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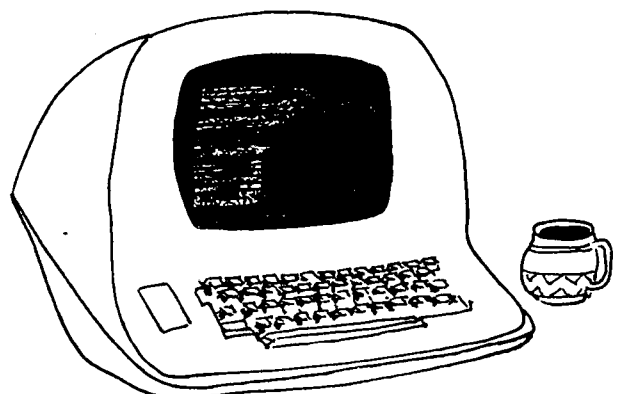
Lawrence Berkeley National Laboratory

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LBL COMPUTING NEWSLETTER

Lawrence Berkeley Laboratory
University of California, Berkeley

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To get on the mailing list for the LBL Computing Newsletter, contact Dortha Hines, 50A/1148, x6094.

Newsletter Closing Date is the 15th of the month.

Address all communications for the Newsletter to Maggie Morley, Editor, 50B/1245A, (415) 486-5529; or to login **mam** on any VAX and/or UNIX.

Publication Number 429

PUB-429

NAMES AND NUMBERS TO KNOW

- From on-site, dial the 4-digit extension given.
- From an FTS line, dial 451-<4-digit extension>.
- From off-site, dial 486-<4-digit extension>.

COMPUTER POLICY BOARD

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Everett Magnuson, Budget Manager.....	50B/2232C, x6296
F. Marvin Atchley, Computer Operations.....	50B/2262A, x5455
Eric Beals, Consulting and User Relations (both).....	50B/2232D, x5351
Robert Fink, Networks.....	50A/1121A, x5692
Jerry Borges, Operating Systems AND Product Set (both).....	50A/1127A, x5568
John Colonias, Applications.....	50/209A, x6019

DEPARTMENTAL SERVICES

Central Office Number (50B/2232).....	x5871, x5872
Consultants' Office.....	50B/1245, x5981
Computation Department Library: Maggie Morley.....	50B/1245A, x5529
Operations (50B/1215).....	x6211
Coke/Cope Operator.....	x5311
Expediter Services: Irene Bernal.....	50B/2249B, x6205
Keypunch Service:	50B/2215A, x6256
PSS (Program Storage System): Tape Services.....	50B/2249, x6219
GSS Tape Repair Service AND Sticky Label Service (both): Dortha Hines.....	50B/1245, x6094
Building 90 Remote Job Entry (RJE) Station:	90/3136, x6494
To open or change an account, Fran Permar.....	50B/2258, x6310
Guest cards, locker space, & parking permits: Lisa Long.....	50B/2232, x5654
To connect a remote terminal (RJE or interactive): Sig Rogers.....	50B/2262C, x6713
For repair of terminals or ports: Electronics Maintenance.....	50B/2259, x5354
Introductory seminars: UNIX: Maggie Morley.....	50B/1245A, x5529
For microfiche sets of WRITEUPS and HANDBOOK: Dortha Hines.....	50B/1245, x6094

PUB-429 12-82/1050 Prepared for the U.S. Department of Energy under Contract DE-AC03-76SF00098

TERMINAL SWITCH ACCESS NAMES

COMPUTER	DEVELCON DIRECTORY NAME	--- GANDALF ACCESS CODE ---		
		300 bps	1200 bps	9600 bps
VAX Program Development Machine	PDM	na	na	na
VAX Numerical Modeling Machine	NMM	na	na	71
VAX Interactive Graphics Machine	IGM	na	na	73
PDP 11/70 (UNIX 1)	UNX1	15	na	11
PDP 11/70 (UNIX 3)	UNX3	55	na	51
CDC 6600B, 6400C	RECC	05	03	01
IBM 4341 (UCB)	CCDB	na	na	na

- (1) **na** means NO DIRECT ACCESS. However, Indirect access from gandalf to all computers is available via develcon.

Gandalf access code **67** connects you to develcon.

(Then) enter **rs** so that develcon can determine your terminal speed.

Develcon responds with **Request**.

(Then) you enter your develcon directory name and a carriage return.

(If you use this method more than occasionally, please contact Sig Rogers, x6713).

- (1) **Note:** There are many additional hosts operated by other groups that are available on the terminal switches. To gain access, you should make arrangements directly with the appropriate group representative.
- (2) **DIAL-UP ACCESS** to develcon is available.

486-4959 -- 300 BPS

486-4979 -- 1200 BPS

VA-3400 & 212A equivalent.

... Sig Rogers, x6713

NEW USER AREA ON FOURTH FLOOR

The old COM Room - Bldg. 50B, Rm. 4224 - now contains user-operated equipment that need not be adjacent to the main computer room.

Now available for use there are:

- (1) The AJ and Spinwriter terminals, along with a new AJ.
- (2) The Tab Card equipment - the 519 Reproducer, the 557 Interpreter, the 083 Sorter, and a 029 Card Punch.
- (3) The forms burster and jogger.

... Marv Atchley, x5455

PASSWORD CHANGES

Users of all BKY systems are reminded that, to ensure the security of their files and the integrity of their account numbers, they should change their passwords periodically. The interval for password changing suggested by the Computation Department is three months.

No system run at BKY has the facility for automatic changing of password; hence, it is the responsibility of the user to change his own.

... James Baker, x5739

DICOMED OUTPUT: HOW TO DO IT

What's a Dicommed ?

It's a high-resolution graphic film recorder designed to plot vector, raster, and alphanumeric data. Attached to a PDP 11/34 computer, the Dicommed translator reads data from tape (no network connection exists) and produces film output of various flavors: 48X and 24X microfiche; 35 mm color or black and white movies or slides; 16 mm color or black and white movies; 4X5 color sheet film; 4X5 Polaroid prints. It supplements and will eventually replace our antique 4460 COM recorder. In this article the word "Dicomed" refers to the complex of programs which processes user files from tape.

What kinds of data can it handle ?

