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University Computer Center Newsletter

UNIVERSITY COMPUTER CENTER

UNIVERSITY OF MINNESOTA-TWIN CITIES

MINNEAPOLIS, MINNESOTA 55455

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MARCH 28, 1980 HOLIDAY HOURS

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Laud.	1730 Fri(3/28)	0800 Sat(3/29)
Exp.Eng.	2400 Thu(3/27)	0800 Mon(3/31)

for sale

If anyone is interested in purchasing a Data 100 computer (with processor, card reader, card punch and CRT), CDC 501 line printer ribbons, or 22-drawer card cabinets (in good condition, \$75/each), call Ron Fleagle at 376-5263.

UCC newsletter

Volume 14 Number 3 March, 1980

Director: Peter C. Patton
Editor : Naomi Miner

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, or call 612/373-7744.

The University of Minnesota adheres to the principle that all persons shall have equal opportunity and access to facilities in any phase of University activity without regard to race, creed, color, sex, or national origin.

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word processing

Many University department heads and office managers have expressed interest in acquiring word processing equipment for their offices. This month, we will describe two different hardware approaches to office automation.

One department purchased special terminals which use local disks and through a central controller can communicate with each other's disk drives. Editing, formatting, hyphenation, and justification are local to each terminal. One line printer can serve more than one work station. The screen shows a full, letter-sized page. The displayed characters are sharp, clear, and approximately the same size as those output on the small line printer.

Some departments have acquired standard computer terminals with acoustic couplers plus small shared line printers. The terminals are used as input and display devices. Editing, formatting, hyphenation, and justification are done on the Cybers.

Researchers in other departments are using Terak microcomputers with communications capability to accomplish their word processing. The Terak has a screen editor and can also access XEDIT on the Cybers. The formatting program, PROSE, is available on the Cybers and on Teraks that have the Pascal Operating System.

How a department solves its office processing needs seems to be determined in part by whether the users expect to access the advanced computational power of the Cybers or any of the data bases stored on the Cybers; whether they anticipate eventually using an electronic message system; whether they expect a need for variable character sets; and whether they plan to transmit files directly to our electrostatic plotter; or whether they plan to transfer files without rekeyboarding to the photocomposing shop at Printing and Graphic Arts. See related article in this newsletter.

Neither of these approaches currently addresses entry, editing, formatting, and output of specially defined character sets, variable size, mathematical text, foreign alphabets, or book quality text. They are intended to solve the problem of outputting more letter quality material without hiring more staff. Technical text processing presents problems which we are addressing. We hope to report on progress next month.

T.D. Hodge
373-4599

photocomposition

Many users have been writing and editing manuscripts on word processors or on files stored on magnetic disk on one of the University's computer systems. Storing drafts on a magnetic medium increases the speed at which drafts are produced with the added dividends of better quality and less new error introduction in those drafts. If copy will be typeset, the expense of rekeyboarding the manuscript at the print shop is eliminated. Once the publication has been designed, typesetting codes can be inserted into the tape either by the composing department at the print shop or by the author.

The recent addition of a 9-track 1600 BPI magnetic tape drive unit to the Printing Department's computer typesetting equipment makes it possible to transfer copy directly from UCC or ADP's computers on magnetic tape to the Printing Department's computer. You can alter your files to include commands for typesetting or, the Printing Department can insert codes to vary type size and type face, and to adjust spacing. You can now have materials professionally typeset more economically.

D. Coleman
Printing & Graphic Arts

system 2000

Version 2.40 of System 2000 will be removed from all systems on April 30, 1980.

Any data bases created under version 2.40 may be easily converted to version 2.60 merely by accessing that data base from version 2.60. All internal tables will be automatically converted at that time and the data base will no longer be available from version 2.40.

Any PLI programs using version 2.40 must be recompiled using the current products. PLI binaries written with level 2.40 will not be useable with level 2.60 data bases. Any questions? Call

J. Cosgrove
376-1761

data base management

The Data Base Management Systems (DBMS) user's group met on February 28 in Room 35, Law School Building. Twelve attended. John Cosgrove (UCC) gave a presentation on DMS-170, Control Data Corporation's new DBMS. He discussed the cluster of software modules that manage the system, the creation of data bases, and the concept of schema definition and relations between files. Now that DMS-170 is passing from a testing phase, Cosgrove predicts that the system will soon take off as practical applications are underway. He hopes to see comparisons of DMS-170 and of other DBMS's soon.

UCC short courses will be offered Spring Quarter on various DBMS's (Query Update, DMS-170, SIR, and System 2000). Check this issue for the schedule.

The discussion following the presentation concerned topics for future meetings. A call was made for users to bring their data base problems (and solutions if applicable) to the meetings. One member expressed a desire for a cumulative list of DBMS applications.

