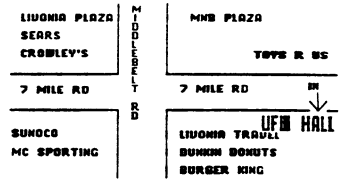


C.C.O.G.

COLOR COMPUTER OWNERS GROUP

NEWSLETTER JULY 1990



OFFICERS:

- PRESIDENT** Bernie Patton
- VICE-PRESIDENT** Larry Schneider
- SECRETARY** Marcine Glowicki
- TREASURER** Bob Waite
- CORRESPONDING SECRETARY** . Robert Gault
- LIBRARIAN** Jerry Gersky
- BULLETIN BOARD** (313) 292-4713

INDEX:

- 1. PRESIDENTS COMMENTS
- 2. MEETING MINUTES
- 3. ATTENTION
- 4. VIEWPOINTS
- 6. BEGINNER'S CORNER
- 9. ATLANTA CoCoFEST

PRESIDENTS COMMENTS:

In the meantime LOOK what my CoCo can do!!!!!! Let's not just sit around waiting to see what the JOMCAT-TCG and the MdMi are going to be like. We have in our possession a very powerful computer right now. Let's continue to use it. Let's continue to support it. Let's continue doing all those neat things that have been there all along. We have a very good base of all varieties of software thru all the various vendors NOW. Let us not allow the CoCo to die from lack of participation. I was very happy to see that we had 24 people at our June meeting.

Usually attendance drops in the summer. I would like to see our club continue to keep it's strong base of membership support. You are very good and likeable people. We share a common bond with the CoCo.

On June 28 at 7:00pm we had an informal meeting to plan future meetings for the club. The meeting was open to all and a notice was placed on the BBS. There were 8 of us in attendance. We have some exciting ideas for you in the upcoming months. We also expect to see some participation from YOU. We will still be asking for volunteers from the members at meetings. Also, from time to time individuals will be directly asked to demonstrate a piece of software or hardware they have or maybe some particular expertise. Please don't say no when you are asked. We will be doing more things with OS-9. This does NOT mean that we are abandoning OS-DOS. With the CoCos we can have the best of both these worlds. Bernie

COLOR COMPUTER OWNERS GROUP

This newsletter is a periodic publication of the COLOR COMPUTER OWNERS GROUP of Metropolitan Detroit.

Copyright for all articles in this publication remains with the original author. Permission is given to reprint for nonprofit publications so long as original article is intact with credit to the Author. Requests can be made for downloading articles thru our BBS from other CoCo Clubs wishing to reprint articles. Contact Bernie Patton (313) 283-2474 BBS (313) 292-4713

Minutes From the June 19, 1990 Meeting By Marcine Glowicki

The meeting was called to order at 7:25 pm. A motion was made and seconded to accept the May minutes. This passed. Some old business was taken care of, which was announcing that Larry was accepting money for Rainbow magazine renewals. Larry had several copies of PMODE 4's newsletter. This group was located in Tennessee. Those people who have subscriptions to COCO CLIPBOARD have not received an issue since February. No one really knows what is going on for sure. This will be the last month for the membership drive competition. With the top three winners receiving disks donated by Larry. So far Bernie recruited 1 person at Rainbowfest in Chicago, Jim recruited 2 at Rainbowfest, and Gus several from his advertising in the Observer newspaper. There were 25 people in attendance at the June meeting.

New business--Larry announced to the group that there would be no October Rainbowfest in New Jersey. Dave Meyers would be taking over and setting up a Rainbowfest of sorts in Atlanta, Georgia, October 5 and 6 of this year. As of the last meeting he had 20 booths already signed up. There was some discussion about BBS's being shut down by the Feds, but the consensus was that these were boards offering more than just public domain types of services. Bernie made a pitch to the membership to start some sort of OS9 demonstration. It was somewhat decided that summer is not the best of times for SIG type meetings. So this will be pursued later in the year.

There were several new faces in the crowd. Herb Kuhfal and Del Wiley. Welcome!

The raffle helped the VFW by raising \$21 this month.

A meeting for officers would be set up in the near future. This meeting would set up the format for future meeting topics. More about this later.

Officer Meeting Minutes By Marcine Glowicki

A special meeting was held at Bernie's. The officers were in attendance. A topic by month was established. This was the same theme that Rainbow Magazine used in the past.

January--Beginners	February-- Utilities	March-- Business
April-- Help	May-- Printers	June-- Sound Music Summer Fun
July-- Anniversary	August-- Games	September--Education, OS9 (bring in your system to get started)
October-- Graphics		
November-- Different types of communications packages		December-- Holidays

Some ideas talked about that would be of interest to the members were:

1. Start an OS9 tutoring group which would take approximately 15-20 each meeting.
2. Bring in your favorite oldie that got you hooked with the COCO.
3. Have members that use the library disks offer to demo some of the programs that they find useful. This would give others a change to see what we have available to them in our library.

***** ATTENTION BBS USERS *****

You may have seen a form letter in our BBS (313) area claiming that Michigan Bell was requesting legislation which would cause all BBS use to be considered commercial in nature. All owners of BBS and all users of modems would be charged business rates. This form letter originated with Variety-N-Spice, a commercial pay for use BBS in the Grosse Pointe area. The information in the letter is either a deliberate attempt to misinform or represents a complete misunderstanding of how the telephone industry is regulated.

I have written directly to the President of Michigan Bell to obtain a policy statement, knowing full well that the enormous amount of rumor and nonsense stirred up by the above letter required clarification. Within two days of writing, I received a phone call from Charlene Hoffman, Staff Manager at Michigan Bell, who was more than happy to discuss the above. She subsequently sent in writing a policy statement, appropriate Michigan tariffs, and the form letter used by the Michigan legislature to answer the V-N-S letter. Pertinent excerpts follow.

"...Michigan Bell does not have a policy, nor are we seeking to institute a policy, that would require all computer bulletin boards to be classified as business services. And we have no plans to charge all users of modems business rates."

"The tariffs" (Michigan Public Service Commission) "require Michigan Bell to classify service based on the use to be made of the service. In the case of computer bulletin boards, if there is a charge associated with any level of access to the board or money is solicited in conjunction with the board, that is considered conducting a business within the meaning of the Michigan Bell tariffs."

"...if the board is not associated with a business and no charge is assessed or solicited for access to the board, the service may be classified as residence in accordance with the applicable tariffs."

Ms. Hoffman further stated that Michigan Bell is not nor does it have the facilities nor technology to monitor BBS or phone lines to see if modems are in use. That if a BBS asked for donations while allowing totally free access, this probably would not require a business classification, but advised not doing so.

Anyone who has had their BBS classified a business venture should contact the Michigan Public Service Commission 800-292-9555 or 517-334-6424 for an attempt at reclassification.

I hope this information will lay to rest all of the fuss created by the rumors.

Robert Gault, Corresponding Secretary, Color Computer Owners Group, MI
J&L's BBS (313)-292-4713

According to club member Karl Sefcik, he has indicated that additional information will be made available to CCOG club members regarding one of the COCO4 type of models called the MM1 by Kenneth-Leigh Enterprises whenever he receives it. He is now on their mailing list. He advised that he will post such information on the club BBS according to his recent message on the BBS; and also make it available to our club President Bernie Patton. So if any of you want to know the latest on this subject, contact the BBS. For new members information, the club BBS is J&L's COCO Corner electronic bulletin board system which the CCOG club supports through club membership dues. Most of the current information on the subject is in the April 1990 issue of the club newsletter by Bernie Patton. Be sure to read it to be current on the subject. Not only is this information there but lot's of additional information that supports our COCO hobby. If you are not using the club BBS you are depriving yourself of a key aid to your hobby which your dues help to support.

You may be interested in knowing how to use the Mickey Term program, which is in our CCOG club library, for telephone communication with the CompuServe information system assuming you are a member of CompuServe. In an earlier article, on page 6 of the March 1990 CCOG Newsletter, I indicated that I had unwanted characters appear in displayed messages while using Mickey Term with CompuServe. This did not occur when I used their comparable VIDTEX telecommunications program which in my opinion is inferior to Mickey Term. I obtained the correction for this error which now allows me to use Mickey Term without this type of hash in the message when contacting CompuServe. After log on and entering your ID (identification) number type a semicolon and the capital letters TTY and enter it. Like magic everything now works well using Mickey Term and I no longer need to use the CompuServe VIDTEX program. You also need to set your Mickey Term parameters to read full duplex, 7 bit word length, auto halt on, linefeed on carriage return (LF on CR) set to off (no), auto buffer set to off (no), parity set to even, and use of a one stop bit. So any of you CCOG club members, who are also CompuServe members, can also use Mickey Term to contact CompuServe without using the VIDTEX program.

To those of you who use the MUSICA2 program, club member Karl Sefcik has indicated that to play notes from the COCO keyboard you need only select the menu for setting options. Then enter any note you wish to hear and press the P key and the music can be heard for that note. In this way you can enter simple tunes upon which related chords can be included later. Therefore you can compose your own music on the COCO with this software.

At our previous club meeting it was emphasized that new members who want to learn to program their COCO should study their Basic COCO manual first. Then if you have any questions on this bring them to the attention of our more experienced members and you'll get them answered. That's what the CCOG club is all about. Support for our common hobby from other interested members. Here again is where the BBS comes in handy especially since it is available 24 hours each day. You should be able to buy a relatively inexpensive telephone modem through the CCOG club that will allow you to contact the club-supported BBS.

Also at the previous meeting, it was indicated that it would be interesting to see a demonstration of a word processing program that Bob Gault uses. A lot of people like to use their computers to do word processing. Hopefully Bob will be able to demonstrate his word processing program at a future meeting. I think a lot of the newer members would be interested in seeing it.

It looks like we have a lot of different interests in our computer hobby. Some want to learn programming using BASIC or OS9, others are interested in word processing, and/or computer art, COCO games, utilities to handle taxes or home budgets, etc. So it will be interesting to see what our committee on arranging future meeting agendas has decided. This will likely be discussed at our next club meeting.

A reminder especially for new members of the CCOG, the VFW uses your money donations from our club in it's many charitable activities especially concerning unfortunate hospitalized veterans. It's all going for a good cause. The Livonia VFW also collects used books and magazines to give hospitalized veterans.

So if any of you want to contribute such, which you would otherwise discard, give them to the VFW bartender to make some unfortunate veterans happy. Also we owe some thanks to the VFW bartender because he volunteers his time to open the VFW Post for us and serve us drinks. He gets nothing for providing us this service so let him know you appreciate his efforts for us whenever you can.

