

Learning Material - Experiment in ICT 2

Week 10

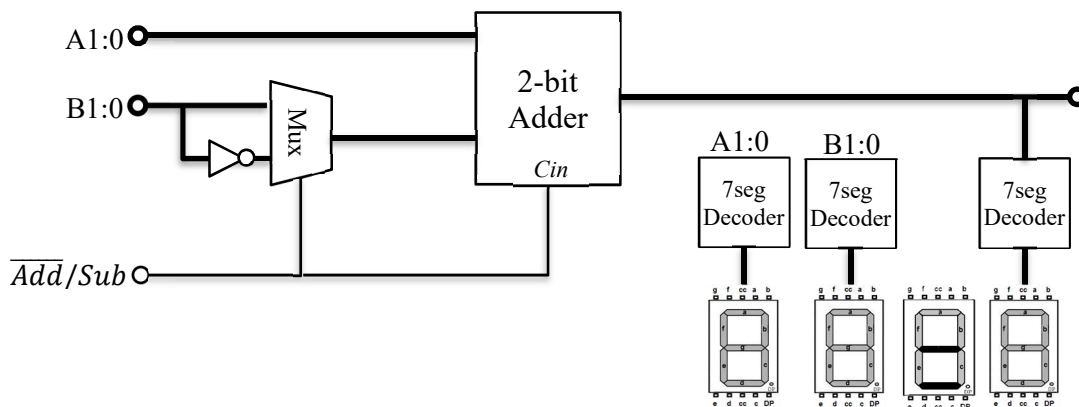
Goal of week

Student will be known about Adder, Subtract also understand how to show a number character via led 7Seg, like hand-held calculator.

How to implement n bit adder, subtractor and comparator using logic gate.

Content and requirement

Design a simple Arithmetic Logic Unit with 2 operators: Adder (+), Subtractor (-), and 2 4-bit operands.



Experimental Equipment

- | | | | |
|------------------------|----|--------------------------|----|
| 1. Equipment Guideline | | 6. 74LS04 (6x NOT) | x1 |
| 2. 5V Power | | 7. 74LS283 (ADDER 4-bit) | x1 |
| 3. Breadboard | x1 | 8. 74247 (7-seg Decoder) | x3 |
| 4. Multimeter | x1 | 9. Led 7-seg | x4 |
| 5. 74LS157 (2x MUX2x1) | x1 | 10. Resistor 330Ω | x4 |

Experimental Steps

1. What are two no-name signals in the schematic above?
2. Read datasheet of 7Seg Decoder IC and Led 7Seg
3. A small group tries to implement ALU on the left of the breadboard
4. Another group tries to implement 7seg Decoder and Led-7seg on the right of the breadboard
5. Combine 2 parts to complete the exercise.

Experimental Report

All student must have a report, explain everything you do in this experiment with the content:

- Draw circuit's schematic.
- Inform all result getting from this experiment
- Give some remark