

# NIBBLES & BITS



THE COMPREHENSIVE MONTHLY NEWSLETTER FOR THE ADAM COMPUTER

OCT 88

"THE THRILL OF VARIETY WITHOUT THE AGONY OF REPEAT"

issue #25

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DESIGNED and PRINTED with the amazing ADAM™ computer (using PowerPAINT, SpeedyWrite, and ShowOFF II).

## PUBLIC NOTICE

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## GENERAL INFORMATION

Most issues include a special offer on software purchases; these are explained as time limited offers. If you receive N&B outside the North American continent (Australia, Israel, England, and South Africa, for example), we will extend these deadlines to you by 30 days.

If you have products or services of interest to ADAM owners, please let us know. We try to keep our readers apprised of all the latest news concerning the ADAM. We also offer half page (7" across by 4.5" down) commercial advertising slots for \$50.00 per issue (effective April 1, 1988). "Camera ready" artwork must be received at least 30 days prior to the first day of the issue month. Circulation: 2400+.

Product orders are processed within 48 hours of receipt. Where possible, orders are shipped via UPS. Backordered items are shipped at our expense. Order processing may be delayed by legal and traditional holidays. C.O.D. orders (via our BBS) add \$2.50 for the service.

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# BEGINNING WITH GO-DOS

by Solomon Swift



What will GoDOS do for you? What are the advantages of using this DOS over EOS or CP/M? Will there be much support software for the new system? What is the desktop metaphor?

From the programmer perspective, GoDOS makes it possible to write powerful software with the ubiquitous desktop user interface. And with more than 400 system control routines built right into the operating system, sophisticated programs can be written in less than half the time it would take to do so from scratch. In fact, GoDOS more closely resembles a super-fast programming language than a mere operating system. Everything is included. You get the full range of floating point math functions (SIN, COS, etc.), the standard system controls, I/O setup for all the known peripherals, file handling functions, interrupt driven and song table routines, the whole gamut of graphics from text entry and pull down menus to vectored and bit image shapes, plus just about any routine the programmer would want to have ready access to. There are so many integrated routines, in fact, that we'll probably release a new language, GoTALK, later in '89 for more advanced programmers. Still in the planning stage at this point GoTALK should be something like a hybrid of C and Assembly.

Now from the user point of view, the two big advantages are the very easy-to-use menu structure and the fact that so much software is already planned for it. And, the support software will be much more powerful than anything we know of for the ADAM. GoDOS itself is about 32K. This leaves 32K for an application program (with all the built-in routines, that is a LOT of programmable RAM). The system is setup to use at least a 64K memory card which is employed as the workspace for the application program (providing a 63K workspace for any program, even GoBASIC). If a larger expander is installed, the excess memory is automatically utilized as a super-fast RAMdrive.

Let's take the upcoming GoCALC for example. With all the GoDOS routines, GoCALC would only need about 10K to offer all the same options as ADAMcalc. But, there's more. You have access to a 63K workspace meaning that you can use virtually every cell of the 255 by 255 matrix (with ADAMcalc, you have about a 12K workspace). Plus, GoCALC will offer true graphic representations of data and permit sideways printouts of spreadsheets among other coveted features.

Another nice feature of GoDOS for the user is desktop accessories. These are like miniature programs that you can run while still in another program. As an example, you can temporarily leave virtually any GoDOS application program to access a graphic clock or graphic calculator. Perform the needed functions, exit the desktop accessory, and return to the application program right where you left off with the workspace fully intact. With the calculator, you can even take any of the seven memory totals and put the value into your workspace file.

We will begin shipping GoDOS on the first day of November. By the time you get the November issue of N&B, everyone who ordered GoDOS should have it. Next month, we'll go into more detail on using the new graphic operating system.

We'll offer a special introductory price on our GoDOS combo (GoDOS, GoWRITER, and the GoDOS technical reference manual) one last time. Order all three for just \$45.95 saving six dollars off the individual prices. To qualify, your order MUST be postmarked prior to November 1, 1988 -- also, for those who have been waiting for a while, we have a surprise program coming out with GoDOS.

# ADAM NEWS AND UPDATES



□□□ We've added three more volumes of graphics to our PD library. These are N&Bpix20 and PaintMATES 12 & 13. There is now close to 2000 ready-to-use PD graphics available for use with PowerPAINT. Much more is on the way.

□□□ Ron Collins is now our CP/M librarian. He is compiling volumes of related programs with doc files for us. These programs will be ready-to-run (no complicated DELIBing or UNARCing for casual CPMers). We'll have his first two volumes next month.

□□□ From time to time we are asked why anyone should buy the commercial art volumes available for ADAM when there is so much artwork already in the public domain. First, with the commercial products you get original artwork -- exclusive to ADAM. Second, you generally get much better quality artwork in the commercial volumes. And you usually get a much better price per graphic with the commercial packages. For example, with Jim Notini's (Wizard's Lair) CLIP ART volumes you get 40+ clips; with the PaintMATES volumes you get just around 20.

□□□ Steve Pitman has just released another excellent game, Ghost Zapper. "Mind Over ADAM" is an intellectual challenge. This one is an extremely fast paced arcade-type game in which you shoot ghosts that pop up randomly within detailed graphic rooms. See our review in this issue.

□□□ Lately many readers have asked us if we would start printing N&B on another computer or start pushing another computer (like the Amstrad) thru N&B as some publications have started lately. In a word ... NO. We believe that N&B subscribers are interested in ADAM -- this is why we design and print the newsletter on an ADAM and offer it as a newsletter for ADAM owners. We have one specialty ... ADAM and the system just keeps getting better and better.

□□□ Tom Clary has just released another patched version of ADAMlink. ALIII+ has Xmodem and ASCII file transfer, 36 or 80 columns (requires OBS 80cvu), and works with the Coleco internal modem or a Hayes compatible connected thru the EVE or OBS serial port. We'll have more details next month.

□□□ E&T SOFTWARE is now planning to offer two options on their hard drive for ADAM. They will also offer the interface separately allowing the consumer to shop around for a 10 or 20 MB hard drive.

□□□ The "gHAAUG NEWS", published by Terry Fowler, is changing its name to THE ADAM INTERNATIONAL NEWS on the first of January, \$20 for an annual subscription (10 issues). Write to:

ADAM'S HOUSE  
Route 2, Box 2756  
Pearland, TX 77581

□□□ MW RUTH'S Christmas catalog has gone to press. They should start their Christmas mailing to the 50,000+ on their ADAM list in the next few weeks. To be included, request same from:

MW RUTH Company  
3100 West Chapel Avenue  
Cherry Hill, NJ 08002  
(609) 667-2526

□□□ MOAUG is working with a firm to fill ADAM printer ribbon cases with colored ribbon. But, they need ribbon cases. They will pay 50 cents each for old ribbon cases. They'll accept donations, too; they'll send you a free colored ribbon for six ribbon cases. The ribbon can be worn out or missing, but the spool should be intact. Send to:

Pat Herrington  
1003 Oak Lane  
Apopka, FL 32703

□□□ Would you like to surprise a fellow ADAM owner with a subscription to Nibbles & Bits for Christmas? We'll add a complimentary issue to your personal subscription if you do. Just send his/her name and address along with their annual subscription fee. Limit one gift offer per subscriber.

□□□ Note ADAMzap's ad in this issue. They have now decided to not publish the NetworkADAM NewINFO newsletter. They do plan to release two new games for ADAM later this Fall.

□□□ TCR Software has released Super BASIC Plus. This interpreter is modified from the PD French BASIC (originally called Super BASIC); this release offers fixes to bugs in the PD version as well as many new enhancements. It is available for \$24.95 plus S/H only thru:

Computer Quorum of America  
Route 2, Box 14-B  
Spring Mills, PA 16875-9720

□□□ Superior Software has just released LinkBuilder for use with their popular ProGolf Champ. LinkBuilder lets you make your own golf courses for use with the game.

□□□ Here are three new software packages expected to be released within the month of October.

Temple of the Snow Dragon  
by DIGITAL ADVENTURES

SpeedyWrite 2.0 Online Dictionary  
by White Software Company

GoDOS Graphic Operating System  
by DIGITAL EXPRESS

□□□ Until the 15<sup>th</sup> of November we're offering two product specials. With any product order over \$15, we'll include 25 paper 5.25" disk envelopes free. Also, we'll give you a free blank 5.25" DS/DD diskette for each increment of \$25 in your product order. For instance, if your subtotal is \$51, you're entitled to TWO free disks. Be SURE to mention the offer on your order form.

□□□ Here are two firms that now offer a memory console repair service for ADAM. Write or call for details.

ADAM'S HOUSE  
Route 2, Box 2756  
Pearland, TX 77581  
(713) 482-5040

ALPHA-1  
1671 East 16<sup>th</sup> Street, Suite 146  
Brooklyn, NY 11229  
(718) 692-4120

□□□ OrphanWare now has the Z-SYSTEM enhancement to CP/M 2.2 available for \$69.95 + S/H. This powerful utility adds multi-tasking, windows, better user area control and full compatibility with ZCPR compatible software.

□□□ For a wide range of CP/M based software for ADAM, contact Elliam Associates. Send one dollar for their large catalog.

P.O. Box 6922  
Los Osos, CA 93412

□□□ E&T SOFTWARE plans to market a new disk drive arrangement later this year which will run two disk drives off of one controller board. The two drives will be housed in one full height unit.

□□□ "The ADAM Connection" is a new ADAM support firm headed by Steven Major. To get their latest catalog, write to:

P.O. Box 562  
Champlain, NY 12919

□□□ Those in the Toronto area may wish to contact the following new user's group:

MTAG  
260 Adelaide East  
Toronto, Ontario  
Canada M5A 1N0

□□□ If you've been looking for a numeric keypad with full-travel keys (just like the keyboard), Mel Ostler's modification may be what you need. Send him an ADAM keyboard, and he'll make the connection and install the removable keypad for only \$54.95. Write to:

3217 Mesilla Hills Drive  
Las Cruces, NM 88005

□□□ Here are two ADAM owners with systems and/or components for sale. Send an SASE for details. We will also announce detailed lists on our ADAM NEXUS BBS for anyone interested in selling used computer components.

Jose A. Dieppa  
2126A North Carolina Avenue  
Homestead AFB, FL 33039

D.L. Ewing  
1930-172 West San Marcos Blvd.  
San Marcos, CA 92069

□□□ From time to time we update our commercial and PD releases. Here's a list of the latest such updates. On commercial titles, we offer free updates within six months of purchase; three months for PD software. S/H is free if placed with a product order, otherwise add \$2.50 for return shipping. Be sure to send the original DDP or disk.

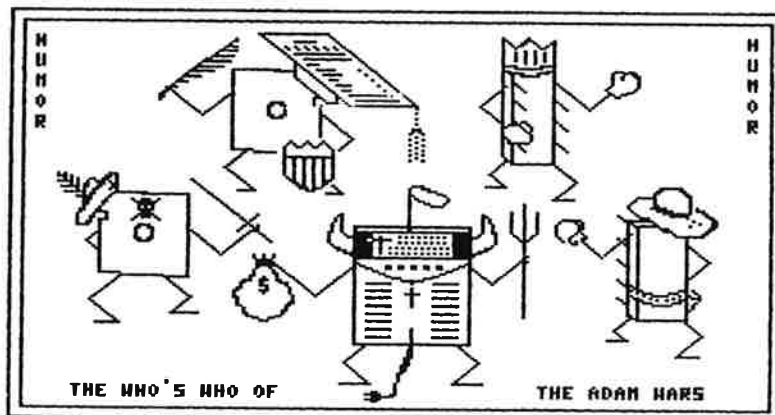
"PaintMATES04" 'CagedBird' now okay.

"PaintMATES09" 'AllClips' shows "09".

"SwiftPRINT" bold lower case fixed.

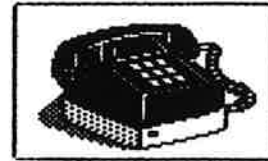
"SwiftDISK" works fine with SmartWriter with just a 64K card.

"SB 80 2.3" inits RAMdrive if not already in EOS format and lets you select NMI or card clock.



# OVER THE PHONE LINES

by David E. Carmichael



## ON-LINE GAMES

One of the things that make COMPUTER TELECOMMUNICATIONS fun is the fact that you can play games! These can be role playing games like DUNGEONS & DRAGONS™ or even arcade-type games.

Here in Wichita at last count there were over twenty different role playing games in progress at any one time. One of the most widely played games is called "DIPLOMACY" where you try to become the ruler of the world. The second most popular game is called "MURDER HOTEL" where once you have entered the hotel the only way you can leave is to eliminate one of the other system users that the main BBS computer assigns to you. "M.H." plays much like an INFOCOM text game with the exception that you have a limited number of moves per computer call. But, while you are looking for some other system user in the hotel's rooms, some unknown user is also looking for you. I have played "M.H." on systems where you had as many as NINE HUNDRED ROOMS to search and with as many and TWO HUNDRED other players. But I have also called systems that had as few as ONE HUNDRED ROOMS. The number of rooms that the hotel has is based on the size of the hard disk that the BBS system is running from.

The arcade-type games range from the casino style card games to graphic shoot-em-ups. While most of the computer systems that support these games are for the COMMODORE or IBM compatible computer systems with on-screen color graphics there are also a number of games that can be played by any computer user using any form of telecommunication software package. And, these games are pure text in form.

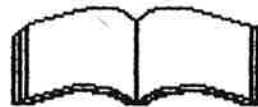
One of the most common of these is "BLACK JACK - 21" where it is you against the BBS's computer. Another popular one is "WHEEL OF FORTUNE" guess the word/phrase type games.

