# PCNTOUT

NOVEMBER 1982

# PACIFIC COAST COMPUTER FAIR

## Computers For Home, Business & Education

**November 6 & 7, 1982**
**10 am - 6 pm**
**Robson Square Media Centre**
**Vancouver, B.C., Canada**
**Tickets: $4.00 One Day $7.00 Two Days**

Sponsored by:

PACIFIC COAST COMPUTER FAIR ASSOCIATION

A Non-Profit Association

## UPCOMING MEETING

The next meeting will be held at 7:30 pm:

**WEDNESDAY, NOVEMBER 3RD 1982**
**ROOM 102, RENFREW COMMUNITY CENTRE**
**Renfrew & 22nd**
**parking access on both streets**

## AGENDA

The demo for this month's meeting will be the Osborne 1 by Jack Brown of the Vancouver Portable Computer Club.

Organization for the Pacific Coast Computer Fair on the weekend of November 6th & 7th. Volunteers needed to man the booth. See or phone Patrick Trout.

**West Coast Computer Society**
**P R I N T O U T**

PRINTOUT, the newsletter of the West Coast Computer Society, published monthly.





## Membership Policy

The policy of the West Coast Computer Society is to provide a regular newsletter to paid-up members only, except that non-members new to the club receive one free issue. You may pay the dues ($15 for one year) to the treasurer or any member of the executive at the next meeting, or mail it to the society.

We will only issue membership cards in the name of one individual, not a business, even if the business is paying for you and address is that of the business. This is to eliminate the possibility of a single $15 membership from benefitting several people at once (ie. discounts at stores, CP/M copying privileges, etc.)

## MEMBERSHIP IN THE W.C.C.S.

A West Coast Computer Society membership costs only $15, and is valid for 1 year, from the date that the fee is paid. Benefits include meeting people with similar interests, discounts from local stores, participation in group purchases and a monthly newsletter, the WCCS PRINTOUT.

## SPECIAL INTEREST GROUPS or SIGs

The VANCOUVER CP/M USERS GROUP (CP/MUG) is a Special Interest Group (SIG) of the WCCS, offering public-domain software, as distributed by the CP/MUG of New York. Software offered by SIG/M (Special Interest Group for CP/M) of the Amateur Computer Group of New Jersey (ACGNJ) is also available. The cost to join the Vancouver CP/MUG is $25, a ONE-TIME fee, good for ALL future sessions.

Currently, the library consists of over 100 volumes (1 volume=1-8" IBM compatible single-density diskette) of software including various utilities, various tiny language processors, the Osborne business software package, BASIC and assembly language games, text editors and processors, graphics languages, CAD languages, operating systems, database systems, music, Adventure games, and more!

Most of the volumes are now available in formats other than 8" SSSD, including the Osborne, NorthStar, and Apple CP/M formats.

The 68XX USERS GROUP brings together members who have, or are interested in, the 6800/6809/68000 microprocessors and associated buss and operating systems. SWTP, Gimix, Smoke Signal Broadcasting, Percom, FLEX, Uniflex, OS-9, TRS-80 Colour Computer, Telidon, SS-50, are a few keywords of interest.

The NORTHSTAR USERS GROUP (NSUG) brings the Northstar software library to the WCCS. Northstar DOS; Horizon; Advantage; and BASIC; are a few keywords here.

The BIG BOARD SIG (BBSIG), has 40-50 people who currently run or are in the process of constructing the Digital Research Computers single board Z-80 microcomputer. Initially a group of Microtel Pacific Research employees, widespread interest in this powerful yet inexpensive system has developed. Other projects include a very low cost terminal (VLCT) and bulk purchases of components and equipment.

Look for the latest from the designers of the BigBoard, called the BETTERBOARD. A group purchase of bare boards & kits is under way!

## RENEWALS

The 4-digit date-code in the top right-hand corner of the mailing label, indicates the member's renewal date. 8202 means the year 1982, the month of February. To continue receiving all benefits of membership in the society, renew at least 2 months before the indicated date.

## WANTED

Any microcomputer, electronics, or amateur radio related non-commercial ads. Cost is FREE! Results are not guaranteed, but don't complain if you didn't take advantage of this service...

## Vancouver Area Bulletin Board Systems

| Name | Phone | Hours |
|---|---|---|
| MicroMessage System | 437-7001 | 24 hrs |
| Basic'lly BBS | 271-3354 | 24 hrs |
| Frog Hollow CBBS | 873-4007 | 24 hrs |
| H&S uSystems | 430-4145 | 5pm-9am |
| Microstat CBBS | 224-2337 | 24 hrs |
| On-Line 80 | 594-7398 | 9pm-9am |
| Pacific Blue | 581-1049 | 24 hrs |
| Radio Shack | 875-1783 | 24 hrs |
| TVG Systems | 738-1640 | 24 hrs |
| Satryicon CBBS | 438-2468 | 24 hrs |
| Vanc Heath VHBBS | 430-8233 | 24 hrs |

**WANTED** - Test charts for an EICO Model 666 tube tester. Also need an operators manual for a Heathkit Model TS-4A TV alignment generator. If you have copies you no longer need or are willing to lend so I can make a photocopy, call Dave at 255-4485 (home).

**The W.C.C.S. PRINTOUT is accepting DISPLAY ADVERTISING**

**Current rates list: for Regular Monthly Issues**

| | |
|---|---|
| Full page | $25.00 |
| Half page | $15.00 |
| Quarter page | $10.00 |
| Business card size | $ 7.00 |

**Special Issues: please request rates**
(Computer Fair, Christmas)

**Please contact any executive member or the Editor, WCCS PRINTOUT**
**P. O. Box 4031**
**Vancouver, B. C.**
**V6B 3Z4**

Camera ready copy required by the 15th of the month for next month's issue

## The "Low-Cost" Membership Plan? - by Dave Wiens

I was going to say "No-Cost", but that might make me a target of a lawsuit for improper advertising, even though many members are finding it to be the case.

