

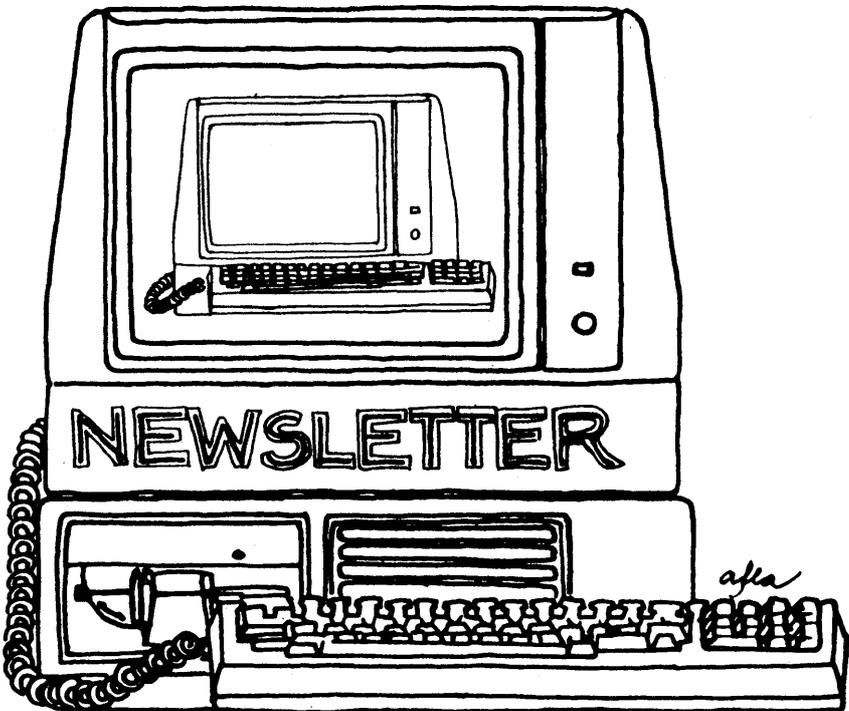
June 11, 1986

Volume 4

Issue #6

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

NEWSLETTER

If you wish to submit material to the newsletter, please follow these guidelines:

- o Submit material before the 23 of each month
- o Submit hard copy along with a WordStar file on a SSDD or DSDD diskette; left margin, default; right margin, 68 and right justified. (NewWord files are acceptable).
- o Include your name, address and telephone number
Your disk will be returned to you.
- o Send newsletter materials to: Newsletter Editor
BAMDUAA
P.O Box 5152
Berkeley, CA 94705

If you have questions about newsletter submissions, call me afternoons only on Wednesday or Friday (415-843-8167). If you have other questions about BAMDUAA, call the BAMDUAA Office, 415-644-2805. If you need technical help, use your DIRECTORY.

IMPORTANT: If you have something you especially want in the next Newsletter but are unsure you can get it in before the deadline, be sure to call me so that we can make special arrangements. If it doesn't matter to you when it is published, then you do not need to be concerned about the deadline; just send it in when you have it ready!

Please remember that the deadline is important in order to enable me to plan and produce the Newsletter.

If you have tried one (or more) of the utilities available on the library disks, write a review and send it in! If you know the answer (or think you do) to new or recurrent questions in the Notepad or Mailbox departments, write me so that I can make the information available to all.

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 for the purpose of free dissemination of information 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.

Thanks. --Georgia Babladelis, Ed.

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

Monthly newsletter, Vol. 4, Issue 6 June 1986

BAMDUA, P.O. Box 5152, Berkeley, Ca 94705
(415) 644- 2805

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.

The BAMDUA office is open 8:30-4:30 weekdays; the answering machine or a call-forwarding BAMDUA volunteer will take your messages from 12:30 on. When Greg is in the office, he will answer the phone in the morning.

The main BAMDUA meeting is held the last Tuesday of each month.

+++ Next main BAMDUA meeting: ++++++
+
+ CELEBRATING THE STRENGTHS OF CP/M IN AN MS-DOS WORLD: +
+ PUBLIC DOMAIN PROGRAMS AND COMPUTER BULLETIN BOARDS +
+
+ AN EVENING WITH +
+
+ Wayne Masters, Irv Hoff, Dick Ezzard +
+ Ken Fowler and Nancy Mulvaney +
+
+ How can CP/M survive in a computer world dominated by MS-DOS? +
+ Should we survive? +
+
+ Join us with five of the Bay Area's CP/M Greats - BBS system +
+ operators, programmers, editors - who have made this dynamic +
+ world possible. +
+
+ June 24, 7:30 p.m., +
+ West Branch of the Berkeley Public Library +
+ 1125 University Avenue at San Pablo +
+
+ ++++++

PLANNING AHEAD: Information about future meetings.

There will be no meeting in July. Your weary president and board members decided to skip the July meeting and put creative energy into planning a meeting in the fall. Watch for it and be sure to attend. We are planning a lively, interesting meeting for September!!

LOCAL MORROW USER'S MEETINGS:

MUG/MARIN (Marin Users' Group) meets on the fourth Thursday of each month at 7:30 p.m. The address is P.O. Box 925, Mill Valley, Ca. 94942. For information, contact Susan Miller (415)383-6276 or Jim Kelly (415)472-1499. The group describes itself as a small but stimulating group which tries to diversify information for both novices and pros alike.

Stanford Morrow Users' Group, (S.M.U.G.) meets on the 2nd Wednesday of the month at 7:30 PM on the Stanford campus: Polya Hall (also known as Turing Auditorium), room 111. Info: Ed Gallaher (408) 749-9285 (H)

The CP/M Users of Santa Cruz County (formerly SCMDUG) will meet on the second Tuesday of the month at 7 p.m. at the Green Acres School Multi-Purpose Room, 966 Bostwick Lane (off Paul Minnie Rd.), Santa Cruz. We have reservations for that room for the next several months. This group is open to all users of Morrow, Kaypro, Osbourne, Televideo and other CP/M computers. Our meeting place is wheelchair-accessible and some of us are CPR knowledgeable. We can make arrangements for special problems, including transportation. There will be an open forum for questions, a software demonstration, and public domain software for sale. Diskettes will also be sold. Members may bring their computers to the meeting. Written inquiries should be sent to 376 Lucinda St., Scotts Valley, CA 95066. For information call 408/438-0662 or 408/423-1462.

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.

CLASSES:

Until now, we have offered classes on MODEM7, INTERMEDIATE CP/M, a NOVICE EMERGENCY CLINIC for beginners, PERSONAL PEARL for beginners, PUBLIC DOMAIN SOFTWARE, QUEST ACCOUNTANT PROGRAM, and an ADVANCED CP/M and SYSTEMS class. Now it appears that there is not enough interest in them to continue offering these classes. However, if interest grows in the future, these classes will be made available again. Classes will then be scheduled when enough participants sign up for them. For information, call BAMDUA (415) 644-2805.

FLASH!! Lee McKusick is willing to start a Pascal Class. If you are interested in having a Pascal Class, please call the BAMDUA office (415/644-2805) and let Greg Smith know.

FROM THE PRESIDENT'S DISK

by Sypko Andreae

It is nearly summer now--notice how chilly the fog each morning!--and that rings in the summer siesta for BAMDUA. We'll have one more meeting in June, in July we have our last newsletter and then we start up again in September. Happy summer! But before you go....

Don't miss that June 24th meeting! It is special. We will have a panel studded with five famous CP/M gurus from the Bay Area who will discuss with us the state of CP/M, its future, its relationship to MS-DOS, etc. Well worth attending if you want to get a feel where we are headed with CP/M. Rick Charnes will be chairing this meeting. We invited a 1000 Bay Area CP/M-ers with a mail flyer, so better come early to get a seat.

