tb_cocotb_axi_lite.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 aclk, input arstn, input s_axi_awvalid, input [ADDRESS_WIDTH-1:0]
```

AXI Lite slave to AXI Lite 1553 DUT

Parameters

ADDRESS_WIDTH parameter	Width of the axi address bus, max 32 bit.
BUS_WIDTH parameter	Width in bytes of the data bus.
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

aclk	Clock for all devices in the core
arstn	Negative reset
s_axi_awvalid	Axi Lite aw valid
s_axi_awaddr	Axi Lite aw addr
s_axi_awprot	Axi Lite aw prot
s_axi_awready	Axi Lite aw ready
s_axi_wvalid	Axi Lite w valid
s_axi_wdata	Axi Lite w data
s_axi_wstrb	Axi Lite w strb
s_axi_wready	Axi Lite w ready
s_axi_bvalid	Axi Lite b valid
s_axi_bresp	Axi Lite b resp
s_axi_bready	Axi Lite b ready
s_axi_arvalid	Axi Lite ar valid
s_axi_araddr	Axi Lite ar addr
s_axi_arprot	Axi Lite ar prot
s_axi_arready	Axi Lite ar ready
s_axi_rvalid	Axi Lite r valid

s_axi_rdata	Axi Lite r data
s_axi_rresp	Axi Lite r resp
s_axi_rready	Axi Lite r ready
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

```
axi_lite_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 ( .aclk(aclk), .arstn(arstn), .s_axi_awvalid(s_axi_awvalid), .s_axi_aw
```

Device under test, axi_lite_1553