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PUB-429

Volume 24, Number 5
May 1987

L B L COMPUTING NEWSLETTER

TABLE OF CONTENTS

NAMES & NUMBERS TO KNOW	2
Computer Class Schedule	3
Electronic Mail Forwarding	3
A Reminder	3
Lab-Wide Ethernet News	4
Ethernet Activity Map	5
DISSPLA-Generated TEKTRONIX Files	6
CERN Library Updated	6
Checking the Cluster Load	7
UNIX Workstation User Group Meeting	7
THE WORKSTATION SCENE	8

"There is nothing so captivating as new knowledge."

... P. M. Latham

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Newsletter Closing Date is Friday, May 15, 1987 ... and no later.

Address all communications for the Newsletter to login **news** on UX8.

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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

OFFICE OF COMPUTING RESOURCES

Head: Ken Wiley (KGWiley)7083 50B - 2258E
Ethernet Manager: Sig Rogers (SGRogers).....6713 50B - 2258G

ADVANCED DEVELOPMENT PROJECTS

Head: Dennis Hall (DEHall).....6053 ...50B - 3238
Workstation Group
Group Leader: Richard LaPierre (RLLaPierre)....4692.....50B - 2239

COMPUTING SERVICES

Head: Marv Atchley (FMAchley)5455 50B - 2245
Asst.Head: Dennis Hall (DEHall).....6053 50B - 3238B
Central Office5871,2 50B - 2239

VMS SYSTEM

Wayne Graves (WRGraves)7035 50F - 146
VMS Cluster Manager (RBAllen).....6203 50F - 116

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
Accounting7008 50B - 1232
HELPDESK5981 50B - 1272
Library/Document Sales.....5529 50B - 1232A
Software Evaluation & Acquisition.....5568 50F - 144

COMPUTING FACILITIES

Connecting a Remote Terminal (ACMills)....7444 50B - 2249A
Graphics6945 50F - 126
Math Libraries.....4749 50F - 114
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.arpa

Software Tools: JASmith@lbl.arpa

DEVELCON

DEVELCON Access Names

[VAX 8600'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	938-0370	935-0905
San Francisco	974-1300	543-0691
Santa Clara	408-980-8100	980-0646
Palo Alto	415-366-1092	361-8701
Vallejo	707-644-1192	
Concord	685-6003	
Antioch	754-8222	
Fremont	490-7366	
Pleasanton	490-7336	

MFE Consulting Number is 422-1544

COMPUTER CLASS SCHEDULE

Jerry Borges

The following computer classes are to be offered by the Information and Computing Sciences Division. 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 (x5588).

DATE	TIME	DESCRIPTION	INSTRUCTOR
May 18, 19, 20	9 AM-NOON	Introduction to VAX/VMS	Rosemary Allen
May 18, 19, 20	1:30PM-4:30PM	DEC Productivity Tools	Cliff Stoll
June 15	9AM-5PM	TELL-A-GRAF, CUECHART & TABLES	Nathan Gold
June 16	9AM-5PM	Advanced TELL-A-GRAF, including Data Connection & PINPOINT	Nathan Gold
June 17	9AM-5PM	DISSPLA with DYNAMICS	Nathan Gold

ELECTRONIC MAIL FORWARDING

William Jaquith

There are two electronic mail systems on the 8600 CSA cluster:

- The DEC mail utility VMS Mail, (**mail**)
- Software Tools Mail, (**msg**).

Mail that comes from the Milnet/ARPA and mail that comes from the Central Electronic Mail database normally come as Software Tools Mail. It is possible to arrange to have mail from either source delivered into VMS mail.

If you prefer to receive only VMS mail, send mail to the account "postmaster" telling the postmaster that you would like to receive only VMS mail and no Software Tools Mail. You will receive VMS mail notifying you when the change has been made.

To automatically forward VMS mail to DECnet nodes that are off the CSA cluster, use the "set forward" command available to you from within the VMS Mail Utility. For example, from within MAIL>, say

set forward bevax::smith

Forward comments or questions to me (x4388), or

VMS Mail: **lbl::WDJaquith**

UNIX or
Software Tools Mail: **WDJaquith@lbl.arpa**

A REMINDER . . .

William Jaquith

The Milnet/ARPA network is meant to be used by researchers and scientific staff for communications and research. While this is a very broad description, the DARPA (Defense Advanced Research Projects Agency) always recognizes several violations:

- 1) commercial use
- 2) personal messages
- 3) unauthorized users

The use/misuse (such as submitting a personal message or request to a public bulletin board) is not a serious problem. (However, DARPA reserves the right to suspend Milnet/ARPA privileges for the individual).

LAB-WIDE ETHERNET NEWS

Bob Fink
Sig Rogers

ETHERNET ACTIVITY

The reconfiguration of CSLAN has been delayed until the 3rd week of April. At that time all the Computing Services Systems will move to a new segment still called CSLAN and the existing segment will become part of MISCLAN.

CSRLAN has now been restructured to be a core segment with 5 local repeaters driving the following segments: 50B floors 3, 4, & 50D; 50A floor 2; 50B floor 2; and a 50B floor 3 ThinWire. The fifth segment is a collection of old ring and experimental segments which can be phased out as host configurations change during the next year.

The Bevatron-HILAC fiber cable path along the beam transfer line is now prepared. Pulling of fiber cable along this route should begin this month. Also beginning this month is the planned installation of four new Ethernet coaxial segments throughout the Bevatron. These are: Core, Control, Experimental Red, and Experimental Blue.

The Building 7 Ethernet has been completed. It is presently a stand-alone Ethernet. Connecting it to the Lab-Wide Ethernet Backbone will wait until the ICS fiber plant is installed or a Vitalank TransLan IV Bridge and associated line drivers are purchased to implement a 230 KB/s link between Building 7 and the 50 Complex.

