CORDIC Algorithm

Fixed Point Simulation and Related Task

The triangle mode gets the high evaluation by the floating simulation.

Moreover, in CORDOC scenarios, the hyperbolic format CORDIC is not ideal for errors control.

Last but not least, the linear format for multiplier or divider is meaningless, for there are more effective methods researched.

It is safe to study the triangle CORDIC only in future works.

# Fixed Point Simulation

After floating simulation, the CORDIC order has been obtained. For example in the demo, there should be 12 order CORDIC if the errors with less than 1e-4 asked.

There are more details should be designed, such as the bit-wide for input and output ports, and quantized for formats for implement.

Those questions should be answered in fixed point simulation.

# Assumptions for Fixed Point Calculation

In fixed point operations, there are several methods to keep the limited wide for the result signals. In the fix point tasks, the assumptions are assigned.

* For all of the result, no defend for saturation. For example, in 8 bits assignments, (100)o + (200)o = (120)o but (300)o.
* For multiplier, the tail bits in the results should be cut. For example, in Q8.8 assumption, (56)h \* (48)h = (30)h with the tail as (00)h cut.

Task 2

## Write the structure description and design documents for fixed point CORDIC. And write the code in fixed point formation with the Matlab.

## Make a conclusion on fixed point parameters, as Input and output ports bit-wide and the CORDIC order, at certain currency as less than 1e-4.