```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                        2 ************************************************************************
                                        3 *
                                        4 *              TRTE instruction tests
                                        5 *
                                        6 *        NOTE: This test is based the CLCL-et-al Test
                                        7 *              modified to only test the Performance
                                        8 *              of the TRTE instruction.
                                        9 *
                                       10 *              The MSG routine is from the Hercules Binary
                                       11 *              Floating Point Validation Package by Stephen R. Orso
                                       12
                                       13 *                        ********************
                                       14 *                        **   IMPORTANT!   **
                                       15 *                        ********************
                                       16 *
                                       17 *              This test uses the Hercules Diagnose X'008' interface
                                       18 *              to display messages and thus your .tst runtest script
                                       19 *              MUST contain a "DIAG8CMD ENABLE" statement within it!
                                       20 *
                                       21 *        James Wekel October 2022
                                       22 ************************************************************************


                                       24 ************************************************************************
                                       25 *
                                       26 *            TRTE Performance instruction tests
                                       27 *
                                       28 ************************************************************************
                                       29 *
                                       30 *  This program ONLY tests the performance of the TRTE
                                       31 *  instructions.
                                       32 *        Tests:
                                       33 *              All tests are ' TRTE  R2,R4,12 '
                                       34 *              where the FC table is 128K in length,
                                       35 *              FC is 2 bytes and an argument length of 2 bytes.
                                       36 *
                                       37 *              M3=12 requires page crossover tests for both FC and
                                       38 *              the argument and has the worst performance compared to
                                       39 *              M3=0 with the FC table and operand contained within
                                       40 *              a page. The test should provide a lower bound on
                                       41 *              performance improvement.
                                       42 *
                                       43 *              1. TRTE of 512 bytes
                                       44 *              2. TRTE of 512 bytes that crosses a page boundary,
                                       45 *                 which results in a CC=3, and a branch back
                                       46 *                 to complete the TRTE instruction.
                                       47 *              3. TRTE of 2048 bytes
                                       48 *              4. TRTE of 2048 bytes that crosses a page boundary,
                                       49 *                 which results in a CC=3, and a branch back
                                       50 *                 to complete the TRTE instruction
                                       51 *
                                       52 ************************************************************************
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                        54 ************************************************************************
                                        55 *
                                        56 *  Example Hercules Testcase:
                                        57 *
                                        58 *
                                        59 *        *Testcase TRTE-02-performance (Test TRTE instructions)
                                        60 *        diag8cmd enable      #used for message to Hercules console
                                        61 *
                                        62 *        archlvl  S/370
                                        63 *        facility enable  HERC_370_EXTENSION
                                        64 *
                                        65 *        mainsize    16
                                        66 *        numcpu      1
                                        67 *        sysclear
                                        68 *
                                        69 *        loadcore    "$(testpath)/TRTE-02-performance"
                                        70 *
                                        71 *        r           408=ff   # (enable timing tests)
                                        72 *        runtest     20       # (depends on the host)
                                        73 *
                                        74 *        diag8cmd disable
                                        75 *        *Done
                                        76 *
                                        77 *
                                        78 ************************************************************************
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                        80          PRINT OFF
                                      3461          PRINT ON

                                      3463 ********************************************************************************
                                      3464 *        SATK prolog stuff...
                                      3465 ********************************************************************************

                                      3467          ARCHLVL  SET=2,ZARCH=NO,MNOTE=NO
                                      3469+$AL      OPSYN AL
                                      3470+$ALR     OPSYN ALR
                                      3471+$B       OPSYN B
                                      3472+$BAS     OPSYN BAS
                                      3473+$BASR    OPSYN BASR
                                      3474+$BC      OPSYN BC
                                      3475+$BCTR    OPSYN BCTR
                                      3476+$BE      OPSYN BE
                                      3477+$BH      OPSYN BH
                                      3478+$BL      OPSYN BL
                                      3479+$BM      OPSYN BM
                                      3480+$BNE     OPSYN BNE
                                      3481+$BNH     OPSYN BNH
                                      3482+$BNL     OPSYN BNL
                                      3483+$BNM     OPSYN BNM
                                      3484+$BNO     OPSYN BNO
                                      3485+$BNP     OPSYN BNP
                                      3486+$BNZ     OPSYN BNZ
                                      3487+$BO      OPSYN BO
                                      3488+$BP      OPSYN BP
                                      3489+$BXLE    OPSYN BXLE
                                      3490+$BZ      OPSYN BZ
                                      3491+$CH      OPSYN CH
                                      3492+$L       OPSYN L
                                      3493+$LH      OPSYN LH
                                      3494+$LM      OPSYN LM
                                      3495+$LPSW    OPSYN LPSW
                                      3496+$LR      OPSYN LR
                                      3497+$LTR     OPSYN LTR
                                      3498+$NR      OPSYN NR
                                      3499+$SL      OPSYN SL
                                      3500+$SLR     OPSYN SLR
                                      3501+$SR      OPSYN SR
                                      3502+$ST      OPSYN ST
                                      3503+$STM     OPSYN STM
                                      3504+$X       OPSYN X


                                      3506 ********************************************************************************
                                      3507 *        Initiate the TRTE2TST CSECT in the CODE region
                                      3508 *        with the location counter at 0
                                      3509 ********************************************************************************

                                      3511 TRTE2TST ASALOAD  REGION=CODE
```

```
 LOC       OBJECT CODE       ADDR1   ADDR2   STMT

                             000000  0C3BDD  3512+TRTE2TST START 0,CODE
000000  000A0000 00000008                   3514+         PSW   0,0,2,0,X'008'      64-bit Restart ISR Trap New PSW
000008                       000008  000058  3515+         ORG   TRTE2TST+X'058'
000058  000A0000 00000018                   3517+         PSW   0,0,2,0,X'018'      64-bit External ISR Trap New PSW
000060  000A0000 00000020                   3518+         PSW   0,0,2,0,X'020'      64-bit Supervisor Call ISR Trap New PSW
000068  000A0000 00000028                   3519+         PSW   0,0,2,0,X'028'      64-bit Program ISR Trap New PSW
000070  000A0000 00000030                   3520+         PSW   0,0,2,0,X'030'      64-bit Machine Check Trap New PSW
000078  000A0000 00000038                   3521+         PSW   0,0,2,0,X'038'      64-bit Input/Output Trap New PSW
000080                       000080  000200  3522+         ORG   TRTE2TST+512



                                             3524 ********************************************************************************
                                             3525 *        Create IPL (restart) PSW
                                             3526 ********************************************************************************

                                             3528          ASAIPL   IA=BEGIN
                             000000  0C3BDD  3529+TRTE2TST CSECT
000200                       000200  000000  3530+         ORG   TRTE2TST
000000  00080000 00000200                   3531+         PSW   0,0,0,0,BEGIN,24
000008                       000008  000200  3532+         ORG   TRTE2TST+512     Reset CSECT to end of assigned storage area
                             000000  0C3BDD  3533+TRTE2TST CSECT
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      3535 ********************************************************************************
                                      3536 *               The actual "TRTE2TST" program itself...
                                      3537 ********************************************************************************
                                      3538 *
                                      3539 *  Architecture Mode: 370
                                      3540 *  Register Usage:
                                      3541 *
                                      3542 *   R0       (work)
                                      3543 *   R1       (work)
                                      3544 *   R2       (work) or MSG subroutine call
                                      3545 *   R3       (work)
                                      3546 *   R4       (work)
                                      3547 *   R5       TRTETEST Base (of current test)
                                      3548 *   R5-R7    (work)
                                      3549 *   R8       (work)
                                      3550 *   R9       Second base register
                                      3551 *   R10-R12  (work)
                                      3552 *   R13      First base register
                                      3553 *   R14      Subroutine call
                                      3554 *   R15      Secondary Subroutine call or work
                                      3555 *
                                      3556 ********************************************************************************
000200                        000000    3558          USING  ASA,R0          Low core addressability
000200                        000200    3559          USING  BEGIN,R13        FIRST Base Register
000200                        001200    3560          USING  BEGIN+4096,R9   SECOND Base Register

000200  05D0                           3562 BEGIN     BALR  R13,0             Initalize FIRST base register
000202  06D0                           3563           BCTR  R13,0             Initalize FIRST base register
000204  06D0                           3564           BCTR  R13,0             Initalize FIRST base register

000206  4190 D800             000800   3566           LA    R9,2048(,R13)     Initalize SECOND base register
00020A  4190 9800             000800   3567           LA    R9,2048(,R9)     Initalize SECOND base register

                                      3569 *
                                      3570 **        Run the performance tests...
                                      3571 *
00020E  45E0 D328             000528   3572           BAL   R14,TEST91       Time TRTE   instruction  (speed test)
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     3574 ************************************************************************
                                     3575 *         Test for normal or unexpected test completion...
                                     3576 ************************************************************************

000212  95FF D208                    000408  3578          CLI   TIMEOPT,X'FF'    Was this a timing run?
000216  4770 DD42                    000F42  3579          BNE   EOJ              No, timing run; just go end normally

00021A  95FC D200                    000400  3581          CLI   TESTNUM,X'FC'    Did we end on expected test?
00021E  4770 DD50                    000F50  3582          BNE   FAILTEST         No?! Then FAIL the test!

000222  9599 D201                    000401  3584          CLI   SUBTEST,X'99'    Did we end on expected SUB-test?
000226  4770 DD50                    000F50  3585          BNE   FAILTEST         No?! Then FAIL the test!

