```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     2 ************************************************************************
                                                     3 *
                                                     4 *                              SKEY370
                                                     5 *
                                                     6 ************************************************************************
                                                     7 *
                                                     8 *   This program verifies proper functioning of the following
                                                     9 *   System/370 Storage Key instructions:
                                                    10 *
                                                    11 *       ISK,  RRB,  SSK                      (GA22-7000-04 Sep 75)
                                                    12 *       ISKE, RRBE, SSKE, IVSK, TPROT, TB    (GA22-7000-10 Sep 87)
                                                    13 *
                                                    14 *   NOTE: due to varying support for certain instructions under
                                                    15 *   certain situations, some tests may crash at certain points.
                                                    16 *   If the crash is expected, then the crash is ignored and the
                                                    17 *   test that was being attempted is simply skipped.
                                                    18 *
                                                    19 *   PLEASE ALSO NOTE the program is purposely designed to branch to
                                                    20 *   an odd address should any test fail (such as the condition code
                                                    21 *   not being the expected value). The Program Check handler routine
                                                    22 *   when it notices the Program Old PSW is an odd address, backs up
                                                    23 *   the address by 5 bytes and uses that as the test's failing PSW.
                                                    24 *
                                                    25 *   Thus when any test fails, the disabled wait PSW points directly
                                                    26 *   to the failing instruction (i.e. the branch following the failed
                                                    27 *   comparison). ALSO NOTE that Hercules also issues a "Instruction
                                                    28 *   fetch error" message to its hardware console too whenever this
                                                    29 *   occurs (due to the PSW address being odd causing it to be unable
                                                    30 *   to fetch the next instruction), which is expected.
                                                    31 *
                                                    32 *   FINALLY, when running under VM (high-order byte of CPUID = X'FF')
                                                    33 *   the 'TB' (Test Block) test is always skipped since VM doesn't
                                                    34 *   support the ability to mark frames of storage as "bad" (whereas
                                                    35 *   Hercules does via its "f-" command).
                                                    36 *
                                                    37 ************************************************************************
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    39 ********************************************************************************
                                                    40 *                                LOW CORE
                                                    41 ********************************************************************************


                             00000000  0000125F    43 TEST     START 0
00000000                     00000000              44          USING TEST,0                  Use absolute addressing


00000000                     00000000  00000000    46          ORG   TEST+X'00'            S/370 Restart new PSW
00000000  00080000                                 47          DC    XL4'00080000'           S/370 Restart new PSW
00000004  00000200                                 48          DC    A(BEGIN)                S/370 Restart new PSW

00000008                     00000008  00000028    50          ORG   TEST+X'28'            S/370 Program old PSW
                             00000028  00000001    51 PGMOLD   EQU   *                       S/370 Program old PSW

00000028                     00000028  00000068    53          ORG   TEST+X'68'            S/370 Program new PSW
00000068  00080000                                 54          DC    XL4'00080000'           S/370 Program new PSW
0000006C  000009F0                                 55          DC    A(PGMCHK)               S/370 Program new PSW

00000070                     00000070  0000008C    57          ORG   TEST+X'8C'            Program interrupt code
0000008C  00000000                                 58 PGMCODE  DC    F'0'                    Program interrupt code


                             00000001  00000001    60 PGM_OPERATION_EXCEPTION          EQU   X'0001'
                             00000006  00000001    61 PGM_SPECIFICATION_EXCEPTION      EQU   X'0006'
                             00000013  00000001    62 PGM_SPECIAL_OPERATION_EXCEPTION  EQU   X'0013'




00000090                     00000090  00000200    64          ORG   TEST+X'200'           Start of test program

00000200  B202 0A68                    00000A68    66 BEGIN    STIDP CPUID                 Save CPU ID (for later test for VM)
00000204  47F0 0208                    00000208    67          B     TEST370               Go get started...
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    69 ********************************************************************************
                                                    70 *               Determine Instruction Availability
                                                    71 ********************************************************************************
                                                    72 *
                                                    73 *   The ISKE/RRBE/SSKE/IVSK/TPROT/TB instructions didn't exist on
                                                    74 *   early System/370 machines. They were introduced much later. If
                                                    75 *   we're running under e.g. VM/370 (which was written for earlier
                                                    76 *   versions of System/370) then we cannot execute any of those
                                                    77 *   instructions since VM/370 doesn't support them. Hercules does
                                                    78 *   support them, but VM/370 itself doesn't, and as VM/370 didn't
                                                    79 *   use SIE and had to simulate all control instructions itself,
                                                    80 *   such instructions would cause a program check. Note that we do
                                                    81 *   not have to test for support for all of them. A simple test of
                                                    82 *   the RRBE instruction for example, if it fails, is good enough
                                                    83 *   to let us know that very likely none of the other instructions
                                                    84 *   are supported either.
                                                    85 *
                                                    86 ********************************************************************************

00000208  B701 0A78                 00000A78    88 TEST370  LCTL   R0,R1,CR0_1_2K     2K pages + StorKey Except. Ctl.
0000020C  1F22                                  89          SLR    R2,R2              Page address unimportant
0000020E  B22A 0002                             90          RRBE   R0,R2              Can we execute RRBE instructions?
                          00000212  00000001    91 RRBE_PC  EQU    *                  (possible program check here...)

00000212  92FF 0A89                 00000A89    93          MVI    _NEW370,X'FF'      It worked! Must be newer System/370
00000216  47F0 0222                 00000222    94          B      TST4KBBF           Continue with initialization

0000021A  9200 0A89                 00000A89    96 NO_RRBE  MVI    _NEW370,X'00'      It failed! Must be older System/370
0000021E  47F0 0222                 00000222    97          B      TST4KBBF           Continue with initialization
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    99 ********************************************************************
                                                   100 *             Determine 4KBBF (4K-Byte-Block Facility)
                                                   101 ********************************************************************
                                                   102 *
                                                   103 *   Determine whether 4KBBF (4K-Byte-Block Facility) is installed
                                                   104 *   or not. The 4K-Byte-Block Facility is basically hardware that
                                                   105 *   only supports 4K page frames, each with a single storage key.
                                                   106 *
                                                   107 *   When installed, the SSK/ISK/RRB instructions cannot be executed
                                                   108 *   unless the CR0 Storage Key Exception Control bit is one, which
                                                   109 *   allows them to execute, but of course causes them to only operate
                                                   110 *   on the single-keyed 4K page; it is NOT possible to set different
                                                   111 *   keys for each of of the 2K pages within the 4K frame when 4KBBF
                                                   112 *   is installed.
                                                   113 *
                                                   114 *   When 4KBBF is NOT installed, the Storage Key Exception Control
                                                   115 *   bit in CR0 is ignored and SSK/ISK/RRB execute normally, and
                                                   116 *   the storage key for each 2K page frame can be different.
                                                   117 *
                                                   118 ********************************************************************

00000222  B701 0A78                 00000A78   120 TST4KBBF LCTL  R0,R1,CR0_1_2K     Set 2K page mode
00000226  BF11 0ABA                 00000ABA   121          ICM   R1,B'0001',=X'F0'  Arbitrary non-zero key value
0000022A  5820 0A8C                 00000A8C   122          L     R2,=A(50*_2K)      Beginning of 4K page
0000022E  0812                                 123          SSK   R1,R2              Set key for this SUPPOSED 2K page
00000230  5820 0A90                 00000A90   124          L     R2,=A(51*_2K)      Middle of same 4K page
00000234  0912                                 125          ISK   R1,R2              Get key for this SUPPOSED 2K page

00000236  BD11 0ABA                 00000ABA   127          CLM   R1,B'0001',=X'F0'  Was it's key changed too?
0000023A  4770 0246                 00000246   128          BNE   BEGX4K             No, then all pages are indeed 2K!
0000023E  92FF 0A88                 00000A88   129          MVI   _4KBBF,X'FF'       Yes, then all pages are really 4K!
00000242  47F0 027A                 0000027A   130          B     BEG4K              Run only 4KBBF tests
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    132 ************************************************************************
                                                    133 *                        non-4KBBF tests
                                                    134 ************************************************************************

00000246  B701 0A80                       00000A80   136 BEGX4K   LCTL  R0,R1,CR0_1_4K     Set 4K page mode

0000024A  45E0 02C0                       000002C0   138          BAL   R14,XSSK4K         SSK/ISK/RRB
0000024E  95FF 0A89                       00000A89   139          CLI   _NEW370,X'FF'      Is this a newer model System/370?
00000252  4770 025E                       0000025E   140          BNE   SKIPX4K            No, skip newer System/370 tests
00000256  45E0 0358                       00000358   141          BAL   R14,XSSKE4K        SSKE/ISKE/RRBE
0000025A  45E0 0402                       00000402   142          BAL   R14,XIVSK4K        IVSK/TPROT/TB

0000025E  B701 0A78                       00000A78   144 SKIPX4K  LCTL  R0,R1,CR0_1_2K     Set 2K page mode

00000262  45E0 048C                       0000048C   146          BAL   R14,XSSK2K         SSK/ISK/RRB
00000266  95FF 0A89                       00000A89   147          CLI   _NEW370,X'FF'      Is this a newer model S/370?
0000026A  4770 0276                       00000276   148          BNE   SKIPX2K            No, skip newer System/370 tests
0000026E  45E0 0524                       00000524   149          BAL   R14,XSSKE2K        SSKE/ISKE/RRBE
00000272  45E0 05CE                       000005CE   150          BAL   R14,XIVSK2K        IVSK/TPROT/TB

00000276  47F0 02AE                       000002AE   152 SKIPX2K  B     SUCCESS            Done! All tests succeeded!

                                                    154 ************************************************************************
                                                    155 *                          4KBBF tests
                                                    156 ************************************************************************

0000027A  B701 0A80                       00000A80   158 BEG4K    LCTL  R0,R1,CR0_1_4K     Set 4K page mode

0000027E  45E0 0658                       00000658   160          BAL   R14,SSK4K          SSK/ISK/RRB
00000282  95FF 0A89                       00000A89   161          CLI   _NEW370,X'FF'      Is this a newer model Sustem/370?
00000286  4770 0292                       00000292   162          BNE   SKIP4K             No, skip newer System/370 tests
0000028A  45E0 06F0                       000006F0   163          BAL   R14,SSKE4K          SSKE/ISKE/RRBE
0000028E  45E0 079A                       0000079A   164          BAL   R14,IVSK4K          IVSK/TPROT/TB

00000292  B701 0A78                       00000A78   166 SKIP4K   LCTL  R0,R1,CR0_1_2K     Set 2K page mode

00000296  45E0 0824                       00000824   168          BAL   R14,SSK2K          SSK/ISK/RRB
0000029A  95FF 0A89                       00000A89   169          CLI   _NEW370,X'FF'      Is this a newer model System/370?
0000029E  4770 02AA                       000002AA   170          BNE   SKIP2K             No, skip newer System/370 tests
000002A2  45E0 08BC                       000008BC   171          BAL   R14,SSKE2K          SSKE/ISKE/RRBE
000002A6  45E0 0966                       00000966   172          BAL   R14,IVSK2K          IVSK/TPROT/TB

000002AA  47F0 02AE                       000002AE   174 SKIP2K   B     SUCCESS            Done! All tests succeeded!

                                                    176 ************************************************************************
                                                    177 *                            SUCCESS!
                                                    178 ************************************************************************

000002AE  8200 02B8                       000002B8   180 SUCCESS  LPSW  GOODPSW                Load  SUCCESS disabled wait PSW
000002B8  000A0000                                   181 GOODPSW  DC    0D'0',XL4'000A0000'    S/370 SUCCESS disabled wait PSW
000002BC  00000000                                   182          DC    A(0)                   S/370 SUCCESS disabled wait PSW
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     184 ************************************************************************
                                                     185 *                    SSK/ISK/RRB (non-4KBBF -- 4K mode)
                                                     186 ************************************************************************

000002C0  BF11 0ABB                      00000ABB    188 XSSK4K   ICM    R1,B'0001',=X'16'
000002C4  5820 0A94                      00000A94    189          L      R2,=A(6*_2K)
000002C8  0812                                      190          SSK    R1,R2
000002CA  BF11 0ABC                      00000ABC    191          ICM    R1,B'0001',=X'24'
000002CE  5820 0A98                      00000A98    192          L      R2,=A(7*_2K)
000002D2  0812                                      193          SSK    R1,R2
000002D4  BF11 0ABD                      00000ABD    194          ICM    R1,B'0001',=X'4C'
000002D8  5820 0A9C                      00000A9C    195          L      R2,=A(8*_2K)
000002DC  0812                                      196          SSK    R1,R2
                                                     197 ****************************************
000002DE  5820 0A94                      00000A94    198          L      R2,=A(6*_2K)
000002E2  0912                                      199          ISK    R1,R2
000002E4  BD11 0ABB                      00000ABB    200          CLM    R1,B'0001',=X'16'
000002E8  4770 02E9                      000002E9    201          BNE    *+1
000002EC  5820 0A98                      00000A98    202          L      R2,=A(7*_2K)
000002F0  0912                                      203          ISK    R1,R2
000002F2  BD11 0ABC                      00000ABC    204          CLM    R1,B'0001',=X'24'
000002F6  4770 02F7                      000002F7    205          BNE    *+1
000002FA  5820 0A9C                      00000A9C    206          L      R2,=A(8*_2K)
000002FE  0912                                      207          ISK    R1,R2
00000300  BD11 0ABD                      00000ABD    208          CLM    R1,B'0001',=X'4C'
00000304  4770 0305                      00000305    209          BNE    *+1
                                                     210 ****************************************
00000308  5820 0A94                      00000A94    211          L      R2,=A(6*_2K)
0000030C  B213 2000                      00000000    212          RRB    0(R2)
00000310  47E0 0311                      00000311    213          BC     B'1110',*+1      NOT CC3 = was REF 1, CHG 1
