```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    2 ************************************************************************
                                                    3 *                                FLOAT
                                                    4 ************************************************************************
                                                    5 *
                                                    6 *   This program performs a few EXTREMELY simple Floating Point
                                                    7 *   tests based on the instruction-use examples in Appendix A.
                                                    8 *   "Number Representation and Instruction-Use Examples" of the
                                                    9 *   SA22-7200-00 "ESA/370 Principles of Operation" manual.
                                                   10 *
                                                   11 *   Unlike other S/370 tests, this test runs in BC mode not EC mode
                                                   12 *   for no other reason than that's the mode that MVT runs in, and
                                                   13 *   at the time, there was some concern as to whether floating point
                                                   14 *   instructions were being executed properly (GitHub Issue #546).
                                                   15 *
                                                   16 *   UPDATE: This test has now been updated to also support running
                                                   17 *   in z/Arcitecture mode as well, since z/Arcitecture also supports
                                                   18 *   HFP instructions.
                                                   19 *
                                                   20 ************************************************************************


                                                   22 ************************************************************************
                                                   23 *                              LOW CORE
                                                   24 ************************************************************************

                           00000000  00000601    26 TEST     START 0
00000000                   00000000              27          USING TEST,0                  Use absolute addressing


                                                   29          PRINT DATA

00000000                   00000000  00000000    31          ORG   TEST+X'00'             S/370 Restart new PSW
00000000  00000000 00000200                      32          DC    XL4'00000000',A(BEGIN)

00000008                   00000008  00000068    34          ORG   TEST+X'68'             S/370 Program new PSW
00000068  00020000 0000DEAD                      35          DC    XL4'00020000',A(X'DEAD')


00000070                   00000070  000001A0    37          ORG   TEST+X'1A0'            z Restart New PSW
000001A0  00000001 80000000                      38          DC    0D'0',X'0000000180000000',AD(BEGINZ)
000001A8  00000000 0000020C

000001B0                   000001B0  000001D0    40          ORG   TEST+X'1D0'            z Program New PSW
000001D0  00020001 80000000                      41          DC    0D'0',X'0002000180000000',AD(X'DEAD')
000001D8  00000000 0000DEAD

                                                   43          PRINT NODATA
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                   45 ********************************************************************************
                                                   46 *                              MAINLINE
                                                   47 ********************************************************************************

000001E0                     000001E0  00000200    49          ORG   TEST+X'200'             Start of test program

00000200  92F3 03B2                    000003B2    51 BEGIN    MVI   RUNMODE,MODE370         370 mode
00000204  45F0 0218                    00000218    52          BAL   R15,DOTESTS
00000208  47F0 023A                    0000023A    53          B     SUCCESS

0000020C  92E9 03B2                    000003B2    55 BEGINZ   MVI   RUNMODE,ZMODE           z/Architecture mode
00000210  45F0 0218                    00000218    56          BAL   R15,DOTESTS
00000214  47F0 023A                    0000023A    57          B     SUCCESS

00000218                                           59 DOTESTS  DS    0H                      Perform all tests...

