

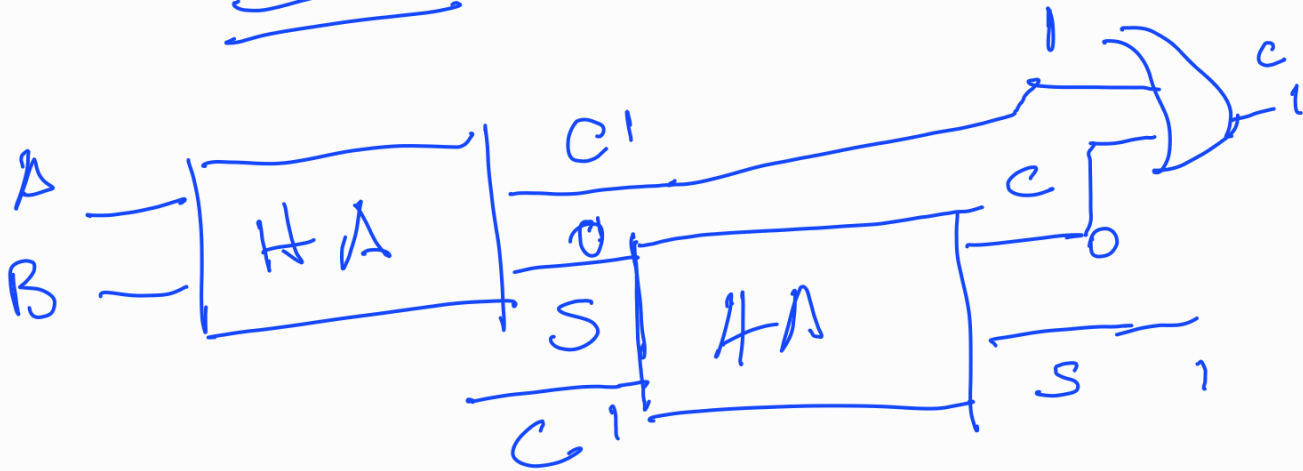
$$A + B + C$$

$$\underline{\underline{(A + B) + C}}$$

A

B

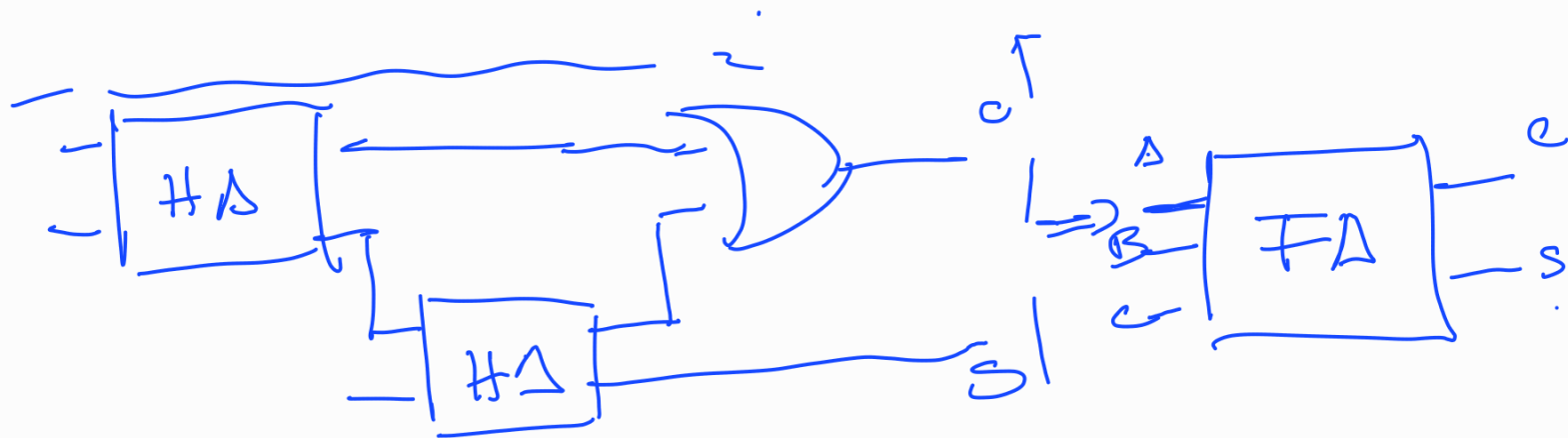
C



CS

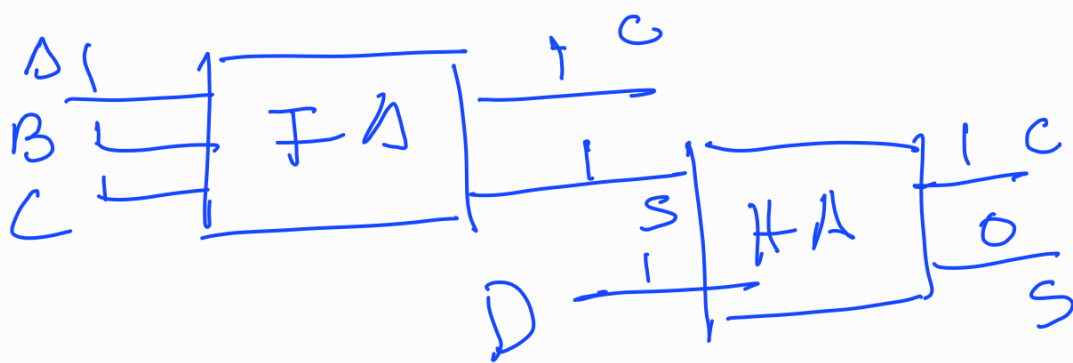
10

11



$$(A + B + C) + 0$$

min 0 ms. ls  
max 4  $\Rightarrow$   $\frac{100}{3 \text{ bits}}$



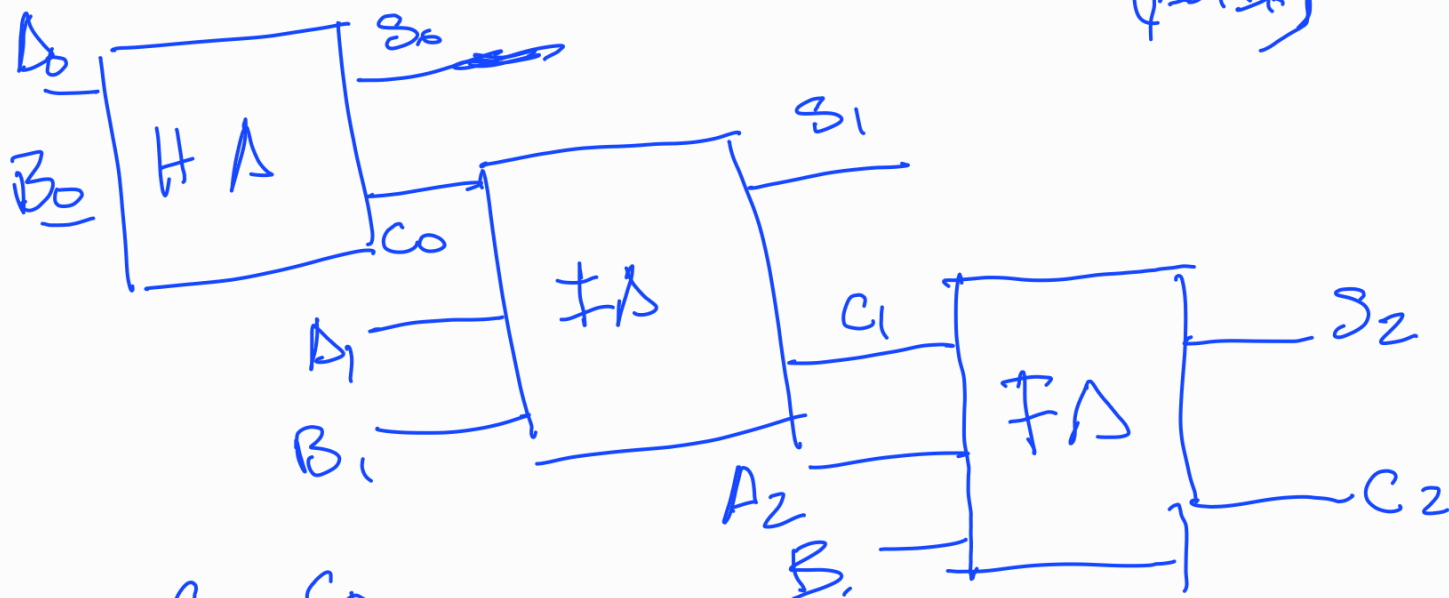
1  
0  
0

no funciona

$$A + B$$

$$\begin{array}{l} A: A_2 A_1 A_0 \\ B: B_2 B_1 B_0 \end{array}$$

$$\begin{array}{r} \text{3-bit adder} \\ \begin{array}{r} \phantom{0}c_1 \phantom{0}c_0 \\ A_2 A_1 A_0 \\ + B_2 B_1 B_0 \\ \hline (A+B) \end{array} \end{array}$$

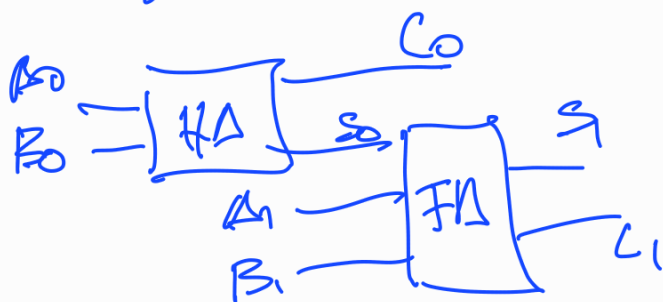


$$\begin{array}{r} \phantom{0}c_1 \phantom{0}c_0 \\ + A_2 A_1 A_0 \\ B_2 B_1 B_0 \end{array}$$

$$\xrightarrow{C_2 \ S_2 \ S_1 \ S_0}$$

$$\begin{array}{l} \text{1 bit} \\ (A+B) + (C+D) \\ \hline \text{2-bit} \end{array}$$

$$\begin{array}{l} \text{2 bit} \\ A_1 A_0 \\ B_1 B_0 \end{array}$$



2 bit adder

4-bit adder

$$\begin{array}{r} c_2 \quad c_1 \quad c_0 \\ A_3 \quad A_2 \quad A_1 \quad A_0 \\ + \quad B_3 \quad B_2 \quad B_1 \quad B_0 \end{array}$$

$$\hline \begin{array}{r} C_3 \quad S_3 \quad S_2 \quad S_1 \quad S_0 \\ \sim \quad \sim \quad \sim \quad \sim \quad \sim \end{array}$$

8-bits

0 - 255

Game levels 8-bit

level 255 1111 1111

level 256 1000 0000  
8bits