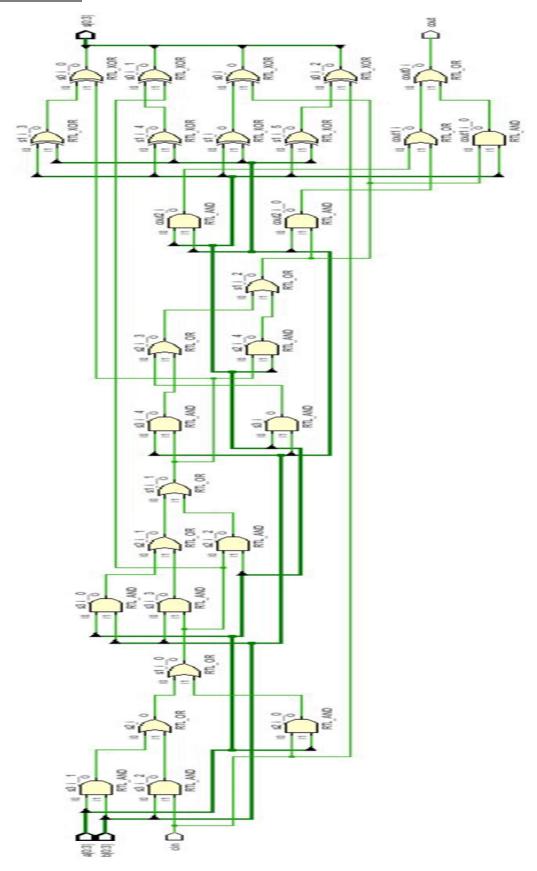
# **Practical 4**

Aim: Write a VHDL code for 4 bit ripple carry adder using loop statement.

### Code:

```
library IEEE;
use IEEE.STD LOGIC 1164.ALL;
entity ripplecarryadder 4bit is
  Port (a: in STD LOGIC VECTOR (0 to 3);
       b: in STD_LOGIC_VECTOR (0 to 3);
       cin: in STD LOGIC;
       s: out\ STD\_LOGIC\_VECTOR\ (0\ to\ 3);
       cout : out STD LOGIC);
end ripplecarryadder 4bit;
architecture Behavioral of ripplecarryadder 4bit is
begin
process(a,b,cin)
variable i:INTEGER:=0;
variable c:std logic vector(0 to 4):="00000";
 begin
  c(0):=cin;
 lop: for i in 0 to 3 loop
   s(i) \le a(i) xor b(i) xor c(i);
    c(i+1):=(a(i) \text{ and } b(i)) \text{ or } (b(i) \text{ and } c(i)) \text{ or } (c(i) \text{ and } a(i));
 end loop lop;
 cout \le c(4);
end process;
end Behavioral;
```

# RTL DIAGRAM:



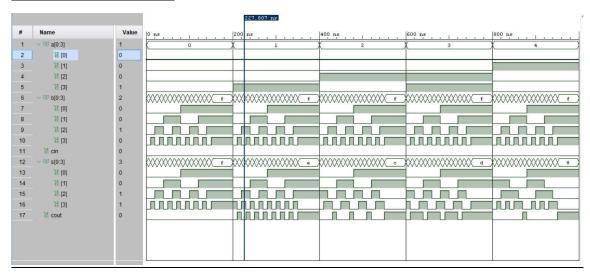
## Test bench Code:

	signal a:	b<="0111"	wait for	b<="1000"	wait for	b<="1001"	wait for	b<="1010"	wait for	b<="1011"	wait for
IEEE;	STD_LOG		10ns;	;	10ns;	;	10ns;	;	10ns;	;	10ns;
use	IC_VECT	wait for	b<="1000"		b<="1001"		b<="1010"		b<="1011"		b<="1100"
IEEE.STD	OR (0 to	10ns; b<="1000"	; wait for	10ns; b<="1001"	; wait for	10ns; b<="1010"	; wait for	10ns; b<="1011"	; wait for	10ns; b<="1100"	; wait for
_LOGIC_1	. 3);	:	10ns;	:	10ns;	:	10ns;	:	10ns;	:	10ns;
164.ALL;	signal b :	wait for	b<="1001"	wait for	b<="1010"	wait for	b<="1011"	wait for	b<="1100"	wait for	b<="1101"
entity	STD_LOG		;	10ns;	;	10ns;	;	10ns;	;	10ns;	;
Tb_ripple	_	b<="1001"		b<="1010"		b<="1011"		b<="1100"		b<="1101"	
carryadd		; wait for	10ns; b<="1010"	; wait for	10ns; b<="1011"	; wait for	10ns; b<="1100"	; wait for	10ns; b<="1101"	; wait for	10ns; b<="1110"
er_4bit is		10ns;	:	10ns;	:	10ns;	:	10ns;	:	10ns;	:
Port (	signal cin	b<="1010"	wait for	b<="1011"	wait for	b<="1100"	wait for	b<="1101"	wait for	b<="1110"	wait for
); end	:STD_LO GIC;	;	10ns;	;	10ns;	;	10ns;	;	10ns;	;	10ns;
Tb_ripple		wait for	b<="1011"		b<="1100"		b<="1101"		b<="1110"		b<="1111"
	STD_LOG	10ns;	; wait for	10ns; b<="1100"	; wait for	10ns; b<="1101"	; wait for	10ns; b<="1110"	; wait for	10ns; b<="1111"	; wait for
	IC_VECT		10ns;		10ns;		10ns;		10ns;		50ns;
C,	OR (0 to	, wait for	b<="1100"	, wait for	b<="1101"	, wait for	b<="1110"	, wait for	b<="1111"	, wait for	30113,
architect		10ns;	;	10ns;	;	10ns;	;	10ns;	;	50ns;	a<="1010"
ure	signal	b<="1100"		b<="1101"		b<="1110"		b<="1111"			;
Behavior	cout	; wait for	10ns; b<="1101"	;	10ns; b<="1110"	;	10ns;	;	50ns;	a<="1001"	b<="0000"
al of	:STD_LO	wait for 10ns;		10ns;		10ns;	b<="1111"	50ns;	a<="1000"	, b<="0000"	, wait for
Tb_ripple		b<="1101"	, wait for	b<="1110"	, wait for	b<="1111"	, wait for	30113,	;	;	10ns;
carryadd	begin	;	10ns;	;	10ns;	;	50ns;	a<="0111"	b<="0000"	wait for	b<="0001"
er_4bit is		wait for	b<="1110"		b<="1111"			;	;	10ns;	;
-	u1:ripple		;	10ns;	;	50ns;	a<="0110"	b<="0000"		b<="0001"	
nt 	carryadd	b<="1110"	10ns;	b<="1111"	50ns;	a<="0101"	; b<="0000"	; wait for	10ns; b<="0001"	; wait for	10ns; b<="0010"
ripplecarr	_	, wait for	b<="1111"	, wait for	50113,	;	;	10ns;	;	10ns;	;
yadder_4	•	10ns;	;	50ns;	a<="0100"	b<="0000"	wait for	b<="0001"	wait for	b<="0010"	wait for
bit is	map(a,b,	b<="1111"			;	;	10ns;	;	10ns;	;	10ns;
: in	cin,s,cout );	,	50ns;	a<="0011"	b<="0000"		b<="0001"		b<="0010"	wait for	b<="0011"
