Vote for the presentations that you would like to watch live from EW. You will notice a column to the right titled 'Votes'. What I would like you to do is:

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Date-time	Presentation	Votes
26.02.2019 **10:00 AM - 10:30 AM**	**Edge computing with heterogeneous Time Sensitive networking workloads** Usman Sarwar - Intel Corporation Edge Computing paradigm with Internet of Things is an evolution of computational and communicational technology for providing low latency applications such as in Industrial IoT and Automotive domains. Edge computing with virtualization features provides scalability of executing heterogeneous workloads as an extension of Cloud computing. This presentation is providing comparative analysis of workloads with TSN capabilities in native, hypervisor type 1 and hypervisor type 2 environment while also providing information about best known system configuration for achieving those KPIs.	++++++++++++
26.02.2019 **10:00 AM - 10:30 AM**	**Testing in Automotive is not changing,… it already has! Example Case: Record & Playback of ADAS Data** Emmanuel Roset - National Instruments A range of test techniques are needed in order to prove the safety of ADAS systems within realistic timelines on the path to Autonomous Driving. Learn best practices for record & playback of ADAS data, while validating the whole chain from ADAS Sensor (Cameras, Radar, Lidar) to Sensor ECU (Raw-Data Injection) and finally to Sensor Fusion ECU – at different stages.	
26.02.2019 **10:30 AM - 11:00 AM**	**Embedded Vision – Latest News and Line-Up For a Quick Product Design** Carsten Strampe & Vivien Möslang - IMAGO Technologies GmbH The embedded vision industry is developing fast and continuously. Vision sensors, line scan, area scan, event-based technologies and even edge computing have developed from embedded vision and there is much more to come. How can you use these developments to design your ideal product? IMAGO Technologies offers an answer and gives you an overview of current technologies.	++++
26.02.2019 **10:30 AM - 11:00 AM**	**IoT Security – Are we ready?** Brent Wilson - Silicon Labs No one denies that security is important and that importance in increasing, particularly in the IoT space. But are connected product developers prepared to take on their responsibility to secure the IoT? This talk surveys the current and forward-looking security landscape in the IoT and shares the steps that governments, suppliers, OEMs, and ultimately consumers need to take to secure the IoT.	++++++++++++++++++++++++++
26.02.2019 **10:30 AM - 11:00 AM**	**Battery Management solution combining RL78 low power MCU with A&P products like RAJ24000xx fuel gauge** Stephanie Overhoff - Renesas Electronics Renesas offers a wide variety of platforms for Li-ION battery management systems. Equipped with an RL78 low power MCU and an Analog Frontend with high-accuracy A/D converters for voltage, current and temperature measurement, it observes battery status precisely to maintain battery safety with super low power consumption and can report with a Fuel Gauge implementation the Status of charge (SOC).	+++++++
26.02.2019 **11:00 AM - 11:30 AM**	**A MISRA-C Developer's Introduction to Program Proving in SPARK** Dr. Yannick Moy - AdaCore SAS MISRA-C is a coding standard focused on avoiding error-prone features of the C language. Most of the rules can be verified by static analysis, but 27 are undecidable. If a violation of an undecidable rule is not detected, then the resulting vulnerability can have serious negative security consequences. This tutorial will show how the SPARK language can achieve the same code quality and security objectives as MISRA-C and provide guarantees of program properties that go beyond what would be feasible with MISRA-C.	++++++++++++++++++
26.02.2019 **1:00 PM - 1:30 PM**	**Accelerating MISRA and CERT coding standards compliance with dedicated reporting and workflow management.** Miroslaw Zielinski, Product Manager - Parasoft Deutschland Static analysis is standard practice these days. No one questions the value of having the code base compliant with safety-oriented standards like MISRA, AUTOSAR or security standards like CERT or UL2900. Majority of the organizations developing functional safety-oriented products have this practice established and well grounded. Despite the fact that static analysis tools are relatively simple to implement, organizations very often settle on suboptimal processes for achieving compliance. Frequently, violations are being removed in firefighting mode just before the release, and teams rarely analyze how to do it	++

	efficiently and get the most value out of invested time. Especially problematic is cleaning legacy code bases or open source libraries which were created without compliance in mind. Where to start? which violations shall be removed first? What is the estimated cost? Do we have enough resources? These are all very important questions, that can help in improving efficiency of the compliance process. In addition, organizations struggle with defining the outputs of the compliance process, how do I demonstrate my compliance? What kind of documents shall I prepare? During this session, we would like to demonstrate Parasoft static analysis solution with dedicated compliance reporting and workflow management which streamlines the process of achieving compliance and automatically generates all required documentation.	
