Abstract: This sub-module Comparator compares two half precision numbers and the output is a one-bit signal. The output will be ‘1’ when the first input is greater than the second one else ‘0’.

The MSB bit of both 16bits half precision inputs are compared to check the sign. If the MSB of input A is ‘1’ indicating it is a negative number the output is given as ‘0’. If both the MSB of the two inputs are same then bit no [14:0] are compared to find the magnitude. Depending on the sign bit of the inputs the output is generated. If the sign bit for both of the input is “1” and magnitude of input A is lesser than input B i.e. input A is larger than input B; the output is generated as 1 else 0. Similarly, when the MSB is 0 and magnitude of input A is lesser than input B; input A is smaller than input B the output is generated as 0 else 1.