

# NIBBLES & BITS



THE COMPREHENSIVE MONTHLY NEWSLETTER FOR THE ACTIVE ADAM COMMUNITY

PO Box 732 Ocean Springs, MS 39564 (601)875-2414

AUGUST 1989

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DESIGNED and PRINTED entirely with the amazing ADAM computer (using PowerPAINT, SpeedyWRITE 2.0, ShowOFF II, and GoWRITER).

## PUBLIC NOTICE

*Nibbles & Bits* is published monthly by The SoftWORKS FACTORY. Individual issues may be purchased for the current month or a back issue for \$4.00. The AUGust 1989 issue is the first one published by TSF; there are 27 preceding issues. When ordering back issues, please specify the issue number.

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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, England, Israel, South Africa, and Spain, for example), we will extend these deadlines for 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. Call or write for info on paid advertising in *N&B*.

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# EDITORIAL COMMENT



Egyptian mythology tells us the story of a great bird called the phoenix who after consumption by raging fire would rise from his own ashes to live again, better and stronger for having endured the pain. Like the phoenix, I have risen from the seemingly all-consuming conflagration of hapless failure, betrayed trusts, and unrelenting despair. For what it's worth my friends, I am back ... and I am back to stay with an ebullient, steadfast resolve.

Seven long months have passed since the last issue of *Nibbles & Bits*. It is my fondest wish that you are as excited to see N&B again as I am, and that you are eager to peruse its contents for the latest breaking news, general computer tips, and sundry other items included to help you get better use of your system.

But before you turn the page though, bare with me a few moments. I'd like to share some thoughts and feelings with you ... thoughts and feelings about friendship, loyalty, and thankfulness.

Early this winter, nearly everything that I considered important in life seemed to abruptly rip apart. Personal and business catastrophes befell me at every turn. Each day brought a new failure -- some minor, most major. When it rains it does pour, huh?

I just collapsed under the numerous painful pressures. I erroneously concluded that there was no option but to simply give up and walk away from life as I knew it. Too diffident to even consider the notion of rebuilding, I sequestered myself for months. But, I had overlooked my single saving grace -- friends, good friends, people who had an unquestioning faith in me.

Late one evening I called one of my best friends, Tony Patterson (author of the highly acclaimed *Temple of the Snow Dragon* graphic adventure). The first words I uttered were, "Well Tony, how many computer owners are ready to lynch me?" He chuckled with a disarming confidence, "You just won't believe it ... people all over the country are pulling for you ... they know you didn't just disappear without good reason ... users groups are taking up cash donations to give to you ... I have never seen anything like it ... on some BBS's a doubting Thomas will belittle your absence only to be swarmed by your fans who dare him to utter another disparaging word about you ... and, by the way, it's great to hear from you."

And so it was. Letters of support poured in -- instead of criticizing me, you gave me words of encouragement. "Hang in there, Sol. The ADAM needs you. Just start publishing N&B again and keep writing that software."

Some of you that I talked to in person or on the phone offered to let me come and live in your homes until I was on my feet again. Many have offered small financial gifts; a few have offered thousands in loans and gifts. I'm still in awe that so many of you have such faith in me. To date I haven't accepted any gifts, but thank you so much for your concern. And thank you so much for your patience and various expressions of support. Hopefully in the weeks & months to come, the powerful programs you'll see coming from TSF will reassure you that you did make the right decision in supporting me.

I'm far more accustomed to writing on a technical rather than a personal level; I just want to thank you ... THANK YOU. A few of you have offered and given support that has made a tremendous difference. Thank you especially: Faye Deere, Pat Herrington, Mike Keith, Rick Lefko, Sharon McFarlane, Tony Patterson, Joe Quinn, and Barry Wilson.

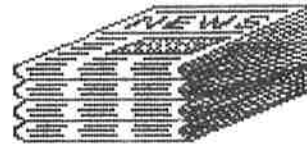
If you haven't heard already, Tony Patterson and I have formed The SoftWORKS Factory. This new firm not only publishes N&B, but also handles all Digital Express and Digital Adventures products. Plus, with Tony's graphics and creative talents coupled with my programming knowledge of the system you'll be seeing all sorts of powerful, innovative software from TSF.

Before I close, I'd like to give a special THANK YOU to Tony. Even after I made the decision to start this uphill battle of rebuilding there have many rough moments for me. Through it all Tony has been right here ... thank you Tony for being my friend. Thank you.

Thank you all for standing by me and freely giving your support and encouragement. Well ... back to work hacking on this orphaned computer system that we all have such an affinity for. Thank you for your time.

*Solomon Swift*  
Solomon Swift

# ADAM NEWS AND UPDATES



□□□ As you can see, N&B is back in publication. We appreciate your patience. Next month we're adding four more pages to our monthly ADAM only periodical. Also, you may note that your issue was mailed by BULK RATE. We have shifted to this method for the obvious tremendous savings. If you have any contention with this on your current subscription, please let us know promptly. This should delay the arrival of N&B at your house by no more than three days even during the busier months.

□□□ You will still get the same number of issues as reflected on your last mailing label. If this information is incorrect on your current label, please let us know.

□□□ We have updated our ADAM FAX PAK to revision 1.1. You can update your premier version by sending it along with \$1.00 to us -- no additional shipping. Hereafter we'll be updating once a year with the same policy. The FAX PAK is quick reference book listing all the ADAM PUBLICATIONS, many USERS' GROUPS, ADAM BULLETIN BOARDS, and all the ADAM VENDORS who deal directly with the public. This includes both addresses and phone numbers. The FAX PAK is available from us for just \$5.00.

□□□ Several ADAM bulletin boards are now working on a system to combine their respective message bases and private mail sections into one large National ADAM Network. Many of us will be able to call a local or in-state number to communicate with other ADAM owners throughout the country. The OBS BBS (OH), the AWAUG BBS (VA), the IEAUG BBS (CA), the TSF BBS (MS, soon), and many of the A-NET BBS's are also considering joining the National Network.

□□□ REEDY SOFTWARE has completed a new "addicting" game called ADDICTUS. See our review in this issue ... many, many hours of enjoyment.

REEDY SOFTWARE  
10085 60<sup>TH</sup> Street, SE  
Alto, MI 49302

□□□ OrphanWARE has announced that they (John Lingrel and Ron Collins) will be starting their business back up at full scale in mid September. The new firm will be called "The Classic ADAM"; one new item will be an internal clock chip (current clocks are on boards). We expect to see many new, powerful innovations from TCA.

The Classic ADAM  
5665 Myers Road  
Akron, OH 44319

□□□ American Design Components is offering significant quantity discounts (10 or more of a product) on much of their ADAM stock for a limited time. If your group is interested contact Amy at:

American Design Components  
62 Joseph Street  
Moonachie, NJ 07074  
1 (800) 524-0809

□□□ Here are four firms that repair various components of the ADAM system. Philip Kosowsky also gives a 5% discount to users group members (just give him your N&B subscription ID number).

Disk Drive Repair  
OrphanWare  
5665 Myers Road  
Akron, OH 44319

Disk Drive Repair  
E&T SOFTWARE  
1010 Westminster  
Garland, TX 75040

Console and Disk Drive Repair  
ADAM'S HOUSE  
Route 2, Box 2756  
Pearland, TX 77501

Console and Disk Drive Repair  
Philip Kosowsky  
6067 Jerusalem Drive  
Clay, NY 13041

□□□ In case you're having trouble finding ribbons for your ADAM daisywheel printer here are some compatible models. This is from an article by Paul Pappas that appeared in Computer Shopper. Carousel 310, Digital 310W, LQP-01, LQP-8E, Diablo 1200 (1340, 1641 and HyType I too), MDS 2300 and 2307, Multiterm T300, Trend Data 4000, and Xerox 122 (124, 126, 128, 151, 152, 800, 850, 860, 1550, 3010, and 3010WP too).



□□□ Walter's Software has released a new program for printing graphic labels, THE LABEL WORKS. See our review in this issue.

Walter's Software  
Rt 4, Box 289-A  
Titusville, PA 16354

□□□ Wizard's Lair Software has just released their latest educational package for children. SCHOOL DAZE has two quiz types, one of which correct answers help an onscreen character to scale a wall.

Wizard's Lair Software  
8125 West Catherine  
Chicago, IL 60656

□□□ For those who have both an ADAM and an IBM compatible, White Software (SpeedyWRITE, etc.) has just released a program that will let you convert ADAM files to IBM ASCII format and permit various types of interchange. "The ADAM Connection" is available from M.W. Ruth Company for \$24.95

□□□ Joe Quinn of the Gulf Coast AUG is completing a graphic adventure entitled "The Abominable Snowman". Geared for younger adventurers, the package should be released in late September and retail for \$11.95.

□□□ Pitman Software has released two new packages: ADAM BOMB and DINOSAUR DIG. See our review in this issue of DINOSAUR DIG.

PITMAN SOFTWARE  
3705 Church Street  
Cincinnati, OH 45244

□□□ StratoZAP is a new shootem-up game from Allied Creative Engineers. See our review in this issue.

□□□ The Gulf Coast AUG has a limited number of Coleco disk drives now available for just \$175 plus \$7.50 for shipping. This includes the power supply and disk manager diskette.

Gulf Coast ADAM Users  
6665 Timbers Drive  
Mobile, AL 36695  
(205) 639-1368 (after 9pm CST)

□□□ You'll note several minor changes in this phoenix edition of N&B. One of these is Tony's graphics (particularly in the article headers). Another improvement is the REVIEW SYNOPSIS (page 19). This provides a convenient quick reference of the various products reviewed in each issue. We welcome your comments on this issue and suggestions for further improvement.

□□□ If you haven't heard already, the first meeting of ADAM Users from around the country (and Canada too) is "ADAMCON 01". Sponsored by the Metro Orlando AUG, it will undoubtedly be the single largest gathering of ADAM owners since the computer's inception in 1983. Four days starting October 7<sup>th</sup> this year you'll get to "meet" most ADAM vendors, "meet" MANY other ADAM owners, attend special symposiums, be eligible for various door prizes, and get a 30% discount on all products carried by MW RUTH Company. The deadline for registration is drawing near. For more info and hotel discounts, contact:

Monte Neece  
1048 Winter Springs Blvd.  
Winter Springs, FL 32708  
(407) 695-9199

□□□ ADAMZONE Publishing has restarted their "NetworkADAM NewsINFO Letter". For a free copy of their catalog/newsletter send an SASE to:

ADAMZONE Publishing Company  
Attn: Eric E. Danz  
17 Capstan Road  
West Milford, NJ 07480-4816

□□□ E&T SOFTWARE has suspended development of their IMAGE SCANNER due to poor response for the product from ADAM owners. If you are interested, please send them a short memo.

E&T SOFTWARE  
1010 Westminster  
Garland, TX 75040

□□□ OrphanWARE has their hard-drive interface available for \$145. You can generally get a 10 or 20 Meg HD for \$150 to \$350. Currently the interface comes with CP/M software drivers and the EOS and GOODS drivers will be available soon.

□□□ TSF currently has complete ADAM systems (in the original box) available for just \$225 including shipping. The systems are fully tested and come with all the original equipment.

□□□ Be sure to note our new address. Send all orders and correspondence to us (Sol Swift and Tony Patterson) at:

The SoftWORKS FACTORY  
P.O. Box 732  
Ocean Springs, MS 39564

□□□ We are extending our special offer on CREDIT VOUCHERS until September 15, 1989. Get twelve dollars worth of TSF CREDIT MONEY for just ten dollars. You can "spend" the twelve dollars any time after November 1, 1989.

□□□ Until AUGust 31 we're offering a special on N&B subscriptions and renewals. Renew now and you get 12 more issues for just \$20 -- a FIVE dollar savings.

□□□ If you haven't sent in your index cards for any backordered items, please do so soon.

□□□ Until AUGust 31 we're offering 50 FREE disk sleeves with any product order with a subtotal in excess of \$50. Thank you for your support.

□□□ Are you having TV interference with your DMP attached? If so, try a shielded cable -- the difference is amazing. ADAM'S HOUSE has them for just \$17.95 plus shipping.

# PUBLIC DOMAIN

by Rick Lefko



What does PD mean and what does one do with it?

Well, it doesn't mean Pretty Dull! In fact, there is some Pretty Desirable, Practically Distracting, Potentially Disturbing, PD software out there! Enough of that!

"PD" means "Public Domain". What's that mean, you ask? Public Domain software is software that has no copyrights in effect. This means it can be freely distributed by anyone. Is that the same as "Freeware" or "Shareware"? No, not exactly. While PD software can be sold and resold, Shareware and Freeware programs were intended to be given away only. Also, they may have program lines that are not allowed to be edited or deleted, whereas PD software has no such restrictions.

So what's out there? I can safely say, "Plenty Dude"!

PD quality is about the same no matter who is selling them, except for the quality of the media perhaps. So the big differences are price and selection. My suggestion is that once you decide on a piece of PD software to buy, check as many publications and catalogs as you can to find the best price. Prices can vary as much as \$4 on a single volume!

There are a multitude of SmartBASIC and CP/M PD volumes available as well as unreleased COLECO titles. Let's briefly take a look at each one.

