The Critical Need For Open ATE Architecture

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Problem Statement
The new IC testing reality of this decade calls for an innovative approach to meeting unique testing challenges. The open architecture for ATE systems approach provides a powerful framework for the development and utilization of IC test solutions.

The New Testing Reality
The new testing challenges are shaped by four key developments in the ATE and Semiconductor industries. First, we are experiencing an explosion in IC types based on the expansion of application specific markets. This factor expands the number and range of testing requirements faced by semiconductor producers. Second, the bulk of the new IC designs are for consumer applications. Consumers demand lower product prices and drive short product cycles. The IC and ATE industry is having a very difficult time adjusting to this requirement. Third, the new IC products reflect an astonishing level of functional integration and performance. We are now dealing with complete systems on a chip and systems in a package. Lastly, the proliferation of design for testability and built in self test is fundamentally changing the nature of IC test and creating opportunities for new approaches to deploying testing solutions. These conditions coupled with the financial and technical realities of our industry call for a new approach that leverages new capabilities and uniquely addresses our testing challenges. The new testing reality creates a symmetrical challenge for the ATE vendors and the semiconductor producers. The situation creates a rare opportunity for an industry wide (vendors and customers) partnership to deploy a unified approach to meeting the new requirements. The open architecture approach provides the framework for effective pre-competitive cooperation and partnership.

The New Open Architecture Framework
An effective open architecture program facilitates cooperation among customers and vendors and requires the following key elements for success.

- **End User Support.** It is critical for semiconductor producers to be an official part of the program. Users need to become active participants in shaping the new solutions.
- **Vendor Support.** The program must be completely open to leverage the unique intellectual capabilities of a diverse set of vendors.
- **Development Support.** The architecture must be enabled with developer kits, development tools and solution development technical services.
- **Organizational Umbrella.** A non-profit consortium is essential to facilitate interactions within the framework of pre-competitive programs. This also creates a neutral body to manage all the activities.
- **Architecture Development and Support.** A key ingredient of an effective open architecture program is a vibrant technical program that deploys, extends and supports a unified open architecture.
- **Solution Development.** The open architecture nurtures the development of innovative test solutions. This needs to be facilitated with a pro-active program bringing users and vendors to review requirements.

However, we must recognize that we have pressing testing problems and a limited window of opportunity to deploy the open architecture framework.

Summary and Conclusion
The open ATE architecture framework provides a powerful approach for developing effective testing solutions that meet critical time to market, functionality and cost effectiveness requirements. Open Architecture has become a critical element in conquering the new testing challenges.

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