

# SIITME2024

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Conference & Exhibition



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**Title of the presentation:** Electronic component qualification for the automotive industry

**Short CV:** 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 years of 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:** The electrical and electronic systems in modern vehicles are complex and employ an increasing number of electronic modules, sensors, actuators, and their related interfaces. The increased complexity also 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

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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 – document structures per categories – 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.