category “Embedded Vision” with its DC-SVP (Stereo Vision Processor)

DC-SVP (Stereo Vision Processor) is a stereo camera and electronic control unit with an integrated processor and an algorithm accelerator based on FPGA technology. A sophisticated stereo image processing pipeline is implemented in the firmware of DC-SVP. This enables the measurement of the surrounding 3D geometry within the field of view directly on the camera in real-time. External computing devices are not necessary for this task. A Linux operating system runs on the camera and various interfaces for the control of external components are provided. DC-SVP is not only a high-performance depth sensor, but a complete control unit with advanced and flexible real-time image processing.

QuantiCor Security GmbH wins in the category “Startup” with its quantum computer-resistant authentication and encryption solution Quantum-IDEncrypt

Quantum computers break all public key encryption and authentication schemes used in practice. Quantum-IDEncrypt is a quantum computer-resistant authentication and encryption solution that also protects against powerful quantum computer attacks. The award-winning security solution comes with a device management system. Unlike previous systems, public keys are derived from short identifiers such as the serial number, MAC addresses or other identifiers. In this way, there is no need to set up a public key infrastructure (PKI). Resources are saved because no certificates have to be issued, thus no certificate chains have to be checked or stored. Also, no public keys have to be fetched from a public key server. As a result, communication with a large number of participants (scalability) can be carried out efficiently and without the PKI-based effort, since only the public identifiers are sufficient. The big advantage: Arbitrary short identifiers serve as public keys. Key renewals can be enforced efficiently by timestamped keys, i.e. that the user has to renew his key periodically to decrypt encrypted messages. This is particularly suitable for IoT and embedded systems due to their low capacities and long periods of use. With the device management system, devices and identifiers are managed and associated keys generated.

The 2020 jury comprises:

- Bertold Brackemeier
Senior Manager Public Relations, NürnbergMesse GmbH

- Professor Dr. Albert Heuberger
Fraunhofer Institute for Integrated Circuits IIS
- Joachim Kroll
Editor-in-Chief Design&Elektronik, WEKA Fachmedien GmbH
- Prof. Dr. Jean-Philippe Lauffenburger
Université de Haute Alsace, Mulhouse
- Prof. Dr. Alexei Moschevikin
Petrozavodsk State University
- Prof. Dr. Dirk Pesch
University College Cork
- Professor Axel Sikora
Offenburg University, Chair of Jury
- Anne Wendel
VDMA Robotics+ Automation association, Director of the VDMA Machine Vision Group

For all information and tips on embedded world 2020 such as floor plans, detailed congress programmes, the latest exhibitor and product directory plus travel advice please go to: www.embedded-world.de/en

Contact for press and media

Bertold Brackemeier, Simon Kögel

T +49 9 11 86 06-89 02

press@embedded-world.de

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More detailed information and videos about the Student Day are available from: www.embedded-world.de/studentday