```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                        2 ************************************************************************
                                                        3 *
                                                        4 *                  Simple 3211 Printer Tests
                                                        5 *
                                                        6 ************************************************************************
                                                        7 *
                                                        8 *   This program verifies proper Hercules 3211 printer device handler
                                                        9 *   functionality.  It performs a series of I/O operations to a 3211
                                                       10 *   printer device and verifies the outcome (results) is as expected.
                                                       11 *   It is designed to run as a standalone test started via a restart
                                                       12 *   interrupt PSW at absolute address 0.
                                                       13 *
                                                       14 *        ------------------------------------------------
                                                       15 *          ALL TESTS SHOULD BE INDEPENDENT OF ONE ANOTHER!
                                                       16 *          NO TEST SHOULD DEPEND ON THE RESULT OF ANOTHER!
                                                       17 *        ------------------------------------------------
                                                       18 *
                                                       19 *   Each test is basically designed to test one thing, although most
                                                       20 *   tests perform several different variations of a given thing.
                                                       21 *
                                                       22 *   All tests are executed by default, but you can choose at runtime
                                                       23 *   which tests should be run and which should be skipped by setting
                                                       24 *   the corresponding "DOFLAGS" to either zero or non-zero. Setting
                                                       25 *   the DOFLAG to binary zero skips that test. A non-zero value will
                                                       26 *   cause the test to be executed. The "DOFLAGS" field should always
                                                       27 *   be at absolute address X'FF0' (16 bytes before the 2nd 4K page).
                                                       28 *
                                                       29 *        ------------------------------------------------
                                                       30 *          ALL TESTS SHOULD BE INDEPENDENT OF ONE ANOTHER!
                                                       31 *          NO TEST SHOULD DEPEND ON THE RESULT OF ANOTHER!
                                                       32 *        ------------------------------------------------
                                                       33 *
                                                       34 *   Once all tests are finished the resulting "RCFLAGS" are examined.
                                                       35 *   If they are all zero then a normal completion all zeros disabled
                                                       36 *   wait PSW is loaded. If all "RCFLAGS" are not zero then a failure
                                                       37 *   disabled wait PSW (whose instruction address is "BAD") is loaded
                                                       38 *   instead. The "RCFLAGS" field should always be at absolute address
                                                       39 *   X'1000' (i.e. the first 16 bytes of the 2nd 4K page).
                                                       40 *
                                                       41 ************************************************************************
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                       43 ********************************************************************************
                                                       44 *
                                                       45 *   Example Hercules Testcase:
                                                       46 *
                                                       47 *
                                                       48 *         *Testcase 3211 printer
                                                       49 *         mainsize  1
                                                       50 *         numcpu    1
                                                       51 *         sysclear
                                                       52 *         archlvl   390
                                                       53 *         loadcore  "$(testpath)/3211.core"
                                                       54 *         #
                                                       55 *         # NOTE: In addition to the above 3211.core file this test
                                                       56 *         #       also uses an associated "3211.rexx" script too.
                                                       57 *         #
                                                       58 *         detach    00f
                                                       59 *         attach    00f 3211 "3211.txt"
                                                       60 *         diag8cmd  enable noecho   # need diag8 to exec rexx script
                                                       61 *         shcmdopt  enable diag8    # rexx script needs shell access
                                                       62 *         runtest   0.1             # (plenty of time)
                                                       63 *         detach    000f            # (no longer needed)
                                                       64 *         diag8cmd  disable noecho  # (no longer needed)
                                                       65 *         shcmdopt  disable nodiag8 # (no longer needed)
                                                       66 *         *Compare
                                                       67 *         r 1000.10
                                                       68 *         *Want "Return Code flags" 00000000 00000000 00000000 00000000
                                                       69 *          *Done
                                                       70 *
                                                       71 *
                                                       72 *   Refer to comments at label "BEGIN" for register usage.
                                                       73 *
                                                       74 ********************************************************************************
```

```
                                                       76          PRINT OFF
                                                     3638          PRINT ON

                                                     3640 ********************************************************************************
                                                     3641 *         SATK prolog stuff...
                                                     3642 ********************************************************************************

                                                     3644          ARCHLVL  ZARCH=NO,MNOTE=NO
                                                     3646+$AL      OPSYN AL
                                                     3647+$ALR     OPSYN ALR
                                                     3648+$B       OPSYN B
```

```
 LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                   3649+$BAS     OPSYN BAS
                                                   3650+$BASR    OPSYN BASR
                                                   3651+$BC      OPSYN BC
                                                   3652+$BCTR    OPSYN BCTR
                                                   3653+$BE      OPSYN BE
                                                   3654+$BH      OPSYN BH
                                                   3655+$BL      OPSYN BL
                                                   3656+$BM      OPSYN BM
                                                   3657+$BNE     OPSYN BNE
                                                   3658+$BNH     OPSYN BNH
                                                   3659+$BNL     OPSYN BNL
                                                   3660+$BNM     OPSYN BNM
                                                   3661+$BNO     OPSYN BNO
                                                   3662+$BNP     OPSYN BNP
                                                   3663+$BNZ     OPSYN BNZ
                                                   3664+$BO      OPSYN BO
                                                   3665+$BP      OPSYN BP
                                                   3666+$BXLE    OPSYN BXLE
                                                   3667+$BZ      OPSYN BZ
                                                   3668+$CH      OPSYN CH
                                                   3669+$L       OPSYN L
                                                   3670+$LH      OPSYN LH
                                                   3671+$LM      OPSYN LM
                                                   3672+$LPSW    OPSYN LPSW
                                                   3673+$LR      OPSYN LR
                                                   3674+$LTR     OPSYN LTR
                                                   3675+$NR      OPSYN NR
                                                   3676+$SL      OPSYN SL
                                                   3677+$SLR     OPSYN SLR
                                                   3678+$SR      OPSYN SR
                                                   3679+$ST      OPSYN ST
                                                   3680+$STM     OPSYN STM
                                                   3681+$X       OPSYN X
                                                   3682+$AHI     OPSYN AHI
                                                   3683+$B       OPSYN J
                                                   3684+$BC      OPSYN BRC
                                                   3685+$BE      OPSYN JE
                                                   3686+$BH      OPSYN JH
                                                   3687+$BL      OPSYN JL
                                                   3688+$BM      OPSYN JM
                                                   3689+$BNE     OPSYN JNE
                                                   3690+$BNH     OPSYN JNH
                                                   3691+$BNL     OPSYN JNL
                                                   3692+$BNM     OPSYN JNM
                                                   3693+$BNO     OPSYN JNO
                                                   3694+$BNP     OPSYN JNP
                                                   3695+$BNZ     OPSYN JNZ
                                                   3696+$BO      OPSYN JO
                                                   3697+$BP      OPSYN JP
                                                   3698+$BXLE    OPSYN JXLE
                                                   3699+$BZ      OPSYN JZ
                                                   3700+$CHI     OPSYN CHI
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                    3702 ********************************************************************************
                                                    3703 *        Initiate the TEST3211 CSECT in the CODE region
                                                    3704 *        with the location counter at 0
                                                    3705 ********************************************************************************

                                                    3707 TEST3211 ASALOAD  REGION=CODE
                              00000000  0000100F    3708+TEST3211 START 0,CODE
00000000  000A0000 00000008                         3710+         PSW   0,0,2,0,X'008'      64-bit Restart ISR Trap New PSW
00000008                      00000008  00000058    3711+         ORG   TEST3211+X'058'
00000058  000A0000 00000018                         3713+         PSW   0,0,2,0,X'018'      64-bit External ISR Trap New PSW
00000060  000A0000 00000020                         3714+         PSW   0,0,2,0,X'020'      64-bit Supervisor Call ISR Trap New PSW
00000068  000A0000 00000028                         3715+         PSW   0,0,2,0,X'028'      64-bit Program ISR Trap New PSW
00000070  000A0000 00000030                         3716+         PSW   0,0,2,0,X'030'      64-bit Machine Check Trap New PSW
00000078  000A0000 00000038                         3717+         PSW   0,0,2,0,X'038'      64-bit Input/Output Trap New PSW
00000080                      00000080  00000200    3718+         ORG   TEST3211+512



                                                    3720 ********************************************************************************
                                                    3721 *        Create IPL (restart) PSW
                                                    3722 ********************************************************************************

                                                    3724          ASAIPL  IA=BEGIN
                              00000000  0000100F    3725+TEST3211 CSECT
00000200                      00000200  00000000    3726+         ORG   TEST3211
00000000  00080000 00000200                         3727+         PSW   0,0,0,0,BEGIN,24
00000008                      00000008  00000200    3728+         ORG   TEST3211+512      Reset CSECT to end of assigned storage area
                              00000000  0000100F    3729+TEST3211 CSECT
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    3731 ************************************************************************
                                                    3732 *               The actual TEST3211 program itself...
                                                    3733 ************************************************************************
                                                    3734 *
                                                    3735 *  Architecture Mode: ESA/390
                                                    3736 *  Addressing Mode:   24-bit
                                                    3737 *  Register Usage:
                                                    3738 *
                                                    3739 *   R0       (work)
                                                    3740 *   R1       I/O device used by ENADEV and RAWIO macros
                                                    3741 *   R2       Program base register
                                                    3742 *   R3       IOCB pointer for ENADEV and RAWIO macros
                                                    3743 *   R4       IO work register used by ENADEV and RAWIO
                                                    3744 *   R5       Used for CPU register when signaling architecture change
                                                    3745 *   R6,R7    Signaling registers when changing architecture
                                                    3746 *   R8       ORB pointer
                                                    3747 *   R9       SCSW pointer
                                                    3748 *   R10-R15  (work)
                                                    3749 *
                                                    3750 ************************************************************************

00000200                        00000000            3752          USING  ASA,R0          Low core addressability
00000200                        00000200            3753          USING  BEGIN,R2        Program Addressability
00000200                        00000000            3754          USING  IOCB,R3         SATK Device I/O Control Block
00000200                        00000000            3755          USING  ORB,R8          ESA/390 Operation Request Block
00000200                        00000000            3756          USING  SCSW,R9         ESA/390 Subchannel Status Word

00000200  0520                                      3758 BEGIN    BALR   R2,0            Initalize Base Register
00000202  0620                                      3759          BCTR   R2,0            Initalize Base Register
00000204  0620                                      3760          BCTR   R2,0            Initalize Base Register

00000206  45E0 203C                      0000023C   3762          BAL    R14,INIT        Initalize Program

0000020A  45E0 20E6                      000002E6   3764          BAL    R14,TEST01      z/VM 6.3 printer 3211 initial sequence
0000020E  45E0 211E                      0000031E   3765          BAL    R14,TEST02      Skip to nonexistent FCB channel
00000212  45E0 2160                      00000360   3766          BAL    R14,TEST03      Skip to chan we're at = No Skip
00000216  45E0 21A4                      000003A4   3767          BAL    R14,TEST04      Skip to chan we're at = Should Skip
0000021A  45E0 21E8                      000003E8   3768          BAL    R14,TEST05      Channel  9 crossed
0000021E  45E0 2234                      00000434   3769          BAL    R14,TEST06      Channel 12 crossed
00000222  45E0 226C                      0000046C   3770          BAL    R14,TEST07      FCB/UCS Load Check
00000226  45E0 2328                      00000528   3771          BAL    R14,TEST08      Diagnostic Read FCB
0000022A  45E0 237C                      0000057C   3772          BAL    R14,TEST09      Diagnostic Write/Read PLB

0000022E  D60F 2E00 2E00      00001000   00001000   3774          OC     RCFLAGS,RCFLAGS Did all tests succeed? (all zeros?)
00000234  4770 205C                      0000025C   3775          BNZ    FAIL            No, Abnormal termination
00000238  47F0 2078                      00000278   3776          B      EOJ             Yes, Normal completion
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    3778 ***********************************************************************
                                                    3779 *        Program Initialization
                                                    3780 ***********************************************************************

0000023C                                            3782 INIT     DS     0H              Program Initialization

                                                    3784          SETARCH  2             Cleanly enter 64-bit mode if sensible

0000023C  4130 24B4                   000006B4      3786          LA     R3,IOCB_00F     Point to IOCB
00000240  5880 3018                   00000018      3787          L      R8,IOCBORB      Point to ORB
00000244  58F0 3020                   00000020      3788          L      R15,IOCBIRB     Point to IRB
00000248                    00000000                3789          USING  IRB,R15         Temporary addressability
00000248  4190 F000                   00000000      3790          LA     R9,IRBSCSW      Point to SCSW
0000024C                                            3791          DROP   R15             Done with IRB

0000024C  45F0 2088                   00000288      3793          BAL    R15,IOINIT      Initialize the CPU for I/O operations
00000250  45F0 2096                   00000296      3794          BAL    R15,ENADEV      Enable our device making ready for use

00000254  D20F 2E00 2DF0      00001000  00000FF0    3796          MVC    RCFLAGS,DOFLAGS Initialize test return code flags
0000025A  07FE                                      3797          BR     R14             Return to caller




                                                    3799 ***********************************************************************
                                                    3800 *        Normal completion or Abnormal termination PSWs
                                                    3801 ***********************************************************************

                                                    3803 FAIL     DWAIT LOAD=YES,CODE=BAD    Abnormal termination
0000025C                                            3804+FAIL     DS    0H
0000025C  8200 2060                   00000260      3805+         LPSW  DWAT0008
00000260  000A0000 00010BAD                         3806+DWAT0008 PSW   0,0,2,0,X'010BAD'


                                                    3808 FAILD8   DWAIT LOAD=YES,CODE=D8     Diagnose X'008' failed
00000268                                            3809+FAILD8   DS    0H
00000268  8200 2070                   00000270      3810+         LPSW  DWAT0009
00000270  000A0000 000100D8                         3811+DWAT0009 PSW   0,0,2,0,X'0100D8'


                                                    3813 EOJ      DWAITEND LOAD=YES          Normal completion
00000278                                            3815+EOJ      DS    0H
00000278  8200 2080                   00000280      3816+         LPSW  DWAT0011
00000280  000A0000 00000000                         3817+DWAT0011 PSW   0,0,2,0,X'000000'
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                   3819 ************************************************************************
                                                   3820 *        Initialize the CPU for I/O operations
                                                   3821 ************************************************************************

                                                   3823 IOINIT   IOINIT ,
00000288  B766 2090                      00000290  3824+IOINIT   LCTL  6,6,IOMK0012       Enable subchannel subclasses for interruptions
0000028C  47F0 2094                      00000294  3825+         B     IOMK0012+4
00000290                                           3826+IOMK0012 DS    0F
00000290  FF000000                                 3827+         DC    XL4'FF000000'         All subchannel subclasses enabled
00000294  07FF                                     3828          BR    R15              Return to caller


                                                   3830 ************************************************************************
                                                   3831 *        Enable the device, making it ready for use
                                                   3832 ************************************************************************

                                                   3834 ENADEV   ENADEV  ENAOKAY,FAIL,REG=4
00000296  5810 20DC                      000002DC  3835+ENADEV   L     1,FIND0013
0000029A  5840 3028                      00000028  3836+         $L    4,IOCBSIB          Locate where the SCHIB is to be stored
0000029E                    00000000              3837+         USING SCHIB,4
0000029E                                           3838+FINL0013 DS    0H   Retrieve Subchannel Information Block for desired device number
0000029E  B234 4000                      00000000  3839+         STSCH 0(4)               Store the SCHIB for first subchannel
000002A2  A774 FFDD                      0000025C  3840+         $BC   B'0111',FAIL       Subchannel does not exist and device number not found
000002A6  9101 4005                      00000005  3841+         TM    PMCW1_8,PMCWV      Is the subchannel device number valid?