Next meeting: 1:30pm, March 20, Room 35, Law Building.

M. Dunham
373-7744

low rates

A "low rate" job is one that runs late at night, or on weekends, at a low SRU rate, \$0.11/SRU for University users, and \$0.20/SRU for commercial users. Low rate time is defined to be from 11:00 PM to 4:00 AM the next day, Monday through Thursday; 11:00 PM Friday to 5:15 PM Saturday; 4:00 PM Sunday through 1:15 AM Monday. A job which has "P0" on the job statement, or is submitted during low rate hours, or an interactive session that starts during low rate hours is charged the special rate. However, a job which starts before low rate hours and continues execution during low rate time will be charged the normal full rate.

If the job could execute for more than the five hour period from 11:00 PM - 4:00 AM, we suggest that the job be submitted on Friday when there is a much greater period of low rate time available (18 hours).

We decided to offer "no frills" service because a number of University research investigators requested UCC to provide large amounts of computing power at low cost. These jobs would not require operator intervention, and could run after prime hours. To implement such a policy, we created the P1 priority delay queue. This queue of jobs would only be allowed to enter the system after prime hours, and would have a maximum number of such jobs running concurrently (presently two) so that other job processing would not be adversely affected. A base charge was added so that small jobs would not be economical to run under this priority. Since the users had requested "no frills," there was to be no refund or rerun if the operator had to drop the job. For a dropped job, the user had to be able to restart the job and thus user restart procedures were required. UCC does, however, provide a guaranteed checkpoint prior to dropping of the job. (See WRITEUP(DELAY); to monitor a delay job, see WRITEUP(Queue)).

A "no frills" job is one that is run during late hours at a rate of \$0.05/SRU for University users and \$0.14/SRU for commercial users.

Additionally, "no frills" jobs cannot access magnetic tapes nor removable packs. Named packs and ECS are, however, accessible. These jobs do not have a guaranteed turnaround time, and will be halted by the operator at the end of operations.

At end of operations (EOPS), the operators will checkpoint "no frills" and then "drop" them. All other jobs will be purged with a message indicating that the job ran until EOPS and could not be allowed to complete (no refund is given for P1 jobs which are dropped).

If the job could run under either P0 or P1 or normal, the following defines when a job is less expensive under the P1 option. For internal users P1 is cheaper than P0 for jobs taking more than 84 SRU's; P1 is cheaper than normal for jobs taking more than 46 SRU's. The corresponding numbers for commercial users are 234 and 128 SRU's respectively.

In running batch jobs under the delay queue P0 and P1 rates, the current maximum field lengths available are 231K for the Cyber 74 and 371K for the Cyber 172. Nominally UCC sets 155K for batch jobs. To use the higher field lengths available you must be validated by the UCC accountant, Jack Schwab at 373-2521.

L. Liddiard
373-5239

CALLPRG change

Starting March 13, CALLPRG, the UCC utility that manages, among other things, PAST, FUTURE and FETCH statements will be modified to abort a job request if a PAST or FUTURE package is unavailable.

Currently, CALLPRG aborts when a requested FETCH type package is not available. For PAST and FUTURE packages, CALLPRG issues an informative message and lets the job access the current version of the requested package whenever that version is available. If no version is available the job takes an error exit when the nonexistent program or library is referenced. The most common error diagnostics in these cases are "not on system" for a program or "unsatisfied externals" for a library.

We have modified CALLPRG to search for FETCH, PAST, or FUTURE versions of specific packages associated with a given set of qualifiers. FETCH(nnnn), for example, will retrieve the default version of nnnn.

FETCH(nnnn/V=SML,V=FST)

could be used to retrieve a smaller (SML) and faster (FST) version of nnnn, if these are provided by CALLPRG.

(more)

This modification was necessary because of the rearrangement of UCC's FORTRAN libraries (see article elsewhere in this newsletter). It was necessary to provide the system with the ability to retrieve specific versions of the different libraries that are associated with our different compilers. The use of the V parameter, provided for libraries use, can be extended for any different type of qualifiers and its value can be chosen to fit any specific package requirements.

The CALLPRG index, (the directory CALLPRG uses to locate special packages), will be updated by March 13 in order to minimize the number of jobs that will abort due to PAST or FUTURE packages "not found." Although this modification may cause a few jobs to fail at the beginning, it is beneficial in the sense that it will guarantee the user of accessing the specifically requested package.

However, to make job set-up easier, in some cases there is a no abort parameter in CALLPRG (NA) that can be added to the FETCH, PAST or FUTURE statements. This NA parameter will let a job continue as it does now for PAST and FUTURE packages that are not available. E.g.: FUTURE(NNNN/V=CMU) will abort if there is no smaller version of NNNN installed in the system. FUTURE(NNNN/V=SML,NA) will let the job access the system version of NNNN, even if a smaller version of NNNN is not available.

