```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                     2 ************************************************************************
                                                     3 *
                                                     4 *                    Various CKD Dasd CCW tests...
                                                     5 *
                                                     6 *   This test program simply executes a few selected E7 Prefix CCW
                                                     7 *   channel programs to verify Hercules's E7 Prefix CCW support is
                                                     8 *   working properly. The current list of tests that this program
                                                     9 *   performs is as follows:
                                                    10 *
                                                    11 *     01  Format 2 PFX to obtain subsystem information (no IDA)
                                                    12 *     02  Format 0 PFX with Define Extent Valid bit off (DX CCW
                                                    13 *         chained) (Read 06 IDA)
                                                    14 *     03  Format 0 PFX with Define Extent Valid bit on (DX CCW
                                                    15 *         embedded) (Read 06 1 IDA)
                                                    16 *     04  Format 2 PFX to obtain control unit information (PFX
                                                    17 *         E7 2 IDA, Read 06 1 IDA)
                                                    18 *     05  Read 06 CCW should fail since LR operation is Read(16)
                                                    19 *         and Read 06 CCW not multi-track (Read 06 1 IDA)
                                                    20 *     06  Same as Test #5, but properly uses multi-track Read
                                                    21 *         (86) (Read 86 1 IDA)
                                                    22 *     07  Peter's z/VM SSI issue (PFX 01 CMDREJ)
                                                    23 *     08  Write Data erase remainder of track.
                                                    24 *     09  Read record 3 on track 0 (verify test #08 erase)
                                                    25 *     10  GH#608 FILE PROTECT: track with =12 recs
                                                    26 *     11  GH#608 FILE PROTECT: track with <12 recs
                                                    27 *
                                                    28 *
                                                    29 *   By default, all tests in the TESTTAB table are run one after
                                                    30 *   the other. To run just one specific test, in your .tst script,
                                                    31 *   set the TESTONLY byte at X'100' to the specific test number.
                                                    32 *
                                                    33 *   All channel programs (except for two of them) are expected to
                                                    34 *   complete normally without error (SCSW = CE+DE = X'0C00').
                                                    35 *
                                                    36 *   Tests #5 and #9 however are purposely designed to always fail
                                                    37 *   in order to verify Hercules properly rejects the invalid channel
                                                    38 *   program and does not mistakenly accept and process it instead.
                                                    39 *   Test #6 is the corrected form of test #5 which, just like all
                                                    40 *   of the other tests (except #9), should always succeed.
                                                    41 *
                                                    42 *   Except for Tests #1 and #7, most of the other tests (#2-#6)
                                                    43 *   also specify IDA (Indirect Data Addressing) in some of their
                                                    44 *   CCWs in order to verify proper Hercules handling of that too.
                                                    45 *
                                                    46 *   Tests #4, #8 and #9 are especially important in that #4 specifies
                                                    47 *   IDA in its E7 Prefix CCW so as to cause its data to be accessed
                                                    48 *   in TWO chunks (i.e. its IDAL contains TWO entries in it), and
                                                    49 *   test #8 and #9 together verify proper track erasure, whereas all
                                                    50 *   of the other IDA usage is only used in the Read 06 and Read 86
                                                    51 *   CCWs where the IDAL only has one entry in it to simply redirect
                                                    52 *   the read to elsewhere.
                                                    53 *
                                                    54 *   Thank you to Aaron Finerman for devising tests 1-6.
                                                    55 *
                                                    56 ************************************************************************
```

```
 LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                      58          PRINT OFF
                                                    3439          PRINT ON

                                                    3441 ********************************************************************************
                                                    3442 *        SATK prolog stuff...
                                                    3443 ********************************************************************************

                                                    3445          ARCHLVL ZARCH=YES,ARCHIND=YES,MNOTE=NO
                                                    3447+$AL      OPSYN AL
                                                    3448+$ALR     OPSYN ALR
                                                    3449+$B       OPSYN B
                                                    3450+$BAS     OPSYN BAS
                                                    3451+$BASR    OPSYN BASR
                                                    3452+$BC      OPSYN BC
                                                    3453+$BCTR    OPSYN BCTR
                                                    3454+$BE      OPSYN BE
                                                    3455+$BH      OPSYN BH
                                                    3456+$BL      OPSYN BL
                                                    3457+$BM      OPSYN BM
                                                    3458+$BNE     OPSYN BNE
                                                    3459+$BNH     OPSYN BNH
                                                    3460+$BNL     OPSYN BNL
                                                    3461+$BNM     OPSYN BNM
                                                    3462+$BNO     OPSYN BNO
                                                    3463+$BNP     OPSYN BNP
                                                    3464+$BNZ     OPSYN BNZ
                                                    3465+$BO      OPSYN BO
                                                    3466+$BP      OPSYN BP
                                                    3467+$BXLE    OPSYN BXLE
                                                    3468+$BZ      OPSYN BZ
                                                    3469+$CH      OPSYN CH
                                                    3470+$L       OPSYN L
                                                    3471+$LH      OPSYN LH
                                                    3472+$LM      OPSYN LM
                                                    3473+$LPSW    OPSYN LPSW
                                                    3474+$LR      OPSYN LR
                                                    3475+$LTR     OPSYN LTR
                                                    3476+$NR      OPSYN NR
                                                    3477+$SL      OPSYN SL
                                                    3478+$SLR     OPSYN SLR
                                                    3479+$SR      OPSYN SR
                                                    3480+$ST      OPSYN ST
                                                    3481+$STM     OPSYN STM
                                                    3482+$X       OPSYN X
                                                    3483+$AHI     OPSYN AHI
                                                    3484+$B       OPSYN J
                                                    3485+$BC      OPSYN BRC
                                                    3486+$BE      OPSYN JE
                                                    3487+$BH      OPSYN JH
                                                    3488+$BL      OPSYN JL
                                                    3489+$BM      OPSYN JM
                                                    3490+$BNE     OPSYN JNE
                                                    3491+$BNH     OPSYN JNH
                                                    3492+$BNL     OPSYN JNL
                                                    3493+$BNM     OPSYN JNM
                                                    3494+$BNO     OPSYN JNO
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                     3495+$BNP     OPSYN JNP
                                                     3496+$BNZ     OPSYN JNZ
                                                     3497+$BO      OPSYN JO
                                                     3498+$BP      OPSYN JP
                                                     3499+$BXLE    OPSYN JXLE
                                                     3500+$BZ      OPSYN JZ
                                                     3501+$CHI     OPSYN CHI
                                                     3502+$AHI     OPSYN AGHI
                                                     3503+$AL      OPSYN ALG
                                                     3504+$ALR     OPSYN ALGR
                                                     3505+$BCTR    OPSYN BCTGR
                                                     3506+$BXLE    OPSYN JXLEG
                                                     3507+$CH      OPSYN CGH
                                                     3508+$CHI     OPSYN CGHI
                                                     3509+$L       OPSYN LG
                                                     3510+$LH      OPSYN LGH
                                                     3511+$LM      OPSYN LMG
                                                     3512+$LPSW    OPSYN LPSWE
                                                     3513+$LR      OPSYN LGR
                                                     3514+$LTR     OPSYN LTGR
                                                     3515+$NR      OPSYN NGR
                                                     3516+$SL      OPSYN SLG
                                                     3517+$SLR     OPSYN SLGR
                                                     3518+$SR      OPSYN SGR
                                                     3519+$ST      OPSYN STG
                                                     3520+$STM     OPSYN STMG
                                                     3521+$X       OPSYN XG


                                                     3523 ********************************************************************************
                                                     3524 *        Initiate the E7TEST CSECT in the CODE region
                                                     3525 *        with the location counter at 0
                                                     3526 ********************************************************************************

                                                     3528 E7TEST   ASALOAD  REGION=CODE
                                 00000000  0000F023  3529+E7TEST   START 0,CODE
00000000  00020000 00000000                          3531+         PSW   0,0,2,0,X'008'      64-bit Restart ISR Trap New PSW
00000010                         00000010  00000058  3532+         ORG   E7TEST+X'058'
00000058  00020000 00000000                          3534+         PSW   0,0,2,0,X'018'      64-bit External ISR Trap New PSW
00000068  00020000 00000000                          3535+         PSW   0,0,2,0,X'020'      64-bit Supervisor Call ISR Trap New PSW
00000078  00020000 00000000                          3536+         PSW   0,0,2,0,X'028'      64-bit Program ISR Trap New PSW
00000088  00020000 00000000                          3537+         PSW   0,0,2,0,X'030'      64-bit Machine Check Trap New PSW
00000098  00020000 00000000                          3538+         PSW   0,0,2,0,X'038'      64-bit Input/Output Trap New PSW
000000A8                         000000A8  000001A0  3539+         ORG   E7TEST+X'1A0'
000001A0  00020000 00000000                          3541+         PSWZ  0,0,2,0,X'120'     Restart ISR Trap New PSW
000001B0  00020000 00000000                          3542+         PSWZ  0,0,2,0,X'130'     External ISR Trap New PSW
000001C0  00020000 00000000                          3543+         PSWZ  0,0,2,0,X'140'     Supervisor Call ISR Trap New PSW
000001D0  00020000 00000000                          3544+         PSWZ  0,0,2,0,X'150'     Program ISR Trap New PSW
000001E0  00020000 00000000                          3545+         PSWZ  0,0,2,0,X'160'     Machine Check Trap New PSW
000001F0  00020000 00000000                          3546+         PSWZ  0,0,2,0,X'170'     Input/Output Trap New PSW
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                  3548 ********************************************************************************
                                                  3549 *                  L O W   C O R E
                                                  3550 ********************************************************************************

00000200                     00000200  00000100   3552          ORG   E7TEST+X'100'
00000100  00                                      3553 TESTONLY DC    AL1(0)             (only do this one test if non-zero)

00000101                     00000101  000001A0   3555          ORG   E7TEST+X'1A0'                    z/Arch Restart New PSW
000001A0  00000001 80000000                       3556          DC    0D'0',XL8'0000000180000000'
000001A8  00000000 00000200                       3557          DC    AD(BEGIN)

000001B0                     000001B0  000001D0   3559          ORG   E7TEST+X'1D0'                    z/Arch Program New PSW
000001D0  00020001 80000000                       3560          DC    0D'0',XL8'0002000180000000'
000001D8  00000000 0000DEAD                       3561          DC    AD(X'DEAD')

000001E0                     000001E0  00000200   3563          ORG   E7TEST+X'200'


                                                  3565 ********************************************************************************
                                                  3566 *                       ENTRY POINT CODE
                                                  3567 ********************************************************************************
                                                  3568 *   R0       (work)
                                                  3569 *   R1       (work) (also ENADEV macro's I/O device during startup)
                                                  3570 *   R2       (work)
                                                  3571 *   R3       IOCB pointer (set by INIT, needed by ENADEV macro)
                                                  3572 *   R4       SCHIB pointer (tempoarily used at INIT during ENADEV)
                                                  3573 *   R5       SCHSCSW pointer (also temporarily used for CPU register
                                                  3574 *            when signaling architecture change during startup)
                                                  3575 *   R6,R7    (work) (also used as signaling registers when changing
                                                  3576 *            architecture during startup)
                                                  3577 *   R8       ORB pointer (set by INIT, used by EXCP subroutine)
                                                  3578 *   R9-R15   (work)
                                                  3579 ********************************************************************************

00000200                     00000000             3581          USING E7TEST,R0          Low core addressability
00000200                     00000000             3582          USING ASA,R0             Low core addressability
00000200                     00000000             3583          USING IOCB,R3            SATK Device I/O-Control Block
00000200                     00000000             3584          USING SCHIB,R4           ESA/390 Subchannel Information Block
00000200                     00000000             3585          USING SCSW,R5            ESA/390 Subchannel Status Word
00000200                     00000000             3586          USING ORB,R8             ESA/390 Operation-Request Block

00000200  1F00                                    3588 BEGIN    SLR   R0,R0              Start clean (SIGP status register)
00000202  9200 0200                  00000200    3589          MVI   TESTNUM,0          Initialize Test number
00000206  1F11                                    3590          SLR   R1,R1              Start clean (SIGP parm   register)
00000208  1F22                                    3591          SLR   R2,R2              Start clean
0000020A  1F33                                    3592          SLR   R3,R3              Start clean (SIGP target CPU)

0000020C  4130 0000                  00000000     3594          LA    R3,0               Target CPU = CPU #0
00000210  4110 0001                  00000001     3595          LA    R1,1               Parm register = z/Arch mode
00000214  AE03 0012                  00000012     3596          SIGP  R0,R3,X'12'        Order code    = z/Arch mode
00000218  4780 0232                  00000232     3597          BC    B'1000',ZARCHOK    CC0 = success: continue
0000021C  4740 0228                  00000228     3598          BC    B'0100',CHKZARCH   CC1 = status stored: check further
00000220  4720 02D0                  000002D0     3599          BC    B'0010',FAILCPU0   CC2 = busy: FAIL
00000224  4710 02D0                  000002D0     3600          BC    B'0001',FAILCPU0   CC3 = not operational: FAIL
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   3602 ************************************************************************
                                                   3603 *       Ensure test program executes in z/Architecture mode
                                                   3604 ************************************************************************

00000228  4140 0100                      00000100  3606 CHKZARCH LA    R4,X'100'          Status X'100' = Same Architecture!
0000022C  1504                                     3607          CLR   R0,R4              Are we already in z/Arch mode?
0000022E  A774 0051                      000002D0  3608          JNE   FAILCPU0           Any other status = FAIL

00000232  4140 0246                      00000246  3610 ZARCHOK  LA    R4,BEGIN0          Point to CPU #0 entry point
00000236  4040 01AE                      000001AE  3611          STH   R4,X'1AE'          Update Restart PSW

0000023A  4130 0000                      00000000  3613          LA    R3,0               Target CPU = CPU #0
0000023E  AE03 0006                      00000006  3614          SIGP  R0,R3,X'6'         Order code = Restart

00000242  B2B2 02D0                      000002D0  3616          LPSWE FAILCPU0           WTF?! How did we get here?!



                                                   3618 ************************************************************************
                                                   3619 *    THE ACTUAL (very short and simple) E7TEST TEST PROGRAM ITSELF
                                                   3620 ************************************************************************

00000246  45E0 0368                      00000368  3622 BEGIN0   BAL   R14,INIT           Initalize Program


0000024A  98AB 0610                      00000610  3624          LM    R10,R11,ATESTTAB   R10 --> table, R11 <== #of entries

0000024E  9500 0100                      00000100  3626 TESTLOOP CLI   TESTONLY,0         Do only specific test?
00000252  4780 0260                      00000260  3627          BE    TESTTHIS           No, do all tests
00000256  D500 0100 A003      00000100  00000003  3628          CLC   TESTONLY,3(R10)    Is the test they want?
0000025C  4770 0270                      00000270  3629          BNE   TESTNEXT           No, skip this test

00000260  9801 A00C                      0000000C  3631 TESTTHIS LM    R0,R1,(TESTLEN-(2*4))(R10)  R0 <== MSG LEN, R1 --> MSG
00000264  45E0 04A0                      000004A0  3632          BAL   R14,MSG                     Report which test this is

00000268  9802 A000                      00000000  3634          LM    R0,R2,0(R10)       Load test parms from table
0000026C  45E0 027C                      0000027C  3635          BAL   R14,DOTEST          Perform this test...
00000270  41A0 A014                      00000014  3636 TESTNEXT LA    R10,TESTLEN(,R10)  R10 --> next test table entry

00000274  46B0 024E                      0000024E  3638          BCT   R11,TESTLOOP        Loooop... until no more tests



00000278  B2B2 0308                      00000308  3640          LPSWE GOODPSW            E7TEST SUCCESS!
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   3642 ************************************************************************
                                                   3643 *        Generic TEST subroutine:  R0=test#, R1=chpgm, R2=flag
                                                   3644 ************************************************************************

0000027C  50E0 02CC                      000002CC  3646 DOTEST   ST    R14,TESTR14        Save return address

00000280  4200 0200                      00000200  3648          STC   R0,TESTNUM         Save this test's test number
00000284  1801                                     3649          LR    R0,R1              R0 --> This test's Channel Program

00000286  45F0 03E2                      000003E2  3651          BAL   R15,EXCP           Execute this Channel Program...

0000028A  5810 3000                      00000000  3653          L     R1,IOCBDID         R1 <== Subchannel
