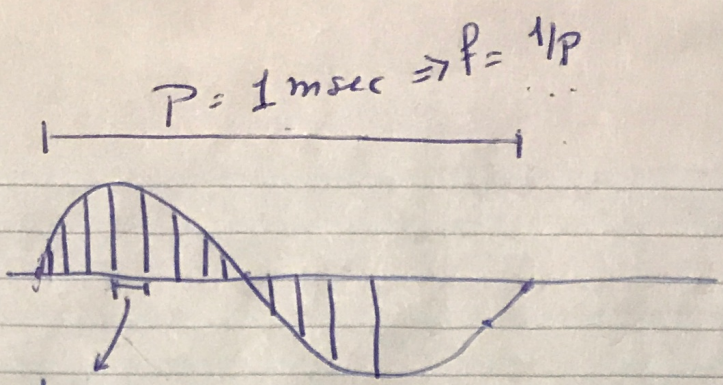


1 msec
0.01 sec
0.1 sec
1 sec

$T_s = \frac{1\,msec}{100} = 10\,\mu sec$

$y = \sin(2\pi f t)$ ⇒ $y[n] = \sin(2\pi f n T_s)$

sampling time

x = linspace(0, 2π, 100)

t = 0 : T_s : 10^{-3} - T_s;

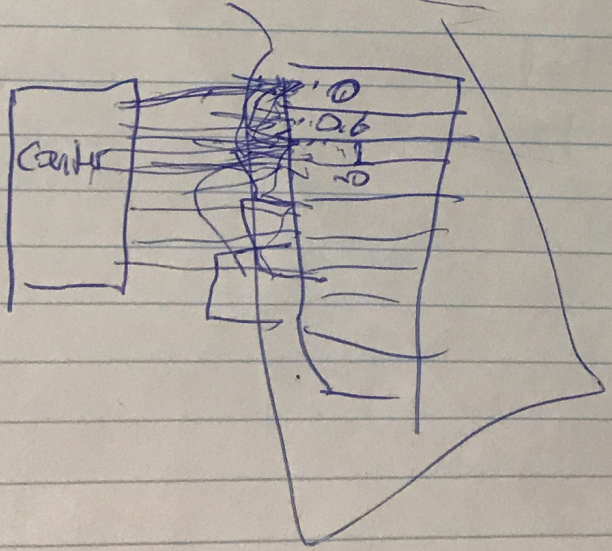
f = 1000;