000002AA  A784 0011                      000002CC  3842+         $BZ   FINN0013           ..No, check the next subchannel
000002AE  D501 4006 3004      00000006   00000004  3843+         CLC   PMCWDNUM,IOCBDEV   Is this the device number being sought?
000002B4  A774 000C                      000002CC  3844+         $BNE  FINN0013           ..No, check the next subchannel
                                                   3845+* Subchannel found!
000002B8  5010 3000                      00000000  3846+         ST    1,IOCBDID          Remember the subchannel so I/O can be done to it.
000002BC  9680 4005                      00000005  3847+         OI    PMCW1_8,PMCWE      Make sure it is enabled so I/O requests accepted
000002C0  B232 4000                      00000000  3848+         MSCH  0(4)               Enable the subchannel to the channel sub-system
000002C4  A784 0010                      000002E4  3849+         $BC   B'1000',ENAOKAY    CC0 (SCHIB updated), device is ready.
000002C8  A7F4 FFCA                      0000025C  3850+         $B    FAIL               CC1,CC2,CC3 (SCHIB update failed), quit
000002CC                                           3851+FINN0013 DS    0H  Advance to next subchannel
000002CC  4110 1001                      00000001  3852+         LA    1,1(0,1)           Advance to next subchannel
000002D0  5510 20E0                      000002E0  3853+         CL    1,FINM0013         Beyond maximum subchannel
000002D4  A7D4 FFE5                      0000029E  3854+         $BNH  FINL0013           ..No, examine the next subchannel
000002D8  A724 FFC2                      0000025C  3855+         $BH   FAIL               ..Yes, failed to enable the device
000002DC                                           3856+         DROP  4                  Forget SCHIB addressing
000002DC  00010000                                 3857+FIND0013 DC    A(X'00010000')     First subchannel subsystem ID
000002E0  0001FFFF                                 3858+FINM0013 DC    A(X'0001FFFF')     Last subchannel subsystem ID
                                                   3859 *
000002E4  07FF                                     3860 ENAOKAY  BR    R15           Return to caller if device enabled OK
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                                  3862 ************************************************************************
                                                  3863 *        TEST01:  z/VM 6.3 printer 3211 initial sequence
                                                  3864 ************************************************************************
                                                  3865 *
                                                  3866 *   A    z/VM 6.3 sequence: 07, 06, 04.
                                                  3867 *        06 == encoded current line number.
                                                  3868 *
                                                  3869 *   B    z/VM 6.3 sequence: 0B, 07, 06, 04.
                                                  3870 *        06 == encoded current line number.
                                                  3871 *
                                                  3872 ************************************************************************

000002E6  9500 2E01                  00001001   3874 TEST01   CLI   FLAG01,0         Should we do this test?
000002EA  078E                                  3875           BER   R14              No, skip this test

000002EC  4100 2830                  00000A30   3877           LA    R0,CHPGM01A      Diagnostic Gate, Check Read
000002F0  45F0 2420                  00000620   3878           BAL   R15,EXCP         Do the I/O
000002F4  9102 9008                  00000008   3879           TM    SCSWUS,SCSWUC    Unit Check?
000002F8  4710 23D8                  000005D8   3880           BO    UCFAIL           Yes, FAIL

000002FC  9540 256B                  0000076B   3882           CLI   CKRD01A,X'40'    Expected value? (line #1)
00000300  077E                                  3883           BNER  R14              No, FAIL

00000302  4100 2848                  00000A48   3885           LA    R0,CHPGM01B      Space 1, Diagnostic Gate, Check Read
00000306  45F0 2420                  00000620   3886           BAL   R15,EXCP         Do the I/O
0000030A  9102 9008                  00000008   3887           TM    SCSWUS,SCSWUC    Unit Check?
0000030E  4710 23D8                  000005D8   3888           BO    UCFAIL           Yes, FAIL

00000312  95C0 256C                  0000076C   3890           CLI   CKRD01B,X'C0'    Expected value? (line #2)
00000316  077E                                  3891           BNER  R14              No, FAIL

00000318  9200 2E01                  00001001   3893           MVI   FLAG01,0         Test successful
0000031C  07FE                                  3894           BR    R14              Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                  3896 ************************************************************************
                                                  3897 *        TEST02:  Skip to nonexistent FCB channel
                                                  3898 ************************************************************************
                                                  3899 *
                                                  3900 *   A    Load FCB without channel 2.
                                                  3901 *
                                                  3902 *   B    Skip to channel 2.
                                                  3903 *        Should be error.
                                                  3904 *
                                                  3905 ************************************************************************
0000031E  9500 2E02                 00001002     3907 TEST02   CLI   FLAG02,0         Should we do this test?
00000322  078E                                   3908          BER   R14              No, skip this test

00000324  4100 2868                 00000A68     3910          LA    R0,CHPGM02A      Load the test FCB
00000328  45F0 2420                 00000620     3911          BAL   R15,EXCP         Do the I/O
0000032C  9102 9008                 00000008     3912          TM    SCSWUS,SCSWUC    Unit Check?
00000330  4710 23D8                 000005D8     3913          BO    UCFAIL           Yes, FAIL

00000334  4100 2870                 00000A70     3915          LA    R0,CHPGM02B      Skip to non-existent channel
00000338  45F0 2420                 00000620     3916          BAL   R15,EXCP         Do the I/O
0000033C  9102 9008                 00000008     3917          TM    SCSWUS,SCSWUC    Unit Check?
00000340  07EE                                   3918          BNOR  R14              No, FAIL

00000342  45F0 241C                 0000061C     3920          BAL   R15,EXCPSENS     Get the sense information
00000346  9102 9008                 00000008     3921          TM    SCSWUS,SCSWUC    Unit Check?
0000034A  4710 23D8                 000005D8     3922          BO    UCFAIL           Yes, FAIL

0000034E  9118 2538                 00000738     3924          TM    SENSE+0,SNS0EQCK+SNS0DTCK
00000352  07EE                                   3925          BNOR  R14              Both not set, FAIL
00000354  9110 2539                 00000739     3926          TM    SENSE+1,SNS1LPCK
00000358  07EE                                   3927          BNOR  R14              Not also set, FAIL

0000035A  9200 2E02                 00001002     3929          MVI   FLAG02,0         Test successful
0000035E  07FE                                   3930          BR    R14              Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                          3932 ************************************************************************
                                          3933 *        TEST03:  Skip to chan we're at = No Skip
                                          3934 ************************************************************************
                                          3935 *
                                          3936 *   A    Skip to channel 12
                                          3937 *        Space n immed to reach channel 1
                                          3938 *
                                          3939 *   B    Skip to channel 1: should NOT skip!
                                          3940 *            (because we're already positioned at the
                                          3941 *            desired channel and nothing was printed)
                                          3942 *
                                          3943 ************************************************************************

00000360  9500 2E03                00001003  3945 TEST03   CLI   FLAG03,0         Should we do this test?
00000364  078E                             3946           BER   R14               No, skip this test

00000366  4100 2878                00000A78  3948           LA    R0,CHPGM03A       Skip to chan 12, Space to chan 1
0000036A  45F0 2420                00000620  3949           BAL   R15,EXCP          Do the I/O
0000036E  9102 9008                00000008  3950           TM    SCSWUS,SCSWUC     Unit Check?
00000372  4710 23D8                000005D8  3951           BO    UCFAIL            Yes, FAIL

00000376  4100 2570                00000770  3953           LA    R0,DIAG803A       DIAG8 parameters
0000037A  45F0 23E4                000005E4  3954           BAL   R15,HCMD          Printer file size BEFORE skip attempt

0000037E  4100 2898                00000A98  3956           LA    R0,CHPGM03B       Skip to channel 1
00000382  45F0 2420                00000620  3957           BAL   R15,EXCP          Do the I/O
00000386  9102 9008                00000008  3958           TM    SCSWUS,SCSWUC     Unit Check?
0000038A  4710 23D8                000005D8  3959           BO    UCFAIL            Yes, FAIL

0000038E  4100 2584                00000784  3961           LA    R0,DIAG803B       DIAG8 parameters
00000392  45F0 23E4                000005E4  3962           BAL   R15,HCMD          Printer file size AFTER skip attempt

00000396  D503 2594 2580      00000794  00000780  3964           CLC   SIZ03B,SIZ03A     Same size?
0000039C  077E                             3965           BNER  R14               No, FAIL

0000039E  9200 2E03                00001003  3967           MVI   FLAG03,0          Test successful
000003A2  07FE                             3968           BR    R14               Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

                                          3970 ************************************************************************
                                          3971 *        TEST04:  Skip to chan we're at = Should Skip
                                          3972 ************************************************************************
                                          3973 *
                                          3974 *   A    Print and space 0 (i.e. no spacing)
                                          3975 *
                                          3976 *   B    Skip to channel 1: SHOULD skip this time!
                                          3977 *            (even though we ARE already positioned at
                                          3978 *            channel 1), because something WAS printed!
                                          3979 *
                                          3980 ************************************************************************

000003A4  9500 2E04                 00001004  3982 TEST04   CLI   FLAG04,0         Should we do this test?
000003A8  078E                              3983           BER   R14               No, skip this test

000003AA  4100 28A0                 00000AA0  3985           LA    R0,CHPGM04A       Write no spacing (while at chan 1)
000003AE  45F0 2420                 00000620  3986           BAL   R15,EXCP          Do the I/O
000003B2  9102 9008                 00000008  3987           TM    SCSWUS,SCSWUC     Unit Check?
000003B6  4710 23D8                 000005D8  3988           BO    UCFAIL            Yes, FAIL

000003BA  4100 2598                 00000798  3990           LA    R0,DIAG804A       DIAG8 parameters
000003BE  45F0 23E4                 000005E4  3991           BAL   R15,HCMD          Printer file size BEFORE skip attempt

000003C2  4100 28C8                 00000AC8  3993           LA    R0,CHPGM04B       Skip to channel 1
000003C6  45F0 2420                 00000620  3994           BAL   R15,EXCP          Do the I/O
000003CA  9102 9008                 00000008  3995           TM    SCSWUS,SCSWUC     Unit Check?
000003CE  4710 23D8                 000005D8  3996           BO    UCFAIL            Yes, FAIL

000003D2  4100 25B4                 000007B4  3998           LA    R0,DIAG804B       DIAG8 parameters
000003D6  45F0 23E4                 000005E4  3999           BAL   R15,HCMD          Printer file size AFTER skip attempt

000003DA  D503 25C4 25A8      000007C4  000007A8  4001           CLC   SIZ04B,SIZ04A     Same size?
000003E0  078E                              4002           BER   R14               Yes, FAIL

000003E2  9200 2E04                 00001004  4004           MVI   FLAG04,0          Test successful
000003E6  07FE                              4005           BR    R14               Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4007 ************************************************************************
                                                    4008 *        TEST05:  Channel 9 crossed
                                                    4009 ************************************************************************
                                                    4010 *
                                                    4011 *   A    Skip to channel 8 (two lines before channel 9)
                                                    4012 *        Print and space 3
                                                    4013 *        Should cause Unit Check error, sense = ch9 CROSSED
                                                    4014 *
                                                    4015 *   B    Skip to channel 8 (two lines before channel 9)
                                                    4016 *        Space 2 immed
                                                    4017 *        Should cause Unit Check error, sense = ch9 REACHED
                                                    4018 *
                                                    4019 *   Note: this test depends on the FCB loaded by Test02
                                                    4020 *
                                                    4021 ************************************************************************

000003E8  9500 2E05                 00001005  4023 TEST05   CLI   FLAG05,0         Should we do this test?
000003EC  078E                                4024          BER   R14               No, skip this test

000003EE  4100 28D0                 00000AD0  4026          LA    R0,CHPGM05A       Skip to chan 8, space PAST chan 9
000003F2  45F0 2420                 00000620  4027          BAL   R15,EXCP          Do the I/O
000003F6  9102 9008                 00000008  4028          TM    SCSWUS,SCSWUC     Unit Check?
000003FA  07EE                                4029          BNOR  R14               No, FAIL

000003FC  45F0 241C                 0000061C  4031          BAL   R15,EXCPSENS     Get the sense information
00000400  9102 9008                 00000008  4032          TM    SCSWUS,SCSWUC     Unit Check?
00000404  4710 23D8                 000005D8  4033          BO    UCFAIL            Yes, FAIL

00000408  9101 2538                 00000738  4035          TM    SENSE+0,SNS0CH9   Chan9 sense?
0000040C  07EE                                4036          BNOR  R14               Not set, FAIL

0000040E  4100 28E8                 00000AE8  4038          LA    R0,CHPGM05B       Skip to chan 8, space TO chan 9
00000412  45F0 2420                 00000620  4039          BAL   R15,EXCP          Do the I/O
00000416  9102 9008                 00000008  4040          TM    SCSWUS,SCSWUC     Unit Check?
0000041A  07EE                                4041          BNOR  R14               No, FAIL

0000041C  45F0 241C                 0000061C  4043          BAL   R15,EXCPSENS     Get the sense information
00000420  9102 9008                 00000008  4044          TM    SCSWUS,SCSWUC     Unit Check?