From the CDC computers, display code text files, 12-bit ASCII text files, and GRAFPAC-produced Dicommed or 4460 META files can be processed. The set of column 1 carriage controls and "\$" controls supported by the 4460 system can be processed on the Dicommed with a few exceptions listed below.

From the VAX's, 8-bit ASCII text files, and graphic output produced by GRAFPAC or other graphics output packages can be processed. On the VAX's, the ASCII file carriage controls are limited to those listed in the VAX FORTRAN manual, the "0", "1", and "+". "\$" controls have been replaced by "]" controls because of the wide usage and special meaning for "\$". Most of those control functions are present, however, and are listed below.

How do I send my 7600 files to Dicommed ?

Text or graphics files produced on the 7600 (not 6600) may be sent to the Dicommed through use of the GRAPHIC control card (see the PSS WRITEUPS subset CCARD). Briefly, GRAPHIC places the file in a Dicommed queue together with control information required for denoting film type, selecting the data type, providing fiche title information in case of microfiche output, printing a label for the output, and supplying accounting information. Additions to the GRAPHIC control card arguments are summarized as follows:

FT= (add the following Dicommed output types)

- 48 (48X microfiche)
- 24 (24X microfiche)
- PO (Polaroid print output)
- SH (4X5 sheet film)
- 35 (35 mm film)
- 16 (16 mm film)

M= (type of file data.

Dicommed allows the following:)

- DP (display code)
- AS (12-bit ASCII)
- A8 (8-bit ASCII)
- ME (4460 META code, from SCBN or S6BN GRAFPAC versions)
- DC (DDC mode file, output by DCBN, DLBN, DSBN, or D6BN versions of GRAFPAC)

D= (film and lens selection.

Defaults are B, S, and R.

Choose any, all, or none

of the following:)

- B (or C) (B=black and white, or C=color)
- S (or M) (for 35 mm, S=slides, or M=movie)
- R (or F) (lens specification: R=full resolution, or F=full frame)

As an example, the 7600 control card

GRAPHIC, FN=FILM5, FT=35, M=DC, D=CMR, R=[SEND TO BLDG 65].

will send Dicommed graphics file FILM5 to the Dicommed processing queue for 35 mm color using the full resolution lens, the output to be sent to building 65.

Operators periodically check the CDC Dicommed queues, and when files exist, write them to tape for subsequent Dicommed processing.

How are VAX files sent to Dicommed ?

Vax files for Dicommed processing may be entered into the Dicommed queue by typing the command "DICOMED", which procedure will then prompt you for all the information needed to specify film and lens type, data type, name, and account number. After you certify the specifications to be correct, the procedure will create a batch job to move a copy of your file to the Dicommed queue in the IGM, where an operator will periodically write Dicommed files to tape. You will be notified by electronic mail when the file transfer to IGM is complete.

For display code, compare Dicommed with 4460:

No differences:

\$ controls

ST=..., ST1=..., ST2=..., \$FR, \$I=..., \$B=..., \$IA=..., \$CL, \$ID, \$NI, \$RU, \$NR, \$CD, \$BK, \$FC, \$NM, \$RD, \$MM

Column 1 carriage controls:

1,0,+,-,6,Q,R,S,T,Z

*Some differences:***\$ controls****\$SM**

letters smaller, spaced closer together, horizontally. 4460 letters smaller but spaced same as larger letters horizontally.

\$DX=n

Different scaling range (10-1024 decimal) than 4460 range (20-77 octal)

\$DY=n

Different scaling range (10-1024 decimal) than 4460 range (30-77 octal)

\$SX=n

Different scaling range (0-32767 decimal) than 4460 range (0-4000 octal)

\$SY=n

Different scaling range (0-29263 decimal) than 4460 range (1-7777 octal)

\$ML=n

Spreads n lines over entire frame

ME,\$AS

After mode switch, rest of data record is skipped. Therefore, mode switches must be followed by end-of-record.

Column 1 carriage control:

2,5

At end of frame, prints only one line. 4460 prints several lines.

New \$ controls:**\$DC**

Switch to Dicommed (DDC) mode graphics data. Must be followed by end-of-record.

\$RU=n

Ruling occurs every n lines.

\$IF=n

Set number of index frames on fiche to n, default is 1. 48X fiche can have 0, 1, 2, or 4 index frames. 24X fiche can have 0, 1, or 2 frames.

\$FO=BOX

Draw a box around each fiche frame.

\$FO=NONE

Discontinue drawing boxes around fiche frames. Default is \$FO=NONE.

\$CF=n

Set maximum fiche count (or frame count for 35/16 mm film) to n. Defaults are 10 fiche, 500 35 mm frames, 1000 16 mm frames.

\$CC=SS

Set single space mode. Print each line ignoring column 1 for carriage control.

\$CC=BK

Set BKY (normal) print mode.

\$CZ=n

Select font n, where n goes from 0 (small size) to 5 (largest size) characters. Note that horizontal characters per unit distance is unchanged. Default is 2.

*No implementation:***\$TV,\$SC,*OVN*,*OVF****Peculiarities:*

Do not put \$T=..., \$T1=..., \$T2=... controls (or any other fiche controls) in files destined for other than microfiche.

For 8-bit ASCII files, compare Dicommed with 4460:*No differences:*

Column 1 carriage controls 1, 0, +.

No differences other than substitution of column 1 "]" for "\$":

]T=...,]T1=...,]T2=...,]FR,
]RU,]NR,]I=...,]B=...,]IA=...,
]CL,]ID,]NI,]CD,]BK,]FC,]NM,]RD

Some differences:

]SM,]DX=n,]DY=n,]SX=n,]SY=n,]ML=n

Same comments as for corresponding items in the display code paragraph.

New controls:

]DC,]RU=n,]IF=n,]FO=BOX,]FO=NONE,
]CF=n,]CC=SS,]CC=BK,]CZ=n

Same comments as for corresponding a items in display code paragraph above.

]ST=x

Change column 1 control character to "x". This may be done only once per job. Default is "]".

No implementation:

]TV,]SC,*OVN*,*OVF*

Column 1 carriage controls

Q,R,S,T,Z,-,2,5,6

Peculiarities:

Do not put]T=...,]T1=...,]T2=... controls (or any other fiche controls) in files destined for other than microfiche. Lines are printed starting in column 1, in contrast with printing from column 2 for display code data. When "1", "0", or "+" in column 1 are encountered, they are replaced with a space before taking the appropriate carriage control action. To avoid clearing column 1 in these cases, you may wish to use the single spacing "]CC=SS" control.

