```
 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 September 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  0C3B65  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  0C3B65  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  0C3B65  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 DCCA                   000ECA  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 DCD8                   000ED8  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 DCD8                   000ED8  3585          BNE   FAILTEST         No?! Then FAIL the test!

00022A  47F0 DCCA                   000ECA  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                         000408  3614          BZR   R14              No, skip timing tests

00052E  4150 DD90                    000F90  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                         000008  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                         000010  3638          MVCL  R10,R6


                                     3640 *
                                     3641 **       Next, time the overhead...
                                     3642 *
000566  5870 DD00                    000F00  3643          L     R7,NUMLOOPS
00056A  B205 DD08                    000F08  3644          STCK  BEGCLOCK
00056E  9014 D210                    000410  3645          STM   R1,R4,SAVE1T4
000572  0560                         000410  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 DD10                 000F10  3855          STCK  ENDCLOCK
00089A  45F0 DB90                 000D90  3856          BAL   R15,CALCDUR
00089E  D207 DD20 DD18    000F20  000F18  3857          MVC   OVERHEAD,DURATION
                                           3858 *
                                           3859 **       Now do the actual timing run...
                                           3860 *
0008A4  5870 DD00                 000F00  3861          L     R7,NUMLOOPS
0008A8  B205 DD08                 000F08  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
                                           4139          PRINT ON
000CCE  9814 5014                 000014  4140          LM    R1,R4,OPSWHERE
000CD2  B9BF C024                         4141          TRTE  R2,R4,12
000CD6  4710 DAD2                 000CD2  4142          BC    B'0001',*-4
000CDA  9814 5014                 000014  4143          LM    R1,R4,OPSWHERE
000CDE  B9BF C024                         4144          TRTE  R2,R4,12
000CE2  4710 DADE                 000CDE  4145          BC    B'0001',*-4
                                           4146 *
000CE6  0676                             4147          BCTR  R7,R6
000CE8  B205 DD10                 000F10  4148          STCK  ENDCLOCK
                                           4149 *
000CEC  9814 D210                 000410  4150          LM    R1,R4,SAVE1T4
000CF0  D204 DD61 DCF4    000F61  000EF4  4151          MVC   PRTLINE+33(5),=CL5'TRTE'
000CF6  45F0 DB0E                 000D0E  4152          BAL   R15,RPTSPEED
                                           4153 *
                                           4154 *  more performance tests
                                           4155 *
000CFA  5850 D224                 000424  4156          L     R5,SAVER5           restore perf table base
000CFE  4150 5034                 000034  4157          LA    R5,TRTENEXT         Go on to next table entry
000D02  D503 DCE8 5000    000EE8  000000  4158          CLC   =F'0',0(R5)         End of table?
000D08  4770 D332                 000532  4159          BNE   TST91LOP            No, loop...
000D0C  07FE                             4160          BR    R14                 Return to caller or FAILTEST
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4162 ************************************************************************
                                     4163 *        RPTSPEED                  Report instruction speed
                                     4164 ************************************************************************

000D0E  50F0 DB78                    000D78  4166 RPTSPEED ST    R15,RPTSAVE        Save return address
000D12  5050 DB7C                    000D7C  4167          ST    R5,RPTSVR5         Save R5
                                     4168 *
000D16  45F0 DB90                    000D90  4169          BAL   R15,CALCDUR        Calculate duration
                                     4170 *
000D1A  4150 DD20                    000F20  4171          LA    R5,OVERHEAD        Subtract overhead
000D1E  4160 DD18                    000F18  4172          LA    R6,DURATION        From raw timing
000D22  4170 DD18                    000F18  4173          LA    R7,DURATION        Yielding true instruction timing
000D26  45F0 DBE4                    000DE4  4174          BAL   R15,SUBDWORD       Do it
                                     4175 *
000D2A  98AB DD18                    000F18  4176          LM    R10,R11,DURATION   Convert to...
000D2E  8CA0 000C                    00000C  4177          SRDL  R10,12             ... microseconds
                                     4178 *
000D32  4EA0 DD28                    000F28  4179          CVD   R10,TICKSAAA       convert HIGH part to decimal
000D36  4EB0 DD30                    000F30  4180          CVD   R11,TICKSBBB       convert LOW  part to decimal
                                     4181 *
000D3A  F877 DD38 DD28       000F38  000F28  4182          ZAP   TICKSTOT,TICKSAAA           Calculate...
000D40  FC75 DD38 DCF9       000F38  000EF9  4183          MP    TICKSTOT,=P'4294967296'      ...decimal...
000D46  FA77 DD38 DD30       000F38  000F30  4184          AP    TICKSTOT,TICKSBBB            ...microseconds
                                     4185 *
000D4C  D20B DD6B DD84       000F6B  000F84  4186          MVC   PRTLINE+43(L'EDIT),EDIT          (edit into...
000D52  DE0B DD6B DD3B       000F6B  000F3B  4187          ED    PRTLINE+43(L'EDIT),TICKSTOT+3     ...print line)

                                     4189 *
                                     4190 *        Use Hercules Diagnose for Message to console
                                     4191 *
000D58  9002 DB80                    000D80  4192          STM   R0,R2,RPTDWSAV       save regs used by MSG
000D5C  4100 0044                    000044  4193          LA    R0,PRTLNG            message length
000D60  4110 DD40                    000F40  4194          LA    R1,PRTLINE           messagfe address
000D64  4520 DC18                    000E18  4195          BAL   R2,MSG               call Hercules console MSG display
000D68  9802 DB80                    000D80  4196          LM    R0,R2,RPTDWSAV       restore regs

000D6C  5850 DB7C                    000D7C  4198          L     R5,RPTSVR5         Restore R5
000D70  58F0 DB78                    000D78  4199          L     R15,RPTSAVE        Restore return address
000D74  07FF                                 4200          BR    R15                Return to caller

000D78  00000000                     4202 RPTSAVE  DC    F'0'               R15 save area
000D7C  00000000                     4203 RPTSVR5  DC    F'0'               R5 save area

000D80  00000000 00000000            4205 RPTDWSAV DC    2D'0'              R0-R2 save area for MSG call
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4207 ********************************************************************************
                                      4208 *        CALCDUR                    Calculate DURATION
                                      4209 ********************************************************************************

000D90  50F0 DBD4                     000DD4  4211 CALCDUR  ST    R15,CALCRET         Save return address
000D94  9057 DBD8                     000DD8  4212          STM   R5,R7,CALCWORK      Save work registers
                                      4213 *
000D98  9867 DD08                     000F08  4214          LM    R6,R7,BEGCLOCK      Remove CPU number from clock value
000D9C  8C60 0006                     000006  4215          SRDL  R6,6                        "
000DA0  8D60 0006                     000006  4216          SLDL  R6,6                        "
000DA4  9067 DD08                     000F08  4217          STM   R6,R7,BEGCLOCK              "
                                      4218 *
000DA8  9867 DD10                     000F10  4219          LM    R6,R7,ENDCLOCK      Remove CPU number from clock value
000DAC  8C60 0006                     000006  4220          SRDL  R6,6                        "
000DB0  8D60 0006                     000006  4221          SLDL  R6,6                        "
000DB4  9067 DD10                     000F10  4222          STM   R6,R7,ENDCLOCK              "
                                      4223 *
000DB8  4150 DD08                     000F08  4224          LA    R5,BEGCLOCK         Starting time
000DBC  4160 DD10                     000F10  4225          LA    R6,ENDCLOCK         Ending time
000DC0  4170 DD18                     000F18  4226          LA    R7,DURATION         Difference
000DC4  45F0 DBE4                     000DE4  4227          BAL   R15,SUBDWORD        Calculate duration
                                      4228 *
000DC8  9857 DBD8                     000DD8  4229          LM    R5,R7,CALCWORK      Restore work registers
000DCC  58F0 DBD4                     000DD4  4230          L     R15,CALCRET         Restore return address
000DD0  07FF                          000000  4231          BR    R15                 Return to caller

000DD4  00000000                      000000  4233 CALCRET  DC    F'0'                R15 save area
