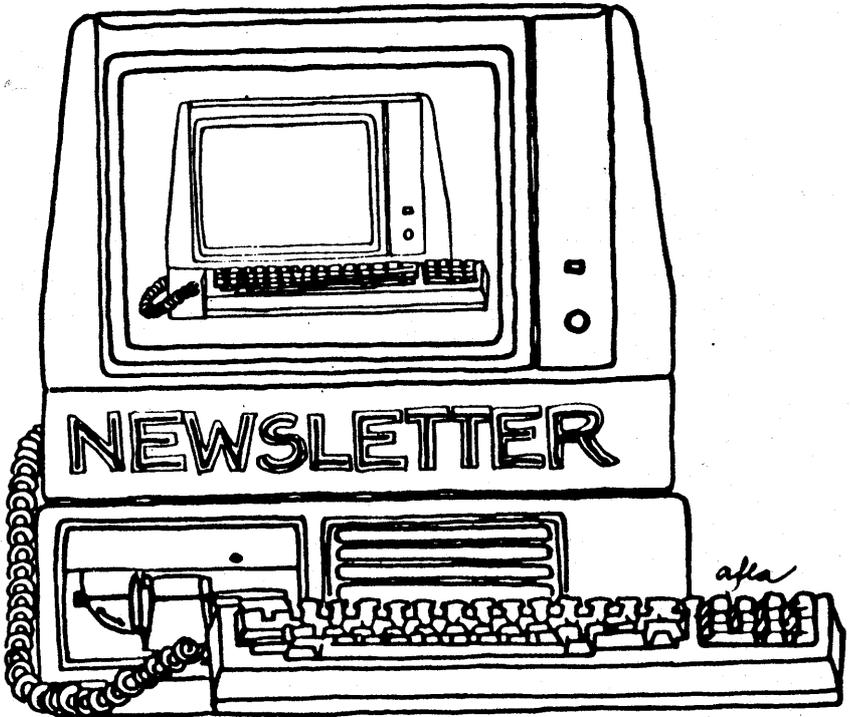


BAY AREA MICRO DECISION USERS ASSOCIATION

BAM DUA



A MUTUAL SUPPORT NETWORK FOR USERS OF
MORROWS' MICRO DECISION COMPUTERS-
P.O. BOX 5152, BERKELEY, CA. 94705
415: 644-2805

BAY AREA MICRO DECISION USERS ASSOCIATION
A Morrow computer users' group

BAMDUA, the Bay Area Micro Decision Users Association, is open to all who are interested in Morrow's Micro Decision computers. Membership fee is currently \$16 per year and includes a subscription to our monthly newsletter. For information, membership application forms, etc., please send a self-addressed stamped envelope to the BAMDUA P.O. Box 5152, Berkeley, CA 94705.

The main BAMDUA meeting is held the latter part of each month. For our next meeting (see below) you are encouraged to bring your own computer in order to have the Z80 board demonstrated on it.

+++ Next main BAMDUA meeting: ++++++
+
+ WHEN: Tuesday, Sept. 22, 1987, 7:30 p.m. +
+ WHERE: Albany Senior Citizens Center +
+ 846 Masonic St., 1st block off Solano in Berkeley +
+ GUEST: Scott and Pete Moore of Zedux, Incorporated +
+ TOPIC: DEMONSTRATION: ACELL 280 (Z80 BOARD) will be done +
+ on your very own computer if you bring it!! +
+++++

The NEXT BAMDUA MEETING will be on Tuesday, Oct. 27 at the Albany Senior Citizens Center.
=====

NEWSLETTER SUBMISSIONS

If you wish to submit material to the newsletter, please submit material material by the 23 of each month; make a WS or NW file on disk, preferably with left margin at default and right margin at 68, justified; Include your name, address and telephone number. Send newsletter materials to: BAMDUA Newsletter Editor (address above).

We reserve the right to edit articles submitted for publication. In keeping with the spirit of "public domain" we grant permission for articles appearing in this Newsletter to be reprinted by other users' groups as long as proper identification is made of author and source. We cannot guarantee the accuracy of information printed here, but we do assume that all authors take an interest in providing responsible information to the best of their ability.
=====

BAMDUA PBBS/RCPM

A system of the Bay Area Micro Decision Users' Association

Micro Bulletin Board System (tm) Sysop: Steven Wartofsky
Phone: (415) 654-3882
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Baud rates: 300, 1200, 2400
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Software: PBBS, BYE510, KMD21, SFILE26, LD, MAP

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BAMDUA OFFICERS

| | |
|--|-------------------|
| PRESIDENT.....Rick Charnes | PBSS SYSOP: |
| VICE PRESIDENT.....Peter Campbell | Steven Wartofsky |
| NEWSLETTER EDITOR.....Georgia Babladelis | |
| SECRETART.....George Borys | MEMBERS AT LARGE: |
| LIBRARIAN.....Gene Korte | Sypko Andreae |
| TREASURER.....Wesley Johnson | Frank Oechsli |
| MEETING PROGRAMMER.....Ilbert Butler | Lee McKusick |

EVENTS CALENDAR

COMPUTER SUPERMARKET SHOW AND SALE - Saturday and Sunday, Sept. 5 & 6, 1987; San Mateo County Fairgrounds, San Mateo; from 10-5, Sat; from 10-4, Sun. Admisson: \$6. Also, on Sept. 12 & 13, 1987 at Brooks Hall in San Francico; from 10-5, Sat; from 10-4, Sun. Admission: \$7 (children under 12 are free for both events). For information, call 415/340-9113, in CA, 800-433-7469.

LOCAL MORROW USER'S MEETINGS:

The CP/M Users of Santa Cruz County (formerly SCMDUG) will meet on the 2nd Tuesday of the month at 7 p.m. at the Branciforte Branch of the Public Library, 230 Gault St., Santa Cruz. Written inquiries should be sent to 376 Lucinda St., Scotts Valley, CA 95066. For information call 408/438-0662 or 408/423-1462.

Stanford Morrow Users' Group, (S.M.U.G.) meets on the 2nd Wednesday of the month from 7-9 PM, Stanford campus: Health Research & Policy Bldg (at back of Museum, which is off Palm Dr; directional signs are out). For information, call Ross Voyles, 408/243-1455.

PETMUG (Petaluma Users' Group) meets on the 4th Thursday of each month at Advanced Information Management, 245 North McDowell Blvd. (in Petaluma Plaza), Petaluma, CA. For info. contact: Don Waite, 707/763-6891 or Dick Hoffman, 707/762-8286 or mailing address: P.O. Box 948, Petaluma, CA. 94953.