Odds and ends:

A schedule for writing Dicommed files to tape and making Dicommed processing runs is not firm at present, and will depend on the number of files in the queues. For details on current scheduling, call Dan Van Zile, X5589.

Turnaround will be best when the output can be processed at LBL, namely fiche, Polaroid prints, and black and white film. Color film must be sent out for processing, and may take from hours to days to be returned. For more exact information, call Dan Van Zile, X5589.

A method for charging for Dicommed processing is under final development at this time, and is expected to be based on costs for handling and materials.

Information on COM processing, \$ controls, and column 1 carriage controls may be found in the WRITEUPS subset COM.

A description of procedures for generating Dicommed graphic output is to be found in the WRITEUPS subset GRAFPAC.

Details concerning the 7600 GRAPHIC control card and its use in sending files to the Dicommed queues may be found in the WRITEUPS subset CCARD.

Direct questions and comments to . . .

. . . Doug Brainard, X6380.

VAX OUTPUT TO DICOMED

The VAX Dicommed file disposer has been upgraded to handle ASCII and DDC (graphic) files, and to facilitate file handling by the operators. The program is called **DICOMED**, and can be called from **NMM**, **PDM**, and **IGM** by typing "**DICOMED**". Although the operation is slightly different than the old version, the prompts are self explanatory. For questions or problems call . .

. . . Marge Hutchinson, x4727

COMMAND HISTORY FOR VMS

A **history** facility is available on the VAX/VMS systems **IGM**, **NMM**, and **PDM**. This shell gives users some of the convenience and relief from retyping long lines that Unix users now enjoy with the C-shell.

The history is invoked from DCL (DEC Command Language) by typing:

Shist

Users will notice a change of prompt to "->", preceded by a history number. Standard DCL commands will execute normally; however, you may call up the history mechanism by beginning any line with "!". Some of the capabilities are:

- + review the history of commands
- + reissue any previous command by number or pattern match
- + find a previous command, replace part of text, then optionally issue result, but place in history list.

More detailed information is available online by typing:

Shelp @etc shell

. . . Steve Lewis, x7100

GRAFPAC NEWS

Users may now produce a Metafile on a VAX and post-process it on the CDC 7600 to the Varian plotter or the SC4460 COM. Test versions of the subsets REVCBN, VABN, VABC, SCBN, SCBC, and VLTRBN are on the PSS library GPACKTST7 and subset CI is on directory

```
SYS_USR1:[GRAPHICS.GRAFPAC.OBJECT]
```

on the VAX.

To create metafile FOR010.DAT on the VAX

```
$ LINK <your program>,SYS_USR1:
[GRAPHICS.GRAFPAC.OBJECT]CI
$ RUN <your program>
```

To post-process it on the CDC 7600 to the Varian

```
$ BKYSUBMIT VARIAN FOR010.DAT
```

Where 'VARIAN' is a file type .JOB and contains:

```
<jobname>.<acctno>,<joe user>
FETCHPS,GPACKTST7,REVCBN,REVCBN.
FETCHPS,GPACKTST7,VABN,VABN.
COPY,INPUT,CAMERA.
REWIND,CAMERA.
LINK,F=REVCBN,F=VABN,EO,X.
GRAPHIC,FILM,FT=VA.
```

To post-process it on the CDC 7600 to the Stromberg Carlson 4460 (COM)

```
$ BKYSUBMIT FICHE FOR010.DAT
```

Where 'FICHE' is a file type .JOB and contains:

```
<jobname>.<accountno>,<joe user>
FETCHPS,GPACKTST7,REVCBN,REVCBN.
FETCHPS,GPACKTST7,SCBN,SCBN.
COPY,INPUT,CAMERA.
REWIND,CAMERA.
LINK,F=REVCBN,F=SCBN,EO,X.
DISPOSE,FILM=MF,M=ME.
```

Users should report problems to . . .

. . . Vivian Morgan, x5461.

DECNET UPDATE

This month's DECnet update shows the Environmental Protection Agency Vax node 32 now dialing to node 21. The following changes are in process:

- (1) **RTSGRT node 67** -- Phone lines and hardware are ready. Waiting on manpower to install.
- (2) **RTSGVX node 68** -- Phone lines are in. We will be utilizing DMC-11 hardware. The NMM link will be upgraded to DMR-11 hardware to minimize Unibus overhead. The existing DMC-11 in NMM will be used in RTSGVX.
- (3) **DONNER and RESMED** have hardware on order to upgrade their links from 9600 bps to 56 K/bs.

Next month's DECnet update will discuss network reconfigurations around DGATE. If anyone has contributions they would like to make to this column, please send them to me.

. . . Sig Rogers, x6713
(sig on UNX3)

