SIITME 2024

CONFERENCE & EXHIBITION

30th edition

IEEE

International Symposium for Design and Technology in Electronics Packaging

SIBIU, Romania

16th - 19th October 2024

UNIVERSITATEA LUCIAN BLAGA DIN SIBIU

Organized by:

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	Technical University of Cluj Napoca **Faculty of Electronics, Telecommunications and Information Technology** https://www.utcluj.ro
	Association for Promoting Electronics Technology **APTE, IMAPS Chapter Romania** http://www.apte.org.ro
	Continental Automotive Systems Sibiu, Romania https://www.continental.com/
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SIITME 2024

IEEE 30th INTERNATIONAL SYMPOSIUM FOR DESIGN AND TECHNOLOGY IN ELECTRONICS PACKAGING

- CONFERENCE AND EXHIBITION -

October 16 – 19, 2024

SIBIU, Romania

Lucian Blaga University of Sibiu

Contents

WELCOME TO THE IEEE 30TH SYMPOSIUM FOR DESIGN AND TECHNOLOGY IN ELECTRONICS PACKAGING! 1

SIITME 2024 AGENDA 4

WEDNESDAY, OCTOBER 16 PROGRAM 5

Professional Development Courses A 5

Professional Development Courses B 7

Strategic Partnership for Education Workshop 8

SIITME 2024 12

- CONFERENCE & EXHIBITION - 12

SIITME History 13

Keynote Speakers 15

Program in detail 21

SIITME 2024 Committees 41

SIITME 2024 Reviewers 43

SIITME 2024 Posters Assessor Committee 44

Industry 45

Research 56

BRAŞOV WELCOMES SIITME 2025 63

Welcome to the IEEE 30th Symposium for Design and Technology in Electronics Packaging!

As we gather to celebrate three decades of progress, innovation, and collaboration, it is with great enthusiasm that we present this milestone event. Over the past 30 years, this symposium has become a premier platform for bringing together industry experts, researchers, engineers, and students, all of whom share a common passion for advancing the field of electronics packaging. Today, it continues to stand as a beacon of knowledge exchange and technological development in this dynamic and ever-evolving domain.

Electronics packaging is at the heart of modern technology, playing a crucial role in enabling performance, reliability, and sustainability across a wide array of industries—from telecommunications and computing to healthcare, automotive, and aerospace. As we push toward the era of miniaturization, high-performance computing, and sustainable designs, the role of innovative packaging technologies becomes even more critical. This year's symposium theme, "Innovative Packaging Solutions for the Electronics of Tomorrow," reflects our collective focus on addressing these challenges and driving forward cutting-edge solutions.

At this landmark 30th edition, we are proud to present a rich and diverse program that includes keynote addresses from global leaders, technical presentations on emerging trends, workshops, and interactive panel discussions. These sessions will cover a wide range of topics, from advanced materials and thermal management to system-in-package (SiP) technologies, 3D packaging, and the latest advancements in nanotechnology. The symposium will not only provide insights into the current state of the art but also serve as a platform for exploring future directions and collaborations.

This event is also an excellent opportunity for networking, with participants from both academia and industry coming together to share their experiences, challenges, and visions for the future of electronics packaging. Whether you are a seasoned professional, an early-career engineer, or a student eager to learn, this symposium is designed to foster meaningful connections that will shape the trajectory of your work and career.

As we look back on 30 years of innovation, we are reminded of the significant contributions this community has made to the field. From pioneering new packaging techniques to setting industry standards, the knowledge and dedication of professionals like you have helped shape the future of electronics. As we embark on the next era of

advancements, we are excited to see how this symposium will continue to inspire, inform, and ignite new ideas that will drive the industry forward.

On behalf of the organizing committee, we extend our heartfelt thanks to all speakers, participants, sponsors, and volunteers who have made this event possible. Your commitment to excellence has helped elevate this symposium to the prestigious platform it is today.

All of us look forward to an exciting and transformative event filled with insights, innovation, and inspiration!

We wish you all a fruitful, inspiring, and memorable Conference & Exposition days within our friendly Electronics Packaging Community and a pleasant stay in Sibiu, Romania!

Warm regards,

Prof. D.H.C. mult. Paul SVASTA, Ph.D.
SIITME 2024 General Chair
National University of Science and Technology POLITEHNICA of Bucharest, APTE-Association for Promoting Electronics Technology

Prof. Ovidiu A. POP, Ph.D.
SIITME 2024 General Co-Chair
Dean of Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca

Welcome to the 30th edition of the International Symposium for Design and Technology in Electronic Packaging

With a long and successful tradition, the SIITME Conference and Exhibition is hosted for the first time in Sibiu, now in its 30th anniversary edition. A double anniversary as main partner Continental Sibiu celebrates 20 years of successful involvement in the local community and shaping the future of the automotive industry.

Design and technology in electronics packaging is a constant challenge field due to the need of balancing performance, reliability, thermal management, cost and manufacturability while meeting stringent design and environmental constraints. The demand for miniaturization, faster signals and increased power density only adds to the complexity, making this a challenging and evolving field of engineering innovation.

The current edition continues the growth of previous events, as seen in the quantity, diversity and depth of the topics addressed at the conference, including (in no particular order) Emerging Topics in Advanced Packaging, New Components and Manufacturing Technologies, Printed Electronics, Smart Textiles, Healthcare, Sensors, Actuators, Microsystems, Nanomaterials, Nanoelectronics, Embedded Systems, Robotics, Artificial Intelligence, Power Electronics, Thermal Management, Smart Grid and Renewable Energy, Virtual Prototyping, System Validation, Quality Management, Applied Reliability, Testing Failure Diagnosis, Corrosion in Electronics, Challenges in Digitalisation and Global Education for Electronics.

Electronic packaging design requires knowledge of electrical engineering, mechanical engineering, materials science, thermal management, and manufacturing processes. Integrating these different fields into a cohesive design is complex and requires close collaboration among experts.

On behalf of the Local Organizing Committee, I thank all colleagues from partner universities who have submitted valuable papers to SIITME over the years and continue to do so in this edition. Thank you for the participation of the Keynote Speakers, Professional Development Courses Lecturers and Industrial Invited Speakers, whose contribution is essential for the success of SIITME 2024. Also, on behalf of the organizers, I thank the sponsors of this event for their excellent collaboration and support.

With the hope that you will have a pleasant stay and productive discussions, I look forward to creating a very successful event together!

Prof. Maria Vinţan, Ph.D.

SIITME 2024 Chair,
Dean of the Faculty of Engineering,
Lucian Blaga University of Sibiu

SIITME 2024 Agenda

Wednesday, October 16		
08:30	**Registration for PDC**	
09:00 – 10:45	**PDC A**	**PDC B**
10:45 – 11.15	***Coffee break***	***Coffee break***
11:15 – 12:30	**PDC A**	**PDC B**
12:45	**Registration for Education Workshop**	
12.30 – 13.00	***Finger foods***	
13:00 – 16:00	**Strategic Partnership for Education Workshop**	
15:00 – 18:00	**Registration SIITME 2024**	
16:00 – 16:25	**SIITME 2024 Opening ceremony**	
16:30 – 18:30	**Plenary Oral Session 1**	
18:30 – 18:45	***Coffee break***	
18:45 – 19:45	**Industrial Session 1**	
20:00 – 21.30	***Welcome to SIITME, dinner***	
21:30 –	**IEEE – Hu&Ro EPS&NTC Joint Chapter Meeting – members & guests**	
Thursday, October 17		
08:15 – 12:30	**Registration**	
08:40 – 11:00	**Plenary Oral Session 2**	
11:00 – 11:20	***Coffee Break***	
11:20 – 12:40	**Poster Session 1**	
12:40 – 13:40	***Conference Lunch***	
13:40 – 15:40	**Plenary Oral Session 3**	
15:45 – 18:30	***Cultural Program***	
18:30 –	***Conference dinner***	
Friday, October 18		
09:00 – 10:20	**Poster Session 2**	
10:25 – 11:25	**Industrial Session 2**	
11:25 – 11:45	***Coffee Break***	
11:45 – 14:10	**Plenary Oral Session 4**	
14:10 – 15:10	***Conference Lunch***	
15:10– 16:30	**Poster Session 3**	
16:30 – 17:30	**Industrial Session 3**	
17:30 – 17:45	***Coffee Break***	
17:45 – 18:45	**Steering Committee Meeting**	
18:45 – 20:00	***Awarding ceremony; Welcome to SIITME 2025***	
20:00 – 22:00	***Dinner***	
Saturday, October 19		
09:00 – 11:00	**Event retrospective**	

Wednesday, October 16 Program

08:30	Registration for PDC	
09:00 – 10:45	PDC A	PDC B
10:45 – 11.15	*Coffee break*	*Coffee break*
11:15 – 12:30	PDC A	PDC B

Professional Development Courses A

PDC Trainer: **Radu Voina**
Job Position: Founder/CEO
Company: Keytek Innovation
e-mail: radu.voina@keytek.eu

PDC Trainer: **Mihai Dărăban, PhD.**
Job Position: Assistant Professor
Company: Technical University of Cluj-Napoca
email: mihai.daraban@ael.utcluj.ro

Presentation: **"What does a Vector Network Analyzer tell us about our high-speed design?"**

Radu Voina holds a Master's Degree in Applied Electronics (2018) and a Bachelor's Degree in Telecommunications Technologies and Systems (2015) from the Technical University of Cluj-Napoca. He founded Keytek Innovation, a Value- Added Reseller (VAR) for Rhode & Schwarz in Romania and has made a significant impact in mixed-signal board schematics, PCB design, and the analysis of signal and power integrity for high-speed interfaces, utilizing advanced PCB layout and simulation tools. He has also pursued further education in Electromagnetic Compatibility (EMC), Compliance Emissions, and PCB Manufacturing. From 2021 to 2023, Radu supported several preferred partners of Dassault Systèmes in PCB design and simulation using CST Studio Suite. He later founded Optimal Designs Europe, a Value-Added Reseller (VAR) for Dassault Systèmes, providing CST Sales, Support, and Customer Enablement Services.

Mihai Dărăban received the Dipl.-Ing. degree in electronics engineering specialization telecommunication from the Technical University of Cluj-Napoca, and the Ph.D. degree in

electronics and telecommunications from the Applied Electronics Department, Technical University of Cluj-Napoca (UTCN) in 2013. He is currently an Assistant Professor with the Applied Electronics Department, and member of Information Technology in Electronics Research and Development Centre (iTEC), UTCN. His current research interests include signal and power integrity analysis and simulation on high density printed circuit boards, embedded systems and development of Internet of Things application.

Professional Development Courses Outline:

Nowadays, when using the term “network analyzer” the first thing that goes through our mind is Wi-Fi, LAN “networks”, mobile “network” (4G or 5G), or other technologies and devices through which we connect to the World Wide Web. Furthermore, many computers, servers, or even embedded devices are setup in “networks” that are all linked together to the cloud-fog-edge architecture. For each of these “networks” there exists a certain network analyzer tool used to verify performance, map coverage zones and identify problem areas.
This tutorial will present a different kind of network, which was defined long before any of the previous networks existed, and it even contributed to their development. The first Vector Network Analyzer (VNA) was invented around 1950 and was defined as an instrument that measures the frequency response of a component or a network composed of many components, which can be both passive and active. A VNA measures the power of a high-speed signal going into and coming back from a component or a network, because power, in contrast to voltage and current, can be measured accurately at high frequencies. Both amplitude and phase of the high-frequency signal are captured at each frequency point. The built-in computer in the VNA calculates key parameters such as return loss and insertion loss of the network under test (scattering parameters or S-parameters). S-parameters are important parameters that characterize the electrical behavior of linear circuits, or more specifically, the input/output relationships of circuits between ports. Network analyzers can also measure Y-parameters, Z-parameters, and H-parameters. These parameters are used to characterize the electrical behavior of nonlinear circuits. By measuring these parameters, network analyzers can help engineers understand how their circuits will behave under different conditions. VNA measurements are key aspects in designing high speed channels and solving power integrity issues on printed circuit boards.

Course Outline:

- Scattering or S-parameters
- Introduction to Vector Network Analysis
- Time Domain and Frequency Domain Network Analysis compared
- Time Domain Reflectometer, Scope, Spectrum analyzer, VNA
- What a VNA can tell us
- Setup a VNA measurement
- When, Why, and how to calibrate a VNA
- What is De-embedding
- Tips and tricks that can improve your measurement and protect your equipment

Professional Development Courses B

PDC Trainer: **Simon Broadhurst**
Job Position: European sales director
Company: Kulicke & Soffa
e-mail: sbroadhurst@kns.com
Presentation: ***"*Wire bonding technologies and their relevance and applications in future packaging trends"**

Overview:

As the packaging landscape rapidly changes, this tutorial looks to examine the different variations of modern wire bonding interconnect.

How relevant these solutions are to the next generation of automotive and consumer packages.

As well as the direction of other interconnect solutions within the modern mass production packaging space.

Content outline:

- Market analysis of packaging trends
- Wire bond vs flip chip unit growth to 2028
- What is wire bonding
- The methodology of wire bonding
- Wire bonding capabilities to address packaging towards 2030
- Vertical interconnect solutions
- Heterogeneous integration for chiplets
- Thermo compression bonding and its challenges
- Fluxless Thermo compression bonding for AI Accelerators

Presenter:

Simon Broadhurst, BEng Hons in manufacturing engineering.

