

Unsigned 2 bit numbers: x_1, x_0, y_1, y_0

x_1	x_0	y_1	y_0	LT	EQ	GT
0	0	0	0	0	1	0
0	0	0	1	1	0	0
0	0	1	0	1	0	0
0	0	1	1	1	0	0
0	1	0	0	0	0	1
0	1	0	1	0	1	0
0	1	1	0	1	0	0
0	1	1	1	1	0	0
1	0	0	0	0	0	1
1	0	0	1	0	0	1
1	0	1	0	0	1	0
1	0	1	1	1	0	0
1	1	0	0	0	0	1
1	1	0	1	0	0	1
1	1	1	0	0	0	1
1	1	1	1	0	1	0

EQ K-map:

$x_1 x_0 \backslash y_1 y_0$	00	01	11	10
00	1	0	0	0
01	0	1	0	0
11	0	0	1	0
10	0	0	0	1

$$\begin{aligned}
 &= x_1' x_0' y_1' y_0' + x_1' x_0 y_1' y_0 + x_1 x_0 y_1 y_0 + x_1 y_0' y_1 y_0' \\
 &= x_1' y_1' (x_0' y_0' + x_0 y_0) + x_1 y_1 (x_0 y_0 + x_0' y_0') \\
 &= (x_0' y_0' + x_0 y_0) (x_1' y_1' + x_1 y_1) \\
 &= (x_0 \oplus y_0)' (x_1 \oplus y_1)'
 \end{aligned}$$

LT K-map

$x_1 x_0 \backslash y_1 y_0$	00	01	11	10
00	0	1	1	1
01	0	0	1	1
11	0	0	0	0
10	0	0	1	0

$$\begin{aligned}
 &= x_1' y_1 + x_1' x_0' y_0 + x_0' y_1 y_0 \\
 &= x_1' y_1 + x_0' y_0 (x_1' + y_1)
 \end{aligned}$$

GT K-map

$x_1 x_0 \backslash y_1 y_0$	00	01	11	10
00	0	0	0	0
01	1	0	0	0
11	1	1	0	1
10	1	1	0	0

$$\begin{aligned}
 &= x_1 y_1' + x_0 y_1' y_0' + x_1 x_0 y_0' \\
 &= x_1 y_1' + x_0 y_0' (x_1 + y_1')
 \end{aligned}$$