

# Testing of 64 bit extensions to the binutils

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## 1 Introduction

This document gives details on how the 64 extensions of the binutils and C-model were tested.

## 2 Binutils

During development, tests for each instruction were written which tested the assembler, disassembler and the gdb. The following are tests written other than them .

Binutils are being tested in two parts -

- Taking an example of each instruction and checking its encoding. This also includes executing them using the c-model. (tests assembler and diassembler)
- Printing all possible register combinations and checking the disassembled output.

### 2.1

In the first part, an assembly test for each instruction is written and manually checked for correctness of encoding. This is done by comparing the actual opcode obtained through the assembler-disassembler (as seen in the objdump file) and the expected output, determined manually.

## 2.2

For the second part, an assembly file is generated giving all possible combinations of registers. Occurence of each register and each instruction is counted for testing. Also the disassembled output is tested by comparing with the assembler.

## 2.3 TODO

- Compare file
- GDB
- debug

## 3 C-model

### 3.1 Basic tests

One test for each instruction checking its correctness.

### 3.2 Detailed

Tests for output conditions such as flags, different types of operands, are tested.