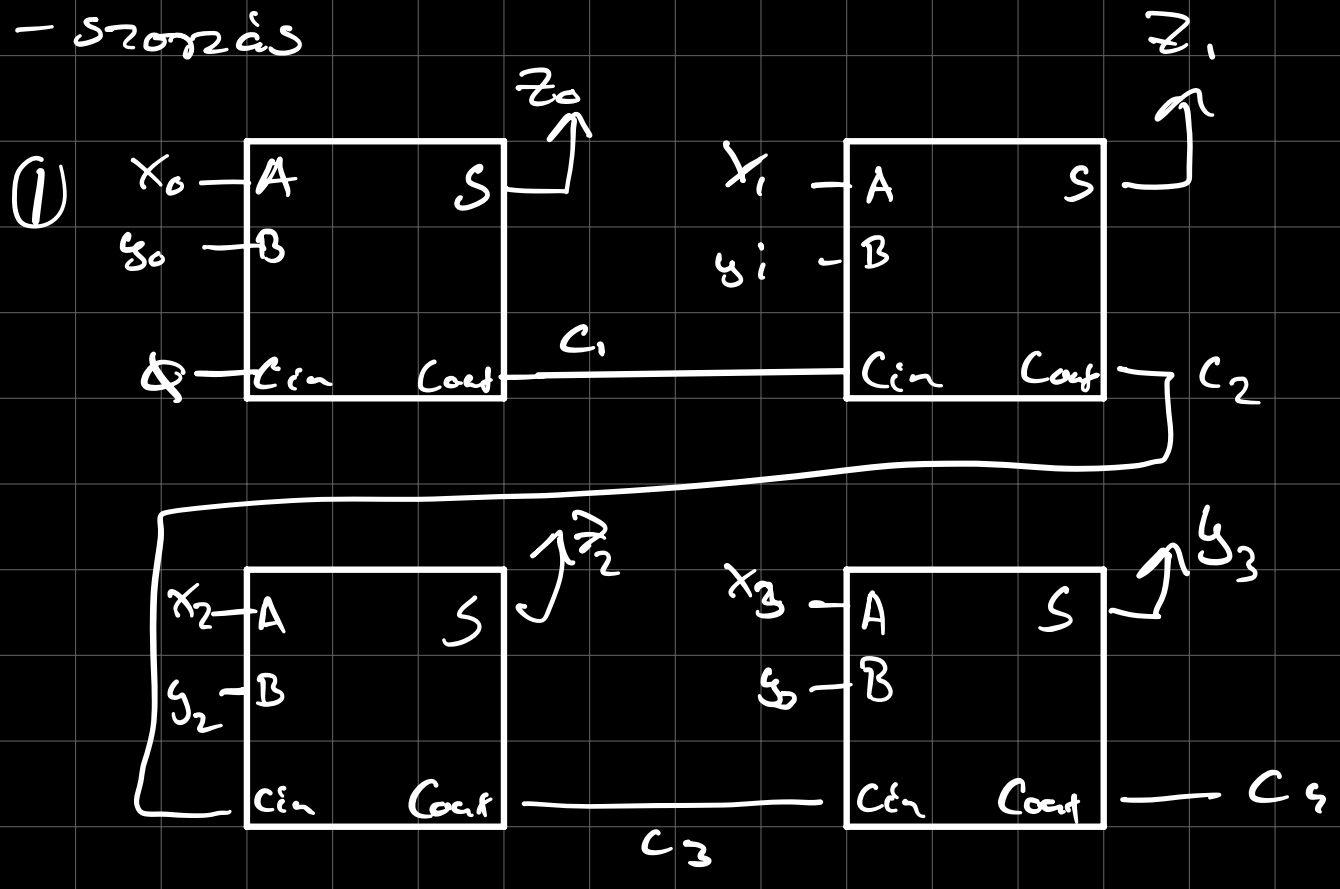
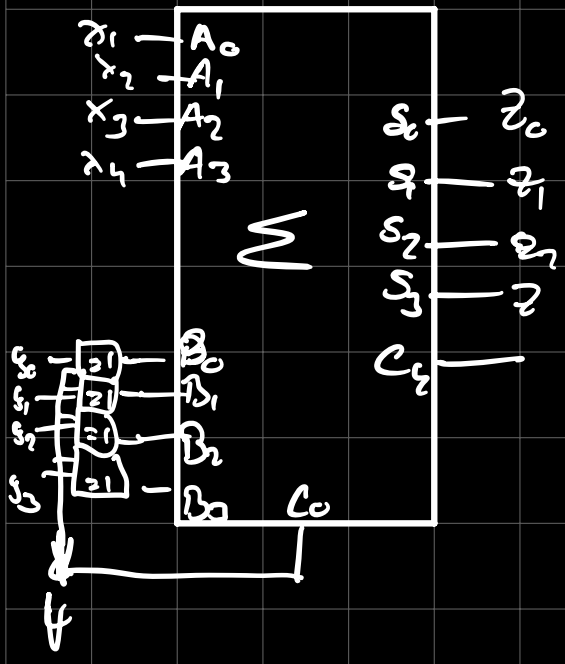
- 1bites teljes összeadó ①
- Kettes számrendszer
- előjel ábrázolás
- kivonás → összeadás
- túlcsordulás
- BCD összeadás
- szorzás



