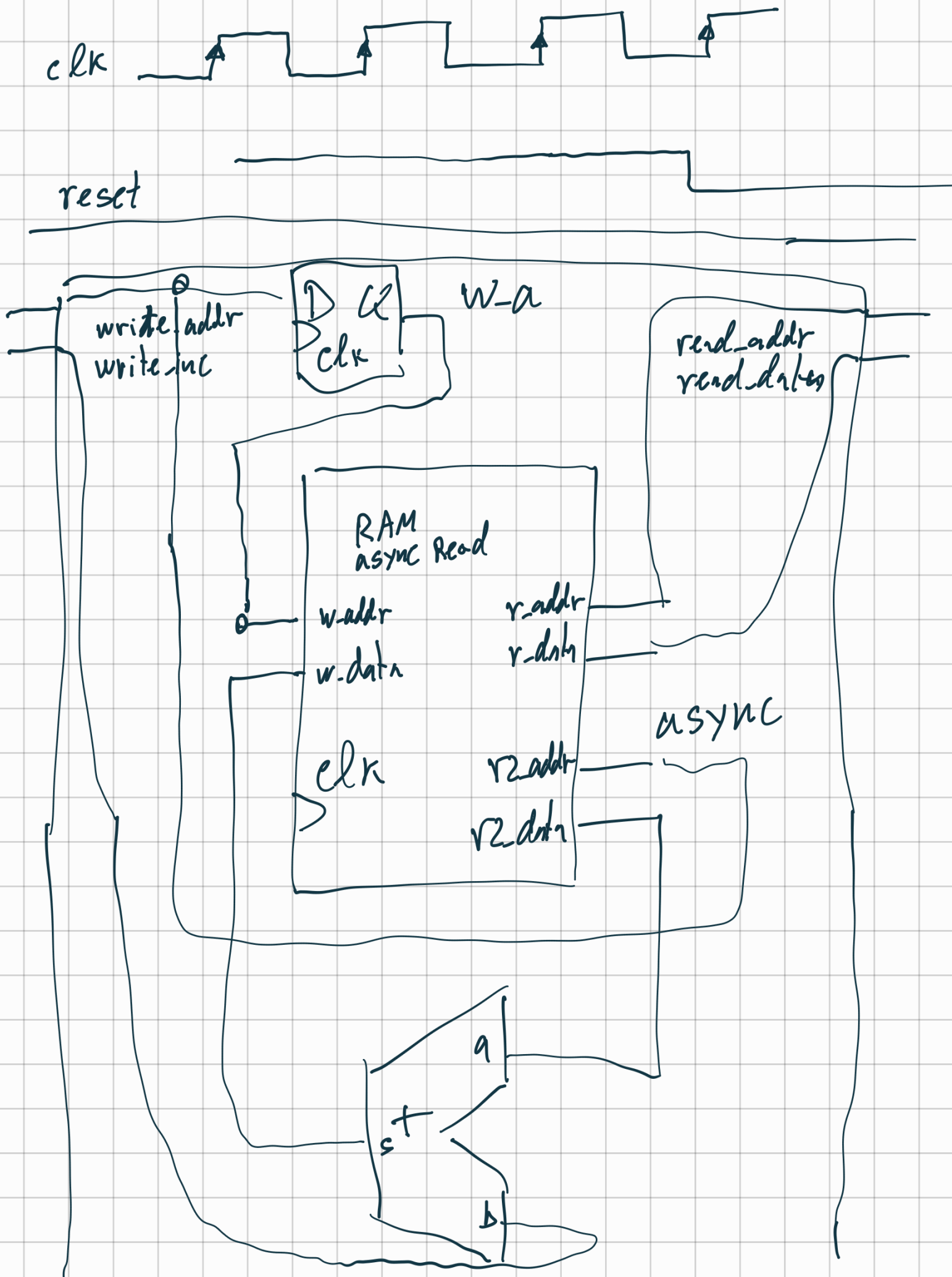
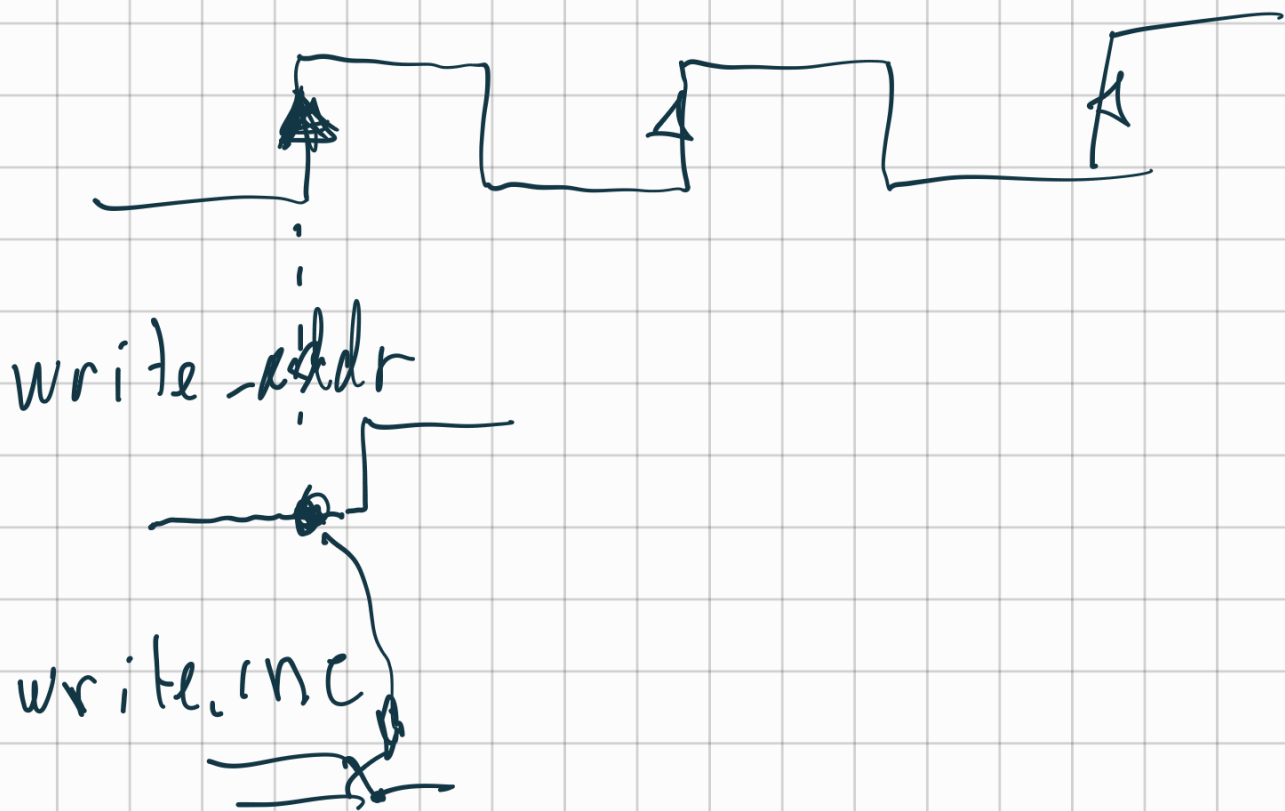


