* **EXPLANATION**:
* **m14k\_mpc\_dec:**
  + Disable exception for the funct field that we will use (*funct* = *011100*).

assign spec\_ri\_e = special\_e && ((mpc\_ir\_e[5:0] == 6'o05) ||

(mpc\_ir\_e[5:0] == 6'o16) ||

(mpc\_ir\_e[5:2] == 4'b010\_1) ||

(mpc\_ir\_e[5:0] == 6'b011\_101) || // LWI

(mpc\_ir\_e[5:1] == 5'b011\_11) || // LWI

(mpc\_ir\_e[5:1] == 5'b101\_00) ||

(mpc\_ir\_e[5:2] == 4'b101\_1) ||

(mpc\_ir\_e[0] && mpc\_ir\_e[5:2] == 4'b110\_1) ||

((mpc\_ir\_e[5:3] == 3'o2) & ~edp\_dsp\_present\_xx &

(mpc\_ir\_e[0] ? (mpc\_ir\_e[12:11] != 2'b00) : // 11, 13 (HI/LO 1-3)

(mpc\_ir\_e[22:21] != 2'b00))) ||

(mpc\_ir\_e[5:3] == 3'o7));

* + Control signals:
    - **load\_e**:

assign load\_e = !(mpc\_ldst\_e & ~(mpc\_ir\_e[31:26] == 6'o23) ? (mpc\_ir\_e[29] || mpc\_atomic\_m) :

(mpc\_ir\_e[31:26] == 6'o23) ? mpc\_ir\_e[3] :

(mpc\_ir\_e[23:21] == 3'b011) ? mpc\_ir\_e[9] : mpc\_ir\_e[23]) ||

mpc\_lxs\_e || lx\_e || cop\_e || synci\_e || mpc\_atomic\_e || lwi\_instr\_e; // LWI

* + - **mpc\_ldst\_e**:

assign mpc\_ldst\_e = lwi\_instr\_e || mpc\_lxs\_e || mpc\_ir\_e[31] || (regimm\_e && (mpc\_ir\_e[20:16] == 5'o07)) || lx\_e || (mpc\_ir\_e[31:26] == 6'o23) && !mpc\_ir\_e[5];

* + - **lwi\_instr\_e**:

assign lwi\_instr\_e = special\_e && (mpc\_ir\_e[5:0] == 6'b011\_100); // LWI

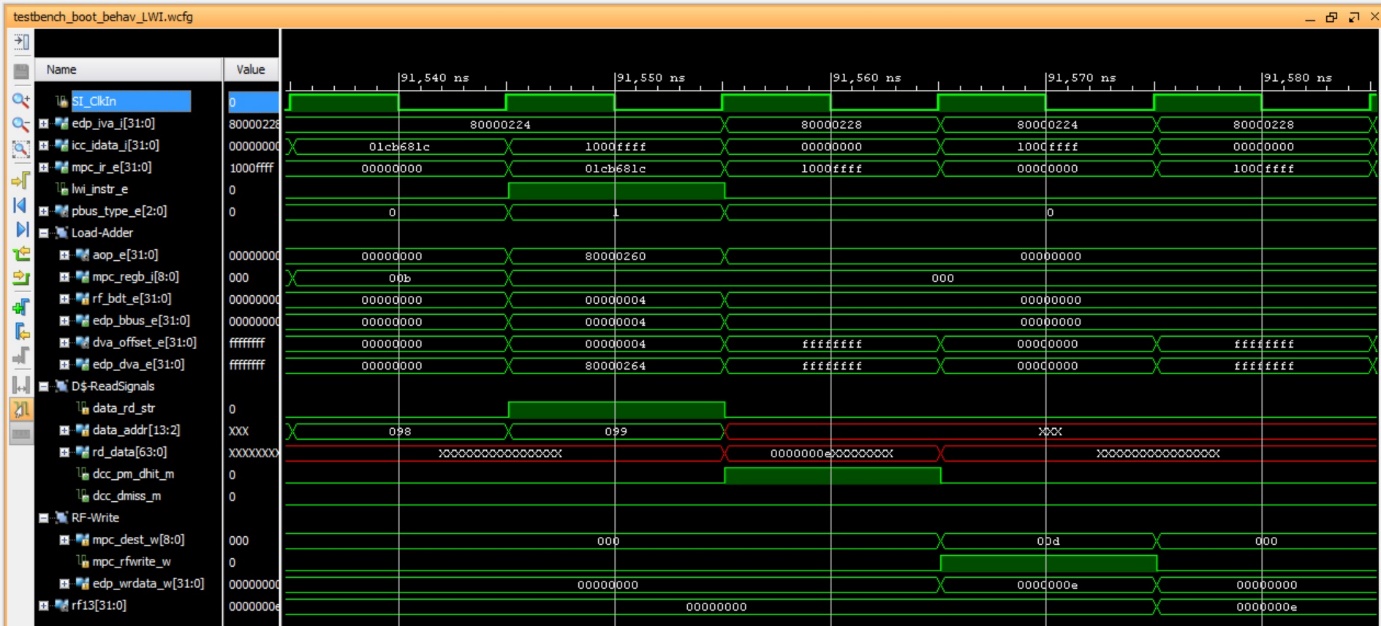
* **m14k\_edp:**
  + Select register for lwi instruction:

assign dva\_offset\_e[31:0] = lwi\_instr\_e ? edp\_bbus\_e : !mpc\_selimm\_e ? bbusis\_e

: (mpc\_atomic\_e || mpc\_atomic\_m) ? {{20{mpc\_imsgn\_e}}, mpc\_ir\_e[11:0]}

: {{16{mpc\_imsgn\_e}}, mpc\_ir\_e[15:0]};

* **EXAMPLE - SIMULATION**:



Observe that in the fifth cycle rf13=0xe, as this is the value read from the D$.

* **EXECUTION ON THE BOARD**:

When the program is downloaded on the board, you should see on the 7-seg displays:

* 7-seg displays=$t5, which in our example is 0x0000000e

Then, when you debug the program following the steps stated in the document, you should observe the following:

