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Combined Print Magazine for the European Embedded Market

August 04/15

Cover Story

Developing software for XMC
microcontrollers with greater efficiency



DAVE XMC

YELLOW PAGES 2015

The European Embedded Companies Directory

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Dear Readers,



In the recurring seasons of the year the months July and August mark the summertime with usually a lot of sunshine and tropical heat. And like the annual recurrence of the summertime also the yellow pages of Boards & Solutions + ECE return again every year in the July/August issues. Like last year this year the edition of

Yellow Pages 2015 – The Embedded Companies Directory

This year's edition of our Embedded Companies Directory is split into 2 sections. The first part provides you with short company profiles, including a QR code which leads you to the full company profile (including overview about products & services, contact information, product news,...) on the embedded-control-europe.com portal. The second part of the Yellow Pages is a reference list showing in which product categories the companies are active.

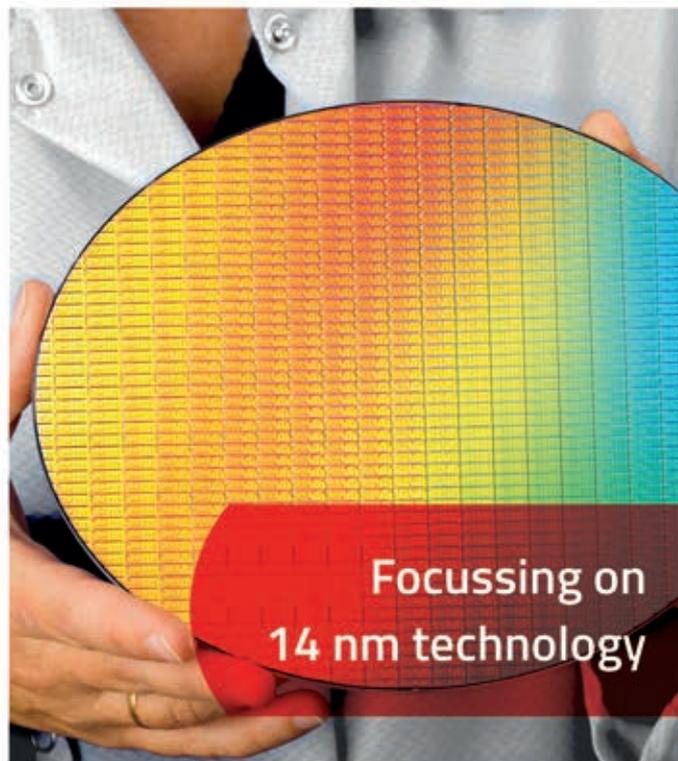
But – as usual - beside the Yellow Pages 2015 this August issue contains much more information about actual trends in the embedded market place to keep our readers updated. If you look for example at microcontrollers a basic product in the embedded industry you'll recognize the ongoing trend to increased use of ARM cores and customer specific or application specific peripherals. This means also you have to have the corresponding development environment to create the required software. For this reason Infineon for example is providing an extensive peripheral- and application-oriented component-based code repository in its Eclipse based DAVE development platform. The company now has systematically further developed and expanded its development platform to Version 4 in order to allow abstracting scalable yet efficient hardware-level, component-based programming for its XMC microcontrollers. The adaptations and expansions include, among other things, improved data models and improved graphics, scalable software drivers for individual peripherals, the device driver, the XMC Lib, and software components for dedicated applications so called DAVE APPs. The depiction, modularity, and abstraction in the development environment simplify the reusability and efficiency of the software development.

Another article explains in detail why the Internet of Things, as well as the ever-decreasing timescales in the embedded development is driving the industry to the development kit revolution. In recent years there has been a huge increase in the number of development kits from major semiconductor manufacturers that are available to hardware engineers designing all sorts of end products.

But do not forget the “good old oscilloscope” in the development of embedded products. These instruments have passed through major innovations like the improvement of trigger functions and long segmented memory options to fulfil the increasing challenges of complex embedded product design. This issue contains two corresponding articles.

Yours Sincerely

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Editor



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Analyzing long signal sequences with the oscilloscope 23



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COM Express: reliable and robust solutions with latest Intel CPUs 26



COM Express is the leading form factor in the area of modular embedded PC solutions, covering performance classes from simple single-core designs to high-performance multi-core solutions. This article reviews the factors that need to be considered in implementing reliable and robust systems.

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Developing software for XMC microcontrollers with greater efficiency

By Matthias Ackermann, Infineon

Infineon has significantly improved its DAVE embedded development environment: Version 4 of DAVE focuses on improvement of data models, methodology, and user-friendliness in order to allow much quicker software development for XMC microcontrollers.

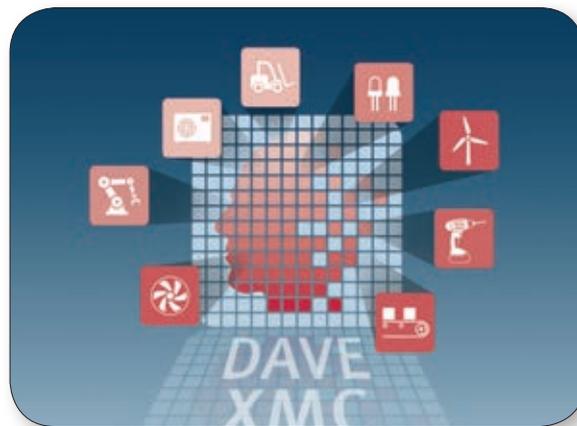


Figure 1. With Version 4, Infineon has modernized the DAVE development environment, which now also includes new DAVE APPs (software components) for many applications

■ The DAVE professional Eclipse-based development platform guides and supports users during software development – from evaluation to the end product. For this, Infineon is providing, among other things, an extensive peripheral- and application-oriented, component-based code repository. In addition, DAVE generates the necessary code for the peripherals of Infineon XMC microcontrollers. This complementary approach allows the user to employ available commercial third-party tools for ARM to translate the C source code configured and generated in DAVE, link it, and load it to the microcontroller (MCU). This completely covers the development cycle from evaluation to the first prototype and the end product. Also, the user has a maximum degree of freedom for fast and efficient platform-oriented software and product development.

The embedded industry is increasingly standardizing (ARM cores) while at the same time the integration density of manufacturer-specific peripherals is growing, as is the

range of MCU products. Abstractions such as those Infineon planned for DAVE (version 4) are needed in order to keep pace with these developments. They allow the developer to focus on the actual application without having to acquire comprehensive MCU hardware knowledge; this ultimately shortens development times and decreases the probability of errors. DAVE in Version 4 is systematically further developed and expanded in order to allow abstracting scalable yet efficient hardware-level, component-based programming for XMC microcontrollers.

The adaptations and expansions include, among other things, improved data models and improved graphics, scalable software drivers for individual peripherals (the device driver, the XMC Lib), and software components for dedicated applications (DAVE APPs). The depiction, modularity, and abstraction in the development environment simplify the reusability and efficiency of the software development. DAVE is an Eclipse-based development

environment (IDE), including GNU C compiler, debugger, resource solver, and code generation. XMC Lib is a static device driver layer in accordance with CMSIS and MISRA-C:2004, library of Application Programmable Interfaces (APIs) for XMC microcontroller peripherals. DAVE APPs are graphically configurable, abstracting application-oriented software components. DAVE SDK is the Software Development Kit for the modification or expansion of existing DAVE APPs or the development of new DAVE APPs. There is a collection of examples that are also intended for further use. The examples encompass applications on the basis of XMC Lib and DAVE APPs. Third parties are also included: XMC Lib and the code generated with DAVE are suitable for use with a compiler of, for example, GCC, ARM, Tasking, and IAR and can be used with standard development environments such as of Altium, ARM/Keil, Atollic, IAR Systems, and Rowley. In addition to improved operability and graphics, Infineon has introduced novel functions such as DAVE APP Tree Dependency and Pin

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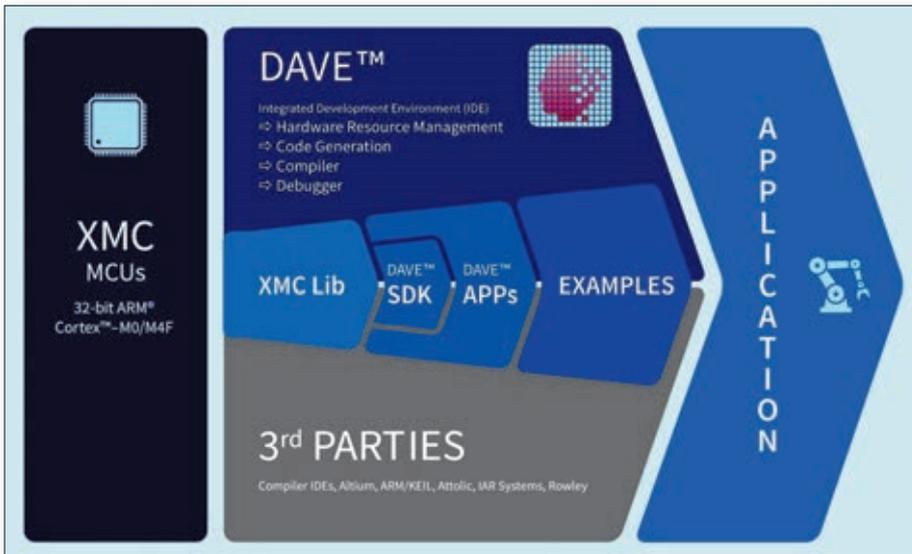


Figure 2. DAVE abstracts from concrete peripheral modules. The combination of XMC Lib, DAVE SDK, DAVE APPS, and complete examples facilitates the writing of the users own programs for XMC microcontrollers

Assignment View. The latter, for instance, provides a clear graphical depiction of the manual pin assignment on the selected package.

One of the measures to improve the reuse of the software and components available in DAVE was the introduction of a static device driver layer known as XMC Lib. It is subordinated to the DAVE APPS, but can also be used independently of DAVE APPS or DAVE in standard third-party development environments. Both XMC Lib and DAVE APPS with the graphical user interface offer optimized software components that allow the user to program quickly and with hardware abstraction. The new XMC Lib software layer means that the DAVE APPS do not access the microcontroller registers and peripherals registers directly, but instead use the applicable XMC Lib API. This not only increases reusability; it also improves the clarity and readability of the source code generated. To further improve readability, scalability, and reusability, users

can also freely define user labels for the DAVE APP instance in question. User labels serve as handlers (a pointer to the object) that let DAVE APP methods (APIs) to be applied to the desired DAVE APP instance. DAVE contains a resource solver that allows users to easily program even complex applications on or near the hardware level by means of graphical configurations and combinations of DAVE APPS and XMC Lib. Here, the developer first defines the necessary resources logically (virtually) in the DAVE APP.

The resource solver then assigns the logical resources to the physical hardware resources of the respective microcontroller. The resource solver follows the constraint logic programming method while doing so. Based on this, DAVE generates an easily readable and comprehensively documented source code that includes header files, the initialization code, and the actual functions that Infineon provides for further license-free use.

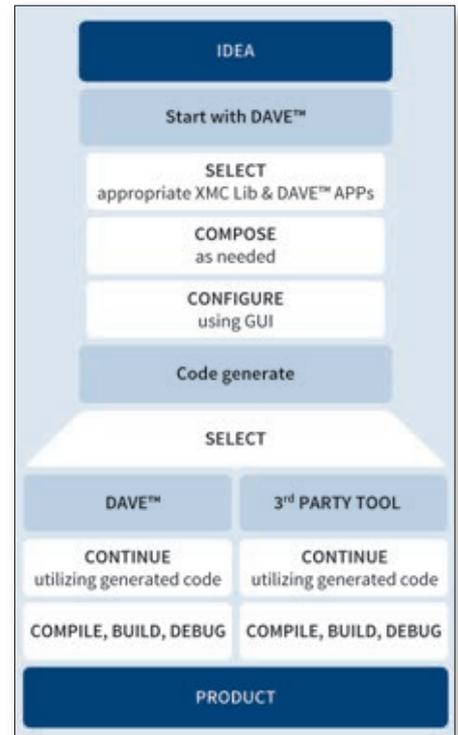


Figure 3. Typical development process: DAVE and commercial ARM development tools work hand in hand

With the new, additional Software Development Kit – the DAVE SDK – the user now can modify and expand existing DAVE APPS and also develop completely new ones. The users can thus construct their own modular software repository. DAVE SDK is an independent Eclipse instance that is part of the DAVE installation package. This allows the expansion of the features DAVE APPS have to offer – for example, the addition of communication stacks that the developer can simply incorporate into the application. In principle, DAVE SDK can also be used without XMC microcontroller resource definition. For example, static libraries of any kind can be configured using a graphic user



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Figure 4. The ARM-based XMC microcontrollers are suitable for various industrial applications, including factory and building automation, transportation, power and energy, and simple motor controls, such as those for the home and professional sector

the previous development environment and DAVE APPs. However, system performance and response have been improved on the basis of the optimized data models for chip configuration and resource management. With the launch of Version 4, Infineon will provide an extensive package for a quick introduction or transition to DAVE (Version 4) development environment that includes sample projects for XMC Lib and DAVE APPs, videos, tutorials, application notes, and migration guidelines for the further use of configured and generated source codes with a third-party tool. DAVE and commercial ARM development environments will work hand in hand during this process.

Source code generated by DAVE and the XMC Lib made available are both suitable for use with compilers of GCC, ARM, Tasking, and IAR. It can be used with the Altium, ARM/Keil, Atollic, IAR Systems, and Rowley development environments. From evaluation to end product, the user can continue to use the free DAVE or the code configured with DAVE with a commercially available ARM development environment. This forms the foundation for the software scalability and reusability, as well as for programming at a high level of abstraction and achieving an efficient development process without the necessity of acquiring extensive development knowledge of MCU hardware or real-time software.

interface, thus simplifying their reusability. The far-reaching modifications and optimizations carried out in the course of the introduction of the Version 4 of DAVE have resulted in incompatibility with

With its comprehensive code repository and modularity and scalability, DAVE supports an efficient software development process based on established methods in the area of PC or server-software development. On the one hand, this provides the user with a free of charge and extremely efficient tool for code generation and software development for XMC microcontrollers. On the other hand, the user is also able to optimally utilize the available peripheral performance and real-time ability of what in the future will be more than 160 XMC derivatives. ■

Product News

■ Green Hills demonstrates secure platform for automotive consolidation on i.MX 6

Green Hills has extended its INTEGRITY automotive consolidation platform to the Freescale i.MX 6 series Smart Application Blueprint for Rapid Engineering (SABRE) for automotive infotainment board, giving car-makers and their suppliers another processor choice on which to safely and securely consolidate multi-domain cockpit software – digital instrument cluster, entertainment, navigation, driver assistance – into smaller, simpler and less costly configurations.

[News ID 3227](#)

■ Mouser: SensorTag kit connects sensors to the cloud in minutes

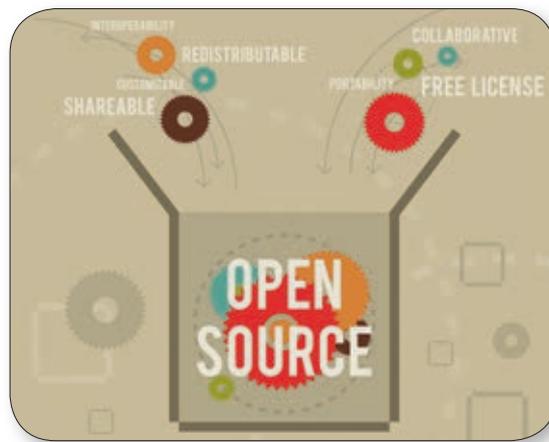
Mouser Electronics is now stocking the SimpleLink multi-standard SensorTag development kit from Texas Instruments. Enabling quick and easy integration of sensor data with wireless cloud connectivity, the SensorTag helps jump-start development for Internet of Things applications by offering flexible development with multiple wireless connectivity options, including Bluetooth low energy (BLE or Bluetooth Smart), 6LoWPAN and ZigBee.

[News ID 3177](#)

Open source vs. proprietary: an embedded hardware issue

By Michael Parks, P.E., and Lynnette Reese, Mouser Electronics

Fewer things ignite more passion in software geeks than the debate of open source versus proprietary code, but when going to market with an embedded system, sometimes you don't get a choice.



■ Source code has a lot to do with the concerns that businesses have concerning control of their destiny and future costs. Source code is a set of human-readable (mostly) instructions that tell a processor what to do. Before it can be used by a computer it must be compiled or interpreted into binary object code. If you have the source code, you can modify it and recompile it to meet your specific needs. You can also do an independent review to ensure there are no bugs or hidden backdoors. Operating systems can also be open source and therefore transparent, but work at a deeper level on the processor to provide interrupt handling, peripheral management, and more.

With open source, you are not beholden to another party to keep your product working. Proprietary-based systems, if they are not home-grown and thus belonging to you are open to the possibility of getting “orphaned” if the proprietary software is abandoned. For example, an operating system (OS) might be purchased from and maintained by another company, but what happens if that company gets bought by your competitor? Updates and bug fixes would be done to their schedule. Worse, you might be ordered to cease and desist using the software immediately. On the other hand, if you go with an open source compiler or operating system, you need to know

what you are doing; open source is rarely turn-key in the embedded world. You also need to have reasonable expectations of what the open source maintenance community can do with respect to your need-for-speed in going to market, since open source may adopt a specific technology at a comparatively glacial pace. You can always roll up your sleeves and create and contribute to the open source community for what you need, but even then the acceptance into the formal repository (e.g. the maintained Linux “tree” for a specific embedded processor) may not proceed as you would like. If you do not contribute your changes back to the community, which is entirely legal, no one will help you maintain it but you, no matter how good you think it is (this is known as “forking” the code). Sometimes you don’t have a choice in whether you use proprietary or open source, however.

A processor may not have an open source operating system, software, or tools. The immediate choice is to use a proprietary version, or if you have the time, start an open source tree or library on your own. It would be remiss not to include a mention about open source hardware (OSHW). OSHW is similarly “open,” especially if source files for the schematics are provided, but the openness may stop at the doorstep of the SoC, processor, or a support chip on the board. OSHW can

also be supported by proprietary development tools, as well, depending upon the processor. Nevertheless, an open source movement is afoot, inspired perhaps by Linux.

Both open source and proprietary software have equal shares of misconception. Further complicating matters for open source is the vast number of licenses that can confuse even the savviest technologist. The Open Source Initiative states, “Open source software is software that can be freely used, changed, and shared (in modified or unmodified form) by anyone. Open source software is made by many people, and distributed under licenses that comply with the Open Source Definition.”

Some of the most popular open source licenses include the Creative Commons, Apache License, BSD, GNU General Public License (GPL), MIT License, and the Mozilla Public License. For a complete listing, you can head over here. Open source licensing varies, but a typical license ensures that if you build or expand on an open source project, you are given attribution and those who build upon your work must also release their code under the same license. This prevents someone else from unfairly profiting from your hard work, or at the very least, making it much harder to do so. Open source software is fundamentally about sharing and gaining wisdom from the crowd. Many larger,

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Figure 1. Latest Texas Instrument (OSHW) LaunchPad features the MSP432 processor and is aimed at the portables, wearables, smart grid, medical, and automation control markets.

non-corporately backed open source projects rely on a small army of volunteers to develop, debug, and document source code. Some projects gather a significantly large enough community for developers to receive some modest amount of funding via donations solicited from end users. The collaborative nature of open source projects between the user community and developers can become quite a remarkable resource to entice new users and coders alike. Recognition for participating in an open source project is another alluring appeal for independent developers.

In contrast, with proprietary software the proprietor retains significantly more in legal rights by enforcing copyright restrictions. Typically, proprietary software is closed source with no access to the source code even when the application is purchased. The complete list of limitations is typically contained in an End User License Agreement or other legally binding document, and tends to involve restrictions on modification, sharing, redistribution, and reverse engineering. At the end of the day, proprietary software is about protecting Intellectual Property (IP).

It is important to note that open source does not necessarily mean cost-free, and proprietary does not necessarily mean that it costs money to use. Nor is it true that open source is only for amateur projects while professional products are all proprietary. However, should you select a proprietary platform, be sure to understand the licensing fee structure, if one exists, so that you aren't shocked with a bill when you are

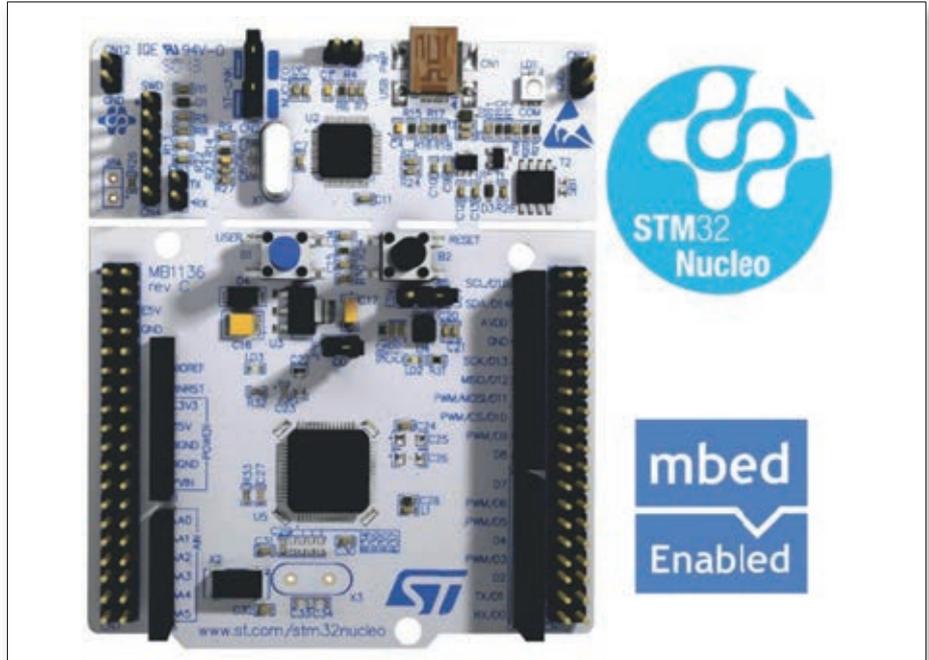


Figure 2. The OSHW Nucleo is about \$10, includes free mbed.org software tools and is also supported by KEIL tools. STM32 Nucleo is compatible with most Arduino shields.

ready to go into production. Otherwise known as royalties, the fees associated with acquiring a license allow the developers to dedicate their time to refining and debugging their application-specific code. From a developer perspective, this means that proprietary OEM support should be prompt and the support will ideally be there for a long time (in some cases, a maintenance and support agreement must be paid on an annual basis).

