Electrical & Computer Engineering

S E M I N A R

Louisiana State University

Wireless Network-on-Chip: A New Communication Paradigm for Gigascale Heterogeneous MCSoCs

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Abstract—Many-core System-on-Chip (MCSoC) designs are rapidly emerging, where hundreds or even thousands of IP cores are integrated on a single die. Such MCSoC devices allow superior performance gains while side-stepping the power and heat dissipation limitations of clock frequency scaling. The main advantage lies in the exploitation of parallelism, distributively and massively. Consequently, the on-chip communication fabric becomes the performance determinant. To bridge the widening gap between computation requirements and communication efficiency faced by gigascale heterogeneous MPSoCs in the upcoming billion-transistor era, a new on-chip communication system, dubbed Wireless Network-on-Chip (WNoC), has been proposed by using the recently developed RF interconnect technology. With the uniqueness of wireless interconnection, the WNoC design paradigm calls for effective solutions to overhaul the on-chip communication infrastructure of nanoscale MPSoCs. In this talk, I will present the feasibility study of WNoC from various aspects, physical layer exploration, system architecture design, RF microarchitecture development and hardware implementation.

When: Wednesday, **14 October 2009,** 14:00 - 15:00
Where: 117 Electrical Engineering Building
Info: `http://www.ece.lsu.edu/seminar`