000DD8  00000000 00000000             000000  4234 CALCWORK DC    3F'0'               R5-R7 save area



                                      4236 ********************************************************************************
                                      4237 *        SUBDWORD                   Subtract two doublewords
                                      4238 *        R5 --> subtrahend, R6 --> minuend, R7 --> result
                                      4239 ********************************************************************************

000DE4  9014 DC08                     000E08  4241 SUBDWORD STM   R1,R4,SUBDWSAV   Save registers
                                      4242 *
000DE8  9812 5000                     000000  4243          LM    R1,R2,0(R5)      Subtrahend  (value to subtract)
000DEC  9834 6000                     000000  4244          LM    R3,R4,0(R6)      Minuend     (what to subtract FROM)
000DF0  1F42                          000000  4245          SLR   R4,R2            Subtract LOW part
000DF2  47B0 DBFA                     000DFA  4246          BNM   *+4+4              (branch if no borrow)
000DF6  5F30 DCEC                     000EEC  4247          SL    R3,=F'1'          (otherwise do borrow)
000DFA  1F31                          000000  4248          SLR   R3,R1            Subtract HIGH part
000DFC  9034 7000                     000000  4249          STM   R3,R4,0(R7)      Store results
                                      4250 *
000E00  9814 DC08                     000E08  4251          LM    R1,R4,SUBDWSAV   Restore registers
000E04  07FF                          000000  4252          BR    R15                Return to caller

000E08  00000000 00000000             000000  4254 SUBDWSAV DC    2D'0'              R1-R4 save area
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4256 ********************************************************************
                                     4257 *        Issue HERCULES MESSAGE pointed to by R1, length in R0
                                     4258 *              R2 = return address
                                     4259 ********************************************************************

000E18  4900 DCF0                000EF0  4261 MSG      CH    R0,=H'0'               Do we even HAVE a message?
000E1C  07D2                             4262          BNHR  R2                     No, ignore

000E1E  9002 DC50                000E50  4264          STM   R0,R2,MSGSAVE          Save registers

000E22  4900 DCF2                000EF2  4266          CH    R0,=AL2(L'MSGMSG)      Message length within limits?
000E26  47D0 DC2E                000E2E  4267          BNH   MSGOK                  Yes, continue
000E2A  4100 005F                00005F  4268          LA    R0,L'MSGMSG            No, set to maximum

000E2E  1820                             4270 MSGOK    LR    R2,R0                  Copy length to work register
000E30  0620                             4271          BCTR  R2,0                   Minus-1 for execute
000E32  4420 DC5C                000E5C  4272          EX    R2,MSGMVC              Copy message to O/P buffer

000E36  4120 200A                00000A  4274          LA    R2,1+L'MSGCMD(,R2)     Calculate true command length
000E3A  4110 DC62                000E62  4275          LA    R1,MSGCMD              Point to true command

000E3E  83120008                         4277          DC    X'83',X'12',X'0008'    Issue Hercules Diagnose X'008'
000E42  4780 DC48                000E48  4278          BZ    MSGRET                 Return if successful
000E46  0000                             4279          DC    H'0'                   CRASH for debugging purposes

000E48  9802 DC50                000E50  4281 MSGRET   LM    R0,R2,MSGSAVE          Restore registers
000E4C  07F2                             4282          BR    R2                     Return to caller

000E50  00000000 00000000                4284 MSGSAVE  DC    3F'0'                  Registers save area
000E5C  D200 DC6B 1000       000E6B  000000  4285 MSGMVC   MVC   MSGMSG(0),0(R1)      Executed instruction

000E62  D4E2C7D5 D6C8405C                4287 MSGCMD   DC    C'MSGNOH * '           *** HERCULES MESSAGE COMMAND ***
000E6B  40404040 40404040                4288 MSGMSG   DC    CL95' '                The message text to be displayed
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4290 ************************************************************************
                                     4291 *        Normal completion or Abnormal termination PSWs
                                     4292 ************************************************************************




                                     4294 EOJ      DWAITEND LOAD=YES          Normal completion
000ECA                               4296+EOJ      DS    0H
000ECA  8200 DCD0                000ED0  4297+         LPSW  DWAT0008
000ED0  000A0000 00000000            4298+DWAT0008 PSW   0,0,2,0,X'000000'




                                     4300 FAILTEST DWAIT LOAD=YES,CODE=BAD    Abnormal termination
000ED8                               4301+FAILTEST DS    0H
000ED8  8200 DCE0                000EE0  4302+         LPSW  DWAT0009
000EE0  000A0000 00010BAD            4303+DWAT0009 PSW   0,0,2,0,X'010BAD'
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4305 ************************************************************************
                                      4306 *        Working Storage
                                      4307 ************************************************************************



000EE8                                4309          LTORG ,                 Literals pool
000EE8  00000000                      4310                =F'0'
000EEC  00000001                      4311                =F'1'
000EF0  0000                          4312                =H'0'
000EF2  005F                          4313                =AL2(L'MSGMSG)
000EF4  E3D9E3C5 40                   4314                =CL5'TRTE'
000EF9  04294967 296C                 4315                =P'4294967296'

                        000400  000001  4317 K        EQU   1024            One KB
                        001000  000001  4318 PAGE     EQU   (4*K)           Size of one page
                        010000  000001  4319 K64      EQU   (64*K)          64 KB
                        100000  000001  4320 MB       EQU   (K*K)            1 MB

000F00  00002710                      4322 NUMLOOPS DC    F'10000'          10,000 * 100 = 1,000,000

000F08  BBBBBBBB BBBBBBBB             4324 BEGCLOCK DC    0D'0',8X'BB'      Begin
000F10  EEEEEEEE EEEEEEEE             4325 ENDCLOCK DC    0D'0',8X'EE'      End
000F18  DDDDDDDD DDDDDDDD             4326 DURATION DC    0D'0',8X'DD'      Diff
000F20  FFFFFFFF FFFFFFFF             4327 OVERHEAD DC    0D'0',8X'FF'      Overhead

000F28  00000000 0000000C             4329 TICKSAAA DC    PL8'0'            Clock ticks high part
000F30  00000000 0000000C             4330 TICKSBBB DC    PL8'0'            Clock ticks low part
000F38  00000000 0000000C             4331 TICKSTOT DC    PL8'0'            Total clock ticks

000F40  40404040 40404040             4333 PRTLINE  DC    C'         1,000,000 iterations of XXXXX'
000F66  40A39696 9240F9F9             4334          DC    C' took 999,999,999 microseconds'
                        000044  000001  4335 PRTLNG   EQU   *-PRTLINE
000F84  40202020 6B202020             4336 EDIT     DC    X'402020206B2020206B202120'
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                     4338 ********************************************************************************
                                     4339 *        TRTETEST DSECT
                                     4340 ********************************************************************************



                                     4342 TRTETEST DSECT ,
000000  00                           4343 TNUM     DC    X'00'          TRTE table Number
000001  00                           4344          DC    X'00'
000002  00                           4345          DC    X'00'
000003  00                           4346 M3       DC    X'00'          M3 byte stored into TRTE instruction



000004  00000000                     4348 OP1DATA  DC    A(0)           Pointer to Operand-1 data
000008  00000000                     4349 OP1LEN   DC    F'0'           How much data is there - 1
00000C  00000000                     4350 OP2DATA  DC    A(0)           Pointer to FC table data
000010  00000000                     4351 OP2LEN   DC    F'0'           How much data is there - FC Table



                         000014  000001  4353 OPSWHERE EQU   *
000014  00000000                     4354 OP2WHERE DC    A(0)           Where FC Table  data should be placed
000018  00000000                     4355 OP1WHERE DC    A(0)           Where Operand-1 data should be placed
00001C  00000000                     4356 OP1WLEN  DC    F'0'           How much data is there - 1
000020  00000000                     4357          DC    A(0)           pollute - found FC

000024  00000000                     4359 FAILMASK DC    A(0)           Failure Branch on Condition mask



                                     4361 *                             Ending register values
000028  00000000                     4362 ENDREGS  DC    A(0)              Operand 1 address
00002C  00000000                     4363          DC    A(0)              Operand 1 length
000030  00000000                     4364          DC    A(0)              Function Code



                         000034  000001  4366 TRTENEXT EQU   *          Start of next table entry...



