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On-chip instrumentation. Design and debug for systems on chip. (English) [Zbl 1213.68012]

Publisher’s description: With each new generation of digital System-on-Chip (SoC) technology, the level of integration, functionality, and complexity provided on a single chip increases significantly and there is a need for better debug solutions. As more processing elements, features and functions are simultaneously being embedded into the silicon, the emerging level of embedded complexity outstrips the capability of standalone logic analyzer, debugger and emulator based diagnostic tools for embedded designs. This book attempts to fill the need for a comprehensive discussion of on-chip debug instrumentation. It provides an in-depth overview of on-chip instrumentation technologies and various approaches taken in adding instrumentation to System-on-Chip (ASIC, ASSP, FPGA, etc.) design that are collectively becoming known as Design for Debug (DfD). Coverage includes specific design examples and discussion of implementations and DfD tradeoffs in a decision to design or select instrumentation or SoC that include instrumentation. Although the focus is on hardware implementations, software and tools are also discussed in some detail.

MSC:
68-02 Research exposition (monographs, survey articles) pertaining to computer science
68M99 Computer system organization

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