

apl

--by K. Fjelstad

APLUM, the University of Massachusetts version of APL, is now available for testing on the 6400. Use these commands:

```
BATCH,34000
/APLUM,parameters
```

to access APLUM.

The general form of the APLUM control card is:

```
APLUM,option=value,...,option=value.
```

where the optional parameters are as follows:

terminal type

The user may specify the type of terminal; when no terminal type is specified, APLUM assumes ASCAPL for timesharing users and BATCH for batch users: The terminal types are:

```
TT=COR      Correspondence (or EBCDIC) selectric
             terminal (DTT=1).

TT=TYPE     Type pairing terminal (DTT=2).

TT=BIT      Bit pairing terminal (DTT=3).

TT=ASCAPL   For ASCII APL terminals (including
             Model 30 Teletype) equipped to print
             the APL character set. This type is
             normally assumed for interactive
             users (DTT=4).

TT=TTY33    For Teletype Model 33 terminal or
             similar devices (DTT=5).

TT=ASCII    For full ASCII terminals not equipped
             to print the APL character set (DTT=6).

TT=BATCH    For devices that support the 63 ASCII
             character set; usually for batch or remote
             batch ASCII printers (DTT=7).

TT=B501     For batch 501 line printer (DTT=8).

TT=TTY383   Teletype Model 38, keyboard arrangement
             3 (DTT=9).
```

Batch output options

If the control card does not specify output options, it is assumed that timesharing users do not wish them but that batch users do:

```
L0=EPS      Any or all of the options E, P, or S may
             be specified.

E           Echo input: the APL lines read as input
             are also sent as output.

P           Prohibit prompt: the normal APL input
             prompts (6 spaces or 0: plus transparent
             mode control bytes, a lack of which may
             cause the input translation for terminals
             to be incorrect) are not sent to the output
             file.

S           Shift output: causes a blank to be added
             to the front of each output line to prevent
             the first character from being used for
             printer carriage control.

L0=0       Selects none of the E, P, or S options.
```

Input and output file specifications

The input and output files normally are named INPUT and OUTPUT. For timesharing jobs this means input comes from the terminal and output goes to the terminal. For batch jobs, input is ordinarily from a

card deck or CSUBMIT file and output is sent to a line printer. Other KRONOS files may be used instead. APL translation of input and output is according to the TT option (or the default which depends on whether the job is batch or timesharing).

```
I=filename  Causes input to be read from the named file
L=filename  Causes output to go to the named file.
L=0        No APL output is produced (all output is
           discarded).
```

Initial workspace specification

If no workspace is specified, a clear workspace is used. Some effort can be saved by specifying the initial workspace on the APLUM control card:

```
WS=wsname  APL operations begin with a copy of the
           named workspace as the active workspace.

UN=usernumber Used to specify the user number of the
           initial workspace; required only if the
           user number of the workspace differs
           from the user number used when signing
           on.

PW=password  If the workspace belongs to another user
           and has a password, the password must
           be provided in order to use the workspace.
```

DOCUMENTATION

Documentation for APLUM is the APLUM Reference Manual by Clark Wiedman (University of Massachusetts, 1975); copies may be directly ordered from:

```
Clark Wiedman
APL Group
UCC/GRC
University of Massachusetts
Amhurst, MA 01002
```

The price per copy is \$3.75. Local documentation is also under development; any questions should be directed to Kevin Fjelstad, 373-4181.

libraries

--by M. J. Frisch

March 23, 1976: ICPA (read control point area) changed to avoid CPM ARG ERROR message.

April 10, 1976: A number of routines were re-compiled on FT3LIB to be compatible with what is on file FORTRAN (used by FTN 4).

```
AXISP      BETA1      CMXCMBN
CMXMOV     CMXMPY     CMXPLY1
CMXTRP     CVAL       DPLOT
DVAL       FINV       FREQDSN
LINT       LYNE       MEANVAR
MXCMBN     MXMOV      MXMPY
MXMPY1     MXTRIDI    MXTRP
NORMAL     PERMUTE    PLOTPAC
POLPLOT    QRSYM      RANBIN
RAN3F      RCVECT     ROOT1
RVAL       SKALE      SIMPSON
SYMBOL2
```

The routine FVR was deleted, use FTEST instead.