These forms of games are fun to play; but, the best ON-LINE GAMES are the ones that place users against users. For the IBM based computers there is a graphic "AIR DOG FIGHT" that is played by two users that call each other up from their homes to play.

While ADAM has been left on the bench and unable to play most ON-LINE GAMES Alan Neeley of "A-NET BBS" fame has been able to add a one-player SLOT game to his program. I am sure that this is only the first step towards Alan (and maybe others?) being able to add games to their BBS's for the enjoyment of their local system users. Only time will tell!

# ADAM LORE

(PART ONE)



by Richard Lefke

"Eighteen months ago, amid immense hoopla, Coleco's ADAM computer was born and immediately heralded as a device of such innovation that it prompted at least one competitor to shelve its new computer; yesterday, without much more than a sigh, ADAM passed on."

Well, as we all know, ADAM didn't "pass on" as Stephen Williams reported in the January 3, 1985 *Long Island Newsday*. You may recall from last month's column that I've just moved; while cleaning out my file cabinet I began to run into "ADAM nostalgia" and thought, for the benefit of those who didn't own an ADAM during its turbulent beginnings, I might recap some of its history.

A lot of the information printed about ADAM in its early days was in a negative light, which supports what I've always said, and that is, that "ADAM was a victim of bad marketing, NOT bad performance!" Yes, it was true that early manufactured ADAMs had problems. Most of the earlier problems were in the ADAM printer and its ROM software and its unique Digital Data Drive. Perhaps if COLECO had taken the time to properly work out ALL of ADAM's bugs before its introduction to the public in the beginning ... well, no use in discussing what might have been. I quote again from the above named article, "But once the word got out about bugs, people just didn't trust ADAM."

Well I did! I bought my first ADAM (expansion Mod #3) in late November 1983, and the ONLY problem I had, besides finding software, was when I inadvertently opened up the digital data drive door while *Buck Rogers* was running! I remember it being the second day I had ADAM and how I sat there, with this mass of tape in my hands, wondering what the heck I was gonna do now! I called COLECO's toll free number, and they told me to send it to them and they would fix it and send it back! They did! I owned that ADAM until May of 1985, when I sold it and bought a stand alone. I have NEVER had any problems with the stand alone. So if there were problems in early ADAMs, I sure wasn't aware of it! In fact, I have yet to hear from anyone who bought these early ADAMs and had problems. Anyone still out there? I'd love to hear from you!

Digging through my files, I also came across the February 1984 edition of *Consumer Reports* which compares the Atari 600XL, Commodore 64 and TRS-80 Color Computer 2, to ADAM. ADAM certainly was a sensation in the beginning! The ratings were interesting to study. For instance, the Atari and TRS-80 were only 16K at that time, and ADAM was the ONLY one in the group expandable to 144K, obviously ahead of its time! The ADAM keyboard was judged "superior" and "by far the most complete." CU said "ADAM's unique tape system represents a substantial improvement over standard cassette storage systems." Then it goes on to mention the bugs in the data drives of the first couple of ADAMs they bought to test. Overall, ADAM got excellent marks on its user manuals, print quality, and ease of use. However, again and again the articles make mention of early bugs and lack of software. In its conclusion CU states, "There's a lot to be said in favor of the COLECO ADAM", and finishes up with, "and it's obvious that COLECO rushed production in order to have ADAM in the stores before Christmas."

Bad product or bad marketing? You be the judge.

# PROTECTING YOUR WORK

by Solomon Swift



With so many new firms supporting the ADAM and many more new ones on the horizon, I thought it might be a good idea to pass along some of what I've learned regarding copyrights and legal precautions and protections. I'm not a lawyer; I've learned from experience -- the same way I've learned to program. In fact, if there is any such creature, you could safely refer to me as a regular customer of the Copyright Office. Nonetheless, I'd like to reiterate that I am not an attorney.

I'll start off with a quick overview of the various options available and then discuss each one in more detail. Also, I'll entertain questions submitted by mail or on the ADAM NEXUS BBS for future articles in this series.

A COPYRIGHT protects the expression of an idea; not the idea itself. Copyright registration is relatively easy and inexpensive to obtain. PATENTS protect the idea itself; obtaining a patent requires a sizeable financial investment and can take many years in the process. In fact, the life expectancy of most software is shorter than just the time it takes to obtain patent registration. For this reason, patents are generally more useful for hardware. A TRADEMARK protects the 'name' of your program or computer attachment. In addition to these three registrations with the government, there are additional options for protection such as trade secrets, contracts, and, yes copy protection schemes.

## COPYRIGHT PROTECTION

A copyright protects the expression of an idea, not the idea itself. For instance, the concept or idea of a word processor can not be copyrighted; only the actual application of that concept can legally be protected. By the same token, the concept of a RAMdrive utility can not be copyrighted (RAMdrives have, by the way, been around for almost as long as there have been personal computers). The unique application of that concept in the form of source code can, indeed, be copyrighted.

What is source code? This is the actual program as you create it. If you're programming in Z80, the source code is your Assembly language file. If you're programming in BASIC, the LIST is your source code. (Actually, you may deposit the object or the source code. In Z80 the object code could just be a HEX dump of the file.) With your copyright application you will be required to make a deposit of a copy of this source code for government records (for reference in case you have to go to court).

There are two basic copyright forms for software developers. Form TX is for registering a copyright on the source code of a program. Form PA allows you to apply for an audio-visual copyright on the software. How much does this legal protection cost? Are you ready for this ... ten bucks each!!! You may obtain the copyright applications by requesting same from the following address or, simply, by calling the phone number leaving your name, address, and application request on the answering machine.

Register of Copyrights  
Copyright Office  
Library of Congress  
Washington, DC 20559  
(202) 287-9100

There is certainly much more to discuss with regard to copyrights; I'll continue next month. But, let me conclude with this. You do NOT have to wait for permission or your registration certificate to come back from the Copyright Office in order to place the official notice of copyright on your material. And you may publish (sell) your software prior to receipt of the certificate. A copyright registration is effective on the date that the application, fee, and deposit (program code) are received in acceptable form by the Copyright Office. Be sure to display the notice (copyright word or symbol, year, and copyright owner) prominently within the program and documentation (this information must be readily visible to the end user).



# CARE OF YOUR DISK DRIVE

by John R. Lingrel



I've been in computers for longer than I am willing admit to. I remember starting with the "TRS-80 Model 1" at about \$750.00. Think of it, 4K of memory with BASIC in a ROM and data transfer speeds that even Christopher Columbus could beat on a balmy day. Then out of the west rode the WHITE KNIGHT bringing with him the greatest addition that we could hope to add to home computer, "THE FLOPPY DISK DRIVE". With it came moderate amounts of storage, and our data transfer was up to the INDY 500 in speed. And wouldn't you believe it, on the first day that the first home computer took home the first floppy disk, a can of COKE™ got spilled on the first floppy diskette. And so starts the story on how to feed and care for your floppy disk drive.

The drive itself has a multitude of enemies, the first of which is the user. We are rushing headlong into an attempt to destroy the things right out of the box. How many times have you bought a new drive and pulled it out of the box, connected it to the computer and jammed a disk into the opening? Bad Plan! Before you ever use a disk drive that is new, or even a used one that you purchased from a friend, please inspect it for objects inside that could prove fatal to your investment. Pieces of packing material can find their way into the head area and in certain circumstances, the movement of the disk can force them against the head assembly and actually knock the head alignment out of whack. Once you have the drive inspected and feel that the chances of foreign object damage are null, hook it up per the manufacturer's instructions. Make sure that all the connections are tight and in the proper place.

Now that we are properly connected, the next step is throw in the a copy of a program that we dearly love, and try it out. The activity light comes on, the motor whirrs, and the disk gets spit out like a wrinkled piece of newspaper. Point here is make sure that you first put in a "RAW" disk and format it before you put anything of value into the drive. This will give a good check of the drive's ability to read and write to a disk and to properly format. If your format utility has a verify feature, by all means use it. If you get past this point, it is now time to put in a program that we are very familiar with. Boot the program and make sure that all menus and screens come up properly. This little check may save you a lot of time later. If you are now confident that the drive is working properly, go ahead and use it. Try, if you can, to keep track of the date installed and anything that you may have noticed about it that might prove to be handy information later on.

Once in use, the disk drive requires very little. It does have three mortal enemies that we must contend with. These are: (1) food, (2) drinks, and (3) cigarettes. You must keep these items away from the disk drive at all times. I have worked on many drives that only required that I clean the nicotine from the heads, and I have seen them where they were almost like sugar inside where someone had spilled soda in the drive. (It really happens.) If this does happen, it is best to send the drive to a repair shop. Preventing trouble here can save you literally hundreds of dollars later on.

Now that the drive has been running for a month or so, what can we do to keep it purring. Simple; keep it clean, both inside and out. Pay attention to the warnings about keeping air vents clear, clean the exterior with a mild detergent solution. (Don't let it seep inside the drive!) Last is the use of a high quality disk head cleaner. These are available in most computer stores for a few bucks. They should be used about every six weeks with moderate use, more often if you are a heavy user. Keep track of the number of times that you have used the cleaner disk, and follow the manufacturer's recommended cycle to get rid of it and get a new one. Typically, the good ones are useful for about 12 to 15 cleanings. When you have done all of the above, you should be rewarded with a good running drive and years of faithful service.

If, however, the drive goes south in spite of your efforts to keep it running, pick your repair shop based on the ability of that shop to repair your brand of drive and the responses you get from your friends on a good shop. In the ADAM community, we are pretty much limited to mail order repair. For the purpose of this article, I will not say that one is better than the other. But when you do send it in for repair, make sure you send a good description of the problem and make sure that you mark your name and address on the drive. Don't send power supplies or cables unless they are suspect of being bad. They cost more to ship and will sometimes get lost in the shop. (I know, I run a disk drive repair shop and I have lost them.) And one last thought for you to consider. Smoking is harder on your disk drive than it is on your lungs. Of course, the end result for both you and your drive are the same. And it works quicker on the disk drive than it does the lungs. You can take 20 years to kill yourself, and about 3 months of smoking around the computer to kill a drive.

# ADAM/IBM COMPATABILITY

by Ed Costello



I am currently operating the following ADAM system: 512K XRAM card, color RGB AMDEC monitor, two tape drives, two disk drives, one EVE 80 column unit, standard parallel and serial boards, EVE voice/clock unit, and a 1200 baud external modem. However during the last several months there has been so much new hardware and software coming available for the ADAM that it is becoming as powerful as any IBM or IBM clone system. Between the original purchase of my ADAM and now, I've also purchased an IBM PC/XT system (in order to bring work home). Since that time I've been finding different ways of exchanging data between the two systems. It has gotten to the point that I'm doing a good percentage of my ADAM CP/M work on my IBM.

## IBM SOFTWARE

There are two very good software packages available. The first is **SMART DISK** by Software Research which retails for 50.00 dollars. The second is public domain package called "**MSDOS-CPM/80 INTERFACE: CPM LOVERS!**". It is available through Pan-World International for \$3.99. Their address is: Pan-World International, 422 Halsey Road, North Brunswick NJ.

**SMART DISK** contains an ADAM-CP/M format allowing you to put ADAM diskettes on an IBM PC and read them, delete files, and transfer the files to IBM DOS. This is a big help if you are downloading large ADAM ".LIB" files from CompuServe or other BBS's. I've downloaded files on ADAM, transferred them to my IBM system, DELIBed and UNARced them there, and then transferred them back again to my ADAM. **SMART DISK** also formats ADAM disks on your IBM system. **SMART DISK** currently converts over 257 different CPM formats to IBM MS-DOS.

"**MSDOS-CPM/80 INTERFACE**" allows you to transfer information between and emulate MSDOS on an IBM system. This package, however, only has 33 formats for conversion to IBM compatibility. This package did help me in converting an Osborne CPM format not available on **SMART DISK**. I converted WortStar, MBASIC, CBASIC, and Deadline Text Adventure to IBM format. Then I was able to format all the originally Osborne CPM programs for use on my ADAM.

## OVERALL REQUIREMENTS

Here's the minimum hardware and software needed for the ADAM: at least one disk drive, CP/M 2.2, and a good modem program (preferably IMP.COM). For the IBM you need a 256K or higher CPU, 2 floppy disk drives (or one floppy and one hard drive), and **SMART DISK**, and **MSDOS-CPM/80 INTERFACE**.

# CONTROLLING THE MODEM

by Alan Neeley



## COMMANDING THE MODEM

Let's discuss some of the more useful values (or commands) that can be sent out to the control port. This is a good place to introduce the machine language routine that is used to send your command to the control port.

```
LD  A, (CONTROL BUF)
OUT (CONTROL PORT), A
RET
```

Keep in mind that the CONTROL PORT is "95" and the CONTROL BUF is the particular ADDRESS in memory where you are POKing your value (or COMMAND) that you wish to be sent to the control port. Translating this Assembly routine into decimal values that can be used in DATA statements for SmartBASIC we end up with the following (address 28013 is used for the BUFFER address).

```
58,109,109,211,95,201
```

Now for those who are accustomed to working with ML routines in this form, I will offer some hints. Look at the 6 data elements above. Only 3 values are of general interest. The second and third numbers are the LO and HI byte values of the address where the value that you wish to be sent thru the control port is located. In this case, both numbers are 109 ( $109 \times 256 + 109 = 28013$ ). The 5th value indicates what port the value found at address 28013 will be sent to (of course, the number located here is 95 indicating the control port). Now let's discuss some of the useful commands.

## INITIALIZING THE ADAMlink MODEM

Before you can begin using the internal modem, you must set it up properly by initializing it; this is done by sending three values (or commands) to the CONTROL PORT. The three commands are HUNT MODE (128), RESET (64), and the PARAMETER SETTING (character format).

## SETTING THE PARAMETER

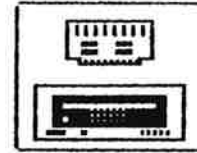
If you've use a modem to any extent, you are aware that the parameters must be set properly to communicate with various bulletin boards and other computers through your modem. The two most universal settings are 7-E-1 (7 data bits, even parity, 1 stop bit) and 0-N-1 (8 data bits, no parity, 1 stop bit). The modem value that represents 7-E-1 is "251" (with the NULL bit set) and the value for 0-N-1 is "79". These values can be quickly calculated from the two tables presented last month. The parameters must be set during each initialization process (it is the third value sent). After this, the parameter setting can be changed again at any time by sending the correct value for the desired setting to the control port.

## ANSWERING THE PHONE

To command the ADAMlink modem to answer the phone and connect the carrier signal you must send two values to the control port. The first value that is sent is "7". This commands the modem to go into answer mode (this is just like taking the phone off the hook). The second value that is sent is "39". This tells the modem to send out the answer mode signal and connect the carrier if it detects the originate mode carrier signal.

# WHAT TO BUY

by Ron Collins



(continuing from last month...)

Well, now that you have that memory expander, you still have a problem. Should you make a disk drive or a printer interface your next purchase? I'd recommend the disk drive first. The combination of a disk drive and a memory expansion board will open up new programming capabilities. If you consider the cost of data packs against the cost of diskettes, you will soon find the higher cost of a disk drive to be more than offset by your savings in media purchases. While on the subject, I must say that my preference is for the double-sided drives with a 320K capacity. These will allow you to get the most data storage on a 5.25" floppy. The larger size will also make using programs such as WordSTAR™, SuperCALC™, and other top of the line CP/M programs a real treat.

The next hardware item I would suggest is actually 2 items. The first is a good quality dot matrix printer. The Panasonic line is always reliable but any EPSON or compatible will do nicely. The second is the parallel interface and cable needed to allow ADAM to 'talk' to that new printer. This hardware purchase will make it possible to print your PowerPAINT creations, to use CP/M programs such as PrintMaster Plus™, and to do fancy graphic text printing.

The addition of an 80 column unit will permit you to view the full 80 columns -- especially nice for programmers and writers. By seeing the full screen, it is far easier to avoid mistakes and to speed up your work. What you see on-screen is what you will see on paper. A good example of 80 column speed enhancement was when I was recently allowed to watch Dr. Swift create a new program. On the standard display, things went smoothly but were rather confusing to me. I kept seeing the longer lines chopped into two or three fragments to stay in line with the small screen size of the standard display. Dr. Swift seemed quite at home with the format, but I prefer to see the line in one piece. As the programming continued, I watched the building of a program to use SmartBASIC on the 80 CWU. Soon, the program was being written on that 80 column monitor. I was amazed at the speed the lines were being created now! When I arrived at DEI, there was absolutely no way to access 80 columns from BASIC. When I left, I had a copy of the new SwiftBASIC 80 in hand! Your own programming will benefit from this easier to read structure.

The final piece of hardware of general use is the RS232 interface. This will permit you to use serial devices such as an external 1200 or 2400 baud modem on the ADAM. I use the RS232 interface (a serial port) to connect two different computers for data transfer speeds you wouldn't believe! At 19200 baud even the largest programs transfer in seconds. I transferred an entire 164K file in less time than it took to boot SmartBASIC from disk! If you are a regular on information services such as CompuServe, PLink, GENie, or even one of the ADAM-run bulletin board systems (such as the one at OrphanWare and DEI), you will appreciate the faster download time on a these quick modems. Time saved is money you don't have to pay in online charges or telephone bills.

There are, of course, many more hardware items you could concern yourself with. An extra digital data drive, a speech synthesizer, and clock/calendar card among others come to mind. The usefulness of such purchases again falls back to what you actually get for your money. Will the price justify the amount of use? Will the product be repairable, and if so, does it carry a sufficient guarantee? These things must be considered before any purchase. Software is also best if purchased in this fashion. Don't just buy something because it would be "nice to have!" You may never use it a second time.

If the ADAM computer is to survive, and you and I are going to continue to get the most use out of the system, we must continue to upgrade our ability to use the computer for new and different tasks. We must also support those that create the new hardware and software we want. The best way to protect your investment is to wisely choose the items you buy. It isn't necessary to upgrade to a larger computer such as the IBM if you can do the same work on your ADAM. Thanks to programmers and inventors in the USA and Canada our system's potential continues to grow. I hope we can all grow up along with it.

# ASSEMBLY LANGUAGE AND CP/M 2.2

by Guy Cousineau



## WHY ASSEMBLY LANGUAGE?

High level programming languages such as C, Pascal, and Fortran take some of the drudgery out of writing programs. There are, however, three distinct advantages to writing in assembly language:

### CONTROL

You can have your programs do exactly what you want them to and in the order you want.

### SIZE

You can keep your programs short by putting in only the routines you require.

### SPEED

It is often possible to make your programs run faster by careful arrangement of routines.

All this means that you have to do more work, but the rewards are there. Most elementary applications programs that I have written are only 1 or 2 KB. The same programs written in C or PASCAL might be 7 or 8 KB.

Writing in Assembly language is not as hard as it seems; as a matter of fact it is straightforward and logical. In future articles I will demonstrate how easy it is to convert programs written in BASIC to assembly. The math routines are perhaps the most difficult. There are several books on the market which demonstrate mathematics functions. Use them to create subroutines to include in your programs.

The beginner should invest in a book that explains, in detail, the Z80/8080 mnemonics. If you are planning to get involved in assembly work, it is recommended that you invest in a Z80 assembler and debugger. There are many on the market; there are even some in the public domain. There are also programs to convert 8080 source code to Z80 so that you won't have to re-type all your programs. Another worthwhile investment is a full-screen editor. ED.COM is very tedious to use. WordStar, though it is an excellent editor, is very unfriendly on the ADAM for this purpose. If you get an 80 column card and a large memory expander, it will function quite well. There is a public domain editor called VDE.COM. It works well with text files up to 30K. And, it has features very similar to WordStar; it's a great editor for Assembly or text files.

Even if you don't think you want to get into assembly language, think of it as a development exercise. We did not think we wanted to take all those subjects we took in grade school, but they helped develop our minds. Assembly work may help you become more logical in other things. You never know, you might even like it!

Next month, when you have your editor and assembler, I will discuss flowcharting.

# PROGRAM EXPLANATIONS

by Solomon Swift



## 1MF 2.0

One Minute Formatter is probably the single most widely used piece of software that I've ever written. The following four pages LIST my latest revision ... a fairly major overhaul.

I'm asked regularly why I didn't release this program commercially and make some money on it. Formatting is a VERY basic computer operation -- if you told someone who owns another computer system that you paid "money" for a program that does nothing but format disks, the disdainful guffaws alone would shame you into switching computers; my goal is to help you get the best use out of this fine system at the least possible expense. By the way, the self-booting version of 1MF 2.0 is included on this month's DISK PAK.

"1MF 2.0" formats 160K, 320K, and 720K disks. It works with one or two drives; it performs independent verify, INIT, and format (simultaneously). You can select different volume names, volume sizes, and directory sizes. You can choose a directory size from 1K to 9K (1K is standard allowing for 35 user files). You can also select the device number; this is useful if you have the OBS EPROM for adding a third or fourth disk drive (the standard drive codes are '4' and '5'). Plus, you can log on disk drives if you had them turned off when you booted the system. And, this version fixes a few minor bugs with the verify. Also, you can tap RETURN or ESCAPE at most menus for continuing.

Since we elaborated on how to format with the program entitled '4MAT', I'll just cover the Z80 routines here. Line #'s 200 thru 230 setup the routine to test for a disk in the drive. Line # 250 creates the routine to CALL the previous one. Line # 270 sets up a routine to find the DCB for the drive (this is a 22 byte buffer containing status info for each drive). Line #'s 290 and 295 constitute the normal key input sound. Line #'s 305 and 310 create the error buzz. Line # 320 inits a drive. And, line # 330 reads a block from a drive.

## CLIP REPLOT

PowerPAINT lets you shift a picture 8 pixels at a time (up, down, left, or right). Recently David Carmichael asked if there was a way to shift a hi-res picture only a pixel or two at a time; when he discovered that there wasn't one, he decided to write his own. There is one catch, however; the picture MUST have only ONE foreground color and only ONE background. This is due to the videochip's color bleed problem.

His program is LISTed on pages 19 and 20. He deftly combined the Ben Hinkle HGR screen function with a couple of DEI public domain programs.

You are first asked to enter the SmartPAINT filename to load. Next you are asked how many pixels UP and RIGHT that you want to pull the picture. Since the routines are both in BASIC and Z80, the process is fairly quick. When completed, you're prompted to select the drive and filename for storage.

He wrote the program primarily for shifting CLIP ART downloaded as RLE's a few pixels. But, as you'll see it can be used for full screen pictures as well.

A good while back I wrote a BASIC program that enlarges an HGR picture. We'll include this one next month. If you've got ideas for graphics programs, please pass them along.

```

10 REM One Minute Formatter 2.0
20 REM a public domain contribution by
30 REM by DIGITAL EXPRESS
40 REM presented in Nibbles & Bits (October 1988)
60 REM formats one or two disks (simultaneously)
61 REM formats 160K, 320K, and 720K drives
62 REM formats single-sided in 63 seconds!!!
100 LOMEM :29696: POKE 16149, 255: POKE 16150, 255
110 ON PEEK(259) <> 195 GOTO 700: POKE 16134, 255: POKE 16953, 32
120 n1$ = "DEI FORMAT": n2$ = "DEI FORMAT": n1% = 4: n2% = 5
130 d1 = 1: d2 = 1: v1 = 160: v2 = 160: f1$ = "yes": f2$ = "yes"
140 es$ = CHR$(27): re$ = CHR$(13)
200 DATA 58,251,255,205,126,252,254,1,200,254,155,32,3,62,4,201
210 DATA 58,251,255,205,228,252,245,58,251,255,254,24,32,11
220 DATA 241,203,63,203,63,203,63,203,63,24,3,241,230,15
230 DATA 254,2,200,254,3,200,254,0,200,62,1,201
240 FOR x = 27648 TO 27703: READ mc: POKE x, mc: NEXT
250 DATA 205,0,108,50,255,255,201
260 FOR x = 27704 TO 27710: READ mc: POKE x, mc: NEXT
270 DATA 62,4,205,87,252,253,34,0,212,50,255,255,201
280 FOR x = 27711 TO 27723: READ mc: POKE x, mc: NEXT
290 DATA 6,24,17,0,9,27,122,179,32,251,62,160,144,211,240
295 DATA 62,192,144,211,240,62,224,144,211,240,16,231,201
300 FOR x = 27724 TO 27751: READ mc: POKE x, mc: NEXT
305 DATA 62,226,211,240,62,240,211,240,17,0,100,27,122,179
310 DATA 32,251,62,255,211,240,201
315 FOR x = 27752 TO 27772: READ mc: POKE x, mc: NEXT
320 DATA 62,4,1,1,0,17,160,0,33,208,107,205,189,252,50,255,255,201
325 FOR x = 27773 TO 27790: READ mc: POKE x, mc: NEXT
330 DATA 62,4,1,0,0,17,1,0,33,0,212,205,243,252,50,255,255,201
335 FOR x = 27791 TO 27808: READ mc: POKE x, mc: NEXT
340 DATA 33,0,220,17,0,112,1,0,4,237,176,201
345 FOR x = 27809 TO 27820: READ mc: POKE x, mc: NEXT: CALL 27809
400 DATA log on drives,set/check parameters,format disk(s),exit program
410 FOR x = 1 TO 4: READ m1$(x): NEXT
500 POKE 17059, 23: POKE 17115, 23: POKE 17126, 246: TEXT
510 HOME: VTAB 2: HTAB 2: INVERSE: PRINT " One Minute Formatter 2.0":
515 NORMAL: PRINT: INVERSE
520 VTAB 5: HTAB 2: nn% = n1%: GOSUB 34000: NORMAL
530 dv = n1%: GOSUB 30000: POKE 64885, 0
540 VTAB 7: HTAB 2: INVERSE: nn% = n2%: GOSUB 34000: NORMAL
550 dv = n2%: GOSUB 30000
600 VTAB 10: FOR x = 1 TO 4: HTAB 2: PRINT x; " = "; m1$(x): NEXT
610 GET k$: k% = VAL(k$): IF k% = es$ THEN CALL 27724: GOTO 700
615 IF k% = re$ THEN CALL 27724: GOTO 3000
617 IF k% < 1 OR k% > 4 THEN CALL 27752: GOTO 610
620 CALL 27724: ON k% GOTO 1000, 2000, 3000, 700
700 TEXT: PRINT " end of program."
710 POKE 16134, 27: POKE 16953, 95
720 POKE 27811, 112: POKE 27814, 220: CALL 27809: END
1000 CALL 64605: GOTO 510
2000 POKE 17059, 27: POKE 17115, 27: TEXT
2010 HOME: HTAB 2: PRINT "select or change option by #:"
2020 VTAB 3: HTAB 2: INVERSE: nn% = n1%: GOSUB 34000: NORMAL: PRINT
2030 PRINT " 0= vol name: "; n1$
2040 PRINT " 1= dir size: "; d1
2050 PRINT " 2= vol size: "; v1
2060 PRINT " 3= verify: "; f1$
2065 PRINT " 4= device #: "; n1%: PRINT
2070 HTAB 2: INVERSE: nn% = n2%: GOSUB 34000: NORMAL: PRINT
2080 PRINT " 5= vol name: "; n2$
2090 PRINT " 6= dir size: "; d2

