2014 IEEE-SA ETHERNET & IP @ AUTOMOTIVE TECHNOLOGY DAY

23-24 October 2014
COBO Center • Detroit, Michigan, USA

www.ethernettechnologyday.com

PROGRAM
General Motors is pleased to host the 2014 IEEE-SA Ethernet & IP @ Automotive Technology Day here in Detroit. I would like to take this opportunity to personally welcome you to this exciting event.

This year’s theme is “Moving towards a mature and pervasive automotive network: from infotainment to autonomous driving, how Ethernet is uniquely qualified to transform the vehicle”. With the recent developments and innovations in vehicle electronics in the Infotainment, Active Safety, Powertrain and Body domains, our customers have come to expect features in their vehicles to continually improve comfort, entertainment and safety. The pervasive adoption of Ethernet technologies inside our vehicles will offer an opportunity to seamlessly integrate and coordinate electronic systems and to bring to our customers a new level of sophistication in the offered features.

The 2014 IEEE-SA Ethernet & IP @ Automotive Technology Day promises to address many of the key issues our industry faces today in the adoption of Ethernet technology. This year’s event is in its 4th annual edition and is being held for the first time in the US, after all previous events were held in Germany. In addition, this is the first time this event is being organized through the IEEE Standards Association. This reflects increased international interest and is a sign of the growing maturity of Ethernet technology developments in the automotive industry. As in previous years, this year’s event will showcase the status of standardization efforts, physical layer developments and future trends towards an automotive gigabit network, new applications and use cases of the technology, security aspects, and testing methods and tools. One novelty of the 2014 event will be a joint session with the 7th AUTOSAR Open Conference where the software aspects and the Ethernet integration into the AUTOSAR software platform will be discussed. The conference will offer a unique networking opportunity for OEMs, suppliers, semiconductor vendors and tool providers for automotive Ethernet technology, and an exhibition hall with more than 40 booths will allow participants to experience the technology and directly interact with vendors.

Along those lines, I am pleased to welcome a recognized leader in automotive technology trends as a Keynote Speaker of the conference. Ian Riches, Director of Global Automotive Practice of Strategy Analytics, will share an independent assessment of the potential market opportunity for automotive Ethernet and will discuss market drivers and inhibitors. In addition, immediately prior to a networking reception and dinner, we will invite some technology leaders from other industries to share their experiences in the adoption of Ethernet during a Panel Session, where we can learn and discuss the similarities and differences between their industries and the automotive industry with its specific characteristics.

I appreciate everyone taking time to participate and contribute to this important event, and I am confident that we will all have a great chance to sharpen our skills and discover new aspects of the Automotive Ethernet & IP. On behalf of General Motors and IEEE, thank you for attending and I look forward to seeing you there.

Massimo Osella
General Motors R&D – Group Manager
2014 Conference Chair
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CONFERENCE COMMITTEES

CONFERENCE STEERING COMMITTEE:
Thomas Hogenmüller, Robert Bosch
Markus Jochim, General Motors
Kirsten Matheus, BMW Group
Massimo Osella, General Motors
Helge Zinner, Continental

CONFERENCE PROGRAM COMMITTEE:
Steve Carlson, High Speed Design
Greg Destexhe, TechPoint Consulting
Thomas Hogenmüller, Robert Bosch
Markus Jochim, General Motors
Michael Johas-Teener, Broadcom
Mike Jones, Micrel
Yong Kim, Broadcom
Rick Kreifeldt, AVnu, Harman
Jim Lawlis, Ford
Brenda Mancuso, IEEE SA
Kirsten Matheus, BMW Group
Douglas Oliver, Ford
Massimo Osella, General Motors
Don Pannell, Marvell
Tim Potochick, Chrysler
Debra Venedam, IEEE
James Wendorf, IEEE SA
Michael Ziehensack, Elektrobit
Helge Zinner, Continental
## CONFERENCE AGENDA

