

# DX11B

DIAGNOSTIC  
MD-11-DZDXH-C  
(ON-LINE EXERCISER)

EP DZDXH C DL  
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MADE IN USA



IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDXH-C-D  
PRODUCT NAME: DX11B DIAGNOSTIC (ON LINE EXERCISER)  
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MAINTAINER: DIAGNOSTIC GROUP  
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1: ABSTRACT

THE FUNCTION OF THE DX110 DIAGNOSTICS IS TO VERIFY THAT THE DX110 IMPLEMENTS THE FUNCTIONAL FLOW DIAGRAMS ILLUSTRATED IN THE DX110 PRINT SET; THE DX11 DIAGNOSTIC PACKAGE CONSISTS OF FOUR TAPES

- 1: D2DXA=[REV] MAINTENANCE CLOCK 01
- 2: DXDXF=[REV] MAINTENANCE CLOCK C2
- 3: D2DXG=[REV] DX OFFLINE DIAGNOSTIC EXERCISER
- 4: D2DXH=[REV] DX ONLINE-MAINTENANCE-CABLED EXERCISER

THE DIAGNOSTICS WERE DIVIDED INTO FOUR TAPES BECAUSE OF THE 8K WORD MEMORY LIMIT REQUIRED TO SUPPORT MINIMUM SYSTEMS AND FOR FUNCTIONAL SAFEGUARDS, IT WAS FELT THAT SAFEGUARDS SHOULD BE TAKEN TO INSURE THAT NO ONE INADVERTENTLY RAN THE ONLINE-MAINTENANCE-CABLE EXERCISER WHILE CONNECTED ONLINE TO IBM; IT WAS ALSO FELT

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THAT THE FUNCTIONAL SEPARATION OF TESTS WOULD FACILITATE ADAPTION TO ACT11 AND DDP TESTING, THERE ARE ALSO TWO OTHER MAINDEC'S SUPPORTED BY DIAGNOSTICS THAT RUN THE DX11B1

1. COMMUNICATION TEST PROGRAM (CTP)
2. GENERAL TEST PROGRAM (GTP) WITH DX OVERLAY
3. DEC/X11 WITH DX SOFTWARE MODULE

THESE TESTS OPERATE IN THE MAINTENANCE MODE AND WERE DESIGNED TO DETECT UNIBUS DEVICE INTERACTION PROBLEMS, ADDITIONALLY CTP HAS A "RESPONDER" MODE SO THAT INTERACTION PROBLEMS MAY BE DETECTED WHILE RUNNING ONLINE;

2. REQUIREMENTS

2.1 EQUIPMENT

PDP11 (MINIMUM 8K WORDS MEMORY)  
ASR-33 (OR EQUIVALENT)  
DX11B

2.2 STORAGE

ALL PROGRAMS LOAD IN 8K OF MEMORY

2.3 OTHER

A WORKING KNOWLEDGE OF ODT VERSION V886A.ODT IS NECESSARY

3. LOADING PROCEDURE

3.1 METHOD

ALL PROGRAMS ARE IN ABSOLUTE FORMAT AND ARE LOADED USING THE ABSOLUTE LOADER;

ABSOLUTE LOADER START ADDRESS 0500

MEMORY \*  
SIZE

4K	17
8K	37
12K	57
16K	77
20K	117
24K	137
28K	157

3.1.1 LOAD ADDRESS OF ABS LOADER INTO SWITCHES

3.1.2 DEPRESS "LOAD ADDRESS" KEY ON CONSOLE

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3.1.3 DEPRESS "START" KEY ON CONSOLE

4. STARTING PROCEDURE

.....  
ONLINE DIAGNOSTIC REQUIRES THAT IT BE MAINTENANCE  
CABLED -SEE MANUAL FOR DETAILS  
.....

.....  
NEVER NEVER NEVER RUN THE ONLINE MAINTENANCE CABLED  
EXERCISER WHILE CONNECTED TO IBM  
.....

- A. SET SWITCH REGISTER TO 000200
- B. DEPRESS "LOAD ADDRESS" KEY
- C. DEPRESS START

THE PROGRAM WILL JUMP TO THE DIAGNOSTIC MONITOR AND  
TYPE OUT THE OPERATING INSTRUCTIONS, THIS IS ONCE ONLY  
CODE, TO RETYPE THE OPERATING INSTRUCTION THE OPERATOR  
MAY EITHER RELOAD THE PROGRAM OR LOAD THE ADDRESS  
"MONITOR" IN THE SWITCH REGISTER AND DEPRESS START.

4.1 CONTROL SWITCH SETTINGS

- SR 15 HALT ON ERROR
- SR 14 SCOPE ON TEST OR ERROR
- SR 13 INHIBIT PRINTING
- SR 12 TYPE SHORT ERROR REPORT
- SR 11 INHIBIT INTERACTIONS
- SR 10 CONTROL MAINTENANCE CLOCK (MAINT, CLK; TEST ONLY)
- SR 9 ODI TRAP ON ERROR

! .REM

- ! SR 2 MULTIPLEXER CHANNEL
- ! SR 1 SET BUSY ENABLE

! .REM

4.2 STARTING ADDRESSES

ADDRESSES	COMMENT
000200	NORMAL START

WITH 200 LEFT IN THE SWITCHES THE PROGRAMS  
TYPE OUT FULL INSTRUCTIONS ONCE AND  
ABBREVIATED INSTRUCTIONS THEREAFTER,  
WITH THE SWITCHES ZERO THE PROGRAMS SET  
UP EITHER THE DEFAULT OR PREVIOUSLY

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SELECTED PARAMETERS AND IMMEDIATELY ASKS  
FOR THE DYNAMIC SWITCH SETTINGS

MONITOR RELOAD TAPE FOR RETYPING OF INSTRUCTIONS

000042 IF THIS LOCATION IS NONZERO THE PROGRAM ASSUMES  
IT IS RUNNING UNDER ACT11 OR DDP AND USES THE  
DEFAULT PARAMETERS

0.ODT ENTRANCE TO ODT-11X VERSION V006A.ODT  
MAY START THE PROGRAM BY TYPE 2001G  
<CR>, (MAINTENANCE CLOCK TESTS ONLY)

NOTICE! HE WHO USES ODT IN A MEANS OTHER THAN EXPLICITLY  
DIRECTED BY THIS DOCUMENT DOES SO AT HIS OWN RISK,

5. OPERATING PROCEDURE

STARTING FROM 200 WITH SR<07> UP CAUSES THE FOLLOWING GENERAL  
TYPEOUT:  
MAINDEC-11-DE20XX-X00 (TEST DESCRIPTION) (APR 74)

TYPE1 <D>, FOR DEFAULT PARAMETERS  
<P>, FOR PREVIOUS PARAMETERS  
<S>, FOR SELECT PARAMETERS  
<N>, FOR START WITH THIS TEST NUMBER

(5. CONT'D)

D. P. S. N?

IN RESPONSE TO THIS LAST QUESTION THE OPERATOR IS REQUIRED  
TO TYPE ONE OF THE LETTERS IN THE STRING. AT AUTO START  
TIME THE PROGRAM FIRST SETS UP ALL THE DEFAULT PARAMETERS  
"DEFAULT PARAMETERS" MEANS THE SET OF OPERATING VARIABLES  
SELECTED AT THE FACTORY. FOR EXAMPLE, THE DEFAULT ADDRESS  
IS 176200, THE DEFAULT VECTOR ADDRESS IS 300. THEREFORE, AT  
AUTO START TYPING "P" FOR PREVIOUSLY SELECTED PARAMETERS IS  
EQUIVALENT TO TYPING "D" FOR DEFAULT PARAMETERS.

IF ANY CHARACTER OTHER THAN ONE IN THE STRING IS TYPE THE  
MONITOR WILL REJECT THE CHARACTER AND RETYPE THE STRING.

IF, IN RESPONSE TO THE STRING, THE OPERATOR TYPES AN "S" THE  
SELECTION SEQUENCE IS ENTERED AND THE FOLLOWING DIALOGUE  
TAKES PLACE,

NOTE! THESE ARE THE DEFAULT PARAMETERS; TYPING <D> IS  
EQUIVALENT TO TYPING THE DEFAULT PARAMETERS,

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TEST NUMBER: 1  
BASE ADDRESS: 176200  
VECTOR ADDRESS: 300  
DX PRIORITY LEVEL: 4  
TYPE CU ADRS'S IN HEX <CR><LF>; <CR><CR> TERMINATES LIST  
ADRS: 10 (THIS IS IN HEX)  
DEVICES PER CU: 20 (THIS IS IN OCTAL)  
LIST ALL LEGAL COMMANDS  
COMMAND:  
SET SWITCHES

AT ANY TIME DURING THE "SELECTION SEQUENCE A CONTROL C  
MAY BE TYPED AND THE MONITOR WILL ASK AGAIN "D,P,S,N?";

"TEST NUMBER!"

HERE THE MONITOR IS ASKING FOR THE NUMBER OF THE FIRST TEST  
IN THE CHAINING SEQUENCE, THE DEFAULT ANSWER IS "1" ONE,  
THE FIRST TEST IN THE CHAIN, IT MAY BE THAT THE OPERATOR IS  
ONLY INTERESTED IN THE LAST FEW TESTS AND THEREFORE WOULD  
TYPE 22 OR WHATEVER, AT THIS WRITING THERE IS NO CHECK TO  
SEE IF THE OPERATOR SELECTED A NONEXISTANT TEST NUMBER (E.G.  
P1, 2, 4 MEG), SEE TABLE OF CONTENTS IN BEGINNING OF  
LISTING,  
-TYPING <CR> WILL DEFAULT THIS PARAMETER

(5: CONT'D)

"BASE ADDRESS: 176200"

THIS IS THE BASE ADDRESS FOR THE DX11 AND IS ALSO THE ADDRESS OF THE DXDS,  
-TYPING <CR> WILL DEFAULT THIS PARAMETER

"VECTOR ADDRESS: 300"

THE DX11 IS CUT TO INTERRUPT TO ADDRESS 300 AT THE FACTORY;  
ON SITE THE DX FOLLOWS, DC'S KL'S DP'S, DM'S DN'S, DMDB'S,  
DR11'S, DR11A, DR11B, TYPESETTING AND BUS SWITCHES;  
-TYPING <CR> WILL DEFAULT THIS PARAMETER

"TYPE CU ADRS'S IN HEX <CR><LF>; <CR><CR> TERMINATES LIST

ADRS: 10 <CR><LF>

ADRS: 20 <CR><CR>

THIS REQUEST IS FOR THE CONTROL UNIT'S HEXIDECIMAL ADDRESS  
OR ADDRESS'S, CAUTION!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
DO NOT EXCEED 16 ENTRIES OF CU ADDRESSES ; THE PROGRAM  
MAY SELF DESTRUCT ; , , IF THE SYSTEM REQUIRES THAT THERE BE  
MORE THAN 16 CU ADDRESSES THEN THE DIAGNOSTICS MUST BE  
RUN AGAIN FOR THOSE EXCEEDING 16 CAUTION!!!!  
IN MAINTENANCE CLOCK 1 DIAGNOSTIC THE M900 MUST



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NOT BE CUT FOR MORE THAN 16 CU ADDRESSES

THE IBM CONTROL UNITS ADDRESSES ARE SPECIFIED IN HEXADECIMAL.  
FOR CONTROL UNIT 010(16) THE  
RESPONSE TO ADRS1 IS 10(HEX) WHICH IS 00010000(2).  
THE DX11 CAN EMULATE UP TO 128(10) CONTROL  
UNITS WITH 1 DEVICE EACH OR 1 CONTROL UNIT WITH 128(10)  
DEVICES OR AS IS THE DEFAULT CASE 1 CONTROL UNIT WITH 16(10)  
DEVICES. THE ADRS1 AND RESPONSE WILL CONTINUE  
INDEFINITELY AS LONG AS <CR><LF> IS TYPED FOLLOWING THE  
CU ADDRESS. THE LIST IS TERMINATED BY TYPING <CR><CR>.  
NOTE!!!! TYPING <CR><CR> IN RESPONSE TO THE FIRST ADRS1  
WILL DEFAULT THE CU ADDRESS TO 00 AND WILL ALSO  
TERMINATE THE LIST. (DEFAULT=10 HEX). THE ACTUAL # MUST BE TYPED IN

"DEVICES PER CUI 20"

THE RESPONSE TO THIS INPUT REQUEST IS IN OCTAL AND REPRESENTS  
THE NUMBER OF DEVICES THIS CONTROL UNIT SERVICES. A DX11  
EMULATED CONTROL UNIT CAN SERVICE FROM 1 TO 200(8) DEVICES.  
NOTE!!!! TYPING <CR> IN RESPONSE TO DEVICES PER CUI  
WILL DEFAULT TO 0. THEREBY CAUSING AN ILLEGAL NUMBER  
OF DEVICES PER CU MESSAGE. THE ACTUAL # MUST  
BE TYPED IN. (DEFAULT=20 OCTAL)  
THIS DIAGNOSTIC WILL REJECT <1 AND >20 DEVICES PER CU

(5. CONT'D)

A CHECK IS MADE HERE TO INSURE THAT THE OPERATOR  
DID NOT ASSIGN AN IMPOSSIBLE NUMBER OF DEVICES  
FOR EACH CONTROL UNIT.

TYPE CU ADIS'S IN HEX <CR><LF>: <CR><CR> TERMINATES LIST  
ADRS1 00  
DEVICES PER CUI 0  
ILLEGAL NUMBER OF DEVICES PER CU  
DEVICES PER CUI 4  
LIST ALL LEGAL COMMANDS  
COMMAND1

WHEN A "4" WAS TYPED IN RESPONSE TO DEVICES PER CUI,  
THE NUMBER WAS ACCEPTED AND THE MONITOR CONTINUED.

NOTICE: OFFLINE & ONLINE DIAGNOSTICS REQUIRE AT LEAST TWO CU DEVICE ADDRESSES  
FOR TESTING MULTIPLEXOR FUNCTIONS. THE M900 MUST ALSO BE STRAPPED FOR >1

"LIST ALL LEGAL COMMANDS"  
COMMAND1 400<CR>  
STATUS1 0 <CR><LF> TO CONTINUE LIST  
<CR><CR> TO TERMINATE LIST

THIS FACILITY WAS BUILT INTO THE DIAGNOSTIC TO ENABLE THE  
OPERATOR TO BUILD HIS OWN DEVICE STATUS TABLE (DST).  
A <CR> IN RESPONSE TO COMMAND1 ASSUMES THE DEFAULT DST;

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THE FIRST ENTRY MUST BE NONZERO, THEREFORE IF YOU WISH YOUR FIRST COMMAND TO BE A TIO=0 YOU MUST TYPE IT IN WITH PARITY (E.G, 400), FOLLOWING THE COMMAND THE MONITOR WILL ASK FOR THE CORRESPONDING STATUS;  
-TYPING <CR> WILL DEFAULT THIS PARAMETER

"SET SWITCHES"

HERE THE MONITOR ASKS FOR THE CONSOLE SWITCH SETTINGS.

SW<15> HALT ON ERROR  
SW<14> SCOPE LOOP  
<SW13> INHIBIT ERROR PRINTOUT  
SW<12> SHORT ERROR REPORT  
SW<11> INHIBIT ITERATIONS  
SW<10> MAINTENANCE CLOCK CONTROL (MAINTENANCE TESTS ONLY)  
SW<9> ODT TRAP ON ERROR

!  
.REM !

SW<2> MUX MODE  
SW<3> BSVEN MODE

!  
.REM !

LOAD THE SWITCH REGISTER WITH THE APPROPRIATE FUNCTION AND TYPE <CR>.

## 5.2 PROGRAM AND/OR OPERATOR ACTION

THE TYPICAL APPROACH SHOULD BE

1. HALT ON ERROR WHEN AN ERROR HALT OCCURS
2. CLEAR SW<15>
3. SET SW<14>, SCOPE
4. TYPE <P> FOR PROCEED IF ODT WAS SELECTED (S19=1), OR PRESS CONTINUE ON THE CONSOLE IF ODT WAS NOT SELECTED SW9=0 IF ERROR IS REPETITIVE;
5. SET SW<13> AND SCOPE ERROR

THE ERROR PC SHOULD BRING THE OPERATOR TO A POINT IN THE LISTING WHERE THE ERROR IS DOCUMENTED, THEN USING THE PRINTS AND THE FLOWS THE ERROR CAN BE TRACED TO ITS SOURCE;

!  
.REM !

AT ANY TIME DURING THE INITIALIZATION OR TESTING THE OPERATOR CAN TYPE CONTROL C AND CONTROL WILL BE RETURNED TO THE MONITOR, SOME TESTS ARE 5-10 SECONDS IN DURATION SO

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THE RESPONSE TO THE CONTROL C WILL NOT BE INSTANTANEOUS,  
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.REM  
THE RESTART ADDRESS IS 200; IF THIS ADDRESS IS LEFT IN THE  
CONSOLE SWITCH WHEN "START" IS PRESSED THE MONITOR WILL TYPE  
OUT D,P,S,N? IF THE SWITCHES ARE ZEROED THE TYPE WILL BE  
"SET SWITCHES",  
  
THERE ARE TWO CALIBRATION TESTS (MAINT CLK1) THAT SHOULD BE RUN IN  
SCOPE MODE(T19 & T10); IT IS QUITE POSSIBLE THAT USING THE STANDARD  
OPERATIONS PROCEDURE PREVIOUSLY SUGGESTED THAT THE OPERATOR  
WILL FALL NATURALLY INTO THESE CALIBRATION TESTS. IF THE  
SYSTEM HAS BEEN BROUGHT UP ONCE BEFORE AND THE OPERATOR  
WISHES TO CHECK THE CALIBRATION THE FOLLOWING PROCEDURE  
SHOULD BE FOLLOWED!  
  
1. EXAMINE TABLE OF CONTENTS FOR THE TEST NUMBER (N) OF  
CALIBRATION ROUTINES,  
2. TYPE N IN RESPONSE TO D,P,S,N?  
3. PUT SW<14> UP IN RESPONSE TO "SWITCH SETTINGS"  
4. TYPE <CR> IF ERROR TYPE OUT OCCURS SET SW<13>.  
  
5.2.1 MAINTENANCE CLOCK CONTROL (MAINTENANCE CLK1 & CLK2 DIAG. ONLY)  
  
WHEN SWITCH 10 IS SELECTED AND A MAINTENANCE CLOCK  
PROGRAM IS BEING RUN THE EXECUTION OF THE JSR PC, CLK  
SUBROUTINE WILL CAUSE A BREAK POINT TRAP TO ODT AND A  
TYPEOUT OF THE FOLLOWING FORMAT WILL OCCUR!  
  
AAAAAA 00INNNNN  
0  
  
THIS INDICATES THAT THE PROGRAM WAS TRAPPED TO ODT  
AND IS AWAITING THE COMMAND TO "PROCEED BEFORE EXECUTING  
THE NUMBER OF MAINTENANCE CLOCK PULSES SPECIFIED BY JSR PC,  
CLK N.  
UPON TYPING "P" THE PROGRAM WILL CONTINUE FROM LOCATION  
AAAAAA;  
  
THIS IS A USEFUL FEATURE IN SEVERAL  
RESPECTS. FIRST, IT ALLOWS THE OPERATOR TO SINGLE  
STEP THROUGH THE FLOWS; THE LISTING AIDS HERE ALSO IN  
THAT IT HIGHLIGHTS THE PHASE AND STATE; IN ADDITION  
TO WALKING THROUGH THE FLOWS THIS FEATURE ALSO ALLOWS THE  
OPERATOR TO EXAMINE DONE DISPLAYED DX REGISTERS AND  
KEY MEMORY LOCATIONS.  
  
IT IS REQUIRED THAT ONLY THE FOLLOWING ODT COMMANDS BE USED  
N/ OPENS WORD N  
P PROCEED FROM BREAK POINT  
N/B GOES TO WORD N AND STARTS PROGRAM  
<CR> CLOSSES OPEN LOCATION (CARRIAGE RETURN)  
<LF> OPENS NEXT LOCATION (LINE FEED)

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\*C CONTROL C, RETURN TO DIAGNOSTIC MONITOR  
ANY OTHER COMMANDS ARE USED AT THE OPERATORS OWN RISK.  
IF OTHER COMMANDS ARE USED THE DX AND THEREFORE THE DIAG-  
NOSTIC MAY BEHAVE STRANGELY, PLEASE RELOAD.

A TYPICAL SEQUENCE

SET SWITCHES

005536 001017044  
OP PROCEED

005640 001017044  
OP PROCEED

006032 001017044  
0176204/000900 EXAMINE 0xCS  
176206 /009000 EXAMINE 0xOS  
176210 /00300 EXAMINE 0xBA  
OP PROCEED

006504 001017044  
P CONTROL C  
D,P,S,N? MONITOR MODE

6. ERRORS

TYPICALLY ERROR REPORTS TAKE THE FOLLOWING FORMAT.

ERROR PCI 017274  
ERROR IN TEST: 17  
CUADRS/MOI 000020  
001020742

THIS INDICATES THAT WHILE EXECUTING TEST #17 ON ERROR STATE  
WAS DETECTED AND IS DOCUMENTED AT PROGRAM COUNT 017274;  
THE CONTRL UNIT UNDER TEST OF THE TIME OF ERROR WAS  
20(0) AND THE IBM COMMAND WAS A NOP, IN SEVERAL CASES  
THE COMMAND IS OF NO SIGNIFICANCE.

IF SWITCH 0 IS UP THE ERROR REPORT GENERATOR WILL  
BREAK TO OUT AS INDICATED BY "00;NNNNNN", HERE AGAIN  
THE POWER OF ODT MAY BE USED TO COLLECT ADDITIONAL  
DATA CONCERNING THE FAULT.

A TYPICAL APPROACH MIGHT BE (AFTER COLLECTING DATA):  
TYPE CONTROL C, RESULTS:

D,P,S,N? N  
TEST NUMBER: 17  
SET SWITCHES

IN RESPONSE TO SWITCHES SET THE FOLLOWING

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SR<15>00 HALT ON ERROR  
SR<14>01 SCOPE  
TYPE <CR>

IF THE ERROR IS REPEATABLE SET SR<13>, INHIBIT PRINT  
AND GO AT IT.  
NOTICE: A TYPE OUT OF THE FORMAT BE;NNNNNN INDICATES  
A BREAK POINT ERROR AT NNNNNN, THIS IS AN ODT ERROR  
AND CAN BE CAUSED BY 1; PLAYING GAMES WITH ODT OR  
2; AN ILLEGAL BREAK TRAP 1;E, Y BIT SET OR EXECUTE  
A 000003.

(6; CONT'D)

DURING MAINTENANCE CLOCK TESTS THERE EXISTS A SUBROUTINE  
CALLED CHKREG; THIS ROUTINE EXAMINES ALL THE DX11  
REGISTERS AND VERIFIES THAT THEY ARE IN THE EXPECTED STATE,  
CHKREG HAS A SPECIAL ERROR TRAP THAT RESULTS IN THE  
FOLLOWING TEXT:

ERROR PC: 017440  
ERROR IN TEST: 17  
QUADRS/MO: 000020  
ORIGIN OF MAP ERROR 017602  
REGISTER-CONTENTS-MAP

DXM: 170777 000400 (DXM: IS UNREADABLE IGNORE THIS COMPARE)  
DXC: 074000 000000 (PHASE AND STATE FLOPS ARE NOT TRACED)  
DXE: 000014 000010 (ERROR CONDITION IS THAT BIT2 IS SET)  
00:020742  
.

D.P.S.N?

IN THIS REPORT THE REGISTERS ARE NAMED (UNDER REGISTER)  
AND THEIR CONTENTS DUMPED (UNDER CONTENTS) SO THAT IT MAY  
BE COMPARED WITH THE EXPECTED STATE IN THE MAP (UNDER MAP);

THERE ARE TWO ANOMALIES HERE:

- 1; THE DXM: IS OFTEN UNREADABLE THEREFORE IF THE DXM:  
IS ALL ONES OR ALMOST ALL ONES DISREGARD THE COMPARISON  
IT WAS NOT MADE;
- 2; THE PHASE AND STATES FLOPS ARE NOT COMPARED SO THAT  
CHKREG CAN BE USED IN ROUTINE WITH FREE RUNNING CLOCKS;

THIS MEANS THAT THERE MUST BE A DIFFERENCE BETWEEN  
CONTENTS AND MAP IN A REGISTER OTHER THAN THE DXM: OR BITS  
OTHER THAN 074000;

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THE EXERCISER PROGRAMS DO TUMBLE TABLE TRACING ON INTERRUPT,  
IN THE EVENT OF A TRACE ERROR THE PROGRAM WILL TYPE OUT:

TT TRACE ERROR IN TEST: N1  
ORIGIN OF LAST TT UPDATE: N2  
TT ENTRY HAS: "WHATEVER"  
EXPECTED ENTRY: "WHATEVER +1"  
TT POINTER N3

THEN PROCEED WITH THE NORMAL ERROR REPORT, THE ADDRESS XXXXXX  
SPECIFIES THE LOCATION WHERE THE EXPECTED TT ENTRIES WERE  
LAST UPDATED.

EXERCISER ERROR REPORTS ALSO INDICATE THE  
DX MODE WHEN THE ERROR OCCURED: MULTIPLEXOR OR BUSYEN  
(DX ONLINE AND DX OFFLINE EXERCISERS ONLY)

6.2 ERROR RECOVERY

IN THE EVENT THAT THE DX GETS STUCK IN AN UNRECOVERABLE  
PHASE AND STATE WHILE MAINTENANCE CLOCK ENABLE IS SET,  
DEPRESS HALT AND START; THEN LOAD ADDRESS 200 AND START.

ON BREAK POINT ERRORS RELOAD TAPE

7. RESTRICTIONS

7.1 STARTING RESTRICTIONS

SEE SECTION 4.2

7.2 OPERATING RESTRICTIONS

oooooooooooooooooooo

NEVER NEVER NEVER RUN THE ONLINE-MAINTENANCE-CABLED  
EXERCISER WHILE CONNECTED TO IOM

oooooooooooooooooooo

8. MISCELLANEOUS

MAINT: CLK1 DIAGNOSTIC ONLY!!!!!!  
AT THE END OF THE PROGRAM IT WILL TYPE "END TEST SET SMS01?";  
THIS IS TO SIGNIFY THAT SMS MUST BE SET AT LEAST ONCE DURING THE  
USE OF THIS DIAGNOSTIC; IT IS NOT NECESSARY TO LEAVE SMS=1  
AS IT CONSUMES TOO MUCH DIAGNOSTIC TIME. BASICALLY THIS OPENS  
THE TEST THAT CHECKS THAT YOU HAVE CORRECTLY ANSWERED ALL THE  
CU ADDRESSES & DEVICES/CU QUESTIONS CORRECTLY;... IF YOU LIED  
IT WILL CATCH IT; IE; IF YOU ANSWERED THE DEVICES PER CU  
WITH 10(0) AND IN ACTUALITY THE DEVICES PER CU ARE CUT TO

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4 ON THE M900, THIS TEST WILL CATCH THE ERROR;  
WHEN SW3=1 PROGRAM RUN TIME IS GREATLY INCREASED  
AS IT CHECKS ALL OTHER ADDRESSES FOR ADRECC & ADRECD.

DX ONLINE & DX OFFLINE EXERCISERS!!!!!!  
THESE PROGRAMS WILL DEFAULT TO AUTOMATICALLY SETTING  
SW1=1 & SW2=1, HOWEVER, TO EXECUTE THEIR FUNCTIONS EARLY IN  
THE PROGRAM RUN TIME. SET THEM BEFORE STRIKING <CR> WHEN  
THE MONITOR ASKS "SET SWITCHES"  
NOTE: AT LEAST 2 DEVICES/CU MUST BE STRAPPED ON M900

8.1 EXECUTION TIME

THE EXECUTION TIME OF EACH PROGRAM IS VARIABLE AND IS A  
FUNCTION OF THE PROGRAM LENGTH AND THE CONTROL UNIT  
ADDRESS STRUCTURE, IN GENERAL THEY RUN 10 TO 20 MINUTES.

9. PROGRAM DESCRIPTION

CONTAINED WITHIN LISTING.

10. LISTING

FOLLOWING

11. FLOW CHARTS

SEE PRINT SET

!  
.LIST MD

.REM \*

MAINDEC=114DZDXG=C0D  
COPYRIGHT 1974 DIGITAL EQUIPMENT CORP,  
146 MAIN ST, MAYNARD, MA, 01754  
MAINTAINER: DIAGNOSTICS  
AUTHOR: JOHN FRIEDRICH

..... MOD APR 74 .....

! REVISION BY W. ARMSTRONG

.SBTTL DYNAMIC SWITCH SETTINGS (SWH #1)

! DYNAMIC SWITCH REGISTER SETTINGS

!	SWR0	SIGNIFICANCE1
!	SET = ONE	
!	SWR 15	"HALT ON ERROR"
!	SWR 14	"SCOPE LOOP"

649	JO	SWR 13	"INHIBIT ERROR REPORT"
650	JO	SWR 12	"SHORT ERROR REPORT"
651	JO	SWR 11	"INHIBIT ITERATIONS"
652	JO		
653	JO	SWR 02	"MUX MODE"
654	JO	SWR 01	"BSYEN MODE"
655	JO		
656	JO		"USER CHANGE INFORMATION"
657	JO		"DUE TO REVISION APR 74"
658	JO		"PLEASE READ INFO BELOW"
659	JO		
660	JO	NOTE:	
661	JO		AN OPERATOR RESPONSE OF "0" TO THE PROGRAM
662	JO		"TTY" REQUEST FOR "DEVICES PER CUI" IS NO
663	JO		LONGER DEFAULTED TO 20 (16 DECIMAL), I.E.
664	JO		
665	JO	DEVICES PER CUI 0	"ILLEGAL ?"
666	JO		
667	JO		THE HEADER "CU CHANNEL ADDRESS" USED ON ERROR
668	JO		OUTPUT HAS BEEN CHANGED TO "CUADRS/MOI", I.E.
669	JO		IT SIGNIFIES EITHER THE CONTENTS OF THE "DXMO"
670	JO		REGISTER OR THE CONTROL UNIT BASE ADDRESS WHERE
671	JO		MEANINGFULL,
672	JO		
673	JO		..... MOD APR 74 .....



