Simulation and Analysis: In this example, the number of cars in the main road is given 13 and the number of cars in the side road is given 16. It is expected that at first 13 seconds, the main road's light should be 1 and the side road's light should be 0, after that the main road's light should be 0 and the side road's light 1 during 16 seconds. After all the cars in both road leave roads, the main road's light should be 1.

```
76    clkprs : PROCESS
77    BEGIN
78
79    clock <= '1';
80    wait for 500ms;
81    clock <= '0';
82    wait for 500ms;
83
84    END PROCESS;
85
86    tb : PROCESS
87    BEGIN
88
89      M4 <= '0';
90      M3 <= '1';
91      M2 <= '1';
92      M1 <= '0';
93      M0 <= '1';
94
95      S4 <= '1';
96      S3 <= '0';
97      S2 <= '0';
98      S1 <= '0';
99      S0 <= '0';
100
101     clear <= '1';
102     wait for 10ns;
103     clear <= '0';
```