

Radix-8 Modified Booth Encoder Multiplier Design

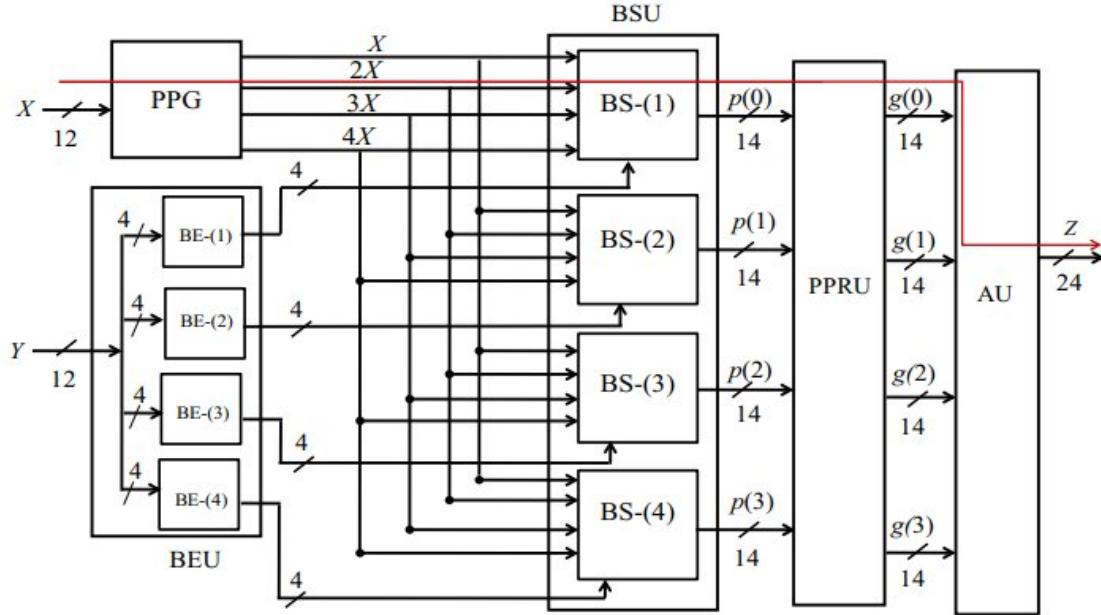


Fig. 3 Block diagram of proposed radix-8 Booth multiplier structure for 12-bit. The *red-colored arrow* shows the critical path (Color figure online)

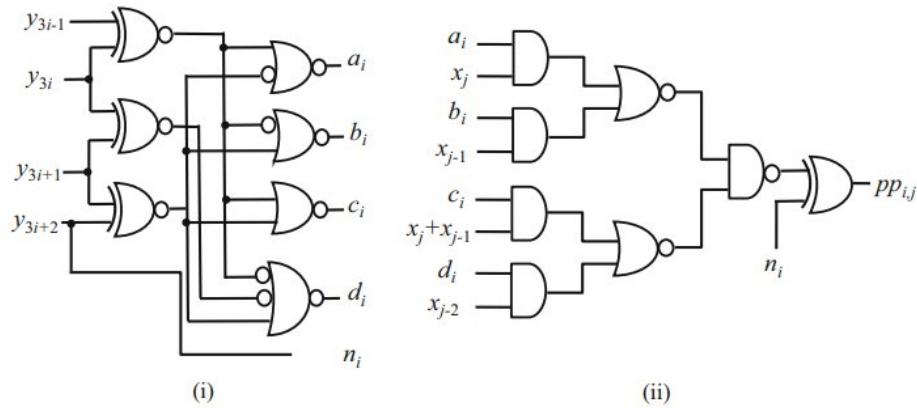


Fig. 4 Internal structure of Booth encoder (BE) and Booth selector (BS)