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IDXDS, DX DEVICE STATUS BITS

100000	PARER #100000	IERRORS
040000	NXM # 40000	INONEXISTANT MEMORY REFERENCE
020000	SELRST# 20'00	IION RESETS; SELECTIVE RESET
010000	SYSRST# 10000	I SYSTEM RESET
004000	INFDSC# 4000	I INTERFACE DISCONNECT
034000	IBMRST# SELRST;SYSRST;INFDSC	
002000	UCHKS # 200	I STATUS FLAGS
001000	CHEND# 1000	ICHANNEL END SENT
000400	BSYS # 300	IBUSY SENT
000200	CHIS # 200	ICHANNEL INITIATED SELECTION
000100	ESEND # 300	IENDING STATUS END
000040	CHDEND# 40	ICM DATA END
000020	CUDEND# 20	ICU DATA END
000010	ISSREJ# 10	IISS REJECT
000004	CHDCHN# 4	ICOMMAND CHAINING
000002	STKST0# 2	ISTACKED STATUS 0
000001	CHDREJ# 1	ICOMMAND REJECT

IDXCS,DX CONTROL UNIT STATUS BITS

100000	PARSTP#100000	I STOP ON BOSO PARITY ERROR
040000	CUPDM # 40700	ISELECT FORCED BURST
020000	ENDEN # 20000	I'CUEND'
010000	CS12 # 10000	INOT USED
004000	BSYEN # 4000	IENABLE SET 'CUBSY'
002000	CS10 # 2300	INOT USED
001000	ONLINE# 1000	IONLINE A
000400	CUBSY # 400	ICU BUSY
000200	DONE # 200	IFUNCTION DONE
000100	INTEN # 100	IINTERRUPT
000040	STKSTAP# 40	ISTACKED STATUS
000030	XBA # 30	IEXTENDED BASE ADDRESS
000006	PCYN # 6	
000001	DXPRS # 1	I'PCYN # 60
000003	DXPI # 3	IREAD (INPUT)
000005	DXPO # 5	IWRITE (OUTPUT)
000007	DXPST # 7	I STATUS
000001	GO # 1	I BEGIN FUNCTION

IDXOS DX OFFSET (CUOR) AND STATUS (CUSR) BITS

000200	ATTEN #200	IATTENTION
000100	STAMOD#100	I STATUS MODIFIER
000040	CUEND # 40	ICU END
000020	BSY # 20	IBUSY
000010	CHEND # 10	ICM END
000004	DEVEND# 4	IDevice END
000002	UCHECK# 2	IUNIT CHECK
000001	UEXCEPT# 1	IUNIT EXCEPT

728		IXMO DX MAINTENANCE-OUT BITS	
729			
730		ISELECTION CONTROL LINES	
731	100000	OPLO = 100000	OPERATIONAL OUT
732	040000	WLDO = 40000	HOLD OUT
733	020000	SELO = 20000	SELECT OUT
734	010000	SUPO = 10000	SUPPRESS OUT
735			
736		ITAG LINES	
737	004000	ADRO = 4000	ADDRESS OUT
738	002000	CMDO = 2000	COMMAND OUT
739	001000	SRVO = 1000	SERVICE OUT
740	000400	PARO = 400	PARITY OFF FOR BUS OUT
741		IXMI DX MAINTENANCE-IN BITS	
742			
743		ISELECTION CONTROL LINES	
744	100000	OPLI = 100000	OPERATIONAL IN
745	040000	SELI = 40000	SELECT IN
746	020000	REQI = 20000	REQUEST IN
747			
748		ITAG LINES	
749	010000	ADRI = 10000	ADDRESS IN
750	004000	STAI = 4000	STATUS IN
751	002000	SRVI = 2000	SERVICE IN
752	001000	CLKI = 1000	OK TO GO ONLINE (RB)
753	000400	PARI = 400	BUS PARITY (RB)
754			
755		IXCB DX CONTROL BITS	
756			
757	100000	LOCKO = 100000	LOCK OUT
758	074000	PHS = 074000	PHASE = STAVE BITS
759	002000	FASTCU = 2000	FAST CU
760	001000	SYNO = 1000	SYNCHRONIZATION
761	000400	CUDX = 400	CU DATA CONTROL
762	000200	IOD = 200	INPUT OUTPUT DONE
763			
764			
765	000100	BYPAS = 100	INPR CONTROLS
766	000040	NPRX = 40	BYPASS
767	000020	NPRY = 20	INPR CONTROL SWITCH
768	000010	BALF = 10	INPR TRANSFER DIRECTION
769	000004	ONLIND = 4	BUFFERED ALTERNATOR FLOP
770	000002	ADRECC = 2	ON LINE TO IBM
771	000001	ADRECD = 1	ADDRESS RECOGNITION (CU)
772			ADDRESS RECOGNITION (DEVICE)
773		IXES DX EXTRA SIGNALS	
774			
775	000001	MCLKP=1	MAINTENANCE CLOCK PULSE
776	000002	MCLKEN=2	MAINT, CLK ENABLE
777	000004	SOSIEN=4	SRVO-SRVI ENABLE
778	000010	TINDIS=10	TIMER(9 SEC) DISABLE
779	000020	DXTO=20	DX TIMEOUT (9 SEC)
780	000040	NPRTO=40	INPR TIMEOUT (8 MICROSEC)
781	000200	INTREQ=200	INTERRUPT REQUEST

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060000

IDXES1 DX EXTRA EXTRA SIGNALS

IRS =1  
DSCRSP =2

IIBM RESET STORED  
IDISCONNECT RESPONSE

IDFINE REGISTER MAP INDICES

DS0 00  
CA0 02  
CS0 04  
OS0 06  
BA0 10  
BC0 12  
MO0 14  
MI0 16  
CB0 20  
ND0 22  
ES0 24

IPHASE CONTROL FLOPS OF DXCB

PHASE000000  
PHASE1010000  
PHASE2020000  
PHASE3030000  
PHASE4040000  
PHASE5050000  
PHASE6060000  
PHASE7070000

ITIME STATE FLOP AND STATE DEFINATION

TSSP04000  
TSI04000  
TS20000

IPHASE AND STATE DEFINITIONS

PH0010 PHASE01 TS1  
PH0020 PHASE01 TS2  
PH0110 PHASE11 TS1  
PH0120 PHASE11 TS2  
PH0210 PHASE21 TS1  
PH0220 PHASE21 TS2  
PH0310 PHASE31 TS1  
PH0320 PHASE31 TS2  
PH0410 PHASE41 TS1  
PH0420 PHASE41 TS2  
PH0510 PHASE51 TS1  
PH0520 PHASE51 TS2  
PH0610 PHASE61 TS1  
PH0620 PHASE61 TS2

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836      074000      PH971= PHASE71 TS1
837      070000      PH972= PHASE71 TS2
838
839      .SBTTL MISCELLANEOUS DEFINITIONS
840
841      104400      SCOPE=TRAP      ISCOPE LOOP TRAP
842
843      100000      BIT15=100000
844      040000      BIT14=40000
845      020000      BIT13=20000
846      010000      BIT12=10000
847      004000      BIT11=4000
848      002000      BIT10=2000
849      001000      BIT9=1000
850      000400      BIT8=400
851      000200      BIT7=200
852      000100      BIT6=100
853      000040      BIT5=40
854      000020      BIT4=20
855      000010      BIT3=10
856      000004      BIT2=4
857      000002      BIT1=2
858      000001      BIT0=1
859      000000      HERE=0
860
861      ICHANNEL COMMANDS WITH PARITY
862
863      000400      TIOC=400      ITEST I/O
864      000001      WRITEC=001      IWRITE
865      000002      READC=002      IREAD
866      000403      NOPC=403      INOP
867      000004      SENSEC=4      ISENSE
868      000405      ILLC=405      IILLEGAL COMMAND
869
870      IUTILITY FLAGS
871
872      100000      INTOK=100000
873      000002      DOPLIN=2      ISPW BIT FOR NO DST I
874
875      ICHANNEL STATUS
876
877      000010      CE=10      ICH END
878      000004      DE=4      IDEVICE END
879      000002      UC=2      IUNIT CHECK
880      000200      ATTN=200      IATTENTION
881      000100      SM=100      ISTATUS MODIFIER
882      000040      CUE=40      ICU END
883      000020      OSY=20      IBUSY
884
885      ISWITCH DEFINITIONS
886
887      100000      WLTSH=BIT15      IHALT ON ERROR
888      040000      LOPSH=BIT14      ILOOP ON ERROR
889      020000      PNTSH=BIT13      IINHIBIT PRINT
  
```

890	010000	SESW=BIT12	ISHORT ERROR SWITCH
891	004000	ISW=BIT11	IINHIBIT ITERATIONS
892	002000	MCCSW=BIT10	MAINTENANCE CLOCK CONTROL
893			
894		IPROCESSOR PRIORITY LEVELS	
895			
896	000000	LEVEL0= 000	
897	000040	LEVEL1= 04%	
898	000100	LEVEL2= 100	
899	000140	LEVEL3= 14%	
900	000200	LEVEL4= 20%	
901	000240	LEVEL5= 24%	
902	000300	LEVEL6= 300	
903	000340	LEVEL7= 340	
904			
905		IREGISTER DEFINITIONS	
906			
907	000000	R0=X0	
908	000001	R1=X1	
909	000002	R2=X2	
910	000003	R3=X3	
911	000004	R4=X4	
912	000005	R5=X5	
913	000005	TTY=X5	
914	000006	R6=X6	
915	000006	SP=X6	ISTACK POINTER
916	000007	PC=X7	IPROGRAM COUNTER
917			
918	000054	TYPE=IOT	
919	000240	NOP=240	
920	177776	PS=177776	IPROCESSOR STATUS
921	177570	SHR=177570	
922	177570	SR=177570	ISWITCH REGISTER
923			
924	000000	E=0	
925	011620	EMPTYABLE=EMPTYAG	
926			
927		IEMT DEFINITIONS	
928			
929	001004 104000	ERROR	ITRAPS TO T,ERROR
930	001006 104001	MAPERR	ITRAPS TO T,MAPERR
931	001010 104002	TRACER	ITRAPS TO T,TRACER
932	001012 104003	SAVRG	ITRAPS TO T,SAVRG
933	001014 104004	RSTRG	ITRAPS TO T,RSTRG
934	001016 104005	ACCEPTO	ITRAPS TO T,ACCEPTO
935	001020 104006	KEY.TO,R0	ITRAPS TO T,KEY.TO,R0
936	001022 104007	PARITY	ITRAPS TO T,PARITY
937	001024 104010	PCH1	ITRAPS TO T,PCH1
938	001026 104011	PCH2	ITRAPS TO T,PCH2
939	001030 104012	PCH3	ITRAPS TO T,PCH3
940			
941		.SBTTL TRAP DEFINITIONS	
942			
943		ITRAP INITIALIZATION	

```

944
945
946 000014 000014 000340      .#14      O,BRK,LEVEL7      IBREAK TRAP
947
948
949 000020 000020 000340      .#20      .IOT,LEVEL7      ITTY OUTPUT TRAP,LEVEL 7
950
951
952 000024 000024 000340      .#24      PFAIL,LEVEL7      IPOWER FAIL TRAP
953
954
955 000030 000030 000340      .#30      EMYDECODER,LEVEL7 IEMT DECODER TRAP,LEVEL 7
956
957
958 000034 000034 000340      .#34      SCOPEG,LEVEL7     ISCOPE TRAP
959
960
961
962
963 000200 000137 001100      .#200     START: JMP      @BEGIN      IGO TO BEGINNING OF PROGRAM
964
965
966
967 001100 012706 001100      .#100     BEGIN: MOV     @BEGIN,SP     ISET UP STACK POINTER
968 001104 012737 000340 177776      MOV     @LEVEL7,PS        IPRIORITY LEVEL 7
969
970
971
972
973 001112 012737 000002 006706      ;..... MOD APR 74 .....
974 001120 012737 001154 000010      ;0      11/40,11/45 TRACE TRAP
975 001126 012737 000340 000012      MOV     @2,RTX
976 001134 005046      MOV     @1,ITB,@010
977 001136 012746 001144      MOV     @340,@012
978 001142 000006      CLR     -(SP)
979 001144 012737 000006 006706      MOV     @1,ITZ,-(SP)
980 001152 000402      RTT
981 001154 002706 000010      INITB: MOV     @6,RTX
982 001160 013737 006706 006704      BR      INITC
983 001166 012737 000012 000010      INITB: ADD     @15,SP
984 001174 005037 000012      INITC: MOV     RTX,YESRTI
985
986
987
988 001200 005737 000042      MOV     @15,@010
989 001204 001404      CLR     @012
990
991
992
993 001216 005327 000001      TST     @042      IACT11
994 001222 001002      BEQ     @GN0      IBR IF NO
995 001224 000137 012450      JSR     PC,MONDFLY  IINSERT DEFAULT PARAMETERS
996 001230 032737 000200 177570      CLR     @00ONESHOT  IDO NOT EXECUTE TIME CONSUMING TESTS
997 001236 001402      JMP     @MON11
          BGNB1 DEC     @1
          BNE     @GN1
          JMP     @MONITOR
          BIT     @250,SR  ITEST FOR FAST START
          BEQ     @GN2      IBRANCH IF FAST START

```

998	001240	000137	012520		JMP	0#MON1,B	
999	001244	012706	001100		BGN2I	0#BEGIN,SP	
1000	001250	012737	000340	177776	MOV	0#LEVEL7,PS	
1001	001256	000137	013340		JMP	0#MON1,B	USE PREVIOUS PARAMETERS
1002							
1003							
1004					.SBTTL	DX REGISTERS	
1005							
1006	001262	176200			DXBASEI	176200	
1007	001264	000300			DXIVI	300	IDX INTERRUPT VECTOR ADRS
1008	001266	000302			DXISI	302	IDX INTERRUPT STATUS
1009	001270	000200			DXPRI	LEVEL4	INT PRIORITY ADRS
1010	001272	000140			LESS1	LEVEL3	IDX PRIORITY MINUS ONE
1011	001274	176200			DXDSI	176200	DEVICE STATUS =>TY
1012	001276	176202			DXCAI	176202	COMMAND AND ADDRESS =>TY
1013	001300	176204			DXCSI	176204	CONTROL UNIT STATUS
1014	001302	176206			DXOSI	176206	OFFSET AND STATUS
1015	001304	176210			DXBAI	176210	BUS ADDRESS FOR NPR'S
1016	001306	176212			DXBCI	176212	BYTE COUNT
1017	001310	176214			DXMOI	176214	MAINTENANCE OUT
1018	001312	176216			DXMII	176216	MAINTENANCE IN
1019	001314	176220			DXCBI	176220	CONTROL BITS
1020	001316	176222			DXNDI	176222	INPR DATA
1021	001320	176224			DXESI	176224	EXTRA SIGNALS
1022	001322	176226			DXMOB	176226	MAINTENANCE OUT BUFFERED
1023	001324	176230			DXESI	176230	EXTRA EXTRA SIGNALS
1024							
1025					.SBTTL	BYTE REGISTERS	
1026							
1027					IDXCA		
1028							
1029	001326	176202			CUARI	176202	ICU ADDRESS REGISTER
1030	001330	176203			CUCRI	176203	ICU COMMAND REGISTER
1031							
1032					IDXOS		
1033							
1034	001332	176206			CUSRI	176206	ICU STATUS REGISTER
1035	001334	176207			CUORI	176207	ICU OFFSET REGISTER
1036							
1037					IDXMO		
1038							
1039	001336	176214			BUSOI	176214	IIM BUS OUT
1040	001340	176215			CONOI	176215	CONTROL LINES OUT
1041							
1042					IDXMI		
1043							
1044	001342	176216			BUSII	176216	IIM BUS IN
1045	001344	176217			CONII	176217	CONTROL LINES IN
1046							
1047					IDXES		
1048	001346	176224			MISCI	176224	MISCELLANEOUS BITS
1049	001350	176225			TYNDXI	176225	TUMBLE TABLE INDEX REG
1050							
1051					IDXMOB		

1052  
 1053 001352 176226  
 1054 001354 176227  
 1055  
 1056  
 1057  
 1058 001356 177700  
 1059 001360 177701  
 1060 001362 177702  
 1061 001364 177703  
 1062 001366 177704  
 1063 001370 177705  
 1064 001372 177706  
 1065 001374 177707  
 1066  
 1067  
 1068  
 1069 001376 177560  
 1070 001400 177562  
 1071 001402 177564  
 1072 001404 177566  
 1073  
 1074  
 1075  
 1076 001406  
 1077 001406 000000  
 1078 001410 000000  
 1079 001412 000000  
 1080 001414 000000  
 1081 001416 000000  
 1082 001420 000000  
 1083 001422 000000  
 1084 001424 000000  
 1085 001426 000000  
 1086 001430 000000  
 1087 001432 000000  
 1088 001434 000000  
 1089  
 1090  
 1091  
 1092  
 1093 001436 002000  
 1094  
 1095  
 1096  
 1097 001440 003000  
 1098  
 1099  
 1100  
 1101 001442 019000  
 1102  
 1103  
 1104  
 1105

BUSOB1 176226  
 CONOB1 176227

IBUS OUT BUFFERED  
 ICONTROL OUT BUFFERED

IREGISTER ADDRESSES

REG01 177700  
 REG11 177701  
 REG21 177702  
 REG31 177703  
 REG41 177704  
 REG51 177705  
 REG61 177706  
 REG71 177707

ITTY ADDRESSES

TKS1 177560  
 TK01 177562  
 TPS1 177564  
 TP01 177566

IREGISTER TRACE TABLE

REGTT1  
 TDXDS1 0  
 TDXCA1 0  
 TDXCS1 0  
 TDXOS1 0  
 TDXBA1 0  
 TDXMO1 0  
 TDXMI1 0  
 TDXCB1 0  
 TDXND1 0  
 TDXES1 0  
 TDXES11 0  
 TTYNDX1 0

IREGISTER TRACE TABLE  
 IDEVICE STATUS TRACE  
 ICOMMAND AND ADDRESS TRACE  
 ICU STATUS TRACE  
 IOFFSET AND STATUS TRACE  
 IBUS ADDRESS TRACE  
 IMAINTENANCE OUT TRACE  
 IMAINTENANCE IN TRACE  
 ICONTROL BIT TRACE  
 INPM DATA TRACE  
 IEXTRA SIGNAL TRACE  
 IEXTRA SIGNAL TRACE 1  
 ITYNDX TRACE

ISTATUS POINTER WORD ADDRESS

SPW1 2000

ITUMBLE TABLE ADDRESS

TY1 3000

IDEVICE STATUS TABLE ADDRESS

DST1 DSTADRS IDST MUST BE MOD(400)

ISOTTL POWER FAIL



1106  
 1107  
 1108  
 1109  
 1110  
 1111  
 1112  
 1113  
 1114  
 1115  
 1116  
 1117  
 1118  
 1119  
 1120  
 1121  
 1122  
 1123  
 1124  
 1125  
 1126  
 1127  
 1128  
 1129  
 1130  
 1131  
 1132  
 1133  
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 1139  
 1140  
 1141  
 1142  
 1143  
 1144  
 1145  
 1146  
 1147  
 1148  
 1149  
 1150  
 1151  
 1152  
 1153  
 1154  
 1155  
 1156  
 1157  
 1158  
 1159

001444 104003  
 001446 010637 001606  
 001452 012737 001530 000024  
 001460 032777 020000 177622  
 001466 001417  
 001470 032777 100000 177614  
 001476 001001  
 001500 104000  
 001502 032777 004000 177602  
 001510 001001  
 001512 104000  
 001514 122777 000014 177620  
 001522 001401  
 001524 104000  
 001526 000000  
 001530 000240  
 001532 013706 001606  
 001536 104004  
 001540 012737 001444 000024  
 001546 013777 001436 177526  
 001554 004737 015376  
 001560 005027  
 001562 000000  
 001564 005337 001562  
 001570 001375  
 001572 000004 001610  
 001576 012637 177776  
 001602 000177 007646  
 001606 000000  
 001610 050137 053517 051105  
 001616 043040 044501 042514  
 001624 057504 000  
 001630  
 001630

```

;POWER FAIL ROUTINE
;IF SELECTED VERIFY STATUS=IN IS UP
;AND CE AND DE ARE PRESENTED AS STATUS

PFAILI SAVRG
MOV R0,SAVR6
MOV @PHRUP,24
BIT @S:LO,@DXMO
BEQ 15
BIT @OPLI,@DXMI
BNE ,+4 ;BRANCH IF NO ERROR CONDITION
ERROR
BIT @STAI,@DXMI
BNE ,+3 ;BRANCH IF NO ERROR CONDITION
ERROR
CMPB @CE|DE,@BUSI
BEQ ,+3 ;BRANCH IF NO ERROR CONDITION
ERROR
HALT

;POWER UP ROUTINE

PHRUPI NOP ;PATCH ANYONE?
MOV SAVR6,R0
RSTRG
MOV @PFAIL,24 ;RESTORE POWER FAIL VECTOR
MOV SPW,@DXOS ;RESTORE OFFSET REG
JSR PC RESRES ;RESET AND RESTORE
CLR (PC)+ ;STALL FOR MECHANICS
B
DEC ,+2
BNE ,+4
TYPE ,PFLD ;POWER FAILED

SAVR6I
PFLDI ,ASCIZ "POWER FAILED"

.EVEN

;SYTL STATUS POINTER WORD TABLE
ENDSTR, ;DEFINE END OF START CODE
  
```

1160 002000  
 1161  
 1162  
 1163  
 1164 000000

002000  
 IDEFAULT STATUS POINTER WORD (SPW)  
 IDEFAULT CALULATION IS OF ONE CONTROL UNIT  
 WITH CAPACITY OF 16 DEVICES  
 N=0

1165  
 1166  
 1167  
 1168  
 1169  
 1170  
 1171  
 1172  
 1173  
 1174  
 1175  
 1176  
 1177  
 1178  
 1179  
 1180  
 1181  
 1182  
 1183

STATUS POINTER WORDS FOR CU 0

1168	002000	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1169	002002	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1170	002004	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1171	002006	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1172	002010	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1173	002012	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1174	002014	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1175	002016	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1176	002020	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1177	002022	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1178	002024	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1179	002026	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1180	002030	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1181	002032	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1182	002034	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1183	002036	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1184  
 1185  
 1186  
 1187  
 1188  
 1189  
 1190  
 1191  
 1192  
 1193  
 1194  
 1195  
 1196  
 1197  
 1198  
 1199  
 1200  
 1201  
 1202

STATUS POINTER WORDS FOR CU 1

1187	002040	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1188	002042	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1189	002044	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1190	002046	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1191	002050	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1192	002052	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1193	002054	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1194	002056	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1195	002060	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1196	002062	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1197	002064	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1198	002066	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1199	002070	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1200	002072	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1201	002074	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1202	002076	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1203  
 1204  
 1205  
 1206  
 1207  
 1208  
 1209  
 1210  
 1211  
 1212  
 1213

STATUS POINTER WORDS FOR CU 2

1206	002100	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1207	002102	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1208	002104	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1209	002106	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1210	002110	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1211	002112	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1212	002114	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1213	002116	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1214	002120	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1215	002122	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1216	002124	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1217	002126	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1218	002130	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1219	002132	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1220	002134	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1221	002136	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST

IS STATUS POINTER WORDS FOR CU 3

1222									
1223									
1224									
1225	002140	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1226	002142	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1227	002144	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1228	002146	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1229	002150	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1230	002152	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1231	002154	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1232	002156	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1233	002160	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1234	002162	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1235	002164	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1236	002166	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1237	002170	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1238	002172	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1239	002174	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1240	002176	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST

IS STATUS POINTER WORDS FOR CU 4

1241									
1242									
1243									
1244	002200	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1245	002202	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1246	002204	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1247	002206	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1248	002210	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1249	002212	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1250	002214	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1251	002216	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1252	002220	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1253	002222	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1254	002224	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1255	002226	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1256	002230	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1257	002232	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1258	002234	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1259	002236	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST

IS STATUS POINTER WORDS FOR CU 5

1260									
1261									
1262									
1263	002240	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1264	002242	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1265	002244	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1266	002246	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST
1267	002250	016000	ERRDST	IDevice	STATUS	TABLE	IS	AT	ERRDST

1268	#02252	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1269	#02254	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1270	#02256	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1271	#02260	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1272	#02262	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1273	#02264	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1274	#02266	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1275	#02270	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1276	#02272	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1277	#02274	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1278	#02276	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST

STATUS POINTER WORDS FOR CU 6

1282	#02300	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1283	#02302	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1284	#02304	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1285	#02306	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1286	#02310	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1287	#02312	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1288	#02314	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1289	#02316	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1290	#02320	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1291	#02322	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1292	#02324	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1293	#02326	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1294	#02330	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1295	#02332	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1296	#02334	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1297	#02336	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST

STATUS POINTER WORDS FOR CU 7

1301	#02340	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1302	#02342	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1303	#02344	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1304	#02346	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1305	#02350	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1306	#02352	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1307	#02354	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1308	#02356	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1309	#02360	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1310	#02362	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1311	#02364	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1312	#02366	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1313	#02370	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1314	#02372	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1315	#02374	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1316	#02376	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST

STATUS POINTER WORDS FOR CU 10

1320	#02400	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1321	#02402	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST

1322	002404	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1323	002406	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1324	002410	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1325	002412	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1326	002414	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1327	002416	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1328	002420	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1329	002422	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1330	002424	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1331	002426	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1332	002430	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1333	002432	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1334	002434	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1335	002436	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1336  
1337 ISSTATUS POINTER WORDS FOR CU 11

1339	002440	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1340	002442	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1341	002444	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1342	002446	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1343	002450	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1344	002452	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1345	002454	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1346	002456	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1347	002460	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1348	002462	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1349	002464	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1350	002466	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1351	002470	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1352	002472	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1353	002474	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1354	002476	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1355  
1356 ISSTATUS POINTER WORDS FOR CU 12

1358	002500	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1359	002502	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1360	002504	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1361	002506	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1362	002510	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1363	002512	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1364	002514	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1365	002516	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1366	002520	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1367	002522	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1368	002524	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1369	002526	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1370	002530	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1371	002532	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1372	002534	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST
1373	002536	016000	ERRDST	IDEVICE	STATUS	TABLE	IS	AT	ERRDST

1374  
1375 ISSTATUS POINTER WORDS FOR CU 13

1376									
1377	002540	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1378	002542	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1379	002544	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1380	002546	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1381	002550	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1382	002552	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1383	002554	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1384	002556	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1385	002560	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1386	002562	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1387	002564	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1388	002566	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1389	002570	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1390	002572	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1391	002574	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1392	002576	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST

STATUS POINTER WORDS FOR CU 14

1393									
1394									
1395									
1396	002600	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1397	002602	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1398	002604	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1399	002606	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1400	002610	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1401	002612	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1402	002614	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1403	002616	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1404	002620	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1405	002622	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1406	002624	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1407	002626	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1408	002630	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1409	002632	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1410	002634	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1411	002636	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST

STATUS POINTER WORDS FOR CU 15

1412									
1413									
1414									
1415	002640	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1416	002642	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1417	002644	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1418	002646	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1419	002650	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1420	002652	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1421	002654	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1422	002656	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1423	002660	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1424	002662	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1425	002664	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1426	002666	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1427	002670	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1428	002672	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST
1429	002674	016000	ERRDST	IDEVICE	STATUS	TABLE	19	AT	ERRDST

1430	002676	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1431				
1432			ISTATUS POINTER WORDS FOR CU 16	
1433				
1434	002700	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1435	002702	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1436	002704	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1437	002706	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1438	002710	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1439	002712	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1440	002714	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1441	002716	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1442	002720	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1443	002722	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1444	002724	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1445	002726	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1446	002730	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1447	002732	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1448	002734	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1449	002736	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1450				
1451			ISTATUS POINTER WORDS FOR CU 17	
1452				
1453	002740	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1454	002742	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1455	002744	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1456	002746	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1457	002750	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1458	002752	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1459	002754	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1460	002756	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1461	002760	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1462	002762	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1463	002764	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1464	002766	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1465	002770	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1466	002772	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1467	002774	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1468	002776	016000	ERRDST	IDEVICE STATUS TABLE IS AT ERRDST
1469				
1470			.SBTTL TUMBLE TABLE	
1471	003000		.S. ISTART OF TUMBLE TABLE	
1472				
1473	003000	000400	.BLKW 256. IRESERVE 265, WORDS FOR TT	
1474				
1475	004000		ENDTT;	
1476				
1477				
1478				

```

1479 | .....
1480 |TEST 1 TEST I/O COMMAND
1481 | .....
1482 004000 104400 TST11 SCOPE
1483 004002 012737 000200 011490 MOV #200,00ICOUNT IITERATION COUNT
1484 004010 012737 000001 012432 MOV #1,00ERTSTN ISAVE TEST # FOR ERROR REPORT
1485 004016 012737 004024 011494 MOV #SCP1,00RETURN ISCOPE LOOP RETURN ADRS
1486 004024 SCP11
1487
1488 ,REM *
1489 THE FUNCTION OF THIS TEST IS TO VERIFY THE DX11 CAN RESPOND TO A
1490 TEST I/O COMMAND.
1491
1492 *
1493
1494
1495 004024 012737 000400 014012 MOV #TIOC,00CMD ILOAD COMMAND
1496 004032 004737 006942 JSR PC,00TRNNT ITT TRACE TRACE INIT
1497 004036 012737 000200 006306 MOV #CHIS,00ENTRY1 ILOAD EXPECTED TT ENTRY 1
1498 004044 013737 001272 177776 MOV #0LESS1,PS ILOWER PROCESSOR STATUS
1499 004052 012737 004052 011702 MOV #,00TERPO IORIGIN OF TRAP ERROR
1500 004060 004737 007446 JSR PC(ISS,SUB ISELECT
1501
1502

```



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1503 | .....
1504 | ITEST 2 ILLEGAL COMMAND
1505 | .....
1506 004064 104400 TS921 SCOPE
1507 004066 012737 000200 011490 MOV #200,00ICOUNT ;ITERATION COUNT
1508 004074 012737 000002 012432 MOV #200,00ERTSYN ;SAVE TEST # FOR ERROR REPORT
1509 004102 012737 004110 011494 MOV #SCP2,00RETURN ;SCOPE LOOP RETURN ADRS
1510 004110 SCP21
1511
1512 ,REM
1513 THE FUNCTION OF THIS TEST IS TO VERIFY THE DX11 RESPONDS CORRECTLY
1514 TO AN ILLEGAL COMMAND (I.E; PRESENTS UNIT CHECK),
1515
1516 004110 042737 000400 010016 BIC #400,ISSCRJ ;ILLC PRESENTS UNIT CHECK STATUS
1517 ;THIS CAUSES CMDREJ
1518 ;THEREFORE CHANGE ISS DIAGNOSTIC
1519 ;TO LOOK FOR CMDREJ UP
1520 004116 012737 000405 014012 MOV #ILLC,00CMD ;LOAD COMMAND
1521 004124 004737 000542 JSR PC,00TRAIT ;TT TRACE TRACE INIT
1522 004130 012737 002201 006306 MOV #UCHKS,CHIS;CMDREJ,00ENTRY ;LOAD EXPECTED TT ENTRY 1
1523 004136 013737 001272 177776 MOV #LESS1,PS ;LOWER PROCESSOR STATUS
1524 004144 012737 004144 011702 MOV #,00TERPC ;ORIGIN OF TRAP ERROR
1525 004152 004737 007446 JSR PC,ISS,SUB ;SELECT
1526
1527 004156 052737 000400 010016 BIS #400,ISSCRJ ;RESTORE ISS TO LOOK FOR NOT CMDREJ
1528
1529

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1530 | .....
1531 | ITEST 3 SENSE COMMAND
1532 | .....
1533 | TS931 SCOPE
1534 | #04164 104400 MOV #200,#COUNT IITERATION COUNT
1535 | #04166 012737 000200 011490 #3#00ERTSTN ISAVE TEST # FOR ERROR REPORT
1536 | #04174 012737 000003 012432 #SCP3,#RETURN ISCOPE LOOP RETURN ADRS
1537 | #04202 012737 004210 011494 SCP31
1538 |
1539 |
1540 |
1541 | #04210 012737 000004 014012 MOV #SENSEC,#CMD ILOAD COMMAND
1542 | #04216 004737 006542 JSR PC:#TRAITN IYT TRACE TRACE INIT
1543 | #04222 012737 000200 006306 MOV #CHIS,#ENTRY1 ILOAD EXPECTED TT ENTRY 1
1544 | #04230 013737 001272 177776 MOV #LESS1,PS ILOWER PROCESSOR STATUS
1545 | #04236 012737 004236 011702 MOV #,#TERPC IORIGIN OF TRAP ERROR
1546 | #04244 004737 007446 JSR PC:#S,SUB ISELECT
1547 |
1548 |
1549 | #04250 012737 000001 014046 MOV #1,COUNT IINIT SOFTWARE BYTE COUNTER
1550 | #04256 012777 177777 179022 MOV #E,#DXBC ISET UP DX BYTE COUNT
1551 | #04264 012777 014034 179012 MOV #SSSTAT,#DXBA IDX BASE ADDRESS
1552 | #04272 052777 000005 179000 BIS #DXFO,#GO,#DXCS IFUNCTION OUTPUT & GO
1553 | ISERVICE-IN SHOULD RISE AND
1554 | I(SSSTAT) SHOULD BE ON BUS-IN
1555 | #04300 012737 000200 006306 MOV #CHIS,#ENTRY1 ILOAD EXPECTED TT ENTRY 1
1556 | #04306 113737 014010 006426 MOV #DEV,#ENTRY2 ISECOND TT ENTRY = DXCA
1557 | #04314 113737 014012 006427 MOV #CMD,#ENTRY2+1 I
1558 | #04322 113777 014010 174776 MOV #DEV,#CUAR ILOAD DEV ADRS
1559 | #04330 113777 014012 174772 MOV #CMD,#CUCR ILOAD COMMAND IN CUCR
1560 | #04336 012737 004336 011702 MOV #,#TERPC IDEFINE ORIGIN OF TRACE ERROR
1561 | #04344 004737 010614 JSR PC:#UIS,SUB IEXECUTE SELECTION
1562 |
1563 | #04350 012737 000020 006306 MOV #CUDEND,#ENTRY1 ILOAD EXPECTED TT ENTRY 1
1564 | #04356 113737 014010 006426 MOV #DEV,#ENTRY2 ISECOND TT ENTRY = DXCA
1565 | #04364 112737 000001 006427 MOV #1,#ENTRY2+1 ICUCR OF DXCA TT ENTRY
1566 | #04372 113777 014010 174726 MOV #DEV,#CUAR ILOAD DEV ADRS
1567 | #04400 012737 004400 011702 MOV #,#TERPC IDEFINE ORIGIN OF TRACE ERROR
1568 | #04406 004737 007142 JSR PC,TRANSFER IDO TRANSFER IF REQUIRED
1569 | #04412 012737 001100 006306 MOV #CHENDS,SEND,#ENTRY1 ILOAD EXPECTED TT ENTRY 1
1570 | #04420 113737 014010 006426 MOV #DEV,#ENTRY2 ISECOND TT ENTRY = DXCA
1571 | #04426 032737 000004 013376 BIT #BIT2,#PARA ITEST FOR MUX
1572 | #04434 001404 BEQ 15 IOR IF SELECTOR
1573 | #04436 112737 000000 006427 MOV #0,#ENTRY2+1 IHDX TT CUCR
1574 | #04444 000403 BR 25 IGO
1575 | #04446 112737 000001 006427 15I MOV #1,#ENTRY2+1 ICUCR OF DXCA TT ENTRY
1576 | #04454 113777 014010 174644 25I MOV #DEV,#CUAR ILOAD DEV ADRS
1577 | #04462 012737 004462 011702 MOV #,#TERPC IDEFINE ORIGIN OF TRACE ERROR
1578 | #04470 004737 007064 JSR PC:#STATUSPRESENTATION IPRESENT STATUS
1579 |
1580 |

```

```

1581
1582
1583
1584 004474 104400
1585 004476 012737 000100 011490
1586 004504 012737 000004 012432
1587 004512 012737 004520 011494
1588 004520
1589
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1619 004520 012737 000002 014012
1620 004526 004737 006542
1621 004532 012737 000200 006306
1622 004540 013737 001272 177776
1623 004546 012737 004546 011702
1624 004554 004737 007446
1625
1626
1627 004560 012737 000400 014046
1628 004566 012777 177400 174512
1629 004574 012701 021496
1630 004600 012777 021496 174476
1631 004606 052777 000005 174404
1632
1633
1634 004614 012737 000200 006306
  
```

```

I .....
ITEST 4 READ COMMAND (PDP OUTPUT)
I .....
TSY41 SCOPE
MOV #100,00ICOUNT ;ITERATION COUNT
MOV #4,00ERTSTN ;SAVE TEST # FOR ERROR REPORT
MOV #SUP4,00RETURN ;SCOPE LOOP RETURN ADRS
SCP41
  
```

```

.REM *
THE FUNCTION OF THIS TEST IS TO VERIFY THAT THE DX11 CAN PROPERLY
EXECUTE A READ COMMAND AND SUPPRESS DATA DURING THIS TRANSFER.
THIS IS ACCOMPLISHED BY EXECUTING A CHANNEL INITIATED SELECTION
FOLLOWED BY A CONTROL UNIT INITIATED SELECTION IF THE DX11'S SIM-
ULATOR IS MIMICING A MULTIPLEXOR CHANNEL. FOLLOWING THE COMPLETION
OF A SUCCESSFUL SELECTION THE DX'S BYTE COUNT IS SET TO 256, AND
ITS BUS ADDRESS REGISTER IS LOADED TO POINT TO "DATA" A FILE OF
128, WORD OF FLOATING 1'S AND FLOATING 0'S. THIS INITIALIZATION
IS FOLLOWED BY SETTING THE DX FUNCTION BITS TO A FUNCTION=OUTPUT
AND GO.
DURING THE ENTIRE TEST ALL TUMBLE TABLE ENTRIES ARE TRACED. PRIOR
TO EACH ANTICIPATED "DONE" THE EXPECTED TUMBLE TABLE ENTRIES (DXDS
AND DXCA) ARE LOADED INTO ENTRY1 AND ENTRY2 RESPECTIVELY THEN UPON
INTERRUPT THESE EXPECTED ENTRIES ARE COMPARED WITH THE ACTUAL TT
ENTRIES ALONG WITH THE EXPECTED TTXD CONTENTS. IF A DISCREPANCY
OCCURS IT IS NOTED BY AN ERROR PC AND A TRACE ERROR ORIGIN PC.
THE ORIGIN OF THE TRACE ERROR IS CONTAINED IN TERPC WHICH IS UP-
DATED PRIOR TO EACH ANTICIPATED "DONE" BY A MOV #,,00TERPC.
THE TRANSFER OF DATA FROM THE DX11 TO THE CHANNEL SIMULATOR IS
CONTROLLED BY THE SRV0-SRV1 SEQUENCE. DURING THIS SEQUENCE DATA
CHECKS ARE MADE AND SUPPRESS DATA IS CHECKED BY RAISING SUP0 IN
RESPONSE TO SRV1 AND THEN RATTLING SRV0. NO DATE TRANSFER SHOULD
TAKE PLACE IF SUP0 IS RAISED AFTER THE FIRST BYTE.
  