26.02.2019 **1:00 PM - 1:30 PM**	**How to simplify your wearable VSM device** Jan-Hein Broeders - Analog Devices There are many wearable devices on the market for either Sports & Wellness purposes or for Medical use with diagnostic performance levels, which measure Vital Parameters of a human being. Analog Devices is severing these markets for many years and built a wide portfolio of sensors and sensor front-ends, to enable measuring these parameters in a reliable way. During this presentation you will learn about these sensors and how easy it is to integrate them in your design. For the Healthcare market, ADI has been a lead Semiconductor supplier in the Patient Monitoring and Medical Imaging segment. As the healthcare industry migrates towards wearable technology in an effort to provide 24/7 monitoring, ADI has been working to develop solutions that align with this need. With a new Wearable Device, ADI is delivering a platform that is not only demonstrating their capabilities and knowledge of measuring several Bio-Medical parameters in a very power efficient way but also enables the development of breakthrough applications that will transform the way our health is monitored. The device can be used to measure ECG, Heart Rate, Galvanic Skin Response, Activity and Temperature to support a range of applications from Sport & Fitness, Wellness, Remote Patient Monitoring to Independent Living. During this talk, you will learn more about the sensors used in this platform, and how this can accelerate your design cycle.	+++++
26.02.2019 **1:00 PM - 1:30 PM**	**Textbook example of handwriting recognition using hardware-accelerated deep neural network** Bogdan Deac - digilent Inc. Go behind-the-scenes of the design process of a handwritten digit recognition project using a deep neural network implemented on an FPGA. Explore the hardware and software tools provided by Digilent and Xilinx that made it all possible. Peek into design challenges and their solutions.	++++++++
26.02.2019 **1:30 PM - 2:30 PM**	**Conference Keynote: Developing Game-Changing Embedded Intelligence** MathWorks Fellow Jim Tung - MathWorks The buzz about AI, or artificial intelligence, is deafening. Predictions abound that it will power a massive shift in the roles that computers play in our personal and professional lives: implementing automated driving functionality, predicting maintenance of industrial equipment, delivering intelligent home health care systems and robots, and more. But, to get there, teams that combine specialized knowledge, domain expertise, and business objectives must navigate through numerous choices – algorithms, processors, resource location, architectural allocation, communications, and more. While doing so, they must keep their eye on the application that will create the game-changing value for their organization. In this keynote, Jim Tung looks at the promising opportunities and practical challenges of building AI into our systems and services.	++++++++++++++++++
26.02.2019 **1:30 PM - 2:00 PM**	**Artificial Intelligence at the edge for sensor fusion in autonomous robots** Matthieu Chevrier - Texas Instruments From traditional industrial robotic systems to today's latest collaborative robots (or "cobots"), robots rely artificial intelligence (AI) to become "autonomous," making real-time decisions at the edge. This session will discuss "embedded analog intelligence" which is how to benefit from latest sensors, sensor fusion, and most recent deep neural networks to take the best real time decision at the edge.	+
26.02.2019 **1:30 PM - 2:00 PM**	**Development & Programming of Universal Flash Storages (UFS)** Chong Tsao, Dediprog Technology Co., Ltd Universal Flash Storage, as known as UFS is a new standard in memory technology since 2011 with 1.0 version & till 2016, there's a 2.0 version. UFS opens a new chapter in External Memory and it would be a market trend to replace eMMC chip since it boasts substantially higher performance speeds, but consumes less energy to compare to eMMC. UFS programming will be a new technology to support this future market evolution from UFS to eMMC.	++++++++++++
26.02.2019 **1:30 PM - 2:00 PM**	**How does an embedded vision system become reality?** Dr. Thomas Rademacher - Basler AG Developing an application that uses visual information can be challenging. There are many options to give your system the power of sight. How do you create the optimal system for your needs? Dr. Thomas Rademacher, Product Manager from Basler AG, will explain what is important when developing an embedded vision system and shows a path to turn your first idea into mass production.	+++++++++
26.02.2019 **2:00 PM - 2:30 PM**	**How Software Architecture becomes a Game Changer** Dr. Daniel Simon - Axivion GmbH Software architecture is a recognized discipline in systems and software engineering. Software architectures lay out the foundations for a maintainable and sustainable development. In the past,	+++++++

	architecture model's obsolescence impeded a risk on both the model and the success of the project. By means of hierarchical reflexion models, Axivion's Suite continuously aligns the models and their implementation, so that one can leverage the models at the highest level of significance throughout the system's lifecycle.	