00000218  45E0 02B8                    000002B8    61          BAL   R14,TEST1
0000021C  45E0 02DC                    000002DC    62          BAL   R14,TEST2
00000220  45E0 0300                    00000300    63          BAL   R14,TEST3
00000224  45E0 0340                    00000340    64          BAL   R14,TEST4
00000228  45E0 0372                    00000372    65          BAL   R14,TEST5
0000022C  45E0 0390                    00000390    66          BAL   R14,TEST6

00000230  9200 0600                    00000600    68          MVI   TESTNUM,0             No test has failed
00000234  9200 0601                    00000601    69          MVI   SUBTEST,0            No sub-test has failed either

00000238  07FF                                     71          BR    R15                   Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    73 ********************************************************************************
                                                    74 *                            END OF JOB
                                                    75 ********************************************************************************


0000023A  95F3 03B2                       000003B2    77 SUCCESS  CLI   RUNMODE,MODE370
0000023E  4770 025E                       0000025E    78          BNE   ZSUCCESS
00000242  8200 0270                       00000270    79          LPSW  OKPSW


00000246  95F3 03B2                       000003B2    81 BADCC    CLI   RUNMODE,MODE370
0000024A  4770 0262                       00000262    82          BNE   ZBADCC
0000024E  8200 0278                       00000278    83          LPSW  CCPSW

00000252  95F3 03B2                       000003B2    85 BADGOT   CLI   RUNMODE,MODE370
00000256  4770 0266                       00000266    86          BNE   ZBADGOT
0000025A  8200 0280                       00000280    87          LPSW  GOTPSW


0000025E  B2B2 0288                       00000288    89 ZSUCCESS LPSWE ZOKPSW
00000262  B2B2 0298                       00000298    90 ZBADCC   LPSWE ZCCPSW
00000266  B2B2 02A8                       000002A8    91 ZBADGOT  LPSWE ZGOTPSW


                                                    93          PRINT DATA

00000270  00020000 00000000                         95 OKPSW    DC    0D'0',XL4'00020000',A(0)
00000278  00020000 000BADCC                         96 CCPSW    DC    0D'0',XL4'00020000',A(X'BADCC')
00000280  00020000 00BADBAD                         97 GOTPSW   DC    0D'0',XL4'00020000',A(X'BADBAD')


00000288  00020001 80000000                         99 ZOKPSW   DC    0D'0',XL8'0002000180000000',AD(0)
00000290  00000000 00000000
00000298  00020001 80000000                        100 ZCCPSW   DC    0D'0',XL8'0002000180000000',AD(X'BADCC')
000002A0  00000000 000BADCC
000002A8  00020001 80000000                        101 ZGOTPSW  DC    0D'0',XL8'0002000180000000',AD(X'BADBAD')
000002B0  00000000 00BADBAD

                                                   103          PRINT NODATA
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    105 ************************************************************************
                                                    106 *                 TEST 1:  AE/AD  (Add Normalized)
                                                    107 ************************************************************************

000002B8  92F1 0600                       00000600  109 TEST1    MVI   TESTNUM,X'F1'
000002BC  9200 0601                       00000601  110          MVI   SUBTEST,0
                                                    111 *
                                                    112 *  Add Normalized (AD, ADR, AE, AER, AXR)
                                                    113 *
                                                    114 *    FPR6 contains
                                                    115 *    C3 08 21 00 00 00 00 00
                                                    116 *
                                                    117 *    Storage location contains
                                                    118 *    41 12 34 56 00 00 00 00
                                                    119 *
                                                    120 *
                                                    121 *    Machine Format
                                                    122 *
                                                    123 *      Op Code R1 X2 B2 D2
                                                    124 *        7A     6  0  D 000
                                                    125 *
                                                    126 *
                                                    127 *    Assembler Format
                                                    128 *
                                                    129 *      Op Code R1,D2(X2,B2)
                                                    130 *        AE    6,0(0,13)
                                                    131 *
                                                    132 *
                                                    133 *  the result (left half of FPR6) is
                                                    134 *  C2 80 EC BB.
                                                    135 *
                                                    136 *  The right half of FPR6 is unchanged.
                                                    137 *
                                                    138 *  Condition code 1 is set (result less than zero).
                                                    139 *
                                                    140 *  If the long-precision instruction 'AD' were used,
                                                    141 *  the result in FPR6 would be
                                                    142 *  C2 80 BC BA A0 00 00 00.
                                                    143 *
000002C0  6860 03B8                       000003B8  144          LD    FPR6,T1_FPR6
000002C4  7A60 03C0                       000003C0  145          AE    FPR6,T1_STRG
000002C8  47B0 0246                       00000246  146          BC    B'1011',BADCC  (not CC1)
000002CC  6060 03C8                       000003C8  147          STD   FPR6,T1_GOT
000002D0  D507 03C8 03D0      000003C8    000003D0  148          CLC   T1_GOT,T1_WANT
000002D6  4770 0252                       00000252  149          BNE   BADGOT
000002DA  07FE                                      150          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    152 ************************************************************************
                                                    153 *                  TEST 2:  AU  (Add Unnormalized)
                                                    154 ************************************************************************

000002DC  92F2 0600                       00000600  156 TEST2    MVI   TESTNUM,X'F2'
000002E0  9200 0601                       00000601  157          MVI   SUBTEST,0
                                                    158 *
                                                    159 *  Add Unnormalized (AU, AUR, AW, AWR)
                                                    160 *
                                                    161 *  using the the same operands as in the
                                                    162 *  previous ADD NORMALIZED example:
                                                    163 *
                                                    164 *  FPR6 contains
                                                    165 *  C3 08 21 00 00 00 00 00
                                                    166 *
                                                    167 *  Storage location contains
                                                    168 *  41 12 34 56 00 00 00 00
                                                    169 *
                                                    170 *
                                                    171 *    Machine Format
                                                    172 *
                                                    173 *      Op Code R1 X2 B2 D2
                                                    174 *        7E     6  0  D 0000
                                                    175 *
                                                    176 *
                                                    177 *    Assembler Format
                                                    178 *
                                                    179 *      Op Code R1,D2(X2,B2)
                                                    180 *        AU    6,0(0,13)
                                                    181 *
                                                    182 *
                                                    183 *  result in FPR6
                                                    184 *  C3 08 0E CB 00 00 00 00
                                                    185 *
                                                    186 *  Condition code 1 is set (result less than zero).