0000028E  5840 3028                      00000028  3654          L     R4,IOCBSIB         R4 <== SCHIB address

00000292  B234 4000                      00000000  3656          STSCH 0(R4)              Store Subchannel for our device
00000296  4770 02D8                      000002D8  3657          BC    B'0111',FAILSCH    FAIL if anything other than CC0

                                                   3659 *        Verify correct/expected I/O completion...

0000029A  4150 401C                      0000001C  3661          LA    R5,SCHSCSW         R5 --> SCSW

0000029E  9500 5009                      00000009  3663          CLI   SCSWCS,0           Clean channel status?
000002A2  4770 02F0                      000002F0  3664          BNE   FAILTEST           No?! ALWAYS FAIL THE TEST!

000002A6  1222                                     3666          LTR   R2,R2              I/O error expected for this test?
000002A8  4770 02B8                      000002B8  3667          BNZ   ERRTEST            Yes, then verify there was an error

000002AC  950C 5008                      00000008  3669          CLI   SCSWUS,SCSWCE+SCSWDE   Check for normal successful I/O
000002B0  4770 02F0                      000002F0  3670          BNE   FAILTEST               No?! FAIL!
000002B4  47F0 02C4                      000002C4  3671          B     TESTOK                 Yes, then we're done; return

000002B8  950C 5008                      00000008  3673 ERRTEST  CLI   SCSWUS,SCSWCE+SCSWDE   Check for normal successful I/O
000002BC  4780 02F0                      000002F0  3674          BE    FAILTEST               Yes?! UNEXPECTED! FAIL!
000002C0  45F0 03DE                      000003DE  3675          BAL   R15,DOSENSE            Clear the error

000002C4  58E0 02CC                      000002CC  3677 TESTOK   L     R14,TESTR14        Restore R14 return address
000002C8  07FE                                     3678          BR    R14                Return to caller

000002CC  00000000                                 3680 TESTR14  DC    A(0)     Test subroutine saved R14 return address
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT
                                                     3682 ********************************************************************************
                                                     3683 *                    Disabled Wait PSWs...
                                                     3684 ********************************************************************************


                                                     3686 *    Test failure routines to load specific failure PSW...

000002D0  4190 0328                    00000328  3688 FAILCPU0 LA    R9,BAD66PSW          SIGP failed
000002D4  47F0 02F8                    000002F8  3689          B     FAIL
000002D8  4190 0338                    00000338  3690 FAILSCH  LA    R9,BAD77PSW          STSCH failed
000002DC  47F0 02F8                    000002F8  3691          B     FAIL
000002E0  4190 0348                    00000348  3692 FAILDEV  LA    R9,BAD88PSW          ENADEV failed
000002E4  47F0 02F8                    000002F8  3693          B     FAIL
000002E8  4190 0358                    00000358  3694 FAILIO   LA    R9,BAD99PSW          RAWIO failed
000002EC  47F0 02F8                    000002F8  3695          B     FAIL
000002F0  4190 0318                    00000318  3696 FAILTEST LA    R9,FAILPSW           One of our overall tests failed
000002F4  47F0 02F8                    000002F8  3697          B     FAIL


000002F8  D200 900F 0200      0000000F 00000200  3699 FAIL     MVC   16-1(1,R9),TESTNUM   Put failing test# into PSW
000002FE  B2B2 9000                    00000000  3700          LPSWE 0(R9)                Load failure PSW


                                                     3702 *
                                                     3703 **    Overall test SUCCESS / FAILURE disabled wait PSWs...
                                                     3704 *

00000308  00020001 80000000                          3706 GOODPSW  DC    0D'0',XL8'0002000180000000',AD(X'00000000')
00000318  00020001 80000000                          3707 FAILPSW  DC    0D'0',XL8'0002000180000000',AD(X'0BAD0000')


                                                     3709 *
                                                     3710 **    Specific unexpected failure disabled wait PSWs...
                                                     3711 *

00000328  00020001 80000000                          3713 BAD66PSW DC    0D'0',XL8'0002000180000000',AD(X'0BAD6600')
00000338  00020001 80000000                          3714 BAD77PSW DC    0D'0',XL8'0002000180000000',AD(X'0BAD7700')
00000348  00020001 80000000                          3715 BAD88PSW DC    0D'0',XL8'0002000180000000',AD(X'0BAD8800')
00000358  00020001 80000000                          3716 BAD99PSW DC    0D'0',XL8'0002000180000000',AD(X'0BAD9900')
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   3718 ***********************************************************************
                                                   3719 *        Program Initialization
                                                   3720 ***********************************************************************

00000368  4130 0574                      00000574  3722 INIT     LA    R3,IOCB_A80        R3 --> IOCB
0000036C  E380 3018 0004                 00000018  3723          LG    R8,IOCBORB         R8 --> ORB
00000372  45F0 037C                      0000037C  3724          BAL   R15,IOINIT         Init CPU for I/O operations
00000376  45F0 038A                      0000038A  3725          BAL   R15,ENADEV         Enable device for I/O
0000037A  07FE                                     3726          BR    R14                Return to caller


                                                   3728 ***********************************************************************
                                                   3729 *        Initialize the CPU for I/O operations
                                                   3730 ***********************************************************************

                                                   3732 IOINIT   IOINIT ,
0000037C  B766 0384                      00000384  3733+IOINIT   LCTL  6,6,IOMK0007       Enable subchannel subclasses for interruptions
00000380  47F0 0388                      00000388  3734+         B     IOMK0007+4
00000384                                           3735+IOMK0007 DS    0F
00000384  FF000000                                 3736+         DC    XL4'FF000000'         All subchannel subclasses enabled
00000388  07FF                                     3737          BR    R15                Return to caller


                                                   3739 ***********************************************************************
                                                   3740 *        Enable the device, making it ready for use
                                                   3741 ***********************************************************************

                                                   3743 ENADEV   ENADEV  ENAOKAY,FAILDEV,REG=4
0000038A  5810 03D4                      000003D4  3744+ENADEV   L     1,FIND0008
0000038E  E340 3028 0004                 00000028  3745+         $L    4,IOCBSIB          Locate where the SCHIB is to be stored
00000394                        00000000           3746+         USING SCHIB,4
00000394                                           3747+FINL0008 DS    0H   Retrieve Subchannel Information Block for desired device number
00000394  B234 4000                      00000000  3748+         STSCH 0(4)               Store the SCHIB for first subchannel
00000398  A774 FFA4                      000002E0  3749+         $BC   B'0111',FAILDEV    Subchannel does not exist and device number not found
0000039C  9101 4005                      00000005  3750+         TM    PMCW1_8,PMCWV      Is the subchannel device number valid?
000003A0  A784 0011                      000003C2  3751+         $BZ   FINN0008           ..No, check the next subchannel
000003A4  D501 4006 3004      00000006   00000004  3752+         CLC   PMCWDNUM,IOCBDEV   Is this the device number being sought?
000003AA  A774 000C                      000003C2  3753+         $BNE  FINN0008           ..No, check the next subchannel
                                                   3754+* Subchannel found!
000003AE  5010 3000                      00000000  3755+         ST    1,IOCBDID          Remember the subchannel so I/O can be done to it.
000003B2  9680 4005                      00000005  3756+         OI    PMCW1_8,PMCWE      Make sure it is enabled so I/O requests accepted
000003B6  B232 4000                      00000000  3757+         MSCH  0(4)               Enable the subchannel to the channel sub-system
000003BA  A784 0011                      000003DC  3758+         $BC   B'1000',ENAOKAY    CC0 (SCHIB updated), device is ready.
000003BE  A7F4 FF91                      000002E0  3759+         $B    FAILDEV            CC1,CC2,CC3 (SCHIB update failed), quit
000003C2                                           3760+FINN0008 DS    0H  Advance to next subchannel
000003C2  4110 1001                      00000001  3761+         LA    1,1(0,1)           Advance to next subchannel
000003C6  5510 03D8                      000003D8  3762+         CL    1,FINM0008         Beyond maximum subchannel
000003CA  A7D4 FFE5                      00000394  3763+         $BNH  FINL0008           ..No, examine the next subchannel
000003CE  A724 FF89                      000002E0  3764+         $BH   FAILDEV            ..Yes, failed to enable the device
000003D2                                           3765+         DROP  4                  Forget SCHIB addressing
000003D4  00010000                                 3766+FIND0008 DC    A(X'00010000')     First subchannel subsystem ID
000003D8  0001FFFF                                 3767+FINM0008 DC    A(X'0001FFFF')     Last subchannel subsystem ID

000003DC  07FF                                     3769 ENAOKAY  BR    R15                Return to caller if device enabled OK
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  3771 ********************************************************************************
                                                  3772 *        Execute the channel program pointed to by R0
                                                  3773 ********************************************************************************

000003DE  4100 06F8                    000006F8   3775 DOSENSE  LA    R0,SENSEPGM          R0 -> Read SENSE Channel Program
000003E2  5000 8008                    00000008   3776 EXCP     ST    R0,ORBCCW            Plug Channel Program into IORB
000003E6  B904 0004                               3777          LGR   R0,R4                Save SCHIB pointer
000003EA  9282 8005                    00000005   3778          MVI   ORB1_8,ORBF+ORBH     Format-1 CCWs, Format-2 IDAWs
000003EE  9200 8007                    00000007   3779          MVI   ORRB1_24,0           Set all these ORB flags to zero

                                                  3781          RAWIO 4,FAIL=FAILIO
000003F2  9200 300E                    0000000E   3782+         MVI   IOCBSC,X'00'          Clear SC information
000003F6  D201 300A 3006      0000000A 00000006   3783+         MVC   IOCBST,IOCBZERO       Clear accumulated status
000003FC  5810 3000                    00000000   3784+         L     1,IOCBDID             Remember the device ID with which I am working
                                                  3785+* Initiate Subchannel-based input/output operation
00000400  E340 3018 0004               00000018   3786+         $L    4,IOCBORB             Locate the ORB for the channel subsystem
00000406  B233 4000                    00000000   3787+         SSCH  0(4)                  Initiate the I/O operation
0000040A  A774 FF6F                    000002E8   3788+         $BC   B'0111',FAILIO        ..Start function failed, report/handle the error
0000040E  E340 3020 0004               00000020   3789+         $L    4,IOCBIRB             Locate the IRB storage area
00000414                      00000000            3790+         USING IRB,4                 Make it addressable

                                                  3792+* Wait for I/O operation to present status via an interruption
00000414                                          3793+IOWT0009 DS    0H  Wait for I/O to complete
00000414  D20F 0448 01F0      00000448 000001F0   3795+         MVC   IOS0010(16),496(0)     Save Input/Output new PSW
0000041A  D20F 01F0 0438      000001F0 00000438   3796+         MVC   496(16,0),ION0010     Establish Input/Ouput new PSW
00000420  B2B2 0428                    00000428   3797+         $LPSW WPSW0010              Wait for event
00000428  02020000 00000000                       3798+WPSW0010 PSW   2,0,2,0,0               Wait for event
00000438  00002000 00000000                       3799+ION0010  PSW   0,0,0,32,IRST0010,24        I/O New PSW: cc==2
00000448  00000000 00000000                       3800+IOS0010  DC    XL16'00'
                                                  3801+* Handle input/output interruption
00000458                                          3802+IRST0010 DS    0H
00000458  D20F 01F0 0448      000001F0 00000448   3803+         MVC   496(16,0),IOS0010      Restore input/output new PSW
                                                  3804+* Process the interruption...
                                                  3805+* Validate interruption is for the expected subchannel
0000045E  5510 00B8                    000000B8   3806+         CL    1,IOSSID              Is this the device for which I am waiting?
00000462  A774 FFD9                    00000414   3807+         $BNE  IOWT0009              ..No, continue waiting for it
                                                  3808+* Accumulate interruption information from IRB
00000466  B235 4000                    00000000   3809+         TSCH  0(4)                  Retrive interrupt information
0000046A  A744 FFD5                    00000414   3810+         $BC   B'0100',IOWT0009      CC1 (not status pending), wait for it to arrive
0000046E  A714 FF3D                    000002E8   3811+         $BC   B'0001',FAILIO        CC3 (not operational), an error then
                                                  3812+*                                    CC0 (status was pending), accumulate the status
00000472  D600 300E 4003      0000000E 00000003   3813+         OC    IOCBSC,IRBSCSW+SCSW2  Accumulate status control
00000478  D601 300A 4008      0000000A 00000008   3814+         OC    IOCBST,IRBSCSW+SCSWUS Accumulate device and channel status
0000047E  9104 300E                    0000000E   3815+         TM    IOCBSC,SCSWSPRI       Primary subchannel status?
00000482  A7E4 FFC9                    00000414   3816+         $BNO  IOWT0009              ..No, wait for primary status
00000486  D203 3010 4004      00000010 00000004   3817+         MVC   IOCBSCCW,IRBSCSW+SCSWCCW  CCW address
0000048C  D201 3016 400A      00000016 0000000A   3818+         MVC   IOCBRCNT,IRBSCSW+SCSWCNT  Residual count
                                                  3819+* Test for errors as specified in the IOCB
00000492  910C 300A                    0000000A   3820+         TM    IOCBUS,CSWCE+CSWDE    Channel end and device end both accumulated?
00000496  A7E4 FF29                    000002E8   3821+         $BNO  FAILIO                Hunh? No CE and DE but do have primary status!
                                                  3822+* Input/Output operation successful

0000049A  B904 0040                               3824          LGR   R4,R0                Restore SCHIB pointer
0000049E  07FF                                    3825          BR    R15                 Return to caller
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                  3827 ********************************************************************************
                                                  3828 *        Issue HERCULES MESSAGE pointed to by R1, length in R0
                                                  3829 ********************************************************************************

000004A0  4900 06F4                    000006F4   3831 MSG      CH    R0,=H'0'                Do we even HAVE a message?
000004A4  07DE                                    3832          BNHR  R14                     No, ignore

000004A6  9002 04D8                    000004D8   3834          STM   R0,R2,MSGSAVE           Save registers

000004AA  4900 06F6                    000006F6   3836          CH    R0,=AL2(L'MSGMSG)       Message length within limits?
000004AE  47D0 04B6                    000004B6   3837          BNH   MSGOK                   Yes, continue
000004B2  4100 0080                    00000080   3838          LA    R0,L'MSGMSG             No, set to maximum

000004B6  1820                                    3840 MSGOK    LR    R2,R0                   Copy length to work register
000004B8  0620                                    3841          BCTR  R2,0                    Minus-1 for execute
000004BA  4420 04E4                    000004E4   3842          EX    R2,MSGMVC               Copy message to O/P buffer

000004BE  4120 200A                    0000000A   3844          LA    R2,1+L'MSGCMD(,R2)      Calculate true command length
000004C2  4110 04EA                    000004EA   3845          LA    R1,MSGCMD               Point to true command

000004C6  83120008                                3847          DC    X'83',X'12',X'0008'     Issue Hercules Diagnose X'008'
000004CA  4780 04D0                    000004D0   3848          BZ    MSGRET                  Return if successful
000004CE  0000                                    3849          DC    H'0'                    CRASH for debugging purposes

000004D0  9802 04D8                    000004D8   3851 MSGRET   LM    R0,R2,MSGSAVE           Restore registers
000004D4  07FE                                    3852          BR    R14                     Return to caller

000004D8  00000000 00000000                       3854 MSGSAVE  DC    3F'0'                   Registers save area
000004E4  D200 04F3 1000       000004F3  00000000  3855 MSGMVC   MVC   MSGMSG(0),0(R1)         Executed instruction

000004EA  D4E2C7D5 D6C8405C                       3857 MSGCMD   DC    C'MSGNOH * '            *** HERCULES MESSAGE COMMAND ***
000004F3  40404040 40404040                       3858 MSGMSG   DC    CL128' '                The message text to be displayed
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                   3860 ********************************************************************************
                                                   3861 *                              IOCB
                                                   3862 ********************************************************************************
                                                   3863 *
                                                   3864 *         I/O Control Block -- Structure used by RAWIO macro
                                                   3865 *         identifying the device and operation being performed
                                                   3866 *
                                                   3867 ********************************************************************************

                                                   3869 IOCB_A80 IOCB  X'A80'     I/O Control Block for CCUU device X'A80'
00000574  00000000                                 3870+IOCB_A80 DC    A(0)            +0 Device Identifier (supplied by ENADEV macro)
00000578  0A80                                     3871+         DC    AL2(X'A80')     +4 Device address or device number
0000057A  0000                                     3872+         DC    H'0'            +6 Must be zeros
0000057C  D3                                       3873+         DC    AL1(X'D3')      +8 Default detected unit errors
0000057D  3F                                       3874+         DC    AL1(X'3F')      +9 Default detected channel errors
0000057E  0000                                     3875+         DC    HL2'0'          +10 Accumulated unit and channel errors
00000580  0000                                     3876+         DC    HL2'0'          +12 Tested unit and channel status
00000582  00                                       3877+         DC    XL1'00'         +14 Accumulated subchannel status control from SCSW
00000583  80                                       3878+         DC    XL1'80'         +15 Default unsoliticed wait condition
00000584  00000000                                 3879+         DC    F'0'            +16 I/O status CCW address
00000588  00000000                                 3880+         DC    F'0'            +20 residual count
0000058C  00000000 00000604                        3881+         DC    ADL8(IORB0011)  +24  Address where ORB is located
00000594  00000000 000005A4                        3882+         DC    ADL8(IIRB0011)  +32 Address where IRB stored
0000059C  00000000 000005A4                        3883+         DC    ADL8(IIRB0011)  +40 Address where SCHIB stored
000005A4  00000000 00000000                        3884+IIRB0011 DC    24F'0'              Embedded shared IRB and SCHIB area
00000604                                           3886+IORB0011 DS    0XL12
00000604  00000000                                 3887+         DC    A(0)            Word 0 - Interruption Parameter
00000608  00                                       3888+         DC    AL1((0)*16+B'0000')  Word 1, bits 0-7
00000609  80                                       3889+         DC    BL1'10000000'   Word 1, bits 8-15
0000060A  FF                                       3890+         DC    AL1(255)        Word 1, bits 16-23
0000060B  00                                       3891+         DC    BL1'00000000'    Word 1, bits 24-31
0000060C  00000000                                 3892+         DC    AL4(0)          Word 2 - CCW address
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                         3894 ********************************************************************************
                                         3895 *                          WORKING STORAGE
                                         3896 ********************************************************************************

                              00000040  00000001  3898 CC       EQU   X'40'              Chain Command
                              00000020  00000001  3899 SLI      EQU   X'20'              Suppress Incorrect Length Indication
                              00000004  00000001  3900 IDA      EQU   X'04'              Indirect Data Addressing

                              00000004  00000001  3902 SNS      EQU   X'04'              Basic Sense
                              00000005  00000001  3903 WD       EQU   X'05'              Write Data
                              00000006  00000001  3904 RD       EQU   X'06'              Read Data
                              00000007  00000001  3905 SEEK     EQU   X'07'              Seek to BBCCHH
                              00000008  00000001  3906 TIC      EQU   X'08'              Transfer in Channel
