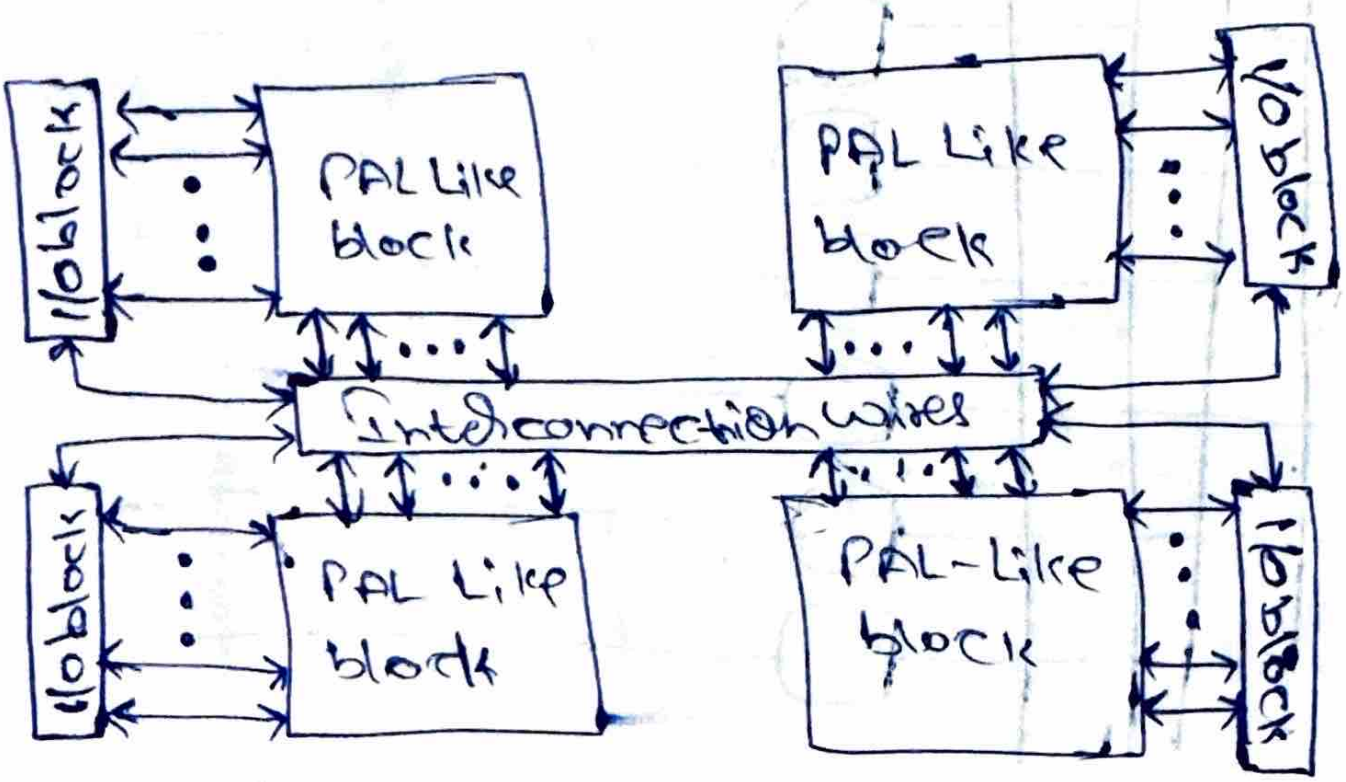
CPLD:

