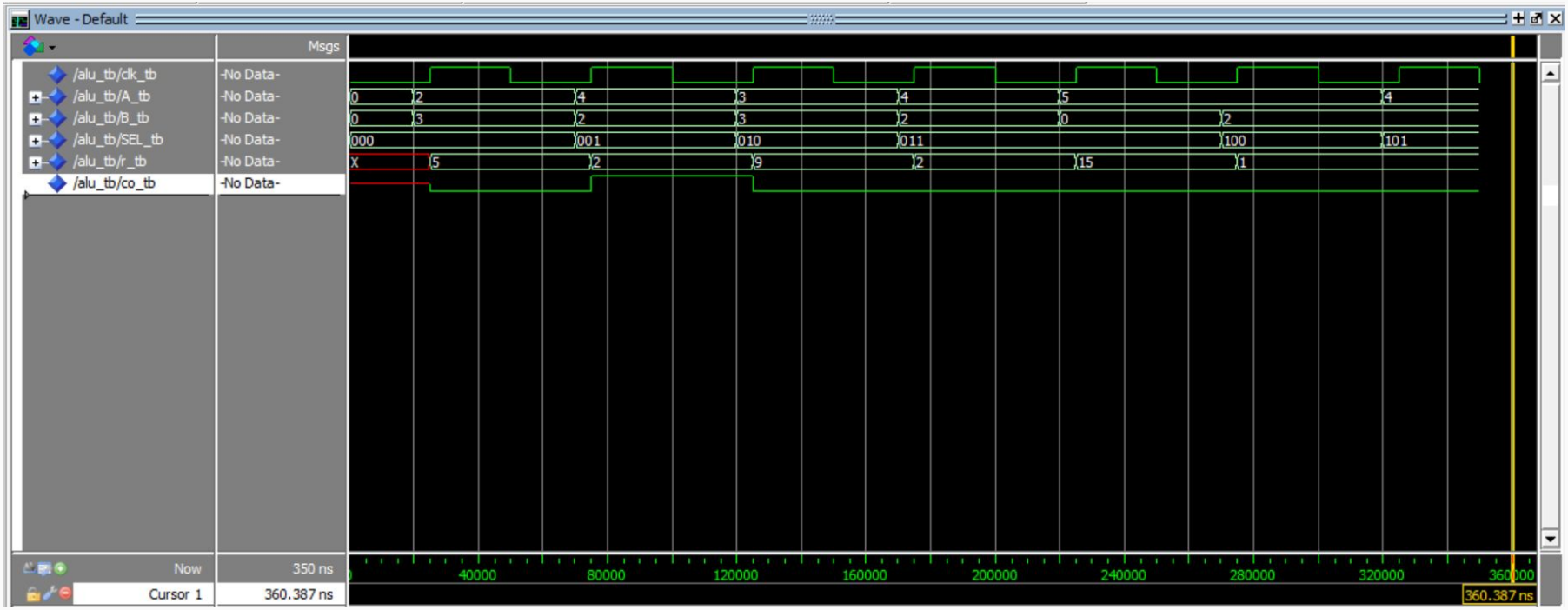
Arithmetic Logic Unit (ALU)

