

new/usr/src/lib/libmvec/Makefile.com

1

5671 Wed Oct 29 13:16:08 2014
new/usr/src/lib/libmvec/Makefile.com
libmvec: further undef'ing (LIBMVEC_SO_BUILD)

```
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2 # This file and its contents are supplied under the terms of the
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5 # 1.0 of the CDDL.
6 #
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9 # http://www.illumos.org/license/CDDL.
10 #
12 #
13 # Copyright 2011 Nexenta Systems, Inc. All rights reserved.
14 #
```

16 LIBMDIR = \$(SRC)/lib/libm

```
18 mvecOBSJS = \
19   _vTBL_atan1.o \
20   _vTBL_atan2.o \
21   _vTBL_rsqrto.o \
22   _vTBL_sincos.o \
23   _vTBL_sincos2.o \
24   _vTBL_sqrtfo.o \
25   _vatan.o \
26   _vatan2.o \
27   _vatan2fo.o \
28   _vatanfo.o \
29   _vc_abs.o \
30   _vc_exp.o \
31   _vc_log.o \
32   _vc_pow.o \
33   _vcos.o \
34   _vcosbig.o \
35   _vcosbigfo.o \
36   _vcosfo.o \
37   _vexp.o \
38   _vexpfo.o \
39   _vhypot.o \
40   _vhypotfo.o \
41   _vlog.o \
42   _vlogfo.o \
43   _vpow.o \
44   _vpowfo.o \
45   _vrem_pio2m.o \
46   _vrhypot.o \
47   _vrhypotfo.o \
48   _vrsqrto.o \
49   _vrsqrtofo.o \
50   _vsin.o \
51   _vsinbig.o \
52   _vsinbigfo.o \
53   _vsincos.o \
54   _vsincosbig.o \
55   _vsincosbigfo.o \
56   _vsincosfo.o \
57   _vsinf.o \
58   _vsqrto.o \
59   _vsqrtofo.o \
60   _vz_abs.o \
61   _vz_exp.o \
```

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```
62   _vz_log.o \
63   _vz_pow.o \
64   _vatan2.o \
65   _vatan2fo.o \
66   _vatan.o \
67   _vatanfo.o \
68   _vc_abs.o \
69   _vc_exp.o \
70   _vc_log.o \
71   _vc_pow.o \
72   _vcos.o \
73   _vcosfo.o \
74   _vexp.o \
75   _vexpfo.o \
76   _vhypot.o \
77   _vhypotfo.o \
78   _vlog.o \
79   _vlogfo.o \
80   _vpow.o \
81   _vpowfo.o \
82   _vrhypot.o \
83   _vrhypotfo.o \
84   _vrsqrto.o \
85   _vrsqrtofo.o \
86   _vsin.o \
87   _vsincos.o \
88   _vsincosfo.o \
89   _vsinf.o \
90   _vsqrto.o \
91   _vsqrtofo.o \
92   _vz_abs.o \
93   _vz_exp.o \
94   _vz_log.o \
95   _vz_pow.o \
96   #end
```

```
98 mvecvisCOBSJS = \
99   _vTBL_atan1.o \
100   _vTBL_atan2.o \
101   _vTBL_rsqrto.o \
102   _vTBL_sincos.o \
103   _vTBL_sincos2.o \
104   _vTBL_sqrtfo.o \
105   _vcosbig.o \
106   _vcosbigfo.o \
107   _vrem_pio2m.o \
108   _vsinbig.o \
109   _vsinbigfo.o \
110   _vsincosbig.o \
111   _vsincosbigfo.o \
112   #end
```

```
114 mvecvisSOBSJS = \
115   _vatan.o \
116   _vatan2.o \
117   _vatan2fo.o \
118   _vatanfo.o \
119   _vcos.o \
120   _vcosfo.o \
121   _vexp.o \
122   _vexpfo.o \
123   _vhypot.o \
124   _vhypotfo.o \
125   _vlog.o \
126   _vlogfo.o \
127   _vpow.o \
```

new/usr/src/lib/libmvec/Makefile.com

```
128      __vpowf.o \
129      __vrhypot.o \
130      __vrhypotf.o \
131      __vrsqrt.o \
132      __vrsqrtf.o \
133      __vsin.o \
134      __vsincos.o \
135      __vsincosf.o \
136      __vsinf.o \
137      __vsqrt.o \
138      __vsqrtf.o \
139      #end

141 mvecvis2COBJS = \
142     __vTBL_sincos.o \
143     __vTBL_sincos2.o \
144     __vTBL_sqrtf.o \
145     __vcosbig.o \
146     __vcosbig_ultra3.o \
147     __vrem_pio2m.o \
148     __vsinbig.o \
149     __vsinbig_ultra3.o \
150     #end

152 mvecvis2SOBJS = \
153     __vcos_ultra3.o \
154     __vlog_ultra3.o \
155     __vsin_ultra3.o \
156     __vsqrtf_ultra3.o \
157     #end

159 include $(SRC)/lib/Makefile.lib
160 include $(SRC)/lib/Makefile.rootfs
161 include $(LIBMDIR)/Makefile.libm.com

163 LIBS      = $(DYNLIB)
164 SRCDIR     = ../common/
165 DYNFLAGS   += -zignore

167 LINTERROFF = -erroff=E_FP_DIVISION_BY_ZERO
168 LINTERROFF += -erroff=E_FP_INVALID
169 LINTERROFF += -erroff=E_BAD_PTR_CAST_ALIGN
170 LINTERROFF += -erroff=E_ASSIGNMENT_CAUSE_LOSS_PREC
171 LINTERROFF += -erroff=E_FUNC_SET_NOT_USED

173 LINTFLAGS  += $(LINTERROFF)
174 LINTFLAGS64 += $(LINTERROFF)
175 LINTFLAGS64 += -errchk=longptr64

177 CLAGS      += $(LINTERROFF)
178 CFLAGS64    += $(LINTERROFF)

180 ASDEF      += -DLIBMVEC_SO_BUILD

180 FLTRPATH_sparc      = $$ORIGIN/cpu/$$ISALIST/libmvec_isa.so.1
181 FLTRPATH_sparcv9    = $$ORIGIN/./cpu/$$ISALIST/sparcv9/libmvec_isa.so.1
182 FLTRPATH_i386       = $$ORIGIN/libmvec/$$HWCAP
183 FLTRPATH            = $(FLTRPATH_$(TARGET_ARCH))

185 sparc_CFLAGS += -_cc=-W0,-xintrinsic
186 sparcv9_CFLAGS += -_cc=-W0,-xintrinsic
187 CPPFLAGS_i386  += -Dfabs=__fabs

191 CPPFLAGS      += -DLIBMVEC_SO_BUILD

189 SRCS_mvec_i386 = \
```

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new/usr/src/lib/libmvec/Makefile.com

```
190     ../common/__vsqrtf.c \
191     #end

193 SRCS_mvec_sparc = \
194     $(SRCS_mvec_i386) \
195     #end
196 SRCS_mvec_sparcv9 = \
197     $(SRCS_mvec_i386) \
198     #end

200 SRCS_mvec = \
201     $(SRCS_mvec_$(TARGETMACH)) \
202     ../common/__vTBL_atan1.c \
203     ../common/__vTBL_atan2.c \
204     ../common/__vTBL_rsqrt.c \
205     ../common/__vTBL_sincos.c \
206     ../common/__vTBL_sincos2.c \
207     ../common/__vTBL_sqrtf.c \
208     ../common/__vatan.c \
209     ../common/__vatan2.c \
210     ../common/__vatan2f.c \
211     ../common/__vatanf.c \
212     ../common/__vc_abs.c \
213     ../common/__vc_exp.c \
214     ../common/__vc_log.c \
215     ../common/__vc_pow.c \
216     ../common/__vcos.c \
217     ../common/__vcosbig.c \
218     ../common/__vcosbigf.c \
219     ../common/__vcosf.c \
220     ../common/__vexp.c \
221     ../common/__vexpf.c \
222     ../common/__vhypot.c \
223     ../common/__vhypotf.c \
224     ../common/__vlog.c \
225     ../common/__vlogf.c \
226     ../common/__vpow.c \
227     ../common/__vpowf.c \
228     ../common/__vrem_pio2m.c \
229     ../common/__vrhypot.c \
230     ../common/__vrhypotf.c \
231     ../common/__vrsqrt.c \
232     ../common/__vrsqrtf.c \
233     ../common/__vsin.c \
234     ../common/__vsinbig.c \
235     ../common/__vsinbigf.c \
236     ../common/__vsincos.c \
237     ../common/__vsincosbig.c \
238     ../common/__vsincosbigf.c \
239     ../common/__vsincosf.c \
240     ../common/__vsinf.c \
241     ../common/__vsqrt.c \
242     ../common/__vz_abs.c \
243     ../common/__vz_exp.c \
244     ../common/__vz_log.c \
245     ../common/__vz_pow.c \
246     ../common/__vatan2.c \
247     ../common/__vatan2f.c \
248     ../common/__vatan.c \
249     ../common/__vatanf.c \
250     ../common/__vc_abs.c \
251     ../common/__vc_exp.c \
252     ../common/__vc_log.c \
253     ../common/__vc_pow.c \
254     ../common/__vcos.c \
255     ../common/__vcosf.c \
```

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new/usr/src/lib/libmvec/Makefile.com

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```
256      ../common/vexp_.c \
257      ../common/vexpf_.c \
258      ../common/vhypot_.c \
259      ../common/vhypotf_.c \
260      ../common/vlog_.c \
261      ../common/vlogf_.c \
262      ../common/vpow_.c \
263      ../common/vpowf_.c \
264      ../common/vrhypot_.c \
265      ../common/vrhypotf_.c \
266      ../common/vrsqrt_.c \
267      ../common/vrsqrtf_.c \
268      ../common/vsin_.c \
269      ../common/vsincos_.c \
270      ../common/vsincosf_.c \
271      ../common/vsinf_.c \
272      ../common/vsqr_.c \
273      ../common/vsqrftf_.c \
274      ../common/vz_abs_.c \
275      ../common/vz_exp_.c \
276      ../common/vz_log_.c \
277      ../common/vz_pow_.c \
278      #end

280 .KEEP_STATE:

282 all:      $(LIBS)

284 lint:     lintcheck

286 pics/%.o: ../$(TARGET_ARCH)/src/%.S
287             $(COMPILE.s) -o $@ $<
288             $(POST_PROCESS_O)

290 pics/%.o: ../common/$(CHIP)/%.S
291             $(COMPILE.s) -o $@ $<
292             $(POST_PROCESS_O)
```

new/usr/src/lib/libmvec/common/vcos_.c

1

```
*****
1235 Wed Oct 29 13:16:09 2014
new/usr/src/lib/libmvec/common/vcos_.c
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

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19 * CDDL HEADER END
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22 /*
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24 */
25 /*
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28 */

30 extern void __vcos(int, double *, int, double *, int);

32 #if !defined(LIBMVEC_SO_BUILD)
33 #if defined(ARCH_v8plusa) || defined(ARCH_v8plusb) || defined(ARCH_v9a) || defin
34 #define CHECK_ULTRA3
35 #endif
36 #endif /* !defined(LIBMVEC_SO_BUILD) */

38 #ifdef CHECK_ULTRA3
39 #include <strings.h>
40 #define sysinfo _sysinfo
41 #include <sys/systeminfo.h>

43 #define BUFLen 257

45 static int use_ultra3 = 0;

47 extern void __vcos_ultra3(int, double *, int, double *, int);
48 #endif

32 #pragma weak vcos_ = __vcos_

34 /* just invoke the serial function */
35 void
36 __vcos_(int *n, double *x, int *stridex, double *y, int *stridey)
37 {
56 #ifdef CHECK_ULTRA3
57     int u;
58     char buf[BUFLen];

60     u = use_ultra3;
61     if (!u) {
```

new/usr/src/lib/libmvec/common/vcos_.c

2

```
62     /* use __vcos_ultra3 on Cheetah (and ???) */
63     if (sysinfo(SI_ISALIST, buf, BUFLen) > 0 && !strcmp(buf, "sparc
64         u = 3;
65     else
66         u = 1;
67     use_ultra3 = u;
68 }
69 if (u & 2)
70     __vcos_ultra3(*n, x, *stridex, y, *stridey);
71 else
72 #endif
38     __vcos(*n, x, *stridex, y, *stridey);
39 }
    unchanged_portion_omitted
```

new/usr/src/lib/libmvec/common/vis/_vcos_ultra3.S

1

```
*****
49892 Wed Oct 29 13:16:09 2014
new/usr/src/lib/libmvec/common/vis/_vcos_ultra3.S
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

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17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */
21 /*
22 * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
23 */
24 /*
25 * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
26 * Use is subject to license terms.
27 */

29      .file      "_vcos_ultra3.S"

31 #include "libm.h"
32 #if defined(LIBMVEC_SO_BUILD)
33     .weak      __vcos
34     .type      __vcos, #function
35     __vcos = __vcos_ultra3
36 #endif

36      RO_DATA
37      .align    64
38 constants:
39      .word     0x42c80000, 0x00000000 ! 3 * 2^44
40      .word     0x43380000, 0x00000000 ! 3 * 2^51
41      .word     0x3fe45f30, 0x6dc9c883 ! invpio2
42      .word     0x3ff921fb, 0x54442c00 ! pio2_1
43      .word     0x3d318469, 0x898cc400 ! pio2_2
44      .word     0x3a71701b, 0x839a2520 ! pio2_3
45      .word     0xbfc55555, 0x55555533 ! pp1
46      .word     0x3f811111, 0x10e7d53b ! pp2
47      .word     0xbf2a0167, 0xe6b3cf9b ! pp3
48      .word     0xbfdfffff, 0xffffffff ! qq1
49      .word     0x3fa55555, 0x54f88ed0 ! qq2
50      .word     0xbf56c12c, 0xdd185f60 ! qq3

52 ! local storage indices

54 #define xsave      STACK_BIAS-0x8
55 #define ysave      STACK_BIAS-0x10
56 #define nsave      STACK_BIAS-0x14
57 #define xsxsave    STACK_BIAS-0x18
58 #define sysave     STACK_BIAS-0x1c
59 #define biguns      STACK_BIAS-0x20
```

new/usr/src/lib/libmvec/common/vis/_vcos_ultra3.S

2

```
60 #define nk3        STACK_BIAS-0x24
61 #define nk2        STACK_BIAS-0x28
62 #define nk1        STACK_BIAS-0x2c
63 #define nk0        STACK_BIAS-0x30
64 #define junk       STACK_BIAS-0x38
65 ! sizeof temp storage - must be a multiple of 16 for V9
66 #define tmps       0x40

68 ! register use

70 ! i0  n
71 ! i1  x
72 ! i2  stridx
73 ! i3  y
74 ! i4  stridey
75 ! i5  0x80000000

77 ! l0  hx0
78 ! l1  hx1
79 ! l2  hx2
80 ! l3  hx3
81 ! l4  k0
82 ! l5  k1
83 ! l6  k2
84 ! l7  k3

86 ! the following are 64-bit registers in both V8+ and V9

88 ! g1  __vlibm_TBL_sincos2
89 ! g5  scratch

91 ! o0  py0
92 ! o1  py1
93 ! o2  py2
94 ! o3  py3
95 ! o4  0x3e400000
96 ! o5  0x3fe921fb, 0x4099251e
97 ! o7  scratch

99 ! f0  hx0
100 ! f2
101 ! f4
102 ! f6
103 ! f8  hx1
104 ! f10
105 ! f12
106 ! f14
107 ! f16 hx2
108 ! f18
109 ! f20
110 ! f22
111 ! f24 hx3
112 ! f26
113 ! f28
114 ! f30
115 ! f32
116 ! f34
117 ! f36
118 ! f38

120 #define c3two44 %f40
121 #define c3two51 %f42
122 #define invpio2 %f44
123 #define pio2_1 %f46
124 #define pio2_2 %f48
125 #define pio2_3 %f50
```

```

126 #define pp1    %f52
127 #define pp2    %f54
128 #define pp3    %f56
129 #define qq1    %f58
130 #define qq2    %f60
131 #define qq3    %f62

133     ENTRY(__vcos_ultra3)
134     save    %sp, -SA(MINFRAME)-tmps, %sp
135     PIC_SETUP(17)
136     PIC_SET(17, constants, 00)
137     PIC_SET(17, __vlibm_TBL_sincos2, 01)
138     mov     %01, %g1
139     wr      %g0, 0x82, %asi      ! set %asi for non-faulting loads
140 #ifdef __sparcv9
141     stx     %i1, [%fp+xsave]     ! save arguments
142     stx     %i3, [%fp+ysave]
143 #else
144     st      %i1, [%fp+xsave]     ! save arguments
145     st      %i3, [%fp+ysave]
146 #endif
147     st      %i0, [%fp+nsave]
148     st      %i2, [%fp+sxsave]
149     st      %i4, [%fp+sysave]
150     st      %g0, [%fp+biguns]    ! biguns = 0
151     ldd     [%00+0x00], c3two44  ! load/set up constants
152     ldd     [%00+0x08], c3two51
153     ldd     [%00+0x10], invpio2
154     ldd     [%00+0x18], pio2_1
155     ldd     [%00+0x20], pio2_2
156     ldd     [%00+0x28], pio2_3
157     ldd     [%00+0x30], pp1
158     ldd     [%00+0x38], pp2
159     ldd     [%00+0x40], pp3
160     ldd     [%00+0x48], qq1
161     ldd     [%00+0x50], qq2
162     ldd     [%00+0x58], qq3
163     sethi   %hi(0x80000000), %i5
164     sethi   %hi(0x3e400000), %o4
165     sethi   %hi(0x3fe921fb), %o5
166     or      %o5, %lo(0x3fe921fb), %o5
167     sllx    %o5, 32, %o5
168     sethi   %hi(0x4099251e), %o7
169     or      %o7, %lo(0x4099251e), %o7
170     or      %o5, %o7, %o5
171     sll     %i2, 3, %i2          ! scale strides
172     sll     %i4, 3, %i4
173     add     %fp, junk, %o1       ! loop prologue
174     add     %fp, junk, %o2
175     add     %fp, junk, %o3
176     ld      [%i1], %l0          ! *x
177     ld      [%i1], %f0
178     ld      [%i1+4], %f3
179     andn    %l0, %i5, %l0       ! mask off sign
180     add     %i1, %i2, %i1       ! x += stridex
181     ba      .loop0
182     nop

184 ! 16-byte aligned
185     .align 16
186 .loop0:
187     lda     [%i1]%asi, %l1      ! preload next argument
188     sub     %l0, %o4, %g5
189     sub     %o5, %l0, %o7
190     fabss   %f0, %f2

```

```

192     lda     [%i1]%asi, %f8
193     orcc    %o7, %g5, %g0
194     mov     %i3, %o0
195     bl, pn  %icc, .range0      ! py0 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

197 ! delay slot
198     lda     [%i1+4]%asi, %f11
199     addcc   %i0, -1, %i0
200     add     %i3, %i4, %i3      ! y += stridey
201     ble, pn %icc, .last1

203 ! delay slot
204     andn    %l1, %i5, %l1
205     add     %i1, %i2, %i1      ! x += stridex
206     fadddd %f2, c3two44, %f4
207     st      %f15, [%01+4]

209 .loop1:
210     lda     [%i1]%asi, %l2      ! preload next argument
211     sub     %l1, %o4, %g5
212     sub     %o5, %l1, %o7
213     fabss   %f8, %f10

215     lda     [%i1]%asi, %f16
216     orcc    %o7, %g5, %g0
217     mov     %i3, %o1
218     bl, pn  %icc, .range1      ! py1 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

220 ! delay slot
221     lda     [%i1+4]%asi, %f19
222     addcc   %i0, -1, %i0
223     add     %i3, %i4, %i3      ! y += stridey
224     ble, pn %icc, .last2

226 ! delay slot
227     andn    %l2, %i5, %l2
228     add     %i1, %i2, %i1      ! x += stridex
229     fadddd %f10, c3two44, %f12
230     st      %f23, [%02+4]

232 .loop2:
233     lda     [%i1]%asi, %l3      ! preload next argument
234     sub     %l2, %o4, %g5
235     sub     %o5, %l2, %o7
236     fabss   %f16, %f18

238     lda     [%i1]%asi, %f24
239     orcc    %o7, %g5, %g0
240     mov     %i3, %o2
241     bl, pn  %icc, .range2      ! py2 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

243 ! delay slot
244     lda     [%i1+4]%asi, %f27
245     addcc   %i0, -1, %i0
246     add     %i3, %i4, %i3      ! y += stridey
247     ble, pn %icc, .last3

249 ! delay slot
250     andn    %l3, %i5, %l3
251     add     %i1, %i2, %i1      ! x += stridex
252     fadddd %f18, c3two44, %f20
253     st      %f31, [%03+4]

255 .loop3:
256     sub     %l3, %o4, %g5
257     sub     %o5, %l3, %o7

```

```

258      fabss    %f24,%f26
259      st       %f5, [%fp+nk0]

261      orcc     %07,%g5,%g0
262      mov      %i3,%o3          ! py3 = y
263      bl,pn    %icc,.range3     ! hx < 0x3e400000 or > hx 0x4099251e
264 ! delay slot
265      st       %f13, [%fp+nk1]

267 !!! DONE?
268 .cont:
269      srlx     %o5,32,%o7
270      add      %i3,%i4,%i3      ! y += stridey
271      fmovs    %f3,%f1
272      st       %f21, [%fp+nk2]

274      sub      %o7,%l0,%l0
275      sub      %o7,%l1,%l1
276      fadddd   %f26,c3two44,%f28
277      st       %f29, [%fp+nk3]

279      sub      %o7,%l2,%l2
280      sub      %o7,%l3,%l3
281      fmovs    %f11,%f9

283      or       %l0,%l1,%l0
284      or       %l2,%l3,%l2
285      fmovs    %f19,%f17

287      fmovs    %f27,%f25
288      fmuld    %f0,invpio2,%f6    ! x * invpio2, for medium range

290      fmuld    %f8,invpio2,%f14
291      ld       [%fp+nk0],%l4

293      fmuld    %f16,invpio2,%f22
294      ld       [%fp+nk1],%l5

296      orcc     %l0,%l2,%g0
297      bl,pn    %icc,.medium
298 ! delay slot
299      fmuld    %f24,invpio2,%f30
300      ld       [%fp+nk2],%l6

302      ld       [%fp+nk3],%l7
303      sll      %l4,5,%l4          ! k
304      fcmpd    %fcc0,%f0,pio2_3   ! x < pio2_3 iff x < 0

306      sll      %l5,5,%l5
307      ldd      [%l4+%g1],%f4
308      fcmpd    %fcc1,%f8,pio2_3

310      sll      %l6,5,%l6
311      ldd      [%l5+%g1],%f12
312      fcmpd    %fcc2,%f16,pio2_3

314      sll      %l7,5,%l7
315      ldd      [%l6+%g1],%f20
316      fcmpd    %fcc3,%f24,pio2_3

318      ldd      [%l7+%g1],%f28
319      fsubd    %f2,%f4,%f2        ! x -= __vlibm_TBL_sincos2[k]

321      fsubd    %f10,%f12,%f10

323      fsubd    %f18,%f20,%f18

```

```

325      fsubd    %f26,%f28,%f26

327      fmuld    %f2,%f2,%f0          ! z = x * x

329      fmuld    %f10,%f10,%f8

331      fmuld    %f18,%f18,%f16

333      fmuld    %f26,%f26,%f24

335      fmuld    %f0,qq3,%f6

337      fmuld    %f8,qq3,%f14

339      fmuld    %f16,qq3,%f22

341      fmuld    %f24,qq3,%f30

343      fadddd   %f6,qq2,%f6
344      fmuld    %f0,pp2,%f4

346      fadddd   %f14,qq2,%f14
347      fmuld    %f8,pp2,%f12

349      fadddd   %f22,qq2,%f22
350      fmuld    %f16,pp2,%f20

352      fadddd   %f30,qq2,%f30
353      fmuld    %f24,pp2,%f28

355      fmuld    %f0,%f6,%f6
356      fadddd   %f4,pp1,%f4

358      fmuld    %f8,%f14,%f14
359      fadddd   %f12,pp1,%f12

361      fmuld    %f16,%f22,%f22
362      fadddd   %f20,pp1,%f20

364      fmuld    %f24,%f30,%f30
365      fadddd   %f28,pp1,%f28

367      fadddd   %f6,qq1,%f6
368      fmuld    %f0,%f4,%f4
369      add      %l4,%g1,%l4

371      fadddd   %f14,qq1,%f14
372      fmuld    %f8,%f12,%f12
373      add      %l5,%g1,%l5

375      fadddd   %f22,qq1,%f22
376      fmuld    %f16,%f20,%f20
377      add      %l6,%g1,%l6

379      fadddd   %f30,qq1,%f30
380      fmuld    %f24,%f28,%f28
381      add      %l7,%g1,%l7

383      fmuld    %f2,%f4,%f4

385      fmuld    %f10,%f12,%f12

387      fmuld    %f18,%f20,%f20

389      fmuld    %f26,%f28,%f28

```

```

391      fmulld    %f0,%f6,%f6
392      fadddd    %f4,%f2,%f4
393      ldd       [%l4+16],%f32

395      fmulld    %f8,%f14,%f14
396      fadddd    %f12,%f10,%f12
397      ldd       [%l5+16],%f34

399      fmulld    %f16,%f22,%f22
400      fadddd    %f20,%f18,%f20
401      ldd       [%l6+16],%f36

403      fmulld    %f24,%f30,%f30
404      fadddd    %f28,%f26,%f28
405      ldd       [%l7+16],%f38

407      fmulld    %f32,%f6,%f6
408      ldd       [%l4+8],%f2

410      fmulld    %f34,%f14,%f14
411      ldd       [%l5+8],%f10

413      fmulld    %f36,%f22,%f22
414      ldd       [%l6+8],%f18

416      fmulld    %f38,%f30,%f30
417      ldd       [%l7+8],%f26

419      fmulld    %f2,%f4,%f4

421      fmulld    %f10,%f12,%f12

423      fmulld    %f18,%f20,%f20

425      fmulld    %f26,%f28,%f28

427      fsubdd    %f6,%f4,%f6
428      lda       [%i1]%asi,%l0      ! preload next argument

430      fsubdd    %f14,%f12,%f14
431      lda       [%i1]%asi,%f0

433      fsubdd    %f22,%f20,%f22
434      lda       [%i1+4]%asi,%f3

436      fsubdd    %f30,%f28,%f30
437      andn      %l0,%i5,%l0
438      add       %i1,%i2,%i1

440      fadddd    %f6,%f32,%f6
441      st        %f6, [%o0]

443      fadddd    %f14,%f34,%f14
444      st        %f14, [%o1]

446      fadddd    %f22,%f36,%f22
447      st        %f22, [%o2]

449      fadddd    %f30,%f38,%f30
450      st        %f30, [%o3]
451      addcc     %i0, -1,%i0

453      bg,pt     %icc, .loop0
454 ! delay slot
455      st        %f7, [%o0+4]

```

```

457      ba,pt     %icc, .end
458 ! delay slot
459      nop

462      .align    16
463 .medium:
464      fadddd    %f6, c3two51,%f4
465      st        %f5, [%fp+nk0]

467      fadddd    %f14, c3two51,%f12
468      st        %f13, [%fp+nk1]

470      fadddd    %f22, c3two51,%f20
471      st        %f21, [%fp+nk2]

473      fadddd    %f30, c3two51,%f28
474      st        %f29, [%fp+nk3]

476      fsubdd    %f4, c3two51,%f6

478      fsubdd    %f12, c3two51,%f14

480      fsubdd    %f20, c3two51,%f22

482      fsubdd    %f28, c3two51,%f30

484      fmulld    %f6, pio2_1,%f2
485      ld        [%fp+nk0],%l0      ! n

487      fmulld    %f14, pio2_1,%f10
488      ld        [%fp+nk1],%l1

490      fmulld    %f22, pio2_1,%f18
491      ld        [%fp+nk2],%l2

493      fmulld    %f30, pio2_1,%f26
494      ld        [%fp+nk3],%l3

496      fsubdd    %f0,%f2,%f0
497      fmulld    %f6, pio2_2,%f4
498      add       %l0, 1,%l0

500      fsubdd    %f8,%f10,%f8
501      fmulld    %f14, pio2_2,%f12
502      add       %l1, 1,%l1

504      fsubdd    %f16,%f18,%f16
505      fmulld    %f22, pio2_2,%f20
506      add       %l2, 1,%l2

508      fsubdd    %f24,%f26,%f24
509      fmulld    %f30, pio2_2,%f28
510      add       %l3, 1,%l3

512      fsubdd    %f0,%f4,%f32

514      fsubdd    %f8,%f12,%f34

516      fsubdd    %f16,%f20,%f36

518      fsubdd    %f24,%f28,%f38

520      fsubdd    %f0,%f32,%f0
521      fcmple32  %f32, pio2_3,%l4      ! x <= pio2_3 iff x < 0

```

```

523     fsubd    %f8,%f34,%f8
524     fcmlple32 %f34,%f34,%f15

526     fsubd    %f16,%f36,%f16
527     fcmlple32 %f36,%f36,%f16

529     fsubd    %f24,%f38,%f24
530     fcmlple32 %f38,%f38,%f17

532     fsubd    %f0,%f4,%f0
533     fmuld    %f6,%f6,%f6
534     sll      %14,30,%14          ! if (x < 0) n = -n ^ 2

536     fsubd    %f8,%f12,%f8
537     fmuld    %f14,%f14,%f14
538     sll      %15,30,%15

540     fsubd    %f16,%f20,%f16
541     fmuld    %f22,%f22,%f22
542     sll      %16,30,%16

544     fsubd    %f24,%f28,%f24
545     fmuld    %f30,%f30,%f30
546     sll      %17,30,%17

548     fsubd    %f6,%f0,%f6
549     sra      %14,31,%14

551     fsubd    %f14,%f8,%f14
552     sra      %15,31,%15

554     fsubd    %f22,%f16,%f22
555     sra      %16,31,%16

557     fsubd    %f30,%f24,%f30
558     sra      %17,31,%17

560     fsubd    %f32,%f6,%f0          ! reduced x
561     xor      %10,%14,%10

563     fsubd    %f34,%f14,%f8
564     xor      %11,%15,%11

566     fsubd    %f36,%f22,%f16
567     xor      %12,%16,%12

569     fsubd    %f38,%f30,%f24
570     xor      %13,%17,%13

572     fabsd    %f0,%f2
573     sub      %10,%14,%10

575     fabsd    %f8,%f10
576     sub      %11,%15,%11

578     fabsd    %f16,%f18
579     sub      %12,%16,%12

581     fabsd    %f24,%f26
582     sub      %13,%17,%13

584     fadddd   %f2,c3two44,%f4
585     st       %f5,[%fp+nk0]
586     and      %14,2,%14

```

```

588     fadddd   %f10,c3two44,%f12
589     st       %f13,[%fp+nk1]
590     and      %15,2,%15

592     fadddd   %f18,c3two44,%f20
593     st       %f21,[%fp+nk2]
594     and      %16,2,%16

596     fadddd   %f26,c3two44,%f28
597     st       %f29,[%fp+nk3]
598     and      %17,2,%17

600     fsubd    %f32,%f0,%f4
601     xor      %10,%14,%10

603     fsubd    %f34,%f8,%f12
604     xor      %11,%15,%11

606     fsubd    %f36,%f16,%f20
607     xor      %12,%16,%12

609     fsubd    %f38,%f24,%f28
610     xor      %13,%17,%13

612     fzero    %f38
613     ld       [%fp+nk0],%14

615     fsubd    %f4,%f6,%f6          ! w
616     ld       [%fp+nk1],%15

618     fsubd    %f12,%f14,%f14
619     ld       [%fp+nk2],%16

621     fnegd    %f38,%f38
622     ld       [%fp+nk3],%17
623     sll      %14,5,%14          ! k

625     fsubd    %f20,%f22,%f22
626     sll      %15,5,%15

628     fsubd    %f28,%f30,%f30
629     sll      %16,5,%16

631     fand     %f0,%f38,%f32          ! sign bit of x
632     ldd      [%14+%g1],%f4
633     sll      %17,5,%17

635     fand     %f8,%f38,%f34
636     ldd      [%15+%g1],%f12

638     fand     %f16,%f38,%f36
639     ldd      [%16+%g1],%f20

641     fand     %f24,%f38,%f38
642     ldd      [%17+%g1],%f28

644     fsubd    %f2,%f4,%f2          ! x -= __vlibm_TBL_sincos2[k]

646     fsubd    %f10,%f12,%f10

648     fsubd    %f18,%f20,%f18
649     nop

651     fsubd    %f26,%f28,%f26
652     nop

```

```

654 ! 16-byte aligned
655      fmulld    %f2,%f2,%f0          ! z = x * x
656      andcc    %l0,1,%q0
657      bz, pn    %icc, .case8
658 ! delay slot
659      fxor     %f6,%f32,%f32

661      fmulld    %f10,%f10,%f8
662      andcc    %l1,1,%q0
663      bz, pn    %icc, .case4
664 ! delay slot
665      fxor     %f14,%f34,%f34

667      fmulld    %f18,%f18,%f16
668      andcc    %l2,1,%q0
669      bz, pn    %icc, .case2
670 ! delay slot
671      fxor     %f22,%f36,%f36

673      fmulld    %f26,%f26,%f24
674      andcc    %l3,1,%q0
675      bz, pn    %icc, .case1
676 ! delay slot
677      fxor     %f30,%f38,%f38

679 ! .case0:
680      fmulld    %f0,qq3,%f6          ! cos(x0)

682      fmulld    %f8,qq3,%f14        ! cos(x1)

684      fmulld    %f16,qq3,%f22       ! cos(x2)

686      fmulld    %f24,qq3,%f30       ! cos(x3)

688      fadddd    %f6,qq2,%f6
689      fmulld    %f0,pp2,%f4

691      fadddd    %f14,qq2,%f14
692      fmulld    %f8,pp2,%f12

694      fadddd    %f22,qq2,%f22
695      fmulld    %f16,pp2,%f20

697      fadddd    %f30,qq2,%f30
698      fmulld    %f24,pp2,%f28

700      fmulld    %f0,%f6,%f6
701      fadddd    %f4,pp1,%f4

703      fmulld    %f8,%f14,%f14
704      fadddd    %f12,pp1,%f12

706      fmulld    %f16,%f22,%f22
707      fadddd    %f20,pp1,%f20

709      fmulld    %f24,%f30,%f30
710      fadddd    %f28,pp1,%f28

712      fadddd    %f6,qq1,%f6
713      fmulld    %f0,%f4,%f4
714      add      %l4,%g1,%l4

716      fadddd    %f14,qq1,%f14
717      fmulld    %f8,%f12,%f12
718      add      %l5,%g1,%l5

```

```

720      fadddd    %f22,qq1,%f22
721      fmulld    %f16,%f20,%f20
722      add      %l6,%g1,%l6

724      fadddd    %f30,qq1,%f30
725      fmulld    %f24,%f28,%f28
726      add      %l7,%g1,%l7

728      fmulld    %f2,%f4,%f4

730      fmulld    %f10,%f12,%f12

732      fmulld    %f18,%f20,%f20

734      fmulld    %f26,%f28,%f28

736      fmulld    %f0,%f6,%f6
737      fadddd    %f4,%f32,%f4
738      ldd      [%l4+16],%f0

740      fmulld    %f8,%f14,%f14
741      fadddd    %f12,%f34,%f12
742      ldd      [%l5+16],%f8

744      fmulld    %f16,%f22,%f22
745      fadddd    %f20,%f36,%f20
746      ldd      [%l6+16],%f16

748      fmulld    %f24,%f30,%f30
749      fadddd    %f28,%f38,%f28
750      ldd      [%l7+16],%f24

752      fmulld    %f0,%f6,%f6
753      fadddd    %f4,%f2,%f4
754      ldd      [%l4+8],%f32

756      fmulld    %f8,%f14,%f14
757      fadddd    %f12,%f10,%f12
758      ldd      [%l5+8],%f34

760      fmulld    %f16,%f22,%f22
761      fadddd    %f20,%f18,%f20
762      ldd      [%l6+8],%f36

764      fmulld    %f24,%f30,%f30
765      fadddd    %f28,%f26,%f28
766      ldd      [%l7+8],%f38

768      fmulld    %f32,%f4,%f4

770      fmulld    %f34,%f12,%f12

772      fmulld    %f36,%f20,%f20

774      fmulld    %f38,%f28,%f28

776      fsubd     %f6,%f4,%f6

778      fsubd     %f14,%f12,%f14

780      fsubd     %f22,%f20,%f22

782      fsubd     %f30,%f28,%f30

784      fadddd    %f6,%f0,%f6

```

```

786      fadddd    %f14,%f8,%f14
788      fadddd    %f22,%f16,%f22

790      fadddd    %f30,%f24,%f30
791      mov       %l0,%l4

793      fnegd     %f6,%f4
794      lda       [%i1]%asi,%l0          ! preload next argument

796      fnegd     %f14,%f12
797      lda       [%i1]%asi,%f0

799      fnegd     %f22,%f20
800      lda       [%i1+4]%asi,%f3

802      fnegd     %f30,%f28
803      andn      %l0,%i5,%l0
804      add       %l1,%i2,%i1

806      andcc     %l4,2,%q0
807      fmovdnz   %icc,%f4,%f6
808      st        %f6,[%o0]

810      andcc     %l1,2,%q0
811      fmovdnz   %icc,%f12,%f14
812      st        %f14,[%o1]

814      andcc     %l2,2,%q0
815      fmovdnz   %icc,%f20,%f22
816      st        %f22,[%o2]

818      andcc     %l3,2,%q0
819      fmovdnz   %icc,%f28,%f30
820      st        %f30,[%o3]

822      addcc     %i0,-1,%i0
823      bg,pt     %icc,.loop0
824 ! delay      slot
825      st        %f7,[%o0+4]

827      ba,pt     %icc,.end
828 ! delay      slot
829      nop

831      .align    16
832 .case1:
833      fmuld     %f24,pp3,%f30          ! sin(x3)

835      fmuld     %f0,qq3,%f6          ! cos(x0)

837      fmuld     %f8,qq3,%f14         ! cos(x1)

839      fmuld     %f16,qq3,%f22        ! cos(x2)

841      fadddd    %f30,pp2,%f30
842      fmuld     %f24,qq2,%f28

844      fadddd    %f6,qq2,%f6
845      fmuld     %f0,pp2,%f4

847      fadddd    %f14,qq2,%f14
848      fmuld     %f8,pp2,%f12

850      fadddd    %f22,qq2,%f22
851      fmuld     %f16,pp2,%f20