Since commercial and industrial embedded systems tend to have lifespans that last many years, if not decades, the longevity of reach-back support can be crucial. Support for open source software might in some cases be more unreliable in comparison to proprietary. But at least you have access to the source code and can make changes if you have enough expertise, time, or money to hire someone to do it for you. With proprietary code, there is no legal basis to access source code or make changes without the originator's consent.

Just to make matters even more complex, it is also possible to have software that contains a mix of both proprietary and open source code. For example, Apple OS X operating system builds upon the open UNIX operating system. However, the windowing system that drives the OS X GUI is not open source. There are many embedded systems that have open source operating systems with custom adjustments. Google Android operating system source code is taken and customized by carriers to install on their authorized phones, which is legal but is not necessarily supported or maintained by Google. (This customization often results in bloatware.) Historically

the embedded electronics world has been dominated by proprietary software, including things like the integrated development environment (IDE), real-time operating systems (RTOS), and firmware libraries. Platforms such as Arduino are attempting to change that, but many professional platforms remain locked behind proprietary license agreements. It's not just open source communities that are pushing for change, the U.S. Department of Defense and NASA are also pushing for open software architectures to enable collaboration and data sharing and prevent vendor lock.

Some established embedded-platform OEM companies are beginning to respond to developer desire for more open source solutions. Others are at least rethinking the licensing. From IDE (a development tool) perspective, the open source Arduino IDE is rather spartan when compared to other platform IDEs such as Texas Instrument's Code Composer Studio, which includes many significant professional development features such as power consumption monitoring. TI is also supporting an open source product called Energia as an alternative, for various TI microcontroller products. STMicroelectronics STM32 Open Development Environment (STM32ODE) is another example of a company that is adapting to changing licensing models.

The STM32 Open Development Environment includes their OSHW Nucleo boards. In the end game, TI and STM are chip makers focused on providing cutting-edge integrated chips, but they also understand that silicon is not the whole embedded picture. Hardware is also undergoing an open source revolu-

Product News

tion. The discussion surrounding hardware is perhaps unsurprisingly more complicated. Software source code is granted copyright protection as soon as it's written down. Furthermore, nothing tangible comes from source code. In the hardware world, that isn't true. CAD design files or 3D printer STL files eventually get turned into a physical product. Does copyright apply to the design files only, or does it also cover the eventual tangible product? Even if conventional wisdom holds that copyright doesn't apply to hardware, these are uncharted waters that haven't been tested in the courts yet. There are specialized open source hardware licenses, with two of the most popular being the CERN Open Hardware License and the TAPR Open Hardware License.

With respect to the embedded development world, the choice of using open source or proprietary software is often driven by the hardware selection. If a microcontroller or FPGA that meets project specifications only comes from a vendor that has locked their code behind a proprietary license, then you really have little choice but to accept it. You might try to negotiate additional data rights, but not without adding significant cost to your budget. With that said, as hardware becomes more commoditized and multiple vendors offer similarly capable hardware solutions, the more software licensing may affect the balance of overall offerings and create differentiation. Therefore, it's reasonable to assume that as products become more commoditized, more vendors will offer choices on the software side of things. The licensing structure of the IDE, (RT)OS and libraries may be enough to sway developers to pick one platform over another. ■

For further information, visit the section Application & Technologies of www.mouser.com

■ Alldaq: dynamic current measurement up to 50 A

The ALLDAQ ADQ-412 is a CompactPCI board for dynamic current measurement from a few micro-ampere up to 50 A via shunt. Typical applications are the quality assurance, especially the analysis of current spikes on the one hand and the measuring of leakage currents on the other hand or the evaluation of high-frequency current portion in switching power supplies.

[News ID 3167](#)

■ Rohde & Schwarz to expand collaboration with Avnet and EBV Elektronik

The Rohde & Schwarz electronics group has signed an extensive partnership agreement with Avnet and EBV Elektronik, two leading distributors for electronic components, in order to ensure the optimal availability of its electronic components and the corresponding technical support. The contract provides a foundation that enables the companies to continue and extend their existing long-term partnership.

[News ID 3157](#)

■ Lauterbach and GuruCE announce official partnership

Lauterbach and GuruCE, manufacturer of high quality Microsoft Windows Embedded Compact BSPs, announced a deepening of their relationship in the form of an official partnership between GuruCE and Lauterbach. The experts at GuruCE and Lauterbach already have a long working relationship that is now brought to an even higher level of cooperation.

[News ID 3120](#)

■ Express Logic: Renesas selects X-Ware for use in Synergy platform

Express Logic announced that Renesas Electronics has selected Express Logic's X-Ware exclusively as the cornerstone software solution for its new Renesas Synergy Software Package. X-Ware encompasses the popular ThreadX RTOS, NetX IPV4 and NetX DUO IPv4/IPV6 TCP/IP stacks, USBX USB Host/Device/OTG protocol stack, FileX MS-DOS-compatible file system, GUIX graphical user interface and the TraceX graphical event-analysis tool.

[News ID 3149](#)

■ Phaedrus: SSL/TLS implementation for single-chip systems

Phaedrus System is releasing a new version of Segger's emSSL secure sockets implementation with both client and server capability. Needing only 7KB of RAM to support a secure connection between browser and the web-server makes emSSL suitable for operation on single-chip systems.

[News ID 3193](#)

■ Express Logic: ThreadX meets ISO 26262 requirements

Express Logic announced that its ThreadX RTOS has been certified by SGS-TÜV Saar for use in the highest integrity levels of ISO 26262, the international standard governing automotive electronic and electrical systems. SGS-TÜV Saar, the leading accredited, independent company for testing, auditing, verifying, and certifying embedded software for safety-related systems, analyzed and verified the ThreadX RTOS for use in the development of such systems.

[News ID 3115](#)

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What the development kit revolution means to design engineers

By Shawn Silberhorn, Conrad Business Supplies

This article explains why the Internet of Things and ever-decreasing timescales are driving through huge changes in the electronics industry.



Figure 1. Conrad's range of development kits includes amongst many others the WunderBar by relayr (top left), Freescale Freedom Development Platform (bottom right), Texas Instruments SimpleLink WiFi CC3200 LaunchPad (middle left) and the UDOO Prototyping-Board (top right).

■ Design and development engineers know that speeding up the process of creating and delivering new or upgraded products is the ultimate Holy Grail. However, an increasingly competitive marketplace for solutions that make this possible can leave engineers confused and bewildered about which is the best route to take to reach that goal. Whether designing, testing and building new products from scratch, or improving existing products through enhancements, with the aim of meeting what seem to be ever-demanding customer expectations, engineers are up against it. How can it be possible to trim development times over and over again to give a manufacturer a genuine competitive edge? And how can maximum functionality, performance and reliability of the finished product be maintained while continually making such cuts?

On top of this, as well as time pressures from development to delivery, there is now the need to develop products that have extensive interactivity built into them. The reason for this is that they now need to be compatible for use within the Internet of Things (IoT), which aims to connect previously stand-alone devices seamlessly to make them smart, intelligent and able to communicate with each other. Whatever you may have read or been told to the contrary, the IoT has become a reality and in many application areas, elements of it are already

happening as you read this. Companies that feel they do not need to develop solutions that will be able to communicate in this way in the future run the risk of being left behind. And as every development engineer knows, such a position is simply untenable.

There are many in the electronics industry that have called the IoT the fourth industrial revolution, raising in some circles the accusation that the 'R' word is in serious danger of being overused. That may or may not be the case. However, the key to rapid product development and connectivity can genuinely be called a mini-revolution in its own right – the growth of the development kit. In some quarters, warnings have been issued that the development kit is not a panacea for every design and development engineer's problems. You can take alternative routes that offer more flexibility than an off-the-shelf kit. Those design and development engineers who want to focus almost entirely on software functionality without having to concern themselves for too long with hardware matters are finding that development kits are, indeed, the ideal solution to their requirements.

In recent years there has been a huge increase in the number of development kits from major semiconductor manufacturers that are available to hardware engineers designing all sorts

of end products. It's fair to say that the value of such kits in helping to speed up and simplify the process from a research and development concept to finished, full production item cannot be overestimated. But it is perhaps the growth of the Internet of Things that is the main driving force here because it relies on easy-to-use and accessible technology – and development kits fit perfectly into that category. According to some estimates, by 2020 there could be close to 50 billion IoT nodes around the world and this number is expected to be dwarfed in the years that will follow.

Not surprising, then, that some respected figures in the electronics industry have expressed concern that devices embedding processors in them for use in the Internet of Things are not being developed quickly enough. Indeed, in some sectors the increasingly popular feeling is that the industry can never have too many starter kits when it comes to designing and producing devices that connect to the internet – and there is little likelihood that this view will change. As part of its ability to ensure speedy product development, an important feature of any starter kit has to be that it is based around Open Source hardware and Cloud platforms, making it not just flexible and convenient but easy to use as well. One such development tool recently introduced to the market is the WunderBar IoT WiFi and Bluetooth

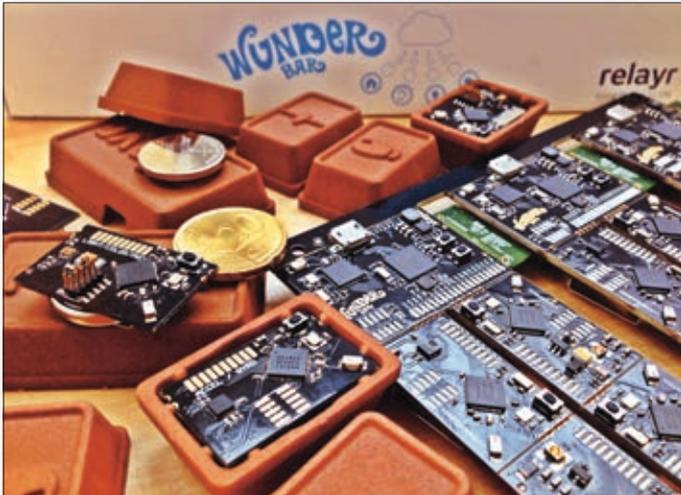


Figure 2. In combination with the WunderBar IoT Starter kit relayr offers an OpenSensor Cloud platform enabling device makers and manufacturers, app developers and software companies to create new applications and services.

sensor starter kit from relayr which is designed for software application developers who are not familiar with complex wireless hardware designing. The kit is intended to offer hardware design and application engineers an 'out-of-the-box' development tool that enables them to build, invent, develop and experiment with IoT- based designs/applications with minimum fuss. The WunderBar IoT starter kit features six detachable smart sensor mini-modules, each of which features Bluetooth low energy (BLE), a sensor or actuator, and an on-board battery. The mini-modules deliver light, colour, distance, noise, temperature and humidity sensing as well as an accelerometer, a gyroscope and infra-red remote control capability.

Another piece of kit on the market is the Freescale Freedom development platform. Ideal for rapid prototyping and the speedy development of microcontroller-based applications. This kit is built on the ARM Cortex-M0 + core and serves as an evaluation board for the KL1 and KL2 Kinetis blocks of the L-series. Meanwhile, the SimpleLink CC3200 wireless link is the first single-chip microcontroller (MCU) with built-in Wi-Fi for the LaunchPad system. Featuring a high-performance ARM Cortex-M4 microcontroller which enables customers to develop an entire application with a single circuit, the link includes internet and security protocols which make design and development possible with no previous knowledge of wireless local area networks (WLANs). Another useful tool is the powerful UDOO Quad-core prototyping board for software development and hardware design. A single-board mini PC that can



Figure 3. UDOO is a powerful board based on a dual or quad core ARM cortex-A9 CPU with a dedicated ARM processor.

be used with Android and Linux operating systems, the open hardware UDOO enables projects to be developed for the Internet of Things with minimum knowledge of hardware. All on the same board, the unit has an ARM i.MX6 Freescale processor and an Arduino Due compatible section based on ATMEL SAM3X ARM processor. Last but certainly not least, MikroElektronika accessory and add-on click-boards – based on application technology from leading manufacturers – offer a compact yet high-quality multimedia, sensors, and connectivity development solution. Various on-board 'add-on' modules make it easier for developers to create various applications. The MikroElektronika click-board range embraces sensors, displays, audio, motor control, communication and fibre optics. Of course, since distributors serve the needs of customers in the design and development phase of products, it makes perfect sense for them to offer embedded engineering professionals as many development kits as possible. That's why all of the solutions listed already are available from Conrad Business Supplies, which aims to simplify and accelerate the designs of new and innovative products in the electronics industry. Currently, the company offers over 5,000 development and prototyping products, accessories and tools which support embedded processor-based applications and Open Source third party software and hardware. By expanding its range of development and prototyping kits, Conrad intends to become the preferred partner for engineers looking to design and develop innovative new technology within the shortest possible timescales but to the highest available standards. Companies like Conrad believe that the Internet of Things is most definitely happening. It will be upon us and impacting our day-to-day lives within a very short time, and the company is determined to play a key role in its roll-out and in enabling businesses to reap maximum benefits from the latest, innovative technologies. ■

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The Yocto Project - your custom embedded Linux distribution

By Jan-Simon Moeller, Consultant & Trainer,
Linux Foundation Training Program

The Embedded Linux Platform provided by the Yocto Project has the ability to generate a Linux-based embedded system customized to the specifics of any given project. By customizing workflow and utilizing facilities which exist to assist licence compliance, Yocto can be even more valuable for custom distribution.

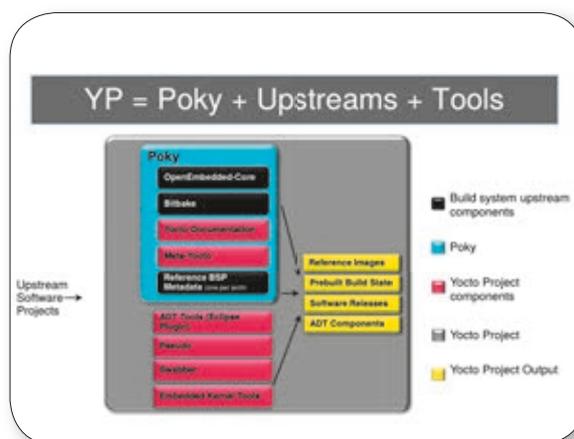


Figure 1. Components of the Yocto Project and its upstream projects

■ It's not an embedded Linux distribution – it creates a custom one for you. This is the headline on the Yocto Project website (<https://www.yoctoproject.org/>), and it really describes its mission. Creating a custom Linux-based operation system tailored for the specifics of an embedded board and the requirements of the future product can be hard, but it is here to help. Yocto Project, which is a collaborative, open source project managed by The Linux Foundation, supports multiple architectures including x86(32-/64-bit), PPC, ARM, and MIPS. An increasing number of boards are supported through board support layers.

To begin, let's first take a brief look at the core components of the Yocto Project. As you can see in figure 1, the Project is a collection of multiple components. It integrates parts jointly developed with sister project OpenEmbedded (<http://openembedded.org>), including BitBake, OpenEmbedded-Core and other metadata. Components developed under the umbrella of the Yocto Project, namely the meta-yocto and meta-yocto-bsp, Eclipse integration and additional tools are included. Combined, they enhance the tools of the OpenEmbedded project with the Yocto components and form the Poky reference platform. You can say that Poky is an enhanced framework to build Linux-based systems. Think of it as Buildroot on Steroids.

To build software, we need a (cross-)tool-chain - the sources and instructions on how to compile the source files. That is enough for a single source. But with more components, build-time and run-time dependencies, complexity grows and additional steps are needed. These steps form a recipe to build the software in question. Variants could be set up based on policies like target architecture or target hardware. The conclusion is that OpenEmbedded-Core is such a collection of recipes - it is actually the foundational set of recipes. meta-yocto and meta-yocto-bsp are also collections of recipes and enhance the metadata of OE-Core. Bitbake is now the parser and executor of the aforementioned recipes and calculates the chain of tasks needed to build the defined target and executes it.

To get started with Yocto, the user just needs to create a new project environment and edit the file `conf/local.conf` to choose the target board through the variable `MACHINE` before he simply executes `bitbake` followed by a target like `bitbake-core-image-minimal`. But the real strength of the Yocto Project lies in its flexibility to add additional recipes, amend existing recipes or change policies by adding metadata in a so-named layer on-top of the existing stack of layers (OE-Core + meta-yocto + meta-yocto-bsp). An example of extending a recipe file which is by convention

named with the extension `.bb` (e.g. `hello.bb`) is as simple as adding a file with the same name and the extension `.bbappend` (e.g. `hello.bbappend`). This drastically reduces maintenance work as system integrators just have to track the smaller amendment of the `.bbappend` file instead of a full copy. Maintenance updates of the upstream projects are thus inherited by rebuilding the image without editing a single metadata file. This is a clear advantage, which justifies the extra brain cycles necessary to create small `.bbappend` files instead of editing copies of the original recipes. The recipes are kept in layers within subfolders for each functional topic. Multiple layers can be used at the same time. This concept is shown in figure 2 – layers add hardware support, application support and even local adaptations and can be mixed and matched as needed.

To try out the Yocto Project reference platform poky, you just need a machine running Linux, 80GB of free hard disk space, and to follow this short 5-step guide:

```
[start Box, Font Courier]
# Create a subfolder
>mkdiryocto ; cd yocto

# Download poky:
>wget -O poky.tar.bz2 -ndhttp://bit.ly/YCpoky
>tar -xf poky.tar.bz2
```

```
# create new project environment
>source poky-dizzy-12.0.0/
oe-init-build-envmyproj

# the default is qemu86
# as you can see in
# conf/local.conf
# we just run the build
# - needs network, a lot of disk
# and (cpu)time

>bitbake core-image-minimal

# output is in
# tmp/deploy/images
# test it with
>runqemu
[stop Box, Font Courier]
```

As you will notice, the initial build takes quite some time as it needs to fetch the sources and compile everything including the cross-compiler/toolchain. A reasonable question is how that would scale across workgroups or even work behind corporate firewalls? Yocto has answers to these questions. One feature is the use of a download folder (DL_DIR in local.conf) which is a cache for downloads, and is the first place bitbake looks for sources. This makes it possible to have a shared download

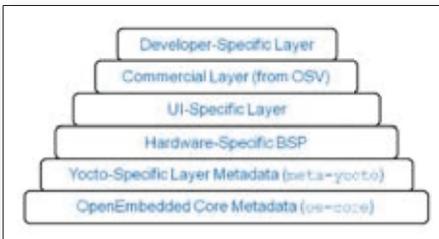


Figure 2. Use of Layers in the Yocto Project/ Poky



Figure 3. Materials needed for the IP Camera using the Raspberry Pi A+ and the Yocto Project

folder. On the other hand, the PREMIRRORS feature allows us to direct download cache misses to an in-house mirror.

The other issue regarding scaling is the actual compile-time. You saw - or still see - how long it takes to download and build all bits and pieces for the core-image-minimal - now do the math for a workgroup of 10. Phew! What a waste of CPU-time. Yocto can do better, and offers us the SSTATE_CACHE. This is a cache for build-results per target environment (combination of machine+compiler). We can point future project folders to an existing SSTATE_CACHE folder and bitbake will pick up the existing binaries and the build will speed up dramatically. There is also SSTATE_MIRRORS, which could be a URL in the local network (e.g. fed by an autobuilder or continuous integration). This would then provide recent binaries to all members of the workgroup. As you can imagine, this is just the tip of the iceberg in terms of customization possible within the Yocto Project.

Another important part is to know about the licences for the software used in the file system, or even exclude software with certain licences. First of all every software built with Yocto has to state its licence in the recipe. Every package built with Yocto has a subfolder in the directory <myproj/tmp/deploy/licenses/>. This means we can track and verify what licences are used in the target filesystem. Also, we can either blacklist or whitelist licences and thus exclude or include software released under these licences. Blacklisting is done with INCOMPATIBLE_LICENSE and whitelisting is possible with LICENSE_FLAGS or LICENSE_FLAGS_WHITELIST.

Let us round up this introduction with a few notes about best practices. An important lesson to learn is to use continuous integration right from the beginning. Not only does it decrease time-to-market and the lifetime of the released software in the product, it also simplifies further updates and upgrades. This can be automated, for example with a setup of gerrit and jenkins. On-top tracking the tip of the development enables you to work directly with the upstream Yocto Project developers and influence the development by submitting patches to make the next release and update cycle simple.