00022A  47F0 DD42                    000F42  3587          B     EOJ              Yes, then normal completion!




                                     3589 ************************************************************************
                                     3590 *        Fixed test storage locations ...
                                     3591 ************************************************************************


00022E                       00022E  000400  3593          ORG   BEGIN+X'200'
                                     3594
000400                               3595 TESTADDR DS    0D                Where test/subtest numbers will go
000400  99                           3596 TESTNUM  DC    X'99'      Test number of active test
000401  99                           3597 SUBTEST  DC    X'99'      Active test sub-test number


000408                               3599          DS    0D
000408  00                           3600 TIMEOPT  DC    X'00'      Set to non-zero to run timing tests


000410                               3602          DS    0D
000410  00000000 00000000            3603 SAVE1T4  DC    4F'0'
000420  00000000                     3604 SAVER2   DC    F'0'
000424  00000000                     3605 SAVER5   DC    F'0'


000428                       000428  000528  3607          ORG   *+X'100'
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     3609 ********************************************************************
                                     3610 *        TEST91                  Time TRTE instruction  (speed test)
                                     3611 ********************************************************************

000528  91FF D208                    000408  3613 TEST91   TM    TIMEOPT,X'FF'    Is timing tests option enabled?
00052C  078E                         000000  3614          BZR   R14              No, skip timing tests

00052E  4150 DE08                    001008  3616          LA    R5,TRTEPERF         Point R5 --> testing control table
000532                       000000          3617          USING TRTETEST,R5         What each table entry looks like
                                     3618 *
                             000532  000001  3619 TST91LOP EQU   *
000532  5050 D224                    000424  3620          ST    R5,SAVER5           save current pref table base
                                     3621 *
000536  4360 5000                    000000  3622          IC    R6,TNUM             Set test number
00053A  4260 D200                    000400  3623          STC   R6,TESTNUM
                                     3624 *
                                     3625 **       Initialize operand data  (move data to testing address)
                                     3626 *
00053E  58A0 5018                    000018  3627          L     R10,OP1WHERE          Where to move operand-1 data to
000542  58B0 5008                    000008  3628          L     R11,OP1LEN            operand-1 length
000546  50B0 501C                    00001C  3629          ST    R11,OP1WLEN             and save for later
00054A  5860 5004                    000004  3630          L     R6,OP1DATA            Where op1 data is right now
00054E  5870 5008                    000008  3631          L     R7,OP1LEN             How much of it there is
000552  0EA6                         000000  3632          MVCL  R10,R6
                                     3633 *
000554  58A0 5014                    000014  3634          L     R10,OP2WHERE          Where to move operand-2 data to
000558  58B0 5010                    000010  3635          L     R11,OP2LEN            How much of it there is
00055C  5860 500C                    00000C  3636          L     R6,OP2DATA            Where op2 data is right now
000560  5870 5010                    000010  3637          L     R7,OP2LEN              How much of it there is
000564  0EA6                         000000  3638          MVCL  R10,R6


                                     3640 *
                                     3641 **       Next, time the overhead...
                                     3642 *
000566  5870 DD78                    000F78  3643          L     R7,NUMLOOPS
00056A  B205 DD80                    000F80  3644          STCK  BEGCLOCK
00056E  9014 D210                    000410  3645          STM   R1,R4,SAVE1T4
000572  0560                         000000  3646          BALR  R6,0
                                     3647
000574  9814 5014                    000014  3648          LM    R1,R4,OPSWHERE     get TRTE operands
000578  4710 D374                    000574  3649          BC    B'0001',*-4            not finished
00057C  9814 5014                    000014  3650          LM    R1,R4,OPSWHERE
000580  4710 D384                    000584  3651          BC    B'0001',*+4
                                     3652 *        .........ETC.........
                                     3653          PRINT OFF
                                     3848          PRINT ON
000884  9814 5014                    000014  3849          LM    R1,R4,OPSWHERE
000888  4710 D68C                    00088C  3850          BC    B'0001',*+4
00088C  9814 5014                    000014  3851          LM    R1,R4,OPSWHERE
000890  4710 D694                    000894  3852          BC    B'0001',*+4
                                     3853 *
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

000894  0676                             3854          BCTR  R7,R6
000896  B205 DD88                 000F88  3855          STCK  ENDCLOCK
00089A  45F0 DC08                 000E08  3856          BAL   R15,CALCDUR
00089E  D207 DD98 DD90      000F98 000F90  3857          MVC   OVERHEAD,DURATION
                                         3858 *
                                         3859 **        Now do the actual timing run...
                                         3860 *
0008A4  5870 DD78                 000F78  3861          L     R7,NUMLOOPS
0008A8  B205 DD80                 000F80  3862          STCK  BEGCLOCK
0008AC  0560                             3863          BALR  R6,0
                                         3864 *
0008AE  9814 5014                 000014  3865          LM    R1,R4,OPSWHERE          Load TRTE operands
0008B2  B9BF C024                         3866          TRTE  R2,R4,12                do TRTE
0008B6  4710 D6B2                 0008B2  3867          BC    B'0001',*-4                  not finished?
0008BA  9814 5014                 000014  3868          LM    R1,R4,OPSWHERE          Load TRTE operands
0008BE  B9BF C024                         3869          TRTE  R2,R4,12                do TRTE
0008C2  4710 D6BE                 0008BE  3870          BC    B'0001',*-4                  not finished?
                                         3871 *         .........ETC.........
                                         3872          PRINT OFF
                                         4173          PRINT ON
000D46  9814 5014                 000014  4174          LM    R1,R4,OPSWHERE
000D4A  B9BF C024                         4175          TRTE  R2,R4,12
000D4E  4710 DB4A                 000D4A  4176          BC    B'0001',*-4
000D52  9814 5014                 000014  4177          LM    R1,R4,OPSWHERE
000D56  B9BF C024                         4178          TRTE  R2,R4,12
000D5A  4710 DB56                 000D56  4179          BC    B'0001',*-4
                                         4180 *
000D5E  0676                             4181          BCTR  R7,R6
000D60  B205 DD88                 000F88  4182          STCK  ENDCLOCK
                                         4183 *
000D64  9814 D210                 000410  4184          LM    R1,R4,SAVE1T4
000D68  D204 DDD9 DD6C      000FD9 000F6C  4185          MVC   PRTLINE+33(5),=CL5'TRTE'
000D6E  45F0 DB86                 000D86  4186          BAL   R15,RPTSPEED
                                         4187 *
                                         4188 *  more performance tests
                                         4189 *
000D72  5850 D224                 000424  4190          L     R5,SAVER5           restore perf table base
000D76  4150 5034                 000034  4191          LA    R5,TRTENEXT         Go on to next table entry
000D7A  D503 DD60 5000      000F60 000000  4192          CLC   =F'0',0(R5)         End of table?
000D80  4770 D332                 000532  4193          BNE   TST91LOP            No, loop...
000D84  07FE                             4194          BR    R14                 Return to caller or FAILTEST
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4196 ********************************************************************************
                                     4197 *        RPTSPEED                  Report instruction speed
                                     4198 ********************************************************************************

000D86  50F0 DBF0                    000DF0  4200 RPTSPEED ST    R15,RPTSAVE        Save return address
000D8A  5050 DBF4                    000DF4  4201          ST    R5,RPTSVR5         Save R5
                                     4202 *
000D8E  45F0 DC08                    000E08  4203          BAL   R15,CALCDUR        Calculate duration
                                     4204 *
000D92  4150 DD98                    000F98  4205          LA    R5,OVERHEAD        Subtract overhead
000D96  4160 DD90                    000F90  4206          LA    R6,DURATION        From raw timing
000D9A  4170 DD90                    000F90  4207          LA    R7,DURATION        Yielding true instruction timing
000D9E  45F0 DC5C                    000E5C  4208          BAL   R15,SUBDWORD       Do it
                                     4209 *
000DA2  98AB DD90                    000F90  4210          LM    R10,R11,DURATION   Convert to...
000DA6  8CA0 000C                    00000C  4211          SRDL  R10,12             ... microseconds
                                     4212 *
000DAA  4EA0 DDA0                    000FA0  4213          CVD   R10,TICKSAAA       convert HIGH part to decimal
000DAE  4EB0 DDA8                    000FA8  4214          CVD   R11,TICKSBBB       convert LOW  part to decimal
                                     4215 *
000DB2  F877 DDB0 DDA0       000FB0  000FA0  4216          ZAP   TICKSTOT,TICKSAAA            Calculate...
000DB8  FC75 DDB0 DD71       000FB0  000F71  4217          MP    TICKSTOT,=P'4294967296'      ...decimal...
000DBE  FA77 DDB0 DDA8       000FB0  000FA8  4218          AP    TICKSTOT,TICKSBBB            ...microseconds
                                     4219 *
000DC4  D20B DDE3 DDFC       000FE3  000FFC  4220          MVC   PRTLINE+43(L'EDIT),EDIT          (edit into...
