

## Lab 7: Electronic Clock I (Time Display)

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### Objective

- ✓ Implement the display function of the electronic clock.

### Prerequisite

- ✓ Fundamentals of logic gates.
- ✓ Logic modeling in Verilog HDL.
- ✓ Simple logic development and FSM control

### Experiments

- 1 Finish the time display function supporting 24-hour (00-23).
  - 1.1 Support two modes: AM/PM and 24-hour.
- 2 For the date functions in clock (no leap year), we have the following functions:
  - Day (Jan/ March/ May/ July/ Aug/ Oct/ Dec: 1-31, Feb: 28, Apr/June/Sept/ Nov: 30),
  - Month (1-12),
  - Year (00-99).

Implement the following functions:

- 2.1 Month-Day function display in the 4 14-segment displays.
  - 2.2 Combine the Year and 1.1 to finish a Year-Month-Day timer, and use one DIP switch to select the display of Year (2 14SD) or Month-Day (4 14SD).
- 3 (Bonus) Add the time display support of both AM/PM and 24-hour, and the leap year support. (The year will start from 2000 to 2200 and use 4 14SD to display.)

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