



## SPARC Backend for Graal

Master thesis for Stefan Anzinger

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Graal [1] is an effort to create a new just-in-time compiler for Java that is itself written in Java. It is based on a port of the HotSpot client compiler from C++ to Java.

Extensibility is one of Graal's main value propositions - it should be easy to add support for new features and architectures to the compiler. This project should extend the Graal compiler with an SPARC backend. This architecture is used especially in the context of large server infrastructure.

The scope of this project is as follows:

- Evaluate the support HotSpot provides for the SPARC architecture.
- Determine how much of the rudimentary SPARC support in Graal can be reused.
- Create the assembler component that will output the actual SPARC instructions.
- Create the LIRGenerator that will generate low-level instructions from the high-level intermediate representation.
- Add tests for the assembler and other SPARC-specific code.
- Evaluate and implement performance optimizations specific to SPARC.
- Document the problems that were encountered and the changes that were required to overcome them.

The work's progress should be discussed with the supervisor at least every 2 weeks. Please note the guidelines of the Institute for System Software when preparing the written thesis.

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[1] <http://openjdk.java.net/projects/graal/>