### Thursday, October 23rd, 2014

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<th>Event</th>
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<tr>
<td>8:00 – 19:00</td>
<td>Grand Ballroom Foyer</td>
<td>Registration</td>
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<tr>
<td>9:30 – 10:30</td>
<td>Grand Ballroom B</td>
<td>Opening &amp; Keynote Speech: Automotive Ethernet: Market Growth Outlook</td>
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<tr>
<td></td>
<td></td>
<td>Ian Riches, Strategy Analytics</td>
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<tr>
<td>10:30 – 12:30</td>
<td>Grand Ballroom B</td>
<td>Session 1: Use Cases/Architecture/Applications</td>
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<td>12:30 – 19:30</td>
<td>Grand Ballroom A</td>
<td>Exhibits Open</td>
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<td>12:30 – 14:00</td>
<td>Atrium /Grand Ballroom A</td>
<td>Lunch and Exhibits</td>
</tr>
<tr>
<td>14:00 – 16:40</td>
<td>Grand Ballroom B</td>
<td>Session 2: AUTOSAR &amp; Ethernet</td>
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<tr>
<td>16:40 – 17:10</td>
<td>Grand Ballroom A</td>
<td>Coffee Break with the Exhibitors</td>
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<tr>
<td>17:10 – 19:00</td>
<td>Grand Ballroom B</td>
<td>Panel Session: Lessons Learned From Other Industries</td>
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<tr>
<td>19:00 – 19:30</td>
<td>Grand Ballroom A</td>
<td>Networking Reception</td>
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<tr>
<td>19:30 – 22:00</td>
<td>Atrium</td>
<td>Dinner</td>
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### Friday, October 24th, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30 – 15:00</td>
<td>Grand Ballroom Foyer</td>
<td>Registration</td>
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<tr>
<td>8:00 – 16:00</td>
<td>Grand Ballroom A</td>
<td>Exhibits Open</td>
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<td>8:30 – 10:00</td>
<td>Grand Ballroom A</td>
<td>Session 3: Fast Track</td>
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<td>10:00 – 10:30</td>
<td>Grand Ballroom A</td>
<td>Coffee Break with the Exhibitors</td>
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<tr>
<td>10:30 – 12:00</td>
<td>Grand Ballroom B</td>
<td>Session 4: Standardization &amp; Strategy</td>
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<tr>
<td>12:00 – 13:30</td>
<td>Grand Ballroom A / Atrium</td>
<td>Lunch and Exhibits</td>
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<td>13:30 – 14:30</td>
<td>Grand Ballroom B</td>
<td>Session 5: Security</td>
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<tr>
<td>14:30 – 16:00</td>
<td>Grand Ballroom B</td>
<td>Session 6: Physical Layer/Testing &amp; Tools</td>
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<td>16:00</td>
<td>Grand Ballroom B</td>
<td>Closing</td>
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<tr>
<td>09:30</td>
<td>OPENING &amp; WELCOME SPEECH</td>
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<td>John Capp, GM</td>
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<tr>
<td>10:00</td>
<td>KEYNOTE SPEECH: “AUTOMOTIVE ETHERNET: MARKET GROWTH OUTLOOK”</td>
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<tr>
<td>Ian Riches, Strategy Analytics</td>
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<tr>
<td>10:30</td>
<td>SESSION 1: USE CASES / ARCHITECTURE / APPLICATIONS</td>
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<td>In the first session we will explore the opportunities and challenges in adopting AVB Ethernet in different automotive domain applications, how to properly address the different communications requirements from audio/video streams and vehicle critical sensor data by properly managing traffic classes. We will showcase new topologies and vehicle communication architecture ideas, forecasting the capabilities of future gigabit technologies and the additional use cases that these will enable. The evolution of the protocol towards Time Sensitive Networks and implementation decisions on the various features of the AVB switches will be presented and discussed. This session will also give different perspectives from OEMs and Suppliers on the topic.</td>
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| 1) “AVB in Automotive Infotainment Networks”  
  Günter Dannhäuser – Daimler  
  Andrew Lucas – XMOS |
| 2) “Designing 1000BASE-T1 into Automotive Architectures”  
  Alexander E. Tan – Marvell |
| 3) “Practical Use of an Ethernet Switch within ECUs for Control Applications”  
  Rodney Cummings – National Instruments |
| 4) “Ethernet AVB in Infotainment”  
  Stefan Singer – Freescale |
| 12:30  | LUNCH (EXHIBITS OPEN)                                                |
| 14:00  | SESSION 2: WELCOME TO JOINT AUTOSAR / ETHERNET SESSION               |
| This session is a joint session with the 7th AUTOSAR Open Conference. Participants will mingle to discuss the important implications of introducing Ethernet & IP into vehicle software architectures. The session will provide a perspective on what is currently offered or planned by the AUTOSAR consortium and what the additional needs are for future Ethernet use cases. We will address the basic principles of the implementation of time sensitive control applications with AUTOSAR and IP/Ethernet. Furthermore, the implications on design and validation methods and tools will be discussed. After the session, a joint Reception and Dinner will provide great networking opportunities between these two communities. |
| Thomas Rüping – AUTOSAR Spokesperson |
| 6) “Ethernet – Trends & Application Possibilities”  
  Tushar Vaidya – KPIT Technologies |
| 7) “Time sensitive control data exchange with AUTOSAR IP/Ethernet based on AVB”  
  Michael Ziehensack – Elektrobit  
  Markus Jochim – GM |
| 8) “An OEM perspective on introducing Ethernet/IP into automotive series production using AUTOSAR”  
  Jan Hegewald, Nadym Salem – Carmeq  
  Olaf Krieger – Volkswagen |
| 9) “Testing Automotive Ethernet systems – the AUTOSAR way”  
  Sebastian Gruber, Josef Nöbauer – Continental |
| 10) “The Future of Ethernet in AUTOSAR”  
  Marc Weber – Vector Informatik |
16:40 **COFFEE BREAK**

17:10 **PANEL SESSION: “LESSONS LEARNED FROM OTHER INDUSTRIES”**

Moderated by Kirsten Matheus – BMW

Panelists: Steve Carlson – HSP Design  
Tim Frost – Calnex  
Rick Kreifeldt – Harman  
Chris Muench – C-Labs  
Stefan Schneele – EADS

Ethernet and IP is a pervasive communication protocol used in many application areas. Automotive is the latest industry to introduce the technology and one that promises a large market for Ethernet. This session aims at highlighting the similarities and differences between the various industries that have introduced Ethernet in the past. Experts from industries like Industrial Automation, Aeronautics, Telecommunications, will share their experiences with Ethernet and debate recommendations for the automotive industry. The audience is welcome to contribute with interesting questions.