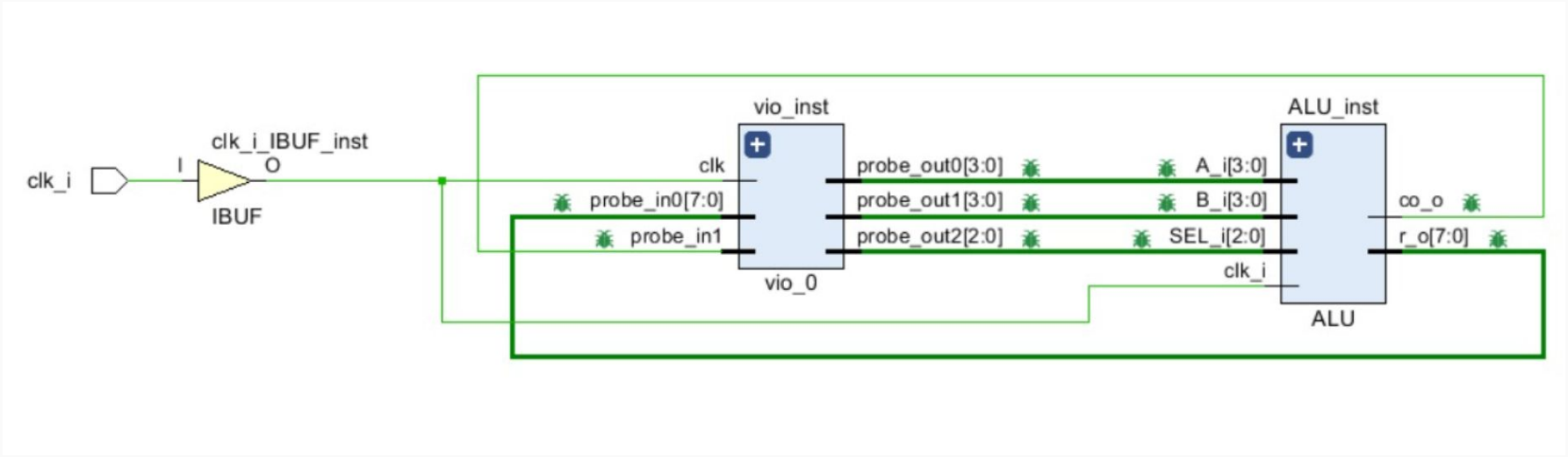
Proyecto Final de *Circuitos Lógicos Programables*

- **Profesor:** Nicolás Alvarez
- **Alumno:** Agustin Vazquez

ALU de 4 bits


Wave - Default
Msgs
/alu_tb/clk_tb
/alu_tb/A_tb
/alu_tb/B_tb
/alu_tb/SEL_tb
/alu_tb/r_tb
/alu_tb/co_tb
-No Data-
0
2
4
3
4
5
4
0
3
2
3
2
0
2
000
001
010
011
100
101
X
5
2
9
2
15
1
Now
350 ns
Cursor 1
360.387 ns
40000
80000
120000
160000
200000
240000
280000
320000
360000
360.387 ns