The BAMDUA MBBS is as busy as ever. Steve Wartofsky, the SYSOP, can hardly keep up with it. It has 235 registered users and many other callers. Apart from the 1700 files of Public Domain software--a true Morrow software gold mine--it is quite heavily used for messages. I looked around some other popular boards in the Bay Area: KAY*FOG, POTPOURI, AL MEHR, FOG #1, FOG #3, BAKUP. Turns out that KAY*FOG in San Francisco (with many hundreds more users) comes out on top with 250 messages in a recent 10 day period, then follows the BAMDUA MBBS in second place with 200 messages, then the rest trails quite far behind. Amazing, eh? Many people appreciate the "friendliness" of our board, many callers have non-Morrow machines. Must be a case of critical mass or something.

With the MBBS traffic being so heavy it makes it a little harder to get in these days, but it still ain't so bad as with some of the other boards like KAY*FOG and POTPOURI, who have a more recent and set of Public Domain software on line. The administrative load on the SYSOP (Steve) is fairly high. That may be the strongest reason to switch to (yet another) new BBS software package in the near future, one with automatic message and user management: Every night at midnight it grooms itself! It is hoped that that will also solve some technical problems our MBBS was having. That will be our fifth BBS system! I already hear cries of complaints and "oh...noooh"s. But you should realize that occasional CHANGE is the price of being part of a environment of
=====>>> CP/M ALIVE. <<<<=====

When we do switch we can this time transport our message and users files, so we don't have to start from scratch. The commands will be virtually the same and the menu's will be better organized and easier to use, will just look a little different. Com'on, it won't be so bad. You'll probably love it. The new system we are eying is PBBS version 3.0, currently being "beta tested" on Potpourri. To get a taste of it try it out at (408) 378-7474. Leave comments on our MBBS. What? You don't have a modem yet? But you will get so behind and out of touch! Go get a cheap 1200 baud modem (\$99 for Avatek at Computer Faires and Swap meets) and get yourself ON-LINE!

LIBRARY NEWS

By Ilbert I. Butler

ANNOUNCEMENT OF NEW PUBLIC DOMAIN DISK SERIES

We have a new public domain series, added to our library. As well as the usual library disks, containing public domain software as it comes out and is received by us, compiled by Librarian Gene Korte, we also have a series with different numbers, which are compilations of public domain software and documentation in related groups. It is our intention to revise and upgrade these annually.

Members who obtained these disks at our March & April meetings will note they have changed slightly, with addition of disk directories, upgrade to later versions of some programs, and additions of a few new programs. If you have already purchased a disk, you can obtain the newer version without charge before September 1, 1986, by turning in your original distribution disk with BAMDUA office label. For trade-ins by mail, enclose self-addressed, stamped mailer, or mailing label and \$1.00.

These disks will be on the BAMDUA MBBS, tel. (415) 654-3882.

-BAMDUA.01A -- ALL-PURPOSE UTILITIES

-BAMDUA .01A 4K Directory of this disk; you're reading it now.

SWEEP PROGRAMS

DISK77B .COM 6K Compact sweep, similar NSWP, very fast copy.
DISK77B .DOC 6K <--Documentation for above -- READ ME!
NSWP206+.DOC 26K <--Documentation for below -- READ ME!
NSWP207 .COM 12K Sweep, replaces PIP & STAT, runs from menu.

DIRECTORIES

DIR22 .COM 4K 4-col. vert. sorted directory.
SD-1 .COM 2K 4-col. horiz. sorted directory.
SD-106 .COM 6K Versatile, powerful directory w/many options.
SD-106 .DOC 4K <--Documentation for above -- READ ME!
SD-106 .INF 16K <--More documentation for above -- READ ME!
SD-77 .ART 4K <--Documentation for below -- READ ME!
SD-77H .COM 4K 4-col. horiz. sorted directory, add'l commands.
SD-77V .COM 4K 1-col. vert. sorted directory, add'l commands.
ZX2 .COM 2K 4-col. horiz. sorted dir. + copy, REN, ERA files.
ZX3 .COM 4K 4-col. horiz. sorted dir. + ZX2 + unerase & edit.
ZX3 .DOC 20K <--Documentation for above -- READ ME!

PRINTING UTILITIES

LISTT15 .COM 4K LISTT v.1.5 prints text files, sets margin, paging controls.
LISTT15 .DOC 6K <--Documentation for above -- READ ME!
SLM .COM 2K Set Left Margin (page offset where print begins) Esp. for MP-100 printers w/tractor feed.
SLM .DOC 2K <--Documentation for above -- READ ME!

OTHER UTILITIES

BISHOW .COM 2K View text files, scroll back & forth, WS commands
Use: BISHOW d(rive)(user)#:filename.ext<cr>
COMPARE .COM 2K Compare two files to determine if same or diff.
Use: COMPARE d#:filenam1.ext d#:filenam2.ext<cr>
FBAD57&6.DOC 8K <--Document'n for FINDBAD v.5.7-6.0 -- READ ME!
FBAD60 .COM 4K FINDBAD v.6.0, CP/M 2.2, find & lock out bad disk
sectors.
FBAD60+ .COM 6K FINDBAD v.6.0, CP/M 3.0 systems.
NEWDISK .DOC 6K <--Documentation for below -- READ ME!
NEWDISK .PIL 2K Runs w/PILOT.COM, automates format & sysgen of
new disks.
QK-21 .COM 4K QUIKKEY (similar SMARTKEY) v.2.1
QK-21 .DOC 10K <--Documentation for above -- READ ME!
QK-21 .UPD 2K <--Additional update documentation for QUIKKEY.
UNERA30 .COM 2K UNERASE v.3.0, recovers erased files, ufn or afn.

-BAMDUA.01B -- HELP, DISK CATALOGUES, ZCPRI EZ-INSTALL

-BAMDUA .01B 2K Directory of this disk; you're reading it now.

HELP SYSTEM

HELP .COM 2K Accesses *.HLP files in organized fashion.
Usage: HELP<cr> or HELP CPM<cr>
HELP .HLP 8K Explains how help files work.
CPM .HLP 38K Help with CP/M operating system fundamentals.

NCAT v.3.2 DISK-CATALOGUING SYSTEM

LISTCAT .COM 18K Used to print from master catalogue.
LISTCAT .DOC 2K <--Documentation for above -- READ ME!
NCAT-32 .COM 8K Obtains directory of disk, adds to master catalog.
NCAT-32 .DOC 6K <--Documentation for above -- READ ME FIRST!
NCAT-32 .SET 4K Sets No. directory entries for your disk system.
XCAT-36 .COM 4K Makes & prints cross-referencing list.
XCAT-36 .DOC 4K <--Documentation for above -- READ ME!

YANC v.2.3 DISK-CATALOGUING SYSTEM

YANC-23 .COM 34K Menu-driven 'Yet Another Catalogue' system
YANC-23 .DOC 4K <--Documentation for above -- READ ME!
YANC-23 .HIS 14K <--Additional documentation for above -- READ ME!
YANCTERM.ADM 4K Sample parameter file for ADM terminals.
YANCTERM.PRM 4K Parameter file for above program.
YANCTERM.SOR 4K Sample parameter file for SOROC terminals.

ZCPRI EZ-INSTALL VERSION (CP/M 2.2 ONLY)

EX14 .COM 4K Replacement for SUBMIT.COM, used for installation.
ZCPR .DOC 6K <--Documentation for installation -- READ ME!
ZCPR .HEX 6K One of 2 possible ZCPR installations.
ZCPRX .HEX 6K Alternative to the above.
ZINSTAL .SUB 2K Submit file used to instal ZCPR.HEX
ZINSTALX.SUB 2K Submit file used to instal ZCPRX.HEX.