TAPE USERS

--by W. Elliott

WARNING TO MULTI-FILE TAPE USERS

A change to the multi-file positioning feature will be made in mid-June with the installation of PSR Level 420. The changes are intended to accommodate ANSI COBOL multi-file handling and will cause a serious side-effect for some users.

The problem will exist when a multi-file set with a blank set identifier is extended (i.e., SI=\$ \$, QN=9999). In this case, the set will not be extended; rather, the first file of the set will be CREATED, resulting in the destruction of all following information. In effect, the tape is initialized. For example:

```
LABEL{TAPE,VSN=SN0000,SI=# $,QN=4}
```

Here, the file is being positioned, not extended. Therefore, the above caution does not apply. If you now request a multi-file tape in this manner (i.e., SI=\$ \$) you should seriously consider reconstructing this tape (see below) or take precautions to ensure that the set will never again be extended (i.e., QN=9999).

```
LABEL{TAPE,VSN=SN0000,SI=# $,QN=9999}
```

Here, the multi-file set is to be extended. In the past the tape would have been positioned past the last section where the new section would be appended. With the installation of PSR Level 420, the tape will remain at loadpoint where section 1 (QN=1) will be created. So, DO NOT EXTEND A MULTI-FILE IF THE SET IDENTIFIER (SI) IS BLANK.

The following control card loop can be used to convert an existing multi-file set for which the SI is blank. This method results in the FI of each section being identical.

```
RESOURC{MI=2}
BLANK{VSN=SNXXXX, ID=#YOUR SECRET#, FA=P, ...}
  (This BLANK card is optional)
LABEL{NEW,VSN=SNXXXX,SI=#YOURSI#,QN=1,W,...}
LABEL{OLD,VSN=SN0000,SI=# $,QN=1,...}
NOEXIT.
1,COPYEI{OLD,NEW}
LABEL{OLD,SI=# $,QN=0}
IF{.NOT.FILE{OLD,AS}} GOTO,2.
LABEL{NEW,SI=#YOURSI#,QN=9999}
GOTO,1.
2,ONEXIT.
```

The above example pertains to 7-track tapes. If 9-track tapes are used, add the NT parameter to the BLANK and LABEL cards.

OTHER POSITIONING CONSIDERATIONS

While on the subject of multi-files, it is necessary to again stress the importance of suppressing unnecessary REWIND operations. After executing the LABEL card, the tape is positioned to the beginning-of-information for the requested section. A REWIND runs the tape back to loadpoint and re-initiates a search for the section requested. If many rewinds are expected, it would be best to copy the section to a scratch file. Instead of rewinding, try using SKIPFB (skip files backward); for short sections or longer sections some distance into the reel, this method can be faster than re-winding and thus less of a strain on the system.

NEW STUFF

--by D. Lienke

The University Computer Center has recently received and has made available two new programs:

MPOS (Multi-Purpose Optimization System)

MPOS is an easy to use mathematical programming system. It handles linear programming (4 algorithms), integer programming (3 algorithms), and quadratic programming (3 algorithms). MPOS provides data file interface to CDC's large scale LP program, APEX. MPOS was obtained from Northwestern University. A reference manual, MPOS User's Guide, Version 2 is available (for reference only) in 235a Experimental Engineering. MPOS has been assigned support level 3 (low level usage; maintained by Northwestern University; UCC will report errors).

The control card call is:
MPOS(parameters).

DAREP

This is a FORTRAN-based simulation package based on the Continuous System Simulation Language (CSSL) specifications and was obtained from the University of Arizona College of Engineering. A reference manual, DARE P User's Manual, Version 3, is available (for reference only) in 235a Experimental Engineering. DAREP has been assigned support level 3 (low level usage; maintained by the University of Arizona; UCC will report errors).

The control cards needed are:
FETCH,DAREP.
CALL (DAREP(parameters))

SUMMER SESSION SHORT COURSES

We are now doing the preliminary planning for short course scheduling for Summer Sessions I & II. Any special requests for specific courses, times, and places should be directed to Richard Franta, 376-3963 or you may call the UCC Reference Room, 373-7744.