=====

HELP LIST

The following people have kindly offered their help to BAMDUA members:

George Borys: CP/M operating system; hardware-related problems. Call between 7-11 p.m., 415-582-7615.

Peter Campbell: General questions, including NewWord and dBase. Call during day or after 7 (up to 10) p.m., 415-527-3387.

Rick Charnes: General questions, also specific ones about modem communications, ZCPR, Word Processing. Call in the mornings up to 11 a.m., or evenings and weekends, 415-826-9448.

Gene Korte: General questions, and ZCPR. Call 7-10 p.m. or weekends, 415-525-8944.

Lee McKusick: Turbo Pascal. Call a.m. only, 415-849-9053.

Stan Naparst: WordStar. Call 415-525-2086 (may leave msg.).

Frank Oechsli: General questions. Call evenings, 415-527-6089.

FROM THE PRESIDENT'S DISK

by Rick Charnes

August days have been long, warm and lazy, like pleasant remembrances of them growing up back East. The summer has brought me wonderfully relaxing weekends spent in the country, full of spacious and expansive trees and slow, peaceful silences. I've been in California for 10 years now and I still can't get used to seeing grass brown in summer; it still seems backwards of how it should be...

Our July BAMDUA meeting at Chabot Science Center was most interesting. David Mitchell brought his Amstrad computer, the most popular computer in England according to his sprightly talk. David is the kind of speaker I especially like to hear -- full of wit and style. He told us of his own history of CP/M computing, tracing it back to when he first read Thoreau. The Amstrad is used by the BBC and the British government and is the computer of choice for most of the computer-using populace in that country. Our operating system is still quite alive in Europe; users groups are very active and software houses are still publishing prodigiously. Browsing through copies of the mainstream British computer magazines he'd brought one actually sees ads for CP/M products! David also mentioned that Germany is the haven for European CP/M public domain hackers.

He spoke of computers as consciousness-expanders. I found especially intriguing his comments on how computers reflect back to us the inner workings of our own minds; he feels that as we use our computers we are seeing our own mental processes reflected back to us on a screen. Perhaps that's one reason why so many of us find them so enjoyably addicting! The Amstrad CP/M computer runs CP/M 3 like our Morrow hard disk machines but appears to be supported a great deal more in terms of both the number and variety of programs available to it. I found particularly impressive the graphics capability of its terminal; in fact he showed us the standard Amstrad word-processing program which makes quite significant use of very attractive graphics

We finished the evening with a first for me: an attempt to make a trans-Atlantic modem phone call to England to one of the many CP/M-based computer bulletin boards. Unfortunately the lines were jammed up at that time of day in England (just as businesses were opening) and we were unsuccessful. BAMDUA is very grateful to David for coming and demonstrating this popular CP/M computer.

Our September meeting promises to be one of the hottest computer events of the year: the first-ever public demonstration of an add-on board with the incredible Z280 microprocessor. You'll remember George Havach's and my discussion of the Z280 super-chip from last issue. We've been in contact with Zedux in southern California and they've agreed to make a trip up here on their way to a similar demonstration and conference on the Z280 up in Portland. Our meeting is being advertised in Ted Silveira's Computer Currents column and several other places so overflow crowds are anticipated.

We've extended invitations to just about every CP/M user group in the Bay Area. Scott and Pete Moore, father-son team at Zedux, are asking people to bring to the demonstration as many different kinds of CP/M computers as possible. Purpose: the Moores will have with them a large number of their Accel 280 boards and will walk around the room and plug them into the various computers with which they are presented so the user will be able to see it running on his own machine. They are of course bringing copies of RP, Remote Partition, the operating system they have written so folks will have the rather unique experience of being able to see a multi-tasking operating system running at 12MHz on their personal computer.

We will be meeting at the Albany Senior Center at 846 Masonic near the corner of Solano, on Tuesday evening, September 22. We are trying to make this our regular meeting spot, to take the place of both the West Berkeley library and Chabot Science Center.

The joining up with BAKUP, the Kaypro users group, is approaching the point of finalization. A combined meeting of the two organizations' board of directors decided on creating what we're calling a "joint venture," at least at first, as the initial step. Each association will retain formal independence but a merger of newsletters and meetings will take place. This September demonstration probably will be the last BAMDUA-only meeting, and if everything goes as expected the same holds for this issue of the newsletter. Our plans are for a large, joint November newsletter which will be full of very exciting features and articles. Georgia Babladelis, our very hard-working editor, will be working with BAKUP's 3-member production team to produce this special issue. We're a little concerned about the production costs as our research revealed that the per-copy savings from a larger run will not be that substantial, but we are going full speed ahead with it nevertheless.

And now for the most important part of the joint venture: the name. After surprisingly little discussion, we informally settled on BAKUP president Bob Athey's brainstorm: 8-BUG, 8-bit User's Group. One thing CP/M machines have in common is that they transmit data in the form of 8 bits rather than the 16 bits of the MS-DOS machines.

When we allowed our imagination to expand outward we envisioned the participation in 8-BUG of CP/M users from other user groups and those not presently organizationally affiliated. There is no reason not to have a broad umbrella group for CP/M. For the present, however, we are keeping our vision focused in order to better guarantee its success. Suggestions and comments from BAMDUA members on how you would like to see this work are solicited and should be sent to our office address.

My ZCPR3/Z-System class at Chabot Science Center has been a smashing success and will be offered again for 10 weeks beginning on October 15th. (Fee: \$75, sent in advance made out to East Bay Astronomical Society at Chabot, 4917 Mountain Blvd., Oakland 94619.

