

Programming in Assembler – Laboratory

Exercise No.2 Programming and Debugging tools

During the Exercise No.2 students are to debug simple program using the CodeView Debugger. The program is attached to the documentation in `lab2.asm` file.

CodeView allows not only debugging but also analyzing the programs to improve their speed and memory usage.

During the laboratory students are to:

1. Create the project with options for debugging and generating listing file.
 - The project description can be stored in `*.mak` file.
 - The project should have the file `lab2.asm` in it.
 - In the listing file should be: symbol table, machine codes, execution times.
2. Assemble the source to the `*.exe` file and run the program.
3. Analyze the output listing file `*.lst`
 - Put special attention how macros: `.STARTUP` and `.EXIT` are expanded.
 - Identify fields (prefix, opcode, arguments) in some more complex instructions.
 - Analyze execution time of instructions.
4. Run the CodeView debugger and analyze program execution line by line observing registers and flags.
5. Modify the program to call other procedures: `Seek_2`, `Seek_3` and `Seek_4` and analyze them using CodeView debugger.
6. Make a comparison of those four procedures. Compare execution time and memory usage of addressing modes in programs.

The report should consist of:

- Title page.
- Project file with explanation of lines and sections.
- Listing file with description of some instruction fields and execution time (especially the conditional jumps).
- Comparison of four memory addressing modes - execution time and memory usage.
- Conclusions.