A final word on updates: in a connected world and with the Internet-of-Things right in front of us, we need to care about timely and frequent updates. This means two things: a) you need to be able to adapt and import these fixes (remember the continuous integration?!), and b) the devices need to fetch and apply the updates. The Yocto Project can be configured to output packages and package-feeds of

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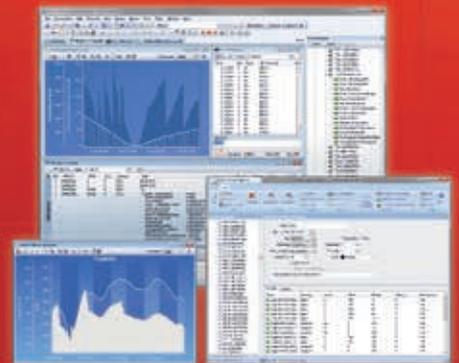
PCAN-Diag 2

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various formats and sizes (rpm, dpkg, opkg) to provide this. In case you now are thinking, "I'd like to learn more..." - Linux Foundation course LFD405 (02 Mar 2015 in Stuttgart, see training. linuxfoundation.org) might be a perfect fit, as well as the Yocto Project Developer Days event.

The following example will guide you through the steps needed to create an IP Camera using the Raspberry Pi A+ and the Yocto Project. Materials needed: Raspberry Pi A or B (A+ and B+ with newer kernel), USB-Wifi dongle with antenna connector/external antenna, antenna extension cable, camera module, micro-SD card, camera case, 5V power supply, FTDI serial cable, and a Linux PC. For the software, we will use the current release of the Yocto Project which is version 1.7 (dizzy). The following command sequence will download

and setup the environment, configure, and build the filesystem. To support the Raspberry Pi, we will have to include an additional layer named meta-raspberrypi which in turn depends on meta-multimedia. After that, we need to set up a new project folder and add the layers as well as configure the file conf/local.conf. For simplicity, a git repository with a couple of scripts is available here: <https://github.com/dl9pf/YoctoCamera>.

```
#Step 1: Download and setup
git clone https://github.com/dl9pf/
YoctoCamera
cdYoctoCamera
./1_download.sh
```

```
#Step 2: Change the layer configuration and
#      adapt conf/local.conf
```

```
./2_setup.sh
```

```
#Step 3: Build the sdcard image
./3_build.sh
```

While the build runs it is time to assemble the hardware. The camera needs to be connected to the socket between HDMI and sound - be careful with the cable and the connector. For the antenna, we drill a hole in the case and mount the extension cable there.

The Wifi dongle ends up in the USB port. The board is powered as usual with a micro-USB cable. We just use a standard cable and USB power supply. Once the build finishes, we can test-boot the system. You should attach a serial cable to the Raspberry Pi. The final steps are documented in the file BOARDSETUP. ■

Product News

■ Green Hills: RTOS multicore support for OCTEON III SoC processors from Cavium

Green Hills Software and Cavium announce the availability of Green Hills Software's multicore development solutions for Cavium's OCTEON III family of multicore processors.

[News ID 3180](#)

■ Segger: SSL/TLS solution for single-chip systems

SEGGER is releasing a new version of its emSSL secure sockets implementation with both client and server capability. The minimized RAM usage allows operation on single-chip systems. A secure connection between browser and the webserver supported by emSSL requires only 7KB of RAM. With such small RAM requirements, even small embedded devices can send e-mail via encrypted connections or and retrieve or serve secure web pages using HTTPS. The product works seamlessly with SEGGER's embOS/IP, the high performance IP Stack, as well as with the embOS/IP Web Server extension.

[News ID 3166](#)

■ Data Translation: USB data acquisition modules in versions from two to 48 inputs

Data Translation offers three USB data acquisition modules as complete high-accuracy temperature measurement solutions including the easy-to-use QuickDAQ data logging software. The DT9828, DT9829 and DT9874 modules support the direct connection of thermocouples and the thermistors, and provide highly accurate 24-bit A/D technology and galvanic isolation. Available in versions from two to 48 inputs, the modules are designed for maximum ease of use.

[News ID 3152](#)

■ PragmaDev: system modeling listed as the main upcoming topic in 2015

PragmaDev latest survey indicates system modeling, model simulation, testing, and test generation are the top upcoming topics. Most popular modeling technologies are UML, Matlab, SDL, and SysML. The survey also confirmed last year's results indicating a substantial decrease in UML usage forecast for the fifth year in a row.

[News ID 3048](#)

■ BittWare: new FPGA development kit for Altera FPGA boards

BittWare announced the release of its new FPGA Development Kit (FDK) for Altera FPGA boards. Built with Altera's Qsys system integration tool, the FDK is a library of FPGA components that includes preconfigured physical interfaces, infrastructure, and examples. The FDK drastically cuts development time and can be easily integrated into existing FPGA development environments. By providing the underlying infrastructure for FPGA development, BittWare's FDK lets customers focus on developing their unique at the TERATEC 2015 Forum the release of its new FPGA Development Kit for processing components rather than on the infrastructure around it.

[News ID 3162](#)

■ Renesas: start product development at API level with new Synergy platform

Renesas Electronics announced the Renesas Synergy Platform, a new, easy-to-use, qualified platform designed to accelerate time to market, reduce total cost of ownership and remove many of the obstacles engineers face as they develop products for the growing Internet of Things and industrial markets.

[News ID 3141](#)

■ Xilinx accelerates system verification with Vivado Design Suite 2015.1

Xilinx announced acceleration of system verification with the release of the Vivado Design Suite 2015.1, featuring major productivity advances for the development and deployment of All Programmable FPGAs and SoCs. This release includes the Vivado Lab Edition, accelerated Vivado Simulator and third party simulation flows, interactive clock domain crossing analysis, and advanced system performance analysis with the Xilinx Software Development Kit.

[News ID 2989](#)

■ Altera announces Industrial Functional Safety Data Package (v.3)

Altera announced the availability of the latest version of its Industrial Functional Safety Data Package (Ver. 3), for systems designers using Altera FPGAs. The safety pack provides TÜV Rheinland-certified toolflows, IP and devices including Cyclone V FPGAs, enabling faster time for market for industrial safety solutions to IEC 61508 up to Safety Integrity Level 3.

[News ID 3050](#)

■ TI: DesignDRIVE evaluation platform supports various motor types

Texas Instruments announced DesignDRIVE — a single hardware and software platform that makes it easier for engineers to develop and evaluate solutions for many industrial drive and servo topologies. The DesignDRIVE kit and example software offer an easy path to begin exploring a wide variety of motor types, sensing technologies, encoder standards and communications networks, as well as easy expansion to develop with real-time Ethernet communications and functional safety topologies, enabling more comprehensive, integrated system solutions.

[News ID 3041](#)

■ **SEGGER: J-Link debugger software now available as full version**

SEGGER has officially released the full version of its J-Link Debugger software for embedded applications. Users of the J-Link debug probe now have a matching fully featured graphical debugger at their disposal. J-Link Debugger is the latest addition to the J-Link product family and further enriches the feature set and high performance of the J-Link/JTrace debug probes. [News ID 3012](#)

■ **LDRA and Green Hills deliver multicore development and verification**

LDRA and Green Hills Software have partnered to provide high-assurance application development on multicore platforms used in safety- and security-critical markets. The growing emergence of multicore platforms and applications paves the way for new verification tool capabilities needed to complete high-assurance safety- and security-critical compliance activities. [News ID 3036](#)

■ **IAR: static code analysis in Atmel AVR32 tools**

IAR Systems has made major updates to its complete embedded development toolchain IAR Embedded Workbench for Atmel AVR32. The new version, 4.30, introduces the add-on product C-STAT for completely integrated static code analysis. Also added is stack usage analysis and shortened build times through parallel build. [News ID 2990](#)

■ **Mouser: low-cost starter platform for ADSP BF706 Blackfin DSP processor**

Mouser Electronics is now stocking the ADSP-BF706 EZ-KIT Mini Evaluation Board from Analog Devices. The ADSP BF706 EZ-KIT Mini Evaluation Board aids in the development and testing of the 32-bit, 400 MHz ADSP BF706 Blackfin DSP that delivers 800 MMACS of processing power at less than 100 mW. This mini evaluation board contains all the communication interfaces and external connections needed for DSP audio application design, including an Arduino compatible interface. [News ID 2974](#)

■ **NI acquires BEEcube, supplier of high-performance FPGA prototyping and deployment products**

NI announced its acquisition of BEEcube, a technology innovator and leading supplier of high-performance FPGA prototyping and deployment products for advanced wireless research, wireless infrastructure and military/defense applications. The combination of the two companies will strengthen NI's position as 5G progresses toward commercialization. [News ID 2983](#)

■ **R&S presents its oscilloscope portfolio at Sensor & Test**

At Sensor & Test 2015, Rohde & Schwarz will be showcasing its growing portfolio of oscilloscopes, including applications and accessories for various embedded applications. Products range from three R&S HMO entry-level oscilloscopes with bandwidths of 50 MHz to 500 MHz and the powerful midrange R&S RTM2000 and R&S RTE with up to 2 GHz bandwidth to the high-performance R&S RTO oscilloscopes with up to 4 GHz bandwidth. [News ID 3033](#)

■ **PLS provides optimized testing and debugging for Infineon's XMC4700/XMC4800 SoCs**

PLS Programmierbare Logik & Systeme presents Version 4.4.5 of its Universal Debug Engine (UDE). The UDE 4.4.5 provides developers with an optimized testing and debugging environment for the new XMC4700/XMC4800 MCUs from Infineon. [News ID 3202](#)

■ **Vector: VectorCAST test automation platform featured in Wind River marketplace**

Vector Software announced the availability of its VectorCAST Test Automation Platform in the Wind River Marketplace. The Marketplace offers customers an app store experience where they can research and evaluate best of breed add-on software from trusted partners. [News ID 3164](#)

■ **SOMNIUM: enhanced development tools for Freescale Kinetis microcontrollers**

SOMNIUM Technologies announces general availability of Version 2.0 of its DRT (Device-aware Resequencing Tools) software development environment to Freescale Kinetis MCUs. DRT 2.0 brings further improvements to DRT's patented resequencing optimizations, a significant revision in the Eclipse IDE, and full compatibility with the latest version of Freescale's Kinetis Design Studio IDE. [News ID 3001](#)

■ **EUROS: RTOS support for TI Hercules TMS570 MCUs**

EUROS Embedded Systems announces the availability of its Real-Time Operating System EUROS including the eclipse based Stand-Alone Cross Development Environment EUROS Embedded Studio for the Hercules TMS570 microcontroller from Texas Instruments. The Hercules TMS570 family of microcontrollers was specially designed to facilitate the implementation of safety-critical applications according to the safety standards IEC 61508 SIL 3 and ISO 26262 ASIL D. [News ID 3190](#)

■ **Arrow: development board design based on Qualcomm Snapdragon 410 processor**

Arrow Electronics has announced the availability of the DragonBoard 410c, a low-cost development board design based on the Qualcomm Snapdragon 410 processor. The Snapdragon 410 processor is a product of Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated. Arrow will manufacture and distribute the DragonBoard 410c to community developers and commercial customers. [News ID 3221](#)

■ **SCIOPTA: Safety RTOS available for Freescale i.MX6**

SCIOPTA Systems has ported the safety certified SCIOPTA Real-Time Operating Systems to the Freescale i.MX6 processors. SCIOPTA i.MX6 RTOS is specifically tuned for the Freescale i.MX6 processors. This results in a very high performance and a low memory footprint. SCIOPTA i.MX6 is certified according to IEC61508 SIL3, EN 50128 SIL3/4 and ISO 26262 ASIL D. [News ID 3203](#)

■ **Express Logic announces ThreadX MISRA compliance**

Express Logic announced that its ThreadX RTOS is compliant with all required and mandatory rules of MISRA C:2004 and MISRA-C:2012. MISRA C, a set of programming guidelines developed by the Motor Industry Software Reliability Association (MISRA), promotes safety, reliability, ease of maintenance, and portability for safety-critical systems coded using the ANSI C programming language. [News ID 3179](#)

■ **Lauterbach: TRACE32 support for C66x series of TI KeyStone**

Lauterbach has recently announced its new trace support for the C66x Series of TI KeyStone. The C66x Series includes a wide range of high performance microprocessors. The processing capability of the multicore platform is designed to be optimal for applications in markets such as industrial automation, high performance computing, mission critical, video infrastructure and high end imaging. [News ID 3222](#)

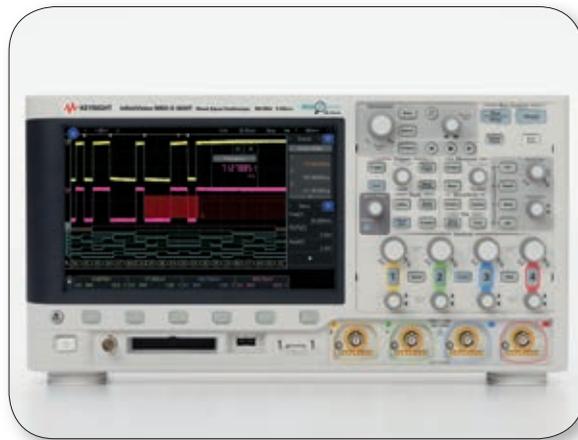
■ **SYSGO announces PikeOS 4.0 for IoT and Industry 4.0**

SYSGO announced the release of version 4.0 of the Hypervisor PikeOS. PikeOS 4.0 is designed as a platform for technology change and gives manufacturers of smart systems access to the Internet of Things and Industry 4.0. To do so, PikeOS 4.0 uses the most modern virtualization technologies in hardware and software and focuses on new development as well as on the migration of existing applications. [News ID 3172](#)

Oscilloscope triggering: the old way and the new way

By **Johnnie Hancock**, Keysight Technologies

This article compares the old way of parametric-based triggering of oscilloscopes with the new way of zone-based triggering, using two examples of isolating random and infrequent signal anomalies.



■ As the complexity of signals increases nowadays in many digital designs, oscilloscope vendors have been keeping pace with advances in technology by adding advanced parametric-based triggering in their oscilloscopes. Some examples include pulse-width triggering, rise/fall time triggering, setup and hold time triggering, serial bus protocol triggering, etc. But many engineers and technicians nowadays avoid using some of these advanced trigger modes and stick with the old tried and tested edge-based triggering. The primary reason engineers don't use some of the advanced trigger modes is because of unfamiliarity and ease-of-use issues. But there is a new and easier way to trigger on complex and infrequent signal anomalies, called Zone triggering.

Let's begin by first defining what oscilloscope triggering is. Oscilloscopes basically take continuous pictures (real-time acquisitions) of electrical phenomena (signals) and then display/graph them as continuously updated voltage versus time waveforms. But when capturing repetitive signals, the picture-taking process of the scope must be synchronized to the input signal under test. Otherwise, you will observe just a blur of unsynchronized waveforms on the oscilloscope display. All scopes have the ability to trigger on edge crossings of signals — either on positive-going (rising) or negative-going (falling) edge

transitions at a user-defined threshold (trigger level). And this is the oscilloscope trigger mode that most engineers and technicians use. If you are attempting to observe simple and exactly repetitive waveforms, such as a digital clock or sine wave, then edge triggering works perfectly fine. However, if you are attempting to view a complex digital pulse stream of data or need to synchronize on an infrequent signal anomaly that may be buried within a digital pulse stream, such as a glitch, then simple edge triggering can be very limiting.

Figure 1 shows an example of a scope using edge trigger to display a digital pulse stream of data that contains occasional positive and negative "runt" pulses. Runt pulses are digital pulses that don't reach their intended high or low logic levels. Setting up the scope to trigger on just the runt pulses — not just any edge crossing — may be beneficial in helping to find the root cause of the errant pulses with inadequate logic levels.

As previously noted, most mid-range and higher-performance oscilloscopes nowadays have parametric-based trigger modes, including Runt trigger. So let's see how to set up the scope to trigger on runt pulses using Runt trigger. We'll then show how to do it more quickly using Zone trigger. Although the documented procedure of how to set up

parametric Runt triggering will be based on using new Keysight InfiniiVision 3000T X-Series oscilloscope, the process is very similar for oscilloscopes of other vendors.

The step-by-step process is:

- 1) select the trigger menu that shows the available trigger modes,
- 2) select the Runt trigger mode,
- 3) establish a lower-level threshold that defines the maximum low logic level,
- 4) establish an upper-level threshold that defines the minimum high logic level, and
- 5) select to trigger on either positive runs, negative runs, or runs of either polarity.

Figure 2 shows the scope triggering on positive runs using the above procedure.

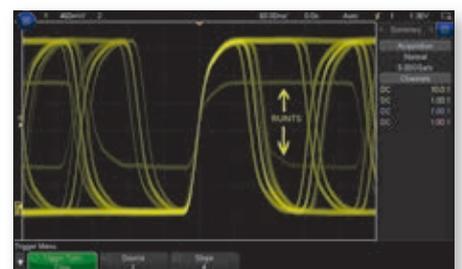


Figure 1. Attempting to trigger on a complex digital pulse stream of data using edge triggering.

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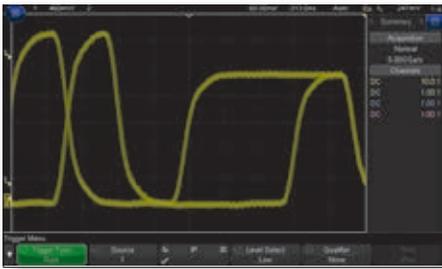


Figure 2. Triggering positive runt pulses of any width using the scope's parametric-based Runt trigger mode

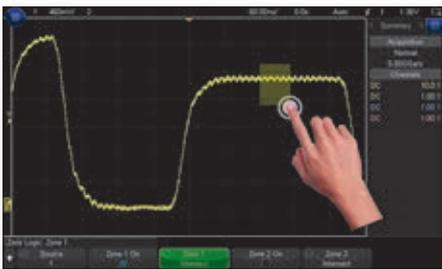


Figure 3. Using Zone trigger to synchronize on the widest positive runt

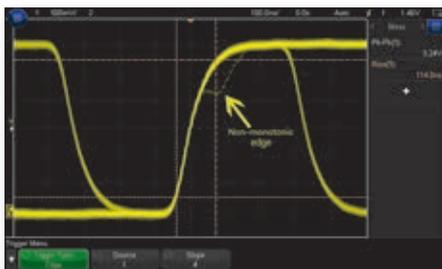


Figure 4. While triggering on any rising edge, the scope displays a random and infrequent non-monotonic edge.

However, with repetitive acquisitions of the scope, we can see that the scope actually triggered on two different runts. One is narrower than the other. If we want the scope to trigger uniquely on just one of the runts, we can then further qualify the trigger condition by entering a specific time qualification that can isolate either the narrower or wider positive runt pulse.

Let's now go through the set up procedure using Zone trigger mode to achieve the same results.

1) Using the scope's touch-screen (or mouse), draw a box (or zone) just in the area of the infrequent wider positive runt, and



Figure 5. Available parametric-based trigger modes



Figure 6. Using Zone trigger to isolate an infrequent non-monotonic edge

2) select "must intersect". The scope synchronizes on showing just repetitive occurrences of the wider positive runt pulse as shown in figure 3.

With Zone trigger, if the scope waveform update rate is fast enough to show a random and/or infrequent event while using conventional edge triggering, then Zone trigger can synchronize on it. And it's a lot easier and more intuitive to set up than using one of the advanced parametric trigger modes of the scope. It's basically as easy as touching what you want to trigger on, and then the scope synchronizes on it. Let's now see another

example: triggering on a non-monotonic edge. Figure 4 shows an example of a signal with an infrequent non-monotonic edge. This signal usually has a normal/continuous rising edge. But sometimes the rising edge exhibits a momentary stall, and then continues rising to its final high logic level. A signal with an infrequent non-monotonic edge such as this may appear as a "ghost" waveform if the scope's waveform up-rate is fast enough to show it.

If you want to use one of the parametric-based trigger modes of the scope to uniquely trigger on just the signal that exhibits non-monotonicity, the first challenge is determining which trigger mode to select. Figure 5 shows a list of parametric trigger modes that are available on many of oscilloscopes nowadays. If you happen to be an oscilloscope guru, you would know that the right choice is the Rise/Fall Time trigger mode. But if you are like most oscilloscope users, determining the appropriate trigger mode selection may turn into more of a guessing game. And then even if you do know which mode to select, setting up all the qualification parameters correctly may be more trouble than it is worth.

The following are the required set up steps to trigger on a non-monotonic edge using the Rise/Fall Time trigger mode.

- 1) Measure or estimate the rise time of "normal" edge,
- 2) select the Rise/Fall Time trigger mode,
- 3) select Rising edge,
- 4) establish a lower threshold level at approximately 10%,
- 5) establish an upper threshold level at approximately 90%,
- 6) select the ">" time qualification, and
- 7) enter a time value that is slightly greater than a "normal" edge rise time.

A more straightforward, easier method of synchronizing the scope display on just signals that contain the non-monotonic edge is to use Zone trigger. Simply draw a box (zone) in the area of the "ghost" waveform, select "must intersect", and then the scope isolates the non-monotonic edge as shown in figure 6. The results are the same as using the Rise/Fall time parametric trigger mode, but a lot fewer steps are needed to achieve the desired synchronization. ■



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Analyzing long signal sequences with the oscilloscope

By Philipp Weigell, Rohde & Schwarz

This article highlights a history and segmented memory option for an oscilloscope which enables to analyze long signal sequences with long observation periods.



