Next Generation

48V in Automotive

Co-located with: HIGH VOLTAGE

October 1 – 2 , 2019 | DRIVE. Volkswagen Group Forum | Berlin, Germany

EARLY CONFIRMED SPEAKERS:

Florian Kühnlenz
Head of Serial Development for Low Voltage Energy Storage Systems
Volkswagen AG

Dr.-Ing. Marc Uhl
Vice President Engineerig Lead Development
SEG Automotive Germany

Sascha Marschner
Team Leader Drivetrain Electric GT Road & Race Cars
Dr. Ing. h.c. F. Porsche AG

Michael Kiffmeier
Researcher Power Net Systems
TU Dortmund

Florian Bachheibl
Managing Director
volabo GmbH

Peter Schmitz
Manager Advanced Power Supply and Energy Management
Ford Research and Innovation Center Aachen

Dave Rich
BOM Familiy Owner 12V-48V
General Motors

Thank you to last years` attending experts from:

Sponsors:

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CONFIRMED SPEAKERS AND GUESTS

Dr.-Ing. Marc Uhl
Vice President Engineering Lead Development
SEG Automotive Germany

Michael Kiffmeier
Researcher Power Net Systems
TU Dortmund

Dr. Rainer Peck
Director Engineering System and Software Development Boost Recuperation Machine
SEG Automotive Germany

Peter Schmitz
Manager Advanced Power Supply and Energy Management
Ford Research and Innovation Center Aachen

Florian Kühnlenz
Head of Serial Development for Low Voltage Energy Storage Systems
Volkswagen AG

MatthiasZechmann
Global Product Manager for 48V Px Products
CPT Group GmbH (Continental Group)

Dave Rich
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Dr.-Ing. Helfried Sorger
Executive Chief Engineer Base Powertrain
AVL

Florian Bachheibl
Managing Director
volabo GmbH

Dr. András Balogh
CTO E/E Competence Center
thyssenkupp

Christoph Fehrenbacher
Managing Director, Head of European Tech Center
A123 Systems GmbH

Nunzio La Vecchia
CEO
nanoFlowcell

Dr. Stefan Meyer
CEO
Skopos

Dr.-Ing. Stephan Matz
Manager Battery Systems
Continental Engineering Services

Dr. Kay Klobedanz
Product Manager DC/DC
HELLA GmbH & Co. KGaA

For attendance and sponsorship (such as agenda contributions, exhibiting, logo displays, evening event etc.) please contact:
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WHAT EXPERTS FROM OUR PAST AUTOMOTIVE EVENTS SAY

„Well organized, good speakers, really high level representatives."
Executive Chief Engineer Base Powertrain, AVL List GmbH

„Perfect opportunity to get a better understanding and further learning about the future of the technology."
48V Power Supply System Owner, Jaguar Land Rover Ltd.

„Lots of relevant presentations with good information and interesting attendees to discuss with."
Control Systems Technical Specialist Powertrain Control and Electronics, Changan UK R&D Centre Ltd.

„The organization and the location was very good."
Senior Engineer, Daimler AG

„Inspiring two days, which served as an ideal platform to exchange ideas regarding the upcoming technology trends, as well as the future challenges to overcome as an industry/ sector. Unbeatable location and great atmosphere for discussion and networking, thanks also to the participation of numerous OEMs and leading tier 1 suppliers."
Automotive Steering, Director Product Engineering, Robert Bosch Automotive Steering LLC

„Very good agenda. Good subject presentations. Great interaction."
Global Chief Engineer Electric Steering Applications, ZF Group

„Great agenda topics. Smooth transition between agenda. Small group discussion is very interactive."
BOM Family Owner - Controlled Steering Systems, General Motors

„I really enjoyed meeting so many people from the industry."
Global Steering Technical Leader, General Motors

„A good, diverse set of topics. Stimulating discussions. RedCabin did a terrific job organizing this conference. They organized a heterogenous set of topics that included systems, hardware and software. I was able to interface with a number of managers and engineers with diverse backgrounds and ended up learning a lot about the challenges faced by automotive designers."
Vice President of Sales, Marketing & Business Development, Verocel Inc.

„Excellent cross-industry discussion. Relevant presentations. Engaging Workshops."
Subsystem Lead Engineer Autonomous Steering Electronics, General Motors






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DURING THIS TWO DAY CONFERENCE YOU WILL

- Find out the competative system cost to performance ratio
- Discuss the limits of 48V
- Get updated on market trends and legislation
- Evaluate efficient architectures
- Learn about the latest achievements of energy storage technology and how it changes our perception
- Understand new functions in the mild hybrid MHEV for enhanced customer comfort
- Get to know how to redcuce costs while keeping up system efficiency
- Find out how to overcome the lack of system and component standards
- Understand smart concepts to deal with higher complexity of the propulsion systems in MHEVs

WHAT YOU WILL EXPERIENCE ON SITE

RELATION BOARD Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversations and networking experience.

