

# Lawrence Berkeley National Laboratory

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PUB-429

Volume 24, Number 11  
November 1987

# LBL COMPUTING NEWSLETTER

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**NOVEMBER 1987**

PUB-429

## NAMES & NUMBERS TO KNOW

From on-site, dial <xxxx>    From off-site, dial (415) 486-<xxxx>    From FTS line, dial 451-<xxxx>

### INFORMATION & COMPUTING SCIENCES DIVISION

Head: Leroy Kerth (LTKerth) .....7474    50B - 2232E  
Deputy: Sandy Merola (AXMerola) .....7440    50B - 2232C

### COMPUTING AND COMMUNICATIONS RESOURCES

Head: Ken Wiley (KGWiley) .....7083    50B - 2258E  
Office of Computing Resources:  
    Dave Stevens (DFStevens) .....7344    50B - 2258F  
LBLnet Manager: Sig Rogers (SGRogers) .....6713    50B - 2258G  
Telephone Services: Sam Gibson (FSGibson) 4234    80A - 103

### ADVANCED DEVELOPMENT PROJECTS

Head: Dennis Hall (DEHall) .....6053 .....50B - 3238

### WORKSTATION GROUP

Group Leader: Richard LaPierre (RLLaPierre)....4692.....50F - 112B  
Software Evaluation & Acquisition .....6858    50B - 2265

### COMPUTING SERVICES

Head: Marv Atchley (FMAatchley) .....5455    50B - 2245  
Asst. Head: Serge Polevitzky (SIPolevitzky) ...6053    50B - 2239B  
Central Office .....5871,2    50B - 2239

### VMS SYSTEM

Eric Beals (ERBeals) .....5351    50F - 143  
System Manager (GPJohnson) .....6211    50B - 1225

### UNIX SYSTEM

Dave Cleveland (DHCleveland) .....5336    50F - 115  
System Manager (RJCochran) .....5565    50F - 127

### DISTRIBUTED PRINTING

Bob Rendler (RERendler) .....5629 .....50F - 119  
System Manager (RJCochran) .....5565    50F - 127

### USER RESOURCES

Jerry Borges (JTBorges) .....5568    50F - 144  
Accounting .....7008    50B - 1232A  
HELP DESK .....5981    50B - 1272  
Math Libraries .....4749    50F - 114  
Library/ Document Sales .....6919    50B - 1232C  
Opening a New Account (PSBean) .....7008    50B - 1232B  
UNIX and Cluster  
    Software Evaluation & Acquisition .....5568    50F - 144

### COMPUTING FACILITIES

Connecting a Remote Terminal (ACMills) ...7444    50B - 2249A  
Graphics .....6945    50F - 126

### COMPUTING FACILITIES (Continued)

Network Coordinator (WDJaquith) .....4388    50F - 109  
Operations Area .....6211    50B - 1215  
Terminal or Port Repair (PGMurray) .....5354    50B - 2259

### COMPUTING APPLICATIONS

Applications Group  
Head: Jerry Borges (JTBorges) .....5568    50F - 144

### CENTRAL ELECTRONIC MAIL FACILITY

FIRST INITIAL-MIDDLE INITIAL-LAST NAME is the standard recipient format in Lab-wide mailing address.

Examples: VMS: lbl:JASmith  
            UNIX: JASmith@lbl.gov  
            Software Tools: JASmith@lbl.gov

### DEVELCON

#### DEVELCON Access Names

[ VAX 8650's (GENERIC) .....CSA ]  
VAX 8650 (VMS) .....CSA1  
VAX 8650 (VMS) .....CSA2  
VAX 8650 (VMS) .....CSA3  
VAX 8650 (VMS) .....CSA4  
VAX 8650 (VMS) .....CSA5  
  
VAX 11/ 780 (UNIX4) .....UX4  
VAX 11/ 750 (UNIX5) .....UX5  
IS V-24 (UNIX8) .....UX8

#### Dial-up Access Numbers

All Machines - 300 BPS ..... 486-4959  
All Machines - 1200 BPS ..... 486-4979  
All Machines - 2400 BPS ..... 486-4969

#### Local TYMNET Access Numbers for DEVELCON

	1200 bps	2400 bps
Oakland	430-2900	633-1896
Walnut Creek/Concord	935-0370	935-1507
San Francisco	974-1300	543-0691
Santa Clara	408-980-8100	986-0646
Palo Alto	415-366-1092	361-8701
Vallejo	707-644-1192	
Antioch	754-8222	
Fremont	490-7366	
Pleasanton	462-2101	

MFE Consulting Number is ..... 422-1544

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## SCHEDULES FOR COMPUTER CLASSES

IN THE TRAINING ROOM, BLDG. 50B, RM. 1237

or

IN THE BUILDING 50F CONFERENCE ROOM

Jerry Borges

The following computer classes are to be offered by Computing Services. With the exception of the FOCUS sessions, there is no charge for these classes. To enroll,

obtain your supervisor's approval and then contact Pat Bean (x7008). If you have questions about what's being offered, or suggestions for other computer-oriented topics, contact Jerry Borges (x5568).

DATE	TIME	DESCRIPTION	INSTRUCTOR
Nov 2, 3, 4	9 AM - 4 PM	Beginning FOCUS 102/104	IBI Instructors
Nov 12	11 AM - NOON	Electronic Mail: Introduction	William Jaquith
Nov 16, 17	9 AM - 4 PM	FOCUS: Intermediate Report Preparation	IBI Instructors
Nov 19	11 AM - NOON	Electronic Mail: Further Topics	William Jaquith
Dec 15	1:30 PM - 3 PM	VMS Language Sensitive Editor	Cliff Stoll
Dec 16	1:30 PM - 3 PM	VMS Source Code Analyzer	Cliff Stoll
Jan 13, 15, 1988	12:30 - 4:30 PM	Introduction to VAX/VMS	Marty Gelbaum

IN THE MAC TRAINING ROOM, BLDG. 50B, RM. 1229

Claudia Madison

The following computer classes are to be offered by the Workstation Group. There is no charge for these classes. To enroll, obtain your supervisor's approval and then contact Dana Conant, (x5872). Those classes with asterisks appended are already full.

Call Dana now to sign up for classes later in the year. For more information, see THE WORKSTATION SCENE elsewhere in this Newsletter. If you have questions about what's being offered, or suggestions for other computer-oriented topics, contact Richard LaPierre (x4692).

DATE	TIME	DESCRIPTION	INSTRUCTORS
Nov 10, 12, 17, 19	1 - 2:30 PM 3 - 4:30 PM	Beginning WORD 3.01*	Karla Savage, Anne-Marie Soulsberg, Jean Wolslegel
Nov 11, 13, 18, 20	1:30 - 3 PM	Beginning Excel Spreadsheet*	Nancy Travis, Sandy Mahannah Claudia Madison, Dana Conant
Nov 16	10 AM - NOON	Using Your MAC as a Terminal	Cliff Stoll
Nov 17	10 AM - 11 AM	Introduction to HyperCard	Bill Brown
Dec 1, 3, 8, 10	1 - 2:30 PM 3 - 4:30 PM	BASIC MAC (WORD 3.01 & Excel)	Claudia Madison, Anne-Marie Soulsberg, Jean Wolslegel
Dec 7, 9, 11	1 - 3 PM 3 - 5 PM	Beginning Excel	Nancy Travis, Sandy Mahannah Claudia Madison, Dana Conant
Jan 12, 14, 18, 21 1988	1 - 2:30 PM 3:30 - 5 PM	Beginning MS WORD	Karla Savage, Jean Wolslegel Claudia Madison, Anne-Marie Soulsberg

## LBLNET NEWS

Bob Fink  
Sig Rogers

### LBLnet Activity

Building 70A is now a separate bridged LAN called 70ALAN. Building 70 remains in MISCLAN. This will enable ThinWire Ethernets to be created in Building 70A.

90LAN has been restructured to provide a building-wide "core" that enables ThinWire Ethernets to be created more easily in the Building 90 complex.

### ICS Contract Signed

As reported in Currents on October 2, a contract has been signed with Contel Business Systems that will replace all existing Centrex voice telephone and Develcon/Gandalf data-switching services. In addition, a large amount of fiber optic cable (154 fiber miles) will be installed for LBLnet expansion.

This fiber optic cable will provide the final pieces that LBLnet services need to expand to the entire Laboratory. Buildings at LBL to be directly served with optical fiber are Calvin Laboratory, Donner Laboratory and Buildings 5, 7, 16, 25, 29, 62, 66, 69, 72, 76, 77 and 80.

These locations will then serve as distribution feed points for other buildings to receive LBLnet. In addition, this will provide the ability to reach Evans Hall on the Berkeley Campus to provide interconnection of LBLnet and the UCB Campus-Wide Network.

