Today's new data communication and computer interconnection systems run at unprecedented speeds, presenting new challenges not only in the design, but also in troubleshooting, test, and measurement. This book assembles contributions from practitioners at top test and measurement companies, component manufacturers, and universities. It brings together information that has never been broadly accessible before—information that was previously buried in application notes, seminar and conference presentations, short courses, and unpublished works.

Readers will gain a thorough understanding of the inner workings of digital high-speed systems, and learn how the different aspects of such systems can be tested. The editors and contributors cover key areas in test and measurement of transmitters (digital waveform and jitter analysis and bit error ratio), receivers (sensitivity, jitter tolerance, and PLL/CDR characterization), and high-speed channel characterization (in time and frequency domain). Extensive illustrations are provided throughout.

Coverage includes:
- Signal integrity from a measurement point of view
- Digital waveform analysis using high bandwidth real-time and sampling (equivalent time) oscilloscopes
- Bit error ratio measurements for both electrical and optical links
- Extensive coverage on the topic of jitter in high-speed networks
- State-of-the-art optical sampling techniques for analysis of 100 Gbit/s + signals
- Receiver characterization: clock recovery, phase locked loops, jitter tolerance and transfer functions, sensitivity testing, and stressed-waveform receiver testing
- Channel and system characterization: TDR/T and frequency domain-based alternatives
- Testing and measuring PC architecture communication links: PCI Express, SATA, and FB DIMM

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