19:00 **RECEPTION**

19:30 **DINNER**

Exhibit hours: 12:30 to 19:30
8:00 EXHIBITS OPEN

8:30 SESSION 3: FAST TRACK

This session provides an opportunity to listen to a set of concise presentations on a variety of topics along the theme of the conference. With short and quick statements the authors will stimulate the audience. Direct and in-depth discussions with the authors are possible during the subsequent coffee and lunch breaks.

11) “Automotive IP/Ethernet Testing, Challenges and what can be learned from the IT and telecom networking domains”
    Alon Regev – Ixia
    Roman Pallierer – Elektrobit

12) “Lessons Learned from Industrial Ethernets”
    Chris Muench – C-Labs

13) “Accelerating the road from Audio/Video to Autonomous”
    Rick Kreifeldt – AVnu / Harman

14) “Implementation of Automotive Compliant Connector Solutions for In-Vehicle Ethernet Networks”
    John W Hall, Bert Bergner, Thomas Ginsberg – TE Connectivity

15) “How can I get the most out of Automotive Ethernet? System level network simulation for the design and evaluation of upcoming Ethernet-based E/E-architectures”
    Till Steinbach, Franz Korf, René Röllig – HAW-Hamburg, Thomas Eymann – IAV

10:00 COFFEE BREAK

10:30 SESSION 4: STANDARDIZATION & STRATEGY

The success of Ethernet and IP is due to the fact that it is a real cross-industry standard. In this session we will analyze the status, objectives, timeline, and milestones of current automotive related standardization activities within the IEEE. Furthermore, we will present the definition of an automotive certification profile that will allow interoperability of components: automotive OEMs need to depend on the devices certified to the specification to provide a foundation for AVB Ethernet functionality in their automobiles. Finally, a perspective of potential future protocol issues arising due to massive adoption of Ethernet by automobiles, as well as a discussion on possible solutions, will be given.

16) “Status report on automotive related IEEE802.3 activities”
    Steve Carlson, David Dwelley, Ludwig Winkel, Thomas Hogenmüller, Robert Grow – IEEE

17) “AVnu’s Ethernet AVB Automotive Certification Profile”
    Gordon Bechtel – Symphony Teleca
    Ben Gale – Broadcom
    Max Kicherer – BMW
    David Olsen – Harman International

18) “The Looming Ethernet MAC Address Crisis in a Car”
    Donald R. Pannell – Marvell

12:00 LUNCH

13:30 SESSION 5: SECURITY

Security is an important topic in all industries deploying Ethernet. The adoption of Ethernet and IP technologies can pose a threat as well as become a solution: on one hand Ethernet will enable greater external connectivity in the vehicle with data sharing from the cloud and with portable device integration that can increase the envelope of risks for malicious attacks. On the other hand, Ethernet has developed for decades many counter-measures that can mitigate and eliminate these threats. Presentations will cover
suitable methods for increased protection and testing and verification methods for automotive Ethernet security.

19) “Ethernet Security in the Car”  
Ben Gale – Broadcom

20) “Automotive Ethernet Security Testing”  
Alon Regev, Abhijit Lahiri – Ixia

14:30 SESSION 6: PHYSICAL LAYER / TESTING & TOOLS

In this final session we will address the status of existing components and cables suitable for the 100 Mbit/s automotive Ethernet physical layer with some practical experience and testing experiments. We will also look at the next generation 1 Gbit/s automotive physical layer evolution and at the standardization efforts related to it. The talks will address performance, noise susceptibility and other characteristics of the physical layers and will discuss methods for testing conformance to the specification and the interoperability.

