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-- Company:  
-- Engineer:  
--  
-- Create Date: 22.04.2023 20:22:27  
-- Design Name:  
-- Module Name: FINAL_TB - Behavioral  
-- Project Name:  
-- Target Devices:  
-- Tool Versions:  
-- Description:  
--  
-- Dependencies:  
--  
-- Revision:  
-- Revision 0.01 - File Created  
-- Additional Comments:  
--  
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```

```
library IEEE;  
use IEEE.STD_LOGIC_1164.ALL;
```

```
entity FINAL_TB is
```

```
end FINAL_TB;
```

```
architecture Behavioral of FINAL_TB is
```

```
signal N1,N2,N3,N4,N5,R1,R2,R3,R4,R5: std_logic_vector(3 downto 0);  
signal Sel1, Sel2, Sel3, Sel4, Sel5, Sel6, Sel7, Sel8, Sel9, Sel10,  
Sel11, Sel12, Sel13, Sel14, Sel15, Sel16, Sel17, Sel18, Sel19,  
Sel20, Sel21, Sel22, Sel23, Sel24, Sel25: std_logic_vector(4 DOWNT0
```

```

0);
signal
MSL2_3,MSL2_4,MSL2_5,MSL2_6,MSL2_7,MSL2_8,MSL2_9,MSL2_10,MSL2_11,MS
L2_12,MSL2_13,MSL2_14,MSL2_15,MSL2_16,MSL2_17,MSL2_18,MSL2_19,MSL2_
20,MSL2_21,MSL2_22,MSL2_23,MSL2_24,MSL2_25,MSL2_26: std_logic;
signal
MSL4_1,MSL4_2,MSL4_3,MSL4_4,MSL4_5,MSL4_6,MSL4_7,MSL4_8,MSL4_9,MSL4
_10,MSL4_11,MSL4_12: std_logic_vector(1 DOWNTO 0);
signal MSL8_1,MSL8_2,MSL8_3,MSL8_4: std_logic_vector(2 DOWNTO 0);
signal S21,S22,S23,S24,S25: std_logic_vector(3 downto 0);

begin

uut: entity work.FINAL

port map(
N1=>N1,N2=>N2,N3=>N3,N4=>N4,N5=>N5,
R1=>R1,R2=>R2,R3=>R3,R4=>R4,R5=>R5,
Sel1=>Sel1, Sel2=>Sel2, Sel3=>Sel3, Sel4=>Sel4, Sel5=>Sel5,
Sel6=>Sel6, Sel7=>Sel7, Sel8=>Sel8, Sel9=>Sel9, Sel10=>Sel10,
Sel11=>Sel11, Sel12=>Sel12, Sel13=>Sel13, Sel14=>Sel14,
Sel15=>Sel15,
Sel16=>Sel16, Sel17=>Sel17, Sel18=>Sel18, Sel19=>Sel19,
Sel20=>Sel20,
Sel21=>Sel21, Sel22=>Sel22, Sel23=>Sel23, Sel24=>Sel24,
Sel25=>Sel25,
MSL2_3=>MSL2_3,MSL2_4=>MSL2_4,MSL2_5=>MSL2_5,MSL2_6=>MSL2_6,MSL2_7=
>MSL2_7,MSL2_8=>MSL2_8,MSL2_9=>MSL2_9,MSL2_10=>MSL2_10,
MSL2_11=>MSL2_11,MSL2_12=>MSL2_12,MSL2_13=>MSL2_13,MSL2_14=>MSL2_14
,MSL2_15=>MSL2_15,MSL2_16=>MSL2_16,MSL2_17=>MSL2_17,MSL2_18=>MSL2_1
8,MSL2_19=>MSL2_19,
MSL2_20=>MSL2_20,MSL2_21=>MSL2_21,MSL2_22=>MSL2_22,MSL2_23=>MSL2_23
,MSL2_24=>MSL2_24,MSL2_25=>MSL2_25,MSL2_26=>MSL2_26,
MSL4_1=>MSL4_1,MSL4_2=>MSL4_2,MSL4_3=>MSL4_3,MSL4_4=>MSL4_4,MSL4_5=
>MSL4_5,MSL4_6=>MSL4_6,
MSL4_7=>MSL4_7,MSL4_8=>MSL4_8,MSL4_9=>MSL4_9,MSL4_10=>MSL4_10,MSL4_
11=>MSL4_11,MSL4_12=>MSL4_12,