00000314  5820 0A98                      00000A98    214          L      R2,=A(7*_2K)
00000318  B213 2000                      00000000    215          RRB    0(R2)
0000031C  47D0 031D                      0000031D    216          BC     B'1101',*+1      NOT CC2 = was REF 1, CHG 0
00000320  5820 0A9C                      00000A9C    217          L      R2,=A(8*_2K)
00000324  B213 2000                      00000000    218          RRB    0(R2)
00000328  47D0 0329                      00000329    219          BC     B'1101',*+1      NOT CC2 = was REF 1, CHG 0
                                                     220 ****************************************
0000032C  5820 0A94                      00000A94    221          L      R2,=A(6*_2K)
00000330  0912                                      222          ISK    R1,R2
00000332  BD11 0ABE                      00000ABE    223          CLM    R1,B'0001',=X'12'
00000336  4770 0337                      00000337    224          BNE    *+1
0000033A  5820 0A98                      00000A98    225          L      R2,=A(7*_2K)
0000033E  0912                                      226          ISK    R1,R2
00000340  BD11 0ABF                      00000ABF    227          CLM    R1,B'0001',=X'20'
00000344  4770 0345                      00000345    228          BNE    *+1
00000348  5820 0A9C                      00000A9C    229          L      R2,=A(8*_2K)
0000034C  0912                                      230          ISK    R1,R2
0000034E  BD11 0AC0                      00000AC0    231          CLM    R1,B'0001',=X'48'
00000352  4770 0353                      00000353    232          BNE    *+1
00000356  07FE                                      233          BR     R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     235 ************************************************************************
                                                     236 *                    SSKE/ISKE/RRBE (non-4KBBF -- 4K mode)
                                                     237 ************************************************************************

00000358  BF11 0AC1                      00000AC1    239 XSSKE4K  ICM   R1,B'0001',=X'1C'
0000035C  5820 0AA0                      00000AA0    240          L     R2,=A((6*_2K)+X'100')
00000360  B22B 0012                                  241          SSKE  R1,R2
00000364  BF11 0AC2                      00000AC2    242          ICM   R1,B'0001',=X'26'
00000368  5820 0AA4                      00000AA4    243          L     R2,=A((7*_2K)+X'200')
0000036C  B22B 0012                                  244          SSKE  R1,R2
00000370  BF11 0AC3                      00000AC3    245          ICM   R1,B'0001',=X'4E'
00000374  5820 0AA8                      00000AA8    246          L     R2,=A((8*_2K)+X'300')
00000378  B22B 0012                                  247          SSKE  R1,R2
                                                     248 ****************************************
0000037C  5820 0AA0                      00000AA0    249          L     R2,=A((6*_2K)+X'100')
00000380  B229 0012                                  250          ISKE  R1,R2
00000384  BD11 0AC2                      00000AC2    251          CLM   R1,B'0001',=X'26'
00000388  4770 0389                      00000389    252          BNE   *+1
0000038C  5820 0AA4                      00000AA4    253          L     R2,=A((7*_2K)+X'200')
00000390  B229 0012                                  254          ISKE  R1,R2
00000394  BD11 0AC2                      00000AC2    255          CLM   R1,B'0001',=X'26'
00000398  4770 0399                      00000399    256          BNE   *+1
0000039C  5820 0AA8                      00000AA8    257          L     R2,=A((8*_2K)+X'300')
000003A0  B229 0012                                  258          ISKE  R1,R2
000003A4  BD11 0AC3                      00000AC3    259          CLM   R1,B'0001',=X'4E'
000003A8  4770 03A9                      000003A9    260          BNE   *+1
                                                     261 ****************************************
000003AC  5820 0AA0                      00000AA0    262          L     R2,=A((6*_2K)+X'100')
000003B0  B22A 0002                                  263          RRBE  R0,R2
000003B4  47E0 03B5                      000003B5    264          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
000003B8  5820 0AA4                      00000AA4    265          L     R2,=A((7*_2K)+X'200')
000003BC  B22A 0002                                  266          RRBE  R0,R2
000003C0  47B0 03C1                      000003C1    267          BC    B'1011',*+1              NOT CC1 = was REF 0, CHG 1
000003C4  5820 0AA8                      00000AA8    268          L     R2,=A((8*_2K)+X'300')
000003C8  B22A 0002                                  269          RRBE  R0,R2
000003CC  47E0 03CD                      000003CD    270          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
                                                     271 ****************************************
000003D0  5820 0AA0                      00000AA0    272          L     R2,=A((6*_2K)+X'100')
000003D4  B229 0012                                  273          ISKE  R1,R2
000003D8  BD11 0AC4                      00000AC4    274          CLM   R1,B'0001',=X'22'
000003DC  4770 03DD                      000003DD    275          BNE   *+1
000003E0  5820 0AA4                      00000AA4    276          L     R2,=A((7*_2K)+X'200')
000003E4  B229 0012                                  277          ISKE  R1,R2
000003E8  BD11 0AC4                      00000AC4    278          CLM   R1,B'0001',=X'22'
000003EC  4770 03ED                      000003ED    279          BNE   *+1
000003F0  5820 0AA8                      00000AA8    280          L     R2,=A((8*_2K)+X'300')
000003F4  B229 0012                                  281          ISKE  R1,R2
000003F8  BD11 0AC5                      00000AC5    282          CLM   R1,B'0001',=X'4A'
000003FC  4770 03FD                      000003FD    283          BNE   *+1
00000400  07FE                                       284          BR    R14
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    286 ************************************************************************
                                                    287 *                    IVSK/TPROT/TB (non-4KBBF -- 4K mode)
                                                    288 ************************************************************************

00000402  BF11 0AC6                     00000AC6    290 XIVSK4K  ICM   R1,B'0001',=X'6E'
00000406  5820 0AAC                     00000AAC    291          L     R2,=A((9*_2K)+X'400')
0000040A  0812                                      292          SSK   R1,R2
                                                    293 *
0000040C  8000 0AC7                     00000AC7    294          SSM   =X'04'                    (enable DAT)
00000410  B223 0012                                 295          IVSK  R1,R2
00000414  8000 0AC8                     00000AC8    296          SSM   =X'00'                    (disable DAT again)
00000418  BD11 0AC9                     00000AC9    297          CLM   R1,B'0001',=X'68'
0000041C  4770 041D                     0000041D    298          BNE   *+1
                                                    299 ****************************************
00000420  BF11 0ACA                     00000ACA    300          ICM   R1,B'0001',=X'10'
00000424  5820 0A94                     00000A94    301          L     R2,=A(6*_2K)
00000428  0812                                      302          SSK   R1,R2
0000042A  5810 0AA0                     00000AA0    303          L     R1,=A((6*_2K)+X'100')
0000042E  BF21 0ACA                     00000ACA    304          ICM   R2,B'0001',=X'10'
00000432  E501 1000 2000      00000000  00000000    305          TPROT 0(R1),0(R2)
00000438  4770 0439                     00000439    306          BC    B'0111',*+1               NOT CC0 = FETCH OK, STORE OK
0000043C  BF21 0ABF                     00000ABF    307          ICM   R2,B'0001',=X'20'
00000440  E501 1000 2000      00000000  00000000    308          TPROT 0(R1),0(R2)
00000446  47B0 0447                     00000447    309          BC    B'1011',*+1               NOT CC1 = FETCH OK, STORE NO
0000044A  BF11 0ACB                     00000ACB    310          ICM   R1,B'0001',=X'18'         (set fetch protect)
0000044E  5820 0A94                     00000A94    311          L     R2,=A(6*_2K)
00000452  0812                                      312          SSK   R1,R2
00000454  5810 0A94                     00000A94    313          L     R1,=A(6*_2K)
00000458  BF21 0ABF                     00000ABF    314          ICM   R2,B'0001',=X'20'
0000045C  E501 1000 2000      00000000  00000000    315          TPROT 0(R1),0(R2)
00000462  47D0 0463                     00000463    316          BC    B'1101',*+1               NOT CC2 = FETCH NO, STORE NO
                                                    317 ****************************************
00000466  95FF 0A68                     00000A68    318          CLI   CPUID,X'FF'               Are we running under VM?
0000046A  4780 048A                     0000048A    319          BE    XSKPTB4K                  Yes, then skip 'TB' tests
0000046E  1F00                                      320          SLR   R0,R0                    Required by TB instruction
00000470  5820 0AB0                     00000AB0    321          L     R2,=A((10*_2K)+X'500')    Requires Herc 'f- 5000' cmd
00000474  B22C 0012                                 322          TB    R1,R2
00000478  47B0 0479                     00000479    323          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
0000047C  1F00                                      324          SLR   R0,R0                    Required by TB instruction
0000047E  5820 0AB4                     00000AB4    325          L     R2,=A((11*_2K)+X'600')    Requires Herc 'f- 5800' cmd
00000482  B22C 0012                                 326          TB    R1,R2
00000486  47B0 0487                     00000487    327          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
                          0000048A      00000001    328 XSKPTB4K EQU   *
0000048A  07FE                                      329          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     331 ************************************************************************
                                                     332 *                    SSK/ISK/RRB (non-4KBBF -- 2K mode)
                                                     333 ************************************************************************

0000048C  BF11 0ABB                      00000ABB    335 XSSK2K   ICM    R1,B'0001',=X'16'
00000490  5820 0A94                      00000A94    336          L      R2,=A(6*_2K)
00000494  0812                                       337          SSK    R1,R2
00000496  BF11 0ABC                      00000ABC    338          ICM    R1,B'0001',=X'24'
0000049A  5820 0A98                      00000A98    339          L      R2,=A(7*_2K)
0000049E  0812                                       340          SSK    R1,R2
000004A0  BF11 0ABD                      00000ABD    341          ICM    R1,B'0001',=X'4C'
000004A4  5820 0A9C                      00000A9C    342          L      R2,=A(8*_2K)
000004A8  0812                                       343          SSK    R1,R2
                                                     344 ****************************************
000004AA  5820 0A94                      00000A94    345          L      R2,=A(6*_2K)
000004AE  0912                                       346          ISK    R1,R2
000004B0  BD11 0ABB                      00000ABB    347          CLM    R1,B'0001',=X'16'
000004B4  4770 04B5                      000004B5    348          BNE    *+1
000004B8  5820 0A98                      00000A98    349          L      R2,=A(7*_2K)
000004BC  0912                                       350          ISK    R1,R2
000004BE  BD11 0ABC                      00000ABC    351          CLM    R1,B'0001',=X'24'
000004C2  4770 04C3                      000004C3    352          BNE    *+1
000004C6  5820 0A9C                      00000A9C    353          L      R2,=A(8*_2K)
000004CA  0912                                       354          ISK    R1,R2
000004CC  BD11 0ABD                      00000ABD    355          CLM    R1,B'0001',=X'4C'
000004D0  4770 04D1                      000004D1    356          BNE    *+1
                                                     357 ****************************************
000004D4  5820 0A94                      00000A94    358          L      R2,=A(6*_2K)
000004D8  B213 2000                      00000000    359          RRB    0(R2)
000004DC  47E0 04DD                      000004DD    360          BC     B'1110',*+1      NOT CC3 = was REF 1, CHG 1
000004E0  5820 0A98                      00000A98    361          L      R2,=A(7*_2K)
000004E4  B213 2000                      00000000    362          RRB    0(R2)
000004E8  47D0 04E9                      000004E9    363          BC     B'1101',*+1      NOT CC2 = was REF 1, CHG 0
000004EC  5820 0A9C                      00000A9C    364          L      R2,=A(8*_2K)
000004F0  B213 2000                      00000000    365          RRB    0(R2)
000004F4  47D0 04F5                      000004F5    366          BC     B'1101',*+1      NOT CC2 = was REF 1, CHG 0
                                                     367 ****************************************
000004F8  5820 0A94                      00000A94    368          L      R2,=A(6*_2K)
000004FC  0912                                       369          ISK    R1,R2
000004FE  BD11 0ABE                      00000ABE    370          CLM    R1,B'0001',=X'12'
00000502  4770 0503                      00000503    371          BNE    *+1
00000506  5820 0A98                      00000A98    372          L      R2,=A(7*_2K)
0000050A  0912                                       373          ISK    R1,R2
0000050C  BD11 0ABF                      00000ABF    374          CLM    R1,B'0001',=X'20'
00000510  4770 0511                      00000511    375          BNE    *+1
00000514  5820 0A9C                      00000A9C    376          L      R2,=A(8*_2K)
00000518  0912                                       377          ISK    R1,R2
0000051A  BD11 0AC0                      00000AC0    378          CLM    R1,B'0001',=X'48'
0000051E  4770 051F                      0000051F    379          BNE    *+1
00000522  07FE                                       380          BR     R14
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 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    382 ************************************************************************
                                                    383 *                    SSKE/ISKE/RRBE (non-4KBBF -- 2K mode)
                                                    384 ************************************************************************

00000524  BF11 0AC1                    00000AC1     386 XSSKE2K  ICM   R1,B'0001',=X'1C'
00000528  5820 0AA0                    00000AA0     387          L     R2,=A((6*_2K)+X'100')
0000052C  B22B 0012                                 388          SSKE  R1,R2
00000530  BF11 0AC2                    00000AC2     389          ICM   R1,B'0001',=X'26'
00000534  5820 0AA4                    00000AA4     390          L     R2,=A((7*_2K)+X'200')
00000538  B22B 0012                                 391          SSKE  R1,R2
0000053C  BF11 0AC3                    00000AC3     392          ICM   R1,B'0001',=X'4E'
00000540  5820 0AA8                    00000AA8     393          L     R2,=A((8*_2K)+X'300')
00000544  B22B 0012                                 394          SSKE  R1,R2
                                                    395 ****************************************
00000548  5820 0AA0                    00000AA0     396          L     R2,=A((6*_2K)+X'100')
0000054C  B229 0012                                 397          ISKE  R1,R2
00000550  BD11 0AC2                    00000AC2     398          CLM   R1,B'0001',=X'26'
00000554  4770 0555                    00000555     399          BNE   *+1
00000558  5820 0AA4                    00000AA4     400          L     R2,=A((7*_2K)+X'200')
0000055C  B229 0012                                 401          ISKE  R1,R2
00000560  BD11 0AC2                    00000AC2     402          CLM   R1,B'0001',=X'26'
00000564  4770 0565                    00000565     403          BNE   *+1
00000568  5820 0AA8                    00000AA8     404          L     R2,=A((8*_2K)+X'300')
0000056C  B229 0012                                 405          ISKE  R1,R2
00000570  BD11 0AC3                    00000AC3     406          CLM   R1,B'0001',=X'4E'
00000574  4770 0575                    00000575     407          BNE   *+1
                                                    408 ****************************************
00000578  5820 0AA0                    00000AA0     409          L     R2,=A((6*_2K)+X'100')
0000057C  B22A 0002                                 410          RRBE  R0,R2
00000580  47E0 0581                    00000581     411          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
00000584  5820 0AA4                    00000AA4     412          L     R2,=A((7*_2K)+X'200')
00000588  B22A 0002                                 413          RRBE  R0,R2
0000058C  47B0 058D                    0000058D     414          BC    B'1011',*+1              NOT CC1 = was REF 0, CHG 1
00000590  5820 0AA8                    00000AA8     415          L     R2,=A((8*_2K)+X'300')
00000594  B22A 0002                                 416          RRBE  R0,R2
00000598  47E0 0599                    00000599     417          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
                                                    418 ****************************************
0000059C  5820 0AA0                    00000AA0     419          L     R2,=A((6*_2K)+X'100')
000005A0  B229 0012                                 420          ISKE  R1,R2
000005A4  BD11 0AC4                    00000AC4     421          CLM   R1,B'0001',=X'22'
000005A8  4770 05A9                    000005A9     422          BNE   *+1
000005AC  5820 0AA4                    00000AA4     423          L     R2,=A((7*_2K)+X'200')
000005B0  B229 0012                                 424          ISKE  R1,R2
000005B4  BD11 0AC4                    00000AC4     425          CLM   R1,B'0001',=X'22'
000005B8  4770 05B9                    000005B9     426          BNE   *+1
000005BC  5820 0AA8                    00000AA8     427          L     R2,=A((8*_2K)+X'300')
000005C0  B229 0012                                 428          ISKE  R1,R2
000005C4  BD11 0AC5                    00000AC5     429          CLM   R1,B'0001',=X'4A'
000005C8  4770 05C9                    000005C9     430          BNE   *+1
000005CC  07FE                                      431          BR    R14
```