Currently the European sales director for Kulicke and Soffa, with over 25 years of process and application experience in backend packaging technologies in Europe and Asia

Email: sbroadhurst@kns.com
Web: https://www.kns.com/

Strategic Partnership for Education Workshop

Collaboration of ASA, TRIREME, FLAMENCO, and ECS Academy

Wednesday, October 16th, 2024
Sibiu, Romania

The workshop is a collaborative effort, with the main goal being to discuss current needs in education, skills, and workforce in the field of electronics, electronics packaging, and microchips, with implications on the automotive-mobility sector. This discussion will take place during the 30th annual SIITME Conference in Sibiu, Romania.

The conference is organized by the TRIREME project, partner APTE – Association for Promoting Electronics Technology. The specific workshop will be organized in partnership with APTE, Transilvania IT Cluster, ITC, and Automotive Skills Alliance (ASA), as well as partners from multiple project partnerships, such as TRIREME, FLAMENCO[1], and ECS Academy – Infineon and SEMI Europe.

[1] FLAMENCO (project-flamenco.eu)

13.00 - 13.05 **Introduction of the Workshop**

Moderators:

***Bogdan MIHĂILESCU**, Association for Promoting Electronics Technology and Automotive Skills Alliance*

***Marius TUDOR,** ITC and Automotive Skills Alliance*

13.05 – 13.35 **Keynote Speech**

***Stefan CHITORAGA**, Yole Group*

Current challenges and trends in the electronics sector with the outreach to automotive-mobility sector and other related sectors with the focus on up-/re-skilling, education and training, as well as skills needs.

13.35 – 15.50 **Panel Discussion**

- ***Stefan CHITORAGA**, Yole Group*
- ***Cosmin MOISA**, Continental Automotive, Timișoara, Romania*
- ***Radu PREDA**, Manager of Partnerships under Subsidy Projects NXP Semiconductors Romania*
- ***Dunja SUTTNIG**, Funding Project Manager HR / Talent at Infineon technologies Austria*

How the aforementioned challenges and current transition of the sector are tackled by the companies and other organizations in the field of education and other (speakers). What are the good practices and possible issues that are being tackled?

15.50 – 16.00 **Summary and Close of the workshop**

***Bogdan MIHĂILESCU**, Association for Promoting Electronics Technology and Automotive Skills Alliance*

***Marius TUDOR,** ITC and Automotive Skills Alliance*

Panel speaker: **Dunja Suttnig**
Job Position: Talent Funding Project Manager
Company: Infineon Technologies Austria AG
Presentation: "**European Chips Skills Academy project – bridging the skills gap in microelectronics"**

Dunja has 13-year track record of delivering results-driven projects in personnel management, adult education, lifelong learning, talent development, skills enhancement, and business performance improvement. Currently, she serves as a project manager at Infineon Technologies Austria, where she has spent the last three years overseeing EU-funded projects focused on talent development, up-skilling, re-skilling, and bridging knowledge gaps in the microelectronics industry. Her primary objective is to promote STEM education and careers in the semiconductor sector among young generations, as well as create engaging content for learners to address existing knowledge gaps. In addition, Dunja is an Associate Member of the esteemed Chartered Institute of Personnel and Development (CIPD) in the United Kingdom, further solidifying her expertise in the field of human resources and development.

Abstract:

The European Chips Act is intended to raise the European microchip industry to a new level, with several billion euros are being invested in the construction of new semiconductor production facilities in Germany, Poland and Italy, among others. For the operation of these new high-tech facilities, a large number of engineers and technicians are needed, and so far, it is unclear where they will come from. The electronics sector already lacks qualified personnel – in Austria alone, 14,000 additional skilled workers are needed, and Europe-wide estimates range from 60,000 to 150,000.

The European Chips Skills Academy (ECSA or ECS-Academy) is a dynamic and forward-looking project supported by the European Union through the Erasmus+ program. Operating within the framework of the "Alliances for Sectoral Cooperation on Skills", ECSA's consortium is on a strategic four-year mission to address the pressing challenges faced by the microelectronics industry on the road towards the digital transition in Europe. ECSA's goal is ambitious yet straight forward: to bridge the gap between education and industry and foster innovative programs that confront this challenge head on. How? By establishing a robust platform for dialogue, strategic planning, and decisive action in the realms of skills development, skills anticipation, upskilling, and reskilling of the workforce. Success of this and similar projects lies in cooperation and exchange between educational institutions, research organizations and industry.

Industrial Invited Speakers

Name: **Cosmin Moisa**
Job Position: Head Microelectronics Integration Technology Organisation Timisoara
Company: Continental Automotive Romania
e-mail: Cosmin.Moisa@continental-corporation.com

Cosmin Moisa – studied between 1999 – 2006 Electrical Engineering at Politehnica University of Timisoara with a diploma stage with a 6-month contract at the "Fraunhofer Institute for Manufacturing Engineering and Automation" IPA in Stuttgart, Germany. In 2005, he started as Hardware Engineer at Siemens VDO, Timisoara. Since 2010, he joined the Interconnection Techniques in Electronics (TIE) contest as General Industrial Co-Chair and the IEEE International Symposium for Design and Technology in Electronic Packaging (SIITME) as Conference Co-Chair. In 2011, he started as Head of Department for Hardware and System Engineering. Between 2012 – 2019 he was Associated Lecturer and coordinator for the external class Development of Electronic Products. Between 2015-2022, he was heading the Product Development Center, Camera and Interior Sensing Timisoara. In 2020, he co-organized and hosted the kick-off for the IEEE Hungary & Romania EPS & NTC Joint Chapter. He started in 2021 as IEEE Romania Section Industry Ambassador. He was nominated in 2021 as the Secretary of the Working Group Microelectronics under the Aegis of the Romanian Academy.

Name: **Radu Preda**
Job Position: Manager of Partnerships under Subsidy Projects
Company: NXP Semiconductors Romania
e-mail: radu.preda@nxp.com

Radu Preda received his engineering diploma in Computer Science in 1996, from the Military Technical Academy, Bucharest, Romania. In 2012 he graduated the Executive Master of Business Administration from ASEBUSS, Romania and Kennesaw State University, GA, USA. He is experienced in developing embedded systems, with focus on real time applications. Radu had multiple management roles with NXP Semiconductors (previously Motorola, then Freescale Semiconductors) and Fotonation, with contributions to developing new business based on innovative products. He is a promoter of entrepreneurship and intrapreneurship in multicultural environments.

SIITME 2024

- Conference & Exhibition -

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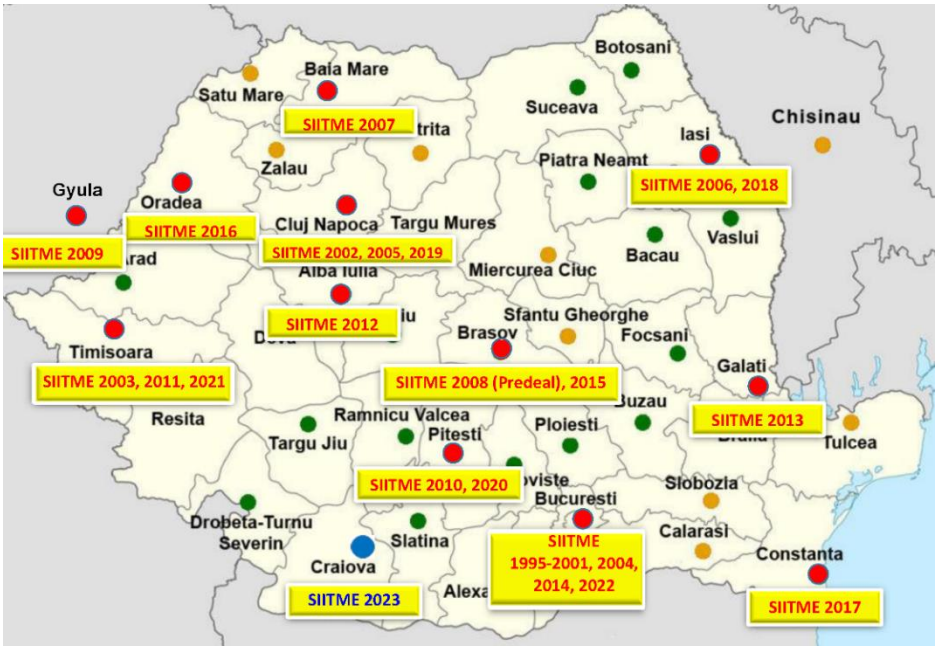
SIITME History



SIITME 1995, CAE-CAD-CAM Technologies in Electronic Modules Design, UPB, Bucharest, Romania

SIITME 1996, The 2nd International Seminar for Informatics and Technology in the domain of Electronic modules, 23-24 October 1996, Bucharest, Romania

SIITME 1997, The 3rd International Seminar for Informatics and Technology in the domain of Electronic modules, 22-23 October 1997, Bucharest, Romania

SIITME 1998, The 4th International Symposium for Informatics and Technology in Electronic Modules Domain, September 22-24 1998, Bucharest, Romania

SIITME 1999, The 5th International Symposium for Design and Technology in Electronic Modules, September 23-26 1999, Bucharest, Romania

SIITME 2000, The 6th International Symposium for Design and Technology for Electronic Modules, September 21-24, 2000, Bucharest, Romania

SIITME 2001, The 7th International Symposium for Design and Technology of Electronic Modules, September 20-23, 2001, Bucharest, Romania

SIITME 2002, The 8th International Symposium for Design and Technology of Electronic Modules, September 19-22, 2002, Cluj-Napoca, Romania

SIITME 2003, The 9th International Symposium for Design and Technology of Electronic Packages, September 18-21, 2003, Timişoara, Romania

SIITME 2004, The 10th International Symposium for Design and Technology for Electronic Modules, September 23-26 2004, Bucharest, Romania

SIITME 2005, International Symposium for Design and Technology of Electronic Packaging, 11th Edition, September 22-25, 2005, Cluj-Napoca, Romania

SIITME 2006, International Symposium for Design and Technology of Electronic Packaging, 12th Edition, September 21-24, 2006, Iaşi, Romania

SIITME 2007, International Symposium for Design and Technology of Electronic Packaging, 13th Edition, September 20-23, 2007, Baia Mare, Romania

SIITME 2008, International Symposium for Design and Technology of Electronic Packaging, 14th Edition, September 18-21, 2008, Predeal, Romania

SIITME 2009, 15th International Symposium for Design and Technology of Electronic Packages, 17-20 September 2009, Gyula, Hungary

SIITME 2010, 16th International Symposium for Design and Technology in Electronic Packaging, September 23-26, 2010, Piteşti, Romania.

SIITME 2011, IEEE 17th International Symposium for Design and Technology in Electronic Packaging, October 20-23, 2011, Timişoara, Romania.

SIITME 2012, IEEE 18th International Symposium for Design and Technology in Electronic Packaging, Alba Iulia, Romania

SIITME 2013, IEEE 19th International Symposium for Design and Technology in Electronic Packaging, Galati, Romania

SIITME 2014 IEEE 20th International Symposium for Design and Technology in Electronic Packaging, October 23–26, 2014, Bucharest, Romania

SIITME 2015 IEEE 21st International Symposium for Design and Technology in Electronic Packaging, October 22-25, 2015, Brasov, Romania

SIITME 2016 IEEE 22nd International Symposium for Design and Technology in Electronic Packaging, October 20-23, 2016, Oradea, Romania

SIITME 2017 IEEE 23rd International Symposium for Design and Technology in Electronic Packaging - October 26-29, 2017, Constanta, Romania

SIITME 2018 IEEE 24th International Symposium for Design and Technology in Electronic Packaging - October 25–28, 2018, Iași, Romania

SIITME 2019 IEEE 25th International Symposium for Design and Technology in Electronic Packaging - October 23–26, 2019, Cluj-Napoca, Romania

SIITME 2020 IEEE 26th International Symposium for Design and Technology in Electronic Packaging - October 21–24, 2020, Pitești, Romania – On-line edition

SIITME 2021 IEEE 27th International Symposium for Design and Technology in Electronic Packaging - October 27–29, 2021, Timișoara, Romania – On-line edition

SIITME 2022 IEEE 28th International Symposium for Design and Technology in Electronic Packaging, October 26–29, 2022, Bucharest, Romania

SIITME 2023 IEEE 29th International Symposium for Design and Technology in Electronics Packaging - Conference and Exhibition, October, 18 – 21, 2023, Craiova, Romania

Keynote Speakers

Name: **Syhem LARGUECH, Ph.D.**
Job position: Application Engineer
Company: Cadence Design Systems
e-mail: syheml@cadence.com
Presentation: **"Advanced IC packaging in the context of multi-chiplet based architectures"**

Syhem LARGUECH received the Dipl.-Ing. degree in electrical engineering from the National Engineering School of SFAX (ENIS), Sfax, Tunisia, in 2012. She earned a PhD degree in Microelectronic Systems from the University of Montpellier, Montpellier, France, in 2015. In 2016, she joined the Interuniversity Microelectronics Centre (IMEC), where she was involved in IC package design and electrical analysis for various applications such as space and high speed. Since September 2019, she has been with Cadence Design Systems in Munich, Germany, where she currently works as an application engineer, supporting Cadence users in the development of their IC packaging projects. She is also actively engaged in the design of advanced IC packages for Cadence's internal hardware products, such as the Palladium platform. Her primary interests revolve around advanced IC packaging technologies, modelling of IC packaging structures, and multi-fabric co-design automation.