-BAMDU.A.02A -- NON-MODEM PROGRAMS FOR FILE TRANSFERS

-BAMDU.A .02A 4K Directory of this disk; you're reading it now.

FINDING, ADDING, CHANGING, STRIPPING 8TH-BIT INFORMATION

CHECKWS .COM 6K Counts & lists words, lines & 8th-bit info. in text file.
ENSOFT .COM 8K Converts ASCII file to WordStar/NewWord document.
ENSOFT .DOC 8K <--Documentation for above -- READ ME!
FILF .DOC 6K <--Documentation for below -- READ ME!
FILFA .COM 2K Strips/filters 8th-bit info. from ASCII files.
FILFB .COM 2K Strips/filters 8th-bit info. from BASIC files.
FILFW .COM 2K Converts WordStar/NewWord doc's to simple ASCII.
FILFWC .COM 2K Similar to FILFW, diff. treatment of line feed & carr. ret.
HARDSOFT.COM 2K Converts WS/NW doc's to ASCII & vice-versa.
HARDSOFT.DOC 2K <--Documentation for above -- READ ME!
PURETEXT.COM 10K Menu-driven, converts WS/NW doc's to simple ASCII.
TRSCPM .COM 4K Converts Radio Shack TRSDOS text file to CP/M form.
TRSCPM .DOC 2K <--Documentation for above -- READ ME!

FILE ENCRYPTION FOR SECURITY

PASSWORD.ASM 8K Source code for program below.
PASSWORD.COM 2K Requires password to run any CP/M program.
PASSWORD.DOC 2K <--Documentation for above -- READ ME!
SCRAMBLE.ASM 6K Source code for program below.
SCRAMBLE.COM 2K Requires password to access any CP/M file of any kind.
SCRAMBLE.DOC 2K <--Documentation for above -- READ ME!

TOOLS FOR HANDLING VERY LARGE FILES

CHOP .COM 10K Copies large text files to smaller consec. files 128 lines or less.
CHOP .DOC 2K <--Documentation for above -- READ ME!
CHOP .PAS 2K Pascal version of CHOP.COM.
NSWP206+.DOC 26K <--Documentation for below -- READ ME!
NSWP207 .COM 12K All-purpose sweep, includes SQ/USQ batch file operations.
SQ111 .COM 6K Assembler (fast) vers. of SQUEEZE.COM, compresses files.
SQ111 .DOC 4K <--Documentation for above -- READ ME!
TYPESQ .COM 10K Types squeezed or unsqueezed files.
TYPESQ17.COM 10K Similar to TYPESQ, incl. wildcards, multi-file operations.
USQ120 .COM 2K Assembler (fast) vers. of UNSQUEEZ.COM.
USQ120 .DOC 4K <--Documentation for above -- READ ME!

-BAMDUA.02B -- LIBRARY UTILITIES

-BAMDUA .02B 2K Directory of this disk; you're reading it now.

LBRDISK v.2.3: USE LIBRARY AS VIRTUAL DRIVE TO SAVE DISK SPACE
LBCREATE.COM 2K Creates empty library, into which files copied.
LBRDISK2.DOC 6K <--Documentation for system programs -- READ ME!
LBRDISK2.NOT 2K <--Info. to implement ZCPR2.
LBRDISK23.COM 8K Allocates named drive to library.
LBRDISK23.NOT 2K <--Info. to implement CRCK & MODEM7 batch mode.
LBRDISK23.SET 2K <--Patching info. for options.
SETRSX11.COM 2K Executed once prior to using LBRDISK23.

LU (Library Utility) v.3.10

LU300 .DOC 36K <--Documentation for below -- READ ME FIRST!
LU310 .COM 20K Combines/uses/extracts multiple files in 1
library file.
LU310 .HLP 2K Summary of commands, accessed from program.
LU310 .UPD 4K <--Additional documentation to current version.

NULU (Library Utility) v.1.51

MLOAD24 .COM 4K Used to patch program, instructions in .ASM files.
NULU15 .DOC 56K <--Documentation for below -- READ ME FIRST!
NULU15 .NOT 2K <--Additional message from program author.
NULU151 .COM 16K Combines/uses/extracts multiple files in 1
library file.
NULUFIX .ASM 2K Patch file incorporating bug fixes of prev. vers.
NULUTERM.ASM 4K Patch file to install terminal characteristics.

TYPEL v.2.3

TYPEL23 .COM 6K Types squeezed/unsqueezed files, incl. files in
libraries.
TYPEL23 .DOC 6K <--Documentation for above -- READ ME!

PASS THE NOTEPAD

Several questions from Sally, 415/337-1629: (1) How can you get the legal symbol for section to be printed in NewWord? (2) When using a ruler line longer than 90 in NW, is there a way to make the screen keep up with your typing instead of scrolling slower than you type? (3) Why can't I get a SmartKey function to repeat?(e.g., if I redefine a key to be ^X, it executes once then stops). (4) How can you make clone feature work in PC File?

Some questions from Stan Naparst, 415/527-3156: (1) Does anyone know how to put numbers on a page double space like lawyers use in their papers? (2) Does anyone know how to patch WS 3.0 to get continuous underlining?

Has anyone successfully run an Avatex 300-1200 modem off an MD3 with IMP? I need some help. Hector Chincilla, 415/648-4863.

SPECIAL DEALS

***If you are interested in any of the following, contact me directly and include SASE (GB, Editor, 1064 Sterling Ave., Berkeley, CA 94708). Do not combined your order with member renewal or with any items listed as available from Bamdua, p. 31. ***

1. DATAPLOTTER

DATAPLOTTER: this unique program allows you to plot and print your data in a variety of ways without screen graphics. A review and cost information can be found in the BAMDUA NEWSLETTER, V.3, #6, JUNE 1965, p. 12-18. See also highly favorable review by Bruce Gale in Profiles, April 1985, p. 72.

STATUS REPORT: We qualify for the group discount of 20%.

2. PSYCHOSTAT-3

A powerful statistical program for CP/M (also other versions available). See description of the program in the last issue of the Newsletter (May 1986). Retails for \$99; a group order of 5 or more brings the cost to \$50 per copy!

All the special deals which follow this note include information about the appropriate person and/or address to contact.

3. TWIST & SHOUT

This delightful and easy to use program allows you to print material (e.g., spreadsheet data) sideways in normal or condensed print; and to creat multiple-line banners in several type faces. A special price is available for 60 days originally, but only 30 days left now. See the review and information for ordering in the last issue of the Newsletter (May 1986).

4. OUT-THINK

OUT-THINK is a "compleat" outline processing program made by KamaSoft specifically for outlining. It allows you to see the "forest" and/or the "trees." It is available at a special introductory price of \$49.95 directly from the company. See review in the Newsletter, V.4, #4, April 1986, p. 10.

5. REACHOUT

REACHOUT, a menu-driven telecommunications program that works with any modem, including the CTS MM-300 Modem System. A special version of ReachOut is available for all Micro-Decision computers. The price is \$125.00 (\$65.00 for the MM-300 version), plus 6% tax in California, shipping by UPS to a day time address included. Full end-user telephone support is provided by the manufacturer. Send \$132.50 (includes tax and shipping) to Applied Computer Techniques, 21 Cottonwood Drive, San Rafael, CA 94901; 415/459-3212. ReachOut is reviewed in Morrow Owners' Review #2 & #3.