Implementación de la ALU de 4 bits



Implementación de la ALU de 4 bits

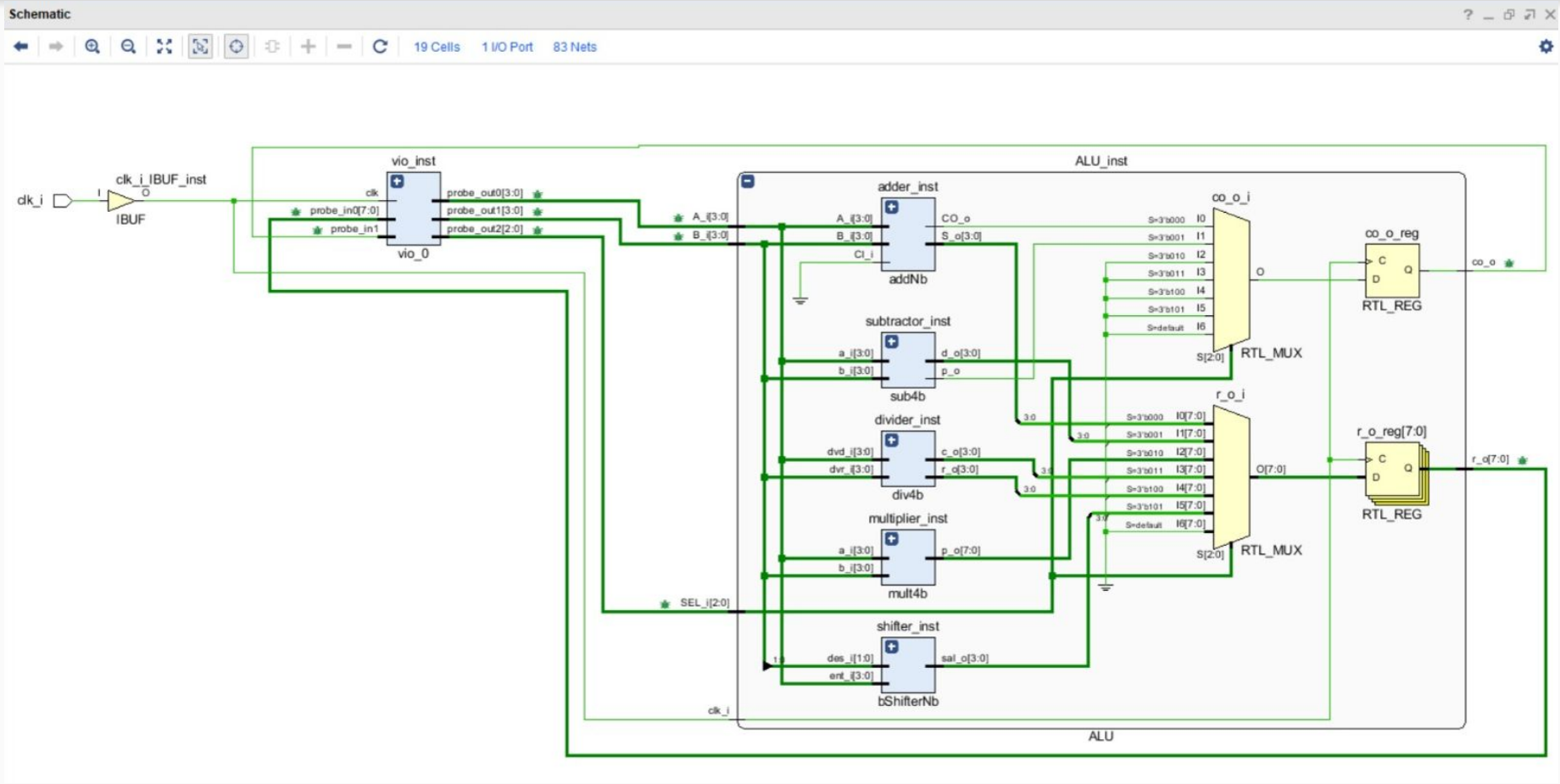
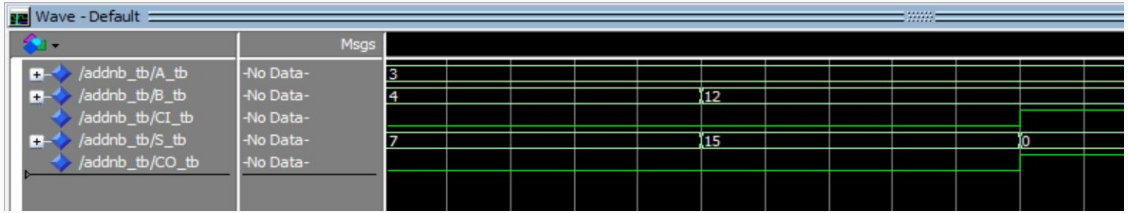
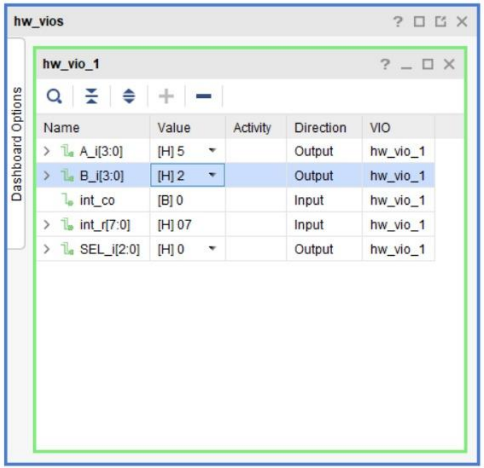


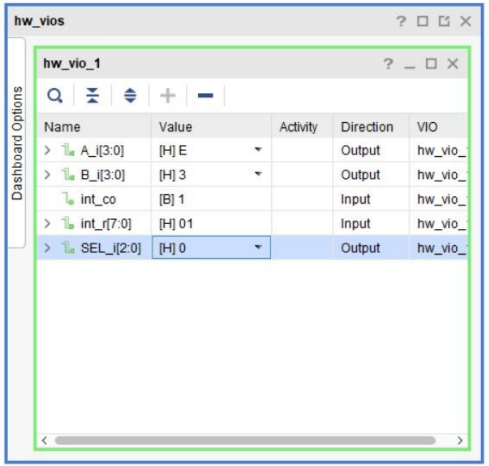
Tabla de operaciones de la ALU

ALU_Sel	Operación	Resultado
000	Suma	A + B
001	Resta	A - B
010	Multiplicación	A * B
011	División	A / B
100	Módulo	A % B
101	Desplazamiento	A >> B