                              0000003E  00000001  3907 RSD      EQU   X'3E'              Read Subsystem Data
                              00000047  00000001  3908 LR       EQU   X'47'              Locate Record
                              00000063  00000001  3909 DX       EQU   X'63'              Define Extent
                              00000031  00000001  3910 SIDEQ    EQU   X'31'              Search ID Equal
                              00000086  00000001  3911 RDMT     EQU   X'86'              Read Data Multi-track
                              00000092  00000001  3912 RCMT     EQU   X'92'              Read Count Multi-track
                              000000E7  00000001  3913 PFX      EQU   X'E7'              Prefix

00000610  00000618 0000000B                      3915 ATESTTAB DC    A(TESTTAB,NUMTESTS) Address of testtab & Number of tests

                              00000200  00000001  3917 TESTNUM  EQU   X'200'             Current test number (if failure,
                                                  3918 *                               identifies which test failed)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    3920 ********************************************************************************
                                                    3921 *                      TESTS CONTROL TABLE
                                                    3922 ********************************************************************************
                                                    3924          PRINT DATA
00000618                                            3926 TESTTAB  DC    0A(0)
00000618  00000001 00000740                         3928          DC    A(X'01',T1_CHPGM,0,T1_MSGLN,T1_DESC)
00000620  00000000 0000003E
00000628  00000700
                            00000014  00000001      3929 TESTLEN  EQU   (*-TESTTAB)            Width of each test table entry
0000062C  00000002 000007A8                         3931          DC    A(X'02',T2_CHPGM,0,T2_MSGLN,T2_DESC)
00000634  00000000 00000055
0000063C  00000750
00000640  00000003 00000828                         3932          DC    A(X'03',T3_CHPGM,0,T3_MSGLN,T3_DESC)
00000648  00000000 00000057
00000650  000007D0
00000654  00000004 000008A0                         3933          DC    A(X'04',T4_CHPGM,0,T4_MSGLN,T4_DESC)
0000065C  00000000 00000056
00000664  00000848
00000668  00000005 00000938                         3934          DC    A(X'05',T5_CHPGM,1,T5_MSGLN,T5_DESC)    (1=Expect Error)
00000670  00000001 0000006F
00000678  000008C8
0000067C  00000006 000009B0                         3935          DC    A(X'06',T6_CHPGM,0,T6_MSGLN,T6_DESC)
00000684  00000000 00000051
0000068C  00000958
00000690  00000007 00000A00                         3936          DC    A(X'07',T7_CHPGM,0,T7_MSGLN,T7_DESC)
00000698  00000000 0000002F
000006A0  000009D0
000006A4  00000008 00000A38                         3937          DC    A(X'08',T8_CHPGM,0,T8_MSGLN,T8_DESC)
000006AC  00000000 0000002C
000006B4  00000A08
000006B8  00000009 00000A88                         3938          DC    A(X'09',T9_CHPGM,1,T9_MSGLN,T9_DESC)    (1=Expect Error)
000006C0  00000001 00000033
000006C8  00000A50
000006CC  00000010 00000AE0                         3939          DC    A(X'10',T10_CHPGM,0,T10_MSGLN,T10_DESC)
000006D4  00000000 00000032
000006DC  00000AA8
000006E0  00000011 00000BE8                         3940          DC    A(X'11',T11_CHPGM,0,T11_MSGLN,T11_DESC)
000006E8  00000000 00000033
000006F0  00000BB0
                                                    3942          PRINT NODATA
                            0000000B  00000001      3944 NUMTESTS EQU   (*-TESTTAB)/TESTLEN    Number of test table entries
000006F4                                            3946          LTORG ,        Literals Pool
000006F4  0000                                      3947                =H'0'
000006F6  0080                                      3948                =AL2(L'MSGMSG)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    3950 ********************************************************************
                                                    3951 *                   CHANNEL PROGRAMS...
                                                    3952 ********************************************************************

000006F8                                            3954          DC    0D'0'
000006F8  04200020 00000CB8                         3955 SENSEPGM DC    AL1(SNS),AL1(SLI),AL2(L'SNSBYTES),AL4(SNSBYTES)




                                                    3957 ********************************************************************

00000700  E3C5E2E3 407BF17A                         3959 T1_DESC  DC    C'TEST #1: Format 2 PFX to obtain subsystem information (no IDA)'
                           0000003E  00000001       3960 T1_MSGLN EQU   *-T1_DESC
00000740                                            3961          DC    0D'0'
00000740  E760004C 00000CD8                         3962 T1_CHPGM DC    AL1(PFX),AL1(CC+SLI),AL2(T1_E7LEN),AL4(T1_E7DAT)
00000748  3E200100 00000D24                         3963          DC    AL1(RSD),AL1(SLI),AL2(L'T1_3EBUF),AL4(T1_3EBUF)




                                                    3965 ********************************************************************

00000750  E3C5E2E3 407BF27A                         3967 T2_DESC  DC    C'TEST #2: Format 0 PFX with Define Extent Valid bit off (DX CCW chained
                           00000055  00000001       3968 T2_MSGLN EQU   *-T2_DESC
000007A8                                            3969          DC    0D'0'
000007A8  E7600040 00000E24                         3970 T2_CHPGM DC    AL1(PFX),AL1(CC+SLI),AL2(L'T2_E7DAT),AL4(T2_E7DAT)
000007B0  63600010 00000E64                         3971          DC    AL1(DX),AL1(CC+SLI),AL2(L'T2_63DAT),AL4(T2_63DAT)
000007B8  47600010 00000E74                         3972          DC    AL1(LR),AL1(CC+SLI),AL2(L'T2_47DAT),AL4(T2_47DAT)
000007C0  0624000A 000007C8                         3973          DC    AL1(RD),AL1(SLI+IDA),AL2(L'T2_06BUF),AL4(T2_06IDA)
000007C8  00000000 00000E84                         3974 T2_06IDA DC    AD(T2_06BUF)




                                                    3976 ********************************************************************

000007D0  E3C5E2E3 407BF37A                         3978 T3_DESC  DC    C'TEST #3: Format 0 PFX with Define Extent Valid bit on (DX CCW embedded
                           00000057  00000001       3979 T3_MSGLN EQU   *-T3_DESC
00000828                                            3980          DC    0D'0'
00000828  E7600040 00000E8E                         3981 T3_CHPGM DC    AL1(PFX),AL1(CC+SLI),AL2(L'T3_E7DAT),AL4(T3_E7DAT)
00000830  47600010 00000ECE                         3982          DC    AL1(LR),AL1(CC+SLI),AL2(L'T3_47DAT),AL4(T3_47DAT)
00000838  0624000A 00000840                         3983          DC    AL1(RD),AL1(SLI+IDA),AL2(L'T3_06BUF),AL4(T3_06IDA)
00000840  00000000 00000EDE                         3984 T3_06IDA DC    AD(T3_06BUF)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    3986 ********************************************************************************
00000848  E3C5E2E3 407BF47A                         3988 T4_DESC  DC    C'TEST #4: Format 2 PFX to obtain control unit information (PFX E7 2 IDA
                           00000056  00000001       3989 T4_MSGLN EQU   *-T4_DESC
000008A0                                            3990          DC    0D'0'
000008A0  E764004C 000008B0                         3991 T4_CHPGM DC    AL1(PFX),AL1(CC+SLI+IDA),AL2(L'T4_E7DAT),AL4(T4_E7IDA)
000008A8  3E240100 000008C0                         3992          DC    AL1(RSD),AL1(SLI+IDA),AL2(L'T4_3EBUF),AL4(T4_3EIDA)
000008B0  00000000 0000EFD8                         3993 T4_E7IDA DC    AD(T4_E7DAT_PART1)
000008B8  00000000 0000F000                         3994          DC    AD(T4_E7DAT_PART2)
000008C0  00000000 00000EE8                         3995 T4_3EIDA DC    AD(T4_3EBUF)



                                                    3997 ********************************************************************************
000008C8  E3C5E2E3 407BF57A                         3999 T5_DESC  DC    C'TEST #5: Read 06 CCW should fail since LR operation is Read(16) and Re
                           0000006F  00000001       4000 T5_MSGLN EQU   *-T5_DESC
00000938                                            4001          DC    0D'0'
00000938  E7600040 00000FE8                         4002 T5_CHPGM DC    AL1(PFX),AL1(CC+SLI),AL2(L'T5_E7DAT),AL4(T5_E7DAT)
00000940  47600010 00001028                         4003          DC    AL1(LR),AL1(CC+SLI),AL2(L'T5_47DAT),AL4(T5_47DAT)
00000948  0624000A 00000950                         4004          DC    AL1(RD),AL1(SLI+IDA),AL2(L'T5_06BUF),AL4(T5_06IDA)
00000950  00000000 00001038                         4005 T5_06IDA DC    AD(T5_06BUF)



                                                    4007 ********************************************************************************

00000958  E3C5E2E3 407BF67A                         4009 T6_DESC  DC    C'TEST #6: Same as Test #5, but properly uses multi-track Read (86) (Rea
                           00000051  00000001       4010 T6_MSGLN EQU   *-T6_DESC
000009B0                                            4011          DC    0D'0'
000009B0  E7600040 00001042                         4012 T6_CHPGM DC    AL1(PFX),AL1(CC+SLI),AL2(L'T6_E7DAT),AL4(T6_E7DAT)
000009B8  47600010 00001082                         4013          DC    AL1(LR),AL1(CC+SLI),AL2(L'T6_47DAT),AL4(T6_47DAT)
000009C0  8624000A 000009C8                         4014          DC    AL1(RDMT),AL1(SLI+IDA),AL2(L'T6_86BUF),AL4(T6_86IDA)
000009C8  00000000 00001092                         4015 T6_86IDA DC    AD(T6_86BUF)



                                                    4017 ********************************************************************************

000009D0  E3C5E2E3 407BF77A                         4019 T7_DESC  DC    C'TEST #7: Peter''s z/VM SSI issue (PFX 01 CMDREJ)'
                           0000002F  00000001       4020 T7_MSGLN EQU   *-T7_DESC
00000A00                                            4021          DC    0D'0'
00000A00  E7200040 0000109C                         4022 T7_CHPGM DC    AL1(PFX),AL1(SLI),AL2(T7_E7LEN),AL4(T7_E7DAT)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4024 ********************************************************************
00000A08  E3C5E2E3 407BF87A                         4026 T8_DESC  DC    C'TEST #8: Write Data erase remainder of track'
                             0000002C  00000001     4027 T8_MSGLN EQU   *-T8_DESC
00000A38                                            4028          DC    0D'0'
00000A38  63400010 000010DC                         4029 T8_CHPGM DC    AL1(DX),AL1(CC),AL2(T8_DXLEN),AL4(T8_DXDAT)
00000A40  47400010 000010EC                         4030          DC    AL1(LR),AL1(CC),AL2(T8_LRLEN),AL4(T8_LRDAT)
00000A48  05000008 000010FC                         4031          DC    AL1(WD),AL1(0),AL2(T8_WDLEN),AL4(T8_WDDAT)



                                                    4033 ********************************************************************

00000A50  E3C5E2E3 407BF97A                         4035 T9_DESC  DC    C'TEST #9: Read track 0 rec 3 (verify test #08 erase)'
                             00000033  00000001     4036 T9_MSGLN EQU   *-T9_DESC
00000A88                                            4037          DC    0D'0'
00000A88  07400006 00001104                         4038 T9_CHPGM DC    AL1(SEEK),AL1(CC),AL2(T9_SKLEN),AL4(T9_SKDAT)
00000A90  31400005 0000110A                         4039 T9_SICCW DC    AL1(SIDEQ),AL1(CC),AL2(T9_SILEN),AL4(T9_SIDAT)
00000A98  08000000 00000A90                         4040          DC    AL1(TIC),AL1(0),AL2(0),AL4(T9_SICCW)
00000AA0  06200050 0000110F                         4041          DC    AL1(RD),AL1(SLI),AL2(T9_RDLEN),AL4(T9_RDDAT)



                                                    4043 ********************************************************************

00000AA8  E3C5E2E3 407BF1F0                         4045 T10_DESC  DC    C'TEST #10: GH#608 FILE PROTECT: track with =12 recs'
                             00000032  00000001     4046 T10_MSGLN EQU   *-T10_DESC
00000AE0                                            4047           DC    0D'0'
00000AE0  E7400041 0000115F                         4048 T10_CHPGM DC    AL1(PFX),AL1(CC),AL2(L'T10_E7DAT),AL4(T10_E7DAT)
00000AE8  92400008 000011A0                         4049           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #1
00000AF0  86401000 000011A8                         4050           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #1
00000AF8  92400008 000011A0                         4051           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #2
00000B00  86401000 000011A8                         4052           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #2
00000B08  92400008 000011A0                         4053           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #3
00000B10  86401000 000011A8                         4054           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #3
00000B18  92400008 000011A0                         4055           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #4
00000B20  86401000 000011A8                         4056           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #4
00000B28  92400008 000011A0                         4057           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #5
00000B30  86401000 000011A8                         4058           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #5
00000B38  92400008 000011A0                         4059           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #6
00000B40  86401000 000011A8                         4060           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #6
00000B48  92400008 000011A0                         4061           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #7
00000B50  86401000 000011A8                         4062           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #7
00000B58  92400008 000011A0                         4063           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #8
00000B60  86401000 000011A8                         4064           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #8
00000B68  92400008 000011A0                         4065           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #9
00000B70  86401000 000011A8                         4066           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #9
00000B78  92400008 000011A0                         4067           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #10
00000B80  86401000 000011A8                         4068           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #10
00000B88  92400008 000011A0                         4069           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #11
00000B90  86401000 000011A8                         4070           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #11
00000B98  92400008 000011A0                         4071           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #12
00000BA0  86401000 000011A8                         4072           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #12
00000BA8  92000008 000011A0                         4073           DC    AL1(RCMT),AL1(0),AL2(L'T10_COUNT),AL4(T10_COUNT)  #13
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4075 ********************************************************************************
00000BB0  E3C5E2E3 407BF1F1                        4077 T11_DESC  DC    C'TEST #11: GH#608 FILE PROTECT: track with < 12 recs'
                          00000033  00000001       4078 T11_MSGLN EQU   *-T11_DESC
00000BE8                                           4079           DC    0D'0'


00000BE8  E7400041 000021A8                        4081 T11_CHPGM DC    AL1(PFX),AL1(CC),AL2(L'T11_E7DAT),AL4(T11_E7DAT)

                                                   4083 *------------------------------------------------------------------------
                                                   4084 * NOTE: only the CCHH in the above Prefix command's Define Extent and
                                                   4085 *       Locate Record Extended fields are different. The remainder of
                                                   4086 *       of the problematic channel program is identical to test #10's.
                                                   4087 *------------------------------------------------------------------------

00000BF0  92400008 000011A0                        4089           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #1
00000BF8  86401000 000011A8                        4090           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #1
00000C00  92400008 000011A0                        4091           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #2
00000C08  86401000 000011A8                        4092           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #2
00000C10  92400008 000011A0                        4093           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #3
00000C18  86401000 000011A8                        4094           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #3
00000C20  92400008 000011A0                        4095           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #4
00000C28  86401000 000011A8                        4096           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #4
00000C30  92400008 000011A0                        4097           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #5
00000C38  86401000 000011A8                        4098           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #5
00000C40  92400008 000011A0                        4099           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #6
00000C48  86401000 000011A8                        4100           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #6
00000C50  92400008 000011A0                        4101           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #7
00000C58  86401000 000011A8                        4102           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #7
00000C60  92400008 000011A0                        4103           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #8
00000C68  86401000 000011A8                        4104           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #8
00000C70  92400008 000011A0                        4105           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #9
00000C78  86401000 000011A8                        4106           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #9
00000C80  92400008 000011A0                        4107           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #10
00000C88  86401000 000011A8                        4108           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #10
00000C90  92400008 000011A0                        4109           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #11
00000C98  86401000 000011A8                        4110           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #11
00000CA0  92400008 000011A0                        4111           DC    AL1(RCMT),AL1(CC),AL2(L'T10_COUNT),AL4(T10_COUNT) #12
00000CA8  86401000 000011A8                        4112           DC    AL1(RDMT),AL1(CC),AL2(L'T10_DATA),AL4(T10_DATA)   #12
00000CB0  92000008 000011A0                        4113           DC    AL1(RCMT),AL1(0),AL2(L'T10_COUNT),AL4(T10_COUNT)  #13
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4115 ********************************************************************************
                                                   4116 *                I/O DATA AND I/O BUFFERS...
                                                   4117 ********************************************************************************

00000CB8                                           4119          DC    0D'0'
00000CB8  00000000 00000000                        4120 SNSBYTES DC    XL32'00'     (Generic SENSE buffer)



                                                   4122 ********************************************************************************


00000CD8  02000000 00000000                        4124 T1_E7DAT DC    X'02000000 00000000 00000000'           +00  PFX
00000CE4  00000000 00000000                        4125          DC    X'00000000 00000000 00000000 00000000'  +12  DEF EXT
00000CF4  00000000 00000000                        4126          DC    X'00000000 00000000 00000000 00000000'  +28
00000D04  00000000 00000000                        4127          DC    X'00000000 00000000 00000000 00000000'  +44  LREC EXD
00000D14  0000                                     4128          DC    X'0000'                                 +60
00000D16  18000000 00004100                        4129          DC    X'    1800 00000000 41000000 00000000'  +62  PSF
                            0000004C  00000001     4130 T1_E7LEN EQU   *-T1_E7DAT
00000D24  00000000 00000000                        4131 T1_3EBUF DC    XL256'00'  (the subsystem data that was read)



                                                   4133 ********************************************************************************


00000E24  00000000 00000000                        4135 T2_E7DAT DC    XL64'00'
00000E64  40C00000 00000000                        4136 T2_63DAT DC    XL16'40C00000 00000000 00000000 00000000'
00000E74  06000001 00000000                        4137 T2_47DAT DC    XL16'06000001 00000000 00000000 03000000'
00000E84  00000000 00000000                        4138 T2_06BUF DC    XL10'00'



                                                   4140 ********************************************************************************


00000E8E                                           4142 T3_E7DAT DS   0XL64
00000E8E  00800000 00000000                        4143          DC    XL16'00800000 00000000 00000000 40C00000'
00000E9E  00000000 00000000                        4144          DC    XL16'00000000 00000000 00000000 00000000'
00000EAE  00000000 00000000                        4145          DC    XL16'00000000 00000000 00000000 00000000'
00000EBE  00000000 00000000                        4146          DC    XL16'00000000 00000000 00000000 00000000'
00000ECE  06000001 00000000                        4147 T3_47DAT DC    XL16'06000001 00000000 00000000 03000000'
00000EDE  00000000 00000000                        4148 T3_06BUF DC    XL10'00'
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4150 ********************************************************************************

00000EE8  00000000 00000000                        4152 T4_3EBUF            DC    XL256'00'   Read Subsystem Data buffer
                             00000FE8  00000001    4153 ASMA_ORIGINAL_ORG   EQU   *           ORG back to here after below crap
                                                   4154                     PRINT DATA


                                                   4156 *-------------------------------------------------------------------------
