

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
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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 *****

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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
3481				PRINT ON
3483				*****
3484				* SATK prolog stuff...
3485				*****
3487				ARCHLVL ZARCH=NO,MNOTE=NO
3489+\$AL				OPSYN AL
3490+\$ALR				OPSYN ALR
3491+\$B				OPSYN B
3492+\$BAS				OPSYN BAS
3493+\$BASR				OPSYN BASR
3494+\$BC				OPSYN BC
3495+\$BCTR				OPSYN BCTR

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3496+\$BE OPSYN BE
				3497+\$BH OPSYN BH
				3498+\$BL OPSYN BL
				3499+\$BM OPSYN BM
				3500+\$BNE OPSYN BNE
				3501+\$BNH OPSYN BNH
				3502+\$BNL OPSYN BNL
				3503+\$BNM OPSYN BNM
				3504+\$BNO OPSYN BNO
				3505+\$BNP OPSYN BNP
				3506+\$BNZ OPSYN BNZ
				3507+\$BO OPSYN BO
				3508+\$BP OPSYN BP
				3509+\$BXLE OPSYN BXLE
				3510+\$BZ OPSYN BZ
				3511+\$CH OPSYN CH
				3512+\$L OPSYN L
				3513+\$LH OPSYN LH
				3514+\$LM OPSYN LM
				3515+\$LPSW OPSYN LPSW
				3516+\$LR OPSYN LR
				3517+\$LTR OPSYN LTR
				3518+\$NR OPSYN NR
				3519+\$SL OPSYN SL
				3520+\$SLR OPSYN SLR
				3521+\$SR OPSYN SR
				3522+\$ST OPSYN ST
				3523+\$STM OPSYN STM
				3524+\$X OPSYN X
				3525+\$AHI OPSYN AHI
				3526+\$B OPSYN J
				3527+\$BC OPSYN BRC
				3528+\$BE OPSYN JE
				3529+\$BH OPSYN JH
				3530+\$BL OPSYN JL
				3531+\$BM OPSYN JM
				3532+\$BNE OPSYN JNE
				3533+\$BNH OPSYN JNH
				3534+\$BNL OPSYN JNL
				3535+\$BNM OPSYN JNM
				3536+\$BNO OPSYN JNO
				3537+\$BNP OPSYN JNP
				3538+\$BNZ OPSYN JNZ
				3539+\$BO OPSYN JO
				3540+\$BP OPSYN JP
				3541+\$BXLE OPSYN JXLE
				3542+\$BZ OPSYN JZ
				3543+\$CHI OPSYN CHI

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3545 *****
				3546 * Initiate the TEST3211 CSECT in the CODE region
				3547 * with the location counter at 0
				3548 *****
				3550 TEST3211 ASALOAD REGION=CODE
		00000000	000026FF	3551+TEST3211 START 0, CODE
00000000	000A0000 00000008			3553+ PSW 0,0,2,0,X'008' 64-bit Restart ISR Trap New PSW
00000008		00000008	00000058	3554+ ORG TEST3211+X'058'
00000058	000A0000 00000018			3556+ PSW 0,0,2,0,X'018' 64-bit External ISR Trap New PSW
00000060	000A0000 00000020			3557+ PSW 0,0,2,0,X'020' 64-bit Supervisor Call ISR Trap New PSW
00000068	000A0000 00000028			3558+ PSW 0,0,2,0,X'028' 64-bit Program ISR Trap New PSW
00000070	000A0000 00000030			3559+ PSW 0,0,2,0,X'030' 64-bit Machine Check Trap New PSW
00000078	000A0000 00000038			3560+ PSW 0,0,2,0,X'038' 64-bit Input/Output Trap New PSW
00000080		00000080	00000200	3561+ ORG TEST3211+512
				3563 *****
				3564 * Create IPL (restart) PSW
				3565 *****
				3567 ASAIPL IA=BEGIN
		00000000	000026FF	3568+TEST3211 CSECT
00000200		00000200	00000000	3569+ ORG TEST3211
00000000	00080000 00000200			3570+ PSW 0,0,0,0,BEGIN,24
00000008		00000008	00000200	3571+ ORG TEST3211+512 Reset CSECT to end of assigned storage area
		00000000	000026FF	3572+TEST3211 CSECT

LOC	OBJECT CODE	ADDR1	ADDR2	STMT		
				3574	*****	
				3575	* The actual TEST3211 program itself...	
				3576	*****	
				3577	*	
				3578	* Architecture Mode: ESA/390	
				3579	* Addressing Mode: 24-bit	
				3580	* Register Usage:	
				3581	*	
				3582	* R0 (work)	
				3583	* R1 I/O device used by ENADEV and RAWIO macros	
				3584	* R2 Program base register	
				3585	* R3 IOCB pointer for ENADEV and RAWIO macros	
				3586	* R4 IO work register used by ENADEV and RAWIO	
				3587	* R5 Used for CPU register when signaling architecture change	
				3588	* R6,R7 Signaling registers when changing architecture	
				3589	* R8 ORB pointer	
				3590	* R9 SCSW pointer	
				3591	* R10-R15 (work)	
				3592	*	
				3593	*****	
00000200		00000000		3595	USING ASA,R0	Low core addressability
00000200		00000200		3596	USING BEGIN,R2	Program Addressability
00000200		00000000		3597	USING IOCB,R3	SATK Device I/O Control Block
00000200		00000000		3598	USING ORB,R8	ESA/390 Operation Request Block
00000200		00000000		3599	USING SCSW,R9	ESA/390 Subchannel Status Word
00000200	0520			3601	BEGIN BALR R2,0	Inititalize Base Register
00000202	0620			3602	BCTR R2,0	Inititalize Base Register
00000204	0620			3603	BCTR R2,0	Inititalize Base Register
00000206	45E0 203C		0000023C	3605	BAL R14,INIT	Inititalize Program
0000020A	45E0 20E6		000002E6	3607	BAL R14,TEST01	z/VM 6.3 printer 3211 initial sequence
0000020E	45E0 211E		0000031E	3608	BAL R14,TEST02	Skip to nonexistent FCB channel
00000212	45E0 2160		00000360	3609	BAL R14,TEST03	Skip to chan we're at = No Skip
00000216	45E0 21A8		000003A8	3610	BAL R14,TEST04	Skip to chan we're at = Should Skip
0000021A	45E0 21F0		000003F0	3611	BAL R14,TEST05	Channel 9 crossed
0000021E	45E0 223C		0000043C	3612	BAL R14,TEST06	Channel 12 crossed
00000222	45E0 2274		00000474	3613	BAL R14,TEST07	FCB/UCS Load Check
00000226	45E0 2330		00000530	3614	BAL R14,TEST08	Diagnostic Read FCB
0000022A	45E0 2384		00000584	3615	BAL R14,TEST09	Diagnostic Write/Read PLB
0000022E	D60F 2E00 2E00	00001000	00001000	3617	OC RCFLAGS,RCFLAGS	Did all tests succeed? (all zeros?)
00000234	4770 205C		0000025C	3618	BNZ FAIL	No, Abnormal termination
00000238	47F0 2078		00000278	3619	B EOJ	Yes, Normal completion

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3621 *****
				3622 * Program Initialization
				3623 *****
0000023C				3625 INIT DS 0H Program Initialization
				3627 SETARCH 2 Cleanly enter 64-bit mode if sensible
0000023C	4130 24BC		000006BC	3629 LA R3,IOCB_00F Point to IOCB
00000240	5880 3018		00000018	3630 L R8,IOCBORB Point to ORB
00000244	58F0 3020		00000020	3631 L R15,IOCBIRB Point to IRB
00000248		00000000		3632 USING IRB,R15 Temporary addressability
00000248	4190 F000		00000000	3633 LA R9,IRBSCSW Point to SCSW
0000024C				3634 DROP R15 Done with IRB
0000024C	45F0 2088		00000288	3636 BAL R15,IOINIT Initialize the CPU for I/O operations
00000250	45F0 2096		00000296	3637 BAL R15,ENADEV Enable our device making ready for use
00000254	D20F 2E00 2DF0	00001000	00000FF0	3639 MVC RCFLAGS,DOFLAGS Initialize test return code flags
0000025A	07FE			3640 BR R14 Return to caller
				3642 *****
				3643 * Normal completion or Abnormal termination PSWs
				3644 *****
				3646 FAIL DWAIT LOAD=YES,CODE=BAD Abnormal termination
0000025C				3647+FAIL DS 0H
0000025C	8200 2060		00000260	3648+ LPSW DWAT0008
00000260	000A0000 00010BAD			3649+DWAT0008 PSW 0,0,2,0,X'010BAD'
				3651 FAILD8 DWAIT LOAD=YES,CODE=D8 Diagnose X'008' failed
00000268				3652+FAILD8 DS 0H
00000268	8200 2070		00000270	3653+ LPSW DWAT0009
00000270	000A0000 000100D8			3654+DWAT0009 PSW 0,0,2,0,X'0100D8'
				3656 EOJ DWAITEND LOAD=YES Normal completion
00000278				3658+EOJ DS 0H
00000278	8200 2080		00000280	3659+ LPSW DWAT0011
00000280	000A0000 00000000			3660+DWAT0011 PSW 0,0,2,0,X'000000'

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3662 *****
				3663 * Initialize the CPU for I/O operations
				3664 *****
00000288	B766 2090		00000290	3666 IOINIT IOINIT ,
0000028C	47F0 2094		00000294	3667+IOINIT LCTL 6,6,IOMK0012 Enable subchannel subclasses for interruptions
00000290				3668+ B IOMK0012+4
00000290	FF000000			3669+IOMK0012 DS 0F
00000294	07FF			3670+ DC XL4'FF000000' All subchannel subclasses enabled
				3671 BR R15 Return to caller
				3673 *****
				3674 * Enable the device, making it ready for use
				3675 *****
00000296	5810 20DC		000002DC	3677 ENADEV ENADEV ENAOKAY,FAIL,REG=4
0000029A	5840 3028		00000028	3678+ENADEV L 1,FIND0013
0000029E		00000000		3679+ \$L 4,IOCBSIB Locate where the SCHIB is to be stored
0000029E				3680+ USING SCHIB,4
0000029E	B234 4000		00000000	3681+FINL0013 DS 0H Retrieve Subchannel Information Block for desired device number
000002A2	A774 FFDD		0000025C	3682+ STSCH 0(4) Store the SCHIB for first subchannel
000002A6	9101 4005		00000005	3683+ \$BC B'0111',FAIL Subchannel does not exist and device number not found
000002AA	A784 0011		000002CC	3684+ TM PMCW1_8,PMCWV Is the subchannel device number valid?
000002AE	D501 4006 3004	00000006	00000004	3685+ \$BZ FINN0013 ..No, check the next subchannel
000002B4	A774 000C		000002CC	3686+ CLC PMCWDNUM,IOCBDEV Is this the device number being sought?
				3687+ \$BNE FINN0013 ..No, check the next subchannel
				3688+* Subchannel found!
000002B8	5010 3000		00000000	3689+ ST 1,IOCBIDID Remember the subchannel so I/O can be done to it.
000002BC	9680 4005		00000005	3690+ OI PMCW1_8,PMCWV Make sure it is enabled so I/O requests accepted
000002C0	B232 4000		00000000	3691+ MSCH 0(4) Enable the subchannel to the channel sub-system
000002C4	A784 0010		000002E4	3692+ \$BC B'1000',ENAOKAY CC0 (SCHIB updated), device is ready.
000002C8	A7F4 FFCA		0000025C	3693+ \$B FAIL CC1,CC2,CC3 (SCHIB update failed), quit
000002CC				3694+FINN0013 DS 0H Advance to next subchannel
000002CC	4110 1001		00000001	3695+ LA 1,1(0,1) Advance to next subchannel
000002D0	5510 20E0		000002E0	3696+ CL 1,FINM0013 Beyond maximum subchannel
000002D4	A7D4 FFE5		0000029E	3697+ \$BNH FINL0013 ..No, examine the next subchannel
000002D8	A724 FFC2		0000025C	3698+ \$BH FAIL ..Yes, failed to enable the device
000002DC				3699+ DROP 4 Forget SCHIB addressing
000002DC	00010000			3700+FIND0013 DC A(X'00010000') First subchannel subsystem ID
000002E0	0001FFFF			3701+FINM0013 DC A(X'0001FFFF') Last subchannel subsystem ID
				3702 *
000002E4	07FF			3703 ENAOKAY BR R15 Return to caller if device enabled OK