W H O

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7:30 PM

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ALBANY

846 MASONIC

A PROPOSED STANDARD FORMAT FOR QUAD DENSITY (MD) DISKS

by George Borys

| Diskette Format Number: | (Standard) | | (Proposed) | | (Max) |
|----------------------------|------------|------|------------|------|-------|
| | (1) | (2) | (3) | (4) | (5)* |
| FORMAT DESCRIPTION: | | | | | |
| Useful Storage (Bytes): | 186K | 384K | 394K | 792K | 816K |
| Sides (SS/DS): | SS | DS | SS | DS | DS |
| Density (DD/QD): | DD | DD | QD | QD | QD |
| CYLinders formatted: | 40 | 40 | 82 | 81 | 84 |
| Block Size (BLS): | 2K | 2K | 2K | 4K | 2K |

DISK PARAMETER BLOCK:

| | | | | | |
|---------------------------|-----|-----|-----|-----|-----|
| Sectors Per Track (SPT): | 40 | 40 | 40 | 40 | 40 |
| Block Shift factor (BSH): | 4 | 4 | 4 | 5 | 4 |
| Block Mask (BLM): | 15 | 15 | 15 | 31 | 15 |
| Extent Mask (EXM): | 1 | 1 | 1 | 3 | 1 |
| Disk Size Maximum (DSM): | 94 | 194 | 199 | 199 | 404 |
| DiRectory Maximum (DRM): | 127 | 191 | 191 | 191 | 447 |
| ALlocation Byte 0 (AL0): | C0 | E0 | E0 | C0 | FE |
| ALlocation Byte 1 (AL1): | 0 | 0 | 0 | 0 | 0 |
| Check Size (CKS): | 32 | 48 | 48 | 48 | 112 |
| OffSet (OFS): | 2 | 2 | 2 | 2 | 2 |

CBIOS REQUIREMENTS:

| | | | | | |
|-------------------------|----|----|----|----|-----|
| CBIOS CSV Size (Bytes): | 32 | 48 | 48 | 48 | 112 |
| CBIOS ALV Size (Bytes): | 12 | 25 | 25 | 25 | 51 |

* For hackers only. Diskette format (5) requires significant expansion of the ALV and CSV tables in the CBIOS. Forget it unless you have CBIOS.MAC, M80.COM and L80.COM.

Diskette formats (1) and (2) are generated by FORMAT.COM on standard 48 track per inch (tpi) drives. These are the "standard" Single Sided Double Density (SSDD) and Double Sided Double Density (DSDD) formats that are used on the normal Micro-Decision. Formats (3), (4) and (5) are designed to take advantage of the increased storage capacity of 96 tpi "quad density" drives. All three quad density formats make use of the "extra" tracks that are available beyond the normal "last" cylinder. In any case, FORMAT.COM must be patched to generate these quad density formats. While some patching of the CBIOS is also required, only format (5) has gone so "hog wild" that the CBIOS needs to be extensively re-written. Format (3) is basically the DSDD format "unfolded" to fit on one side of a 96 tpi diskette. It is included because the Shugart SA410 single sided 96 tpi drive is sometimes available for as little as one dollar at computer "swap meets". Only two "extra" tracks are added,

thus keeping the maximum block number below 200. Unless the CBIOS ALV tables are expanded beyond their present 25 byte length, the maximum permissible block number is 199 ($ALV=(DSM/8)+1$). For this same reason, format (4) uses a 4K block size and can only afford to add one extra cylinder. The size of the CBIOS CSV tables place similar restrictions on the maximum number of directory entries. Without expanding the CSV tables beyond their present 48 bytes, a maximum of 191 directory entries are checked ($CKS=(DRM+1)/4$). Format (5), for example, would require significant expansion of the CSV and ALV tables in the CBIOS. Such aggressive tweaking of the CBIOS generally means editing CBIOS.MAC and then re-assembling it with M80.COM and L80.COM. Since not all of these programs are universally available, implementation of format (5) is best left to the dedicated hacker. On the other hand, diskette formats (3) and (4) may be fully implemented with a "tool kit" consisting of just SYSGEN.COM and DDT.COM from the original CP/M distribution diskette. In keeping with the KISS philosophy (Keep It Simple, Stupid!), format (5) must fall by the wayside in favor of the more easily implemented formats (3) and (4).

Step 1: Forcing FORMAT.COM to format more than 40 tracks.

Before attempting any patching of FORMAT.COM, get "the big picture" by doing a hard copy dump of the file. Toggle the printer on by pressing control-P (^P), then use DDT to load FORMAT.COM into memory:

```
DDT FORMAT.COM {Return}
```

DDT will display (and print) its version number, followed by two addresses titled "NEXT" and "PC". PC (Program Counter) will always be 0100, but NEXT (the next available address after the end of the file) will depend on which revision of FORMAT.COM is being patched. If the NEXT address is 0B00, the file occupies 10 blocks of memory ($0B00 - 0100 = 0A00$, or 10 blocks of 256 bytes each). The command to dump these 10 blocks to the screen (and the printer) would be:

```
D0100 0AFF {Return}
```

Now that you have hard copy of FORMAT.COM, look for the format control tables located just after the giant pile of ASCII text messages. The table you are looking for will end with the numbers:
01 02 03 04 05 FF FE

These are the sector numbers used for formatting diskettes with five 1K sectors. It will be followed by other tables that will end:
01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 FF FE

(for formatting with sixteen 256 byte sectors), and possibly also
01 02 03 04 05 06 07 08 FF FE

(for formatting with eight 512 byte sectors). The first table, however, is the only one that needs to be patched. The table structure could be expressed in assembly language as follows:

```

;FIRST, THE TABLE FOR SINGLE SIDED FORMAT:
DEFW S_NUMS      ;2 BYTE ADDRESS: TABLE CONTAINING SECTOR NUMBERS
DEFB 03          ;CODE FOR 1K SECTOR SIZE
DEFB 5           ;5 SECTORS
DEFB 5FH        ;GAP LENGTH (GAP 3) USED IN FORMATTING
DEFB 0E5H       ;FILLER BYTE USED IN FORMATTING
DEFB 28H        ;(LAST TRACK NUMBER + 1) ON SINGLE SIDED FORMAT
                ;CHANGE TO 51H FOR SINGLE SIDED QUAD DENSITY.
                ;REPEAT THE ABOVE INFO FOR DOUBLE SIDED:
DEFW S_NUMS      ;REPEAT ADDRESS OF SECTOR NUMBER TABLE
DEFB 03          ;CODE FOR 1K SECTOR SIZE
DEFB 5           ;5 SECTORS
DEFB 5FH        ;GAP LENGTH
DEFB 0E5H       ;REPEAT FILLER BYTE
DEFB 50H        ;(LAST TRACK NUMBER + 1) ON DOUBLE SIDED FORMAT
                ;CHANGE TO 0A2H FOR DOUBLE SIDED QUAD DENSITY.
                ;FINALLY, THE TABLE OF SECTOR NUMBERS:

```

S_NUMS:

```

DEFB 1,2,3,4,5
DEFB 0FFH      ;FLAG END OF SECTOR NUMBERS
DEFB 0FEH     ;FLAG END OF TABLE

```

By changing the 28H byte to 51H, the single sided format will continue for a total of 81 tracks. Similarly, the change from 50H to 0A2H will force the double sided format to continue through track 161.

