```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     2 ************************************************************************
                                                     3 *
                                                     4 *            TRTR instruction tests
                                                     5 *
                                                     6 *        NOTE: This test is based the CLCL-et-al Test
                                                     7 *              modified to only test the TRTR instruction.
                                                     8 *
                                                     9 *        James Wekel November 2022
                                                    10 ************************************************************************


                                                    12 ************************************************************************
                                                    13 *
                                                    14 *            TRTR basic instruction tests
                                                    15 *
                                                    16 ************************************************************************
                                                    17 *  This program tests proper functioning of the TRTR
                                                    18 *  instructions. Specification exceptions are not tested.
                                                    19 *
                                                    20 *  PLEASE NOTE that the tests are very SIMPLE TESTS designed to catch
                                                    21 *  obvious coding errors.  None of the tests are thorough.  They are
                                                    22 *  NOT designed to test all aspects of the TRTR instruction.
                                                    23 *
                                                    24 ************************************************************************
                                                    25 *
                                                    26 *  Example Hercules Testcase:
                                                    27 *
                                                    28 *        *Testcase TRTR-01-basic (Test TRTR instructions)
                                                    29 *
                                                    30 *        # ------------------------------------------------------------
                                                    31 *        # This tests only the basic function of the TRTR instruction.
                                                    32 *        # Specification Exceptions are NOT tested.
                                                    33 *        # ------------------------------------------------------------
                                                    34 *        mainsize    16
                                                    35 *        numcpu      1
                                                    36 *        sysclear
                                                    37 *        archlvl     z/Arch
                                                    38 *
                                                    39 *        loadcore    "$(testpath)/TRTR-01-basic" 0x0
                                                    40 *
                                                    41 *        runtest     1
                                                    42 *
                                                    43 *        *Done
                                                    44 *
                                                    45 ************************************************************************
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                    47 ********************************************************************
                                                    48 *                Low Core Definitions
                                                    49 ********************************************************************
                                                    50 *
                               00000000  00000EF7   51 TRTR1TST START 0
00000000                       00000000             52          USING TRTR1TST,R0            Low core addressability


00000000                       00000000  000001A0   54          ORG   TRTR1TST+X'1A0'        z/Architecure RESTART PSW
000001A0  00000001 80000000                         55          DC    X'0000000180000000'
000001A8  00000000 00000200                         56          DC    AD(BEGIN)


000001B0                       000001B0  000001D0   58          ORG   TRTR1TST+X'1D0'        z/Architecure PROGRAM CHECK PSW
000001D0  00020001 80000000                         59          DC    X'0002000180000000'
000001D8  00000000 0000DEAD                         60          DC    AD(X'DEAD')


000001E0                       000001E0  00000200   62          ORG   TRTR1TST+X'200'        Start of actual test program...
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     64 ********************************************************************
                                                     65 *               The actual "TRTR1TST" program itself...
                                                     66 ********************************************************************
                                                     67 *
                                                     68 *  Architecture Mode: z/Arch
                                                     69 *  Register Usage:
                                                     70 *
                                                     71 *   R0       (work)
                                                     72 *   R1       TRTR - Function-Code Address
                                                     73 *   R2       TRTR - Function-Code
                                                     74 *   R3       TRTR - First-Operand Address
                                                     75 *   R4       TRTR - First-Operand Length
                                                     76 *   R5       TRTR - Function-Code Table Address
                                                     77 *   R6-R7    (work)
                                                     78 *   R8       First base register
                                                     79 *   R9       Second base register
                                                     80 *   R10-R12  (work)
                                                     81 *   R13      Testing control table - base current entry
                                                     82 *   R14      Subroutine call
                                                     83 *   R15      Secondary Subroutine call or work
                                                     84 *
                                                     85 ********************************************************************

00000200                          00000200           87          USING  BEGIN,R8        FIRST Base Register
00000200                          00001200           88          USING  BEGIN+4096,R9   SECOND Base Register

00000200  0580                                       90 BEGIN     BALR   R8,0            Initalize FIRST base register
00000202  0680                                       91           BCTR   R8,0            Initalize FIRST base register
00000204  0680                                       92           BCTR   R8,0            Initalize FIRST base register

00000206  4190 8800                      00000800    94           LA     R9,2048(,R8)    Initalize SECOND base register
0000020A  4190 9800                      00000800    95           LA     R9,2048(,R9)    Initalize SECOND base register
                                                     96 *
                                                     97 **        Run the tests...
                                                     98 *
0000020E  45E0 8302                      00000502    99           BAL    R14,TEST01      Test TRTR   instruction
                                                    100 *



                                                    102 ********************************************************************
                                                    103 *         Test for normal or unexpected test completion...