                                                   4157 *  The E7 Prefix data will be split across 2 physical pages to test
                                                   4158 *  Hercules's IDA handling for this CCW. We place the first part of
                                                   4159 *  the data near the end of a page and the remainder at the beginning
                                                   4160 *  of the very next page.
                                                   4161 *-------------------------------------------------------------------------


                             0000F000  00000001    4163 T4_E7DAT_PART2_ORG  EQU   X'F000'     Where 2nd part of E7 data will go


                             0000004C  00000001    4165 T4_E7DAT_TOTAL_LEN  EQU   76          Total length of all E7 data
                             00000028  00000001    4166 T4_E7DAT_PART1_LEN  EQU   40          Amt of it at end of 1st IDA page
                             00000024  00000001    4167 T4_E7DAT_PART2_LEN  EQU   (T4_E7DAT_TOTAL_LEN-T4_E7DAT_PART1_LEN)


00000FE8                     00000FE8  0000EFD8    4169                     ORG   E7TEST+T4_E7DAT_PART2_ORG-T4_E7DAT_PART1_LEN
0000EFD8                                           4170 T4_E7DAT            DS    0XL(T4_E7DAT_TOTAL_LEN)


0000EFD8                                           4172 T4_E7DAT_PART1      DS    0XL(T4_E7DAT_PART1_LEN)
0000EFD8  02000000 00000000                        4173                     DC     XL16'02000000 00000000 00000000 00000000'
0000EFE0  00000000 00000000
0000EFE8  00000000 00000000                        4174                     DC     XL16'00000000 00000000 00000000 00000000'
0000EFF0  00000000 00000000
0000EFF8  00000000 00000000                        4175                     DC     XL8' 00000000 00000000'


0000F000                                           4177 T4_E7DAT_PART2      DS    0XL(T4_E7DAT_PART2_LEN)
0000F000  00000000 00000000                        4178                     DC     XL8'                     00000000 00000000'
0000F008  00000000 00000000                        4179                     DC     XL16'00000000 00000000 00000000 00001800'
0000F010  00000000 00001800
0000F018  00000000 41000000                        4180                     DC     XL12'00000000 41000000 00000000'
0000F020  00000000


0000F024                     0000F024  00000FE8    4182                     ORG   ASMA_ORIGINAL_ORG
                                                   4183                     PRINT NODATA
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    4186 ********************************************************************************

00000FE8                                            4188 T5_E7DAT DS   0XL64
00000FE8  00800000 00000000                         4189          DC    XL16'00800000 00000000 00000000 40C00000'
00000FF8  00000000 00000000                         4190          DC    XL16'00000000 00000000 00000000 00000000'
00001008  00000000 00000000                         4191          DC    XL16'00000000 00000000 00000000 00000000'
00001018  00000000 00000000                         4192          DC    XL16'00000000 00000000 00000000 00000000'
00001028  16000001 00000000                         4193 T5_47DAT DC    XL16'16000001 00000000 00000000 03000000'
00001038  00000000 00000000                         4194 T5_06BUF DC    XL10'00'

                                                    4196 ********************************************************************************

00001042                                            4198 T6_E7DAT DS   0XL64
00001042  00800000 00000000                         4199          DC    XL16'00800000 00000000 00000000 40C00000'
00001052  00000000 00000000                         4200          DC    XL16'00000000 00000000 00000000 00000000'
00001062  00000000 00000000                         4201          DC    XL16'00000000 00000000 00000000 00000000'
00001072  00000000 00000000                         4202          DC    XL16'00000000 00000000 00000000 00000000'
00001082  16000001 00000000                         4203 T6_47DAT DC    XL16'16000001 00000000 00000000 03000000'
00001092  00000000 00000000                         4204 T6_86BUF DC    XL10'00'

                                                    4206 ********************************************************************************

0000109C  01800000 00000000                         4208 T7_E7DAT DC    X'01800000 00000000 00000000'           +00  PFX
000010A8  40C01000 00000042                         4209          DC    X'40C01000 00000042 00020000 00020000'  +12  DEF EXT
000010B8  00000000 00000000                         4210          DC    X'00000000 00000000 00000000 00000000'  +28
000010C8  06000001 00020000                         4211          DC    X'06000001 00020000 00020000 01290000'  +44  LREC EXD
000010D8  00000000                                  4212          DC    X'00000000'                             +60
                            00000040  00000001      4213 T7_E7LEN EQU   *-T7_E7DAT
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                  4216 ********************************************************************************
000010DC  00C00000 00000000                       4218 T8_DXDAT DC    X'00C00000 00000000 00000000 00000000'
                             00000010  00000001   4219 T8_DXLEN EQU   *-T8_DXDAT
                                                  4220
000010EC  0B000001 00000000                       4221 T8_LRDAT DC    X'0B000001 00000000 00000000 00000000'
                             00000010  00000001   4222 T8_LRLEN EQU   *-T8_LRDAT
                                                  4223
000010FC  00000000 00000000                       4224 T8_WDDAT DC    XL8'00'
                             00000008  00000001   4225 T8_WDLEN EQU   *-T8_WDDAT


                                                  4227 ********************************************************************************

00001104  00000000 0000                           4229 T9_SKDAT DC    X'000000000000'    BIN=0,CYL=0,HEAD=0
                             00000006  00000001   4230 T9_SKLEN EQU   *-T9_SKDAT
                                                  4231
0000110A  00000000 03                             4232 T9_SIDAT DC    X'0000000003'      CC=0,HH=0,R=3
                             00000005  00000001   4233 T9_SILEN EQU   *-T9_SIDAT
                                                  4234
0000110F  40404040 40404040                       4235 T9_RDDAT DC    CL80' '            Volume Serial
                             00000050  00000001   4236 T9_RDLEN EQU   *-T9_RDDAT
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  4239 ********************************************************************************
0000115F                                          4241 T10_E7DAT DC   0XL(12+32+20+1)'00'

                            00000003  00000001    4243 T10_CYL   EQU  3          Test Cylinder
                            00000000  00000001    4244 T10_HEAD  EQU  0          Track with 12 records on it

                                                  4246 *   Prefix: 12 bytes (0 - 11)
0000115F  01                                      4248           DC   XL1'01'                    Format
00001160  80                                      4249           DC   XL1'80'                    Field Validity
00001161  00                                      4250           DC   XL1'00'                    (reserved; must be zero)
00001162  00                                      4251           DC   XL1'00'                    Auxiliary Byte
00001163  00000000 00000000                       4252           DC   XL8'00000000 00000000'     (reserved; must be zero)

                                                  4254 *   Define Extent: 32 bytes (12-43)
0000116B  40                                      4256           DC   XL1'40'                    Mask byte
0000116C  C0                                      4257           DC   XL1'C0'                    Global Attributes
0000116D  0000                                    4258           DC   AL2(0)                     Blocksize in bytes
0000116F  000000                                  4259           DC   XL3'000000'               (reserved; must be zero)
00001172  00                                      4260           DC   XL1'00'                    Global Attributes Extended
00001173  00030000                                4261           DC   AL2(T10_CYL),AL2(T10_HEAD) Beginning of Extent (CCHH)
00001177  00030000                                4262           DC   AL2(T10_CYL),AL2(0)        End of Extent       (CCHH)
0000117B  00000000 00000000                       4263           DC   XL16'00'                  (reserved; must be zero)

                                                  4265 *   Locate Record Extended: 20 bytes (44-63)
0000118B  3F                                      4267           DC   XL1'3F'                    Operation Byte
0000118C  00                                      4268           DC   XL1'00'                    Auxiliary Byte
0000118D  00                                      4269           DC   XL1'00'                    (reserved; must be zero)
0000118E  0D                                      4270           DC   AL1(13)                    Count
0000118F  00030000                                4271           DC   AL2(T10_CYL),AL2(T10_HEAD) Seek Address (CCHH)
00001193  00000000 00                             4272           DC   XL5'0000000000'           Search Argument
00001198  FF                                      4273           DC   AL1(255)                   Sector Number
00001199  0000                                    4274           DC   AL2(0)                     Transfer Length Factor
0000119B  00                                      4275           DC   XL1'00'                    (reserved; must be zero)
0000119C  0A                                      4276           DC   XL1'0A'                    Extended Operation Byte
0000119D  0001                                    4277           DC   AL2(1)                     Extended Parameter Length

                                                  4279 *   Extended Parameter: 1 byte (64-64)
0000119F  01                                      4281           DC   AL1(1)                     Track Set Size

000011A0  00000000 00000000                       4283 T10_COUNT DC   XL8'00'                   (Read Count buffer)
000011A8  00000000 00000000                       4284 T10_DATA  DC   XL4096'00'                (Read Data buffer)
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  4287 ********************************************************************************
000021A8                                          4289 T11_E7DAT DC   0XL(12+32+20+1)'00'

                             00000003  00000001   4291 T11_CYL   EQU  3          Test Cylinder
                             00000001  00000001   4292 T11_HEAD  EQU  1          Track with only 3 records on it

                                                  4294 *   Prefix: 12 bytes (0 - 11)
000021A8  01                                      4296           DC   XL1'01'                    Format
000021A9  80                                      4297           DC   XL1'80'                    Field Validity
000021AA  00                                      4298           DC   XL1'00'                    (reserved; must be zero)
000021AB  00                                      4299           DC   XL1'00'                    Auxiliary Byte
000021AC  00000000 00000000                       4300           DC   XL8'00000000 00000000'     (reserved; must be zero)

                                                  4302 *   Define Extent: 32 bytes (12-43)
000021B4  40                                      4304           DC   XL1'40'                    Mask byte
000021B5  C0                                      4305           DC   XL1'C0'                    Global Attributes
000021B6  0000                                    4306           DC   AL2(0)                     Blocksize in bytes
000021B8  000000                                  4307           DC   XL3'000000'               (reserved; must be zero)
000021BB  00                                      4308           DC   XL1'00'                    Global Attributes Extended
000021BC  00030001                                4309           DC   AL2(T11_CYL),AL2(T11_HEAD) Beginning of Extent (CCHH)
000021C0  00030000                                4310           DC   AL2(T11_CYL),AL2(0)       End of Extent       (CCHH)
000021C4  00000000 00000000                       4311           DC   XL16'00'                  (reserved; must be zero)

                                                  4313 *   Locate Record Extended: 20 bytes (44-63)
000021D4  3F                                      4315           DC   XL1'3F'                    Operation Byte
000021D5  00                                      4316           DC   XL1'00'                    Auxiliary Byte
000021D6  00                                      4317           DC   XL1'00'                    (reserved; must be zero)
000021D7  0D                                      4318           DC   AL1(13)                    Count
000021D8  00030001                                4319           DC   AL2(T11_CYL),AL2(T11_HEAD) Seek Address (CCHH)
000021DC  00000000 00                             4320           DC   XL5'0000000000'           Search Argument
000021E1  FF                                      4321           DC   AL1(255)                   Sector Number
000021E2  0000                                    4322           DC   AL2(0)                     Transfer Length Factor
000021E4  00                                      4323           DC   XL1'00'                    (reserved; must be zero)
000021E5  0A                                      4324           DC   XL1'0A'                    Extended Operation Byte
000021E6  0001                                    4325           DC   AL2(1)                     Extended Parameter Length

                                                  4327 *   Extended Parameter: 1 byte (64-64)
000021E8  01                                      4329           DC   AL1(1)                  Track Set Size
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  4331 ********************************************************************************
                                                  4332 *        IOCB DSECT
                                                  4333 ********************************************************************************

                                                  4335          DSECTS NAME=IOCB
                                                  4337+IOCB     DSECT
                                                  4338+*     Field usage by: CH SC Description (R->program read-only, X->program read/write)
00000000                                          4339+IOCBDID  DS    0F  +0     R  Device Identifier - Subsystem ID for channel subsystem
00000000  0000                                    4340+         DS    H   +0  R      reserved - must be zeros
00000002  0000                                    4341+IOCBDV   DS    H   +2  R      Channel Unit Device address of I/O operation
00000004  0000                                    4342+IOCBDEV  DS    H   +4  X  X  Device address or device number (R after ENADEV)
00000006  0000                                    4343+IOCBZERO DS    H   +6  R  R  Must be zeros
00000008  00                                      4344+IOCBUM   DS    X   +8  X  X  Unit status test mask
00000009  00                                      4345+IOCBCM   DS    X   +9  X  X  Channel status test mask
0000000A                                          4346+IOCBST   DS    0H  +10 X  X  Input/Output unit and channel status accumulation
0000000A  00                                      4347+IOCBUS   DS    X   +10 R  R  Accumulated unit status
0000000B  00                                      4348+IOCBCS   DS    X   +11 R  R  Accumulated channel status
0000000C  00                                      4349+IOCBUT   DS    X   +14 R  R  Used to test unit status
0000000D  00                                      4350+IOCBCT   DS    X   +13 R  R  Used to test channel status
0000000E  00                                      4351+IOCBSC   DS    X   +14    R  Accumulted subchanel status control
0000000F  00                                      4352+IOCBWAIT DS    X   +15 X  X  Recognized unsolicited interruption unit status events
00000010  00000000                                4353+IOCBSCCW DS    A   +16 R  R  I/O status CCW address
00000014                                          4354+IOCBSCNT DS    0F  +20 R  R  I/O status residual count as a positive full word
00000014  0000                                    4355+         DS    H   +20 R     reserved must be zeros
00000016  0000                                    4356+IOCBRCNT DS    H   +22 R     I/O status residual count as an unsigned halfword
00000018                                          4357+IOCBCAW  DS    0A  +24 X     Channel Address word
00000018  00000000 00000000                       4358+IOCBORB  DS    AD  +24    X  Address of the ORB for channel subsystem I/O
00000020  00000000 00000000                       4359+IOCBIRB  DS    AD  +32    X  Channel subsystem IRB address
00000028  00000000 00000000                       4360+IOCBSIB  DS    AD  +40    X  Channel subsystem SCHIB address
                            00000030  00000001    4361+IOCBL    EQU   *-IOCB  Length of IOCB control block (48) without embedded structures
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                 4363 ********************************************************************************
                                                 4364 *        ORB DSECT
                                                 4365 ********************************************************************************

                                                 4367          DSECTS NAME=ORB
                                                 4369+ORB      DSECT
00000000  00000000                               4370+ORBPARM  DC    F'0'     Word 0, bits 0-31

00000004  00                                     4372+ORB1_0   DC    X'00'    Word 1, bits 0-7
                            000000F0  00000001   4373+ORBKEYM  EQU   X'F0'    Word 1, bits 0-3   - Storage Key Mask
                            00000008  00000001   4374+ORBS     EQU   X'08'    Word 1, bit 4      - Suspend Control
                            00000004  00000001   4375+ORBC     EQU   X'04'    Word 1, bit 5      - Streaming Mode Control
                            00000002  00000001   4376+ORBM     EQU   X'02'    Word 1, bit 6      - Modification Control
                            00000001  00000001   4377+ORBY     EQU   X'01'    Word 1, bit 7      - Synchronization Control

00000005  00                                     4379+ORB1_8   DC    X'00'    Word 1, bits 8-15
                            00000080  00000001   4380+ORBF     EQU   X'80'    Word 1, bit 8      - CCW Format-Control
                            00000040  00000001   4381+ORBP     EQU   X'40'    Word 1, bit 9      - Pre-fetch control
                            00000020  00000001   4382+ORBI     EQU   X'20'    Word 1, bit 10     - Initial-status Interruption Control
                            00000010  00000001   4383+ORBA     EQU   X'10'    Word 1, bit 11     - Address Limit Checking Control
                            00000008  00000001   4384+ORBU     EQU   X'08'    Word 1, bit 12     - Suppress-suspended-interruption control
                            00000004  00000001   4385+ORBB     EQU   X'04'    Word 1, bit 13     - Channel-Program-Type Control
                            00000002  00000001   4386+ORBH     EQU   X'02'    Word 1, bit 14     - Format 2-IDAW Control
                            00000001  00000001   4387+ORBT     EQU   X'01'    Word 1, bit 15     - 2K-IDAW control
00000006  00                                     4388+ORBLPM   DC    X'00'    Word 1, bits 16-23 - Logical Path Mask
00000007  00                                     4389+ORRB1_24 DC    X'00'    Word 1, bits 24-31
                            00000080  00000001   4390+ORBL     EQU   X'80'    Word 1, bit 24     - Incorrect Length Suppression Mode
                            0000007F  00000001   4391+ORBRSV3  EQU   X'7F'    Word 1, bits 25-31 - reserved must be zeros
                            00000040  00000001   4392+ORBD     EQU   X'40'    Word 1, bit 25     - MIDAW Addressing Control
                            0000003E  00000001   4393+ORBRSV26 EQU   X'3E'    Word 1, bits 26-30 - reserved must be zeros
                            0000007E  00000001   4394+ORBRSV25 EQU   X'7E'    Word 1, bits 25-30 - reserved must be zeros
                            00000001  00000001   4395+ORBX     EQU   X'01'    Word 1, bit 31     - ORB-extension control

00000008  00000000                               4397+ORBCCW   DC    A(0)     Word 2, bits 1-31  - Channel Program Address
                            00000080  00000001   4398+ORBRSV4  EQU   X'80'    Word 2, bit 0      - reserved must be zero
                            0000000C  00000001   4399+ORBLEN   EQU   *-ORB Length of standard ORB
                                                 4400+* Extended ORB fields
0000000C  00                                     4401+ORBCSS   DC    X'00'    Word 3, bits 0-7   - Channel Subsystem Priority
0000000D  00                                     4402+ORBRSV5  DC    X'00'    Word 3, bits 8-15  - reserved must be zeros
0000000E                                         4403+ORBPGM   DC    0X'00'   Word 3, bits 16-23 - Transport mode reserves for program us
0000000E  00                                     4404+ORBCU    DC    X'00'    Word 3, bits 16-23 - Control Unit Priority
0000000F  00                                     4405+ORBRSV6  DC    X'00'    Word 3, bits 24-31 - reserved must be zeros
00000010  00000000 00000000                      4406+ORBRSV7  DC    XL16'00' Words 4-7          - reserved must be zeros
                            00000020  00000001   4407+ORBXLEN  EQU   *-ORB Length of extended ORB
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  4410 ********************************************************************************
                                                  4411 *        IRB DSECT
                                                  4412 ********************************************************************************

                                                  4414          DSECTS NAME=IRB
                                                  4416+IRB      DSECT Interruption          Response Block
00000000  00000000 00000000                       4417+IRBSCSW  DC    XL12'00' Words 0-2 - Subchannel Status Word (Defined by DSECT SCSW)
0000000C  00000000 00000000                       4418+IRBESW   DC    XL20'00' Words 3-7 - Extended Status Word
00000020  00000000 00000000                       4419+IRBECW   DC    XL32'00' Words 8-15 - Extended Control Word
                             00000040  00000001   4420+IRBL     EQU   *-IRB    IRB Length
00000040  00000000 00000000                       4421+IRBEMW   DC    XL32'00' Words 16-23 - Extended Measurement Word
                             00000060  00000001   4422+IRBXL    EQU   *-IRB    Extended IRB Length
```

