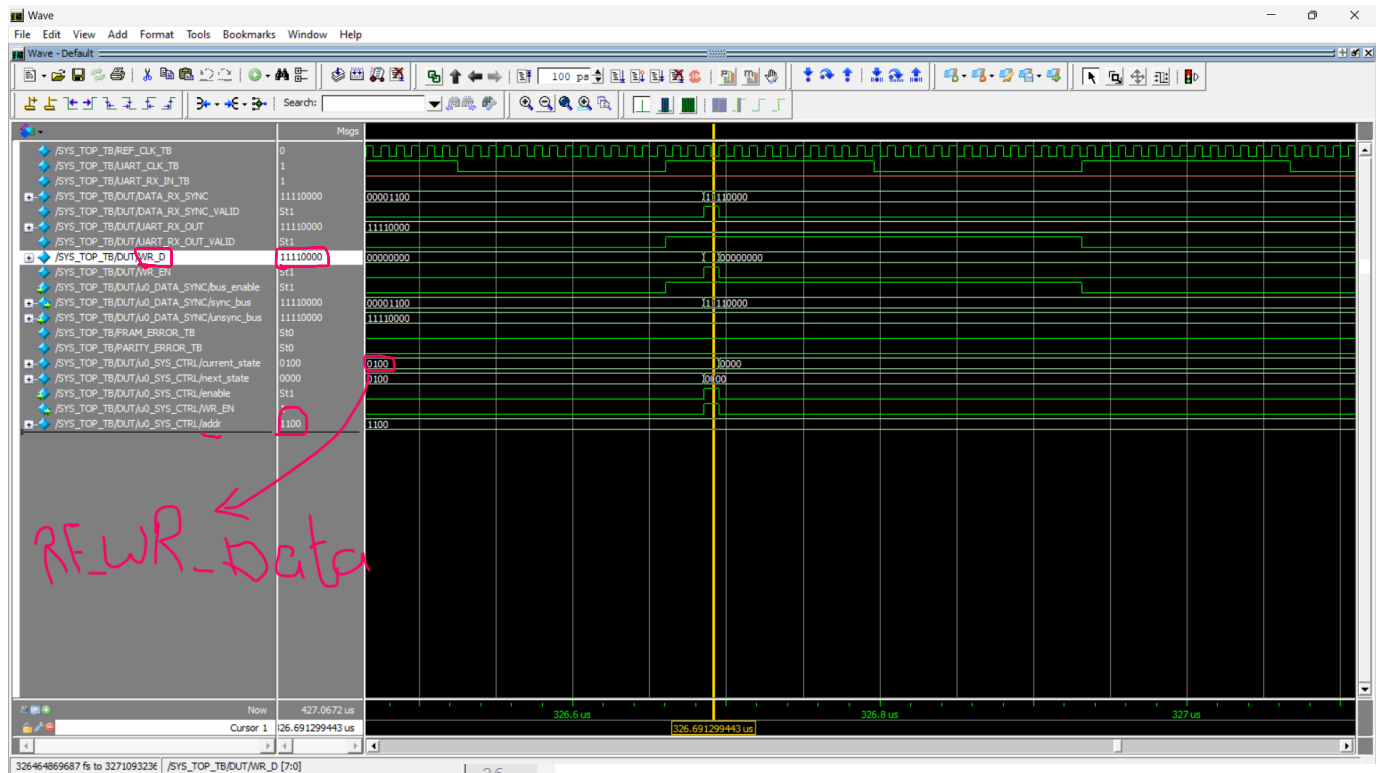


## 1-WR\_REG\_File



RF\_WR\_Data

```
initial
begin
    initialization();
    rst();

    #5;

    WR_REG('b10101010','b00001100','b11110000');
    #(UART_TX_PERIOD);

    RD_REG('b10111011','b00001100');
    #(UART_TX_PERIOD);

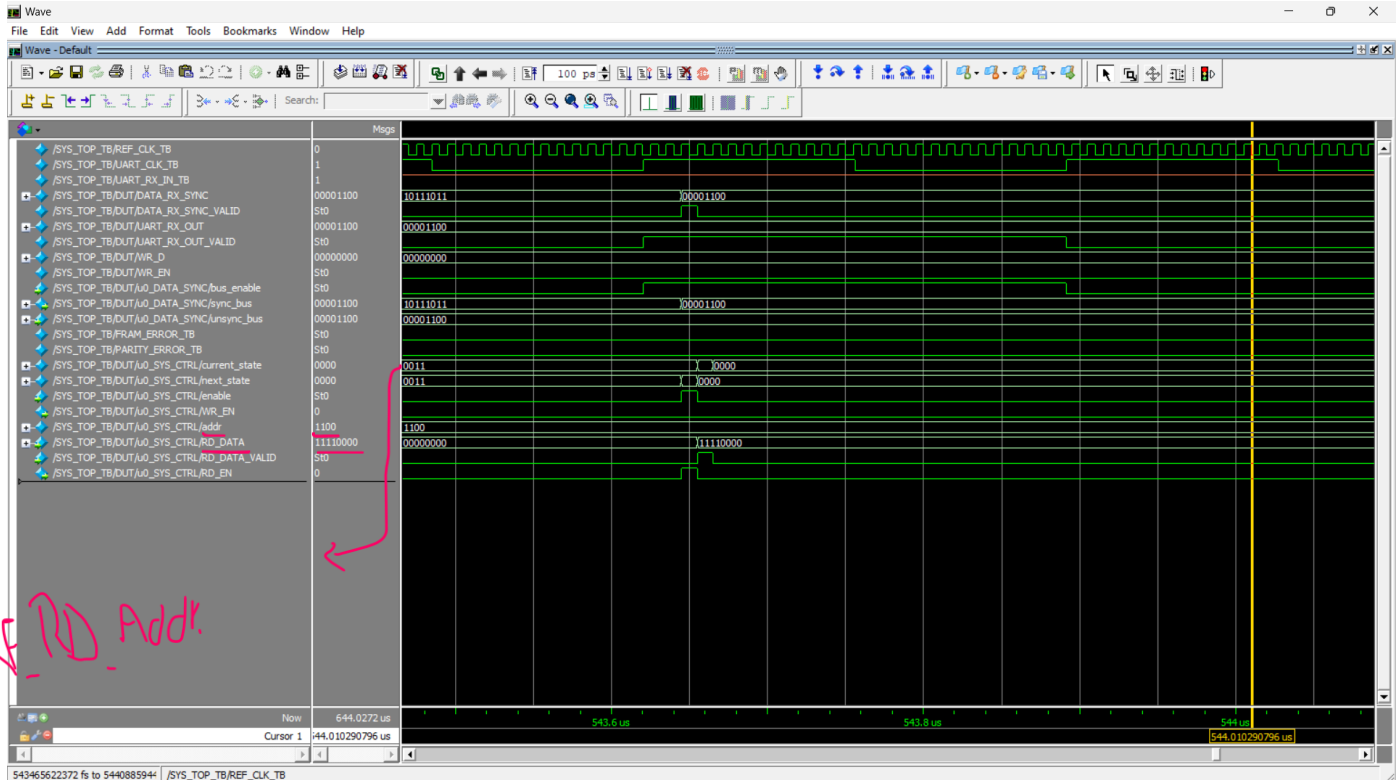
    ALU_OP_OP('b11001100','b00000101','b00000110','b00000010');
    #(UART_TX_PERIOD);

    ALU_OP('b11011101','b00000000');
    #(UART_TX_PERIOD);

    #100;
    $stop;

end
```

## 2-RF\_RD\_File:



```

26
27
28   initial
29   begin
30       initialization();
31       rst();
32
33       #5;
34
35       WR_REG('b10101010', 'b00001100', 'b11110000');
36       #(UART_TX_PERIOD);
37
38       RD_REG('b10111011', 'b00001100');  → Addr.
39       #(UART_TX_PERIOD);
40
41       ALU_OP_OP('b11001100', 'b00000101', 'b00000110', 'b00000010');
42       #(UART_TX_PERIOD);
43
44       ALU_OP('b11011101', 'b00000000');
45       #(UART_TX_PERIOD);
46
47       #100;
48       $stop;
49
50   end
51

```



### 3-ALU\_OP\_A\_B:

Operand A:

REG\_FILE →

Name	Value	Kind	Mode
[2]	1	Regis...Internal	
[1]	1	Regis...Internal	
[0]	0	Regis...Internal	
[0]	00000... Pack...	Internal	
[7]	0	Regis...Internal	
[6]	0	Regis...Internal	
[5]	0	Regis...Internal	
[4]	0	Regis...Internal	
[3]	0	Regis...Internal	
[2]	1	Regis...Internal	
[1]	0	Regis...Internal	
[0]	1	Regis...Internal	
WrData	00000... Net	In	
WrEn	St0	Net	In
address_width	4	Para...	Internal

Operand B:

REG\_FILE →

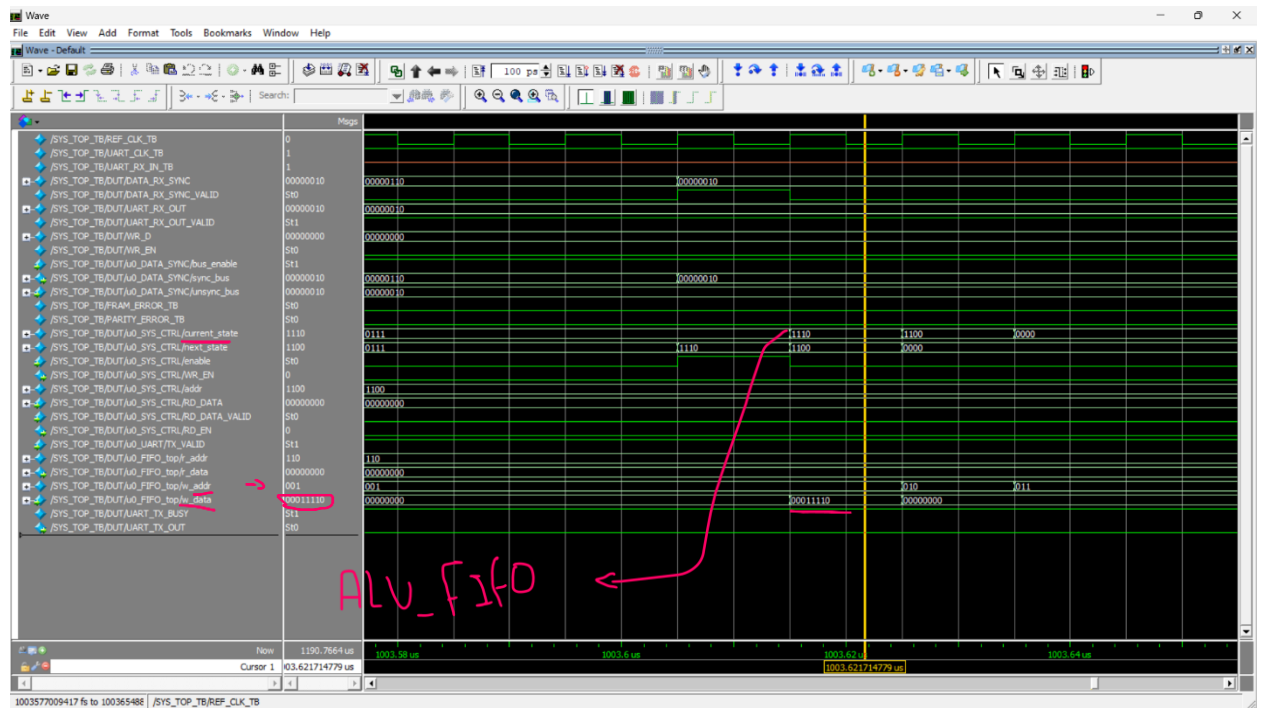
Name	Value	Kind	Mode
[3]	00100... Pack...	Internal	
[2]	10000... Pack...	Internal	
[1]	00000... Pack...	Internal	
[7]	0	Regis...Internal	
[6]	0	Regis...Internal	
[5]	0	Regis...Internal	
[4]	0	Regis...Internal	
[3]	0	Regis...Internal	
[2]	1	Regis...Internal	
[1]	1	Regis...Internal	
[0]	0	Regis...Internal	
[0]	00000... Pack...	Internal	
[7]	0	Regis...Internal	
[6]	0	Regis...Internal	
[5]	0	Regis...Internal	

Alu func is multiplication

$5 \times 6 = 30 = \text{'b}0001\_1110$

FIFO\_MEM →

Name	Value	Kind	Mode
[4]	00000... Pack...	Internal	
[3]	00000... Pack...	Internal	
[2]	00000... Pack...	Internal	
[1]	00011... Pack...	Internal	
[7]	0	Regis...Internal	
[6]	0	Regis...Internal	
[5]	0	Regis...Internal	
[4]	1	Regis...Internal	
[3]	1	Regis...Internal	
[2]	1	Regis...Internal	
[1]	1	Regis...Internal	
[0]	0	Regis...Internal	
[0]	1110... Pack...	Internal	
[7]	1	Regis...Internal	
[6]	1	Regis...Internal	



## 4-ALU\_OP\_no operand:

Alu func is addition

$$5+6 = 11 = \text{'b0000\_1011'}$$

