Z.H.C.E.T., Aligarh Muslim University – Aligarh

Network & Embedded Systems Lab

(COC **4950**)

REPORT

Objective: Design and Simulate 5 Bit Carry Look-Ahead Adder using ModelSim.

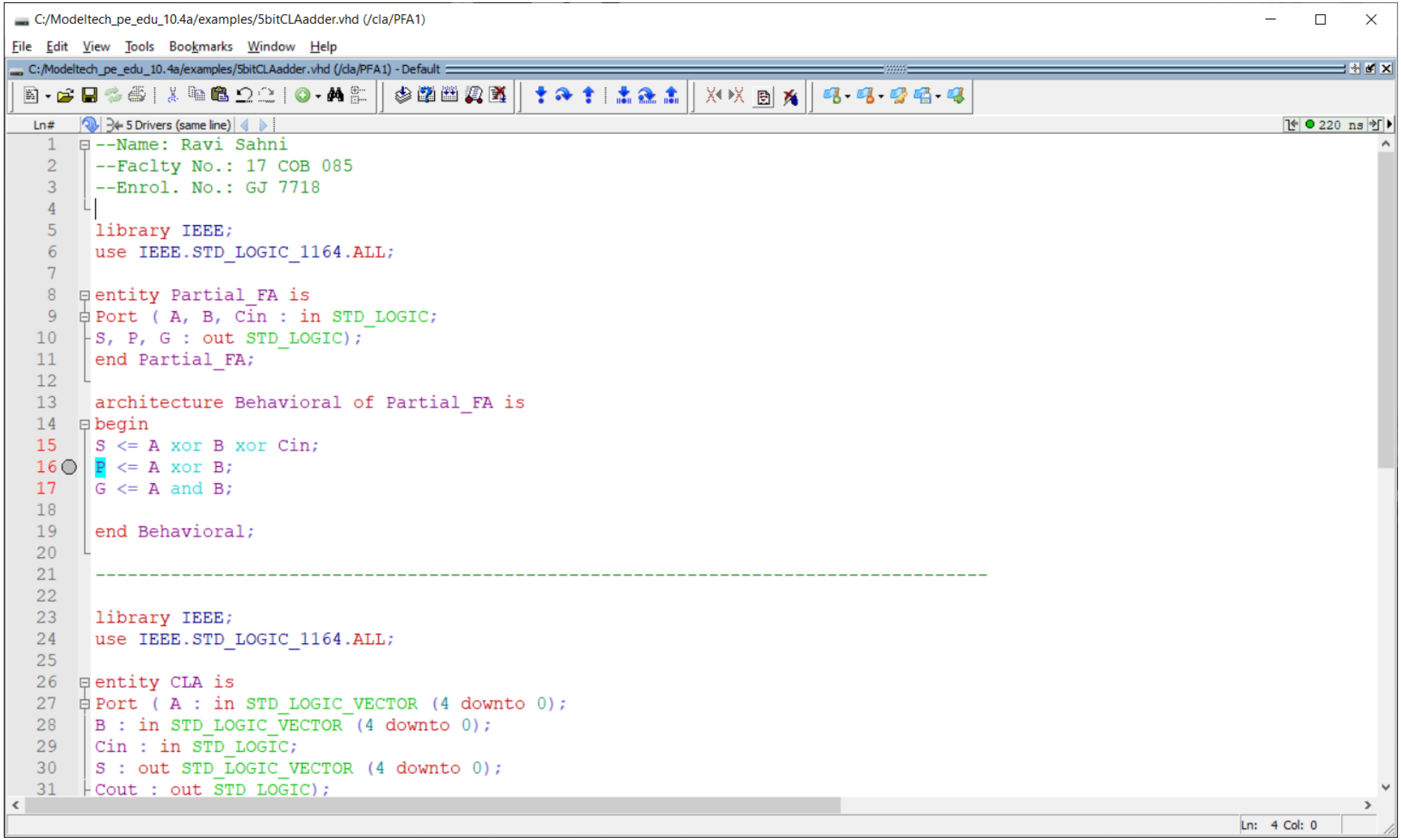
Submitted by: **Ravi Sahni**

Faculty No.: **17 COB 085**

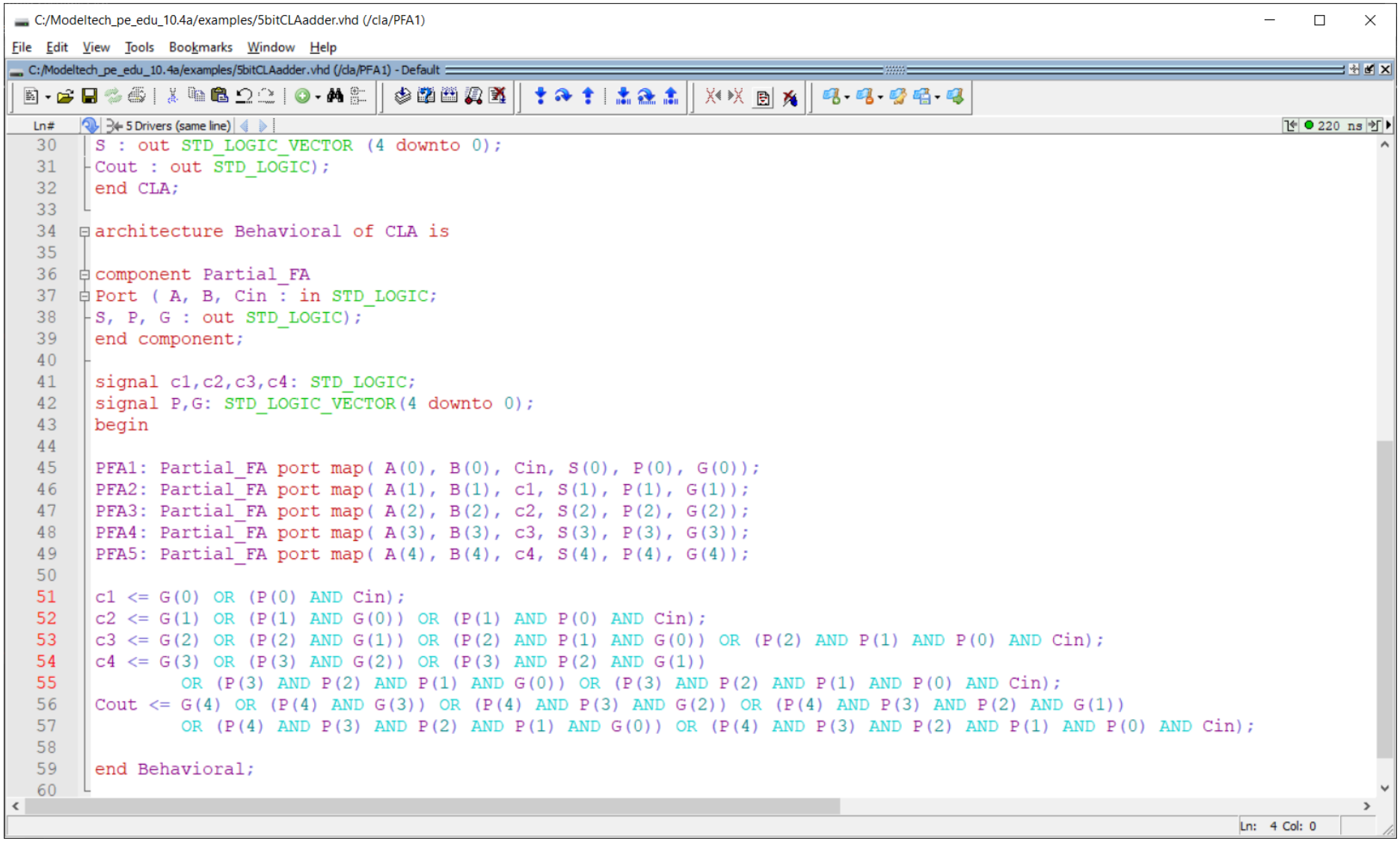