Step 2: Correcting the boot sector in FORMAT.COM

Unless FORMAT.COM writes out the correct boot sector, the CBIOS will be unable to recognize the new diskette as a valid quad density format. The data the CBIOS expects to find is located in two 24 byte long tables consisting of a 9 byte BTAB (boot version of the CBIOS MTAB) and its associated 16 byte Disk Parameter Block (DPB). These tables are located just following the format control tables described earlier. The original table for single sided disks is:

```

00 00 00 00 00 00 00 00 28 00 04 0F 01 5E 00 7F 00 C0 00 20 00 02
00 E1

```

and should be changed to:

```

01 F8 58 05 DF 03 05 1C FF 28 00 04 0F 01 C7 00 BF 00 E0 00 30 00 02
00 16

```

The original table for double sided disks is:

```

00 04 00 00 00 00 00 00 28 00 04 0F 01 C2 00 BF 00 E0 00 30 00 02
00 89

```

and should be changed to:

```

01 FC 7D 05 DF 03 05 1C FF 28 00 05 1F 03 C7 00 BF 00 C0 00 30 00 02
00 24

```

All other changes are strictly cosmetic, but recommended none the less. Go to the ASCII text portion of the code and add the text "Quad density version" just before the copyright notice. Also

change every occurrence of "Double density" to "Quad density". Most heartily recommended is adding the text "81 cylinders formatted - 96 tpi" just after the "Not a SYSTEM Diskette" message. Be sure not to clobber the Carriage Return - Line Feed (ODH OAH) that follows the "Not a SYSTEM..." message, and add another ODH OAH after the "... 96 tpi" message. Both messages will then be displayed whenever an attempt is made to boot the disk (even in a 48 tpi drive!). Finally, hit a control-C (^C) to return to the A> prompt and save the updated format program by typing:

```
SAVE 10 FORMAT96.COM {Return}
```

Step 3: Correcting the CBIOS MTAB and DPB in MOVCPM.COM

The CP/M distribution diskette carries two copies of the system image. One copy is on the system tracks, and the other copy is in the file MOVCPM.COM. Modifying the system image in MOVCPM.COM gives us the opportunity to create custom system images for both single sided and double sided quad density boot disks. Repeat the ^P trick to dump MOVCPM.COM to the printer. To cut down on the wasted paper, just dump the CBOOT area:

```
D0900 09FF {Return}
```

and the CBIOS area:

```
D2300 2EFF {Return}
```

To create a single sided quad density MOVCPM.COM, just replace the first 24 bytes at 980 with the corrected table for single sided disks from FORMAT96.COM:

```
01 F8 58 05 DF 03 05 1C FF 28 00 04 0F 01 C7 00 BF 00 E0 00 30 00 02  
00 16
```

To create a double sided quad density MOVCPM.COM, the replacement bytes come from the table for double sided disks:

```
21 FC 7D 05 DF 03 05 1C FF 28 00 05 1F 03 C7 00 BF 00 C0 00 30 00 02  
00 24
```

Then proceed to correct the DPB and MTAB tables that will be found somewhere between 2600 and 2900. You will most likely find 6 DPB's of 15 bytes each, beginning with a "default" SSDD DPB of:

```
28 00 04 0F 01 C2 00 7F 00 C0 00 20 00 02 00
```

which is then followed by either 5 more SSDD DPB's, or 5 DSDD DPB's:

```
28 00 04 0F 01 C2 00 BF 00 E0 00 30 00 02 00
```

The "default" DPB is only used when the CBOOT checksum fails, so set it to the whatever DPB was specified in the boot sector (that would be bytes 9 through 24 as installed at address 0988 - 0996). These same bytes are installed for the second DPB also, since that is the drive "A" DPB. The succeeding DPB's are modified as is appropriate for the target hardware configuration. If the DPB is screwed up, however, don't let it worry you too much. The DPB for each drive is overwritten by the DPB from the boot sector of whatever disk is in the drive when you do a warm boot. About 50 or 60 bytes after the last DPB, however, comes the MTAB area. This set of five 9 byte long tables describes and controls the disk drives. The first table will generally be identical to the first 9 bytes in

the boot sector (address 980 - 988). The fifth table specifies the configuration of the virtual "E" drive, so it (and any other unused drive tables) will be identical to the first table. The bytes in each MTAB are defined as follows:

- Byte 0: Bit 0,1, or 2 is the motor control bit (001,010,100,010).
 Bits 3,4 describe disk usage in double sided mode:
 00 -> Even tracks on side 0, odd tracks on side 1.
 01 -> 1st 40 (or 80) tracks on side 0, rest of tracks are on side 1
 10 -> Both tracks treated as single track with twice as many sectors
 Bit 5 flags the drive as double sided.
 Bit 6 is used only by foreign disk formats in CBIOS 3.1
 Bit 7 flags the drive as holding a foreign format
- Byte 1: Bits 0,1 hold the physical drive address (00,01,10,11)
 Bit 2 flags the drive as double sided
 Bits 3,4 describe the sector size used during formatting:
 00 -> 128 byte sectors
 01 -> 256 byte sectors
 10 -> 512 byte sectors
 11 -> 1024 byte sectors
 Bit 5 flags the drive as quad density (80 tracks)
 Bit 6 flags the drive as double density
 Bit 7 flags the drive for use as a virtual drive
- Byte 2: Motor on wait time in increments of 4 ms.
 Byte 3: Head settle time (after seek) in increments of 4 ms.
 Byte 4: $16 * (16\text{-stepping rate in ms.}) + (\text{head unload time}) * 4 \text{ ms.}$
 Byte 5: $2 * (\text{head load time in increments of 4 ms.}) + 1: (03)$
 Byte 6: Last sector number on track: (05)
 Byte 7: Gap length for read/write: (1CH)
 Byte 8: Space for holding current track number (OFFH)

A single sided drive will have bit 5 of byte 0 and bit 2 of byte 1 both reset to 0. A double sided drive will have both those bits set to 1. The first two bytes of the MTAB entries for various drives are:

| Single Sided | Double Sided | Single - Quad | Double - Quad |
|--------------|--------------|---------------|---------------|
| 01 D8 | 21 DC | 01 F8 | 21 FC |
| 02 59 | 22 5D | 02 F9 | 22 FD |
| 04 5A | 24 5E | 04 FA | 24 FE |
| 02 5C | 22 5F | 02 FB | 22 FF |

Select bytes 2 through 8 as appropriate for the particular drive to be used.

