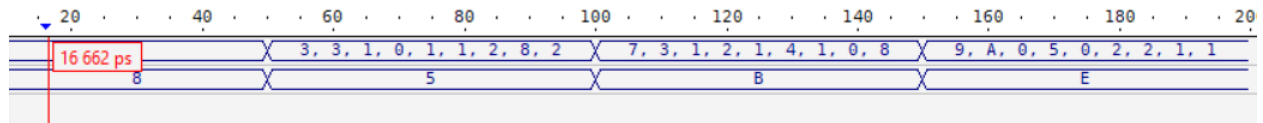


بسم الله الرحمن الرحيم



ERFAN ZARE

(1)



```
process
begin
a<= ("0001", "0010", "0000"), ("0001", "0100", "0101"), ("0011", "1000", "0000");
wait for 50ns;
a<= ("0011", "0011", "0001"), ("0000", "0001", "0001"), ("0010", "1000", "0010");
wait for 50ns;
a<= ("0111", "0011", "0001"), ("0010", "0001", "0100"), ("0001", "0000", "1000");
wait for 50ns;
a<= ("1001", "1010", "0000"), ("0101", "0000", "0010"), ("0010", "0001", "0001");
wait;
end process;
```

(2)



```

wait for 50ns;
a<="11";
b<="10";
sel<="00";
wait for 50ns;
a<="11";
b<="10";
sel<="01";
wait for 50ns;
a<="11";
b<="10";
sel<="10";
wait for 50ns;
a<="11";
b<="10";
sel<="11";

wait for 50ns;
a<="10";
b<="01";
sel<="00";
wait for 50ns;
a<="10";
b<="01";
sel<="01";
wait for 50ns;
a<="10";
b<="01";
sel<="10";
wait for 50ns;
a<="10";
b<="01";

```

(3)

Signal name	Value	0	40	80	120	160	200	240	280	320	360
inp	UUUU	0fs	UUUU	0000	0001	0003	0007	000F	001F	003F	
outp	F	F	0	1	2	3	4	5	6		

007F	00FF	01FF	03FF	07FF	0FFF	1FFF	3FFF	7FFF
7	8	9	A	B	C	D	E	F

```

wait for 50ns;
inp<="0000000000000000";
wait for 50ns;
inp<="0000000000000001";
wait for 50ns;
inp<="0000000000000011";
wait for 50ns;
inp<="0000000000000111";
wait for 50ns;
inp<="0000000000001111";
wait for 50ns;
inp<="0000000000011111";
wait for 50ns;
inp<="0000000000111111";
wait for 50ns;
inp<="0000000001111111";
wait for 50ns;
inp<="0000000011111111";
wait for 50ns;
inp<="0000000111111111";
wait for 50ns;
inp<="0000001111111111";
wait for 50ns;
inp<="0000011111111111";
wait for 50ns;
inp<="0000111111111111";
wait for 50ns;
inp<="0001111111111111";
wait for 50ns;
inp<="0011111111111111";
wait for 50ns;
inp<="0111111111111111";
wait;
end process;

```

(4)

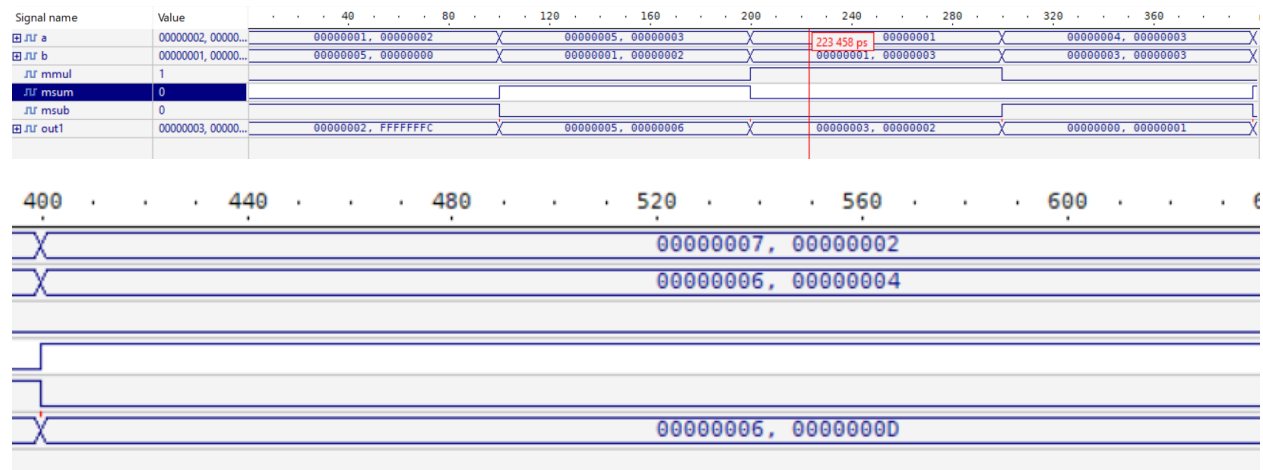
Signal name	Value	0	80	160	240	320
A	00000000, 00000...					
B	00000001, 00000...					
outp	34	34	77	135	158	

```

process
begin
A<=(0,2,3,1,5,0,1,2);
B<=(1,1,2,0,3,4,7,2);
wait for 50 ns;
A<=(1,3,8,0,1,0,1,0);
B<=(4,1,4,7,0,1,4,5);
wait for 50 ns;
A<=(5,1,3,2,1,0,1,5);
B<=(7,2,4,1,0,3,2,1);
wait for 50 ns;
A<=(0,1,6,1,5,8,3,0);
B<=(5,4,1,0,2,0,1,9);
wait;
end process;

```

(5



```
a<=(1,2);
b<=(5,0);
mmul<='0';
msum<='0';
msub<='1';
wait for 100ns;
a<=(5,3);
b<=(1,2);
mmul<='0';
msum<='1';
msub<='0';
wait for 100ns;
a<=(2,1);
b<=(1,3);
mmul<='1';
msum<='0';
msub<='0';
wait for 100ns;
a<=(4,3);
b<=(3,3);
mmul<='0';
msum<='0';
msub<='1';
wait for 100ns;
a<=(7,2);
b<=(6,4);
mmul<='0';
msum<='1';
msub<='0';
wait;
end process;
```