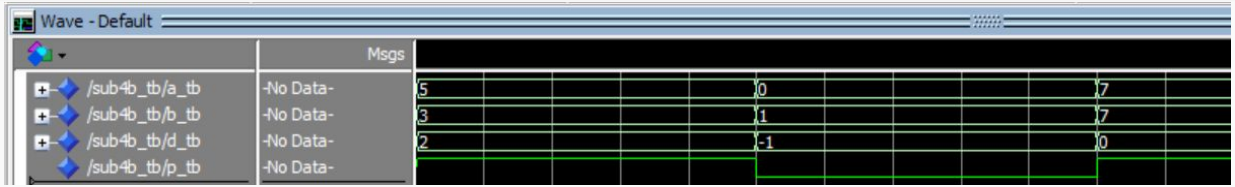
Simulación Modelsim
Operación: **suma**

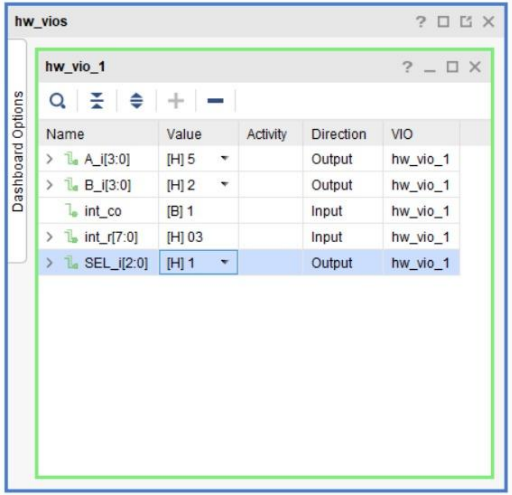




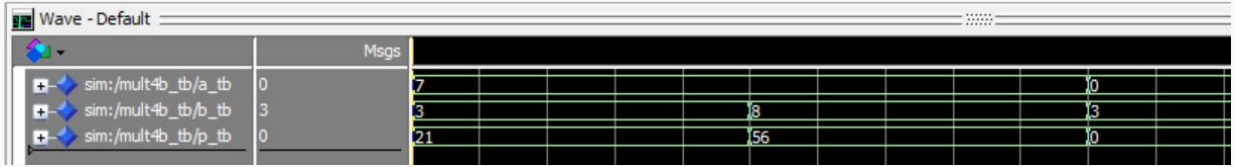


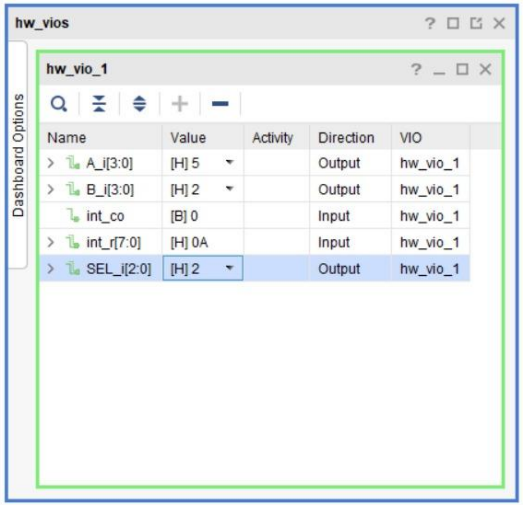
Simulación Modelsim
Operación: **resta**



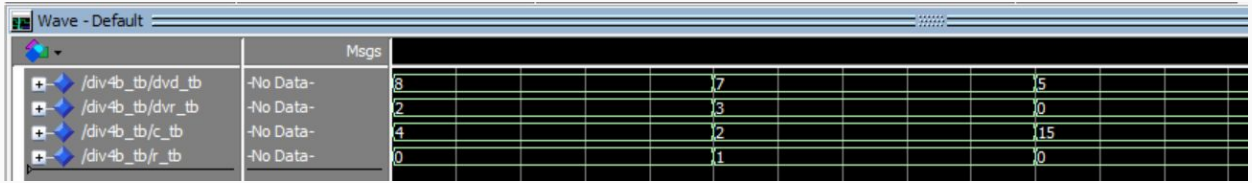


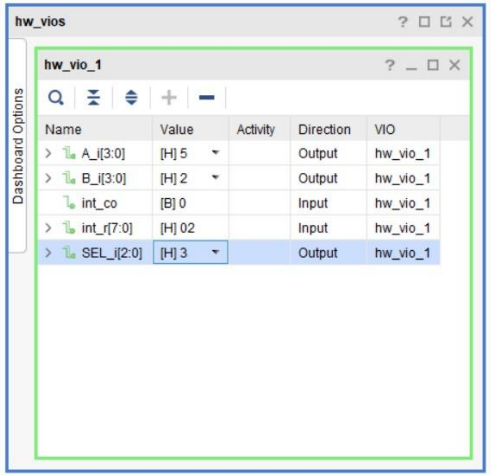
Simulación Modelsim
Operación: **multiplicación**

