The Roundtable - The Recovery

This month's question is "How will the jobless recovery impact the way semiconductors are designed, developed, and created?" The question is answered this month by Colin Baldwin, Director of Marketing and Business Development for Open-Silicon.

Today's market requires semiconductor companies to continually innovate, offering improved features in next-generation products. Also, just as semiconductor prices continue to drop over time, costs must similarly be driven down by moving designs to new wafer fab processes. Meanwhile, North American semiconductor design staffing remains low.

As a result of this crunch, companies are looking at new approaches to product development. In the past companies staffed IC development to one of two convenient handoff points: netlist handoff to a physical design organization or GDS2 handoff to a foundry. However, this approach also included considerable work on parts of the design that did not add unique value. With resources scarce, many IC developers have changed their model to focus internal resources on differentiation, while leveraging partners like Open-Silicon to complete more projects. There are two models in particular gaining prominence - derivatives and core handoffs.

In a derivative, a customer handoff is the last generation device database, along with some ideas on how the design itself needs to be updated. Most of the changes involve updating IP standards, such as USB2.0 to USB3.0, and the physical design task of shrinking the process geometry to reduce costs. The old design is then updated by the design partner, shrunk to a new technology, and productized including documentation, software drivers, and evaluation boards.

The other model, a core handoff, involves developing only a unique functional block in the design and having the design partner complete the design by adding processors, interfaces, and additional memories. By handing off the block only and allowing the partner to complete the design top level and IP integration, these companies focus their engineering teams on the areas where they add the most

value - those functions which are unique and command high margin in the marketplace.

The landscape of IC design continues to evolve with new technologies and tools. As organizations shift focus areas like software and design with reduced headcount, they will need to find new development models like derivatives and core handoffs to leverage outside expertise to efficiently get new products to market.

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