

Microprocessor Lab 1 Report

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This lab is about using μ -Vision 51IDE residing on MegaWin82G516 with the use of development context, program writer/burner, and 51 machine codes. The first lab runs quite well due to the sufficient amount of preparation from the user manual and references provided before the lab has started.

Goal: Set up the 89c51 board and initialize IDE to get program running

Progress:

In the first task, the goal is to set up the board and run the provided program to see the result on the led indicator on the board. Firstly, power cable and required connection from the output to the led input is established. This will allow us to control the led on/off sequence by sending the signal through the connected port after the board is powered on. Next, initialization of the IDE is set to the correct indicator as instructed in the lab paperwork. The program can then be pasted onto the editor and run after powering on the board. In this stage, the light on the board will light up sequentially one after another.

Last note, the initial program provided contain small error on the line “djnz r7, \$” due to the invalid target location. The change can be made by adding label right above the line and changing the target to the new label.

Observation:

- First task is completed successfully without many disturbance
- When editing the code on the line indicated by ==A==, we could use some new declared variable on top of the program as the multiplier indicator to prevent and simplify the debugging process if editing is intended. The other way is to ensure that the “#” symbol is not missing so that the right hand side of the comma is always an immediate value.
- When using the JMP instruction, 51IDE will help us identify the correct jump instruction to be used (in relative or absolute address mode), still we need to ensure that the target address is reachable even when using the longest possible range. However, if AJMP, SJMP, and LJMP is used, we have to ensure the correctness of the target location and whether the instruction can handle the distance of the target from the source. If not handled correctly, there are possibility that the target address will be calculated incorrectly and the result will not be desired.

Comprehensive evaluation:

- How can we decrease the possibility of catastrophe happened to the code?
- What test could be done to the board to ensure no malfunctioning before the start of the lab?
- Will the initial light movement direction in the result of program of task 1 change if the bridge connection is flipped?