	process	wait for		;	;	10ns;	;	10ns;	;	10ns;	;
					wait tor	h<="0001"	wait tor	h<="0010"	wait tor	h<="()()11"	wait for
_	-	50ns;	a<="0010"	b<="0000" :		b<="0001"		b<="0010" :		b<="0011" :	
IC_VECT	begin cin<='0';		a<="0010" ; b<="0000"	;	wait for 10ns; b<="0001"	;	wait for 10ns; b<="0010"	;	wait for 10ns; b<="0011"	;	wait for 10ns; b<="0100"
IC_VECT OR (0 to	begin	a<="0001"	; b<="0000" ;	; wait for 10ns;	10ns; b<="0001" ;	; wait for 10ns;	10ns; b<="0010" ;	; wait for 10ns;	10ns; b<="0011" ;	; wait for 10ns;	10ns; b<="0100" ;
IC_VECT	begin cin<='0'; a<="0000" ;	a<="0001" ; b<="0000"	; b<="0000" ; wait for	; wait for	10ns; b<="0001" ; wait for	; wait for	10ns; b<="0010" ; wait for	; wait for	10ns; b<="0011" ; wait for	; wait for	10ns; b<="0100" ; wait for
IC_VECT OR (0 to 3);	begin cin<='0';	a<="0001" ; b<="0000" ;	; b<="0000" ; wait for 10ns;	; wait for 10ns; b<="0001" ;	10ns; b<="0001" ; wait for 10ns;	; wait for 10ns; b<="0010" ;	10ns; b<="0010" ; wait for 10ns;	; wait for 10ns; b<="0011" ;	10ns; b<="0011" ; wait for 10ns;	; wait for 10ns; b<="0100" ;	10ns; b<="0100" ; wait for 10ns;
IC_VECT OR (0 to 3); b:	begin cin<='0'; a<="0000" ; b<="0000" ;	a<="0001" ; b<="0000" ; wait for	; b<="0000" ; wait for	; wait for 10ns; b<="0001" ; wait for	10ns; b<="0001" ; wait for	; wait for 10ns; b<="0010" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"	; wait for 10ns; b<="0011" ; wait for	10ns; b<="0011" ; wait for	; wait for 10ns; b<="0100" ;	10ns; b<="0100" ; wait for
IC_VECT OR (0 to 3); b:	begin cin<='0'; a<="0000" ;	a<="0001" ; b<="0000" ;	; b<="0000" ; wait for 10ns; b<="0001" ;	; wait for 10ns; b<="0001" ;	10ns; b<="0001" ; wait for 10ns; b<="0010" ;	; wait for 10ns; b<="0010" ;	10ns; b<="0010"; wait for 10ns; b<="0011";	; wait for 10ns; b<="0011" ;	10ns; b<="0011" ; wait for 10ns; b<="0100" ;	; wait for 10ns; b<="0100" ; wait for	10ns; b<="0100" ; wait for 10ns; b<="0101" ;
IC_VECT OR (0 to 3); b: in STD_LOG	begin cin<='0'; a<="0000" ; b<="0000" ; wait for	a<="0001"; b<="0000"; wait for 10ns; b<="0001"	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns;	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns;	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns;	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns;	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns;
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3);	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for	; b<="0000" ; wait for 10ns; b<="0001" ; wait for	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns;	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ;	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns;	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns;	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ;	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="011"; wait for 10ns; b<="0100";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100";	; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; b<="0100"; wait for 10ns; b<="0101";	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC;	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns;	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns;	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns;	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s:	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011"	