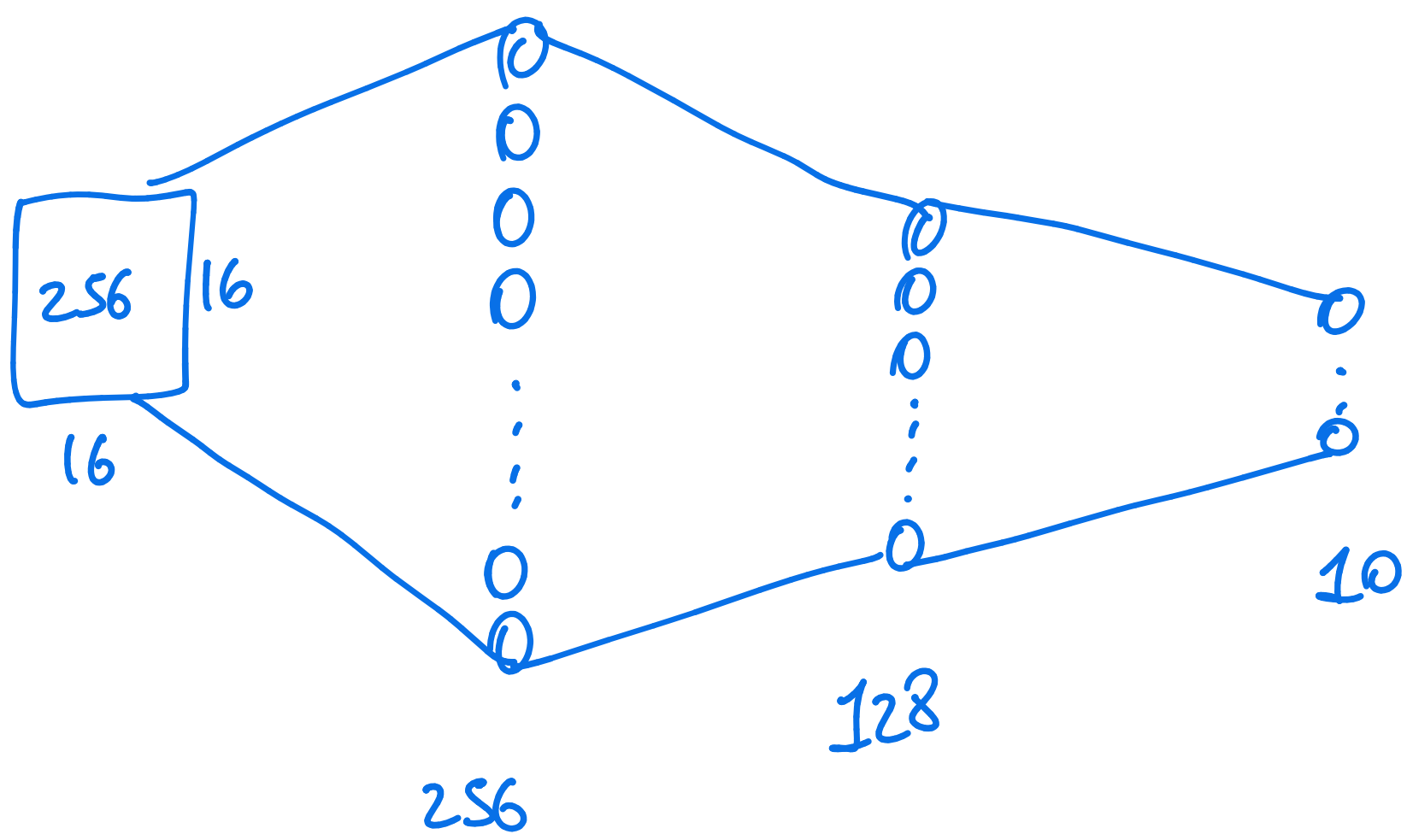
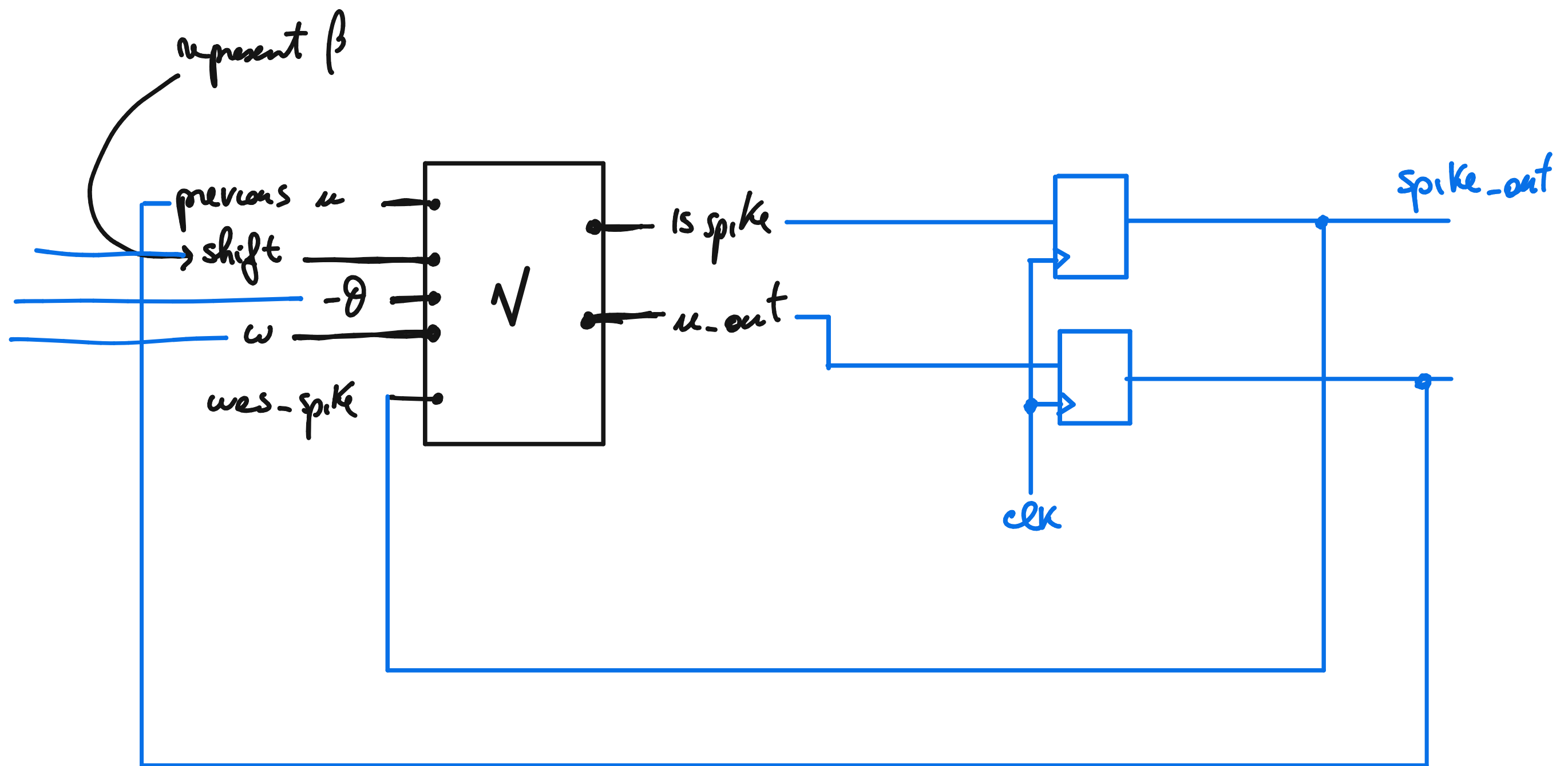
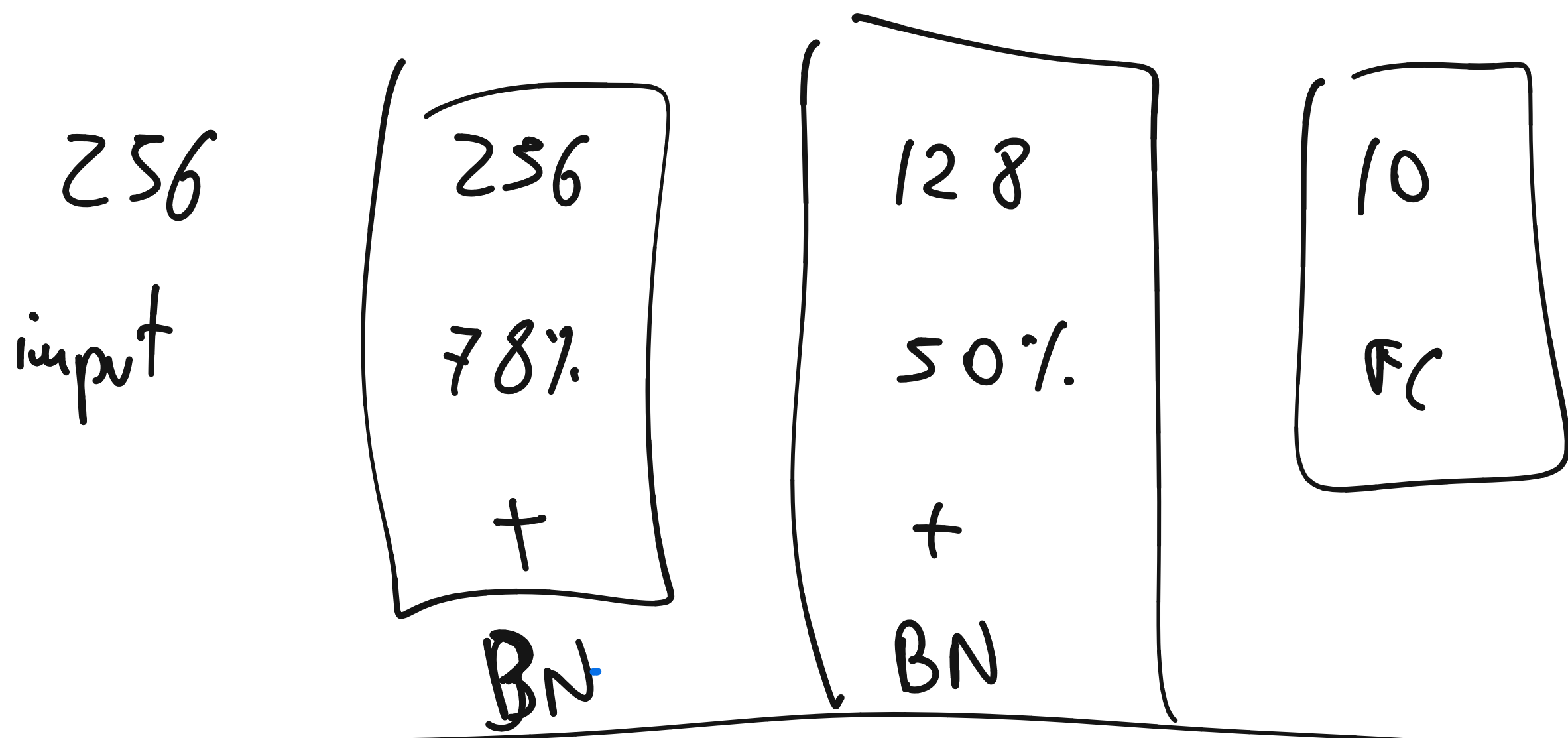


NN topology: case study: MNIST



$w \times BN_mult + BN_blend$

$BN_mult = 0.5 \quad 0.75 \quad 1 \quad 1.5 \quad 2 \quad 3 \quad 4 \quad 6 \quad 8 = 9 \text{ combinations}$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$

$\frac{1}{2} + 0 \quad \frac{1}{2} + \frac{1}{4} \quad 0 + 1 \quad \frac{1}{2} + 1 \quad 2 + 0 \quad 2 + 1 \quad 0 + 4 \quad 2 + 4 \quad 8 + 0$

\downarrow

4 bits

0 \rightarrow zero

$\frac{1}{4} \rightarrow srl(2)$

$\frac{1}{2} \rightarrow srl(1)$

1 \rightarrow no shift

2 $\rightarrow sll(1)$

4 $\rightarrow sll(2)$

8 $\rightarrow sll(3)$

BN_mult (3 \rightarrow 2) (1 \rightarrow 0)	1 st shift	2 nd shift
00	0	0
01	$\frac{1}{2}$	1
10	2	$\frac{1}{4}$
11	8	4

