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-- Banco de 4 registros de 4 bits.
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library ieee;
use ieee.std_logic_1164.all;
use ieee.std_logic_unsigned.all;

entity banco_de_reg is
port(
    clk,nrst      : in std_logic;
    peso_dig      : in std_logic_vector(1 downto 0);
    dir_dig       : in std_logic_vector(1 downto 0);
    we_dig        : in std_logic;
    digito        : in std_logic_vector(3 downto 0);
    digito_out    : buffer std_logic_vector(3 downto 0)
);
end entity;

architecture rtl of banco_de_reg is

    signal reg0,reg1,reg2,reg3 : std_logic_vector(3 downto 0);

begin

process(clk,nrst)
begin
    if nrst = '0' then
        reg0 <= (others => '0');
        reg1 <= (others => '0');
        reg2 <= (others => '0');
        reg3 <= (others => '0');
    elsif clk'event and clk = '1' then
        if we_dig = '1' then
            case peso_dig is
                when "00" => reg0 <= digito;
                when "01" => reg1 <= digito;
                when "10" => reg2 <= digito;
                when "11" => reg3 <= digito;
                when others => null;
            end case;
        end if;
    end if;
end process;

digito_out <= reg0 when dir_dig = "00" else
reg1 when dir_dig = "01" else
reg2 when dir_dig = "10" else
reg3;

end rtl;
```