000DCA  DE0B DDE3 DDB3       000FE3  000FB3  4221          ED    PRTLINE+43(L'EDIT),TICKSTOT+3     ...print line)
```

```
                                     4223 *
                                     4224 *        Use Hercules Diagnose for Message to console
                                     4225 *
000DD0  9002 DBF8                    000DF8  4226          STM   R0,R2,RPTDWSAV       save regs used by MSG
000DD4  4100 0044                    000044  4227          LA    R0,PRTLNG          message length
000DD8  4110 DDB8                    000FB8  4228          LA    R1,PRTLINE         messagfe address
000DDC  4520 DC90                    000E90  4229          BAL   R2,MSG             call Hercules console MSG display
000DE0  9802 DBF8                    000DF8  4230          LM    R0,R2,RPTDWSAV     restore regs


000DE4  5850 DBF4                    000DF4  4232          L     R5,RPTSVR5         Restore R5
000DE8  58F0 DBF0                    000DF0  4233          L     R15,RPTSAVE        Restore return address
000DEC  07FF                         000000  4234          BR    R15                Return to caller

000DF0  00000000                     000000  4236 RPTSAVE  DC    F'0'               R15 save area
000DF4  00000000                     000000  4237 RPTSVR5  DC    F'0'               R5 save area

000DF8  00000000 00000000            000000  4239 RPTDWSAV DC    2D'0'              R0-R2 save area for MSG call
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4241 ********************************************************************************
                                      4242 *        CALCDUR                  Calculate DURATION
                                      4243 ********************************************************************************

000E08  50F0 DC4C                     000E4C  4245 CALCDUR  ST    R15,CALCRET        Save return address
000E0C  9057 DC50                     000E50  4246          STM   R5,R7,CALCWORK     Save work registers
                                      4247 *
000E10  9867 DD80                     000F80  4248          LM    R6,R7,BEGCLOCK     Remove CPU number from clock value
000E14  8C60 0006                     000006  4249          SRDL  R6,6                       "
000E18  8D60 0006                     000006  4250          SLDL  R6,6                       "
000E1C  9067 DD80                     000F80  4251          STM   R6,R7,BEGCLOCK             "
                                      4252 *
000E20  9867 DD88                     000F88  4253          LM    R6,R7,ENDCLOCK     Remove CPU number from clock value
000E24  8C60 0006                     000006  4254          SRDL  R6,6                       "
000E28  8D60 0006                     000006  4255          SLDL  R6,6                       "
000E2C  9067 DD88                     000F88  4256          STM   R6,R7,ENDCLOCK             "
                                      4257 *
000E30  4150 DD80                     000F80  4258          LA    R5,BEGCLOCK        Starting time
000E34  4160 DD88                     000F88  4259          LA    R6,ENDCLOCK        Ending time
000E38  4170 DD90                     000F90  4260          LA    R7,DURATION        Difference
000E3C  45F0 DC5C                     000E5C  4261          BAL   R15,SUBDWORD       Calculate duration
                                      4262 *
000E40  9857 DC50                     000E50  4263          LM    R5,R7,CALCWORK     Restore work registers
000E44  58F0 DC4C                     000E4C  4264          L     R15,CALCRET        Restore return address
000E48  07FF                          000000  4265          BR    R15                Return to caller

000E4C  00000000                      000000  4267 CALCRET  DC    F'0'                 R15 save area
000E50  00000000 00000000             000000  4268 CALCWORK DC    3F'0'                R5-R7 save area



                                      4270 ********************************************************************************
                                      4271 *        SUBDWORD                 Subtract two doublewords
                                      4272 *        R5 --> subtrahend, R6 --> minuend, R7 --> result
                                      4273 ********************************************************************************

000E5C  9014 DC80                     000E80  4275 SUBDWORD STM   R1,R4,SUBDWSAV   Save registers
                                      4276 *
000E60  9812 5000                     000000  4277          LM    R1,R2,0(R5)      Subtrahend  (value to subtract)
000E64  9834 6000                     000000  4278          LM    R3,R4,0(R6)      Minuend     (what to subtract FROM)
000E68  1F42                          000000  4279          SLR   R4,R2            Subtract LOW part
000E6A  47B0 DC72                     000E72  4280          BNM   *+4+4              (branch if no borrow)
000E6E  5F30 DD64                     000F64  4281          SL    R3,=F'1'          (otherwise do borrow)
000E72  1F31                          000000  4282          SLR   R3,R1            Subtract HIGH part
000E74  9034 7000                     000000  4283          STM   R3,R4,0(R7)      Store results
                                      4284 *
000E78  9814 DC80                     000E80  4285          LM    R1,R4,SUBDWSAV   Restore registers
000E7C  07FF                          000000  4286          BR    R15                Return to caller

000E80  00000000 00000000             000000  4288 SUBDWSAV DC    2D'0'                R1-R4 save area
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4290 ********************************************************************
                                     4291 *        Issue HERCULES MESSAGE pointed to by R1, length in R0
                                     4292 *              R2 = return address
                                     4293 ********************************************************************

000E90  4900 DD68                000F68  4295 MSG      CH    R0,=H'0'               Do we even HAVE a message?
000E94  07D2                             4296          BNHR  R2                     No, ignore

000E96  9002 DCC8                000EC8  4298          STM   R0,R2,MSGSAVE          Save registers

000E9A  4900 DD6A                000F6A  4300          CH    R0,=AL2(L'MSGMSG)      Message length within limits?
000E9E  47D0 DCA6                000EA6  4301          BNH   MSGOK                  Yes, continue
000EA2  4100 005F                00005F  4302          LA    R0,L'MSGMSG            No, set to maximum

000EA6  1820                             4304 MSGOK    LR    R2,R0                  Copy length to work register
000EA8  0620                             4305          BCTR  R2,0                   Minus-1 for execute
000EAA  4420 DCD4                000ED4  4306          EX    R2,MSGMVC              Copy message to O/P buffer

000EAE  4120 200A                00000A  4308          LA    R2,1+L'MSGCMD(,R2)     Calculate true command length
000EB2  4110 DCDA                000EDA  4309          LA    R1,MSGCMD              Point to true command

000EB6  83120008                         4311          DC    X'83',X'12',X'0008'    Issue Hercules Diagnose X'008'
000EBA  4780 DCC0                000EC0  4312          BZ    MSGRET                 Return if successful
000EBE  0000                             4313          DC    H'0'                   CRASH for debugging purposes

000EC0  9802 DCC8                000EC8  4315 MSGRET   LM    R0,R2,MSGSAVE          Restore registers
000EC4  07F2                             4316          BR    R2                     Return to caller

000EC8  00000000 00000000                4318 MSGSAVE  DC    3F'0'                  Registers save area
000ED4  D200 DCE3 1000       000EE3  000000  4319 MSGMVC   MVC   MSGMSG(0),0(R1)        Executed instruction

000EDA  D4E2C7D5 D6C8405C                4321 MSGCMD   DC    C'MSGNOH * '           *** HERCULES MESSAGE COMMAND ***
000EE3  40404040 40404040                4322 MSGMSG   DC    CL95' '                The message text to be displayed
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4324 ************************************************************************
                                     4325 *        Normal completion or Abnormal termination PSWs
                                     4326 ************************************************************************




                                     4328 EOJ      DWAITEND LOAD=YES          Normal completion
000F42                               4330+EOJ      DS    0H
000F42  8200 DD48                000F48  4331+         LPSW  DWAT0008
000F48  000A0000 00000000                4332+DWAT0008 PSW   0,0,2,0,X'000000'




                                     4334 FAILTEST DWAIT LOAD=YES,CODE=BAD    Abnormal termination
000F50                               4335+FAILTEST DS    0H
000F50  8200 DD58                000F58  4336+         LPSW  DWAT0009
000F58  000A0000 00010BAD                4337+DWAT0009 PSW   0,0,2,0,X'010BAD'
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4339 ********************************************************************************
                                     4340 *        Working Storage
                                     4341 ********************************************************************************



000F60                               4343          LTORG ,                  Literals pool
000F60  00000000                     4344                =F'0'
000F64  00000001                     4345                =F'1'
000F68  0000                         4346                =H'0'
000F6A  005F                         4347                =AL2(L'MSGMSG)
000F6C  E3D9E3C5 40                  4348                =CL5'TRTE'
000F71  04294967 296C                4349                =P'4294967296'

                         000400  000001  4351 K         EQU   1024             One KB
                         001000  000001  4352 PAGE      EQU   (4*K)            Size of one page
                         010000  000001  4353 K64       EQU   (64*K)           64 KB
                         100000  000001  4354 MB        EQU   (K*K)             1 MB

000F78  00002710                     4356 NUMLOOPS DC    F'10000'         10,000 * 100 = 1,000,000

000F80  BBBBBBBB BBBBBBBB            4358 BEGCLOCK DC    0D'0',8X'BB'     Begin
000F88  EEEEEEEE EEEEEEEE            4359 ENDCLOCK DC    0D'0',8X'EE'     End
000F90  DDDDDDDD DDDDDDDD            4360 DURATION DC    0D'0',8X'DD'     Diff
000F98  FFFFFFFF FFFFFFFF            4361 OVERHEAD DC    0D'0',8X'FF'     Overhead

000FA0  00000000 0000000C            4363 TICKSAAA DC    PL8'0'           Clock ticks high part
000FA8  00000000 0000000C            4364 TICKSBBB DC    PL8'0'           Clock ticks low part
000FB0  00000000 0000000C            4365 TICKSTOT DC    PL8'0'           Total clock ticks

000FB8  40404040 40404040            4367 PRTLINE  DC    C'         1,000,000 iterations of XXXXX'
000FDE  40A39696 9240F9F9            4368          DC    C' took 999,999,999 microseconds'
                         000044  000001  4369 PRTLNG   EQU   *-PRTLINE
000FFC  40202020 6B202020            4370 EDIT     DC    X'402020206B2020206B202120'
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4372 ********************************************************************************
                                      4373 *        TRTETEST DSECT
                                      4374 ********************************************************************************



                                      4376 TRTETEST DSECT ,
000000  00                            4377 TNUM     DC    X'00'          TRTE table Number
000001  00                            4378          DC    X'00'
000002  00                            4379          DC    X'00'
000003  00                            4380 M3       DC    X'00'          M3 byte stored into TRTE instruction


000004  00000000                      4382 OP1DATA  DC    A(0)           Pointer to Operand-1 data
000008  00000000                      4383 OP1LEN   DC    F'0'           How much data is there - 1
00000C  00000000                      4384 OP2DATA  DC    A(0)           Pointer to FC table data
000010  00000000                      4385 OP2LEN   DC    F'0'           How much data is there - FC Table


                        000014  000001  4387 OPSWHERE EQU   *
000014  00000000                      4388 OP2WHERE DC    A(0)           Where FC Table  data should be placed
000018  00000000                      4389 OP1WHERE DC    A(0)           Where Operand-1 data should be placed
00001C  00000000                      4390 OP1WLEN  DC    F'0'           How much data is there - 1
000020  00000000                      4391          DC    A(0)           pollute - found FC


000024  00000000                      4393 FAILMASK DC    A(0)           Failure Branch on Condition mask


                                      4395 *                             Ending register values
000028  00000000                      4396 ENDREGS  DC    A(0)              Operand 1 address
00002C  00000000                      4397          DC    A(0)              Operand 1 length
000030  00000000                      4398          DC    A(0)              Function Code


                        000034  000001  4400 TRTENEXT EQU   *              Start of next table entry...