00000424  4710 23D8                 000005D8  4045          BO    UCFAIL            Yes, FAIL

00000428  9101 2538                 00000738  4047          TM    SENSE+0,SNS0CH9   Chan9 sense?
0000042C  07EE                                4048          BNOR  R14               Not set, FAIL

0000042E  9200 2E05                 00001005  4050          MVI   FLAG05,0          Test successful
00000432  07FE                                4051          BR    R14               Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                  4053 ************************************************************************
                                                  4054 *        TEST06:  Channel 12 crossed
                                                  4055 ************************************************************************
                                                  4056 *
                                                  4057 *   A    Skip to channel 11 (two lines before channel 12)
                                                  4058 *        Space 3 immed
                                                  4059 *        Should cause Unit Exception in CSW (channel 12 CROSSED)
                                                  4060 *
                                                  4061 *   B    Skip to channel 11 (two lines before channel 12)
                                                  4062 *        Print and space 2
                                                  4063 *        Should cause Unit Exception in CSW (channel 12 REACHED)
                                                  4064 *
                                                  4065 *   Note: this test depends on the FCB loaded by Test02
                                                  4066 *
                                                  4067 ************************************************************************

00000434  9500 2E06                 00001006  4069 TEST06   CLI   FLAG06,0         Should we do this test?
00000438  078E                                  4070          BER   R14              No, skip this test

0000043A  4100 28F8                 00000AF8  4072          LA    R0,CHPGM06A      Skip to chan 11, space PAST chan 12
0000043E  45F0 2420                 00000620  4073          BAL   R15,EXCP         Do the I/O
00000442  9102 9008                 00000008  4074          TM    SCSWUS,SCSWUC    Unit Check?
00000446  4710 23D8                 000005D8  4075          BO    UCFAIL           Yes, FAIL

0000044A  9101 9008                 00000008  4077          TM    SCSWUS,SCSWUX    Unit Exception set?
0000044E  07EE                                  4078          BNOR  R14              No, FAIL

00000450  4100 2910                 00000B10  4080          LA    R0,CHPGM06B      Skip to chan 11, space TO chan 12
00000454  45F0 2420                 00000620  4081          BAL   R15,EXCP         Do the I/O
00000458  9102 9008                 00000008  4082          TM    SCSWUS,SCSWUC    Unit Check?
0000045C  4710 23D8                 000005D8  4083          BO    UCFAIL           Yes, FAIL

00000460  9101 9008                 00000008  4085          TM    SCSWUS,SCSWUX    Unit Exception set?
00000464  07EE                                  4086          BNOR  R14              No, FAIL

00000466  9200 2E06                 00001006  4088          MVI   FLAG06,0         Test successful
0000046A  07FE                                  4089          BR    R14              Return to caller
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

                                                     4091 ************************************************************************
                                                     4092 *        TEST07:  Load Check
                                                     4093 ************************************************************************
                                                     4094 *
                                                     4095 *   A    Try loading FCB with more than 30 channel stops
                                                     4096 *        Should cause Unit Check, SENSE = Load Check
                                                     4097 *
                                                     4098 *   D    Try loading FCB with channel code > 12.
                                                     4099 *        Should cause Unit Check, SENSE = Load Check
                                                     4100 *
                                                     4101 *   E    Try loading FCB with missing end-of-form flag
                                                     4102 *        Should cause Unit Check, SENSE = Load Check
                                                     4103 *
                                                     4104 *   F    Try loading UCS with less than required #of bytes
                                                     4105 *        Should cause Unit Check, SENSE = Load Check,
                                                     4106 *        REGARDLESS of SLI bit in CCW.
                                                     4107 *
                                                     4108 *   G    Try loading FCB with 31st channel stop @ end of form
                                                     4109 *        Should NOT cause Unit Check! (Should succeed!)
                                                     4110 *
                                                     4111 *   H    Try loading FCB w/LESS than required length (w/o SLI!)
                                                     4112 *        Should SUCCEED; 3211 never sets incorrect length for Load FCB
                                                     4113 *
                                                     4114 *   I    Try loading FCB w/MORE than required length (w/o SLI!)
                                                     4115 *        Should SUCCEED; 3211 never sets incorrect length for Load FCB
                                                     4116 *
                                                     4117 ************************************************************************

0000046C  9500 2E07                00001007  4119 TEST07   CLI   FLAG07,0          Should we do this test?
00000470  078E                               4120           BER   R14              No, skip this test

00000472  4100 2920                00000B20  4122           LA    R0,CHPGM07A      Load FCB more than 30 channel stops
00000476  45F0 2420                00000620  4123           BAL   R15,EXCP         Do the I/O
0000047A  9102 9008                00000008  4124           TM    SCSWUS,SCSWUC    Unit Check?
0000047E  07EE                               4125           BNOR  R14              No, FAIL

00000480  45F0 241C                0000061C  4127           BAL   R15,EXCPSENS     Get the sense information
00000484  9102 9008                00000008  4128           TM    SCSWUS,SCSWUC    Unit Check?
00000488  4710 23D8                000005D8  4129           BO    UCFAIL           Yes, FAIL

0000048C  9102 2538                00000738  4131           TM    SENSE+0,SNS0LDCK Load Check?
00000490  07EE                               4132           BNOR  R14              No, FAIL

00000492  4100 2928                00000B28  4134           LA    R0,CHPGM07D      Load FCB with channel code > 12
00000496  45F0 2420                00000620  4135           BAL   R15,EXCP         Do the I/O
0000049A  9102 9008                00000008  4136           TM    SCSWUS,SCSWUC    Unit Check?
0000049E  07EE                               4137           BNOR  R14              No, FAIL

000004A0  45F0 241C                0000061C  4139           BAL   R15,EXCPSENS     Get the sense information
000004A4  9102 9008                00000008  4140           TM    SCSWUS,SCSWUC    Unit Check?
000004A8  4710 23D8                000005D8  4141           BO    UCFAIL           Yes, FAIL
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT

000004AC  9102 2538                    00000738  4143          TM    SENSE+0,SNS0LDCK Load Check?
000004B0  07EE                                   4144          BNOR  R14              No, FAIL

000004B2  4100 2930                    00000B30  4146          LA    R0,CHPGM07E      Load FCB missing end-of-form flag
000004B6  45F0 2420                    00000620  4147          BAL   R15,EXCP          Do the I/O
000004BA  9102 9008                    00000008  4148          TM    SCSWUS,SCSWUC    Unit Check?
000004BE  07EE                                   4149          BNOR  R14              No, FAIL

000004C0  45F0 241C                    0000061C  4151          BAL   R15,EXCPSENS     Get the sense information
000004C4  9102 9008                    00000008  4152          TM    SCSWUS,SCSWUC    Unit Check?
000004C8  4710 23D8                    000005D8  4153          BO    UCFAIL           Yes, FAIL

000004CC  9102 2538                    00000738  4155          TM    SENSE+0,SNS0LDCK Load Check?
000004D0  07EE                                   4156          BNOR  R14              No, FAIL

000004D2  4100 2938                    00000B38  4158          LA    R0,CHPGM07F      Load UCS shorter than required
000004D6  45F0 2420                    00000620  4159          BAL   R15,EXCP          Do the I/O
000004DA  9102 9008                    00000008  4160          TM    SCSWUS,SCSWUC    Unit Check?
000004DE  07EE                                   4161          BNOR  R14              No, FAIL

000004E0  45F0 241C                    0000061C  4163          BAL   R15,EXCPSENS     Get the sense information
000004E4  9102 9008                    00000008  4164          TM    SCSWUS,SCSWUC    Unit Check?
000004E8  4710 23D8                    000005D8  4165          BO    UCFAIL           Yes, FAIL

000004EC  9102 2538                    00000738  4167          TM    SENSE+0,SNS0LDCK Load Check?
000004F0  07EE                                   4168          BNOR  R14              No, FAIL

000004F2  4100 2940                    00000B40  4170          LA    R0,CHPGM07G      Load FCB w/31st chan stop @ end of form
000004F6  45F0 2420                    00000620  4171          BAL   R15,EXCP          Do the I/O
000004FA  9102 9008                    00000008  4172          TM    SCSWUS,SCSWUC    Unit Check?
000004FE  4710 23D8                    000005D8  4173          BO    UCFAIL           Yes, FAIL

00000502  4100 2948                    00000B48  4175          LA    R0,CHPGM07H      Load FCB shorter than required
00000506  45F0 2420                    00000620  4176          BAL   R15,EXCP          Do the I/O
0000050A  9102 9008                    00000008  4177          TM    SCSWUS,SCSWUC    Unit Check?
0000050E  4710 23D8                    000005D8  4178          BO    UCFAIL           Yes, FAIL

00000512  4100 2950                    00000B50  4180          LA    R0,CHPGM07I      Load FCB longer than required
00000516  45F0 2420                    00000620  4181          BAL   R15,EXCP          Do the I/O
0000051A  9102 9008                    00000008  4182          TM    SCSWUS,SCSWUC    Unit Check?
0000051E  4710 23D8                    000005D8  4183          BO    UCFAIL           Yes, FAIL

00000522  9200 2E07                    00001007  4185          MVI   FLAG07,0         Test successful
00000526  07FE                                   4186          BR    R14              Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4188 ************************************************************************
                                                    4189 *        TEST08:  Diagnostic Read FCB
                                                    4190 ************************************************************************
                                                    4191 *
                                                    4192 *   A    Load FCB (no indexing)
                                                    4193 *        Diagnostic Gate (set diagnostic mode)
                                                    4194 *        Diagnostic Read FCB
                                                    4195 *        Returned data should match the FCB we loaded.
                                                    4196 *
                                                    4197 *   B    Load FCB (positive indexing)
                                                    4198 *        Diagnostic Gate (set diagnostic mode)
                                                    4199 *        Diagnostic Read FCB
                                                    4200 *        Returned data should match the FCB we loaded.
                                                    4201 *
                                                    4202 *   C    Load FCB (negative indexing)
                                                    4203 *        Diagnostic Gate (set diagnostic mode)
                                                    4204 *        Diagnostic Read FCB
                                                    4205 *        Returned data should match the FCB we loaded.
                                                    4206 *
                                                    4207 ************************************************************************

00000528  9500 2E08                 00001008  4209 TEST08   CLI   FLAG08,0         Should we do this test?
0000052C  078E                                  4210          BER   R14              No, skip this test

0000052E  4100 2958                 00000B58  4212          LA    R0,CHPGM08A      Load FCB (no idx), Diag, Read FCB
00000532  45F0 2420                 00000620  4213          BAL   R15,EXCP         Do the I/O
00000536  9102 9008                 00000008  4214          TM    SCSWUS,SCSWUC    Unit Check?
0000053A  4710 23D8                 000005D8  4215          BO    UCFAIL           Yes, FAIL

0000053E  D50B 27A5 2799  000009A5 00000999  4217          CLC   FCB08A2,FCB08A   Did we get back what we wrote?
00000544  077E                                  4218          BNER  R14              Different, FAIL

00000546  4100 2970                 00000B70  4220          LA    R0,CHPGM08B      Load FCB (+index), Diag, Read FCB
0000054A  45F0 2420                 00000620  4221          BAL   R15,EXCP         Do the I/O
0000054E  9102 9008                 00000008  4222          TM    SCSWUS,SCSWUC    Unit Check?
00000552  4710 23D8                 000005D8  4223          BO    UCFAIL           Yes, FAIL

00000556  D50C 27BE 27B1  000009BE 000009B1  4225          CLC   FCB08B2,FCB08B   Did we get back what we wrote?
0000055C  077E                                  4226          BNER  R14              Different, FAIL

0000055E  4100 2988                 00000B88  4228          LA    R0,CHPGM08C      Load FCB (-index), Diag, Read FCB
00000562  45F0 2420                 00000620  4229          BAL   R15,EXCP         Do the I/O
00000566  9102 9008                 00000008  4230          TM    SCSWUS,SCSWUC    Unit Check?
0000056A  4710 23D8                 000005D8  4231          BO    UCFAIL           Yes, FAIL

0000056E  D50C 27D8 27CB  000009D8 000009CB  4233          CLC   FCB08C2,FCB08C   Did we get back what we wrote?
00000574  077E                                  4234          BNER  R14              Different, FAIL

00000576  9200 2E08                 00001008  4236          MVI   FLAG08,0         Test successful
0000057A  07FE                                  4237          BR    R14              Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4239 ************************************************************************
                                                   4240 *        TEST09:  Diagnostic Write/Read PLB
                                                   4241 ************************************************************************
                                                   4242 *
                                                   4243 *   A    Load any valid FCB
                                                   4244 *        Normal write and space
                                                   4245 *        Diagnostic Read PLB
                                                   4246 *        Returned data should match what we wrote.
                                                   4247 *
                                                   4248 *   B    Diagnostic Write
                                                   4249 *        No spacing should occur and NO DATA SHOULD BE WRITTEN.
                                                   4250 *        Diagnostic Read PLB
                                                   4251 *        Returned data should match what we wrote.
                                                   4252 *
                                                   4253 ************************************************************************

0000057C  9500 2E09                  00001009   4255 TEST09   CLI   FLAG09,0         Should we do this test?
00000580  078E                                   4256          BER   R14              No, skip this test

00000582  4100 29A0                  00000BA0   4258          LA    R0,CHPGM09A      Write and Space, Diagnostic Read PLB
00000586  45F0 2420                  00000620   4259          BAL   R15,EXCP         Do the I/O
0000058A  9102 9008                  00000008   4260          TM    SCSWUS,SCSWUC    Unit Check?
0000058E  4710 23D8                  000005D8   4261          BO    UCFAIL           Yes, FAIL

00000592  D505 27EB 27E5      000009EB  000009E5   4263          CLC   PLB09A,PRT09A    Did we get back what we wrote?
00000598  077E                                   4264          BNER  R14              Different, FAIL

0000059A  4100 27F4                  000009F4   4266          LA    R0,DIAG809A      DIAG8 parameters
0000059E  45F0 23E4                  000005E4   4267          BAL   R15,HCMD         Printer file size BEFORE diag write

000005A2  4100 29C8                  00000BC8   4269          LA    R0,CHPGM09B      Diagnostic Write, Diagnostic Read PLB
000005A6  45F0 2420                  00000620   4270          BAL   R15,EXCP         Do the I/O
000005AA  9102 9008                  00000008   4271          TM    SCSWUS,SCSWUC    Unit Check?
