

How to Use Keil μ Vision 3

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1. Create a new project with Keil μ Vision named "test" (Fig. 1). Choose the Target to be Dallas Semiconductor -> DS89C430 (Fig. 2). DO NOT copy startup code to project folder (Fig. 3). (The Keil μ Vision can be downloaded at <https://www.keil.com/demo/eval/c51.htm>)

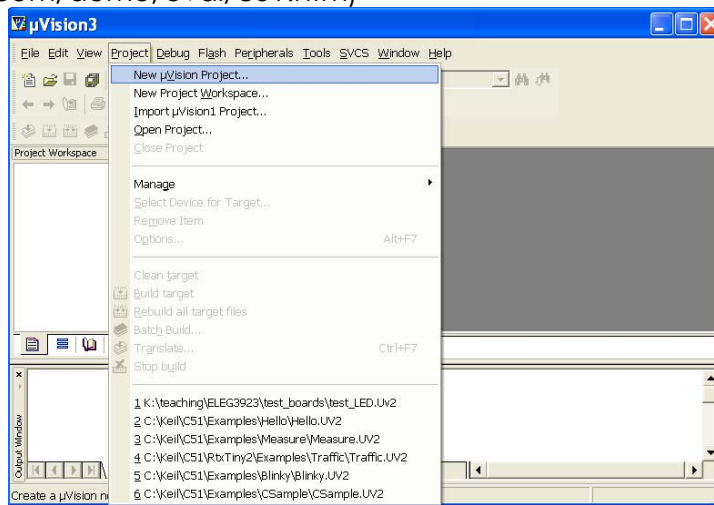


Fig. 1

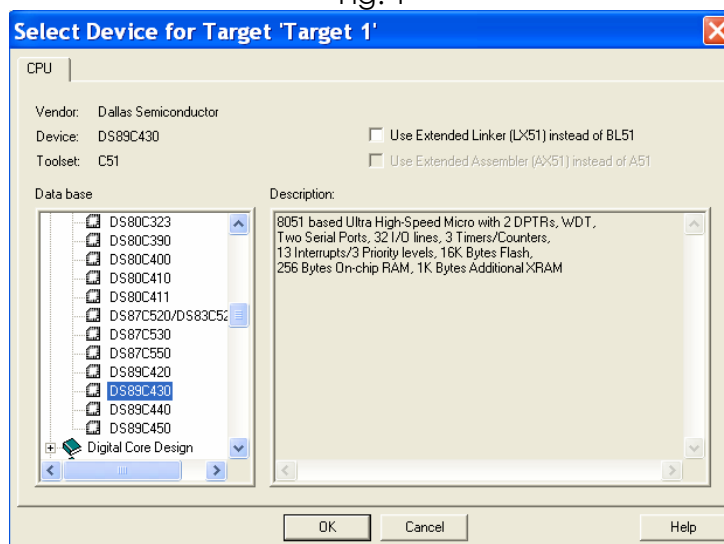


Fig. 2

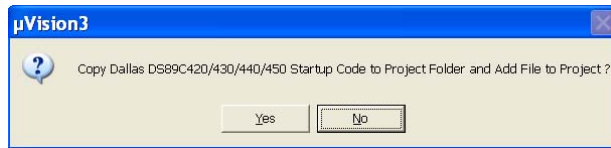


Fig. 3

2. Create a new file (Fig. 4). Copy the following assembly code to the file. Save the file as "test.a51".

```

ORG 0
MOV A, #55H ;load A with 55H
MOV A, #23H ;load A with 23H
MOV R0, A ;move contents in A to R0
END

