Multiplexed networks are essential for the unified, efficient and cost-effective exchange of electronic information within embedded component systems. This is especially important in automotive manufacturing as vehicles become increasingly reliant on robust electronic networks and systems for improved reliability, anti-lock brake systems (ABS), steering, on-board navigation systems, and much more. The latest systems such as X-by-Wire and FlexRay aim to produce faster, fault-tolerant network component interconnects, for state-of-the-art network implementation and safer, more reliable engineering of vehicular systems.

This book provides a thorough and comprehensive introduction to automotive multiplexed network buses, covering the technical principles, components, implementation issues and applications.

**Key features:**

- Presents a thorough coverage of the controller area network (CAN) protocol, including information on physical layers, conformity problems, hardware and software tools, and application layers.

- Gives a detailed description of the new local interconnect network (LIN) bus, setting out its developments, properties, problems and ways to overcome these.

- Examines the existing and emerging network buses such as time-triggered CAN (TTCAN), FlexRay and X-by-Wire.

- Explores the possibilities for linking the various buses that are discussed, explaining how the Fail-Safe-System basis chip (SBC) and other gateways are designed and constructed.
Analyses wired and wireless internal and external serial links, including Safe-by-Wire plus, I2C, Media Oriented Systems Transport (MOST), remote keyless entry, tyre pressure monitoring systems (TPMS) and Bluetooth.

A valuable guide to embedded systems for a range of applications, *Multiplexed Networks for Embedded Systems: CAN, LIN, FlexRay, Safe-by-Wire...* is essential reading for electronics engineers and researchers developing electronics for the automotive industry. It is also useful for practising aerospace engineers and other practitioners interested in the application of network technologies, and advanced students taking courses on automotive and embedded system design.

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**ABOUT THE AUTHOR**

*Dominique Paret* is currently the Technical Support Manager at Philips Semiconductors, France. He has worked at Philips for the past 15 years, on the areas of **automotive electronics** (CAN (Controller Area Network), LIN (Local Interconnect Network), very high speed buses, time triggered concept – FlexRay, Safe by Wire, SBC (Single-board Computer), fail safe systems) and **identification**, including smart cards, and RFID (radio frequency identification). He also has the role of representing Philips in several standardization organizations such as the French National Body (AFNOR), ISO (International Organization for Standardization) working groups for radio frequency identification and other consortiums for electronic automotive standards. In addition to this, he lectures for several technical schools in France and Pretoria, South Africa, and is an experienced author, having written a number of books, including *RFID and Contactless Smart Card Applications* (Wiley 2005, originally in French), *12C Bus: From Theory to Practice* (Wiley, 1997; originally in French), and the French version of *Réseaux Multiplexes pour Systèmes Embarqués: CAN LIN, FlexRay, Safe-by-Wire* (Dunod, 2005).

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