000005AE  4710 23D8                  000005D8   4272          BO    UCFAIL           Yes, FAIL

000005B2  D505 280E 2808      00000A0E  00000A08   4274          CLC   PLB09B,PRT09B    Did we get back what we wrote?
000005B8  077E                                   4275          BNER  R14              Different, FAIL

000005BA  4100 2818                  00000A18   4277          LA    R0,DIAG809B      DIAG8 parameters
000005BE  45F0 23E4                  000005E4   4278          BAL   R15,HCMD         Printer file size AFTER diag write

000005C2  D503 2828 2804      00000A28  00000A04   4280          CLC   SIZ09B,SIZ09A     Same size?
000005C8  077E                                   4281          BNER  R14              No, FAIL

000005CA  D500 2814 27F1      00000A14  000009F1   4283          CLC   CKRD09B,CKRD09A  Same line position?
000005D0  077E                                   4284          BNER  R14              No, FAIL

000005D2  9200 2E09                  00001009   4286          MVI   FLAG09,0         Test successful
000005D6  07FE                                   4287          BR    R14              Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4289 ********************************************************************
                                                    4290 *        Fail test due to unexpected Unit Check condition
                                                    4291 ********************************************************************
                                                    4292 *
                                                    4293 *        Tests which encounter an unexpected Unit Check will
                                                    4294 *        branch to here to clear the error and fail their test.
                                                    4295 *
                                                    4296 ********************************************************************

000005D8  45F0 241C                 0000061C  4298 UCFAIL   BAL   R15,EXCPSENS       Do SENSE to clear Unit Check
000005DC  9102 9008                 00000008  4299          TM    SCSWUS,SCSWUC      Did the SENSE I/O fail?
000005E0  07EE                                4300          BNOR  R14                No, return to fail test
000005E2  0000                                4301          DC    H'0'               *** SENSE FAILED?! ***

                                                    4303 ********************************************************************
                                                    4304 *        Issue HERCULES DIAG X'008' command pointed to by R0
                                                    4305 ********************************************************************

000005E4  906A 2408                 00000608  4307 HCMD     STM   R6,R10,HCMDSAVE      Save registers
000005E8  18A0                                4309          LR    R10,R0             R10 -> HCMD parameters
000005EA  9869 A000                 00000000  4310          LM    R6,R9,0(R10)       Load Diag8 registers
000005EE  41A0 0040                 00000040  4311          LA    R10,X'40'          X'40 = Use response buffer option
000005F2  89A0 0018                 00000018  4312          SLL   R10,32-8           (shift into high-order byte)
000005F6  168A                                4313          OR    R8,R10             Or option into cmd length reg

000005F8  83680008                            4315          DC    X'83',X'68',X'0008'  Issue Hercules Diagnose X'008'
000005FC  4770 2068                 00000268  4316          BNZ   FAILD8             Abort if unsuccessful

00000600  986A 2408                 00000608  4318          LM    R6,R10,HCMDSAVE    Restore registers
00000604  07FF                                4319          BR    R15                Return to caller

00000608  00000000 00000000                   4321 HCMDSAVE DC    5F'0'              Registers save area
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                  4323 ********************************************************************************
                                                  4324 *        Execute the channel program pointed to by R0
                                                  4325 ********************************************************************************

0000061C  4100 2530                    00000730  4327 EXCPSENS LA    R0,SENSEPGM    R0 -> Retrieve SENSE Channel Program

00000620  5000 8008                    00000008  4329 EXCP     ST    R0,ORBCCW      Plug Channel Program address into IORB

                                                  4331          RAWIO 4,FAIL=FAIL
00000624  9200 300E                    0000000E  4332+         MVI   IOCBSC,X'00'           Clear SC information
00000628  D201 300A 3006      0000000A  00000006  4333+         MVC   IOCBST,IOCBZERO        Clear accumulated status
0000062E  5810 3000                    00000000  4334+         L     1,IOCBDID              Remember the device ID with which I am working
                                                  4335+* Initiate Subchannel-based input/output operation
00000632  5840 3018                    00000018  4336+         $L    4,IOCBORB              Locate the ORB for the channel subsystem
00000636  B233 4000                    00000000  4337+         SSCH  0(4)                   Initiate the I/O operation
0000063A  A774 FE11                    0000025C  4338+         $BC   B'0111',FAIL           ..Start function failed, report/handle the error
0000063E  5840 3020                    00000020  4339+         $L    4,IOCBIRB              Locate the IRB storage area
00000642                      00000000           4340+         USING IRB,4                  Make it addressable

                                                  4342+* Wait for I/O operation to present status via an interruption
00000642                                          4343+IOWT0014 DS    0H  Wait for I/O to complete
00000642  D207 2468 0078      00000668  00000078  4345+         MVC   IOS0015(8),120(0)       Save Input/Output new PSW
00000648  D207 0078 2460      00000078  00000660  4346+         MVC   120(8,0),ION0015       Establish Input/Ouput new PSW
0000064E  8200 2458                    00000658  4347+         $LPSW WPSW0015               Wait for event
00000658  020A0000 00000000                       4348+WPSW0015 PSW   2,0,2,0,0              Wait for event
00000660  00082000 00000670                       4349+ION0015  PSW   0,0,0,32,IRST0015,24       I/O New PSW: cc==2
00000668  00000000 00000000                       4350+IOS0015  DC    XL8'00'
                                                  4351+* Handle input/output interruption
00000670                                          4352+IRST0015 DS    0H
00000670  D207 0078 2468      00000078  00000668  4353+         MVC   120(8,0),IOS0015       Restore input/output new PSW
                                                  4354+* Process the interruption...
                                                  4355+* Validate interruption is for the expected subchannel
00000676  5510 00B8                    000000B8  4356+         CL    1,IOSSID               Is this the device for which I am waiting?
0000067A  A774 FFE4                    00000642  4357+         $BNE  IOWT0014               ..No, continue waiting for it
                                                  4358+* Accumulate interruption information from IRB
0000067E  B235 4000                    00000000  4359+         TSCH  0(4)                   Retrive interrupt information
00000682  A744 FFE0                    00000642  4360+         $BC   B'0100',IOWT0014       CC1 (not status pending), wait for it to arrive
00000686  A714 FDEB                    0000025C  4361+         $BC   B'0001',FAIL           CC3 (not operational), an error then
                                                  4362+*                                     CC0 (status was pending), accumulate the status
0000068A  D600 300E 4003      0000000E  00000003  4363+         OC    IOCBSC,IRBSCSW+SCSW2   Accumulate status control
00000690  D601 300A 4008      0000000A  00000008  4364+         OC    IOCBST,IRBSCSW+SCSWUS  Accumulate device and channel status
00000696  9104 300E                    0000000E  4365+         TM    IOCBSC,SCSWSPRI        Primary subchannel status?
0000069A  A7E4 FFD4                    00000642  4366+         $BNO  IOWT0014               ..No, wait for primary status
0000069E  D203 3010 4004      00000010  00000004  4367+         MVC   IOCBSCCW,IRBSCSW+SCSWCCW  CCW address
000006A4  D201 3016 400A      00000016  0000000A  4368+         MVC   IOCBRCNT,IRBSCSW+SCSWCNT  Residual count
                                                  4369+* Test for errors as specified in the IOCB
000006AA  910C 300A                    0000000A  4370+         TM    IOCBUS,SCSWCE+SCSWDE    Channel end and device end both accumulated?
000006AE  A7E4 FDD7                    0000025C  4371+         $BNO  FAIL                   Hunh? No CE and DE but do have primary status!
                                                  4372+* Input/Output operation successful

000006B2  07FF                                    4374          BR    R15            Return to caller
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4376 ************************************************************************
                                                    4377 *         Structure used by RAWIO identifying
                                                    4378 *         the device and operation being performed
                                                    4379 ************************************************************************

                                                    4381 IOCB_00F IOCB  X'00F',CCW=CHPGM01A
000006B4  00000000                                  4382+IOCB_00F DC    A(0)            +0 Device Identifier (supplied by ENADEV macro)
000006B8  000F                                      4383+         DC    AL2(X'00F')     +4 Device address or device number
000006BA  0000                                      4384+         DC    H'0'            +6 Must be zeros
000006BC  D3                                        4385+         DC    AL1(X'D3')      +8 Default detected unit errors
000006BD  3F                                        4386+         DC    AL1(X'3F')      +9 Default detected channel errors
000006BE  0000                                      4387+         DC    HL2'0'          +10 Accumulated unit and channel errors
000006C0  0000                                      4388+         DC    HL2'0'          +12 Tested unit and channel status
000006C2  00                                        4389+         DC    XL1'00'         +14 Accumulated subchannel status control from SCSW
000006C3  80                                        4390+         DC    XL1'80'         +15 Default unsoliticed wait condition
000006C4  00000000                                  4391+         DC    F'0'            +16 I/O status CCW address
000006C8  00000000                                  4392+         DC    F'0'            +20 residual count
000006CC  00000724                                  4393+         DC    A(IORB0016)     +24  Address where ORB is located
000006D0  00000000                                  4394+         DC    A(0)            +28  reserved
000006D4  000006E4                                  4395+         DC    A(IIRB0016)     +32 Address where IRB stored
000006D8  00000000                                  4396+         DC    A(0)            +36 reserved
000006DC  000006E4                                  4397+         DC    A(IIRB0016)     +40 Address where SCHIB stored
000006E0  00000000                                  4398+         DC    A(0)            +44 reserved
000006E4  00000000 00000000                         4399+IIRB0016 DC    16F'0'              Embedded shared IRB and SCHIB area
00000724                                            4401+IORB0016 DS    0XL12
00000724  00000000                                  4402+         DC    A(0)                    Word 0 - Interruption Parameter
00000728  00                                        4403+         DC    AL1((0)*16+B'0000')     Word 1, bits 0-7
00000729  80                                        4404+         DC    BL1'10000000'           Word 1, bits 8-15
0000072A  FF                                        4405+         DC    AL1(255)                Word 1, bits 16-23
0000072B  00                                        4406+         DC    BL1'00000000'            Word 1, bits 24-31
0000072C  00000A30                                  4407+         DC    AL4(CHPGM01A)           Word 2 - CCW address
```

```
 LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                         4409 ********************************************************************
                                         4410 *        CCW opcode equates, etc.