Getting started in OS-9 seems to intimidate many people without cause. It is really quite simple if lengthy. Also it does not matter whether you have an older model Coco 1&2 or a Coco 3. It is best to use OS-9 Level II on a 512K Coco 3 but any combination of Level I, II and Coco 1,2 or 3 is more powerful than the standard Tandy Dos. Two drives are however almost a necessity.

I have heard some comments that people have had trouble with Level II and the 128K Coco 3. I don't remember that to be the case and ran a test for this article. To run the test, I removed my 512k RAM and replaced the original 128K. (You mean to tell me you didn't save your old RAM?!)

It is interesting that the small capacitors did not need to be remounted on the board. The Coco ran just fine without them with the 128K reinstalled. Also no problems were experienced in creating a new OS-9 system disk. Here's what you need to do.

First make backup copies of the original OS-9 disks. (I am going to assume you will use Level II.) When you make backup copies, you don't need to be in OS-9. In fact, contrary to the OS-9 instructions, you should not be to limit wear on the disk.

Place write protect tabs on the originals. Format two fresh disks as follows: DSKIN10,2. Don't forget the ",2". This tells DOS to set the spacing format used by OS-9 and the disks will work better for it. (Tandy for some reason did not do this with the originals.)

Now BACKUP the originals and place the originals in safe storage.

You are now ready to enter the world of OS-9. Place the duplicate system disk in drive0 and enter DOS. (If your system, Dos 1.0, does not have the DOS command, run * on the BOOT disk.) The BOOT message should appear and then the copyright message. Enter the date and time as requested.

I will assume you have only 128K RAM, but do have 40 track double sided drive(s). You will now want to create a working System Master to your own specifications.

The first thing you need to do is tell the system that you have good drives. Tandy still assumes we use 35 track 30 ms (slow) drives. You could use CONFIG (on the BOOT/CONFIG disk) to set up for 40T 6ms double sided drives, but that would take twice the time of the method below.

You will need to write three files to be used with MODPATCH. We will use BUILD to write the files as that is easiest for beginners. Type in the following code:

```

build driven0
l d0
c 14 0 3
c 18 23 28
c 19 1 2
v
(ENTER)  ie. enter on a blank line

modpatch driven0

```

There will be ? for prompts while you run BUILD. When you run modpatch, the program will use the file driven0 to change the operating system.

Repeat the process as follows:

```

build drivedi
l d1
c 14 0 3
c 18 23 28
c 19 1 2
v
(ENTER)

modpatch drivedi

build drivedd
l dd
c 14 0 3
c 18 23 28
c 19 1 2
v
(ENTER)

modpatch drivedd

```

By now you should have noticed how much faster your drive is working. You are now ready to create a custom 40 track 6 ms double sided system disk.

Enter `format /d1` (if you have two drives which I will assume) or `format /d0`. You will be prompted to swap disks on single drive systems. Format a fresh disk and name it as you please; R.Gault's OS-9 System Master (for example.)

You are now ready to put some code on the disk. On single drive systems it will be tedious. Insert the copy of the BOOT/CONFIG disk in drive 0 and type:

```

chd /d0; chx /d0/cmds
config

```

Follow the prompts. Use the "help" prompts as needed. Since I have assumed you only have 128K, I advise you not to overload your boot file. You won't often be using windows (not enough memory,) so limit yourself to W and W7 and select `TERM_VDG`. Also select the `D0_40D`, `D1_40D`, and `DDD0_40D` drive descriptors. These are not set for 6ms and you will have to correct that later. If you have a printer be sure to include P.

When you get to the point where you are asked what commands you'll need, select "NO", you will add your commands by a different method. Replace your backup system disk in drive0 and type:

```

chd /d0; chx /d0/cmds
dsave #20k /d0 /d1 ! shell

```

When DSAVE finally finishes, you will have a new custom disk. However, you will still need to correct the drives for 6 ms (fast) action and set the baud rate for your printer.

Put the new disk in drive0 and push the reset button. If all goes well, OS-9 will reboot and you will be asked for the date and time. Now you must remind the system that you have fast drives. You can use the same files you created above. Put the disk with the modpatch files in drive1, and type:

```
modpatch /d1/drived1
modpatch /d1/drived0
modpatch /d1/drivedd
```

Now adjust your printer. I'll assume you have an adaptor for 9600 baud. Type:

```
xmode /p baud=6
tuneport /p
```

When running tuneport, your printer should be on. You may and probably will see garbage printed. Enter new numbers, changing them by 1 each time until the text is correct. You may need to increase or decrease the values. Continue until you get garbage again, then enter the middle value.

For example on my system, the numbers started at 17. Correct printing occurred between 18 and 22. I picked 20.

Now get a fresh disk and run FORMAT as above. When done type:

```
cobbler /d1
```

When cobbler is finished, you will repeat the dsave operation as above:

```
dsave #20k /d0 /d1 ! shell
```

Finally you now have a custom OS-9 disk which is set for 40 track, 6ms, double sided drives and correct printer baud rate.

If the above seems like too much work, you will need to learn OS-9 first before you can make it simpler, "catch 22." If you have OS-9 Level I, you can patch the Level II CONFIG disk to correct the drive and /P descriptors and get a custom disk in one pass. Level I has the SAVE command left out of the II package.

Alternatively, you can download some OS-9 utilities from the BBS which can make the job easier if you are not a novice.

Finally, you could live with the Tandy defaults of 35 track, 30ms, single side drives until you learn OS-9. Your money, your choice.

***** ATLANTA CoCoFEST *****
October 6-7,1990
Holiday Inn Northlake

As you may know, the traditional Fall gathering of CoCo enthusiasts has been cancelled...BUT, you can make plans NOW to join your favorite CoCo vendors, online pals, and CoCo fans from far and near at the 1st Annual Atlanta CoCoFEST!

Join us in the sunny Southeast this fall for two days of:

- > Exhibits and demonstrations (and special show prices) from leading CoCo vendors. A GREAT opportunity to "try before you buy" those items you have had your eye on!
- > Introductions of striking NEW products, such as the long-awaited MM-1 from KLE/IMS!
- > Free, informative seminars conducted by leading CoCo experts ... covering MANY areas of CoCo interest!
- > Free chances to win valuable door prizes, courtesy of participating vendors and the Atlanta Computer Society!
- > The opportunity to turn unwanted/unused CoCo soft - and hardware into CASH!
- > Fellowship and fun with hundreds upon hundreds of CoCo enthusiasts JUST LIKE YOURSELF!

Tickets for the Atlanta CoCoFEST are available NOW at a special advance sale price of \$10 for one day, \$15 for both days. And, as an extra bonus...the first 125 people to reserve onsite hotel rooms through us (at the special show price of \$49/nite + tax, single or double) will receive a FREE one-day admission for each night's lodging purchased! To receive the special room rate, your reservation MUST be placed through CoCoPRO!

For specially discounted airfare and car rentals (starting at \$17.95/day with unlimited mileage), contact Lisa at CoCoFEST affiliate Travel Bank of Atlanta - 1-800-477-9191.

For tickets, hotel reservations, or further info, contact us at CoCoPRO! - 1-313-481-DAVE <3283> (1-8 P.M.. 7 days). Modem users may place ticket/room orders using VISA or MC, by calling our BBS at 313-663-6207 (3 lines, 7-E-1, 3-1200 on all lines).

There have been some requests for hardware articles in the news letter. Don't expect many of these as there is not much you'll be able to do without training. To misquote a phrase, "If you have to ask how, you won't be able to do it." In spite of this, there are some projects that are appropriate. We'll start by installing a fan in your "hot coco."

This project is aimed at those readers that have installed 512K memory in their computer. It is not needed with only 128K memory. The usual precautions apply. Your warranty gets zapped (but you did that when you added 512K RAM). A careless move may zap your Coco.

Benefits, a cool running computer. Drawbacks, dust gets sucked onto the board and chips; periodic cleaning is advisable.

There are many fans that can be used. I suggest the Tandy 273-243 which is a 12 VDC .15 amp fan about 3x3 inches. It will require some trimming to fit into the case so if you can find a slightly thinner fan; go to it. Do not use a 5 volt fan. The 5 volt power supply is already overloaded.

To install the fan, you will need to cut a hole in the bottom of the computer of the same diameter as the fan blades. There are two reasonable ways to do this. If you opt for another method, do try to be neat. A drill or drillpress with a hole cutter or circular saw will work. Make sure you support the case, as the plastic is fragile. A second method that works well is a good soldering iron with a "knife" point attached. Maintaining a good circle using a melt/cutter is tricky. Draw your circle on the case in pencil first.

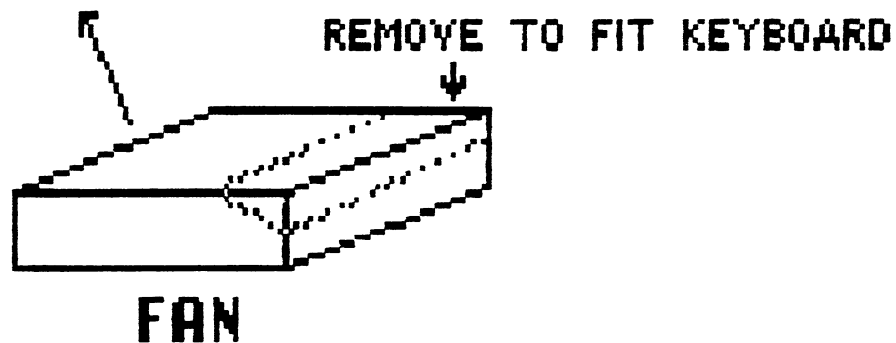
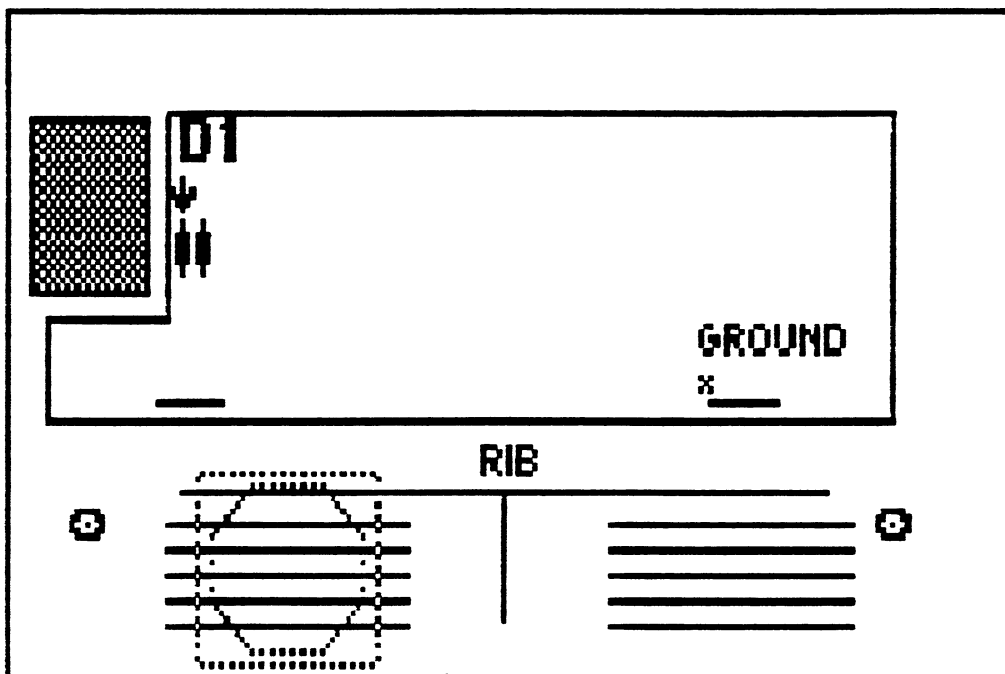
The center of the fan should lie almost directly under the D key. The front to back location is determined by the case itself. The Tandy fan will just fit after you remove part of the internal plastic rib used to strengthen the case. The fan should be installed with the label up. This will mean that air will be drawn in at the bottom, blown across the 512K RAM, and then go out the top of the case. Small machine screws and nuts should be used to bolt the fan to the case. There are holes for the purpose in the fan housing.

