Distinguished Speaker

Prof. Gerd Ascheid

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RWTH Aachen University

NTUST

Performance vs. Processing Power: A Key Wireless Communication Tradeoff

Date: 14:00~16:00, Apr. 21st (Tue), 2015

Venue: IB-301, International Building, NTUST (國際大樓 IB-301演講廳)

Abstract: Advanced receiver processing can improve wireless communication performance significantly but it also comes with increased computational requirements. For example, introducing iterations between decoder, MIMO demapper and even channel estimation increases throughput and BER performance but comes with higher processing power consumption. For data rates in the Gb/s range the tradeoff between power and performance becomes a major design aspect. This issue will be discussed based on measurements of an iterative receiver implemented as integrated circuit. As will be demonstrated further, processing power may even become the major limiting factor when targeting data rates beyond 100 Gb/s in wireless communication and, therefore, must already be considered for the specification of the physical layer of such systems.

Biography: Gerd Ascheid received his Diploma and PhD (Dr.-Ing.) degrees in Electrical Engineering (Communication Eng.) from RWTH Aachen University. In 1988 he started as a co-founder and managing director CADIS GmbH which successfully brought the system simulation tool COSSAP to the market. In 1994 CADIS was acquired by Synopsys Inc., a California-based EDA market leader. From 1994-2003 Gerd Ascheid worked as Director/Senior Director with Synopsys. In 2003 Gerd Ascheid joined RWTH Aachen University as a full professor in the Institute for Communication Technologies and Embedded Systems. His research interest is in wireless communication algorithms, application specific integrated platforms, in particular, for mobile terminals and cyber physical devices. Gerd Ascheid has co-authored three books, published numerous papers in the domain of digital communication algorithms and ASIC implementation and is founder of several successful start-up companies.

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