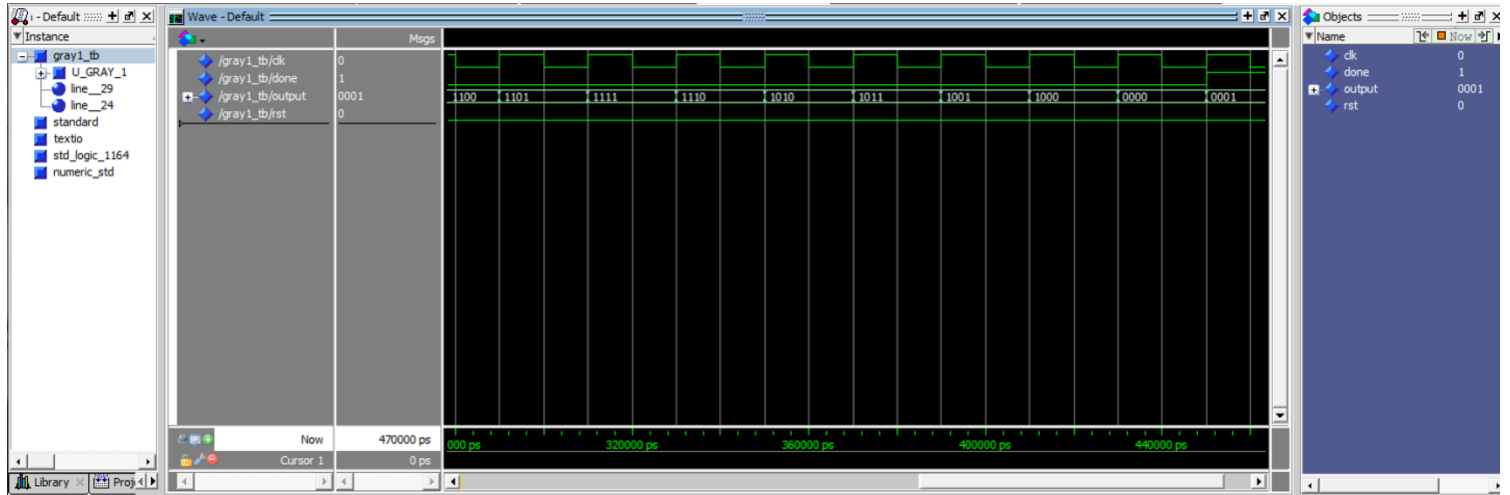
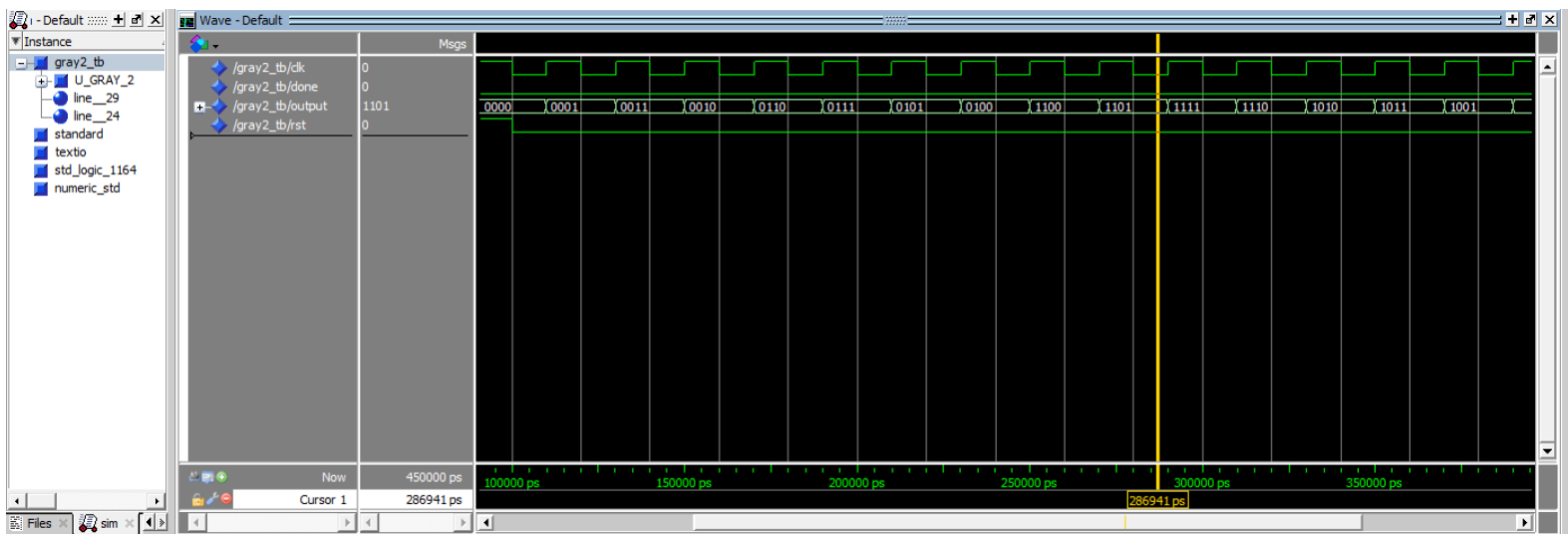