                                                    104 ********************************************************************

00000212  9526 8200                      00000400   106           CLI    TESTNUM,X'26'   Did we end on expected test?
00000216  4770 83C0                      000005C0   107           BNE    FAILTEST        No?! Then FAIL the test!

0000021A  9502 8201                      00000401   109           CLI    SUBTEST,X'02'   Did we end on expected SUB-test?
0000021E  4770 83C0                      000005C0   110           BNE    FAILTEST        No?! Then FAIL the test!

00000222  47F0 83A8                      000005A8   112           B      EOJ             Yes, then normal completion!
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                    114 ********************************************************************
                                                    115 *        Fixed test storage locations ...
                                                    116 ********************************************************************


00000226                      00000226  00000400    118          ORG   BEGIN+X'200'
                                                    119
00000400                                            120 TESTADDR DS    0D                Where test/subtest numbers will go
00000400  99                                        121 TESTNUM  DC    X'99'      Test number of active test
00000401  99                                        122 SUBTEST  DC    X'99'      Active test sub-test number


00000402                      00000402  00000502    124          ORG   *+X'100'
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    126 ********************************************************************************
                                                    127 *        TEST01                    Test TRTR instruction
                                                    128 ********************************************************************************

00000502  9201 8200                      00000400   130 TEST01   MVI   TESTNUM,X'01'
                                                    131
00000506  41D0 83C8                      000005C8   132          LA    R13,TRTRCTL          Point R6 --> testing control table
0000050A                   00000000                 133          USING TRTRTEST,R13         What each table entry looks like
                                                    134
                           0000050A      00000001   135 TST1LOOP EQU   *
0000050A  4360 D000                      00000000   136          IC    R6,TNUM              Set test number
0000050E  4260 8200                      00000400   137          STC   R6,TESTNUM
                                                    138 *
                                                    139 **       Initialize operand data  (move data to testing address)
                                                    140 *
00000512  58A0 D01C                      0000001C   141          L     R10,OP1WHERE         Where to move operand-1 data to
00000516  58B0 D008                      00000008   142          L     R11,OP1LEN           operand-1 length
0000051A  50B0 D020                      00000020   143          ST    R11,OP1WLEN            and save for later
0000051E  5860 D004                      00000004   144          L     R6,OP1DATA           Where op1 data is right now
00000522  5870 D008                      00000008   145          L     R7,OP1LEN            How much of it there is
00000526  0EA6                                      146          MVCL  R10,R6
                                                    147 *
00000528  58A0 D024                      00000024   148          L     R10,OP2WHERE         Where to move operand-2 data to
0000052C  58B0 D010                      00000010   149          L     R11,OP2LEN           How much of it there is
00000530  5860 D00C                      0000000C   150          L     R6,OP2DATA           Where op2 data is right now
00000534  5870 D010                      00000010   151          L     R7,OP2LEN             How much of it there is
00000538  0EA6                                      152          MVCL  R10,R6


                                                    154 * Setup for TRTR instruction: adjust OP address

0000053A  58B0 D028                      00000028   156          L     R11,FAILMASK       (failure CC)
0000053E  89B0 0004                      00000004   157          SLL   R11,4              (shift to BC instr CC position)

00000542  9200 8201                      00000401   159          MVI   SUBTEST,X'00'      (primary TRTR)


00000546  9815 D014                      00000014   161          LM    R1,R5,OPSWHERE     get TRTR input; set OP addr to end
0000054A  1A34                                      162          AR    R3,R4              add OP length -1
0000054C  0630                                      163          BCTR  R3,0
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                          165 * Execute TRTR instruction and check for expected condition code


0000054E  1864                            167          LR    R6,R4             get op-1 length -1 for EX
00000550  0660                            168          BCTR  R6,0
00000552  4460 838E                 0000058E   169          EX    R6,TRTREX          'TRTR  0(0,R3),0(R5)'


00000556  44B0 838A                 0000058A   171          EX    R11,TRTRBC         fail if...


                                          173 **       Verify R1,R2 contain (or still contain!) expected values

0000055A  98AC D02C                 0000002C   175          LM    R10,R12,ENDREGS

0000055E  9201 8201                 00000401   177          MVI   SUBTEST,X'01'      (R2 result - op1 found addr)
00000562  151A                              178          CLR   R1,R10              R2 correct?
00000564  4770 8384                 00000584   179          BNE   TRTRFAIL           No, FAILTEST!