                                         4411 ********************************************************************

                              00000040  00000001  4413 CC       EQU   X'40'    Command Chain
                              00000020  00000001  4414 SLI      EQU   X'20'    Suppress Incorrect Length Indication
                              00000010  00000001  4415 SKIP     EQU   X'10'    Skip Data Transfer

                              00000002  00000001  4417 READPLB  EQU   X'02'    Diagnostic Read PLB
                              00000003  00000001  4418 NOPCMD   EQU   X'03'    No Operation
                              00000004  00000001  4419 SENSECMD EQU   X'04'    Basic Sense
                              00000005  00000001  4420 WRITEPLB EQU   X'05'    Diagnostic Write PLB
                              00000006  00000001  4421 CHKREAD  EQU   X'06'    Diagnostic Check Read
                              00000007  00000001  4422 DIAGGATE EQU   X'07'    Diagnostic Gate
                              0000000A  00000001  4423 READUCS  EQU   X'0A'    Diagnostic Read UCB
                              00000012  00000001  4424 READFCB  EQU   X'12'    Diagnostic Read FCB
                              00000063  00000001  4425 LOADFCB  EQU   X'63'    Load Forms Control Buffer
                              000000FB  00000001  4426 LOADUCS  EQU   X'FB'    Load Universal Character Set Buffer

                              000000B4  00000001  4428 FCBL3211 EQU   180      FCB Length for 3211 printer
                              000001B0  00000001  4429 UCBL3211 EQU   432      UCB Length for 3211 printer

                              00000001  00000001  4431 SP0AFTER EQU   X'01'    Write Without Spacing
                              00000009  00000001  4432 SP1AFTER EQU   X'09'    Write And Space 1 Lines
                              00000011  00000001  4433 SP2AFTER EQU   X'11'    Write And Space 2 Lines
                              00000019  00000001  4434 SP3AFTER EQU   X'19'    Write And Space 3 Lines

                              0000000B  00000001  4436 SP1NOW   EQU   X'0B'    Space 1 Line  Immediate
                              00000013  00000001  4437 SP2NOW   EQU   X'13'    Space 2 Lines Immediate
                              0000001B  00000001  4438 SP3NOW   EQU   X'1B'    Space 3 Lines Immediate

                              0000008B  00000001  4440 SKP1NOW  EQU   X'8B'    Skip to Channel 1 Immediate
                              00000093  00000001  4441 SKP2NOW  EQU   X'93'    Skip to Channel 2 Immediate
                              000000C3  00000001  4442 SKP8NOW  EQU   X'C3'    Skip to Channel 8 Immediate
                              000000DB  00000001  4443 SKP11NOW EQU   X'DB'    Skip to Channel 11 Immediate
                              000000E3  00000001  4444 SKP12NOW EQU   X'E3'    Skip to Channel 12 Immediate

                              00000010  00000001  4446 SNS0EQCK EQU   X'10'    Sense byte 0, bit 3: Equipment Check
                              00000008  00000001  4447 SNS0DTCK EQU   X'08'    Sense byte 0, bit 4: Data Check
                              00000002  00000001  4448 SNS0LDCK EQU   X'02'    Sense byte 0, bit 6: Load Check
                              00000001  00000001  4449 SNS0CH9  EQU   X'01'    Sense byte 0, bit 7: Channel 9 Crossed
                              00000010  00000001  4450 SNS1LPCK EQU   X'10'    Sense byte 1, bit 3: Line Position Check
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    4452 ********************************************************************************
                                                    4453 *        Working Storage
                                                    4454 ********************************************************************************

00000730  04200002 00000738                         4456 SENSEPGM CCW1  SENSECMD,SENSE,SLI,L'SENSE
00000738  0000                                      4457 SENSE    DC    XL2'0000'
0000073A  00010008 0009000B                         4458 TESTFCB  DC    X'00010008000900B000C0010'
00000746  85A78583 407F5B4D                         4459 HCMDPFSZ DC    C'exec "$(testpath)/3211.rexx" 3211.txt'

0000076B  00                                        4461 CKRD01A  DC    X'00'
0000076C  00                                        4462 CKRD01B  DC    X'00'

00000770  00000746 00000780                         4464 DIAG803A DC    A(HCMDPFSZ),A(SIZ03A)
00000778  00000025 00000004                         4465          DC    A(L'HCMDPFSZ),A(L'SIZ03A)
00000780  81814040                                  4466 SIZ03A   DC    CL4'aa'
00000784  00000746 00000794                         4467 DIAG803B DC    A(HCMDPFSZ),A(SIZ03B)
0000078C  00000025 00000004                         4468          DC    A(L'HCMDPFSZ),A(L'SIZ03B)
00000794  82824040                                  4469 SIZ03B   DC    CL4'bb'

00000798  00000746 000007A8                         4471 DIAG804A DC    A(HCMDPFSZ),A(SIZ04A)
000007A0  00000025 00000004                         4472          DC    A(L'HCMDPFSZ),A(L'SIZ04A)
000007A8  A7A74040                                  4473 SIZ04A   DC    CL4'xx'
000007AC  D7D9E3F0 F4C1                             4474 PRT04A   DC    C'PRT04A'
000007B4  00000746 000007C4                         4475 DIAG804B DC    A(HCMDPFSZ),A(SIZ04B)
000007BC  00000025 00000004                         4476          DC    A(L'HCMDPFSZ),A(L'SIZ04B)
000007C4  A7A74040                                  4477 SIZ04B   DC    CL4'xx'

000007C8  D7D9E3F0 F5C1                             4479 PRT05A   DC    C'PRT05A'

000007CE  D7D9E3F0 F6C2                             4481 PRT06B   DC    C'PRT06B'

000007D4                                            4483 FCB07A   DS   0XL32
000007D4  01020304 05060708                         4484          DC    X'0102030405060708090A'
000007DE  01020304 05060708                         4485          DC    X'0102030405060708090A'
000007E8  01020304 05060708                         4486          DC    X'0102030405060708090A'
000007F2  0110                                      4487          DC    X'0110'
000007F4  00000000 00000000                         4488 FCB07D   DC    X'0000000000000000000001D'
00000800  00000000 00000000                         4489 FCB07E   DC    X'000000000000000000000000'
0000080C  E4C3E2F0 F7C6                             4490 UCS07F   DC    C'UCS07F'
00000812                                            4491 FCB07G   DS   0XL31
00000812  01020304 05060708                         4492          DC    X'0102030405060708090A'
0000081C  01020304 05060708                         4493          DC    X'0102030405060708090A'
00000826  01020304 05060708                         4494          DC    X'0102030405060708090A'
00000830  11                                        4495          DC    X'11'
00000831  00000000 00000000                         4496 FCB07H   DS    XL(FCBL3211-1)
000008E4  00000000 00000000                         4497 FCB07I   DS    XL(FCBL3211+1)
00000999                      00000999  00000831    4498          ORG   FCB07H
00000831  00010008 0009000B                         4499          DC    X'00010008000900B000C0010'
0000083D                      0000083D  000008E4    4500          ORG   FCB07I
000008E4  00010008 0009000B                         4501          DC    X'00010008000900B000C0010'
000008F0                      000008F0  00000999    4502          ORG   FCB07I+L'FCB07I
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT

00000999  00010008 0009000B                         4504 FCB08A   DC    X'00010008000900 0B000C0010'
000009A5  00000000 00000000                         4505 FCB08A2  DC    XL(L'FCB08A)'00'
000009B1  88000100 08000900                         4506 FCB08B   DC    X'880001000800090 00B000C0010'
000009BE  00000000 00000000                         4507 FCB08B2  DC    XL(L'FCB08B)'00'
000009CB  CF000100 08000900                         4508 FCB08C   DC    X'CF00010008000900 0B000C0010'
000009D8  00000000 00000000                         4509 FCB08C2  DC    XL(L'FCB08C)'00'

000009E5  D7D9E3F0 F9C1                             4511 PRT09A   DC    C'PRT09A'
000009EB  40404040 4040                             4512 PLB09A   DC    CL(L'PRT09A)' '
000009F1  00                                        4513 CKRD09A  DC    X'00'
000009F4  00000746 00000A04                         4514 DIAG809A DC    A(HCMDPFSZ),A(SIZ09A)
000009FC  00000025 00000004                         4515          DC    A(L'HCMDPFSZ),A(L'SIZ09A)
00000A04  81814040                                  4516 SIZ09A   DC    CL4'aa'
00000A08  D7D9E3F0 F9C2                             4517 PRT09B   DC    C'PRT09B'
00000A0E  40404040 4040                             4518 PLB09B   DC    CL(L'PRT09B)' '
00000A14  00                                        4519 CKRD09B  DC    X'00'
00000A18  00000746 00000A28                         4520 DIAG809B DC    A(HCMDPFSZ),A(SIZ09B)
00000A20  00000025 00000004                         4521          DC    A(L'HCMDPFSZ),A(L'SIZ09B)
00000A28  82824040                                  4522 SIZ09B   DC    CL4'bb'
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                   4524 ************************************************************************
                                                   4525 *        Test Channel Programs
                                                   4526 ************************************************************************

00000A30  07600001 00000A30                        4528 CHPGM01A CCW1  DIAGGATE,*,CC+SLI,1
00000A38  06600001 0000076B                        4529          CCW1  CHKREAD,CKRD01A,CC+SLI,L'CKRD01A
00000A40  04300001 00000738                        4530          CCW1  SENSECMD,SENSE,SLI+SKIP,1
00000A48  0B600001 00000A48                        4531 CHPGM01B CCW1  SP1NOW,*,CC+SLI,1
00000A50  07600001 00000A50                        4532          CCW1  DIAGGATE,*,CC+SLI,1
00000A58  06600001 0000076C                        4533          CCW1  CHKREAD,CKRD01B,CC+SLI,L'CKRD01B
00000A60  04300001 00000738                        4534          CCW1  SENSECMD,SENSE,SLI+SKIP,1

00000A68  6320000C 0000073A                        4536 CHPGM02A CCW1  LOADFCB,TESTFCB,SLI,L'TESTFCB
00000A70  93200001 00000A70                        4537 CHPGM02B CCW1  SKP2NOW,*,SLI,1

00000A78  6360000C 0000073A                        4539 CHPGM03A CCW1  LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000A80  E3600001 00000A80                        4540          CCW1  SKP12NOW,*,CC+SLI,1
00000A88  1B600001 00000A88                        4541          CCW1  SP3NOW,*,CC+SLI,1
00000A90  0B200001 00000A90                        4542          CCW1  SP1NOW,*,SLI,1
00000A98  8B200001 00000A98                        4543 CHPGM03B CCW1  SKP1NOW,*,SLI,1

00000AA0  6360000C 0000073A                        4545 CHPGM04A CCW1  LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000AA8  E3600001 00000AA8                        4546          CCW1  SKP12NOW,*,CC+SLI,1
00000AB0  1B600001 00000AB0                        4547          CCW1  SP3NOW,*,CC+SLI,1
00000AB8  0B600001 00000AB8                        4548          CCW1  SP1NOW,*,CC+SLI,1
00000AC0  01200006 000007AC                        4549          CCW1  SP0AFTER,PRT04A,SLI,L'PRT04A
00000AC8  8B200001 00000AC8                        4550 CHPGM04B CCW1  SKP1NOW,*,SLI,1

00000AD0  6360000C 0000073A                        4552 CHPGM05A CCW1  LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000AD8  C3600001 00000AD8                        4553          CCW1  SKP8NOW,*,CC+SLI,1
00000AE0  19000006 000007C8                        4554          CCW1  SP3AFTER,PRT05A,0,L'PRT05A
00000AE8  C3600001 00000AE8                        4555 CHPGM05B CCW1  SKP8NOW,*,CC+SLI,1
00000AF0  13200001 00000AF0                        4556          CCW1  SP2NOW,*,SLI,1

00000AF8  6360000C 0000073A                        4558 CHPGM06A CCW1  LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000B00  DB600001 00000B00                        4559          CCW1  SKP11NOW,*,CC+SLI,1
00000B08  1B200001 00000B08                        4560          CCW1  SP3NOW,*,SLI,1
00000B10  DB600001 00000B10                        4561 CHPGM06B CCW1  SKP11NOW,*,CC+SLI,1
00000B18  11200006 000007CE                        4562          CCW1  SP2AFTER,PRT06B,SLI,L'PRT06B
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

00000B20  63200020 000007D4                      4564 CHPGM07A CCW1  LOADFCB,FCB07A,SLI,L'FCB07A
00000B28  6320000C 000007F4                      4565 CHPGM07D CCW1  LOADFCB,FCB07D,SLI,L'FCB07D
00000B30  6320000C 00000800                      4566 CHPGM07E CCW1  LOADFCB,FCB07E,SLI,L'FCB07E
00000B38  FB200006 0000080C                      4567 CHPGM07F CCW1  LOADUCS,UCS07F,SLI,L'UCS07F
00000B40  6320001F 00000812                      4568 CHPGM07G CCW1  LOADFCB,FCB07G,SLI,L'FCB07G
00000B48  630000B3 00000831                      4569 CHPGM07H CCW1  LOADFCB,FCB07H,0,L'FCB07H
00000B50  630000B5 000008E4                      4570 CHPGM07I CCW1  LOADFCB,FCB07I,0,L'FCB07I

00000B58  6360000C 00000999                      4572 CHPGM08A CCW1  LOADFCB,FCB08A,CC+SLI,L'FCB08A
00000B60  07600001 00000B60                      4573          CCW1  DIAGGATE,*,CC+SLI,1
00000B68  1220000C 000009A5                      4574          CCW1  READFCB,FCB08A2,SLI,L'FCB08A2
00000B70  6360000D 000009B1                      4575 CHPGM08B CCW1  LOADFCB,FCB08B,CC+SLI,L'FCB08B
00000B78  07600001 00000B78                      4576          CCW1  DIAGGATE,*,CC+SLI,1
00000B80  1220000D 000009BE                      4577          CCW1  READFCB,FCB08B2,SLI,L'FCB08B2
00000B88  6360000D 000009CB                      4578 CHPGM08C CCW1  LOADFCB,FCB08C,CC+SLI,L'FCB08C
