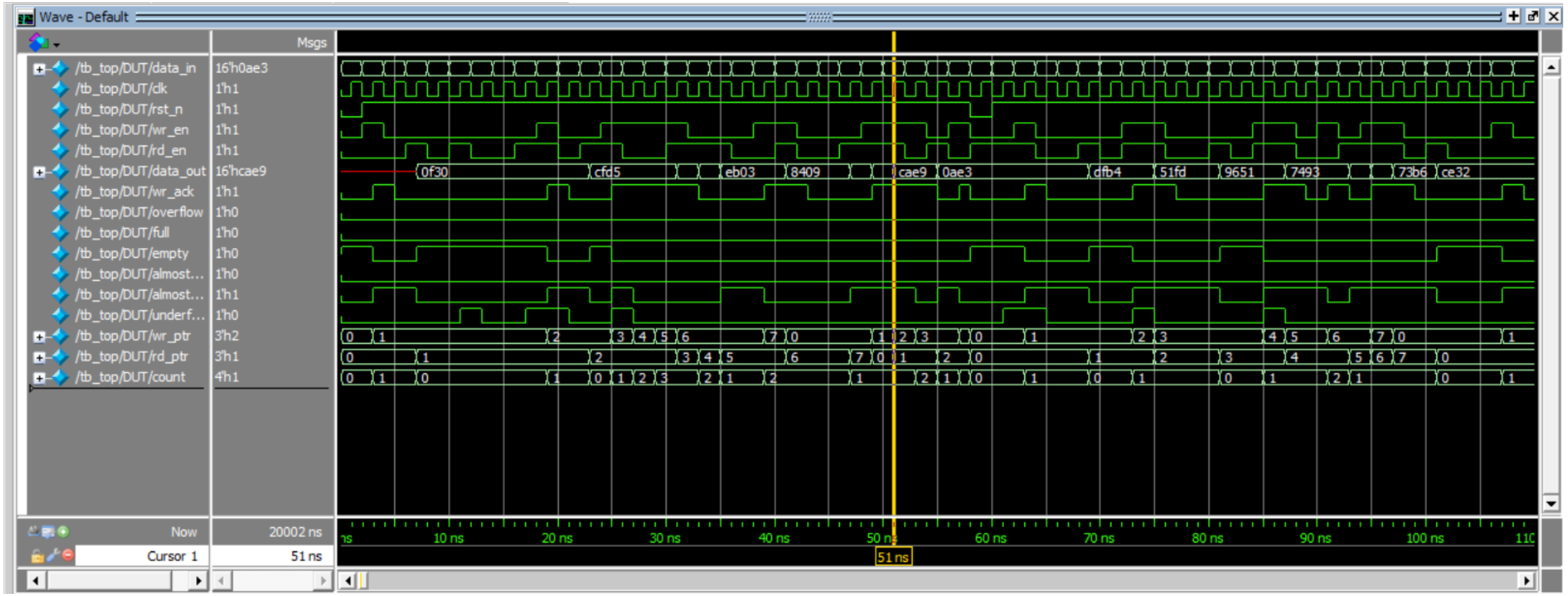
Asynchronous FIFO

complete top-level UVM environment

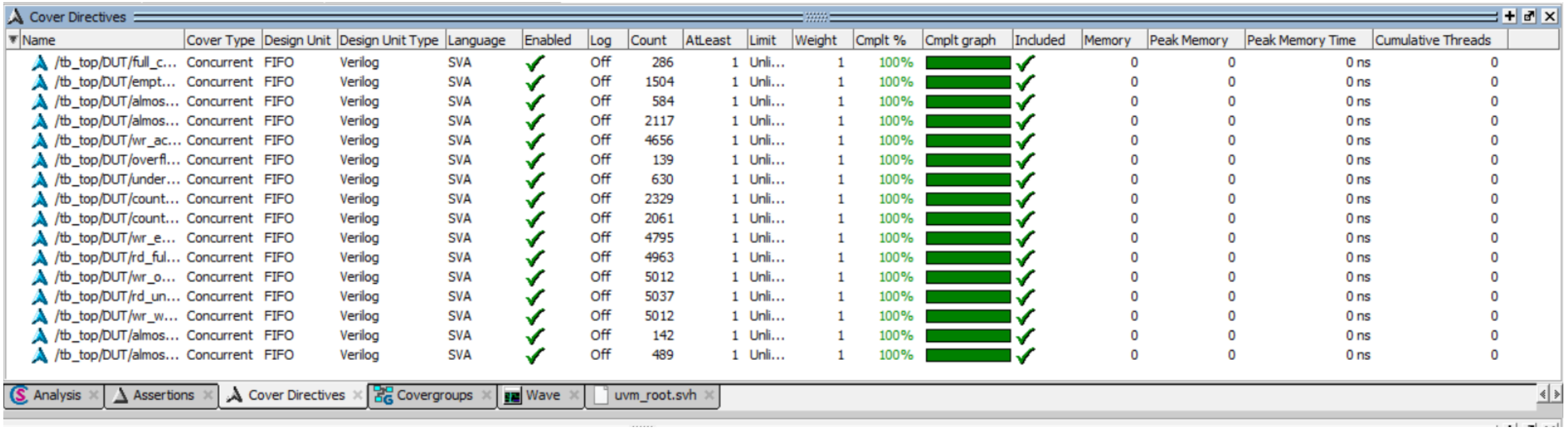
Verification plan

- Active reset at the first 2 cycle
- read when FIFO full
- Write when FIFO empty
- Write when FIFO not full
- read when FIFO not empty
- Check for Overflow and underflow when FIFO is empty or full
- Check internal signal
- constraint on reset to be most of time on active