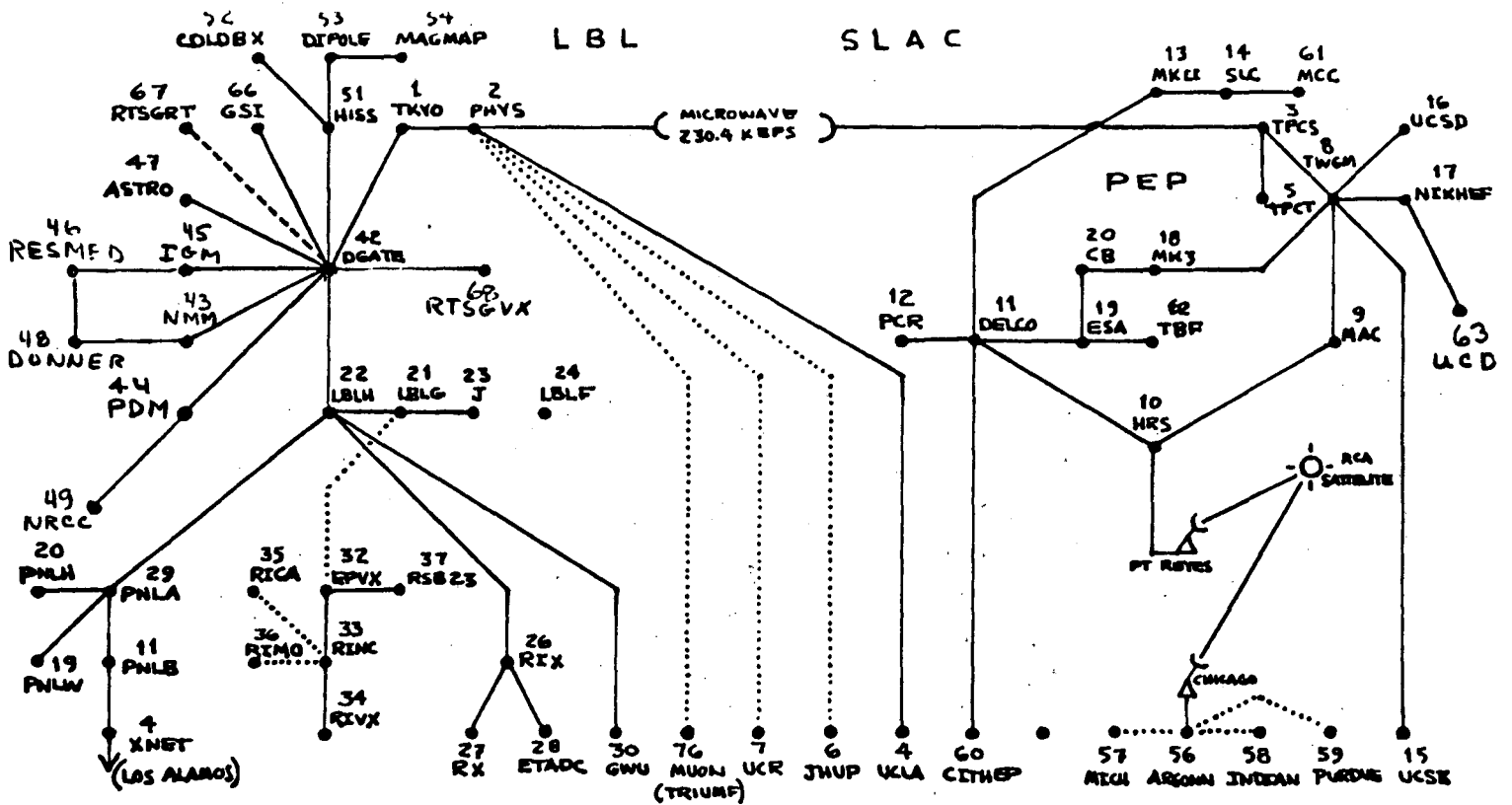
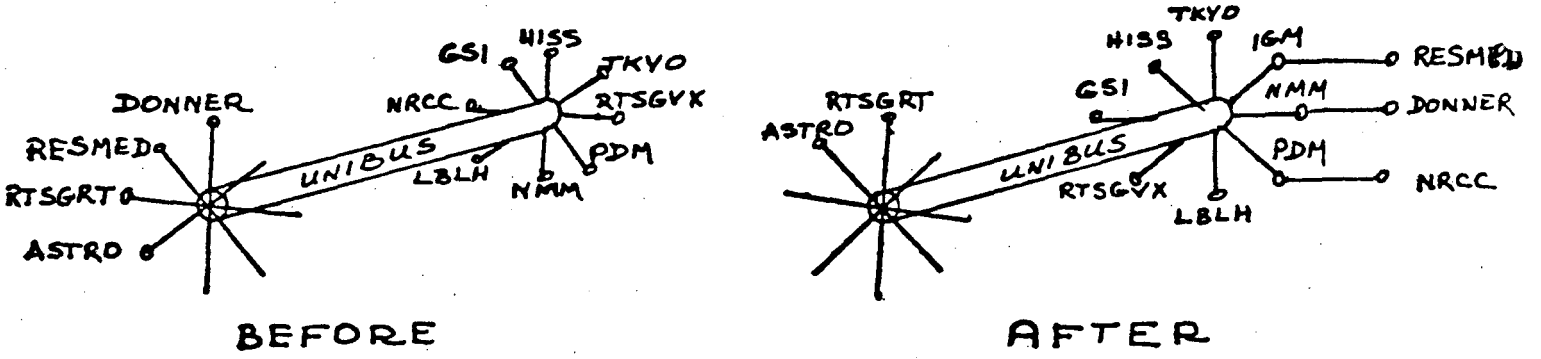
DECNET UPDATE (12-82)

During December the DGATE hub, from which a number of logical connections radiate, will have been changed. From a hardware point of view these connections might be better described as two wheels at opposite ends of a very short axle. One wheel consists of a DZ-11 multiplexer card plugged into the UNIBUS with eight ports/spokes that support eight low speed nodes. The other wheel consists of up to eight DMC or DMR-11 high speed interfaces plugged into the UNIBUS or axle. Since each wheel can only support eight ports (a DECnet limitation) and we have eleven hosts requesting high speed ports; we have reconfigured by moving three hosts one node away from DGATE. This is illustrated in figure 1, the **Before** and **After** diagram.

Figure 2, which collapses the axle to zero length, is the new logical diagram for the network.

During the reconfiguration, the NMM and IGM links to DGATE had their speed increased from 250 Kbs to 1 megabit per second. They will remain at the higher speed to better support the links beyond if no adverse side effects are found.

. . . Sig Rogers, x6713



LBL DECNET CONFIGURATION*

JAN 1983 S. ROGERS UC/LBL 508 2232 FTS 451-6713

* PLEASE HELP KEEP THIS 'VIEW' OF DECNET ACCURATE, SEND US YOUR VIEW - IT IS GETTING TO BE A BIG NETWORK
REVISED 1/83

VERSATEC PRINTER/PLOTTER FOR UNIX

The Computer Center has recently purchased a Versatec V-80 electrostatic printer/plotter to be installed on UNIX3 as a preview device for the phototypesetter. Typesetter output codes are first rearranged to fit the device's 11 x 8.5 inch fanfold paper, and then converted to a raster image which is plotted on the paper. Many fonts are available; they are described in the "Berkeley Font Catalog" which may be obtained from the Computer Center Library.

Files are spooled to be plotted on the Versatec by invoking the **vtroff** command. The command allows specification of the fonts desired, invocation of the **tbl** or **eqn** preprocessors, as well as the usual **troff** arguments. A second command, **vgrind**, will convert source code files written in any of several languages into **vtroff** input which is then plotted to produce rather elegant listings. A third command, **vprint**, allows straight printing using the hardware character set of the device which has 64 lines of 132 characters on a page. Further information is available in the manual entries for these commands.