21) “A Review of 1000BASE-T1 PHY Architecture for EMC-Constrained Channels”  
Mehmet Tazebay – Broadcom

22) “I can use CAN wire for Ethernet, right?”  
Natalie Wienckowski – GM

23) “Applying Ethernet test methodologies to automotive applications”  
Curtis Donahue, Alex Seiger – IOL-UNH

16:00 CLOSING

Exhibit hours: 8:00 to 16:00
EXHIBIT FLOOR PLAN

Grand Ballroom A, Cobo Center
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2014 HOST

2014 HOST

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IEEE STANDARDS ASSOCIATION

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PLATINUM SUPPORTER

SILVER SUPPORTER

BRONZE SUPPORTER

BRONZE SUPPORTER

2014 IEEE-SA ETHERNET & IP @ AUTOMOTIVE TECHNOLOGY DAY
EXHIBITOR LISTING

Booth Number: 108  
Company Name: AVnu Alliance  
Company Address: 3855 SW 153rd Drive  
City/State/Country: Beaverton, OR, USA 97006  
Website: www.avnu.org  
Company Contact: Ruth McGinnis  
Title: Administrator  
Email Address: administration@avnu.org  
Phone Number: 503-619-0571

AVnu Alliance is an industry forum dedicated to the advancement of professional-quality audio video by promoting the adoption of the IEEE 802.1 Audio Video Bridging (AVB), and related standards, over various networking link-layers. The organization creates extensive test procedures and processes that ensure interoperability of networked A/V devices, helping to provide the highest quality streaming A/V experience. The Alliance promotes awareness of the benefits of its technologies and collaborates with other organizations and entities to make use of this work in their respective efforts to provide a better end-user A/V experience.

The Alliance is focused on applications of these technologies in markets such as Automotive, Professional AV, and Consumer Electronics.

Booth Number: 218  
Company Name: Broadcom Corporation  
Company Address: 5300 California Avenue  
City/State/Country: Irvine, CA 92617  
Website: www.broadcom.com  
Company Contact: Alex Pantelis  
Title: Event Coordinator, Staff  
Email Address: Pantelis@broadcom.com  
Phone Number: +1 (949) 351-4327

Broadcom Corporation is a prominent technology innovator and global leader in semiconductors for wired and wireless communications with the industry’s broadest portfolio of products that enable the delivery of voice, video, data and multimedia to and throughout the home, the office and the mobile environments. Broadcom – Connecting everything®.

Booth Number: 310  
Company Name: C&S Group GmbH  
Company Address: Am Exer 19B  
City/State/Country: Germany  
Website: www.cs-group.de  
Company Contact: David Bollati  
Title: President  
Email Address: d.bollati@cs-group.de  
Phone Number: +49 5331 90555 0

C&S group is a spin-off of a research entity at the University Ostfalia in Germany. C&S enjoys an international appreciation as independent testing company and competent partner for the analysis of automotive networked systems.

As accredited test-house according to ISO17025, C&S conducts conformance and interoperability tests for components of different customer specific and standardized IVN protocols like CAN, LIN, FlexRay. Following the E/E architectures’ trends C&S is expanding its services to cover the emerging protocols CAN FD and BroadR-Reach automotive Ethernet.

C&S offers testing solutions and consultancy services for SW modules, supporting the migration to AUTOSAR compliant architectures and integration tests of BSW stacks.

19 years experiences are also applied in our consulting services for the conception and safeguarding of the proper operability of networked systems.

We participate in standard-setting organizations like ISO, SAE, FlexRay, LIN, AUTOSAR, OPEN, etc. C&S is represented by partners in Europe, Japan and the US.

Booth Number: 313  
Company Name: Cadence Design Systems, Inc.  
Company Address: 2655 Seely Ave.  
City/State/Country: San Jose, CA 95134  
Website: www.cadence.com  
Company Contact: Robert Schweiger  
Title: Sales Director – Technology  
Email Address: rschweig@cadence.com  
Phone Number: +49 89 4563-1721

Cadence Design Systems enables global electronic design innovation and plays an essential role in the creation of today’s electronics. Customers use Cadence software, hardware, IP, and expertise to design and verify today’s advanced semiconductors, consumer electronics, automotive, networking and telecommunications equipment, and computer systems. The company is headquartered in San Jose, Calif., with sales offices, design centers, and research facilities around the world to serve the global electronics industry.
Booth Number: 221  
**Company Name: CETITEC Connective Technologies**  
Company Address: Mannheimer Str. 17  
City/State/Country: 75179 Pforzheim/BW/Germany  
Website: www.cetitec.com  
Company Contact: Joachim Leonhard  
Title: Director Business Development  
Email Address: info@cetitec.com  
Phone Number: +49 (160) 6106373  

CETITEC – privately owned, world’s finest source of turnkey solutions and components:  
We are a highly skilled team of engineers joined by the goal of combining rich networking-based multimedia experience with utmost simplicity of use. Recognizing patterns and smartly applying their essentials is the key for creating value beyond the limits of any particular Network-Technology, Protocol or Operating-System.  

CETITEC guides you through System-Design, over Device-Architecture down to single components:  
- SysML-/UML-driven design of complete Infotainment-systems (from PIM to PSM)!  
- SomeIP – start your own development on an excellent framework with the advantage of tool generated Stub-Code  
- Smart Real-Time Interconnection: CAN/LIN/ FlexRay™/SomeIP/Ethernet and MOST®  
- Seamless integration with mobile devices – Android®, Apple® and Microsoft®  
- HQ AV drivers  
- Most comprehensive offerings for MOST® – let legacy devices meet the future  
- Middleware and Framework supporting 1..n CPUs, SoC and Hypervisor-based devices  
  …supporting Linux, QNX®, Integrity®, AUTOSAR™ and more!

