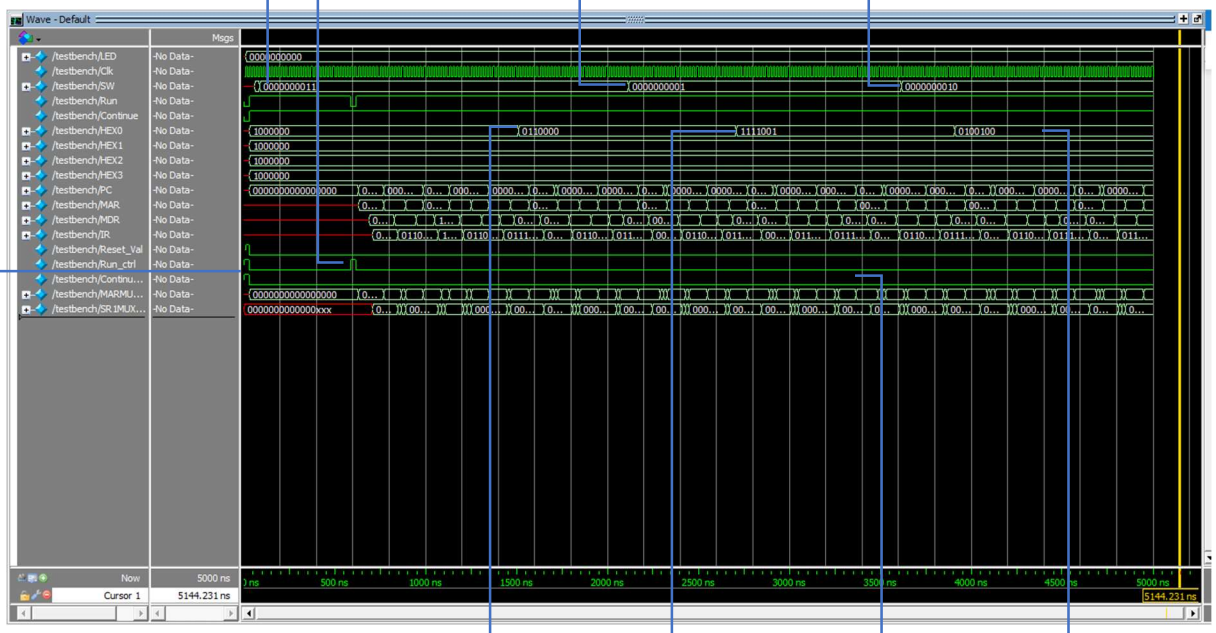
Enter the code “x0003” through SW to the place the program starts

Push Run and Continue together to initialize

Click “Run” to start

Now we change the value on SW to “x0001”

Now we change the value on SW to “x0002”



After jumping to the start position, the display will first show the current value on the SW, which is still x0003, the value “0110000” corresponds to “x0003” in HEX driver

After small calculation cycle, the value 1111001 appears on the HEX0, which corresponds to “x0001” in driver

After small calculation cycle, the value 0100100 appears on the HEX0, which corresponds to “x0002” in driver

Notice that “Continue” is never pressed in this process, the value was loaded and displayed directly

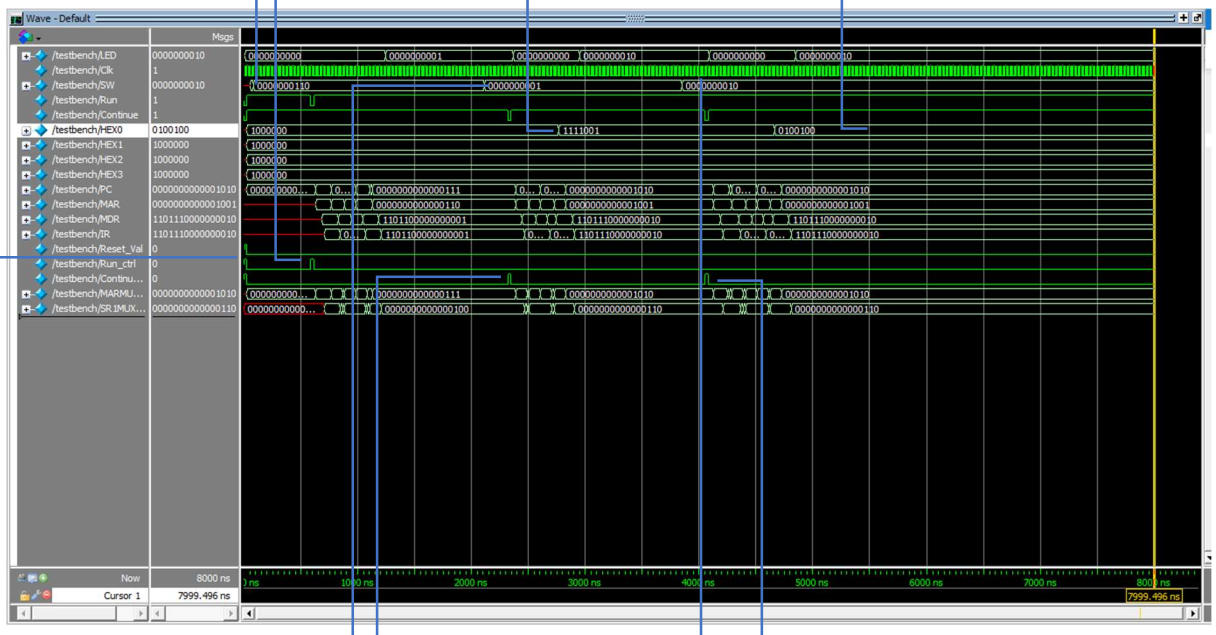
Enter the code “x0006” through SW to the place the program starts

