

DIAGNOSTIC PROGRAM MANUAL

**SIGMA 5 AND 7
INTERRUPT TEST**

PROGRAM NO. 704143C

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RELATED PUBLICATIONS

<u>Publication Title</u>	<u>Publication No.</u>
SDS Sigma 5 Computer, Reference Manual	900959
SDS Sigma 7 Computer, Reference Manual	900950
Sigma 7 Computer, Technical Manual	901060
Sigma 5 Computer, Technical Manual	901172
Sigma Symbol and Meta-Symbol, Reference Manual	900952
Sigma 5 and 7 Diagnostic Relocatable Loader, Diagnostic Program Manual	900972

SECTION I
INTRODUCTION

1-1 SCOPE OF MANUAL

This manual describes the Sigma 5 and 7 interrupt diagnostic program. General information regarding various subroutines is included so that, by using the text of the manual and the program listing, diagnostic techniques such as address SYNC may be implemented.

Loading and operating instructions are included, as well as a complete assembly listing. Also included is a list of publications from which more detailed information on related subjects can be obtained.

1-2 PROGRAM OBJECTIVES

The purpose of this program is to test the Sigma 5 and 7 interrupt system for various failures and to report the results of these tests. Specific tests verify whether each interrupt level presents the correct address to the CPU, verify the priority of the levels implemented, and make running checks to assure that failing conditions of an

intermittant nature do not go undetected. Conditions that are considered failures are as follows:

- a. Unexpected interrupts
- b. Expected interrupts that fail to occur
- c. Interrupts that present addresses outside the range X'50' through X'13F'
- d. Interrupts that occur out of priority sequence
- e. Interrupts that occur more than once per trigger.

Overseer-type checks are used wherever possible to detect conditions such as a. an interrupt level breaking into the active state of the highest priority interrupt implemented, or b. an interrupt level presenting an address within the current register page.

1-3 GENERAL SPECIFICATIONS (See table 1-1)

Table 1-1. General Specifications

Computer Configuration	Sigma 5 or 7 computer with 8K words of memory
Required Equipment	A card reader or paper tape reader; a KSR/ASR printer
Optional Equipment	None
Prerequisites	The AUTO diagnostic must have been run error free
Storage	8K words
Source Language	Metasymbol
Program Media	Paper tape or cards

SECTION II OPERATING PROCEDURE

2-1 PROGRAM LOADING PROCEDURE

The standard fill procedure is used to load program. See page 2 of the program listing, page 4-2, for successful load indications.

2-2 LOADING OPTIONS

This program should be run with the WATCHDOG TIMER switch set to NORMAL, the PARITY ERROR MODE switch set to CONT, the ALARM switch ON, and SENSE switches 1 and 2 at 0, at least until the program is loaded.

2-3 SUCCESS/ERROR INDICATIONS

If a watchdog timer trap occurs, an error interrupt from X'46' will be indicated. If a memory parity error occurs, an unexpected interrupt from X'56' will occur. If error printing is suppressed by setting control bit 0 to a one, the ALARM will go on each time a failure is detected. If very few or highly intermittent failures occur, the alarm indication may not be visible or audible.

If SENSE switches 1 or 2, or both, are set to 1 as the program is loading, waits will occur in the load process, as described in the diagnostic loader manual (No. 900972).

2-4 PROGRAM OPERATING PROCEDURE

After loading, the program runs as follows:

- a. The address of every interrupt that responds to a WD instruction is verified.
- b. The sequence of priorities is determined and the following checks are made:
 1. All interrupts that occurred during the address test occur during this test.
 2. No interrupt occurred during this test that did not occur during the address test.
- c. During tests a and b, above, overall checks, as described in section I, paragraph 1-2, c and e, are carried out.
- d. The priority of interrupts received (step b, above) is printed out on the KSR/ASR printer and verification or correction must be made by the operator.

e. After verification or correction of the priority sequence, a basic test of the entire interrupt system is carried out with all patterns tested under all eight combinations of the inhibit bits in the PSD.

The patterns can be: All levels armed-disabled, triggered, and enabled, all levels armed-disabled, triggered, even numbered levels enabled, all levels armed-disabled, triggered, odd-numbered levels enabled, all levels armed-disabled, even numbered levels triggered, all levels enabled, and so forth.

This pattern of "all", "odd", "even", even-odd pairs, and odd-even pairs, is continued for all 343 combinations of X'FFFF', X'5555', X'AAAA', X'9999', X'CCCC', X'3333', X'6666', taken three at a time with all checks made.

f. A routine is then entered that generates every possible combination of armed-disabled, triggered, enabled, inhibited, and not inhibited condition that can occur within the interrupt system implemented. It is not expected that this routine will be allowed to cycle, even complete one pass, on a machine with many interrupt levels implemented, since the run time increases by binary powers with each additional interrupt implemented.

The run time for a given number of patterns can be reduced considerably by setting SENSE switch 1 to ON. This causes a bypass of tests for optional functions, such as setting control bits, entering routines, and so forth.

This pattern generator function is included to allow detection of highly intermittent failures or failures that occur only under unique conditions of the interrupt system. The loop on error and dump pattern on error facilities used in conjunction with the pattern generator will aid in defining unique failing conditions.

The above flow can be varied by setting the control bits described in the preface to the program listing. Such functions as loop on error, halt on error, loop on manually entered pattern, dump pattern on error, loop on various patterns, and so forth, are available via the control bits. The control exercised by the control panel sense switches are indicated in the preface to the program listing, section IV.

2-5 RESTART PROCEDURE

Other than clearing the waits described in the responses to program messages, no restart of this program, as loaded, is

programmed. If a condition arises in which the operator feels a restart is necessary, the program should be reloaded. If it is absolutely necessary to restart the program without reloading, a manual transfer to the address of the label INITAUTO may be tried.

2-6 TEST DIRECTIVES

Test directives as such do not exist for this program. Optional functional controls via sense switches and control bits are described in detail in the program listing preface.

2-7 SUCCESS INDICATIONS

Successful load of this program is indicated as described on page 1 of the program listing.

The M1, ADDRESSES VERIFIED and M5, SUCCESS print-outs are indications of the passage of certain tests, as described in the program listing under message description. These messages serve mainly as milestones so that, should some unexpected hang-up occur, an indication of the point reached is available. In the event of a failure, an error message could replace either or both of the above messages.

The printout following the M6 PRI SEQ message varies according to the number of levels implemented and the priority in which they are cabled, with each change in WD group starting a new line.

The response to the M6 message is detailed in the preface to the program listing.

Note

No attempt should be made to delete the unassigned levels in WD group 0 from the sequence. If they appear in the printout, they must respond to WD instructions; therefore, to delete them from the sequence would cause false failure indications.

2-8 FAILURE INDICATIONS

To save output time, most messages from this program have been condensed to message flags (with detailed text

defining the flags in the program listing) rather than having lengthy outputs on a failure.

Certain failures generate unique flags, but 13 failing conditions are defined under the M2 error flag. This flag indicates that one or more entries have been made in the error stack and that the stack scanning routine is dumping the errors. This stacking is done in lieu of dumping failure information immediately upon detection of the failure. This is done to prevent an attempt to perform I/O operations while interrupts are active or pending.

The failure information generated by this program in the event of failure detection is intended to be used in combination, as presented, rather than as isolated particles. If, for instance, a failure output indicates that an unexpected interrupt occurred from address X'75', and an expected interrupt from address X'74' failed to occur; this, in most cases, means that the interrupt level expected to interrupt at location X'74' has picked a bit in the address it presented to the CPU. This conclusion is verified by the fact that, at some point, there is an indication that more than one interrupt occurred for a single trigger at address X'75', if the failure is solid.

Since, in the event of multiple failure indications, failures may affect the interrupt addresses presented to the CPU, the address information is considered primary. Since information such as expected sequence is extracted from the address that a level presents, if any kind of addressing failure is indicated, other failure information should be viewed critically for possible false indications. For example, in a test pattern, interrupts might be expected from addresses X'64', X'66', and X'6A'. It may be that, due to a failure, the following errors were indicated:

- a. Unexpected interrupt from X'62'
- b. X'64' and X'66' occurred before X'62'
- c. Expected interrupt from X'6A' failed to occur

In this case, the error in sequence indicated should be ignored since, as in the preceding example, other information available indicates that X'6A' has dropped a bit in its address.

SECTION III PROGRAM DESCRIPTION

3-1 GENERAL

This section contains a general description of the function of certain major routines used to accomplish the program outputs and results.

Figure 3-1 is a flow chart that indicates the program flow if the program is loaded with no control bits entered. The program flow may be altered as described in the control bit explanations.

3-2 TERMINATING FAILURES

The nature of certain failures is such that, should the failure occur, this program can no longer continue. Most of these failures involve the highest priority interrupt implemented.

The program outputs an error message and enters an endless loop, if one of the following conditions occurs:

- a. When all levels in WD group 0 are armed, enabled and triggered, while computing the highest priority level implemented, no interrupts occur. A loop is entered to arm-disable, trigger, and enable all levels in WD group 0. If any interrupts do occur, they will be ignored.
- b. An address other than X'52' or X'54' is presented as the address of the highest priority interrupt implemented. The program goes into a loop to arm-disable, trigger, and enable count pulse 1 and count pulse 3 interrupts. All interrupts are ignored.
- c. The highest priority interrupt implemented presents an address other than the address it presented when computed. The program goes into a loop to arm-disable, trigger, and enable only the highest priority interrupt implemented.
- d. If a WD instruction addressing WD group 1 generates an interrupt, the program enters a loop addressing all levels to arm-disable, trigger, and enable, specifying a WD group of one. Any interrupts that occur are ignored.

3-3 SUBROUTINES, GENERAL

The subroutines SETEXP, IGEN, and CHKPATT are used in concert to prepare for, to trigger, and to check, respectively, the patterns of interrupts used in most of the test routines.

SETEXP generates a field of data predicting the levels from which interrupts are expected to occur. This data is extracted from the input to the IGEN routine, to determine which levels will be armed-disabled, triggered, and enabled. The inhibit bit configuration under which the interrupts will occur is then used to complete the expected field.

IGEN sets the highest priority interrupt implemented into the active state via SETHI, then addresses the levels contained in its input fields by the corresponding WD instructions. The inhibit bits desired are set, the interrupt handling routine exit is set to CHKPATT, and exit is taken.

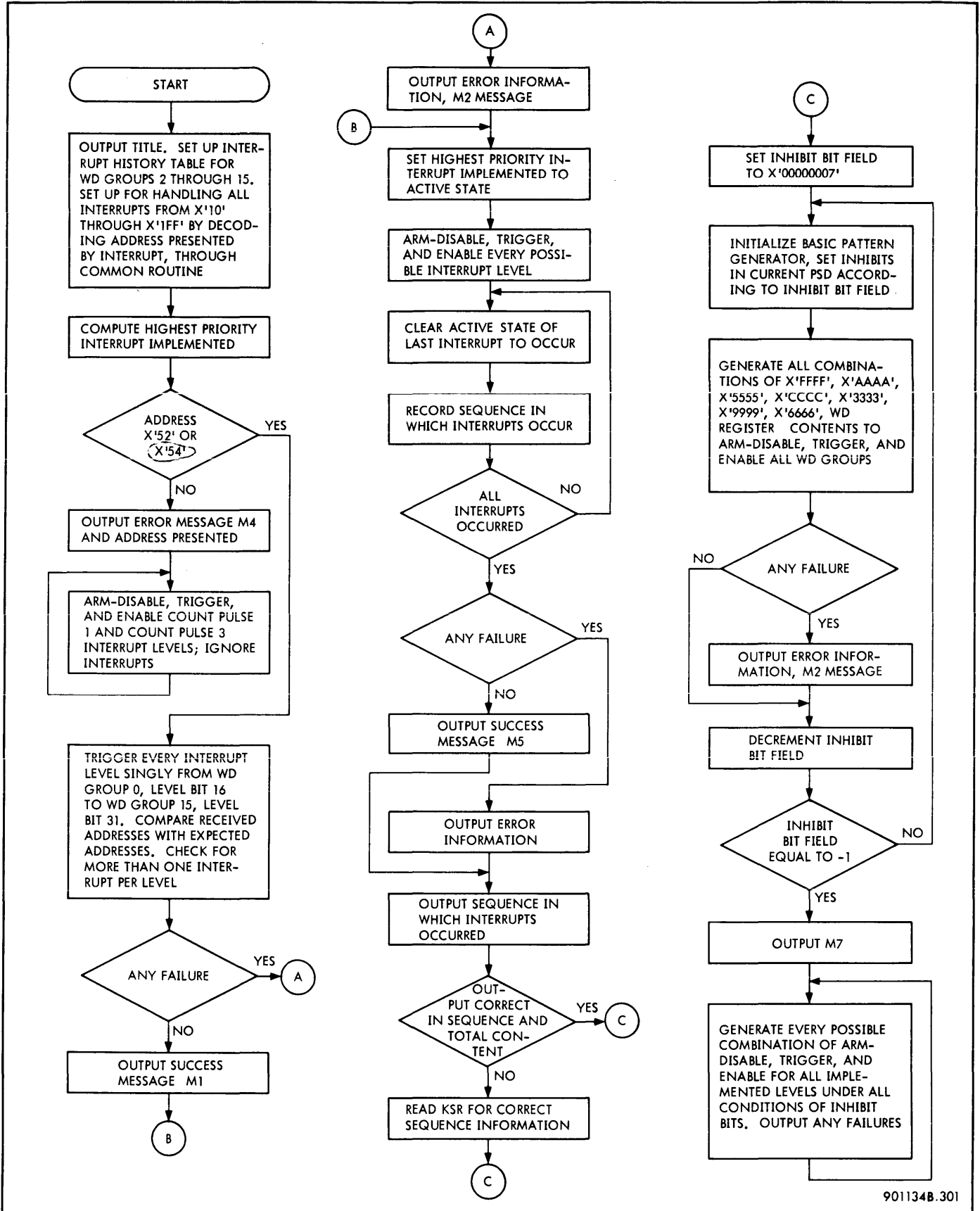
CHKPATT records the sequence in which the interrupts generated occur, checks for more than one interrupt per level, checks for unexpected interrupts as well as the absence of expected interrupts, verifies that no level occurs before a level of higher priority, and outputs any failures that occur.

Wherever possible, before interrupts are allowed to occur, as many registers as are available are loaded with XPSD instructions to prevent a hang-up due to the presentation by an interrupt level of an address between 0 and 15. If such an address is presented, an error message is printed out indicating the address presented.

The common interrupt handling routine extracts its output from the first 15 bits of the PSD stored by the common XPSD instruction at CMPINTAD and the zero or nonzero state of the register page pointer stored. This information is used to determine the address from which an interrupt occurred, as follows:

The bits corresponding to the condition code setting, the floating point masks, the decimal trap mask, and the fixed point overflow mask, stored in the PSD store location CMPAD, are compressed into a contiguous, nine-bit field. The half-word containing the stored register page pointer is then tested for a zero content. If the content is zero, the nine-bit field contains the correct address and exit is taken. If the content is not zero, a bias of 248 (X'F8') is added to the nine-bit field, and exit is taken.

The bias of 248 is determined by the fact that XPSD instructions from X'108' to X'1FF' are coded to cause the loading of a new register page pointer. The XPSD instructions from X'10' to X'107' are coded not to change the register page pointer, although addressing the same PSD locations as the XPSD instructions from X'108' to X'1FF'.



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Figure 3-1. Sigma 5 and 7 Interrupt Test, Flow Chart

The subroutine SETPSDS encodes the required information and sets up the required XPSD instructions.

Any time the routine to set the highest priority interrupt, implemented into the active state (SETHI) is entered, the common interrupt handling routine exit address (ADRDCODE) is set to the address of a routine that handles any interrupt that occurs as a failure. This course is taken so that a level that can break into the active state of the highest priority level is detected as a failure. Just before the highest priority

interrupt implemented is cleared from the active state, the routine generating the interrupts inserts the desired address in the indirect exit (ADRDCODE).

Each time SETHI is entered, the address of the highest priority interrupt implemented is compared to the address that it presented when originally computed. If the address does not match or if the interrupt fails to occur, the program prints out a failure message and goes into an endless loop, addressing only the level originally computed as the highest priority implemented.

SECTION IV
PROGRAM LISTING

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SIGMA 5/7 INTERRUPT TEST  704143-51C00  FEBRUARY 20, 1969  1
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* REVISION C00
 * 'C' REVISION CHANGES ARE INDICATED BY *C IN COLUMNS 71 AND 72 OF THE LISTING.
 * 'C' REVISION CORRECTS THE MASKING OF THE RESPONSE FROM THE JX58 TEST EQUIPMENT.
 *
 * TABLE OF CONTENTS OF LISTING
 * INFORMATION
 * SUCCESSFUL LOAD INDICATION
 * GENERAL INTRODUCTION
 * SENSE SWITCH CONTROL
 * WD POINTER TO ADDRESS CROSS REFERENCE
 * JX-58 TEST DESCRIPTION
 * RESPONSE AND MESSAGE DESCRIPTION
 * CONTROL BIT DESCRIPTION
 * DESCRIPTION OF MANUAL ENTRY ROUTINE INPUT
 * DESCRIPTION OF INTERPROCESSOR INTERRUPT TEST
 * DESCRIPTION OF INTERRUPT HISTORY TABLE
 * * * * DELETED PAGE DIRECTIVE * * *
 * SUCCESSFUL LOAD AND EXECUTION OF THIS PROGRAM WILL BE INDICATED

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SIGMA 5/7 INTERRUPT TEST  704143-51C00  FEBRUARY 20, 1969  2
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* BY THE FOLLOWING PRINT-OUT:
 *
 * SIGMA 5/7 INTERRUPT DIAGNOSTIC
 * PROGRAM NO. 704143C00
 * MANUAL NO. 901134C
 *
 * M1, ADDRESSES VERIFIED
 *
 * M5, SUCCESS
 *
 * M6
 * PRI SEQ
 * XX XX XX XX XX XX XX
 * XX XX XX XX
 * RESPOND, M6
 * REVERSE SS 2 IF SEQUENCE IS
 * COMPLETE AND IN ORDER
 *
 * M7, ENTERING PATTERN GENERATOR
 *
 * THE PRIORITY WHICH APPEARS IN THE 'M6' MESSAGE WILL VARY DEPENDING
 * ON THE NUMBER OF INTERRUPTS IMPLEMENTED, AND THE PRIORITY IN WHICH
 * THE LEVELS ARE CABLED.
 *
 * POWER FAIL-SAFE INTERRUPTS HAVE BEEN ARBITRARILY ASSIGNED POINTERS
 * OF X'0E' AND X'0F' FOR PROGRAMMING CONVENIENCE. THEY CAN NOT BE
 * TRIGGERED BY WRITE DIRECT INSTRUCTIONS, SO THE APPEARANCE OF EITHER
 * OF THOSE TWO POINTERS WOULD ALWAYS BE A FAILURE INDICATION, PROBABLY
 * IN THE INTERRUPT ADDRESS LINES.
 * * * * DELETED PAGE DIRECTIVE * * *
 * TO ACCOMPLISH MOST COMBINATION TESTS OF INTERRUPTS, THE HIGHEST
 * PRIORITY INTERRUPT IMPLEMENTED WILL BE TRIGGERED AND THE TRIGGERING
 * OF ALL OTHER INTERRUPTS WILL BE DONE BEFORE THE HIGHEST PRIORITY
 * INTERRUPT IS CLEARED. THIS WILL ALLOW CHECKING THE LARGEST NUMBERS
 * OF INTERRUPTS COMPETING FOR PRIORITY CONCURRENTLY.

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- TO HANDLE INTERRUPTS GENERATED DURING THE VARIOUS TEST PERFORMED,
- A SET OF 96 XPSD INSTRUCTIONS IS GENERATED, FROM X'10' TO X'1FF'.
-
- A SET OF 248 PROGRAM STATUS DOUBLEWORDS IS ALSO GENERATED, WITH THE ADDRESS OF THE XPSD INSTRUCTION ADDRESSING EACH PSD ENCODED INTO THE CC, FS, FL, FN, DM, AND AM BITS, AND A REGISTER PAGE POINTER OF 15.
-
- THIS SET OF INSTRUCTIONS WILL ALLOW THE HANDLING OF ALL INTERRUPTS GENERATED, EVEN IF INCORRECT ADDRESSES ARE PRESENTED TO THE CPU FROM THE INTERRUPT LOGIC. THE ONE CASE WHICH IS NOT COVERED IS THE CASE IN WHICH AN INTERRUPT PRESENTS AN ADDRESS BETWEEN 0 AND X'0F'. SINCE THE INTERRUPT LOGIC ONLY PRESENTS 3 ADDRESS LINES TO THE CPU, WITH THE EXCEPTION NOTED, ALL INTERRUPTS WILL OCCUR WITHIN THIS FIELD OF XPSD INSTRUCTIONS. THE EXCHANGE OF PROGRAM STATUS DOUBLEWORDS CAUSED BY THE EXECUTION OF ANY OF THESE INSTRUCTIONS WILL RESULT IN THE DECODING OF THE ADDRESS OF THE LEVEL WHICH GENERATED THE INTERRUPT. THIS ADDRESS IS THEN CROSS-CHECKED BY A ROUTINE WHICH EXTRACTS THE CORRECT ADDRESS FROM THE WD GROUP AND LEVEL OF THE INTERRUPT. A LEVEL WHICH PRESENTS AN ADDRESS BETWEEN 0 AND X'F' WILL GENERATE AN ERROR MESSAGE INDICATING THE ADDRESS WHICH WAS PRESENTED. IF THE FAILURE IS SOLID, AND THE ADDRESS PRESENTED IS EITHER 5 OR 9, A HANG-UP CONDITION WILL OCCUR.
-
- IF THE ERROR MESSAGE INDICATED IS PRINTED OUT, AN INTERRUPT WHICH SHOULD HAVE OCCURRED WILL NOT BE RECORDED BY THE CHECKING ROUTINES. THIS WILL GENERATE ADDITIONAL ERROR INFORMATION WHICH SHOULD DIRECTLY INDICATE THE FAILING LEVEL(S).
- * * * DELETED PAGE DIRECTIVE * * *
- IN INSTRUCTIONS REFERRING TO SENSE SWITCH CONTROL BY 'REVERSING' THE SWITCH REFERRED TO, THE INITIAL STATE OF THE SWITCH IS INCONSEQUENTIAL, AND THE OPPOSITE STATE WILL ACCOMPLISH THE RESULTS INDICATED.
-
- AN 'IGNORED' INTERRUPT IS ONE WHICH IS CLEARED AS SOON AS ITS ADDRESS IS DECODED, WITH NO CHECKING PERFORMED.

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- GENERAL TEST PROCEDURE.
- 1. TEST ADDRESSES PRESENTED TO CPU BY INTERRUPT LOGIC.
- 2. CHECK SEQUENCE OF INTERRUPT PRIORITIES.
- 3. TEST STABILITY AND INDEPENDENCE OF STATES OF THE INTERRUPT SYSTEM.
-
- OPTIONAL FUNCTIONS AVAILABLE.
- 1. LOOP ON FAILING CONDITION, ONCE DETECTED.
- 2. LOOP ON JX-58 ROUTINE, WITH SUB-ROUTINE LOOP CONTROL.
- 3. LOOP ON GENERATE ALL INTERRUPTS CONCURRENTLY. (NO CHECKING)
- 4. LOOP ON INTERRUPTS GENERATED SINGLY, FROM WD GROUP ZERO, LEVEL BIT 16 TO WD GROUP 15 LEVEL BIT 31. (NO CHECKING)
- 5. REVERSE OF 4, ABOVE.
- 6. LOOP ON PATTERN ENTERED VIA KSR. (FULL CHECKING)
- THIS ROUTINE MAY BE SET UP TO TEST THE 7700 INTERPROCESSOR INTERRUPT FEATURE.
- 7. SUPPRESS ERROR PRINTING.
- 8. PRESERVE UP TO 64 ERROR RECORDS IF ERROR PRINTING SUPPRESSED.
- 9. LOOP ON BASIC TEST GENERATOR.
-
- SEE EXPANATIONS OF CONTROL BITS, BELOW, FOR ENTRY TO OPTIONAL ROUTINES, AND CONTROL OF LOOPS.
-
- ALTHOUGH CONTROL BITS FOR ENTRY TO THE OPTIONAL ROUTINES MAY BE SET AS SOON AS THE PROGRAM IS LOADED, THEY WILL NOT BE TESTED UNTIL THE INTERRUPT PRIORITY SEQUENCE HAS BEEN VERIFIED OR CORRECTED.
- * * * DELETED PAGE DIRECTIVE * * *
- SENSE SWITCH CONTROL.
-
- SS1 CONTROLS EXIT FROM OPTIONAL ROUTINES. SEE CONTROL BIT EXPLANATIONS FOR CONTROL BITS 4, 5, 6, AND 7.
-
- SS1 SET ON WILL APPRECIABLY DECREASE THE EXECUTION TIME FOR A SINGLE PASS OF THE INTERRUPT PATTERN GENERATOR. IT WILL HAVE TO BE SET OFF TO MAKE ANY OPTIONS, SUCH AS CHANGING CONTROL BIT SETTINGS VIA KSR, AVAILABLE.

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149 *
150 * SS2,SS3 RESPONSE TO MESSAGES. SEE EXPLANATION OF
151 * 'RESPOND,MN' OUTPUT.
152 *
153 * IF JX-58 ROUTINE IS ENTERED, SS 2 ON WILL CAUSE
154 * LOOP ON FIRST SUBROUTINE, SS 3 ON WILL CAUSE LOOP
155 * ON SECOND SUBROUTINE.
156 *
157 * SS4 EACH TIME SS4 IS REVERSED THE KSR WILL BE ADDRESSED
158 * FOR CONTROL BIT SETTINGS, UNLESS THE INTERRUPT PATTERN
159 * GENERATOR HAS BEEN ENTERED, AND SENSE SWITCH ONE IS SET
160 * ON.
161 * * * DELETED PAGE DIRECTIVE * * * *C
162 * WD POINTER TO INTERRUPT ADDRESS CROSS REFERENCE
163 * LEVEL X0 X1 X2 X3 X4 X5 X6 X7 X8 X9 XA XB XC XD XE XF
164 * GROUP
165 * 0X 052 053 054 055 056 057 058 059 05A 05B 05C 05D 05E 05F 060 061
166 *
167 * 2X 060 061 062 063 064 065 066 067 068 069 06A 06B 06C 06D 06E 06F
168 *
169 * 3X 070 071 072 073 074 075 076 077 078 079 07A 07B 07C 07D 07E 07F
170 *
171 * 4X 080 081 082 083 084 085 086 087 088 089 08A 08B 08C 08D 08E 08F
172 *
173 * 5X 090 091 092 093 094 095 096 097 098 099 09A 09B 09C 09D 09E 09F
174 *
175 * 6X 0A0 0A1 0A2 0A3 0A4 0A5 0A6 0A7 0A8 0A9 0AA 0AB 0AC 0AD 0AE 0AF
176 *
177 * 7X 0B0 0B1 0B2 0B3 0B4 0B5 0B6 0B7 0B8 0B9 0BA 0BB 0BC 0BD 0BE 0BF
178 *
179 * 8X 0C0 0C1 0C2 0C3 0C4 0C5 0C6 0C7 0C8 0C9 0CA 0CB 0CC 0CD 0CE 0CF
180 *
181 * 9X 0D0 0D1 0D2 0D3 0D4 0D5 0D6 0D7 0D8 0D9 0DA 0DB 0DC 0DD 0DE 0DF
182 *
183 * AX 0E0 0E1 0E2 0E3 0E4 0E5 0E6 0E7 0E8 0E9 0EA 0EB 0EC 0ED 0EE 0EF
184 *
185 * BX 0F0 0F1 0F2 0F3 0F4 0F5 0F6 0F7 0F8 0F9 0FA 0FB 0FC 0FD 0FE 0FF
    
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186 *
187 * CX 100 101 102 103 104 105 106 107 108 109 10A 10B 10C 10D 10E 10F
188 *
189 * DX 110 111 112 113 114 115 116 117 118 119 11A 11B 11C 11D 11E 11F
190 *
191 * EX 120 121 122 123 124 125 126 127 128 129 12A 12B 12C 12D 12E 12F
192 *
193 * FX 130 131 132 133 134 135 136 137 138 139 13A 13B 13C 13D 13E 13F
194 * WD GROUP ZERO LEVEL NAMES, IN ORDER OF TABLE:
195 * CP1 CP2 CP3 CP4 MP UA C1=0 C2=0 C3=0 C4=0 I/B PCP UA JA P3N P3FF
196 * OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT
197 * * * DELETED PAGE DIRECTIVE * * * *C
198 *
199 * OPTIONAL JX-58 ROUTINE.
200 *
201 * ENTRY TO THIS ROUTINE IS ACCOMPLISHED BY SETTING CONTROL BIT 9
202 * TO THE ONE STATE. AS SOON AS ENTRY IS MADE, CONTROL BIT 9 IS
203 * ZEROED.
204 *
205 * THIS ROUTINE IS COMPOSED OF TWO SUB-ROUTINES. THE FIRST SUB-ROUTINE
206 * TRIGGERS ALL LEVELS IN THE TEST GROUP SIMULTANEOUSLY, TESTS THAT
207 * ALL IMPLEMENTED LEVELS ADVANCE TO THE WAITING STATE, THEN HANDLES
208 * ALL INTERRUPTS WHICH OCCUR WITH FULL CHECKING. THE SECOND SUB-ROUTINE
209 * TRIGGERS ALL IMPLEMENTED LEVELS SINGLY, CHECKS FOR THE ADVANCE TO
210 * THE WAITING STATE, THEN HANDLES THE INTERRUPT WITH FULL CHECKING.
211 *
212 * SETTING SS 2 ON WILL CAUSE LOOPING IN THE FIRST SUB-ROUTINE, AND
213 * SS 3 WILL ACCOMPLISH THE SAME FOR THE SECOND SUB-ROUTINE, BUT IF
214 * BOTH ARE SET ON, SS 3 IS NEVER TESTED. IF NEITHER IS SET ON, A LOOP
215 * A LOOP FROM ONE SUB-ROUTINE TO THE OTHER IS MAINTAINED UNTIL SS 1
216 * IS REVERSED.
217 *
218 * IF A WATCH-DOG TIMER TRAP OCCURS IN THE JX-58 ROUTINE, THE ROUTINE
219 * IS ABORTED AFTER THE FOLLOWING MESSAGE IS PRINTED OUT:
220 * 'WDT, JX-58 ROUTINE ABORTED'
221 *
222 * THE INVALID INPUT MSG, 'INV', WILL OCCUR IF WD GROUP ZERO OR ONE
    
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SIGMA 5/7 INTERRUPT TEST 70*143-51C00 FEBRUARY 20,1969 9

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5. AN INTERRUPT OCCURRED BEFORE A LEVEL OF HIGHER PRIORITY. THE HIGH ORDER TWO DIGITS INDICATE THE LEVEL WHICH OCCURRED FIRST, AND THE LOW ORDER TWO DIGITS INDICATE THE LEVEL WHICH OCCURRED SECOND, OPPOSITE TO THE EXPECTED SEQUENCE OF THE TWO.

5 6L000GL

6. AN UNEXPECTED INTERRUPT OCCURRED FOR THE GROUP AND LEVEL INDICATED BY THE TWO LOW ORDER DIGITS. THE HIGH ORDER DIGIT INDICATES THE CONDITIONS UNDER WHICH THE FAILURE OCCURRED, AS INDICATED FOR TYPE SEVEN FAILURES. IF AN INTERRUPT IS INDICATED AS A TYPE 6 FAILURE, AND THE FAILING CONDITION WAS THAT THE LEVEL WAS ARMED, ENABLED, TRIGGERED, AND NOT INHIBITED, THE LEVEL IS NOT INCLUDED IN THE FIELD OF INTERRUPTS IMPLEMENTED, IT WILL PROBABLY CAUSE A SEQUENCE ERROR INDICATION ALSO.

6 00000GL

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7. AN INTERRUPT LEVEL OR LEVELS FAILED TO OCCUR WHEN EXPECTED. THE HIGH ORDER DIGIT INDICATES THE WD GROUP, AND THE LOW ORDER FOUR DIGITS ARE THE WD REGISTER 317B. THE SECOND HIGHEST ORDER DIGIT INDICATES THE CONDITIONS UNDER WHICH THE LEVEL CORRESPONDING TO THE HIGHEST ORDER REGISTER BIT FAILED, AS FOLLOWS:

AR=ARMED, EN=ENABLED, TR=TRIGGERED, IN=INHIBITED, N PREFIX=NOT.

0. NAR,EN,NTR,NIN.	8. AR,EN,NTR,NIN.
1. NAR,EN,NTR,IN.	9. AR,EN,NTR,IN.
2. NAR,EN,TR,NIN.	A. AR,EN,TR,NIN.
3. NAR,EN,TR,IN.	B. AR,EN,TR,IN.
4. NAR,EN,NTR,NIN.	C. AR,EN,NTR,NIN.
5. NAR,EN,NTR,IN.	D. AR,EN,NTR,IN.
6. NAR,EN,TR,NIN.	E. AR,EN,TR,NIN.

