



# 学术报告

## ACADEMIC LECTURE

报告人: 美国Element CXI公司三位博士

**Dr. Fa-Long Luo (Chief Scientist)**

**Dr. Ward Williams (Vice President)**

**Dr. Bruce Gladstone (Senior Director)**

题目: **Software Defined Radio with Reconfigurable Elementary Computing Array (Processor)**

时间: **2010年7月13日 (星期二)下午, 2:00 – 3:30 PM**

地点: **浙江大学玉泉校区, 信电系微电子楼三楼会议室**

### 专家介绍

**About Element CXI:** Headquartered in San Jose, California, Element CXI, Inc. is the premier developer of fully programmable, reconfigurable processors for compute-intensive applications with emphasis on software define radio and broadcasting. The company's revolutionary ECA technology offers system designers a low-power, high-performance, cost-effective solution for next-generation products with unprecedented flexibility and resiliency. Element CXI customers include market-leading OEMs and IDMs in the wireless communications, automotive, consumer electronics, and aerospace industries. ECA solutions are currently available as standard products or licensable cores.

**Introduction to Fa-Long Luo:** Dr. Luo is now the Chief Scientist of Element CXI, California, USA. He is also the founding Editor-in-Chief of International Journal of Digital Multimedia Broadcasting (a journal co-sponsored by IEEE and EURASIP) and the Vice Chairman of IEEE Industry DSP Technology Standing Committee. Dr. Luo has been granted honorable professorship by three top universities. He has twenty-six years research and industrial experience in multimedia, communication and broadcasting with real-time implementation and applications. He has made extraordinary contributions in related areas with receiving world-wide attention and recognition. He has authored two books published by Cambridge University Press and National Electronics Press, respectively. He is the author of more than 100 technical articles and eighteen patents (approved and pending) in related areas. Fa-Long Luo has been extensively involved in related international standardization activities. He led more than fifty worldwide experts to have edited the first application handbook: Mobile Multimedia Broadcasting Standards: Technology and Practice (Springer, 2008). As the selected Editor-in-Chief, he is now editing a new book: Digital Front End for Broadband Communications and Broadcasting, to be published by Cambridge University Press.

### 报告内容

This presentation first overviews the challenges that industry/technology for broadband communications (4G and beyond) are facing in supporting multiple standards and multiple applications from various aspects including programming ability, power-consumption, bandwidth, memory, speed, performance, chip size/cost and time-to-market by comparing existing solutions (ASIC/DSP/FPGA/Multicore/Multi-processors). Then, emphasis of this presentation is moved on the architecture, tools and applications of a new reconfigurable computing platform (ECA) for software defined radio. The best scenario is that using one single ECA chip, the total software solution with near ASIC performance can be provided for all baseband processing (LTE, WiMax, DVB-H/CMMB/ISDB-T, etc), digital-front-end processing (DPD, CFR, DUC/DDC) and all media processing (H264/MPEG-Surround/3DTV etc).