Figure 1. Providing time, frequency, protocol and logic analysis plus a digital voltmeter in a single box, the R&S RTM2000 is suited for the development, production and servicing of embedded hardware.

■ The R&S RTM-K15 history and segmented memory option is especially suited for analyzing signals with long communications pauses. The large segmented acquisition memory of 460 Msample is unique in this oscilloscope class and permits long observation periods, for example when debugging serial buses. The integrated history function permits perfectly timed access to any waveform for analysis.

Sporadic errors often cost valuable time during the development of new products. Debugging protocol-based buses or other pulsed signals is especially difficult and time-consuming because the communications pauses between the individual data packets can be very long (1 in figure 2). In this example, a sensor transmits a protocol packet containing values over the I2C bus every 10 ms for duration of 400µs. The errors that occur during this time are to be analyzed. Oscilloscopes are the instrument of choice for debugging the I2C interface. Most oscilloscopes in this class – with the exception of the R&S RTM2000 – have only a very limited memory. The oscilloscope memory typically limits the record length for analyzing errors and their history to a few milliseconds.

Normally, the user acquires long recordings in two steps. The first step is to select a sufficiently long time base, e. g. 20 ms/div, which in the example corresponds to 19 protocol

packets from the sensor under test. The second step is to trigger a single-shot acquisition in order to prevent the acquired signal from being overwritten by the next trigger event.

This process has two decisive disadvantages that make the analysis of sporadic errors especially difficult for pulsed signals with steep edges. On the one hand, the large percentage of irrelevant inactivity means that only a few of the protocol packets of interest are acquired (2 in figure 2). Another disadvantage arises from the necessary limitation of the sampling rate, as seen in the next example. At 2 Msample memory and 2 Gsample/s sampling rate, the maximum record length is only one millisecond, which is just enough for one protocol packet from the sensor under test. The subsequent packet would be missed because of the 10ms communications pause. The desired 200ms, i. e. 20 ms/div for 10 divisions, can be acquired only by reducing the sampling rate to 10 Msample/s – which is actually too low for stable decoding of the I2C signal, never mind for finding signal integrity errors. This is why this type of analysis requires an oscilloscope with deep memory, such as that offered by the R&S RTM2000 bench oscilloscope. With the standard 20 Msample, the sampling rate in this example can be increased to 100 Msample/s, permitting seamless recording and analysis of all 19 protocol packets. This setup

makes it possible to analyze signal errors, but the probability of isolating the error is low because only very few packets are recorded. A much better solution is the new R&S RTM-K15 history and segmented memory option.

A smarter approach limits the acquisition to only the data packets. This requires the definition of a dedicated protocol trigger, for example for triggering on the start symbol of the I2C bus.

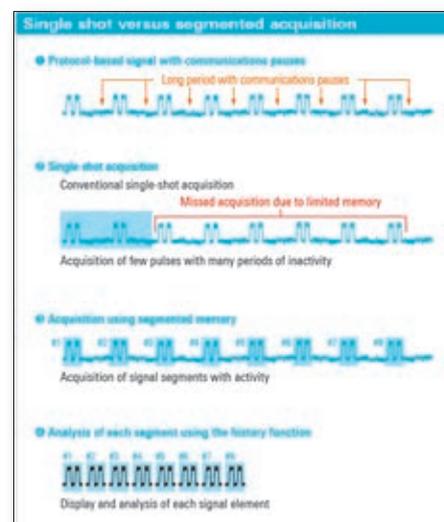


Figure 2. Examples for acquiring and analyzing short-term signals from a sensor

Application	Serial standard	Option
Embedded	I ² C / SPI	R&S RT M-K1
	UART / RS-232 / RS-422 / RS-485	R&S RT M-K2
Automotive and industry	CAN / LIN	R&S RT M-K3
Audio	I ² S / LJ / RJ / TDM	R&S RT M-K5
Aerospace and defense	MIL-STD-1553	R&S RT M-K6
	ARINC-429	R&S RT M-K7

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Aerospace and defense	MIL-STD-1553	R&S RT M-K6
	ARINC-429	R&S RT M-K7

Figure 3. Options for triggering and decoding

Figure 3 provides an overview of the protocols supported by the R&S RTM2000 oscilloscope. The history and segmented memory option supports debugging in two significant ways. It expands the available memory for analog and digital channels to 460 Msample, which is unmatched in this oscilloscope class. In addition, it divides the memory into equally sized segments. The user can modify the number of segments to meet the specific requirements of the task (figure 4).

The R&S RTM2000 ensures that the memory is optimally used. For a serial protocol, for example, the maximum packet length in the signal determines the record length. Starting at the trigger point, the signal segment of interest is stored in memory. Time periods without activity are not acquired (3 in figure 2).

An important detail for subsequent analysis: the R&S RTM2000 saves the precise time of the trigger event at a resolution of 3.2 ns. For the sensor used in this example, the desired record length is 500µs per segment: 400µs for the protocol

Record length	Number of segments
20 Msample	23
10 Msample	46
5 Msample	92
2 Msample	230
1 Msample	460
500 ksample	921
200 ksample	2301
100 ksample	4591
50 ksample	9183
20 ksample	22 500
10 ksample	45 000

Figure 4. R&S RTM2000 segmented memory setting



Figure 5. Decoded I²C signal with analog waveforms and acquisition table. The history function is accessed via the bottom menu.

packet, plus 50µs each for a buffer before and after the event (figure 5). This 500µs along with a segment length of 10 ksample – corresponding to a sampling rate of 20 Msample/s – makes it possible to achieve stable decoding. With the 45,000 available segments, it is possible to record eight minutes of communications. “Protocol Start” is used as the trigger criterion for the serial protocol trigger.

Thanks to the history mode, all acquisitions can be accessed at a later time. All oscilloscope tools, including the QuickMeas function, mask tests and protocol decoding, are available for analysis (4 in figure 2).

The mask test that comes as standard in the scope is ideal for finding a deviation in the clock signal from the sensor under test, for

example. Just a few keystrokes are needed to generate the mask from a correctly transmitted clock signal, or it can be loaded from a USB flash drive. The history function’s play command (figure 5, bottom) automatically starts a comparison of all 45,000 segments against the mask. Violations are statistically evaluated and, if enabled, the test is stopped and the segment displayed when a mask is violated.

The acquisition table that lists all segments and their timestamps (figure 5, bottom left) permits fast access to the acquired segments positioned before the faulty segment. This makes it possible to isolate the effects of preceding signals quickly. Periodicities can be uncovered by means of a subsequent analysis of the trigger times for all faulty segments. All segments can be saved to a PC for offline analysis.

And if an error was detected during standard operation and viewing the history would provide the necessary information for the solution? Not a problem: when equipped with the R&S RTM-K15 option, the R&S RTM2000 always saves all waveforms in segments with a timestamp so they are available via the history function at any time. Timestamps with a resolution of 3.2ns permit precise time correlation of signal events. ■

Product News

■ Advantech: progressive IoT computing based on RISC technology

Advantech announce the launch of UBC-220, an ARM-based compact box computer powered by a Freescale ARM Cortex-A9 i.MX6 Dual Lite high-performance processor. Designed with compact size, high capability, and superior connectivity, UBC-220 is an ideal indoor computing gateway suitable for smart buildings, parking lots, and public spaces.

[News ID 3176](#)

■ Sierra Wireless acquires MobiquiThings to accelerate growth of connectivity services for IoT

Sierra Wireless has entered into a definitive agreement to acquire MobiquiThings. The transaction is expected to close in August 2015. MobiquiThings is an MVNO focused on managed connectivity services for the Internet of Things, with broad segment experience including the energy, transportation, security, retail, and healthcare markets.

[News ID 3174](#)

■ **Commell: new modules with Celeron J1900, N2930 & Atom E3845 processor**

COMMELL announces a new Industrial embedded platform based on the next generation Intel Celeron J1900, N2930 & Atom E3845 SOC series processor, including the Mini-ITX LV-67O, Pico-ITX LP-173 & 3.5" SBC LE-37D. These embedded boards based on the low-power Intel SoC that integrates the next generation Intel processor core, 7th generation graphics, Memory controller, and I/O interfaces into a single system-on-chip solution.

[News ID 3204](#)

■ **Sundance adds low-cost Artix-7 FPGA to PC/104**

Sundance has taken full advantage of the current generation of lowest-cost Xilinx Artix-7 family, integrating four-lanes of Gen2 PCI-Express and re-programmable logic using the free Xilinx Vivado 2015 tools and designed it onto the latest PC/104 form-factor, called OneBank.

[News ID 3199](#)

■ **Artila: web enabled data acquisition and control module with MQTT support**

Artila Electronics released the enhanced RIO-2010, the new generation of web enabled data acquisition and control module with MQTT support. MQTT is a lightweight publish / subscribe messaging protocol which is an OASIS standard and is ideal for sensor and device communication with low network bandwidth.

[News ID 3194](#)

■ **ADL selected by NIITEK as sole provider of rugged Embedded mission computing solutions**

ADL Embedded Solutions has been selected by NIITEK to be the sole provider of its embedded mission computing solutions for NIITEK's Husky Mounted Detection System (HMDS) next generation offering to the U.S. Army's HMDS A2 Program of Record. The HMDS A2 utilizes the NIITEK Time-Domain Ground Penetrating Radar (GPR). In a parallel/complementary project, ADL Embedded Solutions will also form the "brain" of the HMDS International Sales Variant utilizing the 3D-Radar Step-Frequency GPR.

[News ID 3191](#)

■ **A.R. Bayer DSP System: low-profile PCIe board based on Arria 10 GT/GX FPGA**

BittWare has made its first board based on the Altera Arria 10 GT/GX FPGA available to customers. BittWare's A10PL4 is a low-profile PCIe board that integrates the 20nm process technology of the Arria 10 with a wide variety of features and supports a range of challenging applications such as network processing and security, compute and storage, instrumentation, broadcast, and signals intelligence.

[News ID 3184](#)

■ **INCOstartec: touch-operating terminal with 128 MB of working memory**

The TBT-A11-056TLC D2 consists of a 5,6 Inch VGA TFT touch display and a module system from INCOstartec. The low-cost type is equipped with the picoLILLY processor module with ARM1135 / 532 MHz – extendable with Cortex A8/A9 with up to 1.2 GHz. A working memory of 128 MB generates fast data handling. In addition to a flash memory of 32MB there is in the default type an internal µSD- and external a SD-Card slot, which is protected by a movable cover.

[News ID 3182](#)

■ **Electronic: COMs with second generation AMD Embedded G-Series SOC**

Electronic has announced the COM modules H6071 (Qseven form factor) and H6068 (COM Express form factor) both based on second generation AMD Embedded G-Series SOC, also called Steppe Eagle. Steppe Eagle processors offer increased computing and graphics performance. The modules are suitable for embedded applications that require powerful CPU and graphics performance in combination with low power consumption and extremely compact size.

[News ID 3132](#)

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COM Express: reliable and robust solutions with latest Intel CPUs

By Harald Maier, TQ-Systems

COM Express is the leading form factor in the area of modular embedded PC solutions, covering performance classes from simple single-core designs to high-performance multi-core solutions. This article reviews the factors that need to be considered in implementing reliable and robust systems.



Figure 1. COM Express Mini board with Intel Atom E3800: supports extended temperature range and offers exceptional reliability due to DDR3 ECC

■ Standardization is the key factor for interchangeability and long-term success. This applies wherever variance and diversity can be reduced to a common denominator, which is largely possible in the area of x86-based concepts. A powerful example of this is the COM Express standard. A large number of processor generations and a wide variety of performance classes have already been implemented and designed into this form factor. It bundles know-how, which in turn simplifies reusability. At the same time, this reduces development and qualification efforts.

Modern CPUs such as the Intel Atom and the Intel Core processors place extraordinary demands on developers. The high integration density, miniaturization of the silicon and increasingly higher clock frequencies require well-founded design know-how. It is no wonder that data sheets and design guides are more extensive than ever. A wide variety of voltage levels with very tight tolerances and the specified power sequencing must be generated. They must be validated under many different stresses and temperatures, in order to assure system reliability. But requirements for the layout have also become much more stringent in terms of the high-speed signals. Powerful tools are necessary to conform to design requirements of CPU producers efficiently and with sufficient precision. The

memory interface in particular is one of the greatest challenges in design and qualification. Even the slightest inattention and qualification gaps can lead to non-reproducible system failures in the field. The reverse argument is: systems with high reliability requirements in particular can benefit from the use of modules that have already been tested extensively.

Plug connectors are considered distinct weak points in a system. Therefore, the plug connectors that are used are an important decision-making criterion in selecting the module form factor. One consideration is signal quality, while others include contact reliability and robust design. COM Express scores highly in all of these areas in many different ways: The plug connectors that are used exhibit excellent high-speed behavior and are ideally protected from electrical and mechanical stresses such as shock and vibration due to their full-coverage shielding. Environmental stress factors such as dust and corrosive substances are kept away from contact surfaces in the plug connectors. The screw joints between the main board and the module are located very near to the plug connectors to minimize mechanical stresses and tolerances. Even the cooling solutions, which can have an effect on mechanical stresses to the module, are optimally isolated near the plug connectors and throughout the module. This is another important criterion

for long-term reliability.

Although issues may have been resolved in the module plug connector area, big problems may still arise when it comes to memory extension. On numerous COM Express modules that are commercially available, the working memory is implemented in SO-DIMM modules. This means that plug connectors are used that do not score well with regard to robust design – neither in the area of the contact surfaces nor with regard to mechanical attachment. Somewhat more rugged locking loops, such as those found on some plug-in mounts, do not offer a satisfactory alternative here when it comes to ruggedness. The only effective solution is to solder the memory to the module. Although this limits the flexibility of the system configuration with regard to different memory sizes, this is clearly the better solution approach from the perspective of reliability. In addition, it assures that memory that has been validated for the module is used exclusively, and the module producer assumes responsibility for this. In the COM Express modules from TQ-Systems, this is a universal approach that is taken for all modules from the Intel Atom to the Intel Core i7.

Reliability and long life are closely interrelated. High-end applications are designed for long-term use, and their reliability must be



Figure 2. Modular embedded computing solution QBox with Intel Atom E3800

assured over their entire life. Statistics such as MTBF (mean time between failures) are often used as indicators. This also makes it easy to determine the key factors affecting long-term reliability. One external environmental factor is temperature. The hotter components become, the shorter their life, and the more susceptible to failure. Conversely, this means that the power losses must be minimized and heat rejection optimized. The lower the power losses, the easier it is to cool the system and minimize the temperatures that occur. Optimally suited here are processors that are manufactured with the latest production technologies and have optimized power management as well. In the entry-level segment these include the Intel Atom processors of the E3800 series (former code name: Bay Trail) as well as the fifth generation Intel core processors of the higher-performance segment, which Intel presented in 2015 as all new single-chip versions (former code name: Broadwell-U).

When considering how to optimize heat rejection, special attention should be given to the thermal bottleneck on the CPU die. The greatest share of the total power loss occurs on just a few square millimeters here, and it must be distributed to a larger surface area via transitions with minimal heat resistance to avoid hot spots and unnecessary heating. In the case of COM Express, cooling solutions are defined with a uniform height profile, which every manufacturer adapts to its particular modules. They are securely mounted to the CPU module to minimize tolerances between the CPU die and the thermal connection. Manufacturers such as TQ-Systems can strive for special optimizations here: in-house manufacturing of the CPU modules with stable, reproducible soldering processes leads to far

better mechanical tolerances in the CPU area than the general height tolerances specified by CPU manufacturers.

Who has not experienced sporadic system crashes and non-traceable outliers in applications at some time or another. Countermeasures such as watchdogs are often used to prevent permanent system freezes. They reboot the system when it no longer reacts. However,

this measure is just a drastic work-around, and it does not really correct the root cause of the problem. In addition, a reboot is not permitted in many systems, because constant availability must be assured. It is much more efficient to prevent the potential causes of errors. In flash memories, automated error correction measures are even implemented as standard features. In the area of working memory, this issue is often left unaddressed. Indeed, DDR3 memory technology is much more reliable than flash memory, yet many millions of bits are exchanged between the CPU and the working memory every second. If just one bit is corrupt or transmitted incorrectly, this can lead to a system failure in which it is impossible to identify the cause of the failure. This issue is especially relevant under extreme temperature conditions. Therefore, processors such as the Intel Atom E3800, which are designed for use in highly reliable systems, offer the option of DDR3 ECC (error correcting code). A supplemental DDR3 memory chip must be provided here to store checksums. Nonetheless, the low additional price pays for itself in terms of system stability and high data integrity. This was implemented in the TQMxE38M module, for example, which is based on the COM Express Mini. It is distinguished by very good reliability and long life.

The use of COM Express modules not only offers the benefits of scalability and interchangeability. Customers benefit two-fold in terms of system stability and robustness when they choose manufacturers like TQ-Systems. The user gets mature and pre-qualified modules, which are equipped with the features needed for robust and reliable designs, as well as extensive design-in support. ■

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■ SECO launches open-source hardware board UDOO Neo

SECO launched UDOO Neo, a credit-card size (59.3 x 85mm) low-cost, low-power consumption, open-source hardware board, able to run Android or Linux and Arduino-compatible. It can be used as a fully-fledged computer, as an Arduino-compatible microcontroller or as an embedded computer to build new devices, smart objects and appliances. UDOO Neo comes in two versions: UDOO Neo Basic and UDOO Neo.

[News ID 3210](#)

■ Vecow launches PE-2000 series frame grabbers

Vecow launches the latest gigabit Ethernet card, PE-2000 series PCI Express x4 PoE+ expansion card, in her frame grabber family. With up to 4 powered independent gigabit PoE+ channels, easy maintenance and less Total Cost of Ownership, PE-2000 series PCI Express x4 PoE+ expansion card is your smart choice for Gigabit Ethernet Intelligent Surveillance, Machine Vision, Intelligent Transportation System, Industrial Automation, Logistic System, Industry 4.0 and any real-time video analytics applications.

[News ID 3171](#)

■ ARBOR: 21.5" medical-grade workstation provides razor-sharp images

ARBOR has introduced the ARBOR M2150 a high-powered 21.5" medical-grade workstation. Two versions of M2150 are available, one with 4th generation Intel Core i5-4402E 1.6 GHz processor, the second with i5-4422E 1.8 GHz processor, both of which provide significant data processing and transmission performance.

[News ID 3051](#)

■ IBASE: fanless system operates in harsh industrial environments

IBASE rolls out the fanless CSB200-897 system that comes with the IB897 3.5-inch SBC. The unit integrates the Intel Atom E3845 processor that featuring 22nm microarchitecture and 3-D Tri-Gate transistors. With unparallel reliability, the 1.91GHz processor allows the CSB200-897 to operate in wide temperatures at -30 to +60°C in harsh industrial environments for 24/7 operation.

[News ID 3169](#)

■ Avalue: cost-effective 3.5-inch SBC and COMe compact module

Avalue is unveiling a new cost-effective 3.5-inch single board computer – ECM-BYT2 and the COMe Compact Module - ESM-BYT2. ECM-BYT2 and ESM-BYT2 are powered by the newest Intel Atom processor E3800 family and Intel Celeron processor J1900 family, a system-on-chip formerly codenamed "Bay Trail." Based on the 22nm Silvermont microarchitecture, these new processors are

designed for intelligent systems and applications with low power consumption and high performance requirements.

[News ID 3156](#)

■ Axiomtek: PoE Embedded system for automated optical inspection

Axiomtek announces the eBOX671-885-FL, its industrial-grade PoE embedded vision system aiming automated optical inspection (AOI). The high performance fanless box PC supports the LGA1150 socket type 4th generation Intel Core i7/i5/i3 or Celeron processor to provide high computing performance and 4K graphics. Coming with 4-port PoE and 6 USB 3.0 ports, the eBOX671-885-FL provides the most dedicate solution for those who are finding high-end fanless vision system with multi-I/O connectivity and multi-camera imaging.

[News ID 3154](#)

■ powerBridge: high density Eurotech: distribution agreement with IPC2U

Eurotech signed a comprehensive distribution agreement with IPC2U one of Germany's leading supplier of industrial computers which covers Germany, Austria, German-speaking Switzerland and Eastern Europe. IPC2U is responding to the increasing demand of partners, systems integrators and enterprise customers for rugged industrial communication solutions made in Europe. The new distribution agreement marks an important milestone concerning Eurotech's aim to generate higher revenues through business partners and provides IPC2U the opportunity to enhance the portfolio of offerings to wider basis.

[News ID 3223](#)

■ EKF: dual-port 10GBASE-T Ethernet NIC

EKF introduces the SN3-GONG, a peripheral slot card for CompactPCI Serial systems. The board is equipped with an Intel X540 10GBASE-T Ethernet controller, and two RJ45 front panel jacks for attachment of Cat 6 or Cat 6A cables up to 100m length. The ability to auto-negotiate between 100Mbps, 1Gbps, and 10Gbps speeds provides the backwards compatibility for a smooth transition and easy migration to 10GbE.

[News ID 3150](#)

■ ADLINK: palm-size EtherCAT master controller based on Intel Atom quad-core processor

ADLINK Technology released their EtherCAT solution, consisting of the Talos-3012 IEC 61131-3-compliant automation controller and EPS Series time-deterministic I/O and motion control system. Talos-3012 is a palm-size EtherCAT master controller based on the Intel Atom quad-core processor E3845 1.9GHz, with IEC-61131 compliant syntaxes.