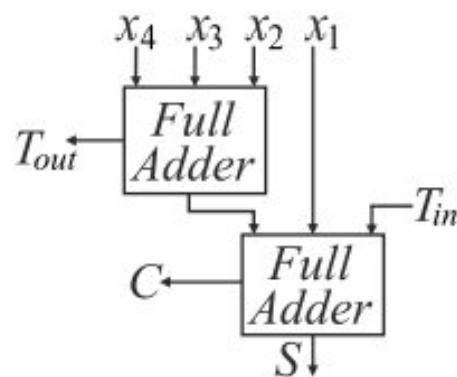
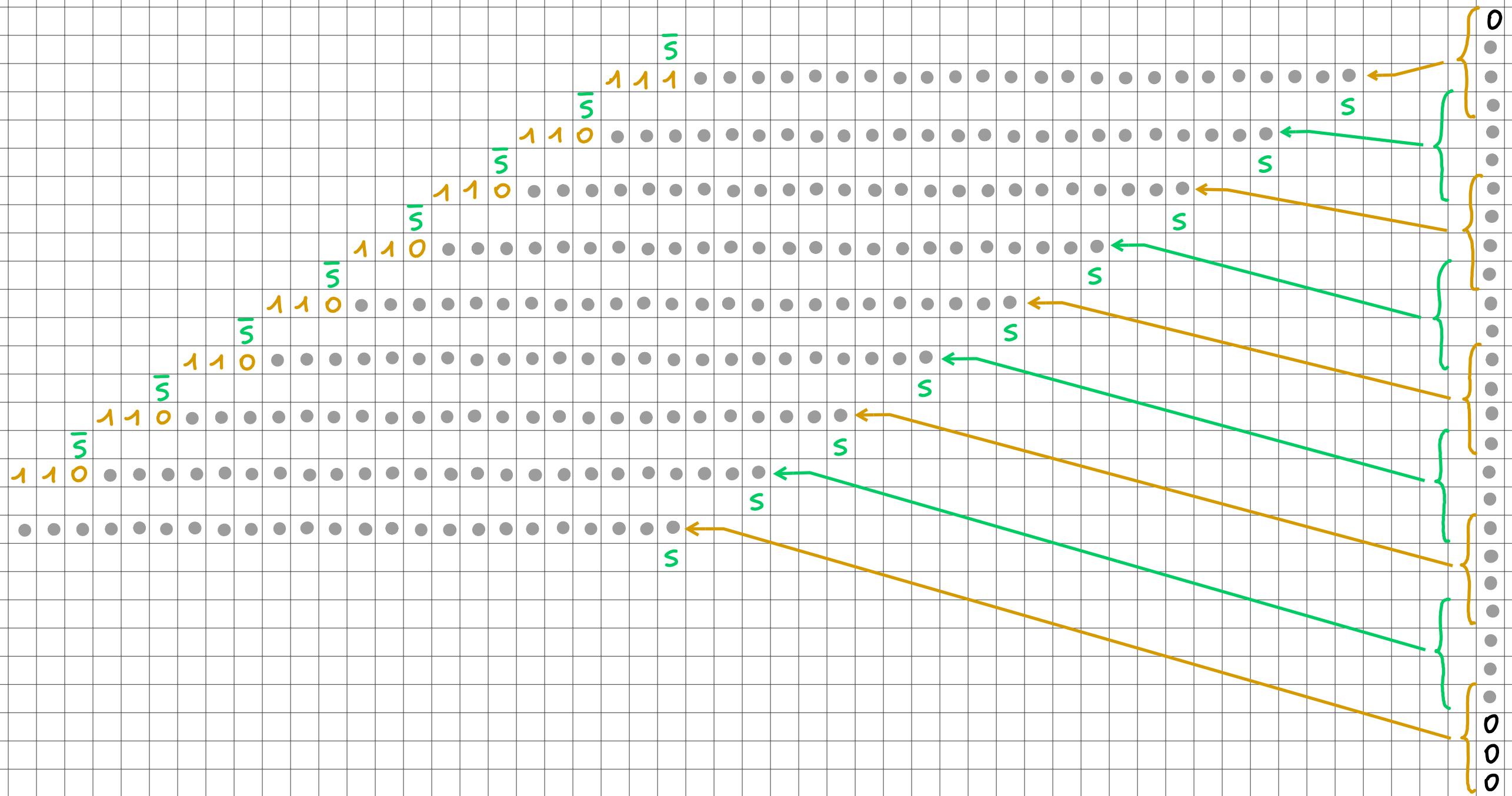