Two things should be done before mounting the fan. The clearance of the keyboard must be checked. With the Tandy fan mentioned, the front top fan edge must be trimmed either by filing or cutting. I suggest using a hacksaw or band saw if possible. Filing is pretty slow going. Second, I strongly advise putting some type of screen between the fan and the hole. Window screen either metal or plastic works well. The screen will keep both dust and fingers from getting into the fan blades. The screen can be spot glued to the case.

The fan should be electrically connected as shown below. The diode is labeled on the computer board but can't be missed anyway for its size. Any spot will serve for the ground connection but the metal on the board at the copper keyboard supports is ideal.

Before turning on the computer, check for loose or excess solder and remove it. Also be sure to remove any plastic flash left in the computer. It is easy to misplace the two rubber washers that go on the keyboard posts, so check for them.

When assembling the case, DON'T FORCE IT! You may need to remove more of the fan body. Do so. Impatience could result in a damaged keyboard through bending.



In contrast to previous columns, this time we'll take a side trip and look at what is wrong with os9, in my opinion. Noting what is troublesome about our favorite operating system, in the hopes that some day these failings will be cured. Should t copies out of Microware, the developers of os9. However, Microware prospered, due to their fine product, and its use by manufacturers of industrial control devices and other special purpose, low volume and high priced systems. It was only when a supplier like Tandy made os9 available to millions of users that the price came down to where humans and not only corporations could afford it. The problem today is that os9 for 68000 series computers (also known as Osk or os9/68k) is still expensive and will continue to be so until the new "CoCo 4" machines hit the streets with their high (we hope) sales volumes. We are seeing a little of the price reduction in the version of Osk available for the Atari machines.

The biggest howls about os9 are in the anguish new users feel when getting started. That's why we recommend the purchase of books beyond those provided with the os9 operating sytem. Microware's documents are adequate when compared with other companies supplying software to developers, which is to say they are terse to say the least. On top of this, you find the same errors reappearing in subsequent editions in spite of their being well known by the world at large. Everything you need is provided. You just have to find it. A case in point is that every user needs to customize a boot disk, yet this process is not automated for the casual user. Sure, config provided with level II was a help, but what is needed is a clean, clear and menu driven utility that walks the user through the process without having read but a few pages of the documents.

Os9 is not bullet proof. This is asking a lot, but it is too easy for programmers to "break the rules" and write programs that "walk all over" the insides of the computer. A multiuser and multitasking system is complex, but there should be protections that keep one user from completely clobbering another. Right now, os9 relies upon programmers to be polite and to follow the rules. Most do. This is a lot to demand. On the other hand real protection is provided only by hardware on most other multitasking systems.

The last comment I would like to make is regarding support and updates. Support is provided not by Microware, but by the third party vendor that purchases os9 and then resells it to the users. In our case this is Tandy. For those of you who have been around more than a year, this is all I need to say. Tandy has done its best to ignore us, but in spite of this we refuse to go away. In general, bug fixes and enhancements have been the result of work by dedicated users, and a few companies that still manage to make a buck off of a rather small market. My hat is off to all of them. The bare bones system sold through Tandy is a sparse start, but is complete only when shells, utility programs and bug fixes are added,

as well as the usual games and applications. These enhancements should have been provided in the base system by updates through the years the system has matured. Instead, we had version 1.0, 1.1 and 2.0 of Level I, and one version of Level II.

So there you have it, my main complaints with the system. You are welcome to reply if you have anything to add or detract. Heck, I've been wrong before, and I'd like to be again this time.

EDITORS NOTE:

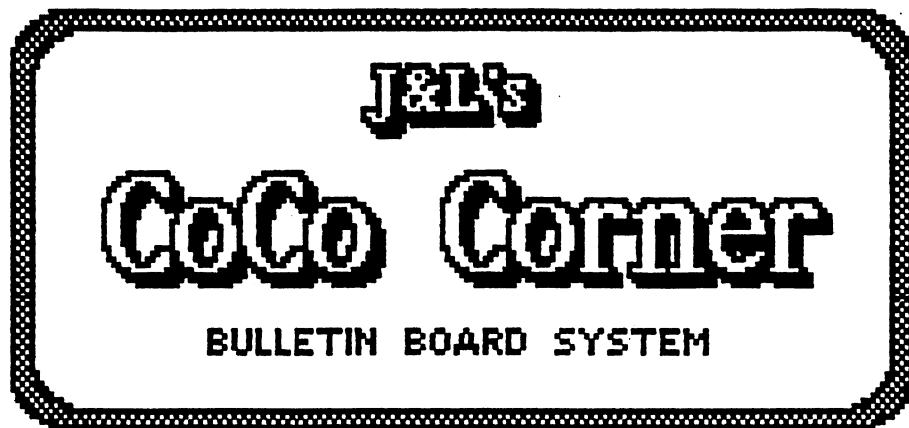
I want to appologize to our readers and to Tom Napolitano that part of the third sentence of the above article is missing. Tom uploaded the file to the BBS and then had to be gone for two weeks. When I downloaded the file the article was in it's present condition and I had no way of getting ahold of Tom to correct it. I felt it was better just to go ahead and print the article as is than to let it sit for a month.

Bernie

While on the subject of OS-9 I was planning on doing an article on getting up and running in OS-9 this month. Robert Gault and I talked at the Planning meeting about maybe both of us doing an article. Well Robert had his article uploaded to the board while I was still experimenting with what you could get into a boot file with 128k. I went thru his instructions step by step, it's GREAT. I was struggling with what commands to include in the boot file and I would never have thought of doing it his way by myself. As I stated in my Presidents column we will be doing more on OS-9 at future meetings. OS-9 is not an easy system to learn, but then this is true of most VERY powerful operating systems. We can learn by doing the exercises we read and by doing some experimenting on our own. Always have backup disks and don't be afraid of trashing a disk by doing something wrong. Keep that last working copy backed up and go for it.

If you have a 128k CoCo and only one Tandy 35 track disk drive and you think you can't get into OS-9, YOU CAN. Backup the original OS-9 system disk and the BASIC09/CONFIG/BOOT disk. They are already set up for your system. They are set for a standard Tandy serial printer also. By making various copies of system disks and deleting unneeded modules and copying other software to the disk you can get started in OS-9. Buy one of the various books on OS-9 and go thru the exercises. Learn, learn, learn, (watch out the TEACHER in me is coming out). There are enough things to do and enough software to do it to keep us busy for the next 10 years of the CoCo's life. And when we learn Level2 OS-9 on the CoCo just think of the power that will be available to us when we are ready to take the next step up to one of the new OS/68K machines. I have also been playing with making new boot disks for my own system. I have been having a lot of fun. I have incorporated Robert's idea of using DSAVE to move all the commands and files from the Original system master to my new boot disk.

Bernie



SUPPORTING THE FULL LINE OF
Tandy Color Computer's

COLOR COMPUTER / COLOR COMPUTER 2
TANDY // Color Computer 3

On line 24 Hours / 7 Days a Week
300-1200-2400 Baud 8/N/1

313 - 292 - 4713

Serving you from Taylor, MI.
System Operator: Jim Snider

SYSTEM RUN ON A COCO-3 W/20 MEG HARD DRIVE



Graphics Utilities Games

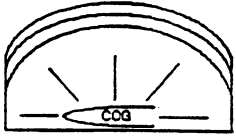
PROGRAMING IN: BASIC-059 LY2-M/L

Hardware Modifications

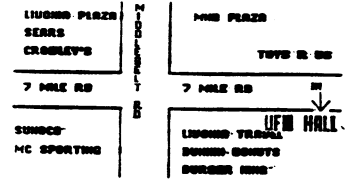
WE HAVE SOMETHING FOR EVERYONE



THIS BBS IS SUPPORTED BY THE
Color Computer Owners Group
THE OLDEST COCO CLUB IN THE DETROIT AREA



C.C.O.G.
COLOR COMPUTER OWNERS GROUP
NEWSLETTER AUGUST 1990



=====

OFFICERS:

PRESIDENT Bernie Patton
VICE-PRESIDENT Larry Schneider
SECRETARY Marcine Glowicki
TREASURER Bob Waite
CORRESPONDING SECRETARY . Robert Gault
LIBRARIAN Jerry Gersky
BULLETIN BOARD (313) 292-4713

INDEX:

- 1. PRESIDENTS COMMENTS
 - 2. MEETING MINUTES
 - 4. EXPERTS CORNER
 - 6. EXPERTS PART 2
 - 10. VIEWPOINTS
 - 12. OS-9
- =====

PRESIDENTS COMMENTS:

The big excitement in the MS-DOS world is windows 3.0. That whole community is excited about something we have been doing on the CoCo for some 4 years now. The thing that I find most amusing is that you have to have at least an 80386SX machine with two meg of RAM in order to do anything useful with it. The people in the MS-DOS world are now shouting look at what this machine can do. And I say to them "OK, How much did it cost you to get that capability?" I can have my 512K CoCo running a Word Processor in one window, Ultimuse3 playing my MIDI instruments in a second window, be using a terminal program to talk to a BBS in another window, have a Desktop manager in yet another window, and keep a fifth

window open for DOS (OS-9) commands and still have memory to spare. And just compare my investment in a CoCo system to what I would have to invest to get these same capabilities with a "Big Blue" or "Compatible". I probably would have to spend at least FOUR times as much. So when people ask me, "Is it IBM compatible?" I usually smile and say, "Thank Goodness it is not anywhere close to being compatible!!" Maybe somewhere down the road I will see a demonstration of some MS-DOS machine that will do what a CoCo will do (Dollar for Dollar). But I have not seen one yet!!! I don't mean that I haven't seen things in the MS-DOS world that have impressed me, because I have. But at what COST????????????????? Bernie

COLOR COMPUTER OWNERS GROUP

This newsletter is a periodic publication of the COLOR COMPUTER OWNERS GROUP of Metropolitan Detroit.