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  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    433 ************************************************************************
                                                    434 *                    IVSK/TPROT/TB (non-4KBBF -- 2K mode)
                                                    435 ************************************************************************

000005CE  BF11 0AC6                     00000AC6    437 XIVSK2K  ICM   R1,B'0001',=X'6E'
000005D2  5820 0AAC                     00000AAC    438          L     R2,=A((9*_2K)+X'400')
000005D6  0812                                      439          SSK   R1,R2
                                                    440 *
000005D8  8000 0AC7                     00000AC7    441          SSM   =X'04'                    (enable DAT)
000005DC  B223 0012                                 442          IVSK  R1,R2
000005E0  8000 0AC8                     00000AC8    443          SSM   =X'00'                    (disable DAT again)
000005E4  BD11 0AC9                     00000AC9    444          CLM   R1,B'0001',=X'68'
000005E8  4770 05E9                     000005E9    445          BNE   *+1
                                                    446 ****************************************
000005EC  BF11 0ACA                     00000ACA    447          ICM   R1,B'0001',=X'10'
000005F0  5820 0A94                     00000A94    448          L     R2,=A(6*_2K)
000005F4  0812                                      449          SSK   R1,R2
000005F6  5810 0AA0                     00000AA0    450          L     R1,=A((6*_2K)+X'100')
000005FA  BF21 0ACA                     00000ACA    451          ICM   R2,B'0001',=X'10'
000005FE  E501 1000 2000      00000000  00000000    452          TPROT 0(R1),0(R2)
00000604  4770 0605                     00000605    453          BC    B'0111',*+1               NOT CC0 = FETCH OK, STORE OK
00000608  BF21 0ABF                     00000ABF    454          ICM   R2,B'0001',=X'20'
0000060C  E501 1000 2000      00000000  00000000    455          TPROT 0(R1),0(R2)
00000612  47B0 0613                     00000613    456          BC    B'1011',*+1               NOT CC1 = FETCH OK, STORE NO
00000616  BF11 0ACB                     00000ACB    457          ICM   R1,B'0001',=X'18'         (set fetch protect)
0000061A  5820 0A94                     00000A94    458          L     R2,=A(6*_2K)
0000061E  0812                                      459          SSK   R1,R2
00000620  5810 0A94                     00000A94    460          L     R1,=A(6*_2K)
00000624  BF21 0ABF                     00000ABF    461          ICM   R2,B'0001',=X'20'
00000628  E501 1000 2000      00000000  00000000    462          TPROT 0(R1),0(R2)
0000062E  47D0 062F                     0000062F    463          BC    B'1101',*+1               NOT CC2 = FETCH NO, STORE NO
                                                    464 ****************************************
00000632  95FF 0A68                     00000A68    465          CLI   CPUID,X'FF'               Are we running under VM?
00000636  4780 0656                     00000656    466          BE    XSKPTB2K                  Yes, then skip 'TB' tests
0000063A  1F00                                      467          SLR   R0,R0                     Required by TB instruction
0000063C  5820 0AB0                     00000AB0    468          L     R2,=A((10*_2K)+X'500')    Requires Herc 'f- 5000' cmd
00000640  B22C 0012                                 469          TB    R1,R2
00000644  47B0 0645                     00000645    470          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
00000648  1F00                                      471          SLR   R0,R0                     Required by TB instruction
0000064A  5820 0AB4                     00000AB4    472          L     R2,=A((11*_2K)+X'600')    Requires Herc 'f- 5800' cmd
0000064E  B22C 0012                                 473          TB    R1,R2
00000652  47B0 0653                     00000653    474          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
                          00000656      00000001    475 XSKPTB2K EQU   *
00000656  07FE                                      476          BR    R14
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  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     478 ************************************************************************
                                                     479 *                    SSK/ISK/RRB (4KBBF -- 4K mode)
                                                     480 ************************************************************************

