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University Computer Center Newsletter

University of Minnesota
Twin Cities

October 1984
Volume 18, Number 10

Gopher Computing at UCC

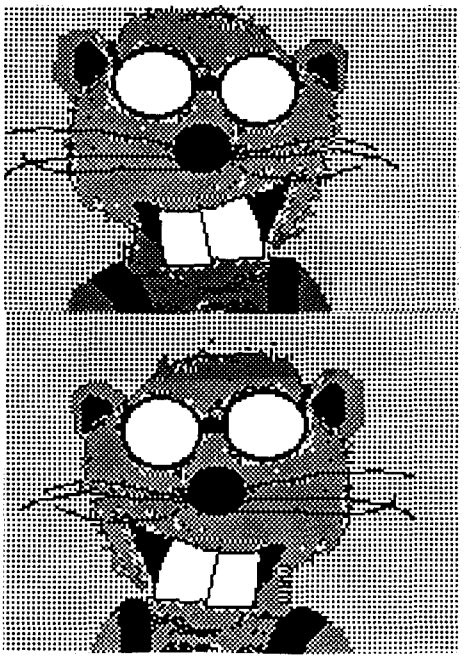
Welcome and welcome back to University of Minnesota students, faculty, and staff. The University Computer Center (UCC) is again ready to assist you with your computing needs by making available a broad range of options in hardware, software, documentation, and services. This article will highlight our mainframe systems and support services.

Hardware

UCC currently provides five mainframe computer systems. At the heart of the configuration lies the CRAY-1 supercomputer, designed for use with large-scale research projects. The CRAY runs the COS 1.12 operating system.

Three Control Data CYBERs add to the picture. The CYBER CA, which runs the NOS 1.4 operating system, serves as one of two front ends to the CRAY and acts as the principal batch and interactive processor for researchers and public service users. The two other CYBERs, the ME and the MD, support instructional computing through the Minnesota Educational Regional Timesharing System (MERITSS). The MD serves users in Mechanical Engineering, Computer Science, and Management Information Systems. Both the ME and MD run the NOS 1.4 operating system.

The fifth mainframe, a Digital Equipment Corporation VAX-11/780, which runs the VMS 3.3 operating system, completes the picture. The VAX also serves as a front-end system to the CRAY and is our principal processor for advanced text processing and graphics services.



Those of you who have used our systems before should be aware of two major changes that occurred during the past year. The first involved removal of the CB family from the CYBERs. CB files have been copied to the CA, and both CB and CA files are now located on the CA system. For further information, see the article in the August *Newsletter*.

A second change occurred this spring when the CRAY Operating System (COS) was upgraded from COS 1.11 to COS 1.12. Details on how that change might affect you can be found in the May *Newsletter*.

(A copy of any issue of the UCC *Newsletter* from the past year is available with the control statement WRITEUP(NLETTER=xxx), where xxx is a three letter abbreviation for the month: APR, JUN, JUL, etc.).

If you are interested in using one of our computer systems, apply for a user number by completing a "request for access form," available in 227 Experimental Engineering. You may also obtain a form by calling 373-4548 (or 373-7745 for a MERITSS account), or by writing directly to the Accounting Department at:

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

Documentation

Once you secure an account number, you may want more specific information on using the systems or more information about computing in general. To help answer any questions you might have, we publish a wide range of documentation that describes our systems and services as well as applications packages.

Facilities and Services is one such source. It provides an introduction to UCC computing and details subjects such as computing sites, hardware, documentation, and short courses. It also provides a list of the software available at UCC.

For those totally new to computing, our publication *Introduction to Computing* provides an overall explanation of what computing involves. This *Newsletter* also provides timely information about our systems and services.

Additional documentation on the specific systems is also available. You can decide what materials will be most helpful to you by previewing them in our Reference Room.

Services

UCC's Reference Room, located in 140 Experimental Engineering, contains a non-circulating collection of books, manuals, and periodicals related to computing. Copies of all UCC publications are also available.

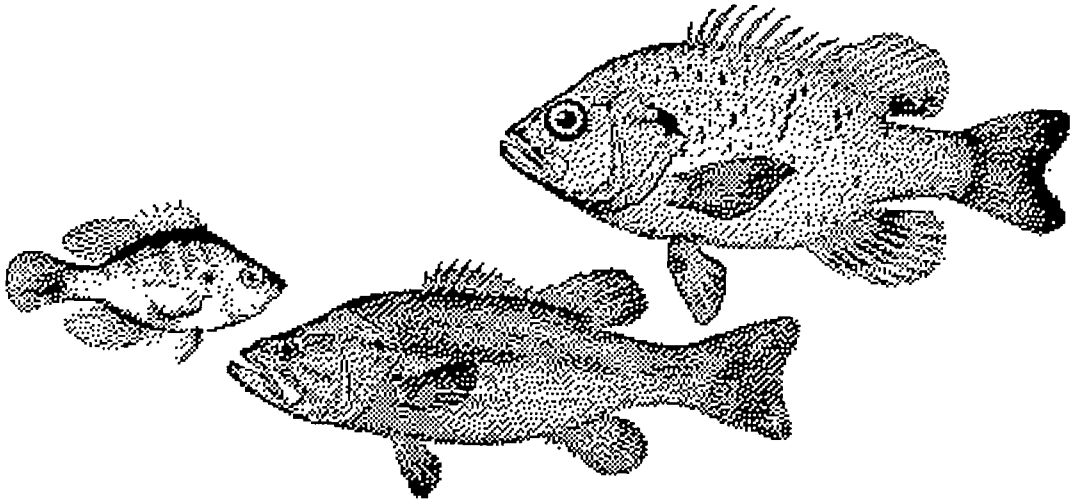
The Computer Store, formerly located in 20 Experimental Engineering, no longer exists. The sale of documentation, software, floppy disks, and other computer supplies is now handled by the University bookstores. Check the Minnesota Bookcenter in Williamson Hall on the east bank, or the H.D. Smith Bookstore on the west bank for your computing needs.

UCC Short Courses, another good source of information, are taught by UCC staff on subjects that range from computer terminology to programming languages. Classes meet for an average of two weeks and the fees are reasonable. More information on fall quarter short courses is available elsewhere in this issue.

