TESTING

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Introduction

Extensive testing was performed to uncover any logical errors within the execution of our linker. Although we were unable to uncover any errors in execution this does not mean that our program is errorless. Furthermore, testing was performed to ensure that the output of the *executable-object* file is correct and executable by the W10\_560\_Machine.

Although specific error messages are not referred to in this document a listing of all error messages as well as insight to the cause/resolution of the error is provided in the Users Guide. This document is broken down into sections which explain the various types of testing methods, inputs, actual outputs and expected outputs:

1. **Program Execution**

-Explains testing performed on the actual execution of the assembler program from command line to termination.

1. **Linking**

-Explains testing performed

Program Execution

Testing was performed, using various command line inputs to determine whether or not the program will identify directories passed instead of files. Errors pertaining to incorrect execution of the program will be output to the stderr device. These tests passed for all three command line arguments passed resulting in an error message. Next a test to ensure that input files do exist was performed; upon execution with non-existent files as arguments the program returned error messages. A test to check read permissions on input files and write permissions on output files was performed with the error messages resulting when incorrect file permissions were set. Finally, tests were run on individual components within the program to ensure that all while/for loops terminate as expected.

Although all of these tests passed as expected and no errors were uncovered it is still possible for logical errors to exist within the code. In the case that an error is uncovered a RESOLVE checking component will print meaningful information, pertaining to the source of the error, to the stderr device.

Linking

A multitude of tests were performed to ensure that the linker correctly identifies errors within the object files passed. These tests were executed with a series of individual test files, each one, or set of files, aimed at identifying each individual error which should be caught by the linker and reported in the *error-log*. After running these tests it was apparent that all error messages in the code correctly identify the associated error within the object files passed and report the error in *error-log*. All errors are fatal so execution will halt when the first error is encountered.

In addition to ensuring that the linker will identify errors in a given set of object files tests were also run to ensure that the linker would properly link object files which contain no errors. For detailed information concerning individual test cases, input files, expected output, actual output and *error-log* output please refer to the document entitled “TestCases.txt” in the ‘test’ directory.