00000B90  07600001 00000B90                      4579          CCW1  DIAGGATE,*,CC+SLI,1
00000B98  1220000D 000009D8                      4580          CCW1  READFCB,FCB08C2,SLI,L'FCB08C2

00000BA0  6360000C 0000073A                      4582 CHPGM09A CCW1  LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000BA8  09400006 000009E5                      4583          CCW1  SP1AFTER,PRT09A,CC,L'PRT09A
00000BB0  02600006 000009EB                      4584          CCW1  READPLB,PLB09A,CC+SLI,L'PLB09A
00000BB8  07600001 00000BB8                      4585          CCW1  DIAGGATE,*,CC+SLI,1
00000BC0  06200001 000009F1                      4586          CCW1  CHKREAD,CKRD09A,SLI,L'CKRD09A
00000BC8  05400006 00000A08                      4587 CHPGM09B CCW1  WRITEPLB,PRT09B,CC,L'PRT09B
00000BD0  02600006 00000A0E                      4588          CCW1  READPLB,PLB09B,CC+SLI,L'PLB09B
00000BD8  07600001 00000BD8                      4589          CCW1  DIAGGATE,*,CC+SLI,1
00000BE0  06200001 00000A14                      4590          CCW1  CHKREAD,CKRD09B,SLI,L'CKRD09B
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4592 ************************************************************************
                                                   4593 *        Test control flags:   X'00' = skip test, otherwise do test
                                                   4594 ************************************************************************

00000BE8                      00000BE8  00000FF0  4596          ORG   TEST3211+4096-16   (s/b @ X'FF0')
00000FF0                                          4597 DOFLAGS  DS   0XL16                (s/b @ X'FF0')


00000FF0  00                                      4599          DC    X'00'             TEST00

00000FF1  F1                                      4601          DC    C'1'              TEST01
00000FF2  F2                                      4602          DC    C'2'              TEST02
00000FF3  F3                                      4603          DC    C'3'              TEST03
00000FF4  F4                                      4604          DC    C'4'              TEST04
00000FF5  F5                                      4605          DC    C'5'              TEST05
00000FF6  F6                                      4606          DC    C'6'              TEST06
00000FF7  F7                                      4607          DC    C'7'              TEST07
00000FF8  F8                                      4608          DC    C'8'              TEST08
00000FF9  F9                                      4609          DC    C'9'              TEST09

00000FFA  00                                      4611          DC    X'00'             TEST10
00000FFB  00                                      4612          DC    X'00'             TEST11
00000FFC  00                                      4613          DC    X'00'             TEST12
00000FFD  00                                      4614          DC    X'00'             TEST13
00000FFE  00                                      4615          DC    X'00'             TEST14
00000FFF  00                                      4616          DC    X'00'             TEST15
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4618 ************************************************************************
                                                   4619 *        Test results flags:   X'00' = Success,  Other = Failure
                                                   4620 ************************************************************************

00001000                       00001000  00001000  4622          ORG   TEST3211+4096      (s/b @ X'1000')
00001000                                           4623 RCFLAGS  DS   0XL16               (s/b @ X'1000')
00001000  FFFFFFFF FFFFFFFF                        4624          DC      16X'FF'          (s/b @ X'1000')

                               00001000  00000010  4626 FLAG00   EQU   RCFLAGS+0        TEST00

                               00001001  00000010  4628 FLAG01   EQU   RCFLAGS+1        TEST01
                               00001002  00000010  4629 FLAG02   EQU   RCFLAGS+2        TEST02
                               00001003  00000010  4630 FLAG03   EQU   RCFLAGS+3        TEST03
                               00001004  00000010  4631 FLAG04   EQU   RCFLAGS+4        TEST04
                               00001005  00000010  4632 FLAG05   EQU   RCFLAGS+5        TEST05
                               00001006  00000010  4633 FLAG06   EQU   RCFLAGS+6        TEST06
                               00001007  00000010  4634 FLAG07   EQU   RCFLAGS+7        TEST07
                               00001008  00000010  4635 FLAG08   EQU   RCFLAGS+8        TEST08
                               00001009  00000010  4636 FLAG09   EQU   RCFLAGS+9        TEST09

                               0000100A  00000010  4638 FLAG10   EQU   RCFLAGS+10       TEST10
                               0000100B  00000010  4639 FLAG11   EQU   RCFLAGS+11       TEST11
                               0000100C  00000010  4640 FLAG12   EQU   RCFLAGS+12       TEST12
                               0000100D  00000010  4641 FLAG13   EQU   RCFLAGS+13       TEST13
                               0000100E  00000010  4642 FLAG14   EQU   RCFLAGS+14       TEST14
                               0000100F  00000010  4643 FLAG15   EQU   RCFLAGS+15       TEST15
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT

                                                    4645 ********************************************************************
                                                    4646 *        IOCB DSECT
                                                    4647 ********************************************************************

                                                    4649          DSECTS NAME=IOCB
                                                    4651+IOCB     DSECT
                                                    4652+*     Field usage by: CH SC Description (R->program read-only, X->program read/write)
00000000                                            4653+IOCBDID  DS    0F  +0     R  Device Identifier - Subsystem ID for channel subsystem
00000000  0000                                      4654+         DS    H   +0  R      reserved - must be zeros
00000002  0000                                      4655+IOCBDV   DS    H   +2  R      Channel Unit Device address of I/O operation
00000004  0000                                      4656+IOCBDEV  DS    H   +4  X  X  Device address or device number (R after ENADEV)
00000006  0000                                      4657+IOCBZERO DS    H   +6  R  R  Must be zeros
00000008  00                                        4658+IOCBUM   DS    X   +8  X  X  Unit status test mask
00000009  00                                        4659+IOCBCM   DS    X   +9  X  X  Channel status test mask
0000000A                                            4660+IOCBST   DS    0H  +10 X  X  Input/Output unit and channel status accumulation
0000000A  00                                        4661+IOCBUS   DS    X   +10 R  R  Accumulated unit status
0000000B  00                                        4662+IOCBCS   DS    X   +11 R  R  Accumulated channel status
0000000C  00                                        4663+IOCBUT   DS    X   +14 R  R  Used to test unit status
0000000D  00                                        4664+IOCBCT   DS    X   +13 R  R  Used to test channel status
0000000E  00                                        4665+IOCBSC   DS    X   +14    R  Accumulted subchanel status control
0000000F  00                                        4666+IOCBWAIT DS    X   +15 X  X  Recognized unsolicited interruption unit status events
00000010  00000000                                  4667+IOCBSCCW DS    A   +16 R  R  I/O status CCW address
00000014                                            4668+IOCBSCNT DS    0F  +20 R  R  I/O status residual count as a positive full word
00000014  0000                                      4669+         DS    H   +20 R     reserved must be zeros
00000016  0000                                      4670+IOCBRCNT DS    H   +22 R     I/O status residual count as an unsigned halfword
00000018                                            4671+IOCBCAW  DS    0A  +24 X     Channel Address word
00000018  00000000 00000000                         4672+IOCBORB  DS    AD  +24    X  Address of the ORB for channel subsystem I/O
00000020  00000000 00000000                         4673+IOCBIRB  DS    AD  +32    X  Channel subsystem IRB address
00000028  00000000 00000000                         4674+IOCBSIB  DS    AD  +40    X  Channel subsystem SCHIB address
                            00000030  00000001      4675+IOCBL    EQU   *-IOCB  Length of IOCB control block (48) without embedded structures
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4677 ********************************************************************************
                                                    4678 *        ORB DSECT
                                                    4679 ********************************************************************************

                                                    4681          DSECTS NAME=ORB
                                                    4683+ORB      DSECT
00000000  00000000                                  4684+ORBPARM  DC    F'0'     Word 0, bits 0-31

00000004  00                                        4686+ORB1_0   DC    X'00'    Word 1, bits 0-7
                            000000F0  00000001      4687+ORBKEYM  EQU   X'F0'    Word 1, bits 0-3   - Storage Key Mask
                            00000008  00000001      4688+ORBS     EQU   X'08'    Word 1, bit 4      - Suspend Control
                            00000004  00000001      4689+ORBC     EQU   X'04'    Word 1, bit 5      - Streaming Mode Control
                            00000002  00000001      4690+ORBM     EQU   X'02'    Word 1, bit 6      - Modification Control
                            00000001  00000001      4691+ORBY     EQU   X'01'    Word 1, bit 7      - Synchronization Control

00000005  00                                        4693+ORB1_8   DC    X'00'    Word 1, bits 8-15
                            00000080  00000001      4694+ORBF     EQU   X'80'    Word 1, bit 8      - CCW Format-Control
                            00000040  00000001      4695+ORBP     EQU   X'40'    Word 1, bit 9      - Pre-fetch control
                            00000020  00000001      4696+ORBI     EQU   X'20'    Word 1, bit 10     - Initial-status Interruption Control
                            00000010  00000001      4697+ORBA     EQU   X'10'    Word 1, bit 11     - Address Limit Checking Control
                            00000008  00000001      4698+ORBU     EQU   X'08'    Word 1, bit 12     - Suppress-suspended-interruption control
                            00000004  00000001      4699+ORBB     EQU   X'04'    Word 1, bit 13     - Channel-Program-Type Control
                            00000002  00000001      4700+ORBH     EQU   X'02'    Word 1, bit 14     - Format 2-IDAW Control
                            00000001  00000001      4701+ORBT     EQU   X'01'    Word 1, bit 15     - 2K-IDAW control
00000006  00                                        4702+ORBLPM   DC    X'00'    Word 1, bits 16-23 - Logical Path Mask
00000007  00                                        4703+ORRB1_24 DC    X'00'    Word 1, bits 24-31
                            00000080  00000001      4704+ORBL     EQU   X'80'    Word 1, bit 24     - Incorrect Length Suppression Mode
                            0000007F  00000001      4705+ORBRSV3  EQU   X'7F'    Word 1, bits 25-31 - reserved must be zeros
                            00000040  00000001      4706+ORBD     EQU   X'40'    Word 1, bit 25     - MIDAW Addressing Control
                            0000003E  00000001      4707+ORBRSV26 EQU   X'3E'    Word 1, bits 26-30 - reserved must be zeros
                            0000007E  00000001      4708+ORBRSV25 EQU   X'7E'    Word 1, bits 25-30 - reserved must be zeros
                            00000001  00000001      4709+ORBX     EQU   X'01'    Word 1, bit 31     - ORB-extension control

00000008  00000000                                  4711+ORBCCW   DC    A(0)     Word 2, bits 1-31  - Channel Program Address
                            00000080  00000001      4712+ORBRSV4  EQU   X'80'    Word 2, bit 0      - reserved must be zero
                            0000000C  00000001      4713+ORBLEN   EQU   *-ORB Length of standard ORB
                                                    4714+* Extended ORB fields
0000000C  00                                        4715+ORBCSS   DC    X'00'    Word 3, bits 0-7   - Channel Subsystem Priority
0000000D  00                                        4716+ORBRSV5  DC    X'00'    Word 3, bits 8-15  - reserved must be zeros
0000000E                                            4717+ORBPGM   DC    0X'00'   Word 3, bits 16-23 - Transport mode reserves for program us
0000000E  00                                        4718+ORBCU    DC    X'00'    Word 3, bits 16-23 - Control Unit Priority
0000000F  00                                        4719+ORBRSV6  DC    X'00'    Word 3, bits 24-31 - reserved must be zeros
00000010  00000000 00000000                         4720+ORBRSV7  DC    XL16'00' Words 4-7          - reserved must be zeros
                            00000020  00000001      4721+ORBXLEN  EQU   *-ORB Length of extended ORB
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                                                   4724 ********************************************************************************
