**LIBRARY IEEE;**

**USE IEEE.STD\_LOGIC\_1164.ALL;**

**USE IEEE.STD\_LOGIC\_UNSIGNED.ALL;**

**ENTITY LowFreqClk IS**

**PORT(rst\_n : IN STD\_LOGIC;**

**Clk\_50M : IN STD\_LOGIC;**

**clk\_1Hz : buffer STD\_LOGIC;**

**clk\_2Hz : buffer STD\_LOGIC;**

**clk\_4Hz : buffer STD\_LOGIC;**

**clk\_8Hz : buffer STD\_LOGIC);**

**END LowFreqClk;**

**ARCHITECTURE Behv OF LowFreqClk IS**

**BEGIN**

**PROCESS(Clk\_50M,rst\_n)**

**VARIABLE Count:INTEGER ;**

**BEGIN**

**IF rst\_n = '0' then**

**Count := 0 ;**

**clk\_8Hz <= '0';**

**ELSIF Clk\_50M'EVENT AND Clk\_50M='1' THEN**

**IF Count >= 3124999 THEN**

**clk\_8Hz <=not clk\_8Hz;**

**Count := 0 ;**

**ELSE**

**Count := Count + 1;**

**END IF;**

**END IF;**

**END PROCESS ;**

**PROCESS(clk\_8Hz,rst\_n)**

**BEGIN**

**IF rst\_n = '0' then**

**clk\_4Hz <= '0';**

**ELSIF Clk\_8Hz'EVENT AND Clk\_8Hz='1' THEN**

**clk\_4Hz <=not clk\_4Hz;**

**END IF;**

**END PROCESS ;**

**PROCESS(clk\_4Hz,rst\_n)**

**BEGIN**

**IF rst\_n = '0' then**

**clk\_2Hz <= '0';**

**ELSIF Clk\_4Hz'EVENT AND Clk\_4Hz='1' THEN**

**clk\_2Hz <=not clk\_2Hz;**

**END IF;**

**END PROCESS ;**

**PROCESS(clk\_2Hz,rst\_n)**

**BEGIN**

**IF rst\_n = '0' then**

**clk\_1Hz <= '0';**

**ELSIF Clk\_2Hz'EVENT AND Clk\_2Hz='1' THEN**

**clk\_1Hz <=not clk\_1Hz;**

**END IF;**

**END PROCESS ;**

**END Behv;**