The final patch to make is in the ASCII text of the boot-up copyright notice located a few hundred bytes past the MTAB data. To provide room for a "Quad Density" boot up message, abbreviate other portions of the boot up message as deemed appropriate. Just be careful not to clobber any code or pointers. When the last tweak is made, return to the A> prompt with a ^C and save the new file:
 SAVE 52.MOVCPMQ2.COM {Return}

Step 4: FORMAT96ing and SYSGENing a quad density boot disk.

Before installing a quad density drive as drive "A", you must first generate a bootable quad density diskette. The easiest way to do this is to temporarily install a quad density drive as drive "B". The disk in drive "A" should contain the following files:

DDT.COM, MOVCPMQ2.COM, FORMAT96.COM, and SYSGEN.COM

Use DDT to load the format program into memory, then modify the current system to recognize drive "B" as quad density. Type:

DDT FORMAT96.COM {Return}

then look for the current MTAB area around F700H:

DF700 {Return}

Once you have found the MTAB area, locate the MTAB for drive "B". It will begin:

02 59 or 22 5D

Set drive "B" to double sided quad density by changing those 2 bytes to:

22 7D

Run the format program by typing:

G100 {Return}

When the program asks for a drive, press "B". When asked "Single or double sided format?", respond with a "D". Just "go with the flow" and you will be rewarded with a formatted quad density diskette.

To turn the diskette into a bootable system diskette, type:

MOVCPMQ2 64 * {Return}

The modified MOVCPM program will generate a 64K system and inform you that it is ready to sysgen. At that point, type:

SYSGEN {Return}

and respond to the "Source?" query with a {Return}, and answer "Destination?" with a "B". Press {Return} when asked, and you will have generated a real live quad density boot disk.

Step 5: If it feels good, do it.

You may now re-configure your hardware, copy the modified files (MOVCPMQ2.COM and FORMAT96.COM) to your new boot disk, and proceed to create a plethora of new quad density boot disks with just FORMAT96 and SYSGEN. Should your terminal require special installation for non-standard control codes, the recommended method of patching is with INIT.COM and TERMINAL.DAT from the Morrow Owner's Review Upgrade kit. If you are comfortable with DU or ZAP, feel free to use them in preference to DDT for patching MOVCPM and FORMAT. If you have not yet purchased MOR's FLOB collection of Morrow source code, delay no longer. Every little bit of documentation on "what makes it run" makes it easier to hack, tweak, and otherwise fine-tune your machine. Have at it!

###

CONNECTING APPLE PRINTERS & IIgs & MACIN

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| | | | |
|---|--|---|-----------------------------|
| DEVICE: | Apple IIgs, Mac Plus, SE & II, ImageWriter II, LaserWriter Plus | Macintosh 128, 512 & 512E LaserWriter* | Comput DTE w Straight |
| CONNECTOR: | Mini-Circular-8 female | DB9 female | DB25 |
| CABLE: | MacPlus Adapter Cable Mini-Circular-8 to DB9 9 in. long / under \$10 | (Various*) Macto Hayes™ Modem Ca 5 ft. long/under\$20 | |
| NAME-PRICE-DESCRIPTION CONNECTORS: | → Mini-Cir. 8 _____ DB9 _____ male _____ female _____ | → DB9 _____ DB _____ male _____ female _____ | |

Apple RS422 Function

← I/O Direct

| | | | |
|----------------------------|--------|---------|-------------------|
| Hardware Handshake: | | | |
| DTR = HSK out (+12V) | 1 | | 6* _____ |
| DSR = HSK in | 2 | | 7 ← _____ alte |
| Data Transfer: | | | |
| TxD- = Transmit | 3 | | 5 _____ |
| RxD- = Receive | 5 | | 9 ← _____ |
| Ground: | | | |
| RxD+ (Ref.GND) | 8 | | 8__ jumper* |
| Signal GND | 4 | | __3__ _____ GND |
| Frame GND | -- | *jumper | __1__ _____ GND |
| Frame GND | Shield | | Shield _____ GND |

*NOTES: The above three cables connect listed current-model Apple printers & computers to MOST non-Apple computers, and illustrate pinouts for custom cables. If handshake requires RS232 pin 4 = RTS, use XON/XOFF.

1. Laser printers are limited to internal fonts without PostScript™ drivers in the connected computer. There are other compatible drivers.
2. LaserWriter provides HSK-out only for convenience of the connected computer. It has a second conventional RS232-DB25 serial port, with RTS & DTR outputs, similar to the ImageWriter I (See next paragraph). With either port, use XON/XOFF protocol only.
3. ImageWriter I has the same pinouts shown in the right column above, absent 5, 6 & 8, plus 4 = RTS out. With a DB25 gender changer, the null adapter shown will connect a PC, ST, etc. to it, XON/XOFF only.
4. Printer drivers for Apple ImageWriters I & II, in order preferred, are: a) a specific ImageWriter driver; b) C. Itoh ProWriter; c) plain-ASCII drivers, named "Draft", "Simple", etc. Without an ImageWriter driver, control print quality by printer hardware.
5. A quick way to transfer text & data to a Mac/IIgs is to (serially) 'print' it as plain ASCII from the sending computer, and capture it as uploaded text on the Mac/IIgs with a communications program in terminal mode. (Use

TOSH COMPUTERS TO NON-APPLE COMPUTERS

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| | | |
|--|---|---|
| erator Terminal /RS232 Port Setup t Cable to Printer usually female | (Morrow MD, Kaypro J4 & other 2d serial printer ports) | PCs, STs, Other DTEs w/RS232 Port Setup Straight Cable to Modem DB25 male OR female |
| ables | Common DTE—DTE Null Serial Interface Cable/ Adapter w/Handshake | (Also ImageWriter I* Connected to Mac/IIgs) (Gender Required: PC & ST—female; Kaypro J3, Osborne Exec.—male) |
| B25 male | DB25 female | DB25 Gender As Required |

ion —>

Non-Apple RS232 Function

| | | | |
|--------------|---------------|--------|---------------------|
| —> 20 | ----- *jumper | 5 | CTS in |
| usual 8 | — | 6 | DSR in (ST = NC) |
| ternate 5 | — jumper* | 8 | DCD in |
| d alt. 6 | — | 20 | DTR = HSK out |
| —> 2 | ----- | 3 | RxD- = Receive |
| ----- 3 | ----- | 2 | TxD- = Transmit |
| ----- 7 | ----- | 7 | Signal GND |
| ----- 1 | ----- | 1 | Frame GND (PC = NC) |
| ----- Shield | ----- | Shield | Frame GND |

XON/XOFF protocol.) This automatically strips high-order bits, adds end-of-line 'hard' carriage return—line feeds.

