

DU11

TRANSMITTER TESTS
MD-11-DZDUD-C

EP-DZDUD-C-DL-A
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FICHE 1 OF 1

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This microfiche card contains a grid of 24 frames of transmitter test data, arranged in 6 rows and 4 columns. Each frame displays a series of alphanumeric characters and symbols, likely representing test results or diagnostic codes. The data is organized into columns, with some frames showing a header or title. The overall layout is a structured grid of test information.

B01

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 1
HELLO.P11 03-AUG-76 00:00

SEQ 0001

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GENERAL DESCRIPTION

THIS DIAGNOSTIC CAN CHAIN 16 DUI1'S. THIS MEANS THAT 16 DEVICES CAN BE SEQUENTIALLY EXERCISED. THE DIAGNOSTIC MAKES ONE PASS BEFORE PROCEEDING TO THE NEXT DEVICE, AND CONTINUES EXERCISING ALL DEVICES IN THIS FASHION UNTIL HALTED.

2. REQUIREMENTS

PDP-11 FAMILY STANDARD COMPUTER WITH OR WITHOUT HARDWARE SWITCH REGISTER (LOC. 177570)

DUI1 SYNCHRONOUS/ISOCRONOUS OPTION

ONE CONSOLE TELETYPE OR EQUIVALENT

2.2 STORAGE

3. LOADING PROCEDURE

THE STANDARD PROCEDURE FOR LOADING ABSOLUTE BINARY TAPES IS TO BE USED.

STARTING ADDRESS
FOR ABSOLUTE LOADER

4K	017500
8K	037500
12K	057500
16K	077500
20K	117500
24K	137500
28K	157500

4. STARTING PROCEDURE

4.1 CONTROL SWITCH SETTINGS

NOTE: SOFTWARE SWITCH REGISTER IS DEFINED AS LOC. 176, WHILE THE SOFTWARE DISPLAY REGISTER IS DEFINED AS LOC. 174.

4.1.1 AFTER PROGRAM LOAD (INITIAL PROGRAM START)
ALL CONSOLE SWITCHES DOWN4.1.2 TO MODIFY DEVICE VECTOR AND CONTROL REGISTER ADDRESSES
AFTER PROGRAM RESTART OR TO RUN MULTIPLE DEVICES

SW00=1

4.1.3 TO START PROGRAM AT SELECTED TEST AFTER A PROGRAM RESTART

(ONLY IN SINGLE DEVICE TESTS)
SW01=1

- 4.1.4 TO LOCK ON SELECTED TEST AFTER A PROGRAM RESTART
(ONLY IN SINGLE DEVICE TESTS)

SW02=1
NOTE1: IN GENERAL SW01 WILL BE USED WHEN SW02=1 IS USED
NOTE2: WITHOUT SW01=1 "LOCK ON TEST" WILL DEFAULT TO TEST 1
STARTING ADDRESS

4.2

THE STARTING ADDRESS FOR ALL TESTS IS 000200

THE RETARTING ADDRESS FOR ALL TESTS IS 000200
THE STARTING ADDRESS TO ENTER A SELECTED TEST IS 000200
THE STARTING ADDRESS TO LOCK ON TEST IS 000200

- 4.3 PROGRAM AND/OR OPERATOR ACTION

- 4.3.1 INITIAL PROGRAM START

4.3.1.1 LOAD PROGRAM INTO MEMORY WITH ABSOLUTE LOADER

4.3.1.2 LOAD ADDRESS 000200

4.3.1.3 CLEAR CONSOLE SWITCHES

4.3.1.4 PRESS START

NOTE: IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.1.7 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT IS ABOUT
TO START TESTING ,AND THEN TESTING WILL BEGIN

- 4.3.2 PROGRAM RESTART WITH ALL SWITCHES DOWN

4.3.2.1 THE PROGRAM WILL TYPE "R" AND WILL COMMENCE TESTING

- 4.3.3 PROGRAM RESTART WITH SW00=1

4.3.3.1 LOAD ADDRESS 000200

4.3.3.2 SET SW00=1

4.3.3.3 PRESS START

NOTE: IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.3.4 THE PROGRAM WILL TYPE " 1ST DEVICE: RECEIVER CONTROL REGISTER

ADDRESS" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.5 TYPE IN THE ADDRESS OF THE FIRST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ADDRESS IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.4

4.3.3.6 THE PROGRAM WILL TYPE "VECTOR ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.7 TYPE IN THE BASE RECEIVER INTERRUPT VECTOR ADDRESS FOR THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ADDRESS IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.6

4.3.3.8 THE PROGRAM WILL TYPE "ARE YOU RUNNING MULTIPLE DEVICES ?" (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.9 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS GIVEN, THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.8

IF A "NO" ANSWER IS GIVEN: JUMP TO SECTION 4.3.3.12
IF A "YES" ANSWER IS GIVEN: THE NEXT QUESTION IS ASKED

4.3.3.10 THE PROGRAM WILL TYPE "LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.11 TYPE IN THE ADDRESS OF THE LAST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.3.10
NOTE:ALL ADDRESSES SHALL BE CONTIGUOUS

4.3.3.11.1 IF AN "OUT OF RANGE" ADDRESS IS TYPED
IE. MORE THAN 16 (10) DEVICES AWAY (UPWARDS).....THE PROGRAM WILL TYPE "OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.11.2 TYPE IN THE ADDRESS OF THE LAST RECEIVER CONTROL REGISTER ADDRESS OF THE DU11 TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"

AND WILL REPEAT THE MESSAGE OF 4.3.3.11.1

IF A DEVICE ADDRESS LOWER THAN 1ST DEVICE ADDRESS IS TYPED.....
SCHOOLS OUT..... THERE IS NO PROTECTION FOR THIS.
THE PROGRAM WILL DEFAULT TO TWO DEVICES ACTIVE (UPWARDS FROM
1ST DEVICE ADDRESS). THE SAME APPLIES TO IDENTICAL ADDRESSES
TYPED FOR FIRST AND LAST DEVICE.
OBSERVE LOCATION 2 ACTREG: SEE SECTION 7.2

4.3.3.12 THE PROGRAM WILL TYPE "DU PRIORITY LEVEL-" AND
WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.13 TYPE IN THE APPROPRIATE DEVICE PRIORITY LEVEL OF THE
DU11 OR DU11'S TO BE TESTED FOLLOWED BY A <CARRIAGE RETURN>
(NOTE THAT ALL MULTIPLE DEVICES MUST BE AT THE SAME PRIORITY
LEVEL). IE "5"

IF AN INCORRECT LEVEL IS TYPED ,THE PROGRAM WILL TYPE "?"
AND REPEAT THE MESSAGE OF 4.3.3.12

4.3.3.14 THE PROGRAM WILL TYPE "# OF SYNC CHARS
SELECTED (1 OR 2)-" AND WAIT FOR AN INPUT FROM THE TELETYPE
KEYBOARD

4.3.3.15 TYPE IN THE APPROPRIATE ANSWER "1" OR "2" FOLLOWED
BY A <CARRIAGE RETURN>. (NOTE:ALL MULTIPLE DEVICES MUST
BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.14

4.3.3.16 THE PROGRAM WILL TYPE " IS SEC XMIT JUMPER #6 IN ? (Y OR N)-"
AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.17 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED
BY A <CARRIAGE RETURN>. (NOTE THAT ALL MULTIPLE DEVICES
MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.16

4.3.3.18 THE PROGRAM WILL TYPE "IS SEC REC JUMPER # 5 IN ?
(Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.19 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED
BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?"
AND WILL REPEAT THE MESSAGE OF 4.3.3.18

4.3.3.20 THE PROGRAM WILL TYPE "IS OPT CLR ENABLE JUMPER

4 IN ? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.21 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL REPEAT THE MESSAGE OF 4.3.3.20

4.3.3.22 THE PROGRAM WILL TYPE "ARE YOU RUNNING IN MAINT. MODE EXTERNAL ? ANDDO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER CONNECTOR ON ? (Y OR N)-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.3.23 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A <CARRIAGE RETURN>. (NOTE: ALL MULTIPLE DEVICES MUST BE THE SAME)

IF AN INCORRECT ANSWER IS TYPED ,THE PROGRAM WILL TYPE "?" AND WILL REPEAT THE MESSAGE OF 4.3.3.22

4.3.3.24 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED AND WILL COMMENCE TESTING AT TEST 1

4.3.4 PROGRAM RESTART WITH SW01=1
NOTE: THIS WILL ONLY WORK WHEN A SINGLE DEVICE IS SELECTED
,,,IT WILL NOT WORK IF MULTIPLE DEVICES ARE SELECTED

IF MULTIPLE DEVICES WERE PREVIOUSLY SELECTED,LOAD 000200,
AND SELECT SW00=1 AND ANSWER "NO" TO THE MULTIPLE DEVICE QUESTION
SEE 4.3.3

4.3.4.1 LOAD 000200

4.3.4.2 SET SW01=1

4.3.4.3 PRESS START
NOTE:IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.4.4 THE PROGRAM WILL TYPE "TEST PC-" AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.4.5 TYPE IN THE ADDRESS OF THE TEST AT WHICH THE PROGRAM IS TO BE STARTED FOLLOWED BY A <CARRIAGE RETURN>

4.3.4.6 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED TESTING AT THE SELECTED TEST

NOTE: CARE MUST BE TAKEN WHEN THIS FEATURE IS USED
SINCE THERE IS NO PROTECTION AGAINST SELECTING AN ADDRESS
THAT IS IN THE MIDDLE OF A TEST

4.3.5 PROGRAM RESTART WITH SW02 =1
NOTE: THIS WILL ONLY WORK WHEN A SINGLE DEVICE IS SELECTED

SEE NOTE IN 4.3.4 FOR MORE DETAILS

4.3.5.1 LOAD ADDRESS 000200

4.3.5.2 SET SW02 =1
NOTE: IT MAY BE ADVANTAGEOUS TO SET SW01=1 (OPTIONAL)

4.3.5.3 PRESS START

NOTE: IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR'S OPTION)

4.3.5.4 THE PROGRAM WILL TYPE "LOCK ON SELECTED TEST ? (Y OR N)-"
AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.5.5 TYPE IN THE APPROPRIATE ANSWER YES OR NO FOLLOWED BY A
<CARRIAGE RETURN>

IF A NO ANSWER IS GIVEN: THIS LOCK ON TEST WILL BE IGNORED
AND THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED
TESTING AT TEST 1

4.3.5.6 IF A YES ANSWER WAS GIVEN: THE PROGRAM WILL ACT AS FOLLOWS...
THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT HAS STARTED
TESTING AT TEST 1 AND WILL REMAIN IN TEST 1 UNTIL HALTED
OR IF ANY KEY IS STRUCK ON THE TELETYPE, THE PROGRAM
WILL FREEZE ON THE NEXT TEST UNTIL A KEY IS STRUCK ON
THE TELETYPE AND SO FORTH THRU THE PROGRAM. IF SW01 =1 IT
WILL PERFORM AS IN SECTION 4.3.4 ALLOWING ONE TO FREEZE
ON A SELECTED TEST RATHER THAN DEFAULTING TO TEST 1

5. OPERATING PROCEDURE

IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH
REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH ALLOWS
THE USER THE SAME SWITCH OPTIONS AS THE HARDWARE SWITCH REGISTER.
IF THE HARDWARE SWITCH REGISTER DOES NOT EXIST OR IF ONE DOES
AND IT CONTAINS ALL ONES (177777) THEN THE SOFTWARE SWITCH
REGISTER (LOC. 176) IS USED.

CONTROL:

THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH
REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE ACCOMPLISHED BY
DOING THE FOLLOWING:

- 1) TYPE CONTROL G (<G>); THIS WILL ALLOW THE TTY TO ENTER DATA INTO
LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS
OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE ''NEW=''' HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE
OF THE FOLLOWING AT THE TTY:

- A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A <CR>. (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS WILL BE ALLOWED) IF A <CR> IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.
- B) IF A CONTROL U <↑U> IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 2.

5.1 OPERATIONAL SWITCH SETTINGS

SW15 =1	HALT ON ERROR
SW14 =1	LOOP ON CURRENT TEST
SW13 =1	INHIBIT ERROR TYPEOUT
SW11 =1	INHIBIT ITERATIONS
SW10 =1	ESCAPE TO NEXT TEST ON ERROR
SW08 =1	LOOP ON ERROR
SW02 =1	LOCK ON TEST
SW01 =1	RESTART PROGRAM AT SELECTED TEST
SW00 =1	RESELECT VECTOR AND CONTROL REGISTER ADDRESSES & PARAMETERS AFTER A PROGRAM RESTART

TO INHIBIT "END OF PASS" TYPEOUT - TURN TELETYPE OFF

6. ERRORS

6.1 ERROR HALTS
THERE ARE FOUR DISTINCT ERROR TYPEOUTS

NOTE: IF THE SOFTWARE SWITCH REGISTER IS TO BE CHANGED AFTER A HALT THE THE OPERATOR IS REQUIRED TO TYPE A <↑G> BEFORE DEPRESSING CONTINUE. THE FOLLOWING WILL BE TYPED:
SWR=XXXXXX NEW= (REFER TO SECTION 5. FOR OPERATOR OPTION)

6.1.1 PC+2 = ERROR PC
WHERE PC +2 IS THE ADDRESS OF THE CALL TO THE ERROR HANDLER +2
REFER TO THE ABOVE "HLT" IN DIAGNOSTIC FOR ERROR DESCRIPTION
CHECK ADDRESS @ RXCSR: TO LOCATE THE DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DEVICES

6.1.2 PC +2 = REGISTER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXXX	YYYYYY	ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING DEVICE REGISTER
WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER
WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.3 PC +2 = RECEIVER ERROR PC

REGISTER	EXPECTED	ACTUAL
16XXXX	YYYYYY	ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING RECEIVER (RXDBUF) REGISTER

WHERE YYYYYY IS THE EXPECTED DATA CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL DATA CONTENTS OF THAT REGISTER

6.1.4 PC +2 = TRANSMITTER ERROR PC
REGISTER EXPECTED ACTUAL
16XXXX YYYYYY ZZZZZZ

WHERE 16XXXX IS THE ADDRESS OF THE FAILING TRANSMITTER (TXCSR) REGISTER

WHERE YYYYYY IS THE EXPECTED CONTENTS OF THAT REGISTER

WHERE ZZZZZZ IS THE ACTUAL CONTENTS OF THAT REGISTER

6.1.5 ERROR DESCRIPTIONS
SEE LISTINGS FOR DETAILS OF ERRORS

6.2 ERROR RECOVERY

6.2.1 SW15 =0
IF THE PROGRAM IS RUN WITH SW15 =0 ,NO OPERATOR ACTION IS
REQUIRED TO CONTINUE TESTING

6.2.2 SW15 =1
IF THE PROGRAM IS RUN WITH SW15 =1 ,TO CONTINUE TESTING
AFTER THE PROGRAM HAS HALTED ,PRESS THE PROCESSOR
CONSOLE "CONTINUE SWITCH"

NOTE: THE PC + 2 OF THE "HLT" WILL BE DISPLAYED IN THE DATA LIGHTS

6.2.3 ILLEGAL INTERRUPTS
IF AN INTERRUPT OCCURS TO A VECTOR ADDRESS NOT SELECTED
DURING PROGRAM INITIALIZATION, THE PROGRAM WILL HALT IN
THE TRAPCATCHER. THE ADDRESS AT WHICH THE PROGRAM
HALTS IS 2 GREATER THAN THE ADDRESS TO WHICH THE INTERRUPT
OCCURED. THE PROGRAM MUST BE RESTARTED AT 000200 TO
RECOVER FROM THIS ERROR.

5.2.4 ADDITIONAL TROUBLESHOOTING AIDS ERRCNT: & PASCNT:
CHECK THESE TWO TAG LOCATIONS FOR TOTAL # OF ERRORS AND PASSES RESPECTIVELY.
LOADING 000200 AND RESTARTING WILL CLEAR THESE LOCATIONS.

6.3 END OF PASS ROUTINE
THIS TYPEOUT IS MENTIONED HERE FOR CONVENIENCE
IT IS IN THE FORM:

END OF PASS TAPE Y
16XXXX = DEVICE

WHERE Y IS THE TAPE LOADED

WHERE 16XXXX IS THE DEVICE'S BASE REGISTER ADDRESS

TO INHIBIT THIS TYPEOUT - TURN TELETYPE OFF

7. RESTRICTIONS

7.1 MULTIPLE DEVICES

UP TO 16(10) DEVICES MAY BE TESTED. HOWEVER, THEY
MUST HAVE CONTIGUOUS ADDRESSES AND VECTORS

NOTE: IF ALL DEVICES UNDER TEST HAVE THE SAME INTERRUPT VECTOR
YOU CAN CHANGE "ZERO: ADD #10, BASEIV ;NEXT BLOCK
(VECTORS)" TO "ZERO: ADD #0, BASEIV";
THEREBY THE VECTOR ADDRESSES WILL NOT BE
UPDATED AFTER EACH PASS.

7.2 DISQUALIFYING DEVICES WHEN RUNNING MULTIPLE DEVICES

WHEN RUNNING MULTIPLE DEVICES AN ACTIVE BIT IS SET
FOR EACH DEVICE RUNNING UNDER TEST IE. BIT 0 FOR
DEVICE 0 BIT 15 FOR DEVICE 15
TO DISQUALIFY DEVICES:

7.2.1 IF DEVICE 0 IS TO BE DISQUALIFIED, SIMPLY RESTART
PROGRAM WITH SW00 =1 AND OMIT THE FIRST DEVICE.

7.2.2 IF HOWEVER, DEVICES 1 THRU 15 OR ANY COMBINATION THEREOF
ARE TO BE DISQUALIFIED....LOAD THE LOCATION OF ACTREG:
OBSERVE THE ACTIVE BITS (ACTIVE =1, NONACTIVE = 0)
AND DEPOSIT 0 WHERE THOSE DEVICES ARE TO BE DISQUALIFIED

7.2.2.1 TO RESTART...LOAD 000200 IN SWR AND DEPRESS START....
THE PROGRAM WILL CONTINUE WITH THE DEVICE IT WAS IN BEFORE HALTING.

7.2.2.2ORLOAD 000200 WITH SW00 =1 AND DEPRESS START....
ANSWER THE QUESTION :1ST DEVICE : ETC.....
.....THE PROGRAM WILL CONTINUE WITH DEVICE 0

7.2.2.3 IF ALL DEVICES ARE DISQUALIFIED BY MISTAKE THE PROGRAM
WILL TYPEOUT AN ERROR MESSAGE.....LOAD & START AT 000200

7.3 CABLE DELAYS

NOTE: EXTERNAL LOOP BACK TESTS ONLY (MODEM CABLE WITH H315 CONNECTOR ON)

7.3.1 TO PROVIDE SUFFICIENT DELAY FOR CLOCK SIGNAL OVER THE CABLE,
LOCATION "HOLD:" MUST BE MODIFIED TO ACCOMODATE FOR FASTER MACHINES.
PRESENTLY "HOLD:" =20 IS SUFFICIENT TIME ON AN 11/20 MACHINE.
IF RUNNING ON AN 11/40 OR AN 11/45 "HOLD:" MUST BE PATCHED TO 40

BASICALLY DON'T TRY TO EXCEED 10K TO 12K RATE USING THE EIA DRIVERS

7.4 TO USE THE "XOR" TESTER, THE BRANCH AROUND THE "XOR"
CODE MUST BE PATCHED TO A "NOP". (SEE LISTINGS FOR DETAILS)

8. DEFAULT PARAMETERS:

1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- RXCSR: 160040

VECTOR ADDRESS-

DURIV: 770

L01

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 11
HELLO.P11 03-AUG-76 00:00

SEQ 0011

ARE YOU RUNNING MULTIPLE DEVICES ?- NO MULTD: 0
LAST DEVICE: RECEIVER CONTROL REGISTER ADDRESS- LASTADD: 0
DU PRIORITY LEVEL- LEVEL 5 DUPRT: LEVEL 5
OF SYNC CHARS SELECTED - 2 SYNCNO: 377
IS SEC XMIT JUMPER # 5 IN ?- YES SEXMIT: 377
IS SEC REC JUMPER # 5 IN ?- YES SEREC: 377
IS OPT CLR ENABLE JUMPER # 4 IN ?- YES OPTCLR: 377
DO YOU HAVE THE EXTERNAL MODEM BYPASS JUMPER
CONNECTOR ON (H315)- YES JMRBY: 377

9. PROGRAM DESCRIPTION

10. FLOW CHARTS: RECEIVER FLOW, TRANSMITTER FLOW, TRANSMITTER & RECEIVER FLOW
11. LISTINGS

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.ENABLE ABS

;DU11 DZDUD-C TAPE D
;COPYRIGHT 1973, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754;STARTING PROCEDURE
;LOAD PROGRAM
;PRESS START
;PROGRAM WILL TYPE "DU11 DZDUD-C TAPE D "
;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
;AT THE END OF A PASS, PROGRAM WILL TYPE "END OF PASS TAPE D"
;AND THEN RESUME TESTING

;SWITCH REGISTER OPTIONS

100000
040000
020000
010000
004000
002000
001000
000400
000100
000040
000020
000010
000004
000002
000001SW15=100000 ;=1, HALT ON ERROR
SW14=40000 ;=1, LOOP ON CURRENT TEST
SW13=20000 ;=1, INHIBIT ERROR TIMEOUT
SW12=10000
SW11=4000 ;=1, INHIBIT ITERATIONS
SW10=2000 ;=1, ESCAPE TO NEXT TEST ON ERROR
SW09=1000 ;=1, LOOP WITH CURRENT DATA
SW08=400 ;=1, LOOP ON ERROR
SW06=100
SW05=40
SW04=20
SW03=10
SW02=4 ;LOCK ON TEST SELECT
SW01=2 ;RESTART PROGRAM AT SELECTED TEST
SW00=1 ;RESELECT VECTOR AND CONTROL REGISTER
 ;ADDRESS AFTER PROGRAM RESTART

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;REGISTER DEFINITIONS

000000	R0=%0	; GENERAL REGISTER
000001	R1=%1	; GENERAL REGISTER
000002	R2=%2	; GENERAL REGISTER
000003	R3=%3	; GENERAL REGISTER
000004	R4=%4	; GENERAL REGISTER
000005	R5=%5	; GENERAL REGISTER
000006	SP=%6	; PROCESSOR STACK POINTER
000007	PC=%7	; PROGRAM COUNTER

;LOCATION EQUIVALENCIES

177570	DSWR=177570	; HARDWARE SWITCH REGISTER LOC.
177570	DLIGHTS=177570	; HARDWARE DISPLAY REGISTER LOC.
177776	PS=177776	; PROCESSOR STATUS WORD
001100	STACK=1100	; START OF PROCESSOR STACK

;INSTRUCTION DEFINITIONS

005746	PUSH1SP=5746	; DECREMENT PROCESSOR STACK 1 WORD =TST -(SP)
005726	POP1SP=5726	; INCREMENT PROCESSOR STACK 1 WORD =TST (SP)+
010046	PUSHRO=10046	; SAVE RO ON STACK =MOV RO, -(SP)
012600	POPPO=12600	; RESTORE RO FROM STACK =MOV (SP)+, RO
024646	PUSH2SP=24646	; DECREMENT STACK TWICE =CMP -(SP), -(SP)
022626	POP2SP=22626	; INCREMENT STACK TWICE =CMP (SP)+, (SP)+
	.EQUIV EMT,HLT	; BASIC DEFINITION OF ERROR CALL

100000	BIT15=100000
040000	BIT14=40000
020000	BIT13=20000
010000	BIT12=10000
004000	BIT11=4000
002000	BIT10=2000
001000	BIT9=1000
000400	BIT8=400
000200	BIT7=200
000100	BIT6=100
000040	BIT5=40
000020	BIT4=20
000010	BIT3=10
000004	BIT2=4
000002	BIT1=2
000001	BIT0=1

;PROCESSOR LEVELS

000340	LEVEL7=340
000300	LEVEL6=300
000240	LEVEL5=240
000200	LEVEL4=200
000140	LEVEL3=140
000100	LEVEL2=100
000040	LEVEL1=040
000000	LEVEL0=000

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000001

100000
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006000
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001000
001400

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000200
000100
000040
000020
000010
000001

