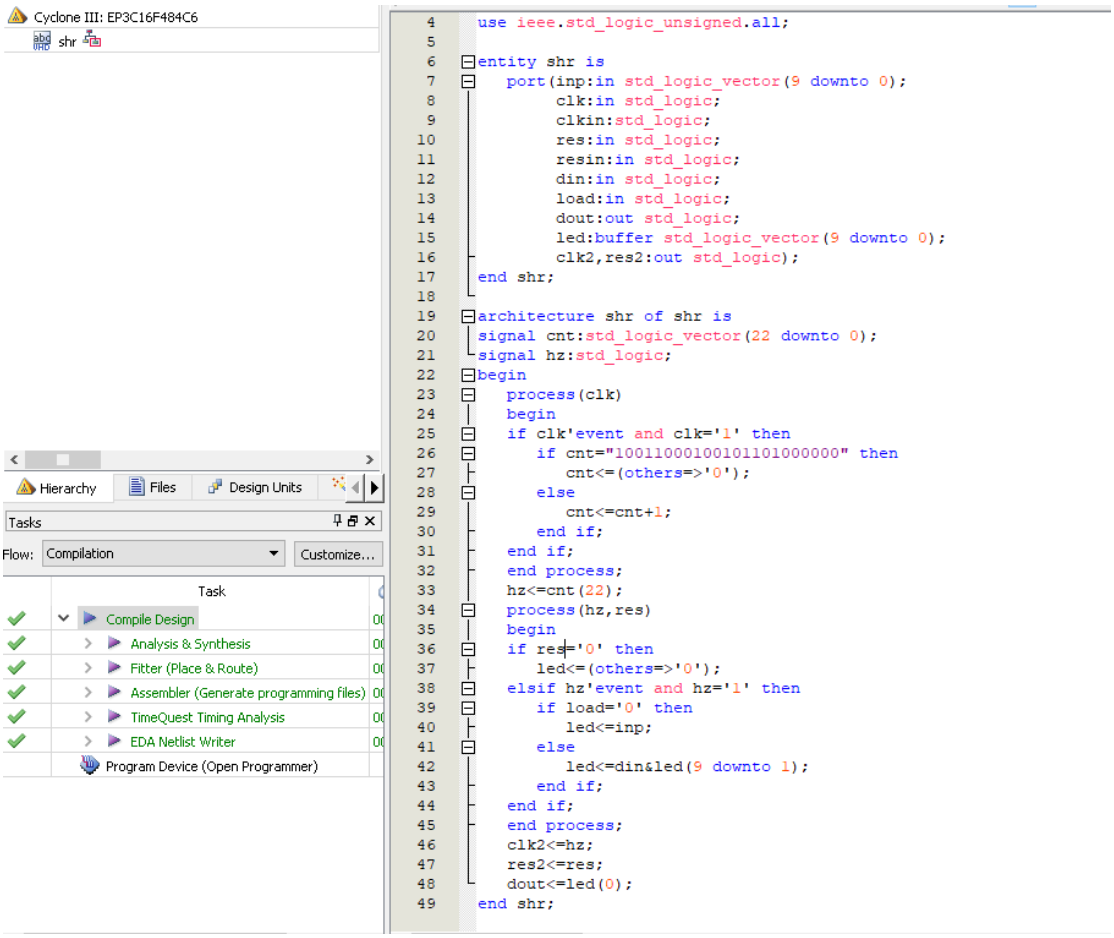
1. led shift register(main):

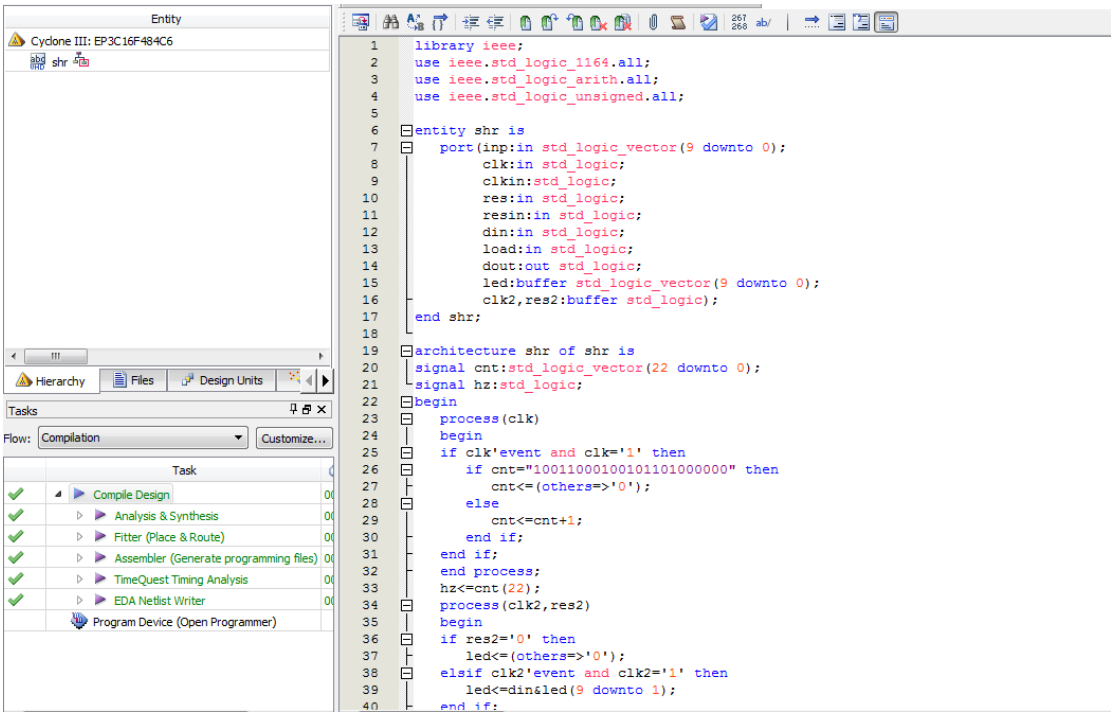



```
use ieee.std_logic_unsigned.all;

entity shr is
   port(inp:in std_logic_vector(9 downto 0);
        clk:in std_logic;
        clkin:std_logic;
        res:in std_logic;
        resin:in std_logic;
        din:in std_logic;
        load:in std_logic;
        dout:out std_logic;
        led:buffer std_logic_vector(9 downto 0);
        clk2,res2:out std_logic);
end shr;

architecture shr of shr is
signal cnt:std_logic_vector(22 downto 0);
signal hz:std_logic;
begin
   process(clk)
   begin
   if clk'event and clk='1' then
      if cnt="10011000100101101000000" then
         cnt<=(others=>'0');
      else
         cnt<=cnt+1;
      end if;
   end if;
   end process;
   hz<=cnt(22);
   process(hz,res)
   begin
   if res='0' then
      led<=(others=>'0');
   elsif hz'event and hz='1' then
      if load='0' then
         led<=inp;
      else
         led<=din&led(9 downto 1);
      end if;
   end if;
   end process;
   clk2<=hz;
   res2<=res;
   dout<=led(0);
end shr;
```

2. (vice):




```
library ieee;
use ieee.std_logic_1164.all;
use ieee.std_logic_arith.all;
use ieee.std_logic_unsigned.all;

entity shr is
   port(inp:in std_logic_vector(9 downto 0);
        clk:in std_logic;
        clkin:std_logic;
        res:in std_logic;
        resin:in std_logic;
        din:in std_logic;
        load:in std_logic;
        dout:out std_logic;
        led:buffer std_logic_vector(9 downto 0);
        clk2,res2:buffer std_logic);
end shr;

architecture shr of shr is
signal cnt:std_logic_vector(22 downto 0);
signal hz:std_logic;
begin
   process(clk)
   begin
   if clk'event and clk='1' then
      if cnt="10011000100101101000000" then
         cnt<=(others=>'0');
      else
         cnt<=cnt+1;
      end if;
   end if;
   end process;
   hz<=cnt(22);
   process(clk2,res2)
   begin
   if res2='0' then
      led<=(others=>'0');
   elsif clk2'event and clk2='1' then
      led<=din&led(9 downto 1);
   end if;
```

```
41      end process;
42      clk2<=hz;
43      res2<=res;
44      dout<=led(0);
45  end shr;
```