6. There is no substitute for reading & understanding manuals, both on serial connection to the non-Apple computer, and on the connected Apple device, nor for testing connections, compatibility settings, and printer drivers (MS-DOS & CP/M users: print WordStar™ Rel. 4 PRINT.TST).

7. Jumpered pins are shown as supplied, at the correct ends of connector cables. Beware re-jumpered non-standard ports in any computer not acquired new. Do not connect RS232 pins not shown, esp. 14, 18, 21, 23.

8. Variations exist in Mac-modem cables, some of which do not provide hardware handshake, or provide it on different pins. If missing, try XON/XOFF protocol. Non-Hayes™-type Mac-modem cables exist and are unsuitable for connections shown.

9. Apple mini-circular-8 connectors are not the same as mini-DINs, and are extremely hard to solder, due to closeness of pins. For homemade cables, cut a cable with mini-8 ends already molded in.

10. Save money & hassles. Buy cables from M.A.C., Berkeley, Ming Ho, Owner, tel. 1-800-BUY-A-MAC, ext. 200, major credit cards, UPS daily. Most custom cables \$16.95. All standard Mac cables. Mention this notice!

Articles:

- Organize your disksV.4, # 9
- Graphics capability - do you need it?.....V.4, # 9
- Word processing with alternate character sets..V.4, #10
- Special series on using your Morrow.....V.5, # 3
 - Love My Morrow (by Frank Oechsli)
 - Discoveries and a New Career (by Lee McKusick)
 - How to use your Computer as a Typewriter (by Stan Naparst)
 - 19200 Baud for your Terminal (by George Borys)
- The Zilog Z280 Microprocessor.....V.5, # 5

NB: These and any other issues of the Newsletter can be ordered by using the order blank on page 24 of any Newsletter.

#

UTILITIES IN REVIEW: QLIST² BISHOW

by Daniel Mann

These two programs are essential to everyone who uses text files. QLIST is used for printing text on a dot-matrix or daisy wheel printer. BISHOW displays text on the screen in a manner more useful than TYPE.

QLIST 1.4

QLIST is the best way to print program documentation. QLIST will print WordStar format or ASCII with the file name and header/title of your choice, plus page number on the header line; it skips three lines, then prints 54 lines of text. QLIST is derived from LIST. The "Q" signifies that it prints squeezed text as well as normal. The file to be printed is entered on the command line after "QLIST." If the file name is not stated on the command line, the program tells you how to use it, then returns you to CP/M.

You can start or stop printing on any page. If you specify starting/stopping at a page number greater than exists, QLIST will display the number of pages in the document and abort. You choose the left margin, the title, whether the header line is 10 cpi or expanded (dot-matrix only), and whether the text is normal size or compressed. Compressed text will allow about 130 characters per line. If you use a daisy wheel printer and use compressed mode, be sure to use a 15 cpi wheel. The number of characters allowed in the title is shown, and this will vary depending upon the length of the file name (printed automatically), left margin and size of letters in the header. If no title is wanted, enter a space. A bug will cause "Page #" to appear a second time just below file name.

If you do not want any feature except start/stop pages, the options can be bypassed by typing "\$0" after the file name. The header bug does not appear with \$0. If the user normally would not want the optional features, an equate can be set in the assembly language file to make "\$0" bring up the options instead of suppressing them. A "\$S" after the file name will display the file on the screen without printing. QLIST can be aborted anywhere with a ^C. QLIST does not obey dot or control commands. Control characters are represented as "^x", with the "x" being any control character.

QLIST dumps text to the printer very rapidly then returns to CP/M. The assembly language file shows how and where to enter the printer codes for expanded and compressed print. These must be obtained from the printer manual. There are provisions for roll paper or use of form feed instead of line feed. These options can be added to the options list by setting equates in the assembly language file to TRUE. The program works with CP/M 2.2 or 3.0. It can be assembled with ASM or MAC.

BISHOW 3.02

BISHOW should replace the TYPE command for all CP/M+ users and all CP/M 2.2 users who can spare 4K of disk space. BISHOW advances by the line or screen, with the added ability to back up one line or one page or even to go back to the beginning. BISHOW can view a squeezed file in a library. The most current version 3.02 is known as BISHOW32, although 32 usually would mean version 3.2 of a program. Because I use the program frequently, I renamed it V.COM, with the "v" meaning "view." Like QLIST, BISHOW requires the name of the file on the command line. If the file is in a library, the library name comes first, then the file name, i.e.,

BISHOW NAME.LBR SQUEEZED.TOX

If no file name is typed, the command line format is displayed and the user is returned to CP/M. The format is the same as for QLIST except QLIST cannot, yet, print files in a library - too bad.

An unknown command will evoke the display of a two-line command summary at the bottom of the screen. When BISHOW backs up, the screen is cleared. It can scroll right and left with ^H and ^L, move to the next page with SPACE, ^F, or F. The next line is reached with RETURN, N, or a plus sign. To back up one page requires ^B or B, and returning to the front of the text is done by pressing "1." To back up one line, use P or a dash.

The way BISHOW advances by page or line is opposite to most other text display programs, such as NULU, NSWEEP, and DISK, which makes it seem awkward. This could be changed in the assembly language file by redefining the commands.

To make the needed changes does not require knowing how to write assembly language programs. I have assumed that the reader knows how to modify assembly language files (*.ASM) so that an executable program results. The assembly file is edited with WordStar in the non-document mode. Assembly language files begin with information: author, version, date, copyright, history, function, how to use (sometimes), and most importantly, what changes can or should be made to make the program useful. These changes can pertain to one or all of the following: terminal, computer, printer, defaults, or user preferences. Descriptive text always begins with a semi-colon. The assembler, ASM.COM or MAC.COM, ignores everything on a line after the semi-colon and produces a *.HEX file.