Booth Number: 219  
**Company Name: DENSO Corporation**  
Company Address: 1-1,Showa-cho,Kariya-shi,ichi-ken,448-8661  
City/State/Country: Japan  
Website: http://www.globaldenso.com/en/  
Company Contact: Mr Alexis Veynachter  
Title: Technical Research Engineer  
Email Address: a.veynachter@denso-auto.de  
Phone Number: +49 (0) 8165 / 944 – 221

DENSO, a leading supplier of advanced automotive technology, systems and components for all the world’s major automakers.  
DENSO operates in more than 35 countries and regions.  

Approximately 140,000 employees are active in all aspects of the automotive business – sales, product development and design and manufacturing – working in cooperation with regional car manufacturers and suppliers to provide the most suitable solutions to regional requirements.  
At DENSO, there is no room for compromise when it comes to the quality of our products.  
Our focus with all our products is consideration for the environment, safety, comfort, and convenience. We invest 9.0 percent of consolidated sales in R&D activities.  
Moreover, we go beyond our company walls to help our communities through employee volunteer activities and corporate philanthropy.

Booth Number: 220  
**Company Name: Elektrobit Automotive**  
Company Address: 37000 W 12 Mile Road  
City/State/Country: Farmington Hills, MI 48331  
Website: automotive.elektrobit.com  
Company Contact: Sharon Beyerlein  
Title: Marketing Manager  
Email Address: sharon.beyerlein@elektrobit.com  
Phone Number: 1-425-286-5202

EB enriches the in-vehicle experience with industry leading tools and engineering services for safety, entertainment, navigation and connected services. EB Automotive has established itself internationally as one of the most important automotive suppliers of embedded software solutions. In addition to the development of products, we also specialize in services and consulting for the automotive industry, supplying implementations of series quality software for a broad range of AUTOSAR, Infotainment, Navigation, HMI and Driver Assistance systems. EB’s continued investment in feature integration and development tools of in-vehicle devices improves production efficiencies allowing for faster delivery and larger shipments to market.

Booth Number: 312  
**Company Name: Excelfore Corporation**  
Company Address: 43255 Mission Boulevard  
City/State/Country: Fremont, CA 94539  
Website: www.excelfore.com/openavb  
Company Contact: Rich Roth  
Title: Marketing  
Email Address: rich.roth@excelfore.com  
Phone Number: 510-868-2500

Excelfore is spearheading Ethernet AVB deployments with its qualified Software Stack compliant with IEEE 1722, 802.1AS and validated using AVnu approved Switches. The Stack has been adopted by Automotive and Professional OEMs including BMW and Barco.
Highlights of the Qualified Ethernet-AVB offering:
- Listener, Talker Components Integrated with Automotive -- Infotainment Endpoints and Automotive Cameras
- Compliant with the IEEE 1722/IEEE 1588 Ethernet AVB Specifications
- Special Protocols for Aligning Synchronization of Multiple Monitors
- Validated using AVnu Approved AVB Switches
- Gstreamer Plugins for IEEE 1722, IEEE 1733
- Software APIs for Multimedia Applications
- Flexible S/W Methodology for easy Porting to all Silicon Platforms
- Available on Multiple Platforms

Licensable Software to Drive Faster Adoption
Excelfore is offering the AVB software stack as an open platform. This platform consists of the qualified software stack for multiple silicon hardware platforms. The offering can also be integrated with Excelfore's Cloud Service platform for lifecycle management of AVB endpoints.

Booth Number: 209
Company Name: Freescale Semiconductor, Inc.
Company Address: 6501 West William Cannon Drive
City/State/Country: Austin, TX
Website: www.freescale.com
Company Contact: Ana M. Bellomy
Title: Events Project Manager
Email Address: rmic02@freescale.com
Phone Number: 512 895 3563

Freescale is the leader in embedded control, offering the market’s broadest and best-enabled portfolio of solutions based on ARM® technology. With our end-to-end portfolio of high-performance, power-efficient MCUs and digital networking processors, Freescale is leading the charge to bring the Internet of Things to life. Enabling a new world in which everyday objects connect and cooperate with each other, humans, environments and infrastructures, our IoT solutions reflect a comprehensive and collaborative approach. Whether it’s the hardware and software solutions we make, the partnerships we forge, or the expertise we provide, we’re turning the Internet of Things into reality.