Copyright for all articles in this publication remains with the original author. Permission is given to reprint for nonprofit publications so long as original article is intact with credit to the Author. Requests can be made for downloading articles thru our BBS from other CoCo Clubs wishing to reprint articles. Contact Bernie Patton (313) 283-2474 BBS (313) 292-4713

C.C.O.G Minutes From July 17, 1990 by Marcine Glowicki

The meeting was called to order at 7:30 pm by Bernie Patton. All club officers were introduced to the new faces in the crowd.

A motion was made to accept the minutes from June, 1990. This was passed.

It was decided by the officers to have an open planning meeting that will meet every two months. This will be open to all members. The purpose of this meeting is to set up activities for future meetings and to get the membership to participate. The next date will be announced at the August meeting.

Attention to all BBS users--after this meeting the MA Bell issue is finished. As Bernie pointed out there has been enough said about rates being increased or decreased. This has been given much attention at the last couple of meetings and looks to be a dead issue. Last word is that MA Bell is not planning to increase rates for BBS's or users of BBS's. There were a few BBS's being used for profit which puts them in a different class.

The winners of the membership drive contest which has been going on for the past 3 months are as follows:

- 50 disks to Jim Snider
- 30 disks to Gus Korte
- 20 disks to Bernie Patton.

The club machine was in full operation as of this month. This will put a lot less wear and tear on 3 of the officers personal machines. Thanks to all of these people, Jim Snider for putting all the components into a XT style case, Larry Schneider for donating the COCO III, Julie Hallock and Bob Waite for the drives, Dave Myers for the 512k upgrade board, Bernie Patton for the memory, Bob Humphrey for the disk controller, and anyone else who I have failed to acknowledge.

Bernie brought his data display screen to the last meeting. This makes it easier for the folks in the audience to see what is happening during demonstrations while using the computer. This gadget projects the computer screen onto a large movie screen. Even though it is not in color it still helps.

Gerry Gersky gave an update on the library. We currently have 45 double sided disks available. There are catalogues available so that you can see what's available on each disk. It was mentioned that the people who check out library disks could give a short demonstration when they find something of interest on the disks. This does not have to be long, and it will give other members a chance to see what's available.

At Rainbowfest, Bob Waite purchased 34 disks of public domain programs. These will be in the library shortly??

An update on the Atlanta CoCo-fest was given by Dave Myers. Sounds very interesting. All the booths have been sold out. There will be seminars, vendors, and good times just like at previous Rainbowfests. Dave is offering a package if you stay at the hotel. See your RAINBOW magazine for more details. There will be a doorprize, a MMI.

Bernie demonstrated a program called PrestoPartner. This was reviewed in the July, 1990 RAINBOW Magazine, page 78. Presto Partner is a Desktop Manager. Many different operations could be performed such as notecards, appointment scheduler, phonebook etc.

Robert Gault gave a comprehensive history of COCO publications dating back to the beginnings of the COCO computer. BYTE, 80 MICRO, COLOR COMPUTER, TRS 80 MICROCOMPUTER NEWS, COLOR COMPUTER NEWS, CREATIVE COMPUTING, HOT COCO, RAINBOW, and COCO CLIPBOARD just to mention a few.

The next meeting in August is going to be games. The September meeting will be a hands on for beginning OS9. It would be helpful for you to bring in your system. (Computer, drive, controller, monitor, bus bar((extention cord)), disks, pen and paper.) The article in August, 1989, RAINBOW Magazine might be of interest.

The club collected \$21 for the VFW.

See you at the next meeting!

It is time to finish our Basic09 programming project. (I hope you remember that there is one in progress.) Here are the last two modules.

PROCEDURE recover&list

```
0000     TYPE commands=n:STRING[30]; l:INTEGER
0016     PARAM clist(100):commands; fileread:STRING; last,start:INTEGER
0034     DIM path:BYTE
003B     DIM ans:STRING[1]
0047 1   ON ERROR GOTO 2
0050     OPEN #path,fileread:READ
005C     GET #path,clist
0066     CLOSE #path
006C     start:=1
0073     FOR i=1 TO 100
0085     EXITIF LEFT$(clist(i).n,1)=CHR$(0) THEN
009C         i=i-1
00A8     ENDEXIT
00AC         IF clist(i).l>$1E00 THEN
00C0             start:=i
00C9         ENDIF
00CB     NEXT i
00D6     last:=i
00DF     END
00E1 2   er:=ERR
00EB     ON ERROR
00EE     IF er=216 THEN
00FB         PRINT "File not found. Choose 1) rename file "; fileread
0129         PRINT "                2) quite"
014C         SHELL "tmode -echo"
015B         REPEAT
015D             GET #0,ans
0166         UNTIL ans="1" OR ans="2"
017A         SHELL "tmode echo"
0188         IF ans="1" THEN
0195             PRINT
0197             INPUT "New file name -->",fileread
01B0             PRINT
01B2             GOTO 1
01B6         ELSE
01BA             STOP
01BC         ENDIF
01BE         CLOSE #path
01C4         PRINT "Error #"; er; " has occured."
01E3     ENDIF
01E5     STOP
```

PROCEDURE edit&list

```

0000     TYPE commands=n:STRING[30]; l:INTEGER
0016     PARAM clist(100):commands; last:INTEGER; fileread:STRING
0030     DIM ans,ans2:STRING[1]; name:STRING[30]; savename:STRING
0051     DIM i,count:INTEGER; listpath:BYTE
0062     DIM notfound:BOOLEAN
0069     LOOP
006B         count:=0
0072     REPEAT
0074         PRINT CHR$(5)
007A         PRINT "Select one 1) print command list to screen"
00A9         PRINT "                2) send command list to printer"
00D8         PRINT "                3) delete items from command list"
0109         PRINT "                4) terminate edit"
012A         PRINT "-->";
0132         GET #0,ans
013B         PRINT
013D         UNTIL ans>"0" AND ans<"5"
0151         IF ans="4" THEN
015E             END
0160         ENDIF
0162         IF ans<>"3" THEN
016F             listpath:=1
0176             IF ans="2" THEN
0183                 ON ERROR GOTO 1
0189                 OPEN #listpath,"/p"
0194                 ON ERROR
0197             ENDIF
0199             FOR i=1 TO last
01AA                 PRINT #listpath,clist(i),n,clist(i),l
01C4             NEXT i
01CF             PRINT : PRINT "Hit any key to continue"
note that the above colon actually is a back slash; MaxD won't print it!
01EC         REPEAT
01EE             GET #0,ans2
01F7             UNTIL ans2<>" "
0202 1         IF ERR<>0 THEN
020F             PRINT "Printer is not on line."
022A             PRINT "Hit any key to continue."
0246             REPEAT
0248                 GET #0,ans2
0251                 UNTIL ans2<>" "
025C             ENDIF
025E         ENDIF

```

```
0260      IF ans="3" THEN
026D      OPEN #listpath,fileread
0277      SEEK #listpath,0
0280      REPEAT
0282          PRINT "Enter command name to delete from list."
02AD          PRINT "@ will terminate edit."
02C7          INPUT "Command name? -->",name
02E0          PRINT
02E2          IF name("<"@" AND name("<)" THEN
02F6              notfound:=TRUE
02FC              FOR i=1 TO last
030D                  IF clist(i).n=name THEN
0320                      notfound:=FALSE
0326                      count:=count+1
0331                      clist(i).n:=CHR$(0)
0340                      clist(i).l:=0
034E                  ENDIF
0350              NEXT i
035B              IF notfound THEN
0364                  PRINT CHR$(7)
0369              ENDIF
036B          ENDIF
036D          UNTIL name="@<"
0379          RUN sort&by&length(clist,last)
0388          PUT #listpath,clist
0392          CLOSE #listpath
0398          last:=last-count
03A4      ENDIF
03A6      ENDLLOOP
```

Recently I have been spending much time studying the Weather fax program published in Rainbow Feb. 1985. It may be the best program published for the Coco. It was however written for the Coco 1&2 not the Coco3. I have been converting it over to use the new Coco3 features with the following results: 1) The picture storage have been increased from 55K to 338K; 2) The resolution of the image has been increased by a factor of two each horizontally and vertically; 3) The program works mainly at 2MHz; 4) There is full resolution of the image in the receive mode.

The final image is 1536 by 1760 pixels which is a very big picture. To be able to see it, clearly some sort of pan/scroll must be used. What follows is the information you need to use the technique.

BYTE	BIT	USE
\$FF90	7	1=Coco1&2 0=Coco3
	6	1=MMU enabled
	5	1=GIME IRQ enabled
	4	1= " FIRQ "
	3	1=constant memory at \$FE00up
	2	1=external disk controller
	1	MC1
	0	MC0

MC1	MC0	ROM
0	x	16K internal 16K external
1	0	32K internal
1	1	32K external

\$FF98	7	0=text 1=graphics
	6	-
	5	1=inverted artifact colors
	4	1=composite monochrome
	3	0=60Hz 1=50Hz
	2	LPR2
	1	LPR1
	0	LPR0

LPR2	LPR1	LPR0	lines per character
0	0	0	1 graphics mode
0	0	1	2
0	1	0	three
0	1	1	eight
1	0	0	nine
1	0	1	ten?
1	1	0	twelve
1	1	1	----

\$FF99	7	----
	6	LPF1
	5	LPF0
	4	HRES2
	3	HRES1
	2	HRES0
	1	CRES1
	0	CRES0

LPF1	LPF0	lines per field
0	0	192
0	1	200
1	0	210
1	1	225

Text mode	HRES2	HRES1	HRES0	CRES1	CRES0
32 chr	0	x	0	x	1
40	0	x	1	x	1
80	1	x	1	x	1

Graphics Colors						
640 pix	4	1	1	1	0	1
640	2	1	0	1	0	0
512	4	1	1	0	0	1
512	2	1	0	0	0	0
320	16	1	1	1	1	0
320	4	1	0	1	0	1
256	16	1	1	0	1	0
256	4	1	0	0	0	1
256	2	0	1	0	0	0
160	16	1	0	1	1	0

\$FF9C	7	---
	6	---
	5	---
	4	---
	3	vertical scroll VSC3
	2	VSC2
	1	VSC1
	0	VSC0

\$FF9D	7-0	vertical offset V018-V011
\$FF9E	7-0	V010-V03
		note that there is no V02-0
		that function is handled by
		the vertical scroll

\$FF9F	7	horizontal virtual enable HVEN
	6-0	horizontal offset H06-H00

A powerful feature of the Cocom3 is the horizontal virtual mode. In this mode memory is used as if there was a screen 256 bytes wide by as long as available memory. With 512K memory you could have a graphics screen 2048 by 1760 pixels without interfering with the normal system. That's a big picture.