$z = x + y$

4bites teljes összeadó



$z = x + y \quad (V = 0)$

$z = x - y \quad (V = 1)$

Túlcsordulás

$OUF = \overline{x_3 \oplus B_3} \cdot (B_3 \oplus z_3$

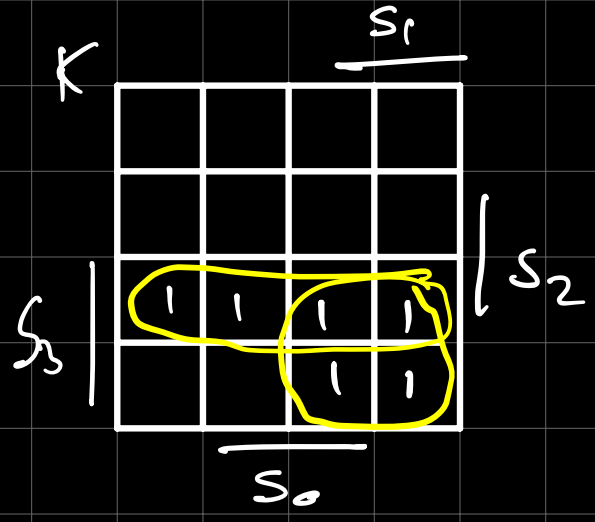
BCD összeadás

$z = x + y, \quad x, y, z \in \{0 \dots 9\}$

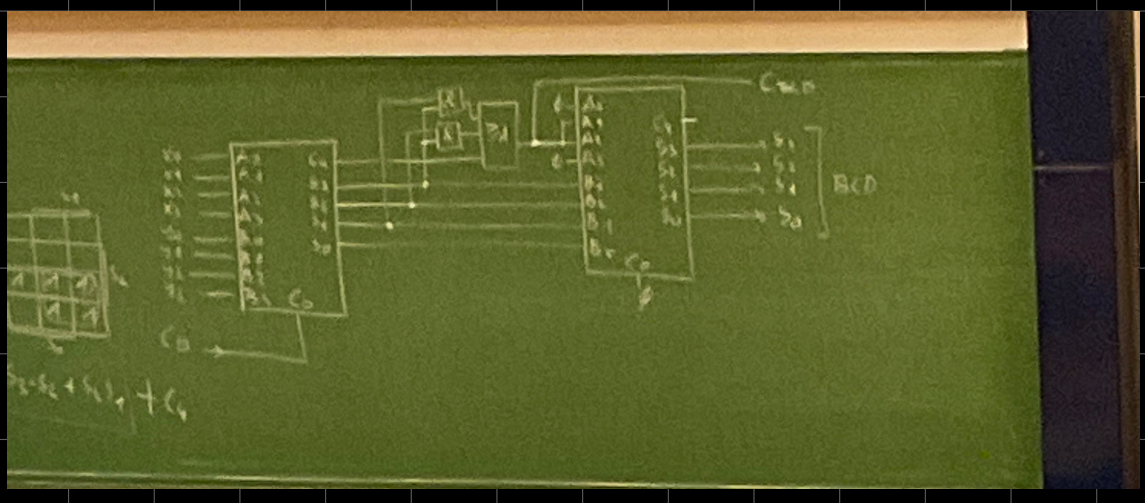
max értékek $x = y = 9 \rightarrow z = 8, \; Cout = 1$