Push Run and Continue together to initialize

Click “Run” to start

After small calculation cycle, the value 1111001 appears on the HEX0, which corresponds to “x0001” in driver

After small calculation cycle, the value 0100100 appears on the HEX0, which corresponds to “x0002” in driver



Value “x0002” is entered

The number “x0001” is entered through SW, and the machine is in halt state, so no value has displayed yet

“Continue” is pressed, and the machine enters the calculation cycle, the value will appear on the HEX0-HEX3 soon

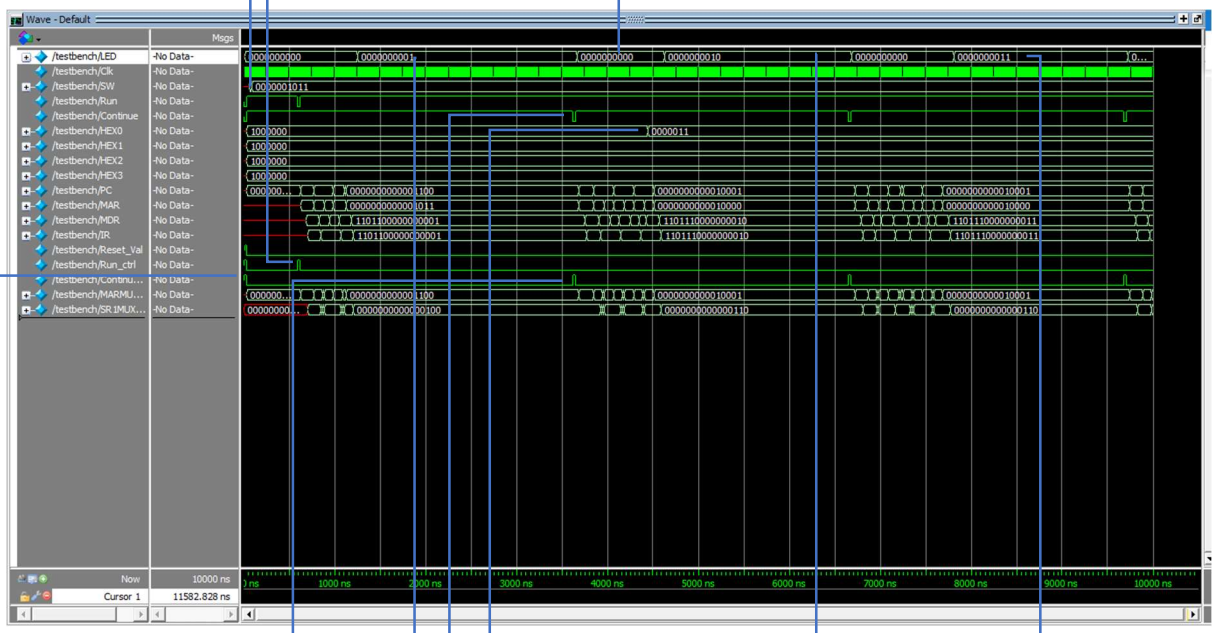
“Continue” is pressed

Enter the code “x000B” through SW to the place the program starts

Push Run and Continue together to initialize

Click “Run” to start

LED value clears to 0 due to our design in datapath, that when LD_LED is low, the LED value is 10’b0



Note that HEX value will become “x000b” due to an opSTR(R1, R0, outHex) in the code

“Continue” is pressed, the “Pause” is read and stored.

