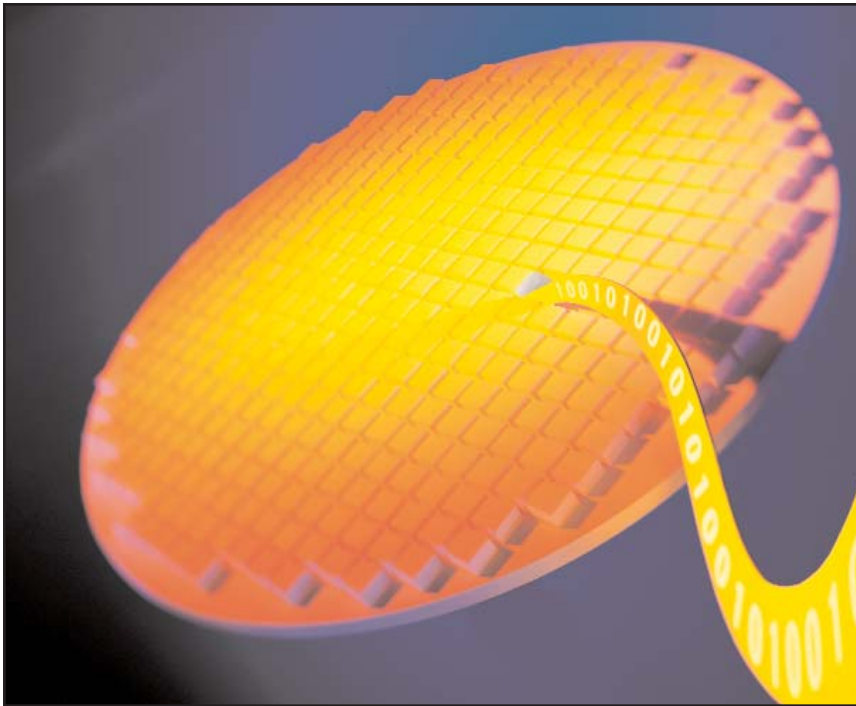


# YieldAssist

## ADVANCED DIAGNOSIS FOR YIELD IMPROVEMENT

Design-for-Test

D A T A S H E E T



### Rapid Identification of Defect Mechanisms

Ramping and maintaining yields are critical for the profitability of today's nanometer designs. The key to yield improvement is rapid identification of defect mechanisms, which can then be corrected through both design and manufacturing changes.

The Mentor Graphics YieldAssist™ advanced failure diagnosis tool provides a comprehensive set of functionality to quickly analyze devices that fail manufacturing test. YieldAssist leverages production scan test patterns generated by the FastScan™ ATPG tool and the TestKompress® test pattern compression tool to rapidly and accurately identify and isolate yield-limiting defect areas.

YieldAssist has been optimized to provide both accurate results and high throughput. This enables it to be used on-line during the manufacturing process or in the failure analysis lab.

### Advanced Detection and Isolation Enhance Yields

Improved test and defect identification represent the major challenges to yield enhancement. YieldAssist provides these powerful capabilities with a robust system for uncovering and analyzing structural test failures. YieldAssist facilitates faster yield ramping through better analysis of device failures:

- High quality test finds emerging defects typical in nanometer designs
- Accurate failure diagnosis isolates defects by location and type
- Rapid diagnosis enables direct, high-volume production line failure analysis

### ACCURATE DEFECT ISOLATION

- Isolates defects by type and net/pin location
- Analyzes both scan chain and logic failures
- Logical and physical viewing
- Input data consistency checking

### COMPLETE SOLUTION LEVERAGING PRODUCTION SCAN TEST FOR YIELD IMPROVEMENT

- TestKompress or FastScan for high-quality test
- YieldAssist for accurate failure diagnosis
- Direct link to Calibre® for physical layout viewing

### PRODUCTION-PROVEN TECHNOLOGY

- Included in the TSMC Reference Flow 6.0
- Included in the UMC Multi-Vt and DFT Reference Flow

[www.mentor.com/dft](http://www.mentor.com/dft)

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Graphics®



## High Quality Test

YieldAssist leverages the high quality test patterns generated by TestKompress and FastScan for insuring that defects don't "escape" the manufacturing floor. These structural scan test patterns target not only hard "stuck-at" faults, but also timing-sensitive resistive faults and bridging faults. Test pattern compression allows more thorough testing without compromising failure diagnosis capability.

## Accurate Defect Detection and Identification

YieldAssist offers advanced diagnostic capabilities for isolating and locating failures in the physical layout. It easily fits into the test/diagnostics flow and is accomplished with three intuitive steps:

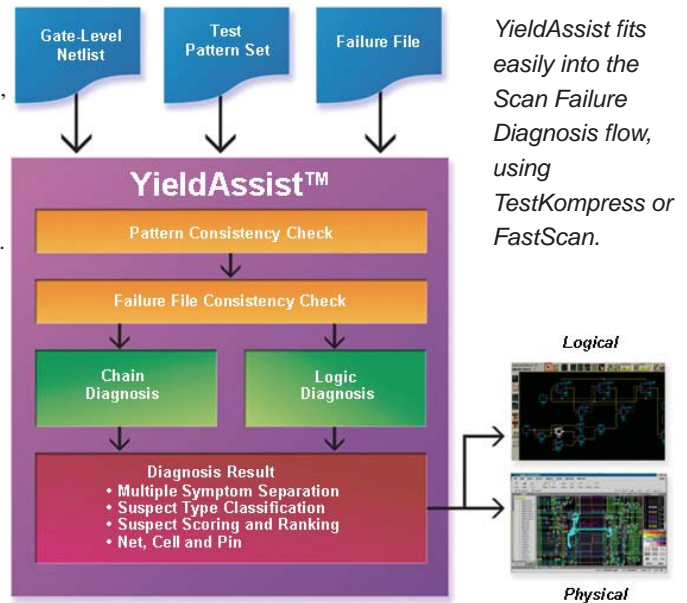
1. Identify/rank fault suspects that explain failing patterns.
2. Classify faults on behavior, such as open, short, slow-to-rise/fall, bridging, etc.
3. View layout in Calibre RVE, the results viewing environment, to isolate suspect physical features such as vias, segments, and layers.

## Direct High-Volume On-line Diagnosis

Rapid high-volume diagnosis can be achieved in a production environment by directly reading failure logs from compressed test patterns, with support for distributed diagnosis processing. This enables effective failure diagnosis directly from production test data, avoiding the additional cost of re-running special tests for diagnosis purposes only.

## Comprehensive Yield Improvement Solution

The YieldAssist advanced diagnostic tool is part of Mentor Graphics comprehensive DFM solution to quickly identify and



diagnose yield-limiting defects, improve yield learning, and speed corrective feedback to design and manufacturing. YieldAssist leverages FastScan ATPG and TestKompress embedded compression technologies for superior-quality test coverage to target multiple defect mechanisms. Integration with Calibre physical layout viewing tools completes the rapid diagnosis and expedites the corrective feedback process, enabling failure analysis teams to save weeks of cycle time.

YieldAssist is part of the Mentor Graphics technology-leading DFT tool suite, which includes integrated solutions for scan, ATPG, Test time/data compression, advanced memory test, logic BIST, boundary scan, diagnosis, and a variety of DFT-related flows. All Mentor DFT tools are available on UNIX and Linux platforms. For more information, visit [www.mentor.com/dft](http://www.mentor.com/dft).

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