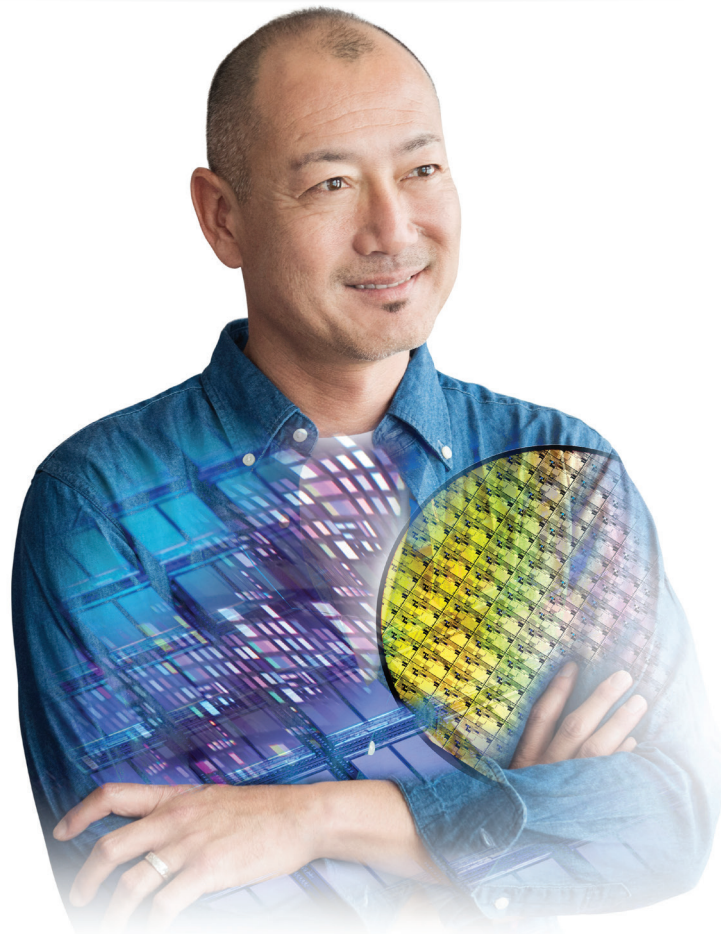


**3DEXPERIENCE®**

# HIGH-TECH **SILICON THINKING**

Achieve higher efficiency and zero re-spins  
in developing IOT-ready systems-on-chip



## **SHORTEN TIME TO MARKET AND INCREASE CUSTOMER SATISFACTION THROUGH ENHANCED DESIGN AND VALIDATION**

Intelligence is now a key differentiator for a wide range of consumer and business products. Automobiles, medical devices, home appliances, office building HVAC, and consumer apparel all now embed semiconductors and electronic circuits to improve their customer value. And the pace of intelligence enhancement is accelerating, taking advantage of short electronics design cycles. But this acceleration is self-reinforcing. It means that semiconductor design and fabrication businesses must continue to accelerate their customer responsiveness to maintain market leadership.

**Dassault Systèmes Silicon Thinking Industry Solution Experience** enhances and accelerates semiconductor design and manufacturing. Silicon Thinking integrates market leading semiconductor design enablement applications including ENOVIA®, ENOVIA Synchronicity® DesignSync®, SIMULIA® Abaqus®, along with other innovative semiconductor specific solutions to provide a robust portfolio of technologies that address key challenge areas within semiconductor design and manufacturing. All together, the portfolio has a proven record of shortening engineering and manufacturing schedules by up to 20%\* and increasing customer satisfaction by reducing re-spins and development costs.

## KEY BENEFITS :

- Reduce time to market by increasing global collaboration efficiency
- Accelerate decision making through efficient tracking and project execution
- Increase savings in time and costs through virtual prototyping
- Optimize manufacturing processes and reduce yield loss

## ACCELERATE DESIGN PROJECT MANAGEMENT FOR FASTER TIME TO MARKET

The challenge of simultaneously meeting customer project specifications and maintaining profit margin is exceedingly complex for modern semiconductor engineering organizations. It requires the ability to track and direct project execution in real time (including resources, planning, requirements, and changes) to maximize project velocity. Yet, new, ever more complex semiconductor designs add to the project management challenge. **Silicon Thinking Project and Portfolio Management Solution** accelerates project management of complex new products through comprehensive requirements management and real-time update visibility for all project stakeholders. Design change management oversight is streamlined and fewer mistakes are made. The result is faster time to market and improved customer satisfaction.

## ACCELERATE DESIGN INTEGRATION TO IMPROVE RETURN ON INVESTMENT

Today's semiconductor designs are most often assembled from diverse IP blocks, each with different integration specifications. With potentially hundreds of IP blocks to be integrated into a single design, the effort to complete the project on-time and yet be successfully manufactured is significant. **Silicon Thinking Collaborative Design Solution** is used today by over 120 development organizations, including 13 of the top 15 semiconductor companies, to reduce design integration costs and time. Based upon ENOVIA Synchronicity DesignSync, it efficiently manages design data for the entire semiconductor design team at both the system and component IP block levels. It accelerates IP block integration using a 'module' abstraction approach that accelerates and enhances design integration tasks, a significant advantage over other

Design Data Management (DDM) systems. As a result, IP reuse is improved, time-to-market is reduced, complexity management is simplified and ultimately, ROI is increased for design projects.

## ACCELERATE PACKAGE TESTING AND VALIDATION TO IMPROVE PRODUCT QUALITY

Smaller device packaging and more demanding use environments (e.g., sports video) place greater demands on the performance and reliability of semiconductor packages. Comprehensive testing of integrated circuit (IC) packaging is critical to ensure device reliability. Yet to meet aggressive time-to-market deadlines, physical prototype testing must be augmented if not replaced with virtual simulation. **Silicon Thinking Semiconductor Verification and Validation Solution** reduces the need for physical prototypes through virtual testing and lifecycle prediction. The solution is based on the market leading SIMULIA Abaqus FEA application suite. Various simulation methods allow robust coupled-field analysis of thermal, electrical, mechanical (both static and dynamic), and moisture-sensitivity load regimes. The solution provides detailed insight into design behavior under a variety of manufacturing/assembly loads, shipping and handling conditions, operating conditions, and material characterization.

## IMPROVE YIELD ANALYSIS TO LOWER MANUFACTURING COSTS

Today's chip designs can be a challenge to fabricate with acceptable yields, with thousands of interdependent, yet dissimilar parameters to analyze and optimize. Of course all of this work must be done quickly to meet customer delivery commitments. **Silicon Thinking Manufacturing Process Improvement Solution** significantly improves yield analysis and troubleshooting via a sophisticated combination of adaptive modeling techniques that can assess low signal-to-noise factors which negatively affect yield. With this solution, optimal equipment selection and parameter adjustments can be quickly revealed and then put into practice. This solution benefits process engineers, quality management and fab operators.

For more information, connect to [www.3ds.com/high-tech/silicon-thinking](http://www.3ds.com/high-tech/silicon-thinking)

## Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).



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