

Synopsys and Commex Technologies™

Synopsys DesignWare® Ethernet VIP Saves Two Months Time to Market on Commex Chip



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– Avi Ganor, Vice President of R&D, Commex

Business

Commex, a startup fabless semiconductor design firm based in Tel Aviv, Israel, is a member of the RAD Group – a family of independent companies that develop, manufacture, and market solutions for diverse segments of the networking and telecommunications industry.

Challenges

- Save time-to-market (TTM)
- Minimize risk
- Focus engineering talent on core competencies

Solution

- Synopsys DesignWare Ethernet Verification IP (VIP)
- VCS® Native Testbench (NTB)
- VMM methodology for SystemVerilog

Benefits

- Accelerated TTM by two months
- Saved substantial engineering costs
- Provided confidence in verification environment
- Allowed engineering to focus on core competence areas
- Debugged design successfully, leading to on-time pilot customer deliveries

Overview

Commex Technologies, Inc. is employing novel concepts in the design of its chips and an equally novel approach for bringing them to market quickly. By using intellectual property (IP) extensively in both its design and verification environments, the startup semiconductor design firm finds that it can focus on its core competences while relying on IP from industry leaders such as Synopsys. Synopsys VCS Native Testbench (NTB) and the VMM methodology provided a trustworthy foundation for the firm’s verification environment and DesignWare Ethernet verification IP integrated easily into the environment, allowing Commex to save substantial engineering costs and time to market on its first product.

Commex Chip – Boosts Performance

Commex’s product transparently boosts x86 multi-core computer system performance while reducing power consumption. This technology represents a revolutionary force in next generation system technology—bringing an entirely new perspective to our expectations from computer performance and functionality.

Synopsys DesignWare Ethernet VIP – The Safe Choice for Verification

To get the product into customers’ hands as quickly as possible, Commex adopted a new development approach that allowed its designers to concentrate almost exclusively on implementation. “In designing and verifying chips, engineers used to have to spend a lot of time in many non-core areas,” explains Avi Ganor, Vice President of R&D for Commex. “Synopsys has developed high-quality IPs and Verification IPs that we can easily plug into our environments. By using these IPs, we can spend our time building on our unique strengths.”

“Bottom line: Synopsys Ethernet VIP did the job right, and with its help we were successful. I recommend it to anyone who wants verification they can depend on.”

—Avi Ganor, Vice President of R&D, Commex

Synopsys' DesignWare Ethernet VIP, which provides a quick and efficient way to verify system-on-chip designs that have an Ethernet interface, integrated easily into Commex's verification environment, which is based on the Verification Methodology Manual (VMM) for SystemVerilog. The VMM methodology defines industry best practices for coverage-driven and constrained-random verification environments. "The 10G Ethernet interface is commonly used by the industry," says Ganor. "We saw no reason to invest our engineering time to re-do this standard task. We trust Synopsys' knowledge to do so and we're saving our effort for our unique technology."

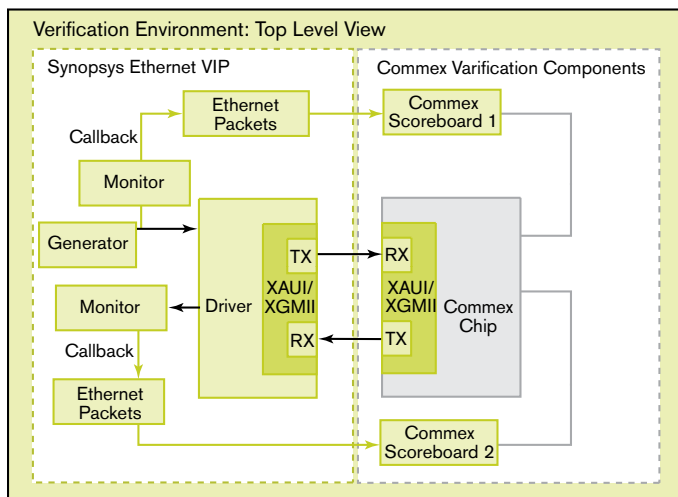


Figure 1: DesignWare Ethernet VIP integrated into Commex's verification environment. The top-level module of the environment instantiates the VIP components and interconnects them through VMM channels and the main VMM base functions. In addition, Ethernet VIP interfaces Commex verification components via the common VMM callbacks method. The only thing left for the user is to do is supply the generator with the test parameters and then run the simulation. Ethernet traffic is executed according to the test parameters.

Before selecting its verification IP, Commex considered several alternatives but in the end found the decision to be straightforward. "Above all, you need to be able to count on your verification environment to catch the bugs in your designs, which means you need a supplier you can count on to create an environment that's trustworthy," says Ganor. "Synopsys has that kind of credibility. I've used Synopsys products extensively in the past, and I know first-hand that their reputation for quality is justified."

Synopsys Complements Products with Outstanding Support
Commex's verification challenge was to build a reliable test environment with Ethernet VIP quickly, and with support from Synopsys they succeeded. Synopsys provided strong local support to quickly integrate the Verification IP into the verification environment.

"We are very pleased with the support we received from the local Israeli verification team, who ramped us up perfectly," Ganor comments. "Naturally a few questions came up as they always do, but the support team invariably dealt with them promptly and followed up well."

Two Months Saved

Commex completed the initial design of the chip, verified it quickly using Ethernet VIP and the entire verification environment, implemented it on an FPGA, and made deliveries to pilot customers who are now integrating it into their products. Ethernet VIP identified and pinpointed the location of several design bugs that could easily have disrupted the schedule.

"Synopsys Ethernet VIP did everything we hoped it would for us," concluded Ganor. "If we'd developed the same capability ourselves, it would have added two months to the schedule entailed additional engineering costs and diverted us from our core competencies. Bottom line: Synopsys Ethernet VIP did the job right, and with its help we were successful. I recommend it to anyone who wants verification they can depend on."

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Predictable Success

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