BCD

	C_4	S_3	S_2	S_1	S_0	C_4	S_3	S_2	S_1	S_0	
0	0	0	0	0	0	0	0	0	0	0	
9	0	1	0	0	1	0	1	0	0	1	
10	0	1	0	1	0	1	0	0	0	0	→ 16
11	0	1	0	1	1	1	0	0	0	1	→ 17
16	1	0	0	0	0	1	0	1	1	0	→ 22
19	1	0	0	1	1	1	1	0	0	1	→ 25



$$K = S_3 S_2 + S_3 S_1 + C_4$$

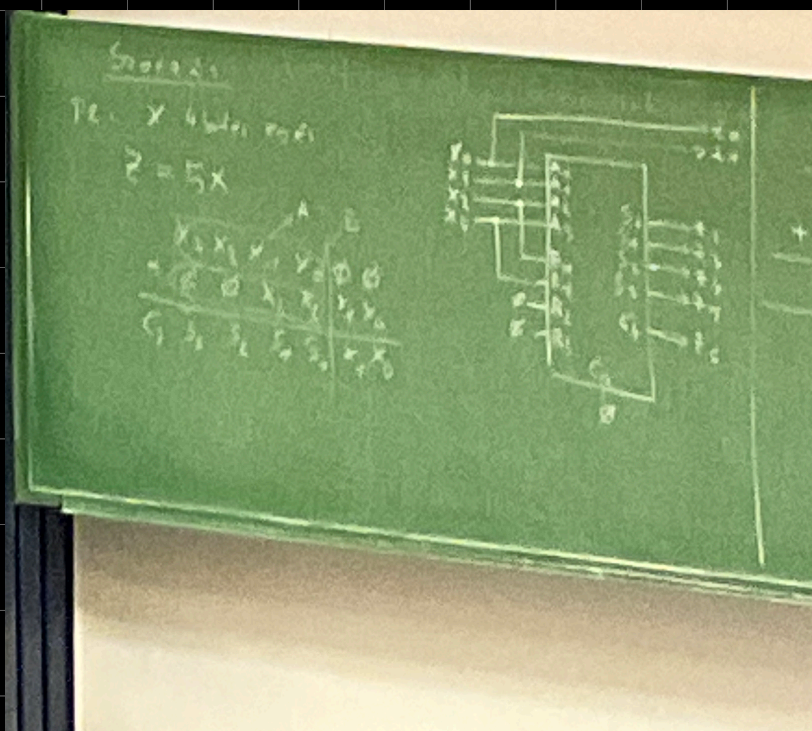


Szorzás

Pl.: X 4 bites egész

$Z = 5X$

$$
\begin{array}{rcccccc}
 & x_3 & x_2 & x_1 & x_0 & \emptyset & \emptyset \\
+ & \emptyset & \emptyset & x_3 & x_2 & x_1 & x_0 \\
\hline
\end{array}
$$



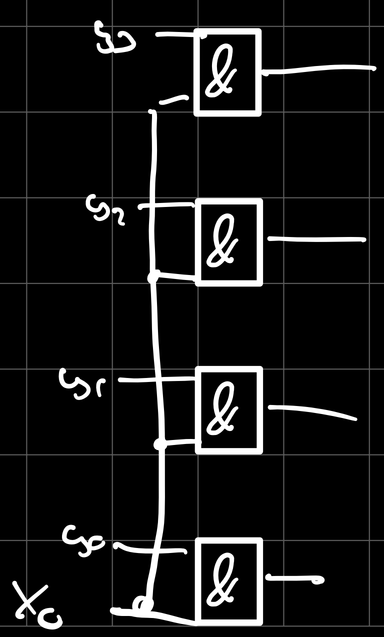
$$
\begin{array}{r}
123 \cdot 456 \\
\hline
738 \\
615 \\
492 \\
\hline
56088
\end{array}
$$