```

```

*
MOV #READC,00CMD ;LOAD COMMAND
JSR PCT00TRAITN ;TT TRACE TRACE INIT
MOV #CHIS,00ENTRY1 ;LOAD EXPECTED TT ENTRY 1
MOV #0LESS1,PS ;LOWER PROCESSOR STATUS
MOV #,00TERPC ;ORIGIN OF TRAP ERROR
JSR PCTISS,SUB ;SELECT
MOV #256,,COUNT ;SOFTWARE BYTE COUNT
MOV #256,,0DXBC ;DX BYTE COUNT
MOV #DATA,R1 ;BASE ADRS OF TEST DATA
MOV #DATA,0DXBA ;FLOAT 1'S, 0'S OUTPUT DATA
BIS #DXFO,0DXCS ;FUNCTION OUTPUT AND GO
;SERVICE-IN SHOULD RAISE AND
;DATA SHOULD BE ON BUS-IN
MOV #CHIS,00ENTRY1 ;LOAD EXPECTED TT ENTRY 1
  
```

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1635	004622	113737	014010	000426		MOVB	00DEV,00ENTRY2	ISECOND TT ENTRY * DXCA
1636	004630	113737	014012	000427		MOVB	00CMD,00ENTRY2+1	
1637	004636	113777	014010	174462		MOVB	00DEV,00CUAR	ILOAD DEV ADRS
1638	004644	113777	014012	174456		MOVB	00CMD,00CUCR	ILOAD COMMAND IN CUCR
1639	004652	012737	004652	011702		MOV	0,100TERPC	IDEFINE ORIGIN OF TRACE ERROR
1640	004660	004737	010014			JSR	PC,CUIS,SUB	IEXECUTE SELECTION
1641								
1642	004664	112737	000001	000427		MOVB	01,00ENTRY2+1	
1643	004672	012737	000020	000366		MOV	00CUDEND,00ENTRY+1	ILOAD TT ENTRY
1644	004700	012737	004700	011702		MOV	0,100TERPC	IREAD DONE TT TRACE ERROR PC
1645	004706	032777	002000	174376	RC01	BIT	0SRV1,0DXM1	IWAIT FOR SERVICE-IN
1646	004714	001001				BNE	,+2	I BRANCH IF NO ERROR CONDITION
1647	004716	104000				ERROR		ISRV1 NOT SET
1648	004720	127711	174416			CHPB	0BUS1,0R1	I CHECK DATA TRANSMITTED TO 360
1649	004724	001401				BEG	,+4	I BRANCH IF NO ERROR CONDITION
1650	004726	104000				ERROR		MEMORY TO BUS1 TRANSFER ERROR
1651	004730	105721				TSTB	(R1)+	I INC TO NEXT BYTE
1652	004732	052777	001000	174390		BIS	0SRV0,0DXM0	
1653	004740	032777	001000	174342		BIT	0SRV0,0DXM0	
1654	004746	001001				BNE	,+2	I BRANCH IF NO ERROR CONDITION
1655	004750	104000				ERROR		ISRV0 NOT SET
1656	004752	032737	000004	013376		BIT	0BIT2,PARA	ITEST FOR MUX MODE
1657	004760	001005				BNE	RC1	
1658								WHEN ON MUX CH OPL1 WILL DROP WHEN TRANSMISSION IS FINISHED
1659								THIS WILL CAUSE DXM1 TO BE UNREADABLE
1660	004762	032777	002000	174322		BIT	0SRV1,0DXM1	ISERVICE-IN SHOULD DROP
1661	004770	001401				BEG	,+2	I BRANCH IF NO ERROR CONDITION
1662	004772	104000				ERROR		ISRV1 STUCK HIGH
1663	004774	052777	010000	174306	RC11	BIS	0SUPO,0DXM0	ISSET SUPPRESS-OUT
1664	005002	032777	010000	174300		BIT	0SUPO,0DXM0	IVERIFY SUPO SET
1665	005010	001001				BNE	,+2	I BRANCH IF NO ERROR CONDITION
1666	005012	104000				ERROR		ISUPO NOT SET
1667	005014	012727	000010			MOV	010,(PC)+	ISRVO COUNT
1668	005020	000000			RC21	B		ISRVO COUNT
1669	005022	052777	001000	174260	RC31	BIS	0SRV0,0DXM0	IKEEP SRVO CHANGING
1670	005030	032777	001000	174292		BIT	0SRV0,0DXM0	IVERIFY SRVO SET
1671	005036	001001				BNE	,+2	I BRANCH IF NO ERROR CONDITION
1672	005040	104000				ERROR		ISRVO DID NOT SET
1673	005042	042777	001000	174240		BIC	0SRV0,0DXM0	
1674	005050	032777	001000	174232		BIT	0SRV0,0DXM0	IVERIFY SRVO CLEAR
1675	005056	001401				BEG	,+2	I BRANCH IF NO ERROR CONDITION
1676	005060	104000				ERROR		ISRVO NOT 0
1677	005062	032737	000004	013376		BIT	0BIT2,PARA	ITEST FOR MUX MODE
1678	005070	001005				BNE	RC1	
1679								WHEN ON MUX CH OPL1 WILL DROP WHEN TRANSMISSION IS FINISHED
1680								THIS WILL CAUSE DXM1 TO BE UNREADABLE
1681	005072	032777	002000	174212		BIT	0SRV1,0DXM1	ISUPO SHOULD SUPPRESS SRV1 SETTING
1682	005100	001401				BEG	,+2	I BRANCH IF NO ERROR CONDITION
1683	005102	104000				ERROR		ISRV1 WAS NOT SUPPRESSED BY SUPO
1684	005104	005337	005020		RC41	DEC	RC2	IDEC SRVO COUNT
1685	005110	001344				BNE	RC3	I BRANCH IF SRVO NOT DONE
1686	005112	042777	010000	174170		BIC	0SUPO,0DXM0	IDROP SUPPRESS-OUT
1687	005120	032777	010000	174162		BIT	0SUPO,0DXM0	IVERIFY SUPO CLEAR
1688	005126	001401				BEG	,+4	I BRANCH IF NO ERROR CONDITION

3

1689	005130	104000				ERROR		ISUPC STUCK HIGH
1690	005132	032777	001000	174190		BIF	#SRVO,#DXMO	
1691	005140	001401				BEG	,+1	IBRANCH IF NO ERROR CONDITION
1692	005142	104000				ERROR		ISRVO STUCK HIGH
1693	005144	005337	014040			DEC	COUNT	
1694	005150	001256				BNE	RCV	
1695	005152	012737	001100	006366		MOV	#CHENDS, #SEND, #ENTRY1	ILOAD EXPECTED TT ENTRY 1
1696	005160	113737	014010	006426		MOVB	#DEV, #ENTRY2	ISECOND TT ENTRY # DXCA
1697	005166	032737	000004	013376		BIF	#B1T2, #PARA	ITEST FOR MUX
1698	005174	001404				BEG	15	IBR IF SELECTOR
1699	005176	112737	000000	006427		MOVB	#0, #ENTRY2+1	IMOX TT CUCR
1700	005204	000403				BR	25	IGO
1701	005206	112737	000001	006427	15i	MOVB	#1, #ENTRY2+1	ICUCR OF DXCA TT ENTRY
1702	005214	113777	014010	174104	25i	MOVB	#DEV, #CUAR	ILOAD DEV ADRS
1703	005222	012737	005222	011702		MOV	#, #TERPC	IDEFINE ORIGIN OF TRACE ERROR
1704	005230	004737	007064			JSR	PC, #STATUSPRESENTATION	IPRESENT STATUS
1705								
1706								
1707								

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1708 | .....
1709 | ITEST 5 WRITE COMMAND (POD INPUT)
1710 | .....
1711 | 005234 104400 TS951 SCOPE
1712 | 005236 012737 000100 011490 MOV #100,00ICOUNT IITERATION COUNT
1713 | 005244 012737 000005 012432 MOV #5,00ERTSTN ISAVE TEST # FOR ERROR REPORT
1714 | 005252 012737 005200 011494 MOV #SCP9,00RETURN ISCOPE LOOP RETURN ADRS
1715 | 005260 SCP91
1716 |
1717 |
1718 | .REM *
1719 |
1720 | THE FUNCTION OF THIS TEST IS TO VERIFY THAT THE DX11 CAN EXECUTE
1721 | WRITE COMMANDS FROM THE CHANNEL SIMULATOR. THIS TEST IS IMPL
1722 | MENTED MUCH LIKE THE READ TEST IN THAT THE TRANSFER IS 256 BYTES,
1723 | TT TRACING IS DONE AND SUPPRESS DATA IS ALSO CHECKED, IT DIFFERS
1724 | IN THE DIRECTION AND TYPE OF DATA,
1725 |
1726 | *
1727 |
1728 | 005260 012737 000001 014012 MOV #WRITEC,00CMD ILOAD COMMAND
1729 | 005266 004737 000942 JSR PC,00TRAIT ITT TRACE TRACE INIT
1730 | 005272 012737 000200 006306 MOV #CHIS,00ENTRY1 ILOAD EXPECTED TT ENTRY 1
1731 | 005300 013737 001272 177776 MOV #0LESS1,PS ILOWER PROCESSOR STATUS
1732 | 005306 012737 005306 011702 MOV #,00TERPC IORIGIN OF TRAP ERROR
1733 | 005314 004737 007446 JSR PC,ISS,SUB ISELECT
1734 |
1735 |
1736 | 005320 012737 000400 014046 MOV #256,,COUNT ISOFTWARE COUNTER
1737 | 005326 012777 177400 173752 MOV #0750,,0DXBC IOX BYTE COUNT
1738 | 005334 012777 023056 173742 MOV #NPRDATA,0DXBA IADRS FOR DATA FROM 360 SIM
1739 | 005342 012702 023056 MOV #NPRDATA,R2 IINPUT FILE FOR NPR DATA
1740 | 005346 012701 022056 MOV #NDATA,R1 IWRITE DATA FOR 360 SIM
1741 | 005352 052777 000003 173720 BIS #0DFI,00,0DXCS IFUNCTION INPUT # 00 (360 WRITE)
1742 | 005360 012737 000200 006306 MOV #CHIS,00ENTRY1 ILOAD EXPECTED TT ENTRY 1
1743 | 005366 113737 014010 006426 MOV# #0DEV,00ENTRY2 ISECOND TT ENTRY = DXCA
1744 | 005374 113737 014012 006427 MOV# #0CMD,00ENTRY2+1 I
1745 | 005402 113777 014010 173716 MOV# #0DEV,0CUAR ILOAD DEV ADRS
1746 | 005410 113777 014012 173712 MOV# #0CMD,0CUCR ILOAD COMMAND IN CUCR
1747 | 005416 012737 005416 011702 MOV #,00TERPC IDEFINE ORIGIN OF TRACE ERROR
1748 | 005424 004737 010614 JSR PC,CUIS,SUB IEXECUTE SELECTION
1749 |
1750 |
1751 | 005430 012737 000020 006306 WCB1 MOV #CUDEND,00ENTRY1 ITT ENTRY 1
1752 | 005436 112737 177777 006427 MOV# #+1,00ENTRY2+1 IFAKE CUCR OF ENTRY 2
1753 | 005444 012737 005444 011702 MOV #,00TERPC IWRITE TRACE ERROR
1754 | 005452 032777 002000 173632 BIT #SRV1,0DXM1 IWAIT FOR SERVICE-IN
1755 | 005460 001001 BNE ERROR IBRANCH IF NO ERROR CONDITION
1756 | 005462 104000 ERROR ISRV1 NOT SET
1757 | 005464 051177 173646 BIS #R1,0BUS0 IPUT DATA ON BUS-OUT
1758 | 005470 121177 173642 CHPB #R1,0BUS0 IVERIFY LOAD
1759 | 005474 001401 BEQ ERROR IBRANCH IF NO ERROR CONDITION
1760 | 005476 104000 ERROR IBUS0 INTO MEMORY DATA TRANSFER ERROR
1761 | 005500 052777 001000 173602 BIS #SRV0,0DXM0

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1762	005506	032777	001000	173574		BIT	#SRVO,0DXHO	
1763	005514	001001				BNE	,+4	IBRANCH IF NO ERROR CONDITION
1764	005516	104000				ERROR		ISRVO NOT SET
1765	005520	032737	000004	013376		BIT	#BIT2,PARA	ICAN'T LOOK AT SRV! ON MUX CH
1766	005526	001005				BNE	WC0	
1767	005530	032777	002000	173594		BIT	#SRV!,0DXH!	
1768	005536	001401				BEO	,+4	IBRANCH IF NO ERROR CONDITION
1769	005540	104000				ERROR		ISRV! DID NOT DROP
1770	005542	005721			WC001	TST	(R1)+	
1771	005544	105722				TSTB	(R2)+	
1772	005546	032702	000001			BIT	#BIT0,R2	ITEST FOR EVEN BOUNDARY
1773	005552	001016				BNE	WC1	
1774								
1775	005554	162701	000004			SUB	#4,R1	
1776	005560	162702	000002			SUB	#2,R2	
1777	005564	121112				CHPB	#R1,#R2	IVERIFY 1ST DATA BYTE TRANSFER
1778	005566	001401				BEO	,+4	IBRANCH IF NO ERROR CONDITION
1779	005570	104000				ERROR		IBUS0 INTO MEMORY DATA TRANSFER ERROR
1780	005572	005721				TST	(R1)+	
1781	005574	105722				TSTB	(R2)+	
1782	005576	121112				CHPB	#R1,#R2	IVERIFY 2ND BYTE TRANSFER
1783	005600	001401				BEO	,+2	IBRANCH IF NO ERROR CONDITION
1784	005602	104000				ERROR		ISECOND DATA BYTE INTO MEMORY
1785								
1786	005604	005721				TST	(R1)+	
1787	005606	105722				TSTB	(R2)+	
1788	005610	032777	010000	173472	WC11	BIS	#SUPO,0DXHO	ISSET SUPPRESS=OUT
1789	005616	032777	010000	173404		BIT	#SUPO,0DXHO	IVERIFY SUPO SET
1790	005624	001001				BNE	,+8	IBRANCH IF NO ERROR CONDITION
1791	005626	104000				ERROR		ISUPO NOT SET
1792	005630	012727	000010			MOV	#10,(PC)+	ISRVO COUNT
1793	005634	000000			WC21	B		ISRVO COUNT
1794	005636	032777	001000	173444	WC31	BIS	#SRVO,0DXHO	IKEEP SRVO CHANGING
1795	005644	032777	001000	173436		BIT	#SRVO,0DXHO	IVERIFY SRVO SET
1796	005652	001001				BNE	,+1	IBRANCH IF NO ERROR CONDITION
1797	005654	104000				ERROR		ISRVO DID NOT SET
1798	005656	042777	001000	173424		BIC	#SRVO,0DXHO	ICLEAR SRVO
1799	005664	032777	001000	173416		BIT	#SRVO,0DXHO	IVERIFY SRVO CLEAR
1800	005672	001401				BEO	,+1	IBRANCH IF NO ERROR CONDITION
1801	005674	104000				ERROR		ISRVO NOT 0
1802	005676	032737	000004	013376		BIT	#BIT2,PARA	ITEST FOR MUX MODE
1803	005704	001005				BNE	WC1	
1804								WHEN ON MUX CH OPL! WILL DROP WHEN TRANSMISSION IS FINISHED
1805								THIS WILL CAUSE DXH! TO BE UNREADABLE
1806	005706	032777	002000	173376		BIT	#SRV!,0DXH!	ISUPO SHOULD SUPPRESS SRV! SETTING
1807	005714	001401				BEO	,+1	IBRANCH IF NO ERROR CONDITION
1808	005716	104000				ERROR		ISRV! WAS NOT SUPPRESSED BY SUPO
1809	005720	005337	005634		WC41	DEC	WC2	IDEC SRVO COUNT
1810	005724	001344				BNE	WC3	IBRANCH IF SRVO NOT DONE
1811	005726	042777	010000	173354		BIC	#SUPO,0DXHO	IDROP SUPPRESS=OUT
1812	005734	032777	010000	173346		BIT	#SUPO,0DXHO	IVERIFY SUPO CLEAR
1813	005742	001401				BEO	,+1	IBRANCH IF NO ERROR CONDITION
1814	005744	104000				ERROR		ISUPO STUCK HIGH
1815	005746	032777	001000	173334		BIT	#SRVO,0DXHO	

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1016									
1017	005754	042777	001777	173326		BIC	0SRV0,0DXMO		ICLR SRVO AND BUS06PARITY
1018	005762	032777	001000	173320		BIT	0SRV0,0DXMO		
1019	005770	001401				BEQ	,04		IBRANCH IF NO ERROR CONDITION
1020	005772	104000				ERROR			ISRVO DID NOT DROP
1021	005774	005337	014040			DEC	COUNT		
1022	006000	001213				ONE	WC		
1023	006002	012737	001100	006366		MOV	0CHENDS,0SEND,0ENTRY1		ILoad EXPECTED TT ENTRY 1
1024	006010	113737	014010	006426		MOVB	0DEV,0ENTRY2		ISECOND TT ENTRY 0 DXCA
1025	006016	032737	000004	013376		BIT	0BIT2,0PARA		ITEST FOR MUX
1026	006024	001404				BEQ	15		IBR IF SELECTOR
1027	006026	112737	000000	006427		MOVB	00,0ENTRY2+1		IMUX TT CUCR
1028	006034	000403				OR	25		IG0
1029	006036	112737	177777	006427	151	MOVB	00,0ENTRY2+1		ICDCR OF DXCA TT ENTRY
1030	006044	113777	014010	173294	251	MOVB	0DEV,0CUAR		ILoad DEV ADRS
1031	006052	012737	006052	011702		MOV	0,,0TERPC		IDFINE ORIGIN OF TRACE ERROR
1032	006060	004737	007064			JSR	PC,STATUSPRESENTATION		IPRESENT STATUS
1033									
1034									

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1835 | .....
1836 | ITEST 6 END OF TEST STRING
1837 | .....
1838 | 006064 104400 TSP61 SCPE
1839 | 006066 012737 000001 011490 MOV #1,00ICOUNT ;ITERATION COUNT
1840 | 006074 012737 000000 012432 MOV #6,00ERTSTN ;SAVE TEST # FOR ERROR REPORT
1841 | 006102 012737 006110 011494 MOV #SCP6,00RETURN ;SCOPE LOOP RETURN ADRS
1842 | 006110 SCP61
1843 |
1844 |
1845 | .REM *
1846 |
1847 | THIS TEST FUNCTIONS AS A TERMINATOR FOR THE CHAINABLE TEST STRING,
1848 | AS SUCH IT TRANSFERS CONTROL TO THE LOOP CONTROL SUBROUTINE,
1849 |
1850 | *
1851 |
1852 |
1853 | 006110 000137 013402 JMP 00LPCNTL
1854 |
1855 |
1856 |
1857 |
1858 | ;INTERRUPT HANDLERS
1859 | 006114 104000 FALSE1 ERROR ;FALSE OR UNEXPECTED INTERRUPT
1860 | 006116 000002 RT!
1861 |
1862 | 006120 032777 000200 173192 INTR1 BIT #DONE,00XCS ;ITEST DONE
1863 | 006126 001001 BNE ,+4 ;BRANCH ON DONE
1864 | 006130 104000 ERROR ;FALSE INTERRUPT
1865 | 006132 042777 000200 173140 BIC #DONE,00XCS ;CLEAR INT CONDITION
1866 | 006140 052737 100000 006190 BIS #INTOK,INTPAS ;SET INT PASS FLAG
1867 | 006146 000002 RT!
1868 |
1869 | 006150 000000 INTPAS1 0 ;INTERRUPT PASS FLAG
1870 |
1871 |
1872 | ;INTERR, ROUTINE TO TEST FOR SUCCESSFUL INTERRUPT
1873 |
1874 | 006152 INTERR1
1875 | 006152 032737 100000 006190 BIT #INTOK,INTPAS ;DID INTERRUPT OCCUR
1876 | 006160 001405 BEQ IRR ;BRANCH IF NOT
1877 | 006162 062716 000002 ADD #2,00SP ;INC RETURN PC
1878 | 006166 042737 100000 006190 BIC #INTOK,INTPAS ;CLEAR PASS FLAG
1879 | 006174 000207 IRR1 RTS PC
1880 |
1881 | ;ZEROTT, ROUTINE TO ZERO TUMBLE TABLE
1882 |
1883 | 006176 ZEROTT1
1884 | 006176 010146 MOV R1,(SP)
1885 | 006200 010246 MOV R2,(SP)
1886 | 006202 013701 001440 MOV TT,R1
1887 | 006206 012702 000400 MOV #256,,R2
1888 | 006212 005021 ZT11 CLR (R1)+
  
```

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1889	006214	005302				DEC	R2	
1890	006216	001375				BNE	ZT71	
1891	006220	012602				MOV	(SP)+,R2	
1892	006222	012601				MOV	(SP)+,R1	
1893	006224	000207				RTS	PC	
1894								
1895								
1896								
1897	006226							
1898	006226	010146						
1899	006230	010246						
1900	006232	013701	001440					
1901	006236	012702	000400					
1902	006242	005721						
1903	006244	001401						
1904	006246	104000						
1905	006250	005302						
1906	006252	001373						
1907	006254	012602						
1908	006256	012601						
1909	006260	000207						
1910								
1911								
1912	006262							
1913	006262	032777	000200	173010				
1914	006270	001001						
1915	006272	104000						
1916	006274	042777	000200	172776				
1917	006302	032777	000200	172770				
1918	006310	001401						
1919	006312	104000						
1920	006314	012746	006540					
1921								
1922								
1923								
1924	006320							
1925								
1926	006320	010146						
1927	006322	013701	006526					
1928	006326	020137	001440					
1929	006332	001005						
1930	006334	005737	003776					
1931	006340	001401						
1932	006342	104002						
1933	006344	000404						
1934	006346	005741						
1935	006350	001401						
1936	006352	104002						
1937	006354	005721						
1938	006356	011127						
1939	006360	000000						
1940	006362	023727	006360					
1941	006366	000000						
1942	006370	001407						

ITZERO, ROUTINE TO VERIFY TT ZERO

ITZEROI

```

MOV R1,=(SP)
MOV R2,=(SP)
MOV TT,R1
MOV #256,,R2
TST (R1)+
BEG ,+1
ERROR
DEC R2
BNE TTZ1
MOV (S)+,R2
MOV (SP)+,R1
RTS PC
    
```

IBRANCH IF NO ERROR CONDITION  
ILLEGAL TT ENTRY

ISS DONE INTERRUPT SERVICE

SEL DONEI

```

BIT #DONE,#DXCS
BNE ,+4
ERROR
BIC #DONE,#DXCS
BIT #DONE,#DXCS
BEG ,+4
ERROR
MOV #SEL,X,=(SP)
    
```

ICHECK DONE  
IBRANCH IF NO ERROR CONDITION  
IFALSE INTERRUPT  
ICLEAR DONE

IBRANCH IF NO ERROR CONDITION  
IDONE NOT CLEAR  
IFAKE A JSR PC,TT,TRACE

ITT TRACE, ROUTINE TO TRACE TUMBLE TABLE ENTRIES

IAND THE TNDX

TT TRACEI

```

MOV R1,=(SP)
MOV #ITTRACE,R1
CMP R1,#0TT
BNE IS
TST #03776
BEG ,+4
TRACER
BR 25
IS: TST =(R1)
BEG ,+1
TRACER
TST (R1)+
2S: MOV (R1),(PC)+
SENRY1: B
ENTRY1: B
SENRY1,(PC)+
BEG IS
    