### New Organization

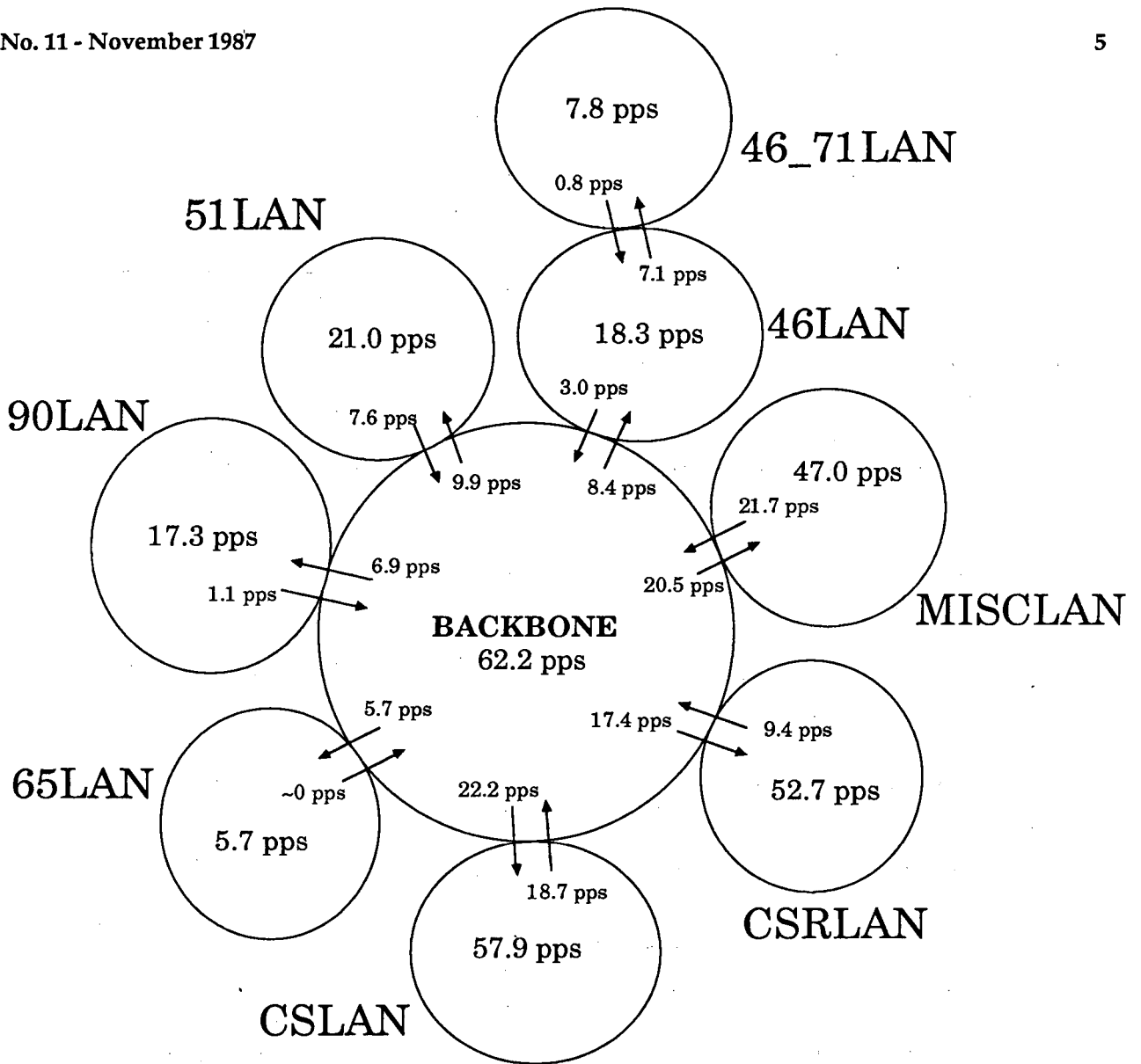
Now that the ICS installation is underway, a new department, Computing and Communications Resources (CCR) has been formed in the Information and Computing Sciences Division. CCR, headed by Ken Wiley, has three components:

- the Telephone Services Office (formerly in the Administration Division), managed by Sam Gibson;
- the Office of Computing Resources (OCR), managed by Dave Stevens; and
- a newly-created Communications and Network Facilities (CNF) Office, managed by Sig Rogers.

The existing LBLnet activities are part of the new CNF under Sig Rogers.

Forward comments or queries to Bob Fink (x5692) or Sig Rogers (x6713).

VMS Mail:	lbl::RLFink
UNIX or Software Tools Mail:	RLFink@lbl.gov
VMS Mail:	lbl::SGRogers
UNIX or Software Tools Mail:	SGRogers@lbl.gov



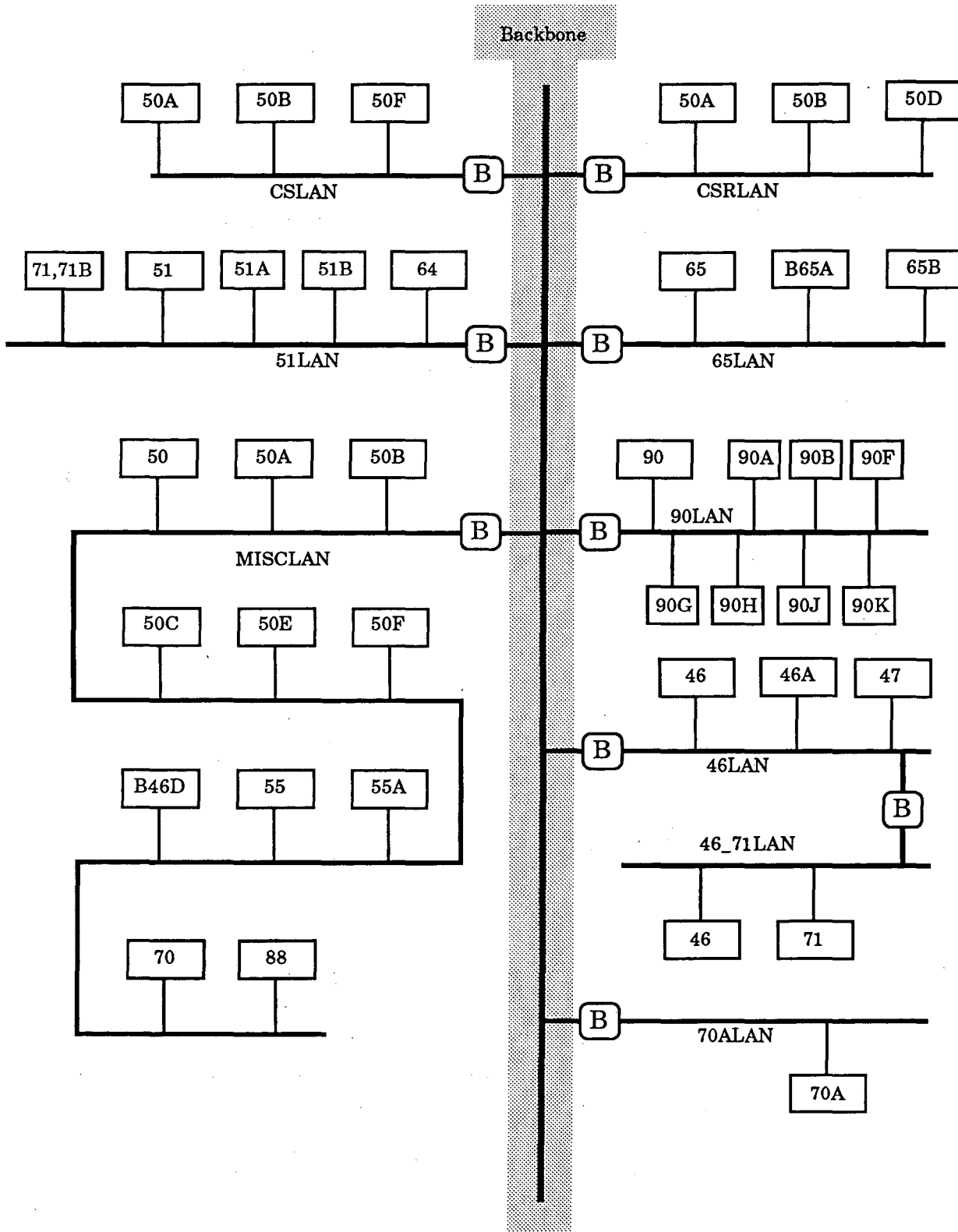
pps = packets per second; all figures are monthly averages

arrows represent packet flow through a LanBridge from one LAN to another

Note: Each ellipse shown above is a separate Ethernet that is interconnected to the others via Digital LanBridge-100 devices that provide forwarding of packets based on a learning algorithm that minimizes traffic between networks to those packets addressed to computers on another Ethernet.

## LBLnet Activity September 1987

ICSD/CCR
Fink/Rogers



(B) DEC LAN Bridge 100

Lawrence Berkeley Laboratory - LBLnet  
**Overview - Block Diagram**  
 Bob Fink, Sig Rogers / CCR  
 October 15, 1987



## UNIX NEWS

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... Free in November!

### UX1 IS UP & RUNNING

---

Dave Cleveland

UX1, UNIX service on a computer from Sun Microsystems, Inc., is now operational, and users can run on it at no charge during November.

Running on a Sun-3/280 system, it provides interactive and batch computing. Users of this system will have access to the modern features of the Sun UNIX programming environment, including the SunView window environment and the Network File System. Available software includes Macsyma, the IMSL and NAG mathematics libraries, and other software -- such as the new TELNET command for communication with MFE and UCB Crays -- that is presently supported on the present UNIX systems. All of this software will not be available initially but should be ready in November.

We'll be turning off UX4 and UX8 on December 1. If you're now using either of these systems, we encourage you to move your files to UX1 very soon. We're making this move as easy as possible for you by providing an environment that's nearly identical. However, be aware of some problems:

- (1) Executable code must be recompiled!  
Programs which you wrote on the VAXes won't run on the Sun, since the machine code is different. This won't affect most folks, who use the UNIX systems for text processing.
- (2) You'll have to move your own files!  
However, we are providing tools to help you move files from the old VAXes to the new Sun systems. See the On-line HELP file HELP TRANSFER.

It would probably be wise to do some house-cleaning at this time -- don't just copy all your files blindly -- since disk space may be tight. You won't want to copy executable images, nor "core" files, or all of that old data from 1963.

Although you'll be required to move your own files, a systems staffperson will make a TAR backup tape of all user files. This means that if you neglect to copy a file or two, a copy of it will live on tape for a year (until December 1988).

UX3, a Sun-3/180, is expected to be available in December. It will provide interactive computing and will also be used as a server for Sun diskless workstations that provide the SunView Window environment.