ETHERNET INFORMATION

The new Cabletron Multi-port Thin Ethernet Repeater has been under test in Building 64. This device is supposed to be equivalent to a Digital DEMPR (Digital Ethernet Multi-Port Repeater), and so far it appears to be:

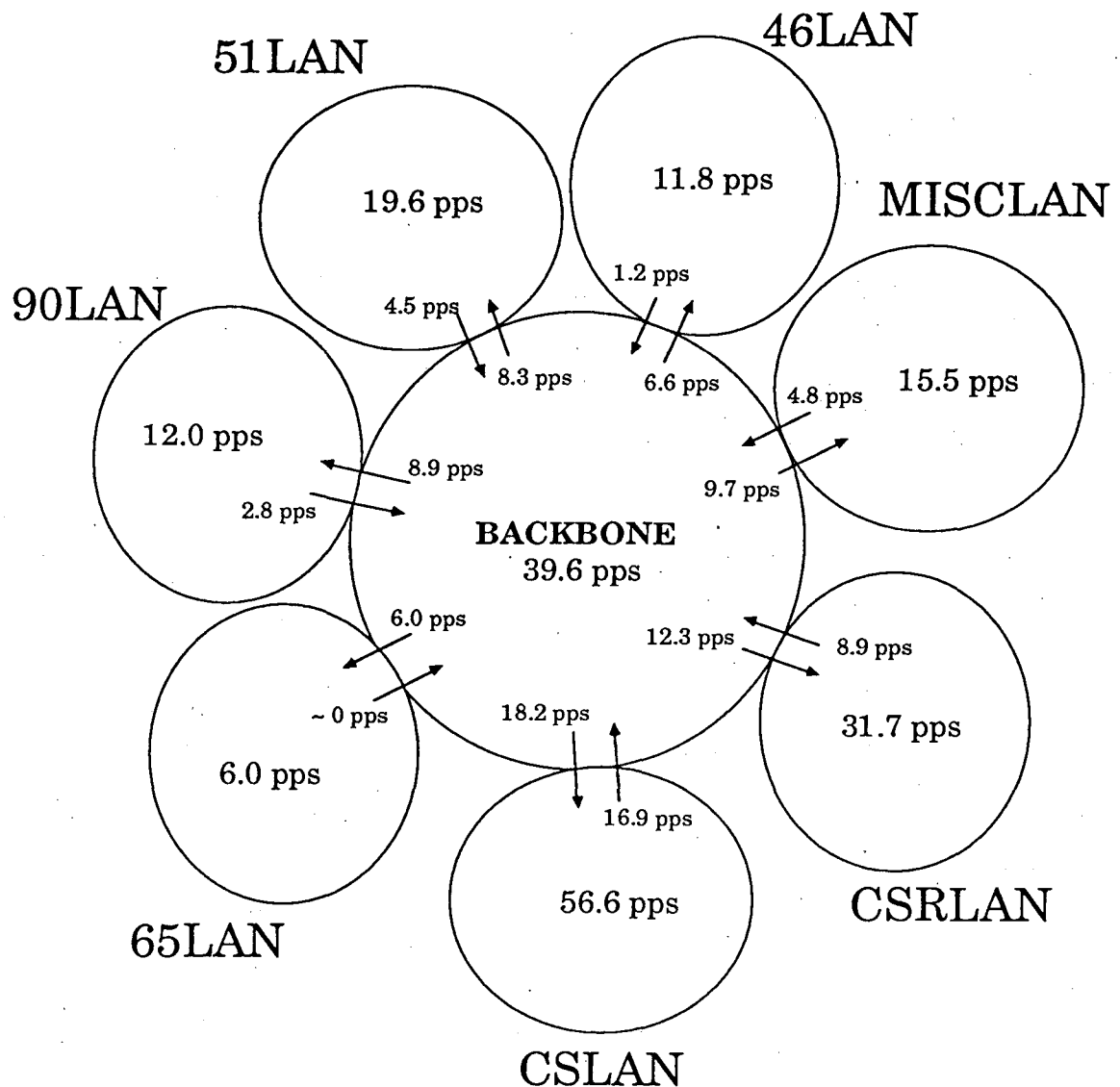
These devices allow up to eight (8) RG-58 Thin Ethernets to be driven from one point on a "Thick" Ethernet. This approach is useful in trailers and modular office areas that do not have central hallways or lack overhead space for placement of the traditional linear "Thick" Ethernet cable. A single DEMPR, or equivalent, can drive many small "Thin" Ethernets from a single point of service, thus allowing cheaper, less complicated and more reliable installations in these situations. Examples to date are the Building 90 trailers and the Building 90 Personnel Office.

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

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

"After taking 99 years to climb a stairway,
the tortoise falls and says there is a curse on haste."

... *Maltese Proverb*



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.

Laboratory-Wide Ethernet Activity March 1987

DISSPLA-GENERATED TEKTRONIX FILES

Marty Gelbaum

You can now use DISSPLA to generate TEKTRONIX 4014 disk files. Such files can then be printed on either the IMAGEN or TALARIS laser printers (see the HELP article GRAPHICS, sub-topic TEKTRONIX-FILES, for directions.) You can display such files on the screen of terminals that emulate a TEKTRONIX 4014. Use the DCL command

SET TERMINAL/WIDTH=511/NOWRAP

before displaying such files on the terminal.

These files are smaller, in general, than their IMPRESS or TALARIS format counterparts. For example, a sample plot that makes a polar grid has 88 blocks in IMPRESS format, 130 blocks in TALARIS format, and 36 blocks in TEKTRONIX format. However, the resolution of the TEKTRONIX files is somewhat less than the resolution of the other two formats.

To produce TEKTRONIX files with DISSPLA, you need to log onto CSA2, the only CSA machine on which DISSPLA is licensed. Then, define the necessary symbols for DISSPLA by typing

**ISSCO
SETUP_DEVPLA**

(NOTE: THE COMMAND "SETUP_DEVPLA" is TEMPORARY: this version of DISSPLA will soon be the default.)

In your FORTRAN program, put the line

CALL SPTEK (40, 0)

before you call any other DISSPLA routines. (SPTEK is the routine that creates the file of TEKTRONIX data.) After compiling the program, link it by

LINK program, 'SPOOLING', 'INTLIB', 'DISSPLA', 'INTLIB'

(In the future, you will NOT have to refer TWICE to 'INTLIB'.) Run the program by

RUN program

The output will go into a file named "STD00001.DAT". Successive runs of the program APPEND to this file; therefore, rename "STD00001.DAT" to some other name if you wish to have separate files for separate plots. (In the future, successive executions of

the programs will NOT append to the output file.)

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

VMS Mail: lbl:M_Gelbaum
UNIX or
Software Tools Mail: M_Gelbaum@lbl.arpa

CERN LIBRARY UPDATED

Werner Koellner

I have updated the CERN Libraries, in CERN\$LIBRARY, with the latest versions received from CERN. There are a number of new libraries which I know are used by some people here. I have also many more PAM files (Cern Sources) available, see the directory Cern\$Libpams.

The logical names, CERN\$LIBRARY, and others, are available to you when you include the command @Physics\$Manager:Shared_Lnm Add Lnm\$-Physics_Uilities System in your Login.com file.

Although these are the newest official releases from the CERN Librarian, I know that some people use much newer (pre-)releases, and may find these libraries antiquated.

