1 minMax.vhd

```vhdl
LIBRARY IEEE;
USE IEEE.std_logic_1164.all;


--The functionality of this block is the following:

--This block compute the maximum and the minumum between two inputs.

entity minMax is
            generic(N: Integer:=9);
    port (
    in1 : in std_logic_vector (0 to N-1);
    in2 : in std_logic_vector (0 to N-1);

    min  : out std_logic_vector (0 to N-1);
    max  : out std_logic_vector (0 to N-1));

END minMax;

architecture behav of minMax is

signal tmpMin:std_logic_vector (0 to N-1);
signal tmpMax:std_logic_vector (0 to N-1);

begin
        tmpMax<=in1 when(in1>in2) else in2;
        tmpMin<=in1 when(in1<=in2) else in2;
        min<=tmpMin;
        max<=tmpMax;

end behav;
```