Consider the following 1D placement for the logic:

$$A = i0*i1; \quad B = A+i2; \quad C = i0*i3; \quad D = B+C; \quad o4 = D$$

inputs (i0,i1,i2,i3) on this side

output (o1) on this side

| A | B | C | D |
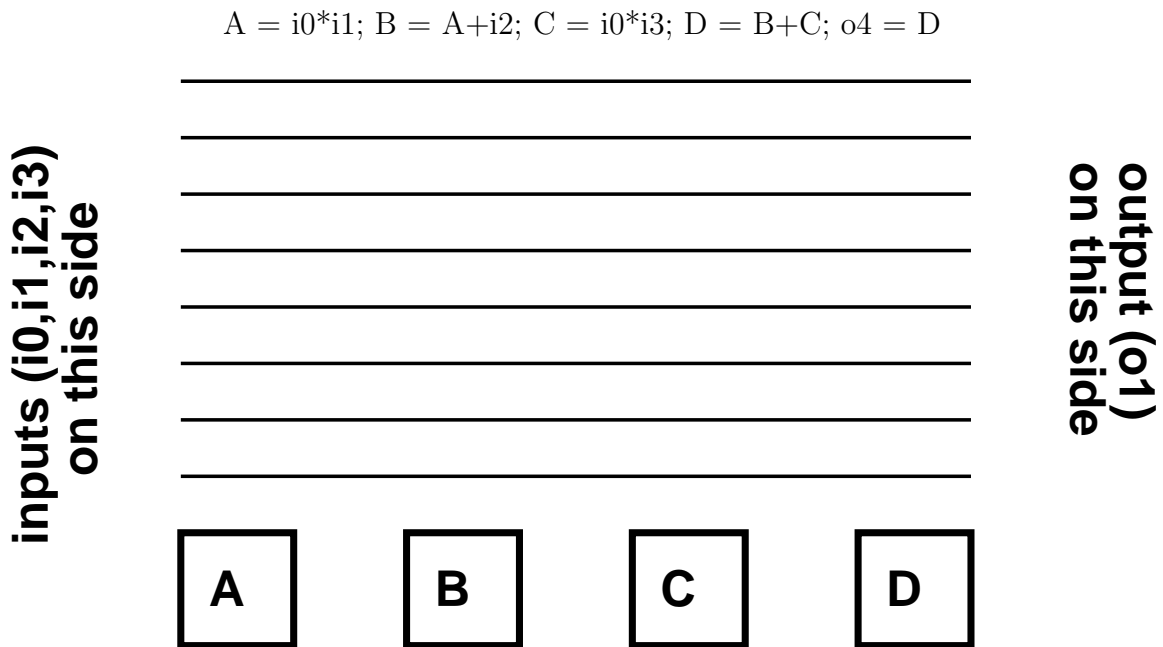
Assume:

- Input pins are on the left of the gate.

- Gate output is the rightmost pin on the gate.

1. What is the maximum channel density?

2. Assign the net connections to channels to minimize the number of channels required.

3. How many channels do you need to route the all the nets?