

HUGHES AIRCRAFT

- PAPER TAPE TO FILE SUBSYSTEM
- THIS PROGRAM
 - READS BYTE DATA FROM THE PAPER TAPE READER TO ANY FILE
 - WILL DELETE OR REPLACE ANY CHARACTER INPUT
 - WILL PROCESS FIXED OR VARIABLE LENGTH RECORDS
- FILES: PTAPEINS SOURCE FILE
 PTAPEIN PROGRAM FILE
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DESCRIPTION

This S.P.L. Interactive Program is useful in getting paper tape programs and data into the system. Readable tapes include those with fixed length records or variable length records which contain an identifiable terminal character (example: line feed, 12_8). If desired the program can strip off the parity bit. User specified characters are replaced by another character or deleted from the record (example: delete CR, line feed, and rubout characters). Compatible record formats include:

| Paper-Tape Record Format | File Record Format |
|-----------------------------|-----------------------|
| Fixed | Fixed |
| Variable | Fixed |
| Variable | Variable |

Multiple rolls of paper tape can be processed into the same file. An option is available to rerun the program with the same parameters.

The dialog is easy to follow with extensive error checking and error messages.

LIMITS

- (A) All record sizes must be ≤ 256 bytes
- (B) Maximum number of terminal characters is 10
- (C) Maximum number of search and replacement character pairs is 20
- (D) Disc file must not exist prior to execution of the program
- (E) File names can be fully qualified with up to a maximum of 27 characters in length.

All of the above limitations are recoverable.

USER INTERFACE

The session mode is required to interface with the program. The program is executed by

:RUN PTAPE IN.USERS.SUPPORT

Example dialog is attached.

RUN PTAPEIN.USERS.SUPPORT

PAPER TAPE TO FILE SUBSYSTEM

TERMINATE ALL RESPONSES OR SEQUENCE OF RESPONSES
WITH A CARRIAGE RETURN.

FILE NAME = ? VF1

ARE RECORDS ON PAPER TAPE FIXED(F) OR VARIABLE(V)? V

ARE RECORDS ON FILE TO BE FIXED(F) OR VARIABLE(V)? F

FILE RECORD SIZE(BYTES) = ? 80

DO YOU WANT PARITY BIT MASKED OUT(Y,N) ? Y

TERMINAL CHARACTER IN OCTAL (%XXX) = ? %12

TERMINAL CHARACTER IN OCTAL (%XXX) = ?

TERMINAL CHARACTERS ARE NOT DELETED
UNLESS SPECIFIED BELOW.

DO YOU WANT ANY CHARACTERS REPLACED
OR DELETED FROM THE INPUT (Y,N)? Y

TO REPLACE CHARACTERS FOLLOW THE QUESTION
MARK PROMPT WITH THE SEARCH AND REPLACEMENT
CHARACTERS INPUT RESPECTIVELY AS TWO OCTAL
NUMBERS SEPARATED BY A COMMA.

TO DELETE CHARACTERS SET THE REPLACEMENT
CHARACTER TO %0.

FORMAT: ?%XXX,%XXX

?%12,0

?%15,0

?%17,0

?

ANOTHER ROLL (Y,N)?Y

ANOTHER ROLL (Y,N)?Y

ANOTHER ROLL (Y,N)?H

NUMBER OF RECORDS PROCESSED = 30

DO YOU WISH TO RUN THE PROGRAM AGAIN
USING THE SAME PARAMETERS (Y,N) ?Y

FILE NAME = ?VF2

ANOTHER ROLL (Y,N)?Y

ANOTHER ROLL (Y,N)?H

NUMBER OF RECORDS PROCESSED = 20

DO YOU WISH TO RUN THE PROGRAM AGAIN
USING THE SAME PARAMETERS (Y,N) ?H

END OF PROGRAM

- COMPILE FROM EDITOR

- These routines from Hewlett Packard may be invoked from the EDITOR using the PROCEDURE edit command. Compile, load, and use example is attached.