26.02.2019 **2:00 PM - 2:30 PM**	**IoT-Kits on the test bench - fiction and truth** Frank Riemenschneider - DESIGN&ELEKTRONIK Numerous manufacturers offer IoT kits that transfer measurement data into a cloud via a radio interface. Of course, these systems offer different features and functions that need to be examined in order to estimate the necessary development effort. A closer look at the various systems quickly reveals that the respective signal processing chain is more or less completely implemented by the manufacturers, even if it is called IoT. Although most kits are all intended for IoT or smart home applications, the demo and evaluation kits or packages known as developer systems offer developers very different solutions in terms of structure, scope of functions and possible expandability. DESIGN&ELEKTRONIK has investigated how the development of its own IoT systems presents itself in practice, i.e. whether the promises of the manufacturers are kept and what consequential costs may arise, for example for a functioning development environment or the cloud connection as well as which additional work steps.	++++++++++++++++++++++
26.02.2019 **2:00 PM - 2:30 PM**	**Secure and Scalable IoT Device Provisioning** Richard Kerslake, IoT Program Director - Intel Corporation IoT device management systems are in rapid adoption to provide command and control to edge devices. However, the ability to securely provision devices into these systems at scale is a true barrier to realizing the data driven benefits of IoT. Intel is collaborating with ecosystem players to deliver a unified, secure provisioning method that can connect any device to any cloud in seconds. We present the Intel Secure Device Onboard solution.	++++++++++++++++++
26.02.2019 **2:30 PM - 3:00 PM**	**Getting your electronics designs finished!** Robin Getz - Analog Devices Many designs today require a mix of expertise, ranging from hardware in the analog, digital, power, RF domains, to software, where things shift to algorithms, device drivers, HDL and system level integration. It is difficult for a single person to be an expert in all aspects of things, and this presentation will provide a brief description of various solutions and reference designs which can be re-used in your designs, as well as how new innovated tools, and open source software can help find and resolve issues, so you are fixing the actual problem in the right place.	+++++++++++++++
26.02.2019 **2:30 PM - 3:00 PM**	**GPGPU Computing, Bringing AI to the Edge** Eddie Seymour - NVIDIA, Patrick Dietrich, Chief Technology Officer - Connect Tech Inc. As the largest NVIDIA® Eco-System Partner for the Jetson™ AGX Xavier™ and Jetson TX2/TX2i/TX1, Connect Tech is involved in a wide range of exciting embedded applications. This presentation will discuss why the Jetson is so well targeted for applications in robotics, autonomous machines and intelligent video analytics, and how Connect Tech continually builds on their hardware platform and partner network with a wide a range of embedded manufacturers to ensure compatibility within the eco-system. See the vast number of Deep Learning and AI applications taken to market through Connect Tech's Jetson solutions. From the International Space Station to the deepest depths of the ocean, NVIDIA Jetson and Connect Tech have gone there (together). The NVIDIA AGX Xavier boasts a 20 times performance boost over the Jetson TX2. Connect Tech will provide comparisons between the recently released Xavier and the Jetson TX2; highlighting differences which will help Jetson Users determine which platform will be the ideal fit for their application.	+++++++++
26.02.2019 **2:30 PM - 3:00 PM**	**The Future of FreeRTOS** Richard Barry - AWS Amazon Web Services, Inc. The open source (now MIT licensed) FreeRTOS kernel has helped embedded developers manage the complexity of their microcontroller designs for 15 years – during which time FreeRTOS has gained a reputation for reliability, ease of use, and responsive support. Under the stewardship of Amazon Web Services (AWS), the FreeRTOS project has expanded to include MIT-licensed security and connectivity libraries. In this presentation Richard Barry, the founder of the FreeRTOS project, will announce what's next for FreeRTOS, including AWS involvement in open source projects. Join us for this session and find out first.	++
26.02.2019 **3:00 PM - 3:30 PM**	**Industrial IoT LoRaWAN networks on the edge** Marco Barbato - AAEON Technology The Industrial IoT is a well-established reality and it's being implemented in several fields giving a new life to existing machineries and implants. As companies are applying it, they discover new needs to fulfil the growing end customers¿ requests, like for Artificial Intelligence, and new challenges related to the security. On Premises and mixed (with online Clouds) Industrial networks on the edge are a quite used solution to deliver solid and reliable solutions.	++++++++++++
26.02.2019 **3:00 PM - 3:30 PM**	**Safety & Security: An Unbreakable Bond** Peter Kleiner - Wind River The connected nature of automobiles opens the door to new threat vectors. Without security there is no safety. In order to stay vigilant against threats, OEMs will need to consider themselves as	++++++++

	software companies. This Session will investigate: • Complex cybersecurity landscape • Link between Functional Safety and security • Use cases around security, including remote diagnostics and maintenance	
26.02.2019 **3:30 PM - 4:00 PM**	**Overview of ADI 3D Depth Sensing Technology with an introduction to ADIs TOF embedded processing platform…** Colm Slattery & John Curtin - Analog Devices An introduction to ADIs TOF 3D sensing technology. This is high performance VGA resolution depth imaging solution. Target use cases are for industrial, consumer and automotive, for navigation, gesture, logistics, collision avoidance, safety...This session will also introduce some of the new tools useful to aid customer design, such as a complete TOF processor platform to aid fast customer design with no hardware/software development needed.	++
	Addressing FPGA HLS (High-level Synthesis) challenges for heterogenous computing at the edge Jordon Inkeles - Silexica Implementing FPGAs for heterogenous computing require stringent requirements such as, high-performance, area efficiency and low power. At the same, design cycles are shrinking and the need for HLS productivity is growing. How do you get the benefit of hand-coded RTL and the productivity of HLS?	++++++++++++
27.02.2019 **9:30 AM - 10:00 AM**	**From Make and Idea to Market** Amir Sherman- Arrow Arrow Electronics have all the relevant tools to support from make and idea to the market starting from community boards developed by Arrow in Arduino or 96boards form factors, to industrial versions of the same board up to encapsulated solutions and closure that all customers can use in fast time to market.	+++++
