



## PRESS RELEASE

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### First-class professional expertise for embedded specialists

- **Connecting embedded intelligence**
- **Top keynote by Cypress CEO**

embedded world is progressing exceptionally well. Already, the exhibition space booked in 2019 has been exceeded. And the prospects for the embedded world and electronic displays conferences are equally good; the conference programmes are already online. The theme of this year's embedded world conference – “Connecting Embedded Intelligence” – means that the conference is putting the spotlight on one of the key issues for the sector. The electronic displays conference will explore the latest issues relating to OLEDs, touch screens and a whole lot more.

As the global gathering place for the embedded sector, the embedded world conference will reflect the latest forward-looking trends. These will no doubt include machine learning and artificial intelligence. Thanks to comprehensive networking we now have access to huge volumes of data that can be evaluated and analysed to determine future strategies for action. The balancing act between processing data on site and sending it to the cloud is one of the key topics up for discussion at the conference. Accordingly, the conference theme is: “Connecting Embedded Intelligence”. But the conference will also devote plenty of attention to those hot topics that almost never lose relevance. They include hardware and software engineering that tries to strike a balance between cost pressure, innovation, quality and reliability. Another burning issue is the “Internet of Things”. No other topic attracted so many abstracts.

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Overall, the 2020 programme is subdivided into ten conference clusters:

1. Internet of Things
2. Connected Systems
3. Embedded OS
4. Functional Safety & Security
5. Hardware
6. Software Engineering
7. Embedded Vision
8. Intelligent Systems
9. Embedded HMI & GUI
10. System-on-Chip

The individual clusters are made up of sessions and classes. Sessions take a morning or afternoon and consist mostly of half-hour presentations. The classes are limited to smaller groups and are similar to training courses, where participants can address a topic in detail and often complete practical exercises on the computer or on microprocessor circuit boards.

### **Keynote for all trade fair visitors and conference delegates**

One highlight of the embedded world conference is always the keynote address on the first day, which is also open to all trade fair visitors free of charge. The speaker is Hassane El-Khoury, CEO of Cypress and an acknowledged industry expert. On 25 February 2020 he will talk about the interaction between humans and machines. The combination of the “Internet of Things” and smart technologies could change the interaction of human beings with the world to an even more decisive extent than the smartphone has done. As artificial intelligence learns the preferences and behaviours of humans and adapts itself to them, El-Khoury even refers to the “extension of the human spirit”. The resulting effects will make themselves felt in the motor car, industry, medicine, smart cities and smart homes.

### **Topics in detail**

The presentations in the various thematic clusters are highly topical and extend far beyond the ten conference clusters



1. The presentations in the “Internet of Things” track are devoted to questions about IoT platforms, trusted computing, databases for distributed applications and the debate about cloud vs. edge vs. fog computing.
2. In the “Connected Systems” track, the focus will be on wireless and wired communication technologies. In this context, “single-pair Ethernet” will address one of the most recent developments. TSN, which has been around for a long time, has also evolved and is now starting to be used. In the wireless area, after low-power-wide-area-networks (LPWAN), the main interest is in innovations relating to the new location-based Bluetooth functions and cellular campus networks with 5G.
3. Embedded OS: In a session on basic principles, participants will learn how real-time operating systems work in the multi-core era. Other key topics include Linux, container technology, virtualisation and how the operating system can help ensure the security of systems. This cluster is rounded off by three classes on operating system topics.
4. Functional Safety & Security: For many embedded systems, functional safety and protection against attacks on the system are absolute prerequisites. The presentations in this cluster cover issues like architectural developments for systems with critical and non-critical functional components and the latest amendments to the leading safety standards. This is a very interesting question, especially in the age of neural networks in the context of functional safety. Another key topic is the security of micro-controller systems to protect them from both attacks and product piracy. Thanks to current developments in quantum computing, the very fundamental question is whether and how an open embedded system with a long service life can be protected against hacker attacks.
5. The presentations in the “Hardware” track are just as diverse as the hardware itself. The wide range of topics includes flash memories and their reliability, the always compelling issue of energy supply – with and without data transfer – and the RISC-V architecture that is being implemented in more and more chips. This overview is rounded off by some interesting examples of applications.