We DO NOT plan to offer courses on Record Manager or SORT/MERGE this summer. If you feel these courses are important to you, please call 373-7744 and request that they be taught.

suggestions

- ? I would like to see a policy started where the initial password for an account is randomly generated somehow instead of using DUMMYPW. If the user wants to change his password after that, it would be his business. At least this would be one positive step toward better security. (18 MARCH 1976)
- A We have considered an initial password created randomly or set to the new user's name. However, setting such a password adds another step to the initialization process thus giving another chance for error. After the password is set, how do we give it to the new user? If by phone, how do we know we have the right person? In person? This would be very inconvenient for many people. By mail? Not secure at all. Since the password can be changed with the simple command `PASSWOR,oldpassword,newpassword.`, the simplest procedure is the one we currently use. Consequently, the initial password, DUMMYPW, will stay as it is; we have added instructions and warnings on changing passwords to our confirming letter. (J. Foster)
- ? Please add an equilibration phase to MXLINEQ to bring it up to the current level of technology. (11 NOV 1975)
- A After receiving your suggestion, we tried row equilibration, i.e., row scaling with the max norm. Improvement was slight, random, and sometimes negative on our set of test cases. Perhaps the 60 bit word length of the Cyber 74 accounts for this. At any rate, we do not plan to add equilibration as of now. (R. Hotchkiss)
- ? UCC staff members should generate PTR's. I recently submitted four PTR's that were known to senior level UCC people before I talked to them about the problems. You must report your own problems. (13 APR 1976)
- A Agreed. UCC senior and junior staff members, please take note. (R. Hotchkiss)
- ? The MNF table "names sorted by address" is very confusing. The sequence
COMMON/A/B,C,D
COMMON/E/F,G,H
COMMON/I/J,K,L
sorts as
B-0,F-0,J-0,C-1,G-1,K-1,D-2,H-2,L-2
It would be much better if you would sort within each block. (13 APR 1976)
- A This will be done as part of future changes in the cross reference map. (E.J. Mundstock)
- ? Where are the subroutines ATTACH, GET, etc. documented? (13 MAR 1976)
- A In the CDC Timesharing FORTRAN Reference Manual (#60408600), Chapter 10; you can find a copy in the UCC Reference Room. (A. Koepke)
- ? It would be nice if there were, as part of the if statement in KCL, an ident statement (or something similar) that would compare two 1-7 character strings and return true if they were identical and false if they were different. (9 FEB 1976)
- A See the article in the April UCC Newsletter, page 3. (K. Matthews)
- ? At 12:10 on February 24, the recording on 373-4994 said something like "at 10:30, no jobs have been returned to the bins." Why wasn't the message something like "at 11:30, ExpEng is still down. Jobs submitted at ExpEng are being trucked to Lauderdale. The following jobs have been returned...." Does UCC have some reason for not telling people what's going on? If ExpEng is down, why don't the drivers start trucking to Lauderdale immediately? (26 FEB 1976)
- A We're sorry the message was untimely. We try to use this recording to keep users informed not only on job status but also on significant deviations in equipment performance, hour changes, etc. We will try harder to keep this message current.
- With regard to taking jobs to Lauderdale, we want to be fairly certain that we are going to have an extended downtime before doing this. Minimum turnaround on such jobs would be 105 minutes; for example, jobs taken out at 9:15 would not come back until 11:00 or later. (J. Larson)
- ? I suggest you fix the card punch and, when it's broken, place a sign on it that says "BROKEN!" (7 APR 1976)
- A I assume that you are referring to the off-line 1004 card punch in ExpEng. We will do our best to place such a sign on the unit when it's down. We will also have signs available for the 1004 units in that room. (R. Franta)
- ? Why not have a different way of determining priority on print jobs on the 1004's? Long jobs wait and wait... (2 FEB 1976) [and] Inform users that long printouts are slow to return; I waited 2 1/2 hours and finally found that the same job returned in 1/2 hour at a high-speed terminal. (10 MARCH 1976)
- A All jobs to be printed at the 1004 sites are chosen in order from the shortest to the longest. This is by design; all system priorities favor the short job. Jobs which demand the least from the system's resources (in terms of field length, CP time limit, and print length) are always done first. The primary purpose of the 1004 terminals is to allow quick system access to people running short jobs. This will become more apparent when a system enforced priority print limit and automatic divert of jobs is instituted later this year.
- Please see WRITEUP,RJECOM for details on the H, S, and PR commands which can be used to select a particular job for printing. When using these commands, please try not to inconvenience other users. (R. Franta)
- ? Where is the documentation on the 1004 control cards? (24 MAR 1976)
- A WRITEUP,RJECOM. (R. Franta)
- ? Check the manuals at the 1004 sites; some are missing. (10 MAR 1976)
- A Thanks, we're doing this. (R. Franta)
- ? Last week, for a brief time, the Physics terminal had some new paper. A number of us were elated since it was easier to read, write on, handle, etc. Can we expect to get this good stuff again? (10 MAR 1976)

