

OREGON STATE UNIVERSITY

CS 472 - COMPUTER ARCHITECTURE

SPRING 2014

Lab 2 - The ARM ISA

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Getting started

Begin with reading the introduction the KEIL simulator on pages 16-29 of the Student Workbook which accompanies the textbook.

Part 1

Please provide answers to the problems in Problem Set 5 in the Student Workbook.

Part 2: Examination of compiler output

In the homework, you were asked to write an assembly routine that checks for palindromes in odd length strings. For this portion of the lab, please write a simple C program that does the same thing, use the web based compiler and compile your C code to ARM assembly (use arm-linux-gnueabi-g++-4.6 with option -O0). Compare this assembly with what you wrote. Modify the optimization level from 0 to one of the values in the set 1,2,3,s. What changes? Why do you think these changes were made?

For this lab, you will need to create a write-up discussing the differences you see in Part 2. Do you see any interesting features being used? Is the hand assembly you wrote significantly different than what the compiler produced? Which uses fewer instructions? In other words, provide an analysis of Part 2.