00000658  BF11 0ABB                      00000ABB    482 SSK4K    ICM   R1,B'0001',=X'16'
0000065C  5820 0A94                      00000A94    483          L     R2,=A(6*_2K)
00000660  0812                                      484          SSK   R1,R2
00000662  BF11 0ABC                      00000ABC    485          ICM   R1,B'0001',=X'24'
00000666  5820 0A98                      00000A98    486          L     R2,=A(7*_2K)
0000066A  0812                                      487          SSK   R1,R2
0000066C  BF11 0AC3                      00000AC3    488          ICM   R1,B'0001',=X'4E'
00000670  5820 0A9C                      00000A9C    489          L     R2,=A(8*_2K)
00000674  0812                                      490          SSK   R1,R2
                                                    491 ****************************************
00000676  5820 0A94                      00000A94    492          L     R2,=A(6*_2K)
0000067A  0912                                      493          ISK   R1,R2
0000067C  BD11 0ABC                      00000ABC    494          CLM   R1,B'0001',=X'24'
00000680  4770 0681                      00000681    495          BNE   *+1
00000684  5820 0A98                      00000A98    496          L     R2,=A(7*_2K)
00000688  0912                                      497          ISK   R1,R2
0000068A  BD11 0ABC                      00000ABC    498          CLM   R1,B'0001',=X'24'
0000068E  4770 068F                      0000068F    499          BNE   *+1
00000692  5820 0A9C                      00000A9C    500          L     R2,=A(8*_2K)
00000696  0912                                      501          ISK   R1,R2
00000698  BD11 0AC3                      00000AC3    502          CLM   R1,B'0001',=X'4E'
0000069C  4770 069D                      0000069D    503          BNE   *+1
                                                    504 ****************************************
000006A0  5820 0A94                      00000A94    505          L     R2,=A(6*_2K)
000006A4  B213 2000                      00000000    506          RRB   0(R2)
000006A8  47D0 06A9                      000006A9    507          BC    B'1101',*+1      NOT CC2 = was REF 1, CHG 0
000006AC  5820 0A98                      00000A98    508          L     R2,=A(7*_2K)
000006B0  B213 2000                      00000000    509          RRB   0(R2)
000006B4  4770 06B5                      000006B5    510          BC    B'0111',*+1      NOT CC0 = was REF 0, CHG 0
000006B8  5820 0A9C                      00000A9C    511          L     R2,=A(8*_2K)
000006BC  B213 2000                      00000000    512          RRB   0(R2)
000006C0  47E0 06C1                      000006C1    513          BC    B'1110',*+1      NOT CC3 = was REF 1, CHG 1
                                                    514 ****************************************
000006C4  5820 0A94                      00000A94    515          L     R2,=A(6*_2K)
000006C8  0912                                      516          ISK   R1,R2
000006CA  BD11 0ABF                      00000ABF    517          CLM   R1,B'0001',=X'20'
000006CE  4770 06CF                      000006CF    518          BNE   *+1
000006D2  5820 0A98                      00000A98    519          L     R2,=A(7*_2K)
000006D6  0912                                      520          ISK   R1,R2
000006D8  BD11 0ABF                      00000ABF    521          CLM   R1,B'0001',=X'20'
000006DC  4770 06DD                      000006DD    522          BNE   *+1
000006E0  5820 0A9C                      00000A9C    523          L     R2,=A(8*_2K)
000006E4  0912                                      524          ISK   R1,R2
000006E6  BD11 0AC5                      00000AC5    525          CLM   R1,B'0001',=X'4A'
000006EA  4770 06EB                      000006EB    526          BNE   *+1
000006EE  07FE                                      527          BR    R14
```

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 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    529 ************************************************************************
                                                    530 *                    SSKE/ISKE/RRBE (4KBBF -- 4K mode)
                                                    531 ************************************************************************

000006F0  BF11 0ABB                    00000ABB    533 SSKE4K   ICM   R1,B'0001',=X'16'
000006F4  5820 0AA0                    00000AA0    534          L     R2,=A((6*_2K)+X'100')
000006F8  B22B 0012                                535          SSKE  R1,R2
000006FC  BF11 0ABC                    00000ABC    536          ICM   R1,B'0001',=X'24'
00000700  5820 0AA4                    00000AA4    537          L     R2,=A((7*_2K)+X'200')
00000704  B22B 0012                                538          SSKE  R1,R2
00000708  BF11 0AC3                    00000AC3    539          ICM   R1,B'0001',=X'4E'
0000070C  5820 0AA8                    00000AA8    540          L     R2,=A((8*_2K)+X'300')
00000710  B22B 0012                                541          SSKE  R1,R2
                                                    542 ****************************************
00000714  5820 0AA0                    00000AA0    543          L     R2,=A((6*_2K)+X'100')
00000718  B229 0012                                544          ISKE  R1,R2
0000071C  BD11 0ABC                    00000ABC    545          CLM   R1,B'0001',=X'24'
00000720  4770 0721                    00000721    546          BNE   *+1
00000724  5820 0AA4                    00000AA4    547          L     R2,=A((7*_2K)+X'200')
00000728  B229 0012                                548          ISKE  R1,R2
0000072C  BD11 0ABC                    00000ABC    549          CLM   R1,B'0001',=X'24'
00000730  4770 0731                    00000731    550          BNE   *+1
00000734  5820 0AA8                    00000AA8    551          L     R2,=A((8*_2K)+X'300')
00000738  B229 0012                                552          ISKE  R1,R2
0000073C  BD11 0AC3                    00000AC3    553          CLM   R1,B'0001',=X'4E'
00000740  4770 0741                    00000741    554          BNE   *+1
                                                    555 ****************************************
00000744  5820 0AA0                    00000AA0    556          L     R2,=A((6*_2K)+X'100')
00000748  B22A 0002                                557          RRBE  R0,R2
0000074C  47D0 074D                    0000074D    558          BC    B'1101',*+1              NOT CC2 = was REF 1, CHG 0
00000750  5820 0AA4                    00000AA4    559          L     R2,=A((7*_2K)+X'200')
00000754  B22A 0002                                560          RRBE  R0,R2
00000758  4770 0759                    00000759    561          BC    B'0111',*+1              NOT CC0 = was REF 0, CHG 0
0000075C  5820 0AA8                    00000AA8    562          L     R2,=A((8*_2K)+X'300')
00000760  B22A 0002                                563          RRBE  R0,R2
00000764  47E0 0765                    00000765    564          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
                                                    565 ****************************************
00000768  5820 0AA0                    00000AA0    566          L     R2,=A((6*_2K)+X'100')
0000076C  B229 0012                                567          ISKE  R1,R2
00000770  BD11 0ABF                    00000ABF    568          CLM   R1,B'0001',=X'20'
00000774  4770 0775                    00000775    569          BNE   *+1
00000778  5820 0AA4                    00000AA4    570          L     R2,=A((7*_2K)+X'200')
0000077C  B229 0012                                571          ISKE  R1,R2
00000780  BD11 0ABF                    00000ABF    572          CLM   R1,B'0001',=X'20'
00000784  4770 0785                    00000785    573          BNE   *+1
00000788  5820 0AA8                    00000AA8    574          L     R2,=A((8*_2K)+X'300')
0000078C  B229 0012                                575          ISKE  R1,R2
00000790  BD11 0AC5                    00000AC5    576          CLM   R1,B'0001',=X'4A'
00000794  4770 0795                    00000795    577          BNE   *+1
00000798  07FE                                     578          BR    R14
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 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                   580 ************************************************************************
                                                   581 *                    IVSK/TPROT/TB (4KBBF -- 4K mode)
                                                   582 ************************************************************************

0000079A  BF11 0AC6                    00000AC6    584 IVSK4K   ICM   R1,B'0001',=X'6E'
0000079E  5820 0AAC                    00000AAC    585          L     R2,=A((9*_2K)+X'400')
000007A2  0812                                     586          SSK   R1,R2
                                                   587 *
000007A4  8000 0AC7                    00000AC7    588          SSM   =X'04'                    (enable DAT)
000007A8  B223 0012                                589          IVSK  R1,R2
000007AC  8000 0AC8                    00000AC8    590          SSM   =X'00'                    (disable DAT again)
000007B0  BD11 0AC9                    00000AC9    591          CLM   R1,B'0001',=X'68'
000007B4  4770 07B5                    000007B5    592          BNE   *+1
                                                   593 ****************************************
000007B8  BF11 0ACA                    00000ACA    594          ICM   R1,B'0001',=X'10'
000007BC  5820 0A94                    00000A94    595          L     R2,=A(6*_2K)
000007C0  0812                                     596          SSK   R1,R2
000007C2  5810 0AA0                    00000AA0    597          L     R1,=A((6*_2K)+X'100')
000007C6  BF21 0ACA                    00000ACA    598          ICM   R2,B'0001',=X'10'
000007CA  E501 1000 2000       00000000 00000000    599          TPROT 0(R1),0(R2)
000007D0  4770 07D1                    000007D1    600          BC    B'0111',*+1               NOT CC0 = FETCH OK, STORE OK
000007D4  BF21 0ABF                    00000ABF    601          ICM   R2,B'0001',=X'20'
000007D8  E501 1000 2000       00000000 00000000    602          TPROT 0(R1),0(R2)
000007DE  47B0 07DF                    000007DF    603          BC    B'1011',*+1               NOT CC1 = FETCH OK, STORE NO
000007E2  BF11 0ACB                    00000ACB    604          ICM   R1,B'0001',=X'18'         (set fetch protect)
000007E6  5820 0A94                    00000A94    605          L     R2,=A(6*_2K)
000007EA  0812                                     606          SSK   R1,R2
000007EC  5810 0A94                    00000A94    607          L     R1,=A(6*_2K)
000007F0  BF21 0ABF                    00000ABF    608          ICM   R2,B'0001',=X'20'
000007F4  E501 1000 2000       00000000 00000000    609          TPROT 0(R1),0(R2)
000007FA  47D0 07FB                    000007FB    610          BC    B'1101',*+1               NOT CC2 = FETCH NO, STORE NO
                                                   611 ****************************************
000007FE  95FF 0A68                    00000A68    612          CLI   CPUID,X'FF'               Are we running under VM?
00000802  4780 0822                    00000822    613          BE    SKPTB4K                   Yes, then skip 'TB' tests
00000806  1F00                                     614          SLR   R0,R0                     Required by TB instruction
00000808  5820 0AB0                    00000AB0    615          L     R2,=A((10*_2K)+X'500')    Requires Herc 'f- 5000' cmd
0000080C  B22C 0012                                616          TB    R1,R2
00000810  47B0 0811                    00000811    617          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
00000814  1F00                                     618          SLR   R0,R0                     Required by TB instruction
00000816  5820 0AB4                    00000AB4    619          L     R2,=A((11*_2K)+X'600')    Requires Herc 'f- 5800' cmd
0000081A  B22C 0012                                620          TB    R1,R2
0000081E  47B0 081F                    0000081F    621          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
                          00000822     00000001    622 SKPTB4K  EQU   *
00000822  07FE                                     623          BR    R14
```