To see this picture you select the resolution of your window from the tables above and then use the horizontal and vertical offsets to move the window over the picture (or text.) So how do you calculate the offset values?

The vertical offset follows: top left screen byte/ 8 = 16bit value for \$FF9D-FF9E. The horizontal offset is: byte offset/ 2 + \$80 = 8bit value for \$FF9F. For example if the screen were to start at \$1DE00 and then shift 17 bytes to the right the values would be:

\$FF9D-FF9E	\$1DE00/8=\$3BC0
\$FF9F	17/2+\$80=\$88 actually a 16 byte shift.

Weather fax sends data at a resolution of 192 bytes per line, 8 pixels per byte. Each picture is about 15 minutes long at 120 lines per minute. That's 1800 lines or a 1536 by 1800 pixel picture.

The best compromise for the Cocom3 version of the Fax program was to use the HVEN mode and waste 64 bytes per line for a total of 113K wasted bytes. This still permits a picture of 1536 by 1760 which is enough for all fax transmissions except the schedule transmitted at 0000 GMT. While it is possible not to use the HVEN mode, not waste bytes, and save more data, this would not permit proper monitoring of the incoming signal. But there may be a way to increase storage capacity and still use the HVEN mode. If it works, I'll pass the method on.

To some up. The following bytes are set: \$FF90=\$4C, \$FF98=\$80, \$FF99=\$68, and \$FF9D-\$FF9F= vertical & horizontal offsets. This gives a window in two colors 256x225 pixels which is panned over the data storage. The resolution of 256 was chosen because it is the two color mode with resolution closest to 1:1. Any other mode would distort the fax image.

Have you noticed the advertisement in the Rainbow magazine of August 1990 on pages 90 and 91 which displays the Kenneth-Leigh Enterprises and Interactive Media Systems Inc. computer M/M/1? Did you also notice on page 97 of the same magazine issue the Frank Hogg Laboratory computer called the IQ9 Tomcat? These are the so-called "COCO4" category of computers. Both of these computers are supposed to be the bridge between the COCO3 and the new models for the 1990s. The Tomcat advertising indicates that this new computer will run all of your current COCO3 software, both RSDOS or OSQ, if you want to upgrade to such a computer. So your investment in the COCO can continue with such an upgrade if these computer manufacturers obtain enough business to continue producing them; otherwise they would go out of that type of business. Time will tell if their gamble on your business and your gamble on their computers will succeed. In the meantime we will be watching with interest how the future goes with Tandy's COCO3. Club member Karl Sefcik has indicated that any additional information he obtains will be made available to COCO3 club members regarding one of the COCO4 type of models. No doubt we will be hearing more about these upgraded computers from the club members who attend the Atlanta CoCoFest in October which was described in the previous club newsletter.

The article titled "OSQ Survival Training" by J. S. Parker from the August issue of Rainbow which was highlighted during our last meeting was very interesting. It certainly revealed OSQ and what it can do for enhancing our hobby if one has the money to follow that system. For such a "goody" there's a price if you're willing to pay it. If you don't have a copy of J. Parker's article be sure to read it in the Rainbow magazine of August 1989. It is indicated in this paper that the OSQ system is running on many well known computer brands including the IBM compatible models. So any OSQ software you have for the COCO3 should run on these other computers too that also use OSQ. It therefore appears that this is a bridge of compatibility between all of the various computer

models that use OSQ. So there is another good reason to eventually get involved with OSQ when you can spare the time and added investment required.

One of the club members told me how he had lost a lot of information he had placed in his CCCC Buffer through a sudden power failure. That can occur anytime. Also a computer "crash" can occur anytime. Therefore remember to store important Buffer information at frequent intervals to avoid it's loss. In this way you will overwrite previous information and add anything new you have prepared. That way you will avoid it's loss. It's a good habit to have when you're using any computer not only the CCCC. I found the same applies to any of the club BBS information you want to save. If anything in your Buffer looks like you want to keep it save it on your diskette at that time, don't wait until you're through telecommunicating since you could lose it all if there is a computer or power failure.

A reminder especially for new members of the CCCC, the VFW uses your money donations from our club in it's many charitable activities especially concerning unfortunate hospitalized veterans. It's all going for a good cause. The Livonia VFW also collects used books and magazines to give hospitalized veterans. So if any of you want to contribute such, which you would otherwise discard, give them to the VFW Bartender to make some unfortunate veterans happy. Also we owe some thanks to the VFW Bartender because he volunteers his time to open the VFW Post for us and serve us drinks. He gets nothing for providing us this service so let him know you appreciate his efforts for us whenever you can.

The greatest advantage I see of the Color Computer 3 over its predecessors is the high density graphics display. It took additional hardware on the Coco Models 1 and 2 just to get an 80 column screen. I don't know about you, but I personally never want to see another 32 column screen again. The os9 manuals describe in detail the various screen options, and how to set up what are called "windows" having various sizes and other characteristics. You can change the fonts, the colors, even have multiple windows showing at the same time, either side by side or overlapping. The key to managing this flexibility is to sit down and give the manuals a good reading. There is no substitute for knowledge. To start you off this month we'll describe the essential commands for controlling windows, and set up some shell scripts to help us automate some of the gory details.

You recall that an os9 program can manifest itself in any of several shapes. When you type in a name at the os9 prompt, the system treats it as a direct order to begin doing something. The system first looks in memory to see if you have loaded any modules with that name. If there is, it executes the module. If not, it looks in your current execution directory for the same name. Finally, it searches your current data directory for an ascii file of that name and if successful, starts up a new shell (the command interpreter) and tells the shell to treat the file as a sequence of command lines. The shell acts as if the lines of the file were typed in by you at the time the new shell is run. This is a great thing! Instead of rereading the manual each time you want to perform some complicated operation, all you do is read the manual once, put the commands in a plain old ascii file, and type the file name whenever you need the commands executed as a batch. Lets see an example of when this will help us.

First of all, the main command you need to manage windows is "wcreate". Unlike most of the commands discussed in this series, this one is part of the os9 distribution disk. Keep it in your commands directory at all times. Read up on it in your os9 manual. Briefly, the format of wcreate is:

```
wcreate /w5 -s=5 0 0 80 24 1 2 2
```

Where: /w5 is the window number being opened and the parameters following -s= are window type, starting column, starting row, characters per row, number of lines in the window, foreground color, background color and border color. The colors refer to color palettes so the actual colors will vary depending upon how you define your palettes. So the above command will define window 5 to be a type 5 screen (two color, 640 by 196) and filling up the entire screen with 24 rows of 80 characters each. Use your editor to create a file in your root directory called "w22":

```

* Create an 80 column text window using descriptor /w2
wcreate /w2 -s=2 0 0 80 24 3 2 2
* Initialize window
iniz /w2
* Show off the results in the new window
echo Window /w2 >/w2
* Fork an immortal shell in the new window
shell i=/w2&
* Set up colors
display 1b 33 2 1b 34 2 1b 32 4 >/w3

```

Then you can put the command "w22" in your startup file, or run it manually whenever you want to boot your system with an extra window. Make several of these files, so depending upon your application, you can configure your system upon bootup with just a few keystrokes. Use different window numbers for each command file of course. Remember you may not want to start up the maximum number of windows every time, since each takes up several blocks of memory. As an aside, why couldn't you call the above command file: "w2"?

Okey, now suppose you already have several windows set up, but none are of the proper "type". You could "wcreate" another, but remember it will cost you more RAM. Keep the following shell script around for these emergencies:

```

* Close current device window
display 1b 24
* Set device window
display 1b 20 08 00 00 28 18 00 01 02
* Select window
display 1b 21 </1
* Select font
display 1b 3a c8 01

```

Notice that this time we selected a font. You should merge your favorite fonts at boot time in your startup file, or else you will have to do it in the above shell script. Notice too that I am liberal with remarks in shell scripts. This is because the display command takes hexadecimal arguments, and you may want to read them in english six months from now. Comments save you a trip back through your documentation. On my system I call the above file "Gw8" for "Graphics window type 8". I have similar files for the four types of graphics windows, as well as the two types of hardware windows. Thus I can change between window types at will. See if you can figure out the commands for all the window types.

Before closing down for this month lets consider one more problem. Most of the games written for os9 on the Coco use vdg type screens for speed. In order to run them under Multivu, you must set up the screen before running the program. As an example, heres the shell script to start up Sub Battle:

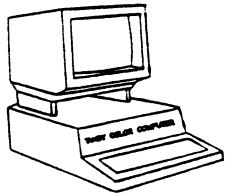
```
echo Starting Sub Battle in Window 15
xmode /w15 type=1; display c >/w15
chd /dd/games
chx /dd/games/sub/cmds; ex sub </w15 >/w15 >>/w15
```

You can guess where I keep my games hidden. Similar scripts are used to run Flight Simulator, Kings Quest and Larry. Rogue however is different. It runs from a type 5 window:

```
Gw5
chd /dd/games/rogue
chx /dd/games/rogue
rogue </1 >/1 >>/1
```

Until next time, keep on windowing.

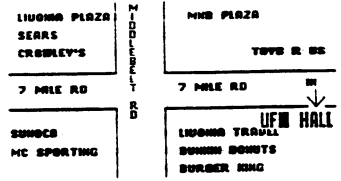
A hand-drawn signature consisting of the letters 'O', 'S', and '9' in a stylized, cursive font. The 'O' is a simple oval. The 'S' is a tall, narrow letter with a slight curve. The '9' is a tall, narrow letter with a small circle at the bottom left.



C.C.O.G.