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 LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  4425 ********************************************************************************
                                                  4426 *        SCHIB DSECT
                                                  4427 ********************************************************************************

                                                  4429          DSECTS NAME=SCHIB
                                                  4431+SCHIB    DSECT Subchannel          Information Block
                                                  4432+* Fields marked RW may be changed by MSCH.  IN indicates installed value supplied
00000000                                          4433+SCHPMCW  DC    0XL28'00'  Words 0-6 - Path-Management-Control Word
00000000  00000000                                4434+PMCWIP   DC    F'0'   RW  Word 0, bits 0-31 - Interruption Parameter
00000004  00                                      4435+PMCW1_0  DC    X'00'      Word 1, bits 0-7
                          00000038  00000001    4436+PMCWISCM EQU   X'38'  RW  Interruption Subclass Code Mask

00000005  00                                      4438+PMCW1_8  DC    X'00'      Word 1, bits 8-15
                          00000080  00000001    4439+PMCWE    EQU   X'80'  RW  Word 1, bit 8 - Subchannel Enabled
                          00000060  00000001    4440+PMCWLM   EQU   X'60'  RW  Word 1, bits 9,10 - Limit-Mode Mask
                          00000020  00000001    4441+PMCWLMG  EQU   X'20'  RW  Word 1, bit 9 - Address must be GE to limit
                          00000040  00000001    4442+PMCWLML  EQU   X'40'  RW  Word 1, bit 10 - Address must be less than the limit
                          00000018  00000001    4443+PMCWMM   EQU   X'18'  RW  Word 1, bits 11,12 - Measurement Mode Mask
                          00000010  00000001    4444+PMCWMME  EQU   X'10'  RW  Word 1, bit 11 - Measurement Block Update Enabled
                          00000008  00000001    4445+PMCWMMC  EQU   X'08'  RW  Word 1, bit 12 - Device Connect Time Measurement Enabled
                          00000004  00000001    4446+PMCWM    EQU   X'04'  RW  Word 1, bit 13 - Multipath Mode Enabled
                          00000002  00000001    4447+PMCWT    EQU   X'02'  IN  Word 1, bit 14 - Timing facility availability
                          00000001  00000001    4448+PMCWV    EQU   X'01'  IN  Word 1, bit 15 - Device number valid