SUMMARIES

PRODUCTION USAGE SUMMARIES

CDC Cyber 74

	March, 1976	March, 1975
Number of jobs run	79,089	60,776
Central processor hours	157	107
Mass storage transfers (KPR)	154,775	-
Magnetic tape transfers (KPR)	6,276	-
Pages printed	878,673	793,866
Cards punched	456,757	458,263
Microfilm frames produced	19,444	46,263
Tapes mounted	8,570	7,277
Average file storage	663 million characters	485.3 million characters
Mean time between failures	19.0 hours	-
Percentage available during scheduled hours	96.5 percent	-

CDC 6400

Number of jobs run	155,524	234,806
Central processor hours	95	88
Terminal hours	18,851	27,356
Number of terminal sessions	40,426	57,460
Maximum number of simultaneous users	109	177
Average file storage	195.8 million characters	179.1 million characters
Mean time between failures	48.9 hours	9.0 hours
Percentage available during scheduled hours	98.6 percent	92.1 percent

CYBER 74 DOWNTIME SUMMARY: March 29 - April 26, 1976

	Monday-Friday 0800 - 1800	other	total
Total possible scheduled uptime hours	200	302	502
Total downtime hours (see schedule A)	10.8	8.0	18.8
Total uptime hours	189.2	294.0	483.2
Uptime percentage	94.6 percent	97.4 percent	96.3 percent
Average downtime per occurrence	14.2 minutes	17.7 minutes	15.5 minutes
Mean time between failures	4.3 hours	10.9 hours	6.8 hours
Subsystem failures			
SUPIO	25	4	29
TELEX	2	0	2
EXPORT	13	2	15

Schedule A: downtime hours

	Number of occurrences	total hours down	average minutes downtime
1) Preventive maintenance over-runs	2	.4	11.0
2) Software related problems	24	12.7	31.8
3) Hardware related problems	8	1.8	13.5
4) Indeterminate software/hardware problems	39	3.9	6.1
5) External problems	0	0	0

SUBMISSION SITE USAGE SUMMARY (TELEX excluded): April, 1976

submitted from	total jobs	% of jobs	pages printed	% of pages	cards read	% of cards
Lauderdale	4,578	6.3	261,123	23.6	2,080,473	16.7
ExpEng I/O	12,786	17.5	259,913	23.5	3,199,939	25.7
West Bank	9,291	12.7	137,795	12.4	1,607,676	12.9
6400	562	.8	-	-	-	-
SUPIO	45,804	62.7	448,516	40.5	5,548,532	44.6
TOTALS	73,021		1,107,347		12,436,620	