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  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     625 ************************************************************************
                                                     626 *                    SSK/ISK/RRB (4KBBF -- 2K mode)
                                                     627 ************************************************************************

00000824  BF11 0ABB                       00000ABB   629 SSK2K    ICM   R1,B'0001',=X'16'
00000828  5820 0A94                       00000A94   630          L     R2,=A(6*_2K)
0000082C  0812                                       631          SSK   R1,R2
0000082E  BF11 0ABC                       00000ABC   632          ICM   R1,B'0001',=X'24'
00000832  5820 0A98                       00000A98   633          L     R2,=A(7*_2K)
00000836  0812                                       634          SSK   R1,R2
00000838  BF11 0AC3                       00000AC3   635          ICM   R1,B'0001',=X'4E'
0000083C  5820 0A9C                       00000A9C   636          L     R2,=A(8*_2K)
00000840  0812                                       637          SSK   R1,R2
                                                     638 ****************************************
00000842  5820 0A94                       00000A94   639          L     R2,=A(6*_2K)
00000846  0912                                       640          ISK   R1,R2
00000848  BD11 0ABC                       00000ABC   641          CLM   R1,B'0001',=X'24'
0000084C  4770 084D                       0000084D   642          BNE   *+1
00000850  5820 0A98                       00000A98   643          L     R2,=A(7*_2K)
00000854  0912                                       644          ISK   R1,R2
00000856  BD11 0ABC                       00000ABC   645          CLM   R1,B'0001',=X'24'
0000085A  4770 085B                       0000085B   646          BNE   *+1
0000085E  5820 0A9C                       00000A9C   647          L     R2,=A(8*_2K)
00000862  0912                                       648          ISK   R1,R2
00000864  BD11 0AC3                       00000AC3   649          CLM   R1,B'0001',=X'4E'
00000868  4770 0869                       00000869   650          BNE   *+1
                                                     651 ****************************************
0000086C  5820 0A94                       00000A94   652          L     R2,=A(6*_2K)
00000870  B213 2000                       00000000   653          RRB   0(R2)
00000874  47D0 0875                       00000875   654          BC    B'1101',*+1      NOT CC2 = was REF 1, CHG 0
00000878  5820 0A98                       00000A98   655          L     R2,=A(7*_2K)
0000087C  B213 2000                       00000000   656          RRB   0(R2)
00000880  4770 0881                       00000881   657          BC    B'0111',*+1      NOT CC0 = was REF 0, CHG 0
00000884  5820 0A9C                       00000A9C   658          L     R2,=A(8*_2K)
00000888  B213 2000                       00000000   659          RRB   0(R2)
0000088C  47E0 088D                       0000088D   660          BC    B'1110',*+1      NOT CC3 = was REF 1, CHG 1
                                                     661 ****************************************
00000890  5820 0A94                       00000A94   662          L     R2,=A(6*_2K)
00000894  0912                                       663          ISK   R1,R2
00000896  BD11 0ABF                       00000ABF   664          CLM   R1,B'0001',=X'20'
0000089A  4770 089B                       0000089B   665          BNE   *+1
0000089E  5820 0A98                       00000A98   666          L     R2,=A(7*_2K)
000008A2  0912                                       667          ISK   R1,R2
000008A4  BD11 0ABF                       00000ABF   668          CLM   R1,B'0001',=X'20'
000008A8  4770 08A9                       000008A9   669          BNE   *+1
000008AC  5820 0A9C                       00000A9C   670          L     R2,=A(8*_2K)
000008B0  0912                                       671          ISK   R1,R2
000008B2  BD11 0AC5                       00000AC5   672          CLM   R1,B'0001',=X'4A'
000008B6  4770 08B7                       000008B7   673          BNE   *+1
000008BA  07FE                                       674          BR    R14
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                   676 ********************************************************************************
                                                   677 *                    SSKE/ISKE/RRBE (4KBBF -- 2K mode)
                                                   678 ********************************************************************************

