Circuit Tracing on Integrated Circuit Using FIB Passive Voltage Contrast Effect

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Competitive circuit analysis of Integrated Circuits (ICs) is one of the most challenging types of analysis. It involves multiple complex IC die de-processing/de-layering steps while keeping precise planarity from metal layer to metal layer. Each step is followed by Scanning Electron Microscope (SEM) imaging together with mosaicking that subsequently passes through an image recognition and Graphic Database System (GDS) conversion process. This conventional procedure is quite time and resource consuming. The current paper discusses and demonstrates a new inventive methodology of circuit tracing on an IC using known FIB Passive Voltage Contrast (PVC) effects [1]. This technique provides significant savings in time and resources.