MEET AND GREET Make new business acquaintances in short 1:1 meetings. Exchange your business cards in this fast paced ice breaking session. Make sure you bring enough to not run out.

AUDIENCE Q&A Interact with our conference speakers and moderators and ensure, that all of your questions are answered during these sessions.

PANEL DISCUSSION Benefit from deeper insights by attendig our panel discussions. Share your ideas and thoughts with other peers and receive feedback from dedicated industry experts in this interactive session.

WORKING GROUPS Discuss with our moderators and your peers the latest challenges and developments in 48v systems in these highly interactive sessions. You are welcomed to share your ideas and experiences in the working groups.

NETWORKING RECEPTION Enjoy an informal evening get-together with your peers to discuss the outcome of the first conference day and expand your network in a relaxed environment.

Attendees' Profile: CTO | VP | DIRECTOR | CHIEF ENGINEER | TEAM LEAD | HEAD OF | MANAGER OF

Hybrid Vehicle Technology | Hybrid Electrification | Energy Storage | Battery Systems | Energy Management | Eletric Powertrain | Electrified Powertrain Systems Engine Management Systems | E/E Architecuture | E/E Systems | Regulatory Affairs | Engineering R&D | EV/HEV Development | Power Electronis and EMC E/E Development | Electric Propulsion Architectures

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1 – 2 October 2019 | Berlin, Germany | Co-located with: HIGH VOLTAGE

DAY 1 | TUESDAY 1 OCTOBER 2019

08:30 Registration and refreshments

Interactive session: RELATION BOARD

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversations and networking experience.

09:00 Welcome and introduction presentation by the conference chairman

Dr.-Ing. Marc Uhl – Vice President Engineering Lead Development, *SEG Automotive Germany*

UPCOMING LEGISLATION & MARKET DEVELOPMENTS

09:15 48V Market forecast

- Future market development of 48V tech world wide for passenger cars
- Upcoming market trends of 48V technology for commercial vehicles and off highway machinery
- 48V mHEV, Plug-in-Hybrid or EV? What will be the future market share?

Invited Speaker

Interactive session: MEET AND GREET

09:50 Make new business acquaintances in short 1:1 meetings. Exchange your business cards in this fast paced ice breaking session. Make sure you bring enough to not run out.

10:20 Refreshment break and networking

FUTURE OF 48V MILD HYBRID ELECTRIC VEHICLES

10:50 Methods to increase development efficiency of complex 48V e-drive applications

- Future market requirements for 48V systems
- Functional aspects of future 48V P0 applications
- Systematic development approach using ASPICE compliant methods
- Challenges for SW development of 48V e-drive systems

Dr. Rainer Peck – Director Engineering System and Software Development Boost Recuperation Machine, *SEG Automotive Germany*

11:25 48V system optimization enabled by mainstream applications

- Requirements for electrical power supply systems
- Power supply architecture options
- Drivers and opportunities for load migration from 12V to 48V
- Impact of load migration on 48V system specification

Peter Schmitz – Manager Advanced Power Supply and Energy Management, *Ford Research and Innovation Center Aachen*

12:00 Higher 48 Volt integration - Benefits and challenges

- 1st 48 Volt generation
- Further Px integration topologies

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DAY 1 | TUESDAY 1 OCTOBER 2019

- Specific solution for higher integration – benefits and challenges
- Px future outlook

Matthias Zechmann – Global Product Manager for 48V Px Products, *CPT Group GmbH (Continental Group)*

12:35 Arc fault analysis and detection methods in 48 V automotive power supply systems

- Analysis of relevant arc behavior in 48 V networks
- Presentation of modelling approaches for arcs in 48 V automotive power networks
- Discussion about various arc detection methods

Michael Kiffmeier – Researcher Power Net Systems

Stephan Frei – ROn-board System Lab, Faculty of Electrical Engineering, *TU Dortmund*

Interactive session: PANEL DISCUSSION

Benefit from deeper insights by attendig our panel discussions. Share your ideas and thoughts with other peers and receive a feedback from dedicated industry experts in this interactive session.

13:05 48V system: How far can we go? Opportunities and limits

- Where is the performance limit?
- Possibilities of pushing the border
- Transition to HV? Or 48V versus HV?
- How to deal with high electric power with components up to 1000 amper?
- How much output can be realized with 48V?

