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library IEEE;
use IEEE.STD_LOGIC_1164.ALL;

entity mux_16_1_16bit is
    Port ( In0 : in  STD_LOGIC_VECTOR(15 downto 0);
          In1 : in  STD_LOGIC_VECTOR(15 downto 0);
          In2 : in  STD_LOGIC_VECTOR(15 downto 0);
          In3 : in  STD_LOGIC_VECTOR(15 downto 0);
          In4 : in  STD_LOGIC_VECTOR(15 downto 0);
          In5 : in  STD_LOGIC_VECTOR(15 downto 0);
          In6 : in  STD_LOGIC_VECTOR(15 downto 0);
          In7 : in  STD_LOGIC_VECTOR(15 downto 0);
          In8 : in  STD_LOGIC_VECTOR(15 downto 0);
          In9 : in  STD_LOGIC_VECTOR(15 downto 0);
          In10 : in STD_LOGIC_VECTOR(15 downto 0);
          In11 : in STD_LOGIC_VECTOR(15 downto 0);
          In12 : in STD_LOGIC_VECTOR(15 downto 0);
          In13 : in STD_LOGIC_VECTOR(15 downto 0);
          In14 : in STD_LOGIC_VECTOR(15 downto 0);
          In15 : in STD_LOGIC_VECTOR(15 downto 0);
          S : in  STD_LOGIC_VECTOR(3 downto 0);
          Z : out  STD_LOGIC_VECTOR(15 downto 0)
        );
end mux_16_1_16bit;

architecture Behavioral of mux_16_1_16bit is
begin
    Z <= In0 after 1 ns when (S(3)='0' and S(2)='0' and S(1)='0' and S(0)='0') else
        In1 after 1 ns when (S(3)='0' and S(2)='0' and S(1)='0' and S(0)='1') else
        In2 after 1 ns when (S(3)='0' and S(2)='0' and S(1)='1' and S(0)='0') else
        In3 after 1 ns when (S(3)='0' and S(2)='0' and S(1)='1' and S(0)='1') else
        In4 after 1 ns when (S(3)='0' and S(2)='1' and S(1)='0' and S(0)='0') else
        In5 after 1 ns when (S(3)='0' and S(2)='1' and S(1)='0' and S(0)='1') else
        In6 after 1 ns when (S(3)='0' and S(2)='1' and S(1)='1' and S(0)='0') else
        In7 after 1 ns when (S(3)='0' and S(2)='1' and S(1)='1' and S(0)='1') else
        In8 after 1 ns when (S(3)='1' and S(2)='0' and S(1)='0' and S(0)='0') else
        In9 after 1 ns when (S(3)='1' and S(2)='0' and S(1)='0' and S(0)='1') else
        In10 after 1 ns when (S(3)='1' and S(2)='0' and S(1)='1' and S(0)='0') else
        In11 after 1 ns when (S(3)='1' and S(2)='0' and S(1)='1' and S(0)='1') else
        In12 after 1 ns when (S(3)='1' and S(2)='1' and S(1)='0' and S(0)='0') else
        In13 after 1 ns when (S(3)='1' and S(2)='1' and S(1)='0' and S(0)='1') else
        In14 after 1 ns when (S(3)='1' and S(2)='1' and S(1)='1' and S(0)='0') else
        In15 after 1 ns when (S(3)='1' and S(2)='1' and S(1)='1' and S(0)='1') else
        "0000000000000000" after 1 ns;
end Behavioral;

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