No, we haven't made a new policy that waives the annual membership fees. Just that, besides such benefits of belonging to the club as receiving the monthly newsletter many of you will save enough money on group purchases and discounts at local stores to partially or even completely cover the cost of the $15 annual dues. An interesting example would be if your 5¼" floppy disk drive needs to be aligned. Although it would normally cost you $50 or more, Jo Ting Ho has offered to do it for us for only $25 (if several members have it done at the same time).

The courses that we plan to teach in the near future will cost several dollars less to members than to non-members. And you should check the list, elsewhere in this issue, of stores giving members discounts. So if your membership is expiring soon, or you are not a member at all, why wait? Contact our treasurer, or any member of the executive, either at the Computer Fair, at upcoming meetings, or via the mail.

## DISCOUNTS FOR MEMBERS of the West Coast Computer Society

One of the many benefits you derive from keeping your membership paid-up is the discounts several local firms offer our members. Make sure you carry your up-to-date membership card with you as they may ask you to show it.

- Tarters Data Systems (Tim Tarter)
  6923 Kingsway, Burnaby, Ph. 525-5133
  15% off computer supplies (paper, diskettes)
- Integrated D.P. Supplies (Rob Legg)
  1804 West Broadway, Vancouver, Ph. 733-3541
  10% off computer supplies (paper, diskettes)
- Micronics Research Corp. (Bob Jones)
  33383 Lynn Ave., Abbotsford, Ph. 859-7005
  various discounts on SS-50 bus hardware and 6800/6809 software.
- R.P. Electronic Components (formerly called Rendall-Paret) (Ian Smith)
  2048 West 4th Ave., Vancouver, Ph. 738-6722
  20% off most items.
- Colour Products Unalike (Michael O'Hearn)
  211-990 East 8th Ave., Vancouver Ph.873-2372
  20% off software for TRS-80 Colour Computer.
- Graymar Data Services (Keith Hayes)
  #4-258 East 1st Ave., Vancouver, Ph.879-9156
  wholesale price on Qume disk drives and Allenbach diskettes.
- **Clever Computer Systems (Steve Cleverley)**
  **534 West Broadway, Vancouver, Ph.873-3751**
  **COST PLUS 15% for S-100 Board Products.**
- **Holectron Digital Services (Jo-Ting Ho)**
  **5-1/2" disk drive alignment for only $25 for group (4-5 minimum) alignment.**

## President's Notepad - by Dave Wiens

After a year of meeting at the Trout Lake Community Center, we have again had to move. Trout Lake has so many programs this fall that they have no room available for us -- since we are not a sponsored activity we had lowest priority.

The Renfrew Community Center has agreed to let us use room 102 for the indefinite future (a year or more), so this will be our "home" until further notice. One problem with this room is that we don't know whether or not our February or March meetings will be disrupted by some remodelling that will take place upstairs. A relocation, if any, will be mentioned in our newsletter and Ken Bell's "Data Base" column in the PROVINCE. Also, we have to be out of room 102 by 10:00 pm. each night, so we will try to start at 7:30 pm. from now on.

Ever since our club began we've talked about offering courses to members as well as to the general public on a variety of topics. Recently our vice-president, Patrick, with the blessing of the executive, has decided to turn talk into action. He has worked hard the past few weeks finding not only topics of interest, but also potential "students" and teachers. More details will be available from us at the computer fair. To ensure the quality of this program modest fees will be charged (WCCS members get discounts). These will cover room rental, teacher's honorarium, and other expenses. If you have any suggestions, please don't hesitate to call Patrick.

In this issue you will notice more pages of paid advertising than ever before. For those of you who don't like the new "commercial" look, don't worry, we'll likely be back at one or zero pages of ads in the coming months. But the revenue from this month's ads helped us to afford printing 500 copies of this newsletter instead of the usual 170 or so.

A new low cost CRT terminal is now available from a Canadian manufacturer, Nabu Terminals (formerly Volker-Craig). The low price of $699 (Can.! plus FST), quantity one, goes even lower to only $549 + FST in large quantities. The Nabu 4503 CRT has a detached keyboard and a 24 x 80 (7x9 matrix) display.

The "Better Board", a single board computer designed by Jim Ferguson (who also designed the "Big Board" for Digital Research) is now available from Cal-Tex Computers in California. At least one of our members has ordered it and may have received it by Fair time. Significant improvements in the new design are a disk controller designed to handle 5¼" or 8" drives, single and double density, DMA used for I/O, and a STD bus connector for easy expansion. The video display generator has also been improved. But most interesting of all is that it includes a SASI (Shugart Associates Systems Interface) interface that lets you easily plug in a low cost hard disk such as the $999 (US) Xebec package (controller with 5 Megabyte drive)!

## Last Meeting

Chris Huntley put his brand new Commodore VIC-64 through paces. The "sprite" graphics were especially interesting to many. Thanks, Chris.

The swap meet/flea market wasn't as good as our February one, as not nearly as much stuff was brought along for sale. We'll have to have better publicity next time.

## Looking Ahead

Two future demos have already been arranged. On December 1st Ken Moren will show the British built Acorn Atom, complete with disk. On January 5th Bruce Betts will bring the Victor 9000 which uses the 8086 microprocessor.