Abstract:

The semiconductor industry is moving from monolithic chips to the world of 3D-IC, chiplets and stacked silicon and wafers. Advanced systems-on-chip (SoCs) are reaching reticle size limits, and as many companies now realize, simply following Moore's Law alone (More Moore) is no longer the best technical and economical path forward for the next wave of designs. As we approach the device scaling limitations at advanced nodes, the demand on compute performance and data transfer is at an all-time high. There has been a need to find innovative solutions to continue Moore's law scaling and achieve performance improvements with reduced power.

The semiconductor packaging industry is now poised to take on a larger, more significant role in electronic product design of the future. Stacking chips in the same package (3D) and a multi-chiplet system with silicon interposer on the same package (2.5D) are emerging as solutions of choice, which come with their own challenges.

To meet the market demand of the heterogenous chiplet-based architectures, new system level design methodologies are required, targeting system-level Power, Performance and Area (PPA). The Cadence Integrity 3D-IC platform is the industry's first integrated solution for system planning, implementation, and accurate early analysis. It leverages Cadence's industry-leading implementation and signoff technologies for digital, analog, and packaging through a unified hierarchical database.

Name: **Mircea GUINA, Ph.D.**
Job position: Professor of Semiconductor Technology
Company: Tampere University, Finland
e-mail: mircea.guina@tuni.fi
https://research.tuni.fi/orc
www.linkedin.com/in/mircea-guina
Presentation: **"Emerging microelectronics platforms based on hybrid integration"**

Prof. Mircea GUINA leads the Optoelectronics Research Centre at the Tampere University, Finland. He obtained the BSc degree (1996) in microelectronics and MSc degree (1997) in photonics from "Politehnica" University of Bucharest, and the PhD degree (2002) in physics at Tampere University of Technology. Prof. Guina's research is focused on developing compound semiconductors for optoelectronics using molecular beam epitaxy, and advanced photonic devices. He has made significant contributions to the development of novel semiconductor lasers, photonic integration technology, photovoltaics, quantum photonics, and laser applications. Prof Guina is a Fellow of Optica, and a Fellow of SPIE.

Abstract:
While the decrease in the front-end technology node for Si-based microelectronics is experiencing a clear saturation at nm level, the progress in terms of chip functionality continues at a sustained pace. This is fuelled by the development of advanced packaging concepts, such as 3D integration and interposer technology, as well as the increased ability to combine functionalities provided by different material systems and technologies. To this end, the integration of electronic and photonic components has gained increased interest, benefiting from a tremendous market pull in appliactions such as data center tranceivers, wearable sensors, virtual reality, AI, or neuromorphic computing. From this perspective, the recent progress in the development of hybrid photonic integrated circuits is reviewed, starting with an overview of the major trends in advanced packaging concepts. The synergy with CMOS microelectronics as a path to deliver advanced functionality is emphasized. Detailed technology developments and application examples are discussed for hybrid integration of emerging III-V optoelectronics and silicon-photonics.

Name: **Philipp Weigell, Ph.D.**
Job Position: Vice President of the Market Segment Industry, Components, Research and Universities
Company: Rohde & Schwarz
e-mail: philipp.weigell@rohde-schwarz.com
Presentation: *"*Challenges and Solutions in Building AI Data Centers: A Component-Level Perspective"

Dr. Philipp Weigell is the Vice President of the Market Segment Industry, Components, Research and Universities at Rohde & Schwarz, a leading manufacturer of test and measurement equipment. He has been with the company since 2013, when he joined as a Product Manager for Oscilloscopes.

He holds a PhD in Physics from the Technical University of Munich, where he conducted research on high energy physics instrumentation at the ATLAS experiment at the LHC at CERN. He has authored and co-authored several publications and patents in the field of high energy physics, instrumentation, power electronics and measurement technology.

Dr. Weigell has a strong background in physics and electrical engineering, with a focus on developing innovative solutions for applications, such as battery testing, high-speed digital compliance testing, renewable energy and particle accelerators. He is also an expert on the semiconductor ecosystem. Dr. Weigell is a frequent speaker at industry events and trade shows, where he shares his insights and vision on the latest trends and challenges in the power products market. He is passionate about delivering high-quality products that meet the needs and expectations of customers worldwide.

Abstract:

In the rapidly evolving landscape of artificial intelligence, the demand for robust and efficient data centers is at an all-time high. This keynote delves into the intricate challenges and innovative solutions involved in constructing AI data centers from a component-level perspective.

Building AI data centers involves overcoming technical hurdles, particularly in high-speed component integration and power management. High-speed components are vital for ensuring low latency and high bandwidth, essential for AI workloads. This presentation will explore challenges and solutions in semiconductor technology, interconnect design, power management, and power integrity techniques that ensure optimal performance and reliability.

Powering AI data centers presents another significant challenge due to immense energy consumption. Efficient power conversion and management are essential for maintaining operational efficiency and sustainability. We will discuss pioneering approaches and their associated challenges for EMC (electromagnetic compatibility) and testing.

Through an examination of these component-level issues, and by presenting case studies and cutting-edge test and measurement solutions, this keynote aims to provide valuable insights for engineers, researchers, and industry professionals. Attendees will gain a deeper understanding of the fundamental components required to construct next-generation AI data centers, equipping them to push the boundaries of AI infrastructure development.

This presentation will be particularly beneficial for specialists in electronic packaging and design technologies who are looking to enhance their understanding of the technicalities and solutions critical to the success of AI data centers.

Keynote speaker: **Stefan Chitoraga**
Job Position: Technology & Market Analyst specializing in semiconductor Packaging and Assembly
Company: Yole Group
e-mail: stefan.chitoraga@yolegroup.com
Presentation: "Advanced Packaging Market Outlook, technology trends and how Europe positions itself for this business"

Stefan Chitoraga is Technology & Market Analyst specializing in Semiconductor Packaging. Within the Manufacturing & Global Supply Chain activities at Yole Group, Stefan is focused on advanced packaging platforms and processes, substrates, and PCBs. He is involved daily in the production of technology & market products and custom consulting projects.
Prior to Yole Group, Stefan served as a package design engineer at Teledyne E2V for 4 years, where he oversaw the ceramic package and glass lid development for image sensors, developing mechanical design, routing, electrical and thermal simulations. Furthermore, he spent 2 years at STMicroelectronics where he developed a new IC Substrate design, for organic package for SerDes applications.
Stefan holds a Bachelor's in electronics and computer science for industry applications from the Polytech Grenoble (France).

Abstract:

Advanced Packaging has become critical and effective increasing device performance and bandwidth, reducing the gap between Si and PCB. This keynote delves into the Advanced Packaging Market Outlook and technology trends. On top of that an analysis related to Europe's position in this business will be discussed.

There is a strong growth in high-performance computing, cloud computing, networking, artificial intelligence, autonomous driving, and personal computing applications. Simultaneously, there are die power improvements at escalating cost associated with more advanced nodes, resulting in bigger and more complex dies. These trends triggered semiconductor industry to strategize system-level scaling with high-end packaging solutions instead of purely scaling FE advanced nodes. Heterogeneous integration is a potential path forward to optimize the scaling cost by partitioning SoC chips and scale only those most critical circuit blocks. Therefore, advanced packaging technologies with high interconnection density, high bandwidth, and high-power efficiency are needed. Chiplet & Heterogeneous integration is a potential path forward to optimize the scaling cost by partitioning SoC chips and scale only those most critical circuit blocks. Therefore, advanced packaging technologies with high interconnection density, high bandwidth, and high-power efficiency are needed.

This presentation will be particularly beneficial for specialists in electronic packaging who are looking to enhance their understanding of the market and technology trends as well as market outlook for advanced packaging.

Industrial Invited Speaker

Name:	**Nicolae Gross**
Job Position:	Test engineer and hardware development engineer
Company:	Continental Automotive Systems
e-mail:	nicolae.gross@continental-corporation.com
Presentation:	Electronic component qualification for the automotive industry

Nicolae Gross – Electronic engineer, best of graduates in 1996 of Technical University of Cluj-Napoca (Romania), Applied Electronics. He works in automotive industry, as test engineer and hardware development engineer, with more than 20 yearsof experience. Since 2006 is employee of Continental Automotive Systems Sibiu, his activity was focused mostly on **test equipment development**, from concept definition to final assembly and delivery to the customer. He is in charge of coordinating a team of development engineers which develop not only the hardware equipment, but also the automation sequences for prototype testing and production line test equipment.

Abstract: For more than 20 years, Continental Sibiu is a top manufacturer for automotive electronics and development center of electronic systems of passenger cars. The company has more than 4000 employees, three buildings for research and development and six manufacturing modules. All the products developed or manufactured here have a common feature – they use automotive qualified electronic components. This is one of the basic requirements for any electronic automotive product – to use only such kind of components. The reason resides from the complexity of the electrical and electronic systems in modern vehicles and the environment they work in. The increased complexity leads to a higher risk of failure, both random and systematic defects.

One of the measures to improve safety, respectively to reduce the risk of failure, is the use of electronic components qualified for use in the automotive harsh environment. In this regard, the AEC-Qxxx documents have been established by the AEC (Automotive Electronic Council) Technical Committee. These documents define the electronic component qualification requirements, to be used by the component manufacturers. Also, they include various guidelines and test methods. In this lecture we will walk together through the main phases of the qualification of electronic components for the automotive industry, such as integrated circuits, discrete semiconductors, optoelectronics, sensors, and passive components. For each component type, the corresponding AEC-Qxxx document defines a set of failure mechanism-based stress tests and provides the qualification requirements.

Program in detail

Wednesday, October 16

16:00 – 16:25 **Opening ceremony SIITME 2024, Welcome words**
EEST | GMT +3h

Ovidiu Aurel POP, *Dean of Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Romania*
Maria VINŢAN, *Dean of the Faculty of Engineering, Lucian Blaga University of Sibiu, Romania*

16:30 – 18:30 **Plenary Oral Session 1**
EEST | GMT +3h

Session Chair: Dorin PETREUȘ, Technical University of Cluj-Napoca, Romania
Session Co-Chair*:* Constantin PALEOLOGU, POLITEHNICA of Bucharest, Romania

K1 Challenges and Solutions in Building AI Data Centers: A Component-Level Perspective
Philipp Weigell
Rohde & Schwarz

ID51 Low-Frequency Dielectric Tests of PLA/Flax Sustainable and Degradable PCB Substrates
G. Attila[1)], Cs. Farkas[1)], O. Krammer[1)], A. Csiszár[2)] and Z. Á. Tamus[3)]
1) Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary
2) Meshlin Composites Zrt., Győr, Hungary
3) Department of Electric Power Engineering, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary

ID68 New Evaluation for Thermal Diffusivity of High-Power Devices with Different Packages
C. R. Mitulescu, N. Codreanu, M. Mares, B. Mihailescu and P. Svasta
Department of Electronics Technology and Reliability, Center for Technological Electronics and Interconnection Techniques, Faculty of Electronics, Telecommunications, and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Romania

ID111 Influence of the Electrodes Porosity on the Supercapacitors Charging Performance
D. Ionescu[1)], and M. Kovaci[2)]
1) Department of Telecomm. and Information Technologies, “Gh. Asachi” Technical University of Iasi, Romania
2) Department of Communications, Politehnica University of Timisoara, Romania

ID86 Enclosure with Underground Passive Cooling System for High Power Vehicle Charging Station

M. Dubey and Prof. Dr.-Ing. O. Kreutzer
Research Centre Modern Mobility, Deggendorf Institute of Technology, Deggendorf, Germany

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18:45 – 19:45 **Industrial Session 1**
EEST | GMT +3h

Session Chair: Aurelian KOTLAR, Eberspaecher, Romania
Session Co-Chair: Laszlo REDEY, Deery Brook SRL, Romania

Continental Automotive Systems Sibiu **ICCO EMT**

Rohde & Schwarz

Thursday, October 17

08:40 - 11:00 **Plenary Oral Session 2**
EEST | GMT +3h

Session Chair: Cătălin CIOBANU, Transilvania University of Brasov, Romania
Session Co-Chair: Bálint MEDGYES, Budapest University of Technology and Economics, Hungary

K2 Advanced Packaging market Outlook, technology trends and how Europe positions itself for this business

Ștefan CHITORAGA
YOLE Group

ID13 TIE M CAD Design Challenge

A.Falk, M. Demian
[1)] Continental Autonomous Mobility, Timisoara, Romania

ID16 TIE-Thermal Plus: Power Electronics and Thermal Management

M. Al.-Gabriel[1),3)], C. Dragan[1) 3)] and Const. Popescu[2)]
1) Continental Automotive Timisoara 2) Continental Autonomous Mobility Romania, Timisoara
3) Polytechnic University of Timisoara

ID107 Technologies of Interconnections in Electronics – Signal and Power Integrity Student Contest

M. Daraban[1)], M. Manofu[2)], R. Voina[3)]
1) Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania
2) Up-Skill Engineering Education Association, Timisoara, Romania
3) Keytek, Alba-Iulia, Romania

ID5 A Reference Architecture for Deployment Strategies of Large Language Model Applications in an Industrial Environment