000000
004000
010000
014000

```
;REGISTER DEFINITIONS
;RXCSR BIT DEFINITIONS
DSC=BIT15      ;DATA SET CHANGE
RING=BIT14     ;RING
CTS=BIT13      ;CLR TO SEND
CARDET=BIT12   ;CARRIER DETECT
REACT=BIT11    ;REC ACTIVE
SRD=BIT10      ;SEC REC DATA
DSR=BIT9       ;DATA SET RDY
STPSYN=BIT8    ;STRIP SYNC
RXDONE=BIT7    ;REC DONE
RINTEN=BIT6    ;REC INTR ENABLE
DSINTE=BIT5    ;DSC INTR ENABLE
SYNSCH=BIT4    ;SYNC SEARCH
STD=BIT3       ;SEC XMIT DATA
RTS=BIT2       ;REQ TO SEND
DTR=BIT1       ;DATA TERM RDY
VOID=BIT0

;RXDBUF BIT DEFINITIONS
RXERR=BIT15    ;REC ERROR
OVRUN=BIT14    ;OVERRUN
FRMERR=BIT13   ;FRAME ERROR
PARER=BIT12    ;PARITY ERROR

;PARCSR BIT DEFINITIONS
PAREN=BIT9     ;PARITY ENABLE
EVPAR=BIT8     ;EVEN PARITY SENSE

;PARCSR WRD DEFINITIONS
SYNINT=30000   ;SYNC EXTERNAL MODE
SYNEXT=20000   ;SYNC INTERNAL MODE
ISYMOD=0       ;ISOC MODE
FIVE=0         ;WORD LENGTH 5 BITS
SIX=2000       ;WORD LENGTH 6 BITS
SEVEN=4000     ;WORD LENGTH 7 BITS
EIGHT=6000    ;WORD LENGTH 8 BITS
NOPAR=0        ;NO PARITY
ODDPAR=1000    ;ODD PARITY
EVEPAR=1400    ;EVEN PARITY

;TXCSR BIT DEFINITIONS
DNA=BIT15      ;DATA NOT AVAILABLE
MTDATA=BIT14   ;MAINT DATA
CLK=BIT13      ;CLK
BITW=BIT10     ;BIT WINDOW
MRESET=BIT8    ;MASTER RESET
TXDONE=BIT7    ;XMIT DONE
TXINTE=BIT6    ;XMIT INTR ENABLE
DNAINTE=BIT5   ;DNA INTR ENAB
SEND=BIT4      ;SEND
HDXEN=BIT3     ;HDX/FDX
BREAK=BIT0     ;BREAK

;TXCSR WRD DEFINITIONS
USER=0         ;USER MODE
MINT=4000      ;MAINT INT MODE
MEXT=10000     ;MAINT EXT MODE
SYSTST=14000  ;SYSTEM TEST MODE

;TRAPCATCHER FOR ILLEGAL INTERRUPTS
```

```

696                                     ;STANDARD INTERRUPT VECTORS
697
698
699                                     . =24
700 000024 015152                       .PFAIL                       ;POWER FAIL HANDLER
701 000026 000340                       340                          ;SERVICE AT LEVEL 7
702 000030 014702                       .HLT                          ;ERROR HANDLER
703 000032 000340                       340                          ;SERVICE AT LEVEL 7
704 000034 014650                       .TRPSRV                       ;GENERAL HANDLER DISPATCH SERVICE
705 000036 000340                       340                          ;SERVICE AT LEVEL 7
706
707                                     ;SOFTWARE SWITCH REGISTER
708
709                                     . =174
710 000174 000000                       DISPREG: .WORD 0              ;SOFTWARE DISPLAY REG.
711 000176 000000                       SWREG:   .WORD 0              ;SOFTWARE SWITCH REGISTER
712 000200 000167 001054                 JMP      .START                ;GO TO START OF PROGRAM
713
714
715
716                                     . =1100
717
718                                     ;INDIRECT POINTERS
719
720 001100 177570                       SWR:      177570                ;SWITCH REGISTER POINTER
721 001102 177570                       LIGHTS: 177570                 ;DISPLAY REGISTER POINTER
722 001104 177560                       TKCSR:   177560                 ;TELETYPE KEYBOARD CONTROL REGISTER
723 001106 177562                       TKDBR:   177562                 ;TELETYPE KEYBOARD DATA BUFFER
724 001110 177564                       TPCSR:   177564                 ;TELEPRINTER CONTROL REGISTER
725 001112 177566                       TPDBR:   177566                 ;TELEPRINTER DATA BUFFER
726
727                                     ;PROGRAM CONTROL PARAMETERS
728
729 001114 000000                       RTRN:    0                      ;SCOPE ADDRESS FOR LOOP ON TEST
730 001116 000000                       NEXT:    0                      ;ADDRESS OF NEXT TEST TO BE EXECUTED
731 001120 000000                       LOCK:    0                      ;ADDRESS FOR LOCK ON CURRENT DATA
732 001122 000000                       ICOUNT:  0                      ;NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
733 001124 000000                       LPCNT:   0                      ;NUMBER OF ITERATIONS COMPLETED
734 001126 000000                       TSTNO:   0                      ;NUMBER OF TEST IN PROGRESS
735 001130 000000                       PASCNT:  0                      ;NUMBER OF PASSES COMPLETED
736 001132 000000                       ERRCNT:  0                      ;TOTAL NUMBER OF ERRORS
737 001134 000000                       LSTERR:  0                      ;PC OF LAST ERROR CALL
738
739                                     ;PROGRAM VARIABLES
740
741 001136 000020                       HOLD:    20                     ;TEMPORARY STORAGE=DELAY TIME FOR CABLES
742 001140 000000                       SHIFT:   0                      ;TEMPORARY STORAGE= # OF SHIFTS PER CHAR
743 001142 000000                       COUNT:   0                      ;TEMPORARY STORAGE= # OF TIMES A CHAR WILL BE SENT
744 001144 000000                       TEMP1:   0                      ;TEMPORARY STORAGE
745 001146 000000                       TEMP2:   0                      ;TEMPORARY STORAGE
746 001150 000000                       TEMP3:   0                      ;TEMPORARY STORAGE
747 001152 000000                       TEMP4:   0                      ;TEMPORARY STORAGE
748 001154 000000                       TEMP5:   0                      ;TEMPORARY STORAGE
749 001156 000000                       SAVR0:   0                      ;R0 STORAGE
750 001160 000000                       SAVR1:   0                      ;R1 STORAGE
751 001162 000000                       SAVR2:   0                      ;R2 STORAGE
    
```


752 001164 000000
753 001166 000000
754 001170 000000
755 001172 000000
756 001174 000000

SAVR3: 0
SAVR4: 0
SAVR5: 0
SAVSP: 0
SAVPC: 0

:R3 STORAGE
:R4 STORAGE
:R5 STORAGE
:STACK POINTER STORAGE
:PROGRAM COUNTER STORAGE

```

757 ;PROGRAM CONVERSATIONAL PARAMETERS
758 001176 377 SYNCNO: .BYTE 377 ;# OF SYNC CHARS REQ'D FOR SYNC'ZATION
759 001177 377 SEXMIT: .BYTE 377 ;SEC XMIT JUMPER "IN"
760 001200 377 SEREC: .BYTE 377 ;SEC REC JUMPER "IN"
761 001201 377 OPTCLR: .BYTE 377 ;OPTIONAL JUMPER CLR "IN"
762 001202 000 MULTD: .BYTE 0 ;NO MULTIPLE DEVICE FLAG
763 001203 377 JMRBY: .BYTE 377 ;EXTERNAL MODEM BYPASS JUMPER "IN"
764 .EVEN
765
766 ;PROGRAM MULTIPLE DEVICE PARAMETERS
767 001204 000000 BASEADD: 0 ;PROG CONTROLLED 1ST DEVICE ADDR
768 001206 000000 KEEPADD: 0 ;SAVED 1ST DEVICE ADDR
769 001210 000000 LASTADD: 0 ;LAST DEVICE RXCSR ADDR
770 001212 000000 BASEIV: 0 ;PROG CONTROLLED IV
771 001214 000000 KEEPIV: 0 ;SAVED INTR VECTOR
772 001216 000000 ACTREG: 0 ;ACTIVE REGISTER...MODIFY THIS
773 ;LOCATION TO DISQUALIFY OR QUALIFY
774 ;DEVICES (1= RUN, 0= DON'T RUN)
775 001220 000000 ROTADD: 0 ;ROTATING POINTER FOR ACTREG...POINTS
776 ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DE
777
778 ;PROGRAM CONTROL FLAGS
779
780 001222 000 INIFLG: .BYTE 0 ;PROGRAM INITIALIZATION FLAG
781 001223 000 STFLG: .BYTE 0 ;TEST START FLAG
782 001224 000 ERRFLG: .BYTE 0 ;ERROR OCCURED FLAG
783 001225 000 LOKFLG: .BYTE 0 ;LOCK ON CURRENT TEST FLAG
784
785 ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
786 ;POINTERS TO SUBROUTINES CAN BE FOUND
787 ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS
788
789 001226 .TRPTAB:
790 ;*****
791 ;*****
792 104400 SCOPE=TRAP+0 ;CALL TO SCOPE LOOP AND ITERATION HANDLER
793 001226 013434 .SCOPE SCOPE1=TRAP+1 ;CALL TO LOOP ON CURRENT DATA HANDLER
794 104401 .SCOPE1 TYPE=TRAP+2 ;CALL TO TELETYPE OUTPUT ROUTINE
795 001230 013620 .TYPE INSTR=TRAP+3 ;CALL TO ASCII STRING INPUT ROUTINE
796 104402 .INSTR INSTER=TRAP+4 ;CALL TO INPUT ERROR HANDLER
797 001232 013640 .INSTER PARAM=TRAP+5 ;CALL TO NUMERICAL DATA INPUT ROUTINE
798 104403 .PARAM SAVOS=TRAP+6 ;CALL TO REGISTER SAVE ROUTINE
799 001234 013700 .SAVOS RESOS=TRAP+7 ;CALL TO REGISTER RESTORE ROUTINE
800 104404 .RESOS CONVRT=TRAP+10 ;CALL TO DATA OUTPUT ROUTINE
801 001236 014016 .CONVRT CNVRT=TRAP+11 ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF
802 104405 .CNVRT SETFLG=TRAP+12 ;CALL TO FLAG SET ROUTINE
803 001240 014050
804 104406
805 001242 014264
806 104407
807 001244 014324
808 104410
809 001246 014356
810 104411
811 001250 014362
812 104412

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813 001252 014602 .SETFLG
814 104413
815 001254 015316 .CKSWR CKSWR=TRAP+13 ;CALL TO ALLOW SWREG TO BE LOADED FROM TTY
816 104414
817 001256 015372 .CNTLU CNTLU=TRAP+14 ;CALL TO ALLOW LOADING OF SWREG FROM TTY
818 *****
819 *****
820
821 ;PROGRAM INITIALIZATION
822 ;LOCK OUT INTERRUPTS
823 ;SET UP PROCESSOR STACK
824 ;SET UP POWER FAIL VECTOR
825 ;CLEAR PROGRAM CONTROL FLAGS AND COUNTS
826 ;TYPE TITLE MESSAGE
827
828 001260 012767 000340 176510 .START: MOV #340,PS ;LOCK OUT INTERRUPTS
829 001266 012706 001100 MOV #STACK,SP ;SET UP STACK
830 001272 012737 015152 000024 MOV #.PFAIL,2#24 ;SET UP POWER FAIL VECTOR
831 001300 005067 177620 CLR LPCNT ;CLEAR # OF ITERATION COMPLETED LOCATION
832 001304 105067 177713 CLR STFLG ;CLEAR START FLAG
833 001310 005067 177614 CLR PASCNT ;CLEAR PASS COUNT
834 001314 105067 177704 CLRB ERRFLG ;CLEAR ERROR FLAG
835 001320 005067 177606 CLR ERRCNT ;CLEAR ERROR COUNT
836 001324 005067 177604 CLR LSTERR ;CLEAR LAST ERROR POINTER
837 001330 012767 000001 177570 MOV #1,TSTNO ;SET UP FOR TEST 1
838 001336 012767 001260 177550 MOV #.START,RTRN ;SET UP FOR POWER FAIL BEFORE
839 ;TESTING STARTS
840 001344 105767 177652 TSTB INIFLG ;HAS INITIALIZATION BEEN PERFORMED
841 001350 001004 BNE ONCE
842 001352 104402 015472 TYPE ,MTITLE ;TYPE TITLE MESSAGE
843 001356 105167 177640 COMB INIFLG ;IF NOT SET FLAG AND DO
844 001362 012767 177570 177510 ONCE: MOV #DSWR,SWR ;RELOAD HARDWARE SWITCH REGISTER INTO POINTER
845 001370 012767 177570 177504 MOV #DLIGHTS,LIGHTS ;RELOAD HARDWARE DISPLAY REGISTER INTO POINTER
846 001376 013746 000006 MOV 2#6,-(SP) ;SAVE VECTORS
847 001402 013746 000004 MOV 2#4,-(SP)
848 001406 012737 001426 000004 MOV #64$,2#4 ;SET UP FOR TIMEOUT
849 001414 022777 177777 177456 CMP #-1,2#SWR ;REFERENCE HARDWARE SWITCH REGISTER
850 001422 001402 BEQ 65$
851 001424 000407 BR 66$
852 001426 022626 64$: CMP (SP)+,(SP)+ ;ADJUST STACK
853 001430 012767 000176 177442 65$: MOV #SWREG,SWR ;POINT TO SOFTWARE SWITCH REG
854 001436 012767 000174 177436 MOV #DISPREG,LIGHTS ;POINT TO SOFT DISPLAY REG
855 001444 012637 000004 66$: MOV (SP)+,2#4 ;RESTORE VECTORS
856 001450 012637 000006 MOV (SP)+,2#6
857 001454 005737 000042 TST 2#42 ;UNDER MONITOR
858 001460 001005 BNE 67$
859 001462 022767 000176 177410 CMP #SWREG,SWR ;IS SWREG USED
860 001470 001001 BNE 67$
861 001472 104414 CNTLU
862 001474 032777 000001 177376 67$: BIT #SW00,2#SWR ;RESELECT VECTOR & CONTROL REG?
863 001502 001002 BNE 1$
864 001504 000167 000446 JMP .BEGIN
865 001510 012700 000300 1$: MOV #300,R0 ;RESTORE VECTOR AREA TO TRAPCATCHER
866 001514 012701 000302 MOV #302,R1 ;START AT LOCATION 300
867 001520 012702 000004 MOV #4,R2
868 001524 010110 2$: MOV R1,(R0)
    
```

869	001526	005011			CLR	(R1)	
870	001530	060200			ADD	R2,R0	
871	001532	060201			ADD	R2,R1	
872	001534	022701	001000		CMP	#1000,R1	;END AT LOCATION 776
873	001540	002771			BLT	2\$	
874	001542	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
875	001544	015546			MREGAD		;MESSAGE
876	001546	104405			PARAM		;CONVERT STRING
877	001550	160000			160000		;LOW LIMIT
878	001552	167776			167776		;HIGH LIMIT
879	001554	017402			DUBASE		;STORE AT THIS LOCATION
880	001556	001			.BYTE	1	;MASK
881	001557	001			.BYTE	1	;HOW MANY TIMES + 2
882	001560	016767	015616	177420	MOV	DUBASE,KEEPADD	;SAVE
883	001566	004767	015456		JSR	PC,DUADDR	
884	001572	016767	177410	177404	MOV	KEEPADD,BASEADD	;RESTORE FOR ROTATION
885	001600	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
886	001602	015524			MVECTO		;MESSAGE
887	001604	104405			PARAM		;CONVERT STRING
888	001606	000300			300		;LOW LIMIT
889	001610	000776			776		;HIGH LIMIT
890	001612	017724			DURIV		;STORE AT THIS LOCATION
891	001614	001			.BYTE	1	;MASK
892	001615	004			.BYTE	4	;HOW MANY TIMES + 2
893	001616	016767	016102	177370	MOV	DURIV,KEEPIV	;SAVE
894	001624	016767	016074	177360	MOV	DURIV,BASEIV	;SET UP FOR ROTATION
895	001632	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
896	001634	015627			MMULT		;MESSAGE
897	001636	104412			SETFLG		;SET FLAG BASED UPON INPUT STRING
898	001640	001202			MULTD		;THIS FLAG
899	001642	105767	177334		TSTB	MULTD	;ARE THERE MULTIPLE DEVICES
900							;ON THE SYSTEM ?
901	001646	100406			BMI	BBB	;YES,ASK NEXT QUESTION
902	001650	005067	177342		CLR	ACTREG	
903	001654	005067	177340		CLR	ROTADD	
904	001660	000167	000140		JMP	OUTMUL	;JUMP AROUND NEXT QUESTION
905	001664				BBB:		
906	001664	104403			INSTR		;OUTPUT MESSAGE & GET INPUT STRING
907	001666	015706			MLASTD		;MESSAGE
908	001670	104405			PARAM		;CONVERT STRING
909	001672	160000			160000		;LOW LIMIT
910	001674	167776			167776		;HIGH LIMIT
911	001676	001210			LASTADD		;STORE AT THIS LOCATION
912	001700	001			.BYTE	1	;MASK
913	001701	001			.BYTE	1	;HOW MANY TIMES + 2
914					1\$:	THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME	
915	001702	012767	000001	177310	MOV	#1,ROTADD	;SET UP POINTER
916	001710	005067	177302		CLR	ACTREG	;CLR ACTIVE REGISTER
917	001714	056767	177300	177274	BIS	ROTADD,ACTREG	;MAKE THIS DEVICE ACTIVE
918	001722	000241			CLC		
919	001724	006167	177270		ROL	ROTADD	;SET UP POINTER
920	001730	103421			BCS	3\$;ARE YOU OUT OF RANGE ?
921	001732	062767	000010	177244	ADD	#10,BASEADD	;SET UP BASE ADDRESS
922	001740	026767	177244	177236	CMP	LASTADD,BASEADD	;IS THIS THE LAST DEVICE ?
923	001746	101362			BHI	2\$;NO DO IT AGAIN
924	001750	056767	177244	177240	BIS	ROTADD,ACTREG	;THIS ASSUMES THAT THERE ARE AT

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DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 23
 DZDUDC.P11 21-MAY-76 00:00

SEQ 0020

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925                                     ;LEAST TWO DEVICES WHEN YOU ANSWER YES TO
926                                     ;MULTIPLE DEVICE QUESTION
927 001756 012767 000001 177234 4$: MOV #1,ROTADD ;SET UP FOR LATER USE IN END OF PASS ROUTINE
928 001764 016767 177216 177212 MOV KEEPADD,BASEADD ;DITTO
929 001772 000414 BR OUTMUL ;CONTINUE QUESTIONS
930 001774 016767 177206 177202 3$: MOV KEEPADD,BASEADD ;RESTORE
931 002002 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
932 002004 016071 MRANGE ;MESSAGE
933 002006 104405 PARAM ;CONVERT STRING
934 002010 160000 160000 ;LOW LIMIT
935 002012 167776 167776 ;HIGH LIMIT
936 002014 001210 LASTADD ;STORE AT THIS LOCATION
937 002016 001 .BYTE 1 ;MASK
938 002017 001 .BYTE 1 ;HOW MANY TIMES + 2
939 002020 000167 177656 JMP 1$ ;DO IT AGAIN
940 002024 OUTMUL:
941 002024 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
942 002026 016355 MLEVEL ;MESSAGE
943 002030 104405 PARAM ;CONVERT STRING
944 002032 000004 4 ;LOW LIMIT
945 002034 000007 7 ;HIGH LIMIT
946 002036 017244 DUPRT ;STORE AT THIS LOCATION
947 002040 000 .BYTE 0 ;MASK
948 002041 001 .BYTE 1 ;HOW MANY TIMES + 2
949 002042 004767 015126 JSR PC,DULEV
950                                     ;COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
951                                     ;BUFFER TO THE CHARACTERS "1" AND "2"
952                                     ;IF THE CHARACTER IS "1" CLEAR THE FLAG
953                                     ;IF THE CHARACTER IS "2" SET THE FLAG
954 002046 AAA:
955 002046 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
956 002050 016402 MSYNC ;MESSAGE
957 002052 122767 000061 014754 3$: CMPB #'1,INBUF ;IS IT "1" ?
958 002060 001003 BNE 1$
959 002062 105067 177110 CLRB SYNCNO ;000
960 002066 000412 BR 4$
961 002070 122767 000062 014736 1$: CMPB #'2,INBUF ;IS IT "2" ?
962 002076 001004 BNE 2$
963 002100 112767 177777 177070 MOVB #-1,SYNCNO ;377
964 002106 000402 BR 4$
965 002110 104404 2$: INSTR ;RETRY
966 002112 000757 BR 3$
967 002114 000240 4$: NOP
968 002116 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
969 002120 016450 MWIRE6 ;MESSAGE
970 002122 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
971 002124 001177 SEXMIT ;THIS FLAG
972 002126 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
973 002130 016516 MWIRE5 ;MESSAGE
974 002132 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
975 002134 001200 SEREC ;THIS FLAG
976 002136 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
977 002140 016563 MWIRE4 ;MESSAGE
978 002142 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
979 002144 001201 OPTCLR ;THIS FLAG
980 002146 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
  
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981 002150 016637 MEXTJ ;MESSAGE
982 002152 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
983 002154 001203 JMRBY ;THIS FLAG
984
985 ;TEST START AND RESTART
986
987 002156 012767 000340 175612 .BEGIN: MOV #340,PS ;LOCK OUT INTERRUPTS
988 002164 012706 001100 MOV #STACK,SP ;SET UP STACK
989 002170 005737 000042 TST @#42 ;IS PROGRAM UNDER MONITOR CONTROL
990 002174 001056 BNE 3$
991 002176 105767 177000 TSTB MULTD .DON'T ALLOW LOCK ON TEST IF RUNNING
992 ;MULTIPLE DEVICES
993 002202 001407 BEQ 5$ ;IF NO TEST FOR LOCK ON TEST
994 002204 016767 011404 011304 MOV BRW,TTST ;RESTORE NORMAL SCOPE LOOP
995 002212 016767 011400 011300 MOV BRX,TTST+2 ;DITTO
996 002220 000444 BR 3$ ;JUMP AROUND IF YES
997 002222 032777 000004 176650 5$: BIT #BIT2,@SWR ;CHECK FOR LOCK ON TEST
998 002230 001416 BEQ 1$
999 002232 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1000 002234 016312 MLOCK ;MESSAGE
1001 002236 104412 SETFLG ;SET FLAG BASED UPON INPUT STRING
1002 002240 001225 LOKFLG ;THIS FLAG
1003 002242 105767 176757 TSTB LOKFLG ;IS LOCK ON TEST OPTION SELECTED
1004 002246 001407 BEQ 1$
1005 002250 012767 000240 011240 MOV #NOP,TTST
1006 002256 012767 000240 011234 MOV #NOP,TTST+2 ;SET UP TO LOCK
1007 002264 000406 BR 2$
1008 002266 016767 011322 011222 1$: MOV BRW,TTST
1009 002274 016767 011316 011216 MOV BRX,TTST+2 ;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
1010 002302 032777 000002 176570 2$: BIT #SW01,@SWR ;IF SW01=1, GET STARTING PC
1011 002310 001410 BEQ 3$
1012 002312 104403 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1013 002314 016277 MTSTPC ;MESSAGE
1014 002316 104405 PARAM ;CONVERT STRING
1015 002320 002350 TST1 ;LOW LIMIT
1016 002322 012662 TLAST ;HIGH LIMIT
1017 002324 001114 RTRN ;STORE AT THIS LOCATION
1018 002326 001 .BYTE 1 ;MASK
1019 002327 001 .BYTE 1 ;HOW MANY TIMES + 2
1020 002330 000403 BR 4$
1021 002332 012767 002350 176554 3$: MOV #TST1,RTRN ;START AT TEST 1
1022 002340 104402 016273 4$: TYPE MR ;TYPE R
1023 002344 000177 176544 JMP @RTRN ;START TESTING
1024
1025 ;: THIS TEST VERIFYS WORD LENGTH SELECT OF
1026 ;: THE TRANSMITTER SECTION, IT USES THE DNA FLAG
1027 ;: AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1028 ;: CORRECTLY
1029 ;: NOTE: DNA COMES UP ON THE FIRST RISING BIT
1030 ;: EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1031 ;: LOADED INTO TXDBUF
1032 ;: MODE: SYNINT
1033 ;: PARITY: NO PARITY
1034 ;: LENGTH: FIVE
1035
1036 002350 012767 000001 176550 TST1: MOV #1,TSTNO ;SAVE THIS

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1037 002356 012767 002602 176532      MOV      #TST2,NEXT      ;GO TO THIS TEST WHEN THRU
1038 002364 052777 000400 015322      BIS      #MRESET,@TXCSR ;MASTER RESET
1039 002372 012777 030000 015310      MOV      #SYNINT,@PARCSR ;SET THE MODE
1040 002400 052777 000400 015306      BIS      #MRESET,@TXCSR ;MASTER RESET
1041
1042                                     ;SET MAINTENANCE MODE & SEND
1043                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1044 002406 012777 004020 015300      MOV      #MINT!SEND,@TXCSR
1045
1046                                     ;SET MODE.# OF BITS,PARITY SENSE & LOAD SYNC REG
1047 002414 012777 030026 015266      MOV      #SYNINT!FIVE!NOPAR!26,@PARCSR
1048 002422 016703 015266      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
1049 002426 112777 000021 015264      MOV      #21,@TXDBUF   ;LOAD CHAR
1050 002434 012767 000021 176502      MOV      #21,TEMP1    ;SHIFTED CHAR
1051 002442 012767 000005 176470      MOV      #5,SHIFT     ;# OF SHIFTS
1052                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
1053 002450 052777 020000 015236      BIS      #CLK,@TXCSR   ;POKE CLK UP
1054 002456 042777 020000 015230      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
1055 002464 005000      1$:      CLR      RD
1056 002466 006067 176452      ROR      TEMP1      ;FORCE CARRY
1057 002472 103002      BCC      2$
1058 002474 052700 002000      BIS      #BITW,RD      ;EQUIV OF BIT WINDOW
1059 002500      2$:
1060 002500 052777 020000 015206      BIS      #CLK,@TXCSR   ;POKE CLK UP
1061 002506 042777 020000 015200      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
1062 002514 017701 015174      MOV      @TXCSR,R1    ;ACTUAL
1063 002520 042701 075777      BIC      #075777,R1    ;SAVE BITW & DNA
1064 002524 020001      CMP      RD,R1      ;COMPARE EXP VS ACT
1065 002526 001401      BEQ      3$
1066 002530 104003      HLT      3           ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1067                                     ;BIT,.....ALSO CHECK DNA
1068      3$:
1069 002532 005367 176402      DEC      SHIFT      ;# OF SHIFTS
1070 002536 001352      BNE      1$         ;DO IT AGAIN ?
1071                                     ;NOW POKE CLK TO SEE DNA
1072 002540 052777 020000 015146      BIS      #CLK,@TXCSR   ;POKE CLK
1073 002546 012700 100000      MOV      #100000,RD   ;EXPECTED
1074 002552 017701 015136      MOV      @TXCSR,R1    ;ACTUAL
1075 002556 042701 077777      BIC      #77777,R1    ;SAVE DNA ONLY
1076 002562 020001      CMP      RD,R1      ;COMPARE EXPECTED VS ACTUAL
1077 002564 001401      BEQ      4$
1078 002566 104003      HLT      3           ;DNA SHOULD BE SET
1079                                     ;IF DNA DID NOT SET,CHECK WORD LENGTH
1080                                     ;SELECT LOGIC OF THE TRANSMITTER
1081      4$:
1082 002570 005777 015120      TST      @TXCSR      ;DNA ?
1083 002574 100001      BPL      5$
1084 002576 104000      HLT      5           ;DNA SHOULD NOT BE SET
1085                                     ;IT SHOULD HAVE BEEN CLEARED FROM
1086                                     ;PREVIOUS READ
1087      5$:
1088 002600 104400      SCOPE
1089      ;; THIS TEST VERIFYS WORD LENGTH SELECT OF
1090      ;; THE TRANSMITTER SECTION, IT USES THE DNA FLAG
1091      ;; AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1092      ;; CORRECTLY
    
