**算法1（单精度浮点除法TS6算法）**：

输入：32位单精度浮点数a，b

输出：32位单精度除法c=a/b的结果

Phase1: Prepare for TS6 Algorithm

1: A = {1’b1, a[22:0]}

2: B = {1’b1, b[22:0]}

3: U = LUT(B[22:15])

Phase2: TS6 Algorithm Steps

1: E = BU

2: L = 227 - E, T1 = 228 - E

3: T2 = L2

4: T3 = T22

5: T4 = 227 + T2 + T3

6: T6 = T1T5

7: T7 = AU

8: T8 = T6T7

Phase3: Ccorrecting errors

1: if (T8[27] == 0)

2: C = T8[26:2]

3: else

4: C = T8[27:1]

5: if (A > B)

6: A1 = A << 23

7: else

8: A1 = A << 24

9: D1 = BC - A1

10: D2 = A1 - BC

11: if (B < 2D1)

12: C\_new = C - 1

13: else if (B < 2D2)

14: C\_new = C + 1

15: else

16: C\_new = C

Phase4: Normalize to IEEE754 standard

1: if (T8[27] == 0)

2: Exp = a[30:23] - b[30:23] - 1 + 127

3: else

4: Exp = a[30:23] - b[30:23] + 127

5: Sig = a[31] ^ b[31]

6: c = {Sig, Exp, C\_new}

算法参数：

乘法器位宽n=28

LUT输入位宽为m-1=8

注意：中间乘法结果直接截断到n位，不做4舍5入操作。

LUT定义如下：

def LUT(X):

x = {9’h07f, X, 15’h7fff}

y = Float(1)/Float(x)

Y = y[22:0]

return Y