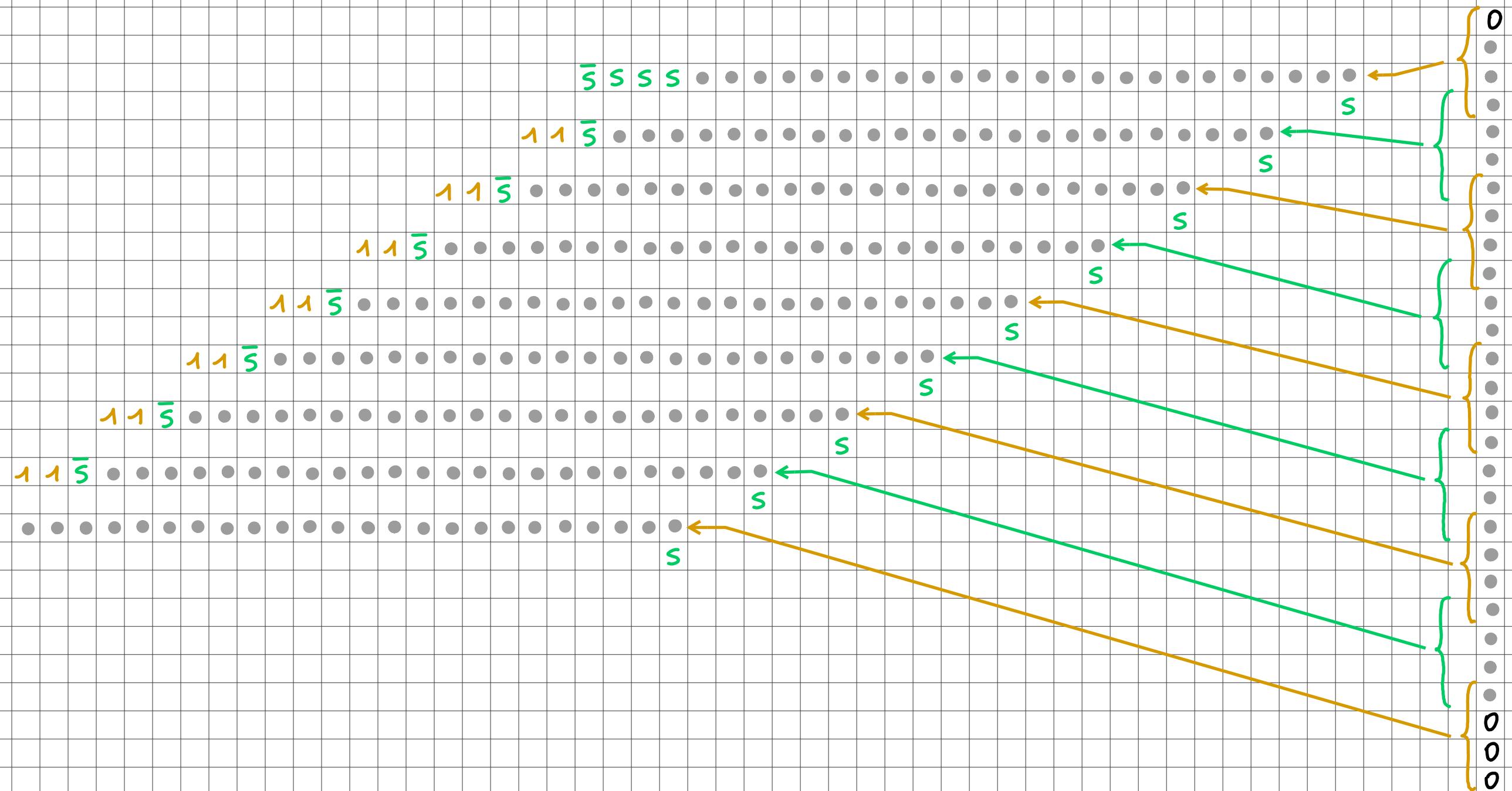


