Designing for Success

By Greg Spirakis,
General Manager, Design Technology
Intel Corp.

At Intel, we deliver state-of-the-art microprocessors for every segment of the computer market. Our long history of innovation in Design Technology has enabled us to design, validate, and test each and every generation of these leading-edge microprocessors. This ability is among Intel's key competencies. It takes more than 100 software tools to design, validate, and test our microprocessors. These tools are either developed internally or procured from external vendors.

A major challenge ahead of us is the productivity gap identified by Sematech: the complexity of devices is increasing at more than double the rate of industry's ability to build them. This gap between process/manufacturing capabilities and design/test capabilities in the semiconductor industry continues to widen.

To address this gap, we challenged our Design Technology Division to address productivity as one of its major issues. Our target is to do twice as many products, in the same time-space, with the same size teams that we currently have. To this end, we developed the concept of providing a total solution to our engineering community that integrates internal and external tools, methods, and capabilities. For the next-generation products, this combination of technology, tools, and methodology is internally known as the Nike generation (preceeded by Athena, Zeus, and Cronus).

On the technical front, we are building an infrastructure that will keep our engineers productive while using multiple operating system environments such as Windows NT* and UNIX* on Intel 32-bit and future 64-bit hardware platforms. We also recognized the need to emphasize reuse in software engineering, architecture, and modeling, and therefore we developed a platform that allows developers across continents to share and integrate their solutions with as little overhead as possible.

For specific solutions such as reusing verification tools, designing datapaths, circuit design tools, and test strategy and tools, we defined productivity goals that will help us overcome the productivity gap mentioned earlier. Each tool has a specific productivity target that either reduces design time for the same problem or solves a more complex problem in the same amount of time.

In today's world of faster, smaller, and cheaper, our tools must meet the requirements of our next-generation microprocessors. In our Design Technology Division, as we move into the future, we will continue to develop the technologies that will provide Intel with a key competitive advantage over the next decade.