LOC	OBJECT CODE	ADDR1	ADDR2	STMT				
				3705	*****			
				3706	* TEST01: z/VM 6.3 printer 3211 initial sequence			
				3707	*****			
				3708	*			
				3709	*	A	z/VM 6.3 sequence: 07, 06, 04.	
				3710	*		06 == encoded current line number.	
				3711	*			
				3712	*	B	z/VM 6.3 sequence: 0B, 07, 06, 04.	
				3713	*		06 == encoded current line number.	
				3714	*			
				3715	*****			
000002E6	9500 2E01		00001001	3717	TEST01	CLI	FLAG01,0	Should we do this test?
000002EA	078E			3718		BER	R14	No, skip this test
000002EC	4100 27F8		000009F8	3720		LA	R0,CHPGM01A	Diagnostic Gate, Check Read
000002F0	45F0 242C		0000062C	3721		BAL	R15,EXCP	Do the I/O
000002F4	9102 9008		00000008	3722		TM	SCSWUS,SCSWUC	Unit Check?
000002F8	4710 23E4		000005E4	3723		BO	UCFAIL	Yes, FAIL
000002FC	9540 254E		0000074E	3725		CLI	CKRD01A,X'40'	Expected value? (line #1)
00000300	077E			3726		BNER	R14	No, FAIL
00000302	4100 2810		00000A10	3728		LA	R0,CHPGM01B	Space 1, Diagnostic Gate, Check Read
00000306	45F0 242C		0000062C	3729		BAL	R15,EXCP	Do the I/O
0000030A	9102 9008		00000008	3730		TM	SCSWUS,SCSWUC	Unit Check?
0000030E	4710 23E4		000005E4	3731		BO	UCFAIL	Yes, FAIL
00000312	95C0 254F		0000074F	3733		CLI	CKRD01B,X'C0'	Expected value? (line #2)
00000316	077E			3734		BNER	R14	No, FAIL
00000318	9200 2E01		00001001	3736		MVI	FLAG01,0	Test successful
0000031C	07FE			3737		BR	R14	Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3739 *****
				3740 * TEST02: Skip to nonexistent FCB channel
				3741 *****
				3742 *
				3743 * A Load FCB without channel 2.
				3744 *
				3745 * B Skip to channel 2.
				3746 * Should be error.
				3747 *
				3748 *****
0000031E	9500 2E02		00001002	3750 TEST02 CLI FLAG02,0 Should we do this test?
00000322	078E			3751 BER R14 No, skip this test
00000324	4100 2830		00000A30	3753 LA R0,CHPGM02A Load the test FCB
00000328	45F0 242C		0000062C	3754 BAL R15,EXCP Do the I/O
0000032C	9102 9008		00000008	3755 TM SCSWUS,SCSWUC Unit Check?
00000330	4710 23E4		000005E4	3756 BO UCFAIL Yes, FAIL
00000334	4100 2838		00000A38	3758 LA R0,CHPGM02B Skip to non-existent channel
00000338	45F0 242C		0000062C	3759 BAL R15,EXCP Do the I/O
0000033C	9102 9008		00000008	3760 TM SCSWUS,SCSWUC Unit Check?
00000340	07EE			3761 BNOR R14 No, FAIL
00000342	45F0 2428		00000628	3763 BAL R15,EXCPSENS Get the sense information
00000346	9102 9008		00000008	3764 TM SCSWUS,SCSWUC Unit Check?
0000034A	4710 23E4		000005E4	3765 BO UCFAIL Yes, FAIL
0000034E	9118 2540		00000740	3767 TM SENSE+0,SNS0EQCK+SNS0DTCK
00000352	07EE			3768 BNOR R14 Both not set, FAIL
00000354	9110 2541		00000741	3769 TM SENSE+1,SNS1LPCK
00000358	07EE			3770 BNOR R14 Not also set, FAIL
0000035A	9200 2E02		00001002	3772 MVI FLAG02,0 Test successful
0000035E	07FE			3773 BR R14 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3775 *****
				3776 * TEST03: Skip to chan we're at = No Skip
				3777 *****
				3778 *
				3779 * A Skip to channel 12
				3780 * Space n immed to reach channel 1
				3781 *
				3782 * B Skip to channel 1: should NOT skip!
				3783 * (because we're already positioned at the
				3784 * desired channel and nothing was printed)
				3785 *
				3786 *****
00000360	9500 2E03		00001003	3788 TEST03 CLI FLAG03,0 Should we do this test?
00000364	078E			3789 BER R14 No, skip this test
00000366	4100 2840		00000A40	3791 LA R0,CHPGM03A Skip to chan 12, Space to chan 1
0000036A	45F0 242C		0000062C	3792 BAL R15,EXCP Do the I/O
0000036E	9102 9008		00000008	3793 TM SCSWUS,SCSWUC Unit Check?
00000372	4710 23E4		000005E4	3794 BO UCFAIL Yes, FAIL
00000376	4100 2550		00000750	3796 LA R0,DIAG803A DIAG8 parameters
0000037A	45F0 23F0		000005F0	3797 BAL R15,HCMD Printer file size BEFORE skip attempt
0000037E	4100 2860		00000A60	3799 LA R0,CHPGM03B Skip to channel 1
00000382	45F0 242C		0000062C	3800 BAL R15,EXCP Do the I/O
00000386	9102 9008		00000008	3801 TM SCSWUS,SCSWUC Unit Check?
0000038A	4710 23E4		000005E4	3802 BO UCFAIL Yes, FAIL
0000038E	4100 2560		00000760	3804 LA R0,DIAG803B DIAG8 parameters
00000392	45F0 23F0		000005F0	3805 BAL R15,HCMD Printer file size AFTER skip attempt
00000396	98BC 29B0		00000BB0	3807 LM R11,R12,=A(SIZ03A,SIZ03B)
0000039A	D5FF B000 C000	00000000	00000000	3808 CLC 0(L'SIZ03A,R11),0(R12) Same size?
000003A0	077E			3809 BNER R14 No, FAIL
000003A2	9200 2E03		00001003	3811 MVI FLAG03,0 Test successful
000003A6	07FE			3812 BR R14 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3814 *****
				3815 * TEST04: Skip to chan we're at = Should Skip
				3816 *****
				3817 *
				3818 * A Print and space 0 (i.e. no spacing)
				3819 *
				3820 * B Skip to channel 1: SHOULD skip this time!
				3821 * (even though we ARE already positioned at
				3822 * channel 1), because something WAS printed!
				3823 *
				3824 *****
000003A8	9500 2E04		00001004	3826 TEST04 CLI FLAG04,0 Should we do this test?
000003AC	078E			3827 BER R14 No, skip this test
000003AE	4100 2868		00000A68	3829 LA R0,CHPGM04A Write no spacing (while at chan 1)
000003B2	45F0 242C		0000062C	3830 BAL R15,EXCP Do the I/O
000003B6	9102 9008		00000008	3831 TM SCSWUS,SCSWUC Unit Check?
000003BA	4710 23E4		000005E4	3832 BO UCFAIL Yes, FAIL
000003BE	4100 2570		00000770	3834 LA R0,DIAG804A DIAG8 parameters
000003C2	45F0 23F0		000005F0	3835 BAL R15,HCMD Printer file size BEFORE skip attempt
000003C6	4100 2890		00000A90	3837 LA R0,CHPGM04B Skip to channel 1
000003CA	45F0 242C		0000062C	3838 BAL R15,EXCP Do the I/O
000003CE	9102 9008		00000008	3839 TM SCSWUS,SCSWUC Unit Check?
000003D2	4710 23E4		000005E4	3840 BO UCFAIL Yes, FAIL
000003D6	4100 2588		00000788	3842 LA R0,DIAG804B DIAG8 parameters
000003DA	45F0 23F0		000005F0	3843 BAL R15,HCMD Printer file size AFTER skip attempt
000003DE	98BC 29B8		00000BB8	3845 LM R11,R12,=A(SIZ04A,SIZ04B)
000003E2	D5FF B000 C000	00000000	00000000	3846 CLC 0(L'SIZ04A,R11),0(R12) Same size?
000003E8	078E			3847 BER R14 Yes, FAIL
000003EA	9200 2E04		00001004	3849 MVI FLAG04,0 Test successful
000003EE	07FE			3850 BR R14 Return to caller