COLOR COMPUTER OWNERS GROUP

NEWSLETTER SEPTEMBER 1990



=====

OFFICERS:

- PRESIDENT** Bernie Patton
VICE-PRESIDENT Larry Schneider
SECRETARY Marcine Glowicki
TREASURER Bob Waite
CORRESPONDING SECRETARY . Robert Gault
LIBRARIAN Jerry Gersky
BULLETIN BOARD (313) 292-4713

INDEX:

1. PRESIDENTS COMMENTS
2. MEETING MINUTES
3. OS-9
4. VIEWPOINTS
6. BEGINNERS CORNER

=====

PRESIDENTS COMMENTS:

Labor day has signalled the end of summer. It is time for the September meeting. School has started and I have been splitting my time between getting ready for the CCOG meeting and the new class I will be teaching this fall.

Finally got some more info on the MMI. It is included in this issue of the newsletter. I wish they had included information and prices for a hard-drive system. I cannot imagine a system like that without a hard drive. I hope to be able to get up close and personal to one at the Atlanta CoCoFest.

Speaking of CoCoFest it's only three weekends away. Wow has time flown by.

I am typing this article while sitting back relaxed and the keyboard on my lap!!!! On a CoCo????? Keyboard on my lap????? YES. And it's a CoCo

CoCo keyboard at that. Minus the CoCo. The CoCo3 motherboard is currently housed in an XT case. It is being kept company by two double-sided 5 1/4 in. floppys, a 3 1/2 in floppy, and a 42 meg hard drive. Jim put the system together for me. And I have been getting used to it this week. Sure beats having to worry about bumping the Multi-Pak, although I do miss not having the Drive case to use as a coaster for my coffee cup. Jim has done a very nice job of giving me some extra custom items with the system also. The MMI-Pak is built in. Serial Port on a DB-25 and the regular Bit Banger. The keyboard connects to the back of the XT case with DB-25 connectors and a ribbon cable long enough for me to sit back and type away. Bernie

COLOR COMPUTER OWNERS GROUP

This newsletter is a periodic publication of the COLOR COMPUTER OWNERS GROUP of Metropolitan Detroit.

Copyright for all articles in this publication remains with the original author. Permission is given to reprint for nonprofit publications so long as original article is intact with credit to the Author. Requests can be made for downloading articles thru our BBS from other CoCo Clubs wishing to reprint articles. Contact Bernie Patton (313) 283-2474 BBS (313) 292-4713

C.C.O.G. Meeting Minutes from August 21, 1990 By Marcine Glowicki

The meeting was called to order by President Bernie Patton at 7:15 pm.

There was some not so good news about the COCO CLIPBOARD magazine. They have stopped publishing. Those of you who may have a subscription will have two options. The first being back issues and the second disk back issues. This is not great news if you have all the back issues.

Bob Waite informed the club that he had some 36 disks to put into the club library. Dave Meyers also has 14 disks of programs that he obtained. Most of this has probably never been seen in the United States. I believe he said it originated from Australia.

Jim Snider stated that there have been 40 new log-ons on the BBS since the number was published in RAINBOW.

Atlanta COCOFEST is full speed ahead. Steve Bojork is another name to add to the list of seminar speakers.

The next club planning meeting will be August 29, 1990 at Gerry Gersky's. All officers and members are welcome to these meetings.

The next meeting will be educational. You are encouraged to bring in your COCO 3 system so that you can begin making a working copy of OS9. The theme for October will be graphics, November's meeting will be telecommunications along with nominations for next year's officers and December's meeting will include the annual holiday party.

Bob Gault demonstrated a weather program for the COCO which incorporated using a shortwave radio. The demonstration was complete with pictures

Games were also part of the August meeting. Robo Cop and a flight simulator were the games demonstrated by the members.

There was one new face in the crowd, Dave Cohen. 30 people were in attendance.



I must confess that I'm spoiled in having a hard disk os9 system. In fact, if you want to use the os9 C compiler, or the Pascal compiler, you really will appreciate the speed of the hard disk access. More importantly, if you start to build up a catalog of utilities you will find your system disk filling up rapidly. There comes a point where we must face up to the fact that a little housecleaning is called for. Before the days of the 20 megabyte hard drive systems being available for the Coco, my solution was to have not one, but several system disks available, each dedicated to a clearly defined project. First recognize that you only need one boot disk. You use the boot disk only when you first turn on your machine. Consider your floppy boot disk to be useful only for initializing the computer, then remove it and pack it away for tomorrow. The reason for this is that there are several large files on your boot disk that will no longer be needed while operating the system, and getting them out of your way is one way to free up disk space for the really useful utilities. For example, the files "startup" and "os9boot" are no longer needed, nor is "shell", since it is loaded into memory. Other programs, such as "setime" is used in your startup file and normally are not called for again. Look over the programs in your commands directory and you'll see more that you personally never use. Programs such as "config" and "os9gen" are used only to create a new boot disk and are more appropriate for a special "Configuration" disk you can create just for that purpose. Once you have a bare-bones boot disk, build a special "system disk" that will contain a cmds directory with all your frequently used commands. In fact, make several, to be used whenever you work on specific projects. For example, one may have your basic os9 utilities and all commands needed to run "dynacalc", or "profile" or your favorite word processor. If you try to fit everything on one disk, it won't work, but just grab the disk you need, and everything required for that system should be there. Very important note: after booting the system, remove the boot disk, and insert the appropriate system disk. Then don't forget to "chx /d0/cmds" to tell os9 that you have changed the commands directory. Read that last sentence again. I know I will!

So at this point you have all the commands needed at your disposal. If you have a second floppy disk drive, you can use that as your "working disk". Again, you can have different working disks for different projects and programs. Don't try to cram all your data on your system disk (which will fill up fast enough all by itself). You can for example dedicate a working disk for "IRS files" or "picture files" or whatever basic09 program you may be working on. Actually, floppy disks are inexpensive enough that you may never miss that hard disk. Again, don't forget to "chd /d1" if you insert a new data or working disk.

As a parting note, be sure to have two copies of each of your boot, system, configuration and working disks. Think of it as inexpensive insurance. Before shutting down the machine, take five minutes to backup any disks you've used. Someday you'll thank yourself for it.

It is interesting to notice in the latest 1991 Radio Shack catalog that the COCO3 is still being sold. I noticed Jim Snider's statement about this when I logged into the electronic bulletin board system (BBS) that our CCOG club members use. This wiped out all of those rumors that Radio Shack would no longer sell the COCO3 in the future. As Bernie Patton indicated through his "President's Comments" in the August 1990 club newsletter, dollar for dollar we're ahead of the MS-DOS world with our COCO. So the COCO must be a very good computer or it would not continue to be handled by Radio Shack. In the computer world it has lasted a long time and we all hope that will continue. That's why we bought the COCO since we wanted an inexpensive and good computer. Fortunately Radio Shack had that for us and there is a strong loyal group of users who like it and continue to support it.

A recent comment in the Sept. 1, 1990 Detroit News stated, "Computers are high on the list of products that are vastly underutilized, says Mark Williams, a systems engineer with Entre Computers in Farmington Hills. He estimates that most computer owners use only 10 to 20 percent of what's available on their machines, and few ever manage to wade through their thick owner's manual." Possibly some of this is caused by the lack of time available to us to pursue our computer hobby. However where time permits, I am sure there are many more ways you can use your COCO especially if you try to do some programming for your own use. The CCOG club can give you support in your efforts in this regard. You can use your word processing software to write some articles for this newsletter. Your articles would be very welcome. You know that ahead of time. Through the art and music software that some of you have, you too can become an artist or music composer. Here again anything you want to submit would be welcome for your club newsletter.

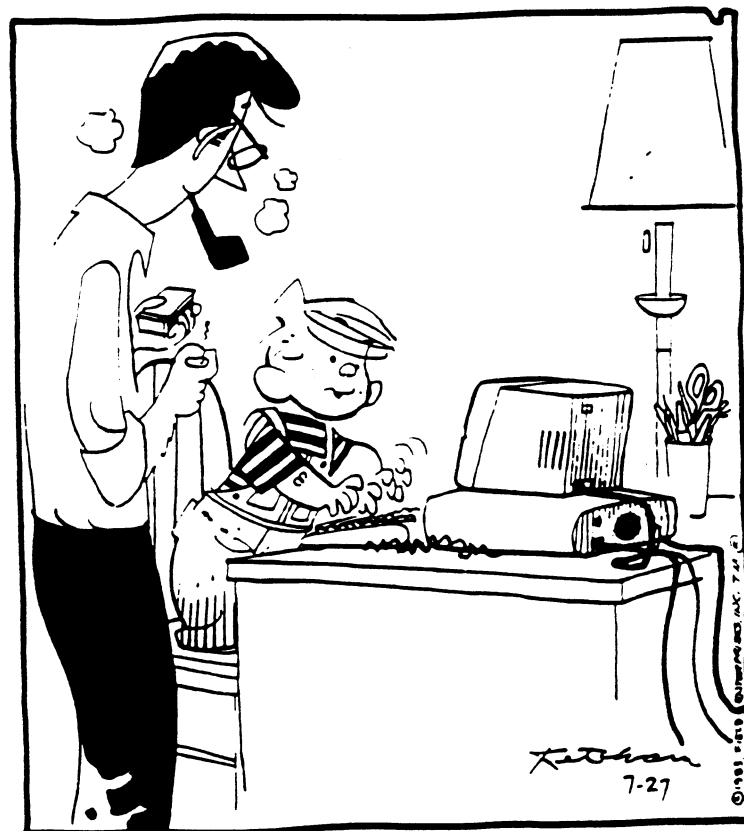
Recently I tried using some software I have. One program by Tandy called Color Profile seemed very useful. Using this one can set up files where you define your record format. Next you design how you want your file record displayed including the entry of data for your record. You can also display your record according to access methods you define to find and list each record. Next you decide the format of how you want your record to be printed. It is an interesting program and I am gradually learning to use it. The software called "Deskmate" also has a program within it to set up files for your home use. They may be available from club member Dave Myers COCOPRO at a reduced price if you're interested.

On page 65 of the Sept. 1990 Rainbow magazine is a full page and impressive ad describing the Atlanta Cocofest to be held in Atlanta, GA on Oct. 6-7, 1990. It will be interesting to hear what our club members

attending tell us upon their return. Karl Sefcik has indicated he will try to give us any new information he obtains concerning the so-called COCO4 computers that will be displayed there when he attends. Also member Dave Myers, of COCOPRO, should have lots of information for us as well about this meeting.

A reminder especially for new members of the CCOG, the VFW uses your money donations from our club in it's many charitable activities especially concerning unfortunate hospitalized veterans. It's all going for a good cause. The Livonia VFW also collects used books and magazines to give hospitalized veterans.

