Galaxy Yield-Man Case Study: Icera

Background

Icera is a fabless semiconductor company, pioneering high performance, low power, soft modem chipsets for the rapidly growing mobile broadband device market. The company delivers high performance modem solutions for USB dongles, datacards, laptops, mobile internet devices and smartphones. The current Icera chipsets consist of a digital/mixed-signal baseband device, a power management chip and an RF radio- all of which require extensive parametric testing. Icera currently outsources their wafer and package test to two Asian subcontractors, and has selected Galaxy Yield-Man to automate the yield management process.

Icera Process before Yield-Man

Before Icera purchased Yield-Man they relied on a Microsoft Excel based package to generate yield reports. This proved to be impractical for large lots since Excel could not handle the huge data files. In addition, without a relational database to store the test data it was very difficult to view yield across multiple lots or multiple vendors, so it often took hours to generate the reports they needed.

Current Process with Yield-Man

Icera has set up Yield-Man to download the test data from their subcons every 30 minutes and then automatically insert it into their MySQL database. The test data volume often exceeds 100MB on a typical day. Yield-Man then generates a daily consolidated yield report that summarizes yield by product and by lot and is emailed to key members of the operations team, product engineering group and the Director of Operations. Yield-Man's consolidated yield reports take into account the retest data provided for devices that initially failed but subsequently passed the test, so the reported yield levels are accurate.

When a lot yield periodically falls below the expected level, the Icera product engineering team uses Galaxy Examinator to mine the MySQL database for the more detailed bin summaries, failure paretos and histograms, which provide vital clues as to the source of yield loss. A typical example of such a yield excursion is when certain areas of the wafer have lower yield than others, and the Examinator parametric wafermap reveals that certain speed tests in these regions have results that are just below the low limit, and are related to variations in the manufacturing process. With the Yield-Man/ Examinator combination, this type of in-depth investigation typically takes less than 2 hours.

A second application for Yield-Man at Icera is to generate a weekly Cpk report that is trended, enabling them to monitor specific test results for drift over time and ensure that the manufacturing process is in control at all times. These trends are also provided some of Icera's major customers.

Why Yield-Man?

Icera selected Yield-man because they needed a product that was easy to install and use, would work out-of-the-box for their application and was integrated with a powerful desktop test data analysis tool like Examinator. They especially liked the fact that Yield-Man's automated reporting requires no scripting knowledge- it's as simple as record/playback.

"With Yield-Man we can now extract very valuable information out of a huge amount of test data. We can clearly see yield trends and avoid problems before they occur. What used to take us hours of manual report generation is now fully automated. And finally, we like the fact that Yield-Man is built to scale with our business." *David Wardrobe, Icera Product Engineering*