                         BBCCDD  000001  4368 REG2PATT EQU   X'AABBCCDD'    Polluted Register pattern
                         0000DD  000001  4369 REG2LOW  EQU         X'DD'    (last byte above)
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                            000000  0C3B65  4371 TRTE2TST CSECT ,
                                            4372 ********************************************************************
                                            4373 *        TRTE Performace Test data...
                                            4374 ********************************************************************
000F90                                      4375 TRTEPERF DC    0A(0)      start of table




                                            4377 ********************************************************************
                                            4378 *        tests with   M3: A=1,F=1,L=0, reserved=0    (12)
                                            4379 *                     FC Table : SIZE: 131,072 (2 BYTE ARGUMENT)
                                            4380 *                                Function Code is 2 bytes
                                            4381 *
                                            4382 *              Note: Op1 length must be a multiple of 2
                                            4383 ********************************************************************


000F90                                      4385 F12T8    DS    0F
000F90  F8                                  4386          DC    X'F8'                       Test Num
000F91  0000                                4387          DC    X'00',X'00'
000F93  C0                                  4388          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
000F94  00001368 00000200                   4389          DC    A(TRTOP1F1),A(512)          Source - Op 1 & length
000F9C  000A3966 00020000                   4390          DC    A(TRTOPCF1),A(2*K64)        Source - FC Table & length
                                            4391 *                                          Target -
000FA4  00710000 00910000                   4392          DC    A(7*MB+(1*K64)),A(9*MB+(1*K64)),A(0)  FC, Op1, Op1L
000FB0  AABBCCDD                            4393          DC    A(REG2PATT)
000FB4  0000000B                            4394          DC    A(11) CC1
000FB8  009101FE 00000002                   4395          DC    A(9*MB+(1*K64)+510),A(2),XL4'F1'




000FC4                                      4397 F12T8A   DS    0F
000FC4  F9                                  4398          DC    X'F9'                       Test Num
000FC5  0000                                4399          DC    X'00',X'00'
000FC7  C0                                  4400          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
000FC8  00001368 00000200                   4401          DC    A(TRTOP1F1),A(512)          Source - Op 1 & length
000FD0  000A3966 00020000                   4402          DC    A(TRTOPCF1),A(2*K64)        Source - FC Table & length
                                            4403 *                                          Target - FC, Op1, Op1L
000FD8  0072FF81 0092FF81                   4404          DC    A(7*MB+(3*K64)-127),A(9*MB+(3*K64)-127),A(0)
000FE4  AABBCCDD                            4405          DC    A(REG2PATT)
000FE8  0000000A                            4406          DC    A(10) CC1 or CC3
000FEC  0093017F 00000002                   4407          DC    A(9*MB+(3*K64)-127+510),A(2),XL4'F1'




000FF8                                      4409 F12T11   DS    0F
000FF8  FB                                  4410          DC    X'FB'                       Test Num
000FF9  0000                                4411          DC    X'00',X'00'
000FFB  C0                                  4412          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

000FFC  00002568 00000800                  4413          DC    A(TRTO1LF0),A(2048)         Source - Op 1 & length
001004  00083768 00020000                  4414          DC    A(TRTOPCF0),A(2*K64)        Source - FC Table & length
                                           4415 *                                          Target -
00100C  00760000 00960000                  4416          DC    A(7*MB+(6*K64)),A(9*MB+(6*K64)),A(0) FC, Op1, Op1L
001018  AABBCCDD                           4417          DC    A(REG2PATT)
00101C  0000000B                           4418          DC    A(11) CC1
001020  009607FE 00000002                  4419          DC    A(9*MB+(6*K64)+2048-2),A(2),XL4'F0'



00102C                                     4421 F12T11A  DS    0F
00102C  FC                                 4422          DC    X'FC'                       Test Num
00102D  0000                               4423          DC    X'00',X'00'
00102F  C0                                 4424          DC    X'C0'                       M3: A=1,F=1,L=0,--=0
001030  00002568 00000800                  4425          DC    A(TRTO1LF0),A(2048)         Source - Op 1 & length
001038  00083768 00020000                  4426          DC    A(TRTOPCF0),A(2*K64)        Source - FC Table & length
                                           4427 *                                          Target - FC, Op1, Op1L
001040  0078FE1F 0098FE1F                  4428          DC    A(7*MB+(9*K64)-481),A(9*MB+(9*K64)-481),A(0)
00104C  AABBCCDD                           4429          DC    A(REG2PATT)
001050  0000000A                           4430          DC    A(10) CC1 or CC3
001054  0099061D 00000002                  4431          DC    A(9*MB+(9*K64)-481+2048-2),A(2),XL4'F0'

001060  00000000                           4433          DC    A(0)        end of table
001064  00000000                           4434          DC    A(0)        end of table
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4436 ************************************************************************
                                      4437 *        TRTE op1 scan data...