00000568  9202 8201                 00000401   181          MVI   SUBTEST,X'02'      (R3 result - op1 remaining len)
0000056C  152B                              182          CLR   R2,R11              R3 correct
0000056E  4770 8384                 00000584   183          BNE   TRTRFAIL           No, FAILTEST!

00000572  41D0 D034                 00000034   185          LA    R13,TRTRNEXT       Go on to next table entry
00000576  D503 83C4 D000  000005C4  00000000   186          CLC   =F'0',0(R13)       End of table?
0000057C  4770 830A                 0000050A   187          BNE   TST1LOOP           No, loop...
00000580  47F0 8388                 00000588   188          B     TRTRDONE           Done! (success!)


00000584  41E0 83C0                 000005C0   190 TRTRFAIL LA    R14,FAILTEST       Unexpected results!
00000588  07FE                              191 TRTRDONE BR    R14                Return to caller or FAILTEST


0000058A  4700 8384                 00000584   193 TRTRBC   BC    0,TRTRFAIL          (fail if unexpected condition code)


0000058E  D000 3000 5000  00000000  00000000   195 TRTREX   TRTR  0(0,R3),0(R5)
                                          196
00000594                                  197          DROP  R13
00000594                                  198          DROP  R15
00000594                    00000200      199          USING BEGIN,R8
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    201 ********************************************************************************
                                                    202 *        Normal completion or Abnormal termination PSWs
                                                    203 ********************************************************************************


00000598  00020001 80000000                         205 EOJPSW   DC    0D'0',X'0002000180000000',AD(0)

000005A8  B2B2 8398                 00000598        207 EOJ      LPSWE EOJPSW               Normal completion


000005B0  00020001 80000000                         209 FAILPSW  DC    0D'0',X'0002000180000000',AD(X'BAD')

000005C0  B2B2 83B0                 000005B0        211 FAILTEST LPSWE FAILPSW              Abnormal termination


                                                    213 ********************************************************************************
                                                    214 *        Working Storage
                                                    215 ********************************************************************************


000005C4                                            217          LTORG ,                    Literals pool
000005C4  00000000                                  218                =F'0'

                          00000400  00000001        220 K        EQU   1024                 One KB
                          00001000  00000001        221 PAGE     EQU   (4*K)                Size of one page
                          00004000  00000001        222 K16      EQU   (16*K)               16 KB
                          00008000  00000001        223 K32      EQU   (32*K)               32 KB
                          00010000  00000001        224 K64      EQU   (64*K)               64 KB
                          00100000  00000001        225 MB       EQU   (K*K)                 1 MB
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                               00000000  00000EF7   227 TRTR1TST CSECT ,

                                                    229 ********************************************************************
                                                    230 *        TRTRTEST DSECT
                                                    231 ********************************************************************

                                                    233 TRTRTEST DSECT ,
00000000  00                                        234 TNUM     DC    X'00'          TRTR table Number
00000001  00                                        235          DC    X'00'
00000002  00                                        236          DC    X'00'
00000003  00                                        237          DC    X'00'

00000004  00000000                                  239 OP1DATA  DC    A(0)           Pointer to Operand-1 data
00000008  00000000                                  240 OP1LEN   DC    F'0'           How much data is there - 1
0000000C  00000000                                  241 OP2DATA  DC    A(0)           Pointer to FC table data
00000010  00000000                                  242 OP2LEN   DC    F'0'           How much data is there - FC Table

                               00000014  00000001   244 OPSWHERE EQU   *
00000014  00000000                                  245 GR1PATT  DC    A(0)           GR1 - Polluted Register pattern
00000018  00000000                                  246 GR2PATT  DC    A(0)           GR2 - Polluted Register pattern
0000001C  00000000                                  247 OP1WHERE DC    A(0)           Where Operand-1 data should be placed
00000020  00000000                                  248 OP1WLEN  DC    F'0'           How much data is there - 1
00000024  00000000                                  249 OP2WHERE DC    A(0)           Where FC Table  data should be placed

00000028  00000000                                  251 FAILMASK DC    A(0)           Failure Branch on Condition mask

                                                    253 *                             Ending register values
0000002C  00000000                                  254 ENDREGS  DC    A(0)              GR1 - FC address
00000030  00000000                                  255          DC    A(0)              GR2 - Function Code

                                 00000034  00000001 257 TRTRNEXT EQU   *              Start of next table entry...