[News ID 3144](#)

■ CES: avionic mission computer with 3'000 to 170'000 DMIPS processing power

Creative Electronic Systems announces ROCK-2: a rugged, modular, open-architecture, pre-qualified, application-ready, safety-certifiable, Commercial-Off-The-Shelf (COTS), full-featured avionic system with a computing power scalable from 3'000 to 170'000 DMIPS.

[News ID 3136](#)

■ Rutronik: Fujitsu mainboard family supports future Intel microarchitecture

A new family of mainboards from Fujitsu is supporting next generation Intel microarchitecture with LGA 1151 sockets. Distributor Rutronik will offer the mainboards as soon as they are launched by fall/ winter 2015.

[News ID 3060](#)

■ EKF: XMC style mezzanine card

The DX4-BADGER is a XMC style mezzanine card, equipped with a quad-channel PCI Express to SATA 6Gbps controller, and three on-board sockets for mSATA solid state drives. With a capacity available of up to 1TB as of current, mSATA is a fast growing storage module form factor. The Marvell SATA 3.0 controller allows RAID or non RAID operation. A front bezel eSATA connector is provided for attachment of an external SATA storage device.

[News ID 3049](#)

■ MSC: COM Express module families with latest Intel processors

MSC Technologies presents two COM Express Type 6 module families, which are based on the latest Intel 14 nm process technology. The MSC C6C-BW module with quad-core or dual-core Intel Pentium or Celeron processors offers outstanding graphics performance with low power consumption. The MSC C6B-8SB high-end module, which is equipped with quad-core 5th Generation Intel Core processors (Broadwell), features a significant leap forward in computing and graphics performance.

[News ID 3098](#)

■ VadaTech: quad 10GbE port FMC features signal conditioning

VadaTech has announced a FPGA Mezzanine Card per VITA 57 for high-speed networking. The FMC109 features quad SFP/SFP+ transceivers for 10 GbE in copper or fiber formats. The mezzanine module has four re-timers on the board which provide tuning for the Tx and Rx signals. The re-timer ICs provide input equalization, clock and data recovery, and output de-emphasis. This also allows for the use of longer copper cables as the distortion is cleaned across the farther distances.

[News ID 3101](#)

■ WynMax: fanless box PC with Intel Atom E3845

WynMax announces the new fanless Box PC WFBX-3016-E38451 which is equipped with Intel Atom E3845 1.91GHz quad-core processor. This system-on-chip supports system memory DDR3L1333 SODIMM maximum up to 8GB. Moreover, WFBX-3016-E38451 comes with dual display outputs (VGA and HDMI) and offers wall mount for installation. [News ID 3045](#)

■ VadaTech: new Mil/Aero embedded computing brochure

VadaTech has announced a new brochure on Defense & Aerospace Computing. The brochure includes products and application-ready solutions utilizing modular open standard architectures. The VadaTech Mil/Aero Brochure has sections on application briefs, products/solutions, small form factor solutions, software enhancement services, and background information on VadaTech. [News ID 3029](#)

■ Elma: OpenVPX backplane provides both optical and RF slots

Elma Electronic now offers a 3U 3-slot OpenVPX backplane for use in either optical or RF applications. Designed to meet VITA 65, the

versatile new backplane is extremely useful in environments that require various slot-to-slot optical or RF interconnects or that require optical or RF I/O together with a high speed data plane connection to slot 1. [News ID 3082](#)

■ Kontron: EN50155-certified HMI panel PC for trains is EN50155-certified

Kontron announced its TRACe HMID104-CK, an EN50155-certified fanless operational panel PC display. Specifically designed for transportation systems, Kontron's new advanced touch-screen HMI offers a flexible building block platform enabling developers of train control systems to quickly adapt functionality to different needs such as train functionality operational displays for drivers, passenger information displays and onboard computers. [News ID 3027](#)

■ MEN: robust and compact managed 8-port Ethernet switch

The NM30 is a managed 8-port Ethernet switch that belongs to the MEN family of extremely rugged compact network devices, which come in Box PC format, and offer a variety of configuration options for different applications. Equipped with a wide range power supply, class 2 and designed for

an operating temperature between -40 and + 85°C, the NM30 is also compliant to EN 50155. Important switch protocols, e. g. Quality of Service are included. [News ID 3134](#)

■ ICOP: small Vortex86 Box PCs with multiple I/O configurations

There are two ways to satisfy all the varied I/O requirements, one is by packing multiple I/Os into larger systems the second is by designing a range of smaller systems. ICOP technology has chosen the second solution and today has introduced the new small form factor EBOX-3330/ 3332 box PCs series with DM&P Vortex86 processors. [News ID 2997](#)

■ congatec opens design center in Taipei

congatec continues its global investment in R&D with the opening of a new design center in Taipei, Taiwan, to support its customer base in Asia and help drive growth in the region. The new design center is congatec's first to be located in Asia and its fifth worldwide. The company also operates a design center within its global headquarters in Germany, two design centers in the Czech Republic and one in the United States. [News ID 3104](#)

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Brick Chassis Rugged Chassis

System



Clean Energy



Robot



BOARDS & MODULES

AAEON: Pentium and Celeron N3000 based hardware solutions

AAEON unveils the upcoming GENE-BSW5 subcompact board and FWS-2260 network appliance, the company's first two offerings with the latest Intel SoC lineup. Manufactured with the cutting-edge 14 nm process, power consumption of both products has been further reduced to 6W, as compared to 10W of their predecessors which utilizes the previous generation SoCs. Support for greater memory speeds and I/Os are also incorporated in the new chips to introduce some of today's most wanted technological features to the mainstream market.

[News ID 3095](#)

Acced: new industry box PC with LAN, WLAN and 3G

The new Matrix-513 from Artila is now also available from the independent distributor Acced in Germany and Europe. In addition to two Ethernet connections, the industrial mini PC provides various wireless communication options via WLAN, Bluetooth and 3G. The standard equipment includes the reliable operating system Linux 2.6.38 and a software utilities bundle such as Web server, PHP server, Python, Java, MySQL and SQLite.

[News ID 3075](#)

GE: rugged 3U OpenVPX single board computer

GE Energy Management's Intelligent Platforms announced the SBC347A rugged 3U OpenVPX single board computer. Based on the latest 'Broadwell' processor technology from Intel, it delivers higher performance and greater functionality than previous generations of SBC while maintaining the same power envelope. The SBC347A is the first in a number of Broadwell-based products that GE plans to introduce.

[News ID 3178](#)

Vecow: ECS-7000 series Embedded system achieves VMware ready status

Vecow announced that its Thin Client Solution with ECS-7000 Series Fanless Embedded System has achieved VMware Ready status. This designation indicates that Vecow's Thin Client Solution with ECS-7000 Series Fanless Embedded System has undergone detailed test procedures and is supported on VMware vSphere 5.5 for production environments.

[News ID 2988](#)

Beaglecore: BeagleBoard as ultra-compact SoC on Kickstarter

Raspberry Pi, Arduino and BeagleBone have shaped the market for development boards and created new demands for embedded computer technology. Originally, these credit card-sized single board computers had been developed and marketed to teach computer science in schools and universities in practice. One of the main advantages is the price at which these development boards are sold as well as the fact that there are already numerous forums and websites on the internet, where users find extensive support, scripts, add-ons and much more.

[News ID 3208](#)

IBASE Mini-ITX board features Intel H-processor line

IBASE Technology announces the MI985 Mini-ITX motherboard that supports the 5th Generation Intel Core processors (H-processor line) and Mobile Intel QM87 Express Chipset that deliver industry-leading processing and graphics performance. Based on the Intel microarchitecture, the MI985 provides the processing power and advanced features such as Intel Hyper-Threading Technology and Intel Active Management Technology 9.0, power-management suitable for high-end applications in kiosk, medical, factory, industrial automation and control markets.

[News ID 3113](#)



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Yellow Pages 2015

The Embedded Companies Directory

This year's edition of our Embedded Companies Directory is split into 2 sections.

The first part provides you with short company profiles, including a QR code which leads you to the full company profile (*including overview about products & services, contact information, product news,...*) on the **embedded-control-europe.com** portal.

The second part of the Yellow Pages is a reference list showing in which product categories the companies are active.

A.R. BAYER DSP Systeme



A.R. Bayer DSP Systeme GmbH was founded in 2003 by Andreas Bayer, a first hour DSP specialist, with a focus on DSP products and services. The company is a spin-off of Bayer DSP Solutions which began operations in 1995. A.R. Bayer DSP Systeme GmbH is an ISO9001-2008 certified company.



www.dsp-sys.de

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www.acromag.com

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AAEON Technology, established in 1992, manufactures and markets a wide range of OEM/ODM Industrial PCs all over the world. AAEON's commitment to the customers is to provide reliable and high quality Fanless Box PCs, Computer on Module (COM Express, XTX, ETX, Q7), Panel PCs, Rugged Tablet Computers, Embedded Computer Boards (5.25', 3.25', Epic, PC/104), Industrial Motherboards (Mini-ITX) and related accessories.



www.aaeon.eu

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AdaCore provides open source tools and expertise for the development of mission-critical, safety-critical, and security-critical software. AdaCore's flagship products are the GNAT Pro and SPARK Pro development environments and the CodePeer automatic code reviewer and validator. Customers around the world trust GNAT Pro and AdaCore.



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www.adl-europe.com

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www.adlinktech.com



Artila Electronics



Artila Electronics is founded by professionals with more than 15 years of experience in industrial computer field. Artila focuses on developing easily-accessible, flexibly-programmed industrial ARM-based embedded Linux solutions, including embedded ARM9 Linux single board computers, box computers, system-on-modules, and serial-to-Ethernet embedded modules.

www.artila.com



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www.ampltd.com



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www.ddc-web.com

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www.imacs-gmbh.de

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Infineon Technologies AG, Neubiberg, Germany, offers innovative semiconductor and system solutions addressing three central challenges to modern society: energy efficiency, mobility, and security.



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Lauterbach is the leading manufacturer of complete, modular and upgradeable microprocessor development tools worldwide with experience in the field of embedded designs since 1979. At the headquarters in Höhenkirchen, near Munich, the engineering team develops and produces highly proficient and specialized Development Tools, which are utilized all over the world under the brand TRACE32®.



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www.ldra.com

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MEN Mikro Elektronik



Since its founding in 1982 – and with more than 250 employees worldwide – MEN Mikro Elektronik has focused on innovation, reliability and flexibility to develop and produce standard and custom computing solutions that employ the highest technology levels. The company provides a robust offering of highly reliable embedded COTS boards and devices widely used in extreme environmental conditions found in industrial and safety-critical applications.



www.men.de

Lynx Software Technologies



Every day, millions of people worldwide are touched by products that rely on Lynx Software Technologies software—from Internet and phone communications, to airline flight-control systems, office automation and medical devices. Lynx Software Technologies software provides the hidden intelligence that empowers, protects and secures our modern world.



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MicroSys Electronics



MicroSys Electronics GmbH located in Sauerlach close to Munich, designs and develops embedded system solutions, for e.g. VMEbus, CompactPCI and other common bus infrastructures. From the beginning in 1975, customized solutions offering longevity are a strong part of MicroSys business as well. Successfully deployed products span from Computer on Modules up to fully integrated systems.



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MathWorks



MathWorks is the leading developer of mathematical computing software. MATLAB®, the language of technical computing, is a programming environment for algorithm development, data analysis, visualization, and numeric computation. Simulink® is a graphical environment for simulation and Model-Based Design of multidomain dynamic and embedded systems.



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MPL



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www.mpl.ch

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www.pentairprotect.biz/en/emea

MSC Technologies



MSC Technologies specialises in intelligent embedded and display. We represent well-known manufacturers of TFT, touch and passive displays and offer customer-specific display solutions. In the embedded sector, we have many years of development and production expertise that ranges from COM Express and Qseven modules through to complete systems. We also provide wireless, storage and lighting solutions.



www.msc-technologies.eu

Phaedrus Systems



Phaedrus Systems supports engineers at all stages of embedded development. We specialise in support for safety-critical and high-integrity projects. A portfolio of tools to provide all the elements required to create an integrated tool chain - from initial specification through to life cycle management - has been assembled specifically for this demanding area of engineering.



www.phaedsys.com

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www.nateurope.com

PLS



PLS is among the worldwide leading suppliers of debugging solutions and complete development tools for 16-bit and 32-bit microcontrollers and System-on-Chips (SoC). Important architectures such as TriCore, Power Architecture, RH850, ARM, Cortex, XC2000/XE166, SH-2A, XScale and C166/ST10 as well as simulation platforms of different vendors are supported.



www.pls-mc.com

PEAK-System Technik



Founded in 1999, PEAK-System Technik is a leading provider of hardware, software, and services for the industrial communication. The focus is on the field busses CAN and LIN.



www.peak-system.com

PLUG-IN Electronic



The company PLUG-IN Electronic GmbH based in Eichenau near Munich, Germany, has been marketing hardware and software for PC-assisted measuring and automation technology since being founded in December 1990. The core business focuses mainly on hardware solutions, with software solutions only being offered on the basis of graphic programming environments.



www.plug-in.de/en/

PragmaDev



PragmaDev is a privately held company based in Paris France that provides a set of modeling and testing tools for the development of real time and embedded software: "Real Time Developer Studio" and "PragmaDev Tracer".

www.pragmadev.com



RUTRONIK



Rutronik Elektronische Bauelemente GmbH is third largest distributor in Europe and the number ten worldwide. The broadline distributor offers semiconductors, passive and electromechanical components in addition to boards, storage, displays & wireless products. The company's primary target markets are the automotive, medical, industrial, home appliance, energy and lighting industries.

www.rutronik.com



PRQA



Are you looking for sharp improvements in the quality of your static analysis code? Congratulations, you have just found the missing part of the puzzle! Become more productive and skilled through PRQA static analysis solutions! We are specialised in static analysis products and services, promoting safe coding standards practices.

www.programmingresearch.com



S.I.E System Industrie Electronic



System Industrie Electronic is a leading supplier of Embedded Computing Systems and modular HMI systems. The range of services offered by S.I.E arrays from modular HMI-components to the whole developmental responsibility of an embedded computing system – everything from a single source. Well-known companies in medical, analytical-, bio- & laboratory, industrial and security markets count on S.I.E in high-end-products.

www.sie.at



Rohde & Schwarz



For more than 80 years, Rohde & Schwarz has stood for quality, precision and innovation in all fields of wireless communications. The company is strategically based on five pillars: test and measurement, broadcasting, secure communications, radiomonitoring and radiolocation.

www.rohde-schwarz.com



SCIOPTA Systems



SCIOPTA is a leader in system software for safety-critical embedded applications. This includes real-time operating systems, network software, file systems, software for interface bus systems, board support packages and other system software.

www.sciopta.com



Round Solutions



Round Solutions develops hardware and services for Internet of Things and offers component solutions for wireless M2M communication. The company's modules, antennas and design-in services improve the value creation processes for customers of all sizes and industries. Round Solutions creates the necessary technological preconditions for developing new IoT-based business models.

www.roundsolutions.biz



SE Spezial-Electronic



SE Spezial-Electronic AG, founded in 1970, is an internationally operating distributor of electronic components. With 31 suppliers of active, passive and electromechanical components, SE Spezial-Electronic is one of the leading service distributors in Europe. We offer an extensive selection of logistics services and we support customers in developing and manufacturing products.

www.spezial.com



SECO



SECO is a world-leader in electronic embedded solutions. Spanning its 35+ years of experience, SECO has shown the ability to adapt its know-how to new, challenging customers' needs, and to provide cutting edge solutions to its partners. On the strength of its know-how and in contrast with recent outsourcing trends, SECO has always set the entire production cycle in-house, from the development stage to mass distribution



www.seco.com

Syslogic



Syslogic supplies industrial computers embedded PCs, single board computers and touch panel computers for demanding industrial use. These are used in areas such as machining and automotive engineering as well as traffic and train technology. Syslogic is one of the few companies in the embedded branch that develops and assembles all of its embedded computers and touch panel computers itself.



www.syslogic.de

SEgger



SEgger Microcontroller develops and distributes hardware and software development tools as well as software components for embedded systems. SEgger's intention is to cut software development time for embedded applications by offering affordable, high quality, flexible and easy-to-use tools and software components allowing developers to focus on their applications.



www.segger.com

Telit



With over 12 years dedicated to the m2m market, Telit has a network of eight R&D centers around the globe. Telit continues to demonstrate a unique ability to translate prowess in the various technologies it dominates, into business breakthroughs. Telit's portfolio of the highest quality cellular, short-range, and global navigation satellite system (GNSS) modules; all available in over 80 countries from 35 sales offices and 60 distributors.



www.telit.com

Sierra Wireless



Sierra Wireless is the global leader in machine-to-machine (M2M) devices and cloud services. We offer the industry's most comprehensive portfolio of 2G, 3G and 4G embedded modules and gateways, seamlessly integrated with our secure M2M cloud services. Sierra Wireless has more than 850 employees globally and has R&D centers in North America, Europe and Asia.



www.sierrawireless.com

TenAsys



Software for embedded virtualization environments to support mixed workloads on multicore Intel processor-based PC platforms. The product portfolio includes eVM® for Windows* and INtime®—which make use of embedded virtualization technologies to partition platforms while permitting multiple diverse workloads to run simultaneously and independently on the same platform.



www.tenasys.com

SYSGO



Since 1991, SYSGO provides operating systems and services for embedded systems. In the late 90's, SYSGO pioneered the use of Linux in the embedded market with the ELinOS distribution. For safety and security critical devices, SYSGO offers PikeOS, the world's first SIL 4 certified hypervisor for multi-core processors, which builds the foundation for smart devices in the Internet-of-Things.



www.sysgo.com

Texas Instruments



Texas Instruments is a global semiconductor design and manufacturing company that develops analog integrated circuits and embedded processors. By employing the world's brightest minds, TI creates innovations that shape the future of technology. TI is helping more than 100,000 customers transform the future, today.



www.ti.com

TQ-Group



Based on technologically sophisticated designs, TQ-Group provides highly-integrated, Embedded Systems, such as: Minimodules, Mainboards, Evaluation boards, Ready-to-use industrial systems and Customer specific solutions. Modular designs save time and money. In many industrial sectors, the use of modular devices is key to efficiency.



www.tq-group.com/

WIBU-SYSTEMS



WIBU-SYSTEMS AG is a technology leader in the global software licensing market. In its mission to deliver unique, most secure and highly flexible technologies to software publishers and industrial manufacturers, Wibu-Systems has developed a comprehensive, award-winning suite of hardware- and software-based solutions incorporating internationally patented processes dedicated to the integrity protection of digital assets and intellectual property.



www.wibu.com

Trinamic



Based in Hamburg, Germany, TRINAMIC provides integrated Circuits and Modules for Motor and Motion Control to customers all over the world, most of them leaders in their Industry.



www.trinamic.com

Wind River



Wind River, a wholly owned subsidiary of Intel Corporation, is a global leader in delivering software for the Internet of Things. The company has been pioneering computing inside embedded devices since 1981, and its technology is found in more than 2 billion products. Wind River offers a comprehensive portfolio of solutions for addressing the system-level challenges and opportunities of IoT.



www.windriver.com

Vecow



Vecow, a team of embedded computing experts, dedicates to designing, developing, producing and selling industrial grade computer products.

