MIX

COLLEGAMENTI DELLA SEZIONE D'ANELLO

mix.vhd è il file che contiene al suo interno, gerarchicamente parlando, il file *eco.sch*, raggiungibile cliccando sul sommatore, il quale, a sua volta, contiene i blocchi α e $1-\alpha$. Non resta quindi che osservarne il codice.

CODICE D'INTERCONNESSIONE

```
-- mix.vhd
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-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                            %
-- %                            LIBRERIE INCLUSE                                %
-- %                                                                            %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

library IEEE;
use IEEE.STD_LOGIC_1164.ALL;
use IEEE.STD_LOGIC_ARITH.ALL;
use IEEE.STD_LOGIC_UNSIGNED.ALL;
use IEEE.NUMERIC_STD.ALL;

-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                            %
-- %                               PORTE DI MIX                                 %
-- %                    (terminali di ingresso ed uscita)                       %
-- %                                                                            %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

entity mix is
    Port (   sclk :              in  std_logic;
             timeDelay :         in  unsigned(16 downto 0);
             goAddSignal :       in  std_logic;
             dataFromSdram :     in  unsigned(15 downto 0);
             dataFromSipo :      in  unsigned(15 downto 0);
             dataOut :           out unsigned(15 downto 0);
             switch :            in  std_logic_vector (1 downto 0) -- Nostra aggiunta
             );
end mix;

-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                            %
-- %                               FUNZIONAMENTO                                %
-- %                                                                            %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

architecture comportamento of mix is

-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                            %
-- %                            NOSTRO COMPONENTE                               %
-- %                                                                            %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                                                    --          %
component eco -- Nostro componente                                              %
    Port (   data_delay    : in  unsigned (15 downto 0);            --          %
             data_recorder : in  unsigned (15 downto 0);            --          %
```

```
            switch        : in  std_logic_vector (1 downto 0);  --              %
            data_out      : out unsigned (15 downto 0)          --              %
            );                                                  --              %
end component;                                                  --              %
                                                                --              %
signal s_data_delay : unsigned (15 downto 0);     -- s_ sta per segnale|        %
signal s_data_recorder : unsigned (15 downto 0); -- associato alle porte|       %
signal s_switch : std_logic_vector (1 downto 0); -- di "eco"                    %
signal s_data_out : unsigned (15 downto 0);       --                            %
                                                                --              %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

begin
process(sclk, dataFromSipo, dataFromSdram)
begin

if sclk'EVENT and sclk='1' then -- quando succede qualcosa...
    if goAddSignal='1' then -- e abbiamo l'ok
        if timeDelay=0 then -- e non vi è ritardo =>
            dataOut <= dataFromSipo; -- ciò che ascolto, suono
        else

-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                             %
-- %                        INTERVENTO DEL COMPONENT ECO                         %
-- %                            (collegamenti logici)                            %
-- %                                                                             %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                                                        --      %
            s_data_delay <= dataFromSdram; -- stesso segnale, altro nome        %
            s_data_recorder <= dataFromSipo; -- idem                            %
            s_switch <= switch; -- switch è la porta del mix                    %
            dataOut <= s_data_out; -- dall'eco(s_data_out) al mix (dataOut)     %
                                                                        --      %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

        end if;
    end if;
end if;
end process;

-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
-- %                                                                             %
-- %                            MAPPATURA DI ECO                                 %
-- %                     (associazione tra segnali e porte)                      %
-- %                                                                             %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                                    --                          %
mappatura_eco : eco PORT MAP ( s_data_delay,    -- in                           %
                               s_data_recorder, -- in                           %
                               s_switch,        -- in                           %
                               s_data_out       -- out                          %
                               );               --                              %
                                                 --                             %
-- %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

end comportamento;
```