Felix Mahr[1], Giulia Angeli[2], Till Sindel[1], Konstantin Schmidt[2], Jörg Franke[1]
[1)] Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Institute for Factory Automation and Production Systems (FAPS), Germany
[2)] Siemens AG, Amberg, Germany

11:20 - 12:40 Poster Session 1 (Starts with a pitching session)

EEST | GMT +3h

Session Chair: Attila GECZY, Budapest University of Technology and Economics, Hungary
Session Co-Chair: Laurențiu IONESCU, POLITEHNICA of Bucharest, University Center of Piteşti, Romania

ID1 P1.1 Evaluating the Knowledge in Test Engineering Education using a Solar-powered Remote-controlled Flying Probe-Inspired In-Circuit Tester

S. L. Jurj[1)], R. Rotar[1)], I. Brîncovan[2)], Flavius Opriţoiu[1)], and M. Vlăduţiu[1)]
1)Computers and Information Technology, Politehnica University, Timişoara, Romania
2) Automation and Applied Informatics, Aurel Vlaicu University, Arad, Romania

ID3 P1.2 Comparing large language model artificial intelligence tools in aid of electrical engineering

Z. Tafferner, A. Géczy
Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary

ID14 P1.3 The importance of using advanced modeling and simulation tools during the pre-production stage to accomplish the industry requirements

A. G. Mătuşa[1)], M.C. Mareş[1)], S. Nuţu[1)], P. Svasta[1)] and S.M. Porumbel[2)]
1) National University of Science and Technology Politehnica Bucharest, Romania
2) The Academy of Economic Studies Bucharest, Romania

ID15 P1.4 Signal Integrity analysis of a Molded Flip-Chip Scale Package

Ș. C. Nuțu, A. G. Mătușa and P. Svasta
National University of Science and Technology Politehnica Bucharest, Romania

ID25 P1.5 Thermoelectric Behavior Simulation in Electronic Systems

A. Grama, A. Fodor, C. Davidas, and E. M. Stetco
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID53 P1.6 Application of IoT Technologies as a University Project for Students: Challenges and Possibilities

Ts. Mladenova, I. Valova
Computer Systems and Technologies, University of Ruse, Ruse, Bulgaria

ID64 P1.7 Addressing the Skills Gap in Microelectronics –Development and Validation of Reactive Response in the Project European Chips Skills Academy

A. Gharaibeh[1)], O. Krammer[1)], and V. Cummings[2]
1) Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary
2) SEMI Europe, Brussels Office, Brussels, Belgium

ID83 P1.8 Development of Automotive-mobility Training in the TRIREME project

B. Medgyes[1)], C. Farkas[1)], M. Spanyik[2)], S. Danieli[3)], E. Cantiani[3)], J. Stolfa[2)]
1) Budapest University of Technology and Economics, Faculty of Electrical Engineering and Informatics, Department of Electronics Technology, Budapest/Hungary
2) VSB – Technical University of Ostrava, Faculty of Electrical Engineering and Computer Science, Department of Computer Science, Ostrava/Czech Republic
3) Mylia – Adecco Formazione, Milan/Italy

ID19 P1.9 TIE-M Plus: Alignment of Higher Education with Labor Market Demands

D.A.Chiuariu, M.O.Babaliga, and V.Paleu
Faculty of Mechanical Engineering, Gheorghe Asachi Technical University of Iasi, Iasi, Romania

ID67 P1.10 Education 5.0: Transforming Engineering Education in the Age of Generative AI

M. I. Ciolacu[1)], C. Marghescu[2)], M. Sorecau[3)], B. Mihailescu[2)], E. Sorecau[4)], P. Becht[4)],
1) APTE, Bucharest, Romania
2) National University of Science and Technology Politehnica Bucharest, Bucharest, Romania
3) Technical University of Cluj Napoca, Cluj Napoca, Romania
4) Land Forces Academy “Nicolae Balcescu”, Sibiu, Romania

ID9 P1.11 Optimizations of the Packaging of Li-Ion Battery Packs for Increasing Preconditioning Efficiency

R. Jánó, A. I. Ilieș, Al. Fodor
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID10 P1.12 IoT Devices for Monitoring and Analysing Air Quality in Urban Environments

R. Jánó, A. I. Ilieș, E. M. Ștețco, Co. Corcheș[1)]
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID11 P1.13 Advancing Forest Conservation: IoT Devices for Monitoring the Wellbeing of Ecosystems

R. Jánó, A.I. Ilieș, E.M. Ștețco
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID55 P1.14 An interactive visualisation tool for circular economy and building materials recovery

I. Cosma, I. Petre, G. Suciu, C. Stalidi, C. Bolocan, O.-M. Guse
Research & Development, BEIA Consult International, Bucharest, Romania

ID98 P1.15 Signal Integrity Analysis on eMMC Interface

O.-Const. Axinte, and M. Daraban
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID99 P1.16 Power Integrity Analysis of a Power Line Between a DDR4 Memory and a Controller

Marina Alex-Ioan, and M. Daraban
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID122 P1.17 Electronic Device Price Prediction using Machine Learning

R. S. Streitferdt, A. Taut, G. Chindris
Applied Electronics Department Technical University of Cluj-Napoca

ID110 P1.18 DeFraudify4ALL: Prototyping and Validation of a System for Fraud Detection with Big Data and Cloud Technology

E. C. Popovici, C. Stalidi[1)], D. A. Teodoras[1)], G. Suciu Jr.[1)], I. Cosma[1)]
Telecom Department, Politehnica University Bucharest, ETTI Faculty, Bucharest, Romania
1) R&D Department, BEIA Consult International, Bucharest, Romania

ID2 P1.19 IOT Based Fuel Track System

R. Jegadeesh Kumar, M. Lohith, S. Navienvijayaraj, S. Vignesh, D.Akash
Department of EEE Karpagam College of Engineering, Coimbatore, India

ID6 P1.20 Hardware solution performance metrics for audio file compression testing

S. A. Arghirescu, I. C. Bacivarov
National University of Science and Technology Politehnica Bucharest, Bucharest, Romania

ID7 P1.21 Smart Solutions for Sustainable Urban and Food System Development

A.B. Danila, R.A. Streche, O. Orza, F.E. Osiac, C.M. Dobre and G. Suciu
R&D Department, BEIA Consult International, Bucharest, Romania

ID8 P1.22 AI Tools introduced in Software Development. Analysis of Code quality, Security and Productivity Implications

A.-M. Dincă, G. A. Tod-Răileanu, S.-D. Axinte and I. C. Bacivarov
Faculty of Electronics, Telecommunications and Information Technology, National University Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID22 P1.23 Signal Integrity Analysis and Channel Reach Extension for a PCIe 3.0 Digital Interface using CST Studio and Altium Designer

C. I. Oprita[1)], I. C. Voiculescu[1)], R. C. Niculesc[1)] and L. Viman[2)]
1) Engineering DX Central Compute, Robert Bosch, Cluj-Napoca, Romania
2) Applied Electronics, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID92 P1.24 Remote controlled automatic test bench

A. G. Zimbru, S. Lica, and I. Lie
Applied Electronics Department, Politehnica University, Timisoara, Romania

ID95 P1.25 Stand for testing the lifetime of an automotive electronic module

T. A. Vîlceanu, I. Zimța, S. Lica, and I. Lie
Applied Electronics Department, Politehnica University, Timisoara, Romania

ID97 P1.26 A Cloud Computing Solution for Quality Management Systems in Multi-Site Enterprises

N. Ionescu[1)], L. Știrbu[2)], L.M. Ionescu[3)], C. Știrbu[3)] and A.G. Mazăre[3)]
[1)]Manufacturing and Industrial Management Department, University POLITEHNICA Bucharest, Pitești, ROMANIA
[2)] ELCOS LIGHT, Pitești, ROMANIA
[3)] Department of Electronics, Computers and Electrical Engineering, University POLITEHNICA Bucharest, Pitești, Romania

ID113 P1.27 A Blockchain Solution for Risk Management in Industry

L.M. Ionescu[1)], N. Ionescu[2)], M.D. Bondoc[3)], I. Grecu[4)], A.G. Mazăre[1)] and C. Știrbu[1)]
1) Department of Electronics, Computers and Electrical Engineering, University POLITEHNICA Bucharest, Pitești, Romania

2)Manufacturing and Industrial Management Department, University POLITEHNICA Bucharest, Pitești, Romania
3) Department of Finance, Accounting and Economics, University POLITEHNICA Bucharest, Pitești, Romania
4) Department of Management, University POLITEHNICA Bucharest, Romania

ID20 P1.28 EMI numerical simulations and measurements of spread spectrum frequency modulation by an automotive boost LED driver

L. Frate, A. Avram[1)], and I.M. Purcar[2)]
Department of Electrotechnics and Measurements, Technical University of Cluj-Napoca, Cluj Napoca/Romania
1) Department of Informatics, Mathematics and Electronics, "1st of December 1918" University of Alba Iulia, Alba Iulia/ Romania
2) Department of Electrotechnics and Measurements, Technical University of Cluj-Napoca, Cluj Napoca/ Romania

ID71 P1.29 Understanding Electrochemical Migration Behavior in Fe2O3-Enhanced SAC Lead-Free Alloys

A. Gharaibeh, A. Dayoub, and B. Medgyes Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary

ID87 P1.30 Considerations regarding environmental testing of a solderless assembly for electronics module

G. Varzaru, R. Tulea, B. Mihailescu[1)], M. Branzei[2)], and P. Svasta[1)]
Syswin Solutions, Bucharest, Romania
1) Electronic Technology and Reliability Department, Center for Electronic Technology and Interconnection Techniques (CETTI), National University for Science and Technology Politehnica, Bucharest, Romania
2) Research and Expertise Center for Special Materials (CEMS), National University for Science and Technology Politehnica Bucharest, Romania

ID90 P1.31 Reliability Challenges in Nanoelectronic Devices

T. A. Al Ali, and K. A. Alzarooni[1)]
Operation Technology, Dubai Electricity and Water Authority, Dubai, UAE
1) Operation Technology, Dubai Electricity and Water Authority, Dubai, UAE

ID114 P1.32 Increasing the Specific Energy of Environmental Friendly Pseudocapacitors

D. Ionescu[1)], and M. Kovaci[2)]
1) Department of Telecomm. and Information Technologies, “Gh. Asachi” Technical University of Iasi, Romania
2) Department of Communications, Politehnica University of Timisoara, Romania

ID28 P1.33 Comparative Workbench Study of MTBF for PoL Converters with discrete Transistors vs. integrated PoL

D. Butnicu, D. Ionescu
Electronics Faculty Technical University of Iasi, Romania

ID72 P1.34 Comparative Workbench Study about MTBF for PoL Buck-Converters: Asynchronous vs. Synchronous

D. Butnicu, R. Tristu[1)]
Electronics Faculty Technical University of Iasi, Romania
1) Technical College R. Radulet, Brasov, Romania

ID123 P1.35 Qualitative Inquiry into Student Competitions in Electronics in Romania

T. Ursutiu, G. Chindris, M. Taut, R. Fizesan, A. Taut
Department of Applied Electronics, Technical University of Cluj-Napoca, Cluj-Napoca, Cluj

ID74 P1.36 IoT Beehive Monitoring System

T. Pică, C. I. Marghescu, R.C. Negroiu
Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID24 P1.37 SIMD Extensions – A Historical Perspective

D. Vuță-Popescu, I.C. Antofi , C.B. Ciobanu and C.Z. Kertész
Department of Electronics and Computers, University Transilvania of Brasov, Romania

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13:40 - 15:40 Plenary Oral Session 3

EEST | GMT +3h

Session Chair: Gabriel CHINDRIȘ, Technical University of Cluj-Napoca, Romania
Session Co-Chair:, Oliver KRAMMER Budapest University of Technology and Economics, Hungary

13:40 K3 Advanced IC packaging in the context of multi-chiplet based architectures

Syhem LARGUECH
Cadence Design Systems

ID32 TIE-M Plus: Creating Bridges Between Industry and Higher Education

T. Krausz[1, 4)], I. D. Verzeș[2)], I. I. Ailinei[1, 4)], E. Csukas[1, 4)], B. Ș. Coman[3)], P. Coandă[1)]
1) Continental Automotive, Timisoara, Romania
2) Continental Autonomous Mobility, Timisoara, Romania
3) Continental Automotive, Iasi, Romania
4) Faculty of Mechanical Engineering, Politehnica University Timisoara, Timisoara, Romania

ID115 Advanced Collaboration in the Romanian Electronics Field based on the TIE Professional Student Contest

M. Cenușă[1)], L. Viman[2)], P. Svasta[3)], N. Codreanu[3)], B. Popescu[4)], F. Duruș[5)], M. Pantazică[3)]
1) Continental Automotive, Iași, Romania
2) Technical University of Cluj-Napoca, Cluj-Napoca, Romania
3) National University of Science and Technology POLITEHNICA Bucharest, Romania
4) Microchip Technology, Bucharest Romania
5) Bosch Engineering Centre, Cluj-Napoca, Romania

