

1. Where (which directory path) is your SOF file located, and what it is called

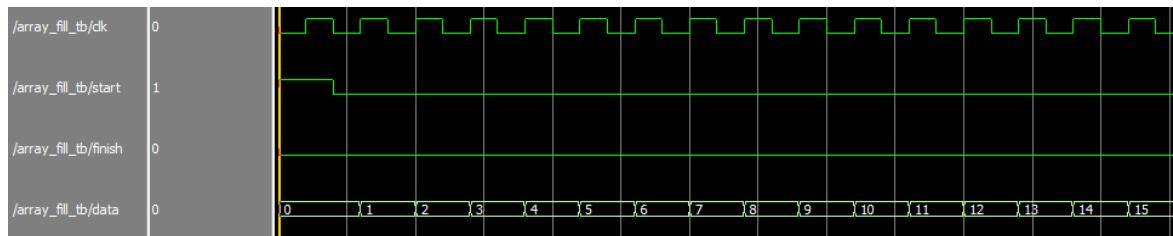
`rc4.sof` at `./rtl/output_files/ rc4.sof`

2. What is the status of the lab (what works, what doesn't)

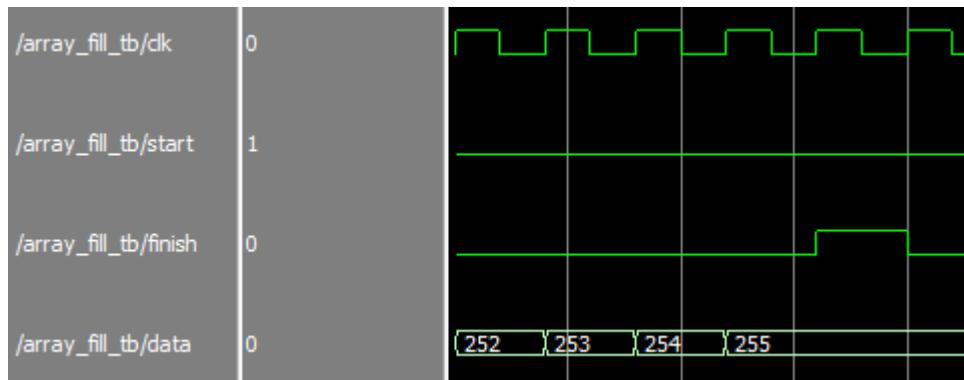
Everything working

3. Annotated simulation screenshots as required by the lab

Task 1: array_fill

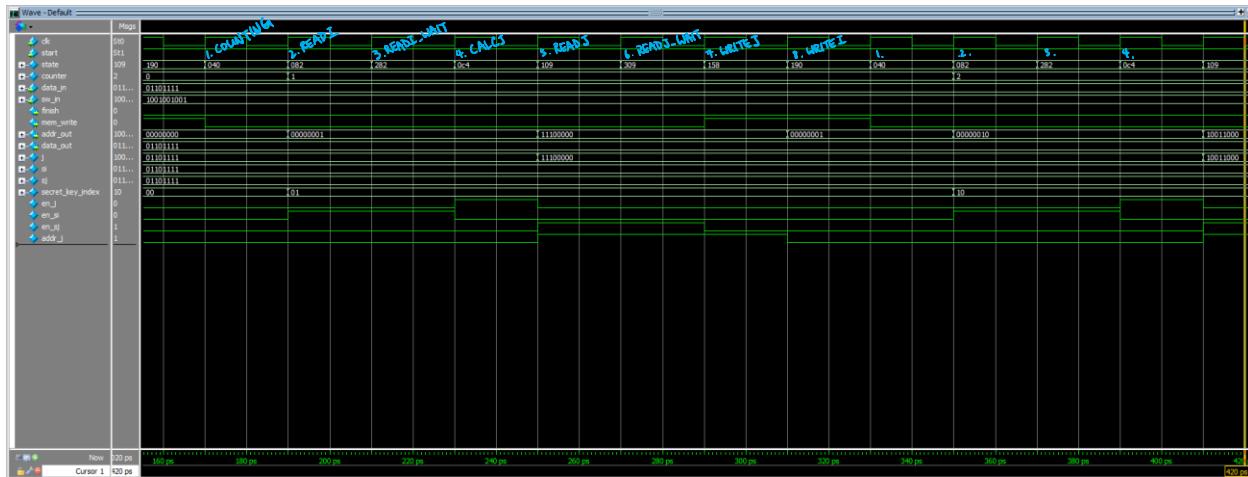


Checks that the output data increments by 1 every clock cycle



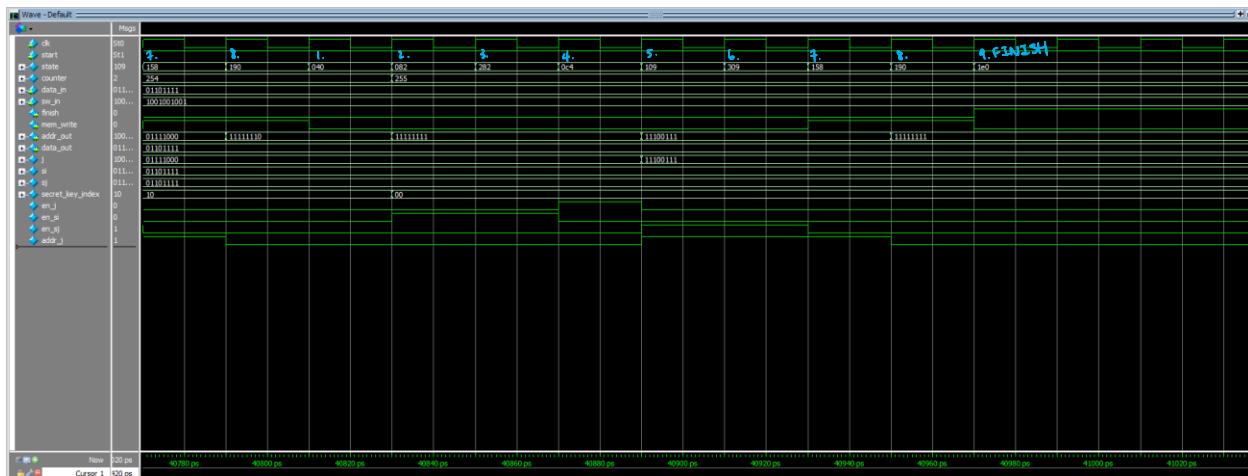
Checks that the finish output signal goes high after the counter reaches 255

Task 2a: shuffle_array



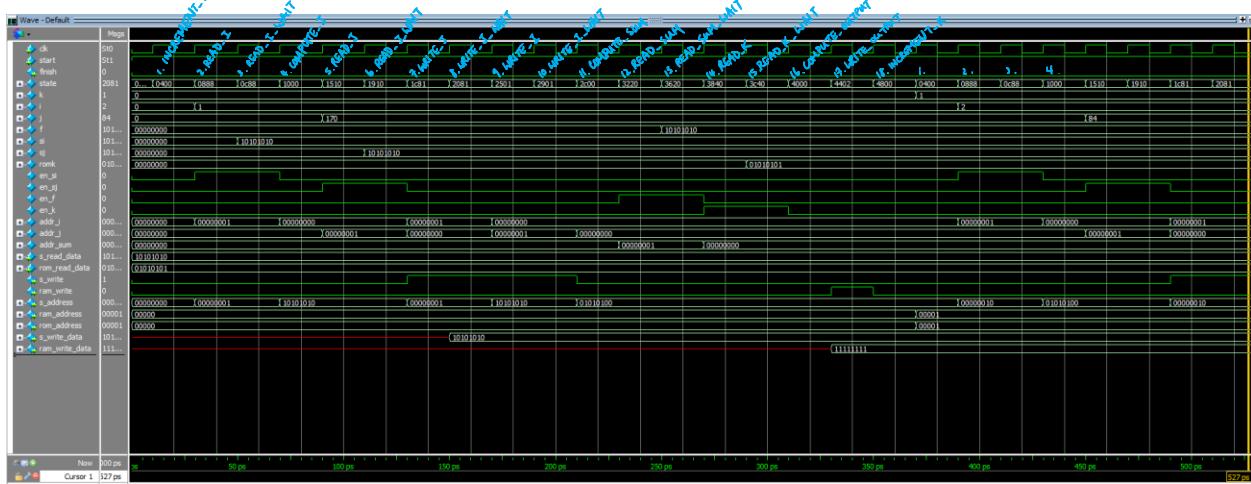
states cycle through normally and outputs are as expected for each state