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ;	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for	; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011"	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ;	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns;	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns;	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns;	; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; c	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns;	; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns;
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for	; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ;	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0.00"; wait for 10ns]	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for	; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ;	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; b<="0100";	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns;	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; c	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to	begin cin<='0'; a<="0000"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011";	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100"	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; b<="0100";	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0.00"; wait for 10ns]	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ; wait for 10ns;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; ;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0100" ; wait for	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns;	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3);	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0100" ; wait for	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0101"	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="01101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1011"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="1001"; wait for
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3); cout: out: out	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for 10ns;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0101"	; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3); cout stD_LOG IC_VECT OR (0 to 3);	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0100" ; wait for	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0011"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns;	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns;	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns;	; wait for 10ns; b<="010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns;	; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1010"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3);	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0101" ; b<="0101" ; wait for 10ns; b<="0101" ;	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110";	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns;	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ;	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="1001"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1010" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1001" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC); end compone nt	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0101" ; wait for	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ;	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns;	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; b<="1000";	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";	; wait for 10ns; b<="010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001";	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="10111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="1001"; wait for 10ns;	; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1010"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="10101";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC, COUT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC); end compone nt ripplecarr	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ;	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ; wait for	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for	10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="1011" ; wait for 10ns; b<="1010" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for	10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="1001"; wait for	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1010" ; wait for	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out stD_LOG IC_YECT or (0 to 3);	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ; wait for	a<="0001" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ;	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111";	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";	; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; b<="1000";	10ns; b<="0010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";	; wait for 10ns; b<="010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001";	10ns; b<="0011"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101";	; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1010"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101"; wait for 10ns; b<="10101";	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1010"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101";
IC_VECT OR (0 to 3); b: in STD_LOG IC_VECT OR (0 to 3); cin : in STD_LOG IC; s: out STD_LOG IC, COUT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC_VECT OR (0 to 3); cout: out STD_LOG IC); end compone nt ripplecarr	begin cin<='0'; a<="0000" ; b<="0000" ; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0110" ;	a<="0001"; b<="0000"; wait for 10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns;	; b<="0000"; wait for 10ns; b<="0010"; wait for 10ns; b<="0010"; wait for 10ns; b<="0101"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111";	; wait for 10ns; b<="0001" ; wait for 10ns; b<="0010" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="0110" ; wait for 10ns;	10ns; b<="0001"; wait for 10ns; b<="0010"; wait for 10ns; b<="0011"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000";	; wait for 10ns; b<="0010" ; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1010" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for 10ns;	10ns; b<="0010"; wait for 10ns; b<="0100"; wait for 10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000";	; wait for 10ns; b<="0011" ; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="1011" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for 