Other possibilities for 1983 being worked on are the Zenith Z-100 (8-bit 8085 and 16-bit 8088), colour graphics system using the NEC 7220 graphics chip, and the Z-8000 based, locally built Proteus single board computer. If you would like to see any other system or a talk on some subject at one of our meetings, don't be bashful -- tell someone in the executive.

## Rear-view Mirror - by Dave Wiens

In the past year, or so, the newsletter has really improved, first under the editorship of Allen Mar, then Steve Cleverly, and now Allen again.

The two most regular features have been the reminder of the upcoming month's meeting, and the 68XX column.

What else? Lots -- an article on how to convert an $88 TV set into a 24 x 80 monitor, updates on local CBBS's, various and sundry unclassified ads, several overviews of contents of disks in the CP/MUG library, description of the "Modem 7" program file transfer protocol, minutes of the Big Board Special Interest Group (BBSIG) meetings, a two part article on how to design a power supply, several bug fixes, list and reports on new computer stores in town, a few hardware and software reviews, excerpts from magazines such as Electronics, IEEE Micro, and '68' Micro Journal, as well as write-ups on events such as the West Coast Computer Faire in San Francisco, the NCC, and the Basic Computer Group's open house.

The past year's meetings featured:

Oct. '81 - Ohio Scientific Challenger II
Nov. '81 - Zenith Z-89
Dec. '81 - NorthStar Advantage
Jan. '82 - "Big Board" and low cost video terminal
Feb. '82 - Swap meet and Sinclair ZX-81 demo
Mar. '82 - Commodore SuperPET and VIC-20
Apr. '82 - talk on format of CP/M disks, and report on West Coast Computer Faire
May '82 - talk on FORTH
June '82 - elections, demo of Clever One (Wavemate Bullet), talk on UBC micro network
July '82 - talk and demo of data management systems
Aug. '82 - IBM Personal Computer
Sept. '82 - Atari 800, mini CP/M copying session
Oct. '82 - Swap meet and VIC-64 demo

### Vancouver Based Computer Magazine

**COMPUWEST** is the name of a new magazine to be published in Vancouver.

Jamieson Advertising Limited announced the monthly Infoworld-style tabloid which will serve the Western Canada computer community.

Ken Bell, Business Editor for the Vancouver Province, will be co-ordinating copy (editing?) for the new magazine.

Graymar will be the distributors, and cost of the magazine is expected to be $1 or $1.50.

Look for them at the fair, where samples of the first issue will be available.

## CP/MUG USER'S GROUP

Dave Bowerman, Co-ordinator

There have been some questions asked by some of the club members as to why the CP/MUG fees have been raised from $15 to $25. I would like to offer the following as an explanation of this. Back in 1978 when I attended my first CP/MUG disk copying session, there were 33 disks in the collection all from the CP/MUG. Today there are 121 disks available for copying with more arriving each month. A little quick math will suggest that for almost quadrupling the amount of software available and a 65% increase in the one-time fee is more than fair.

On a different topic, I would like to present some short program fragments with regard to using the direct BIOS call vectors and the Disk parameter block to allow a program to be almost universal in the type of CP/M system it will run on. This is mainly of use when a program requires access to a disk other than via the normal BDOS functions. Examples of this are the SAP (Sort and Pack directory) utility and the DU disk examine and modify utility.

The first item is to determine whether the system is running with CP/M 1.4 or CP/M 2.0 or higher. This is done via the BDOS system call 12 which will return HL equal to 0 on CP/M 1.4 and HL equal to the version in H and the revision level in L.

After this point, the BIOS vector table will be copied to a local table for easy access. This is done by loading the HL register with the address at 1 and 2, decrementing by 3 to point to the cold boot routine and copying 39 bytes for the 13 routines to the local storage area. At this point, if the system is CP/M 2.0 or higher, the jump table has been set up. If you are using CP/M 1.4, then you will need to generate the address of the sector translate routine which in 1.4 was part of the BDOS. This address is obtained by loading the HL register pair from addresses 6 and 7 and adding 9 to this value. A jump intruction is then stored as the first byte of the 3-byte table entry with the next two bytes being supplied from the value generated in the HL register. The List Status routine may also be modified at this time as CP/M 1.4 does not include this in the jump table either.

Having set up the jump table, we will now get the disk parameter block which is a fixed 9 byte long table in CP/M 1.4 and a variable 15 byte long table in CP/M 2.0 or higher. For CP/M 1.4, the disk parameter block is found by loading the HL registers with the address in locations 6 and 7 and adding 52. For CP/M 2.0 or higher, the address of the DPB can be found by using the BDOS system call 31 which will return the address in HL or by using the BIOS Select disk call. The select disk call in CP/M 2.0 returns the address of a table called the Disk parameter header in the HL register if the disk exists else it return a 0 value in HL. The DPH contains two items of interest to the hacker, the first two bytes are the address of the sector translation table and the address of the Disk Parameter Block 10 bytes further into the DPH. Having obtained the address of the DPB, we will now copy this information down to where the user program will be able to use it. For the CP/M 2.0 or higher user this is a simple block move but for the CP/M 1.4 user, several of the byte values will have to be converted to word values for compatiblity and some of the values will have to be generated. The items to be changed are as follows: the sectors-per-track value will have to be changed to a word from a byte, the extent mask will have to be set to 0, the DSM which is the maximum block number available on disk will have to be changed to a word from a byte value, the byte value for directory maximum will have to be changed to a word value from a byte value, the directory allocation byte will be copied directly followed by a zero byte, the check size byte which is (DIRMAX+1)/4 for removable media and 00 for non-removable media (hard disks for example) will be set and the reserved track value will be converted from a byte value to a word value.

An example of how to use this information to access a given block on the disk is as follows:

On entry, check if block number less than DSM, if not, return error.

