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Nota di contenuto	Analyzing the Worst-Case Execution Time by Abstract Interpretation of Executable Code -- Quality Assurance and Certification of Software Modules in Safety Critical Automotive Electronic Control Units Using a CASE-Tool Integration Platform -- On the Fault Hypothesis for a Safety-Critical Real-Time System -- A Compositional Framework for Real-Time Guarantees -- Validation of Component and Service Federations in Automotive Software Applications -- Towards a Component Architecture for Hard Real Time Control Applications -- Adding Value to Automotive Models -- Automotive Software: A Challenge and Opportunity for Model-Based Software Development --

Software for Automotive Systems: Model-Integrated Computing -- Simulink Integration of Giotto/TDL.

Sommario/riassunto

Software development for the automotive domain is currently subject to a silent revolution. On the one hand, software has become the enabling technology for almost all safety-critical and comfort functions o?ered to the customer. A total of 90 % of all innovations in automotive systems are directly or indirectly - abled by software. Today’s luxury cars contain up to 80 electronic control units (ECUs) and 5 di?erent, inter-connectednetworkplatforms, overwhich some700 software-enabled functions are distributed. On the other hand, the complexity induced by this largenumber of functions, their interactions, and their supporting infrastructure has started to becomethe limiting factor for automotive software development. Adequate management of this complexity is particularly important; the following list highlights three of the corresponding challenges: First, the dependencies between safety-critical and comfort functions are rapidly increasing;a simple example is the interplay of airbag controland power seat control in the case of an accident. Careful analysis and design of these dependencies are necessary to yield correct software solutions. Second, advances in wired and wireless networking infrastructures enable - terconnection between cars and backend service providers (e.g., to call for help in cases of emergency), between cars and devices brought into the car by drivers and passengers (such as cell phones, PDAs, and laptops), and even among cars. This dramatically shifts the focus from the development of individual software solutionsresidingondedicatedECUstotheirdistributionandinteractionwith in and beyond car boundaries.