

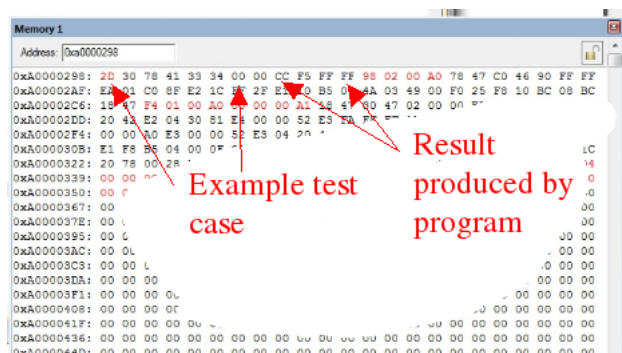
3D1 Microprocessor Systems

ASCII to binary

Assignment 5

Due by: Week 10/11

Design and write an ARM Assembly Language program that will convert an ASCII string representation of a hexadecimal number stored in memory into a 32 bit 2's complement binary version, which you will also store in memory. Negative numbers will be indicated by a '-' at the start of the number. Your solution should work with both '+' and '-' at the start of the string, so for example "-0xA34" would be stored as 0xFFFFF5CC. You should test your solution with several different strings.



The test data should be NULL terminated ASCII strings in memory and the resulting converted values should be stored into word sized memory locations by your program.
Note **mylabel SPACE 100** allocates 100 bytes of zeroed memory at address mylabel.

Your programming assignments will be assessed based on two components:

- Written report in lab book.
- Demonstration of working code on computer.

You must show both of these to the Demonstrator by the deadline for each assignment. You must buy and maintain a hardcover lab book and write a report covering each programming assignment. In your report you should:

- Include title and date on each page.
- Describe what you are attempting to do in English.
- Outline your algorithm using diagrams and pseudo code as appropriate.
- Write down the actual ARM assembly code used, including comments.
- Explain how you tested it and the results.
- Size of report should be between one and two A4 pages in length.

Assignments are only accepted in a lab book, it is not feasible to accept material on individual pieces of paper or electronic devices. Throughout this course marks are awarded for punctuality, neatness, organisation, spelling, ability to communicate technical information and results as well as assembly programming skill. Of particular importance in assembly language programming are indentation, comments and quality of label names. The lab book must be kept up to date and will be examined by the Lecturer or Demonstrator during the term. You must hand in your lab book no later than 4pm Wednesday, 16th December 2015, to the School of Computer Science and Statistics Reception, Ground Floor, The O'Reilly Institute. The office does not accept submissions after 4pm. Do not forget to write your name, student number and course clearly on the cover.