Fig. 1. An exact 4-2 compressor implemented with two full-adders.

ESTENSIONE DEL SEGNO

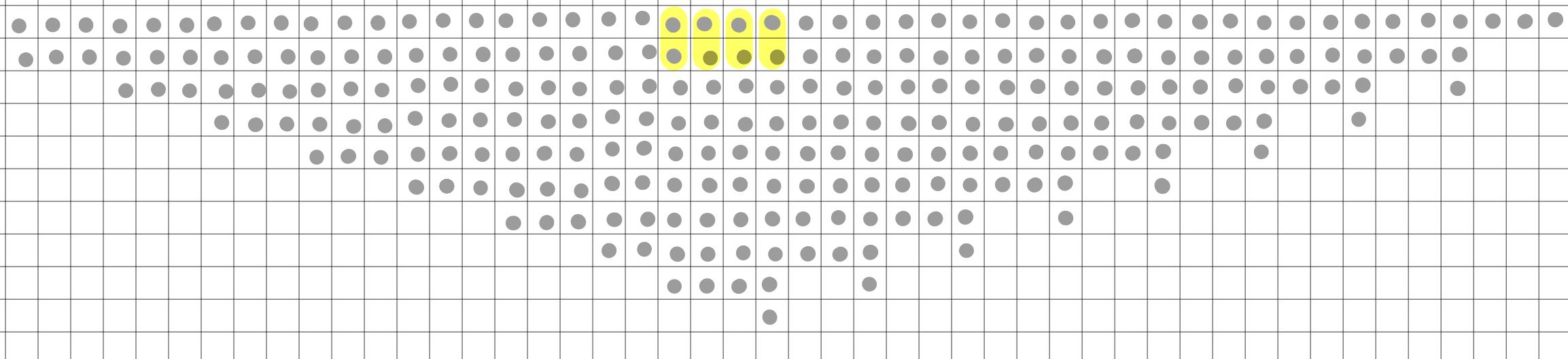


ESTENSIONE DEL SEGNO

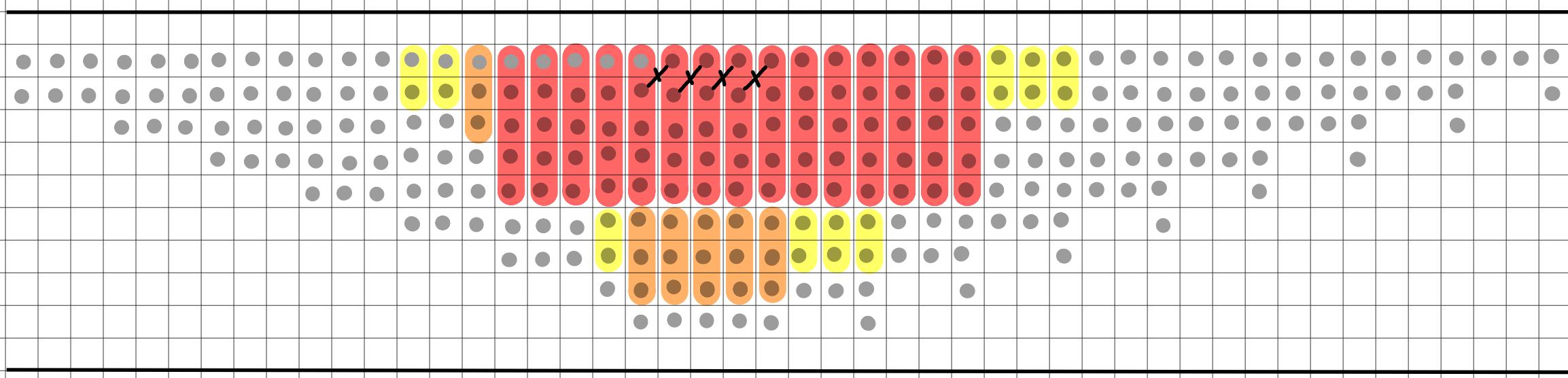


Dadda Tree Design

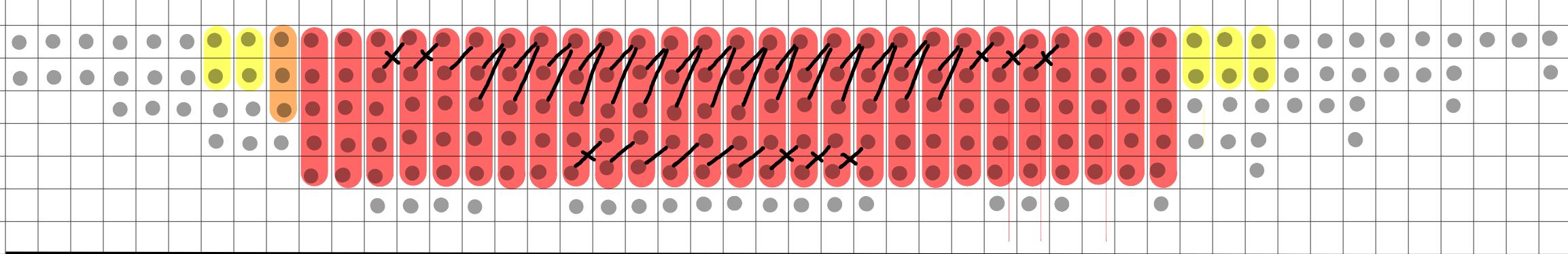
10 operands to be added together = 6 levels required to obtain the sum



LEVEL V ($10 \rightarrow 9$)
4 HA



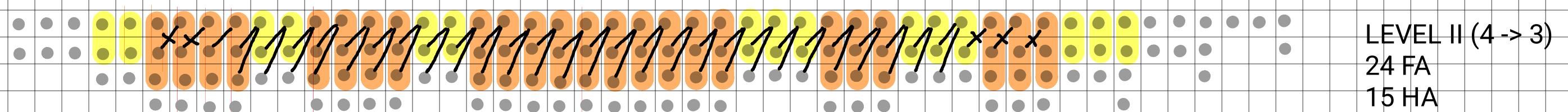
LEVEL IV ($9 \rightarrow 6$)