The track and sector number are then calculated as in the following where the track number equals (BLKSIZ*block number)/SPT plus the RESTRK value and the sector number is equal to (BLKSIZ*block number) mod SPT plus 1. The values used are all either explicit or implicit to the DBP. The sectors per track is explicit while the block shift factor and the block mask value determine the block size as explained in the Digital Research manual. One item to beware of is that the sector number generated in the above example is the logical sector number and the sector translate routine must be called before the BIOS SET-SECTOR routine is called BUT if you are using CP/M 1.4, the call to sector translate will automatically call the sector set routine so you must disable the SETSEC call.

The following table gives the BIOS vectors as they would appear in your program following the routine to copy them down from high memory.

```
CBOOT:   .BLKB    3    ;COLD BOOT ENTRY POINT
WBOOT:   .BLKB    3    ;WARM BOOT ENTRY POINT
CONST:   .BLKB    3    ;CONSOLE STATUS
CONIN:   .BLKB    3    ;CONSOLE INPUT
CONOUT:  .BLKB    3    ;CONSOLE OUTPUT
LISTOT:  .BLKB    3    ;LIST OUTPUT
PUNCH:   .BLKB    3    ;PUNCH OUTPUT
READER:  .BLKB    3    ;READER INPUT
                       ;ANYONE ACTUALLY USE
                       ;THE READER AND PUNCH?
HOME:    .BLKB    3    ;HOME HEAD ON SELECTED
                       ;DISK DRIVE
SELDSK:  .BLKB    3    ;SELECT DISK DRIVE
SETTRK:  .BLKB    3    ;SET TRACK
SETSEC:  .BLKB    3    ;SET SECTOR
SETDMA:  .BLKB    3    ;SET DATA TRANSFER
                       ;ADDRESS
READ:    .BLKB    3    ;READ SECTOR
WRITE:   .BLKB    3    ;WRITE SECTOR TO DISK
LISTST:  .BLKB    3    ;LIST STATUS (CP/M 2.X)
SECTRN:  .BLKB    3    ;SECTOR TRANSLATE
                       ;CP/M 2.0 OR UP, GENERATED
                       ;VALUE FOR 1.4
```

## W. C. C. S. SAMPLER DISKS

The W.C.C.S. has two sampler disks for sale to people who are interested in finding out more about the CP/MUG and the SIG/MUG disks. The first disk contains the catalogues for the over 120 disks in both sets and some sample programs. The second disk contains more sample programs and several games programs. Among the programs included on these two disk are the MODEM7 program, the file squeeze and unsqueeze packages, an INVADERS game playable on almost any ASCII terminal, an Adventure program for any 48K or larger CP/M system that runs entirely in memory, the CRCK program useful for checking program validity after file transfers, several directory lister programs including ones to do a directory of all disk and users in a system, a system status check program and many other small but useful utilities.

The cost of these disks is $6 each for W.C.C.S. members and $8 each for non-members with membership in the CP/M special interest group costing a one-shot fee of $25.

### SPECIAL COMPUTER FAIR DISK OFFER

During the Pacific Coast Computer Fair, a free copy of sampler disk 2 will be included with each new membership in the CPM special interest group of the W.C.C.S.

## RENEWAL REMINDERS

The following memberships have expired. This is the ONLY notice you will receive, so RENEW now!

These members should renew in NOVEMBER:

| | |
|---|---|
| Ian A. MacLean | Matt DeLangen |
| Ray Bird | David S. Young |
| Peter Kent | Michael McGhie |
| James Lawler | Terry O'Brien |
| Peter Bennett | Ed Klassen |
| Peter Lount | Brock A. Prozeniuk |
| R. S. Deane | Peter Burnett |
| Bruce Burge | Ken McIsaac |
| Patrick Lam | Neil Sutcliffe |
| Robert Maxwell | Roland Burton |
| Peter M. Betts | Bill Nuttall |
| W. A. McKinnon | Ray Nieppola |
| Ed Poznikoff | Dr. Rex Kenner |
| Mark Maisonville | Gordon Wong |
| H. W. Wong | Cyril Williams |

A reminder for those members who should have renewed last month, OCTOBER:

| | |
|---|---|
| Maurice Shu | ***Bob Jones** |
| Henry C. Sung | ***Bill Davis** |
| Bob Stathers | ***Jim Johnson** |
| Esa Loyva | ***E. Powell** |
| Patrick Chan | Peter Luckham Jr. |
| ***Roger Pryor** | Chris Huntley |
| R. R. Kawchuk | |

* = received renewals this month, thanks

## MODEM7 AND THE HAYES SMARTMODEM ON THE OSBORNE1

by Jack Brown

For those of you lucky enough to own a Smartmodem, the following is a short tutorial on using MODEM7 from the FOG library with the Hayes. The documentation supplied with MODEM7 is rather intimidating at first, but it's really quite simple once you get on to it.

To start with, boot the MODEM7 program (by typing MODEM7 when you see the A>),and you will get a menu of commands. I will explain these as we come to them.

### ENTERING THE BULLETIN BOARD

The easiest way to get to know the procedures is to access your local computer bulletin boards. In Vancouver, try the Frog Hollow BBS at 873-4007 or the Surrey RBBS at 584-2543. To dial with the Smartmodem, you must first get to the menu in modem7. Then type 'T <CR>'. To get the attention of the Smartmodem you now type 'AT' followed by your dial command. (eg: ATD8734007) (NOTE: USE UPPER CASE LETTERS TO GIVE COMMANDS TO THE SMART MODEM) The Smartmodem will now dial your number for you!

