

```

library ieee;

use ieee.std_logic_1164.all;
use ieee.numeric_std.all;

entity mux_2by1_32_bit is
    port(
        data_in_lsb: in STD_LOGIC_VECTOR(31 downto 0);
        data_in_msb: in STD_LOGIC_VECTOR(31 downto 0);
        sel: in STD_LOGIC;
        data_out: out STD_LOGIC_VECTOR(31 downto 0)
    );
end mux_2by1_32_bit;

architecture behavioral of mux_2by1_32_bit is
begin
    data_out <= data_in_msb when (sel = '1') else data_in_lsb;
end behavioral;

```