Forward comments and questions to me, (x4398), or

VMS Mail: lbl:WOKoellner
UNIX or
Software Tools Mail: WOKoellner@lbl.arpa

CHECKING THE CLUSTER LOAD

Marty Gelbaum

A new method is now available by which you can see CPU load on the CSA cluster. Use the DCL command

@sy_sysex:csaload

Here is sample output from the command:

```
CSA1  19+5 Jobs  Load ave  2.66 2.47 1.88
CSA2  31+4 Jobs  Load ave  1.62 2.08 2.20
CSA3  25+6 Jobs  Load ave  3.61 3.39 2.85
CSA4  25+5 Jobs  Load ave  6.77 6.19 5.21
CSA5  23+5 Jobs  Load ave  3.38 3.35 3.06
LBLGW  0+4 Jobs  Load ave  0.79 0.70 0.81
Total 123+29 Jobs
```

This means that on CSA5 (for example) there were 23 interactive users and 5 batch jobs (23+5). Over the whole cluster, there were 123 users and 29 batch jobs when this command was run (Wednesday, April 22, at 10:04 AM).

LBLGW is our new mail gateway machine (a VAX 8200) which is in the process of being integrated into the cluster.

"Load average" means the average priority of the process or job using the CPU over the previous one, five, and fifteen minute intervals. (On CSA5, for example, the average priority of the processes actually using the CPU was 3.38 over the last minute, 3.35 over the last five minutes, and 3.06 over the last 15 minutes on CSA5.)

If we look again at CSA5, we see that a process whose priority is **BELOW 3** would **NOT** have much chance to compute because the average priority of jobs that did compute over the last fifteen minutes was **OVER 3**. (Jobs with higher priority are given a chance to use the CPU **before** jobs of lower priority.)

Thus, if you had submitted a batch job to the **CSA5_ECONOMY** or **CSA5_NORMAL** on Wednesday, April 22, at 10:04 AM, your batch job would **NOT** have much chance at the CPU. That is because the base priority of these queues is 2 and 3, respectively, and **BOTH** of these priorities are **BELOW** the average priority of the jobs actually using the CPU. However, interactive jobs would have worked well since the base priority of interactive jobs is 6. Since CSA2 had a load average **LOWER** than 3, a job

submitted to **CSA2_NORMAL** or **CSA2_ECONOMY** would have run.

You can see the priority of the various batch queues by the DCL command

SHOW QUEUE/FULL CSA5_ECONOMY

and so on. Forward comments or questions to me, (x4749) or

VMS Mail: **lbl::M_Gelbaum**

UNIX or
Software Tools Mail: **M_Gelbaum@lbl.arpa**

UNIX WORKSTATION USER GROUP MEETING

Alan Biocca

The next UNIX Workstation User's Group Meeting will be from 12:30 to ~1:30 PM Tuesday May 12. The meeting location is the Bldg. 50B, Rm. 4205, (the 4th Floor Conference Room) Forward comments and questions to me, (x6536). Persons wanting to be added to the electronic mailing list can send mail to:

VMS Mail: **lbl::AKBiocca**

UNIX or
Software Tools Mail: **AKBiocca@lbl.arpa**

THE WORKSTATION SCENE

[24.5.1].....

• 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.arpa

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

[24.5.2].....

• IBM BASIC COMPILER PROBLEM?

If you're using old compiled BASIC programs with Version 3.X of PC-DOS, you should be aware of the following problems.

- (1) One application uses a compiled BASIC program to read data from a floppy disk into a fast RAM disk. The file on the RAM disk is created as a binary random access file. The program then manipulates the data and writes the modified file back to the floppy. Under PC DOS 2.0 and 2.1, if the RAM disk does not exist, an error message is given and the program aborts. Under PC DOS 3.1 and 3.2, no error message is given and the program does NOT abort. When it finishes whatever it thinks it is doing, it writes a zero length file back onto the floppy disk, thereby overwriting the original data.

Obviously, there are ways of working around this problem. The point is that if a user is not aware of this strange behavior, he may be badly burned before discovering it the hard way.

- (2) Another problem reported with the same BASIC compiler involves its handling of large random access files. A large file, consisting of 800 records, each about 10000 bytes is organized as a random access file. With PC DOS it takes only a few seconds to move from record 700 to record 701 under BASIC 3.1; under 3.2 it takes several minutes. It's as if the file is being accessed sequentially instead of randomly.

If any of our knowledgeable readers has information that would help explain and/or resolve these problems, we would appreciate that information. Contact

Workstation Group member Dan Van Zile (x5589). We will keep you informed of our investigations of both these problems.

[24.5.3].....

... from Phil Lubin,

• TELL-A-GRAF ON YOUR PC?

Well not quite, but close. Getting truly publication-quality scientific plots is generally a job for the mainframe or TID. At LBL this usually means using one of the excellent ISSCO products - such as TELL-A-GRAF for 2D line drawings or DISSPLA for 3D -- and then sending the output to the DICOMED, the ZETA plotter or at least the laser printers. This is also what we have done until now.

Recently GOLDEN SOFTWARE released two new interactive graphics packages designed specifically for publication-quality technical and scientific plots. The packages are

- GRAPHER for 2D line plots, and
- SURFER for contour maps and 3D surface maps.

GRAPHER

GRAPHER (\$199 list) is an interactive menu-driven or batch mode 2D line- and symbol-plotting program which does many of the things for which we use TELL-A-GRAF. It can plot up to 10 graphs per plot on the screen and on paper, each with a maximum of 2048 points. A single plot can thus be up to 20K data points. We routinely make 3000-point plots by using 2 or 3 data files. Seventeen fonts are included for axis labels and titles. Different fonts can be used simultaneously on the same plot. Data is entered either from the keyboard or from an ASCII file. Lotus files can also be imported.

Axes can be auto scaled or explicitly specified. Data clipping and zoom are available. Five curve-fitting options are included: linear, log, power, exponential and cubic spline (most useful). Data symbols and point-to-point line connections are options. The program is very easy to learn and the on-line help virtually eliminates reference to the manual after a few hours of use. Extensive control over font size, tic mark placement and spacing is included. Graphs can be saved, recalled and modified easily. On an 8 MHz AT with an 80287 (not required but highly desirable) the (screen) plot speed is like using TELL-A-GRAF on CSA2 at 2 AM at 9600 baud (it's really fast!)

The fonts are all bit mapped to the screen so it's a "what you see is what you get" type code. Hard copy is achieved at the full device resolution and not just a screen dump. The proof is in the plot, so an example is given in Figure 1 (Pg. 10).

Nothing is perfect and there are some awkward features. Error bars are supported but not in the most natural way. I am informed that this will be fixed in a future release. The 2048 data point limit which comes from the old 64K segmentation of the 8088/8086/-80286 is a nuisance but since up to 10 graphs are allowed per plot it is not fatal. Hercules, CGA and EGA screen modes are supported. A large number of dot matrix or laser printers and plotters are supported. For publication quality and speed, use a plotter or a laser printer. Figure 1 was done on an HP plotter. Paneling to produce large plots up to 32 by 32 inches is available.