```

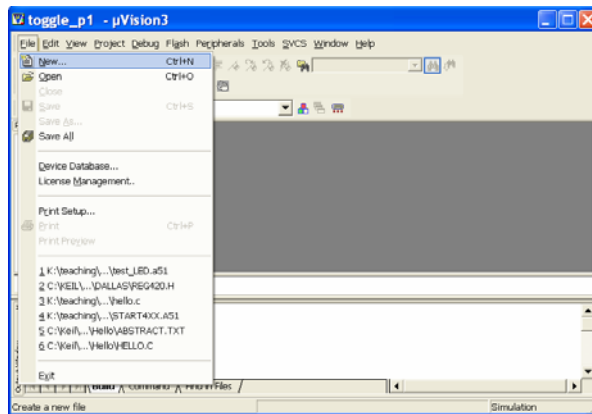


Fig. 4

3. Add the new assembly file to the project by right clicking on "Source Group 1" under "Target 1" (Fig. 5, Fig. 6).

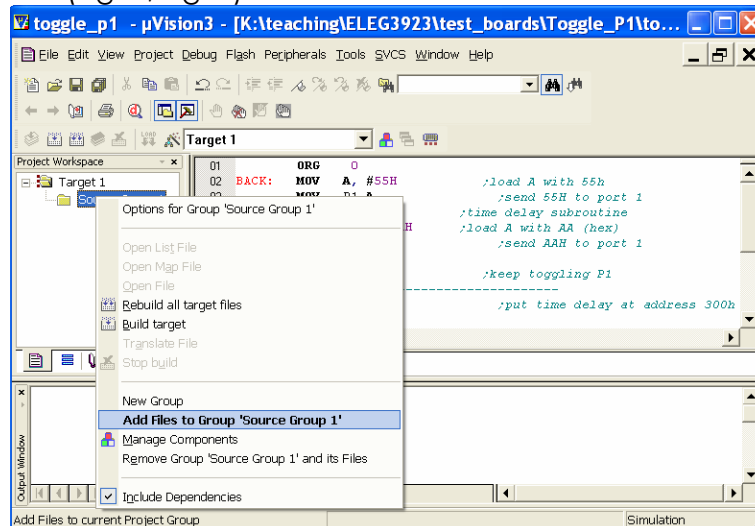


Fig. 5

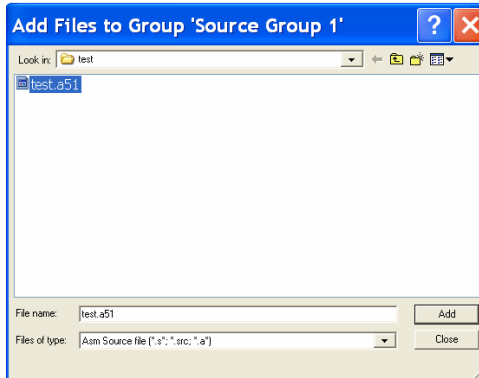


Fig. 6

- Configure the target and output by choosing Flash → Configure Flash Tools ... (Fig. 7). In the “Target” tab, set the “memory model” and “code ROM size” to small, and check “Use On-chip ROM” (Fig. 8). In the “Output” tab, check “Create HEX file” with “HEX format” being “HEX-80” (Fig. 9).

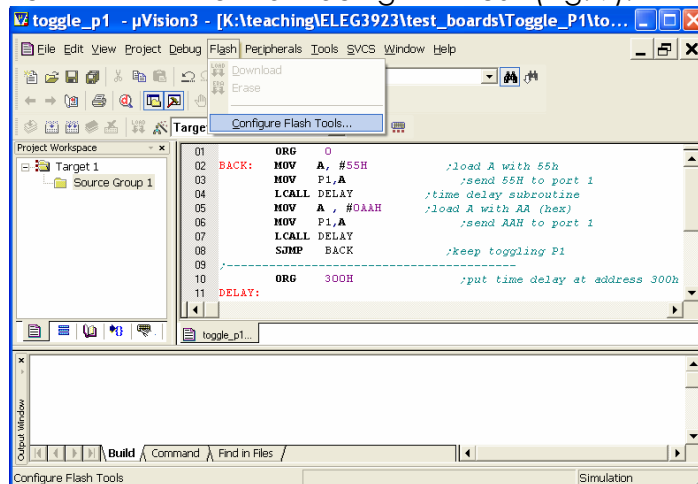


Fig. 7

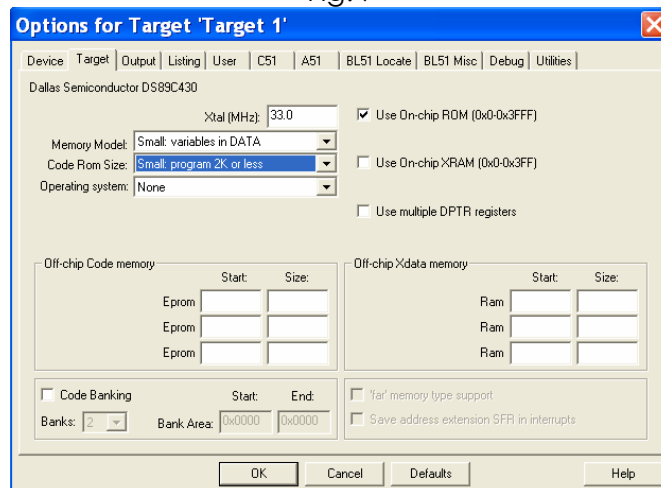


Fig. 8

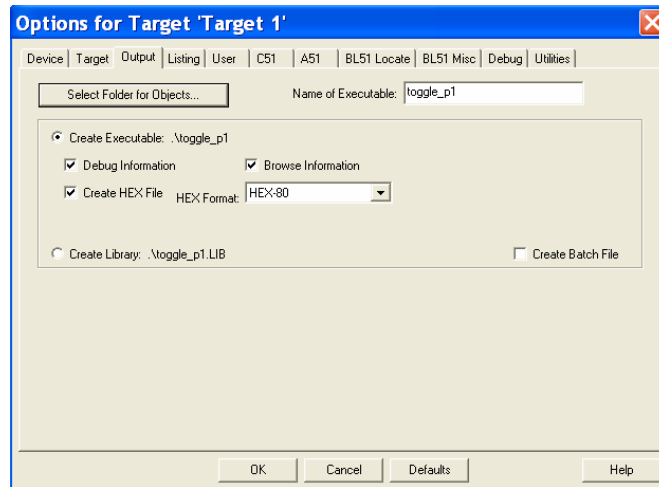


Fig. 9

5. Assemble and Link the program by using "Project → Build Target" (Fig. 10). Make sure there are no errors. A new file, "toggle_p1.hex", should be created in the project folder.

