Status and Future of IC Analog Technologies

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Analog technologies play a critical role in today's digital world, translating real-world signals like sounds, images and movements , temperature and pressure into the ones and zeros of digital processing. Without analog technology, access to the digital applications that we enjoy today would not exist. The most advanced BCD Analog processes exhibit 90-130nm features sizes but it seems to halt. Are we at the end of scaling for Analog technologies? This paper will review the state of the art analog BCD processes and highlight what are the major components (process, devices & design) required to pursue scaling. It will also cover the need and its difficult implementation for various embedded NVMs (costly floating gate versus new emerging universal memories) as well as the importance of emerging packaging technologies such as (e)WLP, embedded SIP and TSVs. And finally it will address the emergence of smart systems in the consumer domain that will force IC makers to gradually change their IC culture as the acquisition and merging of different skills (BCD design, Packaging, Nano/bio technologies, Sensors & Software) is coming on the horizon.