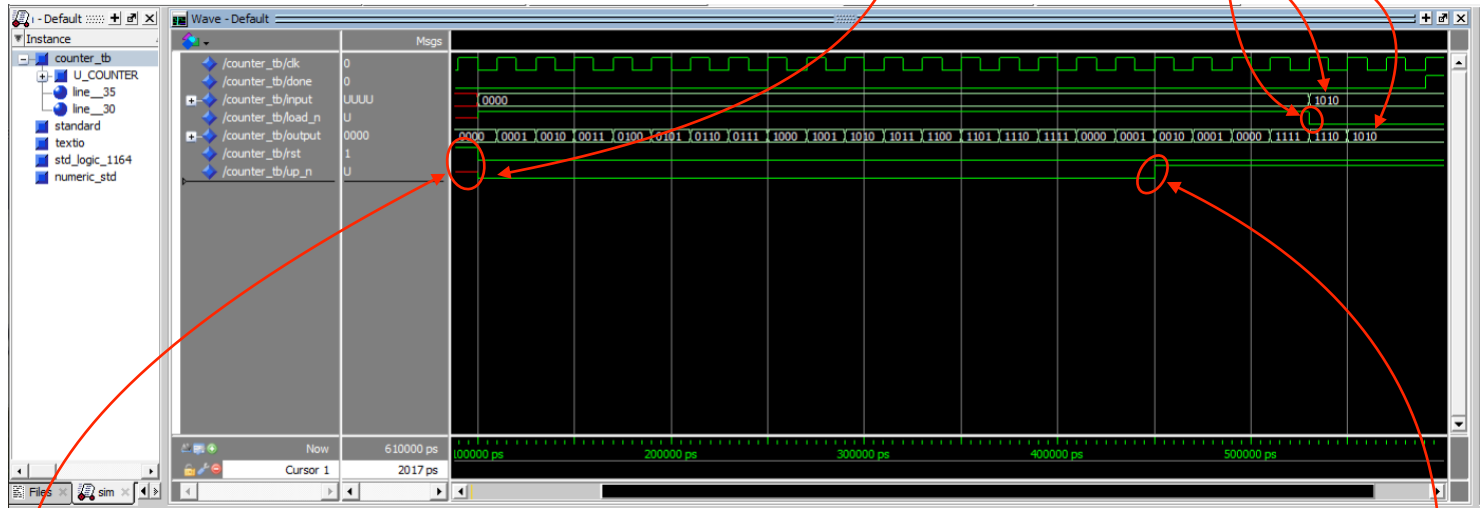
2. 1 process, 4-bit Gray Code Counter Waveform



3. 2 process, Gray Code Counter Waveform



4. 4-bit Up/Down Counter with Load Waveform



5. Top-Level Entity Description – The top-level entity instantiates 4 unique entities, as described in the following sentences. One entity that is instantiated is the **clk_gen** (and in turn, the **clk_div**). The purpose of these entities is to reduce the clocking to 1 Hz and to only when a button is pressed on the board. This makes the change of state in the state machines visible to us. The other entity that is instantiated is the **decoder7seg** entity (one for each 7 seg display on our board). The purpose of these are to feed outputs from the state machines into the entities and then from the entities to the appropriate pins on the board so that the numbers are decoded and displayed correctly. The other two entities that are instantiated are the **gray2** and the **counter**. These are the state machines that we described earlier and what we ultimately care about. The other two entities were for the purpose of viewing our entity behavior on the board.