AAD 2024-12-02





$w-n$

Barrel shifter

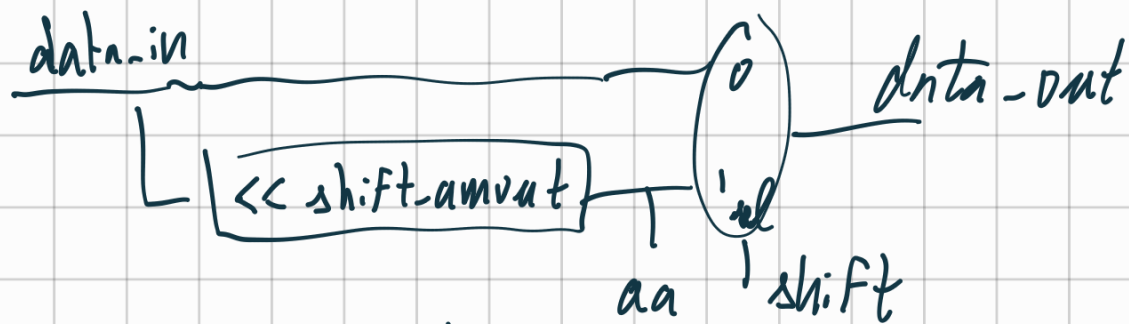
$a \ll \text{shift}$

Entity definition

```

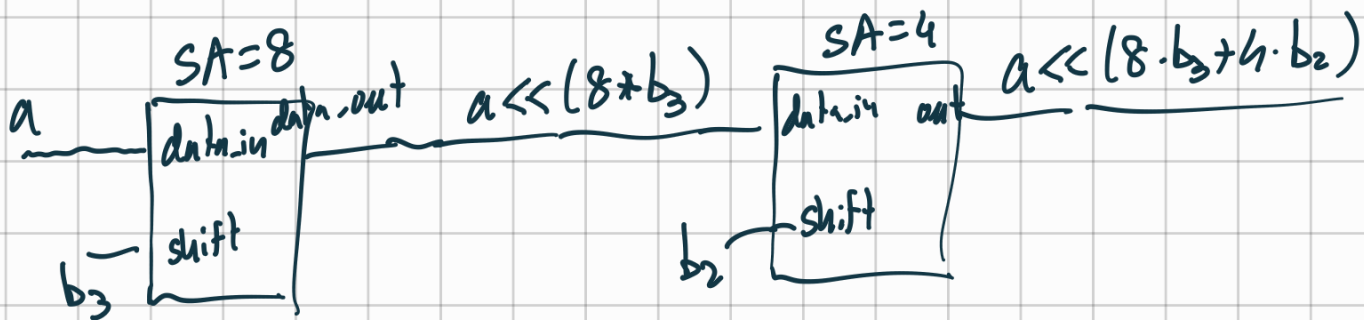
generic (N, SHIFT-AMOUNT);
port (
  clock: in std_logic,
  data_in: in std_logic_vector (N-1 downto 0),
  data_out: out std_logic_vector (N-1 downto 0),
  shift: in std_logic );
  
```

SA ↙



$$aa \leftarrow a[N-1-\text{SHIFT_AMOUNT down to } 0] \text{ } b_1 \text{ } \text{("0VV")}$$

$$a \ll (8 \cdot b_3 + 4 \cdot b_2 + 2 \cdot b_1 + b_0) = (a \ll (8 \cdot b_3)) \ll (4 \cdot b_2)$$



for generate