Synopsys Test Solution Deployed by Leading Automotive IC Suppliers for Higher Quality, Reliability and Functional Safety

New Capabilities Accelerate Time to Automotive Test Goals and ISO 26262 Certification

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Highlights:

- Leading automotive semiconductor suppliers successfully deploy Synopsys' synthesis-based test solution to meet their stringent test goals for higher levels of quality, reliability and functional safety
- New capabilities include physically-aware test points, pattern reduction, high-performance fault simulation and on-chip test monitoring
- Solution delivers higher defect coverage, shorter test time, increased reliability and faster time to ISO 26262 certification of automotive designs

Synopsys, Inc. (Nasdaq: SNPS) today announced that leading automotive semiconductor suppliers are deploying its IC test solution for higher levels of quality, reliability and functional safety. The Synopsys test solution is enabling semiconductor suppliers, including Elmos Semiconductor, MegaChips, Micronas, Renesas Electronics, Toshiba and others to meet automotive test goals in less time and at lower cost for millions of shipped ICs. Furthermore, many of these companies are successfully certifying their ICs according to the ISO 26262 functional safety standard, which requires additional design and management efforts to minimize the risk of automotive safety-related failures.

To meet increasing quality requirements from car manufacturers (OEMs) and Tier 1 system suppliers, automotive semiconductor suppliers are challenged to achieve manufacturing test quality levels for their ICs of less than one defective part per million (DPPM). In addition, for the most safety-critical applications, ICs may be designed with in-system test and monitoring circuits to ensure safety and reliability during on-the-road operation. New Synopsys test solution capabilities that assist with these requirements include:

Physically-Aware Test Points – The DFTMAX™ design-for-test solution, in conjunction with SpyGlass® DFT ADV RTL testability analysis, inserts test points into IC designs to increase fault coverage while decreasing pattern count required for manufacturing and in-system self-test. Savings in pattern count can be used to reduce test costs or increase capacity for additional testing to further improve quality. Synthesis-based physically-aware implementation meets design timing goals while minimizing the area impact of test points.

Pattern Reduction – ISO 26262–certified TetraMAX® II ATPG employs state-of-the-art technology to quickly produce test programs with higher defect coverage using fewer patterns compared to existing solutions, enabling design teams to achieve the highest test quality. TetraMAX II ATPG is ISO 26262–certified for the most stringent requirements for automotive safety integrity level ASIL D.

High-Performance Fault Simulation – The Z01X™ fault simulation solution employs breakthrough multithreading technology to accelerate fault simulation of functional test patterns, allowing designers of automotive ICs to increase test coverage by supplementing standard manufacturing tests with user-created functional patterns.

On-Chip Test Monitoring – The DesignWare® STAR Hierarchical System incorporates new process and clock monitoring functionality to enhance IC reliability. The ability to measure internal clock frequency and duty cycle without the need for an additional, higher-frequency clock provides insight into wafer-level process variations.

"Automotive semiconductor companies are successfully deploying Synopsys' ISO 26262–certified test solution to meet their functional safety and quality goals," said Bijan Kiani, vice president of marketing for Synopsys' Design Group. "Synopsys has now expanded the solution to provide our customers even faster and more cost-effective means to attain the higher quality, reliability and safety requirements demanded by their customers."

About the Synopsys Automotive Test Solution

The Synopsys ISO 26262–certified automotive test solution comprises SpyGlass DFT ADV for testability and soft-error analysis; TetraMAX and TetraMAX II power-aware ATPG and physical diagnostics; Z01X high-performance fault simulation; DFTMAX LogicBIST and DesignWare STAR Memory System® for in-system test, as well as embedded test, repair and diagnostics; DFTMAX Ultra for pin-limited compression; and DesignWare STAR Hierarchical System for automated hierarchical test of IP and logic blocks on an SoC.

Synopsys Automotive - Enabling Safe, Secure, Smarter Cars – from Silicon to Software

Customers across the automotive supply chain use Synopsys' Silicon to Software solutions to develop ICs and software for infotainment, ADAS, V2X and autonomous driving applications. Synopsys' portfolio of automotive-specific IC design tools, automotive-grade IP and automotive software cybersecurity and quality solutions accelerate time to market and enable the next generation of safe, secure and smarter connected cars. Learn more at https://www.synopsys.com/automotive

About the Synopsys Synthesis-Based Test Solution

The Synopsys synthesis-based test solution comprises DFTMAX Ultra, DFTMAX, TetraMAX and TetraMAX II technologies for power-aware logic test and physical diagnostics; DFTMAX LogicBIST for in-system self-test; SpyGlass DFT ADV for testability analysis; the DesignWare STAR Hierarchical System for automated hierarchical testing of IP and logic blocks on an SoC; the DesignWare STAR Memory System for embedded test, repair and diagnostics; the Z01X fault simulator; Yield Explorer® design-centric yield analysis; and the Camelot™ software system for CAD navigation. Synopsys' test solution combines Design Compiler® RTL synthesis with embedded test technology to optimize timing, power, area and congestion for test as well as functional logic, leading to faster time-to-results. The Synopsys test solution delivers tight integration across the Synopsys Galaxy™ Design Platform, including Design Compiler synthesis, IC Compiler™ II place and route, and PrimeTime® timing analysis, to enable faster turnaround time while meeting both design and test goals, higher defect coverage and faster yield ramp.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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