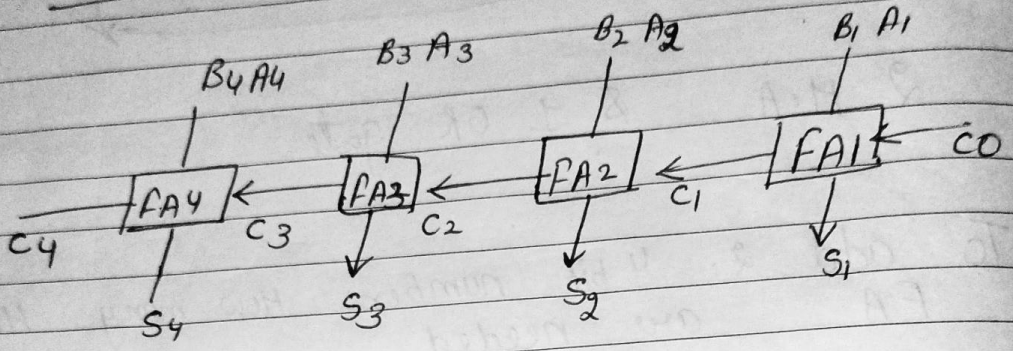
n bit parallel added
- n FA
- 2n HA

] generalized




$n_1 \longrightarrow A_1\ A_2\ A_3\ A_4$

$n_2 \longrightarrow B_1\ B_2\ B_3\ B_4$

## BCD adder

Lecture 25

A Combinational circuit which is used to add 2, BCD no. & previous carry

(4 bit)

valid BCD 0-9

| | | |
|---|---|---|
| 0111 | — 7 | |
| 1000 | — 8 | |
| 1111 | — 15 invalid BCD | |
| 0110 | | |
| 10101 | — | |
| (15)10 | | |

| | |
|---|---|
| 1000 | — 8 |
| 1000 | — 8 |
| 10000 | (Carry) |
| 0110 | |
| 10110 | |
| (16)10 | |

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FA FA FA FA

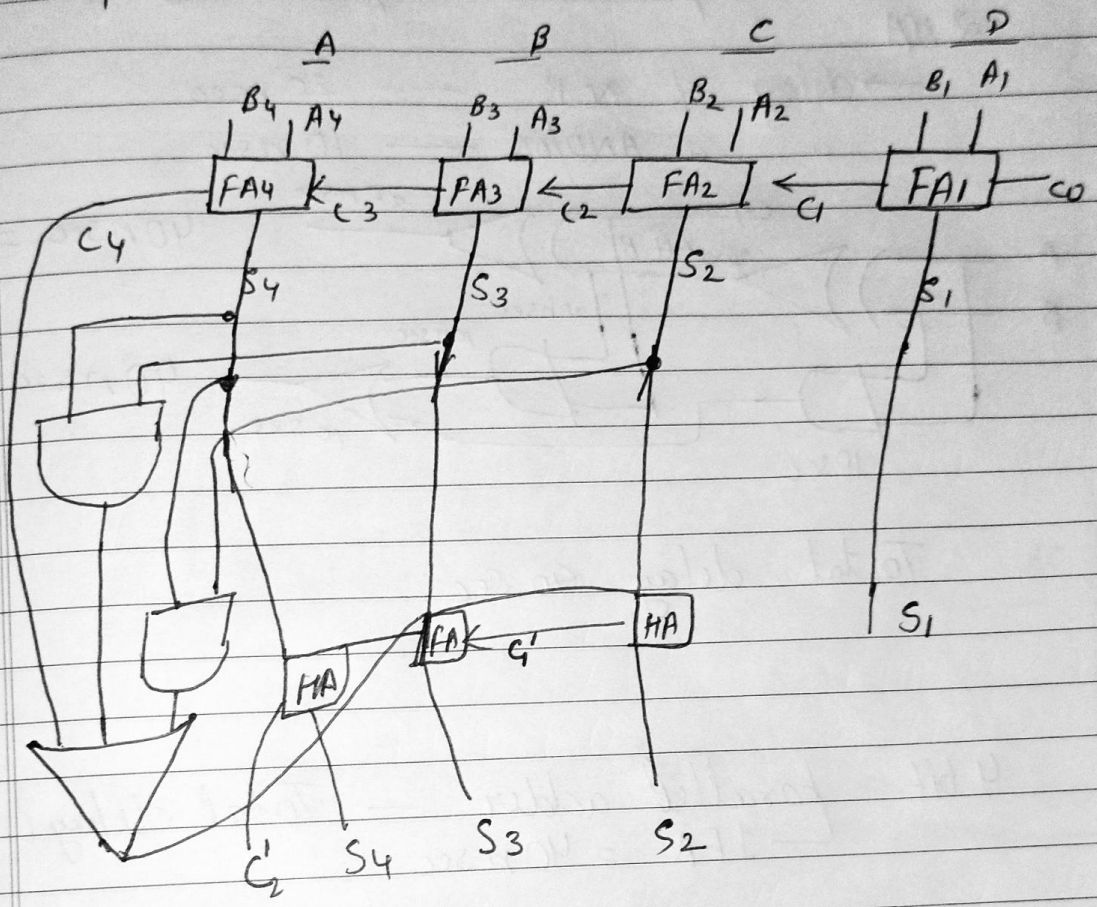
$C_3$ $C_2$ $C_1$ $C_0$

$n_1 \rightarrow$ $A_4$ $A_3$ $A_2$ $A_1$

$n_2 \rightarrow$ $B_4$ $B_3$ $B_2$ $B_1$

$C_4$ $S_4$ $S_3$ $S_2$ $S_1$

4 FA




A BCD

1010

1011

1100

1101

1110

1111

AB+AC

INV BCD

4+1 FA + 2 HA = To make BCD adder