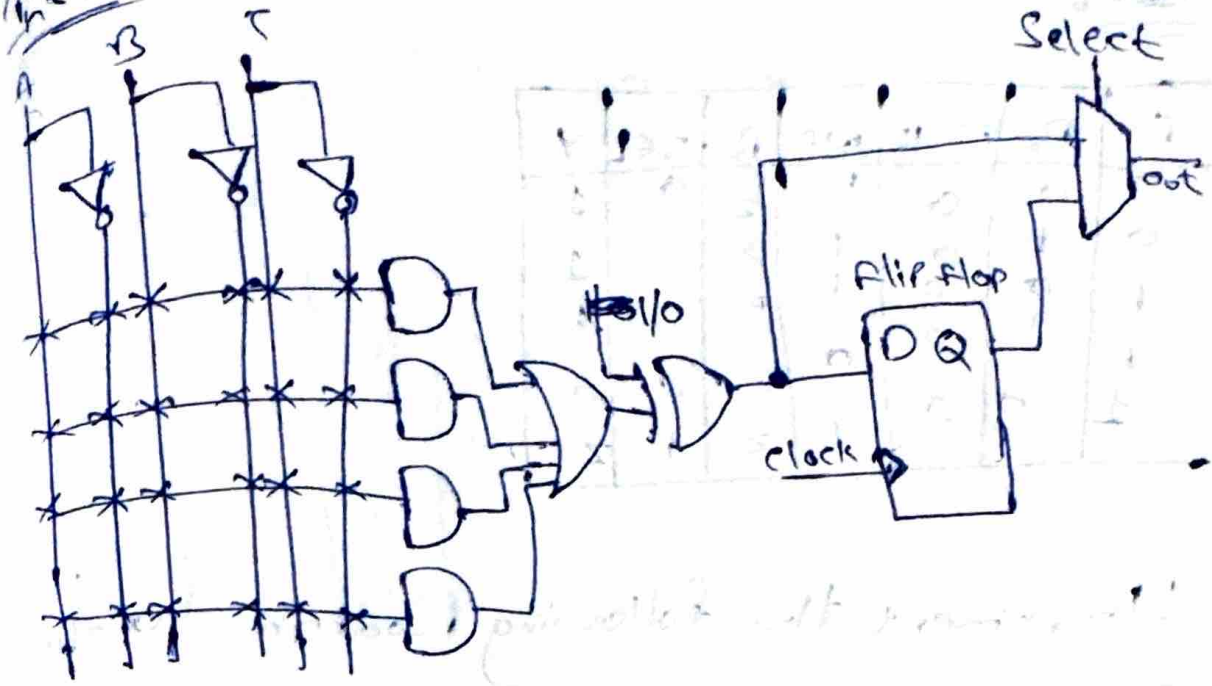
CPLD stands for Complex Programmable logic Device.