000008BC  BF11 0ABB                    00000ABB    680 SSKE2K   ICM   R1,B'0001',=X'16'
000008C0  5820 0AA0                    00000AA0    681          L     R2,=A((6*_2K)+X'100')
000008C4  B22B 0012                                682          SSKE  R1,R2
000008C8  BF11 0ABC                    00000ABC    683          ICM   R1,B'0001',=X'24'
000008CC  5820 0AA4                    00000AA4    684          L     R2,=A((7*_2K)+X'200')
000008D0  B22B 0012                                685          SSKE  R1,R2
000008D4  BF11 0AC3                    00000AC3    686          ICM   R1,B'0001',=X'4E'
000008D8  5820 0AA8                    00000AA8    687          L     R2,=A((8*_2K)+X'300')
000008DC  B22B 0012                                688          SSKE  R1,R2
                                                   689 ****************************************
000008E0  5820 0AA0                    00000AA0    690          L     R2,=A((6*_2K)+X'100')
000008E4  B229 0012                                691          ISKE  R1,R2
000008E8  BD11 0ABC                    00000ABC    692          CLM   R1,B'0001',=X'24'
000008EC  4770 08ED                    000008ED    693          BNE   *+1
000008F0  5820 0AA4                    00000AA4    694          L     R2,=A((7*_2K)+X'200')
000008F4  B229 0012                                695          ISKE  R1,R2
000008F8  BD11 0ABC                    00000ABC    696          CLM   R1,B'0001',=X'24'
000008FC  4770 08FD                    000008FD    697          BNE   *+1
00000900  5820 0AA8                    00000AA8    698          L     R2,=A((8*_2K)+X'300')
00000904  B229 0012                                699          ISKE  R1,R2
00000908  BD11 0AC3                    00000AC3    700          CLM   R1,B'0001',=X'4E'
0000090C  4770 090D                    0000090D    701          BNE   *+1
                                                   702 ****************************************
00000910  5820 0AA0                    00000AA0    703          L     R2,=A((6*_2K)+X'100')
00000914  B22A 0002                                704          RRBE  R0,R2
00000918  47D0 0919                    00000919    705          BC    B'1101',*+1              NOT CC2 = was REF 1, CHG 0
0000091C  5820 0AA4                    00000AA4    706          L     R2,=A((7*_2K)+X'200')
00000920  B22A 0002                                707          RRBE  R0,R2
00000924  4770 0925                    00000925    708          BC    B'0111',*+1              NOT CC0 = was REF 0, CHG 0
00000928  5820 0AA8                    00000AA8    709          L     R2,=A((8*_2K)+X'300')
0000092C  B22A 0002                                710          RRBE  R0,R2
00000930  47E0 0931                    00000931    711          BC    B'1110',*+1              NOT CC3 = was REF 1, CHG 1
                                                   712 ****************************************
00000934  5820 0AA0                    00000AA0    713          L     R2,=A((6*_2K)+X'100')
00000938  B229 0012                                714          ISKE  R1,R2
0000093C  BD11 0ABF                    00000ABF    715          CLM   R1,B'0001',=X'20'
00000940  4770 0941                    00000941    716          BNE   *+1
00000944  5820 0AA4                    00000AA4    717          L     R2,=A((7*_2K)+X'200')
00000948  B229 0012                                718          ISKE  R1,R2
0000094C  BD11 0ABF                    00000ABF    719          CLM   R1,B'0001',=X'20'
00000950  4770 0951                    00000951    720          BNE   *+1
00000954  5820 0AA8                    00000AA8    721          L     R2,=A((8*_2K)+X'300')
00000958  B229 0012                                722          ISKE  R1,R2
0000095C  BD11 0AC5                    00000AC5    723          CLM   R1,B'0001',=X'4A'
00000960  4770 0961                    00000961    724          BNE   *+1
00000964  07FE                                     725          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    727 ************************************************************************
                                                    728 *                    IVSK/TPROT/TB (4KBBF -- 2K mode)
                                                    729 ************************************************************************

00000966  BF11 0AC6                     00000AC6    731 IVSK2K   ICM   R1,B'0001',=X'6E'
0000096A  5820 0AAC                     00000AAC    732          L     R2,=A((9*_2K)+X'400')
0000096E  0812                                      733          SSK   R1,R2
                                                    734 *
00000970  8000 0AC7                     00000AC7    735          SSM   =X'04'                    (enable DAT)
00000974  B223 0012                                 736          IVSK  R1,R2
00000978  8000 0AC8                     00000AC8    737          SSM   =X'00'                    (disable DAT again)
0000097C  BD11 0AC9                     00000AC9    738          CLM   R1,B'0001',=X'68'
00000980  4770 0981                     00000981    739          BNE   *+1
                                                    740 ****************************************
00000984  BF11 0ACA                     00000ACA    741          ICM   R1,B'0001',=X'10'
00000988  5820 0A94                     00000A94    742          L     R2,=A(6*_2K)
0000098C  0812                                      743          SSK   R1,R2
0000098E  5810 0AA0                     00000AA0    744          L     R1,=A((6*_2K)+X'100')
00000992  BF21 0ACA                     00000ACA    745          ICM   R2,B'0001',=X'10'
00000996  E501 1000 2000       00000000 00000000    746          TPROT 0(R1),0(R2)
0000099C  4770 099D                     0000099D    747          BC    B'0111',*+1               NOT CC0 = FETCH OK, STORE OK
000009A0  BF21 0ABF                     00000ABF    748          ICM   R2,B'0001',=X'20'
000009A4  E501 1000 2000       00000000 00000000    749          TPROT 0(R1),0(R2)
000009AA  47B0 09AB                     000009AB    750          BC    B'1011',*+1               NOT CC1 = FETCH OK, STORE NO
000009AE  BF11 0ACB                     00000ACB    751          ICM   R1,B'0001',=X'18'         (set fetch protect)
000009B2  5820 0A94                     00000A94    752          L     R2,=A(6*_2K)
000009B6  0812                                      753          SSK   R1,R2
000009B8  5810 0A94                     00000A94    754          L     R1,=A(6*_2K)
000009BC  BF21 0ABF                     00000ABF    755          ICM   R2,B'0001',=X'20'
000009C0  E501 1000 2000       00000000 00000000    756          TPROT 0(R1),0(R2)
000009C6  47D0 09C7                     000009C7    757          BC    B'1101',*+1               NOT CC2 = FETCH NO, STORE NO
                                                    758 ****************************************
000009CA  95FF 0A68                     00000A68    759          CLI   CPUID,X'FF'               Are we running under VM?
000009CE  4780 09EE                     000009EE    760          BE    SKPTB2K                   Yes, then skip 'TB' tests
000009D2  1F00                                      761          SLR   R0,R0                     Required by TB instruction
000009D4  5820 0AB0                     00000AB0    762          L     R2,=A((10*_2K)+X'500')    Requires Herc 'f- 5000' cmd
000009D8  B22C 0012                                 763          TB    R1,R2
000009DC  47B0 09DD                     000009DD    764          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
000009E0  1F00                                      765          SLR   R0,R0                     Required by TB instruction
000009E2  5820 0AB4                     00000AB4    766          L     R2,=A((11*_2K)+X'600')    Requires Herc 'f- 5800' cmd
000009E6  B22C 0012                                 767          TB    R1,R2
000009EA  47B0 09EB                     000009EB    768          BC    B'1011',*+1               NOT CC1 = Unusable/BAD block
                          000009EE      00000001    769 SKPTB2K  EQU   *
000009EE  07FE                                      770          BR    R14
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    772 ************************************************************************
                                                    773 *                  System/370 PROGRAM CHECK ROUTINE
                                                    774 ************************************************************************

000009F0  5010 0A70                      00000A70   776 PGMCHK   ST    R1,SAVER1           Save original R1
000009F4  4110 0A50                      00000A50   777           LA    R1,OKPGMS           R1 --> Expected PGMCHKs table

000009F8  9101 002F                      0000002F   779           TM    PGMOLD+8-1,X'01'    Test failure? (odd branch address?)
000009FC  4780 0A14                      00000A14   780           BZ    PGMTAB              No, something else; check table

00000A00  5810 002C                      0000002C   782           L     R1,PGMOLD+4         Yes, get program check address
00000A04  4B10 0AB8                      00000AB8   783           SH    R1,=H'5'            Backup to failing branch instruction
00000A08  5010 002C                      0000002C   784           ST    R1,PGMOLD+4         Put back into PGM OLD PSW
00000A0C  47F0 0A44                      00000A44   785           B     PGMFAIL             Go load disabled wait PSW

