

Unsigned Binary Addition

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline 2^3 & 2^2 & 2^1 & 2^0 \\ \hline \end{array} \text{ carry} \\
 \begin{array}{|c|c|c|c|} \hline 2^3 & 2^2 & 2^1 & 2^0 \\ \hline \end{array} A \\
 + \begin{array}{|c|c|c|c|} \hline 2^3 & 2^2 & 2^1 & 2^0 \\ \hline \end{array} B \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 2^3 & 2^2 & 2^1 & 2^0 \\ \hline \end{array} S
 \end{array}$$

$$\begin{array}{r}
 0100 \text{ (4)} \\
 + 1010 \text{ (-6)} \\
 \hline
 \end{array}$$

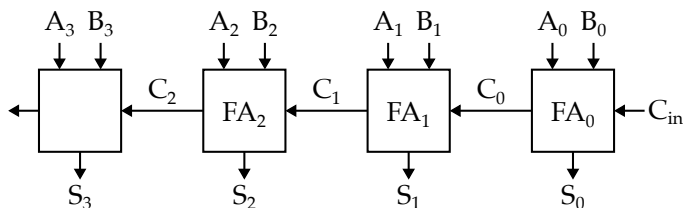
$$\begin{array}{r}
 0101 \text{ (5)} \\
 + 0110 \text{ (6)} \\
 \hline
 \end{array}$$

Two's Complement Addition

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline 2^3 & 2^2 & 2^1 & 2^0 \\ \hline \end{array} \text{ carry} \\
 \begin{array}{|c|c|c|c|} \hline 2^{-3} & 2^2 & 2^1 & 2^0 \\ \hline \end{array} A \\
 + \begin{array}{|c|c|c|c|} \hline 2^{-3} & 2^2 & 2^1 & 2^0 \\ \hline \end{array} B \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 2^{-3} & 2^2 & 2^1 & 2^0 \\ \hline \end{array} S
 \end{array}$$

$$\begin{array}{r}
 0110 \text{ (6)} \\
 + 1101 \text{ (-3)} \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1101 \text{ (-3)} \\
 + 1010 \text{ (-9)} \\
 \hline
 \end{array}$$



C_2	A_3	B_3	place value	sum	ovf	S_3
0	0	0				
0	0	1				
0	1	0				
0	1	1				
1	0	0				
1	0	1				
1	1	0				
1	1	1				