M. Riviere
376-5606

FORTRAN libraries

Beginning March 23, 1980, you must change FORTRAN jobs on the Cyber 74, 172, or 170-720 if they use any of the routines in the Minnesota Subprogram Library (see the list below).

If you use the FTN4 compiler, add this statement in your deck after the USER statement:

```
FETCH(MINNLIB/V=FTN)
```

If you use the MNF compiler, add this statement in your deck after the USER statement:

```
FETCH(MINNLIB/V=MNF)
```

At the beginning of an MNFTS or FORTRAN timesharing session, enter this statement:

```
X,FETCH,MINNLIB/V=MNF
```

For example, if you run a FORTRAN program with the FTN4 compiler which calls the routine MXLNEQ (one of the routines on the Minnesota Subprogram Library), the change would be:

Before March 23 -----	March 23 and After -----
Job statement	Job statement
USER statement	USER statement
FTN.	FETCH(MINNLIB/V=FTN)
LGO.	FTN.
7/8/9	LGO.
CALL MXLNEQ(...)	7/8/9
etc.	CALL MXLNEQ(...)
	etc.

The FETCH statement remains in effect for the entire job or timesharing session so it only need be entered once at the beginning. It must also be entered if you run later jobs or sessions in which only the relocatable code is executed.

If you do not include the statement starting March 23, you will get the loader error message "UNSATISFIED EXTERNALS" and your job will not execute correctly.

If you use any of the libraries IMSL, EISPACK, TEKLIB, HTEKLIB, UTEKLIB, FUNPACK, CALCOM, BESPAC, MEXPLOR, GPM, ALMAP, BSPLINE, YSMPLIB, or SIMPLX, you must also change your jobs.

If you use the FTN4 compiler, change your FETCH(library) statement to

```
FETCH(library/V=FTN).
```

For example, FETCH(IMSL) becomes

```
FETCH(IMSL/V=FTN).
```

If you use the MNF compiler, change your FETCH(library) statement to

```
FETCH(library/V=MNF).
```

For example, FETCH(EISPACK) becomes

```
FETCH(EISPACK/V=MNF).
```

During an MNFTS or FORTRAN timesharing session, change your

```
X,FETCH,library
```

statement to an

```
X,FETCH,library/V=MNF
```

statement.

If you do not change your FETCH(library) statement starting March 23, you will get the error message

```
"NEED /V=COMPILER. /V=FTN USED."
```

IMSL update

A set of corrections for the IMSL library has been received from IMSL, Inc. and was installed last month in the current version of the library. The writeup was also updated. The corrections range from documentation changes to algorithm changes. See WRITEUP(IMSLFIX) for complete information.

The following routines have been affected:

ASNKMC	DBCQDU	DCADRE	DCSQDU	DGEAR
DGEAR	DREBS	DVERK	EIGZF	ELRH2C
FFT2C	FTFPS	GGVCR	GGVCR	GGVCR
GGVCR	IBCIEU	ICSFKU	LLSQF	LSVDF
MMBSJ1	MMBSKO	MMBSYN	MMDEI	MMDELK
NRQT	NRWMD	ODFISH	ODFISH	OPPRI
RLFOTW	RLPOL	USPLT	USPLTD	VBLA
VMULFF	ZCPOLY	ZRPOLY	ZXCGR	ZXCGR

Any further questions about these changes or on any other aspect of IMSL should be directed to the Help Line or to

J. Woolsey
376-5262

writeupdate

To keep you up to date on information available in machine-retrievable form, here is a brief list of new WRITEUPS which have appeared in February. While the list is by no means complete, it should contain titles of interest to many of you.

APL - New information on APL available at UCC. This writeup replaces the old writeup APLUM.

LIBSET - Changes to the Minnesota FORTRAN Subprogram Libraries which will go into effect on March 23, 1980.

LISP - Has been removed for a major overhaul, and replaced with a brief statement to that effect. Watch for the all new, much improved version coming soon to a terminal near you!

S2K - Processing of System 2000 control card, with description of control card parameters.

All of these writeups are available on both the MERITSS and Cyber 74/172 systems. For more information, call

J. Jaynes
6-5262

documentation

A revised version of the PLOTPAC writeup is available in Williamson Bookstore. The Guide to User Libraries will be sold in bookstores at the end of the month. The new Guide to Interactive Computing is available in 140 Experimental Engineering.

Thus, starting March 23,

FETCH(FUNPACK)

will assume the user meant

FETCH(FUNPACK/V=FTN).