LOC	OBJECT	CODE	ADDR1	ADDR2	STMT				
					3852	*****			
					3853	*	TEST05: Channel 9 crossed		
					3854	*****			
					3855	*			
					3856	*	A	Skip to channel 8 (two lines before channel 9)	
					3857	*		Print and space 3	
					3858	*		Should cause Unit Check error, sense = ch9 CROSSED	
					3859	*			
					3860	*	B	Skip to channel 8 (two lines before channel 9)	
					3861	*		Space 2 immed	
					3862	*		Should cause Unit Check error, sense = ch9 REACHED	
					3863	*			
					3864	*	Note: this test depends on the FCB loaded by Test02		
					3865	*			
					3866	*****			
000003F0	9500	2E05		00001005	3868	TEST05	CLI	FLAG05,0	Should we do this test?
000003F4	078E				3869		BER	R14	No, skip this test
000003F6	4100	2898		00000A98	3871		LA	R0,CHPGM05A	Skip to chan 8, space PAST chan 9
000003FA	45F0	242C		0000062C	3872		BAL	R15,EXCP	Do the I/O
000003FE	9102	9008		00000008	3873		TM	SCSWUS,SCSWUC	Unit Check?
00000402	07EE				3874		BNOR	R14	No, FAIL
00000404	45F0	2428		00000628	3876		BAL	R15,EXCPSENS	Get the sense information
00000408	9102	9008		00000008	3877		TM	SCSWUS,SCSWUC	Unit Check?
0000040C	4710	23E4		000005E4	3878		BO	UCFAIL	Yes, FAIL
00000410	9101	2540		00000740	3880		TM	SENSE+0,SNS0CH9	Chan9 sense?
00000414	07EE				3881		BNOR	R14	Not set, FAIL
00000416	4100	28B0		00000AB0	3883		LA	R0,CHPGM05B	Skip to chan 8, space TO chan 9
0000041A	45F0	242C		0000062C	3884		BAL	R15,EXCP	Do the I/O
0000041E	9102	9008		00000008	3885		TM	SCSWUS,SCSWUC	Unit Check?
00000422	07EE				3886		BNOR	R14	No, FAIL
00000424	45F0	2428		00000628	3888		BAL	R15,EXCPSENS	Get the sense information
00000428	9102	9008		00000008	3889		TM	SCSWUS,SCSWUC	Unit Check?
0000042C	4710	23E4		000005E4	3890		BO	UCFAIL	Yes, FAIL
00000430	9101	2540		00000740	3892		TM	SENSE+0,SNS0CH9	Chan9 sense?
00000434	07EE				3893		BNOR	R14	Not set, FAIL
00000436	9200	2E05		00001005	3895		MVI	FLAG05,0	Test successful
0000043A	07FE				3896		BR	R14	Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3898 *****
				3899 * TEST06: Channel 12 crossed
				3900 *****
				3901 *
				3902 * A Skip to channel 11 (two lines before channel 12)
				3903 * Space 3 immed
				3904 * Should cause Unit Exception in CSW (channel 12 CROSSED)
				3905 *
				3906 * B Skip to channel 11 (two lines before channel 12)
				3907 * Print and space 2
				3908 * Should cause Unit Exception in CSW (channel 12 REACHED)
				3909 *
				3910 * Note: this test depends on the FCB loaded by Test02
				3911 *
				3912 *****
0000043C	9500 2E06		00001006	3914 TEST06 CLI FLAG06,0 Should we do this test?
00000440	078E			3915 BER R14 No, skip this test
00000442	4100 28C0		00000AC0	3917 LA R0,CHPGM06A Skip to chan 11, space PAST chan 12
00000446	45F0 242C		0000062C	3918 BAL R15,EXCP Do the I/O
0000044A	9102 9008		00000008	3919 TM SCSWUS,SCSWUC Unit Check?
0000044E	4710 23E4		000005E4	3920 BO UCFAIL Yes, FAIL
00000452	9101 9008		00000008	3922 TM SCSWUS,SCSWUX Unit Exception set?
00000456	07EE			3923 BNOR R14 No, FAIL
00000458	4100 28D8		00000AD8	3925 LA R0,CHPGM06B Skip to chan 11, space TO chan 12
0000045C	45F0 242C		0000062C	3926 BAL R15,EXCP Do the I/O
00000460	9102 9008		00000008	3927 TM SCSWUS,SCSWUC Unit Check?
00000464	4710 23E4		000005E4	3928 BO UCFAIL Yes, FAIL
00000468	9101 9008		00000008	3930 TM SCSWUS,SCSWUX Unit Exception set?
0000046C	07EE			3931 BNOR R14 No, FAIL
0000046E	9200 2E06		00001006	3933 MVI FLAG06,0 Test successful
00000472	07FE			3934 BR R14 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				3936 *****
				3937 * TEST07: Load Check
				3938 *****
				3939 *
				3940 * A Try loading FCB with more than 30 channel stops
				3941 * Should cause Unit Check, SENSE = Load Check
				3942 *
				3943 * D Try loading FCB with channel code > 12.
				3944 * Should cause Unit Check, SENSE = Load Check
				3945 *
				3946 * E Try loading FCB with missing end-of-form flag
				3947 * Should cause Unit Check, SENSE = Load Check
				3948 *
				3949 * F Try loading UCS with less than required #of bytes
				3950 * Should cause Unit Check, SENSE = Load Check,
				3951 * REGARDLESS of SLI bit in CCW.
				3952 *
				3953 * G Try loading FCB with 31st channel stop @ end of form
				3954 * Should NOT cause Unit Check! (Should succeed!)
				3955 *
				3956 * H Try loading FCB w/LESS than required length (w/o SLI!)
				3957 * Should SUCCEED; 3211 never sets incorrect length for Load FCB
				3958 *
				3959 * I Try loading FCB w/MORE than required length (w/o SLI!)
				3960 * Should SUCCEED; 3211 never sets incorrect length for Load FCB
				3961 *
				3962 *****
00000474	9500 2E07		00001007	3964 TEST07 CLI FLAG07,0 Should we do this test?
00000478	078E			3965 BER R14 No, skip this test
0000047A	4100 28E8		00000AE8	3967 LA R0,CHPGM07A Load FCB more than 30 channel stops
0000047E	45F0 242C		0000062C	3968 BAL R15,EXCP Do the I/O
00000482	9102 9008		00000008	3969 TM SCSWUS,SCSWUC Unit Check?
00000486	07EE			3970 BNOR R14 No, FAIL
00000488	45F0 2428		00000628	3972 BAL R15,EXCPSENS Get the sense information
0000048C	9102 9008		00000008	3973 TM SCSWUS,SCSWUC Unit Check?
00000490	4710 23E4		000005E4	3974 BO UCFAIL Yes, FAIL
00000494	9102 2540		00000740	3976 TM SENSE+0,SNS0LDCK Load Check?
00000498	07EE			3977 BNOR R14 No, FAIL
0000049A	4100 28F0		00000AF0	3979 LA R0,CHPGM07D Load FCB with channel code > 12
0000049E	45F0 242C		0000062C	3980 BAL R15,EXCP Do the I/O
000004A2	9102 9008		00000008	3981 TM SCSWUS,SCSWUC Unit Check?
000004A6	07EE			3982 BNOR R14 No, FAIL
000004A8	45F0 2428		00000628	3984 BAL R15,EXCPSENS Get the sense information
000004AC	9102 9008		00000008	3985 TM SCSWUS,SCSWUC Unit Check?
000004B0	4710 23E4		000005E4	3986 BO UCFAIL Yes, FAIL

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4033 *****
				4034 * TEST08: Diagnostic Read FCB
				4035 *****
				4036 *
				4037 * A Load FCB (no indexing)
				4038 * Diagnostic Gate (set diagnostic mode)
				4039 * Diagnostic Read FCB
				4040 * Returned data should match the FCB we loaded.
				4041 *
				4042 * B Load FCB (positive indexing)
				4043 * Diagnostic Gate (set diagnostic mode)
				4044 * Diagnostic Read FCB
				4045 * Returned data should match the FCB we loaded.
				4046 *
				4047 * C Load FCB (negative indexing)
				4048 * Diagnostic Gate (set diagnostic mode)
				4049 * Diagnostic Read FCB
				4050 * Returned data should match the FCB we loaded.
				4051 *
				4052 *****
00000530	9500 2E08		00001008	4054 TEST08 CLI FLAG08,0 Should we do this test?
00000534	078E			4055 BER R14 No, skip this test
00000536	4100 2920		00000B20	4057 LA R0,CHPGM08A Load FCB (no idx), Diag, Read FCB
0000053A	45F0 242C		0000062C	4058 BAL R15,EXCP Do the I/O
0000053E	9102 9008		00000008	4059 TM SCSWUS,SCSWUC Unit Check?
00000542	4710 23E4		000005E4	4060 BO UCFAIL Yes, FAIL
00000546	D50B 2775 2769	00000975	00000969	4062 CLC FCB08A2,FCB08A Did we get back what we wrote?
0000054C	077E			4063 BNER R14 Different, FAIL
0000054E	4100 2938		00000B38	4065 LA R0,CHPGM08B Load FCB (+index), Diag, Read FCB
00000552	45F0 242C		0000062C	4066 BAL R15,EXCP Do the I/O
00000556	9102 9008		00000008	4067 TM SCSWUS,SCSWUC Unit Check?
0000055A	4710 23E4		000005E4	4068 BO UCFAIL Yes, FAIL
0000055E	D50C 278E 2781	0000098E	00000981	4070 CLC FCB08B2,FCB08B Did we get back what we wrote?
00000564	077E			4071 BNER R14 Different, FAIL
00000566	4100 2950		00000B50	4073 LA R0,CHPGM08C Load FCB (-index), Diag, Read FCB
0000056A	45F0 242C		0000062C	4074 BAL R15,EXCP Do the I/O
0000056E	9102 9008		00000008	4075 TM SCSWUS,SCSWUC Unit Check?
00000572	4710 23E4		000005E4	4076 BO UCFAIL Yes, FAIL
00000576	D50C 27A8 279B	000009A8	0000099B	4078 CLC FCB08C2,FCB08C Did we get back what we wrote?
0000057C	077E			4079 BNER R14 Different, FAIL
0000057E	9200 2E08		00001008	4081 MVI FLAG08,0 Test successful
00000582	07FE			4082 BR R14 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4084 *****
				4085 * TEST09: Diagnostic Write/Read PLB
				4086 *****
				4087 *
				4088 * A Load any valid FCB
				4089 * Normal write and space
				4090 * Diagnostic Read PLB
				4091 * Returned data should match what we wrote.
				4092 *
				4093 * B Diagnostic Write
				4094 * No spacing should occur and NO DATA SHOULD BE WRITTEN.
				4095 * Diagnostic Read PLB
				4096 * Returned data should match what we wrote.
				4097 *
				4098 *****
00000584	9500 2E09		00001009	4100 TEST09 CLI FLAG09,0 Should we do this test?
00000588	078E			4101 BER R14 No, skip this test
0000058A	4100 2968		00000B68	4103 LA R0,CHPGM09A Write and Space, Diagnostic Read PLB
0000058E	45F0 242C		0000062C	4104 BAL R15,EXCP Do the I/O
00000592	9102 9008		00000008	4105 TM SCSWUS,SCSWUC Unit Check?
00000596	4710 23E4		000005E4	4106 BO UCFAIL Yes, FAIL
0000059A	D505 27BB 27B5	000009BB	000009B5	4108 CLC PLB09A,PRT09A Did we get back what we wrote?
000005A0	077E			4109 BNER R14 Different, FAIL
000005A2	4100 27C4		000009C4	4111 LA R0,DIAG809A DIAG8 parameters
000005A6	45F0 23F0		000005F0	4112 BAL R15,HCMD Printer file size BEFORE diag write
000005AA	4100 2990		00000B90	4114 LA R0,CHPGM09B Diagnostic Write, Diagnostic Read PLB
000005AE	45F0 242C		0000062C	4115 BAL R15,EXCP Do the I/O
000005B2	9102 9008		00000008	4116 TM SCSWUS,SCSWUC Unit Check?
000005B6	4710 23E4		000005E4	4117 BO UCFAIL Yes, FAIL
000005BA	D505 27DA 27D4	000009DA	000009D4	4119 CLC PLB09B,PRT09B Did we get back what we wrote?
000005C0	077E			4120 BNER R14 Different, FAIL
000005C2	4100 27E4		000009E4	4122 LA R0,DIAG809B DIAG8 parameters
000005C6	45F0 23F0		000005F0	4123 BAL R15,HCMD Printer file size AFTER diag write
000005CA	98BC 29C0		00000BC0	4125 LM R11,R12,=A(SIZ09A,SIZ09B)
000005CE	D5FF B000 C000	00000000	00000000	4126 CLC 0(L'SIZ09A,R11),0(R12) Same size?
000005D4	077E			4127 BNER R14 No, FAIL
000005D6	D500 27E0 27C1	000009E0	000009C1	4129 CLC CKRD09B,CKRD09A Same line position?
000005DC	077E			4130 BNER R14 No, FAIL
000005DE	9200 2E09		00001009	4132 MVI FLAG09,0 Test successful
000005E2	07FE			4133 BR R14 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4135 *****
				4136 * Fail test due to unexpected Unit Check condition
				4137 *****
				4138 *
				4139 * Tests which encounter an unexpected Unit Check will
				4140 * branch to here to clear the error and fail their test.
				4141 *
				4142 *****
000005E4	45F0 2428		00000628	4144 UCFAIL BAL R15,EXCPSENS Do SENSE to clear Unit Check
000005E8	9102 9008		00000008	4145 TM SCSWUS,SCSWUC Did the SENSE I/O fail?
000005EC	07EE			4146 BNOR R14 No, return to fail test
000005EE	0000			4147 DC H'0' *** SENSE FAILED?! ***
				4149 *****
				4150 * Issue HERCULES DIAG X'008' command pointed to by R0
				4151 *****
000005F0	906A 2414		00000614	4153 HCMD STM R6,R10,HCMDSAVE Save registers
000005F4	18A0			4155 LR R10,R0 R10 -> HCMD parameters
000005F6	9869 A000		00000000	4156 LM R6,R9,0(R10) Load Diag8 registers
000005FA	41A0 0040		00000040	4157 LA R10,X'40' X'40 = Use response buffer option
000005FE	89A0 0018		00000018	4158 SLL R10,32-8 (shift into high-order byte)
00000602	168A			4159 OR R8,R10 Or option into cmd length reg
00000604	83680008			4161 DC X'83',X'68',X'0008' Issue Hercules Diagnose X'008'
00000608	4770 2068		00000268	4162 BNZ FAILD8 Abort if unsuccessful
0000060C	986A 2414		00000614	4164 LM R6,R10,HCMDSAVE Restore registers
00000610	07FF			4165 BR R15 Return to caller
00000614	00000000 00000000			4167 HCMDSAVE DC 5F'0' Registers save area

