SK Hynix Accelerates Memory Development with Productivity-Enhancing Debug Apps on Synopsys Verdi

VC Apps Open APIs Automate Memory Testbench Generation and Debug

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Highlights:

- SK Hynix cuts time-to-debug and overall debug time by integrating VC Apps into their internal verification and debug applications
- Resulting integration leverages industry-leading, open Verdi debug environment while empowering SK Hynix to develop customized debug flows for their unique challenges

Synopsys, Inc. (Nasdaq: SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced that SK Hynix, Inc. has addressed their debug challenges by adopting the Synopsys VC Apps open application programming interfaces (APIs) to directly link their internally developed test generation technology to the industry-leading Synopsys Verdi® debug solution and allow their design and verification teams to customize their debug experience and boost debug productivity. Synopsys' VC Apps open APIs provide direct access to design environment and verification information stored in Verdi's open databases, which are in turn used by all leading simulation, emulation and formal verification solutions. With this native integration, SK Hynix engineers can save hours on each run and debug cycle.

"At SK Hynix, we had to find just the right balance of innovations from our technology partners with our own innovative processes in order to become the memory leader we are today," said Edward Kim, director of memory CAE at SK Hynix. "The productivity our engineers gain from deployment of VC Apps and standardized use of Verdi helps us to not only maintain that balance, but also reduce our costs and get working products to our customers faster."

Traditional methods for debugging data and results from internal or third-party tools involve either ad hoc manual steps and/or translation scripts that are both time-consuming and error-prone. VC Apps provides debug integration capabilities for CAD teams and tool developers, making it easy for individual users to further customize their debug flows and experience within Verdi. With design and verification teams spending, on average, half of their time on debug, the time spent searching for commands and options or repeating common sequences of clicks and actions accumulates into substantial time and cost. The same APIs for Verdi databases and GUIs are accessible to all users, with clear open source examples and tutorials available on the VC Apps Exchange website and through the VC Apps Toolbox in Verdi.

"We collaborate closely with our semiconductor industry partners to ensure that debug remains as simple as possible despite the complexity of their chips and increased verification challenges," said Yu-Chin Hsu, vice president of R&D in the Synopsys Verification Group. "We continue our significant investment in the open Verdi architecture, as well as in specialized technologies and methodologies for optimizing our customers' and partners' unique debug flows. VC Apps is one of the keys to unlocking the full power and flexibility that we have architected into both Verdi and now Verification Compiler™ product."

Availability

In general availability (GA) today, VC Apps APIs are available atVC Apps Exchange, as well as through the VC Apps Toolbox in Verdi. These technologies are also included as part of Synopsys'Verification Compiler, which is currently in limited customer availability (LCA).

About VC Apps

VC Apps – formerly known as Verdi Interoperable Apps (VIA) – is a programming interface that allows system-on-chip (SoC) design teams and EDA vendors to access information from Verdi's debug databases and analysis engines to innovate, seamlessly integrate and customize within the Verdi debug environment. The VC Apps Exchange website offers a variety of documents such as training materials, a reference manual, VC Apps example apps and an active forum of experts. Learn more at www.vc-apps.org and attend an online introductory webinar. The Synopsys VC Apps Access Program provides qualified access to the Verdi product to enable interoperability in support of verification and design flows. For more information about the program, visit www.synopsys.com/vc-apps.

About Synopsys

Synopsys, Inc. (NASDAQ:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, its software, IP and services help engineers address their design, verification, system

and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at www.synopsys.com.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 regarding the expected release and benefits of the Verification Compiler product and the Verdi product. Any statements that are not statements of historical fact may be deemed to be forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that could cause actual results, time frames or achievements to differ materially from those expressed or implied in the forward-looking statements. Other risks and uncertainties that may apply are set forth in the "Risk Factors" section of Synopsys' most recently filed Quarterly Report on Form 10-Q. Synopsys undertakes no obligation to update publicly any forward-looking statements, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

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