Forward all comments and questions to

VMS Mail:	lbl::DHCleveland
UNIX or	
Software Tools Mail:	DHCleveland@lbl.gov

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### UNIX MAIL

---

Cliff Stoll

If you love UNIX, but you're forced to use VMS, you'll be happy to know that you can now make the LBL mail system look just like the UNIX mail system. We've made a new interface into the LBL Software Tools Mail System which makes the Software tools mail system look and feel like the standard UNIX mail system.

You can access this from the CSA Vax cluster by typing

\$ UNIXMAIL

You'll be prompted with an ampersand, and can get help by entering a question mark.

Since the new interface uses standard UNIX calls, all of the warts and bugs in the Berkeley UNIX mail system will exist in UNIXMAIL. Most users will probably use the standard LBL mail systems (VMS MAIL or Software Tools MSG). This interface is experimental and bug reports should be sent to Kenneth Adelman (x6966) or

VMS Mail:	lbl::KAAAdelman
UNIX or	
Software Tools Mail:	KAAAdelman@lbl.gov

## GRAPHICS NEWS

### HERE'S GNUPLOT

Nancy Johnston

Gnuplot is now available on the VAX/VMS Cluster and will be available on the Computer Services UNIX machines (UX1 and UX3) when they are up and running. Gnuplot is an interactive package written by Thomas Williams and Colin Kelley of Villanova University. It is in the public domain.

Gnuplot plots any number of algebraic expressions given in C or FORTRAN syntax. Salient features:

- It supports plotting of data files.
- It supports user-defined X and Y ranges (optional Y auto-ranging).
- It supports a load-and-save capability.
- All computations are performed in the complex domain. Just the real part is plotted by default, but there are functions available to override this.
- Drivers are available for the AED 512, AED 767, BBN BitGraph, HP2623, HP75xx, PostScript, QMX QUICK, ReGis (VT125 and VT2xx), Selanar, Tek 401x, Vectrix 384, and Unixplot. (Some drivers are only available on either UNIX or VMS but not both systems.)
- There is a PC version which supports IBM CGA & EGA, Hercules, ATT 6300, and Corona 325 graphics.

Gnuplot does not produce fancy axis-labeling or titles, but is excellent for a "quick" look at your data or function. To give you a flavor of what Gnuplot can do, the following commands created the picture on this page:

```
# define some functions in gnuplot
damp(t) = exp(-s*wn*t)/sqrt(1.0-s*s)
per(t) = sin(wn*sqrt(1.0-s**2)*t - atan(-sqrt(1.0-s**2)/s))
c(t) = 1-dam(t)*per(t)
#
# wn is a natural undamped frequency,
# s is the damping factor
#
wn = 1.0
set xrange [0:13]
set samples 250
set dummy t
```

```
#
plot c(t) for several different damping factors, s
#
plot s=.1,c(t),s=.2,c(t),s=.5,c(t),s=.7,c(t),s=.9,
c(t),s=1.0,c(t),s=1.5,c(t),s=2.0,c(t)
```

To find out more about Gnuplot on the VAX cluster you can type:

HELP GRAPHICS GNUPLOT

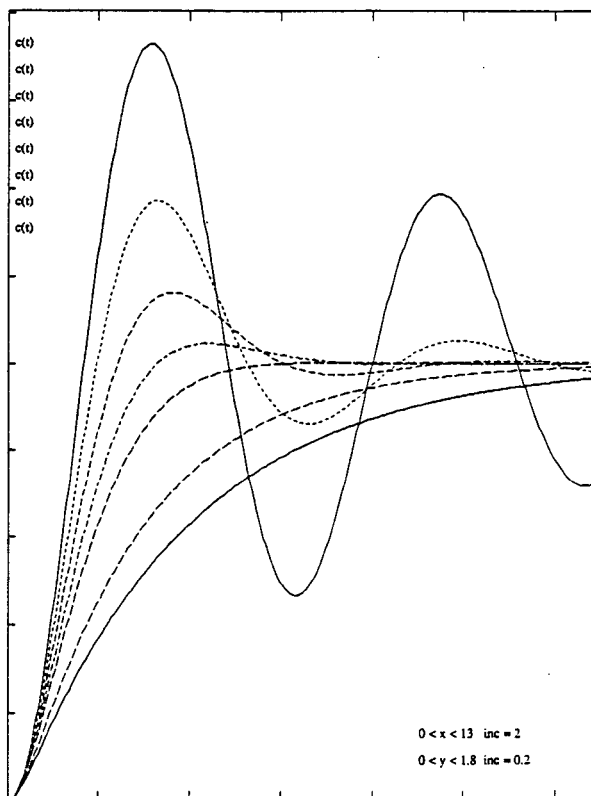
On the UNIX machines type:

man gnuplot

Gnuplot is not supported by Computing Services, but the source is freely available. Bug fixes can be reported to the authors. The documentation is available on-line or you can obtain a copy of it from the Computing Library, Bldg. 50B, Rm. 1232B, (x4242).

Forward comments and questions to me at

VMS Mail:	lbl::NEJohnson
UNIX or	
Software Tools Mail:	NEJohnson@lbl.gov



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**EVANS & SUTHERLAND  
PS-390 GRAPHICS TERMINAL**

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Cliff Stoll

The LBL Physics Division has a new graphics terminal, the Evans & Sutherland PS-390. It's designed for interactive, 3-dimensional modelling, computer-aided design, presentation of complex data, and viewing solid models. Its primary purpose is to display track data from high energy physics experiments at the proton-antiproton collider at Fermilab. Additionally, it has already been used to create an articulated model of the Keck 10 meter telescope. There are many other possible uses of this terminal, including molecular modeling, structural design, and mechanical engineering. It may be made available to other LBL groups on a non-interference basis.

This graphics terminal lets you display 3-dimensional data in color from any viewpoint, with perspective corrected automatically. Unlike other graphics terminals, it can perform rotations, zooms, and translations on subsections of your data, as fast as you can turn a knob. It's even possible to show solid models in stereo. With an effective resolution of 4000 x 4000 pixels, it's useful for displaying models with great detail. It communicates with the CSA VAX Cluster over Ethernet, so number-crunching applications on the cluster can quickly display their results in 3-D on this terminal.

The terminal is available for evaluation by other groups with possible applications. Interested people should contact Stu Loken, (x6915), to see its capabilities.

Forward comments and questions to

VMS Mail:           lbl::CPStoll  
 UNIX or  
 Software Tools Mail:   CPStoll@lbl.gov

**SOLUTION TO LAST MONTH'S PUZZLE**

D	I	M	I	N	I	S	H	█	S	P	R	E	A	D
R	█	O	█	█	█	P	█	█	█	E	R	█	I	█
U	N	T	O	█	T	E	N	D	E	R	F	O	O	T
M	█	O	█	S	█	C	█	█	█	I	█	T	█	H
M	A	R	C	O	N	I	█	I	N	S	P	I	R	E
E	█	█	█	O	█	F	█	N	█	H	█	C	█	R
D	E	P	O	T	█	I	N	C	H	█	H	I	E	S
█	█	O	█	█	█	C	█	I	█	█	█	Z	█	█
C	O	M	A	█	L	I	E	N	█	L	E	E	C	H
A	█	A	█	S	█	T	█	E	█	A	█	█	█	O
P	A	N	O	P	L	Y	█	R	A	M	P	I	O	N
A	█	D	█	I	█	█	█	A	█	E	█	M	█	E
B	R	E	A	K	F	A	S	T	S	█	S	P	R	Y
L	█	R	█	E	█	█	█	O	█	█	█	E	█	E
E	N	S	U	R	E	█	C	R	U	M	B	L	E	D

---

## MORE ABOUT DEVELCON

---

Cliff Stoll

The Develcon System switch continues to be temperamental. Problems include

- o crosstalk (seeing someone else's output on your terminal),
- o noise (random characters on your screen),
- o race-overloads (zillions of characters coming from nowhere), and
- o failure to get the "green light".

These problems come from several sources, and we're doing our best to fix 'em.

The Develcon switch was built way back in the Jurassic age, before the discovery of fire or diagnostic software. Since we can't run diagnostics on the box, we must rely on you to tell us of its problems.

Here's how you can help:

- (1) As soon as you find a problem that you think is from the Develcon, **don't disconnect**. Instead, call Real Time Systems Group (Paul, Lloyd or Chuck at x5354) and tell 'em. They'll want to know your wall-box number, which is scribbled on the blue/grey box that your blue box is attached to. The wall box number will be 3 or 4 hex digits (like 1A2 or 1523).
- (2) They'll also want to know where you're connected to (like CSA4, TXA5:)
- (3) Then, describe the problem in detail. They need to know if the noise is on your outgoing or incoming line (if there are spurious characters, do they get recorded in the file you're editing, or just show up on your terminal?).
- (4) If you're seeing someone else's output, is it possible for you to communicate with your original process, or have you been connected completely to a different process?
- (5) What type of characters are being screwed up (lots of ZZZZ's or escapes?)

All of us are experiencing the same problems. We're trying hard to nail the problem, but its random nature makes this tough.

The good news is that the Develcon will become extinct next year, when it's replaced with a new lab-wide telecommunications system.

If your terminal allows it, you should select 2 stop bits when communicating at 9600 baud: this can reduce the number of line errors when you hold down an up or down arrow key in the editor. To do this, you'll have to change the setup parameters.

Incidentally, think about this. There are well over 2000 users up on the Hill and the Develcon records about three connections per second during the day. While it's no consolation to you when you're the one with the problem, think of all the times that good connections are made. Related to this is our inability to turn off Develcon for repairs during the day, since jillions of other users aren't troubled by your problem.