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4169 *****
				4170 * Execute the channel program pointed to by R0
				4171 *****
00000628	4100 2538		00000738	4173 EXCPSENS LA R0,SENSEPGM R0 -> Retrieve SENSE Channel Program
0000062C	5000 8008		00000008	4175 EXCP ST R0,ORBCCW Plug Channel Program address into IORB
00000630	9200 300E		0000000E	4177 RAWIO 4,FAIL=FAIL
00000634	D201 300A 3006	0000000A	00000006	4178+ MVI IOCBSC,X'00' Clear SC information
0000063A	5810 3000		00000000	4179+ MVC IOCBST,IOCBZERO Clear accumulated status
				4180+ L 1,IOCBDID Remember the device ID with which I am working
0000063E	5840 3018		00000018	4181+* Initiate Subchannel-based input/output operation
00000642	B233 4000		00000000	4182+ \$L 4,IOCBORB Locate the ORB for the channel subsystem
00000646	A774 FE0B		0000025C	4183+ SSCH 0(4) Initiate the I/O operation
0000064A	5840 3020		00000020	4184+ \$BC B'0111',FAIL ..Start function failed, report/handle the error
0000064E		00000000		4185+ \$L 4,IOCBIRB Locate the IRB storage area
				4186+ USING IRB,4 Make it addressable
0000064E				4188+* Wait for I/O operation to present status via an interruption
0000064E	D207 2470 0078	00000670	00000078	4189+IOWT0014 DS 0H Wait for I/O to complete
00000654	D207 0078 2468	00000078	00000668	4191+ MVC IOS0015(8),120(0) Save Input/Output new PSW
0000065A	8200 2460		00000660	4192+ MVC 120(8,0),ION0015 Establish Input/Output new PSW
00000660	020A0000 00000000			4193+ \$LPSW WPSW0015 Wait for event
00000668	00082000 00000678			4194+WPSW0015 PSW 2,0,2,0,0 Wait for event
00000670	00000000 00000000			4195+ION0015 PSW 0,0,0,32,IRST0015,24 I/O New PSW: cc==2
				4196+IOS0015 DC XL8'00'
00000678				4197+* Handle input/output interruption
00000678	D207 0078 2470	00000078	00000670	4198+IRST0015 DS 0H
				4199+ MVC 120(8,0),IOS0015 Restore input/output new PSW
				4200+* Process the interruption...
				4201+* Validate interruption is for the expected subchannel
0000067E	5510 00B8		000000B8	4202+ CL 1,IOSSID Is this the device for which I am waiting?
00000682	A774 FFE6		0000064E	4203+ \$BNE IOWT0014 ..No, continue waiting for it
				4204+* Accumulate interruption information from IRB
00000686	B235 4000		00000000	4205+ TSCH 0(4) Retrive interrupt information
0000068A	A744 FFE2		0000064E	4206+ \$BC B'0100',IOWT0014 CC1 (not status pending), wait for it to arrive
0000068E	A714 FDE7		0000025C	4207+ \$BC B'0001',FAIL CC3 (not operational), an error then
				4208+* CC0 (status was pending), accumulate the status
00000692	D600 300E 4003	0000000E	00000003	4209+ OC IOCBSC,IRBSCSW+SCSW2 Accumulate status control
00000698	D601 300A 4008	0000000A	00000008	4210+ OC IOCBST,IRBSCSW+SCSWUS Accumulate device and channel status
0000069E	9104 300E		0000000E	4211+ TM IOCBSC,SCSWSPRI Primary subchannel status?
000006A2	A7E4 FFD6		0000064E	4212+ \$BNO IOWT0014 ..No, wait for primary status
000006A6	D203 3010 4004	00000010	00000004	4213+ MVC IOCBSCCW,IRBSCSW+SCSWCCW CCW address
000006AC	D201 3016 400A	00000016	0000000A	4214+ MVC IOCBRCNT,IRBSCSW+SCSWCNT Residual count
				4215+* Test for errors as specified in the IOCB
000006B2	910C 300A		0000000A	4216+ TM IOCBUS,CSWCE+CSWDE Channel end and device end both accumulated?
000006B6	A7E4 FDD3		0000025C	4217+ \$BNO FAIL Hunh? No CE and DE but do have primary status!
				4218+* Input/Output operation successful
000006BA	07FF			4220 BR R15 Return to caller

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4222 *****
				4223 * Structure used by RAWIO identifying
				4224 * the device and operation being performed
				4225 *****
				4227 IOCB_00F IOCB X'00F',CCW=CHPGM01A
000006BC	00000000			4228+IOCB_00F DC A(0) +0 Device Identifier (supplied by ENADEV macro)
000006C0	000F			4229+ DC AL2(X'00F') +4 Device address or device number
000006C2	0000			4230+ DC H'0' +6 Must be zeros
000006C4	D3			4231+ DC AL1(X'D3') +8 Default detected unit errors
000006C5	3F			4232+ DC AL1(X'3F') +9 Default detected channel errors
000006C6	0000			4233+ DC HL2'0' +10 Accumulated unit and channel errors
000006C8	0000			4234+ DC HL2'0' +12 Tested unit and channel status
000006CA	00			4235+ DC XL1'00' +14 Accumulated subchannel status control from SCSW
000006CB	80			4236+ DC XL1'80' +15 Default unsolicited wait condition
000006CC	00000000			4237+ DC F'0' +16 I/O status CCW address
000006D0	00000000			4238+ DC F'0' +20 residual count
000006D4	0000072C			4239+ DC A(IORB0016) +24 Address where ORB is located
000006D8	00000000			4240+ DC A(0) +28 reserved
000006DC	000006EC			4241+ DC A(IIRB0016) +32 Address where IRB stored
000006E0	00000000			4242+ DC A(0) +36 reserved
000006E4	000006EC			4243+ DC A(IIRB0016) +40 Address where SCHIB stored
000006E8	00000000			4244+ DC A(0) +44 reserved
000006EC	00000000 00000000			4245+IIRB0016 DC 16F'0' Embedded shared IRB and SCHIB area
0000072C				4247+IORB0016 DS 0XL12
0000072C	00000000			4248+ DC A(0) Word 0 - Interruption Parameter
00000730	00			4249+ DC AL1((0)*16+B'0000') Word 1, bits 0-7
00000731	80			4250+ DC BL1'10000000' Word 1, bits 8-15
00000732	FF			4251+ DC AL1(255) Word 1, bits 16-23
00000733	00			4252+ DC BL1'00000000' Word 1, bits 24-31
00000734	000009F8			4253+ DC AL4(CHPGM01A) Word 2 - CCW address

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4255 *****
				4256 * CCW opcode equates, etc.
				4257 *****
		00000040	00000001	4259 CC EQU X'40' Command Chain
		00000020	00000001	4260 SLI EQU X'20' Suppress Incorrect Length Indication
		00000010	00000001	4261 SKIP EQU X'10' Skip Data Transfer
		00000002	00000001	4263 READPLB EQU X'02' Diagnostic Read PLB
		00000003	00000001	4264 NOPCMD EQU X'03' No Operation
		00000004	00000001	4265 SENSECMD EQU X'04' Basic Sense
		00000005	00000001	4266 WRITEPLB EQU X'05' Diagnostic Write PLB
		00000006	00000001	4267 CHKREAD EQU X'06' Diagnostic Check Read
		00000007	00000001	4268 DIAGGATE EQU X'07' Diagnostic Gate
		0000000A	00000001	4269 READUCS EQU X'0A' Diagnostic Read UCB
		00000012	00000001	4270 READFCB EQU X'12' Diagnostic Read FCB
		00000063	00000001	4271 LOADFCB EQU X'63' Load Forms Control Buffer
		000000FB	00000001	4272 LOADUCS EQU X'FB' Load Universal Character Set Buffer
		000000B4	00000001	4274 FCBL3211 EQU 180 FCB Length for 3211 printer
		000001B0	00000001	4275 UCBL3211 EQU 432 UCB Length for 3211 printer
		00000001	00000001	4277 SP0AFTER EQU X'01' Write Without Spacing
		00000009	00000001	4278 SP1AFTER EQU X'09' Write And Space 1 Lines
		00000011	00000001	4279 SP2AFTER EQU X'11' Write And Space 2 Lines
		00000019	00000001	4280 SP3AFTER EQU X'19' Write And Space 3 Lines
		0000000B	00000001	4282 SP1NOW EQU X'0B' Space 1 Line Immediate
		00000013	00000001	4283 SP2NOW EQU X'13' Space 2 Lines Immediate
		0000001B	00000001	4284 SP3NOW EQU X'1B' Space 3 Lines Immediate
		0000008B	00000001	4286 SKP1NOW EQU X'8B' Skip to Channel 1 Immediate
		00000093	00000001	4287 SKP2NOW EQU X'93' Skip to Channel 2 Immediate
		000000C3	00000001	4288 SKP8NOW EQU X'C3' Skip to Channel 8 Immediate
		000000DB	00000001	4289 SKP11NOW EQU X'DB' Skip to Channel 11 Immediate
		000000E3	00000001	4290 SKP12NOW EQU X'E3' Skip to Channel 12 Immediate
		00000010	00000001	4292 SNS0EQCK EQU X'10' Sense byte 0, bit 3: Equipment Check
		00000008	00000001	4293 SNS0DTCK EQU X'08' Sense byte 0, bit 4: Data Check
		00000002	00000001	4294 SNS0LDCK EQU X'02' Sense byte 0, bit 6: Load Check
		00000001	00000001	4295 SNS0CH9 EQU X'01' Sense byte 0, bit 7: Channel 9 Crossed
		00000010	00000001	4296 SNS1LPCK EQU X'10' Sense byte 1, bit 3: Line Position Check