00000006  0000                                    4450+PMCWDNUM DC    H'0'   IN  Word 1, bits 16-31 - Device Number

00000008  00                                      4452+PMCWLPM  DC    X'00'  RW  Word 2, bits 0-7   - Logical Path Mask
00000009  00                                      4453+PMCWPNOM DC    X'00'  RW  Word 2, bits 8-15  - Logical Path Not Operational Mask
0000000A  00                                      4454+PMCWLPUM DC    X'00'  IN  Word 2, bits 16-23 - Logical Path Used Mask
0000000B  00                                      4455+PMCWPIM  DC    X'00'  IN  Word 2, bits 24-31 - Path-Installed Mask
0000000C  0000                                    4456+PMCWMBI  DC    H'0'   RW  Word 3, bits 0-15  - Measurement Block Index
0000000E  00                                      4457+PMCWPOM  DC    X'00'  RW  Word 3, bits 16-23 - Path-Operational Mask
0000000F  00                                      4458+PMCWPAM  DC    X'00'  IN  Word 3, bits 24-31 - Path-Available Mask
00000010  00                                      4459+PMCWCHP0 DC    X'00'  IN  Word 3, bits 0-7   - Channel Path Identifier 0
00000011  00                                      4460+PMCWCHP1 DC    X'00'  IN  Word 3, bits 8-15  - Channel Path Identifier 1
00000012  00                                      4461+PMCWCHP2 DC    X'00'  IN  Word 3, bits 16-23 - Channel Path Identifier 2
00000013  00                                      4462+PMCWCHP3 DC    X'00'  IN  Word 3, bits 24-31 - Channel Path Identifier 3
00000014  00                                      4463+PMCWCHP4 DC    X'00'  IN  Word 4, bits 0-7   - Channel Path Identifier 4
00000015  00                                      4464+PMCWCHP5 DC    X'00'  IN  Word 4, bits 8-15  - Channel Path Identifier 5
00000016  00                                      4465+PMCWCHP6 DC    X'00'  IN  Word 4, bits 16-23 - Channel Path Identifier 6
00000017  00                                      4466+PMCWCHP7 DC    X'00'  IN  Word 4, bits 24-31 - Channel Path Identifier 7
00000018                                          4467+PMCWRES1 DC    0XL4'00'   Word 6, bits 0-31  - reserved or pre-z systems
00000018  000000                                  4468+PMCWRES2 DC    XL3'00'    Word 6, bits 0-23  - reserved on z systems
0000001B  00                                      4469+PMCWEXC  DC    X'00'      Word 6, bits 24-28 - reserved
                          00000004  00000001    4470+PMCWB    EQU   X'04'  RW  Word 6, bit 29     - Measurement Block Format Control
                          00000002  00000001    4471+PMCWX    EQU   X'02'  RW  Word 6, bit 30     - Extended Measurement Word Mode Enabl
                          00000001  00000001    4472+PMCWS    EQU   X'01'  RW  Word 6, bit 31     - Concurrent Sense Enable

0000001C  00000000 00000000                       4474+SCHSCSW  DC    XL12'00'   Words 7-9 - Subchannel Status Word (See DSECT SCSW)
00000028                                          4475+SCHMDA3  DC    0XL12'00'  Words 10-12 - Model Dependent Area on pre-z systems
00000028  00000000 00000000                       4476+SCHMBA   DC    AD(0)  RW  Words 10,11 - Measurement Block Address
00000030  00000000                                4477+SCHMDA1  DC    XL4'00'    Word 12 - Model Dependent Area on z systems
                          00000034  00000001    4478+SCHIBL   EQU   *-SCHIB Length of SCHIB
```

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  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    4481 ************************************************************************
                                                    4482 *        SCSW DSECT
                                                    4483 ************************************************************************

                                                    4485          DSECTS NAME=SCSW
                                                    4487+SCSW     DSECT Subchannel          Status Word
00000000  00                                        4488+SCSWFLAG DC    X'00'    Flags
                              000000F0  00000001    4489+SCSWKEYM EQU   X'F0'    Storage Key Mask of subchannel storage key
                              00000008  00000001    4490+SCSWSUSC EQU   X'08'    Suspend Control
                              00000004  00000001    4491+SCSWESWF EQU   X'04'    Extended Status Word Format
                              00000003  00000001    4492+SCSWDCCM EQU   X'03'    Deferred condiont code mask
                              00000000  00000001    4493+SCSWDCC0 EQU   X'00'    Normal I/O interruption
                              00000001  00000001    4494+SCSWDCC1 EQU   X'01'    Deferred condition code is 1
                              00000003  00000001    4495+SCSWDCC3 EQU   X'03'    Deferred condition code is 3

00000001  00                                        4497+SCSWCTLS DC    X'00'    General Controls
                              00000080  00000001    4498+SCSWCCWF EQU   X'80'    CCW Format control when ...
                              00000040  00000001    4499+SCSWCCWP EQU   X'40'    CCW Prefetch Control
                              00000020  00000001    4500+SCSWISIC EQU   X'20'    Initial-Status-Interruption Control
                              00000010  00000001    4501+SCSWALKC EQU   X'10'    Address-Limit-Checking Control
                              00000008  00000001    4502+SCSWSSIC EQU   X'08'    Suppress suspended interruption
                              00000004  00000001    4503+SCSW0CC  EQU   X'04'    Zero-Condition Code
                              00000002  00000001    4504+SCSWECWC EQU   X'02'    Extended Control Word control
                              00000001  00000001    4505+SCSWPNOP EQU   X'01'    Path Not Operational

00000002  00                                        4507+SCSW1    DC    X'00'    Control Byte 1
                              00000070  00000001    4508+SCSWFM   EQU   X'70'    Functional Control Mask
                              00000040  00000001    4509+SCSWFS   EQU   X'40'    Function Control - Start Function
                              00000020  00000001    4510+SCSWFH   EQU   X'20'    Function Control - Halt Function
                              00000010  00000001    4511+SCSWFC   EQU   X'10'    Function Control - Clear Function
                              00000008  00000001    4512+SCSWARP  EQU   X'08'    Activity Control - Resume pending
                              00000004  00000001    4513+SCSWASP  EQU   X'04'    Activity Control - Start pending
                              00000002  00000001    4514+SCSWAHP  EQU   X'02'    Activity Control - Halt pending
                              00000001  00000001    4515+SCSWACP  EQU   X'01'    Activity Control - Clear pending
00000003  00                                        4516+SCSW2    DC    X'00'    Control Byte 2
                              00000080  00000001    4517+SCSWASA  EQU   X'80'    Activity Control - Subchannel Active
                              00000040  00000001    4518+SCSWADA  EQU   X'40'    Activity Control - Device Active
                              00000020  00000001    4519+SCSWASUS EQU   X'20'    Activity Control - Suspended
                              00000010  00000001    4520+SCSWSAS  EQU   X'10'    Status Control   - Alert Status
                              00000008  00000001    4521+SCSWSINT EQU   X'08'    Status Control   - Intermediate Status
                              00000004  00000001    4522+SCSWSPRI EQU   X'04'    Status Control   - Primary Status
                              00000002  00000001    4523+SCSWSSEC EQU   X'02'    Status Control   - Secondary Status
                              00000001  00000001    4524+SCSWSPEN EQU   X'01'    Status Control   - Status Pending

00000004  00000000                                  4526+SCSWCCW  DC    A(0)     CCW Address

00000008  00                                        4528+SCSWUS   DC    X'00'    Unit Status
                              00000080  00000001    4529+SCSWATTN EQU   X'80'    Attention
                              00000040  00000001    4530+SCSWSM   EQU   X'40'    Status modifier
                              00000020  00000001    4531+SCSWCUE  EQU   X'20'    Control-unit end
                              00000010  00000001    4532+SCSWBUSY EQU   X'10'    Busy
                              00000008  00000001    4533+SCSWCE   EQU   X'08'    Channel end
                              00000004  00000001    4534+SCSWDE   EQU   X'04'    Device end
                              00000002  00000001    4535+SCSWUC   EQU   X'02'    Unit check
                              00000001  00000001    4536+SCSWUX   EQU   X'01'    Unit exception
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  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

00000009  00                                      4538+SCSWCS   DC    X'00'    Channel Status
                            00000080  00000001  4539+SCSWPCI  EQU   X'80'    Program-controlled interruption
                            00000040  00000001  4540+SCSWIL   EQU   X'40'    Incorrect length
                            00000020  00000001  4541+SCSWPRGM EQU   X'20'    Program check
                            00000010  00000001  4542+SCSWPROT EQU   X'10'    Protection Check
                            00000008  00000001  4543+SCSWCDAT EQU   X'08'    Channel-data check
                            00000004  00000001  4544+SCSWCCTL EQU   X'04'    Channel-control check
                            00000002  00000001  4545+SCSWICTL EQU   X'02'    Interface-control check
                            00000001  00000001  4546+SCSWCHNG EQU   X'01'    Chaining check

0000000A  0000                                    4548+SCSWCNT  DC    H'0'     Residual CCW count
                            0000000C  00000001  4549+SCSWL    EQU   *-SCSW
```

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 LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                         4552 ********************************************************************************
                                         4553 *        (other DSECTS needed by SATK)
                                         4554 ********************************************************************************

                                         4556          DSECTS PRINT=OFF,NAME=(ASA,CCW0,CCW1,CSW)
                                         4782          PRINT ON




                                         4784 ********************************************************************************
                                         4785 *        Register equates
                                         4786 ********************************************************************************

                          00000000  00000001  4788 R0       EQU   0
                          00000001  00000001  4789 R1       EQU   1
                          00000002  00000001  4790 R2       EQU   2
                          00000003  00000001  4791 R3       EQU   3
                          00000004  00000001  4792 R4       EQU   4
                          00000005  00000001  4793 R5       EQU   5
                          00000006  00000001  4794 R6       EQU   6
                          00000007  00000001  4795 R7       EQU   7
                          00000008  00000001  4796 R8       EQU   8
                          00000009  00000001  4797 R9       EQU   9
                          0000000A  00000001  4798 R10      EQU   10
                          0000000B  00000001  4799 R11      EQU   11
                          0000000C  00000001  4800 R12      EQU   12
                          0000000D  00000001  4801 R13      EQU   13
                          0000000E  00000001  4802 R14      EQU   14
                          0000000F  00000001  4803 R15      EQU   15