                        BBCCDD  000001  4402 REG2PATT EQU   X'AABBCCDD'    Polluted Register pattern
                        0000DD  000001  4403 REG2LOW  EQU         X'DD'    (last byte above)
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                            000000  0C3BDD  4405 TRTE2TST CSECT ,
                                            4406 ********************************************************************
                                            4407 *        TRTE Performace Test data...
                                            4408 ********************************************************************
001008                                      4409 TRTEPERF DC    0A(0)      start of table




                                            4411 ********************************************************************
                                            4412 *        tests with   M3: A=1,F=1,L=0, reserved=0    (12)
                                            4413 *                     FC Table : SIZE: 131,072 (2 BYTE ARGUMENT)
                                            4414 *                                Function Code is 2 bytes
                                            4415 *
                                            4416 *              Note: Op1 length must be a multiple of 2
                                            4417 ********************************************************************


001008                                      4419 F12T8    DS    0F
001008  F8                                 4420          DC    X'F8'                       Test Num
001009  0000                                4421          DC    X'00',X'00'
00100B  C0                                  4422          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
00100C  000013E0 00000200                   4423          DC    A(TRTOP1F1),A(512)          Source - Op 1 & length
001014  000A39DE 00020000                   4424          DC    A(TRTOPCF1),A(2*K64)        Source - FC Table & length
                                            4425 *                                          Target -
00101C  00710000 00910000                   4426          DC    A(7*MB+(1*K64)),A(9*MB+(1*K64)),A(0)  FC, Op1, Op1L
001028  AABBCCDD                           4427          DC    A(REG2PATT)
00102C  0000000B                            4428          DC    A(11) CC1
001030  009101FE 00000002                   4429          DC    A(9*MB+(1*K64)+510),A(2),XL4'F1'




00103C                                      4431 F12T8A   DS    0F
00103C  F9                                 4432          DC    X'F9'                       Test Num
00103D  0000                                4433          DC    X'00',X'00'
00103F  C0                                  4434          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
001040  000013E0 00000200                   4435          DC    A(TRTOP1F1),A(512)          Source - Op 1 & length
001048  000A39DE 00020000                   4436          DC    A(TRTOPCF1),A(2*K64)        Source - FC Table & length
                                            4437 *                                          Target - FC, Op1, Op1L
001050  0072FF81 0092FF81                   4438          DC    A(7*MB+(3*K64)-127),A(9*MB+(3*K64)-127),A(0)
00105C  AABBCCDD                           4439          DC    A(REG2PATT)
001060  0000000A                            4440          DC    A(10) CC1 or CC3
001064  0093017F 00000002                   4441          DC    A(9*MB+(3*K64)-127+510),A(2),XL4'F1'




001070                                      4443 F12T11   DS    0F
001070  FB                                 4444          DC    X'FB'                       Test Num
001071  0000                                4445          DC    X'00',X'00'
001073  C0                                  4446          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

001074  000025E0 00000800                  4447          DC    A(TRTO1LF0),A(2048)         Source - Op 1 & length
00107C  000837E0 00020000                  4448          DC    A(TRTOPCF0),A(2*K64)        Source - FC Table & length
                                           4449 *                                          Target -
001084  00760000 00960000                  4450          DC    A(7*MB+(6*K64)),A(9*MB+(6*K64)),A(0) FC, Op1, Op1L
001090  AABBCCDD                           4451          DC    A(REG2PATT)
001094  0000000B                           4452          DC    A(11) CC1
001098  009607FE 00000002                  4453          DC    A(9*MB+(6*K64)+2048-2),A(2),XL4'F0'



0010A4                                     4455 F12T11A  DS    0F
0010A4  FC                                 4456          DC    X'FC'                       Test Num
0010A5  0000                               4457          DC    X'00',X'00'
0010A7  C0                                 4458          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
0010A8  000025E0 00000800                  4459          DC    A(TRTO1LF0),A(2048)         Source - Op 1 & length
0010B0  000837E0 00020000                  4460          DC    A(TRTOPCF0),A(2*K64)        Source - FC Table & length
                                           4461 *                                          Target - FC, Op1, Op1L
0010B8  0078FE1F 0098FE1F                  4462          DC    A(7*MB+(9*K64)-481),A(9*MB+(9*K64)-481),A(0)
0010C4  AABBCCDD                           4463          DC    A(REG2PATT)
0010C8  0000000A                           4464          DC    A(10) CC1 or CC3
0010CC  0099061D 00000002                  4465          DC    A(9*MB+(9*K64)-481+2048-2),A(2),XL4'F0'

0010D8  00000000                           4467          DC    A(0)        end of table
0010DC  00000000                           4468          DC    A(0)        end of table
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4470 ************************************************************************
                                      4471 *        TRTE op1 scan data...
                                      4472 ************************************************************************

0010E0  78125634 78125634             4474 TRTOP10  DC    64XL4'78125634'    (CC0)

0011E0  78125634 78125634             4476 TRTOP111 DC    04XL4'78125634',X'00110000',59XL4'78125634'    (CC1)

0012E0  78125634 78125634             4478 TRTOP1F0 DC    63XL4'78125634',X'000000F0'    (CC1)

0013E0  78125634 78125634             4480 TRTOP1F1 DC    127XL4'78125634',X'000000F1'    (CC1)

0015E0  98765432 98765432             4482 TRTO1L0  DC    512XL4'98765432'    (CC0)

001DE0  98765432 98765432             4484 TRTO1L11 DC    256XL4'98765432',X'00110000',255XL4'98765432'    (CC1)

0025E0  98765432 98765432             4486 TRTO1LF0 DC    511XL4'98765432',X'000000F0'    (CC1)
                                      4487
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                             4489 ************************************************************************
                                             4490 *        Function Code (FC) Tables (GR1)
                                             4491 ************************************************************************

002DE0  00000000 00000000                    4493 TRTOP20  DC    256X'00'            no stop
002EE0                    002EE0  022EE0     4494          ORG   *+2*K64

022EE0  00000000 00000000                    4496 TRTOP211 DC    17X'00',X'11',238X'00'     stop on X'11'

022FE0  00000000 00000000                    4498 TRTOP2F0 DC    240X'00',X'F0',15X'00'     stop on X'F0'

0230E0  00000000 00000000                    4500 TRTOP411 DC    34X'00',X'0011',476X'00'   stop on X'11'

0232E0  00000000 00000000                    4502 TRTOP4F0 DC    480X'00',X'00F0',30X'00'     stop on X'F0'

0234E0  00000000 00000000                    4504 TRTOP811 DC    17X'00',X'11',238X'00'       stop on X'11'
0235E0                    0235E0  0435E0     4505          ORG   *+2*K64

0435E0  00000000 00000000                    4507 TRTOP8F0 DC    240X'00',X'F0',15X'00'     stop on X'F0'
0436E0                    0436E0  0636E0     4508          ORG   *+2*K64

0636E0  00000000 00000000                    4510 TRTOP8F1 DC    240X'00',X'00',X'F1',14X'00' stop on X'F1'
0637E0                    0637E0  0837E0     4511          ORG   *+2*K64
                                             4512
0837E0  00000000 00000000                    4513 TRTOPCF0 DC    480X'00',X'00F0',28X'00'     stop on X'F0'
0839DE                    0839DE  0A39DE     4514          ORG   *+2*K64
                                             4515 *                                           stop on X'F1'
0A39DE  00000000 00000000                    4516 TRTOPCF1 DC    480X'00',X'0000',X'00F1',28X'00'
0A3BDE                    0A3BDE  0C3BDE     4517          ORG   *+2*K64
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4519 ********************************************************************
                                      4520 *       (other DSECTS needed by SATK)
                                      4521 ********************************************************************

                                      4523          DSECTS PRINT=ON,NAME=(ASA)
                                      4524+         PUSH  PRINT
                                      4525+         PRINT ON
                                      4527+ASA      DSECT
                          000000  000001  4528+ASBEGIN  EQU   *                   Start of absolute/real assigned storage areas
000000  00000000 00000000           4529+IPLPSW   DC    FD'0'         000 A  Initial Program Load Program Status Word
000008  00000000 00000000           4530+IPLCCW1  DC    FD'0'         008 A  Initial Program Load first Channel Command Word
000010  00000000 00000000           4531+IPLCCW2  DC    FD'0'         010 A  Initial program Load second Channel Command Word
                                     4532+* RESTART RELATED PROGRAM STATUS WORDS
000018                    000018  000000  4533+         ORG   ASBEGIN
000000  00000000 00000000           4534+RSTNPSW  DC    FD'0'         000 R  Restart New PSW
000008  00000000 00000000           4535+RSTOPSW  DC    FD'0'         008 R  Restart Old PSW
000010  00000000 00000000           4536+UA0      DC    FD'0'         010 R  Unassigned Area 0
                                     4537+* INTERRUPTION OLD PROGRAM STATUS WORD SAVE AREAS
000018  00000000 00000000           4538+EXTOPSW  DC    FD'0'         018 R  External Interrupt Old PSW
000020  00000000 00000000           4539+SVCOPSW  DC    FD'0'         020 R  Supervisor Call Old PSW
000028  00000000 00000000           4540+PGMOPSW  DC    FD'0'         028 R  Program Old PSW
000030  00000000 00000000           4541+MCKOPSW  DC    FD'0'         030 R  Machine Check Old PSW
000038  00000000 00000000           4542+IOOPSW   DC    FD'0'         038 R  Input/Output Old PSW
                                     4543+* System/360 or System/370 Basic Control Mode INTERRUPTION INFORMATION
