



## Interview: Verification Planning and Management Methodology Focuses on All the Right Things

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### Interview with Ze'ev Shtadler, Cadence: Verification Planning and Management Methodology

Verification Planning and Management is rapidly becoming accepted as an important technical discipline for advanced designs. There are a number of ways to take advantage of its benefits. Cdnusers talked to Ze'ev Shtadler, Cadence RnD Group Director for Advanced Verification Solutions, about the methodology and how it is used.

#### **cdnusers: What is verification and management planning, and why is it important?**

Ze'ev: The key point of planning and management is to put structure and visibility into what was previously considered an art. Putting structure into the verification process is not unlike what you do in other engineering disciplines—that is, have a plan, measure according to the plan, and correct and redeploy engineering resources as the various components and teams progress with respect to that plan.

At the individual engineer level, you measure what has been executed as you verify the product. As you move to the verification management level and on to the project management level, data has been extracted and the aspects of the higher-level plan take precedence in the goal of meeting schedule and meeting the demands for functionality.

#### **cdnusers: Tell us a little about verification planning discipline. What is unique or the same about verification that makes planning so important?**

Ze'ev: Planning for verification requires a methodology. If you have a plan, you can work to follow the plan, adjusting it and the resources in order to achieve your goals.

The reason you need a plan is the enormous size of the verification problem. For any reasonably sized design, the amount of brute force verification is so large it could not be completed in a lifetime. A methodology can identify verification goals that can be completed in the time allowed in a design schedule. The plan captures those goals for use in managing the process.

Traditionally, there was not a clear understanding of how to create a plan; no one really knew what a verification plan looked like until the Cadence verification planning methodology was released. We created a new concept—a hierarchical view of the different aspects that need to be carefully checked as part of making a successful design or verification. With the methodology, you can assign

owners; track actual coverage from various technologies such as simulation and formal verification; and relate the plan to System Verilog and e functional coverage, as well as all other sources of coverage. Then, you have a flow of status from the individual verification engineer up to the management view.

**cdnusers: Those sound like important tasks, but can you translate that into benefits. How do users benefit from verification planning and management methodology?**

Ze'ev: The methodology makes planning part of the engineering process. As engineers increasingly reuse IP in SOCs, verification is becoming more and more important. All of a sudden, the balance between design effort and verification effort has changed.

With Cadence technology and methodology, verification engineers now have the same planning capabilities available in other areas of design, so they can execute on what they know they have to do to be successful and get to market on time and on quality—all while making efficient use of their resources.

**cdnusers: Is verification planning and management methodology available in the Incisive® products?**

Ze'ev: The Verification Planning and Management is available to engineers in a number of synergistic ways as part of Incisive Plan to Closure, as well as integrated into the SoC kit. Enterprise Manager operationalizes the methodology, and is part of the Incisive platform.

**cdnusers: What would motivate a verification engineer or team to adopt the methodology?**

Ze'ev: I think there are several motivations. As engineers, we all want to excel in our profession, and I think verification planning takes verification to the next level of technology, enabling everyone to be more efficient and professional in the quality of work that they deliver.

Also, as engineers we all want to know what is important in the work we are doing, so we can focus on what is really important. Plan-driven verification helps us with this—the verification engineer knows what is important for the project, what is important for the success of the product, and therefore can focus on that area.

**cdnusers: Where generally is the market in its adoption of verification planning and management, and what are some of the barriers to customers who want to adopt it?**

Ze'ev: The majority of the adoption of verification management is by customers who are facing more complex designs and products, and who are potentially working in the global environment with team members working in separate sites, maybe separate time zones.

It is also being adopted by customers who have deployed coverage-driven verification and find this methodology provides them with a lot of information. They need to structure in order to have good visibility and understanding of the status of their designs.

As far as barriers, it used to be that verification was considered an art that could not be formalized into requirements. Now, verification engineering can use planning as part of the verification process. Still some engineers find it difficult to envision how to put structure into verification tasks. To overcome this, we provide examples in the methodology and the SoC kit to get them started.

**cdnusers: What do you think are the motivations for some of the standards discussions about coverage? Why might they be useful or inadequate?**

Ze'ev: Standards are good, they help drive the industry forward and, in this respect, customers are looking for standards to make sure they can integrate and incorporate the technologies from various vendors into a solution framework. The key with standards is to invest in them when they really do solve industry problems.

**cdnusers: Where do you see the industry going with planning and management?**

Ze'ev: Verification planning and management can be enormously helpful. Those who are not using it yet should consider the efficiency of their verification, and how they could benefit from adopting the methodology in terms of planning work, working according to the plan and enabling management to make the right tradeoffs at any point in the process.

Planning and management in verification is really about the efficiency gap, making sure you are using your resources optimally. It is about the quality gap, making sure you drive to improve quality and get a higher quality product at the end of the day. It is about the time gap, meaning you are able to meet or exceed your deadline when you are using verification and metric-driven management for your product and project.

We have defined the solution with the customer in mind all the time, and we are perfecting it continuously.

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### **About the author**

*Ze'ev Shtadler Biography Ze'ev Shtadler, Cadence RnD Group Director, Advanced Verification Solutions, is leading projects designed to extend the deployment of verification planning and management technologies to support customer needs at the solution level. Prior to Cadence, he spent 10 years at Intel working on formal verification. He also worked at Verisity, pioneering constraint-driven generation, temporal checking, and coverage technology. Ze'ev received B.A. and M.A. degrees in Computer Science from the Technion, Israel Institute of Technology.*