Karnaugh Map Solver with Multiple Outputs

Online Karnaugh map generator, which can take up to 4 bits of variables, and solve up to 8 distinct sets of outputs at a time. For each output, a color-coded corresponding K-Map is generated, alongside the corresponding Sum of Prodcuts and Product of Sums equations.

Enter "1" for true, "0" for false, or "x" for dont-care.

#	A	B	C	D	y_0	y_1	y_2	y_3	y_4	y_5	y_6	y_7	y_8	y_9	y_{10}	y_{11}	y_{12}
0	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1
1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1
2	0	0	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1
3	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1
4	0	1	0	0	1	0	1	1	1	1	1	1	0	1	0	0	1
5	0	1	0	1	1	1	1	1	0	1	1	1	0	1	1	1	1
6	0	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1
7	0	1	1	1	1	1	1	0	1	0	0	1	0	1	0	0	1
8	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1

Number of Bits:

4

Number of Outputs:

13

9	1	0	0	1	1	1	1	1	0	1	1	1	0	1	1	1	1
10	1	0	1	0	x	x	x	x	x	x	x	x	x	x	x	x	x
11	1	0	1	1	x	x	x	x	x	x	x	x	x	x	x	x	x
12	1	1	0	0	x	x	x	x	x	x	x	x	x	x	x	x	x
13	1	1	0	1	x	x	x	x	x	x	x	x	x	x	x	x	x
14	1	1	1	0	x	x	x	x	x	x	x	x	x	x	x	x	x
15	1	1	1	1	x	x	x	x	x	x	x	x	x	x	x	x	x

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y_0	AB				
		00	01	11	10
CD	00	1	1	x	1
	01	0	1	x	1
	11	1	1	x	x
	10	1	1	x	x

y_1	AB				
CD		00	01	11	10

SOP Prime Implicants:

$F = \overline{D} + C + B + A$

POS Prime Implicants:

$\overline{F} = (D) (\overline{C}) (\overline{B}) (\overline{A})$

	00	1	0	x	1
	01	0	1	x	1
	11	1	1	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = \overline{B}\,\overline{D} + B\,D + C + A$

POS Prime Implicants:

$\overline{F} = (B + D) (\overline{B} + \overline{D}) (\overline{C}) (\overline{A})$

y_2	AB				
		00	01	11	10
CD	00	1	1	x	1
	01	1	1	x	1
	11	1	1	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = 1$

POS Prime Implicants:

$\overline{F} = 0$

y_3	AB				
		00	01	11	10
CD	00	1	1	x	1
	01	0	1	x	1
	11	0	0	x	x
	10	0	1	x	x

SOP Prime Implicants:

$F = \overline{C}\,\overline{D} + B\,\overline{C} + B\,\overline{D} + A$

POS Prime Implicants:

$\overline{F} = (C + D) (\overline{B} + C) (\overline{B} + D) (\overline{A})$

y_4	AB				
CD		00	01	11	10
	00	1	1	x	1
	01	1	0	x	0
	11	1	1	x	x

SOP Prime Implicants:

$F = \overline{A}\,\overline{B} + \overline{B}\,\overline{D} + \overline{C}\,\overline{D} + \overline{B}\,C + C\,D + A\,\overline{D}$

	10	1	0	x	x

POS Prime Implicants:

$\overline{F} = (A + B) (B + D) (C + D) (B + \overline{C}) (\overline{C} + \overline{D}) (\overline{A} + D)$

y_5	AB				
CD		00	01	11	10
	00	1	1	x	1
	01	0	1	x	1
	11	1	0	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = \overline{B}\, C + B\, \overline{C} + \overline{D} + A$

POS Prime Implicants:

$\overline{F} = (B + \overline{C}) (\overline{B} + C) (D) (\overline{A})$

y_6	AB				
CD		00	01	11	10
	00	0	1	x	1
	01	0	1	x	1
	11	1	0	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = \overline{B}\, C + C\, \overline{D} + B\, \overline{C} + B\, \overline{D} + A$

POS Prime Implicants:

$\overline{F} = (B + \overline{C}) (\overline{C} + D) (\overline{B} + C) (\overline{B} + D) (\overline{A})$

y_7	AB				
CD		00	01	11	10
	00	1	1	x	1
	01	1	1	x	1
	11	1	1	x	x

SOP Prime Implicants:

$F = 1$

POS Prime Implicants:

$\overline{F} = 0$

	10	1	1	x	x

y_8	AB				
		00	01	11	10
CD	00	1	0	x	1
	01	0	0	x	0
	11	0	0	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = \overline{B}\,\overline{D} + C\,\overline{D} + A\,\overline{D}$

POS Prime Implicants:

$\overline{F} = (B + D) (\overline{C} + D) (\overline{A} + D)$

y_9	AB				
		00	01	11	10
CD	00	1	1	x	1
	01	1	1	x	1
	11	1	1	x	x
	10	0	1	x	x

SOP Prime Implicants:

$F = \overline{C} + D + B + A$

POS Prime Implicants:

$\overline{F} = (C) (\overline{D}) (\overline{B}) (\overline{A})$

y_{10}	AB				
		00	01	11	10
CD	00	1	0	x	1
	01	0	1	x	1
	11	1	0	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = B\,\overline{C}\,D + \overline{B}\,\overline{D} + \overline{B}\,C + C\,\overline{D} + A$

POS Prime Implicants:

$\overline{F} = (\overline{B} + C + \overline{D}) (B + D) (B + \overline{C}) (\overline{C} + D) (\overline{A})$

y_{11}	AB

CD		00	01	11	10
	00	1	0	x	1
	01	0	1	x	1
	11	1	0	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = B\,\overline{C}\,D + \overline{B}\,\overline{D} + \overline{B}\,C + C\,\overline{D} + A$

POS Prime Implicants:

$\overline{F} = (\overline{B} + C + \overline{D})(B + D)(B + \overline{C})(\overline{C} + D)(\overline{A})$

y_{12}	AB				
CD		00	01	11	10
	00	1	1	x	1
	01	1	1	x	1
	11	1	1	x	x
	10	1	1	x	x

SOP Prime Implicants:

$F = 1$

POS Prime Implicants:

$\overline{F} = 0$

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source code