                                      4438 ************************************************************************

001068  78125634 78125634                  4440 TRTOP10  DC    64XL4'78125634'    (CC0)

001168  78125634 78125634                  4442 TRTOP111 DC    04XL4'78125634',X'00110000',59XL4'78125634'    (CC1)

001268  78125634 78125634                  4444 TRTOP1F0 DC    63XL4'78125634',X'000000F0'    (CC1)

001368  78125634 78125634                  4446 TRTOP1F1 DC    127XL4'78125634',X'000000F1'    (CC1)

001568  98765432 98765432                  4448 TRTO1L0  DC    512XL4'98765432'    (CC0)

001D68  98765432 98765432                  4450 TRTO1L11 DC    256XL4'98765432',X'00110000',255XL4'98765432'    (CC1)

002568  98765432 98765432                  4452 TRTO1LF0 DC    511XL4'98765432',X'000000F0'    (CC1)
                                      4453
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4455 ************************************************************************
                                      4456 *        Function Code (FC) Tables (GR1)
                                      4457 ************************************************************************

002D68  00000000 00000000            4459 TRTOP20  DC    256X'00'            no stop
002E68                    002E68  022E68  4460          ORG   *+2*K64

022E68  00000000 00000000            4462 TRTOP211 DC    17X'00',X'11',238X'00'     stop on X'11'

022F68  00000000 00000000            4464 TRTOP2F0 DC    240X'00',X'F0',15X'00'     stop on X'F0'

023068  00000000 00000000            4466 TRTOP411 DC    34X'00',X'0011',476X'00'   stop on X'11'

023268  00000000 00000000            4468 TRTOP4F0 DC    480X'00',X'00F0',30X'00'     stop on X'F0'

023468  00000000 00000000            4470 TRTOP811 DC    17X'00',X'11',238X'00'       stop on X'11'
023568                    023568  043568  4471          ORG   *+2*K64

043568  00000000 00000000            4473 TRTOP8F0 DC    240X'00',X'F0',15X'00'     stop on X'F0'
043668                    043668  063668  4474          ORG   *+2*K64

063668  00000000 00000000            4476 TRTOP8F1 DC    240X'00',X'00',X'F1',14X'00' stop on X'F1'
063768                    063768  083768  4477          ORG   *+2*K64
                                      4478
083768  00000000 00000000            4479 TRTOPCF0 DC    480X'00',X'00F0',28X'00'     stop on X'F0'
083966                    083966  0A3966  4480          ORG   *+2*K64
                                      4481 *                                           stop on X'F1'
0A3966  00000000 00000000            4482 TRTOPCF1 DC    480X'00',X'0000',X'00F1',28X'00'
0A3B66                    0A3B66  0C3B66  4483          ORG   *+2*K64
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

                                      4485 ************************************************************************
                                      4486 *        (other DSECTS needed by SATK)
                                      4487 ************************************************************************

                                      4489          DSECTS PRINT=ON,NAME=(ASA)
                                      4490+         PUSH  PRINT
                                      4491+         PRINT ON
                                      4493+ASA      DSECT
                          000000  000001  4494+ASBEGIN  EQU   *                   Start of absolute/real assigned storage areas
000000  00000000 00000000               4495+IPLPSW   DC    FD'0'         000 A  Initial Program Load Program Status Word
000008  00000000 00000000               4496+IPLCCW1  DC    FD'0'         008 A  Initial Program Load first Channel Command Word
000010  00000000 00000000               4497+IPLCCW2  DC    FD'0'         010 A  Initial program Load second Channel Command Word
                                      4498+* RESTART RELATED PROGRAM STATUS WORDS
000018                    000018  000000  4499+         ORG   ASBEGIN
000000  00000000 00000000               4500+RSTNPSW  DC    FD'0'         000 R  Restart New PSW
000008  00000000 00000000               4501+RSTOPSW  DC    FD'0'         008 R  Restart Old PSW
000010  00000000 00000000               4502+UA0      DC    FD'0'         010 R  Unassigned Area 0
                                      4503+* INTERRUPTION OLD PROGRAM STATUS WORD SAVE AREAS
000018  00000000 00000000               4504+EXTOPSW  DC    FD'0'         018 R  External Interrupt Old PSW
000020  00000000 00000000               4505+SVCOPSW  DC    FD'0'         020 R  Supervisor Call Old PSW
000028  00000000 00000000               4506+PGMOPSW  DC    FD'0'         028 R  Program Old PSW
000030  00000000 00000000               4507+MCKOPSW  DC    FD'0'         030 R  Machine Check Old PSW
000038  00000000 00000000               4508+IOOPSW   DC    FD'0'         038 R  Input/Output Old PSW
                                      4509+* System/360 or System/370 Basic Control Mode INTERRUPTION INFORMATION
000040                    000040  00001A  4510+         ORG   EXTOPSW+2
00001A  0000                          4511+BCEXTCOD DC    H'0'          01A R  External Interuption Code
00001C                    00001C  000022  4512+         ORG   SVCOPSW+2
000022  0000                         4513+BCSVCCOD DC    H'00'         022 R  Supervisor Call Interruption Code
000024                    000024  00002A  4514+         ORG   PGMOPSW+2
00002A  0000                          4515+BCPGMCOD DC    H'0'          02A R  Program Interruption Code
00002C                    00002C  000032  4516+         ORG   MCKOPSW+2
000032  0000                          4517+BCMCKCOD DC    H'0'          032 R  Machine Check Interruption Code
000034                    000034  00003A  4518+         ORG   IOOPSW+2
00003A  0000                          4519+BCIOCOD  DC    H'0'          03A R  Input/Output Interruption Code (Device CCUU)
00003C                    00003C  000040  4520+         ORG   *+4
                                      4521+* CHANNEL-BASED INPUT/OUTPUT INTERRUPT RELATED
000040  00000000 00000000               4522+CSW      DC    FD'0'         040 R  Channel Status Word
000048                                4523+CAW      DC    0F'0'         048 R  Channel Address Word
000048  00                            4524+CAWKEY   DC    X'00'         048 R  Channel Storage Key (bits 0-3)
                          000008  000001  4525+CAWSUSP  EQU   X'08'         048 R  Suspend Control (bit 4)
000049  000000                        4526+CAWADDR  DC    AL3(0)        049 R  Channel Command Address
00004C  00000000                      4527+UA1      DC    F'0'          04C R  Unassigend Area 1
                                      4528+* MISCELANEOUS AREAS
000050  00000000                      4529+TIMER    DC    F'0'          050 R  System/360 and System/370 Interval Timer
000054  00000000                      4530+TTDES    DC    F'0'          054 R  System/370 Trace-Table-Designation
                                      4531+* INTERRUPTION NEW PROGRAM STATUS WORD AREAS
000058  00000000 00000000               4532+EXTNPSW  DC    FD'0'         058 R  External New PSW
000060  00000000 00000000               4533+SVCNPSW  DC    FD'0'         060 R  Supervisor Call New PSW
000068  00000000 00000000               4534+PGMNPSW  DC    FD'0'         068 R  Program New PSW
000070  00000000 00000000               4535+MCKNPSW  DC    FD'0'         070 R  Machine Check New PSW
000078  00000000 00000000               4536+IONPSW   DC    FD'0'         078 R  Input/Output New PSW
                                      4537+* System/360 Diagnostic Scanout Area
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

000080                                      4538+SCANOUT  DS    0X          080 A  System/360 Diagnostic Scanout Area
                           000000  000001   4539+SCANOUTL EQU   *-SCANOUT          System/360 Diagnostic Scanout Area Length
                                            4540+* EXTERNAL INTERRUPTION INFORMATION