                               AABBCCDD  00000001   259 REG2PATT EQU   X'AABBCCDD'    Polluted Register pattern
                               000000DD  00000001   260 REG2LOW  EQU         X'DD'    (last byte above)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                               00000000  00000EF7   262 TRTR1TST CSECT ,

                                                    264 ********************************************************************
                                                    265 *        TRTR Testing Control tables   (ref: TRTRTEST DSECT)
                                                    266 ********************************************************************
                                                    267          PRINT DATA
000005C8                                            268 TRTRCTL  DC    0A(0)    start of table

                                                    270 ********************************************************************
                                                    271 *        tests with CC=0
                                                    272 ********************************************************************

000005C8                                            274 CC0T1    DS    0F
000005C8  01                                        275          DC    X'01'                          Test Num
000005C9  0000                                      276          DC    X'00',X'00'
000005CB  00                                        277          DC    X'00'
                                                    278 *
000005CC  000008DC 00000001                         279          DC    A(TRTOP10),A(001)              Source - Op 1 & length
000005D4  00000BDC 00000100                         280          DC    A(TRTOP20),A(256)              Source - FC Table & length
                                                    281 *                                             Target -
000005DC  AABBCCDD AABBCCDD                         282          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
000005E4  00100000 00000000                         283          DC    A(1*MB+(0*K16)),A(0),A(2*MB+(0*K16))  Op1, Op1L, FCT
000005EC  00200000
                                                    284 *
000005F0  00000007                                  285          DC    A(7)                            not CC0
000005F4  AABBCCDD AABBCCDD                         286          DC    A(REG2PATT),A(REG2PATT)         FC address, Code

000005FC                                            288 CC0T2    DS    0F
000005FC  02                                        289          DC    X'02'                          Test Num
000005FD  0000                                      290          DC    X'00',X'00'
000005FF  00                                        291          DC    X'00'
                                                    292 *
00000600  000008DC 00000004                         293          DC    A(TRTOP10),A(004)              Source - Op 1 & length
00000608  00000BDC 00000100                         294          DC    A(TRTOP20),A(256)              Source - FC Table & length
                                                    295 *                                             Target -
00000610  AABBCCDD AABBCCDD                         296          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
00000618  00104000 00000000                         297          DC    A(1*MB+(1*K16)),A(0),A(2*MB+(1*K16))  Op1, Op1L, FCT
00000620  00204000
                                                    298 *
00000624  00000007                                  299          DC    A(7)                            not CC0
00000628  AABBCCDD AABBCCDD                         300          DC    A(REG2PATT),A(REG2PATT)         FC address, Code

00000630                                            302 CC0T3    DS    0F
00000630  03                                        303          DC    X'03'                          Test Num
00000631  0000                                      304          DC    X'00',X'00'
00000633  00                                        305          DC    X'00'
                                                    306 *
00000634  000008DC 00000040                         307          DC    A(TRTOP10),A(064)              Source - Op 1 & length
0000063C  00000BDC 00000100                         308          DC    A(TRTOP20),A(256)              Source - FC Table & length
                                                    309 *                                             Target -
00000644  AABBCCDD AABBCCDD                         310          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

0000064C  00108000 00000000                          311          DC    A(1*MB+(2*K16)),A(0),A(2*MB+(2*K16))  Op1, Op1L, FCT
00000654  00208000
                                                     312 *
00000658  00000007                                   313          DC    A(7)                                   not CC0
0000065C  AABBCCDD AABBCCDD                          314          DC    A(REG2PATT),A(REG2PATT)                FC address, Code



00000664                                             316 CC0T4    DS    0F
00000664  04                                         317          DC    X'04'                                 Test Num
00000665  0000                                       318          DC    X'00',X'00'
00000667  00                                         319          DC    X'00'
                                                     320 *
00000668  000008DC 00000100                          321          DC    A(TRTOP10),A(256)                     Source - Op 1 & length
