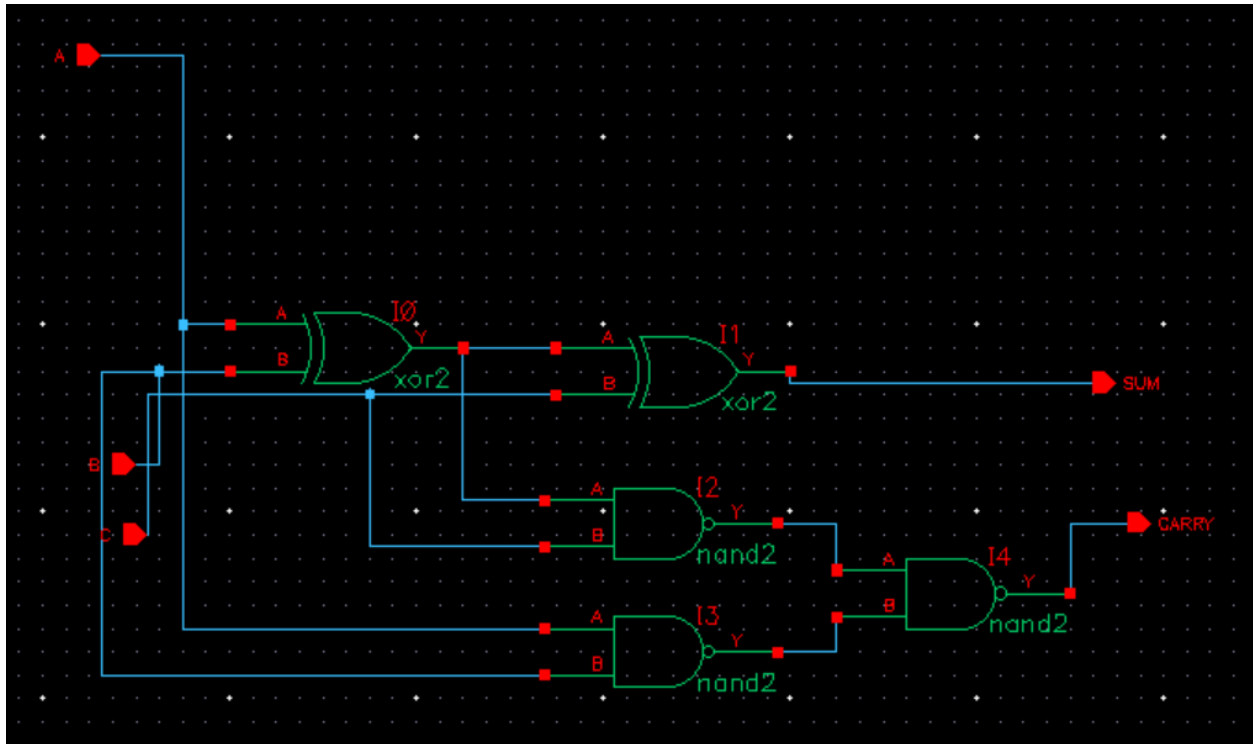


Joshua Clapp
Ta: Neha Gupta
Section: 506/606

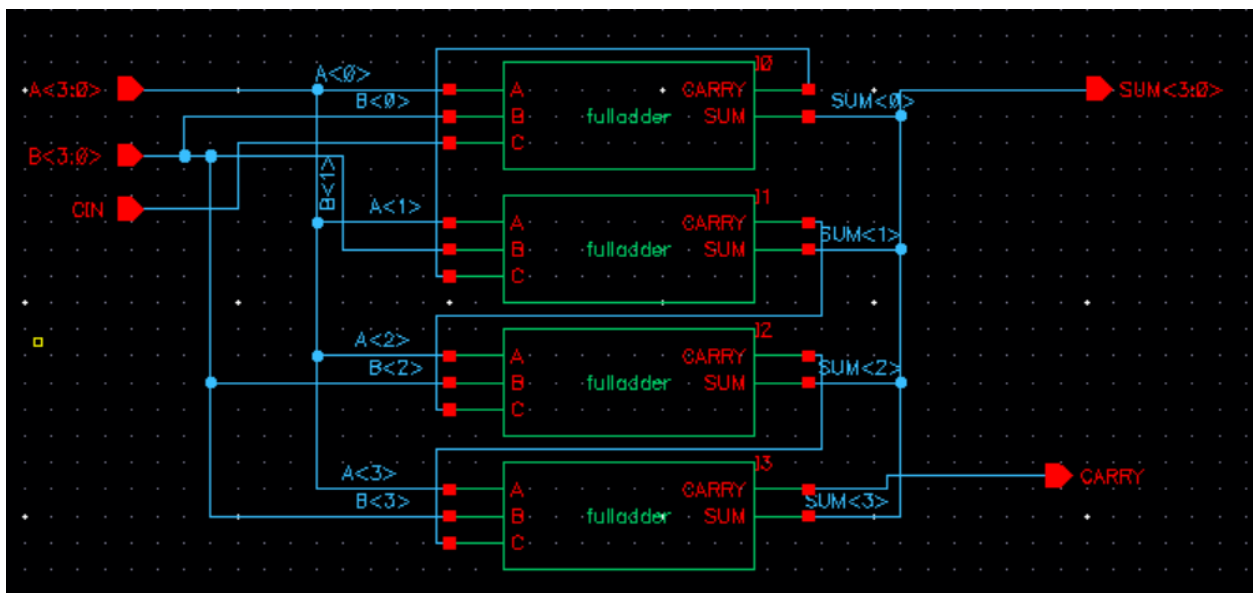
Lab 1

Schematics

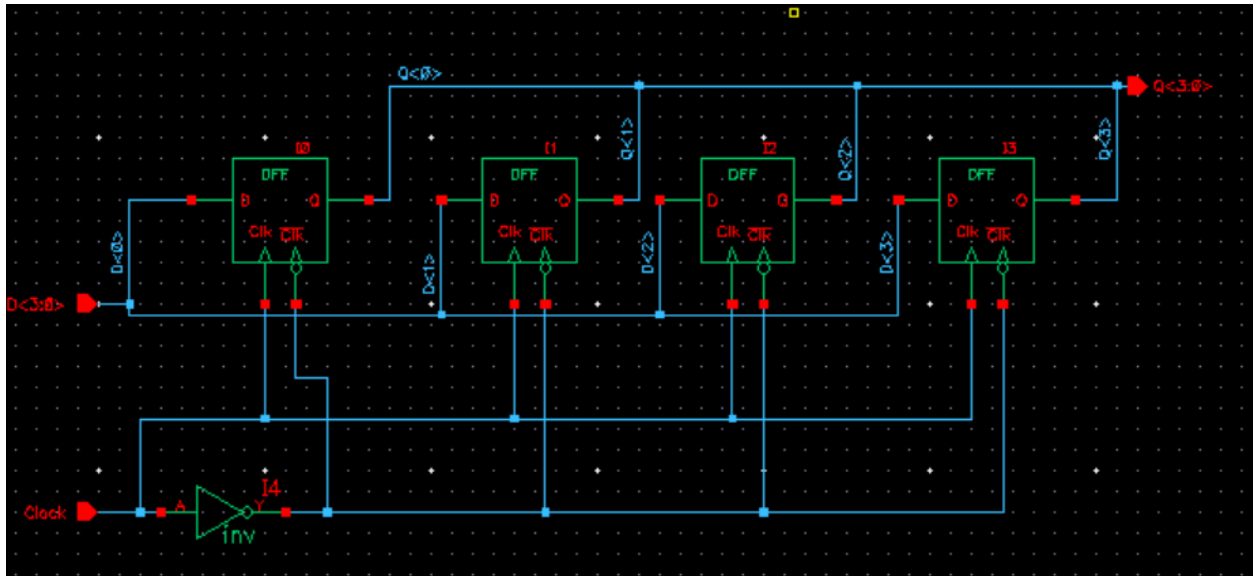
Full adder



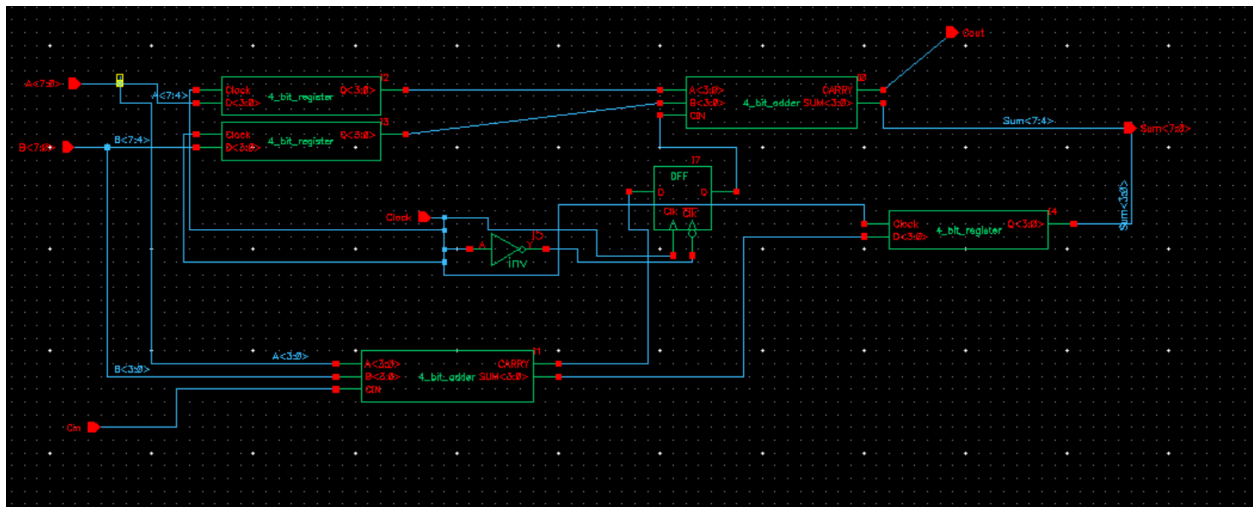
4 Bit Full Adder



4 Bit Register



8 Bit Full Adder



Test Bench

Full adder

Relinquished control to SimVision...

ncsim>

ncsim> source /opt/coe/cadence/INCISIVE152/tools/inca/files/ncsimrc

ncsim> database -open shmWave -shm -default -into shm.db

Created default SHM database shmWave

ncsim> probe -create -shm test -all -depth 1

Created probe 1

ncsim> run

0 A=0, B=0, C=0, SUM=0, CARRY=0

50 A=0, B=0, C=1, SUM=1, CARRY=0

100 A=0, B=1, C=0, SUM=1, CARRY=0

150 A=0, B=1, C=1, SUM=0, CARRY=1

200 A=1, B=0, C=0, SUM=1, CARRY=0

250 A=1, B=0, C=1, SUM=0, CARRY=1

300 A=1, B=1, C=0, SUM=0, CARRY=1

350 A=1, B=1, C=1, SUM=1, CARRY=1

ncsim> run -next

ncsim> ^C

ncsim> exit

TOOL: ncxlmode15.20-s078: Exiting on Jan 27, 2023 at 09:21:11 CST (total: 00:07:13)