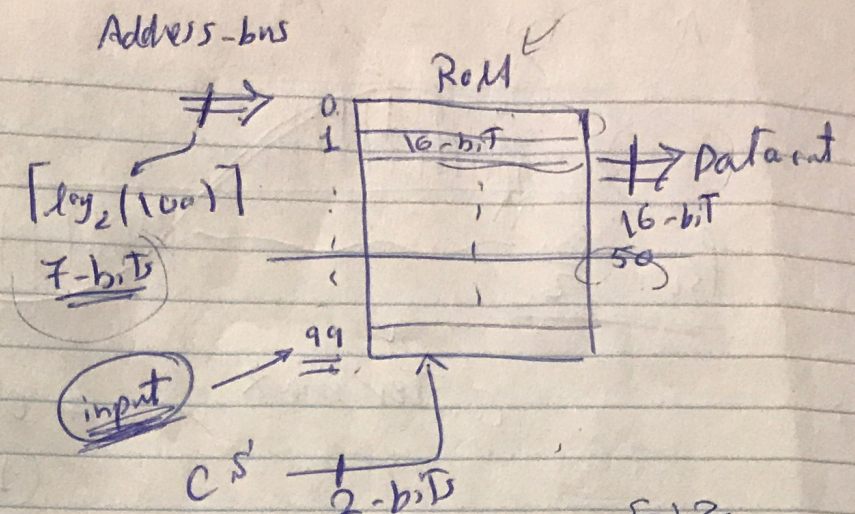
Clock_50 ⇒ 50MHz ⟶ t = 20 nsec

$T_s \leftarrow \frac{10\,\mu sec}{20\,n sec} = 500$ count

20 nsec → Tclk

$\frac{0.01}{100} = 10^{-4} = 10\,msec \Rightarrow T_s$





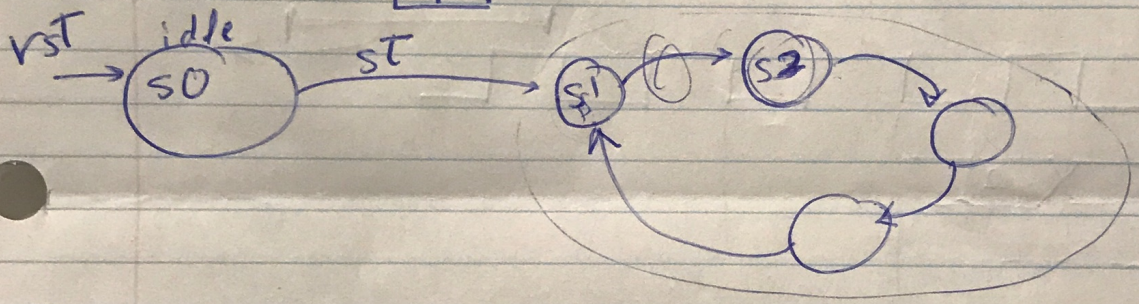
Address Bus

4 Memory

512

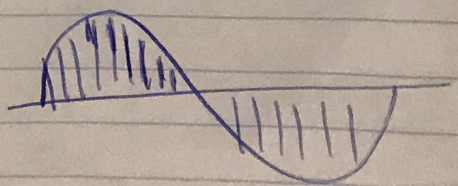
counter → 0

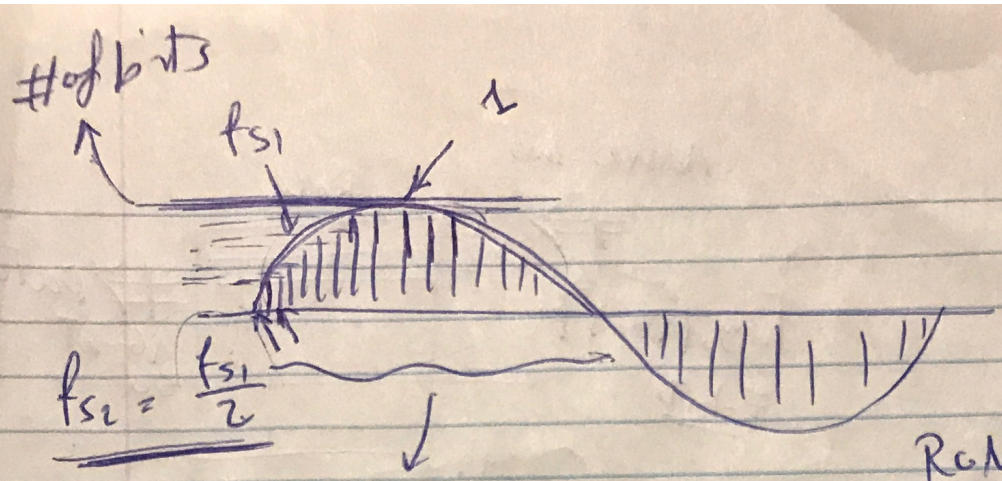
I/p: waveform Type, Sampling speed, # of points



FSM O/P: P, CS, EN, LP, CC

```
counter: std_logic_vector(6 downto 0)
counter process(clk, rst)
begin
    if rst = '0' Then
      Count <= (others => '0');
    if rising_edge(clk) Then
      if len = '1' then
      Counter <= counter + 1;
    end if;
end process;
```

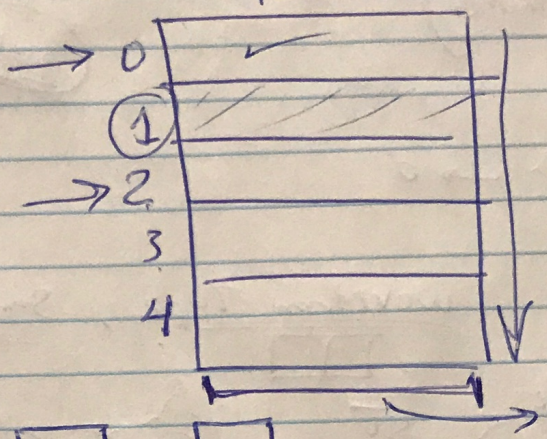


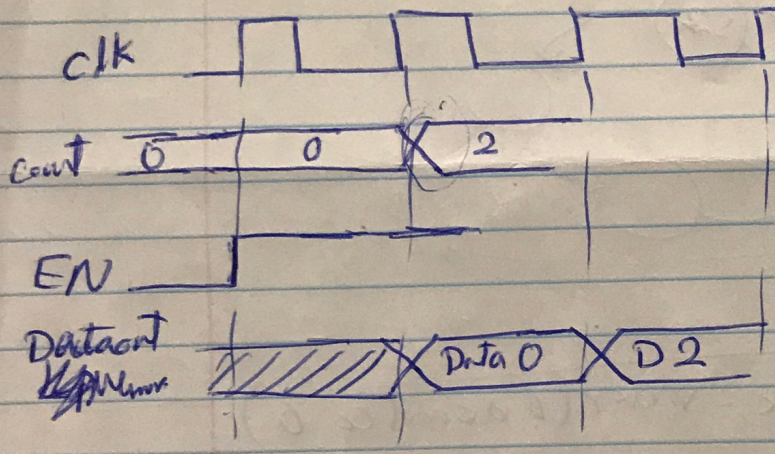


Counter max

RAM1

RAM2 - 3





1ms

100 data points