27.02.2019 **10:00 AM - 10:30 AM**	**Holistic Management of Embedded Systems Development using Iterative and Agile Methodologies (with Polarion)** Thorsten Stahlberg & Patrick Nanz - Siemens Industry Software Managing the overall development process of Embedded Systems requires more than ever an environment to deliver quickly complex systems with agile and iterative process methodologies in parallel while keeping security and compliance under control. From the first idea of a system, starting either completely from scratch or reusing existing artefacts in an intelligent way, it is extremely important to keep track of all information, decisions and relationships in order to improve the delivery time, help to manage the raising complexity of systems and to make sure to be compliant to different norms in safety-critical environments. Today, developers need to understand fast and improve continuously the overall development process using tools that fully support iterative and agile approaches at the same time throughout the entire lifecycle without adding additional complexity or huge training needs. Siemens Polarion is a modern and intuitive tool to support all these important requirements in a holistic approach using state of the art technologies, user interfaces and the necessary capabilities to scale into any enterprise environment.	++++
27.02.2019 **10:00 AM - 10:30 AM**	**Modeling the "Standards" Way** Walter van der Heiden - Willert Software Tools In diverse standards we can observe common themes of abstraction, specialization, refinement and relationship (traceability). Aligning the value of these standards and easing the adoption is the most effective way to improve capability and realize success within an organization. We have applied a ASPICE compliant path to leverage SysML for Systems Engineering, AUTOSAR for Vehicle Design and Software Architecture, and UML for Software Design and Implementation. Using high quality UML tooling and simply targeted bridges, engineers can focus on their designs and have models work for them in developing their solutions. We will demonstrate an example of this solution showing automotive SysML models that transition to AUTOSAR Designs, that are moved to implementation designs (in UML or Simulink), and finally code generation. All the while maintaining simple bidirectional traceability and design artifacts demanded by ASPICE.	++++++++++++
27.02.2019 **10:00 AM - 10:30 AM**	**Workload Consolidation with Embedded Virtualization in Safety Critical Applications** Emeka Nwafor - Wind River As more and more processors with multi-core architectures are deployed in embedded systems, embedded virtualization emerges as a substantial consideration in the software system design. Virtualization enables the abstraction of underlying hardware and offers the support of running multiple operating systems and services inside separate virtual machines on top of the multiple processor cores. This enables workload consolidation of tasks which was previously accomplished by using multiple discrete processors running multiple operating systems. Thus workload consolidation enables developers and system designers to reduce not only the total production/BOM cost, but also maintenance and operational costs through innovative new use cases such as enabling the convergence between OT and IT applications running on a single multi-core system. This presentation describes the basic concept of virtualization for workload consolidation in embedded systems. Then it describes system design consideration by taking the focus of using	++

	virtualization in safety-critical relevant applications such as avionics, industrial, and automotive. The presentation will also present a sample implementation of a type 1 Hypervisor-based software platform which enables consolidation between safety certified applications and non-safety applications running on a single multi-core system	
27.02.2019 10:30 AM - 11:00 AM	**Open Source Automation Development Lab: The Open Source License Obligations Checklists** Caren Kresse - Open Source Automation Development Lab (OSADL) Whenever Open Source software is copied and distributed which typically is permitted by every type of Open Source license, a number of obligations and prohibitions are imposed on the distributor. As a very common situation of such software, the receivers of the software will recursively redistribute it in such a way that a chain of distributors and receivers is created – all of them having to fulfill the same license obligations. However, for the time being, there is no common understanding how these obligations are to be fulfilled in detail which regularly leads to misunderstandings, conflicts and sometimes even to court cases. The OSADL Open Source License Obligations Checklists project aimed to create generally accepted checklists of the obligations of commonly used Open Source software that are accepted by distributors and copyright holders and trusted by all members of the distribution chain. The checklists assume a situation where a licensee of Open Source software incorporates such software components into a product – either a physical device with installed software or a software distribution on a storage medium or on the Internet – and needs to establish appropriate processes in order to fulfill the imposed license obligations for legal compliance when conveying the product to customers. In order to be accepted by a large variety of professionals, the checklists must be written in plain English language using the identical words for the same condition or action. However, in many cases different license texts use different words for the same condition or action which makes it necessary to create a vocabulary of common license terms. This vocabulary must clearly describe every item of the vocabulary in such a way that it can be used to create canonical versions of the license texts. This presentation starts with the semantics and definitions of the checklist language. It then goes into the details of achieving agreement among international legal experts. Finally an online presentation is given how a legal person or an engineer would use the developed material of the checklists project in their everyday routine in fulfilling Open Source license obligations.	++++++
27.02.2019 10:30 AM - 11:00 AM	**From sensors to ADAS: taming the complexity of Automotive software development** Daniel Owens - Arm The increasing size and complexity of Automotive software creates the requirement for better software development tools and workflows. We'll look at the trend toward toolchain and RTOS functional safety qualification, software test libraries, and model-based development flows. We'll then look at how Arm and its ecosystem are delivering early and optimized tools and technologies for supporting functional safety requirements and developing higher quality software suitable for Automotive applications from sensors to ADAS.	++++++++++++++
27.02.2019 11:00 AM - 11:30 AM	**Power Supply Efficiency – An Inconvenient Truth** Ralf Higgelke - DESIGN&ELEKTRONIK Any embedded system needs a power supply, and conversion efficiency is its figure of merit. However, as often with important parameters, there is neither a uniform measurement method nor a uniform measurement setup. To make matters worse, the efficiency depends on external parameters like input voltage, load current and ambient temperature. And in their data sheets the power supply manufacturers indicate the efficiency differently or even are doing some specsmanship, which makes it impossible to directly compare the models from different manufacturers via their data sheets. In 2015, the EPSMA (European Power Supplies Manufacturers' Association) published a guideline in which a consistent method for determining the efficiency was proposed. According to this method, we have measured the efficiency curves of 13 PCB-mounted DC/DC converter modules from different manufacturers at different operating points and compared the results with the figures in the data sheet. The findings are thrilling!	++++++