00000A10  4110 100C                      0000000C   787 PGMNEXT  LA    R1,12(,R1)          Bump to next entry
00000A14  D50B 1000 0ACC  00000000       00000ACC   788 PGMTAB   CLC   0(12,R1),=12X'00'   End of table?
00000A1A  4780 0A44                      00000A44   789           BE    PGMFAIL             Yes, bonafide program check!
00000A1E  D501 1000 008E  00000000       0000008E   790           CLC   0(2,R1),PGMCODE+2   Expected Program Interrupt Code?
00000A24  4770 0A10                      00000A10   791           BNE   PGMNEXT             No, try next entry
00000A28  D503 1004 002C  00000004       0000002C   792           CLC   4(4,R1),PGMOLD+4    Expected Program Interrupt Address?
00000A2E  4770 0A10                      00000A10   793           BNE   PGMNEXT             No, try next entry

00000A32  D203 002C 1008  0000002C       00000008   795           MVC   PGMOLD+4(4),8(R1)   Yes! Move continue address into PSW
00000A38  94FB 0028                      00000028   796           NI    PGMOLD,X'FF'-X'04'  Turn off DAT in case it's on
00000A3C  5810 0A70                      00000A70   797           L     R1,SAVER1           Restore original R1
00000A40  8200 0028                      00000028   798           LPSW  PGMOLD              Ignore the crash and continue

00000A44  9602 0029                      00000029   800 PGMFAIL  OI    PGMOLD+1,X'02'      Convert to disabled wait PSW
00000A48  5810 0A70                      00000A70   801           L     R1,SAVER1           Restore original R1
00000A4C  8200 0028                      00000028   802           LPSW  PGMOLD              Load disabled wait crash PSW


00000A50                                            804 OKPGMS   DC    0D'0'               Table of allowable program checks
00000A50  00010001 00000212                         805           DC   2AL2(PGM_OPERATION_EXCEPTION),A(RRBE_PC),A(NO_RRBE)
00000A5C  00000000 00000000                         806           DC   2AL2(0),A(0),A(0)   End of table
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                     808 ********************************************************************************
                                                     809 *                          Working storage
                                                     810 ********************************************************************************

00000A68  00000000 00000000                          812 CPUID    DC    D'0'                          CPU Identification
00000A70  00000000 00000000                          813 SAVER1   DC    D'0'                          Saved original R1 value
                                                     814 *
                           00000800  00000001        815 _2K      EQU   2048                          ("_2K" shorter than "_2K")
                           00001000  00000001        816 _4K      EQU   4096                          ("_4K" shorter than "_4K")
                                                     817 *
                           00000040  00000001        818 CR0_2K   EQU   X'40'                         2K pages mode CR0 flag
                           00000080  00000001        819 CR0_4K   EQU   X'80'                         4K pages mode CR0 flag
                                                     820 *
00000A78                                             821 CR0_1_2K DC    (0*2)F'0'                     CR0/CR1 for 2K pages mode
00000A78  01400000                                   822          DC    AL1(CR0_SKEC),AL1(CR0_2K),AL2(0)
00000A7C  00001000                                   823          DC    A(SEGTAB2K)
                                                     824 *
00000A80                                             825 CR0_1_4K DC    (0*2)F'0'                     CR0/CR1 for 4K pages mode
00000A80  01800000                                   826          DC    AL1(CR0_SKEC),AL1(CR0_4K),AL2(0)
00000A84  00001200                                   827          DC    A(SEGTAB4K)
                                                     828 *
                           00000001  00000001        829 CR0_SKEC EQU   X'01'                         Storage-Key Exception Ctl.
00000A88  00                                         830 _4KBBF   DC    X'00'                         4K-Byte-Block Facility flag
                                                     831 *                                            FF = installed, 00 = not
00000A89  00                                         832 _NEW370  DC    X'00'                         SSKE/etc supported?
                                                     833 *                                            FF = yes, 00 = not.
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

00000A8C                                               835          LTORG ,                                literals pool
00000A8C  00019000                                     836                =A(50*_2K)
00000A90  00019800                                     837                =A(51*_2K)
00000A94  00003000                                     838                =A(6*_2K)
00000A98  00003800                                     839                =A(7*_2K)
00000A9C  00004000                                     840                =A(8*_2K)
00000AA0  00003100                                     841                =A((6*_2K)+X'100')
00000AA4  00003A00                                     842                =A((7*_2K)+X'200')
00000AA8  00004300                                     843                =A((8*_2K)+X'300')
00000AAC  00004C00                                     844                =A((9*_2K)+X'400')
00000AB0  00005500                                     845                =A((10*_2K)+X'500')
00000AB4  00005E00                                     846                =A((11*_2K)+X'600')
00000AB8  0005                                         847                =H'5'
00000ABA  F0                                           848                =X'F0'
00000ABB  16                                           849                =X'16'
00000ABC  24                                           850                =X'24'
00000ABD  4C                                           851                =X'4C'
00000ABE  12                                           852                =X'12'
00000ABF  20                                           853                =X'20'
00000AC0  48                                           854                =X'48'
00000AC1  1C                                           855                =X'1C'
00000AC2  26                                           856                =X'26'
00000AC3  4E                                           857                =X'4E'
00000AC4  22                                           858                =X'22'
00000AC5  4A                                           859                =X'4A'
00000AC6  6E                                           860                =X'6E'
00000AC7  04                                           861                =X'04'
00000AC8  00                                           862                =X'00'
00000AC9  68                                           863                =X'68'
00000ACA  10                                           864                =X'10'
00000ACB  18                                           865                =X'18'
00000ACC  00000000 00000000                            866                =12X'00'
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     868 ********************************************************************************
                                                     869 *                          DAT tables
                                                     870 ********************************************************************************

00000AD8                      00000AD8  00001000    872          ORG   TEST+X'1000'

00001000  F0001040                                   874 SEGTAB2K DC    AL1((16-1)*16),AL3(PAGTAB2K)
00001004  00000001 00000001                          875          DC    15XL4'00000001'
                                                     876 *
00001040  0000                                       877 PAGTAB2K DC    AL2((0*_2K)/256)
00001042  0008                                       878          DC    AL2((1*_2K)/256)
00001044  0010                                       879          DC    AL2((2*_2K)/256)
00001046  0018                                       880          DC    AL2((3*_2K)/256)
00001048  0020                                       881          DC    AL2((4*_2K)/256)
0000104A  0028                                       882          DC    AL2((5*_2K)/256)
0000104C  0030                                       883          DC    AL2((6*_2K)/256)
0000104E  0038                                       884          DC    AL2((7*_2K)/256)
00001050  0040                                       885          DC    AL2((8*_2K)/256)
00001052  0048                                       886          DC    AL2((9*_2K)/256)
00001054  0050                                       887          DC    AL2((10*_2K)/256)
00001056  0058                                       888          DC    AL2((11*_2K)/256)
00001058  0060                                       889          DC    AL2((12*_2K)/256)
0000105A  0068                                       890          DC    AL2((13*_2K)/256)
0000105C  0070                                       891          DC    AL2((14*_2K)/256)
0000105E  0078                                       892          DC    AL2((15*_2K)/256)


00001060                      00001060  00001200    894          ORG   TEST+X'1200'

00001200  F0001240                                   896 SEGTAB4K DC    AL1((16-1)*16),AL3(PAGTAB4K)
00001204  00000001 00000001                          897          DC    15XL4'00000001'
                                                     898 *
00001240  0000                                       899 PAGTAB4K DC    AL2((0*_4K)/256)
00001242  0010                                       900          DC    AL2((1*_4K)/256)
00001244  0020                                       901          DC    AL2((2*_4K)/256)
00001246  0030                                       902          DC    AL2((3*_4K)/256)
00001248  0040                                       903          DC    AL2((4*_4K)/256)
0000124A  0050                                       904          DC    AL2((5*_4K)/256)
0000124C  0060                                       905          DC    AL2((6*_4K)/256)
0000124E  0070                                       906          DC    AL2((7*_4K)/256)
00001250  0080                                       907          DC    AL2((8*_4K)/256)
00001252  0090                                       908          DC    AL2((9*_4K)/256)
00001254  00A0                                       909          DC    AL2((10*_4K)/256)
00001256  00B0                                       910          DC    AL2((11*_4K)/256)
00001258  00C0                                       911          DC    AL2((12*_4K)/256)
0000125A  00D0                                       912          DC    AL2((13*_4K)/256)
0000125C  00E0                                       913          DC    AL2((14*_4K)/256)
0000125E  00F0                                       914          DC    AL2((15*_4K)/256)
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                          916 ********************************************************************************
                                          917 *                          Register equates
                                          918 ********************************************************************************

                             00000000  00000001   920 R0       EQU   0
                             00000001  00000001   921 R1       EQU   1
                             00000002  00000001   922 R2       EQU   2
                             00000003  00000001   923 R3       EQU   3
                             00000004  00000001   924 R4       EQU   4
                             00000005  00000001   925 R5       EQU   5
                             00000006  00000001   926 R6       EQU   6
                             00000007  00000001   927 R7       EQU   7
                             00000008  00000001   928 R8       EQU   8
                             00000009  00000001   929 R9       EQU   9
                             0000000A  00000001   930 R10      EQU   10
                             0000000B  00000001   931 R11      EQU   11
                             0000000C  00000001   932 R12      EQU   12
                             0000000D  00000001   933 R13      EQU   13
                             0000000E  00000001   934 R14      EQU   14
                             0000000F  00000001   935 R15      EQU   15


