82 COMPUTIST

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Software recommendations

The Starter Kit contains most of the programs that you need to "Get started". In addition, we recommend that you acquire the following:

• Applesoft program editor such as "Global Program Line Editor (GPLE)".
•Assembler such as "Merlin/Big Mac".
•Bit-copy program such as "Copy II Plus", "Locksmith" or "Essential Data Duplicator".
•Word-processor (such as AppleWorks).
•"COPYA", "FID" and "MUFFIN" from the DOS 3.3 System Master disk.

Super IOB and Controllers

This powerful deprotection utility (in the COMPUTIST Starter Kit) and its various Controllers are used in many softkeys. (It is also on each Super IOB Collection disk.)

Reset into the Monitor

Softkeys occasionally require the user to stop the execution of a copy-protected program and directly enter the Apple's system monitor. Check the following list to see what hardware you will need to obtain this ability.

Laser 128: Your ROM includes a forced jump to the monitor. Press **ctrl return reset**.

Apple II+, //e, compatibles: 1) Place an Integer BASIC ROM card in one of the Apple slots. 2) Use a non-maskable interrupt (NMI) card such as Replay or Wildcard.

Apple II+, compatibles: 1) Install an F8 ROM with a modified reset-vector on the computer's motherboard as detailed in the "Modified ROM's" article (COMPUTIST #6 or Book Of Softkeys III) or the "Dual ROM's" article (COMPUTIST #19).

Apple //e, //c: Install a modified CD ROM on the computer's motherboard that changes the open-apple ctrl reset vector to point to the monitor. *(This will void an Apple //c warranty since you must open the case to install it.)*

Apple //gs: If you have the 2.x ROM, there is a hidden Classic Desk Accessory (CDA) that allows you to enter the monitor. In order to install the new CDA, you should enter the monitor (**CALL -151**) before running any protected programs and press **# return** . This will turn on two hidden CDAs, Memory Peeker and Visit Monitor. Thereafter press **openapple ctrl esc** to go to the Desk Accessories menu. Select Visit Monitor and there you are. Use **ctrl Y** to exit.

Recommended literature

•Apple II Reference Manual (or IIe, IIc, etc.)
•DOS 3.3 & ProDOS manual
•Beneath Apple DOS & Beneath Apple ProDOS, by Don Worth and Pieter Lechner, from Quality Software

Typing Applesoft programs

BASIC programs are printed in a format that is designed to minimize errors for readers who key in these programs. If you type:

```
10HOME:REMCLEAR SCREEN
```

The LIST will look like:

```
10  HOME : REM CLEAR SCREEN
```

Applesoft inserts spaces into a program listing before and after every command word or mathematical operator. These spaces don't pose a problem except when they are inside of quotes or after a DATA command. There are two types of spaces: those that have to be keyed and those that don't. Spaces that must be typed appear in COMPUTIST as special characters (◊). All other spaces are there for easier reading.

NOTE: If you want your checksums to match, only type spaces within quotes or after DATA statements if they are shown as (◊) charactors. **SAVE** the program at periodic intervals using the name given in the article. All characters after a REM are not checked by the checksum program so typing them is optional.

Typing Hexdumps

Machine language programs are printed in COMPUTIST as hexdumps, sometimes also as source code.

Hexdumps are the shortest and easiest format to type in. You must first enter the monitor:

CALL -151

Key in the hexdump exactly as it appears in the magazine, ignoring the four-digit checksum ($ and four digits) at the end of each line. When finished, return to BASIC with:

3D0G

BSAVE the program with the filename, address and length parameters given in the article.

Typing Source Code

The source code is printed to help explain a program's operation. To enter it, you need an "Assembler". Most of the source code in older issues is in S-C Assembler format. If you use a different assembler, you will have to translate portions of the source code into something your assembler will understand.

Computing checksums

Checksums are 4-digit hexadecimal numbers which tell if you typed a program correctly and help you locate any errors. There are two types of checksums: one created by the CHECKBIN program (for machine language programs) and the other created by the CHECKSOFT program (for BASIC programs). Both are on the "Starter Kit".

If your checksums do not match the published checksums then the line where the first checksum differs is incorrect.