```

```

853      fmuld     %f24,%f30,%f30
854      fadddd    %f28,qq1,%f28

856      fmuld     %f0,%f6,%f6
857      fadddd    %f4,pp1,%f4

859      fmuld     %f8,%f14,%f14
860      fadddd    %f12,pp1,%f12

862      fmuld     %f16,%f22,%f22
863      fadddd    %f20,pp1,%f20

865      fadddd    %f30,pp1,%f30
866      fmuld     %f24,%f28,%f28
867      add       %l7,%g1,%l7

869      fadddd    %f6,qq1,%f6
870      fmuld     %f0,%f4,%f4
871      add       %l4,%g1,%l4

873      fadddd    %f14,qq1,%f14
874      fmuld     %f8,%f12,%f12
875      add       %l5,%g1,%l5

877      fadddd    %f22,qq1,%f22
878      fmuld     %f16,%f20,%f20
879      add       %l6,%g1,%l6

881      fmuld     %f24,%f30,%f30

883      fmuld     %f2,%f4,%f4

885      fmuld     %f10,%f12,%f12

887      fmuld     %f18,%f20,%f20

889      fmuld     %f26,%f30,%f30
890      ldd       [%l7+8],%f24

892      fmuld     %f0,%f6,%f6
893      fadddd    %f4,%f32,%f4
894      ldd       [%l4+16],%f0

896      fmuld     %f8,%f14,%f14
897      fadddd    %f12,%f34,%f12
898      ldd       [%l5+16],%f8

900      fmuld     %f16,%f22,%f22
901      fadddd    %f20,%f36,%f20
902      ldd       [%l6+16],%f16

904      fmuld     %f24,%f28,%f28
905      fadddd    %f38,%f30,%f30

907      fmuld     %f0,%f6,%f6
908      fadddd    %f4,%f2,%f4
909      ldd       [%l4+8],%f32

911      fmuld     %f8,%f14,%f14
912      fadddd    %f12,%f10,%f12
913      ldd       [%l5+8],%f34

915      fmuld     %f16,%f22,%f22
916      fadddd    %f20,%f18,%f20
917      ldd       [%l6+8],%f36

```

```

919      fadd    %f26,%f30,%f30
920      ldd     [%l7+16],%f38

922      fmul    %f32,%f4,%f4

924      fmul    %f34,%f12,%f12

926      fmul    %f36,%f20,%f20

928      fmul    %f38,%f30,%f30

930      fsub    %f6,%f4,%f6

932      fsub    %f14,%f12,%f14

934      fsub    %f22,%f20,%f22

936      fadd    %f30,%f28,%f30

938      fadd    %f6,%f0,%f6

940      fadd    %f14,%f8,%f14

942      fadd    %f22,%f16,%f22

944      fadd    %f30,%f24,%f30
945      mov     %l0,%l4

947      fnegd   %f6,%f4
948      lda     [%i1]asi,%l0          ! preload next argument

950      fnegd   %f14,%f12
951      lda     [%i1]asi,%f0

953      fnegd   %f22,%f20
954      lda     [%i1+4]asi,%f3

956      fnegd   %f30,%f28
957      andn    %l0,%i5,%l0
958      add     %i1,%i2,%i1

960      andcc    %l4,2,%g0
961      fmovdnz  %icc,%f4,%f6
962      st       %f6, [%o0]

964      andcc    %l1,2,%g0
965      fmovdnz  %icc,%f12,%f14
966      st       %f14, [%o1]

968      andcc    %l2,2,%g0
969      fmovdnz  %icc,%f20,%f22
970      st       %f22, [%o2]

972      andcc    %l3,2,%g0
973      fmovdnz  %icc,%f28,%f30
974      st       %f30, [%o3]

976      addcc    %i0,-1,%i0
977      bg,pt    %icc,.loop0
978 ! delay     slot
979      st       %f7, [%o0+4]

981      ba,pt    %icc,.end
982 ! delay     slot
983      nop

```

```

985      .align   16
986 .case2:
987      fmul    %f26,%f26,%f24
988      andcc    %l3,1,%g0
989      bz,pt    %icc,.case3
990 ! delay     slot
991      fxor     %f30,%f38,%f38

993      fmul    %f16,pp3,%f22          ! sin(x2)

995      fmul    %f0,qq3,%f6           ! cos(x0)

997      fmul    %f8,qq3,%f14          ! cos(x1)

999      fadd    %f22,pp2,%f22
1000     fmul    %f16,qq2,%f20

1002     fmul    %f24,qq3,%f30          ! cos(x3)

1004     fadd    %f6,qq2,%f6
1005     fmul    %f0,pp2,%f4

1007     fadd    %f14,qq2,%f14
1008     fmul    %f8,pp2,%f12

1010     fmul    %f16,%f22,%f22
1011     fadd    %f20,qq1,%f20

1013     fadd    %f30,qq2,%f30
1014     fmul    %f24,pp2,%f28

1016     fmul    %f0,%f6,%f6
1017     fadd    %f4,pp1,%f4

1019     fmul    %f8,%f14,%f14
1020     fadd    %f12,pp1,%f12

1022     fadd    %f22,pp1,%f22
1023     fmul    %f16,%f20,%f20
1024     add     %l6,%g1,%l6

1026     fmul    %f24,%f30,%f30
1027     fadd    %f28,pp1,%f28

1029     fadd    %f6,qq1,%f6
1030     fmul    %f0,%f4,%f4
1031     add     %l4,%g1,%l4

1033     fadd    %f14,qq1,%f14
1034     fmul    %f8,%f12,%f12
1035     add     %l5,%g1,%l5

1037     fmul    %f16,%f22,%f22

1039     fadd    %f30,qq1,%f30
1040     fmul    %f24,%f28,%f28
1041     add     %l7,%g1,%l7

1043     fmul    %f2,%f4,%f4

1045     fmul    %f10,%f12,%f12

1047     fmul    %f18,%f22,%f22
1048     ldd     [%l6+8],%f16

```

```

1050      fmuld    %f26,%f28,%f28
1052      fmuld    %f0,%f6,%f6
1053      fadddd   %f4,%f32,%f4
1054      ldd      [%l4+16],%f0
1056      fmuld    %f8,%f14,%f14
1057      fadddd   %f12,%f34,%f12
1058      ldd      [%l5+16],%f8
1060      fmuld    %f16,%f20,%f20
1061      fadddd   %f36,%f22,%f22
1063      fmuld    %f24,%f30,%f30
1064      fadddd   %f28,%f38,%f28
1065      ldd      [%l7+16],%f24
1067      fmuld    %f0,%f6,%f6
1068      fadddd   %f4,%f2,%f4
1069      ldd      [%l4+8],%f32
1071      fmuld    %f8,%f14,%f14
1072      fadddd   %f12,%f10,%f12
1073      ldd      [%l5+8],%f34
1075      fadddd   %f18,%f22,%f22
1076      ldd      [%l6+16],%f36
1078      fmuld    %f24,%f30,%f30
1079      fadddd   %f28,%f26,%f28
1080      ldd      [%l7+8],%f38
1082      fmuld    %f32,%f4,%f4
1084      fmuld    %f34,%f12,%f12
1086      fmuld    %f36,%f22,%f22
1088      fmuld    %f38,%f28,%f28
1090      fsubd    %f6,%f4,%f6
1092      fsubd    %f14,%f12,%f14
1094      fadddd   %f22,%f20,%f22
1096      fsubd    %f30,%f28,%f30
1098      fadddd   %f6,%f0,%f6
1100      fadddd   %f14,%f8,%f14
1102      fadddd   %f22,%f16,%f22
1104      fadddd   %f30,%f24,%f30
1105      mov      %l0,%l4
1107      fnegd    %f6,%f4
1108      lda      [%i1]asi,%l0      ! preload next argument
1110      fnegd    %f14,%f12
1111      lda      [%i1]asi,%f0
1113      fnegd    %f22,%f20
1114      lda      [%i1+4]asi,%f3

```

```

1116      fnegd    %f30,%f28
1117      andn      %l0,%i5,%l0
1118      add       %i1,%i2,%i1
1120      andcc     %l4,2,%g0
1121      fmovdnz   %icc,%f4,%f6
1122      st        %f6,[%o0]
1124      andcc     %l1,2,%g0
1125      fmovdnz   %icc,%f12,%f14
1126      st        %f14,[%o1]
1128      andcc     %l2,2,%g0
1129      fmovdnz   %icc,%f20,%f22
1130      st        %f22,[%o2]
1132      andcc     %l3,2,%g0
1133      fmovdnz   %icc,%f28,%f30
1134      st        %f30,[%o3]
1136      addcc     %i0,-1,%i0
1137      bg,pt     %icc,.loop0
1138      ! delay   slot
1139      st        %f7,[%o0+4]
1141      ba,pt     %icc,.end
1142      ! delay   slot
1143      nop
1145      .align    16
1146      .case3:
1147      fmuld     %f16,pp3,%f22      ! sin(x2)
1149      fmuld     %f24,pp3,%f30      ! sin(x3)
1151      fmuld     %f0,qq3,%f6        ! cos(x0)
1153      fmuld     %f8,qq3,%f14       ! cos(x1)
1155      fadddd    %f22,pp2,%f22
1156      fmuld     %f16,qq2,%f20
1158      fadddd    %f30,pp2,%f30
1159      fmuld     %f24,qq2,%f28
1161      fadddd    %f6,qq2,%f6
1162      fmuld     %f0,pp2,%f4
1164      fadddd    %f14,qq2,%f14
1165      fmuld     %f8,pp2,%f12
1167      fmuld     %f16,%f22,%f22
1168      fadddd    %f20,qq1,%f20
1170      fmuld     %f24,%f30,%f30
1171      fadddd    %f28,qq1,%f28
1173      fmuld     %f0,%f6,%f6
1174      fadddd    %f4,pp1,%f4
1176      fmuld     %f8,%f14,%f14
1177      fadddd    %f12,pp1,%f12
1179      fadddd    %f22,pp1,%f22
1180      fmuld     %f16,%f20,%f20
1181      add       %l6,%g1,%l6

```

```

1183      fadd    %f30,pp1,%f30
1184      fmul    %f24,%f28,%f28
1185      add     %l7,%g1,%l7

1187      fadd    %f6,qq1,%f6
1188      fmul    %f0,%f4,%f4
1189      add     %l4,%g1,%l4

1191      fadd    %f14,qq1,%f14
1192      fmul    %f8,%f12,%f12
1193      add     %l5,%g1,%l5

1195      fmul    %f16,%f22,%f22

1197      fmul    %f24,%f30,%f30

1199      fmul    %f2,%f4,%f4

1201      fmul    %f10,%f12,%f12

1203      fmul    %f18,%f22,%f22
1204      ldd     [%l6+8],%f16

1206      fmul    %f26,%f30,%f30
1207      ldd     [%l7+8],%f24

1209      fmul    %f0,%f6,%f6
1210      fadd    %f4,%f32,%f4
1211      ldd     [%l4+16],%f0

1213      fmul    %f8,%f14,%f14
1214      fadd    %f12,%f34,%f12
1215      ldd     [%l5+16],%f8

1217      fmul    %f16,%f20,%f20
1218      fadd    %f36,%f22,%f22

1220      fmul    %f24,%f28,%f28
1221      fadd    %f38,%f30,%f30

1223      fmul    %f0,%f6,%f6
1224      fadd    %f4,%f2,%f4
1225      ldd     [%l4+8],%f32

1227      fmul    %f8,%f14,%f14
1228      fadd    %f12,%f10,%f12
1229      ldd     [%l5+8],%f34

1231      fadd    %f18,%f22,%f22
1232      ldd     [%l6+16],%f36

1234      fadd    %f26,%f30,%f30
1235      ldd     [%l7+16],%f38

1237      fmul    %f32,%f4,%f4

1239      fmul    %f34,%f12,%f12

1241      fmul    %f36,%f22,%f22

1243      fmul    %f38,%f30,%f30

1245      fsubd   %f6,%f4,%f6

1247      fsubd   %f14,%f12,%f14

```

```

1249      fadd    %f22,%f20,%f22

1251      fadd    %f30,%f28,%f30

1253      fadd    %f6,%f0,%f6

1255      fadd    %f14,%f8,%f14

1257      fadd    %f22,%f16,%f22

1259      fadd    %f30,%f24,%f30
1260      mov     %l0,%l4

1262      fnegd   %f6,%f4
1263      lda     [%l1]asi,%l0      ! preload next argument

1265      fnegd   %f14,%f12
1266      lda     [%l1]asi,%f0

1268      fnegd   %f22,%f20
1269      lda     [%l1+4]asi,%f3

1271      fnegd   %f30,%f28
1272      andn    %l0,%l5,%l0
1273      add     %l1,%l2,%l1

1275      andcc    %l4,2,%g0
1276      fmovdnz  %icc,%f4,%f6
1277      st       %f6,[%o0]

1279      andcc    %l1,2,%g0
1280      fmovdnz  %icc,%f12,%f14
1281      st       %f14,[%o1]

1283      andcc    %l2,2,%g0
1284      fmovdnz  %icc,%f20,%f22
1285      st       %f22,[%o2]

1287      andcc    %l3,2,%g0
1288      fmovdnz  %icc,%f28,%f30
1289      st       %f30,[%o3]

1291      addcc    %i0,-1,%i0
1292      bg,pt    %icc,.loop0
1293      ! delay  slot
1294      st       %f7,[%o0+4]

1296      ba,pt    %icc,.end
1297      ! delay  slot
1298      nop

1300      .align   16
1301      .case4:
1302      fmul    %f18,%f18,%f16
1303      andcc    %l2,1,%g0
1304      bz,pn    %icc,.case6
1305      ! delay  slot
1306      fxor    %f22,%f36,%f36

1308      fmul    %f26,%f26,%f24
1309      andcc    %l3,1,%g0
1310      bz,pn    %icc,.case5
1311      ! delay  slot
1312      fxor    %f30,%f38,%f38

```

new/usr/src/lib/libmvec/common/vis/_vcos_ultra3.S

21

```

1314      fmulld    %f8, pp3, %f14          ! sin(x1)
1316      fmulld    %f0, qq3, %f6          ! cos(x0)

1318      fadddd    %f14, pp2, %f14
1319      fmulld    %f8, qq2, %f12

1321      fmulld    %f16, qq3, %f22        ! cos(x2)
1323      fmulld    %f24, qq3, %f30        ! cos(x3)

1325      fadddd    %f6, qq2, %f6
1326      fmulld    %f0, pp2, %f4

1328      fmulld    %f8, %f14, %f14
1329      fadddd    %f12, qq1, %f12

1331      fadddd    %f22, qq2, %f22
1332      fmulld    %f16, pp2, %f20

1334      fadddd    %f30, qq2, %f30
1335      fmulld    %f24, pp2, %f28

1337      fmulld    %f0, %f6, %f6
1338      fadddd    %f4, pp1, %f4

1340      fadddd    %f14, pp1, %f14
1341      fmulld    %f8, %f12, %f12
1342      add       %l5, %g1, %l5

1344      fmulld    %f16, %f22, %f22
1345      fadddd    %f20, pp1, %f20

1347      fmulld    %f24, %f30, %f30
1348      fadddd    %f28, pp1, %f28

1350      fadddd    %f6, qq1, %f6
1351      fmulld    %f0, %f4, %f4
1352      add       %l4, %g1, %l4

1354      fmulld    %f8, %f14, %f14

1356      fadddd    %f22, qq1, %f22
1357      fmulld    %f16, %f20, %f20
1358      add       %l6, %g1, %l6

1360      fadddd    %f30, qq1, %f30
1361      fmulld    %f24, %f28, %f28
1362      add       %l7, %g1, %l7

1364      fmulld    %f2, %f4, %f4

1366      fmulld    %f10, %f14, %f14
1367      ldd       [%l5+8], %f8

1369      fmulld    %f18, %f20, %f20

1371      fmulld    %f26, %f28, %f28

1373      fmulld    %f0, %f6, %f6
1374      fadddd    %f4, %f32, %f4
1375      ldd       [%l4+16], %f0

1377      fmulld    %f8, %f12, %f12
1378      fadddd    %f34, %f14, %f14

```

new/usr/src/lib/libmvec/common/vis/_vcos_ultra3.S

22

```

1380      fmulld    %f16, %f22, %f22
1381      fadddd    %f20, %f36, %f20
1382      ldd       [%l6+16], %f16

1384      fmulld    %f24, %f30, %f30
1385      fadddd    %f28, %f38, %f28
1386      ldd       [%l7+16], %f24

1388      fmulld    %f0, %f6, %f6
1389      fadddd    %f4, %f2, %f4
1390      ldd       [%l4+8], %f32

1392      fadddd    %f10, %f14, %f14
1393      ldd       [%l5+16], %f34

1395      fmulld    %f16, %f22, %f22
1396      fadddd    %f20, %f18, %f20
1397      ldd       [%l6+8], %f36

1399      fmulld    %f24, %f30, %f30
1400      fadddd    %f28, %f26, %f28
1401      ldd       [%l7+8], %f38

1403      fmulld    %f32, %f4, %f4

1405      fmulld    %f34, %f14, %f14

1407      fmulld    %f36, %f20, %f20

1409      fmulld    %f38, %f28, %f28

1411      fsubd     %f6, %f4, %f6

1413      fadddd    %f14, %f12, %f14

1415      fsubd     %f22, %f20, %f22

1417      fsubd     %f30, %f28, %f30

1419      fadddd    %f6, %f0, %f6

1421      fadddd    %f14, %f8, %f14

1423      fadddd    %f22, %f16, %f22

1425      fadddd    %f30, %f24, %f30
1426      mov       %l0, %l4

1428      fnegd     %f6, %f4
1429      lda       [%i1]%asi, %l0          ! preload next argument

1431      fnegd     %f14, %f12
1432      lda       [%i1]%asi, %f0

1434      fnegd     %f22, %f20
1435      lda       [%i1+4]%asi, %f3

1437      fnegd     %f30, %f28
1438      andn      %l0, %i5, %l0
1439      add       %l1, %i2, %i1

1441      andcc     %l4, 2, %g0
1442      fmovdnz   %icc, %f4, %f6
1443      st        %f6, [%o0]

1445      andcc     %l1, 2, %g0

```

```

1446      fmovdnz %icc,%f12,%f14
1447      st      %f14,[%o1]

1449      andcc   %l2,2,%q0
1450      fmovdnz %icc,%f20,%f22
1451      st      %f22,[%o2]

1453      andcc   %l3,2,%q0
1454      fmovdnz %icc,%f28,%f30
1455      st      %f30,[%o3]

1457      addcc   %i0,-1,%i0
1458      bg,pt   %icc,.loop0
1459 ! delay    slot
1460      st      %f7,[%o0+4]

1462      ba,pt   %icc,.end
1463 ! delay    slot
1464      nop

1466      .align  16
1467 .case5:
1468      fmuld    %f8,pp3,%f14          ! sin(x1)

1470      fmuld    %f24,pp3,%f30        ! sin(x3)

1472      fmuld    %f0,qq3,%f6          ! cos(x0)

1474      fadddd   %f14,pp2,%f14
1475      fmuld    %f8,qq2,%f12

1477      fmuld    %f16,qq3,%f22        ! cos(x2)

1479      fadddd   %f30,pp2,%f30
1480      fmuld    %f24,qq2,%f28

1482      fadddd   %f6,qq2,%f6
1483      fmuld    %f0,pp2,%f4

1485      fmuld    %f8,%f14,%f14
1486      fadddd   %f12,qq1,%f12

1488      fadddd   %f22,qq2,%f22
1489      fmuld    %f16,pp2,%f20

1491      fmuld    %f24,%f30,%f30
1492      fadddd   %f28,qq1,%f28

1494      fmuld    %f0,%f6,%f6
1495      fadddd   %f4,pp1,%f4

1497      fadddd   %f14,pp1,%f14
1498      fmuld    %f8,%f12,%f12
1499      add      %l5,%g1,%l5

1501      fmuld    %f16,%f22,%f22
1502      fadddd   %f20,pp1,%f20

1504      fadddd   %f30,pp1,%f30
1505      fmuld    %f24,%f28,%f28
1506      add      %l7,%g1,%l7

1508      fadddd   %f6,qq1,%f6
1509      fmuld    %f0,%f4,%f4
1510      add      %l4,%g1,%l4

```

```

1512      fmuld    %f8,%f14,%f14

1514      fadddd   %f22,qq1,%f22
1515      fmuld    %f16,%f20,%f20
1516      add      %l6,%g1,%l6

1518      fmuld    %f24,%f30,%f30

1520      fmuld    %f2,%f4,%f4

1522      fmuld    %f10,%f14,%f14
1523      ldd      [%l5+8],%f8

1525      fmuld    %f18,%f20,%f20

1527      fmuld    %f26,%f30,%f30
1528      ldd      [%l7+8],%f24

1530      fmuld    %f0,%f6,%f6
1531      fadddd   %f4,%f32,%f4
1532      ldd      [%l4+16],%f0

1534      fmuld    %f8,%f12,%f12
1535      fadddd   %f34,%f14,%f14

1537      fmuld    %f16,%f22,%f22
1538      fadddd   %f20,%f36,%f20
1539      ldd      [%l6+16],%f16

1541      fmuld    %f24,%f28,%f28
1542      fadddd   %f38,%f30,%f30

1544      fmuld    %f0,%f6,%f6
1545      fadddd   %f4,%f2,%f4
1546      ldd      [%l4+8],%f32

1548      fadddd   %f10,%f14,%f14
1549      ldd      [%l5+16],%f34

1551      fmuld    %f16,%f22,%f22
1552      fadddd   %f20,%f18,%f20
1553      ldd      [%l6+8],%f36

1555      fadddd   %f26,%f30,%f30
1556      ldd      [%l7+16],%f38

1558      fmuld    %f32,%f4,%f4

1560      fmuld    %f34,%f14,%f14

1562      fmuld    %f36,%f20,%f20

1564      fmuld    %f38,%f30,%f30

1566      fsubd    %f6,%f4,%f6

1568      fadddd   %f14,%f12,%f14

1570      fsubd    %f22,%f20,%f22

1572      fadddd   %f30,%f28,%f30

1574      fadddd   %f6,%f0,%f6

1576      fadddd   %f14,%f8,%f14

```

```

1578      fadd    %f22,%f16,%f22
1580      fadd    %f30,%f24,%f30
1581      mov     %l0,%l4

1583      fnegd   %f6,%f4
1584      lda     [%i1]asi,%l0      ! preload next argument

1586      fnegd   %f14,%f12
1587      lda     [%i1]asi,%f0

1589      fnegd   %f22,%f20
1590      lda     [%i1+4]asi,%f3

1592      fnegd   %f30,%f28
1593      andn    %l0,%i5,%l0
1594      add     %i1,%i2,%i1

1596      andcc   %l4,2,%g0
1597      fmovdnz %icc,%f4,%f6
1598      st      %f6,[%o0]

1600      andcc   %l1,2,%g0
1601      fmovdnz %icc,%f12,%f14
1602      st      %f14,[%o1]

1604      andcc   %l2,2,%g0
1605      fmovdnz %icc,%f20,%f22
1606      st      %f22,[%o2]

1608      andcc   %l3,2,%g0
1609      fmovdnz %icc,%f28,%f30
1610      st      %f30,[%o3]

1612      addcc   %i0,-1,%i0
1613      bg,pt   %icc,.loop0
1614      ! delay slot
1615      st      %f7,[%o0+4]

1617      ba,pt   %icc,.end
1618      ! delay slot
1619      nop

1621      .align   16
1622      .case6:
1623      fmuld    %f26,%f26,%f24
1624      andcc    %l3,1,%g0
1625      bz, pn   %icc,.case7
1626      ! delay slot
1627      fxor     %f30,%f38,%f38

1629      fmuld    %f8,pp3,%f14      ! sin(x1)

1631      fmuld    %f16,pp3,%f22      ! sin(x2)

1633      fmuld    %f0,qq3,%f6       ! cos(x0)

1635      faddd    %f14,pp2,%f14
1636      fmuld    %f8,qq2,%f12

1638      faddd    %f22,pp2,%f22
1639      fmuld    %f16,qq2,%f20

1641      fmuld    %f24,qq3,%f30     ! cos(x3)

1643      faddd    %f6,qq2,%f6

```

```

1644      fmuld    %f0,pp2,%f4

1646      fmuld    %f8,%f14,%f14
1647      faddd    %f12,qq1,%f12

1649      fmuld    %f16,%f22,%f22
1650      faddd    %f20,qq1,%f20

1652      faddd    %f30,qq2,%f30
1653      fmuld    %f24,pp2,%f28

1655      fmuld    %f0,%f6,%f6
1656      faddd    %f4,pp1,%f4

1658      faddd    %f14,pp1,%f14
1659      fmuld    %f8,%f12,%f12
1660      add     %l5,%g1,%l5

1662      faddd    %f22,pp1,%f22
1663      fmuld    %f16,%f20,%f20
1664      add     %l6,%g1,%l6

1666      fmuld    %f24,%f30,%f30
1667      faddd    %f28,pp1,%f28

1669      faddd    %f6,qq1,%f6
1670      fmuld    %f0,%f4,%f4
1671      add     %l4,%g1,%l4

1673      fmuld    %f8,%f14,%f14

1675      fmuld    %f16,%f22,%f22

1677      faddd    %f30,qq1,%f30
1678      fmuld    %f24,%f28,%f28
1679      add     %l7,%g1,%l7

1681      fmuld    %f2,%f4,%f4

1683      fmuld    %f10,%f14,%f14
1684      ldd      [%l5+8],%f8

1686      fmuld    %f18,%f22,%f22
1687      ldd      [%l6+8],%f16

1689      fmuld    %f26,%f28,%f28

1691      fmuld    %f0,%f6,%f6
1692      faddd    %f4,%f32,%f4
1693      ldd      [%l4+16],%f0

1695      fmuld    %f8,%f12,%f12
1696      faddd    %f34,%f14,%f14

1698      fmuld    %f16,%f20,%f20
1699      faddd    %f36,%f22,%f22

1701      fmuld    %f24,%f30,%f30
1702      faddd    %f28,%f38,%f28
1703      ldd      [%l7+16],%f24

1705      fmuld    %f0,%f6,%f6
1706      faddd    %f4,%f2,%f4
1707      ldd      [%l4+8],%f32

1709      faddd    %f10,%f14,%f14

```

```

1710      ldd      [%l5+16],%f34
1712      fadddd   %f18,%f22,%f22
1713      ldd      [%l6+16],%f36
1715      fmuldd   %f24,%f30,%f30
1716      fadddd   %f28,%f26,%f28
1717      ldd      [%l7+8],%f38
1719      fmuldd   %f32,%f4,%f4
1721      fmuldd   %f34,%f14,%f14
1723      fmuldd   %f36,%f22,%f22
1725      fmuldd   %f38,%f28,%f28
1727      fsubdd   %f6,%f4,%f6
1729      fadddd   %f14,%f12,%f14
1731      fadddd   %f22,%f20,%f22
1733      fsubdd   %f30,%f28,%f30
1735      fadddd   %f6,%f0,%f6
1737      fadddd   %f14,%f8,%f14
1739      fadddd   %f22,%f16,%f22
1741      fadddd   %f30,%f24,%f30
1742      mov      %l0,%l4
1744      fnegdd   %f6,%f4
1745      lda      [%i1]%asi,%l0      ! preload next argument
1747      fnegdd   %f14,%f12
1748      lda      [%i1]%asi,%f0
1750      fnegdd   %f22,%f20
1751      lda      [%i1+4]%asi,%f3
1753      fnegdd   %f30,%f28
1754      andn      %l0,%i5,%l0
1755      add       %i1,%i2,%i1
1757      andcc     %l4,2,%g0
1758      fmovdnz   %icc,%f4,%f6
1759      st        %f6, [%o0]
1761      andcc     %l1,2,%g0
1762      fmovdnz   %icc,%f12,%f14
1763      st        %f14, [%o1]
1765      andcc     %l2,2,%g0
1766      fmovdnz   %icc,%f20,%f22
1767      st        %f22, [%o2]
1769      andcc     %l3,2,%g0
1770      fmovdnz   %icc,%f28,%f30
1771      st        %f30, [%o3]
1773      addcc     %i0,-1,%i0
1774      bg,pt     %icc,.loop0
1775      ! delay slot

```

```

1776      st      %f7, [%o0+4]
1778      ba,pt     %icc,.end
1779      ! delay slot
1780      nop
1782      .align    16
1783      .case7:
1784      fmuldd   %f8,pp3,%f14      ! sin(x1)
1786      fmuldd   %f16,pp3,%f22     ! sin(x2)
1788      fmuldd   %f24,pp3,%f30     ! sin(x3)
1790      fmuldd   %f0,qq3,%f6       ! cos(x0)
1792      fadddd   %f14,pp2,%f14
1793      fmuldd   %f8,qq2,%f12
1795      fadddd   %f22,pp2,%f22
1796      fmuldd   %f16,qq2,%f20
1798      fadddd   %f30,pp2,%f30
1799      fmuldd   %f24,qq2,%f28
1801      fadddd   %f6,qq2,%f6
1802      fmuldd   %f0,pp2,%f4
1804      fmuldd   %f8,%f14,%f14
1805      fadddd   %f12,qq1,%f12
1807      fmuldd   %f16,%f22,%f22
1808      fadddd   %f20,qq1,%f20
1810      fmuldd   %f24,%f30,%f30
1811      fadddd   %f28,qq1,%f28
1813      fmuldd   %f0,%f6,%f6
1814      fadddd   %f4,pp1,%f4
1816      fadddd   %f14,pp1,%f14
1817      fmuldd   %f8,%f12,%f12
1818      add       %l5,%g1,%l5
1820      fadddd   %f22,pp1,%f22
1821      fmuldd   %f16,%f20,%f20
1822      add       %l6,%g1,%l6
1824      fadddd   %f30,pp1,%f30
1825      fmuldd   %f24,%f28,%f28
1826      add       %l7,%g1,%l7
1828      fadddd   %f6,qq1,%f6
1829      fmuldd   %f0,%f4,%f4
1830      add       %l4,%g1,%l4
1832      fmuldd   %f8,%f14,%f14
1834      fmuldd   %f16,%f22,%f22
1836      fmuldd   %f24,%f30,%f30
1838      fmuldd   %f2,%f4,%f4
1840      fmuldd   %f10,%f14,%f14
1841      ldd      [%l5+8],%f8

```

```

1843      fmuldd    %f18,%f22,%f22
1844      ldd       [%l6+8],%f16

1846      fmuldd    %f26,%f30,%f30
1847      ldd       [%l7+8],%f24

1849      fmuldd    %f0,%f6,%f6
1850      fadddd     %f4,%f32,%f4
1851      ldd       [%l4+16],%f0

1853      fmuldd    %f8,%f12,%f12
1854      fadddd     %f34,%f14,%f14

1856      fmuldd    %f16,%f20,%f20
1857      fadddd     %f36,%f22,%f22

1859      fmuldd    %f24,%f28,%f28
1860      fadddd     %f38,%f30,%f30

1862      fmuldd    %f0,%f6,%f6
1863      fadddd     %f4,%f2,%f4
1864      ldd       [%l4+8],%f32

1866      fadddd     %f10,%f14,%f14
1867      ldd       [%l5+16],%f34

1869      fadddd     %f18,%f22,%f22
1870      ldd       [%l6+16],%f36

1872      fadddd     %f26,%f30,%f30
1873      ldd       [%l7+16],%f38

1875      fmuldd    %f32,%f4,%f4

1877      fmuldd    %f34,%f14,%f14

1879      fmuldd    %f36,%f22,%f22

1881      fmuldd    %f38,%f30,%f30

1883      fsubdd     %f6,%f4,%f6

1885      fadddd     %f14,%f12,%f14

1887      fadddd     %f22,%f20,%f22

1889      fadddd     %f30,%f28,%f30

1891      fadddd     %f6,%f0,%f6

1893      fadddd     %f14,%f8,%f14

1895      fadddd     %f22,%f16,%f22

1897      fadddd     %f30,%f24,%f30
1898      mov        %l0,%l4

1900      fnegd      %f6,%f4
1901      lda        [%i1]%asi,%l0      ! preload next argument

1903      fnegd      %f14,%f12
1904      lda        [%i1]%asi,%f0

1906      fnegd      %f22,%f20
1907      lda        [%i1+4]%asi,%f3

```

```

1909      fnegd      %f30,%f28
1910      andn        %l0,%i5,%l0
1911      add         %i1,%i2,%i1

1913      andcc       %l4,2,%g0
1914      fmovdnz     %icc,%f4,%f6
1915      st          %f6,[%o0]

1917      andcc       %l1,2,%g0
1918      fmovdnz     %icc,%f12,%f14
1919      st          %f14,[%o1]

1921      andcc       %l2,2,%g0
1922      fmovdnz     %icc,%f20,%f22
1923      st          %f22,[%o2]

1925      andcc       %l3,2,%g0
1926      fmovdnz     %icc,%f28,%f30
1927      st          %f30,[%o3]

1929      addcc       %i0,-1,%i0
1930      bg,pt       %icc,.loop0
1931      ! delay     slot
1932      st          %f7,[%o0+4]

1934      ba,pt       %icc,.end
1935      ! delay     slot
1936      nop

1938      .align      16
1939      .case8:
1940      fmuldd      %f10,%f10,%f8
1941      andcc       %l1,1,%g0
1942      bz,pn       %icc,.case12
1943      ! delay     slot
1944      fxor        %f14,%f34,%f34

1946      fmuldd      %f18,%f18,%f16
1947      andcc       %l2,1,%g0
1948      bz,pn       %icc,.case10
1949      ! delay     slot
1950      fxor        %f22,%f36,%f36

1952      fmuldd      %f26,%f26,%f24
1953      andcc       %l3,1,%g0
1954      bz,pn       %icc,.case9
1955      ! delay     slot
1956      fxor        %f30,%f38,%f38

1958      fmuldd      %f0,pp3,%f6      ! sin(x0)

1960      fadddd      %f6,pp2,%f6
1961      fmuldd      %f0,qq2,%f4

1963      fmuldd      %f8,qq3,%f14      ! cos(x1)

1965      fmuldd      %f16,qq3,%f22      ! cos(x2)

1967      fmuldd      %f24,qq3,%f30      ! cos(x3)

1969      fmuldd      %f0,%f6,%f6
1970      fadddd      %f4,qq1,%f4

1972      fadddd      %f14,qq2,%f14
1973      fmuldd      %f8,pp2,%f12

```

```

1975      fadd    %f22,qq2,%f22
1976      fmul    %f16,pp2,%f20

1978      fadd    %f30,qq2,%f30
1979      fmul    %f24,pp2,%f28

1981      fadd    %f6,pp1,%f6
1982      fmul    %f0,%f4,%f4
1983      add     %l4,%g1,%l4

1985      fmul    %f8,%f14,%f14
1986      fadd    %f12,pp1,%f12

1988      fmul    %f16,%f22,%f22
1989      fadd    %f20,pp1,%f20

1991      fmul    %f24,%f30,%f30
1992      fadd    %f28,pp1,%f28

1994      fmul    %f0,%f6,%f6

1996      fadd    %f14,qq1,%f14
1997      fmul    %f8,%f12,%f12
1998      add     %l5,%g1,%l5

2000      fadd    %f22,qq1,%f22
2001      fmul    %f16,%f20,%f20
2002      add     %l6,%g1,%l6

2004      fadd    %f30,qq1,%f30
2005      fmul    %f24,%f28,%f28
2006      add     %l7,%g1,%l7

2008      fmul    %f2,%f6,%f6
2009      ldd     [%l4+8],%f0

2011      fmul    %f10,%f12,%f12

2013      fmul    %f18,%f20,%f20

2015      fmul    %f26,%f28,%f28

2017      fmul    %f0,%f4,%f4
2018      fadd    %f32,%f6,%f6

2020      fmul    %f8,%f14,%f14
2021      fadd    %f12,%f34,%f12
2022      ldd     [%l5+16],%f8

2024      fmul    %f16,%f22,%f22
2025      fadd    %f20,%f36,%f20
2026      ldd     [%l6+16],%f16

2028      fmul    %f24,%f30,%f30
2029      fadd    %f28,%f38,%f28
2030      ldd     [%l7+16],%f24

2032      fadd    %f2,%f6,%f6
2033      ldd     [%l4+16],%f32

2035      fmul    %f8,%f14,%f14
2036      fadd    %f12,%f10,%f12
2037      ldd     [%l5+8],%f34

2039      fmul    %f16,%f22,%f22

```

```

2040      fadd    %f20,%f18,%f20
2041      ldd     [%l6+8],%f36

2043      fmul    %f24,%f30,%f30
2044      fadd    %f28,%f26,%f28
2045      ldd     [%l7+8],%f38

2047      fmul    %f32,%f6,%f6

2049      fmul    %f34,%f12,%f12

2051      fmul    %f36,%f20,%f20

2053      fmul    %f38,%f28,%f28

2055      fadd    %f6,%f4,%f6

2057      fsubd   %f14,%f12,%f14

2059      fsubd   %f22,%f20,%f22

2061      fsubd   %f30,%f28,%f30

2063      fadd    %f6,%f0,%f6

2065      fadd    %f14,%f8,%f14

2067      fadd    %f22,%f16,%f22

2069      fadd    %f30,%f24,%f30
2070      mov     %l0,%l4

2072      fnegd   %f6,%f4
2073      lda      [%i1]asi,%l0      ! preload next argument

2075      fnegd   %f14,%f12
2076      lda      [%i1]asi,%f0

2078      fnegd   %f22,%f20
2079      lda      [%i1+4]asi,%f3

2081      fnegd   %f30,%f28
2082      andn    %l0,%l5,%l0
2083      add     %i1,%i2,%i1

2085      andcc    %l4,2,%g0
2086      fmovdnz  %icc,%f4,%f6
2087      st       %f6, [%o0]

2089      andcc    %l1,2,%g0
2090      fmovdnz  %icc,%f12,%f14
2091      st       %f14, [%o1]

2093      andcc    %l2,2,%g0
2094      fmovdnz  %icc,%f20,%f22
2095      st       %f22, [%o2]

2097      andcc    %l3,2,%g0
2098      fmovdnz  %icc,%f28,%f30
2099      st       %f30, [%o3]

2101      addcc    %i0,-1,%i0
2102      bg,pt    %icc,.loop0
2103      ! delay  slot
2104      st       %f7, [%o0+4]