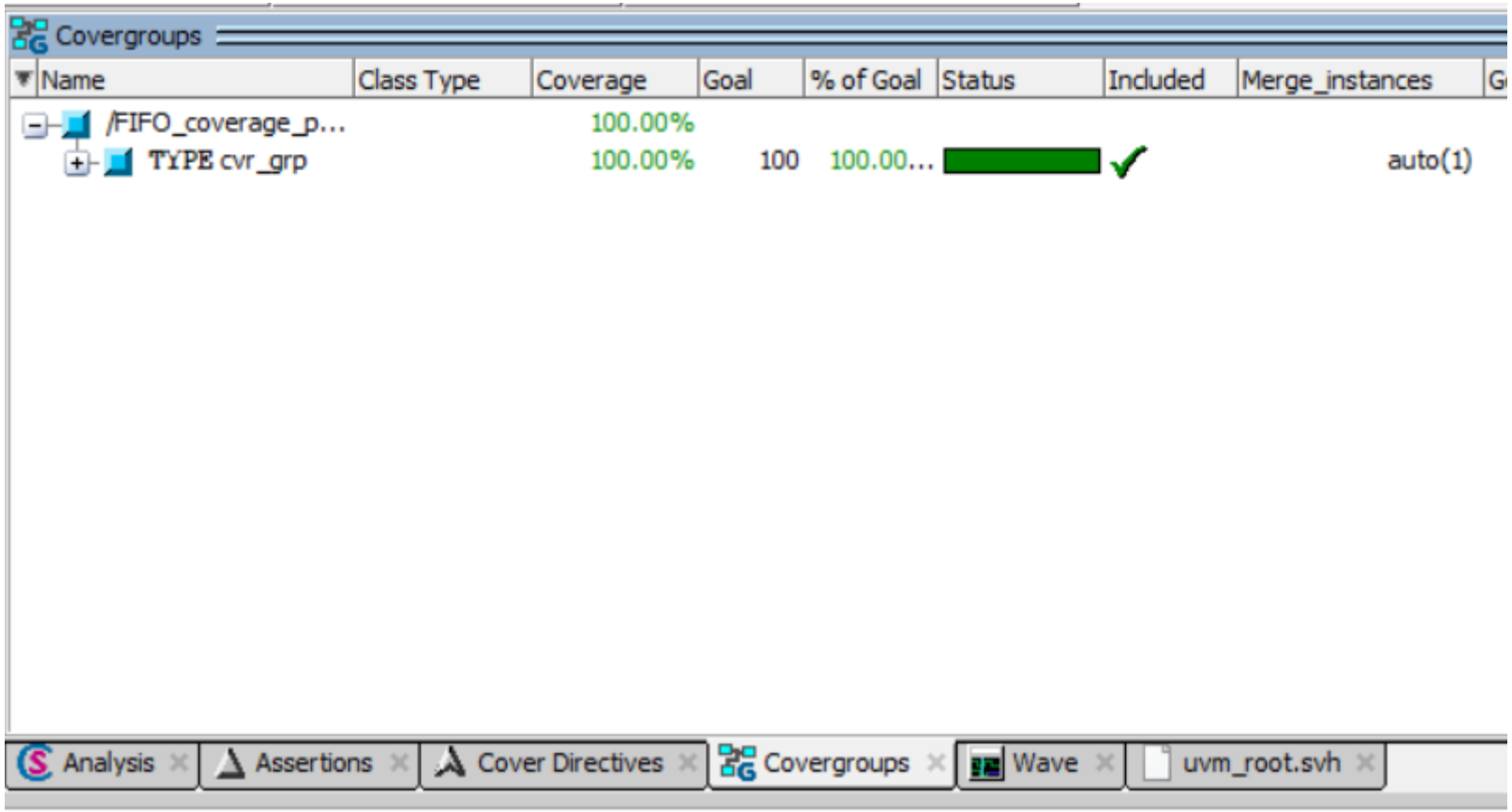
Waveform


Wave - Default
Msgs
/tb_top/DUT/data_in
/tb_top/DUT/clk
/tb_top/DUT/rst_n
/tb_top/DUT/wr_en
/tb_top/DUT/rd_en
/tb_top/DUT/data_out
/tb_top/DUT/wr_ack
/tb_top/DUT/overflow
/tb_top/DUT/full
/tb_top/DUT/empty
/tb_top/DUT/almost...
/tb_top/DUT/almost...
/tb_top/DUT/underf...
/tb_top/DUT/wr_ptr
/tb_top/DUT/rd_ptr
/tb_top/DUT/count
16'h0ae3
1'h1
1'h1
1'h1
1'h1
16'hcae9
1'h1
1'h0
1'h0
1'h0
1'h0
1'h1
1'h0
3'h2
3'h1
4'h1
0f30
cfd5
eb03
8409
cae9
0ae3
dfb4
51fd
9651
7493
73b6
ce32
Now
20002 ns
Cursor 1
51 ns
10 ns
20 ns
30 ns
40 ns
50 ns
60 ns
70 ns
80 ns
90 ns
100 ns

Cover Directive



Covergroup


Covergroups
Name
Class Type
Coverage
Goal
% of Goal
Status
Included
Merge_instances
/FIFO_coverage_p...
100.00%
TYPE cvr_grp
100.00%
100
100.00...
auto(1)
Analysis
Assertions
Cover Directives
Covergroups
Wave
uvm_root.svh

Toggle coverage

```
Toggle Coverage:
    Enabled Coverage              Bins      Hits    Misses  Coverage
    ----------------              ----      ----    ------  --------
    Toggles                        106       106         0   100.00%
```

Branch coverage

```
Branch Coverage:
    Enabled Coverage              Bins      Hits    Misses  Coverage
    ----------------              ----      ----    ------  --------
    Branches                        27        27         0   100.00%
```

Statement coverage

```
Statement Coverage:
    Enabled Coverage              Bins      Hits    Misses  Coverage
    ----------------              ----      ----    ------  --------
    Statements                      34        34         0   100.00%
```

Total coverage by instance

Total Coverage By Instance (filtered view): 100.00%