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1093                                     ;;NOTE: DNA COMES UP ON THE FIRST RISING BIT
1094                                     ;;EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1095                                     ;;LOADED INTO TXDBUF
1096                                     ;;MODE:SYNINT
1097                                     ;;PARITY:NO PARITY
1098                                     ;;LENGTH:SIX
1099
1100 002602 012767 000002 176316 TST2: MOV #2,TSTNO ;SAVE THIS
1101 002610 012767 003034 176300 MOV #TST3,NEXT ;GO TO THIS TEST WHEN THRU
1102 002616 052777 000400 015070 BIS #MRESET,@TXCSR ;MASTER RESET
1103 002624 012777 030000 015056 MOV #SYNINT,@PARCSR ;SET THE MODE
1104 002632 052777 000400 015054 BIS #MRESET,@TXCSR ;MASTER RESET
1105
1106 ;SET MAINTENANCE MODE & SEND
1107 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1108 002640 012777 004020 015046 MOV #MINT!SEND,@TXCSR
1109
1110 ;SET MODE, # OF BITS,PARITY SENSE, & LOAD SYNC REG
1111 002646 012777 032026 015034 MOV #SYNINT!SIX!NOPAR!26,@PARCSR
1112 002654 016703 015034 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1113 002660 112777 000021 015032 MOVB #21,@TXDBUF ;LOAD CHAR
1114 002666 012767 000021 176250 MOV #21,TEMP1 ;SHIFTED CHAR
1115 002674 012767 000006 176236 MOV #6,SHIFT ;# OF SHIFTS
1116 ;POKE CLK TO GET INTO SYNCHRONIZATION
1117 002702 052777 020000 015004 BIS #CLK,@TXCSR ;POKE CLK UP
1118 002710 042777 020000 014776 BIC #CLK,@TXCSR ;POKE CLK DOWN
1119 002716 005000 1S: CLR R0
1120 002720 006067 176220 ROR TEMP1 ;FORCE CARRY
1121 002724 103002 BCC 2S
1122 002726 052700 002000 BIS #BITW,R0 ;EQUIV OF BIT WINDOW
1123 002732 2S:
1124 002732 052777 020000 014754 BIS #CLK,@TXCSR ;POKE CLK UP
1125 002740 042777 020000 014746 BIC #CLK,@TXCSR ;POKE CLK DOWN
1126 002746 017701 014742 MOV @TXCSR,R1 ;ACTUAL
1127 002752 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1128 002756 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1129 002760 001401 BEQ 3S
1130 002762 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1131 ;BIT,.....ALSO CHECK DNA
1132 3S:
1133 002764 005367 176150 DEC SHIFT ;# OF SHIFTS
1134 002770 001352 BNE 1S ;DO IT AGAIN ?
1135 ;NOW POKE CLK TO SEE DNA
1136 002772 052777 020000 014714 BIS #CLK,@TXCSR ;POKE CLK
1137 003000 012700 100000 MOV #100000,R0 ;EXPECTED
1138 003004 017701 014704 MOV @TXCSR,R1 ;ACTUAL
1139 003010 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1140 003014 020001 CMP R0,R1 ;COMPARE EXPECTED VS ACTUAL
1141 003016 001401 BEQ 4S
1142 003020 104003 HLT 3 ;DNA SHOULD BE SET
1143 ;IF DNA DID NOT SET ,CHECK WORD LENGTH
1144 ;SELECT LOGIC OF THE TRANSMITTER
1145 4S:
1146 003022 005777 014666 TST @TXCSR ;DNA ?
1147 003026 100001 BPL 5S
1148 003030 104000 HLT ;DNA SHOULD NOT BE SET

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1149                                     ;IT SHOULD HAVE BEEN CLEARED FROM
1150                                     ;PREVIOUS READ
1151 003032                               5$:
1152 003032 104400
1153                                     SCOPE
1154                                     ;;THIS TEST VERIFYS WORD LENGTH SELECT OF
1155                                     ;;THE TRANSMITTER SECTION,IT USES THE DNA FLAG
1156                                     ;;AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1157                                     ;;CORRECTLY
1158                                     ;;NOTE: DNA COMES UP ON THE FIRST RISING BIT
1159                                     ;;EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1160                                     ;;LOADED INTO TXDBUF
1161                                     ;;MODE:SYNINT
1162                                     ;;PARITY:NO PARITY
1163                                     ;;LENGTH:SEVEN
1164 003034 012767 000003 176064 TST3: MOV #3,TSTNO ;SAVE THIS
1165 003042 012767 003266 176046 MOV #TST4,NEXT ;GO TO THIS TEST WHEN THRU
1166 003050 052777 000400 014636 BIS #MRESET,@TXCSR ;MASTER RESET
1167 003056 012777 030000 014624 MOV #SYNINT,@PARCSR ;SET THE MODE
1168 003064 052777 000400 014622 BIS #MRESET,@TXCSR ;MASTER RESET
1169
1170                                     ;SET MAINTENANCE MODE & SEND
1171                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1172 003072 012777 004020 014614 MOV #MINT!SEND,@TXCSR
1173
1174                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
1175 003100 012777 034026 014602 MOV #SYNINT!SEVEN!NOPAR!26,@PARCSR
1176 003106 016703 014602 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1177 003112 112777 000021 014600 MOV #21,@TXDBUF ;LOAD CHAR
1178 003120 012767 000021 176016 MOV #21,TEMP1 ;SHIFTED CHAR
1179 003126 012767 000007 176004 MOV #7,SHIFT ;# OF SHIFTS
1180                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
1181 003134 052777 020000 014552 BIS #CLK,@TXCSR ;POKE CLK UP
1182 003142 042777 020000 014544 BIC #CLK,@TXCSR ;POKE CLK DOWN
1183 003150 005000
1184 003152 006067 175766 1$: CLR R0
1185 003156 103002 ROR TEMP1 ;FORCE CARRY
1186 003160 052700 002000 BCC 2$
1187 003164 BIS #BITW,R0 ;EQUIV OF BIT WINDOW
1188 003164 052777 020000 014522 2$: BIS #CLK,@TXCSR ;POKE CLK UP
1189 003172 042777 020000 014514 BIC #CLK,@TXCSR ;POKE CLK DOWN
1190 003200 017701 014510 MOV @TXCSR,R1 ;ACTUAL
1191 003204 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1192 003210 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1193 003212 001401 BEQ 3$
1194 003214 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1195                                     ;BIT,.....ALSO CHECK DNA
1196 003216 3$:
1197 003216 005367 175716 DEC SHIFT ;# OF SHIFTS
1198 003222 001352 BNE 1$ ;DO IT AGAIN ?
1199
1200 003224 052777 020000 014462 ;NOW POKE CLK TO SEE DNA
1201 003232 012700 100000 BIS #CLK,@TXCSR ;POKE CLK
1202 003236 017701 014452 MOV #100000,R0 ;EXPECTED
1203 003242 042701 077777 MOV @TXCSR,R1 ;ACTUAL
1204 003246 020001 BIC #77777,R1 ;SAVE DNA ONLY
                                     CMP R0,R1 ;COMPARE EXPECTED VS ACTUAL
    
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M02

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 28
 DZDUDC.P11 21-MAY-76 00:00

SEQ 0025

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1205 003250 001401          BEQ      4$
1206 003252 104003          HLT      3      ;DNA SHOULD BE SET
1207                                ;IF DNA DID NOT SET ,CHECK WORD LENGTH
1208                                ;SELECT LOGIC OF THE TRANSMITTER
1209 003254                4$:
1210 003254 005777 014434   TST      @TXCSR ;DNA ?
1211 003260 100001          BPL      5$
1212 003262 104000          HLT
1213                                ;DNA SHOULD NOT BE SET
1214                                ;IT SHOULD HAVE BEEN CLEARED FROM
1215                                ;PREVIOUS READ
1215 003264                5$:
1216 003264 104400          SCOPE
1217                                ;; THIS TEST VERIFYS WORD LENGTH SELECT OF
1218                                ;; THE TRANSMITTER SECTION, IT USES THE DNA FLAG
1219                                ;; AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1220                                ;; CORRECTLY
1221                                ;; NOTE: DNA COMES UP ON THE FIRST RISING BIT
1222                                ;; EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1223                                ;; LOADED INTO TXDBUF
1224                                ;; MODE: SYNINT
1225                                ;; PARITY: NO PARITY
1226                                ;; LENGTH: EIGHT
1227
1228 003266 012767 000004 175632 TST4:  MOV      #4,TSTNO      ;SAVE THIS
1229 003274 012767 003520 175614   MOV      #TST5,NEXT      ;GO TO THIS TEST WHEN THRU
1230 003302 052777 000400 014404   BIS      #MRESET,@TXCSR ;MASTER RESET
1231 003310 012777 030000 014372   MOV      #SYNINT,@PARCSR ;SET THE MODE
1232 003316 052777 000400 014370   BIS      #MRESET,@TXCSR ;MASTER RESET
1233
1234                                ;SET MAINTENANCE MODE & SEND
1235                                ;NOTE: BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1236 003324 012777 004020 014362   MOV      #MINT!SEND,@TXCSR
1237
1238                                ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
1239 003332 012777 036026 014350   MOV      #SYNINT!EIGHT!NOPAR!26,@PARCSR
1240 003340 016703 014350          MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
1241 003344 112777 000021 014346   MOVB    #21,@TXDBUF    ;LOAD CHAR
1242 003352 012767 000021 175564   MOV      #21,TEMP1     ;SHIFTED CHAR
1243 003360 012767 000010 175552   MOV      #8,SHIFT      ;# OF SHIFTS
1244                                ;POKE CLK TO GET INTO SYNCHRONIZATION
1245 003366 052777 020000 014320   BIS      #CLK,@TXCSR    ;POKE CLK UP
1246 003374 042777 020000 014312   BIC      #CLK,@TXCSR    ;POKE CLK DOWN
1247 003402 005000          1$:  CLR      R0
1248 003404 006067 175534          ROR      TEMP1      ;FORCE CARRY
1249 003410 103002          BCC     2$
1250 003412 052700 002000          BIS      #BITW,R0      ;EQUIV OF BIT WINDOW
1251 003416          2$:
1252 003416 052777 020000 014270   BIS      #CLK,@TXCSR    ;POKE CLK UP
1253 003424 042777 020000 014262   BIC      #CLK,@TXCSR    ;POKE CLK DOWN
1254 003432 017701 014256          MOV      @TXCSR,R1     ;ACTUAL
1255 003436 042701 075777          BIC      #075777,R1    ;SAVE BITW & DNA
1256 003442 020001          CMP     R0,R1      ;COMPARE EXP VS ACT
1257 003444 001401          BEQ     3$
1258 003446 104003          HLT     3      ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1259                                ;BIT,.....ALSO CHECK DNA
1260 003450          3$:

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1261 003450 005367 175464      DEC      SHIFT      ;# OF SHIFTS
1262 003454 001352      BNE      1$          ;DO IT AGAIN ?
1263      ;NOW POKE CLK TO SEE DNA
1264 003456 052777 020000 014230  BIS      @TXCSR      ;POKE CLK
1265 003464 012700 100000      MOV      #100000,R0   ;EXPECTED
1266 003470 017701 014220      MOV      @TXCSR,R1   ;ACTUAL
1267 003474 042701 077777      BIC      #77777,R1   ;SAVE DNA ONLY
1268 003500 020001      CMP      R0,R1      ;COMPARE EXPECTED VS ACTUAL
1269 003502 001401      BEQ      4$
1270 003504 104003      HLT      3          ;DNA SHOULD BE SET
1271      ;IF DNA DID NOT SET ,CHECK WORD LENGTH
1272      ;SELECT LOGIC OF THE TRANSMITTER
1273 003506      4$:
1274 003506 005777 014202      TST      @TXCSR      ;DNA ?
1275 003512 100001      BPL      5$
1276 003514 104000      HLT
1277      ;DNA SHOULD NOT BE SET
1278      ;IT SHOULD HAVE BEEN CLEARED FROM
1279      ;PREVIOUS READ
1279 003516      5$:
1280 003516 104400      SCOPE
1281      ;;THIS TEST VERIFYS WORD LENGTH SELECT OF
1282      ;;THE TRANSMITTER SECTION,IT USES THE DNA FLAG
1283      ;;AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1284      ;;CORRECTLY
1285      ;;NOTE: DNA COMES UP ON THE FIRST RISING BIT
1286      ;;EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1287      ;;LOADED INTO TXDBUF
1288      ;;MODE:SYNEXT
1289      ;;PARITY:NO PARITY
1290      ;;LENGTH:FIVE
1291      ;;
1292 003520 012767 000005 175400  TST5:  MOV      #5,TSTNO      ;SAVE THIS
1293 003526 012767 003752 175362      MOV      #TST6,NEXT    ;GO TO THIS TEST WHEN THRU
1294 003534 052777 000400 014152      BIS      #MRESET,@TXCSR ;MASTER RESET
1295 003542 012777 020000 014140      MOV      #SYNEXT,@PARCSR ;SET THE MODE
1296 003550 052777 000400 014136      BIS      #MRESET,@TXCSR ;MASTER RESET
1297
1298      ;SET MAINTENANCE MODE & SEND
1299      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1300 003556 012777 004020 014130      MOV      #MINT!SEND,@TXCSR
1301
1302      ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
1303 003564 012777 020026 014116      MOV      #SYNEXT!FIVE!NOPAR!26,@PARCSR
1304 003572 016703 014116      MOV      TXCSR,R3     ;SET UP FOR ERROR MSG
1305 003576 112777 000021 014114      MOVB     #21,@TXDBUF  ;LOAD CHAR
1306 003604 012767 000021 175332      MOV      #21,TEMP1    ;SHIFTED CHAR
1307 003612 012767 000005 175320      MOV      #5,SHIFT     ;# OF SHIFTS
1308      ;POKE CLK TO GET INTO SYNCRONIZATION
1309 003620 052777 020000 014066      BIS      #CLK,@TXCSR  ;POKE CLK UP
1310 003626 042777 020000 014060      BIC      #CLK,@TXCSR  ;POKE CLK DOWN
1311 003634 005000      1$:  CLR      R0
1312 003636 006057 175302      ROR      TEMP1      ;FORCE CARRY
1313 003642 103002      BCC      2$
1314 003644 052700 002000      BIS      #BITW,R0     ;EQUIV OF BIT WINDOW
1315 003650
1316 003650 052777 020000 014036      BIS      #CLK,@TXCSR  ;POKE CLK UP
    
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1317 003656 042777 020000 014030      BIC      #CLK,@TXCSR      ;POKE CLK DOWN
1318 003664 017701 014024      MOV      @TXCSR,R1      ;ACTUAL
1319 003670 042701 075777      BIC      #075777,R1     ;SAVE BITW & DNA
1320 003674 020001      CMP      R0,R1         ;COMPARE EXP VS ACT
1321 003676 001401      BEQ      3$
1322 003700 104003      HLT
1323
1324 003702      3$:
1325 003702 005367 175232      DEC      SHIFT         ;# OF SHIFTS
1326 003706 001352      BNE      1$           ;DO IT AGAIN ?
1327
1328 003710 052777 020000 013776      ;NOW POKE CLK TO SEE DNA
1329 003716 012700 100000      BIS      #CLK,@TXCSR   ;POKE CLK
1330 003722 017701 013766      MOV      #100000,R0    ;EXPECTED
1331 003726 042701 077777      MOV      @TXCSR,R1     ;ACTUAL
1332 003732 020001      BIC      #77777,R1     ;SAVE DNA ONLY
1333 003734 001401      CMP      R0,R1         ;COMPARE EXPECTED VS ACTUAL
1334 003736 104003      BEQ      4$
1335      HLT
1336
1337 003740      4$:
1338 003740 005777 013750      TST      @TXCSR        ;DNA ?
1339 003744 100001      BPL      5$
1340 003746 104000      HLT
1341
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1343 003750      5$:
1344 003750 104400
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1356 003752 012767 000006 175146      TST6:  MOV      #6,TSTNO      ;SAVE THIS
1357 003760 012767 004204 175130      MOV      #TST7_NEXT      ;GO TO THIS TEST WHEN THRU
1358 003766 052777 000400 013720      BIS      #MRESET,@TXCSR  ;MASTER RESET
1359 003774 012777 020000 013706      MOV      #SYNEXT,@PARCSR ;SET THE MODE
1360 004002 052777 000400 013704      BIS      #MRESET,@TXCSR  ;MASTER RESET
1361
1362
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1364 004010 012777 004020 013676      ;SET MAINTENANCE MODE & SEND
1365
1366
1367 004016 012777 022026 013664      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1368 004024 016703 013664      MOV      #MINT!SEND,@TXCSR
1369 004030 112777 000021 013662      ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
1370 004036 012767 000021 175100      MOV      #SYNEXT!SIX!NOPAR!26,@PARCSR
1371 004044 012767 000006 175066      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
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1373 004052 052777 020000 013634      BIS      #CLK,@TXCSR      ;POKE CLK UP
1374 004060 042777 020000 013626      BIC      #CLK,@TXCSR      ;POKE CLK DOWN
1375 004066 005000                1S:      CLR      R0
1376 004070 006067 175050                ROR      TEMP1      ;FORCE CARRY
1377 004074 103002                BCC      2S
1378 004076 052700 002000                BIS      #BITW,R0      ;EQUIV OF BIT WINDOW
1379 004102                2S:
1380 004102 052777 020000 013604      BIS      #CLK,@TXCSR      ;POKE CLK UP
1381 004110 042777 020000 013576      BIC      #CLK,@TXCSR      ;POKE CLK DOWN
1382 004116 017701 013572      MOV      @TXCSR,R1      ;ACTUAL
1383 004122 042701 075777      BIC      #075777,R1      ;SAVE BITW & DNA
1384 004126 020001                CMP      R0,R1      ;COMPARE EXP VS ACT
1385 004130 001401                SEQ      3S
1386 004132 104003                HLT
1387                                3      ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1388                                ;BIT,....ALSO CHECK DNA
1389 004134                3S:
1389 004134 005367 175000                DEC      SHIFT      ;# OF SHIFTS
1390 004140 001352                BNE      1S      ;DO IT AGAIN ?
1391                                ;NOW POKE CLK TO SEE DNA
1392 004142 052777 020000 013544      BIS      #CLK,@TXCSR      ;POKE CLK
1393 004150 012700 100000                MOV      #100000,R0      ;EXPECTED
1394 004154 017701 013534      MOV      @TXCSR,R1      ;ACTUAL
1395 004160 042701 077777      BIC      #77777,R1      ;SAVE DNA ONLY
1396 004164 020001                CMP      R0,R1      ;COMPARE EXPECTED VS ACTUAL
1397 004166 001401                BEQ      4S
1398 004170 104003                HLT
1399                                3      ;DNA SHOULD BE SET
1400                                ;IF DNA DID NOT SET,CHECK WORD LENGTH
1401                                ;SELECT LOGIC OF THE TRANSMITTER
1401 004172                4S:
1402 004172 005777 013516      TST      @TXCSR      ;DNA ?
1403 004176 100001                BPL      5S
1404 004200 104000                HLT
1405                                ;DNA SHOULD NOT BE SET
1406                                ;IT SHOULD HAVE BEEN CLEARED FROM
1407                                ;PREVIOUS READ
1407 004202                5S:
1408 004202 104400
1409                                SCOPE
1410                                ;;THIS TEST VERIFYS WORD LENGTH SELECT OF
1411                                ;;THE TRANSMITTER SECTION,IT USES THE DNA FLAG
1412                                ;;AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1413                                ;;CORRECTLY
1414                                ;;NOTE: DNA COMES UP ON THE FIRST RISING BIT
1415                                ;;EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1416                                ;;LOADED INTO TXDBUF
1417                                ;;MODE:SYNEXT
1418                                ;;PARITY:NO PARITY
1419                                ;;LENGTH:SEVEN
1420 004204 012767 000007 174714      TST7:  MOV      #7,TSTNO      ;SAVE THIS
1421 004212 012767 004436 174676      MOV      #TSTB_NEXT      ;GO TO THIS TEST WHEN THRU
1422 004220 052777 000400 013466      BIS      #MRESET,@TXCSR      ;MASTER RESET
1423 004226 012777 020000 013454      MOV      #SYNEXT,@PARCSR      ;SET THE MODE
1424 004234 052777 000400 013452      BIS      #MRESET,@TXCSR      ;MASTER RESET
1425
1426                                ;SET MAINTENANCE MODE & SEND
1427                                ;NOTE:BIT WINDOW&CLK ARE CLEARED (MCDATA=0)
1428 004242 012777 004020 013444      MOV      #MINT!SEND,@TXCSR

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1429
1430 ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
1431 004250 012777 024026 013432 MOV #SYNEXT!SEVEN!NOPAR!26,@PARCSR
1432 004256 016703 013432 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1433 004262 112777 000021 013430 MOVB #21,@TXDBUF ;LOAD CHAR
1434 004270 012767 000021 174646 MOV #21,TEMP1 ;SHIFTED CHAR
1435 004276 012767 000007 174634 MOV #7,SHIFT ;# OF SHIFTS
1436 ;POKE CLK TO GET INTO SYNCHRONIZATION
1437 004304 052777 020000 013402 BIS #CLK,@TXCSR ;POKE CLK UP
1438 004312 042777 020000 013374 BIC #CLK,@TXCSR ;POKE CLK DOWN
1439 004320 005000 15: CLR R0
1440 004322 006067 174616 ROR TEMP1 ;FORCE CARRY
1441 004326 103002 BCC 25
1442 004330 052700 002000 BIS #BITW,R0 ;EQUIV OF BIT WINDOW
1443 004334 25:
1444 004334 052777 020000 013352 BIS #CLK,@TXCSR ;POKE CLK UP
1445 004342 042777 020000 013344 BIC #CLK,@TXCSR ;POKE CLK DOWN
1446 004350 017701 013340 MOV @TXCSR,R1 ;ACTUAL
1447 004354 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1448 004360 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1449 004362 001401 BEQ 35
1450 004364 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1451 ;BIT,.....ALSO CHECK DNA
1452 004366 35:
1453 004366 005367 174546 DEC SHIFT ;# OF SHIFTS
1454 004372 001352 BNE 15 ;DO IT AGAIN ?
1455 ;NOW POKE CLK TO SEE DNA
1456 004374 052777 020000 013312 BIS #CLK,@TXCSR ;POKE CLK
1457 004402 012700 100000 MOV #100000,R0 ;EXPECTED
1458 004406 017701 013302 MOV @TXCSR,R1 ;ACTUAL
1459 004412 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1460 004416 020001 CMP R0,R1 ;COMPARE EXPECTED VS ACTUAL
1461 004420 001401 BEQ 45
1462 004422 104003 HLT 3 ;DNA SHOULD BE SET
1463 ;IF DNA DID NOT SET,CHECK WORD LENGTH
1464 ;SELECT LOGIC OF THE TRANSMITTER
1465 004424 45:
1466 004424 005777 013264 TST @TXCSR ;DNA ?
1467 004430 100001 BPL 55
1468 004432 104000 HLT ;DNA SHOULD NOT BE SET
1469 ;IT SHOULD HAVE BEEN CLEARED FROM
1470 ;PREVIOUS READ
1471 004434 55:
1472 004434 104400 SCOPE
1473 ;:THIS TEST VERIFYS WORD LENGTH SELECT OF
1474 ;:THE TRANSMITTER SECTION,IT USES THE DNA FLAG
1475 ;:AND BIT WINDOW TO DETERMINE THAT IT WAS SELECTED
1476 ;:CORRECTLY
1477 ;:NOTE: DNA COMES UP ON THE FIRST RISING BIT
1478 ;:EDGE OF THE NEXT CHARACTER IF NO NEW CHARACTER IS
1479 ;:LOADED INTO TXDBUF
1480 ;:MODE:SYNEXT
1481 ;:PARITY:NO PARITY
1482 ;:LENGTH:EIGHT
1483 ;:
1484 004436 012767 000010 174462 TSTB: MOV #8,TSTNO ;SAVE THIS

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E03

DZDUUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 33
 DZDUUDC.P11 21-MAY-76 00:00

SEQ 0030

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1485 004444 012767 004670 174444      MOV      #TST9,NEXT      ;GO TO THIS TEST WHEN THRU
1486 004452 052777 000400 013234      BIS      #MRESET,@TXCSR ;MASTER RESET
1487 004460 012777 020000 013222      MOV      #SYNEXT,@PARCSR ;SET THE MODE
1488 004466 052777 000400 013220      BIS      #MRESET,@TXCSR ;MASTER RESET
1489
1490                                     ;SET MAINTENANCE MODE & SEND
1491                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1492 004474 012777 004020 013212      MOV      #MINT!SEND,@TXCSR
1493
1494                                     ;SET MODE, # OF BITS,PARITY SENSE, & LOAD SYNC REG
1495 004502 012777 026026 013200      MOV      #SYNEXT!EIGHT!NOPAR!26,@PARCSR
1496 004510 016703 013200      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
1497 004514 112777 000021 013176      MOV      #21,@TXDBUF   ;LOAD CHAR
1498 004522 012767 000021 174414      MOV      #21,TEMP1     ;SHIFTED CHAR
1499 004530 012767 000010 174402      MOV      #8,SHIFT      ;# OF SHIFTS
1500                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
1501 004536 052777 020000 013150      BIS      #CLK,@TXCSR   ;POKE CLK UP
1502 004544 042777 020000 013142      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
1503 004552 005000      1$:    CLR      R0
1504 004554 006067 174364      ROR      TEMP1      ;FORCE CARRY
1505 004560 103002      BCC      2$
1506 004562 052700 002000      BIS      #BITW,R0      ;EQUIV OF BIT WINDOW
1507 004566      2$:
1508 004566 052777 020000 013120      BIS      #CLK,@TXCSR   ;POKE CLK UP
1509 004574 042777 020000 013112      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
1510 004602 017701 013106      MOV      @TXCSR,R1     ;ACTUAL
1511 004606 042701 075777      BIC      #075777,R1    ;SAVE BITW & DNA
1512 004612 020001      CMP      R0,R1      ;COMPARE EXP VS ACT
1513 004614 001401      BEQ      3$
1514 004616 104003      HLT      3      ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1515                                     ;BIT,.....ALSO CHECK DNA
1516 004620      3$:
1517 004620 005367 174314      DEC      SHIFT      ;# OF SHIFTS
1518 004624 001352      BNE      1$      ;DO IT AGAIN ?
1519                                     ;NOW POKE CLK TO SEE DNA
1520 004626 052777 020000 013060      BIS      #CLK,@TXCSR   ;POKE CLK
1521 004634 012700 100000      MOV      #100000,R0    ;EXPECTED
1522 004640 017701 013050      MOV      @TXCSR,R1     ;ACTUAL
1523 004644 042701 077777      BIC      #77777,R1     ;SAVE DNA ONLY
1524 004650 020001      CMP      R0,R1      ;COMPARE EXPECTED VS ACTUAL
1525 004652 001401      BEQ      4$
1526 004654 104003      HLT      3      ;DNA SHOULD BE SET
1527                                     ;IF DNA DID NOT SET,CHECK WORD LENGTH
1528                                     ;SELECT LOGIC OF THE TRANSMITTER
1529      4$:
1530 004656 005777 013032      TST      @TXCSR      ;DNA ?
1531 004662 100001      BPL      5$
1532 004664 104000      HLT      ;DNA SHOULD NOT BE SET
1533                                     ;IT SHOULD HAVE BEEN CLEARED FROM
1534                                     ;PREVIOUS READ
1535      5$:
1536 004666 104400      SCOPE
1537      ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1538      ;;OF THE TRANSMITTER SECTION.
1539      ;;IT ALSO CHECKS DNA TIMING
1540      ;;MODE:SYNINT
  