SURFER

SURFER (\$399 list) basically does all the above but for contour and 3D surface maps. Having done contour maps on the old 6600's and on the VAXes, I can say that this code is very handy for getting fast contour and 3D surface maps. It can handle moderate data sets; I used it on a 91×181 array which it graphs in about 30 seconds on our AT. A grid facility to convert irregularly-spaced data to a regular grid is available with several options. An example is given in Figure 2 (Pg. 10).

All in all, the packages are very well-written with only an occasional bug. For many, but certainly not all, purposes it provides a good way to bypass the VAXes for getting publication-quality plots. It is also a very useful way to get fast plots in the lab. Contact GOLDEN SOFTWARE 800-972-1021.

Forward comments and questions to Workstation Group member Dan Van Zile (x5589).

[24.5.4].....

• MS WORD 3.1 and CARTRIDGE FONTS

Microsoft **WORD 3.1** for the IBM PC supports twenty-two Hewlett-Packard font cartridges for the LaserJet 2686A and LaserJet Plus. Selecting a particular font on a cartridge other than the "default" can be difficult, or at least confusing, with most word processing programs. **WORD** is no exception.

Each font cartridge has its own Printer Reference Definition (PRD) file. This file is used by **WORD** to select, interpret and print the desired fonts. For example, the "K" cartridge PRD file is named **HPMTHTMS.PRD**; names for all cartridges are found in the MS

Printer Information booklet.

USING THE CARTRIDGE

To produce a document with **TmsRmn 10 point** and **Math8** symbols using the HP "K" Cartridge, proceed as follows.

- o As the text is entered or when the document is complete, "highlight" those groups of words, sentences, or paragraphs for **TmsRmn, 10 point**.

Escape to the Format/Character/Size and enter **TMSRMN** for the **Font Name**, and **10** for the **Size**.

- o Similarly, insert the math symbols using the **Keyboard Equivalence Card Math8** furnished with the font cartridge, e.g., Capital I equals a "delta" symbol.

Again, highlight the math symbol(s), escape to the Format/Character/Size option and enter **MATH8** and **10** in the appropriate "blanks".

Complete the document in similar fashion.

When your document is finished, escape to the Printer/Options mode and enter the name of the **PRD** file (**HPMTHTMS**). The **PRD** file name is saved with the document and need be entered only once. Now, print the document.

SUMMARY

To produce a finished look to your document, those "other fonts" of a cartridge must be accessible in most cases. If you are encountering problems selecting any of those fonts, feel free to contact Workstation Group member Bruce Burkhart (x6858) for assistance.

[24.5.5].....

• NEW IBM PC'S

On April 2, IBM announced its new **Personal System /2** line of computers. This was one of the worst-kept secrets of all time and there were few surprises in the official release. We will not go into extensive details of the new systems in this article. Call the Workstation Lab (x6858), if you would like a copy of the product announcement -- and of course do give us a call if you are considering the purchase of a system and would like some assistance in configuring it.

• OPTICAL DISK

One of the interesting announcements that caught us by surprise was the introduction of a 200 Mbyte optical disk. It uses **WORM** (**W**rite **O**nce, **R**ead **M**any times) technology. The **WORM** disk provides an interesting and efficient method of performing archival storage. It can be used to produce daily backups of your data and only

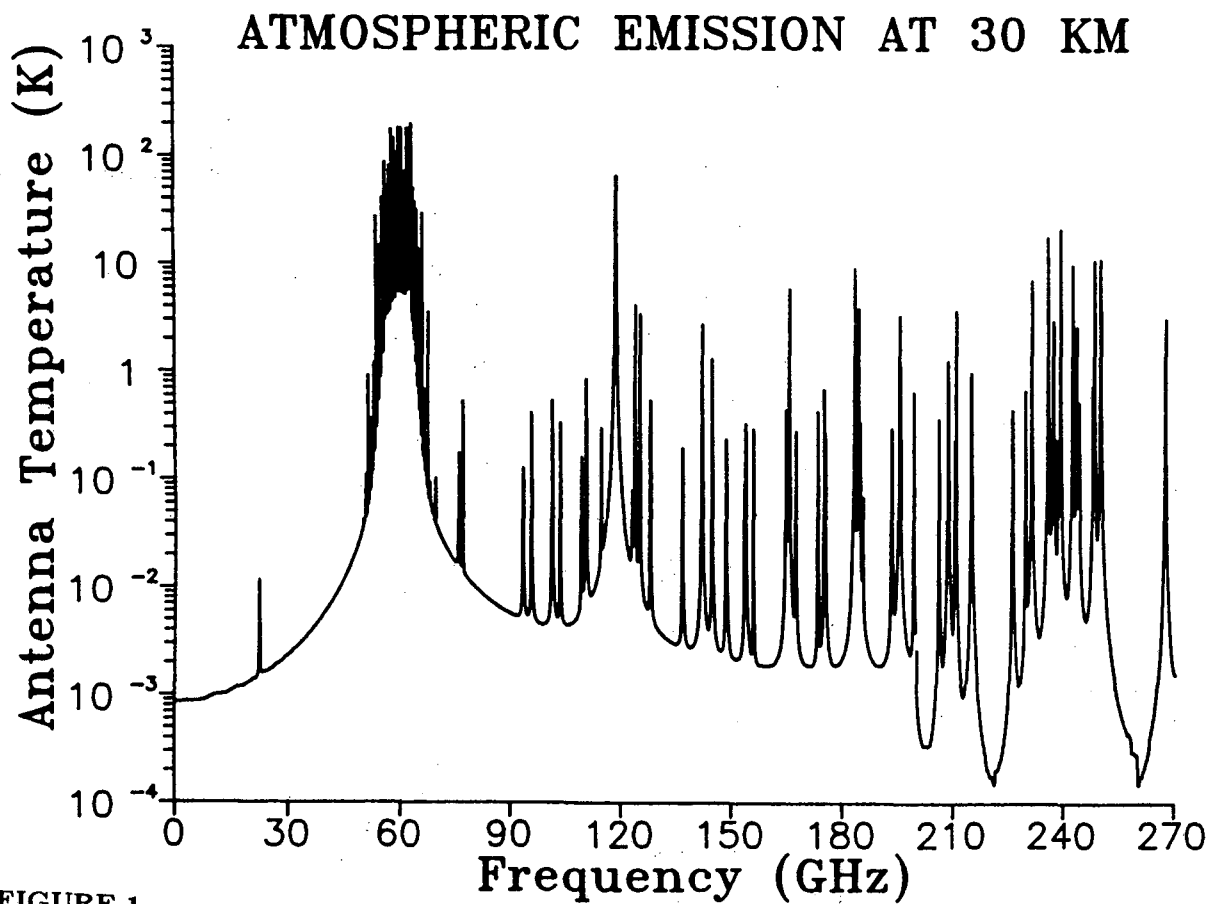


FIGURE 1.