If you use both MNF and FTN4 for separate programs in the same job, you must add a

LIBRARY.

statement before any

FETCH(library/V=compiler)

statement when switching compilers. However, you should not mix binary routines from MNF and FTN4 in a single program.

The following is a list of the routines in the Minnesota Subprogram Library (MINNLIB):

AITKENF	ALOGAM	AMEAN	AMEAND	APPEND
ASSIGN	ATTACH	AXIS	AXISP	BANSOL
BESJ	BETAI	BINCOF	CDFN	CDFNI
CEINT1	CEINT2	CHEBY	CHECK	CHSQ
CHSQI	CINTEG	CMXCMBN	CMXLNEF	CMXLNEQ
CMXMOV	CMXMPLY	CMXPPLY1	CMXTRP	CNTOUR
COMINT	CONST	CONVERT	CPRFIL	CVAL
CVECT	DEFINE	DMXLNEF	DMXLNEQ	DOTPRD
DOTPRD	DPLOT	DVAL	DXINT	EI
EIG3	ERFN	ERFNC	EXPD	FACTOR
FINV	FREQDSN	FRESNEL	FTEST	GAMMA
GAMMAF	GENSORT	GENSRT2	GETPF	GETRAN
GNREAD	GRIDIT	ICOUNT	ICPA	IRAN
ISERCH	IVLFREQ	LEGAL	LINE	LINT
LOCFET	LRSHFT	LSQORPY	LYNE	LYNE1
MAKEFET	MEANVAR	MERGE2	MERGE4	MXCMBN
MXEXTRM	MXLNEF	MXLNEQ	MXMOV	MXMPLY
MXMPLY1	MXTRIDI	MXTRP	MXTRP1	NEWPEN
NONLIN	NORMAL	NUMARG	NUMBER	ORTHON2
ORTHON3	PERMUTE	PLOT	PLOTS	PLOT3D
PLOT3S	PLROOT1	PLROOT2	PLROOT3	PLTSC
POLPLOT	POLYGN	PRCON	PRNPLOT	PROCCIO
PROCCPM	PROCER	PROCERC	PROCFET	PROCLFM
PROCPFM	PROCQFM	PROCRTN	PROCSFM	PROCSYS
PROCTLX	PURGE	QLENTH	QRCMPLEX	QRSYM
QSORT	QSORT1	Q92X8J	RANBIN	RANBIT
RANDOM	RANT	RAN2F	RAN3F	RCVECT
REPLACE	RESTFL	RETURN	RK	RKGILL
ROM1F	ROM2F	ROOT1	RPAUSE	RVAL
RVECT	SAVE	SCALE	SCLPLT	SETRAN
SICI	SIMPSON	SKALE	SKALE1	SNCNDN
SORT1	SORT2	SPACZRO	SQALE	SYMBOL
SYMINV	SYMPACK	SYMPLOT	SYMSOLU	SYMSOLV
SYMUPK	TINV	TINV1	TINV2	TTEST
TTEST1	TTEST2	WHERE	WHEREAS	XCEINT1
XCEINT2	XCEINT3	XINT	ZROSPAC	

Background for this change is documented in WRITEUP(LIBSET).

L. Liddiard
373-5239
M. Frisch
376-1636

COPYCH

Anyone who has attempted to read or write magnetic tapes that must be compatible with other computer systems realizes that this is a bit more than a trivial task. There is a seemingly endless number of tape "formats." A few of the factors involved are block length, line length, character set, parity, and so on. The problem is serious enough that a computer system often requires utility programs to read or write tapes compatible with other systems; our BLOCK and UNBLOCK utilities are examples.

A related (and often serious) problem for users of CDC equipment is that a NOS system has no means for writing a tape that contains ASCII or EBCDIC lower case characters. Attempts to write lower case characters (as well as other characters contained in the full ASCII character set, but not in the particular CDC character set being used) result in two characters actually being written on the tape. One of these is a so-called "escape" character. This is all well and good if the tape is to be read by another CDC computer, but it may not be so good if the tape is to be read by a WHIZBANG 390 or other such foreign device.

Fortunately, John Strait (formerly of UCC) has written a utility called COPYCH that deals with these problems. COPYCH can:

read and write full ASCII or EBCDIC 9-track tapes, including all lower case characters;
read and write all of the IBM 9-track tape formats and all of the ANSI formats;
translate between CDC (6/12 bit) display code and the 8-in-12 bit character set that future releases of the NOS operating system will use;
translate between the various CDC character sets.

These last two capabilities are quite useful for many tasks that may not involve magnetic tapes.

Thus, COPYCH may be used in place of a number of existing utilities.