MODERATOR: **Florian Kühnlenz –** Head of Serial Development for Low Voltage Energy Storage Systems, *Volkswagen AG*

INVITED PANELLISTS: **Peter Schmitz –** Manager Advanced Power Supply and Energy Management, *Ford Research and Innovation Center Aachen*

Dr. Marc Uhl – Vice President Engineering Lead Development, *SEG Automotive Germany*

Dave Rich – BOM Familiy Owner 12V-48V, *General Motors*

Florian Bachheibl – Managing Director, *volabo GmbH*

Sascha Marschner – Team Leader Drivetrain Electric GT Road & Race Cars, *Dr. Ing. h.c. F. Porsche AG*

Dr. Helfried Sorger – Executive Chief Engineer Base Powertrain, *AVL*

13:40 Networking Lunch

Interactive sessions: WORKING GROUPS

14:40 The audience will be divided into 3 groups. Each group will attend all 3 interactive working groups.

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DAY 1 | TUESDAY 1 OCTOBER 2019

WORKING GROUP I

TEXT-GENERATION "DRIVER" CARS – Why 48V doesn't need to be boring to drive

- Designing a 48V Drivetrain for a compact lightweight sportscar with estimated dry weight <900kg (Power to weight <3,5kg/PS)
- Finding the blance between environments - comfortable on a small mountain road and at ease on a racetrack
- FWD, RWD and AWD -> power to weight ratio optimization overrules drive choice.
- Front, mid and rear engine -> There are no restrictions (why not use a range extender?)

HOSTED BY: **Sascha Marschner –** Team Leader Drivetrain Electric GT Road & Race Cars, *Dr. Ing. h.c. F. Porsche AG*

WORKING GROUP II

Safety concepts for 48V systems and beyond

- Challenges
- Smart combinations
- Lesson`s learned so far

HOSTED BY: **Expert to be announced soon**

WORKING GROUP III

Innovative mild hybrid transmission systems

- System requirements
- How to comply with raising system complexity of the propulsion system
- Opportunities: improved driving dynamics through electric torque vectoring and traction support

HOSTED BY: **Dr.-Ing. Helfried Sorger –** Executive Chief Engineer Base Powertrain, *AVL*

15:40 Refreshment Break and Networking

CONTINUING WITH WORKING GROUPS I, II AND III

17:10 Results of the WORKING GROUPS presented by the moderators

17:25 Closing remarks of Dr.-Ing. Marc Uhl

Interactive session: NETWORKING RECEPTION

18:00 Enjoy an informal evening get-together with your peers to discuss the outcome of the first conference day and expand your network in a relaxed ambience.

Next Generation 48V in Automotive

1 – 2 October 2019 | Berlin, Germany | Co-located with: HIGH VOLTAGE

DAY 2 | Wednesday 2 OCTOBER 2019

08:30 Registration and refreshments

08:55 Opening remarks of the conference chairman

Dr.-Ing. Marc Uhl – Vice President Engineering Lead Development, *SEG Automotive Germany*

NEW FUNCTIONS AND COMPONENTS OF 48V SYSTEMS

09:00 The next challenge for 48 V: Traction drives

- Architecture and test results of Volabo's all 48 V vehicle
- A look under the hood: ISCAD Generation IV
- Planned applications from 30 to 300 kW

Florian Bachheibl – Managing Director, *volabo GmbH*

09:35 Advanced steering systems using the 48V board net

- Main challenges in steering
- Major architectural options (focusing on power supply)
- Pure 48V and mixed-voltage systems

Dr. András Balogh – CTO E/E Competence Center, *thyssenkupp*

10:10 Towards reliable power supply for highly automated driving

- Functional safety for HAD (highly automated driving)
- Fail-operational systems & reliable vehicle power supply topologies
- Case studies & solutions (applicable product combinations)

Dr. Kay Klobedanz – Product Manager DC/DC, *HELLA GmbH & Co. KGaA*

10:45 Refreshment Break and Networking

48V ENERGY STORAGE AND ENERGY MANAGEMENT TECHNOLOGY

Introduction lecture/Basic class: Accumulator technology
Get updated in accumulator technology and/or revise you knowledge.

11:15 Design considerations for next generation 48V battery systems

- New requirements that are driving system design parameters
- Li-Ion chemistry options
- Design examples of next generation 48V battery systems

Christoph Fehrenbacher – Managing Director, Head of European Tech Center, *A123 Systems*

11:50 The 48V batterie from an OEM`s perspective

Expert invited

12:25 nanoFlowcell Flow Cell Technology - New energy system for mobile 48V application

- The flow cell principle for automotive application
- Challenges and opportunities
- Latest experiences and test results

Nunzio La Vecchia – CEO, *nanoFlowcell*

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DAY 2 | Wednesday 2 OCTOBER 2019

Interactive session: PANEL DISCUSSION

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13:00 The day after Li-ion batteries

- Li-Ion batteries - what`s next?
- New technologies
- Application / Implementation

13:30 Networking Lunch

Interactive sessions: WORKING GROUPS

14:30 The audience will be divided into 3 groups. Each group will attend all 3 interactive working groups.