ID121 TIE Micro – Chiplets and Next-gen Packaging

C.B. Ciobanu[1), 2)], D. Manolescu[7)], R. Vlăduță[3)], L. Chițu[3)], M. C. Moisa[4),5)], M. Manofu[5), 6)], P. Svasta[7)]
1) Transilvania University of Brașov, Romania
2) National Institute of Research and Development in Microtechnologies, Bucharest, Romania
3) Marvell Technology, Bucharest, Romania
4)Continental Automotive Romania, Timișoara, Romania
5)Politehnica University Timișoara, Romania
6)UP-Skill Engineering Education, Timișoara, Romania
7)National University of Science and Technology Politehnica Bucharest, Romani

Friday, October 18

9:00 - 10:20 **Poster Session 2 (Starts with a pitching session)**
EEST | GMT +3h

Session Chair: Liviu VIMAN, Technical University of Cluj-Napoca, Romania
Session Co-Chair: Ciprian IONESCU, POLITEHNICA of Bucharest, Romania

ID43 P2.1 Intelligent Emergency Braking System for Bicycle

C.C. Pena[2)], M. Pena[1)], A. Gomboș[1)], E. Ceuca[2)]
1) Technical University of Cluj Napoca, Cluj Napoca, Romania
2)“1 Decembrie 1918“ University, Alba Iulia, Romania

ID41 P2.2 Non-Invasive Assessment of Hydration Status Using Bioelectrical Impedance Analysis

M. Pena[1)], A. Gomboș[1)], E. Ceuca[2)]
1) Technical University of Cluj Napoca, Cluj Napoca, Romania
2)“1 Decembrie 1918“ University, Alba Iulia, Romania

ID104 P2.3 The Development and Electrical and Morphological Characterization of some Electrodes on the Sponge Structure used in the Realization of Supercapacitors

R. C. Negroiu, C. I. Marghescu, I. B. Bacis, L. Dinca[1]) and R. I. Radulescu[1])
Centre of Technological Electronics and Interconnection Techniques, National University of Science and Technology POLITEHNICA Bucharest, Romania
1) National Research and Development Institute for Textiles and Leather, Bucharest, Romania

ID77 P2.4 Electromagnetic shielding fabrics with antimicrobial properties for healthcare

I. R. Rădulescu, L. C. Dincă, E. Perdum, C. M. A. Lupescu, O. Iordache, B. Cazan[1]), and R. M. Aileni[2]
1) Department of Materials Research and Investigation, INCDTP - Bucharest, Romania
2) Department of Research in Materials Engineering and Textile Processes, INCDTP - Bucharest, Romania

ID30 P2.5 Implementing of a New Software-Defined Radio Receiver Used for DSSS-CDMA Data Signals

R. G. Bozomitu, M. A. Corban and A. Popa
Faculty of Electronics, Telecommunications and Information Technology, "Gheorghe Asachi" Technical University of Iaşi, Romania

ID37 P2.6 Conceptual model of a parking system with automatic license plate recognition

I. M. Valova, Ts. P. Mladenova[1]), and N. P. Valov[2])
Department of Computer Systems and Technologies, University of Ruse, Ruse, Bulgaria
1) Department of Computer Systems and Technologies, University of Ruse, Ruse, Bulgaria
2) Department of Automation and Electronics, University of Ruse, Ruse, Bulgaria

ID39 P2.7 Design and Implementation of a Low-cost Modular Electronic System for Home Automation based on IoT

V. Tsankov, B. Evstatiev, I. Valova[1])
Department of Electronics, University of Ruse „Angel Kanchev", Ruse, Bulgaria
1)Department of Computer Systems and Technologies, University of Ruse „Angel Kanchev", Ruse, Bulgaria

ID42 P2.8 Intelligent System for Investigating the Effects of the Environment on the Human Brain

A. Gomboș[1]), M. Pena[1]), E. Ceuca[2])
1) Technical University of Cluj Napoca , Cluj Napoca, Romania
2)"1 Decembrie 1918" University, Alba Iulia, Romania

40 P2.9 Measurement and Analysis of Electroencephalogram (EEG) Signals Using Pre-Amplification and Filtering Techniques

A. Gomboș[1)], M. Pena[1)], E. Ceuca[2)]
1) Technical University of Cluj Napoca, Cluj Napoca, Romania
2)"1 Decembrie 1918" University, Alba Iulia, Romania

ID48 P2.10 Algorithms for Processing Signals of Alcohol Consumption Detecting Sensors and Engine Control Interface in Traffic

D. Ioana, I. B. Bacis, Al. Vasile
The National University of Science and Technology Politehnica Bucharest, Bucharest, Romania

ID52 P2.11 Numerical Measurement System of Fluid Flows in Pipelines Without Affecting the Integrity of the Pipeline

I. B. Bacis, C. Ionescu, R. C. Negroiu
The National University of Science and Technology Politehnica Bucharest, Romania

ID75 P2.12 Research for the Realization and Testing of an Adaptive, Programmable Dosing System for Hydro Electrolytic Balancing (SDAEH)

I. B. Bacis, C. Serboiu[1)], Al. Vasile, D. Ioana
The National University of Science and Technology Politehnica Bucharest, Bucharest, Romania
1) Bucharest University Emergency Hospital, Bucharest, Romania

ID81 P2.13 Bearing Fault Identification with the Application of Kalman Filter

I. Szabo[1)] and A. Tulbure[2)]
1) Politehnica Bucharest, Romania
2)Department of Informatics, Mathematics & Electronics, "1 Decembrie 1918" University of Alba Iulia, Romania

ID82 P2.14 Web platform for designing a hydropower system

A. Neacșu, B. Alexandrescu, R.-C. Constantinescu, and L.-A. Perișoară
Department of Applied Electronics and Information Engineering, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID88 P2.15 Advanced optical subsystem integration in dashboard electronics

T. Csutak, C. Moisa
Continental Automotive Romania, Timișoara, Romania

ID93 P2.16 Integration of UHF RFID sensors in railway maintenance systems

I.N. Stăncel and C.M. Surugiu
Department of Telematics and Electronics for Transports, National University of Science and Technology Politehnica of Bucharest, Bucharest, Romania

ID100 P2.17 Industrial Greenhouse Monitoring and Forecasting System

O. M. M. Tudor, R.-C. Constantinescu, and B. Alexandrescu
Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID36 P2.18 Characterizing Thermal Properties of 18650 Lithium-Ion Battery Cells: Experimental Approaches to Thermal Conductivity and Specific Heat Capacity Measurements

A. I. Ilies, R. Jano
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID47 P2.19 A methodology for simulation non-linear thermal system using Foster networks

A. Bojita, R. Pitu and M. Purcar
Department of Electrotechnics and Measurements, Technical University of Cluj-Napoca, Cluj/ Romania

ID50 P2.20 Master-Slave BMS Architecture with CAN-bus for Inter-Cell Communication

L.-A. Perișoară[1)], I.-B. Bacîș[2)], D.-I. Săcăleanu[1)]
1) Department of Applied Electronics and Information Engineering,
2) Centre of Technological Electronics and Interconnection Techniques, National University of Science and Technology Politehnica Bucharest, Romania

ID73 P2.21 Thermal Simulations and Characterization of High-Power LED Boards

A. Fodor, A.C. Davidaș, A. Grama, E.M. Ștețco, A. Ilieș and R. Jánó
Applied Electronics Department, Technical University of Cluj-Napoca, Romania

ID76 P2.22 Optimal energy management for an islanded microgrid with battery degradation cost considerations

E. Szilagyi, D. Petreus, and T. Patarau
Department of Applied Electronics, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID80 P2.23 Comparative Analysis of Active Balancing Types for Lithium-Ion Cells

M. Olteanu and D. Petreuș
Applied Electronics Department, Tehnical University of Cluj-Napoca, România

ID38 P2.24 Innovations in Electric Vehicle Supply Equipment: Towards Smart Agriculture

M. Călin, P. Svasta
Center for Technological Electronics and Interconnection Techniques, University Politehnica Bucharest, Romania

ID61 P2.25 Automated control system for photovoltaic panel

S.-Al. Vlad, R.-C. Constantinescu and Șt.-G. Roșu
Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest

ID66 P2.26 Assessment on measuring and estimation of Ragone plots

C. Ionescu
The National University of Science and Technology Politehnica Bucharest, Center for Technological Electronics and Interconnection Techniques, Bucharest, Romania

ID94 P2.27 Sun Position Simulator for Solar Cell Testing and Characterization

C. Fărcaş, I. Ciocan and A. Tulbure[1)]
Department of Applied Electronics, Technical University of Cluj-Napoca, Romania
1) Department of Precise and Engineering Sciences, ”1 Decembrie 1918” University of Alba Iulia, Romania

ID27 P2.28 Integrating photovoltaic systems into HVAC control using fuzzy algorithms for optimizing thermal comfort

M.-G. Boicu [1)], M. – Al. Dobrea [1)], M. Vasluianu[2)], G.-V. Olteanu[1)], G. Neculoiu[2]
[1)] Faculty of Automatic Control and Computer Science, University POLITEHNICA of Bucharest, Romania
[2)] Faculty of Hidrotechnics, Technical University of Civil Engineering of Bucharest, Romania

ID69 P2.29 Decentralized Renewable Microgrids Consumers Adaptability to DC Electric Network

M. Dumitrescu
Automation and Electrical Engineering Department, Dunarea de Jos University, Galati, Romania

ID70 P2.30 Renewable Microgrids Power Supply - Consumers Electric Quality Comparative Study

M. Dumitrescu
Automation and Electrical Engineering Department, Dunarea de Jos University, Galati, Romania

ID44 P2.31 Investigating Optimal Feedback Functions of Degree 2 for Nonlinear Feedback Shift Registers Using Computer-Based Tools

A. N. Borodzhieva
Department of Telecommunications, University of Ruse “Angel Kanchev”, Ruse, Bulgaria

ID45 P2.32 Implementing Boolean Four-Input Functions with Multiplexers when Applying Project-Based Learning in the Digital Electronics Course

A. N. Borodzhieva
Department of Telecommunications, University of Ruse "Angel Kanchev", Ruse, Bulgaria

ID46 P2.33 A Methodology for Designing Phase-Correction Sections Using an Active Implementation with an Operational Amplifier

A. N. Borodzhieva
Department of Telecommunications, University of Ruse "Angel Kanchev", Ruse, Bulgaria

ID101 P2.34 Prediction of the Magnetic Interaction between Atoms using a Neural Network

Al. Haidarlî, R.-C. Constantinescu, and B. Alexandrescu
Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

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10:25 – 11:25 Industrial Session 2

EEST | GMT +3h

Session Chair: Bogdan MIHĂILESCU, POLITEHNICA of Bucharest, Romania
Session Co-Chair: Rajmond JANO, Technical University of Cluj-Napoca, Romania

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11:45 - 14:10 Plenary Oral Session 4

EEST | GMT +3h

Session Chair: Maria VINŢAN, Lucian Blaga University of Sibiu, Romania
Session Co-Chair: Boris EVSTATIEV, University of Ruse Angel Kanchev, Bulgary

K4 Emerging microelectronics platforms based on hybrid integration

Mircea GUINA
Tampere University, Finland

ID57 Investigating the Copper Peel and Solder Joint Shear Strength on Biodegradable Substrates

O. Krammer, G. Hambuch, R. Bátorfi, B. Illés and A. Géczy
Department of Electronics Technology, Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics, Budapest, Hungary

ID119 Flexible Supercapacitors for Energy Supply in Smart Textiles – Applications and Prototype

I. R. Radulescu, C. M. Lupescu, E. Perdum, L. Dinca[1)], R. Negroiu[2)]
[1)] Department of Material Research and Investigation, INCDTP - Bucharest, Romania
[2)] CETTI - Faculty of Electronics, Politehnica Bucharest, Romania

ID85 Impact of Fe-NPs doped flux on electromigration in Sn-based solder joints of chip-sized SMD components at lower Joule heating

I. Wodak[1)], G. Khatibi[1)], A. Yakymovych[1)], F. Khodabakhshi[1)], O. Krammer[2)] and A. Géczy[2)]
1) Institute of Chemical Technologies and Analytics, TU Wien, Vienna, Austria
2) Faculty of Electronics Engineering and Informatics, Department of Electronics Technology, Budapest University of Technology and Economics, Budapest, Hungary

ID62 On the Forgetting Factors of the RLS Algorithm Based on Third-Order Tensor Decomposition

R. Otopeleanu[1)], C. Paleologu[1)], J. Benesty[2)], C. Elisei-Iliescu[3)], C. L. Stanciu[1)], and C. Anghel[1)]
1) Department of Telecommunications, POLITEHNICA Bucharest, Romania
2) INRS-EMT, University of Quebec, Montreal, Canada
3) CNS, ROMATSA, Bucharest, Romania

15:10 - 16:30 Poster Session 3 (Starts with a pitching session)

EEST | GMT +3h

Session Chair: Radu Gabriel BOZOMITU, Gheorghe Asachi Technical University of Iaşi, Romania
Session Co-Chair: Alexandra FODOR, Technical University of Cluj-Napoca, Romania

ID4 P3.1 The Intelligent Cover for Comfort and Diagnosis

M. Hnatiuc, G. Popa
Electronic and Telecommunication Department, Constanta Maritime University, Constanta, Romania

ID23 P3.2 Small-Scale V2V-VLC for Enhanced Road Traffic Safety

E. Hajj Moussa[1)], A. E. Marcu[2)], R. Abdallah Chehade[1)], G. Ballouz[1)], and B. Ionescu[3)]
1) Electrical Engineering Department, Faculty of Engineering - Branch II, Lebanese University, Roumieh, Lebanon
2) Electronic Technology and Reliability Department, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania
3) Applied Electronics and Information Engineering Department, National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID29 P3.3 Comparative Study of Artificial Intelligence and Machine Learning Algorithms on Synthetic Lithium-Ion Cell Data