6. EC-CATALOG

This is a fast, easy to use, powerful catalog program which vies successfully with more expensive ones. It is available to BAMDUA members directly from its creator for \$10 (includes manual). See the review in the last issue of the Newsletter, May 1986. To order, write Phil Hess, 917 N. 10th St., Lafayette, Indiana, 47904.

7. CHECKS & BALANCES

This program was described in the last issue of the Newsletter (May, 1986) and was demonstrated at our May 27 meeting. You may order it by mail from the company. The program retails for \$74.95 and is available to BAMDUA members for \$59.95 plus tax and shipping charges: \$59.95 + \$3.60 + \$1.75 = \$65.30. Hope you got to the meeting to see how it works!

8. FONTSTAR

FONTSTAR is reviewed in this issue of the Newsletter. This program allows you to choose from 16 fonts plus an equal number of additional fonts, mostly international characters. Fonts can be mixed on the same page or line. The program produces very attractive print in nearly letter quality on your dot matrix printer. It can be ordered directly from the company for only \$45. Tell them you are a BAMDUA member.

9. BRADFORD

BRADFORD is a public domain program which permits you to print in a choice of several fonts on the same page or line in near letter quality print. It produces very attractive print out and is cheap! You can figure out much, but not all, of the commands without the manual and with the help of other "print buffs" but the author of the program will send you the manual for only \$15. It is well worth the price for facilitating your use of this program.

10. TURBO PASCAL --See "What's Available" on page 31.

FRILLS and FONTS

by Georgia Babladelis

By now your head must be swimming with all the possibilities available for producing some rather fancy printing. Do you lie awake at night while the images of sugar fonts dance in your head? I'll try to "organize" at least some of the information based only on the few programs I know about. Clearly, that does not exhaust the field!

1. Category 1: Programs for "Show and Tell."

A. To produce banners, ads, etc. but no graphics

HEADER, BANNER, GOTHIC, FONTSY and SHOUT.

The first four (Header, Banner, Gothic, and Fontsy) are public domain software; two of them (Banner and Gothic) currently are in our BAMDUA library (vol. #33) and the others soon will be. Fontsy is currently available through MOR's FLOEM series. One might call these the "vanilla" versions for making banners. Generally, they allow you to produce banners printed in large block letters and usually with any letter of the alphabet you choose to make the print character or with an asterisk. They do what you expect of a program aimed at producing banners. However, Gothic is a real paper "hog." To be forewarned is to be forearmed.

SHOUT was reviewed in the BAMDUA Newsletter, V.4, #5, May 1986, p. 11. This is a commercial program but quite inexpensive (\$34.95). Also, BAMDUA members can get it for \$30 for a limited time only. This program provides a great deal of flexibility to you in creating your banner: It permits more than one line of text on the banner and a choice of three type faces. The type faces can vary by line or within the same line. Also, you may opt to use a character from the alphabet or just an asterisk.

B. To produce banners, cards, etc. with graphics

PRINT-MASTER

This versatile and fun-to-use program permits you to design greeting cards, banners, or other types of displays in a variety of fonts (8 to choose from), with or without borders (11 to choose from), with or without pre-programmed graphics (over 100 to choose from not counting the additional disk with another 100+). At present, CP/M users cannot create their own new graphics, but they certainly can creatively use those that are available. This program is a commercial one, but quite inexpensive for all that fun (\$49.95) and was reviewed in the BAMDUA Newsletter, V.4,#2, February 1986, p. 14 and in Morrow Owners' Review, V3, #2, April/May 1986, p. 19. It also has received a lot of favorable attention in other publications, such as Computer Currents.

2. Category 2: Programs designed chiefly for text

A. Single font, multiple type faces, uniform product

GEM-SET, GEM-10X, and EPSNPRTR

These programs are in the public domain and will soon be in the BAMDUA Library series. Most frequently, they are programs created in MBASIC to control dot matrix printer commands. Typically, you have a choice of pitch (the usual standard or alternate pitch or character width), a choice of roman or italic type faces, a choice of sizes (from condensed to double width) and the usual other print controls available in your word processing program, such as bold face, underlining, etc. You can mix several of these; e.g., any choice of character sets with any choice of size. Once the choices are determined, that is how the entire text will print out unless you feel up to inserting print pauses and changing the print commands -- a rather cumbersome thing to do. Although none of these may be your choice for printing much text, I can assure you they are terrific programs for many uses -- and they are free! I used Gem-10X (and then switched to the smaller Gem-set) to print out the directories for my disks -- alphabetized directories of files in compressed print (17 CPI), 8 lines to the inch -- and stuck them to the front of each disk jacket so I could tell at a glance what was on the disk and how much space was left.

B. Single font, multiple type faces, mixing allowed

The "Oechsli Patch" and Gem Patch

No doubt there are as many of these programs available as there are "patchers" out there. I have referred to Frank Oechsli's patch to control print for dot matrix printers because he published it in an early issue of Morrow Owner's Review, V.1, #2, p. 21; a second article in MOR, V.1, #3, p. 33 by Murray Schechter also tells you how to do it yourself. You can think of these two patch guides as being in the "public domain." I followed the directions and patched my WordStar and it works just fine! By using the unassigned print control characters in WordStar, print control commands can be imbedded in the text to control the appearance of the product. Thus, any textual product may have a mixture of compressed or emphasized words, roman or italic type faces, and the usual array of bold face, underlining, standard or alternate pitch, etc.

Prior to reading Frank's article, I had bought the directions for patching WordStar, called Gem-Patch. I followed those directions and produced a patched version of WordStar which gives me a product in the same array of choices already described. Both of these programs are versatile and handy. I like to be able to write something where I can emphasize a word either by size or by both size and italics, or indicate some aside or quote by use of compressed type. And as a bonus, the typed page looks more attractive -- that is, more interesting to the reader.

C. Multiple fonts, single size, mixing allowed

BRADFORD, FONTSTAR

Bradford is a public domain program but there is a small cost (\$15) for the manual. It is reviewed in this issue of the BAMDUA Newsletter. By means of several strikes, it enables your dot matrix printer to produce near letter quality print. Eight (8) fonts are available (see review article for examples), character width can be changed but not the actual size of the characters (points), and the font styles can be mixed within the same page or line. Proportional spacing can be turned on or off. This program produces very attractive products.

FontStar is a commercial program but quite inexpensive (\$45). It is reviewed in this issue of the BAMDUA Newsletter (see review for details and examples). The program provides 16 regular fonts and 16 extra fonts so the user can incorporate foreign characters, etc. Additionally, users can create their own fonts! Font styles can be mixed on the same page or line. Proportional spacing, etc. can be controlled by familiar dot commands. This program produces a handsome product indeed. It seemed to me to run faster than Bradford but I have not actually timed the two on the same text.

D. Multiple fonts, multiple sizes, and mixing permitted

FANCY FONT

FancyFont is a commercial program and rather expensive (\$180). I have not had the opportunity to review it, but have seen it demonstrated. Group discounts are available (e.g., 2-4 orders get a 15% discount, resulting in a cost of \$153, etc.). Even at a 50% discount, this program is twice the cost of others. However, it may be worth every penny. Seven fonts and seven extra fonts provide versatile characters, including foreign characters. Again, users can create their own fonts as well. Font styles can be mixed on the same page or line. Moreover, each font can be produced in different sizes (points) so that, say, a regular Roman font can be printed in any size from wee to gigantic, or from 8 points to 40 points. Not all fonts have the same range of sizes available, but all except Sans Serif Italic have many sizes to choose from. These features plus others combine to yield a handsome product, indeed.