For immediate answers to your computing questions, we provide a HELP-line service at 376-5592. Consultants are available from 7 a.m. to 7 p.m., Monday through Friday. They can answer your questions about our services and can direct you to more specialized help if necessary. Consultants in special areas such as data base management, statistics, and text processing are also available to assist you. Check the phone list at the back of each issue of the *Newsletter* for their numbers and hours.

Individual, in-person consulting is available daily in 130 Experimental Engineering. Whenever you contact our consultants, please be sure to have all necessary information available to make the problem solving easier for everyone.

Once again, welcome—or welcome back—to UCC. Our staff is available to help you with all your computing needs. If you have any questions about the resources available, assistance is as near as your phone: call the HELP-line, 376-5592. *(Kate Mackay)*



Consulting

IN-PERSON CONSULTING

General consulting provides in-person assistance on all our systems in 130 Experimental Engineering, from 10 a.m. to 4 p.m. weekdays and from 7 p.m. to 9 p.m. on Tuesdays during the quarter.

The general consultants can deal with most of the problems you encounter. If your problem is fairly complex, check the expertise code under each consultant's name—listed in WRITEUP(CONSKED)—for specialized service. We ask you to bring your program listing, output, and computer job dayfile when you seek help. This makes the problem-solving process easier for everyone involved. *(Peter J. Oberg)*

Computer Store Is No More

What was the UCC Computer Store in 20 Experimental Engineering is now housed in the Minnesota Bookcenter at Williamson Hall on the east bank. Manuals, punch cards, microcomputer disks, paper, and other supplies are now available at the Bookcenter's Electronics Desk. You may also buy microcomputer hardware and software at significant discounts through the Williamson Bookcenter (see the related article in this issue). You can no longer charge your purchases to your user number as you may have done in the past. You must pay with cash, check, or journal voucher.

Magnetic tapes, however, are not available at the Bookcenter; you must buy them at the Lauderdale Computer Facility (for information on buying tapes, see Chapter Two in the *Guide to Magnetic Tape Usage* or WRITEUP,TAPEUSE).

You can purchase microcomputing lab cards at the bursar's office in Williamson Hall, and register for short courses in the UCC Reference Room, 140 Experimental Engineering.

Minnesota Supercomputer Institute Grants

In its most recent session, the Minnesota legislature funded a Supercomputer Institute at the University of Minnesota. Recognizing the importance of the large-scale computer industry to the economy of Minnesota and the nation, the Institute will continue to develop the University's commitment to research and educational programs that involve supercomputing. The Institute's specific objectives are:

- To support and stimulate the computer industry in Minnesota: the research and educational base on which it rests and the economic environment in which it operates.
- To stimulate and support Minnesota's education and training programs related to the large-scale computer industry and its potential clients.
- To make the Institute's facilities and services available to educational and research institutions, government agencies, and private business and industry in ways that will enhance the research and development of new large-scale computing applications and encourage economic growth.
- To provide a showcase for supercomputers and related technology from a variety of manufacturers.

As part of this legislative funding of the Institute, grants for supercomputer time and related costs are now available. UCC will allocate these grants on an interim basis until the Supercomputer Institute becomes operational. If you wish to apply for a grant, direct your inquiries to:

Michael M. Skow, Acting Director
University Computer Center
University of Minnesota
227 Experimental Engineering
208 Union Street SE
Minneapolis, Minnesota 55455

(Michael M. Skow)

Microcomputer Sales and Support

The University of Minnesota has recently negotiated contracts with a number of microcomputer manufacturers. These contracts permit the University to offer microcomputers and peripherals to the University community at significant discounts.

The University now has discount programs with IBM, Apple, Zenith, DEC, and Hewlett Packard. The programs include machines such as the IBM-PC, IBM-XT, Apple Macintosh, Apple Lisa, Zenith Z-100, Zenith Z-150, Hewlett Packard HP 150, and the DEC Rainbow. The discounts range from 38 to 50 percent off list price.

While no University department plans to require or recommend the use of any particular microcomputer at this time, the situation could change in the future. Thus it might be worthwhile to check with others in your department about their interests, as well as consulting your own needs and interests, as you prepare to make your purchase.

All sales are conducted through the University bookstores. Pre- and post-sale support is provided by UCC's Microcomputer Systems Group, by other University computer centers (St. Paul, West Bank, Health Sciences, Duluth, Morris, Crookston, Waseca), and by the Administrative Data Processing Department (ADPD). ADPD specializes in administrative applications of micros, especially those that use information from the University's central data bases. Staff members in all these centers can help you choose an appropriate microcomputer for your needs.

Order forms are available at the Minnesota Bookcenter's Electronics Desk in Williamson Hall, and at the Micro HELP-line, 125 Shepherd Labs. When you place your order, you must pay a $250 deposit with cash or certified check. University departments can use journal vouchers.

All University departments qualify for discounts. Individuals must be full-time faculty, staff (with work-related use), or students to qualify. Full-time faculty and staff are defined as those who work at least 75 percent time and are eligible for the benefits package. Full-time students are undergraduates who carry at least 12 credits or graduate students who carry at least 8. Extension students are eligible if they meet the requirements of day school students and are enrolled in a degree or certificate program. You must bring evidence of your status with you when you place your order (e.g., a paid fee statement, letter of certification from Admissions and Records, or faculty or staff ID card).

Our Micro Systems Group has prepared a document on *Microcomputer Terminology* to help you make an intelligent purchase. We have also prepared *Background Information* documents for each microcomputer in the discount program. These documents discuss:

- choosing a configuration
- software
- service options
- where to get more information
- how to order

and include "before-you-buy" checklists and price lists. If you are unsure what hardware and software is most appropriate for your needs, this information should be helpful.

You can also try out these micros at our Microcomputer Research Lab or call the Micro HELP-line, 376-4276 (DR MICRO), for additional information. The Lab and HELP-line, located in 125 Shepherd Labs, are open for business Monday through Friday from 9:30 a.m. to noon and from 1:30 to 4 p.m.