                                                    187 *
000002E4  6860 03D8                       000003D8  188          LD    FPR6,T2_FPR6
000002E8  7E60 03E0                       000003E0  189          AU    FPR6,T2_STRG
000002EC  47B0 0246                       00000246  190          BC    B'1011',BADCC  (not CC1)
000002F0  6060 03E8                       000003E8  191          STD   FPR6,T2_GOT
000002F4  D507 03E8 03F0      000003E8    000003F0  192          CLC   T2_GOT,T2_WANT
000002FA  4770 0252                       00000252  193          BNE   BADGOT
000002FE  07FE                                      194          BR    R14
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                      196 ********************************************************************************
                                                      197 *                    TEST 3:  CDR  (Compare)
                                                      198 ********************************************************************************

00000300  92F3 0600                         00000600  200 TEST3    MVI   TESTNUM,X'F3'
00000304  9200 0601                         00000601  201          MVI   SUBTEST,0
                                                      202 *
                                                      203 *  Compare (CD, CDR, CE, CER)
                                                      204 *
                                                      205 *  FPR4 contains
                                                      206 *  43 00 00 00 00 00 00 00 (zero)
                                                      207 *
                                                      208 *  FPR6 contains
                                                      209 *  35 12 34 56 78 9A BC DE (positive number).
                                                      210 *
                                                      211 *
                                                      212 *    Machine Format
                                                      213 *
                                                      214 *      Op Code R1 R2
                                                      215 *        29     4  6
                                                      216 *
                                                      217 *
                                                      218 *    Assembler Format
                                                      219 *
                                                      220 *      Op Code R1,R2
                                                      221 *       CDR     4,6
                                                      222 *
                                                      223 *
                                                      224 *  Condition code 1 is set (FPR4 less than FPR6).
                                                      225 *
                                                      226 *  If FPR6 instead contained
                                                      227 *  34 12 34 56 78 9A BC DE
                                                      228 *
                                                      229 *  Condition code 0 (equal) would instead be set.
                                                      230 *
                                                      231 *  As another example
                                                      232 *  41 00 12 34 56 78 9A BC
                                                      233 *
                                                      234 *  compares equal to all numbers of the form:
                                                      235 *  3F 12 34 56 78 9A BC 0X
                                                      236 *
                                                      237 *  where X represents any hexadecimal digit.
