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Titolo	Safety of computer architectures / / edited by Jean-Louis Boulanger
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Altri autori (Persone)	BoulangerJean-Louis
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Safety of Computer Architectures; Title Page; Copyright Page; Table of Contents; Introduction; Chapter 1. Principles; 1.1. Introduction; 1.2. Presentation of the basic concepts: faults, errors and failures; 1.2.1. Obstruction to functional safety; 1.2.2. Safety demonstration studies; 1.2.3. Assessment; 1.3. Safe and/or available architecture; 1.4. Resetting a processing unit; 1.5. Overview of safety techniques; 1.5.1. Error detection; 1.5.2. Diversity; 1.5.3. Redundancy; 1.5.4. Error recovery and retrieval; 1.5.5. Partitioning; 1.6. Conclusion; 1.7. Bibliography Chapter 2. Railway Safety Architecture2.1. Introduction; 2.2. Coded secure processor; 2.2.1. Basic principle; 2.2.2. Encoding; 2.2.3. Hardware architecture; 2.2.4. Assessment; 2.3. Other applications; 2.3.1. TVM 430; 2.3.2. SAET-METEOR; 2.4. Regulatory and normative context; 2.4.1. Introduction; 2.4.2. CENELEC and IEC history; 2.4.3. Commissioning evaluation, certification, and authorization; 2.5. Conclusion; 2.6. Bibliography; Chapter 3. From the Coded Uniprocessor to 2oo3; 3.1. Introduction; 3.2. From the uniprocessor to the dual processor with voter 3.2.1. North LGV requirements and the Channel Tunnel3.2.2. The principles of the dual processor with voter by coded uniprocessor; 3.2.3. Architecture characteristics; 3.2.4. Requirements for the Mediterranean LGV; 3.3. CSD: available safety computer; 3.3.1. Background; 3.3.2. Functional architecture; 3.3.3. Software architecture; 3.3.4. Synchronization signals; 3.3.5. The CSD mail system; 3.4. DIVA evolutions; 3.4.1. ERTMS equipment requirements; 3.4.2. Functional evolution; 3.4.3. Technological evolution; 3.5. New needs and possible solutions; 3.5.1. Management of the partitions 3.5.2. Multicycle services3.6. Conclusion; 3.7. Assessment of installations; 3.8. Bibliography; Chapter 4. Designing a Computerized Interlocking Module: a Key Component of Computer-Based Signal Boxes Designed by the SNCF; 4.1. Introduction; 4.2. Issues; 4.2.1. Persistent bias; 4.2.2. Challenges for tomorrow; 4.2.3. Probability and computer safety; 4.2.4. Maintainability and modifiability; 4.2.5. Specific problems of critical systems; 4.2.6. Towards a targeted architecture for safety automatons; 4.3. Railway safety: fundamental notions; 4.3.1. Safety and availability 4.3.2. Intrinsic safety and closed railway world4.3.3. Processing safety; 4.3.4. Provability of the safety of computerized equipment; 4.3.5. The signal box; 4.4. Development of the computerized interlocking module; 4.4.1. Development methodology of safety systems; 4.4.2. Technical architecture of the system; 4.4.3. MEI safety; 4.4.4. Modeling the PETRI network type; 4.5. Conclusion; 4.6. Bibliography; Chapter 5. Command Control of Railway Signaling Safety: Safety at Lower Cost; 5.1. Introduction; 5.2. A safety coffee machine; 5.3. History of the PIPC; 5.4. The concept basis 5.5. Postulates for safety requirements
Sommario/riassunto	It is currently quite easy for students or designers/engineers to find very general books on the various aspects of safety, reliability and dependability of computer system architectures, and partial treatments of the elements that comprise an effective system architecture. It is not so easy to find a single source reference for all these aspects of system design. However, the purpose of this book is to present, in a single volume, a full description of all the constraints (including legal contexts around performance, reliability norms, etc.) and examples of architectures from various fields o