When the phone rings at the other end, the BBS will send a tone to your computer, which will then answer with another tone, and will print on your screen 'CONNECT'. If nothing happens within a few seconds try pressing return a few times.(This is to let the BBS know what speed you are using). Then you will see a sign-on message from the bulletin board, and it will ask you your name and other information. It will also give you options, such as going directly to the bulletin board or exiting to CP/M. Right now you want to go to the BBS.

On entering the BBS, you will either get a menu of activities, or you will have to press '?' for more information. The first time you enter the BBS try all the help menus. You will probably find them very useful. Usually pressing 'Q' will give you a quick summary of messages on the board. Pressing 'R' will allow you to retreive a message. (just give the msg #). When you have finished, usually 'G' (GOODBYE) will log you off the system.

The BBS will give you the time spent on the system (did I really spend THAT much time?!), and say goodbye. The Smartmodem will print 'NO CARRIER' when the BBS hangs up. Congratulations! You just made your first (of many) successful contacts with your local BBS!

To return to CP/M, type a control E (^E) to return to the MODEM7 menu, then use the menu command 'CPM'<CR> to return to the CP/M A>.

## 6800/6809/68000/FLEX/OS-9/SS-50 - by Dave Wiens

### Introduction

An introduction is in order for those of you who are reading this column for the first time. The Vancouver 68XX Users Group is an informal group affiliated with the WCCS. Its purpose is to bring together people using or interested in computers based on the Motorola 6800 and 6809 (maybe even 68000) microprocessors in order to share ideas, programs, advice and technical help. Besides getting together at the regular WCCS meetings, we also have separate meetings every second month, or so.

Do you have a system using the SS-50 bus (SWTPc, Smoke Signal, Gimix, etc.), Exorcisor bus (Motorola evaluation kits), TRS-80 Colour Computer, Commodore SuperPET, Stellation II CPU card in an Apple, Heathkit ET-3400/6800, etc.? You're welcome to join us. You can call me at 255-4485 for more information.

We have some public domain 68XX software and hope to get more in the future. If anyone has written a useful or interesting program (utilities, games, etc.) they would like to contribute, please contact me or Peter Belton [redacted].

For those of you who are new, '68' Micro Journal (68MJ) is a magazine devoted entirely to us 68XX users, including TRS-80 Colour Computer users to some extent.

### 68000

The first APL interpreter for 68000 machines running under UNIX has been announced by Codata Systems Corp. of Sunnyvale, California. They say they chose the 68000 because its 16 megabyte linear address space (vs 64K segments on the 8086) made it easier to implement the code to handle the large arrays typical of APL programs. (Electronics Sept. 8/82 p.52)

CP/M-68K, a 68000 version of the CP/M operating system, is expected to be available late this year for about $450 (US).

Our treasurer, Tom, should have a small single board 68000 system up and running soon. He has hinted he could be persuaded to write an article for us sometime in the future.

A local group of people is designing a high performance, multi-user, business system around a 10 MHz 68000. A lot of their effort is going into writing the operating system and other software. I hope to get an update from Don Gamble on this in a few months.

### TRS-80 Colour Computer (C.C.)

The OS-9 operating system and BASIC-09 language are now available for the C.C. from Frank Hogg Labs. OS-9 is a Unix-based, multi-tasking, multi-user operating system. By hooking up a separate CRT terminal (would require a hardware interface) to the C.C. you could be writing a BASIC-09 program on the terminal, while at the same time someone else is using the keyboard and display of the same C.C. to play a game, and sharing the disk drives. But at $299 (US) it's not cheap, even though that price includes BASIC-09. (68MJ Oct.'82 p.6)

So now you have a choice of disk operating systems -- FLEX, OS-9, STAR-DOS, and Radio Shack's -- and there must be others I'm not aware of yet.

I haven't heard any news lately from the organizers of the local Colour Computer Users Group. You might want to call Michael O'Hearn at Colour Products Unalike for more information. Also ask him to give you a run-down on the C.C. programs, magazines and hardware he sells.

### SS-50

More information has been published on how to interface to the $600 (US) 5 Megabyte hard disk mentioned before. This month the article (68MJ Oct.'82 p.29) has the schematic of an interface board to plug into the SS-50 bus. It includes additional memory at $E100-$$EFFF to hold the disk driver code without getting in the way of any program. If enough interest is expressed the author will also modify this design to work with the TRS-80 Colour Computer.

A new video graphics board for the SS-50 bus is now being advertised. This is a high resolution (512 x 480) intelligent board, with its own on-board 6809 microprocessor and 6K firmware that takes high level graphics commands from the host system. Only 4 bytes of address space are used. Text is supported with user-defined character sets of multiple sizes. It costs $595 (US) from Privac, Inc. (68MJ Oct.'82 p.59)

### 6809

Mitel has announced an "integrated workstation", called the "Kontact", that combines a 6809-based microcomputer and a telephone. A 12" CRT, single-sided, double-density $5\frac{1}{4}$" floppy (expandible to a second floppy and hard disk), telephone handset, telephone keypad, and 120K to 256K memory, make up the unit. Software includes a Mitel developed operating system, spreadsheet, word processing, and a BASIC compiler. It also has electronic mail, time logging for telephone, and automatic dialing capabilities. Canadian distribution for the $4200 unit will be handled by Lanpar. (Computing Canada Sept 16/82 p.1, and ComputerData Sept.'82 p.20)

TSC has released their 6809 Fortran-77 compiler for FLEX and Uni-FLEX. The FLEX version costs $375 (US) and includes a relocating assembler and linkage editor.