                                                      238 *
00000308  6840 03F8                   000003F8  239          LD    FPR4,T3_FPR4
0000030C  6860 0400                   00000400  240          LD    FPR6,T3_FPR6
00000310  2946                                  241          CDR   FPR4,FPR6
00000312  47B0 0246                   00000246  242          BC    B'1011',BADCC  (not CC1)
00000316  6860 0408                   00000408  243          LD    FPR6,T3_FPR6A
0000031A  2946                                  244          CDR   FPR4,FPR6
0000031C  4770 0246                   00000246  245          BC    B'0111',BADCC  (not CC0)
00000320  6840 0410                   00000410  246          LD    FPR4,T3_FPR4A
00000324  4110 0418                   00000418  247          LA    R1,T3_FPR6X
00000328  4120 0010                   00000010  248          LA    R2,T3_NUMX
0000032C  6860 1000                   00000000  249 T3_XLOOP LD    FPR6,0(,R1)
00000330  2946                                  250          CDR   FPR4,FPR6
00000332  4770 0246                   00000246  251          BC    B'0111',BADCC  (not CC0)
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2    STMT

00000336  4110 1008                       00000008   252          LA    R1,8(,R1)
0000033A  4620 032C                       0000032C   253          BCT   R2,T3_XLOOP
0000033E  07FE                                       254          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    256 ********************************************************************************
                                                    257 *                    TEST 4:  DER  (Divide)
                                                    258 ********************************************************************************

00000340  92F4 0600                         00000600   260 TEST4    MVI   TESTNUM,X'F4'
00000344  9200 0601                         00000601   261          MVI   SUBTEST,0
                                                    262 *
                                                    263 *  Divide (DD, DDR, DE, DER)
                                                    264 *
                                                    265 *  first operand  = dividend
                                                    266 *  second operand = divisor
                                                    267 *  resulting quotient = replaces first operand
                                                    268 *
                                                    269 *
                                                    270 *    Machine Format
                                                    271 *
                                                    272 *      Op Code R1 R2
                                                    273 *        3D     2  0
                                                    274 *
                                                    275 *
                                                    276 *    Assembler Format
                                                    277 *
                                                    278 *      Op Code R1,R2
                                                    279 *       DER     2,0
                                                    280 *
                                                    281 *
                                                    282 *         FPR2 Before  FPR0          FPR2 After
                                                    283 *  Case   (Dividend)   (Divisor)     (Quotient)
                                                    284 *
                                                    285 *   A     -43 082100   +43 001234    -42 72522F
                                                    286 *   B     +42 101010   +45 111111    +3D F0F0F0
                                                    287 *   C     +48 30000F   +41 400000    +47 C0003C
                                                    288 *   D     +48 30000F   +41 200000    +48 180007
                                                    289 *   E     +48 180007   +41 200000    +47 C00038
                                                    290 *
00000348  4110 0498                         00000498   291          LA    R1,T4_A
0000034C  4120 0005                         00000005   292          LA    R2,T4_NUMT
00000350  7820 1000                         00000000   293 T4_LOOP  LE    FPR2,0(,R1)
00000354  7800 1004                         00000004   294          LE    FPR0,4(,R1)
00000358  3D20                                         295          DER   FPR2,FPR0
0000035A  7020 04D4                         000004D4   296          STE   FPR2,T4_GOT
0000035E  D503 04D4 1008      000004D4      00000008   297          CLC   T4_GOT,8(R1)
00000364  4770 0252                         00000252   298          BNE   BADGOT
00000368  4110 100C                         0000000C   299          LA    R1,3*4(,R1)
0000036C  4620 0350                         00000350   300          BCT   R2,T4_LOOP
00000370  07FE                                         301          BR    R14
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                   303 ********************************************************************************
                                                   304 *                    TEST 5:  HDR  (Halve)
                                                   305 ********************************************************************************

00000372  92F5 0600                    00000600    307 TEST5    MVI   TESTNUM,X'F5'
00000376  9200 0601                    00000601    308          MVI   SUBTEST,0
                                                   309