The COPYCH control statement is:

```
COPYCH(parameters)
```

Seems easy enough, but because of the many capabilities, "parameters" can become numerous and cumbersome. An excellent writeup, WRITEUP(COPYCH), is available describing all of the capabilities of COPYCH and all the control statement options. It gives step by step instructions for constructing the control statement and the accompanying LABEL control statement. The various tape formats are described and examples of IBM 360/370 JCL statements are given with their COPYCH equivalents.

(Adapted, with permission, from the December 1979 University of Minnesota-Duluth Computer Center Newsletter.)

IBM talks

Later this year the St. Paul Campus Computer Center will install an IBM 4300 Series system. To introduce the capabilities of this new system, as well as IBM systems and terminology, University Computer Services and the Computer Science Department are sponsoring the following talks:

- March 6 An Introduction to IBM computers,
Software and Terminology
William Zelm,
IBM Systems Engineer
3:15-5:15,
Architecture 5.
- March 13 IBM Software-System Control Programming
William Zelm,
Tom Cassidy,
IBM Systems Engineers
3:15-5:15,
Architecture 5.
- March 20 VM/CMS Development and Uses
R. Mackinnon,
Director IBM Cambridge
Scientific Center
3:15-5:15,
Murphy Hall Auditorium.
- April 10 IBM's Communications Architecture and
Teleprocessing Direction
Emil Philipp,
IBM Consultant Communications
Systems
3:15-5:15,
Architecture 35.
- April 17 Advanced Topics in IBM's Networking
Direction (SNA)
Herb Cotter,
Manager, IBM Systems Strategy
Definition
3:15-5:15,
Architecture 35.

Apple configurations

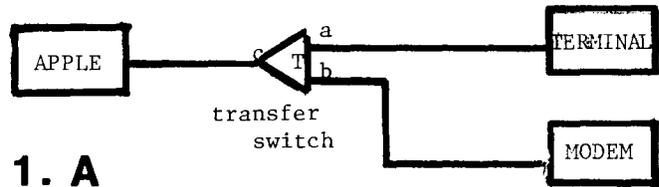
Apple computer users often want to use their Apple with a terminal or with a modem, but need to have that terminal or modem available for other usage, too. Obviously, one can simply connect the appropriate cables, as required, each time the system is reconfigured. Unfortunately, cable and connector damage should be expected after a few hundred reconnections. Also, one must judge the inconvenience to the user if this is done with any frequency.

In order to eliminate recabling, a manual, two-position transfer switch may be used. As shown in Figure 1.a, it connects either cable A or B to cable C. Data-flow is bidirectional, on the connected cables, and cables A and B are never connected together.

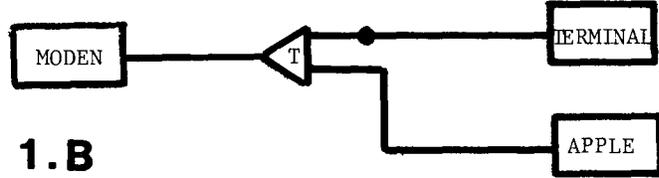
Several configurations are illustrated in the following figures. The cables drawn with a dot superimposed reverse the transmit and receive wires, and are necessary when connecting the Apple Com card to a terminal. Cables cost \$35.00 each; 300 baud modems are \$195.00 from the UCC Computer Cupboard. The transfer switch we recommend costs \$115.00; the Apple Com card costs \$110.00 or more; a 1200 baud modem costs \$760.00. For information on these, call Dan Whealdon at 376-8153.

1. a,b,c. In these configurations one transfer switch is used and the shared device is either the Apple, the modem, or the terminal. (Figure 3 illustrates another way of implementing the features of 1.a.)
2. This configuration allows two useful modes: (1) Apple connected to one modem, and the terminal to the other, for independent usage. (2) Apple connected to the terminal. (Figure 4 illustrates a preferable way of implementing these features.)
3. The Apple has two Com cards, allowing it to communicate with the modem and the terminal simultaneously, or one at a time.
4. A variation of Figure 3, but the terminal can be used with the second modem independently of the Apple. Comparing this case to Figure 2, a Com card is substituted for a transfer switch and cable, and the Apple can now be used with both the terminal and a modem.
5. Two Com cards and two transfer switches allow two useful modes: (1) The Apple can simultaneously communicate with the modem and the terminal, or with either independently. (2) The modem can be connected to the terminal instead of the Apple. (Comparing this case to Figure 4, a transfer switch and cable are substituted for 2 modems and the independent modem usage is lost.)