15 (5,3) compressors
6 FA
9 HA



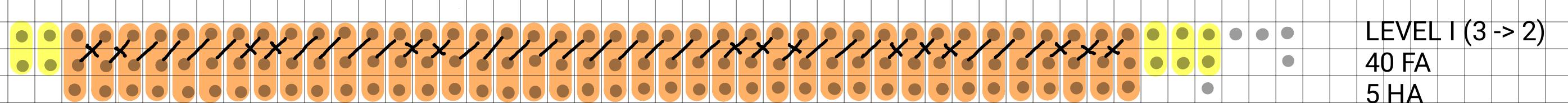
LEVEL III ($6 \rightarrow 4$)
27 (5,3) compressors
1 FA
5 HA

Dadda Tree Design

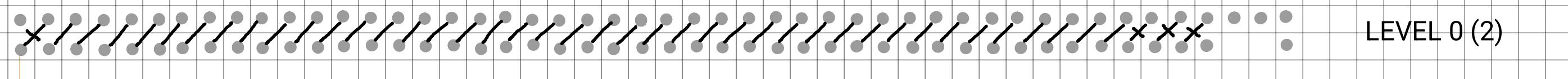
10 operands to be added together = 6 levels required to obtain the sum



LEVEL II (4 \rightarrow 3)
24 FA
15 HA



LEVEL I (3 \rightarrow 2)
40 FA
5 HA



LEVEL 0 (2)

Total:

- 42 (5,3) compressors
- 71 FA
- 38 HA