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1541                                     ;;LENGTH:FIVE PLUS PARITY
1542                                     ;;PARITY:EVEPAR
1543                                     ;;CHARACTER:25
1544                                     ;;
1545 004670 012767 000011 174230 TST9: MOV #9,TSTNO ;SAVE THIS
1546 004676 012767 005112 174212 MOV #TST10,NEXT ;GO TO THIS TEST WHEN THRU
1547 004704 052777 000400 013002 BIS #MRESET,@TXCSR ;MASTER RESET
1548 004712 012777 030000 012770 MOV #SYNINT,@PARCSR ;SET THE MODE
1549 004720 052777 000400 012766 BIS #MRESET,@TXCSR ;MASTER RESET
1550
1551 ;SET MAINTENANCE MODE & SEND
1552 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1553 004726 012777 004020 012760 MOV #MINT!SEND,@TXCSR
1554
1555 ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
1556 004734 012777 031426 012746 MOV #SYNINT!FIVE!EVEPAR!26,@PARCSR
1557 004742 016703 012746 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1558 004746 112777 000025 012744 MOVB #25,@TXDBUF ;LOAD DATA CHAR
1559 004754 012767 000065 174162 MOV #65,TEMP1 ;TO BE SHIFTED CHAR
1560 004762 012767 000006 174150 MOV #6,SHIFT ;# OF SHIFTS
1561
1562 004770 052777 020000 012716 ;POKE CLK TO GET INTO SYNCHRONIZATION
1563 004776 042777 020000 012710 BIS #CLK,@TXCSR ;POKE CLK UP
1564 005004 005000 CLR #CLK,@TXCSR ;POKE CLK DOWN
1565 005006 006067 174132 1$: ROR TEMP1 ;FORCE CARRY
1566 005012 103002 BCC 2$ ;BR IF CARRY CLR
1567 005014 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
1568
1569 005020 052777 020000 012666 2$: BIS #CLK,@TXCSR ;POKE CLK UP
1570 005026 042777 020000 012660 BIC #CLK,@TXCSR ;POKE CLK DOWN
1571 005034 017701 012654 MOV @TXCSR,R1 ;ACTUAL
1572 005040 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1573 005044 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1574 005046 001401 BEQ 3$
1575 005050 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1576 ;BIT,...ALSO CHECK DNA
1577
1578 005052 005367 174062 3$: DEC SHIFT ;# OF SHIFTS
1579 005056 001352 BNE 1$ ;DO IT AGAIN ?
1580
1581 005060 052777 020000 012626 ;NOW POKE CLK TO SEE DNA
1582 005066 012700 100000 BIS #CLK,@TXCSR ;POKE CLK
1583 005072 017701 012616 MOV #100000,R0 ;EXPECTED
1584 005076 042701 077777 MOV @TXCSR,R1 ;ACTUAL
1585 005102 020001 BIC #77777,R1 ;SAVE DNA ONLY
1586 005104 001401 CMP R0,R1 ;COMPARE EXP VS ACT
1587 005106 104003 BEQ 4$
1588 HLT 3 ;DNA SHOULD BE SET
1589 ;IF DNA DID NOT SET
1590 ;CHECK WORD LENGTH SELECT LOGIC
1591 005110 104400 4$: SCOPE
1592 ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1593 ;;OF THE TRANSMITTER SECTION.
1594 ;;IT ALSO CHECKS DNA TIMING
1595 ;;MODE:SYNINT
1596 ;;LENGTH:FIVE PLUS PARITY
    
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1597          ;; PARITY:ODDPAR
1598          ;; CHARACTER:25
1599
1600 005112 012767 000012 174006 TST10: MOV #10,TSTNO ;SAVE THIS
1601 005120 012767 005334 173770 MOV #TST11,NEXT ;GO TO THIS TEST WHEN THRU
1602 005126 052777 000400 012560 BIS #MRESET,@TXCSR ;MASTER RESET
1603 005134 012777 030000 012546 MOV #SYNINT,@PARCSR ;SET THE MODE
1604 005142 052777 000400 012544 BIS #MRESET,@TXCSR ;MASTER RESET
1605
1606          ;SET MAINTENANCE MODE & SEND
1607          ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1608 005150 012777 004020 012536 MOV #MINT!SEND,@TXCSR
1609
1610          ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
1611 005156 012777 031026 012524 MOV #SYNINT!FIVE!ODDPAR!26,@PARCSR
1612 005164 016703 012524 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1613 005170 112777 000025 012522 MOVB #25,@TXDBUF ;LOAD DATA CHAR
1614 005176 012767 000025 173740 MOV #25,TEMP1 ;TO BE SHIFTED CHAR
1615 005204 012767 000006 173726 MOV #6,SHIFT ;# OF SHIFTS
1616          ;POKE CLK TO GET INTO SYNCRONIZATION
1617 005212 052777 020000 012474 BIS #CLK,@TXCSR ;POKE CLK UP
1618 005220 042777 020000 012466 BIC #CLK,@TXCSR ;POKE CLK DOWN
1619 005226 005000 1S: CLR R0
1620 005230 006067 173710 ROR TEMP1 ;FORCE CARRY
1621 005234 103002 BCC 2S ;BR IF CARRY CLR
1622 005236 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
1623 005242 2S:
1624 005242 052777 020000 012444 BIS #CLK,@TXCSR ;POKE CLK UP
1625 005250 042777 020000 012436 BIC #CLK,@TXCSR ;POKE CLK DOWN
1626 005256 017701 012432 MOV @TXCSR,R1 ;ACTUAL
1627 005262 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1628 005266 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1629 005270 001401 BEQ 3S
1630 005272 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1631          ;BIT,...ALSO CHECK DNA
1632 3S:
1633 005274 DEC SHIFT ;# OF SHIFTS
1634 005300 BNE 1S ;DO IT AGAIN ?
1635          ;NOW POKE CLK TO SEE DNA
1636 005302 052777 020000 012404 BIS #CLK,@TXCSR ;POKE CLK
1637 005310 012700 100000 MOV #100000,R0 ;EXPECTED
1638 005314 017701 012374 MOV @TXCSR,R1 ;ACTUAL
1639 005320 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1640 005324 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1641 005326 001401 BEQ 4S
1642 005330 104003 HLT 3 ;DNA SHOULD BE SET
1643          ;IF DNA DID NOT SET
1644          ;CHECK WORD LENGTH SELECT LOGIC
1645 4S:
1646 005332 SCOPE
1647 005332 104400 ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1648          ;; OF THE TRANSMITTER SECTION.
1649          ;; IT ALSO CHECKS DNA TIMING
1650          ;; MODE:ISYMOD
1651          ;; LENGTH:FIVE PLUS PARITY
1652          ;; PARITY:EVEPAR

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1653                                     ;; CHARACTER:25
1654                                     ;;
1655 005334 012767 000013 173564 TST11: MOV #11,TSTNO ;SAVE THIS
1656 005342 012767 005556 173546 MOV #TST12,NEXT ;GO TO THIS TEST WHEN THRU
1657 005350 052777 000400 012336 BIS #MRESET,@TXCSR ;MASTER RESET
1658 005356 012777 000000 012324 MOV #ISYMOD,@PARCSR ;SET THE MODE
1659 005364 052777 000400 012322 BIS #MRESET,@TXCSR ;MASTER RESET
1660
1661 ;SET MAINTENANCE MODE & SEND
1662 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1663 005372 012777 004020 012314 MOV #MINT!SEND,@TXCSR
1664
1665 ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
1666 005400 012777 001426 012302 MOV #ISYMOD!FIVE!EVEPAR!26,@PARCSR
1667 005406 016703 012302 TXCSR,R3 ;SET UP FOR ERROR MSG
1668 005412 112777 000025 012300 MOV #25,@TXDBUF ;LOAD DATA CHAR
1669 005420 012767 000352 173516 MOV #352,TEMP1 ;TO BE SHIFTED CHAR
1670 005426 012767 000010 173504 MOV #8,SHIFT ;# OF SHIFTS
1671
1672 005434 052777 020000 012252 ;POKE CLK TO GET INTO SYNCHRONIZATION
1673 005442 042777 020000 012244 BIS #CLK,@TXCSR ;POKE CLK UP
1674 005450 005000 BIC #CLK,@TXCSR ;POKE CLK DOWN
1675 005452 006067 173466 1$: CLR R0
1676 005456 103002 ROR TEMP1 ;FORCE CARRY
1677 005460 052700 002000 BCC 2$ ;BR IF CARRY CLR
1678 005464 BIS #BITW,R0 ;EQUIV OF BITW
1679 005464 052777 020000 012222 2$: BIS #CLK,@TXCSR ;POKE CLK UP
1680 005472 042777 020000 012214 BIC #CLK,@TXCSR ;POKE CLK DOWN
1681 005500 017701 012210 MOV @TXCSR,R1 ;ACTUAL
1682 005504 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1683 005510 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1684 005512 001401 BEQ 3$
1685 005514 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1686 ;BIT,...ALSO CHECK DNA
1687 005516 3$: DEC SHIFT ;# OF SHIFTS
1688 005516 005367 173416 BNE 1$ ;DO IT AGAIN ?
1689 005522 001352
1690 ;NOW POKE CLK TO SEE DNA
1691 005524 052777 020000 012162 BIS #CLK,@TXCSR ;POKE CLK
1692 005532 012700 000000 MOV #0,R0 ;EXPECTED
1693 005536 017701 012152 MOV @TXCSR,R1 ;ACTUAL
1694 005542 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1695 005546 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1696 005550 001401 BEQ 4$
1697 005552 104003 HLT 3 ;DNA SHOULD BE SET
1698 ;IF DNA DID NOT SET
1699 ;CHECK WORD LENGTH SELECT LOGIC
1700 005554 4$:
1701 005554 104400 SCOPE
1702 ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1703 ;; OF THE TRANSMITTER SECTION.
1704 ;; IT ALSO CHECKS DNA TIMING
1705 ;; MODE:ISYMOD
1706 ;; LENGTH:FIVE PLUS PARITY
1707 ;; PARITY:ODDPAR
1708 ;; CHARACTER:25

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1709
1710 005556 012767 000014 173342 TST12: MOV #12,TSTNO ;SAVE THIS
1711 005564 012767 006000 173324 MOV #TST13,NEXT ;GO TO THIS TEST WHEN THRU
1712 005572 052777 000400 012114 BIS #MRESET,@TXCSR ;MASTER RESET
1713 005600 012777 000000 012102 MOV #ISYMOD,@PARCSR ;SET THE MODE
1714 005606 052777 000400 012100 BIS #MRESET,@TXCSR ;MASTER RESET
1715
1716 ;SET MAINTENANCE MODE & SEND
1717 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1718 005614 012777 004020 012072 MOV #MINT!SEND,@TXCSR
1719
1720 ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
1721 005622 012777 001026 012060 MOV #ISYMOD!FIVE!ODDPAR!26,@PARCSR
1722 005630 016703 012060 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1723 005634 112777 000025 012056 MOVB #25,@TXDBUF ;LOAD DATA CHAR
1724 005642 012767 000252 173274 MOV #252,TEMP1 ;TO BE SHIFTED CHAR
1725 005650 012767 000010 173262 MOV #8,SHIFT ;# OF SHIFTS
1726 ;POKE CLK TO GET INTO SYNCHRONIZATION
1727 005656 052777 020000 012030 BIS #CLK,@TXCSR ;POKE CLK UP
1728 005664 042777 020000 012022 BIC #CLK,@TXCSR ;POKE CLK DOWN
1729 005672 005000 15: CLR R0
1730 005674 006067 173244 ROR TEMP1 ;FORCE CARRY
1731 005700 103002 BCC 2$ ;BR IF CARRY CLR
1732 005702 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
1733 005706 2$: BIS #CLK,@TXCSR ;POKE CLK UP
1734 005706 052777 020000 012000 BIC #CLK,@TXCSR ;POKE CLK DOWN
1735 005714 042777 020000 011772 MOV @TXCSR,R1 ;ACTUAL
1736 005722 017701 011766 BIC #075777,R1 ;SAVE BITW & DNA
1737 005726 042701 075777 CMP R0,R1 ;COMPARE EXP VS ACT
1738 005732 020001 BEQ 3$
1739 005734 001401 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1740 005736 104003 ;BIT,...ALSO CHECK DNA
1741
1742 005740 3$: DEC SHIFT ;# OF SHIFTS
1743 005740 005367 173174 BNE 1$ ;DO IT AGAIN ?
1744 005744 001352 ;NOW POKE CLK TO SEE DNA
1745 011740 BIS #CLK,@TXCSR ;POKE CLK
1746 005746 052777 020000 011740 MOV #0,R0 ;EXPECTED
1747 005754 012700 000000 MOV @TXCSR,R1 ;ACTUAL
1748 005760 017701 011730 BIC #77777,R1 ;SAVE DNA ONLY
1749 005764 042701 077777 CMP R0,R1 ;COMPARE EXP VS ACT
1750 005770 020001 BEQ 4$
1751 005772 001401 HLT 3 ;DNA SHOULD BE SET
1752 005774 104003 ;IF DNA DID NOT SET
1753 ;CHECK WORD LENGTH SELECT LOGIC
1754
1755 005776 4$: SCOPE
1756 005776 104400
1757
1758 ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1759 ;; OF THE TRANSMITTER SECTION.
1760 ;; IT ALSO CHECKS DNA TIMING
1761 ;; MODE:SYNINT
1762 ;; LENGTH:SIX PLUS PARITY
1763 ;; PARITY:EVEPAR
1764 ;; CHARACTER:25
    
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1765
1766 006000 012767 000015 173120 TST13: MOV #13,TSTNO ;SAVE THIS
1767 006006 012767 006222 173102 MOV #TST14,NEXT ;GO TO THIS TEST WHEN THRU
1768 006014 052777 000400 011672 BIS #MRESET,@TXCSR ;MASTER RESET
1769 006022 012777 030000 011660 MOV #SYNINT,@PARCSR ;SET THE MODE
1770 006030 052777 000400 011656 BIS #MRESET,@TXCSR ;MASTER RESET
1771
1772 ;SET MAINTENANCE MODE & SEND
1773 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1774 006036 012777 004020 011650 MOV #MINT!SEND,@TXCSR
1775
1776 ;SET MODE # OF BITS,PARITY SENSE, & LOAD SYNC REG
1777 006044 012777 033426 011636 MOV #SYNINT!SIX!EVEPAR!26,@PARCSR
1778 006052 016703 011636 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1779 006056 112777 000025 011634 MOVB #25,@TXDBUF ;LOAD DATA CHAR
1780 006064 012767 000125 173052 MOV #125,TEMP1 ;TO BE SHIFTED CHAR
1781 006072 012767 000007 173040 MOV #7,SHIFT ;# OF SHIFTS
1782
1783 006100 052777 020000 011606 ;POKE CLK TO GET INTO SYNCHRONIZATION
1784 006106 042777 020000 011600 BIS #CLK,@TXCSR ;POKE CLK UP
1785 006114 005000 CLR RO ;POKE CLK DOWN
1786 006116 006067 173022 1$: ROR TEMP1 ;FORCE CARRY
1787 006122 103002 BCC 2$ ;BR IF CARRY CLR
1788 006124 052700 002000 BIS #BITW,RO ;EQUIV OF BITW
1789
1790 006130 052777 020000 011556 2$: BIS #CLK,@TXCSR ;POKE CLK UP
1791 006136 042777 020000 011550 BIC #CLK,@TXCSR ;POKE CLK DOWN
1792 006144 017701 011544 MOV @TXCSR,R1 ;ACTUAL
1793 006150 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1794 006154 020001 CMP RO,R1 ;COMPARE EXP VS ACT
1795 006156 001401 BEQ 3$
1796 006160 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1797 ;BIT,...ALSO CHECK DNA
1798 006162 3$: DEC SHIFT ;# OF SHIFTS
1799 006162 005367 172752 BNE 1$ ;DO IT AGAIN ?
1800 006166 001352
1801 ;NOW POKE CLK TO SEE DNA
1802 006170 052777 020000 011516 BIS #CLK,@TXCSR ;POKE CLK
1803 006176 012700 100000 MOV #100000,RO ;EXPECTED
1804 006202 017701 011506 MOV @TXCSR,R1 ;ACTUAL
1805 006206 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1806 006212 020001 CMP RO,R1 ;COMPARE EXP VS ACT
1807 006214 001401 BEQ 4$
1808 006216 104003 HLT 3 ;DNA SHOULD BE SET
1809 ;IF DNA DID NOT SET
1810 ;CHECK WORD LENGTH SELECT LOGIC
1811 006220 4$: SCOPE
1812 006220 104400 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1813 ;:OF THE TRANSMITTER SECTION.
1814 ;:IT ALSO CHECKS DNA TIMING
1815 ;:MODE:SYNINT
1816 ;:LENGTH:SIX PLUS PARITY
1817 ;:PARITY:ODDPAR
1818 ;:CHARACTER:25
1819 ;:
1820
    