```

```

2106      ba,pt      %icc,.end
2107 ! delay slot
2108      nop

2110      .align      16
2111 .case9:
2112      fmuld        %f0,pp3,%f6          ! sin(x0)

2114      fmuld        %f24,pp3,%f30       ! sin(x3)

2116      fadddd       %f6,pp2,%f6
2117      fmuld        %f0,qq2,%f4

2119      fmuld        %f8,qq3,%f14       ! cos(x1)

2121      fmuld        %f16,qq3,%f22      ! cos(x2)

2123      fadddd       %f30,pp2,%f30
2124      fmuld        %f24,qq2,%f28

2126      fmuld        %f0,%f6,%f6
2127      fadddd       %f4,qq1,%f4

2129      fadddd       %f14,qq2,%f14
2130      fmuld        %f8,pp2,%f12

2132      fadddd       %f22,qq2,%f22
2133      fmuld        %f16,pp2,%f20

2135      fmuld        %f24,%f30,%f30
2136      fadddd       %f28,qq1,%f28

2138      fadddd       %f6,pp1,%f6
2139      fmuld        %f0,%f4,%f4
2140      add          %l4,%g1,%l4

2142      fmuld        %f8,%f14,%f14
2143      fadddd       %f12,pp1,%f12

2145      fmuld        %f16,%f22,%f22
2146      fadddd       %f20,pp1,%f20

2148      fadddd       %f30,pp1,%f30
2149      fmuld        %f24,%f28,%f28
2150      add          %l7,%g1,%l7

2152      fmuld        %f0,%f6,%f6

2154      fadddd       %f14,qq1,%f14
2155      fmuld        %f8,%f12,%f12
2156      add          %l5,%g1,%l5

2158      fadddd       %f22,qq1,%f22
2159      fmuld        %f16,%f20,%f20
2160      add          %l6,%g1,%l6

2162      fmuld        %f24,%f30,%f30

2164      fmuld        %f2,%f6,%f6
2165      ldd          [%l4+8],%f0

2167      fmuld        %f10,%f12,%f12

2169      fmuld        %f18,%f20,%f20

2171      fmuld        %f26,%f30,%f30

```

```

2172      ldd          [%l7+8],%f24

2174      fmuld        %f0,%f4,%f4
2175      fadddd       %f32,%f6,%f6

2177      fmuld        %f8,%f14,%f14
2178      fadddd       %f12,%f34,%f12
2179      ldd          [%l5+16],%f8

2181      fmuld        %f16,%f22,%f22
2182      fadddd       %f20,%f36,%f20
2183      ldd          [%l6+16],%f16

2185      fmuld        %f24,%f28,%f28
2186      fadddd       %f38,%f30,%f30

2188      fadddd       %f2,%f6,%f6
2189      ldd          [%l4+16],%f32

2191      fmuld        %f8,%f14,%f14
2192      fadddd       %f12,%f10,%f12
2193      ldd          [%l5+8],%f34

2195      fmuld        %f16,%f22,%f22
2196      fadddd       %f20,%f18,%f20
2197      ldd          [%l6+8],%f36

2199      fadddd       %f26,%f30,%f30
2200      ldd          [%l7+16],%f38

2202      fmuld        %f32,%f6,%f6

2204      fmuld        %f34,%f12,%f12

2206      fmuld        %f36,%f20,%f20

2208      fmuld        %f38,%f30,%f30

2210      fadddd       %f6,%f4,%f6

2212      fsubd        %f14,%f12,%f14

2214      fsubd        %f22,%f20,%f22

2216      fadddd       %f30,%f28,%f30

2218      fadddd       %f6,%f0,%f6

2220      fadddd       %f14,%f8,%f14

2222      fadddd       %f22,%f16,%f22

2224      fadddd       %f30,%f24,%f30
2225      mov          %l0,%l4

2227      fnegd        %f6,%f4
2228      lda          [%i1]%asi,%l0          ! preload next argument

2230      fnegd        %f14,%f12
2231      lda          [%i1]%asi,%f0

2233      fnegd        %f22,%f20
2234      lda          [%i1+4]%asi,%f3

2236      fnegd        %f30,%f28
2237      andn         %l0,%i5,%l0

```

```

2238      add      %i1,%i2,%i1

2240      andcc    %l4,2,%g0
2241      fmovdnz  %icc,%f4,%f6
2242      st       %f6,[%o0]

2244      andcc    %l1,2,%g0
2245      fmovdnz  %icc,%f12,%f14
2246      st       %f14,[%o1]

2248      andcc    %l2,2,%g0
2249      fmovdnz  %icc,%f20,%f22
2250      st       %f22,[%o2]

2252      andcc    %l3,2,%g0
2253      fmovdnz  %icc,%f28,%f30
2254      st       %f30,[%o3]

2256      addcc    %i0,-1,%i0
2257      bg,pt    %icc,.loop0
2258 ! delay    st
2259      st       %f7,[%o0+4]

2261      ba,pt    %icc,.end
2262 ! delay    slot
2263      nop

2265      .align   16
2266 .case10:
2267      fmuld    %f26,%f26,%f24
2268      andcc    %l3,1,%g0
2269      bz,pn    %icc,.case11
2270 ! delay    slot
2271      fxor     %f30,%f38,%f38

2273      fmuld    %f0,pp3,%f6          ! sin(x0)

2275      fmuld    %f16,pp3,%f22        ! sin(x2)

2277      fadddd   %f6,pp2,%f6
2278      fmuld    %f0,qq2,%f4

2280      fmuld    %f8,qq3,%f14          ! cos(x1)

2282      fadddd   %f22,pp2,%f22
2283      fmuld    %f16,qq2,%f20

2285      fmuld    %f24,qq3,%f30        ! cos(x3)

2287      fmuld    %f0,%f6,%f6
2288      fadddd   %f4,qq1,%f4

2290      fadddd   %f14,qq2,%f14
2291      fmuld    %f8,pp2,%f12

2293      fmuld    %f16,%f22,%f22
2294      fadddd   %f20,qq1,%f20

2296      fadddd   %f30,qq2,%f30
2297      fmuld    %f24,pp2,%f28

2299      fadddd   %f6,pp1,%f6
2300      fmuld    %f0,%f4,%f4
2301      add      %l4,%g1,%l4

2303      fmuld    %f8,%f14,%f14

```

```

2304      fadddd   %f12,pp1,%f12

2306      fadddd   %f22,pp1,%f22
2307      fmuld    %f16,%f20,%f20
2308      add      %l6,%g1,%l6

2310      fmuld    %f24,%f30,%f30
2311      fadddd   %f28,pp1,%f28

2313      fmuld    %f0,%f6,%f6

2315      fadddd   %f14,qq1,%f14
2316      fmuld    %f8,%f12,%f12
2317      add      %l5,%g1,%l5

2319      fmuld    %f16,%f22,%f22

2321      fadddd   %f30,qq1,%f30
2322      fmuld    %f24,%f28,%f28
2323      add      %l7,%g1,%l7

2325      fmuld    %f2,%f6,%f6
2326      ldd      [%l4+8],%f0

2328      fmuld    %f10,%f12,%f12

2330      fmuld    %f18,%f22,%f22
2331      ldd      [%l6+8],%f16

2333      fmuld    %f26,%f28,%f28

2335      fmuld    %f0,%f4,%f4
2336      fadddd   %f32,%f6,%f6

2338      fmuld    %f8,%f14,%f14
2339      fadddd   %f12,%f34,%f12
2340      ldd      [%l5+16],%f8

2342      fmuld    %f16,%f20,%f20
2343      fadddd   %f36,%f22,%f22

2345      fmuld    %f24,%f30,%f30
2346      fadddd   %f28,%f38,%f28
2347      ldd      [%l7+16],%f24

2349      fadddd   %f2,%f6,%f6
2350      ldd      [%l4+16],%f32

2352      fmuld    %f8,%f14,%f14
2353      fadddd   %f12,%f10,%f12
2354      ldd      [%l5+8],%f34

2356      fadddd   %f18,%f22,%f22
2357      ldd      [%l6+16],%f36

2359      fmuld    %f24,%f30,%f30
2360      fadddd   %f28,%f26,%f28
2361      ldd      [%l7+8],%f38

2363      fmuld    %f32,%f6,%f6

2365      fmuld    %f34,%f12,%f12

2367      fmuld    %f36,%f22,%f22

2369      fmuld    %f38,%f28,%f28

```

```

2371      fadd    %f6,%f4,%f6
2373      fsub    %f14,%f12,%f14
2375      fadd    %f22,%f20,%f22
2377      fsub    %f30,%f28,%f30
2379      fadd    %f6,%f0,%f6
2381      fadd    %f14,%f8,%f14
2383      fadd    %f22,%f16,%f22
2385      fadd    %f30,%f24,%f30
2386      mov     %l0,%l4
2388      fnegd    %f6,%f4
2389      lda     [%i1]%asi,%l0      ! preload next argument
2391      fnegd    %f14,%f12
2392      lda     [%i1]%asi,%f0
2394      fnegd    %f22,%f20
2395      lda     [%i1+4]%asi,%f3
2397      fnegd    %f30,%f28
2398      andn    %l0,%i5,%l0
2399      add     %i1,%i2,%i1
2401      andcc    %l4,2,%g0
2402      fmovdnz  %icc,%f4,%f6
2403      st
2405      andcc    %l1,2,%g0
2406      fmovdnz  %icc,%f12,%f14
2407      st
2409      andcc    %l2,2,%g0
2410      fmovdnz  %icc,%f20,%f22
2411      st
2413      andcc    %l3,2,%g0
2414      fmovdnz  %icc,%f28,%f30
2415      st
2417      addcc    %i0,-1,%i0
2418      bg,pt    %icc,.loop0
2419 ! delay
2420      st
2422      ba,pt    %icc,.end
2423 ! delay
2424      slot
2426      .align   16
2427 .case11:
2428      fmuld    %f0,pp3,%f6      ! sin(x0)
2430      fmuld    %f16,pp3,%f22    ! sin(x2)
2432      fmuld    %f24,pp3,%f30    ! sin(x3)
2434      fadd    %f6,pp2,%f6
2435      fmuld    %f0,qq2,%f4

```

```

2437      fmuld    %f8,qq3,%f14      ! cos(x1)
2439      fadd    %f22,pp2,%f22
2440      fmuld    %f16,qq2,%f20
2442      fadd    %f30,pp2,%f30
2443      fmuld    %f24,qq2,%f28
2445      fmuld    %f0,%f6,%f6
2446      fadd    %f4,qq1,%f4
2448      fadd    %f14,qq2,%f14
2449      fmuld    %f8,pp2,%f12
2451      fmuld    %f16,%f22,%f22
2452      fadd    %f20,qq1,%f20
2454      fmuld    %f24,%f30,%f30
2455      fadd    %f28,qq1,%f28
2457      fadd    %f6,pp1,%f6
2458      fmuld    %f0,%f4,%f4
2459      add     %l4,%g1,%l4
2461      fmuld    %f8,%f14,%f14
2462      fadd    %f12,pp1,%f12
2464      fadd    %f22,pp1,%f22
2465      fmuld    %f16,%f20,%f20
2466      add     %l6,%g1,%l6
2468      fadd    %f30,pp1,%f30
2469      fmuld    %f24,%f28,%f28
2470      add     %l7,%g1,%l7
2472      fmuld    %f0,%f6,%f6
2474      fadd    %f14,qq1,%f14
2475      fmuld    %f8,%f12,%f12
2476      add     %l5,%g1,%l5
2478      fmuld    %f16,%f22,%f22
2480      fmuld    %f24,%f30,%f30
2482      fmuld    %f2,%f6,%f6
2483      ldd     [%l4+8],%f0
2485      fmuld    %f10,%f12,%f12
2487      fmuld    %f18,%f22,%f22
2488      ldd     [%l6+8],%f16
2490      fmuld    %f26,%f30,%f30
2491      ldd     [%l7+8],%f24
2493      fmuld    %f0,%f4,%f4
2494      fadd    %f32,%f6,%f6
2496      fmuld    %f8,%f14,%f14
2497      fadd    %f12,%f34,%f12
2498      ldd     [%l5+16],%f8
2500      fmuld    %f16,%f20,%f20
2501      fadd    %f36,%f22,%f22

```

```

2503      fmuld    %f24,%f28,%f28
2504      fadddd   %f38,%f30,%f30

2506      fadddd   %f2,%f6,%f6
2507      ldd      [%l4+16],%f32

2509      fmuld    %f8,%f14,%f14
2510      fadddd   %f12,%f10,%f12
2511      ldd      [%l5+8],%f34

2513      fadddd   %f18,%f22,%f22
2514      ldd      [%l6+16],%f36

2516      fadddd   %f26,%f30,%f30
2517      ldd      [%l7+16],%f38

2519      fmuld    %f32,%f6,%f6

2521      fmuld    %f34,%f12,%f12

2523      fmuld    %f36,%f22,%f22

2525      fmuld    %f38,%f30,%f30

2527      fadddd   %f6,%f4,%f6

2529      fsubd    %f14,%f12,%f14

2531      fadddd   %f22,%f20,%f22

2533      fadddd   %f30,%f28,%f30

2535      fadddd   %f6,%f0,%f6

2537      fadddd   %f14,%f8,%f14

2539      fadddd   %f22,%f16,%f22

2541      fadddd   %f30,%f24,%f30
2542      mov      %l0,%l4

2544      fnegd    %f6,%f4
2545      lda       [%i1]asi,%l0          ! preload next argument

2547      fnegd    %f14,%f12
2548      lda       [%i1]asi,%f0

2550      fnegd    %f22,%f20
2551      lda       [%i1+4]asi,%f3

2553      fnegd    %f30,%f28
2554      andn      %l0,%i5,%l0
2555      add       %i1,%i2,%i1

2557      andcc     %l1,2,%g0
2558      fmovdnz   %icc,%f4,%f6
2559      st        %f6,[%o0]

2561      andcc     %l1,2,%g0
2562      fmovdnz   %icc,%f12,%f14
2563      st        %f14,[%o1]

2565      andcc     %l2,2,%g0
2566      fmovdnz   %icc,%f20,%f22
2567      st        %f22,[%o2]

```

```

2569      andcc     %l3,2,%g0
2570      fmovdnz   %icc,%f28,%f30
2571      st        %f30,[%o3]

2573      addcc     %i0,-1,%i0
2574      bg,pt     %icc,.loop0
2575      ! delay   slot
2576      st        %f7,[%o0+4]

2578      ba,pt     %icc,.end
2579      ! delay   slot
2580      nop

2582      .align    16
2583      .case12:
2584      fmuld    %f18,%f18,%f16
2585      andcc     %l2,1,%g0
2586      bz,pn     %icc,.case14
2587      ! delay   slot
2588      fxor     %f22,%f36,%f36

2590      fmuld    %f26,%f26,%f24
2591      andcc     %l3,1,%g0
2592      bz,pn     %icc,.case13
2593      ! delay   slot
2594      fxor     %f30,%f38,%f38

2596      fmuld    %f0,pp3,%f6          ! sin(x0)

2598      fmuld    %f8,pp3,%f14        ! sin(x1)

2600      fadddd   %f6,pp2,%f6
2601      fmuld    %f0,qq2,%f4

2603      fadddd   %f14,pp2,%f14
2604      fmuld    %f8,qq2,%f12

2606      fmuld    %f16,qq3,%f22      ! cos(x2)
2608      fmuld    %f24,qq3,%f30      ! cos(x3)

2610      fmuld    %f0,%f6,%f6
2611      fadddd   %f4,qq1,%f4

2613      fmuld    %f8,%f14,%f14
2614      fadddd   %f12,qq1,%f12

2616      fadddd   %f22,qq2,%f22
2617      fmuld    %f16,pp2,%f20

2619      fadddd   %f30,qq2,%f30
2620      fmuld    %f24,pp2,%f28

2622      fadddd   %f6,pp1,%f6
2623      fmuld    %f0,%f4,%f4
2624      add      %l4,%g1,%l4

2626      fadddd   %f14,pp1,%f14
2627      fmuld    %f8,%f12,%f12
2628      add      %l5,%g1,%l5

2630      fmuld    %f16,%f22,%f22
2631      fadddd   %f20,pp1,%f20

2633      fmuld    %f24,%f30,%f30

```

```

2634      fadd    %f28,pp1,%f28
2636      fmul    %f0,%f6,%f6
2638      fmul    %f8,%f14,%f14
2640      fadd    %f22,qq1,%f22
2641      fmul    %f16,%f20,%f20
2642      add     %l6,%g1,%l6
2644      fadd    %f30,qq1,%f30
2645      fmul    %f24,%f28,%f28
2646      add     %l7,%g1,%l7
2648      fmul    %f2,%f6,%f6
2649      ldd     [%l4+8],%f0
2651      fmul    %f10,%f14,%f14
2652      ldd     [%l5+8],%f8
2654      fmul    %f18,%f20,%f20
2656      fmul    %f26,%f28,%f28
2658      fmul    %f0,%f4,%f4
2659      fadd    %f32,%f6,%f6
2661      fmul    %f8,%f12,%f12
2662      fadd    %f34,%f14,%f14
2664      fmul    %f16,%f22,%f22
2665      fadd    %f20,%f36,%f20
2666      ldd     [%l6+16],%f16
2668      fmul    %f24,%f30,%f30
2669      fadd    %f28,%f38,%f28
2670      ldd     [%l7+16],%f24
2672      fadd    %f2,%f6,%f6
2673      ldd     [%l4+16],%f32
2675      fadd    %f10,%f14,%f14
2676      ldd     [%l5+16],%f34
2678      fmul    %f16,%f22,%f22
2679      fadd    %f20,%f18,%f20
2680      ldd     [%l6+8],%f36
2682      fmul    %f24,%f30,%f30
2683      fadd    %f28,%f26,%f28
2684      ldd     [%l7+8],%f38
2686      fmul    %f32,%f6,%f6
2688      fmul    %f34,%f14,%f14
2690      fmul    %f36,%f20,%f20
2692      fmul    %f38,%f28,%f28
2694      fadd    %f6,%f4,%f6
2696      fadd    %f14,%f12,%f14
2698      fsub    %f22,%f20,%f22

```

```

2700      fsub    %f30,%f28,%f30
2702      fadd    %f6,%f0,%f6
2704      fadd    %f14,%f8,%f14
2706      fadd    %f22,%f16,%f22
2708      fadd    %f30,%f24,%f30
2709      mov     %l0,%l4
2711      fnegd   %f6,%f4
2712      lda     [%i1]asi,%l0      ! preload next argument
2714      fnegd   %f14,%f12
2715      lda     [%i1]asi,%f0
2717      fnegd   %f22,%f20
2718      lda     [%i1+4]asi,%f3
2720      fnegd   %f30,%f28
2721      andn    %l0,%i5,%l0
2722      add     %i1,%i2,%i1
2724      andcc   %l4,2,%g0
2725      fmovdnz %icc,%f4,%f6
2726      st      %f6,[%o0]
2728      andcc   %l1,2,%g0
2729      fmovdnz %icc,%f12,%f14
2730      st      %f14,[%o1]
2732      andcc   %l2,2,%g0
2733      fmovdnz %icc,%f20,%f22
2734      st      %f22,[%o2]
2736      andcc   %l3,2,%g0
2737      fmovdnz %icc,%f28,%f30
2738      st      %f30,[%o3]
2740      addcc   %i0,-1,%i0
2741      bg,pt   %icc,.loop0
2742      ! delay slot
2743      st      %f7,[%o0+4]
2745      ba,pt   %icc,.end
2746      ! delay slot
2747      nop
2749      .align   16
2750      .case13:
2751      fmul    %f0,pp3,%f6      ! sin(x0)
2753      fmul    %f8,pp3,%f14      ! sin(x1)
2755      fmul    %f24,pp3,%f30     ! sin(x3)
2757      fadd    %f6,pp2,%f6
2758      fmul    %f0,qq2,%f4
2760      fadd    %f14,pp2,%f14
2761      fmul    %f8,qq2,%f12
2763      fmul    %f16,qq3,%f22     ! cos(x2)
2765      fadd    %f30,pp2,%f30

```

```

2766      fmulld    %f24, qq2, %f28
2768      fmulld    %f0, %f6, %f6
2769      fadddd    %f4, qq1, %f4
2771      fmulld    %f8, %f14, %f14
2772      fadddd    %f12, qq1, %f12
2774      fadddd    %f22, qq2, %f22
2775      fmulld    %f16, pp2, %f20
2777      fmulld    %f24, %f30, %f30
2778      fadddd    %f28, qq1, %f28
2780      fadddd    %f6, pp1, %f6
2781      fmulld    %f0, %f4, %f4
2782      add       %l4, %g1, %l4
2784      fadddd    %f14, pp1, %f14
2785      fmulld    %f8, %f12, %f12
2786      add       %l5, %g1, %l5
2788      fmulld    %f16, %f22, %f22
2789      fadddd    %f20, pp1, %f20
2791      fadddd    %f30, pp1, %f30
2792      fmulld    %f24, %f28, %f28
2793      add       %l7, %g1, %l7
2795      fmulld    %f0, %f6, %f6
2797      fmulld    %f8, %f14, %f14
2799      fadddd    %f22, qq1, %f22
2800      fmulld    %f16, %f20, %f20
2801      add       %l6, %g1, %l6
2803      fmulld    %f24, %f30, %f30
2805      fmulld    %f2, %f6, %f6
2806      ldd       [%l4+8], %f0
2808      fmulld    %f10, %f14, %f14
2809      ldd       [%l5+8], %f8
2811      fmulld    %f18, %f20, %f20
2813      fmulld    %f26, %f30, %f30
2814      ldd       [%l7+8], %f24
2816      fmulld    %f0, %f4, %f4
2817      fadddd    %f32, %f6, %f6
2819      fmulld    %f8, %f12, %f12
2820      fadddd    %f34, %f14, %f14
2822      fmulld    %f16, %f22, %f22
2823      fadddd    %f20, %f36, %f20
2824      ldd       [%l6+16], %f16
2826      fmulld    %f24, %f28, %f28
2827      fadddd    %f38, %f30, %f30
2829      fadddd    %f2, %f6, %f6
2830      ldd       [%l4+16], %f32

```

```

2832      fadddd    %f10, %f14, %f14
2833      ldd       [%l5+16], %f34
2835      fmulld    %f16, %f22, %f22
2836      fadddd    %f20, %f18, %f20
2837      ldd       [%l6+8], %f36
2839      fadddd    %f26, %f30, %f30
2840      ldd       [%l7+16], %f38
2842      fmulld    %f32, %f6, %f6
2844      fmulld    %f34, %f14, %f14
2846      fmulld    %f36, %f20, %f20
2848      fmulld    %f38, %f30, %f30
2850      fadddd    %f6, %f4, %f6
2852      fadddd    %f14, %f12, %f14
2854      fsubdd    %f22, %f20, %f22
2856      fadddd    %f30, %f28, %f30
2858      fadddd    %f6, %f0, %f6
2860      fadddd    %f14, %f8, %f14
2862      fadddd    %f22, %f16, %f22
2864      fadddd    %f30, %f24, %f30
2865      mov       %l0, %l4
2867      fnegd     %f6, %f4
2868      lda       [%i1]%asi, %l0      ! preload next argument
2870      fnegd     %f14, %f12
2871      lda       [%i1]%asi, %f0
2873      fnegd     %f22, %f20
2874      lda       [%i1+4]%asi, %f3
2876      fnegd     %f30, %f28
2877      andn      %l0, %i5, %l0
2878      add       %i1, %i2, %i1
2880      andcc     %l4, 2, %g0
2881      fmovdnz   %icc, %f4, %f6
2882      st        %f6, [%o0]
2884      andcc     %l1, 2, %g0
2885      fmovdnz   %icc, %f12, %f14
2886      st        %f14, [%o1]
2888      andcc     %l2, 2, %g0
2889      fmovdnz   %icc, %f20, %f22
2890      st        %f22, [%o2]
2892      andcc     %l3, 2, %g0
2893      fmovdnz   %icc, %f28, %f30
2894      st        %f30, [%o3]
2896      addcc     %i0, -1, %i0
2897      bg, pt    %icc, .loop0

```

```

2898 ! delay slot
2899 st      %f7, [%o0+4]

2901      ba,pt      %icc, .end
2902 ! delay slot
2903 nop

2905      .align      16
2906 .case14:
2907      fmuld      %f26, %f26, %f24
2908      andcc      %l3, 1, %g0
2909      bz, pn      %icc, .case15
2910 ! delay slot
2911      fxor      %f30, %f38, %f38

2913      fmuld      %f0, pp3, %f6          ! sin(x0)

2915      fmuld      %f8, pp3, %f14        ! sin(x1)

2917      fmuld      %f16, pp3, %f22       ! sin(x2)

2919      fadddd     %f6, pp2, %f6
2920      fmuld      %f0, qq2, %f4

2922      fadddd     %f14, pp2, %f14
2923      fmuld      %f8, qq2, %f12

2925      fadddd     %f22, pp2, %f22
2926      fmuld      %f16, qq2, %f20

2928      fmuld      %f24, qq3, %f30       ! cos(x3)

2930      fmuld      %f0, %f6, %f6
2931      fadddd     %f4, qq1, %f4

2933      fmuld      %f8, %f14, %f14
2934      fadddd     %f12, qq1, %f12

2936      fmuld      %f16, %f22, %f22
2937      fadddd     %f20, qq1, %f20

2939      fadddd     %f30, qq2, %f30
2940      fmuld      %f24, pp2, %f28

2942      fadddd     %f6, pp1, %f6
2943      fmuld      %f0, %f4, %f4
2944      add        %l4, %g1, %l4

2946      fadddd     %f14, pp1, %f14
2947      fmuld      %f8, %f12, %f12
2948      add        %l5, %g1, %l5

2950      fadddd     %f22, pp1, %f22
2951      fmuld      %f16, %f20, %f20
2952      add        %l6, %g1, %l6

2954      fmuld      %f24, %f30, %f30
2955      fadddd     %f28, pp1, %f28

2957      fmuld      %f0, %f6, %f6

2959      fmuld      %f8, %f14, %f14

2961      fmuld      %f16, %f22, %f22

2963      fadddd     %f30, qq1, %f30

```

```

2964      fmuld      %f24, %f28, %f28
2965      add        %l7, %g1, %l7

2967      fmuld      %f2, %f6, %f6
2968      ldd        [%l4+8], %f0

2970      fmuld      %f10, %f14, %f14
2971      ldd        [%l5+8], %f8

2973      fmuld      %f18, %f22, %f22
2974      ldd        [%l6+8], %f16

2976      fmuld      %f26, %f28, %f28

2978      fmuld      %f0, %f4, %f4
2979      fadddd     %f32, %f6, %f6

2981      fmuld      %f8, %f12, %f12
2982      fadddd     %f34, %f14, %f14

2984      fmuld      %f16, %f20, %f20
2985      fadddd     %f36, %f22, %f22

2987      fmuld      %f24, %f30, %f30
2988      fadddd     %f28, %f38, %f28
2989      ldd        [%l7+16], %f24

2991      fadddd     %f2, %f6, %f6
2992      ldd        [%l4+16], %f32

2994      fadddd     %f10, %f14, %f14
2995      ldd        [%l5+16], %f34

2997      fadddd     %f18, %f22, %f22
2998      ldd        [%l6+16], %f36

3000      fmuld      %f24, %f30, %f30
3001      fadddd     %f28, %f26, %f28
3002      ldd        [%l7+8], %f38

3004      fmuld      %f32, %f6, %f6

3006      fmuld      %f34, %f14, %f14

3008      fmuld      %f36, %f22, %f22

3010      fmuld      %f38, %f28, %f28

3012      fadddd     %f6, %f4, %f6

3014      fadddd     %f14, %f12, %f14

3016      fadddd     %f22, %f20, %f22

3018      fsubd      %f30, %f28, %f30

3020      fadddd     %f6, %f0, %f6

3022      fadddd     %f14, %f8, %f14

3024      fadddd     %f22, %f16, %f22

3026      fadddd     %f30, %f24, %f30
3027      mov        %l0, %l4

3029      fnegd      %f6, %f4

```

```

3030      lda      [%i1]%asi,%l0          ! preload next argument
3032      fnegd    %f14,%f12
3033      lda      [%i1]%asi,%f0
3035      fnegd    %f22,%f20
3036      lda      [%i1+4]%asi,%f3
3038      fnegd    %f30,%f28
3039      andn     %l0,%i5,%l0
3040      add      %i1,%i2,%i1
3042      andcc    %l4,2,%g0
3043      fmovdnz  %icc,%f4,%f6
3044      st       %f6, [%o0]
3046      andcc    %l1,2,%g0
3047      fmovdnz  %icc,%f12,%f14
3048      st       %f14, [%o1]
3050      andcc    %l2,2,%g0
3051      fmovdnz  %icc,%f20,%f22
3052      st       %f22, [%o2]
3054      andcc    %l3,2,%g0
3055      fmovdnz  %icc,%f28,%f30
3056      st       %f30, [%o3]
3058      addcc    %i0,-1,%i0
3059      bg,pt    %icc,.loop0
3060      ! delay  slot
3061      st       %f7, [%o0+4]
3063      ba,pt    %icc,.end
3064      ! delay  slot
3065      nop
3067      .align   16
3068      .case15:
3069      fmuld    %f0,pp3,%f6          ! sin(x0)
3071      fmuld    %f8,pp3,%f14        ! sin(x1)
3073      fmuld    %f16,pp3,%f22       ! sin(x2)
3075      fmuld    %f24,pp3,%f30      ! sin(x3)
3077      fadddd   %f6,pp2,%f6
3078      fmuld    %f0,qq2,%f4
3080      fadddd   %f14,pp2,%f14
3081      fmuld    %f8,qq2,%f12
3083      fadddd   %f22,pp2,%f22
3084      fmuld    %f16,qq2,%f20
3086      fadddd   %f30,pp2,%f30
3087      fmuld    %f24,qq2,%f28
3089      fmuld    %f0,%f6,%f6
3090      fadddd   %f4,qq1,%f4
3092      fmuld    %f8,%f14,%f14
3093      fadddd   %f12,qq1,%f12
3095      fmuld    %f16,%f22,%f22

```

```

3096      fadddd   %f20,qq1,%f20
3098      fmuld    %f24,%f30,%f30
3099      fadddd   %f28,qq1,%f28
3101      fadddd   %f6,pp1,%f6
3102      fmuld    %f0,%f4,%f4
3103      add      %l4,%g1,%l4
3105      fadddd   %f14,pp1,%f14
3106      fmuld    %f8,%f12,%f12
3107      add      %l5,%g1,%l5
3109      fadddd   %f22,pp1,%f22
3110      fmuld    %f16,%f20,%f20
3111      add      %l6,%g1,%l6
3113      fadddd   %f30,pp1,%f30
3114      fmuld    %f24,%f28,%f28
3115      add      %l7,%g1,%l7
3117      fmuld    %f0,%f6,%f6
3119      fmuld    %f8,%f14,%f14
3121      fmuld    %f16,%f22,%f22
3123      fmuld    %f24,%f30,%f30
3125      fmuld    %f2,%f6,%f6
3126      ldd      [%l4+8],%f0
3128      fmuld    %f10,%f14,%f14
3129      ldd      [%l5+8],%f8
3131      fmuld    %f18,%f22,%f22
3132      ldd      [%l6+8],%f16
3134      fmuld    %f26,%f30,%f30
3135      ldd      [%l7+8],%f24
3137      fmuld    %f0,%f4,%f4
3138      fadddd   %f32,%f6,%f6
3140      fmuld    %f8,%f12,%f12
3141      fadddd   %f34,%f14,%f14
3143      fmuld    %f16,%f20,%f20
3144      fadddd   %f36,%f22,%f22
3146      fmuld    %f24,%f28,%f28
3147      fadddd   %f38,%f30,%f30
3149      fadddd   %f2,%f6,%f6
3150      ldd      [%l4+16],%f32
3152      fadddd   %f10,%f14,%f14
3153      ldd      [%l5+16],%f34
3155      fadddd   %f18,%f22,%f22
3156      ldd      [%l6+16],%f36
3158      fadddd   %f26,%f30,%f30
3159      ldd      [%l7+16],%f38
3161      fmuld    %f32,%f6,%f6

```

```

3163      fmuldd    %f34,%f14,%f14
3165      fmuldd    %f36,%f22,%f22
3167      fmuldd    %f38,%f30,%f30
3169      fadddd    %f6,%f4,%f6
3171      fadddd    %f14,%f12,%f14
3173      fadddd    %f22,%f20,%f22
3175      fadddd    %f30,%f28,%f30
3177      fadddd    %f6,%f0,%f6
3179      fadddd    %f14,%f8,%f14
3181      fadddd    %f22,%f16,%f22
3183      fadddd    %f30,%f24,%f30
3184      mov        %l0,%l4
3186      fnegdd    %f6,%f4
3187      lda        [%i1]%asi,%l0          ! preload next argument
3189      fnegdd    %f14,%f12
3190      lda        [%i1]%asi,%f0
3192      fnegdd    %f22,%f20
3193      lda        [%i1+4]%asi,%f3
3195      fnegdd    %f30,%f28
3196      andn       %l0,%i5,%l0
3197      add        %i1,%i2,%i1
3199      andcc      %l4,2,%g0
3200      fmovdznz   %icc,%f4,%f6
3201      st         %f6, [%o0]
3203      andcc      %l1,2,%g0
3204      fmovdznz   %icc,%f12,%f14
3205      st         %f14, [%o1]
3207      andcc      %l2,2,%g0
3208      fmovdznz   %icc,%f20,%f22
3209      st         %f22, [%o2]
3211      andcc      %l3,2,%g0
3212      fmovdznz   %icc,%f28,%f30
3213      st         %f30, [%o3]
3215      addcc      %i0,-1,%i0
3216      bg,pt      %icc,.loop0
3217      ! delay    slot
3218      st         %f7, [%o0+4]
3220      ba,pt      %icc,.end
3221      ! delay    slot
3222      nop
3225      .align     16
3226      .end:      st         %f15, [%o1+4]
3227

```

```

3228      st         %f23, [%o2+4]
3229      st         %f31, [%o3+4]
3230      ld         [%fp+biguns],%i5
3231      tst        %i5                      ! check for huge arguments remaining
3232      be,pt      %icc,.exit
3233      ! delay    slot
3234      nop
3235      #ifdef     __sparcv9
3236      ldx        [%fp+xsave],%o1
3237      ldx        [%fp+ysave],%o3
3238      #else
3239      ld         [%fp+xsave],%o1
3240      ld         [%fp+ysave],%o3
3241      #endif
3242      ld         [%fp+nsave],%o0
3243      ld         [%fp+sxsave],%o2
3244      ld         [%fp+sysave],%o4
3245      sra        %o2,0,%o2                ! sign-extend for V9
3246      sra        %o4,0,%o4
3247      call       ___vlibm_vcos_big_ultra3
3248      sra        %o5,0,%o5                ! delay slot
3250      .exit:
3251      ret
3252      restore
3255      .align     16
3256      .last1:
3257      fadddd     %f2,c3two44,%f4
3258      st         %f15, [%o1+4]
3259      .last1_from_range1:
3260      mov        0,%l1
3261      fzeros     %f8
3262      fzero      %f10
3263      add        %fp,junk,%o1
3264      .last2:
3265      fadddd     %f10,c3two44,%f12
3266      st         %f23, [%o2+4]
3267      .last2_from_range2:
3268      mov        0,%l2
3269      fzeros     %f16
3270      fzero      %f18
3271      add        %fp,junk,%o2
3272      .last3:
3273      fadddd     %f18,c3two44,%f20
3274      st         %f31, [%o3+4]
3275      st         %f5, [%fp+nk0]
3276      st         %f13, [%fp+nk1]
3277      .last3_from_range3:
3278      mov        0,%l3
3279      fzeros     %f24
3280      fzero      %f26
3281      ba,pt      %icc,.cont
3282      ! delay    slot
3283      add        %fp,junk,%o3
3286      .align     16
3287      .range0:
3288      cmp        %l0,%o4
3289      bl,pt      %icc,1f
3290      ! delay    slot, harmless if branch taken
3291      sethi      %hi(0x7ff00000),%o7
3292      cmp        %l0,%o7
3293      bl,a,pt    %icc,2f                ! branch if finite

```

```

3294 ! delay slot, squashed if branch not taken
3295 st %04, [%fp+biguns] ! set biguns
3296 fzero %f0
3297 fmuld %f2, %f0, %f2
3298 st %f2, [%o0]
3299 ba, pt %icc, 2f
3300 ! delay slot
3301 st %f3, [%o0+4]
3302 1:
3303 fdtoi %f2, %f4 ! raise inexact if not zero
3304 sethi %hi(0x3ff00000), %o7
3305 st %o7, [%o0]
3306 st %g0, [%o0+4]
3307 2:
3308 addcc %i0, -1, %i0
3309 ble, pn %icc, .end
3310 ! delay slot, harmless if branch taken
3311 add %i3, %i4, %i3 ! y += stridey
3312 andn %l1, %i5, %l0 ! hx &= ~0x80000000
3313 fmovs %f8, %f0
3314 fmovs %f11, %f3
3315 ba, pt %icc, .loop0
3316 ! delay slot
3317 add %i1, %i2, %i1 ! x += stridex

3320 .align 16
3321 .range1:
3322 cmp %l1, %o4
3323 bl, pt %icc, 1f ! hx < 0x3e400000
3324 ! delay slot, harmless if branch taken
3325 sethi %hi(0x7ff00000), %o7
3326 cmp %l1, %o7
3327 bl, a, pt %icc, 2f ! branch if finite
3328 ! delay slot, squashed if branch not taken
3329 st %o4, [%fp+biguns] ! set biguns
3330 fzero %f8
3331 fmuld %f10, %f8, %f10
3332 st %f10, [%o1]
3333 ba, pt %icc, 2f
3334 ! delay slot
3335 st %f11, [%o1+4]
3336 1:
3337 fdtoi %f10, %f12 ! raise inexact if not zero
3338 sethi %hi(0x3ff00000), %o7
3339 st %o7, [%o1]
3340 st %g0, [%o1+4]
3341 2:
3342 addcc %i0, -1, %i0
3343 ble, pn %icc, .last1_from_range1
3344 ! delay slot, harmless if branch taken
3345 add %i3, %i4, %i3 ! y += stridey
3346 andn %l2, %i5, %l1 ! hx &= ~0x80000000
3347 fmovs %f16, %f8
3348 fmovs %f19, %f11
3349 ba, pt %icc, .loop1
3350 ! delay slot
3351 add %i1, %i2, %i1 ! x += stridex

3354 .align 16
3355 .range2:
3356 cmp %l2, %o4
3357 bl, pt %icc, 1f ! hx < 0x3e400000
3358 ! delay slot, harmless if branch taken
3359 sethi %hi(0x7ff00000), %o7