Vecow offers Fanless Systems, Panel PCs, In-Vehicle Computing Systems, Expansion Modules, Mainboards and Design & Manufacturing Services for Machine Vision, Video Analytics Surveillance, Intelligent Automation, Vehicle Computing, Industry 4.0 and IoT applications.



www.vecow.com

WITTENSTEIN high integrity systems



WITTENSTEIN high integrity systems is an RTOS and Middleware company that specialises in safety, producing and supplying Real-time Operating Systems and Software Components to the Medical, Aerospace and Industrial sectors. WITTENSTEIN high integrity systems developed the first pre-certified RTOS to be ROM'ed in a main line microprocessor.



www.highintegritysystems.com

Vector Informatik



Vector Informatik is the leading supplier of software tools and components for developing and networking electronic systems based on CAN, LIN, FlexRay, Ethernet, MOST, AFDX, ARINC 429 as well as on many different CAN-based protocols. Vector's expertise is passed on to customers in the form of its wide range of products as well as in comprehensive consulting services with system and software engineering.



www.vector.com

WynMax



Wynmax, founded in 2006, is a company specializing in the design and manufacture of highly reliable industrial PC solutions. With more than 50% of the employees for R&D, Wynmax products are featured with 24 hours 7 days non-stop operation capability, wide range temperature durability, and wide voltage power input flexibility. Wynmax also provides professional customization services for OEM/ODM customers.



www.wynmax.com.tw

Xilinx



Xilinx is the world's leading provider of All Programmable FPGAs, SoCs, MPSoCs and 3D ICs, enabling smarter, connected, and differentiated systems and networks. Driven by the industry-wide shifts towards Cloud Computing, SDN/NFV, Video Everywhere, Embedded Vision, Industrial IoT, and 5G Wireless, Xilinx innovations enable these applications that are both, software defined, yet hardware optimized.



www.xilinx.com

XiSys Software



XiSys Software GmbH is a provider of innovative and leading edge Software Tools and Development Environments for Graphical User Interfaces (GUIs). The products are dedicated to highly embedded, reliable system solutions with typically long product lifecycles of up to 10 years and more. The company

was founded in 1994 and supports with it's XiBase9 product line, operating systems like Linux, Microsoft® Windows® or RadiSys Microware® OS-9.



www.xisys.de

company	Real Time Operating Systems	Development Tools SW	Development Tools HW	Embedded Software	Embedded Connectivity	Micros & DSPs	ASSPs & Memories	PLDs, ASICs & EDA	Analog & Power	Embedded Computing	SBCs, Busboards & Mezzanines	COTS	Small Form Factor Boards & COMs	Motherboards	Industrial Computing	Backplanes, Racks & Connectors	Data Acquisition	Engineering Services	Displays
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A.R. BAYER DSP Systeme	•	•	•	•	•	•				•	•	•	•		•		•	•	
AAEON Technology	•			•	•					•	•	•	•	•	•	•		•	
ACCEED			•		•				•	•	•	•	•	•	•	•	•		•
Acromag					•					•	•	•	•		•		•		
AdaCore		•		•						•		•						•	
ADL Embedded Solutions	•	•		•	•					•	•	•	•	•	•			•	
ADLINK Technology					•						•	•	•	•	•	•	•		
Advanced Micro Peripherals										•	•	•	•		•			•	
Apacer						•	•			•		•		•	•				
ARBOR Technology	•									•			•	•	•				•
Artila Electronics	•	•	•	•	•				•	•	•		•		•		•	•	
Avalue Technology	•		•	•						•	•			•	•	•		•	
Axiomtek										•	•		•	•	•	•	•	•	
Cadence Design Systems		•	•	•				•										•	
CES – Creative Electronic Systems										•	•	•	•	•	•				
Concurrent Technologies	•	•		•	•				•	•	•	•			•				
congatec			•	•	•					•	•		•		•			•	
Data Device Corporation (DDC)									•	•	•	•	•		•		•		
Data Modul			•							•	•		•	•	•				•

■ PRODUCT GROUPS REFERENCE LIST

company	Real Time Operating Systems	Development Tools SW	Development Tools HW	Embedded Software	Embedded Connectivity	Micros & DSPs	ASSPs & Memories	PLDs, ASICs & EDA	Analog & Power	Embedded Computing	SBCs, Busboards & Mezzanines	COTS	Small Form Factor Boards & COMs	Motherboards	Industrial Computing	Backplanes, Racks & Connectors	Data Acquisition	Engineering Services	Displays
DFI					•					•	•	•	•	•	•	•		•	
E.E.P.D.										•	•		•		•			•	
EBV Elektronik		•	•		•	•	•		•								•		
EKF Elektronik										•	•				•	•		•	
ELBACOM Germany	•	•		•						•					•			•	
Elma Electronic										•	•				•	•		•	
Embedded Office	•	•		•	•														
embedded-logic										•	•		•	•	•			•	
ept										•			•		•	•		•	
ERNI Electronics											•					•		•	
ETAS	•	•	•	•													•	•	
EUROS Embedded Systems	•	•	•	•	•					•									
Express Logic,	•	•	•	•	•														
Freescale		•	•		•	•			•										
GammaTech	•	•		•	•							•							
Green Hills Software	•	•	•	•	•													•	
HCC-Embedded		•		•														•	
HEITEC	•			•						•		•			•	•		•	
IBASE					•					•	•		•	•	•	•			•
IEI Integration	•	•	•	•	•					•	•		•	•	•	•	•	•	•
IMACS		•		•	•					•							•	•	
IMCOR	•	•	•	•	•					•							•		
Infineon		•	•			•	•	•	•										
Innodisk							•		•	•					•			•	
iSYSTEM	•	•	•	•	•					•					•		•	•	
Kontron	•	•	•	•	•					•	•	•	•	•	•	•	•	•	•
Lauterbach	•	•	•	•	•					•								•	
LDRA		•		•													•		
LieberLieber Software	•		•	•						•								•	
Lynx Software Technologies	•	•		•	•														
MathWorks		•		•						•					•		•	•	
Maxim Integrated					•	•	•	•	•										
MEN Mikro Elektronik	•									•	•	•	•	•	•	•	•	•	•
MicroSys		•	•							•	•	•	•	•	•	•		•	

company	Real Time Operating Systems	Development Tools SW	Development Tools HW	Embedded Software	Embedded Connectivity	Micros & DSPs	ASSPs & Memories	PLDs, ASICs & EDA	Analog & Power	Embedded Computing	SBCs, Busboards & Mezzanines	COTS	Small Form Factor Boards & COMs	Motherboards	Industrial Computing	Backplanes, Racks & Connectors	Data Acquisition	Engineering Services	Displays
Mouser Electronics		•	•	•	•	•	•	•	•	•						•	•		
MPL					•					•	•	•	•		•				•
MSC Technologies	•	•	•	•		•	•	•	•	•	•		•			•	•	•	•
N.A.T.	•			•						•	•	•		•	•		•	•	
PEAK-System Technik		•	•	•													•	•	
Pentair										•		•			•	•		•	
Phaedrus Systems	•	•	•	•														•	
PLS	•	•	•	•														•	
PLUG-IN Electronic					•					•	•			•	•	•	•	•	•
PragmaDev	•	•	•	•															
PRQA		•		•														•	
Rohde & Schwarz		•															•	•	
Round Solutions			•	•	•													•	
RUTRONIK	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
S.I.E System Industrie Electronic				•	•					•	•	•	•	•	•	•		•	•
SCIOPTA Systems	•	•		•	•													•	
SE Spezial-Electronic					•	•	•		•		•					•	•		•
SECO			•	•	•					•	•	•	•	•	•			•	
SEgger Microcontroller	•	•	•	•	•					•									
Sierra Wireless					•	•	•		•										
SYSGO	•	•		•	•					•		•			•			•	
Syslogic	•				•					•	•		•		•		•	•	•
Telit				•	•					•					•			•	
TenAsys	•		•	•	•					•								•	
Texas Instruments		•	•	•		•	•	•	•										•
TQ-Group	•		•	•						•	•		•	•	•			•	
Trinamic		•	•	•			•		•	•			•					•	
Vecow	•				•					•			•		•				•
Vector Informatik	•	•	•	•													•	•	
WIBU-SYSTEMS	•	•	•	•	•					•					•			•	
Wind River	•	•	•	•	•					•		•						•	
WITTENSTEIN	•	•		•														•	
WynMax	•		•		•					•	•		•	•	•			•	•
Xilinx		•	•	•	•			•											
XiSys Software GmbH	•	•		•						•					•			•	

■ Vector Informatik: mobile ARINC 429 solution for testing of modern multibus architectures

Vector is extending the range of uses of its CANoe and CANalyzer development and analysis tools to cover important avionic networks by offering the .A429 software option and a USB interface for ARINC 429. This gives developers of Line Replaceable Units (LRUs) in aircrafts a flexible and powerful solution for testing and bus analysis.

[News ID 3096](#)

■ Renesas simplifies sensor-less brushless DC motor control design

Renesas Electronics announced the RL78/G1F group of multi-function microcontrollers, adding 20 new members to its low-power RL78 Family of MCUs. Featuring enhanced peripheral functions and compatibility across the RL78/G1x Series of MCUs, the new devices simplify sensor-less brushless DC motor (BLDC motor) control and deliver precision operation at faster rotational speeds with high accuracy for energy-efficient home appliances and electric power tools.

[News ID 3081](#)

■ GOEPEL introduces new test strategy for IoT devices

Under the name JEDOS (JTAG Embedded Diagnostics Operating System), GOEPEL electronics introduces a new technology for embedded test of complex electronic designs. The new test strategy has been developed in particular for diagnostic testing of devices for the Internet of Things.

[News ID 3080](#)

■ Micrium and Validated Software announce validation suites for uC/OS-III

Validated Software and Micrium announce the availability of VSC's new Validation Suites for Micrium's uC/OS-III. Validation Suites offer the most cost-effective means to secure the benefits of uC/OS-III in a variety of safety-critical products.

[News ID 3074](#)

■ Embedded Office: Safety-BSP simplifies MCU use in safety-critical applications

Embedded Office is taking part along with other partners from industry and science in the fourth civil aviation research programme (LUFO IV.4) funded by the German Ministry of Economics and Technology (BMW). With LUFO IV.4, the BMW is providing support from 2007 to 2015 for research and technology development projects with an application in civil, commercial aviation in Germany. This research project is designed to strengthen the technological basis of aviation research in Germany and underscore the significance of aviation as a high-tech sector.

[News ID 3097](#)

■ R&S: decoding of 8b/10b buses with RTO oscilloscope

The new R&S RTO-K52 decoding option helps developers design, verify and debug modules with 8b/10b encoded buses. At the push of a button, the R&S RTO uses the option's full autoset function to determine the channel, decision level and bit rate settings, allowing developers to quickly start measuring. All of these settings can be readjusted manually.

[News ID 3071](#)

■ Lauterbach: advanced integration of VectorCAST with TRACE32

Vector Software announced an advanced integration with the Lauterbach TRACE32 product. VectorCAST now enables development, test, and certification teams, to set and continuously collect, practically unlimited volumes of test data from RAM constrained embedded systems.

[News ID 3069](#)

■ Cadence: Allegro 16.6 portfolio to make design cycles shorter and more predictable

Cadence Design Systems unveiled the Allegro 16.6 portfolio, which features several new products and technologies. Included in this release is the new Allegro PCB Designer Manufacturing Option, which can shorten the time to create manufacturing documentation by up to 60 percent, and several key technology updates catered to increase efficiency, control and productivity for designers, while streamlining handoff to manufacturing.

[News ID 3065](#)

■ Cadence: Indago debug platform improves debugging productivity

Cadence Design Systems announced the Indago Debug Platform, a new debugging solution which reduces the time to identify bugs in a design by up to 50 percent compared to traditional signal- or transaction-level debug methods. In addition to the Indago Debug Platform, Cadence also announced three debugging apps that plug into the platform and can be used with other verification tools to provide a single integrated and synchronized debug solution for testbench, verification IP, and hardware/software debug for system-on-chip designs.

[News ID 2973](#)

■ Mouser launches enhanced open source hardware technology site

Mouser Electronics has announced the update of their Open Source Hardware (OSHW) Technology site. Mouser's updated technology site provides developers with the resources they need to quickly learn about the latest advances in open source hardware, and the newest open source hardware products available from Mouser Electronics.

[News ID 3044](#)

■ PEAK-System and emtas decide mutual cooperation

PEAK-System Technik and emtas arranged a cooperation. The common characteristic of the engineering work "Made in Germany" and the corporate philosophies "Advantage through Quality" result in a perfect symbiosis of the two partners. The CAN/CAN FD product portfolio by PEAK-System and the embedded software of emtas complement each other and ensure a high degree of integration of the coordinated and validated components in order to solve problems of customers quickly, efficiently, and effectively.

[News ID 2995](#)

■ Softing: complete PROFIBUS DP Slave in FPGA

Softing Industrial Automation is introducing a new PROFIBUS Slave subsystem that can be fully loaded into an FPGA. The solution consists of a VHDL-designed PROFIBUS controller and processor on which runs the entire protocol software.

[News ID 2991](#)

■ Embedded Office boosts sales presence in France

Embedded Office has announced the appointment of Neomore as a new distribution partner in France. The company will be selling the Cert-Kits from Embedded Office with immediate effect for IEC61508-, IEC62304-, EN50128- and DO-178B/C applications. With this move, the embedded software specialist from southern Germany (Allgäu region) is looking to further extend its presence in the French market and to support customers locally more efficiently with an expert sales partner.

[News ID 2984](#)

■ Amplicon and Belden create partnership

Amplicon announce their new partnership with Belden, a renowned High-Tech manufacturer. This new partnership will give Amplicon customers access to the full Belden range which includes hundreds of connectivity and networking products for a variety of markets. Belden were established in 1902 and one of their early customers was the world-famous inventor Mr Thomas Edison.

[News ID 2956](#)

■ Vector: advanced integration with Lauterbach's TRACE32 suite

Vector Software announced an advanced integration with the Lauterbach TRACE32 product. The Test Automation Platform, VectorCAST, now enables development, test, and certification teams, to set and continuously collect, practically unlimited volumes of test data from RAM constrained embedded systems.

[News ID 3025](#)

■ **ADI: power-efficient multicore SHARC+ARM SoC**

Analog Devices introduced eight SHARC processors as part of a new, high-performance, power-efficient, real-time series that delivers peak performance greater than 24 giga-floating-point operations per second using two enhanced SHARC+ cores and advanced DSP accelerators (FFT, FIR, IIR).

[News ID 3143](#)

■ **Mouser: EZR32 wireless microcontroller assortment from Silicon Labs**

Mouser Electronics is now stocking the 32-bit EZR32 Wireless Microcontroller families from Silicon Labs. The EZR32 microcontrollers are the latest in the Silicon Labs assortment of wireless microcontrollers, delivering a high-performance, low-energy wireless solution integrated into a small form factor package.

[News ID 3140](#)

■ **Round Solutions: small wearable GPS tracking device**

Thanks to its very small size, the MicroTracker is perfect for being set-in into clothes and accessories. The purpose is to determine the location of people solely for their safety and protection. Therefore, the MicroTracker has a panic button that can be pressed in an emergency situation, to send an emergency call with the current coordinates. The Accelerometer on the MicroTracker detects movement and sets itself in a power saving mode when no movement is detected. With a 1.35AH battery it reaches up to 24 working hours. Thus the MicroTracker provides a perfect complement in many safety-critical scenarios for the protection of human lives.

[News ID 3215](#)

■ **TI: revolutionize context save and restore with MSP430 FRAM MCUs**

Overcoming a design hurdle that has burdened engineers for decades, Texas Instruments today announced a revolutionary Compute Through Power Loss (CTPL) technology to enable context save and restore across its MSP430 FRAM microcontroller family, including the new MSP430FR6972 MCU.

[News ID 3064](#)

■ **Silicon Labs: energy friendly USB micromotrollers**

The latest addition to Silicon Labs' EFM32 32-bit MCU portfolio, the new Happy Gecko MCUs are designed to deliver the lowest USB power drain in the industry, enabling longer battery life and energy harvesting applications. Based on the ARM Cortex-M0+ core and low-energy peripherals, the Happy Gecko family simplifies USB connectivity for a wide range of IoT applications.

[News ID 3037](#)

■ **RUTRONIK: progressive IoT computing from Advantech with RISC technology**

Rutronik presents the new palm-sized UBC-220, an ARM-based compact box computer powered by a Freescale ARM Cortex-A9 i.MX6 Dual Lite high-performance processor. Designed with compact size, high capability, and superior connectivity, UBC-220 is an ideal indoor computing gateway suitable for smart buildings, parking lots, and public spaces.

[News ID 3217](#)

■ **Wind River Simics advances Agile practices for IoT development**

Wind River has introduced the latest version of Wind River Simics. Simics accelerates software development by delivering ground-breaking development capabilities and facilitates Agile software practices through the use of simulation technologies. The latest updates to Simics include accelerated simulation performance and expanded capabilities for enhancing access, collaboration, and automation for software developers.

[News ID 3205](#)

■ **Freescale: Kinetis portfolio delivers multi-protocol Bluetooth Smart and IEEE 802.15.4 radios**

Freescale introduces the Kinetis KW40Z wireless MCU family with support for Bluetooth Smart/Bluetooth Low Energy (BLE) and IEEE 802.15.4 applications. The KW40Z wireless MCU integrates a 2.4 GHz multi-protocol radio that provides the ability to access one BLE network and one 802.15.4 network from a single device while achieving strong RF performance and low current consumption.

[News ID 3161](#)

■ **Atmel: 5V Cortex-M0+ MCU family with integrated peripheral touch controller**

Atmel introduced the 5V ARM Cortex-M0+-based MCU family with integrated peripheral touch controller. The new family of Atmel | SMART ARM Cortex-M0+ MCUs innovatively combines 5V, DMA performance and a PTC with excellent moisture tolerance. The new devices also integrate advanced analog capability and offer EMI and ESD protection, making them ideal for the rapidly expanding smart appliance and industrial markets.

[News ID 3078](#)

■ **AAEON debuts in IoT arena with AIOT-X1000 subcompact board**

AAEON releases the AIOT-X1000 subcompact board, the company's debut into the burgeoning IoT market. Referred to as "AAEON Internet of Things", the AIOT-X1000 is powered by Intel's Quark X1000 Series SoC's to drive cost down while delivering substantial performance for interconnectivity between the broad array of devices in an IoT environment.

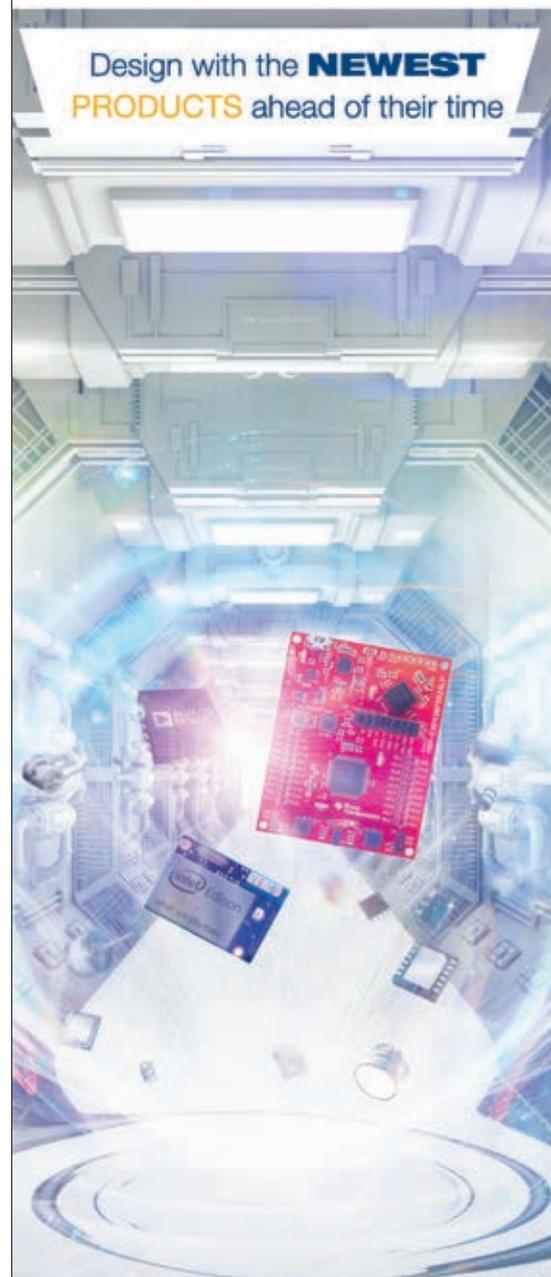
[News ID 3057](#)

mouser.com/new

Authorised global distributor of the **NEWEST** electronic components.

You can't invent the future with the products from the past.

Design with the **NEWEST PRODUCTS** ahead of their time



The Newest Products for Your Newest Designs®

■ FTDI bundles FT90x MikroE compilers with free hardware

FTDI Chip has taken further steps to help engineers implement better embedded systems using its cutting-edge microcontroller technology. Working in conjunction with MikroElektronika, the company is now marketing a cost effective development package based on the ground-breaking FT90x MCU series. What's more, the company is exclusively providing customers with a free MikroE Clicker 2 board with every FT90x Compiler license purchase and furthermore offers free shipping worldwide on the package.

[News ID 3112](#)

■ Aceeed: ZigBee sensors with data logger

Aceed has increased its portfolio with a comprehensive range of new ZigBee devices from the manufacturer Nietzsche Enterprise. The new products include temperature and humidity sensors with integrated series STH-01ZB data loggers. Nietzsche Enterprise is a big data specialist and a manufacturer of sensors, data loggers, controllers, routers and other components for recording and treating measurement data according to the ZigBee standard.

[News ID 3142](#)

■ Innodisk: 16GB DDR3 memory for Atom servers

Innodisk announces high capacity 16GB DDR3 Memory modules for Intel Atom Avoton and Rangeley based servers with speeds up to 1600MHz, making Innodisk the first on the market with a 16GB DDR3 ECC UDIMM module capable of 1600MHz. Available in UDIMM, SODIMM, and ECC UDIMM. These high capacity, high speed memory modules let users easily maximize memory capacity and performance for servers based on the Atom C2000 Processor family. This means faster speeds and better performance for networking systems, telecommunication infrastructure and more.

[News ID 3090](#)

■ Infineon: next gen CoolMOS with improved switching losses

Infineon Technologies has launched a new family of CoolMOS C7 series superjunction MOSFETs. The 600 V series offers a 50 percent reduction in turn-off losses compared to the CoolMOS CP, offering a GaN-like level of performance in PFC, TTF and other hard-switching topologies. The CoolMOS C7 achieves an industry first by delivering an area-specific on resistance (R_{DS(ON)}*A) of just 1 Ω per mm², extending Infineon's portfolio of products with lowest R_{DS(ON)} per package to support customer efforts to further increase power density.

[News ID 3056](#)

■ ST: smart, high-power-density motor driver for tomorrow's industrial automation

Premiered at PCIM Europe 2015, STMicroelectronics' powerSTEP driver delivers the advantages of compact motor-control design for applications at high power ratings. The fully integrated stepper-motor driver system-in-package offers an unprecedented power density of up to 500W/cm², enabling cost-effective systems that deliver better performance and reliability without sacrificing flexibility or ruggedness.

