Technology News

"V3DIM" research project to lead the 3D vertical design of 40 to 100 GHz ICs

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The "V3DIM" research project lays the foundations for working out the design requirements to develop innovative, highly integrated 3D System-in-Package (SiP) solutions for systems in the extremely high frequency range of 40 to 100 GHz, the so-called millimeter-wave range.

V3DIM stands for “design for vertical 3D system integration in millimeter-wave applications”. Five partners from industry, science and research joined forces in the project funded by the German Federal Ministry of Education and Research (BMBF) to explore how innovative 3D integration technologies can be exploited in chip and package manufacture.

In their quest, special attention will be paid to miniaturization, performance (including power loss, signal integrity, noise and cost), energy efficiency and reliability. The five project partners are Fraunhofer Institutes in Dresden, Munich and Berlin lead-managed by the Dresden Institute for Integrated Circuits, Symeo GmbH, which produces sensor components and complete position detection and distance measurement systems for industrial applications, Siemens AG with Corporate Technology, the Institute of Technical Electronics at the University of Erlangen-Nuremberg, and the project manager Infineon Technologies AG.

The project is scheduled for completion at the end of August 2013. In the V3DIM project the five partners will devise new design methods, models and SiP technology components to meet the special challenges of vertical 3D system integration in the sphere of millimeter-wave applications. The results of the research project are to promote the optimal exploitation of present and future technologies in the millimeter-wave range for SiP applications. The development time for 3D SiP designs could thereby be cut by at least one third.

V3DIM’s overall project cost amounts up to Euro 6.8 million, and approximately 40 percent of it is funded by the three industry project partners. In addition, the research project will receive BMBF support of about Euro 4.1 million over a three-year term under the “Information and Communications Technology 2020” (ICT 2020) program as part of the German Federal Government’s High-Tech Strategy.

Among the objectives of the ICT 2020 program are promoting microchip design as an overarching enabling technology, opening up new, innovative applications and hence consolidating and expanding Germany’s leading position in the ICT sector. The German V3DIM project collaborates closely with the European CATRENE 3DIM3v project which works on complementary aspects of vertical 3D system integration.