```

```

3360 cmp %l2, %o7
3361 bl, a, pt %icc, 2f ! branch if finite
3362 ! delay slot, squashed if branch not taken
3363 st %o4, [%fp+biguns] ! set biguns
3364 fzero %f16
3365 fmuld %f18, %f16, %f18
3366 st %f18, [%o2]
3367 ba, pt %icc, 2f
3368 ! delay slot
3369 st %f19, [%o2+4]
3370 1:
3371 fdtoi %f18, %f20 ! raise inexact if not zero
3372 sethi %hi(0x3ff00000), %o7
3373 st %o7, [%o2]
3374 st %g0, [%o2+4]
3375 2:
3376 addcc %i0, -1, %i0
3377 ble, pn %icc, .last2_from_range2
3378 ! delay slot, harmless if branch taken
3379 add %i3, %i4, %i3 ! y += stridey
3380 andn %l3, %i5, %l2 ! hx &= ~0x80000000
3381 fmovs %f24, %f16
3382 fmovs %f27, %f19
3383 ba, pt %icc, .loop2
3384 ! delay slot
3385 add %i1, %i2, %i1 ! x += stridex

3388 .align 16
3389 .range3:
3390 cmp %l3, %o4
3391 bl, pt %icc, 1f ! hx < 0x3e400000
3392 ! delay slot, harmless if branch taken
3393 sethi %hi(0x7ff00000), %o7
3394 cmp %l3, %o7
3395 bl, a, pt %icc, 2f ! branch if finite
3396 ! delay slot, squashed if branch not taken
3397 st %o4, [%fp+biguns] ! set biguns
3398 fzero %f24
3399 fmuld %f26, %f24, %f26
3400 st %f26, [%o3]
3401 ba, pt %icc, 2f
3402 ! delay slot
3403 st %f27, [%o3+4]
3404 1:
3405 fdtoi %f26, %f28 ! raise inexact if not zero
3406 sethi %hi(0x3ff00000), %o7
3407 st %o7, [%o3]
3408 st %g0, [%o3+4]
3409 2:
3410 addcc %i0, -1, %i0
3411 ble, pn %icc, .last3_from_range3
3412 ! delay slot, harmless if branch taken
3413 add %i3, %i4, %i3 ! y += stridey
3414 ld [%i1], %l3
3415 ld [%i1], %f24
3416 ld [%i1+4], %f27
3417 andn %l3, %i5, %l3 ! hx &= ~0x80000000
3418 ba, pt %icc, .loop3
3419 ! delay slot
3420 add %i1, %i2, %i1 ! x += stridex

3422 SET_SIZE(__vcos_ultra3)
unchanged_portion_omitted

```

new/usr/src/lib/libmvec/common/vis/_vlog_ultra3.S

1

```
*****
84349 Wed Oct 29 13:16:10 2014
new/usr/src/lib/libmvec/common/vis/_vlog_ultra3.S
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

1 /*
2  * CDDL HEADER START
3  *
4  * The contents of this file are subject to the terms of the
5  * Common Development and Distribution License (the "License").
6  * You may not use this file except in compliance with the License.
7  *
8  * You can obtain a copy of the license at usr/src/OPENSOLARIS.LICENSE
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10 * See the License for the specific language governing permissions
11 * and limitations under the License.
12 *
13 * When distributing Covered Code, include this CDDL HEADER in each
14 * file and include the License file at usr/src/OPENSOLARIS.LICENSE.
15 * If applicable, add the following below this CDDL HEADER, with the
16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */
21 /*
22 * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
23 */
24 /*
25 * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
26 * Use is subject to license terms.
27 */

29 .file    "_vlog_ultra3.S"

31 #include "libm.h"
32 #if defined(LIBMVEC_SO_BUILD)
33     .weak    __vlog
34     .type    __vlog, #function
35     __vlog = __vlog_ultra3
36 #endif

37 /*
38  * ELEVENBIT table and order 5 POLYNOMIAL no explicit correction t
39  */

40     RO_DATA
41     .align 64
42     !! this is a new 11 bit table.
43 TBL:
44     .word    0xbfd522ae,    0x0738a000
45     .word    0xbd2ebe70,    0x8164c759
46     .word    0xbfd5178d,    0x9ab55000
47     .word    0xbd35c153,    0x0fe963b3
48     .word    0xbfd50c6f,    0x1d11b000
49     .word    0xbd42f8ca,    0x40bec1ea
50     .word    0xbfd50152,    0x8da1f000
51     .word    0xbd42cfac,    0x6d29f4d7
52     .word    0xbfd4f637,    0xebba9000
53     .word    0xbd401f53,    0x9a676da3
54     .word    0xbfd4eb1f,    0x36b07000
55     .word    0xbd184047,    0x46e5797b
56     .word    0xbfd4e008,    0x6dd8b000
57     .word    0xbd4594b6,    0xaf0ddc3c
58     .word    0xbfd4d4f3,    0x90890000
59     .word    0xbd19fd79,    0x3a9f1441
```

new/usr/src/lib/libmvec/common/vis/_vlog_ultra3.S

2

```
60     .word    0xbfd4c9e0,    0x9e172000
61     .word    0xbd4877dd,    0xb93d49d7
62     .word    0xbfd4becf,    0x95d97000
63     .word    0xbd422662,    0x6ffee2c8
64     .word    0xbfd4b3c0,    0x77267000
65     .word    0xbd4d3497,    0x2fdf5a8c
66     .word    0xbfd4a8b3,    0x41552000
67     .word    0xbd46127e,    0x3d0dc8d1
68     .word    0xbfd49da7,    0xf3bcc000
69     .word    0xbd307b33,    0x4daf4b9a
70     .word    0xbfd4929e,    0x8db4e000
71     .word    0xbd3b9056,    0x556c70de
72     .word    0xbfd48797,    0xe958000
73     .word    0xbd3dc1b8,    0x465cf25f
74     .word    0xbfd47c91,    0x75b6f000
75     .word    0xbd05acd1,    0x7009e35b
76     .word    0xbfd4718d,    0xc271c000
77     .word    0xbd306c18,    0xfb4c14c5
78     .word    0xbfd4668b,    0xf41ef000
79     .word    0xbd432874,    0x4e9d2b85
80     .word    0xbfd45b8c,    0x0a17d000
81     .word    0xbd4e26ed,    0xf182f57b
82     .word    0xbfd4508e,    0x03b61000
83     .word    0xbd40ef1c,    0x2579199c
84     .word    0xbfd44591,    0xe0539000
85     .word    0xbd4e916a,    0x76d6dc28
86     .word    0xbfd43a97,    0x9f4ac000
87     .word    0xbd23ee07,    0x6a81f88e
88     .word    0xbfd42f9f,    0x3ff62000
89     .word    0xbd390644,    0x0f7d3354
90     .word    0xbfd424a8,    0xc1b0c000
91     .word    0xbd2dc57c,    0x99ae2a25
92     .word    0xbfd419b4,    0x23d5e000
93     .word    0xbd418e43,    0x6ec90e0a
94     .word    0xbfd40ec1,    0x65c13000
95     .word    0xbd3f59a8,    0xa01757f6
96     .word    0xbfd403d0,    0x86cea000
97     .word    0xbd3e6ef5,    0x74487308
98     .word    0xbfd3f8e1,    0x865a8000
99     .word    0xbd26f338,    0x912773e3
100    .word    0xbfd3edf4,    0x63c16000
101    .word    0xbd407cc1,    0xeb4069e1
102    .word    0xbfd3e309,    0x1e604000
103    .word    0xbd43f634,    0xa2afb68d
104    .word    0xbfd3d81f,    0xb5946000
105    .word    0xbd4b74e0,    0xf558b217
106    .word    0xbfd3cd38,    0x28bb6000
107    .word    0xbd489faf,    0xb06c8342
108    .word    0xbfd3c252,    0x77333000
109    .word    0xbd183b54,    0xb606bd5c
110    .word    0xbfd3b76e,    0xa059f000
111    .word    0xbd47b5cf,    0x9912c7cb
112    .word    0xbfd3ac8c,    0xa38e5000
113    .word    0xbd48bd04,    0x10ff506d
114    .word    0xbfd3a1ac,    0x802f3000
115    .word    0xbd398ecf,    0x399abd8d
116    .word    0xbfd396ce,    0x359bb000
117    .word    0xbd4ea7c6,    0x3a99c99c
118    .word    0xbfd38bf1,    0xc3337000
119    .word    0xbd4ce9e9,    0x41e9516d
120    .word    0xbfd38117,    0x28564000
121    .word    0xbd496386,    0xdb1e3f5
122    .word    0xbfd3763e,    0x64645000
123    .word    0xbd318b1f,    0x291dcb56
124    .word    0xbfd36b67,    0x76be1000
125    .word    0xbd116ecd,    0xb0f177c8
```

```
126 .word 0xbfd36092, 0x5ec44000
127 .word 0xbd4eb929, 0xf344bbd1
128 .word 0xbfd355bf, 0x1bd82000
129 .word 0xbd491599, 0x1da6c3c6
130 .word 0xbfd34aed, 0xad5b1000
131 .word 0xbd3a2aac, 0xf2be1fdd
132 .word 0xbfd3401e, 0x12aec000
133 .word 0xbd4741c6, 0x5548eb71
134 .word 0xbfd33550, 0x4b355000
135 .word 0xbd446efc, 0x89cef9c2
136 .word 0xbfd32a84, 0x56512000
137 .word 0xbd04f928, 0x139af5d6
138 .word 0xbfd31fba, 0x3364c000
139 .word 0xbd4a08d8, 0x6ce5a16e
140 .word 0xbfd314f1, 0xe1d35000
141 .word 0xbd49c761, 0x4b37b0d2
142 .word 0xbfd30a2b, 0x61001000
143 .word 0xbd4a53e9, 0x6290ef5b
144 .word 0xbfd2ff66, 0xb04ea000
145 .word 0xbd43a896, 0xd5f0c8e9
146 .word 0xbfd2f4a3, 0xc22e0000
147 .word 0xbd4b8693, 0xf85f2705
148 .word 0xbfd2e9e2, 0xbce12000
149 .word 0xbd24300c, 0x128d1dc2
150 .word 0xbfd2df23, 0x78edd000
151 .word 0xbce292b7, 0xcd95c595
152 .word 0xbfd2d466, 0x02adc000
153 .word 0xbd49dcbc, 0x88caaf9b
154 .word 0xbfd2c9aa, 0x59863000
155 .word 0xbd4a7f90, 0xe829d4d2
156 .word 0xbfd2bef0, 0x7cdc9000
157 .word 0xbd2a9cfa, 0x4a5004f4
158 .word 0xbfd2b438, 0x6c168000
159 .word 0xbd4e1827, 0x3a343630
160 .word 0xbfd2a982, 0x269a3000
161 .word 0xbd4b7e9c, 0x6aa35e8c
162 .word 0xbfd29ecd, 0xabcdf000
163 .word 0xbd44073b, 0x3bdc2243
164 .word 0xbfd2941a, 0xfb186000
165 .word 0xbd46f79e, 0xa4678ebb
166 .word 0xbfd2896a, 0x13e08000
167 .word 0xbd3a8ed0, 0x27e16952
168 .word 0xbfd27eba, 0xf58d8000
169 .word 0xbd49399d, 0xffd2d096
170 .word 0xbfd2740d, 0x9f870000
171 .word 0xbd45f660, 0xb9a8002a
172 .word 0xbfd26962, 0x1134d000
173 .word 0xbd4724f0, 0x77d6ec00
174 .word 0xbfd25eb8, 0x49ff2000
175 .word 0xbd310c25, 0x03f76b8e
176 .word 0xbfd25410, 0x494e5000
177 .word 0xbd3b1d7a, 0xc0ef77f2
178 .word 0xbfd2496a, 0x0e8b3000
179 .word 0xbd003238, 0x687cfe2e
180 .word 0xbfd23ec5, 0x991eb000
181 .word 0xbd44920d, 0xdbae8d6f
182 .word 0xbfd23422, 0xe8724000
183 .word 0xbd40708a, 0x931c895b
184 .word 0xbfd22981, 0xfbef7000
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1972	.word	0x3fd49006,	0x80400000
1973	.word	0x3d43a198,	0x00f2f83a

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1979 .word 0x3d43f81a, 0x1c3a02db
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1986 .word 0x3fd4e10c, 0x6bc8a000
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2002 .word 0x3fd53d28, 0x8c3bd000
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2087 .word 0x3d1934e2, 0x677d272b
2088 .word 0x3fd72391, 0x4e650000
2089 .word 0x3d0c1d52, 0xbdc87d8a
2090 .word 0x3fd72eb5, 0x9aac9000
2091 .word 0x3d4dd010, 0xd08a7a15
2092 !! TBL - end

```

```

2094 ! constants:
2095 .align 64
2096 CONSTANTS:
2097 .word 0x40000000, 0x00000000
2098 .word 0x3fe55555, 0x555571da
2099 .word 0x3fd99999, 0x8702be3a
2100 .word 0x3fd24af7, 0x3f4569b1
2101 .word 0x3ea62e42, 0xfef00000 ! scaled by 2**-20
2102 .word 0x3caa39ef, 0x35793c76 ! scaled by 2**-20
2103 .word 0xfffffc00, 0x00000000 ! ELEVENBIT
2104 .word 0x43200000
2105 .word 0xffff0000

```

new/usr/src/lib/libmvec/common/vis/___vlog_ultra3.S

```
2106      .word    0xc0190200      ! ELEVENBIT
2107      .word    0x0200          ! ELEVENBIT
```

```
2109 #define two          0x00
2110 #define A1           0x08
2111 #define A2           0x10
2112 #define A3           0x18
2113 #define ln2hi        0x20
2114 #define ln2lo        0x28
2115 #define mask         0x30
2116 #define 0x43200000    0x38
2117 #define 0xffff0000    0x3c
2118 #define 0xc0194000    0x40
2119 #define 0x4000        0x44
```

2122 ! local storage indices

```
2124 #define jnk          STACK_BIAS-0x8
2125 #define tmp2          STACK_BIAS-0x10
2126 #define tmp1          STACK_BIAS-0x18
2127 #define tmp0          STACK_BIAS-0x20
2128 #define tmp3          STACK_BIAS-0x28
2129 #define tmp4          STACK_BIAS-0x30
2130 #define tmp5          STACK_BIAS-0x38
2131 #define tmp6          STACK_BIAS-0x40
2132 ! sizeof temp storage - must be a multiple of 16 for V9
2133 #define tmps          0x40
```

2135 ! register use

```
2137 ! i0  n
2138 ! i1  x
2139 ! i2  stridx
2140 ! i3  y
2141 ! i4  stridey
2142 ! i5
```

2144 ! g1 TBL

```
2146 ! l0  j0
2147 ! l1  j1
2148 ! l2  j2
2149 ! l3
2150 ! l4  0x94000
2151 ! l5  CONSTANTS
2152 ! l6  0x000fffff
2153 ! l7  0x7ff00000
```

```
2155 ! o0  py0
2156 ! o1  py1
2157 ! o2  py2
2158 ! o3          used in primary range bounds check
2159 ! o4          used in primary range bounds check
2160 ! o5          used in .range1 check section as temporary
2161 ! o7          NOT USED
```

```
2163 ! f0  u0, q0
2164 ! f2  v0, (two-v0)-u0, z0
2165 ! f4  n0, f0, q0
2166 ! f6  s0
2167 ! f8  q
2168 ! f10 u1, q1
2169 ! f12 v1, (two-v1)-u1, z1
2170 ! f14 n1, f1, q1
2171 ! f16 s1
```

33

new/usr/src/lib/libmvec/common/vis/___vlog_ultra3.S

```
2172 ! f18 t ! now tmp0 storage
2173 ! f20 u2, q2
2174 ! f22 v2, (two-v2)-u2, q2
2175 ! f24 n2, f2, q2
2176 ! f26 s2
2177 ! f28 0xffff0000
2178 ! f29 0x43200000
2179 ! f30 0x4000
2180 ! f31 0xc0194000
2181 ! f32 t0
2182 ! f34 h0, f0-(c0-h0)
2183 ! f36 c0
2184 ! f38 A1
2185 ! f40 two
2186 ! f42 t1
2187 ! f44 h1, f1-(c1-h1)
2188 ! f46 c1
2189 ! f48 A2
2190 ! f50 0xffff8000... or 0xfffffc00 for 6 or 11 bit tbl resp
2191 ! f52 t2
2192 ! f54 h2, f2-(c2-h2)
2193 ! f56 c2
2194 ! f58 A3          now tmp1 storage
2195 ! f60 ln2hi
2196 ! f62 ln2lo
2197 ! -----
2198 ! -----
2199 ! PREFETCH info
2200 #define PREFETCH_MULT_READS 0
2201 ! -----
2202 ! -----
2203 ! define pipes for easier reading
```

```
2205 #define ICNT          %i0

2207 #define XPTR          %i1
2208 #define XSTR          %i2
2209 #define YPTR          %i3
2210 #define YSTR          %i4
```

```
2212 #define RANGE_LO      %l6
2213 #define RANGE_HI      %l7
```

```
2215 #define P0_X1         %f0
2216 #define P0_f1         %f1
2217 #define P0_f2         %f2
2218 #define P0_f3         %f3
2219 #define P0_f4         %f4
2220 #define P0_f5         %f5
2221 #define P0_f6         %f6
2222 #define P0_f7         %f7
2223 !#define P0_f8         %f8
2224 #define T0_f8         %f8
2225 #define P0_f9         %f9
```

```
2227 #define P1_X2         %f10
2228 #define P1_f11        %f11
2229 #define P1_f12        %f12
2230 #define P1_f13        %f13
2231 #define P1_f14        %f14
2232 #define P1_f15        %f15
2233 #define P1_f16        %f16
2234 #define P1_f17        %f17
```

```
2236 !#define P1_f18        %f18
2237 #define T1_f18        %f18
```

34

2239	#define	P1_f19	%f19	
2241	#define	P2_X3	%f20	
2242	#define	P2_f21	%f21	
2243	#define	P2_f22	%f22	
2244	#define	P2_f23	%f23	
2245	#define	P2_f24	%f24	
2246	#define	P2_f25	%f25	
2247	#define	P2_f26	%f26	
2248	#define	P2_f27	%f27	
2249	#define	INF_f28	%f28	
2250	#define	CONSTE432_f29	%f29	
2252	#define	CONST_f30	%f30	
2254	#define	TTOPMSK	%f31	
2256	#define	P0_f32	%f32	
2257	#define	P0_f34	%f34	
2258	#define	P0_f36	%f36	
2260	#define	P1_f42	%f42	
2261	#define	P1_f44	%f44	
2262	#define	P1_f46	%f46	
2264	#define	P2_f52	%f52	
2265	#define	P2_f54	%f54	
2266	#define	P2_f56	%f56	
2268	#define	G1_TBL	%g1	
2269	#define	L5_CONSTANTS	%l5	
2270	#define	FP40_Two	%f40	
2271	#define	FP38_A1	%f38	
2272	#define	FP48_A2	%f48	
2273	#define	FP50_MASK	%f50	
2274	!!!define	FP58_A3		%f58
2275	#define	T2_f58	%f58	
2276	#define	FP60_LN2HI	%f60	
2277	#define	FP62_LN2LO	%f62	

```

2280 !-----
2282 ENTRY(__vlog_ultra3)
2283 save    %sp, -SA(MINFRAME)-tmps,%sp
2284 PIC_SETUP(17)
2285 PIC_SET(17,CONSTANTS,15)
2286 PIC_SET(17,TBL,o0)
2287 mov     %o0,%g1
2288 wr      %g0,0x82,%asi           ! set %asi for non-faulting loads

2290 ld      [XPTR],%l0             ! quickly                               !X1

2292 sethi   %hi(0x90200),%l4        ! ELEVENBIT
2293 or      %l4,%lo(0x90200),%l4    ! ELEVENBIT
2294 ldd     [XPTR],P0_X1            ! u.l[0] = *x                               !X1
2295 sethi   %hi(0x000fffff),RANGE_L0
2296 or      RANGE_L0,%lo(0x000fffff),RANGE_L0
2297 sethi   %hi(0x7ff00000),RANGE_HI
2298 ldd     [L5_CONSTANTS+two],FP40_TW0
2299 fzero   P1_X2
2300 fzero   P2_X3
2301 ldd     [L5_CONSTANTS+A1],FP38_A1
2302 ldd     [L5_CONSTANTS+A2],FP48_A2
2303 ldd     [L5_CONSTANTS+ln2hi],FP60_LN2HI

```

[illegible]

37

37

38

38

39

```
new/usr/src/lib/libmvec/common/vis/__vlog_ultra3.S
```

40

[illegible]

41

```
new/usr/src/lib/libmvec/common/vis/__vlog_ultra3.S
```

42

```

2701 ! Once we get to the last element, we loop three more times to finish
2702 ! the computations in progress. This means we will load past the end
2703 ! of the argument vector, but since we use non-faulting loads and never
2704 ! use the data, the only potential problem is cache miss. (Strictly
2705 ! speaking, since we pad the argument vector with twos, we incorrectly
2706 ! raise inexact if the actual argument vector is all ones.)
2707 .endloop2:
2708     sethi    %hi(0x40000000),%l0    ! "next argument" = two
2709     sub     %l0,RANGE_HI,%o3        ! bnds chk x1
2710     sub     RANGE_L0,%l0,%o4        ! bounds chk x1
2711     fmovd   FP40_TW0,P0_X1
2712     cmp     ICNT,-3
2713     bg,a,pt %icc,.loop0
2714 ! delay slot
2715     fpadd32s P0_X1,TTOPMSK,P0_f2    ! n=(ix+0xc0194000)&0xffff0000
2716     ret
2717     restore
2718
2719     .align 16
2720 .endloop0:
2721     sethi    %hi(0x40000000),%l1    ! "next argument" = two
2722     fmovd   FP40_TW0,P1_X2
2723     cmp     ICNT,-3
2724     bg,a,pt %icc,.loop1
2725 ! delay slot
2726     fpadd32s P1_X2,TTOPMSK,P1_f12   ! n=(ix+0xc0194000)&0xffff0000
2727     ret
2728     restore
2729
2730     .align 16
2731 .endloop1:
2732     sethi    %hi(0x40000000),%l2    ! "next argument" = two
2733     fmovd   FP40_TW0,P2_X3
2734     cmp     ICNT,-3
2735     bg,a,pt %icc,.loop2
2736 ! delay slot
2737     fpadd32s P2_X3,TTOPMSK,P2_f22   ! n=(ix+0xc0194000)&0xffff0000
2738     ret
2739     restore
2740
2741     .align 16
2742 .range0:
2743     cmp     %l0,RANGE_HI
2744     bgeu,pn %icc,2f                ! if (unsigned) ix >= 0x7ff00000
2745 ! delay slot
2746     ld      [XPTR+4],%o5
2747     !THERE
2748     fxtod   P0_X1,P0_X1            ! scale by 2**1074 w/o trapping
2749     st      P0_X1,[%fp+tmp0]       !BYPASS in
2750     add     XPTR,XSTR,XPTR         ! x += stridex
2751     orcc    %l0,%o5,%g0
2752     be,pn   %icc,1f                ! if x == 0
2753 ! delay slot
2754     add     YPTR,YSTR,YPTR         ! y += stridey
2755     ! HERE
2756     fpadd32s P0_X1,TTOPMSK,P0_f2    ! n = (ix + 0xc0194000)
2757     fands   P0_f2,INF_f28,P0_f2
2758     fpsub32s P0_X1,P0_f2,P0_X1      ! u.l[0] -= n
2759     ld      [%fp+tmp0],%l0         !BYPASS out
2760     ba,pt   %icc,.cont0
2761 ! delay slot
2762     fpsub32s P0_f2,CONSTE432_f29,P0_f2 ! n -= 0x4320000
2763
2764 1:
2765     fdivs   CONSTE432_f29,P0_f1,P0_f2 ! raise div-by-z

```

```

2766      ba,pt    %icc,3f
2767      ! delay  slot
2768      st        INF_f28,[YPTR]          ! store -inf
2769      2:
2770      sll       %l0,1,%l0              ! lop off sign bit
2771      add       XPTR,XSTR,XPTR          ! x += stridex
2772      orcc      %l0,%05,%g0
2773      be,pn     %icc,1b                ! if x == -0
2774      ! delay  slot
2775      add       YPTR,YSTR,YPTR          ! y += stridey
2776      fzero     P0_f2                  ! *y = (x < 0.0? 0.0 : x) * inf
2777      fcmpd     %fcc0,P0_X1,P0_f2
2778      fmovd1    %fcc0,P0_f2,P0_X1
2779      fand      INF_f28,FP50_MASK,P0_f2
2780      fnegd     P0_f2,P0_f2
2781      fmuld     P0_X1,P0_f2,P0_X1
2782      st        P0_X1,[YPTR]
2783      3:
2784      addcc     ICNT,-1,ICNT
2785      ble,pn    %icc,.endloop2
2786      ! delay  slot
2787      st        P0_f1,[YPTR+4]
2788      ld        [XPTR],%l0              ! get next argument
2789      sub       %l0,RANGE_HI,%03        ! bnds chk x1
2790      sub       RANGE_LO,%l0,%04        ! bounds chk x1
2791      ldd       [XPTR],P0_X1
2792      fpadd32s  P0_X1,TTOPMSK,P0_f2      ! n=(ix+0xc0194000)&0xffff0000
2793      ba,pt     %icc,.loop0
2794      ! delay  slot
2795      fands     P0_f2,INF_f28,P0_f2      !58

2798      .align   16
2799      .range1:
2800      cmp       %l1,RANGE_HI
2801      bgeu,pn   %icc,2f                ! if (unsigned) ix >= 0x7ff00000
2802      ! delay  slot
2803      ld        [XPTR+4],%05
2804      fxtod     P1_X2,P1_X2              ! scale by 2**1074 w/o trapping
2805      st        P1_X2,[%fp+tmp1]
2806      add       XPTR,XSTR,XPTR          ! x += stridex
2807      orcc      %l1,%05,%g0
2808      be,pn     %icc,1f                ! if x == 0
2809      ! delay  slot
2810      add       YPTR,YSTR,YPTR          ! y += stridey
2811      fpadd32s  P1_X2,TTOPMSK,P1_f12    ! n = (ix + 0xc0194000)
2812      fands     P1_f12,INF_f28,P1_f12
2813      fpsub32s  P1_X2,P1_f12,P1_X2      ! u.l[0] -= n
2814      ld        [%fp+tmp1],%l1
2815      ba,pt     %icc,.cont1
2816      ! delay  slot
2817      fpsub32s  P1_f12,CONSTE432_f29,P1_f12 ! n -= 0x4320000
2818      1:
2819      fdivs     CONSTE432_f29,P1_f11,P1_f12 ! raise div-by-z
2820      ba,pt     %icc,3f
2821      ! delay  slot
2822      st        INF_f28,[YPTR]          ! store -inf
2823      2:
2824      sll       %l1,1,%l1              ! lop off sign bit
2825      add       XPTR,XSTR,XPTR          ! x += stridex
2826      orcc      %l1,%05,%g0
2827      be,pn     %icc,1b                ! if x == -0
2828      ! delay  slot
2829      add       YPTR,YSTR,YPTR          ! y += stridey
2830      fzero     P1_f12                  ! *y = (x < 0.0? 0.0 : x) * inf
2831      fcmpd     %fcc0,P1_X2,P1_f12

```

```

2832      fmovd1    %fcc0,P1_f12,P1_X2
2833      fand      INF_f28,FP50_MASK,P1_f12
2834      fnegd     P1_f12,P1_f12
2835      fmuld     P1_X2,P1_f12,P1_X2
2836      st        P1_X2,[YPTR]
2837      3:
2838      addcc     ICNT,-1,ICNT
2839      ble,pn    %icc,.endloop0
2840      ! delay  slot
2841      st        P1_f11,[YPTR+4]
2842      ld        [XPTR],%l1              ! get next argument
2843      ldd       [XPTR],P1_X2
2844      fpadd32s  P1_X2,TTOPMSK,P1_f12    ! X + TTOP
2845      ba,pt     %icc,.loop1
2846      ! delay  slot
2847      fands     P1_f12,INF_f28,P1_f12    ! & INF

2850      .align   16
2851      .range2:
2852      cmp       %l2,RANGE_HI
2853      bgeu,pn   %icc,2f                ! if (unsigned) ix >= 0x7ff00000
2854      ! delay  slot
2855      ld        [XPTR+4],%05
2856      fxtod     P2_X3,P2_X3              ! scale by 2**1074 w/o trapping
2857      st        P2_X3,[%fp+tmp2]
2858      add       XPTR,XSTR,XPTR          ! x += stridex
2859      orcc      %l2,%05,%g0
2860      be,pn     %icc,1f                ! if x == 0
2861      ! delay  slot
2862      add       YPTR,YSTR,YPTR          ! y += stridey
2863      fpadd32s  P2_X3,TTOPMSK,P2_f22    ! n = (ix + 0xc0194000) & 0xffff0
2864      fands     P2_f22,INF_f28,P2_f22
2865      fpsub32s  P2_X3,P2_f22,P2_X3      ! u.l[0] -= n
2866      ld        [%fp+tmp2],%l2
2867      ba,pt     %icc,.cont2
2868      ! delay  slot
2869      fpsub32s  P2_f22,CONSTE432_f29,P2_f22 ! n -= 0x43200000
2870      1:
2871      fdivs     CONSTE432_f29,P2_f21,P2_f22 ! raise div-by-zero
2872      ba,pt     %icc,3f
2873      ! delay  slot
2874      st        INF_f28,[YPTR]          ! store -inf
2875      2:
2876      sll       %l2,1,%l2              ! lop off sign bit
2877      add       XPTR,XSTR,XPTR          ! x += stridex
2878      orcc      %l2,%05,%g0
2879      be,pn     %icc,1b                ! if x == -0
2880      ! delay  slot
2881      add       YPTR,YSTR,YPTR          ! y += stridey
2882      fzero     P2_f22                  ! *y = (x < 0.0? 0.0 : x) * inf
2883      fcmpd     %fcc0,P2_X3,P2_f22
2884      fmovd1    %fcc0,P2_f22,P2_X3
2885      fand      INF_f28,FP50_MASK,P2_f22
2886      fnegd     P2_f22,P2_f22
2887      fmuld     P2_X3,P2_f22,P2_X3
2888      st        P2_X3,[YPTR]
2889      3:
2890      addcc     ICNT,-1,ICNT
2891      ble,pn    %icc,.endloop1
2892      ! delay  slot
2893      st        P2_f21,[YPTR+4]
2894      ld        [XPTR],%l2              ! get next argument
2895      ldd       [XPTR],P2_X3
2896      fpadd32s  P2_X3,TTOPMSK,P2_f22    ! X + TTOP
2897      ba,pt     %icc,.loop2

```

new/usr/src/lib/libmvec/common/vis/__vlog_ultra3.S

45

2898 ! delay slot

2899 fands P2_f22,INF_f28,P2_f22

2900 nop !ld [XPTR+4],P2_f21

2902 SET_SIZE(__vlog_ultra3)

_____unchanged_portion_omitted_____

!

X3

new/usr/src/lib/libmvec/common/vis/_vsin_ultra3.S

1

```
*****
49907 Wed Oct 29 13:16:10 2014
new/usr/src/lib/libmvec/common/vis/_vsin_ultra3.S
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

1 /*
2  * CDDL HEADER START
3  *
4  * The contents of this file are subject to the terms of the
5  * Common Development and Distribution License (the "License").
6  * You may not use this file except in compliance with the License.
7  *
8  * You can obtain a copy of the license at usr/src/OPENSOLARIS.LICENSE
9  * or http://www.opensolaris.org/os/licensing.
10 * See the License for the specific language governing permissions
11 * and limitations under the License.
12 *
13 * When distributing Covered Code, include this CDDL HEADER in each
14 * file and include the License file at usr/src/OPENSOLARIS.LICENSE.
15 * If applicable, add the following below this CDDL HEADER, with the
16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */
21 /*
22 * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
23 */
24 /*
25 * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
26 * Use is subject to license terms.
27 */

29 .file    "_vsin_ultra3.S"

31 #include "libm.h"
32 #if defined(LIBMVEC_SO_BUILD)
33     .weak    __vsin
34     .type    __vsin, #function
35     __vsin = __vsin_ultra3
36 #endif

36     RO_DATA
37     .align   64
38 constants:
39     .word    0x42c80000, 0x00000000    ! 3 * 2^44
40     .word    0x43380000, 0x00000000    ! 3 * 2^51
41     .word    0x3fe45f30, 0x6dc9c883    ! invpio2
42     .word    0x3ff921fb, 0x54442c00    ! pio2_1
43     .word    0x3d318469, 0x898cc400    ! pio2_2
44     .word    0x3a71701b, 0x839a2520    ! pio2_3
45     .word    0xbfc55555, 0x55555533    ! pp1
46     .word    0x3f811111, 0x10e7d53b    ! pp2
47     .word    0xbf2a0167, 0xe6b3cf9b    ! pp3
48     .word    0xbfdfffff, 0xffffffff65 ! qq1
49     .word    0x3fa55555, 0x54f88ed0    ! qq2
50     .word    0xbf56c12c, 0xdd185f60    ! qq3

52 ! local storage indices

54 #define xsave    STACK_BIAS-0x8
55 #define ysave    STACK_BIAS-0x10
56 #define nsave    STACK_BIAS-0x14
57 #define xsxsave  STACK_BIAS-0x18
58 #define sysave   STACK_BIAS-0x1c
59 #define biguns    STACK_BIAS-0x20
```

new/usr/src/lib/libmvec/common/vis/_vsin_ultra3.S

2

```
60 #define nk3      STACK_BIAS-0x24
61 #define nk2      STACK_BIAS-0x28
62 #define nk1      STACK_BIAS-0x2c
63 #define nk0      STACK_BIAS-0x30
64 #define junk     STACK_BIAS-0x38
65 ! sizeof temp storage - must be a multiple of 16 for V9
66 #define tmps     0x40

68 ! register use

70 ! i0  n
71 ! i1  x
72 ! i2  stridx
73 ! i3  y
74 ! i4  stridey
75 ! i5  0x80000000

77 ! l0  hx0
78 ! l1  hx1
79 ! l2  hx2
80 ! l3  hx3
81 ! l4  k0
82 ! l5  k1
83 ! l6  k2
84 ! l7  k3

86 ! the following are 64-bit registers in both V8+ and V9

88 ! g1  __vlibm_TBL_sincos2
89 ! g5  scratch

91 ! o0  py0
92 ! o1  py1
93 ! o2  py2
94 ! o3  py3
95 ! o4  0x3e400000
96 ! o5  0x3fe921fb, 0x4099251e
97 ! o7  scratch

99 ! f0  hx0
100 ! f2
101 ! f4
102 ! f6
103 ! f8  hx1
104 ! f10
105 ! f12
106 ! f14
107 ! f16 hx2
108 ! f18
109 ! f20
110 ! f22
111 ! f24 hx3
112 ! f26
113 ! f28
114 ! f30
115 ! f32
116 ! f34
117 ! f36
118 ! f38

120 #define c3two44 %f40
121 #define c3two51 %f42
122 #define invpio2 %f44
123 #define pio2_1  %f46
124 #define pio2_2  %f48
125 #define pio2_3  %f50
```

```

126 #define pp1    %f52
127 #define pp2    %f54
128 #define pp3    %f56
129 #define qq1    %f58
130 #define qq2    %f60
131 #define qq3    %f62

133     ENTRY(___vsin_ultra3)
134     save    %sp, -SA(MINFRAME)-tmps, %sp
135     PIC_SETUP(17)
136     PIC_SET(17, constants, 00)
137     PIC_SET(17, __vlibm_TBL_sincos2, 01)
138     mov     %01, %g1
139     wr      %g0, 0x82, %asi      ! set %asi for non-faulting loads
140 #ifdef __sparcv9
141     stx     %i1, [%fp+xsave]     ! save arguments
142     stx     %i3, [%fp+ysave]
143 #else
144     st      %i1, [%fp+xsave]     ! save arguments
145     st      %i3, [%fp+ysave]
146 #endif
147     st      %i0, [%fp+nsave]
148     st      %i2, [%fp+sxsave]
149     st      %i4, [%fp+sysave]
150     st      %g0, [%fp+biguns]    ! biguns = 0
151     ldd     [%00+0x00], c3two44  ! load/set up constants
152     ldd     [%00+0x08], c3two51
153     ldd     [%00+0x10], invpio2
154     ldd     [%00+0x18], pio2_1
155     ldd     [%00+0x20], pio2_2
156     ldd     [%00+0x28], pio2_3
157     ldd     [%00+0x30], pp1
158     ldd     [%00+0x38], pp2
159     ldd     [%00+0x40], pp3
160     ldd     [%00+0x48], qq1
161     ldd     [%00+0x50], qq2
162     ldd     [%00+0x58], qq3
163     sethi   %hi(0x80000000), %i5
164     sethi   %hi(0x3e400000), %i4
165     sethi   %hi(0x3fe921fb), %i5
166     or      %i5, %lo(0x3fe921fb), %i5
167     sllx    %i5, 32, %i5
168     sethi   %hi(0x4099251e), %i7
169     or      %i7, %lo(0x4099251e), %i7
170     or      %i5, %i7, %i5
171     sll     %i2, 3, %i2          ! scale strides
172     sll     %i4, 3, %i4
173     add     %fp, junk, %i0       ! loop prologue
174     add     %fp, junk, %i2
175     add     %fp, junk, %i3
176     ld      [%i1], %i0          ! *x
177     ld      [%i1], %f0
178     ld      [%i1+4], %f3
179     andn    %i0, %i5, %i0       ! mask off sign
180     ba      .loop0
181     add     %i1, %i2, %i1       ! x += stridex

