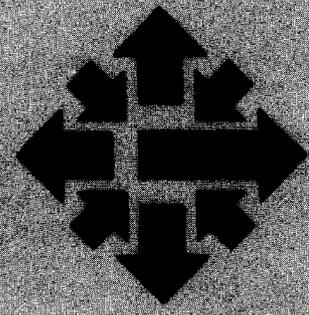


University Computer Center Newsletter

University of Minnesota
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CRAY News: COS and CFT Will Change in March

UCC will upgrade our CRAY-1 to COS 1.12 bugfix 1 and CFT 1.11 bugfix 1 in March. Because of advances in CRAY software, the new operating system level incorporates significant changes from the current system. The major enhancements include:

- Permanent dataset privacy
- COS security
- Improved memory management facilities
- New subroutine calling sequence for stack-based languages
- Segmented loader (DOC# SR-0066)
- More effective job scheduler
- CRAY Pascal (DOC# SR-0060)

WRITEUP(CRAYCHG) enumerates ongoing updates.

Changes to COS

Both COS internals and the command language will change. System-controlled and user-controlled memory management will be implemented.

The 1.12 operating system automatically adjusts field length between job steps unless you disable it. COS security will permit secure parameters on control statements; it edits out these parameters before the control statement is echoed to the user log.

You may also specify that all datasets you create during a job step be closed and released at termination of that job step.

The subroutine calling sequence is different: arguments are stacked in registers instead of simply loaded before an entry point.

CFT (CRAY FORTRAN) and the loader have been changed accordingly. COS 1.12 is larger: it will take almost 61,000 words of memory. Station buffers and other utilities use

ACCOUNT	—Allows you to change account passwords on the CRAY. This replaces CRAYPW for changing CRAY passwords on the CYBERS. CRAYPW will disappear.
ACCESS/ACQUIRE	—An OWN parameter specifies dataset ownership.
ADJUST	—An ADJUST is performed automatically if a permanent dataset decreases in size. The command still exists for use at your discretion.
AUDIT	—Reflects dataset privacy. OWN and CW are new parameters.
DISPOSE	—Can no longer be used to route a dataset to the COS input queue. You must use SUBMIT.
*FETCH	—A non-permanent ACQUIRE, used in the same way as an ACQUIRE.
JOB	—Reflects the new memory management capabilities of COS. An MFL parameter specifies maximum field length; the 1.11 M parameter is ignored.
LDR	—Performs compressed loads only when directed to do so in COS 1.11. In the new COS, LDR performs compressed loads by default. New parameters for security and memory management have been added. It searches new libraries as well as old.
*MEMORY	—A new control statement that allows you some control over system memory management.
MODE	—1.11 MODE statements no longer work; 1.12 MODE has two keyword parameters.
OPTION	—Output reflects dataset accounting by device.
*PERMIT	—Allows you to grant or deny various modes of dataset access to other users.
RFL	—No longer exists in COS.
RELEASE	—A hold option has been added to enable you to release a dataset without releasing a system resource.
UPDATE	—Has been made more efficient. YANK and UNYANK directives have been added.

Exhibit 1. Changes to the COS command language that will occur in March. The * indicates a new command.

additional memory, so the maximum working memory for jobs on the CRAY will be about 910K when programming. The next release of COS (COS 1.13) is rumored to take an additional 5,000 words of memory. Changes to the COS command language are listed alphabetically in Exhibit 1. New commands are preceded by asterisks. For more

information and examples, see WRITEUP(CRAYCHG).

Changes to Libraries

The COS 1.12 loader will be changed to accommodate all library changes. \$FTLIB will be split up along functional lines and the following libraries created:

- \$ARLIB**—contains routines that return numerical results;
- \$IOLIB**—contains routines that transfer data between external devices and memory;
- \$UTLIB**—contains routines that give either non-numeric or system-dependent results. All SKOL routines are replaced with CFT routines.

READMS and WRITEMS will move to \$IOLIB.

SKIPD, SKIPF, and SKIPR will move to \$UTLIB.

The SETPOS and GETPOS routines will move to \$IOLIB. They will be asynchronous.

New search routines will be added to \$SCLIB to search an array for all occurrences of a given target with an implied logical relationship.

The SCATTER and GATHER routines will be replaced with faster versions.

