

Industry

- Technology

Business Issues

- Increase the speed of LSI verification and simulation
- Implement an expandable and reliable IT foundation
- Increase product and service offerings

Solution

Sonac chose a Sun Grid implementation based on Solaris for x86 with Sun servers and Sun workstations.

Business Results

- Significantly reduced verification time from 17 hours to approximately 30 minutes
- Validated Sonac testing assets and intellectual capital
- Gained flexibility through the ability to scale the number of CPUs in linear fashion
- Established a foundation for developing a packaged LSI verification solution

Products/Services/Solutions

- Sun Fire V40z Server
- Sun Grid Engine Software
- Solaris 10 Operating System

URL Reference

sun.com/customers

Sonac, a Japanese venture of Nitta Group's Electronics Division, provides knowledge, services and solutions to speed the process of simulating and verifying LSI circuit designs. Sonac's offerings are of value to semiconductor and electronic equipment manufacturers because more than 70 percent of development time for new LSI designs is spent on testing. Sonac adds value through both in-depth knowledge of LSI verification processes and the ability to complete testing in less time.

Success at a glance

When your business is integrated circuit design, one of your biggest challenges is reducing development time. About 70 percent of development time is spent on simulating and verifying the logic—in other words testing. What's more, hardware developers who design these circuits are often not well versed on the languages and methodologies used in logic verification. This is where Sonac comes in with extensive knowledge of the languages and technologies used in LSI verification. Its mission is to help semiconductor and electronics manufacturers perform thorough testing and reduce test cycle times, thus improving time-to-market for new circuit designs.

Sonac developed its own test bench for testing the LSI designs, and had been running into challenges due to the time it took to run the tests. Often the company's test professionals would start test runs in the evening and let them run overnight, so they could address results in the morning. If there was a problem and the test did not run, they lost an entire day of work because they had to repeat a 17-hour test procedure. One of the challenges was the fact that they only had a single CPU to perform the entire test, so executing the full set of instructions in sequential fashion took a long time. Clearly Sonac needed a better IT foundation for its business.

The Sonac test bench has been built on the SystemVerilog LSI design and verification language and the Verification Methodology Manual (VMM). It uses the Synopsys logic simulator called VCS. To run this test bench, Sonac chose the Sun Java Workstation W2100z equipped with Sun Solaris 10 Operating System for X86. The Synopsys VCS logic simulator runs on three Sun Fire V40z servers with Solaris 10 Operating System for x86 with Sun Grid Engine software to form the grid. A gigabit Ethernet switch connects the workstation and servers.

As test executes, Sun Grid Engine software automatically divides random test cases generated on the test bench across a total of twelve independently operating CPUs (4 in each Sun Fire server) to execute the set of instructions for each test case. As a result, processing power scaled linearly and tests that took 17 hours to complete were now completed in about 30 minutes! With testing time reduced, Sonac's customers are better positioned to complete circuit designs more quickly, thus helping to speed products to market.

Sonac specifically chose Solaris 10 as the operating system for its grid implementation because the company needed a professionally supported operating system and wanted risk reduction. Sonac needed the reliability and stability of Solaris, as well as the extensive knowledge, support and experience that Sun brings.

Based on this success, Sonac has forged an alliance with Sun to offer a packaged version of this test solution to semiconductor and electronics manufacturing customers, and in doing so parties helping to revolutionize the process of LSI design.

“By reducing the time it takes for verification testing to complete, we are realizing an efficient verification cycle and can quickly act on the results of the test. So, we are able to complete more thorough testing more quickly for our customers. ”

Mr. Tadashi Matsuoka

General Manager, LSI Business Department, Sonac, Inc.