MERITSS

LAB CHANGES

We have made a number of changes in the MERITSS student labs during the past year. Here are the most significant ones that have been made and others we hope to complete soon.

Old CRTs removed

We removed several old and unreliable terminal types from the labs; these included Hazeltine 2000, CDC 713, Tektronix 4013, and the few remaining Teletype 33 terminals. They were replaced with modern Z-29 CRTs.

New graphics terminals

We installed nine new CDC 721 Viking Graphics terminals in 308 Mechanical Engineering. We improved communications facilities in this room to allow these and the five VT100 graphics terminals installed there to operate at 9600 baud. Both the Viking and the VT100G terminals are intended for use on the MERITSS MD machine. Instructors in your courses will tell you if you can use these terminals.

Walter Library lab moved

We moved the instructional lab from 204 Walter Library to room B9. The room was remodeled to allow for expansion if and when this becomes necessary.

Microfiche documentation

We replaced the bulky, hard-to-manage manual racks in most labs with less costly, more efficient microfiche readers and stands. You no longer need to tie up a terminal while you read a writeup: all writeups on the system are written to microfiche quarterly and placed in the instructional labs.

And coming soon:

Wilson Library expansion

We will expand the student lab in B2 Wilson Library. Twenty new Z-29 CRTs and an RJE with a high-speed printer have already been added to the lab. In addition, we will replace six of the ten Teletype 43 terminals with Zenith Z-29s. All the Z-29s will operate at 1200 baud.

Sanford and Centennial Hall computer centers

In a cooperative effort with residence hall students, we have created two centralized computer facilities that will be open to all undergraduates during the dorms' regular public visiting hours, noon to 8 p.m., Monday through Friday. At other times, only dorm residents or their accompanied visitors may use the terminals. Centennial has one Decwriter III LA120 (high-speed printing terminal), seven Z-29 CRTs, and one Teleray CRT. Sanford has six Z-29s and one Decwriter III LA120. Both dorms have also placed several microcomputers in these rooms for the *exclusive* use of dorm residents.

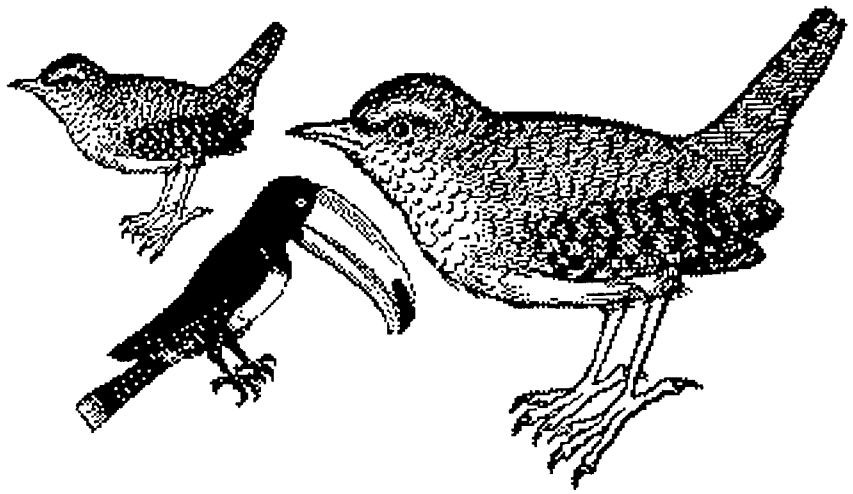
Color graphics terminals

We will install six Raster Tech One/10 color graphics terminals in 26 Lind Hall, and eight in 308 Mechanical Engineering. We will also upgrade Lind Hall communications to allow 9600-baud communication from the color terminals to the MD machine. Lind Hall's Z-29 CRTs will be upgraded to 1200 baud. The Raster Tech One/10s will be restricted to use by designated classes on the MD machine. These terminals have a resolution of 480 by 640 pixels, a 256 Kbyte object list space, local graphics manipulation capabilities, and 1024 colors that you can display concurrently out of a palette of over sixteen million colors.

New sites map

We will soon publish a new sites map that illustrates lab locations and lists types of equipment available. All the changes discussed in this article will be indicated on the map. When the map is published later this month, you can pick up a copy in our Reference Room, 140 Experimental Engineering, or in the general consulting/research cluster area, 130 Experimental Engineering.

If you have any questions about these changes, or about our lab facilities in general, call Joe Cornell, 376-2703. *(Joe Cornell)*



Terminal Information

RESEARCH CLUSTER CHANGES

The research cluster in 14 Folwell Hall now has two Terak 8600 color graphics systems set up for you to preview color images before you send them to our hard-copy color output device, the Calcomp plotter. Ask the lab attendant to explain how to use these systems.

We have installed a new research cluster in 130 Experimental Engineering and have scheduled the cluster in 25 Blegen Hall for removal in the near future due to lack of use.

RJE NETWORK CHANGES

The biggest change we made in this area was the removal of SUPIO and its replacement by CDC's RBF (Remote Batch Facility). We provided all users with new site codes and passwords. You may now choose UT200 or HASP protocols to run your remote equipment.

We will change all public RJEs from PDP-11s that run UT200 at 2400 baud to KMW protocol converters that run HASP at 4800 baud. Preliminary tests indicate that this change will make printing more than twice as fast.

We will install a new public RJE in 2B Wilson Library.

If you have any questions about these changes, or about our lab facilities in general, call Joe Cornell, 376-2703. *(Joe Cornell)*

Language News

FORTRAN AT UCC

Four FORTRAN compilers are currently available on our CYBER systems: MNF and M77, developed at the University of Minnesota, and Control Data's FTN and FTN5.

For students and for general debugging purposes, we highly recommend M77. It provides extensive compilation error diagnostics, traces array bounds, and is backed up by an interactive post-mortem dump. For production programs that have been fully debugged, however, FTN5 using OPT=2 provides the best execution speed.

We strongly recommend that you do *not* develop new programs in MNF or FTN. These compilers conform to the older, 1966, FORTRAN standard and are no longer supported. As time permits, we suggest that you convert programs written for MNF or FTN to M77 or FTN5. Often source programs require few or no changes to upgrade to the newer standard since it is largely upwardly compatible.