So if any of you want to contribute such, which you would otherwise discard, give them to the VFW bartender to make some unfortunate veterans happy. Also we owe some thanks to the VFW bartender because he volunteers his time to open the VFW Post for us and serve us drinks. He gets nothing for providing us this service so let him know you appreciate his efforts for us whenever you can.



"I THINK IT LIKES ME!"

This month meeting is devoted to OS-9 and next month to Graphics. So I intend to start a two issue project combining Disk Basic, OS-9 and graphics. This month we'll program in Basic09 and next month in Disk Basic.

One of several things that Tandy has never addressed is a command to save graphics screens. This was not much of a problem for the Coco 1&2 with PMODE screens because you could always SAVEM "name",&HE00,&H2600,&HB44A a PMODE4 screen for example. The answer was not as clear in OS-9 Level I and became impossible for most users with the advent of the Coco3 and HSCREEN pictures or OS-9 Level II GFX2 pictures.

Even if you had found a method for a straight byte for byte save, the file size for an HSCREEN2 16 color picture or OS-9 type 7 or 8 picture was 32K; that's seven disk tracks and you still need to save the color and format info.

What is needed is a reasonable compression/decompression routine coupled with a disk storage method.

A recent article "Breaking the 32K Barrier" by Greg Zumwalt, June 1990, Rainbow is a good start on a compression decompression scheme. What is needed is a complete program based on the technique shown.

This will involve using the memory management unit (MMU) and assembly language. After all, you've got to do some work! The results will be worth it, HSCREEN saves at anywhere from 1/33 to 1/3 compression ratio depending on graphics content.

PART 1; BASIC09

In Basic09, high resolution graphics requires the use of windows (or if your are a glutton for punishment a SYSCALL to SS.AScrN which puts the high res. screen in your 64K address space.) There are several ways to create the graphic window: WCREATE, DISPLAY 1B 20 +8 parameters (DWSet command), and RUN GFX2([path],"DWSET"+8 parameters).

To keep things a simple as possible, let's use WCREATE from OS-9 to make a graphics window for Basic09:

```
iniz w1
chd /sys
merge stdfonts stdpat-16 stdptrs /w1
wcreate /w1 -s=8 0 0 40 24 6 1 1
shell i=/w1&
```

This will give a 40x24 text 320x192 16 color graphics window using the standard fonts, 16 color patterns, and pointers. The window will contain an immortal shell. Shift to this widow with the CLEAR key and start Basic09.

Now that we have our window, we can draw on it using the GFX2 commands. Hmmm, but how do we save our picture? There are no GFX2 save/load picture commands.

Part of our problem is that only OS-9 knows where in memory your window is, but don't fear faint of heart. The GFX2 GET command will automatically find your window and load a buffer with graphics data from the specified coordinates. Now the fun starts.

Now move the graphics buffer into your address space with Syscall and SS.MpGPB (map buffer.) The X regs now contains the adress of the buffer contents. And you're ready to save it directly or compress it and save it. Going from disk to the screen is the opposite.

Study the following program and the Rainbow article. Zumwalt asked, "...this technique can produce inefficient result...See if you can determine the conditions" and "how to avoid them." I have assumed he was referring to a pattern byte equivalent to the run length code. Check the program to see how I handled but not avoided them.

Here is a do nothing call to our save routine.

```

PROCEDURE savepic
0000      (* either use the current window or *)
0026      (* select a window *)
003B      (* OPEN #path1,"/w4":READ *)
0057      DIM path1,path2:BYTE
0062      path1:=1
0069      ON ERROR GOTO 1
006F      CREATE #path2,"/d1/screen"
0082      ON ERROR
0085      GOTO 2
0089 1    ON ERROR
008F      OPEN #path2,"/d1/screen":WRITE
00A4      SEEK #path2,0
00AD 2
00B1      PRINT CHR$(50C)
00B7      RUN hsave(path1,path2)
00C6      CLOSE #path2
00CC      (* if path1 is not a standard path, close it *)

```

This routine saves a graphics screen which I have assumed to be a type 8, 40x20, 320x192 16 color graphics screen. Note that the routine expects window and file paths passed as parameters.

```

PROCEDURE hsave
0000      TYPE registers=cc,a,b,dp:BYTE; x,y,u:INTEGER
0025      (* calling program supplies the following *)
0051      PARAM window_path,disk_path:BYTE
005C      DIM regs:registers
0065      DIM callcode,group:BYTE
0070      DIM address,buff_size:INTEGER
007B      DIM i,j,k,ycord:INTEGER
008E      DIM aa,bb:BYTE; xx,yy:INTEGER
00A3      DIM pal(16):BYTE
00AF      (* find our process ID and use for group number *)
00E1      callcode:=50C
00E9      RUN syscall(callcode,regs)
00F8      group:=regs.a
0103      regs.b:=91
010F      regs.a:=window_path
011B      regs.x:=ADDR(pal)
0129      callcode:=8D
0131      (* get palette settings for the window *)

```

```
015A    RUN syscall(callcode,regs)
0169    PUT #disk_path,pal
0173    FOR ycord=0 TO 191 STEP 48
0188        RUN gfx2(window_path,"get",group,10,0,ycord,639,48)
01AF        regs.b:=$84
01BB        regs.a:=window_path
01C7        regs.x:=256*group+10
01DA        regs.y:=1
01E5        callcode:=$8E
01ED        (* map buffer into address space *)
0210    RUN syscall(callcode,regs)
021F        address:=regs.x
022A        buff_size:=regs.y
0235        yy:=0
023C    REPEAT
023E        bb:=1
0245        aa:=PEEK(address)
024E        LOOP
0250            (* bb is the run length counter *)
0272            (* yy is the buffer offset counter *)
0297            yy:=yy+1
02A2        EXITIF aa(>)PEEK(address+bb) THEN
02B4        ENDEXIT
02B8        EXITIF bb=63 THEN
02C4        ENDEXIT
02C8            bb:=bb+1
02D3        EXITIF yy=buff_size THEN
02E0        ENDEXIT
02E4        ENDLLOOP
02E8        (* update current address *)
0304        address:=address+bb
0310        IF bb=1 THEN
031C            IF aa<192 THEN
0328                (* if aa is not the code for run length send to disk *)
035F                GOSUB 2
0363            ELSE
0367                (* set bb to code for run length of zero *)
0392                (* and print code and character *)
03B4                bb:=192
03BB                GOSUB 1
03BF            ENDIF
03C1        ELSE
03C5            (* convert bb to code for run length and print *)
03F6            bb:=bb+192
0401            GOSUB 1
0405        ENDIF
0407    UNTIL yy=buff_size
```

```

0413     regs.x:=256#group+10
0426     regs.y:=0
0431     regs.a:=window_path
043D     regs.b:=$84
0449     (* unmap buffer from address space *)
046E     RUN syscall(callcode,regs)
047D     NEXT ycord
0488     RUN gfx2("killbuff",group,10)
04A0     END
04A2 1   PUT #disk_path,bb
04AF 2   PUT #disk_path,aa
04BC     RETURN

```

Again a do little call to the recover routine.

```

PROCEDURE getpic
0000     DIM path1,path2:BYTE
0008     path1:=1
0012     OPEN #path2,"/d1/screen":READ
0027     SEEK #path2,0
0030     RUN hload(path1,path2)
003F     CLOSE #path2

```

Again the procedure requires passing of path info.

```

PROCEDURE hload
0000     TYPE registers=cc,a,b,dp:BYTE; x,y,u:INTEGER
0025     (* calling program supplies the following *)
0051     PARAM window_path,disk_path:BYTE
005C     DIM regs:registers
0065     DIM callcode,group:BYTE
0070     DIM address,buff_size:INTEGER
007B     DIM i,j,k,ycord:INTEGER
008E     DIM aa,bb:BYTE; xx,yy:INTEGER
00A3     DIM pal(16):BYTE
00AF     (* find our process ID and use for group number *)
00E1     callcode:=$0C
00E9     RUN syscall(callcode,regs)
00F8     group:=regs.a
0103     GET #disk_path,pal
010D     FOR i=0 TO 15
011D         RUN gfx2(window_path,"palette",i,pal(i+1))
0141     NEXT i
014C     FOR ycord=0 TO 191 STEP 48
0161         yy:=0
0168         RUN gfx2(window_path,"get",group,10,0,ycord,639,48)
018F         regs.b:=$84

```

```

019B      regs.a:=window_path
01A7      regs.x:=256*group+10
01BA      regs.y:=1
01C5      callcode:=$8E
01CD      (* map buffer into address space *)
01F0      RUN syscall(callcode,regs)
01FF      address:=regs.x
020A      buff_size:=regs.y
0215      REPEAT
0217          GET #disk_path,aa
0221          IF aa=192 THEN
022D              bb:=1
0234              GOSUB 1
0238          ELSE
023C              IF aa<192 THEN
0248                  GOSUB 2
024C              ELSE
0250                  bb:=aa-192
025B                  GOSUB 1
025F              ENDIF
0261          ENDIF
0263          UNTIL yy=buff_size
026F          regs.x:=256*group+10
0282          regs.y:=0
028D          regs.a:=window_path
0299          regs.b:=$84
02A5          callcode:=$8E
02AD          RUN syscall(callcode,regs)
02BC          RUN gfx2(window_path,"put",group,10,0,ycoord)
02DC          NEXT ycoord
02E7          RUN gfx2("killbuff",group,10)
02FF          END
0301 1      GET #disk_path,aa
030E          FOR j=1 TO bb
031F              GOSUB 2
0323          NEXT j
032E          RETURN
0330 2      yy:=yy+1
033E          POKE address,aa
0347          address:=address+1
0352          RETURN

```

The above is somewhat slow but takes no more than several minutes to save/load a screen. Next time we'll look at the same programs in Disk Basic using assembly routines to do most of the work. Experts can think of ways to clean up the above code to make it run fast as possible. They can also get ready to convert the Disk Basic assembly into OS-9 assembly using the above programs as mode. In case you did not realise it, using SYSCALL is very much like using assembly language.

The CoCo Corner

2211 UNIVERSITY
LINCOLN PARK, MI 48146
(313) 388-6998



FEATURING...



"LYRA" 2.72 FOR RS-DOS 2.82 FOR RGB-DOS HARD DRIVE

COCO-MIDI III COCO-MIDI PRO
COCO MIDI PAK'S LYRA LYBRARY LYRA COMPANION

PAPER DISKETTES DISK FILE BOXES
MAILING LABELS 5 1/4 & 3 1/2 POWER PADS

ATLANTA COCOFEEST

October 6 -7, 1990
Holiday Inn Northlake

As you may know, the traditional Fall gathering of CoCo enthusiasts has been cancelled...BUT, you can make plans NOW to join your favorite CoCo vendors, online pals, and CoCo fans from far and near at the 1st Annual Atlanta CoCoFEEST!