```

ILOAD R1 WITH SOFTWARE IT  
ICHECK FOR BOTTOM OF TABLE  
IBRANCH IF NOT BOTTOM  
ILOOK AT TOP OF TT  
IBRANCH IF NO RAP AROUND  
IREPORT TT TRACE ERROR

ICHECK FOR TT OVERFLOW  
IBRANCH IF NO RAP AROUND  
ITT OVERFLOW ERROR

IINC TO ENTRY  
ISAVE ENTRY ONE  
IHERE  
ICOMPARE SAVED ENTRY WITH  
IEXPECTED ENTRY  
IBRANCH IF DXCS ENTRY OK

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1943	006372	013737	006360	006534	MOV	00SENRY1,00TTHAS	
1944	006400	013737	006366	006536	MOV	00ENTRY1,00TTSHOULD	
1945	006406	104002			TRACER		IREPORT TT TRACE ERROR
1946	006410	005037	006366		15) CLR	ENTRY1	
1947	006414	005021			CLR	(R1)+	ICLEAR ENTRY AND ADVANCE POINTER
1948	006416	011127			MOV	(R1),(PC)+	ISAVE ENTRY TWO
1949							
1950	006420	000000			SENRY2) 0		HERE
1951	006422	023727	006420		CHP	00SENRY2,(PC)+	ICOMPARE SAVED ENTRY WITH
1952	006426	000000			ENTRY2) 0		EXPECTED ENTRY
1953	006430	001411			TT,T0) BEQ	25	IBRANCH IF DXCA ENTRY OK
1954	006432	013737	006420	006534	MOV	00SENRY2,00TTHAS	
1955	006440	013737	006426	006536	MOV	00ENTRY2,00TTSHOULD	
1956	006446	104002			TRACER		IREPORT TT TRACE ERROR
1957	006450	005037	006426		CLR	ENTRY2	
1958	006454	005021			25) CLR	(R2)+	ICLEAR
1959	006456	022701	004000		CHP	0TST1,R1	ICHECK FOR SOFTWARE
1960	006462	001002			BNE	TT,T1	IBRANCH IF NO OVERFLOW
1961	006464	013701	001440		MOV	00TT,R1	
1962	006470	005037	006500		TT,T1) CLR	00TT,T2	
1963	006474	117727	172650		MOVB	0T=NDX,(PC)+	ISAVE TTNDX
1964	006500	000000			TT,T2) 0		HERE
1965	006502	006337	006500		ASL	TT,T2	ISCALE MOD(2)
1966	006506	063737	001440	006500	ADD	00TT,00TT,T2	IADD BASE OF TT TO INDEX
1967	006514	123701	006500		CHPB	00TT,T2,R1	ICOMPARE TT POINTERS
1968	006520	001401			BEQ	,04	IBRANCH IF HARDWARE AND SOFTWARE TT POINTERS MATCH
1969	006522	104002			TRACER		IREPORT TT TRACE ERROR
1970	006524	010127			MOV	R1,(PC)+	ISAVE TT TRACE
1971	006526	000000			TTRACE) 0		HERE
1972	006530	012601			MOV	(SP)+,R1	
1973	006532	000207			RTS	PC	IRETURN
1974	006534	000000			TTHAS) 0	IACTUAL	CONTENTS OF TT
1975	006536	000000			TTSHOULD) 0		EXPECTED CONTENTS OF TT
1976							
1977	006540	000002			SEL,XI RT)		
1978							
1979							
1980							
1981	006542	042777	077777	172540	TR=INT) BIC	077777,0DXND	IOSELECT
1982	006550	112777	000100	172604	MOVB	0SM,0DST	IRESPONSE TO TEST IO
1983	006556	032737	000002	013376	BIT	00TT1,00PARA	ICHECK FOR CUBSY MODE
1984	006564	001410			BEQ	TT) 0	IBRANCH IF NOT CU BUSY
1985	006566	052777	004000	172504	BIS	00SYEN,0DXCS	ISET BSYEN
1986	006574	032777	004000	172476	BIT	00SYEN,0DXCS	IVERIFY SET
1987	006602	001001			BNE	,04	IBRANCH IF NO ERROR CONDITION
1988	006604	104000			ERROR		BSYEN NOT SET
1989	006606	113737	014010	006426	TT) 0) MOVB	00DEV,00ENTRY2	ISECOND TT ENTRY = DXCA
1990	006614	113737	014012	006427	MOVB	00CMD,00ENTRY2+1	
1991	006622	113777	014012	172500	MOVB	00CMD,0CUCR	ILOAD COMMAND
1992	006630	113777	014010	172470	MOVB	00DEV,0CUAR	ILOAD COMMAND IN CUAR
1993	006636	052777	000100	172434	BIS	0INTEN,0DXCS	ISET INTERRUPT ENABLE
1994	006644	032777	000100	172426	BIT	0INTEN,0DXCS	IVERIFY SET
1995	006652	001001			BNE	,04	IBRANCH IF NO ERROR CONDITION
1996	006654	104000			ERROR		INTEN NOT SET

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1997 006656 013777 001270 172402      MOV      @DXPRT,@DXIS      ILOAD INT STATUS
1998 006664 012777 000262 172372      MOV      #SEL,DONE,@DXIV ILOAD INT VECTOR
1999 006672 000207                                RTS      PC
2000
2001
2002
2003 006674 104000      O.BRK:  ERROR      IBREAK TRAP IS ILLEGAL
2004 006676 022626      CMP      (SP)+,(SP)+      IRESTORE STACK
2005 006700 000137 012520      JMP      @ON1,0
2006
2007
2008
2009
2010 006704 000002      YESRT!! RT!
2011 006706 000002      RTX!      RT!      IMODIFIED FOR 11/40,11/45 TO RTT
2012
2013
2014
2015
2016 006710 000020      DELAY:  20
2017 006712 013727 006710      RDLAY:  MOV      DELAY,(PC)+
2018 006716 000000      1S)    0
2019 006720 005337 006710      2S)    DEC      15      IDELAY FOR BIPOLAR MEMORY
2020 006724 001375      BNE     25
2021 006726 000207      RTS     PC
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034 006730 000240      .SBTTL  SETUP SELECTED PARAMETERS
2035 006732 042777 000200 172340      ISETUP: ROUTINE TO CLEAR DX AND SETUP THE FOLLOWING
2036 006740 042777 060000 172342      I      BIT2=  MUX CH
2037 006746 042777 177000 172336      I      BIT1=  BSYEN
2038 006754 052777 000010 172336      I      BIT0=  ON=LINE
2039 006762 042737 100000 006150      SETUP:  NOP
2040 006770 032737 000001 013376      BIC     @DONE,@DXCS      ICLR#DONE#& THEREFORE "LOCKO"
2041 006776 001402      BIC     @HLDO,SELO,@DXMO      IGET READY FOR NEXT ISS
2042 007000 004737 007414      BIC     @17000,@DXMI      I
2043 007004 112777 000100 172430      BIS     @TMOIS,@DXES      ISET DXTO DISABLE
2044 007012 032737 000002 013376      BIC     @INTOK,INTPAS      ICLEAR INTERRUPT PASS FLAG
2045 007020 001405      BIT     @BIT0,PARA      ITEST FOR ONLINE
2046 007022 052777 004000 172290      BEQ     SP2      IBRANCH IF NOT ONLINE
2047 007030 105077 172400      JSR     PCT,FOL      IDO FAST ONLINE
2048 007034 012777 006120 172222      SP1:  MOV     @SM,@DST      IRESPONSE TO TIO
2049 007042 013777 001270 172216      BIT     @BIT1,PARA      Iwas BSYEN SELECTED
2050 007050 052777 000100 172222      BEQ     SP2      IBRANCH IF NOT
2051 007052 052777 004000 172290      BIS     @BSYEN,@DXCS      ISET BUSY ENABLE
2052 007054 105077 172400      CLRB   @DST      ITIO GETS STATUS BY HARDWARE
2053 007056 012777 006120 172222      SP2:  MOV     @INTR,@DXIV      ISET UP DX INTERRUPT VECTOR
2054 007058 013777 001270 172216      MOV     @DXPRT,@DXIS      ISET UP DX INTERRUPT STATUS
2055 007060 052777 000100 172222      BIS     @INTEN,@DXCS      ISET INT ENABLE

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2051	007056	005037	177776		CLR	PS	ICLEAR PROCESSOR STATUS
2052	007062	000207		SP41	RTS	PC	IRETURN
2053							
2054							
2055							
2056							
2057							
2058	007064						
2059	007064	042777	000200	172206			
2060							
2061							
2062							
2063							
2064							
2065							
2066							
2067							
2068							
2069							
2070							
2071							
2072	007072	112777	000014	172232	MOVB	#CE=DE,#CUSR	ILOAD CE/DE STATUS
2073							
2074	007100	052777	000007	172172	BIS	#DAFST!GO,#DXCS	ISET FCTN/STATUS/GO
2075							ISTATUS=IN SHOULD RISE
2076							
2077	007106	004737	010614		JSR	X7,CUIS,SUB	IEEXECUTE CUIS
2078	007112	042777	060000	172170	BIC	#HDO!SELO,#DXMO	IDROP SELO!HLDO FOR NONZERO STATUS
2079	007120	052777	001000	172162	BIS	#SRVO,#DXMO	ISERVICE=OUT UP
2080							ISTATUS=IN SHOULD FALL
2081							
2082							
2083	007126	042777	001000	172194	BIC	#SRVO,#DXMO	IDROP SERVICE=OUT,
2084							IThis ENDS ES -- ESEND INT SHOULD
2085							IBE UP AND CUBSY CLEAR
2086							ICHECK FOR INTERRUPTS
2087	007134	005077	172152		CLR	#DXM!	ICLEAR DXM!
2088	007140	000207			RTS	X7	
2089							
2090							
2091	007142						
2092	007142	032737	000001	014012	BIF	#1,CMD	IS COMMAND READ OR WRITE?
2093	007150	001012			BNE	TR,WRITE	IWRITE
2094							
2095							
2096	007152						
2097	007152	052777	001000	172130	BIS	#SRVO,#DXMO	ISERVICE=OUT UP
2098							ISERVICE=IN SHOULD FALL
2099	007160	042777	001000	172122	BIC	#SRVO,#DXMO	ISERVICE=OUT DOWN
2100							ISERVICE=IN UP AGAIN IF MORE
2101	007166	005337	014040		DEC	COUNT	ILOOP TILL DONE
2102	007172	001367			BNE	TR,READ	!!!
2103	007174	000410			BR	TR,OUT	
2104							

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```

2105          INPUT HERE
2106 007176    TR,WRITEI
2107 007176    052177    172134    BIS    (R1)+,0BUS0    INPUT DATA ON BUS
2108 007202    052777    001000    172100    BIS    @SRV0,0DXM0    ;SERVICE=OUT UP
2109          ;SERVICE=IN SHOULD FALL
2110 007210    042777    001000    172072    BIC    @SRV0,0DXM0    ;SERVICE=OUT DOWN
2111 007216    042777    000777    172112    BIC    @777,0BUS0    ;TAKE DATA OFF BUS (SERVICE=IN UP)
2112 007224    005337    014046    DEC    COUNT
2113 007230    001362          BNE    TR,WRITE
2114
2115 007232    000207          TR,OUTI RTS    X7
2116
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```

```

;SETTL ONLINE ROUTINE
; *****
;ONLIN, ROUTINE TO SET DX ONLINE
;AND WAIT FOR RELAY TO PICK
;

```

```

2148 007234    012737    010000    007412    ONLINI    MOV    @10000,CNT    ;WAIT FOR RELAY TO SETTLE
2149 007242    005337    007412    OL4I     DEC    CNT
2150 007246    001375          BNE    OL2
2151 007250    013777    001436    172024    MOV    SP1,0DXOS    ;LOAD DX OFFSET
2152 007256    023777    001436    172016    CMP    SPH,0DXOS    ;VERIFY OFFSET IS LOADED
2153 007264    001401          BEQ    ,+1          ;BRANCH IF NO ERROR CONDITION
2154 007266    104000          ERROR          ;DXOS LOAD ERROR
2155 007270    052777    001000    172002    BIS    @ONLINA,0DXCS    ;SET ONLINE BIT
2156 007276    032777    001000    171774    BIT    @ONLINA,0DXCS    ;ONLINE REQUEST SET
2157 007304    001001          BNE    ,+1          ;BRANCH IF NO ERROR CONDITION
2158 007306    104000          ERROR          ;ONLINA DID NOT SET

```

45

```

2159 007310 012737 010000 007412      MOV      #10000,CNT      ;SET UP STALL FOR ONLINE RELAY
2160 007316 005337 007412      OL2:    DEC      CNT      ;
2161 007322 001375                RNE      OL2
2162 007324 032777 000004 171702    BIT      @ONLINB,@DXCB  ;IS DX ONLINE
2163 007332 001001                BNE      ,+4            ;BRANCH IF NO ERROR CONDITION
2164 007334 104000                ERROR
2165 007336 032777 100000 171744    BIT      @OPLO,@DXMO    ;
2166 007344 001001                BNE      ,+4            ;BRANCH IF NO ERROR CONDITION
2167 007346 104000                ERROR
2168 007350 052777 001000 171732    OLSI:   BIS      @SRVO,@DXMO  ;ARE YOU REALLY MAINTENANCED CABLED?
2169 007356 032777 001000 171724    BIT      @SIVO,@DXMO
2170 007364 001001                BNE      ,+2            ;CHECK SERVICE OUT
2171 007366 104000                ERROR
2172 007370 042777 001000 171712    BIC      @SRVO,@DXMO  ;BRANCH IF NO ERROR CONDITION
2173 007376 032777 001000 171704    BIT      @SIVO,@DXMO  ;SRVO NOT SET
2174 007404 001401                BEQ      ,+2            ;CHECK SERVICE OUT
2175 007406 104000                ERROR
2176                                ;BRANCH IF NO ERROR CONDITION
2177 007410 000207                RTS      PC            ;SRVO NOT ZERO
2178 007412 000000      CNT:    0

```

ISTALL

IFAST ONLINE ROUTINE

```

2184 007414 052777 001000 171696    FOL:    BIS      @ONLINA,@DXCS ;SET ONLINE BIT
2185 007422 032777 001000 171690    BIT      @ONLINA,@DXCS ;ONLINE REQUEST SET
2186 007430 001001                BNE      ,+1            ;BRANCH IF NO ERROR CONDITION
2187 007432 104000                ERROR
2188 007434 032777 000004 171682    FOL:    BIT      @ONLINB,@DXCB ;ONLINA NOT SET
2189 007442 001774                BEQ      FOL:          ;IS DX ONLINE
2190 007444 000207                RTS      PC            ;WAIT FOR RELAY TO PICK

```

.SBTTL INITIAL SELECTION SEQUENCE

INITIAL SELECTION SEQUENCE

ISS.SUB:1

```

2198 007446                ;
2199 007446 053777 014010 171634    BIS      DEV,@DXMO     ;LOAD BUS0 WITH DEVICE ADRS
2200 007454 123777 014010 171694    CMPB    DEV,@BUS0     ;TEST BUS0 FOR CORRECT ADRS
2201 007462 001401                BEQ      ,+2            ;BRANCH IF NO ERROR CONDITION
2202 007464 104000                ERROR
2203                                ;BUS0 DID NOT LOAD

```

..... MOD APR 74 .....

INITIAL SELECTION CLEANUP MOD

```

2204                                ;
2205 007466 113777 014010 171632    MOVB    DE7,@CUAR
2206 007474 123777 014010 171624    CMPB    DE7,@CUAR
2207 007502 001401                BEQ      ,+4            ;BRANCH IF NO ERROR CONDITION
2208 007504 104000                ERROR
2209                                ;CUAR BITS 7 THRU 0 FAILURE

```

..... MOD APR 74 .....

```

2210                                ;
2211 007506 052777 004000 171574    BIS      @ADRO,@DXMO   ;SET ADRO OUT
2212 007514 132777 000010 171616    BITB    @10,@CONO     ;TEST ADRO UP

```

4/15

2213	007522	001001			BNE	,+4	I BRANCH IF NO ERROR CONDITION
2214	007524	104000			ERROR		IADNO DID NOT SET
2215							
2216	007526	052777	040000	171554	BIS	#HLDO, #DXMO	ISET HOLD=OUT
2217	007534	032777	040000	171546	BIT	#HLDO, #DXMO	I TEST FOR HOLD=OUT UP
2218	007542	001001			BNE	,+4	I BRANCH IF NO ERROR CONDITION
2219	007544	104000			ERROR		I HOLD OUT DID NOT SET
2220							
2221	007546	052777	020000	171534	BIS	#SELO, #DXMO	ISET SELECT=OUT
2222	007554	132777	000040	171556	BITB	#40, #CONO	I TEST FOR SELECT=OUT
2223	007562	001001			BNE	,+4	I BRANCH IF NO ERROR CONDITION
2224	007564	104000			ERROR		I SELECT=OUT DID NOT SET
2225							
2226							
2227	007566	032777	000002	171520	BIT	#ADRECC, #DXCB	I HAS CU ADRS RECOGNISED
2228							I IS DEV A VALID CU ADRS
2229	007574	001001			BNE	,+4	I BRANCH IF NO ERROR CONDITION
2230	007576	104000			ERROR		I DX DID NOT RECOGNISE CU ADRS
2231							I IF YES CHECK JUMPERS
2232							IADRECC LOGIC
2233							
2234							
2235	007600	032777	000010	171466	BIT	#ISSREJ, #DXDS	I TEST FOR ISS REJECT
2236	007606	001401			BEQ	,+4	I BRANCH IF NO ERROR CONDITION
2237	007610	104000			ERROR		I ISS REJECT SET
2238	007612	032777	100000	171472	BIT	#OPLI, #DXMI	I OPLI SHOULD BE UP
2239	007620	001001			BNE	,+4	I BRANCH IF NO ERROR CONDITION
2240	007622	104000			ERROR		I OPLI DID NOT SET
2241							I IS DEV A VALID DEVICE ON CUT
2242							
2243	007624	042777	004000	171456	BIC	#ADRO, #DXMO	IDROP ADRS=OUT
2244	007632	132777	000010	171500	BITB	#10, #CONO	I IS ADRO DOWN
2245	007640	001401			BEQ	,+4	I BRANCH IF NO ERROR CONDITION
2246	007642	104000			ERROR		IADRO DID NOT DROP
2247	007644	032737	000004	013376	BIT	#BIT2, #PARA	I TEST FOR MUX CH
2248	007652	001415			BEQ	IS23	I BRANCH IF NOT MUX
2249	007654	042777	060000	171426	BIC	#SELO, #HLDO, #DXMO	I CLEAR SELECT=OUT, HOLD=OUT
2250	007662	032777	020000	171420	BIT	#SELO, #DXMO	IDID SELO CLEAR
2251	007670	001401			BEQ	,+4	I BRANCH IF NO ERROR CONDITION
2252	007672	104000			ERROR		I REPORT SELO NOT CLEAR
2253	007674	032777	040000	171406	BIT	#HLDO, #DXMO	IDID HLDO CLEAR
2254	007702	001401			BEQ	,+4	I BRANCH IF NO ERROR CONDITION
2255	007704	104000			ERROR		I HLDO DID NOT CLEAR
2256	007706	032777	010000	171376	ISS31	BIT	#ADR1, #DXMI
2257	007714	001001			BNE	,+4	I ADDRESS-IN SHOULD BE UP
2258	007716	104000			ERROR		I BRANCH IF NO ERROR CONDITION
2259							I ADR1 DID NOT COME UP
2260	007720	123777	014010	171414	CHPB	DEV, #BUS1	I ADRS SHOULD BE ON BUS1
2261	007726	001401			BEQ	,+4	I BRANCH IF NO ERROR CONDITION
2262	007730	104000			ERROR		I BUS1 DOES NOT CONTAIN
2263							I CORRECT ADRS
2264							
2265	007732	043777	014010	171376	BIC	DEV, #BUS0	I REMOVE ADRS FROM BUS=OUT
2266	007740	105777	171372		TS9B	#BUS0	I ADRS REMOVED

4



2267	007744	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2268	007746	104000			ERROR		IBUSO DID NOT CLEAR
2269							
2270	007750	053777	014012	171300	BIS	CMO,0BUSO	IBUT COMMAND ON BUSO
2271	007756	123777	014012	171392	CMPB	CMO,0BUSO	IDID COMMAND LOAD OK
2272	007764	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2273	007766	104000			ERROR		ICMD DID NOT LOAD PROPERLY
2274							
2275	007770	052777	002000	171312	BIS	#CMDO,0DXMO	ISET COMMAND OUT
2276	007776	132777	000004	171334	BITB	#4;0CONO	IDID CMDO SET
2277	010004	001001			BNE	,+4	IBRANCH IF NO ERROR CONDITION
2278	010006	104000			ERROR		ICMDO DID NOT SET
2279							
2280	010010	032777	000001	171296	BIT	#CMOREJ,0DXDS	ITEST FOR COMMAND REJECT
2281	010016						
2282	010016	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2283	010020	104000			ERROR		ICOMMAND REJECTED
2284							
2285	010022	032777	010000	171202	BIT	#ADRI,0DXMI	IADRI SHOULD FALL
2286	010030	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2287	010032	104000			ERROR		IADRI DID NOT DROP
2288							
2289	010034	043777	014012	171246	BIC	CMO,0DXMO	IREMOVE CMD FROM BUSG
2290	010042	105777	171270		TSTB	0BUSO	IHAS CMD REMOVED
2291	010046	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2292	010050	104000			ERROR		ICMD DID NOT CLEAR
2293	010052	042777	002000	171230	BIC	#CMDO,0DXMO	
2294	010060	032777	002000	171222	BIT	#CMDO,0DXMO	
2295	010066	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2296	010070	104000			ERROR		ICMDO STUCK HIGH
2297							
2298							
2299	010072	032737	004000	001312	BIT	#STAI,DXMI	ITEST FOR STATUS-IN
2300	010100	001001			BNE	,+4	IBRANCH IF NO ERROR CONDITION
2301	010102	104000			ERROR		ISTATUS-IN DID NOT RISE
2302	010104	010146			MOV	R1,0(SP)	
2303	010106	113701	014012		MOVB	00YMO,R1	
2304	010112	042701	177400		BIC	#177400,R1	
2305	010116	063701	001442		ADD	00EST,R1	
2306	010122	121177	171204		CMPB	0RE,0CUSR	
2307	010126	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2308	010130	104000			ERROR		ISTATUS FROM DST TRANSFER ERROR
2309	010132	121177	171204		CMPB	0RE,0BUSI	
2310	010136	001401			BEO	,+4	IBRANCH IF NO ERROR CONDITION
2311	010140	104000			ERROR		ICUSR TO BUSI TRANSFER ERROR
2312	010142	012601			MOV	(SP)+,R1	
2313							
2314							
2315							
2316	010144	032737	000004	013376	BIT	#BIT2,PARA	ITEST FOR MUX CH
2317	010152	001023			BNE	ISS2	IBRANCH IF MUX
2318	010154	105737	014012		TSTB	CMK	ITEST FOR "TEST I/O" COMMAND
2319	010160	001403			BEO	IS11	ICLEAR SELO,HLDO IF T10 CMD
2320	010162	105777	171154		TSTB	0BUSI	ITEST BUSI FOR ZERO STATUS

ISSCRJI

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2321	010166	001415				BEQ	ISS2		!DON'T CLEAR SEL0,HLDO ON 0 STATUS
2322	010170	042777	060000	171112	ISS11	BIC	#SEL0,HLDO,0DXMO		!CLEAR SELECT-OUT, HOLD-OUT
2323	010176	032777	020000	171104		BIT	#SEL0,0DXMO		!DID SEL0 CLEAR
2324	010204	001401				BEQ	,+3		!BRANCH IF NO ERROR CONDITION
2325	010206	104000				ERROR			!REPORT SEL0 NOT CLEAR
2326	010210	032777	040000	171072		BIT	#HLDO,0DXMO		!DID HLDO CLEAR
2327	010216	001401				BEQ	,+3		!BRANCH IF NO ERROR CONDITION
2328	010220	104000				ERROR			!HLDO DID NOT CLEAR
2329									
2330	010222	052777	001000	171000	ISS21	BIS	#SRVO,0DXMO		!SET SERVICE-OUT
2331	010230	032777	001000	171092		BIT	#SRVO,0DXMO		!TEST SERVICE OUT
2332	010236	001001				BNE	,+2		!BRANCH IF NO ERROR CONDITION
2333	010240	104000				ERROR			!SERVICE-OUT DID NOT SET
2334									
2335									
2336									
2337									
2338									
2339	010242	042777	001000	171040		BIC	#SRVO,0DXMO		!DROP SERVICE-OUT
2340	010250	032777	001000	171032		BIT	#SRVO,0DXMO		!TEST SERVICE-OUT
2341	010256	001401				BEQ	,+4		!BRANCH IF NO ERROR CONDITION
2342	010260	104000				ERROR			!SERVICE-OUT DID NOT CLEAR
2343									
2344	010262	043777	014012	171020		BIC	CMO,0DXMO		!CLEAR COMMAND FROM BUS0
2345	010270	109777	171042			TS70	#BUS0		!TEST FOR BUS0 CLEAR
2346	010274	001401				BEQ	,+4		!BRANCH IF NO ERROR CONDITION
2347	010276	104000				ERROR			!BUS0 DID NOT CLEAR
2348									
2349	010300	000207				RTS	PC		
2350									
2351									
2352									
2353	010302	032777	070000	171004	H10.SUBI	BIT	#70000,0DXCB		!TEST FOR PHASE ZERO
2354	010310	001103				BNE	H10,0		!BRANCH IF SELECTED
2355									
2356									
2357									
2358	010312	053777	014010	173770		BIS	DEV,0DXMO		!PUT ADRS ON BUS0
2359	010320	123777	014010	171010		CHPB	DEV,0BUS0		!ADRS LOAD OK
2360	010326	001401				BEQ	,+2		!BRANCH IF NO ERROR CONDITION
2361	010330	104000				ERROR			!ADRS LOAD ERROR
2362									
2363	010332	052777	004000	170790		BIS	#ADRO,0DXMO		!SET & CHECK ADRS-OUT
2364	010340	032777	004000	170742		BIT	#ADRO,0DXMO		
2365	010346	001001				BNE	,+2		!BRANCH IF NO ERROR CONDITION
2366	010350	104000				ERROR			!ADRO NOT SET
2367	010352	052777	040000	170730		BIS	#HLDO,0DXMO		!SET & CHECK HLDO
2368	010360	032777	040000	170722		BIT	#HLDO,0DXMO		
2369	010366	001001				BNE	,+3		!BRANCH IF NO ERROR CONDITION
2370	010370	104000				ERROR			!HLDO NOT SET
2371									
2372	010372	052777	020000	170710		BIS	#SELO,0DXMO		!SET & CHECK SELECT-OUT
2373	010400	032777	020000	170702		BIT	#SELO,0DXMO		
2374	010406	001001				BNE	,+3		!BRANCH IF NO ERROR CONDITION

2375	010410	104000			ERROR		ISELO NOT SET
2376							
2377	010412	032737	000002	013376	BIF	0BIT1,PARA	ITEST FOR BSV SELECT
2378	010420	001406			BEQ	HIO,S,B	
2379	010422	122777	000120	170712	CMPB	0STAMOD BSV,0BUSI	ICHECK STATUS
2380	010430	001401			BEQ	,+4	IBRANCH IF NO ERROR CONDITION
2381	010432	104000			ERROR		IBUSI STATUS ERROR
2382	010434	000431			BR	HIO,B	
2383	010436						
2384	010436	123777	014010	170602	CMPB	DEV,0CUAR	IVERIFY DEVICE ADDRESS
2385	010444	001401			BEQ	,+4	IBRANCH IF NO ERROR CONDITION
2386	010446	104000			ERROR		IBUSO TO CUAR TRANSFER ERROR
2387							
2388	010450	042777	004000	170632	BIC	0ADRO,0DXMO	ICLEAR & CHECK
2389	010456	032777	004000	170624	BIF	0AJRO,0DXMO	
2390	010464	001401			BEQ	,+3	IBRANCH IF NO ERROR CONDITION
2391	010466	104000			ERROR		IADRO SET
2392							
2393	010470	123777	014010	170644	CMPB	DEV,0BUSI	IS CORRECT ADRS BEING ECHOED
2394	010476	001401			BEQ	,+4	IBRANCH IF NO ERROR CONDITION
2395	010500	104000			ERROR		IBUSI LOAD ERROR
2396							ICHECK ADRECC,D
2397							
2398	010502	043777	014010	170600	BIC	DEV,0DXMO	IREMOVE ADRS FROM BUSO
2399	010510	105737	001310		TSYB	DXMO	IBRANCH IF CLEAR
2400	010514	001401			BEQ	,+3	IBRANCH IF NO ERROR CONDITION
2401	010516	104000			ERROR		IBUSO DID NOT CLEAR
2402							
2403							
2404							
2405	010520						
2406	010520	042777	060000	170502	BIC	0HLDO,ISELO,0DXMO	
2407	010526	032777	040000	170534	BIF	0HLDO,0DXMO	
2408	010534	001401			BEQ	,+3	IBRANCH IF NO ERROR CONDITION
2409	010536	104000			ERROR		IHLDO SET
2410							
2411	010540	032777	020000	170542	BIF	0SELO,0DXMO	
2412	010546	001401			BEQ	,+4	IBRANCH IF NO ERROR CONDITION
2413	010550	104000			ERROR		ISELO SET
2414							
2415	010552	052777	004000	170530	BIB	0ADRO,0DXMO	
2416							
2417	010560	032777	004000	170522	BIF	0ADRO,0DXMO	
2418	010566	001401			BNE	,+4	IBRANCH IF NO ERROR CONDITION
2419	010570	104000			ERROR		IADRO NOT SET
2420							
2421	010572	042777	004000	170510	BIC	0ADRO,0DXMO	
2422							
2423	010600	032777	004000	170502	BIF	0ADRO,0DXMO	
2424	010606	001401			BEQ	,+3	IBRANCH IF NO ERROR CONDITION
2425	010610	104000			ERROR		IADRO SET
2426	010612	000207			RTB	PC	
2427							
2428							

HIO,01

HIO,01

HIO,2i  
 ,00TTL

CUIS SUBROUTINE

```

2429
2430
2431
2432
2433
2434 #10614
2435
2436 #10614 #32737 #000004 #13376
2437 #10622 #01510
2438
2439 #10624
2440
2441 #10624 #32777 #020000 170400
2442 #10632 #01001
2443 #10634 104000
2444
2445 #10636 #32777 #060000 170444
2446 #10644 #32777 #020000 170436
2447 #10652 #01001
2448 #10654 104000
2449
2450 #10656 #32777 #040000 170424
2451 #10664 #01001
2452 #10666 104000
2453
2454 #10670 #32777 100000 170414
2455 #10676 #01001
2456 #10700 104000
2457
2458 #10702 #32777 #020000 170402
2459 #10710 #01401
2460 #10712 104000
2461
2462 #10714 #32777 #100000 170370
2463 #10722 #01001
2464 #10724 104000
2465
2466 #10726 123777 #14010 170406
2467 #10734 #01401
2468 #10736 104000
2469
2470 #10740 #32777 #020000 170342
2471 #10746 #32777 #020000 170334
2472 #10754 #01001
2473 #10756 104000
2474
2475 #10760 #32777 #100000 170324
2476 #10766 #01401
2477 #10770 104000
2478
2479 #10772 #42777 #060000 170310
2480 #11000 #32777 #040000 170302
2481 #11006 #01401
2482 #11010 104000
  
```

```

)
)CUIS.SUB, SUBROUTINE TO EXECUTE A
)CONTROL UNIT INITIATED SELECTION
)
)
  
```

CUIS.SUB1

```

)BIT
)REG
)BIT2,PARA
)CUIS0
  
```

CUIS.GO1

```

)REG1,0DXM1
)TEST FOR REQUEST=IN OP
)BRANCH IF NO ERROR CONDITION
)REG1 NOT SET

)SELO,HLD0,0DXM0
)SET SELECT=OUT & HOLD=OUT
)TEST FOR SELECT=OUT
)BRANCH IF NO ERROR CONDITION
)SELO NOT SET

)HLD0,0DXM0
)TEST FOR HOLD=OUT
)BRANCH IF NO ERROR CONDITION
)HLD0 NOT SET

)OPL1,0DXM1
)TEST FOR OPERATIONAL=IN
)BRANCH IF NO ERROR CONDITION
)OPL1 NOT SET

)REG1,0DXM1
)TEST FOR REG1
)BRANCH IF NO ERROR CONDITION
)REG1 DID NOT DROP

)ADR1,0DXM1
)TEST FOR ADDRESS IN
)BRANCH IF NO ERROR CONDITION
)ADR1 NOT SET

)DEV,0BUS1
)ADDRESS ON BUS1
)BRANCH IF NO ERROR CONDITION
)BUS1 LOAD ERROR

)CMD0,0DXM0
)SET COMMAND=OUT
)TEST FOR COMMAND=OUT
)BRANCH IF NO ERROR CONDITION
)CMD0 DID NOT SET

)ADR1,0DXM1
)ADR1 SHOULD DROP
)BRANCH IF NO ERROR CONDITION
)ADR1 DID NOT DROPS

)SELO,HLD0,0DXM0
)HLD0,0DXM0
)TEST HOLD=OUT
)BRANCH IF NO ERROR CONDITION
)HLD0 SET
  
```

```

2483
2484 011012 032777 020000 170270      BIT      @SELO,@DXMO      ;TEST SELECT=OUT
2485 011020 001401                      BEQ      ,+4             ;BRANCH IF NO ERROR CONDITION
2486 011022 104000                      ERROR
2487
2488 011024 042777 002000 170296      BIC      @CHDO,@DXMO      ;CLEAR COMMAND=OUT
2489 011032 032777 002000 170290      BIT      @CHDO,@DXMO      ;TEST FOR CHDO CLEAR
2490 011040 001401                      BEQ      ,+2             ;BRANCH IF NO ERROR CONDITION
2491 011042 104000                      ERROR
2492
2493 011044 000207      CUISDI RTS      PC
2494
2495      ;FAST ISS SELECTOR CH ONLY
2496
2497 011046      FASTISSI
2498 011046 053777 014010 170234      BIR      DEV,@DXMO      ;PUT DEVICE ADRS ON OUT TAGS
2499 011054 052777 004000 170226      BIR      @AERO,@DXMO      ;RAISE ADRS=OUT
2500 011062 052777 060000 170220      BIR      @HDO;SELO,@DXMO      ;RAISE SELECT=OUT, HOLD=OUT
2501 011070 042777 004000 170212      BIC      @AERO,@DXMO      ;REMOVE ADRS=OUT
2502 011076 043777 014010 170204      BIC      DEV,@DXMO      ;REMOVE ADRS
2503 011104 053777 014012 170176      BIR      CHE,@DXMO      ;PUT COMMAND ON OUT TAGS
2504 011112 052777 002000 170170      BIR      @CHDO,@DXMO      ;RAISE CMD=OUT
2505 011120 043777 014012 170162      BIC      CMV,@DXMO      ;REMOVE CMD
2506 011126 042777 002000 170154      BIC      @CHDO,@DXMO      ;REMOVE CMD=OUT
2507 011134 032737 000004 013376      BIT      @BITZ,PARA      ;TEST FOR MUX CH
2508 011142 001006                      BNE      FISS1           ;BRANCH P1 MUX
2509 011144 105737 014012                      TSTB     CMD             ;TEST FOR "TEST I/O" COMMAND
2510 011150 001403                      BEQ      FISS1           ;CLEAR SELO,HLDO IF TIO CMD
2511 011152 105777 170104                      TSTB     @BUS1           ;TEST BUS1 FOR ZERO STATUS
2512 011156 001403                      BEQ      FISS2           ;DON'T CLEAR SELO,HLDO ON 0 STATUS
2513 011160 042777 060000 170122      FISS1: BIR      @HDO;SELO,@DXMO      ;CLEAR SELO AND HLDO
2514 011166 052777 001000 170114      FISS2: BIR      @SRVO,@DXMO      ;RELEASE STATUS
2515 011174 042777 001000 170106      BIC      @SRVO,@DXMO
2516 011202 000207      RTS      PC
2517
2518      ;SEL CH ISS
2519
2520 011204      SEL'ISSI
2521 011204 053777 014010 170114      BIR      DEV,@CUAR      ;PRESET COM/ADD REG DEV ADDRESS
2522 011212 042777 000400 170106      BIC      @400,@CUAR      ;PARITY RESET
2523 011220 053777 014010 170062      BIR      DEV,@DXMO      ;PUT DEVICE ADRS ON OUT TAGS
2524 011226 052777 004000 170054      BIR      @AERO,@DXMO      ;RAISE ADRS=OUT
2525 011234 052777 060000 170046      BIR      @HDO;SELO,@DXMO      ;RAISE SELECT=OUT, HOLD=OUT
2526 011242 042777 004000 170040      BIC      @AERO,@DXMO      ;REMOVE ADRS=OUT
2527 011250 043777 014010 170032      BIC      DEV,@DXMO      ;REMOVE ADRS
2528 011256 053777 014012 170024      BIR      CMD,@DXMO      ;PUT COMMAND ON OUT TAGS
2529 011264 052777 002000 170016      BIR      @CHDO,@DXMO      ;RAISE CMD=OUT
2530 011272 043777 014012 170010      BIC      CHE,@DXMO      ;REMOVE CMD
2531 011300 042777 002000 170002      BIC      @CHDO,@DXMO      ;REMOVE CMD=OUT
2532 011306 052777 001000 167774      BIR      @SRVO,@DXMO      ;RELEASE STATUS
2533 011314 042777 001000 167766      BIC      @SRVO,@DXMO
2534 011322 000207      RTS      PC
2535
2536      ;SCOPE LOOP AND CONTROL SUBROUTINE