000040                    000040  00001A  4544+         ORG   EXTOPSW+2
00001A  0000                        4545+BCEXTCOD DC    H'0'          01A R  External Interuption Code
00001C                    00001C  000022  4546+         ORG   SVCOPSW+2
000022  0000                        4547+BCSVCCOD DC    H'00'         022 R  Supervisor Call Interruption Code
000024                    000024  00002A  4548+         ORG   PGMOPSW+2
00002A  0000                        4549+BCPGMCOD DC    H'0'          02A R  Program Interruption Code
00002C                    00002C  000032  4550+         ORG   MCKOPSW+2
000032  0000                        4551+BCMCKCOD DC    H'0'          032 R  Machine Check Interruption Code
000034                    000034  00003A  4552+         ORG   IOOPSW+2
00003A  0000                        4553+BCIOCOD  DC    H'0'          03A R  Input/Output Interruption Code (Device CCUU)
00003C                    00003C  000040  4554+         ORG   *+4
                                     4555+* CHANNEL-BASED INPUT/OUTPUT INTERRUPT RELATED
000040  00000000 00000000           4556+CSW      DC    FD'0'         040 R  Channel Status Word
000048                               4557+CAW      DC    0F'0'         048 R  Channel Address Word
000048  00                           4558+CAWKEY   DC    X'00'         048 R  Channel Storage Key (bits 0-3)
                          000008  000001  4559+CAWSUSP  EQU   X'08'         048 R  Suspend Control (bit 4)
000049  000000                       4560+CAWADDR  DC    AL3(0)        049 R  Channel Command Address
00004C  00000000                     4561+UA1      DC    F'0'          04C R  Unassigend Area 1
                                     4562+* MISCELANEOUS AREAS
000050  00000000                     4563+TIMER    DC    F'0'          050 R  System/360 and System/370 Interval Timer
000054  00000000                     4564+TTDES    DC    F'0'          054 R  System/370 Trace-Table-Designation
                                     4565+* INTERRUPTION NEW PROGRAM STATUS WORD AREAS
000058  00000000 00000000           4566+EXTNPSW  DC    FD'0'         058 R  External New PSW
000060  00000000 00000000           4567+SVCNPSW  DC    FD'0'         060 R  Supervisor Call New PSW
000068  00000000 00000000           4568+PGMNPSW  DC    FD'0'         068 R  Program New PSW
000070  00000000 00000000           4569+MCKNPSW  DC    FD'0'         070 R  Machine Check New PSW
000078  00000000 00000000           4570+IONPSW   DC    FD'0'         078 R  Input/Output New PSW
                                     4571+* System/360 Diagnostic Scanout Area
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

000080                                      4572+SCANOUT  DS    0X          080 A  System/360 Diagnostic Scanout Area
                           000000  000001   4573+SCANOUTL EQU   *-SCANOUT          System/360 Diagnostic Scanout Area Length
                                            4574+* EXTERNAL INTERRUPTION INFORMATION
000080                     000080  000080   4575+         ORG   ASBEGIN+X'80'
000080  00000000                            4576+EXTIPARM DC    F'0'        080 R  External-interruption Parameter
000084  0000                                4577+EXTCPUAD DC    H'0'        084 R  External-interruption CPU Address
000086  0000                                4578+EXTICODE DC    H'0'        086 R  External-interruption Code
                                            4579+* SUPERVISOR CALL INTERRUPTION INFORMATION
000088                                      4580+SVCIID   DC    0F'0'       088 R  Supervisor-Call Interuption Identification
000088  00                                  4581+         DC    X'00'       088 R  not-used - zeros stored
000089  00                                  4582+SVCIILC  DC    X'00'       089 R  Supervisor-Call instruction length code
                           00000C  000001   4583+SVCIILCM EQU   B'00001100'       Supervisor-Call ILC mask, zeros stored in other bits
00008A  0000                                4584+SVCICODE DC    H'0'        08A R  Supervisor-Call Interruption Code
                                            4585+* PROGRAM INTERRUPTION INFORMATION
00008C                                      4586+PGMIID   DC    0F'0'       08C R  Program-interruption identification
00008C  00                                  4587+         DC    X'00'       08C R  not-used - zeros stored
00008D  00                                  4588+PGMIILC  DC    X'00'       08D R  Program instruction lengh code
                           00000C  000001   4589+PGMIILCM EQU   B'00001100'       Progrtam ILC mask, zeros stored in other bits
00008E  0000                                4590+PGMICODE DC    H'0'        08E R  Program Interruption Code
000090                                      4591+PGMDXC   DC    0F'0'       090 R  Data-Exception Code
000090  00000000                            4592+PGMTRX   DC    F'0'        090 R  Translation-Exception Identification
000094                                      4593+MONCLS   DC    0H'0'       094 R  Monitor-Class Number
000094  00                                  4594+         DC    X'00'       094 R  not-used - zeros stored
000095  00                                  4595+MONNUMBR DC    X'00'       095 R  Monitor-Class Number stored
000096  00                                  4596+PERCODE  DC    X'00'       096 R  Program-Event-Recording Code
                           0000F0  000001   4597+PERCODMK EQU   B'11110000'       Program-Event-Recordind Code mask in bits 0-3
000097  00                                  4598+         DC    X'00'       097 R  PER Code not used - zeros stored
000098  00000000                            4599+PERADDR  DC    F'0'        098 R  PER Address
00009C  00000000                            4600+MONCODE  DC    F'0'        09C R  Monitor Event Code in bytes 1-3, zeros in byte 0
0000A0  00                                  4601+PGMACCID DC    X'00'       0A0 R  Exception accress identification
0000A1  00                                  4602+PERACCID DC    X'00'       0A1 R  PER access identification
0000A2  00                                  4603+MPGACCID DC    X'00'       0A2 R  MOVE PAGE Operand access identification
0000A3                                      4604+SSARCHMD DC    0X'00'      0A3 A  Store Status Architectural Mode Identification
0000A3  00                                  4605+MKARCHMD DC    X'00'       0A3 R  Machine-Check Architectural Mode Identification
0000A4  00000000                            4606+UA2      DC    F'0'        0A4 R  Unused area
                                            4607+* z/Architecture PROGRAM INTERRUPTION INFORMATION
0000A8  00000000 00000000                   4608+ZPGMTRX  DC    FD'0'       0A8 R  Translation Exception information
0000B0  00000000 00000000                   4609+ZMONCODE DC    FD'0'       0B0 R  Monitor Code
                                            4610+* System/370 CHANNEL INPUT/OUTPUT INFORMATION
0000B8                     0000B8  0000A8   4611+         ORG   ASBEGIN+X'A8'
0000A8  00000000                            4612+CHANID   DC    F'0'        0A8 R  System/370 STORE CHANNEL ID location
0000AC  00000000                            4613+IOELADDR DC    F'0'        0AC R  System/370 I/O Extended Logout Address
0000B0  00000000                            4614+LCHANLOG DC    F'0'        0B0 R  System/370 Limited Channel Logout Area
0000B4  00000000                            4615+UA3      DC    F'0'        0B4 R  unused by System/370
0000B8  00                                  4616+UA4      DC    X'00'       0B8 R  unused by System/370
0000B9  00                                  4617+MEASUREB DC    X'00'       0B9 R  System/370 Measurement Byte
0000BA  0000                                4618+IOICODE  DC    H'0'        0BA R  System/370 Input/Output Interruption Device Address
                                            4619+* CHANNEL SUBSYSTEM INPUT/OUTPUT INFORMATION
0000BC                     0000BC  0000B8   4620+         ORG   ASBEGIN+X'B8'
0000B8  00000000                            4621+IOSSID   DC    F'0'        0B8 R  Channel subsystem-identification word
0000BC  00000000                            4622+IOIPARM  DC    F'0'        0BC R  Channel subsystem I/O Interruption parameter
0000C0  00000000                            4623+IOIID    DC    F'0'        0C0 R  Channel subsystem I/O Interruption Identification
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

0000C4  00000000                           4624+PCFETO   DC    A(0)          0C4 R  ESA/390 PROGRAM CALL FAST Entry Table Origin
0000C8  00000000                           4625+STFLDATA DC    F'0'          0C8 R  STORE FACILITY LIST storage area
0000CC  00000000 00000000                  4626+UA5      DC    XL8'00'       0CC R  unused area
                                           4627+* MACHINE-CHECK INTERRUPTION INFORMATION
0000D4  00000000                           4628+MKXSAA   DC    F'0'          0D4 R  Machine-Check Extended Save Area Address
0000D8  00000000 00000000                  4629+MKCPUTIM DC    FD'0'         0D8 R  Machine-Check CPU timer save area
0000E0  00000000 00000000                  4630+MKCLKCMP DC    FD'0'         0E0 R  Machine-Check clock comparator save area
0000E8  00000000                           4631+MKICODE  DC    F'0'          0E8 R  Machine-Check interruption code
0000EC  00000000 00000000                  4632+UA6      DC    XL8'00'       0EC R  unused area
0000F4  00000000                           4633+MKDMGCOD DC    F'0'          0F4 R  Machine-Check external damage code
0000F8                                     4634+ZMKFAILA DC    0FD'0'        0F8 R  Machine-Check failing storage address
0000F8  00000000                           4635+MKFAILA  DC    F'0'          0F8 R  Machine-Check failing storage address
0000FC  00000000                           4636+MKMODEL  DC    F'0'          0FC R  Machine-Check model dependent information
000100  00000000 00000000                  4637+MKLOGOUT DC    4F'0'         100 R  ESA machine-check fixed logout area
000110                     000110  000100  4638+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4639+ZEMONCTR DC    AD(0)         100 R  Enhanced-Monitor Counter-Array Origin
000108  00000000                           4640+ZEMONSIZ DC    F'0'          108 R  Enhanced-Monitor Counter-Array Size
00010C  00000000                           4641+ZEMONCNT DC    F'0'          10C R  Enhanced-Monitor Exception Count
000110  00000000 00000000                  4642+ZBRKADDR DC    AD(0)         110 R  Breaking-Event Address
000118  00000000 00000000                  4643+UA7      DC    FD'0'         118 R  unused area
000120  00000000 00000000                  4644+MKARS    DC    16F'0'        120 R  Machine-Check access register save area
000160                     000160  000100  4645+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4646+MCKLOG   DC    24F'0'        100 R  System/370, 370-XA machine-Check fixed logout area.