Enrolment No.: **GJ 7718**

Simulation Environment: ModelSim PE Student Edition 10.4a

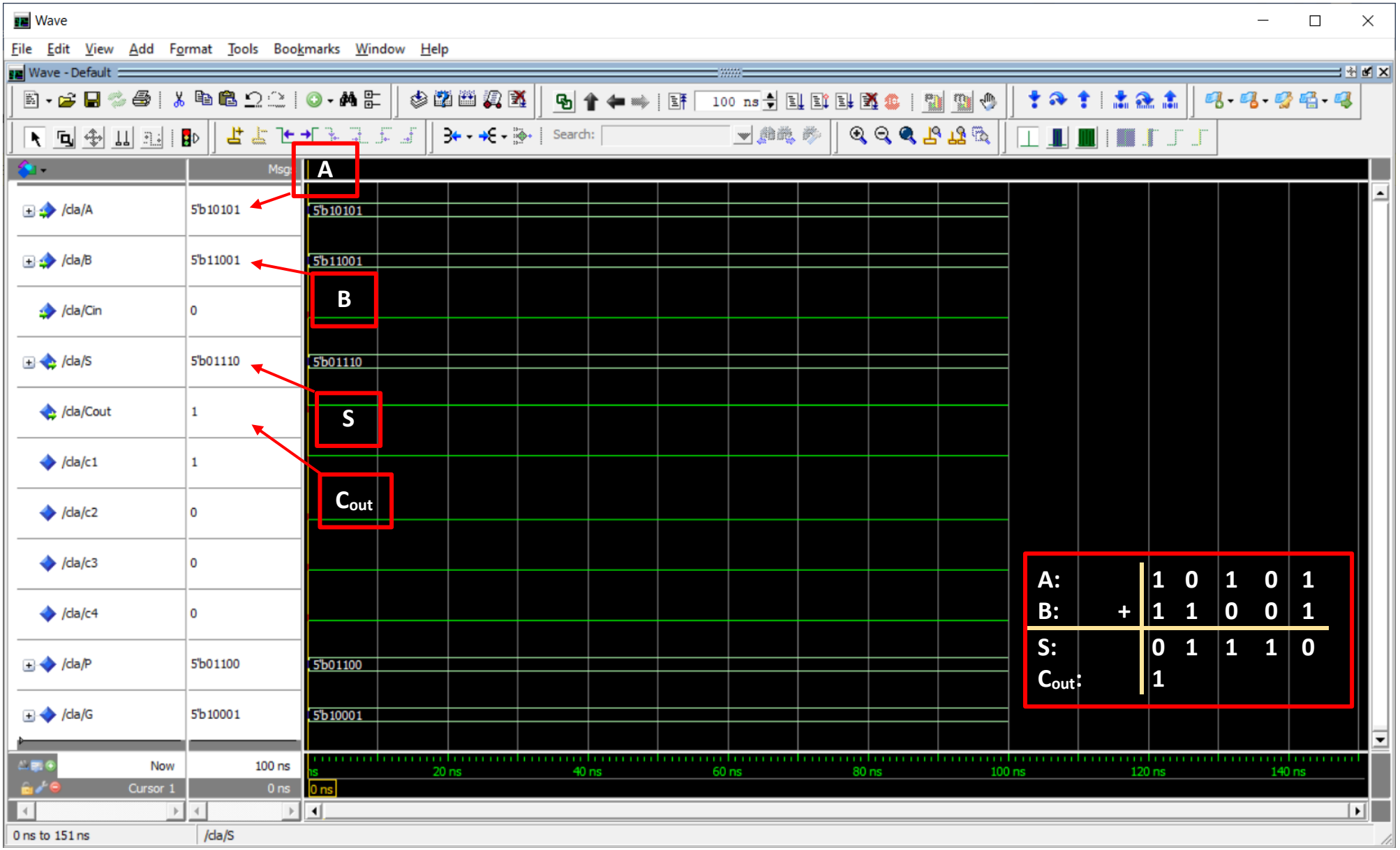
VHDL Code:



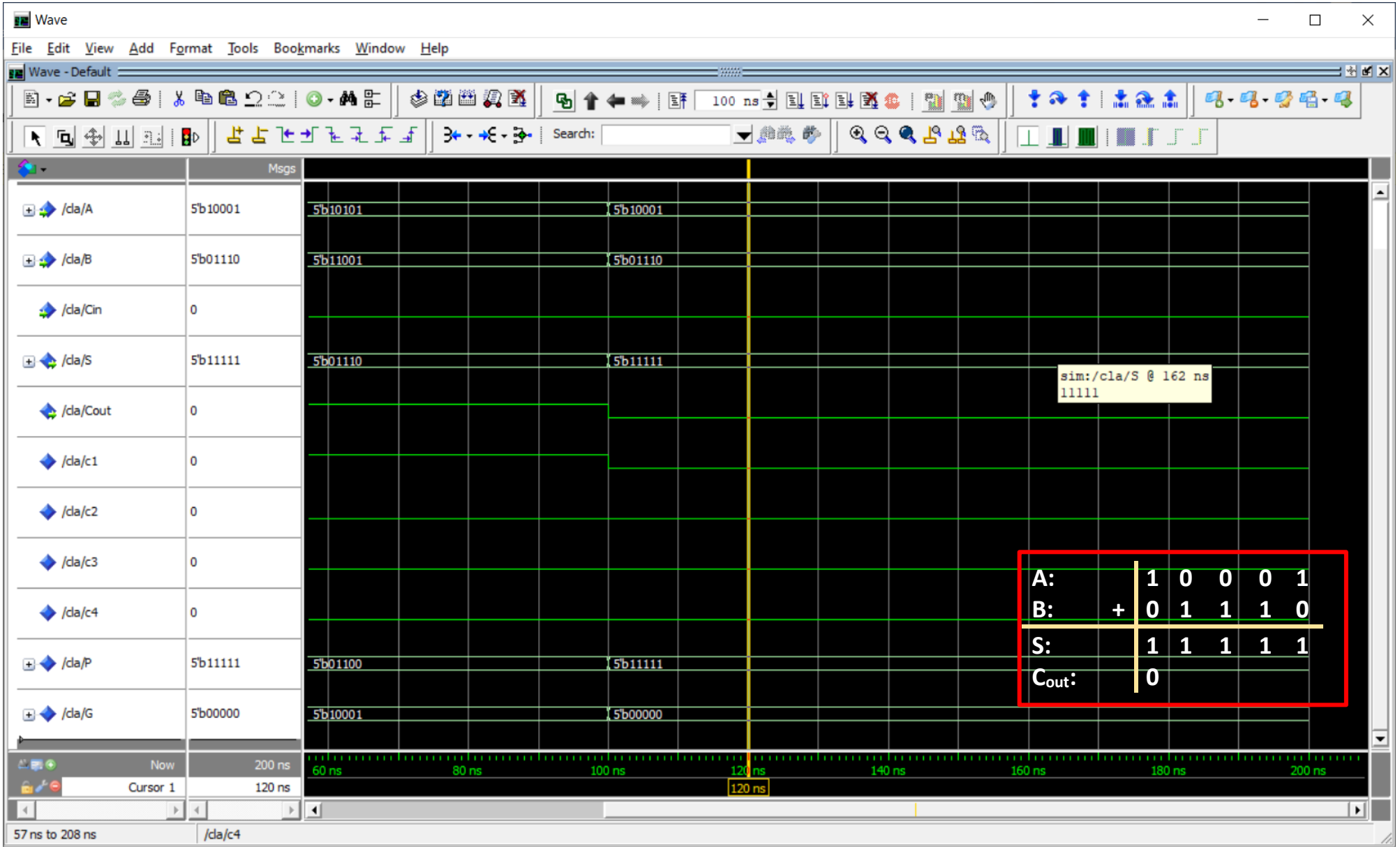
VHDL Code: *(contd.)*



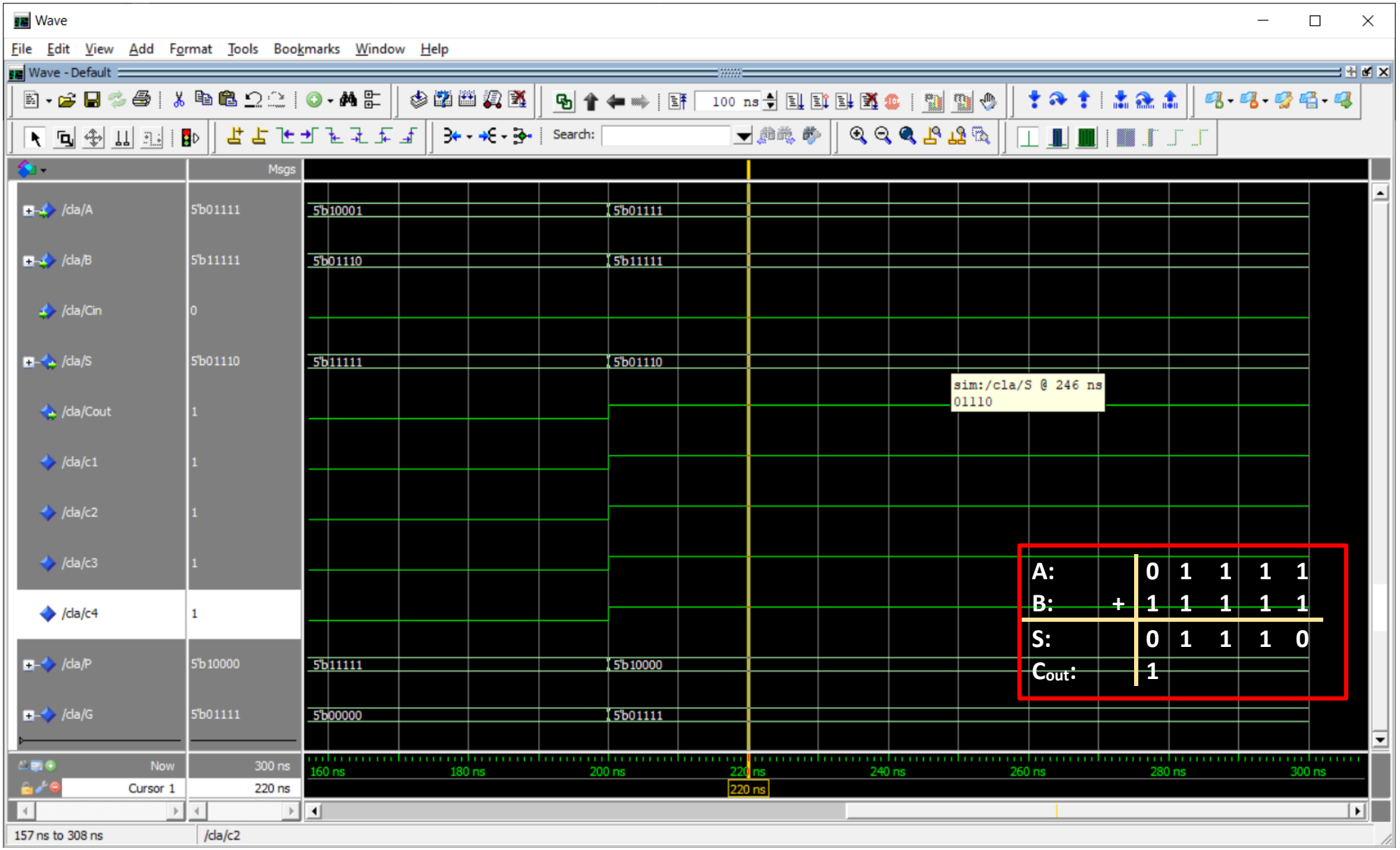
Waveform #1:


Wave
File Edit View Add Format Tools Bookmarks Window Help
Wave - Default
/da/A
/da/B
/da/Cin
/da/S
/da/Cout
/da/c1
/da/c2
/da/c3
/da/c4
/da/P
/da/G
5'b10101
5'b11001
0
5'b01110
1
1
0
0
0
5'b01100
5'b10001
A
B
S
Cout
A: 1 0 1 0 1
B: + 1 1 0 0 1
S: 0 1 1 1 0
Cout: 1
Now
100 ns
Cursor 1
0 ns
20 ns
40 ns
60 ns
80 ns
100 ns
120 ns
140 ns
0 ns to 151 ns
/da/S

Waveform #2:


Wave
File Edit View Add Format Tools Bookmarks Window Help
Wave - Default
Search:
Msgs
/cla/A 5'b10001
/cla/B 5'b01110
/cla/Cin 0
/cla/S 5'b11111
/cla/Cout 0
/cla/c1 0
/cla/c2 0
/cla/c3 0
/cla/c4 0
/cla/P 5'b11111
/cla/G 5'b00000
5'b10101
5'b10001
5'b11001
5'b01110