4_bit_full_adder

Relinquished control to SimVision...

ncsim>

ncsim> source /opt/coe/cadence/INCISIVE152/tools/inca/files/ncsimrc

ncsim> database -open shmWave -shm -default -into shm.db

Created default SHM database shmWave

ncsim> probe -create -shm test -all -depth 1

Created probe 1

ncsim> run

0 A=0000, B=0000, C=0, SUM=0000, CARRY=0

50 A=1111, B=1111, C=0, SUM=1110, CARRY=1

100 A=1010, B=1010, C=1, SUM=0101, CARRY=1

150 A=0101, B=0101, C=1, SUM=1011, CARRY=0

ncsim> ^C

ncsim> exit

TOOL: ncxlmode15.20-s078: Exiting on Jan 27, 2023 at 21:50:47 CST (total: 00:04:30)

8_bit_full_adder

```
ncsim> source /opt/coe/cadence/INCISIVE152/tools/inca/files/ncsimrc
ncsim> database -open shmWave -shm -default -into shm.db
Created default SHM database shmWave
ncsim> probe -create -shm test -all -depth 1
Created probe 1
ncsim> run
    0 A=00000000, B=00000000, Cin=0, Clock=0, SUM=xxxxxxx, CARRY=x
    50 A=00000000, B=00000000, Cin=0, Clock=1, SUM=00000000, CARRY=0
   100 A=01111110, B=11100111, Cin=0, Clock=0, SUM=00000000, CARRY=0
   150 A=01111110, B=11100111, Cin=0, Clock=1, SUM=01100101, CARRY=1
   200 A=11111111, B=00000000, Cin=1, Clock=0, SUM=01100101, CARRY=1
   250 A=11111111, B=00000000, Cin=1, Clock=1, SUM=00000000, CARRY=1
   300 A=10101010, B=01010101, Cin=0, Clock=0, SUM=00000000, CARRY=1
   350 A=10101010, B=01010101, Cin=0, Clock=1, SUM=11111111, CARRY=0
   400 A=10101010, B=01010101, Cin=1, Clock=0, SUM=11111111, CARRY=0
   450 A=10101010, B=01010101, Cin=1, Clock=1, SUM=00000000, CARRY=1
   500 A=11001100, B=00110011, Cin=0, Clock=0, SUM=00000000, CARRY=1
   550 A=11001100, B=00110011, Cin=0, Clock=1, SUM=11111111, CARRY=0
   600 A=11001100, B=00110011, Cin=1, Clock=0, SUM=11111111, CARRY=0
   650 A=11001100, B=00110011, Cin=1, Clock=1, SUM=00000000, CARRY=1
ncsim> ^C
ncsim> exit
TOOL:    ncxlmode15.20-s078: Exiting on Jan 29, 2023 at 14:19:10 CST (total: 00:04:28)
```