- en_si is high on READ_I and READ_I_WAIT (same for equivalent j states/ signals)
- correct data is read in and written out
- mem_write is only high on WRITE_I and WRITE_J
- addr_j is high only on J states
- secret_key_index cycles through 0, 1, and 2 changing after every full FSM cycle



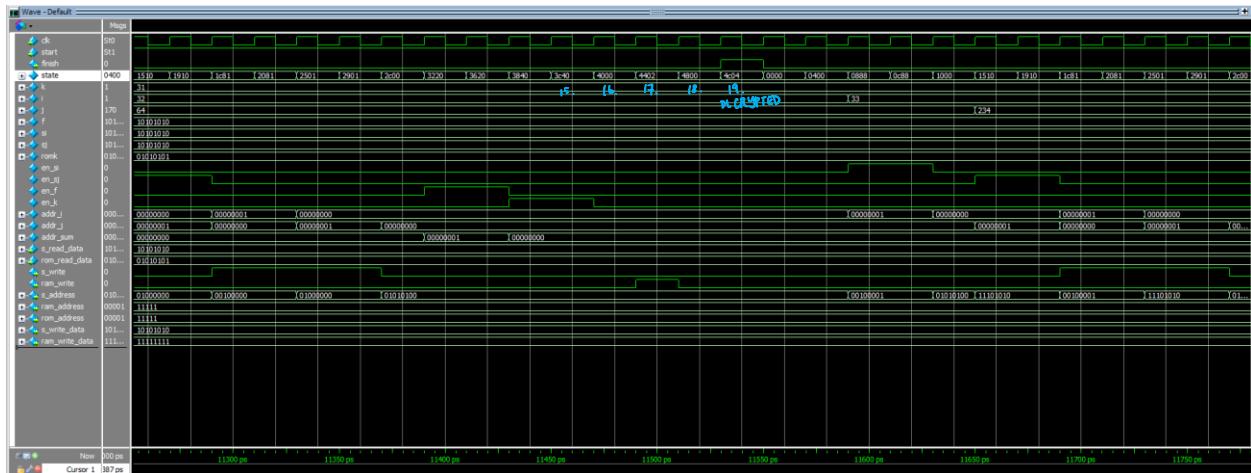
states stop cycling when FINISH state is reached and FINISH state is reached when counter hits 255

Task 2b: decrypt_message



states cycle through normally and output matches the expected for each state

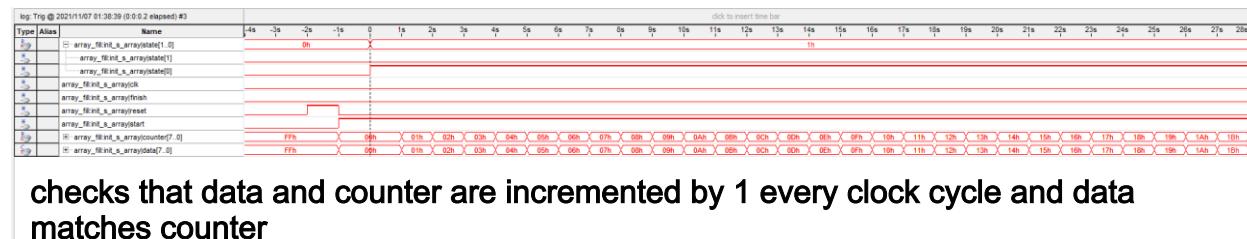
- `en_si` is high on `READ_I` and `READ_I_WAIT` (same for equivalent `j,f,k` states/ signals)
- correct data is read in and written out
- `ram_write` is only high on `WRITE_OUTPUT`
- `s_write` is high on `WRITE_J`, `WRITE_J_WAIT`, `WRITE_I`, `WRITE_I_WAIT` states



