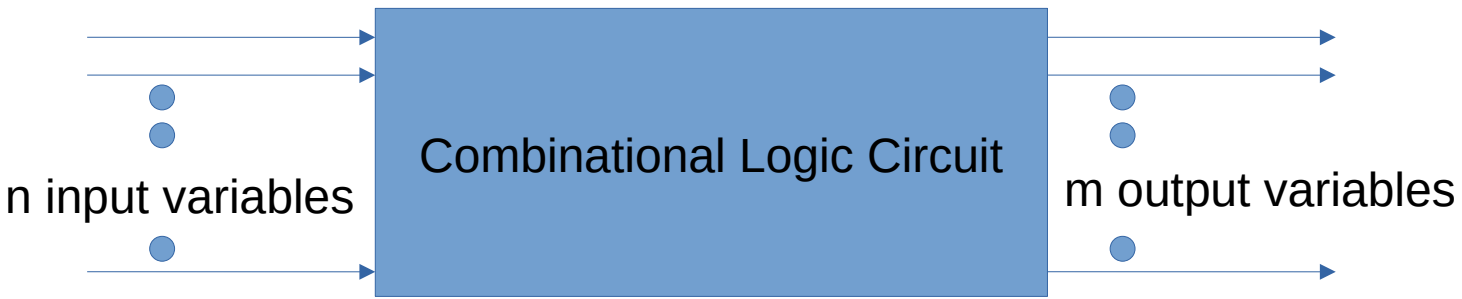
Switching Circuit & Logic Design

Lecture 16 : Combinational Circuit

Content

- What is combinational Logic Design
- Half Adder
- Full Adder
- Parallel Adder
- Adder / Subtractor

Combinational Circuit



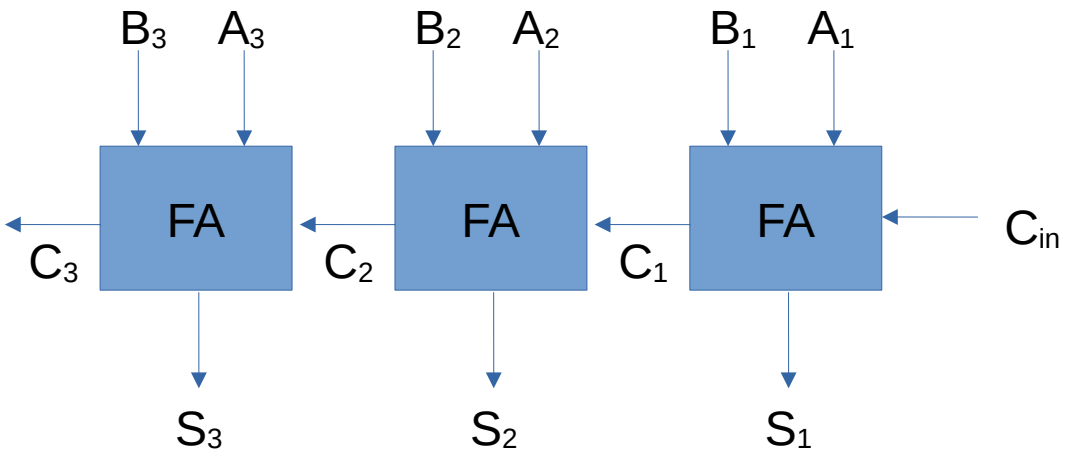
Half Adder

Inputs		Outputs	
A	B	S	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

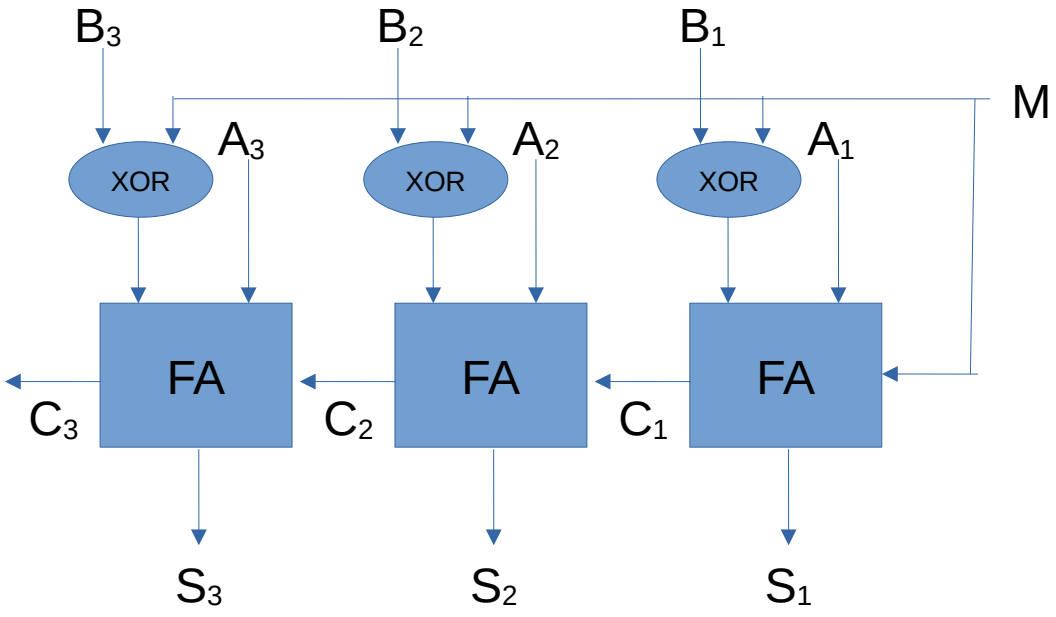
Full Adder

Inputs			Sum	Carry out
A	B	C_{in}	S	C_{out}
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

Binary Parallel Adder



Adder / Subtractor



Subtractor

A XOR 1 = A’

A XOR 0 = A

1’s Complement → B’

2’s Complement → +1