```



1MF 2.0 LIST continued...

```

2100 PRINT " 7= vol size: "; v2
2110 PRINT " 8= verify: "; f2$
2115 PRINT " 9= device #: "; n2%: PRINT
2120 VTAB 20: PRINT " <ESCAPE> = done/main menu"
2122 nn% = n1%: jq = 1: GOSUB 34000: w1$ = " "+nn$+" "
2124 nn% = n2%: GOSUB 34000: w2$ = " "+nn$+" ": jq = 0
2130 GET k$: k% = ASC(k$)
2132 IF k$ = es$ OR k$ = re$ THEN CALL 27724: GOTO 500
2135 IF k% < 40 OR k% > 57 THEN CALL 27752: GOTO 2130
2140 k% = k%-47: CALL 27724: VTAB 20: PRINT
2150 ON k% < 6 GOTO 2160: k% = k%-5: GOTO 2170
2160 ON k% GOTO 2200, 2300, 2400, 2500, 2550
2170 ON k% GOTO 2600, 2700, 2800, 2900, 2950
2200 VTAB 20: HTAB 2: POKE 16953, 95: PRINT "enter"; w1$: "name:"
2205 INPUT " "; n1$
2210 IF LEN(n1$) = 0 THEN CALL 27752: GOTO 2200
2220 IF LEN(n1$) > 11 THEN n1$ = LEFT$(n1$, 11)
2230 CALL 27724: POKE 16953, 32: GOTO 2010
2300 VTAB 20: PRINT w1$: "dir size (1-9): ": GET d1$
2310 d1 = INT(VAL(d1$))
2320 IF d1 < 1 OR d1 > 9 THEN CALL 27752: GOTO 2300
2330 CALL 27724: GOTO 2010
2400 VTAB 20: PRINT w1$: "size (s, d, or q): ": GET sz$
2410 IF sz$ = "s" OR sz$ = "S" THEN v1 = 160: CALL 27724: GOTO 2010
2420 IF sz$ = "d" OR sz$ = "D" THEN v1 = 320: CALL 27724: GOTO 2010
2425 IF sz$ = "q" OR sz$ = "Q" THEN v1 = 720: CALL 27724: GOTO 2010
2430 CALL 27752: GOTO 2400
2500 VTAB 20: PRINT w1$: "verify ('y' or 'n')": ": GET vf$
2510 IF vf$ = "y" OR vf$ = "Y" THEN f1$ = "yes": CALL 27724: GOTO 2010
2520 IF vf$ = "n" OR vf$ = "N" THEN f1$ = "no": CALL 27724: GOTO 2010
2530 CALL 27752: GOTO 2500
2550 VTAB 20: PRINT w1$: "device (4,5,6 or 7): ": GET dn$
2560 n1% = VAL(dn$): IF n1% < 4 OR n1% > 7 THEN CALL 27752: GOTO 2550
2570 CALL 27724: GOTO 2010
2600 VTAB 20: HTAB 2: POKE 16953, 95: PRINT "enter"; w2$: "name:"
2605 INPUT " "; n2$
2610 IF LEN(n2$) = 0 THEN CALL 27752: GOTO 2600
2620 IF LEN(n2$) > 11 THEN n2$ = LEFT$(n2$, 11)
2630 CALL 27724: POKE 16953, 32: GOTO 2010
2700 VTAB 20: PRINT w2$: "dir size (1-9): ": GET d2$
2710 d2 = INT(VAL(d2$))
2720 IF d2 < 1 OR d2 > 9 THEN CALL 27752: GOTO 2700
2730 CALL 27724: GOTO 2010
2800 VTAB 20: PRINT w2$: "size (s, d, or q): ": GET sz$
2810 IF sz$ = "s" OR sz$ = "S" THEN v2 = 160: CALL 27724: GOTO 2010
2820 IF sz$ = "d" OR sz$ = "D" THEN v2 = 320: CALL 27724: GOTO 2010
2825 IF sz$ = "q" OR sz$ = "Q" THEN v2 = 720: CALL 27724: GOTO 2010
2830 CALL 27752: GOTO 2800
2900 VTAB 20: PRINT w2$: "verify ('y' or 'n')": ": GET vf$
2910 IF vf$ = "y" OR vf$ = "Y" THEN f2$ = "yes": CALL 27724: GOTO 2010
2920 IF vf$ = "n" OR vf$ = "N" THEN f2$ = "no": CALL 27724: GOTO 2010
2930 CALL 27752: GOTO 2900
2950 VTAB 20: PRINT w2$: "device (4,5,6 or 7): ": GET dn$
2960 n2% = VAL(dn$): IF n2% < 4 OR n2% > 7 THEN CALL 27752: GOTO 2950
2970 IF n2% = n1% THEN CALL 27752: GOTO 2950
2980 CALL 27724: GOTO 2010

```





1MF 2.0 LIST continued...

```

3000 POKE 17059, 19: POKE 17115, 19: TEXT
3010 HOME: PRINT " format countdown ..."
3020 VTAB 3: PRINT " (press <escape> to abort)": VTAB 10
3030 FOR x = 10 TO 0 STEP -1
3040 FOR y = 1 TO 225: NEXT y
3050 PRINT " "; x;
3060 IF PEEK(64885) = 27 THEN CALL 27724: GOTO 500
3070 NEXT x
3100 HOME: INVERSE: HTAB 3: PRINT " press <escape> to abort "
3110 VTAB 5: HTAB 2: nn% = n1%: GOSUB 34000: PRINT
3120 VTAB 7: HTAB 2: nn% = n2%: GOSUB 34000: PRINT: NORMAL
3130 POKE 65531, n1%: CALL 27704: e1 = PEEK(65535)
3140 VTAB 5: HTAB 12: IF e1 = 0 THEN PRINT "formatting": GOTO 3200
3150 PRINT "not used"
3200 POKE 65531, n2%: CALL 27704: e2 = PEEK(65535)
3210 VTAB 7: HTAB 12: IF e2 = 0 THEN PRINT "formatting": GOTO 3300
3220 PRINT "not used"
3230 IF e1 = 0 OR e2 = 0 GOTO 3300
3240 VTAB 20: HTAB 2: PRINT " drives empty!!!": CALL 27752
3250 VTAB 22: HTAB 3: PRINT "press any key for menu ..."
3260 GET k$: CALL 27724: GOTO 500
3300 ON e1 > 0 GOTO 3400: POKE 27712, n1%: CALL 27711
3310 dcb(1) = PEEK(54272)+256*PEEK(54273)
3320 ds = dcb(1): GOSUB 31000
3400 ON e2 > 0 GOTO 3500: POKE 27712, n2%: CALL 27711
3410 dcb(2) = PEEK(54272)+256*PEEK(54273)
3420 ds = dcb(2): GOSUB 31000
3500 FOR x = 1 TO 2250: NEXT
3510 ON e1 > 0 GOTO 3530
3520 POKE dcb(1), 1: POKE dcb(1)+14, 1
3530 ON e2 > 0 GOTO 3550
3540 POKE dcb(2), 1: POKE dcb(2)+14, 1
3550 s1 = PEEK(dcb(1)): s2 = PEEK(dcb(2))
3552 ON PEEK(64885) <> 27 GOTO 3560: CALL 64605: CALL 27724
3554 HOME: VTAB 2: HTAB 11: FLASH: PRINT " WARNING!! ": NORMAL
3556 VTAB 5: HTAB 9: PRINT "format aborted!": GOTO 3250
3560 IF e1 = 0 AND s1 = 128 THEN VTAB 5: HTAB 12: PRINT "format done"
3570 IF e2 = 0 AND s2 = 128 THEN VTAB 7: HTAB 12: PRINT "format done"
3580 IF (e1 = 0 AND e2 = 0) AND (s1 = 128 AND s2 = 128) GOTO 3600
3590 IF e1 = 0 AND s1 <> 128 GOTO 3510
3592 IF e2 = 0 AND s2 <> 128 GOTO 3510
3600 FOR x = 1 TO 375: NEXT: IF f1$ = "no" AND f2$ = "no" GOTO 3800
3610 IF e1 = 0 AND f1$ = "yes" THEN VTAB 5: HTAB 12: PRINT "verifying:"
3620 IF e2 = 0 AND f2$ = "yes" THEN VTAB 7: HTAB 12: PRINT "verifying:"
3630 mx = 159: IF e1 = 0 AND f1$ = "yes" AND v1 > 160 THEN mx = v1-1
3640 IF e2 = 0 AND f2$ = "yes" AND v2 > mx+1 THEN mx = v2-1
3650 FOR x = 0 TO mx
3655 j2% = x/256: j1% = x-256*j2%
3660 POKE 27797, j1%: POKE 27798, j2%
3670 ON e1 > 0 OR f1$ = "no" GOTO 3700
3675 IF x > v1-1 THEN VTAB 5: HTAB 12: PRINT "verify pass": GOTO 3700
3680 VTAB 5: HTAB 24: PRINT x: POKE 27792, n1%: CALL 27791
3685 IF PEEK(65535) = 128 GOTO 3700
3690 VTAB 20: HTAB 2: PRINT "read error "; : nn% = n1%: GOSUB 34000
3691 PRINT ", block "; x: CALL 27752
3692 VTAB 22: PRINT " (Retry, Skip, Quit)": : GET k$
3693 IF k$ = "R" OR k$ = "r" THEN CALL 27724: GOSUB 33000: GOTO 3680
3694 IF k$ = "Q" OR k$ = "q" THEN CALL 27724: GOSUB 33000: GOTO 3800
3695 IF k$ = "S" OR k$ = "s" THEN CALL 27724: GOSUB 33000: GOTO 3700
3696 CALL 27752: GOTO 3692

```



1MF 2.0 LIST continued...

```

3700 ON e2 > 0 OR f2$ = "no" GOTO 3790
3705 IF x > v2-1 THEN VTAB 7: HTAB 12: PRINT "verify pass": GOTO 3790
3710 VTAB 7: HTAB 24: PRINT x: POKE 27792, n2%: CALL 27791
3720 IF PEEK(65535) = 128 GOTO 3790
3730 VTAB 20: HTAB 2: PRINT "read error "; : nn% = n2%: GOSUB 34000
3732 PRINT ", block "; x: CALL 27752
3735 VTAB 22: PRINT " (Retry, Skip, Quit)": : GET k$
3740 IF k$ = "R" OR k$ = "r" THEN CALL 27724: GOSUB 33000: GOTO 3710
3745 IF k$ = "Q" OR k$ = "q" THEN CALL 27724: GOSUB 33000: GOTO 3800
3750 IF k$ = "S" OR k$ = "s" THEN CALL 27724: GOSUB 33000: GOTO 3790
3755 CALL 27752: GOTO 3735
3790 IF PEEK(64885) = 27 THEN CALL 27724: GOTO 3800
3795 NEXT x
3800 POKE 64885, 0: GOSUB 32000: IF e1 > 0 GOTO 3850
3805 FOR x = 1 TO LEN(n1$): POKE 27599+x, ASC(MID$(n1$, x, 1)): NEXT
3806 POKE 27599+x, 3
3810 VTAB 5: HTAB 12: PRINT "initializing"
3820 POKE 27774, n1%: POKE 27776, d1
3825 IF v1 = 320 THEN POKE 27779, 64: POKE 27780, 1: GOTO 3830
3826 IF v1 = 720 THEN POKE 27779, 208: POKE 27780, 2: GOTO 3830
3827 POKE 27779, 160: POKE 27780, 0
3830 CALL 27773: IF PEEK(65535) = 0 GOTO 3850
3840 VTAB 5: HTAB 12: PRINT "init fail"
3850 IF e2 > 0 GOTO 3900
3855 FOR x = 1 TO LEN(n2$): POKE 27599+x, ASC(MID$(n2$, x, 1)): NEXT
3856 POKE 27599+x, 3
3860 VTAB 7: HTAB 12: PRINT "initializing"
3870 POKE 27774, n2%: POKE 27776, d2
3875 IF v2 = 320 THEN POKE 27779, 64: POKE 27780, 1: GOTO 3880
3876 IF v2 = 720 THEN POKE 27779, 208: POKE 27780, 2: GOTO 3880
3877 POKE 27779, 160: POKE 27780, 0
3880 CALL 27773: IF PEEK(65535) = 0 GOTO 3900
3890 VTAB 7: HTAB 12: PRINT "init fail"
3900 IF e1 > 0 GOTO 3920
3910 VTAB 5: HTAB 12: PRINT "init done"
3920 IF e2 > 0 GOTO 3940
3930 VTAB 7: HTAB 12: PRINT "init done"
3940 FOR x = 0 TO 2: POKE 62245+x, ad(x): NEXT: GOTO 3250
7000 GET go$: CALL 27724: GOTO 700
30000 POKE 65531, dv: CALL 27704: er = PEEK(65535)
30010 IF er = 0 THEN PRINT " occupied": RETURN
30020 IF er = 1 THEN PRINT " not recognized": RETURN
30030 IF er = 2 THEN PRINT " bad block error": RETURN
30040 IF er = 3 THEN PRINT " empty": RETURN
30050 PRINT " inaccessible": RETURN
31000 POKE ds+3, PEEK(ds+17): POKE ds+4, PEEK(ds+18)
31010 POKE ds+5, 206: POKE ds+6, 250
31020 POKE ds+7, 0: POKE ds+8, 0: POKE ds+14, 7: POKE ds+20, 0
31030 POKE ds, 3: RETURN
32000 VTAB 1: PRINT: PRINT: FOR x = 0 TO 2: ad(x) = PEEK(62245+x): NEXT
32010 POKE 62245, 197: POKE 62246, 213: POKE 62247, 229: RETURN
33000 VTAB 19: PRINT: PRINT: PRINT: PRINT: RETURN
34000 nn$ = "disk#" + STR$(nn% - 3): IF jq = 1 THEN RETURN
34010 PRINT nn$, " ": RETURN