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 366 *
 367 *
 368 *
 369 *
 370 *

7. NAR,EN,TR,IN. F. AR,EN,TR,IN.

7 GC0BBBB

8. AN INTERRUPT PRESENTED AN ADDRESS OUTSIDE THE RANGE X'50'-X'13F'. THE THREE LOW ORDER DIGITS ARE THE ADDRESS PRESENTED.

8 0000AAA

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9. AN INTERRUPT PRESENTED AN ADDRESS BETWEEN 0 AND 15, THE LOW ORDER DIGIT IS THE ADDRESS PRESENTED.

9 00000DA

A. ALL IMPLEMENTED LEVELS IN WD GROUP UNDER TEST DID NOT ADVANCE TO THE WAITING STATE WHEN TRIGGERED VIA THE JX-58. THE FOUR LOW ORDER DIGITS ARE THE LEVEL BITS WHICH FAILED.

A 000BBBB

B. IN THE SECOND SUB-ROUTINE OF THE JX-58 TEST ROUTINE, A LEVEL WHICH WAS INTERRUPTED AT SOME PREVIOUS TIME FAILED TO ADVANCE TO THE WAITING STATE WHEN TRIGGERED VIA THE JX-58. THE SINGLE BIT INDICATED WITHIN THE FOUR LOW ORDER DIGITS IS THE WD REGISTER BIT FOR THE FAILING LEVEL. IF THE LEVEL INDICATED ONLY FAILS VIA THE JX-58, THE FAILURE IS PROBABLY THE NORMAL TRIGGERING DISB.

B 000BBBB

C. AN INTERRUPT LEVEL PRESENTED AN ADDRESS OUTSIDE THE RANGE X'50'-X'13F' DURING THE SEQUENCE DETERMINATION ROUTINE. THE HIGH ORDER TWO DIGITS ARE THE SEQUENCE NUMBER, AND THE LOW ORDER THREE DIGITS ARE THE ADDRESS PRESENTED.

C 8800AAA

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371 * D. AN INTERRUPT OCCURRED WHILE THE HIGHEST PRIORITY INTERRUPT WAS
372 * IN THE ACTIVE STATE. THE THREE LOW ORDER DIGITS ARE THE ADDRESS
373 * PRESENTED.
374 *
375 * 0 0000AAA
376 *
377 * M3
378 * WHEN ALL LEVELS IN WD GROUP ZERO WERE ADDRESSED BY WD INSTRUCTIONS
379 * TO ARM-DISABLE, TRIGGER, ENABLE, NO INTERRUPTS OCCURRED. THE PROGRAM
380 * HAS GONE INTO A LOOP ARMING, ENABLING, AND TRIGGERING ALL WD GROUP
381 * ZERO LEVELS. IF ANY INTERRUPTS DO OCCUR, THEY WILL BE IGNORED.
382 *
383 * M4
384 * AN ADDRESS OTHER THAN X'52' OR X'54' WAS PRESENTED AS THE LOCATION
385 * OF THE HIGHEST PRIORITY INTERRUPT IMPLEMENTED. THE ADDRESS PRESENTED
386 * FOLLOWS THIS MESSAGE. THE PROGRAM GOES INTO A LOOP ADDRESSING ONLY
387 * COUNTER PULSE ONE AND COUNTER PULSE THREE INTERRUPTS.
388 *
389 * AAA
390 *
391 * M5
392 * ALL INTERRUPTS WHICH OCCURRED DURING SEQUENCE DETERMINATION ROUTINE
393 * PRESENTED CORRECT ADDRESSES, NO MULTIPLE INTERRUPTS OCCURRED FOR
394 * ANY SINGLE TRIGGER, AND ALL LEVELS WHICH OCCURRED IN THE ADDRESS
395 * CHECK ROUTINE OCCURRED IN THIS ROUTINE. SEQUENCE FOLLOWS.
396 * * * DELETED PAGE DIRECTIVE * * * *C
397 *
398 * M6
399 * THE PRINT-OUT FOLLOWING THIS MESSAGE IS THE PRIORITY SEQUENCE
400 * OF ALL INTERRUPTS WHICH WERE GENERATED BY WD INSTRUCTIONS. THE
401 * FIRST DIGIT OF EACH PAIR OF DIGITS IS THE WD GROUP, AND THE
402 * SECOND DIGIT IS THE WD REGISTER BIT NUMBER MINUS SIXTEEN, THUS:
403 *
404 * 03 WOULD REFER TO COUNTER FOUR COUNT PULSE INTERRUPT, AND
405 * 26 WOULD REFER TO THE SEVENTH INTERRUPT LEVEL IN EXTERNAL
406 * CHASSIS 2. ALL DIGITS ARE HEXIDECIMAL.
407 *
* THE LIST SHOULD BE CHECKED FOR ACCURACY IN SEQUENCE, AND IN TOTAL

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408 * CONTENT. IF CORRECT IN ALL RESPECTS, SENSE SWITCH 2 SHOULD BE
409 * REVERSED AND THE WAIT CLEARED.
410 *
411 * IF AN ERROR EXISTS, SENSE SWITCH 3 SHOULD BE REVERSED. IF SENSE
412 * SWITCH 3 IS REVERSED, THE KSR WILL BE ADDRESSED FOR INPUT. THE
413 * CORRECT SEQUENCE SHOULD BE ENTERED, IN THE FORMAT OF THE OUTPUT,
414 * EXCEPT THAT CONSECUTIVE LEVELS MAY BE INDICATED WITH A DASH, THUS
415 *
416 * 02-05 NEW LINE CHARACTER
417 * 20-3F NEW LINE CHARACTER
418 * 06-0A NEW LINE CHARACTER
419 * 40-65 NEW LINE CHARACTER
420 * /END NEW LINE CHARACTER
421 *
422 * THE '/END' INPUT INDICATES THAT ALL ENTRIES HAVE BEEN COMPLETED.
423 *
424 * SINGLE LEVELS MAY BE ENTERED AS FOLLOWS:
425 * 02 NEW LINE CHARACTER
426 * 03 NEW LINE CHARACTER
427 * /END NEW LINE CHARACTER
428 *
429 * IF AN ERROR IS MADE IN THE INPUT, ENTER '/SEQ', AND RE-ENTER
430 * THE ENTIRE SEQUENCE.
431 * * * DELETED PAGE DIRECTIVE * * * *C
432 * IF AN UN-NOTICED ERROR IS MADE IN THE INPUT, THE MESSAGE
433 * 'INV' WILL BE PRINTED, AND THE KSR RE-ADDRESSED FOR INPUT.
434 * RE-ENTER ONLY THE LAST ENTRY. THE SEQUENCE MUST NOT BE RE-STARTED.
435 *
436 * IF THE SEQUENCE INDICATES THAT INTERRUPTS HAVE OCCURRED FROM THE
437 * UNASSIGNED LEVELS IN WD GROUP ZERO, THEY SHOULD NOT BE CONSIDERED
438 * ERRORS, NOR SHOULD ANY ATTEMPT BE MADE TO DELETE THEM FROM THE
439 * PRIORITY SEQUENCE. SUCH AN ATTEMPT WOULD CAUSE A FALSE INDICATION
440 * OF UNEXPECTED INTERRUPTS FROM THOSE LEVELS ANY TIME THEY ARE ARMED,
441 * ENABLED, TRIGGERED, AND NOT INHIBITED.
442 *
443 * M7
444 * THE BASIC TESTS OF THE INTERRUPT SYSTEM HAVE BEEN COMPLETED. SINCE


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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 13
448 * NO CONTROL BITS DIRECTED OTHERWISE, THE INTERRUPT PATTERN
446 * GENERATOR ROUTINE IS BEING ENTERED.
447 *
448 * M8
449 * A WD INSTRUCTION ADDRESSING WD GROUP ONE GENERATED AN INTERRUPT.
450 * THE PROGRAM HAS GONE INTO A LOOP ARM-DISABLE, TRIGGER, ENABLE ALL
451 * LEVEL BITS, SPECIFYING WD GROUP ONE. ANY INTERRUPTS WHICH OCCUR
452 * WILL BE CLEARED AND IGNORED.
453 *
454 * M9
455 * THE PREVIOUSLY COMPUTED HIGHEST PRIORITY INTERRUPT IMPLEMENTED
456 * FAILED TO OCCUR WHEN ADDRESSED BY WD INSTRUCTIONS TO ARM, ENABLE,
457 * TRIGGER. THE PROGRAM HAS GONE INTO A LOOP ADDRESSING ONLY THAT
458 * LEVEL, CLEARING ANY INTERRUPTS WHICH DO OCCUR.
459 * * * * DELETED PAGE DIRECTIVE * * * *C
460 *
461 * MA
462 * THE HIGHEST PRIORITY INTERRUPT IMPLEMENTED PRESENTED AN ADDRESS
463 * WHICH WAS DIFFERENT FROM THE ADDRESS IT PRESENTED WHEN ORIGINALLY
464 * COMPUTED. THE PROGRAM IS LOOPING AS DESCRIBED FOR M9, ABOVE.
465 * THE ADDRESS PRESENTED FOLLOWS.
466 *
467 * AAA
468 *
469 * MB
470 * KSR IS ADDRESSED FOR INPUT. ENTER WD GROUP, IN HEXIDECIMAL, FOR
471 * JX-58 TEST, FOLLOWED BY NEW LINE CHARACTER.
472 *
473 * MC
474 * ENTRY HAS BEEN MADE TO THE MANUAL PATTERN ROUTINE. THE KSR HAS BEEN
475 * ADDRESSED FOR INPUT. ENTER PATTERN INFORMATION ACCORDING TO INST-
476 * Ructions BELOW.
477 *
478 * MD
479 * THE INTERRUPT PATTERN GENERATOR HAS COMPLETED A PASS.
480 *
481 * IN ANY CASE REQUIRING THE REVERSAL OF SS 2 OR 3, IF BOTH ARE
    REVERSED BEFORE THE WAIT IS CLEARED, THE EFFECT WILL BE THAT

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 14
482 * OF REVERSING SS 2 ONLY.
483 * * * * DELETED PAGE DIRECTIVE * * * *C
484 *
485 * CONTROL BITS
486 *
487 * CONTROL BITS 4, 5, 6, 7, AND 9 ARE RESET AS SOON AS ENTRY
488 * IS MADE TO THE ROUTINES THEY CONTROL.
489 *
490 * BIT ZERO STATE. ONE STATE.
491 *
492 * 0. NORMAL ERROR PRINTOUTS. 0. SUPPRESS ERROR PRINTOUTS.
493 * IF PRINTING IS SUPPRESSED, THE
494 * ALARM INDICATOR WILL BE SET ON
495 * IF A ROUTINE ATTEMPTS TO OUTPUT
496 * AN ERROR MESSAGE.
497 *
498 * 1. CONTINUE ON ERROR. 1. WAIT ON ERROR, AFTER OUTPUTTING
499 * ERROR INFORMATION.
500 *
501 * 2. CONTINUE ON ERROR. 2. LOOP ON ERROR UNTIL SS1
502 * IS REVERSED.
503 *
504 * 3. CONTINUE SEQUENCE OF PROGRAM, 3. LOOP ON BASIC TESTS.
505 * ENTER PATTERN GENERATOR AFTER
506 * BASIC TESTS.
507 *
508 * 4. CONTINUE AUTOMATIC TESTS. 4. GENERATE ALL POSSIBLE INTERRUPTS,
509 * CLEAR ACTIVE STATES, AND IGNORE.
510 * LOOP IS MAINTAINED UNTIL SS 1
511 * IS REVERSED.
512 * * * * DELETED PAGE DIRECTIVE * * * *C
513 *
514 * 5. CONTINUE AUTOMATIC TESTS. 5. ARM-DISABLE, TRIGGER, ENABLE
515 * ALL INTERRUPT LEVELS SINGLY,
516 * STARTING WITH WD GROUP ZERO,
517 * LEVEL BIT 16. LEVEL BIT IS
518 * SHIFTED RIGHT, AND THE WD
    GROUP IS INCREMENTED. THE
    PATTERN RESTARTS AFTER LEVEL

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 15
519 * BIT 31 OF WD GROUP 15 IS
520 * ADDRESSED, AND THE LOOP IS
521 * MAINTAINED UNTIL SS 1 IS
522 * REVERSED.
523 *
524 * 6. SAME AS 5, ABOVE. 6. SAME AS 5, ABOVE, EXCEPT THAT
525 * THE SEQUENCE IS STARTED AT WD
526 * GROUP 15, LEVEL BIT 31, THE
527 * LEVEL BIT IS SHIFTED LEFT, AND
528 * THE WD GROUP IS DECREMENTED.
529 *
530 * 7. CONTINUE PROGRAM SEQUENCE. 7. LOOP IN JX-58 ROUTINE UNTIL
531 * SS1 IS REVERSED.
532 *
533 * 8. DUMP PATTERN NUMBER IF THE 8. DO NOT DUMP PATTERN NUMBER
534 * INTERRUPT PATTERN GENERATOR ON ERROR.
535 * GENERATES A FAILING CONDITION,
536 * AND CONTROL BIT 10 IS SET TO
537 * A ONE.
538 *
539 * 9. CONTINUE NORMAL SEQUENCE. 9. ADDRESS KSR FOR INPUT OF
540 * INTERRUPT PATTERN TO LOOP ON.
541 * SEE TEXT, BELOW, FOR INPUT
542 * FORMAT. EXIT WHEN SS1 IS SET ON.
543 * * * DELETED PAGE DIRECTIVE * * * *C
544 * 10. NO EFFECT 10. DUMP PATTERN ON ERROR, THUS:
545 *
546 * ARMED, DISABLED LEVELS.
547 * ENABLED LEVELS.
548 * TRIGGERED LEVELS.
549 * INHIBITED LEVELS.
550 *
551 * FOR IMPLEMENTED WD GROUPS ONLY.
552 *
553 * 11. DO NOT PRESERVE ERROR DATA 11. PRESERVE FIRST 64 ERROR
554 * IF ERROR PRINTING IS RECORDS IF ERROR PRINTING
555 *

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 16
556 * IS SUPPRESSED.
557 *
558 * TO MODIFY CONTROL BIT SETTINGS VIA THE KSR, REVERSE SS 4.
559 * WHEN THE SENSE SWITCHES ARE READ, THE MESSAGE 'CONTROL BITS'
560 * WILL BE OUTPUTTED, AND THE KSR WILL BE ADDRESSED FOR INPUT.
561 * ENTER THE HEX DIGITS TO BE SET INTO THE CONTROL BITS. THE DIGITS
562 * ENTERED WILL BE LEFT JUSTIFIED INTO THE FIELD IF FEWER THAN 8
563 * DIGITS ARE ENTERED. ONLY THE NUMBER OF DIGITS ENTERED WILL BE
564 * MODIFIED.
565 *
566 * UNLESS SPECIFICALLY NOTED OTHERWISE, IF A CONFLICT EXISTS
567 * IN THE RESULTS OF TWO OR MORE CONTROL BIT SETTINGS, THE LOWEST
568 * NUMBER CONTROL BIT IN THE ONE STATE WILL CONTROL THE OUTCOME.
569 * * * DELETED PAGE DIRECTIVE * * * *C
570 * IF CONTROL BITS ONE AND TWO ARE BOTH SET TO ONES, IF AN ERROR OCCURS
571 * THE PROGRAM WILL WAIT THE FIRST TIME ONLY, THEN LOOP ON THE ERROR
572 * UNTIL SENSE SWITCH ONE IS REVERSED.
573 *
574 * IF CONTROL BIT 11 IS SET ON, AND PRINTING IS SUPPRESSED, ALL ERROR
575 * RECORDS, UP TO 64, WHICH HAVE BEEN STACKED WILL BE DUMPED THE FIRST
576 * TIME THE ERROR STACK IS TESTED AFTER CONTROL BIT ZERO IS ZEROED. IF
577 * CONTROL BIT 11 IS RESET BEFORE ERROR PRINTING IS ALLOWED, ALL ERROR
578 * RECORDS PRESERVED WILL BE DELETED.
579 *
580 * THE ERROR RECORDS PRESERVED BY CONTROL BIT 11 ARE THE '42 ERROR'
581 * RECORDS ONLY, AND NOT THE FAILING PATTERNS. IF CONTROL BIT 10 IS
582 * SET TO A ONE, AND ERROR PRINTING IS ALLOWED AFTER MORE THAN 63
583 * ERRORS HAVE OCCURRED, THE '42 ERROR' RECORD FOR THE PATTERN WHICH
584 * WILL BE DUMPED WILL NOT BE AVAILABLE.
585 *
586 * THE CONTROL BITS MAY BE SET OR RESET BY MANUAL ENTRY AT ANY TIME.
587 * THE FIELD LABELED 'CONBITS' CONTAINS THE CONTROL BITS, AND ITS
588 * LOCATION MAY BE DETERMINED BY CHECKING THE DATA FIELDS IN THIS
589 * LISTING.
590 * * * DELETED PAGE DIRECTIVE * * * *C
591 * INPUT FORMAT FOR CONTROL BIT 9 IS AS FOLLOWS, IN HEXIDECIMAL.
592 *

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 17
593 *
594 *
595 * XXXX NEW LINE CHARACTER LEVEL BITS FOR WD GRP 0 TO ARM, DISABLE.
596 * XXXX NEW LINE CHARACTER LEVEL BITS FOR WD GRP 2 TO ARM, DISABLE.
597 *
598 * XXXX " " " " " " LAST WD GRP IMPLEMENTED.
599 * AEND " " " " END OF ARM, DISABLE INPUT.
600 *
601 * XXXX " " " " LEVEL BITS FOR WD GRP 0 TO ENABLE.
602 *
603 * XXXX " " " " " " LAST WD GRP IMPLEMENTED.
604 * EEND " " " " END OF ENABLE INPUT.
605 *
606 * XXXX " " " " LEVEL BITS FOR WD GRP 0 TO TRIGGER
607 *
608 * XXXX " " " " " " LAST WD GRP IMPLEMENTED
609 * TEND " " " " END OF TRIGGER INPUT.
610 *
611 * X " " " " INHIBIT BIT CONFIGURATION.
612 * IEND " " " " END OF ALL INPJT.
613 *
614 * THE INHIBIT INPUT MAY BE SPECIFIED AS A SINGLE HEX DIGIT FROM ZERO
615 * TO SEVEN, IN WHICH CASE ONLY THAT INHIBIT BIT PATTERN WILL BE USED
616 * FOR THE MANUAL PATTERN LOOP, OR THE ALPHA CHARACTER 'R' MAY BE
617 * SPECIFIED. IN THE LATTER CASE, THE INHIBIT BIT CONFIGURATION WILL
618 * ROTATE FROM SEVEN DOWN TO ZERO AND BACK TO SEVEN AS THE MANUAL
619 * PATTERN IS EXECUTED.
620 *
621 * THE VARIOUS INPUTS MUST BE IN THE ORDER INDICATED. ANY WD GROUPS
622 * NOT SPECIFIED FOR A SPECIFIC TYPE OF INPUT WILL BE ZEROED FOR
623 * THAT FUNCTION.
624 * * * * DELETED PAGE DIRECTIVE * * * *C
625 * FOR EXAMPLE:
626 *
627 * FC30 NL
628 * F000 NL
629 * FFFF NL

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 18
630 * AEND NL
631 *
632 * F130 NL
633 * 1000 NL
634 * EEND NL
635 *
636 * 3000 NL
637 * TEND NL
638 *
639 * 0 NL
640 * IEND NL
641 *
642 * THE ABOVE INPUT WOULD GENERATE THE FOLLOWING RESULTS. NOTE THAT
643 * THE HIGHEST LEVEL IMPLEMENTED WILL NOT BE ADDRESSED TO ARM, DISABLE.
644 * THIS IS TRUE BECAUSE THE ACTIVE STATE OF THE INTERRUPT WOULD BE
645 * CLEARED PREMATURELY IF THE ARM, DISABLE WD ADDRESSED IT.
646 *
647 * LEVELS ARMED AND DISABLED:
648 * WD GROUP ZERO, LEVEL BITS 7C30
649 * WD GROUP TWO, LEVEL BITS F000
650 * WD GROUP THREE, LEVEL BITS FFFF
651 *
652 * LEVELS ENABLED:
653 * WD GROUP ZERO, LEVEL BITS F130
654 * WD GROUP TWO, LEVEL BITS 1000
655 *
656 * LEVELS TRIGGERED
657 * WD GROUP ZERO, LEVEL BITS 3000
658 * * * * DELETED PAGE DIRECTIVE * * * *C
659 * NO INHIBITS WILL BE SET.
660 *
661 * WITH NO FAILURES, ONLY TWO LEVELS IN WD GROUP ZERO WILL GENERATE
662 * INTERRUPTS. NO LEVELS IN WD GROUP FOUR THROUGH FIFTEEN WILL BE
663 * ARMED AND DISABLED, NO LEVELS IN WD GROUP THREE THROUGH FIFTEEN
664 * WILL BE ENABLED, AND NO LEVELS IN WD GROUP TWO THROUGH FIFTEEN
665 * WILL BE TRIGGERED.
666 *

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 19

667 * IF ANY ERRORS ARE MADE IN THE INPUT, THE MESSAGE
668 * 'INV' WILL BE PRINTED. RE-ENTER ONLY THE LAST WD GROUP.
669 * TO RE-START THE ENTIRE ENTRY, ENTER /PAT NEW LINE CHARACTER.
670 * * * DELETED PAGE DIRECTIVE * * * *C
671 * THE FOLLOWING PROCEDURE MAY BE USED TO TEST THE 7700 INTERPROCESSOR
672 * INTERRUPT FEATURE. (CPU-TO-CPU INTERRUPT)
673 *
674 * IF CPU'S INVOLVED SHARE MEMORY LOCATIONS, BE CERTAIN THAT THERE
675 * IS NO OVERLAP OF ADDRESSES WITHIN THE FIRST 8K WORDS OF CORE
676 * BETWEEN THE PROCESSORS.
677 *
678 * LOAD THE PROGRAM ON BOTH PROCESSORS. WHEN THE BASIC TESTS HAVE
679 * BEEN COMPLETED, SET CONTROL BIT 9 ON EACH PROCESSOR, TO SELECT
680 * THE MANUAL ENTRY ROUTINE. MAKE THE FOLLOWING ENTRIES ON BOTH
681 * PROCESSORS.
682 *
683 * ARM AND DISABLE ALL LEVELS.
684 *
685 * ENABLE ALL LEVELS EXCEPT IN WD GROUP IN WHICH INTERPROCESSOR
686 * INTERRUPTS APPEAR. IN THIS GROUP, ENABLE THE ODD LEVELS WHICH
687 * ARE INTERCONNECTED AND ALL OTHERS NOT INTERCONNECTED.
688 *
689 * TRIGGER ONLY THE EVEN LEVELS IN THE WD GROUP IN WHICH THE
690 * INTERPROCESSOR INTERRUPTS APPEAR.
691 * * * DELETED PAGE DIRECTIVE * * * *C
692 * SET INHIBITS TO ZEROS.
693 *
694 * WHEN ALL THE ABOVE INFORMATION HAS BEEN ENTERED ON BOTH PROCESSORS,
695 * EACH PROCESSOR WILL ACTUALLY BE TRIGGERING INTERRUPTS IN THE OTHER.
696 * BY OBSERVING THE INPUT, IT CAN BE SEEN THAT NO INTERRUPTS SHOULD
697 * BE EXPECTED IN EITHER PROCESSOR, CONSIDERING THE FACT THAT THE
698 * PREDICTING ROUTINE ONLY USES ITS OWN INPUT TO DETERMINE WHICH
699 * INTERRUPTS SHOULD OCCUR. ONCE A SYNCHRONISM BETWEEN THE PROCESSORS
700 * HAS BEEN ACHIEVED, THEY WILL BEGIN TO RECEIVE INTERRUPTS FROM EACH
701 * OTHER. THIS WILL GENERATE ERROR INFORMATION. THE ERROR INFORMATION
702 * SHOULD INDICATE UNEXPECTED INTERRUPTS FROM ALL INTERPROCESSOR LEVELS.
703 *

SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 20

704 * SYNCHRONISM IS ACHIEVED BY ADDRESS STOPPING BOTH PROCESSORS AT THE
705 * ADDRESS OF 'CHKPATTC'+3 (X'632'). BY ALTERNATELY CLEARING THE WAIT
706 * CONDITION ON EACH PROCESSOR BY MOVING THE COMPUTE SWITCH FROM RUN
707 * TO IDLE TO RUN, ERROR PRINTOUTS SHOULD OCCUR FOR EVERY INTERPROCESSOR
708 * LEVEL, AND NO OTHER LEVELS.
709 *
710 * AN EXAMPLE OF THE INPUTS AND CORRECT OUTPUTS FOR THE SPECIFIED COND-
711 * ITIONS FOLLOWS.
712 * * * DELETED PAGE DIRECTIVE * * * *C
713 * CONDITIONS:
714 * 2 SIGMA 7 PROCESSORS.
715 * NO SHARED MEMORY.
716 * FIRST EXTERNAL CHASSIS (WD GROUP 2) ON PROCESSOR 'A' IS
717 * CONNECTED TO SECOND EXTERNAL CHASSIS (WD GROUP 3) ON
718 * PROCESSOR 'B' VIA A 7700, WITH 3 LEVELS CONNECTED IN
719 * EACH DIRECTION. LEVELS 6-11 ON PROCESSOR 'A' ARE
720 * CONNECTED TO LEVELS 0-5 ON PROCESSOR 'B'.
721 * PROCESSOR 'A' HAS THE FOLLOWING ADDITIONAL LEVELS IMPLEMENTED.
722 * 00 01 02 03 04 06 07 08 09 0A 0B
723 * 20 21 22 23 24 25
724 * 30 31
725 * 40 41 42 43
726 * PROCESSOR 'B' HAS THE FOLLOWING ADDITIONAL LEVELS IMPLEMENTED.
727 * 02 03 04 05 08 09 0A 0B
728 * 20 21 22 23
729 * 35 37
730 * 40 41
731 *
732 *
733 * THE FOLLOWING INPUT IS MADE:
734 * * * DELETED PAGE DIRECTIVE * * * *C
735 * ON PROCESSOR 'A'
736 *
737 * F3F0
738 * FFF0
739 * C
740 * F (EITHER ONE OR FOUR CHARACTERS)
(EITHER ONE OR FOUR CHARACTERS)
(BEFORE THE NL CHARACTER IS)

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 (ACCEPTED BY THE PROGRAM) 21
741 * AEND
742 *
743 * FBFO
744 * FD90
745 * C
746 * F
747 * EEND
748 *
749 * O
750 * 02A0
751 * TEND
752 * * * * DELETED PAGE DIRECTIVE * * * * *C
753 * ON PROCESSOR 'B'
754 *
755 * 3CFO
756 * F
757 * FF00
758 * C
759 * AEND
760 *
761 * 3CFO
762 * F
763 * 5700
764 * C
765 * EEND
766 *
767 * O
768 * O
769 * A800
770 * TEND
771 * * * * DELETED PAGE DIRECTIVE * * * * *C
772 * THE FOLLOWING 'ERROR' MESSAGES WOULD INDICATE CORRECT
773 * OPERATION.
774 *
775 * ON PROCESSOR 'A':
776 *
777 * M2 ERROR

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SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969 22
778 * 6 C00002A
779 * 6 C000028
780 * 6 C000026
781 *
782 * ON PROCESSOR 'B':
783 *
784 * M2 ERROR
785 * 6 C000034
786 * 6 C000032
787 * 6 C000030
788 *
789 * ANY MISSING OR ADDITION INFORMATION WOULD INDICATE A FAILURE.
790 * * * * DELETED PAGE DIRECTIVE * * * * *C
791 * DESCRIPTION OF INTERRUPT HISTORY TABLE
792 * THERE ARE 256 POSSIBLE ENTRIES IN THIS TABLE, CORRESPONDING TO
793 * THE 256 COMBINATIONS OF WD GROUPS AND REGISTER BITS. TO FACILITATE
794 * ACCESSING THIS TABLE, POWER FAIL-SAFE INTERRUPTS HAVE BEEN ASSIGNED
795 * PRIORITIES OF 14 AND 15, AND A GAP HAS BEEN LEFT BETWEEN GROUP 0
796 * AND GROUP 2. THE ENTRIES IN THE TABLE HAVE BEEN ARRANGED SO THAT
797 * THERE IS A DIRECT RELATIONSHIP BETWEEN THE LOCATION OF AN ENTRY
798 * IN THE TABLE, THE ADDRESS FROM WHICH THE CORRESPONDING INTERRUPT
799 * SHOULD OCCUR, AND THE WD GROUP AND LEVEL BIT.
800 *
801 * WORD ONE.
802 *
803 * BIT SIGNIFICANCE OF BIT IN THE ONE STATE.
804 * 0-3. WD GROUP.
805 *
806 * 4-7. LEVEL BIT NUMBER MINUS SIXTEEN.
807 *
808 * 8-17. NOT USED.
809 *
810 * 18. INTERRUPT RECEIVED FROM THIS LEVEL THIS PATTERN.
811 *
812 * 19-22 NOT USED.
813 *
814 * 23-31. ADDRESS WHICH CORRESPONDING LEVEL IS EXPECTED

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SIGMA 5/7 INTERRUPT TEST 70*143-51C00 FEBRUARY 20,1969 23
815 * TO PRESENT TO CPU.
816 *
817 * WORD TWO
818 *
819 * BIT SIGNIFICANCE OF BIT IN ONE STATE.
820 * 0-15. NOT USED.
821 *
822 * 16-23. ORDER IN WHICH INTERRUPT OCCURRED.
823 *
824 * 24-31. ORDER IN WHICH INTERRUPT SHOULD HAVE OCCURRED,
825 * ACCORDING TO OPERATOR INPUT.
826 * * * DELETED PAGE DIRECTIVE * * * *C
827 SYSTEM SIG7FDP
828 CNAME
829 SPD
830 PRBC
831 BOUND 8
832 LF DATA AF(1)-1
833 GEN,1,15,1,15 1,AF(2),1,0
834 PEND
835 PSD CNAME 0
836 PRBC
837 BOUND 8
838 LF DATA AF(1),0
839 PEND
840 CDWC CNAME X'22'
841 CDW CNAME X'02'
842 CDWN CNAME 0
843 PRBC
844 BOUND 8
845 LF EQU DA(*)
846 GEN,8,24 AF(1),RA(AF(2))
847 GEN,8,24 NAME,AF(3)
848 PEND
849 LDATA CNAME
850 PRBC
851 BOUND 4
LF EQU 8

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SIGMA 5/7 INTERRUPT TEST 70*143-51C00 FEBRUARY 20,1969 24
852 P SET AF(1)-128*(AF(1)/128)
853 D9 AF(1)/128
854 D9 15R
855 DATA AF(2)
856 FIN
857 FIN
858 D9 P
859 GEN,32 AF(2)
860 FIN
861 PEND
862 * * * DELETED PAGE DIRECTIVE * * * *C
863 00000000 I8 EQU 0 I8 COMMAND SET JP.
864 00000001 XA EQU 1
865 00000002 BT EQU 2 SUB-ROUTINE REGISTER OUTPUT.
866 00000003 XB EQU 3
867 00000004 IA EQU 4 SUB-ROUTINE INPUT ADDRESS.
868 00000005 GR EQU 5 WD GROUP INDEX.
869 00000006 SA EQU 6 SUB-ROUTINE OUTPUT ADDRESS.
870 00000007 LNK EQU 7 SUB-ROUTINE LINKAGE.
871 00000008 WKA EQU 8
872 00000009 LV EQU 9 WD INTERRUPT LEVEL REGISTER.
873 0000000A CSA EQU 10 COMPARE SELECTIVE ARGUMENT.
874 0000000B CSM EQU 11 COMPARE SELECTIVE MASK.
875 0000000C WKB EQU 12
876 0000000D WKC EQU 13
877 0000000E WKD EQU 14
878 0000000F IN EQU 15 SUB-ROUTINE REGISTER INPUT.
879 00001100 DISARM EQU X'1100'
880 00001200 ARME EQU X'1200'
881 00001300 ARMD EQU X'1300'
882 00001400 ENABLE EQU X'1400'
883 00001500 DISABLE EQU X'1500'
884 00001600 ENADISA EQU X'1600'
885 00001700 TRIG EQU X'1700'
886 BITSWTCH EQU CONBITS
887 *
888 * COMPUTE HIGHEST PRIORITY INTERRUPT IMPLEMENTED.

```

```

889
890 01 00200          ORG      512
      01 00200
891 01 00200 02200000 A  COMPHIGH LCI      0
892 01 00201 2A0009AC          LM,D    CTCHHNG1  SET UP FOR HANDLING POSSIBLE
893                                     *                                     INTERRUPT WITHIN REG PAGE.
894 01 00202 2290FFFF A          LI,LV   65535
895 01 00203 60901300 A          WD,LV   ARMD
896 01 00204 60901700 A          WD,LV   TRIG
897 01 00205 60901400 A          WD,LV   ENABLE
898 01 00206 20000000 A          AI,D    0
899 01 00207 6A700414          BAL,LNK  CHKSTK
900 01 00208 02000000 A          NSP
901 01 00209 68000545          B       HIFAILA
902 01 0020A 35200915          HIGHA  STW,BT  HIPRI
903 01 0020B 6A700414          BAL,LNK  CHKSTK
904 01 0020C 02000000 A          NSP
905 01 0020D 32200915          LW,BT   HIPRI
906 01 0020E 21200052 A          CI,BT   82
907 01 0020F 68300212          BE      HIGHB
908 01 00210 21200054 A          CI,BT   84
909 01 00211 69300551          BNE     HIFAILB
910 01 00212 32840976          HIGHB  LW,WKA  BIT16-B2,BT
911 01 00213 35800917          STW,WKA  HIBIT
912 01 00214 488008FE          EGR,WKA  BIT16X31
913 01 00215 35800916          STW,WKA  NBTHT
914 01 00216 6A700588          BAL,LNK  KILLINTS
915
916 *
917 * CHECK INTERRUPT ADDRESS LINES.
918 01 00217 6A70048E          CKINTAD BAL,LNK  SETPSDS
919 01 00218 22800239          LI,WKA  CKINTADD
920 01 00219 358008F7          STW,WKA  ADDRCDDE
921 01 0021A 22800010 A          LI,WKA  16
922 01 0021B 358008EF          STW,WKA  GRPCNT
923 01 0021C 22500000 A          LI,GR   0
924 01 0021D 3550089F          STW,GR  IPHOLD+GR
    
```

M 1

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925 01 0021E 329009C8          CKINTADA LW,LV  BIT16
926 01 0021F 359008A3          STW,LV  IPHOLD+LV
927 01 00220 22800002 A          CKINTADB LI,WKA  2
928 01 00221 35800A20          STW,WKA  WAITCNT
929 01 00222 02200000 A          LCI     0
930 01 00223 2A0009AC          LM,D    CTCHHNG1
931 01 00224 329008A3          LW,LV  IPHOLD+LV
932 01 00225 3250089F          LW,GR  IPHOLD+GR
933 01 00226 609A1300 A          WD,LV  ARMD,GR
934 01 00227 609A1700 A          WD,LV  TRIG,GR
935 01 00228 609A1400 A          WD,LV  ENABLE,GR
936 01 00229 33F00A20          MTW,-1  WAITCNT
937 01 0022A 69200229          BCS,2   *-1
938 01 0022B 2590007F A          CKINTADC SLS,LV  -1
939 01 0022C 02200000 A          LCI     0
940 01 0022D 2300089A          STM,0   IPHOLD
941 01 0022E 32900009 A          LW,LV  LV
942 01 0022F 69300220          BCS,3   CKINTADB
943 01 00230 20500001 A          AI,GR   1
944 01 00231 02200000 A          LCI     0
945 01 00232 2300089A          STM,0   IPHOLD
946 01 00233 33F008EF          MTW,-1  GRPCNT
947 01 00234 6920021E          BCS,2   CKINTADA
948 01 00235 22000499          LI,I8   MSG1CDW
949 01 00236 6A700414          BAL,LNK  CHKSTK
950 01 00237 6A700483          BAL,LNK  KSRA
951 01 00238 68000257          B       GETSEQ
952 01 00239 21500001 A          CKINTADD CI,GR   1
953 01 0023A 68300536          BE      GRPONE
954 01 0023B 32800002 A          LW,WKA  BT
955 01 0023C 6A700580          BAL,LNK  YLDINTAD
956
957 01 0023D 32A00008 A          LW,CSA  WKA
958 01 0023E 22B001FF A          LI,CSM  511
959 01 0023F C5A00002 A          CS,CSA  *BT
960 01 00240 69300250          BNE     CKINTADH
961 01 00241 328009CA          LW,WKA  BIT18
    
```

SETUP FOR HANDLING INTERRUPTS FROM ADDRESSES X'0'-X'F'.