On the CRAY, the CFT compiler (which conforms to the 1977 standard) provides extremely fast optimizing and vectorizing capabilities. CFT, currently at version 1.11, is probably the most cost-effective compiler available at UCC for medium and large programs.

To aid in future conversion efforts, we recommend that your FORTRAN programs conform as closely as possible to the 1977 FORTRAN standard. *(Janet Eberhart)*

M77 NEWS

As we announced in the May *Newsletter*, M77 version 2.5 produces numbered compilation error messages. These numbers can be used to query an on-line error message writeup.

For interactive information about an individual error message enter:

WRITEUP(M77ERR=errnumber)

For example, if the following error message appears:

(3) CAUTION.615 SET BUT NEVER USED - SAM

you can obtain a short explanation of the error message by entering:

WRITEUP(M77ERR=615)

To get a line printer listing of the entire 84-page writeup enter:

WRITEUP(M77ERR=*/PT=AS,L=LIST)
ROUTE(LIST,DC=PR,EC=A9,BIN=xxx)

LISP NEWS

Two LISP interpreters are now available on the CYBER CA and ME systems: the University of Texas LISP Version 4.1 (UTLISP) and the University of Massachusetts at Amherst LISP Version 3.2 (ALISP). Since ALISP is much more interactive than UTLISP and has many more programming tools embedded in it, you will probably find it more useful than UTLISP. Writeups are available for both:

WRITEUP(ALISP) for ALISP
WRITEUP(LISP) for UTLISP

PASCAL AT UCC

Pascal is a small, practical, general-purpose programming language, named after mathematician and philosopher Blaise Pascal (1623-1662). It was designed in the late 1960s and early 1970s by Niklaus Wirth, who intended that it be easy to learn and efficient to translate by computers. In the last fifteen years Pascal has met those goals and now is one of the leading programming languages in computer science. In addition to its widespread use in teaching, Pascal is used extensively for portable commercial and systems software.

An international standard for Pascal has been approved by the International Organization for Standardization (ISO). There is also an American National Standard approved by the Institute of Electrical and Electronics Engineers (IEEE) and the American National Standards Institute (ANSI).

UCC supports Pascal on the CRAY-1 and the CYBERs.

Pascal on the CRAY-1

Cray Research introduced their Pascal compiler with COS 1.12. We are now running bugfix 3. The compiler is easy to access. A

simple CRAY Pascal job might look like this:

```
JOB,JN=jobname.
ACCOUNT,AC=account,APW=password.
PASCAL.
LDR.
[end of file]
program source
[end of file]
program data
[end of file]
```

The PASCAL control statement executes the Pascal compiler. The result of the compilation is an executable binary program which is then loaded and executed by the LDR statement. LDR automatically accesses the Pascal library $PSCLIB.

The format of the PASCAL statement and its parameters, along with the extensions and restrictions to standard Pascal, are described in the Cray *Pascal Reference Manual* (publication SR-0060).

We have found in preliminary testing that CRAY Pascal has several restrictions and errors. Some of the major ones are:

- The maximum number of characters allowed in one line of a text file is 140.
- Non-text local files fail to work properly.
- The standard procedure WRITELN can generate a null record, as opposed to a blank line, if nothing has been written on the current line.
- The compiler does not diagnose invalid control-statement parameters, and may execute in an unexpected manner.

In view of these, we recommend that CRAY Pascal be used with caution until Cray Research supplies a more reliable version.

We will continue to evaluate CRAY Pascal and make the results available to you.

Pascal on the CYBERs

There have been few visible changes to Pascal on the CYBERs for over a year. The compiler currently available is Pascal-6000 version 4.0.1, and it is maintained here at UCC. Documentation includes WRITEUP(PASCAL), WRITEUP(PASCLIB), and WRITEUP(PASPLOT).

In addition, we support several software-writing tools that are written in, and oriented toward using, Pascal. These are described in WRITEUP(PTOOLS).

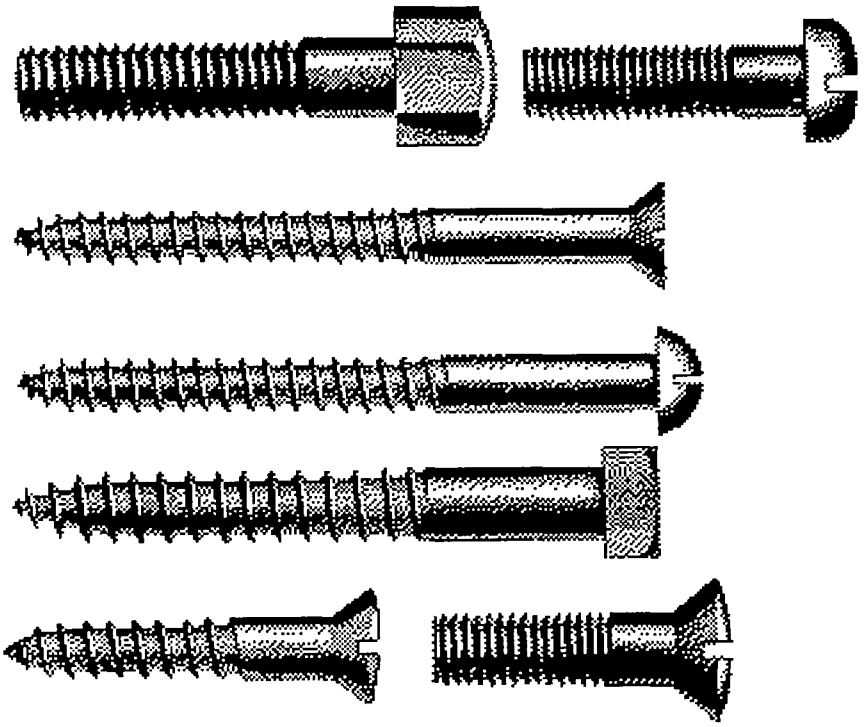
During the coming year we expect to make a few changes that will make the compiler comply more closely with the Pascal standards. These changes include larger *set* data structures and so-called *lazy input* to simplify terminal interaction. We will also continue to implement better run-time tests and code generation. And, effective October 2, we are offering a variation on Pascal-6000, called APASCAL, that supports the full ASCII 128-character set. This will be much more compatible with Pascal compilers on other UCC computers as well as on microcomputers and other systems.