Forward comments and questions to

VMS Mail:	lbl::PGMurray
UNIX or Software Tools Mail:	PGMurray@lbl.gov

## CONSULTANT'S DESK

### Bold Greek Characters in T<sub>E</sub>X

T<sub>E</sub>X provides many special characters through control sequences explained in Donald R. Knuth's book "The T<sub>E</sub>XBook." For example, `\iff` yields a symbol for "if and only if" ( $\iff$ ), and `\AA` yields the angstrom symbol (Å). You can access other characters in T<sub>E</sub>X by defining new T<sub>E</sub>X control sequences. Here we show how to get various kinds of bold-face Greek letters in T<sub>E</sub>X. You access the regular Greek letters by basic control sequences of T<sub>E</sub>X. For example, `\alpha` yields  $\alpha$ , `\Gamma` yields  $\Gamma$ , and so on. However, T<sub>E</sub>X does NOT define control

sequences for the bold-face Greek letters. The file `boldgreek.tex` defines control sequences for the bold Greek characters; this file is in the T<sub>E</sub>X macro file directory on both the CSA cluster and the Computing Center UNIX machines. The table below shows the control sequences and output for some regular and bold Greek characters. To use the control sequences for the bold Greek characters shown below, (such as `\boldalpha`), you need to include this file of definitions by the command `\input boldgreek` in *your* T<sub>E</sub>X source file.

INPUT	REGULAR	INPUT	BOLD
<code>\alpha</code>	$\alpha$	<code>\boldalpha</code>	$\alpha$
<code>\beta</code>	$\beta$	<code>\boldbeta</code>	$\beta$
<code>\gamma</code>	$\gamma$	<code>\boldgamma</code>	$\gamma$
<code>\Gamma</code>	$\Gamma$	<code>\boldGamma</code>	$\Gamma$
<code>\mit\Gamma</code>	$\Gamma$	<code>\boldmitGamma</code>	$\Gamma$
<code>\delta</code>	$\delta$	<code>\bolddelta</code>	$\delta$
<code>\epsilon</code>	$\epsilon$	<code>\boldepsilon</code>	$\epsilon$
<code>\varphi</code>	$\varphi$	<code>\boldvarphi</code>	$\varphi$

The table shown above was produced using a package of macros for making tables in T<sub>E</sub>X. These macros are available on the CSA cluster and the Computing Center UNIX machines by the command `\input table_macros`. The paper, "Making Tables with Macros," explains how to use these macros, which simplify the creation of ruled and non-ruled tables in T<sub>E</sub>X. You may get this paper from the Computing Center library.

Martin Gelbaum

---

## NAG LIBRARY UPDATE ON CSA

---

Marty Gelbaum

The CSA copy of the NAG Fortran library of mathematical and statistical routines will be updated to Mark 12 from Mark 11 on Tuesday, November 3. You can link programs that use NAG routines (as in the past) by typing

**LINK program, SYS\_NAGD/LIB**

The Computing Center library and the Help Desk have the updated NAG manuals.

Note that the calling sequences of Mark 11 routines have NOT been changed and that CSA continues to offer only the double precision version of the NAG

library. 175 new routines were added to the NAG library; you may obtain a list of them from the Computing Center library.

Some of the new features of this new version (Mark 12) include:

- (1) Some library routines and all the new example programs Fortran 77 constructs that were not supported by the Fortran 66 standard.
- (2) A modified and improved error-handling mechanism is invoked by all routines when needed.

Twelve (12) routines were withdrawn from the NAG library at Mark 12. Warning of their withdrawal was included in the Mark 11 library manual, together with advice on which routines to use instead. The relevant chapter introduction documents give further guidance. Here is a list of the withdrawn routines and their recommended replacements:

Withdrawn Routine	Recommended Replacement
C06ACF C06ADF	C06EKF or C06FKF C06FFF
E04VAF, E04VBF, E04WAF	E04VDF (easy-to-use) OR E04VCF (comprehensive)
E04ZAF E04ZBF	E04ZCF (Not needed since E04WAF was withdrawn)
H01ABF, H01ADF, H01AFF, H01BAF	E04MBF (easy-to-use) or E04NAF (comprehensive)
H02AAF	E04NAF

You may link to the old version of NAG (Mark 11) by using the system logical name

**OLD\_NAGD**

However, we intend to phase out the the old version of the NAG library by November 17. Therefore, please convert any programs that use the withdrawn routines as soon as possible.

Forward comments and questions to me, (x4749), or

**VMS Mail:** **lbl::M\_Gelbaum**

**UNIX or**

**Software Tools Mail:** **M\_Gelbaum@lbl.gov**

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## CHECKING THE CLUSTER LOAD: AN UPDATE

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Marty Gelbaum

A new program is now available that shows information about activity on the whole CSA cluster. This program is much quicker and more informative than the version described in the May, 1987, newsletter.

Invoke this program using the system-defined symbol

**CSALOAD**

Here is sample output from CSALOAD:

Node	Job Counts		Average Load			Average Priority		
	Users	Batch	1min	5min	15min	1min	5min	15min
CSA1	20	2	2.65	2.90	3.24	5.31	5.40	5.42
CSA2	28	0	1.07	1.03	0.85	4.04	4.15	3.88
CSA3	18	1	3.08	2.99	2.54	5.31	5.38	5.39
CSA4	25	0	0.31	0.41	0.53	2.41	2.62	2.74
CSA5	17	2	1.01	0.66	0.88	3.27	2.75	3.12
Total	108	5						

(This sample was taken at 1:13 PM on Friday, October 16).

This means that on CSA5, for example, there were 17 interactive users and 2 batch jobs.

"Average load" means the average number of jobs that were "computable" AND waiting to use the CPU over the last one-, five-, and fifteen-minute intervals. You might call this number the average length of the "queue" waiting to use the CPU. Notice that processes waiting on I/O requests are NOT "computable" and are NOT blocked waiting for the CPU. For example, our process is waiting on I/O if we are considering what to type next at the terminal.

"Average priority" means the average priority of the process currently using the CPU over the last one-, five-, and fifteen-minute intervals. (On CSA5, for example, the average priority of the process actually using the CPU was 3.27 in the last minute, 2.75 over the last five minutes, and 3.12 over the last 15 minutes.)

Over the whole cluster, there were 108 users and 5 batch jobs when this command was run (Friday, October 16, at 1:13 PM).

Forward comments and questions to me, (x4749), or

VMS Mail:       lbl::M\_Gelbaum  
 UNIX or  
 Software Tools Mail:   M\_Gelbaum@lbl.gov

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## LANGUAGE SENSITIVE EDITOR IS ON THE CLUSTER

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Cliff Stoll

LSE, the Language Sensitive Editor, is now available on all five CSA VAXes. This editor helps you write correct source code since it knows the grammatical rules for languages like FORTRAN, C, and PASCAL. It's helpful for both novices and experts, and you can compile and link your program without leaving the editor.

We'll be teaching a class on LSE during December, and a teach-yourself program will soon be available on-line.

There's a snazzy way to use LSE from within the debugger to fix errors as you find them. You can also use LSE as your default VMS Mail editor, and there are interfaces to the VAX Performance Coverage Analyzer. (PCA is only on CSA3 right now; if there's enough demand, we may purchase licenses for the other machines). In short, LSE is an excellent editor for folks developing source code and debugging programs. Forward comments and questions to me, (x4111) or

VMS Mail:	lbl::CPStoll
UNIX or Software Tools Mail:	CPStoll@lbl.gov



## POSTMASTER'S CORNER

William Jaquith

*This is the Postmaster's Corner. We'll answer frequently-asked Electronic Mail questions here.*

*You can also get answers to your Electronic mail questions by sending them to Postmaster or PostOffice on the CSA cluster.*

There will be two Electronic Mail classes in November. (See Page Three of this Newsletter). The first will be an Introductory class. The second class will be for users who can send and receive mail and who would like to know more about network addresses, how to use editors with mail, how to create distribution lists, how to use folders, and other related subjects.

**QUESTION:** I am not sure what my correct electronic mail address is. Is it my userid at CSA or my full name at LBL or what? And what is the node name? There appear to be a number of electronic mail addresses. Can you tell me why?

**ANSWER:** This is a confusing area because many computers have several names and because many people have several ways to receive electronic mail.

First let's confirm an understanding of the term **userid**. The **userid** (or **username** or **login name** or **account name** - all are the same thing) is the information that you enter in response to the prompt 'Username' (on VMS) or 'login' (on UNIX) when you are logging on to the computer. Typical **userid**'s are **pat**, **tomr**, **st135**, and **smith**.

You can send mail to other people on the same computer that you are on by simply sending mail to that person's **userid**. If the person is on a different computer, you still can send them mail, but you must now include more information. You must include their **userid** on the remote computer plus the name of that remote computer. This is where much of the confusion arises, because computers frequently have different names to different groups of people.

The computer typically has the ability to accept many different node names or addresses. This is due to alias mechanisms and because the computers are known by different addresses in different networks. Thus the CSA3 computer can be known as **CSA3**, **CSA3.LBL.GOV**, **LBL-CSA3.ARPA**, and **LBL-CSA3**.

The different node names allow people on other networks to communicate with LBL - a valuable service.