                                         4805          END
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
ASA	4	000000	512	4560	3582
ASBEGIN	U	000000	1	4561	4566 4608 4644 4653 4671 4678 4684 4688 4692 4698 4715
ASEND	U	000200	1	4714	4715
ASLENGTH	U	000200	1	4715	
ASMA_ORIGINAL_ORG	U	000FE8	1	4153	4182
ATESTTAB	A	000610	4	3915	3624
BAD66PSW	D	000328	8	3713	3688
BAD77PSW	D	000338	8	3714	3690
BAD88PSW	D	000348	8	3715	3692
BAD99PSW	D	000358	8	3716	3694
BCEXTCOD	H	00001A	2	4578	
BCIOCOD	H	00003A	2	4586	
BCMCKCOD	H	000032	2	4584	
BCPGMCOD	H	00002A	2	4582	
BCSVCCOD	H	000022	2	4580	
BEGIN	I	000200	2	3588	3557
BEGIN0	I	000246	4	3622	3610
CAW	F	000048	4	4590	
CAWADDR	R	000049	3	4593	
CAWKEY	X	000048	1	4591	
CAWSUSP	U	000008	1	4592	
CC	U	000040	1	3898	3962 3970 3971 3972 3981 3982 3991 4002 4003 4012 4013 4029 4030 4038 4039 4048 4049 4050 4051 4052 4053 4054 4055 4056 4057 4058 4059 4060 4061 4062 4063 4064 4065 4066 4067 4068 4069 4070 4071 4072 4081 4089 4090 4091 4092 4093 4094 4095 4096 4097 4098 4099 4100 4101 4102 4103 4104 4105 4106 4107 4108 4109 4110 4111 4112
CCW0	4	000000	8	4719	4725
CCW0ADDR	R	000001	3	4721	
CCW0CNT	H	000006	2	4724	
CCW0CODE	X	000000	1	4720	
CCW0FLGS	X	000004	1	4722	
CCW0L	U	000008	1	4725	
CCW1	4	000000	8	4737	4742
CCW1ADDR	A	000004	4	4741	
CCW1CNT	H	000002	2	4740	
CCW1CODE	X	000000	1	4738	
CCW1FLGS	X	000001	1	4739	
CCW1L	U	000008	1	4742	
CCWCC	U	000040	1	4729	
CCWCD	U	000080	1	4728	
CCWIDA	U	000004	1	4733	
CCWPCI	U	000008	1	4732	
CCWSKIP	U	000010	1	4731	
CCWSLI	U	000020	1	4730	
CCWSUSP	U	000002	1	4734	
CHANID	F	0000A8	4	4645	
CHKZARCH	I	000228	4	3606	3598
CODE	2	000000	61476	3529	
CPUID	U	00031B	1	4717	
CSW	F	000040	8	4589	
CSWATTN	U	000080	1	4759	
CSWBUSY	U	000010	1	4762	
CSWCCTL	U	000004	1	4774	
CSWCCW	R	000001	3	4756	
CSWCDAT	U	000008	1	4773	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
CSWCE	U	000008	1	4763	3820
CSWCHNG	U	000001	1	4776	
CSWCNT	H	000006	2	4778	
CSWCS	X	000005	1	4768	
CSWCUE	U	000020	1	4761	
CSWDCC0	U	000000	1	4752	
CSWDCC1	U	000001	1	4753	
CSWDCC3	U	000003	1	4754	
CSWDCCM	U	000003	1	4751	
CSWDE	U	000004	1	4764	3820
CSWFLAG	X	000000	1	4746	
CSWFMT	4	000000	8	4745	4779
CSWFMTL	U	000008	1	4779	
CSWICTL	U	000002	1	4775	
CSWIL	U	000040	1	4770	
CSWKEYM	U	0000F0	1	4747	
CSWLOG	U	000004	1	4750	
CSWPCI	U	000080	1	4769	
CSWPRGM	U	000020	1	4771	
CSWPROT	U	000010	1	4772	
CSWSM	U	000040	1	4760	
CSWSUSP	U	000008	1	4749	
CSWUC	U	000002	1	4765	
CSWUS	X	000004	1	4758	
CSWUX	U	000001	1	4766	
DOSENSE	I	0003DE	4	3775	3675
DOTEST	I	00027C	4	3646	3635
DX	U	000063	1	3909	3971 4029
E7TEST	J	000000	61476	3529	3532 3539 3552 3555 3559 3563 4169 3581
ENADEV	I	00038A	4	3744	3725
ENAOKAY	I	0003DC	2	3769	3758
ERRTEST	I	0002B8	4	3673	3667
EXCP	I	0003E2	4	3776	3651
EXTCPUAD	H	000084	2	4610	
EXTICODE	H	000086	2	4611	
EXTIPARM	F	000080	4	4609	
EXTNPSW	F	000058	8	4599	
EXTOPSW	F	000018	8	4571	4577
FAIL	I	0002F8	6	3699	3689 3691 3693 3695 3697
FAILCPU0	I	0002D0	4	3688	3599 3600 3608 3616
FAILDEV	I	0002E0	4	3692	3749 3759 3764
FAILIO	I	0002E8	4	3694	3788 3811 3821
FAILPSW	D	000318	8	3707	3696
FAILSCH	I	0002D8	4	3690	3657
FAILTEST	I	0002F0	4	3696	3664 3670 3674
FIND0008	A	0003D4	4	3766	3744
FINL0008	H	000394	2	3747	3763
FINM0008	A	0003D8	4	3767	3762
FINN0008	H	0003C2	2	3760	3751 3753
GOODPSW	D	000308	8	3706	3640
IDA	U	000004	1	3900	3973 3983 3991 3992 4004 4014
IIRB0011	F	0005A4	4	3884	3882 3883
IMAGE	1	000000	61476	0	
INIT	I	000368	4	3722	3622
IOCB	4	000000	48	4337	4361 3583
IOCBCAW	A	000018	4	4357	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES				
IOCBCM	X	000009	1	4345					
IOCBCS	X	00000B	1	4348					
IOCBCT	X	00000D	1	4350					
IOCBDEV	H	000004	2	4342	3752				
IOCBDID	F	000000	4	4339	3653	3755	3784		
IOCBDV	H	000002	2	4341					
IOCBIRB	A	000020	8	4359	3789				
IOCBL	U	000030	1	4361					
IOCBORB	A	000018	8	4358	3723	3786			
IOCBRCNT	H	000016	2	4356	3818				
IOCBSC	X	00000E	1	4351	3782	3813	3815		
IOCBSCCW	A	000010	4	4353	3817				
IOCBSCNT	F	000014	4	4354					
IOCBSIB	A	000028	8	4360	3654	3745			
IOCBST	H	00000A	2	4346	3783	3814			
IOCBUM	X	000008	1	4344					
IOCBUS	X	00000A	1	4347	3820				
IOCBUT	X	00000C	1	4349					
IOCBWAIT	X	00000F	1	4352					
IOCBZERO	H	000006	2	4343	3783				
IOCB_A80	A	000574	4	3870	3722				
IOELADDR	F	0000AC	4	4646					
IOICODE	H	0000BA	2	4651					
IOIID	F	0000C0	4	4656					
IOINIT	I	00037C	4	3733	3724				
IOIPARM	F	0000BC	4	4655					
IOMK0007	F	000384	4	3735	3733	3734			
ION0010	3	000438	16	3799	3796				
IONPSW	F	000078	8	4603					
IOOPSW	F	000038	8	4575	4585				
IORB0011	X	000604	12	3886	3881				
IOS0010	X	000448	16	3800	3795	3803			
IOSSID	F	0000B8	4	4654	3806				
IOWT0009	H	000414	2	3793	3807	3810	3816		
IPLCCW1	F	000008	8	4563					
IPLCCW2	F	000010	8	4564					
IPLPSW	F	000000	8	4562					
IRB	4	000000	96	4416	4420	4422	3790		
IRBECW	X	000020	32	4419					
IRBEMW	X	000040	32	4421					
IRBESW	X	00000C	20	4418					
IRBL	U	000040	1	4420					
IRBSCSW	X	000000	12	4417	3813	3814	3817	3818	
IRBXL	U	000060	1	4422					
IRST0010	H	000458	2	3802	3799				
LCHANLOG	F	0000B0	4	4647					
LR	U	000047	1	3908	3972	3982	4003	4013	4030
MCKLOG	F	000100	4	4679					
MCKNPSW	F	000070	8	4602					
MCKOPSW	F	000030	8	4574	4583				
MEASUREB	X	0000B9	1	4650					
MKARCHMD	X	0000A3	1	4638					
MKARS	F	000120	4	4677					
MKCLKCMP	F	0000E0	8	4663					
MKCPUTIM	F	0000D8	8	4662					
MKCRS	F	0001C0	4	4682					

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES		
MKDMGCOD	F	0000F4	4	4666			
MKFAILA	F	0000F8	4	4668			
MKFPRS	D	000160	8	4680			
MKICODE	F	0000E8	4	4664			
MKLOGOUT	F	000100	4	4670			
MKMODEL	F	0000FC	4	4669			
MKXSAA	F	0000D4	4	4661			
MONCLS	H	000094	2	4626			
MONCODE	F	00009C	4	4633			
MONNUMBR	X	000095	1	4628			
MPGACCID	X	0000A2	1	4636			
MSG	I	0004A0	4	3831	3632		
MSGCMD	C	0004EA	9	3857	3844	3845	
MSGMSG	C	0004F3	128	3858	3838	3855	3836
MSGMVC	I	0004E4	6	3855	3842		
MSGOK	I	0004B6	2	3840	3837		
MSGRET	I	0004D0	4	3851	3848		
MSGSAVE	F	0004D8	4	3854	3834	3851	
NKGRS	F	000180	4	4681			
NUMTESTS	U	00000B	1	3944	3915		
ORB	4	000000	32	4369	4399	4407	3586
ORB1_0	X	000004	1	4372			
ORB1_8	X	000005	1	4379	3778		
ORBA	U	000010	1	4383			
ORBB	U	000004	1	4385			
ORBC	U	000004	1	4375			
ORBCCW	A	000008	4	4397	3776		
ORBCSS	X	00000C	1	4401			
ORBCU	X	00000E	1	4404			
ORBD	U	000040	1	4392			
ORBF	U	000080	1	4380	3778		
ORBH	U	000002	1	4386	3778		
ORBI	U	000020	1	4382			
ORBKEYM	U	0000F0	1	4373			
ORBL	U	000080	1	4390			
ORBLEN	U	00000C	1	4399			
ORBLPM	X	000006	1	4388			
ORBM	U	000002	1	4376			
ORBP	U	000040	1	4381			
ORBPARM	F	000000	4	4370			
ORBPGM	X	00000E	1	4403			
ORBRSV25	U	00007E	1	4394			
ORBRSV26	U	00003E	1	4393			
ORBRSV3	U	00007F	1	4391			
ORBRSV4	U	000080	1	4398			
ORBRSV5	X	00000D	1	4402			
ORBRSV6	X	00000F	1	4405			
ORBRSV7	X	000010	16	4406			
ORBS	U	000008	1	4374			
ORBT	U	000001	1	4387			
ORBU	U	000008	1	4384			
ORBX	U	000001	1	4395			
ORBXLEN	U	000020	1	4407			
ORBY	U	000001	1	4377			
ORRB1_24	X	000007	1	4389	3779		
PCFETO	A	0000C4	4	4657			

