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Altera: Industry faces 'platform collision'

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SAN JOSE, Calif. -- During a presentation at the Semico Outlook Conference here, an executive for programmable logic vendor Altera Inc. outlined the current and future challenges for the semiconductor industry.

Bradley Howe, vice president of IC engineering at Altera, said soaring R&D, IC design and process-technology costs are only some of the challenges. Perhaps the new and growing issue is less obvious: IC integration. Chip integration has reduced the cost in systems, but it is also creating a new and competitive environment. "We are seeing a platform collision," Howe said.

For example, FPGAs continue to advance and are integrating more functions, such as more complex digital signal processors (DSPs), processor cores, among other blocks. Complex microcontrollers are also adding more and more DSP functions, flash memory and even floating-point units. And in another example, processors cores are encroaching on the DSP space.

Which platform technology will win in the long run? And will it be the ASIC, ASSP, FPGA, MCU or IP core? And which company will be left standing?

"It's not clear, and all may coexist," Howe said. "The value propositions are different."

According to Howe, here are the other main challenges for IC makers:

1. R&D costs are soaring. Costs at 32-nm are expected to be two times more than 65-nm. In total, R&D costs for a given semiconductor node (excluding fabs) have jumped from \$45 billion in 2006 to \$100 billion in 2010.
2. Soaring development costs is forcing consolidation in the IC industry.
3. Cost and technical complexity of advanced nodes is substantially narrowing the early adopters.
4. Moore's Law will continue, but high-bandwidth applications and power management requirements limit the ability to scale.
5. The semiconductor sector faces several forces prompting new approaches in the short term.

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