BR IF INT FROM WD GRP ONE.

EXTRACT HISTORY TABLE ENTRY ADDR FROM GROUP AND LEVEL.

COMPARE RECEIVED ADDR WITH EXPECTED. BR IF NOT EQUAL.

SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 27

962	01	00242	C9800002 A	AND,WKA	*BT	TEST FOR PREVIOUS INT
963	01	00243	68300248	BCR,3	CKINTADE	OR IF NO PREVIOUS INT FROM LEVEL.
964	01	00244	F2800002 A	LB,WKA	*BT	
965	01	00245	498009C1	BR,WKA	BIT3	FLAG ERROR TYPE.
966	01	00246	09800930	PSW,WKA	ERRSTK	
967	01	00247	68000248	B	CKINTADF	
968	01	00248	B2800002 A	CKINTADE	LW,WKA	*BT
969	01	00249	498009CA	BR,WKA	BIT1R	
970	01	0024A	B5800002 A	STW,WKA	*BT	
971	01	0024B	528A08E3	CKINTADF	LW,WKA	NTNTIMPL,GR
972	01	0024C	49800009 A	BR,WKA	LV	
973	01	0024D	558A08E3	STW,WKA	NTNTIMPL,GR	MAKE ENTRY TO TABLE OF IMPLEMENTED
974				*		INTERRUPT LEVELS.
975	01	0024E	609A1100 A	CKINTADG	WD,LV	DISARM,GR
976				*		CLEAR INTERRUPT FROM ACTIVE STATE,
977	01	0024F	6800022B	B	CKINTADC	AND CONTINUE TRIGGERING.
978	01	00250	B2800002 A	CKINTADH	LW,WKA	*BT
979	01	00251	25800014 A	SLS,WKA	20	
980	01	00252	25800079 A	SLS,WKA	-7	
981	01	00253	4980000A A	BR,WKA	CSA	COMBINE REC AND EXPECTED INT.
982	01	00254	498009C0	BR,WKA	BITW0	
983	01	00255	09800930	PSW,WKA	ERRSTK	
984	01	00256	6800024E	B	CKINTADG	
985				*		
986				*		DETERMINE INTERRUPT PRIORITY SEQUENCE.
987				*		
988	01	00257	2280029F	GETSEQ	LI,WKA	GETSEQH 2C1
989	01	00258	358008FA	STW,WKA	HIEXIT	
990	01	00259	6A7004A7	BAL,LNK	SETSTKS	
991	01	0025A	6A700574	BAL,LNK	SETHI	PUT HIGHEST PRI INT IN ACTIVE STATE.
992	01	0025B	22800001 A	LI,WKA	1	
993	01	0025C	358009BD	STW,WKA	CNTR	
994	01	0025D	22500000 A	LI,GR	0	
995	01	0025E	22E00010 A	LI,WKD	16	
996	01	0025F	32900916	LW,LV	N0THI	
997	01	00260	68000262	B	*+2	
998	01	00261	2290FFFF A	GETSEQA	LI,LV	65535

26 C
270
276

SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969 28

999	01	00262	609A1300 A	WD,LV	ARM0,GR	
1000	01	00263	609A1700 A	WD,LV	TRIG,GR	
1001	01	00264	609A1400 A	WD,LV	ENABLE,GR	
1002	01	00265	20500001 A	AI,GR	1	
1003	01	00266	64E00261	BDR,WKD	GETSEQA	
1004	01	00267	22E00200 A	LI,WKD	512	
1005	01	00268	35E00A20	STW,WKD	WAITCNT	
1006	01	00269	22500000 A	LI,GR	0	
1007	01	0026A	32900917	LW,LV	HIBIT	
1008	01	0026B	22800271	LI,WKA	GETSEQC	
1009	01	0026C	358008F7	STW,WKA	ADRDCODE	
1010	01	0026D	68000287	B	GETSEGE-6	
1011	01	0026E	33F00A20	GETSEQB	MTW,-1	WAITCNT
1012	01	0026F	69200260	BCS,2	*-2	
1013	01	00270	680002A9	B	CHKSEQ	
1014	01	00271	328009B0	GETSEQC	LW,WKA	CNTR
1015	01	00272	22100AC6	LI,XA	ITRNHIST	
1016	01	00273	22C00100 A	LI,WKB	256	
1017	01	00274	22300002 A	LI,XB	2	
1018	01	00275	32A00002 A	LW,CSA	9T	
1019	01	00276	22B001FF A	LI,CSM	511	
1020	01	00277	C5A00001 A	GETSEQD	CS,CSA	*XA
1021	01	00278	6930028E	BNE	GETSEOF	
1022	01	00279	20100001 A	AI,XA	1	
1023	01	0027A	22C00000 A	LI,WKB	0	
1024	01	0027B	F1C60001 A	CB,WKB	*XA,XB	
1025	01	0027C	69300296	BNE	GETSEQG	OR IF MORE THAN ONE INT PER TRIG.
1026	01	0027D	F5860001 A	STB,WKA	*XA,XB	
1027	01	0027E	331009BD	MTW,1	CNTR	
1028	01	0027F	201FFFFF A	AI,XA	-1	
1029	01	00280	F2900001 A	LB,LV	*XA	
1030	01	00281	32500009 A	LW,GR	LV	
1031	01	00282	2590001C A	SLS,LV	28	
1032	01	00283	25900064 A	SLS,LV	-2R	
1033	01	00284	2550007C A	SLS,GR	-4	
1034	01	00285	221009C8	LI,XA	BIT16	
1035	01	00286	B9200009 A	LW,LV	*LV,XA	LOAD LEVEL BIT FOR LAST INTERRUPT

27 C
270
280
297
29 C


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1110 01 002CD 202FFFF0 A AI,ST -16
1111 01 002CE 55200CC6 A STW,ST LAST
1112 01 002CF 22E000FF A LI,WKD 255
1113 01 002D0 22100006 A LI,XA 6
1114 01 002D1 22300001 A LI,XB 1
1115 01 002D2 22000001 A LI,WKC 1
1116 01 002D3 22C00AC6 A CHKSEQF LI,WKB ITRNHIST
1117 01 002D4 22800100 A LI,WKA 256
1118 01 002D5 F102000C A CB,WKC *WKB,XA
1119 01 002D6 683002C9 A BE CHKSEQH
1120 01 002D7 20C00002 A AI,WKB 2
1121 01 002D8 648002D5 A BDR,WKA $-3
1122 01 002D9 22C0FF00 A LI,WKB 255**8
1123 01 002DA 55C60CC6 A CHKSEQG STW,WKB LAST,XB
1124 01 002DB 20300001 A AI,XB 1
1125 01 002DC 20D00001 A AI,WKC 1
1126 01 002DD 64E002D3 A BDR,WKD CHKSEQF
1127
1128 *
1129 *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
1130 01 002DE 6A7004A7 A OUTPSEQ BAL,LNK SETSTKS
1131 01 002DF 22E000E0 A LI,WKD 237
1132 01 002E0 22D000FF A LI,WKC 255
1133 01 002E1 22100000 A LI,XA 0
1134 01 002E2 35100868 A STW,XA LEVBITSN+2
1135 01 002E3 35100867 A STW,XA LEVBITSN+1
1136 01 002E4 22600DC6 A LI,SA LAST+256
1137 01 002E5 35600866 A STW,SA LEVBITSN
1138 01 002E6 22C00000 A LI,WKB 0
1139 01 002E7 32100868 A OUTPSEQA LW,XA LEVBITSN+2
1140 01 002E8 71D20CC6 A CB,WKC LAST,XA
1141 01 002E9 683002F3 A BE OUTPSEQB
1142 01 002EA 32300867 A LW,XB LEVBITSN+1
1143 01 002EB 52F60CC6 A LW,IN LAST,XB
1144 01 002EC 32600866 A LW,SA LEVBITSN
1145 01 002ED 6A700563 A BAL,LNK TRANBUT
1146 01 002EE 328DFFFF A LW,WKA -1,8A

```

STH INDEX.
NEXT-IN-SEQ SEARCH ARGUMENT.

INCR SEARCH ARGUMENT.

* * * * * * * * * * * * * * * *

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1147 01 002EF 438008F4 A AND,WKA BLNKSTRP
1148 01 002F0 358DFFFF A STW,WKA -2,8A
1149 01 002F1 33100866 A MTW,1 LEVBITSN
1150 01 002F2 20C00001 A AI,WKB 1
1151 01 002F3 33200868 A OUTPSEQB MTW,2 LEVBITSN+2
1152 01 002F4 33100867 A MTW,1 LEVBITSN+1
1153 01 002F5 64E002E7 A BDR,WKD OUTPSEQA
1154 01 002F6 220004A8 A LI,IB MS56ACDW
1155 01 002F7 6A700483 A BAL,LNK <SRA
1156
1157 *
1158 *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
1159 01 002F8 25C00002 A DUMPSEQ SLS,WKB 2
1160 01 002F9 22100001 A LI,XA 1
1161 01 002FA 55C20959 A STW,WKB SECCDW1+1,XA
1162 01 002FB 22800015 A LI,WKA 21
1163 01 002FC 75800DC6 A STB,WKA LAST+256
1164 01 002FD 22100000 A LI,XA 0
1165 01 002FE 32A00DC6 A LW,CSA LAST+256
1166 01 002FF 22B0FF00 A LI,CSM 255**8
1167 01 00300 22C00100 A LI,WKB 256
1168 01 00301 45A20DC6 A DUMPSEQA CS,CSA LAST+256,XA
1169 01 00302 68300307 A BE DUMPSEQB
1170 01 00303 25100002 A SLS,XA 2
1171 01 00304 75820DC6 A STB,WKA LAST+256,XA
1172
1173 *
1174 *   *   *   *   *   *   *   *   *   *   *   *   *   *   *   *
1175 01 00305 2510007E A SLS,XA -2
1176 01 00306 32A20DC6 A LW,CSA LA-T+256,XA
1177 01 00307 20100001 A DUMPSEQB AI,XA 1
1178 01 00308 64C00301 A BDR,WKB DUMPSEQA
1179 01 00309 220004A8 A LI,IB SECCDW
1180 01 0030A 6A700483 A BAL,LNK <SRA
1181 01 0030B 220004B1 A LI,IB QUESTINH
1182 01 0030C 6A7004D1 A BAL,LNK RESP
1183 01 0030D 226004F5 A LI,SA BADSEQ
1184 01 0030E 6A7004BA A BAL,LNK SSANS

```

INCR BUTPUT ADDRESS.

STORE COUNT OF ENTRIES TO PRINT.

STORE NEW LINE CHAR AS FIRST BYTE
OF EACH NEW WD GROUP.

3Y-PASS TEST FOR PRINT SUPPRESSION.

1184						
1185						
1186	01	0030F	22800100	A	ALLAUTB	LI,WKA P56
1187	01	00310	2210231E			LI,XA BA(ITRNHIST+1)+2
1188	01	00311	2230231F			LI,XB BA(ITRNHIST+1)+3
1189	01	00312	72C20000	A		LB,WKB 0,XA
1190	01	00313	75C60000	A		STB,WKB 0,XB
1191	01	00314	20100008	A		AI,XA 8
1192	01	00315	20300008	A		AI,XB 8
1193	01	00316	64800312			BCR,WKA \$-4
1194	01	00317	6A70048E		INITAUTB	BAL,LNK SETPSDS
1195	01	00318	6A7004D7			BAL,LNK RDSS
1196	01	00319	6A7006F3			BAL,LNK BS456
1197	01	0031A	226007D7			LI,BA JX
1198	01	0031B	6A70059D			BAL,LNK TESTBSW
1199	01	0031C	00000007	A		DATA 7
1200	01	0031D	226006FE			LI,BA MANUAL
1201	01	0031E	6A70059D			BAL,LNK TESTBSW
1202	01	0031F	00000009	A		DATA 9
1203	01	00320	22800007	A		LI,WKA 7
1204	01	00321	35800A23			STW,WKA INHIBITS
1205		01 00322			ALLAUTBA	EQW \$
1206	01	00322	22800006	A	ALLAUTBB	LI,WKA 6
1207	01	00323	35800-0B			STW,WKA AUTOSTEP
1208	01	00324	3580090C			STW,WKA AUTOSTEP+1
1209	01	00325	3580090D			STW,WKA AUTOSTEP+2
1210	01	00326	2280033D		ALLAUTBC	LI,WKA ALLAUTBD
1211	01	00327	358008F8			STW,WKA CHKEXIT
1212	01	00328	22800603			LI,WKA IGEN
1213	01	00329	358008F9			STW,WKA EXECPATT
1214	01	0042A	2280035F			LI,WKA ALLAUTBH
1215	01	00329	358008FA			STW,WKA HIEXIT
1216	01	0032C	6A7004B0			BAL,LNK CLEAR
1217	01	0032D	223FFFF8	A		LI,XB -8
1218	01	0032E	32100908			LW,XA AUTOSTEP
1219	01	0032F	32820904			LW,WKA API,XA
1220	01	00330	3586084E			STW,WKA LEVBITS+8,XB

MOVE RECEIVED PRIORITY TO EXPECTED PRIORITY AFTER VERIFICATION.

1221	01	00331	65300330			BIR,XB \$-1
1222	01	00332	223FFFF8	A		LI,XB -8
1223	01	00333	3710090C			LW,XA AUTOSTEP+1
1224	01	00334	32820904			LW,WKA API,XA
1225	01	00334	3586085E			STW,WKA LEVBITS+8,XB
1226	01	00336	65300335			BIR,XB \$-1
1227	01	00337	223FFFF8	A		LI,XB -8
1228	01	00338	3210090D			LW,XA AUTOSTEP+2
1229	01	00339	32820904			LW,WKA API,XA
1230	01	0033A	3586085E			STW,WKA LEVBITS+8,XB
1231	01	00333	6530033A			BIR,XB \$-1
1232	01	0033C	680005D3			B SETEXP
1233	01	0033D	32800A22		ALLAUTBD	L,W,WKA ERROR
1234	01	0033E	68300345			BCR,3 \$+7
1235	01	0033F	22600342			LI,BA \$+3
1236	01	00340	6A70059D			BAL,LNK TESTBSW
1237	01	00341	00000001	A		DATA 1
1238	01	00342	22600363			LI,BA AUTOBERLP
1239	01	00343	6A70059D			BAL,LNK TESTBSW
1240	01	00344	00000002	A		DATA 2
1241	01	00345	226006FE			LI,BA MANUAL
1242	01	00346	6A70059D			BAL,LNK TESTBSW
1243	01	00347	00000009	A		DATA 9
1244	01	00348	6A7006F3			BAL,LNK BS456
1245	01	00349	226007D7			LI,BA JX
1246	01	0034A	6A70059D			BAL,LNK TESTBSW
1247	01	0034B	00000007	A		DATA 7
1248	01	0034C	33F0090B			MTW,-1 AUTOSTEP
1249	01	0034D	68100326			BCR,1 ALLAUTBC
1250	01	0034E	22800006	A	ALLAUTBE	LI,WKA 6
1251	01	0034F	3580090B			STW,WKA AUTOSTEP
1252	01	00350	33F0090C			MTW,-1 AUTOSTEP+1
1253	01	00351	68100326			BCR,1 ALLAUTBC
1254	01	00352	22800006	A	ALLAUTBF	LI,WKA 6
1255	01	00353	3580090C			STW,WKA AUTOSTEP+1
1256	01	00354	33F0090D			MTW,-1 AUTOSTEP+2
1257	01	00355	68100326			BCR,1 ALLAUTBC

OR IF NO ERROR OCCURRED.

TEST FOR HALT ON ERROR.

TEST FOR LOOP ON ERROR.

```

1258 01 00356 33F00A23          MTW,=1  INHIBITS
1259 01 00357 68100322          BCR,1  ALLAUTOA
1260 01 00358 6A70058B          ALLAUTB BAL,LNK KILLINTS
1261 01 00359 22600318          LI,9A  INITAUTO+1
1262 01 0035A 6A70059D          BAL,LNK TEST35W
1263 01 0035B 00000003 A       DATA  3
1264 01 0035C 220004B4          LI,1B  MSG7CDW
1265 01 0035D 6A700483          BAL,LNK ASRA
1266 01 0035E 6800036D          B      IPGEN
1267 01 0035F 6A70058B          ALLAUTB BAL,LNK KILLINTS
1268 01 00360 6A700414          BAL,LNK CHKSTK
1269 01 00361 68000326          B      ALLAUTOA
1270 01 00362 68000326          B      ALLAUTOA
1271 01 00363 357008F6          AUTOBERRP STW,LNK L00PEXIT
1272 01 00364 22800368          LI,WKA AUTOBERRA
1273 01 00365 358008F8          STW,WKA CHKEXIT
1274 01 00366 6C000000 A       RD,0   C
1275 01 00367 740008F1          STCF  H0LDSS1
1276 01 00368 226005D3          AUTOBERRA LI,9A  SETEXP
1277 01 00369 6A7004C9          BAL,LNK REVRS1
1278 01 0036A 2280033D          LI,WKA ALLAUTOB
1279 01 0036B 358008F8          STW,WKA CHKEXIT
1280 01 0036C E80008F6          B      L00PEXIT
1281
1282 *
1283 * END OF BASIC TEST GENERATOR.
1284 *
1285 *
1286 * GENERATE ALL POSSIBLE CONDITIONS OF THE INTERRUPT SYSTEM.
1287 *
1288 *
1289 *
1290 *
1291 *
1292 *
1293 *
1294 *
1295 01 0036D          IPGEN  EQU  8
1296
1297
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```

CONTINUE, AFTER BUPTUING
ERROR INFORMATION

STORE SETTING OF 661.

TEST FOR SSI REVERSED.

EXIT WHEN SSI REVERSED.

THIS ROUTINE WILL GENERATE EVERY
POSSIBLE COMBINATION OF CONDITIONS
IN THE INTERRUPT SYSTEM. AS THESE
CONDITIONS ARE GENERATED, THEY ARE
VERIFIED FOR ACCURACY, AND ANY
FAILURES WHICH OCCUR WILL BE IND-
ICATED.

```

1295 01 0036D 22100002 A       LI,XA  2
1296 01 0036E 528204E3          LI,WKA NTNTIMPL,XA
1297 01 0036F 68300372          BCR,3  IPGENA
1298 01 00370 20100001 A       AI,XA  1
1299 01 00371 6800036E          B      IPGEN+1
1300 01 00372 201FFFFFF A       IPGENA AI,XA  -1
1301 01 00373 351008EC          STW,XA HICHAS
1302 01 00374 201FFFFFF A       AI,XA  -1
1303 01 00375 351008ED          STW,XA HICHAS1
1304 01 00376 20100001 A       AI,XA  1
1305 01 00377 22C0000P A       LI,WKB 2
1306 01 00378 22800000 A       IPGENB LI,CSM 0
1307 01 00379 52A208E3          LI,CSA NTNTIMPL,XA
1308 01 0037A 22800010 A       LI,WKA 16
1309 01 0037B 25A0017F A       IPGENC SLD,CSA -1
1310 01 0037C 21800000 A       CI,CSM 0
1311 01 0037D 6330037F          SNE    IPSEND
1312 01 0037E 6480037B          BDR,WKA IPSENC
1313 01 0037F 3582088A          IPSEND STW,WKA CHSLVCNT,XA
1314 *
1315 01 00380 6410037F          BDR,XA IPGENB
1316 01 00381 64C0037F          BDR,WKB IPGENB
1317 01 00382 3280088A          LW,WKA CHSLVCNT
1318 01 00383 221FFFFFF A       LI,XA  -15
1319 01 00384 3082089A          AW,WKA CHSLVCNT+16,XA
1320 01 00385 65100384          BIR,XA *-1
1321 01 00386 438008FE          AND,WKA BIT16X31
1322 01 00387 35800A21          STW,WKA WAITCBN
1323 01 00388 22500000 A       LI,GR  0
1324 01 00389 22800010 A       LI,WKA 16
1325 01 0038A 3A1A088A          IPGENE LCW,XA CHSLVCNT,GR
1326 01 0038B 32C009C7          LW,WKB BIT15
1327 01 0038C 25C20000 A       SLS,WKB 0,XA
1328 01 0038D 3AC0000C A       LCW,WKB WKB
1329 01 0038E 35CA088A          STW,WKB CHSLVCNT,GR
1330 01 0038F 20500001 A       AI,GR  1
1331 01 00390 6480038A          BDR,WKA IPGENE
    
