

# electronica 2010 shows milestones in CPU development

The topics of virtualisation and multicore are the central thread that runs through the electronica 2010 trade fair to be held from 9th to 12th November at the Munich Trade Fair Centre. Leading international semiconductor manufacturers will exhibit the latest single core and multicore processors with virtualisation support while also demonstrating the matching software in action. The Open Source Automation Development Lab (OSADL) eG will be represented for the first time at the electronica trade fair, exhibiting open source-based process development solutions.

Following the rapid and highly successful introduction of hardware virtualisation in server systems, virtualisation is now gaining ground in control components and embedded systems to an ever increasing extent. Likewise, multicore processor architectures initially conquered server systems, however, they soon moved on to the desktop and are now establishing themselves in embedded systems.

### Virtualisation

It all began with the battle for availability percentages. The original aim of virtualisation was to provide a method of enabling the rapid replacement of inadequate or defective server hardware. An important landmark was the server availability of 99.99 percent, corresponding to a maximum downtime of 52 minutes a year. Nevertheless, it is not possible to fully reinstall a complete system in this time frame. Virtualisation, however, requires only a minimum server environment (host system) to be set up, as the processor actually deployed (guest system) can continue to be used independent of the hardware.

### Single hardware - many operating systems

A further advantage of virtualisation is the possibility of operating several different guest systems simultaneously on one single item of hardware. This provides call centres, for example, with a welcome opportunity of reducing investment and maintenance costs. It allows service staff to work with one single computer yet change over to the customer's system quickly and effectively to replicate a problem. Depending on the virtualisation process, it is possible to operate several virtualised systems on one single core processor. In many cases, multicore processors additionally make it possible to provide a defined number of cores to each virtualised system.

### Security through isolation

Virtualisation is rapidly gaining new applications in the field of safety and security. The possibility of completely isolating a virtualised system and therefore protect it from uncontrollable external influences opens up new dimensions in terms of security systems. Many of the arguments in favour of the use of virtualisation also apply in the automation industry and embedded systems where new processors offer virtualisation support.

## **electronica 2010 shows milestones in CPU development**

Published on Electronic Component News (<http://www.ecnmag.com>)

---

Multicore architectures for increased energy efficiency

Multicore architectures also play an important role in terms of energy efficiency. Energy requirements can be significantly reduced by switching off cores that are currently not required. A particularly interesting aspect of multicore architectures can be found in automation, especially regarding the demands for real-time capabilities. Conventional single core architectures allow real-time capabilities only for one single process, i.e. the process with the highest priority. A design where two not strictly sequential processes are assigned the same highest priority in the system is considered to be flawed. Nevertheless, modern control systems must be capable of processing several signal sources in real-time. This is where multicore processors step in. For the first time parallel real-time is possible by way of appropriate real-time operating systems such as PREEMPT\_RT-Linux. Several processes running simultaneously can be assigned the same highest priority without infringing on the basic principles of real-time systems.

Open Source Automation Development Lab (OSADL) eG at electronica 2010

This year the Open Source Automation Development Lab (OSADL) eG will be represented for the first time at the electronica trade fair. Acting as a “purchasing community for open source services”, OSADL enables its members to develop basic technologies jointly based on open source technology and therefore to reduce development costs. Alongside OSADL itself several of its member companies will be represented at electronica 2010, presenting their latest innovations: Texas Instruments Deutschland GmbH, Freising, (Hall A4, Stand 420), Linutronix GmbH, Uhldingen-Mühlhofen, A6.448 as well as ELTEC Elektronik AG, Mainz, A6.448. In addition, Kontron Embedded Modules GmbH, Deggendorf will exhibit solutions for embedded computer in Hall A6, Stand 606 with PHYTEC Messtechnik GmbH, Mainz, exhibiting microcontroller modules in Hall A6, Stand 612.

**Source URL (retrieved on 05/26/2013 - 12:01am):**

<http://www.ecnmag.com/news/2010/11/electronica-2010-shows-milestones-cpu-development>