BASIC PDs usually contain anywhere from 50K and up. These programs can range from graphic displays, utilities, and text games, to arcade-type games. The vast majority are not up to commercial quality but some come Pretty Darn close! Two that come to mind are "NERM", which is a real cute arcade type game, and "CONNECT 4" which is exactly like the board game. They are both very well done. Another advantage of PD programs is the ability to LIST the programs in BASIC. Once listed, one can see how certain things are executed and can even incorporate those tricks into their own programs.

There are literally thousands of CP/M PD programs just waiting out there for you! They are of about the same type as BASIC PDs, however there seems to be many more utilities (probably due to the nature of the CP/M system). One that comes to mind is "GAMESAVE.COM" which will copy carts to disk or datapack and allow you to boot and run them from either media while in CP/M.

When I talk about unreleased COLECO programs I don't want you to think I mean "unfinished". Yes to a certain degree these programs are unfinished, but usually all they are missing is a few bells and whistles. Please note that unreleased titles do contain an occasional minor bug, but I have never run into one that affected game play.

Some of the better unreleased PD software are: Jeopardy, Video Hustler, Spy Hunter, Temple of Apschai, Cabbage Patch Adventure in Babyland Park, War Room, and Pinball Construction Set with Hardhat Mack.

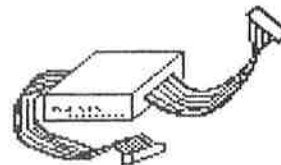
PD software is also available from many BBS boards. CompuServe has an extensive BASIC and CP/M data library as does OrphanWare. The latter is free except for connect charges.

So if things have been Pretty Dull lately because you can't afford any commercial software titles, check out PD, you'll be pleasantly surprised. Please Do!



# EXPLORING THE RS232 INTERFACE

by Alan Neeley



## THE RS-232 INTERFACE

The RS-232 serial interface is familiar to all types of computers. Through the RS-232 computer communication with various peripherals is possible. Examples are modems, printers, and computer terminals.

The RS-232 takes parallel data from the computer, converts it to serial data, and then transmits that serial data to the peripheral or device. Likewise, serial data can be transmitted from the peripheral and then converted into parallel data characters to be sent to the computer. Because of this, the RS232 is also referred to as a parallel interface.

## THE ADAM's RS-232 INTERFACE

Fortunately, the ADAM computer has an RS-232 interface available for it and it is being put to many good uses. Currently, external phone modems and 80-column display units are being interfaced to the ADAM through the RS-232. Hopefully, there will be even more hardware products that will be introduced in the future that will make use of the RS-232. There are at least three different versions of the RS-232 serial interface that have been marketed for the ADAM. And, all of these versions make use of the 2651 Programmable Communications Interface (PCI) chip in their design (which makes them compatible).

The 2651 PCI chip is capable of operating at 16 different baud rates, from 50 to 19,200. And it supports many serial data communication disciplines, either asynchronous or synchronous, in the full or half-duplex modes.

The 2651 PCI can be split up into six major sections: Operation control, Modem control, SYN/DLE control, the transmitter, the receiver, and timing. It is not my intention to fully describe all the areas and features involved with the 2651 PCI chip; I just wanted to bring them to your attention.

Notice that I said there were three different types of the serial interface card. Actually, only one is still available for purchase (although there are a few of the other versions still being used out there). For this reason, I will describe some of the differences between the various versions.

OrphanWare's RS-232 serial interface is currently the only one available on the market. Fortunately, it is the better product when compared to the previous versions. One particularly nice feature is that it has four selectable positions that determine what the BASE PORT value will be (there are two jumpers on the serial card that can be arranged by the user for selecting the desired value). This actually allows for up to FOUR different serial interfaces to be connected to the ADAM at once! The four different BASE PORT values that can be selected are: 60, 76, 84, & 92 (those are decimal values). OrphanWare's RS-232 has also gone through some modifications to make its modem section more compatible with the newer phone modems.

Eve Electronics had basically one PC board that they used in their various designs. The board was designed so that it could house both a Serial and a Parallel interface (the EVE SP-1) but there was also a cheaper version that excluded the parallel interface for those who only wanted a serial interface. Both of these interfaces had only one choice for the RS-232's BASE PORT value: 60 (notice it is the same as OrphanWare's lowest selection). The Eve VD-MB's 80 column display unit also uses the same basic PC board except the RS-232's BASE PORT value is: 76 (the OrphanWare interface also has this selection). Unlike OrphanWare's design, Eve Electronics' serial interface is not designed so that the BASE PORT value can be easily changed.

This article begins a short series by Alan Neeley which also appears in his ALU newsletter. The chart on the following page will be referred to next month.





# CONQUERING THE DALARK CHALLENGE



By: Tony Patterson

## MORE ON THE DALARK STORY

"WAKE UP YOU LAZY SCUM!" shouted the guard master. The haze from the revelry of today still clouded my thoughts. Every township had their own celebration today in honor of the wedding of the crowned prince David of Drumeria to princess Lydia of Kroden. This bond will officially end the hostilities between the two countries.

I could use several more hours of sleep, but such is the lot of those who draw the nightwatch at castle Gromwell. Through bleary eyes I watch as our "fearless leader" shakes the bunks of those in worse shape than myself. The guard master continued shouting... "WE MUST BE ESPECIALLY ALERT TONIGHT! The news has just now arrived, the OverLord of Dalark raided the wedding ceremony mounted on that fiendish dragon of his. The entire aristocracy of Drumeria is dead, all save the cousin of the queen who we guard this very night. On the morn' we will have a new ruler. Should we be lax in our duties tonight Drumeria will have no ruler with ties to the royal blood. There is rumor that he will attempt an abduction tonight, so BE ALERT! AND... I WILL HAVE THE HEAD OF ANY WHO FALL ASLEEP AT THEIR POSTS TONIGHT!"

With that he stormed out leaving an unsettling silence in his wake. We quickly donned our armor and headed toward our respective posts. It is amazing how the threat of death will wipe away every trace of a drunken stupor. My mind is crystal clear as I meander down the garden path to the small gate that will be my post for the evening. The stars shine brightly and the moon casts its light along the path to the garden.

The OverLoad is said to be a powerful wizard and have many terrible demons at his disposal. The thought of meeting up with the Dalark dragon or the Devastator of Souls, he who can destroy a man's soul with a glance, sends chills up my spine. No normal man would have a chance against such foes. Should there be trouble I must first sound the alarm so that we might together overcome the attempt, or die in the trying.

The evening is almost half over now... The OverLord must be busy elsewhere this eve most likely gloating over his triumph at the wedding ceremony. I am told that powerful men are known to do such things. The mist from the bogs begins to creep into the fields like an old familiar friend. Soon it will make its way up to the garden terrace; I welcome it. The mist is a certain sign that the night watch is drawing to an end. I will be glad when this night is done.

As the mist closes in I begin to smell the sweet scent of honey. The cooks must be beginning breakfast. But wait! It is MUCH too early for the cooks to be up and about... and the mist seems to have taken on a sickly bluish tint. As I struggle to see through the thickening fog I spot a pair of glowing eyes. I try to call out to the other guards but no sound escapes my lips. Then I see him... moving steadily toward me. Could this be the Devastator of Souls? He moves fast for such a huge antagonist; I remain steadfast. His eyes glow as if lit from within...

Where did he go? Ahhh... the sweet smell of honey... This terrace is sooo high. Ahhh... the sweet smell of honey... golden honey. Had I wings, I could fly. Sweet golden honey, golden like his eyes... who needs wings anyway...

## THE SAGE SPEAKS

EDITOR'S NOTE: The following questions are excerpts from mail recieved by Digital Adventures regarding "Temple of the Snow Dragon".

Q: Yes, I've obtained the silver and gold keys and gained access to the Timber, Dead end and the Pit room, but now I'm stumped. I know there must be a way to 'Span' the pit... HELP!

A: To 'Span' the pit you will need to find some well hidden 'supplies'.

Q: How do you defeat Mondrel? He always escapes!

A: MONDREL is truly a crafty nefarious fiend. No one has yet defeated him and it would not surprise me if he shows up yet again in another adventure of the DALARK TRILOGY.

Q: Where is the potion??

A: The blue potion may be found within the close confines of the Slave Pens.

## GAME HINTS

Some objects are hidden within the room graphics. They do NOT appear in the contents section of the screen.

When you need some supplies, they are seldom close at hand.

Some doors ALWAYS lead to sudden death. To avoid these be sure to draw a map.

The potion will add greatly to your strength when you "DRINK" it. Do so as soon as it is found.

# DID YOU KNOW

by RICK LEFKO



Did you Know.....

... ADAM's printer was manufactured in Northern Ireland?

... that switching to MANUAL RECALC while using ADAMCalc makes the program work more quickly?

...that the ADAM disk drive was manufactured by Micro Peripherals (MPI)?

...you can change your Smart-BASIC cursor by POKing address number 16953 with any number from 1 to 255? (try POKE 16953,9 then TEXT <return>)

... that sometimes placing aluminum foil under a TV that's being used as a monitor reduces interference?

... that pressing <CONTROL> 'R' in typewriter mode will tell you the current revision of your ADAM? (should be R80)

... that ADAM's operating system was developed by InfoSOFT, and is labeled "I/OS"?

... pressing <CONTROL> + [ in typewriter mode will take you to SmartWriter?

...that to find out which revision your BASIC tape is, load BASIC and type, print peek (260); 79 or above seems to be good.

... that ADAM's CP/M 2.2 program was written by Digital Research?

... that there is a special set of questions about the authors of the JEOPARDY PD game? To get them to load do the following: after booting your media and getting to the point where it asks whether you are using a question pack, hold down the CONTROL key and press the UP ARROW key, then the RIGHT ARROW key, then the DOWN ARROW key and finally the LEFT ARROW key; the questions will then be loaded.

... that ADAMCalc was written by Lazer Microsystems?

... that if the Digital Data Pack you just loaded is defective and does nothing except spin, don't turn your ADAM off; just pull the cartridge reset.

... that pressing <CONTROL> and the letter 'R' after booting just about ANY original ADAM software will give you its revision number?

... that if you have a single-sided disk drive you SHOULD keep the door closed to guard against dust. But, if you have a double-sided drive you should NOT unless you insert a disk in the drive (to keep the heads from knocking each other around)?

This list is far from complete. There is much more ADAM trivia and general information that could be listed here, so how about helping me continue this list from time to time? Please send any trivia, hint or trick you'd like to share to:

ADAM INFO  
Rick Lefko  
499A Boston Road  
Groton, MA 01450

Did you know ... I need your help? Please help, won't you?





# HERRRE'S

by Solomon Swift



- with GoBASIC -

## HERRRE'S GoDOS

Four score and seven years ago our forefathers brought forth to this land...

Well, it wasn't quite that long ago when I first got started on GoDOS, but it has been quite a while. Now it also includes GoBASIC so that the typical programmer can sit down with it and start writing programs right away. As it enters the very final stages, you may have already read reviews in other newsletters and on various BBS's and on CompuSERVE regarding the special pre-release version we sent to some dealers and beta testers a few weeks ago. Much to my surprise several of the testers have already written and starting distributing GoBASIC programs. Wow!! Thanks!!

## THE BIRTH OF GoDOS

Early this past winter GoDOS was entering what at the time seemed like its final stages. It was booting and going directly to the system control much the same way that CP/M does (but with the graphics and icons). Then for months it just sat there locked away collecting dust.

Late this spring I pulled it out and wondered if people would even consider it worth having until there was some support software. Picture CP/M with no support programs--virtually useless. It looked good on the screen and it could do some interesting things that hadn't ever been done on ADAM before. But, that's about where the "usefulness" stopped until there was something you "could sink your teeth into".

After much deliberation, I concluded that the best course of action was to include GoBASIC with GoDOS. This way any BASIC programmer could jump right in and start making GoDOS "DO THINGS". But I was still faced with a major task. As many of you know, everything that I program is done directly from BASIC using DATA statements and POKEing values into RAM blocks and then writing them to the program disk. This is the way I've written all my Z80 programs including PowerPAINT and GoDOS. And, until the final stages of a major Z80 project I can run the program with BASIC still in memory at the same time -- I find this to be a powerful convenience that no assembler can even come close to.

But, GoDOS was already in its final stages. This meant that GoBASIC would have to be encoded entirely external to my standard method. Instead of tackling the project this way, I opted to just relocate the major routines of GoDOS for facility. This only took a week or so and now I was able to operate (the revised) GoDOS and SmartBASIC at the same time. And, as I began encoding GoBASIC I'd just overwrite sections of SmartBASIC replacing old routines with new GoBASIC ones. Sounds like a simple task, but it has taken many, many weeks of careful encoding to make the transition from GoDOS with SmartBASIC to GoDOS with GoBASIC. As I write there are still some final routines to add to GoBASIC, but enough is finished that reviewers could get a good idea of what the finished project would be like. And, judging from the comments received thus far, you should find the package to be both powerful and easy to use.

## GoBASIC FEATURES

The finished GoBASIC has a little over 300 commands. COMMANDS are BASIC words that execute specific GoDOS routines. There are a little over 500 GoDOS routines -- the additional routines are reserved for use by other support applications software. The GoDOS routines are called FUNCTIONS.

