Vexriscv SoC with UART & Hello World:

Hello World application code running on a Vexriscv. This design contains a Vexriscv processor, ON chip ram and UART.

Instructions:

You can follow the below steps to generate the designs and simulate the application on Verilator.

Generate Verilog for the LiteX design (No Simulation)

```
litex_sim --cpu-type vexriscv --axiram --no-compile-gateware
```

Generate and Simulate the verilog for the LiteX design

Here We simulate the hello world example using litex_sim_rs script provided in the example design directory.

The following command generates your SoC:

```
~/litex_instll/litex_rs/raptor_example_designs/Vexriscv_helloworld/litex_sim_rs.py --integrated-main-ram-size=0x10000 --cpu-type=vexriscv --no-compile-gateware --sim-debug
```

Generate binary for the application code

Run the following command to generate .bin file:

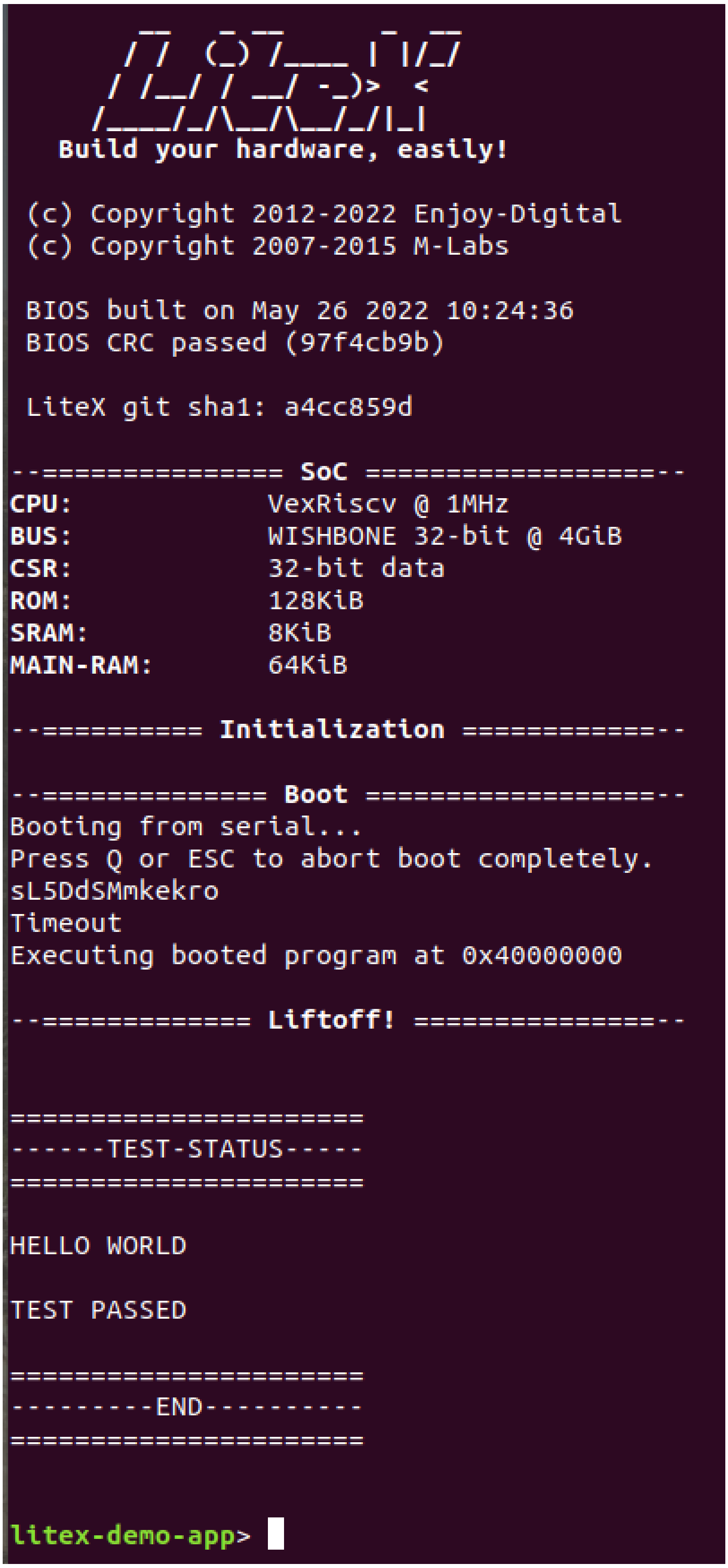
```
python3 ./demo/demo.py --build-path=build/sim
```

Simulating the application using Verilator

Run the following command to execute your application code onto the processor:

```
~/litex_instll/litex_rs/raptor_example_designs/Vexriscv_helloworld/litex_sim_rs.py --integrated-main-ram-size=0x10000 --cpu-type vexriscv --ram-init=demo.bin --sim-debug
```

Output:



```
        __   _ __      _  __
       / /  (_) /____ | |/_/
      / /__/ / __/ -_)>  <
     /____/_/\__/\__/_/|_|
   Build your hardware, easily!

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 BIOS built on May 26 2022 10:24:36
 BIOS CRC passed (97f4cb9b)

 LiteX git sha1: a4cc859d

--================ SoC ===================--
CPU:            VexRiscv @ 1MHz
BUS:            WISHBONE 32-bit @ 4GiB
CSR:            32-bit data
ROM:            128KiB
SRAM:           8KiB
MAIN-RAM:       64KiB

--========== Initialization ============--

--=============== Boot ==================--
Booting from serial...
Press Q or ESC to abort boot completely.
sL5DdSMmkekro
Timeout
Executing booted program at 0x40000000

--============= Liftoff! ===============--


======================
------TEST-STATUS-----
======================

HELLO WORLD

TEST PASSED

======================
---------END----------
======================


litex-demo-app> 
```

Application

This application code prints a Hello World onto the terminal via Uart.