While we can integrated on multiple Programmable

ARCHITECTURE OF CPLD

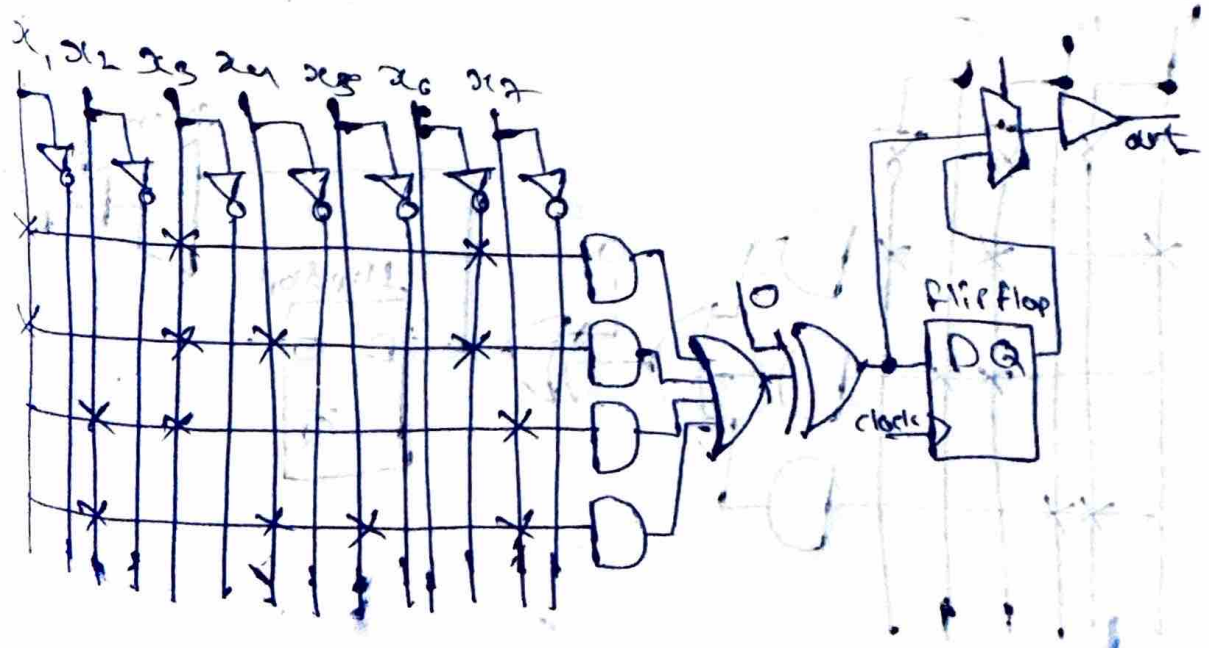


Internal structure of CPLD



Implement the given function using the macrocell of CPLD.

$$F = x_1 x_3 \overline{x_6} + x_1 x_4 x_3 \overline{x_6} + x_2 x_3 x_7 + x_2 x_4 x_5 x_7$$

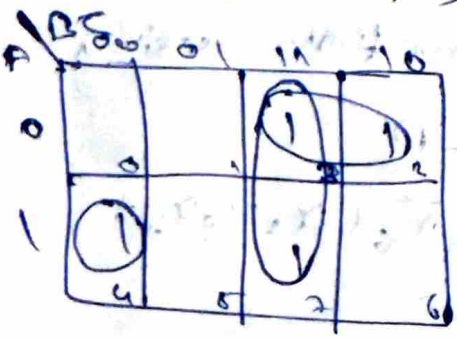


Q:

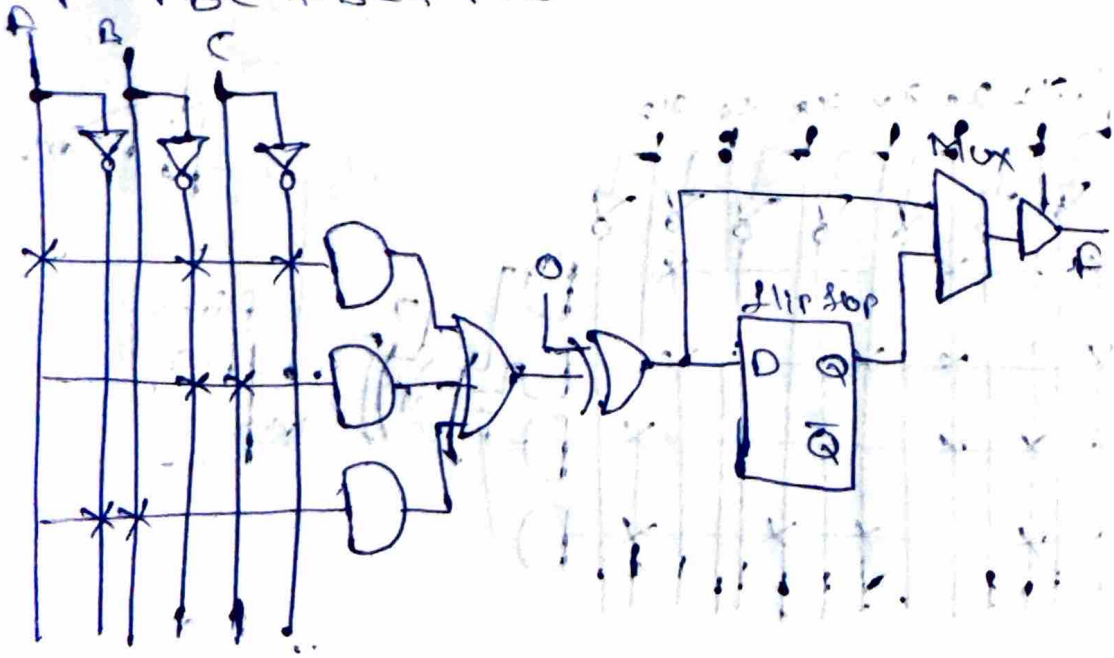
A	B	CLK	NR	R	SEL	Y
0	0	0	1	Z	0	1
0	1	0	1	Z	0	1
1	0	0	1	R	0	1
1	1	0	0	Z	0	0
1	0	0	1	Z	1	Z