                                                   310 *
                                                   311 *  Halve (HDR, HER)
                                                   312 *
                                                   313 *  HALVE produces the same result as floating-point
                                                   314 *  DIVIDE with a divisor of 2.0.
                                                   315 *
                                                   316 *  FPR2 contains
                                                   317 *  + 48 30 00 00 00 00 00 0F
                                                   318 *
                                                   319 *  FPR2 result
                                                   320 *  + 48 18 00 00 00 00 00 07
                                                   321 *
                                                   322 *
                                                   323 *    Machine Format
                                                   324 *
                                                   325 *      Op Code R1 R2
                                                   326 *        24     2  2
                                                   327 *
                                                   328 *    Assembler Format
                                                   329 *
                                                   330 *       Op Code R1,R2
                                                   331 *        HDR     2,2
                                                   332 *
0000037A  6820 04D8                    000004D8    333            LD    FPR2,T5_FPR2
0000037E  2422                                     334            HDR   FPR2,FPR2
00000380  6020 04E0                    000004E0    335            STD   FPR2,T5_GOT
00000384  D507 04E0 04E8      000004E0 000004E8    336            CLC   T5_GOT,T5_WANT
0000038A  4770 0252                    00000252    337            BNE   BADGOT
0000038E  07FE                                     338            BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    340 ************************************************************************
                                                    341 *                    TEST 6:  MDR  (Multiply)
                                                    342 ************************************************************************

00000390  92F6 0600                       00000600   344 TEST6    MVI   TESTNUM,X'F6'
00000394  9200 0601                       00000601   345          MVI   SUBTEST,0
                                                    346 *
                                                    347 *  Multiply (MD, MDR, ME, MER, MXD, MXDR, MXR)
                                                    348 *
                                                    349 *  FPR0: -33 606060 60606060
                                                    350 *  FPR2: -5A 200000 20000020
                                                    351 *
                                                    352 *
                                                    353 *    Machine Format
                                                    354 *
                                                    355 *      Op Code R1 R2
                                                    356 *        2C     0  2
                                                    357 *
                                                    358 *    Assembler Format
                                                    359 *
                                                    360 *      Op Code R1,R2
                                                    361 *        MDR    0,2
                                                    362 *
                                                    363 *
                                                    364 *  Final FPR0 result:
                                                    365 *  +4C C0C0C1 81818241
                                                    366 *
00000398  6800 04F0                       000004F0   367          LD    FPR0,T6_FPR0
0000039C  6820 04F8                       000004F8   368          LD    FPR2,T6_FPR2
000003A0  2C02                                       369          MDR   FPR0,FPR2
000003A2  6000 0500                       00000500   370          STD   FPR0,T6_GOT
000003A6  D507 0500 0508      00000500    00000508   371          CLC   T6_GOT,T6_WANT
000003AC  4770 0252                       00000252   372          BNE   BADGOT
000003B0  07FE                                       373          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     375 ********************************************************************************
                                                     376 *                          Working storage
                                                     377 ********************************************************************************

000003B2                                             379          LTORG ,                           Literals Pool


000003B2  40                                         381 RUNMODE  DC    C' '                        Run mode
                           000000F3  00000001        382 MODE370  EQU   C'3'                        370 run mode
                           000000E9  00000001        383 ZMODE    EQU   C'Z'                        z/Architecture run mode


000003B8                                             385          DC    0D'0'
000003B8  C3082100 00000000                          386 T1_FPR6  DC    XL8'C3 08 21 00 00 00 00 00'
000003C0  41123456 00000000                          387 T1_STRG  DC    XL8'41 12 34 56 00 00 00 00'