I've received many comments on the various GoBASIC commands. For example, there are 15 sprite commands & 26 music/sound commands. One command which has received loud praise is GRPRINT. This command lets you print hi-res graphics on your dot matrix printer. You can set the left margin on the paper in half inch increments. And you can set the number of passes (boldness) from one to fifteen. Plus, you can print any portion of the screen from a single 8x8 pixel square to the entire 255x192 pixel screen.

There are 16 PR# vectors. PR#0 is for screen only printing. PR#1 is for ADAM printer only. PR#2 is for the screen and the ADAM printer. PR#3 is for your dot matrix only. PR#4 is for your DMP and the screen. PR#5 prints double length fonts (of your selected typeface) on the GRAPHICS screen. PR#6 prints double size fonts on the GRAPHICS screen. PR#7 writes ASCII data to your specified address in memory. PR#8 prints on the OBS 80 CVU. PR#9 prints on the EVE 80 CVU. PR#10 prints normal fonts in your specified color on the GRAPHICS screen. The last five PR vectors are user defined.


## ORDERING GoDOS

If you've ordered GoDOS and have not sent the requested index card, please do so soon. Also, we are now selling GoDOS with GoBASIC for \$34.95. Most ADAM retailers will also be stocking this innovative piece of software.



# ADVANCED PROGRAMMING

by Solomon Swift



We do  
hereby confer...

## A LOOK BACK

In the June 88 issue of N&B I started this section of the newsletter in response to the many requests from readers who wanted to get started programming in Z80 code. Machine code programming uses LESS MEMORY and is MUCH FASTER in execution than BASIC. One could start by using an assembler; there are several available under CP/M. But, it is generally easier to just encode some routines directly from BASIC. Just write the code in DATA statements, POKE it into a reserved area of RAM, and then CALL the routine to invoke it.

When you first encode a routine it is best to store the program and remove all media before CALLING the routine. Even a minor typo or unsuspecting error in code could lock up the system or erase a disk.

This month I'll recap previous lessons. You may want to preview the other lessons in your N&B library before continuing. If you don't have the particular issues, we're offering a SPECIAL on back issues this month. Get ANY issues numbered 1 thru 27 for TWO dollars each or get TWELVE for just TWENTY dollars.

## THE BASICS

If you understand how to use PEEK, POKE, and CALL from BASIC, you are most likely ready to continue. The first step is to get an idea of REGISTERS. These are built-in temporary storage locations independent of RAM. Registers are the low level variables of the Z80. Every Z80 computer uses the same registers. The difference between Z80 systems is the hardware attachments and the particular computer's OPERATING SYSTEM. The OS is a set of Z80 routines to control the input and output from the various peripherals.

Each register has a specific name. We've started with the BASIC eight registers: "A", "B", "C", "D", "E", "F", "H" and "L". The "A" register is also called the ACCUMULATOR. The "F" register is also called the FLAGS register. Since a register, like a memory address, can only contain values from "0" thru "255", they may be paired to store values from "0" thru "65535". This is the same principle employed with HIGH and LOW order integer bytes when converting memory addresses to TWO byte values.

The pairs are "AF", "BC", "DE", and "HL". The "F" register is not available for direct input. As you get more familiar with the Z80, you'll find that the "A" register and the "HL" pair are a little more versatile than the others. Thus, you may want to setup your own routines with this fact in mind.

## OPERATIONS

An operation in Z80 consists of one or more components. Suppose you wanted to put the value "255" into the accumulator. There are many ways to accomplish this, but we'll describe one of the easiest to understand.

In Assembly mnemonics:

```
LD A, $FF
```

In decimal format:

```
62, 255
```

When programming code from BASIC you'll most likely use the decimal format in DATA statements. The Assembly mnemonics provide a reference point for you to "think" of the operations being performed. Within this example the Assembly mnemonic has three components. The "LD" stands for "Load"; this is the OPCODE. The "A, \$FF" is the OPERAND. The part to the left of the comma is referred to as the DESTINATION (A). The part to the right of the comma is referred to as the SOURCE (\$FF). The dollar sign (\$) is employed to indicate that the following number is in hexadecimal format (FF is hex for 255).

## ADDRESSING

ADDRESSING refers the location of the OPERAND on which the OPCODE will act. There are several methods of addressing.

IMMEDIATE ADDRESSING was used in our example; this method loads the next byte of memory into the specified 8-bit register. It can also be used to load the next two bytes in RAM into a register pair (16-bit register). In this case, the next byte after the OPCODE is loaded into the low order element of the pair ("C", "E", or "L") and the second byte after the OPCODE is loaded into the high order element of the pair ("B", "D", or "H").

For example, "LD BC, 65530" puts "250" into the "C" register and "255" into the "B" register;  $255 * 256 + 250 = 65530$  (255 is the high order value and 250 is the low order value). This could also be accomplished with two operations: "LD C, 250" and then "LD B, 255". The advantage of loading the pair with one operation is a savings in execution time and memory conservation (one less byte is utilized).

IMPLICIT ADDRESSING involves transferring data from one register to another. It does not necessarily refer to the address of the operand. For example, "LD H, A" does not refer to a specific memory address. Also, one component of the OPERAND may be implied (usually the accumulator). For example, "CP B" means ComPare the "B" register to the "A" register or accumulator.

INDIRECT ADDRESSING places or retrieves a byte of data from a specified memory location. For example, "LD A, (17115)" Loads the value at address 17115 into the accumulator. The address referred to is placed within parentheses in Assembly mnemonics.

RELATIVE ADDRESSING is used (primarily in decision making routines) to skip a specified number of bytes in memory. Normally code is executed sequentially. Relative addressing can alter this sequence by either moving forward (1 to 129 bytes) or backward (1 to 126 bytes). This method of addressing is frequently used to create a decision loop and to provide an exit from the loop.

INDEXED ADDRESSING uses the "IX" and "IY" register pairs. We'll discuss these in more detail later. They are used to provide easy access to a table of data. The pair is set with the starting address of the table and individual bytes can thereafter be referenced as a displacement from the starting address.

BIT ADDRESSING permits you to have full control of a byte of data by accessing each individual bit. You can SET bits (make them a logical one), RESET bits (make them a logical zero), and TEST bits for logical one or logical zero.

### FURTHER READING

As you'll note, this month's article is more general in nature by not referring to specific ADAM applications. Next month we'll study the use of EOS and GoDOS routines.

Two very good books for beginning with the Z80 are: "Programming the Z80" by Rodney Zaks and "8080/Z80 Assembly Language" by Alan R. Miller. There are several sources of ADAM specific Z80; two of my favorites are Ben Hinkle's "Hacker's Guides". Mel Oster also has two informative (and easy to understand) books. And we have our three EZ REFERENCE GUIDES.

### NUMBERING

We normally use the DECIMAL NUMBER SYSTEM. This is a base 10 system; each count of 10 results in addition to the next column. There are 10 digits to the system.

Most Z80 Assemblers employ the HEXADECIMAL NUMBER SYSTEM. This is a base 16 system; each count of 16 results in addition to the next column. There are 16 digits to the system; A=10, B=11, C=12, D=13, E=14, and F=15.

Internally ADAM only works with the BINARY NUMBER SYSTEM. This is a base 2 system; each count of two results in addition to the next column. There are two digits to the system ("0" and "1").

When you write Z80 routines from BASIC you'll most likely use the decimal system. But, you could write your DATA in HEX and include a BASIC subroutine to convert the HEX to DECIMAL for POKing the Z80 routine into RAM. It really doesn't matter which method that you use; ADAM interprets all addresses in binary format. For this reason you generally won't need to concern yourself with the binary system.

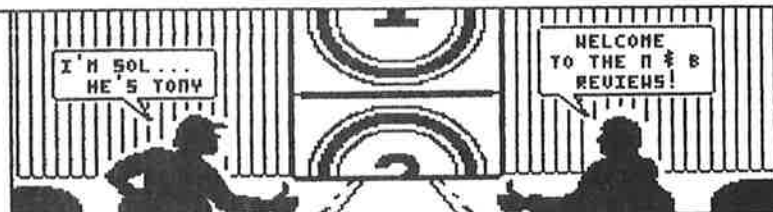
There are a few reasons, though, for using HEX. The numbers do bare a closer resemblance to the binary values than DECIMAL numbers do. Most assemblers and disassemblers use the HEX system; most file and block editors do, as well. HEX numbers format nicely on the computer monitor and on paper.

### IN CONCLUSION

If you have any questions not answered in previous articles or in this recap, just drop me a note. I will answer as many as possible next month. I won't mention your name unless you specifically request that I do.

Also, next month I'll include a Progress Report Quiz. Soon, we'll be using the EOS and GoDOS routines to get our ADAM's to do all sorts of things that are not possible from BASIC alone.

# PRODUCT REVIEWS



## ADDICTUS by REEDY SOFTWARE

REVIEW by: Solomon Swift

Over the years I've played a lot of arcade and computer games, many of them on ADAM; but ADDICTUS by REEDY SOFTWARE is probably the single most addicting game I've ever encountered. This opinion is shared by just about everyone I've heard from or persuaded to play the game. What is it? What makes it so addicting? Why does it ADDICT US?

First, let me say that I was not overly impressed initially. The graphics are good ... not outstanding. The sounds are fairly simple. And the first few games seemed to progress slowly. But something happened while I played ... slowly, surely, undeniably its simplicity of play lured me into playing just one more game ... several hundred times. I sat down for a cursory 15 to 20 minute review. I finally forced myself away from the keyboard THREE HOURS later. Play it; you'll see exactly what I mean.

Different shaped (and colored) blocks drop from the top of the screen into a PIT. The blocks stack together until the pile reaches the top of the pit which ends the game. The trick is to manipulate the blocks so as to make the game last as long as possible and to achieve a high score. There are seven different shapes of blocks; these are depicted to the right.



When a horizontal row in the pit is full, that row disappears and the rows above it fall down leaving more room for additional blocks in the pit. This may also give you access to previously covered rows that had empty spaces on them. Every time you clear ten rows in this manner, the rate of descent increases as new blocks fall from the top of the pit. A game will last from about three minutes to twenty or so depending on your skill (and to some degree your luck).

You can rotate the falling blocks with the HOME key. This allows you to stack them as tightly as possible. The LEFT and RIGHT arrow keys pull the falling block in the respective direction. The DOWN arrow key quickly drops the block into place. The SPACE BAR pauses the game.

The top twenty high scores are displayed on the game screen. You can reset this table by tapping the CLEAR key from the attract-mode title screen.

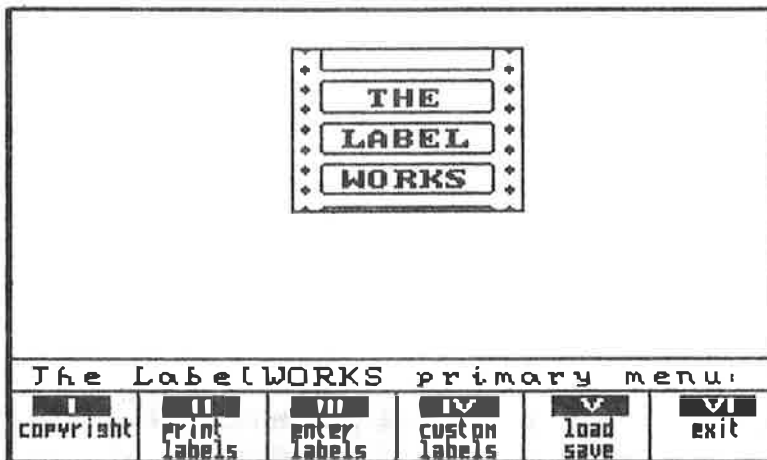
If you rate the value of a piece of software based on the use or enjoyment you get out of it (hours of use versus price), I believe you'll find ADDICTUS to be one of the best investments you'll EVER make for your ADAM. And ... it seems to appeal to everyone ... programmers, game players, adults, and children. It is GREAT fun for the WHOLE family (friends too). If you only have one ADAM, you may have to buy another one though 'cause someone will always be wanting to play. Try it, you WILL see what I mean.

ADDICTUS is available directly from REEDY SOFTWARE and most ADAM mail order vendors including The SoftWORKS FACTORY. (No special system requirements.)

## THE LABEL WORKS by Walter's Software

REVIEW by: Tony Patterson

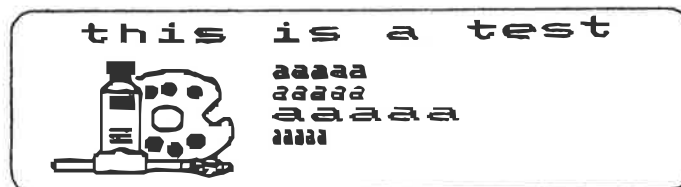
Finally, a label utility that includes the ability to use CLIPPER clip art pictures right on the label! Until now this feature was only available in PowerPAINT and was limited to the larger disk labels. But Walter's Software has found a way to print the CLIPPER clip art pictures in bit image beside the Dot Matrix Printer's own built in typestyles. THE LABEL WORKS has the ability to access four of these built in typestyles: Elite, Italics, Expanded, and Compressed.



Each of these are printed in the near letter quality mode, two passes of the printhead over each line. The spacing between labels can be set in increments of  $\frac{1}{72}$  inch, up to three inches. This should allow THE LABEL WORKS to be able to use any size label that is currently available. The program is done entirely in machine language, uses the Smart Key user interface, sets up a RAM DISK when an XRAM card is installed, makes use of color screens and is easily used by even novice computer users.

