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

entity odd_counter is
    Port     ( CT : in  STD_LOGIC_VECTOR (2 downto 0);
           CLK : in  STD_LOGIC;
           RST : in  STD_LOGIC;
           CNTL : out  STD_LOGIC_VECTOR (7 downto 0);
           UNDF : out  STD_LOGIC;
           OVRF : out  STD_LOGIC;
           VLD : out  STD_LOGIC);
end odd_counter;
--
____________________(ARXH_RST+CLK_CHECK)_____________________________________
_____
architecture Behavior of odd_counter is

signal CNTLtemp:  STD_LOGIC_VECTOR (7 downto 0);
signal OVRFtemp: STD_LOGIC;
signal UNDFtemp: STD_LOGIC;
signal VLDtemp: STD_LOGIC;

BEGIN
      PROCESS
                  BEGIN
                        WAIT UNTIL CLK'EVENT AND CLK = '1' ;

                        IF RST='1' THEN
                              CNTLtemp<=B"0000_0000";
                              OVRFtemp<='0';
                              UNDFtemp<='0';
                              VLDtemp<='1';

                        ELSIF UNDFtemp='1' THEN
                              CNTLtemp<= CNTLtemp;

                        ELSIF OVRFtemp='1' THEN
                              CNTLtemp<= CNTLtemp;
                        --END IF;

--
____________________(TELOS_RST+CLK_CHECK)_____________________________________
______
                  ELSE
--
_________________________(ARXH_CHECK)_____________________________________
______
                  IF (CT="111") THEN
                        If CNTLtemp >= b"1111_0100" THEN
                              OVRFtemp<='1';
                              UNDFtemp<='0';
                              VLDtemp<='0';
                        END If;

                  ELSIF (CT="110") THEN
                        If CNTLtemp >= b"1111_1010" THEN
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                        OVRFtemp<='1';
                        UNDFtemp<='0';
                        VLDtemp<='0';
                  END If;

            ELSIF (CT="101") THEN
                  If CNTLtemp >= b"1111_1011" THEN
                        OVRFtemp<='1';
                        UNDFtemp<='0';
                        VLDtemp<='0';
                  END If;

            ELSIF (CT="100") THEN
                  If CNTLtemp >= b"1111_1110" THEN
                        OVRFtemp<='1';
                        UNDFtemp<='0';
                        VLDtemp<='0';
                  END If;

            ELSIF (CT="001") THEN
                  If CNTLtemp <= b"0000_0001" THEN
                        UNDFtemp<='1';
                        OVRFtemp<='0';
                        VLDtemp<='0';
                  END If;

            ELSIF (CT="011") THEN
                  If CNTLtemp >= b"1111_1111" THEN
                        OVRFtemp<='1';
                        UNDFtemp<='0';
                        VLDtemp<='0';
                        END If;

            ELSIF (CT="000") THEN
                  If CNTLtemp <= b"0000_0100" THEN
                        UNDFtemp<='1';
                        OVRFtemp<='0';
                        VLDtemp<='0';
                  END If;

            ELSIF (CT="000") THEN
                        CNTLtemp<= CNTLtemp;

            END IF;
--
_____(TELOS_CHECK)_____
___
            --ELSE
--_____(ARXH
COUNTER)_____
                        IF CT="000" AND UNDFtemp='0' THEN
                              CNTLtemp <=CNTLtemp-5;
                        elsif CT="001" AND UNDFtemp='0' THEN
                              CNTLtemp <=CNTLtemp-2;
                        elsif CT="010" THEN
                              CNTLtemp <=CNTLtemp;
                        elsif CT="011" AND OVRFtemp='0' THEN
                              CNTLtemp <=CNTLtemp+1;
```

```
                                    elsif CT="100" AND OVRFtemp='0' THEN
                                          CNTLtemp <=CNTLtemp+2;
                                    elsif CT="101" AND OVRFtemp='0' THEN
                                          CNTLtemp<=CNTLtemp+5;
                                    elsif CT="110" AND OVRFtemp='0' THEN
                                          CNTLtemp<=CNTLtemp+6;
                                    elsif CT="111" AND OVRFtemp='0' THEN
                                          CNTLtemp <=CNTLtemp+12;
                                    END IF ;
                         END IF ;
                  END PROCESS;
                  CNTL<=CNTLtemp;
                  UNDF<=UNDFtemp;
                  OVRF<=OVRFtemp;
                  VLD<=VLDtemp;
End Behavior;
--_________________________________(TELOS
COUNTER)_____________________________________
```