```

```

183 ! 16-byte aligned
184 .align 16
185 .loop0:
186     lda     [%i1]%asi, %i1      ! preload next argument
187     sub     %i0, %i4, %g5
188     sub     %i5, %i0, %i7
189     fabss   %f0, %f2

```

191 lda [%i1]%asi, %f8

```

192     orcc    %i7, %g5, %g0
193     mov     %i3, %i0
194     bl, pn   %icc, .range0      ! py0 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

196 ! delay slot
197     lda     [%i1+4]%asi, %f11
198     addcc   %i0, -1, %i0
199     add     %i3, %i4, %i3
200     ble, pn %icc, .last1      ! y += stridey

202 ! delay slot
203     andn    %i1, %i5, %i1
204     add     %i1, %i2, %i1
205     faddd   %f2, c3two44, %f4
206     st      %f15, [%i0+4]     ! x += stridex

208 .loop1:
209     lda     [%i1]%asi, %i2      ! preload next argument
210     sub     %i1, %i4, %g5
211     sub     %i5, %i1, %i7
212     fabss   %f8, %f10

214     lda     [%i1]%asi, %f16
215     orcc    %i7, %g5, %g0
216     mov     %i3, %i0
217     bl, pn   %icc, .range1      ! py1 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

219 ! delay slot
220     lda     [%i1+4]%asi, %f19
221     addcc   %i0, -1, %i0
222     add     %i3, %i4, %i3
223     ble, pn %icc, .last2      ! y += stridey

225 ! delay slot
226     andn    %i2, %i5, %i2
227     add     %i1, %i2, %i1
228     faddd   %f10, c3two44, %f12
229     st      %f23, [%i0+4]     ! x += stridex

231 .loop2:
232     lda     [%i1]%asi, %i3      ! preload next argument
233     sub     %i2, %i4, %g5
234     sub     %i5, %i2, %i7
235     fabss   %f16, %f18

237     lda     [%i1]%asi, %f24
238     orcc    %i7, %g5, %g0
239     mov     %i3, %i0
240     bl, pn   %icc, .range2      ! py2 = y
                                   ! hx < 0x3e400000 or hx > 0x4099251e

242 ! delay slot
243     lda     [%i1+4]%asi, %f27
244     addcc   %i0, -1, %i0
245     add     %i3, %i4, %i3
246     ble, pn %icc, .last3      ! y += stridey

248 ! delay slot
249     andn    %i3, %i5, %i3
250     add     %i1, %i2, %i1
251     faddd   %f18, c3two44, %f20
252     st      %f31, [%i0+4]     ! x += stridex

254 .loop3:
255     sub     %i3, %i4, %g5
256     sub     %i5, %i3, %i7
257     fabss   %f24, %f26

```

new/usr/src/lib/libmvec/common/vis/__vsin_ultra3.S

5

```

258      st      %f5, [%fp+nk0]

260      orcc    %07,%g5,%g0
261      mov     %i3,%o3
262      bl,pn   %icc,.range3
263 ! delay    slot
264      st      %f13, [%fp+nk1]

266 !!! DONE?
267 .cont:
268      srlx    %05,32,%07
269      add     %i3,%i4,%i3
270      fmovs   %f3,%f1
271      st      %f21, [%fp+nk2]

273      sub     %07,%l0,%l0
274      sub     %07,%l1,%l1
275      faddd   %f20,c3two044,%f28
276      st      %f29, [%fp+nk3]

278      sub     %07,%l2,%l2
279      sub     %07,%l3,%l3
280      fmovs   %f11,%f9

282      or      %l0,%l1,%l0
283      or      %l2,%l3,%l2
284      fmovs   %f19,%f17

286      fmovs   %f27,%f25
287      fmuld   %f0,invpio2,%f6
288
289      fmuld   %f8,invpio2,%f14
290      ld      [%fp+nk0],%l4

292      fmuld   %f16,invpio2,%f22
293      ld      [%fp+nk1],%l5

295      orcc    %l0,%l2,%g0
296      bl,pn   %icc,.medium
297 ! delay    slot
298      fmuld   %f24,invpio2,%f30
299      ld      [%fp+nk2],%l6

301      ld      [%fp+nk3],%l7
302      sll     %l4,5,%l4
303      fcmpd   %fcc0,%f0,pio2_3
304
305      sll     %l5,5,%l5
306      ldd     [%l4+%g1],%f4
307      fcmpd   %fcc1,%f8,pio2_3

309      sll     %l6,5,%l6
310      ldd     [%l5+%g1],%f12
311      fcmpd   %fcc2,%f16,pio2_3

313      sll     %l7,5,%l7
314      ldd     [%l6+%g1],%f20
315      fcmpd   %fcc3,%f24,pio2_3

317      ldd     [%l7+%g1],%f28
318      fsubd   %f2,%f4,%f2
319
320      fsubd   %f10,%f12,%f10

322      fsubd   %f18,%f20,%f18

```

! py3 = y
! hx < 0x3e400000 or > hx 0x4099251e

! y += stridey

! x * invpio2, for medium range

! k
! x < pio2_3 iff x < 0

! x -= __vlibm_TBL_sincos2[k]

new/usr/src/lib/libmvec/common/vis/__vsin_ultra3.S

6

```

324      fsubd   %f26,%f28,%f26

326      fmuld   %f2,%f2,%f0
327
328      fmuld   %f10,%f10,%f8

330      fmuld   %f18,%f18,%f16

332      fmuld   %f26,%f26,%f24

334      fmuld   %f0,pp3,%f6

336      fmuld   %f8,pp3,%f14

338      fmuld   %f16,pp3,%f22

340      fmuld   %f24,pp3,%f30

342      faddd   %f6,pp2,%f6
343      fmuld   %f0,qq2,%f4

345      faddd   %f14,pp2,%f14
346      fmuld   %f8,qq2,%f12

348      faddd   %f22,pp2,%f22
349      fmuld   %f16,qq2,%f20

351      faddd   %f30,pp2,%f30
352      fmuld   %f24,qq2,%f28

354      fmuld   %f0,%f6,%f6
355      faddd   %f4,qq1,%f4

357      fmuld   %f8,%f14,%f14
358      faddd   %f12,qq1,%f12

360      fmuld   %f16,%f22,%f22
361      faddd   %f20,qq1,%f20

363      fmuld   %f24,%f30,%f30
364      faddd   %f28,qq1,%f28

366      faddd   %f6,pp1,%f6
367      fmuld   %f0,%f4,%f4
368      add     %l4,%g1,%l4

370      faddd   %f14,pp1,%f14
371      fmuld   %f8,%f12,%f12
372      add     %l5,%g1,%l5

374      faddd   %f22,pp1,%f22
375      fmuld   %f16,%f20,%f20
376      add     %l6,%g1,%l6

378      faddd   %f30,pp1,%f30
379      fmuld   %f24,%f28,%f28
380      add     %l7,%g1,%l7

382      fmuld   %f0,%f6,%f6
383      ldd     [%l4+8],%f0

385      fmuld   %f8,%f14,%f14
386      ldd     [%l5+8],%f8

388      fmuld   %f16,%f22,%f22
389      ldd     [%l6+8],%f16

```

! z = x * x

```

391      fmulld    %f24,%f30,%f30
392      ldd      [%l7+8],%f24

394      fmulld    %f2,%f6,%f6

396      fmulld    %f10,%f14,%f14

398      fmulld    %f18,%f22,%f22

400      fmulld    %f26,%f30,%f30

402      fadddd    %f6,%f2,%f6
403      fmulld    %f0,%f4,%f4
404      ldd      [%l4+16],%f2

406      fadddd    %f14,%f10,%f14
407      fmulld    %f8,%f12,%f12
408      ldd      [%l5+16],%f10

410      fadddd    %f22,%f18,%f22
411      fmulld    %f16,%f20,%f20
412      ldd      [%l6+16],%f18

414      fadddd    %f30,%f26,%f30
415      fmulld    %f24,%f28,%f28
416      ldd      [%l7+16],%f26

418      fmulld    %f2,%f6,%f6

420      fmulld    %f10,%f14,%f14

422      fmulld    %f18,%f22,%f22

424      fmulld    %f26,%f30,%f30

426      fadddd    %f6,%f4,%f6

428      fadddd    %f14,%f12,%f14

430      fadddd    %f22,%f20,%f22

432      fadddd    %f30,%f28,%f30

434      fadddd    %f6,%f0,%f6

436      fadddd    %f14,%f8,%f14

438      fadddd    %f22,%f16,%f22

440      fadddd    %f30,%f24,%f30

442      fnegd     %f6,%f4
443      lda       [%i1]asi,%l0      ! preload next argument

445      fnegd     %f14,%f12
446      lda       [%i1]asi,%f0

448      fnegd     %f22,%f20
449      lda       [%i1+4]asi,%f3

451      fnegd     %f30,%f28
452      andn      %l0,%i5,%l0
453      add        %i1,%i2,%i1

455      fmovd1     %fcc0,%f4,%f6      ! (hx < -0)? -s : s

```

```

456      st        %f6, [%o0]

458      fmovd1     %fcc1,%f12,%f14
459      st        %f14, [%o1]

461      fmovd1     %fcc2,%f20,%f22
462      st        %f22, [%o2]

464      fmovd1     %fcc3,%f28,%f30
465      st        %f30, [%o3]
466      addcc      %i0, -1, %i0

468      bg,pt      %icc, .loop0
469      ! delay    slot
470      st        %f7, [%o0+4]

472      ba,pt      %icc, .end
473      ! delay    slot
474      nop

477      .align     16
478      .medium:
479      fadddd      %f6, c3two51,%f4
480      st         %f5, [%fp+nk0]

482      fadddd      %f14, c3two51,%f12
483      st         %f13, [%fp+nk1]

485      fadddd      %f22, c3two51,%f20
486      st         %f21, [%fp+nk2]

488      fadddd      %f30, c3two51,%f28
489      st         %f29, [%fp+nk3]

491      fsubd       %f4, c3two51,%f6

493      fsubd       %f12, c3two51,%f14

495      fsubd       %f20, c3two51,%f22

497      fsubd       %f28, c3two51,%f30

499      fmulld      %f6, pio2_1,%f2
500      ld         [%fp+nk0],%l0      ! n

502      fmulld      %f14, pio2_1,%f10
503      ld         [%fp+nk1],%l1

505      fmulld      %f22, pio2_1,%f18
506      ld         [%fp+nk2],%l2

508      fmulld      %f30, pio2_1,%f26
509      ld         [%fp+nk3],%l3

511      fsubd       %f0,%f2,%f0
512      fmulld      %f6, pio2_2,%f4

514      fsubd       %f8,%f10,%f8
515      fmulld      %f14, pio2_2,%f12

517      fsubd       %f16,%f18,%f16
518      fmulld      %f22, pio2_2,%f20

520      fsubd       %f24,%f26,%f24
521      fmulld      %f30, pio2_2,%f28

```

```

523      fsubd    %f0,%f4,%f32
525      fsubd    %f8,%f12,%f34
527      fsubd    %f16,%f20,%f36
529      fsubd    %f24,%f28,%f38
531      fsubd    %f0,%f32,%f0
532      fcmple32 %f32,pio2_3,%l4      ! x <= pio2_3 iff x < 0
534      fsubd    %f8,%f34,%f8
535      fcmple32 %f34,pio2_3,%l5
537      fsubd    %f16,%f36,%f16
538      fcmple32 %f36,pio2_3,%l6
540      fsubd    %f24,%f38,%f24
541      fcmple32 %f38,pio2_3,%l7
543      fsubd    %f0,%f4,%f0
544      fmuld    %f6,pio2_3,%f6
545      sll      %l4,30,%l4      ! if (x < 0) n = -n ^ 2
547      fsubd    %f8,%f12,%f8
548      fmuld    %f14,pio2_3,%f14
549      sll      %l5,30,%l5
551      fsubd    %f16,%f20,%f16
552      fmuld    %f22,pio2_3,%f22
553      sll      %l6,30,%l6
555      fsubd    %f24,%f28,%f24
556      fmuld    %f30,pio2_3,%f30
557      sll      %l7,30,%l7
559      fsubd    %f6,%f0,%f6
560      sra      %l4,31,%l4
562      fsubd    %f14,%f8,%f14
563      sra      %l5,31,%l5
565      fsubd    %f22,%f16,%f22
566      sra      %l6,31,%l6
568      fsubd    %f30,%f24,%f30
569      sra      %l7,31,%l7
571      fsubd    %f32,%f6,%f0      ! reduced x
572      xor      %l0,%l4,%l0
574      fsubd    %f34,%f14,%f8
575      xor      %l1,%l5,%l1
577      fsubd    %f36,%f22,%f16
578      xor      %l2,%l6,%l2
580      fsubd    %f38,%f30,%f24
581      xor      %l3,%l7,%l3
583      fabsd    %f0,%f2
584      sub      %l0,%l4,%l0
586      fabsd    %f8,%f10
587      sub      %l1,%l5,%l1

```

```

589      fabsd    %f16,%f18
590      sub      %l2,%l6,%l2
592      fabsd    %f24,%f26
593      sub      %l3,%l7,%l3
595      faddd    %f2,c3two44,%f4
596      st       %f5,[%fp+nk0]
597      and      %l4,2,%l4
599      faddd    %f10,c3two44,%f12
600      st       %f13,[%fp+nk1]
601      and      %l5,2,%l5
603      faddd    %f18,c3two44,%f20
604      st       %f21,[%fp+nk2]
605      and      %l6,2,%l6
607      faddd    %f26,c3two44,%f28
608      st       %f29,[%fp+nk3]
609      and      %l7,2,%l7
611      fsubd    %f32,%f0,%f4
612      xor      %l0,%l4,%l0
614      fsubd    %f34,%f8,%f12
615      xor      %l1,%l5,%l1
617      fsubd    %f36,%f16,%f20
618      xor      %l2,%l6,%l2
620      fsubd    %f38,%f24,%f28
621      xor      %l3,%l7,%l3
623      fzero    %f38
624      ld       [%fp+nk0],%l4
626      fsubd    %f4,%f6,%f6      ! w
627      ld       [%fp+nk1],%l5
629      fsubd    %f12,%f14,%f14
630      ld       [%fp+nk2],%l6
632      fnegd    %f38,%f38
633      ld       [%fp+nk3],%l7
634      sll      %l4,5,%l4      ! k
636      fsubd    %f20,%f22,%f22
637      sll      %l5,5,%l5
639      fsubd    %f28,%f30,%f30
640      sll      %l6,5,%l6
642      fand     %f0,%f38,%f32      ! sign bit of x
643      ldd      [%l4+g1],%f4
644      sll      %l7,5,%l7
646      fand     %f8,%f38,%f34
647      ldd      [%l5+g1],%f12
649      fand     %f16,%f38,%f36
650      ldd      [%l6+g1],%f20
652      fand     %f24,%f38,%f38
653      ldd      [%l7+g1],%f28

```

```

655      fsubd    %f2,%f4,%f2          ! x -= __vlibm_TBL_sincos2[k]
657      fsubd    %f10,%f12,%f10
659      fsubd    %f18,%f20,%f18
660      nop
662      fsubd    %f26,%f28,%f26
663      nop
665 ! 16-byte aligned
666      fmuld    %f2,%f2,%f0          ! z = x * x
667      andcc    %l0,1,%g0
668      bz, pn   %icc, .case8
669 ! delay slot
670      fxor     %f6,%f32,%f32
672      fmuld    %f10,%f10,%f8
673      andcc    %l1,1,%g0
674      bz, pn   %icc, .case4
675 ! delay slot
676      fxor     %f14,%f34,%f34
678      fmuld    %f18,%f18,%f16
679      andcc    %l2,1,%g0
680      bz, pn   %icc, .case2
681 ! delay slot
682      fxor     %f22,%f36,%f36
684      fmuld    %f26,%f26,%f24
685      andcc    %l3,1,%g0
686      bz, pn   %icc, .case1
687 ! delay slot
688      fxor     %f30,%f38,%f38
690 !.case0:
691      fmuld    %f0,qq3,%f6          ! cos(x0)
693      fmuld    %f8,qq3,%f14        ! cos(x1)
695      fmuld    %f16,qq3,%f22       ! cos(x2)
697      fmuld    %f24,qq3,%f30      ! cos(x3)
699      fadddd   %f6,qq2,%f6
700      fmuld    %f0,pp2,%f4
702      fadddd   %f14,qq2,%f14
703      fmuld    %f8,pp2,%f12
705      fadddd   %f22,qq2,%f22
706      fmuld    %f16,pp2,%f20
708      fadddd   %f30,qq2,%f30
709      fmuld    %f24,pp2,%f28
711      fmuld    %f0,%f6,%f6
712      fadddd   %f4,pp1,%f4
714      fmuld    %f8,%f14,%f14
715      fadddd   %f12,pp1,%f12
717      fmuld    %f16,%f22,%f22
718      fadddd   %f20,pp1,%f20

```

```

720      fmuld    %f24,%f30,%f30
721      fadddd   %f28,pp1,%f28
723      fadddd   %f6,qq1,%f6
724      fmuld    %f0,%f4,%f4
725      add      %l4,%g1,%l4
727      fadddd   %f14,qq1,%f14
728      fmuld    %f8,%f12,%f12
729      add      %l5,%g1,%l5
731      fadddd   %f22,qq1,%f22
732      fmuld    %f16,%f20,%f20
733      add      %l6,%g1,%l6
735      fadddd   %f30,qq1,%f30
736      fmuld    %f24,%f28,%f28
737      add      %l7,%g1,%l7
739      fmuld    %f2,%f4,%f4
741      fmuld    %f10,%f12,%f12
743      fmuld    %f18,%f20,%f20
745      fmuld    %f26,%f28,%f28
747      fmuld    %f0,%f6,%f6
748      fadddd   %f4,%f32,%f4
749      ldd      [%l4+16],%f0
751      fmuld    %f8,%f14,%f14
752      fadddd   %f12,%f34,%f12
753      ldd      [%l5+16],%f8
755      fmuld    %f16,%f22,%f22
756      fadddd   %f20,%f36,%f20
757      ldd      [%l6+16],%f16
759      fmuld    %f24,%f30,%f30
760      fadddd   %f28,%f38,%f28
761      ldd      [%l7+16],%f24
763      fmuld    %f0,%f6,%f6
764      fadddd   %f4,%f2,%f4
765      ldd      [%l4+8],%f32
767      fmuld    %f8,%f14,%f14
768      fadddd   %f12,%f10,%f12
769      ldd      [%l5+8],%f34
771      fmuld    %f16,%f22,%f22
772      fadddd   %f20,%f18,%f20
773      ldd      [%l6+8],%f36
775      fmuld    %f24,%f30,%f30
776      fadddd   %f28,%f26,%f28
777      ldd      [%l7+8],%f38
779      fmuld    %f32,%f4,%f4
781      fmuld    %f34,%f12,%f12
783      fmuld    %f36,%f20,%f20
785      fmuld    %f38,%f28,%f28

```

```

787      fsubd    %f6,%f4,%f6
789      fsubd    %f14,%f12,%f14
791      fsubd    %f22,%f20,%f22
793      fsubd    %f30,%f28,%f30
795      faddd    %f6,%f0,%f6
797      faddd    %f14,%f8,%f14
799      faddd    %f22,%f16,%f22
801      faddd    %f30,%f24,%f30
802      mov      %l0,%l4
804      fnegd    %f6,%f4
805      lda      [%i1]%asi,%l0      ! preload next argument
807      fnegd    %f14,%f12
808      lda      [%i1]%asi,%f0
810      fnegd    %f22,%f20
811      lda      [%i1+4]%asi,%f3
813      fnegd    %f30,%f28
814      andn     %l0,%i5,%l0
815      add      %i1,%i2,%i1
817      andcc    %l4,2,%g0
818      fmovdnz  %icc,%f4,%f6
819      st       %f6, [%o0]
821      andcc    %l1,2,%g0
822      fmovdnz  %icc,%f12,%f14
823      st       %f14, [%o1]
825      andcc    %l2,2,%g0
826      fmovdnz  %icc,%f20,%f22
827      st       %f22, [%o2]
829      andcc    %l3,2,%g0
830      fmovdnz  %icc,%f28,%f30
831      st       %f30, [%o3]
833      addcc    %i0,-1,%i0
834      bg,pt    %icc,.loop0
835 ! delay     slot
836      st       %f7, [%o0+4]
838      ba,pt    %icc,.end
839 ! delay     slot
840      nop
842      .align   16
843 .case1:
844      fmuld    %f24,pp3,%f30      ! sin(x3)
846      fmuld    %f0,qq3,%f6       ! cos(x0)
848      fmuld    %f8,qq3,%f14      ! cos(x1)
850      fmuld    %f16,qq3,%f22     ! cos(x2)

```

```

852      faddd    %f30,pp2,%f30
853      fmuld    %f24,qq2,%f28
855      faddd    %f6,qq2,%f6
856      fmuld    %f0,pp2,%f4
858      faddd    %f14,qq2,%f14
859      fmuld    %f8,pp2,%f12
861      faddd    %f22,qq2,%f22
862      fmuld    %f16,pp2,%f20
864      fmuld    %f24,%f30,%f30
865      faddd    %f28,qq1,%f28
867      fmuld    %f0,%f6,%f6
868      faddd    %f4,pp1,%f4
870      fmuld    %f8,%f14,%f14
871      faddd    %f12,pp1,%f12
873      fmuld    %f16,%f22,%f22
874      faddd    %f20,pp1,%f20
876      faddd    %f30,pp1,%f30
877      fmuld    %f24,%f28,%f28
878      add      %l7,%g1,%l7
880      faddd    %f6,qq1,%f6
881      fmuld    %f0,%f4,%f4
882      add      %l4,%g1,%l4
884      faddd    %f14,qq1,%f14
885      fmuld    %f8,%f12,%f12
886      add      %l5,%g1,%l5
888      faddd    %f22,qq1,%f22
889      fmuld    %f16,%f20,%f20
890      add      %l6,%g1,%l6
892      fmuld    %f24,%f30,%f30
894      fmuld    %f2,%f4,%f4
896      fmuld    %f10,%f12,%f12
898      fmuld    %f18,%f20,%f20
900      fmuld    %f26,%f30,%f30
901      ldd      [%l7+8],%f24
903      fmuld    %f0,%f6,%f6
904      faddd    %f4,%f32,%f4
905      ldd      [%l4+16],%f0
907      fmuld    %f8,%f14,%f14
908      faddd    %f12,%f34,%f12
909      ldd      [%l5+16],%f8
911      fmuld    %f16,%f22,%f22
912      faddd    %f20,%f36,%f20
913      ldd      [%l6+16],%f16
915      fmuld    %f24,%f28,%f28
916      faddd    %f38,%f30,%f30

```

```

918      fmulld    %f0,%f6,%f6
919      fadddd    %f4,%f2,%f4
920      ldd       [%l4+8],%f32

922      fmulld    %f8,%f14,%f14
923      fadddd    %f12,%f10,%f12
924      ldd       [%l5+8],%f34

926      fmulld    %f16,%f22,%f22
927      fadddd    %f20,%f18,%f20
928      ldd       [%l6+8],%f36

930      fadddd    %f26,%f30,%f30
931      ldd       [%l7+16],%f38

933      fmulld    %f32,%f4,%f4

935      fmulld    %f34,%f12,%f12

937      fmulld    %f36,%f20,%f20

939      fmulld    %f38,%f30,%f30

941      fsubd     %f6,%f4,%f6

943      fsubd     %f14,%f12,%f14

945      fsubd     %f22,%f20,%f22

947      fadddd    %f30,%f28,%f30

949      fadddd    %f6,%f0,%f6

951      fadddd    %f14,%f8,%f14

953      fadddd    %f22,%f16,%f22

955      fadddd    %f30,%f24,%f30
956      mov       %l0,%l4

958      fnegd     %f6,%f4
959      lda        [%i1]%asi,%l0      ! preload next argument

961      fnegd     %f14,%f12
962      lda        [%i1]%asi,%f0

964      fnegd     %f22,%f20
965      lda        [%i1+4]%asi,%f3

967      fnegd     %f30,%f28
968      andn      %l0,%i5,%l0
969      add       %i1,%i2,%i1

971      andcc     %l4,2,%g0
972      fmovdnz   %icc,%f4,%f6
973      st        %f6, [%o0]

975      andcc     %l1,2,%g0
976      fmovdnz   %icc,%f12,%f14
977      st        %f14, [%o1]

979      andcc     %l2,2,%g0
980      fmovdnz   %icc,%f20,%f22
981      st        %f22, [%o2]

983      andcc     %l3,2,%g0

```

```

984      fmovdnz   %icc,%f28,%f30
985      st        %f30, [%o3]

987      addcc     %i0,-1,%i0
988      bg,pt     %icc,.loop0
989      ! delay   slot
990      st        %f7, [%o0+4]

992      ba,pt     %icc,.end
993      ! delay   slot
994      nop

996      .align    16
997      .case2:
998      fmulld    %f26,%f26,%f24
999      andcc     %l3,1,%g0
1000     bz,pn     %icc,.case3
1001     ! delay   slot
1002     fxor      %f30,%f38,%f38

1004     fmulld    %f16,pp3,%f22      ! sin(x2)

1006     fmulld    %f0,qq3,%f6        ! cos(x0)

1008     fmulld    %f8,qq3,%f14       ! cos(x1)

1010     fadddd    %f22,pp2,%f22
1011     fmulld    %f16,qq2,%f20

1013     fmulld    %f24,qq3,%f30     ! cos(x3)

1015     fadddd    %f6,qq2,%f6
1016     fmulld    %f0,pp2,%f4

1018     fadddd    %f14,qq2,%f14
1019     fmulld    %f8,pp2,%f12

1021     fmulld    %f16,%f22,%f22
1022     fadddd    %f20,qq1,%f20

1024     fadddd    %f30,qq2,%f30
1025     fmulld    %f24,pp2,%f28

1027     fmulld    %f0,%f6,%f6
1028     fadddd    %f4,pp1,%f4

1030     fmulld    %f8,%f14,%f14
1031     fadddd    %f12,pp1,%f12

1033     fadddd    %f22,pp1,%f22
1034     fmulld    %f16,%f20,%f20
1035     add       %l6,%g1,%l6

1037     fmulld    %f24,%f30,%f30
1038     fadddd    %f28,pp1,%f28

1040     fadddd    %f6,qq1,%f6
1041     fmulld    %f0,%f4,%f4
1042     add       %l4,%g1,%l4

1044     fadddd    %f14,qq1,%f14
1045     fmulld    %f8,%f12,%f12
1046     add       %l5,%g1,%l5

1048     fmulld    %f16,%f22,%f22

```

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```

1050      fadd    %f30,qq1,%f30
1051      fmul    %f24,%f28,%f28
1052      add     %l7,%g1,%l7

1054      fmul    %f2,%f4,%f4

1056      fmul    %f10,%f12,%f12

1058      fmul    %f18,%f22,%f22
1059      ldd     [%l6+8],%f16

1061      fmul    %f26,%f28,%f28

1063      fmul    %f0,%f6,%f6
1064      fadd    %f4,%f32,%f4
1065      ldd     [%l4+16],%f0

1067      fmul    %f8,%f14,%f14
1068      fadd    %f12,%f34,%f12
1069      ldd     [%l5+16],%f8

1071      fmul    %f16,%f20,%f20
1072      fadd    %f36,%f22,%f22

1074      fmul    %f24,%f30,%f30
1075      fadd    %f28,%f38,%f28
1076      ldd     [%l7+16],%f24

1078      fmul    %f0,%f6,%f6
1079      fadd    %f4,%f2,%f4
1080      ldd     [%l4+8],%f32

1082      fmul    %f8,%f14,%f14
1083      fadd    %f12,%f10,%f12
1084      ldd     [%l5+8],%f34

1086      fadd    %f18,%f22,%f22
1087      ldd     [%l6+16],%f36

1089      fmul    %f24,%f30,%f30
1090      fadd    %f28,%f26,%f28
1091      ldd     [%l7+8],%f38

1093      fmul    %f32,%f4,%f4

1095      fmul    %f34,%f12,%f12

1097      fmul    %f36,%f22,%f22

1099      fmul    %f38,%f28,%f28

1101      fsubd   %f6,%f4,%f6

1103      fsubd   %f14,%f12,%f14

1105      fadd    %f22,%f20,%f22

1107      fsubd   %f30,%f28,%f30

1109      fadd    %f6,%f0,%f6

1111      fadd    %f14,%f8,%f14

1113      fadd    %f22,%f16,%f22

1115      fadd    %f30,%f24,%f30

```

new/usr/src/lib/libmvec/common/vis/___vsin_ultra3.S

18

```

1116      mov     %l0,%l4

1118      fnegd    %f6,%f4
1119      lda      [%i1]%asi,%l0          ! preload next argument

1121      fnegd    %f14,%f12
1122      lda      [%i1]%asi,%f0

1124      fnegd    %f22,%f20
1125      lda      [%i1+4]%asi,%f3

1127      fnegd    %f30,%f28
1128      andn     %l0,%i5,%l0
1129      add      %i1,%i2,%i1

1131      andcc     %l4,2,%g0
1132      fmovdnz   %icc,%f4,%f6
1133      st        %f6,[%o0]

1135      andcc     %l1,2,%g0
1136      fmovdnz   %icc,%f12,%f14
1137      st        %f14,[%o1]

1139      andcc     %l2,2,%g0
1140      fmovdnz   %icc,%f20,%f22
1141      st        %f22,[%o2]

1143      andcc     %l3,2,%g0
1144      fmovdnz   %icc,%f28,%f30
1145      st        %f30,[%o3]

1147      addcc     %i0,-1,%i0
1148      bg,pt     %icc,.loop0
1149      ! delay   slot
1150      st        %f7,[%o0+4]

1152      ba,pt     %icc,.end
1153      ! delay   slot
1154      nop

1156      .align    16
1157      .case3:
1158      fmul    %f16,pp3,%f22          ! sin(x2)

1160      fmul    %f24,pp3,%f30          ! sin(x3)

1162      fmul    %f0,qq3,%f6           ! cos(x0)

1164      fmul    %f8,qq3,%f14          ! cos(x1)

1166      fadd    %f22,pp2,%f22
1167      fmul    %f16,qq2,%f20

1169      fadd    %f30,pp2,%f30
1170      fmul    %f24,qq2,%f28

1172      fadd    %f6,qq2,%f6
1173      fmul    %f0,pp2,%f4

1175      fadd    %f14,qq2,%f14
1176      fmul    %f8,pp2,%f12

1178      fmul    %f16,%f22,%f22
1179      fadd    %f20,qq1,%f20

1181      fmul    %f24,%f30,%f30

```

```

1182      fadd    %f28,qq1,%f28
1184      fmul    %f0,%f6,%f6
1185      fadd    %f4,pp1,%f4
1187      fmul    %f8,%f14,%f14
1188      fadd    %f12,pp1,%f12
1190      fadd    %f22,pp1,%f22
1191      fmul    %f16,%f20,%f20
1192      add     %l6,%g1,%l6
1194      fadd    %f30,pp1,%f30
1195      fmul    %f24,%f28,%f28
1196      add     %l7,%g1,%l7
1198      fadd    %f6,qq1,%f6
1199      fmul    %f0,%f4,%f4
1200      add     %l4,%g1,%l4
1202      fadd    %f14,qq1,%f14
1203      fmul    %f8,%f12,%f12
1204      add     %l5,%g1,%l5
1206      fmul    %f16,%f22,%f22
1208      fmul    %f24,%f30,%f30
1210      fmul    %f2,%f4,%f4
1212      fmul    %f10,%f12,%f12
1214      fmul    %f18,%f22,%f22
1215      ldd     [%l6+8],%f16
1217      fmul    %f26,%f30,%f30
1218      ldd     [%l7+8],%f24
1220      fmul    %f0,%f6,%f6
1221      fadd    %f4,%f32,%f4
1222      ldd     [%l4+16],%f0
1224      fmul    %f8,%f14,%f14
1225      fadd    %f12,%f34,%f12
1226      ldd     [%l5+16],%f8
1228      fmul    %f16,%f20,%f20
1229      fadd    %f36,%f22,%f22
1231      fmul    %f24,%f28,%f28
1232      fadd    %f38,%f30,%f30
1234      fmul    %f0,%f6,%f6
1235      fadd    %f4,%f2,%f4
1236      ldd     [%l4+8],%f32
1238      fmul    %f8,%f14,%f14
1239      fadd    %f12,%f10,%f12
1240      ldd     [%l5+8],%f34
1242      fadd    %f18,%f22,%f22
1243      ldd     [%l6+16],%f36
1245      fadd    %f26,%f30,%f30
1246      ldd     [%l7+16],%f38

```

```

1248      fmul    %f32,%f4,%f4
1250      fmul    %f34,%f12,%f12
1252      fmul    %f36,%f22,%f22
1254      fmul    %f38,%f30,%f30
1256      fsub    %f6,%f4,%f6
1258      fsub    %f14,%f12,%f14
1260      fadd    %f22,%f20,%f22
1262      fadd    %f30,%f28,%f30
1264      fadd    %f6,%f0,%f6
1266      fadd    %f14,%f8,%f14
1268      fadd    %f22,%f16,%f22
1270      fadd    %f30,%f24,%f30
1271      mov     %l0,%l4
1273      fnegd    %f6,%f4
1274      lda     [%i1]asi,%l0      ! preload next argument
1276      fnegd    %f14,%f12
1277      lda     [%i1]asi,%f0
1279      fnegd    %f22,%f20
1280      lda     [%i1+4]asi,%f3
1282      fnegd    %f30,%f28
1283      andn     %l0,%i5,%l0
1284      add     %i1,%i2,%i1
1286      andcc    %l4,2,%g0
1287      fmovdnz  %icc,%f4,%f6
1288      st       %f6,[%o0]
1290      andcc    %l1,2,%g0
1291      fmovdnz  %icc,%f12,%f14
1292      st       %f14,[%o1]
1294      andcc    %l2,2,%g0
1295      fmovdnz  %icc,%f20,%f22
1296      st       %f22,[%o2]
1298      andcc    %l3,2,%g0
1299      fmovdnz  %icc,%f28,%f30
1300      st       %f30,[%o3]
1302      addcc    %i0,-1,%i0
1303      bg,pt    %icc,.loop0
1304      ! delay  slot
1305      st       %f7,[%o0+4]
1307      ba,pt    %icc,.end
1308      ! delay  slot
1309      nop
1311      .align   16
1312      .case4:
1313      fmul    %f18,%f18,%f16

```

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21

```
1314      andcc    %l2,1,%g0
1315      bz, pn    %icc, .case6
1316 ! delay slot
1317      fxor     %f22,%f36,%f36

1319      fmuld    %f26,%f26,%f24
1320      andcc    %l3,1,%g0
1321      bz, pn    %icc, .case5
1322 ! delay slot
1323      fxor     %f30,%f38,%f38

1325      fmuld    %f8,pp3,%f14      ! sin(x1)

1327      fmuld    %f0,qq3,%f6      ! cos(x0)

1329      fadddd   %f14,pp2,%f14
1330      fmuld    %f8,qq2,%f12

1332      fmuld    %f16,qq3,%f22      ! cos(x2)

1334      fmuld    %f24,qq3,%f30      ! cos(x3)

1336      fadddd   %f6,qq2,%f6
1337      fmuld    %f0,pp2,%f4

1339      fmuld    %f8,%f14,%f14
1340      fadddd   %f12,qq1,%f12

1342      fadddd   %f22,qq2,%f22
1343      fmuld    %f16,pp2,%f20

1345      fadddd   %f30,qq2,%f30
1346      fmuld    %f24,pp2,%f28

1348      fmuld    %f0,%f6,%f6
1349      fadddd   %f4,pp1,%f4

1351      fadddd   %f14,pp1,%f14
1352      fmuld    %f8,%f12,%f12
1353      add      %l5,%g1,%l5

1355      fmuld    %f16,%f22,%f22
1356      fadddd   %f20,pp1,%f20

1358      fmuld    %f24,%f30,%f30
1359      fadddd   %f28,pp1,%f28

1361      fadddd   %f6,qq1,%f6
1362      fmuld    %f0,%f4,%f4
1363      add      %l4,%g1,%l4

1365      fmuld    %f8,%f14,%f14

1367      fadddd   %f22,qq1,%f22
1368      fmuld    %f16,%f20,%f20
1369      add      %l6,%g1,%l6

1371      fadddd   %f30,qq1,%f30
1372      fmuld    %f24,%f28,%f28
1373      add      %l7,%g1,%l7

1375      fmuld    %f2,%f4,%f4

1377      fmuld    %f10,%f14,%f14
1378      ldd      [%l5+8],%f8
```

new/usr/src/lib/libmvec/common/vis/___vsin_ultra3.S

22

```
1380      fmuld    %f18,%f20,%f20

1382      fmuld    %f26,%f28,%f28

1384      fmuld    %f0,%f6,%f6
1385      fadddd   %f4,%f32,%f4
1386      ldd      [%l4+16],%f0

1388      fmuld    %f8,%f12,%f12
1389      fadddd   %f34,%f14,%f14

1391      fmuld    %f16,%f22,%f22
1392      fadddd   %f20,%f36,%f20
1393      ldd      [%l6+16],%f16

1395      fmuld    %f24,%f30,%f30
1396      fadddd   %f28,%f38,%f28
1397      ldd      [%l7+16],%f24

1399      fmuld    %f0,%f6,%f6
1400      fadddd   %f4,%f2,%f4
1401      ldd      [%l4+8],%f32

1403      fadddd   %f10,%f14,%f14
1404      ldd      [%l5+16],%f34

1406      fmuld    %f16,%f22,%f22
1407      fadddd   %f20,%f18,%f20
1408      ldd      [%l6+8],%f36

1410      fmuld    %f24,%f30,%f30
1411      fadddd   %f28,%f26,%f28
1412      ldd      [%l7+8],%f38