This overview has focussed on programs available to control the print of dot matrix printers. Commands to the printer control the spacing, arrangement, and density of those dots, so different sizes, shapes, and darkness of print can be achieved without stopping the printer to change print heads! As you know, some wonderful printing effects are possible with daisy wheel printers but in order to change fonts one must pause print and change the print wheel.

I hope this organization and overview has helped you see what is available and what it is for. Clearly, CP/M users are not hurting for want of great programs in and out of the public domain.

SOFTWARE REVIEW:

FontStar

by Alfred Butler

Product: **FontStar**
Version: 2.0
Company: MicroNova Canning, Nova Scotia
Vendor: Central Computer Products
330 Central Avenue
Fillmore, CA 93015 (808/524-4189)

FontStar is a system designed to work in conjunction with **WordStar** (or compatible editor) to allow the user to incorporate multiple fonts into a printed document, using Epson compatible printers.

The user creates a document file with **WordStar** in the normal fashion, inserting dot commands and print control characters where needed. When the document is ready for printing, the **FontStar** program is used instead of the usual **WordStar P** command. There are four files for different printer versions.

FSFX	FontStar program for FX compatible printers
FSRX	Version for RX and MX compatible printers
FSLQ	Version for LQ-1500 printer
FSGX	Version for Gemini X series printers

There are sixteen predefined font files (**FONTxx.DAT**). Each file defines 98 characters all directly accessible through **WordStar**. Also there are sixteen predefined extra font files (**EFONTxx.DAT**). These files contain 64 extra characters, mostly foreign language characters.

There is a file **SAMPLE.TXT** that should be printed with **FontStar** and then examined with **WordStar** to see how the various fonts are incorporated into a document.

DRAFT.COM should be used to obtain a rough draft for proofreading purposes. Another way to get a rough draft is from the normal program menu (R option). The rough draft mode is approximately 50% to 60% faster than normal mode.

FontStar is easy to use, at the A prompt type **FSFX** (or one of the other printer commands), and the initial menu will be displayed. Type in the filename of the document to be printed and select any of the options displayed. Then press **RETURN** to start printing.

The **B** option allows the user to select the base font the document is to be printed in. By default, this is font **WQ** corresponding to the font file **FONTWQ.DAT** (American Typewriter). The user can select any of the other fifteen predefined fonts. Examples of the fonts are:

Multiple consecutive font changes are stacked so that turning off the current font restores the font previously in use. For example:

`^WCNormal Italic ^WBold Italic^W Normal Italic again^W`

would print as: *Normal Italic* **Bold Italic** *Normal Italic* Again

Certain combinations of control characters can cause problems; for example:

`^B^W^CThis is WC font ^WB`

This can be interpreted two ways. The `^B` specifying boldface and `^WC` specifying the WC font. The trailing `^W` turns off the font and `^B` turns off the boldface. However, FontStar interprets the trailing `^WB` as turning on the WB font. This can be corrected by rearranging the control characters as follows

`^B^WThis is WC font^B^W`

Also with my version of NewWord (2.16) boldface and doublestrike appear bold on the screen, underlining is underlined on the screen. This causes the text on the screen to be confused, boldface may not be boldface but a selected font. The same applies to underlining. So I have to be careful and make sure all the control characters have been placed properly.

Do not print out a file with FontStar control characters using the P command of WS or NW. I have not been curious enough to see what would happen. The results will be very strange. This means that I now keep all files with FontStar control characters separated and with filenames that I can distinguish from normal WS or NW files.

Several additional commands are provided to control various features of FontStar:

There are three print control commands for positioning text.

There are four dot commands for dealing with font selection.

There are dot commands for proportional spacing, line length and justifying lines. There is even a dot command to change printer colors (for JX-80 compatible printers).

There are three additional utilities included:

The **FMOVE** utility allows characters from one font file to be copied to another font file. The procedure is easy, just answer the messages displayed on the screen. This utility allows users who use foreign languages with NW or WS to replace certain characters in the FONTxx file with ones from the EFONTxx file.

The **FGEN** utility allows the user to create his own font files or modify existing ones. This program requires experimentation. The new characters or symbols can be printed before saving. To get help just type a "?". FontStar has left four control commands open for user generated font files (WV, WY, XV and XY).

The **PATCH** utility allows the user to change the default base font and base font drive. **PATCH** can also be used on any of the COM files provided.

I bought this program to get a better quality print out for certain correspondence, with my dot matrix printer. I get this using the font WQ (American Typewriter). FontStar is very easy to use and the price very reasonable (\$45).

[EDITOR'S NOTE: I was planning a review of FontStar when I received this very fine and enthusiastic review from Al Butler. My reactions to it are just like his. This is a versatile and satisfying printing program; it is easy to use and it is inexpensive. Morrow owners are urged to use it with WordStar rather than with NewWord, although apparently Al has adapted it to NewWord just fine. He points out in his review are some of the pitfalls when using NewWord, so be alert to those. When I found out that the use of NewWord was not advised, I discussed this with Al. He said that his original version of NewWord (1.19) did not work with FontStar but that the update, version 2.16 works fine. He has set his TPA at 48K, uses ZCPR3 as well, and works with microjustification OFF. I used WordStar 3.0 and 3.3 and it worked fine. The one bug is that the "draft" modes (there are 2 of them) for printing do not work for me - a minor problem, since I can get a fast draft from WordStar if I want it; however, Al has no problem with either draft mode provided with FontStar using his set up.

The program is made by MicroNova in Nova Scotia, and it is sold by Central Computer Products. The latter are friendly, helpful and responsive to questions. No special discount rate for group purchases is available because, as they correctly point out, the price of the program is quite low to start with. If you have been studying ads for other printing programs with various fonts, no doubt you have discovered that the price tag is quite high! In my opinion, you cannot beat this low price tag of \$45 for such a versatile program (16 standard fonts, 16 extra fonts with foreign characters, plus 3 utility programs and dot commands with which you are already familiar). Clearly, this program is a real bargain at that price! You can order directly from Central Computer Products and be sure to tell them that you read about FontStar in the BAMDUA Newsletter.]

SOFTWARE REVIEW:

Bradford

by Dan Mann

Program: **Bradford**
Creator: Aaron Contorer
Availability: Public Domain, partially
Cost: \$15

Bradford is a text formatting/printer driver program that turns a cheap dot matrix printer into a near-letter-quality printer. **Bradford** will team-up with **PrintMaster** to form a very attractive couple. While **PM** was for the bigger, splashier side of graphics, **Bradford** makes use of the printer's graphics mode to form different fonts in 5 sizes. **Bradford** is not a text editor or word processor. The text is created with any editor. Commands are entered in the text; the mnemonics are the same or similar to **WS**. Because not all text editors use **WS** commands, the command character can be changed. It can print with fixed-space or proportionally spaced characters. **Bradford** makes two passes for each line of print; the first pass lays down mostly the vertical elements, the second lays down the horizontal elements. This allows for more dots, closer together. The darkness of the printing is controlled by the number of passes; three is the practical maximum.

The program, written in TurboPascal, is available in CP/M and MSDOS. Mine is version 1.2 and includes 8 fonts (6 of which are **NLQ**; 1 is draft, normal printing; another imitates old dot matrix printers.) **Boldface** can be set to 3 intensity levels. Underline is good. Both use imbedded control characters **^B** and **^S**. This can be changed for other editors.

