**Behavioural**

Port ( d : in STD\_LOGIC\_VECTOR (3 downto 0);

clk : in STD\_LOGIC;

load : in STD\_LOGIC;

clear : in STD\_LOGIC;

m : in STD\_LOGIC\_VECTOR (1 downto 0);

q : out STD\_LOGIC\_VECTOR (3 downto 0));begin

begin

process(clk,m,load,clear)

variable temp,p:std\_logic\_vector(3 downto 0);

variable c:integer:=0;

begin

if clear='1'then

q<="0000";

elsif clk'event and clk='1' then

c:=c+1;

if c=2 then

c:=0;

case m is

when "00" => --PIPO

q<=d;

when "01" => --SIPO

if(load='1') then

temp:=d;

q<="0000";

else

q<="000"&temp(0);

temp:='0' & temp(3 downto 1);

end if;

when "10" =>-- SISO

if(load='1') then

temp:="0000";

q<="0000";

p:=d;

else

temp:=p(0)&temp(3 downto 1);

q<="000"&temp(0);

end if;

when others=>

if(load='1') then

temp:="0000";

q<="0000";

p:=d;

else

temp:=p(0)&temp(3 downto 1);

end if;

end case;

end if;

end if;

end process;

**Test Bench**

clear<='1';

wait for 10 ns;

clear<='0';

m<="00";

d<="1011";

wait for 10 ns;

m<="01";

load<='1';

wait for 10 ns;

load<='0';

wait for 10 ns;

m<="10";

load<='1';

wait for 10 ns;

load<='0';

wait for 10 ns;

m<="11";

load<='1';

wait for 10 ns;

load<='0';