```
--CONTADOR BCD,U/D,CON CARGA Y RESET
library ieee;
use ieee.std_logic_1164.all;
library cypress;
use cypress.std_arith.all;
--
entity contBCD is port (
clk,load,reset,up: in std_logic;
P: in std_logic_vector(3 downto 0);
Q: inout std_logic_vector(3 downto 0));
end contBCD;
--
architecture arqcontBCD of contBCD is
begin
process (clk,load,up,reset) begin
if reset='1' then Q<="0000";
elsif (clk 'event and clk='1') then
        if load='1' then Q<=P;
        elsif UP='1' then
                if Q="1001" then Q<="0000";
                else Q<=Q+1;  -- ascendente
                end if;
        else
                if Q="0000" then Q<="1001";
                else Q<=Q -1;  --descendente
                end if;
        end if;
end if;
end process;
end arqcontBCD;
```