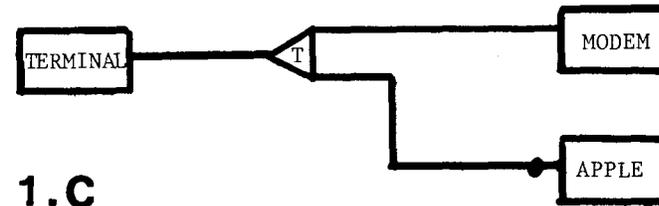
D. Parkes
376-7067



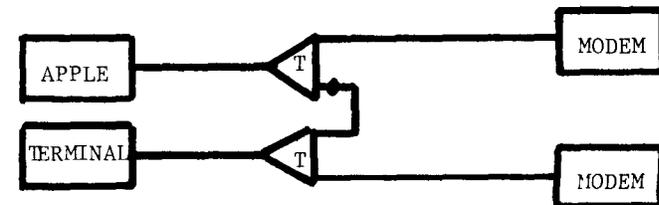
1. A



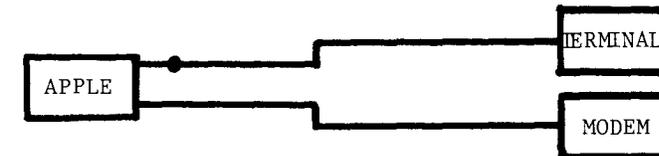
1. B



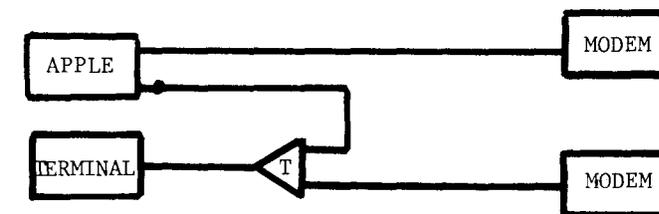
1. C



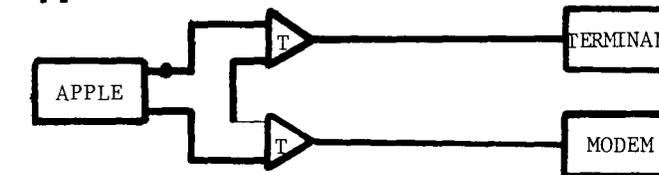
2.



3.



4.



5.

Pascal for Apple

Pascal for the Apple (The Apple Language System) is now available for \$314.75. If you are interested, call the Micro Help Line, 376-4276.

Terak price increase

On July 1, Terak will no longer offer the current EDUCOM pricing. On that date Terak will increase the current purchase price for their standard configuration. This price structure, however, will include a single sided double density disk drive. This new price, about \$5995, will represent their purchase price to any educational institution. If you wish to purchase the equipment (standard configuration) at current prices, then you should do so prior to July 1. Those users who are in the process of seeking government grants can retain rights to purchase equipment at current prices up to six months after the grant is awarded provided they advise John Ross of Terak (475-1417) prior to April 1.

We expect that a modification will be available to convert a single density disk drive to double density capability sometime in July. The charge for the engineering modification will be approximately \$500. For further information call John Ross at 475-1417, Dan Whealdon at 376-8153 or
A. Franck
376-1023

hot-line

We would like to remind you that a microcomputer "hot-line" was installed November 15. The telephone number is 376-4276. Simply dial MICRO (6-4276) from a campus phone or dial 37MICRO (376-4276) from an off-campus location.

Our goal is to provide quality answers to specific questions on the Apple II and the Terak (with Pascal) microcomputers. We will attempt to answer other questions of a general nature, but we are not prepared to answer all questions on all microcomputers.

The telephone consulting hours are 10:00AM - 12:00 Noon and 2:00 - 4:00 PM, Monday through Friday. We hope this new consulting service will be helpful in your work with microcomputers.

COM

COM is a program for the Terak-Pascal System that provides a communications link between the Terak computer and a Control Data Corporation host computer executing under a NOS operating system. Program COM:

allows the Terak keyboard and display to be used as an intelligent terminal on a NOS timesharing network,

can GET a Terak file copy of a text file from a NOS host computer,

can SEND a copy of a Terak file to a NOS host computer,

and can LIST a Terak file on a hardcopy terminal.

COM supports data transmission rates of 110, 300, and 1200 Baud using the standard NOS telephone-modem or direct-wire connections between the Terak and the host computer.