00000670  00000BDC 00000100                          322          DC    A(TRTOP20),A(256)                     Source - FC Table & length
                                                     323 *                                                    Target -
00000678  AABBCCDD AABBCCDD                          324          DC    A(REG2PATT),A(REG2PATT)                        GR1, GR2
00000680  0010C000 00000000                          325          DC    A(1*MB+(3*K16)),A(0),A(2*MB+(3*K16))  Op1, Op1L, FCT
00000688  0020C000
                                                     326 *
0000068C  00000007                                   327          DC    A(7)                                   not CC0
00000690  AABBCCDD AABBCCDD                          328          DC    A(REG2PATT),A(REG2PATT)                FC address, Code
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    331 ********************************************************************************
                                                    332 *        tests with CC=1
                                                    333 ********************************************************************************



00000698                                            335 CC1T1    DS    0F
00000698  11                                        336          DC    X'11'                        Test Num
00000699  0000                                      337          DC    X'00',X'00'
0000069B  00                                        338          DC    X'00'
                                                    339 *
0000069C  000009DC 00000004                         340          DC    A(TRTOP1F0),A(004)           Source - Op 1 & length
000006A4  00000CE8 00000100                         341          DC    A(TRTOP2F0),A(256)           Source - FC Table & length
                                                    342 *                                           Target -
000006AC  AABBCCDD AABBCCDD                         343          DC    A(REG2PATT),A(REG2PATT)                GR1, GR2
000006B4  00300000 00000000                         344          DC    A(3*MB+(0*K16)),A(0),A(4*MB+(0*K16))  Op1, Op1L, FCT
000006BC  00400000
                                                    345 *
000006C0  0000000B                                  346          DC    A(11)                         not CC1
000006C4  00300001 AABBCCF0                         347          DC    A(3*MB+(0*K16)+1),XL4'AABBCCF0' FC address, Code


000006CC                                            349 CC1T2    DS    0F
000006CC  12                                        350          DC    X'12'                        Test Num
000006CD  0000                                      351          DC    X'00',X'00'
000006CF  00                                        352          DC    X'00'
                                                    353 *
000006D0  000009DC 00000010                         354          DC    A(TRTOP1F0),A(016)           Source - Op 1 & length
000006D8  00000CE8 00000100                         355          DC    A(TRTOP2F0),A(256)           Source - FC Table & length
                                                    356 *                                           Target -
000006E0  AABBCCDD AABBCCDD                         357          DC    A(REG2PATT),A(REG2PATT)                GR1, GR2
000006E8  00304000 00000000                         358          DC    A(3*MB+(1*K16)),A(0),A(4*MB+(1*K16))  Op1, Op1L, FCT
000006F0  00404000
                                                    359 *
000006F4  0000000B                                  360          DC    A(11)                         not CC1
000006F8  00304001 AABBCCF0                         361          DC    A(3*MB+(1*K16)+1),XL4'AABBCCF0' FC address, Code



00000700                                            363 CC1T3    DS    0F
00000700  13                                        364          DC    X'13'                        Test Num
00000701  0000                                      365          DC    X'00',X'00'
00000703  00                                        366          DC    X'00'
                                                    367 *
00000704  000009DC 00000100                         368          DC    A(TRTOP1F0),A(256)           Source - Op 1 & length
0000070C  00000CE8 00000100                         369          DC    A(TRTOP2F0),A(256)           Source - FC Table & length
                                                    370 *                                           Target -
00000714  AABBCCDD AABBCCDD                         371          DC    A(REG2PATT),A(REG2PATT)                GR1, GR2
0000071C  00308000 00000000                         372          DC    A(3*MB+(2*K16)),A(0),A(4*MB+(2*K16))  Op1, Op1L, FCT
00000724  00408000
                                                    373 *
00000728  0000000B                                  374          DC    A(11)                         not CC1
0000072C  00308001 AABBCCF0                         375          DC    A(3*MB+(2*K16)+1),XL4'AABBCCF0' FC address, Code



                                                    377 *        cross page tests
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

00000734                                            379 CC1T4    DS    0F
00000734  14                                        380          DC    X'14'                          Test Num
00000735  0000                                      381          DC    X'00',X'00'
00000737  00                                        382          DC    X'00'