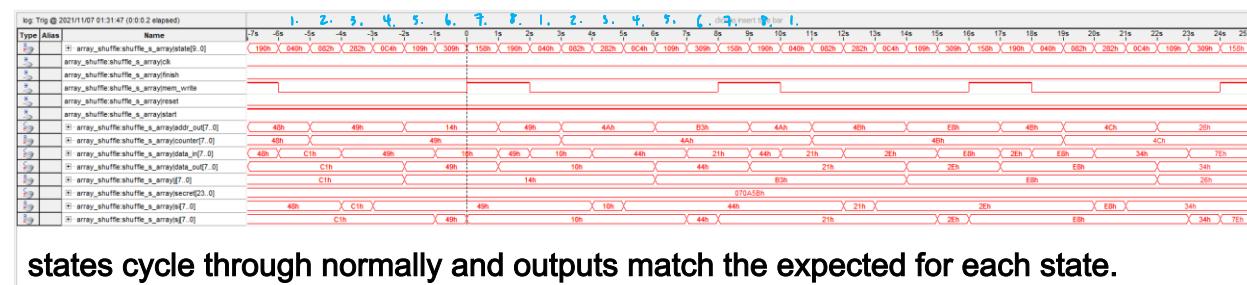
Finish signal goes high when the DECRYPTED state is reached

4. Annotated SignalTap screenshots as required by the lab

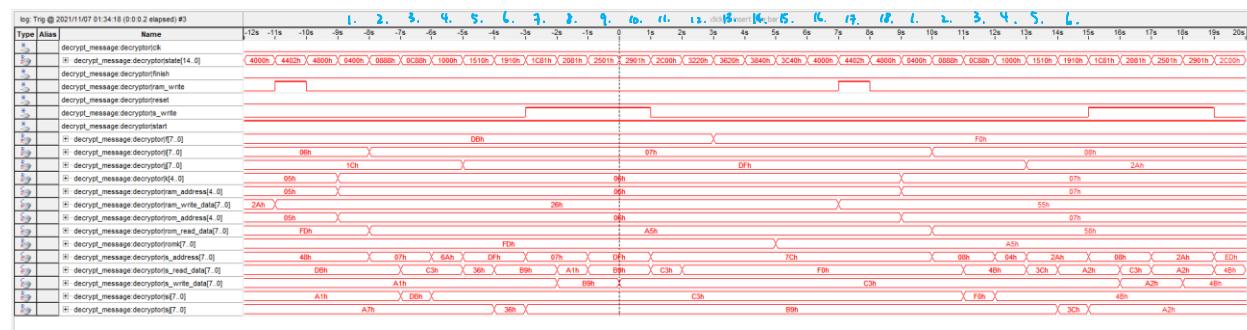
Task 1: array_fill



Task 2a: array_shuffle



Task 2b: decrypt_message



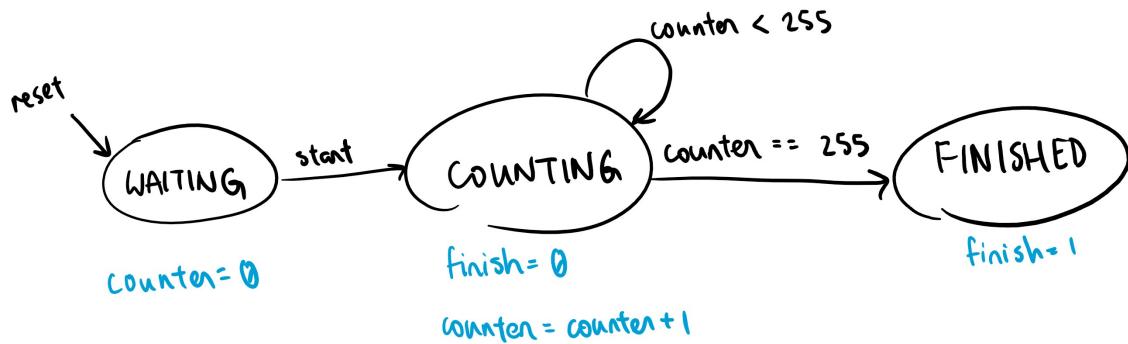
5. Information on how to run the simulations (i.e. where the files are located, which program you used to run your simulation)

Testbenches for modelsim can be found under in the `sim` folder under the corresponding folder for each FSM module.

