

```
library ieee; use ieee.std_logic_1164.all; use ieee.std_logic_arith.all;

entity incrementer is
port(a: in std_logic;
clk50_in: in std_logic;
rst: in bit;
b: out std_logic_vector (7 downto 0));
end incrementer;

architecture incrementer of incrementer is
signal slow_clock : bit;
signal LED: integer := 0;
signal debounced: std_logic;

begin

--Process to slow down the clock
    process (clk50_in,rst)
    variable counter : integer;
    begin

        if (clk50_in'event and clk50_in='0') then
            counter := counter + 1;
            if (counter=500000) then
                counter := 0;
                slow_clock <= not (slow_clock);
            end if;

        end if;
        if (rst='1') then counter:=0; end if;
    end process;

---Debounce the switch
    process
    begin
        wait until (slow_clock'EVENT) AND (slow_clock = '1');
        debounced<=a;
    end process;

--Count the button pushes
    process(slow_clock,debounced,rst)
    begin
        if (debounced'event and debounced='1') then
            LED<=LED + 1;
        end if;

        if (rst='1') then
            LED<=0;
        end if;
    end process;

    b<=conv_std_logic_vector(LED,8);

end incrementer;
```