```
    ------------------------------------------------
1   LIBRARY ieee;
2   USE ieee.std_logic_1164.all;
3   ------------------------------------------------
4   ENTITY <entity_name> IS
5      (same as for regular machines)
6   END ENTITY;
7   ------------------------------------------------
8   ARCHITECTURE <archit_name> OF <entity_name> IS
9
10     --FSM-related declarations:
11     (same as for regular machines)
12
13     --Timer-related declarations:
14     CONSTANT T1: NATURAL := <value>;
15     CONSTANT T2: NATURAL := <value>;  ...
16     CONSTANT tmax: NATURAL := <value>;
17     SIGNAL t: NATURAL RANGE 0 TO tmax;
18
19  BEGIN
20
21     --Timer:
22     PROCESS (clk, rst)
23     BEGIN
24        IF (rst='1') THEN
25           t <= 0;
26        ELSIF (clk'EVENT AND clk='1') THEN
27           IF pr_state /= nx_state THEN
28              t <= 0;
29           ELSIF t /= tmax THEN
30              t <= t + 1;
31           END IF;
32        END IF;
33     END PROCESS;
```

```
35      --Lower section of FSM:
36      (same as for regular machines)
37
38      --Upper section of FSM:
39      PROCESS (all)
40      BEGIN
41         CASE pr_state IS
42            WHEN A =>
43               output1 <= <value>;
44               output2 <= <value>;
45               IF ... AND t>=T1-1 THEN
46                  nx_state <= B;
47               ELSIF ... AND t>=T2-1 THEN
48                  nx_state <= ...;
49               ELSE
50                  nx_state <= A;
51               END IF;
52            WHEN B =>
53               output1 <= <value>;
54               output2 <= <value>;
55               IF ... AND t>=T3-1 THEN
56                  nx_state <= C;
57               ELSIF ... THEN
58                  nx_state <= ...;
59               ELSE
60                  nx_state <= B;
61               END IF;
62            WHEN C =>
63               ...
64         END CASE;
65      END PROCESS;
66
67      --Optional output register:
68      (same as for regular machines)
69
70   END ARCHITECTURE;
71   -----------------------------------------------
```