- Files: SPLCOMPS, source
 FTNCOMPS, source

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Fullerton, California 92634

:JOB MANAGER.SYS. STAFF
PRI= CS: INPRI= A : TIME= ?
JOB NUMBER = #J17
WED. JAN 23. 1974. 10:18 AM
HP3200B.00.S4

:PURGE FTNCOMPIJ
:BUILD FTNCOMPIJ:CODE=USL
:SPL FTNCOMPS.FTNCOMPIJ

```

00000 0 $CONTROL SUBPROGRAM.SEGMENT=COMPFTN.40P
00000 0 BEGIN
00000 1 INTRINSIC COMMAND.CREATE.ACTIVATE :
00000 1 <<
00000 1 TO INVOKE THE PROCEDURE WITHIN THE EDITOR....USE
00000 1 /KEEP FTNTEXT
00000 1 /PROCEDURE COMPILEF.X.Y
00000 1 WHERE X=G(GROUP LIB.) OR P(PUBLIC LIB.) OR S(SYSTEM LIB)
00000 1 AND Y=ANYTHING.
00000 1 THE ABOVE COMMANDS WILL CHAIN IN FTN. AFTER COMPILATION E1
00000 1 CONTINUE EDITING OR USE USL FILE IN $OLDPASS.
00000 1 CONTRIBUTED BY FPITZ JOERN. GENEVA
00000 1 MODIFIED BY CHENG T. CHENG. CUPERTINO-TRAINING.
00000 1 >>
00000 1 LOGICAL PROCEDURE COMPILEF (STRING.SIZE.NUMBER.SPACE) :
00000 1 BYTE ARRAY STRING.NUMBER :
00000 1 INTEGER SIZE :
00000 1 ARRAY SPACE :
00000 1 BEGIN
00000 2 BYTE ARRAY COMM(0:21) :
00000 2 0 +001
00000 2 INTEGER PIN :
00000 2 0 +002
00000 2 LOGICAL ERR :
00000 2 0 +003
00000 2 IF NUMBER <> " 1" THEN GO TO AROUND :
00016 2 MOVE COMM:= "FILE FTNLIST:DEFV=LP" :
00036 2 COMM(19) := %15 :
00041 2 COMMAND(COMM.ERR,PIN) :
00045 2 GO TO TEXT :
00046 2 AROUND: IF NUMBER <> " 2" THEN GO TO SKIP :
00057 2 MOVE COMM:= "FILE FTNLIST=$STDLIST" :
00101 2 COMM(21) := %15 :
00104 2 COMMAND(COMM.ERR,PIN) :
00110 2 TEXT: MOVE COMM := "FILE FTNTEXT.OLD" :
00126 2 COMM(16) := %15 :
00131 2 COMMAND(COMM.ERR,PIN) :
00135 2 SKIP: MOVE COMM := "FORTRAN.PUR.SYS " :
00153 2 COMM(16) := %15 :
00156 2 CREATE(COMM.,PIN,3.1) :
00166 2 ACTIVATE(PIN.%2) :
00172 2 COMPILEF := TRUE :
00174 2 IF NUMBER = " 3" THEN GO TO PASS :
00206 2 MOVE COMM := "RESET FTNTEXT" :
00224 2 COMM(13) := %15 :
00227 2 COMMAND(COMM.ERR,PIN) :
00233 2 MOVE COMM := "RESET FTNLIST" :
00250 2 COMM(13) := %15 :
00253 2 COMMAND(COMM.ERR,PIN) :
00257 2 MOVE COMM := "PURGE FTNTEXT" :
00274 2 COMM(13) := %15 :
00277 2 COMMAND(COMM.ERR,PIN) :
00303 2 PASS: RETURN :
00304 2 END:
00000 1 END.

```

PRIMARY OR STORAGE=%000: SECONDARY OR STORAGE=%00000
 NO. ERRORS=000: NO. WARNINGS=010

PAGE 0002 HEWLETT-PACKARD

PROCESSOR TIME=0:00:03: ELAPSED TIME=0:00:33

END OF COMPILE
:SEGMENTER

SEGMENTED SUBSYSTEM (2.0)
USL FTNCOMPII
LISTUSL

USL FILE FTNCOMPII.STAFF.SYS

COMPETN
COMPILEF

305 P A C M R

| | | | |
|-------------|--------|-------------|--------|
| FILE SIZE | 377600 | | |
| DIR. USED | 41 | INFO USED | 333 |
| DIR. GARB. | 0 | INFO GARB. | 0 |
| DIR. AVAIL. | 37737 | INFO AVAIL. | 337445 |