A compiler for a new language, PL/9, is now available from Windrush in the U.K. Designed especially for writing software for industrial and process control micros, it is based loosely on Pascal and PL/M. All code is generated to be position independent and ROM-able. (68MJ Oct.'82 p.35)

I just received more information on the single board computer from Chandler Microsystems, including an almost full sized photo with all chips and connectors labelled. Several details might be of interest. First, a standard floppy disk controller chip, such as those from Western Digital, is not used. Instead, a 6852 synchronous serial adapter and half of a 6522 VIA are used. A non-standard disk format results, although utilities to read and write standard FLEX format disks are supplied.

An EPROM is used to control mapping of the up to 256K RAM in 4K blocks. 128 different addressing maps can be defined. Video generation of 84 x 24 characters of a 7 x 12 font (9x16 cell) is handled by a 6845 controller and EPROM character generator. I/O from keyboard (with type-ahead buffer) and to/from disks is done in an interrupt-driven mode so you can key during disk I/O without losing characters. A 10% discount is available for quantities of 25 or more.

Maybe it's just trivia, but Control Data Corp.'s new high performance ISI-compatible (Intelligent Standard Interface) disk drives use a 6809 microprocessor in their intelligent controller. (Electronics Aug.11/82 p.120)

## Other

Harold Mauch, the founder of PERCOM DATA, died on August 30, 1982.

A new CBBS, operated by '68' Micro Journal in Tennessee, is now accessible at (615) 842-6809 evenings. The only commands supported are CAT, DIR, BUILD, WORDS, FIND, INDISK, and BYE, several of which are standard FLEX commands.

## 68XX Meetings

The upcoming 68XX meeting at SFU will feature a mini-copying session of 68XX public-domain software. One of the programs is a very fast disk formatting program that can format FLEX disks of single or double density, 5¼" or 8", single or double sided, and almost any number of tracks. Look for room B9242 at the end of the hall that leads directly south from the SFU Art Gallery. See you there on Tuesday, November 9th, at 7:00 pm.

### BIG BOARD USERS HOW TO SAVE ROM DATA ON DISK

written by unknown author

If you wish to save the contents of a 2716 EPROM on disk:

1) With the power off, insert the rom into #2 ROM socket;( the one beside the PFM ROM)
2) Power on and press return;
3) Type : I1C <CR> and note result-- N1 (typically 18)
4) Add 80 hex to this number to get N2 (ie. 18+80 hex = 98 hex) and type O1C N2 <CR>;
5) Type : F0 6000 0 <CR>;
6) Type : C800 FFF 4000 <CR>;
7) Type : O1C N1 (ie. 18);
8) Boot CP/M : (type : B <CR> );
9) Load DDT, then :
10) Type : F100 2000 0 <CR>;
11) Type : M4000 47FF 100 <CR>;
12) Type : control-C;
13) Type : Save 8 FILENAME.EXT <CR>.

This procedure will save the contents of the ROM as a CP/M file. To save other ROM locations :

ROM#1 (PFM) : address-- 0000H-07FFH
ROM#2 : address-- 0800H-0FFFH
ROM#3 : address-- 1000H-17FFH
ROM#4 : address-- 1800H-1FFFH

I/O address 1CH is the system PIO
Adding 80H bank switches RAM/ROM.
<CR> stands for RETURN or ENTER.

### Membership Up to Date?

If you check your address label on the envelope, you will find a 4-digit date code which is your membership renewal date. (i.e. 8211 = November '82 expiry date).

To continue receiving the benefits of WCCS membership (newsletter, discounts at selected stores, group purchase rates, access to user's groups, and more...

**SEND IN YOUR RENEWAL NOW!!!**

### NORTH STAR USER'S GROUP AND FUN and GAMES ON CP/M MACHINES

by Steve Cleverley

In the North Star field there is little news to report. I have recently worked on an Advantage with a five Megabyte hard disk. It worked pretty well except for in a few areas.

Basic Computer Group had not really instructed the users' in the proper operation of the machine.

The capacity of five megabytes was not really sufficent for the applications that the users needed. When a file is 2.5M or bigger it is impossible to sort or copy as a backup is needed. One of Murhpy's or Parkinson's laws states that the job will expand to fill the space available, this happened really quickly.

There are some real deficencies in the system also:

An output to port OFFh will hang up the system. This does not in itself sound to awful but when you remember that FF is the front panel port for status lights there is a lot of software that used that for debugging and still has that bit of code imbedded in it.

A 07Fh output to the screen can cause the system to hang up.

If you have turned off the cursor for extensive screen mapping (and with the slow phosphor screen that is needed to avoid a lot of ghost cursors all over) a clear screen command (ctrl D) will turn it back on. Most software turns off the cursor, clears the screen and then maps. To avoid this one must clear the screen with a home, clear to end of page sequence.

The control codes created by the various function keys are totally undocumented and one must find them out by trial and error.

This is typical of the documentation that was supplied with the Advantage. There is extensive instructions on how to unpack the system and turn it on. There is nothing on I/O ports, memory management and other needed info on a systems level.

Regarding the second title to this system which is game playing on CP/M systems. Believe it or not you can play games on these computers. They can be more extensive than simple textual games such as lunar lander and adventure. Using cursor addressing and an install program to set up a control file for the users program, one can map a display almost as well as on a memory mapped game display such as a TRS-80. One is limited to ASCII characters but imaginative use of these can produce an acceptable display.

Some of the games that I have play that use such ideas are PACKMAN - a Pacman type game, ALIENS - an Invaders game, ORBQUEST - a Dungeons and Dragons game, ALIENS - an Invaders game, ORBQUEST a Dungeons and Dragons type game, and NEMESIS - another D&D game. All work very well to excellent and will be profiled in detail later in this column. The first two programs are in the public domain and are available from the FROG HOLLOW B.B.S. at 8734007.