27.02.2019 11:30 AM - 12:00 AM	**How can AWS's integrated Industrial IoT suite help your company gain the competitive 'IoT Edge'** Craig Williams - AWS Amazon Web Services Industrie 4.0 promises to improve efficiency and lower operational costs, but challenges exist such as device security, remote access, and management of diverse connected devices. Join us to learn how AWS IoT is helping industrial customers bring machines, cloud computing, analytics, and people together to improve productivity and efficiency. Learn about AWS IoT services including: · AWS IoT edge services such as Amazon FreeRTOS and AWS IoT Greengrass · Cloud services such as AWS IoT Core, AWS IoT Device Management · AWS Cyber-physical security including IoT Device Defender	++++++++++

	· Analytics services such as AWS IoT Analytics · See the newest industrial IoT services from AWS IoT including AWS IoT SiteWise	
27.02.2019 11:30 AM - 12:00 AM	**The Benefits of Realtime Deembedding for fast debugging of highspeed digital and [...]** Guido Schulze - ROHDE & SCHWARZ The R&S®RTP High-Performance is the world's first oscilloscope to compensate the impairment of the signal contacting (e.g. test fixture, cables, probes) in realtime while maintaining the high acquisition rate. Hardwarebased compensation filters are configured using user-applied S-parameters. With the R&S®RTP, it is even possible to trigger on deembedded signals. Whether you are debugging a high-speed interface such as DDR or PCIe, characterizing a fast clock or analyzing a complex RF signal, you want to see the real signal and not artifacts of the test setup such as loading or reflections. The process of removing non-ideal signal path effects (attenuation, skew, loading, etc.) is called deembedding. Removing this distortion in a realtime oscilloscope typically is performed with a correction filter in the post-processing. In the R&S®RTP High-Performance Oscilloscope, the deembedding filter is realized in hardware directly after the A/D converter. This realtime processing of the waveform data ensures maximum update rate for effective troubleshooting in the time and frequency domain and even allows to trigger on the corrected waveforms.	+++++
27.02.2019 1:00 PM - 1:30 PM	**AI Meets IIoT on The Edge** Daniele Cleri - AAEON Technology Edge computing is a complex set of definitions by a wide range of participants and it requires collaboration and openness to accelerate even the most complex ecosystems. This section is to share how we empower edge computing with partners in Ai & IoT	++++
27.02.2019 1:00 PM - 1:30 PM	**Streamline Embedded Algorithm Development with New Arm-MathWorks Collaboration** Zach Lasiuk, Solutions Specialist - Arm Limited Software development and verification in any embedded project is a complex and time-consuming task, frequently taking up the most time during project creation. Developing software as early and efficiently as possible is vital to using engineering resources effectively and getting to market faster. Arm and MathWorks jointly identified several time-consuming activities in software development, including the coding of optimized algorithms on specific Arm processors, and worked together to create a streamlined solution. Arm Fast Models and Arm Compiler are now supported in MathWorks Simulink and Embedded Coder, enabling the generation, testing and verification of algorithms made in Simulink on Arm platforms without any hardware. This allows software algorithm development to take place alongside hardware development, with the Arm Fast Model based virtual platform able to match the current or expected hardware configuration. This joint effort makes developing optimized software for Arm targets simple and scalable. This discussion will start with the high-level values of having virtual platforms in Simulink, and end by talking about how to practically try these solutions in your framework today.	++++
27.02.2019 1:30 PM - 2:30 PM	**Conference Keynote: Embedded Intelligence for the Next Wave of Smart Systems – Opportunities and Challenges on the Edge** Jean-Marc Chery - STMicroelectronics Smart Systems with embedded intelligence are changing nearly every aspect of the way we live, permeating our homes, workplaces, cities and vehicles. Whether it is a smart home appliance, a personal fitness or heath monitor, a smart factory robot or the advanced safety systems in our car, these systems are acquiring ever increasing levels of sophistication thanks to embedded electronics, software and the possibility to connect to the Internet of Things. These systems all have a number of functions in common – sensing, actuation, connectivity and security, power and, of course, embedded processing capabilities including artificial intelligence. The way data is collected, processed and shared across smart systems from the edge device through edge servers to the Cloud is an evolving topic which creates opportunities and challenges for smart system designers. This talk looks at some of these opportunities and challenges, including the different approaches to distributing processing across a system and the role AI can play down to the smallest smart system nodes.	++++++++++
27.02.2019 1:30 PM - 2:00 PM	**Textbook example of handwriting recognition using hardware-accelerated deep neural network** Bogdan Deac- digilent Inc.	++++++
27.02.2019 2:00 PM - 2:30 PM	**Scalability, up, down and right – a distributed micro-kernel** Rolland Dudemaine - eSOL Co., Ltd. The presentation will describe in detail the constraints of new hardware designs: small ECUs with low-power single core, but also many-core systems with potentially heterogeneous cores in the design. After describing the unique points of the eMCOS RTOS, some use cases will be presented including IoT Edge devices using AWS, advanced robotics including autonomous cars using ROS, and modern automotive designs using AUTOSAR Classic and Adaptive Platform.	++++
27.02.2019	**The Future of Safety-critical Systems: Records from Pioneering the Multi-core Certification**	+++++

2:00 PM - 2:30 PM	**Path** Alex Wilson - Wind River Although multi-core certification is a popular topic, going from theory to practice still poses challenges. From overcoming multi-core interference challenges, to driving a true collaboration between the hardware, software and application providers, the certification process for high-integrity multi-core systems has been a remarkable journey. The lessons learned by Wind River in pursuing the first multi-core DO-178C DAL A certification are relevant for any industry that operates with high-integrity devices that have complex safety and security requirements. Join us for this live session to gain insights into how to reduce the risk of certifying systems that robustly execute multiple functions with mixed safety assignments on multiple cores within a single system-on-chip (SoC) processor. We will reveal the collaborative approach taken by Wind River and Collins Aerospace in the development of a multi-core avionics platform and COTS multi-core RTOS in order to achieve DO-178C DAL A safety certification on an FAA Program of Record.	
