

# Floating Point Operators

## Features

- Library composed for speed or area floating point operators
- Available for all vendors
- Easy to use interface signals
- Configurable data input size – possibility to be compliant with IEEE 754 float standard

## Application

Floating points operators can be used for applications requiring high precision as in telecommunication and signal processing.

## I/O

Signal	Direction	Width	Function
SizeM	Generic	Integer	Mantissa Number of bits
SizeE	Generic	Integer	Exponent Number of bits
Clk	IN	1 bit	Input clock
Reset_n	IN	1 bit	Reset (active Low)
Enable	IN	1 bit	Enable
Mantisse1In	IN	SizeM bit	Input Mantissa 1
Exposant1In	IN	SizeE bit	Input Exponent 1
Mantisse2In	IN	SizeM bit	Input Mantissa 2
Exposant2In	IN	SizeE bit	Input Exponent 2
EnveloppeIn	IN	1 bit	Input envelop
MantisseOut	Out	SizeM+1 bit	Output Mantissa
ExposantOut	Out	SizeE bit	Output Exponent
EnveloppeOut	Out	1 bit	Output envelop

## Functional description

Operators included in this library are:

- Adder
- Subtraction
- Multiplication
- Resizing
- Comparators

## Performance characteristics

The area and speed of the operators depend on the size of the mantissa and exponent.

Latency of the operators depends on their architectures.

For example, an adder with a mantissa of 8 bits and an exponent on 3 bits occupies 46 slices and works at 196MHz in a Virtex 2 Pro 2.