documentationWRITEUP records

13OCT75 ABCLIST Extended CATLIST utility (1 page)
 03MAR75 AMEND Unit record manager (4 pages)
 12NOV75 BLANK Initial label writing (2 pages)
 05JAN76 BLOCKER Write blocked stranger tapes (3 pages)
 20FEB76 CALLPFM FORTRAN 4 PF routines (7 pages)
 26FEB76 CALLPRG Library search extension (7 pages)
 19JAN75 CATALOG Catalog a file (2 pages)
 01MAR75 CATLIST Catalog a permanent file (3 pages)
 → 10MAR76 CATLSYS Extended CATLIST utility (1 page)
 23JUN75 CCINDEX Index to documentation (6 pages)
 16OCT75 CIMSPL1 CIMS PL/1 user guide (34 pages)
 13OCT75 CHANGER Extended CHANGE utility (1 page)
 → 07APR76 CONSULT List of consulting sites & hours
 → 30MAR76 CONTROL Control card processor (9 pages)
 11DEC75 COPYU Copy unit records (6 pages)
 18JAN75 COST Calculate job cost (1 page)
 16JAN75 DISPOSE DISPOSE control card (9 pages)
 13MAR75 DMPCOR Central memory dump routine (1 page)
 01MAR75 DMPCEC Dump extended core storage (1 page)
 → 01APR76 DOCLIST UCC printed documentation
 01MAR75 DRESS Prepare source file for MODIFY/
 UPDATE (13 pages)
 27SEP75 DUMPPF Permanent file dump/load utility (7 pages)
 11FEB75 ERRMESS Dayfile error messages (15 pages)
 26FEB76 EXAMINE Magnetic tape content determinator (5 pages)
 → 30MAR76 FILES Local file manipulator (4 pages)
 13OCT75 GETSAVE PF transfer utility (1 page)
 30MAR74 ISIS Statistics instructional system (45 pages)
 → 26MAR76 HASH User index to job name (1 page)
 18JAN75 LIBEDIT Library editing program (3 pages)
 → 10MAR76 LISP LISP information (1 page)
 18JAN75 MODIFY Source library editing program (11 pages)
 → 14APR76 MODUP MODIFY to UPDATE conversion (1 page)
 03MAR75 PACKMS Pack random file (1 page)
 22SEP75 PASCAL PASCAL information file (26 pages)
 28SEP75 PFGUIDE Permanent file user's guide (60 pages)
 06JUN75 PFILES PF request processor (7 pages)
 01JAN75 PREVIEW Preview display dump (1 page)
 PTRFORT FORTRAN and associated libraries bugs
 (cumulative)
 PTRKR Operating system bugs (cumulative)
 PTRMISC Miscellaneous software bugs (cumulative)
 PTRSTAT Statistics packages bugs (cumulative)
 PTRS2K System 2000 bugs (cumulative)
 13OCT75 PURGER Extended PURGE utility (1 page)
 19NOV75 REBLOCK Convert S and L tapes to internal (6 pages)
 APR76 RELOAD Emergency DNI2 reload instructions
 18DEC75 REFORM Sequence/desequence t/s source programs (1 page)
 RJDSTAT Daily SUP10 statistics (daily)
 26JUN75 RJECON Remote job entry commands (4 pages)
 RJEOTOT MONTHLY SUP10 statistics report
 RJMSTAT Daily SUP10 statistics (cumulative)
 → 14APR76 SEND Send files to 6400 (2 pages)
 11DEC75 SITEBIN Shelf locations for output (2 pages)
 15APR75 SNOINFO CAL SNOBOL at the UofM (24 pages)
 09APR75 SNPSHOT Write/restore registers & dump memory
 09SEP75 STRATEN Straighten COMPASS source (4 pages)
 01APR75 SYSLIB SYSLIB documentation (3 pages)
 SYSMODS Latest system changes (cumulative)
 05JAN76 TAPEUSE Tape user's guide (70 pages)
 → 30MAR76 TDUMP File dump (1 page)
 03JUL75 TESTCR Card reader testing routine (1 page)
 16JUN75 TESTLP Printer and line test program (2 pages)
 01MAR75 TIDY Tidy FORTRAN source (7 pages)
 TSTATS Tape mounting statistics (daily)
 23JUN74 TYPESET Text reform program (12 pages)
 12MAR75 UNPAGE Edit carriage control characters (6 pages)
 → 06APR76 XEDIT Extended interactive text editor (14 pages)
 26DEC75 1004INS UI004 operating instructions (3 pages)
 03JUL75 1004SET UI004 character set conversion (4 pages)

Get copies of these writeups by using a deck like this:

Jobcard with T1 and CM10000
 ACCOUNT card
 WRITEUP,name.
 (6-7-8-9 card)

where 'name' is one of the names listed. MIRJE users should enter the command:
 X,WRITEUP,name.