“Continue” is pressed in pause state

LED value is incremented due to the opINC(R2) code, and it’s displayed after pause state.

LED value is first displayed as 01

Enter the code “x0014” through SW to the place the program starts

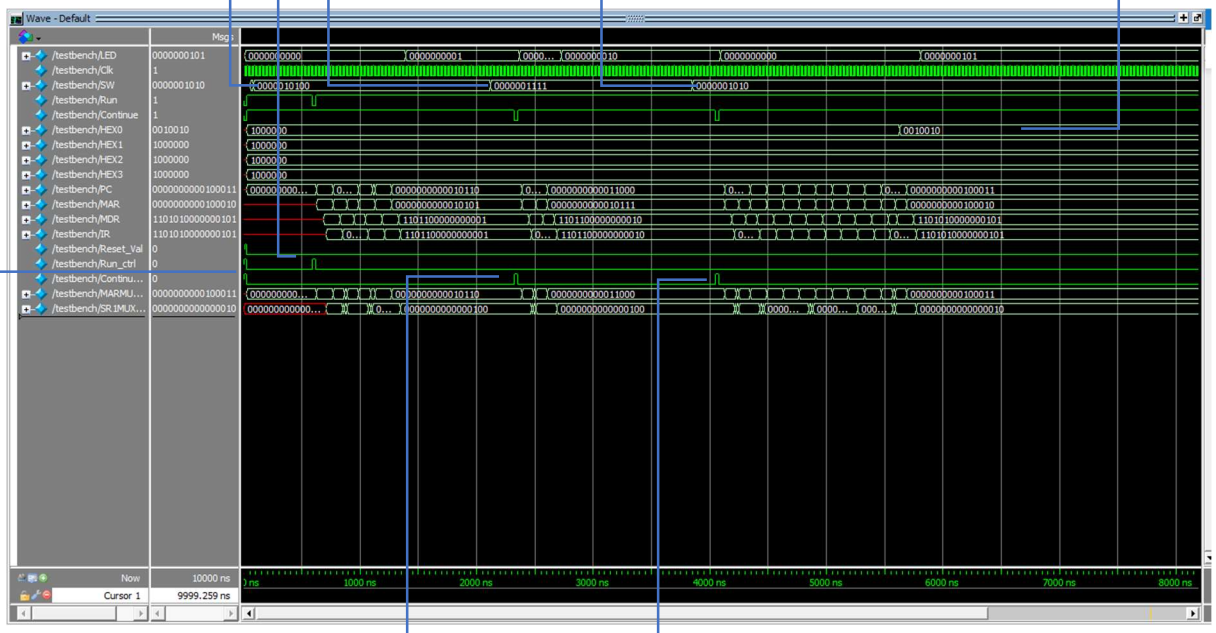
Result 0101 is calculated, and “0010010” is stored in HEX0 value, corresponds to “0101” (5)

Push Run and Continue together to initialize

Click “Run” to start

1111 is entered through SW

1010 is entered through SW



Continue is pressed in the pause state

Continue is pressed in the pause state

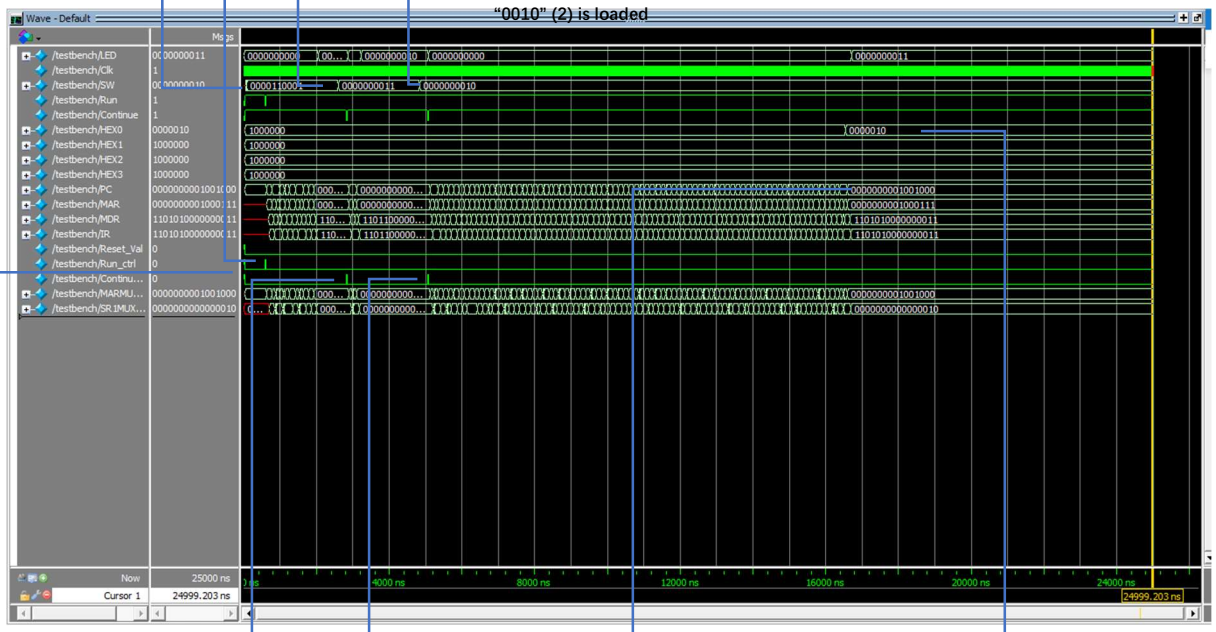
Enter the code “x0031” through SW to the place the program starts