000080                     000080  000080   4541+         ORG   ASBEGIN+X'80'
000080  00000000                            4542+EXTIPARM DC    F'0'        080 R  External-interruption Parameter
000084  0000                                4543+EXTCPUAD DC    H'0'        084 R  External-interruption CPU Address
000086  0000                                4544+EXTICODE DC    H'0'        086 R  External-interruption Code
                                            4545+* SUPERVISOR CALL INTERRUPTION INFORMATION
000088                                      4546+SVCIID   DC    0F'0'       088 R  Supervisor-Call Interuption Identification
000088  00                                  4547+         DC    X'00'       088 R  not-used - zeros stored
000089  00                                  4548+SVCIILC  DC    X'00'       089 R  Supervisor-Call instruction length code
                           00000C  000001   4549+SVCIILCM EQU   B'00001100'       Supervisor-Call ILC mask, zeros stored in other bits
00008A  0000                                4550+SVCICODE DC    H'0'        08A R  Supervisor-Call Interruption Code
                                            4551+* PROGRAM INTERRUPTION INFORMATION
00008C                                      4552+PGMIID   DC    0F'0'       08C R  Program-interruption identification
00008C  00                                  4553+         DC    X'00'       08C R  not-used - zeros stored
00008D  00                                  4554+PGMIILC  DC    X'00'       08D R  Program instruction lengh code
                           00000C  000001   4555+PGMIILCM EQU   B'00001100'       Progrtam ILC mask, zeros stored in other bits
00008E  0000                                4556+PGMICODE DC    H'0'        08E R  Program Interruption Code
000090                                      4557+PGMDXC   DC    0F'0'       090 R  Data-Exception Code
000090  00000000                            4558+PGMTRX   DC    F'0'        090 R  Translation-Exception Identification
000094                                      4559+MONCLS   DC    0H'0'       094 R  Monitor-Class Number
000094  00                                  4560+         DC    X'00'       094 R  not-used - zeros stored
000095  00                                  4561+MONNUMBR DC    X'00'       095 R  Monitor-Class Number stored
000096  00                                  4562+PERCODE  DC    X'00'       096 R  Program-Event-Recording Code
                           0000F0  000001   4563+PERCODMK EQU   B'11110000'       Program-Event-Recordind Code mask in bits 0-3
000097  00                                  4564+         DC    X'00'       097 R  PER Code not used - zeros stored
000098  00000000                            4565+PERADDR  DC    F'0'        098 R  PER Address
00009C  00000000                            4566+MONCODE  DC    F'0'        09C R  Monitor Event Code in bytes 1-3, zeros in byte 0
0000A0  00                                  4567+PGMACCID DC    X'00'       0A0 R  Exception accress identification
0000A1  00                                  4568+PERACCID DC    X'00'       0A1 R  PER access identification
0000A2  00                                  4569+MPGACCID DC    X'00'       0A2 R  MOVE PAGE Operand access identification
0000A3                                      4570+SSARCHMD DC    0X'00'      0A3 A  Store Status Architectural Mode Identification
0000A3  00                                  4571+MKARCHMD DC    X'00'       0A3 R  Machine-Check Architectural Mode Identification
0000A4  00000000                            4572+UA2      DC    F'0'        0A4 R  Unused area
                                            4573+* z/Architecture PROGRAM INTERRUPTION INFORMATION
0000A8  00000000 00000000                   4574+ZPGMTRX  DC    FD'0'       0A8 R  Translation Exception information
0000B0  00000000 00000000                   4575+ZMONCODE DC    FD'0'       0B0 R  Monitor Code
                                            4576+* System/370 CHANNEL INPUT/OUTPUT INFORMATION
0000B8                     0000B8  0000A8   4577+         ORG   ASBEGIN+X'A8'
0000A8  00000000                            4578+CHANID   DC    F'0'        0A8 R  System/370 STORE CHANNEL ID location
0000AC  00000000                            4579+IOELADDR DC    F'0'        0AC R  System/370 I/O Extended Logout Address
0000B0  00000000                            4580+LCHANLOG DC    F'0'        0B0 R  System/370 Limited Channel Logout Area
0000B4  00000000                            4581+UA3      DC    F'0'        0B4 R  unused by System/370
0000B8  00                                  4582+UA4      DC    X'00'       0B8 R  unused by System/370
0000B9  00                                  4583+MEASUREB DC    X'00'       0B9 R  System/370 Measurement Byte
0000BA  0000                                4584+IOICODE  DC    H'0'        0BA R  System/370 Input/Output Interruption Device Address
                                            4585+* CHANNEL SUBSYSTEM INPUT/OUTPUT INFORMATION
0000BC                     0000BC  0000B8   4586+         ORG   ASBEGIN+X'B8'
0000B8  00000000                            4587+IOSSID   DC    F'0'        0B8 R  Channel subsystem-identification word
0000BC  00000000                            4588+IOIPARM  DC    F'0'        0BC R  Channel subsystem I/O Interruption parameter
0000C0  00000000                            4589+IOIID    DC    F'0'        0C0 R  Channel subsystem I/O Interruption Identification
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

0000C4  00000000                           4590+PCFETO   DC    A(0)          0C4 R  ESA/390 PROGRAM CALL FAST Entry Table Origin
0000C8  00000000                           4591+STFLDATA DC    F'0'          0C8 R  STORE FACILITY LIST storage area
0000CC  00000000 00000000                  4592+UA5      DC    XL8'00'       0CC R  unused area
                                           4593+* MACHINE-CHECK INTERRUPTION INFORMATION
0000D4  00000000                           4594+MKXSAA   DC    F'0'          0D4 R  Machine-Check Extended Save Area Address
0000D8  00000000 00000000                  4595+MKCPUTIM DC    FD'0'         0D8 R  Machine-Check CPU timer save area
0000E0  00000000 00000000                  4596+MKCLKCMP DC    FD'0'         0E0 R  Machine-Check clock comparator save area
0000E8  00000000                           4597+MKICODE  DC    F'0'          0E8 R  Machine-Check interruption code
0000EC  00000000 00000000                  4598+UA6      DC    XL8'00'       0EC R  unused area
0000F4  00000000                           4599+MKDMGCOD DC    F'0'          0F4 R  Machine-Check external damage code
0000F8                                     4600+ZMKFAILA DC    0FD'0'        0F8 R  Machine-Check failing storage address
0000F8  00000000                           4601+MKFAILA  DC    F'0'          0F8 R  Machine-Check failing storage address
0000FC  00000000                           4602+MKMODEL  DC    F'0'          0FC R  Machine-Check model dependent information
000100  00000000 00000000                  4603+MKLOGOUT DC    4F'0'         100 R  ESA machine-check fixed logout area
000110                     000110  000100  4604+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4605+ZEMONCTR DC    AD(0)         100 R  Enhanced-Monitor Counter-Array Origin
000108  00000000                           4606+ZEMONSIZ DC    F'0'          108 R  Enhanced-Monitor Counter-Array Size
00010C  00000000                           4607+ZEMONCNT DC    F'0'          10C R  Enhanced-Monitor Exception Count
000110  00000000 00000000                  4608+ZBRKADDR DC    AD(0)         110 R  Breaking-Event Address
000118  00000000 00000000                  4609+UA7      DC    FD'0'         118 R  unused area
000120  00000000 00000000                  4610+MKARS    DC    16F'0'        120 R  Machine-Check access register save area
000160                     000160  000100  4611+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4612+MCKLOG   DC    24F'0'        100 R  System/370, 370-XA machine-Check fixed logout area.