000003C8  00000000 00000000                          388 T1_GOT   DC    XL8'00'
000003D0  C280ECBB 00000000                          389 T1_WANT  DC    XL8'C2 80 EC BB 00 00 00 00'


000003D8  C3082100 00000000                          391 T2_FPR6  DC    XL8'C3 08 21 00 00 00 00 00'
000003E0  41123456 00000000                          392 T2_STRG  DC    XL8'41 12 34 56 00 00 00 00'
000003E8  00000000 00000000                          393 T2_GOT   DC    XL8'00'
000003F0  C3080ECB 00000000                          394 T2_WANT  DC    XL8'C3 08 0E CB 00 00 00 00'


000003F8  43000000 00000000                          396 T3_FPR4  DC    XL8'43 00 00 00 00 00 00 00'
00000400  35123456 789ABCDE                          397 T3_FPR6  DC    XL8'35 12 34 56 78 9A BC DE'
00000408  34123456 789ABCDE                          398 T3_FPR6A DC    XL8'34 12 34 56 78 9A BC DE'
00000410  41001234 56789ABC                          399 T3_FPR4A DC    XL8'41 00 12 34 56 78 9A BC'
00000418  3F123456 789ABC00                          400 T3_FPR6X DC    XL8'3F 12 34 56 78 9A BC 00'
00000420  3F123456 789ABC01                          401          DC    XL8'3F 12 34 56 78 9A BC 01'
00000428  3F123456 789ABC02                          402          DC    XL8'3F 12 34 56 78 9A BC 02'
00000430  3F123456 789ABC03                          403          DC    XL8'3F 12 34 56 78 9A BC 03'
00000438  3F123456 789ABC04                          404          DC    XL8'3F 12 34 56 78 9A BC 04'
00000440  3F123456 789ABC05                          405          DC    XL8'3F 12 34 56 78 9A BC 05'
00000448  3F123456 789ABC06                          406          DC    XL8'3F 12 34 56 78 9A BC 06'
00000450  3F123456 789ABC07                          407          DC    XL8'3F 12 34 56 78 9A BC 07'
00000458  3F123456 789ABC08                          408          DC    XL8'3F 12 34 56 78 9A BC 08'
00000460  3F123456 789ABC09                          409          DC    XL8'3F 12 34 56 78 9A BC 09'
00000468  3F123456 789ABC0A                          410          DC    XL8'3F 12 34 56 78 9A BC 0A'
00000470  3F123456 789ABC0B                          411          DC    XL8'3F 12 34 56 78 9A BC 0B'
00000478  3F123456 789ABC0C                          412          DC    XL8'3F 12 34 56 78 9A BC 0C'
00000480  3F123456 789ABC0D                          413          DC    XL8'3F 12 34 56 78 9A BC 0D'
00000488  3F123456 789ABC0E                          414          DC    XL8'3F 12 34 56 78 9A BC 0E'
00000490  3F123456 789ABC0F                          415          DC    XL8'3F 12 34 56 78 9A BC 0F'
                           00000010  00000001        416 T3_NUMX  EQU   (*-T3_FPR6X)/8
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    418          PRINT DATA

00000498  C3082100 43001234                         420 T4_A     DC    XL4'C3 082100',XL4'43 001234',XL4'C2 72522F'
000004A0  C272522F
000004A4  42101010 45111111                         421 T4_B     DC    XL4'42 101010',XL4'45 111111',XL4'3D F0F0F0'
000004AC  3DF0F0F0
000004B0  4830000F 41400000                         422 T4_C     DC    XL4'48 30000F',XL4'41 400000',XL4'47 C0003C'
000004B8  47C0003C
000004BC  4830000F 41200000                         423 T4_D     DC    XL4'48 30000F',XL4'41 200000',XL4'48 180007'
000004C4  48180007
000004C8  48180007 41200000                         424 T4_E     DC    XL4'48 180007',XL4'41 200000',XL4'47 C00038'
000004D0  47C00038

                             00000005  00000001     426 T4_NUMT  EQU   (*-T4_A)/(3*4)
000004D4  00000000                                  427 T4_GOT   DC    XL4'00'

                                                    429          PRINT NODATA



000004D8                                            431          DC    0D'0'            (alignment)



000004D8  48300000 0000000F                         433 T5_FPR2  DC    XL8'48 30 00 00 00 00 00 0F'
000004E0  00000000 00000000                         434 T5_GOT   DC    XL8'00'
000004E8  48180000 00000007                         435 T5_WANT  DC    XL8'48 18 00 00 00 00 00 07'


000004F0  B3606060 60606060                         437 T6_FPR0  DC    XL8'B3 606060 60606060'
000004F8  DA200000 20000020                         438 T6_FPR2  DC    XL8'DA 200000 20000020'
00000500  00000000 00000000                         439 T6_GOT   DC    XL8'00'
00000508  4CC0C0C1 81818241                         440 T6_WANT  DC    XL8'4C C0C0C1 81818241'



                                                    442 ********************************************************************************
                                                    443 *                          Test Flags
                                                    444 ********************************************************************************
00000510                        00000510  00000600  446          ORG   TEST+X'600'              Test flags

00000600  00                                        448 TESTNUM  DC    X'00'                    Test number that failed
00000601  00                                        449 SUBTEST  DC    X'00'                    Sub-test number that failed
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                          451 ********************************************************************************
                                          452 *                          Register equates
                                          453 ********************************************************************************

                                00000000  00000001   455 R0       EQU   0
                                00000001  00000001   456 R1       EQU   1
                                00000002  00000001   457 R2       EQU   2