1414      fmuld    %f32,%f4,%f4

1416      fmuld    %f34,%f14,%f14

1418      fmuld    %f36,%f20,%f20

1420      fmuld    %f38,%f28,%f28

1422      fsubd    %f6,%f4,%f6

1424      fadddd   %f14,%f12,%f14

1426      fsubd    %f22,%f20,%f22

1428      fsubd    %f30,%f28,%f30

1430      fadddd   %f6,%f0,%f6

1432      fadddd   %f14,%f8,%f14

1434      fadddd   %f22,%f16,%f22

1436      fadddd   %f30,%f24,%f30
1437      mov      %l0,%l4

1439      fnegd    %f6,%f4
1440      lda      [%i1]asi,%l0      ! preload next argument

1442      fnegd    %f14,%f12
1443      lda      [%i1]asi,%f0

1445      fnegd    %f22,%f20
```

```

1446      lda      [%i1+4]%asi,%f3
1448      fnegd     %f30,%f28
1449      andn      %l0,%i5,%l0
1450      add       %i1,%i2,%i1

1452      andcc     %l4,2,%g0
1453      fmovdnz   %icc,%f4,%f6
1454      st        %f6, [%o0]

1456      andcc     %l1,2,%g0
1457      fmovdnz   %icc,%f12,%f14
1458      st        %f14, [%o1]

1460      andcc     %l2,2,%g0
1461      fmovdnz   %icc,%f20,%f22
1462      st        %f22, [%o2]

1464      andcc     %l3,2,%g0
1465      fmovdnz   %icc,%f28,%f30
1466      st        %f30, [%o3]

1468      addcc     %i0,-1,%i0
1469      bg,pt     %icc,.loop0
1470 ! delay      slot
1471      st        %f7, [%o0+4]

1473      ba,pt     %icc,.end
1474 ! delay      slot
1475      nop

1477      .align    16
1478 .case5:
1479      fmuld     %f8,pp3,%f14          ! sin(x1)

1481      fmuld     %f24,pp3,%f30        ! sin(x3)

1483      fmuld     %f0,qq3,%f6         ! cos(x0)

1485      fadddd    %f14,pp2,%f14
1486      fmuld     %f8,qq2,%f12

1488      fmuld     %f16,qq3,%f22        ! cos(x2)

1490      fadddd    %f30,pp2,%f30
1491      fmuld     %f24,qq2,%f28

1493      fadddd    %f6,qq2,%f6
1494      fmuld     %f0,pp2,%f4

1496      fmuld     %f8,%f14,%f14
1497      fadddd    %f12,qq1,%f12

1499      fadddd    %f22,qq2,%f22
1500      fmuld     %f16,pp2,%f20

1502      fmuld     %f24,%f30,%f30
1503      fadddd    %f28,qq1,%f28

1505      fmuld     %f0,%f6,%f6
1506      fadddd    %f4,pp1,%f4

1508      fadddd    %f14,pp1,%f14
1509      fmuld     %f8,%f12,%f12
1510      add       %l5,%g1,%l5

```

```

1512      fmuld     %f16,%f22,%f22
1513      fadddd    %f20,pp1,%f20

1515      fadddd    %f30,pp1,%f30
1516      fmuld     %f24,%f28,%f28
1517      add       %l7,%g1,%l7

1519      fadddd    %f6,qq1,%f6
1520      fmuld     %f0,%f4,%f4
1521      add       %l4,%g1,%l4

1523      fmuld     %f8,%f14,%f14

1525      fadddd    %f22,qq1,%f22
1526      fmuld     %f16,%f20,%f20
1527      add       %l6,%g1,%l6

1529      fmuld     %f24,%f30,%f30

1531      fmuld     %f2,%f4,%f4

1533      fmuld     %f10,%f14,%f14
1534      ldd       [%l5+8],%f8

1536      fmuld     %f18,%f20,%f20

1538      fmuld     %f26,%f30,%f30
1539      ldd       [%l7+8],%f24

1541      fmuld     %f0,%f6,%f6
1542      fadddd    %f4,%f32,%f4
1543      ldd       [%l4+16],%f0

1545      fmuld     %f8,%f12,%f12
1546      fadddd    %f34,%f14,%f14

1548      fmuld     %f16,%f22,%f22
1549      fadddd    %f20,%f36,%f20
1550      ldd       [%l6+16],%f16

1552      fmuld     %f24,%f28,%f28
1553      fadddd    %f38,%f30,%f30

1555      fmuld     %f0,%f6,%f6
1556      fadddd    %f4,%f2,%f4
1557      ldd       [%l4+8],%f32

1559      fadddd    %f10,%f14,%f14
1560      ldd       [%l5+16],%f34

1562      fmuld     %f16,%f22,%f22
1563      fadddd    %f20,%f18,%f20
1564      ldd       [%l6+8],%f36

1566      fadddd    %f26,%f30,%f30
1567      ldd       [%l7+16],%f38

1569      fmuld     %f32,%f4,%f4

1571      fmuld     %f34,%f14,%f14

1573      fmuld     %f36,%f20,%f20

1575      fmuld     %f38,%f30,%f30

1577      fsubd     %f6,%f4,%f6

```

```

1579      fadd    %f14,%f12,%f14
1581      fsubd    %f22,%f20,%f22
1583      fadd    %f30,%f28,%f30
1585      fadd    %f6,%f0,%f6
1587      fadd    %f14,%f8,%f14
1589      fadd    %f22,%f16,%f22
1591      fadd    %f30,%f24,%f30
1592      mov     %l0,%l4
1594      fnegd    %f6,%f4
1595      lda     [%i1]asi,%l0      ! preload next argument
1597      fnegd    %f14,%f12
1598      lda     [%i1]asi,%f0
1600      fnegd    %f22,%f20
1601      lda     [%i1+4]asi,%f3
1603      fnegd    %f30,%f28
1604      andn    %l0,%i5,%l0
1605      add     %i1,%i2,%i1
1607      andcc    %l4,2,%g0
1608      fmovdnz  %icc,%f4,%f6
1609      st      %f6,[%o0]
1611      andcc    %l1,2,%g0
1612      fmovdnz  %icc,%f12,%f14
1613      st      %f14,[%o1]
1615      andcc    %l2,2,%g0
1616      fmovdnz  %icc,%f20,%f22
1617      st      %f22,[%o2]
1619      andcc    %l3,2,%g0
1620      fmovdnz  %icc,%f28,%f30
1621      st      %f30,[%o3]
1623      addcc    %i0,-1,%i0
1624      bg,pt   %icc,.loop0
1625 ! delay    slot
1626      st      %f7,[%o0+4]
1628      ba,pt   %icc,.end
1629 ! delay    slot
1630      nop
1632      .align   16
1633 .case6:
1634      fmuld    %f26,%f26,%f24
1635      andcc    %l3,1,%g0
1636      bz,pn    %icc,.case7
1637 ! delay    slot
1638      fxor     %f30,%f38,%f38
1640      fmuld    %f8,pp3,%f14      ! sin(x1)
1642      fmuld    %f16,pp3,%f22      ! sin(x2)

```

```

1644      fmuld    %f0,qq3,%f6      ! cos(x0)
1646      fadd    %f14,pp2,%f14
1647      fmuld    %f8,qq2,%f12
1649      fadd    %f22,pp2,%f22
1650      fmuld    %f16,qq2,%f20
1652      fmuld    %f24,qq3,%f30      ! cos(x3)
1654      fadd    %f6,qq2,%f6
1655      fmuld    %f0,pp2,%f4
1657      fmuld    %f8,%f14,%f14
1658      fadd    %f12,qq1,%f12
1660      fmuld    %f16,%f22,%f22
1661      fadd    %f20,qq1,%f20
1663      fadd    %f30,qq2,%f30
1664      fmuld    %f24,pp2,%f28
1666      fmuld    %f0,%f6,%f6
1667      fadd    %f4,pp1,%f4
1669      fadd    %f14,pp1,%f14
1670      fmuld    %f8,%f12,%f12
1671      add     %l5,%g1,%l5
1673      fadd    %f22,pp1,%f22
1674      fmuld    %f16,%f20,%f20
1675      add     %l6,%g1,%l6
1677      fmuld    %f24,%f30,%f30
1678      fadd    %f28,pp1,%f28
1680      fadd    %f6,qq1,%f6
1681      fmuld    %f0,%f4,%f4
1682      add     %l4,%g1,%l4
1684      fmuld    %f8,%f14,%f14
1686      fmuld    %f16,%f22,%f22
1688      fadd    %f30,qq1,%f30
1689      fmuld    %f24,%f28,%f28
1690      add     %l7,%g1,%l7
1692      fmuld    %f2,%f4,%f4
1694      fmuld    %f10,%f14,%f14
1695      ldd     [%l5+8],%f8
1697      fmuld    %f18,%f22,%f22
1698      ldd     [%l6+8],%f16
1700      fmuld    %f26,%f28,%f28
1702      fmuld    %f0,%f6,%f6
1703      fadd    %f4,%f32,%f4
1704      ldd     [%l4+16],%f0
1706      fmuld    %f8,%f12,%f12
1707      fadd    %f34,%f14,%f14
1709      fmuld    %f16,%f20,%f20

```

```

1710      fadd    %f36,%f22,%f22

1712      fmul    %f24,%f30,%f30
1713      fadd    %f28,%f38,%f28
1714      ldd     [%l7+16],%f24

1716      fmul    %f0,%f6,%f6
1717      fadd    %f4,%f2,%f4
1718      ldd     [%l4+8],%f32

1720      fadd    %f10,%f14,%f14
1721      ldd     [%l5+16],%f34

1723      fadd    %f18,%f22,%f22
1724      ldd     [%l6+16],%f36

1726      fmul    %f24,%f30,%f30
1727      fadd    %f28,%f26,%f28
1728      ldd     [%l7+8],%f38

1730      fmul    %f32,%f4,%f4

1732      fmul    %f34,%f14,%f14

1734      fmul    %f36,%f22,%f22

1736      fmul    %f38,%f28,%f28

1738      fsubd   %f6,%f4,%f6

1740      fadd    %f14,%f12,%f14

1742      fadd    %f22,%f20,%f22

1744      fsubd   %f30,%f28,%f30

1746      fadd    %f6,%f0,%f6

1748      fadd    %f14,%f8,%f14

1750      fadd    %f22,%f16,%f22

1752      fadd    %f30,%f24,%f30
1753      mov     %l0,%l4

1755      fnegd   %f6,%f4
1756      lda     [%i1]%asi,%l0      ! preload next argument

1758      fnegd   %f14,%f12
1759      lda     [%i1]%asi,%f0

1761      fnegd   %f22,%f20
1762      lda     [%i1+4]%asi,%f3

1764      fnegd   %f30,%f28
1765      andn    %l0,%i5,%l0
1766      add     %i1,%i2,%i1

1768      andcc    %l4,2,%g0
1769      fmovdnz  %icc,%f4,%f6
1770      st       %f6,[%o0]

1772      andcc    %l1,2,%g0
1773      fmovdnz  %icc,%f12,%f14
1774      st       %f14,[%o1]

```

```

1776      andcc    %l2,2,%g0
1777      fmovdnz  %icc,%f20,%f22
1778      st       %f22,[%o2]

1780      andcc    %l3,2,%g0
1781      fmovdnz  %icc,%f28,%f30
1782      st       %f30,[%o3]

1784      addcc    %i0,-1,%i0
1785      bg,pt    %icc,.loop0
1786      ! delay slot
1787      st       %f7,[%o0+4]

1789      ba,pt    %icc,.end
1790      ! delay slot
1791      nop

1793      .align    16
1794      .case7:
1795      fmul    %f8,pp3,%f14      ! sin(x1)

1797      fmul    %f16,pp3,%f22      ! sin(x2)

1799      fmul    %f24,pp3,%f30      ! sin(x3)

1801      fmul    %f0,qq3,%f6      ! cos(x0)

1803      fadd    %f14,pp2,%f14
1804      fmul    %f8,qq2,%f12

1806      fadd    %f22,pp2,%f22
1807      fmul    %f16,qq2,%f20

1809      fadd    %f30,pp2,%f30
1810      fmul    %f24,qq2,%f28

1812      fadd    %f6,qq2,%f6
1813      fmul    %f0,pp2,%f4

1815      fmul    %f8,%f14,%f14
1816      fadd    %f12,qq1,%f12

1818      fmul    %f16,%f22,%f22
1819      fadd    %f20,qq1,%f20

1821      fmul    %f24,%f30,%f30
1822      fadd    %f28,qq1,%f28

1824      fmul    %f0,%f6,%f6
1825      fadd    %f4,pp1,%f4

1827      fadd    %f14,pp1,%f14
1828      fmul    %f8,%f12,%f12
1829      add     %l5,%g1,%l5

1831      fadd    %f22,pp1,%f22
1832      fmul    %f16,%f20,%f20
1833      add     %l6,%g1,%l6

1835      fadd    %f30,pp1,%f30
1836      fmul    %f24,%f28,%f28
1837      add     %l7,%g1,%l7

1839      fadd    %f6,qq1,%f6
1840      fmul    %f0,%f4,%f4
1841      add     %l4,%g1,%l4

```

```

1843      fmulld    %f8,%f14,%f14
1845      fmulld    %f16,%f22,%f22
1847      fmulld    %f24,%f30,%f30
1849      fmulld    %f2,%f4,%f4
1851      fmulld    %f10,%f14,%f14
1852      ldd        [%l5+8],%f8
1854      fmulld    %f18,%f22,%f22
1855      ldd        [%l6+8],%f16
1857      fmulld    %f26,%f30,%f30
1858      ldd        [%l7+8],%f24
1860      fmulld    %f0,%f6,%f6
1861      fadddd     %f4,%f32,%f4
1862      ldd        [%l4+16],%f0
1864      fmulld    %f8,%f12,%f12
1865      fadddd     %f34,%f14,%f14
1867      fmulld    %f16,%f20,%f20
1868      fadddd     %f36,%f22,%f22
1870      fmulld    %f24,%f28,%f28
1871      fadddd     %f38,%f30,%f30
1873      fmulld    %f0,%f6,%f6
1874      fadddd     %f4,%f2,%f4
1875      ldd        [%l4+8],%f32
1877      fadddd     %f10,%f14,%f14
1878      ldd        [%l5+16],%f34
1880      fadddd     %f18,%f22,%f22
1881      ldd        [%l6+16],%f36
1883      fadddd     %f26,%f30,%f30
1884      ldd        [%l7+16],%f38
1886      fmulld    %f32,%f4,%f4
1888      fmulld    %f34,%f14,%f14
1890      fmulld    %f36,%f22,%f22
1892      fmulld    %f38,%f30,%f30
1894      fsubd     %f6,%f4,%f6
1896      fadddd     %f14,%f12,%f14
1898      fadddd     %f22,%f20,%f22
1900      fadddd     %f30,%f28,%f30
1902      fadddd     %f6,%f0,%f6
1904      fadddd     %f14,%f8,%f14
1906      fadddd     %f22,%f16,%f22

```

```

1908      fadddd     %f30,%f24,%f30
1909      mov         %l0,%l4
1911      fnegd      %f6,%f4
1912      lda         [%i1]%asi,%l0      ! preload next argument
1914      fnegd      %f14,%f12
1915      lda         [%i1]%asi,%f0
1917      fnegd      %f22,%f20
1918      lda         [%i1+4]%asi,%f3
1920      fnegd      %f30,%f28
1921      andn        %l0,%i5,%l0
1922      add         %i1,%i2,%i1
1924      andcc       %l4,2,%g0
1925      fmovdnz     %icc,%f4,%f6
1926      st          %f6, [%o0]
1928      andcc       %l1,2,%g0
1929      fmovdnz     %icc,%f12,%f14
1930      st          %f14, [%o1]
1932      andcc       %l2,2,%g0
1933      fmovdnz     %icc,%f20,%f22
1934      st          %f22, [%o2]
1936      andcc       %l3,2,%g0
1937      fmovdnz     %icc,%f28,%f30
1938      st          %f30, [%o3]
1940      addcc       %i0,-1,%i0
1941      bg,pt       %icc,.loop0
1942      ! delay    slot
1943      st          %f7, [%o0+4]
1945      ba,pt       %icc,.end
1946      ! delay    slot
1947      nop
1949      .align      16
1950      .case8:
1951      fmulld      %f10,%f10,%f8
1952      andcc       %l1,1,%g0
1953      bz,pn       %icc,.case12
1954      ! delay    slot
1955      fxor        %f14,%f34,%f34
1957      fmulld      %f18,%f18,%f16
1958      andcc       %l2,1,%g0
1959      bz,pn       %icc,.case10
1960      ! delay    slot
1961      fxor        %f22,%f36,%f36
1963      fmulld      %f26,%f26,%f24
1964      andcc       %l3,1,%g0
1965      bz,pn       %icc,.case9
1966      ! delay    slot
1967      fxor        %f30,%f38,%f38
1969      fmulld      %f0,pp3,%f6      ! sin(x0)
1971      fadddd      %f6,pp2,%f6
1972      fmulld      %f0,qq2,%f4

```

new/usr/src/lib/libmvec/common/vis/__vsin_ultra3.S

31

```

1974      fmulld    %f8,qq3,%f14          ! cos(x1)
1976      fmulld    %f16,qq3,%f22         ! cos(x2)
1978      fmulld    %f24,qq3,%f30         ! cos(x3)

1980      fmulld    %f0,%f6,%f6
1981      fadddd     %f4,qq1,%f4

1983      fadddd     %f14,qq2,%f14
1984      fmulld     %f8,pp2,%f12

1986      fadddd     %f22,qq2,%f22
1987      fmulld     %f16,pp2,%f20

1989      fadddd     %f30,qq2,%f30
1990      fmulld     %f24,pp2,%f28

1992      fadddd     %f6,pp1,%f6
1993      fmulld     %f0,%f4,%f4
1994      add        %l4,%g1,%l4

1996      fmulld     %f8,%f14,%f14
1997      fadddd     %f12,pp1,%f12

1999      fmulld     %f16,%f22,%f22
2000      fadddd     %f20,pp1,%f20

2002      fmulld     %f24,%f30,%f30
2003      fadddd     %f28,pp1,%f28

2005      fmulld     %f0,%f6,%f6

2007      fadddd     %f14,qq1,%f14
2008      fmulld     %f8,%f12,%f12
2009      add        %l5,%g1,%l5

2011      fadddd     %f22,qq1,%f22
2012      fmulld     %f16,%f20,%f20
2013      add        %l6,%g1,%l6

2015      fadddd     %f30,qq1,%f30
2016      fmulld     %f24,%f28,%f28
2017      add        %l7,%g1,%l7

2019      fmulld     %f2,%f6,%f6
2020      ldd        [%l4+8],%f0

2022      fmulld     %f10,%f12,%f12

2024      fmulld     %f18,%f20,%f20

2026      fmulld     %f26,%f28,%f28

2028      fmulld     %f0,%f4,%f4
2029      fadddd     %f32,%f6,%f6

2031      fmulld     %f8,%f14,%f14
2032      fadddd     %f12,%f34,%f12
2033      ldd        [%l5+16],%f8

2035      fmulld     %f16,%f22,%f22
2036      fadddd     %f20,%f36,%f20
2037      ldd        [%l6+16],%f16

2039      fmulld     %f24,%f30,%f30

```

new/usr/src/lib/libmvec/common/vis/__vsin_ultra3.S

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```

2040      fadddd     %f28,%f38,%f28
2041      ldd        [%l7+16],%f24

2043      fadddd     %f2,%f6,%f6
2044      ldd        [%l4+16],%f32

2046      fmulld     %f8,%f14,%f14
2047      fadddd     %f12,%f10,%f12
2048      ldd        [%l5+8],%f34

2050      fmulld     %f16,%f22,%f22
2051      fadddd     %f20,%f18,%f20
2052      ldd        [%l6+8],%f36

2054      fmulld     %f24,%f30,%f30
2055      fadddd     %f28,%f26,%f28
2056      ldd        [%l7+8],%f38

2058      fmulld     %f32,%f6,%f6

2060      fmulld     %f34,%f12,%f12

2062      fmulld     %f36,%f20,%f20

2064      fmulld     %f38,%f28,%f28

2066      fadddd     %f6,%f4,%f6

2068      fsubd      %f14,%f12,%f14

2070      fsubd      %f22,%f20,%f22

2072      fsubd      %f30,%f28,%f30

2074      fadddd     %f6,%f0,%f6

2076      fadddd     %f14,%f8,%f14

2078      fadddd     %f22,%f16,%f22

2080      fadddd     %f30,%f24,%f30
2081      mov        %l0,%l4

2083      fnegd      %f6,%f4
2084      lda         [%i1]%asi,%l0          ! preload next argument

2086      fnegd      %f14,%f12
2087      lda         [%i1]%asi,%f0

2089      fnegd      %f22,%f20
2090      lda         [%i1+4]%asi,%f3

2092      fnegd      %f30,%f28
2093      andn        %l0,%i5,%l0
2094      add         %i1,%i2,%i1

2096      andcc       %l4,2,%g0
2097      fmovdnz     %icc,%f4,%f6
2098      st          %f6, [%o0]

2100      andcc       %l1,2,%g0
2101      fmovdnz     %icc,%f12,%f14
2102      st          %f14, [%o1]

2104      andcc       %l2,2,%g0
2105      fmovdnz     %icc,%f20,%f22

```

```

2106      st      %f22, [%o2]

2108      andcc   %l3, 2, %q0
2109      fmovdnz %icc, %f28, %f30
2110      st      %f30, [%o3]

2112      addcc   %i0, -1, %i0
2113      bg, pt  %icc, .loop0
2114 ! delay slot
2115      st      %f7, [%o0+4]

2117      ba, pt  %icc, .end
2118 ! delay slot
2119      nop

2121      .align  16
2122 .case9:
2123      fmuld   %f0, pp3, %f6          ! sin(x0)

2125      fmuld   %f24, pp3, %f30       ! sin(x3)

2127      fadddd  %f6, pp2, %f6
2128      fmuld   %f0, qq2, %f4

2130      fmuld   %f8, qq3, %f14       ! cos(x1)

2132      fmuld   %f16, qq3, %f22      ! cos(x2)

2134      fadddd  %f30, pp2, %f30
2135      fmuld   %f24, qq2, %f28

2137      fmuld   %f0, %f6, %f6
2138      fadddd  %f4, qq1, %f4

2140      fadddd  %f14, qq2, %f14
2141      fmuld   %f8, pp2, %f12

2143      fadddd  %f22, qq2, %f22
2144      fmuld   %f16, pp2, %f20

2146      fmuld   %f24, %f30, %f30
2147      fadddd  %f28, qq1, %f28

2149      fadddd  %f6, pp1, %f6
2150      fmuld   %f0, %f4, %f4
2151      add     %l4, %g1, %l4

2153      fmuld   %f8, %f14, %f14
2154      fadddd  %f12, pp1, %f12

2156      fmuld   %f16, %f22, %f22
2157      fadddd  %f20, pp1, %f20

2159      fadddd  %f30, pp1, %f30
2160      fmuld   %f24, %f28, %f28
2161      add     %l7, %g1, %l7

2163      fmuld   %f0, %f6, %f6

2165      fadddd  %f14, qq1, %f14
2166      fmuld   %f8, %f12, %f12
2167      add     %l5, %g1, %l5

2169      fadddd  %f22, qq1, %f22
2170      fmuld   %f16, %f20, %f20
2171      add     %l6, %g1, %l6

```

```

2173      fmuld   %f24, %f30, %f30

2175      fmuld   %f2, %f6, %f6
2176      ldd     [%l4+8], %f0

2178      fmuld   %f10, %f12, %f12

2180      fmuld   %f18, %f20, %f20

2182      fmuld   %f26, %f30, %f30
2183      ldd     [%l7+8], %f24

2185      fmuld   %f0, %f4, %f4
2186      fadddd  %f32, %f6, %f6

2188      fmuld   %f8, %f14, %f14
2189      fadddd  %f12, %f34, %f12
2190      ldd     [%l5+16], %f8

2192      fmuld   %f16, %f22, %f22
2193      fadddd  %f20, %f36, %f20
2194      ldd     [%l6+16], %f16

2196      fmuld   %f24, %f28, %f28
2197      fadddd  %f38, %f30, %f30

2199      fadddd  %f2, %f6, %f6
2200      ldd     [%l4+16], %f32

2202      fmuld   %f8, %f14, %f14
2203      fadddd  %f12, %f10, %f12
2204      ldd     [%l5+8], %f34

2206      fmuld   %f16, %f22, %f22
2207      fadddd  %f20, %f18, %f20
2208      ldd     [%l6+8], %f36

2210      fadddd  %f26, %f30, %f30
2211      ldd     [%l7+16], %f38

2213      fmuld   %f32, %f6, %f6

2215      fmuld   %f34, %f12, %f12

2217      fmuld   %f36, %f20, %f20

2219      fmuld   %f38, %f30, %f30

2221      fadddd  %f6, %f4, %f6

2223      fsubd   %f14, %f12, %f14

2225      fsubd   %f22, %f20, %f22

2227      fadddd  %f30, %f28, %f30

2229      fadddd  %f6, %f0, %f6

2231      fadddd  %f14, %f8, %f14

2233      fadddd  %f22, %f16, %f22

2235      fadddd  %f30, %f24, %f30
2236      mov     %l0, %l4

```

```

2238      fnegd    %f6,%f4
2239      lda      [%i1]%asi,%l0          ! preload next argument

2241      fnegd    %f14,%f12
2242      lda      [%i1]%asi,%f0

2244      fnegd    %f22,%f20
2245      lda      [%i1+4]%asi,%f3

2247      fnegd    %f30,%f28
2248      andn     %l0,%i5,%l0
2249      add      %i1,%i2,%i1

2251      andcc    %l4,2,%g0
2252      fmovdnz   %icc,%f4,%f6
2253      st       %f6, [%o0]

2255      andcc    %l1,2,%g0
2256      fmovdnz   %icc,%f12,%f14
2257      st       %f14, [%o1]

2259      andcc    %l2,2,%g0
2260      fmovdnz   %icc,%f20,%f22
2261      st       %f22, [%o2]

2263      andcc    %l3,2,%g0
2264      fmovdnz   %icc,%f28,%f30
2265      st       %f30, [%o3]

2267      addcc    %i0,-1,%i0
2268      bg,pt    %icc,.loop0
2269 ! delay     slot
2270      st       %f7, [%o0+4]

2272      ba,pt    %icc,.end
2273 ! delay     slot
2274      nop

2276      .align   16
2277 .case10:
2278      fmuld     %f26,%f26,%f24
2279      andcc     %l3,1,%g0
2280      bz, pn    %icc,.case11
2281 ! delay     slot
2282      fxor      %f30,%f38,%f38

2284      fmuld     %f0,pp3,%f6          ! sin(x0)

2286      fmuld     %f16,pp3,%f22        ! sin(x2)

2288      faddd     %f6,pp2,%f6
2289      fmuld     %f0,qq2,%f4

2291      fmuld     %f8,qq3,%f14        ! cos(x1)

2293      faddd     %f22,pp2,%f22
2294      fmuld     %f16,qq2,%f20

2296      fmuld     %f24,qq3,%f30        ! cos(x3)

2298      fmuld     %f0,%f6,%f6
2299      faddd     %f4,qq1,%f4

2301      faddd     %f14,qq2,%f14
2302      fmuld     %f8,pp2,%f12

```

```

2304      fmuld     %f16,%f22,%f22
2305      faddd     %f20,qq1,%f20

2307      faddd     %f30,qq2,%f30
2308      fmuld     %f24,pp2,%f28

2310      faddd     %f6,pp1,%f6
2311      fmuld     %f0,%f4,%f4
2312      add      %l4,%g1,%l4

2314      fmuld     %f8,%f14,%f14
2315      faddd     %f12,pp1,%f12

2317      faddd     %f22,pp1,%f22
2318      fmuld     %f16,%f20,%f20
2319      add      %l6,%g1,%l6

2321      fmuld     %f24,%f30,%f30
2322      faddd     %f28,pp1,%f28

2324      fmuld     %f0,%f6,%f6

2326      faddd     %f14,qq1,%f14
2327      fmuld     %f8,%f12,%f12
2328      add      %l5,%g1,%l5

2330      fmuld     %f16,%f22,%f22

2332      faddd     %f30,qq1,%f30
2333      fmuld     %f24,%f28,%f28
2334      add      %l7,%g1,%l7

2336      fmuld     %f2,%f6,%f6
2337      ldd       [%l4+8],%f0

2339      fmuld     %f10,%f12,%f12

2341      fmuld     %f18,%f22,%f22
2342      ldd       [%l6+8],%f16

2344      fmuld     %f26,%f28,%f28

2346      fmuld     %f0,%f4,%f4
2347      faddd     %f32,%f6,%f6

2349      fmuld     %f8,%f14,%f14
2350      faddd     %f12,%f34,%f12
2351      ldd       [%l5+16],%f8

2353      fmuld     %f16,%f20,%f20
2354      faddd     %f36,%f22,%f22

2356      fmuld     %f24,%f30,%f30
2357      faddd     %f28,%f38,%f28
2358      ldd       [%l7+16],%f24

2360      faddd     %f2,%f6,%f6
2361      ldd       [%l4+16],%f32

2363      fmuld     %f8,%f14,%f14
2364      faddd     %f12,%f10,%f12
2365      ldd       [%l5+8],%f34

2367      faddd     %f18,%f22,%f22
2368      ldd       [%l6+16],%f36

```

```

2370      fmuld    %f24,%f30,%f30
2371      fadddd   %f28,%f26,%f28
2372      ldd      [%l7+8],%f38

2374      fmuld    %f32,%f6,%f6

2376      fmuld    %f34,%f12,%f12

2378      fmuld    %f36,%f22,%f22

2380      fmuld    %f38,%f28,%f28

2382      fadddd   %f6,%f4,%f6

2384      fsubd    %f14,%f12,%f14

2386      fadddd   %f22,%f20,%f22

2388      fsubd    %f30,%f28,%f30

2390      fadddd   %f6,%f0,%f6

2392      fadddd   %f14,%f8,%f14

2394      fadddd   %f22,%f16,%f22

2396      fadddd   %f30,%f24,%f30
2397      mov      %l0,%l4

2399      fnegd    %f6,%f4
2400      lda      [%i1]%asi,%l0          ! preload next argument

2402      fnegd    %f14,%f12
2403      lda      [%i1]%asi,%f0

2405      fnegd    %f22,%f20
2406      lda      [%i1+4]%asi,%f3

2408      fnegd    %f30,%f28
2409      andn     %l0,%i5,%l0
2410      add      %i1,%i2,%i1

2412      andcc    %l4,2,%g0
2413      fmovdnz   %icc,%f4,%f6
2414      st       %f6,[%o0]

2416      andcc    %l1,2,%g0
2417      fmovdnz   %icc,%f12,%f14
2418      st       %f14,[%o1]

2420      andcc    %l2,2,%g0
2421      fmovdnz   %icc,%f20,%f22
2422      st       %f22,[%o2]

2424      andcc    %l3,2,%g0
2425      fmovdnz   %icc,%f28,%f30
2426      st       %f30,[%o3]

2428      addcc    %i0,-1,%i0
2429      bg,pt     %icc,.loop0
2430 ! delay      slot
2431      st       %f7,[%o0+4]

2433      ba,pt     %icc,.end
2434 ! delay      slot
2435      nop

```

```

2437      .align    16
2438 .case11:
2439      fmuld    %f0,pp3,%f6          ! sin(x0)

2441      fmuld    %f16,pp3,%f22        ! sin(x2)

2443      fmuld    %f24,pp3,%f30        ! sin(x3)

2445      fadddd   %f6,pp2,%f6
2446      fmuld    %f0,qq2,%f4

2448      fmuld    %f8,qq3,%f14        ! cos(x1)

2450      fadddd   %f22,pp2,%f22
2451      fmuld    %f16,qq2,%f20

2453      fadddd   %f30,pp2,%f30
2454      fmuld    %f24,qq2,%f28

2456      fmuld    %f0,%f6,%f6
2457      fadddd   %f4,qq1,%f4

2459      fadddd   %f14,qq2,%f14
2460      fmuld    %f8,pp2,%f12

2462      fmuld    %f16,%f22,%f22
2463      fadddd   %f20,qq1,%f20

2465      fmuld    %f24,%f30,%f30
2466      fadddd   %f28,qq1,%f28

2468      fadddd   %f6,pp1,%f6
2469      fmuld    %f0,%f4,%f4
2470      add      %l4,%g1,%l4

2472      fmuld    %f8,%f14,%f14
2473      fadddd   %f12,pp1,%f12

2475      fadddd   %f22,pp1,%f22
2476      fmuld    %f16,%f20,%f20
2477      add      %l6,%g1,%l6

2479      fadddd   %f30,pp1,%f30
2480      fmuld    %f24,%f28,%f28
2481      add      %l7,%g1,%l7

2483      fmuld    %f0,%f6,%f6

2485      fadddd   %f14,qq1,%f14
2486      fmuld    %f8,%f12,%f12
2487      add      %l5,%g1,%l5

2489      fmuld    %f16,%f22,%f22

2491      fmuld    %f24,%f30,%f30

2493      fmuld    %f2,%f6,%f6
2494      ldd      [%l4+8],%f0

2496      fmuld    %f10,%f12,%f12

2498      fmuld    %f18,%f22,%f22
2499      ldd      [%l6+8],%f16

2501      fmuld    %f26,%f30,%f30

```

```

2502      ldd      [%l7+8],%f24

2504      fmuldd   %f0,%f4,%f4
2505      fadddd   %f32,%f6,%f6

2507      fmuldd   %f8,%f14,%f14
2508      fadddd   %f12,%f34,%f12
2509      ldd      [%l5+16],%f8

2511      fmuldd   %f16,%f20,%f20
2512      fadddd   %f36,%f22,%f22

2514      fmuldd   %f24,%f28,%f28
2515      fadddd   %f38,%f30,%f30

2517      fadddd   %f2,%f6,%f6
2518      ldd      [%l4+16],%f32

2520      fmuldd   %f8,%f14,%f14
2521      fadddd   %f12,%f10,%f12
2522      ldd      [%l5+8],%f34

2524      fadddd   %f18,%f22,%f22
2525      ldd      [%l6+16],%f36

2527      fadddd   %f26,%f30,%f30
2528      ldd      [%l7+16],%f38

2530      fmuldd   %f32,%f6,%f6

2532      fmuldd   %f34,%f12,%f12

2534      fmuldd   %f36,%f22,%f22

2536      fmuldd   %f38,%f30,%f30

2538      fadddd   %f6,%f4,%f6

2540      fsubdd   %f14,%f12,%f14

2542      fadddd   %f22,%f20,%f22

2544      fadddd   %f30,%f28,%f30

2546      fadddd   %f6,%f0,%f6

2548      fadddd   %f14,%f8,%f14

2550      fadddd   %f22,%f16,%f22

2552      fadddd   %f30,%f24,%f30
2553      mov      %l0,%l4

2555      fnegd    %f6,%f4
2556      lda      [%i1]%asi,%l0          ! preload next argument

2558      fnegd    %f14,%f12
2559      lda      [%i1]%asi,%f0

2561      fnegd    %f22,%f20
2562      lda      [%i1+4]%asi,%f3

2564      fnegd    %f30,%f28
2565      andn     %l0,%i5,%l0
2566      add      %i1,%i2,%i1

```

```

2568      andcc    %l4,2,%q0
2569      fmovdnz   %icc,%f4,%f6
2570      st        %f6,[%o0]

2572      andcc    %l1,2,%q0
2573      fmovdnz   %icc,%f12,%f14
2574      st        %f14,[%o1]

2576      andcc    %l2,2,%q0
2577      fmovdnz   %icc,%f20,%f22
2578      st        %f22,[%o2]

2580      andcc    %l3,2,%q0
2581      fmovdnz   %icc,%f28,%f30
2582      st        %f30,[%o3]

2584      addcc    %i0,-1,%i0
2585      bg,pt     %icc,.loop0
2586      ! delay  slot
2587      st        %f7,[%o0+4]

2589      ba,pt     %icc,.end
2590      ! delay  slot
2591      nop

2593      .align    16
2594      .case12:
2595      fmuldd   %f18,%f18,%f16
2596      andcc    %l2,1,%q0
2597      bz,pn     %icc,.case14
2598      ! delay  slot
2599      fxor     %f22,%f36,%f36

2601      fmuldd   %f26,%f26,%f24
2602      andcc    %l3,1,%q0
2603      bz,pn     %icc,.case13
2604      ! delay  slot
2605      fxor     %f30,%f38,%f38

2607      fmuldd   %f0,pp3,%f6          ! sin(x0)

2609      fmuldd   %f8,pp3,%f14        ! sin(x1)

2611      fadddd   %f6,pp2,%f6
2612      fmuldd   %f0,qq2,%f4

2614      fadddd   %f14,pp2,%f14
2615      fmuldd   %f8,qq2,%f12

2617      fmuldd   %f16,qq3,%f22      ! cos(x2)

2619      fmuldd   %f24,qq3,%f30      ! cos(x3)

2621      fmuldd   %f0,%f6,%f6
2622      fadddd   %f4,qq1,%f4

2624      fmuldd   %f8,%f14,%f14
2625      fadddd   %f12,qq1,%f12

2627      fadddd   %f22,qq2,%f22
2628      fmuldd   %f16,pp2,%f20

2630      fadddd   %f30,qq2,%f30
2631      fmuldd   %f24,pp2,%f28

2633      fadddd   %f6,pp1,%f6

```

```

2634      fmulld    %f0,%f4,%f4
2635      add       %l4,%g1,%l4

2637      fadddd    %f14,pp1,%f14
2638      fmulld    %f8,%f12,%f12
2639      add       %l5,%g1,%l5

2641      fmulld    %f16,%f22,%f22
2642      fadddd    %f20,pp1,%f20

2644      fmulld    %f24,%f30,%f30
2645      fadddd    %f28,pp1,%f28

2647      fmulld    %f0,%f6,%f6

2649      fmulld    %f8,%f14,%f14

2651      fadddd    %f22,qq1,%f22
2652      fmulld    %f16,%f20,%f20
2653      add       %l6,%g1,%l6

2655      fadddd    %f30,qq1,%f30
2656      fmulld    %f24,%f28,%f28
2657      add       %l7,%g1,%l7

2659      fmulld    %f2,%f6,%f6
2660      ldd       [%l4+8],%f0

2662      fmulld    %f10,%f14,%f14
2663      ldd       [%l5+8],%f8

2665      fmulld    %f18,%f20,%f20

2667      fmulld    %f26,%f28,%f28

2669      fmulld    %f0,%f4,%f4
2670      fadddd    %f32,%f6,%f6

2672      fmulld    %f8,%f12,%f12
2673      fadddd    %f34,%f14,%f14

2675      fmulld    %f16,%f22,%f22
2676      fadddd    %f20,%f36,%f20
2677      ldd       [%l6+16],%f16

2679      fmulld    %f24,%f30,%f30
2680      fadddd    %f28,%f38,%f28
2681      ldd       [%l7+16],%f24

2683      fadddd    %f2,%f6,%f6
2684      ldd       [%l4+16],%f32

2686      fadddd    %f10,%f14,%f14
2687      ldd       [%l5+16],%f34

2689      fmulld    %f16,%f22,%f22
2690      fadddd    %f20,%f18,%f20
2691      ldd       [%l6+8],%f36

2693      fmulld    %f24,%f30,%f30
2694      fadddd    %f28,%f26,%f28
2695      ldd       [%l7+8],%f38

2697      fmulld    %f32,%f6,%f6

2699      fmulld    %f34,%f14,%f14