WORKING GROUP I

Thermal Management:
Possibilities of climate control in 48V mHEVs

- Electric climate compressor or alternatives? Latest techonology
- Concepts of cost redcution
- Aspects of implementation

HOSTED BY: **Dave Rich –** BOM Family Owner 12V – 48V, *General Motors*

WORKING GROUP II

Advanced battery design:
Analysis and discussion of various commercial battery layouts

- Introduction of a number of different battery systems e.g. from Tesla, E.Go, Akasol, Skopos, VW, E-Hang, Lion Smart, and others
- Discussion of suitability under consideration of the following aspects: power density, energy density, cost, safety, redundancy,
- Discussion of techniques for electrical integration (e.g. welding, nano-gel, pressure contact), mechanical integration (e.g. plastic frame,), thermal integration, supervision (BMS)

HOSTED BY: **Dr. Stefan Meyer –** CEO, *Skopos*

Dr.-Ing. Stephan Matz – Manager Battery Systems, *Continental Engineering Services*

WORKING GROUP III

Safety concepts for electrified powertrains from 48V systems to EVs

- Latest achievements to guarantee system safety
- Commonities and differences of mHEV and BEV
- Latest test results and evaluation

HOSTED BY: **Invited Speaker**

16:30 Refreshment Break and Networking

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DAY 2 | Wednesday 2 OCTOBER 2019

17:00 CONTINUING WITH WORKING GROUPS I, II AND III

17:30 Results of the WORKING GROUPS presented by the moderators

17:45 Closing remarks by the conference chairperson

17:55 END OF CONFERENCE

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SPONSORS:

Automotive Electronic Market

Nippon Chemi-Con remains committed to the industry's future – through tireless and unmatched innovation. Through every product development project we have our customer's needs in mind – and are dedicated to supporting them amidst an ever-evolving industry landscape.

What's more, our stringent, regulation-compliant environmental policy strives to minimize our—and our customers' – carbon footprint. So we can promote advanced technology – and protect the planet.

Our products are used in a wide variety of mounted electronics, including the vehicle-mounted chargers installed in EV and plug-in hybrid vehicles and other EV related devices, the electronic circuits used to control engines and steering, as well as SRS airbags, air conditioning, and headlights.

Seeing particular growth in recent years has been sales of products for equipment supporting intelligent vehicles, including advanced driver assistance systems (ADAS) and autonomous driving systems. In addition to electric double layer capacitors (EDLC) for braking energy recovery systems, products for car navigation systems and drive recorders are also included in this category.

WEVO-CHEMIE GmbH are specialists in casting, bonding and sealing. Customized resin systems from Wevo for electrical and electronic components have become indispensable in the automotive, energy, household and engineering sectors. In short, Wevo products ensure safety and efficiency.

Our company history is closely entwined with the development of the automotive industry. From the introduction of the first safety features to assisted driving systems to infotainment – Wevo has been there every step of the way. The transition to hybrid and e-mobility continues to reinforce our position as an integral partner within the automotive industry.

ARE YOU A SUPPLIER IN THIS FIELD?

Would any of the following help you with business goals?

- Improved visibility, exposure and market awareness
- A platform to educate customers and show thought-leadership
- Space to optimize networking and demo products

RedCabin provide relevant suppliers with the opportunity to sponsor or partner with the event in exchange for joining the program actively in a variety of different formats.

Please get in touch with
felix.howes@redcabin.de for more details.

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DATE	2 DAY CONFERENCE INVESTEMENT
ORIGINAL INVESTMENT	2.995 € + VAT

The delegate fee includes the following services:

- Catering during the entire conference
- Access to the purchased conference packages
- Conference documentation
- Evening event

Conference venue:

DRIVE. Volkswagen Group Forum
Unter den Linden 21
10117 Berlin
Germany

DRIVE
VOLKSWAGEN GROUP FORUM

DRIVE. Volkswagen Group Forum offers an exclusive atmosphere in which to enjoy the panoramic view of Boulevard Unter den Linden.
You will have access to the new exhibition on Volkswagen`s electric vehicle fleet and experience future visions.

For attendance and sponsorship (such as agenda contributions, exhibiting, logo displays, evening event etc.) please contact:

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