```

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1821 006222 012767 000016 172676 TST14: MOV #14,TSTNO ;SAVE THIS
1822 006230 012767 006444 172660 MOV #TST15,NEXT ;GO TO THIS TEST WHEN THRU
1823 006236 052777 000400 011450 BIS #MRESET,@TXCSR ;MASTER RESET
1824 006244 012777 030000 011436 MOV #SYNINT,@PARCSR ;SET THE MODE
1825 006252 052777 000400 011434 BIS #MRESET,@TXCSR ;MASTER RESET
1826
1827 ;SET MAINTENANCE MODE & SEND
1828 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1829 006260 012777 004020 011426 MOV #MINT!SEND,@TXCSR
1830
1831 ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
1832 006266 012777 033026 011414 MOV #SYNINT!SIX!ODDPAR!26,@PARCSR
1833 006274 016703 011414 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
1834 006300 112777 000025 011412 MOVB #25,@TXDBUF ;LOAD DATA CHAR
1835 006306 012767 000025 172630 MOV #25,TEMP1 ;TO BE SHIFTED CHAR
1836 006314 012767 000007 172616 MOV #7,SHIFT ;# OF SHIFTS
1837 ;POKE CLK TO GET INTO SYNCHRONIZATION
1838 006322 052777 020000 011364 BIS #CLK,@TXCSR ;POKE CLK UP
1839 006330 042777 020000 011356 BIC #CLK,@TXCSR ;POKE CLK DOWN
1840 006336 005000 1$: CLR R0
1841 006340 006067 172600 ROR TEMP1 ;FORCE CARRY
1842 006344 103002 BCC 2$ ;BR IF CARRY CLR
1843 006346 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
1844 006352 2$:
1845 006352 052777 020000 011334 BIS #CLK,@TXCSR ;POKE CLK UP
1846 006360 042777 020000 011326 BIC #CLK,@TXCSR ;POKE CLK DOWN
1847 006366 017701 011322 MOV @TXCSR,R1 ;ACTUAL
1848 006372 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
1849 006376 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1850 006400 001401 BEQ 3$
1851 006402 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1852 ;BIT,...ALSO CHECK DNA
1853 3$:
1854 006404 DEC SHIFT ;# OF SHIFTS
1855 006410 001352 BNE 1$ ;DO IT AGAIN ?
1856 ;NOW POKE CLK TO SEE DNA
1857 006412 052777 020000 011274 BIS #CLK,@TXCSR ;POKE CLK
1858 006420 012700 100000 MOV #100000,R0 ;EXPECTED
1859 006424 017701 011264 MOV @TXCSR,R1 ;ACTUAL
1860 006430 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
1861 006434 020001 CMP R0,R1 ;COMPARE EXP VS ACT
1862 006436 001401 BEQ 4$
1863 006440 104003 HLT 3 ;DNA SHOULD BE SET
1864 ;IF DNA DID NOT SET
1865 ;CHECK WORD LENGTH SELECT LOGIC
1866 4$:
1867 006442 104400 SCOPE
1868 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1869 ;:OF THE TRANSMITTER SECTION.
1870 ;:IT ALSO CHECKS DNA TIMING
1871 ;:MODE:ISYMOD
1872 ;:LENGTH:SIX PLUS PARITY
1873 ;:PARITY:EVEPAR
1874 ;:CHARACTER:25
1875 ;:
1876 006444 012767 000017 172454 TST15: MOV #15,TSTNO ;SAVE THIS

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1877 006452 012767 006666 172436      MOV      #TST16,NEXT          ;GO TO THIS TEST WHEN THRU
1878 006460 052777 000400 011226      BIS      #MRESET,@TXCSR     ;MASTER RESET
1879 006466 012777 000000 011214      MOV      #ISYMOD,@PARCSR    ;SET THE MODE
1880 006474 052777 000400 011212      BIS      #MRESET,@TXCSR     ;MASTER RESET
1881
1882                                     ;SET MAINTENANCE MODE & SEND
1883                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1884 006502 012777 004020 011204      MOV      #MINT!SEND,@TXCSR
1885
1886                                     ;SET MODE, # OF BITS,PARITY SENSE & LOAD SYNC REG
1887 006510 012777 003426 011172      MOV      #ISYMOD!SIX!EVEPAR!26,@PARCSR
1888 006516 016703 011172 011172      MOV      TXCSR,R3           ;SET UP FOR ERROR MSG
1889 006522 112777 000025 011170      MOV      #25,@TXDBUF        ;LOAD DATA CHAR
1890 006530 012767 000652 172406      MOV      #652,TEMP1         ;TO BE SHIFTED CHAR
1891 006536 012767 000011 172374      MOV      #9,SHIFT           ;# OF SHIFTS
1892                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
1893 006544 052777 020000 011142      BIS      #CLK,@TXCSR        ;POKE CLK UP
1894 006552 042777 020000 011134      BIC      #CLK,@TXCSR        ;POKE CLK DOWN
1895 006560 005000                                1$:    CLR      R0
1896 006562 006067 172356                                ROR      TEMP1             ;FORCE CARRY
1897 006566 103002                                BCC      2$,                ;BR IF CARRY CLR
1898 006570 052700 002000                                BIS      #BITW,R0          ;EQUIV OF BITW
1899 006574                                2$:
1900 006574 052777 020000 011112      BIS      #CLK,@TXCSR        ;POKE CLK UP
1901 006602 042777 020000 011104      BIC      #CLK,@TXCSR        ;POKE CLK DOWN
1902 006610 017701 011100                                MOV      @TXCSR,R1         ;ACTUAL
1903 006614 042701 075777                                BIC      #075777,R1        ;SAVE BITW & DNA
1904 006620 020001                                CMP      R0,R1             ;COMPARE EXP VS ACT
1905 006622 001401                                BEQ      3$,
1906 006624 104003                                HLT      3                 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1907                                     ;BIT,...ALSO CHECK DNA
1908 006626                                3$:
1909 006626 005367 172306                                DEC      SHIFT             ;# OF SHIFTS
1910 006632 001352                                BNE      1$,                ;DO IT AGAIN ?
1911                                     ;NOW POKE CLK TO SEE DNA
1912 006634 052777 020000 011052      BIS      #CLK,@TXCSR        ;POKE CLK
1913 006642 012700 000000                                MOV      #0,R0             ;EXPECTED
1914 006646 017701 011042                                MOV      @TXCSR,R1         ;ACTUAL
1915 006652 042701 077777                                BIC      #77777,R1        ;SAVE DNA ONLY
1916 006656 020001                                CMP      R0,R1             ;COMPARE EXP VS ACT
1917 006660 001401                                BEQ      4$,
1918 006662 104003                                HLT      3                 ;DNA SHOULD BE SET
1919                                     ;IF DNA DID NOT SET
1920                                     ;CHECK WORD LENGTH SELECT LOGIC
1921 006664                                4$:
1922 006664 104400                                SCOPE
1923                                     ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1924                                     ;; OF THE TRANSMITTER SECTION.
1925                                     ;; IT ALSO CHECKS DNA TIMING
1926                                     ;; MODE: ISYMOD
1927                                     ;; LENGTH: SIX PLUS PARITY
1928                                     ;; PARITY: ODDPAR
1929                                     ;; CHARACTER: 25
1930
1931 006666 012767 000020 172232      TST16: MOV      #16,TSTNO      ;SAVE THIS
1932 006674 012767 007110 172214      MOV      #TST17,NEXT       ;GO TO THIS TEST WHEN THRU

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M03

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 41
 DZDUUC.P11 21-MAY-76 00:00

SEQ 0038

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1933 006702 052777 000400 011004      BIS      #MRESET,@TXCSR ;MASTER RESET
1934 006710 012777 000000 010772      MOV      #ISYMOD,@PARCSR ;SET THE MODE
1935 006716 052777 000400 010770      BIS      #MRESET,@TXCSR ;MASTER RESET
1936
1937 ;SET MAINTENANCE MODE & SEND
1938 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1939 006724 012777 004020 010762      MOV      #MINT!SEND,@TXCSR
1940
1941 ;SET MODE, # OF BITS,PARITY SENSE, & LOAD SYNC REG
1942 006732 012777 003026 010750      MOV      #ISYMOD!SIX!ODDPAR!26,@PARCSR
1943 006740 016703 010750      MOV      TXCSR,R3 ;SET UP FOR ERROR MSG
1944 006744 112777 000025 010746      MOV      #25,@TXDBUF ;LOAD DATA CHAR
1945 006752 012767 000452 172164      MOV      #452,TEMP1 ;TO BE SHIFTED CHAR
1946 006760 012767 000011 172152      MOV      #9,SHIFT ;# OF SHIFTS
1947
1948 ;POKE CLK TO GET INTO SYNCHRONIZATION
1948 006766 052777 020000 010720      BIS      #CLK,@TXCSR ;POKE CLK UP
1949 006774 042777 020000 010712      BIC      #CLK,@TXCSR ;POKE CLK DOWN
1950 007002 005000
1951 007004 006067 172134      1$:      CLR      RO
1952 007010 103002      ROR      TEMP1 ;FORCE CARRY
1953 007012 052700 002000      BCC      2$, ;BR IF CARRY CLR
1954 007016      BIS      #BITW,RO ;EQUIV OF BITW
1955 007016 052777 020000 010670      2$:      BIS      #CLK,@TXCSR ;POKE CLK UP
1956 007024 042777 020000 010662      BIC      #CLK,@TXCSR ;POKE CLK DOWN
1957 007032 017701 010656      MOV      @TXCSR,R1 ;ACTUAL
1958 007036 042701 075777      BIC      #075777,R1 ;SAVE BITW & DNA
1959 007042 020001      CMP      RO,R1 ;COMPARE EXP VS ACT
1960 007044 001401      BEQ      3$,
1961 007046 104003      HLT      3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
1962 ;BIT,...ALSO CHECK DNA
1963 007050      3$:
1964 007050 005367 172064      DEC      SHIFT ;# OF SHIFTS
1965 007054 001352      BNE      1$, ;DO IT AGAIN ?
1966 ;NOW POKE CLK TO SEE DNA
1967 007056 052777 020000 010630      BIS      #CLK,@TXCSR ;POKE CLK
1968 007064 012700 000000      MOV      #0,RO ;EXPECTED
1969 007070 017701 010620      MOV      @TXCSR,R1 ;ACTUAL
1970 007074 042701 077777      BIC      #77777,R1 ;SAVE DNA ONLY
1971 007100 020001      CMP      RO,R1 ;COMPARE EXP VS ACT
1972 007102 001401      BEQ      4$,
1973 007104 104003      HLT      3 ;DNA SHOULD BE SET
1974 ;IF DNA DID NOT SET
1975 ;CHECK WORD LENGTH SELECT LOGIC
1976 007106      4$:
1977 007106 104400      SCOPE
1978
1979 ;: THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
1980 ;: OF THE TRANSMITTER SECTION.
1981 ;: IT ALSO CHECKS DNA TIMING
1982 ;: MODE:SYNINT
1983 ;: LENGTH:SEVEN PLUS PARITY
1984 ;: PARITY:EVEPAR
1985 ;: CHARACTER:125
1986
1987 007110 012767 000021 172010      TST17:  MOV      #17,TSTNO ;SAVE THIS
1988 007116 012767 007332 171772      MOV      #TST18,NEXT ;GO TO THIS TEST WHEN THRU
  
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1989 007124 052777 000400 010562      BIS      #MRESET,@TXCSR ;MASTER RESET
1990 007132 012777 030000 010550      MOV      #SYNINT,@PARCSR ;SET THE MODE
1991 007140 052777 000400 010546      BIS      #MRESET,@TXCSR ;MASTER RESET
1992
1993 ;SET MAINTENANCE MODE & SEND
1994 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
1995 007146 012777 004020 010540      MOV      #MINT!SEND,@TXCSR
1996
1997 ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
1998 007154 012777 035426 010526      MOV      #SYNINT!SEVEN!EVEPAR!26,@PARCSR
1999 007162 016703 010526      MOV      TXCSR,R3 ;SET UP FOR ERROR MSG
2000 007166 112777 000125 010524      MOV      #125,@TXDBUF ;LOAD DATA CHAR
2001 007174 012767 000125 171742      MOV      #125,TEMP1 ;TO BE SHIFTED CHAR
2002 007202 012767 000010 171730      MOV      #8,SHIFT ;# OF SHIFTS
2003 ;POKE CLK TO GET INTO SYNCHRONIZATION
2004 007210 052777 020000 010476      BIS      #CLK,@TXCSR ;POKE CLK UP
2005 007216 042777 020000 010470      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2006 007224 005000      1$:      CLR      RO
2007 007226 006067 171712      ROR      TEMP1 ;FORCE CARRY
2008 007232 103002      BCC      2$ ;BR IF CARRY CLR
2009 007234 052700 002000      BIS      #BITW,RO ;EQUIV OF BITW
2010
2011 007240 052777 020000 010446      BIS      #CLK,@TXCSR ;POKE CLK UP
2012 007246 042777 020000 010440      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2013 007254 017701 010434      MOV      @TXCSR,R1 ;ACTUAL
2014 007260 042701 075777      BIC      #075777,R1 ;SAVE BITW & DNA
2015 007264 020001      CMP      RO,R1 ;COMPARE EXP VS ACT
2016 007266 001401      BEQ      3$
2017 007270 104003      HLT      3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2018 ;BIT,...ALSO CHECK DNA
2019
2020 007272      3$:      DEC      SHIFT ;# OF SHIFTS
2021 007276 005367 171642      BNE      1$ ;DO IT AGAIN ?
2022 ;NOW POKE CLK TO SEE DNA
2023 007300 052777 020000 010406      BIS      #CLK,@TXCSR ;POKE CLK
2024 007306 012700 100000      MOV      #100000,RO ;EXPECTED
2025 007312 017701 010376      MOV      @TXCSR,R1 ;ACTUAL
2026 007316 042701 077777      BIC      #77777,R1 ;SAVE DNA ONLY
2027 007322 020001      CMP      RO,R1 ;COMPARE EXP VS ACT
2028 007324 001401      BEQ      4$
2029 007326 104003      HLT      3 ;DNA SHOULD BE SET
2030 ;IF DNA DID NOT SET
2031 ;CHECK WORD LENGTH SELECT LOGIC
2032
2033 007330      4$:      SCOPE
2034 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2035 ;:OF THE TRANSMITTER SECTION.
2036 ;:IT ALSO CHECKS DNA TIMING
2037 ;:MODE:SYNINT
2038 ;:LENGTH:SEVEN PLUS PARITY
2039 ;:PARITY:ODDPAR
2040 ;:CHARACTER:125
2041
2042 007332 012767 000022 171566      TST18: MOV      #18,TSTNO ;SAVE THIS
2043 007340 012767 007554 171550      MOV      #TST19,NEXT ;GO TO THIS TEST WHEN THRU
2044 007346 052777 000400 010340      BIS      #MRESET,@TXCSR ;MASTER RESET
    
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2045 007354 012777 030000 010326      MOV      #SYNINT,@PARCSR ;SET THE MODE
2046 007362 052777 000400 010324      BIS      #MRESET,@TXCSR ;MASTER RESET
2047
2048      ;SET MAINTENANCE MODE & SEND
2049      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2050 007370 012777 004020 010316      MOV      #MINT!SEND,@TXCSR
2051
2052      ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
2053 007376 012777 035026 010304      MOV      #SYNINT!SEVEN!ODDPAR!26,@PARCSR
2054 007404 016703 010304      MOV      TXCSR,R3 ;SET UP FOR ERROR MSG
2055 007410 112777 000125 010302      MOV      #125,@TXDBUF ;LOAD DATA CHAR
2056 007416 012767 000325 171520      MOV      #325,TEMP1 ;TO BE SHIFTED CHAR
2057 007424 012767 000010 171506      MOV      #8,SHIFT ;# OF SHIFTS
2058      ;POKE CLK TO GET INTO SYNCHRONIZATION
2059 007432 052777 020000 010254      BIS      #CLK,@TXCSR ;POKE CLK UP
2060 007440 042777 020000 010246      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2061 007446 005000      1S:      CLR      R0
2062 007450 006067 171470      ROR      TEMP1 ;FORCE CARRY
2063 007454 103002      BCC      2S ;BR IF CARRY CLR
2064 007456 052700 002000      BIS      #BITW,R0 ;EQUIV OF BITW
2065 007462      2S:
2066 007462 052777 020000 010224      BIS      #CLK,@TXCSR ;POKE CLK UP
2067 007470 042777 020000 010216      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2068 007476 017701 010212      MOV      @TXCSR,R1 ;ACTUAL
2069 007502 042701 075777      BIC      #075777,R1 ;SAVE BITW & DNA
2070 007506 020001      CMP      R0,R1 ;COMPARE EXP VS ACT
2071 007510 001401      BEQ      3S
2072 007512 104003      HLT      3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2073      ;BIT,...ALSO CHECK DNA
2074 007514      3S:
2075 007514 005367 171420      DEC      SHIFT ;# OF SHIFTS
2076 007520 001352      BNE      1S ;DO IT AGAIN ?
2077      ;NOW POKE CLK TO SEE DNA
2078 007522 052777 020000 010164      BIS      #CLK,@TXCSR ;POKE CLK
2079 007530 012700 100000      MOV      #100000,R0 ;EXPECTED
2080 007534 017701 010154      MOV      @TXCSR,R1 ;ACTUAL
2081 007540 042701 077777      BIC      #77777,R1 ;SAVE DNA ONLY
2082 007544 020001      CMP      R0,R1 ;COMPARE EXP VS ACT
2083 007546 001401      BEQ      4S
2084 007550 104003      HLT      3 ;DNA SHOULD BE SET
2085      ;IF DNA DID NOT SET
2086      ;CHECK WORD LENGTH SELECT LOGIC
2087 007552      4S:
2088 007552 104400
2089      SCOPE
2090      ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2091      ;;OF THE TRANSMITTER SECTION.
2092      ;;IT ALSO CHECKS DNA TIMING
2093      ;;MODE:ISYMOD
2094      ;;LENGTH:SEVEN PLUS PARITY
2095      ;;PARITY:EVEPAR
2096      ;;CHARACTER:125
2097 007554 012767 000023 171344      TST19: MOV      #19,TSTNO ;SAVE THIS
2098 007562 012767 007776 171326      MOV      #TST20,NEXT ;GO TO THIS TEST WHEN THRU
2099 007570 052777 000400 010116      BIS      #MRESET,@TXCSR ;MASTER RESET
2100 007576 012777 000000 010104      MOV      #ISYMOD,@PARCSR ;SET THE MODE
    
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2101 007604 052777 000400 010102      BIS      #MRESET,@TXCSR ;MASTER RESET
2102
2103      ;SET MAINTENANCE MODE & SEND
2104      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2105 007612 012777 004020 010074      MOV      #MINT!SEND,@TXCSR
2106
2107      ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
2108 007620 012777 005426 010062      MOV      #ISYMOD!SEVEN!EVEPAR!26,@PARCSR
2109 007626 016703 010062 010062      MOV      TXCSR,R3 ;SET UP FOR ERROR MSG
2110 007632 112777 000125 010060      MOV      #125,@TXDBUF ;LOAD DATA CHAR
2111 007640 012767 001252 171276      MOV      #1252,TEMP1 ;TO BE SHIFTED CHAR
2112 007646 012767 000012 171264      MOV      #10,SHIFT ;# OF SHIFTS
2113
2114 007654 052777 020000 010032      ;POKE CLK TO GET INTO SYNCHRONIZATION
2115 007662 042777 020000 010024      BIS      #CLK,@TXCSR ;POKE CLK UP
2116 007670 005000 005000 005000      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2117 007672 006067 171246      1$:     CLR      RO
2118 007676 103002 006067 171246      ROR      TEMP1 ;FORCE CARRY
2119 007700 052700 002000 002000      BCC     2$ ;BR IF CARRY CLR
2120 007704 052777 020000 010002      BIS      #BITW,RO ;EQUIV OF BITW
2121 007704 052777 020000 007774      BIC      #CLK,@TXCSR ;POKE CLK UP
2122 007712 042777 020000 007774      BIC      #CLK,@TXCSR ;POKE CLK DOWN
2123 007720 017701 007770 007770      MOV      @TXCSR,R1 ;ACTUAL
2124 007724 042701 075777 075777      BIC      #075777,R1 ;SAVE BITW & DNA
2125 007730 020001 007732 007732      CMP      RO,R1 ;COMPARE EXP VS ACT
2126 007732 001401 007732 007732      BEQ     3$
2127 007734 104003 007734 104003      HLT     3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2128
2129
2130 007736 005367 171176 005367      3$:     DEC      SHIFT ;# OF SHIFTS
2131 007742 001352 001352 001352      BNE     1$ ;DO IT AGAIN ?
2132
2133 007744 052777 020000 007742      ;NOW POKE CLK TO SEE DNA
2134 007752 012700 000000 000000      BIS      #CLK,@TXCSR ;POKE CLK
2135 007756 017701 007732 007732      MOV      #0,RO ;EXPECTED
2136 007762 042701 077777 077777      MOV      @TXCSR,R1 ;ACTUAL
2137 007766 020001 007766 007766      BIC      #77777,R1 ;SAVE DNA ONLY
2138 007770 001401 007770 007770      CMP      RO,R1 ;COMPARE EXP VS ACT
2139 007772 104003 007772 104003      BEQ     4$
2140
2141
2142 007774 007774 104400 007774      HLT     3 ;DNA SHOULD BE SET
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152 007776 012767 000024 171122      4$:     SCOPE
2153 010004 012767 010220 171104      TST20: MOV      #20,TSTNO ;SAVE THIS
2154 010012 052777 000400 007674      MOV      #TST21,NEXT ;GO TO THIS TEST WHEN THRU
2155 010020 012777 000000 007662      BIS      #MRESET,@TXCSR ;MASTER RESET
2156 010026 052777 000400 007660      MOV      #ISYMOD,@PARCSR ;SET THE MODE
2157
2158
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2157
2158 ;SET MAINTENANCE MODE & SEND
2159 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2160 010034 012777 004020 007652 MOV #MINT!SEND,@TXCSR
2161
2162 ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
2163 010042 012777 005026 007640 MOV #ISYMOD!SEVEN!ODDPAR!26,@PARCSR
2164 010050 016703 007640 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
2165 010054 112777 000125 007636 MOVB #125,@TXDBUF ;LOAD DATA CHAR
2166 010062 012767 001652 171054 MOV #1652,TEMP1 ;TO BE SHIFTED CHAR
2167 010070 012767 000012 171042 MOV #10,SHIFT ;# OF SHIFTS
2168 ;POKE CLK TO GET INTO SYNCRONIZATION
2169 010076 052777 020000 007610 BIS #CLK,@TXCSR ;POKE CLK UP
2170 010104 042777 020000 007602 BIC #CLK,@TXCSR ;POKE CLK DOWN
2171 010112 005000 15: CLR R0
2172 010114 006067 171024 ROR TEMP1 ;FORCE CARRY
2173 010120 103002 BCC 2$ ;BR IF CARRY CLR
2174 010122 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
2175 010126 25:
2176 010126 052777 020000 007560 BIS #CLK,@TXCSR ;POKE CLK UP
2177 010134 042777 020000 007552 BIC #CLK,@TXCSR ;POKE CLK DOWN
2178 010142 017701 007546 MOV @TXCSR,R1 ;ACTUAL
2179 010146 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
2180 010152 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2181 010154 001401 BEQ 3$
2182 010156 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2183 ;BIT,...ALSO CHECK DNA
2184 010160 35:
2185 010160 005367 170754 DEC SHIFT ;# OF SHIFTS
2186 010164 001352 BNE 1$ ;DO IT AGAIN ?
2187 ;NOW POKE CLK TO SEE DNA
2188 010166 052777 020000 007520 BIS #CLK,@TXCSR ;POKE CLK
2189 010174 012700 000000 MOV #0,R0 ;EXPECTED
2190 010200 017701 007510 MOV @TXCSR,R1 ;ACTUAL
2191 010204 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
2192 010210 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2193 010212 001401 BEQ 4$
2194 010214 104003 HLT 3 ;DNA SHOULD BE SET
2195 ;IF DNA DID NOT SET
2196 ;CHECK WORD LENGTH SELECT LOGIC
2197 010216 45:
2198 010216 104400 SCOPE
2199
2200 ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2201 ;; OF THE TRANSMITTER SECTION.
2202 ;; IT ALSO CHECKS DNA TIMING
2203 ;; MODE:SYNINT
2204 ;; LENGTH:EIGHT PLUS PARITY
2205 ;; PARITY:EVEPAR
2206 ;; CHARACTER:125
2207
2208 010220 012767 000025 170700 TST21: MOV #21,TSTNO ;SAVE THIS
2209 010226 012767 010442 170662 MOV #TST22,NEXT ;GO TO THIS TEST WHEN THRU
2210 010234 052777 000400 007452 BIS #MRESET,@TXCSR ;MASTER RESET
2211 010242 012777 030000 007440 MOV #SYNINT,@PARCSR ;SET THE MODE
2212 010250 052777 000400 007436 BIS #MRESET,@TXCSR ;MASTER RESET

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DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 46
 DZDUDC.P11 21-MAY-76 00:00

SEQ 0043

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2213
2214 ;SET MAINTENANCE MODE & SEND
2215 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2216 010256 012777 004020 007430 MOV #MINT!SEND,@TXCSR
2217
2218 ;SET MODE, # OF BITS, PARITY SENSE & LOAD SYNC REG
2219 010264 012777 037426 007416 MOV #SYNINT!EIGHT!EVEPAR!26,@PARCSR
2220 010272 016703 007416 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
2221 010276 112777 000125 007414 MOVB #125,@TXDBUF ;LOAD DATA CHAR
2222 010304 012767 000125 170632 MOV #125,TEMP1 ;TO BE SHIFTED CHAR
2223 010312 012767 000011 170620 MOV #9,SHIFT ;# OF SHIFTS
2224 ;POKE CLK TO GET INTO SYNCHRONIZATION
2225 010320 052777 020000 007366 BIS #CLK,@TXCSR ;POKE CLK UP
2226 010326 042777 020000 007360 BIC #CLK,@TXCSR ;POKE CLK DOWN
2227 010334 005000 15: CLR R0
2228 010336 006067 170602 ROR TEMP1 ;FORCE CARRY
2229 010342 103002 BCC 25 ;BR IF CARRY CLR
2230 010344 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
2231 010350 25:
2232 010350 052777 020000 007336 BIS #CLK,@TXCSR ;POKE CLK UP
2233 010356 042777 020000 007330 BIC #CLK,@TXCSR ;POKE CLK DOWN
2234 010364 017701 007324 MOV @TXCSR,R1 ;ACTUAL
2235 010370 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
2236 010374 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2237 010376 001401 BEQ 35
2238 010400 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2239 ;BIT,...ALSO CHECK DNA
2240 35:
2241 010402 005367 170532 DEC SHIFT ;# OF SHIFTS
2242 010406 001352 BNE 15 ;DO IT AGAIN ?
2243 ;NOW POKE CLK TO SEE DNA
2244 010410 052777 020000 007276 BIS #CLK,@TXCSR ;POKE CLK
2245 010416 012700 100000 MOV #100000,R0 ;EXPECTED
2246 010422 017701 007266 MOV @TXCSR,R1 ;ACTUAL
2247 010426 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
2248 010432 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2249 010434 001401 BEQ 45
2250 010436 104003 HLT 3 ;DNA SHOULD BE SET
2251 ;IF DNA DID NOT SET
2252 ;CHECK WORD LENGTH SELECT LOGIC
2253 45:
2254 010440 104400 SCOPE
2255 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2256 ;:OF THE TRANSMITTER SECTION.
2257 ;:IT ALSO CHECKS DNA TIMING
2258 ;:MODE:SYNINT
2259 ;:LENGTH:EIGHT PLUS PARITY
2260 ;:PARITY:ODDPAR
2261 ;:CHARACTER:125
2262
2263 010442 012767 000026 170456 TST2: MOV #22,TSTNO ;SAVE THIS
2264 010450 012767 010664 170440 MOV #TST23,NEXT ;GO TO THIS TEST WHEN THRU
2265 010456 052777 000400 007230 BIS #MRESET,@TXCSR ;MASTER RESET
2266 010464 012777 030000 007216 MOV #SYNINT,@PARCSR ;SET THE MODE
2267 010472 052777 000400 007214 BIS #MRESET,@TXCSR ;MASTER RESET
2268

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2269 ;SET MAINTENANCE MODE & SEND
2270 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2271 010500 012777 004020 007206 MOV #MINT!SEND,@TXCSR
2272
2273 ;SET MODE # OF BITS,PARITY SENSE & LOAD SYNC REG
2274 010506 012777 037026 007174 MOV #SYNINT!EIGHT!ODD@PAR!26,@PARCSR
2275 010514 016703 007174 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
2276 010520 112777 000125 007172 MOV #125,@TXDBUF ;LOAD DATA CHAR
2277 010526 012767 000525 170410 MOV #525,TEMP1 ;TO BE SHIFTED CHAR
2278 010534 012767 000011 170376 MOV #9,SHIFT ;# OF SHIFTS
2279 ;POKE CLK TO GET INTO SYNCHRONIZATION
2280 010542 052777 020000 007144 BIS #CLK,@TXCSR ;POKE CLK UP
2281 010550 042777 020000 007136 BIC #CLK,@TXCSR ;POKE CLK DOWN
2282 010556 005000 1$: CLR R0
2283 010560 006067 170360 ROR TEMP1 ;FORCE CARRY
2284 010564 103002 BCC 2$ ;BR IF CARRY CLR
2285 010566 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
2286 010572 2$:
2287 010572 052777 020000 007114 BIS #CLK,@TXCSR ;POKE CLK UP
2288 010600 042777 020000 007106 BIC #CLK,@TXCSR ;POKE CLK DOWN
2289 010606 017701 007102 MOV @TXCSR,R1 ;ACTUAL
2290 010612 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
2291 010616 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2292 010620 001401 BEQ 3$
2293 010622 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2294 ;BIT,...ALSO CHECK DNA
2295 010624 3$:
2296 010624 005367 170310 DEC SHIFT ;# OF SHIFTS
2297 010630 001352 BNE 1$ ;DO IT AGAIN ?
2298 ;NOW POKE CLK TO SEE DNA
2299 010632 052777 020000 007054 BIS #CLK,@TXCSR ;POKE CLK
2300 010640 012700 100000 MOV #100000,R0 ;EXPECTED
2301 010644 017701 007044 MOV @TXCSR,R1 ;ACTUAL
2302 010650 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
2303 010654 020001 CMP R0,R1 ;COMPARE EXP VS ACT
2304 010656 001401 BEQ 4$
2305 010660 104003 HLT 3 ;DNA SHOULD BE SET
2306 ;IF DNA DID NOT SET
2307 ;CHECK WORD LENGTH SELECT LOGIC
2308 010662 4$:
2309 010662 104400 SCOPE
2310 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2311 ;:OF THE TRANSMITTER SECTION.
2312 ;:IT ALSO CHECKS DNA TIMING
2313 ;:MODE:ISYMOD
2314 ;:LENGTH:EIGHT PLUS PARITY
2315 ;:PARITY:EVEPAR
2316 ;:CHARACTER:125
2317 ;:
2318 010664 012767 000027 170234 TST23: MOV #23,TSTNO ;SAVE THIS
2319 010672 012767 011106 170216 MOV #TST24,NEXT ;GO TO THIS TEST WHEN THRU
2320 010700 052777 000400 007006 BIS #MRESET,@TXCSR ;MASTER RESET
2321 010706 012777 000000 006774 MOV #ISYMOD,@PARCSR ;SET THE MODE
2322 010714 052777 000400 006772 BIS #MRESET,@TXCSR ;MASTER RESET
2323
2324 ;SET MAINTENANCE MODE & SEND
    
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2325                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2326 010722 012777 004020 006764      MOV      #MINT!SEND,@TXCSR
2327
2328                                     ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
2329 010730 012777 007426 006752      MOV      #ISYMOD!EIGHT!EVEPAR!26,@PARCSR
2330 010736 016703 006752              MOV      TXCSR,R3          ;SET UP FOR ERROR MSG
2331 010742 112777 000125 006750      MOV      #125,@TXDBUF     ;LOAD DATA CHAR
2332 010750 012767 002252 170166      MOV      #2252,TEMP1     ;TO BE SHIFTED CHAR
2333 010756 012767 000013 170154      MOV      #11,SHIFT       ;# OF SHIFTS
2334                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
2335 010764 052777 020000 006722      BIS      #CLK,@TXCSR     ;POKE CLK UP
2336 010772 042777 020000 006714      BIC      #CLK,@TXCSR     ;POKE CLK DOWN
2337 011000 005000                    1$:     CLR      R0
2338 011002 006067 170136              ROR      TEMP1          ;FORCE CARRY
2339 011006 103002                    2$:     BCC      2$,          ;BR IF CARRY CLR
2340 011010 052700 002000              BIS      #BITW,R0       ;EQUIV OF BITW
2341 011014
2342 011014 052777 020000 006672      BIS      #CLK,@TXCSR     ;POKE CLK UP
2343 011022 042777 020000 006664      BIC      #CLK,@TXCSR     ;POKE CLK DOWN
2344 011030 017701 006660              MOV      @TXCSR,R1       ;ACTUAL
2345 011034 042701 075777              BIC      #075777,R1     ;SAVE BITW & DNA
2346 011040 020001                    3$:     CMP      R0,R1          ;COMPARE EXP VS ACT
2347 011042 001401                    BEQ      3$,
2348 011044 104003                    HLT      3              ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2349                                     ;BIT,...ALSO CHECK DNA
2350 011046
2351 011046 005367 170066              3$:     DEC      SHIFT      ;# OF SHIFTS
2352 011052 001352                    BNE      1$,          ;DO IT AGAIN ?
2353                                     ;NOW POKE CLK TO SEE DNA
2354 011054 052777 020000 006632      BIS      #CLK,@TXCSR     ;POKE CLK
2355 011062 012700 000000              MOV      #0,R0          ;EXPECTED
2356 011066 017701 006622              MOV      @TXCSR,R1       ;ACTUAL
2357 011072 042701 077777              BIC      #77777,R1     ;SAVE DNA ONLY
2358 011076 020001                    4$:     CMP      R0,R1          ;COMPARE EXP VS ACT
2359 011100 001401                    BEQ      4$,
2360 011102 104003                    HLT      3              ;DNA SHOULD BE SET
2361                                     ;IF DNA DID NOT SET
2362                                     ;CHECK WORD LENGTH SELECT LOGIC
2363 011104
2364 011104 104400                    4$:
2365                                     SCOPE
2366                                     ;;THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2367                                     ;;OF THE TRANSMITTER SECTION.
2368                                     ;;IT ALSO CHECKS DNA TIMING
2369                                     ;;MODE:ISYMOD
2370                                     ;;LENGTH:EIGHT PLUS PARITY
2371                                     ;;PARITY:ODDPAR
2372                                     ;;CHARACTER:125
2373 011106 012767 000030 170012      TST24:  MOV      #24,TSTNO   ;SAVE THIS
2374 011114 012767 011330 167774      MOV      #TST25,NEXT     ;GO TO THIS TEST WHEN THRU
2375 011122 052777 000400 006564      BIS      #MRESET,@TXCSR ;MASTER RESET
2376 011130 012777 000000 006552      MOV      #ISYMOD,@PARCSR ;SET THE MODE
2377 011136 052777 000400 006550      BIS      #MRESET,@TXCSR ;MASTER RESET
2378
2379                                     ;SET MAINTENANCE MODE & SEND
2380                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
    
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2381 011144 012777 004020 006542      MOV      #MINT!SEND,@TXCSR
2382
2383      ;SET MODE, # OF BITS, PARITY SENSE & LOAD SYNC REG
2384 011152 012777 007026 006530      MOV      #ISYMOD!EIGHT!ODD!PAR!26,@PARCSR
2385 011160 016703 006530      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
2386 011164 112777 000125 006526      MOV      #125,@TXDBUF  ;LOAD DATA CHAR
2387 011172 012767 003252 167744      MOV      #3252,TEMP1  ;TO BE SHIFTED CHAR
2388 011200 012767 000013 167732      MOV      #11,SHIFT    ;# OF SHIFTS
2389      ;POKE CLK TO GET INTO SYNCRONIZATION
2390 011206 052777 020000 006500      BIS      #CLK,@TXCSR  ;POKE CLK UP
2391 011214 042777 020000 006472      BIC      #CLK,@TXCSR  ;POKE CLK DOWN
2392 011222 005000      1$:      CLR      R0
2393 011224 006067 167714      ROR      TEMP1      ;FORCE CARRY
2394 011230 103002      BCC      2$      ;BR IF CARRY CLR
2395 011232 052700 002000      BIS      #BITW,R0    ;EQUIV OF BITW
2396 011236      2$:
2397 011236 052777 020000 006450      BIS      #CLK,@TXCSR  ;POKE CLK UP
2398 011244 042777 020000 006442      BIC      #CLK,@TXCSR  ;POKE CLK DOWN
2399 011252 017701 006436      MOV      @TXCSR,R1   ;ACTUAL
2400 011256 042701 075777      BIC      #075777,R1  ;SAVE BITW & DNA
2401 011262 020001      CMP      R0,R1      ;COMPARE EXP VS ACT
2402 011264 001401      BEQ      3$
2403 011266 104003      HLT      3          ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2404      ;BIT,...ALSO CHECK DNA
2405 011270      3$:
2406 011270 005367 167644      DEC      SHIFT      ;# OF SHIFTS
2407 011274 001352      BNE      1$      ;DO IT AGAIN ?
2408      ;NOW POKE CLK TO SEE DNA
2409 011276 052777 020000 006410      BIS      #CLK,@TXCSR  ;POKE CLK
2410 011304 012700 000000      MOV      #0,R0      ;EXPECTED
2411 011310 017701 006400      MOV      @TXCSR,R1  ;ACTUAL
2412 011314 042701 077777      BIC      #77777,R1  ;SAVE DNA ONLY
2413 011320 020001      CMP      R0,R1      ;COMPARE EXP VS ACT
2414 011322 001401      BEQ      4$
2415 011324 104003      HLT      3          ;DNA SHOULD BE SET
2416      ;IF DNA DID NOT SET
2417      ;CHECK WORD LENGTH SELECT LOGIC
2418 011326      4$:
2419 011326 104400      SCOPE
2420
2421      ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2422      ;; OF THE TRANSMITTER SECTION.
2423      ;; IT ALSO CHECKS DNA TIMING
2424      ;; MODE:SYNINT
2425      ;; LENGTH:EIGHT PLUS PARITY
2426      ;; PARITY:EVEPAR
2427      ;; CHARACTER:252
2428
2429 011330 012767 000031 167570      TST25:  MOV      #25,TSTNO  ;SAVE THIS
2430 011336 012767 011552 167552      MOV      #TST26,NEXT ;GO TO THIS TEST WHEN THRU
2431 011344 052777 000400 006342      BIS      #MRESET,@TXCSR ;MASTER RESET
2432 011352 012777 030000 006330      MOV      #SYNINT,@PARCSR ;SET THE MODE
2433 011360 052777 000400 006326      BIS      #MRESET,@TXCSR ;MASTER RESET
2434
2435      ;SET MAINTENANCE MODE & SEND
2436      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
  
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2437 011366 012777 004020 006320      MOV      #MINT!SEND,@TXCSR
2438
2439                                     ;SET MODE # OF BITS,PARITY SENSE, & LOAD SYNC REG
2440 011374 012777 037426 006306      MOV      #SYNINT!EIGHT!EVEPAR!26,@PARCSR
2441 011402 016703 006306      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
2442 011406 112777 000252 006304      MOV      #252,@TXDBUF  ;LOAD DATA CHAR
2443 011414 012767 000252 167522      MOV      #252,TEMP1    ;TO BE SHIFTED CHAR
2444 011422 012767 000011 167510      MOV      #9,SHIFT      ;# OF SHIFTS
2445                                     ;POKE CLK TO GET INTO SYNCHRONIZATION
2446 011430 052777 020000 006256      BIS      #CLK,@TXCSR   ;POKE CLK UP
2447 011436 042777 020000 006250      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
2448 011444 005000                                     1$:      CLR      RO
2449 011446 006067 167472                                     ROR      TEMP1      ;FORCE CARRY
2450 011452 103002                                     BCC     2$          ;BR IF CARRY CLR
2451 011454 052700 002000                                     BIS      #BITW,RO    ;EQUIV OF BITW
2452 011460                                     2$:
2453 011460 052777 020000 006226      BIS      #CLK,@TXCSR   ;POKE CLK UP
2454 011466 042777 020000 006220      BIC      #CLK,@TXCSR   ;POKE CLK DOWN
2455 011474 017701 006214      MOV      @TXCSR,R1     ;ACTUAL
2456 011500 042701 075777      BIC      #075777,R1    ;SAVE BITW & DNA
2457 011504 020001      CMP      RO,R1        ;COMPARE EXP VS ACT
2458 011506 001401      BEQ     3$
2459 011510 104003      HLT     3              ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2460                                     ;BIT,...ALSO CHECK DNA
2461 011512                                     3$:
2462 011512 005367 167422      DEC     SHIFT        ;# OF SHIFTS
2463 011516 001352      BNE     1$          ;DO IT AGAIN ?
2464                                     ;NOW POKE CLK TO SEE DNA
2465 011520 052777 020000 006166      BIS      #CLK,@TXCSR   ;POKE CLK
2466 011526 012700 100000      MOV      #100000,RO    ;EXPECTED
2467 011532 017701 006156      MOV      @TXCSR,R1     ;ACTUAL
2468 011536 042701 077777      BIC      #77777,R1     ;SAVE DNA ONLY
2469 011542 020001      CMP      RO,R1        ;COMPARE EXP VS ACT
2470 011544 001401      BEQ     4$
2471 011546 104003      HLT     3              ;DNA SHOULD BE SET
2472                                     ;IF DNA DID NOT SET
2473                                     ;CHECK WORD LENGTH SELECT LOGIC
2474 011550                                     4$:
2475 011550 104400      SCOPE
2476      ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2477      ;; OF THE TRANSMITTER SECTION.
2478      ;; IT ALSO CHECKS DNA TIMING
2479      ;; MODE:SYNINT
2480      ;; LENGTH:EIGHT PLUS PARITY
2481      ;; PARITY:ODDPAR
2482      ;; CHARACTER:252
2483
2484 011552 012767 000032 167346      TST26:  MOV     #26,TSTNO      ;SAVE THIS
2485 011560 012767 011774 167330      MOV     #TST27,NEXT      ;GO TO THIS TEST WHEN THRU
2486 011566 052777 000400 006120      BIS     #MRESET,@TXCSR  ;MASTER RESET
2487 011574 012777 030000 006106      MOV     #SYNINT,@PARCSR ;SET THE MODE
2488 011602 052777 000400 006104      BIS     #MRESET,@TXCSR  ;MASTER RESET
2489
2490      ;SET MAINTENANCE MODE & SEND
2491      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2492 011610 012777 004020 006076      MOV     #MINT!SEND,@TXCSR
    
```