000160  00000000 00000000                  4647+MKFPRS   DC    4D'0'         160 R  Machine-Check floating point register save area
000180  00000000 00000000                  4648+NKGRS    DC    16F'0'        180 R  Machine-Check general register save area
0001C0  00000000 00000000                  4649+MKCRS    DC    16F'0'        1C0 R  Machine-Check control register save area
                                           4650+* STORE/STATUS SAVE AREAS
000200                     000200  0000D4  4651+          ORG   ASBEGIN+X'D4'
0000D4  00000000                           4652+SSXSAA   DC    A(0)          0D4 A  Store Status Extended Save Area Address
0000D8  00000000 00000000                  4653+SSCPUTIM DC    FD'0'         0D8 A  CPU Timer save area
0000E0  00000000 00000000                  4654+SSCLKCMP DC    FD'0'         0E0 A  Clock-Comparator save area
0000E8                     0000E8  000100  4655+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4656+SSPSW    DC    FD'0'         100 A  Program-Status Word save area
000108  00000000                           4657+SSPREFIX DC    F'0'          108 A  Prefix save area
00010C  00000000                           4658+SSMODEL  DC    F'0'          10C A  Model-dependent save area
000110                     000110  000120  4659+          ORG   ASBEGIN+X'120'
000120  00000000 00000000                  4660+SSARS    DC    16F'0'        120 A  Access-register save area
000160  00000000 00000000                  4661+SSFPRS   DC    4D'0'         160 A  Floating-point register save area
000180  00000000 00000000                  4662+SSGRS    DC    16F'0'        180 A  General register save area
0001C0  00000000 00000000                  4663+SSCRS    DC    16F'0'        1C0 A  Control register save area
                                           4664+* z/Architecture OLD PROGRAM STATUS WORDS
000200                     000200  000120  4665+          ORG   ASBEGIN+X'120'
000120  00000000 00000000                  4666+ZRSTOPSW DC    XL16'00'      120 R  Restart Old PSW
000130  00000000 00000000                  4667+ZEXTOPSW DC    XL16'00'      130 R  External Old PSW
000140  00000000 00000000                  4668+ZSVCOPSW DC    XL16'00'      140 R  Supervisor-Call Old PSW
000150  00000000 00000000                  4669+ZPGMOPSW DC    XL16'00'      150 R  Program Old PSW
000160  00000000 00000000                  4670+ZMCKOPSW DC    XL16'00'      160 R  Machine-Check Old PSW
000170  00000000 00000000                  4671+ZIOOPSW  DC    XL16'00'      170 R  Input-Output Old PSW
000180  00000000 00000000                  4672+UA8      DC    XL32'00'      180 R  z/Architecture unused area
                                           4673+* z/Architecture NEW PROGRAM STATUS WORD AREAS
0001A0  00000000 00000000                  4674+ZRSTNPSW DC    XL16'00'      1A0 R  Restart New PSW
0001B0  00000000 00000000                  4675+ZEXTNPSW DC    XL16'00'      1B0 R  External New PSW
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

0001C0  00000000 00000000                  4676+ZSVCNPSW DC    XL16'00'     1C0 R  Supervisor-Call New PSW
0001D0  00000000 00000000                  4677+ZPGMNPSW DC    XL16'00'     1D0 R  Program New PSW
0001E0  00000000 00000000                  4678+ZMCKNPSW DC    XL16'00'     1E0 R  Machine-Check New PSW
0001F0  00000000 00000000                  4679+ZIONPSW  DC    XL16'00'     1F0 R  Input/Output New PSW
                         0011C0  000001    4680+ZSASDISP EQU   X'11C0'   Displacement to save areas defined by ASAZAREA macro
                         000200  000001    4681+ASEND    EQU   *                    End of absolute/real assigned storage areas
                         000200  000001    4682+ASLENGTH EQU   ASEND-ASBEGIN       Length of absolute/real assigned storage area
                                            4683+* LOGICAL ADDRESS USAGE
                         00031B  000001    4684+CPUID    EQU   *+X'11B'     31B L  System/370 CPU Identity used during DAS tracing
                                            4685+         POP   PRINT
                                            4686          PRINT ON

                                            4688 ********************************************************************************
                                            4689 *        Register equates
                                            4690 ********************************************************************************



                         000000  000001    4692 R0       EQU   0
                         000001  000001    4693 R1       EQU   1
                         000002  000001    4694 R2       EQU   2
                         000003  000001    4695 R3       EQU   3
                         000004  000001    4696 R4       EQU   4
                         000005  000001    4697 R5       EQU   5
                         000006  000001    4698 R6       EQU   6
                         000007  000001    4699 R7       EQU   7
                         000008  000001    4700 R8       EQU   8
                         000009  000001    4701 R9       EQU   9
                         00000A  000001    4702 R10      EQU   10
                         00000B  000001    4703 R11      EQU   11
                         00000C  000001    4704 R12      EQU   12
                         00000D  000001    4705 R13      EQU   13
                         00000E  000001    4706 R14      EQU   14
                         00000F  000001    4707 R15      EQU   15



                                            4709          END
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
ASA	4	00000000	512	4527	3558
ASBEGIN	U	00000000	1	4528	4533 4575 4611 4620 4638 4645 4651 4655 4659 4665 4682
ASEND	U	00000200	1	4681	4682
ASLENGTH	U	00000200	1	4682	
BCEXTCOD	H	0000001A	2	4545	
BCIOCOD	H	0000003A	2	4553	
BCMCKCOD	H	00000032	2	4551	
BCPGMCOD	H	0000002A	2	4549	
BCSVCCOD	H	00000022	2	4547	
BEGCLOCK	D	00000F80	8	4358	3644 3862 4248 4251 4258
BEGIN	I	00000200	2	3562	3593 3531 3559 3560
CALCDUR	I	00000E08	4	4245	3856 4203
CALCRET	F	00000E4C	4	4267	4245 4264
CALCWORK	F	00000E50	4	4268	4246 4263
CAW	F	00000048	4	4557	
CAWADDR	R	00000049	3	4560	
CAWKEY	X	00000048	1	4558	
CAWSUSP	U	00000008	1	4559	
CHANID	F	000000A8	4	4612	
CODE	2	00000000	801758	3512	
CPUID	U	0000031B	1	4684	
CSW	F	00000040	8	4556	
DURATION	D	00000F90	8	4360	3857 4206 4207 4210 4260
DWAT0008	3	00000F48	8	4332	4331
DWAT0009	3	00000F58	8	4337	4336
EDIT	X	00000FFC	12	4370	4220 4221
ENDCLOCK	D	00000F88	8	4359	3855 4182 4253 4256 4259
ENDREGS	A	00000028	4	4396	
EOJ	H	00000F42	2	4330	3579 3587
EXTCPUAD	H	00000084	2	4577	
EXTICODE	H	00000086	2	4578	
EXTIPARM	F	00000080	4	4576	
EXTNPSW	F	00000058	8	4566	
EXTOPSW	F	00000018	8	4538	4544
F12T11	F	00001070	4	4443	
F12T11A	F	000010A4	4	4455	
F12T8	F	00001008	4	4419	
F12T8A	F	0000103C	4	4431	
FAILMASK	A	00000024	4	4393	
FAILTEST	H	00000F50	2	4335	3582 3585
IMAGE	1	00000000	801758	0	
IOELADDR	F	000000AC	4	4613	
IOICODE	H	000000BA	2	4618	
IOIID	F	000000C0	4	4623	