Changes to CFT

CFT 1.11 includes the following features:

- 46-bit integer multiply and divide. 1.10 CFT was either 24-bit or 64-bit.
- MAXBLOCK and OPT parameters added to the CFT control statement. The MAXBLOCK parameter permits you to set the maximum block size for optimization and vectorization. The OPT parameter allows you to select partial, full,

or no optimization of certain IF statements and to enable or disable 46-bit integer multiply and divide.

- Several new compiler directives (SHORTLOOP, INT64, FASTMD, SLOWMD, NO SIDE EFFECTS, NOIFCON, RESUMEIFCON).
- A constant increment integer (CII) in expressions that no longer inhibits vectorization.
- Appropriate IF statements automatically converted to either the MAX or the MIN function, thereby allowing vectorization where otherwise permissible.
- CFT generates new calling sequence code for subroutine calls after a site has converted to the new calling sequence.
- \$FTLIB split into four specialized libraries.
- Unblocked I/O may be performed on a dataset.

Impact on Current Programs

Unfortunately, current relocatable and absolute binaries will not run under COS 1.12. You must recreate all existing binaries using the new CFT or CAL products. The following items may also concern you as you convert from COS 1.11 to COS 1.12:

- No more than 123 distinct common blocks may be declared in a single CFT program unit when you use the new calling sequence. The old calling sequence allowed 124.

- Some CFT programs that depend on the preservation of argument association across subroutine calls will not work with the new calling sequence.
- The new calling sequence uses A6 as a pointer to the argument address block, B77 during the entry sequence, and A0 during the exit sequence. These registers will be destroyed and should not be used by CAL programmers for arguments or results.
- The new calling sequence reserves three B registers formerly available to CAL programmers: B02, B66, and B67.
- CAL programs that use the ARGADD, CALL, CALLV, ENTER, or EXIT macros from 1.12 \$SYSTXT should expect an increase in assembly time. The increased complexity of these macros is necessary for the support of both old and new calling sequences. You will see this effect when you use either calling sequence.
- LDR will abort if a mixture of old and new calling sequence is encountered during a load. The calling sequence of the libraries must match the calling sequence of the relocatable binary being loaded.

WRITEUP(CRAYCHG) on the CYBERS contains additional information about these upgrades. If you have further questions, call our HELP-line, 376-5592. (Brian J. Cook)

CYBER Notes

SUIPIO GOING AWAY

SUIPIO, a UCC-written program from the early 1970s, has provided the University with user operated remote job entry (RIE) terminals. But the two terminals that SUIPIO supports—UNIVAC 1004s and Control Data UT200s— have been or are being removed. We are replacing them with HASP workstations. Thus, after many years of faithful service, SUIPIO will retire.

Its replacement is RBF (Remote Batch Facility), a Control Data-supported product. RBF supports HASP multileaving workstations and emulators, and UT200 terminals and emulators. We are currently looking into supporting 2780/3780 terminals and emulators. RBF is described in the *Remote Batch Facility Version 1 Reference Manual* (CDC publication 60499600, revision K), and in WRITEUP(RBF).

RBF is currently operational and we encourage you to use it. SUIPIO will be removed from operation on March 17, the end of winter quarter. Current SUIPIO users will be given new RBF user numbers to replace

2400 baud UT200	(612) 376-5864
4800 baud UT200	(612) 376-5959
2400 baud HASP	(612) 376-5880
4800 baud HASP	(612) 376-5842

Exhibit 1. RBF phone numbers.

their SUIPIO site codes. New users who want to use their own remote batch terminals should contact our accounting department (373-2521) for an RBF account number.

One very important note: over the years, we have extended the UT200 protocol that SUIPIO and the locally written UT200 terminal emulator used for communication. This included features such as upper- and lower-case printing. RBF does not support any of these extended features; it strictly adheres to the original UT200 protocol. If you depend on these features, you must convert your emulators to ignore them, or convert to a protocol that supports upper- and lower-case printing, such as HASP.

If you need assistance, call our HELP-line, 376-5592. The RBF phone numbers are listed in Exhibit 1.

NEW ARCHIVE

A new future ARCHIVE (version 4.1) was placed on the CYBER CA system February 1. The basic change converted the program to Pascal 6000 version 4. We also completed some minor bugfixes.

This ARCHIVE features complete upward compatibility with ARCHIVE 4.0 tape format and automatically converts tapes to the new format. To obtain a copy of the future version, enter the control statement:

FUTURE(ARCHIVE)

IS THERE AN MD IN THE HOUSE?

