Common Grounds for Varied Testers

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Position

Developers of ATE hardware and software systems are united and divided by their beliefs about:

- Users
- Tasks that users perform
- Test methodology preferences
- Information availability
- What users value (and so will pay for)
- What will produce Return On Investment

General sets of these beliefs form a significant part of each company’s product development culture. One company may see its product as “the performance tester”, another as “volume production”, and another as an “engineering tester”.

During product planning the company will talk to customers to decide what features should be added to existing products, or what new products are likely to succeed. Who they talk to, and who they listen to can make major differences in the products and features they define.

Many teams use their existing major customers as the primary source of development priorities. These customers tend to reinforce the belief system: they have bought lots of testers that match their belief system; they are succeeding with those testers; and so they ask for more of the same. They may even refrain from asking for features that they know to be outside the vendor’s view of their products.

When talking to a customer, companies talk to the departments they believe have the largest purchasing power. This is usually the manufacturing group, who may care a lot about production throughput, but who are unlikely to place engineering debug tools high on the priority list.

The users themselves do not always agree on what they need, even within a single company. Discussions about low-cost testers with a DFT focus provided good examples of this split. The DFT architects could clearly state which features they did not need, and they were confident that they could design devices to fit within any constrained testers. A different view came from the manufacturing management: they would decide to buy based on meeting the DFT needs, and also having enough capability to deal with tests for problems that the DFT and BIST facilities missed. The ATE companies have to decide which of these viewpoints will win when purchasing decisions are made.

ATE systems have traditionally set a boundary around themselves: users have to provide test information in tester-specific formats; the test debug tools provided allow manipulation of the tester-specific settings; and users have to program additional device debug tools in the mechanisms of that tester.

Tester-specific languages have caused the development of many translation tools between different source forms and testers. Unfortunately these translations lose most of any test intent information that may have been available.

Tester users have become skilled at working with limited data; test system developers see limited value in providing tools that use extra information because it will probably have been discarded by some translation tool in the chain.

Tools that use device DFT features to assist in device debug, or even test debug, are rarely provided because they are specific to a design methodology, or even to specific design tools, and so applicable to only a part of the customer base.

How can we solve these problems in communication and tools? Here are a few suggestions:

- More open discussion between users and developers of test systems, with fewer filters from sales, marketing and management hierarchy.
- Testers that use standard languages and formats rather than inventing more.
- Open interfaces for new tester tools so that new tools can be developed outside of the ATE companies, and used on more than one tester platform.

This panel discussion should help to raise awareness of the issues.