```

```
MSL8_1=>MSL8_1,MSL8_2=>MSL8_2,MSL8_3=>MSL8_3,MSL8_4=>MSL8_4,  
S21=>S21,S22=>S22,S23=>S23,S24=>S24,S25=>S25);
```

```
process  
begin
```

```
--TB FOR DFG-1
```

```
--INPUT'S
```

```
N1<="1001";N2<="0100";N3<="0010";N4<="1111";N5<="0001";  
R1<="0110";R2<="0011";R3<="0111";R4<="1101";R5<="0001";
```

```
--ALU SEL'S
```

```
Sel1<="00000" ; Sel2<="00010" ; Sel3<="00000" ; Sel4<="00001" ;  
Sel5<="00010" ;  
Sel6<="00001" ; Sel7<="00000" ; Sel8<="00001" ; Sel9<="10010" ;  
Sel10<="10011" ;  
Sel11<="00110" ; Sel12<="01001" ; Sel13<="01000" ; Sel14<="10011"  
; Sel15<="10011" ;  
Sel16<="01010" ; Sel17<="00111";Sel18<="10011" ; Sel19<="10011" ;  
Sel20<="10011" ;  
Sel21<="10001" ; Sel22<="10010" ; Sel23<="10011" ; Sel24<="10011" ;  
Sel25<="10011" ;
```

```
--MUX SEL'S
```

```
MSL4_1<="10";MSL4_2<="11";MSL8_1<="101";MSL8_2<="110";MSL4_3<="01";  
MSL4_4<="10";MSL4_5<="00";MSL4_6<="10";MSL2_3<='1';MSL2_4<='0';  
MSL8_3<="100";MSL8_4<="101";MSL4_7<="10";MSL4_8<="10";MSL4_9<="00";  
MSL4_10<="10";MSL2_5<='0';MSL2_6<='0';MSL2_7<='0';MSL2_8<='0';  
MSL4_11<="10";MSL4_12<="10";MSL2_9<='1';MSL2_10<='1';MSL2_11<='0';M  
SL2_12<='1';MSL2_13<='0';MSL2_14<='0';MSL2_15<='0';MSL2_16<='0';  
MSL2_17<='1';MSL2_18<='1';MSL2_19<='0';MSL2_20<='0';MSL2_21<='0';MS  
L2_22<='1';MSL2_23<='0';MSL2_24<='0';MSL2_25<='0';MSL2_26<='0';
```

```
WAIT FOR 20 NS;
```

```
--TB FOR DFG-2
```

```

--INPUT'S
N1<="1101";N2<="0010";N3<="0001";N4<="0010";N5<="0001";
R1<="0110";R2<="0011";R3<="0001";R4<="0010";R5<="0001";

--ALU SEL'S
Sel1<="00001" ; Sel2<="00010" ; Sel3<="10011"; Sel4<="00000" ;
Sel5<="00010" ;
Sel6<="10001" ; Sel7<="00000" ; Sel8<="00001" ; Sel9<="00000" ;
Sel10<="10001" ;
Sel11<="01100" ; Sel12<="10010" ; Sel13<="10000" ; Sel14<="10011"
; Sel15<="10011" ;
Sel16<="00100" ; Sel17<="00011";Sel18<="10011" ; Sel19<="10011" ;
Sel20<="10011" ;
Sel21<="10001" ; Sel22<="10010" ; Sel23<="10011" ; Sel24<="10011" ;
Sel25<="10011" ;

--MUX SEL'S

MSL4_1<="10";MSL4_2<="10";MSL8_1<="011";MSL8_2<="101";MSL4_3<="00";
MSL4_4<="11";MSL4_5<="00";MSL4_6<="10";MSL2_3<='0';MSL2_4<='0';
MSL8_3<="100";MSL8_4<="110";MSL4_7<="10";MSL4_8<="10";MSL4_9<="01";
MSL4_10<="11";MSL2_5<='0';MSL2_6<='0';MSL2_7<='0';MSL2_8<='0';
MSL4_11<="10";MSL4_12<="11";MSL2_9<='0';MSL2_10<='0';MSL2_11<='0';M
SL2_12<='1';MSL2_13<='0';MSL2_14<='0';MSL2_15<='0';MSL2_16<='0';
MSL2_17<='1';MSL2_18<='0';MSL2_19<='0';MSL2_20<='0';MSL2_21<='0';MS
L2_22<='1';MSL2_23<='0';MSL2_24<='0';MSL2_25<='0';MSL2_26<='0';

WAIT FOR 20 NS;

--TB FOR DFG-3
--INPUT'S
N1<="1000";N2<="1110";N3<="0001";N4<="0011";N5<="0001";
R1<="0101";R2<="1000";R3<="0100";R4<="0010";R5<="0001";

--ALU SEL'S
Sel1<="00000" ; Sel2<="00001" ; Sel3<="00010" ; Sel4<="00010" ;
Sel5<="10011" ;