```

BR IF NO LEVEL IMPLEMENTED IN GR XA.

STORE HIGHEST CHASSIS IMPLEMENTED.

STORE NUM OF LEVELS IMPLEMENTED
IN EACH WD GROUP.

STORE NEW INTERRUPT WAIT CONSTANT.

STORE PATTERN DECREMENT CONSTANT.
INCR GROUP INDEX.

1332	01	00391	22800000 A	LI,WKA	0
1333	01	00392	35800844	STW,WKA	IPCBUNT
1334	01	00393	35800845	STW,WKA	IPCBUNT+1
1335	01	00394	221FFFF0 A	LI,XA	-16
1336	01	00395	528208E8	LH,WKA	NINTIMPL+8,XA
1337	01	00396	488008FE	AND,WKA	BIT16X31
1338	01	00397	358208AA	STW,WKA	IPHOLD+16,XA
1339	01	00398	358208BA	STW,WKA	IPHOLDA+16,XA
1340	01	00399	358208CA	STW,WKA	IPHOLDT+16,XA
1341	01	0039A	358208DA	STW,WKA	IPHOLDE+16,XA
1342	01	0039B	65100395	BIR,XA	8-8
1343	01	0039C	228003C1	LI,WKA	STEPIP
1344	01	0039D	358008F8	STW,WKA	CHKEXIT
1345	01	0039E	228003BD	LI,WKA	IPGENH
1346	01	0039F	358008FA	STW,WKA	HIEXIT
1347	01	003A0	22800603	LI,WKA	IGEN
1348	01	003A1	358008F9	STW,WKA	EXCECPATT
1349	01	003A2	22800007 A	IPGENF	LI,WKA
1350	01	003A3	35800A23	STW,WKA	INHIBITS
1351	01	003A4	6A700480	IPGENG	BAL,LNK
1352	01	003A5	33100845	MTW,1	IPCBUNT+1
1353	01	003A6	684003AC	BCR,4	8+6
1354	01	003A7	22800000 A	LI,WKA	0
1355	01	003A8	35800845	STW,WKA	IPCBUNT+1
1356	01	003A9	33100844	MTW,1	IPCBUNT
1357	01	003AA	684003AC	BCR,4	8+2
1358	01	003AB	35800844	STW,WKA	IPCBUNT
1359					
1360	01	003AC	321008EC	LW,XA	HICHAS
1361	01	003AD	323008ED	LW,XB	HICHAS1
1362	01	003AE	328608AB	LW,WKA	IPHOLDA+1,XB
1363	01	003AF	55820846	STW,WKA	LEVBITSA,XA
1364	01	003B0	328608BB	LW,WKA	IPHOLDT+1,XB
1365	01	003B1	55820856	STW,WKA	LEVBITST,XA
1366	01	003B2	328608CB	LW,WKA	IPHOLDE+1,XB
1367	01	003B3	5582084E	STW,WKA	LEVBITSE,XA
1368	01	003B4	641003B5	BDR,XA	8+1

EXPAND IMPLEMENTED TABLE ENTRIES
TO FULL WORDS, MOVE TO PATTERN
GENERATOR HOLD AREA.

INCR LOW ORDER PATTERN COUNT WORD.
BR IF NO OVERFLOW.

INCR HIGH ORDER PATTERN COUNT WORD.
BR IF NO OVERFLOW.
COUNTS RESTARTS AT X'7FFFFFFF'
TIMES X'7FFFFFFF' TIMES 8.

1369	01	003B5	643003AE	BDR,XB	8-7
1370	01	003B6	328008AA	LW,WKA	IPHOLDA
1371	01	003B7	55800846	STW,WKA	LEVBITSA
1372	01	003B8	328008BA	LW,WKA	IPHOLDT
1373	01	003B9	55800856	STW,WKA	LEVBITST
1374	01	003BA	328008CA	LW,WKA	IPHOLDE
1375	01	003BB	5580084E	STW,WKA	LEVBITSE
1376	01	003BC	680005D4	B	SETEXP+1
1377	01	003BD	6A70058B	IPGENH	BAL,LNK
1378	01	003BE	6A700414	BAL,LNK	CHKSTK
1379	01	003BF	680003C1	B	STEPIP
1380	01	003C0	680003C1	B	STEPIP
1381	01	003C1	32800A22	STEPIP	LW,WKA
1382	01	003C2	683003C9	BCR,3	STEPIPB
1383	01	003C3	226003C6	LI,9A	STEPIPA
1384	01	003C4	6A70059D	BAL,LNK	TESTBSW
1385	01	003C5	00000001 A	DATA	1
1386	01	003C6	2260040B	STEPIPA	LI,9A
1387	01	003C7	6A70059D	BAL,LNK	TESTBSW
1388	01	003C8	00000002 A	DATA	2
1389	01	003C9	6C000000 A	STEPIPB	RD,0
1390	01	003CA	698003DB	BCS,8	8+17
1391	01	003CB	22600317	LI,9A	INITAUTO
1392	01	003CC	6A70059D	BAL,LNK	TESTBSW
1393	01	003CD	00000003 A	DATA	3
1394	01	003CE	6A7006F3	BAL,LNK	BS456
1395	01	003CF	226007D7	LI,9A	JX
1396	01	003D0	6A70059D	BAL,LNK	TESTBSW
1397	01	003D1	00000007 A	DATA	7
1398	01	003D2	226006FE	LI,9A	MANUAL
1399	01	003D3	6A70059D	BAL,LNK	TESTBSW
1400	01	003D4	00000009 A	DATA	9
1401	01	003D5	228003C1	LI,WKA	STEPIP
1402	01	003D6	358008F8	STW,WKA	CHKEXIT
1403	01	003D7	228003BD	LI,WKA	IPGENH
1404	01	003D8	358008FA	STW,WKA	HIEXIT
1405	01	003D9	22800603	LI,WKA	IGEN

BR IF NO ERROR.

TEST FOR HALT ON ERROR.

TEST FOR LOOP ON ERROR.

BY-PASS OPTION TEST IF SS1 SET.

TEST FOR LOOP ON BASIC TESTS.

TEST FOR ENTRY TO OPTIONAL ROUTINES.

TEST FOR ENTRY TO JX-58 ROUTINE.

TEST FOR ENTRY TO MANUAL INPUT TEST.

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1406	01	003DA	358008F9	STW,WKA	EXECPATT	
1407	01	003DB	33F00A23	MTW,-1	INHIBITS	
1408	01	003DC	681003A4	BCR,1	IPGENG	LOOP THROUGH B INHIBIT STATES.
1409	01	003DD	6C000000 A	RD,0	0	
1410	01	003DE	698003E0	BCS,B	*+2	BY-PASS SS TEST IF SS1 SET ON.
1411	01	003DF	6A7004D7	BAL,LNK	RDSS	
1412	01	003E0	321008EC	LW,XA	HICHAS	
1413	01	003E1	21100001 A	CI,XA	1	
1414	01	003E2	682003E9	BLE	STEPID	
1415	01	003E3	3282088A	LW,WKA	CHSLVCNT,XA	
1416	01	003E4	668208CA	AWM,WKA	IPHOLDE,XA	
1417	01	003E5	681003A2	BCR,1	IPGENF	
1418	01	003E6	3282089A	LW,WKA	IPHOLD,XA	
1419	01	003E7	358208CA	STW,WKA	IPHOLDE,XA	
1420	01	003E8	641003E1	BDR,XA	STEPIPC	
1421	01	003E9	3280088A	LW,WKA	CHSLVCNT	
1422	01	003EA	668008CA	AWM,WKA	IPHOLDE	
1423	01	003EB	681003A2	BCR,1	IPGENF	
1424	01	003EC	3280089A	LW,WKA	IPHOLD	
1425	01	003ED	358008CA	STW,WKA	IPHOLDE	
1426	01	003EE	321008EC	LW,XA	HICHAS	
1427	01	003EF	21100001 A	CI,XA	1	
1428	01	003F0	682003F7	BLE	STEPIF	
1429	01	003F1	3282088A	LW,WKA	CHSLVCNT,XA	
1430	01	003F2	668208BA	AWM,WKA	IPHOLDT,XA	
1431	01	003F3	681003A2	BCR,1	IPGENF	
1432	01	003F4	3282089A	LW,WKA	IPHOLD,XA	
1433	01	003F5	358208BA	STW,WKA	IPHOLDT,XA	
1434	01	003F6	641003EF	BDR,XA	STEPIFE	
1435	01	003F7	3280088A	LW,WKA	CHSLVCNT	
1436	01	003F8	668008BA	AWM,WKA	IPHOLDT	
1437	01	003F9	681003A2	BCR,1	IPGENF	
1438	01	003FA	3280089A	LW,WKA	IPHOLD	
1439	01	003FB	358008BA	STW,WKA	IPHOLDT	
1440	01	003FC	321008EC	LW,XA	HICHAS	
1441	01	003FD	21100001 A	CI,XA	1	
1442	01	003FE	68200405	BLE	STEPIPH	

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1443	01	003FF	3282088A	LW,WKA	CHSLVCNT,XA	
1444	01	00400	668208AA	AWM,WKA	IPHOLDA,XA	
1445	01	00401	681003A2	BCR,1	IPGENF	
1446	01	00402	3282089A	LW,WKA	IPHOLD,XA	
1447	01	00403	358208AA	STW,WKA	IPHOLDA,XA	
1448	01	00404	641003FD	BDR,XA	STEPIPG	
1449	01	00405	3280088A	LW,WKA	CHSLVCNT	
1450	01	00406	668008AA	AWM,WKA	IPHOLDA	
1451	01	00407	681003A2	BCR,1	IPGENF	
1452	01	00408	22000488	LI,1B	MSDCDW	
1453	01	00409	6A700483	BAL,LNK	XSR	
1454	01	0040A	68000391	B	IPGENE+7	
1455				*		
1456	01	0040B	357008F6	IPERL0BP	STW,LNK	LOOPEXIT
1457	01	0040C	6A7004F2	BAL,LNK	STHLDSS	
1458	01	0040D	2280040F	LI,WKA	IPERRA	
1459	01	0040E	358008F8	STW,WKA	CHKEXIT	
1460	01	0040F	226005D3	IPERRA	LI,9A	SETEXP
1461	01	00410	6A7004C9	BAL,LNK	REVRS1	TEST FOR SS1 REVERSED.
1462	01	00411	228003C1	LI,WKA	STEPIP	
1463	01	00412	358008F8	STW,WKA	CHKEXIT	
1464	01	00413	E80008F6	B	*LOOPEXIT	EXIT WHEN SS1 REVERSED.
1465				*		
1466				*	END OF INTERRUPT PATTERN GENERATOR.	
1467				*		
1468				*		
1469				*	CHECK ERROR STACK FOR ENTRIES, TRANSLATE AND OUTPUT ANY ERRORS.	
1470				*		
1471	01	00414	12A0091A	CHKSTK	LD,CSA	ERRMSK1
1472	01	00415	45A00930		CS,CSA	ERRSTK
1473	01	00416	E8300007 A		BE	*LNK
1474	01	00417	60000041 A		WD,0	*B
1475	01	00418	32A00841		LW,CSA	BITSWTCH
1476	01	00419	6910046E		BCS,1	CHKSTKE
1477	01	0041A	0970092E		PSW,LNK	LNKSTK
1478	01	0041B	2200049A		LI,1B	MSDCDW
1479	01	0041C	6A700481		BAL,LNK	XSR

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1480	01	0041D	08F00930	CHKSTKA	PLW,IN	ERRSTK
1481	01	0041E	68E00425		BCR,14	CHKSTKB
1482	01	0041F	2260042A		LI,9A	CHKSTKC
1483	01	00420	6A70059D		BAL,LNK	TESTBSW
1484	01	00421	0000000A	A	DATA	10
1485	01	00422	0870092E		PLW,LNK	LNKSTK
1486	01	00423	6D000040	A	WD,0	64
1487	01	00424	680E0001	A	B	1,LNK
1488	01	00425	22600AE6	CHKSTKB	LI,9A	ITRNHIST+32
1489	01	00426	6A700563		BAL,LNK	TRANBUT
1490	01	00427	220004A1		LI,10	STKCDW
1491	01	00428	6A700481		BAL,LNK	KSR
1492	01	00429	6800041D		B	CHKSTKA
1493				*		
1494	01	0042A	32A008F7	CHKSTKC	LW,CSA	ADRDCODE
1495	01	0042B	21A0020A		CI,CSA	HIGHA
1496	01	0042C	68300422		BE	CHKSTKB=3
1497	01	0042D	21A00239		CI,CSA	CKINTADD
1498	01	0042E	68300422		BE	CHKSTKB=3
1499	01	0042F	21A00271		CI,CSA	GETSEQC
1500	01	00430	68300422		BE	CHKSTKB=3
1501	01	00431	22600447		LI,9A	DMPNUMC
1502	01	00432	6A70059D		BAL,LNK	TESTBSW
1503	01	00433	00000008	A	DATA	8
1504	01	00434	328008F8		LW,WKA	CHKEXIT
1505	01	00435	218003C1		CI,WKA	STEPIC
1506	01	00436	69300447		BNE	DMPNUMC
1507	01	00437	22100003	A	LI,XA	3
1508	01	00438	22800010	A	LI,WKA	16
1509	01	00439	32F00844		LW,IN	IPCOUNT
1510	01	0043A	68300440		BCR,3	DMPNUMA
1511	01	0043B	75820961		STB,WKA	NUMCDW+1,XA
1512	01	0043C	22600AE6		LI,9A	ITRNHIST+32
1513	01	0043D	6A700563		BAL,LNK	TRANBUT
1514	01	0043E	22600AE8		LI,9A	ITRNHIST+34
1515	01	0043F	68000443		B	DMPNUMB
1516	01	00440	22800008	A	LI,WKA	8

TEST FOR REQUEST TO OUTPUT PATTERN ON ERROR.

RESET ALARM INDICATOR.

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1517	01	00441	75820961		STB,WKA	NUMCDW+1,XA
1518	01	00442	22600AE6		LI,9A	ITRNHIST+32
1519	01	00443	32F00845	DMPNUMB	LW,IN	IPCOUNT+1
1520	01	00444	6A700563		BAL,LNK	TRANBUT
1521	01	00445	220004AF		LI,10	PATTLEAD
1522	01	00446	6A700483		BAL,LNK	KSRA
1523	01	00447	2260000F	A	LI,9A	15
1524	01	00448	528C08E3		LH,WKA	NTNTIMPL,9A
1525	01	00449	69300448		BCS,3	*+P
1526	01	0044A	64600448		BDR,9A	*-P
1527	01	0044B	35600305		STW,9A	EXTRNL-1
1528	01	0044C	22A00002	A	LI,CSA	2
1529	01	0044D	35A00304		STW,CSA	EXTRNL-2
1530	01	0044E	22100000	A	LI,XA	0
1531	01	0044F	22F000F0	A	LI,IN	240
1532	01	00450	55F00AE6	CHKSTKJ	STH,IN	ITRNHIST+32
1533	01	00451	52F20846		LH,IN	LEVBITSA,XA
1534	01	00452	22600001	A	LI,9A	1
1535	01	00453	52A2084E		LH,CSA	LEVBITSE,XA
1536	01	00454	55F00AE7		STH,IN	ITRNHIST+33
1537	01	00455	55AC0AE7		STH,CSA	ITRNHIST+33,9A
1538	01	00456	52F20856		LH,IN	LEVBITST,XA
1539	01	00457	52A2085E		LH,CSA	LEVBITSI,XA
1540	01	00458	55F00AE8		STH,IN	ITRNHIST+34
1541	01	00459	55AC0AE8		STH,CSA	ITRNHIST+34,9A
1542	01	0045A	32F00AE7		LW,IN	ITRNHIST+33
1543	01	0045B	22600AE9		LI,9A	ITRNHIST+35
1544	01	0045C	6A700563		BAL,LNK	TRANBUT
1545	01	0045D	22600AE8		LI,9A	ITRNHIST+37
1546	01	0045E	32F00AE8		LW,IN	ITRNHIST+34
1547	01	0045F	6A700563		BAL,LNK	TRANBUT
1548	01	00460	6A700776		BAL,LNK	EDIT
1549	01	00461	220004BC		LI,10	PDMPCDW
1550	01	00462	6A700483		BAL,LNK	KSRA
1551	01	00463	32F00804		LW,IN	EXTRNL-2
1552	01	00464	31F00305		CI,IN	EXTRNL-1
1553	01	00465	69200422		BS	CHKSTKB=3

BR IF WD GROUP IMPLEMENTED.

STORE HIGHEST WD GROUP IMPLEMENTED.

*
FORMAT OUTPUT.

OUTPUT PATTERN.

BR IF ALL IMPLEMENTED WD GROUPS

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1554
1555 01 00466 21F00009 A CI,IN 9 OUTPUTTED.
1556 01 00467 6920046A B3 *+3
1557 01 00468 20F000F0 A AI,IN 240 ADD 'F' ZONE.
1558 01 00469 6800046B B *+2
1559 01 0046A 20F000B7 A AI,IN 183 ADD 'C' ZONE.
1560 01 0046B 32100B04 LW,XA EXTRNAL=2
1561 01 0046C 33100B04 MTW,1 EXTRNAL=2 INCR GROUP POINTER.
1562 01 0046D 68000450 B CHKSTK0
1563 01 0046E 0970092E CHKSTKE PSH,LNK LNKSTK
1564 01 0046F 22600474 LI,9A CHKSTKF
1565 01 00470 6A70059D BAL,LNK TESTBSW TEST TO PRESERVE ERROR RECORDS.
1566 01 00471 0000000B A DATA 11
1567 01 00472 12A0091R LD,CSA ERRMSK
1568 01 00473 15A00930 STD,CSA ERRSTK CLEAR ERROR INFORMATION IF
PRINTING IS SUPPRESSED.
1569
1570 01 00474 0870092E CHKSTKE PLW,LNK LNKSTK
1571 01 00475 6D000040 A WD,0 64 RESET ALARM INDICATOR.
1572 01 00476 680E0001 A B 1,LNK TAKE ERROR EXIT.
1573
1574 01 00477 32100000 A RDCHK LW,XA 10 * * * DELETED PAGE DIRECTIVE * * * *C
1575 01 00478 25100001 A SLS,XA 1
1576 01 00479 328009C4 LW,WKA BIT6
1577 01 0047A C3800001 A AND,WKA *XA
1578 01 0047B 69300483 BCS,3 <SRA BR IF READ COW.
1579 01 0047C 328009C0 LW,WKA BITW0
1580 01 0047D 48820001 A AND,WKA 1,XA
1581 01 0047E E8300007 A BCR,3 *LNK BR IF NO COMMAND CHAINING.
1582 01 0047F 20100002 A AI,XA 2
1583 01 00480 68000479 B RDCHK+2
1584 01 00481 32800841 <SR LW,WKA BITSWCH
1585 01 00482 69100477 BCS,1 RDCHK BR IF PRINTING SUPPRESSED.
1586 01 00483 12A00020 A <SRA LD,CSA 32
1587 01 00484 0970092E PSH,LNK LNKSTK
1588 01 00485 6A70058B BAL,LNK KILLINTS ASSURE THAT NO INT IS IN THE ACTIVE
STATE BEFORE ATTEMPTING TO PERFORM
I/O OPERATION.
1589
1590

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1591 01 00486 4D000001 A TIB,0 1
1592 01 00487 69400486 BIBSNP *-1
1593 01 00488 4C000001 A SIB,0 1
1594 01 00489 4D000001 A TIB,0 1
1595 01 0048A 69400489 BIBSNP *-1
1596 01 0048B 15A00020 A PUTPA STD,CSA 32
1597 01 0048C 0870092E PLW,LNK LNKSTK
1598 01 0048D E8000007 A B *LNK
1599
1600 * SET UP FOR HANDLING INTERRUPTS FROM X'10' TO X'1FF'.
1601
1602 01 0048E 328008F9 SETPSDS LW,WKA DC0XPSD1
1603 01 0048F 22E00002 A LI,WKD 2
1604 01 00490 22100000 A LI,XA 0
1605 01 00491 220000F8 A SETPSDSA LI,WKC 24R
1606 01 00492 35820010 A SETPSDSB STW,WKA 16,XA
1607 01 00493 20800004 A AI,WKA 4
1608 01 00494 20100001 A AI,XA 1
1609 01 00495 64D00492 BDR,WKC SETPSDSB
1610 01 00496 328008FC LW,WKA DC0XPSD2
1611 01 00497 64E00491 BDR,WKD SETPSDSA
1612
1613 01 00498 22800010 A LI,WKA 16 SET UP PSDS ADDRESSED BY PRECEDING
1614 01 00499 22100001 A LI,XA 1 XPSD INSTRUCTIONS.
1615 01 0049A 22C000F8 A LI,WKB 24B
1616 01 0049B 32B00008 A SETPSDSC LW,CSM WKA ENCODE ADDRESS.
1617 01 0049C 25A0011B A SLD,CSA 27
1618 01 0049D 25A00001 A SLS,CSA 1
1619 01 0049E 25A00103 A SLD,CSA 3
1620 01 0049F 25A00002 A SLS,CSA 2
1621 01 004A0 25A00116 A SLD,CSA 22
1622 01 004A1 22B000F0 A LI,CSM 240 INSERT REG PAGE POINTER.
1623 01 004A2 49A00842 BR,CSA SETRTN INSERT RETURN ADDRESS.
1624 01 004A3 15A20CC6 STD,CSA LAST,XA
1625 01 004A4 20100002 A AI,XA 2 INCR STD INDEX.
1626 01 004A5 20800001 A AI,WKA 1 INCR ADDRESS TO BE ENCODED.
1627 01 004A6 64C0049B BDR,WKB SETPSDSC

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4c9
 1628
 1629 01 004A7 12A00918 SETSTKS LD,CSA ERRMSK
 1630 01 004A8 15A00930 STD,CSA ERRSTK
 1631 01 004A9 32B00903 CLR18X21 LW,CSM BIT18X21
 1632 01 004AA 22100000 A LI,XA 0
 1633 01 004AB 22800100 A LI,WKA 256
 1634 01 004AC 22A00000 A LI,CSA 0
 1635 01 004AD 47A20AC6 STS,CSA ITRNHIST,XA
 1636 01 004AE 20100002 A AI,XA 2
 1637 01 004AF 648004AD BDR,WKA *-2
 1638 01 004B0 22A00000 A CLEAR LI,CSA 0
 1639 01 004B1 22B00000 A LI,CSM 0
 1640 01 004B2 221FFFF0 A LI,XA -16
 1641 01 004B3 15A20866 STD,CSA LEVBITS+32,XA
 1642 01 004B4 651004B3 BIR,XA *-1
 1643 01 004B5 221FFFF0 A LI,XA -16
 1644 01 004B6 15A20306 STD,CSA ITRNHIST+64,XA
 1645 01 004B7 651004B6 BIR,XA *-1
 1646 01 004B8 35A00A22 STW,CSA ERROR
 1647 01 004B9 E8000007 A B *LNK
 1648
 1649
 1650
 * TEST FOR REVERSAL OF SS 2 OR SS 3.
 *
 1651 01 004BA 22100003 A SSANS LI,XA 3 XA,WKA,CSM,CSA.
 1652 01 004BB 6C000000 A RD,0 0
 1653 01 004BC 740204BE STCF SSANSA,XA STORE SS SETTING.
 1654 01 004BD 2E000000 A WAIT WAIT FOR ANSWER, AND
 1655 01 004BE 02000000 A SSANSA NBP 0 DISPLAY SS SETTING IN BYTE 3.
 1656 01 004BF 32B009BF LW,CSM BITONE
 1657 01 004C0 6C000000 A RD,0 0
 1658 01 004C1 7400000A A STCF CSA
 1659 01 004C2 25A0016R A SLD,CSA -24
 1660 01 004C3 45A004BE CS,CSA SSANSA
 1661 01 004C4 E9300007 A BNE *LNK BR IF SS 2 IS REVERSED.
 1662 01 004C5 25B0007F A SLS,CSM -1
 1663 01 004C6 45A004BE CS,CSA SSANSA
 1664 01 004C7 683004BA BE SSANS

9TG

ZERO TEMPORARY INFO IN INT HISTORY TABLE.

1665 01 004C8 E8000006 A B *BA
 1666
 1667
 * TEST FOR REVERSAL OF SS 1.
 *
 1668
 1669 01 004C9 6C000000 A REVR51 RD,0 0 READ SENSE SWITCHES.
 1670 01 004CA 74000008 A STCF WKA
 1671 01 004CB 498009BE AND,WKA BITZER0 STRIP ALL BUT SS1.
 1672 01 004CC 32C009BE LW,WKB BITZER0
 1673 01 004CD 48C008F1 AND,WKB H0LDSS1 STRIP ORIGINAL TO SS1.
 1674 01 004CE 4880000C A EBR,WKA WKB
 1675 01 004CF E8300006 A BCR,3 *BA BR IF SS1 NOT REVERSED.
 1676 01 004D0 E8000007 A B *LNK RETURN IF SS1 REVERSED.
 1677
 * * * DELETED PAGE DIRECTIVE * * *
 *
 1678 01 004D1 32800954 RESP EQU \$
 1679 01 004D2 488008FD LW,WKA C0MMCDW+2
 1680 01 004D3 49800000 A AND,WKA BITOX15
 1681 01 004D4 35800954 BR,WKA 10
 1682 01 004D5 220004A9 STW,WKA C0MMCDW+2
 1683 01 004D6 68000483 LI,10 DA(C0MMCDW)
 1684
 1685
 1686
 * TEST FOR REVERSAL OF SS 4.
 *
 1687
 1688 01 004D7 6C000000 A RDSS RD,0 0
 1689 01 004D8 740008F1 STCF H0LDSS1 STORE SENSE SWITCH SETTING.
 1690 01 004D9 328009C1 LW,WKA BIT3
 1691 01 004DA 498008FD AND,WKA H0LDSS
 1692 01 004DB 32C009C1 LW,WKB BIT3
 1693 01 004DC 48C008F1 AND,WKB H0LDSS1
 1694 01 004DD 4880000C A EBR,WKA WKB
 1695 01 004DE E8200007 A BCR,2 *LNK BR IF SS4 HAS NOT BEEN REVERSED.
 1696 01 004DF 328008F1 LW,WKA H0LDSS1
 1697 01 004E0 358008FD STW,WKA H0LDSS STORE CURRENT SS4.
 1698 01 004E1 0970092E PSW,LNK LNKSTK
 1699 01 004E2 220004AD LI,10 BITSWCDW
 1700 01 004E3 6A700481 BAL,LNK KSR
 1701 01 004E4 226004F0 LI,9A RDSSA

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1702	01	004E5	6A7005AF	BAL, LNK	TRANIN
1703	01	004E6	3210000F A	LW, XA	IN
1704	01	004E7	25100002 A	SLS, XA	P
1705	01	004E8	3A100001 A	LCH, XA	XA
1706	01	004E9	228FFFFF A	LI, WKA	-1
1707	01	004EA	25820000 A	SLS, WKA	0, XA
1708	01	004EB	48800841	AND, WKA	BITSWTCH
1709	01	004EC	49800002 A	BR, WKA	BT
1710	01	004ED	35800841	STW, WKA	RITSWTCH
1711	01	004EE	0870092E	PLW, LNK	LNKSTK
1712	01	004EF	E8000007 A	B	*LNK
1713	01	004FO	227004E2	RDSSA LI, LNK	RDSS+11
1714	01	004F1	68000534	B	OUTPINV
1715					
1716	01	004F2	6C000000 A	STHLDSS	RD, 0
1717	01	004F3	740008F1	STCF	HOLDSS1
1718	01	004F4	E8000007 A	B	*LNK
1719					
1720					* RECEIVED PRIORITY SEQUENCE DOES NOT MATCH EXPECTED SEQUENCE.
1721					* READ KSR FOR CORRECT SEQUENCE, ENTER SEQUENCE IN HISTORY TABLE.
1722					
1723	01	004F5	22800000 A	BADSEQ	LI, WKA
1724	01	004F6	358009BD	STW, WKA	CNTR
1725	01	004F7	221FFFF8 A	LI, XA	-8
1726	01	004F8	358208EB	STW, WKA	NTNTIMPL+8, XA
1727	01	004F9	651004F8	BIR, XA	*-1
1728	01	004FA	220004B2	BADSEQA	LI, 10
1729	01	004FB	6A700481	BAL, LNK	KSR
1730	01	004FC	32800AE6	LW, WKA	ITRNHIST+32
1731	01	004FD	3180090F	CW, WKA	ENDFLAG
1732	01	004FE	69300504	BNE	*+6
1733	01	004FF	6A70048E	BAL, LNK	SETPSDS
1734	01	00500	226007D7	LI, 9A	JX
1735	01	00501	6A70059D	BAL, LNK	TEST3SW
1736	01	00502	00000007 A	DATA	7
1737	01	00503	68000317	B	INITAUTB
1738	01	00504	31800910	CW, WKA	ZEROSEQ

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1739	01	00505	683004F5	BE	BADSEQ
1740	01	00506	22100002 A	LI, XA	2
1741	01	00507	22300005 A	LI, XB	5
1742	01	00508	22800015 A	LI, WKA	21
1743	01	00509	71820AE6	CB, WKA	ITRNHIST+32, XA
1744	01	0050A	6830052F	BE	BADSEQD
1745	01	0050B	71860AE6	CB, WKA	ITRNHIST+32, XB
1746	01	0050C	69300533	BNE	BADSEQE
1747	01	0050D	32A00AE6	LW, CSA	ITRNHIST+32
1748	01	0050E	32B00AE7	LW, CSM	ITRNHIST+32
1749	01	0050F	25A00170 A	SLD, CSA	-16
1750	01	00510	25B00008 A	SLS, CSM	8
1751	01	00511	25A00110 A	SLD, CSA	16
1752	01	00512	35A00AE7	BADSEQA	STW, CSA
1753	01	00513	22800000 A	LI, WKA	0
1754	01	00514	35800AE6	STW, WKA	ITRNHIST+32
1755	01	00515	22600533	LI, 9A	BADSEQE
1756	01	00516	6A7005AF	BAL, LNK	TRANIN
1757	01	00517	35200AE6	STW, BT	ITRNHIST+32
1758	01	00518	22100002 A	LI, XA	2
1759	01	00519	72920AE6	L3, LV	ITRNHIST+32, XA
1760	01	0051A	32500009 A	BADSEQC	LW, GR
1761	01	0051B	2590001C A	SLS, LV	28
1762	01	0051C	25900064 A	SLS, LV	-28
1763	01	0051D	2550007C A	SLS, GR	-4
1764	01	0051E	223009C8	LI, XB	BIT16
1765	01	0051F	82960009 A	LW, LV	*LV, XB
1766	01	00520	6A700580	BAL, LNK	YLDINTAD
1767	01	00521	22300007 A	LI, XB	7
1768	01	00522	328009BD	LW, WKA	CNTR
1769	01	00523	F5860002 A	STB, WKA	*BT, XB
1770	01	00524	52CA08E3	LW, WKB	NTNTIMPL, GR
1771	01	00525	49C00009 A	BR, WKB	LV
1772	01	00526	55CA08E3	STW, WKB	NTNTIMPL, GR
1773	01	00527	331009BD	MTW, 1	CNTR
1774	01	00528	73120AE6	MTB, 1	ITRNHIST+32, XA
1775	01	00529	72920AE6	L3, LV	ITRNHIST+32, XA

BR IF SINGLE LEVEL ENTRY.

BR IF INVALID FORMAT.

LOAD LEVEL BIT.

MAKE ENTRY IN IMPLEMENTED TABLE.

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1776	01	0052A	22300003 A	LI,XB	3	
1777	01	0052B	22000483	LI,I0	C0RRCDW+1	
1778	01	0052C	71960AE6	CB,LV	ITRNHIST+32,XB	
1779	01	0052D	692004FB	BG	BADSEGA+1	BR IF ENTIRE CONTIGUOUS SEQUENCE ENTERED.
1780				*		
1781	01	0052E	6800051A	B	BADSEQC	
1782	01	0052F	32A00AE6	BADSEQD	LW,CSA	ITRNHIST+32
1783	01	00530	25A00070 A	SLS,CSA	-16	
1784	01	00531	25A00008 A	SLS,CSA	8	
1785	01	00532	68000512	B	BADSEQB	
1786	01	00533	227004FA	BADSEQE	LI,LNK	BADSEGA
1787	01	00534	220004BE	BUTPINV	LI,I0	INVCDW
1788	01	00535	68000483	B	KSRA	
1789				*		
1790	01	00536	22000485	GRPONE	LI,I0	MSG8CDW * * * DELETED PAGE DIRECTIVE * * *
1791	01	00537	6A700483	BAL,LNK	KSRA	*C
1792	01	00538	22800541	LI,WKA	GRPONEB	
1793	01	00539	358008F7	STW,WKA	ADRDCODE	
1794	01	0053A	2290FFFF A	GRPONEA	LI,LV	65535
1795	01	0053B	22500001 A	LI,GR	1	
1796	01	0053C	22E00010 A	LI,WKD	16	
1797	01	0053D	35E00A20	STW,WKD	WAITCNT	
1798	01	0053E	6D9A1300 A	WD,LV	ARMD,GR	
1799	01	0053F	6D9A1700 A	WD,LV	TRIG,GR	
1800	01	00540	6D9A1400 A	WD,LV	ENABLE,GR	
1801	01	00541	0E20092A	GRPONEB	LPSD,2	GRPONE1
1802	01	00542	33F00A20	GRPONEC	MTH,-1	WAITCNT
1803	01	00543	69100541	BCS,1	*-2	
1804	01	00544	6800053A	B	GRPONEA	
1805				*		* * * DELETED PAGE DIRECTIVE * * *
1806	01	00545	2200049A	HIFAILA	LI,I0	MSG3CDW *C
1807	01	00546	6A700483	BAL,LNK	KSRA	
1808	01	00547	2280054D	LI,WKA	HIFAILAB	
1809	01	00548	358008F7	STW,WKA	ADRDCODE	
1810	01	00549	2290FFFF A	HIFAILAA	LI,LV	65535
1811	01	0054A	22E00010 A	LI,WKD	16	
1812	01	0054B	6D901200 A	WD,LV	ARME	

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1813	01	0054C	6D901700 A	WD,LV	TRIG	
1814	01	0054D	0E20091C	HIFAILAB	LPSD,2	HIFAILA1
1815	01	0054E	20000000 A	HIFAILAC	AI,0	0
1816	01	0054F	64E0054E	BDR,WKD	*-1	
1817	01	00550	68000549	B	HIFAILAA	
1818				*		
1819	01	00551	32F00002 A	HIFAILB	LW,IN	0T
1820	01	00552	22600846	LI,9A	LEVBITSA	
1821	01	00553	6A700563	BAL,LNK	TRANBUT	
1822	01	00554	22800015 A	LI,WKA	21	
1823	01	00555	75800847	STB,WKA	LEVBITSA+1	
1824	01	00556	75800848	STB,WKA	LEVBITSA+2	
1825	01	00557	220004A5	LI,I0	MSG4CDW	
1826	01	00558	6A700481	BAL,LNK	4SR	
1827	01	00559	2280055F	LI,WKA	HIFAILBB	
1828	01	0055A	358008F7	STW,WKA	ADRDCODE	
1829	01	0055B	329009C8	HIFAILBA	LW,LV	BIT16
1830	01	0055C	499009CA	BR,LV	BIT18	
1831	01	0055D	6D901200 A	WD,LV	ARME	
1832	01	0055E	6D901700 A	WD,LV	TRIG	
1833	01	0055F	0E20091E	HIFAILBB	LPSD,2	HIFAILB1
1834	01	00560	20000000 A	HIFAILBC	AI,0	0
1835	01	00561	20000000 A	AI,0	0	
1836	01	00562	68000558	B	HIFAILBA	
1837				*		
1838				*	TRANSLATE FROM HEX TO EBCDIC.	
1839				*		
1840		01	00563	TRANBUT	EQU	\$
1841	01	00563	32B0000F A	LW,CSM	IN	
1842	01	00564	221FFFF8 A	LI,XA	-8	
1843	01	00565	20600002 A	AI,9A	2	
1844	01	00566	22A00000 A	TRANBUTA	LI,CSA	0
1845	01	00567	25A00104 A	SLD,CSA	4	
1846	01	00568	3230000A A	LW,XB	CSA	
1847	01	00569	728609DB	LB,WKA	TABLE,XB	
1848	01	0056A	F5820006 A	STB,WKA	*9A,XA	
1849	01	0056B	65100566	BIR,XA	TRANBUTA	

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1850 01 0056C E800007 A B *LNK
1851
1852 01 0056D BITCNT EQU $ * * * DELETED PAGE DIRECTIVE * * * *C
1853 01 0056D 222FFFFF A LI,9T -1
1854 01 0056E 22A00000 A LI,CSA 0
1855 01 0056F 25A00101 A BITCNTA SLD,CSA 1
1856 01 00570 20200001 A AI,9T 1
1857 01 00571 31A00900 CW,CSA NBRITS
1858 01 00572 6830056F BE BITCNTA
1859 01 00573 E8000007 A B *LNK
1860
1861 *
1862 * SET HIGHEST PRIORITY INTERRUPT IMPLEMENTED INTO ONE ACTIVE
1863 * STATE, EXIT IF INTERRUPT OCCURS AND ADDRESS IS CORRECT.
1864 01 00574 2280057B SETHI LI,WKA SETHIA
1865 01 00575 358008F7 STW,WKA ADDRCDDE
1866 01 00576 32900917 LW,LV HIRIT
1867 01 00577 6D901200 A WD,LV ARME
1868 01 00578 6D901700 A WD,LV TRIG
1869 01 00579 20000000 A AI,0 0
1870 01 0057A 680006DF B HIFAILC INT HAS FAILED.
1871 01 0057B 228005CB SETHIA LI,WKA BREAKHI
1872 01 0057C 358008F7 STW,WKA ADDRCDDE
1873 01 0057D 31200915 CW,9T HIPRI
1874 01 0057E 693006EB BNE HIFAILD BR IF ADDRESS MIS-MATCH.
1875 01 0057F E8000007 A B *LNK
1876
1877 01 00580 VLDINTAD EQU $ * * * DELETED PAGE DIRECTIVE * * * *C
1878 01 00580 0970092E PSW,LNK LNKSTK
1879 01 00581 32B00009 A LW,CSM LV
1880 01 00582 6A70056D BAL,LNK BITCNT
1881 01 00583 202FFFF0 A AI,9T -16
1882 01 00584 25500004 A SLS,GR 4
1883 01 00585 30200005 A AW,9T GR
1884 01 00586 2550007C A SLS,GR -4
1885 01 00587 25200001 A SLS,8T 1
1886 01 00588 202000AC6 AI,9T ITRNHIST
    
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1887 01 00589 0870092E PLW,LNK LNKSTK
1888 01 0058A E8000007 A B *LNK
1889
1890 * CLEAR ALL ACTIVE AND PENDING INTERRUPTS.
1891
1892 01 0058B 325008ED KILLINTS LW,GR HICHAS1
1893 01 0058C 2290FFFF A LI,LV 65535
1894 01 0058D 6D9A1101 A WD,LV DISARM+1,GR
1895 01 0058E 6450058D BDR,GR $-1
1896 01 0058F 6D901100 A WD,LV DISARM
1897 01 00590 6D000040 A WD,0 64 RESET ALARM INDICATOR.
1898 01 00591 E8000007 A B *LNK
1899
1900 * INTERRUPT HANDLING ROUTINE.
1901
1902 * THIS ROUTINE SUPPLIES THE ADDRESS OF EVERY INTERRUPT
1903 * WHICH OCCURS, USING ROUTINES SET RETURN ADDRESS IN
1904 * 'ADDRCDDE', AND RECEIVE THE INTERRUPT ADDRESS
1905 * IN REGISTER 'RT'.
1906
1907 * PSD BITS 0 1 2 3 5 6 7 10 11
1908 * ADDRESS BITS 23 24 25 26 27 28 29 30 31
1909
1910 * ADD X'F8' IF REGISTER PAGE POINTER STORED IS NOT ZERO.
1911
1912 01 00592 72200988 COMPADDR LB,9T CMPAD
1913 01 00593 32300988 LW,XB CMPAD
1914 01 00594 2530000A A SLS,XB 10
1915 01 00595 2520017D A SLD,8T -3
1916 01 00596 2520007F A SLS,8T -1
1917 01 00597 25200105 A SLD,8T 5
1918 01 00598 22300001 A LI,XB 1
1919 01 00599 52360989 LW,XB CMPAD+1,XB
1920 01 0059A E83008F7 BCR,3 *ADDRCDDE BR IF REG PAGE POINTER NOT LOADED.
1921 01 0059B 202000FB A AI,9T 24R
1922 01 0059C E80008F7 B *ADDRCDDE
1923
    
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5 B6

5 B7

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1924
1925 * TEST CONTROL BITS. EXIT TO ADDRESS IN '0A' IF BIT
1926 * IS A ONE, ADDRESS IN 'LNK'+1 IF BIT IS A ZERO.
1927 01 0059D 22800001 A TEST3SW LI,WKA 1
1928 01 0059E B1800007 A CW,WKA *LNK
1929 01 0059F 683005A7 BE TEST3SWA BR IF TEST FOR BIT SWITCH ONE.
1930 01 005A0 328009BE LW,WKA BITZER0
1931 01 005A1 BA100007 A LC,WXA *LNK
1932 01 005A2 25820000 A SLS,WKA 0,XA
1933 01 005A3 43800841 AND,WKA BITSWTCH
1934 01 005A4 683E0001 A BCR,3 1,LNK BR IF SWITCH NOT SET.
1935 01 005A5 20700001 A AI,LNK 1
1936 01 005A6 E8000006 A B *0A
1937 01 005A7 2580001E A TEST3SWA SLS,WKA 30
1938 01 005A8 43800841 AND,WKA BITSWTCH
1939 01 005A9 693005A9 BCS,3 TEST3SWB BR IF BIT SWITCH ONE SET.
1940 01 005AA 680E0001 A B 1,LNK
1941 01 005AB 2E00FFFF A TEST3SWB WAIT 65535
1942 01 005AC 0200FFFF A NOP 65535
1943 01 005AD 20700001 A AI,LNK 1
1944 01 005AE E8000006 A B *0A EXIT WHEN WAIT IS CLEARED.
1945
1946 *
1947 * TRANSLATE FROM EBCDIC TO HEX.
1948 01 005AF 22F00000 A TRANIN LI,IN 0 TRANSLATE 8 BYTES FROM ITRNHIST+32,
1949 01 005B0 221FFFF8 A LI,XA -8 IGNORE HIGH ORDER ZEROS, LEFT
1950 01 005B1 22800015 A LI,WKA 21 JUSTIFY OUTPUT IF NL CHAR IS
1951 * ENCOUNTED IN INPUT, PUT COUNT
1952 * OF BYTES TRANSLATED IN 'IN'.
1953 01 005B2 71820AE8 TRANINA CB,WKA ITRNHIST+34,XA
1954 01 005B3 683005C3 BE TRANIND BF DIGITS IN 'IN'.
1955 01 005B4 20F00001 A AI,IN 1
1956 01 005B5 651005B2 BIR,XA TRANINA
1957 01 005B6 22200000 A LI,ST 0
1958 01 005B7 221FFFF8 A LI,XA -8
1959 01 005B8 72820AE8 TRANINB LB,WKA ITRNHIST+34,XA
1960 01 005B9 683005BF BCR,3 TRANINC
    
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1961 01 005BA 19800980 CLM,WKA HEXLIMF
1962 01 005BB 686005C9 BCR,6 TRANINF
1963 01 005BC 19800982 CLM,WKA HEXLIMC
1964 01 005BD E9600006 A BCS,6 *0A BR IF INVALID CHAR INPUT.
1965 01 005BE 208FFF49 A AI,WKA -1R3 STRIP 'C' ZONE.
1966 01 005BF 25200004 A TRANINC SLS,ST 4 ALIGN OUTPUT.
1967 01 005C0 49200008 A BR,ST WKA INSERT NEXT DIGIT.
1968 01 005C1 651005B8 BIR,XA TRANINB
1969 01 005C2 E8000007 A B *LNK
1970 01 005C3 221FFFF8 A TRANIND LI,XA -8
1971 01 005C4 3010000F A AW,XA 1N
1972 01 005C5 228000F0 A LI,WKA 240
1973 01 005C6 75820AE8 STB,WKA ITRNHIST+34,XA
1974 01 005C7 651005C6 BIR,XA *-1
1975 01 005C8 680005B6 B TRANINB-2
1976 01 005C9 208FFF10 A TRANINF AI,WKA -240
1977 01 005CA 680005BF B TRANINC
1978 * * * DELETED PAGE DIRECTIVE * * *
1979 01 005CB 32100002 A BREAKHI LW,XA 8T
1980 01 005CC 492009BE BR,ST BITZER0 FLAG ERROR TYPE.
1981 01 005CD 492009BF BR,ST BITONE *
1982 01 005CE 492009C1 BR,ST BIT3 *
1983 01 005CF 09200930 PSW,ST ERRSTK
1984 01 005D0 33F00A22 MTH,-1 ERROR
1985 01 005D1 6A70058F BAL,LNK KILLINTS
1986 01 005D2 E80008FA B *HIEXIT
1987 *
1988 * SET UP FIELD OF EXPECTED INTERRUPTS.
1989 *
1990 01 005D3 6A7004D7 SETEXP BAL,LNK RDSS
1991 01 005D4 32800A21 LW,WKA WAITCON
1992 01 005D5 35800A20 STW,WKA WAITCNT
1993 01 005D6 22802790 LI,WKA BA(SEQLIST+1)
1994 01 005D7 358009E3 STW,WKA SEQLIST
1995 01 005D8 22800001 A LI,WKA 1
1996 01 005D9 43800A23 AND,WKA INHIBITS
1997 01 005DA 683005DF BCR,3 SETEXPA
    
```