SL SI DIR.SYS
ADD SL COMPETN.PHAP
COMPETN 47

| NAME | STT | CODE | ENTRY | SEG |
|----------------|-----|------|-------|-----|
| COMPILEF | 1 | 0 | 0 | |
| CREATE | 2 | | | ? |
| ACTIVATE | 3 | | | ? |
| COMMAND | 4 | | | ? |
| SEGMENT LENGTH | | 314 | | |

EXIT

END OF SUBSYSTEM
:F00
:IGNORED
:EDITOR

HP3201A.02.1 EDIT/3000 WED. JAN 23. 1974. 10:21 AM

/TEXT TESTFM

/LIST ALL

```

1      PROGRAM TEST
2      WRITE(6,*)"HERE WE ARE USING THE FORTRAN COMPILER"
3      STOP
4      END

```

/KEEP FTNTEXT

/PROCEDURE COMPILE.F.S.2

PAGE 0001 HEWLETT-PACKARD 32102A.00.5 FORTRAN/3000 WED. JAN 23. 1974. 10:21

```

0001000  PROGRAM TEST
0002000  WRITE(6,*)"HERE WE ARE USING THE FORTRAN COMPILER"
0003000  STOP
0004000  END

```

*** NO ERRORS. NO WARNINGS: PROGRAM UNIT COMPILED ****
 COMPILED TIME 0.436 SECONDS

/EXIT

END OF SUBSYSTEM
 :PURGE SPLCOMPIJ
 :BUILD SPLCOMPIJ:CODE=USL
 :SPL SPLCOMPS,SPLCOMPIJ

```

00000 0  <CONTROL SUBPROGRAM.SEGMENT=COMPSPL.ADD
00000 0  BEGIN
00000 1  INTRINSIC COMMAND.CREATE.ACTIVATE :
00000 1  <<
00000 1  TO INVOKE THE PROCEDURE WITHIN THE EDITOR....USE
00000 1  /KEEP SPLTEXT
00000 1  /PROCEDURE COMPILES.X.Y
00000 1  WHERE X=G(GROUP LIB.) OR P(PUBLIC LIB.) OR S(SYSTEM LIB)
00000 1  AND Y=ANYTHING.
00000 1  THE ABOVE COMMANDS WILL CHAIN IN SPL. AFTER COMPILATION EITHER
00000 1  CONTINUE EDITING OR USE $OLDPASS.
00000 1  CONTRIBUTED BY FRITZ JOERN. GENEVA
00000 1  MODIFIED BY CHENG T. CHENG. CUPERTINO-TRAINING.
00000 1  >>
00000 1  LOGICAL PROCEDURE COMPILES(STRING.SIZE.NUMBER.SPACE) :
00000 1  BYTE ARRAY STRING.NUMBER :
00000 1  INTEGER SIZE :
00000 1  ARRAY SPACE :
00000 1  BEGIN
00000 2  BYTE ARRAY COMM(0:21) :
00000 2  0 +001
00000 2  INTEGER PIN :
00000 2  0 +002
00000 2  LOGICAL ERR :
00000 2  0 +003
00000 2  IF NUMBER <> " 1" THEN GO TO AROUND :
00016 2  MOVE COMM:= "FILE SPLLIST:DEV=LP" :
00036 2  COMM(19) := %15 :
00041 2  COMMAND(COMM.ERR.PIN) :
00045 2  GO TO TEXT :
00046 2  AROUND: IF NUMBER <> " 2" THEN GO TO SKIP :
00057 2  MOVE COMM:= "FILE SPLLIST=$STDLIST" :
00101 2  COMM(21) := %15 :
00104 2  COMMAND(COMM.ERR.PIN) :
00110 2  TEXT: MOVE COMM := "FILE SPLTEXT.OLD" :
00126 2  COMM(16) := %15 :
00131 2  COMMAND(COMM.ERR.PIN) :
00135 2  SKIP: MOVE COMM := "SPL.PUR.SYS " :
00151 2  COMM(12) := %15 :
00154 2  CREATE(COMM..PIN.3.1) :
00164 2  ACTIVATE(PIN.%2) :
00170 2  COMPILES := TRUE :
00172 2  IF NUMBER = " 3" THEN GO TO PASS :
00204 2  MOVE COMM := "RESET SPLTEXT" :
00222 2  COMM(13) := %15 :
00225 2  COMMAND(COMM.ERR.PIN) :
00231 2  MOVE COMM := "RESET SPLLIST" :
00246 2  COMM(13) := %15 :
00251 2  COMMAND(COMM.ERR.PIN) :
00255 2  MOVE COMM := "PURGE SPLTEXT" :
00272 2  COMM(13) := %15 :
00275 2  COMMAND(COMM.ERR.PIN) :
00301 2  PASS: RETURN :
00302 2  END:
00000 1  END.