Whereas regular PASCAL uses the CDC 63-character set exclusively, APASCAL works only with the CDC *extended* character set. This is the same character set selected when you type the interactive command:

CSET(ASCII).

APASCAL includes all the features supported by PASCAL, with the exception of the LFM, PFM, SBCOPY, and SYSPROC library packages. We are now working to eliminate these exceptions. Documentation is found in WRITEUP(APASCAL), an addendum to WRITEUP(PASCAL), and WRITEUP(PASCLIB).

(Jim Miner and Dave Bianchi)



The Microcomputer Systems Group

UCC's Microcomputer Systems Group provides support for microcomputer users in the University community. We develop general-purpose software utilities and tools for microcomputers, and write custom software on a contract basis.

One of our software products is a communications program (COM) that allows microcomputers to communicate with (and transfer text files to and from) UCC's CYBER and VAX computers. Other general-purpose programs include a graphics terminal emulator (SIMTEK) and utilities for use with some of the popular microcomputer text processing packages. You can purchase these programs at the Minnesota Bookcenter in Williamson Hall or at the H.D. Smith Bookstore on the west bank.

The Microcomputer Systems Group offers consultation on microcomputer applications, and answers other questions about microcomputers on the Micro HELP-line (dial DR MICRO, 376-4276) or on a walk-in basis at the Microcomputer Research Laboratory, 125 Shepherd Labs. Consultation is available from 9:30 a.m. to noon, and from 1:30 to 4 p.m., Monday through Friday. We have detailed knowledge of the IBM-PC, Zenith Z-100 and Z-150, Xerox 820, Terak 8510, and Apple II, Apple Macintosh, and Apple Lisa. We also have extensive first-hand experience with the CP/M, MS-DOS, UCSD, and MMOS operating systems and many of the commercially developed applications packages that run under them.

The University of Minnesota now offers a discount program that includes several brands of microcomputer hardware, software, and peripherals at discounts of up to 50 percent for full-time students, staff, and faculty. The article on page 79 provides more details about this program. The Microcomputer Systems Group offers you the opportunity to learn about these machines through actual hands-on experience. If you are interested in learning more about these microcomputers before you buy one, come to 125 Shepherd Labs during the consulting hours noted above.

Microcomputer Systems staff also teach UCC Short Courses on microcomputers and microcomputer software throughout the year. If you are interested in a class tailored to your specific needs, we provide that service on a contract basis. We have taught classes on WordStar, DataStar, Lotus 1-2-3, Access-80, VisiCalc, SuperCalc, and DBase II for groups that ranged from five to four hundred people.

For more information about the Microcomputer Systems Group and our products and services, call the Micro HELP-line, 376-4276.

(Earl Schleske)

Math and Statistics Packages

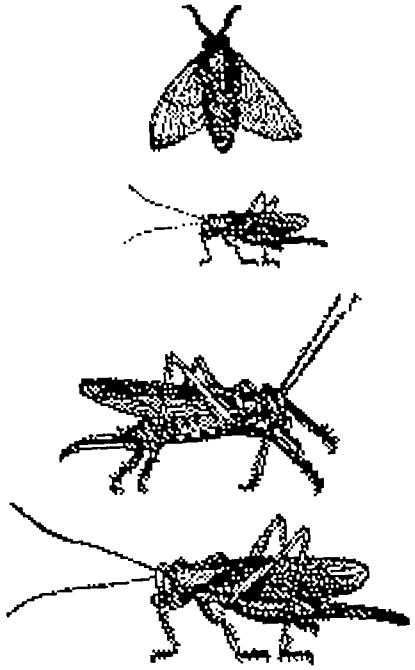
ALGORITHMS FROM ACM TRANSACTIONS OF MATHEMATICAL SOFTWARE

We have received ACM-collected algorithms (originally published in *ACM Transactions of Mathematical Software*) from IMSL over the past few years. Our collection begins with algorithm 493, published in March 1975, and goes through algorithm 615, published in June 1984. We recently added algorithms 581-584, 601-604, and 614-615 to our collection.

All these algorithms are available to users on the FETCH file CALGOPL, a MODIFY program library. The list of available algorithms and control statements to obtain them are available in WRITEUP(CALGOPL).

The *ACM Transactions of Mathematical Software* is available in our Reference Room, 140 Experimental Engineering.

(Sharad Gavali)



Professional Services Division

UCC's Professional Services Division (PSD) is a small group of programmers available to perform contract programming projects for clients. PSD employs a staff with experience in many areas, and we can also tap the skills of other UCC staff. We can provide help with any project:

- a statistical analysis
- setting up a data base
- converting a program to run on the CRAY
- converting a foreign tape
- generating color graphics

or any other computer application.

To hire PSD to assist you with a project, or to find out more about our services, give us a call at 376-1764. We'll discuss your needs and provide a cost estimate for your project at no charge.

(Steven Collins)

Documentation News

We have recently produced several new guides and manuals to make your work on our systems easier. They are:

- The 1984-85 *Supplement* to the *Guide to CYBER Computing*
- The new *Guide to Applications Packages: Mathematics and Engineering*
- The *Guide to CRAY Computing*

THE CYBER GUIDE

For those of you new to the University, the *Guide to CYBER Computing* is the essential introduction and user's manual for our CYBER computers: the CA research computer and the MERITSS instructional computers, the ME and MD. The *Guide* includes information on:

- Finding and using terminals on campus
- Logging on and off our systems
- Using files
- Setting up and running a program
- Getting output
- Running batch jobs

The *Guide* also contains a brief introduction to the CYBER text editor XEDIT and a list and explanation of the control statements in NOS, the CYBER operating system. Everyone who works on the CA, ME, or MD computers should read the *Guide to CYBER Computing*.

The *Supplement* to the *Guide to CYBER Computing* is a small companion volume that documents the changes we have made in the last year to our CYBER CA and MERITSS systems and services. The *Guide to CYBER Computing* is available from the Minnesota Bookcenter, Williamson Hall (East Bank) and the H.D. Smith Bookstore (West Bank). The *Supplement* will be available at those locations later this month.