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4298 *****
				4299 * Working Storage
				4300 *****
00000738	04200002	00000740		4302 SENSEPGM CCW1 SENSECMD,SENSE,SLI,L'SENSE
00000740	0000			4303 SENSE DC XL2'0000'
00000742	00010008	0009000B		4304 TESTFCB DC X'000100080009000B000C0010'
0000074E	00			4306 CKRD01A DC X'00'
0000074F	00			4307 CKRD01B DC X'00'
00000750	00002000	00002100		4309 DIAG803A DC A(RXSAYSIZ),A(SIZ03A)
00000758	00000100	00000100		4310 DC A(L'RXSAYSIZ),A(L'SIZ03A)
00000760	00002000	00002200		4311 DIAG803B DC A(RXSAYSIZ),A(SIZ03B)
00000768	00000100	00000100		4312 DC A(L'RXSAYSIZ),A(L'SIZ03B)
00000770	00002000	00002300		4314 DIAG804A DC A(RXSAYSIZ),A(SIZ04A)
00000778	00000100	00000100		4315 DC A(L'RXSAYSIZ),A(L'SIZ04A)
00000780	D7D9E3F0	F4C1		4316 PRT04A DC C'PRT04A'
00000788	00002000	00002400		4317 DIAG804B DC A(RXSAYSIZ),A(SIZ04B)
00000790	00000100	00000100		4318 DC A(L'RXSAYSIZ),A(L'SIZ04B)
00000798	D7D9E3F0	F5C1		4320 PRT05A DC C'PRT05A'
0000079E	D7D9E3F0	F6C2		4322 PRT06B DC C'PRT06B'
000007A4				4324 FCB07A DS 0XL32
000007A4	01020304	05060708		4325 DC X'0102030405060708090A'
000007AE	01020304	05060708		4326 DC X'0102030405060708090A'
000007B8	01020304	05060708		4327 DC X'0102030405060708090A'
000007C2	0110			4328 DC X'0110'
000007C4	00000000	00000000		4329 FCB07D DC X'00000000000000000000001D'
000007D0	00000000	00000000		4330 FCB07E DC X'000000000000000000000000'
000007DC	E4C3E2F0	F7C6		4331 UCS07F DC C'UCS07F'
000007E2				4332 FCB07G DS 0XL31
000007E2	01020304	05060708		4333 DC X'0102030405060708090A'
000007EC	01020304	05060708		4334 DC X'0102030405060708090A'
000007F6	01020304	05060708		4335 DC X'0102030405060708090A'
00000800	11			4336 DC X'11'
00000801	00000000	00000000		4337 FCB07H DS XL(FCBL3211-1)
000008B4	00000000	00000000		4338 FCB07I DS XL(FCBL3211+1)
00000969		00000969	00000801	4339 ORG FCB07H
00000801	00010008	0009000B		4340 DC X'000100080009000B000C0010'
0000080D		0000080D	000008B4	4341 ORG FCB07I
000008B4	00010008	0009000B		4342 DC X'000100080009000B000C0010'
000008C0		000008C0	00000969	4343 ORG FCB07I+L'FCB07I

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4383 *****
				4384 * Test Channel Programs
				4385 *****
000009F8	07600001	000009F8		4387 CHPGM01A CCW1 DIAGGATE,*,CC+SLI,1
00000A00	06600001	0000074E		4388 CCW1 CHKREAD,CKRD01A,CC+SLI,L'CKRD01A
00000A08	04300001	00000740		4389 CCW1 SENSECMD,SENSE,SLI+SKIP,1
00000A10	0B600001	00000A10		4390 CHPGM01B CCW1 SP1NOW,*,CC+SLI,1
00000A18	07600001	00000A18		4391 CCW1 DIAGGATE,*,CC+SLI,1
00000A20	06600001	0000074F		4392 CCW1 CHKREAD,CKRD01B,CC+SLI,L'CKRD01B
00000A28	04300001	00000740		4393 CCW1 SENSECMD,SENSE,SLI+SKIP,1
00000A30	6320000C	00000742		4395 CHPGM02A CCW1 LOADFCB,TESTFCB,SLI,L'TESTFCB
00000A38	93200001	00000A38		4396 CHPGM02B CCW1 SKP2NOW,*,SLI,1
00000A40	6360000C	00000742		4398 CHPGM03A CCW1 LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000A48	E3600001	00000A48		4399 CCW1 SKP12NOW,*,CC+SLI,1
00000A50	1B600001	00000A50		4400 CCW1 SP3NOW,*,CC+SLI,1
00000A58	0B200001	00000A58		4401 CCW1 SP1NOW,*,SLI,1
00000A60	8B200001	00000A60		4402 CHPGM03B CCW1 SKP1NOW,*,SLI,1
00000A68	6360000C	00000742		4404 CHPGM04A CCW1 LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000A70	E3600001	00000A70		4405 CCW1 SKP12NOW,*,CC+SLI,1
00000A78	1B600001	00000A78		4406 CCW1 SP3NOW,*,CC+SLI,1
00000A80	0B600001	00000A80		4407 CCW1 SP1NOW,*,CC+SLI,1
00000A88	01200006	00000780		4408 CCW1 SP0AFTER,PRT04A,SLI,L'PRT04A
00000A90	8B200001	00000A90		4409 CHPGM04B CCW1 SKP1NOW,*,SLI,1
00000A98	6360000C	00000742		4411 CHPGM05A CCW1 LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000AA0	C3600001	00000AA0		4412 CCW1 SKP8NOW,*,CC+SLI,1
00000AA8	19000006	00000798		4413 CCW1 SP3AFTER,PRT05A,0,L'PRT05A
00000AB0	C3600001	00000AB0		4414 CHPGM05B CCW1 SKP8NOW,*,CC+SLI,1
00000AB8	13200001	00000AB8		4415 CCW1 SP2NOW,*,SLI,1
00000AC0	6360000C	00000742		4417 CHPGM06A CCW1 LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000AC8	DB600001	00000AC8		4418 CCW1 SKP11NOW,*,CC+SLI,1
00000AD0	1B200001	00000AD0		4419 CCW1 SP3NOW,*,SLI,1
00000AD8	DB600001	00000AD8		4420 CHPGM06B CCW1 SKP11NOW,*,CC+SLI,1
00000AE0	11200006	0000079E		4421 CCW1 SP2AFTER,PRT06B,SLI,L'PRT06B

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
00000AE8	63200020	000007A4		4423 CHPGM07A CCW1 LOADFCB,FCB07A,SLI,L'FCB07A
00000AF0	6320000C	000007C4		4424 CHPGM07D CCW1 LOADFCB,FCB07D,SLI,L'FCB07D
00000AF8	6320000C	000007D0		4425 CHPGM07E CCW1 LOADFCB,FCB07E,SLI,L'FCB07E
00000B00	FB200006	000007DC		4426 CHPGM07F CCW1 LOADUCS,UCS07F,SLI,L'UCS07F
00000B08	6320001F	000007E2		4427 CHPGM07G CCW1 LOADFCB,FCB07G,SLI,L'FCB07G
00000B10	630000B3	00000801		4428 CHPGM07H CCW1 LOADFCB,FCB07H,0,L'FCB07H
00000B18	630000B5	000008B4		4429 CHPGM07I CCW1 LOADFCB,FCB07I,0,L'FCB07I
00000B20	6360000C	00000969		4431 CHPGM08A CCW1 LOADFCB,FCB08A,CC+SLI,L'FCB08A
00000B28	07600001	00000B28		4432 CCW1 DIAGGATE,*,CC+SLI,1
00000B30	1220000C	00000975		4433 CCW1 READFCB,FCB08A2,SLI,L'FCB08A2
00000B38	6360000D	00000981		4434 CHPGM08B CCW1 LOADFCB,FCB08B,CC+SLI,L'FCB08B
00000B40	07600001	00000B40		4435 CCW1 DIAGGATE,*,CC+SLI,1
00000B48	1220000D	0000098E		4436 CCW1 READFCB,FCB08B2,SLI,L'FCB08B2
00000B50	6360000D	0000099B		4437 CHPGM08C CCW1 LOADFCB,FCB08C,CC+SLI,L'FCB08C
00000B58	07600001	00000B58		4438 CCW1 DIAGGATE,*,CC+SLI,1
00000B60	1220000D	000009A8		4439 CCW1 READFCB,FCB08C2,SLI,L'FCB08C2
00000B68	6360000C	00000742		4441 CHPGM09A CCW1 LOADFCB,TESTFCB,CC+SLI,L'TESTFCB
00000B70	09400006	000009B5		4442 CCW1 SP1AFTER,PRT09A,CC,L'PRT09A
00000B78	02600006	000009BB		4443 CCW1 READPLB,PLB09A,CC+SLI,L'PLB09A
00000B80	07600001	00000B80		4444 CCW1 DIAGGATE,*,CC+SLI,1
00000B88	06200001	000009C1		4445 CCW1 CHKREAD,CKRD09A,SLI,L'CKRD09A
00000B90	05400006	000009D4		4446 CHPGM09B CCW1 WRITEPLB,PRT09B,CC,L'PRT09B
00000B98	02600006	000009DA		4447 CCW1 READPLB,PLB09B,CC+SLI,L'PLB09B
00000BA0	07600001	00000BA0		4448 CCW1 DIAGGATE,*,CC+SLI,1
00000BA8	06200001	000009E0		4449 CCW1 CHKREAD,CKRD09B,SLI,L'CKRD09B

	00001000	00000010	4494	FLAG00	EQU	RCFLAGS+0	TEST00
	00001001	00000010	4496	FLAG01	EQU	RCFLAGS+1	TEST01
	00001002	00000010	4497	FLAG02	EQU	RCFLAGS+2	TEST02
	00001003	00000010	4498	FLAG03	EQU	RCFLAGS+3	TEST03
	00001004	00000010	4499	FLAG04	EQU	RCFLAGS+4	TEST04
	00001005	00000010	4500	FLAG05	EQU	RCFLAGS+5	TEST05
	00001006	00000010	4501	FLAG06	EQU	RCFLAGS+6	TEST06
	00001007	00000010	4502	FLAG07	EQU	RCFLAGS+7	TEST07
	00001008	00000010	4503	FLAG08	EQU	RCFLAGS+8	TEST08
	00001009	00000010	4504	FLAG09	EQU	RCFLAGS+9	TEST09
	0000100A	00000010	4506	FLAG10	EQU	RCFLAGS+10	TEST10
	0000100B	00000010	4507	FLAG11	EQU	RCFLAGS+11	TEST11
	0000100C	00000010	4508	FLAG12	EQU	RCFLAGS+12	TEST12
	0000100D	00000010	4509	FLAG13	EQU	RCFLAGS+13	TEST13
	0000100E	00000010	4510	FLAG14	EQU	RCFLAGS+14	TEST14
	0000100F	00000010	4511	FLAG15	EQU	RCFLAGS+15	TEST15

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4513 *****
				4514 * IOCB DSECT
				4515 *****
				4517 DSECTS NAME=IOCB
				4519+IOCB DSECT
				4520+* Field usage by: CH SC Description (R->program read-only, X->program read/write)
00000000				4521+IOCBID DS 0F +0 R Device Identifier - Subsystem ID for channel subsystem
00000000	0000			4522+ DS H +0 R reserved - must be zeros
00000002	0000			4523+IOCBDEV DS H +2 R Channel Unit Device address of I/O operation
00000004	0000			4524+IOCBDEV DS H +4 X X Device address or device number (R after ENADEV)
00000006	0000			4525+IOCBZERO DS H +6 R R Must be zeros
00000008	00			4526+IOCBUM DS X +8 X X Unit status test mask
00000009	00			4527+IOCBCM DS X +9 X X Channel status test mask
0000000A				4528+IOCBST DS 0H +10 X X Input/Output unit and channel status accumulation
0000000A	00			4529+IOCBUS DS X +10 R R Accumulated unit status
0000000B	00			4530+IOCBCS DS X +11 R R Accumulated channel status
0000000C	00			4531+IOCBUT DS X +14 R R Used to test unit status
0000000D	00			4532+IOCBCT DS X +13 R R Used to test channel status
0000000E	00			4533+IOCBSC DS X +14 R Accumulted subchannel status control
0000000F	00			4534+IOCBWAIT DS X +15 X X Recognized unsolicited interruption unit status events
00000010	00000000			4535+IOCBSCCW DS A +16 R R I/O status CCW address
00000014				4536+IOCBSCNT DS 0F +20 R R I/O status residual count as a positive full word
00000014	0000			4537+ DS H +20 R reserved must be zeros
00000016	0000			4538+IOCBRCNT DS H +22 R I/O status residual count as an unsigned halfword
00000018				4539+IOCBCAW DS 0A +24 X Channel Address word
00000018	00000000 00000000			4540+IOCBORB DS AD +24 X Address of the ORB for channel subsystem I/O
00000020	00000000 00000000			4541+IOCBIRB DS AD +32 X Channel subsystem IRB address
00000028	00000000 00000000			4542+IOCBSIB DS AD +40 X Channel subsystem SCHIB address
		00000030	00000001	4543+IOCBL EQU *-IOCB Length of IOCB control block (48) without embedded structures