Booth Number: 216
Company Name: Harman International
Company Address: 39001 West Twelve Mile Rd.
City/State/Country: Farmington Hills, MI 48331
Website: www.harman.com
Company Contact: Mike Radomski
Title: Director of Marketing
Email Address: michael.radomski@harman.com
Phone Number: +1 (248) 994-2742

HARMAN designs, manufactures and markets premier audio, visual, infotainment and integrated control solutions for the automotive, consumer and professional markets. With leading brands including AKG®, Harman Kardon®, Infinity®, JBL®, Lexicon® and Mark Levinson®, the Company is admired by audiophiles, musicians and the entertainment venues where they perform. More than 25 million automobiles on the road today are equipped with HARMAN audio and infotainment systems. HARMAN has a workforce of approximately 16,000 people across the Americas, Europe, and Asia and reported sales of $5.3 billion for the twelve months ended June 30, 2014.
IEEE Standards Association (IEEE-SA) is a leading consensus building organization that nurtures, develops & advances global technologies. Our work drives the functionality, capabilities and interoperability of a wide range of products and services that transform the way people live, work and communicate. One of the many programs under the IEEE-SA is the Industry Connections (IC) program which helps incubate new standards and related products and services by offering an efficient, economical environment for organizations and individuals to come together, build consensus, and produce shared results.

For more information, go to: standards.ieee.org/industryconnections

Infineon Technologies focuses on the three central challenges facing modern society: Energy Efficiency, Mobility and Security and offers semiconductors and system solutions for automotive and industrial electronics and chip card and security applications.

Infineon's products stand out for their reliability, their quality excellence and their innovative and leading-edge technology in analog and mixed signal, RF and power as well as embedded control.

Intrepid Control Systems is a global provider of innovative tools for engineers in vehicle, test, and embedded engineering. Widely recognized for its neoVI and ValueCAN series tools, Intrepid has also developed RAD-GALAXY, neoECU 15, and RAD-STAR devices to interface with BroadR-Reach®. Intrepid supports all the latest networks and protocols including AUTOSAR, CAN, CAN FD, LIN, FlexRay, Automotive Ethernet, Keyword, UART, J1939, ISO 14229 and GMLAN. Major customers include automotive and commercial vehicle OEMs around the world. Along with its network of distributors, Intrepid has offices in the USA, China, Japan, Germany, India, Korea, and Australia for direct sales and support. Intrepid is a member of the Automotive Engineering Tool Alliance (www.aeta-rice.com), a comprehensive tool chain for state-of-the-art automotive electronics development.

Ixia products enable real-world validation of in-vehicle fixed, wireless, and security technologies, empowering the automotive industry to build best-in-class in-vehicle infotainment and always-on networking. Ixia is a leader in network, device, application, and security testing for automotive Ethernet functionality, accelerating new in-vehicle features and delivering a safe driving experience.

Quickly validate interoperability and standards compliance of vehicle technology that links autos and mobile devices to each other and to the transportation infrastructure with Ixia’s conformance test solution. Ixia’s wireless products ensure an always-on user experience by validating connectivity within the vehicle to onboard systems, sensors, and user devices and beyond the vehicle, to ensure mobile data services and security. Assess and optimize user experience and security effectiveness with Ixia’s application load test solutions. Ixia security solutions validate security capabilities using line-rate application traffic and real-world security attacks.
KDPOF is a fabless silicon development company. Our leading edge technology pushes the limits of Plastic Optical Fiber enabling Gigabit communications with affordable and reliable high volume optoelectronic components.

KDPOF’s technology is a unique blend of communication techniques that optimizes the final solution for highly demanding markets like automotive, industrial networks, aeronautics, medical or railway. KDPOF’s introduced its first family of products into the market in 2013 targeted for the professional and consumer equipment.

KDPOF is committed to the automotive market with delivering a fully functional solution for the next generation, gigabit-enabled, vehicle area networks. KDPOF is currently working with major automotive OEM’s and Tier-1 suppliers on integrating KDPOF’s future automotive products into first prototypes and proof of concepts as a first step towards a final technology adoption.

KPIT, a product engineering and global IT consulting partner, is focused on co-innovating domain intensive technology solutions for corporations specializing in automotive & transportation, manufacturing and energy & utilities. A leader in technology solutions and services, KPIT currently partners with 180+ global corporations including Original Equipment Manufacturers (OEMs), semiconductor companies and Tier-1 companies.

Marvell (NASDAQ: MRVL) is a global leader in providing complete silicon solutions and Kinoma® software enabling the “Smart Life and Smart Lifestyle.” From mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery, Marvell’s diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. At the core of the world’s most powerful consumer, network and enterprise systems, Marvell empowers partners and their customers to always stand at the forefront of innovation, performance and mass appeal. By providing people around the world with mobility and ease of access to services adding value to their social, private and work lives, Marvell is committed to enhancing the human experience.
Micrel, Inc. is a leading global manufacturer of IC solutions for the worldwide high performance linear and power, LAN and timing and communications markets. The Company’s products include advanced mixed-signal, analog and power semiconductors; high performance communication, clock management, MEMS-based clock oscillators and crystal-less clock generators, Ethernet switch and physical layer transceiver ICs. Company customers include leading manufacturers of enterprise, consumer, industrial, mobile, telecommunications, automotive, and computer products. Corporation headquarters and state-of-the-art wafer fabrication facilities are located in San Jose, CA, with regional sales and support offices and advanced technology design centers situated throughout the Americas, Europe and Asia. In addition, the Company maintains an extensive network of distributors and reps worldwide.

