

Siemens automates 2.5D and 3D IC design-for-test with new Tessent Multi-die solution

- **Global leader in design-for-test (DFT) technology paves the way for mainstream adoption of 3D ICs**
- **Innovative solution dramatically streamlines DFT cycles for highly complex multi-die designs**

Siemens Digital Industries Software today introduced the Tessent™ Multi-die software solution, which helps customers dramatically speed and simplify critical design-for-test (DFT) tasks for next-generation integrated circuits (ICs) based on 2.5D and 3D architectures.

As demand for smaller, more power efficient and higher performing ICs continues to challenge the global IC design community, next-generation devices increasingly feature complex 2.5D and 3D architectures that connect dies vertically (3D IC) or side-by-side (2.5D) so that they behave as a single device. However, these approaches can present significant challenges for IC test, since most legacy IC test approaches are based on conventional two-dimensional processes.

To address these challenges, Siemens today introduces Tessent Multi-die software -- the industry's most comprehensive DFT automation solution for highly complex DFT tasks associated with 2.5D and 3D IC designs. The new solution works seamlessly with Siemens' Tessent™ TestKompress™ Streaming Scan Network software and Tessent™ IJTAG software, which optimize DFT test resources for each block without concern for impacts to the rest of the design, thereby streamlining DFT planning and implementation for the 2.5D and 3D IC era. Using Tessent Multi-die software, IC design teams can rapidly generate IEEE 1838 compliant hardware featuring 2.5D and 3D IC architectures.

“IC design organizations are seeing dramatic spikes in IC test complexity due to the rapid adoption and deployment of designs featuring densely packed dies in 2.5D and 3D devices,” said Ankur Gupta, vice president and general manager of the Tessent business unit for Siemens Digital Industries Software. “With Siemens’ new Tessent Multi-die solution, our customers can be ready for the designs of tomorrow, while slashing test implementation effort and simultaneously optimizing manufacturing test cost today.”

In addition to supporting comprehensive test for 2.5D and 3D IC designs, the Tessent Multi-die solution can generate die-to-die interconnect patterns and enable package level test using the Boundary Scan Description Language (BSDL). Further, Tessent Multi-die supports integration of flexible parallel port (FPP) technology by leveraging the packetized data delivery capabilities of Siemens’ Tessent TestKompress Streaming Scan Network software. Introduced two years ago, Tessent TestKompress Streaming Scan Network decouples core-level DFT requirements from the chip-level test delivery resources. This enables a no-compromise, bottom-up DFT flow that can dramatically simplify DFT planning and implementation, while reducing test time up to 4X.

“As the limits of traditional 2D IC design approaches become increasingly clear over time, more design teams are leveraging the power, performance and form factor advantages that 2.5D and 3D IC architectures can deliver. But deploying these advanced schemes in new design starts without first establishing a DFT strategy that acknowledges the inherent challenges these architectures present can raise costs and undermine aggressive timelines,” said Laurie Balch, president and research director for Pedestal Research. “However, by evolving DFT technology to keep pace with the rapid adoption of multi-dimensional designs, EDA vendors can play a key role in further enabling global, mainstream adoption of 2.5D and 3D architectures.”

For more information on Siemens’ new Tessent Multi-die solution, please visit <https://eda.sw.siemens.com/en-US/ic/tessent/test/multi-die/>

Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet

tomorrow. The [Siemens Xcelerator portfolio](#) helps companies of all sizes create and leverage digital twins that provide organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit [siemens.com/software](https://www.siemens.com/software) or follow us on [LinkedIn](#), [Twitter](#), [Facebook](#) and [Instagram](#). Siemens Digital Industries Software – Where today meets tomorrow.

Contact for journalists

Siemens Digital Industries Software PR Team

Email: press.software.sisw@siemens.com

Note: A list of relevant Siemens trademarks can be found [here](#). Other trademarks belong to their respective owners.

Siemens Digital Industries (DI) is an innovation leader in automation and digitalization. Closely collaborating with partners and customers, DI drives the digital transformation in the process and discrete industries. With its Digital Enterprise portfolio, DI provides companies of all sizes with an end-to-end set of products, solutions and services to integrate and digitalize the entire value chain. Optimized for the specific needs of each industry, DI's unique portfolio supports customers to achieve greater productivity and flexibility. DI is constantly adding innovations to its portfolio to integrate cutting-edge future technologies. Siemens Digital Industries has its global headquarters in Nuremberg, Germany, and has around 76,000 employees internationally.

Siemens AG (Berlin and Munich) is a technology company focused on industry, infrastructure, transport, and healthcare. From more resource-efficient factories, resilient supply chains, and smarter buildings and grids, to cleaner and more comfortable transportation as well as advanced healthcare, the company creates technology with purpose adding real value for customers. By combining the real and the digital worlds, Siemens empowers its customers to transform their industries and markets, helping them to transform the everyday for billions of people. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a globally leading medical technology provider shaping the future of healthcare. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power.

In fiscal 2021, which ended on September 30, 2021, the Siemens Group generated revenue of €62.3 billion and net income of €6.7 billion. As of September 30, 2021, the company had around 303,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

Note: A list of relevant Siemens trademarks can be found [here](#). Other trademarks belong to their respective owners