Those of you who use our MERITSS system may have noticed that a new system appears in the log-on message: MD. This is UCC's old CYBER 825, which is currently being used by a special group of University classes. Most MERITSS users are not affected by its existence. Further information about the MD system will appear in future *Newsletters*.

Consulting

ROOM CHANGE

UCC's in-person General and Statistical Consulting has moved from 140 Experimental Engineering to 130 Experimental Engineering.

General consulting hours are 10 a.m. to 4 p.m., Monday through Friday, and 7 to 9 p.m., Monday through Thursday. Statistical consulting hours are noon to 1 p.m. and 2 to 3 p.m., Monday through Friday.

IMS Journal

PHONE CONSULTING TIME CHANGE

Effective February 15, the data base HELP-line hours will change to 10 to 11 a.m., Monday through Friday. The phone number, 376-1761, will remain the same.

Microcosm

MICRO HELP-LINE MOVES

The Microcomputer HELP-line has moved from 139 Shepherd Labs to 125 Shepherd Labs. The Microcomputer Research Lab has also moved to room 125. The HELP-line hours and phone number remain the same: 376-2975 (DR MICRO), from 10 a.m. to noon and from 2 to 4 p.m., Monday through Friday.

U OF M MICRO USERS GROUP

This month's meeting of the University of Minnesota Microcomputer Users Group will be from 1 to 4:30 p.m., Thursday, February 9, in 102 Walter Library on the east bank of the Minneapolis campus.

Speaker Joel Sydnos, Radio Shack marketing representative, will discuss and demonstrate the new Radio Shack (Tandy) TRS-80 Model 2000

and the portable Model 100. Come any time during the scheduled meeting period for a look at these systems.

Our March meeting will be at 3:15 p.m., Thursday, March 8, in 133 Physics (Minneapolis east bank). Cathy Interdonato of Sensor-Based Systems Metafile will discuss this data base manager. For more information about these programs, call Audrey Grosch, 376-7661.

November Questionnaire Results

The November 1983 issue of the *Newsletter* included a questionnaire for readers to complete and return, to give us a better sense of who you are and what you expect from the *Newsletter*.

Sixty-three people have responded so far (as compared with 114 the last time we ran a questionnaire, in November 1981). Although the rate of return is small, we believe it worthwhile to share the results with you.

Of the respondents, 25 were faculty, 15 staff, 13 grad students, 1 an undergrad, and 11 off-campus (two people were both staff and grad students, which accounts for the total of 65). Responses came from a wide range of University departments and off-campus agencies and businesses. No individual unit was represented by more than three responses.

These respondents seem more sophisticated than those of two years ago: 31 were familiar with two or

more languages/programs, 19 with one, 10 were casual users, 1 a beginner, and 2 "other" (one used a micro daily, but was a mainframe beginner; the other knew one language or package well, but didn't use our computers often).

Updates about changes and services were the most popular topic, followed by technical and general articles. Next in order of interest were the phone/hours/lab list, short course information, statistics on use, and advertisements.

In terms of what other or different information people would like to see in the *Newsletter*, many expressed an avid interest in microcomputers, several people requested more detailed information about how to use the packages available at UCC, others suggested software evaluations by UCC staff and reviews of computer magazines and other publications.

The most common complaint was that the *Newsletter* arrived *after* some

of the meetings or special hours it announced had passed. The October issue was, in fact, two weeks late due to production problems. But most other issues are available the first week of each month, although they are sometimes delayed in the mail. We do the best we can to announce events and system changes as soon as we have the dates in hand (preferably two months in advance), but this is not always possible. We will continue to try, however, and we hope we can improve our performance during this year.

Our thanks to all those who took the time to respond; we appreciate your interest and concern. We hope to do some follow-up interviews later this quarter with those who expressed a willingness to participate. If you have any questions or concerns about the *Newsletter*, write the editor, 227 Experimental Engineering, or call 376-1491.



Professional Services Division

UCC's Professional Services Division (PSD) was established in 1977 to help researchers and administrators, both within the University and in the larger community, use computer technology to solve a wide variety of problems.

The Division's goal, as described in its mission statement, is to provide the University community with computer expertise for use in systems development, system analysis, programming, and training. PSD has worked on projects that range from programming instructional materials for a class in nutrition to planning a system for account posting and recording to writing a program to match the sorority house choices of prospective "rushees" to the houses that wanted them to join. Most projects take one or two months to complete but, depending on its relative complexity, a project could take from one hour to six months.

