In-Circuit Debugging in Configurable Systems on a Chip (CSoC)

Based on Xilinx' ChipScope 6.0

Demonstration / Tutorial

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Debugging „traditional“ Systems
„Traditional“ Embedded System

Next Step...
Configurable System on a Chip (CSoC)

Debugging CSoCs: How?
Debugging CSoCs: How ???

![Diagram of a CSoC (System-On-Chip) with various components such as CPU core, ILA (Integrated Logic Analyzer), Interrupt Controller, Display Controller, and various I/O ports.]

Debugging CSoCs

![Diagram showing connections between the CSoC and a debugger via JTAG and Parallel Port.]
Debugging CSoCs

Pros and cons...

**Simulation** (e.g. ModelSim)
- no additional system resources needed
- stimuli-patterns need to be defined (ext. Devices)
- no possibilities to analyze „real-time“-behaviour of a design
- long test runs require large amount of memory

**In-Circuit Debugging** (e.g. ChipScope)
- additional system resources needed (CLBs, Routing, BRAM) – limitation!
- no artificial stimuli
- „real-time“-behaviour (incl. external Devices) can be analyzed
- long test runs possible
Demonstration...

For more information...

→ Xilinx® ChipScope: www.xilinx.com/chipscope

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