NXP Semiconductors N.V. (NASDAQ: NXPI) creates solutions that enable secure connections for a smarter world. Building on its expertise in High Performance Mixed Signal electronics, NXP is driving innovation in the automotive, identification and mobile industries, and in application areas including wireless infrastructure, lighting, healthcare, industrial, consumer tech and computing. NXP has operations in more than 25 countries, and posted revenue of $4.82 billion in 2013. Find out more at www.nxp.com.

Realtek Semiconductor Corp., located in the Hsinchu Science-based Industrial Park — Taiwan’s “Silicon Valley” — began with a small group of young, devoted engineers in 1987. In nearly two decades, these young founding engineers built Realtek into one of the world’s largest and most successful IC design houses. Realtek’s efforts to provide the ultimate in pioneering IC technology — along with its firm commitment to creating unique and innovative designs for a broad range of high-tech
applications — have won the company a worldwide reputation and made possible a favorable and consistent growth rate in the years since its establishment. We attribute this achievement to Realtek’s tradition of excellence.

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Microcontrollers – System LSIs – Analog and Power Devices. The synergy of our three product segments enables us to provide rapid, optimum solutions.

With the world’s largest microcontroller market share as the driving force, we are expanding our system LSI business worldwide, to strengthen business and customer relationships in developing countries, and to expand our capabilities into new markets such as green solutions. As a reliable partner, we commit to providing highly competitive products and rapid, optimum solutions that cater to the needs of our customers worldwide.

Booth Number: 315  
Company Name: Rohde & Schwarz USA, Inc.  
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Rohde & Schwarz manufactures test and measurement equipment that tests the modern connected car. We offer measurement solutions for serial bus analysis including BroadR-reach®, automotive radar, intelligent transportation systems (V2V), eCall testing, wireless connectivity, EMC compliance, EMI debugging, and GNSS simulation. Our products support engineers through every step of the design process, from R&D through certification, production and service. Visit rohde-schwarz.us to learn more about our broad portfolio of products, including spectrum analyzers, signal generators, broadband amplifiers and more.

Booth Number: 314  
Company Name: RUETZ SYSTEM SOLUTIONS GmbH  
Company Address: Walter-Gropius-Strasse 17  
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Experts for Data Communication in Vehicles:
With comprehensive expertise in automotive data communication, RUETZ SYSTEM SOLUTIONS offers full service for a smooth and on-time start of mass production (SOP, Start of Production) to carmakers and suppliers. As technology partner, we assist with engineering services and test laboratory solutions as well as with broad competence for data transmission, so that your products will fulfill the highest standards for quality, robustness and compliance.

Booth Number: 213  
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Spirent Communications plc. (LSE: SPT), a global leader in test and measurement, offers an extensive portfolio of solutions to test data centers, cloud computing and virtualized environments, high speed Ethernet networks and services, 3G/4G wireless networks and devices, vehicles and automobiles, network and application security, and positioning technologies. For more information visit http://www.spirent.com/about-us/News_Room/About_Spirent_Communications_plc.aspx
Symphony Teleca is a professional services provider supporting automotive OEMs and Tier 1 & 2 suppliers in developing solutions requiring unrivaled usability, seamless connectivity or robust cloud services integration.

Our global automotive practice supports clients in defining and realizing next generation connected car experiences across the entire product life-cycle.

We provide clients a fast, secure and robust track for bringing innovative concepts and technologies to the car. Symphony Teleca is a fast growing global company with over 7,500 employees in 40 offices worldwide, including delivery centers in the Americas, Europe and Asia.

Telemotive AG offers premium engineering services as well as product development in the field of complex networked bus systems such as Ethernet, MOST, CAN, LIN and FlexRay. Telemotive AG primarily works in the areas of infotainment, entertainment, telematics and electromobility as well as in driver assistance, test automation, data logging, connection of mobile end devices and diagnosis. The innovative product range for laboratory- and vehicle testing includes the multi-bus data logger “blue PiraT” and “blue PiraT Mini”, the video tester “blue Admiral”, the PLC-Tester (Power Line Communication) as well as a customized prototype construction.

TTTech is the technology leader in robust networked safety controls. The company’s solutions improve the safety and reliability of networked electronic systems in the transportation and industrial segments.

In the automotive segment TTTech provides reliable control unit platforms and software solutions offering highest safety classification in accordance with ISO 26262/ASIL D. The modular, certified hardware and software solutions are used for serial production in the field of control and monitoring of electric and hybrid propulsion systems as well as for vehicle dynamics and driver assistance. To validate the vehicle functions, the product range is completed by intelligent data loggers and test equipment for networked systems.
TTTech standards-based Automotive Ethernet solutions enable unified Ethernet networks and the convergence of critical and non-critical application data streams on one single network. The company’s involvement with Automotive Ethernet also includes a collaboration with NXP for the development of an Automotive Ethernet switch chip.

