Float-point Adder

[raised by Tianjin Zhao, contact eda2018_uestc@126.com if any question.]

Background:

Floating point numbers are common data formats in computers, so it is necessary to add floating-point numbers to hardware.

IEEE 754 single-precision binary floating-point format : binary32

- Sign bit : 1 bit ('0' = '+', '1' = '-')
- Exponent width : 8 bits (-126 to +127)
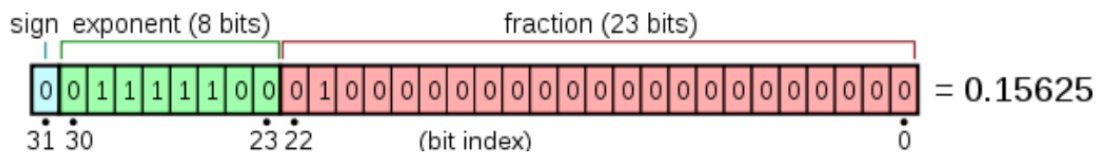- Significand precision : 24 bits
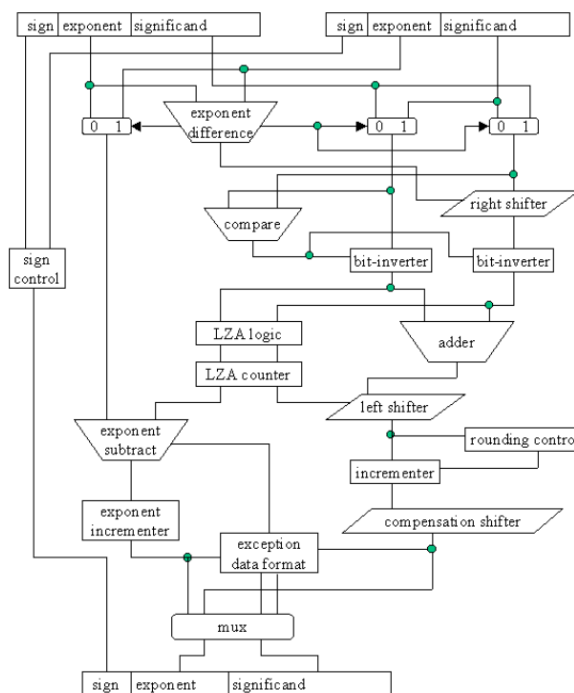

Figure 1 float-point number

Float-point adder :

Figure 2 float-point adder

Notice :
- *In this job, we default to add no overflow*
- *For details : http://users.encs.concordia.ca/~asim/COEN_6501/ Lecture_Notes/L4_Slides.pdf*
- *You can verify your results on this website : http://weitz.de/ieee/*

TASK:

1. Learn about the float-point number at internet by yourself.
2. design a float_point_adder unit.

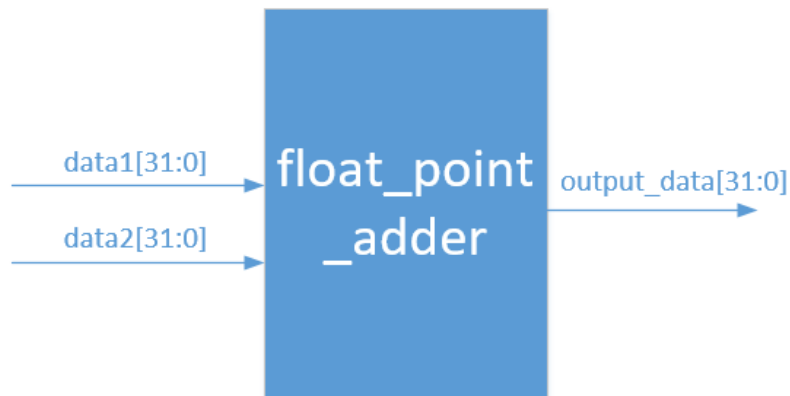## Specification:

Please look at figure 1 and table 1.

Figure 3 float_point_adder

Table 1 specification of float_point_adder

Port	Number of bits	Direction	Function
data1	32	In	32-bit Signed float input data
data2	32	In	32-bit Signed float input data
output_data	32	Out	32-bit Signed float output data

Requirements:

1. The port name must be kept strictly the same as the description table.
2. The file name must be "float_point_adder.vhd".
3. The entity name must be "float_point_adder".
4. Coding in VHDL.
5. Upload your code to eda2018_uestc@126.com.