### FOR SALE

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## ZILOG Z-800
by Dave Bowerman

A recent article in Microsystems suggested that instead of converting to a 16-bit system, some consideration should instead be given to remaining with an 8-bit system but upgrading to a more powerful microprocessor. The one suggested in the article was the Zilog Z-800 processor.

The following is a compilation of some of the articles and rumours about the Z-800 processor that have been published in some of the magazines plus some information from a Zilog press release. Unfortunately, the Zilog press release was authored by a pre-literate with delusions of authorhood -- i.e. an adman.

The Z-800 is supposedly going to be Zilog's answer to the Motorola 6809 processor. It will incorporate many of the features found in the Z-8000 16-bit chip with total software compatiblity with the Z-80 family of processors and peripheral chips.

Some of the claims made for this chip are that it will outperform the Z-80 by 3 to 5 times with a comparable speed memory, that the clock rates will be 12, 18 and 25 MegaHertz and that it will be completely compatible with Z-80 software.....except for those poor souls who have used some of the 8-bit instructions that can be used to refer to the upper or lower halves of an index register or any of the other 'unimplemented' Z-80 instructions.

It will have a built-in memory management unit with memory protection giving it the ability to directly address up to 512 Kbytes of memory. If you use dynamic memories, the refresh register is programmable for 7 or 8 bit refresh addresses and refresh timing. To go with the memory management, will be two stack pointers, one designated as User and the other as System. The one in use will be set by the current mode of the CPU. The Z-80 instruction set is extended by the addition of 8 and 16 bit Multiply and Divide instructions plus the addition of a true bitwise SET and TEST instructions using masking in a fashion reminiscent of those on the 68XX/65XX chips.

The chip also offers the same two interrupt inputs as the Z-80 but with a fourth interrupt mode added to allow more flexibility in handling multiple interrupts. The CPU also adds internal trapping to allow true software single stepping. With the system/user modes, also comes system call and priviledged instruction traps to prevent the user from being able to switch the memory management structure or similar "fun" ideas.

The on-chip memory manager takes the 16 bit addresses from the internal address bus and decodes them into a 19 bit external address. The translation is programmable from the system user mode and allows for some memory protection as well since some segments can be designated as read-only. The 19 address bits are outputs as an 8 bit multiplexed data/address bus and a 11 bit address bus together with an address latch strobe. The memory manager is also used to generate the memory refresh allowing the refresh address width to be set to 7 or 8 bits and the refresh rate to be controlled by a programmable counter for minimum power consumption.

The internal clock can be from 12 to 25 MHz but the interface to the outside world can be set to insert wait states into both the memory and I/O accesses. This is similar to the Z-80's habit of automatically inserting one wait state into all I/O instructions. The bus cycle itself can be programmed allowing the processor chip to generate memory cycle timing to allow a 25 MHz chip to interface with 1 microsecond access memories.

The rumour that this chip was going to be a direct pin compatible replacement for the Z-80 were evidently not realized but the chip is packaged in the familiar 40 pin package with all the Z-80 control signals available for generating the S-100 bus I/O and memory access signals, making the task of interfacing the Z-800 to the IEEE 696 bus much simpler.

**NEWS AND VIEWS FROM VANCOUVER, CANADA**
For the FOGHORN - AUGUST 1982 ISSUE
Jack Brown

The local Osborne User's group (called OSBUG) has just started to meet the third Monday of each month. So far, we have had three meetings. The first meeting saw six people turn up, and we spent most of the time sorting out basics, like getting autostart modified for various program callups, and using Wordstar and Supercalc.

The second meeting, held in May, packed out the store it was held in (standing room only). Lee Swordy brought a couple of patches that he wrote; AUTOMOD changes the callup in CP/M to a user specified command. Now you can eliminate the AUTOST.COM file from your discs and save 2k of space on each disc. CP/M now reads the command line from the disc and boots directly to your program without going through the autostart program. (Sorry Thom Hogan, but if I had double density drives I wouldn't be so paranoid about saving space). The second program, WSPATCH, makes the cursor in Wordstar blink at a user defined rate. This is especially great when you are doing a 'find' command, because it's so much easier to find the blinkin' cursor! The patch also automatically changes the arrow keys to the Wordstar arrow configuration when you boot Wordstar. This allows you to leave your keys as CP/M under setup, but have them reconfigured when Wordstar is booted. When using Wordstar to create .ASM or CBASIC files this lets the arrow keys behave properly even when jumping back and forth between programs. (Both these programs will shortly be added to the FOG library)

The June meeting was held on June 21 (the night of the new moon) at the Vancouver Board of Trade tower. The meeting was combined with a seminar by Timothy Marshall from Seattle. Tim spent a very enjoyable two hour session explaining the ins and outs of dBase II on the Osborne. This seems to be a great data base management system that lets you get the maximum amount of use from the information you have on disc. There are still a few bugs in the program as supplied by Ashton-Tate, (such as no tab) but I understand they are hard at work to correct them.

SOFTWARE REVIEWS

FBN Software
- CP/M Extension utility package $ 39.00

This package of software is really versatile. It's price is so low, I thought twice about it, but having used it now for some time, I don't think I could do without any of the programs included. There are seven programs in this package!

SPOOL lets you assign output that would normally go to your printer or screen to a disc file instead. All output is then successively added to that disc file. Now this doesn't sound like much of an advantage, does it? Except that now you can print that disc file using UNSPOOL, and it can be printing while you do something else on your console. It takes a lot less time to write to a disk file than it does to a printer (especially if it is an Epson like mine). You also have all your documents printed at one time while you go about housekeeping in CP/M.

