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Speech subject : Nano-scale TSV Development and Its Application

Speech leader: Ziyu Liu, Associate Professor, Fudan University

Speech Description/Objective:

3D heterogeneous integration is an important development direction in the future, which can be applied not only to the integration of silicon chips, but also to the integration of other materials and functions. Through-silicon vias technology are the core for 3D heterogeneous integration. At present, the research on the TSV is focused on continuously reducing the diameter. Since smaller TSV diameter can increase the integration density, and reduce the keep out zone area and also the interconnection delay. As a result, nano-scale TSV technology is gaining much attraction. One of the most important applications is backside power delivery network to improve power integrity. This report will mainly introduce the development of nano-scale TSV technology such as the research progress and manufacturing difficulties. Then its possible application scenarios will be introduced.

Introduction of Speaker:

Liu Ziyu, associate professor and doctoral supervisor. She has been engaged in the research of 3D heterogeneous integration for more than ten years. Her research interests are multi-layer bonding technology, RDL, through-silicon via technology and 3D capacitance/inductor. She also has rich experience in multi-physics simulation and packaging design. She has published more than 80 papers, including ECTC, ICEPT, IEEE TED and so on. She has applied for a total of 28 invention patents, of which 6 have been authorized. At present, she has presided over 12 research projects such as the National Natural Science Foundation of China, Shanghai Science and Technology Innovation Action Plan and so on. She is also in charge of many projects supported by many well-known domestic companies, such as Huawei Corporation, Huatian Kunshan (Technology) and Feiteng Information Technology Co., Ltd. She also published a book named “ ‘Chip’ Makes Things Come True - Packaging and Testing of Integrated Circuits”.