(Editor's note: Here is an example of the fonts, at 2 strikes and 3/20 width for better viewing done on my Gemini-10X):

FONT STYLES

Typewriter - with serifs

Modern - squared, straight lines

Vanilla - rounded, no serifs

Nostalgia/Doty - very dotty

Draft - native printer mode

Italics - - slanted (not NLQ)

Computer - squared edges, accented

CAPITALS - BIG AND SMALL UPPER CASE

Four types of printers can be used: Epson FX & RX, Gemini 10 & 15X, Epson MX with Graftrax & IBM dot matrix, and Gemini X emulating Epson MX. Even though Gemini Xs are considered Epson FX compatible, the Epson FX selection will not work. Sorry, Okidata users. Initially, my Gemini would not properly print the **boldface** but Emma's would. She identified the problem as different DIP switch settings. Changing the buffer full switch to "off" corrected the problem.

BRADFORD's author, Aaron Contorer, initially tried to sell the program for \$39.00 mailorder plus \$3 p & h. His financial rewards were disappointing. So... he decided to retain the rights but put it into public domain distribution and charge \$15 for the 18 page instruction manual. With the free instructions Aaron gives, you can print most text files with a choice of one of the fonts and rudimentary formatting; i.e., formatting or no formatting [margins or no margins, numbered or un-numbered pages.] With only these instructions, it would be almost impossible to do serious work with the program. This is an innovative way to market a program: letting others do the distribution and promotion. The customer can even try it out. Just shows - "You can't judge a program by it's price."

The printer output is as good as probably can be achieved from these 9 pin printers. The formatting is versatile and extensive - even as far as I could determine without the manual. The major drag for me is the long list of questions that must be answered each time the program is run, 16. The answers are checked for validity and most do not require <return>. Once started, Brad insists you answer all questions; there is no cancelling until the last question. I could not bomb the program or cause it to abort while printing. Control-C will abort the printing. Only 5 of the 8 fonts are on the menu. Numbers 1 to 8 can be entered. Hard disk users rejoice! User areas are recognized for text. The font definitions must be in the same user area as the COM file. There should be an install program to eliminate most of the initial questions. Its not possible to print a part of the text. Other items to note:

Each line can be centered individually. Each font can be made from 1/20th to 5/20ths of an inch. As far as I can determine without the manual, different fonts and sizes cannot be mixed on the same line. If an erroneous command is entered in the text, Bradford displays a message and prints with the default or ignores the command. It does not abort the printing. It took about 14 minutes to print these 2 pages on the Gemini 10X. The last line of a paragraph can end far left or centered or fully justified if the paragraph is fully justified. This is done with your defined unprinted ASCII characters.

Included with the CP/M version are two text files designed to demonstrate Bradford's features. These files are the Rosetta Stone for usefully using Bradford for free. Examine the commands and the printed results; change the commands and see the subsequent results. Print the files with QLIST to see the commands [WS/NW will not print dot commands.] (You could move each dot command over 1 space

with find and replace.) I spent evenings experimenting with combinations, recording the results on paper to make my personal documentation. This is not a good way to save \$15.22. I found it to be a worthwhile intellectual exercise. I discovered commands not in the text file based on the author's excellent mnemonics and observance of W.S. commands. Lastly, in greed for knowledge, I dumped the COM file with EDFILE to find more commands. Some that I found, I still cannot work. After another night of systematic search, I'll probably end up paying the money to check my research.

Photocopy reproduction tends to smooth the curves and fill in the irregularities. Of the 6 NLQ fonts, the roughest is "italics." I don't consider it NLQ. Rough italics is better than no italics at all. Double or triple strikes make some improvement. The larger sizes reveal the dots more; the rounder fonts, "vanilla and italics" reveal the dots at the rounded corners and diagonals. I have seven daisy wheels for my Dynax, at \$25 each that won't do all the things this program will do. There is not much more to learn than you already know from WS/NW. Therefore, its vastly easier than FancyFont. The price is much easier too. If you have only a dot matrix printer of the types mentioned and no daisy wheel send Aaron 15 bucks; you'll be glad you did!

[Editor's Note: I have tried this program and agree with all of Dan's comments, including that about the irritation of going through all the questions every time. A way to configure the program for repeated items (such as type of printer) would be nice. Even handier would be a command asking if you want to repeat running Bradford or exit, with the possibility of editing one or more of the answers already given. For example, if all you want to do is change the name of the file you want to print, or the character width of the print, then it would be a godsend not to have to go through the long list of questions again. The manual does describe how to mix fonts and character widths in the same line, and it is quite simple to use. If you are used to WordStar or NewWord, the commands for this program will be easy for you to use. It is a good program and does produce near letter quality print on my Gemini-10X printer. Because of the number of strikes required to do so, it is a slow way to print -- but probably not slower than a good many daisy wheel printers nor other programs permitting font changes and near letter quality printing on a dot matrix printer. This is by far the least expensive program of this nature that I know of, but it is not as versatile as FontStar which is reviewed in this issue also].

The program has been given to our librarian and will soon be available on disk in the BAMDUA PUBLIC DOMAIN LIBRARY. There are some simple starting directions provided in the doc file, but the best thing to do is to get the manual.) Just send a check for \$15 to:

Aaron Contorer
Concom Enterprises
1521 Central Avenue
Deerfield, IL 60015

Reinventing your Morrow Micro Decision

by Phil Hess

Part III -- Double-sided drives for the revision 1 MD2

Many of CP/M's commands such as PIP and STAT are transient, meaning they reside on disk rather than in memory like the built-in DIR and ERA commands. The advantage to this approach to an operating system is that those commands you don't need or want on a disk can be removed. Also, enhanced versions or replacements for these commands can be installed easily, with no changes to CP/M itself. The disadvantages to disk-resident commands are that they take up disk space and must be present on one of the on-line disks in order to be used conveniently.

On systems with relatively low-capacity disk drives such as the Morrow MD2, this space taken up by the transient operating system commands is critical. Oftentimes, strategic decisions have to be made about which commands to leave on a disk and which to remove in order to make room for other programs. Furthermore, some programs which are normally used together cannot fit together on a single-sided disk. For example, it would be nice to have both WordStar (or NewWord) and Correct on the same disk, but it's just not possible with single-sided drives.

The obvious solution is to upgrade an MD2 to double-sided drives, more than doubling the useable space per disk. However, until recently, this conversion could be expensive. The official Morrow price for this upgrade for a long time was \$649.

Recently, disk drive prices have been tumbling and an MD2 can now be upgraded for considerably less than \$649.

Several sources will upgrade the MD2 to double-sided operation for you. A recent ad in the August issue of the Morrow Owners' Review offered to do the whole job, shipping and everything, for \$350. Many dealers will also do the upgrades on their own for a budget price.

The cheapest way to do it, though, is to upgrade the MD2 yourself, although it must be stated that this route is fraught with hazards if you get caught not knowing what you're doing. This is what I tried and I did have some troubles, but ended up spending only about \$235, not including several long-distance phone calls.

The double-sided essentials

No matter who does the upgrade, a dealer or yourself, there are two things that must be done to any MD2 to give it double-sided capability. These are: (1) Install two double-sided double-density drives, and (2) patch or replace the CP/M BIOS (Basic Input/Output System). Both of these operations can be trivial if you have the

know-how and the experience, but treacherous if you don't.

There are many places to obtain the double-sided drives. A popular source is Priority One Electronics of Chatsworth, California. Priority One currently sells double-sided Shugart SA-455 drives for \$99 each, plus shipping and sales tax if applicable. A manual for the drives costs \$10 more. A phone call and a credit card number can have two of these drives on your doorstep in less than a week no matter where you live in the country.

Actually obtaining the drives, then, is simple. You just buy them like you would batteries. Unfortunately, getting an updated CP/M for your system isn't so simple. There are three ways to go about it, though.