27.02.2019 2:00 PM - 2:30 PM	**Using MVTec software to combine deep learning and rule-based algorithms to build powerful embedded vision applications.** Mario Bohnacker - MVTec Software This presentation will give an insight into how the software products HALCON and MERLIC by MVTec let users profit from combining traditional rule-based algorithms with new deep-learning-based algorithms to build embedded vision applications. MVTec software offers a range of possibilities to enhance vision applications with deep learning capabilities, leading to robust and fast results.	++
27.02.2019 2:30 PM - 3:00 PM	**From Battery free sensors to vision: making IoT real** Bruno Damien - On Semiconductor	++++++++++++++
27.02.2019 2:30 PM - 3:00 PM	**GrammaTech CodeSonar: Static Analysis for Safety and…** Mark Hermeling - GrammaTech Inc. Static analysis has been proven to improve the quality of software development for very little investment. Embedded software is not different, but it does pose a number of additional requirements on the static analysis tool around safety and security. This presentation will highlight those differences and how GrammaTech CodeSonar addresses them. Time-to-market often compete with safety and security in embedded systems development. Static analysis improves the quality of your software the moment it is written and such, helps with all of these. Embedded systems puts a lot of requirements on our static analysis tool, so it is important that you pick the tool that properly supports you in your projects. This presentation will explain how safety and security concerns are important to consider. From a safety perspective, you want a static analysis tool that aggressively finds warnings in your source code. The percentage of ‘recall’, that is, the amount of problems it finds is crucially important. Secondly, you want to make sure you are able to claim credit for your static analysis tool in your functional safety certification process. You may not have a functional safety need just yet, but for many embedded systems this is something that looms on the horizon. From a security perspective, you want to analyze tainted data, data taken in from the environment and how it flows through your system. A small mistake is easily made and hard to find through manual inspection or testing once it has slipped into your source code base. Lastly, 3rd party libraries are important. From the GNU C library, to OpenSSL, to Qt, to Glib or libXML. Usage of these libraries is not always uniform and it is easy to lose track of allocated memory, or properly inspect return codes. CodeSonar provides coverage for all of these concerns and can easily be integrated into your existing, or new projects.	++++
27.02.2019 3:00 PM - 3:30 PM	**Living on the Edge - A New Era of IoT with Intel Developer Tools** Eric Gregory - Intel Corporation We all know that in IoT development, learning new tools, prototyping, and integration all take valuable time. Intel has introduced a number of new software and hardware developer enabling capabilities that help deliver a common and seamless developer experience that allows you to maximize the horsepower of your Intel solution. Set up your prototyping environment quickly with an IoT developer kit that includes hardware and preinstalled software and tools such as the IEI Tank* AIoT Developer Kit. Get more from your code and maximize hardware capabilities with Intel® System Studio, an integrated development environment that helps you optimize system bring-up, performance and power efficiency, and reliability. And, innovate with new applications for artificial intelligence, computer vision, and deep learning with the Intel® Distribution of OpenVINO™ toolkit. This presentation will cover Intel’s new developer enabling capabilities and how to access them at the Intel® Developer Zone, a one-stop shop for system and IoT development resources, including software tools, development kits, getting started guides, support forums, and more, at software.intel.com/iot.	++++++

27.02.2019 3:30 PM - 4:00 PM	**Camera module in an embedded system – What technical aspects must be considered?** Dr. Thomas Rademacher- Basler AG There are many reasons to equip your embedded system with “eyes” and thus transform it into an embedded vision system. What aspects must be considered when choosing the camera module? Dr. Thomas Rademacher from Basler AG will give an overview of relevant aspects and recommendations on how to obtain a suitable, but also lean and cost-effective system with camera module.	++++++++++++
27.02.2019 3:30 PM - 4:00 PM	**Shared Variable Checker 2: How to statically detect Race Conditions and create Data Access and Call graphs on C Code** Amselem Arnaud - GAIO TECHNOLOGY CO., LTD. We Gaio Technology are a Japanese Software Tool vendor. In this session we present our latest Static Analysis-based tool for C called SVC2, including a few practical examples. Simply specify your C source files and headers and get Access lists for all your variables and functions in graphical flowcharts, including pointers and Structure members accesses, and Interrupt level reports.	++++++
27.02.2019 4:00 PM - 4:30 PM	**Artificial Intelligence & Medicine: Opportunities, Risks & Limits** Melanie Ehrhardt - Medizin+Elektronik It is the topic of the hour: artificial intelligence (AI) is used in more and more areas of daily life. We often don't even notice that an algorithm based on our data is becoming more and more intelligent in the background. If one believes researchers, then above all the medicine will profit from AI. Predicting diseases before they develop. Tailor therapies individually to each patient - so that they can recover in record time and the healthcare system saves money despite demographic change. Sounds too good to be true. Nor is it. Because hardly any algorithm today can deliver what its programmers promise. And yet the big dream remains: Dr. AI - the doctor patients trust.	++++++