10ns;	10ns; b<="0011"; wait for 10ns; b<="0101"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="0111"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="1001";	; wait for 10ns; b<="0100" ; wait for 10ns; b<="0101" ; wait for 10ns; b<="0110" ; wait for 10ns; b<="0111" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1000" ; wait for 10ns; b<="1001" ; wait for 10ns; b<="1001" ; wait for 10ns;	10ns; b<="0100"; wait for 10ns; b<="0101"; wait for 10ns; b<="0110"; wait for 10ns; b<="0111"; wait for 10ns; b<="1010"; wait for 10ns; b<="1000"; wait for 10ns; b<="1000"; wait for 10ns; b<="10101";

b<="1100"	b<="1101"	b<="1110"	b<="1111"	a<="1111"		b<="0001"	b<="0010"	b<="0011"	b<="0100"	b<="0101"	b<="0110
wait for	, wait for	, wait for	, wait for		, wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for
10ns;	10ns;	10ns;	50ns;	, b<="0000"		10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
-	b<="1110"		50113,		-	-				b<="0110"	
. 1101			a<="1110"	, wait for							
wait for	, wait for	, wait for	a\= 1110	10ns;	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for
			, h,="0000"	b<="0001"							
10ns;	10ns;	50ns;	b<= 0000	D<= 0001	-	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
0<=.1110	b<="1111"		;	;	D<=_0010_	D<=_0011	D<=_0100_	D<=_0101	D<=_0110	b<="0111"	D<=_1000
	;	a<="1101"		wait for	;	;	;	;	;	;	;
wait for	wait for	;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	wait for
10ns;	50ns;	b<="0000"	b<="0001"	b<="0010"	,	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
b<="1111"		;	;	;	b<="0011"	b<="0100"	b<="0101"	b<="0110"	b<="0111"	b<="1000"	b<="1001
	a<="1100"		wait for	wait for	;	;	;	;	;	;	;
wait for	;	10ns;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	wait for
50ns;	b<="0000"	b<="0001"	b<="0010"	b<="0011"	-	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
	;	;	;	;	b<="0100"	b<="0101"	b<="0110"	b<="0111"	b<="1000"	b<="1001"	b<="1010
a<="1011"	wait for	wait for	wait for	wait for	;	;	;	;	;	;	;
į	10ns;	10ns;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	wait for
b<="0000"	b<="0001"	b<="0010"	b<="0011"	b<="0100"	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
;	;	;	;	;	b<="0101"	b<="0110"	b<="0111"	b<="1000"	b<="1001"	b<="1010"	b<="1013
wait for	wait for	wait for	wait for	wait for	;	;	;	;	;	;	;
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	wait for
	b<="0010"	b<="0011"	b<="0100"	b<="0101"	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
ţ	;	;	;	;	,					b<="1011"	
wait for	wait for	wait for	wait for	wait for	;	;	;	;	;	;	;
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	, wait for	, wait for	, wait for	wait for	wait for	, wait for
-		b<="0100"				10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
:	:	:	:	:	-	-				b<="1100"	-
wait for	, wait for	, wait for	, wait for	, wait for	:	:	:	:	:	:	:
10ns;	10ns;	10ns;	10ns;	10ns;	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for
	,	b<="0101"				10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
	. 0100	. 0101	. 0110		-	-				b<="1101"	-
; wait for	, wait for	, wait for	, wait for	, wait for	P/- 1000	. 1001	. 1010	. 1011	. 1100	. 1101	. 1110
wait ioi 10ns;	10ns;	10ns;	10ns;	10ns;	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for
-		b<="0110"				10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
u~- 0100	n/- 0101	n/- 0110	n~- 0111	n/- 1000	-	-				b<="1110"	-