[News ID 3018](#)

■ Advantech: out-of-the-box Intel IoT gateway development kit

Advantech announce an IoT Gateway Development Kit bundle with Intel Gateway Solutions for Internet of Things. This solution features a pre-integrated software and hardware platform containing a Linux operating system, security and management features. This out-of-the-box solution simplifies customer deployment of IoT products and allows secure data aggregation, filtering, and analysis from edge devices to the cloud through Wi-Fi and/or even 4G technologies.

[News ID 3188](#)

■ Toshiba: partnership with Microsoft on IoT solutions

Toshiba and Microsoft have announced the two companies have signed a memorandum of understanding to jointly develop solutions for the Internet of Things Leveraging Toshiba's IoT devices with Microsoft's Azure IoT Cloud infrastructure, Toshiba will deliver state of the art sensor-data-driven applications in various market segments starting in calendar year 2015.

[News ID 3107](#)

■ Sierra Wireless and PSA Peugeot Citroën collaborate on services to connected cars

Sierra Wireless announced a new milestone in its collaboration with PSA Peugeot Citroën, with a next-generation design win for Sierra Wireless using AirPrime AR Series smart automotive modules, the Legato platform, and the AirVantage cloud.

[News ID 3100](#)

■ SYSGO: platform for joint safety and security in the IoT

Together with eleven international partners, SYSGO starts the EU project SAFURE that aims at the development of a platform for integrated safety and security for critical systems in the Internet of Things. Main objective of the project is to provide a framework for integrated safety and security that identifies and avoids security threats for the functional safety of networked systems.

[News ID 2993](#)

■ Round Solutions: PingPong IoT edge node connects field devices to the cloud

Round Solutions has launched its wireless PingPong IoT edge node, a flexible and powerful hardware platform for connecting field devices to the cloud. The RTOS supporting small form factor board with powerful Microchip PIC32MZ 32-bit MCU and a high-speed cellular Telit module is based on a modular hardware design principle that simplifies the integration of custom-specific applications and communication standards into a single solution platform.

[News ID 3054](#)

■ u-blox joins M2M Alliance

u-blox has become an official member of the M2M Alliance, the world's largest not-for-profit M2M association of professionals and organizer of the annual M2M Summit. u-blox' successful range of cellular, Bluetooth, Wi-Fi and global positioning components allows the company to provide end-to-end connectivity and location-awareness to any device in the IoT, enabling future connected vehicles, connected cities and connected industry.

[News ID 3010](#)

■ TI and SIGFOX collaborate on long-range, low-power IoT connectivity

SIGFOX, provider of a cellular network dedicated to the IoT, and Texas Instruments announced the two companies are working together to increase IoT deployments using the Sub-1 GHz spectrum. Customers can use the SIGFOX network with TI's Sub-1 GHz RF transceivers to deploy wireless sensor nodes that are lower cost and lower power than 3G/cellular connected nodes, while providing long-range connectivity to the IoT.

[News ID 2976](#)

■ Wind River: automotive software solutions address IoT and connected car

Wind River has introduced Automotive Profile for VxWorks, AUTOSAR-compliant software to help customers develop ISO 26262 certifiable automotive safety-critical applications such as advanced driver assist systems (ADAS) to piloted and autonomous driving.

[News ID 2949](#)

■ IAR partners with Renesas for complete IoT solutions platform

As presented by Renesas Electronics, Renesas Synergy is a complete embedded development platform designed to simplify the creation of innovative products in the embedded space, particularly for the growing Internet of Things market. IAR Systems now announces that the company, as the only commercial tools vendor, will provide build and debugger tools as part of the new platform.

[News ID 3146](#)

■ **Acceed: programmable platform for device networks**

The new programmable device server Artila Aport-212PG from Acceed is well-equipped for the special communication tasks within future device networks. The energy-saving ARM Cortex M3 processor is the motor of the Ethernet serial converter. Its special feature is the integrated operating system FreeRTOS which supports 34 architectures and various compilation environments.

[News ID 2962](#)

■ **Cadence: Tensilica Fusion DSP sets low-energy benchmarks**

Cadence Design Systems announced the new Tensilica Fusion digital signal processor based on the proven Xtensa Customizable Processor. This scalable DSP is ideal for applications requiring merged controller plus DSP computation, ultra-low energy and a small footprint. It can be designed into SoCs for wearable activity monitoring, indoor navigation, context-aware sensor fusion, secure local wireless connectivity, face trigger, voice trigger and voice recognition.

[News ID 2954](#)

■ **TI: high resolution resistive sensing conditioner**

Texas Instruments introduced the industry's highest resolution resistive sensing signal conditioner, enabling fast and precise 24-bit measurement of conditions such as pressure, strain, flow or liquid levels. The PGA900 integrates two low-noise 24-bit ADCs to enable high-resolution signal acquisition, a 14-bit DAC to provide highly linear analog outputs, and a variety of output interfaces, including analog voltage, 4-20 mA current loop, SPI, I2C, UART, and one-wire interface, to give designers options for different application needs. The PGA900's integrated power management accepts external power supply voltages from 3.3 V to 30 V.

[News ID 3165](#)

■ **Sierra Wireless: new open interface standard for wireless and sensor technologies**

As part of its ongoing strategy to expand and accelerate innovation in the Internet of Things, Sierra Wireless introduced Project mangOH, an open hardware reference design, with an open interface standard developed by Sierra Wireless and adopted by three leading industry partners – Freescale, Linear Technologies, and Texas Instruments.

[News ID 3147](#)

■ **Rutronik engaged as global distributor for Melexis**

Rutronik and Melexis have signed a global distribution agreement covering Melexis' entire product portfolio of sensors, sensor interface ICs, driver ICs and communication ICs. Melexis offers an extensive array of highly integrated semiconductors that help the automotive industry to produce greener, safer cars and domestic appliance manufacturers to bring more energy efficient products to market, as well as enabling implementation of advanced industrial equipment, medical instrumentation and building automation systems. The company's sensor portfolio includes magnetic (Hall effect), optoelectronic and MEMS pressure sensors.

[News ID 3139](#)

■ **Microchip: smart hub with FlexConnect broadens application space of USB3.0 hubs**

Microchip announces the first USB3.0 Smart Hubs that enable host and device port swapping, I/O bridging, and various other serial communication interfaces. The USB5734 and USB5744 feature an integrated microcontroller that enables new functionality for USB hubs while lowering overall BOM costs and reducing software complexity. The USB5734/44 family is USB-IF logo certified and features best-in-class signal integrity enabling more robust PCB designs and reducing sensitivities to cable, connector and layout variations.

[News ID 3099](#)

■ **Apacer presents all-around value-added Industrial SSD**

Apacer has ranked the top in revenue market share of industrial SSD for 3 consecutive years, reflecting global market's recognition of Apacer's innovative spirit. Apacer will present brand new, upgraded industrial SSD solutions at COMPUTEX TAIPEI 2015. Data security is enhanced through protection mechanism triggered by NFC; SSD CoreAnalyzer is an innovative analysis technology to comprehensively record and analyze actual usage scenarios of SSD operation, fully exploring behavior of applications, designing the most reliable systems and providing the top services.

[News ID 3088](#)

■ **Mouser: Digital Power Monitors with PMBus Interface from Analog Devices**

Mouser Electronics is now stocking the ADM1293 and ADM1294 Digital Power Monitors with PMBus Interface from Analog Devices. These high-accuracy, integrated digital power monitors provide digital current, voltage, and power monitoring using an on-chip, 12 bit ADC, communicated through a PMBus-compliant I2C interface.

[News ID 3083](#)

■ **Compact based on NVIDIA Tegra K1 mobile processor**

SECOMExp-TK1 is the new SECO's COM-Express Type 6 Compact module based on the NVIDIA Tegra K1 mobile processor. The board integrates 192 CUDA GPU cores and NVIDIA Kepler graphics for extreme performance and powerful computing with extraordinary power efficiency. SECOMExp-TK1 supports OpenGL ES 3.0, OpenGL® 4.4, CUDA 6 and 2160p30 HW encoding and decoding, and is able to support up to two independent displays.

[News ID 3212](#)

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■ **Swissbit: mSATA Gen III SSD with capacities from 8 to 480 GB**

Swissbit announced the launch of its next generation X-60m Series mSATA Solid-State Drive product family. Compliant with the latest SATA III (6.0 Gb/s) interface specification, these drives deliver leading edge performance and reliability to customers in the most demanding industrial, network and communication and automotive sectors. X-60m drives are fully compliant with the JEDEC MO-300A Standard (50.8 x 29.85 x 3.5mm) and well suited for embedded applications needing high performance, non-volatile SSD storage in a compact, removable form-factor.

[News ID 3197](#)

■ **TI makes developing of 1080p pico display applications fast and easy**

Texas Instruments introduced the availability of the TI DLP LightCrafter Display 4710 evaluation module, a new developer tool that allows quick assessment of the DLP Pico 0.47-inch TRP Full-HD 1080p display chipset. Example applications include digital signage, mobile projectors (battery and AC-powered), screenless TVs, control panels, interactive displays, and wearables such as head-mounted displays.

[News ID 3131](#)

■ **Infineon: intelligent power module with smart protection**

At this year's PCIM 2015 trade show Infineon Technologies will launch a new Intelligent Power Module (IPM). The MIPAQ Pro provides an all-in-one solution for a wide spectrum of scalable and compact inverter designs to be implemented in wind, solar, and industrial drives applications. MIPAQ Pro is a fully qualified and tested IPM, integrating IGBTs, gate drivers, the heat sink, sensors, digital control electronics as well as digital bus communication in one robust and reliable device. The high performance subsystem provides high power density combined with a large safe operating area. Innovative features offer a new approach for protecting the IPM in addition to high modularity, increased design flexibility and security.

[News ID 3047](#)

■ **Microchip: A/D converters feature low-power 14-/12-bit, 200 Msps stand-alone ADCs**

Microchip announces two families of new high-speed A/D converters: the MCP37DX0-200 and MCP372X0-200 families. These families feature 12- and 14-bit pipelined A/D converters with a maximum sampling rate of 200 Msps. The 12- and 14-bit devices feature high performance of over 67 dB Signal-to-Noise Ratio and over 96 dB Spurious Free Dynamic Range. This enables high-precision measurements of fast input signals.

[News ID 3040](#)

■ **Maxim: high-side switch boosts throughput and channel density**

Maxim Integrated Products addresses the need for higher throughput, smaller footprint, and lower power in industrial automation with the MAX14900E digital output switch. This eight-channel integrated circuit provides up to 70x faster speed, uses over 20% less power, and occupies 40% less space than existing solutions—all factors required in today's faster, more localized, smaller end products.

[News ID 3016](#)

■ **Xilinx: Zynq All Programmable SoCs selected for Intelligent transport systems**

Xilinx announced that the Land Transport Authority of Singapore has selected Xilinx Automotive (XA) Zynq -7000 All Programmable SoCs for its Intelligent Transport Systems. The program was awarded to Xilinx by the Land Transport Authority of Singapore on March 20, 2015, at a signing ceremony at LTA headquarters in Singapore.

[News ID 3014](#)

■ **Digi-Key: TechZones simplifies online part selection for design engineers**

Digi-Key Electronics announced its new and improved online TechZones, as part of a recent series of web site updates. The TechZones are designed to give design engineers an at-a-glance aggregate view of new products, technical resources and application-specific content. This week, Digi-Key will debut its newest and most comprehensive TechZone – Lighting Solutions.

[News ID 3006](#)

■ **Avalue: 5.25-inch SBC based on Intel Braswell processor**

Avalue is introducing the 5.25-inch SBC – EBM-BSW, based on Intel Braswell – M/D processor family. The Intel Pentium/Celeron processor N3000 family are based on Intel's 14nm architecture for entry systems, which is proved 2x graphics performance improvement, Up to 16% battery life improvement, better I/O support, and better performance at low thermals with previous generations.

[News ID 3067](#)

■ **Sierra Wireless: device-to-cloud technology enables telematics solution for Arval**

Sierra Wireless announced that Arval has selected Sierra Wireless device-to-cloud technology to build its new global telematics solution. The telematics on-board unit wirelessly connects to the cellular network with Sierra Wireless AirPrime embedded modules. Targeted at enterprise fleet managers, the service enables them to track mileage, fuel consumption, driver behavior, and maintenance, as well as utilize usage-based insurance models for cost savings.

[News ID 3198](#)

■ **MSC: 5.0-inch TFT LCD module family from Evervision**

MSC Technologies presents a new family of 5-inch TFT-LCD modules, part number VGG804821-6UFLWx, from Evervision. MSC Technologies is an Evervision key distributor. The price-optimized displays are suitable for a wide variety of applications, for example, in an industrial environment in human machine interface solutions or applications in building automation for access control systems. Use in outside areas is also possible.

[News ID 2964](#)

■ **TE Connectivity: interactive industrial innovation platform "TE CONNECTED"**

TE Connectivity has launched a new interactive innovation platform called TE CONNECTED. The new service, which is available in both English and German, provides engineers in factory and machine automation with current information on the latest technology trends and industry developments.

[News ID 2959](#)

■ **Renesas: flexible design for capacitive touch-based HMI applications**

Renesas Electronics announced its new touch sensing starter kit for the RX113 Group of 32-bit microcontrollers, which incorporate capacitive touch sensor intellectual property that enables high sensitivity, high noise immunity, and excellent water resistance.

[News ID 2952](#)

■ **INCOstartec: picoLILLY SOM based on ARM 11 processor up to 532 MHz**

With the new picoLILLY-1135 INCOstartec opens a new dimension of the long-established and renowned LILLY processor range. The picoLILLY measures 51x40x6 mm and combines a powerful ARM 11 processor up to 532 MHz with comprehensive multimedia-functionality on smallest space. The scalability of the processor offers several solutions: With or without LCD controller, also available with a 3D graphic accelerator and therefore compatible with OpenVG1.1.

[News ID 3181](#)

■ **Infineon and Google ATAP to develop sensing solution**

Infineon Technologies announced that it is working with Google's Advanced Technology and Projects group (ATAP) to develop a sensing solution. Potential applications include wearables, internet of things and automotive applications. First implementations which provide gesture recognition and presence detection capability for a range of future devices were demonstrated by Google ATAP this week at its Google I/O Developers Conference in San Francisco.

[News ID 3086](#)

■ **Artesyn: MaxCore platform for SDN/NFV and carrier cloud**

Artesyn Embedded Technologies launched the MaxCore carrier cloud platform, which enables providers of networking equipment, and communications and cloud services to create NFV/SDN appliances quickly and easily using industry-standard hardware and software building blocks. The versatile MaxCore architecture enables operators to create either massively dense single-function appliances or to deploy multiple independent virtual network functions on a single platform, or multiple clouds-in-a-box.

[News ID 3123](#)

■ **CES: COTS, safety-certifiable SBC XMC mezzanine module**

Creative Electronic Systems announces the MFCC-8557: the first COTS, safety-certifiable, rugged, Single Board Computer XMC mezzanine module engineered for the most stringent mission-critical & safety-critical Aerospace & Defense applications. Designed as an XMC mezzanine module, using a Computer On Module approach, the MFCC-8557 provides a powerful computing engine to bring safety-certifiability to VPX based systems.

[News ID 3109](#)

■ **SECO announce new partnership with Solair**

SECO is proud to announce the new partnership with Solair, an application platform for the Internet of Things that makes customers' business smarter by connecting it to their products through compelling IoT applications. The SECO-Solair mission is to create innovation in the IIoT (Industrial IoT) market, a value proposition where product and service become a "product-as-a-service", offering complete end-to-end solutions that make it quick and easy to connect and manage customers' devices through a powerful cloud-based service, creating value with the data collected that would not be of much use on its own.

[News ID 3211](#)

■ **Research project works on drive train of electric vehicles**

The research project "HV-ModAL" aims to make the drive train of electric vehicles even more powerful than the current ones. Within the next three years, HV-ModAL wants to create an electric drive train modular system toolbox, which is suitable for a wide range of electric cars from various manufacturers. Thus, the ten partners from the whole automotive value chain and the sciences intend to further expand the global market position of the German automotive industry in the field of electric vehicles – purely electric, plug-in hybrids and small transport vehicles.

[News ID 3168](#)

■ **DFI: Atom SoC processor-based 15" light industrial Panel PC**

DFI launched the KS150-BT into its light industrial touch panel PC product line today. The IP65-rated fanless Panel PC adopts low-power Intel® Atom™ E3800 SoC processor with 22nm process technology. The KS150-BT is available in both 5-wire resistive and projected capacitive 15" LCD true-flat touch screen panel.

[News ID 3061](#)

■ **Axiomtek: fanless vehicle Box PC endures up to 3Grms**

Axiomtek has launched its eMark and ISO7637 certified embedded computer, the tBOX313-835-FL. The fanless in-vehicle box PC comes with onboard quad-core Intel Atom processor E3845 and 4 GB DDR3L system memory. The powerful tBOX313-835-FL features vehicle-friendly power design (ISO-7637 certified) to prevent electrical transient damage. It supports isolated COM, LAN, CAN bus, and DIO ports to enhance system operation reliability in vehicle applications.

[News ID 3021](#)

■ **Pentair: 3D product data and services for designers on TraceParts**

Pentair announces its extension of additional 1,600 CAD drawings available on TracePartsOnline.net, which include electronics cabinets, embedded systems, power supply units and backplanes. Up to now, there have been over 2,750 3D data records of Pentair's Schroff products available, from subracks and 19" chassis to desktop enclosures and front panels.

[News ID 3117](#)

■ **ARBOR: expert medical station with a 21.5" true flat touch screen**

ARBOR Technology releases the ARBOR M2150, a high-powered 21.5" medical-grade workstation. The M2150 offers two selections of platforms, 4th generation Intel Core i5-4402E 1.6 GHz processor, or i5-4422E 1.8 GHz processor, both of which provide significant data processing and transmission performance. Thanks to integrated Intel® HD Graphics 4600, the new model provides superb visual performance and razor-sharp imaging.

[News ID 3020](#)

■ **Avalue is ready to get in MES applications**

Avalue to meet the era of Industry 4.0, the trend of intelligent manufacturing and the trend IoT, Avalue integrate professions of industrial computer designs and experience of providing services to automation customers to get into this market. The first phase will focus on Manufacturing Execution System (MES) and a full range of product is ready to go to market.

[News ID 3019](#)

■ **Maxim: wearable galvanic skin response system**

Wearables developers can now immediately evaluate galvanic skin response sensing with the MAXREFDES73# reference design from Maxim Integrated Products. Applying GSR (measurement of skin's conductivity) is a challenge because designers need to manipulate several discrete chips and calibration software before completing the sensor design. The MAXREFDES73# integrates DAC and ADC converters, a microcontroller with advanced power management, firmware, and an easy-to-use Android app into the industry's first GSR reference design.

[News ID 3058](#)

■ **AAEON: BOXER-6403 to maximize performance-per-area**

AAEON launches the award winning BOXER-6403 embedded box PC, one of the most compact embedded box PC on the market. By replacing the traditional heat sink in favor of a full aluminum enclosure for cooling, the box PC manages to achieve the dimensions of 158 x 95 x 20mm.

[News ID 2970](#)

■ **ADLINK: compact, military grade rugged systems for mission and payload computing**

ADLINK releases the compact, extreme rugged HPERC-IBR-H Series military grade system in a sealed, IP67-rated enclosure featuring high speed MIL-DTL-38999 connectors. At just 63.5/100mm x 150/178mm x 203mm, the HPERC-IBR-H Series is a highly integrated, compact VITA 75 compliant unit almost 30% smaller than other leading competitive products1.

[News ID 2965](#)

■ **compute and media server**

The ARTESYN Embedded Technologies MaxCore platform offers a versatile and dense architecture to achieve maximum compute and media processing density. Through its use of Artesyn technology microserver cards, Artesyn media processing PCI Express cards and 3rd party PCI Express cards, it offers maximum flexibility, maximum density per rack unit, and unmatched innovation in design for both datacenter and carrier grade applications.

[News ID 3151](#)

■ **IBASE: 7-inch wide screen all-in-one Panel PC**

IBASE Technology has released the BYTEM-W071-PC, a 7-inch wide screen all-in-one Panel PC that utilizes Intel Atom processors to provide high computing performance and low power consumption for touch panel solutions.

[News ID 3155](#)

■ DFI: low-power industrial boards based on 4th Intel Core U series

DFI introduces its complete 4th generation Intel Core U Series product line. Due to the increasing demands of low-power boards and modules, DFI is trying to develop perfect products to meet the requirements. At present, DFI has 4 industrial motherboards (HU101, HU103, HU171, HU173), 2 embedded SBCs (HU551, HU553), and 1 COM Express Compact (HU968).

[News ID 2987](#)

■ Exar: sensor interface connects multiple sensors to MCUs or FPGAs

Exar introduces a highly integrated sensor interface analog front end (AFE) that provides calibration of sensor outputs. The XR10910 offers an onboard 16:1 differential multiplexer, offset correction DAC, programmable gain instrumentation amplifier and voltage reference. This AFE provides 14-bit signal path linearity and is designed to connect multiple bridge sensors to a microcontroller (MCU) or field-programmable gate array (FPGA) with an embedded ADC.

[News ID 3226](#)

■ VadaTech: AMC with Dual DAC @ 5.7 GSPS and Virtex-7 FPGA

VadaTech now offers a single module AMC that has a dual DAC and high-performance FPGA. The module is ideal for RADAR signal processing and jamming applications. The AMC529 combines the functionality of VadaTech's FPGA Carriers and digitizing FMCs.