Three types of project agreements

are available. The most common is "time and materials," which states the cost implicitly: the final cost is determined by the time and materials used to accomplish the project. We use such agreements when the clients favor it or for projects of short or indeterminate duration.

The second type, "fixed cost," states explicitly the cost to complete the project, including all materials and personnel time. We use this agreement when the client's needs are very strictly specified or when the client requires it.

For projects longer than six months, PSD has established a "retainer" agreement in which the costs to the client are explicitly stated in the agreement while specific goods and services are not.

Personnel time for PSD contracts is billed at an average rate of \$35 per hour, depending on the activity performed. System analysis, for example, is more costly than

keypunching. There is no charge for the initial client contact to determine needs (up to a limit of four hours), nor is there a charge for the estimate of costs to complete the project. Beyond the inquiry phase, work begins upon acceptance of the contract for services, and charges are accrued according to the set rates.

PSD staff members work on our CYBER, CRAY, or VAX systems as well as on any of several microcomputers. We have graphics facilities to generate slides and charts. If you need statistics from surveys, please contact us for assistance. We will convert tapes as needed, either from an internal format to one that can be taken to another computer center or from external form to one that can be more easily used on our systems.

If you need any computer assistance, contact the Professional Services Division at (612) 376-1764.

(Phil Kachelmyer)

Grants for Research

NEWS FROM ORD

The Office of Research and Development (ORD) of the University's College of Liberal Arts has completed its computerized index of faculty research interests. The index alerts faculty to special funding opportunities in their research areas as they are announced. Faculty can also use the index to locate others at the University with similar research interests.

In January, ORD and the Graduate School made available the Sponsored Program Information Network (SPIN) in 404 Johnston Hall. SPIN, managed by the State University of New York, maintains and updates information on funding opportunities, deadlines, program officers, etc. for about 2000 major public and private funding agencies.

If you have a complicated grant budget to write or if you are unsure about such things as indirect costs, fringe benefits, and matching fund requirements, ORD has a budget writer program you might find

helpful. Budgets that usually require hours to complete can often be done in less than 30 minutes. To make an appointment to use the program, call ORD, 373-5101.

ORD has prepared a small brochure that explains the rules and guidelines governing grant accountability. The topics addressed include: allowable vs. unallowable costs; how to make budget revisions; effort reporting; program monitoring and reporting; and changes in the program.

ORD uses a number of software programs developed for the IBM-PC. They include Condor (a data base manager), Calc 86 (a math spreadsheet), Proofwriter (a word processor that is an especially attractive package if you use foreign characters or mathematical symbols), and Personal Bibliographics System. ORD would be happy to answer your questions about these programs and to demonstrate them for you.

For more information about any of these items, call the Office of Research and Development, 373-5101.

Computer Store

Whether you use our mainframe computers or a micro at home or on campus, the Computer Store, 20 Experimental Engineering, can meet your needs for computing information and supplies.

Reference materials for FORTRAN, Pascal, and the CYBER, CRAY, and VAX operating systems are either on-hand or can be special ordered. If you are interested in using one of our systems via a home computer or remote terminal, check out the COM software packages for use with the IBM-PC, Zenith Z-100, Xerox, Apple, and Terak.

You can charge your purchases to your non-instructional user account or to a departmental type-11 journal voucher, or pay with cash or a personal check. The Store is open from 9 a.m. to 4:30 p.m., Monday through Thursday, and from 9 a.m. to 3 p.m., Friday.

Call us at 373-4877 or stop in at 20 Experimental Engineering if you have any questions about our service.

Winter Quarter Short Courses

REGISTRATION: You can register at the UCC Computer Store, 20 Experimental Engineering (hours: 9 a.m. to 4:30 p.m., Monday through Thursday, 9 a.m. to 3 p.m., Friday). A self-service terminal for registration is located inside the store. We accept mail registrations for an additional \$1 fee per class. The deadline for registration is store closing on the last working day *before* the class begins. You may pay course fees with cash, check, University journal voucher, 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 any questions about short courses or about registration, call Jerry Stearns, 376-8806, or see WRITEUP(CLASSES) on the MERITSS or CYBER systems.