```

```

2701      fmulld    %f36,%f20,%f20

2703      fmulld    %f38,%f28,%f28

2705      fadddd    %f6,%f4,%f6

2707      fadddd    %f14,%f12,%f14

2709      fsubdd    %f22,%f20,%f22

2711      fsubdd    %f30,%f28,%f30

2713      fadddd    %f6,%f0,%f6

2715      fadddd    %f14,%f8,%f14

2717      fadddd    %f22,%f16,%f22

2719      fadddd    %f30,%f24,%f30
2720      mov       %l0,%l4

2722      fnegdd     %f6,%f4
2723      lda        [%i1]asi,%l0      ! preload next argument

2725      fnegdd     %f14,%f12
2726      lda        [%i1]asi,%f0

2728      fnegdd     %f22,%f20
2729      lda        [%i1+4]asi,%f3

2731      fnegdd     %f30,%f28
2732      andn       %l0,%i5,%l0
2733      add        %i1,%i2,%i1

2735      andcc       %l4,2,%g0
2736      fmovdnz     %icc,%f4,%f6
2737      st         %f6,[%o0]

2739      andcc       %l1,2,%g0
2740      fmovdnz     %icc,%f12,%f14
2741      st         %f14,[%o1]

2743      andcc       %l2,2,%g0
2744      fmovdnz     %icc,%f20,%f22
2745      st         %f22,[%o2]

2747      andcc       %l3,2,%g0
2748      fmovdnz     %icc,%f28,%f30
2749      st         %f30,[%o3]

2751      addcc       %i0,-1,%i0
2752      bg,pt       %icc,.loop0
2753      ! delay     slot
2754      st         %f7,[%o0+4]

2756      ba,pt       %icc,.end
2757      ! delay     slot
2758      nop

2760      .align      16
2761      .case13:
2762      fmulld    %f0,pp3,%f6      ! sin(x0)

2764      fmulld    %f8,pp3,%f14    ! sin(x1)

```

```

2766      fmulld    %f24, pp3, %f30          ! sin(x3)
2768      fadddd    %f6, pp2, %f6
2769      fmulld    %f0, qq2, %f4

2771      fadddd    %f14, pp2, %f14
2772      fmulld    %f8, qq2, %f12

2774      fmulld    %f16, qq3, %f22          ! cos(x2)

2776      fadddd    %f30, pp2, %f30
2777      fmulld    %f24, qq2, %f28

2779      fmulld    %f0, %f6, %f6
2780      fadddd    %f4, qq1, %f4

2782      fmulld    %f8, %f14, %f14
2783      fadddd    %f12, qq1, %f12

2785      fadddd    %f22, qq2, %f22
2786      fmulld    %f16, pp2, %f20

2788      fmulld    %f24, %f30, %f30
2789      fadddd    %f28, qq1, %f28

2791      fadddd    %f6, pp1, %f6
2792      fmulld    %f0, %f4, %f4
2793      add        %l4, %g1, %l4

2795      fadddd    %f14, pp1, %f14
2796      fmulld    %f8, %f12, %f12
2797      add        %l5, %g1, %l5

2799      fmulld    %f16, %f22, %f22
2800      fadddd    %f20, pp1, %f20

2802      fadddd    %f30, pp1, %f30
2803      fmulld    %f24, %f28, %f28
2804      add        %l7, %g1, %l7

2806      fmulld    %f0, %f6, %f6

2808      fmulld    %f8, %f14, %f14

2810      fadddd    %f22, qq1, %f22
2811      fmulld    %f16, %f20, %f20
2812      add        %l6, %g1, %l6

2814      fmulld    %f24, %f30, %f30

2816      fmulld    %f2, %f6, %f6
2817      ldd        [%l4+8], %f0

2819      fmulld    %f10, %f14, %f14
2820      ldd        [%l5+8], %f8

2822      fmulld    %f18, %f20, %f20

2824      fmulld    %f26, %f30, %f30
2825      ldd        [%l7+8], %f24

2827      fmulld    %f0, %f4, %f4
2828      fadddd    %f32, %f6, %f6

2830      fmulld    %f8, %f12, %f12
2831      fadddd    %f34, %f14, %f14

```

```

2833      fmulld    %f16, %f22, %f22
2834      fadddd    %f20, %f36, %f20
2835      ldd        [%l6+16], %f16

2837      fmulld    %f24, %f28, %f28
2838      fadddd    %f38, %f30, %f30

2840      fadddd    %f2, %f6, %f6
2841      ldd        [%l4+16], %f32

2843      fadddd    %f10, %f14, %f14
2844      ldd        [%l5+16], %f34

2846      fmulld    %f16, %f22, %f22
2847      fadddd    %f20, %f18, %f20
2848      ldd        [%l6+8], %f36

2850      fadddd    %f26, %f30, %f30
2851      ldd        [%l7+16], %f38

2853      fmulld    %f32, %f6, %f6

2855      fmulld    %f34, %f14, %f14

2857      fmulld    %f36, %f20, %f20

2859      fmulld    %f38, %f30, %f30

2861      fadddd    %f6, %f4, %f6

2863      fadddd    %f14, %f12, %f14

2865      fsubdd    %f22, %f20, %f22

2867      fadddd    %f30, %f28, %f30

2869      fadddd    %f6, %f0, %f6

2871      fadddd    %f14, %f8, %f14

2873      fadddd    %f22, %f16, %f22

2875      fadddd    %f30, %f24, %f30
2876      mov        %l0, %l4

2878      fnegd     %f6, %f4
2879      lda        [%i1]%asi, %l0          ! preload next argument

2881      fnegd     %f14, %f12
2882      lda        [%i1]%asi, %f0

2884      fnegd     %f22, %f20
2885      lda        [%i1+4]%asi, %f3

2887      fnegd     %f30, %f28
2888      andn      %l0, %i5, %l0
2889      add        %i1, %i2, %i1

2891      andcc     %l4, 2, %g0
2892      fmovdnz    %icc, %f4, %f6
2893      st         %f6, [%o0]

2895      andcc     %l1, 2, %g0
2896      fmovdnz    %icc, %f12, %f14
2897      st         %f14, [%o1]

```

```

2899      andcc    %l2,2,%g0
2900      fmovdnz   %icc,%f20,%f22
2901      st        %f22,[%o2]

2903      andcc    %l3,2,%g0
2904      fmovdnz   %icc,%f28,%f30
2905      st        %f30,[%o3]

2907      addcc    %i0,-1,%i0
2908      bg,pt     %icc,.loop0
2909 ! delay slot
2910      st        %f7,[%o0+4]

2912      ba,pt     %icc,.end
2913 ! delay slot
2914      nop

2916      .align    16
2917 .case14:
2918      fmuld     %f26,%f26,%f24
2919      andcc     %l3,1,%g0
2920      bz,pn     %icc,.case15
2921 ! delay slot
2922      fxor      %f30,%f38,%f38

2924      fmuld     %f0,pp3,%f6          ! sin(x0)

2926      fmuld     %f8,pp3,%f14        ! sin(x1)

2928      fmuld     %f16,pp3,%f22       ! sin(x2)

2930      fadddd    %f6,pp2,%f6
2931      fmuld     %f0,qq2,%f4

2933      fadddd    %f14,pp2,%f14
2934      fmuld     %f8,qq2,%f12

2936      fadddd    %f22,pp2,%f22
2937      fmuld     %f16,qq2,%f20

2939      fmuld     %f24,qq3,%f30      ! cos(x3)

2941      fmuld     %f0,%f6,%f6
2942      fadddd    %f4,qq1,%f4

2944      fmuld     %f8,%f14,%f14
2945      fadddd    %f12,qq1,%f12

2947      fmuld     %f16,%f22,%f22
2948      fadddd    %f20,qq1,%f20

2950      fadddd    %f30,qq2,%f30
2951      fmuld     %f24,pp2,%f28

2953      fadddd    %f6,pp1,%f6
2954      fmuld     %f0,%f4,%f4
2955      add       %l4,%g1,%l4

2957      fadddd    %f14,pp1,%f14
2958      fmuld     %f8,%f12,%f12
2959      add       %l5,%g1,%l5

2961      fadddd    %f22,pp1,%f22
2962      fmuld     %f16,%f20,%f20
2963      add       %l6,%g1,%l6

```

```

2965      fmuld     %f24,%f30,%f30
2966      fadddd    %f28,pp1,%f28

2968      fmuld     %f0,%f6,%f6

2970      fmuld     %f8,%f14,%f14

2972      fmuld     %f16,%f22,%f22

2974      fadddd    %f30,qq1,%f30
2975      fmuld     %f24,%f28,%f28
2976      add       %l7,%g1,%l7

2978      fmuld     %f2,%f6,%f6
2979      ldd        [%l4+8],%f0

2981      fmuld     %f10,%f14,%f14
2982      ldd        [%l5+8],%f8

2984      fmuld     %f18,%f22,%f22
2985      ldd        [%l6+8],%f16

2987      fmuld     %f26,%f28,%f28

2989      fmuld     %f0,%f4,%f4
2990      fadddd    %f32,%f6,%f6

2992      fmuld     %f8,%f12,%f12
2993      fadddd    %f34,%f14,%f14

2995      fmuld     %f16,%f20,%f20
2996      fadddd    %f36,%f22,%f22

2998      fmuld     %f24,%f30,%f30
2999      fadddd    %f28,%f38,%f28
3000      ldd        [%l7+16],%f24

3002      fadddd    %f2,%f6,%f6
3003      ldd        [%l4+16],%f32

3005      fadddd    %f10,%f14,%f14
3006      ldd        [%l5+16],%f34

3008      fadddd    %f18,%f22,%f22
3009      ldd        [%l6+16],%f36

3011      fmuld     %f24,%f30,%f30
3012      fadddd    %f28,%f26,%f28
3013      ldd        [%l7+8],%f38

3015      fmuld     %f32,%f6,%f6

3017      fmuld     %f34,%f14,%f14

3019      fmuld     %f36,%f22,%f22

3021      fmuld     %f38,%f28,%f28

3023      fadddd    %f6,%f4,%f6

3025      fadddd    %f14,%f12,%f14

3027      fadddd    %f22,%f20,%f22

3029      fsubd     %f30,%f28,%f30

```

```

3031      fadd    %f6,%f0,%f6
3033      fadd    %f14,%f8,%f14
3035      fadd    %f22,%f16,%f22
3037      fadd    %f30,%f24,%f30
3038      mov     %l0,%l4
3040      fnegd   %f6,%f4
3041      lda     [%i1]asi,%l0      ! preload next argument
3043      fnegd   %f14,%f12
3044      lda     [%i1]asi,%f0
3046      fnegd   %f22,%f20
3047      lda     [%i1+4]asi,%f3
3049      fnegd   %f30,%f28
3050      andn    %l0,%i5,%l0
3051      add     %i1,%i2,%i1
3053      andcc   %l4,2,%g0
3054      fmovdnz %icc,%f4,%f6
3055      st      %f6,[%o0]
3057      andcc   %l1,2,%g0
3058      fmovdnz %icc,%f12,%f14
3059      st      %f14,[%o1]
3061      andcc   %l2,2,%g0
3062      fmovdnz %icc,%f20,%f22
3063      st      %f22,[%o2]
3065      andcc   %l3,2,%g0
3066      fmovdnz %icc,%f28,%f30
3067      st      %f30,[%o3]
3069      addcc   %i0,-1,%i0
3070      bg,pt   %icc,.loop0
3071 ! delay    slot
3072      st      %f7,[%o0+4]
3074      ba,pt   %icc,.end
3075 ! delay    slot
3076      nop
3078      .align  16
3079 .case15:
3080      fmuld   %f0,pp3,%f6      ! sin(x0)
3082      fmuld   %f8,pp3,%f14     ! sin(x1)
3084      fmuld   %f16,pp3,%f22    ! sin(x2)
3086      fmuld   %f24,pp3,%f30    ! sin(x3)
3088      fadd    %f6,pp2,%f6
3089      fmuld   %f0,qq2,%f4
3091      fadd    %f14,pp2,%f14
3092      fmuld   %f8,qq2,%f12
3094      fadd    %f22,pp2,%f22
3095      fmuld   %f16,qq2,%f20

```

```

3097      fadd    %f30,pp2,%f30
3098      fmuld   %f24,qq2,%f28
3100      fmuld   %f0,%f6,%f6
3101      fadd    %f4,qq1,%f4
3103      fmuld   %f8,%f14,%f14
3104      fadd    %f12,qq1,%f12
3106      fmuld   %f16,%f22,%f22
3107      fadd    %f20,qq1,%f20
3109      fmuld   %f24,%f30,%f30
3110      fadd    %f28,qq1,%f28
3112      fadd    %f6,pp1,%f6
3113      fmuld   %f0,%f4,%f4
3114      add     %l4,%g1,%l4
3116      fadd    %f14,pp1,%f14
3117      fmuld   %f8,%f12,%f12
3118      add     %l5,%g1,%l5
3120      fadd    %f22,pp1,%f22
3121      fmuld   %f16,%f20,%f20
3122      add     %l6,%g1,%l6
3124      fadd    %f30,pp1,%f30
3125      fmuld   %f24,%f28,%f28
3126      add     %l7,%g1,%l7
3128      fmuld   %f0,%f6,%f6
3130      fmuld   %f8,%f14,%f14
3132      fmuld   %f16,%f22,%f22
3134      fmuld   %f24,%f30,%f30
3136      fmuld   %f2,%f6,%f6
3137      ldd     [%l4+8],%f0
3139      fmuld   %f10,%f14,%f14
3140      ldd     [%l5+8],%f8
3142      fmuld   %f18,%f22,%f22
3143      ldd     [%l6+8],%f16
3145      fmuld   %f26,%f30,%f30
3146      ldd     [%l7+8],%f24
3148      fmuld   %f0,%f4,%f4
3149      fadd    %f32,%f6,%f6
3151      fmuld   %f8,%f12,%f12
3152      fadd    %f34,%f14,%f14
3154      fmuld   %f16,%f20,%f20
3155      fadd    %f36,%f22,%f22
3157      fmuld   %f24,%f28,%f28
3158      fadd    %f38,%f30,%f30
3160      fadd    %f2,%f6,%f6
3161      ldd     [%l4+16],%f32

```

```

3163      fadddd    %f10,%f14,%f14
3164      ldd       [%l5+16],%f34

3166      fadddd    %f18,%f22,%f22
3167      ldd       [%l6+16],%f36

3169      fadddd    %f26,%f30,%f30
3170      ldd       [%l7+16],%f38

3172      fmuldd    %f32,%f6,%f6

3174      fmuldd    %f34,%f14,%f14

3176      fmuldd    %f36,%f22,%f22

3178      fmuldd    %f38,%f30,%f30

3180      fadddd    %f6,%f4,%f6

3182      fadddd    %f14,%f12,%f14

3184      fadddd    %f22,%f20,%f22

3186      fadddd    %f30,%f28,%f30

3188      fadddd    %f6,%f0,%f6

3190      fadddd    %f14,%f8,%f14

3192      fadddd    %f22,%f16,%f22

3194      fadddd    %f30,%f24,%f30
3195      mov       %l0,%l4

3197      fnegdd    %f6,%f4
3198      lda       [%i1]asi,%l0          ! preload next argument

3200      fnegdd    %f14,%f12
3201      lda       [%i1]asi,%f0

3203      fnegdd    %f22,%f20
3204      lda       [%i1+4]asi,%f3

3206      fnegdd    %f30,%f28
3207      andn      %l0,%i5,%l0
3208      add       %i1,%i2,%i1

3210      andcc     %l4,2,%g0
3211      fmovdnz   %icc,%f4,%f6
3212      st        %f6, [%o0]

3214      andcc     %l1,2,%g0
3215      fmovdnz   %icc,%f12,%f14
3216      st        %f14, [%o1]

3218      andcc     %l2,2,%g0
3219      fmovdnz   %icc,%f20,%f22
3220      st        %f22, [%o2]

3222      andcc     %l3,2,%g0
3223      fmovdnz   %icc,%f28,%f30
3224      st        %f30, [%o3]

3226      addcc     %i0,-1,%i0
3227      bg,pt     %icc,.loop0

```

```

3228 ! delay slot
3229      st        %f7, [%o0+4]

3231      ba,pt     %icc,.end
3232 ! delay slot
3233      nop

3236      .align    16
3237 .end:
3238      st        %f15, [%o1+4]
3239      st        %f23, [%o2+4]
3240      st        %f31, [%o3+4]
3241      ld        [%fp+biguns],%i5
3242      tst       %i5                      ! check for huge arguments remaining
3243      be,pt     %icc,.exit
3244 ! delay slot
3245      nop
3246 #ifdef __sparcv9
3247      ldx       [%fp+xsave],%o1
3248      ldx       [%fp+ysave],%o3
3249 #else
3250      ld        [%fp+xsave],%o1
3251      ld        [%fp+ysave],%o3
3252 #endif
3253      ld        [%fp+nsave],%o0
3254      ld        [%fp+sxsave],%o2
3255      ld        [%fp+sysave],%o4
3256      sra       %o2,0,%o2                ! sign-extend for V9
3257      sra       %o4,0,%o4
3258      call      __vlibm_vsin_big_ultra3
3259      sra       %o5,0,%o5                ! delay slot

3261 .exit:
3262      ret
3263      restore

3266      .align    16
3267 .last1:
3268      fadddd    %f2,c3two44,%f4
3269      st        %f15, [%o1+4]
3270 .last1_from_range1:
3271      mov       0,%l1
3272      fzeros    %f8
3273      fzero     %f10
3274      add       %fp,junk,%o1
3275 .last2:
3276      fadddd    %f10,c3two44,%f12
3277      st        %f23, [%o2+4]
3278 .last2_from_range2:
3279      mov       0,%l2
3280      fzeros    %f16
3281      fzero     %f18
3282      add       %fp,junk,%o2
3283 .last3:
3284      fadddd    %f18,c3two44,%f20
3285      st        %f31, [%o3+4]
3286      st        %f5, [%fp+nk0]
3287      st        %f13, [%fp+nk1]
3288 .last3_from_range3:
3289      mov       0,%l3
3290      fzeros    %f24
3291      fzero     %f26
3292      ba,pt     %icc,.cont
3293 ! delay slot

```

```

3294      add      %fp,junk,%o3

3297      .align   16
3298  .range0:
3299      cmp      %l0,%o4
3300      bl,pt    %icc,1f          ! hx < 0x3e400000
3301 ! delay slot, harmless if branch taken
3302      sethi    %hi(0x7ff00000),%o7
3303      cmp      %l0,%o7
3304      bl,a,pt  %icc,2f          ! branch if finite
3305 ! delay slot, squashed if branch not taken
3306      st       %o4,[%fp+biguns] ! set biguns
3307      fzero    %f0
3308      fmuld    %f2,%f0,%f2
3309      st       %f2,[%o0]
3310      ba,pt    %icc,2f
3311 ! delay slot
3312      st       %f3,[%o0+4]
3313 1:
3314      fdtoi    %f2,%f4          ! raise inexact if not zero
3315      st       %f0,[%o0]
3316      st       %f3,[%o0+4]
3317 2:
3318      addcc    %i0,-1,%i0
3319      ble,pn   %icc,.end
3320 ! delay slot, harmless if branch taken
3321      add      %i3,%i4,%i3      ! y += stridey
3322      andn     %l1,%i5,%l0      ! hx &= -0x80000000
3323      fmovs    %f8,%f0
3324      fmovs    %f11,%f3
3325      ba,pt    %icc,.loop0
3326 ! delay slot
3327      add      %i1,%i2,%i1      ! x += stridex

3330      .align   16
3331  .range1:
3332      cmp      %l1,%o4
3333      bl,pt    %icc,1f          ! hx < 0x3e400000
3334 ! delay slot, harmless if branch taken
3335      sethi    %hi(0x7ff00000),%o7
3336      cmp      %l1,%o7
3337      bl,a,pt  %icc,2f          ! branch if finite
3338 ! delay slot, squashed if branch not taken
3339      st       %o4,[%fp+biguns] ! set biguns
3340      fzero    %f8
3341      fmuld    %f10,%f8,%f10
3342      st       %f10,[%o1]
3343      ba,pt    %icc,2f
3344 ! delay slot
3345      st       %f11,[%o1+4]
3346 1:
3347      fdtoi    %f10,%f12        ! raise inexact if not zero
3348      st       %f8,[%o1]
3349      st       %f11,[%o1+4]
3350 2:
3351      addcc    %i0,-1,%i0
3352      ble,pn   %icc,.last1_from_range1
3353 ! delay slot, harmless if branch taken
3354      add      %i3,%i4,%i3      ! y += stridey
3355      andn     %l2,%i5,%l1      ! hx &= -0x80000000
3356      fmovs    %f16,%f8
3357      fmovs    %f19,%f11
3358      ba,pt    %icc,.loop1
3359 ! delay slot

```

```

3360      add      %i1,%i2,%i1      ! x += stridex

3363      .align   16
3364  .range2:
3365      cmp      %l2,%o4
3366      bl,pt    %icc,1f          ! hx < 0x3e400000
3367 ! delay slot, harmless if branch taken
3368      sethi    %hi(0x7ff00000),%o7
3369      cmp      %l2,%o7
3370      bl,a,pt  %icc,2f          ! branch if finite
3371 ! delay slot, squashed if branch not taken
3372      st       %o4,[%fp+biguns] ! set biguns
3373      fzero    %f16
3374      fmuld    %f18,%f16,%f18
3375      st       %f18,[%o2]
3376      ba,pt    %icc,2f
3377 ! delay slot
3378      st       %f19,[%o2+4]
3379 1:
3380      fdtoi    %f18,%f20        ! raise inexact if not zero
3381      st       %f16,[%o2]
3382      st       %f19,[%o2+4]
3383 2:
3384      addcc    %i0,-1,%i0
3385      ble,pn   %icc,.last2_from_range2
3386 ! delay slot, harmless if branch taken
3387      add      %i3,%i4,%i3      ! y += stridey
3388      andn     %l3,%i5,%l2      ! hx &= -0x80000000
3389      fmovs    %f24,%f16
3390      fmovs    %f27,%f19
3391      ba,pt    %icc,.loop2
3392 ! delay slot
3393      add      %i1,%i2,%i1      ! x += stridex

3396      .align   16
3397  .range3:
3398      cmp      %l3,%o4
3399      bl,pt    %icc,1f          ! hx < 0x3e400000
3400 ! delay slot, harmless if branch taken
3401      sethi    %hi(0x7ff00000),%o7
3402      cmp      %l3,%o7
3403      bl,a,pt  %icc,2f          ! branch if finite
3404 ! delay slot, squashed if branch not taken
3405      st       %o4,[%fp+biguns] ! set biguns
3406      fzero    %f24
3407      fmuld    %f26,%f24,%f26
3408      st       %f26,[%o3]
3409      ba,pt    %icc,2f
3410 ! delay slot
3411      st       %f27,[%o3+4]
3412 1:
3413      fdtoi    %f26,%f28        ! raise inexact if not zero
3414      st       %f24,[%o3]
3415      st       %f27,[%o3+4]
3416 2:
3417      addcc    %i0,-1,%i0
3418      ble,pn   %icc,.last3_from_range3
3419 ! delay slot, harmless if branch taken
3420      add      %i3,%i4,%i3      ! y += stridey
3421      ld       [%i1],%l3
3422      ld       [%i1],%f24
3423      ld       [%i1+4],%f27
3424      andn     %l3,%i5,%l3      ! hx &= -0x80000000
3425      ba,pt    %icc,.loop3

```

new/usr/src/lib/libmvec/common/vis/__vsin_ultra3.S

53

```
3426 ! delay slot
3427     add     %i1,%i2,%i1          ! x += stridex

3429     SET_SIZE(__vsin_ultra3)
_____ unchanged_portion_omitted_____
```

new/usr/src/lib/libmvec/common/vis/___vsqrtf_ultra3.S

1

```
*****
25030 Wed Oct 29 13:16:11 2014
new/usr/src/lib/libmvec/common/vis/___vsqrtf_ultra3.S
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

1 /*
2  * CDDL HEADER START
3  *
4  * The contents of this file are subject to the terms of the
5  * Common Development and Distribution License (the "License").
6  * You may not use this file except in compliance with the License.
7  *
8  * You can obtain a copy of the license at usr/src/OPENSOLARIS.LICENSE
9  * or http://www.opensolaris.org/os/licensing.
10 * See the License for the specific language governing permissions
11 * and limitations under the License.
12 *
13 * When distributing Covered Code, include this CDDL HEADER in each
14 * file and include the License file at usr/src/OPENSOLARIS.LICENSE.
15 * If applicable, add the following below this CDDL HEADER, with the
16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */
21 /*
22 * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
23 */
24 /*
25 * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
26 * Use is subject to license terms.
27 */

29 .file    "___vsqrtf_ultra3.S"

31 #include "libm.h"
32 #if defined(LIBMVEC_SO_BUILD)
33     .weak    ___vsqrtf
34     .type    ___vsqrtf, #function
35     ___vsqrtf = ___vsqrtf_ultra3
36 #endif

36     RO_DATA
37     .align   64

39 .CONST_TBL:
40     .word    0x3fe00001, 0x80007e00 ! K1 = 5.00000715259318464227e-01
41     .word    0xbfc00003, 0xc0017a01 ! K2 = -1.25000447037521686593e-01
42     .word    0x000fffff, 0xffffffff ! DC0 = 0x000ffffffffff
43     .word    0x3ff00000, 0x00000000 ! DC1 = 0x3ff0000000000000
44     .word    0x7ffff000, 0x00000000 ! DC2 = 0x7ffff00000000000

46 #define DC0        %f6
47 #define DC1        %f4
48 #define DC2        %f2
49 #define K2         %f38
50 #define K1         %f36
51 #define TBL        %l2
52 #define stridex    %l3
53 #define stridey    %l4
54 #define _0x1ff0    %l5
55 #define counter    %l6
56 #define _0x00800000 %l7
57 #define _0x7f800000 %00

59 #define tmp_px      STACK_BIAS-0x40
```