Next comes the text that will be converted to a program. At the start of the coded text there will be comments on each line. The comments here describe what that line of code does. The author places here definitions of labels. The author may have divided these definitions into groups that define terminal, printer, and preference/default options. (Defaults are what the program will do if the user does not specify something else.) The last section is code that must not be altered by the user.

Options may require only overwriting "TRUE" or "FALSE" according to the comment's instructions. These are known as equates; they appear as EQ in assembly language. Possibly numbers may be asked for, i.e., how many lines on the screen, etc. The most difficult part of making changes is finding and entering hexadecimal numbers to make the terminal or printer function properly. Each hex number must end with an "H." Hex numbers are separated by commas. If a hex number starts with a letter, it must be preceded by a zero. The hex tables in your manuals are useful for converting characters to hex.

In CP/M 2.2 put these files on a sysgened disk in drive A:

ASM.COM
LOAD.COM

and the "program".ASM. "Program" is the name of the coded text file. In CP/M+ substitute MAC for ASM and HEXCOM for LOAD. Type from CP/M:

A>ASM program (.ASM assumed) => program.PRN & program.HEX
A>ERA program.PRN (a programmer's reference)
A>LOAD program (.HEX assumed) => program.COM

The COMpiled program is ready! Erase the HEX file and SYM (CP/M+ only).

#

TIPS AND TRICKS: CORRECT-IT

MODIFYING CORRECT-IT TO RUN IN DRIVE C

by Bob King

(Reprinted from MUGW Newsletter)

It has always frustrated me that CORRECT-IT must be in drive A to run. This was especially annoying after converting to a 4 drive MD2. My wife and I both like to put WordStar in drive A and our working disk in drive B. We wanted to be able to use CORRECT-IT from the WordStar "Run a Program" menu option. Here are the changes I made to the CORRECT-IT package to make it run on drive C.

NOTE: These patch addresses apply only to CORRECT.COM version 1.01, FIXUP.COM version 1.0 and LOOKUP.COM version 1.0.

1. FORMAT 2 disks for working copies. Label one disk as TEMP and the other as MODIFIED.

2. BACKUP your CORRECT-IT disk to both of these disks. Put your original CORRECT-IT disk somewhere safe.

3. Copy DDT.COM from your system disk or programmer's utility disk to TEMP.

4. Delete CORRECT.COM, FIXUP.COM, and LOOKUP.COM from MODIFIED.

5. Put TEMP in drive A and MODIFIED in drive B.

6. Now we will modify LOOKUP.COM. The following directions will patch it to look in drive C for the dictionary file. Type what is underlined. <CR> means hit the return key.

Keyboard Input

A>DDT A:LOOKUP.COM<CR>

DDT VERS 2.2

NEXT PC

2200 0100

-S13E4<CR>

13E4 41 43<CR>

13E5 3A .<CR>

-S1408<CR>

1408 41 43<CR>

1409 3A .<CR>

-S14AC<CR>

14AC 41 43<CR>

14AD 3A .<CR>

-S14D0<CR>

14D0 41 43<CR>

14D1 3A .<CR>

-G0000<CR>

What's Happening

Load LOOKUP with DDT

DDT version number

Last address loaded & start
address

Substitute starting at
address 13E4

Put an "C" in place of "A"

Stop substitution

Do the same at address 1408

Do the same at address 14AC

Do the same at address 14D0

Warm start CP/M

A>SAVE 17 B:LOOKUP.COM<CR> Save modified copy of LOOKUP.COM

7. Now we will modify CORRECT.COM. The following directions will patch it to look in drive C for FIXUP.COM and the dictionary. Type what is underlined. <CR> means hit the return key.

Keyboard Input

A>DDT A:CORRECT.COM<CR>

DDT VERS 2.2

NEXT PC

5380 0100

-S3569<CR>

3569 41 43<CR>

35A0 3A .<CR>

-S47A2<CR>

47A2 01 03<CR>

47A3 32 .<CR>

-G0000<CR>

A>SAVE 83 B:CORRECT.COM<CR>

What's Happening

Load CORRECT with DDT

DDT version number

Last address loaded & start

address

Substitute "C" for "A" when looking for FIXUP.COM.

Substitute the drive number "C" for "A" when looking for the dictionary file.

Save modified copy of CORRECT.COM

8. Now we will modify FIXUP.COM. The following directions will patch it to look in drive C for the dictionary. Type what is underlined. <CR> means hit the return key.

Keyboard Input

A>DDT A:FIXUP.COM<CR>

DDT VERS 2.2

NEXT PC

5E80 0100

-S549B<CR>

549B 41 43<CR>

549C 3A .<CR>

-S54BF<CR>

54BF 41 43<CR>

54C0 3A .<CR>

-S5563<CR>

5563 41 43<CR>

5564 3A .<CR>

-S5587<CR>

5587 41 43<CR>

5588 3A .<CR>

-G0000<CR>

A>SAVE 95 B:FIXUP.COM

What's Happening

Load FIXUP with DDT

DDT version number

Last address loaded & start

address

Substitute "C" for "A" in disk name

Warm start CP/M

Save the modified copy of

FIXUP.COM

9. Now test them by removing the TEMP disk from drive A and putting your WordStar disk in drive A, a document disk in drive B and typing: A>C:LOOKUP.COM<CR>

and inserting the MODIFIED disk in drive C. You may end up swapping disks once or twice on a 2 drive machine. Just make sure the MODIFIED disk is in when drive C is selected. If you can look up a word in the dictionary, the mods to LOOKUP.COM worked.

Now test CORRECT-IT and FIXUP by typing

A>C:CORRECT B:[some document file name]<CR>

and make sure the MODIFIED disk is in when drive C is selected. If no error messages come up about not finding the dictionary, then the patches worked. If the document had typographical errors in it, FIXUP.COM will be run automatically. If no error messages come up here either, you are done.

You can now label the MODIFIED disk as your working CORRECT-IT disk. Using BACKUP to copy it onto the TEMP disk gives you a copy in case of trouble. Now you can run CORRECT-IT from the "Run a Program" menu option with a command line like the one we just used to test CORRECT-IT.

INDEXING USING CORRECT-IT

by Bill Steele (source unknown)

First, correct the file in the normal way, being sure to teach the program any words it doesn't know so that if you run CORRECT-IT again, it should not find any unknown words. (If the file you want to index includes words you'd rather CORRECT-IT didn't know, you can edit them out of AUXDICT.TXT later. Or, make a copy of the file AUXDICT.TXT and rename it to something else; when you're finished, delete the copy of AUXDICT.TXT you used in the indexing and rename the other copy back to AUXDICT.TXT).