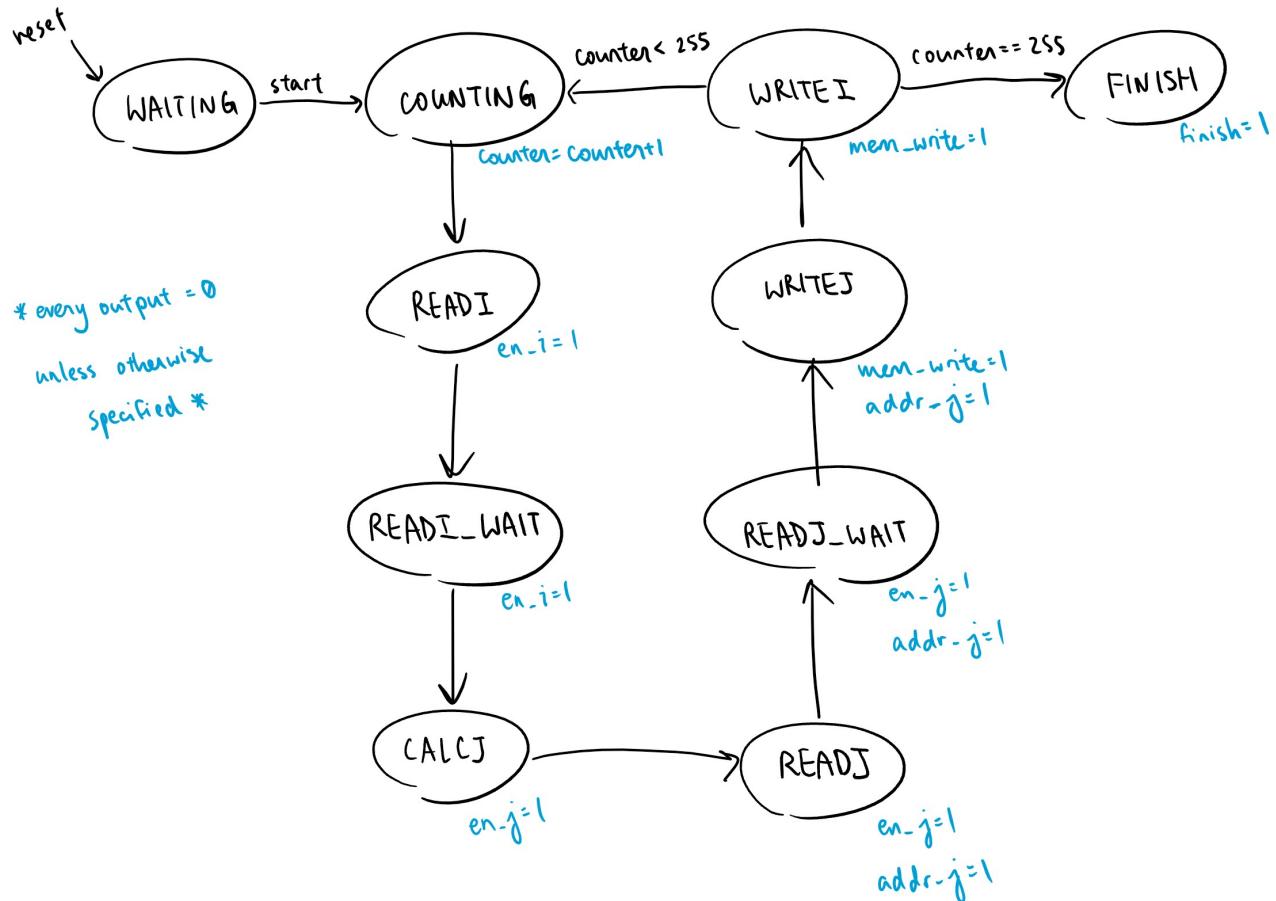
Signal tap file is located at `rtl/lcd_scope.stp`

6. Any additional information that would be relevant for the TA marking your project.

array_fill fsm



array_shuffle fsm



decrypt_message fsm

