Benefits of Improving Test Time with *WAVECREST* Products

Today's rapid advances in technology have made "Time to Market" a critical element for the success of a product. The key element in the lab is getting parts tested and verified in a timely manner. Time consuming characterization and pre-production testing can hold up a product's movement to full production. Another benefit of reduced characterization time is the ability to do more comprehensive analysis of a device's overall performance. This can lead to faster production test time as some tests will be verified by design and won't require testing on a chip-to-chip basis. This document brief outlines some actual customer's experiences using *WAVECREST* products to improve their time to market and ROI.

WAVECREST'S products, with their patented software algorithms, enable designers to test their products in record time. *WAVECREST'S* fast test times provide 3 main benefits. First, the engineer can spend less time in design and pre-production characterization on a product. This enables the engineer to be more productive. Secondly, fast test times produce reduced characterization time accelerating a product's time to market. Also, the engineer is able to get a comprehensive understanding of a part's performance. For example, characterization may only be done on a few parts at one or two voltages and one or two temperatures due to long test times. You can now test more parts at more temperatures and voltages thereby providing a thorough analysis and improved statistics giving you more confidence that the part will meet specifications.

"Producing a bathtub curve so I could extrapolate to a BER to 10^{-12} used to take upwards of 30 to 45 minutes. And that would only give me total jitter. Now, with the *WAVECREST* SIA-3000, I can complete this in a matter of 30 seconds.

I wouldn't think of going back and trying to measure jitter the way I used to."

Stephen Muller
Design Engineer
Sun Microsystems

Reduced Test Time Means an Improvement in Engineering Productivity

Chart 1 shows an actual example of an engineer's improvement in productivity due to reduced test time. The engineer was using a BERT to generate bathtub curves. This measurement took 30 to 45 (37.5 average) minutes per test. With the *WAVECREST* SIA-3000 he performed the same analysis in 30 seconds. This is an improvement on average of 37 minutes per test! These tests are run hundreds of times in a typical design lab. Assuming the engineer needs 15 minutes between tests for setup changes, the BERT solution will only produce 8 results in an 8-hour day where the *WAVECREST* solution produces 32. Chart 1 shows that the time it takes to run 200 tests is over 18 days less with the *WAVECREST* SIA-3000. Not only does this save valuable engineering dollars, it also enables the engineer to run more tests in less time. With *Virtual Instrument Signal Integrity*™ software, engineers also get more

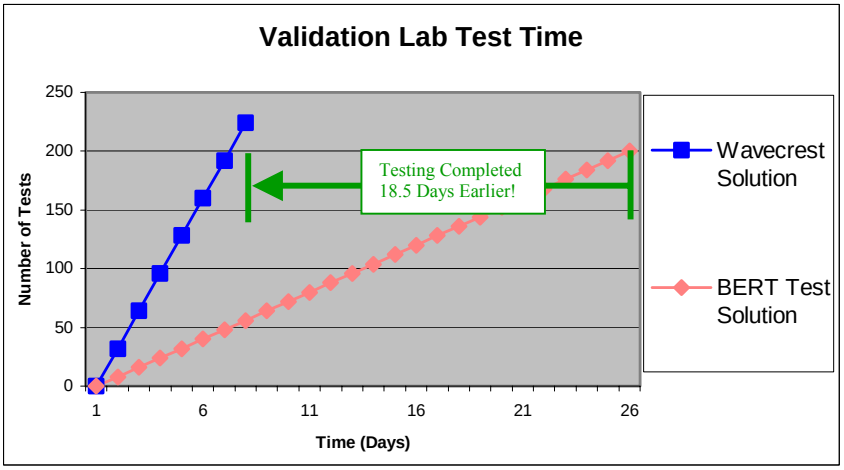
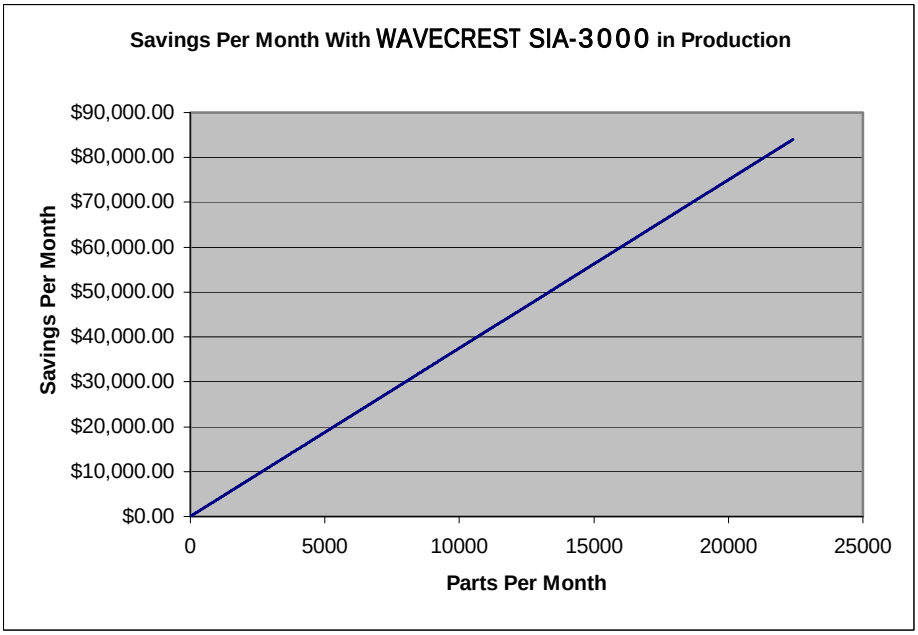


Chart 1: Reduced test time means faster time to market.

information than they get from the previous test solution with every test they run, i.e., FFT's to analyze the sources of their jitter problems and plots that show how the edges are deviating from the ideal on an edge by edge basis. This enables engineers to better understand the performance of their devices enabling them to make a more robust design. Many times this eliminates the need for additional tests in production and reduces the likelihood of parts being returned because of unmet customer specifications. What would it mean to you if your product reached the market 2 ½ weeks earlier?

WAVECREST Solutions Save Valuable Time in Production Testing

In addition to Lab testing, *WAVECREST* has 15 years of experience in production testing with products integrated into over 800 production testers worldwide. One *WAVECREST* customer was able to reduce their test time for a very complex device from 12 minutes down to ***2 MINUTES***. This saved them over $3.75 per part in cost of test. At a rate of 20000 parts per month, this will save them $75,000 per month or $900,000 per year.



Whether you are testing parts that take minutes or milliseconds, the benefits of *WAVECREST* solutions in production can mean a substantial cost savings by:

- Reducing design time and pre-production characterization
- Enabling faster test times thereby producing reduced characterization time
- Providing a comprehensive understanding of a part's performance

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