Sexto Pré-Relatório

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Visto 1

VHDL

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

entity jklatch is
    Port ( PR : in  STD_LOGIC;
           CLR : in  STD_LOGIC;
           CLK : in  STD_LOGIC;
           J : in  STD_LOGIC;
           K : in  STD_LOGIC;
           Q : out  STD_LOGIC);
end jklatch;

architecture Behavioral of jklatch is
    signal JK : STD_LOGIC_VECTOR(1 downto 0);
    signal Qbuf : STD_LOGIC;
begin
    JK <= J & K;
    process(PR, CLR, CLK)
    begin
```

```
        if PR = '1' then Qbuf <= '1';
        elsif CLR = '1' then Qbuf <= '0';
        elsif rising_edge(CLK) then
            case JK is
                WHEN "00" => Qbuf <= Qbuf;
                WHEN "01" => Qbuf <= '0';
                WHEN "10" => Qbuf <= '1';
                WHEN "11" => Qbuf <= not(Qbuf);
                WHEN others => Qbuf <= Qbuf;
            end case;
        end if;
    end process;
    Q <= Qbuf;
end Behavioral;
```

UCF

```
NET CLK CLOCK_DEDICATED_ROUTE = FALSE;
NET "PR" LOC = "G3";
NET "CLR" LOC = "B4";
NET "CLK" LOC = "K3";
NET "J" LOC = "L3";
NET "K" LOC = "P11";

NET "Q" LOC = "M5";
```

Visto 2

VHDL

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

entity shifter is
    Port ( CLK : in  STD_LOGIC;
           RST : in  STD_LOGIC;
           LOAD : in  STD_LOGIC;
           D : in  STD_LOGIC_VECTOR (3 downto 0);
           DIR : in  STD_LOGIC;
           L : in  STD_LOGIC;
           R : in  STD_LOGIC;
           Q : out  STD_LOGIC_VECTOR (3 downto 0));
end shifter;

architecture Behavioral of shifter is
    signal Qbuf : STD_LOGIC_VECTOR(3 downto 0);
begin
    process(CLK)
    begin
        if RST = '1' then Qbuf <= "0000";
        elsif LOAD = '1' then Qbuf <= D;
        elsif rising_edge(CLK) then
            case DIR is
```

```
                WHEN '0' => Qbuf <= Qbuf(2 downto 0) & L;
                WHEN '1' => Qbuf <= R & Qbuf(3 downto 1);
                WHEN others => Qbuf <= Qbuf;
            end case;
        end if;
    end process;
    Q <= Qbuf;
end Behavioral;
```

UCF 1

```
NET CLK CLOCK_DEDICATED_ROUTE = FALSE;

NET "RST" LOC = "C11";
NET "LOAD" LOC = "G12";

NET "CLK" LOC = "N3";
NET "DIR" LOC = "E2";
NET "L" LOC = "F3";
NET "R" LOC = "G3";
NET "D<3>" LOC = "B4";
NET "D<2>" LOC = "K3";
NET "D<1>" LOC = "L3";
NET "D<0>" LOC = "P11";
```

```
NET "Q<3>" LOC = "P6";
NET "Q<2>" LOC = "P7";
NET "Q<1>" LOC = "M11";
NET "Q<0>" LOC = "M5";
```