

## Features

- High speed Cordic core
- Fully pipelined
- Available for all vendors
- Easy to use interface signals

## Application

The Cordic core can be used in many applications requiring mathematical calculation (as logarithm, exponential, sine and cosine, arctangent or hyperbolic trigonometry) at full speed.

## I/O

Signal	Direction	Width	Function
Pipeline	Generic	Integer	Number of Cordic stages
Size	Generic	Integer	Input and output data width
Mode	Generic	Integer	Cordic mode
Clk	IN	1 bit	Input clock
Reset_n	IN	1 bit	Reset (active Low)
Enable	IN	1 bit	Enable
$X_i$	IN	Size bit	Input X
$Y_i$	IN	Size bit	Input Y
$Z_i$	IN	Size bit	Input Z
$X_o$	IN	Size bit	Input X
$Y_o$	IN	Size bit	Input Y
$Z_o$	IN	Size bit	Input Z

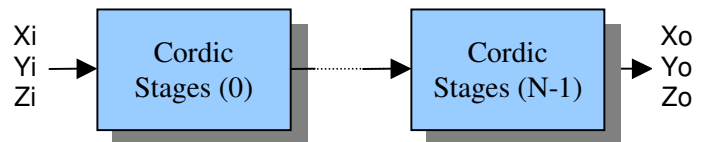
## Functional description

Depending on the mode selected, the Cordic core computes one of the following functions:

- Sine and cosine
- Arctangent
- Hyperbolic sine and cosine
- Hyperbolic arctangent
- Division

From this 5 modes, the following calculation can be easily computed:

- Logarithm
- Exponential
- Square root



## Performance characteristics

The Cordic core occupies 330 slices on Xilinx Virtex 2, and the synthesis frequency is 188MHz for the hyperbolic arctangent mode with 10 stages and words of 11 bits.

Latency of the core is equal to the number of stages.