**Booth Number: 318**  
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TÜV NORD GROUP is an independent technical services provider, active in more than 70 countries worldwide. It sets standards in the provision of testing, inspection and certification services for the industry. The business unit TÜV NORD Mobilität with its institute for vehicle technology and mobility works as accredited and independent engineering and testing provider for the automotive and vehicle industry. The institute unites high competence in mechanical, mechatronic and electronic systems of modern vehicles.

Our experts have deep knowledge in the development of electronic systems and embedded software, vehicle networks and communication systems, test development and test execution. In conjunction with our competence in functional safety and automotive security, customers benefit from a wide-range portfolio under one roof.

Our experts are actively working on the adoption of Ethernet standards into automotive network applications. With our knowledge of technology standards and automotive requirements we are developing solutions for testing automotive products based on the Ethernet technology.

**Booth Number: 114**  
**Company Name: Vector – North America**
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Website: [www.vector.com](http://www.vector.com)  
Company Contact: Jim Hutter  
Title: Director of Marketing – North America  
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Vector is the leading provider of software tools, embedded software components and services to automotive OEMs, their suppliers and to various other industries. Vector tools equip engineers with the finest capabilities for the design, diagnostics, calibration and testing of distributed networking systems. More information on Vector can be found at www.vector.com.

**Booth Number: 304**  
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Headquartered in Hannover, Germany, videantis GmbH is a one-stop video IP and solution provider for the automotive, mobile, home, and emerging markets. For over 10 years, videantis has been delivering low-power, high-performance, silicon-efficient semiconductor solutions to its customers. Based on its unique, scalable, unified video/vision architecture, videantis processor solutions run both HD/UHD video codecs and embedded vision algorithms on the same silicon, increasing flexibility and reducing cost. With their core competencies of deep video application expert know-how and strong SOC design and system architecture expertise, videantis passionately serves a worldwide customer base with a diverse range of target applications, such as advanced driver assistance systems, in-car infotainment, mobile phones, and over-the-top TV. At the 2014 Ethernet & IP @ Automotive Technology Day, videantis will be showing ADAS demonstrations and low-delay Ethernet AVB H.264 High Intra video codecs. For more information about videantis, please visit www.videantis.com.

**Booth Number: 316**  
**Company Name: ViGEM GmbH**
Company Address: Haid-und-Neu-Str. 90  
City/State/Country: D-76131 Karlsruhe, Germany  
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ViGEM is focused on the development and production of innovative test tools for the automotive industry. Our embedded systems offer impressive levels of performance and reliability. ViGEM set new standards in mobile measurement and diagnostic electronics with the high-performance CCA test tool. ViGEM’s CCA car communication analyser systems enables to record automotive buses and Gigabit Ethernet at a continuous data rate of up to 4 Gbit/s.
ViGEM’s user-oriented operating concept for hardware and software provides high reliability during data recording. The configuration software can be used intuitively. Work easily via a Web browser from any PC, tablet or smartphone without the prior installation of drivers or tools.

Learn more about ViGEM, our current roadmap, and the CCA fields of application for your tasks on http://www.vigem.de.

ViGEM is located in the Technology Region of Karlsruhe, Germany. A project office is located in Munich, Germany.

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X2E is a highly innovative company with focus on both development and production of so-called "embedded systems". Through our one-stop solution it can be ensured that our customers receive a high quality and reliable product.

Our standard products are high performance data loggers who are capable of taking data records of several automotive bus systems simultaneously. Additionally, our product range provides a platform which not only collects data but is also able to transmit data anytime. At all devices data is stored with a precise, central timestamp with the resolution of 100 ns either on the internal hard drive or at an external computer system.

We support our customers by equipping them with our standard products and, even more important, by developing new innovative solutions which are tailored to their exact needs. This makes it possible to realize highly complex new vehicle applications without unnecessary expenditure of costs and time. We want to inspire our customers with innovation, quality and service.

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XMOS is an innovative fabless semiconductor company with its headquarters and main development center in Bristol, UK, and with an additional development center in Chennai, India, plus sales office and distributors supporting customers around the globe. The company’s wide range of intelligent xCORE multicore microcontrollers allow engineers to create the exact hardware system needed for their application, all in software. This makes xCORE multicore microcontrollers ideal for demanding embedded applications in audio, automotive, consumer, industrial and robotics products, where other microcontrollers struggle. XMOS provides xTIMEcomposer Studio, a free-to-use development system that makes it simple to design complex embedded systems all in software.
TEST, SIMULATE, & DEVELOP AUTOMOTIVE ETHERNET

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Intrepid also has a full line of Automotive Ethernet tools including RAD-GALAXY & RAD-STAR for up to 12x BroadR-Reach® ports (6 active taps), neoECU 15 scriptable node, Ethernet EVB for developing BroadR-Reach® networks, and Vehicle Spy software with full Automotive Ethernet support.

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