[News ID 2961](#)

■ Pentair: Schroff individual front panels with high-quality multicolor printing

Today there is an increasing demand for product individualization and customization. Printing directly on equipment gives users useful information - not just the equipment name but also important operational and functional elements. Furthermore, there is a growing demand for creating high brand awareness, which in turn drives demand for customized printing to reflect corporate identity.

[News ID 2957](#)

■ DAVE and Braemac announces business partnership

Braemac has entered into a business partnership with DAVE Embedded Systems to distribute embedded solutions to customers worldwide, including SOM, SBC, and SSD. This relationship positions Braemac to participate in the growing IOT industry. DAVE Embedded Systems relationship with Smart Embedded Solutions will also assist Braemac in providing technical support in the Silicon Valley.

[News ID 2953](#)

■ TI: MaxCharge technology cuts battery-charge time by 60 percent

Enabling faster and cooler charging, Texas Instruments introduced the industry's first fully integrated 5-A single-cell lithium-ion-battery-charger circuit with proprietary Max-Charge technology that reduces charge time up to 60 percent compared to existing battery chargers. The bq25892 switch-mode charger gives users a safer charging experience while still maximizing the benefits of a faster charge time, currently unseen in the industry

[News ID 2998](#)

■ SECO: SBC with Freescale's i.MX6 runs either Android 4.3 or Linux

SECO announce the new low-end Single Board Computer with the Freescale i.MX6 processor. One year after the launch of UDOO (open hardware, low-cost single-board Android/Linux ARM-based computer with Arduino Due compatible integration), SECO has been collecting a lot of feedback from the market, and noticed that the industry was seeking a flexible and powerful solution, but at low cost and with low power consumption at the same time.

[News ID 3209](#)

■ Concurrent: 3U CompactPCI board with 4th gen Intel Core i7/i5 processor

Concurrent Technologies has released TP B1x/3sd, a 3U CompactPCI board based on 4th generation Intel Core i7/i5 processor. Depending on the application requirements, two processor options are offered as standard: the 4-core Intel Core i7-4700EQ at up to 3.4 GHz and the 2-core Intel Core i5-4422E at up to 2.9 GHz. TP B1x/3sd is designed to give existing customers an upgrade path for long life-cycles with a useful performance boost compared to the earlier TP 702/38x which is based on a 2-core Intel Core i7 processor running at 2.53 GHz maximum.

[News ID 2945](#)

■ CES: ROCK-3 series of VNX-based, rugged mission computers

Creative Electronic Systems announces the integration of the Intel Atom E3845 processor in the ROCK-3 series as well as support for Wind River safe and secure operating system along with CoreAVI's real time and safety critical suite of OpenGL drivers. CES ROCK-3 family is the first product line of mission computers based on VNX (a.k.a. VITA 74); a standards-based approach to conduction-cooled small form factor systems.

[News ID 2999](#)

■ ADLINK: dedicated media server targets video applications

ADLINK introduced the MCS-2040, the first dedicated media server on the market with built-in media processing management soft-

ware, offering 6x the performance of pure software transcoding solutions and reserving more than 80% of CPU capacity for customer applications.

[News ID 2943](#)

■ Kane Computing: Sundance adds low-cost Artix-7 FPGA to PC/104

Kane Computing announce that Sundance Multiprocessor Technology has taken full advantage of the current generation of low-cost Xilinx Artix-7 family, integrating four-lanes of Gen2 PCI-Express and re-programmable logic using the free Xilinx Vivado 2015 tools and designed it onto the latest PC/104 form-factor, called OneBank.

[News ID 3228](#)

■ Concurrent: 10 GbE and 6 Gbps SAS/SATA XMC modules

Concurrent Technologies has released two new XMC modules to provide integrators with a method of introducing 10 Gigabit Ethernet or 6 Gbps SAS/SATA ports into their existing or future systems. XMC modules are widely used to add functionality to a range of modular, open standards based form factor boards including VPX, VME and Compact-PCI within the defense, security, telecommunications, scientific and industrial markets.

[News ID 3225](#)

■ Avalue: BSW series Embedded BVM: Celeron Baytrail industrial grade Mini-ITX motherboard

The BVM Group has added the new ASRock IMB-153 to its extensive Mini-ITX embedded motherboard portfolio, which includes units optimised for use across the spectrum of power v performance requirements. Intended for use in moderate performance applications such as POS, kiosk, video display and thin clients, the IMB-153 offers entry level performance, low power consumption and fanless operation. The quad-core Celeron J1900 Baytrail-M processor operates at 2.0 GHz, has a 2 MB L2 cache and addresses up to 8 GB of dual-channel DDR3 1333 MHz system memory.

[News ID 3128](#)

■ boards based on Pentium/ Celeron processor N3000

Avalue is introducing the 5.25-inch Single Board Computer - EBM-BSW, Qseven Solution - EQM-BSW and COMe Solution - ESM-BSW, based on Intel Braswell - M/D Processor Family. The Intel Pentium/Celeron processor N3000 family are based on Intel's 14nm architecture for entry systems, which is proved 2x graphics performance improvement, Up to 16% battery life improvement, better I/O support, and better performance at low thermals with previous generations.

[News ID 3216](#)

■ **Microchip: dsPIC33EP "GS" family optimised for digital power applications**

Microchip announces the 14-member dsPIC33EP "GS" family of Digital Signal Controllers (DSCs). The dsPIC33EP "GS" family delivers the performance needed to implement more sophisticated non-linear, predictive and adaptive control algorithms at higher switching frequencies. These advanced algorithms enable power-supply designs that are more energy efficient and have better power-supply specifications.

[News ID 3023](#)

■ **SECO: COM-Express Type 6 Microchip: Software Decoder Framework and WMA Decoder Library**

Microchip announces the PIC32 Harmony Software Decoder Framework and Microsoft Windows Media Audio (WMA) Decoder Library for 32-bit PIC32 MCU-based consumer-audio application development within the MPLAB Harmony Integrated Software Framework. The WMA Decoder Library includes a new modular framework for audio decoders, including support for MP3 and AAC, allowing easier audio application development.

[News ID 3170](#)

■ **Avalue launches Rity RISC series Android POS terminal**

Avalue Technology launches the new Rity RISC series: Rity8R1, Rity10R1, Rity12R and Rity15R, an Android POS terminal. The Rity series is powered by the latest Freescale i.MX6 Cortex-A9 Dual lite/Quad 1GHz CPU, along with 1GB or 2GB DDR3 RAM, 4GB eMMC storage support up to 64GB by Mini SD and outstanding 2D and 3D graphics. The Rity series not only supports OTA (Over-the-air) service to help customers to update their system in real time but also supports rich I/O port for diverse expansion: two COM ports and two USB ports for POS peripherals, one mini SD card slot for storage expansion, one RJ-11 Connector for Cash Drawer, one HDMI Connector for dual display, one LAN port and optional 2nd LAN port, one mini PCIe and SIM card slot for wifi/ 3G internet application.

[News ID 2958](#)

■ **DFI: industrial-grade Mini-ITX motherboards with Atom, Intel Core and AMD platform**

DFI introduces its industrial-grade thin Mini-ITX motherboards based on Intel Atom, Intel Core, and AMD platform. The design concept is to satisfy the trend of tiny chassis and smaller PCs. Thus, Thin Mini-ITX series is only 25 mm in height and it features excellent performance, rich I/O, and low power consumption. Systems integrator can capitalize on the benefits of a reduction in total system costs due to a reduced system size.

[News ID 2972](#)

■ **SECO products based on Atom E3800 and Celeron families SoC**

SECO introduces a broad range of state-of-the-art and fully scalable Intel Atom E3800 and Celeron ("Bay Trail") SoC embedded boards in the Qseven, µQseven, COM Express, ETX 3.0 and pico-ITX Form Factors.

[News ID 3213](#)

■ **Mouser: global distribution agreement with DAVE Embedded Systems**

Mouser Electronics has entered into a global distribution agreement and partnership with DAVE Embedded Systems. Mouser is currently stocking DAVE Embedded Systems' SOMs and CPU modules based on ARM architectures. These modules are supported by both high-end and entry-level models and development tools, targeting medical, industrial, defence, telecommunications and automotive applications.

[News ID 3200](#)

■ **WynMax: 15" Panel PC features projected capacitive touchscreen with 350nits brightness**

WynMax has launched new product Industrial Panel PC WPPC-1509F-P-E38451 which is powered by Intel Atom E3845 1.91GHz quad-core processor. This powerful industrial panel PC is a 15" multi-touch panel computer and it features projected capacitive touchscreen with 350nits brightness.

[News ID 3158](#)

■ **AAEON enables intelligent vehicles with BOXER-6301VS**

AAEON presents the BOXER-6301VS Embedded Box PC, a rugged, embedded computer specifically designed for in-vehicle usage. Acknowledging some of the most common scenarios present inside a vehicle, the BOXER-6301VS is built with a number of features that can effectively overcome these problems/limitations. One such example is protecting the computer from constant power fluctuations.

[News ID 3145](#)

■ **MicroMax: fully sealed fanless platform designed for rapid deployment**

MicroMax announces the introduction of its high performance platform, the M-Max 800 EP2/PLT, which allows quick client/field upgradability with additional I/O boards and a selection of external connectors. The M-Max 800 EP2/PLT is designed for rapid deployment of customized systems having their own sets of PCI-104 expansion boards and external connectors. The base platform includes: 2 x CAN, 2 x 10/100 Mbit Ethernet, Gigabit Ethernet, 2 x USB 2.0, and VGA. The base platform is equipped with an integrated heating system and allows installation of additional heating systems for customer boards.

[News ID 2968](#)



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■ **ADLINK: Embedded Design Services for EMEA region**

ADLINK Technology announced availability of its new A+ Services offering to address the complete development process of carrier boards for a variety of form factors. Capabilities available in the new package include full custom designs, software, and system integration from concept to mass production.

[News ID 3015](#)

■ **DDC awarded Boeing 777X ARINC 629 optical converter contract**

Data Device Corporation has been awarded a contract by The Boeing Company to provide the ARINC 629 Plastic Optical Converter (APOC) for use on the Boeing 777X. The APOC is a Line Replaceable Unit that contains an array of Optical Media Converters that convert electrical ARINC 629 signals from each system LRU into optical signals that can communicate on a Passive Optical Network using Plastic Optical Fiber.

[News ID 3130](#)

■ **IBASE: Mini-ITX motherboard with triple independent displays**

IBASE has released the MI808, its latest Mini-ITX Motherboard to support DC power input. The board can be powered by a 1.6GHz (Up to 2.4GHz) Intel Pentium N3700 or 1.04GHz (up to 2.08GHz) Celeron N3000 processor and is paired with two DDR3L SO-DIMM sockets that accept up to 8GB of memory. With triple independent displays, it is scalable to adapt to various applications in transportation, mobile, POS and industrial automation markets.

[News ID 3121](#)

■ **Curtiss-Wright: rugged SBCs based on 5th gen Intel Core i7 processor**

Curtiss-Wright Corporation announced that its Defense Solutions division has launched a family of Single Board Computer modules based on the recently introduced 5th Gen Intel Core i7 processor. Designed for use in aerospace and defense applications, the first members of the new SBC family to be announced include the 3U OpenVPX VPX3-1259, the 6U OpenVPX VPX6-1959, and the 6U VME VME-1909.

[News ID 3102](#)

■ **SEL: compact industrial computer with 10-year warranty**

The new SEL-3360S from Schweitzer Engineering Laboratories (SEL) features Intel Core i7 dual- and quad-core processors, -40 to +75°C operation, no vents and no moving parts. To ensure the highest reliability, SEL's newest industrial computer supports two solid-state 2.5" SATA drives and RAID configurations and uses single-level cell NAND flash.

[News ID 3087](#)

■ **Sierra Wireless: mobile gateway to provide seamless multi-network connectivity**

Sierra Wireless announced commercial availability of FirstNet Band 14 LTE support for the InMotion Solutions oMG2000 mobile gateway. This multi-network gateway is also certified for use on AT&T, Verizon Wireless, and Sprint LTE networks, with the ability to switch as required to optimize coverage for mission critical communications. With an integrated radio module supporting Band 14 LTE, the oMG2000 now offers support for the dedicated FirstNet network being deployed for public safety agencies and other first responders.

[News ID 3077](#)

■ **3S-Smart: new tool for runtime measurement of PLC projects**

The CODESYS Profiler — a CODESYS Development System add-on — measures and evaluates the processing times of different blocks in IEC 61131-3 applications. From within the familiar development environment, these measurements are performed in the application development phase on either the physical target device or the CODESYS SoftSPS. When the measurement process is complete, the IEC 61131-3 project will not contain any coding residue from preparatory changes to the application code. The CODESYS Profiler detects runtime issues and identifies sluggish programming early in the development phase, conveniently providing end users with valuable data for optimizing the application code. In addition, the comparison of past measurements with current measurements delivers reliable information about the actual code efficiency. Furthermore, end users do not need to make any changes to the application code before the measurement. Finally, because all blocks in an application can be measured simultaneously, engineering efforts are reduced considerably as compared to manual measurements.

[News ID 3137](#)

■ **TI: IC providing closed-loop current sensing**

Texas Instruments introduced the industry's first magnetic sensing integrated circuit (IC) with a fully integrated fluxgate sensor and compensation coil driver, along with all the required signal conditioning circuitry. Complete integration enables the DRV421 to provide best-in-class sensor accuracy and linearity, high dynamic range, and simpler system design compared to traditional closed-loop sensors. With the DRV421, system designers will be able to more easily develop magnetic closed-loop current sensors for applications such as motor control, renewable energy, battery chargers and power monitoring.

[News ID 3093](#)

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■ **Rutronik: "Fit & Forget!"-DIN-Rail power supplies from RECOM**

At the PCIM, Rutronik presents the two new DIN-Rail power supply families from co-exhibitor RECOM, the REDIN45 and the REDIN60 with 45W and 60W power respectively. The "Fit & Forget!" PSUs come with a high reliability and a long, trouble-free life. The PSUs from RECOM are available with standard output voltages of 12VDC and 24VDC, adjustable by a front cover potentiometer.

[News ID 2981](#)

■ **Microchip: projected-capacitive touch controller for touch pads and screens**

Microchip announces a new addition to its Human Interface Solutions portfolio with the MTCH6303, an innovative, turnkey projected-capacitive touch controller for touch pads and screens. Touch sensors with up to 1000 nodes and diagonals of up to 10" are supported.

[News ID 3201](#)

■ **SECO extends distribution network in Japan**

SECO announces the new distribution agreement with ASK Corporation for the Japanese market. As a full-service distributor, the ASK Corporation serves clients as a virtual satellite office with brand-centric, strategic approach to market deployment utilizing years of various industry experience and multi-faceted and diverse channels through transparent communication and trust.

[News ID 3034](#)

■ **DFI: ruggedized Industrial Ethernet switches with wide operating temperature**

Targeting for the IoT network and Industry 4.0 application, DFI has launched six new industrial Ethernet switches (IE500-MPB1300, IE500-MNB1300, IE500-MNB1100, IE200-UPE0600, IE200-UNB1000, IE200-UNB0501) to provide versatile copper and fiber Ethernet connectivity.

[News ID 3214](#)

■ **Barr Group: Embedded Systems Training Courses in Germany**

Embedded systems engineers and software developers in Europe will have access this November to in-depth, specialized training courses aimed at helping them build safe, reliable, and secure products. Barr Group, industry experts in the reliability and security of embedded systems, today announced plans to host several of its most popular embedded systems training courses internationally for the first time in Munich, Germany.

[News ID 3195](#)

■ **Imagination upgrades Creator CI20 micro-computer**

Imagination Technologies announces significant upgrades for its high-performance, low-power MIPS-based Creator CI20 development board featuring a PowerVR GPU. The new board includes full support for Imagination's FlowCloud IoT platform; a square form factor; a modified board layout to optimise Wi-Fi speed and stability; and updated software for Linux and Android. The new software features are fully compatible with all CI20 boards already shipped.

[News ID 3030](#)

■ **K2L: MOST PCI toolkit for automotive infotainment**

K2L announced version 4.2.0 of its MOST PCI Tool Kit, which further eases the simulation of MOST technology-based automotive infotainment systems and devices for rapid prototyping, verification and test. This new version features significant enhancements, including support for MOST150 coax (cPHY) and the addition of the MOST Stream software tool with an intuitive graphical user interface (GUI) that speeds the setup of synchronous and isochronous streaming connections.

[News ID 3173](#)

■ **Cortus: development platform for APS processor IP cores**

Cortus announced the availability of a Development Platform for Cortus' APS processor cores today. The Cortus Development Platform comprises a board based on a Xilinx Spartan-6X75, the Cortus Eclipse IDE and Cortus GCC toolchain. The board includes an I/O footprint compatible with the Arduino Due enabling the wide choice of Arduino Due-compatible shields to be used to extend the platform.

[News ID 3106](#)

■ **Melexis: QVGA time-of-flight imaging evaluation kit**

Melexis has strengthened the support offered for its time-of-flight sensing technology. The EVK75023 evaluation kit accompanies its MLX75023 QVGA (320x240pixels) resolution ToF sensor with high dynamic range DepthSense™ pixels. This new hardware platform enables implementation of more advanced human machine interfaces.

[News ID 3219](#)

■ **CHERRY: evaluation kit demonstrates Energy Harvesting Switch Technology**

CHERRY Industrial Solutions has released an updated Evaluation Kit 2.0 to demonstrate their Energy Harvesting Switch Technology. The kit, containing an energy harvesting generator, rocker switch and a snap-action switch, receiver with antenna, USB cable and receiver manual, provides users with a functional demonstration of the Cherry technology and the ability to test key parameters, including signal strength and range, in their own application.

[News ID 3196](#)

■ **AAEON: rugged tablet with multiple wireless capabilities**

AAEON announces the latest entry in the company's RTC-700 tablet series, the versatile RTC-700C. Powered by an Intel processor running a Windows 8 operating system, the RTC-700C incorporates hardware features most conducive for implementation in wide-ranging applications. A series of optional accessories are also available for expanded functionalities.

[News ID 3073](#)

■ **Axiomtek: slim-type 17" industrial touch panel computer**

Axiomtek has announced the arrival of the P1177S-881, its new workstation-level industrial touch panel computer with rich I/O interface options. The high performance industrial touch panel PC is equipped with a 17-inch SXGA TFT LCD display and IP65 compliant front bezel. This rugged slim-type panel PC supports 4th Generation Intel Core i7/i5/i3 or Celeron processors in an LGA1150 socket with the Intel H81 Express chipset.

[News ID 3042](#)

Fujitsu Mainboard D3313-S Mini-ITX

Designed for 24/7 Industrial Applications

- 2 x New AMD SteppEagle SoC SKUs added to board model
- GX-222GC - 2.2GHz Dual Core & GQ-412HC - 1.2GHz Quad Core
- Easy integration to prolong life of product
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- Greater performance for better efficiency



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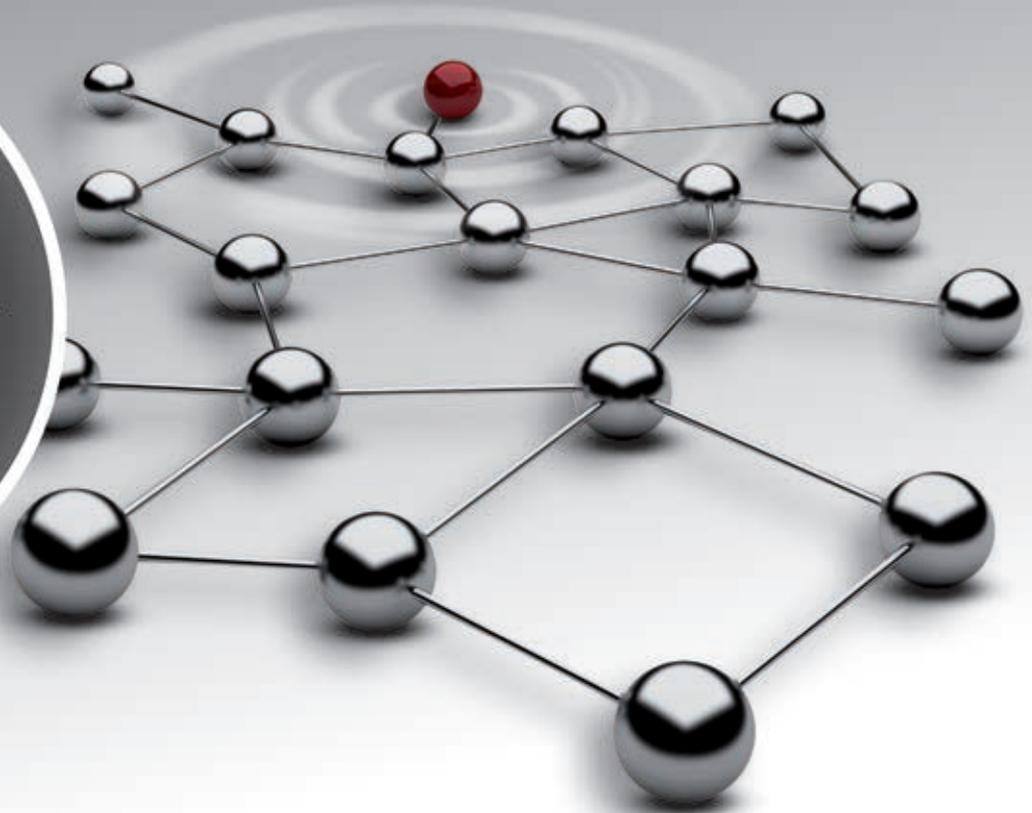


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