Click “Run” to start

First multiplicand “0011” (3) is entered through SW

Push Run and Continue together to initialize

Second multiplicand “0010” (2) is loaded



Continue is pressed in the pause state

The program comes back to checkpoint 1 as expected

“000010” is stored, and it corresponds to 6, which is the result of 3 times 2

Continue is pressed in the pause state

Enter the code “x005A” through SW to the place the program starts

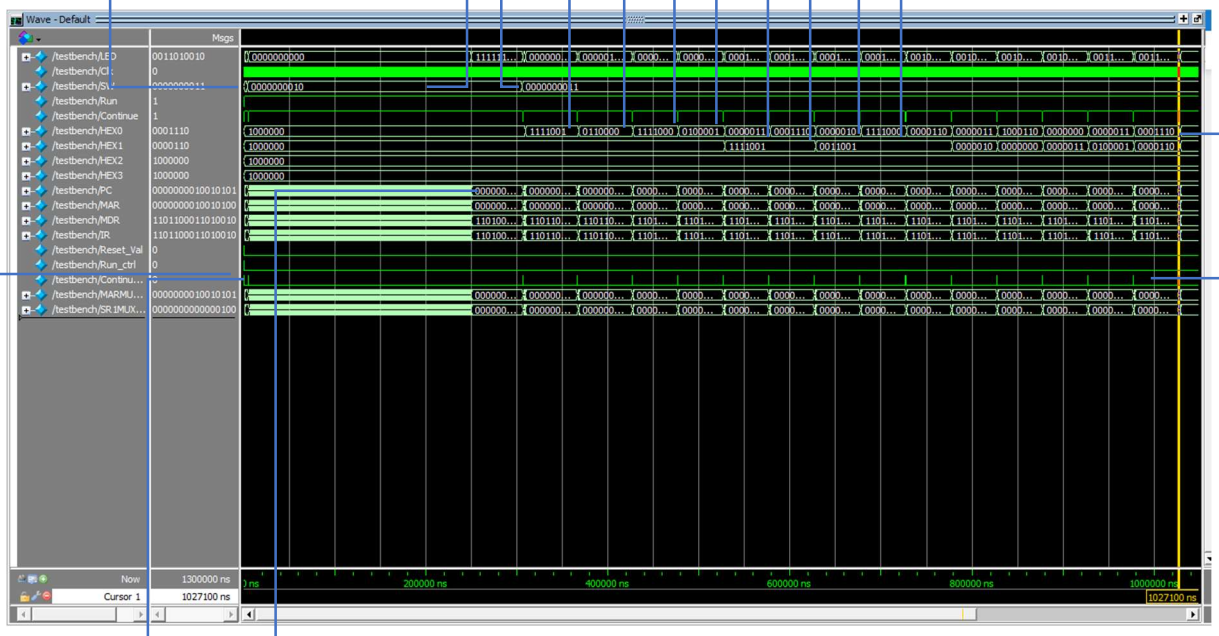
“0011” is entered through SW, and the machine comes to “display” mode, that it will display sorted HEX value after each “Continue” instruction

Values are ordered right now

Push Run and Continue together to initialize, then "Run" is pressed to start the

“0010” is entered through SW, and sorting starts from here

1 3 7 D 1B 1F 46 47 .....



Sorting is done, and the program is in pause state

Continue is pressed here to start the sorting task

Values are sorted, and after each press on “Continue”, the next sorted value will appear on Hex displayer