5'b01110
5'b11111
5'b01100
5'b11111
5'b10001
5'b00000
sim:/cla/S @ 162 ns
11111
A: 1 0 0 0 1
B: + 0 1 1 1 0
S: 1 1 1 1 1
Cout: 0
Now 200 ns
Cursor 1 120 ns
60 ns 80 ns 100 ns 120 ns 140 ns 160 ns 180 ns 200 ns
120 ns
57 ns to 208 ns
/cla/c4

Waveform #3:


Wave
File Edit View Add Format Tools Bookmarks Window Help
Wave - Default
Search:
Msgs
/da/A 5'b01111
/da/B 5'b11111
/da/Cin 0
/da/S 5'b01110
/da/Cout 1
/da/c1 1
/da/c2 1
/da/c3 1
/da/c4 1
/da/P 5'b10000
/da/G 5'b01111
5'b10001 5'b01111
5'b01110 5'b11111
5'b11111 5'b01110
5'b11111 5'b10000
5'b00000 5'b01111
sim:/cla/S @ 246 ns
01110
A: 0 1 1 1 1
B: + 1 1 1 1 1
S: 0 1 1 1 0
Cout: 1
Now 300 ns
Cursor 1 220 ns
160 ns 180 ns 200 ns 220 ns 240 ns 260 ns 280 ns 300 ns
220 ns
157 ns to 308 ns
/cla/c2