CADENCE VERIFICATION EXCELLENCE PROGRAM

To reduce risk, achieve predictable verification closure, and deliver innovative products on time, engineers need an advanced, production-proven verification methodology. The Cadence® Verification Excellence Program offers an unbiased way to evaluate your methodology, receive recommendations from experts, and obtain meaningful metrics around the effectiveness of your functional verification process. Delivered by methodology experts, the program ensures that you will be on a path to verification excellence in as little as one month.

FUNCTIONAL VERIFICATION IS THE BOTTLENECK

With unforgiving market windows and ever-increasing demand for more functionality and performance packed into each new design, functional verification has become a critical issue. As designs increase in size, the number of simulation cycles needed increases exponentially, and this is just for the digital hardware, let alone for software or analog content. As these challenges escalate, companies need a top-notch verification methodology to maximize their productivity.

METRICS-BASED APPROACH IS THE SOLUTION

Cadence has pioneered the use of metrics-based functional verification and is now applying this scientific technique to measure and compare methodology productivity. The Cadence Verification Excellence Program evaluates all aspects of a project team, compares this to known best practices within a particular industry, demonstrates the ideal techniques, and provides clear guidelines for future productivity improvements. Unique to the service is its metrics-based approach, extended from Cadence verification methodologies.

The Verification Excellence Program uses six levels to characterize verification productivity (see Figure 1). There is a known correlation and business benefit associated with each level, which is quantified as part of the service. It also allows you to practice techniques at the block level by utilizing pre-built Cadence IP verification kits. Users can adopt Cadence recommendations incrementally, based on the levels outlined or on areas needing the biggest productivity improvements. The program also leverages techniques from the Cadence Incisive® Plan-to-Closure Methodology, proven on hundreds of engagements with leading silicon providers from around the globe.

L6	System-Level Validation
L5	Component-Based Reuse
L4	Metric-Driven Verification
L3	Coverage-Driven Verification
L2	Assertion-Based Verification
L1	Manual Testing

Figure 1: Verification Process Automation (VPA) Scale

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BENEFITS

- Improves verification productivity when recommendations are exercised

- Reduces risk by leveraging industry best practices and the Plan-to-Closure Methodology

- Employs a metrics-based approach to ensure scientific, unbiased analysis

- Leverages pre-built, industry-proven engagement material

ENGAGEMENT PROCESS

The Verification Excellence Program is delivered by functional verification experts who are also experienced users of Cadence tools and technologies. Once a specific project is identified, the process begins with an overview of the metric-driven approach,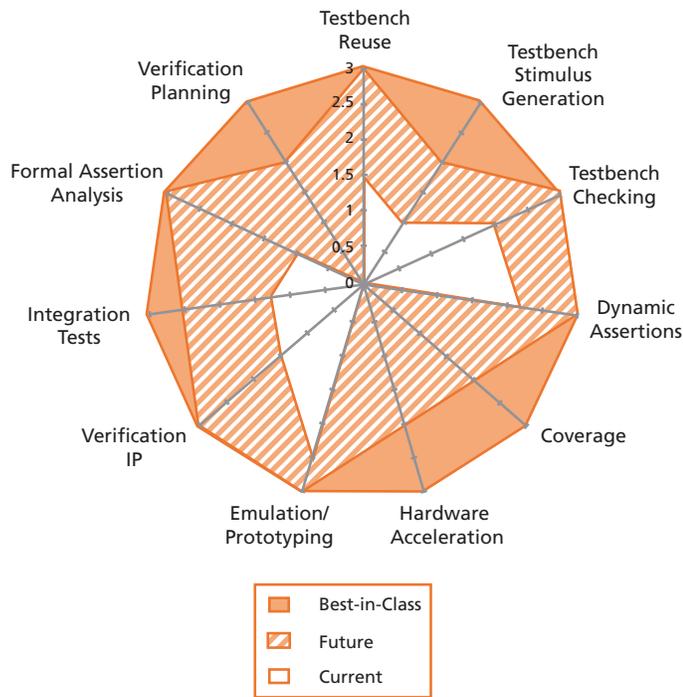 followed by a detailed web-based questionnaire, then onsite interviews. As part of the interview process, Cadence will capture the various verification techniques used by each of the projects and/or groups. This information is displayed in a radar chart (see Figure 2), which depicts the current verification techniques used, what may be possible in the short-term future, and what are the industry best practices. Future improvements are based on achievable goals and, as part of the service, are proven on the customer design during the prove-it phase of the Verification Excellence Program. This prove-it phase is coordinated with and often delivered with the local application engineer, ensuring that the recommendations are supported within the tool environment.

The next step is mapping of the feedback into our proven verification process automation (VPA) scale (see Figure 1 again). Based on design type, industry type, and corporate goals, specific recommendations are provided. The VEP engagement model provides a well-structured and formalized way to prove the specific recommendations being made. After agreement on which improvements will yield the maximum results, one or two specific proof projects are initiated. The program concludes with a plan to transition from your current methodology to the new methodologies, either incrementally or by specific enhancements desired. Users can also leverage Incisive verification kits to see first-hand the many best practices being recommended. The entire process can be completed from start to finish in less than a month for a small project team.

DELIVERABLES

- Expert verification services and onsite program implementation

- Verification Excellence Program questionnaire

- Recommendations report and executive presentation

- IP verification kit with associated workshops and labs for execution of block-level recommendations

- Proof of recommendations on your design and within your environment

- Roadmap plan to full implementation

Figure 2: VEP Prove-It Process Results Example

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