For more information, write or call:

Earl Schleske, UCC
227 Experimental Engineering
208 Union Street, S.E.
Minneapolis, Minnesota 55455
612/376-2975

statistics

***PRODUCTION USAGE SUMMARIES: Cyber 74/172

	January, 1980	January, 1979
System resource units (SRU)	1,159,300 (1,419,233)	1,256,272 (1,600,579)
Batch jobs and MIRJE sessions	121,640 (132,081)	101,201 (112,129)
Central processor hours inc. DELAY	168/160 (179/250)	209/109 (235/195)
DELAY queue processor hours	48/35 (50/41)	88/14 (89/19)
NO FRILLS queue processor hours	8/1 (8/1)	
Mass storage transfers (KPR)	396,423 (487,505)	340,218 (445,062)
Magnetic tape transfers (KPR)	12,156 (16,643)	5,659 (10,745)
Pages printed, charged from UCC	1,008,668 (1,133,568)	902,314 (1,037,320)
Cards punched	396,672 (415,829)	386,255 (469,905)
Microfilm frames produced	26,212 (481,033)	21,083 (385,887)
MIRJE terminal hours	14,746 (16,884)	10,897 (12,662)
Number of terminal sessions	36,301	25,706
Status plotting production (feet)	7,923	9,292
Tapes mounted	13,138	11,646
Average file storage (char)	2,719.0 million	1,790.4 million
Mean time between failures	69.9/37.6 hours	88.3/76.6 hours
Available during scheduled hours	98.6/99.4 percent	98.9/99.3 percent

(totals in parentheses include staff development, accounting, and maintenance runs)

***DOWNTIME SUMMARY: February, 1980 (Column 1, Cyber 74 : Column 2, Cyber 172)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	200.0	200.0	305.0	305.0	505.0	505.0
Total downtime hours (see Schedule A)	0.0	3.6	2.1	0.0	2.1	3.6
Total uptime hours	200.0	196.4	302.9	305.0	502.9	501.4
Uptime (percent)	100.0	98.2	99.3	100.0	99.6	99.3
Average downtime per occurrence (min)	0.0	53.8	61.5	0.0	61.5	53.8
Mean time between failures (hours)	200.0	50.0	152.5	305.0	252.5	126.3
Subsystem failures						
SUPIO	4	-	0	-	4	-
TELEX	0	0	0	0	0	0
EXPORT	3	-	1	-	4	-

Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	0	0	0.0	0.0	0.0	0.0
(2) Software related problems	1	2	0.2	1.7	13.0	50.0
(3) Hardware related problems	1	1	1.8	1.8	110.0	109.0
(4) Indeterminate problems	0	1	0.0	0.1	0.0	6.0
(5) External Problems	0	0	0.0	0.0	0.0	0.0

***PRODUCTION USAGE SUMMARIES: Cyber 170-720 (MERITSS)

	January, 1980	January, 1979
Number of jobs run	175,605	199,976
Central processor hours	134	132
MERITSS terminal hours	25,256	22,822
Number of terminal sessions	54,436	51,797
Maximum number of simultaneous users	138	120
Average file storage (char)	475.1 million	363.4 million
Mean time between failures	68.6 hours	68.7 hours
Available during scheduled hours	99.9 percent	98.9 percent