To get started you must first press ENTER LABELS to add your label to the workspace. Under this option you may enter up to six lines of text in any of the four styles available. Each line must be set for the desired style and different styles may not be mixed on the same line. The label may be (but does not have to be) set up to include a CLIPPER clip art on the left side of the label ONLY.

After the label is set up it can be saved to the workspace. The workspace can hold up to 200 labels at one time. Once you have entered all of the labels that you might need, the workspace can be saved to disk or DDP for later retrieval and printing.

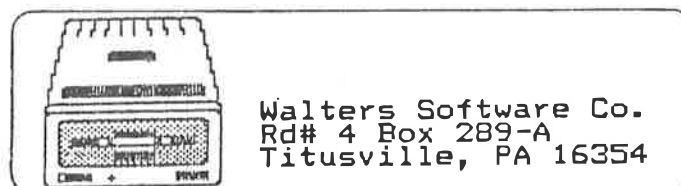


Elite and Italic fonts will allow you to print up to 20 characters per line while Expanded gives you 10 and compressed yields 31. These hold true with or without a clip art picture. Each new clip art must be separately loaded, one at a time. Labels may be edited to reflect changes and marked for printing up to 99 times each. This feature alone can be very valuable to someone who uses the same mailing list on a regular basis.

The CUSTOM LABELS option is very similar to the above. It is intended for the larger labels such as disk labels and larger mailing labels. This option lets you set up a label that contains from 1 to 10 lines of text with up to 40 characters per line in any typestyle. The drawback to this mode of operation is that you can NOT save any of the labels that have been designed.

Overall THE LABEL WORKS is the best label design utility developed for the ADAM to date. The ability to incorporate CLIPPER clip art graphics is a real plus! It should meet the needs of everyone from the hobbyist to the newsletter publisher. A recommended addition to everyone's software library.

THE LABEL WORKS is available from most ADAM mail order vendors. (A parallel printer interface and an Epson compatible Dot Matrix Printer are required.)



## DEADLINE by INFOCOM

REVIEW by: Rick Lefko

Wouldn't you like to get some use out of that CP/M datapack you bought? Do your wrists ache from yanking that joystick around? Are you tired of shooting aliens? Then dust off that CP/M datapack and prepare to enter the world of an INFOCOM adventure!!

"A wealthy industrialist, Mr. Marshall Robner, locked himself in the upstairs library of his New England colonial estate one night and committed suicide by taking a lethal overdose of anti-depressants.

Or did he?

You've been asked by Robner's attorney to make a thorough investigation of the case, simply to 'quash the suspicions which are inevitable' when a moneyed man dies a sudden and unnatural death. The Medical Examiner found nothing unusual, and interviews with family members and family associates are consistent with the idea that Robner committed suicide. Everything fits neatly -- maybe too neatly. You smell foul play, and have 12 hours to crack the case." (Excerpt from the DEADLINE manual by Marc Blank.)

You play the part of Sgt. Anderson, Chief of Detectives, of the Connecticut Police Department. The cast of characters range from the deceased's promiscuous wife, to his rather irreverent son George, to the irascible gardener, Mr. McNabb. Doesn't sound too hard you say? There is also a maid, secretary, business partner, the wife's lover ... well ... you get the idea.

You move room through room or outside the house by typing in simple commands such as "North" or "N" or "Southeast" or "SE". Once you come upon a character, you can question him or her in PLAIN English, though there is a simple format to follow. For example, "Mrs. Robner, where were you the night of the murder?", is perfectly acceptable. DEADLINE recognizes over 600 words!

DEADLINE has many other options which make it easy and enjoyable to play. You can get verbose descriptions of the rooms or shorten them if you've been there before. You can even have your printer turning out a written hardcopy of all that transpires so you can get out your magnifying glass and examine the clues more closely. Since you only have 12 hours to solve the mystery there is a clock on the screen that keeps track of what time it is as each move makes a precious minute pass. You can answer the phone if it rings; pick up and examine any object and even call in your able-bodied assistant, Inspector Duffy, to take an object back to the crime lab for further analysis. You can hide in a corner somewhere and give the command "wait 10 minutes" and watch all that happens around you. And as if all that wasn't enough, there are MANY possible endings to the case, but only one correct one! I could go on and on!

You really DON'T need to have much CP/M experience (thank goodness) to run an INFOCOM adventure. Simply slap your CP/M DDP (or diskette) into a drive and pull the computer reset; when CP/M boots up you get a directory of the INFOCOM drive by typing DIR. Just type in the name of the file with the ".COM" extension. In DEADLINE for example, after typing in DIR you would see DEADLINE.COM; just type in DEADLINE and you are off! Unfortunately, to my knowledge, ALL INFOCOM adventures come on disk only; but, they are definitely worth the trouble of buying one and having a friend with a disk drive copy it to datapack for your use. I even run mine directly from my 256K memory expander with no problems.

DEADLINE is available from "THE ADAM CONNECTION", and ALPHA-ONE, to name a few.

These adventures are awesome!! The level of sophistication and interaction is amazing! You won't solve this mystery in a night, a week, or even a month!

So if you've ever considered yourself an armchair detective, then try the ultimate "Who Done It"; try DEADLINE.

By now I'm sure you're wondering "Who Done It"? Well, it was ...

## StratoZAP

by Allied Creative Engineers

REVIEW by: Tony Patterson

**THE SKY IS FALLING! THE SKY IS FALLING!**

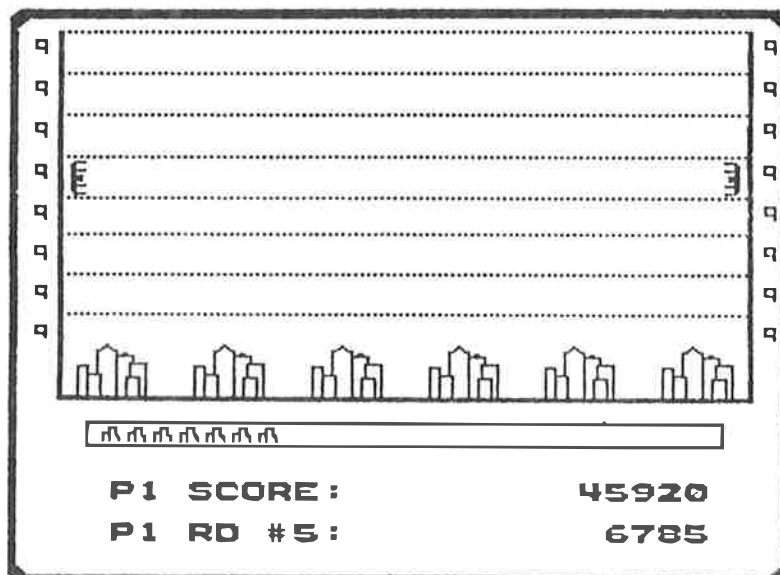
Stellar debris is plummeting through the rarefied atmosphere of your home planet, destroying everything in its path. The only hope we have is to destroy these chunks of rock before they impact with any of the remaining surface cities. The StratoZAPPERS can do the job, but must be aimed by hand until autosensors can be perfected to take over the job. A select few of the most courageous have volunteered to man the STRATOZAPPERS; will one of them be you?

StratoZAP is a fast action one or two player, shoot - em - up, save the world type game. The StratoZAP screen is divided into three sections. The lower part is for the players score and level number. Above that is the number of reserve cities graphically represented in a rectangle. The top two-thirds of the screen is the playfield. The entire game is played with the game controllers. There are eight available fields of fire above the surface cities. The StratoZAPPER can be positioned on any of the eight levels. There are a limited number of shots available on each level, but each shot on the level will destroy any debris within the level, up to a class five debris. There are eight classes of space debris. They fall from the top of the screen down towards the cities at the bottom. Debris classified six to eight can take up to four shots to destroy. Any of the debris that make it past you may hit one of your cities. One hit and it glows red, and lessens the value of that city at point tabulation time. A second hit on the city will destroy it. Any reserve cities will be put into play at the beginning of the next round. One reserve city is awarded for every 5000 points per round and a bonus of five cities at 50000.

The game consists of flurrries, rounds, and stellar bonuses. A FLURRY is a single set of debris. When all the debris is destroyed another FLURRY begins. Three flurrries constitute a ROUND when you begin. As the game progresses the difficulty increases to five per round. After five ROUNDS, you are rewarded with a shot at the STELLAR BONUS. This bonus round consists of alien spaceships moving horizontally across the screen in five waves of eight ships each. Shoot these ships for bonus points by positioning the sight and pressing the fire button. Depending on how many of these ships you hit, the bonus can be up to 15000 points.

StratoZAP is a well rounded, fast action space ZAPPING game. It is easy to learn and hard to master. In the higher levels the debris can come down VERY fast and at times will play tricks on you, such as moving up when it should be coming down, and floating (gloating?) as you waste your shots firing where you think it will be. For those that are good enough there is a High Score Table that saves to the media that you can enter your name in. A game that will be played again and again.

StratoZAP is available from The SoftWORKS FACTORY and most other ADAM vendors. (No special system requirements.)



# DINOSAUR DIG

by Pitman Software

REVIEW by: Solomon Swift

Steve Pitman just keeps getting better and better at turning out high quality games for ADAM. DINOSAUR DIG has extremely good graphics and sound, rivaling Coleco's own products. Though geared primarily toward young teen-agers, adults will enjoy the game too.

One or two players compete to find dinosaur bones; in the one player version you play against the computer. The bones are found by digging in square plots of land that you own. You attain the property by either buying it outright or establishing the fourth boundary line in a square. You may or may not find a bone under the plot's surface. With the latter, you're presented with comical conciliatory messages. If you do find a bone, it is inserted into the skeletal structure of a Tyrannosaurus Rex (the fierce carnivorous prehistoric beast).

There are four basic screens to the game: PLAY BOARD, LAND MAP, SURFACE DIG, and SKELETAL CONSTRUCTION. Each screen is detailed and very colorful.

The animated play board presents a square "Wheel-Of-Fortune" set of options. Tap the STOP SmartKEY (or game controller key) and the marker will land on one of six possible options: LINE, BUY, DIG, LOSE TURN, \$100, or \$200. LINE lets you place a boundary on a square plot of land. BUY lets you purchase a full plot of land (at \$500) if you have enough cash reserve. DIG lets an animated character shovel any plot of land that you own. LOSE TURN is the obvious pitfall. The two dollar amounts go into your bank.

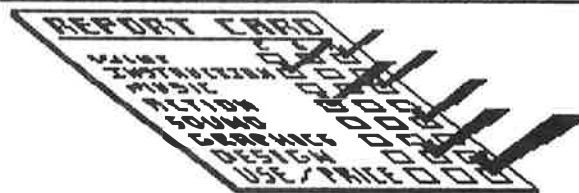
Games can last an hour or more; kids love it -- it is VERY simple to play. But adults may tire of the imbalance between luck and skill after a few games. I think you'll find DINOSAUR DIG to be a welcome addition to your game library.

DINOSAUR DIG is available from most ADAM mail order vendors including The SoftWORKS FACTORY. (At least a 64K memory expander is required.)





# REVIEW SYNOPSIS



## ADDICTUS

by Reedy Software

GRAPHICS: 88  
SOUND: 85  
INSTRUCTIONS: 92  
EASE of USE: 99  
PRICE: \$19.95  
VALUE: 99



REVIEW by: Solomon Swift

"Different shaped (and colored) blocks drop from the top of the screen into a pit. The blocks stack together until the pile reaches the top of the pit which ends the game."

## THE LABEL WORKS

by Walter's Software

GRAPHICS: 95  
SOUND: 90  
INSTRUCTIONS: 85  
EASE of USE: 98  
PRICE: \$24.95  
VALUE: 91



REVIEW by: Tony Patterson

"...THE LABEL WORKS is the best label design utility developed for the ADAM to date. It should meet the needs of everyone from the hobbyist to the newsletter publisher."

## DEADLINE

by INFOCOM

GRAPHICS: n/a  
SOUND: n/a  
INSTRUCTIONS: 90  
EASE of USE: 95  
PRICE: \$34.95  
VALUE: 96



REVIEW by: Rick Lefko

"The level of sophistication and interaction is amazing! You won't solve this mystery in a night, a week, or even a month! ...try the ultimate "Who Done It"; try DEADLINE."

## StratoZAP

by Allied Creative Engineers

GRAPHICS: 93  
SOUND: 91  
INSTRUCTIONS: 95  
EASE of USE: 98  
PRICE: \$16.95  
VALUE: 94



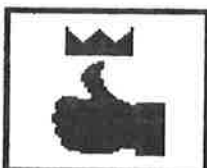
REVIEW by: Tony Patterson

"StratoZAP is a fast action one or two player, shoot - em - up, save the world type game. It is easy to learn and hard to master. A game that will be played again and again."