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2493
2494 ;SET MODE, # OF BITS, PARITY SENSE, & LOAD SYNC REG
2495 011616 012777 037026 006064 MOV #SYNINT!EIGHT!ODDPAR!26,@PARCSR
2496 011624 016703 006064 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
2497 011630 112777 000252 006062 MOV #252,@TXDBUF ;LOAD DATA CHAR
2498 011636 012767 000652 167300 MOV #652,TEMP1 ;TO BE SHIFTED CHAR
2499 011644 012767 000011 167266 MOV #9,SHIFT ;# OF SHIFTS
2500 ;POKE CLK TO GET INTO SYNCHRONIZATION
2501 011652 052777 020000 006034 BIS #CLK,@TXCSR ;POKE CLK UP
2502 011660 042777 020000 006026 BIC #CLK,@TXCSR ;POKE CLK DOWN
2503 011666 005000 1$: CLR R0
2504 011670 006067 167250 ROR TEMP1 ;FORCE CARRY
2505 011674 103002 BCC 2$ ;BR IF CARRY CLR
2506 011676 052700 002000 BIS #BITW,R0 ;EQUIV OF BITW
2507 011702 2$: BIS #CLK,@TXCSR ;POKE CLK UP
2508 011702 052777 020000 006004 BIC #CLK,@TXCSR ;POKE CLK DOWN
2509 011710 042777 020000 005776 MOV @TXCSR,R1 ;ACTUAL
2510 011716 017701 005772 BIC #075777,R1 ;SAVE BITW & DNA
2511 011722 042701 075777 CMP R0,R1 ;COMPARE EXP VS ACT
2512 011726 020001 BEQ 3$
2513 011730 001401 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2514 011732 104003 ;BIT,...ALSO CHECK DNA
2515 3$: DEC SHIFT ;# OF SHIFTS
2516 011734 BNE 1$ ;DO IT AGAIN ?
2517 011734 005367 167200 ;NOW POKE CLK TO SEE DNA
2518 011740 001352 005744 BIS #CLK,@TXCSR ;POKE CLK
2519 2520 011742 052777 020000 005744 MOV #100000,R0 ;EXPECTED
2521 011750 012700 100000 MOV @TXCSR,R1 ;ACTUAL
2522 011754 017701 005734 BIC #77777,R1 ;SAVE DNA ONLY
2523 011760 042701 077777 CMP R0,R1 ;COMPARE EXP VS ACT
2524 011764 020001 BEQ 4$
2525 011766 001401 HLT 3 ;DNA SHOULD BE SET
2526 011770 104003 ;IF DNA DID NOT SET
2527 ;CHECK WORD LENGTH SELECT LOGIC
2528 4$: SCOPE
2529 011772 ;: THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2530 011772 104400 ;: OF THE TRANSMITTER SECTION.
2531 ;: IT ALSO CHECKS DNA TIMING
2532 ;: MODE:SYNINT
2533 ;: LENGTH:EIGHT PLUS PARITY
2534 ;: PARITY:EVEPAR
2535 ;: CHARACTER:0
2536 TST27: MOV #27,TSTNO ;SAVE THIS
2537 MOV #TST28,NEXT ;GO TO THIS TEST WHEN THRU
2538 011774 012767 000033 167124 BIS #MRESET,@TXCSR ;MASTER RESET
2539 012002 012767 012216 167106 MOV #SYNINT,@PARCSR ;SET THE MODE
2540 012010 052777 000400 005676 BIS #MRESET,@TXCSR ;MASTER RESET
2541 012016 012777 030000 005664
2542 012024 052777 000400 005662
2543 ;SET MAINTENANCE MODE & SEND
2544 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2545 012032 012777 004020 005654 MOV #MINT!SEND,@TXCSR
2546
2547
2548
    
```

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2549 ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
2550 012040 012777 037426 005642 MOV #SYNINT,EIGHT!EVEPAR!26,@PARCSR
2551 012046 016703 005642 MOV TXCSR,R3 ;SET UP FOR ERROR MSG
2552 012052 112777 000000 005640 MOV #0,@TXDBUF ;LOAD DATA CHAR
2553 012060 012767 000000 167056 MOV #0,TEMP1 ;TO BE SHIFTED CHAR
2554 012066 012767 000011 167044 MOV #9,SHIFT ;# OF SHIFTS
2555 ;POKE CLK TO GET INTO SYNCRONIZATION
2556 012074 052777 020000 005612 BIS #CLK,@TXCSR ;POKE CLK UP
2557 012102 042777 020000 005604 BIC #CLK,@TXCSR ;POKE CLK DOWN
2558 012110 005000 1$: CLR RD
2559 012112 006067 167026 ROR TEMP1 ;FORCE CARRY
2560 012116 103002 BCC 2$ ;BR IF CARRY CLR
2561 012120 052700 002000 BIS #BITW,RD ;EQUIV OF BITW
2562 2$:
2563 012124 052777 020000 005562 BIS #CLK,@TXCSR ;POKE CLK UP
2564 012132 042777 020000 005554 BIC #CLK,@TXCSR ;POKE CLK DOWN
2565 012140 017701 005550 MOV @TXCSR,R1 ;ACTUAL
2566 012144 042701 075777 BIC #075777,R1 ;SAVE BITW & DNA
2567 012150 020001 CMP RD,R1 ;COMPARE EXP VS ACT
2568 012152 001401 BEQ 3$
2569 012154 104003 HLT 3 ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2570 ;BIT,...ALSO CHECK DNA
2571 012156 3$:
2572 012156 005367 166756 DEC SHIFT ;# OF SHIFTS
2573 012162 001352 BNE 1$ ;DO IT AGAIN?
2574 ;NOW POKE CLK TO SEE DNA
2575 012164 052777 020000 005522 BIS #CLK,@TXCSR ;POKE CLK
2576 012172 012700 100000 MOV #100000,RD ;EXPECTED
2577 012176 017701 005512 MOV @TXCSR,R1 ;ACTUAL
2578 012202 042701 077777 BIC #77777,R1 ;SAVE DNA ONLY
2579 012206 020001 CMP RD,R1 ;COMPARE EXP VS ACT
2580 012210 001401 BEQ 4$
2581 012212 104003 HLT 3 ;DNA SHOULD BE SET
2582 ;IF DNA DID NOT SET
2583 ;CHECK WORD LENGTH SELECT LOGIC
2584 012214 4$:
2585 012214 104400 SCOPE
2586 ;:THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2587 ;:OF THE TRANSMITTER SECTION.
2588 ;:IT ALSO CHECKS DNA TIMING
2589 ;:MODE:SYNINT
2590 ;:LENGTH:EIGHT PLUS PARITY
2591 ;:PARITY:ODOPAR
2592 ;:CHARACTER:0
2593 ;:
2594 012216 012767 000034 166702 TST28: MOV #28,TSTNO ;SAVE THIS
2595 012224 012767 012440 166664 MOV #TST29,NEXT ;GO TO THIS TEST WHEN THRU
2596 012232 052777 000400 005454 BIS #MRESET,@TXCSR ;MASTER RESET
2597 012240 012777 030000 005442 MOV #SYNINT,@PARCSR ;SET THE MODE
2598 012246 052777 000400 005440 BIS #MRESET,@TXCSR ;MASTER RESET
2599
2600 ;SET MAINTENANCE MODE & SEND
2601 ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2602 012254 012777 004020 005432 MOV #MINT!SEND,@TXCSR
2603
2604 ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG

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2605 012262 012777 037026 005420      MOV      #SYNINT!EIGHT!ODDPAR!26,@PARCSR
2606 012270 016703 005420      MOV      TXCSR,R3          ;SET UP FOR ERROR MSG
2607 012274 112777 000000 005416      MOV      #0,@TXDBUF      ;LOAD DATA CHAR
2608 012302 012767 000400 166634      MOV      #400,TEMP1      ;TO BE SHIFTED CHAR
2609 012310 012767 000011 166622      MOV      #9,SHIFT        ;# OF SHIFTS
2610                                ;POKE CLK TO GET INTO SYNCHRONIZATION
2611 012316 052777 020000 005370      BIS      #CLK,@TXCSR      ;POKE CLK UP
2612 012324 042777 020000 005362      BIC      #CLK,@TXCSR      ;POKE CLK DOWN
2613 012332 005000                                1$:      CLR      RD
2614 012334 006067 166604      ROR      TEMP1          ;FORCE CARRY
2615 012340 103002                                BCC      2$             ;BR IF CARRY CLR
2616 012342 052700 002000      BIS      #BITW,RD        ;EQUIV OF BITW
2617 012346                                2$:
2618 012346 052777 020000 005340      BIS      #CLK,@TXCSR      ;POKE CLK UP
2619 012354 042777 020000 005332      BIC      #CLK,@TXCSR      ;POKE CLK DOWN
2620 012362 017701 005326      MOV      @TXCSR,R1        ;ACTUAL
2621 012366 042701 075777      BIC      #075777,R1      ;SAVE BITW & DNA
2622 012372 020001      CMP      RD,R1          ;COMPARE EXP VS ACT
2623 012374 001401      BEQ      3$
2624 012376 104003      HLT      3              ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2625                                ;BIT,...ALSO CHECK DNA
2626 012400                                3$:
2627 012400 005367 166534      DEC      SHIFT          ;# OF SHIFTS
2628 012404 001352      BNE      1$             ;DO IT AGAIN ?
2629                                ;NOW POKE CLK TO SEE DNA
2630 012406 052777 020000 005300      BIS      #CLK,@TXCSR      ;POKE CLK
2631 012414 012700 100000      MOV      #100000,RD      ;EXPECTED
2632 012420 017701 005270      MOV      @TXCSR,R1        ;ACTUAL
2633 012424 042701 077777      BIC      #77777,R1      ;SAVE DNA ONLY
2634 012430 020001      CMP      RD,R1          ;COMPARE EXP VS ACT
2635 012432 001401      BEQ      4$
2636 012434 104003      HLT      3              ;DNA SHOULD BE SET
2637                                ;IF DNA DID NOT SET
2638                                ;CHECK WORD LENGTH SELECT LOGIC
2639 012436                                4$:
2640 012436 104400      SCOPE
2641      ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2642      ;; OF THE TRANSMITTER SECTION.
2643      ;; IT ALSO CHECKS DNA TIMING
2644      ;; MODE:SYNINT
2645      ;; LENGTH:EIGHT PLUS PARITY
2646      ;; PARITY:EVEPAR
2647      ;; CHARACTER:377
2648
2649 012440 012767 000035 166460 TST29:  MOV      #29,TSTNO      ;SAVE THIS
2650 012446 012767 012662 166442      MOV      #TST30,NEXT     ;GO TO THIS TEST WHEN THRU
2651 012454 052777 000400 005232      BIS      #MRESET,@TXCSR  ;MASTER RESET
2652 012462 012777 030000 005220      MOV      #SYNINT,@PARCSR ;SET THE MODE
2653 012470 052777 000400 005216      BIS      #MRESET,@TXCSR  ;MASTER RESET
2654
2655      ;SET MAINTENANCE MODE & SEND
2656      ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2657 012476 012777 004020 005210      MOV      #MINT!SEND,@TXCSR
2658
2659      ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
2660 012504 012777 037426 005176      MOV      #SYNINT!EIGHT!EVEPAR!26,@PARCSR
  
```

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2661 012512 016703 005176      MOV      TXCSR,R3      ;SET UP FOR ERROR MSG
2662 012516 112777 000377 005174      MOVB     #377,@TXDBUF  ;LOAD DATA CHAR
2663 012524 012767 000377 166412      MOV      #377,TEMP1   ;TO BE SHIFTED CHAR
2664 012532 012767 000011 166400      MOV      #9,SHIFT     ;# OF SHIFTS
2665                                     ;POKE CLK TO GET INTO SYNCRONIZATION
2666 012540 052777 020000 005146      BIS      #CLK,@TXCSR  ;POKE CLK UP
2667 012546 042777 020000 005140      BIC      #CLK,@TXCSR  ;POKE CLK DOWN
2668 012554 005000                                     1$: CLR      RD
2669 012556 006067 166362      ROR      TEMP1        ;FORCE CARRY
2670 012562 103002                                     BCC     2$           ;BR IF CARRY CLR
2671 012564 052700 002000      BIS      #BITW,RD     ;EQUIV OF BITW
2672                                     2$:
2673 012570 052777 020000 005116      BIS      #CLK,@TXCSR  ;POKE CLK UP
2674 012576 042777 020000 005110      BIC      #CLK,@TXCSR  ;POKE CLK DOWN
2675 012604 017701 005104      MOV      @TXCSR,R1    ;ACTUAL
2676 012610 042701 075777      BIC      #075777,R1   ;SAVE BITW & DNA
2677 012614 020001      CMP      RD,R1        ;COMPARE EXP VS ACT
2678 012616 001401      BEQ     3$
2679 012620 104003      HLT      3            ;BIT WINDOW DID NOT MATCH ACTUAL DATA
2680                                     ;BIT,...ALSO CHECK DNA
2681 012622                                     3$:
2682 012622 005367 166312      DEC      SHIFT        ;# OF SHIFTS
2683 012626 001352      BNE     1$           ;DO IT AGAIN ?
2684                                     ;NOW POKE CLK TO SEE DNA
2685 012630 052777 020000 005056      BIS      #CLK,@TXCSR  ;POKE CLK
2686 012636 012700 100000      MOV      #100000,RD   ;EXPECTED
2687 012642 017701 005046      MOV      @TXCSR,R1    ;ACTUAL
2688 012646 042701 077777      BIC      #77777,R1    ;SAVE DNA ONLY
2689 012652 020001      CMP      RD,R1        ;COMPARE EXP VS ACT
2690 012654 001401      BEQ     4$
2691 012656 104003      HLT      3            ;DNA SHOULD BE SET
2692                                     ;IF DNA DID NOT SET
2693                                     ;CHECK WORD LENGTH SELECT LOGIC
2694 012660                                     4$:
2695 012660 104400      SCOPE
2696                                     ;; THIS TEST VERIFYS CHARACTER PLUS PARITY GENERATION
2697                                     ;; OF THE TRANSMITTER SECTION.
2698                                     ;; IT ALSO CHECKS DNA TIMING
2699                                     ;; MODE:SYNINT
2700                                     ;; LENGTH:EIGHT PLUS PARITY
2701                                     ;; PARITY:ODDPAR
2702                                     ;; CHARACTER:377
2703
2704 012662 012767 000036 166236 TST30: MOV      #30,TSTNO    ;SAVE THIS
2705 012670 012767 013104 166220      MOV      #.EOP,NEXT   ;GO TO THIS TEST WHEN THRU
2706 012676 052777 000400 005010      BIS      #MRESET,@TXCSR ;MASTER RESET
2707 012704 012777 030000 004776      MOV      #SYNINT,@PARCSR ;SET THE MODE
2708 012712 052777 000400 004774      BIS      #MRESET,@TXCSR ;MASTER RESET
2709
2710                                     ;SET MAINTENANCE MODE & SEND
2711                                     ;NOTE:BIT WINDOW&CLK ARE CLEARED (MTDATA=0)
2712 012720 012777 004020 004766      MOV      #MINT!SEND,@TXCSR
2713
2714                                     ;SET MODE,# OF BITS,PARITY SENSE,& LOAD SYNC REG
2715 012726 012777 037026 004754      MOV      #SYNINT!EIGHT!ODDPAR!26,@PARCSR
2716 012734 016703 004754      MOV      TXCSR,R3     ;SET UP FOR ERROR MSG
    
