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2013#11#07

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1.3.

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[8], #####
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2.3.

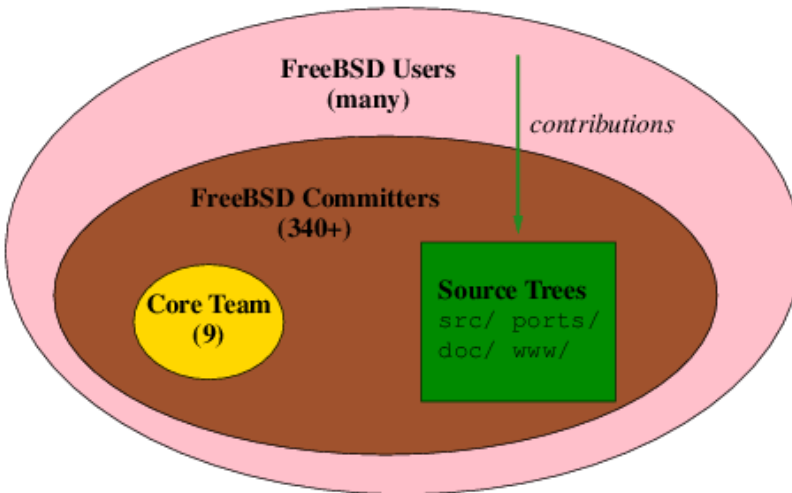
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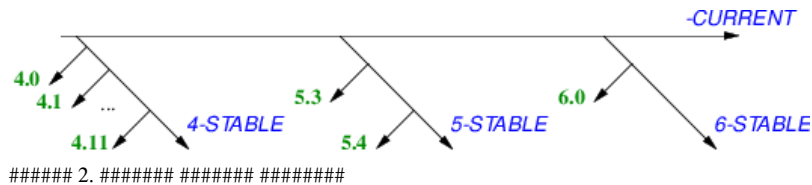
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[10].

2.4.

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-CURRENT #####.
- -STABLE ##### ## ## ## ## ## ## ## ##—
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- -RELEASE ##### ## ## ## ## ##. #####
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### [11].
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bde 2005-10-29 16:34:50 UTC

FreeBSD src repository

Modified files:

lib/msun/src e_rem_pio2f.c

Log:

Use double precision to simplify and optimize arg reduction for small and medium size args too: instead of conditionally subtracting a float 17+24, 17+17+24 or 17+17+17+24 bit approximation to $\pi/2$, always subtract a double 33+53 bit one. The float version is now closer to the double version than to old versions of itself — it uses the same 33+53 bit approximation as the simplest cases in the double version, and where the float version had to switch to the slow general case at $-|x| == 2^7 \cdot \pi/2$, it now switches at $-|x| == 2^{19} \cdot \pi/2$ the same as the double version.

This speeds up arg reduction by a factor of 2 for $-|x|$ between $3 \cdot \pi/4$ and $2^7 \cdot \pi/4$, and by a factor of 7 for $-|x|$ between $2^7 \cdot \pi/4$ and $2^{19} \cdot \pi/4$.

Revision Changes Path

1.14 +22 --97 src/lib/msun/src/e_rem_pio2f.c

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#LINE	#REV	#WHO	#DATE	#TEXT
62	1.1	(jkh	19-Aug-94):	int32_t __ieee754_rem_pio2f(float x, float *y)
63	1.1	(jkh	19-Aug-94):	{
64	1.14	(bde	29-Oct-05):	double z,w,t,r,fn;
65	1.13	(bde	29-Oct-05):	double tx[3];
66	1.14	(bde	29-Oct-05):	int32_t e0,i,nx,n,ix,hx;
67	1.1	(jkh	19-Aug-94):	
68	1.1	(jkh	19-Aug-94):	GET_FLOATT_WORD(hx,x);
69	1.1	(jkh	19-Aug-94):	ix = hx&0x7fffffff;
70	1.1	(jkh	19-Aug-94):	if(ix<=0x3f490fd8) /* - x ~<= pi/4 -, no need for -
reduction */				
71	1.1	(jkh	19-Aug-94):	{ y[0] = x; y[1] = 0; return 0; }
72	1.14	(bde	29-Oct-05):	/* 33+53 bit pi is good enough for special and medium -
size cases */				
73	1.2	(bde	07-Apr-95):	if(ix<0x4016cbe4) { /* - x < 3pi/4, special case with n=
+1 */				
74	1.14	(bde	29-Oct-05):	if(hx>0) {
75	1.15	(bde	06-Nov-05):	z = x -- pio2;
76	1.15	(bde	06-Nov-05):	n = 1;
77	1.15	(bde	06-Nov-05):	-} else {
78	1.15	(bde	06-Nov-05):	z = x + pio2;
79	1.15	(bde	06-Nov-05):	n = 3;
80	1.9	(bde	08-Oct-05):	-}
81	1.15	(bde	06-Nov-05):	y[0] = z;
82	1.15	(bde	06-Nov-05):	y[1] = z -- y[0];
83	1.15	(bde	06-Nov-05):	return n;
84	1.15	(bde	06-Nov-05):	-}
85	1.15	(bde	06-Nov-05):	if(ix<0x407b53d1) { /* - x < 5*pi/4, special case with n=
+2 */				

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[illegible]

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