## DINOSAUR DIG

by Pitman Software

GRAPHICS: 97  
SOUND: 92  
INSTRUCTIONS: 90  
EASE of USE: 96  
PRICE: \$16.95  
VALUE: 98

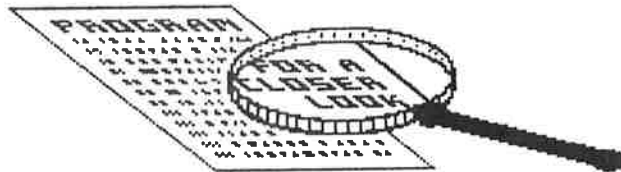


REVIEW by: Solomon Swift

"DINOSAUR DIG has extremely good graphics and sound, rivaling Coleco's own products. One or two players compete to find dinosaur bones... ..a welcome addition to your game library."

# PROGRAM EXPLANATIONS

by Solomon Swift



## EZ-MATCH

### GENERAL DESCRIPTION:

EZ-MATCH is a colorful, memory exercise matching game. Players alternate turns flipping two tiles on an on-screen play board consisting of forty tiles. If the two objects exposed by lifting the tiles match, the matching objects and two tiles are removed; also, the player wins a point and gets to select again. Try to remember where objects are located on missed turns. The player with the most matches after all the tiles are removed is the winner. Each game is randomized; every game in a play session should be different.

One or two players may vie for high score. In the one player version, you compete against a computer player -- the computer plays well.

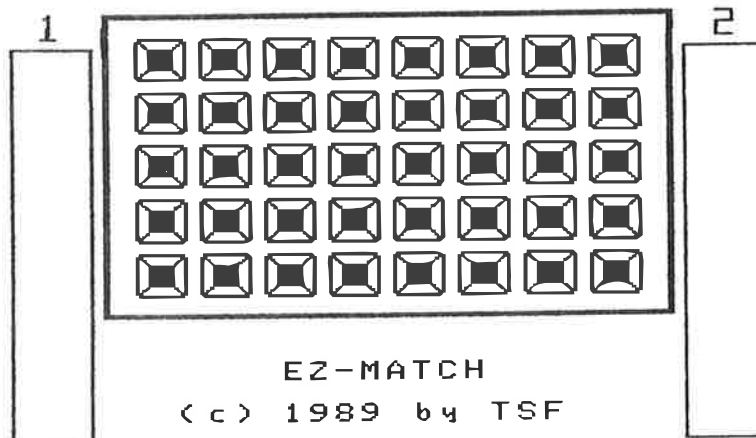
### OVERALL GAME STRUCTURE:

Hi-res shapes, sprites, and sound enhance game play. The board's tiles, the match markers, and the objects are all hi-res shapes. The on-screen cursor (position indicator) is a sprite. When a match is made, a marker is dropped into the player's score box (player one on the left; two on the right). In a one player game the computer is the second player.

Just type in the program, store it, and enter RUN. You'll be prompted to select the number of players. Then players alternate by selecting two tiles to flip. The joystick is used to move the cursor. Press either trigger to select; press <ESCAPE> on the keyboard to abort a game. Player one uses the front controller; player two uses the rear controller.

At the beginning the game screen looks like this. The current player is prompted at the very bottom of the screen.

#	DESCRIPTION	DESIGN
1	EAST/WEST	↔
2	NORTH/SOUTH	↑↓
3	"C"	C
4	"B"	B
5	"A"	A
6	GOBLET	
7	DATAPACK	
8	DISKETTE	
9	HOLLOW STAR	☆
10	3-D BOX	
11	TELEVISION	
12	APPLE	
13	FILLED STAR	★
14	BOTTLE	
15	BOOT	
16	TRIANGLE	▲
17	DUCK	
18	CIRCLE	○
19	CAT	
20	HAT	



## PROGRAM EXPLANATION:

Line numbers 10 thru 1340 initialize the data used by the program. It sets up the program variables, machine code routines, and shape table for EZ-MATCH.

The heart of the program has four basic modules. Line numbers 2000 thru 2020 handle the selection for the number of players. Line numbers 3000 thru 3230 make up the ONE PLAYER module. Line numbers 4000 thru 4630 constitute the TWO PLAYER module. Line numbers 5000 thru 5360 handle the end game evaluation.

Several subroutines are employed at various points within the program. Line numbers 10000 thru 10330 setup the screen graphics drawing lines, shading areas, and placing the tiles on the screen. Line number 11000 moves the sprite cursor on the tile board. Line numbers 12000 thru 12030 handle the number of players selection. Line number 13000 resets the cursor to the upper left tile position (this is intended to give a fairness to the game). Line numbers 13100 thru 13260 handle the joystick movement during a player's turn.

## DATA INITIALIZATION:

Line number 100 sets the TEXT screen color. Line number 105 turns off the cursor. Line number 110 dimensions four program variables. "PC" stands for "pieces"; this double-dimensioned variable contains all the pieces on the board by shape number. When a match is made the two corresponding variables are reset to null (zero). The first element is for the horizontal axis of the board; the second is for the vertical axis -- eight tiles across, five tiles down (40 tiles total). "RP" is a temporary variable used for randomizing the object locations for each game. "CO%" stores the individual color for each object. "CB" stands for "computer brain"; this variable is identical in nature of setup to the "PC" variable. The difference, though, is that "CB" only contains the object shape numbers as they are revealed, ie, when a tile is flipped. This is why the computer plays well in the ONE PLAYER game; however, an intentional minor error in logic is incorporated into the computer's turn so that the human player at least has a chance to win.

Lines 120 and 130 setup the objects' color. Line number 140 patches BASIC to use the TI colors in HGR mode (this patch was discovered by Guy Cousineau). Line 150 sets the POKE limit to 65535 and sets the BREAK key the CNTL+C. Lines 200 thru 230 create a Z80 routine that when CALLED sounds an error buzz. Lines 240 thru 280 create another machine code routine that issues a sound effect at certain inputs within the program. Lines 300 thru 340 make a routine that when CALLED inits the sprite in VRAM. Lines 350 thru 390 create the Z80 routine that moves the sprite cursor on the game board. Lines 400 thru 420 make a simple routine that shades in a small portion of the HGR screen; this is used to give the game board a different background color. Lines 430 thru 460 contain the bit image (shape) data for the sprite cursor.

Line 480 checks to see if the hi-res shape table is already in memory. If so, the program skips reading the data again. The process of reading all the data into memory takes about 15 seconds. Lines 490 thru 1240 contain this shape table data. Lines 1300 thru 1340 read the data. This algorithm has two error checking routines. It verifies the correct number of data entries and it does a checksum on the total of data elements. I've been using this typo-prevention logic for a couple of years now in program LISTS; this is just the first time I've explained the purpose of the routine. If you do have an error, the program will stop and apprise you of same. You'll then need to compare your LIST with this one.

## OVERALL PERSPECTIVE:

I hope that you find the program enjoyable. In the past I've included two to four programs per issue. With this single longer program I've gone into more detail on use and program logic. If you like this new motif, please let me know. Your input will help me in writing and explaining future issue programs. Also, if you have any ideas for future programs, just let me know... utilities, games, applications, etc.



```

10 REM EZmatch (c) AUGUST 1989 by The SoftWORKS FACTORY
20 REM program by Solomon Swift
30 REM graphics characters by Tony Patterson
40 REM This freeware donation may be freely shared but not sold.
50 REM Do NOT remove these first five program lines.
100 LOMEM :32000: POKE 17059, 244: POKE 17115, 244
105 TEXT: POKE 16953, 32
110 DIM pc(8, 5), rp(40), co%(20), cb(8, 5)
120 DATA 15,15,7,9,11,9,7,5,15,15,7,15,7,2,15,3,10,15,3,13
130 FOR x = 1 TO 20: READ co%(x): NEXT
140 POKE 18728, 121: POKE 18729, 0: POKE 18730, 0
150 POKE 16149, 255: POKE 16150, 255: POKE 16134, 3
200 REM error buzz
210 DATA 62,226,211,224,62,240,211,224,17,0,80,27,122,179,32,251
220 DATA 62,255,211,224,201
230 FOR x = 29400 TO 29420: READ mc: POKE x, mc: NEXT
240 REM input sound
250 DATA 62,128,211,224,62,9,211,224,62,162,211,224,62,9,211,224
260 DATA 6,16,17,0,2,27,122,179,32,251,62,160,144,211,224
270 DATA 62,192,144,211,224,62,224,144,211,224,16,231,201
280 FOR x = 29500 TO 29543: READ mc: POKE x, mc: NEXT
300 REM initialize sprite routine
310 DATA 62,200,17,128,0,33,0,31,205,38,253,1,62,5,205,32,253,1,7,6
320 DATA 205,32,253,33,172,113,17,0,56,1,32,0,205,26,253
330 DATA 1,194,1,205,32,253,201
340 FOR x = 29200 TO 29241: READ mc: POKE x, mc: NEXT
350 REM move sprite routine
360 DATA 33,0,0,17,1,15
370 DATA 34,0,212,237,83,2,212,123,61,135,135,50,2,212
380 DATA 79,6,0,33,0,31,9,93,84,33,0,212,1,4,0,205,26,253,201
390 FOR x = 29300 TO 29338: READ mc: POKE x, mc: NEXT
400 REM color background routine
410 DATA 62,17,33,40,0,17,176,0,205,38,253,201
420 FOR x = 29000 TO 29011: READ mc: POKE x, mc: NEXT
430 REM sprite marker bit image data
440 DATA 255,255,224,208,200,196,194,193,193,194,196,200,208,224,255,255
450 DATA 255,255,7,11,19,35,67,131,131,67,35,19,11,7,255,255
460 FOR x = 29100 TO 29131: READ mc: POKE x, mc: NEXT
480 IF PEEK(27600) = 23 AND PEEK(27700) = 207 AND PEEK(27800) = 36 GOTO 2000
490 REM shape table data
500 DATA 23,16,48,0,70,0,92,0,127,0,181,0,233,0,31,1,86
510 DATA 1,182,1,222,1,10,2,86,2,122,2,179,2,227,2,3,3
520 DATA 54,3,104,3,134,3,178,3,245,3,118,4,154,4,18,18,10
530 DATA 9,30,23,14,14,207,200,40,45,45,45,45,53,42,32,37,59
540 DATA 32,0,9,9,9,17,62,23,13,205,40,50,27,54,54,54,54
550 DATA 31,14,14,44,205,32,0,10,9,9,41,45,45,17,50,207,32
560 DATA 63,63,63,62,46,30,55,53,55,53,55,53,46,44,18,55,41
570 DATA 44,46,44,46,32,37,204,0,10,9,45,45,45,45,17,59,63
580 DATA 63,63,55,53,55,53,55,45,45,45,37,204,200,40,53,55,53
590 DATA 51,26,63,63,63,55,53,55,53,55,53,47,33,53,37,53,37
600 DATA 53,205,32,39,200,40,46,62,14,5,0,18,18,10,9,37,37
610 DATA 37,37,53,53,53,53,54,54,54,54,39,36,36,60,60
620 DATA 56,56,30,30,62,55,54,54,54,54,8,37,39,37,39,37,39
630 DATA 44,46,46,44,46,36,49,54,54,54,14,0,10,9,45,45,45