IOIPARM	F	000000BC	4	4622	
IONPSW	F	00000078	8	4570	
IOOPSW	F	00000038	8	4542	4552
IOSSID	F	000000B8	4	4621	
IPLCCW1	F	00000008	8	4530	
IPLCCW2	F	00000010	8	4531	
IPLPSW	F	00000000	8	4529	
K	U	00000400	1	4351	4352 4353 4354

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
K64	U	00010000	1	4353	4494 4505 4508 4511 4514 4517 4424 4426 4429 4436 4438 4441 4448 4450 4453 4460 4462 4465
LCHANLOG	F	000000B0	4	4614	
M3	X	00000003	1	4380	
MB	U	00100000	1	4354	4426 4429 4438 4441 4450 4453 4462 4465
MCKLOG	F	00000100	4	4646	
MCKNPSW	F	00000070	8	4569	
MCKOPSW	F	00000030	8	4541	4550
MEASUREB	X	000000B9	1	4617	
MKARCHMD	X	000000A3	1	4605	
MKARS	F	00000120	4	4644	
MKCLKCMP	F	000000E0	8	4630	
MKCPUTIM	F	000000D8	8	4629	
MKCRS	F	000001C0	4	4649	
MKDMGCOD	F	000000F4	4	4633	
MKFAILA	F	000000F8	4	4635	
MKFPRS	D	00000160	8	4647	
MKICODE	F	000000E8	4	4631	
MKLOGOUT	F	00000100	4	4637	
MKMODEL	F	000000FC	4	4636	
MKXSAA	F	000000D4	4	4628	
MONCLS	H	00000094	2	4593	
MONCODE	F	0000009C	4	4600	
MONNUMBR	X	00000095	1	4595	
MPGACCID	X	000000A2	1	4603	
MSG	I	00000E90	4	4295	4229
MSGCMD	C	00000EDA	9	4321	4308 4309
MSGMSG	C	00000EE3	95	4322	4302 4319 4300
MSGMVC	I	00000ED4	6	4319	4306
MSGOK	I	00000EA6	2	4304	4301
MSGRET	I	00000EC0	4	4315	4312
MSGSAVE	F	00000EC8	4	4318	4298 4315
NKGRS	F	00000180	4	4648	
NUMLOOPS	F	00000F78	4	4356	3643 3861
OP1DATA	A	00000004	4	4382	3630
OP1LEN	F	00000008	4	4383	3628 3631
OP1WHERE	A	00000018	4	4389	3627
OP1WLEN	F	0000001C	4	4390	3629
OP2DATA	A	0000000C	4	4384	3636
OP2LEN	F	00000010	4	4385	3635 3637
OP2WHERE	A	00000014	4	4388	3634
OPSWHERE	U	00000014	1	4387	3648 3650 3655 3657 3659 3661 3663 3665 3667 3669 3671 3673 3675 3677 3679 3681 3683 3685 3687 3689 3691 3693 3695 3697 3699 3701 3703 3705 3707 3709 3711 3713 3715 3717 3719 3721 3723 3725 3727 3729 3731 3733 3735 3737 3739 3741 3743 3745 3747 3749 3751 3753 3755 3757 3759 3761 3763 3765 3767 3769 3771 3773 3775 3777 3779 3781 3783 3785 3787 3789 3791 3793 3795 3797 3799 3801 3803 3805 3807 3809 3811 3813 3815 3817 3819 3821 3823 3825 3827 3829 3831 3833 3835 3837 3839 3841 3843 3845 3849 3851 3865 3868 3875 3878 3881 3884 3887 3890 3893 3896 3899 3902 3906 3909 3912 3915 3918 3921 3924 3927 3930 3933 3937 3940 3943 3946 3949 3952 3955 3958 3961 3964 3968 3971 3974 3977 3980 3983 3986 3989 3992 3995 3999

```
     SYMBOL         TYPE    VALUE      LENGTH    DEFN  REFERENCES

                                                      4002  4005  4008  4011  4014  4017  4020  4023  4026  4030  4033  4036  4039
                                                      4042  4045  4048  4051  4054  4057  4061  4064  4067  4070  4073  4076  4079
                                                      4082  4085  4088  4092  4095  4098  4101  4104  4107  4110  4113  4116  4119
                                                      4123  4126  4129  4132  4135  4138  4141  4144  4147  4150  4154  4157  4160
                                                      4163  4166  4169  4174  4177
OVERHEAD               D     00000F98           8  4361  3857  4205
PAGE                   U     00001000           1  4352
PCFETO                 A     000000C4           4  4624
PERACCID               X     000000A1           1  4602
PERADDR                F     00000098           4  4599
PERCODE                X     00000096           1  4596
PERCODMK               U     000000F0           1  4597
PGMACCID               X     000000A0           1  4601
PGMDXC                 F     00000090           4  4591
PGMICODE               H     0000008E           2  4590
PGMIID                 F     0000008C           4  4586
PGMIILC                X     0000008D           1  4588
PGMIILCM               U     0000000C           1  4589
PGMNPSW                F     00000068           8  4568
PGMOPSW                F     00000028           8  4540  4548
PGMTRX                 F     00000090           4  4592
PRTLINE                C     00000FB8          38  4367  4369  4185  4220  4221  4228
PRTLNG                 U     00000044           1  4369  4227
R0                     U     00000000           1  4692  3558  4226  4227  4230  4295  4298  4300  4302  4304  4315
R1                     U     00000001           1  4693  3645  3648  3650  3655  3657  3659  3661  3663  3665  3667  3669  3671  3673
                                                      3675  3677  3679  3681  3683  3685  3687  3689  3691  3693  3695  3697  3699
                                                      3701  3703  3705  3707  3709  3711  3713  3715  3717  3719  3721  3723  3725
                                                      3727  3729  3731  3733  3735  3737  3739  3741  3743  3745  3747  3749  3751
                                                      3753  3755  3757  3759  3761  3763  3765  3767  3769  3771  3773  3775  3777
                                                      3779  3781  3783  3785  3787  3789  3791  3793  3795  3797  3799  3801  3803
                                                      3805  3807  3809  3811  3813  3815  3817  3819  3821  3823  3825  3827  3829
                                                      3831  3833  3835  3837  3839  3841  3843  3845  3849  3851  3865  3868  3875
                                                      3878  3881  3884  3887  3890  3893  3896  3899  3902  3906  3909  3912  3915
                                                      3918  3921  3924  3927  3930  3933  3937  3940  3943  3946  3949  3952  3955
                                                      3958  3961  3964  3968  3971  3974  3977  3980  3983  3986  3989  3992  3995
                                                      3999  4002  4005  4008  4011  4014  4017  4020  4023  4026  4030  4033  4036
                                                      4039  4042  4045  4048  4051  4054  4057  4061  4064  4067  4070  4073  4076
                                                      4079  4082  4085  4088  4092  4095  4098  4101  4104  4107  4110  4113  4116
                                                      4119  4123  4126  4129  4132  4135  4138  4141  4144  4147  4150  4154  4157
                                                      4160  4163  4166  4169  4174  4177  4184  4228  4275  4277  4282  4285  4309
                                                      4319
R10                    U     0000000A           1  4702  3627  3632  3634  3638  4210  4211  4213
R11                    U     0000000B           1  4703  3628  3629  3635  4210  4214
R12                    U     0000000C           1  4704
R13                    U     0000000D           1  4705  3559  3562  3563  3564  3566
R14                    U     0000000E           1  4706  3572  3614  4194
R15                    U     0000000F           1  4707  3856  4186  4200  4203  4208  4233  4234  4245  4261  4264  4265  4286
R2                     U     00000002           1  4694  3866  3869  3876  3879  3882  3885  3888  3891  3894  3897  3900  3903  3907
                                                      3910  3913  3916  3919  3922  3925  3928  3931  3934  3938  3941  3944  3947