MATHEMATICS AND ENGINEERING

UCC's new *Guide to Applications Packages: Mathematics and Engineering* describes the packages available on our CYBER CA, CYBER ME, and CRAY computers in

- mathematics: linear and nonlinear programming, ordinary and partial differential equations, and algebraic manipulation;
- simulation: discrete event and continuous simulation;
- engineering: structural and electronic applications;
- program evaluation and review.

The description of each package includes sample jobs for the CYBERs and (when appropriate) for the CRAY, sample output, and information on acquiring documentation for the package.

THE GUIDE TO CRAY COMPUTING

For those of you who work on our CRAY supercomputer, we now offer a useful new user's guide: the *Guide to CRAY Computing*. Part 1 of the *CRAY Guide* provides essential information on using UCC's CRAY and its CYBER and VAX front-end systems, including:

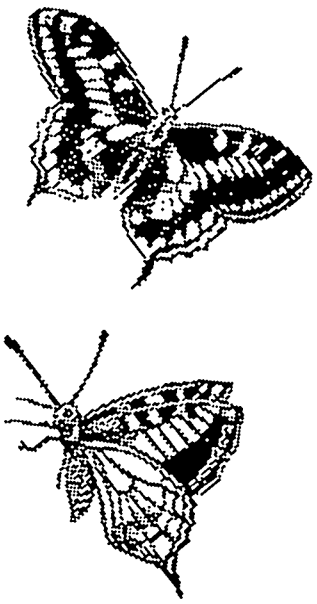
- Using files on the CRAY and its front-ends
- Submitting jobs to the CRAY
- Using user station commands to control and monitor your CRAY jobs
- Programming for the CRAY

Part 2 of the *Guide* describes each control statement in COS, the CRAY operating system, including the UCC additions to COS and the values of locally definable parameters.

OTHER UCC DOCUMENTS

If you are new to our computer systems you may also want to consult other UCC documents. Our *Introduction to Computing* explains basic computer terms and concepts for inexperienced users. The *XEDIT User's Guide* describes the XEDIT editor available on our CYBER computers. *Facilities and Services* describes our hardware, software, and services in detail.

All the documents described in this article are available at the Minnesota Bookcenter, Williamson Hall (East Bank), and the H.D. Smith Bookstore (West Bank). You are also welcome to refer to these and many other documents in UCC's Reference Room, 140 Experimental Engineering. (*Steven K. Brehe*)



Text Processing Services

NEW VERSION OF SCRIBE

We are now running version 4 of the Scribe Document Production System. You should not encounter any problems when you process text files originally formatted with previous Scribe versions. Some changes may appear in your text format, but these are easily modified if they are unacceptable. Contact Text Processing Services, 376-2943, if you have questions or comments.

A new *Scribe Document Production System User Manual* is also available with version 4. It includes chapters on hyphenation and mathematical formatting, and documents other features added to Scribe since 1980. You can purchase a copy at the University bookstores or, if you want to trade in your copy of the third edition manual for the new one, you can do so by sending the old manual and a check for five dollars to:

Unilogic, Ltd.
160 North Craig Street
Pittsburgh, PA 15213

We will also update UCC's Scribe documentation this fall, and announce its availability in the *Newsletter*.

Fall Quarter Short Courses

CRAY Classes for Super Computers

If you have a research project that requires the processing power of a supercomputer, the University Computer Center's CRAY-1 is the answer to your needs. The CRAY-1's vector processing and the solid support provided by UCC's Client Services group can assist you with your work.

We also have several short courses you may find helpful. If you are new to supercomputing, "Introduction to the CRAY-1 and COS" offers slide and interactive demonstrations that illustrate the hardware and software of the CRAY. It also:

- provides information about CRAY FORTRAN (CFT) and vectorization;
- discusses the differences between the CRAY and CYBER systems and their respective control statements;
- defines CRAY datasets and demonstrates their use and positioning;
- explains how to access the CRAY from both the CYBER and VAX front-end systems.

At a more advanced level, the "CRAY FORTRAN Optimization and Vectorizing" class considers the CRAY as a vector processor, and looks at parallel and pipeline processing, automatic CRAY FORTRAN (CFT) vectorization attempts, and programmer aids. In addition, the class will examine:

- CFT parameters and source code compiler directives for vectorization control;
- programmer aids, rules, and techniques for vectorization;
- how to eliminate problems of vector inhibition;
- case studies, including their relative CPU efficiency.

Elementary knowledge of FORTRAN is a prerequisite for this course.

INTRODUCTORY COURSES

PRICES: U. student $10, U. staff $20, Non-University $30

010	Introduction to Computer Terms (Jerry Larson)	
	Oct 1-5 (MWF)	3:15-5 p.m.
020	A Taste of Computing (staff)	
	Oct 8-12 (M-F)	3:15-5 p.m.
040	Introduction to VAX/VMS (Bryan Senn and Jerry Stearns)	
	Oct 9-23 (TTh)	2:15-4 p.m.
050	NOS (CYBER operating system) (Kurt Richards and Jon Jamsa)	
	Oct 15-31 (MWF)	3:15-5 p.m.
080	Introduction to Micros: CP/M (Simin Hickman)	
	Oct 15-18 (MTTh)	3:15-5 p.m.
090	Introduction to Micros: MS-DOS (Simin Hickman)	
	Oct 15-19 (MWF)	3:15-5 p.m.
130	XEDIT (section 1) (Tom Kovarik)	
	Nov 5-9 (MTThF)	1:15-2:30 p.m.
135	XEDIT (section 2) (Tom Kovarik)	
	Nov 5-9 (MTThF)	2:45-4 p.m.
150	Introduction to the CRAY-1 and COS (Kurt Richards)	
	Nov 12-16 (MWF)	3:15-5 p.m.

