tb_cocotb.v

AUTHORS

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DATES

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INFORMATION

Brief

Test bench wrapper for cocotb

License MIT

tb_cocotb

```
module tb_cocotb #(
parameter
ADDRESS_WIDTH
 =
32,
parameter
BUS_WIDTH
 =
4,
parameter
CLOCK_SPEED
 =
100000000,
parameter
```

```
SAMPLE_RATE
  =
2000000,
parameter
BIT_SLICE_OFFSET
  =
0,
parameter
INVERT_DATA
  =
0,
parameter
SAMPLE_SELECT
  =
0
) ( input clk, input rstn, input up_rreq, output up_rack, input [ADDRESS_WI
```

uP 1553 testbench

Parameters

ADDRESS_WIDTH parameter	Width of the uP address port, max 32 bit.
BUS_WIDTH parameter	Width of the uP bus data port.
CLOCK_SPEED parameter	This is the aclk frequency in Hz
SAMPLE_RATE parameter	Rate of in which to sample the 1553 bus. Must be 2 MHz or more and less than aclk. This is in Hz. BIT_SLICE_OFFSET- Adjust where the sample is taken from the input.
INVERT_DATA parameter	Invert all 1553 bits coming in and out.
SAMPLE_SELECT parameter	Adjust where in the array of samples to select a bit.

Ports

clk	Clock for all devices in the core
rstn	Negative reset
up_rreq	uP bus read request
up_rack	uP bus read ack
up_raddr	uP bus read address
up_rdata	uP bus read data
up_wreq	uP bus write request
up_wack	uP bus write ack
up_waddr	uP bus write address
up_wdata	uP bus write data
i_diff	Input differential signal for 1553 bus
o_diff	Output differential signal for 1553 bus
en_o_diff	Enable output of differential signal (for signal switching on 1553 module)
irq	Interrupt when data is received

INSTANTIATED MODULES

dut

```
up_1553 #(
                                                                        .
ADDRESS_WIDTH(ADDRESS_WIDTH),
                                                                        .
BUS_WIDTH(BUS_WIDTH),
                                                                        .
CLOCK_SPEED(CLOCK_SPEED),
                                                                        .
SAMPLE_RATE(SAMPLE_RATE),
                                                                        .
BIT_SLICE_OFFSET(BIT_SLICE_OFFSET),
                                                                        .
INVERT_DATA(INVERT_DATA),
                                                                        .
SAMPLE_SELECT(SAMPLE_SELECT)
) dut ( .clk(clk), .rstn(rstn), .up_rreq(up_rreq), .up_rack(up_rack), .up_ra
```

Device under test, up_1553