E. M. Olariu[1)], A. I. Ilies[2)], H. Hedesiu[1)], and G. Chindris[2)]
1) Electrical Engineering Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania,
2) Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID31 P3.4 A New Remote System for Monitoring Physiological Parameters of Elderly People

T. I. Ursache[1)], R. G. Bozomitu[1)], and C. Rotariu[2)]
1) Faculty of Electronics, Telecommunications and Information Technology, "Gheorghe Asachi" Technical University of Iaşi, Romania,
2) Faculty of Medical Bioengineering, "Grigore T. Popa" University of Medicine and Pharmacy of Iaşi, Romania

ID33 P3.5 Decision support prototype for farmers based on environmental parameter modelling through supervised machine learning

D. I. Săcăleanu, M. Lămășanu, R. C. Constantinescu, and L. A. Perișoară
Faculty of Electronics, Telecommunication and Information Technology, National University of Science and Technology Politehnica Bucharest, Romania

ID49 P3.6 Development of an Electronic Monitoring System for a Savonius Wind Turbine

G. A. Mătușa, M. C. Mareș, and P. Svasta
Centre for Technological Electronics, and Interconnection Techniques, National University of Science and Technology "POLITEHNICA" Bucharest, Romania

ID56 P3.7 Automated Greenhouse

V. Veliciu[1)], V. Cristescu[1)], L. Viman[2)]
1) Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Cluj-Napoca, Romania
2) Applied Electronics Department, Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID58 P3.8 Linearity Evaluation and Influence of the Reference Voltage for ADC Converter of Embedded Devices

I. H. Baciu, G. Chindris and M. Taut
Applied Electronics Department, Technical University of Cluj Napoca, Cluj Napoca, Romania

ID60 P3.9 Concept and Challenges in Microcontroller Artificial Intelligence Development

C. Corches1), A. I. Ilieș2), M. Daraban2), and G. Chindris2)
1) Automation Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania 2) Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID63 P3.10 Dynamic adaptation algorithm of Lora communication parameters in wireless sensor networks

D. I. Săcăleanu, S. V. Nadoleanu, Irina Petra Manciu, L. A. Perișoară, and R. C. Constantinescu
Faculty of Electronics, Telecommunication and Information Technology, National University of Science and Technology Politehnica Bucharest, Romania

ID65 P3.11 Optimizing Power Consumption: A Comparative Analysis of Radio Modules used in Embedded Systems

M. C. Mareș, G. A. Mătușa, C. Săndulescu and P. Svasta
Centre for Technological Electronics, and Interconnection Techniques, National University of Science and Technology “POLITEHNICA” Bucharest, Romania

ID78 P3.12 Monitoring System with Autonomous Power Supply and Remote Radio Transmission

A. Drumea, D. I. Dedu, C.-I. Marghescu, R.C. Negroiu, and M. Pantazica
National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania

ID89 P3.13 Haptic system for the remote control of a robotic structure

A. G. Toma[1)], C. C. Molder[1)], A.G. Mătușa[2)]
1)Centre of Excellence in Robotics and Autonomous Systems-CERAS, “Ferdinand I” Military Technical Academy, 050141 Bucharest, Romania
2)Centre for Technological Electronics, and Interconnection Techniques, National University of Science and Technology “POLITEHNICA” Bucharest, Romania

ID96 P3.14 Electronic Apiary Monitoring System with Built-in Sensors and Motorized Hive Access Control

G. Florea[1)], N. Codreanu[1)], V. V. Alexandrescu[2)], and V. A. Preda[3)]
1) Department of Electronics Technology and Reliability, Center for Technological Electronics and Interconnection Techniques, Faculty of Electronics, Telecommunications, and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Romania
2) S.C. VVA Software Services S.R.L, Ploiești, Prahova

3) S.C. Urgent IT Solutions S.R.L, Ploiești, Prahova

ID103 P3.15 Advanced Electronics System for the Improvement of Concrete Factories Management

G. Florea[1)], N. Codreanu[1)] and V. V. V. Alexandrescu[2)]
1) Department of Electronics Technology and Reliability, Center for Technological Electronics and Interconnection Techniques, Faculty of Electronics, Telecommunications, and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Romania
2) S.C. Uniserv International S.R.L, Ploiești, Prahova

ID108 P3.16 Design and Implementation of a Temperature Monitoring System for the Safety of Electric Vehicle Transport on Maritime Transport

M. V. Moise and C. Oncioiu
Centre for Electronics Technology and Interconnection Techniques, Polytechnic University of Bucharest, Romania

ID112 P3.17 PCB temperature controller for automated soldering

V. Cristescu[1)], V. Veliciu[1)], L. Viman[2)]
1) Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Cluj-Napoca, Romania,
2) Applied Electronics Department, Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID116 P3.18 2.4 GHz bandwidth spectrum analyser with frequency change using microcontroller

B. Dumitrascu, L. Baicu, and N. Nistor
Department of Electronics and Telecommunications, University “Dunarea de Jos” of Galati, Galati, Romania

ID117 P3.19 Microcontroller communication using Yagi antenna at 2.4 GHz

N. Nistor, B. Dumitrascu, L. Baicu
Department of Electronics and Telecommunications,University “Dunarea de Jos” of Galati, Romania

ID118 P3.20 WardWiz: My Personal Stylist

A. Bhawarthi, N. Lokhande[2)], S. Lokhande, R. Lole[2)], T. Lonkar, V. Loya, B. Lunawat[3)]
Computer Science, Vishwakarma Institute of Technology, Pune, India
2) Computer Science Engineering with Artificial Intelligence, Vishwakarma Institute of Technology, Pune, India
3) Information Technology, Vishwakarma Institute of Technology, Pune, India

ID120 P3.21 Solar Powered Raspberry Pi for Internet of Things and Wireless Sensor Networks

V. Voicu, D. Petreuș, and R. Etz
Department of Applied Electronics, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID12 P3.22 Development of Control Strategies for an Industrial Robot to Increase Energy Efficiency

M. – Al. Dobrea[1)], M. Vasluianu[2)], G. Neculoiu[2)], G.-V. Olteanu[1)], E. Vârlan[1)], M.-G. Boicu[2)]
[1)] Faculty of Automatic Control and Computer Science, University POLITEHNICA of Bucharest, Romania
[2)] Faculty of Hidrotechnics, Technical University of Civil Engineering of Bucharest, Romania

ID17 P3.23 NLP-Based Solutions for Call Center Optimization

S. Segărceanu[1)], R. Chevereșan[1)], G. Stoica[2)], M. Ceaparu[1)], T. Pintilie[1)], M. Niculae[1)], I. Gavăt[1)], G. Suciu[1)]
1) R&D Department, Beia Consult International, Bucharest, Romania
2) R&D Department, SMM INVEST CO SRL, Bucharest, Romania

ID59 P3.24 Defining Energy Requirements and Management for Hybrid Autonomous Underwater Vehicles

I. Cosma, I. Petre, G. Suciu, A. Catrina, M. Marin, M.-F. Dudau
Research & Development, BEIA Consult International, Bucharest, Romania

ID91 P3.25 Facial Reccognition Algorithms on Embedded Sysyems

V. Constantinescu, C. C. Molder
Centre of Excellence in Robotics and Autonomous Systems-CERAS, “Ferdinand I” Military Technical Academy, Bucharest, Romania

ID105 P3.26 Intelligent System for Integration in 5G Networks

E.G. Stănescu, T. C. Stoian and D. I. Năstac
Faculty of Electronics, Telecommunications and Information Technology, POLITEHNICA University of Bucharest, Romania

ID106 P3.27 TnyVec: A programming language for creating scripting environments

A. F. Ene and D. I. Năstac
Faculty of Electronics, Telecommunications and Information Technology, National University of Science and Technology POLITEHNICA Bucharest, Romania

ID109 P3.28 Implementation of a prototype measurement system for power transformers

B.S. Nedelcu, M.V. Moise and P. M. Svasta
Center for Electronics Technology and Interconnection Techniques, Polytechnic University of Bucharest, Romania

ID18 P3.29 Resistive and Capacitive Sensors Driver for Irrigation Applications

A.-A. Alexa, R. Fizeșan
Applied Electronics Department, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

ID35 P3.30 On calibration of the magnetometer with the help of the gyroscope

S. Mischie
Department of Electronics Measurement and Optoelectronics, Politehnica University of Timisoara, Timisoara, Romania

ID54 P3.31 Qubit simulation software

I. Almahoud
Polytechnica Univ. Electronics Doctoral School, Bucharest – Romania

ID26 P3.32 The conducted emission attenuations produced by the ON-GRID photovoltaic systems loaded with residential consumers

D. Penciu, S. Andreica, M. Purcar, R. Gliga and C. Munteanu
Department of Electrotechnics and Measurements, Technical University of Cluj-Napoca, Cluj-Napoca/ Romania

ID34 P3.33 A study on multi-modal LLM reasoning for defect detection

A. A. Tulbure[1)], E. H. Dulf[1)], D. Danciu[2)], and A. A. Tulbure[3)]
1) Dept. of Automation, Technical University of Cluj Napoca, Romania
2) Cluj Barr Association, Cluj-Napoca, Romania
3) Dept. of Engineering, “1 Decembrie 1918” University of Alba Iulia, Romania

16:30 – 17:30 Industrial Session 3

EEST | GMT +3h

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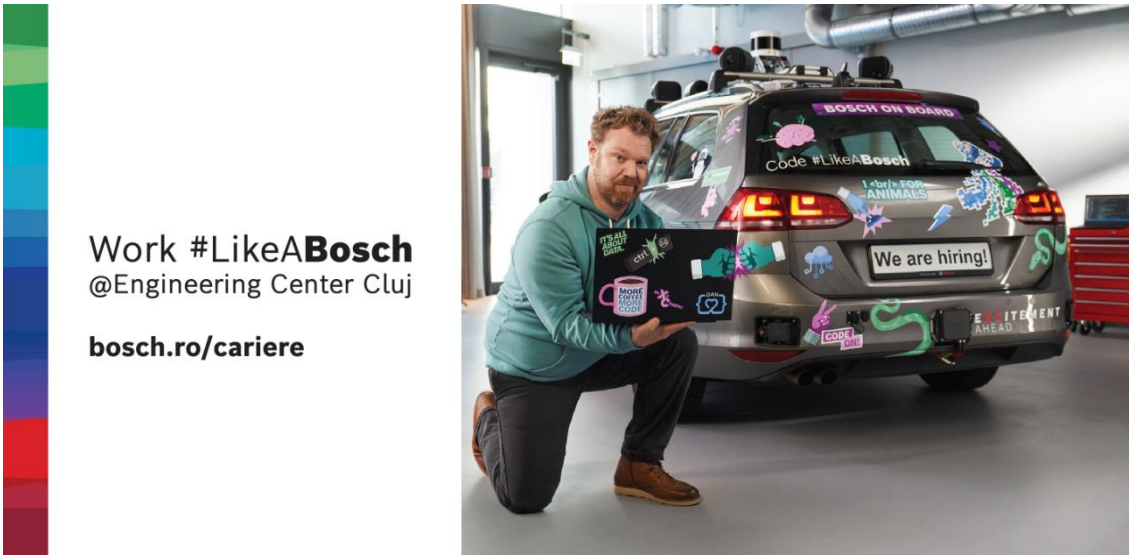

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ICCO EMT, established in 1997, as partner for producers in the semiconductor and electronics industry, offering specialized equipment and services. Over the years, the company collected experience in implementing sophisticated equipment necessary for semiconductor and electronic production processes. We set up and supply solutions for turn-key electronic production and complete production lines. ICCO EMT offers contract manufacturing services both for small volumes (NPI) and for products in large series.

Due to the high diversity of the products we offer to our customers, we are now able to configure and provide turn-key solutions for electronic production, fully functional manufacturing lines.

Kulicke & Soffa (NASDAQ: KLIC) is a leading provider of semiconductor and electronics assembly solutions serving the global automotive, communications, computing, industrial markets, and consumer.

CP: 400616
Cluj-Napoca, Romania
Phone: +40 723 601 766
E-mail: RO-CJ-Office@eberspaecher.com
www.eberspaecher.com

The Eberspächer Group ranks as a leading system developer and supplier in the automotive industry. The family-owned company stands for innovative solutions in exhaust technology, thermal management, and automotive electronics for different vehicle types. In classic drives and in e-mobility, Eberspächer components and systems ensure increased comfort, higher safety, and a clean environment. For the use of hydrogen as an energy carrier, Eberspächer is paving the way for future technologies. In 2023, the Group of Companies generated revenue of around 6.35 billion euros. Net revenue amounted to 3 billion euros.