Implement the following Boolean function

$F = \Sigma m(2,3,4,7)$ using macro-cell



$F = A\bar{B}\bar{C} + BC + \bar{A}B$

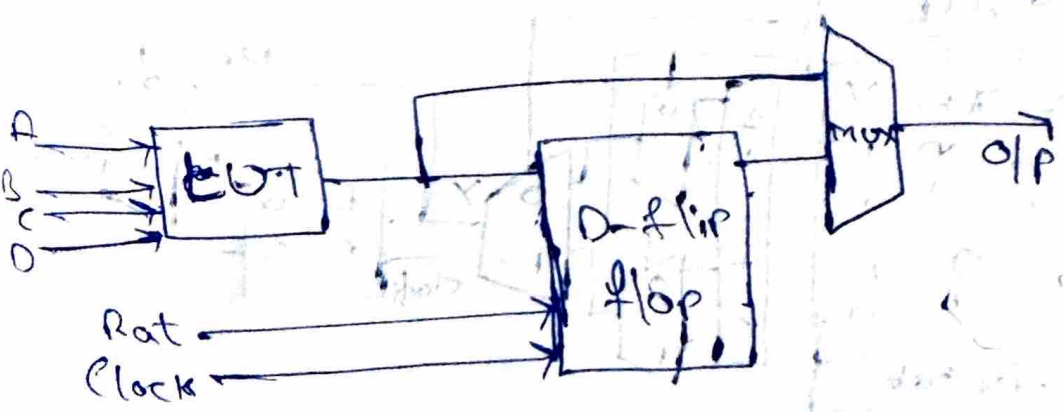


A	B	C	CLK	PR	R	SEL	O/P
0	0	0	0	0	z	0	0
0	0	1	0	0	z	0	0
0	1	0	0	1	z	0	1
0	1	1	0	1	z	0	1
1	0	0	0	1	z	0	1
1	0	1	0	0	z	0	0
1	1	0	0	0	z	0	0
1	1	1	0	1	z	0	1

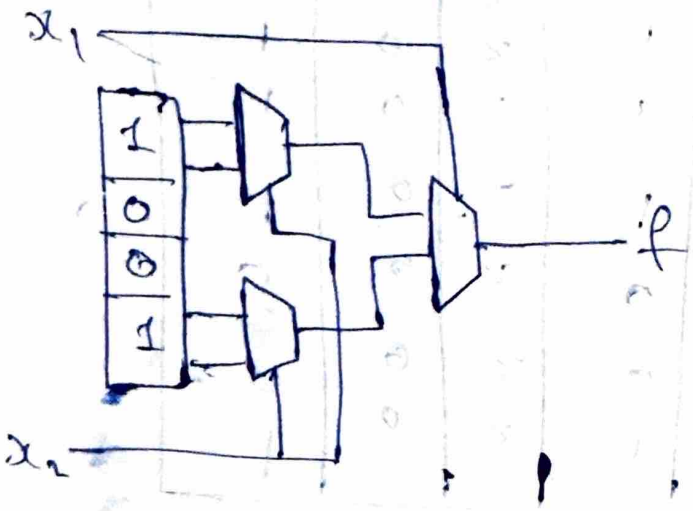
Applications of CPLD

(1) CPLD are ideal for high performance circuit control applications

Configurable logic Block (CLB)



Look up table: (LUT)



2^n: Single bit SRAM memory cells followed by a $2^n - 1$

Implement the CLB for the given Boolean $Y = \overline{A \cdot B}$ or $Y(A,B) = \Sigma m(0,1,2)$