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Conference & Exhibition



Keynote speaker:

Name: Cristina Mihaela Drăgan

Job position: Thermal Analyst Expert

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Title of the Presentation:

**Thermal Evaluation of Heat Generating Components in
Automotive High-Performance Computing (HPC) Units**

Short CV:

Cristina Mihaela Drăgan, PhD — Thermal Architect at AUMOVIO (Continental Automotive), Timișoara, Romania — Qualification Labs Technologies Thermal Simulation and Verification (QL TSV).

With over 16 years of experience in automotive thermal management, she has held key roles at Continental Automotive ADAS (2008–2022), Infineon Technologies as Thermal Solution Consultant (2022–2023), and Continental Software and Central Technologies SCT (2023–2024). Her expertise spans system-to-silicon thermal design for high-performance computing (HPC) units, simulation-to-test correlation, and thermal reliability of electronic systems. Driven by a constant desire to explore new thermal solution technologies, she has also focused on Design for Six Sigma (DfSS), applying it to optimize thermal behavior in automotive products. She has strong knowledge in passive cooling optimization and in fan-cooling, liquid-cooling, heat-pipe, and Peltier solutions - along with their technical limitations.

Abstract:

This presentation challenges the common assumption that higher power means higher temperature. Through a systematic analysis of real HPC automotive components, it demonstrates that power density, relative cooling solution, and package thermal resistances (R_{thJC} , R_{thJB}) are stronger drivers of junction temperature than absolute power dissipation. A Design of Experiments (DoE) approach with Pareto charts ranks these parameters for both self-heating and safety margin, revealing that critical components can be easily overlooked without comprehensive analysis. The talk introduces a system-to-silicon framework spanning SW, electronic, and mechanical design disciplines, highlights the growing tension between performance increase, cost reduction, and harsher environment conditions, and defines the key attributes of a thermally reliable product.