1998	01	005D8	228FFFFF	A	LI,WKA	-1	
1999	01	005DC	221FFFF9	A	LI,XA	-7	
2000	01	005DD	35820866		STW,WKA	LEVBITS1+8,XA	SET BITS FOR INHIBITED INTERRUPTS.
2001	01	005DE	651005DD		BIR,XA	*-1	
2002	01	005DF	22800002	A	LI,WKA	2	
2003	01	005E0	43800A23	SETEXPA	AND,WKA	INHIBITS	
2004	01	005E1	683005E7		BCR,3	SETEXPB	
2005	01	005E2	32800888		LW,WKA	NBTINH8	
2006	01	005E3	488008FF		ESR,WKA	BITOX31	
2007	01	005E4	52C0085E		L,WKB	LEVBITS1	
2008	01	005E5	49C00008	A	BR,WKB	WKA	
2009	01	005E6	55C0085E		STH,WKB	LEVBITS1	SET BITS FOR INHIBITED INTERRUPTS.
2010	01	005E7	22800004	A	LI,WKA	4	
2011	01	005E8	43800A23	SETEXP3	AND,WKA	INHIBITS	
2012	01	005E9	633005EF		BCR,3	SETEXPC	
2013	01	005EA	32800902		LW,WKA	NBTINH8	
2014	01	005EB	488008FF		ESR,WKA	BITOX31	
2015	01	005EC	52C0085E		L,WKB	LEVBITS1	
2016	01	005ED	49C00008	A	BR,WKB	WKA	
2017	01	005EE	55C0085E		STH,WKB	LEVBITS1	SET BITS FOR INHIBITED CNTR=ZERO INTERRUPTS
2018				*			GENERATE FIELD OF LEVELS WHICH ARE NOT INHIBITED THIS PATTERN.
2019	01	005EF	221FFFFF	A	LI,XA	-8	
2020	01	005F0	32820866	SETEXPC	LW,WKA	LEVBITS1+8,XA	
2021	01	005F1	488008FF		ESR,WKA	BITOX31	
2022	01	005F2	3582086E		STW,WKA	LEVBITSN+8,XA	
2023	01	005F3	651005F0		BIR,XA	*-3	
2024	01	005F4	221FFFFF	A	LI,XA	-8	
2025	01	005F5	3282084E	SETEXP3	L,WKA	LEVBITS+8,XA	THE LOGICAL PRODUCT OF LEVELS ARMED, ENABLED, TRIGGERED, NOT INHIBITED, AND IMPLEMENTED, FORMS A FIELD OF EXPECTED INTERRUPTS.
2026	01	005F6	4382085E		AND,WKA	LEVBITSE+8,XA	EACH PATTERN OF INTERRUPTS WILL BE CHECKED AGAINST THIS FIELD AND VARIATIONS WILL BE CONSIDERED ERRORS.
2027	01	005F7	43820856		AND,WKA	LEVBITSN+8,XA	
2028	01	005F8	4382086E		AND,WKA	NTNTIMPL+8,XA	
2029	01	005F9	438208E3		AND,WKA	EXPFIELD+8,XA	
2030	01	005FA	358208E2		STW,WKA	SETEXP3	
2031	01	005FB	651005F5		BIR,XA	SETEXP3	
2032				*			
2033	01	005FC	52800846		L,WKA	LEVBITS	
2034	01	005FD	43800916		AND,WKA	NBTHI	

2035	01	005FE	55800846		STH,WKA	LEVBITS	
2036	01	005FF	528008DA		L,WKA	EXPFIELD	
2037	01	00600	43800916		AND,WKA	NBTHI	
2038	01	00601	558008DA		STH,WKA	EXPFIELD	
2039	01	00602	E80008F9		B	*EXECPATT	
2040				*			
2041				*			GENERATE PATTERNS OF INTERRUPTS SPECIFIED BY USING ROUTINES.
2042				*			
2043	01	00603	6A700574	IGEN	BAL,LNK	SETHI	
2044	01	00604	225FFFFF	A	LI,GR	-14	
2045	01	00605	529A084E		LH,LV	LEVBITS+8,GR	
2046	01	00606	6D9A1310	A	WD,LV	ARM+16,GR	ARM-DISABLE WD GROUPS 2-15 LEVELS.
2047	01	00607	65500605		BIR,GR	*-2	
2048	01	00608	52900846		LH,LV	LEVBITS	
2049	01	00609	6D901300	A	WD,LV	ARM	ARM-DISABLE WD GROUP ZERO LEVELS.
2050	01	0060A	225FFFFF	A	LI,GR	-14	
2051	01	0060B	529A085E		LH,LV	LEVBITST+8,GR	
2052				*			TRIGGER WD GROUPS 2-15 LEVELS.
2053	01	0060C	6D9A1710	A	WD,LV	TRIG+16,GR	
2054	01	0060D	6550060B		BIR,GR	*-2	
2055	01	0060E	52900856		LH,LV	LEVBITST	
2056				*			TRIGGER WD GROUP ZERO LEVELS.
2057	01	0060F	6D901700	A	WD,LV	TRIG	
2058	01	00610	225FFFFF	A	LI,GR	-14	
2059	01	00611	529A0856		LH,LV	LEVBITSE+8,GR	
2060				*			ENABLE WD GROUPS 2-15 LEVELS.
2061	01	00612	6D9A1410	A	WD,LV	ENABLE+16,GR	
2062	01	00613	65500611		BIR,GR	*-2	
2063	01	00614	5290084E		LH,LV	LEVBITSE	
2064				*			ENABLE WD GROUP ZERO LEVELS.
2065	01	00615	6D901400	A	WD,LV	ENABLE	
2066	01	00616	529008DA		LH,LV	EXPFIELD	
2067	01	00617	439008E2		AND,LV	STRP2CNT	
2068	01	00618	489008E2		ESR,LV	STRP2CNT	
2069	01	00619	43900916		AND,LV	NBTHI	
2070	01	0061A	6D901100	A	WD,LV	DISARM	
2071	01	0061B	2280061E	IGENA	LI,WKA	CHKPATT	CLEAR UNEXPECTED CNT PULSE INTS.

2072	01 0061C	358008F7	STW,WKA	ADRCODE	
2073	01 0061D	68000629	B	CHKPATTB	
2074					
2075					
2076					
2077					
2078					
2079					
2080					
2081					
2082					
2083	01 0061E	22800100	A	CHKPATT LI,WKA	256
2084	01 0061F	223001FF	A	LI,XB	511
2085	01 00620	22100000	A	LI,XA	0
2086	01 00621	45220AC6		CHKPATT CS,OT	ITRNHIST,XA
2087	01 00622	68300634		BE	CHKPATTD
2088	01 00623	20100002	A	AI,XA	2
2089	01 00624	64800621		BDR,WKA	CHKPATT A
2090	01 00625	492009BE		OR,OT	BITZER0
2091	01 00626	09200930		PSW,OT	ERRSTK
2092	01 00627	228FFFFF	A	LI,WKA	-1
2093	01 00628	35800A22		STW,WKA	ERRBR
2094	01 00629	32800A23		CHKPATTB LW,WKA	INHIBITS
2095	01 0062A	4B800889		AND,WKA	INHBMK
2096	01 0062B	7580092D		STB,WKA	CHKPATT1+1
2097					
2098	01 0062C	02200000	A	LCI	0
2099	01 0062D	2A0009AC		LM,0	CTCHNG1
2100					
2101					
2102	01 0062E	0E20092C		LPSD,2	CHKPATT1
2103	01 0062F	33F00A20		CHKPATTC MTW,-1	WAITCNT
2104	01 00630	6920062F		BCS,2	CHKPATT C
2105	01 00631	02000000	A	NOP	0
2106					
2107	01 00632	6A70058B		BAL,LNK	KILLINTS
2108	01 00633	68000643		B	CHKPATTE

* CHECK RESULTS OF INTERRUPT PATTERN GENERATION. EACH PATTERN IS CHECKED TO DETERMINE THE FOLLOWING:

- * 1. ALL EXPECTED INTERRUPTS OCCURRED.
- * 2. NO UNEXPECTED INTERRUPTS OCCURRED.
- * 3. THE ADDRESS RECEIVED MATCHES THE ADDRESS EXPECTED.
- * 4. THE SEQUENCE IN WHICH INTERRUPTS OCCUR IS CORRECT.
- * 5. NO MORE THAN ONE INTERRUPT OCCURS FOR ANY LEVEL.

TEST FOR ADDRESS MATCH.

FLAG ERROR TYPE.

SET CURRENT INHIBIT BITS.

SET UP FOR INTERRUPT PRESENTING ADDRESS BETWEEN 0 AND X'F'.
CLEAR ACTIVE STATE OF CURRENT LEVEL.

THIS NOP IS INCLUDED FOR THE 7700 INTERPROCESSOR TEST.

2109	01 00634	25100002	A	CHKPATTD SLS,XA	2
2110	01 00635	72820AC6		LB,WKA	ITRNHIST,XA
2111	01 00636	321009E3		LW,XA	SEQLIST
2112	01 00637	223FD86F	N	LI,XB	-(BA(SEQLIST+1)+1)
2113	01 00638	30300001	A	AW,XB	XA
2114	01 00639	6810063D		BCR,1	*44
2115	01 0063A	75820000	A	STB,WKA	0,XA
2116	01 0063B	331009E3		MTW,1	SEQLIST
2117	01 0063C	68000629		B	CHKPATTB
2118	01 0063D	718609E4		CB,WKA	SEQLIST+1,XB
2119	01 0063E	68300676		BE	CHKPATTM
2120	01 0063F	6430063D		BDR,XB	*-2
2121	01 00640	718009E4		CB,WKA	SEQLIST+1
2122	01 00641	68300676		BE	CHKPATTM
2123	01 00642	6800063A		B	*-8
2124	01 00643	321009E3		CHKPATTE LW,XA	SEQLIST
2125	01 00644	201FD86F	N	AI,XA	-(BA(SEQLIST+1)+1)
2126	01 00645	6910066C		BCS,1	CHKPATTK
2127	01 00646	351008EE		STW,XA	
2128	01 00647	33F008EE		CHKPATTF MTW,-1	SQSTCNT
2129	01 00648	69100674		BCS,1	CHKPATTL
2130	01 00649	728209E4		LB,WKA	SEQLIST+1,XA
2131	01 0064A	321008EE		CHKPATTG LW,XA	SQSTCNT
2132	01 0064B	72C209E4		LB,WKB	SEQLIST+1,XA
2133	01 0064C	22102318		LI,XA	BA(ITRNHIST)
2134	01 0064D	71820000	A	CB,WKA	0,XA
2135	01 0064E	68300651		BE	CHKPATTH
2136	01 0064F	20100008	A	AI,XA	8
2137	01 00650	6800064D		B	*-3
2138	01 00651	20100007	A	CHKPATTH AI,XA	7
2139	01 00652	72820000	A	LB,WKA	0,XA
2140	01 00653	22302318		LI,XB	BA(ITRNHIST)
2141	01 00654	71C60000	A	CB,WKB	0,XB
2142	01 00655	68300658		BE	CHKPATTI
2143	01 00656	20300008	A	AI,XB	8
2144	01 00657	68000654		B	*-3
2145	01 00658	20300007	A	CHKPATTI AI,XB	7

BR IF NOT FIRST ENTRY.

BR IF MORE THAN ONE INT PER TRIG.

BR IF NO INT OCCURRED.

LOAD NEXT LOWER POINTER.

BR IF WD POINTER EQUAL.

LOAD EXPECTED SEQ OF INTERRUPT.

BR IF WD POINTER EQUAL.

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2146	01	00659	71860000	A	CB,WKA	0,XB	
2147	01	0065A	6820067B		BLE	CHKPATTN	BR IF LOWER PRI INT OCCURRED FIRST.
2148	01	0065B	201FFFF9	A	AI,XA	-7	
2149	01	0065C	72920000	A	L3,LV	0,XA	
2150	01	0065D	32500009	A	CHKPATTJ	LW,GR	LV
2151	01	0065E	2550007C	A	SLS,GR	-4	
2152	01	0065F	2590001C	A	SLS,LV	28	
2153	01	00660	25900064	A	SLS,LV	-2R	
2154	01	00661	32300009	A	LW,XB	LV	
2155	01	00662	329609C8		LW,LV	BIT16,XB	
2156	01	00663	528A08DA		LW,WKA	EXPFIELD,GR	
2157	01	00664	48800009	A	AND,WKA	LV	
2158	01	00665	6830068F		BCR,3	CHKPATTG	BR IF INT NOT EXPECTED.
2159	01	00666	528A08DA		LW,WKA	EXPFIELD,GR	
2160	01	00667	48800009	A	EBR,WKA	LV	
2161	01	00668	558A08DA		STH,WKA	EXPFIELD,GR	
2162	01	00669	321008EE		LW,XA	SQLSTCNT	
2163	01	0066A	211FFFFFF	A	CI,XA	-1	
2164	01	0066B	69300647		BNE	CHKPATTF	
2165	01	0066C	221FFFFFF	A	CHKPATTK	LI,XA	-8
2166	01	0066D	328208E8		LW,WKA	NTNTIMPL+8,XA	
2167	01	0066E	488208E2		AND,WKA	EXPFIELD+8,XA	
2168	01	0066F	693006A0		BCS,3	CHKPATTG	BR IF EXPECTED INT DID NOT OCCUR.
2169	01	00670	65100660		BIR,XA	*-3	
2170	01	00671	6A700414		BAL,LNK	CHKSTK	
2171	01	00672	E80008FR		B	*CHKEXIT	EXIT, ERROR OR NOT.
2172	01	00673	E80008FR		B	*CHKEXIT	
2173	01	00674	729009E4		CHKPATTL	L3,LV	SELIST+1
2174	01	00675	68000650		B	CHKPATTJ	
2175	01	00676	488009C1		CHKPATTM	BR,WKA	BIT3
2176	01	00677	09800930		PSW,WKA	ERRSTK	FLAG ERROR TYPE.
2177	01	00678	33F00A22		MTW,-1	ERRBR	
2178	01	00679	64100645		BDR,XA	CHKPATTG-5	
2179	01	0067A	6800064A		B	CHKPATTG	
2180	01	0067B	201FFFFFF	A	CHKPATIN	AI,XA	-7
2181	01	0067C	72820000	A	LB,WKA	0,XA	LOAD WD POINTER.
2182	01	0067D	21800003	A	CI,WKA	3	

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2183	01	0067E	69200688		BG	*+10	BR IF NOT CNT PULSE INT.
2184	01	0067F	32D00846		LW,WKC	LEVBITSA	
2185	01	00680	43D0084E		AND,WKC	LEVBITSE	
2186	01	00681	223009C8		LI,XB	BIT16	LOAD LEVEL BIT.
2187	01	00682	82E60008	A	LW,WKD	*WKA,XR	
2188	01	00683	25E00010	A	SLS,WKD	16	
2189	01	00684	43D0000E	A	AND,WKC	WKD	
2190	01	00685	6830065R		BCR,3	CHKPATTJ-2	BR IF INT NOT ARMED AND ENABLED.
2191	01	00686	43D00856		AND,WKC	LEVBITST	
2192	01	00687	68300669		BCR,3	CHKPATTK-3	BR IF INT ARMED AND ENABLED, BUT NOT TRIGGERED.
2193							
2194	01	00688	25C00014	A	SLS,WKB	20	
2195	01	00689	49C0000R	A	BR,WKB	WKA	
2196	01	0068A	49C009C1		BR,WKB	BIT3	FLAG ERROR TYPE.
2197	01	0068B	49C0098F		BR,WKB	BIT8NE	
2198	01	0068C	09C00930		PSW,WKB	ERRSTK	
2199	01	0068D	33F00A22		MTW,-1	ERRBR	
2200	01	0068E	6A00065C		B	CHKPATTJ-1	
2201	01	0068F	329609C8		CHKPATTG	LW,LV	BIT16,XB
2202	01	00690	21500000	A	CI,GR	0	
2203	01	00691	69300695		BNE	*+4	BR IF UNEXPECTED INTERRUPT IS NOT FROM WD GROUP ZERO.
2204							
2205	01	00692	2280F000	A	LI,WKA	15**12	
2206	01	00693	48800009	A	AND,WKA	LV	
2207	01	00694	6930068A		BCS,3	CHKPATTR	BR IF UNEXPECTED INTERRUPT IS FROM COUNTER PULSE INTERRUPT.
2208							
2209	01	00695	6A7006C1		BAL,LNK	DESCRIBE	
2210	01	00696	25200618	A	SLS,8T	24	
2211	01	00697	32800005	A	LW,WKA	GR	
2212	01	00698	25800004	A	SLS,WKA	4	
2213	01	00699	48800003	A	BR,WKA	XB	COMBINE GROUP AND LEVEL.
2214	01	0069A	4880098F		BR,WKA	BIT8NE	FLAG ERROR TYPE.
2215	01	0069B	488009C0		BR,WKA	BITW0	
2216	01	0069C	48800002	A	BR,WKA	8T	
2217	01	0069D	09800930		PSW,WKA	ERRSTK	
2218	01	0069E	33F00A22		MTW,-1	ERRBR	
2219	01	0069F	68000669		B	CHKPATTK-3	

2220	01 006A0	33F00A22	CHKPATTQ	MTH,-1	ERROR	
2221	01 006A1	25100001	A	SLS,XA	1	
2222	01 006A2	20100010	A	AI,XA	16	
2223	01 006A3	32C008FE		LW,WKB	BIT16X31	
2224	01 006A4	48C00008	A	AND,WKB	WKA	
2225	01 006A5	683006A8		BCR,3	*+3	
2226	01 006A6	20100001	A	AI,XA	1	
2227	01 006A7	25800010	A	SLS,WKA	16	
2228	01 006A8	32B00008	A	LW,CSM	WKA	
2229	01 006A9	6A70056D		BAL,LNK	BITCNT	
2230	01 006AA	329409C8		LW,LV	BIT16,OT	
2231	01 006AB	32500001	A	LW,GR	XA	
2232	01 006AC	6A7006C1		BAL,LNK	DESCRIBE	
2233	01 006AD	25200014	A	SLS,OT	20	
2234	01 006AE	25100018	A	SLS,XA	24	
2235	01 006AF	528A08DA		LH,WKA	EXPPFIELD,GR	
2236	01 006B0	488008FE		AND,WKA	BIT16X31	
2237	01 006B1	491009BF		BR,XA	BITONE	FLAG ERROR TYPE.
2238	01 006B2	491009C0		BR,XA	BITTWB	*
2239	01 006B3	491009C1		BR,XA	BIT3	*
2240	01 006B4	49100008	A	BR,XA	WKA	COMBINE ERROR INFORMATION.
2241	01 006B5	49100002	A	BR,XA	BT	
2242	01 006B6	09100930		PSW,XA	ERRSTK	
2243	01 006B7	22800000	A	LI,WKA	0	
2244	01 006B8	558A08DA		STH,WKA	EXPPFIELD,GR	DELETE ERROR ONCE RECORDED.
2245	01 006B9	6800066C		B	CHKPATTK	
2246						* * * DELETED PAGE DIRECTIVE * * *
2247	01 006BA	32800846	CHKPATTR	LW,WKA	LEVBITSA	*C
2248	01 006BB	4880084E		AND,WKA	LEVBITSE	
2249	01 006BC	5590000C	A	STH,LV	WKB	
2250	01 006BD	48C008FD		AND,WKB	BITOX15	
2251	01 006BE	4880000C	A	AND,WKA	WKB	
2252	01 006BF	68300695		BCR,3	CHKPATT+6	3R IF UNEXPECTED COUNTER PULSE
2253						INTERRUPT WAS NOT ARMED,
2254						AND ENABLED.
2255	01 006C0	68000669		B	CHKPATTK-3	
2256						

2257						
2258						* BUTPUT CONDITIONS IN CURRENT PATTERN FOR WD GRP 'GR',
2259						* LEVEL BIT 'LV'.
2260						*
2261	01 006C1	32100005	A	DESCRIBE	LW,XA	GR
2262	01 006C2	22000004	A		LI,WKC	4
2263	01 006C3	22200000	A		LI,GT	0
2264	01 006C4	22800008	A		LI,WKA	8
2265	01 006C5	52E20846		DESCRIBA	LH,WKD	LEVBITSA,XA
2266	01 006C6	48E00009	A		AND,WKD	LV
2267	01 006C7	683006C9			BCR,3	*+2
2268	01 006C8	30200008	A		AW,BT	WKA
2269	01 006C9	2580007F	A		SLS,WKA	-1
2270	01 006CA	20100010	A		AI,XA	16
2271	01 006CB	640006C5			BDR,WKC	DESCRIBA
2272	01 006CC	E8000007	A		B	*LNK
2273						
2274						
2275						AN INT LEVEL MUST PRESENT AN
2276						ADDRESS BETWEEN 0 AND X'F' TO
2277	01 006CD	0F800984		HNGDCBDE	XPSD,8	CTCHHANG
2278	01 006CE	02200000	A		LCI	0
2279	01 006CF	280010A6			STM,0	LAST+992
2280	01 006D0	72800984			LB,WKA	CTCHHANG
2281	01 006D1	22100001	A		LI,XA	1
2282	01 006D2	52C20985			LH,WKB	CTCHHANG+1,XA
2283	01 006D3	683006D5			BCR,3	*+2
2284	01 006D4	20800008	A		AI,WKA	8
2285	01 006D5	488009BE			BR,WKA	BITZER8
2286	01 006D6	488009C1			BR,WKA	BIT3
2287	01 006D7	09800930			PSW,WKA	ERRSTK
2288	01 006D8	33F00A22			MTH,-1	ERROR
2289	01 006D9	72100984			LB,XA	CTCHHANG
2290	01 006DA	2010098C			AI,XA	HANGPSDS
2291	01 006DB	3510098C			STH,XA	HANGBACK
2292	01 006DC	02200000	A		LCI	0
2293	01 006DD	2A0010A6			LM,0	LAST+992

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2294 01 006DE 8E2009BC LPSD,2 *HANGBACK
2295 * * * DELETED PAGE DIRECTIVE * * *
2296 01 006DF 6A700583 HIFAILC BAL,LNK KILLINTS
2297 01 006E0 22000486 LI,IB MSG9CD
2298 01 006E1 6A700483 BAL,LNK KSR
2299 01 006E2 228006E9 DLINK LI,WKA HIFAILCB
2300 01 006E3 358008F7 STW,WKA ADDRCDDE
2301 01 006E4 32900917 HIFAILCA LW,LV HIBIT
2302 01 006E5 60901300 A WD,LV ARM0
2303 01 006E6 60901700 A WD,LV TRIG
2304 01 006E7 60901400 A WD,LV ENABLE
2305 01 006E8 20000000 A AI,0 0
2306 01 006E9 0E200920 HIFAILCB LPSD,2 HIFAILC1
2307 01 006EA 680006E4 HIFAILCC B HIFAILCA
2308 *
2309 01 006EB 32F00002 A HIFAILD LW,IN BT
2310 01 006EC 22600846 LI,9A LEVBITS
2311 01 006ED 6A700563 BAL,LNK TRANBUT
2312 01 006EE 22800015 A LI,WKA 21
2313 01 006EF 75800847 STB,WKA LEVBITS+1
2314 01 006F0 22000487 LI,IB MSGACDW
2315 01 006F1 6A700483 BAL,LNK KSR
2316 01 006F2 680006E2 B DLINK
2317 * * * DELETED PAGE DIRECTIVE * * *
2318 01 006F3 357008F6 BS456 STW,LNK L00PEXIT
2319 01 006F4 2260078B LI,9A MULTINT
2320 01 006F5 6A70059D BAL,LNK TESTBSW
2321 01 006F6 00000004 A DATA 4
2322 01 006F7 226007A9 LI,9A SNGLUP
2323 01 006F8 6A70059D BAL,LNK TESTBSW
2324 01 006F9 00000005 A DATA 5
2325 01 006FA 226007C0 LI,9A SNGLDWN
2326 01 006FB 6A70059D BAL,LNK TESTBSW
2327 01 006FC 00000006 A DATA 6
2328 01 006FD E80008F6 B *L00PEXIT
2329 *
2330 * READ KSR FOR PATTERN, TRANSLATE AND EXECUTE.
    
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2331 *
2332 01 006FE 357008F6 MANUAL STW,LNK L00PEXIT
2333 01 006FF 32800841 LW,WKA CONBITS
2334 01 00700 488003C6 EBR,WKA BIT9
2335 01 00701 35800841 STW,WKA CONBITS
2336 01 00702 22800000 A LI,WKA 0
2337 01 00703 35800887 STW,WKA R0LL
2338 01 00704 2280076D LI,WKA MANUALJ
2339 01 00705 358008FA STW,WKA HIEXIT
2340 01 00706 6A700583 BAL,LNK KILLINTS
2341 01 00707 6A7004A7 BAL,LNK SETSTKS
2342 01 00708 6A7004F2 BAL,LNK ST-LODS
2343 01 00709 32800911 LW,WKA AEND SET UP TO READ ARM, DISABLE INPJT.
2344 01 0070A 358008F2 STW,WKA TERM *
2345 01 0070B 228010DC LI,WKA HA(MANPATT) *
2346 01 0070C 3580084E STW,WKA LEVBITSE *
2347 01 0070D 22800300 A LI,WKA 0
2348 01 0070E 221FFFEB A LI,XA -24
2349 01 0070F 35820886 STW,WKA MANPATT+24,XA
2350 01 00710 6510070F BIR,XA $=1
2351 01 00711 22800735 LI,WKA MANUALR
2352 01 00712 358008F3 STW,WKA TERM+1
2353 01 00713 2200049C LI,IB MANCDW1
2354 01 00714 6A7004D1 BAL,LNK RESP
2355 01 00715 2200049D MANUALA LI,IB MANCDW2
2356 01 00716 6A700483 BAL,LNK KSR
2357 01 00717 32800AE6 LW,WKA ITRNHIST+32
2358 01 00718 318008F2 CW,WKA TERM
2359 01 00719 E83008F3 BE *TERM+1 BR IF END OF INPJT.
2360 01 0071A 3180090E CW,WKA NEWPATT
2361 01 0071B 683006FE BE BR TO ENTER COMPLETE NEW PATTERN.
2362 01 0071C 25800068 A SLS,WKA -24
2363 01 0071D 21800039 A CI,WKA 'R'
2364 01 0071E 68300770 BE BR IF INCR INHIBITS REQUESTED.
2365 01 0071F 22600774 LI,9A INVMAN
2366 01 00720 6A7005AF BAL,LNK TRANIN
2367 01 00721 21F00004 A CI,IN 4
    