wait for	, wait for	, wait for	, wait for	, wait for	n<= 1001	n<= 1010	· n<= 1011	n<= 1100_	· ·	n<= 1110_	u<= 111.
wait for	wait for		wait for	wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, wait for	, ,,,,;+ f
10ns;	10ns;	10ns; b<="0111"	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	wait for
∩<- ∩1∩1	n<- 0110	n<- 0111.	n<- 1000	n<- 1001	-	10ns;	10ns;	10ns;	10ns;	10ns;	50ns;
	;	;	;	;	n<= 1010	D<= 1011"	n<= 1100	D<= 1101"	b<="1110"	D<= 1111"	
wait for	wait for		wait for	wait for	,	, air f-	, ait f-	, ait f-	, air f-	, 	a<="0111
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	wait for	;
o<="U110"	p<="U111"	b<="1000"	p<="1001"	D<="1010"	-	10ns;	10ns;	10ns;	10ns;	50ns;	b<="0000
	;	;	;	;	p<="1011"	b<="1100"	p<="1101"	D<="1110"	p<="1111"		;
wait for	wait for	wait for	wait for	wait for	;	;	;	;	;	a<="0110"	
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	wait for	wait for	wait for	wait for	;	10ns;
b<="0111"	b<="1000"	b<="1001"	b<="1010"	b<="1011"		10ns;	10ns;	10ns;	50ns;	b<="0000"	b<="000
;	;	;	;	;	b<="1100"	b<="1101"	b<="1110"	b<="1111"		;	;
wait for	wait for		wait for	wait for	;	;	;	;	a<="0101"	wait for	wait for
10ns;	10ns;		10ns;	10ns;		wait for	wait for	wait for	;	10ns;	10ns;
b<="1000"	b<="1001"	b<="1010"	b<="1011"	b<="1100"	,	10ns;	10ns;	50ns;	b<="0000"	b<="0001"	b<="001
;	;	;	;	;	b<="1101"	b<="1110"	b<="1111"		;	;	;
wait for	wait for	wait for	wait for	wait for	;	;	;	a<="0100"	wait for	wait for	wait for
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	wait for	wait for	;	10ns;	10ns;	10ns;
		b<="1011"				10ns;	50ns;	b<="0000"	•	b<="0010"	
;	;	;	;	;	-	b<="1111"	•	;	;	;	;
wait for	wait for	wait for	wait for	wait for	;	;	a<="0011"	wait for	wait for	wait for	wait for
10ns;	10ns;	10ns;	10ns;	10ns;	wait for	, wait for	;	10ns;	10ns;	10ns;	10ns;
		b<="1100"				50ns;	b<="0000"			b<="0011"	
;	:	:	:	:	b<="1111"	,	:	:	:	:	:
wait for	, wait for	, wait for	, wait for	, wait for		a<="0010"	, wait for	, wait for	, wait for	, wait for	, wait for
10ns;	10ns;	10ns;	10ns;	10ns;	, wait for		10ns;	10ns;	10ns;	10ns;	10ns;
		b<="1101"				, h<="0000"				b<="0100"	-
	n<= 1100_	n<= 1101	n<= 1110	· 1111	JUIIS,	υ<= 00000°°	n<= 0001_	n/= 0010_	n<= 0011	n<= ∩100_	n<= 010
	, ait f-	, air f-	, air f-	, ait f-	a    0004	, air f-	, ait f-	, ait f-	, air f-	, 	) ate c
		wait for	wait for	wait for	a<="0001"		wait for	wait for	wait for	wait for	wait for
; wait for	wait for	10	10			10ns;	10ns;	10ns;	10ns;	10ns;	10ns;
; wait for 10ns;	10ns;	10ns;	10ns;	50ns;	, "6555"						
wait for 10ns; o<="1100"	10ns;	b<="1110"	b<="1111"		b<="0000"					b<="0101"	
; wait for 10ns; o<="1100"	10ns; b<="1101" ;	b<="1110" ;	b<="1111" ;	cin<='1';	;	b<="0001" ;	b<="0010" ;	b<="0011" ;	b<="0100" ;	b<="0101" ;	b<="0110;
; wait for 10ns; o<="1100"	10ns; b<="1101"	b<="1110" ; wait for	b<="1111" ; wait for		;						

b<="0111"		wait for	b<="1010"		b<="0001"	b<="1101"		b<="0100"	a<="1110"		b<="
;	10ns;	10ns;	; 	10ns;	; 	; :	10ns;	;	;	10ns;	;
wait for	D<=_0011_	b<="1111"		b<="0110"		wait for	b<="1001"		D<=_00000_	b<="1100"	
10ns;	;	;	10ns;	;	10ns;	10ns;	;	10ns;	;	;	10ns
b<="1000"		wait for	b<="1011"		b<="0010"	b<="1110"		b<="0101"		wait for	b<="
;	10ns;	50ns;	;	10ns;	;	;	10ns;	;	10ns;	10ns;	;
wait for	b<="0100"		wait for	b<="0111"		wait for	b<="1010"		b<="0001"	b<="1101"	
10ns;	;	a<="1001"	,	;	10ns;	10ns;	;	10ns;	;	;	10ns
