Programmable Memory BIST (Built in Self-test Macro)

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MOSAID Technologies Incorporated announced the availability of its BIST (built in self-test) controller for embedded memory applications. The BIST controller has already been licensed to a lead customer and is now available for general license.

Memory BIST solves the issue of testing embedded memories when direct access for external testing becomes infeasible due to many factors including design complexity, increased pin-count, limited test speeds, and complexity of test program. MOSAID’s memory BIST solution takes the essential functions of an external tester and places them within the device, allowing for full control and observation of the memories, while requiring only a narrow, low-speed communication channel.

In today's deep submicron process technologies, the ability to modify the memory test program on-the-fly for both failure analysis and device screening is crucial. Semiconductor developers and designers face increasingly demanding test and product quality requirements, while memory failure mechanisms are becoming more difficult to predict.

Fixed-algorithm memory DFT (design for test) solutions result in insufficient product engineering analysis capability and costly design re-spins as actual silicon issues are uncovered. MOSAID's programmable memory BIST engine addresses these challenges, providing an extensive characterization, analysis, and debug portal in addition to test programmability.

MOSAID's BIST microcontroller is designed for use with all types of embedded memories, including SRAM and DRAM, with or without redundancy, and can also be implemented as part of a memory I/O interface for self-testing of off-chip memories.

Key features of the BIST macro include:

* A fully programmable instruction set;

* An extensive product engineering tool with operating modes including: simple Go/No-Go testing, redundancy analysis support and full bit-mapping;

* The provision of at-speed test capability in all operating modes;

* Low pin-count interface to low-speed logic automatic test equipment;

* A user-friendly test program instruction compiler.

"Memory DFT is no longer defined as a simple method to reduce production test time," said Peter Gillingham, Vice President and General Manager of MOSAID’s Intellectual Property Division. "Our
BIST product combines the advantage of detailed analysis capabilities normally obtained with a MOSAID test system or other ATE platforms, with GHz test frequencies. With our test program compiler, the product engineer is truly in the driver's seat, easily generating complicated test vectors for debug, characterization, or failure analysis.

MOSAID offers specialized IP blocks and custom chip solutions to the semiconductor market. The Company's portfolio of IP blocks currently available for license includes embedded DRAM and embedded CAM macrocells, and high-speed QDR SRAM and DDR SDRAM memory interfaces. The BIST controller for embedded memories is the latest addition to MOSAID's portfolio.

Front-end views and datasheets for MOSAID's BIST engine and other semiconductor IP products are currently available for evaluation at no cost. To request access to detailed product information, visit http://www.mosaid.com/corporate/products-services/ip/contact-design-ip-datasheets.php.