

## **SoC in Nanoera: Challenges and Endless Possibility**

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**Abstract:** Growth of the semiconductor industry has been driven by a series of electronic system applications, such as personal computers, home entertainment, and mobile handsets. The most recent growth is driven by revolution of the information technology (IT) industry. The key word of this next revolution is “Ubiquitous.” As semiconductor technology is scaled into the nanometer regime where hundreds of millions of transistors can be placed on a chip, designers are now incorporating their advanced system concepts into silicon. These systems include digital, analogue, and RF components. System-on-a-Chip (SoC) enables the IT industry to realise various products that can comply with rapidly changing market requirements as well as with unprecedented ubiquitous life style. However, SoC products in the ubiquitous era are facing challenges such as high performance, low-power, small-size and low-cost. These factors may jeopardise the success of SoC unless there is a breakthrough from system-level design through manufacturing technologies. Advanced EDA technology is indispensable to cope with ever-increasing design complexity of gigascale integration and complicated physical effects inherent from the nanoscale technology.

In this talk, the speaker will provide an overview of the key challenges with SoC developments in days to come, namely: Issues in the system-level design, low power, high performance, verification, and relevant nanometer technology. Solutions including some of Samsung’s recent R&D activities in those areas will be discussed and the speaker will conclude his speech by saying that all these challenges will promise the endless possibilities of the SoC.