```

```
Sel6<="00001" ; Sel7<="10010" ; Sel8<="00000" ; Sel9<="00001" ;
Sel10<="10011" ;
Sel11<="00111" ; Sel12<="01000" ; Sel13<="10011" ; Sel14<="10011"
; Sel15<="10011" ;
Sel16<="10001" ; Sel17<="10010";Sel18<="10011" ; Sel19<="10011" ;
Sel20<="10011" ;
Sel21<="10001" ; Sel22<="10010" ; Sel23<="10011" ; Sel24<="10011" ;
Sel25<="10011" ;
```

--MUX SEL'S

```
MSL4_1<="10";MSL4_2<="10";MSL8_1<="011";MSL8_2<="100";MSL4_3<="01";
MSL4_4<="10";MSL4_5<="00";MSL4_6<="01";MSL2_3<='1';MSL2_4<='0';
MSL8_3<="100";MSL8_4<="100";MSL4_7<="11";MSL4_8<="11";MSL4_9<="10";
MSL4_10<="10";MSL2_5<='0';MSL2_6<='0';MSL2_7<='0';MSL2_8<='0';
MSL4_11<="10";MSL4_12<="10";MSL2_9<='0';MSL2_10<='0';MSL2_11<='0';M
SL2_12<='1';MSL2_13<='0';MSL2_14<='0';MSL2_15<='0';MSL2_16<='0';
MSL2_17<='1';MSL2_18<='1';MSL2_19<='0';MSL2_20<='0';MSL2_21<='0';MS
L2_22<='1';MSL2_23<='0';MSL2_24<='0';MSL2_25<='0';MSL2_26<='0';
```

WAIT FOR 20 NS;

--TB FOR DFG-4

--INPUT'S

```
N1<="0100";N2<="0011";N3<="1111";N4<="0010";N5<="0001";
R1<="0010";R2<="0100";R3<="1010";R4<="0010";R5<="0001";
```

--ALU SEL'S

```
Sel1<="00010" ; Sel2<="00000" ; Sel3<="00001" ; Sel4<="00010" ;
Sel5<="10011" ;
Sel6<="00000" ; Sel7<="00000" ; Sel8<="00001" ; Sel9<="10011" ;
Sel10<="10011" ;
Sel11<="10000" ; Sel12<="01101" ; Sel13<="01110" ; Sel14<="10011"
; Sel15<="10011" ;
Sel16<="01010" ; Sel17<="01011";Sel18<="10011" ; Sel19<="10011" ;
Sel20<="10011" ;
Sel21<="00101" ; Sel22<="10011" ; Sel23<="10011" ; Sel24<="10011" ;
```

```
SEL25<="10011" ;

--MUX SEL'S

MSL4_1<="10";MSL4_2<="11";MSL8_1<="100";MSL8_2<="101";MSL4_3<="10";
MSL4_4<="10";MSL4_5<="00";MSL4_6<="01";MSL2_3<='1';MSL2_4<='0';
MSL8_3<="100";MSL8_4<="100";MSL4_7<="01";MSL4_8<="10";MSL4_9<="01";
MSL4_10<="01";MSL2_5<='0';MSL2_6<='0';MSL2_7<='0';MSL2_8<='0';
MSL4_11<="10";MSL4_12<="10";MSL2_9<='1';MSL2_10<='1';MSL2_11<='0';M
SL2_12<='1';MSL2_13<='0';MSL2_14<='0';MSL2_15<='0';MSL2_16<='0';
MSL2_17<='1';MSL2_18<='1';MSL2_19<='0';MSL2_20<='0';MSL2_21<='0';MS
L2_22<='1';MSL2_23<='0';MSL2_24<='0';MSL2_25<='0';MSL2_26<='0';

WAIT;

end process;

end Behavioral;
```