```

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2368	01	00722	68300725		BE	8+3	
2369	01	00723	21F00001	A	CI,IN	1	
2370	01	00724	69300774		BNE	INVMAN	
2371	01	00725	221FFFF8	A	LI,XA	-8	
2372	01	00726	3010000F	A	AW,XA	IN	
2373	01	00727	25100002	A	SLS,XA	2	
2374	01	00728	25220000	A	SLS,OT	0,XA	
2375	01	00729	3210084E		LW,XA	LEVBITSE	
2376	01	0072A	55220000	A	STH,OT	0,XA	
2377	01	0072B	3310084E		MTW,1	LEVBITSE	
2378	01	0072C	3280084E		LW,WKA	LEVBITSE	
2379	01	0072D	218010DD		CI,WKA	HA(MANPATT)+1	
2380	01	0072E	68300733		BE	MANUALB=2	
2381	01	0072F	218010ED		CI,WKA	HA(MANPATT+8)+1	
2382	01	00730	68300733		BE	MANUALR=2	
2383	01	00731	218010FD		CI,WKA	HA(MANPATT+16)+1	
2384	01	00732	69300715		BNE	MANUALA	
2385	01	00733	3310084E		MTW,1	LEVBITSE	
2386	01	00734	68000715		B	MANUALA	
2387	01	00735	2280073E	MANUALB	LI,WKA	MANUALC	SET UP TO READ ENABLE INPUT.
2388	01	00736	358008F3		STW,WKA	TERM+1	*
2389	01	00737	32800912		LW,WKA	EEND	*
2390	01	00738	358008F2		STW,WKA	TERM	*
2391	01	00739	228010EC		LI,WKA	HA(MANPATT+8)	*
2392	01	0073A	3580084E		STW,WKA	LEVBITSE	
2393	01	0073B	2200049E		LI,IB	MANCDW3	
2394	01	0073C	6A700483		BAL,LNK	KSRA	
2395	01	0073D	68000715		B	MANUALA	
2396	01	0073E	22800747	MANUALC	LI,WKA	MANUALD	SET UP TO READ TRIGGER INPUT.
2397	01	0073F	358008F3		STW,WKA	TERM+1	*
2398	01	00740	228010FC		LI,WKA	HA(MANPATT+16)	*
2399	01	00741	3580084E		STW,WKA	LEVBITSE	*
2400	01	00742	32800913		LW,WKA	TEND	*
2401	01	00743	358008F2		STW,WKA	TERM	*
2402	01	00744	2200049F		LI,IB	MANCDW4	
2403	01	00745	6A700483		BAL,LNK	KSRA	
2404	01	00746	68000715		B	MANUALA	

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2405	01	00747	22800750	MANUALD	LI,WKA	MANUALE	SET UP TO READ INHIBIT INPUT.
2406	01	00748	358008F3		STW,WKA	TERM+1	
2407	01	00749	32800914		LW,WKA	IEND	
2408	01	0074A	358008F2		STW,WKA	TERM	
2409	01	0074B	2280110D		LI,WKA	HA(MANINH8)+1	
2410	01	0074C	3580084E		STW,WKA	LEVBITSE	
2411	01	0074D	220004A0		LI,IB	MANCDW5	
2412	01	0074E	6A700483		BAL,LNK	KSRA	
2413	01	0074F	68000715		B	MANUALA	
2414	01	00750	22800763	MANUALE	LI,WKA	MANUALG	
2415	01	00751	358008F8		STW,WKA	CHKEXIT	
2416	01	00752	22800603		LI,WKA	IGEN	
2417	01	00753	358008F9		STW,WKA	EXECPATT	
2418	01	00754	32800887		LW,WKA	ROLL	
2419	01	00755	6830075A		BCR,3	8+5	
2420	01	00756	33F00886		MTW,-1	MANINH3	
2421	01	00757	6810075A		BCR,1	8+3	
2422	01	00758	22800007	A	LI,WKA	7	
2423	01	00759	35800886		STW,WKA	MANINH8	
2424	01	0075A	32800886		LW,WKA	MANINH8	
2425	01	0075B	35800A23		STW,WKA	INHIBITS	
2426	01	0075C	02200000	A	MANUALF	LCI	0
2427	01	0075D	2A00086E		LY,0	MANPATT	
2428	01	0075E	23000846		STM,0	LEVBITSA	
2429	01	0075F	02200080	A	LCI	8	
2430	01	00760	2A00087E		LY,0	MANPATT+16	
2431	01	00761	23000856		STM,0	LEVBITST	
2432	01	00762	680005D3		B	SETEXP	
2433	01	00763	32800A22	MANUALG	LW,WKA	ERROR	
2434	01	00764	68300768		BCR,3	MANUALH	BR IF NO ERROR OCCURRED.
2435	01	00765	22600768		LI,8A	MANUALH	
2436	01	00766	6A70059D		BAL,LNK	TEST35W	TEST FOR WAIT ON ERROR.
2437	01	00767	00000001	A	DATA	1	
2438	01	00768	6A70058B	MANUALH	BAL,LNK	KILLINTS	
2439	01	00769	6A7004B0		BAL,LNK	CLEAR	
2440	01	0076A	22600750		LI,8A	MANUALE	
2441	01	0076B	6A7004C9		BAL,LNK	REVR51	

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2442	01	0076C	E80008F6		B	*L09PEXIT	EXIT IF SS1 HAS BEEN REVERSED.
2443	01	0076D	6A700414	MANUALJ	BAL,LNK	CHKSTK	
2444	01	0076E	68000768		B	MANUALH	NORMAL RETURN.
2445	01	0076F	68000768		B	MANUALH	ERROR RETURN.
2446	01	00770	22800007 A	MANUALK	LI,WKA	7	
2447	01	00771	35800886		STW,WKA	MANINH8	
2448	01	00772	35800887		STW,WKA	ROLL	
2449	01	00773	68000715		B	MANUALA	
2450	01	00774	22700715	INVMAN	LI,LNK	MANUALA	
2451	01	00775	68000534		B	OUTPINV	
2452				*			* * * DELETED PAGE DIRECTIVE * * *
2453	01	00776	22F01540 A	EDIT	LI,IN	X15401	*C
2454	01	00777	226FFFE4 A		LI,9A	-28	
2455	01	00778	55FC0AF8		STW,IN	ITRNHIST+53,9A	
2456	01	00779	65600778		BIR,9A	\$-1	
2457	01	0077A	22600001 A		LI,9A	1	
2458	01	0077B	52F00AE6		LH,IN	ITRNHIST+32	
2459	01	0077C	49F008F5		BR,IN	BLANK	
2460	01	0077D	55F00AED		STW,IN	ITRNHIST+39	
2461	01	0077E	32F00AE9		LW,IN	ITRNHIST+35	
2462	01	0077F	35F00AEE		STW,IN	ITRNHIST+40	
2463	01	00780	52F00AEA		LH,IN	ITRNHIST+36	
2464	01	00781	55FC0AEF		STW,IN	ITRNHIST+41,9A	
2465	01	00782	52FC0AEA		LH,IN	ITRNHIST+36,9A	
2466	01	00783	55F00AF0		STW,IN	ITRNHIST+42	
2467	01	00784	32F00AEB		LW,IN	ITRNHIST+37	
2468	01	00785	35F00AF1		STW,IN	ITRNHIST+43	
2469	01	00786	52F00AEC		LH,IN	ITRNHIST+38	
2470	01	00787	55FC0AF2		STW,IN	ITRNHIST+44,9A	
2471	01	00788	52FC0AEC		LH,IN	ITRNHIST+38,9A	
2472	01	00789	55F00AF3		STW,IN	ITRNHIST+45	
2473	01	0078A	E8000007 A		B	*LNK	
2474				*			
2475				*			
2476				*			
2477	01	0078B	6A700588	MULTINT	BAL,LNK	KILLINTS	
2478	01	0078C	32800841		LW,WKA	CONBITS	

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2479	01	0078D	488009C2		EBR,WKA	BIT4	TURN OFF CONTROL BIT 4.
2480	01	0078E	35800841		STW,WKA	CONBITS	
2481	01	0078F	6A7004F2		BAL,LNK	STHLOSS	
2482	01	00790	6A700574	MULTINTA	BAL,LNK	SETHI	
2483	01	00791	228007A2		LI,WKA	MULTINTB	
2484	01	00792	358008F7		STW,WKA	ADRCODE	
2485	01	00793	358008FA		STW,WKA	HIEXIT	
2486	01	00794	32900916		LW,LV	N8THI	
2487	01	00795	228000ED A		LI,WKA	237	
2488	01	00796	35800A20		STW,WKA	WAITCNT	
2489	01	00797	2280000F A		LI,WKA	15	
2490	01	00798	22500000 A		LI,GR	0	
2491	01	00799	6800079B		B	\$+2	
2492	01	0079A	2290FFFF A		LI,LV	65535	
2493	01	0079B	6D9A1200 A		WD,LV	ARME,GR	
2494	01	0079C	6D9A1700 A		WD,LV	TRIG,GR	
2495	01	0079D	20500001 A		AI,GR	1	
2496	01	0079E	6480079A		BDR,WKA	\$-4	
2497	01	0079F	02200000 A		LCI	0	
2498	01	007A0	2A0009AC		LH,0	CTCHNG1	SET UP TO HANDLE POSSIBLE INT
2499	01	007A1	20000000 A		AI,0	0	WITHIN REG PAGE.
2500				*			ADDRESS SCOPE SYNC, ALL LEVELS
2501				*			HAVE BEEN ARMED, ENABLED, AND
2502				*			TRIGGERED, AND THE NEXT INSTRUCTION
2503				*			WILL CLEAR THE HIGHEST PRIORITY
2504	01	007A2	0E200922	MULTINTB	LPSD,2	MULTINT1	INTERRUPT FROM THE ACTIVE STATE.
2505	01	007A3	33F00A20	MULTINTC	MTW,-1	WAITCNT	
2506	01	007A4	691007A3		BCS,1	\$-1	
2507	01	007A5	22600790		LI,9A	MULTINTA	
2508	01	007A6	6A7004C9		BAL,LNK	REVR51	
2509	01	007A7	327008F6		LW,LNK	L09PEXIT	
2510	01	007A8	68000588		B	KILLINTS	
2511				*			
2512				*			
2513				*			
2514				*			
2515	01	007A9	6A700588	SNGLJP	BAL,LNK	<KILLINTS	GENERATE EVERY INTERRUPT SINGLY FROM WD GROUP ZERO, LEVEL BIT 16,

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2516	01	007AA	32800841		LW,WKA	C0NBITS	
2517	01	007AB	488009C3		E0R,WKA	BIT5	TURN OFF CONTROL BIT 5.
2518	01	007AC	35800841		STW,WKA	C0NBITS	
2519	01	007AD	6A7004F2		BAL,LNK	STHL0SS	
2520	01	007AE	228007B8		LI,WKA	SNGLUPD	
2521	01	007AF	358008F7		STW,WKA	ADRDC0DE	
2522	01	007B0	22800010	A	SNGLUPA	LI,WKA	16
2523	01	007B1	22500000	A		LI,GR	0
2524	01	007B2	22C00010	A	SNGLUPB	LI,WKB	16
2525	01	007B3	329009C8		LW,LV	BIT16	
2526	01	007B4	609A1300	A	SNGLUPC	WD,LV	ARM0,GR
2527	01	007B5	609A1700	A		WD,LV	TRIG,GR
2528	01	007B6	609A1400	A		WD,LV	ENABLE,GR
2529	01	007B7	20000000	A		AI,0	0
2530	01	007B8	0E200924		SNGLUPD	LPS0,2	SNGLUP1
2531	01	007B9	2590007F	A	SNGLUPE	SLS,LV	-1
2532	01	007BA	64C007B4			BDR,WKB	SNGLUPC
2533	01	007BB	20500001	A		AI,GR	1
2534	01	007BC	648007B2			BDR,WKA	SNGLUPB
2535	01	007BD	6C000000	A		RD,0	0
2536	01	007BE	688007B0			BCR,B	SNGLUPA
2537	01	007BF	680007A7			B	SNGLUP-2
2538							
2539							
2540							
2541	01	007C0	6A700588		SNGLDWN	BAL,LNK	KILLINTS
2542	01	007C1	6A7004F2			BAL,LNK	STHL0SS
2543	01	007C2	32800841			LW,WKA	C0NBITS
2544	01	007C3	488009C4			E0R,WKA	BIT6
2545	01	007C4	35800841			STW,WKA	C0NBITS
2546	01	007C5	228007CF			LI,WKA	SNGLDWND
2547	01	007C6	358008F7			STW,WKA	ADRDC0DE
2548	01	007C7	22800010	A	SNGLDWNA	LI,WKA	16
2549	01	007C8	2250000F	A		LI,GR	15
2550	01	007C9	22C00010	A	SNGLDWNB	LI,WKB	16
2551	01	007CA	22900001	A		LI,LV	1
2552	01	007CB	609A1300	A	SNGLDWNC	WD,LV	ARM0,GR

*
* GENERATE REVERSE PATTERN OF PRECEDING SUB-ROUTINE.
*

TURN OFF CONTROL BIT 6.

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2553	01	007CC	609A1700	A		WD,LV	TRIG,GR
2554	01	007CD	609A1400	A		WD,LV	ENABLE,GR
2555	01	007CE	20000000	A		AI,0	0
2556	01	007CF	0E200924		SNGLDWND	LPS0,2	SNGLDWNI
2557	01	007D0	25900001	A	SNGLDWNE	SLS,LV	1
2558	01	007D1	64C007CB			BDR,WKB	SNGLDWNC
2559	01	007D2	205FFFFF	A		AI,GR	-1
2560	01	007D3	648007C9			BDR,WKA	SNGLDWNB
2561	01	007D4	226007C7			LI,BA	SNGLDWNA
2562	01	007D5	6A7004C9			BAL,LNK	REVR51
2563	01	007D6	680007A7			B	SNGLUP-2
2564							
2565							
2566							
2567							
2568	01	007D7	357008F6		JX	STW,LNK	L00PEXIT
2569	01	007D8	32800841			LW,WKA	C0NBITS
2570	01	007D9	488009C5			E0R,WKA	BIT7
2571	01	007DA	35800841			STW,WKA	C0NBITS
2572	01	007DB	6A7004F2			BAL,LNK	STHL0SS
2573	01	007DC	22800837			LI,WKA	JXF
2574	01	007DD	358008FA			STW,WKA	HIEXIT
2575	01	007DE	22800804			LI,WKA	JXB
2576	01	007DF	358008F8			STW,WKA	CHKEXIT
2577	01	007E0	228007F6			LI,WKA	JXA
2578	01	007E1	358008F9			STW,WKA	EXECPATT
2579	01	007E2	22800000	A		LI,WKA	0
2580	01	007E3	35800A23			STW,WKA	INHIBITS
2581	01	007E4	220004B9			LI,I0	MSGBCDW
2582	01	007E5	6A7004D1			BAL,LNK	RESP
2583	01	007E6	2260083F			LI,9A	INVJX
2584	01	007E7	6A7005AF			BAL,LNK	TRANIN
2585	01	007E8	25200064	A		SLS,BT	+28
2586	01	007E9	21200001	A		CI,9T	1
2587	01	007EA	6820083F			BLE	INVJX
2588	01	007EB	352008EB			STW,BT	JXGRP
2589	01	007EC	22800000	A		LI,WKA	0

*
* READ KSR FOR WD GROUP TO TEST VIA JX-58, GENERATE AND VERIFY
* ALL INTERRUPTS WHICH OCCUR.
*

TURN OFF CONTROL BIT 7.

BR IF WD GROUP ZERO OR ONE.

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2590	01	007ED	221FFFEC A	LI,XA	-32	
2591	01	007EE	35820866	STW,WKA	LEVBITS+32,XA	
2592	01	007EF	651007EE	BIR,XA	*-1	
2593	01	007F0	2290FFFF A	LI,LV	65535	
2594	01	007F1	325008EB	LW,GR	JXGRP	
2595	01	007F2	559A0846	STH,LV	LEVBITS,GR	
2596	01	007F3	559A0856	STH,LV	LEVBITST,GR	
2597	01	007F4	559A084E	STH,LV	LEVBITSE,GR	
2598	01	007F5	680005D3	B	SETEXP	
2599	01	007F6	6A700574	JXA	BAL,LNK	SETHI
2600	01	007F7	2290FFFF A	LI,LV	65535	
2601	01	007F8	325008EB	LW,GR	JXGRP	
2602	01	007F9	609A1200 A	WD,LV	ARME,GR	ARM, ENABLE LEVELS FOR JX-58 TEST.
2603	01	007FA	6C902000 A	WD,LV	X'2000'	TRIGGER VIA JX-58.
2604	01	007FB	6C902000 A	RD,LV	X'2000'	
2605	01	007FC	22100001 A	LI,XA	1	
2606	01	007FD	52920009 A	LW,XA	LV,XA	PROPAGATE SIGN BIT FOR HALF WORD
2607	01	007FE	519A08E3	CH,LV	NTNTIMPL,GR	COMPARE.
2608	01	007FF	68300616	BE	IGENA=5	BR IF ALL IMPLEMENTED LEVELS
2609						ADVANCED TO THE WAITING STATE.
2610	01	00800	499009BE	BR,LV	BITZER0	
2611	01	00801	499009C0	BR,LV	BITTW0	
2612	01	00802	09900930	PSW,LV	ERRSTK	STACK ERROR.
2613	01	00803	68000616	B	IGENA=5	
2614	01	00804	6C000000 A	JXB	RD,0	0
2615	01	00805	694007EC		BCS,4	JXA=10
2616	01	00806	22600809		LI,9A	*+3
2617	01	00807	6A7004C9		BAL,LNK	REVR51
2618	01	00808	68000834		B	JXE
2619	01	00809	22800818		LI,WKA	JXC
2620	01	0080A	358008F9		STW,WKA	EXECPATT
2621	01	0080B	2280082A		LI,WKA	JXD
2622	01	0080C	358008F8		STW,WKA	CHKEXIT
2623	01	0080D	22800000 A		LI,WKA	0
2624	01	0080E	221FFFEC A		LI,XA	-32
2625	01	0080F	35820866		STW,WKA	LEVBITS+32,XA
2626	01	00810	6510080F		BIR,XA	*-1

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2627	01	00811	325008EB	LW,GR	JXGRP	
2628	01	00812	329009C8	LW,LV	BIT16	
2629	01	00813	3590086E	STW,LV	HANPATT	
2630	01	00814	559A0846	STH,LV	LEVBITS,GR	
2631	01	00815	559A084E	STH,LV	LEVBITSE,GR	
2632	01	00816	559A0856	STH,LV	LEVBITST,GR	
2633	01	00817	680005D3	B	SETEXP	
2634	01	00818	6A700574	JXC	BAL,LNK	SETHI
2635	01	00819	325008EB	LW,GR	JXGRP	
2636	01	0081A	529A0846	LH,LV	LEVBITS,GR	*C
2637	01	0081B	609A1200 A	WD,LV	ARME,GR	
2638	01	0081C	60902000 A	WD,LV	X'2000'	
2639	01	0081D	6C902000 A	RD,LV	X'2000'	
2640	01	0081E	528A0846	LH,WKA	LEVBITS,GR	
2641	01	0081F	52CA08E3	LH,WKB	NTNTIMPL,GR	
2642	01	00820	43C008FE	AND,WKB	BIT16X31	
2643	01	00821	4980000C A	AND,WKA	WKR	
2644	01	00822	68300618	BCR,3	IGENA	BR IF LEVEL NOT IMPLEMENTED.
2645	01	00823	49800009 A	AND,WKA	LV	
2646	01	00824	69300616	BCS,3	IGENA=5	BR IF IMPLEMENTED LEVEL
2647						RESPONDS CORRECTLY.
2648	01	00825	499009BE	BR,LV	BITZER0	
2649	01	00826	499009C0	BR,LV	BITTW0	
2650	01	00827	499009C1	BR,LV	BIT3	
2651	01	00828	09900930	PSW,LV	ERRSTK	
2652	01	00829	68000616	B	IGENA=5	
2653	01	0082A	325008EB	JXD	LW,GR	JXGRP
2654	01	0082B	3290086E	LW,LV	HANPATT	
2655	01	0082C	2590007F A	SLS,LV	-1	
2656	01	0082D	3590086E	STW,LV	HANPATT	
2657	01	0082E	32900009 A	LW,LV	LV	
2658	01	0082F	69300814	BCS,3	JXC=4	
2659	01	00830	6C000000 A	RD,0	0	
2660	01	00831	69200804	BCS,2	JXR	BR ON SS 3.
2661	01	00832	226007EC	LI,9A	JXA=10	
2662	01	00833	6A7004C9	BAL,LNK	REVR51	
2663	01	00834	6A700583	JXE	BAL,LNK	KILLINTS

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2664 01 00835 6A7004A7 BAL,LNK SETSTKS
2665 01 00836 E80008F6 B *L88PEXIT
2666 01 00837 21100046 A JXF CI,XA X'46' TEST FOR WATCH DOG TIMER TRAP.
2667 01 00838 6830083C BE JXG
2668 01 00839 6A700414 BAL,LNK CHKSTK
2669 01 0083A 68000832 B JXE-2
2670 01 0083B 68000832 B JXE-2
2671 01 0083C 220004BF JXG LI,I6 WDTCDW OUTPUT TRAP MESSAGE.
2672 01 0083D 6A700483 BAL,LNK KSRA
2673 01 0083E 68000834 B JXE EXIT.
2674 01 0083F 227007E0 INVJX LI,LNK JX+9
2675 01 00840 68000534 B OUTPINV
2676 *
2677 *
2678 01 00841 00000000 A CONBITS DATA 0 * * * * * CONTROL BITS.
2679 *
2680 *
2681 01 00842 00000843 SETRTRN DATA CMPINTAD
2682 01 00843 0F800988 CMPINTAD XPSD,8 CMPAD
2683 01 00844 00000000 A IPCOUNT DATA 0,0
2684 01 00845 00000000 A *
2685 * BBUND 8
2686 LEVBITS A RES 8
2687 LEVBITS B RES 8
2688 LEVBITS C RES 8
2689 LEVBITS D RES 8
2690 LEVBITS E RES 8
2691 LEVBITS F RES 24
2692 LEVBITS G RES 1
2693 LEVBITS H RES 1
2694 01 00888 FFFFFFFF A NOTIINH B DATA X'FFFFFFF'
2695 01 00889 00000007 A INHBMASK DATA X'00000007'
2696 01 0088A CHSLVCNT RES 16
2697 01 0088B IPHOLD RES 16
2698 01 0088C IPHOLD A RES 16
2699 01 0088D IPHOLD B RES 16

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2700 01 008DA EXPFIELD RES 8
2701 01 008E2 0000F000 A STRP2CNT DATA X'0000F000'
2702 01 008E3 00000000 A NNTIMPL LDATA 8,0
2703 01 008E4 00000000 A
2704 01 008E5 00000000 A
2705 01 008E6 00000000 A
2706 01 008E7 00000000 A
2707 01 008E8 00000000 A
2708 01 008E9 00000000 A
2709 01 008EA 00000000 A
2710 01 008EB 00000000 A
2711 01 008EC JXGRP RES 1
2712 01 008ED HICHAS RES 1
2713 01 008EE HICHAS1 DATA 14
2714 01 008EF SQLSTCNT DATA 0
2715 01 008F0 SRPCNT RES 1
2716 01 008F1 HOLDSS DATA 0
2717 01 008F2 HOLDSS1 DATA 0
2718 01 008F3 TERM RES 2
2719 01 008F4 4040FFFF A BLNKSTRP DATA X'4040FFFF'
2720 01 008F5 40404040 A BLANK DATA ' '
2721 01 008F6 L88PEXIT RES 1
2722 01 008F7 ADDRCODE RES 1
2723 01 008F8 CHKEXIT RES 1
2724 01 008F9 EXECPATT RES 1
2725 01 008FA 000005D1 HIEEXIT DATA BREAKHI+6
2726 01 008FB 0F000CC6 JCDXPSD1 XPSD,0 LAST
2727 01 008FC 0F800CC6 JCDXPSD2 XPSD,8 LAST
2728 01 008FD FFFFFFF0 A BITOX15 DATA X'FFFFFF00'
2729 01 008FE 0000FFFF A BIT16X31 DATA X'0000FFFF'
2730 01 008FF FFFFFFFF A BITOX31 DATA -1
2731 01 00900 00000000 A N8BITS DATA 0
2732 01 00901 FF80EFFF A N8T9X16 DATA X'FF80EFFF'
2733 01 00902 FFFFFC3F A N8TCINH B DATA X'FFFFC3F'
2734 01 00903 00003C00 A BIT18X21 DATA X'00003C00'
2735 01 00904 55555555 A API DATA X'55555555'
2736 01 00905 AAAAAAAAAA A DATA X'AAAAAAAA'
2737 01 00906 FFFFFFFF A DATA -1

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2776	01 00953	82000009 A		GEN,8,24	X'82',9
2777	01 00954	08000000 A		CDWN	8,0,0
	01 00955	00000000 A			
2778	01 00956	050029A4	SEQCDW	CDWC	5,PRISEQ,8
	01 00957	22000008 A			
2779	01 00958	05003718	SEQCDW1	GEN,8,24	5,BA(LAST+256)
2780	01 00959	02000000 A		GEN,8,24	2,0
2781	01 0095A	05002994	BITSWCDW	CDWC	5,ENTBSW,14
	01 0095B	2200000E A			
2782	01 0095C	86002398		CDW	X'86',ITRNHIST+32,9
	01 0095D	02000009 A			
2783	01 0095E	05002938	PATTLEAD	CDWC	5,PATTNUM,10
	01 0095F	2200000A A			
2784	01 00960	05002398	NUMCDW	GEN,8,24	5,BA(ITRNHIST+32)
2785	01 00961	02000000 A		GEN,8,24	2,0
2786	01 00962	050028E0	QUESTION	CDW	5,MSG6B,54
	01 00963	02000036 A			
2787	01 00964	050029AC	CORRCDW	CDWC	5,ENTSEQ,11
	01 00965	2200000B A			
2788	01 00966	86002398		CDW	X'86',ITRNHIST+32,6
	01 00967	02000006 A			
2789	01 00968	05002918	MSG7CDW	CDW	5,MSG7,32
	01 00969	02000020 A			
2790	01 0096A	05002944	MSG8CDW	CDW	5,MSG8,10
	01 0096B	0200000A A			
2791	01 0096C	05002950	MSG9CDW	CDW	5,MSG9,4
	01 0096D	02000004 A			
2792	01 0096E	05002954	MSGACDW	CDWC	5,MSGA,4
	01 0096F	22000004 A			
2793	01 00970	0500211C		CDW	5,LEVBITSA+1,4
	01 00971	02000004 A			
2794	01 00972	05002958	MSG8CDW	CDWC	5,MSG8,22
	01 00973	22000016 A			
2795	01 00974	86002398		CDW	X'86',ITRNHIST+32,2
	01 00975	02000002 A			
2796	01 00976	0500298C	MSGDCDW	CDW	5,MSGD,4
	01 00977	02000004 A			

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2797	01 00978	05002890	PDMPCDW	CDWC	5,MSG1,1
	01 00979	22000001 A			
2798	01 0097A	05002384		CDW	5,ITRNHIST+39,26
	01 0097B	0200001A A			
2799	01 0097C	05002990	INVCOW	CDW	5,INVAL,4
	01 0097D	02000004 A			
2800	01 0097E	05002770	WOTCDW	CDW	5,TRPMSG,28
	01 0097F	0200001C A			
2801	01 00980	000000F9 A	HEXLIMF	DATA	249,240
	01 00981	000000F0 A			
2802	01 00982	000000C6 A	HEXLIMC	DATA	198,193
	01 00983	000000C1 A			
2803	01 00984	00000000 A	CTCHHANG	DATA	0,0,HNGDCODE+1
	01 00985	00000000 A			
	01 00986	0000004E			
2804	01 00987	07000000 A		GEN,8,24	7,0
2805	01 00988	00000000 A	CMPAD	DATA	0,0,CMPADDR,0
	01 00989	00000000 A			
	01 0098A	00000592			
	01 0098B	00000000 A			
2806		01 0098C	HANGPSDS	EQU	8
2807			X	DB	8
2808	01 0098C			RES	2
2809	01 0098E	000006CD		GEN,4,28	X=1,HNGDCODE
2810	01 0098F	070000F0 A		GEN,8,24	7,240
2811				FIN	
	01 00990				
	01 00992	100006CD			
	01 00993	070000F0 A			
	01 00994				
	01 00996	200006CD			
	01 00997	070000F0 A			
	01 00998				
	01 0099A	300006CD			
	01 0099B	070000F0 A			
	01 0099C				
	01 0099E	400006CD			

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01 0099F 070000F0 A
01 009A0
01 009A2 500006CD
01 009A3 070000F0 A
01 009A4
01 009A6 600006CD
01 009A7 070000F0 A
01 009A8
01 009AA 700006CD
01 009AB 070000F0 A
2812 01 009AC CTCHNG1 EQU 8
2813 X DB 8
2814 01 009AC 0F00098C XPSD,0 HANGPSDS+4*(X-1)
2815 FIN
01 009AD 0F000990
01 009AE 0F000994
01 009AF 0F000998
01 009B0 0F00099C
01 009B1 0F0009A0
01 009B2 0F0009A4
01 009B3 0F0009A8
2816 01 009B4 CTCHNG2 EQU 8
2817 X DB 8
2818 01 009B4 0F80098C XPSD,8 HANGPSDS+4*(X-1)
2819 FIN
01 009B5 0F800990
01 009B6 0F800994
01 009B7 0F800998
01 009B8 0F80099C
01 009B9 0F8009A0
01 009BA 0F8009A4
01 009BB 0F8009A8
2820 01 009BC HANGBACK RES 1
2821 01 009BD CNTR RES 1
2822 01 009BE 80000000 A BITZER6 DATA X'80000000'
2823 01 009BF 40000000 A BIT8NE DATA X'40000000'
2824 01 009C0 20000000 A BITT#8 DATA X'20000000'

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2825 01 009C1 10000000 A BIT3 DATA X'10000000'
2826 01 009C2 08000000 A BIT4 DATA 8**24
2827 01 009C3 04000000 A BIT5 DATA 4**24
2828 01 009C4 02000000 A BIT6 DATA X'02000000'
2829 01 009C5 01000000 A BIT7 DATA 1**24
2830 01 009C6 00400000 A BIT9 DATA 4**20
2831 01 009C7 00010000 A BIT15 DATA 65536
2832 01 009C8 00008000 A BIT16 DATA 32768
2833 01 009C9 00004000 A BIT17 DATA 16384
2834 01 009CA 00002000 A BIT18 DATA 8192
2835 01 009CB 00001000 A BIT19 DATA 4096
2836 01 009CC 00000800 A BIT20 DATA 2048
2837 01 009CD 00000400 A BIT21 DATA 1024
2838 01 009CE 00000200 A BIT22 DATA 512
2839 01 009CF 00000100 A BIT23 DATA 256
2840 01 009D0 00000080 A BIT24 DATA 128
2841 01 009D1 00000040 A BIT25 DATA 64
2842 01 009D2 00000020 A BIT26 DATA 32
2843 01 009D3 00000010 A BIT27 DATA 16
2844 01 009D4 00000008 A BIT28 DATA 8
2845 01 009D5 00000004 A BIT29 DATA 4
2846 01 009D6 00000002 A BIT30 DATA 2
2847 01 009D7 00000001 A BIT31 DATA 1
2848 01 009D8 F0F1F2F3 A TABLE TEXT '0123456789ABCDEF'
01 009D9 F4F5F6F7 A
01 009DA F8F9C1C2 A
01 009DB C3C4C5C6 A
2849 01 009DC 15E6C4E3 A TRPM5G TEXT 'NWD, JX=58 ROUTINE ABORTEDN'
01 009DD 6340D1E7 A
01 009DE 60F5F84C A
01 009DF D9D6E4E3 A
01 009E0 C9D5C540 A
01 009E1 C1C2D6D9 A
01 009E2 E3C5C415 A
2850 01 009E3 SEQLIST RES 61
2851 01 00A20 WAITCNT RES 1
2852 01 00A21 000000ED A WAITCNV DATA 237

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2853	01	00A22	ERROR	RES	1	
2854	01	00A23	INHIBITS	RES	1	
2855	01	00A24	MSG1	TEXT		'NM1, ADDRESSES VERIFIEDN'
	01	00A25				
	01	00A26				
	01	00A27				
	01	00A28				
	01	00A29				
2856	01	00A2A	MSG2	TEXT		'NM2, ERRORN'
	01	00A2B				
	01	00A2C				
2857	01	00A2D	MSG3	TEXT		'NM3N'
2858	01	00A2E		TEXT		'ERRORN'
	01	00A2F				
2859	01	00A30	MSG4	TEXT		'NM4N'
2860	01	00A31		TEXT		'ERRORN'
	01	00A32				
2861	01	00A33	MSG5	TEXT		'NM5, SUCCESSN'