Although the device is attached only to UNIX3, the identical commands will be available from Unix1; file migration will be transparent. Accounting will be done on the basis of pages either printed or typeset; rates have not yet been set.

... Marty Itzkowitz, x5893

SEND/CLAIM ON UNIX

This is a progress report and advanced notice of work being done on the suite of user commands that access the RJE facility of the 6000/7600 from UNIX-1 and UNIX-3.

Work Completed

To date, several long-standing problems have been eliminated:

- * The 7-character **jobname** no longer needs to be unique. Previously, if the 100 possible **rotational numbers** were exhausted for a given job, no more jobs could be submitted until the control cards were changed. (The sending daemon also hung up).
- * The queue of claimable jobs includes a date/time stamp, so old entries can be eliminated, saving space and search time. The queue of submitted jobs not yet sent includes this time stamp, so users can more precisely identify these jobs, and estimate the backlog during busy periods.

- * A quick test of the **Hyper** service, called **bkytest**, has been added. It supplements existing test, and verifies that both the **THC** network and the **Hyper** service is operating.

Future Plans

All work will be completed and documented before March 1. The following list includes all problems or improvements now planned:

- * Output will be cross-disposable to **UNIX-1** or **UNIX-3** from other sources such as **VMS**, **RECC**, or the card reader. This feature makes use of the **BKY open-parenthesis** job card.
- * Output of **any** size will be automatically claimed to the user's file space. Small jobs **WILL NO LONGER BE STORED IN SYSTEM FILE SPACE**. If the user's space is insufficient, the job will be queued for manual claiming. This is a change in policy. It will add the convenience of autoclaiming for some users. It will reclaim a lot of dead file space in the overcrowded **usr** file system. It will no longer allow output to be "parked" there for a few days.
- * The names of some of the commands will be changed to reflect their relation to the **BKY** job-entry area, and to become consistent with usage on the **VMS** systems. In particular, **netstat** and **netlist** will become **bkystat** and **bkylist**, respectively. (The prefix **net** is already heavily used for the **Berknet** services.)
- * An option called **noautoclaim** will allow users whose jobs will not produce claimable output to help keep the lengthy claim queue shorter, saving disk space and search time. (Presently, claim entries are kept for 7 days.)

... Bob Rendler, x5629

... Steve Lewis, x7100

DATATRIEVE LOCAL USERS GROUP MEETS

A large group of LBL Datatrieve users met in Bldg. 90 on Monday January 10. Common problems were discussed and users became acquainted. Another meeting has been scheduled for February 14. To get on the mailing list call ...

... Valerie Sherriffe, x4460

GRAPHICS SOFTWARE NEWS

There are two new **GRAPHICS** Software systems installed on the **VAX-IGM**: **TELL-A-GRAF** and **CUECHART**. They were purchased by the Technical Information Department from **ISSCO**, a software manufacture based in San Diego.

TELL-A-GRAF is a conversational computer graphics system which produces publication quality charts and graphs. **TELL-A-GRAF** understands English-like commands and creates graphs using automatic scaling, layout, and annotation. It is device independent allowing the user to direct output to any device available. At LBL one can presently send **TELL-A-GRAF** plots to these devices:

AED512 color terminal
Tektronix 4010, 4014, and ADM3A
(with Graphics)
Zeta 1453SX four color pen plotter
VT125 and GIGI terminals.

Other device interfaces (drivers) will be made available as they are developed and when we have need for them. **TELL-A-GRAF** can produce four types of data display: **Line Graphs** (including scatter plots), **Bar Charts**, **Pie Charts**, and **Pages of Text**.

TELL-A-GRAF Users Manual and Pocket Guides may be purchased through the Computation Department Library. Call Maggie Morley, x5529.

CUECHART is designed to be used by persons with little or no computer experience. The user simply selects a chart format from the Master Directory (which contains 50 bar charts, 24 line charts, 10 pie charts, and 19 word charts), or from the charts created and placed in one's own User Directory. Then **CUECHART** prompts for data and names of data. When the prompting is completed, the chart is ready to be produced. The chart information is available, in proper format to be sent to **TELL-A-GRAF**, which actually does the drawing of the chart. You don't have to know **TELL-A-GRAF** at all to use **CUECHART**. It knows **TELL-A-GRAF** and communicates your information to it at the time that you want the chart drawn.

CUECHART User's Guide and the **Stencil Maker's** Guide may be purchased through the Computation Department Library. Call Maggie Morley, x5529.

(The **Stencil Maker's** Guide is used in creating custom charts which one places in his own User Directory.)

To invoke **CUECHART** on the **VAX-IGM**:

\$ CUE

To invoke **TELL-A-GRAF** on the **VAX-IGM**:

\$ TAG
or
\$ TELLAGRAF

Both **TELL-A-GRAF** and **CUECHART** have interactive 'Help' facilities.

There are no immediate plans to offer classes at LBL, but Computation Services at U.C. Berkeley has included classes in **TELL-A-GRAF** as a part of their Short Course program. Users are encouraged to take advantage of them. Inquiries regarding future classes may be made calling Computing Services, 642-5205.

... Shirley Dawson, x4386

CSAM COLLOQUIUM

Speaker at the CSAM Colloquium on February 4th is **Don Batory**, University of Florida. His subject:

MODELING THE PHYSICAL STRUCTURES & ALGORITHMS OF REAL DATABASES.

Meeting place: Bldg. 50B, Rm. 4205 (Conference Room). Time: 10:30 AM to noon. For info, contact . .

... Frank Olken, x5891

VAX CLASSES IN FEBRUARY

VAX user classes will be given this February in the NRCC Conference Room, Bldg. 50D, Rm. 116. Dates/Times are as follows:

Wednesday, Feb. 16, 10 AM to noon
Friday Feb. 18, 10 AM to noon
Wednesday Feb. 23, 10 AM to noon
Friday Feb. 25, 10 AM to noon

The number of participants is limited, and advance registration is required. To register, please contact Lisa Long, x5947.

... Noel Brown, x4387

There is strong shadow when there is much light.