Reference manuals

CDC ALGOL Version 3 (60322900D)
 CDC APL*CYBER (19980400D)
 CDC BASIC 2.1 (19980300C)
 BMD Computer Programs (1973)
 BMDP Computer Programs (1975)
 CDC COBOL Version 4 (60384100F)
 CDC COMPASS Version 3 (60360900E)
 CDC FTN Version 4 (60305601J)
 CDC FTN DEBUG User's Guide (60329400B)
 IMSL Library 3, Edition 5 (1975)
 CDC KRONOS 2.1, Volume 1 (60407000D)
 MNF Reference Manual (1974)
 CDC MODIFY (60281700F)
 OMNITAB II Programmer's Reference
 CDC PERT/TIME (60133600E)
 CDC RECORD MANAGER User's Guide (60359600C)
 CDC SIMSCRIPT (60358500E)
 CDC SIMULA Version 1 (60234800E)
 CDC SORT/MERGE Version 4 (60343900H)
 SPSS Edition 2 (1975)
 SPSS Version 6.0 (1975)
 System 2000 Reference Manual (1975)
 CDC Text Editor (EDIT) (60408200C)
 CDC Timesharing User's Reference Manual (60407600D)
 UMST Reference Manual (1971)
 CDC UPDATE (60342500F)
 CDC 8-bit Subroutines Reference Manual (60359400C)

Reference copies may be found in the user rooms and at the remote terminal sites; manuals are obtainable from various sources; check DOCLIST for sources and prices.

UCC free publications

Beginner's Guide to Timesharing
 Index to Cyber 74 User Software
 Instructor's Guide to Batch
 System 2000 User Aids (1,2,3,4)
 Student Guide to Batch
 MINN Subprogram writeups (see "Index" for list)
 ISIS User's Manual
 Univac 1004 Operating Instructions
 SNOBOL4 at the University of Minnesota
 IMP - An OMNITAB Mimic
 RPG at the University of Minnesota
 SLIP at the University of Minnesota
 S2KIND - an System 2000 Procedure File
 (copies in 140 ExpEng or call 373-7744)

UCC instructional video-tapes

How to Operate a Univac 1004 RJE Terminal (FEB76)
 The How To's of Keypunching (JAN76)
 (available for viewing in the learning resource centers, Walter Library and Coffey Hall)

(continued from page 4)

- A Yes, there is a new paper available. As soon as supplies of the old paper are used, all the 1004's will be supplied with the new paper. You probably saw one of the new boxes. (R. Franta)
- ? *Would it be possible for the 1004's to automatically do a *B when they connect? Frequently, students submit a job and then are timed out or otherwise botch up the connection. When they reconnect they see the brief *H display, assume their job vanished, and resubmit, resulting in two identical printouts. From our point of view, the control point queue is not different from input or any other queue. One operation should locate all jobs from any particular terminal. (13 FEB 1976)*
- A We are working on alternate solutions to this problem to satisfy both 1004 and 200 UT users. Watch this newsletter for announcements.
(R. Franta)

statistics programs

--by S.P. Yen

BMDP programs

The following BMDP programs are now available:

BMDP1D: simple data description.
 BMDP2D: frequency count routine.
 BMDP4R: regression on principal components.
 BMDP2V: analysis of variance and covariance, including repeated measures.

The rest of the BMDP programs will be implemented in the near future, the priority depending on user requests. Anyone needing information on the BMDP programs should call S.P. Yen, 612/373-4886.

RETURN TO:

UNIVERSITY COMPUTER CENTER
 227 EXPERIMENTAL ENGINEERING
 UNIVERSITY OF MINNESOTA
 MINNEAPOLIS, MN 55455

SPSS paper saving

The ECOLOGY card is still available in Version 6.0 of SPSS. This control card turns the paper saving mode on:

ECOLOGY	ON
↑	↑
Col. 1	Col. 16

and this card turns the paper saving mode off:

ECOLOGY	OFF
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When in the paper saving mode (ECOLOGY ON), all automatic page ejects are suppressed, except for the one at the beginning of each procedure. The ECOLOGY card may appear prior to a procedure card, anywhere in the deck, and as often as desired.

CKSPSS

CKSPSS is a FORTRAN program designed to conveniently retrieve and reproduce information stored on a SAVE FILE command produced by SPSS. CKSPSS performs many of the same functions as the SPSS commands, LIST FILE INFO and LIST CASES. Documentation for CKSPSS is available on WRITEUP,CKSPSS (see page 6 for information on obtaining WRITEUP records).

T/S

The program, TESTLP, has been modified to work on interactive terminals to test printing and telephone lines. See WRITEUP,TESTLP for details.

UNIVERSITY ARCHIVES
 ROOM 11 WA LIB
 MINNEAPOLIS CAMPUS