Perhaps an example will help illustrate what is going on in terms of electronic addresses and why. Let's examine the possible addresses for a user named Frank Skeffington who has an account on the CSA cluster with **userid** **FRANKJ**. Following is the list of valid addresses that I can think of (there may be more):

\* For local users (on any of the CSA computers)

**frankj**

\* For the HEPnet/DECnet

**lbl::frankj**  
**csa::frankj**  
**csa1::frankj**  
**csa2::frankj**  
**csa3::frankj**  
**csa4::frankj**  
**csa5::frankj**

\* For the Milnet/ARPA

<b>frankj@lbl.gov</b>	
<b>frankj@lbl.arpa</b>	
<b>frankj@csa1.lbl.gov</b>	<b>frankj@lbl-csa1</b>
<b>frankj@csa2.lbl.gov</b>	<b>frankj@lbl-csa2</b>
<b>frankj@csa3.lbl.gov</b>	<b>frankj@lbl-csa3</b>
<b>frankj@csa4.lbl.gov</b>	<b>frankj@lbl-csa4</b>
<b>frankj@csa5.lbl.gov</b>	<b>frankj@lbl-csa5</b>
<b>frankj@lbl-csa1.arpa</b>	<b>frankj@csa1</b>
<b>frankj@lbl-csa2.arpa</b>	<b>frankj@csa2</b>
<b>frankj@lbl-csa3.arpa</b>	<b>frankj@csa3</b>
<b>frankj@lbl-csa4.arpa</b>	<b>frankj@csa4</b>
<b>frankj@lbl-csa5.arpa</b>	<b>frankj@csa5</b>

\* For the MFE net

**frankj@lbv**  
**frankj@lbw**

\* For the Bitnet

**frankj@lbl**

Every one of these addresses is valid. The preferred addresses are the first ones listed in each section. The reason that the first address is preferred is because the LBL address is best known throughout the network communities and because Computing Services will insure that if at all possible the name LBL will never go away or be changed. Some of you may recall that a number of computers have gone away (**PHYS**, **GEN**, and **PDM** to mention a few). The computer hardware

that is LBL has changed recently, but the names and addresses were transferred with the hardware (not a trivial task, but worth the effort for the continuity of mail addresses).

Now let's add another option: Mr. Skeffington has elected to be registered in the LBL Central Electronic Mail database. His entry is FJSkeffington. Now, in each case you can swap out the FRANKJ and substitute FJSkeffington. Again, every address listed above is valid and again you are best served by using the first listed address in each section. Part of the value of using the LBL Central Electronic mail database is that you can simplify and reduce the different addresses. Following is the reduced subset that you will find easier to use:

- \* For local users (on any of the CSA computers)  
FJSkeffington
- \* For the HEPnet/DECnet  
lbl:FJSkeffington
- \* For the Milnet/ARPA  
FJSkeffington@lbl.gov
- \* For the MFEnet  
FJSkeffington@lbv
- \* For the Bitnet  
FJSkeffington@lbl

In these examples I have used typical address patterns and syntax. check with the systems people at the remote node for specific local syntax. Please note that if you are already using an address, there is no need to change.

Now let's examine the possible addresses for a user named Kris Davidson who has an account on the UX8 computer with userid ICSDKD. Following is the list of valid addresses

- \* For local users (on the UX8 computer)  
icsdkd
- \* For the Milnet/ARPA  
icsdkd@ux8.lbl.gov  
icsdkd@ux8  
icsdkd@lbl-ux8.arpa  
icsdkd@lbl-ux8
- \* For the HEPnet  
There is no direct access.
- \* For the MFEnet  
There is no direct access.
- \* For the Bitnet  
There is no direct access.

The UX8 computer is a member of the Milnet and not the other three, and thus has direct access to Milnet computers. It is possible to use gateway computers like LBL to send and receive mail between UX8 and the HEPnet, the MFEnet, and the Bitnet. Professor Davidson might also elect to be installed in the LBL Central Electronic Mail database as KADavidson. Now she can advise her correspondents that her electronic mail address is:

- \* For local users (on UX8)  
icsdkd
- \* For the Milnet/ARPA  
KADavidson@lbl.gov
- \* For the HEPnet  
lbl::KADavidson
- \* For the MFEnet  
KADavidson@lbv
- \* For the Bitnet  
KADavidson@lbl

Remember that the Central mail database will forward mail to the computer that is preferred - in this case UX8. In addition, Professor Davidson has a more meaningful name - KADavidson, rather than ICSDKD. This use of the LBL mail facilities also has expanded the networks that Professor Davidson can easily communicate with.

... *Hermes - Postmaster*

Forward comments or queries to William Jaquith  
(x4388) or

VMS Mail:	lbl::WDJaquith
UNIX or	
Software Tools Mail:	WDJaquith@lbl.gov

## THE WORKSTATION SCENE

### [24.11.1].....

#### ● WORKSTATION GROUP ELECTRONIC MAIL

Workstation Group members can now be reached from the VMS cluster or the Computing Division's UNIX machines by sending mail to

VMS Mail:       lbl::WKSG

UNIX or

Software Tools Mail:   WKSG@lbl.gov

We hope this alternative (to the telephone) will be of assistance to users who have problems or would like to forward helpful hints.

### [24.11.2].....

#### ● NEW C-KERMIT BETA RELEASE

A new test release, *C-Kermit, 4E(067)*, has been installed on the CSA Cluster and Unix systems. Major changes from the current distribution include:

#### New Features

- New VMS implementation.
- Support for long packets.
- Performance improvements: less copying of data, more efficient I/O.
- Easy escape from packet mode.
- File bytesize mask added to *set file type {text, binary} {7, 8}* so Kermit can be used to strip 8th data bit during file transfer independent of parity setting.
- New *set terminal bytesize {7, 8}* command.
- New *set retry* command to adjust packet retransmission limit.
- Better reporting of statistics.

Further development of the VMS Kermit-32 (Bliss language version) will be discontinued. VMS Kermit effort will now be concentrated on the C version.

Columbia reports that benchmarks show

- a slight improvement in efficiency when sending files with regular length packets
- a large improvement when receiving files,
- a very dramatic improvement when receiving files when using parity.

Use of long packets improves efficiency even more, up to a point (a function of the packet length and the particular system) past which it degrades again. A good

packet length for VAXes seems to be 300-800 bytes, where Columbia got effective baud rates in the 50-80% range at 9600-baud. Another site reports that file transfers run well with 1000-byte packets.

Fairly minor problems have been reported to Columbia thus far. If no significant problems are reported with the VMS and UNIX implementations within a few weeks, version 4E(067) will become the standard distributed version of C-Kermit, and will replace the current VMS and UNIX system Kermits.

To access it on Unix, type

```
kermitx
```

To access it on VMS, see the next article.

You are encouraged to use the new *kermitx* test release and report back to Bob Rendler <rerendler@lbl.gov> or (x5629) any problems or bugs you may have encountered during your Kermit sessions.

Forward comments and questions to me --

VMS Mail:       lbl::RERendler

UNIX or

Software Tools Mail:   RERendler@lbl.gov

### [24.11.3].....

#### ● INVOKING THE NEW C-KERMIT

In an effort to minimize undesirable clutter in user logins (which can happen when many system symbols have to be defined) a global system symbol **KERMITX** will not be defined automatically on the VMS machines when you login. You can invoke the new C-Kermit in either of the following two ways.

- (1) You may define a symbol "KERMITX" by executing the command

```
kermitx ::= $microtools:kermitx
```

in your *login.com* file. Then you may execute the new C-Kermit by simply entering the command 'KERMITX'. Or

- (2) you can also invoke C-Kermit by using the command

```
run microtools:kermitx
```

to execute C-Kermit without defining any symbol at all. Note that this version of Kermit may not run at 9600 baud on all VAXen. (The C runtime library routines may be too slow when

run on smaller VAXen.)

[ 24.11.4 ].....

● **WARNING TO LASER PRINTER USERS**

*(Editor's note: The following is adapted from an article that originally appeared in the June 1986 issue of the University of Hawaii Computing Center Newsletter. It is reprinted with permission.)*

**I**f you have ever been tempted to use photocopied (such as Xeroxed) forms in a Hewlett-Packard LaserJet printer - **DON'T!** Photocopied forms and paper bearing print produced by the LaserJet transfer toner to the rollers in the LaserJet during the print process, resulting in streaked copies from that point on. The streaking is not covered by warranty and some universities report that Hewlett-Packard has charged \$200 to clean their LaserJets.

As the print mechanism in the Apple LaserWriter is similar to that in the LaserJet, LaserWriter users might also heed this warning.

[ 24.11.5 ].....

● **HERE'S SMART NOTES**

... from Jose Olivares in LBL's Main Library

**S**mart Notes is a product of Personics Corporation, 2352 Main Street, Building Two, Concord, MA 01742. (I looked at version 1.4.)

**WHAT IS IT?**

Smart Notes is a memory-resident program for the IBM PC. It allows you to associate notes with a document. The idea is the electronic equivalent of using the yellow "Post It Notes". You can add, delete and change the contents of the notes. You can even move the notes around on the document. The notes can be hidden at any time - allowing you to see the entire screen. The notes do not interfere with the document. The notes are stored in their own file. The program works amazingly fast. Notes appear on the screen almost as fast as the source document.

**EASE OF USE**

Smart Notes is easy to use. It uses function keys and hierarchical menus to guide the user. There are help facilities which can be called up at almost any point.

**WORKS WITH...**

a large list of software. In general, Smart Notes works with word processors, data base management systems, spreadsheets, and many other programs. Smart Notes does not work with programs running in graphics mode.

**SYSTEM REQUIREMENTS**

- Smart Notes runs on IBM PCs, XTs, ATs and compatibles.

- Smart Notes requires about 90K of memory. Personics recommends at least 256K of memory on the machine.

- The DOS CONFIG.SYS file should contain these two lines:

```
FILES=20
BUFFERS=40
```

**COST**

\$79.95. Upgrades cost around \$20.

**WHY WOULD I WANT TO USE IT?**

Most word processors, text formatters, spreadsheets, database management systems, operating systems/command processors, and programming languages allow you to insert comment lines. Smart Notes can be used alone or in combination with embedded comment lines. On a color monitor with an EGA board, using Smart Notes makes a big difference. The notes come alive. The use of colors (different from the text of source document) makes the notes very readable. Easy-to-find, easy-to-read and easy-to-use notes are the entire premise of Smart Notes. Their goals are well met.

[ 24.11.6 ].....

● **SOFTWARE VENDOR SUPPORT**

**T**he vendor support list on the following page comes partly from the September 14, 1987 issue of the Stanford Office Computing Newsletter. All telephone numbers, and support information have been verified by the Workstation Group. When calling for technical or other help, you may be asked for your software registration number. With all calls, be prepared to wait for assistance, particularly free service.