```



## EZ-MATCH LIST continued ...

640 DATA 45,53,63,63,63,63,63,10,45,45,45,45,53,63,63,63,63  
 650 DATA 55,45,45,45,45,45,26,59,63,63,63,46,45,45,45,30,63  
 660 DATA 63,55,9,53,55,53,55,45,9,58,63,63,63,31,0,10,18  
 670 DATA 9,45,45,45,45,45,45,58,63,63,63,63,63,46,45,45  
 680 DATA 45,45,45,45,62,46,62,63,39,60,63,63,46,45,53,63,63  
 690 DATA 63,39,60,54,54,37,53,37,53,41,45,205,40,46,45,60,63  
 700 DATA 3,0,10,45,45,45,45,45,53,63,63,63,63,63,63,55  
 710 DATA 45,45,45,45,45,45,53,59,63,63,63,63,63,55,45,45,45  
 720 DATA 45,45,45,53,54,54,54,54,39,36,36,36,60,54,54,54,54  
 730 DATA 39,36,36,36,60,55,49,54,54,54,30,32,36,36,23,63,60  
 740 DATA 36,44,28,19,63,55,45,53,63,55,45,53,63,55,45,45,44  
 750 DATA 50,63,63,55,45,45,45,17,63,63,63,39,0,9,9,9,9  
 760 DATA 50,46,54,49,45,45,30,30,30,46,50,21,62,28,28,28,28  
 770 DATA 30,30,30,30,39,205,32,205,32,28,207,56,40,45,37,205,32  
 780 DATA 7,0,10,45,45,45,45,21,21,21,21,21,54,54,54,54,63  
 790 DATA 63,63,63,60,207,56,56,56,32,36,36,36,45,42,42,42,9  
 800 DATA 9,9,17,63,63,63,55,54,54,46,1,0,10,45,45,45,45  
 810 DATA 45,45,53,54,54,54,54,54,54,63,63,63,63,63,39,36  
 820 DATA 36,36,36,36,44,10,45,45,45,45,53,63,63,63,63,55,45  
 830 DATA 45,45,45,53,63,63,63,63,63,10,45,45,45,45,53,63,63  
 840 DATA 63,63,55,45,45,45,45,53,63,63,63,63,55,42,41,41,41  
 850 DATA 41,13,0,9,9,9,9,9,58,23,54,9,45,42,21,51,49  
 860 DATA 54,30,62,62,30,63,63,63,56,60,60,32,36,12,44,12,53  
 870 DATA 41,44,42,13,0,9,9,9,9,50,21,63,46,45,42,45,53  
 880 DATA 59,63,39,63,63,63,55,41,45,45,46,45,53,59,63,39,63  
 890 DATA 55,41,46,45,45,58,63,63,55,45,13,45,21,63,14,45,58  
 900 DATA 31,27,27,27,39,41,205,56,63,3,0,9,9,9,42,45,30  
 910 DATA 55,45,58,63,23,45,45,45,58,63,63,63,46,45,45,45,30  
 920 DATA 63,63,55,41,45,21,59,63,23,45,45,45,58,63,63,63,46  
 930 DATA 45,45,45,30,63,63,63,0,10,45,45,45,54,54,30,54,54  
 940 DATA 33,21,14,45,45,42,50,63,63,63,63,63,39,44,32,36  
 950 DATA 36,207,32,36,204,0,9,9,9,9,42,58,55,45,21,63,63  
 960 DATA 46,45,45,58,63,63,55,45,45,45,21,63,63,63,63,46,45  
 970 DATA 45,45,45,58,63,63,63,63,55,45,45,45,45,21,63,63  
 980 DATA 63,63,63,63,7,0,9,9,9,9,9,9,58,58,59,63,42  
 990 DATA 13,45,42,58,203,24,63,55,41,21,63,55,45,45,62,63,63  
 1000 DATA 31,51,41,45,45,45,45,26,59,63,63,55,45,45,53,59,63  
 1010 DATA 14,49,45,13,0,10,9,9,45,45,45,42,46,46,50,54,54  
 1020 DATA 30,62,62,30,63,63,63,56,60,36,35,36,36,205,32,37,45  
 1030 DATA 0,9,42,45,58,27,55,46,46,45,45,45,37,37,37,22,53  
 1040 DATA 53,59,60,54,46,42,50,59,32,39,39,37,63,63,63,55,41  
 1050 DATA 45,53,27,50,21,31,59,32,44,45,0,18,9,9,41,13,41  
 1060 DATA 21,63,63,63,55,45,45,45,53,63,63,63,55,45,45,45,53  
 1070 DATA 63,63,63,55,45,45,45,53,63,63,63,55,45,45,45,53,63  
 1080 DATA 63,63,63,27,42,13,45,45,45,45,41,62,63,63,63,63,63  
 1090 DATA 63,23,9,45,45,45,45,45,0,45,45,45,45,45,45,45  
 1100 DATA 53,63,63,63,63,63,63,63,55,45,45,45,45,45,45,53  
 1110 DATA 63,63,63,63,63,63,63,55,45,45,45,45,45,45,53,63  
 1120 DATA 63,63,63,63,63,63,55,45,45,45,45,45,45,53,63,63  
 1130 DATA 63,63,63,63,63,55,45,45,45,45,45,45,53,63,63,63  
 1140 DATA 63,63,63,63,55,45,45,45,45,45,45,53,63,63,63,63  
 1150 DATA 63,63,63,55,45,45,45,45,45,45,53,63,63,63,63,63



## EZ-MATCH LIST continued ...

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1160 DATA 63,63,55,45,45,45,45,45,45,45,53,63,63,63,63,63,63
1170 DATA 63,39,0,18,18,10,45,9,9,45,9,9,45,58,63,31,59
1180 DATA 63,31,59,63,46,45,45,45,45,45,45,62,63,63,63,63
1190 DATA 63,63,63,4,0,41,45,45,45,45,45,21,54,54,54,54
1200 DATA 54,54,54,59,63,63,63,63,63,207,32,36,36,36,36,36
1210 DATA 36,53,49,49,41,45,45,45,12,12,12,23,19,19,50,54,54
1220 DATA 46,42,42,58,24,24,24,63,63,63,30,30,30,12,8,8,32
1230 DATA 36,36,45,45,45,54,54,62,63,63,36,36,45,45,54,62,63
1240 DATA 36,45,62,7,0,-1
1300 st = 27600: tt = 0
1310 READ mc: IF mc = -1 GOTO 1330
1320 POKE st, mc: tt = tt+mc: st = st+1: GOTO 1310
1330 ON st = 28863 AND tt = 60805 GOTO 2000
1340 HOME: PRINT "DATA entry error!!": END
2000 GOSUB 10000: HOME: PRINT: HTAB 8: PRINT "1 = ONE PLAYER"
2010 HTAB 8: PRINT "2 = TWO PLAYERS": mt = 0: sc(0) = 0: sc(1) = 0
2020 GOSUB 12000: np% = 0: ON pd GOTO 3000, 4000: CALL 29400: GOTO 2020
3000 np% = 1: GOTO 4000
3010 HOME: GOSUB 13000: GOTO 4005
3100 HOME: GOSUB 13000
3105 HOME: VTAB 22: HTAB 8: PRINT "COMPUTER'S TURN"
3110 GOSUB 11000: GOSUB 20000: nx = 15: GOSUB 16000: vt% = vb%: ht% = hb%
3120 GOSUB 11000: GOSUB 14500: pa = pc(ht%, vt%): va = vt%: ha = ht%
3125 cb(ht%, vt%) = pa
3130 nx = 15: GOSUB 16000: vt% = vc%: ht% = hc%
3140 GOSUB 11000: GOSUB 14500
3145 CALL 29200: ON pa = pc(ht%, vt%) GOTO 3200: VTAB 23: PRINT
3150 VTAB 23: HTAB 7: PRINT "SORRY -- NO MATCH!!": GOSUB 14600
3155 cb(ht%, vt%) = pc(ht%, vt%)
3160 VTAB 23: PRINT
3170 GOSUB 14700: vt% = va: ht% = ha: GOSUB 14700
3180 ht% = 1: vt% = 1: GOTO 3010
3200 VTAB 23: PRINT: pc(ht%, vt%) = 0: pc(ha, va) = 0
3201 cb(ht%, vt%) = -1: cb(ha, va) = -1
3202 XDRAW 21 AT (ht%-1)*20+50, (vt%-1)*20+8
3204 XDRAW 21 AT (ha-1)*20+50, (va-1)*20+8
3210 VTAB 23: HTAB 7: PRINT "CONGRATULATIONS!!!": GOSUB 14800: GOSUB 14600
3220 VTAB 23: PRINT: mt = mt+1: sc(1) = sc(1)+1
3225 HCOLOR = 15: DRAW 22 AT 224, 152-sc(1)*7
3230 ON mt = 20 GOTO 5000: GOTO 3105
4000 CALL 29500: GOSUB 14000: HOME: GOSUB 13000
4005 VTAB 22: HTAB 11: PRINT "PLAYER ONE"
4010 GOSUB 11000: GOSUB 13100: IF pc(ht%, vt%) = 0 THEN CALL 29400: GOTO 4010
4020 GOSUB 14500: pa = pc(ht%, vt%): va = vt%: ha = ht%
4025 cb(ht%, vt%) = pa
4030 GOSUB 13100: IF pc(ht%, vt%) = 0 THEN CALL 29400: GOTO 4030
4040 GOSUB 14500: IF ht% = ha AND vt% = va THEN CALL 29400: GOTO 4030
4045 CALL 29200: ON pa = pc(ht%, vt%) GOTO 4100: VTAB 23: PRINT
4050 VTAB 23: HTAB 7: PRINT "SORRY -- NO MATCH!!": GOSUB 14600
4055 cb(ht%, vt%) = pc(ht%, vt%)
4060 VTAB 23: PRINT
4070 GOSUB 14700: vt% = va: ht% = ha: GOSUB 14700
4080 ht% = 1: vt% = 1: ON np% GOTO 3100: GOTO 4500

```

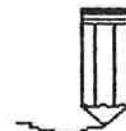


## EZ-MATCH LIST continued ...

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4100 VTAB 23: PRINT: pc(ht%, vt%) = 0: pc(ha, va) = 0
4101 cb(ht%, vt%) = -1: cb(ha, va) = -1
4102 XDRAW 21 AT (ht%-1)*20+50, (vt%-1)*20+8
4104 XDRAW 21 AT (ha-1)*20+50, (va-1)*20+8
4110 VTAB 23: HTAB 7: PRINT "CONGRATULATIONS!!!": GOSUB 14800: GOSUB 14600
4120 VTAB 23: PRINT: mt = mt+1: sc(0) = sc(0)+1
4125 HCOLOR = 15: DRAW 22 AT 16, 152-sc(0)*7
4130 ON mt = 20 GOTO 5000: GOTO 4005
4500 HOME: GOSUB 13000
4505 VTAB 22: HTAB 11: PRINT "PLAYER TWO"
4510 GOSUB 11000: GOSUB 13100: IF pc(ht%, vt%) = 0 THEN CALL 29400: GOTO 4510
4520 GOSUB 14500: pa = pc(ht%, vt%): va = vt%: ha = ht%
4530 GOSUB 13100: IF pc(ht%, vt%) = 0 THEN CALL 29400: GOTO 4530
4540 GOSUB 14500: IF ht% = ha AND vt% = va THEN CALL 29400: GOTO 4530
4545 CALL 29200: ON pa = pc(ht%, vt%) GOTO 4600: VTAB 23: PRINT
4550 VTAB 23: HTAB 7: PRINT "SORRY -- NO MATCH!!": GOSUB 14600
4560 VTAB 23: PRINT
4570 GOSUB 14700: vt% = va: ht% = ha: GOSUB 14700
4580 ht% = 1: vt% = 1: GOTO 4005
4600 VTAB 23: PRINT: pc(ht%, vt%) = 0: pc(ha, va) = 0
4602 XDRAW 21 AT (ht%-1)*20+50, (vt%-1)*20+8
4604 XDRAW 21 AT (ha-1)*20+50, (va-1)*20+8
4610 VTAB 23: HTAB 7: PRINT "CONGRATULATIONS!!!": GOSUB 14800: GOSUB 14600
4620 VTAB 23: PRINT: mt = mt+1: sc(1) = sc(1)+1
4625 HCOLOR = 15: DRAW 22 AT 224, 152-sc(1)*7
4630 ON mt = 20 GOTO 5000: GOTO 4505
5000 HOME: VTAB 22: HTAB 6: PRINT "PLAYER ONE: ";
5001 IF sc(0) < 10 THEN PRINT " ";
5002 PRINT sc(0)
5004 VTAB 24: HTAB 6: IF NOT (np%) GOTO 5006
5005 PRINT "COMPUTER: "; : GOTO 5007
5006 PRINT "PLAYER TWO: ";
5007 IF sc(1) < 10 THEN PRINT " ";
5008 PRINT sc(1); : GOSUB 14600
5009 HOME: IF sc(0) <> sc(1) GOTO 5100
5010 VTAB 22: HTAB 4: PRINT "TIED GAME!!!": GOTO 5300
5100 IF sc(0) < sc(1) GOTO 5200
5110 VTAB 22: HTAB 4: PRINT "PLAYER ONE WINS!!!": GOTO 5300
5200 VTAB 22: HTAB 4: IF NOT (np%) GOTO 5220
5210 PRINT "COMPUTER WINS!!!": GOTO 5300
5220 PRINT "PLAYER TWO WINS!!!"
5300 VTAB 24: HTAB 4: PRINT "TAP ANY KEY TO RESTART...";
5310 POKE 64885, 0
5320 IF PEEK(64885) THEN RUN
5330 IF PDL(8)+PDL(9) > 0 OR PDL(6)+PDL(7) > 0 THEN RUN
5340 IF PDL(4)+PDL(5) > 0 THEN RUN
5350 IF PDL(10)+PDL(11) > 0 THEN RUN
5360 GOTO 5320
10000 POKE 25431, 51: POKE 25471, 51: POKE 25568, 252: HGR: CALL 29200
10002 POKE 16958, 16: VTAB 16: HTAB 11: PRINT " EZ-MATCH ";
10004 VTAB 19: HTAB 7: PRINT " (c) 1989 by TSF";
10010 POKE 16766, 208: POKE 16767, 107: SCALE = 1: ROT = 0
10020 FOR x = 0 TO 13: POKE 29004, x: CALL 29000: NEXT
10030 HCOLOR = 14: FOR x = 0 TO 7: FOR y = 0 TO 4
10040 DRAW 23 AT x*20+50, y*20+8: NEXT: NEXT