With later Micro Decisions, Morrow included on one of the CP/M distribution disks a file containing the source code for the BIOS. This code, also known as the CBIOS (Customized BIOS), is that portion of CP/M which the manufacturer of a computer system writes and which defines and communicates with the hardware. The other two parts of CP/M, the CCP (Console Command Processor) and the BDS (Basic Disk Operating System) are provided by Digital Research and do not need to be modified. Only a few lines of this BIOS code need to be changed and then the file is reassembled.

Of course, changing those lines is best left up to a programmer. Plus, assembling the BIOS requires a more sophisticated assembler than the one provided with CP/M (ASM.COM). But this is the most reliable way of modifying your CP/M system.

Unfortunately, with the earliest Micro Decisions, Morrow did not see fit to include the BIOS source with the system, so not even a programmer equipped with the necessary assembler tools can modify the BIOS in the proper way.

The second way to arrive at an updated CP/M is to patch your current BIOS using DDT. Patching is fine if you know what and where to make the patches. Unfortunately, the addresses to patch change with each revision of the BIOS. Plus, some early revisions don't support double-sided drives properly.

The third way is simply to get a copy of a double-sided system disk from someone who has already made the upgrade. But several things must be kept in mind here. First, this way is technically illegal, a violation of the CP/M license agreement. Second, this system disk should be from a system with the same revision motherboard (printed on the motherboard), probably the same ROM revision (displayed when you boot), and the same terminal (or else you'll have to patch that too).

In my upgrading of an MD2, each of the three options I have outlined above played a role. That is, I planned to do the first, tried unsuccessfully to do the second, and ended up doing the third in order to get my system working.

Exercising my options

Back in July I tried to order through my dealer the source of a Morrow BIOS which would run on my revision 1.1 motherboard with its revision 1.3 ROM. In mid-August, my dealer called with the good news that my disk had arrived. All I had to do was bring \$35. Unfortunately, when I went to pick it up, I discovered that the BIOS on the disk was for the revision 2 motherboard with the parallel port. But it was still summer, I had time, I was patient, and so I asked the clerk to order it again, this time going over and over with him what I wanted.

Early in September, I checked in once again with my dealer, only to find that the BIOS had not even been ordered. They and/or Morrow had become confused by my request and so the order had been postponed. This time I tried to be even clearer with my request. (Note: There are only so many ways you can say this. Try this with your dealer if you order the BIOS: "Please order for me the source code of the most recent revision of the Micro Decision BIOS and boot loader which will run on my revision x.x motherboard with its revision x.x ROM.")

Meanwhile, I was growing impatient and so re-read two articles I had seen on adding higher-capacity drives to an MD2. One of them, an unpublished article by Mark Sihlanick, gave the patches for the revision 1.5 BIOS, as well as a method for determining the patch addresses for other revisions. Furthermore, a kindly benefactor had sent me a copy of a double-sided revision 1.5 system disk.

Fortified by these aids, I went ahead and ordered two Shugart SA-455's from Priority One, even spending a few extra bucks to have them shipped to me here in the heartland via UPS Blue Label. They arrived on the day the Priority One operator said they should and I immediately proceeded to install them.

Installing the new drives

Most MD2's have Shugart SA-200 drives mounted side-by-side. Unplug your system unit and slide off the cover after removing the two screws on either side and two on the back which hold the cover in place. You will see the two drives in their metal frames taking up almost all of the space inside the system unit. On the back of each drive is a data cable and a power cable. The data cable is a broad 34-pin ribbon which fits onto the edge connector on the back of the drive. Unplug both data cables from the drives. The power cable is a four-wire cable connected to a smaller plug next to the data cable's connector. Unplug both power cables from the drives. Don't worry about marking the cables for their proper drives. The respective lengths of the cables will identify which cable came from which drive. Plus, these cables can be reversed without harming the drives.

Now you're ready to remove the drives. The entire frame with the drive inside it must be removed in order to get to the screws

which mount the drive in the frame. There are three screws on the bottom of the system unit holding each drive frame to the main chassis. However, these screws are countersunk a couple of inches, so extracting them can be tricky. One way is to set the system unit sticking out over the edge of a table so that you can get beneath it and carefully remove the screws and their washers from below. The screws should stay on the end of your Phillips head screwdriver if you have a steady hand. (Note: Be sure you don't remove any of the screws anchoring the motherboard and the power supply to the system chassis.)

Once the drive frame screws have been removed, unplug the tiny wire connecting each drive to its red LED on the front of the system unit. The drives in their frames can then be removed simply by sliding them back a half-inch or so and lifting them out.

Now remove the drives from their frames. This involves removing the two screws on each side of the frames and slipping the drives out of the frames.

The new drives can be installed in these frames, the frames remounted in the system unit, and the data and power cables reconnected. However, before doing all of that, you might want to test the operation of the new drives.

Testing the new drives

The double-sided drives should work like single-sided drives with your old single-sided system.

Set the new drives in the cavities left by the drive frames and connect the data and power cables, making sure you don't put the connectors on upside down. Also, make certain the drives are firmly resting on the chassis in order to ground them properly.

If you have the drive manual, you may notice some mention of changing the jumpers on the drives or removing the terminating resistor pack on one or both drives. This is done only with drives which are daisy-chained. With the MD2, there is a separate data cable for each drive so daisy-chaining is not required. According to the technical department of Priority One, the drives should be left jumpered and set up the way they were shipped.

Once you're certain that the drives are grounded and properly connected, plug the system unit back in, check the terminal cable, and turn on the power. You should get the usual message instructing you to insert a system disk in drive A.

Put one of your single-sided system disks in drive A and try booting the system. It should boot fine, although perhaps a little noisily since some of the new drives do have different characteristics than the old ones and you haven't told CP/M about that yet. My MD2 booted both the original revision 1.3 system disk as well as the double-sided revision 1.5 system disk.

Put another single-sided disk in drive B and try running programs, creating, copying and deleting files, swapping disks, and so on. Everything should run just as though you had single-sided drives.

My problems

This is where I ran into trouble. The new drives booted okay and at first seemed to run programs all right, but I was unable to write anything to either disk. ERA, PIP, FORMAT -- any command or program which writes to the disk produced DRIVE READ ONLY or CAN'T CLOSE DESTINATION FILE errors. So I put the old drives back in, thinking I had a bad connection or something. But the old drives worked fine. So I installed a single-sided drive in A and a double-sided drive in B. That worked fine too with my single-sided system. Two double-sided drives again? Same problem.

For several days I fretted and made long-distance phone calls. No one had ever seen this problem before. The technical people at Priority One told me they had been installing double-sided drives of all sorts (Shugart, Teac, Panasonic, etc.) in MD2's for a long time without problems. Just plug 'em in and go.

One thing I learned from all my calls was that the drives I had (actually Matsushita JA551's with Shugart's name on them) were a slightly newer design than other drives sold under the same name and which worked in at least one other MD2 identical to mine. But Priority One assured me not to worry about which revision drive I had; they had used all sorts of drives in all kinds of machines without problems.

In between fret sessions I tried a few things. I patched my original system for double-sided operation according to Sihlanick's article. That didn't work any better. I patched my system for double-sided A and single-sided B, using a new drive in A and an old drive in B. That worked, as had the single-sided A and double-sided B combination. The double-sided drives just didn't seem to want to work together. I put one of the new drives in an MD5, where it worked fine. I put the MD5 floppy drive in my MD2 with one of the new drives. Same problem. I decided the drives were okay. With a friend's help I checked the voltage coming to the drives. It seemed acceptable. Finally, I bundled everything up and took the system to my dealer.

On the first evening that the technician looked at my system, he too was ready to give up. It defied everything he had ever seen (and this from a person who had successfully put together his own Xerox 820). The drive even worked fine in an IBM PC. We would try again another evening, this time with the Morrow schematics for the revision 1.1 board.