                                                   4725 *        IRB DSECT
                                                   4726 ********************************************************************************

                                                   4728          DSECTS NAME=IRB
                                                   4730+IRB      DSECT Interruption          Response Block
00000000  00000000 00000000                        4731+IRBSCSW  DC    XL12'00' Words 0-2 - Subchannel Status Word (Defined by DSECT SCSW)
0000000C  00000000 00000000                        4732+IRBESW   DC    XL20'00' Words 3-7 - Extended Status Word
00000020  00000000 00000000                        4733+IRBECW   DC    XL32'00' Words 8-15 - Extended Control Word
                             00000040  00000001    4734+IRBL     EQU   *-IRB    IRB Length
00000040  00000000 00000000                        4735+IRBEMW   DC    XL32'00' Words 16-23 - Extended Measurement Word
                             00000060  00000001    4736+IRBXL    EQU   *-IRB    Extended IRB Length
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2     STMT
                                                    4739 ********************************************************************************
                                                    4740 *        SCSW DSECT
                                                    4741 ********************************************************************************

                                                    4743          DSECTS NAME=SCSW
                                                    4745+SCSW     DSECT Subchannel          Status Word
00000000  00                                        4746+SCSWFLAG DC    X'00'    Flags
                          000000F0  00000001        4747+SCSWKEYM EQU   X'F0'    Storage Key Mask of subchannel storage key
                          00000008  00000001        4748+SCSWSUSC EQU   X'08'    Suspend Control
                          00000004  00000001        4749+SCSWESWF EQU   X'04'    Extended Status Word Format
                          00000003  00000001        4750+SCSWDCCM EQU   X'03'    Deferred condiont code mask
                          00000000  00000001        4751+SCSWDCC0 EQU   X'00'    Normal I/O interruption
                          00000001  00000001        4752+SCSWDCC1 EQU   X'01'    Deferred condition code is 1
                          00000003  00000001        4753+SCSWDCC3 EQU   X'03'    Deferred condition code is 3

00000001  00                                        4755+SCSWCTLS DC    X'00'    General Controls
                          00000080  00000001        4756+SCSWCCWF EQU   X'80'    CCW Format control when ...
                          00000040  00000001        4757+SCSWCCWP EQU   X'40'    CCW Prefetch Control
                          00000020  00000001        4758+SCSWISIC EQU   X'20'    Initial-Status-Interruption Control
                          00000010  00000001        4759+SCSWALKC EQU   X'10'    Address-Limit-Checking Control
                          00000008  00000001        4760+SCSWSSIC EQU   X'08'    Suppress suspended interruption
                          00000004  00000001        4761+SCSW0CC  EQU   X'04'    Zero-Condition Code
                          00000002  00000001        4762+SCSWECWC EQU   X'02'    Extended Control Word control
                          00000001  00000001        4763+SCSWPNOP EQU   X'01'    Path Not Operational

00000002  00                                        4765+SCSW1    DC    X'00'    Control Byte 1
                          00000070  00000001        4766+SCSWFM   EQU   X'70'    Functional Control Mask
                          00000040  00000001        4767+SCSWFS   EQU   X'40'    Function Control - Start Function
                          00000020  00000001        4768+SCSWFH   EQU   X'20'    Function Control - Halt Function
                          00000010  00000001        4769+SCSWFC   EQU   X'10'    Function Control - Clear Function
                          00000008  00000001        4770+SCSWARP  EQU   X'08'    Activity Control - Resume pending
                          00000004  00000001        4771+SCSWASP  EQU   X'04'    Activity Control - Start pending
                          00000002  00000001        4772+SCSWAHP  EQU   X'02'    Activity Control - Halt pending
                          00000001  00000001        4773+SCSWACP  EQU   X'01'    Activity Control - Clear pending
00000003  00                                        4774+SCSW2    DC    X'00'    Control Byte 2
                          00000080  00000001        4775+SCSWASA  EQU   X'80'    Activity Control - Subchannel Active
                          00000040  00000001        4776+SCSWADA  EQU   X'40'    Activity Control - Device Active
                          00000020  00000001        4777+SCSWASUS EQU   X'20'    Activity Control - Suspended
                          00000010  00000001        4778+SCSWSAS  EQU   X'10'    Status Control   - Alert Status
                          00000008  00000001        4779+SCSWSINT EQU   X'08'    Status Control   - Intermediate Status
                          00000004  00000001        4780+SCSWSPRI EQU   X'04'    Status Control   - Primary Status
                          00000002  00000001        4781+SCSWSSEC EQU   X'02'    Status Control   - Secondary Status
                          00000001  00000001        4782+SCSWSPEN EQU   X'01'    Status Control   - Status Pending

00000004  00000000                                  4784+SCSWCCW  DC    A(0)     CCW Address

00000008  00                                        4786+SCSWUS   DC    X'00'    Unit Status
                          00000080  00000001        4787+SCSWATTN EQU   X'80'    Attention
                          00000040  00000001        4788+SCSWSM   EQU   X'40'    Status modifier
                          00000020  00000001        4789+SCSWCUE  EQU   X'20'    Control-unit end
                          00000010  00000001        4790+SCSWBUSY EQU   X'10'    Busy
                          00000008  00000001        4791+SCSWCE   EQU   X'08'    Channel end
```

```
  LOC        OBJECT CODE       ADDR1     ADDR2    STMT
                               00000004  00000001  4792+SCSWDE   EQU   X'04'    Device end
                               00000002  00000001  4793+SCSWUC   EQU   X'02'    Unit check
                               00000001  00000001  4794+SCSWUX   EQU   X'01'    Unit exception

00000009  00                                       4796+SCSWCS   DC    X'00'    Channel Status
                               00000080  00000001  4797+SCSWPCI  EQU   X'80'    Program-controlled interruption
                               00000040  00000001  4798+SCSWIL   EQU   X'40'    Incorrect length
                               00000020  00000001  4799+SCSWPRGM EQU   X'20'    Program check
                               00000010  00000001  4800+SCSWPROT EQU   X'10'    Protection Check
                               00000008  00000001  4801+SCSWCDAT EQU   X'08'    Channel-data check
                               00000004  00000001  4802+SCSWCCTL EQU   X'04'    Channel-control check
                               00000002  00000001  4803+SCSWICTL EQU   X'02'    Interface-control check
                               00000001  00000001  4804+SCSWCHNG EQU   X'01'    Chaining check

0000000A  0000                                     4806+SCSWCNT  DC    H'0'     Residual CCW count
                               0000000C  00000001  4807+SCSWL    EQU   *-SCSW
```

```
  LOC         OBJECT CODE       ADDR1     ADDR2     STMT
                                                     4810 ********************************************************************************
                                                     4811 *        (other DSECTS needed by SATK)
                                                     4812 ********************************************************************************

                                                     4814          DSECTS PRINT=OFF,NAME=(ASA,SCHIB,CCW0,CCW1)
```

```
                                                     5053          PRINT ON
```

```
                                                     5055 ********************************************************************************
                                                     5056 *        Register equates
                                                     5057 ********************************************************************************

                            00000000  00000001   5059 R0        EQU   0
                            00000001  00000001   5060 R1        EQU   1
                            00000002  00000001   5061 R2        EQU   2
                            00000003  00000001   5062 R3        EQU   3
                            00000004  00000001   5063 R4        EQU   4
                            00000005  00000001   5064 R5        EQU   5
                            00000006  00000001   5065 R6        EQU   6
                            00000007  00000001   5066 R7        EQU   7
                            00000008  00000001   5067 R8        EQU   8
                            00000009  00000001   5068 R9        EQU   9
                            0000000A  00000001   5069 R10       EQU   10
                            0000000B  00000001   5070 R11       EQU   11
                            0000000C  00000001   5071 R12       EQU   12
                            0000000D  00000001   5072 R13       EQU   13
                            0000000E  00000001   5073 R14       EQU   14
                            0000000F  00000001   5074 R15       EQU   15
```

```
                                                     5076          END
```

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
ASA	4	000000	512	4818	3752
ASBEGIN	U	000000	1	4819	4824 4866 4902 4911 4929 4936 4942 4946 4950 4956 4973
ASEND	U	000200	1	4972	4973
ASLENGTH	U	000200	1	4973	
BCEXTCOD	H	00001A	2	4836	
BCIOCOD	H	00003A	2	4844	
BCMCKCOD	H	000032	2	4842	
BCPGMCOD	H	00002A	2	4840	
BCSVCCOD	H	000022	2	4838	
BEGIN	I	000200	2	3758	3727 3753
CAW	F	000048	4	4848	
CAWADDR	R	000049	3	4851	
CAWKEY	X	000048	1	4849	
CAWSUSP	U	000008	1	4850	
CC	U	000040	1	4413	4528 4529 4531 4532 4533 4539 4540 4541 4545 4546 4547 4548 4552 4553 4555 4558 4559 4561 4572 4573 4575 4576 4578 4579 4582 4583 4584 4585 4587 4588 4589
CCW0	4	000000	8	4977	4983
CCW0ADDR	R	000001	3	4979	
CCW0CNT	H	000006	2	4982	
CCW0CODE	X	000000	1	4978	
CCW0FLGS	X	000004	1	4980	
CCW0L	U	000008	1	4983	
CCW1	4	000000	8	4995	5000
CCW1ADDR	A	000004	4	4999	
CCW1CNT	H	000002	2	4998	
CCW1CODE	X	000000	1	4996	
CCW1FLGS	X	000001	1	4997	
CCW1L	U	000008	1	5000	
CCWCC	U	000040	1	4987	
CCWCD	U	000080	1	4986	
CCWIDA	U	000004	1	4991	
CCWPCI	U	000008	1	4990	
CCWSKIP	U	000010	1	4989	
CCWSLI	U	000020	1	4988	
CCWSUSP	U	000002	1	4992	
CHANID	F	0000A8	4	4903	
CHKREAD	U	000006	1	4421	4529 4533 4586 4590
CHPGM01A	W	000A30	8	4528	3877 4407
CHPGM01B	W	000A48	8	4531	3885
CHPGM02A	W	000A68	8	4536	3910
CHPGM02B	W	000A70	8	4537	3915
CHPGM03A	W	000A78	8	4539	3948
CHPGM03B	W	000A98	8	4543	3956
CHPGM04A	W	000AA0	8	4545	3985
CHPGM04B	W	000AC8	8	4550	3993
CHPGM05A	W	000AD0	8	4552	4026
CHPGM05B	W	000AE8	8	4555	4038
CHPGM06A	W	000AF8	8	4558	4072
CHPGM06B	W	000B10	8	4561	4080
CHPGM07A	W	000B20	8	4564	4122
CHPGM07D	W	000B28	8	4565	4134

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
CHPGM07E	W	000B30	8	4566	4146
CHPGM07F	W	000B38	8	4567	4158
CHPGM07G	W	000B40	8	4568	4170
CHPGM07H	W	000B48	8	4569	4175
CHPGM07I	W	000B50	8	4570	4180
CHPGM08A	W	000B58	8	4572	4212
CHPGM08B	W	000B70	8	4575	4220
CHPGM08C	W	000B88	8	4578	4228
CHPGM09A	W	000BA0	8	4582	4258
CHPGM09B	W	000BC8	8	4587	4269
CKRD01A	X	00076B	1	4461	3882 4529
CKRD01B	X	00076C	1	4462	3890 4533
CKRD09A	X	0009F1	1	4513	4283 4586
CKRD09B	X	000A14	1	4519	4283 4590
CODE	2	000000	4112	3708	
CPUID	U	00031B	1	4975	
CSW	F	000040	8	4847	
DIAG803A	A	000770	4	4464	3953
DIAG803B	A	000784	4	4467	3961
DIAG804A	A	000798	4	4471	3990
DIAG804B	A	0007B4	4	4475	3998
DIAG809A	A	0009F4	4	4514	4266
DIAG809B	A	000A18	4	4520	4277
DIAGGATE	U	000007	1	4422	4528 4532 4573 4576 4579 4585 4589
DOFLAGS	X	000FF0	16	4597	3796
DWAT0008	3	000260	8	3806	3805
DWAT0009	3	000270	8	3811	3810
DWAT0011	3	000280	8	3817	3816
ENADEV	I	000296	4	3835	3794
ENAOKAY	I	0002E4	2	3860	3849
EOJ	H	000278	2	3815	3776
EXCP	I	000620	4	4329	3878 3886 3911 3916 3949 3957 3986 3994 4027 4039 4073 4081 4123 4135 4147 4159 4171 4176 4181 4213 4221 4229 4259 4270
EXCPSENS	I	00061C	4	4327	3920 4031 4043 4127 4139 4151 4163 4298
EXTCPUAD	H	000084	2	4868	
EXTICODE	H	000086	2	4869	
EXTIPARM	F	000080	4	4867	
EXTNPSW	F	000058	8	4857	
EXTOPSW	F	000018	8	4829	4835
FAIL	H	00025C	2	3804	3775 3840 3850 3855 4338 4361 4371
FAILD8	H	000268	2	3809	4316
FCB07A	X	0007D4	32	4483	4564
FCB07D	X	0007F4	12	4488	4565
FCB07E	X	000800	12	4489	4566
FCB07G	X	000812	31	4491	4568
FCB07H	X	000831	179	4496	4498 4569
FCB07I	X	0008E4	181	4497	4500 4502 4570
FCB08A	X	000999	12	4504	4505 4217 4572
FCB08A2	X	0009A5	12	4505	4217 4574
FCB08B	X	0009B1	13	4506	4507 4225 4575
FCB08B2	X	0009BE	13	4507	4225 4577
FCB08C	X	0009CB	13	4508	4509 4233 4578

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
FCB08C2	X	0009D8	13	4509	4233 4580
FCBL3211	U	0000B4	1	4428	4496 4497
FIND0013	A	0002DC	4	3857	3835
FINL0013	H	00029E	2	3838	3854
FINM0013	A	0002E0	4	3858	3853
FINN0013	H	0002CC	2	3851	3842 3844
FLAG00	U	001000	16	4626	
FLAG01	U	001001	16	4628	3874 3893
FLAG02	U	001002	16	4629	3907 3929
FLAG03	U	001003	16	4630	3945 3967
FLAG04	U	001004	16	4631	3982 4004
FLAG05	U	001005	16	4632	4023 4050
FLAG06	U	001006	16	4633	4069 4088
FLAG07	U	001007	16	4634	4119 4185