```

PRIMARY OR STORAGE=%000: SECONDARY OR STORAGE=%00000
 NO. ERRORS=000: NO. WARNINGS=000
 PROCESSOR TIME=0:00:03: ELAPSED TIME=1:00:30

END OF COMPILE
:SEGMENTER

SEGMENTER SUBSYSTEM (2.0)
USL SPLCOMPU
LISTUSL

USL FILE SPLCOMPU,STAFF.SVS

COMPSPL

COMPILES 303 2 4 C N D

| | | | |
|-------------|--------|-------------|--------|
| FILE SIZE | 377600 | | |
| DIR. USED | 41 | INFO USED | 331 |
| DIR. GARR. | 0 | INFO GARR. | 0 |
| DIR. AVAIL. | 37337 | INFO AVAIL. | 337447 |

SL SL.PUR.SYS

ADDSL COMPSPL.PMAP

COMPSPL 35

| NAME | STT | CODE | ENTRY | SEG |
|----------------|-----|------|-------|-----|
| COMPILES | 1 | 0 | 0 | |
| CREATE | 2 | | | ? |
| ACTIVATE | 3 | | | ? |
| COMMAND | 4 | | | ? |
| SEGMENT LENGTH | | 310 | | |

EXIT

END OF SUBSYSTEM
:EOD
IGNORED
:PURGE *OLDPASS
:EDITOR

HP32201A.02.1 EDIT/3000 WED. JAN 23. 1974. 10:24 AM
/TEXT TESTSPL
/LIST ALL

```

1  <<  A SMALL SPL PROGRAM  >>
2  BEGIN
3  BYTE ARRAY OUTPUT(0:79):=R0(0 0);
4  INTRINSIC PRINT:
5  PROCEDURE DATELINE(RUE);
6      BYTE ARRAY RUE;
7      OPTION EXTERNAL:
8  BEGIN
9      DATELINE(OUTPUT);
10     PRINT(OUTPUT.-R0,%40);
11     END;
12     END.
/KEEP SPLTEXT
/PROCEDURE COMPILES.S.2

```

PAGE 0001 HEWLETT-PACKARD 32100A.04.2 SPL/3000 WED. JAN 23. 1974. 10:24 AM

```

00000 0  <<  A SMALL SPL PROGRAM  >>
00000 0  BEGIN
00000 1  BYTE ARRAY OUTPUT(0:79):=80(" "):
00000 1  INTRINSIC PRINT:
00000 1  PROCEDURE DATELINE(RUF):
00000 1      BYTE ARRAY RUF:
00000 1      OPTION EXTERNAL:
00000 1  BEGIN
00000 2      DATELINE(OUTPUT):
00000 2      PRINT(OUTPUT, -90.840):

```

***** WARNING ***** ARITHMETIC RIGHT SHIFT OMITTED

```

00007 2  END:
00007 1  END.

```

```

PRIMARY DP STORAGE=%001:    SECONDARY DP STORAGE=%00050
NO. ERRORS=000:            NO. WARNINGS=001
PROCESSOR TIME=0:00:01:    ELAPSED TIME=0:00:12

```

/EXIT

END OF SUBSYSTEM
:PREPROM SOLDPASS

END OF PREPARE

WED. JAN 23. 1974. 10:25 AM

END OF PROGRAM
:FOJ

CPU (SEC) = 66
ELAPSED (MIN) = 7
WED. JAN 23. 1974. 10:25 AM
END OF JOB

- HP 2100-HP 3000 DATA COLLECTION LINK

- This subsystem provides one technique for transferring data from a HP 2100 to a HP 3000 via the asynchronous multiplexer.