6. **Software Engineering:** As software makes its way into more and more (critical) applications, the quality, reliability and security of embedded systems are playing an increasingly important role. This is ensured by numerous targeted measures that cover the entire development process for secure and reliable systems. In this context the design of the development process, from the recording and documentation of requirements to the modelling of the system and detection of errors using highly efficient analyses and tests, is of crucial importance. All these important aspects will be addressed in the course of the conference. An entire day will be dedicated to the programming phase, with special consideration being given to coding standards like MISRA, which was specifically developed to ensure the quality of software.
7. **Embedded Vision:** Thanks to integration and miniaturisation, image sensors and image processing software are blending into increasingly more compact systems. The presentations in this cluster, which have been put together in partnership with the VDMA, show that these systems play a major role, especially for machine learning.
8. **Intelligent Systems:** In the near future we will be increasingly coming across technical systems that not only operate according to how they have been programmed to react in a completely predictable and calculated context, but also respond to situations. This means that machines will be making decisions in situations that have not been simulated beforehand. This track will discuss the latest development trends and architectures in embedded systems (e.g. AI on FPGAs) and as heterogeneous solutions with high-performance cloud connections.
9. **Embedded HMI & GUI:** Embedded systems are also being offered with increasingly more sophisticated GUIs. However, software developers are sometimes not the best designers for a user-friendly interface. This session is intended to bridge the gap.
10. **The “System-on-Chip” track** explores a lot of hardware and design aspects for programmable FPGAs and hard-wired ICs. From the draft and architectures to verification and supply chain, the SoC sessions will cover all aspects of this topic.



## **Strong partners**

To ensure the relevance and currency of the programme of lectures, the embedded world steering board works with relevant organisations from the embedded sector. The embedded word conference 2020 is supported by contributions from:

- Bluetooth ISG,
- MISRA (Motor Industry Software Reliability Association),
- prpl Foundation,
- RISC-V Foundation,
- Trusted Computing Group (TCG),
- VDMA (German Mechanical Engineering Industry Association)

“The embedded world conference has evolved to become the biggest and most important application-driven event for embedded systems. This will be impressively reinforced again in 2020 thanks to a programme of lectures unrivalled in its breadth and depth, with no less than 267 presentations by international experts in 48 sessions and 14 classes,” says Professor Axel Sikora from the University of Offenburg, who is chairman of the embedded world conference. “This year, a key role will be played by topics on ‘embedded intelligence’ relating to potential architectures and solutions and the associated challenges. But the technical tracks on ‘traditional topics’ will also continue to be developed intensively,” Sikora adds.

The programme, with abstracts and information on the speakers, is now available online at: [www.embedded-world.eu](http://www.embedded-world.eu). This is also where you can register for the conference directly.

## **Electronic displays conference delivers professional expertise tailored to its audience**

“The electronic displays conference is a byword for high-calibre industry knowledge by experts for experts. It is without doubt the most important European B2B platform for display technologies. The conference will make the innovative strength and dynamism of the display industry abundantly clear and guarantees participants some insights into the future and tomorrow’s technologies. In addition, the focus will be on information-sharing and the high-calibre professional dialogue between delegates and



speakers,” says Professor Karlheinz Blankenbach from the University of Pforzheim, who is chair of the conference advisory board. The conference in 2020 will once again demonstrate that displays are an innovative and key component of embedded systems. “This year too, the advisory board once again reviewed a large number of outstanding submissions before making its selection for the first-class programme. Industry professionals will be able to see the high calibre of the presentations for themselves. The bridge from theory to practice will then be brought to life in the Display Area in Halls 1 and 3,” Blankenbach continues.

On 26 and 27 February 2020, developers, scientists and users of electronic displays will once again find out about the latest display technologies like LCD, micro-LEDs, touch screens, optical bonding, display systems and automotive displays.

The 2020 highlights are the keynotes on display trends, various sessions on automotive displays and other high-quality presentations on display measuring technology, display optimisation, AR/VR and GUI/HMI, and special applications. The post-session author interviews have meanwhile become a popular tradition at the conference and offer a great opportunity to discuss the content of the presentations in a small group setting. Displays are not just a key topic at the conference; they are also a prominent feature in the exhibition halls. The Electronic Displays Area in Halls 1 and 3 offers a platform for the latest technology for LCDs, OLEDs, ePaper, touch screens, interfaces, display solutions and a whole lot more.

For more information on the programme for the electronic displays conference 2020 and registration options please go to: **[www.electronic-displays.de](http://www.electronic-displays.de)**

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