... Goethe

UCLBL Computer Center

PM Schedule

Effective

Feb. 1, 1983

7600 (CDC) Mondays
CDC 0500 - 0800
Thursdays
CDC 0600 - 0800

6600B (CDC) Tuesdays
CDC 0500 - 0800

6400C (CDC) Mondays
CDC 0500 - 0800

UNIX1 Sunday, Feb. 6
RTSG 0200 - 0600
Monday, Feb. 7
RTSG 0200 - 0600

UNIX2 Saturday, Feb. 19
RTSG 0200 - 0600

UNIX3 Saturday, Feb. 12
RTSG 0200 - 0600

IGM Sunday, Feb. 20
RTSG 0000 - 1200
Monday, Feb. 21
RTSG 0000 - 0800

NMM Friday, Feb. 25
RTSG 0000 - 0800

PDM Wednesday, Feb. 9
RTSG 0000 - 0800

ATL Thursdays
Maint ... 0600 - 0800

COM Tuesdays
Maint ... 0700 - 0900

PSS Wednesdays
CDC 0600 - 0800

LWG FORTRAN MANUAL

A manual describing proposed FORTRAN extensions prepared by the **Language Working Group (LWG)** of **D.O.E.** is now available. The manual includes proposals for array processing, data structures, dynamic allocations, control structures and environmental inquiry functions. Individuals interested in future language developments may call me for a copy of the manual or for information about the **LWG**.

... Marge Hutchinson, x4727

Everything should be made as simple as possible, but not simpler.

... Albert Einstein

>> GRAPHICS NEWS <<

More on the Grinnell Frame Buffer

A high-resolution digitizing camera from COHU, Inc. is now installed and operational on the Computer Center Grinnell Frame Buffer, which is attached to the IGM VAX 11-780. The camera, mounted on a 14" x 17" light table, can record front-lighted opaque surfaces and back-lighted transparent surfaces. The image can be viewed on the Grinnell's 19" monitor in order to adjust the camera control settings, focus, and lighting

With the addition of this monochromatic television camera, the Grinnell workstation is now capable of digitizing live images. This workstation has a spatial resolution of 512 horizontal by 512 vertical picture elements (pixels), and a gray-level intensity scale (a number from 0 to 255 going from black to white) for each of the pixels. The 512 x 512 array of gray-level values can be transferred to the IGM VAX for storage or processing. By use of color separation filters, it should be possible to digitize a colored image. However, two additional memory planes are needed for the frame buffer before full color images can be displayed on the monitor.

Software presently available for the Grinnell includes a FORTRAN-callable software package (written by Grinnell Systems), which provides full access to all possible Grinnell display functions, and some programs developed at LBL which use this package.

To use the Grinnell Frame Buffer workstation, LOGON to the IGM VAX at the Grinnell control terminal, and type

\$ DEFS_GRINNELL

This will define some global symbols for running the Grinnell Software programs mentioned below.

Initialization of the system is necessary for each LOGON, so type

\$ STARTUP

Four pictures will be flashing on the monitor. The process which generates the pictures initializes the Grinnell, and the pictures are also used as a maintenance tool. To stop this, type

<control> Y

The four pictures mentioned above are what Grinnell calls **internal self-tests** for the display system. Grinnell Systems designed them to demonstrate that the functional performance capabilities or the GMR 270 Controller are operational. If you are interested in using these four internal self-tests, one at a time, type

\$ TEST

This program will ask you for test numbers. Values 1 through 4 are appropriate.

Grinnell's Interpretation of the Image

Test #1 annotates system configuration.

Test #2 demonstrates alphanumeric characters and graphic & image data.

Test #3 demonstrates vector and rectilinear graphics.

Test #4 demonstrates grayscale.

To exit from **TEST**, type

<control> Y .

An LBL program was written to allow a potential user to become familiar with the workstation, and to be able to observe the quality of the live video camera and pseudo-colors available on the Grinnell. To use this program, select an image to place on the light table, initialize as noted above, and type

\$ CAMERA

The user will be instructed and queried at the terminal. No output files are generated.

An initial tool has been developed which interactively leads the user through the process of selecting an appropriate gray-level for isolating some contrasting discernible form in view of the camera, such as a light or dark feature in a semitone picture, or as in a line-drawing or graph. The program returns a user-identified recording of X - Y values at the selected gray-level.

To obtain the coordinates of any selected gray-level from any image in view of the Grinnell Digitizing camera, type

\$ GRAYLIMIT

The program will instruct and query the user, especially about the desired gray-level, and the identification of the digitized image.

GRAYLIMIT.DAT, in the calling directory, contains the coordinates at the selected gray-level which have been identified by the user. There is an empty record between the output from each digitized image, followed by a 70-character identification (which has been input by the user), followed by the data

Y(J), N, (X(I), I=1,N)

in format

(I5, I5, 10I5 / 51(10X,10I5/)).

X and Y values can go from 0 to 511. However, Y is output only when there are non-zero X values. If there

is more than one image in the file, then to test for the next image while reading the data values, type

IF (Y(J) .LT. Y(J-1)) GO TO NEXT IMAGE

Tools created for the Grinnell user will be found in the Directory

SYS_USR1:[GRAPHICS.GRINNELL.USER],

which is reached by typing

\$ USER_GRINNELL.

Both the .FTN and .COM files for these programs will be left in this directory as models for further applications.

The Grinnell workstation has been moved to the IGM VAX room, Bldg. 50B, Rm. 2275 (next to the Computer Center Graphics Room). See Fran Permar, x6310, about getting an account on the IGM. See Peggy Yamada, x6287, to arrange for keycard access.

... Claudette Lederer, x6945

DEVELCON UPDATE

The **READ ONLY** memory chips which will change the speed detection characters of Develcon from "RS" to "Carriage Return" have arrived and are being tested. They will probably be installed by the time you read this.

We are also in the process of making engineering updates to the system buffer cards. Develcon recommends these changes to correct intermittent data errors throughout the Dataswitch. The existing chips have a longer on than off time. After passing through about 20 shelves, the clock degrades to the point where errors occur. The replacement chips have a 50 per cent duty cycle and less propagation delay.

The change will be completely transparent to the user.

... Sig Rogers, x6713

DEVELCON DATASWITCH UPDATE

Some changes for Develcon Dataswitch are being planned. The first is cosmetic and will change the auto-speed detection characters from "RS" to a "Carriage Return". This will make our Dataswitch appear the same to users as the UCB campus Dataswitches, the Gandalf switch and many computer operating systems.