	01	00A34				
	01	00A35				
	01	00A36				
2862	01	00A37	MSG6	TEXT		'NM6N'
2863	01	00A38	MSG63	TEXT		'M6N'
2864	01	00A39		TEXT		'REVERSE SS 2 IF SEQUENCE ISN'
	01	00A3A				
	01	00A3B				
	01	00A3C				
	01	00A3D				
	01	00A3E				
	01	00A3F				
2865	01	00A40		TEXT		'COMPLETE AND IN ORDERN'
	01	00A41				
	01	00A42				
	01	00A43				
	01	00A44				
	01	00A45				
2866	01	00A46	MSG7	TEXT		'NM7, ENTERING PATTERN GENERATORN'

SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20,1969

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	01	00A47				
	01	00A48				
	01	00A49				
	01	00A4A				
	01	00A4B				
	01	00A4C				
	01	00A4D				
2867	01	00A4E	PATTNUM	TEXT		'NPATT NUMN'
	01	00A4F				
	01	00A50				
2868	01	00A51	MSG8	TEXT		'NM8N'
2869	01	00A52		TEXT		'ERRORN'
	01	00A53				
2870	01	00A54	MSG9	TEXT		'NM9N'
2871	01	00A55	MSGA	TEXT		'NMAN'
2872	01	00A56	MSGB	TEXT		'MBN'
2873	01	00A57		TEXT		'ENTER JX-58 GROUPN'
	01	00A58				
	01	00A59				
	01	00A5A				
	01	00A5B				
2874	01	00A5C	MSGC	TEXT		'MCN'
2875	01	00A5D		TEXT		'ENTER ARM-DISABLE DATAN'
	01	00A5E				
	01	00A5F				
	01	00A60				
	01	00A61				
	01	00A62				
2876	01	00A63	MSGD	TEXT		'NMDN'
2877	01	00A64	INVAL	TEXT		'INVN'
2878	01	00A65	ENTBSW	TEXT		'NCONTROL BITSN'
	01	00A66				
	01	00A67				
	01	00A68				
2879	01	00A69	PRISEQ	TEXT		'NPRI SEQ'
	01	00A6A				
2880	01	00A6B	ENTSEQ	TEXT		'NENTER SEQN'

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01 00A6C C5D940E2 A
2881 01 00A6D C5D81540 A
01 00A6E 15D9C5E2 A RESPOND TEXT 'NRESPOND,'
01 00A6F D7D6D5C4 A
2882 01 00A70 68404040 A
01 00A71 15C5D5E3 A ENTHANE TEXT 'ENTER ENABLE DATAN'
01 00A72 C5D940C5 A
01 00A73 D5C1C2D3 A
01 00A74 C540C4C1 A
2883 01 00A75 E3C11540 A
01 00A76 15C5D5E3 A ENTMANT TEXT 'ENTER TRIGGER DATAN'
01 00A77 C5D940E3 A
01 00A78 D9C9C7C7 A
01 00A79 C5D940C4 A
01 00A7A C1E3C115 A
2884 01 00A7B 15C5D5E3 A ENTMANI TEXT 'ENTER INHIBIT DATAN'
01 00A7C C5D940C9 A
01 00A7D D5C8C9C2 A
01 00A7E C9E340C4 A
01 00A7F C1E3C115 A
2885 01 00A80
2886 01 00A85 STK1 RES 5
STK2 RES 64
2887 BOUND 8
2888 01 00AC6 ITRNHIST EQU 8
2889 XJ DB 14
2890 01 00AC6 00000052 A GEN,B,24 XJ-1,B1+XJ
2891 01 00AC7 00000000 A DATA 0
2892 FIN
01 00AC8 01000053 A
01 00AC9 00000000 A
01 00ACA 02000054 A
01 00ACB 00000000 A
01 00ACC 03000055 A
01 00ACD 00000000 A
01 00ACE 04000056 A
01 00ACF 00000000 A
01 00ADO 05000057 A
    
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01 00AD1 00000000 A
01 00AD2 06000058 A
01 00AD3 00000000 A
01 00AD4 07000059 A
01 00AD5 00000000 A
01 00AD6 0800005A A
01 00AD7 00000000 A
01 00AD8 0900005B A
01 00AD9 00000000 A
01 00ADA 0A00005C A
01 00ADB 00000000 A
01 00ADC 0B00005D A
01 00ADD 00000000 A
01 00ADE 0C00005E A
01 00ADF 00000000 A
01 00AE0 0D00005F A
01 00AE1 00000000 A
2893 01 00AE2 0E000050 A DATA X'0E000050'
2894 01 00AE3 00000000 A DATA 0
2895 01 00AE4 0F000051 A DATA X'0F000051'
2896 01 00AE5 RES 33
2897 01 00A06 EXTERNAL RES 448
2898 * * * DELETED PAGE DIRECTIVE * * *
2899 BOUND 8
2900
2901 *
2902 * ALL CODING BEYOND THIS POINT WILL BE OVERLAID BY A FIELD OF
2903 * PROGRAM STATUS DOUBLEWORDS WHICH WILL BE USED BY THE INTERRUPT
2904 * HANDLING ROUTINE TO DEDUCE THE ADDRESS FROM WHICH ANY INTERRUPT
2905 * OCCURRED.
2906 *
2907 01 00CC6 6C000000 A LAST RD,0 0
2908 01 00CC7 740008F0 STCF H0LDSS
2909 01 00CC8 22000673 LI,IB TITLCDW
2910 01 00CC9 6A700481 BAL,LNK KSR
2911 01 00CCA 22800000 A LI,B 0
2912 01 00CCB 221FFFDF A LI,1 -33
35820806 STW,B EXTERNAL,1
    
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SET UP HISTORY TABLE FOR WD GROUPS TWO THROUGH FIFTEEN.

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2913	01	00CCD	65100CCC	BIR,1	8-1	
2914	01	00CCE	22100000	LI,1	0	STORE INDEX
2915	01	00CCF	22F00002	LI,15	2	GROUP.
2916	01	00CDD	22000060	LI,13	96	STARTING ADDRESS.
2917	01	00CD1	22A00000	LI,10	0	
2918	01	00CD2	2280000E	LI,8	14	ENTRY COUNT.
2919	01	00CD3	22700010	HISTGENA LI,7	16	LEVEL COUNTER.
2920	01	00CD4	22E00000	LI,14	0	LEVEL.
2921	01	00CD5	3290000F	HISTGENB LW,9	15	LOAD GROUP.
2922	01	00CD6	25900004	SLS,9	4	ALIGN GROUP.
2923	01	00CD7	4990000E	BR,9	14	
2924	01	00CD8	25900018	SLS,9	24	ALIGN POINTER.
2925	01	00CD9	4990000D	BR,9	13	INSERT ADDRESS.
2926	01	00CDA	02200020	LCI	2	
2927	01	00CDB	28920806	STM,9	EXTRNAL,1	
2928	01	00CDC	20100002	AI,1	2	INCR STM INDEX.
2929	01	00CDD	20E00001	AI,14	1	INCR LEVEL.
2930	01	00CDE	20000001	AI,13	1	INCR EXPECTED ADDRESS.
2931	01	00CDF	64700CD5	BDR,7	HISTGENB	
2932	01	00CE0	20F00001	AI,15	1	INCR GROUP.
2933	01	00CE1	64800CD3	BDR,8	HISTGENA	
2934	01	00CE2	22700200	LI,LNK	COMPHIGH	
2935	01	00CE3	2280020A	LI,WKA	HIGHA	
2936	01	00CE4	358008F7	STW,WKA	ADRCODE	
2937	01	00CE5	6800048E	B	SETPSDS	
2938	01	00CE6	050033A8	TITLCDW CDWC	5,TITLE,32	
2939	01	00CE7	22000020			
2939	01	00CE8	050033C8	CDW	5,PRNUM,42	*C
2940	01	00CE9	0200002A			
2940	01	00CEA	15E2C9C7	TITLE TEXT	'NSIGMA 5/7 INTERRUPT DIAGNOSTIC'	
	01	00CEB	D4C140F5			
	01	00CEC	61F740C9			
	01	00CED	D5E3C5D9			
	01	00CEE	D9E4D7E3			
	01	00CEF	40C4C9C1			
	01	00CF0	C7D5D6E2			
	01	00CF1	E3C9C315			

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2941	01	00CF2	D7D9D6C7	PRNUM TEXT	'PROGRAM NO. 704143C00NMANJAL NO. 901134CNN'	*C
	01	00CF3	D9C1D440			
	01	00CF4	D5D64340			
	01	00CF5	F7F0F4F1			
	01	00CF6	F4F3C3F0			
	01	00CF7	F015D4C1			
	01	00CF8	D5E4C1D3			
	01	00CF9	40D5D64B			
	01	00CFA	40F9F0F1			
	01	00CFB	F1F3F4C3			
	01	00CFC	15154040			
2942	01	00CC6		END	LAST	

SECTION V
CONCORDANCE LISTING

SIGMA 5/7 INTERRUPT TEST 704143-51C00 FEBRUARY 20, 1969

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AORCODE	920/STW 1872/STW 2547/STW	1009/STW 1920/BCR*	1494/LW 1922/B*	1793/STW 2072/STW	1809/STW 2300/STW	1828/STW 2484/STW	1865/STW 2521/STW
AEND	2343/LW	2738-DATA					
AP	831/DATA 852/SET	832/GEN 859/D0	837/DATA 855/DATA	845/GEN 859/GEN	845/GEN	846/GEN	852/SET
ALLAUTO	1186-LI						
ALLAUTOB	1206-LI						
ALLAUTOA	1205-EQU	1259/BCR					
ALLAUTOE	1250-LI						
ALLAUTOH	1214/LI	1267-BAL					
ALLAUTOB	1210/LI	1233-LW	1278/LI				
ALLAUTOB	1210-LI	1249/BCR	1253/BCR	1257/BCR	1269/B	1270/B	
ALLAUTOG	1260-BAL						
ALLAUTOF	1254-LI						
API	1219/LW	1224/LW	1229/LW	2727-DATA			
ARM0	881-EQU 2302/WD	895/WD 2526/WD	933/WD 2552/WD	999/WD	1798/WD	2046/WD	2049/WD
ARME	880-EQU	1812/WD	1831/WD	1867/WD	2493/WD	2602/WD	2637/WD
AUTOERLP	1238/LI	1271-STW					
AUTOERRA							

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AUTOSTEP	1272/LI	1276-LI					
BA	1207/STW 1251/STW	1208/STW 1252/STW	1209/STW 1255/STW	1218/LW 1256/MTW	1223/LW 2734-RES	1228/LW	1248/MTW
BADSEQ	845/GEN 2140/LI	1187/LI 2768/GEN	1188/LI 2775/GEN	1993/LI 2779/GEN	2112/LI 2784/GEN	2125/AI	2133/LI
BADSEQA	1181/LI	1723-LI	1739/BE				
BADSEQB	1728-LI	1779/BG	1786/LI				
BADSEQC	1752-STW	1785/B					
BADSEQD	1760-LW	1781/B					
BADSEQE	1744/BE	1782-LW					
BADSEGE	1746/BNE	1755/LI	1786-LI				
BITCNT	1109/BAL	1852-EQU	1880/BAL	2229/BAL			
BITCNTA	1855-SLD	1858/BE					
BITONE	1049/BR 2823-DATA	1101/BR	1656/LW	1981/BR	2197/BR	2214/BR	2237/BR
BITSWCDW	1699/LI	2781-CDWC					
BITSWTCH	886-EQU	1475/LW	1584/LW	1708/AND	1710/STW	1933/AND	1938/AND
BITTWB	982/BR 2824-DATA	1057/BR	1579/LW	2215/BR	2238/BR	2611/BR	2649/BR
BITZERO	1048/BR 2610/BR	1671/AND 2648/BR	1672/LW 2822-DATA	1930/LW	1980/BR	2090/BR	2285/BR
BITOX15							

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1680/AND		2250/AND	2720-DATA				
BITOX31	2006/EBR	2014/EBR	2021/EBR	2722-DATA			
BIT15	1099/BR	1326/LW	2831-DATA				
BIT16	910/LW	928/LW	1034/LI	1764/LI	1829/LW	2155/LW	2186/LI
	2201/LW	2230/LW	2525/LW	2628/LW	2832-DATA		
HIT16X31	912/EBR	1321/AND	1337/AND	2223/LW	2236/AND	2642/AND	2721-DATA
BIT17	2833-DATA						
BIT18	961/LW	969/BR	1830/BR	2834-DATA			
HIT18X21	1631/LW	2726-DATA					
BIT19	2835-DATA						
BIT20	2836-DATA						
BIT21	2837-DATA						
BIT22	2838-DATA						
BIT23	2839-DATA						
BIT24	2840-DATA						
BIT25	2841-DATA						
BIT26	2842-DATA						
BIT27	2843-DATA						
BIT28	2844-DATA						
BIT29							

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2845-DATA							
BIT3	965/BR	1058/BR	1690/LW	1692/LW	1982/BR	2175/BR	2196/BR
	2239/BR	2286/BR	2650/BR	2825-DATA			
BIT30	2846-DATA						
BIT31	2847-DATA						
BIT4	2479/EBR	2826-DATA					
BIT5	2517/EBR	2827-DATA					
BIT6	1576/LW	2544/EBR	2828-DATA				
BIT7	2570/EBR	2829-DATA					
BIT9	2334/EBR	2830-DATA					
BLANK	2459/BR	2712-DATA					
BLNKSTRP	1147/AND	2711-DATA	2767/CDWC				
BREAKHI	1871/LI	1979-LW	2717-DATA				
BS456	1196/BAL	1244/BAL	1394/BAL	2318-STW			
CDW	840-CNAME						
CDWC	839-CNAME						
CDWN	841-CNAME						
CHKEXIT	1211/STW	1273/STW	1279/STW	1344/STW	1402/STW	1459/STW	1463/STW
	1504/LW	2171/B*	2172/B*	2415/STW	2576/STW	2622/STW	2715-RES
CHKPATT	2071/LI	2083-LI					

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CHKPATTK	2126/BCS	2165-LI	2192/BCR	2219/B	2245/B	2255/B
CHKPATTM	2119/BE	2122/BE	2175-OR			
CHKPATTE	2108/B	2124-LW				
CHKPATTG	2103-MTW	2104/BCB	2755/PSD			
CHKPATTI	2096/STB	2102/LPBD	2755-PSD			
CHKPATTD	2087/BE	2109-5LB				
CHKPATTA	2086-CB	2089/BDR				
CHKPATTB	2073/B	2094-LW	2117/B			
CHKPATTR	2207/BCS	2247-LW				
CHKPATTQ	2168/BCS	2220-MTW				
CHKPATTJ	2158/BCR	2201-LW	2252/BCR			
CHKPATTN	2150-LW	2174/B	2190/BCR	2200/B		
CHKPATTI	2147/BLE	2180-AI				
CHKPATTI	2142/BE	2145-AI				
CHKPATTH	2135/BE	2138-AI				
CHKPATTG	2131-LW	2178/BDR	2179/B			
CHKPATTL	2129/BCS	2173-LB				
CHKPATTF	2128-MTW	2164/BNE				
CHKSEQ						

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CHKSEGA	1013/B	1072-LI				
CHKSEQA	1073-LW	1077/DIR	1105/B			
CHKSEQB	1079-BAL					
CHKSEQC	1075/BCS	1082-LW				
CHKSEQD	1089/BCS	1092-LW				
CHKSEGE	1081/B	1108-LW				
CHKSEQF	1116-LI	1126/BDR				
CHKSEQG	1107/B	1123-STH				
CHKSEQH	1106-LB	1119/BE				
CHKSTK	899/BAL	903/BAL	949/BAL	1062/BAL	1079/BAL	1268/BAL
CHKSTKA	1471-LD	2170/BAL	2443/BAL	2668/BAL		1378/BAL
CHKSTKB	1480-PLW	1492/B				
CHKSTKC	1481/BCR	1488-LI	1496/BE	1498/BE	1500/BE	1553/BG
CHKSTKD	1482/LI	1494-LW				
CHKSTKE	1532-STH	1562/B				
CHKSTKF	1476/BCS	1568-PSW				
CHKSTKG	1564/LI	1570-PLW				
CHSLVENT	1313/STW	1317/LW	1319/AW	1325/LCW	1329/STW	1415/LW
CHKINTAD	1429/LW	1438/LW	1443/LW	1449/LW	2695-RES	1421/LW
CHKINTAD	918-BAL					

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CKINTADD	975-WD	984/B					
CKINTADF	967/B	971-LH					
CKINTADA	925-LW	947/BCB					
CKINTADE	963/BCR	968-LW					
CKINTADD	919/LI	952-CI	1497/CI				
CKINTADH	960/BNE	978-LW					
CKINTADC	938-SLS	977/B					
CKINTADB	927-LI	942/BCB					
CLEAR	1216/BAL	1351/BAL	1638-LI	2439/BAL			
CLR18X21	1681-LW						
CMPAD	1912/LB	1913/LW	1919/LH	2682/XPSD	2805-DATA		
CMPINTAD	2681/DATA	2682-XPSD					
CNTR	993/STW	1014/LW	1027/MTW	1054/LW	1724/STW	1768/LW	1773/MTW
	2821-RES						
COMMCDW	1679/LW	1682/STW	1683/LI	2775-GEN			
COMPADDR	1912-LB	2805-DATA					
COMPHIGH	891-LCI	2934/LI					
CONBITS	886/EQU	2333/LW	2335/STW	2478/LW	2480/STW	2516/LW	2518/STW
	2543/LW	2545/STW	2569/LW	2571/STW	2678-DATA		
CORRCDW							

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1728/LI	1777/LI	2787-CDWC					
CSA							
873-EQU	957/LW	959/CS	981/BR	1018/LW	1020/CS	1082/LW	
1083/SLD	1088/LW	1088/LW	1091/LW	1092/LW	1165/LW	1168/CS	
1174/LW	1307/LH	1309/SLD	1471/LD	1472/CS	1475/LW	1494/LW	
1495/CI	1497/CI	1499/CI	1528/LI	1529/STW	1535/LH	1537/STH	
1539/LW	1541/STH	1567/LD	1568/STD	1586/LD	1596/STD	1617/SLD	
1618/SLS	1619/BLD	1620/SLS	1621/SLD	1623/BR	1624/STD	1629/LD	
1630/STD	1634/LI	1635/STS	1638/LI	1641/STD	1644/STD	1646/STW	
1658/STCF	1659/SLD	1660/CS	1663/CS	1747/LW	1749/SLD	1751/SLD	
1752/STW	1782/LW	1783/SLS	1784/SLS	1844/LI	1845/SLD	1846/LW	
1854/LI	1855/BLD	1857/CW					
CSM							
874-EQU	958/LI	1019/LI	1084/SLS	1091/LW	1092/LW	1096/AND	
1100/BR	1108/LW	1166/LI	1306/LI	1310/CI	1616/LW	1622/LI	
1631/LW	1639/LI	1656/LW	1662/SLS	1748/LW	1750/SLS	1841/LW	
1879/LB	2228/LW						
CTCHHANG							
2277/XPSD	2280/LB	2282/LH	2289/LB	2803-DATA			
CTCHHNG1							
892/LM	930/LM	1042/LM	2099/LM	2498/LM	2812-EQU		
CTCHHNG2							
2816-EQU							
DA							
844-EQU	1683/LI						
DCDXPSD1							
1602/LW	2718-XPSD						
DCDXPSD2							
1610/LM	2719-XPSD						
DESCRIBE							
2209/BAL	2232/BAL	2261-LW					
DESCRIBA							
2265-LM	2271/BDR						
DISABLE							
883-EQU	1040/WD						
DISARM							
879-EQU	978/WD	1894/WD	1896/WD	2070/WD			

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DEINK	2299-LI	2316-B					
DMPNUM	1507-LI						
DMPNUMA	1510/BCR	1516-LI					
DMPNUMB	1515/B	1519-LW					
DMPNUMC	1501/LI	1506/BNE	1523-LI				
DUMPSEQ	1159-SLS						
DUMPSEQA	1168-CS	1176/BDR					
DUMPSEQB	1169/BE	1175-AI					
EDIT	1548/BAL	2459-LI					
EEND	2389/LW	2739-DATA					
ENABLE	882-EQU	897/WD	935/WD	1001/WD	1800/WD	2061/WD	2065/WD
	2304/WD	2520/WD	2554/WD				
ENADISA	884-EQU						
ENDFLAG	1731/CW	2736-DATA					
ENTBSW	2781/CDWC	2878-TEXT					
ENTMANE	2763/CDW	2882-TEXT					
ENTMANT	2765/CDW	2884-TEXT					
ENTMANT	2764/CDW	2883-TEXT					
ENTSEQ	2787/CDWC	2880-TEXT					

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ERRMSK	1567/LD	1629/LD	2745-SPD				
ERRMSK1	1471/LD	2746-DATA					
ERROR	1233/LW	1381/LW	1646/STW	1984/MTW	2093/STW	2177/MTW	2199/MTW
	2218/MTW	2220/MTW	2288/MTW	2433/LW	2853-RES		
ERRSTK	966/PSW	983/PSW	1050/PSW	1059/PSW	1102/PSW	1472/CS	1480/PLW
	1568/STD	1630/STD	1983/PSW	2091/PSW	2176/PSW	2198/PSW	2217/PSW
	2242/PSW	2287/PSW	2612/PSW	2651/PSW	2757-SPD		
EXECPATT	1213/STW	1348/STW	1406/STW	2039/B*	2417/STW	2578/STW	2620/STW
	2716-RES						
EXPFIELD	2030/STW	2036/LH	2038/STH	2066/LH	2156/LH	2159/LH	2161/STH
	2167/ARD	2235/LH	2244/STH	2700-RES			
EXTRNAL	1527/STW	1529/STW	1551/LW	1552/CW	1560/LW	1561/MTW	2897-RES
	2912/STW	2927/STW					
GETSEQ	951/B	988-LI	1070/B				
GETSEQA	998-LI	1008/BDR					
GETSEQB	1011-MTW	2753/PSD					
GETSEQC	1008/LI	1014-LW	1499/CJ				
GETSEQD	1020-CS	1045/BDR	1060/B				
GETSEQE	1010/B	1043-LPSD	1051/B				
GETSEQF	1021/BNE	1044-AI					
GETSEGG	1025/BNE	1052-LW					
GETSEQH							

GETSEQ1	1043/LPSD	2758-PSD					
GR	868-EQU 934/WD 994/LI 1033/SLS 1104/STH 1770/LR 1883/LW 2046/WD 2089/LR 2161/STH 2490/LI 2528/WD 2594/LR 2627/LW 2640/LR	923/LI 938/WD 999/WD 1037/LH 1323/LI 1772/STH 1884/SLB 2047/BIR 2061/WD 2202/CI 2499/WD 2533/AI 2598/STH 2630/STH 2641/LH	924/STW 943/AI 1000/WD 1039/STH 1325/LCW 1795/LI 1892/LW 2050/LI 2062/BIR 2211/LW 2494/WD 2549/LI 2596/STH 2631/STH 2653/LW	924/STW 952/CI 1001/WD 1040/WD 1329/STW 1798/WD 1894/WD 2051/LH 2150/LW 2231/LW 2495/AI 2552/WD 2597/STH 2632/STH	932/LW 971/LR 1002/AI 1093/LW 1330/AI 1799/WD 1895/BDR 2053/WD 2151/SLB 2235/LH 2523/LI 2553/WD 2601/LW 2635/LW	932/LW 973/STH 1006/LI 1095/LH 1760/LW 1800/WD 2044/LI 2054/BIR 2156/LH 2244/STH 2526/WD 2554/WD 2602/WD 2636/LW	933/WD 975/WD 1030/LW 1103/LH 1763/SLS 1882/SLS 2045/LH 2058/LI 2159/LH 2261/LW 2527/WD 2559/AI 2607/CH 2637/WD
GRPCNT	922/STW	946/MTW	2707-RES				
GRPONE	953/BE	1790-LI					
GRPONEA	1794-LI	1804/B					
GRPONEB	1792/LI	1801-LPSD					
GRPONEC	1802-MTW	2754-PSD					
GRPONE1	1801-LPSD	2754-PSD					
HA	2345/LI	2379/CI	2381/CI	2383/CI	2391/LI	2398/LI	2409/LI
HANGBACK	2291/STW	2294/LPBD*	2820-RES				
HANGPSDS	2290/AI	2806-EQU	2814/XPSD	2818/XPSD			

REXLMC	1963/CLM	2802-DATA					
HEXLMF	1961/CLM	2801-DATA					
HIBIT	911/STW	1007/LW	1108/LW	1866/LW	2301/LW	2744-DATA	
HICHAS	1301/STW	1360/LW	1412/LW	1426/LW	1440/LW	2704-RES	
HICHAS1	1303/STW	1361/LW	1892/LW	2705-DATA			
HIEXIT	989/STW 2574/STW	1215/STW 2717-DATA	1346/STW	1404/STW	1986/B*	2339/STW	2485/STW
HIFAILA	901/B	1806-LI					
HIFAILAB	1808/LI	1814-LPBD					
HIFAILAC	1815-AI	2747-PSD					
HIFAILA1	1814/LPSD	2747-PSD					
HIFAILAA	1810-LI	1817/B					
HIFAILB	909/BNE	1819-LW					
HIFAILBC	1834-AI	2748-PSD					
HIFAILB1	1833/LPSD	2748-PSD					
HIFAILBA	1829-LW	1836/B					
HIFAILBB	1827/LI	1838-LPBD					
HIFAILC	1870/B	2296-BAL					
HIFAILCA	2301-LW	2307/B					

HIFAILCB	2299/LI	2306-LP8D					
HIFAILCC	2307-B	2749/PSD					
HIFAILC1	2306/LP6D	2749-PSD					
HIFAILD	1874/BNE	2309-LW					
HIGHA	902-STW	1495/CI	2935/LI				
HIGHB	907/BE	910-LW					
HIPRI	902/STW	908/LW	1873/CW	2742-DATA			
HISTGENA	2919-LI	2933/BDR					
HISTGENB	2921-LW	2931/BDR					
HNGDCODE	2277-XPSD	2803/DATA	2809/GEN				
HOLDSS	1691/AND	1697/STW	2708-DATA	2907/STCF			
HOLDSS1	1275/STCF	1673/AND	1689/STCF	1693/AND	1696/LW	1717/STCF	2709-DATA
IA	867-EQU						
IEND	2407/LW	2741-DATA					
IGEN	1212/LI	1347/LI	1405/LI	2043-BAL	2416/LI		
IGENA	2071-LI	2608/BE	2613/B	2644/BCR	2646/BCS	2652/B	
IN	878-EQU	1143/LH	1480/PLW	1509/LW	1519/LW	1531/LI	1532/STH
	1533/LH	1536/STH	1538/LH	1540/STH	1542/LW	1546/LW	1551/LW
	1552/CW	1555/CI	1557/AI	1559/AI	1703/LW	1819/LW	1841/LW
	1948/LI	1955/AI	1971/AW	2309/LW	2367/CI	2369/CI	2372/AW

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	2463/LH	2464/STH	2465/LH	2466/STH	2467/LW	2468/STW	2469/LH
	2470/STH	2471/LH	2472/STH				
INHBM6K	2095/AND	2694-DATA					
INHIBITS	1204/STW	1258/MTW	1350/STW	1407/MTW	1996/AND	2003/AND	2011/AND
	2094/LW	2428/STW	2580/STW	2854-RES			
INITAUTO	1194-BAL	1261/LI	1391/LI	1737/B			
INVAL	2799/CDW	2877-TEXT					
INVCDW	1787/LI	2799-CDW					
INVJX	2583/LI	2587/BLE	2674-LI				
INVMAN	2365/LI	2370/BNE	2450-LI				
IB	863-EQU	948/LI	1078/LI	1154/LI	1177/LI	1179/LI	1264/LI
	1492/LI	1478/LI	1490/LI	1521/LI	1549/LI	1574/LW	1681/BR
	1683/LI	1699/LI	1728/LI	1777/LI	1787/LI	1790/LI	1808/LI
	1825/LI	2297/LI	2314/LI	2353/LI	2355/LI	2393/LI	2402/LI
	2411/LI	2581/LI	2671/LI	2908/LI			
IPCOUNT	1333/STW	1334/STW	1352/MTW	1355/STW	1356/MTW	1358/STW	1509/LW
	1519/LW	2688-DATA					
IPERLOBP	1388/LI	1456-STW					
IPERRA	1458/LI	1460-LI					
IPGEN	1266/B	1287-EQU	1299/B				
IPGENA	1297/BCR	1300-AI					
IPGENB	1306-LI	1315/BDR	1316/BDR				

HIFAILCB	2299/LI	2306-LP8D					
HIFAILCC	2307-B	2749-PSD					
HIFAILCI	2306/LPSD	2749-PSD					
HIFAILD	1874/BNE	2309-LW					
HIGHA	902-STW	1495/CI	2935/LI				
HIGHB	907/BE	910-LW					
HIPRI	902/STW	908/LW	1873/CW	2742-DATA			
HISTGENA	2919-LI	2933/BDR					
HISTGENB	2921-LW	2931/BDR					
HNGDCODE	2277-XPSD	2803/DATA	2809/GEN				
HOLDSS	1691/AND	1697/STW	2708-DATA	2907/STCF			
HOLDSSI	1275/STCF	1673/AND	1689/STCF	1693/AND	1696/LW	1717/STCF	2709-DATA
IA	867-EQU						
IEND	2407/LW	2741-DATA					
IGEN	1212/LI	1347/LI	1405/LI	2043-BAL	2416/LI		
IBENA	2071-LI	2608/BE	2613/B	2644/BCR	2646/BCS	2652/B	
IN	878-EQU	1143/LH	1480/PLW	1509/LW	1519/LW	1531/LI	1532/STH
	1533/LH	1536/STH	1538/LH	1540/STH	1542/LW	1546/LW	1551/LW
	1552/CW	1555/CI	1557/AI	1559/AI	1703/LW	1819/LW	1841/LW
	1948/LI	1955/AI	1971/AW	2309/LW	2367/CI	2369/CI	2372/AW

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2453/LI	2455/STH	2458/LH	2459/BR	2460/STH	2461/LW	2462/STW	2469/LH
2463/LH	2464/STH	2465/LH	2466/STH	2467/LW	2468/STW		
2470/STH	2471/LH	2472/STH					
INHBM6K	2095/AND	2694-DATA					
INHIBITS	1204/STW	1258/MTW	1350/STW	1407/MTW	1996/AND	2003/AND	2011/AND
	2094/LW	2425/STW	2580/STW	2854-RES			
INITAUTO	1194-BAL	1261/LI	1391/LI	1737/B			
INVAL	2799/CDW	2877-TEXT					
INVCDW	1787/LI	2799-CDW					
INVJX	2583/LI	2587/BLE	2674-LI				
INVMAN	2365/LI	2370/BNE	2450-LI				
IS	863-EQU	948/LI	1078/LI	1154/LI	1177/LI	1179/LI	1264/LI
	1452/LI	1478/LI	1490/LI	1521/LI	1549/LI	1574/LW	1681/BR
	1683/LI	1699/LI	1728/LI	1777/LI	1787/LI	1790/LI	1806/LI
	1825/LI	2297/LI	2314/LI	2353/LI	2355/LI	2393/LI	2402/LI
	2411/LI	2581/LI	2671/LI	2908/LI			
IPCOUNT	1333/STW	1334/STW	1352/MTW	1355/STW	1356/MTW	1358/STW	1509/LW
	1519/LW	2689-DATA					
IPERL00P	1386/LI	1456-STW					
IPERRA	1458/LI	1460-LI					
IPGEN	1266/B	1287-EQU	1299/B				
IPGENA	1297/BCR	1300-AI					
IPGENB	1306-LI	1315/BDR	1316/BDR				

IPGENE	1309-SLD	1312-BDR					
IPGEND	1311-BNE	1313-STH					
IPGENE	1325-LCW	1331-BDR	1454/B				
IPGENW	1349-LI	1417/BCR	1423/BCR	1431/BCR	1437/BCR	1445/BCR	1451/BCR
IPGENQ	1351-BAL	1408/BCR					
IPGENH	1345/LI	1377-BAL	1403/LI				
IPHOLD	924/STW	926/STW	931/LW	932/LW	940/STH	945/STH	1338/STW
	1418/LR	1424/LW	1432/LW	1438/LW	1446/LW	2696-RES	
IPHOLDA	1339/STH	1362/LW	1370/LW	1444/AWM	1447/STH	1450/AWM	2697-RES
IPHOLDE	1341/STW	1366/LW	1374/LW	1416/AWM	1419/STW	1422/AWM	1425/STW
	2699-RES						
IPHOLDT	1340/STW	1364/LW	1372/LW	1430/AWM	1433/STW	1436/AWM	1439/STW
	2698-RES						
ITRNHIST							
	1015/LI	1067/STH	1116/LI	1187/LI	1188/LI	1488/LI	1512/LI
	1514/LI	1518/LI	1532/STH	1536/STH	1537/STH	1540/STH	1541/STH
	1542/LW	1548/LI	1545/LI	1546/LW	1635/STW	1644/STD	1730/LW
	1743/CB	1745/CB	1747/LW	1748/LW	1752/STW	1754/STW	1757/STW
	1759/LB	1774/MTB	1775/LB	1778/CB	1782/LW	1886/AI	1953/CB
	1959/LB	1973/STB	2086/CS	2110/LB	2133/LI	2140/LI	2357/LW
	2455/STH	2458/LW	2460/STH	2461/LW	2462/STH	2463/LH	2464/STH
	2465/LR	2466/STH	2467/LW	2468/STW	2469/LH	2470/STH	2471/LH
