Explanation of the code –

* Starting with the declaration of all the variables with suitable data types.
* Defining outputs and inputs for module nrd viz. quotient, remainder and x, y respectively.(outputs are of p-bit signed binaries and input are n-bit signed binary)
* Block diagram for calculations involved

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qbit = 0

qbit=1

Sign of z

q=0

r=x

count=1

Start



0

1

z=2\*rnext +y

rnext = z

z=2\*rnext – y

rnext = z

>=0

<0

yes

no

1

0

>=0

<0

count =p+1 or p+2

Count = count +2

qbit = 0

qbit=1

Sign bit of z

r = rnext

z=2\*rnext – y

rnext = z

Sign bit of rnext

r = rnext

z=2\*rnext +y

rnext = z