The second change will be to implement Develcon's most current operating system (version 4.1/2). The current system, version 3.0/2, is no longer supported by the factory. This is a major change to the switch requiring both additional hardware and software.

Version 4.1 provides several enhancements over previous Dataswitch software. These are intended to support a longer and more diversified community of Dataswitch users than the present system allows. The number of groups and directories is increased from 64 to 128. Directory names may now be up to eight characters. Password protection is available on target directories. Operator defined prompts and a banner message facility are available. New diagnostic messages, statistics and line state displays have been added.

The 4.1 version can easily be upgraded to 4.2 which allows networking between multiple Dataswitches. The tandem link module allows dataswitches to be interconnected with 1.544 megabit per second T-1 lines. All resources of each switch can be made mutually available to all switches.

Recently a number of users have not wanted to bother with the auto-baud step after pushing the button on their "Terminal Support Box". If you are willing to restrict yourself to one speed, you may be placed in a subscriber group which tells the switch that fact. If you so choose you will immediately be prompted with

Request:

upon pushing the button on your TSB.

A DEVELCON Change Form is appended to this Newsletter for your convenience.

... Sig Rogers, x6713

SYSTEMS PERFORMANCE IN NOVEMBER/1982

7600

Systems Availability 94.86%
Median Service Interval 5.46 (hrs)

6000B

Systems Availability 97.77%
Median Service Interval 67.80 (hrs)

6400

Systems Availability 97.25%
Median Service Interval 29.06 (hrs)

UNIX1

Systems Availability 87.75%
Median Service Interval 25.00 (hrs)

UNIX3

Systems Availability 92.38%
Median Service Interval 22.00 (hrs)

PDM

Systems Availability 93.24%
Median Service Interval 23.26 (hrs)

NMM

Systems Availability 99.74%
Median Service Interval 46.77 (hrs)

IGM

Systems Availability 97.06%
Median Service Interval 49.45 (hrs)

Total No. of Jobs Processed: **61,489**
6000's - **25,340** : 7600 - **36,149**

7600 TURNAROUND TIME

% of RUSH jobs returned

20 min 2 hrs 4 hrs
89.02 98.49 99.89

% of ALL jobs returned

20 min 2 hrs 4 hrs
79.84 91.38 94.48

% returned, CU limit = 100

20 min 2 hrs 4 hrs
84.03 99.16 100.00

% returned, CU limit = 500

20 min 2 hrs 4 hrs
80.57 91.94 93.60

% returned, CU limit \geq 1000

20 min 2 hrs 4 hrs
24.96 49.32 58.17

SYSTEMS PERFORMANCE IN DECEMBER/1982

7600

Systems Availability 94.68%
Median Service Interval 22.72 (hrs)

6000B

Systems Availability 98.22%
Median Service Interval 42.97 (hrs)

6400

Systems Availability 97.40%
Median Service Interval 5.25 (hrs)

UNIX1

Systems Availability 96.42%
Median Service Interval 48.36 (hrs)

UNIX3

Systems Availability 97.31%
Median Service Interval 97.31 (hrs)

PDM

Systems Availability 96.13%
Median Service Interval 52.96 (hrs)

NMM

Systems Availability 98.96%
Median Service Interval 143.60 (hrs)

IGM

Systems Availability 97.58%
Median Service Interval 53.63 (hrs)

