EE 648 – VLSI Design

Binary Coded Hexadecimal for a 7 Segment Display

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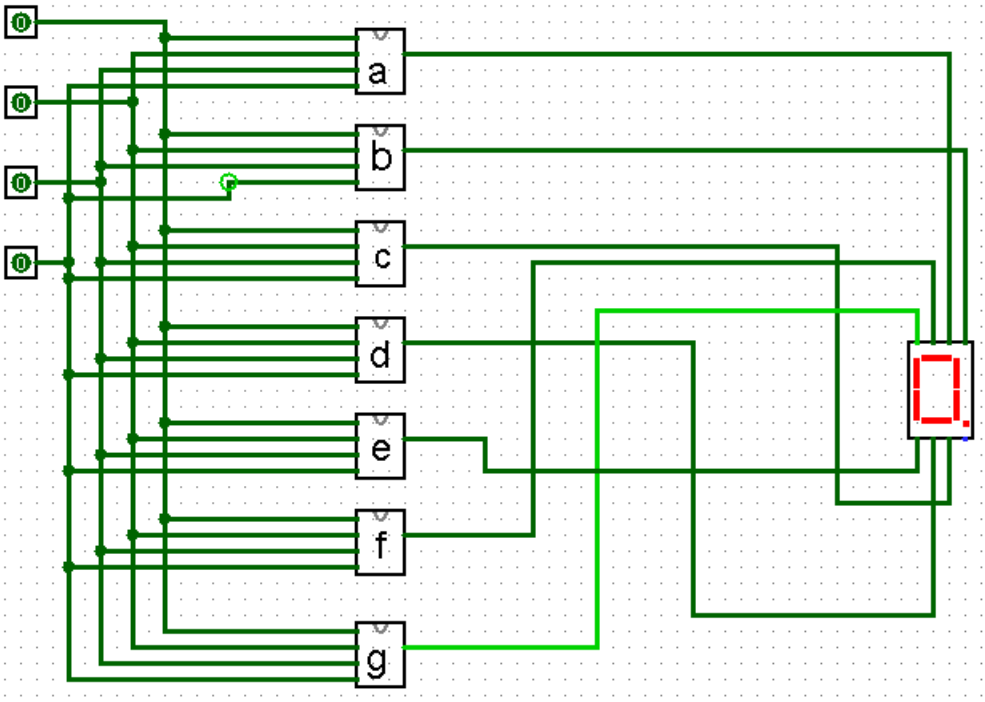
Figure 1: Circuit top level layout



$$a = \overline{\overline{(\bar{A}\bar{B}\bar{C}D)}\,\overline{(\bar{A}B\bar{C}\bar{D})}\,\overline{(A\bar{B}CD)}\,\overline{(AB\bar{C}D)}} \tag{1}$$

$$b = \overline{\overline{(\bar{A}B\bar{C}D)}\,\overline{(BC\bar{D})}\,\overline{(ACD)}\,\overline{(AB\bar{D})}} \tag{2}$$

$$c = \overline{\overline{(\bar{A}\bar{B}C\bar{D})}\,\overline{(AB\bar{D})}\,\overline{(ABC)}} \tag{3}$$

$$d = \overline{\overline{(\bar{B}\bar{C}D)}\,\overline{(\bar{A}B\bar{C}\bar{D})}\,\overline{(BCD)}\,A\bar{B}C\bar{D}} \tag{4}$$

$$e = \overline{\overline{(\bar{A}D)}\,\overline{(\bar{B}\bar{C}D)}\,\overline{(\bar{A}B\bar{C})}} \tag{5}$$

$$f = \overline{\overline{(\bar{A}\bar{B}D)}\,\overline{(\bar{A}\bar{B}C)}\,\overline{(\bar{A}CD)}\,\overline{(AB\bar{C}D)}} \tag{6}$$

$$g = \overline{\overline{(\bar{A}\bar{B}\bar{C})}\,\overline{(\bar{A}BCD)}\,\overline{(AB\bar{C}\bar{D})}} \tag{7}$$