Challenges of Managing Test

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Once you get past the debate about whether “managing test” is an oxymoron, it is probably easy to get agreement that it is one of the more challenging jobs around. The diversity of challenges is largely driven by the fact that Test touches on almost every element of design and manufacturing and spans the entire product lifecycle. The challenges come in many flavors, but generally can be broken into several categories: Technical, Business process, Business and People.

The key technical challenge of insuring that everything needed to test a new product is available and production worthy when needed is obvious, but rarely straightforward. A major issue is engaging with all the parties, from semiconductor process to product development to EDA to manufacturing, to determine what is going to be needed, influencing requirements and allocating scarce resources to develop new capabilities. Funding of strategic development activities, particularly when not directly tied to a particular product, is always a challenge, as often Test does not have the same focus and priority as semiconductor process and design when it comes to allocation of strategic R&D funding.

Managing the engineering/business processes which are critical to running a global Test development and manufacturing enterprise presents a multitude of challenges. Driving the organization to the right “design point” on a continuum of control vs. flexibility, even at a philosophical level, is difficult. Then there is all the hard work, discipline and management focus required to get the underlying mechanics and business processes in place and operating effectively. Increasing pressures on time to market, responsiveness to the market/customer needs and human nature all naturally drive engineering away from control toward flexibility. However, in order to effectively optimize resources, achieve cost objectives, execute test development and manufacturing commitments and maintain the necessary level of controls across our global manufacturing sites clearly defined business processes are critical. However, this rigor cannot significantly impact the ability to be flexible and responsive.

On the business side, the fundamental driver of complexity is that almost everything in Test is specific to a particular product. A lot of focus on standardization can mitigate this to some degree, but at the end of the day we end up managing a multitude of tester platforms, handlers, test interfaces, probes, test programs, etc. Combine this reality with tremendous uncertainty about customer demands, the ability of wafer fabs to change product mix overnight, balancing workload across multiple test facilities around the world and the constant need to drive down tests costs and you have….well, one heck of a management challenge.

Last, but certainly not least, is the challenge of building and maintaining a world class test team in a world a scarce engineering resources and the too often perceived second class citizen role of Test vs. Design. This is THE most important role of management as PEOPLE are our only true sustainable competitive leverage point.