```



```

100 REM *****
150 REM ** CLIP-ART REPLOTT Ver#4 **
200 REM *****
250 REM This program was written to
300 REM be used in moving CLIP-ART
350 REM files so that they will
400 REM better fit SmartPAINT/
450 REM POWER PAINT graphic screens.
500 REM This program will really
550 REM come in handy if you are
600 REM using POWER PAINT as a
650 REM DESK TOP PUBLISHER!
700 REM *****
750 REM This program uses the SCRN
800 REM routine from the:
850 REM HACKER GUIDE Vol#1
900 REM page # 37
950 REM This program also uses the
1000 REM HGR SCREEN SCROLL
1050 REM that was listed in the
1100 REM Sept. '87 issue of;
1150 REM NIBBLES & BITS
1200 REM page # 14
1250 REM *****
1300 REM This program was compiled
1350 REM by: David E. Carmichael
1400 REM *****
1450 LOMEM :33000: POKE 16149, 255: POKE 16150, 255: HCOLOR = 15
1500 DATA 17,0,0,213,6,3,203,58,203,59,16,250,205,50,253,253,33,1,0,33,240
1550 DATA 0,62,3,205,47,253,33,240,0,209,122,230,7,133,111,123,230,7,71
1600 DATA 62,8,144,71,175,55,143,16,253,166,33,240,0,40,3,54,1,201,54,0,201
1650 FOR x = 1 TO 61: READ d: POKE x+172, d: NEXT
1700 DATA 62,1,245,1,0,1,33,0,216,30,0,87,229,213,197,205,29,253
1750 DATA 193,209,225,21,229,213,197,205,26,253,193,209,225,122
1800 DATA 198,33,87,229,213,197,205,29,253,193,209,225,21,205,26,253
1850 DATA 241,60,254,20,32,204,58,000,000,17,0,1,33,0,19,213,205,38,253
1900 DATA 175,209,33,0,51,205,38,253,201
1950 FOR x = 27600 TO 27675: READ mc: POKE x, mc: NEXT
2000 POKE 0, 17: HGR: GOSUB 3250
2050 HOME: PRINT SPC(130): VTAB 1: HTAB 1
2060 PRINT " This program will destroy your TOP '16' ROWS OF PIXELS!!!"
2070 GET key$
2100 HOME: PRINT SPC(130): VTAB 1: HTAB 8: PRINT " USE WITH CARE!! "
2110 GET key$: HCOLOR = 15
2150 HPLLOT 14, 14 TO 242, 14 TO 242, 161: HPLLOT 14, 14 TO 14, 161 TO 242, 161
2200 HPLLOT 15, 15 TO 241, 15 TO 241, 160: HPLLOT 15, 15 TO 15, 160 TO 241, 160
2250 HOME: PRINT SPC(130): VTAB 1: HTAB 1
2260 PRINT " Does your CLIP-ART that you wish replotted display"
2300 PRINT " between the new boarders? Y/N"; : GET go$
2310 IF go$ = "Y" OR go$ = "y" THEN GOTO 2400
2350 TEXT: VTAB 10: PRINT "REPLOTT ABORTED! Use 'FRAME' in "
2360 PRINT " 'POWER PAINT' to move ART to center of graphics screen!";
2370 VTAB 22: PRINT: END
2400 HOME: PRINT SPC(130): VTAB 1: HTAB 1
2450 CALL 27600
2500 INPUT " Move PIXELS UP ^ (0-7) "; i: IF i >= 8 THEN i = 0
2550 INPUT " Move PIXELS to the RIGHT->"; j: IF j >= 256 THEN j = 0
2600 IF i = 0 AND j = 0 THEN GOTO 3200
2650 sc = 0: GOTO 3050

```



## CLIP REPLOT LIST continued...

```

2700 FOR y = 0 TO 8: POKE 175, y
2750 FOR x = 16 TO 239: POKE 174, x
2800 CALL 173: p = PEEK(240): IF p = 0 THEN GOTO 3000
2850 u = (x+j): IF u >= 256 THEN u = (u-255)
2900 v = 152-i+y: IF sc = 0 AND v <= 152 THEN CALL 27600
2950 HPLLOT u, v
3000 NEXT x: NEXT y
3050 POKE 0, 17
3100 sc = sc+1: IF sc >= 19 THEN GOTO 3200
3150 CALL 27600: GOTO 2700
3200 CALL 27600: HOME: GOTO 4150
3250 REM LOAD SmartPAINT
3300 VTAB 22: PRINT "          .HRP": VTAB 21
3350 INPUT " Name of SmartPAINT graphic      screen to LOAD >"; pn$
3400 IF RIGHT$(pn$, 4) <> ".HRP" GOTO 3500
3450 lp = LEN(pn$): pn$ = LEFT$(pn$, lp-4)
3500 IF LEN(pn$) > 6 GOTO 3250
3550 GOSUB 5250
3600 DATA 1,0,10,17,0,32,33,0,116,205,26,253,201
3650 FOR x = 65520 TO 65532: READ m1: POKE x, m1: NEXT
3700 REM
3750 VTAB 22: HTAB 1: PRINT CHR$(4); "bload "; pn$+".HRP"
3800 POKE 65525, 32: CALL 65520
3850 VTAB 22: HTAB 1: PRINT CHR$(4); "bload "; pn$+".HR2"
3900 POKE 65525, 42: CALL 65520
3950 VTAB 22: HTAB 1: PRINT CHR$(4); "bload "; pn$+".HR3"
4000 POKE 65525, 0: CALL 65520
4050 VTAB 22: HTAB 1: PRINT CHR$(4); "bload "; pn$+".HR4"
4100 POKE 65525, 10: CALL 65520: RETURN
4150 REM SAVE SmartPAINT
4200 VTAB 22: PRINT "          .HRP": VTAB 21
4250 INPUT " Name of SmartPAINT graphic      screen to SAVE >"; pn$
4300 IF RIGHT$(pn$, 4) <> ".HRP" GOTO 4400
4350 lp = LEN(pn$): pn$ = LEFT$(pn$, lp-4)
4400 IF LEN(pn$) > 6 GOTO 4150
4450 GOSUB 5250
4500 DATA 1,0,10,17,0,32,33,0,116,205,29,253,201
4550 FOR x = 65520 TO 65532: READ m1: POKE x, m1: NEXT
4600 POKE 65525, 32: CALL 65520
4650 VTAB 22: HTAB 1: PRINT CHR$(4); "bsave #1,A29696,L2560"
4700 POKE 65525, 42: CALL 65520
4750 VTAB 22: HTAB 1: PRINT CHR$(4); "bsave #2,A29696,L2560"
4800 POKE 65525, 0: CALL 65520
4850 VTAB 22: HTAB 1: PRINT CHR$(4); "bsave #3,A29696,L2560"
4900 POKE 65525, 10: CALL 65520
4950 VTAB 22: HTAB 1: PRINT CHR$(4); "bsave #4,A29696,L2560"
5000 PRINT CHR$(4); "rename #1, "; pn$+".HRP"
5050 PRINT CHR$(4); "rename #2, "; pn$+".HR2"
5100 PRINT CHR$(4); "rename #3, "; pn$+".HR3"
5150 PRINT CHR$(4); "rename #4, "; pn$+".HR4"
5200 VTAB 1: HTAB 1: PRINT
5210 PRINT " FILE SAVED!          END!": END
5250 HOME: HTAB 10: PRINT "Which DRIVE??"
5300 PRINT " DDP1:DDP2:DSK1:DSK2:RAMD!-END"
5350 GET dr$: dr% = ASC(dr$)
5360 IF dr% <= 128 OR dr% >= 135 THEN GOTO 5250
5400 IF dr% = 129 THEN POKE 16821, 8: CALL 64605
5450 IF dr% = 130 THEN POKE 16821, 24: CALL 64605
5500 IF dr% = 131 THEN POKE 16821, 4: CALL 64605
5550 IF dr% = 132 THEN POKE 16821, 5: CALL 64605
5600 IF dr% = 133 THEN POKE 16821, 26: CALL 64605
5650 IF dr% = 134 THEN TEXT: VTAB 12: HTAB 7
5660 PRINT "PROGRAM ABORTED!!!": VTAB 23: PRINT: END
5700 RETURN: END

```



# ADVANCED PROGRAMMING

by Solomon Swift



## PART 5

As we were discussing last month, the use of conditionals adds the decision making function to your programs. This is the primary component that distinguishes a mere calculator or memory recall system from a true computer program -- there are four sets of Z80 commands that can act upon a condition: absolute jumps, relative jumps, calls, and returns. Since we are progressing into Z80 from BASIC, we could use the following examples. ABSOLUTE JUMP: If f=1 then GOTO address 18292. CALL: If f<1 then then CALL address 12467. RELATIVE JUMP: If f>=0 then skip ahead 24 bytes in RAM. RETURN: If f<>0 then return (note: a RETURN is the exit from a subroutine which is CALLED; typically there will a few conditional RETURN options and an unconditional RETURN).

### THE FLAG REGISTER

The "F" or flag register holds the information upon which our decisions are made. This register is paired with the accumulator ("A" register). There are virtually NO specific Z80 commands for dealing directly with the FLAG register as there are with the other commands.

Each bit of the FLAG register has a special significance. But, rather than refer specifically to each bit (as an ON or OFF condition) we label the status. Here are the common conditions used in decision making routines:

C = carry flag set (carry)  
 NC = carry flag reset (not carry)

Z = zero flag set (zero)  
 NZ = zero flag reset (not zero)

M = sign flag set (minus)  
 P = sign flag reset (plus)  
 PE = parity flag set (parity even)  
 PO = parity flag reset (parity odd)

There are a number of commands which have an affect upon these flags such as adding and subtracting, testing bits, shifting bits, and comparing bytes. At this point we're mainly concerned with comparing. The mnemonic is CP.

### COMPARE

With the SUBtract operation a value is subtracted from the accumulator and the result replaces the previous accumulator value. The ComPare operation is similar. Here the values are subtracted but the result is not stored; only the flag register is altered. The value is compared with the accumulator. If the two values are equal, the difference is zero; the status is Zero. If the two values are not equal, the status is Not Zero. If the value in the accumulator is greater than or equal to the other value, the status is Not Carry. If the accumulator is less than the other value, the status is Carry.

if A < x then Carry  
 if A >= x then Not Carry  
 if A <> x then Not Zero  
 if A = x then Zero

### RELATIVE JUMPS

Last month we described the five relative jump commands. Here are the decimal equivalents of the commands:

JR dd	24,dd
JR C,dd	56,dd
JR NC,dd	48,dd
JR NZ,dd	32,dd
JR Z,dd	40,dd

Remember that 'dd' represents a programmer defined displacement backward or forward in RAM. The ranges are 129 bytes forward and 126 bytes backward. (129 + 126 = 255, the maximum value for any single byte on an 8-bit computer).

Now we've got the tools necessary to make some basic decisions. Consider the following.

```
LD A, 27
CP 25
JR NZ, 6
LD A, 255
LD (65535), A
RET
LD A, 0
LD (65535), A
RET
```

In decimal, it looks like this:

```
62, 27
254, 25
32, 6
62, 255
50, 255, 255
201
62, 0
50, 255, 255
201
```

This is a very simple example of decision making, but it does illustrate the technique. Here's what we've done. (1) put a "27" into the accumulator. (2) compare the value in the accumulator with "25". (3) if the flag status is NZ (not zero), skip ahead six bytes. (4) otherwise, put a "255" into the accumulator and place that value at address 65535 ( $255 * 256 + 255 = 65535$ ) and then RETURN (exit) from the routine. (5) if the flag status is Z, then we put a "0" into the accumulator and store that value at address 65535 and RETURN from the routine. Of course "25" is not equal to "27"; thus a "0" is loaded into 65535 in this example.

Even though this is a simple illustration, this same type reasoning is used throughout Z80 (or virtually any low level computer language) programming. As we progress, we'll develop more intricate routines. If this one isn't entirely clear to you, please study it some more.

Next month, we'll start applying our Z80 programming concepts toward GoDOS applications. We will concentrate on the graphic operating system because it has all the user support routines included; thus, we can apply our efforts on programming rather than on tedious system setup for ADAM.

## DJNZ

As you can see, we are not using a Progress Report this month. Next month's quiz will cover both lessons.

In the May '87 issue I listed a routine that would clear as many as 255 consecutive bytes of RAM. I will include it here again because it demonstrates the use of a unique relative jump command, DJNZ.

Relative jumps are useful for many purposes; one of these is in a loop that keeps cycling until a certain condition is met. The DJNZ command is specifically designed for this situation where the "B" register is utilized. The "D" stands for decrement; the "JNZ" means Jump relative Not Zero. Thus the "B" register is setup with some value; the loop routine follows concluding with the DJNZ ("16" is the decimal value for DJNZ). After each execution of the loop routine, the "B" register is decremented by one and if the value is Not Zero, the loop is repeated. When the value in "B" is zero, program execution is resumed at the byte following the displacement value.

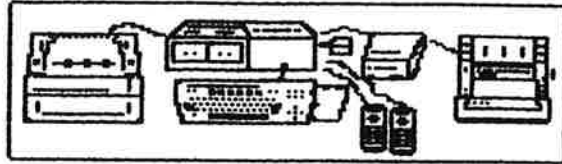
```
62, 200,
33, 0, 212,
6, 255,
119,
35,
16, 252,
201
```

This routine fills 255 bytes with "200" starting at address 54272 ( $212 * 256 + 0 = 54272$ ). The concept works in this manner:

```
LD A, fill value
LD HL, start address
LD B, # of bytes to fill
REPEAT fill until "B" is Zero
```

The "119" means Load the value in the accumulator into the address pointed to by the HL pair. The "35" means increment the HL pair. The displacement of "252" restarts the loop at the "119" value. This is four bytes backward ( $256 - 4 = 252$ ).

