tb_cocotb_up.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
WORD_WIDTH
 =
4,
parameter
```

```
CLOCK_SPEED
  =
100000000,
parameter
SELECT_WIDTH
  =
16,
parameter
DEFAULT_RATE_DIV
  =
0,
parameter
DEFAULT_CPOL
  =
0,
parameter
DEFAULT_CPHA
  =
0
) ( input clk, input rstn, input up_rreq, output up_rack, input [ADDRESS_WI
```

SPI Master core with axis input/output data. Read/Write is size of BUS_WIDTH bytes. Write activates core for read.

Parameters

ADDRESS_WIDTH parameter	Width of the uP address port, max 32 bit.
BUS_WIDTH parameter	Width of the uP bus data port(can not be less than 2 bytes, max tested is 4).
WORD_WIDTH parameter	Width of each SPI Master word. This will also set the bits used in the TX/RX data registers. Must be less than or equal to BUS_WIDTH 1 to 4.
CLOCK_SPEED parameter	This is the aclk frequency in Hz, this is the the frequency used for the bus and is divided by the rate.
SELECT_WIDTH parameter	Bit width of the slave select, defaults to 16 to match altera spi ip.
DEFAULT_RATE_DIV parameter	Default divider value of the main clock to use for the spi data output clock rate. 0 is 2 (2^(X+1) X is the DEFAULT_RATE_DIV)
DEFAULT_CPOL parameter	Default clock polarity for the core (0 or 1).
DEFAULT_CPHA parameter	Default clock phase for the core (0 or 1).

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
irq	Interrupt when data is received
sclk	spi clock, should only drive output pins to devices.

mosi	transmit for master output
miso	receive for master input
ss_n	slave select output

INSTANTIATED MODULES

dut

```
up_spi_master #(
                                                                                .
ADDRESS_WIDTH(ADDRESS_WIDTH),
                                                                                .
BUS_WIDTH(BUS_WIDTH),
                                                                                .
WORD_WIDTH(WORD_WIDTH),
                                                                                .
CLOCK_SPEED(CLOCK_SPEED),
                                                                                .
SELECT_WIDTH(SELECT_WIDTH),
                                                                                .
DEFAULT_RATE_DIV(DEFAULT_RATE_DIV),
                                                                                .
DEFAULT_CPOL(DEFAULT_CPOL),
                                                                                .
DEFAULT_CPHA(DEFAULT_CPHA)
) dut ( .clk(clk), .rstn(rstn), .up_rreq(up_rreq), .up_rack(up_rack), .up_ra
```

Device under test, up_spi_master