Members of the Workstation Group have also had experience with many of these programs; particularly Microsoft Word and Excel. We can also put you in contact with people who have had experience with **TEXTures**, **Cricket** and **PageMaker**. If your software is not listed here, we'll try to help you get similar information for your product. Contact Workstation Group member Bruce Burkhart (x6858).

**TeXtures**

(ADDISON-WESLEY)

Consulting: (617) 944-3700 x2555 - Free  
Customer Info./Upgrades: (617) 944-3700 x2613  
Registered owners may join a TeX Users Group (TUG) for \$15 until 12/31/87. For information call (401) 272-9500.

**Pagemaker**

(ALDUS)

Consulting: (206) 628-2320  
Forty-five days' free support with purchase; day number 1 starts with first call. Extended support \$125/year for IBM-PC version, \$75 for MAC, including free upgrades and 800 number.  
Customer Info./Upgrades: (206) 628-2320

**MacDraw, MacWrite, MacPaint**

(APPLE)

Customer Info./Upgrades: Free upgrades are available through the LBL Workstation Group (x6858).

**Draw, Graph**

(CRICKET SOFTWARE)

Consulting: (215) 251-9890 - Free  
Customer Info./Upgrades: (215) 251-9890  
An upgrade is free if the release is within 45 days of a new purchase. Otherwise upgrades are \$20.

**Lotus 1-2-3**

(LOTUS)

Consulting: (617) 253-9150 - Free  
Customer Information: (617) 577-8500  
Upgrades: (617) 253-9186

**Word, Excel**

(MICROSOFT)

Consulting: (206) 882-8089 - Free  
Customer Info./Upgrades: (206) 882-8089  
These products and upgrades are available through the LBL Workstation Group (x6858).

**VersaTerm**

(PERIPHERALS)

Consulting: (215) 779-0522 - Free  
Customer Info./Upgrades: (215) 779-0522  
Free upgrades are available through the LBL Workstation Group (x6858).

**Word Perfect**

(WORD PERFECT)

Consulting: (800) 321-5906 - Free  
Customer Info./Upgrades: (800) 321-4566

## [24.11.7].....

- COMPUTER CLASSES ON THE UC BERKELEY CAMPUS

**Y**ou all know about the microcomputer classes for Macintosh users given by members of our Workstation Group (See Page 3 of this Newsletter), but did you know that Microcomputer classes -- for eligible University employees who are users of IBM PCs and IBM XT's -- are taught at the Administrative Information Center (AIC) on the UC Berkeley campus? These classes, with one student to a microcomputer, are either lecture, demonstration, or hands-on. For more info, contact Bonnie Retondo, 642-7766. Here's a list of current classes.

**Data Processing Concepts.** Offers an insight to the microcomputer and mainframe environments. Covers data processing terminology and computer programs. One-day classes are offered Nov. 4 thru Sept. 1. Fee: \$15.

**dBASE III PLUS.** Introduces dBASE III PLUS features & commands for building a database, filling it with data, and then manipulating the data (editing, listing, reporting, producing mailing labels, and so forth). Classes are full until February. Half-day sessions are offered Feb. 11/12, Feb. 24/25, Mar. 15/16. Fee: \$75.

**dBASE III Programming.** Introduces dBASE III programming concepts. Students program a small applications system, including database files, program files, and format files (for customized screens). Half-day sessions are offered Nov. 5/6, Jan 20/21, Mar. 1/2. Fee: \$75.

**Intermediate Lotus 1-2-3.** Introduces advanced concepts including: database queries & extracts, conditional logic, file combining, lookup tables, advanced printing techniques, advanced functions, spreadsheet design, file translating. Prerequisite is at least four months experience with Lotus 1-2-3. Classes are full until January. Half-day classes are offered Jan. 20, Feb. 10, Mar. 29. Fee: \$37.

**Intermediate PC-DOS.** Covers advanced concepts of the disk operating system, such as complex file directories, disk space management, program efficiency, batch programming, and system configuration. Half-day sessions are offered Nov. 18/19, Dec. 17/18, Jan. 7/8, Feb. 3/4, Mar. 3/4. Fee: \$75.

**Introduction to Microcomputers.** Covers various components of a microcomputer system, the operating systems, various applications, and software products. Practical experience using an IBM microcomputer is also provided. Classes are full until February. One-day classes are offered Feb. 9, Feb. 23, Mar. 8, Mar. 22. Fee: \$50.

**Introduction to PROFS.** Covers the Professional Office System, a mainframe-based office support system for: maintaining appointment calendars; sending, receiving, and logging electronic mail; and creating, filing, retrieving, and mailing documents. Half-day sessions are offered Nov. 5/6, Jan. 21/22. Fee: \$15.

**Lotus 1-2-3.** Introduces features of Lotus spreadsheets. Exercises concentrate on learning the command area, building spreadsheets, and manipulating cells (moving the pointer, expanding the cell size, using formulas, etc.) Classes are full until March. Half-day sessions are offered Mar. 10/11, Mar. 23/24. Fee: \$75.

**Lotus 1-2-3 Macros.** Introduces advanced functions of 1-2-3 such as: user-defined macros, interactive, automatic, and database macros; and special /X commands. Half-day classes are offered Nov. 10, Dec. 9, Feb. 2, Mar. 1. Fee: \$37.

**Managing Local Area Networks.** Discusses procedures for installing, using, and maintaining a LAN. Half-day classes are offered Oct. 1, Dec. 16. Fee: \$37.

**Office Automation: PROFS Overview.** Describes PROFS functions for those who are trying to determine if they want PROFS accounts. This one-and-a-half-hour lecture is offered Dec. 10, Mar. 3. Fee: free to University employees.

**PET.** Introduces AIC's DePartmental Expense Tracking System, including data entry and the running of reports. Half-day classes are offered Sept. 23, Oct. 21, Nov. 25, Dec. 15, n. 24. Fee: \$15.

**WordPerfect.** Introduction to word processing using WordPerfect. Students learn to create, edit, revise, format, and print documents. Other functions (including generating form letters and mailing labels, using the thesaurus and spelling checker, and converting WordStar files to WordPerfect files) are explored. Classes full until February. Half-day sessions are offered Feb. 10/11, Feb. 17/18, Mar. 16/17, Mar. 24/25. Fee: \$75.

## [24.11.8].....

- AEP COMPUTING FAIR ON CAMPUS

**A**n Advanced Electronic Projects (AEP) Computing Fair will be held on the U.C. Berkeley campus from 10 AM to 4 PM on Sunday, November 15. The Fair will include a program of talks in the Physical Science Lecture Hall from from 10 AM to 3 PM. From 1 PM to 3 PM there will be house demonstrations in several science and engineering buildings showing computing projects in chemistry, chemical engineering, civil and mechanical engineering, geology, seismology, physics, astronomy, geophysics, mathematics and biology.

Speakers and presentations will be: Prof. Alfred Bork (UC Irvine): *Computers and Learning: A 30-Year Perspective* Prof. William Graves (University of North Carolina at Chapel Hill): *Instructional Technologies: An Evolution in Education*, and U.C. Berkeley Professors Bruce A. Bolt, *The Use of PCs in Earthquake Studies*, D. Mark Abrahams, *Berkeley Interactive Statistical System (BLSS)*, Thomas O. Duncan, *Acquisition of Morphological Data by Image Analysis*, Charles K. Birdsall, *Plasma Simulation Using Many Particles*, Filip C. Filippou, *Application of Microcomputers to Analysis and Design of Structures*, and Lonnie Martin, *Graphics Program of the Chemical Periodic Table*.

Admission is free, but advance registration is encouraged. Forms or further information can be obtained from LBLers on the Organizing Committee, John Rasmussen, (x6318), Selig Kaplan (x6336). or Jeannette Mahoney (x4428).

[24.11.9].....

● IBM ON-SITE REPAIR

**I**BM has announced a very aggressive warranty and service repair program for the IBM Personal System/2 product family.

All of the PS/2 products come with a standard one-year warranty. Under this plan, the system unit is returned to IBM for warranty repairs at no cost to the customer. For an additional one-time cost of \$30, the standard warranty can be upgraded to provide on-site warranty repair of the system unit and installed options. Display monitors are covered by an on-site exchange policy. This fee includes parts and labor. The warranty upgrade may be ordered with the system or can be added to existing systems anytime during the warranty period.

This is a very good offering and the Workstation Group recommends the addition of this warranty service to any PS/2 system. We will add this coverage to our PS/2. Our PS/2 Model 80 was Dead On Arrival and it was several weeks before we had a working system. (Had we but known!). It is clear that IBM believes the new technology in the PS/2 family makes for a more reliable system. IBM also offers this service for other product lines, but the cost is prohibitive.

To get all of the details of this warranty upgrade, plan on attending the IBM product show on Wednesday, November 18th. (See accompanying article for details).

[24.11.10].....

● IBM PRODUCT DEMO

**R**epresentatives from IBM will be conducting an all-day Personal System/2 (PS/2) product show on Wednesday Nov. 18th in the Bldg 70A Conference

Room (Rm. 3377).

The PS/2 family was first announced last April. (see May's Computing Newsletter, item 24.5.5). IBM will also be demonstrating the RT/PC, IBM's 32 bit RISC architecture machine running AIX Unix.

There will be short formal presentations of the product line at 10 AM and 1:30 PM. Each will be followed by product demos and hands-on testing. Plan to attend to get all the details of IBM's on-site repair program.

For additional information, contact the Workstation Group (x6858), or IBM's account representative Bill Lahl at 464-5047.

[24.11.11].....

... Publishing on the PC

● VENTURA PUBLISHER

**V**entura Publisher (from Xerox Corp.) is reputed to be the Cadillac of desktop publishing. Although it's available for the PC only, its sales still exceed those of second-best-seller PageMaker (from Aldus Corp.) on the Macintosh and the PC combined. As the rest of the industry continues to wrestle with the need for compound document architecture, i.e., multi-author, multi-format, multi-revision documents which reflect the demands of a real working environment, Ventura Publisher was the first to address these needs successfully.