                                00000003  00000001   458 R3       EQU   3
                                00000004  00000001   459 R4       EQU   4
                                00000005  00000001   460 R5       EQU   5
                                00000006  00000001   461 R6       EQU   6
                                00000007  00000001   462 R7       EQU   7
                                00000008  00000001   463 R8       EQU   8
                                00000009  00000001   464 R9       EQU   9
                                0000000A  00000001   465 R10      EQU   10
                                0000000B  00000001   466 R11      EQU   11
                                0000000C  00000001   467 R12      EQU   12
                                0000000D  00000001   468 R13      EQU   13
                                0000000E  00000001   469 R14      EQU   14
                                0000000F  00000001   470 R15      EQU   15

                                00000000  00000001   472 FPR0     EQU   0
                                00000002  00000001   473 FPR2     EQU   2
                                00000004  00000001   474 FPR4     EQU   4
                                00000006  00000001   475 FPR6     EQU   6

                                          00000000   477          END   TEST
```

```
     SYMBOL         TYPE  VALUE   LENGTH  DEFN  REFERENCES

BADCC                 I    000246       4    81  146  190  242  245  251
BADGOT                I    000252       4    85  149  193  298  337  372
BEGIN                 I    000200       4    51   32
BEGINZ                I    00020C       4    55   38
CCPSW                 D    000278       8    96   83
DOTESTS               H    000218       2    59   52   56
FPR0                  U    000000       1   472  294  295  367  369  370
FPR2                  U    000002       1   473  293  295  296  333  334  335  368  369
FPR4                  U    000004       1   474  239  241  244  246  250
FPR6                  U    000006       1   475  144  145  147  188  189  191  240  241  243  244  249  250
GOTPSW                D    000280       8    97   87
IMAGE                 1    000000    1538     0
MODE370               U    0000F3       1   382   51   77   81   85
OKPSW                 D    000270       8    95   79
R0                    U    000000       1   455
R1                    U    000001       1   456  247  249  252  291  293  294  297  299
R10                   U    00000A       1   465
R11                   U    00000B       1   466
R12                   U    00000C       1   467
R13                   U    00000D       1   468
R14                   U    00000E       1   469   61   62   63   64   65   66  150  194  254  301  338  373
R15                   U    00000F       1   470   52   56   71
R2                    U    000002       1   457  248  253  292  300
R3                    U    000003       1   458
R4                    U    000004       1   459
R5                    U    000005       1   460
R6                    U    000006       1   461
R7                    U    000007       1   462
R8                    U    000008       1   463
R9                    U    000009       1   464
RUNMODE               C    0003B2       1   381   51   55   77   81   85
SUBTEST               X    000601       1   449   69  110  157  201  261  308  345
SUCCESS               I    00023A       4    77   53   57
T1_FPR6               X    0003B8       8   386  144
T1_GOT                X    0003C8       8   388  147  148
T1_STRG               X    0003C0       8   387  145
T1_WANT               X    0003D0       8   389  148
T2_FPR6               X    0003D8       8   391  188
T2_GOT                X    0003E8       8   393  191  192
T2_STRG               X    0003E0       8   392  189
T2_WANT               X    0003F0       8   394  192
T3_FPR4               X    0003F8       8   396  239
T3_FPR4A              X    000410       8   399  246
T3_FPR6               X    000400       8   397  240
T3_FPR6A              X    000408       8   398  243
T3_FPR6X              X    000418       8   400  416  247
T3_NUMX               U    000010       1   416  248
T3_XLOOP              I    00032C       4   249  253
T4_A                  X    000498       4   420  426  291
T4_B                  X    0004A4       4   421
T4_C                  X    0004B0       4   422
T4_D                  X    0004BC       4   423
T4_E                  X    0004C8       4   424
T4_GOT                X    0004D4       4   427  296  297
T4_LOOP               I    000350       4   293  300
T4_NUMT               U    000005       1   426  292
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
T5_FPR2	X	0004D8	8	433	333
T5_GOT	X	0004E0	8	434	335 336
T5_WANT	X	0004E8	8	435	336
T6_FPR0	X	0004F0	8	437	367
T6_FPR2	X	0004F8	8	438	368
T6_GOT	X	000500	8	439	370 371
T6_WANT	X	000508	8	440	371
TEST	J	000000	1538	26	31 34 37 40 49 446 27 477
TEST1	I	0002B8	4	109	61
TEST2	I	0002DC	4	156	62
TEST3	I	000300	4	200	63
TEST4	I	000340	4	260	64
TEST5	I	000372	4	307	65
TEST6	I	000390	4	344	66
TESTNUM	X	000600	1	448	68 109 156 200 260 307 344
ZBADCC	I	000262	4	90	82
ZBADGOT	I	000266	4	91	86
ZCCPSW	D	000298	8	100	90
ZGOTPSW	D	0002A8	8	101	91
ZMODE	U	0000E9	1	383	55
ZOKPSW	D	000288	8	99	89
ZSUCCESS	I	00025E	4	89	78

MACRO DEFN REFERENCES

No defined macros

```
   DESC     SYMBOL   SIZE     POS       ADDR

Entry: 0

Image       IMAGE    1538   000-601   000-601
  Region             1538   000-601   000-601
    CSECT   TEST     1538   000-601   000-601
```

```
   STMT                                        FILE NAME
1     c:\Users\Fish\Documents\Visual Studio 2008\Projects\MyProjects\ASMA-0\float\float.asm

** NO ERRORS FOUND **
```