FLAG08	U	001008	16	4635	4209 4236
FLAG09	U	001009	16	4636	4255 4286
FLAG10	U	00100A	16	4638	
FLAG11	U	00100B	16	4639	
FLAG12	U	00100C	16	4640	
FLAG13	U	00100D	16	4641	
FLAG14	U	00100E	16	4642	
FLAG15	U	00100F	16	4643	
HCMD	I	0005E4	4	4307	3954 3962 3991 3999 4267 4278
HCMDPFSZ	C	000746	37	4459	4464 4465 4467 4468 4471 4472 4475 4476 4514 4515 4520 4521
HCMDSAVE	F	000608	4	4321	4307 4318
IIRB0016	F	0006E4	4	4399	4395 4397
IMAGE	1	000000	4112	0	
INIT	H	00023C	2	3782	3762
IOCB	4	000000	48	4651	4675 3754
IOCBCAW	A	000018	4	4671	
IOCBCM	X	000009	1	4659	
IOCBCS	X	00000B	1	4662	
IOCBCT	X	00000D	1	4664	
IOCBDEV	H	000004	2	4656	3843
IOCBDID	F	000000	4	4653	3846 4334
IOCBDV	H	000002	2	4655	
IOCBIRB	A	000020	8	4673	3788 4339
IOCBL	U	000030	1	4675	
IOCBORB	A	000018	8	4672	3787 4336
IOCBRCNT	H	000016	2	4670	4368
IOCBSC	X	00000E	1	4665	4332 4363 4365
IOCBSCCW	A	000010	4	4667	4367
IOCBSCNT	F	000014	4	4668	
IOCBSIB	A	000028	8	4674	3836
IOCBST	H	00000A	2	4660	4333 4364
IOCBUM	X	000008	1	4658	
IOCBUS	X	00000A	1	4661	4370
IOCBUT	X	00000C	1	4663	
IOCBWAIT	X	00000F	1	4666	
IOCBZERO	H	000006	2	4657	4333
IOCB_00F	A	0006B4	4	4382	3786
IOELADDR	F	0000AC	4	4904	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
IOICODE	H	0000BA	2	4909	
IOIID	F	0000C0	4	4914	
IOINIT	I	000288	4	3824	3793
IOIPARM	F	0000BC	4	4913	
IOMK0012	F	000290	4	3826	3824 3825
ION0015	3	000660	8	4349	4346
IONPSW	F	000078	8	4861	
IOOPSW	F	000038	8	4833	4843
IORB0016	X	000724	12	4401	4393
IOS0015	X	000668	8	4350	4345 4353
IOSSID	F	0000B8	4	4912	4356
IOWT0014	H	000642	2	4343	4357 4360 4366
IPLCCW1	F	000008	8	4821	
IPLCCW2	F	000010	8	4822	
IPLPSW	F	000000	8	4820	
IRB	4	000000	96	4730	4734 4736 3789 4340
IRBECW	X	000020	32	4733	
IRBEMW	X	000040	32	4735	
IRBESW	X	00000C	20	4732	
IRBL	U	000040	1	4734	
IRBSCSW	X	000000	12	4731	3790 4363 4364 4367 4368
IRBXL	U	000060	1	4736	
IRST0015	H	000670	2	4352	4349
LCHANLOG	F	0000B0	4	4905	
LOADFCB	U	000063	1	4425	4536 4539 4545 4552 4558 4564 4565 4566 4568 4569 4570 4572 4575 4578 4582
LOADUCS	U	0000FB	1	4426	4567
MCKLOG	F	000100	4	4937	
MCKNPSW	F	000070	8	4860	
MCKOPSW	F	000030	8	4832	4841
MEASUREB	X	0000B9	1	4908	
MKARCHMD	X	0000A3	1	4896	
MKARS	F	000120	4	4935	
MKCLKCMP	F	0000E0	8	4921	
MKCPUTIM	F	0000D8	8	4920	
MKCRS	F	0001C0	4	4940	
MKDMGCOD	F	0000F4	4	4924	
MKFAILA	F	0000F8	4	4926	
MKFPRS	D	000160	8	4938	
MKICODE	F	0000E8	4	4922	
MKLOGOUT	F	000100	4	4928	
MKMODEL	F	0000FC	4	4927	
MKXSAA	F	0000D4	4	4919	
MONCLS	H	000094	2	4884	
MONCODE	F	00009C	4	4891	
MONNUMBR	X	000095	1	4886	
MPGACCID	X	0000A2	1	4894	
NKGRS	F	000180	4	4939	
NOPCMD	U	000003	1	4418	
ORB	4	000000	32	4683	4713 4721 3755
ORB1_0	X	000004	1	4686	
ORB1_8	X	000005	1	4693	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
ORBA	U	000010	1	4697	
ORBB	U	000004	1	4699	
ORBC	U	000004	1	4689	
ORBCCW	A	000008	4	4711	4329
ORBCSS	X	00000C	1	4715	
ORBCU	X	00000E	1	4718	
ORBD	U	000040	1	4706	
ORBF	U	000080	1	4694	
ORBH	U	000002	1	4700	
ORBI	U	000020	1	4696	
ORBKEYM	U	0000F0	1	4687	
ORBL	U	000080	1	4704	
ORBLEN	U	00000C	1	4713	
ORBLPM	X	000006	1	4702	
ORBM	U	000002	1	4690	
ORBP	U	000040	1	4695	
ORBPARM	F	000000	4	4684	
ORBPGM	X	00000E	1	4717	
ORBRSV25	U	00007E	1	4708	
ORBRSV26	U	00003E	1	4707	
ORBRSV3	U	00007F	1	4705	
ORBRSV4	U	000080	1	4712	
ORBRSV5	X	00000D	1	4716	
ORBRSV6	X	00000F	1	4719	
ORBRSV7	X	000010	16	4720	
ORBS	U	000008	1	4688	
ORBT	U	000001	1	4701	
ORBU	U	000008	1	4698	
ORBX	U	000001	1	4709	
ORBXLEN	U	000020	1	4721	
ORBY	U	000001	1	4691	
ORRB1_24	X	000007	1	4703	
PCFETO	A	0000C4	4	4915	
PERACCID	X	0000A1	1	4893	
PERADDR	F	000098	4	4890	
PERCODE	X	000096	1	4887	
PERCODMK	U	0000F0	1	4888	
PGMACCID	X	0000A0	1	4892	
PGMDXC	F	000090	4	4882	
PGMICODE	H	00008E	2	4881	
PGMIID	F	00008C	4	4877	
PGMIILC	X	00008D	1	4879	
PGMIILCM	U	00000C	1	4880	
PGMNPSW	F	000068	8	4859	
PGMOPSW	F	000028	8	4831	4839
PGMTRX	F	000090	4	4883	
PLB09A	C	0009EB	6	4512	4263 4584
PLB09B	C	000A0E	6	4518	4274 4588
PMCW1_0	X	000004	1	5007	
PMCW1_8	X	000005	1	5010	3841 3847
PMCWB	U	000004	1	5042	
PMCWCHP0	X	000010	1	5031	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
PMCWCHP1	X	000011	1	5032	
PMCWCHP2	X	000012	1	5033	
PMCWCHP3	X	000013	1	5034	
PMCWCHP4	X	000014	1	5035	
PMCWCHP5	X	000015	1	5036	
PMCWCHP6	X	000016	1	5037	
PMCWCHP7	X	000017	1	5038	
PMCWDNUM	H	000006	2	5022	3843
PMCWE	U	000080	1	5011	3847
PMCWEXC	X	00001B	1	5041	
PMCWIP	F	000000	4	5006	
PMCWISCM	U	000038	1	5008	
PMCWLM	U	000060	1	5012	
PMCWLMG	U	000020	1	5013	
PMCWLML	U	000040	1	5014	
PMCWLPM	X	000008	1	5024	
PMCWLPUM	X	00000A	1	5026	
PMCWM	U	000004	1	5018	
PMCWMBI	H	00000C	2	5028	
PMCWMM	U	000018	1	5015	
PMCWMMC	U	000008	1	5017	
PMCWMME	U	000010	1	5016	
PMCWPAM	X	00000F	1	5030	
PMCWPIM	X	00000B	1	5027	
PMCWPNOM	X	000009	1	5025	
PMCWPOM	X	00000E	1	5029	
PMCWRES1	X	000018	4	5039	
PMCWRES2	X	000018	3	5040	
PMCWS	U	000001	1	5044	
PMCWT	U	000002	1	5019	
PMCWV	U	000001	1	5020	3841
PMCWX	U	000002	1	5043	
PRT04A	C	0007AC	6	4474	4549
PRT05A	C	0007C8	6	4479	4554
PRT06B	C	0007CE	6	4481	4562
PRT09A	C	0009E5	6	4511	4512 4263 4583
PRT09B	C	000A08	6	4517	4518 4274 4587
R0	U	000000	1	5059	3752 3877 3885 3910 3915 3948 3953 3956 3961 3985 3990 3993 3998 4026
					4038 4072 4080 4122 4134 4146 4158 4170 4175 4180 4212 4220 4228 4258
					4266 4269 4277 4309 4327 4329
R1	U	000001	1	5060	
R10	U	00000A	1	5069	4307 4309 4310 4311 4312 4313 4318
R11	U	00000B	1	5070	
R12	U	00000C	1	5071	
R13	U	00000D	1	5072	
R14	U	00000E	1	5073	3762 3764 3765 3766 3767 3768 3769 3770 3771 3772 3797 3875 3883 3891
					3894 3908 3918 3925 3927 3930 3946 3965 3968 3983 4002 4005 4024 4029
					4036 4041 4048 4051 4070 4078 4086 4089 4120 4125 4132 4137 4144 4149
					4156 4161 4168 4186 4210 4218 4226 4234 4237 4256 4264 4275 4281 4284
					4287 4300
R15	U	00000F	1	5074	3788 3789 3791 3793 3794 3828 3860 3878 3886 3911 3916 3920 3949 3954
					3957 3962 3986 3991 3994 3999 4027 4031 4039 4043 4073 4081 4123 4127

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
					4135 4139 4147 4151 4159 4163 4171 4176 4181 4213 4221 4229 4259 4267 4270 4278 4298 4319 4374
R2	U	000002	1	5061	3753 3758 3759 3760
R3	U	000003	1	5062	3754 3786
R4	U	000004	1	5063	
R5	U	000005	1	5064	
R6	U	000006	1	5065	4307 4310 4318
R7	U	000007	1	5066	
R8	U	000008	1	5067	3755 3787 4313
R9	U	000009	1	5068	3756 3790 4310
RCFLAGS	X	001000	16	4623	4626 4628 4629 4630 4631 4632 4633 4634 4635 4636 4638 4639 4640 4641 4642 4643 3774 3796
READFCB	U	000012	1	4424	4574 4577 4580
READPLB	U	000002	1	4417	4584 4588
READUCS	U	00000A	1	4423	
RSTNPSW	F	000000	8	4825	
RSTOPSW	F	000008	8	4826	
SCANOUT	X	000080	1	4863	4864
SCANOUTL	U	000000	1	4864	
SCHIB	4	000000	52	5003	5050 3837
SCHIBL	U	000034	1	5050	
SCHMBA	A	000028	8	5048	
SCHMDA1	X	000030	4	5049	
SCHMDA3	X	000028	12	5047	
SCHPMCW	X	000000	28	5005	
SCHSCSW	X	00001C	12	5046	
SCSW	4	000000	12	4745	4807 3756
SCSW0CC	U	000004	1	4761	
SCSW1	X	000002	1	4765	
SCSW2	X	000003	1	4774	4363
SCSWACP	U	000001	1	4773	
SCSWADA	U	000040	1	4776	
SCSWAHP	U	000002	1	4772	
SCSWALKC	U	000010	1	4759	
SCSWARP	U	000008	1	4770	
SCSWASA	U	000080	1	4775	
SCSWASP	U	000004	1	4771	
SCSWASUS	U	000020	1	4777	
SCSWATTN	U	000080	1	4787	
SCSWBUSY	U	000010	1	4790	
SCSWCCTL	U	000004	1	4802	
SCSWCCW	A	000004	4	4784	4367
SCSWCCWF	U	000080	1	4756	
SCSWCCWP	U	000040	1	4757	
SCSWCDAT	U	000008	1	4801	
SCSWCE	U	000008	1	4791	4370
SCSWCHNG	U	000001	1	4804	
SCSWCNT	H	00000A	2	4806	4368
SCSWCS	X	000009	1	4796	
SCSWCTLS	X	000001	1	4755	
SCSWCUE	U	000020	1	4789	
SCSWDCC0	U	000000	1	4751	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SCSWDCC1	U	000001	1	4752	
SCSWDCC3	U	000003	1	4753	
SCSWDCCM	U	000003	1	4750	
SCSWDE	U	000004	1	4792	4370
SCSWECWC	U	000002	1	4762	
SCSWESWF	U	000004	1	4749	
SCSWFC	U	000010	1	4769	
SCSWFH	U	000020	1	4768	
SCSWFLAG	X	000000	1	4746	
SCSWFM	U	000070	1	4766	
SCSWFS	U	000040	1	4767	
SCSWICTL	U	000002	1	4803	
SCSWIL	U	000040	1	4798	
SCSWISIC	U	000020	1	4758	
SCSWKEYM	U	0000F0	1	4747	
SCSWL	U	00000C	1	4807	
SCSWPCI	U	000080	1	4797	
SCSWPNOP	U	000001	1	4763	
SCSWPRGM	U	000020	1	4799	
SCSWPROT	U	000010	1	4800	
SCSWSAS	U	000010	1	4778	
SCSWSINT	U	000008	1	4779	
SCSWSM	U	000040	1	4788	
SCSWSPEN	U	000001	1	4782	
SCSWSPRI	U	000004	1	4780	4365
SCSWSSEC	U	000002	1	4781	
SCSWSSIC	U	000008	1	4760	
SCSWSUSC	U	000008	1	4748	
SCSWUC	U	000002	1	4793	3879 3887 3912 3917 3921 3950 3958 3987 3995 4028 4032 4040 4044 4074 4082 4124 4128 4136 4140 4148 4152 4160 4164 4172 4177 4182 4214 4222 4230 4260 4271 4299
SCSWUS	X	000008	1	4786	3879 3887 3912 3917 3921 3950 3958 3987 3995 4028 4032 4040 4044 4074 4077 4082 4085 4124 4128 4136 4140 4148 4152 4160 4164 4172 4177 4182 4214 4222 4230 4260 4271 4299 4364
SCSWUX	U	000001	1	4794	4077 4085
SENSE	X	000738	2	4457	3924 3926 4035 4047 4131 4143 4155 4167 4456 4530 4534
SENSECMD	U	000004	1	4419	4456 4530 4534
SENSEPGM	W	000730	8	4456	4327
SIZ03A	C	000780	4	4466	3964 4464 4465
SIZ03B	C	000794	4	4469	3964 4467 4468
SIZ04A	C	0007A8	4	4473	4001 4471 4472
SIZ04B	C	0007C4	4	4477	4001 4475 4476
SIZ09A	C	000A04	4	4516	4280 4514 4515
SIZ09B	C	000A28	4	4522	4280 4520 4521
SKIP	U	000010	1	4415	4530 4534
SKP11NOW	U	0000DB	1	4443	4559 4561
SKP12NOW	U	0000E3	1	4444	4540 4546
SKP1NOW	U	00008B	1	4440	4543 4550
SKP2NOW	U	000093	1	4441	4537
SKP8NOW	U	0000C3	1	4442	4553 4555
SLI	U	000020	1	4414	4456 4528 4529 4530 4531 4532 4533 4534 4536 4537 4539 4540 4541 4542 4543 4545 4546 4547 4548 4549 4550 4552 4553 4555 4556 4558 4559 4560

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
					4561 4562 4564 4565 4566 4567 4568 4572 4573 4574 4575 4576 4577 4578 4579 4580 4582 4584 4585 4586 4588 4589 4590
SNS0CH9	U	000001	1	4449	4035 4047
SNS0DTCK	U	000008	1	4447	3924
SNS0EQCK	U	000010	1	4446	3924
SNS0LDCK	U	000002	1	4448	4131 4143 4155 4167
SNS1LPCK	U	000010	1	4450	3926
SP0AFTER	U	000001	1	4431	4549
SP1AFTER	U	000009	1	4432	4583
SP1NOW	U	00000B	1	4436	4531 4542 4548
SP2AFTER	U	000011	1	4433	4562
SP2NOW	U	000013	1	4437	4556
SP3AFTER	U	000019	1	4434	4554
SP3NOW	U	00001B	1	4438	4541 4547 4560
SSARCHMD	X	0000A3	1	4895	
SSARS	F	000120	4	4951	
SSCLKCMP	F	0000E0	8	4945	
SSCPUTIM	F	0000D8	8	4944	
SSCRS	F	0001C0	4	4954	
SSFPRS	D	000160	8	4952	
SSGRS	F	000180	4	4953	
SSMODEL	F	00010C	4	4949	
SSPREFIX	F	000108	4	4948	
SSPSW	F	000100	8	4947	
SSXSAA	A	0000D4	4	4943	
STFLDATA	F	0000C8	4	4916	
SVCICODE	H	00008A	2	4875	
SVCIID	F	000088	4	4871	
SVCIILC	X	000089	1	4873	
SVCIILCM	U	00000C	1	4874	
SVCNPSW	F	000060	8	4858	
SVCOPSW	F	000020	8	4830	4837
TEST01	I	0002E6	4	3874	3764
TEST02	I	00031E	4	3907	3765
TEST03	I	000360	4	3945	3766
TEST04	I	0003A4	4	3982	3767
TEST05	I	0003E8	4	4023	3768
TEST06	I	000434	4	4069	3769
TEST07	I	00046C	4	4119	3770
TEST08	I	000528	4	4209	3771
TEST09	I	00057C	4	4255	3772
TEST3211	J	000000	4112	3708	3711 3718 3726 3728 4596 4622
TESTFCB	X	00073A	12	4458	4536 4539 4545 4552 4558 4582
TIMER	F	000050	4	4854	
TTDES	F	000054	4	4855	
UA0	F	000010	8	4827	
UA1	F	00004C	4	4852	
UA2	F	0000A4	4	4897	
UA3	F	0000B4	4	4906	
UA4	X	0000B8	1	4907	
UA5	X	0000CC	8	4917	
UA6	X	0000EC	8	4923	

```
     SYMBOL         TYPE  VALUE   LENGTH  DEFN  REFERENCES

UA7                  F    000118       8  4934
UA8                  X    000180      32  4963
UCBL3211             U    0001B0       1  4429
UCFAIL               I    0005D8       4  4298  3880  3888  3913  3922  3951  3959  3988  3996  4033  4045  4075  4083  4129  4141
                                             4153  4165  4173  4178  4183  4215  4223  4231  4261  4272
UCS07F               C    00080C       6  4490  4567
WPSW0015             3    000658       8  4348  4347
WRITEPLB             U    000005       1  4420  4587
ZBRKADDR             A    000110       8  4933
ZEMONCNT             F    00010C       4  4932
ZEMONCTR             A    000100       8  4930
ZEMONSIZ             F    000108       4  4931
ZEXTNPSW             X    0001B0      16  4966
ZEXTOPSW             X    000130      16  4958
ZIONPSW              X    0001F0      16  4970
ZIOOPSW              X    000170      16  4962
ZMCKNPSW             X    0001E0      16  4969
ZMCKOPSW             X    000160      16  4961
ZMKFAILA             F    0000F8       8  4925
ZMONCODE             F    0000B0       8  4900
ZPGMNPSW             X    0001D0      16  4968
ZPGMOPSW             X    000150      16  4960
ZPGMTRX              F    0000A8       8  4899
ZRSTNPSW             X    0001A0      16  4965
ZRSTOPSW             X    000120      16  4957
ZSASDISP             U    0011C0       1  4971
ZSVCNPSW             X    0001C0      16  4967
ZSVCOPSW             X    000140      16  4959
```

```
 MACRO     DEFN  REFERENCES

ANTR        142
APROB       274
ARCHIND     434   3645
ARCHLVL     575   3644
ASAIPL      701   3724
ASALOAD     781   3707
ASAREA      836   4817
ASAZAREA   1021
CPUWAIT    1104   4344
DSECTS     1430   4649   4681   4728   4743   4814
DWAIT      1633   3803   3808   3814
DWAITEND   1690   3813
ENADEV     1698   3834
ESA390     1798
IOCB       1809   4381
IOCBDS     1985   4650
IOFMT      2019   4682   4729   4744   4976   4994   5002
IOINIT     2357   3823
IOTRFR     2398
ORB        2446   4400
POINTER    2635
PSWFMT     2663
RAWAIT     2797
RAWIO      2893   3458*  4331
SETARCH    3618   3784
SIGCPU     3051
SMMGR      3109
SMMGRB     3209
TRAP128    3258
TRAP64     3235   3709   3712
TRAPS      3271
ZARCH      3345
ZEROH      3357
ZEROL      3385
ZEROLH     3413
ZEROLL     3436
```

```
   DESC      SYMBOL    SIZE      POS         ADDR

Entry: 0

Image       IMAGE     4112  0000-100F  0000-100F
  Region    CODE      4112  0000-100F  0000-100F
    CSECT   TEST3211  4112  0000-100F  0000-100F
```

```
   STMT                                          FILE NAME

1     c:\Users\Fish\Documents\Visual Studio 2008\Projects\MyProjects\ASMA-0\3211\3211.asm
2     C:\Users\Fish\Documents\Visual Studio 2008\Projects\Hercules\_Git\_Harold\SATK-0\srcasm\satk.mac


** NO ERRORS FOUND **
```