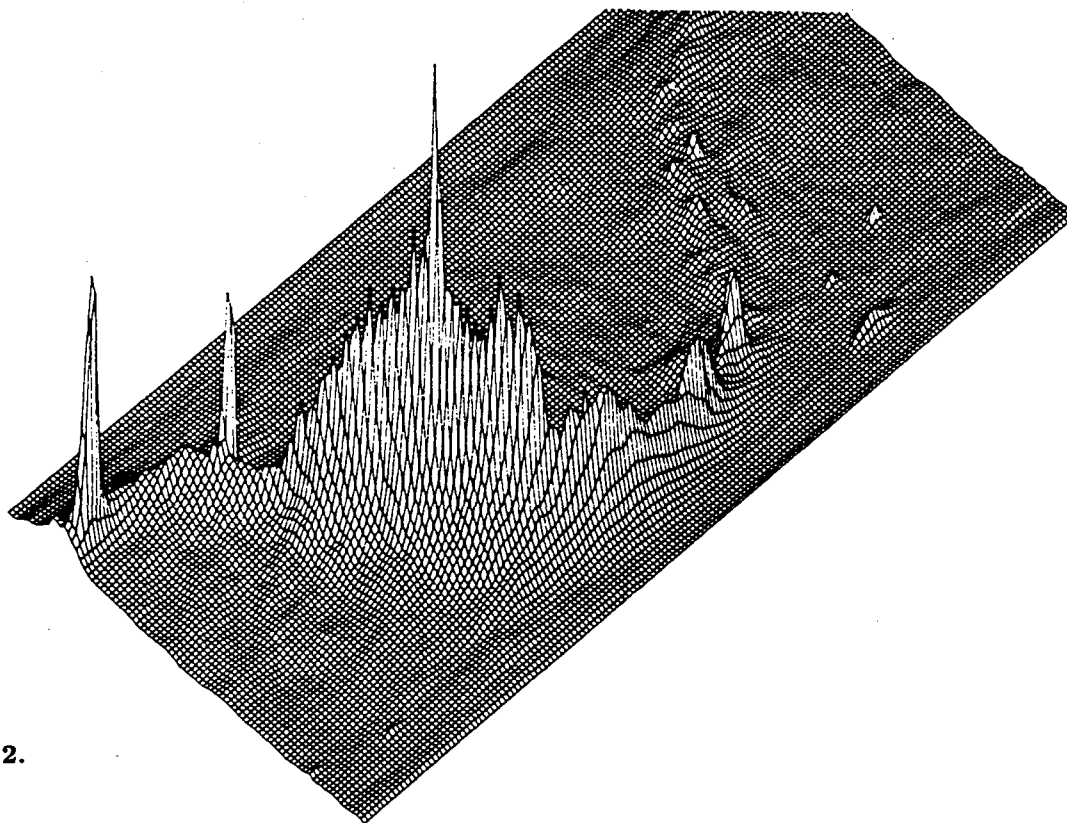


FIGURE 2.

408 MHz MAP

those records that have changed will be added to the disk. Because it is a Write Once system, there remains a permanent copy of the file for any archival date, and the amount of storage used is incremental based on the amount of changes. The cost of one drive and controller will be about \$2000; a second drive will cost \$1600. The system uses a removable 5 1/4" disk cartridge (cost: \$43). Up to eight of the optical drives (1600 Mbytes total) may be installed on either an existing PC or the new Personal System 2 machines.

• NEW DISPLAYS

IBM announced four new displays, one monochrome and three color displays. Three of the four displays -- a 12" monochrome, a 12" color, and a 14" color -- have a 640 × 480 pixel resolution. Also available is a 16" high-resolution color monitor with a 1024 × 768 pixel resolution. The 640 × 480 resolution, also used in the Macintosh II, is now the new standard for low-end displays. The (old top-of-the-line) Enhanced Graphics Display has a 640 × 350 pixel display. The new displays are driven by a video graphics array (VGA) chip built into the new systems. The VGA chip replaces the old display controller card that was ordered as an "add-on" when configuring a system. Cards which will use these new display controller cards on existing PC's will be available soon.

• NEW FEATURES

IBM announced four new models, eight system configurations, and *ALL USE* the same "enhanced keyboard" introduced about a year ago for the PC/XT/AT products. The "enhanced keyboard" is readily identified by the 12-function-key placement across the top of the keyboard. Also standard is a 3 1/2" diskette à la Macintosh, in place of the standard 5 1/4" diskettes on early IBM PC's. The capacity of the new diskette is 720 Kbytes for the low-end 8086 system model 30, and 1440 Kbytes for all the other models.

Other interesting features of the new products include the following :

- The on/off switch is at the front of the unit.
- You can take your system apart without even a screwdriver. Parts either snap together or require thumbscrews.
- There are no dip switches to set.
- No add-on cards are needed. All of those required "options" -- such as serial and parallel ports, memory expansion, a mouse, and a clock -- are

now included as standard equipment on the system board. You don't need to use up the expansion slots to get these functions.

- There's a new bus architecture. IBM has introduced a new expansion bus architecture on three of its new models. The effect on one level is clear; it will be a couple of months before add-on cards, such as a Network Communication card like 3Com, will be available. At a lower level, it is clear that the clone makers will have to work a lot harder to provide a "compatible" system.
- Enhanced security with an optional password. When turning on the system it will be necessary to enter the assigned password to use the system.

• NEW HARDWARE

Four new models were announced; models 30, 50, 60, and 80.

- Model 80 is an 80386 machine that won't be available till June, so we will discuss it in future articles.
- Model 30 is an inexpensive 8086 replacement for the old PC/XT and it is 2 1/2 times faster. It is a small desktop unit (4"H × 16"W × 16"D) with three expansion slots that accept the old XT/AT style add-on cards. The system has a maximum disk capacity of 20 Mbytes.
- Model 50 is an 80286-based system that is rated at twice the speed of an AT. It also is a desktop system (5.5"H × 14"W × 16"D) with three expansion slots of the new micro-channel architecture. Like the Model 30, the system has a maximum disk capacity of 20 Mbytes.
- Model 60 is an 80286-based floor standing (tower) model that is also rated at twice the speed of an AT. The model 60 had seven expansion slots and may be purchased with either a 44 Mbyte disk or a 70 Mbyte disk.

• NEW SOFTWARE

- **DOS 3.3.** A \$50 upgrade to a single-tasking DOS 3.3 was announced. With the new DOS it is possible to have multiple partitions on a hard disk. In the past it was necessary to use third party software to create additional disk partitions when using a hard disk with capacity greater than 32 Mbytes.