000160  00000000 00000000                  4613+MKFPRS   DC    4D'0'         160 R  Machine-Check floating point register save area
000180  00000000 00000000                  4614+NKGRS    DC    16F'0'        180 R  Machine-Check general register save area
0001C0  00000000 00000000                  4615+MKCRS    DC    16F'0'        1C0 R  Machine-Check control register save area
                                           4616+* STORE/STATUS SAVE AREAS
000200                     000200  0000D4  4617+          ORG   ASBEGIN+X'D4'
0000D4  00000000                           4618+SSXSAA   DC    A(0)          0D4 A  Store Status Extended Save Area Address
0000D8  00000000 00000000                  4619+SSCPUTIM DC    FD'0'         0D8 A  CPU Timer save area
0000E0  00000000 00000000                  4620+SSCLKCMP DC    FD'0'         0E0 A  Clock-Comparator save area
0000E8                     0000E8  000100  4621+          ORG   ASBEGIN+X'100'
000100  00000000 00000000                  4622+SSPSW    DC    FD'0'         100 A  Program-Status Word save area
000108  00000000                           4623+SSPREFIX DC    F'0'          108 A  Prefix save area
00010C  00000000                           4624+SSMODEL  DC    F'0'          10C A  Model-dependent save area
000110                     000110  000120  4625+          ORG   ASBEGIN+X'120'
000120  00000000 00000000                  4626+SSARS    DC    16F'0'        120 A  Access-register save area
000160  00000000 00000000                  4627+SSFPRS   DC    4D'0'         160 A  Floating-point register save area
000180  00000000 00000000                  4628+SSGRS    DC    16F'0'        180 A  General register save area
0001C0  00000000 00000000                  4629+SSCRS    DC    16F'0'        1C0 A  Control register save area
                                           4630+* z/Architecture OLD PROGRAM STATUS WORDS
000200                     000200  000120  4631+          ORG   ASBEGIN+X'120'
000120  00000000 00000000                  4632+ZRSTOPSW DC    XL16'00'      120 R  Restart Old PSW
000130  00000000 00000000                  4633+ZEXTOPSW DC    XL16'00'      130 R  External Old PSW
000140  00000000 00000000                  4634+ZSVCOPSW DC    XL16'00'      140 R  Supervisor-Call Old PSW
000150  00000000 00000000                  4635+ZPGMOPSW DC    XL16'00'      150 R  Program Old PSW
000160  00000000 00000000                  4636+ZMCKOPSW DC    XL16'00'      160 R  Machine-Check Old PSW
000170  00000000 00000000                  4637+ZIOOPSW  DC    XL16'00'      170 R  Input-Output Old PSW
000180  00000000 00000000                  4638+UA8      DC    XL32'00'      180 R  z/Architecture unused area
                                           4639+* z/Architecture NEW PROGRAM STATUS WORD AREAS
0001A0  00000000 00000000                  4640+ZRSTNPSW DC    XL16'00'      1A0 R  Restart New PSW
0001B0  00000000 00000000                  4641+ZEXTNPSW DC    XL16'00'      1B0 R  External New PSW
```

```
 LOC       OBJECT CODE      ADDR1   ADDR2   STMT

0001C0  00000000 00000000                  4642+ZSVCNPSW DC    XL16'00'     1C0 R  Supervisor-Call New PSW
0001D0  00000000 00000000                  4643+ZPGMNPSW DC    XL16'00'     1D0 R  Program New PSW
0001E0  00000000 00000000                  4644+ZMCKNPSW DC    XL16'00'     1E0 R  Machine-Check New PSW
0001F0  00000000 00000000                  4645+ZIONPSW  DC    XL16'00'     1F0 R  Input/Output New PSW
                         0011C0  000001    4646+ZSASDISP EQU   X'11C0'   Displacement to save areas defined by ASAZAREA macro
                         000200  000001    4647+ASEND    EQU   *                    End of absolute/real assigned storage areas
                         000200  000001    4648+ASLENGTH EQU   ASEND-ASBEGIN        Length of absolute/real assigned storage area
                                            4649+* LOGICAL ADDRESS USAGE
                         00031B  000001    4650+CPUID    EQU   *+X'11B'     31B L  System/370 CPU Identity used during DAS tracing
                                            4651+         POP   PRINT
                                            4652          PRINT ON

                                            4654 ********************************************************************************
                                            4655 *        Register equates
                                            4656 ********************************************************************************



                         000000  000001    4658 R0       EQU   0
                         000001  000001    4659 R1       EQU   1
                         000002  000001    4660 R2       EQU   2
                         000003  000001    4661 R3       EQU   3
                         000004  000001    4662 R4       EQU   4
                         000005  000001    4663 R5       EQU   5
                         000006  000001    4664 R6       EQU   6
                         000007  000001    4665 R7       EQU   7
                         000008  000001    4666 R8       EQU   8
                         000009  000001    4667 R9       EQU   9
                         00000A  000001    4668 R10      EQU   10
                         00000B  000001    4669 R11      EQU   11
                         00000C  000001    4670 R12      EQU   12
                         00000D  000001    4671 R13      EQU   13
                         00000E  000001    4672 R14      EQU   14
                         00000F  000001    4673 R15      EQU   15



                                            4675          END
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
ASA	4	00000000	512	4493	3558
ASBEGIN	U	00000000	1	4494	4499 4541 4577 4586 4604 4611 4617 4621 4625 4631 4648
ASEND	U	00000200	1	4647	4648
ASLENGTH	U	00000200	1	4648	
BCEXTCOD	H	0000001A	2	4511	
BCIOCOD	H	0000003A	2	4519	
BCMCKCOD	H	00000032	2	4517	
BCPGMCOD	H	0000002A	2	4515	
BCSVCCOD	H	00000022	2	4513	
BEGCLOCK	D	00000F08	8	4324	3644 3862 4214 4217 4224
BEGIN	I	00000200	2	3562	3593 3531 3559 3560
CALCDUR	I	00000D90	4	4211	3856 4169
CALCRET	F	00000DD4	4	4233	4211 4230
