

The goal of this thesis is to extend the debugging possibilities of MSIM by connecting it to the Eclipse IDE.

MSIM (MIPS Simulator) is a machine simulator based on a MIPS processor and a simple hardware model. The simulator is primarily used for education of operating systems. At the beginning of this work MSIM provided basic features for debugging the code that runs inside the virtual machine. The basic features are accomplished by implementing GNU Debugger (GDB) remote connection interface and also by several integrated debugging commands.

The work presented in this thesis connects the Eclipse IDE debugging front-end to MSIM via the GDB remote connection interface. Necessary means to provide comfortable experience of both source-level and assembly-level debugging are implemented. Additionally, a discussion about advanced debugging features such as: user space code debugging with a thread scope; call tree construction; reverse execution; and other techniques is presented in the thesis.