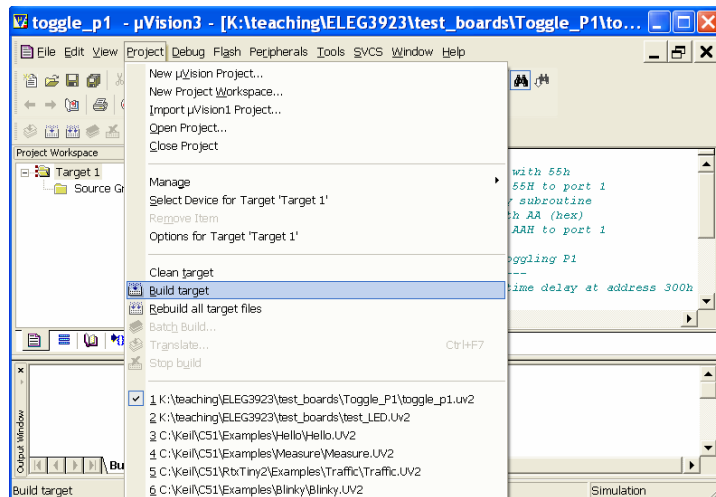


Fig. 10.

6. Next we will observe the execution of the program by using the emulator provided by Keil μVision. Choose "Debug → Start/Stop Debug Session" (Fig. 11). The program is running and it enters the debug mode.

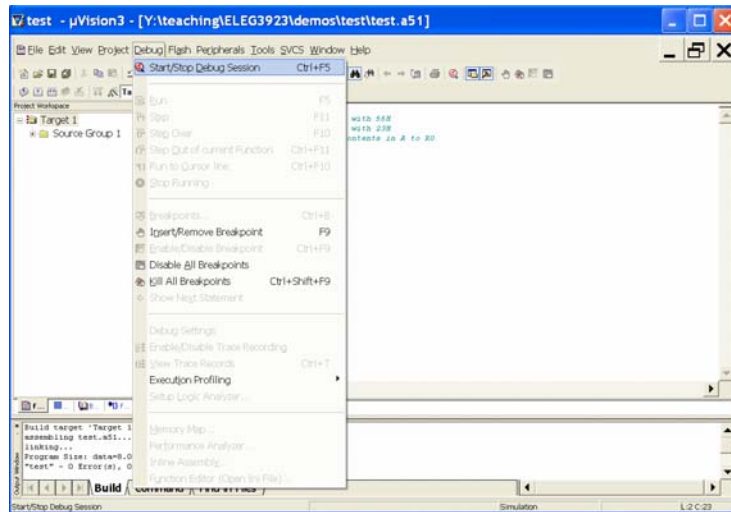



Fig. 11

7. View the contents of the register by clicking on the Regs tab (icon: ) on the left pane of the development window (Fig. 12).

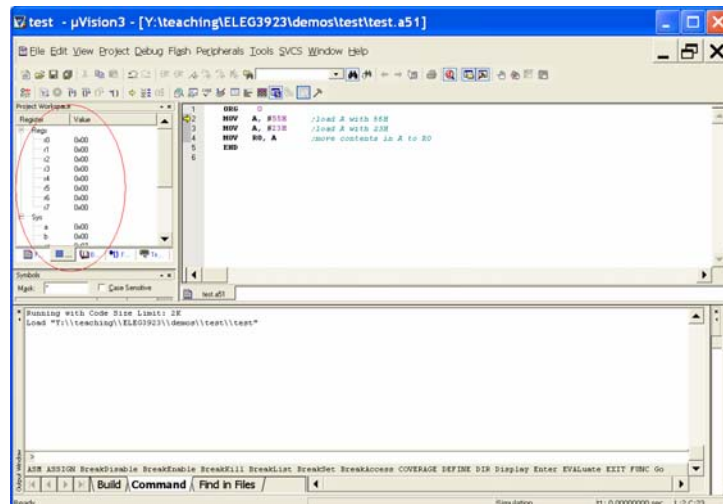


Fig. 12

8. View the contents of the memory by using "View → Memory Window" (Fig. 13). A memory window will appear at the bottom right corner of the main window. To view the contents at ROM, directly type in the start ROM address (e.g. 0H) in the address field; to view the contents at RAM, type in the start RAM address prefixed with "d:" (e.g. d: 0H) in the address field. (Fig. 14)
9. Execute the program step by step by using "F10", and observe the contents of the registers with the execution of the program.
10. You can also view the disassembled machine code by using "View → Disassembly Window".