```





## EZ-MATCH LIST continued ...

```

10050 HCOLOR = 15: HPL0T 40, 0 TO 215, 0: HPL0T 40, 1 TO 215, 1
10060 HPL0T 215, 0 TO 215, 111: HPL0T 214, 0 TO 214, 111
10070 HPL0T 215, 111 TO 40, 111: HPL0T 215, 110 TO 40, 110
10080 HPL0T 40, 111 TO 40, 0: HPL0T 41, 111 TO 41, 0
10100 HPL0T 11, 12 TO 36, 12: HPL0T 36, 12 TO 36, 158
10110 HPL0T 36, 158 TO 11, 158: HPL0T 11, 158 TO 11, 12
10200 HPL0T 219, 12 TO 244, 12: HPL0T 244, 12 TO 244, 158
10210 HPL0T 244, 158 TO 219, 158: HPL0T 219, 158 TO 219, 12
10300 HCOLOR = 1: HPL0T 23, 0 TO 23, 8: HPL0T 21, 8 TO 26, 8
10310 HPL0T 23, 0 TO 21, 2: HPL0T 229, 0 TO 234, 0: HPL0T 234, 0 TO 234, 4
10320 HPL0T 234, 4 TO 229, 4: HPL0T 229, 4 TO 229, 8
10330 HPL0T 229, 8 TO 235, 8: RETURN
11000 POKE 29302, (ht%-1)*20+50: POKE 29301, (vt%-1)*20+7: CALL 29300: RETURN
12000 se = 0
12010 pd = PDL(13)+PDL(12)
12020 se = se+1: IF pd = 30 GOTO 12010
12030 se = RND(-se): pd = pd-15: RETURN
13000 ht% = 1: vt% = 1: GOTO 11000
13100 POKE 64885, 0
13105 js = PDL(5)+PDL(4): ff = PDL(7)+PDL(6): rr = PDL(9)+PDL(8)
13106 kb = PEEK(64885)
13110 IF js+ff+rr+kb = 0 GOTO 13105
13120 IF ff = 1 THEN RETURN
13125 IF kb = 27 THEN TEXT: PRINT "END": POKE 16953, 95: END
13130 IF rr = 1 THEN RETURN
13140 IF js = 1 THEN vt% = vt%-1
13150 IF js = 2 THEN ht% = ht%+1
13160 IF js = 3 THEN ht% = ht%+1: vt% = vt%-1
13170 IF js = 4 THEN vt% = vt%+1
13180 IF js = 6 THEN ht% = ht%+1: vt% = vt%+1
13190 IF js = 8 THEN ht% = ht%-1
13200 IF js = 9 THEN ht% = ht%-1: vt% = vt%-1
13210 IF js = 12 THEN ht% = ht%-1: vt% = vt%+1
13220 IF ht% > 8 THEN ht% = 1
13230 IF ht% < 1 THEN ht% = 8
13240 IF vt% > 5 THEN vt% = 1
13250 IF vt% < 1 THEN vt% = 5
13260 CALL 29500: GOSUB 11000: GOTO 13100

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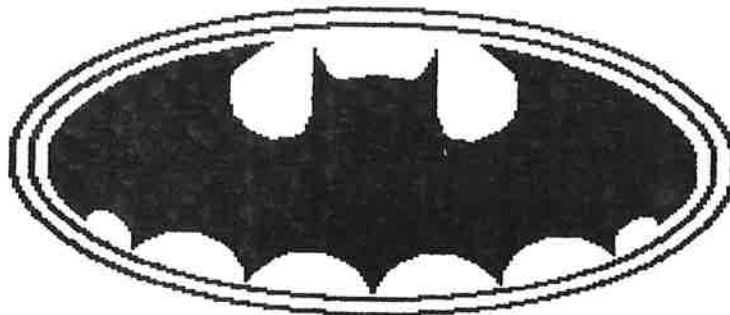
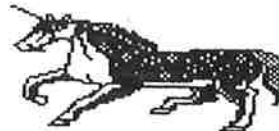


## EZ-MATCH LIST continued ...