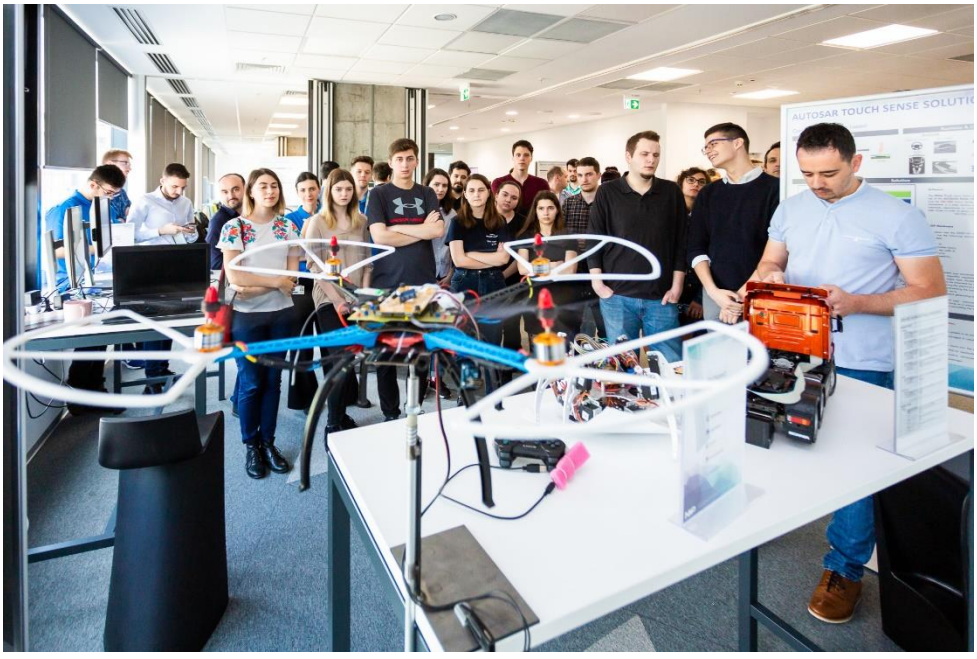
The new R&D center in Cluj-Napoca, Eberspaecher Controls Ro, is focused on design and development for e-mobility projects, like the new generation of control units for electrical heating solutions and energy management systems for both batteries and super-capacitors. Over the last 4 years the team in Romania reached 54 coleagues, most of which engineers, covering several core competence areas such as Basic Software and Infrastructure, Algorithms/Model Based Development, and Functional Testing. In the last 3 years, Eberspaecher Controls Ro has organized two Embedded programs for engineering bachelor and master students.

At **NXP Romania**, together, with our talented employees, we accelerate breakthroughs that help to advance the world. We build solutions—not just products—that enhance the capabilities of people, organizations, and the world at large.

Software is at the heart of NXP Romania products.

At **NXP Romania**, you will develop software solutions for Safe and Secure Mobility in the areas of: Electric cars, ADAS (Adaptive Driver Assistant Systems), Connectivity and Security, all with AI/ML (Artificial Intelligence/Machine Learning) at the core, solutions for Industrial and IoT by innovating Edge to Cloud and Communication Infrastructure (5G/6G technologies) solutions. Our presence in Romania is also focused as well on IT service management and customers supply operations.

We are committed to keeping our customers ahead of the competition and helping them introduce breakthrough technologies.



As customer demand for software enablement continues to grow, the team in Bucharest is instrumental not only in maintaining NXP's industry leadership in software enablement, but also in stretching the boundaries of innovation.

We are proud of the two locations, Bucharest, and Sibiu.

NXP Bucharest is a Center of Excellence in Embedded Software Development with 20+ years of history in successful innovation, design, and development of software products, with a head count of over 1000 and a financial turnover of €83m in 2023.

NXP Sibiu officially opened in June 2024, as the second R&D Center in Romania. The Center of Excellence in Sibiu focuses on the design and development of software products in the automotive industry and hosts almost 100 engineers and students.

NXP Semiconductors is a global semiconductor company creating solutions that enable secure connections and infrastructure for a smarter world. NXP focuses on research, development, and innovation in its target markets. The company has 60 years of combined experience, is present in 30+ countries worldwide, with a headcount of over 30.000 talented employees who design purpose-built, rigorously tested technologies that enable devices to sense, think, connect and act intelligently to improve people's daily lives. By serving 26000+ customers, we accelerate breakthroughs that advance the world through our semiconductor technology leadership.

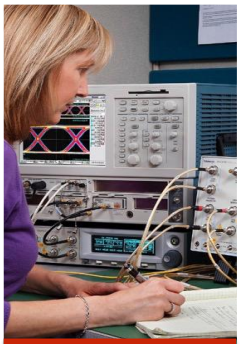
In addition to software development, we also invest in research as part of intellectual property creation programs.

Being part of the ecosystem, NXP continues to support higher education in the country through programs dedicated to collaboration with universities. A successful example is the annual NXP Cup competition, where students program prototype cars using NXP technologies. The NXP Cup is the first professional competition in EMEA dedicated to model cars.

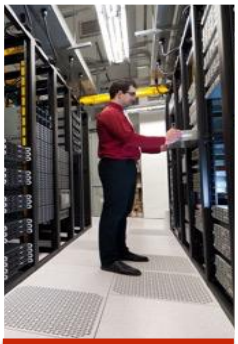
In 2023 we inaugurated the NXP Laboratory within the Faculty of Automation and Computers, the total investment being approximately 105 000 euros. In the laboratory, the teaching staff will hold courses for deepening and practical application of theoretical knowledge in the field of Operating Systems and Advanced Operating Systems.
In 2024, we continue to support higher education by investing in laboratories at the Lucian Blaga University in Sibiu. In addition, our colleagues are actively involved in summer schools, workshops, courses.

RomTek ELECTRONICS

One COMPANY, THREE BUSINESS SEGMENTS



TEST & MEASUREMENT

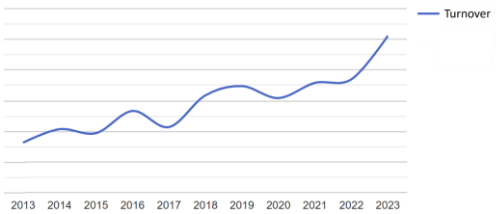


TELECOM

AUDIO | VIDEO TV | FILM

Delivering Excellence in Technology and Business since more than 25 years

Reaching in 2023 a turnover of 10,2 million EUR



ROMTEK's OFFER includes:

- Consulting services;
- Application engineering support;
- System design;
- Project management;
- Equipment supply;
- Equipment / System Installation, Commissioning and Certification;
- Training;
- Service & maintenance, Calibration and Metrological verification.

Whenever required, **RomTek** can also offer **financing solutions** through 3rd party specialized companies/institutions

Equipment / Solutions for TEST & MEASUREMENT:

Academic-Level Educational Training Platforms ● **General-Purpose T&M Instrumentation** (Oscilloscopes, Signal Generators, Spectrum and Signal Analyzers, Digital Multimeters, Data Acquisition Systems etc) ● **Low-level Instruments / Sensitive and Specialty Instruments** (SMUs, Picoammeters, Ultra-Sensitive Current Sources, Ultra-Low Resistance Meters, Nanovoltmeters, Electrometers) ● **Semiconductor Parameter Analyzers** (for component and wafer testing) covering I-V, C-V and ultra-fast pulsed I-V tests ● **Sources and Supplies** (AC+DC Power Supplies, AC+DC Electronic Loads, Bidirectional Power Supplies, Grid Simulators, Battery Testers) ● **EMC Compliance and RF Solutions** (CE, CI, RE, RI test systems, ESD, H&F, Dips, Interrupts & Variations, Transient Generators (Burst/Surge), Magnetic Fields), RF Amplifiers (Solid State, Pulsed TWT, Milimeter TWT), RF Immunity Test Systems ● **EMC Infrastructure** (EMC & Reverberation Anechoic Chambers, EMC Tents, EMC Antennas, Turn-tables, Filters, Positioners etc) ● **Acoustic T&M Instrumentation and Infrastructure** (test microphones & analyzers, acoustic chambers).

Tektronix · KEITHLEY A Tektronix Company · SIGLENT siglent technologies · AMETEK COMPLIANCE TEST SOLUTIONS · ETS-LINDGREN

Equipment / Solutions for TELECOM:

DVB and IP Digital Head-ends ● **DVB Turn-key Platforms** (CATV, DTH, DTT) ● **OTT** ● **Video Processing** (encoding, transcoding, conversion etc.) ● **Video Contribution & Distribution** (via Satellite, Fiber, IP & Cloud) ● **Infrastructure for Remote Video Production** ● **Network Management and Monitoring** ● **Middleware and Conditional Access** ● **GPON / FTTH infrastructure** ● **CPEs** (ONTs, STBs etc.)

appear · Synamedia · MediaKind · netinsight · KYBIO

Equipment / Solutions for AUDIO|VIDEO|TV|FILM:

TV and Radio Studios ● **Virtual & Augmented Reality Systems** ● **OB and DSNG Vans** ● **Airborne Broadcast Systems** (installed on drones or helicopters) ● **Fly-Away Systems** ● **Newsroom Computer Systems** ● **On/Off-Air Graphics Systems** ● **Master Control and Playout facilities** ● **A|V Post-Production Systems** ● **Restoration and Digital Format Conversion** ● **Digital Cinematography**

SONY · Canon · RIEDEL · ROSS Production Technology Experts · Blackmagicdesign

Rohde & Schwarz is a global technology group striving for a safer and connected world. With its Test & Measurement, Technology Systems and Networks & Cybersecurity Divisions, the company creates tomorrow's innovations today. The company's leading-edge products and solutions empower industrial, regulatory and military customers to attain technological and digital sovereignty.

Innovation has been part of Rohde & Schwarz since the very beginning. The company founders Dr. Lothar Rohde und Dr. Hermann Schwarz were technological pioneers. With their hands-on entrepreneurial spirit, the two college friends entered the unexplored field of RF engineering. Ninety years later, the company is still pushing technological boundaries – as a successful shaper of cutting-edge technologies such as artificial intelligence (AI), 6G, cloud and quantum technologies.

The privately owned company is known for stability and resilience. Independence is at the core of its entrepreneurial identity. The company finances its growth with its own resources. Because the company does not have to think in terms of quarterly results, it can plan sustainably for the long term. The high added value of Rohde & Schwarz makes the company a reliable, trustworthy and relevant partner for its customers.

TEST & MEASUREMENT	TECHNOLOGY SYSTEMS	NETWORKS & CYBERSECURITY
Wireless I Industry, Components & Research I Aerospace & Defense Testing I Automotive	Secure Communications I Critical Infrastructure & Networks I Government I IP Network Analytics I Broadcast, Amplifiers & Media	Endpoint Security I Secure Networks I Certified & High-Grade Crypto Solutions

013981 Bucharest, Romania
26 Biharia Street
+40 314 251 298
+40 722 366 690
info@syswinsolutions.com

SYSWIN SOLUTIONS, established in 2014, is a full Romanian capital SME that offers high-performance IoT and M2M solutions integrated into a single platform. The platform provides different technologies, communication protocols and sensors to meet the connectivity requirements that companies and the public sector have to meet. We meet the needs of fields such as precision agriculture, environment and smart city. Whether it is precision agriculture that reduces fertilizer doses and maximizes yields or air quality monitoring, the company offers IoT solutions that integrate different technologies, cutting-edge communication protocols and precision sensors to serve a diverse range of needs.

SysAgria, SmartAir City, SysParking & SysTraffic are registred trade marks of our solutions for farmers and community.

The quality found its home at Syswin Solutions

Syswin Solutions is part of several professional groups

https://www.syswinsolutions.com

Research

ASSOCIATION FOR PROMOTING ELECTRONICS TECHNOLOGY (ASOCIAȚIA PENTRU PROMOVAREA TEHNOLOGIEI ELECTRONICE)

IMAPS ROMANIA

A globally-competitive workforce with theoretical, as well as applied engineering/hands-on, education must be trained. In addition to the areas of science, engineering, microelectronics, and packaging, this training must encompass the broader areas of business, economics, ethics, foreign culture, and languages.

The Association for Promoting Electronics Technology (APTE, see https://apte.org.ro/) is IMAPS Romania. APTE was founded in 2003, by the Center for Technological Electronics and Interconnection Techniques (UPB-CETTI) together with highly respected members of the electronics industry, in order to support the electronics packaging education and engineering, in a climate of trust, ethics, and social responsibility.

APTE/IMAPS Romania is the management entity of the ELINCLUS Cluster (see http://elinclus.ro/), which has currently 94 members. ELINCLUS was established starting from the economic relationship existing between UPB-CETTI (which developed a Technological and Business Incubator, entity accredited by the National Innovation and Technology Transfer Network – ReNITT) and companies from Bucharest and Ilfov county. This structure has offered to ELINCLUS the status of a regional cluster in the field of electronics.

APTE offers annually a comprehensive set of short courses and training classes in the area of electronics packaging, IPC standards certification, management, and industrial development, in order to serve the needs of the electronics industry. APTE organises annually The International Symposium for Design and Technology in Electronics Packaging (SIITME, see http://siitme.ro/) and the Interconnection Techniques in Electronics (TIE, see www.tie.ro/) Professional Student Design Contest.