INTRODUCTORY COURSES

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

090 Introduction to Microcomputers: MS-DOS (Mark McCahill)
Feb 6-10 (MWF) 3:15-5 p.m.

130 XEDIT (Michael Dunham)
Feb 7-16 (TTh) 2:15-4 p.m.

ADVANCED COURSES

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

510 System 2000 Data Base Management (Cheryl Vollhaber)
Feb 13-Mar 2 (MWF) 3:15-5 p.m. \$30-\$40-\$50

640 Beginning Pascal (Peter Oberg)
Feb 13-24 (MWF) 2:15-4 p.m. \$25-\$40-\$60

530 SPSS (statistics package) (Bruce Center)
Feb 13-17 (MWF) 2:15-4 p.m. \$20-\$30-\$55

570 TELL-A-GRAF Graphics (Carol Saylor)
Feb 21-Mar 1 (TTh) 3:15-5 p.m. \$30-\$45-\$75



PHONE NUMBERS

Access:

CYBER(CA)—10, 30 cps	376-5730	Equipment Purchase/Information	376-8153
—120 cps	376-5706	Experimental Engineering I/O	373-4596
MERITSS(ME)—10, 30 cps	376-7730	Graphics Software	376-5592
—120 cps	376-7120	HELP-line	376-5592
VAX/VMS(VA)—(autobaud)	376-9770	9 a.m.-5 p.m., Monday-Friday	
Budgets	373-2521	HOURS-line (recorded message)	373-4927
Computer-Aided Instruction	376-2975	Information, Experimental Engineering	373-4360
Computer Hours (recorded message)	373-4927	Information, Lauderdale	373-4912
Computer Store	373-4877	Instructional Labs	376-2703
Consulting		Instructional Services	373-7745
HELP-line	376-5592	Lauderdale Computer Room	373-4940
9 a.m.-5 p.m., Monday-Friday		Lauderdale Services	373-4995
Business Data Products	376-1761	Lauderdale Services Manager	373-7538
1-3 p.m., Monday-Friday		Lauderdale Users' Room	373-4921
Statistics Packages	376-5062	MECC Liaison	373-7745
1-2 p.m., Monday-Friday		Newsletter Subscription	373-4912
Data Bases	376-1761	Permanent File Restoration	376-5605
10-11 a.m., Monday-Friday		Professional Services Division (PSD)	376-1764
Microcomputers	376-4276	Project Assistance	376-1764
10-12 a.m. and 2-4 p.m., Monday-Friday		Reference Room	373-7744
Non-Numeric Computing	376-2944	Remote Batch (RJE) Services	376-2703
1-3 p.m., Monday-Friday		Short Courses	376-8806
TELL-A-GRAF/DISSPLA	376-2663	Shuttle Bus Service	376-3068
1-3 p.m. Tuesday, Thursday		System Status (recorded message)	373-4927
Contract Programming	376-1764	Tape Librarian: see Lauderdale Services	
Data Base Applications	376-1764	Text Processing Services	376-2943
EDUNET Liaison	373-5780	User Accounts	373-4548
Engineering Services	376-1023, 376-8153		

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. - 1:30 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. - 1:30 a.m.	24 hours
Sun	4 p.m. - 1 a.m.	4 p.m. - 1 a.m.	4 p.m. - midnight	4 p.m. - midnight	24 hours

PUBLIC LABS—TWIN CITIES CAMPUS

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

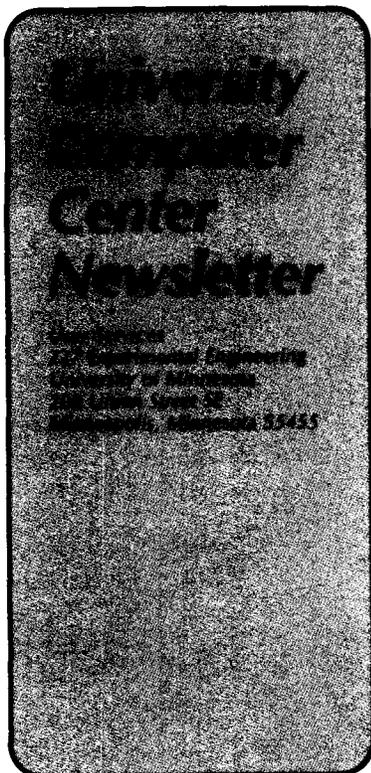
The *UCC Newsletter* is published monthly by the University Computer Center. Deadline for articles is the 10th of the month preceding publication; deadline for short announcements is the 15th. The *Newsletter* is edited and coded for typesetting at the Computer Center, then typeset on a Linotron 202 and printed at the University of Minnesota's Printing and Graphics Arts Department.

Comments, suggestions, articles, and announcements should be directed to the editor, 227 Experimental Engineering, (612) 376-1491.

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

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