```

14000 HOME: PRINT: HTAB 6: PRINT "one moment please..."
14002 FOR x = 1 TO 8: FOR y = 1 TO 5: pc(x, y) = 0: NEXT
14004 FOR x = 1 TO 40: rp(x) = 0: NEXT
14010 FOR x = 1 TO 8: FOR y = 1 TO 5
14012 rr = INT(RND(1)*40)+1: IF rp(rr) <> 0 GOTO 14012
14014 rp(rr) = rr
14020 IF rr > 20 THEN rr = rr-20
14030 IF pc(x, y) = 0 THEN pc(x, y) = rr
14040 NEXT: NEXT: nx = 25: GOTO 16000
14500 XDRAW 21 AT (ht%-1)*20+50, (vt%-1)*20+8
14510 HCOLOR = co%(pc(ht%, vt%))
14520 DRAW pc(ht%, vt%) AT (ht%-1)*20+50, (vt%-1)*20+8: RETURN
14600 FOR de = 1 TO 2500: NEXT: RETURN
14700 XDRAW 21 AT (ht%-1)*20+50, (vt%-1)*20+8
14710 HCOLOR = 14
14720 DRAW 23 AT (ht%-1)*20+50, (vt%-1)*20+8: RETURN
14800 FOR x = 1 TO 5: CALL 29500: NEXT: RETURN
16000 FOR x = 1 TO nx: ht% = RND(1)*8+1: vt% = RND(1)*5+1
16010 GOSUB 11000: CALL 29500: NEXT: RETURN
20000 FOR x = 1 TO 8: FOR y = 1 TO 5: FOR v = 1 TO 8: FOR w = 1 TO 5
20010 IF cb(x, y) <> cb(v, w) GOTO 20020
20012 IF pc(x, y) = 0 GOTO 20020
20014 IF x = v AND y = w GOTO 20020
20016 GOTO 20100
20020 NEXT: NEXT: NEXT: NEXT
20030 vb% = RND(1)*5+1: hb% = RND(1)*8+1
20040 IF pc(hb%, vb%) = 0 GOTO 20030
20050 vc% = RND(1)*5+1: hc% = RND(1)*8+1
20060 IF hb% = hc% AND vb% = vc% GOTO 20050
20070 IF pc(hc%, vc%) = 0 GOTO 20050
20080 RETURN
20100 hb% = x: vb% = y: hc% = v: vc% = w: RETURN

```



# PRODUCT CATALOG



## COMPUTER SOFTWARE

### AJM SOFTWARE

**DISK DOCTOR** 9.95  
Useful program for reconstructing a damaged directory. Accurately reveals data type in each block.

**File Indexer** 9.95  
Great utility for organizing disk and ddp directories.

**File Manager 2.1** 14.95  
The multi-featured hacker's utility for the ADAM. Written entirely in fast Z80 machine code, File Manager works with 160K, 320K, and 720K disk drives. Backup media, copy files, edit blocks, print files, and much more. Uses any size memory expander as a copy buffer; not required though.

### AtariSOFT

**Centipede** 10.95  
The still popular arcade game in which you shoot away segments of an oncoming centipede; available in cartridge ONLY. One or two players.

**Defender** 10.95  
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. One or two players.

### Allied Creative Engineers

**StratoZAP** 16.95  
Blast away space debris falling through your home planet's rarefied atmosphere. Fast, tricky action; bonus rounds. One or two players. Hall of Fame.

### BRYAN'S SOFTWARE

**CARD SET** 11.95  
Three greeting card graphics in PowerPAINT format plus clip art and sprite fonts for use in PowerPAINT. Three volumes: I, II, and III (please specify which volume). Or, get all three volumes for just \$24.95.

### Coleco Industries

**ADAMcalc** 14.95  
The advanced electronic spreadsheet for ADAM. Comes with sample templates and a 154 page manual.

**Best of Broderbund** 9.95  
Two fast action games on one tape: futuristic space warrior and a helicopter rescue mission.

**Recipe Filer** 7.95  
File recipes by name, type of meal and main ingredient. ADAM will even print a grocery list for you; database is in SmartFILER format.

**Richard Scarry's Word Book** 10.95  
Fun to play educational game for kids ages 4 to 8. Great reading skills builder. Colorful animated graphics; four skill levels.

**SmartFILER** 9.95  
Coleco's general purpose database program -- easy electronic filing system. Includes search and sort features; comes with 38 page manual.

**SmartLETTERS & FORMS** 9.95  
Includes samples for business, personal, and social letters; 154 page manual.

**SmartLOGO** 15.95  
Coleco's version of the still popular structured language. Good for graphics and sound control; comes with a 350 page manual.

**Super ZAXXON** 5.95  
Coleco's version of the still popular fast-action, 3-D arcade game.

DATA DOCTOR

**QuikFax Quest** 9.95  
Three academic quizzes. Includes study mode (on-screen and hardcopy); US capitals, world capitals, and chemistry elements.

**SmartBEST** 9.95  
Makes several changes to BASIC 1.0. Not compatible with Intel-BEST 3.3.

**SmartTRIX** 14.95  
A set of 10 useful programming aides. Two nice sprite programs. 60 page manual. Disk and DDP versions not compatible.

**Strategy Strain** 9.95  
Nine intellectually challenging computer classics; graphics and sound; good Star Trek adventure.

DIGITAL ADVENTURES

**Temple of the Snow Dragon** 24.95  
The highly acclaimed graphic adventure that everyone is talking about. The first adventure in the DALARK trilogy. Excellent graphics (for each room); good sound effects. Easy to play; extremely challenging to win. Single player. Disk and DDP version not compatible.

DIGITAL EXPRESS

**Beyond Trek** 14.95  
Pits you against hostile klingons. Good graphics and sound. Protect four starbases and annihilate the klingons. You command the Enterprise. Hall of Fame. Requires at least a 64K memory expander.

**Chess Champ** 14.95  
The first graphic chess game for the ADAM. Great graphics; easy user interface; 10 skill levels. A little slow on the higher levels. Take back last move; edit board; on-line instructional; store/load up to 52 games. Requires at least a 64K memory expander.

**CLIPPER** 14.95  
Introduces the concept of 'clip art' to ADAM. Totally machine code program. Build clip art collections. Put clip-art in your hi-res pictures; draw and edit clip art. Also captures clip art from hi-res pictures. Enter text; change colors. Comes with an 11K RAMdrive (does NOT require 64K expander). CLIPPER clip art can be used with PowerPAINT, The PRINT WORKS, The LABEL WORKS, and GoWRITER.

**FontPOWER** 14.95  
Utility using Coleco-like graphics for designing your own font sets. Comes with 8 font sets. Shows you how to use the font sets in high or low resolution graphics. Also comes with three font shape tables for HGR and HGR2 modes. Fonts can also be used in your own BASIC 1.0, BASIC 2.0, and Z80 programs.

**GAME** 11.95  
Three volumes of songs with accompanying full-screen graphics. Good entertainment; shows off the music and graphics capabilities of the ADAM. Great for recording as video tape headers too. Three volumes (14 songs and pictures each); specify which volume (I, II, or III).

**Intel-BEST 3.3** 17.95  
Makes over three dozen changes to BASIC 1.0. Comes with nine very user friendly MUSIC commands. Demos; plus it fixes several bugs in BASIC.

**Intel-LOAD V1.0** 11.95  
Converts BASIC 1.0 programs to load up to 12 times faster; stays in RAM; two BSAVE options.

**Intel-LOAD V2.0** 11.95  
Converts BASIC 2.0 programs to load up to 12 times faster; stays in RAM; two BSAVE options -- in STD MEM only.

**MegaDISK** 19.95  
Creates the RAMdisk ability for BASIC 1.0 for your own Z80 programs. Works with 64K, 128K, 256K, 512K and 1024K OrphanWARE compatible memory expanders. Automatically checks for XRAM size. Comes with five useful PD programs including EZfileXFER. Much, much faster than a Coleco disk drive. Self-booting or can be BRUN after BASIC is loaded.

- PaintAIDE** 16.95  
Allows you to customize some aspects of PowerPAINT including the ability to preset the SPECIAL typefaces. Plus it comes with over THREE DOZEN font files which really brings out the page design features of PowerPAINT. Also includes BASIC programs too.
- PowerPAINT** 29.95  
80K machine code graphics processor for the ADAM. The most extensive graphics design program EVER written for the system. 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 (background or foreground). Move, copy, and erase options. Many hardcopy print options (screen, labels, letterheads, and whole page pictures). Screen scroll options; four screen pictures with a 64K card (eight with a 256K or 512K card). Uses FontPOWERfont sets, SpritePOWER sprites (for stamping onscreen), and CLIPPER clip art. Requires at least a 64K card; printing requires a Centronics parallel interfaced Epson FX or IBM 5151 compatible printer. Fully compatible with SmartPAINT. You can easily UNDO changes. Internationally acclaimed as "THE graphics design program for the ADAM".
- ShowOFF I** 18.95  
Graphics design package (enter text, draw polygons, paint, save pictures, etc.). Fast color changes and a variety of print options. High and Low resolution drawing programs. Printing graphics requires a Centronics parallel interface and an Epson compatible dot matrix printer.
- ShowOFF II** 14.95  
Machine code print enhancement to SmartWriter; adds 32 print controls and 5 CONTROL functions to both SmartWriter and SmartBASIC. Requires a Centronics parallel interface, a 64K memory expander, and a Panasonic KXP-1080 or KXP-1080i printer.
- ShowOFF IIa** 14.95  
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 the Okimate 20). Does not include the line justification commands or internal document margin control. Requires at least a 64K expander.
- SpritePOWER** 14.95  
Totally machine code utility using Coleco-like graphics for designing your own sprites. Includes 3 sets of sprites; extensive instruction manual shows you how to use sprites in BASIC 1.0, BASIC 2.0 and Z80 programs. Includes PUFF and other demo programs. Comes with an 11K RAMdrive (does not require a 64K expander). Very easy to use program.
- SwiftBASIC 80 (rev 2.3)** 11.95  
Now the BASIC that you've been using can be used with the OrphanWare 80 column board. It also works with the EVE or OBS physical clock board. Plus other are many enhancements including DMP support and automatic RAMdrive capability with a memory expander.
- SwiftDISK** 11.95  
Fools the operating system into believing that the super fast RAMdrive 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 a 128K or larger card).
- SwiftLINK 1.3** 19.95  
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, and 2400). SmartKEY macros, 20 record library (name, #, pw, id, memos, and parms). Plus lots more. Extremely user friendly. Works in 30, 40, and 80 column modes (80 column mode requires and EVE or OBS board). Regularly updated (you get two free updates).
- SwiftPRINT** 14.95  
Powerful graphics file interchange program (RLE, SmartPAINT, PowerPAINT, GraphixPAINTER, and PaintMASTER). STORE and LOAD virtually any ADAM picture format. A variety of picture print options including COLOR for the Okimate 20. Requires at least a 64K expander and a standard parallel interface and DMP for printing.
- TurboDISK 1.0** 18.95  
Creates RAMdrive capability with BASIC 1.0. Corrects several BASIC bugs. Includes TurboCOPY -- very nice media control and copy utility. PD modules, programming tips, and more.

**TurboDISK 2.0** 12.95  
Creates the powerful RAMdrive capability with BASIC 2.0 and a 64K expander. Disables EXTREM command.

**XRAMpak** 14.95  
The perfect companion for MegaDISK 1.0 and your OrphanWARE memory expansion board (any size). Includes XRboot (boot SmartBASIC, ADAMcalc, and ADAMlink in about two seconds), XRcopy (a powerful copy utility that uses RAMdrive space above any files stored there as a copy buffer), PACK with UNPACK (compacts and decompacts your favorite utilities into/from one large file for quick system setup on the RAMdrive), and EZfileXFR2 (faster than EZfileXFER by not restarting the directory after each transfer).

### E&T SOFTWARE

**Business Pack** 17.95  
Two useful programs for creating and printing address files. Plus two good programs for inventory control and printing.

**SoftPACK** 17.95  
Four menu-driven home management programs: SoftCHECK, Checkbook Totalizer, CheckBook Reconciler, and SoftMailer (address filer for labels and envelopes).

### Fowler Software

**FILE PRINTER** 9.95  
A fine set of BASIC utilities for use with your dot matrix printer. Prints SmartWriter compatible files from BASIC. Allows you to set default printer functions.

### IMAGE MICROCORP

**Black Gold** 15.95  
A board style game for one to four players. Compete by digging for oil. Good graphics.

**Diablo** 15.95  
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 strategy and fast action to play.

**Stock Market Game** 15.95  
A board style game for one to four players. See who makes the biggest profit buying and selling stocks. A relatively good tool for learning about the stock market too. More enjoyable with some stock market understanding.

### MARATHON COMPUTER PRESS

**MegaUtil** 27.95  
An excellent collection of varied programming aides. Includes ByteWriter (block editor), CopyWriter (media backup utility), PD modules, programming tips, plus more.

**Spanish Vocabulary** 16.95  
Includes and electronic dictionary; comes with 1600 words; expandable to 7400 words. Quizzes, printed study sheets, and report cards.

### MR. T. SOFTWARE

**AutoWRITER** 14.25  
A menu-drive utility that writes machine code routines and BASIC subroutines (included) of your choice to a user designated disk or datapack. The file may then be merged with existing programs to add special features. Detailed instruction manual.

**BASICaide (rev 2)** 9.95  
Several BASIC 1.0 enhancements including new CHAIN command, new BIN command to store fast loading programs, macros, and bug fixes.

**Kid's TriviaPAK** 14.95  
1080 questions; six categories; one to four players; graphics and sound. Hall of Fame. Many hours of fun.

**MR-T SEARCH** 12.95  
Great word search puzzle maker. Five size options. Nice hardcopy (ADAM or DMP). Packed with nice features.

**TriviaPAK** 14.95  
1200 questions; six categories; one to four players; graphics and sound. Hall of Fame. Many hours of fun.

**MMSG**

CopyCart+ D2.0 10.95  
 The most advanced cartcopy utility for the ADAM. Works with 8K, 16K, and 32K carts. Can be used with 160K, 320K, and 720K drives, plus the two tape drives. Has DELETE and CATALOG functions for the multi-game directories too.

**OrphanWARE**

FastPATCH with CalcPATCH 0.95  
 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.

LinkPATCH 8.95  
 ADAMlink II telecommunications software with up and down loading of ASCII files plus printer output is directed to your dot matrix.

**PITMAN SOFTWARE**

Dinosaur Dig 16.95  
 Obtain plots of land, dig for dinosaur bones, and construct a full skeleton. Colorful, animated graphics. One or two players. 64K expander required.

Ghost Zapper 11.45  
 A fast action, arcade style shootem-up with good graphics and sound. Quickly blast ghosts in the house (four rooms) for top score. Single player. 64K expander required.

MIND OVER ADAM 11.45  
 This game plays like the popular board game MasterMIND™. Good animation, good sound, colorful graphics. Five levels of play. Hall of Fame.

**REEDY SOFTWARE**

ADDICTUS 19.95  
 Similar in concept to Tetris (available on many computer systems) this challenging game requires a unique strategic manipulation of spatial relationships. Truly an addicting game ... for the whole family.

Entertainment Pak 14.95  
 Three challenging computer classics: Connect-4, Blockade, and a slide puzzle. Good graphics. Fast animated sprites. One or two players.

Lab Mouse 11.95  
 Exciting game that puts you in the role of a laboratory mouse stuck in a maze. All hi-res graphics. Five skill levels.

MageQuest 14.95  
 Challenging graphic adventure. Nine levels of play plus three solo adventures. Combines eye-to-hand coordination with careful planning for hours of fun.

Phrase Craze 10.95  
 "Wheel-Of-Fortune" type game with colorful graphics and good sound. One to three players. Realistic game play.

Stage Fright 14.95  
 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. Game save option. Three progressive levels of play.

**TLB SOFTWARE**

PICTURE 1.2 9.95  
 Great graphics program. Move, copy, draw lines, circles, ellipses, and magnify. Can be converted to GraphixPAINTER, PowerPAINT, etc. for printing graphics. Full screen or HGR screen drawing.

**WHITE COMPANY**

SpeedyWRITE 29.95  
 The most advanced word processor ever developed specifically for the ADAM. Written entirely in fast Z80 code it has more than 100 features. 40 column screen, all screen colors, underline, bold, super and subscript, split screen, line justification, keyboard macros, configuration options, and a full supply of file handling utilities.



**SpeedyWRITE 2.0**

39.95

All of the features of SpeedyWRITE plus lots more. INIT support for any size disk drive, ability to edit two files simultaneously, pocket database, already setup for a dot matrix printer, built-in RAMdrive (10K with std system and 64K with a memory card).

**SpeedySPELL**

24.95

Stays in memory with your SpeedyWRITE 2.0 document. Can even beep at you when you make a type. Comes with a 10000 word dictionary and a 5000 word thesaurus. Requires SpeedyWRITE 2.0 and a 64K card.

**WALTER'S SOFTWARE****THE PRINT WORKS**

26.95

The print shoppe program for ADAM and a dot matrix printer. Easily construct banners, signs, and cards. Works with FontPOWER fonts and CLIPPER clip art too. Three sizes for graphics.

**WIZARD'S LAIR****CLIP ART (1 or 2)**

11.95

Each volume has more than 40 clip art pictures for use with CLIPPER, PowerPAINT, THE PRINT WORKS, and THE LABEL WORKS. Specify which volume (1 or 2).

**PowerPRINTS**

11.95

15 full screen pictures for use with PowerPAINT, most designed by professional artists for ADAM.

**GUIDES / BOOKS / INSTRUCTIONS****HACKER'S GUIDE (vol 1)**

11.95

The Hinkle's in-depth guide to the technical aspects of exploring ADAM. 60 pages; 18 programs.

**HACKER'S GUIDE (vol 2)**

11.95

The Hinkle's detailed guide to SmartBASIC V1.0. 110 pages; HELLO program includes several BASIC fixes and patches.

**Hacker's Software**

3.95

All the programs from the Hinkle's two Hacker's Guides.

**EZ REF 101**

1.95

Approximately 700 Z80 instructions listed in NUMERICAL sequence. 9 pages. Decimal, hex, op code, and operands. Good for disassembling machine code routines in BASIC. Holes drilled for easy binder insertion.

**EZ REF 102**

1.95

Approximately 700 Z80 instructions listed in ALPHABETICAL sequence. 9 pages. Decimal, hex, op code, and operands. Good for assembling machine code routines in BASIC. Holes drilled for easy binder insertion.

**EZ REF 103**

1.95

A 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.

**Pinball/Hardhat Guide**

1.95

40 pages of instructions for the popular public domain package. Holes drilled for easy binder insertion. Includes Pinball quick reference sheet.

**MISCELLANEOUS SUPPLIES****PLAIN LABEL DATA PACKS**

2.25 (each)

17.95 (for 10)

Sony brand. High quality formatting. No face label.

**PLAIN LABEL 5.25" DISKS**

.49 (each)

4.25 (for 10)

Double-sided. Double-density. Includes sleeve and write-protect tabs.

**PRINTER RIBBON FOR SmartWRITER**

5.25 (each)

14.95 (for 3)

Black ink. Standard replacement ribbon cartridge.

**PANASONIC PRINTER RIBBONS**

3.95 (each)

Black ink. Standard KX ribbon. Add \$1.50 each for RED or BLUE ink.

**ADDRESS LABELS**

3.95 (for 1000)

White. Pin-feed. 3 1/2" by 1 1/16". Fan fold. Single column.

**DISK LABELS**

7.95 (for 1000)

White. Pin-feed. 4" by 1 7/16". Fan fold. Single column.

## PUBLIC DOMAIN SOFTWARE

You may get any of the volumes listed below on 5.25" diskette for \$3.50 and on digital data pack for \$4.75. Many of the volumes are self-booting (all of the COLECO library and the BASIC 1.0 LIBRARY are self-booting).

### BASIC 1.0 LIBRARY

**N&B**games (vols 1 thru 5): assorted adventures, board games, and animation games.  
**N&B**graph (vols 1 & 2): a variety of graphics displays and music programs.  
**N&B**math (vols 1 & 2): various entertainment, financial, and scientific math programs.  
**N&B**utils (vols 1 thru 3): an assortment of applications and programming utilities.  
**N&B**patches: various patches to ADAM software (commercial and PD titles).

### GRAPHICS LIBRARY

**N&B**pix (vols 1 thru 28): 13 SmartPAINT format pictures each.  
 Art Gallery (vols 1 & 2): 13 SmartPAINT pix each; #2 is smurf-like chars; compiled by REEDY SOFTWARE.  
 PowerVERSES (vols 1 & 2): Bible verses on SmartPAINT pix; compiled by Dan Decker.  
 PaintFORMS (vols 1 thru 4): assorted letterheads, labels, etc. for use with PowerPAINT.  
 SimplePAINTER 1.1: An abundance of good graphics utils including the pgm SimplePAINTER.  
**N&B**clips (10 volumes compiled by Charlie Evans, about one-fourth converted by David Carmichael)  
     Animals, Cartoon Characters, Happy/Arts, Odds & Ends #1, Odds & Ends #2, Office, People,  
     Seasonal #1, Seasonal #2, Sports.

### PINBALL LIBRARY

**PB**games (vols 1 thru 5): 10 self-booting pinball games each.

### COLECO LIBRARY

**Smart**BASIC 1.0: the standard version for ADAM.  
**Smart**BASIC 2.0: extended version; 49K; memory expander option; with DOC file.  
**Fall Guy**: racing supergame.  
**Yolks On You**: barnyard action supergame.  
**Super Cobra**: helicopter game.  
**Pinball/Hardhat Mac**: two great games by Electronic Arts.  
**Super SubRoc**: submarine game.  
**Troll's Tale**: graphic adventure for children.  
**Temple of Asphai**: extensive text adventure.  
**Video Hustler**: billiards game; latest version with demo mode.  
**ADAMlink II**: version has up and down loading capabilities for text files.  
**Cabbage Patch Kids**: graphic game for children.  
**Demo Carts**: various utilities and demo programs.  
**Donkey Kong, Jr.**: five screen version.

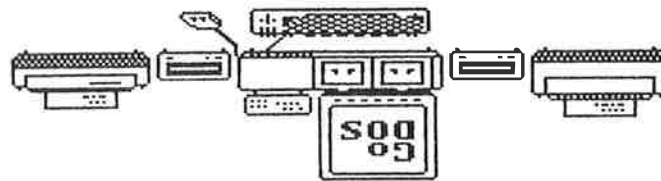
### ASSORTED ITEMS LIBRARY

**VideoTUNE** Songs (vols 1 & 2): 34 songs each for use with VideoTUNES by FutureVISION.  
**SuperBASIC**: numerous enhancements to SmartBASIC 1.0; 2 demos in French.  
**EZpak**: self-booting; EZmenu and EZcopy.  
**ezFILER**: self-booting; nice address filer.  
**ShapeMaker**: very nice vectored shape design utility; by Guy Cousinequ.  
**One Minute Formatter 2.0**: The most comprehensive disk formatter written for ADAM.  
**MusicBOX** (vols 1 & 2): 10 SmartTUNES songs each.  
**MediaMATE**: three nice media editors by DL Ewing, Brett Lynn, and Guy Cousineau.  
**Chess Solitaire**: excellent volume that lets you study some famous chess games; by Al Roginsky.  
**Graphic Sargon**: graphic version of the chess game; by Chris Braymen; requires CP/M.



THE SOFTWARES FACTORY

Published by




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