CALCWORK	F	00000DD8	4	4234	4212 4229
CAW	F	00000048	4	4523	
CAWADDR	R	00000049	3	4526	
CAWKEY	X	00000048	1	4524	
CAWSUSP	U	00000008	1	4525	
CHANID	F	000000A8	4	4578	
CODE	2	00000000	801638	3512	
CPUID	U	0000031B	1	4650	
CSW	F	00000040	8	4522	
DURATION	D	00000F18	8	4326	3857 4172 4173 4176 4226
DWAT0008	3	00000ED0	8	4298	4297
DWAT0009	3	00000EE0	8	4303	4302
EDIT	X	00000F84	12	4336	4186 4187
ENDCLOCK	D	00000F10	8	4325	3855 4148 4219 4222 4225
ENDREGS	A	00000028	4	4362	
EOJ	H	00000ECA	2	4296	3579 3587
EXTCPUAD	H	00000084	2	4543	
EXTICODE	H	00000086	2	4544	
EXTIPARM	F	00000080	4	4542	
EXTNPSW	F	00000058	8	4532	
EXTOPSW	F	00000018	8	4504	4510
F12T11	F	00000FF8	4	4409	
F12T11A	F	0000102C	4	4421	
F12T8	F	00000F90	4	4385	
F12T8A	F	00000FC4	4	4397	
FAILMASK	A	00000024	4	4359	
FAILTEST	H	00000ED8	2	4301	3582 3585
IMAGE	1	00000000	801638	0	
IOELADDR	F	000000AC	4	4579	
IOICODE	H	000000BA	2	4584	
IOIID	F	000000C0	4	4589	
IOIPARM	F	000000BC	4	4588	
IONPSW	F	00000078	8	4536	
IOOPSW	F	00000038	8	4508	4518
IOSSID	F	000000B8	4	4587	
IPLCCW1	F	00000008	8	4496	
IPLCCW2	F	00000010	8	4497	
IPLPSW	F	00000000	8	4495	
K	U	00000400	1	4317	4318 4319 4320

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
K64	U	00010000	1	4319	4460 4471 4474 4477 4480 4483 4390 4392 4395 4402 4404 4407 4414 4416 4419 4426 4428 4431
LCHANLOG	F	000000B0	4	4580	
M3	X	00000003	1	4346	
MB	U	00100000	1	4320	4392 4395 4404 4407 4416 4419 4428 4431
MCKLOG	F	00000100	4	4612	
MCKNPSW	F	00000070	8	4535	
MCKOPSW	F	00000030	8	4507	4516
MEASUREB	X	000000B9	1	4583	
MKARCHMD	X	000000A3	1	4571	
MKARS	F	00000120	4	4610	
MKCLKCMP	F	000000E0	8	4596	
MKCPUTIM	F	000000D8	8	4595	
MKCRS	F	000001C0	4	4615	
MKDMGCOD	F	000000F4	4	4599	
MKFAILA	F	000000F8	4	4601	
MKFPRS	D	00000160	8	4613	
MKICODE	F	000000E8	4	4597	
MKLOGOUT	F	00000100	4	4603	
MKMODEL	F	000000FC	4	4602	
MKXSAA	F	000000D4	4	4594	
MONCLS	H	00000094	2	4559	
MONCODE	F	0000009C	4	4566	
MONNUMBR	X	00000095	1	4561	
MPGACCID	X	000000A2	1	4569	
MSG	I	00000E18	4	4261	4195
MSGCMD	C	00000E62	9	4287	4274 4275
MSGMSG	C	00000E6B	95	4288	4268 4285 4266
MSGMVC	I	00000E5C	6	4285	4272
MSGOK	I	00000E2E	2	4270	4267
MSGRET	I	00000E48	4	4281	4278
MSGSAVE	F	00000E50	4	4284	4264 4281
NKGRS	F	00000180	4	4614	
NUMLOOPS	F	00000F00	4	4322	3643 3861
OP1DATA	A	00000004	4	4348	3630
OP1LEN	F	00000008	4	4349	3628 3631
OP1WHERE	A	00000018	4	4355	3627
OP1WLEN	F	0000001C	4	4356	3629
OP2DATA	A	0000000C	4	4350	3636
OP2LEN	F	00000010	4	4351	3635 3637
OP2WHERE	A	00000014	4	4354	3634
OPSWHERE	U	00000014	1	4353	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 3874 3877 3880 3883 3886 3889 3892 3895 3898 3901 3905 3908 3911 3914 3917 3920 3923 3926 3929 3932 3935 3938 3941 3944 3947 3950 3953 3956 3959 3962 3966 3969 3972 3975 3978 3981 3984 3987 3990 3993 3997

```
     SYMBOL         TYPE    VALUE      LENGTH    DEFN  REFERENCES

                                                      4000  4003  4006  4009  4012  4015  4018  4021  4024  4028  4031  4034  4037
                                                      4040  4043  4046  4049  4052  4055  4059  4062  4065  4068  4071  4074  4077
                                                      4080  4083  4086  4090  4093  4096  4099  4102  4105  4108  4111  4114  4117
                                                      4120  4123  4126  4129  4132  4135  4140  4143
OVERHEAD             D     00000F20           8  4327  3857  4171
PAGE                 U     00001000           1  4318
PCFETO               A     000000C4           4  4590
PERACCID             X     000000A1           1  4568
PERADDR              F     00000098           4  4565
PERCODE              X     00000096           1  4562
PERCODMK             U     000000F0           1  4563
PGMACCID             X     000000A0           1  4567
PGMDXC               F     00000090           4  4557
PGMICODE             H     0000008E           2  4556
PGMIID               F     0000008C           4  4552
PGMIILC              X     0000008D           1  4554
PGMIILCM             U     0000000C           1  4555
PGMNPSW              F     00000068           8  4534
PGMOPSW              F     00000028           8  4506  4514
PGMTRX               F     00000090           4  4558
PRTLINE              C     00000F40          38  4333  4335  4151  4186  4187  4194
PRTLNG               U     00000044           1  4335  4193
R0                   U     00000000           1  4658  3558  4192  4193  4196  4261  4264  4266  4268  4270  4281
R1                   U     00000001           1  4659  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  3874
                                                      3877  3880  3883  3886  3889  3892  3895  3898  3901  3905  3908  3911  3914
                                                      3917  3920  3923  3926  3929  3932  3935  3938  3941  3944  3947  3950  3953
                                                      3956  3959  3962  3966  3969  3972  3975  3978  3981  3984  3987  3990  3993
                                                      3997  4000  4003  4006  4009  4012  4015  4018  4021  4024  4028  4031  4034
                                                      4037  4040  4043  4046  4049  4052  4055  4059  4062  4065  4068  4071  4074
                                                      4077  4080  4083  4086  4090  4093  4096  4099  4102  4105  4108  4111  4114
                                                      4117  4120  4123  4126  4129  4132  4135  4140  4143  4150  4194  4241  4243
                                                      4248  4251  4275  4285
R10                  U     0000000A           1  4668  3627  3632  3634  3638  4176  4177  4179
R11                  U     0000000B           1  4669  3628  3629  3635  4176  4180
R12                  U     0000000C           1  4670
R13                  U     0000000D           1  4671  3559  3562  3563  3564  3566
R14                  U     0000000E           1  4672  3572  3614  4160
R15                  U     0000000F           1  4673  3856  4152  4166  4169  4174  4199  4200  4211  4227  4230  4231  4252
R2                   U     00000002           1  4660  3866  3869  3875  3878  3881  3884  3887  3890  3893  3896  3899  3902  3906