```

N04

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 55
 DZDUDC.P11 21-MAY-76 00:00

SEQ 0052

2717	012740	112777	000377	004752		MOV	#377, @TXDBUF	; LOAD DATA CHAR
2718	012746	012767	000777	166170		MOV	#777, TEMP1	; TO BE SHIFTED CHAR
2719	012754	012767	000011	166156		MOV	#9, SHIFT	; # OF SHIFTS
2720								; POKE CLK TO GET INTO SYNCRONIZATION
2721	012762	052777	020000	004724		BIS	#CLK, @TXCSR	; POKE CLK UP
2722	012770	042777	020000	004716		BIC	#CLK, @TXCSR	; POKE CLK DOWN
2723	012776	005000			1\$:	CLR	RO	
2724	013000	006067	166140			ROR	TEMP1	; FORCE CARRY
2725	013004	103002				BCC	2\$; BR IF CARRY CLR
2726	013006	052700	002000			BIS	#BITW, RO	; EQUIV OF BITW
2727	013012				2\$:			
2728	013012	052777	020000	004674		BIS	#CLK, @TXCSR	; POKE CLK UP
2729	013020	042777	020000	004666		BIC	#CLK, @TXCSR	; POKE CLK DOWN
2730	013026	017701	004662			MOV	@TXCSR, R1	; ACTUAL
2731	013032	042701	075777			BIC	#075777, R1	; SAVE BITW & DNA
2732	013036	020001				CMP	RO, R1	; COMPARE EXP VS ACT
2733	013040	001401				BEQ	3\$	
2734	013042	104003				HLT	3	; BIT WINDOW DID NOT MATCH ACTUAL DATA
2735								; BIT, ... ALSO CHECK DNA
2736	013044				3\$:			
2737	013044	005367	166070			DEC	SHIFT	; # OF SHIFTS
2738	013050	001352				BNE	1\$; DO IT AGAIN ?
2739								; NOW POKE CLK TO SEE DNA
2740	013052	052777	020000	004634		BIS	#CLK, @TXCSR	; POKE CLK
2741	013060	012700	100000			MOV	#100000, RO	; EXPECTED
2742	013064	017701	004624			MOV	@TXCSR, R1	; ACTUAL
2743	013070	042701	077777			BIC	#77777, R1	; SAVE DNA ONLY
2744	013074	020001				CMP	RO, R1	; COMPARE EXP VS ACT
2745	013076	001401				BEQ	4\$	
2746	013100	104003				HLT	3	; DNA SHOULD BE SET
2747								; IF DNA DID NOT SET
2748								; CHECK WORD LENGTH SELECT LOGIC
2749	013102				4\$:			
2750	013102	104400				SCOPE		

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2751
2752
2753
2754
2755
2756
2757
2758 013104 104402 .EOP: TYPE ;TYPE NAME OF TEST
2759 013106 016246 MEPASS
2760 013110 104410 013342 CONVRT ,OUTCRY
2761 013114 104402 015767 TYPE ,DEVICE
2762 013120 105767 166056 TSTB MULTD ;ARE YOU RUNNING MULTIPLE DEVICES ?
2763 013124 001511 BEQ CCC ;NO JUMP AROUND
2764 013126 005767 166064 TST ACTREG ;ARE ANY DEVICES ACTIVE ?
2765 013132 001007 BNE RUNIT ;YES
2766 013134 104402 016001 TYPE ,MCOM ;NO
2767 013140 016700 166052 MOV ACTREG,RO ;DISPLAY ACTREG
2768 013144 000000 HALT ;SELECT SOMETHING TO RUN @ ACTREG:
2769 ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
2770 013146 000167 166106 JMP .START ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
2771 013152 062767 000010 166024 RUNIT: ADD #10,BASEADD ;NEXT BLOCK (ADDRESSES)
2772 013160 062767 000010 166024 ZERO: ADD #10,BASEIV ;NEXT BLOCK (VECTORS)
2773 013166 000241 CLC
2774 013170 006167 166024 ROL ROTADD ;UP DATE ROTATING POINTER
2775 013174 103410 BCS Z$ ;IS IT THE LAST DEVICE
2776 ;TO BE TESTED IN THIS PASS ?
2777 013176 036767 166016 166012 BIT ROTADD,ACTREG ;TEST THIS DEVICE FOR ACTIVE STATUS
2778 013204 001762 BEQ RUNIT ;IF NOT ACTIVE, TRY NEXT ADDRESS
2779 013206 004767 000034 JSR PC,REPLAY ;CALCULATE NEW PARAMETERS
2780 013212 000167 000174 JMP RESTRT ;YES IT WAS ACTIVE, TEST THIS DEVICE
2781 013216 012767 000001 165774 Z$: MOV #1,ROTADD ;OK! NOW SET UP ROTATING
2782 ;POINTER FOR NEXT MULTIPLE PASS
2783 013224 016767 165756 165752 MOV KEEPADD,BASEADD ;RESTORE BASE ADDRESS
2784 013232 016767 165756 165752 MOV KEEPIV,BASEIV ;RESTORE BASE INTERRUPT VECTORS
2785 013240 004767 000002 JSR PC,REPLAY ;CALC NEW PARAMETERS
2786 013244 000441 BR CCC ;JUMP AROUND REPLAY
2787 013246 016767 165732 004126 REPLAY: MOV BASEADD,DUBASE ;SET UP FOR NEW ADDRESSES
2788 013254 004767 003770 JSR PC,DUADR ;CREATE NEW ADDRESSES
2789 013260 016767 165726 004436 MOV BASEIV,DURIV ;CREATE DURIV
2790 013266 062767 000002 165716 ADD #2,BASEIV
2791 013274 016767 165712 004424 MOV BASEIV,DURIS ;CREATE DURIS
2792 013302 062767 000002 165702 ADD #2,BASEIV
2793 013310 016767 165676 004412 MOV BASEIV,DUTIV ;CREATE DUTIV
2794 013316 062767 000002 165666 ADD #2,BASEIV
2795 013324 016767 165662 004400 MOV BASEIV,DUTIS ;CREATE DUTIS
2796 013332 016767 004366 165652 MOV DURIV,BASEIV ;RESTORE
2797 013340 000207 RTS PC
2798
2799 013342 000001 OUTCRY: 1
2800 013344 006 002 .BYTE 6,2
2801 013346 017700 RXCSR
2802
2803 013350 CCC:
2804 013350 005067 165560 CLR LSTERR ;CLEAR LAST ERROR PC
2805 013354 005067 165644 CLR ERRFLG ;CLEAR ERROR FLAG
2806 013360 005267 165544 INC PASCNT ;UPDATE PASS COUNT

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2807 013364 016777 165540 165510      MOV    PASCNT,ALIGHTS      ;DISPLAY PASS COUNT
2808 013372 013701 000042              MOV    #42,R1              ;CHECK FOR ACT-11 OR DDP
2809 013376 001405              BEQ    RESTRT              ;IF NOT, CONTINUE TESTING
2810 013400 000005              RESET
2811 013402 004711              LOGICAL: JSR    PC,(R1)
2812 013404 000240              NOP
2813 013406 000240              NOP
2814 013410 000240              NOP
2815 013412 012767 000340 164356  RESTRT: MOV    #340,PS      ;PREVENT INTERRUPTS (PRIO: 7)
2816 013420 104413              CKSWR                      ;CHECK FOR IG
2817 013422 012767 002350 165464      MOV    #TST1,RTRN
2818 013430 000167 166714              JMP    TST1
2819
2820
2821
2822
2823
2824 013434              .SCOPE:
                ;**** START OF CODE FOR THE X OR TESTER *****
2825
2826 013434 000424              BR    4$
2827 013436 013746 000004              MOV    #4,-(SP)            ;IF RUNNING ON THE X OR TESTER CHANGE
2828 013442 012737 013462 000004      MOV    #1$,#4              ;THIS INSTRUCTION TO A "NOP"(NOP=240)
2829 013450 005737 177060              TST    #177060            ;SAVE CONTENTS OF ERROR VECTOR
2830 013454 012637 000004      MOV    (SP)+,#4            ;SET FOR TIME OUT
2831 013460 000404              BR    2$                  ;TIME OUT ON X OR ?
2832 013462 022626              1$:  CMP    (SP)+,(SP)+      ;RESTORE ERROR VECTOR
2833 013464 012637 000004      MOV    (SP)+,#4            ;GO TO NEXT TEST
2834 013470 000403              BR    3$                  ;CLEAR THE STACK AFTER A TIMEOUT
2835 013472 016767 165420 165414  2$:  MOV    NEXT,RTRN          ;RESTORE ERROR VECTOR
2836 013500 016716 165410  3$:  MOV    RTRN,(SP)          ;LOOP ON PRESENT TEST
2837 013504 000002              RTI                        ;SET UP NEXT TEST IN RTRN
2838 013506              4$:  ;**** END OF CODE FOR THE X OR TESTER ***** ;SET UP STACK FOR RTI
2839 013506 104413              CKSWR                      ;CHECK FOR IG
2840 013510 032777 040000 165362      BIT    #SW14,#SWR          ;LOOP ON CURRENT TEST ?
2841 013516 001407              TTST: BEQ    1$
2842 013520 000432              BR    3$
2843 013522 105777 165356              TSTB  #TKCSR              ;TEST TTY FLAG
2844 013526 100027              BPL   3$
2845 013530 017700 165352              MOV    #TKDBR,R0
2846 013534 000412              BR    2$                  ;CLR DONE BIT
2847 013536 032777 004000 165334  1$:  BIT    #SW11,#SWR          ;IF A TTY KEY IS STRUCK GO TO NEXT TST
2848 013544 001006              BNE   2$                  ;INHIBIT ITERATIONS ?
2849 013546 005267 165352              INC    LPCNT
2850 013552 026767 165346 165342      CMP    LPCNT,ICOUNT        ;CHECK FOR ITERATIO: CNT FINISH
2851 013560 101412              BLOS  3$
2852 013562 105067 155436              2$:  CLRB  ERRFLG
2853 013566 005067 165332              CLR   LPCNT
2854 013572 012767 000005 165322      MOV    #5,ICOUNT          ;SET UP ITERATION COUNT
2855 013600 016767 165312 165306      MOV    NEXT,RTRN          ;SET UP NEXT TEST IN RTRN
2856 013606 016716 165302  3$:  MOV    RTRN,(SP)          ;SET UP STACK FOR RTI
2857 013612 000002              RTI
2858 013614 001407              BRW:  1407                ;RESTORE "BEQ 1$" INSTRUCTION
2859 013616 000432              BRX:  432                 ;RESTORE "BR 3$" INSTRUCTION
2860
2861
2862 013620 104413              ;CHECK FOR FREEZE ON CURRENT DATA
                .SCOPE1: CKSWR                      ;CHECK FOR IG
    
```

```

2863 013622 032777 001000 165250      BIT      #SW09,ASWR
2864 013630 001402                BEQ      1$
2865 013632 016716 165262                MOV      LOCK,(SP)
2866 013636 000002                1$:     RTI
2867
2868                                ;TELETYPE OUTPUT ROUTINE
2869
2870 013640 010546                .TYPE:  MOV      R5,-(SP)
2871 013642 017605 000002                MOV      @2(SP),R5
2872 013646 062766 000002 000002                ADD      #2,2(SP)
2873 013654 105715                1$:     TSTB     (R5)                ;LOOK FOR "0"
2874 013656 001406                BEQ      3$
2875 013660 105777 165224                2$:     TSTB     @TPCSR                ;TEST DONE BIT
2876 013664 100375                BPL      2$
2877 013666 112577 165220                MOVB     (R5)+,@TPDBR                ;TYPE CHAR
2878 013672 000770                BR       1$                ;DO IT AGAIN UNTIL "0" IS SEEN
2879 013674 012605                3$:     MOV      (SP)+,R5
2880 013676 000002                RTI
2881
2882                                ;ASCII STRING INPUT ROUTINE
2883
2884 013700 010346                .INSTR: MOV      R3,-(SP)
2885 013702 010446                MOV      R4,-(SP)
2886 013704 017667 000004 000010                MOV      @4(SP),MSG
2887 013712 062766 000002 000004                ADD      #2,4(SP)
2888 013720 104402                .INST1: TYPE
2889 013722 000000                .MSG:   0
2890 013724 012704 017034                MOV      #INBUF,R4
2891 013730 012703 000007                MOV      #7,R3
2892 013734 105777 165144                1$:     TSTB     @TKCSR
2893 013740 100375                BPL      1$
2894 013742 117714 165140                MOVB     @TKDBR,(R4)
2895 013746 142714 000200                BICB     #200,(R4)
2896 013752 121427 000025                CMPB     (R4),#25                ;IS IT <1U>
2897 013756 001003                BNE      200$
2898 013760 104402 016156                TYPE,MCRLF
2899 013764 000755                BR       .INST1
2900 013766 122427 000015                200$:  CMPB     (R4)+,#15
2901 013772 001423                BEQ      INSTR2
2902 013774 117777 165106 165110                MOVB     @TKDBR,@TPDBR
2903 014002 105777 165102                2$:     TSTB     @TPCSR
2904 014006 100375                BPL      2$
2905 014010 005303                DEC      R3
2906 014012 001350                BNE      1$
2907 014014 000402                BR       .INSTG
2908 014016 010346                .INSTE: MOV      R3,-(SP)
2909 014020 010446                MOV      R4,-(SP)
2910 014022 104402                .INSTG: TYPE
2911 014024 016152                MQM
2912 014026 005737 015314                TST      @RDSW
2913 014032 001402                BEQ      400$
2914 014034 104402 016156                TYPE,MCRLF
2915 014040 000727                400$:  BR       .INST1
2916 014042 012604                INSTR2: MOV      (SP)+,R4
2917 014044 012603                MOV      (SP)+,R3
2918 014046 000002                RTI
    
```



```

2919
2920                                     ;CONVERT ASCII STRING TO OCTAL
2921
2922 014050 010546      .PARAM: MOV      R5,-(SP)
2923 014052 010446      MOV      R4,-(SP)
2924 014054 016605 000004  MOV      4(SP),R5
2925 014060 012567 000170  MOV      (R5)+,LOLIM
2926 014064 012567 000166  MOV      (R5)+,HILIM
2927 014070 012567 000164  MOV      (R5)+,DEVADR
2928 014074 112567 000162  MOVB     (R5)+,LOBITS
2929 014100 112567 000157  MOVB     (R5)+,ADRCNT
2930 014104 010566 000004  MOV      R5,4(SP)
2931 014110 005005      PARAM1: CLR      R5
2932 014112 012704 017034  MOV      #INBUF,R4
2933 014116 122714 000015  CMPB     #15,(R4)
2934 014122 001420      BEQ      PARERR
2935 014124 121427 000060  1$:      CMPB     (R4),#60
2936 014130 002415      BLT      PARERR
2937 014132 121427 000067  CMPB     (R4),#67
2938 014136 003012      BGT      PARERR
2939 014140 142714 000060  BICB     #60,(R4)
2940 014144 152405      BISB     (R4)+,R5
2941 014146 122714 000015  CMPB     #15,(R4)
2942 014152 001414      BEQ      LIMITS
2943 014154 006305      ASL      R5
2944 014156 006305      ASL      R5
2945 014160 006305      ASL      R5
2946 014162 000760      BR       1$
2947 014164 122714 000015  PARERR:  CMPB     #15,(R4)           ;IS FIRST CHARACTER A <CR>
2948 014170 001003      BNE     120$
2949 014172 005737 015314  TST      #RDSW           ;IS CKSWR ROUTINE BEING USED
2950 014176 001023
2951 014200 104404
2952 014202 000742
2953
2954                                     ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2955
2956 014204 020567 000046  LIMITS:  CMP      R5,HILIM
2957 014210 101365      BHI     PARERR
2958 014212 020567 000036  CMP      R5,LOLIM
2959 014216 103762      BLO     PARERR
2960 014220 136705 000036  BITB     LOBITS,R5
2961 014224 001357      BNE     PARERR
2962
2963                                     ;STORE NUMBER AT SPECIFIED ADDRESS
2964
2965 014226 016704 000026  1$:      MOV      DEVADR,R4
2966 014232 010524      MOV      R5,(R4)+
2967 014234 062705 000002  ADD      #2,R5
2968 014240 105367 000017  DECB     ADRCNT
2969 014244 001372      BNE     1$
2970 014246 012604      PARTI:  MOV      (SP)+,R4
2971 014250 012605      MOV      (SP)+,R5
2972 014252 000002      RTI
2973 014254 000000      LOLIM:  0
2974 014256 000000      HILIM:  0
    
```

```

2975 014260 000000          DEVADR: 0
2976 014262 000000          LOBITS: 0
2977          014263          ADRCNT=LOBITS+1
2978
2979          ;SAVE PC OF TEST THAT FAILED AND RO-R5
2980
2981 014264 016667 000004 164702 .SAV05: MOV     4(SP),SAVPC
2982
2983          ;SAVE RO-R5
2984
2985 014272 010567 164672      SV05:  MOV     R5,SAVR5
2986 014276 010467 164664      MOV     R4,SAVR4
2987 014302 010367 164656      MOV     R3,SAVR3
2988 014306 010267 164650      MOV     R2,SAVR2
2989 014312 010167 164642      MOV     R1,SAVR1
2990 014316 010067 164634      MOV     R0,SAVR0
2991 014322 000002          RTI
2992
2993          ;RESTORE RO-R5
2994
2995 014324 016700 164626      .RES05: MOV     SAVR0,R0
2996 014330 016701 164624      MOV     SAVR1,R1
2997 014334 016702 164622      MOV     SAVR2,R2
2998 014340 016703 164620      MOV     SAVR3,R3
2999 014344 016704 164616      MOV     SAVR4,R4
3000 014350 016705 164614      MOV     SAVR5,R5
3001 014354 000002          RTI
3002
3003          ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
3004
3005 014356 104402          .CONVR: TYPE
3006 014360 016156          MCRLF
3007 014362 010046          .CNVRT: MOV     R0,-(SP)
3008 014364 010146          MOV     R1,-(SP)
3009 014366 010346          MOV     R3,-(SP)
3010 014370 010446          MOV     R4,-(SP)
3011 014372 010546          MOV     R5,-(SP)
3012 014374 017601 000012      MOV     2(2(SP),R1
3013 014400 016767 002470 164542      MOV     TEMP,TEMP3
3014 014406 062766 000002 000012      ADD     #2,12(SP)
3015 014414 012167 000154      MOV     (R1)+,WRDCNT
3016 014420 112167 000152      1S:  MOVB  (R1)+,CHRCNT
3017 014424 112167 000147      MOVB  (R1)+,SPACNT
3018 014430 013167 000144      MOV     2(R1)+,BINWRD
3019 014434 016704 000140      2S:  MOV     BINWRD,R4
3020 014440 116705 000132      MOVB  CHRCNT,R5
3021 014444 012700 017074      MOV     #TEMP,R0
3022 014450 010403 3S:  MOV     R4,R3
3023 014452 042703 177770      BIC     #177770,R3
3024 014456 062703 000060      ADD     #060,R3
3025 014462 110320      MOVB  R3,(R0)+
3026 014464 006204      ASR   R4
3027 014466 042704 100000      BIC     #100000,R4
3028 014472 006204      ASR   R4
3029 014474 006204      ASR   R4
3030 014476 005305      DEC   R5

```

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;SHIFT FOR NEXT #
;CLUGE TO STOP BIT 15 PROPAGATING.
;DITTO
;DITTO

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3031	014500	001363			BNE	3\$	
3032	014502	012703	017134		MOV	#MDATA,R3	
3033	014506	114023		4\$:	MOVB	-(R0),(R3)+	
3034	014510	105367	000062		DECB	CHRCNT	
3035	014514	001374			BNE	4\$	
3036	014516	105767	000055		TSTB	SPACNT	
3037	014522	001405			BEQ	6\$	
3038	014524	112723	000040	5\$:	MOVB	#040,(R3)+	
3039	014530	105367	000043		DECB	SPACNT	
3040	014534	001373			BNE	5\$	
3041	014536	105013		6\$:	CLRB	(R3)	
3042	014540	104402			TYPE		
3043	014542	017134			MDATA		
3044	014544	005367	000024		DEC	WRDCNT	
3045	014550	001323			BNE	1\$	
3046	014552	016767	164372 002314		MOV	TEMP3,TEMP	
3047	014560	012605			MOV	(SP)+,R5	
3048	014562	012604			MOV	(SP)+,R4	
3049	014564	012603			MOV	(SP)+,R3	
3050	014566	012601			MOV	(SP)+,R1	
3051	014570	012600			MOV	(SP)+,R0	
3052	014572	000002			RTI		
3053	014574	000000			WRDCNT:	0	
3054	014576	000000			CHRCNT:	0	
3055		014577			SPACNT=CHRCNT+1		
3056	014600	000000			BINWRD:	0	
3057							
3058							
3059							
3060							
3061							
3062							
3063	014602	017605	000000		.SETFLG:MOV	2(SP),R5	
3064	014606	122767	000116 002220		CMPB	#'N,INBUF ;IS IT "N" ?	
3065	014614	001002			BNE	1\$	
3066	014616	105015			CLRB	(R5) ;000	
3067	014620	000406			BR	2\$	
3068	014622	122767	000131 002204	1\$:	CMPB	#'Y,INBUF ;IS IT "Y" ?	
3069	014630	001005			BNE	3\$	
3070	014632	112715	177777		MOVB	#-1,(R5) ;377	
3071	014636	062716	000002	2\$:	ADD	#2,(SP)	
3072	014642	000002			RTI		
3073	014644	104404		3\$:	INSTR		;RETRY
3074	014646	000755			BR	.SETFLG	
3075							
3076							
3077							
3078							
3079							
3080	014650	011646		.TRPSR:	MOV	(SP),-(SP)	;GET PC OF RETURN
3081	014652	162716	000002		SUB	#2,(SP)	;=PC OF TRAP
3082	014656	017616	000000		MOV	2(SP),(SP)	;GET TRP
3083	014662	006316		TRPOK:	ASL	(SP)	;MULTIPLY TRAP ARG BY 2
3084	014664	042716	177001		BIC	#177001,(SP)	;CLEAR UNWANTED BITS
3085	014670	062716	001226		ADD	#.TRPTAB,(SP)	;POINTER TO SUBROUTINE ADDRESS
3086	014674	017616	000000		MOV	2(SP),(SP)	;SUBROUTINE ADDRESS

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3087 014700 000136          JMP      @SP)+          ;GO TO SUBROUTINE
3088
3089          ;ERROR HANDLER
3090
3091 014702 104413          .HLT:  CKSWR          ;CHECK FOR IG
3092 014704 032777 020000 164166  BIT      #SW13,@SWR    ;INHIBIT ERROR TYPE OUT ?
3093 014712 001061          BNE     HALTS
3094 014714 021667 164214  CMP      (SP),LSTERR
3095 014720 001404          BEQ     1$
3096 014722 011667 164206  MOV      (SP),LSTERR
3097 014726 105067 164272  CLRB    ERRFLG
3098 014732 104406          1$:    SAVDS
3099 014734 011605          MOV      (SP),R5
3100 014736 162705 000002  SUB      #2,R5
3101 014742 011504          MOV      (R5),R4
3102 014744 006304          ASL     R4
3103 014746 061504          ADD     (R5),R4
3104 014750 006304          ASL     R4
3105 014752 042704 177001  BIC     #177001,R4
3106 014756 062704 017650  ADD     #.ERRTAB,R4
3107 014762 012467 000040  MOV     (R4)+,ERRMSG
3108 014766 012467 000046  MOV     (R4)+,DATAHD
3109 014772 011467 000054  MOV     (R4),DATABP
3110 014776 105767 164222  TSTB   ERRFLG
3111 015002 001403          BEQ     TYPMSG
3112 015004 005767 000042  TST    DATABP
3113 015010 001014          BNE     TYPDAT
3114 015012 104410          TYPMSG: CONVRT
3115 015014 015144          ERTABO
3116 015016 112767 177777 164200  MOVB   #-1,ERRFLG
3117 015024 104402          TYPE
3118 015026 000000          ERRMSG: 0
3119 015030 005767 000004  TST    DATAHD
3120 015034 001402          BEQ     TYPDAT
3121 015036 104402          TYPE
3122 015040 000000          DATAHD: 0
3123 015042 005767 000004  TYPDAT: TST    DATABP
3124 015046 001402          BEQ     RESREG
3125 015050 104410          CONVRT
3126 015052 000000          DATABP: 0
3127 015054 104407          RESREG: RESOS
3128 015056 005777 164016  HALTS:  TST     @SWR
3129 015062 100005          BPL    EXITER
3130 015064 010046          PUSHRO
3131 015066 016600 000002  MOV     2(SP),R0
3132 015072 000000          HALT
3133 015074 012600          POPRO
3134 015076 104413          EXITER: CKSWR          ;CHECK FOR IG
3135 015100 005267 164026          INC     ERRCNT
3136 015104 032777 000400 163766  BIT     #SW08,@SWR    ;LOOP ON ERROR ?
3137 015112 001007          BNE     1$
3138 015114 032777 002000 163756  BIT     #SW10,@SWR    ;ESCAPE TO NEXT ON ERROR ?
3139 015122 001407          BEQ     2$
3140 015124 016767 163766 163762  MOV     NEXT,RTRN    ;SET UP FOR NEXT TEST
3141 015132 012706 001100          1$:    MOV     #STACK,SP    ;REINITIALIZE SP
3142 015136 000177 163752          JMP     @RTRN
    
```

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3143 015142 000002          2$: RTI
3144 015144 000001          ERTABO: 1
3145 015146 006          002      .BYTE 6,2
3146 015150 001174          SAVPC
3147                                     ;ENTER HERE ON POWER FAILURE
3148
3149
3150 015152 010046          .PFAIL: MOV R0,-(SP) ;SAVE R0-R5 ON PROCESSOR STACK
3151 015154 010146          MOV R1,-(SP)
3152 015156 010246          MOV R2,-(SP)
3153 015160 010346          MOV R3,-(SP)
3154 015162 010446          MOV R4,-(SP)
3155 015164 010546          MOV R5,-(SP)
3156 015166 016746 162632  MOV 24,-(SP)
3157 015172 010667 163774  MOV SP,SAVSP ;SAVE STACK POINTER
3158 015176 012767 015210 162620 MOV #RESTART,24 ;SET UP FOR POWER UP TRAP
3159 015204 000000          HALT ;HALT ON POWER DOWN NORMAL
3160 015206 000777          1$: BR 1$
3161
3162                                     ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
3163
3164 015210 016706 163756  RESTAR: MOV SAVSP,SP ;RESTORE STACK POINTER
3165 015214 012605          MOV (SP)+,R5 ;RESTORE R0-R5
3166 015216 012604          MOV (SP)+,R4
3167 015220 012603          MOV (SP)+,R3
3168 015222 012602          MOV (SP)+,R2
3169 015224 012601          MOV (SP)+,R1
3170 015226 012600          MOV (SP)+,R0
3171 015230 012767 015152 162566  MOV #.PFAIL,24 ;SET UP FOR POWER FAILURE
3172 015236 012767 000340 162532  MOV #340,PS
3173 015244 012706 001100          MOV #STACK,SP
3174 015250 005067 001620          CLR TEMP
3175 015254 005267 001614          1$: INC TEMP
3176 015260 001375          BNE 1$
3177 015262 104410          CONVRT
3178 015264 015306          PFTAB
3179 015266 104402          TYPE
3180 015270 016161          MPFAIL
3181 015272 005067 163726          CLR ERRFLG
3182 015276 005067 163632          CLR LSTERR
3183 015302 000177 163606          JMP #RTN
3184 015306 000001          PFTAB: 1
3185 015310 006          002      .BYTE 6,2
3186 015312 001114          RTRN
3187
3188
3189                                     ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR 1G TO ALLOW CHANGING
3190                                     ;OF LOC.176.
3191                                     ;LOCATIONS USED:
3192 015314 000000          RDSW: .WORD 0
3193
3194
3195 015316 005737 000042          .CKSWR: TST #42
3196 015322 001042          BNE OUT
3197 015324 022767 000176 163546  CMP #SWREG,SWR ;SOFTWARE SWITCH REGISTER PRESENT
3198 015332 001036          BNE OUT ;NO, GET OUT
    
```

