Erik Jan Marinissen (imec and TU/e) Recipient of IEEE Standards Association Emerging Technology Award 2017

For IEEE Std P1838™ on test access in 3D-stacked ICs

Somerset (New Jersey, USA) – December 4, 2017 – For his involvement in the development of IEEE Std P1838™ for test access in three-dimensional (3D) chip stacks, Erik Jan Marinissen received yesterday the IEEE Standards Association (IEEE-SA) Emerging Technology Award 2017. TU/e graduate and IEEE Fellow Marinissen is Principal Scientist at imec in Leuven, Belgium and Visiting Researcher in the Electronic Systems group at the department of Electrical Engineering at Eindhoven University of Technology (TU/e) in the Netherlands. He received the accolade out of the hands of Donald Wright, President of IEEE-SA at an award ceremony at The Palace in Somerset Park, New Jersey, USA (see https://standards.ieee.org/news/2017/ieeesa_awards.html). The award citation reads "for his passion and initiative supporting the creation of a 3D Test Standard."

3D stacked integrated circuits (3D-SICs) are poised to take over the baton from conventional semiconductor feature-size scaling in meeting market expectations of chips with higher performance, better energy-efficiency, and lower cost. Technological innovations such as wafer thinning and large and dense arrays of through-silicon vias and micro-bumps enable the manufacturing of stacks of two or more dies. Like all micro-electronic products, these multi-die stacks need to be tested for manufacturing defects before they can be shipped with acceptable quality levels to their customers. IEEE Std P1838™ is a standard (currently still under development) for on-chip design features ('3D design-for-test' or 3D-DfT) that provide test access from the stack's external inputs and outputs (typically located at the bottom of the stack) to the various dies in the stack. P1838 standardizes per-die 3D-DfT features, such that if compliant dies are brought together in a stack, a basic minimum of test access is guaranteed to work across the stack.

In 2010, Marinissen initiated a Study Group under the umbrella of IEEE-SA's Test Technology Standards Committee (TTSC) into the needs for test standards for 3D-SICs. This led to the formation of the TTSC-sponsored P1838 Working Group in 2011 with Marinissen as Chair. After an extensive collaborative effort of industry and academic experts around the globe, and with Marinissen after reaching his end-of-term as Working Group Chair currently in the role of Vice Chair, the draft standard is scheduled to go to ballot in 2018.

In his award acceptance speech, Erik Jan Marinissen thanked his employer, imec, for support: "The fact that this standard took eight years to develop and still is in time for the market, shows how advanced imec is as a work place." Later, he added: "DfT standards are the result of industrial engineering work with a global impact on a range of commercial products, but also an inspiration source for scientific research and related publications."

The IEEE-SA Emerging Technology Award is presented to an individual, working group, or company that has advanced, initiated, or progressed a new technology within the IEEE-SA open consensus process; see http://standards.ieee.org/develop/awards/etech/. The award for Marinissen was recommended by the IEEE Standards Association's (IEEE-SA) Awards and Recognition Committee (ArCom) and approved by the association's Board of Governors.

Erik Jan Marinissen receives an engraved sculpture from IEEE-SA President Donald Wright.

Erik Jan Marinissen during his award acceptance speech.

All awardees of the annual IEEE Standards Association awards ceremony 2017.

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As a trusted partner for companies, start-ups and universities we bring together close to 3,500 brilliant minds from over 70 nationalities. Imec is headquartered in Leuven, Belgium and has distributed R&D groups at a number of Flemish universities, in the Netherlands, Taiwan, USA, China, and offices in India and Japan. In 2016, imec's revenue (P&L) totaled 496 million euro. Further information on imec can be found at www.imec-int.com.

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About the IEEE Standards Association
The IEEE Standards Association, a globally recognized standards-setting body within IEEE, develops consensus standards through an open process that engages industry and brings together a broad stakeholder community. IEEE standards set specifications and best practices based on current scientific and technological knowledge. The IEEE-SA has a portfolio of over 1,200 active standards and over 650 standards under development. For more information visit the IEEE-SA Web site: http://www.ieee.org.

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