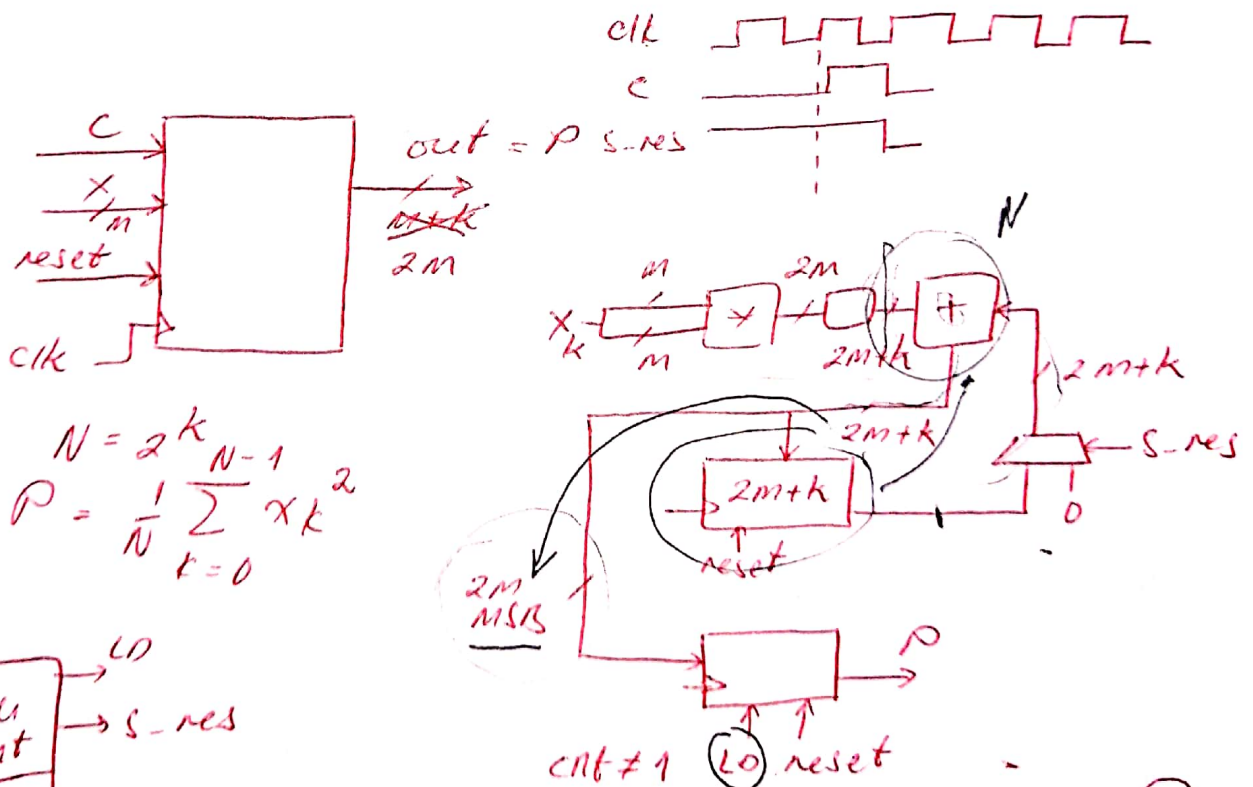inputs → FSC → CSM → OC → outputs

clk

FSC = future state computation
(combinatorial)

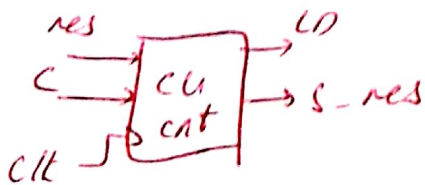CSM : current state memorizing
(sequential)

OC : output computation
(combinatorial)

1. in one state block
2. input dependence –
   application dep.

latch → memorize
@input

C, X/m, reset, clk → out = P s_res
$2m$

$$N = 2^k$$
$$P = \frac{1}{N} \sum_{k=0}^{N-1} x_k^2$$

block

res, C, clk → CU cnt → LD, S_res

r_ses : internal reset

clk, c, out = P s_res

X_k — m — $\times$ — $2m$ — $2m+k$ — $+$ — N — $2m+k$ — S_res — 0

$2m+k$ reset

$2m$ MSBs

P

cnt ≠ 1 (LD) reset

count

State diagram:

count: cnt = cnt−1, LD = 0, S_res = 0

c = 1

IDLE: LD = 0, cnt = N−2, S_res = 1

c = 0

cnt = 1

LD = 1, cnt = N−2, S_res = 0