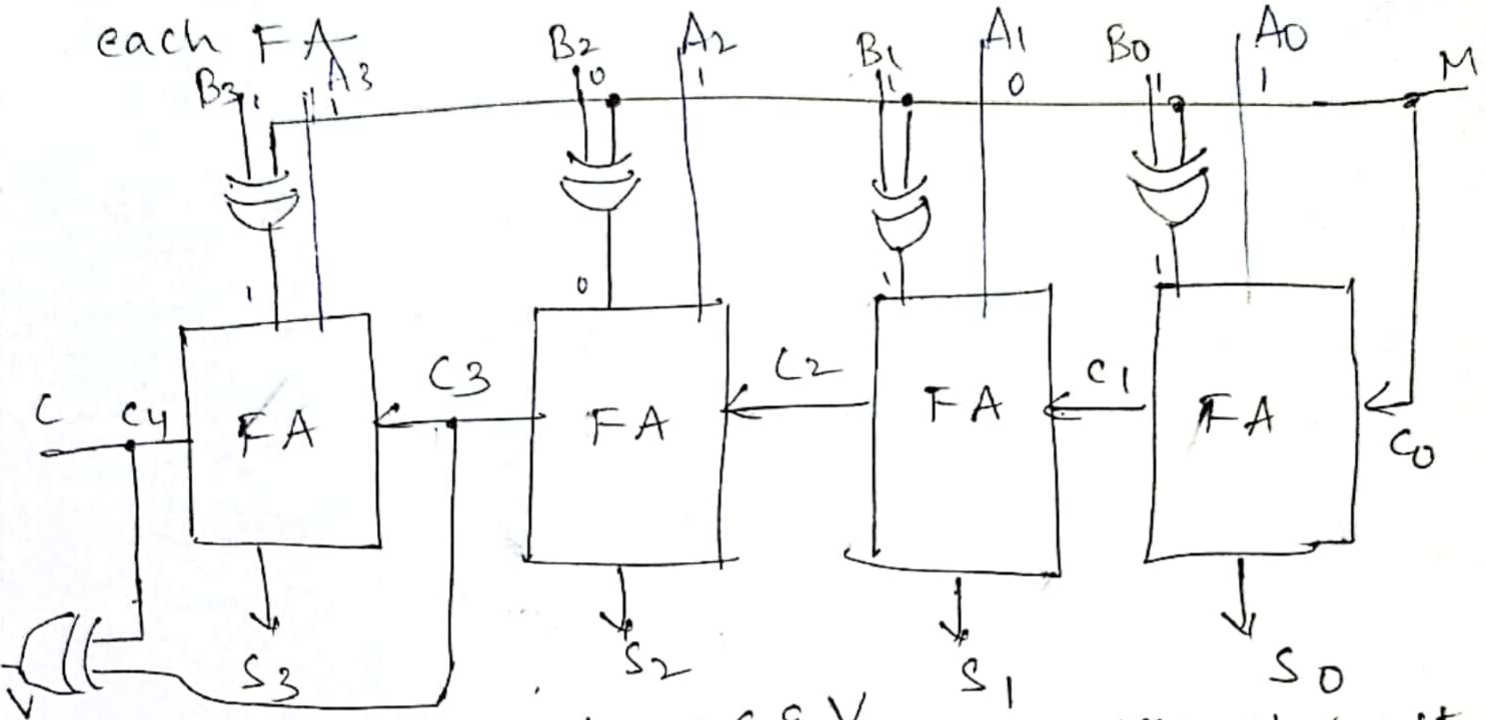


The addition & subtraction operations can be combined into one circuit with one common binary adder by including an XOR gate with each FA



• o/p's → C & V
• M: 4-bit adder-subtractor

- Mode i/p M controls the operation
- When $M=0 \rightarrow$ ckt is an adder
- " $M=1 \rightarrow$ it becomes subtractor
- when $M=0 \rightarrow B \oplus 0 = B$ and $C_0 = 0$
- " $M=1 \rightarrow B \oplus 1 = B'$ and $C_0 = 1$
- $V \rightarrow$ detects overflow
- If two binary nos. are considered to be unsigned, then C bit detects a carry after addition or a borrow after subtraction.
- If the nos. are considered to be signed, then V bit detects an overflow.