27.02.2019 4:00 PM - 4:30 PM	**Silent Switcher & Micromodule Regulator Products** Tony Armstrong - Analog Devices This seminar will cover some of the basics of buck regulator operation including how high di/dt and parasitic inductance in the switcher “hot” loop cause electro-magnetic noise and switch ringing. It will cover how to reduce the high frequency noise. Silent Switcher technology will be shown, showing how it is constructed and it will describe how it helps to solve EMI problems without any compromises. Silent Switcher packaging and layout and discuss how these can enhance the overall performance of the step-down converters.	++
28.02.2019 10:30 AM - 11:00 AM	**From switching and stability analysis to EMI debugging – Oscilloscopes: [...]** Markus Herdin & Guido Schulze - ROHDE & SCHWARZ Oscilloscopes are the work horse for power electronics engineers. With frequency response analysis functionality and fast and convenient FFT capabilities available, they become a multi-purpose instrument for power electronics engineers. This talk covers key topics of interest for power electronics engineers: Bode plot functionality, switching analysis and EMI debugging.	+++++
28.02.2019 10:30 AM - 11:00 AM	**The Instruments of Disruption** David Rowe - Analog Devices Technological advancements are driving disruptive changes in the global economy. 5G communications and augmented reality are driving new levels of interconnectivity and user experience. The pursuit of a greener, safer and healthier world are demanding technological advancements for life sciences, food safety and medicine. Autonomous driving and artificial intelligence are changing how we move, interact and even think. Analog Devices’ instrumentation technology is at the forefront of all of these revolutionary developments. These instrumentation technologies encompass the breadth of ADI’s performance leading products and it is the combination this technology breadth and the decades of measurement domain expertise that uniquely positions ADI to help customers’ solve their most toughest problems. Moreover, Analog Devices is increasingly engaging as a solutions provider at every point our customers’ product development cycle, from R&D investigations to high volume manufacturing whether through reference design platforms that shorten the time from concept to product or high levels of integration and performance that enable unsurpassed system level capabilities. This presentation will delve into the advancements in test and measurement equipment enabled by ADI that underpins many of these world-wide disruptions. Examples include: the technology behind high volume production of lithium-ion batteries, 5G communications testing, mobile handset manufacturing and more. Come learn about how Analog Devices and Arrow can enable your ideas for new disruptive technology.	++
28.02.2019 11:00 AM - 11:30 AM	**Debugging in a hypervisor environment – strictly encapsulated for more safety** Jens Braunes - PLS GmbH Hypervisors are increasingly finding their way into embedded systems in order to strictly separate applications or entire operating systems for safety reasons which are sharing a common computing platform. With the Universal Debug Engine (UDE), PLS now provides a tool that enables the debugging and runtime analysis of hardware-related software under a hypervisor environment.	++++++
28.02.2019 11:30 AM - 12:00 PM	**Performance Optimization for Automotive Workloads** Johny Paul - Intel Corporation We introduce the general methodologies for profiling automotive workloads and the detailed analysis based on the profiling data such as hotspot, CPU pipeline execution efficiency, parallelization etc. Based on the performance profiling data, we are trying to extract the best	++++++++++

	performance on the selected hardware by using different optimization technologies including the compiler optimization, high performance libraries, vectorization and parallelization to optimize the planning module. Automotive systems consist of multiple modules to process the data over the sensing, planning and action stages. The performance, or the module latency, is the key fact which could impact the hardware selection, functional safety, user experience and also the total cost of the solution. Modern CPUs have lots of new features including wide vectors data processing units, high efficiency instruction execution pipeline and fast memory access etc. In this Exhibitor Forum presentation, we select the open source Apollo (http://apollo.auto) project as the reference project, use the EM motion planning module as the reference module, and run the benchmark and performance profiling on one of Intel Atom Architecture based low cost hardware platform. We introduce the general methodologies for running the profiling inside Apollo framework and the detailed analysis based on the profiling data such as hotspot, CPU pipeline execution efficiency, parallelization etc. Based on the performance profiling data, we are trying to extract the best performance on the selected hardware by using different optimization technologies including the compiler optimization, high performance libraries, vectorization and parallelization to optimize the planning module. With these optimizations applied, we could receive close to 2x performance speedup compared to the initial setup. The optimization work approves that even for the low cost, power efficiency hardware platform, as long as the workload is highly optimized, we can still get the expected performance, which breaks the door for the autonomous driving solution vendor to select the cost saving hardware platforms.	