Publisher comes with its own graphics environment, GEM<sup>1</sup>, much like the Macintosh, complete with pull-down menus, scroll bars, dialog boxes, icons, and item selectors. Since Publisher is the only Desktop Publishing system for the PC which supports compound document architecture and revision tracking, we wondered just how well it could handle all that. Everything we tried was a pleasant surprise. The special features that we had hoped might be included were not, but this was no surprise because they are still on wish-lists throughout the industry. In spite of our unfulfilled dreams, this is definitely an excellent overall package for desktop publishing.

**System Requirements and Installation**

Ventura Publisher runs on an IBM PC, XT, AT and compatibles with 512K memory and a graphics card. An additional 128K is recommended. A mouse is also recommended: you can manage without one, but it is not as easy. Publisher's speed, formatting 20,000 characters per second, is due to its well-designed software, and a slower machine will be quite adequate. I installed Publisher on a AST Premium 286 which is

<sup>1</sup> Graphics Environment Manager.

about 40% to 60% faster than an IBM AT, and the added speed was really more than I needed (layout requires a certain amount of thought!) The only noticeable slow-down occurred when I reformatted text on a page where pictures had already been placed. Publisher uses a document hierarchy wherein articles, style sheets and pictures are stored as individual files. All files which are part of the publication (or "chapter" as it is called in Publisher) are "assigned" to it and can be added to the page as needed. Normally, pictures will be added last, so this shouldn't be a problem.

Installation takes about 20 minutes (although I complicated matters somewhat by installing a mouse and drivers for a 19" LaserView monitor at the same time). There are 11 disks, but many of them contain drivers and fonts to support the wide variety of screen, graphic card and printer options available. One annoyance: you have to repeat the entire procedure in order to change monitor type. On the other hand, you can install up to five printers at one time and quickly switch using the menu. This enables you to preview documents on an HP LaserJet and reformat if necessary for a PostScript printer or phototypesetter. What you get on an HP LaserJet is not quite the same as on a Laserwriter: although print quality is identical, special typographic features such as automatic kerning and layered graphics will only appear on a PostScript printer.

Ventura Publisher includes a reference guide, a concise training guide, and a nice little quick reference. The training guide shows you how to become immediately productive by customizing any of the twenty page layout templates. Since page layout is the most arduous part of the desktop publishing, the templates are real time-savers. By finding an approximate of the layout you want and adding a few customizations, you can quickly get your text, tables, and graphics to the printer without taking a crash course in graphic design. Add this capability to the breadth of file types that Ventura can read and you began to see its strengths.

#### **File Handling Capabilities**

Ventura can mix and match any of the following file types with ease.

**Text:** Ascii, DCA, MS-Word, Multimate, WordPerfect, WordStar, Writer and XyWrite.

**Line Art:** AutoCAD, CGM, GEM Draw, HPLG, Lotus 1-2-3, Macintosh PICT, MacPaint, Mentor Graphics, PostScript Encapsulated and VideoShow.

**Image Art:** CAD DFX format, GEM Paint, General Parametric, PC Paintbrush, PC Paintbrush Plus and Publishers Paintbrush.

Displaying Macintosh graphic images on the PC

seemed like it would be a formidable task, but it turned out to be trivial with Publisher. I transferred a MacPaint file via our TOPS connection to the PC and opened it without any problem with Ventura. (Note: even though Publisher can handle Macintosh files you must still get the Mac files onto your PC.! The TOPS route was also used to port Ventura postscript files for printing on the Macintosh Laserwriter.)

#### **What It Does**

Publisher is a batch pagination program which supports multi-author, multi-file documents. This allows you to put a Microsoft Word document, a scanned image, a Lotus spreadsheet, a WordStar document and a Mac Clip Art image in the same publication with a uniform page layout throughout.

An important feature: editorial revisions made at this level are automatically changed in the original document formats. Thus, if you make changes in one of your author's WordPerfect articles, they will also be made in the original document. When he makes further changes to that document, they will appear in any Ventura chapter assignments which use that article (providing you both refer to the same copy of the article). If you need to combine many types of text and graphics files in a uniform format, Publisher will turn your PC into a powerful page layout environment.

#### **What it Doesn't Do**

Although you can add and edit text and graphics in Publisher, it is not a wordprocessor. Typically, all files which are to be included in the layout are prepared in some other environment which is supported by Publisher. Wordprocessing tasks such as global replacements and major revisions should be performed using a word processor.

#### **But we still hoped**

In spite of all the good things it does, we suspected that it would have trouble handling documents which contained equations. Unfortunately, most desktop publishing software that we have seen are geared towards producing a polished corporate image with little regard for scientific demands. In this regard, Publisher offers about as much support for equations as it does word processing capabilities. In other words, it is possible, but painful. You can add equations and symbols manually in the layout environment, but we do not think this is the ideal place for the task. Document preparation logically should be done before page layout. Equations which are embedded in DCA format documents such as Lotus Manuscript are reduced to their character strings and must be rekeyed in Publisher.

An alternative is to prepare equations in a friendlier environment such as MacEqn or Word on the



Macintosh and then save each equation as a graphic image. Then you can place them in the appropriate places throughout the document, much as you'd add illustrations. This doesn't seem like a sensible way to work. However, this is apparently a problem throughout the desktop publishing industry and we would have been surprised to find out otherwise.

#### Other Notes

After seeing how easily fonts can be manually kerned with Pagemaker, I was appalled to find it can't be done with Publisher. All kerning is automatic and can be turned off or on. If you aren't satisfied with the default kerning, it is possible to edit the width tables for letter combinations on a case by case basis, but this looked like an educational experience beyond the call of duty.

If you are interested in exploring Ventura Publisher, we have a copy available for short-term evaluation (one week). Contact Nancy Travis at the Workstation Laboratory (x6858) for further details.

#### [24.11.12].....

##### ● LOTUS 1-2-3 ADD-INS

**L**otus has announced the availability of **Speedup and Learn**, two free "add-in" programs for 1-2-3 users.

Speedup reduces the time required for recalculations in the spreadsheet. Only those cells with formulas whose value has changed since the last recalculation and those cells that depend on them are recalculated.

Learn is an add-in that records keystrokes as you enter your macro and also allows testing of the macro sequence as it is entered.

As we go to press, we are still awaiting delivery of these two free programs from Lotus, but we should have them by the 1st of November. To get your free copy of the programs, bring a formatted floppy disk to the Workstation laboratory (Bldg. 50B, Rm. 2265).

#### [24.11.13].....

... *We're Serious!*

##### ● BACK UP THOSE HARD DISKS

**I**n the last several months, we have seen a great increase in the number of hard disk-equipped Macintoshes around the laboratory, so we feel it is once again time to stress the importance of backing-up the data which is stored on hard disks. While making backup copies of everything is not very glamorous, or even fun, it is something that simply **MUST BE DONE**. Your author has learned this the hard way more than once!

Data, be it word processing files, spreadsheet files,

database files, or any other form of data, should be maintained in at least two separate places. This means that the data should be recorded on two separate disks or on disk and tape. Having copies of data on two or more different areas of the same physical disk provides no protection against a hardware disk failure such as a head crash.

#### HARD DISK TO FLOPPIES

There are a number of ways that the backup process problem can be handled. Perhaps the most straightforward method is to simply copy files from the hard disk to floppies as the files are modified. This approach is often sufficient for the casual user, especially if one is faithful and consistent in doing it.

#### SPECIAL PROGRAMS

Another approach involves the use of a special disk-backup program, such as DiskFit by SuperMac Software, which automatically copies files from the hard disk to one or more floppy disks. Some of the more sophisticated programs can be instructed to copy only those files which have been changed since the last time the back-up program was executed.

#### CARTRIDGE TAPE DRIVE

Many consider the use of a cartridge tape drive to be the ultimate hard disk-backup method. The Workstation group has recently looked at two tape backup units and either one appears to be satisfactory. Both of these units connect to the SCSI connector of the Macintosh Plus, Macintosh SE, and the Macintosh II. We should also point out that tapes cannot be interchanged between these two units.

#### The Everex 60T

The less expensive of the two units is the Everex model 60T streaming tape unit, which costs \$850 (Laboratory price). Included is software which allows the unit to back-up disks in either "file by file" mode or "disk image" mode.

- With file by file mode, individual files can be recovered from the tape, at some cost (time involved in making the backup).
- In disk image mode, all of the files must be restored at once.

The option of backing-up only those files which have changed since the last backup is available. Capacity is about 60 megabytes per tape. Everex has supplied various peripherals to the IBM world for several years, and we feel that they are likely to be around to support their products in the future.

#### The Apple Tape Backup 40SC

We have also looked at the Apple Tape Backup 40SC (#M2640, \$989 Laboratory price). Its operation is quite similar to the operation of the Everex unit, although it is considerably slower. Capacity is approximately 38 megabytes per tape. Perhaps the one thing that might

make the Apple unit a better buy is the fact that Apple has announced it will be distributing some very large software releases, notably A/UX or Apple's Unix, on the magnetic tape which can be read on this drive. It is also possible that changes to the tape drive software necessary for compatibility with future versions of the operating system may be available sooner from Apple than they would from Everex, although it appears that Everex was able to release their product sooner than Apple did.

RTSS has an Apple Tape Backup unit and will be glad to back up your system for a minimal charge. Call the duty hardware technician (x6411).

[ 24.11.14 ].....

... MAC Memory Upgrades

• HOW MUCH WILL BE ENOUGH??

Last month we looked at the options for Macintosh memory upgrades. This month we'll consider how much we really want to spend.

Perhaps most people will want to add memory to their MACs in order to use the new Macintosh operating system, variously known as Multi-Finder and System 5.0. The main advantage of this new operating system is that the user can keep several applications resident in memory, thereby enabling the user to switch rapidly between applications. We have obtained a Beta release of this jewel (no, we cannot distribute it) and have run a few tests to see what typical memory requirements might be.