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
PERACCID	X	0000A1	1	4635	
PERADDR	F	000098	4	4632	
PERCODE	X	000096	1	4629	
PERCODMK	U	0000F0	1	4630	
PFX	U	0000E7	1	3913	3962 3970 3981 3991 4002 4012 4022 4048 4081
PGMACCID	X	0000A0	1	4634	
PGMDXC	F	000090	4	4624	
PGMICODE	H	00008E	2	4623	
PGMIID	F	00008C	4	4619	
PGMIILC	X	00008D	1	4621	
PGMIILCM	U	00000C	1	4622	
PGMNPSW	F	000068	8	4601	
PGMOPSW	F	000028	8	4573	4581
PGMTRX	F	000090	4	4625	
PMCW1_0	X	000004	1	4435	
PMCW1_8	X	000005	1	4438	3750 3756
PMCWB	U	000004	1	4470	
PMCWCHP0	X	000010	1	4459	
PMCWCHP1	X	000011	1	4460	
PMCWCHP2	X	000012	1	4461	
PMCWCHP3	X	000013	1	4462	
PMCWCHP4	X	000014	1	4463	
PMCWCHP5	X	000015	1	4464	
PMCWCHP6	X	000016	1	4465	
PMCWCHP7	X	000017	1	4466	
PMCWDNUM	H	000006	2	4450	3752
PMCWE	U	000080	1	4439	3756
PMCWEXC	X	00001B	1	4469	
PMCWIP	F	000000	4	4434	
PMCWISCM	U	000038	1	4436	
PMCWLM	U	000060	1	4440	
PMCWLMG	U	000020	1	4441	
PMCWLML	U	000040	1	4442	
PMCWLPM	X	000008	1	4452	
PMCWLPUM	X	00000A	1	4454	
PMCWM	U	000004	1	4446	
PMCWMBI	H	00000C	2	4456	
PMCWMM	U	000018	1	4443	
PMCWMMC	U	000008	1	4445	
PMCWMME	U	000010	1	4444	
PMCWPAM	X	00000F	1	4458	
PMCWPIM	X	00000B	1	4455	
PMCWPNOM	X	000009	1	4453	
PMCWPOM	X	00000E	1	4457	
PMCWRES1	X	000018	4	4467	
PMCWRES2	X	000018	3	4468	
PMCWS	U	000001	1	4472	
PMCWT	U	000002	1	4447	
PMCWV	U	000001	1	4448	3750
PMCWX	U	000002	1	4471	
R0	U	000000	1	4788	3581 3582 3588 3596 3607 3614 3631 3634 3648 3649 3775 3776 3777 3824 3831 3834 3836 3838 3840 3851
R1	U	000001	1	4789	3590 3595 3631 3649 3653 3845 3855
R10	U	00000A	1	4798	3624 3628 3631 3634 3636
R11	U	00000B	1	4799	3624 3638
R12	U	00000C	1	4800	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
R13	U	00000D	1	4801	
R14	U	00000E	1	4802	3622 3632 3635 3646 3677 3678 3726 3832 3852
R15	U	00000F	1	4803	3651 3675 3724 3725 3737 3769 3825
R2	U	000002	1	4790	3591 3634 3666 3834 3840 3841 3842 3844 3851
R3	U	000003	1	4791	3583 3592 3594 3596 3613 3614 3722
R4	U	000004	1	4792	3584 3606 3607 3610 3611 3654 3656 3777 3824
R5	U	000005	1	4793	3585 3661
R6	U	000006	1	4794	
R7	U	000007	1	4795	
R8	U	000008	1	4796	3586 3723
R9	U	000009	1	4797	3688 3690 3692 3694 3696 3699 3700
RCMT	U	000092	1	3912	4049 4051 4053 4055 4057 4059 4061 4063 4065 4067 4069 4071 4073 4089 4091 4093 4095 4097 4099 4101 4103 4105 4107 4109 4111 4113
RD	U	000006	1	3904	3973 3983 4004 4041
RDMT	U	000086	1	3911	4014 4050 4052 4054 4056 4058 4060 4062 4064 4066 4068 4070 4072 4090 4092 4094 4096 4098 4100 4102 4104 4106 4108 4110 4112
RSD	U	00003E	1	3907	3963 3992
RSTNPSW	F	000000	8	4567	
RSTOPSW	F	000008	8	4568	
SCANOUT	X	000080	1	4605	4606
SCANOUTL	U	000000	1	4606	
SCHIB	4	000000	52	4431	4478 3584 3746
SCHIBL	U	000034	1	4478	
SCHMBA	A	000028	8	4476	
SCHMDA1	X	000030	4	4477	
SCHMDA3	X	000028	12	4475	
SCHPMCW	X	000000	28	4433	
SCHSCSW	X	00001C	12	4474	3661
SCSW	4	000000	12	4487	4549 3585
SCSW0CC	U	000004	1	4503	
SCSW1	X	000002	1	4507	
SCSW2	X	000003	1	4516	3813
SCSWACP	U	000001	1	4515	
SCSWADA	U	000040	1	4518	
SCSWAHP	U	000002	1	4514	
SCSWALKC	U	000010	1	4501	
SCSWARP	U	000008	1	4512	
SCSWASA	U	000080	1	4517	
SCSWASP	U	000004	1	4513	
SCSWASUS	U	000020	1	4519	
SCSWATTN	U	000080	1	4529	
SCSWBUSY	U	000010	1	4532	
SCSWCCTL	U	000004	1	4544	
SCSWCCW	A	000004	4	4526	3817
SCSWCCWF	U	000080	1	4498	
SCSWCCWP	U	000040	1	4499	
SCSWCDAT	U	000008	1	4543	
SCSWCE	U	000008	1	4533	3669 3673
SCSWCHNG	U	000001	1	4546	
SCSWCNT	H	00000A	2	4548	3818
SCSWCS	X	000009	1	4538	3663
SCSWCTLS	X	000001	1	4497	
SCSWCUE	U	000020	1	4531	
SCSWDCC0	U	000000	1	4493	
SCSWDCC1	U	000001	1	4494	
SCSWDCC3	U	000003	1	4495	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SCSWDCCM	U	000003	1	4492	
SCSWDE	U	000004	1	4534	3669 3673
SCSWECWC	U	000002	1	4504	
SCSWESWF	U	000004	1	4491	
SCSWFC	U	000010	1	4511	
SCSWFH	U	000020	1	4510	
SCSWFLAG	X	000000	1	4488	
SCSWFM	U	000070	1	4508	
SCSWFS	U	000040	1	4509	
SCSWICTL	U	000002	1	4545	
SCSWIL	U	000040	1	4540	
SCSWISIC	U	000020	1	4500	
SCSWKEYM	U	0000F0	1	4489	
SCSWL	U	00000C	1	4549	
SCSWPCI	U	000080	1	4539	
SCSWPNOP	U	000001	1	4505	
SCSWPRGM	U	000020	1	4541	
SCSWPROT	U	000010	1	4542	
SCSWSAS	U	000010	1	4520	
SCSWSINT	U	000008	1	4521	
SCSWSM	U	000040	1	4530	
SCSWSPEN	U	000001	1	4524	
SCSWSPRI	U	000004	1	4522	3815
SCSWSSEC	U	000002	1	4523	
SCSWSSIC	U	000008	1	4502	
SCSWSUSC	U	000008	1	4490	
SCSWUC	U	000002	1	4535	
SCSWUS	X	000008	1	4528	3669 3673 3814
SCSWUX	U	000001	1	4536	
SEEK	U	000007	1	3905	4038
SENSEPGM	R	0006F8	1	3955	3775
SIDEQ	U	000031	1	3910	4039
SLI	U	000020	1	3899	3955 3962 3963 3970 3971 3972 3973 3981 3982 3983 3991 3992 4002 4003 4004 4012 4013 4014 4022 4041
SNS	U	000004	1	3902	3955
SNSBYTES	X	000CB8	32	4120	3955
SSARCHMD	X	0000A3	1	4637	
SSARS	F	000120	4	4693	
SSCLKCMP	F	0000E0	8	4687	
SSCPUTIM	F	0000D8	8	4686	
SSCRS	F	0001C0	4	4696	
SSFPRS	D	000160	8	4694	
SSGRS	F	000180	4	4695	
SSMODEL	F	00010C	4	4691	
SSPREFIX	F	000108	4	4690	
SSPSW	F	000100	8	4689	
SSXSAA	A	0000D4	4	4685	
STFLDATA	F	0000C8	4	4658	
SVCICODE	H	00008A	2	4617	
SVCIID	F	000088	4	4613	
SVCIILC	X	000089	1	4615	
SVCIILCM	U	00000C	1	4616	
SVCNPSW	F	000060	8	4600	
SVCOPSW	F	000020	8	4572	4579
T10_CHPGM	R	000AE0	1	4048	3939
T10_COUNT	X	0011A0	8	4283	4049 4051 4053 4055 4057 4059 4061 4063 4065 4067 4069 4071 4073 4089

```
     SYMBOL         TYPE  VALUE   LENGTH  DEFN  REFERENCES

                                          4091  4093  4095  4097  4099  4101  4103  4105  4107  4109  4111  4113
T10_CYL              U    000003       1  4243  4261  4262  4271
T10_DATA             X    0011A8    4096  4284  4050  4052  4054  4056  4058  4060  4062  4064  4066  4068  4070  4072  4090  4092
                                          4094  4096  4098  4100  4102  4104  4106  4108  4110  4112
T10_DESC             C    000AA8      50  4045  4046  3939
T10_E7DAT            X    00115F      65  4241  4048
T10_HEAD             U    000000       1  4244  4261  4271
T10_MSGLN            U    000032       1  4046  3939
T11_CHPGM            R    000BE8       1  4081  3940
T11_CYL              U    000003       1  4291  4309  4310  4319
T11_DESC             C    000BB0      51  4077  4078  3940
T11_E7DAT            X    0021A8      65  4289  4081
T11_HEAD             U    000001       1  4292  4309  4319
T11_MSGLN            U    000033       1  4078  3940
T1_3EBUF             X    000D24     256  4131  3963
T1_CHPGM             R    000740       1  3962  3928
T1_DESC              C    000700      62  3959  3960  3928
T1_E7DAT             X    000CD8      12  4124  4130  3962
T1_E7LEN             U    00004C       1  4130  3962
T1_MSGLN             U    00003E       1  3960  3928
T2_06BUF             X    000E84      10  4138  3973  3974
T2_06IDA             A    0007C8       8  3974  3973
T2_47DAT             X    000E74      16  4137  3972
T2_63DAT             X    000E64      16  4136  3971
T2_CHPGM             R    0007A8       1  3970  3931
T2_DESC              C    000750      85  3967  3968  3931
T2_E7DAT             X    000E24      64  4135  3970
T2_MSGLN             U    000055       1  3968  3931
T3_06BUF             X    000EDE      10  4148  3983  3984
T3_06IDA             A    000840       8  3984  3983
T3_47DAT             X    000ECE      16  4147  3982
T3_CHPGM             R    000828       1  3981  3932
T3_DESC              C    0007D0      87  3978  3979  3932
T3_E7DAT             X    000E8E      64  4142  3981
T3_MSGLN             U    000057       1  3979  3932
T4_3EBUF             X    000EE8     256  4152  3992  3995
T4_3EIDA             A    0008C0       8  3995  3992
T4_CHPGM             R    0008A0       1  3991  3933
T4_DESC              C    000848      86  3988  3989  3933
T4_E7DAT             X    00EFD8      76  4170  3991
T4_E7DAT_PART1       X    00EFD8      40  4172  3993
T4_E7DAT_PART1_LEN
                     U    000028       1  4166  4167  4169  4172
T4_E7DAT_PART2       X    00F000      36  4177  3994
T4_E7DAT_PART2_LEN
                     U    000024       1  4167  4177
T4_E7DAT_PART2_ORG
                     U    00F000       1  4163  4169
T4_E7DAT_TOTAL_LEN
                     U    00004C       1  4165  4167  4170
T4_E7IDA             A    0008B0       8  3993  3991
T4_MSGLN             U    000056       1  3989  3933
T5_06BUF             X    001038      10  4194  4004  4005
T5_06IDA             A    000950       8  4005  4004
T5_47DAT             X    001028      16  4193  4003
T5_CHPGM             R    000938       1  4002  3934
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES		
T5_DESC	C	0008C8	111	3999	4000	3934	
T5_E7DAT	X	000FE8	64	4188	4002		
T5_MSGLN	U	00006F	1	4000	3934		
T6_47DAT	X	001082	16	4203	4013		
T6_86BUF	X	001092	10	4204	4014	4015	
T6_86IDA	A	0009C8	8	4015	4014		
T6_CHPGM	R	0009B0	1	4012	3935		
T6_DESC	C	000958	81	4009	4010	3935	
T6_E7DAT	X	001042	64	4198	4012		
T6_MSGLN	U	000051	1	4010	3935		
T7_CHPGM	R	000A00	1	4022	3936		
T7_DESC	C	0009D0	47	4019	4020	3936	
T7_E7DAT	X	00109C	12	4208	4213	4022	
T7_E7LEN	U	000040	1	4213	4022		
T7_MSGLN	U	00002F	1	4020	3936		
T8_CHPGM	R	000A38	1	4029	3937		
T8_DESC	C	000A08	44	4026	4027	3937	
T8_DXDAT	X	0010DC	16	4218	4219	4029	
T8_DXLEN	U	000010	1	4219	4029		
T8_LRDAT	X	0010EC	16	4221	4222	4030	
T8_LRLEN	U	000010	1	4222	4030		
T8_MSGLN	U	00002C	1	4027	3937		
T8_WDDAT	X	0010FC	8	4224	4225	4031	
T8_WDLEN	U	000008	1	4225	4031		
T9_CHPGM	R	000A88	1	4038	3938		
T9_DESC	C	000A50	51	4035	4036	3938	
T9_MSGLN	U	000033	1	4036	3938		
T9_RDDAT	C	00110F	80	4235	4236	4041	
T9_RDLEN	U	000050	1	4236	4041		
T9_SICCW	R	000A90	1	4039	4040		
T9_SIDAT	X	00110A	5	4232	4233	4039	
T9_SILEN	U	000005	1	4233	4039		
T9_SKDAT	X	001104	6	4229	4230	4038	
T9_SKLEN	U	000006	1	4230	4038		
TESTLEN	U	000014	1	3929	3944	3631	3636
TESTLOOP	I	00024E	4	3626	3638		
TESTNEXT	I	000270	4	3636	3629		
TESTNUM	U	000200	1	3917	3589	3648	3699
TESTOK	I	0002C4	4	3677	3671		
TESTONLY	R	000100	1	3553	3626	3628	
TESTR14	A	0002CC	4	3680	3646	3677	
TESTTAB	A	000618	4	3926	3929	3944	3915
TESTTHIS	I	000260	4	3631	3627		
TIC	U	000008	1	3906	4040		
TIMER	F	000050	4	4596			
TTDES	F	000054	4	4597			
UA0	F	000010	8	4569			
UA1	F	00004C	4	4594			
UA2	F	0000A4	4	4639			
UA3	F	0000B4	4	4648			
UA4	X	0000B8	1	4649			
UA5	X	0000CC	8	4659			
UA6	X	0000EC	8	4665			
UA7	F	000118	8	4676			
UA8	X	000180	32	4705			
WD	U	000005	1	3903	4031		

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
WPSW0010	3	000428	16	3798	3797
ZARCHOK	I	000232	4	3610	3597
ZBRKADDR	A	000110	8	4675	
ZEMONCNT	F	00010C	4	4674	
ZEMONCTR	A	000100	8	4672	
ZEMONSIZ	F	000108	4	4673	
ZEXTNPSW	X	0001B0	16	4708	
ZEXTOPSW	X	000130	16	4700	
ZIONPSW	X	0001F0	16	4712	
ZIOOPSW	X	000170	16	4704	
ZMCKNPSW	X	0001E0	16	4711	
ZMCKOPSW	X	000160	16	4703	
ZMKFAILA	F	0000F8	8	4667	
ZMONCODE	F	0000B0	8	4642	
ZPGMNPSW	X	0001D0	16	4710	
ZPGMOPSW	X	000150	16	4702	
ZPGMTRX	F	0000A8	8	4641	
ZRSTNPSW	X	0001A0	16	4707	
ZRSTOPSW	X	000120	16	4699	
ZSASDISP	U	0011C0	1	4713	
ZSVCNPSW	X	0001C0	16	4709	
ZSVCOPSW	X	000140	16	4701	
=AL2(L'MSGMSG)	R	0006F6	2	3948	3836
=H'0'	H	0006F4	2	3947	3831

```
 MACRO    DEFN  REFERENCES

ANTR      124
APROB     256
ARCHIND   416   3446
ARCHLVL   557   3445
ASAIPL    683
ASALOAD   763   3528
ASAREA    818   4559
ASAZAREA 1003
CPUWAIT  1086   3794
DSECTS   1412   4335   4367   4414   4429   4485   4556
DWAIT    1615
DWAITEND 1672
ENADEV   1680   3743
ESA390   1780
IOCB     1791   3869
IOCBDS   1967   4336
IOFMT    2001   4368   4415   4430   4486   4718   4736   4744
IOINIT   2339   3732
IOTRFR   2380
ORB      2428   3885
POINTER  2617
PSWFMT   2645
RAWAIT   2779
RAWIO    2875   3781
SIGCPU   3033
SMMGR    3091
SMMGRB   3191
TRAP128  3240   3540
TRAP64   3217   3530   3533
TRAPS    3253
ZARCH    3327
ZEROH    3339
ZEROL    3367
ZEROLH   3395
ZEROLL   3418
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```
   DESC    SYMBOL   SIZE     POS        ADDR

Entry: 0

Image      IMAGE   61476  0000-F023  0000-F023
  Region   CODE    61476  0000-F023  0000-F023
    CSECT  E7TEST  61476  0000-F023  0000-F023
```

```
   STMT                                          FILE NAME

1     C:\Users\Fish\Documents\Visual Studio 2008\Projects\MyProjects\ASMA-0\E7Prefix\E7Prefix.asm
2     C:\Users\Fish\Documents\Visual Studio 2008\Projects\Hercules\_Git\_Harold\SATK-0\srcasm\satk.mac


** NO ERRORS FOUND **
```