Notes:

a - 0 100 0000 0010 0101 0111 1110 1011 1011 (2.58586)

b - 1 100 0000 1011 1010 0010 1110 1000 1000 (-5.81818)

c - 0 100 0000 1000 0111 1100 0001 1110 1000 (4.24242)

baseconvert.com (dope converter)

<http://www.h-schmidt.net/FloatConverter/IEEE754.html> (converter)

<http://www.emo.org.tr/ekler/1c1ce13987fd3b3_ek.pdf> (paper with Mf = 1/Md)

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4232938>

reg [51:0] t1;

reg [51:0] t2;

reg [51:0] t3;

reg [51:0] t4;

reg [51:0] t5;

reg [25:0] Df; //needed another bit

Df[25:0] = {2'b01,D[22:0]}; //3.23 format

//x0 = a\*D^2 - b\*D + c (it's actually + b\*D, but b is negative)

t1[51:0] = Df[25:0] \* Df[25:0]; //D\*D, 2.24 \* 2.24 --> 4.48

t2[51:0] = t1[50:25] \* a[46:21]; //t1 \* a, 3.23 \* 3.23 --> 6.46

t3[51:0] = b[46:21] \* Df[25:0] ; //b\*D, 3.23 \* 2.24 --> 5.47

t4[47:0] = t2[49:2] + c[47:0]; //t2 + c, 4.44 + 4.44 --> 4.44

t5[47:0] = t4[47:0] - t3[50:3]; //t4 - t3, 4.44 - 4.44 --> 4.44

//hopefully t5 is in 0001.xxxx format!

// xi <= t5[43:21];