

ModelSim

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ModelSim is a multi-language HDL simulation environment by [Mentor Graphics](#),^[1] for simulation of [hardware description languages](#) such as [VHDL](#), [Verilog](#) and [SystemC](#), and includes a built-in C debugger.^{[2][1]} ModelSim can be used independently, or in conjunction with [Intel Quartus Prime](#), [Xilinx ISE](#) or [Xilinx Vivado](#).^[3] Simulation is performed using the [graphical user interface](#) (GUI), or automatically using scripts.^[4]

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Editions[\[edit\]](#)

Mentor HDL simulation products are offered in multiple editions, such as ModelSim PE and Questa Sim.

Questa Sim offers high-performance and advanced debugging capabilities, while ModelSim PE is the entry-level simulator for hobbyists and students.^[1] Questa Sim is used in large multi-million gate designs, and is supported on [Microsoft Windows](#) and Linux, in 32-bit and 64-bit architectures.^[1]

ModelSim can also be used with [MATLAB/Simulink](#), using *Link for ModelSim*.^{[5][6]} *Link for ModelSim* is a fast bidirectional co-simulation interface between Simulink and ModelSim.^{[6][5]} For such designs, MATLAB provides a numerical simulation toolset, while ModelSim provides tools to verify the hardware implementation & timing characteristics of the design.^[6]

Language support[\[edit\]](#)

ModelSim uses a unified kernel for simulation of all supported languages, and the method of debugging embedded C code is the same as VHDL or Verilog.^[1]

ModelSim and Questa Sim products enable simulation, verification and debugging for the following languages:^[1]

- [VHDL](#)
- [Verilog](#)
- [Verilog 2001](#)
- [SystemVerilog](#)
- [PSL](#)
- [SystemC](#)