3199	015334	105777	163544		
3200	015340	100033			
3201	015342	017767	163540	176352	
3202	015350	042767	177600	176344	
3203	015356	122767	000007	176336	
3204	015364	001021			
3205	015366	104402	015444		
3206	015372	005137	015314		
3207	015376	104402	015451		
3208	015402	104411	015436		
3209	015406	104403	015461		
3210	015412	104405			
3211	015414	000000			
3212	015416	177777			
3213	015420	000176			
3214	015422	000	001		
3215	015424	104402	016156		
3216	015430	005037	015314		
3217	015434	000002			
3218	015436	000001			
3219	015440	006	002		
3220	015442	000176			
3221	015444	005015	043536	000	
3222	015451	015	051412	051127	
3223	015456	020075	000		
3224	015461	040	047040	053505	
3225	015466	020075	000		
3226		015472			
3227	015472	005015	042012	030525	
3228	015500	020061	055104	052504	
3229	015506	026504	020103	040524	
3230	015514	042520	042040	006440	
3231	015522	000012			
3232	015524	005015	042526	052103	
3233	015532	051117	040440	042104	
3234	015540	042522	051523	000055	
3235	015546	005015	051461	020124	
3236	015554	042504	044526	042503	
3237	015562	020072	042522	042503	
3238	015570	053111	051105	041440	
3239	015576	047117	051124	046117	
3240	015604	051040	043505	051511	
3241	015612	042524	020122	042101	
3242	015620	051104	051505	026523	
3243	015626	000			
3244	015627	015	040412	042522	
3245	015634	054440	052517	051040	
3246	015642	047125	044516	043516	
3247	015650	046440	046125	044524	
3248	015656	046120	020105	042504	
3249	015664	044526	042503	020123	
3250	015672	020077	054450	047440	
3251	015700	020122	024516	000055	
3252	015706	005015	040514	052123	
3253	015714	042040	053105	041511	
3254	015722	035105	042522	042503	

```

TSTB      @TKCSR      ;YES, WAIT FOR
BPL       OUT         ;READY, GET CHARACTER
MOV       @TKDBR, .MSG ;AND STRIP OFF
BIC       #177600, .MSG ;THE GARBAGE
CMPB     #7, .MSG     ;IS IT A <↑G>
BNE       OUT
          TYPE, $CNTG
.CNTLU:   COM         @#RDSW
          TYPE, $MSWR
          CNVRT, $WREGC
          INSTR, $MNEW
          PARAM
          0
          177777
          SWREG
.BYTE     0, 1
OUT:     CLR         @#RDSW
          RTI
SWREGC:  1
.BYTE     6, 2
          SWREG
$CNTG:   .ASCIZ    <15><12>/↑G/
$MSWR:   .ASCIZ    <15><12>/SWR= /
$MNEW:   .ASCIZ    / NEW= /
.EVEN
MTITLE:  .ASCIZ    <15><12><12>/DU11 DZDUD-C TAPE D /<15><12>
MVECTO:  .ASCIZ    <15><12>/VECTOR ADDRESS-/
MREGAD:  .ASCIZ    <15><12>/1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-/
MMULT:   .ASCIZ    <15><12>/ARE YOU RUNNING MULTIPLE DEVICES ? (Y OR N)-/
MLASTD:  .ASCIZ    <15><12>/LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-/

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3255	015730	053111	051105	041440	
3256	015736	047117	051124	046117	
3257	015744	051040	043505	051511	
3258	015752	042524	020122	042101	
3259	015760	051104	051505	026523	
3260	015766	000			
3261	015767	075	042504	044526	DEVICE: .ASCIZ /=DEVICE /
3262	015774	042503	020040	000	
3263	016001	015	044012	053517	MCOW: .ASCIZ <15><12>/HOW NOW BROWN COW? ...SELECT SOMETHING TO RUN 3ACTREG/
3264	016006	047040	053517	041040	
3265	016014	047522	047127	041440	
3266	016022	053517	020077	027056	
3267	016030	051456	046105	041505	
3268	016036	020124	047523	042515	
3269	016044	044124	047111	020107	
3270	016052	047524	051040	047125	
3271	016060	040040	041501	051124	
3272	016066	043505	000		
3273	016071	015	047412	052125	MRANGE: .ASCIZ <15><12>/OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-/
3274	016076	047440	020106	040522	
3275	016104	043516	035105	042522	
3276	016112	054524	042520	046040	
3277	016120	051501	020124	042504	
3278	016126	044526	042503	051040	
3279	016134	041530	051123	040440	
3280	016142	042104	042522	051523	
3281	016150	000055			
3282	016152	020040	000077		MQM: .ASCIZ / ?/
3283	016156	005015	000		MCRLF: .ASCIZ <15><12>
3284	016161	040	050040	053517	MPFAIL: .ASCIZ / POWER FAILURE, PROGRAM RESTART AT TEST IN PROGRESS/
3285	016166	051105	043040	044501	
3286	016174	052514	042522	020054	
3287	016202	051120	043517	040522	
3288	016210	020115	042522	052123	
3289	016216	051101	020124	052101	
3290	016224	052040	051505	020124	
3291	016232	047111	050040	047522	
3292	016240	051107	051505	000123	
3293	016246	005015	047105	020104	MEPASS: .ASCIZ <15><12>/END OF PASS TAPE D/
3294	016254	043117	050040	051501	
3295	016262	020123	040524	042520	
3296	016270	042040	000		
3297	016273	015	051012	000	MR: .ASCIZ <15><12>/R/
3298	016277	015	052012	051505	MTSTPC: .ASCIZ <15><12>/TEST PC-/
3299	016304	020124	041520	000055	
3300	016312	005015	047514	045503	MLOCK: .ASCIZ <15><12>/LOCK ON SELECTED TEST? (Y OR N)-/
3301	016320	047440	020116	042523	
3302	016326	042514	052103	042105	
3303	016334	052040	051505	037524	
3304	016342	024040	020131	051117	
3305	016350	047040	026451	000	
3306	016355	015	042012	020125	MLEVEL: .ASCIZ <15><12>/DU PRIORITY LEVEL-/
3307	016362	051120	047511	044522	
3308	016370	054524	046040	053105	
3309	016376	046105	000055		
3310	016402	005015	020043	043117	MSYNC: .ASCIZ <15><12>/# OF SYNC CHARS SELECTED (1 OR 2)-/

3311	016410	051440	047131	020103	
3312	016416	044103	051101	020123	
3313	016424	042523	042514	052103	
3314	016432	042105	024040	030440	
3315	016440	047440	020122	024462	
3316	016446	000055			
3317	016450	005015	051511	051440	MWIRE6: .ASCIZ <15><12>/IS SEC XMIT JUMPER #6 IN? (Y OR N)-/
3318	016456	041505	054040	044515	
3319	016464	020124	052512	050115	
3320	016472	051105	021440	020066	
3321	016500	047111	020077	054450	
3322	016506	047440	020122	024516	
3323	016514	000055			
3324	016516	005015	051511	051440	MWIRE5: .ASCIZ <15><12>/IS SEC REC JUMPER #5 IN? (Y OR N)-/
3325	016524	041505	051040	041505	
3326	016532	045040	046525	042520	
3327	016540	020122	032443	044440	
3328	016546	037516	024040	020131	
3329	016554	051117	047040	026451	
3330	016562	000			
3331	016563	015	044412	020123	MWIRE4: .ASCIZ <15><12>/IS OPT CLR ENABLE JUMPER #4 IN? (Y OR N)-/
3332	016570	050117	020124	046103	
3333	016576	020122	047105	041101	
3334	016604	042514	045040	046525	
3335	016612	042520	020122	032043	
3336	016620	044440	037516	024040	
3337	016626	020131	051117	047040	
3338	016634	026451	000		
3339	016637	015	040412	042522	MEXTJ: .ASCII <15><12>/ARE YOU RUNNING IN MAINT MODE EXTERNAL?/
3340	016644	054440	052517	051040	
3341	016652	047125	044516	043516	
3342	016660	044440	020116	040515	
3343	016666	047111	020124	047515	
3344	016674	042504	042440	052130	
3345	016702	051105	040516	037514	
3346	016710	005015	040401	042116	.ASCII <15><12><1>/AND DO YOU HAVE THE EXTERNAL MODEM BYPASS/
3347	016716	027040	027056	027056	
3348	016724	042040	020117	047531	
3349	016732	020125	040510	042526	
3350	016740	052040	042510	042440	
3351	016746	052130	051105	040516	
3352	016754	020114	047515	042504	
3353	016762	020115	054502	040520	
3354	016770	051523			
3355	016772	005015	045001	046525	.ASCIZ <15><12><1>/JUMPER CONNECTOR ON?(Y OR N)-/
3356	017000	042520	020122	047503	
3357	017006	047116	041505	047524	
3358	017014	020122	047117	037440	
3359	017022	054450	047440	020122	
3360	017030	024516	000055		
3361					.EVEN
3362					
3363					;BUFFERS FOR INPUT-OUTPUT
3364					
3365	017034	000040			INBUF: .BLKB 40
3366	017074	000040			TEMP: .BLKB 40


```

3367 017134 000040
3368
3369
3370
3371
3372
3373 017174 006367 000044
3374 017200 006367 000040
3375 017204 006367 000034
3376 017210 006367 000030
3377 017214 006367 000024
3378 017220 016767 000020 000020
3379 017226 162767 000001 000012
3380 017234 042767 000037 000004
3381 017242 000207
3382 017244 000240
3383 017246 000200
3384
3385
3386 017250 016767 000126 000422
3387 017256 005267 000120
3388 017262 016767 000114 000412
3389 017270 005267 000106
3390 017274 016767 000102 000402
3391 017302 016767 000074 000400
3392 017310 005267 000066
3393 017314 016767 000062 000364
3394 017322 016767 000054 000362
3395 017330 005267 000046
3396 017334 016767 000042 000352
3397 017342 005267 000034
3398 017346 016767 000030 000342
3399 017354 005267 000022
3400 017360 016767 000016 000332
3401 017366 005267 000010
3402 017372 016767 000004 000322
3403 017400 000207
3404 017402 000000
3405
3406
3407
3408
3409 017404 042777 040000 000302
3410 017412 005067 161530
3411 017416 006067 161522
3412 017422 006067 161520
3413 017426 006267 161514
3414 017432 042767 100000 161506
3415 017440 056777 161502 000246
3416 017446 042777 020000 000240
3417 017454 052777 020000 000232
3418 017462 005367 161452
3419 017466 001346
3420 017470 000207
3421
3422

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```

MDATA: .BLKB 40
;*****
;UTILITIES
;*****
;THIS UTILITY CALCULATES PRIORITY LEVEL
DULEV: ASL DUPRT ;SHIFT LEFT
        ASL DUPRT ;
        ASL DUPRT ;
        ASL DUPRT ;
        ASL DUPRT ;
        MOV DUPRT,LESS1 ;MOVE THIS TO LESS1
        SUB #1,LESS1 ;CREATE LESS1
        BIC #37,LESS1 ;CLEAR TNZVC
        RTS PC
DUPRT: LEVEL5
LESS1: LEVEL4 ;LEVEL TO ALLOW INTERRUPTS
;NEW DU ADDRESSES
DUADDR: MOV DUBASE,RXCSR ;XXX0
        INC DUBASE
        MOV DUBASE,HRXCSR ;XXX1
        INC DUBASE
        MOV DUBASE,RXDBUF ;XXX2
        MOV DUBASE,PARCSR ;XXX2
        INC DUBASE
        MOV DUBASE,HRXDBUF ;XXX3
        MOV DUBASE,HPARCSR ;XXX3
        INC DUBASE
        MOV DUBASE,TXCSR ;XXX4
        INC DUBASE
        MOV DUBASE,HTXCSR ;XXX5
        INC DUBASE
        MOV DUBASE,TXDBUF ;XXX6
        INC DUBASE
        MOV DUBASE,HTXDBUF ;XXX7
        RTS PC
DUBASE: 0
;THIS UTILITY POKES THE MAINT DATA BASED UPON THE
;INFORMATION CONTAINED IN TEMP1 AND IT IS
;SHIFTED IN BY THE CONTENTS OF SHIFT
RPOKE: BIC #MDATA,@TXCSR
        CLR TEMP2
        ROR TEMP1 ;FORCE CARRY
        ROR TEMP2 ;PICK UP CARRY IN BIT 15
        ASR TEMP2 ;SHIFT INTO BIT 14
        BIC #BIT15,TEMP2 ;CLR BIT 15
        BIS TEMP2,@TXCSR ;POKE MAINT DATA
        BIC #CLK,@TXCSR ;POKE CLK
        BIS #CLK,@TXCSR ;
        DEC SHIFT
        BNE RPOKE
        RTS PC
;THIS ROUTINE CALCULATES ODD PARITY FOR AN 8 BIT CHAR

```

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3423 017472 016767 161446 161446 ODD8: MOV TEMP1,TEMP2 ;SAVE TEMP1
3424 017500 005067 161444 CLR TEMP3
3425 017504 012727 000010 MOV #8.,(PC)+
3426 017510 000000 4$: 0
3427 017512 006067 161430 1$: ROR TEMP2
3428 017516 005567 161426 ADC TEMP3
3429 017522 005367 177762 DEC 4$
3430 017526 001371 BNE 1$
3431 017530 006067 161414 ROR TEMP3
3432 017534 103404 BCS 2$
3433 017536 052767 000400 161400 BIS #BIT8,TEMP1 ;SET ODD PARITY
3434 017544 000403 BR 3$
3435 017546 042767 000400 161370 2$: BIC #BIT8,TEMP1 ;CLR EVEN PARITY
3436 :TEMP1 NOW HAS ODD PARITY CHARACTER
3437 017554 000207 3$: RTS PC
3438
3439 :THIS ROUTINE CALCULATES EVEN PARITY FOR AN 8 BIT CHARACTER
3440 017556 016767 161362 161362 EVEN8: MOV TEMP1,TEMP2 ;SAVE TEMP1
3441 017564 005067 161360 CLR TEMP3
3442 017570 012727 000010 MOV #8.,(PC)+
3443 017574 000000 4$: 0
3444 017576 006067 161344 1$: ROR TEMP2
3445 017602 005567 161342 ADC TEMP3
3446 017606 005367 177762 DEC 4$
3447 017612 001371 BNE 1$
3448 017614 006067 161330 ROR TEMP3
3449 017620 103004 BCC 2$
3450 017622 052767 000400 161314 BIS #BIT8,TEMP1 ;SET EVEN PARITY
3451 017630 000403 BR 3$
3452 017632 042767 000400 161304 2$: BIC #BIT8,TEMP1 ;CLR ODD PARITY
3453 :TEMP1 NOW HAS EVEN PARITY CHARACTER
3454 017640 000207 3$: RTS PC
3455 017642 062716 000002 TRPREG: ADD #2,(SP) ;ALLOW IT TO "CRUNCH" INTO HLT BACK
3456 ;IN MAIN PART OF THE PROGRAM
3457 017646 000002 RTI
3458 ;ERROR HLT TABLE
3459 017650 017734 .ERRTAB: EMO ;HLT 0 BIT ERROR (GENERAL)
3460 017652 000000 0
3461 017654 000000 0
3462 017656 017750 EM1 ;HLT 1 REGISTER ERROR
3463 017660 020121 DH1
3464 017662 020142 DT1
3465 017664 020012 EM2 ;HLT 2 RECEIVER ERROR
3466 017666 020121 DH1
3467 017670 020142 DT1
3468 017672 020054 EM3 ;HLT 3 TRANSMITTER ERROR
3469 017674 020121 DH1
3470 017676 020142 DT1
3471 :DEFAULT DU ADDRESSES
3472 017700 160040 RXCSR: 160040
3473 017702 160041 HRXCSR: 160041
3474 017704 160042 RXDBUF: 160042
3475 017706 160043 HRXDBUF: 160043
3476 017710 160042 PARCSR: 160042
3477 017712 160043 HPARCSR: 160043
3478 017714 160044 TXCSR: 160044
  
```

3479	017716	160045		
3480	017720	160046		
3481	017722	160047		
3482				
3483	017724	000770		
3484	017726	000772		
3485	017730	000774		
3486	017732	000776		
3487				
3488	017734	036440	042440	051122
3489	017742	051117	050040	000103
3490	017750	036440	051040	043505
3491	017756	051511	042524	020122
3492	017764	051105	047522	020122
3493	017772	041520	005015	051001
3494	020000	043505	051511	042524
3495	020006	020122	000040	
3496	020012	036440	051040	041505
3497	020020	044505	042526	020122
3498	020026	051105	047522	020122
3499	020034	041520	005015	051001
3500	020042	043505	051511	042524
3501	020050	020122	000040	
3502	020054	036440	052040	040522
3503	020062	051516	044515	052124
3504	020070	051105	042440	051122
3505	020076	051117	050040	006503
3506	020104	000412	042522	044507
3507	020112	052123	051105	020040
3508	020120	000		
3509				
3510	020121	105	050130	041505
3511	020126	042524	020104	040440
3512	020134	052103	040525	000114
3513				
3514				
3515	020142	000003		
3516	020144	006	004	
3517	020146	001164		
3518	020150	006	004	
3519	020152	001156		
3520	020154	006	002	
3521	020156	001160		
3522		000001		

```

HTXCSR: 160045
TXDBUF: 160046
HTXDBUF: 160047
:DEFAULT DU VECTORS
DURIV: 770 :REC INTR VECTOR
DURIS: 772 :REC INTR STATUS
DUTIV: 774 :XMIT INTR VECTOR
DUTIS: 776 :XMIT INTR STATUS
:ERROR MESSAGES
EM0: .ASCIZ / = ERROR PC/
EM1: .ASCIZ / = REGISTER ERROR PC/<15><12><1>/REGISTER /
EM2: .ASCIZ / = RECEIVER ERROR PC/<15><12><1>/REGISTER /
EM3: .ASCIZ / = TRANSMITTER ERROR PC/<15><12><1>/REGISTER /
:DATA HEADERS FOR ERROR MESSAGES
DH1: .ASCIZ /EXPECTED ACTUAL/
.EVEN
:DATA TABLES FOR ERROR MESSAGES
DT1: 3
.BYTE 6,4
SAVR3 :REGISTER
.BYTE 6,4
SAVR0 :EXPECTED DATA
.BYTE 6,2
SAVR1 :ACTUAL DATA
.END

```


F06

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 74
 DZDUDC.P11 21-MAY-76 00:00

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0070

OPTCLR 001201	761#	979																	
OUT 015430	3196	3198	3200	3204	3216#														
OUTCRY 013342	2760	2799#																	
OUTMUL 002024	904	929	940#																
OVRUN= 040000	661#																		
PARAM = 104405	802#	876	887	908	933	943	1014	3210											
PARAM1 014110	2931#	2952																	
PARCSR 017710	1039*	1047*	1103*	1111*	1167*	1175*	1231*	1239*	1295*	1303*	1359*	1367*	1423*						
	1431*	1487*	1495*	1548*	1556*	1603*	1611*	1658*	1666*	1713*	1721*	1769*	1777*						
	1824*	1832*	1879*	1887*	1934*	1942*	1990*	1998*	2045*	2053*	2100*	2108*	2155*						
	2163*	2211*	2219*	2266*	2274*	2321*	2329*	2376*	2384*	2432*	2440*	2487*	2495*						
	2542*	2550*	2597*	2605*	2652*	2660*	2707*	2715*	3391*	3476#									
PAREN = 001000	665#																		
PARER = 010000	663#																		
PARERR 014164	2934	2936	2938	2947#	2957	2959	2961												
PARTI 014246	2950	2970#																	
PASCNT 001130	735#	833*	2806*	2807															
PFTAB 015306	3178	3184#																	
POPRO = 012600	609#	3133																	
POP1SP= 005726	607#																		
POP2SP= 022626	611#																		
PS = 177776	601#	828*	987*	2815*	3172*														
PUSHRO= 010046	608#	3130																	
PUSH1S= 005746	606#																		
PUSH2S= 024646	610#																		
RDSW 015314	2912	2949	3192#	3206*	3216*														
REACT= 004000	647#																		
REPLAY 013246	2779	2785	2787#																
RESREG 015054	3124	3127#																	
RESTAR 015210	3158	3164#																	
RESTRT 013412	2780	2809	2815#																
RESOS = 104407	806#	3127																	
RING = 040000	644#																		
RINTEN= 000100	652#																		
ROTADD 001220	775#	903*	915*	917	919*	924	927*	2774*	2777	2781*									
RPOKE 017404	3409#	3419																	
RTRN 001114	729#	838*	1017	1021*	1023	2817*	2834*	2835	2854*	2855	3140*	3142	3183						
	3186																		
	656#																		
RTS = 000004	1	33	45	108	546														
RUNA = *****	1	33	45	108	546														
RUNB = *****	1	33	45	108	546														
RUNC = *****	1	33	45	108	546														
RUND = *****	1	33	45	108	546														
RUNE = *****	1	33	45	108	546														
RUNF = *****	1	33	45	108	546														
RUNIT 013152	2765	2771#	2778																
RXCSR 017700	2801	3386*	3472#																
RXDBUF 017704	3390#	3474#																	
RXDONE= 000200	651#																		
RXERR = 100000	660#																		
SAVPC 001174	756#	2981*	3146																
SAVRO 001156	749#	2990*	2995	3519															
SAVR1 001160	750#	2989*	2996	3521															
SAVR2 001162	751#	2988*	2997																
SAVR3 001164	752#	2987*	2998	3517															
SAVR4 001166	753#	2986*	2999																

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G06

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 75
 DZDUOC.P11 21-MAY-76 00:00 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0071

SAVRS	001170	754#	2985*	3000										
SAVSP	001172	755#	3157*	3164										
SAVOS =	104406	804#	3098											
SCOPE =	104400	792#	1089	1152	1216	1280	1344	1408	1472	1536	1591	1646	1701	1756
		1812	1867	1922	1977	2033	2088	2143	2198	2254	2309	2364	2419	2475
		2530	2585	2640	2695	2750								
SCOPI =	104401	794#												
SEND =	000020	687#	1044	1108	1172	1236	1300	1364	1428	1492	1553	1608	1663	1718
		1774	1829	1884	1939	1995	2050	2105	2160	2216	2271	2326	2381	2437
		2492	2547	2602	2657	2712								
SEREC	001200	760#	975											
SETFLG=	104412	812#	897	970	974	978	982	1001						
SEVEN =	004000	673#	1175	1431	1998	2053	2108	2163						
SEXMIT	001177	759#	971											
SHIFT	001140	742#	1051*	1069*	1115*	1133*	1179*	1197*	1243*	1261*	1307*	1325*	1371*	1389*
		1435*	1453*	1499*	1517*	1560*	1578*	1615*	1633*	1670*	1688*	1725*	1743*	1781*
		1799*	1836*	1854*	1891*	1909*	1946*	1964*	2002*	2020*	2057*	2075*	2112*	2130*
		2167*	2185*	2223*	2241*	2278*	2296*	2333*	2351*	2388*	2406*	2444*	2462*	2499*
		2517*	2554*	2572*	2609*	2627*	2664*	2682*	2719*	2737*	3418*			
SIX =	002000	672#	1111	1367	1777	1832	1887	1942						
SPACNT=	014577	3017*	3036	3039*	3055#									
SRD =	002000	648#												
STACK =	001100	602#	829	988	3141	3173								
STD =	000010	655#												
STFLG	001223	781#	832*											
STPSYN=	000400	650#												
SVOS	014272	2985#												
SWR	001100	720#	844*	849	853*	859	862	997	1010	2839	2846	2863	3092	3128
		3136	3138	3197	3197	3213	3220							
SWREG	000176	711#	853	859										
SWREGC	015436	3208	3218#											
SW00 =	000001	582#	862											
SW01 =	000002	581#	1010											
SW02 =	000004	590#												
SW03 =	000010	579#												
SW04 =	000020	578#												
SW05 =	000040	577#												
SW06 =	000100	576#												
SW08 =	000400	575#	3136											
SW09 =	001000	574#	2863											
SW10 =	002000	573#	3138											
SW11 =	004000	572#	2846											
SW12 =	010000	571#												
SW13 =	020000	570#	3092											
SW14 =	040000	569#	2839											
SW15 =	100000	568#												
SYNCNO	001176	758#	959*	963*										
SYNEXT=	020000	669#	1295	1303	1359	1367	1423	1431	1487	1495				
SYNINT=	030000	668#	1039	1047	1103	1111	1167	1175	1231	1239	1548	1556	1603	1611
		1769	1777	1824	1832	1990	1998	2045	2053	2211	2219	2266	2274	2432
		2440	2487	2495	2542	2550	2597	2605	2652	2660	2707	2715		
		654#												
SYNSCH=	000020	694#												
SYSTST=	014000	3013	3021	3046*	3174*	3175*	3366#							
TEMP	017074	744#	1050*	1056*	1114*	1120*	1178*	1184*	1242*	1248*	1306*	1312*	1370*	1376*
TEMP1	001144	1434*	1440*	1498*	1504*	1559*	1565*	1614*	1620*	1669*	1675*	1724*	1730*	1780*

H06

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 76
 DZDUDC.P11 21-MAY-76 00:00

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0072

		1786*	1835*	1841*	1890*	1896*	1945*	1951*	2001*	2007*	2056*	2062*	2111*	2117*
		2166*	2172*	2222*	2228*	2277*	2283*	2332*	2338*	2387*	2393*	2443*	2449*	2498*
		2504*	2553*	2559*	2608*	2614*	2663*	2669*	2718*	2724*	3411*	3423	3433*	3435*
		3440	3450*	3452*										
TEMP2	001146	745*	3410*	3412*	3413*	3414*	3415	3423*	3427*	3440*	3444*			
TEMP3	001150	746*	3013*	3046	3424*	3428*	3431*	3441*	3445*	3448*				
TEMP4	001152	747*												
TEMP5	001154	748*												
TKCSR	001104	722*	2842	2692	3199									
TKDBR	001106	723*	2644	2894	2902	3201								
TLAST =	012662	1016	2752*											
TPCSR	001110	724*	2875	2903										
TPDBR	001112	725*	2877*	2902*										
TRPOK	014662	3083*												
TRPREG	017642	3455*												
TSTNO	001126	734*	837*	1036*	1100*	1164*	1228*	1292*	1356*	1420*	1484*	1545*	1600*	1655*
		1710*	1766*	1821*	1876*	1931*	1987*	2042*	2097*	2152*	2208*	2263*	2318*	2373*
		2429*	2484*	2539*	2594*	2649*	2704*							
TST1	002350	1015	1021	1036*	2817	2818								
TST10	005112	1546	1600*											
TST11	005334	1601	1655*											
TST12	005556	1656	1710*											
TST13	006000	1711	1766*											
TST14	006222	1767	1821*											
TST15	006444	1822	1876*											
TST16	006666	1877	1931*											
TST17	007110	1932	1987*											
TST18	007332	1988	2042*											
TST19	007554	2043	2097*											
TST2	002602	1037	1100*											
TST20	007776	2098	2152*											
TST21	010220	2153	2208*											
TST22	010442	2209	2263*											
TST23	010664	2264	2318*											
TST24	011106	2319	2373*											
TST25	011330	2374	2429*											
TST26	011552	2430	2484*											
TST27	011774	2485	2539*											
TST28	012216	2540	2594*											
TST29	012440	2595	2649*											
TST3	003034	1101	1164*											
TST30 =	012662	2650	2704*	2752										
TST31 =	*****	2705												
TST4	003266	1165	1228*											
TST5	003520	1229	1292*											
TST6	003752	1293	1356*											
TST7	004204	1357	1420*											
TST8	004436	1421	1484*											
TST9	004670	1485	1545*											
TTST	013516	994*	995*	1005*	1006*	1008*	1009*	2840*						
TXCSR	017714	1038*	1040*	1044*	1048	1053*	1054*	1060*	1061*	1062	1072*	1074	1082	1102*
		1104*	1108*	1112	1117*	1118*	1124*	1125*	1126	1136*	1138	1146	1156*	1168*
		1172*	1176	1181*	1182*	1188*	1189*	1190	1200*	1202	1210	1230*	1232*	1236*
		1240	1245*	1246*	1252*	1253*	1254	1264*	1266	1274	1294*	1296*	1300*	1304
		1309*	1310*	1316*	1317*	1318	1328*	1330	1338	1358*	1360*	1364*	1368	1373*
		1374*	1380*	1381*	1382	1392*	1394	1402	1422*	1424*	1428*	1432	1437*	1438*

J06

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 78

DZDUUC.P11 21-MAY-76 00:00

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0074

.ERRTA	017650	3106	3459#			
.HLT	014702	702	3091#			
.INSTE	014016	801	2908#			
.INSTG	014022	2907	2910#			
.INSTR	013700	799	2884#			
.INST1	013720	2888#	2899	2915		
.MSG	013722	2886*	2889#	3201*	3202*	3203
.PARAM	014050	803	2922#			
.PFAIL	015152	700	830	3150#	3171	
.RESOS	014324	807	2995#			
.SAVOS	014264	805	2981#			
.SCOPE	013434	793	2822#			
.SCOPI	013620	795	2862#			
.SETFL	014602	813	3063#	3074		
.START	001260	712	828#	838	2770	
.TRPSR	014650	704	3080#			
.TRPTA	001226	789#	3085			
.TYPE	013640	797	2870#			

L06

DZDUD-C MACY11 27(1006) 01-OCT-76 09:34 PAGE 81
 DZDUDC.P11 21-MAY-76 00:00 CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0076

SSYMBO	552#	565													
SSYNCR	552#														
STRAPS	552#	784													
STRPAR	552#	1537	1592	1647	1702	1758	1813	1868	1923	1979	2034	2089	2144	2200	2255
	2310	2365	2421	2476	2531	2586	2641	2696							
STRPDE	552#	792	794	796	798	800	802	804	806	808	810	812	814	816	
STRPSR	552#	3075													
STSTNO	552#	1036	1100	1164	1228	1292	1356	1420	1484	1545	1600	1655	1710	1766	1821
	1876	1931	1987	2042	2097	2152	2208	2263	2318	2373	2429	2484	2539	2594	2649
	2704														
STYPE	552#	2867													
SUNIBU	552#														
SVARIA	552#	715													
\$WORDF	552#														
\$WORDO	552#														
\$WORDP	552#														

. ABS. 020160 000

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

DZDUDC, DZDUDC/CRF/SOL=HELLO.P11, PARA.P11, KEET.P11, DZDUDC.P11
 RUN-TIME: 23 35 3 SECONDS
 RUN-TIME RATIO: 143/61=2.3
 CORE USED: 18K (35 PAGES)

