Panel Position Statement: Big-Iron Testers are a Reality – Their Requirements and Role

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High end ATE continues to dominate the semiconductor industry as device complexity and integration of analog and digital functions into SOC devices mandate sophisticated testing. Quality and reliability standards have not diminished and semiconductor real estate cost and time to market demands have precluded comprehensive use of DFT methodologies to date.

One factor in particular is contributing to changing the high end ATE market dramatically and that is the rapidly lowering average selling price of ic’s. This has capped the price the market will pay for ATE equipment independent of performance and pushes throughput and other cost of test factors to the forefront of the decision making process.

As ATE costs are being squeezed, BIST is beginning to be used in SOC devices for memory, pll, and some logic test applications. This trend will continue especially for very low asp consumer devices and eventually will force a totally new type of low cost ATE to be developed to work with the new DFT methodologies.

We predict that the test market is close to dividing, with the high end staying with expensive ATE systems and the rest of the market going to the very low cost DFT tester. This trend will be driven first by time to market demands and short product life cycles, followed by lower costs of silicon made possible with larger 300 mm wafers and smaller die. As test becomes a larger % of the final overall device costs, more time and effort will be spent to reduce this expense.

An ATE company today must first be prepared to offer the lowest test costs, lowest capital costs, and be prepared to offer both high performance conventional ATE as well as very low cost DFT testers. Tools necessary to automatically map simulation results to tester files and back will be critical elements for gaining value for moving to the new breed of DFT testers. Building a viable business model around low cost DFT testers will be a challenge for today’s ATE companies.