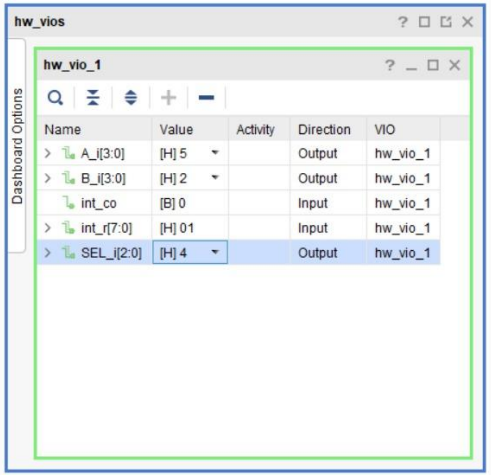




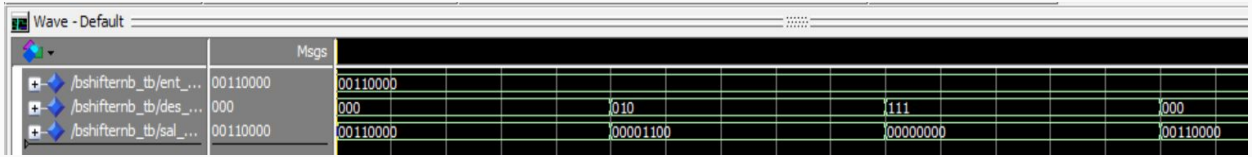
Simulación Modelsim
Operación: **división y módulo**