                                                      3909  3912  3915  3918  3921  3924  3927  3930  3933  3936  3939  3942  3945
                                                      3948  3951  3954  3957  3960  3963  3967  3970  3973  3976  3979  3982  3985
                                                      3988  3991  3994  3998  4001  4004  4007  4010  4013  4016  4019  4022  4025
                                                      4029  4032  4035  4038  4041  4044  4047  4050  4053  4056  4060  4063  4066
                                                      4069  4072  4075  4078  4081  4084  4087  4091  4094  4097  4100  4103  4106
                                                      4109  4112  4115  4118  4121  4124  4127  4130  4133  4136  4141  4144  4192
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
					4195 4196 4243 4245 4262 4264 4270 4271 4272 4274 4281 4282
R3	U	00000003	1	4661	4244 4247 4248 4249
R4	U	00000004	1	4662	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 3874 3875 3877 3878 3880 3881 3883 3884 3886 3887 3889 3890
					3892 3893 3895 3896 3898 3899 3901 3902 3905 3906 3908 3909 3911
					3912 3914 3915 3917 3918 3920 3921 3923 3924 3926 3927 3929 3930
					3932 3933 3935 3936 3938 3939 3941 3942 3944 3945 3947 3948 3950
					3951 3953 3954 3956 3957 3959 3960 3962 3963 3966 3967 3969 3970
					3972 3973 3975 3976 3978 3979 3981 3982 3984 3985 3987 3988 3990
					3991 3993 3994 3997 3998 4000 4001 4003 4004 4006 4007 4009 4010
					4012 4013 4015 4016 4018 4019 4021 4022 4024 4025 4028 4029 4031
					4032 4034 4035 4037 4038 4040 4041 4043 4044 4046 4047 4049 4050
					4052 4053 4055 4056 4059 4060 4062 4063 4065 4066 4068 4069 4071
					4072 4074 4075 4077 4078 4080 4081 4083 4084 4086 4087 4090 4091
					4093 4094 4096 4097 4099 4100 4102 4103 4105 4106 4108 4109 4111
					4112 4114 4115 4117 4118 4120 4121 4123 4124 4126 4127 4129 4130
					4132 4133 4135 4136 4140 4141 4143 4144 4150 4241 4244 4245 4249
					4251
R5	U	00000005	1	4663	3616 3617 3620 4156 4157 4158 4167 4171 4198 4212 4224 4229 4243
R6	U	00000006	1	4664	3622 3623 3630 3632 3636 3638 3646 3854 3863 4147 4172 4214 4215
					4216 4217 4219 4220 4221 4222 4225 4244
R7	U	00000007	1	4665	3631 3637 3643 3854 3861 4147 4173 4212 4214 4217 4219 4222 4226
					4229 4249
R8	U	00000008	1	4666	
R9	U	00000009	1	4667	3560 3566 3567
REG2LOW	U	000000DD	1	4369	
REG2PATT	U	AABBCCDD	1	4368	4393 4405 4417 4429
RPTDWSAV	D	00000D80	8	4205	4192 4196
RPTSAVE	F	00000D78	4	4202	4166 4199
RPTSPEED	I	00000D0E	4	4166	4152
RPTSVR5	F	00000D7C	4	4203	4167 4198
RSTNPSW	F	00000000	8	4500	
RSTOPSW	F	00000008	8	4501	
SAVE1T4	F	00000410	4	3603	3645 4150
SAVER2	F	00000420	4	3604	
SAVER5	F	00000424	4	3605	3620 4156
SCANOUT	X	00000080	1	4538	4539
SCANOUTL	U	00000000	1	4539	
SSARCHMD	X	000000A3	1	4570	
SSARS	F	00000120	4	4626	
SSCLKCMP	F	000000E0	8	4620	
SSCPUTIM	F	000000D8	8	4619	
SSCRS	F	000001C0	4	4629	
SSFPRS	D	00000160	8	4627	
SSGRS	F	00000180	4	4628	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SSMODEL	F	0000010C	4	4624	
SSPREFIX	F	00000108	4	4623	
SSPSW	F	00000100	8	4622	
SSXSAA	A	000000D4	4	4618	
STFLDATA	F	000000C8	4	4591	
SUBDWORD	I	00000DE4	4	4241	4174 4227
SUBDWSAV	D	00000E08	8	4254	4241 4251
SUBTEST	X	00000401	1	3597	3584
SVCICODE	H	0000008A	2	4550	
SVCIID	F	00000088	4	4546	
SVCIILC	X	00000089	1	4548	
SVCIILCM	U	0000000C	1	4549	
SVCNPSW	F	00000060	8	4533	
SVCOPSW	F	00000020	8	4505	4512
TEST91	I	00000528	4	3613	3572
TESTADDR	D	00000400	8	3595	
TESTNUM	X	00000400	1	3596	3581 3623
TICKSAAA	P	00000F28	8	4329	4179 4182
TICKSBBB	P	00000F30	8	4330	4180 4184
TICKSTOT	P	00000F38	8	4331	4182 4183 4184 4187
TIMEOPT	X	00000408	1	3600	3578 3613
TIMER	F	00000050	4	4529	
TNUM	X	00000000	1	4343	3622
TRTE2TST	J	00000000	801638	3512	3515 3522 3530 3532
TRTENEXT	U	00000034	1	4366	4157
TRTEPERF	A	00000F90	4	4375	3616
TRTETEST	4	00000000	52	4342	3617
TRTO1L0	X	00001568	4	4448	
TRTO1L11	X	00001D68	4	4450	
TRTO1LF0	X	00002568	4	4452	4413 4425
TRTOP10	X	00001068	4	4440	
TRTOP111	X	00001168	4	4442	
TRTOP1F0	X	00001268	4	4444	
TRTOP1F1	X	00001368	4	4446	4389 4401
TRTOP20	X	00002D68	1	4459	
TRTOP211	X	00022E68	1	4462	
TRTOP2F0	X	00022F68	1	4464	
TRTOP411	X	00023068	1	4466	
TRTOP4F0	X	00023268	1	4468	
TRTOP811	X	00023468	1	4470	
TRTOP8F0	X	00043568	1	4473	
TRTOP8F1	X	00063668	1	4476	
TRTOPCF0	X	00083768	1	4479	4414 4426
TRTOPCF1	X	000A3966	1	4482	4390 4402
TST91LOP	U	00000532	1	3619	4159
TTDES	F	00000054	4	4530	
UA0	F	00000010	8	4502	
UA1	F	0000004C	4	4527	
UA2	F	000000A4	4	4572	
UA3	F	000000B4	4	4581	
UA4	X	000000B8	1	4582	
UA5	X	000000CC	8	4592	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
UA6	X	000000EC	8	4598	
UA7	F	00000118	8	4609	
UA8	X	00000180	32	4638	
ZBRKADDR	A	00000110	8	4608	
ZEMONCNT	F	0000010C	4	4607	
ZEMONCTR	A	00000100	8	4605	
ZEMONSIZ	F	00000108	4	4606	
ZEXTNPSW	X	000001B0	16	4641	
ZEXTOPSW	X	00000130	16	4633	
ZIONPSW	X	000001F0	16	4645	
ZIOOPSW	X	00000170	16	4637	
ZMCKNPSW	X	000001E0	16	4644	
ZMCKOPSW	X	00000160	16	4636	
ZMKFAILA	F	000000F8	8	4600	
ZMONCODE	F	000000B0	8	4575	
ZPGMNPSW	X	000001D0	16	4643	
ZPGMOPSW	X	00000150	16	4635	
ZPGMTRX	F	000000A8	8	4574	
ZRSTNPSW	X	000001A0	16	4640	
ZRSTOPSW	X	00000120	16	4632	
ZSASDISP	U	000011C0	1	4646	
ZSVCNPSW	X	000001C0	16	4642	
ZSVCOPSW	X	00000140	16	4634	
=AL2(L'MSGMSG)	R	00000EF2	2	4313	4266
=CL5'TRTE'	C	00000EF4	5	4314	4151
=F'0'	F	00000EE8	4	4310	4158
=F'1'	F	00000EEC	4	4311	4247
=H'0'	H	00000EF0	2	4312	4261
=P'4294967296'	P	00000EF9	6	4315	4183

```
 MACRO     DEFN  REFERENCES

ANTR        146
APROB       278
ARCHIND     438   3468
ARCHLVL     579   3467
ASAIPL      705   3528
ASALOAD     785   3511
ASAREA      840   4492
ASAZAREA   1025
CPUWAIT    1108
DSECTS     1434   4489
DWAIT      1637   4295   4300
DWAITEND   1694   4294
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      801638  00000-C3B65  00000-C3B65
  Region    CODE       801638  00000-C3B65  00000-C3B65
    CSECT   TRTE2TST   801638  00000-C3B65  00000-C3B65
```

```
   STMT                          FILE NAME

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


** NO ERRORS FOUND **
```