	2472/STH	2762/CDW	2766/CDWC	2768/GEN	2782/CDW	2784/GEN	2788/CDW
	2795/CDW	2798/CDW	2888-EQU				
JX	1197/LI	1245/LI	1395/LI	1734/LI	2568-STW	2674/LI	
JXA							

JXB	2577/LI	2599-BAL	2615/BCS	2661/LI			
JXC	2575/LI	2614-RD	2660/BCS				
JXD	2619/LI	2634-BAL	2658/BCS				
JXE	2621/LI	2653-LW					
JXF	2618/B	2663-BAL	2669/B	2670/B	2673/B		
JXG	2573/LI	2666-CI					
JXGP	2667/BE	2671-LI					
KILLINTS	2588/STH	2594/LW	2601/LW	2627/LW	2635/LW	2653/LW	2703-RES
	914/BAL	1061/BAL	1260/BAL	1267/BAL	1377/BAL	1588/BAL	1892-LW
	1985/BAL	2107/BAL	2296/BAL	2340/BAL	2438/BAL	2477/BAL	2510/B
	2515/BAL	2541/BAL	2663/BAL				
KBR	1479/BAL	1491/BAL	1584-LW	1700/BAL	1729/BAL	1826/BAL	2909/BAL
KBRA	950/BAL	1080/BAL	1155/BAL	1178/BAL	1265/BAL	1453/BAL	1522/BAL
	1550/BAL	1578/BCB	1586-LD	1684/B	1788/B	1791/BAL	1807/BAL
	2298/BAL	2319/BAL	2356/BAL	2394/BAL	2403/BAL	2412/BAL	2672/BAL
LAST	1111/STH	1123/STH	1136/LI	1140/CB	1143/LH	1163/STB	1165/LW
	1168/CS	1171/STB	1174/LW	1624/STD	2279/STW	2293/LM	2718/XPSD
	2719/XPSD	2779/GEN	2906-RD	2942/END			
LDATA	848-ENAME						
LEVBITSA	1037/LH	1039/STH	1074/EBR	1104/STH	1220/STW	1363/STH	1371/STH
	1533/LH	1541/STD	1820/LI	1823/STB	1824/STB	2025/LR	2033/LH
	2035/STH	2048/LH	2048/LH	2184/LW	2247/LW	2265/LH	2310/LI
	2313/STB	2428/STH	2591/STW	2595/STH	2625/STW	2630/STH	2636/LH
	2640/LR	2688-RES	2772/CDW	2793/CDW			

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LEVBITSI	1539/LH 2688-RES	2000/STW	2007/LH	2009/STH	2015/LH	2017/STH	2020/LW
LEVBITSE	1280/STW 2185/AND 2392/STW	1367/STH 2248/AND 2399/STW	1375/STH 2346/STW 2410/STW	1535/LH 2375/LW 2597/STH	2027/AND 2377/MTW 2631/STH	2059/LH 2378/LW 2686-RES	2063/LH 2385/MTW
LEVBITST	1225/STW 2191/AND	1365/STH 2431/STH	1373/STH 2596/STH	1538/LH 2632/STH	2026/AND 2687-RES	2051/LH	2055/LH
LEVBITSN	1134/STW 1151/MTW	1135/STW 1152/MTW	1137/STW 2022/STW	1139/LW 2028/AND	1142/LW 2689-RES	1144/LW	1149/MTW
LF	831-DATA	837-DATA	844-EQU	851-EQU			
LNK	870-EQU 955/BAL 1109/BAL 1194/BAL 1239/BAL 1267/BAL 1384/BAL 1453/BAL 1483/BAL 1520/BAL 1565/BAL 1598/B* 1702/BAL 1733/BAL 1826/BAL 1888/B* 1943/AI 2209/BAL 2315/BAL 2341/BAL 2412/BAL	899/BAL 990/BAL 1130/BAL 1195/BAL 1242/BAL 1268/BAL 1387/BAL 1456/STW 1485/PLW 1522/BAL 1570/PLW 1647/B* 1711/PLW 1756/BAL 1850/B* 1898/B* 1969/B* 2229/BAL 2318/STW 2342/BAL 2436/BAL	903/BAL 991/BAL 1145/BAL 1196/BAL 1244/BAL 1271/STW 1392/BAL 1457/BAL 1487/B 1544/BAL 1572/B 1661/BNE* 1712/B* 1766/BAL 1859/B* 1928/CH* 1985/BAL 2232/BAL 2320/BAL 2354/BAL 2438/BAL	914/BAL 1061/BAL 1155/BAL 1198/BAL 1246/BAL 1277/BAL 1394/BAL 1461/BAL 1489/BAL 1547/BAL 1581/BCR* 1676/B* 1713/LI 1786/LI 1875/B* 1931/LCH* 1990/BAL 2272/B* 2323/BAL 2356/BAL 2439/BAL	918/BAL 1062/BAL 1178/BAL 1201/BAL 1260/BAL 1351/BAL 1396/BAL 1473/BE* 1491/BAL 1548/BAL 1587/PSW 1695/BCR* 1718/B* 1791/BAL 1878/PSW 1934/BCR 2043/BAL 2296/BAL 2326/BAL 2366/BAL 2441/BAL	949/BAL 1079/BAL 1180/BAL 1216/BAL 1262/BAL 1377/BAL 1399/BAL 1477/PSW 1502/BAL 1550/BAL 1588/BAL 1698/PSW 1729/BAL 1807/BAL 1880/BAL 1935/AI 2107/BAL 2298/BAL 2332/STW 2394/BAL 2443/BAL	950/BAL 1080/BAL 1182/BAL 1236/BAL 1265/BAL 1378/BAL 1411/BAL 1479/BAL 1513/BAL 1563/PSW 1597/PLW 1700/BAL 1733/BAL 1821/BAL 1887/PLW 1940/B 2170/BAL 2311/BAL 2340/BAL 2403/BAL 2450/LI

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LNKSTK	2473/B* 2519/BAL 2584/BAL 2668/BAL	2477/BAL 2541/BAL 2599/BAL 2672/BAL	2481/BAL 2542/BAL 2617/BAL 2674/LI	2482/BAL 2562/BAL 2634/BAL 2909/BAL	2508/BAL 2568/STW 2662/BAL 2934/LI	2509/LW 2572/BAL 2663/BAL	2515/BAL 2582/BAL 2664/BAL
LNKSTK	1477/PSW 1711/PLW	1485/PLW 1878/PSW	1563/PSW 1887/PLW	1570/PLW 2756-SPD	1587/PSW	1597/PLW	1698/PSW
LOBPEXIT	1271/STW 2442/B*	1280/B* 2509/LW	1456/STW 2568/STW	1464/B* 2665/B*	2318/STW 2713-RES	2328/B*	2332/STW
LW	872-EQU 926/STW 941/LW 1000/WD 1035/LW 1759/LB 1775/LB 1812/WD 1867/WD 2044/WD 2059/LH 2069/AND 2155/LW 2249/STH 2492/LI 2531/SLS 2595/STH 2606/LH 2629/STW 2639/WD 2655/SLS	894/LI 931/LW 941/LW 1001/WD 1038/LW* 1760/LW 1778/CB 1813/WD 1868/WD 2048/LH 2061/WD 2070/WD 2157/AND 2266/AND 2493/WD 2551/LI 2596/STH 2608/LH 2630/STW 2649/AND 2656/STH	895/WD 931/LW 972/BR 1007/LW 1038/BR 1761/SLS 1794/LI 1829/LW 1879/LW 2049/WD 2063/LH 2149/LB 2160/EBR 2301/LW 2494/WD 2552/WD 2597/STH 2607/CH 2631/STH 2648/BR 2657/LW	896/WD 933/WD 975/WD 1029/LB 1040/WD 1762/SLS 1798/WD 1830/BR 1893/LI 2051/LH 2065/WD 2150/LW 2173/LB 2302/WD 2525/LW 2553/WD 2600/LI 2610/BR 2632/STH 2649/BR 2657/LW	897/WD 934/WD 996/LW 1030/LW 1052/LW 1765/LW 1799/WD 1831/WD 1894/WD 2053/WD 2066/LH 2152/SLS 2201/LW 2303/WD 2526/WD 2554/WD 2602/WD 2611/BR 2636/LH 2650/BR	925/LW 935/WD 998/LI 1031/SLS 1053/SLS 1765/LW* 1800/WD 1832/WD 1896/WD 2055/LH 2067/AND 2153/SLS 2206/AND 2304/WD 2527/WD 2557/SLS 2603/WD 2612/PSW 2637/WD 2651/PSW	926/STW 938/SLS 999/WD 1032/SLS 1056/BR 1771/BR 1810/LI 1866/LW 2045/LH 2057/WD 2068/EBR 2154/LW 2230/LW 2486/LW 2528/WD 2593/LI 2604/WD 2628/LW 2638/WD 2654/LW
MANCDW1	2353/LI	2761-CDH					
MANCDW2	2355/LI	2762-CDH					
MANCDW3							

MANCDM4	2393/LI	2769-CDM					
MANCDM5	2402/LI	2764-CDM					
MANINHB	2411/LI	2768-CDM					
MANPAYT	2409/LI	2420/MTM	2423/STW	2424/LW	2447/STW	2691-REB	
MANUAL	2345/LI	2349/STW	2379/CI	2381/CI	2383/CI	2391/LI	2398/LI
MANUALA	2427/LM	2430/LM	2629/STW	2654/LW	2656/STW	2690-REB	
MANUALB	1200/LI	1241/LI	1398/LI	2332-STW	2361/BE		
MANUALC	2355-LI	2384/BNE	2386/B	2395/B	2404/B	2413/B	2449/B
MANUALD	2450/LI						
MANUALE	2351/LI	2380/BE	2382/BE	2387-LI			
MANUALF	2387/LI	2396-LI					
MANUALG	2396/LI	2405-LI					
MANUALH	2405/LI	2414-LI	2440/LI				
MANUALJ	2426-LCI						
MANUALK	2414/LI	2433-LW					
MSGA	2434/BCR	2435/LI	2438-BAL	2444/B	2445/B		
MSGACDW	2338/LI	2443-BAL					
	2364/BE	2446-LI					
	2792/CDWC	2871-TEXT					
	2314/LI	2792-CDWC					

MSGB	2794/CDWC	2872-TEXT	
MSGBCDW	2581/LI	2794-CDWC	
MSGC	2761/CDW	2874-TEXT	
MSGD	2796/CDW	2876-TEXT	
MSGDCDW	1452/LI	2796-CDW	
MSG1	2758/CDW	2797/CDWC	2855-TEXT
MSG1CDW	948/LI	2758-CDW	
MSG2	2759/CDW	2770/CDW	2856-TEXT
MSG2CDW	1478/LI	2759-CDW	
MSG3	2760/CDW	2857-TEXT	
MSG3CDW	1806/LI	2760-CDW	
MSG4	2771/CDWC	2859-TEXT	
MSG4CDW	1825/LI	2771-CDWC	
MSG5	2773/CDW	2861-TEXT	
MSG5CDW	1078/LI	2773-CDW	
MSG6	2774/CDW	2862-TEXT	
MSG6AEDW	1154/LI	2774-CDW	
MSG6B	2786/CDW	2863-TEXT	
MSG7			

2789/CDW	2866-TEXT						
MSG7CDW	1264/LI	2789-CDW					
MSG8	2790/CDW	2868-TEXT					
MSG8CDW	1790/LI	2790-CDW					
MSG9	2791/CDW	2870-TEXT					
MSG9CDW	2297/LI	2791-CDW					
MULTINT	2319/LI	2477-BAL					
MULTINTB	2483/LI	2504-LPSD					
MULTINTA	2482-BAL	2507/LI					
MULTINTC	2505-MTW	2750-PSD					
MULTINTI	2504-LPSD	2750-PSD					
NAME	846/GEN						
NEWPAIT	2360/CM	2735-DATA					
NOBITB	1857/CM	2723-DATA					
NOTCINH	2013/LW	2725-DATA					
NOTHI	913/STW	996/LW	2034/AND	2037/AND	2069/AND	2486/LW	2743-DATA
NOTIINH	2005/LW	2693-DATA					
NOTIX16	2724-DATA						
NNTIMPL	971/LH	973/STH	1073/LW	1095/LH	1103/LH	1296/LH	1307/LH

1336/LH	1524/LH	1726/STW	1770/LH	1772/STH	2029/AND	2166/LW
2607/CH	2641/LH	2702-LDATA				
NUMCDW	1511/STB	1517/STB	2784-GEN			
BA	869-EQU	1136/LI	1137/STW	1144/LW	1146/LW	1148/STW
	1197/LI	1200/LI	1235/LI	1238/LI	1241/LI	1245/LI
	1276/LI	1383/LI	1386/LI	1391/LI	1395/LI	1398/LI
	1482/LI	1488/LI	1501/LI	1512/LI	1514/LI	1518/LI
	1524/LH	1526/BDR	1527/STW	1534/LI	1537/STH	1541/STH
	1545/LI	1564/LI	1665/B*	1675/BCR*	1701/LI	1734/LI
	1820/LI	1843/AI	1848/STB*	1936/B*	1944/B*	1964/BCS*
	2319/LI	2322/LI	2325/LI	2365/LI	2435/LI	2440/LI
	2455/STH	2456/BIR	2457/LI	2464/STH	2465/LH	2470/STH
	2507/LI	2561/LI	2583/LI	2616/LI	2661/LI	
BT	865-EQU	902/STW	905/LW	906/CI	908/CI	910/LW
	959/CS*	962/AND*	964/LB*	968/LW*	970/STW*	978/LW*
	1047/BR	1110/AI	1111/STH	1709/BR	1757/STW	1769/STB*
	1853/LI	1855/AI	1873/CM	1881/AI	1883/AM	1885/SLS
	1912/LB	1919/BLD	1916/SLS	1917/SLD	1921/AI	1957/LI
	1967/BR	1979/LW	1980/BR	1981/BR	1982/BR	1983/PSW
	2090/BR	2091/PSW	2210/SLS	2216/BR	2230/LW	2233/SLS
	2263/LI	2268/AW	2309/LW	2374/SLS	2376/STH	2585/SLS
	2588/STW					2586/CI
BUTPA	1596-STD					
BUTPINV	1714/B	1787-LI	2451/B	2675/B		
BUTPSEQ	1130-BAL					
BUTPSEQA	1139-LW	1153/BDR				
BUTPSEQB	1141/BE	1151-MTW				
P	852-SET	858/DB				

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PATTLEAD	1521/LI	2783-CDWC					
PATTNUM	2783/CDWC	2867-TEXT					
POMPCDW	1549/LI	2797-CDWC					
PRISEQ	2778/CDWC	2878-TEXT					
PRONUM	2939/CDW	2941-TEXT					
PSD	834-CNAME						
QUESTION	1179/LI	2786-CDW					
RDCHK	1574-LW	1583/B	1585/BCS				
RDSS	1195/BAL	1411/BAL	1688-RD	1713/LI	1990/BAL		
RDSSA	1701/LI	1713-LI					
RESP	1180/BAL	1678-EQU	2354/BAL	2582/BAL			
RESPOND	2775/GEN	2881-TEXT					
REVR51	1277/BAL	1461/BAL	1669-RD	2441/BAL	2508/BAL	2562/BAL	2617/BAL
	2662/BAL						
ROLL	2337/STW	2418/LW	2448/STW	2692-RES			
SEQCDW	1177/LI	2778-CDWC					
SEQCDW1	1161/STH	2779-GEN					
SEQLIST	1993/LI	1994/STW	2111/LW	2112/LI	2116/MTW	2118/CB	2121/CB
	2124/LW	2128/LI	2130/LB	2132/LB	2173/LB	2850-RES	
SETEXP							

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	1292/B	1276/LI	1376/B	1460/LI	1990-BAL	2432/B	2598/B
	2633/B						
SETEXPA	1997/BCR	2002-LI					
SETXPB	2004/BCR	2010-LI					
SETXPC	2012/BCR	2019-LI					
SETXPD	2025-LW	2031/BIR					
SETHI	991/BAL	1864-LI	2043/BAL	2482/BAL	2599/BAL	2634/BAL	
SETHIA	1864/LI	1871-LI					
SETPSDS	918/BAL	1194/BAL	1602-LW	1733/BAL	2937/B		
SETPSDSB	1606-STW	1609/BDR					
SETPSDSC	1616-LW	1627/BDR					
SETPSDSA	1605-LI	1611/BDR					
SETRTRN	1623/DR	2681-DATA					
SETSTKS	990/BAL	1130/BAL	1629-LD	2341/BAL	2664/BAL		
SNGLDWN	2325/LI	2541-BAL					
SNGLDWNA	2548-LI	2561/LI					
SNGLDWND	2546/LI	2556-LPBD					
SNGLDWNE	2557-SLS	2752/PSD					
SNGLDWN1	2556/LPBD	2752-PSD					
SNGLDWNC							

2552-WD	2558/BDR						
SNGLDWNB							
2550-LI	2560/BDR						
SNGLUP							
2322/LI	2519-BAL	2537/B	2563/B				
SNGLUPA							
2522-LI	2536/BCR						
SNGLUPB							
2524-LI	2534/BDR						
SNGLUPC							
2526-WD	2532/BDR						
SNGLUPD							
2520/LI	2530-LPSD						
SNGLUPE							
2531-SLS	2751/PSD						
SNGLUP1							
2530/LPSD	2751-PSD						
SPD							
828-CNAME							
SQSTENT							
2127/STW	2128/MTW	2131/LW	2162/LW	2706-DATA			
SSANS							
1182/BAL	1651-LI	1664/BE					
SSANSA							
1653/STCF	1655-N6P	1660/CS	1663/CS				
STEPIP							
1343/LI	1379/B	1380/B	1381-LW	1401/LI	1462/LI	1505/CI	
STEPIPA							
1383/LI	1386-LI						
STEPIPB							
1387/BCR	1389-WD						
STEPIPC							
1413-CI	1420/BDR						
STEPIPD							
1414/BLE	1421-LW						
STEPIPE							
1427-CI	1434/BDR						

STEPIPF							
1428/BLE	1435-LW						
STEPIPG							
1441-CI	1448/BDR						
STEPIPH							
1442/BLE	1449-LW						
STHLDS							
1457/BAL	1716-WD	2342/BAL	2481/BAL	2519/BAL	2542/BAL	2572/BAL	
STKCDW							
1490/LI	2766-CDWC						
STK1							
2756/SPD	2885-RES						
STK2							
2745/SPD	2746/DATA	2757/SPD	2886-RES				
STRP2CNT							
2067/AND	2068/EOR	2701-DATA					
TABLE							
1847/LB	2848-TEXT						
TERM							
2400/LW	2740-DATA						
TESTBBW							
2344/STW	2352/STW	2358/CW	2359/BE*	2388/STW	2390/STW	2397/STW	
2401/STW	2406/STW	2408/STW	2710-RES				
1198/BAL	1201/BAL	1236/BAL	1239/BAL	1242/BAL	1246/BAL	1262/BAL	
1384/BAL	1387/BAL	1392/BAL	1396/BAL	1399/BAL	1483/BAL	1502/BAL	
1565/BAL	1739/BAL	1927-LI	2320/BAL	2323/BAL	2326/BAL	2436/BAL	
TESTBSWB							
1939/BCS	1941-WAIT						
TESTBSWA							
1929/BE	1937-SL6						
IITLCDW							
2908/LI	2938-CDWC						
TITLE							
2938/CDWC	2940-TEXT						
TRANIN							
1702/BAL	1756/BAL	1948-LI	2366/BAL	2584/BAL			

TRANINA	1953-CB	1956/BIR				
TRANINB	1959-LQ	1968/BIR	1975/B			
TRANINC	1960/BCR	1966-SLB	1977/B			
TRANIND	1954/BE	1970-LI				
TRANINF	1962/BCR	1976-AI				
TRANOUT	1145/BAL	1489/BAL	1513/BAL	1520/BAL	1544/BAL	1547/BAL
	1840-EQU	2311/BAL				1821/BAL
TRANOUTA	1844-LI	1849/BIR				
TRIG	885-EQU	896/WD	934/WD	1000/WD	1799/WD	1813/WD
	1868/WD	2053/WD	2057/WD	2303/WD	2494/WD	2527/WD
TRPMSG	2800/CDW	2849-TEXT				
WAITCNT	928/STW	936/MTW	1005/STW	1011/MTW	1797/STW	1802/MTW
	2103/MTW	2488/STW	2505/MTW	2851-REFS		1992/STW
WAITCON	1322/STW	1991/LW	2852-DATA			
WDTCDW	2671/LI	2800-CDW				
WKA	871-EQU	910/LW	911/STW	912/EBR	913/STW	919/LI
	921/LI	922/STW	927/LI	928/STW	954/LW	957/LW
	962/AND	964/LB	965/BR	966/PSW	968/LW	969/BR
	971/LR	972/BR	973/STH	978/LW	979/SLS	980/SLS
	982/BR	983/PSW	988/LI	989/STW	992/LI	993/STW
	1009/STW	1014/LW	1026/STB	1037/LH	1038/BR	1039/STH
	1047/BR	1048/BR	1049/BR	1050/PSW	1054/LW	1055/SLS
	1057/BR	1058/BR	1059/PSW	1064/LI	1073/STW	1074/EBR
	1082/LW	1083/LI	1086/AW	1087/SLS	1090/AI	1093/LW
						920/STW
						961/LW
						970/STW
						981/BR
						1008/LI
						1046/SLS
						1056/BR
						1074/EBR
						1094/SLS

1099/BR	1100/BR	1101/BR	1102/PSW	1103/LH	1104/STH	1117/LI
1121/BDR	1146/LW	1147/AND	1148/STW	1162/LI	1163/STB	1171/STB
1186/LI	1193/BDR	1203/LI	1204/STW	1206/LI	1207/STW	1208/STW
1209/STW	1210/LI	1211/STW	1212/LI	1213/STW	1214/LI	1215/STW
1219/LW	1220/STW	1224/LW	1225/STW	1229/LW	1230/STW	1233/LW
1250/LI	1251/STW	1254/LI	1255/STW	1272/LI	1273/BR	1278/LI
1279/STW	1296/LH	1308/LI	1312/BDR	1313/STW	1317/LW	1319/AW
1321/AND	1322/STW	1324/LI	1331/BDR	1332/LI	1333/STW	1334/STW
1336/LR	1337/AND	1338/STW	1339/STW	1340/STW	1341/STW	1343/LI
1344/STW	1345/LI	1346/STW	1347/LI	1348/STW	1349/LI	1350/STW
1354/LI	1355/STW	1358/STW	1362/LW	1363/STH	1364/LW	1365/STH
1366/LW	1367/STW	1370/LW	1371/STH	1372/LW	1373/STH	1374/LW
1375/STH	1381/LW	1401/LI	1402/STW	1403/LI	1404/STW	1405/LI
1406/STW	1415/LW	1416/AWM	1418/LW	1419/STW	1421/LW	1422/AWM
1424/LW	1425/STW	1429/LW	1430/AWM	1432/LW	1433/STW	1435/LW
1436/AWM	1438/LW	1439/STW	1443/LW	1444/AWM	1446/LW	1447/STW
1449/LW	1450/AWM	1458/LI	1459/STW	1462/LI	1463/STW	1504/LW
1505/LI	1508/LI	1511/STB	1516/LI	1517/STB	1524/LH	1576/LW
1577/AND	1579/LW	1580/AND	1584/LW	1602/LW	1606/STW	1607/AI
1610/LW	1613/LI	1616/LW	1626/AI	1633/LI	1637/BDR	1670/STCF
1671/AND	1674/EBR	1679/LW	1680/AND	1681/BR	1682/STW	1690/LW
1691/AND	1694/EBR	1696/LW	1697/STW	1706/LI	1707/SLS	1708/AND
1709/BR	1710/STW	1723/LI	1724/STW	1726/STW	1730/LW	1731/CW
1738/CW	1742/LI	1743/CB	1745/CB	1753/LI	1754/STW	1768/LW
1769/STB	1792/LI	1793/STW	1808/LI	1809/STW	1822/LI	1823/STB
1824/STB	1827/LI	1828/STW	1847/LB	1848/STB	1864/LI	1865/STW
1871/LI	1872/STW	1927/LI	1928/CW	1930/LW	1932/SLS	1933/AND
1937/SLS	1938/AND	1950/LI	1953/CH	1959/LB	1961/CLM	1963/CLM
1965/AI	1967/BR	1972/LI	1973/STB	1976/AI	1991/LW	1992/STW
1993/LI	1994/STW	1995/LI	1996/AND	1998/LI	2000/STW	2002/LI
2003/AND	2009/LW	2006/EBR	2008/BR	2010/LI	2011/AND	2013/LW
2014/EBR	2016/BR	2020/LW	2021/EBR	2022/STW	2025/LW	2026/AND
2027/AND	2028/AND	2029/AND	2030/STW	2033/LH	2034/AND	2035/STW
2036/LR	2037/AND	2038/STH	2071/LI	2072/STW	2083/LI	2089/BDR
2092/LI	2098/STW	2094/LW	2095/AND	2096/STB	2110/LW	2115/STB
2118/CB	2121/CB	2130/LB	2134/CB	2139/LB	2146/CB	2156/LW
2187/AND	2159/LH	2160/EBR	2161/STH	2166/LW	2167/AND	2175/BR

SIGMA 5/7 INTERRUPT TEST 704143-51C00				FEBRUARY 20, 1969			29
	2176/PSW	2181/CB	2182/CI	2187/LW*	2195/BR	2205/LI	2206/AND
	2211/LW	2212/SLS	2213/BR	2214/BR	2215/BR	2216/BR	2217/PSW
	2224/AND	2227/SLS	2228/LW	2235/LH	2236/AND	2240/BR	2243/LI
	2244/STH	2247/LW	2248/AND	2251/AND	2264/LI	2268/AW	2269/SLS
	2280/LB	2284/AI	2285/BR	2286/BR	2287/PSW	2299/LI	2300/STW
	2312/LI	2313/STB	2333/LW	2334/EOR	2335/STW	2336/LI	2337/STW
	2338/LI	2339/STW	2343/LW	2344/STW	2345/LI	2346/STW	2347/LI
	2349/STW	2351/LI	2352/STW	2357/LW	2358/CW	2360/CW	2362/SLS
	2363/CI	2378/LW	2379/CI	2381/CI	2383/CI	2387/LI	2388/STW
	2389/LW	2390/STW	2391/LI	2392/STW	2396/LI	2397/STW	2398/LI
	2399/STW	2400/LW	2401/STW	2405/LI	2406/STW	2407/LW	2408/STW
	2409/LI	2410/STW	2414/LI	2415/STW	2416/LI	2417/STW	2418/LW
	2422/LI	2423/STW	2424/LW	2425/STW	2433/LW	2446/LI	2447/STW
	2448/STW	2478/LW	2479/EOR	2480/STW	2483/LI	2484/STW	2485/STW
	2487/LI	2488/STW	2489/LI	2496/BDR	2516/LW	2517/EOR	2518/STW
	2520/LI	2521/STW	2522/LI	2534/BDR	2543/LW	2544/EOR	2545/STW
	2546/LI	2547/STW	2548/LI	2560/BDR	2569/LW	2570/EOR	2571/STW
	2573/LI	2574/STW	2575/LI	2576/STW	2577/LI	2578/STW	2579/LI
	2580/STW	2589/LI	2591/STW	2619/LI	2620/STW	2621/LI	2622/STW
	2623/LI	2625/STW	2640/LH	2643/AND	2645/AND	2935/LI	2936/STW
WKB	875-EQU	1016/LI	1023/LI	1024/CB	1045/BDR	1066/LI	1069/BDR
	1095/LH	1096/AND	1106/LB	1106/LB*	1116/LI	1118/CB*	1120/AI
	1122/LI	1123/STH	1138/LI	1150/AI	1159/SLS	1161/STH	1167/LI
	1176/BDR	1189/LB	1190/STB	1305/LI	1316/BDR	1326/LW	1327/SLS
	1328/CW	1328/CW	1329/STW	1615/LI	1627/BDR	1672/LW	1673/AND
	1674/EOR	1692/LW	1693/AND	1694/EOR	1770/LH	1771/BR	1772/STH
	2007/LW	2008/BR	2009/STH	2015/LH	2016/BR	2017/STH	2132/LB
	2141/CB	2194/SLS	2195/BR	2196/BR	2197/BR	2198/PSW	2223/LW
	2224/AND	2249/STH	2250/AND	2251/AND	2282/LH	2524/LI	2532/BDR
	2550/LI	2558/BDR	2641/LH	2642/AND	2643/AND		
WKC	876-EQU	1115/LI	1118/CB	1125/AI	1132/LI	1140/CB	1605/LI
	1609/BDR	2184/LW	2185/AND	2189/AND	2191/AND	2262/LI	2271/BDR
WKD	877-EQU	995/LI	1003/BDR	1004/LI	1005/STW	1112/LI	1126/BDR
	1131/LI	1153/BDR	1603/LI	1611/BDR	1796/LI	1797/STW	1811/LI

SIGMA 5/7 INTERRUPT TEST 704143-51C00				FEBRUARY 20, 1969			30
	1816/BDR	2187/LW	2188/SLS	2189/AND	2265/LH	2266/AND	
X							
XA	2807-DB	2808/GEN	2813-DB	2814/XPSD	2817-DB	2818/XPSD	
	864-EQU	1015/LI	1020/CS*	1022/AI	1024/CB*	1026/STB*	1028/AI
	1029/LB*	1034/LI	1035/LW	1044/AI	1052/LW	1065/LI	1067/STW
	1068/AI	1072/CI	1073/LW	1074/EOR	1077/BIR	1086/AW	1113/LI
	1118/CB	1133/LI	1134/STW	1135/STW	1139/LW	1140/CB	1160/LI
	1161/STH	1164/LI	1168/CS	1170/SLS	1171/STB	1173/SLS	1174/LW
	1175/AI	1187/LI	1189/LB	1191/AI	1218/LW	1219/LW	1223/LW
	1224/LW	1228/LW	1229/LW	1295/LI	1296/LH	1298/AI	1300/AI
	1301/STW	1302/AI	1303/STW	1304/AI	1307/LH	1313/STW	1315/BDR
	1318/LI	1319/AW	1320/BIR	1325/LCW	1327/SLS	1335/LI	1336/LH
	1338/STW	1339/STW	1340/STW	1341/STW	1342/BIR	1360/LW	1363/STH
	1365/STH	1367/STH	1368/BDR	1412/LW	1413/CI	1415/LW	1416/AWM
	1418/LW	1419/STW	1420/BDR	1426/LW	1427/CI	1429/LW	1430/AWM
	1432/LW	1433/STW	1434/BDR	1440/LW	1441/CI	1443/LW	1444/AWM
	1446/LW	1447/STW	1448/BDR	1507/LI	1511/STH	1517/STB	1530/LI
	1533/LH	1535/LH	1538/LH	1539/LH	1560/LW	1574/LW	1575/SLS
	1577/AND*	1580/AND	1582/AI	1604/LI	1606/STW	1608/AI	1614/LI
	1624/STD	1625/AI	1632/LI	1635/STS	1636/AI	1640/LI	1641/STD
	1642/BIR	1643/LI	1644/STD	1645/BIR	1651/LI	1653/STCF	1703/LW
	1704/SLS	1705/LCW	1705/LCW	1707/SLS	1725/LI	1726/STW	1727/BIR
	1740/LI	1743/CB	1758/LI	1759/LB	1774/MTH	1775/LB	1842/LI
	1848/STB	1849/BIR	1931/LCW	1932/SLS	1949/LI	1953/CB	1956/BIR
	1958/LI	1959/CB	1968/BIR	1970/LI	1971/AW	1973/STB	1974/BIR
	1979/LW	1999/LI	2000/STW	2001/BIR	2019/LI	2020/LW	2022/STW
	2023/BIR	2024/LI	2025/LW	2026/AND	2027/AND	2028/AND	2029/AND
	2030/STW	2031/BIR	2085/LI	2086/CS	2088/AI	2109/SLS	2110/LB
	2111/LW	2113/AW	2115/STB	2124/LW	2125/AI	2127/STW	2130/LB
	2131/LW	2132/LB	2133/LI	2134/CB	2136/AI	2138/AI	2139/LB
	2148/AI	2149/CB	2162/LW	2163/CI	2165/LI	2166/LW	2167/AND
	2169/BIR	2178/BDR	2180/AI	2181/LB	2221/SLS	2222/AI	2226/AI
	2231/LW	2234/SLS	2237/BR	2238/BR	2239/BR	2240/BR	2241/BR
	2242/PSW	2261/LW	2265/LH	2270/AI	2281/LI	2282/LI	2289/LB
	2290/AI	2291/STW	2348/LI	2349/STW	2350/BIR	2371/LH	2372/AW
	2373/SLS	2374/SLS	2375/LW	2376/STH	2590/LI	2591/STW	2592/BIR

SIGMA 5/7	INTERRUPT TEST	704143-51C00	FEBRUARY 20, 1969				31
	2605/LI	2606/LH	2624/LI	2625/STW	2626/BIR	2666/CI	
XB							
	866/EQU	1017/LI	1024/CB	1026/STB	1114/LI	1123/STW	1124/AI
	1142/LW	1143/LH	1188/LI	1190/STB	1192/AI	1217/LI	1220/STW
	1221/BIR	1222/LI	1225/STW	1226/BIR	1227/LI	1230/STW	1231/BIR
	1361/LW	1362/LW	1364/LW	1366/LW	1369/BDR	1741/LI	1745/CB
	1764/LI	1765/LW	1767/LI	1769/STB	1776/LI	1778/CB	1846/LW
	1847/CB	1913/LW	1914/SLS	1918/LI	1919/LH	1919/LH	2084/LI
	2112/LI	2113/AW	2118/CB	2120/BDR	2140/LI	2141/CB	2143/AI
	2145/AI	2146/CB	2154/LW	2155/LW	2186/LI	2187/LW	2201/LW
	2213/BR						
XJ							
	2889-DB	2890/GEN	2890/GEN				
YLDINTAD							
	955/BAL	1766/BAL	1877-EQU				
ZEROSED							
	1738/CW	2737-DATA					
S							
	844/EQU	851/EQU	937/BCS	997/B	1012/BCS	1069/BDR	1097/BCR
	1121/BDR	1193/BDR	1205/EQU	1221/BIR	1226/BIR	1231/BIR	1234/BCR
	1235/LI	1287/EQU	1320/BIR	1342/BIR	1353/BCR	1357/BCR	1368/BDR
	1369/BDR	1390/BCS	1410/BCS	1525/BCS	1526/BDR	1556/BG	1558/B
	1592/BIOSNP	1598/BIOSNP	1637/BDR	1642/BIR	1645/BIR	1678/EQU	1727/BIR
	1732/BNE	1803/BCS	1816/BDR	1840/EQU	1852/EQU	1877/EQU	1895/BDR
	1974/BIR	2001/BIR	2023/BIR	2047/BIR	2054/BIR	2062/BIR	2114/BCR
	2120/BDR	2123/B	2137/B	2144/B	2169/BIR	2183/BG	2203/BNE
	2225/BCR	2267/BCR	2283/BCR	2350/BIR	2368/BE	2419/BCR	2421/BCR
	2456/BIR	2491/B	2496/BDR	2506/BCS	2592/BIR	2616/LI	2626/BIR
	2806/EQU	2812/EQU	2816/EQU	2888/EQU	2913/BIR		



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