- Files: ANACOMS, NUMRECS, NACOM, TANACOMS

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Description

There are two routines that comprise this subsystem, a FORTRAN Program in the HP 3000 and a routine in the HP 2100. The approach is to have the 2100 routine send :DATA DATA.SYS to the 3000; the latter program then begins to read data until an end of data is received, :EOD. The current subsystem transfers a file name, FORTRAN format, and as many data records as required.

The filename is limited to eight characters; the format is fixed. E14.8; and the maximum number of values per record is 99.

User Interface:

1. The 2100 routine is initiated by using the CALL SEND 1 (filename, number-of-values-per-record) entry point.
2. The HP 3000 program is initiated, :RUN ANACOM.
3. Data is sent from the 2100 by using the CALL SEND 5 (location-of-data) entry point. This is repeated as many times as required.
4. To terminate, the CALL SEND 9 entry point is used; the 3000 program then terminates.

At the HP 3000 standard list device the file name, format and number of records transmitted is printed.

Notes:

The HP 3000 program uses an SPL subroutine to obtain the number of records transmitted.

The filename is entered at the 2100 console using repeated use of the A2 format into an integer array.

To dump the collected data the data file is equivalenced to FTN08, e.g.

:FILE FTN08=MYDATA,OLD

Files:

ANACOMS

Source of HP 3000 FORTRAN program
to collect data.

NUMRECS

Source of HP 3000 SPL procedure to
determine number of records transferred.

NACOM

Source of HP 2100 assembly routine
to initiate, send data, and terminate
communication link.

TANACOMS

Source of HP 3000 FORTRAN program to
dump file of collected data.

- N! and 2^N
- These programs calculate N factorial and powers of 2. DATA value NN governs largest factorial number or power of 2.
- Files: NFACT, POWER2
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- HP 7202 PLOTTER FORTRAN SUBROUTINE

- This program formats two arrays and outputs for the HP 7202 plotter. Program output is to file FTN01.

- File: PLOT 7202

- Howard Harry
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- MATH SUBROUTINES

- Files and description

TAYLOR

Computes Taylor distribution for given sidelobe level and n bar.

MAXMIN

Finds maximum and minimum values of an array.

GAUSS

Generates a random number array from Gaussian distribution.

BESSELM0

Compute modified Bessel functions of order 0.

BESSELF0

Compute Bessel functions of order 0.

BESSELF1

Compute Bessel functions of order 1.

RANDG

Returns a random number of a Gaussian distribution.

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- READ ANY DECK OF CARDS AND OUTPUT TO A FILE

- This BASIC program provides the capability to read any deck of cards from the card reader even if colon is in column one.

- Files: CARDIN

- Roger Berchtold
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- Description:

This BASIC program reads a deck of cards from the card reader as a data file. The card deck to be stored is put into the card reader backwards between a :DATA USERS,SUPPORT card and an :EOD. The last card is read first; note the cards are right side up.

- Listing:

```
CARDIN
10 REM THIS PROGRAM ACCEPTS CARDS FROM THE CARD READER AND LIST THE
20 REM CARD CONTENTS ON THE OUTPUT DEVICE.
30 REM THE CARDS MUST BE PLACED IN THE CARD READER IN REVERSE ORDER:
40 REM CARDS MUST "NOT" BE INVERTED.
50 REM FILE "CARDSTOP" MUST EXIST.
55 REM THE OUTPUT FILE IS DESIGNATED BY THE FILENAME "OUTPUT".
56 REM AND SHOULD BE SPECIFIED IN A FILE EQUATION BEFORE RUNNING
60 DIM A$(80),R$(80)
70 R$(1:80)=" "
80 N=1
90 ON END #1 THEN 180
100 FILES CARDIN,CARDSTOP,OUTPUT
110 LINPUT #1:A$
120 FOR X=1 TO 80 STEP 1
130 R$((81-X):1)=A$(X:1)
140 NEXT X
150 PRINT #2,N;R$
160 N=N+1
170 GOTO 90
180 FOR R=(N-1) TO 1 STEP -1
190 LINPUT #2,R;R$
200 PRINT #3;R$
210 NEXT R
220 PRINT "END"
```

- INTEGER ARRAY SORT

- This FORTRAN program sorts a multi-dimensioned interger array.

- File: ISORT

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