LOC	OBJECT CODE	ADDR1	ADDR2	STMT					
				4545	*****				
				4546	* ORB DSECT				
				4547	*****				
				4549	DSECTS NAME=ORB				
00000000	00000000			4551+ORB	DSECT				
				4552+ORBPARM	DC F'0'	Word 0, bits 0-31			
00000004	00			4554+ORB1_0	DC	X'00'	Word 1, bits 0-7		
		000000F0	00000001	4555+ORBKEYM	EQU	X'F0'	Word 1, bits 0-3	- Storage Key Mask	
		00000008	00000001	4556+ORBS	EQU	X'08'	Word 1, bit 4	- Suspend Control	
		00000004	00000001	4557+ORBC	EQU	X'04'	Word 1, bit 5	- Streaming Mode Control	
		00000002	00000001	4558+ORBM	EQU	X'02'	Word 1, bit 6	- Modification Control	
		00000001	00000001	4559+ORBY	EQU	X'01'	Word 1, bit 7	- Synchronization Control	
00000005	00			4561+ORB1_8	DC	X'00'	Word 1, bits 8-15		
		00000080	00000001	4562+ORBF	EQU	X'80'	Word 1, bit 8	- CCW Format-Control	
		00000040	00000001	4563+ORBP	EQU	X'40'	Word 1, bit 9	- Pre-fetch control	
		00000020	00000001	4564+ORBI	EQU	X'20'	Word 1, bit 10	- Initial-status Interruption Control	
		00000010	00000001	4565+ORBA	EQU	X'10'	Word 1, bit 11	- Address Limit Checking Control	
		00000008	00000001	4566+ORBU	EQU	X'08'	Word 1, bit 12	- Suppress-suspended-interruption control	
		00000004	00000001	4567+ORBB	EQU	X'04'	Word 1, bit 13	- Channel-Program-Type Control	
		00000002	00000001	4568+ORBH	EQU	X'02'	Word 1, bit 14	- Format 2-IDAW Control	
		00000001	00000001	4569+ORBT	EQU	X'01'	Word 1, bit 15	- 2K-IDAW control	
00000006	00			4570+ORBLPM	DC	X'00'	Word 1, bits 16-23	- Logical Path Mask	
00000007	00			4571+ORRB1_24	DC	X'00'	Word 1, bits 24-31		
		00000080	00000001	4572+ORBL	EQU	X'80'	Word 1, bit 24	- Incorrect Length Suppression Mode	
		0000007F	00000001	4573+ORBRVS3	EQU	X'7F'	Word 1, bits 25-31	- reserved must be zeros	
		00000040	00000001	4574+ORBD	EQU	X'40'	Word 1, bit 25	- MIDAW Addressing Control	
		0000003E	00000001	4575+ORBRVS26	EQU	X'3E'	Word 1, bits 26-30	- reserved must be zeros	
		0000007E	00000001	4576+ORBRVS25	EQU	X'7E'	Word 1, bits 25-30	- reserved must be zeros	
		00000001	00000001	4577+ORBX	EQU	X'01'	Word 1, bit 31	- ORB-extension control	
00000008	00000000			4579+ORBCCW	DC	A(0)	Word 2, bits 1-31	- Channel Program Address	
		00000080	00000001	4580+ORBRVS4	EQU	X'80'	Word 2, bit 0	- reserved must be zero	
		0000000C	00000001	4581+ORBLEN	EQU	*-ORB Length of standard ORB			
				4582+*	Extended ORB fields				
0000000C	00			4583+ORBCSS	DC	X'00'	Word 3, bits 0-7	- Channel Subsystem Priority	
0000000D	00			4584+ORBRVS5	DC	X'00'	Word 3, bits 8-15	- reserved must be zeros	
0000000E				4585+ORBPGM	DC	0X'00'	Word 3, bits 16-23	- Transport mode reserves for program use	
0000000E	00			4586+ORBCU	DC	X'00'	Word 3, bits 16-23	- Control Unit Priority	
0000000F	00			4587+ORBRVS6	DC	X'00'	Word 3, bits 24-31	- reserved must be zeros	
00000010	00000000 00000000			4588+ORBRVS7	DC	XL16'00'	Words 4-7	- reserved must be zeros	
		00000020	00000001	4589+ORBXLEN	EQU	*-ORB Length of extended ORB			

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4607 *****
				4608 * SCSW DSECT
				4609 *****
				4611 DSECTS NAME=SCSW
00000000	00			4613+SCSW DSECT Subchannel Status Word
		000000F0	00000001	4614+SCSWFLAG DC X'00' Flags
		00000008	00000001	4615+SCSWKEYM EQU X'F0' Storage Key Mask of subchannel storage key
		00000004	00000001	4616+SCSWUSC EQU X'08' Suspend Control
		00000003	00000001	4617+SCSWESWF EQU X'04' Extended Status Word Format
		00000000	00000001	4618+SCSWDCCM EQU X'03' Deferred condiont code mask
		00000001	00000001	4619+SCSWDCC0 EQU X'00' Normal I/O interruption
		00000003	00000001	4620+SCSWDCC1 EQU X'01' Deferred condition code is 1
				4621+SCSWDCC3 EQU X'03' Deferred condition code is 3
00000001	00			4623+SCSWCTLS DC X'00' General Controls
		00000080	00000001	4624+SCSWCCWF EQU X'80' CCW Format control when ...
		00000040	00000001	4625+SCSWCCWP EQU X'40' CCW Prefetch Control
		00000020	00000001	4626+SCSWISIC EQU X'20' Initial-Status-Interruption Control
		00000010	00000001	4627+SCSWALKC EQU X'10' Address-Limit-Checking Control
		00000008	00000001	4628+SCSWSSIC EQU X'08' Suppress suspended interruption
		00000004	00000001	4629+SCSW0CC EQU X'04' Zero-Condition Code
		00000002	00000001	4630+SCSWECWC EQU X'02' Extended Control Word control
		00000001	00000001	4631+SCSWPNOP EQU X'01' Path Not Operational
00000002	00			4633+SCSW1 DC X'00' Control Byte 1
		00000070	00000001	4634+SCSWFM EQU X'70' Functional Control Mask
		00000040	00000001	4635+SCSWFS EQU X'40' Function Control - Start Function
		00000020	00000001	4636+SCSWFH EQU X'20' Function Control - Halt Function
		00000010	00000001	4637+SCSWFC EQU X'10' Function Control - Clear Function
		00000008	00000001	4638+SCSWARP EQU X'08' Activity Control - Resume pending
		00000004	00000001	4639+SCSWASP EQU X'04' Activity Control - Start pending
		00000002	00000001	4640+SCSWAHP EQU X'02' Activity Control - Halt pending
		00000001	00000001	4641+SCSWACP EQU X'01' Activity Control - Clear pending
00000003	00			4642+SCSW2 DC X'00' Control Byte 2
		00000080	00000001	4643+SCSWASA EQU X'80' Activity Control - Subchannel Active
		00000040	00000001	4644+SCSWADA EQU X'40' Activity Control - Device Active
		00000020	00000001	4645+SCSWASUS EQU X'20' Activity Control - Suspended
		00000010	00000001	4646+SCSWSAS EQU X'10' Status Control - Alert Status
		00000008	00000001	4647+SCSWSINT EQU X'08' Status Control - Intermediate Status
		00000004	00000001	4648+SCSWSPRI EQU X'04' Status Control - Primary Status
		00000002	00000001	4649+SCSWSSEC EQU X'02' Status Control - Secondary Status
		00000001	00000001	4650+SCSWSPEN EQU X'01' Status Control - Status Pending
00000004	00000000			4652+SCSWCCW DC A(0) CCW Address
00000008	00			4654+SCSWUS DC X'00' Unit Status
		00000080	00000001	4655+SCSWATTN EQU X'80' Attention
		00000040	00000001	4656+SCSWSM EQU X'40' Status modifier
		00000020	00000001	4657+SCSWCUE EQU X'20' Control-unit end
		00000010	00000001	4658+SCSWBUSY EQU X'10' Busy
		00000008	00000001	4659+SCSWCE EQU X'08' Channel end

LOC	OBJECT CODE	ADDR1	ADDR2	STMT
				4678 *****
				4679 * (other DSECTS needed by SATK)
				4680 *****
				4682 DSECTS PRINT=OFF,NAME=(ASA,SCHIB,CCW0,CCW1,CSW)
				4958 PRINT ON
				4960 *****
				4961 * Register equates
				4962 *****
		00000000	00000001	4964 R0 EQU 0
		00000001	00000001	4965 R1 EQU 1
		00000002	00000001	4966 R2 EQU 2
		00000003	00000001	4967 R3 EQU 3
		00000004	00000001	4968 R4 EQU 4
		00000005	00000001	4969 R5 EQU 5
		00000006	00000001	4970 R6 EQU 6
		00000007	00000001	4971 R7 EQU 7
		00000008	00000001	4972 R8 EQU 8
		00000009	00000001	4973 R9 EQU 9
		0000000A	00000001	4974 R10 EQU 10
		0000000B	00000001	4975 R11 EQU 11
		0000000C	00000001	4976 R12 EQU 12
		0000000D	00000001	4977 R13 EQU 13
		0000000E	00000001	4978 R14 EQU 14
		0000000F	00000001	4979 R15 EQU 15
				4981 END

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES														
ASA	4	000000	512	4686	3595														
ASBEGIN	U	000000	1	4687	4692	4734	4770	4779	4797	4804	4810	4814	4818	4824	4841				
ASEND	U	000200	1	4840	4841														
ASLENGTH	U	000200	1	4841															
BCEXTCOD	H	00001A	2	4704															
BCIOCOD	H	00003A	2	4712															
BCMCKCOD	H	000032	2	4710															
BCPGMCOD	H	00002A	2	4708															
BCSVCCOD	H	000022	2	4706															
BEGIN	I	000200	2	3601	3570	3596													
CAW	F	000048	4	4716															
CAWADDR	R	000049	3	4719															
CAWKEY	X	000048	1	4717															
CAWSUSP	U	000008	1	4718															
CC	U	000040	1	4259	4387	4388	4390	4391	4392	4398	4399	4400	4404	4405	4406	4407	4411	4412	
					4414	4417	4418	4420	4431	4432	4434	4435	4437	4438	4441	4442	4443	4444	
					4446	4447	4448												
CCW0	4	000000	8	4845	4851														
CCW0ADDR	R	000001	3	4847															
CCW0CNT	H	000006	2	4850															
CCW0CODE	X	000000	1	4846															
CCW0FLGS	X	000004	1	4848															
CCW0L	U	000008	1	4851															
CCW1	4	000000	8	4863	4868														
CCW1ADDR	A	000004	4	4867															
CCW1CNT	H	000002	2	4866															
CCW1CODE	X	000000	1	4864															
CCW1FLGS	X	000001	1	4865															
CCW1L	U	000008	1	4868															
CCWCC	U	000040	1	4855															
CCWCD	U	000080	1	4854															
CCWIDA	U	000004	1	4859															
CCWPCI	U	000008	1	4858															
CCWSKIP	U	000010	1	4857															
CCWSLI	U	000020	1	4856															
CCWSUSP	U	000002	1	4860															
CHANID	F	0000A8	4	4771															
CHKREAD	U	000006	1	4267	4388	4392	4445	4449											
CHPGM01A	W	0009F8	8	4387	3720	4253													
CHPGM01B	W	000A10	8	4390	3728														
CHPGM02A	W	000A30	8	4395	3753														
CHPGM02B	W	000A38	8	4396	3758														
CHPGM03A	W	000A40	8	4398	3791														
CHPGM03B	W	000A60	8	4402	3799														
CHPGM04A	W	000A68	8	4404	3829														
CHPGM04B	W	000A90	8	4409	3837														
CHPGM05A	W	000A98	8	4411	3871														
CHPGM05B	W	000AB0	8	4414	3883														
CHPGM06A	W	000AC0	8	4417	3917														
CHPGM06B	W	000AD8	8	4420	3925														
CHPGM07A	W	000AE8	8	4423	3967														
CHPGM07D	W	000AF0	8	4424	3979														