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*Handwritten mark*

2537	011324	105777	170046		SCOPECI	TSTB	9TKS	
2538	011330	100014				BPL	SCOPEH	
2539	011332	017727	170042			MOV	0TKB,(PC)+	
2540	011336	000000			DTMPI	P		
2541	011340	042737	000200	011336		BIC	0200,DTMP	
2542	011346	123727	011336	000003		CMPS	DTMP,#3	
2543	011354	001002				BNE	SCOPEH	
2544	011356	000137	012520			JMP	00MON1,0	
2545	011362	032737	040000	177570	SCOPEHI	BIT	0BIT14,SR	ITEST FOR SCOPE
2546	011370	001012				BNE	SCOPEH	IBRANCH IF SCOPE SELECTED
2547	011372	032737	004000	177570		BIT	0BIT11,SR	ITEST FOR ITERATIONS
2548	011400	001020				BNE	SCOPEA	IXIT IF ITERATIONS INHIBITED
2549	011402	005237	011452			INC	SCOPEF	IINCREMENT ITERATION COUNT
2550	011406	023737	011452	011450		CMPS	SCOPEF,ICOUNT	ITEST FOR COMPLETION OF ITERATIONS
2551	011414	001410				BEG	SCOPEG	IBRANCH IF COMPLETE
2552	011416	012737	177777	014002	SCOPEBI	MOV	00.,ONESHOT	ISO YOU CAN SCOPE ON ONCE ONLY CODE
2553	011424	005726				TST	(SP)+	IPOP RETURN PC
2554	011426	012637	177776			MOV	(SP)+,PS	IRESTOR PROCESSOR STATUS
2555	011432	000177	000010			JMP	0RETURN	I
2556	011436	011637	011454		SCOPEGI	MOV	0SP,RETURN	ISET UP SCOPE RETURN ADRS
2557	011442	005037	011452		SCOPEAI	CLR	SCOPEF	ICLEAR ITERATION COUNT
2558	011446	000002				RTI		
2559	011450	000001			ICOUNTI	1		INUMBER OF REQUESTED ITERATIONS
2560	011452	000000			SCOPEFI	0		ITERATION COUNT
2561	011454	004000			RETURNI	TST1		IDEFAULT RETURN
2562	011456				TSTABLEI			IBEGINNING OF TABLE OF TEST ADDRESSES
2563		011556				,#100		ITEST ADDRESS LIST

EMULATOR DECODER ROUTINE

2568	011556				EMTDECODERI			
2569	011556	011646				MOV	0R6,0(R6)	IDUPLICATE PC ON STACK
2570	011560	102716	000002			SUB	02,0R6	IPOINT PC TO EMT INST
2571	011564	017616	000000			MOV	0(R6),0R6	IMOV EMT INST ONTO STACK
2572	011570	121627	000024			CMPS	0R2,020,	ITEST THAT CALL IS WITHIN LIMITS
2573	011574	101401				BLOS	EMTOK	IBRANCH IF WITHIN LIMITS
2574	011576	104000				ERROR		
2575	011600	006116			EMTOKI	ROL	0R6	IENT ARGUMENT X 2,
2576	011602	042716	177001			BIC	0177001,0R6	ICLEAR HIGH BYTE
2577	011606	062716	011620			ADD	0EMTAG,0R6	IFORM ADRS OF ROUTINE ADRS
2578	011612	017616	000000			MOV	0(R6),0R6	IPUT ROUTINE ADRS ON STACK
2579	011616	000136				JMP	0(16)+	IJUMP TO ROUTINE
2580								ITAGS FOR EMT CALL
2581								
2582	011620				EMTAGI			IBEGINNING OF EMT TABLE
2583								
2584	011620	000024			.BLKW	20,		IRESERVE 16, WORDS FOR ADRS LIST
2585								
2586								
2587								
2588	011670				IENTRY POINT FOR MAP ERRORS			
2589	011670	012737	177777	012376	T,MAPERRI	MOV	001,EMFLG	IFLAG THAT THIS IS MAP ERROR
2590	011676	000137	012040			JMP	00DEF	

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2591 011702 000000          TERPCI 0          IORIGIN OF TRACE ERROR
2592          ITUMBLE TABLE TRACE ERROR TRAP
2593 011704          T,TRACER1
-2594 011704 012737 177770 012376      MOV      002,ENFLG
2595 011712 000004 021205          TYPE      ,TRCH1
2596 011716 010546          MOV      TTY,=(SP)          ISAVE TTY
2597 011720 013705 012432          MOV      ER1STN,TTY          ITYPE ERTSTN IN OCTAL
2598 011724 004737 016470          JSR      X7,PRINTS          IAND SUPPRESS LEADING ZERO'S
2599 011730 012605          MOV      (S2)+,TTY          IRESTORE TTY
2600 011732 000004 021237          TYPE      ,TRCH          ITRACE ERROR AT1
2601 011736 010546          MOV      TTY,=(SP)          ISAVE TTY
2602 011740 013705 011702          MOV      TERPC,TTY          ITYPE IN OCTAL
2603 011744 004737 016466          JSR      PC,PRINTR          ITYPE LEADING ZERO'S
2604 011750 012605          MOV      (SP)+,TTY          IRESTORE TTY
2605 011752 000004 021337          TYPE      ,TRC1
2606 011756 010546          MOV      TTY,=(SP)          ISAVE TTY
2607 011760 013705 006534          MOV      TTRAS,TTY          ITYPE IN OCTAL
2608 011764 004737 016466          JSR      PC,PRINTR          ITYPE LEADING ZERO'S
2609 011770 012605          MOV      (SP)+,TTY          IRESTORE TTY
2610 011772 000004 021361          TYPE      ,TRC2
2611 011776 010546          MOV      TTY,=(SP)          ISAVE TTY
2612 012000 013705 006536          MOV      TTSOULD,TTY          ITYPE IN OCTAL
2613 012004 004737 016466          JSR      PC,PRINTR          ITYPE LEADING ZERO'S
2614 012010 012605          MOV      (SP)+,TTY          IRESTORE TTY
2615 012012 032701 000002          BIT      00RT1,R1          ITEST FOR DXDS OR DXCA
2616 012016 001003          BNE      15          IBR IF DXCA
2617 012020 000004 021403          TYPE      ,TVDS
2618 012024 000402          BR       25
2619 012026 000004 021430          TYPE      ,TVCA
2620 012032          15|
2621 012032 000402          25|          BR       0EP
2622
2623          IENTRY POINT FOR MOST ERRORS
2624
2625 012034          T,ERROR1
2626 012034 005037 012376          CLR      ERPLG          IFLAG THIS AS NORMAL ERROR
2627 012040 005237 012430          OEP: INC      ERRCNT          IINC ERROR COUNT
2628 012044 010037 012434          MOV      R07E,R0          ISAVE R0
2629 012050 010137 012436          MOV      R12E,R1          ISAVE R1
2630 012054 010237 012440          MOV      R27E,R2          ISAVE R2
2631 012060 010337 012442          MOV      R31E,R3          ISAVE R3
2632 012064 010437 012444          MOV      R41E,R4          ISAVE R4
2633 012070 010537 012446          MOV      R57E,R5          ISAVE R5
2634 012074 032737 020000 177570          BIT      00IT13,SR          ITEST FOR INHIBIT PRINT
2635 012102 001063          BNE      PERRPC          IBRANCH IF INHIBIED
2636 012104 000004 020721          TYPE      ,ENPC
2637 012110 011627          MOV      00E,(PC)+          ISAVE ERROR PC +2
2638 012112 000000          ETMP0: 0          IHERE
2639 012114 102737 000002 012112          SUB      027ETMP0          ICORRECT PC
2640 012122 010546          MOV      TTY,=(SP)          ISAVE TTY
2641 012124 013705 012112          MOV      00ETMP0,TTY          ITYPE IN OCTAL
2642 012130 004737 016466          JSR      PC,PRINTR          ITYPE LEADING ZERO'S
2643 012134 012605          MOV      (S2)+,TTY          IRESTORE TTY
2644 012136 032737 010000 177570          BIT      00IT12,SR          ITEST FOR SHORT ERROR REPORT
  
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2645	012144	001042			BNE	PERRPC		IBRANCH IF SHORT SELECTED
2646	012146	022737	177770	012376	CMF	0=2,ENFLG		
2647	012154	001410			BEG	15		
2648	012156	000004	021139		TYPE	,MSG35		IBRANCH IF SHORT SELECTED
2649	012162	010540			MOV	TTY,=(SP)		IBRANCH IF SHORT SELECTED
2650	012164	013705	012432		MOV	ERISTN,TTY		IBRANCH IF SHORT SELECTED
2651	012170	004737	010470		JSR	RT:PRINTS		IBRANCH IF SHORT SELECTED
2652	012174	012609			MOV	(SP)+,TTY		IBRANCH IF SHORT SELECTED
2653	012176	000004	021064		TYPE	,MSG20		IBRANCH IF SHORT SELECTED
2654	012202	010540			MOV	TTY,=(SP)		IBRANCH IF SHORT SELECTED
2655	012204	013705	014020		MOV	CUMDRS,TTY		IBRANCH IF SHORT SELECTED
2656	012210	004737	010460		JSR	PC:PRINTR		IBRANCH IF SHORT SELECTED
2657	012214	012609			MOV	(SP)+,TTY		IBRANCH IF SHORT SELECTED
2658	012216	000004	020070		TYPE	,C:LF		IBRANCH IF SHORT SELECTED
2659	012222	032737	000002	013376	BIT	0BIT1,0SPARA		IBRANCH IF SHORT SELECTED
2660	012230	001402			BEG	EMOD1		IBRANCH IF SHORT SELECTED
2661	012232	000004	021300		TYPE	,ABSYN		IBRANCH IF SHORT SELECTED
2662	012236	032737	000004	013376	BIT	0BIT2,0SPARA		IBRANCH IF SHORT SELECTED
2663	012244	001402			BEG	EMOD2		IBRANCH IF SHORT SELECTED
2664	012246	000004	021317		TYPE	,AMUXH		IBRANCH IF SHORT SELECTED
2665	012252				EMOD2;			IBRANCH IF SHORT SELECTED
2666	012252	032737	100000	177570	PERRPC;	BIT	0MLTSH,SR	IBRANCH IF SHORT SELECTED
2667	012260	001401			BEG	ERRLOP		IBRANCH IF SHORT SELECTED
2668								
2669								
2670	012262	000000			HALT			IBRANCH IF SHORT SELECTED
2671	012264				ERRLOP;			IBRANCH IF SHORT SELECTED
2672	012264	013700	012434		MOV	E,R0,R0		IBRANCH IF SHORT SELECTED
2673	012270	013701	012430		MOV	E,R1,R1		IBRANCH IF SHORT SELECTED
2674	012274	013702	012440		MOV	E,R2,R2		IBRANCH IF SHORT SELECTED
2675	012300	013703	012442		MOV	E,R3,R3		IBRANCH IF SHORT SELECTED
2676	012304	013704	012444		MOV	E,R4,R4		IBRANCH IF SHORT SELECTED
2677	012310	013705	012446		MOV	E,R5,R5		IBRANCH IF SHORT SELECTED
2678	012314	032737	040000	177570	BIT	0LOPSH,SR		IBRANCH IF SHORT SELECTED
2679	012322	001424			BEG	EX:R1		IBRANCH IF SHORT SELECTED
2680	012324	012706	001100		MOV	0BEGIN,SP		IBRANCH IF SHORT SELECTED
2681	012330	012737	177777	014002	MOV	0=1,0NESHOT		IBRANCH IF SHORT SELECTED
2682	012336	042777	000002	166754	BIC	0MCLKEN,0DXES		IBRANCH IF SHORT SELECTED
2683	012344	005077	166740		CLR	0D:MO		IBRANCH IF SHORT SELECTED
2684	012350	052777	000001	166722	BIS	0DXFRS,0DXCS		IBRANCH IF SHORT SELECTED
2685	012356	004737	015230		JSR	PC:PRE;		IBRANCH IF SHORT SELECTED
2686	012362	013737	001272	177776	MOV	LESS1,PS		IBRANCH IF SHORT SELECTED
2687	012370	000177	177000		JMP	0RETURN		IBRANCH IF SHORT SELECTED
2688								
2689	012374	000002			EX:R1;	RTI		IBRANCH IF SHORT SELECTED
2690	012376	000000			ERPLG;	0		IBRANCH IF SHORT SELECTED
2691								IBRANCH IF SHORT SELECTED
2692								IBRANCH IF SHORT SELECTED
2693	012400	020736			ADRAI	ADXDS		IBRANCH IF SHORT SELECTED
2694	012402	020745				ADxCA		IBRANCH IF SHORT SELECTED
2695	012404	020754				ADXCS		IBRANCH IF SHORT SELECTED
2696	012406	020763				ADXOS		IBRANCH IF SHORT SELECTED
2697	012410	020772				ADXBA		IBRANCH IF SHORT SELECTED
2698	012412	021001				ADXBC		IBRANCH IF SHORT SELECTED

IBRANCH IF SHORT SELECTED

EX:R1; RTI  
 ERPLG; 0  
 IERROR CONTROL FLAG 010MAP ERROR  
 ILIST OF ASCII MESSAGE ADDRESSES

ADRAI  
 ADXDS  
 ADxCA  
 ADXCS  
 ADXOS  
 ADXBA  
 ADXBC



2699 012414 021010  
 2700 012416 021017  
 2701 012420 021026  
 2702 012422 021035  
 2703 012424 021044  
 2704 012426 021053  
 2705  
 2706  
 2707  
 2708  
 2709  
 2710 012430 000000  
 2711 012432 000000  
 2712  
 2713  
 2714  
 2715  
 2716 012434 000000  
 2717 012436 000000  
 2718 012440 000000  
 2719 012442 000000  
 2720 012444 000000  
 2721 012446 000000  
 2722  
 2723  
 2724  
 2725  
 2726 012450  
 2727  
 2728  
 2729  
 2730  
 2731 012450 012706 001100  
 2732 012454 012737 000340 177776  
 2733 012462 004737 014314  
 2734  
 2735 012466 012737 016624 000000  
 2736 012474 012737 000200 000002  
 2737 012502 000004 020011  
 2738  
 2739 012506 000004 017474  
 2740 012512 012737 012634 012510  
 2741  
 2742 012520 000005  
 2743 012522 005777 166652  
 2744 012526 052777 000100 166642  
 2745 012534 012706 001100  
 2746 012540 012737 000340 177776  
 2747 012546 000004 020231  
 2748 012552 104006  
 2749 012554 122700 000104  
 2750 012560 001003  
 2751 012562 004737 014314  
 2752 012566 000403

ADXMO  
 ADXMI  
 ADXCB  
 ADXND  
 ADXES  
 ADRAEI ADXES1

ERROR COUNT

ERRCNTI 0  
 ERYSYNI 0 ITEST NUMBER

REGISTER STORAGE FOR ERROR REPORTING

E,R01 0 ISAVED REGISTERS FOR ERROR REPORTING  
 E,R11 0 ISAVED REGISTERS FOR ERROR REPORTING  
 E,R21 0 ISAVED REGISTERS FOR ERROR REPORTING  
 E,R31 0 ISAVED REGISTERS FOR ERROR REPORTING  
 E,R41 0 ISAVED REGISTERS FOR ERROR REPORTING  
 E,R51 0 ISAVED REGISTERS FOR ERROR REPORTING

SBTTL MONITOR

MONITOR  
 MONITOR

MOV @BEGIN,SP ISET UP STACK POINTER  
 MOV @LVEL7,PS IMONITOR AT LEVEL 7  
 JSR PC,@MONDFLT ISET UP DEPAULT PARAMEYERS  
 MOV @TTYI,@000 ITTY KEYBOARD INT VEC  
 MOV @LEVEL4,@002 ILEVEL 4  
 TYPE ,HOME IHOME UP AND ERASE SCREEN  
 HI TYPE ,HEADER  
 MOV @RELOD,@H02 IHEADER TEXT GETS WIPEO BY NPRIS  
 MON1,01 RESET  
 TST @TKB ICLEAR FLAG  
 BIS @INTEN,@TKB ISET INTERRUPT ENABLE  
 MOV @BEGIN,SP ISET UP STACK POINTER  
 MOV @LVEL7,PS IMONITOR AT LEVEL 7  
 TYPE ,PSTART  
 KEY,TO,R0  
 CHPB @ID,R0 ID = DEPAULT PARAMEYERS  
 BNE 15  
 JSR PC,@MONDFLT  
 BR 25

2753	012570	122700	000120		1S)	CHPB	#IP,R0		IP = PREVIOUSLY SELECTED PARAMETERS
2754	012574	001002				BNE	33		
2755	012576	000137	013340		2S)	JMP	00MON10		
2756	012602	122700	000123		3S)	CHPB	#IP,R0		IS = GO THROUGH AND SELECT PARAMETERS
2757	012606	001426				BEG	MON1		
2758	012610	122700	000116			CHPB	#IN,R0		IN = START AT THIS TEST #
2759	012614	001341				BNE	MON1,0		
2760	012616	000004	020307			TYPE	,MSG5		
2761	012622	104005				ACCEPTO			
2762	012624	013737	014026	014030		MOV	OCYNUM,FIRST,TST		
2763	012632	000761				BR	25		
2764									
2765	012634	051137	040105	040517	RELODI	,ASCIZ	"RELOAD FOR HEADER TEXT"		
2766	012642	020104	047506	020122					
2767	012650	042510	042101	051105					
2768	012656	052040	054105	000124					
2769									
2770									
2771									
2772	012664	004737	014314		MON1I	JSR	PGMONDFLT		ISSET UP DEFAULT PARAMETERS
2773	012670	000004	020307			TYPE	,MSG9		IFIRST TEST #
2774									
2775	012674	104005				ACCEPTO			IACCEPT TEST NUMBER FROM KEYBOARD
2776									
2777									
2778	012676	005737	014026			TST	OCYNUM		ITEST FOR DEFAULT
2779	012702	001403				BEG	MON3		IBRANCH ON DEFAULT
2780	012704	013737	014026	014030		MOV	OCYNUM,FIRST,TST		ILOAD FIRST TEST #
2781									
2782	012712	000004	020245		MON3I	TYPE	,MSG2		IBASE ADDRESSI
2783									
2784									
2785	012716	104005				ACCEPTO			IACCEPT BASE ADDRESS FROM KEYBOARD
2786									
2787	012720	005737	014026			TST	OCYNUM		ITEST FOR DEFAULT
2788	012724	001403				BEG	MON4		IBRANCH IF DEFAULT
2789	012726	013737	014026	001202		MOV	OCYNUM,DXBASE		ILOAD NON-DEFAULT ADDRESS
2790									
2791	012734	000004	021101		MON4I	TYPE	,MSG20		IACCEPT INTERRUPT VECTOR
2792	012740	104005				ACCEPTO			
2793	012742	005737	014026			TST	OCYNUM		ITEST FOR DEFAULT
2794	012746	001411				BEG	MON4,1		IBRANCH IF DEFAULT
2795	012750	013737	014026	001204		MOV	OCYNUM,DXIV		ILOAD NON-DEFAULT INT VECTOR ADRS
2796	012756	062737	000002	014026		ADD	#2,00OCYNUM		IFORM INT STATUS ADRS
2797	012764	013737	014026	001206		MOV	00OCYNUM,00DXIS		IINT STATUS ADDRESS
2798									
2799									
2800	012772	000004	020512		MON4.1I	TYPE	,MSG12		IPRIORITY
2801	012776	104005				ACCEPTO		IACCEPT	OX PRIORITY LEVEL
2802	013000	005737	014026			TST	OCYNUM		ITEST FOR DEFAULT
2803	013004	001425				BEG	MON6		IBRANCH ON DEFAULT
2804	013006	006337	014026			ASL	OCYNUM		ISHIFT PRIORITY
2805	013012	006337	014026			ASL	OCYNUM		IINTO PROCESSOR
2806	013016	006337	014026			ASL	OCYNUM		IPRIORITY BITS OF

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2807 013022 006337 014026
2808 013026 006337 014026
2809 013032 013737 014026 001270
2810 013040 005337 014026
2811 013044 042737 000037 014026
2812 013052 013737 014026 001272
2813
2814
2815
2816
2817
2818 013060 000004 020326
2819 013064 012703 014050
2820 013070 000004 020420
2821 013074 004737 015534
2822 013100 104007 010010
2823 013104 013723 010010
2824 013110 104000
2825 013112 122700 000015
2826 013116 001364
2827
2828
2829
2830
2831 013120 013727 010010
2832 013124 000000
2833 013126 042737 000400 013124
2834 013134 023727 013124 000376
2835 013142 003403
2836 013144 000004 020537
2837 013150 000747
2838 013152 012723 177777
2839
2840
2841
2842
2843
2844
2845 013156 000004 020205
2846 013162 104005
2847 013164 005737 014026
2848 013170 001003
2849 013172 000004 020537
2850 013176 000767
2851
2852 013200 013727 014026
2853 013204 000000
2854 013206 005337 013204
2855 013212 013727 013124
2856 013216 000000
2857 013220 063737 013204 013216
2858 013226 105137 013216
2859 013232 042737 177400 013216
2860
  
```

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ASL OCTNUM ;PROCESSOR STATUS WORD
ASL OCINUM
MOV OCTNUM,DXPRT ;LOAD PRIORITY
DEC OCTNUM
BIC #3!,#OCTNUM ;CLEAR TNEVC
MOV OCTNUM,LESS1 ;PRIORITY TO ALLOW DX INTERRUPTS
  
```

IGENERATE A LIST OF LEGAL ADDRESSES

```

MON6I TYPE ,MSG4 ;LEGAL ADDRESS LIST
MOV #LEGAL,ADRS,R3 ;START OF LEGAL ADRS TABLE
MON7I TYPE ,MSG6 ;ADRSI
JSR PCYGETHEX ;GET HEXADECIMAL CU ADDRESS
PARITY ,HEXNUM ;PUT PARITY (ODD) ON ADRS
MOV HEXNUM,(R3)+ ;SAVE LEGAL ADDRESS
KEY,TO,R0
CMPB #CR,R0 ;ALL DONE?
BNE MON7 ;CONTINUE LIST IF NOT <CR>
  
```

..... MOD APR 74 .....

ADDRESS RESPONSE MOD

```

MOV HEXNUM,(PC)+
VLUMEXI0 BIC #400,VLUMEX
CMP VLUMEX,#376 ;TEST FOR > FF
BLE 15 ;(OK) BRANCHES
TYPE, MSG13 ;OUTPUT " ILLEGAL ?" I.E. > "FF"
BR MO:7 ;TRY AGAIN
15I MOV #1,(R3)+ ;MARK END OF LIST
  
```

..... MOD APR 74 .....

ISSET UP MAXIMUM NUMBER OF DEVICES PER CONTROL UNIT  
 ;THIS INFORMATION DETERMINES WHAT THE SPW TABLE LOOKS LIKE

```

MON5I TYPE ,MSG3 ;MAX # DEVICES/CU
ACCEPTO ;ACCEPT NUMBER OF DEVICES/CU
TST OCTNUM ;USE 16 ON DEPAULT
BNE X1: ;
TYPE, MSG13 ;OUTPUT " ILLEGAL ?" I.E. # "00"
BR MON5 ;TRY AGAIN
  
```

```

X1S1 MOV OCTNUM,(PC)+
RDXXI 0
DEC RDXX ;RANGE MODULO 1
MOV VLUMEX,(PC)+
MDXXI 0 ;RANGE MASK
ADD RDXX,MDXX ;SCALE
COMB MDXX ;FORM FINAL
BIC #177400,MDXX ;CU PORTION CLR
  
```

59

```

2861 |..... MOD APR 74 .....
2862 |
2863 013240 013737 014020 014032      MOV      OCTNUM,MAX,DEV,CU
2864 013240 004737 015130      MON5,11 JSR      PC,CKCUA      ;CHECK FOR LEGAL NUMBER OF DEV PER CU
2865
2866
2867      ;GET COMMAND LIST
2868
2869      .REM      *
2870
2871      THIS ROUTINE ACCEPTS AN IBM COMMAND LIST FROM THE CONSOL. ALL
2872      COMMANDS MUST BE NON ZERO (I.E. T10 MUST BE TYPED WITH PARITY
2873      400). WITH EACH COMMAND THE MONITOR ASKS FOR ITS ASSOCIATED DST
2874      STATUS.
2875
2876      *
2877
2878 013252 012704 014274      MON8I   MOV      @CMD,STAT,R4
2879 013256 012703 014234      MOV      @CMD,ADRS,R3
2880 013262 000004 020447      TYPE     ,MSG9      ;LEGAL CMD LIST
2881 013266 000004 020500      MON9I   TYPE     ,MSG10     ;CMDI
2882 013272 104009      ACCEPTO ;ACCEPT LEGAL COMMANDS FROM KEYBOARD
2883 013274 005737 014020      TST      OCTNUM
2884 013300 001417      BEQ      MON10
2885 013302 104007 014020      PARITY  ,OCTNUM
2886 013306 013723 014020      MOV      OCTNUM,(R3)+
2887 013312 000004 021123      TYPE     ,MSG31     ;"STATUS: "
2888 013316 104009      ACCEPTO
2889 013320 113724 014020      MOVB    OCTNUM,(R4)+
2890 013324 104000      KEY,TO,R0
2891 013326 120027 000015      CHPB    R0,0CN
2892 013332 001359      BNE     MON9
2893 013334 012723 177777      MOV     @=1,(R3)+   ;LOAD TERMINATOR
2894
2895
2896      ;ASK FOR DYNAMIC SWITCH SETTINGS ON CONSOL SWITCHES
2897
2898 013340
2899 013340 012737 177777 014002      MON10I  MOV     @=1,ONESHOT
2900 013346 005037 012430      CLR     ERRCNT
2901 013352 000004 020430      TYPE     ,MSG7      ;SET DYNAMIC SWITCHES
2902 013356 104000      KEY,TO,R0          ;TYPE ANYTHING
2903 013360 122700 000003      CHPB    @3,R0      ;TEST FOR CONTROL C
2904 013364 001002      BNE     MON11      ;GO IF NO C
2905 013366 000137 012520      JMP     @MON1,0
2906
2907
2908      ;SET UP TABLES
2909
2910 013372 113727 177570      MON11I  MOVB   SWR,(PC)+   ;SAVE MODE CONTROL SWITCH SETTINGS
2911 013376 000000      PARA   0          ;HERE
2912 013400 052737 000001 013376      BIS     @BIT0,@PARA ;SET ONLINE SELECT FLAG
2913 013406 004737 015130      JSR     PC,CKCUA   ;CMP ADRS VS MAX DEV PER CU
2914 013412 004737 014742      JSR     PC,SPH,SETUP ;SET UP STATUS POINTER WORDS
  
```

```

2915 013416 004737 014560 JSR PC,TTY,CLR ;CLEAR TUMBLE TABLE
2916 013422 004737 015100 JSR PC,DST,SETUP ;SETUP DEVICE STATUS TABLE
2917 013426 004737 014604 JSR PC,ODAT ;SET 360 SIM OUTPUT DATA FILE
2918 013432 004737 015430 JSR PC,REG,SETUP ;SCALE ADDRESSES
2919
2920 013436 LPCSU1
2921 013436 012737 000001 014022 MOV #1,DEV CNT ;INIT DEVICE COUNT
2922 013444 012737 014050 014016 MOV #LEGAL,ADRS,ACUA ;ADRS OF CU ADRS
2923 013452 117737 000340 014020 MOV# @ACUA,CUADRS ;CU ADDRESS
2924 013460 000472 BR LPC1
2925
2926 013462 000004 020614 LPCNTLI TYPE ,BELL
2927
2928 013466 062737 000001 014020 ADD #1,CUADRS ;
2929 013474 009237 014022 INC DEV CNT ;INC DEVICE COUNT
2930 013500 023737 014022 014032 CMP DEV CNT,MAX,DEV,CU
2931 013506 003457 BLE LPC1
2932 013510 012737 000001 014022 MOV #1,DEV CNT ;INIT DEVICE COUNT
2933 013516 027727 000274 177777 CMP @ACUA,#=1
2934 013524 001042 BNE LPC2
2935 013526 062737 000002 013376 ADD #2,PARA ;INC TO NEXT PARA COMBINATION
2936 013534 022737 000010 013376 CMP #10,PARA ;HAVE ALL PARA COMBS BEEN TESTED?
2937 013542 002030 BGE LPC3 ;BRANCH IF NOT
2938 013544 042737 177776 013376 BIC #1,7776,@PARA ;ALL BUT ONLINE IF SET
2939
2940 ;..... MOD APR 74 .....
2941 ;
2942 ; OPLI TIMEOUT RESET MOD
2943 ;
2944 013552 012777 000001 169520 MOV #1,DXCS ;DX RESET OPLI
2945
2946 ;..... MOD APR 74 .....
2947 ;
2948 013560 000004 020616 TYPE ,ENDTST
2949 013564 000004 020630 TYPE ,EIM ;ERROR COUNT MESSAGE
2950 013570 010540 MOV TTY,=(SP) ;SAVE TTY
2951 013572 013705 012430 MOV ERR CNT,TTY ;TYPE IN OCTAL
2952 013576 004737 016460 JSR PC,PRINTR ;TYPE LEADING ZERO'S
2953 013602 012605 MOV (SP)+,TTY ;RESTORE TTY
2954
2955 ;THE FOLLOWING CODE IS FOR INTERFACE WITH DDP AND ACT11
2956
2957 013604 013700 000042 MOV #42,NO ;IF 42 = 0 REMAIN IN DX DIAGNOSTIC
2958 013610 001405 BEQ LPO5
2959 013612 000005 RESET ;LINK TO DDP OR ACT11
2960
2961 013614 004710 LOGICAL1 JSR PC,OR0
2962 013616 000240 NOP
2963 013620 000240 NOP
2964 013622 000240 NOP
2965 013624 012737 014050 014016 LPC51 MOV #LEGAL,ADRS,ACUA
2966 013632 017737 000100 014020 LPC21 MOV @ACUA,CUADRS
2967 013640 062737 000002 014016 ADD #2,ACUA
2968 013646 104007 014020 LPC11 PARITY ,CUADRS
  
```

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2969	013652	013737	014020	014010		MOV	CUADRS,DEV	
2970	013660	013737	014010	014014		MOV	DEV,DEV,A	;MULTI THREAD
2971	013666	023737	014022	014032		CMP	DEVCNT,MAX,DEV,CU	
2972	013674	001404				BEG	LP23	
2973	013676	062737	000001	014014		ADD	#1,DEV,A	
2974	013704	000403				BR	LPC4	
2975	013706	162737	000001	014014	LPC31	SUB	#1,DEV,A	
2976	013714	104007	014014		LPC41	PARITY	,DEV,A	
2977								
2978								
2979	013720	004737	015236		MON121	JSR	PG,PREI	IDO PRE INIT
2980	013724	012777	006114	169332		MOV	#FALSE,#DXIV	;SET UP FALSE INTERRUPT VECTOR TRAP
2981	013732	013777	001270	169326		MOV	DXERT,#DXIS	;SET UP INTERRUPT PRIORITY
2982	013740	013700	014030			MOV	FIRST,TST,R0	;TEST FOR DEFAULT
2983	013744	001002				BNE	MON13	;BRANCH IF NOT DEFAULT
2984	013746	005237	014030			INC	FIRST,TST	;DEFAULT TEST NUMBER IS ONE
2985	013752	013737	014030	012432	MON131	MOV	FIRST,TST,ERTSYN	
2986	013760	006300				ASL	R0	
2987	013762	016037	011454	011454		MOV	TSTABLE=2(R0),#RETURN	
2988	013770	062737	000024	011454		ADD	#2,#RETURN	
2989	013776	000170	011454		MON141	JMP	OTSTABLE=2(R0)	;JUMP TO SELECTED TEST
2990								
2991								
2992								
2993								
2994								
2995								
2996		000001						
2997	014002	177777						
2998	014004	000000						
2999	014006	000000						
3000	014010	000020						
3001								
3002	014012	000403						
3003								
3004								
3005	014014	000421						
3006								
3007								
3008	014016	000000						
3009								
3010								
3011	014020	000000						
3012	014022	000000						
3013								
3014	014024	002000						
3015	014026	000000						
3016	014030	000000						
3017	014032	000000						
3018								
3019								
3020								
3021	014034	000777						
3022	014036	000000						