# PRODUCT REVIEWS



PRODUCT:	SmartTERM 1.0
MANUFACTURER:	Denny Kehoe
MEDIA TYPE:	disk/DDP
GRAPHICS/SOUND/DESIGN:	93/05;97
INSTRUCTIONS:	94
USEFULNESS vs. PRICE:	96
RECOMMENDATION:	highly recommended
PRICE:	\$20/\$22
RATED BY:	Solomon Swift

I generally avoid writing reviews of products that are in direct competition with any of my own releases. This is to avoid even the appearance of bias. The only exception to this rule is when I am so impressed by a piece of software that I can not resist a public evaluation of same. SmartTERM, as you can see, is one such example.

The ad stated that SmartTERM would put ADAMlink to shame; frankly, I was skeptical. My doubts were reinforced when I got the package and saw that it was written in SmartBASIC. How could any BASIC terminal program offer the power that was claimed? I booted it; and, I was very much impressed. Here are some of the features offered by the package.

First, the program operates so smoothly in BASIC because it buffers all input from the remote system; this same technique could be used to display 1200 or 2400 baud on the standard ADAM screen. And, all functions are quick and well-executed, much better than you'd expect from BASIC.

Here are the five central functions available in SmartTERM which are not available in ADAMlink: (1) telephone library, (2) multiple file functions, (3) ability to format disks, (4) binary file transfer, and (5) a 40 column screen. The telephone library stores the number, BBS name, and parameters. You select the record by pointing to it in the list. One of the major drawbacks of ADAMlink is that you can not see the directory. SmartTERM not only fixes this, but you can also LOCK, UNLOCK, DELETE, and RENAME files. And, the capability to format disks within the program is a true time-saver. You can do normal ASCII (XON/XOFF) file transfer with any system; and, you can transfer binary ("H" filetype) files to another SmartTERM operated computer.

SmartTERM comes with a thorough manual. It lets you change screen colors. Plus you can view or print the transfer buffer from within the program.

Planned improvements include compatibility with the OBS 80-cvu, use with external modems, and using the sound chip. Registered purchasers will receive updates free of charge. I like the program and recommend it to other modemers.

There are two other EOS modem programs; all three are in a constant state of flux. In effect, there is a race between myself, Tom Clary, and Denny Kehoe to get the most complete EOS modem program finished first. If your budget permits, I'd recommend going with all three (plus the PD CP/M programs). My SwiftLINK has the advantage of being written in Z80; Tom's patches to ADAMlink have the benefit of using the standard Coleco user interface. SmartTERM, without a doubt, gets the highest ratings for completeness.

SmartTERM is a very good program as it stands right now. With the free updates, you can't go wrong. You'll wonder how you ever got along without some of the features. It is available from The ADAM Family, 6508 34<sup>TH</sup> Street SW, Calgary, Alberta CANADA T3E 5M2. Add \$2.00 for shipping and add \$2.00 more if ordered on data pack.

PRODUCT:	Ghost Zapper
MANUFACTURER:	Steve Pitman
MEDIA TYPE:	disk/DDP
GRAPHICS/SOUND/DESIGN:	99/99;98
INSTRUCTIONS:	90
USEFULNESS vs. PRICE:	98
RECOMMENDATION:	EDITOR'S CHOICE
PRICE:	11.95
RATED BY:	Solomon Swift

Well, he's done it again. **Ghost Zapper** is Steve Pitman's latest commercial software release for the ADAM. This one is a fast-paced arcade-type game in which your goal is to ZAP as many ghosts as you possibly can per screen.

Put **Ghost Zapper** into a drive and pull the computer reset. After the graphic title screen, you'll be presented with two screen pages of instructions. Then, it's time to start ZAPPING those ghosts. Different sizes, shapes and colors of ghosts pop up randomly on the screen. Position your pointer on top of or very close to a ghost and press the fire button to ZAP it. You start with five zappers; you loose one for each miss. If your score is high enough, you go to the bonus screen to get more zappers. This is a single player game, but it is so fast-paced that this does not present any problem. **Ghost Zapper** will provide hours of fun for the whole family ... adults and kids.

There are five colorful, detailed rooms in the game. Your score and zappers left are displayed at the bottom of the screen. The sound is excellent. And, there is a Hall of Fame for the all-time top eight scores.

**Ghost Zapper** is available from DIGITAL EXPRESS on 5.25" disk or data pack for only \$11.95.

PRODUCT:	PowerPAINT
MANUFACTURER:	Digital Express
MEDIA TYPE:	Data Pack/Disk
GRAPHICS/SOUND/DESIGN:	101/100/101
INSTRUCTIONS:	101
USEFULNESS vs. PRICE:	102
PRICE:	\$44.95/\$34.95 (SDP)
REVIEWER:	T.M. Patterson

Think I may have been a little high in the ratings game...? NOT when you have actually gotten your hot little hands on this fine piece of software!

First off, when you pull the reset, you get a nice title screen. Then you get the "status" screen which lets you know what you have attached to your ADAM that is actually connected and functioning. Next you come to the main screen. This screen is exactly what you would want in any software title: SmartKEYs, title bar, message window, screen indicator (you can work on up to 8 screens in the workspace at one time with the 128K expander; 4 with the 64K). With the 128K you can design a FULL page of printable graphics!

I am not going to try to go into as much detail on the features as Mr. Decker did in the August issue. He did a really good job describing most of the features. (Is this guy a newscaster, or what?) It would take many pages of material to go into all the features; the manual has over 50 -- what I would like to let everyone know about is what this software is capable of.

The best thing about PowerPAINT ... is what you can do with it. If you can imagine it, it can be drawn with PowerPAINT! I have seen screens that you would think were done on one of the fancy computers with a \$400 piece of software! There are some inherent limitations due to Coleco hardware design, but by being able to draw in the background as well as the foreground, you can get around most of these. In fact, at last count six software developers are designing their commercial game screens with PowerPAINT.

So you say that you can't draw? Well, I had that problem before PowerPAINT; my creations were usually pretty messy with me erasing and editing all the time. Now I can change the picture around until it looks just the way I want it to. If I don't like something, I just UNDO it; no more erasers for me!

I would recommend PowerPAINT to anyone who has ever thought that he or she may have ever had an artistic urge ... never know, there may be a Picasso lurking within you! PowerPAINT is available from DIGITAL EXPRESS and every other vendor of ADAM software.



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**PAINTINGS!!! v2.0** This software contains (Disk \$7.50) 13 paintings for use with ShowOFF (DDP \$9.50) or PowerPAINT.

**SIGNS!!!** This software contains 28 different (Disk \$7.50) signs for use with SignSHOP, (DDP \$9.50) MicroWORKS, and NewsMAKER.

**MicroTalk** This software requires the Eve Speech (Disk \$13.50) synthesizer or compatible hardware. (DDP \$15.50)ware. Self-booting and fast loading. Contains SmartWRITER files. Hear ADAM sing, tell stories, recite poetry, and much more. Very useful and very enjoyable tutorial program for everybody.

**WordLIST v2.0** This software contains four (Disk \$13.50) dictionary files for use with (DDP \$15.50) ProofREADER. More than 10000 words to check your documents with.

**Foreplay** This program contains ADULT material and (Disk \$13.50) should not be used by children (DDP \$15.50) under 16 years of age. You play the part of a man or a woman out for a good time. Make the best of a one night stand. Rewards are given.

**S/H \$3.00**

Make Checks Payable To:  
Eric E. Danz

Allow 2-3 Weeks For Delivery  
Thank you for your SUPPORT!!

## ADAMZONE Publishing Company

c/o Eric E. Danz, 17 Carstan Rd., W. Milford, NJ 07480-4816

**NetworkADAM NewsINFO** This is a new (\$15.00/yr for Disk) bi-monthly news- (\$17.00/yr for DDP) letter and media for the ADAM computer. Send a Self-Addressed-Stamped-Envelope for a FREE issue and FREE coupon for software. Every issue jam packed with ADAM news. Public Domain software for reasonable prices. You get six issues plus one issue on Disk or DDP every year. Subscribe now !!!

Make Checks Payable To:  
Eric E. Danz

**Eve SS-CC Modification** This is a (Full price \$15.00) hardware modification for your Eve Electronics Speech Synthesizer and Clock/Calendar Unit. When you send your unit and \$15.00 to me, you get the following. Replacement of lithium battery holder to a standard holder and a new five year life lithium battery. Specify Disk or DDP because you also receive a new software update. This includes new programs, hints and tips on programming your SS-CC. Return postage and insurance is included.

Make Checks Payable To:  
Eric E. Danz  
Allow 3-4 Weeks For The  
Modification.

Hello, my name is Eric E. Danz and I'm a hardware and software supporter of the Coleco ADAM PC. I have many supportive features. Copyrighted and public domain software, hardware modifications, and a newsletter AUG. Thank you for your SUPPORT!!

# NEW PRODUCTS



## NEW COMMERCIAL SOFTWARE

**SpeedyWRITE 1.0:** Simply the most advanced word processor ever developed specifically for ADAM -- written in fast Z80 code. More than 100 features including 40 column screen, all screen colors, underline, bold, super & subscript, split screen, line justification, keyboard macros, configuration options and a full supply of file handling utilities, plus lots more. \$29.95 on disk or data pack. (WHITE COMPANY)

**SpeedyWRITE 2.0:** All of the above plus: INIT support for any disk drive size, ability to edit two files simultaneously, pocket database, already setup for dot matrix or ADAM printer, built-in ramdisk (10K for standard ADAM and 64K with memory expander). Just \$39.95 on disk or data pack.

**PICTURE 1.2:** great graphics program; move/copy; lines, circles, ellipses, magnify, no printing (but can easily be converted for ShowOFF I or PowerPAINT). Full screen or standard HGR screen drawing. Only \$9.95 on disk or data pack. (TLB SOFTWARE)

**PowerPRINTS:** 15 full screen pictures for use with PowerPAINT; most designed by professional artists just for ADAM. \$11.95 on disk or data pack. (WIZARD'S LAIR)

**CLIP ART (1 & 2):** Each volume has more than 40 clip art pictures for use with CLIPPER, PowerPAINT, or GoWRITER. Most are designed by the two commercial artists at WIZARD'S LAIR. \$11.95 each on disk or data pack.

**SwiftDISK:** Fools the operating system into believing that the super fast ramdisk is a second tape drive. Great for SmartWRITER, ADAMcalc, SmartBASIC, SmartLOGO, and many others. Requires MegaDISK 1.0 and at least a 64K card (works best with 128K or larger card). \$9.95 on disk or data pack. (DIGITAL EXPRESS)

**PaintAIDE:** Allows you to customize some aspects of PowerPAINT and fixes the minor bugs with the early versions. Let's you preset the SPECIAL typefaces. Plus it comes with over THREE DOZEN font files which really brings out the page design features of PowerPAINT. Includes some BASIC programs too. \$16.95 on disk or data pack. (DIGITAL EXPRESS)

**Mr. T-SEARCH:** Great word search puzzle maker. Five size options. Nice hardcopy (ADAM or dot matrix). Packed with nice features. \$12.95 on disk or data pack. (Mr. T. SOFTWARE)

**PHRASE CRAZE:** Colorful graphics; good sound; two or three players; "Wheel of Fortune" type game; very realistic. \$18.95 on disk or data pack. (REDDY SOFTWARE). -- EDITOR'S CHOICE game

**GAME (I, II, & III):** Each set is two volumes (14 songs with pictures); good entertainment; great for recording as video tape headers. \$11.95 per set on disk or data pack. (DIGITAL EXPRESS)

**SwiftPRINT:** Powerful graphics file interchange program (RLB, SmartPAINT, GraphixPAINTER, and Paint-MASTER). STORE and LOAD in virtually any ADAM picture format. A variety of picture print functions including COLOR for Okimate 20 owners. Requires at least a 64K expander. \$14.95 on disk or DDP (DIGITAL EXPRESS).