Next, make a copy of your file and edit it, tagging just the words you want indexed in the manner Suds suggests, i.e., adding a 'q' followed by a letter code for the page number. You must use letters because CORRECT-IT throws away numbers. Hint: in either WordStar or NewWord, at the beginning of the first page, type ^QA <space><cr> qa <space><cr><cr>. This tells your word processor to find a space and replace it with "qa" followed by a space. Now put the cursor anywhere on a word you want to index and type ^L (find and replace again) and the word will be tagged automatically. At the beginning of each new page you must type the find and replace command again, substituting the new letter code for that page number, e.g., "qb" for page 2, etc.

Hyphens and apostrophes also should be replaced, but you don't have to replace all the other punctuation marks and spaces. Since there are not likely to be many hyphenated or apostrophed words in your index, it may be quicker to deal with them one at a time than to do search and replace on the whole file. I usually just delete the hyphen or apostrophe in a word I want to index and run the words together.

Now run CORRECT-IT again. Since there are no words that end in "qa", etc. the program will flag all the words you've tagged and alphabetize them in a .BWD file. You can then go through that file and use find and replace to change the codes to page numbers.

I don't know how this procedure compares in time consumed to the one Suds describes, but it's definitely less boring, and it allows you to choose which words you want to index while looking at them in context. It won't give you a word count, but a much easier way to get that is with the public domain program available."

RUNNING CORRECT-IT FROM WORDSTAR

by Michael Kelly

(reprinted from MUGW Newsletter)

With WordStar in Drive A, work disk in Drive B, and B as the default drive, how is Correct-It most easily run? Bob King showed how to modify Correct-It to run from Drive C. I've had my fill of bit-patching so I prefer solutions that are simpler to implement--even if they bend the rules a little. The following works with my Rev. 1 system, and I don't see why it shouldn't work with any configuration.

In the following, my convention is to use UPPER CASE for items that are to be typed as shown, and lowercase where you supply the actual item.

At WordStar's No-File menu, select option R (run a program). WordStar will ask for a command. **BEFORE ENTERING THE COMMAND**, remove the diskette in A, which contains WordStar, and replace it with diskette containing Correct-It, Fixup, and the main and auxiliary dictionaries. Then reply "CORRECT B:textfile.ext". You've fooled the computer into thinking that Correct-It is on the same diskette as WordStar.

DON'T CHANGE DISKETTES AGAIN UNTIL I TELL YOU TO, i.e., leave the Correct-It diskette in Drive A throughout. Enter "AUXDICT.TXT" (or the name of whatever other file you use) as the auxiliary dictionary. At the end of FIXUP, you are asked to press D or E. Reply "D" to delete the bad word file.

CHANGE BACK TO THE WORDSTAR DISKETTE BEFORE PRESSING "E" to exit from Fixup. Then press any key to re-enter WordStar. If a WordStar error message appears (you pressed "E" OR RETURN before changing diskettes), just press ESCAPE to set things straight again. Using two diskettes in the same drive this way doesn't upset CP/M, Correct-It or Fixup. With this technique, the proper updates are made to the auxiliary dictionary on the Correct-It diskette, and to the text file on B. I don't know if it's necessary to have CP/M sysgened onto both diskettes; I haven't tried it without.

You can use B as the default drive if you prefer to, but then you must invoke Correct-It with the command "CORRECT textfile.ext" (no drive prefixes!) but give a prefix to the auxiliary dictionary: "A:AUXDICT.TXT".

(reprinted from Bits n Chips)

You can effectively run Correct-It from WordStar's No-File menu by the use of the R (run a program) command. All one has to do is ignore certain messages.

The following applies to MD2 or 3 and the common situation where Wordstar, Correct-It and the text file are on three separate (properly sysgened) disks; the WordStar disk is in drive A and the text file disk is in drive B, having just typed, saved, and exited from the text file.

At the No File-Menu type "r" and in response to COMMAND? type "c:correct" and press return. The screen will show:

Your lower drive is being re-assigned as drive C.
Exchange diskettes and press [Return]

Remove the disk containing WordStar and insert the one containing Correct-It and press RETURN. The screen will show:

Your lower drive is being re-assigned as drive A.
Exchange diskettes and press [RETURN]

Forget it! If you again exchange disks, you'll be back at square one with a Correct.Com NOT FOUND message and the COMMAND? prompt. Instead, ignore the instruction to exchange disks and press RETURN. The screen will again show:

Your lower drive is being re-assigned as drive C.
Exchange diskettes and press RETURN

Merely press return again and Correct-It will be up and running and asking you for the name of the file to check. After Correct-It reads and sorts the file, but before it checks the master dictionary, that now familiar message will be displayed once more:

Your lower drive is being reassigned as drive A.
Exchange diskettes and press RETURN

Just press RETURN.

After you have finished checking and correcting your text file with Correct-It you will be asked to:

Replace diskette with file A:WS.COM, hit any key:

Do it. You will probably get an error message and will need to press the ESCAPE key, but you will be back in the NO-FILE MENU.

#

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EDITOR'S DOC: Only one person responded to my plea for feedback about what you want to read in the Newsletter! That person wants a convenient and regular meeting place for BAMDUA monthly meetings (DONE! See President's column) and more "how to use x..." and "tips" columns (DONE! and we will keep trying!). Since our membership is small, maybe an N=1 is representative???? Anyway, if you have thoughts, suggestions, requests, contributions -- I will be happy to receive them!

I am looking forward to working with the KAYPRO editorial and production group. I have met with them and we all hope we can bring this about. The finances are a real stumbling block, though!

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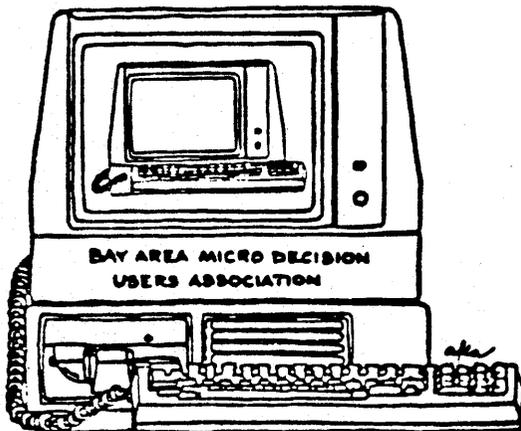
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