.SBTTL MONITOR FILES

! ONE PASS FLAGS

FIVESEC=1 ;5 SEC OPLI TIMER TEST  
 ONESHOT=1 ;ONE PASS FLAGS  
 CARRY: 0 ;CARRY COUNT  
 TMP: 0 ;TEMPORARY STORAGE  
 DEVI: 20 ;DEVICE ADDRESS TO SELECT - MUST INCLDE PARITY  
 ; ( I.E. 441 IS DEV=1, CU=2)  
 CMD: 403 ;COMMAND TO PRESET - MUST INCLUDE PARITY  
 ; (403 IS BASIC NOP COMMAND)  
 DEV,A: 421 ;SECOND DEVICE FOR DUAL TESTS  
 ACUA: 0 ;ADRS OF CU ADRS  
 CUADRS: 0 ;CU ADRS  
 DEVCNT: 0 ;DEVICE COUNT  
 OFFSET: 2000 ;OFFSET TO ADDRESS REGISTER  
 OCYNUM: 0 ;OCTAL INPUT FROM TTY  
 FIRST,TST: 0 ;FIRST TEST TO RUN  
 MAX,DEV,CU: 0 ;MAXIMUM # OF DEVICES/CU

!DIAGNOSTIC VARIABLES

SSYAT: 777 ;SAVED STATUS  
 SRCNT: 0 ;SOURCE DATA

3023 014040 000000  
 3024 014042 000000  
 3025 014044 000000  
 3026 014046 000000

DSYCNFI 0  
 SAVDEVI 0  
 TSSFTI 0  
 COUNTI 0

DESTINATION DATA  
 SAVED DEVICE ADDRESS  
 TSSF TRACE  
 USED BY CH SIM TO COUNT BYTES TRANSFERRED

3027  
 3028  
 3029

LEGAL ADDRESS LIST

3030

3031 014050

LEGAL ADRESI

3032  
 3033 014050 000000  
 3034 014052 000000  
 3035 014054 000000  
 3036 014056 000000  
 3037 014060 000000  
 3038 014062 000000  
 3039 014064 000000  
 3040 014066 000000  
 3041 014070 000000  
 3042 014072 000000  
 3043 014074 000000  
 3044 014076 000000  
 3045 014100 000000  
 3046 014102 000000  
 3047 014104 000000  
 3048 014106 000000  
 3049 014110 000000

.WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0

3050

3051 014112

SCALD ADRESI

3052  
 3053 014112 000000  
 3054 014114 000000  
 3055 014116 000000  
 3056 014120 000000  
 3057 014122 000000  
 3058 014124 000000  
 3059 014126 000000  
 3060 014130 000000  
 3061 014132 000000  
 3062 014134 000000  
 3063 014136 000000  
 3064 014140 000000  
 3065 014142 000000  
 3066 014144 000000  
 3067 014146 000000  
 3068 014150 000000  
 3069 014152 000000

.WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0

3070

3071

3072

3073

3074 014154

3075

3076 014154 000400

LIST OF DEFAULT COMMANDS

DFLT.CMDI

TIOC

ITEST I/O COMMAND

67

3077	014156	000001	WRITEC	IWRITE COMMAND
3078	014160	000002	READC	IREAD COMMAND
3079	014162	000403	NOPC	INOP COMMAND
3080	014164	000004	SENSEC	ISENSE COMMAND
3081	014166	000405	ILLC	IILLAGAL COMMAND
3082	014170	177777	=1	ILIST TERMINATOR
3083	014172	177777	=1	ILIST TERMINATOR
3084	014174	177777	=1	ILIST TERMINATOR
3085	014176	177777	=1	ILIST TERMINATOR
3086	014200	177777	=1	ILIST TERMINATOR
3087	014202	177777	=1	ILIST TERMINATOR
3088	014204	177777	=1	ILIST TERMINATOR
3089	014206	177777	=1	ILIST TERMINATOR
3090	014210	177777	=1	ILIST TERMINATOR
3091	014212	177777	=1	ILIST TERMINATOR

3092  
3093  
3094  
3095  
3096  
3097  
3098

IDEFAULT STATUS LIST

3099	014214			
3100	014214	000	,BYTE	0
3101	014215	000	,BYTE	0
3102	014216	000	,BYTE	0
3103	014217	014	,BYTE	CEIDE
3104	014220	000	,BYTE	0
3105	014221	002	,BYTE	UC
3106	014222	002	,BYTE	UC
3107	014223	002	,BYTE	UC
3108	014224	002	,BYTE	UC
3109	014225	002	,BYTE	UC
3110	014226	002	,BYTE	UC
3111	014227	002	,BYTE	UC
3112	014230	002	,BYTE	UC
3113	014231	002	,BYTE	UC
3114	014232	002	,BYTE	UC
3115	014233	002	,BYTE	UC

3116  
3117  
3118  
3119

ILIST OF LEGAL COMMANDS

3120				
3121	014234			
3122				
3123	014234	000000	,WORD	0
3124	014236	000000	,WORD	0
3125	014240	000000	,WORD	0
3126	014242	000000	,WORD	0
3127	014244	000000	,WORD	0
3128	014246	000000	,WORD	0
3129	014250	000000	,WORD	0
3130	014252	000000	,WORD	0

3



3131 014254 000000  
 3132 014256 000000  
 3133 014260 000000  
 3134 014262 000000  
 3135 014264 000000  
 3136 014266 000000  
 3137 014270 000000  
 3138 014272 000000

.WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0  
 .WORD 0

!COMMAND STATUS

3139  
 3140

!CMD,STAT

3141  
 3142 014274  
 3143

3144 014274 000  
 3145 014275 000  
 3146 014276 000  
 3147 014277 000  
 3148 014300 000  
 3149 014301 000  
 3150 014302 000  
 3151 014303 000  
 3152 014304 000  
 3153 014305 000  
 3154 014306 000  
 3155 014307 000  
 3156 014310 000  
 3157 014311 000  
 3158 014312 000  
 3159 014313 000

.BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0  
 .BYTE 0

3160  
 3161

!SET UP DEFAULT PARAMETERS

3162  
 3163

!MONDFLT

3164  
 3165

3166 014314  
 3167 014314 005037 006366  
 3168 014320 005037 006426  
 3169 014324 013737 001440 000526  
 3170 014332 012737 177777 014002  
 3171 014340 005037 014030  
 3172 014344 005037 012432  
 3173 014350 005037 012430  
 3174 014354 013737 014546 011404  
 3175 014362 013737 014550 001202  
 3176 014370 013737 014552 001204  
 3177 014376 013737 014564 001206  
 3178 014404 013737 014554 001270  
 3179 014412 013737 014556 014032  
 3180 014420 013737 014562 014014  
 3181 014426 013737 014560 014030  
 3182 014434 012737 177777 014002  
 3183 014442 012737 017000 001442  
 3184 014450 012700 014154

CLR @ENTRY1 !TT TRACE ENTRY1  
 CLR @ENTRY2 !TT TRACE ENTRY2  
 MOV @TY,@TTRACE !INIT TT TRACE  
 MOV @1,ONESHOT !ONE PASS FLAG  
 CLR FIRST,TST !DEFAULT TEST 0  
 CLR ERISTN !ERROR TEST NUMBER  
 CLR ERRCNT !ERROR COUNT  
 MOV @V,FIRST,TST,@RETURN !FIRST TEST  
 MOV @R,DXBASE,@DXBASE !BASE ADDRESS  
 MOV @X,DXIV,@DXIV !INT VECTOR ADRS  
 MOV @D,DXIS,@DXIS !INT STATUS ADRS  
 MOV @P,DXPRT,@DXPRT !PRIORITY LEVEL  
 MOV @M,MAX,DEV,CU,@MAX,DEV,CO !MAX DEVICES  
 MOV @K,DEV,A,@DEV,A !SECOND DEVICE  
 MOV @L,LEGAL,ADRS,@LEGAL,ADRS !CU ADRS  
 MOV @1,LEGAL,ADRS+2  
 MOV @DSTADRS,@DST !INIT DST ADRS  
 MOV @DFLT,CMD,R0 !ADRS OF DEFAULT CMD LIST

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3185	014454	012701	014234		MOV	#CMD,ADRS,R1	IADRS OF LEGAL CMD LIST	
3186								
3187	014460	012021			MON2I	MOV (R0)+,(R1)+	ILOAD DEFAULT CMD LIST	
3188	014462	022710	177777			CMP #=1,OR0	IYES FOR TERMINATOR	
3189	014466	001374				BNE MON2		
3190	014470	012721	177777			MOV #=2,(R1)+	ILOAD TERMINATOR	
3191	014474	012727	000020			MOV #12,(PC)+		
3192	014500	000000			MON2,0I	0		
3193	014502	012700	014214			MOV #DFLT,STAT,R0	IDEFAULT STATUS	
3194	014506	012701	014274			MOV #CMD,STAT,R1	ISTATUS FOR EACH COMMAND	
3195	014512	112021			MON2,1I	MOV# (R0)+,(R1)+		
3196	014514	005337	014500			DEC MON2,0		
3197	014520	001374				BNE MON2,1		
3198								
3199	014522	013737	014024	001436		MOV OFFSET,SPH	ILOAD ADRS OF SPH	
3200	014530	013737	014024	001440		MOV OFFSET,TT	ILOAD ADRS OF TT	
3201	014536	062737	001000	001440		ADD #1000,TT	I " " " "	
3202	014544	000207			MON2,3I	RTS PC		
3203						IDEFAULT PARAMETERS		
3204								
3205	014546	004000			D,0	FIRST,TSYI	TSYI	I FIRST TEST
3206	014550	176200			D,0	BASEI	176200	I BASE ADDRESS
3207	014552	000300			D,0	XIVI	300	I INT VECTOR ADRS
3208	014554	000200			D,0	XPRYI	LEVEL4	I JOX PRIORITY LEVEL
3209	014556	000020			D,0	MAX,DEV,CUI	20	I MAX # DEVICES PER CU
3210	014560	000020			D,0	LEGAL,ADRSI	020	I DEFAULT CO ADRS
3211	014562	000421			D,0	DEV,AI	421	
3212	014564	000302			D,0	XISI	302	I INT STATUS ADRS
3213								
3214								
3215						.SBTTL	MONITOR SUBROUTINES	
3216								
3217						TTY,CLR,	CLEAR TUMBLE TABLE	
3218								
3219								
3220	014566					TTY,CLRI		
3221	014566	013701	001440			MOV TTY,R1	I BOTTOM OF TTY	
3222	014572	005021			CLRI	CLR (R0)+	I CLEAR TTY	
3223	014574	020137	004000			CMP R1,#ENDTT	I TEST FOR END OF TTY	
3224	014600	001374				BNE CL1	I BRANCH IF NOT END	
3225	014602	000207				RTS PC		
3226								
3227								
3228						IREINIT	OUTPUT DATA	
3229								
3230								
3231	014604					ODATI		
3232	014604	010046				MOV ROT,(SP)		
3233	014606	012700	022056			MOV #WATA,R0		
3234	014612	005027				CLR (P1)+		
3235	014614	000000			ODAT1I	0		
3236	014616	104007	014614		ODAT2I	PARITY	,ODAT1	
3237	014622	013720	014614			MOV	ODAT1,(R0)+	
3238	014626	042737	000400	014614		BIC	#PARO,ODAT1	

65

3239	014634	105237	014614		INCB	0DAT1		
3240	014640	001366			BNE	0DAT2		
3241	014642	012600			MOV	(SP)+,R0		
3242	014644	000207			RTS	PC		
3243								
3244								
3245								
3246								
3247								
3248								
3249								
3250								
3251								
3252								
3253								
3254								
3255								
3256								
3257								
3258								
3259								
3260								
3261	014646				T,PARITYI			
3262	014646	017627	000000		MOV	0(SP),(PC)+	IFETCH ADDRESS OF SOURCE DATA	
3263	014652	000000			SDAPG1	0	ISOURCE DATA ADDRESS	
3264	014654	017727	177772		MOV	0SDAPG,(PC)+	IFETCH SOURCE DATA	
3265	014660	000000			TDAT1	0	ISOURCE DATA	
3266	014662	005027			CLR	(PC)+		
3267	014664	000000			PRTY1	0		
3268								
3269	014666	106337	014660		PG21	ASLB	TDAT	
3270	014672	102002				BVC	PG1	
3271	014674	005137	014664			COM	PRTY	
3272								
3273	014700	106337	014660		PG31	ASLB	TDAT	
3274	014704	001370				BNE	PG4	
3275	014706	005737	014664			TST	PRTY	
3276	014712	100404				BMI	PG3	
3277	014714	052777	000400	177730		BIS	0PAR0,0SDAPG	IFETCH PARITY BIT
3278	014722	000403				BR	PG3	
3279	014724	042777	000400	177720	PG41	BIC	0PAR0,0SDAPG	ICLEAR PARITY BIT
3280								
3281	014732	062716	000002		PG51	ADD	02,0SP	IADD 2 TO RETURN PC
3282	014736	000002				RTI		
3283								
3284								
3285								
3286								
3287								
3288	014740	177400			MARK1	177400		
3289								
3290	014742				SPW.SETUP1			
3291	014742	012700	014050			MOV	0LEGAL,ADRS,R0	IFETCH ADRS OF LEGAL ADRS LIST
3292	014746	012701	014112			MOV	0SCALD,ADRS,R1	IFETCH ADRS OF SCALED LEGAL ADRS LIST

ISSETUP SPW TABLE  
 I..... MOD APR 74 .....  
 I\* ADDRESS RESOLUTION MOD

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3293
3294 014752 012011 SP,01 MOV (R0)+,R1 ;MAKE DUPLICATE ADRS LIST
3295 014754 043711 014740 BIC MARK,R1 ;
3296 ..... MOD APR 74 .....
3297 014760 006311 ASL R1 ;MAKE INDX MOD(2)
3298 014762 003721 001436 ADD SPW,(R1)+ ;EQUALS REAL SPW ADRS
3299 014766 021027 177777 CMP R1,#=1 ;TEST FOR TERMINATION
3300 014772 001367 BNE SP,0 ;FETCH NEXT ADRS
3301
3302 014774 012721 177777 MOV #1,(R1)+ ;MARK END OF SCALED ADRS LIST
3303
3304 015000 013701 001436 MOV SPW,R1 ;ADRS OF SPW
3305 015004 013702 001442 MOV DST,R2 ;ADRS OF DST
3306 015010 012700 014112 SP,11 MOV @SCALE,ADRS,R0
3307 015014 020110 SP,21 CMP R1,OR0 ;RUN THRU LIST
3308 015016 001407 BEQ SP,3 ;BRANCH ON LEGAL ADRS
3309 015020 005720 TST (R0)+
3310 015022 022710 177777 CMP #1,OR0 ;TEST FOR END OF LIST
3311 015026 001372 BNE SP,2 ;BRANCH IF NOT ENT
3312 015030 012721 016000 MOV @ERRDST,(R1)+ ;LOAD SPW WITH ERROR DST ADRS
3313 015034 000407 BR SP,6
3314 015036 013727 014032 SP,31 MOV MAX,DEV,CU,(PC)+
3315 015042 000000 SP,41 0
3316 015044 010221 SP,51 MOV R2,(R1)+
3317 015046 005337 015042 DEC SP,4
3318 015052 001374 BNE SP,5
3319 015054 020137 001440 SP,61 CMP R1,TT ;TEST FOR END OF SPW
3320 015060 002753 BLY SP,1
3321 015062 001405 BEQ SP,7
3322 015064 005726 TST (SP)+ ;POP STACK
3323 015066 000004 015200 TYPE ,IQVN
3324 015072 000137 012520 JMP MON1,0 ;GO BACK TO MONITOR
3325 015076 000207 SP,71 RTS PC
3326
3327
3328
3329
3330 015100 DS,SETUP1
3331 015104 013701 001442 MOV DS,R1
3332 015110 000000 DS,11 MOV #1,(PC)+
3333 015112 012702 014274 DS,21 MOV @CMD,STAT,R2
3334 015116 112221 MOVB (R2)+,(R1)+
3335 015120 005337 015110 DEC DS,1
3336 015124 001374 BNE DS,2
3337 015126 000207 RTS PC
3338
3339 ;SUBROUTINE TO CHECK THAT CU ADDRESS AND THE NUMBER OF DEVICES
3340 ;PER CU IS LEGAL
3341
3342 015130 012700 014050 CKCUA1 MOV @LEGAL,ADRS,R0 ;
3343 015134 005027 CKC11 CLR (PC)+
3344 015136 000000 CKC21 0
3345 015140 111037 015136 MOVB OR0,@CKC2 ;FETCH CU ADDRESS
3346 ..... MOD APR 74 .....

```

U1

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3347
3348
3349
3350 015144 122737 000020 014032 CKC3I  CMPB  #20,0#MAX,DEV,CU      ICHECK LIMIT 10.
3351
3352
3353
3354 015152 103005
3355 015154 000004 015200
3356 015160 012716 013150
3357 015164 000207
3358 015166 005720 CKC4I  TST  (R0)+
3359 015170 021027 177777  CMP  ORY,#=1
3360 015174 001357
3361 015176 000207
3362 015200 044537 040114 043505 IDVNI  ,ASCIZ  "ILLEGAL # OF DEVICES PER CU "
3363 015206 046101 021440 047440
3364 015214 020106 042504 044526
3365 015222 042503 020123 042520
3366 015230 020122 052503 000040
3367
3368
3369
3370
3371 015236 012737 015372 000004
3372 015244 012737 000340 000006
3373 015252 005077 164042
3374 015256 004737 015370
3375
3376
3377
3378 015262 004737 015370
3379 015266 005077 164000
3380 015272 004737 015370
3381 015276 013777 001436 163776
3382 015304 023777 001436 163770
3383 015312 001401
3384 015314 104000
3385 015316 052777 000010 163774
3386 015324 032777 000010 163706
3387 015332 001001
3388 015334 104000
3389 015336 012737 000006 000004
3390 015344 012737 000000 000006
3391 015352 004737 006176
3392 015356 004737 006220
3393 015362 000207
3394
3395
3396
3397
3398
3399
3400 015364 005077 163720 CLRMOI CLR  #DXMO  IDO SYSTEM RESET
  
```

3401 015370 000207 NOCLR: RTS PC  
 3402  
 3403 015372 104000 PRE:TOI ERROR IPRE:INIT TIME OUT ERROR  
 3404  
 3405  
 3406 015374 000002 RTI  
 3407  
 3408  
 3409  
 3410  
 3411  
 3412  
 3413  
 3414  
 3415  
 3416  
 3417  
 3418  
 3419

JDX RESET AND RESTORE ROUTINE

3420 015376 REBRESI  
 3421  
 3422 015376 042777 000200 163674 BIC #D0NE,#DXCS ICLR LOCKO  
 3423 015404 012777 000001 163606 MOV #DXFRS,#DXCS IJX RESET  
 3424 015412 013737 001440 000526 MOV #0,T,TRACE IRELOAD SOFT TT POINTER  
 3425 015420 000240 NOP IINSERT RESET I,E,"9" HERE IF REQUIRED  
 3426 015422 004737 007234 JSR PCTONLIN IGET BACK ONLINE  
 3427 015426 000207 RTS PC  
 3428  
 3429  
 3430  
 3431  
 3432

IREGISTER ADDRESS SETUP ROUTINE

3433  
 3434  
 3435 015430 REG.SETUP:  
 3436 015430 013700 001262 MOV DXBASE,R0 IFETCH BASE ADRS  
 3437 015434 012701 001274 MOV #DXDS,R1 IFETCH ADRS OF DXDS ADRS  
 3438 015440 010021 RS,11 MOV R0,(R1)+  
 3439 015442 002700 000002 ADD #2,R0 IINC TO NEXT DX ADRS  
 3440 015446 020127 001326 CMP R1,#DXES1+2  
 3441 015452 001372 BNE RS,11  
 3442  
 3443 015454 004537 015510 JSR R5,8BYTE ISETUP BYTE REF REG'S  
 3444  
 3445 015460 001276 DXCA  
 3446 015462 001326 CUAR  
 3447  
 3448 015464 001302 DXOS  
 3449 015466 001332 CUSR  
 3450  
 3451 015470 001310 DXMO  
 3452 015472 001336 BUSO  
 3453  
 3454 015474 001312 DXMI

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3455 015476 001342  
 3456  
 3457 015500 001320  
 3458 015502 001346  
 3459  
 3460 015504 177777  
 3461  
 3462 015506 000207  
 3463  
 3464 015510  
 3465 015510 012500  
 3466 015512 012501  
 3467 015514 011021  
 3468 015516 011011  
 3469 015520 009221  
 3470 015522 021527 177777  
 3471 015526 001370  
 3472 015530 005725  
 3473 015532 000205  
 3474  
 3475  
 3476  
 3477  
 3478 015534 005037 010010  
 3479 015540 010246  
 3480 015542 010146  
 3481 015544 010046  
 3482 015546 005001  
 3483 015550 104000  
 3484 015552 120027 000003  
 3485 015556 001002  
 3486 015560 000137 012520  
 3487 015564 122700 000177  
 3488 015570 001424  
 3489 015572 122700 000015  
 3490 015576 001424  
 3491 015600 120027 000040  
 3492 015604 001421  
 3493 015606 120027 000000  
 3494 015612 002413  
 3495 015614 120027 000071  
 3496 015620 003021  
 3497 015622 042700 177760  
 3498 015626 006301  
 3499 015630 006301  
 3500 015632 006301  
 3501 015634 006301  
 3502 015636 050001  
 3503 015640 000743  
 3504  
 3505 015642 000004 020654  
 3506 015646 000737  
 3507 015650 010137 010010  
 3508 015654 012600

BUSI  
 DXES  
 MISC  
 =1  
 RTS PC  
 SBYTE:  
 MOV (R5)+,R0  
 MOV (R1)+,R1  
 MOV @R0,(R1)+  
 MOV @R0,@R1  
 INC (R1)+  
 CMP @R0,#01  
 BNE SBYTE  
 TST (R1)+ IPOP OVER TERMINATOR  
 RTS R5

ACCEPT HEX NUMBER FROM TTY

GETHEX: CLR HEXNUM ;CLEAR HEXADECIMAL NUMBER LOCATION  
 MOV R2=(SP) ;SAVE R2  
 MOV R1=(SP) ;SAVE R1  
 MOV R0=(SP) ;SAVE R0  
 ACPTH: CLR R1 ;  
 ACPTH,1: KEY,TO,R0 ;FETCH AN ASCII CHAR FROM KEYBOARD  
 CMPB R0,#03 ;CONTROL C?  
 BNE AH,2  
 JMP @MON1,0  
 AH,2: CMPB @197,R0 ;TEST FOR RUBOUT  
 BEQ RUBOUM ;TEST FOR <CR>  
 CMPB @13,R0 ;TEST FOR <CR>  
 BEQ CARGH  
 CMPB R0,#040 ;EXIT IF SPACE  
 BEQ CARGH ;TEST FOR VALID HEX NUMBER  
 CMPB R0,#00  
 BLY RUBOUM  
 CMPB R0,#0'9  
 BGT AH,3  
 AH,3: BIC @17760,R0 ;CONVERT ASCII TO HEX  
 ASL R1  
 ASL R1  
 ASL R1  
 ASL R1  
 BIS R0,R1 ;CHALK'N UP  
 BR ACPTH,1 ;FETCH NEXT CHAR  
 RUBOUM: TYPE ;TYPE?  
 BR ACPTH  
 CARGH: MOV R1,HEXNUM ;PLACE HEX NUMBER HERE  
 MOV (SP)+,R0 ;RESTORE R0

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3509 015656 012601          MOV      (SP)+,R1          ;RESTOR R1
3510 015660 012602          MOV      (SP)+,R2          ;RESTORE R2
3511 015662 000207          RTS      PC
3512
3513 015664 005002          AHEX1  CLR      R2
3514 015666 120062 016012        AHEX01 CMPB    R0,ATBL(R2)      ;LOOK THRU ASCII TABLE
3515 015672 001406          BEQ     AHEX1          ;BRANCH ON MATCH
3516 015674 005202          INC     R2
3517 015676 126227 000000        016012 000000        CMPB    ATBL(R2),#0      ;LOOK FOR END OF TABLE
3518 015704 001370          BNE    AHEX0          ;BRANCH IF NOT END
3519 015706 000755          BR     RUBOUT          ;ERROR ON NO MATCH
3520 015710 116200 016022        AHEX11 MOVB   HTBL(R2),R0      ;LOAD BINARY OF FIND
3521 015714 000742          BR     AH:3
3522
3523
3524
3525          ;..... MOD APR 74 .....
3526          ;
3527
3528          016000          ;.0'1377+1
3529
3530          ; ILLEGAL OR MALFUNCTIONING GUAR ERROR STATUS TABLE MODULO 8
3531
3532          016000          ERRDST1
3533          016000          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3534          016001          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3535          016002          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3536          016003          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3537          016004          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3538          016005          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3539          016006          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3540          016007          002          ;BYTE UC          ;UNIT CHECK ENTRIES
3541
3542          016010 000000          HEXNUM1 0          ;HEX NUMBER
3543          016012 041101 042103 043105        ATBL1  ,ASCII 'ABCDEF'
3544          016020 000000          ,WORD 0
3545          016022          012          013          014          HTBL1  ,BYTE 10',11',12',13',14',15'
3546          016025          015          016          017
3547
3548          ;ACCEPT OCTAL NUMBER FROM TTY
3549          016030          T,ACCEPT01
3550          016030 005037 014026          CLR     OCTNUM          ;CLEAR OCTAL NUMBER LOCATION
3551          016034 010146          MOV     R1,=(SP)        ;SAVE R1
3552          016036 010046          MOV     R0,=(SP)        ;SAVE R0
3553          016040 005001          ACPT01 CLR     R1          ;
3554          016042 104006          ACPT0,11          KEY,TO,R0          ;FETCH AN ASCII CHAR FROM KEYBOARD
3555          016044 120027 000003          CMPB   R0,#3          ;CONTROL C?
3556          016050 001002          BNE    AO:2
3557          016052 000137 012520          JMP     @MON1,0
3558          016056 122700 000177          AO:21  CMPB   #177,R0          ;TEST FOR RUBOUT
3559          016062 001423          BEQ    RUBOUT
3560          016064 122700 000015          CMPB   #15,R0          ;TEST FOR <CR>
3561          016070 001423          BEQ    CARG
3562          016072 120027 000040          CMPB   R0,#40          ;EXIT IF SPACE

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3563	016076	001420			BEG	CARG	
3564	016100	120027	000000		CMPB	R0,00	TEST FOR VALID OCTAL NUMBER
3565	016104	002412			BLY	RUBOUT	
3566	016106	120027	000067		CMPB	R0,0'7	
3567	016112	003007			BGT	RU9OUT	
3568	016114	042700	177770		BIC	0177770,R0	CONVERT ASCII TO OCTAL
3569	016120	006301			ASL	R1	
3570	016122	006301			ASL	R1	
3571	016124	006301			ASL	R1	
3572	016126	050001			BIS	R0,R1	CHALK'N UP
3573	016130	000744			BR	ACPT0,1	FETCH NEXT CHAR
3574							
3575	016132	000004	020654		RUBOUTI	TYPE	TYPE?
3576	016136	000740			BR	ACPT0	
3577	016140	010137	014020		CARGI	MOV	R1,OCTNUM
3578	016144	012600			MOV	(SP)+,R0	PLACE OCTAL NUMBER HERE
3579	016146	012601			MOV	(S2)+,R1	RESTORE R0
3580	016150	000002			RTI		RESTOR R1
3581							RETURN
3582							FETCH AN ASCII CHARACTER FROM KEYBOARD
3583							
3584	016152				T,KEY,TO,R0I		
3585	016152	105777	163220		TSTB	0TKS	TEST FOR DONE
3586	016156	100375			BPL	,02	WAIT FOR KEYBOARD
3587	016160	117700	163214		MOVB	0TKB,R0	FETCH CHAR
3588	016164	117777	163210	163212	MOVB	0TKB,0TPB	ECHO
3589	016172	004737	016204		JSR	PC,TTYFLG	WAIT FOR DONE
3590	016176	042700	177600		BIC	0177000,R0	7 BIT ASCII
3591	016202	000002			RTI		
3592							TEST FOR TRANSMITTER DONE
3593							
3594	016204				TTYFLGI		
3595	016204	105777	163172		ZSI	TSTB	0TPS
3596	016210	100375			BPL	25	
3597	016212	000207			RTS	PC	
3598					.SOTTL	TTY ASCII	OUTPUT ROUTINE
3599							
3600							
3601	016214	032737	020000	177570	.IOTI	BIT	0BIT13,SR
3602	016222	001040			BNE	.IUTE	TEST FOR INHIBIT PRINT
3603	016224	010537	016332		MOV	TTY,.SAV	SAVE TTY
3604	016230	017605	000000		MOV	0(L),TTY	GET ADDRESS TO BE TYPED
3605	016234	122715	000044		.MORE:	CMPB	0(L),TTY
3606	016240	001425			BEG	.TERM	TERMINATOR?
3607	016242	105715			TSTB	(TTY)	TERMINATOR?
3608	016244	001423			BEG	.TERM	
3609	016246	122715	000001		CMPB	01,(TTY)	RESTORE OLD SEQUENCE
3610	016252	001416			BEG	.REST	
3611	016254	122715	000137		CMPB	0(L),TTY	SET UP CR LF
3612	016260	001406			BEG	.CRLF	
3613	016262	105777	163114		TSTB	0TPS	
3614	016266	100375			BPL	,04	
3615	016270	112577	163110		MOVB	(TTY)+,0TPB	
3616	016274	000757			BR	.MORE	

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3617 016276 005205          ,CRLF: INC      TTY
3618 016300 010546          MOV      TTY,=(0)
3619 016302 012705 016334  MOV      @,AR,TTY
3620 016306 000792          BR       ,MORE
3621 016310 012605          ,REST: MOV      (0)+,TTY
3622 016312 000790          BR       ,MORE
3623 016314 004737 016204  ,TERM: JSR     PC,TTYPLG      ;WAIT FOR DONE
3624 016320 013705 016332  MOV      ,SAV,TTY
3625 016324 002716 000002  ,NOTE: ADD     @2?(0) IPOP
3626 016330 000002          RT!
3627
3628 016332 000000          ,SAVI  0
3629 016334 005015 001002 001002  ,CARI  ,ASCII <CR><LF><2><2><2><2><2><2><1>
3630 016342 001002          001
3631 016346 010346          ,EVEN
3632 016346 000000          ,TYPE: 0
3633          ,SBTTL SAVE AND RESTORE REGISTERS
3634          ;SAVE REGS 0 TO 4 SUBROUTINE,
3635 016350 012637 016400  T,SAVRC: MOV    (0)+,SVRPC      ;SAVE PC AND PSW,
3636 016354 012637 016410  MOV      (0)+,SVRPSW
3637 016360 010546          MOV      %5,(0)
3638 016362 010446          MOV      %4,(0) ;SAVE REGS 0 - 4
3639 016364 010346          MOV      %3,(0) ;IN STACK,
3640 016366 010246          MOV      %2,(0)
3641 016370 010146          MOV      %1,(0)
3642 016372 010046          MOV      %0,(0)
3643 016374 013746 016410  MOV      SVRPSW,(0) ;RESTORE PC AND PSW,
3644 016400 013746 016406  MOV      SVRPC,(0)
3645 016404 000002          RT! ;EXIT,
3646 016406 000000          SVRPC: 0
3647 016410 000000          SVRPSW: 0
3648          ;RESTORE REGS 0 TO 4 SUBROUTINE,
3649 016412 012637 016450  T,RSTRG: MOV    (0)+,RSTPC      ;SAVE PC AND PSW,
3650 016416 012637 016452  MOV      (0)+,RSTPSW
3651 016422 012600          MOV      (0)+,%0 ;RESTORE REGS 0 - 4
3652 016424 012601          MOV      (0)+,%1 ;FROM STACK,
3653 016426 012602          MOV      (0)+,%2
3654 016430 012603          MOV      (0)+,%3
3655 016432 012604          MOV      (0)+,%4
3656 016434 012605          MOV      (0)+,%5
3657
3658 016436 013746 016452  MOV      RSTPSW,(0) ;RESTORE PC AND PSW,
3659 016442 013746 016450  MOV      RSTPC,(0)
3660 016446 000002          RT! ;EXIT
3661 016450 000000          RSTPC: 0
3662 016452 000000          RSTPSW: 0
3663          ,SBTTL OCTAL DUMP ROUTINE
3664
3665 016454 000000 000000 000000 PRINT2: ,WORD 0,0,0,0
3666 016462 000000          PRINT3: ,BYTE 0,0
3667 016464 000          PRINT3: ,BYTE 0,0
3668
3669 016466 112737 000001 016464 PRINT3: MOVB   @1,PRINT3 ;SET ZERO FILL SWITCH
3670 016474 000402          BR       ,00
  
