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What EDA Needs to Do to Start Growing Again

Coming from 27 years in the chip industry, I'm struck by the vast difference in perspective between individuals working in the semiconductor and EDA industries. The chip guys take a broad, integrated approach to product development. That's exactly the approach that the EDA industry needs to adopt to start growing again.

Why is there this difference in perspective? In the chip world, pressures like racing the clock to release new products on time with smaller development teams are quite the norm. It can be daunting to balance increased functionality, aggressive power management, higher frequencies, affordable densities, and complex manufacturing processes. Furthermore, schedules are often estimated based on incomplete information, requirements, and specifications. Most of the time, those schedules also err on the side of optimism. The results of a bad project can be devastating—even for a large supplier.

To tame these problems requires an integrated approach that facilitates early visibility and sound decision-making all the way from initial specification to the finished product. I've spent a lot of my career working on that elusive, fully integrated "spec-to-silicon" design flow—the one that will mitigate specification and technology uncertainties while taming schedule predictability. In the EDA world and through my travels, it has become clear that EDA as an industry has the knowledge, R&D horsepower, and breadth of experience to take a big bite out of this problem. But the industry doesn't think or act that way.What are needed are solutions from EDA suppliers that enable R&D efficiency across a much broader range of disciplines. Let's take a brief look at the problem from a chip-company perspective:

Integrating the design process – At every stage of product development, semiconductor business owners need integrated solutions that allow them to quickly plan, analyze, and communicate product requirements and decisions to the product architects and system-on-a-chip (SoC) integrators. This will enable them to make meaningful implementation decisions while specifications are being refined—long before register-transfer-level (RTL) code freeze or the start of the implementation phase.

Productivity improvements beyond tools and features – Chip-development teams need more than better EDA tools to cope with the opposing forces of complexity and time to market. Development teams need innovative solutions that enable:

a. Accurate and predictable product planning and exploration at the earliest possible stage of the design
b. Efficient design reuse across organizational and company boundaries
c. Common IP and SoC creation solutions that can quickly be deployed and leveraged by multi-regional teams around the globe

How can these requirements be addressed? Prior to our current economic woes, many larger companies had internal EDA teams that drove collaboration across internal teams and external suppliers to develop, deploy, maintain, and support solutions in support of business objectives. In this era of cost reductions--and with the ever-increasing number of players in the disaggregated supply chain--relying solely on internal EDA organizations to implement the required solutions is no longer feasible. Furthermore, many semiconductor companies today don't even have an EDA department. The answer to this challenge is for EDA suppliers to reach out to their customers and build development partnerships to create integrated solutions that enable business objectives.

EDA is in a position to build the right relationships and create the needed solutions. Yet doing so will require a fundamental shift in thinking. Competing on features to win a portion of a fixed EDA budget misses the mark. Collaborative development with key customers (and potentially other EDA partners) is the way forward. Integrated solutions that span the ecosystem and respond to the current pressures will create new value—value that can potentially be monetized in a shared risk/reward model.

If EDA continues to sell point tools and standard implementation flows, this conversation will never happen. EDA companies that embrace these trends and proactively enable development partnerships will become an extended part of their customer's team. The end result will be complete and integrated solutions for development that span specification to manufacturing. These solutions go well beyond today's traditional EDA business models and enable significant reductions in cycle time while accelerating time to market at reduced cost. This is what will get EDA growing again. ◆

Mike Fazeli is a 27 year veteran of the semiconductor industry. Mike has held a variety of senior management positions at Texas Instruments, including the development of worldwide EDA strategies for TI business units. During his time at TI, Mike led many successful initiatives for TI in the U.S. and Europe to improve design productivity, unify design flows and optimize EDA vendor support. Mike holds a Master of Science degree in Engineering from the University of Texas at Arlington.