ADVANCED COURSES

PRICES: U. student $20-30, U. staff $30-50, Non-University $50-100

670	CRAY FORTRAN Vectorizing (Tom Kovarik)		
	Oct 1-12 (MWF)	2:15-4 p.m.	$25-$35-$60
520	Lotus 1-2-3 (section 1) (Joanne Bergman)		
	Oct 2-4 (TTh)	2:15-4 p.m.	$25-$35-$60
525	Lotus 1-2-3 (section 2) (Joanne Bergman)		
	Nov 13-15 (TTh)	2:15-4 p.m.	$25-$35-$60
650	COMPASS (assembly) (John Larsen and Tom Kovarik)		
	Oct 17-26 (WThF)	2:15-4 p.m.	$30-$45-$70
580	Scribe (formatting program) (Elaine Collins)		
	Oct 29-Nov 9 (MWF)	3:15-5 p.m.	$25-$35-$60
640	Beginning Pascal (Peter Oberg)		
	Nov 5-16 (MWF)	3:15-5 p.m.	$25-$40-$60
530	SPSS (statistics package) (Bruce Center)		
	Nov 5-9 (MWF)	2:15-4 p.m.	$20-$30-$55
570	TELL-A-GRAF Graphics (Bryan Senn)		
	Nov 12-21 (MW)	2:15-5 p.m.	$30-$45-$75

REGISTRATION: You can register at the UCC Reference Room, 140 Experimental Engineering (hours 8 a.m. to 4:30 p.m., Monday through Friday). A self-service terminal for registration is located in the Reference Room. We accept mail registrations for an additional $1 fee per class. The deadline for registration is Reference Room closing on the last working day *before* the class begins. You may pay course fees with cash, check, University journal vouchers, or you can charge them to your non-instructional UCC user account.

REFUND POLICY: No refunds are made after the class begins. Refunds are made in the same form as the fee was paid, i.e., check, journal voucher, UCC account credit.

If you have questions about short courses or about registration, call Jerry Stearns, 376-8806, or see WRITEUP(CLASSES) on the MERITSS or CYBER CA systems.

If you plan to use the CRAY, you must access it through either the CYBER or VAX front end. We offer introductory courses about both systems this fall: "Introduction to VAX/VMS" and "NOS (CYBER operating system)." If you decide to access the CRAY through the CYBER, you might also want to take our "XEDIT" class. XEDIT is the editor available on the CYBER systems.

Even if your projects *don't* demand high-powered computing, we offer a variety of courses you may find helpful and interesting. If you are thinking about the purchase of a microcomputer, especially now that you can buy one through the University's discount program, our two "Introduction to Microcomputers" classes (one for CP/M systems, the other for MS-DOS and analogous systems) should provide the essential information you need to make an intelligent purchase.

Another very popular micro-related course is "Lotus 1-2-3." This course will teach you how to use the most popular microcomputer spreadsheet package. You'll learn how to:

- set up your own spreadsheet;
- use the integrated graphics utilities to create bar, line, and pie charts;
- calculate and recalculate spreadsheets automatically.

UCC's short courses are open to all faculty, staff, and students at the University of Minnesota, as well as to the general public. For more information about classes, call Jerry Stearns, 376-8806.

The Classifieds

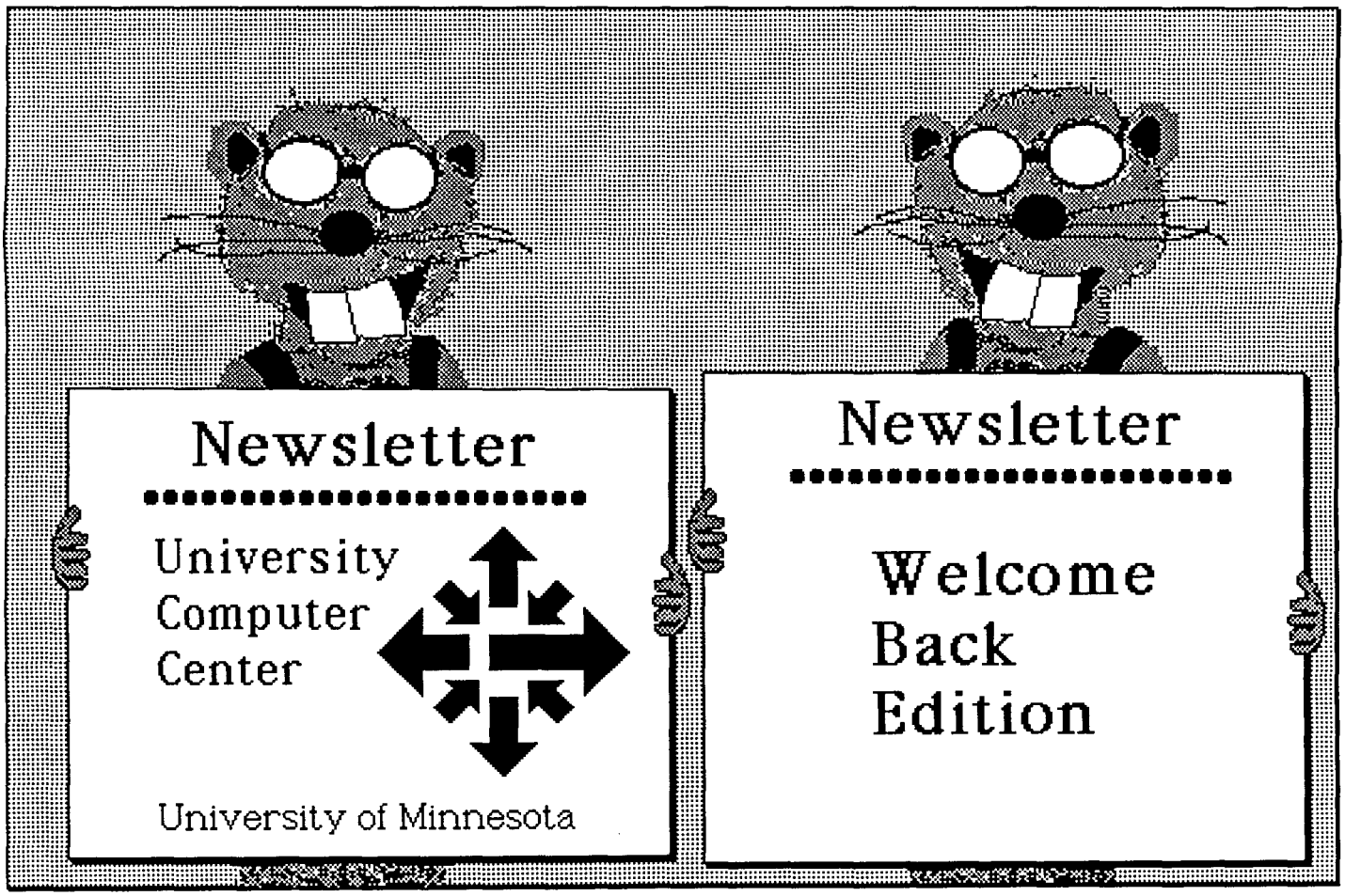
FOR SALE

SELENAR GRAPHICS ADAPTER
Convert DEC VT-100 to Tektronix 4010 graphics terminal. New, never used. $750. Call Keith, 373-5230.