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3671	016476	005037	016464		PRINTSI	CLR	PRINT3	ISUPRESS LEADING ZERO'S
3672	016502	112737	177772	016465		MOV8	0=0,PRINT3+1	ISSET COUNT
3673	016510	032737	020000	177570		BIT	0BIT13,SR	
3674	016516	001041				BNE	PRVE	
3675	016520	010446				MOV	%4?=(0)	ISAVE R4
3676	016522	012704	016454			MOV	0PRINT2,X4	ISSET POINTER TO FIRST ASCII CHAR,
3677	016526	105014				CLRB	(4?	ICLEAR FIRST BYTE
3678	016530	000405				BR	PRINTF	IRotate FIRST BIT
3679	016532	105014			PRINTLI	CLRB	(4?	ICLEAR BYTE OF CHARACTER
3680	016534	006105				ROL	TTY	IRotate BIT INTO C
3681	016536	106114				ROLB	(4?	IPACK IT
3682	016540	006105				ROL	TTY	IRotate BIT INTO C
3683	016542	106114				ROLB	(4?	IPACK IT
3684	016544	006105			PRINTFI	ROL	TTY	IRotate BIT INTO C
3685	016546	106114				ROLB	(4?	IPACK IT
3686	016550	105714				TSTB	(4?	
3687	016552	001402				BEO	,+0	
3688	016554	105237	016464			INCB	PRINT3	
3689	016560	105737	016464			TSTB	PRINT3	ICHECK FILL SWITCH
3690	016564	001402				BEO	,+2	
3691	016566	152724	000060			BISB	010,(4)+	IMAKE INTO ASCII CHAR
3692	016572	105237	016465			INCB	PRINT3+1	
3693	016576	001355				BNE	PRINTL	IREPEAT
3694	016600	022704	016454			CHP	0PRINT2,X4	
3695	016604	001002				BNE	,+2	
3696	016606	112724	000060			MOV8	010,(4)+	
3697	016612	105014				CLRB	(4?	
3698	016614	000004	016454			TYPE	,PRINT2	ITYPE IT
3699	016620	012604				MOV	(0 +,X4	IRESTORE R5
3700	016622	000207			PRTEI	RTS	%7	
3701						ITTY WATCH DOG FOR CONTROL C		
3702		000003				CNPLC=3		IASCII CONTROL C
3703								
3704	016624	117727	162550		TTYII	MOV8	0TKB,(PC)+	ISAVE CHAR
3705	016630	000000			SCHARI	B		IFHERE
3706	016632	042737	000200	016630		BIC	0200,00SCHAR	ISEVEN LEVEL ASCII
3707	016640	122737	000003	016630		CHPB	0C:TLC,00SCHAR	ICHECK FOR CONTROL C
3708	016646	001004				BNE	TTYIO	
3709	016650	000004	016674			TYPE	,AULC	ITYPE CONTROL C
3710	016654	000137	012520			JMP	00MON1,0	
3711	016660	004737	016204		TTYIOI	JSR	PC TTYPLG	
3712	016664	113777	016630	162512		MOV8	00SCHAR,0TPB	IECHO CHARACTER
3713	016672	000002				RTI		
3714								
3715	016674	041536	000		ACLCI	,ASCIZ	<136><103>	
3716		016700				,EVEN		
3717								
3718		017000				,+1377+1		IFORM MOD(400) BOUNDRY
3719								
3720		017000			DSTADRS=,			IDEFAULT DST
3721								
3722	017000	000				,BYTE	0	ITIO
3723	017001	000				,BYTE	0	IWRITE
3724	017002	000				,BYTE	0	IREAD

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Address	Octal	Byte	CEIDE	INOP	ISENSE
3725	017003	014	,BYTE	UC	ILLEGAL ,UNIT CHECK
3726	017004	000	,BYTE	0	ISENSE
3727					
3728	017005	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3729	017006	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3730	017007	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3731	017010	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3732	017011	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3733	017012	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3734	017013	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3735	017014	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3736	017015	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3737	017016	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3738	017017	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3739	017020	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3740	017021	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3741	017022	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3742	017023	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3743	017024	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3744	017025	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3745	017026	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3746	017027	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3747	017030	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3748	017031	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3749	017032	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3750	017033	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3751	017034	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3752	017035	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3753	017036	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3754	017037	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3755	017040	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3756	017041	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3757	017042	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3758	017043	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3759	017044	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3760	017045	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3761	017046	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3762	017047	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3763	017050	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3764	017051	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3765	017052	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3766	017053	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3767	017054	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3768	017055	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3769	017056	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3770	017057	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3771	017060	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3772	017061	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3773	017062	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3774	017063	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3775	017064	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3776	017065	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3777	017066	002	,BYTE	UC	ILLEGAL ,UNIT CHECK
3778	017067	002	,BYTE	UC	ILLEGAL ,UNIT CHECK

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3779	017070	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3780	017071	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3781	017072	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3782	017073	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3783	017074	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3784	017075	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3785	017076	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3786	017077	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3787	017100	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3788	017101	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3789	017102	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3790	017103	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3791	017104	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3792	017105	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3793	017106	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3794	017107	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3795	017110	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3796	017111	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3797	017112	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3798	017113	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3799	017114	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3800	017115	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3801	017116	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3802	017117	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3803	017120	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3804	017121	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3805	017122	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3806	017123	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3807	017124	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3809	017126	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3814	017133	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3815	017134	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3816	017135	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3817	017136	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3818	017137	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3819	017140	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3820	017141	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3821	017142	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3825	017146	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3826	017147	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3827	017150	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3828	017151	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3829	017152	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3830	017153	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3832	017155	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK

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3835	017160	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3848	017175	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3849	017176	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3850	017177	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3851	017200	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3853	017202	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3860	017211	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3861	017212	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3862	017213	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3863	017214	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3869	017222	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3870	017223	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3871	017224	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3872	017225	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3873	017226	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3874	017227	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3875	017230	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3876	017231	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3877	017232	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3878	017233	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3879	017234	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3880	017235	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3881	017236	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3882	017237	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3883	017240	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3884	017241	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3885	017242	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3886	017243	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK

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3887	017244	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3888	017245	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3889	017246	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3890	017247	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3891	017250	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3892	017251	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3897	017256	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3904	017265	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3915	017300	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3916	017301	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3917	017302	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3918	017303	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3923	017310	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3924	017311	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3925	017312	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3926	017313	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3927	017314	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3928	017315	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3929	017316	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3930	017317	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3932	017321	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3933	017322	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3934	017323	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
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3936	017325	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3937	017326	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3938	017327	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3939	017330	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK
3940	017331	002	,BYTE	UC	ILLEGAL	,UNIT	CHECK

3941	017332	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3942	017333	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3943	017334	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3944	017335	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3945	017336	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3946	017337	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3947	017340	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3948	017341	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3949	017342	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3950	017343	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3951	017344	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3952	017345	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3953	017346	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3954	017347	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3955	017350	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3956	017351	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3957	017352	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3958	017353	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3959	017354	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3960	017355	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3961	017356	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3962	017357	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3963	017360	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3964	017361	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3965	017362	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3966	017363	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3967	017364	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3968	017365	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
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3970	017367	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3971	017370	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3972	017371	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3973	017372	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3974	017373	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3975	017374	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3976	017375	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3977	017376	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3978	017377	002	.BYTE	UC	ILLEGAL	UNIT	CHECK
3979			.EVEN				
3980							
3981	017400		T.PCH11				
3982	017400	000012	.BLKW	10'			
3983							
3984	017424		T.PCH21				
3985	017424	000012	.BLKW	10'			
3986							
3987	017450		T.PCH31				
3988	017450	000012	.BLKW	10'			
3989							
3990			.SBTTL	MESSAGES			
3991		000012	LF=12				
3992		000015	CR=15				
3993	017474		HEADER1				
3994			10		HEADER TEXT MOD		



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3995
3996
(1) 017474 046537 044501 042116
(1)
(1)
(1)
(1) 017567 137 047506 020122
(1) 017634 051537 042505 050040
(1) 017670 057537 044504 041523
(1) 017741 137 047503 047116
(1) 017774 052137 051110 053517
(1) 020027 137 052137 050131
(1) 020067 137 020040 020040
(1) 020127 137 020040 020040
(1) 020165 137 020040 020040
(1)
(1)
(1) 020231 137 042137 050094
(1)
(1) 020245 137 040502 042523 MSG21 ,ASCIZ "BASE ADDRESS1 "
(1) 020265 137 042504 044526 MSG31 ,ASCIZ "DEVICES PER CUI "
(1) 020307 137 042524 052123 MSG51 ,ASCIZ "TEST NUMBER1 "
(1) 020326 052137 050131 020105 MSG41 ,ASCIZ "TYPE CU ADRS:IS IN HEX <CR><LF>; <CR><CR> TERMINATES LIST"
(1) 020420 040537 051104 035123 MSG61 ,ASCIZ "ADRS1 "
(1) 020430 051537 052105 051440 MSG71 ,ASCIZ "SET SWITCHES"
(1) 020449 137 044514 052123 MSG91 ,ASCIZ "LIST ALL LEGAL COMMANDS"
(1) 020500 041537 046517 040515 MSG101 ,ASCIZ "COMMAND1"
(1) 020512 042137 020130 051120 MSG121 ,ASCIZ "DX PRIORITY LEVEL1 "
(1) 020537 137 030440 044440 MSG131 ,ASCIZ " " ILLEGAL ?"
(1)
(1)
(1) 020555 137 042522 051507 RDH1 ,ASCIZ "REGSTR = SHOULD BE = WAS"
(1) 020611 035 000037 HOME1 ,ASCIZ <35><37>
(1) 020614 000207 BELL1 ,ASCIZ <217>
(1) 020616 042537 042116 052040 ENDTST1 ,ASCIZ "END TEST"
(1) 020630 020137 051105 047522 ECM1 ,ASCIZ "ERRORS DETECTED1 "
(1) 020654 057477 000 ,ASCIZ "?"
(1) 020657 040 020040 020040 SPAC41 ,ASCIZ <45><40><40><40><40><40>
(1) 020666 000040 SPACE1 ,ASCIZ <40>
(1) 020670 000137 CRLF1 ,ASCIZ ""
(1) 020672 052137 050131 020105 STALL1 ,ASCIZ "TYPE IN STALL COUNT1 "
(1) 020721 137 042537 051122 ERPC1 ,ASCIZ "ERROR PCI "
(1)
(1) 020736 042137 042130 035123 ADXDS1 ,ASCIZ "DXDS1"
(1) 020745 137 054104 040503 ADXCA1 ,ASCIZ "EXCA1"
(1) 020754 042137 041530 035123 ADXCS1 ,ASCIZ "EXCS1"
(1) 020763 137 054104 051517 ADXOS1 ,ASCIZ "QXOS1"
(1) 020772 042137 041133 035101 ADXBA1 ,ASCIZ "QXBA1"
(1) 021001 137 054104 041502 ADXBC1 ,ASCIZ "QXBC1"
(1) 021010 042137 040530 035117 ADXMO1 ,ASCIZ "QXMO1"
(1) 021017 137 054104 044515 ADXMI1 ,ASCIZ "QXMI1"
(1) 021026 042137 041530 035102 ADXCO1 ,ASCIZ "EXCO1"
(1) 021035 137 054104 042116 ADXND1 ,ASCIZ "QXND1"
(1) 021044 042137 042530 035123 ADXES1 ,ASCIZ "QXES1"