                                                      3950  3953  3956  3959  3962  3965  3969  3972  3975  3978  3981  3984  3987
                                                      3990  3993  3996  4000  4003  4006  4009  4012  4015  4018  4021  4024  4027
                                                      4031  4034  4037  4040  4043  4046  4049  4052  4055  4058  4062  4065  4068
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
					4071 4074 4077 4080 4083 4086 4089 4093 4096 4099 4102 4105 4108
					4111 4114 4117 4120 4124 4127 4130 4133 4136 4139 4142 4145 4148
					4151 4155 4158 4161 4164 4167 4170 4175 4178 4226 4229 4230 4277
					4279 4296 4298 4304 4305 4306 4308 4315 4316
R3	U	00000003	1	4695	4278 4281 4282 4283
R4	U	00000004	1	4696	3645 3648 3650 3655 3657 3659 3661 3663 3665 3667 3669 3671 3673
					3675 3677 3679 3681 3683 3685 3687 3689 3691 3693 3695 3697 3699
					3701 3703 3705 3707 3709 3711 3713 3715 3717 3719 3721 3723 3725
					3727 3729 3731 3733 3735 3737 3739 3741 3743 3745 3747 3749 3751
					3753 3755 3757 3759 3761 3763 3765 3767 3769 3771 3773 3775 3777
					3779 3781 3783 3785 3787 3789 3791 3793 3795 3797 3799 3801 3803
					3805 3807 3809 3811 3813 3815 3817 3819 3821 3823 3825 3827 3829
					3831 3833 3835 3837 3839 3841 3843 3845 3849 3851 3865 3866 3868
					3869 3875 3876 3878 3879 3881 3882 3884 3885 3887 3888 3890 3891
					3893 3894 3896 3897 3899 3900 3902 3903 3906 3907 3909 3910 3912
					3913 3915 3916 3918 3919 3921 3922 3924 3925 3927 3928 3930 3931
					3933 3934 3937 3938 3940 3941 3943 3944 3946 3947 3949 3950 3952
					3953 3955 3956 3958 3959 3961 3962 3964 3965 3968 3969 3971 3972
					3974 3975 3977 3978 3980 3981 3983 3984 3986 3987 3989 3990 3992
					3993 3995 3996 3999 4000 4002 4003 4005 4006 4008 4009 4011 4012
					4014 4015 4017 4018 4020 4021 4023 4024 4026 4027 4030 4031 4033
					4034 4036 4037 4039 4040 4042 4043 4045 4046 4048 4049 4051 4052
					4054 4055 4057 4058 4061 4062 4064 4065 4067 4068 4070 4071 4073
					4074 4076 4077 4079 4080 4082 4083 4085 4086 4088 4089 4092 4093
					4095 4096 4098 4099 4101 4102 4104 4105 4107 4108 4110 4111 4113
					4114 4116 4117 4119 4120 4123 4124 4126 4127 4129 4130 4132 4133
					4135 4136 4138 4139 4141 4142 4144 4145 4147 4148 4150 4151 4154
					4155 4157 4158 4160 4161 4163 4164 4166 4167 4169 4170 4174 4175
					4177 4178 4184 4275 4278 4279 4283 4285
R5	U	00000005	1	4697	3616 3617 3620 4190 4191 4192 4201 4205 4232 4246 4258 4263 4277
R6	U	00000006	1	4698	3622 3623 3630 3632 3636 3638 3646 3854 3863 4181 4206 4248 4249
					4250 4251 4253 4254 4255 4256 4259 4278
R7	U	00000007	1	4699	3631 3637 3643 3854 3861 4181 4207 4246 4248 4251 4253 4256 4260
					4263 4283
R8	U	00000008	1	4700	
R9	U	00000009	1	4701	3560 3566 3567
REG2LOW	U	000000DD	1	4403	
REG2PATT	U	AABBCCDD	1	4402	4427 4439 4451 4463
RPTDWSAV	D	00000DF8	8	4239	4226 4230
RPTSAVE	F	00000DF0	4	4236	4200 4233
RPTSPEED	I	00000D86	4	4200	4186
RPTSVR5	F	00000DF4	4	4237	4201 4232
RSTNPSW	F	00000000	8	4534	
RSTOPSW	F	00000008	8	4535	
SAVE1T4	F	00000410	4	3603	3645 4184
SAVER2	F	00000420	4	3604	
SAVER5	F	00000424	4	3605	3620 4190
SCANOUT	X	00000080	1	4572	4573
SCANOUTL	U	00000000	1	4573	
SSARCHMD	X	000000A3	1	4604	
SSARS	F	00000120	4	4660	
SSCLKCMP	F	000000E0	8	4654	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SSCPUTIM	F	000000D8	8	4653	
SSCRS	F	000001C0	4	4663	
SSFPRS	D	00000160	8	4661	
SSGRS	F	00000180	4	4662	
SSMODEL	F	0000010C	4	4658	
SSPREFIX	F	00000108	4	4657	
SSPSW	F	00000100	8	4656	
SSXSAA	A	000000D4	4	4652	
STFLDATA	F	000000C8	4	4625	
SUBDWORD	I	00000E5C	4	4275	4208 4261
SUBDWSAV	D	00000E80	8	4288	4275 4285
SUBTEST	X	00000401	1	3597	3584
SVCICODE	H	0000008A	2	4584	
SVCIID	F	00000088	4	4580	
SVCIILC	X	00000089	1	4582	
SVCIILCM	U	0000000C	1	4583	
SVCNPSW	F	00000060	8	4567	
SVCOPSW	F	00000020	8	4539	4546
TEST91	I	00000528	4	3613	3572
TESTADDR	D	00000400	8	3595	
TESTNUM	X	00000400	1	3596	3581 3623
TICKSAAA	P	00000FA0	8	4363	4213 4216
TICKSBBB	P	00000FA8	8	4364	4214 4218
TICKSTOT	P	00000FB0	8	4365	4216 4217 4218 4221
TIMEOPT	X	00000408	1	3600	3578 3613
TIMER	F	00000050	4	4563	
TNUM	X	00000000	1	4377	3622
TRTE2TST	J	00000000	801758	3512	3515 3522 3530 3532
TRTENEXT	U	00000034	1	4400	4191
TRTEPERF	A	00001008	4	4409	3616
TRTETEST	4	00000000	52	4376	3617
TRTO1L0	X	000015E0	4	4482	
TRTO1L11	X	00001DE0	4	4484	
TRTO1LF0	X	000025E0	4	4486	4447 4459
TRTOP10	X	000010E0	4	4474	
TRTOP111	X	000011E0	4	4476	
TRTOP1F0	X	000012E0	4	4478	
TRTOP1F1	X	000013E0	4	4480	4423 4435
TRTOP20	X	00002DE0	1	4493	
TRTOP211	X	00022EE0	1	4496	
TRTOP2F0	X	00022FE0	1	4498	
TRTOP411	X	000230E0	1	4500	
TRTOP4F0	X	000232E0	1	4502	
TRTOP811	X	000234E0	1	4504	
TRTOP8F0	X	000435E0	1	4507	
TRTOP8F1	X	000636E0	1	4510	
TRTOPCF0	X	000837E0	1	4513	4448 4460
TRTOPCF1	X	000A39DE	1	4516	4424 4436
TST91LOP	U	00000532	1	3619	4193
TTDES	F	00000054	4	4564	
UA0	F	00000010	8	4536	
UA1	F	0000004C	4	4561	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
UA2	F	000000A4	4	4606	
UA3	F	000000B4	4	4615	
UA4	X	000000B8	1	4616	
UA5	X	000000CC	8	4626	
UA6	X	000000EC	8	4632	
UA7	F	00000118	8	4643	
UA8	X	00000180	32	4672	
ZBRKADDR	A	00000110	8	4642	
ZEMONCNT	F	0000010C	4	4641	
ZEMONCTR	A	00000100	8	4639	
ZEMONSIZ	F	00000108	4	4640	
ZEXTNPSW	X	000001B0	16	4675	
ZEXTOPSW	X	00000130	16	4667	
ZIONPSW	X	000001F0	16	4679	
ZIOOPSW	X	00000170	16	4671	
ZMCKNPSW	X	000001E0	16	4678	
ZMCKOPSW	X	00000160	16	4670	
ZMKFAILA	F	000000F8	8	4634	
ZMONCODE	F	000000B0	8	4609	
ZPGMNPSW	X	000001D0	16	4677	
ZPGMOPSW	X	00000150	16	4669	
ZPGMTRX	F	000000A8	8	4608	
ZRSTNPSW	X	000001A0	16	4674	
ZRSTOPSW	X	00000120	16	4666	
ZSASDISP	U	000011C0	1	4680	
ZSVCNPSW	X	000001C0	16	4676	
ZSVCOPSW	X	00000140	16	4668	
=AL2(L'MSGMSG)	R	00000F6A	2	4347	4300
=CL5'TRTE'	C	00000F6C	5	4348	4185
=F'0'	F	00000F60	4	4344	4192
=F'1'	F	00000F64	4	4345	4281
=H'0'	H	00000F68	2	4346	4295
=P'4294967296'	P	00000F71	6	4349	4217

```
 MACRO     DEFN  REFERENCES

ANTR        146
APROB       278
ARCHIND     438   3468
ARCHLVL     579   3467
ASAIPL      705   3528
ASALOAD     785   3511
ASAREA      840   4526
ASAZAREA   1025
CPUWAIT    1108
DSECTS     1434   4523
DWAIT      1637   4329   4334
DWAITEND   1694   4328
ENADEV     1702
ESA390     1802
IOCB       1813
IOCBDS     1989
IOFMT      2023
IOINIT     2361
IOTRFR     2402
ORB        2450
POINTER    2639
PSWFMT     2667
RAWAIT     2801
RAWIO      2897
SIGCPU     3055
SMMGR      3113
SMMGRB     3213
TRAP128    3262
TRAP64     3239   3513   3516
TRAPS      3275
ZARCH      3349
ZEROH      3361
ZEROL      3389
ZEROLH     3417
ZEROLL     3440
```

```
   DESC      SYMBOL     SIZE        POS           ADDR

Entry: 0

Image       IMAGE      801758  00000-C3BDD  00000-C3BDD
  Region    CODE       801758  00000-C3BDD  00000-C3BDD
    CSECT   TRTE2TST   801758  00000-C3BDD  00000-C3BDD
```

```
   STMT                          FILE NAME

1     /devstor/dev/satk/samples/tests/TRTE-02-performance.asm
2     /home/tn529/dev/satk/srcasm/satk.mac


** NO ERRORS FOUND **
```