**SEARCHset (1 & 2):** preset word lists for use with Mr. T-SEARCH. \$8.95 each on disk or DDP (DIGITAL EXPRESS)

**SmartTALK:** multi-featured speech program with graphics and sound. For use with Eve SS/CC or TALKER by OrphanWare. Requires at least a 64K expander. \$19.95 each on disk or DDP. (DIGITAL EXPRESS)

**File Indexer:** Great utility for organizing directories. Just \$9.95 on disk or DDP. (AJM SOFTWARE)

**DISK DOCTOR:** Useful program for reconstructing a damaged directory. Just \$9.95 on disk or DDP; (AJM SOFTWARE)

**SwiftBASIC 80 (rv 2.3):** Now the BASIC that you're used to can be used with the OrphanWare 80 column board. Now it also works with the EVE or OBS clock board. Plus there are many enhancements including DMP support and automatic RAMdrive capability with a memory expander. Just \$11.95 on disk or DDP. (DIGITAL EXPRESS)

**CARD SET (1, 2, & 3):** Now you can print nice greetings cards with PowerPAINT. Comes with three graphic cards each, plus sprite and clip art. Just \$11.95 on disk or DDP (each). (BRYAN'S SOFTWARE)

**SwiftLINK 1.3:** A multi-featured terminal program written entirely in fast Z80 code. Works with AL300 or any Hayes compatible external modem connected thru the OBS/EVE serial port (300, 1200, 2400, or 4800 baud). SmartKEY macros, 20 record library (name, #, pw, id, memos, and parms), RAMdrive, plus lots more -- extremely user friendly. Works with 30, 40, or 80 columns (EVE or OBS card required for 80). Imminent updates; comes with coupon for THREE free updates -- send blank disk and 65 cents in postage for updates. We welcome suggestions for improvement. Only \$19.95 on disk or DDP. (DIGITAL EXPRESS)

## ASSORTED ITEMS

"Teak wood rolltop disk storage unit" holds 70 5.25" disks just \$17.95  
 "Printer power supply" just \$15.95 each  
 "RED or BLUE Panasonic ribbons" just \$5.95 each  
 "Black Okimate 10/20 ribbons" just \$4.45 each  
 "Color Okimate 20 ribbons" just \$5.45 each  
 "Nashua Disks" DS/DD; 10 per box; just \$6.45  
 "BOST DISASSEMBLY" by George Havach just \$2.45 each  
 "PICTORIAL GRAPHICS LIBRARY" by DIGITAL EXPRESS; 100+ pages; nicely bound; complete hardcopies of the PD graphics for PowerPAINT; arranged by size (screen, letterhead, workspace, clip art, sprites, fonts, and paint brushes) -- KNOW what's available for PowerPAINT and WHERE to find it; just \$14.95 N&B SDP

**RECREATION/GAMES SOFTWARE**

- 000 MageQuest (rev 2) (by REEDY SOFTWARE) \$16.95 (retail) \$14.95 (SDP)  
 \* superb graphic adventure; includes 9 levels of play in the main adventure plus 3 solo adventures; additional solo adventures available from REEDY SOFTWARE
- 000 TriviaPac I (by Mr. T. SOFTWARE) \$17.95 (retail) \$14.95 (SDP)  
 \* 1200 questions; 6 categories; one to four players; graphics and sound; hall of fame; many hours of fun
- 000 Kid's TriviaPac (by Mr. T. SOFTWARE) \$17.95 (retail) \$14.95 (SDP)  
 \* 1080 questions; 6 categories; one to four players; graphics and sound; hall of fame; many hours of fun
- 000 Strategy Strain (by DATA DOCTOR) \$18.95 (retail) \$14.95 (SDP)  
 \* nine intellectually challenging computer classics; graphics and sound; good Star Trek game
- 000 Lab Mouse (by REEDY SOFTWARE) \$13.95 (retail) \$11.95 (SDP)  
 \* exciting game that puts you in the role of a laboratory mouse stuck in a maze; all hi-res graphics; 5 skill levels
- 000 Entertainment Pack (by REEDY SOFTWARE) \$16.95 (retail) \$14.95 (SDP)  
 \* three challenging computer classics (connect 4, blockade, and slide puzzle); great graphics; fast animated sprites; one or two players
- 000 Stage Fright (by REEDY SOFTWARE) \$16.95 (retail) \$14.95 (SDP)  
 \* extensive text adventure in which you play the role of an actor or actress trapped in an abandoned theater; some graphics and sound; easy to play -- challenging to win; game save option; three progressive levels of play
- 000 Diablo (by IMAGE MICROCORP) \$19.95 (retail) \$16.95 (SDP)  
 \* a maze-like game in which the play field consists of user movable tracks on which you try to keep a ball in motion; good graphics; requires substantial strategy to play
- 000 Black Gold (by IMAGE MICROCORP) \$19.95 (retail) \$16.95 (SDP)  
 \* a board style game for one to four players; compete by digging for oil; good graphics
- 000 Stock Market Game (by IMAGE MICROCORP) \$19.95 (retail) \$16.95 (SDP)  
 \* a board style game for 1 to 4 players; see who makes the biggest profit buying and selling stock; a relatively good tool for learning about the stock market; more enjoyable with some stock market understanding
- 000 Centipede (by AtariSOFT) \$12.95 (retail) \$10.95 (SDP)  
 \* the still popular arcade game in which you shoot away segments of oncoming centipedes; available in cartridge ONLY; one or two players
- 000 Defender (by AtariSOFT) \$12.95 (retail) \$10.95 (SDP)  
 \* the action packed arcade game in which you shoot attacking alien ships and attempt to save inhabitants of the planet below; available on cartridge PLUS disk or data pack (specify which one you want with the cartridge); one or two players
- 000 Beyond Trek (by Digital Express) \$19.95 (retail) \$14.95 (SDP)  
 \* pits you against hostile klingons; very good graphics; good sound/music; protect 4 starbases and annihilate the klingons; you command the Enterprise; hall of fame for 10 high scores (for session or all-time); requires at least a 64K expander
- 000 Chess Champ (by Digital Express) \$19.95 (retail) \$14.95 (SDP)  
 \* the FIRST graphic chess game for the ADAM; great graphics; easy user interface; 10 skill levels; a little slow on higher skill levels; good chess playing companion; take back last move; edit board; on-line instructional; store/load up to 52 games per disk or data pack; requires at least a 64K expander
- 000 Las Vegas Craps (by Al Roginsky) \$16.95 (retail) \$16.45 (SDP)  
 \* Realistic computer version of the famous casino game; colorful graphics; good sound; good use of sprites; online instructions; stores your money; allows use of markers; and comes with an Official Craps Gaming Guide; this is an EDITOR'S CHOICE GAME--excellent
- 000 MIND OVER ADAM (by Steve Pitman) \$11.95 (retail) \$11.45 (SDP)  
 \* This game plays like the popular board game MasterMIND™; great animation; excellent sound; colorful graphics; five levels of play; stores high scores (name entered using a colorful Ouija board; this is an EDITOR'S CHOICE GAME--excellent

**GUIDES / BOOKS / INSTRUCTIONS**

- 000 Hacker's Guide (vol 1) (by Peter & Ben Hinkle) \$12.95 (retail) \$11.95 (SDP)  
\* The Hinkle's in - depth guide to the technical aspects of exploring ADAM; 60 pages; 18 programs
- 000 Hacker's Guide (vol 2) (by Peter & Ben Hinkle) \$12.95 (retail) \$11.95 (SDP)  
\* The Hinkle's detailed guide to SmartBASIC V1.0; 110 pages; HELLO program includes several BASIC fixes and enhancements
- 000 Hacker Software (by Peter & Ben Hinkle) \$5.95 (retail) \$3.95 (SDP)  
\* the programs from volumes one and two (above)
- 000 ez ref 101 (by DIGITAL EXPRESS) \$2.45 (retail) \$1.95 (SDP)  
\* approximately 700 Z80 instructions listed in NUMERICAL sequence; 9 pages; decimal, hex, op code, operands; good for disassembling machine code; holes drilled for easy binder insertion
- 000 ez ref 102 (by DIGITAL EXPRESS) \$2.45 (retail) \$1.95 (SDP)  
\* approximately 700 Z80 instructions listed in ALPHABETICAL sequence; 9 pages; decimal, hex, op code, operands; good for assembling machine code routines; holes drilled for easy binder insertion
- 000 ez ref 103 (by DIGITAL EXPRESS) \$3.95 (retail) \$2.95 (SDP)  
\* study of ADAM's EOS; jump table vectors, routines, setup for CALLs, exit register meanings; plus several assorted tables that have appeared in N&B; 21 pages; holes drilled for easy binder insertion
- 000 Pinball/HardHat Guide \$3.95 (retail) \$2.95 (SDP)  
\* 40 pages of instructions for the popular public domain package; holes drilled for easy binder insertion; includes Pinball reference chart

**"NIBBLES & BITS" SOFTWARE**

- 000 N&B binder01 (by DIGITAL EXPRESS) \$29.95 (retail) \$24.95 (SDP)  
\* all six issues from 07/86 thru 12/86; sturdy 3-ring binder; includes two DDPs or two disks containing all the programs
- 000 N&B binder02 (by DIGITAL EXPRESS) \$29.95 (retail) \$24.95 (SDP)  
\* all six issues from 01/87 thru 06/87; sturdy 3-ring binder; includes two DDPs or two disks containing all the programs
- 000 N&B issue programs (by DIGITAL EXPRESS) \$6.95 (retail) \$3.95 (SDP)  
\*set01: all the programs from 07/86 thru 09/86 \*set02: all the programs from 10/86 thru 12/86  
\*set03: all the programs from 01/87 thru 03/87 \*set04: all the programs from 04/87 thru 06/87  
\*set05: all the programs from 07/87 thru 09/87 \*set06: all the programs from 10/87, 11/87, & 03/88  
\*set07: all the programs from 4/88 thru 6/88 \*set08: all the programs from 07/88 thru 09/88

**GRAPHICS DESIGN SOFTWARE**

- 000 ShowOFF I (by DIGITAL EXPRESS) \$29.95 (retail) \$24.95 (SDP)  
\* graphics design package (enter text, draw polygons, paint, save pictures, etc.); fast color changes; a variety of print options (preset for Epson FX / IBM 5152 printer codes); printing graphics requires Centronics parallel interface for printer
- 000 CLIPPER (by DIGITAL EXPRESS) \$19.95 (retail) \$14.95 (SDP)  
\* introduces the concept of "clip art" to ADAM; totally machine code program; build clip art collections; put clip art in hi-res pictures; draw and edit clip art; also capture from hi-res pictures; enter text; change colors; includes an 11K ramdisk (does NOT require 64K expander)
- 000 FontPOWER (by DIGITAL EXPRESS) \$16.95 (retail) \$12.95 (SDP)  
\* utility using Coleco-like graphics for designing your own font sets; comes with 8 font sets including "script", "Roman", "cory", and "bold"; shows you how to use the font sets in high or low resolution graphics; plus three font shape tables for HGR and HGR2 modes; includes demos; fonts can be used in your own BASIC 1.0, BASIC 2.0, and z80 programs
- 000 SpritePOWER (by DIGITAL EXPRESS) \$19.95 (retail) \$14.95 (SDP)  
\* totally machine code utility using Coleco-like graphics for designing your own sprites; includes 3 sets of sprites; extensive instruction manual; shows you how use sprites in BASIC 1.0, BASIC 2.0, and Z80 programs; includes PUFF; includes 11K ramdisk (does not require 64K expander); very easy to use program
- 000 PowerPAINT (by DIGITAL EXPRESS) \$44.95 (retail) \$34.95 (SDP)  
\* 80K machine code graphics processor for ADAM; the most extensive graphics design program available; uses Coleco-like graphics; a large variety of file storage and retrieval options (directly loads PaintMASTER, SmartPAINT, GraphixPAINTER, SmartLOGO, and RLE pictures); quick global color changes; move, copy, and erase options; many hardcopy print options (screen, labels, letterheads, and whole picture); screen scroll options; four screen pictures with 64K card (8 screen picture with 256K or 512K expander); uses FontPOWER font sets, CLIPPER clip art, and SpritePOWER sprites; requires at least a 64K memory expander; requires a Centronics parallel interfaced Epson FX or IBM 5152 compatible dot matrix printer for hardcopies; fully compatible with SmartPAINT; you can easily UNDO changes; internationally acclaimed as THE graphics program for ADAM

**PROGRAMMING UTILITY SOFTWARE**

- 000 Intel-BEST 3.3** (by DIGITAL EXPRESS) \$24.95 (retail) \$10.95 (SDP)  
 \* makes over 3 dozen changes to BASIC 1.0; comes with 9 very user friendly MUSIC commands
- 000 Intel-LOAD V1.0** (by DIGITAL EXPRESS) \$15.95 (retail) \$11.95 (SDP)  
 \* converts BASIC 1.0 programs to load up to 12 times faster; stays in RAM; 2 BSAVE options
- 000 Intel-LOAD V2.0** (by DIGITAL EXPRESS) \$15.95 (retail) \$11.95 (SDP)  
 \* converts BASIC 2.0 programs to load up to 12 times faster; stays in RAM; 2 BSAVE options; works only in STD MEM
- 000 SmartBEST V1.0** (by DATA DOCTOR) \$16.95 (retail) \$14.95 (SDP)  
 \* makes several changes to BASIC 1.0; not compatible with Intel-BEST 3.3
- 000 SmartTRIX** (by DATA DOCTOR) \$19.95 (retail) \$14.95 (SDP)  
 \* a set of 10 excellent programming aides; two very nice sprite programs; 60 page manual; disk & DDP versions not compatible
- 000 BASICaide (rev 2)** (by Mr. T. SOFTWARE) \$11.95 (retail) \$9.95 (SDP)  
 \* several BASIC 1.0 enhancements; new CHAIN command; new BIN command to store fast loading programs; macros; fixes; more
- 000 TurboDISK 1.0** (by DIGITAL EXPRESS) \$24.95 (retail) \$19.95 (SDP)  
 \* creates ramdisk ability with BASIC 1.0; corrects several BASIC bugs; includes TurboCOPY -- very nice media control and copy utility; requires 64K expander
- 000 MegaUtil** (by MARATHON COMPUTER) \$32.95 (retail) \$27.95 (SDP)  
 \* an excellent collection of varied programming aides; includes ByteWriter (block editor), CopyWriter (media backup utility), PD modules, programming tips, plus more
- 000 TurboDISK 2.0** (by DIGITAL EXPRESS) \$15.95 (retail) \$11.95 (SDP)  
 creates a powerful ramdisk ability for BASIC 2.0 and a 64K expander; disables EXT MEM command
- 000 MegaDISK 1.0** (by DIGITAL EXPRESS) \$24.95 (retail) \$19.95 (SDP)  
 \* creates the ramdisk ability for BASIC 1.0 or your own Z80 programs; works with 64K, 128K, 256K, 512K, and 1M ORPHANWARE memory expanders; automatically checks size of your XRAM card; does NOT disable NMI interrupt (FLASH, etc.); comes with 5 PD programs including EZfileXFER; much, much faster than a Coleco disk drive; self-booting or can be BRUN after BASIC
- 000 XRAMPak I** (by DIGITAL EXPRESS) \$19.95 (retail) \$14.95 (SDP)  
 \* the perfect companion for MegaDISK 1.0 and your ORPHANWARE memory expansion board (any size); includes XRboot (boot BASIC 1.0, ADAMcalc, and ADAMlink in about 2 seconds), XRCopy (a VERY powerful copy utility uses ramdisk space ABOVE your files stored there -- great for multiple copies of PD software), PACK and UNPACK (compacts and decompacts your favorite utilities into/from one large file for quick system setup), EZfileXFR2 (faster than EZfileXFER, by not restarting the directory after each transfer)
- 000 AUTOWRITER** (by Mr. T. SOFTWARE) \$15.00 (retail) \$14.25 (SDP)  
 \* a menu driven utility that writes machine code routines and BASIC subroutines (included) of your choice to a user designated data pack or disk; file may then be merged with existing programs to add special features; detailed instruction manual