Join us in the sunny Southeast this fall for two days of:

- Exhibits and demonstrations (and special show prices) from leading CoCo vendors such as Microcom, Second City Software, Burke & Burke, Zebra, CoCoPRO!, and MANY others! A GREAT opportunity to "try before you buy" those items you have had your eyes on!
- Introductions of striking NEW products, such as the long-awaited MM-1 from KLE/IMS, and several SURPRISE introductions from other vendors!
- The opportunity to turn unwanted/ unused CoCo soft- and hardware into CASH!
- Free chances to win valuable door prizes, courtesy of participating vendors and the Atlanta Computer Society!
- Fellowship and fun with hundreds upon hundreds of CoCo enthusiasts JUST LIKE YOURSELF!
- Free, informative seminars conducted by leading CoCo experts...covering MANY areas of CoCo interest!

SEMINAR SCHEDULE INCLUDES:

ART FLEXSER (SPECTROSYSTEMS)	_____	EXTENDING THE CAPABILITIES OF BASIC
ED HATHAWAY (2ND CITY SOFTWARE)	_____	DESKTOP PUBLISHING ON THE CoCo
DAN ROBINS (COMPUTER SHOPPER)	_____	WRITING FOR PUBLICATION
J.D. WALKER (SUPERSOFT, INC.)	_____	CoCo-3 GRAPHICS
KEVIN DARLING (INDEPENDENT)	_____	OS-9 / OS-68K

AND MANY OTHER SURPRISE GUESTS!

Tickets for the Atlanta CoCoFEEST are available NOW at a special advance sale price of \$10 for one day, \$15 for both days. And, as an extra bonus... the first 50 people to reserve onsite hotel rooms through us (at the special show price of \$49/night + tax, single or double) will receive a FREE full-show admission with the purchase of two night's lodging! To receive the special room rate, your reservation MUST be placed through CoCoPRO!

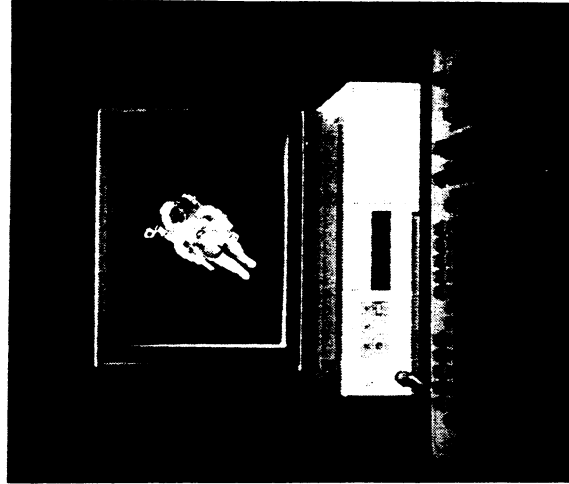
For specially discounted airfare and car rentals (starting at \$17.95/day with unlimited mileage), contact Lisa at CoCoFEEST affiliate Travel Bank of Atlanta-1-800-477-9191.

For tickets, hotel reservations, or further information, contact us at CoCoPRO! 1-313-481-DAVE <3283> (1-8 P.M.. 7 days). Modem users may place ticket/room orders using VISA or MC, by calling our BBS at 313-663-6207 (3 lines, 7-E-1,3-1200 on all lines).

COCO PRO!

1334 BYRON
YPSILANTI, MI 48198
(313) 481-DAVE(3283)

A revolutionary new computer, conceived by you. The MM/1.



MM/1 Personal System

CPU: 15 Mhz Signetics 68070 with DMA
Graphics: Signetics 66470 VSC with on-board pixel acceleration logic with realtime RLE image decoding; displays up to 256 colors
Palette: Brooktree triple 8-bit DAC for 16.7 million colors
Resolution: 320 x 210 (256 colors) to 720 x 540 (16 colors) with a multisynch monitor (up to 640 x 420 with CM-8)
RAM: 1 MB, 100 ns 256 x 4 DRAM, expandable
Floppy: 3.5" 1.44 MB floppy drive with 3ms track access
Ports: 2 serial (one configurable for MIDI), PC keyboard port, RGB-Analog; expandable
Network Interface: iC header (cable and driver available separately), transmits at 100 Kbaud with up to 127 slave MM/1's
Sound: PC sound through monitor cable for CM-8
Software: OS-9/68000 multitasking operating system with windows, PC File Manager, Sequential Block File Manager, Network File Manager, print spooling, C compiler, Basic, text editor, graphics editor, demos and full utility set

MM/1 Extended System Board

Ports: 1 powered DB9 serial, expands to 2 additional serial ports; 2 parallel; DMA SCSI; DMA stereo sound; joystick
RAM: Sockets for 2 SIMMS (2 - 1 MB SIMMs or 2 - 4 MB SIMMS)
Clock: Realtime clock battery-backed with nonvolatile RAM

For the first time, a community has banded together to design their next computer.

The MM/1 Extended can be financed for as little as \$49 per month! Write or call for details.

Interactive Media Systems, Inc.
238 Catawba Avenue, Davidson, NC 28036
(800) 866-9084

©1980 by Interactive Media Systems, Inc. MM/1 is a trademark of Interactive Media Systems, Inc. Other trade names are trademarked by their respective companies.

Interactive Media Systems, Inc. listened to hundreds of Color Computer users to shape the MM/1 into your next computer. Thanks to you we have created an expandable and affordable computer that preserves most of your hardware and software investment.

Powerful Hardware

Using revolutionary technology, the MM/1 gives you crisp, colorful graphics, exciting sound, and sizzling speed. The same CMOS chip set was chosen by Sony and Philips for their Compact Disk-Interactive devices. The MM/1 is built for the future with its optional 32-bit expansion bus that supports high-speed add-on cards.

Your Personal MM/1 comes with two serial ports for your modem, mouse or printer, a floppy drive with four times the capacity of your Color Computer drives (1.44 MB), and a PC keyboard port. The palette controller brings games and graphics to life with its 16.7 million color palette.

The MM/1 features a 15 Mhz 68070 processor with Direct Memory Access (DMA) for smooth multitasking while accessing floppy and hard disks. Using the built-in network interface and Network File Manager software you can connect and share information among up to 128 MM/1's.

The MM/1 Extended adds two bi-directional parallel ports, one serial port, SCSI host adapter for hard disks, tape drives and CD-ROM, sockets for up to 8 MB of memory, and a real-time clock. The 8-bit stereo sound lets you sample and play music and sound, even your own voice.

Compatibility

If you have an RGB-Analog monitor like the CM-8, a PC keyboard, printer, modem, or Color Computer floppy drive, you save money by using them with your MM/1. The industry-standard hardware offers reliable performance and ensures a wide selection of upgrade options.

Affordability

The \$779 Personal MM/1 is an outstanding value. And for \$49 a month, you can put an MM/1 Extended on your office desk.

effective network using Network File Manager. Back up your hard disk to tape with Sequential Block File Manager. Use the PC File Manager to allow your MM/1 disks to work with PCs. And don't forget to enjoy the demos and graphics software. With all this software included at no charge, you are ready for business and pleasure.

IMS leads the industry in bringing new, affordable software to OS-9/68000. Soon you will be able to choose from programs created by our outstanding IMS Developers Association (IDEA). IDEA members include HyperTech Software, Second City Software, SIG Incorporated, Pease Consulting, Bob van der Poel Software, and many others.

Other software available for the MM/1 and OS-9/68000 includes complete accounting systems, advanced graphics, database management, fourth generation languages, and user configurable word processors. IMS is also actively working with Amiga, ST, and UNIX software vendors to bring you the most exciting software available.

Representing you

Interactive Media Systems is the first company to create a sophisticated OS-9/68000 multimedia computer for a wide audience. IMS, in conjunction with IBM, DEC, major universities and the American National Standards Institute (ANSI), is creating national and international hypermedia standards. Our staff comes from major international computer technology firms, and from the Color Computer OS-9 community. The MM/1 and its unique software together make one of the most innovative and sensible systems ever assembled.

Systems

MM/1 Personal (1 MB system board with 2 serial ports, PC keyboard port, RGB-A port, system software, text editor compatible with PC disks, graphics editor, 1.44 MB disk drive, case & power supply) **\$ 779**

MM/1 Pro (Personal with 101 key keyboard) **\$ 859**

MM/1 Extended (Personal, plus extra serial port, two parallel ports, stereo sound port, realtime clock, powered mouse port, joystick port & more) **\$1125**

	MM/1	Mic Plus	Amiga 2000	AT	CoCo 3 and disk
CPU Speed (MHz)	15	8	7.8	12	1.78
Resolution	720x540	512x512	720x480	640x480	640x192
Network interface	YES	No	No	No	No
Languages	C, Basic	None	Basic	Basic	Basic
Multi-tasking	YES	No	Yes	No	No
Base memory	1 MB	1 MB	1 MB	1 MB	1 MB
Color palette	16 million	2	4096	16 million	64
Can use CM-8	YES	No	No	No	Yes
Floppy included	1.4 MB	800K	880K	1.2 MB	2 - 360K
Reads PC Disks	YES	No	No	Yes	No
32-bit bus option	YES	No	No	No	No
PRICE	\$779*	\$1700	\$1495	\$1695	\$740

* Extra-cost option

‡ MM/1 Extended provides additional value for only \$1125

Smart Software

The multitasking OS-9/68000 operating system brings you UNIX-style power to take maximum advantage of the MM/1's new powerful capabilities. Use Microware's Basic to run your Basic09 programs at top speed. The C compiler is a perfect language for professionals and students, creating efficient code in a friendly environment.

At last there is an exciting personal computer that is also a good choice for business. You can build a cost-

C.C.O.G.

COLOR COMPUTER OWNERS GROUP

Oldest COCO Club in Metro Detroit
Meetings the third Tuesday of each month
7:00 PM — 9:30 PM

LIVONIA VFW — 7 MILE & MIDDLEBELT
SIDE DOOR — "THE FOXHOLE"

Join other COCO owners for Hardware and Software demos,
Public domain Library, Discounts, and general knowledge exchange.

1990 Meetings

Jan	16	Jul	17
Feb	20	Aug	21
Mar	20	Sep	18
Apr	17	Oct	16
May	15	Nov	20
Jun	19	Dec	18

MEETINGS INFORMAL AND OPEN TO THE PUBLIC

Contact: Bernie @ (313) 283-2474

or
BBS @ (313) 292-4713