                                                    383 *
00000738  000009DC 00000010                         384          DC    A(TRTOP1F0),A(016)             Source - Op 1 & length
00000740  00000CE8 00000100                         385          DC    A(TRTOP2F0),A(256)             Source - FC Table & length
                                                    386 *                                             Target -
00000748  AABBCCDD AABBCCDD                         387          DC    A(REG2PATT),A(REG2PATT)                  GR1, GR2
00000750  0030BFF7 00000000                         388          DC    A(3*MB+(3*K16)-9),A(0),A(4*MB+(3*K16)-9)  Op1, Op1L, FCT
00000758  0040BFF7
                                                    389 *
0000075C  0000000B                                  390          DC    A(11)                           not CC1
00000760  0030BFF8 AABBCCF0                         391          DC    A(3*MB+(3*K16)-9+1),XL4'AABBCCF0' FC address, Code


00000768                                            393 CC1T5    DS    0F
00000768  15                                        394          DC    X'15'                          Test Num
00000769  0000                                      395          DC    X'00',X'00'
0000076B  00                                        396          DC    X'00'
                                                    397 *
0000076C  000009DC 00000100                         398          DC    A(TRTOP1F0),A(256)             Source - Op 1 & length
00000774  00000CE8 00000100                         399          DC    A(TRTOP2F0),A(256)             Source - FC Table & length
                                                    400 *                                             Target -
0000077C  AABBCCDD AABBCCDD                         401          DC    A(REG2PATT),A(REG2PATT)                  GR1, GR2
00000784  0030FFF3 00000000                         402          DC    A(3*MB+(4*K16)-13),A(0),A(4*MB+(4*K16)-29)  Op1,.., FCT
0000078C  0040FFE3
                                                    403 *
00000790  0000000B                                  404          DC    A(11)                           not CC1
00000794  0030FFF4 AABBCCF0                         405          DC    A(3*MB+(4*K16)-13+1),XL4'AABBCCF0' FC address, Code
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    408 ********************************************************************************
                                                    409 *        tests with CC=2
                                                    410 ********************************************************************************



0000079C                                            412 CC2T1    DS    0F
0000079C  21                                        413          DC    X'21'                          Test Num
0000079D  0000                                      414          DC    X'00',X'00'
0000079F  00                                        415          DC    X'00'
                                                    416 *
000007A0  00000ADC 00000004                         417          DC    A(TRTOP1F1),A(004)             Source - Op 1 & length
000007A8  00000DF0 00000100                         418          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                    419 *                                             Target -
000007B0  AABBCCDD AABBCCDD                         420          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
000007B8  00500000 00000000                         421          DC    A(5*MB+(0*K16)),A(0),A(6*MB+(0*K16))  Op1, Op1L, FCT
000007C0  00600000
                                                    422 *
000007C4  0000000D                                  423          DC    A(13)                           not CC2
000007C8  00500000 AABBCCF1                         424          DC    A(5*MB+(0*K16)),XL4'AABBCCF1' FC address, Code


000007D0                                            426 CC2T2    DS    0F
000007D0  22                                        427          DC    X'22'                          Test Num
000007D1  0000                                      428          DC    X'00',X'00'
000007D3  00                                        429          DC    X'00'
                                                    430 *
000007D4  00000ADC 00000010                         431          DC    A(TRTOP1F1),A(016)             Source - Op 1 & length
000007DC  00000DF0 00000100                         432          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                    433 *                                             Target -
000007E4  AABBCCDD AABBCCDD                         434          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
000007EC  00504000 00000000                         435          DC    A(5*MB+(1*K16)),A(0),A(6*MB+(1*K16))  Op1, Op1L, FCT
000007F4  00604000
                                                    436 *
000007F8  0000000D                                  437          DC    A(13)                           not CC2
000007FC  00504000 AABBCCF1                         438          DC    A(5*MB+(1*K16)),XL4'AABBCCF1' FC address, Code



00000804                                            440 CC2T3    DS    0F
00000804  23                                        441          DC    X'23'                          Test Num
00000805  0000                                      442          DC    X'00',X'00'
00000807  00                                        443          DC    X'00'
                                                    444 *
