

tb_cocotb_up.v

AUTHORS

JAY CONVERTINO

DATES

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INFORMATION

Brief

Test bench wrapper for cocotb

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tb_cocotb

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

```

    IRQ_ENABLE
    =
    0
) ( input clk, input rstn, input up_rreq, output up_rack, input [ADDRESS_WIDTH-1:0] up_raddr, output [BUS_WIDTH-1:0] up_rdata, input [GPIO_WIDTH-1:0] gpio_io_i, output [GPIO_WIDTH-1:0] gpio_io_o, output [GPIO_WIDTH-1:0] gpio_io_t)

```

uP GPIO testbench

Parameters

ADDRESS_WIDTH parameter	Width of the uP address port, max 32 bit.
BUS_WIDTH parameter	Width of the uP bus data port.
GPIO_WIDTH parameter	Width of the GPIO for inputs and outputs
IRQ_ENABLE parameter	Enable interrupt

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
gpio_io_i	Input for GPIO
gpio_io_o	Output for GPIO
gpio_io_t	Tristate for GPIO

INSTANTIATED MODULES

dut

```

up_gpio #(
    ADDRESS_WIDTH(ADDRESS_WIDTH),
    BUS_WIDTH(BUS_WIDTH),
    GPIO_WIDTH(GPIO_WIDTH),
    IRQ_ENABLE(IRQ_ENABLE)
) dut ( .clk(clk), .rstn(rstn), .up_rreq(up_rreq), .up_rack(up_rack), .up_raddr(up_raddr), .up_rdata(up_rdata), .up_wreq(up_wreq), .up_wack(up_wack), .up_waddr(up_waddr), .up_wdata(up_wdata), .irq(irq), .gpio_io_i(gpio_io_i), .gpio_io_o(gpio_io_o), .gpio_io_t(gpio_io_t))

```

Device under test, up_gpio