

## EE314 Digital Circuits Laboratory

## Experiment 0 Preliminary

1)

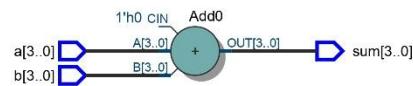


Figure 1: RTL Schematic of OurAdder

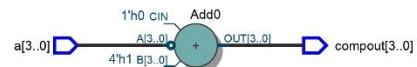


Figure 2: RTL Schematic of OurComplementer

2)

```

Windows PowerShell
Anaconda Prompt (anaconda)

-7 2 -5 -5
6 -4 2 2
-1 6 5 5
-1 -7 -8 -8
1 2 3 3
1 -1 0 0
3 -8 -5 -5
-8 7 -1 -1
4 -8 -4 -4
-2 7 5 5

51000.00ns INFO    cocotb.regression
51000.00ns INFO    cocotb.regression
*****
ME (s) RATIO (ns/s) **
*****
0.50      101826.66  **
*****
0.95      53878.64   **
*****
make[1]: Leaving directory '/d/METU-EE/EE-Sem-6/EE314/EXP0/EXP0_2604163/AdderTest/Tests'
(base) D:\METU-EE\EE-Sem-6\EE314\EXP0\EXP0_2604163\AdderTest\Tests>

```

Figure 3: Test Results for OurAdder

```

Windows PowerShell
Anaconda Prompt (anaconda)

0xb 0x5 0x5
0x9 0x7 0x7
0xd 0x3 0x3
0x2 0xe 0xe
0x2 0xe 0xe
0x0 0x0 0x0
0xb 0x5 0x5
0xf 0x1 0x1
0xb 0x5 0x5

51000.00ns INFO    cocotb.regression
51000.00ns INFO    cocotb.regression
*****
(ns) REAL TIME (s) RATIO (ns/s) **
*****
0.00      0.38      134068.50  **
*****
0.00      0.84      60695.15   **
*****
make[1]: Leaving directory '/d/METU-EE/EE-Sem-6/EE314/EXP0/EXP0_2604163/ComplementerTest/Tests'
(base) D:\METU-EE\EE-Sem-6\EE314\EXP0\EXP0_2604163\ComplementerTest\Tests>

```

Figure 4: Test Results for OurComplementer

3)

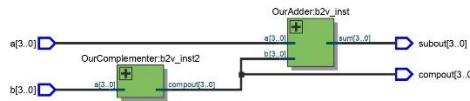


Figure 5: RTL Schematic for OurSubtractor

A screenshot of a Windows PowerShell window showing test results for the 'OurSubtractor' module. The results are displayed in a table comparing input values (a and b) with their expected complements (complut and compout) and the calculated sum (sum).

a	b	complut	compout	sum
1	4	-3	-3	0xc
-7	1	-8	-8	0xf
6	6	0	0	0xa
6	4	2	2	0xc
-1	-8	7	7	0x8
-5	-7	2	2	0x7
-4	1	-5	-5	0xf
1	-5	6	6	0x5
1	-1	2	2	0x1
-7	-8	1	1	0x8

```

51000.00ns INFO    cocotb.regression
51000.00ns INFO    cocotb.regression
*****
ns) REAL TIME (s) RATIO (ns/s) **
*****
00          0.70      73128.00 **

** TEST
*****
** Subtractor_test.complementer_modeled_test  PASS      51000.
*****
** TESTS=1 PASS=1 FAIL=0 SKIP=0      51000.
*****
make[1]: Leaving directory '/d/METU-EE/EE-Sem-6/EE314/EXP0/EXP0_2604163/CombinedTest/Tests'
(base) D:\METU-EE\EE-Sem-6\EE314\EXP0\EXP0_2604163\CombinedTest\Tests>

```

Figure 6: Test Results for OurSubtractor