
Solutions to Problems Marked with a * in
Logic and Computer Design Fundamentals, 4th Edition

Chapter 8

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8-1.*

- a) A = 16, D = 8 b) A = 19, D = 32 c) A = 26, D = 64 d) A = 31, D = 1
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8-3.*

Number of bits in array = $2^{16} \times 2^4 = 2^{20} = 2^{10} * 2^{10}$

Row Decoder size = 2^{10}

a) Row Decoder = 10 to 1024, AND gates = $2^{10} = 1024$ (assumes 1 level of gates with 10 inputs/gate)

Column Decoder = 6 to 64, AND gates = $2^6 = 64$ (assumes 1 level of gates with 6 inputs/gate)

Total AND gates required = $1024 + 64 = 1088$

b) $(32000)_{10} = (0111110100\ 000000)_2$, Row = 500, Column = 0

8-8.*

- a) $2\text{ MB}/128\text{ K} \times 16 = 2\text{ MB}/256\text{ KB} = 8$ b) With 2 byte/word, $2\text{ MB}/2\text{ B} = 2^{20}$, Add Bits = 20
128K addresses per chip implies 17 address bits. c) 3 address lines to decoder, decoder is 3-to-8-line