**DOT MATRIX PRINTER SOFTWARE**

- 000 FILE PRINTER** (by Terry Fowler) \$9.95 (retail) \$9.45 (SDP)  
 \* a fine set of BASIC utilities for use with your dot matrix printer; prints SmartWriter compatible files; allows you to set default printer functions; (price goes UP at the end of November)
- 000 ShowOFF II** (by DIGITAL EXPRESS) \$19.95 (retail) \$14.95 (SDP)  
 \* machine code print enhancements for SmartWriter (adds 32 print controls and 5 CONTROL functions to SmartBASIC; requires Centronics parallel interface, a Panasonic KXP-1080 or 1080i printer, and at least a 64K expander)
- 000 ShowOFF IIa** (by DIGITAL EXPRESS) \$19.95 (retail) \$14.95 (SDP)  
 \* very similar to ShowOFF II except that it is compatible with any dot matrix printer that supports Epson FX escape codes; works with Epson, Star, and printers and the Okimate 20; does NOT include line justification commands or internal document margin control; requires at least a 64K expander
- 000 Fast & Calc Patch** (by ORPHANWARE) \$9.95 (retail) \$8.95 (SDP)  
 \* FastPatch 2.0 directs all printer output to your parallel interfaced printer -- can be used with SmartBASIC 1.0, SmartWriter, and SmartFiler; CalcPatch directs ADAMcalc output to your dot matrix printer; neither patch includes special printer commands -- works just like the standard ADAM versions
- 000 LinkPatch** (by ORPHANWARE) \$9.95 (retail) \$8.95 (SDP)  
 \* ADAMlink II telecommunications software with up and down loading of ASCII files; plus directs printer output to your dot matrix

**COLECO COPYRIGHTED SOFTWARE**

000 SmartLOGO	(data pack only)	\$47.00 (retail)	\$15.95 (SDP)
* Coleco's version of the popular structured language; good for graphics and sound control; 350+ page manual			
000 SmartFILER	(data pack only)	\$19.95 (retail)	\$10.95 (SDP)
* Coleco's general purpose database program; easy electronic filing system; search features; 38 page manual			
000 ADAMcalc	(data pack only)	\$39.00 (retail)	\$15.95 (SDP)
* advanced electronic spreadsheet; comes with sample templates; 154 page manual			
000 CP/M 2.2	(data pack only)	\$49.00 (retail)	\$16.95 (SDP)
* Coleco's version of the still popular operating system; 1000's of public domain supporting programs; 250+ pages			
000 SmartLETTERS & FORMS	(disk/data pack)	\$19.95 (retail)	\$9.95 (SDP)
* Includes samples for business, personal, and social letters; \$7.95 on disk			
000 Richard Scarry's Word Bk	(data pack only)	\$19.95 (retail)	\$10.95 (SDP)
* Fun to play game; very colorful animated graphics; educational fun for ages 5-8; reading skills builder			
000 Recipe Filer	(data pack only)	\$14.95 (retail)	\$6.95 (SDP)
* file recipies by name, type of meal, and main ingredient; ADAM will even print out a grocery list for you			
000 Best of Broderbund	(data pack only)	\$14.95 (retail)	\$10.95 (SDP)
* Two fast action games on one tape; futuristic space warrior; the other lets you rescue 64 hostages by chopper			
000 Super ZAXXON	(data pack only)	\$14.95 (retail)	\$5.95 (SDP)
* Coleco's version of the still popular fast-action arcade game			

**COLECO ADAM ADD-ONS**

000 Exp Mod 2 with Turbo	(cartridge)	\$69.95 (retail)	\$39.95 (SDP)
* tabletop console with arcade-style steering wheel and foot pedal; comes with exciting Turbo cart			
000 Super Action Controllers	(cartridge)	\$59.95 (retail)	\$39.95 (SDP)
* two deluxe hand-held game controllers; has built-in spinner and two extra triggers; includes baseball cart			
000 Roller Controller	(cartridge)	\$49.95 (retail)	\$29.95 (SDP)
* Arcade-style roller ball; comes with slither cartridge			

**COLECO Public Domain Titles**

(\$5.95 on tape; \$3.95 on disk)

SmartBASIC 2.0: improved interpreter; 49K file; works with or without 64K card  
 Pinball/HardHat Mac: latest version with two demo PB games; 1 to 4 players  
 ADAMlink II: supports up and down loading of SW compatible ASCII files; comes with docs  
 Jeopardy: just like the game show; great graphics; 1 to 3 players  
 Super SubRoc: 90K arcade-type game; super graphics; hall of fame; does not require memory expander  
 Troll's Tale: easy graphic adventure; supports one player; disk & DDP not compatible  
 Video Hustler: graphic billiards game; 1 or 2 players  
 Disk Manager: file handling utility; the program that comes with a Coleco disk drive  
 SmartBASIC 1.0: a replacement for the BASIC the came with your ADAM  
 Cabbage Patch Kids Adventure: exciting game for kids; maneuver doll around moving and stationary obstacles



**MISCELLANEOUS SUPPLIES**

000 Coleco/LORAN digital data packs	\$29.95 (retail--for 10) \$24.95 (SDP--for 10)	\$3.95 (retail--each) \$2.95 (SDP--each)
* designed and formatted by Loranger Manufacturing; no face label		
000 plain label digital data packs	\$19.95 (retail--for 10) \$17.95 (SDP--for 10)	\$3.45 (retail--each) \$2.25 (SDP--each)
* Sony brand formatted by E&T SOFTWARE; no face label		
000 plain label 5.25" disks for ADAM	\$6.95 (retail--for 10) \$4.25 (SDP--for 10)	\$1.79 (retail--each) \$1.49 (SDP--each)
* double-sided; double density; includes envelope and write protect tabs		
000 printer ribbons for SmartWRITER printer	\$15.95 (retail--for 3) \$14.95 (SDP--for 3)	\$5.95 (retail--each) \$5.25 (SDP--each)
* black ink; standard replacement ribbon cartridge		
000 Panasonic printer ribbon	\$5.45 (retail--each) \$4.95 (SDP--each)	
* black ink; nylon; standard replacement ribbon for 1080, 1080i, 1090, 1091, 1091i, and 1092		
000 standard multipurpose adhesive labels	\$5.45 (retail--for 1000) \$3.95 (SDP--for 1000)	\$2.95 (retail--for 500) \$2.25 (SDP--for 500)
* white, pin-feed, 3 1/2" by 1 5/16"; fan fold; single column		
000 multipurpose adhesive labels	\$9.95 (retail--for 1000) \$7.95 (SDP--for 1000)	\$6.95 (retail--for 500) \$4.95 (SDP--for 500)
* white, pin-feed, 4" by 1 7/16"; fan fold; single column		
000 word processing computer paper	\$4.25 (retail--for 250 sheets) \$3.45 (SDP--for 250 sheets)	
* white; pin-feed; 9 1/2" by 11"; fan-fold; 20 lb. wt.; clean edge; one part		

**EDUCATIONAL SOFTWARE**

000 Spanish Vocabulary (by MARATHON COMPUTER)	\$18.95 (retail)	\$16.95 (SDP)
* a unique program for ADAM; includes electronic dictionary; comes with 1600 words; expandable to 7400 words; quizzes; printed study sheets; report cards		
000 QuikFax Quest (by DATA DOCTOR)	\$18.95 (retail)	\$7.95 (SDP)
* three academic quizzes; includes study mode (on - screen and hardcopy); US capitals, world capitals, and Chemistry elements		

**HOME/BUSINESS SOFTWARE**

000 SoftPACK I (by E&T SOFTWARE)	\$18.95 (retail)	\$18.45 (SDP)
* four menu driven home management programs; SoftCHECK, Checkbook Totalizer, CheckBook Reconciler, and SoftMailer (address filer for labels and envelopes)		
000 Business Pack I (by E&T SOFTWARE)	\$18.95 (retail)	\$18.45 (SDP)
* two useful programs for creating and printing address files; plus two very good programs for inventory control and printing		



00000 "SDP" stands for Subscriber Discount Price. N&B subscribers generally get a 5% to 25% discount off the manufacturer's retail price of items listed.

00000 Unless otherwise noted, all software is available on disk or datapack.

00000 All DIGITAL EXPRESS storage media (disks and data packs) are warranted to be free from defects in materials and workmanship. If the storage medium proves defective, return it to us for replacement or repair (at our discretion). After 90 days from purchase, a \$3.00 return shipping fee is required.

00000 The product prices listed herein may be subject to change after November 15, 1988.



Public Domain Software Info

Public domain software is offered as a quick, inexpensive means for you to expand your ADAM software library. Note, however, that public domain software is not necessarily of commercial quality. Although, we do attempt to winnow out flawed programs, there is no guarantee of the quality regarding these packages. If, however, the storage medium itself proves defective within 90 days of purchase, we will replace it free of charge.

You may get any of the volumes described below on digital data pack for \$5.95 or on disk for \$3.95. Subscribers also have an option to get a volume FREE (limit three per calendar month).

Here's how to get one FREE. (1) Contribute an original program for any library. (2) send a signed statement that the program is NOT copyrighted. (3) send the program on DDP (digital data pack) or disk; one DDP or disk for each volume that you want to exchange. And, (5) include a return mailer with sufficient postage or send \$3.00 for shipping costs.

SmartBASIC V1.0 LIBRARY

Each of these volumes is self-booting with SmartBASIC stored on the volume. When you pull the reset, a graphic screen will be displayed as BASIC loads. All programs will speed load. Each volume (except the utility volumes) is controlled by a user friendly RAMdisk (does NOT require the 64K expander) central menu for easy file selection. Each volume contains over 120K of files.

N&Bgames (volumes 1, 2, & 3): an assortment of text adventures, board games, and animation games.

N&Bgraph (volumes 1 & 2): a variety of graphics displays and music programs.

N&Bmath (volumes 1 & 2): several scientific and financial math programs.

N&Butil (volumes 1 & 2): an assortment of programming utilities.

GRAPHICS FILES LIBRARY

In order to view/use the hi-res picture files in this library you need SmartPAINT (from ShowOFF I), the HGR Picture Manager program (02/87 N&B, page 16), or PowerPAINT.

N&Bpix (volumes 001 thru 028): 13 screen pictures each.

Art Gallery (volumes 1 & 2, compiled by REEDY SOFTWARE): 13 screen pix each; #2 is smurf-like characters.

PaintMATES (vol 1-13): small art for use with PowerPAINT (fonts, sprites, clip art, & brushes).

PaintFORMS (vol 1 - 3): one full page graphic, 3 letterheads, & 1 label for use with PowerPAINT.

PixManII: switch pictures between RLE, SmartPAINT and PaintMASTER formats; includes SW docs.

PowerVERSES (vol 1 - 3): BIBLE verses stored as hi-res screens by D.L. DECKER ENTERPRISES.

CP/M 2.2 LIBRARY

CP/Mgames (volumes 1 & 2): assorted EBASIC (included) games.

demo carts: requires 64K XRAM card; music samples, system tester, much more.

CP/Mutil01: a variety of utility .COM files for CP/M.

Z80programmer (vols 1 & 2): assorted utilities for advanced programmers; donated by D.L. Decker.

MISCELLANEOUS COLLECTIONS LIBRARY

MWplus01: a collection of improvements to MultiWrite (required); by Jim Guenzel.

N&Bacalc01: several paradigm and other files; 148K; by Terry Fowler.

EZpak: self-booting medium; contains EZmenu & EZcopy.

ezFILER: self-booting medium; contains nice BASIC address filer.

SHAPEMAKER: several font shape tables; nice shape design utility; by Guy Cousineau.

N&Blogo01: a variety of SmartLOGO (required) files.

One Minute Formatter: 1 or 2 drives, single or double sided, same time, plus more.

MusicBOX (vol 1 & 2): 10 SmartTUNES songs each, plus instructions, and more.

Guy's Games: self-booting collection of graphic, thinking games.

Guy's Misc. Utils: assorted BASIC utilities by Guy Cousineau.

Bowling Diary: self-booting database for tracking bowling performance; by Hector Sanchez.

ADAM FB Analyzer: helps pick winners with NFL score tracking; by Hector Sanchez.

MediaMATE: Includes media editors by D.L. Ewing, Brett Lynn, and Guy Cousineau.

French BASIC: includes numerous enhancements and new commands; includes 2 demos.

VideoTUNE songs (vol 1&2): 34 songs each for use with VideoTUNES by FutureVISION.

SOLO PACK (vol 2&3): six new adventures each for use with MageQUEST--PD by Reedy Software.



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Steve Pitman  
3705 Church Street  
Cincinnati, OH 45244

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