I know you could just get an 8k buffer card for your printer, but this way it's much less expensive. Besides, it's cheating to do it with hardware!!

If you assign the console (screen) output to the disc file, you can get a complete master disc file catalogue by using successive XDIR commands, or even a dissassembly of .COM files on disc. There's even a disassembly editor utility, DDTTOMAC, that edits a disassembly listing produced by DDT so it is compatible with a normal assembler. (If you're a beginner, don't worry about this. It will only be of use to assembly language programmers. Don't laugh - when I started I was as much of a klutz at that as you think you are!).

RESTORE will bring back that file you just erased by mistake. You know, when you forgot to start the ERA command with "B:" and you just erased the new edited version of your file on the logged disc. Just go to CP/M and say RESTORE <filename> and there it is -- back again! Just like magic! What's that? You have a file that was erased but you can't remember it's exact name? Never fear - FDIR is for you! This directory utility will give you the name of all files on the disc, their user number (or 'erased' if they have been erased), the attributes of the file, and it's size (in extents).

To keep your directory in order, SORTDIR will re-arrange it, putting it in name or type order, and erasing **permanently** any previously erased files. This makes it much easier to recover an erased file later with no problem due to name conflicts, and makes your files nice and neat when you use DIR.

The final utility is called QSUB. It is another form of Submit command. The primary advantage of QSUB is the ability to specify a string of commands on the command line of CP/M without having to use a separate .SUB file on the disc. (once again, I'm saving all the space on my disc that I can). This is great where you want to load two or more programs in succession, for example, SPOOL then WORDSTAR. The other advantage is that QSUB doesn't write a transient $$$.sub file to your disc, meaning QSUB will work in the direct command line mode even on a write protected disc!!!

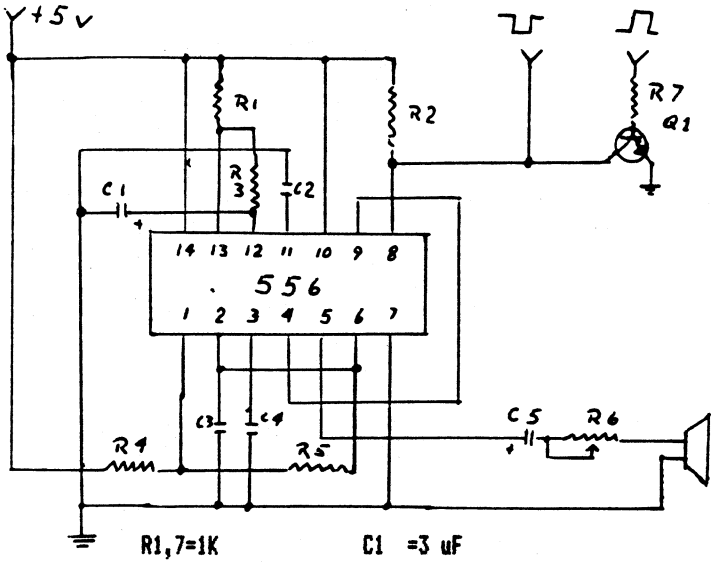
## Add a Beep to Your Keyboard
by Dick Reinebeck

If you are as bad a typist as I am, your eyes are on the keyboard most of the time, when you enter data. Therefore, you will not see if the letter or number you typed has actually been entered.

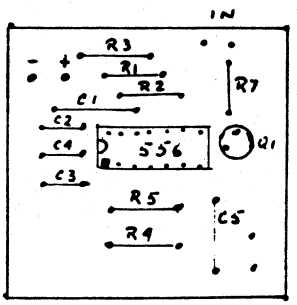
You usually find out at the end of a sentence or the end of a long row of numbers, that a letter or number is missing somewhere. I don't have to tell you how much time it takes to correct these errors.

This problem can be solved by adding a simple circuit to your keyboard that will emit a beep whenever a key is pressed. The circuit can be built on a perf board or if you wish, you can make a small PC board as shown. None of the components are critical. Probably any NPN transistor will do. Also the values of the resistors could be changed ± 15% without any noticeable change in the performance of the circuit. With the values shown in the parts list, the tone is about 1200 Hertz and the duration of the beep approximately 200 msec.

For the Big Board users, it should be considered if the beep could be triggered with the CRTOUT routine instead with the strobe pulse from the keyboard. This would mean that the circuit could also be used for the bell (Control-G).




| | |
|---|---|
| R1,7=1K | C1 =3 uF |
| R2,4=4.7K | C2,3,4=0.1 uF |
| R3 =10K | Q1 =2N5137 |
| R5 =4.3K | Spkr= 0.1w/8 ohm |
| R6 =100 OHM | C5 =10 uF |







THE MICRO LINK
by: Peter Heckmann & Wayne Russell

The Micro Link enables you to communicate with other microcomputer users, large computers and terminals over telephone lines.

This program is flexible and allows you to configure your computer as a terminal or as the host, in either full or half duplex. It has a screen formatter to allow you to set your line length. The entire two-way record of communication may be recorded in memory and on disk. It is menu driven i.e. you type a command number rather than type the command, e.g. typing 4 (when in the command mode) will clear the copy buffer.

There are over 40 commands and each is clearly documented in the manual. The manual also explains how to send and receive non-ASCII files, and talk to bulletin boards. The program operates at one end without being required at the other.

We have used the MICRO LINK for 3 months an have not run into any program bugs.

### BUG OFF !

- Do not store OSBORNE with disk drive doors closed. This could distort the hub.

- When editing or creating a BASIC program using WordStar, remember to use the N command, for non-document, and and use the .BAK file type extension on your filename.