EENG 284

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Digital Design Lab

Lab9

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Stopwatch Datapath

Lab Solutions

Table 1: Control word table for the datapath shown in Figure 2.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | cw[5]  2x1 mux | cw[4]  lap register | cw[3]  mod 10 reset | cw[2]  mod10 count | cw[1:0]  timer counter |
|  | 0 = mod10 | 1 = load | 1 = reset | 1 = count up | 11 = load |
|  | 1 = register | 0 = hold | 0 = hold | 0 = hold | 10 = count up |
|  |  |  |  |  | 01 |
|  |  |  |  |  | 00 = hold |
| RESET | 0 | 0 | 1 | 0 | 11 |
| STOP | 0 | 0 | 0 | 0 | 00 |
| RUN | 0 | 0 | 0 | 0 | 10 |
| INC | 0 | 0 | 0 | 1 | 11 |
| RUN2LAP | 0 | 1 | 0 | 0 | 00 |
| LAP RUN | 1 | 0 | 0 | 0 | 10 |
| LAP INC | 1 | 0 | 0 | 1 | 11 |
| LAP STOP | 1 | 0 | 0 | 0 | 00 |

A picture containing chart

Description automatically generated

Chart

Description automatically generated with medium confidence

Diagram

Description automatically generated with medium confidence

Chart

Description automatically generated with low confidence

A picture containing chart

Description automatically generated

