

$x_1$	$x_0$	$y_1$	$y_0$	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

**LT**

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

$y_0$        $y_1$

$$\Rightarrow x_1' y_1 + x_1' x_0' y_0 + x_0' y_1 y_0$$

**EQ**

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

$y_0$        $y_1$

$$\Rightarrow x_1' x_0' y_1' y_0' + x_1' x_0 y_1' y_0 + x_1 x_0 y_1 y_0 + x_1 x_0' y_1 y_0'$$

$$x_1' y_1' (x_0' y_0' + x_0 y_0) + x_1 y_1 (x_0 y_0 + x_0' y_0')$$

$$(x_0 \text{ XOR } y_0) (x_1 \text{ XOR } y_1)$$

**GT**

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

$y_0$        $y_1$

$$\Rightarrow x_1 y_1' + x_0 y_1' y_0' + x_1 x_0 y_0'$$