

SESSION 11b: YIELD ENHANCEMENT AND MANUFACTURING

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Session 11b covers Yield Enhancement and Manufacturing, which are two topics that are near and dear to all our hearts! A big part of svelte manufacturing is making your equipment behave itself, so the session starts out with an invited talk from Dave Brindza and Travis Abshere from TriQuint Oregon, one of the biggest GaAs fabs in the world. They discuss the challenges of taking care of the mix of new and old tools many of our CS fabs have. Shiny new tools, tried and true workhorse tools, and the old usually cantankerous legacy tools all need their own kind of hand-holding, which the authors discuss with specific details from their experience. Come and learn some of the hard-won lessons from these very experienced engineers!

Next, we learn from Nirav Thakkar how the Skyworks fab in Newbury Park has used factory automation software for everything from tracking use of precious metals to attending to equipment, to spare parts control, recipe downloading, Cpk monitoring, and even ESD control. This promises to be a good talk from which to gather concepts to take home and try out for yourself.

A proper staff level for the mission is as important as documentation, SPC, training, utilization and a good operations manager. To illustrate this, MAX I.E.G. will present a case study to optimize the direct labor (DL) staffing level at a medium size semiconductor fab that resulted in a 5% reduction in DL costs while maintaining or improving tool utilization.

We finish with two more yield improvement talks from TriQuint Oregon. Tertius Rivers and his team describe how they used application-specific DC die sort test and concentrated yield analysis to find and root out sources of die scrap in a 1 pole, 7 throw PHEMT switch. That RF part was seen to have defect-limited yields, a first in TriQuint's long history of fabricating GaAs IC's. Automated Optical Inspection and other methodologies to measure then reduce defect densities paved the way for high yielding switches. And this very interesting session ends with Weng and Saeger, also from TriQuint, discussing how they have been able to do both front- and back-side automated visual inspection of Cu Pillar Bump die after singulation. The inspection occurs during the die pick-and-place to tape-and-reel, at minimal cost and low increase to cycle time. Cheap and fast, something sure to make your management happy!

