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Nota di contenuto	Component-Based Software Development for Embedded Systems – An Introduction -- Component-Based Software Development for Embedded Systems – An Introduction -- Specification and Verification -- Specification and Verification of Applications Based on Function Blocks -- A Model-Based Approach to Formal Specification and Verification of Embedded Systems Using Colored Petri Nets -- Modular Verification of Reconfigurable Components -- Component Compatibility -- Behavioral Types for Embedded Software – A Survey -- Assessing Real-Time Component Contracts Through Built-in Evolutionary Testing -- Component Architectures, Implementation and Tool Support -- Platform-Independent Specification of Component Architectures for Embedded Real-Time Systems Based on an Extended UML -- Model Driven Software Development in the Context of Embedded Component Infrastructures -- A Component Framework for Consumer Electronics Middleware -- Connecting Embedded Devices Using a Component Platform for Adaptable Protocol Stacks -- CoConES: An Approach for Components and Contracts in Embedded Systems -- Adopting a Component-Based Software Architecture for an Industrial Control System – A Case Study -- Non-functional Properties -- Specification and Evaluation of Safety Properties in a Component-Based Software Engineering Process -- Performance Evaluation Approaches for Software Architects -- Component-Based Engineering

of Distributed Embedded Control Software -- Component-Based Development of Dependable Systems with UML.

Sommario/riassunto

Embedded systems are ubiquitous. They appear in cell phones, microwave ovens, refrigerators, consumer electronics, cars, and jets. Some of these embedded s- tems are safety- or security-critical such as in medical equipment, nuclear plants, and X-by-wire control systems in naval, ground and aerospace transportation - hicles. With the continuing shift from hardware to software, embedded systems are increasingly dominated by embedded software. Embedded software is complex. Its engineering inherently involves a mul- disciplinary interplay with the physics of the embedding system or environment. Embedded software also comes in ever larger quantity and diversity. The next generation of premium automobiles will carry around one gigabyte of binary code. The proposed US DDX submarine is e?ectively a ?oating embedded so- ware system, comprising 30 billion lines of code written in over 100 programming languages. Embedded software is expensive. Cost estimates are quoted at around US$15– 30 per line (from commencement to shipping). In the defense realm, costs can range up to $100, while for highly critical applications, such as the Space Shuttle, the cost per line approximates $1,000. In view of the exponential increase in complexity, the projected costs of future embedded software are staggering.