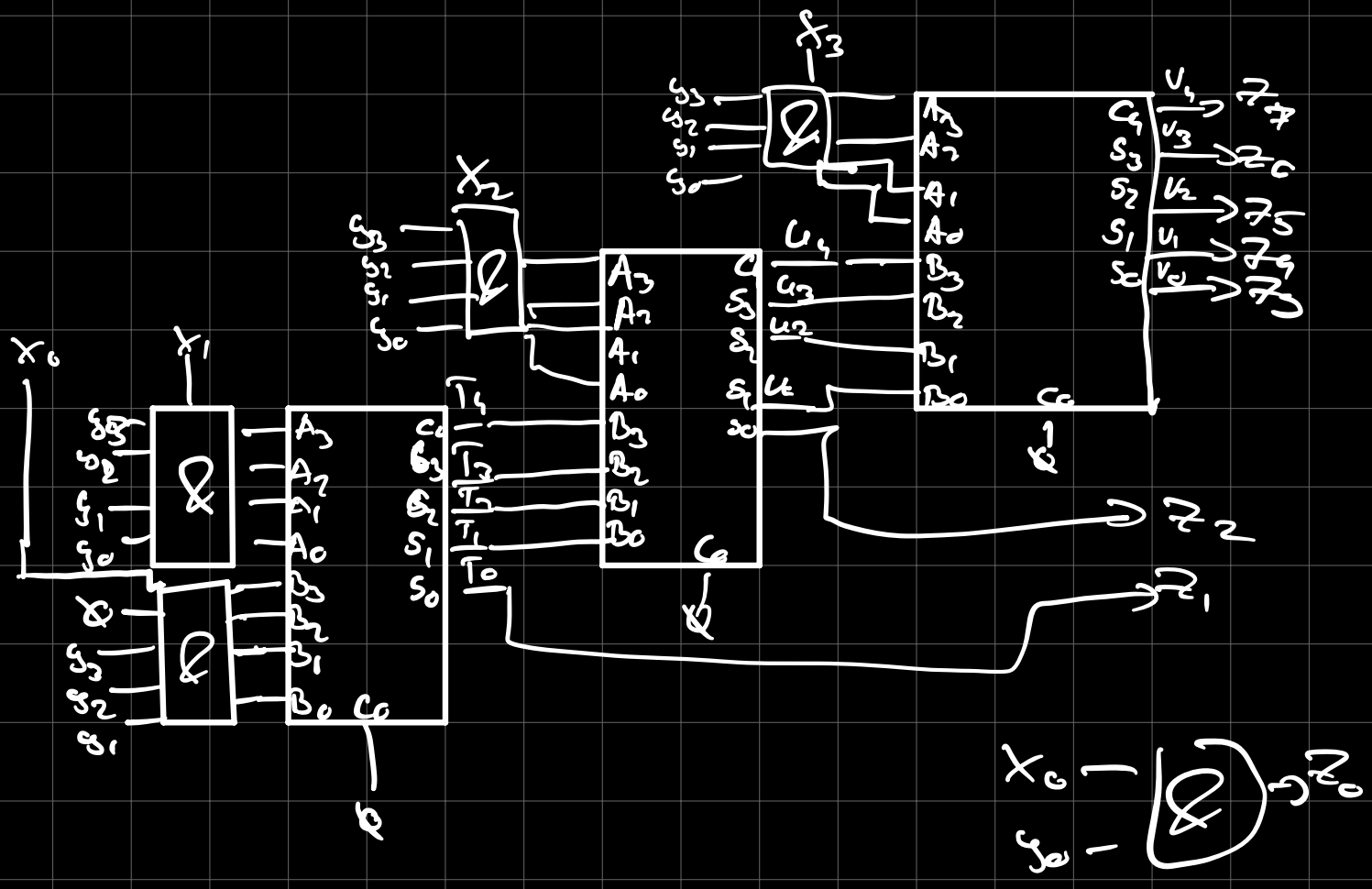
2-es számrendszerben

$$
\begin{array}{r}
1101 \cdot 1011 \\
1101 \\
1101 \\
0000 \\
1101 \\
\hline
10001111
\end{array}
$$

$y_3\, y_2\, y_1\, y_0 \cdot x_3\, x_2\, x_1\, x_0$

$$
\begin{array}{rrrrrrrrl}
 & & & & y_3 & y_2 & y_1 & y_0 & \leftarrow x_0 \\
+ & & & y_3 & y_2 & y_1 & y_0 & & \leftarrow x_1 \\
\hline
 & & & T_4 & T_3 & T_2 & T_1 & T_0\; y_0 & \\
+ & & y_3 & y_2 & y_1 & y_0 & & & \leftarrow x_2 \\
\hline
 & & U_4 & U_3 & U_2 & U_1 & U_0 & T_0\; y_0 & \\
+ & y_3 & y_2 & y_1 & y_0 & & & & \leftarrow x_3 \\
\hline
 & V_4 & V_3 & V_2 & V_1 & V_0 & U_0 & T_0\; y_0 & \\
 & (z_7\, z_6 & z_5 & z_4 & z_3 & z_2 & z_1 & z_0) &
\end{array}
$$




X_0
X_1
X_2
X_3
S_3 S_2 S_1 S_0
A_3 A_2 A_1 A_0
B_3 B_2 B_1 B_0
C_0
T_4 T_3 T_2 T_1 T_0
U_4 U_3 U_2 U_1
V_4 V_3 V_2 V_1 V_0
Z_4 Z_3 Z_2 Z_1 Z_0
0
1