**ELT** 310   
Hand Assembly Exercise

1. datal equ 033h
2. data2 equ 034h
3. org 00h
4. mov A,#27h
5. mov R0,A
6. mov datal,#011h
7. mov R0,#datal
8. mov @R0,#72h
9. add A,#data2
10. mov data2,A
11. end

Procedure

1. Decipher the program above using the table on page 2. A sample of what should appear in each section is given.
2. Hand assemble the program shown above. The template on page 3 should be used. A sample of what should appear in each section is provided.
3. Create a hex file by sequentially listing the hex values that were created during assembly.
4. Have your instructor inspect the assembled program.
5. Enter the program into the 8051 IDE program and assemble to generate the .asm, the .lst and the .hex file.
6. Compare your hex file against the .hex file generated by the 8051 assembler.
7. Open the .1st file created by the 8051 IDE program.
8. Compare the .1st file (addresses and hex) with the first two columns of the hand assembled table.

Report Format

1. Cover page
2. Hand assembled program
3. Annotated hex file
4. Statement of whether or not the hand assembled hex file matched the assembler assembled hex file. If not, what was different?
5. Annotated .lst file
6. Statement of whether or not the hand assembled file matched the .1st file. If not, what was different?

Decipher the program given.

For each line of the program complete each entry in the table below.

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| --- | --- | --- | --- | --- |
| Line No. | Instruction | Conversion | English | Result |
| 28 | add A,#width | add A,#11h  (n.b. **width equ 11** not shown) | Add the literal value 11h to the contents of the accumulator | The accumulator contains the sum of its previous value plus 11h |
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| 1 |  |  |  |  |

Hand Assembly

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| --- | --- | --- |
| Address | Hex Codes | Assembly Language |
| Example  2000 | 24 11  (n.b. **width equ 11** not shown) | add A,#width |
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