

## Mixed Signal Electronics in a Digital Environment

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### Abstract

As IC applications have multiplied over the past decade, pushing CMOS electronics beyond the PC and into everything from greeting cards to the human body, so have problems associated with nano-scale high performance CMOS. The quest for improved performance, previously masked by the progression of Moore's law, now calls for renewed creativity and the development of fundamentally new approaches to circuit and architecture design. In this talk, I will consider how the progression of CMOS digital electronics and devices optimized for digital performance has affected mixed signal circuit design. I will offer examples from my research of new approaches to both low power RF transceiver and optical broadband interface design that leverage today's technology. I will also consider how the problems resulting from device scaling such as process variation, noise, and reduced analog performance can be addressed with skillful analog and mixed signal design.