Total No. of Jobs Processed: **50,496**
6000's - **19,443** : 7600 - **31,053**

7600 TURNAROUND TIME

% of RUSH jobs returned

20 min 2 hrs 4 hrs
89.60 99.23 99.81

% of ALL jobs returned

20 min 2 hrs 4 hrs
83.65 93.62 95.83

% returned, CU limit = 100

20 min 2 hrs 4 hrs
73.74 94.95 97.98

% returned, CU limit = 500

20 min 2 hrs 4 hrs
93.08 97.69 99.23

% returned, CU limit \geq 1000

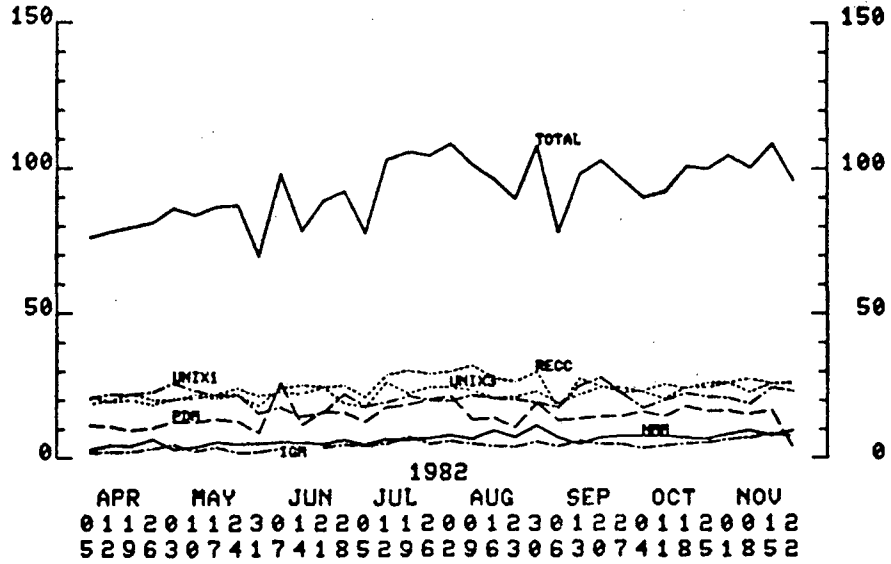
20 min 2 hrs 4 hrs
32.40 56.17 65.23

INTERACTIVE STATISTICS

NOVEMBER, 1982

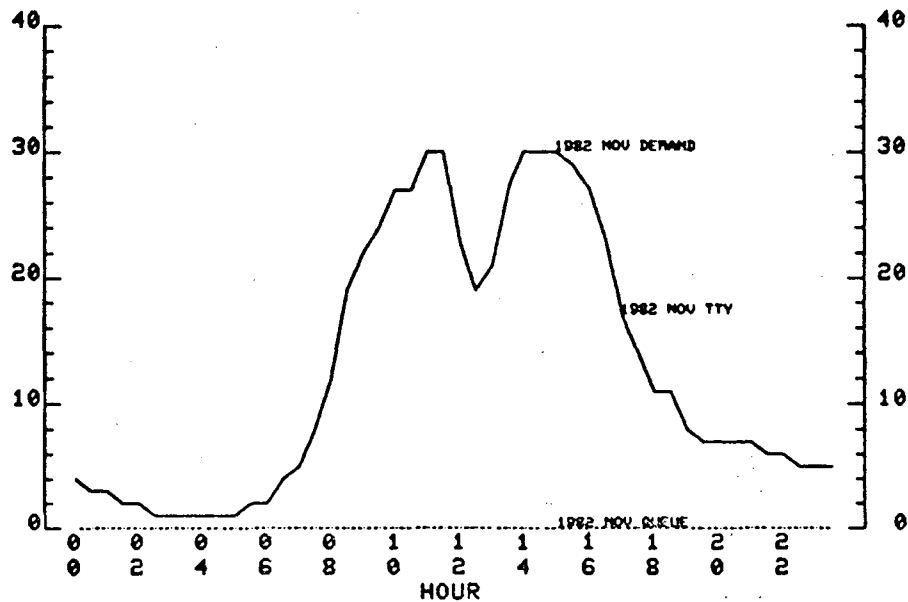
INTERACTIVE TERMINAL ACTIVITY

AVERAGE NUMBER OF TERMINALS CONNECTED
SAMPLED AT HOURLY INTERVALS, PRIME USE PERIODS, WORKDAYS



RECC CONNECTIONS AND UNSATISFIED DEMAND 6600 AND 6400 COMPUTERS

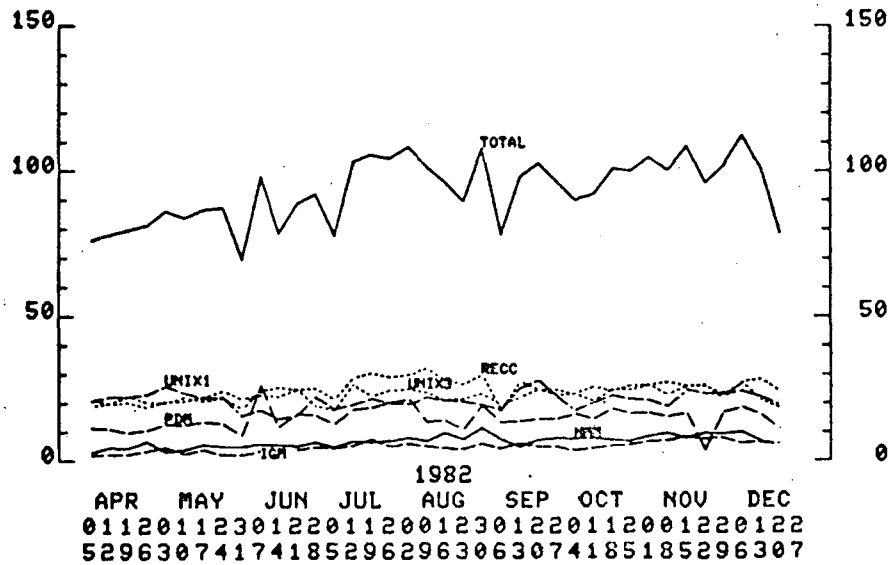
NOV 1982 WORKDAYS



INTERACTIVE STATISTICS DECEMBER, 1982

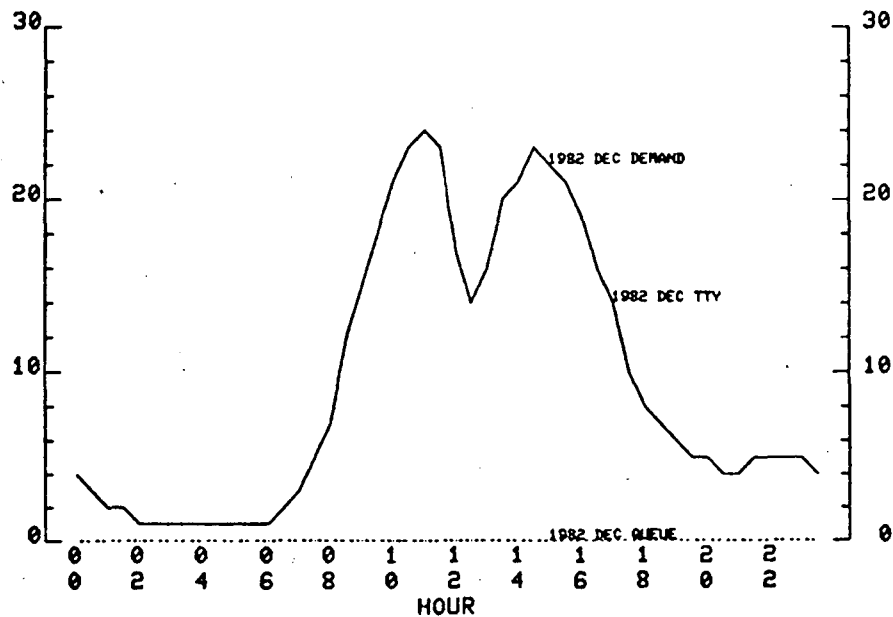
INTERACTIVE TERMINAL ACTIVITY

AVERAGE NUMBER OF TERMINALS CONNECTED
SAMPLED AT HOURLY INTERVALS, PRIME USE PERIODS, WORKDAYS



RECC CONNECTIONS AND UNSATISFIED DEMAND 6600 AND 6400 COMPUTERS

DEC 1982 WORKDAYS



DEVELCON CHANGE FORM

Name _____ Age _____

Bldg _____ Rm _____ Division _____ Group _____

Develcon Port I. D. _____ Speed _____ Account _____

Signal channel number 44GS $\frac{1}{2}$ _____ Your Terminal Type _____

Your Request

This form may be used for relocations, user updates, or any other change. Please complete as much as possible and mail to Sig Rogers, Bldg. 50B, Rm. 2232.

* The port I.D. consists of 3 or 4 hexadecimal digits e.g., 110,A20, FF3,2C2 etc. It should be written on the wallbox into which your TSB plugs.

... Sig Rogers, x6713

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One Cyclotron Road
Berkeley, CA 94720