TRACE PRINTER ENCLOSURE
Sound trap for Epson FX-80 type printer. Used. $75. Call Keith, 373-5230.

IDS 560 DOT-MATRIX PRINTER
Serial, wide carriage, good working condition. $400. Call Jim Cooper, 373-1722.

IDS PRISM PRINTER
Dot-matrix, wide carriage, serial/parallel, good working condition. $600. Call Jim Cooper, 373-1722.



A NOTE ON THE ILLUSTRATIONS
All the illustrations for this issue were created with MacPaint on an Apple Macintosh by our Micro Systems Group. They were printed on a Hewlett-Packard laser printer.

PHONE NUMBERS

Access:
- CYBER(CA)—10, 30 cps 376-5730
- —120 cps 376-5706
- MERITSS(ME)—10, 30 cps 376-7730
- —120 cps 376-7120
- VAX/VMS(VA)—(autobaud) 376-9770

Budgets 373-2521
Computer-Aided Instruction 376-2975
Computer Hours (recorded message) 373-4927
Consulting
- HELP-line 376-5592
  7 a.m.-7 p.m., Monday-Friday
- Business Data Products 376-1761
  1-3 p.m., Monday-Friday
- Statistics Packages 376-1761
  1-2 p.m., Monday-Friday
- Data Bases 376-1761
  10-11 a.m., Monday-Friday
- Microcomputers 376-4276
  10-12 a.m. and 2-4 p.m., Monday-Friday
- Text Processing 376-2943
  1-4 p.m., Monday-Friday

Contract Programming 376-1764
Data Base Applications 376-1764
EDUNET Liaison 373-5780
Engineering Services 376-1023, 376-8153
Equipment Purchase/Information 376-8153
Experimental Engineering I/O 373-4596
Graphics Software 376-5592
HELP-line 376-5592
7 a.m.-7 p.m., Monday-Friday
HOURS-line (recorded message) 373-4927
Information, Experimental Engineering 373-4360
Information, Lauderdale 373-4912
Instructional Labs 376-2703
Instructional Services 373-7745
Lauderdale Computer Room 373-4940
Lauderdale Services 373-4995
Lauderdale Services Manager 373-7538
Lauderdale Users' Room 373-4921
MECC Liaison 373-7745
Newsletter Subscription 373-4912
Permanent File Restoration 376-5605
Professional Services Division (PSD) 376-1764
Project Assistance 376-1764
Reference Room 373-7744
Remote Batch (RJE) Services 376-2703
Short Courses 376-8806
Shuttle Bus Service 376-3068
System Status (recorded message) 373-4927
Tape Librarian: see Lauderdale Services
Text Processing Services 376-2943
User Accounts 373-4548

OPERATING HOURS

	CYBER (CA)	Low rate	CRAY (CR)	MERITSS (ME)	VAX (VA)
M-F	7 a.m. - 4 a.m.	8 p.m. - 4 a.m.	7 a.m. - midnight	7:45 a.m. - 3:30 a.m.	8 a.m. - 6 a.m.
Sat	4 a.m. - 5:15 p.m.	4 a.m. - 5:15 p.m.	7 a.m. - 5 p.m.	7:45 a.m. - 3:30 a.m.	24 hours
Sun	4 p.m. - 1 a.m.	4 p.m. - 1 a.m.	4 p.m. - midnight	4 p.m. - 3:30 a.m.	24 hours

PUBLIC LABS—TWIN CITIES CAMPUS

Location	Batch	Interactive	Micro
East Bank			
Arch 160		X	X
CentH		X	
ComH		X	
DiehlH 270, 207		X	
EltH 121, 125		X	
EltH N640	X		
Exp Eng 140		*	
FolH 14, 14a	X	X*	X
LindH 26	X	X	
MechE 308		X	
Physics 69		*	
SanfH		X	
TerrH		X	
VincH 4		X	
WaLib 204		X	
West Bank			
BlegH 25		*	
BlegH 90	X		
BlegH 140		X	
MdbH		X	
OMWL 2		X	
SocSci 167			X
St. Paul			
BaH		X	
ClaOff 125	X	X	

* Research cluster; access to CYBER CA and VAX/VMS
X in interactive column indicates access to MERITSS

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Michael M. Skow, Acting Director

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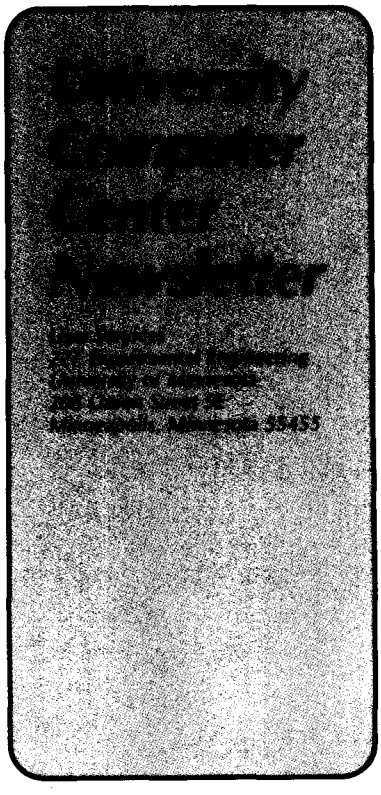

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