DOS 3.3 now supports four communication ports at speeds up to 19.2 Kbps. There were other improvements that are supposed to speed up certain file operations. **Note:** According to the announcement, DOS 3.3 replaces all prior levels of

DOS EXCEPT DOS 2.1.

- o **OS /2.** A new Operating System /2, that supports large memory and multitasking, was announced, but it will not be available till early '88. LBL's price for the new OS /2 is expected to be about \$220. The OS /2 software will run on all IBM 286 AT-class machines -- including the XT/286.

[24.5.6].....

• LOTUS UPGRADES

The latest release of Lotus 1.2.3 is Version 2.01. Lotus users not using Version 2.01 are encouraged to upgrade their older version.

Upgrade 1A to 2.01

This is a major upgrade, and available through the PC Support Center at LLNL. Cost is approximately \$150. Call 3-7100 for additional information. (For more info, see Article #24.4.4 in the Workstation News Section of the April 1987 LBL Computing Newsletter).

Upgrade 2.0 to 2.01

This minor upgrade includes:

- Simplified installation procedures
- Faster file retrieval
- Additional printer device support
- Labels equating to zero when used in mixed-formula references
- Financial functions allowing negative and fractional arguments.

The upgrade is free and available through Government Technology Services, Inc. Make your request on LBL letterhead, with your return UPS shipping address (One Cyclotron Road). Include your old Lotus 1-2-3 Version 2.0 System Disk and mail to

GTSI
14130-B Sullyfield Circle
Chantilly, VA 22021

ATTN: Upgrade Center

Your new disks should arrive in 3-4 weeks. For further information contact Workstation Group member Bruce Burkhart, (x6858).

[24.5.7].....

• MS WORD 3.1 and SOFT FONTS

Microsoft WORD Version 3.1, for IBM PC users, now supports the TimesRoman (**TmsRmn**) and Helvetica (**Helv**) proportional soft fonts from Hewlett-Packard. Not supported at this time, are the Letter Gothic and Prestige Elite soft font packages. Informed sources indicate these two packages will be

supported in the next WORD Upgrade release.

The **TmsRmn** and **Helv** package are a US ASCII symbol set of both downloadable portrait and landscape fonts. Point sizes 6, 8, 10, 12, and 14 are available in Medium, Bold and Italic. Point sizes 18, 24 and 30 are available in Bold only. (Character height in inches = point size divided by 72). Examples of the ASCII character set in selected point sizes are reproduced here.

TMSRMN, 6pt

TMSRMN, 12pt

TMSRMN, 30pt

HELV, 6pt

HELV, 12pt

HELV, 30pt

USING SOFT FONTS

Unlike most word processors for the PC, WORD calculates linebreaks based on font size selected and the established left and right margin settings. WordPerfect's next release (5.0) is rumored to support margin settings for various font sizes. WORD also supports vertical line spacing in points, which is necessary when using the full range of soft fonts. Note: line spacing is an attribute of the paragraph format options.

The display is standard character mode, not WYSIWYG (what-you-see-is-what-you-get).

Using the soft fonts is fairly straightforward. Having initially configured the software by running SETUP you can select a font size on a character by character basis. You can also select or change point size on a block of text by highlighting the block and selecting the **format/character/size** option. Similarly, you can select vertical line spacing for a paragraph by using the **format/paragraph** option.

Before using, you must select the appropriate Printer Reference Definition (PRD) file. The PRD file becomes an attribute of the document. WORD downloads all of the fonts used in a document each time the document is printed. Finally, the appropriate printer description

(PRD) file is downloaded to the printer. Before printing the user must select the appropriate PRD file to be associated with the document. All the supported fonts have their own unique PRD filename. Each font size selected in the document must be downloaded to the printer.

SUMMARY

WORD provides almost perfect precision for your printed document. It takes care of variations in fonts, point sizes, and positioning of characters both horizontally and vertically with better accuracy than any other word-processing package for the PC. With soft fonts and a HP LaserJet Plus, WORD can produce an attractive document quickly and with little effort. The Workstation Group is available for assistance with this process. Contact Bruce Burkhart (x6858).

[24.5.8].....

• MACINTOSH USER GROUP

A local MAC User's Group meets on the UCB campus every Thursday at 5:30 PM in the Physical Science Lab. This group is called the **Berkeley Macintosh User's Group**. For more info, contact

Suite 153
1442A Walnut Street
Berkeley, CA 94709
(849-HELP [4357])

[24.5.9].....

• HAVE YOU HUGGED YOUR MAC LATELY?

Hugged it securely to your desk with a security device, that is! Industry studies indicate that the cost of replacing a stolen microcomputer is about three times the actual cost of the computer itself. The lost time and aggravation of replacing the computer (and its data if it had a hard disk) generally outweigh the cost of physically replacing the hardware.

We are currently recommending Anchor Pad Model #1012 for securing your MAC to a convenient work surface. A plate is glued or bolted to the desk top, four rubber pads are glued to the bottom of the MAC and the MAC is bolted to a cast cover which is locked to the plate. This same device will also work for most types of external hard disks. Unlocking takes only a minute or so for those of us who like to move our MAC around or take them travelling with us. The plate does not have to be unbolted in order to place the MAC in a carrying bag. The part bolted to the MAC is cast aluminum and therefore fairly light.

The cost of this device is about \$75 plus installation if you don't want to do it yourself. For more information or to order one for your favorite MAC, call

Workstation Group member Dan Van Zile (x5589).

[24.5.10].....

• SCHOLAR'S WORKSTATION

The Scholar's Workstation, UCB's Macintosh Store, is currently located at 203 Moffitt Library. Staff and employees can make personal purchases, taking advantage of educational discounts for Macintosh hardware and software (on Apple Corp. products *only*). Call 642-8424 for pricing and availability.

Sample configurations, pricing information and ordering procedures are available from Workstation Group Member Bruce Burkhart (x6858).

[24.5.11].....

• LAST CALL FOR MACINTOSH UPGRADE FOR MICROSOFT WORD

The Workstation Group is handling upgrades for MicroSoft WORD for the Macintosh. Price: \$50 if date of purchase is before October 1, 1986 -- \$25 if date of purchase is October 1, 1986 or after. We have a limited number of copies of the upgrade now available. This is our last announcement of this service. To get your copy, contact Workstation Group member Bruce Burkhart (x6858).

[24.5.12].....

• APPLE MAC II PRODUCT DEMO

Representatives from Apple Computer will be demonstrating the new Macintosh II computer (see April's Newsletter for a discussion of the MAC II) on Wednesday, May 6 in the Bldg 70A, Rm. 3377 (the Conference Room). There will be formal Technical Overview presentations at 10, 12, and 2 PM. Apple personnel will demonstrate the Macintosh following each of the overview sessions.