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
CHPGM07E	W	000AF8	8	4425	3991
CHPGM07F	W	000B00	8	4426	4003
CHPGM07G	W	000B08	8	4427	4015
CHPGM07H	W	000B10	8	4428	4020
CHPGM07I	W	000B18	8	4429	4025
CHPGM08A	W	000B20	8	4431	4057
CHPGM08B	W	000B38	8	4434	4065
CHPGM08C	W	000B50	8	4437	4073
CHPGM09A	W	000B68	8	4441	4103
CHPGM09B	W	000B90	8	4446	4114
CKRD01A	X	00074E	1	4306	3725 4388
CKRD01B	X	00074F	1	4307	3733 4392
CKRD09A	X	0009C1	1	4354	4129 4445
CKRD09B	X	0009E0	1	4359	4129 4449
CODE	2	000000	9984	3551	
CPUID	U	00031B	1	4843	
CSW	F	000040	8	4715	
CSWATTN	U	000080	1	4885	
CSWBUSY	U	000010	1	4888	
CSWCCTL	U	000004	1	4900	
CSWCCW	R	000001	3	4882	
CSWCDAT	U	000008	1	4899	
CSWCE	U	000008	1	4889	4216
CSWCHNG	U	000001	1	4902	
CSWCNT	H	000006	2	4904	
CSWCS	X	000005	1	4894	
CSWCUE	U	000020	1	4887	
CSWDCC0	U	000000	1	4878	
CSWDCC1	U	000001	1	4879	
CSWDCC3	U	000003	1	4880	
CSWDCCM	U	000003	1	4877	
CSWDE	U	000004	1	4890	4216
CSWFLAG	X	000000	1	4872	
CSWFMT	4	000000	8	4871	4905
CSWFMTL	U	000008	1	4905	
CSWICTL	U	000002	1	4901	
CSWIL	U	000040	1	4896	
CSWKEYM	U	0000F0	1	4873	
CSWLOG	U	000004	1	4876	
CSWPCI	U	000080	1	4895	
CSWPRGM	U	000020	1	4897	
CSWPROT	U	000010	1	4898	
CSWSM	U	000040	1	4886	
CSWSUSP	U	000008	1	4875	
CSWUC	U	000002	1	4891	
CSWUS	X	000004	1	4884	
CSWUX	U	000001	1	4892	
DIAG803A	A	000750	4	4309	3796
DIAG803B	A	000760	4	4311	3804
DIAG804A	A	000770	4	4314	3834
DIAG804B	A	000788	4	4317	3842
DIAG809A	A	0009C4	4	4355	4111

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
DIAG809B	A	0009E4	4	4360	4122
DIAGGATE	U	000007	1	4268	4387 4391 4432 4435 4438 4444 4448
DOFLAGS	X	000FF0	16	4465	3639
DWAT0008	3	000260	8	3649	3648
DWAT0009	3	000270	8	3654	3653
DWAT0011	3	000280	8	3660	3659
ENADEV	I	000296	4	3678	3637
ENAOKAY	I	0002E4	2	3703	3692
EOJ	H	000278	2	3658	3619
EXCP	I	00062C	4	4175	3721 3729 3754 3759 3792 3800 3830 3838 3872 3884 3918 3926 3968 3980 3992 4004 4016 4021 4026 4058 4066 4074 4104 4115
EXCPSSENS	I	000628	4	4173	3763 3876 3888 3972 3984 3996 4008 4144
EXTCPUAD	H	000084	2	4736	
EXTICODE	H	000086	2	4737	
EXTIPARM	F	000080	4	4735	
EXTNPSW	F	000058	8	4725	
EXTOPSW	F	000018	8	4697	4703
FAIL	H	00025C	2	3647	3618 3683 3693 3698 4184 4207 4217
FAILD8	H	000268	2	3652	4162
FCB07A	X	0007A4	32	4324	4423
FCB07D	X	0007C4	12	4329	4424
FCB07E	X	0007D0	12	4330	4425
FCB07G	X	0007E2	31	4332	4427
FCB07H	X	000801	179	4337	4339 4428
FCB07I	X	0008B4	181	4338	4341 4343 4429
FCB08A	X	000969	12	4345	4346 4062 4431
FCB08A2	X	000975	12	4346	4062 4433
FCB08B	X	000981	13	4347	4348 4070 4434
FCB08B2	X	00098E	13	4348	4070 4436
FCB08C	X	00099B	13	4349	4350 4078 4437
FCB08C2	X	0009A8	13	4350	4078 4439
FCBL3211	U	0000B4	1	4274	4337 4338
FIND0013	A	0002DC	4	3700	3678
FINL0013	H	00029E	2	3681	3697
FINM0013	A	0002E0	4	3701	3696
FINN0013	H	0002CC	2	3694	3685 3687
FLAG00	U	001000	16	4494	
FLAG01	U	001001	16	4496	3717 3736
FLAG02	U	001002	16	4497	3750 3772
FLAG03	U	001003	16	4498	3788 3811
FLAG04	U	001004	16	4499	3826 3849
FLAG05	U	001005	16	4500	3868 3895
FLAG06	U	001006	16	4501	3914 3933
FLAG07	U	001007	16	4502	3964 4030
FLAG08	U	001008	16	4503	4054 4081
FLAG09	U	001009	16	4504	4100 4132
FLAG10	U	00100A	16	4506	
FLAG11	U	00100B	16	4507	
FLAG12	U	00100C	16	4508	
FLAG13	U	00100D	16	4509	
FLAG14	U	00100E	16	4510	
FLAG15	U	00100F	16	4511	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES					
HCMD	I	0005F0	4	4153	3797	3805	3835	3843	4112	4123
HCMDSAVE	F	000614	4	4167	4153	4164				
IIRB0016	F	0006EC	4	4245	4241	4243				
IMAGE	1	000000	9984	0						
INIT	H	00023C	2	3625	3605					
IOCB	4	000000	48	4519	4543	3597				
IOCBCAW	A	000018	4	4539						
IOCBM	X	000009	1	4527						
IOCBCS	X	00000B	1	4530						
IOCBCT	X	00000D	1	4532						
IOCBDEV	H	000004	2	4524	3686					
IOCBDID	F	000000	4	4521	3689	4180				
IOCBDV	H	000002	2	4523						
IOCBIRB	A	000020	8	4541	3631	4185				
IOCBL	U	000030	1	4543						
IOCBORB	A	000018	8	4540	3630	4182				
IOCBRCNT	H	000016	2	4538	4214					
IOCBSC	X	00000E	1	4533	4178	4209	4211			
IOCBSCCW	A	000010	4	4535	4213					
IOCBSCNT	F	000014	4	4536						
IOCBSIB	A	000028	8	4542	3679					
IOCBST	H	00000A	2	4528	4179	4210				
IOCBUM	X	000008	1	4526						
IOCBUS	X	00000A	1	4529	4216					
IOCBUT	X	00000C	1	4531						
IOCBWAIT	X	00000F	1	4534						
IOCBZERO	H	000006	2	4525	4179					
IOCB_00F	A	0006BC	4	4228	3629					
IOELADDR	F	0000AC	4	4772						
IOICODE	H	0000BA	2	4777						
IOIID	F	0000C0	4	4782						
IOINIT	I	000288	4	3667	3636					
IOIPARM	F	0000BC	4	4781						
IOMK0012	F	000290	4	3669	3667	3668				
ION0015	3	000668	8	4195	4192					
IONPSW	F	000078	8	4729						
IOOPSW	F	000038	8	4701	4711					
IORB0016	X	00072C	12	4247	4239					
IOS0015	X	000670	8	4196	4191	4199				
IOSSID	F	0000B8	4	4780	4202					
IOWT0014	H	00064E	2	4189	4203	4206	4212			
IPLCCW1	F	000008	8	4689						
IPLCCW2	F	000010	8	4690						
IPLPSW	F	000000	8	4688						
IRB	4	000000	96	4598	4602	4604	3632	4186		
IRBECW	X	000020	32	4601						
IRBEMW	X	000040	32	4603						
IRBESW	X	00000C	20	4600						
IRBL	U	000040	1	4602						
IRBSCSW	X	000000	12	4599	3633	4209	4210	4213	4214	
IRBXL	U	000060	1	4604						
IRST0015	H	000678	2	4198	4195					

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES														
LCHANLOG	F	0000B0	4	4773															
LOADFCB	U	000063	1	4271	4395	4398	4404	4411	4417	4423	4424	4425	4427	4428	4429	4431	4434	4437	
					4441														
LOADUCS	U	0000FB	1	4272	4426														
MCKLOG	F	000100	4	4805															
MCKNPSW	F	000070	8	4728															
MCKOPSW	F	000030	8	4700	4709														
MEASUREB	X	0000B9	1	4776															
MKARCHMD	X	0000A3	1	4764															
MKARS	F	000120	4	4803															
MKCLKCMP	F	0000E0	8	4789															
MKCPUTIM	F	0000D8	8	4788															
MKCRS	F	0001C0	4	4808															
MKDMGCOD	F	0000F4	4	4792															
MKFAILA	F	0000F8	4	4794															
MKFPRS	D	000160	8	4806															
MKICODE	F	0000E8	4	4790															
MKLOGOUT	F	000100	4	4796															
MKMODEL	F	0000FC	4	4795															
MKXSAA	F	0000D4	4	4787															
MONCLS	H	000094	2	4752															
MONCODE	F	00009C	4	4759															
MONNUMBR	X	000095	1	4754															
MPGACCID	X	0000A2	1	4762															
NKGRS	F	000180	4	4807															
NOPCMD	U	000003	1	4264															
ORB	4	000000	32	4551	4581	4589	3598												
ORB1_0	X	000004	1	4554															
ORB1_8	X	000005	1	4561															
ORBA	U	000010	1	4565															
ORBB	U	000004	1	4567															
ORBC	U	000004	1	4557															
ORBCCW	A	000008	4	4579	4175														
ORBCSS	X	00000C	1	4583															
ORBCU	X	00000E	1	4586															
ORBD	U	000040	1	4574															
ORBF	U	000080	1	4562															
ORBH	U	000002	1	4568															
ORBI	U	000020	1	4564															
ORBKEYM	U	0000F0	1	4555															
ORBL	U	000080	1	4572															
ORBLN	U	00000C	1	4581															
ORBLPM	X	000006	1	4570															
ORBM	U	000002	1	4558															
ORBP	U	000040	1	4563															
ORBPARM	F	000000	4	4552															
ORBPGM	X	00000E	1	4585															
ORBRV25	U	00007E	1	4576															
ORBRV26	U	00003E	1	4575															
ORBRV3	U	00007F	1	4573															
ORBRV4	U	000080	1	4580															
ORBRV5	X	00000D	1	4584															

