

tb_cocotb_up.py

AUTHORS

JAY CONVERTINO

DATES

2025/04/29

INFORMATION

Brief

Cocotb test bench

License MIT

Copyright 2025 Jay Convertino

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

FUNCTIONS

random_bool

```
def random_bool()
```

Return a infinte cycle of random bools

Returns: List

start_clock

```
def start_clock(  
    dut  
)
```

Start the simulation clock generator.

Parameters

dut Device under test passed from cocotb test function

reset_dut

```
async def reset_dut(  
    dut  
)
```

Cocotb coroutine for resets, used with await to make sure system is reset.

write_slave_test

```
@cocotb.test()  
async def write_slave_test(  
    dut  
)
```

Coroutine that is identified as a test routine. Simply write data over uP bus to SPI mosi

Parameters

dut Device under test passed from cocotb.

loop_test

```
@cocotb.test()  
async def loop_test(  
    dut  
)
```

Coroutine that is identified as a test routine. Loop test SPI

Parameters

dut Device under test passed from cocotb.

IRRDY_test

```
@cocotb.test()  
async def IRRDY_test(  
    dut  
)
```

Coroutine that is identified as a test routine. Receive Ready interrupt test

Parameters

dut Device under test passed from cocotb.

ITRDY_test

```
@cocotb.test()
async def ITRDY_test(
    dut
)
```

Coroutine that is identified as a test routine. Transmit Ready interrupt test

Parameters

dut Device under test passed from cocotb.

ITOE_test

```
@cocotb.test()
async def ITOE_test(
    dut
)
```

Coroutine that is identified as a test routine. Transmit Written when not ready interrupt test

Parameters

dut Device under test passed from cocotb.

IROE_test

```
@cocotb.test()
async def IROE_test(
    dut
)
```

Coroutine that is identified as a test routine. Receive was never read, we missed data.

Parameters

dut Device under test passed from cocotb.

SSO_assert_test

```
@cocotb.test()
async def SSO_assert_test(
    dut
)
```

Coroutine that is identified as a test routine. Write control SS bit to assert all enable lines.

Parameters

dut Device under test passed from cocotb.

end_of_packet_test

```
@cocotb.test()
async def end_of_packet_test(
    dut
)
```

Coroutine that is identified as a test routine. check if the packet 0xAA has been added every 10th word. No check on EOP receive at the moment.

Parameters

dut Device under test passed from cocotb.

in_reset

```
@cocotb.test()
async def in_reset(
    dut
)
```

Coroutine that is identified as a test routine. This routine tests if device stays in unready state when in reset.

Parameters

dut Device under test passed from cocotb.

no_clock

```
@cocotb.test()
async def no_clock(
    dut
)
```

Coroutine that is identified as a test routine. This routine tests if no ready when clock is lost and device is left in reset.

Parameters

dut Device under test passed from cocotb.