Decoder

Generics

- yfg6yugiukj	<type> integer	<value>	: hola 2
- U	<type> integer	<value> 32	: hola
- N	<type> integer	<value>	: prueba
- T	<type> integer	<value>	: prueba
- Gad	<type> std_logic_vector	<value> N-1	: preuba3

Ports

- clk	<type> input	<value> std_logic	: alfa
- rst	<type> input	<value> std_logic	: alfa
- yhmm	<type> input	<value> std_logic	: alfa
- Rowererrrererererrere	<type> input	<value> std_logic_vector <bits> (N-1) downto (N-2)	: dfhdfg
- Col	<type> output	<value> std_logic_vector <bits> 3 downto 0	: dfhdfg1
- DecodeOut	<type> output	<value> std_logic_vector <bits> 3 downto 0	: marcafa

Source

```
----------------------------------------------------------------------------------
-- Company: Digilent Inc 2011
-- Engineer: Michelle Yu
-- Create Date:      17:18:24 08/23/2011
--
-- Module Name:    Decoder - Behavioral
-- Project Name:  PmodKYPD
-- Target Devices: Nexys3
-- Tool versions: Xilinx ISE 13.2
-- Description:
--    This file defines a component Decoder for the demo project PmodKYPD.
-- The Decoder scans each column by asserting a low to the pin corresponding to the column
-- at 1KHz. After a column is asserted low, each row pin is checked.
-- When a row pin is detected to be low, the key that was pressed could be determined.
--
-- Revision:
-- Revision 0.01 - File Created
----------------------------------------------------------------------------------
```

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

---dgfgfsgedg
--fghfghfcgh

entity Decoder is --dfhdfg

    generic (
        yfg6yugiukj : integer;    -- hola 2
        U : integer := 32 --hola
        -- comentario
        N, T : integer;    -- prueba
        Gad  : std_logic_vector := N-1    -- preuba3
    )
    Port (
        clk, rst, yhmm : in  STD_LOGIC := 32;    --alfa
        --34234523
        Rowererrerererererere : in  STD_LOGIC_VECTOR ((N-1) downto (N-2)) := 324;  --dfhdfg
        Col : out  STD_LOGIC_VECTOR (3 downto 0);--dfhdfg1
        DecodeOut : out  STD_LOGIC_VECTOR (3 downto 0));--marcafa
end;

architecture Behavioral of Decoder is

signal sclk :STD_LOGIC_VECTOR(19 downto 0);
begin
    process(clk)
        begin
        if clk'event and clk = '1' then
            -- 1ms
            if sclk = "00011000011010100000" then
                --C1
                Col<= "0111";
                sclk <= sclk+1;
            -- check row pins
            elsif sclk = "00011000011010101000" then
                --R1
                if Row = "0111" then
                    DecodeOut <= "0001";    --1
                --R2
                elsif Row = "1011" then
                    DecodeOut <= "0100"; --4
                --R3
                elsif Row = "1101" then
                    DecodeOut <= "0111"; --7
                --R4
```

```
        elsif Row = "1110" then
            DecodeOut <= "0000"; --0
        end if;
        sclk <= sclk+1;
    -- 2ms
    elsif sclk = "00110000110101000000" then
        --C2
        Col<= "1011";
        sclk <= sclk+1;
    -- check row pins
    elsif sclk = "00110000110101001000" then
        --R1
        if Row = "0111" then
            DecodeOut <= "0010"; --2
        --R2
        elsif Row = "1011" then
            DecodeOut <= "0101"; --5
        --R3
        elsif Row = "1101" then
            DecodeOut <= "1000"; --8
        --R4
        elsif Row = "1110" then
            DecodeOut <= "1111"; --F
        end if;
        sclk <= sclk+1;
    --3ms
    elsif sclk = "01001001001111100000" then
        --C3
        Col<= "1101";
        sclk <= sclk+1;
    -- check row pins
    elsif sclk = "01001001001111101000" then
        --R1
        if Row = "0111" then
            DecodeOut <= "0011"; --3
        --R2
        elsif Row = "1011" then
            DecodeOut <= "0110"; --6
        --R3
        elsif Row = "1101" then
            DecodeOut <= "1001"; --9
        --R4
        elsif Row = "1110" then
            DecodeOut <= "1110"; --E
        end if;
        sclk <= sclk+1;
    --4ms
    elsif sclk = "01100001101010000000" then
        --C4
```

```
            Col<= "1110";
            sclk <= sclk+1;
        -- check row pins
        elsif sclk = "01100001101010001000" then
            --R1
            if Row = "0111" then
                DecodeOut <= "1010"; --A
            --R2
            elsif Row = "1011" then
                DecodeOut <= "1011"; --B
            --R3
            elsif Row = "1101" then
                DecodeOut <= "1100"; --C
            --R4
            elsif Row = "1110" then
                DecodeOut <= "1101"; --D
            end if;
            sclk <= "00000000000000000000";
        else
            sclk <= sclk+1;
        end if;
    end if;
end process;



end Behavioral;
```