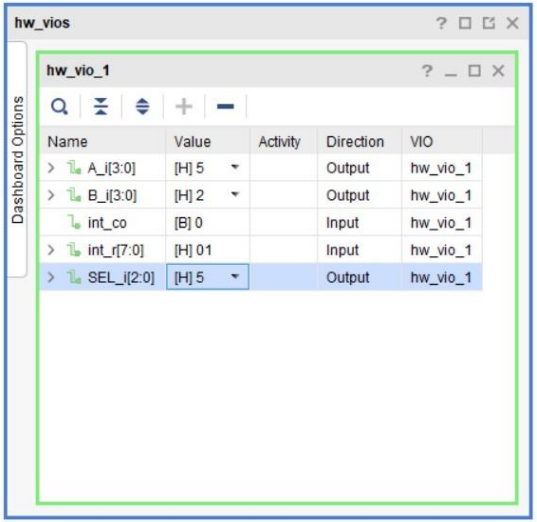


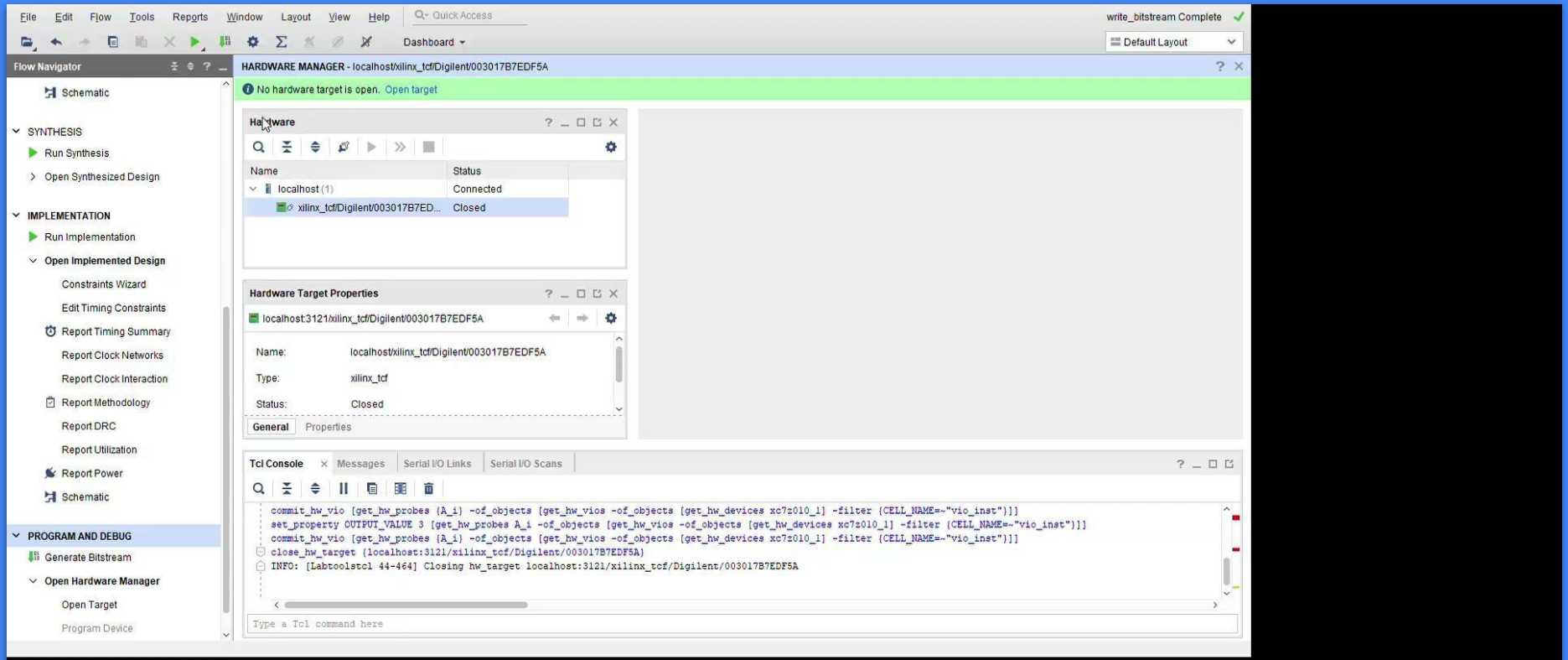




Simulación Modelsim
Operación: **desplazamiento**






File Edit Flow Tools Reports Window Layout View Help
Quick Access
write_bitstream Complete
Dashboard
Default Layout
Flow Navigator
Schematic
SYNTHESIS
Run Synthesis
Open Synthesized Design
IMPLEMENTATION
Run Implementation
Open Implemented Design
Constraints Wizard
Edit Timing Constraints
Report Timing Summary
Report Clock Networks
Report Clock Interaction
Report Methodology
Report DRC
Report Utilization
Report Power
Schematic
PROGRAM AND DEBUG
Generate Bitstream
Open Hardware Manager
Open Target
Program Device
HARDWARE MANAGER - localhost/xilinx_tcf/Digilent/003017B7EDF5A
No hardware target is open. Open target
Hardware
Name
Status
localhost (1)
Connected
xilinx_tcf/Digilent/003017B7ED...
Closed
Hardware Target Properties
localhost:3121/xilinx_tcf/Digilent/003017B7EDF5A
Name: localhost/xilinx_tcf/Digilent/003017B7EDF5A
Type: xilinx_tcf
Status: Closed
General
Properties
Tcl Console
Messages
Serial I/O Links
Serial I/O Scans
commit_hw_vio [get_hw_probes {A_i} -of_objects [get_hw_vios -of_objects [get_hw_devices xc7z010_1] -filter {CELL_NAME=~"vio_inst"}]]
set_property OUTPUT_VALUE 3 [get_hw_probes A_i -of_objects [get_hw_vios -of_objects [get_hw_devices xc7z010_1] -filter {CELL_NAME=~"vio_inst"}]]
commit_hw_vio [get_hw_probes {A_i} -of_objects [get_hw_vios -of_objects [get_hw_devices xc7z010_1] -filter {CELL_NAME=~"vio_inst"}]]
close_hw_target {localhost:3121/xilinx_tcf/Digilent/003017B7EDF5A}
INFO: [Labtoolstcl 44-464] Closing hw_target localhost:3121/xilinx_tcf/Digilent/003017B7EDF5A
Type a Tcl command here

¡Muchas gracias por su atención!