For more info, contact the Workstation Group (x6858).

[24.5.13].....

• MICROSOFT WORD 3.0 TRAINING

The Workstation Group is planning to offer some beginning and intermediate-level training for Microsoft WORD users. The start of a beginner's class is tentatively scheduled for early June. The training would consist of four to six 1½ hour sessions with a maximum of two sessions per week.

The intermediate-level instruction would focus on a specific topic such as using equations or customizing your menus. The instruction would follow the same format as the beginner's class with the number of sessions to be determined by the subject matter. We are planning to offer the first course on building equations

in mid-June. Let us know what specific topics you would like to have covered.

For more info, or to sign up for a class, contact Dana Conant in Computing Services, (x5872).

● MACTAG: NEW INTERFACE TO TELL-A-GRAF

... From John Flambard

MACTAG, a new interface for moving files from MACDRAW to TELL-A-GRAF, is now available. MAC users can take their MACDraw documents and submit them to the CSA cluster for quality color output using TELL-A-GRAF. Watch this column next month for all the details. If you absolutely can't wait, call John Flambard, TID Computer Graphics, (x4036).

[24.5.14].....

● TEXTURES

TEXtures, by Addison-Wesley Publishing Company, is a professional typesetting system for the Apple Macintosh. This program is a fully compatible Macintosh implementation of the TEX typesetting standard, in use on many types of mini- and main-frame computers.

Since the Workstation Group obtained a preliminary Version 0.9, there has been a strong interest in evaluating this program. If you purchase Version 0.9, you will get a free upgrade to Version 1.0 when it is released in June.

At \$495 retail, TEXtures is pricey software. With a quantity purchase by LBL Purchasing Department, costs will be reduced by 33% to 40% or \$332 - \$297 per copy. The deadline for these reduced prices is May 11. Call the Workstation Group (x6858), to reserve your copy.

[24.5.15].....

● WORD 3.0 FOR THE MACINTOSH

Microsoft WORD 3.0 is greatly expanded and provides a variety of new capabilities from the previous version, including

- o page preview with some interactive features,
- o style sheets that work like formatting macros,
- o hyphenation, dictionary & glossary packages,
- o automatic indexing & table of contents,
- o an outlining feature, and
- o a way to customize your menus.

Many desktop publishing features, such as page layout & font flexibility, basic line drawing, and easier integration of graphics, have also been added.

Versions of Microsoft WORD 3 on IBM and MAC are said to be compatible. Another feature of WORD 3.0 that is sure to be a hit with the local community is that it will swallow MacWrite documents and turn them into WORD 3.0 documents without any problems. Documents can also be written in a number of formats, including MacWrite.

If you are still using previous versions of Microsoft WORD or "making do" with MacWrite, you should consider the switch.

For \$75, the purchaser of WORD 3.0 gets an envelope containing two diskettes (the program diskette and a utilities diskette), a tutorial book entitled "Learning Microsoft WORD," and a reference manual.

Your first task as a new user is to make copies of the two diskettes (they are not copy-protected). Then you begin the tutorial. The chapter headings are as follows:

1. Create a Document
2. Revise a Document
3. Change the Appearance of Your Document
4. Finish Your Work
5. Practices with Model Documents

By the time you have worked through the first five chapters, you should have a fair understanding of how the program is used for simple tasks. Sample text, on the Utilities disk, expedites the learning process. Allow approximately 30 minutes per chapter to get acquainted with the material.

Now that you are bursting with enthusiasm and newfound knowledge, press on to the more advanced subjects:

6. Special Ways to Edit
7. Designing Document Pages
8. Formatting with STYLES¹
9. Organizing Your Ideas
10. Adding a Table of Contents and an Index
11. Customizing your Menus

Allow approximately 45 minutes per chapter to absorb this material.

There are a number of things that WORD 3.0 can do, such as mathematical equations, that are not addressed in the tutorial. WORD 3.0 offers an in-line approach to building equations that differs from the graphic paste-

¹This is not to imply that WORD 3.0 enforces good style or even good taste!

up approach offered by **MacEqn**. The only write-up is found under "Formulas" in the Reference Manual; this is brief and not a tutorial, but provides you with some information to get started. (See accompanying article on Building Equations with **WORD**).

For further information on what **WORD** can do, and for tips on how to expand your usage, see the March issue of **MACWorld**, "The Latest **WORD**" and "Insights On MicroSoft **WORD**" -- and the March 24/April 6 issue of **Computer Currents**, "Souping Up **MAC WORD 3.0**."

HELPFUL HINTS

A small survey of new **WORD 3.0** users produced the following helpful hints:

(1) **USING PRINT MERGE.**

The tutorial on creating files to use the **Print Merge** feature is clearly written, but all users tend to add extra commas or spaces, or to mistake periods for spaces, when setting up data fields.

WORD uses a dot located slightly above the normal period location to indicate a "space". This convention is also used in the examples printed in the tutorial booklet. When following the tutorial, users have a tendency to enter a period where there should be a space. This confuses the mail-merge software, and the error messages are not at all helpful. Some users prefer to work in a larger point-size and then change back before printing.

NOTA BENE: Users should read the Release Notes document on the program disk; this points out errors in the write-ups of **Print Merge** and **Mailing Labels**.

(2) **HEADERS and FOOTERS.**

Instructions on creating headers and footers are straightforward in the tutorial. To suppress printing of headers and footers on the first page, go to the reference manual and proceed as follows:

- (a) Select **Section** from the **Format** menu,
- (b) Click **First Page Special** in the **Section** dialogue box,
- (c) Go to **Document** menu,
- (d) Select **Open First Header** or **Open First Footer**,

- (e) Delete text from the header or footer and save as empty.

(3) **DEFINE STYLES**

The section describing **Define Styles** in the **Format** menu is confusing to many users. If you are accustomed to setting up your formats or "macros" before you enter your text, try using **Define Styles** in a similar fashion.

(4) **CARRIAGE RETURN and Next Style**

Whenever a "carriage return" is entered in input mode, the text is changed from the style you are currently inputting to the style entered in the **Next Style** box of the **Define Styles** dialogue box. Usually it is easier to have the **Next Style** reset to Normal when inputting longer documents. An exception would be if you defined a style for indented lists. Because a number of list items usually follow each other, it's convenient to remain within this style after entering a carriage return.

All in all, users are impressed with **WORD 3.0**, and it will probably do more than most will ever need. For simple single- or multi-column documents, you probably won't need an additional desktop publishing package. For more complex, free-form designs, MicroSoft documents can be imported into layout packages such as **Pagemaker** and **Ready-Set-Go**.

[24.5.16].....

