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
FIFO_DEPTH
 =
256,
parameter
COUNT_WIDTH
 =
8,
parameter
BUS_WIDTH
 =
1,
parameter
```

```
 USER_WIDTH
  =
 1,
 parameter
 DEST_WIDTH
  =
 1,
 parameter
 RAM_TYPE
  =
 "block",
 parameter
 PACKET_MODE
  =
 0,
 parameter
 COUNT_DELAY
  =
 1,
 parameter
 COUNT_ENA
  =
 1
) ( input m_axis_aclk, input m_axis_arstn, output m_axis_tvalid, input m_axi
```

Test bench for axis_fifo. This will run a file through the system and write its output. These can then be compared to check for errors. If the files are identical, no errors. A FST file will be written.

Parameters

FIFO_DEPTH parameter	Depth of the fifo, must be a power of two number(divisable aka 256 = 2^8). Any non-power of two will be rounded up to the next closest.
COUNT_WIDTH parameter	Data count output width in bits. Should be the same power of two as fifo depth(256 for fifo depth... this should be 8).
BUS_WIDTH parameter	Width of the axis data bus input/output in bytes.
USER_WIDTH parameter	Width of the axis user bus input/output in bits.
DEST_WIDTH parameter	Width of the axis dest bus input/output in bits.
RAM_TYPE parameter	RAM type setting.
PACKET_MODE parameter	Set axis fifo to wait for tlast before allowing a read on master port output.
COUNT_DELAY parameter	Delay count by one clock cycle of the data count clock.
COUNT_ENA parameter	Enable count, set this to 0 to disable (only disable if read/write/data_count are on the same clock domain!).

Ports

m_axis_aclk	Clock for AXIS
m_axis_arstn	Negative reset for AXIS
m_axis_tvalid	When active high the output data is valid
m_axis_tready	When set active high the output device is ready for data.
m_axis_tdata	Output data
m_axis_tkeep	Output valid byte indicator
m_axis_tlast	Indicates last word in stream.

m_axis_tuser	Output user bus
m_axis_tdest	Output destination
s_axis_aclk	Clock for AXIS
s_axis_arstn	Negative reset for AXIS
s_axis_tvalid	When set active high the input data is valid
s_axis_tready	When active high the device is ready for input data.
s_axis_tdata	Input data
s_axis_tkeep	Input valid byte indicator
s_axis_tlast	Is this the last word in the stream (active high).
s_axis_tuser	Input user bus
s_axis_tdest	Input desitination
data_count_aclk	Clock for data count
data_count_arstn	Negative edge reset for data count.
data_count	Output that indicates the amount of data in the FIFO.

INSTANTIATED MODULES

dut

```
axis_fifo #(
                                                                    .
FIFO_DEPTH(FIFO_DEPTH),
                                                                    .
COUNT_WIDTH(COUNT_WIDTH),
                                                                    .
BUS_WIDTH(BUS_WIDTH),
                                                                    .
USER_WIDTH(USER_WIDTH),
                                                                    .
DEST_WIDTH(DEST_WIDTH),
                                                                    .
RAM_TYPE(RAM_TYPE),
                                                                    .
PACKET_MODE(PACKET_MODE),
                                                                    .
COUNT_DELAY(COUNT_DELAY),
                                                                    .
COUNT_ENA(COUNT_ENA)
) dut ( .s_axis_aclk(s_axis_aclk), .s_axis_arstn(s_axis_arstn), .s_axis_tva
```

Device under test, axis_fifo