

Welcome to not just a new edition of BluePrint, the iSYSTEM newsletter, but also a new look. With so many events going on throughout the year, and with many new developments internally, we have decided to move to a more concise format published on a monthly basis.

The start of a new year means the start of preparation for the most important event in the calendar of embedded software developers across Europe, namely Embedded World 2016. Over the course of three days

more than 25,000 visitors will walk the halls of the Nürnberg Messe exhibition centre, taking time to visit and talk to some of the 900+ exhibitors there. iSYSTEM is proud to participate and will be available for customers old and new in Hall 4, Stand 202.

In order to make the most of your time there, we recommend that you order and print out your ticket before you arrive rather than wasting time queuing at the entrance upon your arrival. And, to make it even easier, iSYSTEM is providing free tickets for the

event. Simply follow the link [bit.ly/ewvoucher](http://bit.ly/ewvoucher) and redeem the voucher code **B319266**.

### Upcoming Events:

**23<sup>rd</sup> - 25<sup>th</sup> February 2016**

Embedded World, Nuremberg Hall 4, Stand 202

Free Ticket with Voucher Code:

**B319266 @ [bit.ly/ewvoucher](http://bit.ly/ewvoucher)**

**28<sup>th</sup> - 30<sup>th</sup> June 2016**

EMCC, Munich

More Info @ [bit.ly/emcc-muc](http://bit.ly/emcc-muc)

### How did those engineers become engineers?

A few new employees have joined us recently and we have been trying to provide those with less technical background an overview of the industry in which we work. Many of us here in the office had our first experience with electronics building a radio receiver and our first chance to program a computer was with a Commodore 64.

In the past few years, the entry into our industry for the engineers of the future has been made easier with the

introduction of affordable programming platforms, such as Raspberry Pi, BeagleBone and Arduino development boards. In addition we have seen the rise of the 'maker', a term used to describe anyone who builds and constructs objects, both with and without electronic content.

Luckily for us, the 16<sup>th</sup>/17<sup>th</sup> January saw Make Munich being hosted at the Zenith Kulturhalle and we decided to drop by to take a look at what was on offer.

At the entrance, visitors were greeted with robot football, followed by corridors of electronics, programming and crafts. Atmel were present showing off their AVR and SAM D Cortex-M0+ MCUs fitted to Arduino and Genuino boards. One



section of the event had been given over to 3D printers, from desktop devices through to a huge machine capable of printing a chair or small table sized object. We left feeling that the next generation of engineers have plenty of opportunity to get involved - and hopefully some of them will choose a career in embedded development too.

Photos: [bit.ly/makemuc2016](http://bit.ly/makemuc2016)





### Review of ESE-Kongress 2015

Our last event in the 2015 calendar was the ESE Embedded Software Engineering Congress in Sindelfingen at the beginning of December. Over 50 exhibitors greeted the around 1,000 strong participants in the foyer, offering a range of products and solutions for the embedded developer. As Gold Sponsor of the event, iSYSTEM was demonstrating its BlueBox™ On-Chip Analysers as well as a sun-roof application developed by students of the Hochschule Reutlingen.

Erol Simsek, iSYSTEM's CEO, presented a paper covering the issues surrounding tool qualification, a topic of increasing interest. Since the official introduction of ISO26262, iSYSTEM has been asked, with increasingly regularity, how the

development tools used for developing functional safety relevant applications can be proven to be a reliable and trustworthy link in the embedded software development chain. Other industries have been dealing with this issue for much longer, thus providing some much needed reference material upon which to build. A lot of the decision making process revolves around how the design team answers the following question:

*"Can this software tool have a negative impact on the safety of the system?"*

If the answer is 'yes' then it makes sense to have a deeper discussion with all the relevant tool providers.

As a nice diversion from deep technical papers, Dr. Elke Luise Barnstedt presented the topic

"Ethical Responsibility - How free should scientists and engineers be?". As interest in autonomous vehicles grow, engineers are often being challenged with ethical problems as well as purely technical ones. For example, the vehicle should be programmed not to crash into anything. However, in the event that a crash is inevitable (due to the very real limits of physics) how do we decide which of several objects to crash into?

The organisation she represents (KIT) often faces such ethical challenges and provides its teams with Ethical Guidelines that are also available to the general public.

Overall, the congress offers deeply technical content in a compact and flexible 5-day event - a must for today's embedded developer!

Photos: [bit.ly/ese-2015](http://bit.ly/ese-2015)

Ethical Guidelines (German):

[bit.ly/kite-el](http://bit.ly/kite-el)

### If I only changed the software, why is the telephone on fire?

This title, borrowed from Lisa Simone's book of the same name, introduced the topic of the challenges surrounding the development of embedded software for safety critical systems to students of the Hochschule München.

Presented during a 90 minute seminar, Stuart Cording, iSYSTEM's Technical Marketing

Manager, provided an overview of debugging, a review of the first ever embedded systems and listed the types of applications where safety must be given a high priority.

The presentation made much use of historical events that laid the ground for today's standards and design methodologies, including the Apollo Guidance Computer and Therac-25 Radiation Therapy Machine.

As the students have mostly been developing on the BeagleBone Black and have experience with the Linux

operating system, Linux command line tools used for tracing, profiling and code coverage were introduced before digging into how iSYSTEM's BlueBox™ On-Chip Analysers, along with an appropriately selected MCU, can be used to undertake similar analysis.

The fully annotated presentation can be requested by educational institutions from:

[stuart.cording@isystem.com](mailto:stuart.cording@isystem.com)

or, if desired, can also be presented by one of our representatives on site at your institute.

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