Contact:

Phone: +40214103108 E-mail: apte@apte.org.ro

ELINCLUS ELectronic INnovation CLUSter

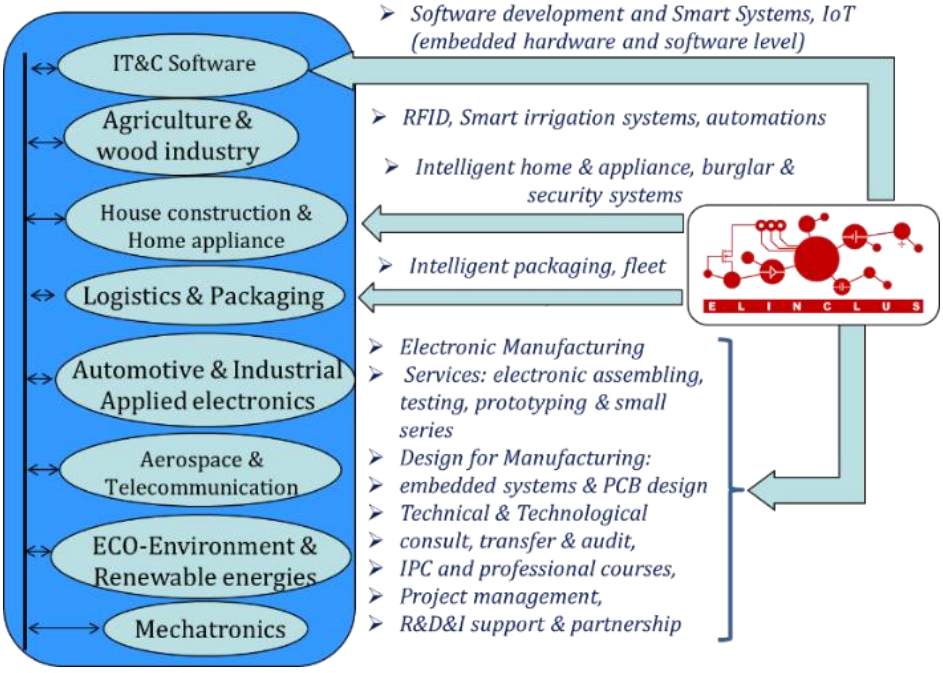
EMC: Association for Promoting Electronics Technology – APTE (www.apte.org.ro)

Founded 2011; 94 registered members

President: Prof. DHC. mult. Paul SVASTA,Ph.D.

Executive Manager: Lect. Eng. Bogdan Mihăilescu, Ph.D.

- Founding member of the Clusters Association from Romania, CLUSTERO - www.clustero.eu
- European Cluster Excellence Initiative Silver Label Certificate from ESCA since 2016
- Founding member of the IT Cluster Network from Romania comprised of 9 members 9: Transilvania IT Cluster, ALT – Brașov, Banat Software, Innovative Clsuter Open Hub, INOMAR, **ELINCLUS**, ICT Oltenia, ICT Cluster Lower Danube și Smart Alliance Cluster.
- Founding member of the regional Digital Innovation Hub – Smart e-Hub https://smartehub.eu/



• **E-mail**: office@elinclus.ro **Web page**: **www.elinclus.ro**

ITEC Information Technology in Electronics Research Center

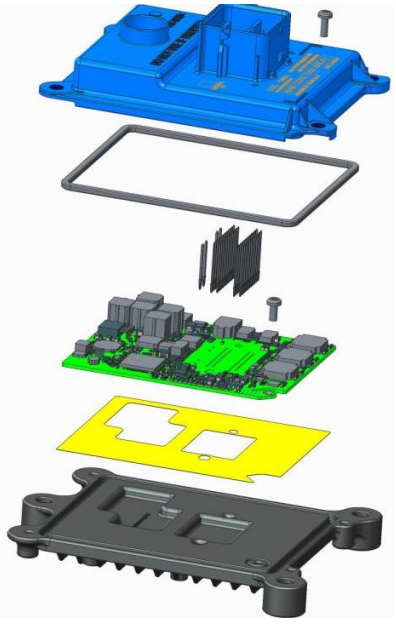
TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

ITEC Research Center

belongs to the Technical University of Cluj-Napoca having 25 researchers in Embedded Systems (electronics & software). ITEC can access the entire infrastructure of Technical University of Cluj-Napoca, resources from all other research centers and resources from Romanian University Alliance.

ITEC Competencies

- Circuit design: modeling, simulation and cross-simulation of electronic circuits (analog, digital, power, RF/EMI) & system design: modeling and simulation for electro-mechanical systems: power devices, actuators, mechatronics;
- HW Application design: fast-prototype design, PCB design for mass production, BOM/AVL design, DfM & DfT for embedded applications, power supplies, interface/signal conditioning boards;
- SW Application design: embedded control applications for OS and non-OS targets;
- TW Application design: testing and design of testing systems: SW and HW testing process, HiL and SiL, design of test-cases for SW;
- Training services: LabVIEW trainings, Embedded Systems trainings, TW and HiL operation;
- PCB DESIGN: DfX, SI and PI.



Contact

Information Technology in Electronics Research Center | Technical University of Cluj-Napoca 400027, G. Baritiu 26-28, Cluj-Napoca, Romania | E-Mail: gabriel.chindris@ael.utcluj.ro

Flamenco

Forward Looking Approaches for Green Mobility Ecosystem Network Collaboration

About the Project

Project FLAMENCO is an ERASMUS+ Co-funded project with the main goal to analyse and pilot forward-looking approaches and methods to enable and make sustainable collaboration on the skills intelligence in the Automotive-Mobility Ecosystem.

The Purpose

The purpose of the Flamenco project is to make the collaboration of the existing partnership pragmatic and sustainable (outreach to other Pact for Skills partnerships as a good practice) so that it brings valuable information about new technological and societal trends, related skills needs training offer/needs and other goals in terms of the skills intelligence leading up to the re-/up-skilling within the European mobility ecosystem.

Activities

The project's main activities will be to analyse the sector in cooperation with stakeholders in terms of the needs, tools, requirements and goals of the sectoral collaboration on skills intelligence via different methods, such as

- desk research
- surveys or workshops
- identification of collaboration models
- development of unified methodology and approach

The project will produce recommendations and good practices in the form of case studies and will provide them alongside the tested, frequently updated and validated methods which are to be rolled-out in different Pact for Skills partnerships and sustained after the project ends.

acea · APTE · Automotive Skills Alliance · educam · EURO SPI² · ISCN · InterTradeCard · Olife · Transilvania IT · TU Graz · VSB Technical University of Ostrava (Project coordinator)

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

www.project-flamenco.eu

TRIREME Project

DigiTal & GReen SkIlls TowaRds FuturE of the Mobility Ecosystem

TRIREME is a 4 year Erasmus+ funded project aimed at developing tools and activities to enhace skills and foster collaboration within the automotive sector, facilitating the transition towards a greener and more digital future. The project aligns with the European Pact for Skills and its respective large-scale Partnership, the Automotive Skills Alliance.

4-year **ERASMUS+ Blueprint** Project (2024 – 2028)

31 project partners from the **Automotive Skills Alliance** partnership

Support skills agenda in the Automotive-Mobility Ecosystem through the Large-scale Pact for Skills Partnership

AUTOMOTIVE SKILLS ALLIANCE

Contact details:
Bogdan MIHĂILESCU – bogdan.mihailescu@apte.org.ro

APTE

Proiectul WE HUB for digital transformation

Co-funded by the European Union

Wallachia eHUB

Drive innovation and digitalisation to growth

Free services offered by Wallachia eHUB for SME companies

- SUPPORT TO FIND INVESTMENTS
- TEST BEFORE INVEST
- SKILLS DEVELOPMENT AND PROFESSIONAL TRAINING IN THE DIGITAL WORLD
- CREATING DIGITAL COMMUNITIES AND NETWORKING

Through the Wallachia e-Hub project, we increase the digital capacity of SMEs and LPAs, in order to develop processes, products, digital services and interoperability, by offering specialized services based on advanced technologies such as AI, cyber security, robotics, mobility, location technologies (GIS), Building Information Modeling (BIM), etc.

With a total value of 3,172,262.50 euros, the Wallachia e-Hub project is financed by the Digital Europe Program (EC/101083410) - WeH and by the Increasing Intelligence, Digitization and Financial Instruments Program (POCIDIF/1147/2/1/161799), being implemented between January 1, 2023 and December 31, 2025.

Project Coordinator:

Project Partners:

Contact details:
Bogdan MIHĂILESCU – bogdan.mihailescu@apte.org.ro

If you fulfil the eligibility conditions please apply here:

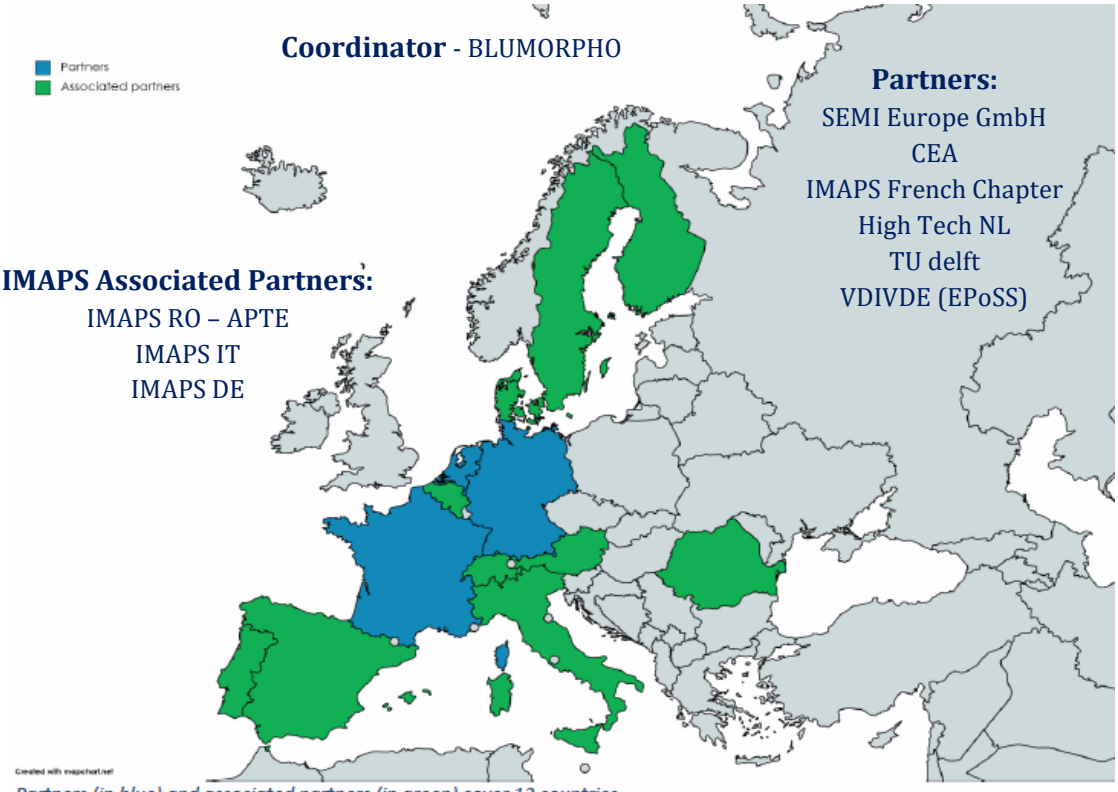
KDT JU
Key Digital Technologies Joint Undertaking

PACK4EU

PACK4EU Project
BOOSTER PACKAGING FOR EUROPE

PACK4EU Project has **two main objectives**, the "Creation of the Pan-European network" and as the second one to "give guidance" to the policy makers of the trilogue, European Council, Member States (MS), the Parliament, who ask what to do for the entire value chain.

PACK4EU Partners and Associated Partners



Partners (in blue) and associated partners (in green) cover 12 countries

Contact details:

Bogdan MIHĂILESCU – bogdan.mihailescu@apte.org.ro

BRAȘOV WELCOMES SIITME 2025

In the autumn of 2025, October 22-25, Brașov will be honored to host the traditional conference & exhibition: the 31st International Symposium for Design and Technology in Electronic Packaging (SIITME).

Old Town and Tâmpa Peak (*alt. 960m*), photo source

Brașov is a medieval city, founded in the XIII century, where nature, history, and modern times blend. The city features the first school in Romania. Academically, the Transilvania University of Brașov is the largest university in central Romania, with over 75 years of tradition.

Brașov has a significant industry also related to electronic design, mainly in the automotive area, with activities ranging from manufacturing automotive parts to embedded systems design and programming. Another common field in the local industry is consumer electronics, featuring both design and development.

Transilvania University of Brașov is looking forward to meeting you in Brașov!

Titus BĂLAN, Ph.D.
Dean of the Faculty of Electrical Engineering and Computer Science, Brașov

20 years

Sibiu The Place To Be!

Continental

NXP

BOSCH

RomTek ELECTRONICS

ICCO® EMT Enjoy your business!

Eberspächer

ifm

ROHDE&SCHWARZ

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UNIVERSITATEA LUCIAN BLAGA DIN SIBIU

POLITEHNICA BUCHAREST 205 YEARS OF INNOVATION 1818 NUST

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

IEEE ELECTRONICS PACKAGING SOCIETY

IEEE NANO Nanotechnology Council®

IEEE Romania Section

IEEE EPS NANO IEEE HU&RO EPS&NTC JOINT CHAPTER

iMAPS ROMANIA

APTE Association for Promoting Electronics Technology

GUVERNUL ROMÂNIEI

MINISTERUL CERCETĂRII, INOVĂRII ȘI DIGITALIZĂRII