Truth Table

s1	s0	p37s	p7s	p3s	req	n1	n0	resetT	redL	orangeL	greenL
0	0	X	X	X	0	0	0	1	1	0	0
0	0	X	X	X	1	0	1	1	1	0	0
0	1	X	X	0	X	0	1	0	1	0	0
0	1	X	X	1	X	1	1	0	1	0	0
1	1	X	0	X	X	1	1	0	0	1	0
1	1	X	1	X	X	1	0	0	0	1	0
1	0	0	X	X	X	1	0	0	0	0	1
1	0	1	X	X	X	0	0	0	0	0	1

N1

s1	s0	p37s	p7s	p3s	req
0	1	X	X	1	X
1	1	X	0	X	X
1	1	X	1	X	X
1	0	0	X	X	X

n1 = s1's0p3s + s1s0p7s' + s1s0p7s + s1s0'p37s'

n1 = s1's0p3s + s1s0(p7s' + p7s)+ s1s0'p37s'

n1 = s1's0p3s + s1s0 + s1s0'p37s'

n1 = s1's0p3s + s1(s0 + s0'p37s')

n1 = s1's0p3s + s1(s0 + p37s')

n1 = s1's0p3s + s1s0 + s1p37s'

n1 = s0(s1'p3s + s1) + s1p37s'

n1 = s0(p3s + s1) + s1p37s'

n1 = s1s0 + s0p3s + s1p37s'

N0

s1	s0	p37s	p7s	p3s	req
0	0	X	X	X	1
0	1	X	X	0	X
0	1	X	X	1	X
1	1	X	0	X	X

n0 = s1's0'req + s1's0p3s' + s1's0p3s + s1s0p7s'

n0 = s1's0'req + s1's0(p3s' + p3s) + s1s0p7s'

$n0 = s1's0'req + s1's0+ s1s0p7s'$

$n0 = s1's0'req + s0(s1' + s1p7s')$

$n0 = s1's0'req + s0(s1' + p7s')$

$n0 = s1's0'req + s1's0 + s0p7s'$

$n0 = s1'(s0'req + s0) + s0p7s'$

$n0 = s1'(req + s0) + s0p7s'$

$n0 = s1's0 + s1'req + s0p7s'$

resetL

s1	s0	p37s	p7s	p3s	req
0	0	X	X	X	0
0	0	X	X	X	1

$resetL = s1's0'req' + s1's0'req$

$resetL = s1's0'(req' + req)$

$resetL = s1's0'$

redL

s1	s0	p37s	p7s	p3s	req
0	0	X	X	X	0
0	0	X	X	X	1
0	1	X	X	0	X
0	1	X	X	1	X

$redL = s1's0'req' + s1's0'req + s1's0p3s' + s1's0p3s$

$redL = s1's0'('req' + req) + s1's0(p3s' + p3s)$

$redL = s1's0' + s1's0$

$redL = s1'(s0' + s0)$

$redL = s1'$

orangeL

s1	s0	p37s	p7s	p3s	req
1	1	X	0	X	X
1	1	X	1	X	X

$orangeL = s1s0p7s' + s1s0p7s = s1s0(p7s' + p7s) = s1s0$

greenL

s1	s0	p37s	p7s	p3s	req
1	0	0	X	X	X
1	0	1	X	X	X

greenL = s1s0'p37s' + s1s0'p37s = s1s0'(p37s' + p37s) = s1s0'