00000808  00000ADC 00000100                         445          DC    A(TRTOP1F1),A(256)             Source - Op 1 & length
00000810  00000DF0 00000100                         446          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                    447 *                                             Target -
00000818  AABBCCDD AABBCCDD                         448          DC    A(REG2PATT),A(REG2PATT)                 GR1, GR2
00000820  00508000 00000000                         449          DC    A(5*MB+(2*K16)),A(0),A(6*MB+(2*K16))  Op1, Op1L, FCT
00000828  00608000
                                                    450 *
0000082C  0000000D                                  451          DC    A(13)                           not CC2
00000830  00508000 AABBCCF1                         452          DC    A(5*MB+(2*K16)),XL4'AABBCCF1' FC address, Code



                                                    454 *        cross page tests
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

00000838                                             456 CC2T4    DS    0F
00000838  24                                         457          DC    X'24'                          Test Num
00000839  0000                                       458          DC    X'00',X'00'
0000083B  00                                         459          DC    X'00'
                                                     460 *
0000083C  00000ADC 00000010                          461          DC    A(TRTOP1F1),A(016)             Source - Op 1 & length
00000844  00000DF0 00000100                          462          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                     463 *                                             Target -
0000084C  AABBCCDD AABBCCDD                          464          DC    A(REG2PATT),A(REG2PATT)                  GR1, GR2
00000854  0050BFF7 00000000                          465          DC    A(5*MB+(3*K16)-9),A(0),A(6*MB+(3*K16)-9)  Op1, Op1L, FCT
0000085C  0060BFF7
                                                     466 *
00000860  0000000D                                   467          DC    A(13)                           not CC2
00000864  0050BFF7 AABBCCF1                          468          DC    A(5*MB+(3*K16)-9),XL4'AABBCCF1' FC address, Code


0000086C                                             470 CC2T5    DS    0F
0000086C  25                                         471          DC    X'25'                          Test Num
0000086D  0000                                       472          DC    X'00',X'00'
0000086F  00                                         473          DC    X'00'
                                                     474 *
00000870  00000ADC 00000100                          475          DC    A(TRTOP1F1),A(256)             Source - Op 1 & length
00000878  00000DF0 00000100                          476          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                     477 *                                             Target -
00000880  AABBCCDD AABBCCDD                          478          DC    A(REG2PATT),A(REG2PATT)                  GR1, GR2
00000888  0050FFF3 00000000                          479          DC    A(5*MB+(4*K16)-13),A(0),A(6*MB+(4*K16)-29)  Op1,.., FCT
00000890  0060FFE3
                                                     480 *
00000894  0000000D                                   481          DC    A(13)                           not CC2
00000898  0050FFF3 AABBCCF1                          482          DC    A(5*MB+(4*K16)-13),XL4'AABBCCF1' FC address, Code


000008A0                                             484 CC2T6    DS    0F
000008A0  26                                         485          DC    X'26'                          Test Num
000008A1  0000                                       486          DC    X'00',X'00'
000008A3  00                                         487          DC    X'00'
                                                     488 *
000008A4  00000ADC 00000100                          489          DC    A(TRTOP1F1),A(256)             Source - Op 1 & length
000008AC  00000DF0 00000100                          490          DC    A(TRTOP8F1),A(256)             Source - FC Table & length
                                                     491 *                                             Target -
000008B4  AABBCCDD AABBCCDD                          492          DC    A(REG2PATT),A(REG2PATT)                  GR1, GR2
000008BC  00513FFF 00000000                          493          DC    A(5*MB+(5*K16)-1),A(0),A(6*MB+(5*K16)+29)  Op1,.., FCT
000008C4  0061401D
                                                     494 *
000008C8  0000000D                                   495          DC    A(13)                           not CC2
000008CC  00513FFF AABBCCF1                          496          DC    A(5*MB+(5*K16)-1),XL4'AABBCCF1' FC address, Code


000008D4  00000000                                   498          DC    A(0)     end of table
000008D8  00000000                                   499          DC    A(0)     end of table


                                                     501          PRINT NODATA
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                    503 ********************************************************************************
                                                    504 *        TRTR op1 scan data...
                                                    505 ********************************************************************************


000008DC  78125634 78125634                         507 TRTOP10  DC    64XL4'78125634'    (CC0)