28.02.2019 11:30 AM - 12:00 PM	**The Holistic HMI approach** Roberto Hofer - Socionext Embedded We believe the future car will host even more graphical UIs, turn into a mobile living room and office, and connect to nomadic devices like smartphones and tablets. While the driver's world is getting more versatile, OEMs and TIER1s are facing the challenge of keeping track with this development. With more than 50 Million cars equipped and over 18 years of experience in embedded HMIs it is our conviction, that holistic HMIs will be the logical approach. Holistic HMIs will not only have the ability to perfectly interact and communicate with each other, they will also be able to connect with nomadic devices and applications (like e.g. Apple CarPlay, Google Android Auto) considereing both: the driver's situation as well as the traffic environment.	++
28.02.2019 1:00 PM - 1:30 PM	**Clearing the Skies of Cybersecurity Vulnerabilities From the Ground Up** Alex Wilson - Wind River Aircraft provide increased connectivity for passengers but also allow increased bandwidth to implement new services such as predictive maintenance, aircraft tracking, and flight data updates. However, this new connectivity introduces new security threats and exposes new vulnerabilities to aircraft that were previously isolated from commercial ground systems. To protect against these threats new standards are evolving that show how to analyse and protect systems, whilst at the same time maintaining the critical safety requirements. To examines potential threats caused by this new connectivity, we will cover a Cybersecurity assessment following the well-known information security principles of Confidentiality, Integrity, and Availability as applied to avionic systems. We will examine current techniques for Cybersecurity defence, mapping the new RTCA DO-356A standard to both a commercial implementation of both an airborne ARINC 653 environment and a ground based Linux implementation.	++++++
28.02.2019 1:00 PM - 1:30 PM	**Empowering Edge Computing with AI & IoT landscape** Aling Wu - AAEON Technology	+++
28.02.2019 1:00 PM - 1:30 PM	**Get the best out of the latest SIGLENT Oscilloscope** Thomas Rottach - Siglent Technologies SIGLENT company introduction incl. overview of the oscilloscope portfolios. Presentation of the latest oscilloscope series. Tips & Tricks around all features and functions to get the best results and work most efficient.	++++++++++
28.02.2019 1:30 PM - 2:00 PM	**Intel® AI In Production** Jason Burris & Craig Wetzel - Intel Corporation Intel® AI In Production offers AI and computer vision developers a single "pane of glass" to access Intel's portfolio of vision products, tools, technologies and ecosystem offerings to reduce challenges of developing AI-centric solutions and accelerating business outcomes.	++++++
28.02.2019 2:00 PM - 2:30 PM	**No liftoff, touchdown, or heartbeat shall miss because of a software failure – how do we do it?** Walter Capitani - Rogue Wave Software Join us in a lively discussion of static code analysis technology and the applications in safety critical development. Topics covered may include coding standards, development processes and methodologies, and ideas for the future.	++++
28.02.2019 2:00 PM - 2:30 PM	**Solectrix Mobile Device Kit – A platform for mobile vision applications** Benedikt Appold & Christian Floerkemeier - Solectrix The SX Mobile Device Kit (MDK) using an NXP i.MX8M Mini CPU depicts a versatile mobile device platform. Focusing on mobile vision applications the MDK provides the opportunity to be	++

	extended by a various set of imaging sensors. Scandit AG as the leading enterprise mobility and data capture company will be one of the first MDK users and discuss opportunities of mobile vision and augmented reality.	
28.02.2019 2:30 PM - 3:00 PM	**AI on the edge: approach and concrete use cases** Alberto Firpo - AAEON Technology We will talk about how we apply deep learning and software optimization on dedicated hardware to solve real life problems with artificial intelligence applications.	++++++++
28.02.2019 2:30 PM - 3:00 PM	**The challenges of staying current and secured, while deploying at the edge** **Philipp Michel - Field Application Engineer, Industrial sales / Wind River** In recent years we saw more and more devices becoming connected into the growing IoT spectrum, introducing additional challenges for embedded devices. At the same time, edge devices are being enabled to leverage the compute power and artificial intelligence of the cloud. This integration is introducing a new transformational paradigm driven automation and orchestration. While technology exists to address the technical challenges, the value spans beyond the code itself, as IP assurance, workload management and continuous integration became more and more relevant to enable DevOps methodologies. As a market leader for embedded and IoT devices running Linux, Wind River invests in technologies and processes that address these new market challenges. Our latest release of Wind River Linux includes a CNCF (Cloud Native Compute Foundation) compatible configuration for container deployment at the edge, enabling companies to build ground-breaking devices more quickly and cost-effectively, in these new heterogeneous environments.	++++