• BUILDING EQUATIONS IN MICROSOFT WORD 3

A brief write-up on building equations can be found under **Formulas** in the Reference Manual. With practice and the use of features such as glossaries and customized menus, the ability to input and revise equations can be greatly enhanced in **Microsoft WORD 3**.

The following article presents problems and solutions from one experienced user, Steve Derenzo. He shares with us several serious bugs and a number of ideas to help increase the efficiency of this very capable equation package.

In long and complicated equations two problems may occur:

- (1) An equation in its final displayed form cannot be longer than one line. If this is the case and you change from **Show ¶** to **Hide ¶** (i.e., from input to display) your file may bomb and you will get a **FATAL ERROR** message. You will have to reset and you will lose your edited buffer file. Similarly if you input in **Show ¶** and then scroll through your document in **Hide ¶**, your file may

suddenly bomb when it reaches an equation that is too long. When you recover your original file (a good reason to **Save** regularly), remain in **Show ¶** and break your equation into two or more lines.

- (2) Complicated equations such as large arrays may run out of input buffer, i.e., too many commands for the paragraph, and refuse to process. You can get around this problem by breaking down a complicated equation into parts, inputting these as separate paragraphs, and using the side-by-side paragraph capability to get them to print as if they were one.

In spite of these two limitations, there are many ways to better utilize Microsoft **WORD**'s equation package. Here are a few tips:

- To help keep track of the parameters when you input equations, first key in the commands and correct number of parentheses and commas -- then go back and fill in the arguments.
- **Command Y** will quickly switch you between **Show** and **Hide ¶** so you can view your equations in final form. If you see an area you want to change while in display (**Hide ¶**), click your insertion point there. When you switch back to input (**Show ¶**) your insertion point/cursor will be near the point in the equation that you wish to change.
- **Command-Shift-Q** will switch you to the symbol font for the next character (faster than interacting with the **Character** dialogue box in **Format** menu when inputting text). You can see where symbols are located on the keyboard for the Symbol and other fonts, by choosing **Key Caps** in the **Apple** menu (refer to **Key Caps** in your Reference Manual).
- Some special characters don't work well but you can store the solutions in glossaries and place these glossaries on menus for quick access. Creating an overbar is one example. To get an overbar you have to use the symbol (from the keyboard) and the displacement feature (**.\D**). The overbar from the Symbol font looks great on the screen but doesn't print over the character on the LaserWriter; if you fix the positioning so that it works on output, then it then looks bad on the screen. If, however, you choose the overbar from the Times Roman font (and make a few adjustments in size and spacing), you will get an adequate representation on both the screen and output. For a document in 12 point body text, store the following commands in a glossary and add it to your

Work menu:

Times Roman 18 pt overbar .\D.\BA5().

(press **Option-Shift-comma** to get overbar symbol)

To use, activate the glossary you have created and then enter the character you wish to be overbarred.

- Some equations may look correct on the screen but will require adjustments to print well on the laser output. For instance, the top bar of a square root may run through the elements contained within it. Insert an extra white space or a blank character at an appropriate place within the equation and increase its point size. This blank character will be invisible on the screen and when output, but it will force the bar of the square root upward as the program calculates its placement.

If you are working with equations and would like more samples than are provided in the Reference Manual, Steve Derenzo has provided us with a sheet of examples for distribution. Call us at (x6858).

[24.5.17].....

• HINTS & TIPS FOR MAC BEGINNERS

... From new *WKSG* Member Karla Savage

Here are a few hints if you are switching to **MAC** and **WORD** for the first time.

- (1) Make sure **Chooser** in the **Apple** menu has the appropriate printer available (**ImageWriter** vs. **LaserWriter**) or what you see on the screen won't be the same as what you print.
- (2) Check your margins and paper selection in **Page Setup** of the **File** menu to avoid surprises when you print; change margins there or in **Page Preview** of the **File** menu. Changing margins in these two locations automatically adjusts any text you have already keyed.

[24.5.18].....

● WORD 3.0 - BUGS AND ANOMALIES

Following are several bugs and/or anomalies in MS WORD 3.0 gleaned from the ARPANet INFOMAC Bulletin.

(1) "SAVE AS" FREEZE-UPS

Here's a serious problem: the application can simply freeze during a **Save As** command. The conditions that produce the freeze have not yet been determined exactly,, but, just after 100% appears in the lower left-hand box, nothing more happens.

The watch cursor remains and can be moved with the mouse, but no other response is forthcoming. It can only be corrected with a "reset" -- with the potential for a serious information loss. Again, this happens (so far) only with the **Save As** command; it wasn't seen to happen with **Save**. (Note: the Workstation Group hasn't run into this one, but then we probably haven't really "beat on the system" yet. Our recommendation: during heavy editing it would be prudent to **save** your work frequently.

(2) SAVE ANY CHANGES?

The **Save any Changes?** box that occurs when you **Quit WORD** is ambiguous, or can be, as to its consequences. If you forget during the session whether you've made any changes to a glossary or the dictionary, you can easily get into a situation where you can lose information regardless of whether you answer "yes" or "no".

(3) RAMSTART

WORD 3.0 seems to be incompatible with **RAM-Start**. Placing the system in a RAM Disk results in frequent crashes (ID 02).

We have only had personal experience with **RAM-Start**. We don't know if the same type of problem occurs with other RAM Disk applications. We would appreciate any further evidence of such problems that may arise. (Note: The Workstation folks haven't tried this with a RAM Disk. This is something that may cause problems with people who don't have hard disks on their system and use RAM Disks in an attempt to speed things up. We've found that WORD 3.0 is usable on a system with 2 800k floppy disks, but it may be too slow for some people.)

(4) IMPORTING WORD 1.0 FILES

There are problems with importing some WORD 1.00/1.05 files, (those files which have fancy

paragraphing information, e.g., extra spaces after paragraphs), into 3.0. The "Untitled" document created upon import is left in some kind of inconsistent state with respect to the paragraphing information, such that the on-screen inter-paragraph spacing will not concur with that when printed. Direct attempts to reset the spacing may appear to work, and the problem can re-surface later.

A fix which Microsoft now recommends: Immediately do a **SHIFT-repaginate** (forced full repagination) after importing the document, before doing anything else. This doesn't hurt and is supposed to correct the problem.

[24.5.19].....

● SIGN UP FOR THE NEWSLETTER!!

Attention LBL employees: If you are a new owner or user of a PC or a MAC, you should sign up to receive the Laboratory's Computing Newsletter, which has a helpful **Workstation News** section, supported by the Information and Computing Sciences Division's Workstation Group. This section offers support and helpful hints for PC users. It's also a place for you to send questions and comments.

Contact Workstation Member Maggie Morley, (x5529), to add your name to the Newsletter Mailing List.

YES I would like to receive the Computing Newsletter

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VOGUE LA GALERE

... Rabelais