000009DC  00F00000 78125634                         509 TRTOP1F0 DC    X'00F00000',63XL4'78125634'    (CC1)

00000ADC  F1000000 78125634                         511 TRTOP1F1 DC    X'F1000000',63XL4'78125634'    (CC2)


                                                    513 ********************************************************************************
                                                    514 *        Function Code (FC) Tables
                                                    515 ********************************************************************************


00000BDC  00000000 00000000                         517 TRTOP20  DC    256X'00'            no stop
00000CE0  00000000 00000000                         518          DS    D

00000CE8  00000000 00000000                         520 TRTOP2F0 DC    240X'00',X'F0',15X'00'     stop on X'F0'
00000DE8  00000000 00000000                         521          DS    D

00000DF0  00000000 00000000                         523 TRTOP8F1 DC    240X'00',X'00',X'F1',14X'00'     stop on X'F1'
00000EF0  00000000 00000000                         524          DS    D


                                                    526 ********************************************************************************
                                                    527 *        Register equates
                                                    528 ********************************************************************************


                    00000000  00000001   530 R0       EQU   0
                    00000001  00000001   531 R1       EQU   1
                    00000002  00000001   532 R2       EQU   2
                    00000003  00000001   533 R3       EQU   3
                    00000004  00000001   534 R4       EQU   4
                    00000005  00000001   535 R5       EQU   5
                    00000006  00000001   536 R6       EQU   6
                    00000007  00000001   537 R7       EQU   7
                    00000008  00000001   538 R8       EQU   8
                    00000009  00000001   539 R9       EQU   9
                    0000000A  00000001   540 R10      EQU   10
                    0000000B  00000001   541 R11      EQU   11
                    0000000C  00000001   542 R12      EQU   12
                    0000000D  00000001   543 R13      EQU   13
                    0000000E  00000001   544 R14      EQU   14
                    0000000F  00000001   545 R15      EQU   15
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                     547          END
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
BEGIN	I	00000200	2	90	118 56 87 88 199
CC0T1	F	000005C8	4	274	
CC0T2	F	000005FC	4	288	
CC0T3	F	00000630	4	302	
CC0T4	F	00000664	4	316	
CC1T1	F	00000698	4	335	
CC1T2	F	000006CC	4	349	
CC1T3	F	00000700	4	363	
CC1T4	F	00000734	4	379	
CC1T5	F	00000768	4	393	
CC2T1	F	0000079C	4	412	
CC2T2	F	000007D0	4	426	
CC2T3	F	00000804	4	440	
CC2T4	F	00000838	4	456	
CC2T5	F	0000086C	4	470	
CC2T6	F	000008A0	4	484	
ENDREGS	A	0000002C	4	254	175
EOJ	I	000005A8	4	207	112
EOJPSW	D	00000598	8	205	207
FAILMASK	A	00000028	4	251	156
FAILPSW	D	000005B0	8	209	211
FAILTEST	I	000005C0	4	211	107 110 190
GR1PATT	A	00000014	4	245	
GR2PATT	A	00000018	4	246	
IMAGE	1	00000000	3832	0	
K	U	00000400	1	220	221 222 223 224 225
K16	U	00004000	1	222	283 297 311 325 344 347 358 361 372 375 388 391 402 405 421 424 435 438 449 452 465 468 479 482 493 496
K32	U	00008000	1	223	
K64	U	00010000	1	224	
MB	U	00100000	1	225	283 297 311 325 344 347 358 361 372 375 388 391 402 405 421 424 435 438 449 452 465 468 479 482 493 496
OP1DATA	A	00000004	4	239	144
OP1LEN	F	00000008	4	240	142 145
OP1WHERE	A	0000001C	4	247	141
OP1WLEN	F	00000020	4	248	143
OP2DATA	A	0000000C	4	241	150
OP2LEN	F	00000010	4	242	149 151
OP2WHERE	A	00000024	4	249	148
OPSWHERE	U	00000014	1	244	161
PAGE	U	00001000	1	221	
R0	U	00000000	1	530	52
R1	U	00000001	1	531	161 178
R10	U	0000000A	1	540	141 146 148 152 175 178
R11	U	0000000B	1	541	142 143 149 156 157 171 182
R12	U	0000000C	1	542	175
R13	U	0000000D	1	543	132 133 185 186 197
R14	U	0000000E	1	544	99 190 191
R15	U	0000000F	1	545	198
R2	U	00000002	1	532	182
R3	U	00000003	1	533	162 163 195
R4	U	00000004	1	534	162 167
R5	U	00000005	1	535	161 195
R6	U	00000006	1	536	136 137 144 146 150 152 167 168 169
R7	U	00000007	1	537	145 151
R8	U	00000008	1	538	87 90 91 92 94 199

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
R9	U	00000009	1	539	88 94 95
REG2LOW	U	000000DD	1	260	
REG2PATT	U	AABBCCDD	1	259	282 286 296 300 310 314 324 328 343 357 371 387 401 420 434 448 464 478 492
SUBTEST	X	00000401	1	122	109 159 177 181
TEST01	I	00000502	4	130	99
TESTADDR	D	00000400	8	120	
TESTNUM	X	00000400	1	121	106 130 137
TNUM	X	00000000	1	234	136
TRTOP10	X	000008DC	4	507	279 293 307 321
TRTOP1F0	X	000009DC	4	509	340 354 368 384 398
TRTOP1F1	X	00000ADC	4	511	417 431 445 461 475 489
TRTOP20	X	00000BDC	1	517	280 294 308 322
TRTOP2F0	X	00000CE8	1	520	341 355 369 385 399
TRTOP8F1	X	00000DF0	1	523	418 432 446 462 476 490
TRTR1TST	J	00000000	3832	51	54 58 62 52
TRTRBC	I	0000058A	4	193	171
TRTRCTL	A	000005C8	4	268	132
TRTRDONE	I	00000588	2	191	188
TRTREX	I	0000058E	6	195	169
TRTRFAIL	I	00000584	4	190	179 183 193
TRTRNEXT	U	00000034	1	257	185
TRTRTEST	4	00000000	52	233	133
TST1LOOP	U	0000050A	1	135	187
=F'0'	F	000005C4	4	218	186

MACRO DEFN REFERENCES

No defined macros

```
   DESC      SYMBOL    SIZE     POS       ADDR

Entry: 0

Image       IMAGE     3832   000-EF7   000-EF7
  Region              3832   000-EF7   000-EF7
    CSECT   TRTR1TST  3832   000-EF7   000-EF7
```

```
   STMT               FILE NAME
1     /devstor/dev/tests/TRTR-01-basic.asm

** NO ERRORS FOUND **
```