On the second evening we had another go at it. Much of what the technician did was not clear to me. Finally, on a whim, he removed the A drive's terminating resistor pack and the drives began

to write (but also began to destroy disk directories). He replaced the 150 Ohm terminating resistor pack with a 330 Ohm one and drive A was working okay. And after doing the same thing to drive B, my MD2 was double-sided for all time (I hope). The charge for all that diagnosis: only \$15. I take back all I have said about my dealer.

Mark Sihlanick had assured me in the midst of my anguish that when the problem was finally solved it would prove to be something trivial and he was right. But what was to blame? The drives or the motherboard? The old SA-200 drives also had 150 Ohm terminating resistors. I wanted to know. Perhaps a marginal combination of both was responsible. In any case, if you have a similar problem, there is a simple solution.

The BIOS changes

Once my double-sided drives were working okay I tried my patched revision 1.3 system and discovered that there were places where it didn't support double-sided drives very well. For example, I could no longer read single-sided disks in drive B. Similarly, the FORMAT program (version 2.1) distributed with my MD2, while it now prompted for whether it should format single- or double-sided, still didn't seem to be able to format double-sided. It usually stopped after track 39.

And so I was forced to use someone else's system, along with version 2.3 of the FORMAT program. I would consider these to be the minimum needed to support a double-sided MD2.

I won't go into the specific changes required to upgrade a single-sided revision 1.5 system. In general, however, there are three parts that need to be modified: (1) The boot loader so that you can boot from double-sided disks; (2) the DPB (Disk Parameter Block) for each of the five supported drives (two physical and three virtual); and (3) the MTAB (Media Table) for each of the five drives. Also, there is the problem of how to get the patched system from a single-sided disk to a double-sided one in light of the fact that SYSGEN will not allow you do this.

If you have the 1.5 BIOS listing and the proper assembler and know what you're doing, or if you have access to Sihlanick's article, the BIOS modifications aren't too bad. The transfer problem has two apparent solutions. In his article, Sihlanick gives a short assembly language program for transferring the system, and Derek Lee Beatty shows a way to patch SYSGEN (version 2.0 MD1.2) in his February 1985 Morrow Owners' Review article on adding quad-density drives to an MD2.

The question still remains of what to do if you don't have the correct BIOS or the know-how to alter your system. Well, your alternatives are to have someone else (like a dealer) make the changes or to use someone else's upgraded system. Neither of these is a particularly good choice, the first because of the added expense and reduced involvement for you, the second because of legal

questions, not to mention other incompatibilities you may introduce by using a system originally set up for a different computer or terminal.

I discussed with Mark Sihlanick the possibility of writing an auto-install program for converting a revision 1.5 system to double-sided operation. We agreed that it would be possible, although neither of us has the time to do it right now. Perhaps if user interest warrants I'll work up something like that in the future, hopefully before all the MD2's in the world have been upgraded.

Miscellaneous notes and tips

Another upgrade possibility is to put quad-density drives in your MD2. These can also be purchased from Priority One in the form of Shugart SA-465's for only \$99 each. The only problem with this arrangement as I see it is that if you replaced both of your drives with quad-density drives, you probably would no longer be able to read or write ordinary double-density disks, thereby locking yourself out from the rest of the CP/M world.

A better way of adding quad-density drives is what Derek Lee Beatty describes in his February MOR article, namely making them external drives C and D by hooking them up to the edge connector on the back of revision 1 MD2's. However, these external drives will require their own cabinet and power supply, as well as some additional cables and know-how. But once installed they would provide you (coupled with double-sided drives A and B) with more than 2 megabytes of total disk space.

Beatty's article appears complete, but cryptic. There is a great deal of information given but little explanation as to what changes are being made and why. Some parts are completely unintelligible to me. However, if you have the same original system that he modified (1.1 motherboard, 1.3 ROM, revision 1.5 BIOS) you ought to be able simply to repeat his steps cookbook style and come up with a working system.

The original SA-200 drives are two-thirds-height drives, whereas the SA-455's are half-height drives, resulting in a gap of about a half-inch between the bottom of the drive and the chassis. You may want to put some tape or mesh across this gap to keep dust and objects from getting into your system. Also, since the SA-455's have their own LED, the one on the front of the system used by the old drives is no longer needed for anything. I simply left it there as a reminder of the more primitive past.

One advantage to using half-height drives is that the drives are elevated higher from your board. This should provide better ventilation and help keep heat within your system to a minimum.

Be careful when putting the countersunk screws back in when reinstalling the drive frames to the system unit. I read somewhere that a bit of beeswax (who has that?) on the head of the screw will

keep it stuck to the screwdriver and prevent it from falling inside the unit.

Also, stay away from double-sided drives from Remex. These have proved to be unreliable according to several sources.

One last note: Apparently once you have booted from a double-sided disk, you will not be able to use single-sided disks in drive A, nor in virtual drives C, D or E. However, you can use either disk in drive B, as long as you remember to type CTRL-C to log in the new disk as before.

Conclusion

I wish I had added double-sided drives years ago. Going back to single-sided ones already seems unimaginable. I can now use Uniform to read and write any sort of IBM PC disk (not just single-sided ones) and I don't have to worry about requesting software in single-sided format. For about \$235, plus a few phone calls and some grief, my MD2 has been immeasurably improved.

(Thanks to everyone who helped or expressed sympathy during my travail, especially Mark Sihlanick and Duane DeWitt.)

(Ed.'s note: Although we published a previous article about adding double-sided drives to your MD2, written by Victor Chan, a number of people have reported problems with the accuracy of the instructions. It seemed a good idea to present still another person's experiences as well as to continue with Phil's series of articles so that each reader can get a fuller picture of what is involved from a number of viewpoints. As you know from reading this article as well as those referred to published in MOR, problems keep cropping up. Please send in any comments or corrections you can offer. One comment I have received from a "reliable source" is that Chan's directions are accurate but failed to change the check sum in the CBOOT. I hope to have a brief article about that soon. I believe that MOR is planning an article attempting to sort out the inaccuracies and present an accurate, working set of instructions to do the upgrade to double-sided drives. By the way, other ways to upgrade to quad density drives and keep them in the chassis you already have is to make drive A a quad-density drive and drive B a double-density drive; that has the advantage of doubling your program space and retaining the ability to read, write, format, etc. in double-density. Or, if you are feeling sporting, add still two more quad-density drives so that drives A, C, D are quad-density and drive B remains double density, giving you much expanded K for programs and data and easy back-up potential for your work on quad-density drives as well as not losing touch with double-density formats. I guess that gives you close to 2.5 megabytes! Who will submit an article on "how to do it" ?).

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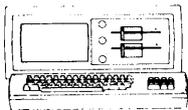
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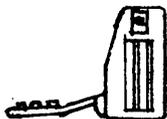
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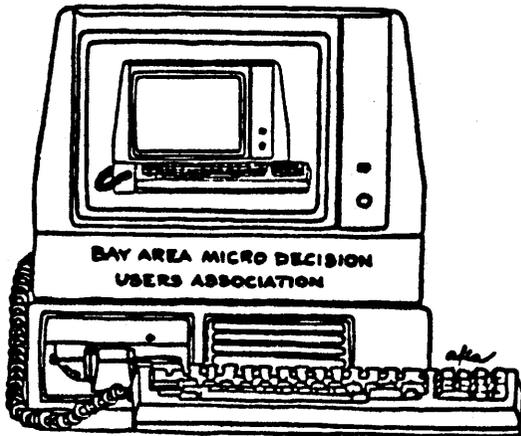


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