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(1) 021053 137 054104 051505 ADXES11 ,ASCIZ "DXES11 "
(1) J..... MOD APH 74 .....
(1) J..... ERROR TEXT MOD
(1) 021064 020137 052503 042101 MSG261 ,ASCIZ " CUADRS/MOI"
(1) J..... MOD APH 74 .....
(1) 021101 137 042520 052103 MSG201 ,ASCIZ "VECTOR ADDRESSI "
(1) 021123 137 052123 052101 MSG311 ,ASCIZ "STATUSI "
(1) 021135 137 051105 047522 MSG351 ,ASCIZ "ERROR IN TESTI "
(1) 021156 047537 044522 044507 MSG361 ,ASCIZ "ORIGIN OF MAP ERRORI "
(1) 021205 137 052124 052040 TRCH11 ,ASCIZ "IT TRACE ERROR IN TESTI "
(1) 021237 137 051117 043511 TRCH1 ,ASCIZ "ORIGN OF LAST TT TRACE UPDATEI "
(1) 021300 041040 051525 020131 ABBYM1 ,ASCIZ " BUSY ENABLE "
(1) 021317 115 040125 044524 AMUXM1 ,ASCIZ "MULTIPLEXER CH"
(1) 021337 137 047105 051124 TRC11 ,ASCIZ "ENTRY WAS I"
(1) 021361 137 047105 051124 TRC21 ,ASCIZ "ENTRY SHOULD BEI"
(1) 021403 137 047105 051124 TTDS1 ,ASCIZ "ENTRY WAS FROM DXDS"
(1) 021430 042537 052116 054522 TTCA1 ,ASCIZ "ENTRY WAS FROM DXCA"
(1) ,LIST BEX
3997
3998 ,SBTTL DATA BUFFERS
3999
4000 IDATA BUFFER == CONTAINS 0 = 255 IN ONE BYTE ITEMS
4001
4002 IDATA FILE FOR CHANNEL SIMULATOR WRITE CMDS
4003 021456 ,EVEN
4004
4005 021456 DATAI
4006
4007
4008
4009 000001 NoI
4010 021456 000001 ,WORD N
4011 000002 NoNo2
4012 021460 000002 ,WORD N
4013 000004 NoNo2
4014 021462 000004 ,WORD N
4015 000010 NoNo2
4016 021464 000010 ,WORD N
4017 000020 NoNo2
4018 021466 000020 ,WORD N
4019 000040 NoNo2
4020 021470 000040 ,WORD N
4021 000100 NoNo2
4022 021472 000100 ,WORD N
4023 000200 NoNo2
4024 021474 000200 ,WORD N
4025 000400 NoNo2
4026 021476 000400 ,WORD N
4027 001000 NoNo2
4028 021500 001000 ,WORD N
4029 002000 NoNo2
4030 021502 002000 ,WORD N
4031 004000 NoNo2
  
```

4032	021504	004000	,WORD	N
4033		010000	NeN=2	
4034	021506	010000	,WORD	N
4035		020000	NeN=2	
4036	021510	020000	,WORD	N
4037		040000	NeN=2	
4038	021512	040000	,WORD	N
4039		100000	NeN=2	
4040	021514	100000	,WORD	N
4041		000000	NeN=2	
4042		000002	W=2	
4043	021516	177775	,WORD	=W=1
4044		000004	W+W+W	
4045	021520	177773	,WORD	=W=1
4046		000010	W+W+W	
4047	021522	177767	,WORD	=W=1
4048		000020	W+W+W	
4049	021524	177757	,WORD	=W=1
4050		000040	W+W+W	
4051	021526	177737	,WORD	=W=1
4052		000100	W+W+W	
4053	021530	177677	,WORD	=W=1
4054		000200	W+W+W	
4055	021532	177577	,WORD	=W=1
4056		000400	W+W+W	
4057	021534	177377	,WORD	=W=1
4058		001000	W+W+W	
4059	021536	176777	,WORD	=W=1
4060		002000	W+W+W	
4061	021540	175777	,WORD	=W=1
4062		004000	W+W+W	
4063	021542	173777	,WORD	=W=1
4064		010000	W+W+W	
4065	021544	167777	,WORD	=W=1
4066		020000	W+W+W	
4067	021546	157777	,WORD	=W=1
4068		040000	W+W+W	
4069	021550	137777	,WORD	=W=1
4070		100000	W+W+W	
4071	021552	077777	,WORD	=W=1
4072		000000	W+W+W	
4073	021554	177777	,WORD	=W=1
4074		000000	W+W+W	
4075		000001	NeI	
4076	021556	000001	,WORD	N
4077		000002	NeN=2	
4078	021560	000002	,WORD	N
4079		000004	NeN=2	
4080	021562	000004	,WORD	N
4081		000010	NeN=2	
4082	021564	000010	,WORD	N
4083		000020	NeN=2	
4084	021566	000020	,WORD	N
4085		000040	NeN=2	

4086	021570	000040	,WORD	N
4087		000100	N=N=2	
4088	021572	000100	,WORD	N
4089		000200	N=N=2	
4090	021574	000200	,WORD	N
4091		000400	N=N=2	
4092	021576	000400	,WORD	N
4093		001000	N=N=2	
4094	021600	001000	,WORD	N
4095		002000	N=N=2	
4096	021602	002000	,WORD	N
4097		004000	N=N=2	
4098	021604	004000	,WORD	N
4099		010000	N=N=2	
4100	021606	010000	,WORD	N
4101		020000	N=N=2	
4102	021610	020000	,WORD	N
4103		040000	N=N=2	
4104	021612	040000	,WORD	N
4105		100000	N=N=2	
4106	021614	100000	,WORD	N
4107		000000	N=N=2	
4108		000002	W=2	
4109	021616	177775	,WORD	W=1
4110		000004	W=H=H	
4111	021620	177773	,WORD	W=1
4112		000010	W=H=H	
4113	021622	177767	,WORD	W=1
4114		000020	W=H=H	
4115	021624	177757	,WORD	W=1
4116		000040	W=H=H	
4117	021626	177737	,WORD	W=1
4118		000100	W=H=H	
4119	021630	177677	,WORD	W=1
4120		000200	W=H=H	
4121	021632	177577	,WORD	W=1
4122		000400	W=H=H	
4123	021634	177377	,WORD	W=1
4124		001000	W=H=H	
4125	021636	176777	,WORD	W=1
4126		002000	W=H=H	
4127	021640	175777	,WORD	W=1
4128		004000	W=H=H	
4129	021642	173777	,WORD	W=1
4130		010000	W=H=H	
4131	021644	167777	,WORD	W=1
4132		020000	W=H=H	
4133	021646	157777	,WORD	W=1
4134		040000	W=H=H	
4135	021650	137777	,WORD	W=1
4136		100000	W=H=H	
4137	021652	077777	,WORD	W=1
4138		000000	W=H=H	
4139	021654	177777	,WORD	W=1

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4140		000000	W+W+W	
4141		000001	N=1	
4142	021656	000001	,WORD	N
4143		000002	N=N=2	
4144	021660	000002	,WORD	N
4145		000004	N=N=2	
4146	021662	000004	,WORD	N
4147		000010	N=N=2	
4148	021664	000010	,WORD	N
4149		000020	N=N=2	
4150	021666	000020	,WORD	N
4151		000040	N=N=2	
4152	021670	000040	,WORD	N
4153		000100	N=N=2	
4154	021672	000100	,WORD	N
4155		000200	N=N=2	
4156	021674	000200	,WORD	N
4157		000400	N=N=2	
4158	021676	000400	,WORD	N
4159		001000	N=N=2	
4160	021700	001000	,WORD	N
4161		002000	N=N=2	
4162	021702	002000	,WORD	N
4163		004000	N=N=2	
4164	021704	004000	,WORD	N
4165		010000	N=N=2	
4166	021706	010000	,WORD	N
4167		020000	N=N=2	
4168	021710	020000	,WORD	N
4169		040000	N=N=2	
4170	021712	040000	,WORD	N
4171		100000	N=N=2	
4172	021714	100000	,WORD	N
4173		000000	N=N=2	
4174		000002	W=2	
4175	021716	177775	,WORD	=W=1
4176		000004	W+W+W	
4177	021720	177773	,WORD	=W=1
4178		000010	W+W+W	
4179	021722	177767	,WORD	=W=1
4180		000020	W+W+W	
4181	021724	177757	,WORD	=W=1
4182		000040	W+W+W	
4183	021726	177737	,WORD	=W=1
4184		000100	W+W+W	
4185	021730	177677	,WORD	=W=1
4186		000200	W+W+W	
4187	021732	177577	,WORD	=W=1
4188		000400	W+W+W	
4189	021734	177377	,WORD	=W=1
4190		001000	W+W+W	
4191	021736	176777	,WORD	=W=1
4192		002000	W+W+W	
4193	021740	175777	,WORD	=W=1

4194		004000	W+W+W	
4195	021742	173777	,WORD	=W=1
4196		010000	W+W+W	
4197	021744	167777	,WORD	=W=1
4198		020000	W+W+W	
4199	021746	157777	,WORD	=W=1
4200		040000	W+W+W	
4201	021750	137777	,WORD	=W=1
4202		100000	W+W+W	
4203	021752	077777	,WORD	=W=1
4204		000000	W+W+W	
4205	021754	177777	,WORD	=W=1
4206		000000	W+W+W	
4207		000001	N#1	
4208	021756	000001	,WORD	N
4209		000002	N#N#2	
4210	021760	000002	,WORD	N
4211		000004	N#N#2	
4212	021762	000004	,WORD	N
4213		000010	N#N#2	
4214	021764	000010	,WORD	N
4215		000020	N#N#2	
4216	021766	000020	,WORD	N
4217		000040	N#N#2	
4218	021770	000040	,WORD	N
4219		000100	N#N#2	
4220	021772	000100	,WORD	N
4221		000200	N#N#2	
4222	021774	000200	,WORD	N
4223		000400	N#N#2	
4224	021776	000400	,WORD	N
4225		001000	N#N#2	
4226	022000	001000	,WORD	N
4227		002000	N#N#2	
4228	022002	002000	,WORD	N
4229		004000	N#N#2	
4230	022004	004000	,WORD	N
4231		010000	N#N#2	
4232	022006	010000	,WORD	N
4233		020000	N#N#2	
4234	022010	020000	,WORD	N
4235		040000	N#N#2	
4236	022012	040000	,WORD	N
4237		100000	N#N#2	
4238	022014	100000	,WORD	N
4239		000000	N#N#2	
4240		000002	W#2	
4241	022016	177775	,WORD	=W=1
4242		000004	W+W+W	
4243	022020	177773	,WORD	=W=1
4244		000010	W+W+W	
4245	022022	177767	,WORD	=W=1
4246		000020	W+W+W	
4247	022024	177757	,WORD	=W=1

4248		000040	W+W+W	
4249	022026	177737	,WORD	=W=1
4250		000100	W+W+W	
4251	022030	177677	,WORD	=W=1
4252		000200	W+W+W	
4253	022032	177577	,WORD	=W=1
4254		000400	W+W+W	
4255	022034	177377	,WORD	=W=1
4256		001000	W+W+W	
4257	022036	176777	,WORD	=W=1
4258		002000	W+W+W	
4259	022040	175777	,WORD	=W=1
4260		004000	W+W+W	
4261	022042	173777	,WORD	=W=1
4262		010000	W+W+W	
4263	022044	167777	,WORD	=W=1
4264		020000	W+W+W	
4265	022046	157777	,WORD	=W=1
4266		040000	W+W+W	
4267	022050	137777	,WORD	=W=1
4268		100000	W+W+W	
4269	022052	077777	,WORD	=W=1
4270		000000	W+W+W	
4271	022054	177777	,WORD	=W=1
4272		000000	W+W+W	
4273				
4274		022056	.B:	
4275	022056	000000	WDATA: B	
4276		023056	NPRDATA=WDATA+512,	
4277			INDICATE ADDRESS OF END OF BUFFER	
4278		000001	INPR INPUT DATA FILE	
			INDICATING BEGINNING OF WRITE DATA FILE	
			INPR INPUT DATA FILE	
			INDICATING AND NPRDAY OVER WRITE ASCII TEXT	
			.END	

ABSYM	021300	2661	3990#																	
ACCEPT#	104005	934#	2761	2775	2985	2792	2801	2846	2882	2888										
ACLC	016674	3709	3719#																	
ACPTH	015546	3482#	3900																	
ACPTH'	015550	3483#	3903																	
ACPTO	016040	3593#	3570																	
ACPTO'	016042	3594#	3573																	
ACUA	014016	2922#	2923	2933	2965#	2966	2967#	3000#												
ADRA	012400	2693#																		
ADRAE	012426	2704#																		
ADRECC#	000002	770#	2227																	
ADRECD#	000001	771#																		
ADRI #	010000	749#	2250	2285	2462	2475														
ADRO #	004000	737#	2211	2243	2363	2364	2388	2389	2415	2417	2421	2423	2499	2501						
		2524	2920																	
ADKBA	020772	2697	3990#																	
ADKBC	021001	2698	3990#																	
ADKCA	020749	2694	3990#																	
ADKCB	021026	2701	3990#																	
ADKCS	020754	2695	3990#																	
ADKDS	020736	2693	3990#																	
ADKES	021044	2703	3990#																	
ADKES1	021053	2704	3990#																	
ADKMI	021017	2700	3990#																	
ADKMO	021010	2699	3990#																	
ADKND	021035	2702	3990#																	
ADKOS	020763	2696	3990#																	
AHEX	015664	3496	3513#																	
AHEXB	015666	3514#	3910																	
AHEX1	015710	3515	3920#																	
AH'2	015564	3485	3487#																	
AH'3	015622	3497#	3921																	
AMUXM	021317	2604	3990#																	
AO'2	016056	3556	3950#																	
ATBL	016012	3514	3517	3943#																
ATTEN #	000200	719#																		
ATFN #	000200	000#																		
BA #	000010	795#																		
BALF #	000010	760#																		
BC #	000012	796#																		
BEGIN	001100	963	967#	999	2680	2731	2745													
BELL	020614	2926	3990#																	
BGN0	001216	989	993#																	
BGN1	001230	994	996#																	
BGN2	001244	997	999#																	
BIY0 #	000001	050#	1772	2040	2912															
BIY1 #	000002	057#	1783	2044	2377	2615	2659													
BIY10 #	002000	040#	092																	
BIY11 #	004000	047#	091	2547																
BIY12 #	010000	046#	090	2644																
BIY13 #	020000	045#	089	2634	3601	3673														
BIY14 #	040000	044#	088	2545																
BIY15 #	100000	043#	087																	
BIY2 #	000004	056#	1571	1656	1677	1697	1765	1802	1829	2247	2316	2436	2507	2602						







		1761	1762	1788	1789	1794	1795	1798	1799	1811	1812	1815	1817	1818
		1981	2036	2078	2079	2083	2097	2099	2108	2110	2165	2168	2169	2172
		2173	2199	2211	2216	2217	2221	2243	2249	2258	2253	2275	2289	2293
		2294	2322	2323	2326	2330	2331	2339	2348	2344	2358	2363	2364	2367
		2368	2372	2373	2388	2389	2398	2399	2406	2407	2411	2415	2417	2421
		2423	2449	2446	2458	2470	2471	2479	2487	2484	2488	2489	2498	2499
		2500	2501	2502	2503	2504	2505	2506	2513	2514	2515	2523	2524	2525
		2526	2527	2528	2529	2538	2531	2532	2533	2683	3488	3451		
		1022												
		1028												
		1014	1133	2151	2152	3381	3382	3448						
		1009	1997	2849	2889	2981	3178							
		779												
		3188	3211											
		3175	3286											
		3177	3212											
		3176	3287											
		3178	3288											
		3174	3289											
		3181	3218											
		3179	3289											
		924	929	938	931	932	933	934	939	936	937	938	939	
		1476												
		2949	3996											
		2668	2662											
		2663	2669											
		925	929	938	931	932	933	934	939	936	937	938	939	
		925	2977	2982										
		955	2988											
		2973	2979											
		788												
		1159												
		2948	3996											
		1475	3223											
		1497	1922	1943	1955	1963	1969	1621	1634	1643	1695	1738	1742	1751
		1823	1941	1944	1946	3167								
		1956	1957	1964	1965	1978	1973	1975	1635	1636	1642	1696	1699	1781
		1743	1744	1952	1824	1827	1829	1952	1955	1957	1989	1998	3168	
		2589	2994	2626	2646	2698								
		2636	3996											
		2627	2718	2988	2951	3173								
		1168	1169	1178	1171	1172	1173	1174	1175	1176	1177	1178	1179	1188
		1181	1182	1183	1187	1188	1189	1198	1191	1192	1193	1194	1195	1196
		1197	1198	1199	1208	1201	1202	1206	1207	1208	1209	1218	1211	1212
		1213	1214	1215	1216	1217	1218	1219	1228	1221	1225	1226	1227	1228
		1229	1238	1231	1232	1233	1234	1235	1236	1237	1238	1239	1248	1244
		1245	1246	1247	1248	1249	1258	1251	1252	1253	1254	1255	1256	1257
		1258	1259	1263	1264	1265	1266	1267	1268	1269	1278	1271	1272	1273
		1274	1279	1276	1277	1278	1282	1283	1284	1285	1286	1287	1288	1289
		1298	1291	1292	1293	1294	1295	1296	1297	1301	1302	1303	1304	1305
		1306	1307	1308	1309	1318	1311	1312	1313	1314	1315	1316	1328	1321
		1322	1323	1324	1325	1326	1327	1328	1329	1338	1331	1332	1333	1334
		1335	1339	1348	1341	1342	1343	1344	1345	1346	1347	1348	1349	1358
		1351	1352	1353	1354	1358	1359	1368	1361	1362	1363	1364	1365	1366

		1367	1368	1369	1370	1371	1372	1373	1377	1378	1379	1380	1381	1382
		1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1396	1397	1398
		1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411
		1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427
		1428	1429	1430	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443
		1444	1449	1446	1447	1448	1449	1453	1454	1455	1456	1457	1458	1459
		1460	1461	1462	1463	1464	1465	1466	1467	1468	3312	35320		
ERRLOP = 012264		2607	26710											
ERROR = 104000		9290	1110	1121	1124	1647	1650	1655	1662	1666	1672	1676	1683	1689
		1692	1750	1760	1764	1769	1779	1784	1791	1797	1801	1808	1814	1820
		1859	1864	1904	1915	1919	1988	1996	2003	2154	2158	2164	2167	2171
		2175	2187	2202	2208	2214	2219	2224	2230	2237	2240	2246	2252	2255
		2250	2262	2268	2273	2278	2283	2287	2292	2296	2301	2308	2311	2325
		2320	2333	2342	2347	2361	2366	2370	2375	2381	2386	2391	2395	2401
		2409	2413	2419	2425	2443	2448	2452	2456	2460	2464	2468	2473	2477
		2482	2486	2491	2574	3204	3308	3403						
ERTSTN = 012432		14040	15000	15350	15860	17130	18400	2597	2650	27110	29050	31720		
ES = 001030		0010	9290	9300	9310	9320	9330	9340	9350	9360	9370	9380	9390	
ESEND = 000100		0000	1500	1695	1823									
ETMP0 = 012112		26300	26390	2641										
EXR,SM = 000001		20	9	653	2654	2666	2668	2670	2935	3170	3202	3996		
EXYR1 = 012374		2679	26890											
E,R0 = 012434		26200	2672	27160										
E,R1 = 012436		26290	2673	27170										
E,R2 = 012440		26300	2674	27180										
E,R3 = 012442		26310	2675	27190										
E,R4 = 012444		26320	2676	27200										
E,R5 = 012446		26330	2677	27210										
FALSE = 006114		10590	2900											
FASTCU = 002000		7590												
FASTIS = 011046		24970												
FCYN = 000006		7100												
FIRST, = 014030		27620	27000	2902	29040	2905	30160	31710						
FISS1 = 011160		2500	2510	25130										
FISS2 = 011166		2512	25140											
FIVESE = 000001		29960												
FOL = 007414		2042	21040											
FOL1 = 007434		21000	2109											
FSTART = 020231		2747	39960											
GETHEX = 015534		2021	34700											
GO = 000001		7150	1952	1741	2074									
H = 012506		27390	27400											
HEADER = 017474		2739	39930											
HERE = 000000		0590												
HEXNUM = 016010		2022	2023	2031	34700	35070	39420							
HIO,0 = 010436		2370	23830											
HIO,SU = 010302		23530												
HIO,0 = 010520		2354	2382	24050										
HIO,2 = 010612		24260												
HL00 = 040000		7320	2936	2070	2216	2217	2249	2253	2322	2326	2367	2368	2400	2407
		2445	2490	2479	2480	2500	2513	2525						
HL9SW = 100000		0070	2660											
HOME = 020611		2737	39900											
HT0L = 016022		3020	39490											

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MC2.SM# 000000	2#	9	144	344	1903	2907	3233	3728	3979	3993	3996		
MDXX 013216	2056#	2057#	2058#	2059#									
MEM.SM# 000000	2#	10	374	381	930	1003	1101	1476	2507	3233	3234	3996	
MI 000016	798#												
MISC 001346	1040#	3450											
MO 000014	797#												
MONDFL 014314	2733	2751	2772	3106#									
MON170 012450	995	2720#											
MON1 012664	2757	2772#											
MON1.0 012520	998	2009	2944	2742#	2759	2905	3324	3486	3557	3710			
MON10 013340	1001	2759	2884	2898#									
MON11 013372	992	2904	2910#										
MON12 013720	2979#												
MON13 013752	2983	2989#											
MON14 013776	2989#												
MON2 014460	3107#	3109											
MON2.0 014500	3192#	3196#											
MON2.1 014512	3195#	3197											
MON2.3 014544	3202#												
MON3 012712	2779	2782#											
MON4 012734	2788	2791#											
MON4.1 012772	2794	2800#											
MON5 013156	2845#	2850	3356										
MON5.1 013246	2864#												
MON6 013060	2803	2810#											
MON7 013070	2820#	2826	2837										
MON8 013252	2870#												
MON9 013266	2881#	2892											
MSG10 020500	2801	3990#											
MSG12 020512	2800	3990#											
MSG13 020537	2836	2847	3996#										
MSG2 020249	2782	3990#											
MSG26 021064	2653	3990#											
MSG28 021101	2791	3990#											
MSG3 020269	2845	3990#											
MSG31 021123	2807	3990#											
MSG35 021139	2648	3990#											
MSG36 021156	3996#												
MSG4 020326	2818	3996#											
MSG5 020307	2700	2773	3996#										
MSG6 020420	2820	3996#											
MSG7 020430	2901	3996#											
MSG9 020447	2800	3996#											
N 000000	1104#	1169	1104#	1203#	1222#	1241#	1200#	1270#	1290#	1317#	1336#	1355#	1374#
	1393#	1412#	1431#	1450#	1469#	1476#	1479	1409#	1503	1511#	1530	1530#	1581
	1509#	1700	1716#	1835	1843#	4009#	4010	4011#	4012	4013#	4014	4015#	4016
	4017#	4018	4019#	4020	4021#	4022	4023#	4024	4025#	4026	4027#	4028	4029#
	4030	4031#	4032	4033#	4034	4035#	4036	4037#	4038	4039#	4040	4041#	4075#
	4076	4077#	4078	4079#	4080	4081#	4082	4083#	4084	4085#	4086	4087#	4088
	4089#	4090	4091#	4092	4093#	4094	4095#	4096	4097#	4098	4099#	4100	4101#
	4102	4103#	4104	4105#	4106	4107#	4141#	4142	4143#	4144	4145#	4146	4147#
	4148	4149#	4150	4151#	4152	4153#	4154	4155#	4156	4157#	4158	4159#	4160
	4161#	4162	4163#	4164	4165#	4166	4167#	4168	4169#	4170	4171#	4172	4173#
	4207#	4208	4209#	4210	4211#	4212	4213#	4214	4215#	4216	4217#	4218	4219#

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REG1	#01360	1059#												
REG2	#01362	1060#												
REG3	#01364	1061#												
REG4	#01366	1062#												
REG5	#01370	1063#												
REG6	#01372	1064#												
REG7	#01374	1065#												
RELOD	#12634	2740	2769#											
REQ1	#20000	740#	2441	2458										
RESRES	#15376	1134	3374	3300	3420#									
RETURN	#11454	1147	1409#	1509#	1536#	1507#	1714#	1841#	2559	2556#	2561#	2687	2487#	2988#
		3174#												
RSYPC	#16450	3649#	3059	3661#										
RSYPSW	#16452	3650#	3050	3662#										
RSYRG	#104004	933#	1131											
RS,1	#15440	3430#	3441											
RTX	#06706	973#	979#	982	2011#									
RUBOUM	#15642	3480	3494	3505#	3519									
RUBOUT	#16132	3559	3569	3567	3575#									
R0	#X000000	907#	2620	2672#	2749	2753	2756	2758	2829	2891	2903	2957#	2961	2982#
		2906#	2907	2909	3104#	3107	3100	3193#	3199	3232	3233#	3237#	3241#	3291#
		3294	3299	3306#	3307	3309	3310	3342#	3349	3350	3359	3436#	3430	3439#
		3405#	3467	3460	3481	3484	3487	3489	3491	3493	3495	3497#	3502	3500#
		3514	3520#	3552	3555	3550	3560	3562	3564	3566	3568#	3572	3570#	3587#
		3590#												
R1	#X000001	900#	1629#	1648	1651	1740#	1757	1758	1770	1775#	1777	1780	1782	1786
		1004	1000#	1000#	1092#	1090	1900#	1902	1900#	1926	1927#	1920	1934	1937
		1930	1947#	1940	1958#	1959	1961#	1967	1970	1972#	2107	2302	2303#	2304#
		2305#	2300	2309	2312#	2615	2629	2673#	3109#	3107#	3190#	3194#	3195#	3221#
		3222#	3223	3292#	3294#	3405#	3297#	3298#	3302#	3304#	3307	3312#	3316#	3319
		3330#	3334#	3437#	3438#	3440	3406#	3407#	3408#	3469#	3400	3402#	3490#	3499#
		3500#	3501#	3502#	3507	3509#	3551	3553#	3569#	3570#	3571#	3572#	3577	3579#
R2	#X000002	909#	1739#	1771	1772	1776#	1777	1781	1782	1787	1805	1807#	1809#	1891#
		1099	1901#	1905#	1907#	2630	2674#	3305#	3316	3333#	3334	3479	3510#	3513#
		3514	3510#	3517	3520									
R3	#X000003	910#	2631	2675#	2819#	2823#	2830#	2879#	2886#	2893#				
R4	#X000004	911#	2632	2676#	2870#	2909#								
R5	#X000005	912#	2633	2677#	3443#	3265	3466	3470	3472	3473#				
R6	#X000006	914#	1112	1130#	2569#	2570#	2571#	2572	2575#	2576#	2577#	2578#	2579	
S	#000001	1476#												
SAVDEV	#14042	3024#												
SAVRG	#104003	932#	1111											
SAVR6	#01606	1112#	1130	1140#										
SBYTE	#15510	3443	3464#	3471										
SCALD'	#14112	3051#	3292	3306										
SCNAR	#16630	3705#	3700#	3707	3712									
SCOPE	#104400	041#	1402	1506	1533	1504	1711	1838						
SCOPEA	#11442	2540	2557#											
SCOPEB	#11416	2546	2552#											
SCOPEC	#11324	950	2537#											
SCOPEF	#11452	2549#	2550	2557#	2560#									
SCOPEG	#11436	2551	2556#											
SCOPEH	#11362	2530	2543	2545#										
SCP1	#04024	1405	1400#											

SCP2	004110	1509	1510#												
SCP3	004210	1536	1537#												
SCP4	004520	1587	1588#												
SCP5	005260	1714	1719#												
SCP6	006110	1841	1842#												
SDAPG	014052	3203#	3264	3277#	3279#										
SELI	040000	7450													
SELO	020000	7330	1114	2036	2070	2221	2249	2252	2322	2323	2372	2373	2406	2411	
		2445	2440	2479	2484	2500	2513	2525							
		0000	003												
SELRST	020000	19120	1990												
SEL,DO	006262	25200													
SEL,IS	011204	1920	1977#												
SEL,X	006540	1939#	1940	1943											
SENY1	006360	1950#	1951	1954											
SENY2	006420	0070	1941	3000											
SENSEC	000004	0900													
SESW	010000	20340													
SETUP	006730	0010	1902	2043											
SM	000100	7770													
SOSIEN	000004	0150	967#	976#	977#	981#	999#	1146	1077#	1004#	1005#	1091	1092	1090#	
SP	000000	1099#	1907	1900	1920#	1920#	1972	2004	2302#	2312	2553	2554	2556	2596#	
		2599	2001#	2604	2606#	2609	2611#	2614	2637	2640#	2643	2649#	2652	2654#	
		2657	2600#	2731#	2745#	2950#	2953	3232#	3241	3262	3201#	3322	3356#	3479#	
		3400#	3401#	3500	3509	3710	3551#	3552#	3570	3579					
		3996#													
SPACE	020666	3996#													
SPAC4	020657	1093#	1133	2151	2152	3199#	3290	3304	3301	3302					
SPW	001436	2914	3290#												
SPW,SE	014742	3294#	3300												
SP,0	014752	3306#	3320												
SP,1	015010	3307#	3311												
SP,2	015014	3300	3314#												
SP,3	015036	3315#	3317#												
SP,4	015042	3316#	3310												
SP,5	015044	3313	3319#												
SP,6	015054	3321	3329#												
SP,7	015076	2041	2043#												
SP1	007004	2045	2040#												
SP2	007034	9220	996	2545	2547	2634	2644	2666	2670	3601	3673				
SP4	007062	3022#													
SR	017570	7510	1049	1660	1601	1954	1767	1806							
SRCNT	014036	739#	1052	1653	1669	1070	1073	1074	1690	1761	1762	1794	1795	1790	
SRV1	002000	1799	1019	1017	1010	2079	2003	2097	2099	2100	2110	2100	2100	2172	
SRVJ	001000	2173	2330	2331	2339	2340	2514	2515	2532	2533					
		1591	3021#												
SSVAT	014034	750#	1119	2299											
STAI	004000	3996#													
STALL	020672	720#	2379												
STAMOD	000100	963#													
START	000200	1570	1704	1032	2050#										
STATUS	007064	700#													
STKSTA	000040	693#													
STKSTB	000002														

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	3968	3969	3970	3971	3972	3973	3974	3975	3976	3977	3978		
UCHECK# 000002	725#												
UCMKS # 002000	684#	1922											
UEXCEP# 000001	726#												
VLUMEX 013124	2032#	2033#	2034	2055									
W # 000000	4042#	4043	4044#	4045	4046#	4047	4048#	4049	4050#	4051	4052#	4053	4054#
	4055	4056#	4057	4058#	4059	4060#	4061	4062#	4063	4064#	4065	4066#	4067
	4068#	4069	4070#	4071	4072#	4073	4074#	4100#	4109	4110#	4111	4112#	4113
	4114#	4115	4116#	4117	4118#	4119	4120#	4121	4122#	4123	4124#	4125	4126#
	4127	4128#	4129	4130#	4131	4132#	4133	4134#	4135	4136#	4137	4138#	4139
	4140#	4174#	4175	4176#	4177	4178#	4179	4180#	4181	4182#	4183	4184#	4185
	4186#	4187	4188#	4189	4190#	4191	4192#	4193	4194#	4195	4196#	4197	4198#
	4199	4200#	4201	4202#	4203	4204#	4205	4206#	4240#	4241	4242#	4243	4244#
	4245	4246#	4247	4248#	4249	4250#	4251	4252#	4253	4254#	4255	4256#	4257
	4258#	4259	4260#	4261	4262#	4263	4264#	4265	4266#	4267	4268#	4269	4270#
	4271	4272#											
WC0 005430	1751#	1822											
WC00 005542	1760	1770#											
WC1 005610	1773	1780#											
WC2 005634	1793#	1809#											
WC3 005636	1794#	1810											
WC4 005720	1803	1809#											
WDATA 022056	1740	3233	4275#	4276									
WRITEC# 000001	0640	1720	3077										
XBA # 000030	709#												
X1S 013200	2040	2052#											
YEBRT1 006704	982#	2010#											
ZEROTT 006176	1003#	3391											
ZYF1 006212	1000#	1090											
, # 022060	675#	929#	930#	931#	932#	933#	934#	935#	936#	937#	938#	939#	945#
	948#	951#	954#	957#	961#	965#	1117	1120	1123	1137#	1138	1152#	1159
	1100#	1471#	1473#	1475	1487#	1499	1511#	1524	1530#	1545	1560	1567	1577
	1589#	1623	1639	1644	1646	1649	1654	1661	1665	1671	1675	1682	1688
	1691	1703	1716#	1732	1747	1753	1755	1759	1763	1768	1770	1783	1790
	1796	1800	1807	1813	1819	1831	1843#	1863	1903	1914	1918	1931	1935
	1968	1987	1995	2153	2157	2163	2166	2178	2174	2186	2201	2207	2213
	2210	2223	2229	2236	2239	2245	2251	2254	2257	2261	2267	2272	2277
	2282	2280	2291	2295	2288	2307	2310	2324	2327	2332	2341	2346	2360
	2365	2369	2374	2380	2385	2390	2394	2400	2400	2412	2410	2424	2442
	2447	2451	2455	2459	2463	2467	2472	2476	2481	2485	2490	2563#	2584#
	3303	3307	3920#	3986	3614	3031#	3670	3607	3690	3695	3716#	3718#	3720
	3902#	3909#	3980#	4003#	4274#								
,CAR 016334	3619	3629#											
,CRLF 016276	3612	3617#											
,IOY 016214	949	3001#											
,IOYE 016324	3602	3629#											
,MORE 016234	3605#	3610	3620	3622									
,QUES 020654	3505	3579	3996#										
,REST 016310	3610	3621#											
,SAV 016332	3603#	3624	3628#										
,TERM 016314	3606	3600	3623#										
,TYPE 016346	3632#												

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ACPTM	2#	3475													
ACPTM	2#	3548													
ASCICH	2#	3582													
CHECK	675#														
CHECKF	675#														
CINITH	2#	1476													
CLEAR	675#														
CLKCHK	675#														
CLOCK	675#														
CLRSUB	675#														
COPYRI	2#	627													
DBUFS	2#	3997													
DEFINE	675#	929	930	931	932	933	934	935	936	937	938	939			
DSYM	2#	3718													
DUMP	675#	2601	2606	2611	2640	2654	2950								
DXBITS	2#	676													
DXDOC	2#														
DXREG	2#	1003													
EDCOD	2#	2565													
EDEF	2#	924													
EDFF	2#														
EOYS	2#	1033													
ERCALL	675#	1117	1120	1123	1646	1649	1654	1661	1665	1671	1675	1682	1688	1691	1755
	1759	1763	1760	1770	1783	1790	1796	1800	1807	1813	1819	1803	1914	1918	1907
	1995	2193	2197	2163	2166	2170	2174	2186	2201	2207	2213	2218	2223	2229	2236
	2239	2245	2251	2254	2257	2261	2267	2272	2277	2281	2286	2291	2295	2300	2307
	2310	2324	2327	2332	2341	2346	2160	2365	2369	2374	2380	2385	2390	2394	2400
	2400	2412	2410	2424	2442	2447	2351	2455	2459	2463	2467	2472	2476	2481	2485
	2490	3383	3307												
ERPGM	2#	2585													
ERSTOR	675#	2671													
ESAVE	675#	2628													
EXRMAC	2#	1910													
FASISS	2#	2494													
HTIOI	2#														
ILLCMD	2#	1502													
INYSM	2#	1854													
LDNLK	675#														
LOAD	675#														
MACDEF	2#	675													
MISCDE	2#	839													
MMAC1	2#	3989													
MONMAC	2#	2722													
NUMBER	675#	1479	1503	1530	1501	1700	1835								
ODM	2#	3663													
PAM	2#	3900													
PFM	2#	1104													
PRTYM	2#	3243													
REDCMD	2#	1579													
REMOV	675#														
RESTOR	675#	1891	1907	1972	2312	3241									
RSRM	2#	3633													
SAVE	675#	1883	1897	1926	2302	3231									
SCOPEL	675#	2535													

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SCOPEM	675#	1478	1502	1929	1980	1707	1834								
SDUMP	675#	2596	2649												
SENCMD	2#	1528													
SHORT	675#	1555	1634	1742											
SNAPSH	675#														
SPWM	675#	1165	1184	1203	1222	1241	1260	1279	1298	1317	1336	1355	1374	1393	1412
	1431	1450													
SPWMH	675#	1165	1184	1203	1222	1241	1260	1279	1298	1317	1336	1355	1374	1393	1412
	1431	1450													
SS	675#	1495	1520	1941	1619	1728									
STEPTS	675#														
STRTH	2#	940													
S;D	2#	1911													
TABLES	2#	1157													
TIOCHE	2#	1477													
TRAPCA	2#	675													
TITE	2#	1921													
TYPH	2#	3598													
WRICMD	2#	1705													
ZEROM	2#	1880													

ADD	981	1877	1966	2389	2977	2796	2857	2928	2935	2967	2973	2988	3281	3281	3298
	3439	3629													
ASL	1965	2884	2885	2886	2887	2888	2986	3297	3498	3499	3588	3581	3569	3578	3571
ASLB	3269	3273													
BEQ	989	997	1115	1123	1972	1649	1661	1675	1682	1688	1691	1698	1759	1768	1778
	1783	1888	1887	1813	1819	1826	1876	1983	1918	1931	1935	1942	1953	1968	1984
	2041	2045	2153	2174	2189	2281	2287	2236	2245	2248	2251	2254	2261	2267	2272
	2282	2286	2291	2299	2387	2318	2319	2321	2324	2327	2341	2346	2368	2378	2388
	2385	2398	2394	2488	2488	2412	2424	2437	2459	2467	2476	2481	2485	2498	2518
	2512	2551	2647	2668	2663	2667	2779	2757	2779	2788	2794	2883	2884	2958	2972
	3388	3321	3383	3488	3498	3492	3515	3559	3561	3563	3686	3688	3618	3612	3687
	3698														
BGE	2937														
BGF	3496	3567													
BHIS	3354														
BIC	1516	1673	1686	1798	1811	1817	1865	1878	1916	1981	2835	2836	2837	2839	2859
	2078	2883	2899	2118	2111	2172	2243	2249	2265	2289	2293	2384	2322	2339	2344
	2388	2398	2486	2421	2479	2488	2781	2582	2585	2586	2513	2515	2522	2526	2527
	2538	2531	2533	2941	2976	2882	2811	2833	2859	2938	3238	3279	3295	3422	3497
	3568	3598	3786												
BIS	1527	1552	1631	1852	1663	1669	1741	1757	1761	1788	1794	1866	1989	1993	2838
	2046	2858	2874	2879	2897	2187	2188	2155	2188	2184	2199	2211	2216	2221	2278
	2275	2338	2358	2363	2367	2372	2415	2445	2478	2498	2499	2588	2583	2584	2514
	2521	2523	2524	2529	2528	2529	2532	2884	2744	2812	3277	3385	3582	3572	
	3691														
BISB	996	1114	1116	1119	1871	1645	1653	1656	1688	1664	1678	1674	1677	1681	1687
BIY	1698	1697	1754	1762	1765	1767	1772	1789	1795	1799	1882	1888	1812	1815	1818
	1825	1862	1875	1913	1917	1983	1988	1994	2848	2844	2892	2156	2162	2169	2169
	2173	2185	2188	2217	2227	2235	2238	2247	2258	2253	2256	2288	2285	2294	2299
	2316	2323	2326	2331	2348	2353	2384	2368	2373	2377	2389	2487	2411	2417	2423
	2436	2441	2446	2458	2454	2488	2482	2471	2475	2488	2484	2489	2587	2545	2547
	2615	2634	2644	2859	2662	2666	2278	3386	3681	3673					
BIYB	2212	2222	2244	2276											
BLE	2835	2931													
BLOS	2573														
BLY	3328	3494	3565												
BMI	3276														
BNE	994	1117	1128	1138	1646	1654	1657	1665	1671	1678	1685	1694	1755	1763	1766
	1773	1798	1796	1883	1818	1822	1863	1898	1986	1914	1929	1968	1987	1999	2828
	2093	2182	2113	2158	2157	2161	2163	2166	2178	2186	2213	2218	2223	2229	2239
	2257	2277	2388	2317	2332	2354	2369	2369	2374	2418	2442	2447	2451	2455	2463
	2472	2588	2543	2946	2948	2616	2635	2645	2758	2754	2759	2826	2848	2892	2984
	2934	2983	3189	3197	3224	3248	3274	3388	3311	3318	3336	3368	3387	3441	3471
	3485	3518	3556	3682	3674	3693	3695	3788							
BPL	2538	3586	3596	3614											
BR	988	1574	1788	1828	1933	2183	2382	2618	2621	2752	2763	2837	2858	2924	2974
	3278	3313	3583	3988	3919	3521	3773	3576	3616	3628	3622	3678	3678		
BVC	3278														
CLR	976	984	991	1139	1888	1946	1847	1957	1958	1962	2851	2887	2557	2626	2683
	2988	3167	3168	3171	3172	3173	3222	3234	3266	3343	3373	3379	3488	3478	3482
	3513	3558	3553	3671											
CLRB	2847	3677	3679	3697											
CMP	1928	1948	1951	1959	2884	2152	2558	2646	2834	2938	2933	2936	2971	3188	3223
	3299	3387	3318	3319	3359	3382	3448	3478	3644						

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CMPB	1122	1648	1758	1777	1782	1967	2288	2286	2262	2271	2386	2389	2359	2379	2384
	2393	2466	2542	2572	2749	2753	2756	2758	2825	2891	2983	3358	3484	3487	3489
	3491	3493	3495	3914	3917	3955	3958	3968	3962	3984	3966	3885	3889	3811	3787
COM	3271														
COMB	2858														
DEC	993	1137	1684	1693	1889	1821	1889	1985	2019	2181	2112	2149	2168	2018	2854
	3196	3317	3335												
EMV	929	938	931	932	933	934	935	936	937	938	939				
HALT	675	1125	2678	3398											
INC	2549	2627	2929	2984	3469	3916	3617								
INCB	3239	3688	3892												
IOY	918														
JMP	963	992	995	998	1881	1147	1853	2885	2544	2555	2579	2598	2687	2755	2985
	2989	3324	3486	3957	3718										
JSR	1134	1496	1588	1921	1925	1942	1946	1961	1968	1978	1628	1624	1648	1784	1729
	1733	1748	1832	2842	2877	2998	2883	2888	2613	2642	2651	2656	2685	2733	2751
	2772	2821	2864	2913	2914	2915	2116	2917	2918	2952	2961	2979	3374	3378	3388
	3391	3392	3426	3443	3989	3623	3711								
MOV	967	968	973	974	975	977	979	982	983	999	1888	1112	1113	1138	1132
	1133	1146	1483	1484	1485	1495	1797	1498	1499	1587	1588	1589	1528	1522	1523
	1524	1534	1535	1538	1841	1543	1544	1545	1549	1558	1551	1559	1568	1563	1567
	1569	1577	1585	1588	1987	1619	1621	1622	1623	1627	1628	1629	1638	1634	1639
	1643	1644	1667	1695	1783	1712	1713	1714	1728	1738	1731	1732	1736	1737	1738
	1739	1748	1742	1747	1751	1753	1792	1823	1831	1839	1848	1841	1884	1885	1886
	1887	1891	1892	1898	1899	1988	1981	1987	1988	1928	1926	1927	1938	1943	1944
	1948	1954	1955	1961	1978	1972	1997	1998	2817	2848	2849	2148	2151	2159	2382
	2312	2539	2552	2954	2956	2969	2971	2978	2989	2994	2996	2997	2999	2881	2882
	2884	2886	2887	2889	2611	2612	2614	2628	2629	2638	2631	2632	2633	2637	2648
	2641	2643	2649	2658	2652	2654	2659	2657	2672	2673	2674	2675	2676	2677	2688
	2681	2686	2731	2732	2735	2736	2148	2745	2746	2762	2788	2789	2795	2797	2889
	2812	2819	2823	2831	2838	2892	2855	2863	2878	2879	2886	2893	2899	2921	2922
	2932	2944	2958	2951	2953	2957	2169	2966	2969	2978	2988	2981	2982	2985	2987
	3169	3178	3174	3179	3176	3177	3178	3179	3188	3181	3182	3183	3184	3185	3187
	3198	3191	3193	3194	3199	3288	3221	3232	3233	3237	3241	3262	3264	3291	3292
	3294	3382	3384	3389	3386	3312	3314	3316	3338	3331	3333	3342	3386	3371	3372
	3381	3389	3398	3423	3424	3436	3437	3438	3469	3466	3467	3468	3479	3488	3481
	3587	3588	3589	3518	3951	3952	3877	3978	3879	3883	3884	3618	3619	3621	3624
	3639	3636	3637	3638	3639	3648	3841	3642	3643	3644	3649	3658	3651	3652	3653
	3654	3655	3656	3658	3659	3675	3878	3899							
MOV8	1556	1557	1558	1559	1564	1565	1568	1578	1573	1579	1576	1635	1636	1637	1638
	1642	1696	1899	1781	1782	1743	1744	1745	1746	1752	1824	1827	1829	1838	1963
	1982	1989	1998	1991	1992	2843	2872	2285	2383	2889	2918	2823	3195	3334	3345
	3928	3987	3988	3613	3669	3672	3896	3784	3712						
NOP	1129	2834	2982	2963	2961	3425									
RESET	2742	2959													
ROL	2575	3688	3682	3684											
ROLB	3681	3683	3685												
RTI	1868	1867	1977	2818	2811	2958	2689	3282	3486	3988	3591	3626	3645	3668	3713
RTS	1879	1893	1989	1973	1999	2821	2852	2888	2119	2179	2198	2349	2426	2493	2916
	2534	3282	3225	3242	3325	3337	3357	3361	3393	3481	3427	3462	3473	3511	3597
	3788														
RTY	978														
SUB	1775	1776	2978	2839	2875										
TRAP	841														

TST	988	1770	1780	1786	1902	1930	1934	1937	2553	2743	2770	2787	2793	2802	2847
	2883	3275	3309	3322	3358	3472									
TSFB	1651	1771	1781	1787	2266	2290	2310	2327	2345	2399	2509	2511	2537	3505	3595
	3607	3613	3686	3689											
.ABS	2														
.ASCII	3543	3629	3996												
.ASCIZ	1149	2765	3362	3719	3996										
.BLKW	1473	2584	3082	3989	3988										
.BYTE	3100	3101	3102	3103	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114
	3115	3144	3145	3146	3147	3148	3149	3150	3151	3152	3153	3154	3155	3156	3157
	3158	3159	3533	3934	3535	3536	3537	3538	3539	3540	3545	3667	3722	3723	3724
	3725	3726	3728	3729	3730	3731	3732	3733	3734	3735	3736	3737	3738	3739	3740
	3741	3742	3743	3744	3745	3746	3747	3748	3749	3750	3751	3752	3753	3754	3755
	3756	3757	3758	3759	3760	3761	3762	3763	3764	3765	3766	3767	3768	3769	3770
	3771	3772	3773	3774	3775	3776	3777	3778	3779	3780	3781	3782	3783	3784	3785
	3786	3787	3788	3789	3790	3791	3792	3793	3794	3795	3796	3797	3798	3799	3800
	3801	3802	3803	3804	3805	3806	3807	3808	3809	3810	3811	3812	3813	3814	3815
	3816	3817	3818	3819	3820	3821	3822	3823	3824	3825	3826	3827	3828	3829	3830
	3831	3832	3833	3834	3835	3836	3837	3838	3839	3840	3841	3842	3843	3844	3845
	3846	3847	3848	3849	3850	3851	3852	3853	3854	3855	3856	3857	3858	3859	3860
	3861	3862	3863	3864	3865	3866	3867	3868	3869	3870	3871	3872	3873	3874	3875
	3876	3877	3878	3879	3880	3881	3882	3883	3884	3885	3886	3887	3888	3889	3890
	3891	3892	3893	3894	3895	3896	3897	3898	3899	3900	3901	3902	3903	3904	3905
	3906	3907	3908	3909	3910	3911	3912	3913	3914	3915	3916	3917	3918	3919	3920
	3921	3922	3923	3924	3925	3926	3927	3928	3929	3930	3931	3932	3933	3934	3935
	3936	3937	3938	3939	3940	3941	3942	3943	3944	3945	3946	3947	3948	3949	3950
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	3966	3967	3968	3969	3970	3971	3972	3973	3974	3975	3976	3977	3978		
.ENABL	2														
.END	4278														
.ENDC	9	16	144	148	344	348	381	653	655	932	1003	1103	1153	1161	1476
	1989	2043	2191	2509	2625	2666	2908	2671	2913	2939	3170	3202	3234	3241	3427
	3475	3541	3979	3993	3996										
.EVEN	1152	2769	3367	3631	3916	3979	4003								
.IF	9	16	144	344	374	381	653	930	1003	1103	1148	1161	1476	1983	2040
	2148	2507	2587	2854	2666	2668	2970	2912	2935	3170	3202	3233	3234	3420	3475
	3523	3728	3979	3993	3996										
.IFF	3996														
.IFT	3996														
.IRP	1084	1091	1098	1087	1026	1072	2302	2312	2628	2672	3232	3241			
.LIST	2	35	625	675	676	929	930	931	932	933	934	935	936	937	938
	939	1184	1203	1222	1241	1260	1279	1298	1317	1336	1355	1374	1393	1412	1431
	1450	1469	1476	1479	1487	1503	1511	1530	1538	1581	1589	1700	1716	1835	1843
	3996														
.MACRO	675														
.MCALL	2														
.NLIST	2	35	675	676	929	930	931	932	933	934	935	936	937	938	939
	1184	1203	1222	1241	1260	1279	1298	1317	1336	1355	1374	1393	1412	1431	1450
	1469	1476	1479	1487	1503	1511	1530	1538	1581	1589	1700	1716	1835	1843	3996
.PAGE	2	35	674	1479	1503	1530	1701	1700	1835						
.REM	2	9	16	35	144	148	144	348	374	381	628	1400	1512	1591	1710
	1845	2869													
.REPT	675	1165	1168	1187	1206	1225	1244	1263	1282	1301	1320	1339	1358	1377	1396
	1415	1434	1453	3033	3053	3082	3123	3144	3533	3928	4009	4010	4043	4076	4109

.SBTTL	4142	4175	4208	4241											
	640	675	839	941	1004	1104	1150	1470	1479	1503	1530	1501	1700	1835	2027
	2057	2090	2142	2194	2351	2427	2723	2992	3215	3590	3633	3663	3990	3990	
.TITLE	2														
.WORD	3033	3034	3035	3036	3037	3038	3039	3040	3041	3042	3043	3044	3045	3046	3047
	3048	3049	3053	3054	3055	3056	3057	3058	3059	3060	3061	3062	3063	3064	3065
	3066	3067	3068	3069	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133
	3134	3135	3136	3137	3138	3544	3605	4010	4012	4014	4016	4018	4020	4022	4024
	4026	4028	4030	4032	4034	4036	4038	4040	4043	4045	4047	4049	4051	4053	4055
	4057	4059	4061	4063	4065	4067	4069	4071	4073	4076	4078	4080	4082	4084	4086
	4088	4090	4092	4094	4096	4098	4100	4102	4104	4106	4109	4111	4113	4115	4117
	4119	4121	4123	4125	4127	4129	4131	4133	4135	4137	4139	4142	4144	4146	4148
	4150	4152	4154	4156	4158	4160	4162	4164	4166	4168	4170	4172	4175	4177	4179
	4181	4183	4185	4187	4189	4191	4193	4195	4197	4199	4201	4203	4205	4208	4210
	4212	4214	4216	4218	4220	4222	4224	4226	4228	4230	4232	4234	4236	4238	4241
	4243	4245	4247	4249	4251	4253	4255	4257	4259	4261	4263	4265	4267	4269	4271

ERRORS DETECTED: 0

\*DXONLI,DXONLI/SOL/CRP=DXONLI,P11  
 RUN=TIME: 144 30 6 SECONDS  
 CORE USED: 33K

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