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES	
ORBRSV6	X	00000F	1	4587		
ORBRSV7	X	000010	16	4588		
ORBS	U	000008	1	4556		
ORBT	U	000001	1	4569		
ORBU	U	000008	1	4566		
ORBX	U	000001	1	4577		
ORBXLLEN	U	000020	1	4589		
ORBY	U	000001	1	4559		
ORRB1_24	X	000007	1	4571		
PCFETO	A	0000C4	4	4783		
PERACCID	X	0000A1	1	4761		
PERADDR	F	000098	4	4758		
PERCODE	X	000096	1	4755		
PERCODMK	U	0000F0	1	4756		
PGMACCID	X	0000A0	1	4760		
PGMDXC	F	000090	4	4750		
PGMICODE	H	00008E	2	4749		
PGMIID	F	00008C	4	4745		
PGMIILC	X	00008D	1	4747		
PGMIILCM	U	00000C	1	4748		
PGMNPSW	F	000068	8	4727		
PGMOPSW	F	000028	8	4699	4707	
PGMTRX	F	000090	4	4751		
PLB09A	C	0009BB	6	4353	4108	4443
PLB09B	C	0009DA	6	4358	4119	4447
PMCW1_0	X	000004	1	4912		
PMCW1_8	X	000005	1	4915	3684	3690
PMCW	U	000004	1	4947		
PMCWCHP0	X	000010	1	4936		
PMCWCHP1	X	000011	1	4937		
PMCWCHP2	X	000012	1	4938		
PMCWCHP3	X	000013	1	4939		
PMCWCHP4	X	000014	1	4940		
PMCWCHP5	X	000015	1	4941		
PMCWCHP6	X	000016	1	4942		
PMCWCHP7	X	000017	1	4943		
PMCWNUM	H	000006	2	4927	3686	
PMCWE	U	000080	1	4916	3690	
PMCWEXC	X	00001B	1	4946		
PMCWIP	F	000000	4	4911		
PMCWISCM	U	000038	1	4913		
PMCWLM	U	000060	1	4917		
PMCWLMG	U	000020	1	4918		
PMCWMLL	U	000040	1	4919		
PMCWLP	X	000008	1	4929		
PMCWLPUM	X	00000A	1	4931		
PMCW	U	000004	1	4923		
PMCWMBI	H	00000C	2	4933		
PMCWMM	U	000018	1	4920		
PMCWMMC	U	000008	1	4922		
PMCWME	U	000010	1	4921		
PMCWPA	X	00000F	1	4935		

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SCHMBA	A	000028	8	4953	
SCHMDA1	X	000030	4	4954	
SCHMDA3	X	000028	12	4952	
SCHPMCW	X	000000	28	4910	
SCHSCSW	X	00001C	12	4951	
SCSW	4	000000	12	4613	4675 3599
SCSW0CC	U	000004	1	4629	
SCSW1	X	000002	1	4633	
SCSW2	X	000003	1	4642	4209
SCSWACP	U	000001	1	4641	
SCSWADA	U	000040	1	4644	
SCSWAHP	U	000002	1	4640	
SCSWALKC	U	000010	1	4627	
SCSWARP	U	000008	1	4638	
SCSWASA	U	000080	1	4643	
SCSWASP	U	000004	1	4639	
SCSWASUS	U	000020	1	4645	
SCSWATTN	U	000080	1	4655	
SCSWBUSY	U	000010	1	4658	
SCSWCCTL	U	000004	1	4670	
SCSWCCW	A	000004	4	4652	4213
SCSWCCWF	U	000080	1	4624	
SCSWCCWP	U	000040	1	4625	
SCSWCDAT	U	000008	1	4669	
SCSWCE	U	000008	1	4659	
SCSWCHNG	U	000001	1	4672	
SCSWCNT	H	00000A	2	4674	4214
SCSWCS	X	000009	1	4664	
SCSWCTLS	X	000001	1	4623	
SCSWCUE	U	000020	1	4657	
SCSWDCC0	U	000000	1	4619	
SCSWDCC1	U	000001	1	4620	
SCSWDCC3	U	000003	1	4621	
SCSWDCCM	U	000003	1	4618	
SCSWDE	U	000004	1	4660	
SCSWECWC	U	000002	1	4630	
SCSWESWF	U	000004	1	4617	
SCSWFC	U	000010	1	4637	
SCSWFH	U	000020	1	4636	
SCSWFLAG	X	000000	1	4614	
SCSWFM	U	000070	1	4634	
SCSWFS	U	000040	1	4635	
SCSWICTL	U	000002	1	4671	
SCSWIL	U	000040	1	4666	
SCSWISIC	U	000020	1	4626	
SCSWKEYM	U	0000F0	1	4615	
SCSWL	U	00000C	1	4675	
SCSWPCI	U	000080	1	4665	
SCSWPNOP	U	000001	1	4631	
SCSWPRGM	U	000020	1	4667	
SCSWPROT	U	000010	1	4668	
SCSWSAS	U	000010	1	4646	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SCSWSINT	U	000008	1	4647	
SCSWSM	U	000040	1	4656	
SCSWSPEN	U	000001	1	4650	
SCSWSPRI	U	000004	1	4648	4211
SCSWSSSEC	U	000002	1	4649	
SCSWSSIC	U	000008	1	4628	
SCSWUSC	U	000008	1	4616	
SCSWUC	U	000002	1	4661	3722 3730 3755 3760 3764 3793 3801 3831 3839 3873 3877 3885 3889 3919
					3927 3969 3973 3981 3985 3993 3997 4005 4009 4017 4022 4027 4059 4067
					4075 4105 4116 4145
SCSWUS	X	000008	1	4654	3722 3730 3755 3760 3764 3793 3801 3831 3839 3873 3877 3885 3889 3919
					3922 3927 3930 3969 3973 3981 3985 3993 3997 4005 4009 4017 4022 4027
					4059 4067 4075 4105 4116 4145 4210
SCSWUX	U	000001	1	4662	3922 3930
SENSE	X	000740	2	4303	3767 3769 3880 3892 3976 3988 4000 4012 4302 4389 4393
SENSECMD	U	000004	1	4265	4302 4389 4393
SENSEPGM	W	000738	8	4302	4173
SIZ03A	C	002100	256	4372	4373 3808 4309 4310 3807
SIZ03B	C	002200	256	4373	4311 4312 3807
SIZ04A	C	002300	256	4375	4376 3846 4314 4315 3845
SIZ04B	C	002400	256	4376	4317 4318 3845
SIZ09A	C	002500	256	4378	4379 4126 4355 4356 4125
SIZ09B	C	002600	256	4379	4360 4361 4125
SKIP	U	000010	1	4261	4389 4393
SKP11NOW	U	0000DB	1	4289	4418 4420
SKP12NOW	U	0000E3	1	4290	4399 4405
SKP1NOW	U	00008B	1	4286	4402 4409
SKP2NOW	U	000093	1	4287	4396
SKP8NOW	U	0000C3	1	4288	4412 4414
SLI	U	000020	1	4260	4302 4387 4388 4389 4390 4391 4392 4393 4395 4396 4398 4399 4400 4401
					4402 4404 4405 4406 4407 4408 4409 4411 4412 4414 4415 4417 4418 4419
					4420 4421 4423 4424 4425 4426 4427 4431 4432 4433 4434 4435 4436 4437
					4438 4439 4441 4443 4444 4445 4447 4448 4449
SNS0CH9	U	000001	1	4295	3880 3892
SNS0DTCK	U	000008	1	4293	3767
SNS0EQCK	U	000010	1	4292	3767
SNS0LDCK	U	000002	1	4294	3976 3988 4000 4012
SNS1LPCK	U	000010	1	4296	3769
SP0AFTER	U	000001	1	4277	4408
SP1AFTER	U	000009	1	4278	4442
SP1NOW	U	00000B	1	4282	4390 4401 4407
SP2AFTER	U	000011	1	4279	4421
SP2NOW	U	000013	1	4283	4415
SP3AFTER	U	000019	1	4280	4413
SP3NOW	U	00001B	1	4284	4400 4406 4419
SSARCHMD	X	0000A3	1	4763	
SSARS	F	000120	4	4819	
SSCLKCMP	F	0000E0	8	4813	
SSCPUTIM	F	0000D8	8	4812	
SSCRS	F	0001C0	4	4822	
SSFPRS	D	000160	8	4820	
SSGRS	F	000180	4	4821	

SYMBOL	TYPE	VALUE	LENGTH	DEFN	REFERENCES
SSMODEL	F	00010C	4	4817	
SSPREFIX	F	000108	4	4816	
SSPSW	F	000100	8	4815	
SSXSAA	A	0000D4	4	4811	
STFLDATA	F	0000C8	4	4784	
SVCICODE	H	00008A	2	4743	
SVCIID	F	000088	4	4739	
SVCIILC	X	000089	1	4741	
SVCIILCM	U	00000C	1	4742	
SVCNPSW	F	000060	8	4726	
SVCOPSW	F	000020	8	4698	4705
TEST01	I	0002E6	4	3717	3607
TEST02	I	00031E	4	3750	3608
TEST03	I	000360	4	3788	3609
TEST04	I	0003A8	4	3826	3610
TEST05	I	0003F0	4	3868	3611
TEST06	I	00043C	4	3914	3612
TEST07	I	000474	4	3964	3613
TEST08	I	000530	4	4054	3614
TEST09	I	000584	4	4100	3615
TEST3211	J	000000	9984	3551	3554 3561 3569 3571 4368 4464 4490
TESTFCB	X	000742	12	4304	4395 4398 4404 4411 4417 4441
TIMER	F	000050	4	4722	
TTDES	F	000054	4	4723	
UA0	F	000010	8	4695	
UA1	F	00004C	4	4720	
UA2	F	0000A4	4	4765	
UA3	F	0000B4	4	4774	
UA4	X	0000B8	1	4775	
UA5	X	0000CC	8	4785	
UA6	X	0000EC	8	4791	
UA7	F	000118	8	4802	
UA8	X	000180	32	4831	
UCBL3211	U	0001B0	1	4275	
UCFAIL	I	0005E4	4	4144	3723 3731 3756 3765 3794 3802 3832 3840 3878 3890 3920 3928 3974 3986 3998 4010 4018 4023 4028 4060 4068 4076 4106 4117
UCS07F	C	0007DC	6	4331	4426
WPSW0015	3	000660	8	4194	4193
WRITEPLB	U	000005	1	4266	4446
ZBRKADDR	A	000110	8	4801	
ZEMONCNT	F	00010C	4	4800	
ZEMONCTR	A	000100	8	4798	
ZEMONSIZ	F	000108	4	4799	
ZEXTNPSW	X	0001B0	16	4834	
ZEXTOPSW	X	000130	16	4826	
ZIONPSW	X	0001F0	16	4838	
ZIOOPSW	X	000170	16	4830	
ZMCKNPSW	X	0001E0	16	4837	
ZMCKOPSW	X	000160	16	4829	
ZMKFAILA	F	0000F8	8	4793	
ZMONCODE	F	0000B0	8	4768	
ZPGMNPSW	X	0001D0	16	4836	

DESC	SYMBOL	SIZE	POS	ADDR
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Entry: 0

Image	IMAGE	9984	0000-26FF	0000-26FF
Region	CODE	9984	0000-26FF	0000-26FF
CSECT	TEST3211	9984	0000-26FF	0000-26FF

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 **