                                       00000000   937          END   TEST
```

```
     SYMBOL         TYPE  VALUE   LENGTH  DEFN  REFERENCES

BEG4K                I    00027A       4   158  130
BEGIN                I    000200       4    66   48
BEGX4K               I    000246       4   136  128
CPUID                D    000A68       8   812   66  318  465  612  759
CR0_1_2K             F    000A78       4   821   88  120  144  166
CR0_1_4K             F    000A80       4   825  136  158
CR0_2K               U    000040       1   818  822
CR0_4K               U    000080       1   819  826
CR0_SKEC             U    000001       1   829  822  826
GOODPSW              D    0002B8       8   181  180
IMAGE                1    000000    4704     0
IVSK2K               I    000966       4   731  172
IVSK4K               I    00079A       4   584  164
NO_RRBE              I    00021A       4    96  805
OKPGMS               D    000A50       8   804  777
PAGTAB2K             R    001040       2   877  874
PAGTAB4K             R    001240       2   899  896
PGMCHK               I    0009F0       4   776   55
PGMCODE              F    00008C       4    58  790
PGMFAIL              I    000A44       4   800  785  789
PGMNEXT              I    000A10       4   787  791  793
PGMOLD               U    000028       1    51  779  782  784  792  795  796  798  800  802
PGMTAB               I    000A14       6   788  780
PGM_OPERATION_EXCEPTION
                     U    000001       1    60  805
PGM_SPECIAL_OPERATION_EXCEPTION
                     U    000013       1    62
PGM_SPECIFICATION_EXCEPTION
                     U    000006       1    61
R0                   U    000000       1   920   88   90  120  136  144  158  166  263  266  269  320  324  410  413  416  467  471
                                                557  560  563  614  618  704  707  710  761  765
R1                   U    000001       1   921   88  120  121  123  125  127  136  144  158  166  188  190  191  193  194  196  199
                                              200  203  204  207  208  222  223  226  227  230  231  239  241  242  244  245  247
                                              250  251  254  255  258  259  273  274  277  278  281  282  290  292  295  297  300
                                              302  303  305  308  310  312  313  315  322  326  335  337  338  340  341  343  346
                                              347  350  351  354  355  369  370  373  374  377  378  386  388  389  391  392  394
                                              397  398  401  402  405  406  420  421  424  425  428  429  437  439  442  444  447
                                              449  450  452  455  457  459  460  462  469  473  482  484  485  487  488  490  493
                                              494  497  498  501  502  516  517  520  521  524  525  533  535  536  538  539  541
                                              544  545  548  549  552  553  567  568  571  572  575  576  584  586  589  591  594
                                              596  597  599  602  604  606  607  609  616  620  629  631  632  634  635  637  640
                                              641  644  645  648  649  663  664  667  668  671  672  680  682  683  685  686  688
                                              691  692  695  696  699  700  714  715  718  719  722  723  731  733  736  738  741
                                              743  744  746  749  751  753  754  756  763  767  776  777  782  783  784  787  788
                                              790  792  795  797  801
R10                  U    00000A       1   930
R11                  U    00000B       1   931
R12                  U    00000C       1   932
R13                  U    00000D       1   933
R14                  U    00000E       1   934  138  141  142  146  149  150  160  163  164  168  171  172  233  284  329  380  431
                                              476  527  578  623  674  725  770
R15                  U    00000F       1   935
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
R2	U	000002	1	922	89 90 122 123 124 125 189 190 192 193 195 196 198 199 202 203 206 207 211 212 214 215 217 218 221 222 225 226 229 230 240 241 243 244 246 247 249 250 253 254 257 258 262 263 265 266 268 269 272 273 276 277 280 281 291 292 295 301 302 304 305 307 308 311 312 314 315 321 322 325 326 336 337 339 340 342 343 345 346 349 350 353 354 358 359 361 362 364 365 368 369 372 373 376 377 387 388 390 391 393 394 396 397 400 401 404 405 409 410 412 413 415 416 419 420 423 424 427 428 438 439 442 448 449 451 452 454 455 458 459 461 462 468 469 472 473 483 484 486 487 489 490 492 493 496 497 500 501 505 506 508 509 511 512 515 516 519 520 523 524 534 535 537 538 540 541 543 544 547 548 551 552 556 557 559 560 562 563 566 567 570 571 574 575 585 586 589 595 596 598 599 601 602 605 606 608 609 615 616 619 620 630 631 633 634 636 637 639 640 643 644 647 648 652 653 655 656 658 659 662 663 666 667 670 671 681 682 684 685 687 688 690 691 694 695 698 699 703 704 706 707 709 710 713 714 717 718 721 722 732 733 736 742 743 745 746 748 749 752 753 755 756 762 763 766 767
R3	U	000003	1	923	
R4	U	000004	1	924	
R5	U	000005	1	925	
R6	U	000006	1	926	
R7	U	000007	1	927	
R8	U	000008	1	928	
R9	U	000009	1	929	
RRBE_PC	U	000212	1	91	805
SAVER1	D	000A70	8	813	776 797 801
SEGTAB2K	R	001000	1	874	823
SEGTAB4K	R	001200	1	896	827
SKIP2K	I	0002AA	4	174	170
SKIP4K	I	000292	4	166	162
SKIPX2K	I	000276	4	152	148
SKIPX4K	I	00025E	4	144	140
SKPTB2K	U	0009EE	1	769	760
SKPTB4K	U	000822	1	622	613
SSK2K	I	000824	4	629	168
SSK4K	I	000658	4	482	160
SSKE2K	I	0008BC	4	680	171
SSKE4K	I	0006F0	4	533	163
SUCCESS	I	0002AE	4	180	152 174
TEST	J	000000	4704	43	46 50 53 57 64 872 894 44 937
TEST370	I	000208	4	88	67
TST4KBBF	I	000222	4	120	94 97
XIVSK2K	I	0005CE	4	437	150
XIVSK4K	I	000402	4	290	142
XSKPTB2K	U	000656	1	475	466
XSKPTB4K	U	00048A	1	328	319
XSSK2K	I	00048C	4	335	146
XSSK4K	I	0002C0	4	188	138
XSSKE2K	I	000524	4	386	149
XSSKE4K	I	000358	4	239	141
_2K	U	000800	1	815	122 124 189 192 195 240 243 246 291 321 325 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892
_4K	U	001000	1	816	899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914

```
     SYMBOL         TYPE  VALUE    LENGTH  DEFN  REFERENCES

_4KBBF               X    000A88        1   830  129
_NEW370              X    000A89        1   832   93   96  139  147  161  169
=12X'00'             X    000ACC        1   866  788
=A((10*_2K)+X'500')
                     A    000AB0        4   845  321  468  615  762
=A((11*_2K)+X'600')
                     A    000AB4        4   846  325  472  619  766
=A((6*_2K)+X'100')
                     A    000AA0        4   841  240  249  262  272  303  387  396  409  419  450  534  543  556  566  597  681  690
                                              703  713  744
=A((7*_2K)+X'200')
                     A    000AA4        4   842  243  253  265  276  390  400  412  423  537  547  559  570  684  694  706  717
=A((8*_2K)+X'300')
                     A    000AA8        4   843  246  257  268  280  393  404  415  427  540  551  562  574  687  698  709  721
=A((9*_2K)+X'400')
                     A    000AAC        4   844  291  438  585  732
=A(50*_2K)           A    000A8C        4   836  122
=A(51*_2K)           A    000A90        4   837  124
=A(6*_2K)            A    000A94        4   838  189  198  211  221  301  311  313  336  345  358  368  448  458  460  483  492  505
                                              515  595  605  607  630  639  652  662  742  752  754
=A(7*_2K)            A    000A98        4   839  192  202  214  225  339  349  361  372  486  496  508  519  633  643  655  666
=A(8*_2K)            A    000A9C        4   840  195  206  217  229  342  353  364  376  489  500  511  523  636  647  658  670
=H'5'                H    000AB8        2   847  783
=X'00'               X    000AC8        1   862  296  443  590  737
=X'04'               X    000AC7        1   861  294  441  588  735
=X'10'               X    000ACA        1   864  300  304  447  451  594  598  741  745
=X'12'               X    000ABE        1   852  223  370
=X'16'               X    000ABB        1   849  188  200  335  347  482  533  629  680
=X'18'               X    000ACB        1   865  310  457  604  751
=X'1C'               X    000AC1        1   855  239  386
=X'20'               X    000ABF        1   853  227  307  314  374  454  461  517  521  568  572  601  608  664  668  715  719  748
                                              755
=X'22'               X    000AC4        1   858  274  278  421  425
=X'24'               X    000ABC        1   850  191  204  338  351  485  494  498  536  545  549  632  641  645  683  692  696
=X'26'               X    000AC2        1   856  242  251  255  389  398  402
=X'48'               X    000AC0        1   854  231  378
=X'4A'               X    000AC5        1   859  282  429  525  576  672  723
=X'4C'               X    000ABD        1   851  194  208  341  355
=X'4E'               X    000AC3        1   857  245  259  392  406  488  502  539  553  635  649  686  700
=X'68'               X    000AC9        1   863  297  444  591  738
=X'6E'               X    000AC6        1   860  290  437  584  731
=X'F0'               X    000ABA        1   848  121  127
```

MACRO DEFN REFERENCES

No defined macros

```
   DESC    SYMBOL   SIZE     POS         ADDR

Entry: 0

Image      IMAGE    4704  0000-125F   0000-125F
  Region              4704  0000-125F   0000-125F
    CSECT  TEST     4704  0000-125F   0000-125F
```

STMT FILE NAME

1 c:\Users\Fish\Documents\Visual Studio 2008\Projects\MyProjects\ASMA-0\skey370\skey370.asm

** NO ERRORS FOUND **