

FOCUSREPORT

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Power To The People

The health of the semiconductor may be heavily influenced by power in the future - the power utility grid, that is, which ultimately connects the user to the Internet experience.

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Clearly, the global semiconductor industry is back on a roll and it has been for about a year now. It appears that the semiconductor industry, as usual, led the way out of the Great Recession with the first "green shoots" appearing in the second quarter of last year. Semico Research is forecasting that semiconductor industry revenue will increase nearly 24% to \$278.3 billion in 2010. The drivers, according to Jim Feldhan, president of Semico, will be in blade and LAN servers and in wireless and entertainment applications - DVD Recorders, high-speed set-top boxes, HDTV and the like. All of these require power - lots of it.

Jack Harding, chairman and CEO of [eSilicon](#), in a keynote at the Semico Outlook last week, said the revolution of social power has converged with the technology revolution of Joules per second. How civilization handles this power consumption conundrum is central to every country's political power. The point is that faster, smaller cheaper and the age of consumer electronics have ushered in the need for power management, not just on the chip, but as a matter of public policy that affects the day-to-day operations of semiconductor companies - and more importantly, the consumers of the silicon they make.

Harding said we live in a power-centric culture based on invention and innovation; that we are living in a power-centric world where political power will be based on being able to manage electrical power resources. Those who add the most value to power management will be those who succeed.

Power management has been at the heart and soul of the semiconductor industry almost since the industry's inception. Power savings in devices of all sorts have been accomplished not by government policy or intervention but by the mechanism of free-market trends. But clearly, at least to Harding, the semiconductor industry needs to broaden its definition of power management from an on-chip definition to a more global perspective.

Moving a room full of semiconductor executives to think "off-chip" is a powerful challenge in-and-of itself, given the complexity of the techno-business environment in which the industry operates. But a long-term focus on the efficacy of the products the industry builds must, at some point, take into account the fragile nature of the global power grid that literally drives the user interface that is at the heart of today's chip innovation.

Harding noted there are three categories of Green Initiatives that fall within with the purview of the semiconductor industry: (1) Smart grid products and meters - anything that uses sensors to monitor and literally process power (2) Alternative energy products that run the gamut from power generation (solar collection modules and panels) to lighting improvement including more use of LEDs to replace

incandescent bulbs. (3) The "Green Touch Consortium" organized by Bell Labs, and whose members include AT&T, CEA-LETI, China Mobile, Freescale Semiconductor and the Samsung Advanced Institute of Technology among others, that pursues the goal of reducing power consumption by the Global Internet by 1,000 times.

On-chip power management will continue to be the theme for more technical conferences and papers. At the same time it has become imperative that the semiconductor industry look beyond itself enter the broader discussion of power management as it relates to the global power grid and the idea of power management as a public policy issue, both of which are germane to the industry's continued health and well-being.

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