The following table represents what we think might be a typical mix of active applications. The measurements were made on a MAC II with 5 megabytes of memory. A similar set of measurements was made on an SE with 2.5 megabytes of memory.

Application	MAC II Memory Required	MAC SE Memory Required
Excel (minimum)	272	272
Word 3.01	384	384
VersaTerm	224	224
Hypercard	750	750
Finder	160	160
System	527	368
Total Memory (in kilobytes)	2317	2158
Largest unused block	2345	347

The System requirement for the MAC II is considerably greater than for the MAC SE; this is probably due to the color capabilities of the II.

We also noted that the total of the memory consumed

by the applications added to the "largest unused block" does not equal the installed memory. Some memory is unaccounted for, but we suspect that it is used up in buffers and other housekeeping chores.

The big memory hog is HyperCard. We assumed that this is exactly the kind of tool that people would want to have available when doing normal work, not only for the Laboratory Telephone book but for the thousand-and-one other handy things that HyperCard will eventually provide.

For the user with the SE or Plus who has installed a single 2-megabyte upgrade, (for a total of 2.5 megabytes), everything in our hypothetical application mix does fit. For a user with a MAC II upgraded to 2 megabytes of memory, there are problems if you want to keep all applications active. It appears that many users will want (need?) 2 of the 2 megabyte upgrades for a total of 5 megabytes.

So the question remains, "How much is enough?" We cannot presume to prescribe that all of a given flavor of Macintosh should be outfitted with a given amount of memory; there are trade-offs of convenience versus money versus performance that must be made. We hope this article will give the user community a little insight into the technical issues involved.

[ 24.11.15 ].....

• MEMORY FOR YOUR MAC II:  
A PERSONAL OPINION

... by Richard LaPierre

I do not believe that most Mac II users should consider expanding their base system with 1 Megabyte of memory to a system with 5 Megabytes of memory in order to accommodate MultiFinder. (See 24.11.14 above). I have problems with adding an \$800 option package, the cost of the memory expansion, to a \$3200 base system for some nifty features that do not solve any real problems for most users.

Incidentally, the same optional upgrade would have cost approximately \$1300 if purchased less than two months ago. One gets accustomed to the rapid depreciation of investments in memory options. Many members of the Workstation Group have their own IBM-compatible PC's and have experienced at least an order of magnitude decrease in the price of the expansion memory they purchased. In most cases however, the optional memory was purchased to run an application that could use the additional memory. For Laboratory applications, we did recommend additional memory to be used as RAM disk, etc., when we felt the price/performance warranted it.

As stated in the previous article we cannot and do not attempt to prescribe to every user how much will be

enough memory. If we look at the "hypothetical application mix" in the article, we should ask *what is the cost and what are the trade-offs.*

#### COSTS

- The cost of the option is \$800. An alternative is an upgrade to 2 Megabytes at a cost of \$165. Note: if your application environment later demands an upgrade to 5 Megabytes, your initial \$165 investment is lost -- unless you can find a buyer; the inexpensive memory cannot be used in the new configuration.

#### TRADE-OFFS

- **Risks:** The perceived hazard is associated with the ability to switch rapidly between applications. One may FAIL to periodically SAVE copies of the file to disk. The speed enhancements result from everything residing in memory with no time "wasted" SAVING a file to disk.

In the "old" environment, launching a new application required SAVING a file to disk before RETRIEVING from disk a copy of the newly-accessed application. Bugs will exist with various application packages in this "new" environment and the results could be disastrous if one does not periodically SAVE to disk. It has already happened to us.

Note: we do not recommend the use of SWITCHER: bombs are quite common in the SWITCHER world.

- **Time delays:** There is at least a 15-second time delay to switch between applications in the "old" environment. This could expand to as much as a minute if you were working with large applications such as several linked Excel spreadsheets. The issue is -- how often will you be switching between your Excel spreadsheet and another program such as Word in the hypothetical mix of the previous article? It would be nice to have all programs of the hypothetical mix "active", but is instant access to all the programs required?
- **Benefits:** If your requirements include a lot of file-transfer activity, then you will probably want VersaTerm or some other Communication program active in memory. MultiFinder is not really a multi-tasking operating system, but it will allow you to transfer files between computers while doing other tasks, such as spreadsheet calculations. Also, if your application requires working with large spreadsheets, Excel will take advantage of the extra memory and the added cost of the optional memory may be a good investment.
- **Conclusion:** There are instances where you will definitely need and use the additional memory option and the \$800 cost will be a good

investment. In many cases however, we may be looking at an \$800 edition of the LBL phonebook if we insist on keeping all our applications active in memory. The price of memory has and will continue to decrease. It is reasonable to assume that the same memory option will be available a year from now for approximately one-fourth the cost. I recommend the 1 Megabyte expansion (cost \$165) since it is clear that the new operating system needs the incremental increase to be of any use. Please call me (x4692) if you have any questions and/or wish to register your opinion on "how much will be enough".

[24.11.16].....

#### • INTERNAL HARD DISKS FOR THE MACINTOSH

We've recently reviewed a couple of moderately large internal hard disks for the Macintosh II. Both provide a significant price advantage over the 80-megabyte drive sold by Apple and we feel that both units are acceptable.

#### • CMS PRO80-II/1

This is an 80-megabyte hard disk. According to rumors, this drive is nearly identical to the 80-Mb drive supplied by Apple; the only difference is that this disk generates just a bit more mechanical noise. It is available from from "The Winner's Circle" in Berkeley for about \$1200. (This price is considerably lower than Apple's Laboratory price). It operates using the standard Macintosh SCSI<sup>2</sup> driver. Our evaluation unit did not include the normal Macintosh II mounting bracket; screws were provided for mounting the drive directly to the disk support inside the system unit. All necessary cables were provided.

#### • Everex EMAC-91D

This is really a CDC "WREN III" 90-Mb drive. CDC WREN drives have a very good reputation in the IBM PC world. This drive does not work with the standard Macintosh SCSI driver; a driver is included along with formatting software. The price to the Laboratory is \$1315, also lower than the price of the Apple 80-Mb drive. The proper bracket used for mounting the drive inside the Macintosh II was attached to the evaluation unit, and all necessary cables were included.

DiskTimer II, a program written by Steve Brecher, was used to get some relative performance information. This program is included with the SuperMac hard disks, but we are informed that the author has no connection with SuperMac.

<sup>2</sup> Small Computer System Interface.

Technical types should note that all three disks were formatted with a 1:1 interleave.

	Reads	Writes	Step Time
MAC II with Apple 40 Mb Drive	37	44	16
MAC II with CMS 80 Mb Drive	36	39	15
MAC II with Everex (CDC) 90 Mb Drive	24	62	6

The absolute times probably don't mean much since the program was written to run on a Plus or SE; the smaller numbers are better.

One thing we don't understand is the relatively large figure for write time with the Everex unit. The software people at Everex haven't been able to tell us much except that they feel it is probably an artifact of the way the DiskTimer works, a conclusion that we are reluctant to accept. We have seen at least one posting on INFO-IBMPC which confirms these findings. Since the "write" performance appears to be relatively poor, we are reluctant to recommend the Everex for situations where fast write times are a major consideration. We feel that this is probably a software problem which may be overcome in the future. Of perhaps greater concern is software compatibility of the Everex-supplied driver with future releases of the Macintosh operating system.

[ 24.11.17 ].....

• HYPERCARD STACKS

As mentioned in last month's Computing Newsletter, we now have the LBL phonebook as a "stack" application for use with Apple's Hypercard program. We also have a new Hypercard Stack with the Periodic Table of the Elements. You will not want to discard your favorite reference handbook, but this stack will provide a handy reference when you are working away on your Macintosh.

To obtain a copy of the either of these programs, bring a formatted floppy to the Workstation Lab, Bldg 50B, Rm. 2265, (x6858).

[ 24.11.18 ].....

• MONITORING WITH DESCRIBE

The Macintosh has a smooth and protective user interface. Most, if not all, of the dirty little details of system configuration are well hidden from the user. Generally speaking, this is good; it avoids the confusion generated by some of the more arcane messages displayed by an IBM PC-type device when it

boots.

There are times, however when one really would like to know some facts about the innards of one's MAC: how much memory is installed, what revision of the system proms are installed, or how much memory is available for applications for example. We've come across Describe, a neat public domain application (from INFO-MAC at Stanford) that will tell us more than we understand about the internal state of our Macintosh. The application is started by simply double-clicking on its icon. After it displays the information that it has discovered, a single click makes it terminate.

You can obtain a copy of Describe by dropping by the Workstation Group Lab (Bldg. 50B, Rm. 2265, x6858), with a formatted floppy disk.

[ 24.11.19 ].....

• NEW MAC CLASS OFFERING

Cliff Stoll of Computing Services will be conducting a class on "Using Your Mac as a Terminal" from 10 AM to NOON on Monday, Nov. 16 in the New MAC Training Room, Bldg. 50B, Rm. 1229.

New Macintosh users of terminal communications packages, such as Versaterm, should find this class very useful. Contact Dana Conant at Computing Services (x5872) to enroll in the class.

[ 24.11.20 ].....

• FREE MAGAZINES  
AT THE MAIN LIBRARY

The Main Library has begun to receive extra copies of MicroTimes and Computer Currents. Both of these magazines are free and a limited number are available in the circulation office of the Main Library (Bldg. 50, Rm. 134).

- MicroTimes, a monthly, bills itself as California's Computer Magazine and contains news items of interest to PC users, reviews of products, and lots of advertisements.
- Computer Currents, a bimonthly, is oriented towards Bay Area computer users. It too has news items, reviews and lots of advertisements. The most recent issue of Computer Currents has an article on good low-cost software as its cover story.

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