b<="1001"		;	b<="1100"		b<="0011"	b<="1111"		b<="0110"		wait for	b<="
;	10ns;	b<="0000"	•	10ns;	;	;	10ns;	;	10ns;	10ns;	;
wait for	b<="0101"	-	wait for	b<="1000"		wait for	b<="1011"		b<="0010"	b<="1110"	
10ns;	;	wait for	10ns;	;	10ns;	50ns;	;	10ns;	;	;	10ns
b<="1010"		10ns;	b<="1101"		b<="0100"		wait for	b<="0111"		wait for	b<="
;	10ns;	b<="0001"	,	10ns;	;	a<="1100"	,	;	10ns;	10ns;	;
wait for	b<="0110"	-	wait for	b<="1001"		;	b<="1100"	wait for	p<="UU11"	b<="1111"	
10ns;	; 	wait for	10ns;	;	10ns;	b<="0000"		10ns;	;	;	10ns
b<="1011"		10ns;	b<="1110"		b<="0101"	•	wait for	b<="1000"		wait for	b<="
;	10ns;	b<="0010"	-	10ns;	;	wait for	10ns;	;	10ns;	50ns;	;
wait for	b<="0111"		wait for	b<="1010"		10ns;	b<="1101"		b<="0100"		wait
10ns;	;	wait for	10ns;	;	10ns;	b<="0001"		10ns;	;	a<="1111"	
b<="1100"		10ns;	b<="1111"		b<="0110"	•	wait for	b<="1001"		;	b<="
;	10ns;	b<="0011"	•	10ns;	;	wait for	10ns;	;	10ns;	b<="0000"	,
wait for	b<="1000"	-	wait for	b<="1011"		10ns;		wait for	b<="0101"	•	wait
10ns;	;	wait for	50ns;	;	10ns;	b<="0010"		10ns;	;	wait for	10ns
b<="1101"		10ns;		wait for	b<="0111"	•	wait for	b<="1010"		10ns;	b<="
;	10ns;		a<="1010"	,	;	wait for	10ns;	;	10ns;	b<="0001"	
wait for	b<="1001"		;	b<="1100"		10ns;	b<="1111"	wait for	b<="0110"	-	wait
10ns;	;	wait for	b<="0000"	•	10ns;	b<="0011"	•	10ns;	;	wait for	10ns
b<="1110"		10ns;	;	wait for	b<="1000"	•	wait for	b<="1011"		10ns;	b<="
;	10ns;	b<="0101"		10ns;	;	wait for	50ns;	;	10ns;	b<="0010"	•
wait for	b<="1010"		10ns;	b<="1101"		10ns;		wait for	b<="0111"	-	wait
10ns;	;	wait for	b<="0001"	-	10ns;		a<="1101"	•	;	wait for	10ns
b<="1111"		10ns;	;	wait for	b<="1001"	-	;	b<="1100"		10ns;	b<="
;	10ns;	b<="0110"		10ns;	;	wait for	b<="0000"	-	10ns;	b<="0011"	,
wait for	b<="1011"		10ns;	b<="1110"		10ns;	;	wait for	b<="1000"	-	wait
50ns;	;	wait for	b<="0010"	-	10ns;	b<="0101"		10ns;	;	wait for	50ns
	wait for	10ns;	;	wait for	b<="1010"	•	10ns;	b<="1101"		10ns;	
a<="1000"	,	b<="0111"		10ns;	;	wait for	b<="0001"	-	10ns;	b<="0100"	
;	b<="1100"		10ns;	b<="1111"		10ns;	;	wait for	b<="1001"	-	proc
b<="0000"	•	wait for	b<="0011"	-	10ns;	b<="0110"		10ns;	;	wait for	end
;	wait for	10ns;	;	wait for	b<="1011"	•	10ns;	b<="1110"		10ns;	Beha
wait for	10ns;	b<="1000"		50ns;	;	wait for	b<="0010"	•	10ns;	b<="0101"	;
10ns;	b<="1101"	•	10ns;		wait for	10ns;	;	wait for	b<="1010"	-	
b<="0001"	•	wait for	b<="0100"	a<="1011"	,	b<="0111"		10ns;	;	wait for	
;	wait for	10ns;	;	;	b<="1100"	•	10ns;	b<="1111"		10ns;	
wait for	10ns;	b<="1001"		b<="0000"	•	wait for	b<="0011"	•	10ns;	b<="0110"	
10ns;	b<="1110"	-	10ns;	;	wait for	10ns;	;	wait for	b<="1011"	•	
b<="0010"	;	wait for	b<="0101"		10ns;	b<="1000"		50ns;	;	wait for	
;		10ns;	;	10ns;		;	10ns;			10ns;	

### **SIMULATION WAVEFORM:**



Name	Slack	^1	Levels	Routes	High Fanout	From	To	Total Delay	Logic Delay	Net Delay	Requirement	Source Clock
Path 1		00	4	5	3	a[0]	cout	5.970	3.904	2.066	00	input port clock
4 Path 2		00	4	5	3	a[0]	s[2]	5.970	3.904	2.066	00	input port clock
Path 3		00	4	5	3	a[0]	s[3]	5.964	3.898	2.066	00	input port clock
Path 4		00	3	4	3	cin	s[0]	5.351	3.752	1.599	00	input port clock
Path 5		00	3	4	3	a[0]	s[1]	5.351	3.752	1.599	00	input port clock

### **SYNTHESIS SUMMARY:**

Resource	Utilization	Available	<b>Utilization %</b>
LUT	4	17600	0.02
10	14	100	14.00

Maximum Combinational Delay: 5.970nSec