short courses

UCC Short Course Schedule for Spring 1980

\$ Computing: What is it?.....; 2:15-4pm, Apr 7-10 (mtwth), Aero 317, LF/SG
Beginning COMPASS.....; 3:15-5pm, Apr 7-18 (mwf), Arch 30, JJD
\$ COBOL.....; 3:15-5pm, Apr 7-23 (mwf), Aero 211, DR
Intro to Record Manager.....; 3:15-5pm, Apr 7 (m), Arch 45, SAR
Linear Programming Packages.; 3:15-5pm, Apr 8-10 (tth), ForH 130, JCC
Record Manager/BAM.....; 3:15-5pm, Apr 9-11 (wf), Arch 45, SAR
Introduction to UCC.....; 3:15-5pm, Apr 11 (f), ForH 130, RTF
NOS (system configuration)..; 3:15-5pm, Apr 14 (m), Ph 166, RTF
NOS (files/jobs).....; 3:15-5pm, Apr 15-16 (tw), Ph 166, RTF
NOS (permanent files).....; 3:15-5pm, Apr 17 (th), Ph 166, RTF
NOS (program execution).....; 3:15-5pm, Apr 18 (f), Ph 166, RTF
NOS (tapes).....; 3:15-5pm, Apr 21 (m), Ph 166, RTF
NOS (misc statements).....; 3:15-5pm, Apr 23 (w), Ph 166, RTF
Record Manager/AAM.....; 3:15-5pm, Apr 14-18 (mwf), Arch 45, SAR
PLOT/PAC.....; 7:30-9:30, Apr 14-16 (mtw), Laud*, KMM
XEDIT.....; 2:15-4pm, Apr 21-25 (mwf), MinMet 124, MB
Introduction to System 2000.; 3:15-5pm, Apr 21-May 2 (mwf), Arch 60, JCC
Sort/Merge.....; 3:15-5pm, Apr 21-25 (mwf), Arch 30, SAR
Interactive System Commands.; 3:15-5pm, Apr 22-24 (tth), Ph 166, RTF
Batch Introduction.....; 2:15-4pm, Apr 22 (t), LindH 203, MB
BASIC.....; 3:15-5pm, Apr 28-May 2 (mwf), Arch 30, MT
SNOBOL.....; 3:15-5pm, Apr 28-May 9 (mwf), Arch 45, ABM
Advanced FORTRAN.....; 3:15-5pm, Apr 28 - May 9 (mwf), ForH 130, RTF
SPSS (SPSS basics).....; 2:15-3:30, May 5 (m), Ph 166, BH
SPSS (data manipulation)....; 2:15-3:30, May 6 (t), Ph 166, BH
SPSS (SPSS files).....; 2:15-3:30, May 7 (w), Ph 166, BH
SPSS (workshop).....; 2:15-3:30, May 9 (f), Ph 166, BH
System 2000/RW.....; 3:15-5pm, May 5-9 (mwf), Arch 30, SPN
\$ Advanced COBOL.....; 7:15-9pm, May 5-21 (mw), MinMet 124, DR
System 2000 User Aids.....; 3:15-5pm, May 6-8 (tth), ForH 130, JCC
System 2000/PLI.....; 3:15-5pm, May 12-16 (mwf), Arch 30, JCC
FORM.....; 3:15-5pm, May 12-16 (mwf), Arch 60, SAR
\$ SPSS (procedures).....; 2:15-3:30, May 12-14 (mw), MinMet 116, BH
\$ SPSS (On-Line).....; 2:15-3:30, May 16 (f), MinMet 116, BH
Intermediate FORTRAN.....; 6:15-8pm, May 13-Jun 5 (tth), MinMet 124, RTF
\$ Pascal Data Structures.....; 3:15-5pm, May 20 - 29 (tth), ForH 130, LF
SIR.....; 3:15-5pm, May 20-29 (tth), ForH 150, JCC
Introduction to Micros.....; 3:15-5pm, May 27-28 (tw), BlegH 150, GG
Using Micros (TERAK).....; 3:15-5pm, May 29-30 (thf), BlegH 150, GG
Using Micros (AppleII).....; 3:15-5pm, Jun 2-4 (mw), BlegH 150, MT
DMS - 170.....; 3:15-5pm, Jun 2-3 (mt), Ph 166, JCC
Query/Update.....; 3:15-5pm, Jun 4-5 (wth), Ph 166, JCC
\$ Comparative DBMS.....; 3:15-5pm, Jun 6 (f), Ph 166, JCC

May 26 (Monday) is a University holiday so no classes will be held.

* Lauderdale Conference Room, Lauderdale Computer Site, 2520 Broadway Dr.,
Lauderdale, Mn

NOTE: dollar sign (\$) indicates change since first publication.

phone numbers

Accounting	373-4548, 373-2521	Information, SICL	373-9751
Computer-Aided Instruction	376-2975	Information Systems	373-7878
Computer Hours (recorded message)	373-1798	Instructional Labs	373-5754
Computer Store	373-4877	Job Status, ExpEng (recorded message)	373-4994
Consulting		Lauderdale Operations	373-4920
HELP-line	376-5592	Lauderdale Services	373-7538
9 AM - 5 PM, Monday - Friday		Lauderdale Users' Room	373-4921
Business Data Products	376-1761	MECC, University	373-4573
10-11 AM and 1-2 PM, Monday - Friday		Microcomputers	376-4276
Statistics Packages	376-5062	Microfilm Operator	373-4995
1-2 PM, Monday - Friday		Newsletter Subscription	373-7744
System 2000	376-1761	Permanent File Restoration	376-5605
10-11 AM and 1-2 PM, Monday - Friday		Professional Services Division (PSD)	376-1764
Microcomputers	376-4276	Project Assistance	376-1764
10-12 AM and 2-4 PM, Monday - Friday		Program Librarian	376-1636
Contract Programming	376-1764	Programming Languages	376-7290
Data Base Applications	373-7878	Reference Room	373-7744
Educational Services	376-3963	Remote Batch (RJE) Services	373-5754
EDUNET Interface	373-7745	Short Courses	376-1637
Equipment Purchase or Lease	376-8153	Shuttle Bus Service	376-3068
Experimental Engineering I/O	373-4596	Tape Librarian and EBR Operator	373-4995
Field Engineering	376-7584	Technical Writing	373-2522
Graphics Software	376-1636	User Numbers	
HELP-line	376-5592	Instructional Batch	373-2521
9 AM - 5 PM, Monday - Friday		Instructional Timesharing	373-7745
HOURS-line (recorded message)	373-1798	Research Batch	373-2521
Information, Experimental Engineering	373-4360	Research Timesharing	373-2521
Information, Lauderdale	373-4912	User Services	373-4599

RETURN TO:

User Services
University Computer Center
227 Experimental Engineering
University of Minnesota
208 Union Street SE
Minneapolis, Minnesota 55455

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