

# Simulating Digital Systems – a reflected view onto the simulation tool landscape

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***Abstract***— The design of digital systems is a multi-step process which only leads to success, if all steps are performed with sufficient experience and care. One important step within this process, before transferring the design either into a PCB or onto an FPGA or an ASIC is the simulation of the designed systems. The simulation may not only make design errors, the designer might have done, visible, but may also give insight into propagation delay problems and hazards of a specific logic design. Thus, simulating digital systems is a key factor for the successful design of any digital system.

For years there exists a broad variety of tools for digital system simulation. The spectrum reaches from public domain tools, which are free of charge up to very powerful professional simulation tools, which require a corresponding license. This paper focuses on some of these simulation tools. It will reveal that these digital system simulation tools, although quite similar at the first glance, are quite different regarding their capabilities, their usage and their possibilities. Pointing out the specific advantages and disadvantages of these tools is intended to support the interested reader in picking an appropriate tool for his / her special need, may it be with a focus on industrial system development or research, may it be classroom or online teaching.

***Keywords***—*digital system design, digital system simulation, simulation tools.*