new/usr/src/lib/libmvec/common/vis/___vsqrtf_ultra3.S

2

```
60 #define tmp_counter    STACK_BIAS-0x38
61 #define tmp0           STACK_BIAS-0x30
62 #define tmp1           STACK_BIAS-0x28
63 #define tmp2           STACK_BIAS-0x20
64 #define tmp3           STACK_BIAS-0x18
65 #define tmp4           STACK_BIAS-0x10

67 ! sizeof temp storage - must be a multiple of 16 for V9
68 #define tmps           0x40

70 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
71 !      !!!!! algorithm !!!!!
72 !
73 !   x0 = *px;
74 !   ax = *(int*)px;
75 !   px += stridex;
76 !
77 !   if( ax >= 0x7f800000 )
78 !   {
79 !       *py = sqrtf(x0);
80 !       py += stridey;
81 !       continue;
82 !   }
83 !   if( ax < 0x00800000 )
84 !   {
85 !       *py = sqrtf(x0);
86 !       py += stridey;
87 !       continue;
88 !   }
89 !
90 !   db0 = (double)x0;
91 !   iexp0 = ax >> 24;
92 !   iexp0 += 0x3c0;
93 !   lexp0 = (long long)iexp0 << 52;
94 !
95 !   db0 = vis_fand(db0,DC0);
96 !   db0 = vis_for(db0,DC1);
97 !   hi0 = vis_fand(db0,DC2);
98 !
99 !   ax >>= 11;
100 !   si0 = ax & 0x1ff0;
101 !   dtmp0 = ((double*)((char*)TBL + si0))[0];
102 !   xx0 = (db0 - hi0);
103 !   xx0 *= dtmp0;
104 !   dtmp0 = ((double*)((char*)TBL + si0))[1]
105 !   res0 = K2 * xx0;
106 !   res0 += K1;
107 !   res0 *= xx0;
108 !   res0 += DC1;
109 !   res0 = dtmp0 * res0;
110 !   dtmp1 = *((double*)&lexp0);
111 !   res0 *= dtmp1;
112 !   fres0 = (float)res0;
113 !   *py = fres0;
114 !   py += stridey;
115 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

117     ENTRY(___vsqrtf_ultra3)
118     save    %sp, -SA(MINFRAME)-tmps,%sp
119     PIC_SETUP(17)
120     PIC_SET(17, .CONST_TBL,o2)
121     PIC_SET(17, ___vlibm_TBL_sqrtf,12)

123     st      %i0, [%fp+tmp_counter]
124     sll     %i2, 2, stridex
125     or      %00, 0xff8, %l5
```

```

127     stx     %i1, [%fp+tmp_px]
128     sll     %l5, 1, _0x1ff0

130     ldd     [%o2], K1
131     sll     %i4, 2, stridey

133     ldd     [%o2+8], K2
134     or      %g0, %i3, %g5

136     ldd     [%o2+16], DC0
137     sethi   %hi(0x7f800000), %o0

139     ldd     [%o2+24], DC1
140     sethi   %hi(0x00800000), %l7

142     ldd     [%o2+32], DC2

144 .begin:
145     ld      [%fp+tmp_counter], counter
146     ld      [%fp+tmp_px], %i1
147     st      %g0, [%fp+tmp_counter]
148 .begin1:
149     cmp     counter, 0
150     ble, pn %icc, .exit

152     lda     [%i1]0x82, %o2          ! (2_0) ax = *(int*)px;

154     or      %g0, %i1, %o7
155     lda     [%i1]0x82, %f25        ! (2_0) x0 = *px;

157     cmp     %o2, _0x7f800000      ! (2_0) ax ? 0x7f800000
158     bge, pn %icc, .spec          ! (2_0) if( ax >= 0x7f800000 )
159     nop

161     cmp     %o2, _0x00800000      ! (2_0) ax ? 0x00800000
162     bl, pn  %icc, .spec          ! (2_0) if( ax < 0x00800000 )
163     nop

165     fstod   %f25, %f56           ! (2_0) db0 = (double)x0;

167     lda     [stridex+%o7]0x82, %o1 ! (3_0) ax = *(int*)px;

169     sra     %o2, 24, %l1         ! (2_0) iexp0 = ax >> 24;

171     add     %o7, stridex, %i1     ! px += stridex
172     add     %l1, 960, %l0        ! (2_0) iexp0 += 0x3c0;
173     lda     [stridex+%o7]0x82, %f0 ! (3_0) x0 = *px;
174     fand    %f56, DC0, %f60      ! (2_0) db0 = vis_fand(db0, DC0);

176     cmp     %o1, _0x7f800000      ! (3_0) ax ? 0x7f800000
177     bge, pn %icc, .update0       ! (3_0) if( ax >= 0x7f800000 )
178     nop
179 .cont0:
180     sllx    %l0, 52, %o3         ! (2_0) lexp0 = (long long)iexp0 << 52;

182     sra     %o2, 11, %i2         ! (2_0) ax >>= 11;
183     stx     %o3, [%fp+tmp0]      ! (2_0) dtmp1 = *((double*)&lexp0);
184     for     %f60, DC1, %f40      ! (2_0) db0 = vis_for(db0, DC1);

186     cmp     %o1, _0x00800000      ! (3_0) ax ? 0x00800000
187     bl, pn  %icc, .update1       ! (3_0) if( ax < 0x00800000 )
188     nop
189 .cont1:
190     fstod   %f0, %f48           ! (3_0) db0 = (double)x0;

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192     and     %i2, _0x1ff0, %o3    ! (2_0) si0 = ax & 0x1ff0;
193     lda     [%i1+stridex]0x82, %o2 ! (4_0) ax = *(int*)px;

195     add     %i1, stridex, %i1     ! px += stridex
196     add     %o3, TBL, %i2        ! (2_0) (char*)TBL + si0
197     fand    %f40, DC2, %f46      ! (2_0) hi0 = vis_fand(db0, DC2);

199     sra     %o1, 24, %o4         ! (3_0) iexp0 = ax >> 24;

201     lda     [%i1]0x82, %f13      ! (4_0) x0 = *px;
202     fand    %f48, DC0, %f58      ! (3_0) db0 = vis_fand(db0, DC0);

204     add     %o4, 960, %i0        ! (3_0) iexp0 += 0x3c0;

206     cmp     %o2, _0x7f800000      ! (4_1) ax ? 0x7f800000
207     bge, pn %icc, .update2       ! (4_1) if( ax >= 0x7f800000 )
208     nop
209 .cont2:
210     fsubd   %f40, %f46, %f44     ! (2_1) xx0 = (db0 - hi0);
211     sllx    %i0, 52, %g1        ! (3_1) lexp0 = (long long)iexp0 << 52;
212     ldd     [%i2], %f40         ! (2_1) dtmp0 = ((double*)((char*)TBL +

214     sra     %o1, 11, %l0        ! (3_1) ax >>= 11;
215     stx     %g1, [%fp+tmp1]      ! (3_1) dtmp1 = *((double*)&lexp0);
216     for     %f58, DC1, %f48      ! (3_1) db0 = vis_for(db0, DC1);

218     cmp     %o2, _0x00800000      ! (4_1) ax ? 0x00800000
219     bl, pn  %icc, .update3       ! (4_1) if( ax < 0x00800000 )
220     nop
221 .cont3:
222     fstod   %f13, %f50          ! (4_1) db0 = (double)x0;

224     fmuld   %f44, %f40, %f46     ! (2_1) xx0 *= dtmp0;
225     and     %l0, _0x1ff0, %i0    ! (3_1) si0 = ax & 0x1ff0;
226     lda     [%i1+stridex]0x82, %l1 ! (0_0) ax = *(int*)px;

228     add     %i0, TBL, %l0        ! (3_1) (char*)TBL + si0
229     fand    %f48, DC2, %f62      ! (3_1) hi0 = vis_fand(db0, DC2);

231     sra     %o2, 24, %o7         ! (4_1) iexp0 = ax >> 24;

233     add     %i1, stridex, %o4     ! px += stridex
234     add     %o7, 960, %o7        ! (4_1) iexp0 += 0x3c0;
235     lda     [%i1+stridex]0x82, %f17 ! (0_0) x0 = *px;
236     fand    %f50, DC0, %f54      ! (4_1) db0 = vis_fand(db0, DC0);

238     fmuld   K2, %f46, %f52       ! (2_1) res0 = K2 * xx0;
239     cmp     %l1, _0x7f800000      ! (0_0) ax ? 0x7f800000
240     bge, pn %icc, .update4       ! (0_0) if( ax >= 0x7f800000 )
241     fsubd   %f48, %f62, %f42     ! (3_1) xx0 = (db0 - hi0);
242 .cont4:
243     sllx    %o7, 52, %o1         ! (4_1) lexp0 = (long long)iexp0 << 52;
244     ldd     [%i0+TBL], %f40      ! (3_1) dtmp0 = ((double*)((char*)TBL +

246     sra     %o2, 11, %i5        ! (4_1) ax >>= 11;
247     stx     %o1, [%fp+tmp2]      ! (4_1) dtmp1 = *((double*)&lexp0);
248     for     %f54, DC1, %f34      ! (4_1) db0 = vis_for(db0, DC1);

250     cmp     %l1, _0x00800000      ! (0_0) ax ? 0x00800000
251     bl, pn  %icc, .update5       ! (0_0) if( ax < 0x00800000 )
252     nop
253 .cont5:
254     fstod   %f17, %f56          ! (0_0) db0 = (double)x0;

256     fmuld   %f42, %f40, %f42     ! (3_1) xx0 *= dtmp0;
257     lda     [stridex+%o4]0x82, %i0 ! (1_0) ax = *(int*)px;

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258      fadd    %f52,K1,%f52          ! (2_1) res0 += K1;
260      sra     %l1,24,%g1             ! (0_0) iexp0 = ax >> 24;
261      and     %i5,_0x1fff0,%i5       ! (4_1) si0 = ax & 0x1fff0;
262      fand    %f34,DC2,%f62          ! (4_1) hi0 = vis_fand(db0,DC2);

264      add     %04,stridex,%i1        ! px += stridex

266      add     %g1,960,%05            ! (0_0) iexp0 += 0x3c0;
267      add     %i5,TBL,%i3            ! (4_1) (char*)TBL + si0
268      lda     [stridex+%04]0x82,%f21 ! (1_0) x0 = *px;
269      fand    %f56,DC0,%f32          ! (0_0) db0 = vis_fand(db0,DC0);

271      fmul    K2,%f42,%f50           ! (3_1) res0 = K2 * xx0;
272      cmp     %i0,_0x7f800000        ! (1_0) ax ? 0x7f800000
273      bge, pn %icc,.update6          ! (1_0) if( ax >= 0x7f800000 )
274      fsub    %f34,%f62,%f54         ! (4_1) xx0 = (db0 - hi0);
275 .cont6:
276      fmul    %f52,%f46,%f52         ! (2_1) res0 *= xx0;
277      sllx    %05,52,%07             ! (0_0) lexp0 = (long long)iexp0 << 52;
278      ldd     [TBL+%i5],%f62         ! (4_1) dtmp0 = ((double*)((char*)TBL +

280      sra     %l1,11,%i4             ! (0_0) ax >>= 11;
281      stx     %07,[%fp+tmp3]          ! (0_0) dtmp1 = *((double*)&lexp0);
282      for     %f32,DC1,%f48          ! (0_0) db0 = vis_for(db0,DC1);

284      cmp     %i0,_0x00800000        ! (1_0) ax ? 0x00800000
285      bl, pn  %icc,.update7          ! (1_0) if( ax < 0x00800000 )
286      nop
287 .cont7:
288      fstod    %f21,%f56             ! (1_0) db0 = (double)x0;

290      fmul    %f54,%f62,%f46         ! (4_1) xx0 *= dtmp0;
291      and     %i4,_0x1fff0,%g1       ! (0_0) si0 = ax & 0x1fff0;
292      lda     [%i1+stridex]0x82,%02  ! (2_0) ax = *(int*)px;
293      fadd    %f50,K1,%f62           ! (3_1) res0 += K1;

295      add     %g1,TBL,%i5            ! (0_0) (double*)((char*)TBL + si0
296      fand    %f48,DC2,%f32          ! (0_0) hi0 = vis_fand(db0,DC2);

298      sra     %i0,24,%04             ! (1_0) iexp0 = ax >> 24;
299      ldd     [%i2+8],%f60            ! (2_1) dtmp0 = ((double*)((char*)TBL +
300      fadd    %f52,DC1,%f58          ! (2_1) res0 += DC1;

302      add     %i1,stridex,%07        ! px += stridex
303      add     %04,960,%i2            ! (1_0) iexp0 += 0x3c0;
304      lda     [%i1+stridex]0x82,%f25 ! (2_0) x0 = *px;
305      fand    %f56,DC0,%f34          ! (1_0) db0 = vis_fand(db0,DC0);

307      fmul    K2,%f46,%f50           ! (4_1) res0 = K2 * xx0;
308      cmp     %02,_0x7f800000        ! (2_0) ax ? 0x7f800000
309      bge, pn %icc,.update8          ! (2_0) if( ax >= 0x7f800000 )
310      fsub    %f48,%f32,%f52         ! (0_0) xx0 = (db0 - hi0);
311 .cont8:
312      fmul    %f62,%f42,%f54         ! (3_1) res0 *= xx0;
313      sllx    %i2,52,%04             ! (1_0) lexp0 = (long long)iexp0 << 52;
314      ldd     [TBL+%g1],%f32         ! (0_0) dtmp0 = ((double*)((char*)TBL +

316      fmul    %f60,%f58,%f60         ! (2_1) res0 = dtmp0 * res0;
317      sra     %i0,11,%g1             ! (1_0) ax >>= 11;
318      stx     %04,[%fp+tmp4]          ! (1_0) dtmp1 = *((double*)&lexp0);
319      for     %f34,DC1,%f48          ! (1_0) db0 = vis_for(db0,DC1);

321      cmp     %02,_0x00800000        ! (2_0) ax ? 0x00800000
322      bl, pn  %icc,.update9          ! (2_0) if( ax < 0x00800000 )
323      ldd     [%fp+tmp0],%f40        ! (2_1) dtmp1 = *((double*)&lexp0);

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324      fstod    %f25,%f56             ! (2_0) db0 = (double)x0;
325 .cont9:
326      fmul    %f52,%f32,%f42         ! (0_0) xx0 *= dtmp0;
327      and     %g1,_0x1fff0,%05       ! (1_0) si0 = ax & 0x1fff0;
328      lda     [stridex+%07]0x82,%01  ! (3_0) ax = *(int*)px;
329      fadd    %f50,K1,%f34           ! (4_1) res0 += K1;

331      add     %05,TBL,%i4            ! (1_0) (char*)TBL + si0
332      fand    %f48,DC2,%f62          ! (1_0) hi0 = vis_fand(db0,DC2);

334      fmul    %f60,%f40,%f32         ! (2_1) res0 *= dtmp1;
335      sra     %02,24,%l1             ! (2_0) iexp0 = ax >> 24;
336      ldd     [%l0+8],%f40           ! (3_1) dtmp0 = ((double*)((char*)TBL +
337      fadd    %f54,DC1,%f58          ! (3_1) res0 += DC1;

339      add     %07,stridex,%i1        ! px += stridex
340      add     %l1,960,%l0            ! (2_0) iexp0 += 0x3c0;
341      lda     [stridex+%07]0x82,%f0  ! (3_0) x0 = *px;
342      fand    %f56,DC0,%f60          ! (2_0) db0 = vis_fand(db0,DC0);

344      fmul    K2,%f42,%f50           ! (0_0) res0 = K2 * xx0;
345      cmp     %01,_0x7f800000        ! (3_0) ax ? 0x7f800000
346      bge, pn %icc,.update10        ! (3_0) if( ax >= 0x7f800000 )
347      fsub    %f48,%f62,%f54         ! (1_0) xx0 = (db0 - hi0);
348 .cont10:
349      fmul    %f34,%f46,%f52         ! (4_1) res0 *= xx0;
350      sllx    %l0,52,%03             ! (2_0) lexp0 = (long long)iexp0 << 52;
351      ldd     [TBL+%05],%f56         ! (1_0) dtmp0 = ((double*)((char*)TBL +

353      fmul    %f40,%f58,%f34         ! (3_1) res0 = dtmp0 * res0;
354      sra     %02,11,%i2             ! (2_0) ax >>= 11;
355      stx     %03,[%fp+tmp0]         ! (2_0) dtmp1 = *((double*)&lexp0);
356      for     %f60,DC1,%f40          ! (2_0) db0 = vis_for(db0,DC1);

358      cmp     %01,_0x00800000        ! (3_0) ax ? 0x00800000
359      bl, pn  %icc,.update11        ! (3_0) if( ax < 0x00800000 )
360      ldd     [%fp+tmp1],%f62        ! (3_1) dtmp1 = *((double*)&lexp0);
361      fstod    %f0,%f48              ! (3_0) db0 = (double)x0;
362 .cont11:
363      fmul    %f54,%f56,%f30         ! (1_0) xx0 *= dtmp0;
364      and     %i2,_0x1fff0,%03       ! (2_0) si0 = ax & 0x1fff0;
365      lda     [%i1+stridex]0x82,%02  ! (4_0) ax = *(int*)px;
366      fadd    %f50,K1,%f56           ! (0_0) res0 += K1;

368      add     %i1,stridex,%i1        ! px += stridex
369      add     %03,TBL,%i2            ! (2_0) (char*)TBL + si0
370      fand    %f40,DC2,%f46          ! (2_0) hi0 = vis_fand(db0,DC2);

372      fmul    %f34,%f62,%f28         ! (3_1) res0 *= dtmp1;
373      sra     %01,24,%04             ! (3_0) iexp0 = ax >> 24;
374      ldd     [%i3+8],%f50           ! (4_1) dtmp0 = ((double*)((char*)TBL +
375      fadd    %f52,DC1,%f54          ! (4_1) res0 += DC1;

377      lda     [%i1]0x82,%f13         ! (4_0) x0 = *px;
378      fand    %f48,DC0,%f58          ! (3_0) db0 = vis_fand(db0,DC0);

380      or      %g0,%g5,%i3            !
381      cmp     counter,5              !
382      bl, pn  %icc,.tail             !
383      add     %04,960,%g5            ! (3_0) iexp0 += 0x3c0;

385      ba      .main_loop
386      sub     counter,5,counter      ! counter

388      .align 16
389 .main_loop:

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390      fmulld    K2,%f30,%f60      ! (1_1) res0 = K2 * xx0;
391      cmp       %o2,_0x7f800000    ! (4_1) ax ? 0x7f800000
392      bge, pn   %icc,.update12     ! (4_1) if( ax >= 0x7f800000 )
393      fsubd     %f40,%f46,%f44     ! (2_1) xx0 = (db0 - hi0);
394 .cont12:
395      fmulld    %f56,%f42,%f52     ! (0_1) res0 *= xx0;
396      sllx      %g5,52,%g5         ! (3_1) lexp0 = (long long)iexp0 << 52;
397      ldd       [%i2],%f40         ! (2_1) dtmp0 = ((double*)((char*)TBL +
398      fdtos     %f32,%f15         ! (2_2) fres0 = (float)res0;

400      fmulld    %f50,%f54,%f42     ! (4_2) res0 = dtmp0 * res0;
401      sra       %o1,11,%i0         ! (3_1) ax >>= 11;
402      stx       %g5,[%fp+tmp1]     ! (3_1) dtmp1 = *((double*)&lexp0);
403      for       %f58,DC1,%f48     ! (3_1) db0 = vis_for(db0,DC1);

405      cmp       %o2,_0x00800000    ! (4_1) ax ? 0x00800000
406      bl, pn    %icc,.update13     ! (4_1) if( ax < 0x00800000 )
407      ldd       [%fp+tmp2],%f56    ! (4_2) dtmp1 = *((double*)&lexp0);
408      fstod     %f13,%f50         ! (4_1) db0 = (double)x0;
409 .cont13:
410      fmulld    %f44,%f40,%f46     ! (2_1) xx0 *= dtmp0;
411      and       %i0,_0x1fff0,%i0   ! (3_1) si0 = ax & 0x1fff0;
412      lda       [%i1+stridx]0x82,%i1 ! (0_0) ax = *(int*)px;
413      faddd     %f60,K1,%f32       ! (1_1) res0 += K1;

415      add       %i0,TBL,%i0        ! (3_1) (char*)TBL + si0
416      add       %i3,stridey,%o3     ! py += stridey
417      st        %f15,[%i3]         ! (2_2) *py = fres0;
418      fand      %f48,DC2,%f62     ! (3_1) hi0 = vis_fand(db0,DC2);

420      fmulld    %f42,%f56,%f44     ! (4_2) res0 *= dtmp1;
421      sra       %o2,24,%o7         ! (4_1) iexp0 = ax >> 24;
422      ldd       [%i5+8],%f58       ! (0_1) dtmp0 = ((double*)((char*)TBL +
423      faddd     %f52,DC1,%f34     ! (0_1) res0 += DC1;

425      add       %i1,stridx,%o4     ! px += stridey
426      add       %o7,960,%o7        ! (4_1) iexp0 += 0x3c0;
427      lda       [%i1+stridx]0x82,%f17 ! (0_0) x0 = *px;
428      fand      %f50,DC0,%f54     ! (4_1) db0 = vis_fand(db0,DC0);

430      fmulld    K2,%f46,%f52     ! (2_1) res0 = K2 * xx0;
431      cmp       %i1,_0x7f800000    ! (0_0) ax ? 0x7f800000
432      bge, pn   %icc,.update14     ! (0_0) if( ax >= 0x7f800000 )
433      fsubd     %f48,%f62,%f42     ! (3_1) xx0 = (db0 - hi0);
434 .cont14:
435      fmulld    %f32,%f30,%f48     ! (1_1) res0 *= xx0;
436      sllx      %o7,52,%o1         ! (4_1) lexp0 = (long long)iexp0 << 52;
437      ldd       [%i0+TBL],%f40     ! (3_1) dtmp0 = ((double*)((char*)TBL +
438      fdtos     %f28,%f19         ! (3_2) fres0 = (float)res0;

440      fmulld    %f58,%f34,%f32     ! (0_1) res0 = dtmp0 * res0;
441      sra       %o2,11,%i5         ! (4_1) ax >>= 11;
442      stx       %o1,[%fp+tmp2]     ! (4_1) dtmp1 = *((double*)&lexp0);
443      for       %f54,DC1,%f34     ! (4_1) db0 = vis_for(db0,DC1);

445      cmp       %i1,_0x00800000    ! (0_0) ax ? 0x00800000
446      bl, pn    %icc,.update15     ! (0_0) if( ax < 0x00800000 )
447      ldd       [%fp+tmp3],%f60    ! (0_1) dtmp1 = *((double*)&lexp0);
448      fstod     %f17,%f56         ! (0_0) db0 = (double)x0;
449 .cont15:
450      fmulld    %f42,%f40,%f42     ! (3_1) xx0 *= dtmp0;
451      add       %o3,stridey,%g5     ! py += stridey
452      lda       [stridx+0x04]0x82,%i0 ! (1_0) ax = *(int*)px;
453      faddd     %f52,K1,%f52       ! (2_1) res0 += K1;

455      sra       %i1,24,%g1        ! (0_0) iexp0 = ax >> 24;

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456      and       %i5,_0x1fff0,%i5  ! (4_1) si0 = ax & 0x1fff0;
457      st        %f19,[%o3]         ! (3_2) *py = fres0;
458      fand      %f34,DC2,%f62     ! (4_1) hi0 = vis_fand(db0,DC2);

460      fmulld    %f32,%f60,%f40     ! (0_1) res0 *= dtmp1;
461      add       %o4,stridx,%i1     ! px += stridey
462      ldd       [%i4+8],%f60       ! (1_1) dtmp0 = ((double*)((char*)TBL +
463      faddd     %f48,DC1,%f58     ! (1_1) res0 += DC1;

465      add       %g1,960,%o5        ! (0_0) iexp0 += 0x3c0;
466      add       %i5,TBL,%i3        ! (4_1) (char*)TBL + si0
467      lda       [stridx+0x04]0x82,%f21 ! (1_0) x0 = *px;
468      fand      %f56,DC0,%f32     ! (0_0) db0 = vis_fand(db0,DC0);

470      fmulld    K2,%f42,%f50     ! (3_1) res0 = K2 * xx0;
471      cmp       %i0,_0x7f800000    ! (1_0) ax ? 0x7f800000
472      bge, pn   %icc,.update16     ! (1_0) if( ax >= 0x7f800000 )
473      fsubd     %f34,%f62,%f54     ! (4_1) xx0 = (db0 - hi0);
474 .cont16:
475      fmulld    %f52,%f46,%f52     ! (2_1) res0 *= xx0;
476      sllx      %i5,52,%o7         ! (0_0) lexp0 = (long long)iexp0 << 52;
477      ldd       [TBL+%i5],%f62     ! (4_1) dtmp0 = ((double*)((char*)TBL +
478      fdtos     %f44,%f23         ! (4_2) fres0 = (float)res0;

480      fmulld    %f60,%f58,%f44     ! (1_1) res0 = dtmp0 * res0;
481      sra       %i1,11,%i4         ! (0_0) ax >>= 11;
482      stx       %o7,[%fp+tmp3]     ! (0_0) dtmp1 = *((double*)&lexp0);
483      for       %f32,DC1,%f48     ! (0_0) db0 = vis_for(db0,DC1);

485      cmp       %i0,_0x00800000    ! (1_0) ax ? 0x00800000
486      bl, pn    %icc,.update17     ! (1_0) if( ax < 0x00800000 )
487      ldd       [%fp+tmp4],%f34     ! (1_1) dtmp1 = *((double*)&lexp0);
488      fstod     %f21,%f56         ! (1_0) db0 = (double)x0;
489 .cont17:
490      fmulld    %f54,%f62,%f46     ! (4_1) xx0 *= dtmp0;
491      and       %i4,_0x1fff0,%g1   ! (0_0) si0 = ax & 0x1fff0;
492      lda       [%i1+stridx]0x82,%o2 ! (2_0) ax = *(int*)px;
493      faddd     %f50,K1,%f62       ! (3_1) res0 += K1;

495      add       %g1,TBL,%i5        ! (0_0) (double*)((char*)TBL + si0
496      add       %g5,stridey,%g5     ! py += stridey
497      st        %f23,[stridx+0x03] ! (4_2) *py = fres0;
498      fand      %f48,DC2,%f32     ! (0_0) hi0 = vis_fand(db0,DC2);

500      fmulld    %f44,%f34,%f44     ! (1_1) res0 *= dtmp1;
501      sra       %i0,24,%o4         ! (1_0) iexp0 = ax >> 24;
502      ldd       [%i2+8],%f60       ! (2_1) dtmp0 = ((double*)((char*)TBL +
503      faddd     %f52,DC1,%f58     ! (2_1) res0 += DC1;

505      add       %i1,stridx,%o7     ! px += stridey
506      add       %o4,960,%i2        ! (1_0) iexp0 += 0x3c0;
507      lda       [%i1+stridx]0x82,%f25 ! (2_0) x0 = *px;
508      fand      %f56,DC0,%f34     ! (1_0) db0 = vis_fand(db0,DC0);

510      fmulld    K2,%f46,%f50     ! (4_1) res0 = K2 * xx0;
511      cmp       %o2,_0x7f800000    ! (2_0) ax ? 0x7f800000
512      bge, pn   %icc,.update18     ! (2_0) if( ax >= 0x7f800000 )
513      fsubd     %f48,%f32,%f52     ! (0_0) xx0 = (db0 - hi0);
514 .cont18:
515      fmulld    %f62,%f42,%f54     ! (3_1) res0 *= xx0;
516      sllx      %i2,52,%o4         ! (1_0) lexp0 = (long long)iexp0 << 52;
517      ldd       [TBL+%i1],%f32     ! (0_0) dtmp0 = ((double*)((char*)TBL +
518      fdtos     %f40,%f27         ! (0_1) fres0 = (float)res0;

520      fmulld    %f60,%f58,%f60     ! (2_1) res0 = dtmp0 * res0;
521      sra       %i0,11,%g1        ! (1_0) ax >>= 11;

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```

522      stx      %04, [%fp+tmp4]      ! (1_0) dtmp1 = *((double*)&lexp0);
523      for      %f34, DC1, %f48      ! (1_0) db0 = vis_for(db0, DC1);

525      cmp      %02, _0x00800000      ! (2_0) ax ? 0x00800000
526      bl, pn   %icc, .update19      ! (2_0) if( ax < 0x00800000 )
527      ldd      [%fp+tmp0], %f40      ! (2_1) dtmp1 = *((double*)&lexp0);
528      fstod     %f25, %f56           ! (2_0) db0 = (double)x0;
529 .cont19:
530      fmuld     %f52, %f32, %f42      ! (0_0) xx0 *= dtmp0;
531      and      %01, _0x1fff0, %05     ! (1_0) si0 = ax & 0x1fff0;
532      lda      [stridx+%07]0x82, %01  ! (3_0) ax = *(int*)px;
533      faddd     %f50, K1, %f34        ! (4_1) res0 += K1;

535      add      %05, TBL, %i4          ! (1_0) (char*)TBL + si0
536      add      %g5, stridey, %g1      ! py += stridey
537      st       %f27, [%g5]           ! (0_1) *py = fres0;
538      fand     %f48, DC2, %f62       ! (1_0) hi0 = vis_fand(db0, DC2);

540      fmuld     %f60, %f40, %f32      ! (2_1) res0 *= dtmp1;
541      sra      %02, 24, %i1           ! (2_0) iexp0 = ax >> 24;
542      ldd      [%i0+8], %f40          ! (3_1) dtmp0 = ((double*)((char*)TBL +
543      faddd     %f54, DC1, %f58       ! (3_1) res0 += DC1;

545      add      %07, stridx, %i1       ! px += stridx
546      add      %i1, 960, %i0          ! (2_0) iexp0 += 0x3c0;
547      lda      [stridx+%07]0x82, %f0 ! (3_0) x0 = *px;
548      fand     %f56, DC0, %f60       ! (2_0) db0 = vis_fand(db0, DC0);

550      fmuld     K2, %f42, %f50        ! (0_0) res0 = K2 * xx0;
551      cmp      %01, _0x7f800000      ! (3_0) ax ? 0x7f800000
552      bge, pn   %icc, .update20      ! (3_0) if( ax >= 0x7f800000 )
553      fsubb     %f48, %f62, %f54      ! (1_0) xx0 = (db0 - hi0);
554 .cont20:
555      fmuld     %f34, %f46, %f52      ! (4_1) res0 *= xx0;
556      slxl     %i0, 52, %03          ! (2_0) lexp0 = (long long)iexp0 << 52;
557      ldd      [TBL+%05], %f56       ! (1_0) dtmp0 = ((double*)((char*)TBL +
558      fdtos     %f44, %f8            ! (1_1) fres0 = (float)res0;

560      fmuld     %f40, %f58, %f34      ! (3_1) res0 = dtmp0 * res0;
561      sra      %02, 11, %i2          ! (2_0) ax >>= 11;
562      stx      %03, [%fp+tmp0]        ! (2_0) dtmp1 = *((double*)&lexp0);
563      for      %f60, DC1, %f40       ! (2_0) db0 = vis_for(db0, DC1);

565      cmp      %01, _0x00800000      ! (3_0) ax ? 0x00800000
566      bl, pn   %icc, .update21      ! (3_0) if( ax < 0x00800000 )
567      ldd      [%fp+tmp1], %f62      ! (3_1) dtmp1 = *((double*)&lexp0);
568      fstod     %f0, %f48            ! (3_0) db0 = (double)x0;
569 .cont21:
570      fmuld     %f54, %f56, %f30      ! (1_0) xx0 *= dtmp0;
571      and      %i2, _0x1fff0, %03     ! (2_0) si0 = ax & 0x1fff0;
572      lda      [%i1+stridx]0x82, %02  ! (4_0) ax = *(int*)px;
573      faddd     %f50, K1, %f56        ! (0_0) res0 += K1;

575      add      %i1, stridx, %i1       ! px += stridx
576      add      %03, TBL, %i2          ! (2_0) (char*)TBL + si0
577      st       %f8, [stridey+%g5]    ! (1_1) *py = fres0;
578      fand     %f40, DC2, %f46       ! (2_0) hi0 = vis_fand(db0, DC2);

580      fmuld     %f34, %f62, %f28      ! (3_1) res0 *= dtmp1;
581      sra      %01, 24, %04           ! (3_0) iexp0 = ax >> 24;
582      ldd      [%i3+8], %f50          ! (4_1) dtmp0 = ((double*)((char*)TBL +
583      faddd     %f52, DC1, %f54       ! (4_1) res0 += DC1;

585      add      %g1, stridey, %i3     ! py += stridey
586      subcc     counter, 5, counter    ! counter
587      lda      [%i1]0x82, %f13        ! (4_0) x0 = *px;

```

```

588      fand     %f48, DC0, %f58       ! (3_0) db0 = vis_fand(db0, DC0);

590      bpos, pt  %icc, .main_loop      ! (3_0) iexp0 += 0x3c0;
591      add      %04, 960, %g5

593      add      counter, 5, counter
594 .tail:
595      subcc     counter, 1, counter
596      bneg, a   .begin
597      or       %g0, %i3, %g5

599      fmuld     %f56, %f42, %f52      ! (0_1) res0 *= xx0;
600      fdtos     %f32, %f15           ! (2_2) fres0 = (float)res0;

602      fmuld     %f50, %f54, %f42      ! (4_2) res0 = dtmp0 * res0;

604      ldd      [%fp+tmp2], %f56      ! (4_2) dtmp1 = *((double*)&lexp0);

606      add      %i3, stridey, %03      ! py += stridey
607      st       %f15, [%i3]           ! (2_2) *py = fres0;

609      subcc     counter, 1, counter
610      bneg, a   .begin
611      or       %g0, %03, %g5

613      fmuld     %f42, %f56, %f44      ! (4_2) res0 *= dtmp1;
614      ldd      [%i5+8], %f58          ! (0_1) dtmp0 = ((double*)((char*)TBL +
615      faddd     %f52, DC1, %f34       ! (0_1) res0 += DC1;

617      fdtos     %f28, %f19           ! (3_2) fres0 = (float)res0;

619      fmuld     %f58, %f34, %f32      ! (0_1) res0 = dtmp0 * res0;

621      ldd      [%fp+tmp3], %f60      ! (0_1) dtmp1 = *((double*)&lexp0);

623      add      %03, stridey, %g5      ! py += stridey

625      st       %f19, [%03]           ! (3_2) *py = fres0;

627      subcc     counter, 1, counter
628      bneg, a   .begin
629      nop

631      fmuld     %f32, %f60, %f40      ! (0_1) res0 *= dtmp1;

633      fdtos     %f44, %f23           ! (4_2) fres0 = (float)res0;

635      add      %g5, stridey, %g5      ! py += stridey
636      st       %f23, [stridey+%03]    ! (4_2) *py = fres0;

638      subcc     counter, 1, counter
639      bneg, a   .begin
640      nop

642      fdtos     %f40, %f27           ! (0_1) fres0 = (float)res0;

644      st       %f27, [%g5]           ! (0_1) *py = fres0;

646      ba       .begin
647      add      %g5, stridey, %g5

649      .align    16
650 .spec:
651      fsqrts    %f25, %f25
652      sub       counter, 1, counter
653      add      %i1, stridx, %i1

```

new/usr/src/lib/libmvec/common/vis/___vsqrtf_ultra3.S

11

```

654      st      %f25, [%g5]
655      ba      .begin1
656      add     %g5, stridey, %g5

658      .align 16
659 .update0:
660      cmp     counter, 1
661      ble     .cont0
662      fzeros  %f0

664      stx     %i1, [%fp+tmp_px]
665      sethi   %hi(0x7f800000), %o1

667      sub     counter, 1, counter
668      st      counter, [%fp+tmp_counter]

670      ba      .cont0
671      or      %g0, 1, counter

673      .align 16
674 .update1:
675      cmp     counter, 1
676      ble     .cont1
677      fzeros  %f0

679      stx     %i1, [%fp+tmp_px]
680      clr     %o1

682      sub     counter, 1, counter
683      st      counter, [%fp+tmp_counter]

685      ba      .cont1
686      or      %g0, 1, counter

688      .align 16
689 .update2:
690      cmp     counter, 2
691      ble     .cont2
692      fzeros  %f13

694      stx     %i1, [%fp+tmp_px]
695      sethi   %hi(0x7f800000), %o2

697      sub     counter, 2, counter
698      st      counter, [%fp+tmp_counter]

700      ba      .cont2
701      or      %g0, 2, counter

703      .align 16
704 .update3:
705      cmp     counter, 2
706      ble     .cont3
707      fzeros  %f13

709      stx     %i1, [%fp+tmp_px]
710      clr     %o2

712      sub     counter, 2, counter
713      st      counter, [%fp+tmp_counter]

715      ba      .cont3
716      or      %g0, 2, counter

718      .align 16
719 .update4:

```

new/usr/src/lib/libmvec/common/vis/___vsqrtf_ultra3.S

12

```

720      cmp     counter, 3
721      ble     .cont4
722      fzeros  %f17

724      stx     %o4, [%fp+tmp_px]
725      sethi   %hi(0x7f800000), %l1

727      sub     counter, 3, counter
728      st      counter, [%fp+tmp_counter]

730      ba      .cont4
731      or      %g0, 3, counter

733      .align 16
734 .update5:
735      cmp     counter, 3
736      ble     .cont5
737      fzeros  %f17

739      stx     %o4, [%fp+tmp_px]
740      clr     %l1

742      sub     counter, 3, counter
743      st      counter, [%fp+tmp_counter]

745      ba      .cont5
746      or      %g0, 3, counter

748      .align 16
749 .update6:
750      cmp     counter, 4
751      ble     .cont6
752      fzeros  %f21

754      stx     %i1, [%fp+tmp_px]
755      sethi   %hi(0x7f800000), %i0

757      sub     counter, 4, counter
758      st      counter, [%fp+tmp_counter]

760      ba      .cont6
761      or      %g0, 4, counter

763      .align 16
764 .update7:
765      cmp     counter, 4
766      ble     .cont7
767      fzeros  %f21

769      stx     %i1, [%fp+tmp_px]
770      clr     %i0

772      sub     counter, 4, counter
773      st      counter, [%fp+tmp_counter]

775      ba      .cont7
776      or      %g0, 4, counter

778      .align 16
779 .update8:
780      cmp     counter, 5
781      ble     .cont8
782      fzeros  %f25

784      stx     %o7, [%fp+tmp_px]
785      sethi   %hi(0x7f800000), %o2

```

```

787      sub    counter,5,counter
788      st     counter,[%fp+tmp_counter]

790      ba     .cont8
791      or     %g0,5,counter

793      .align 16
794 .update9:
795      cmp    counter,5
796      ble    .cont9
797      fzeros %f25

799      stx    %o7,[%fp+tmp_px]
800      clr    %o2

802      sub    counter,5,counter
803      st     counter,[%fp+tmp_counter]

805      ba     .cont9
806      or     %g0,5,counter

808      .align 16
809 .update10:
810      cmp    counter,6
811      ble    .cont10
812      fzeros %f0

814      stx    %i1,[%fp+tmp_px]
815      sethi  %hi(0x7f800000),%o1

817      sub    counter,6,counter
818      st     counter,[%fp+tmp_counter]

820      ba     .cont10
821      or     %g0,6,counter

823      .align 16
824 .update11:
825      cmp    counter,6
826      ble    .cont11
827      fzeros %f0

829      stx    %i1,[%fp+tmp_px]
830      clr    %o1

832      sub    counter,6,counter
833      st     counter,[%fp+tmp_counter]

835      ba     .cont11
836      or     %g0,6,counter

838      .align 16
839 .update12:
840      cmp    counter,2
841      ble    .cont12
842      fzeros %f13

844      stx    %i1,[%fp+tmp_px]
845      sethi  %hi(0x7f800000),%o2

847      sub    counter,2,counter
848      st     counter,[%fp+tmp_counter]

850      ba     .cont12
851      or     %g0,2,counter

```

```

853      .align 16
854 .update13:
855      cmp    counter,2
856      ble    .cont13
857      fzeros %f13

859      stx    %i1,[%fp+tmp_px]
860      clr    %o2

862      sub    counter,2,counter
863      st     counter,[%fp+tmp_counter]

865      ba     .cont13
866      or     %g0,2,counter

868      .align 16
869 .update14:
870      cmp    counter,3
871      ble    .cont14
872      fzeros %f17

874      stx    %o4,[%fp+tmp_px]
875      sethi  %hi(0x7f800000),%l1

877      sub    counter,3,counter
878      st     counter,[%fp+tmp_counter]

880      ba     .cont14
881      or     %g0,3,counter

883      .align 16
884 .update15:
885      cmp    counter,3
886      ble    .cont15
887      fzeros %f17

889      stx    %o4,[%fp+tmp_px]
890      clr    %l1

892      sub    counter,3,counter
893      st     counter,[%fp+tmp_counter]

895      ba     .cont15
896      or     %g0,3,counter

898      .align 16
899 .update16:
900      cmp    counter,4
901      ble    .cont16
902      fzeros %f21

904      stx    %i1,[%fp+tmp_px]
905      sethi  %hi(0x7f800000),%i0

907      sub    counter,4,counter
908      st     counter,[%fp+tmp_counter]

910      ba     .cont16
911      or     %g0,4,counter

913      .align 16
914 .update17:
915      cmp    counter,4
916      ble    .cont17
917      fzeros %f21

```

```

919      stx      %i1, [%fp+tmp_px]
920      clr      %i0

922      sub      counter, 4, counter
923      st        counter, [%fp+tmp_counter]

925      ba       .cont17
926      or        %g0, 4, counter

928      .align   16
929 .update18:
930      cmp      counter, 5
931      ble      .cont18
932      fzeros   %f25

934      stx      %o7, [%fp+tmp_px]
935      sethi     %hi(0x7f800000), %o2

937      sub      counter, 5, counter
938      st        counter, [%fp+tmp_counter]

940      ba       .cont18
941      or        %g0, 5, counter

943      .align   16
944 .update19:
945      cmp      counter, 5
946      ble      .cont19
947      fzeros   %f25

949      stx      %o7, [%fp+tmp_px]
950      clr      %o2

952      sub      counter, 5, counter
953      st        counter, [%fp+tmp_counter]

955      ba       .cont19
956      or        %g0, 5, counter

958      .align   16
959 .update20:
960      cmp      counter, 6
961      ble      .cont20
962      fzeros   %f0

964      stx      %i1, [%fp+tmp_px]
965      sethi     %hi(0x7f800000), %o1

967      sub      counter, 6, counter
968      st        counter, [%fp+tmp_counter]

970      ba       .cont20
971      or        %g0, 6, counter

973      .align   16
974 .update21:
975      cmp      counter, 6
976      ble      .cont21
977      fzeros   %f0

979      stx      %i1, [%fp+tmp_px]
980      clr      %o1

982      sub      counter, 6, counter
983      st        counter, [%fp+tmp_counter]

```

```

985      ba       .cont21
986      or        %g0, 6, counter

988 .exit:
989      ret
990      restore
991      SET_SIZE(__vsqrtf_ultra3)
_____ unchanged_portion_omitted

```

new/usr/src/lib/libmvec/common/vlog.c

1

```
*****
1235 Wed Oct 29 13:16:11 2014
new/usr/src/lib/libmvec/common/vlog.c
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

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16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */

22 /*
23  * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
24 */
25 /*
26  * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
27  * Use is subject to license terms.
28 */

30 extern void __vlog(int, double *, int, double *, int);

32 #if !defined(LIBMVEC_SO_BUILD)
33 #if defined(ARCH_v8plusa) || defined(ARCH_v8plusb) || defined(ARCH_v9a) || defin
34 #define CHECK_ULTRA3
35 #endif
36 #endif /* !defined(LIBMVEC_SO_BUILD) */

38 #ifdef CHECK_ULTRA3
39 #include <strings.h>
40 #define sysinfo _sysinfo
41 #include <sys/systeminfo.h>

43 #define BUFLen 257

45 static int use_ultra3 = 0;

47 extern void __vlog_ultra3(int, double *, int, double *, int);
48 #endif

32 #pragma weak vlog_ = __vlog_

34 /* just invoke the serial function */
35 void
36 __vlog_(int *n, double *x, int *stridex, double *y, int *stridey)
37 {
56 #ifdef CHECK_ULTRA3
57     int u;
58     char buf[BUFLen];

60     u = use_ultra3;
61     if (!u) {
```

new/usr/src/lib/libmvec/common/vlog.c

2

```
62     /* use __vlog_ultra3 on Cheetah (and ???) */
63     if (sysinfo(SI_ISALIST, buf, BUFLen) > 0 && !strncmp(buf, "sparc
64         u = 3;
65     else
66         u = 1;
67     use_ultra3 = u;
68 }
69 if (u & 2)
70     __vlog_ultra3(*n, x, *stridex, y, *stridey);
71 else
72 #endif
38     __vlog(*n, x, *stridex, y, *stridey);
39 }
    unchanged_portion_omitted
```

new/usr/src/lib/libmvec/common/vsin_.c

1

```
*****
1235 Wed Oct 29 13:16:12 2014
new/usr/src/lib/libmvec/common/vsin_.c
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****

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16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */

22 /*
23  * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
24 */
25 /*
26  * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
27  * Use is subject to license terms.
28 */

30 extern void __vsin(int, double *, int, double *, int);

32 #if !defined(LIBMVEC_SO_BUILD)
33 #if defined(ARCH_v8plusa) || defined(ARCH_v8plusb) || defined(ARCH_v9a) || defin
34 #define CHECK_ULTRA3
35 #endif
36 #endif /* !defined(LIBMVEC_SO_BUILD) */

38 #ifdef CHECK_ULTRA3
39 #include <strings.h>
40 #define sysinfo _sysinfo
41 #include <sys/systeminfo.h>

43 #define BUFLen 257

45 static int use_ultra3 = 0;

47 extern void __vsin_ultra3(int, double *, int, double *, int);
48 #endif

32 #pragma weak vsin_ = __vsin_

34 /* just invoke the serial function */
35 void
36 __vsin_(int *n, double *x, int *stridex, double *y, int *stridey)
37 {
56 #ifdef CHECK_ULTRA3
57     int u;
58     char buf[BUFLen];

60     u = use_ultra3;
61     if (!u) {
```

new/usr/src/lib/libmvec/common/vsin_.c

2

```
62     /* use __vsin_ultra3 on Cheetah (and ???) */
63     if (sysinfo(SI_ISALIST, buf, BUFLen) > 0 && !strncmp(buf, "sparc
64         u = 3;
65     else
66         u = 1;
67     use_ultra3 = u;
68 }
69 if (u & 2)
70     __vsin_ultra3(*n, x, *stridex, y, *stridey);
71 else
72 #endif
38     __vsin(*n, x, *stridex, y, *stridey);
39 }
    unchanged_portion_omitted
```

new/usr/src/lib/libmvec/common/vsqrtrf_.c

1

```
*****
1241 Wed Oct 29 13:16:12 2014
new/usr/src/lib/libmvec/common/vsqrtrf_.c
libmvec: further undef'ing (LIBMVEC_SO_BUILD)
*****
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15 * If applicable, add the following below this CDDL HEADER, with the
16 * fields enclosed by brackets "[]" replaced with your own identifying
17 * information: Portions Copyright [yyyy] [name of copyright owner]
18 *
19 * CDDL HEADER END
20 */
21
22 /*
23  * Copyright 2011 Nexenta Systems, Inc. All rights reserved.
24 */
25 /*
26  * Copyright 2006 Sun Microsystems, Inc. All rights reserved.
27  * Use is subject to license terms.
28 */
29
30 extern void __vsqrtrf(int, float *, int, float *, int);
31
32 #if !defined(LIBMVEC_SO_BUILD)
33 #if defined(ARCH_v8plusa) || defined(ARCH_v8plusb) || defined(ARCH_v9a) || defin
34 #define CHECK_ULTRA3
35 #endif
36 #endif /* !defined(LIBMVEC_SO_BUILD) */
37
38 #ifdef CHECK_ULTRA3
39 #include <strings.h>
40 #define sysinfo _sysinfo
41 #include <sys/systeminfo.h>
42
43 #define BUFLen 257
44
45 static int use_ultra3 = 0;
46
47 extern void __vsqrtrf_ultra3(int, float *, int, float *, int);
48 #endif
49
50 #pragma weak vsqrtrf_ = __vsqrtrf_
51
52 /* just invoke the serial function */
53 void
54 __vsqrtrf_(int *n, float *x, int *stridex, float *y, int *stridey)
55 {
56 #ifdef CHECK_ULTRA3
57     int u;
58     char buf[BUFLen];
59
60     u = use_ultra3;
61     if (!u) {
```

new/usr/src/lib/libmvec/common/vsqrtrf_.c

2

```
62     /* use __vsqrtrf_ultra3 on Cheetah (and ???) */
63     if (sysinfo(SI_ISALIST, buf, BUFLen) > 0 && !strncmp(buf, "sparc
64         u = 3;
65     else
66         u = 1;
67     use_ultra3 = u;
68 }
69 if (u & 2)
70     __vsqrtrf_ultra3(*n, x, *stridex, y, *stridey);
71 else
72 #endif
73     __vsqrtrf(*n, x, *stridex, y, *stridey);
74 }
75 }
76 }
77 }
78 }
79 }
80 }
81 }
82 }
83 }
84 }
85 }
86 }
87 }
88 }
89 }
90 }
91 }
92 }
93 }
94 }
95 }
96 }
97 }
98 }
99 }
100 }
```

unchanged_portion_omitted