CHECKSOFT instructions: Install Checksoft (BRUN CHECKSOFT) then LOAD your program. Press & to get the checksums. Correct the program line where the checksums first differ.

CHECKBIN instructions: Enter the monitor (CALL -151), install Checkbin at some out of the way place (BRUN CHECKBIN, A$6000), and then LOAD your program. Get the checksums by typing the Starting address, a period and the Ending address of the file followed by a **ctrl Y** .

SSSS.EEEE ctrl Y

Correct the lines where the checksums differ.

Writing to the RDEX editor

RDEX (are-decks) stands for: **R**eader's **D**ata **EX**change. We print what you write. When you send in articles, softkeys, APTs, etc., you are submitting them for *free* publication in this magazine. RDEX does *not* purchase submissions nor do we verify data submitted by readers. If you discover any errors, please let us know so that we may inform our other readers.

Remember that your letters or parts of them may be used in RDEX even if not addressed to the RDEX editor. Correspondence that gets published may be edited for clarity, grammar and space requirements.

Because of the great number of letters we receive and the ephemeral and unpredictable appearance of our volunteer staff, any response to your queries will appear only in RDEX, so it would be more appropriate for you to present technical questions to the readers and ask for their responses which will then be placed in the Apple-RDEX.

How to get a free library disk

Whenever possible, send everything on Apple format (5.25" - DOS/ProDOS or 3.5" - ProDOS) or IBM format (3.5") disks. Other formats are acceptable but there may be some delay as we look for someone to translate it for us. *(If you use a 5.25" disk, when we print your letter, we will return your disk with the current library disk copied onto it.)* Use whatever text editor you like, but tell us which one. Put a label on the disk with your name (or pseudonym) and address (if you want to receive mail). Don't reformat any programs or include them in the text of your letter. Send Applesoft programs as normal Applesoft files and machine language programs as normal binary files. We have programs to convert them to the proper format for printing. If you are sending source code files, and you are not using the S-C Assembler, send them as normal text files.

When to include a printed letter

Don't include hardcopy (printout) unless:

a. You are writing about a bug or other printing error.
b. You are writing to ask for help.
c. You are answering another readers help request.
d. You are writing about your subscription or sending an order for back issues or software.

Bugs, requests for help and answers to requests for help are bumped to the head of the line and go in the very next issue. All other letters are printed in the order that we receive them.

Writing to get help

When writing to request help, be sure to include ALL relevent information. The more information you include, the easier it is to find a solution. There's an old saying that goes "A properly framed question includes 90% of the answer".

How to get mail

If you are interested in receiving mail from other readers, be sure that we have a current address. If you use a pen name and want to receive mail, we need to have your address. Our readers privacy is important, so we will not print your address unless you specifically say too.

How to write to RDEX authors

When writing to one of the RDEX authors. Write your letter and seal it in an envelope. Put your return address, the authors name (as it appears in RDEX) and *the correct postage* on the envelope. Put this envelope into another and send it to RDEX. We will put the correct address on your letter and mail it for you. Check to the right of the authors name to see if the author is writing from a foreign country and include the proper postage.

Help Line

These readers have volunteered their time to help you. Please call only within the given time frames (corrected for your time zone). No collect calls. (You can write anytime!)

Jack Nissel (Disk Protection, 7-10PM EST)
(215) 365-8160
Marc Batchelor, 6025 Coker St., Cocoa, FL 32927
Rich Etarip, 824 William Charles Ct. #2, Green Bay, WI 54304-4018

The BBS
(Bulletin Board System)

Dave Goforth is the sysop for the Computist BBS. The number is: (206) 581-9292. If you already have a User ID# and password, sign-on using the User ID#. If you are a new user, it may take a day or so to validate your new ID# and password.

Readers Data EXchange

New COMPUTIST readers using Apple IIs are advised to read this page carefully to avoid frustration when attempting to follow a softkey or entering the programs printed in this issue.

What is a softkey, anyway?

Softkey is a term which we coined to describe a procedure that removes, or at least circumvents, any copy-protection on a particular disk. Once a softkey procedure has been performed, the resulting backup copy can usually be copied by the normal copy programs (for example: COPYA, on the DOS 3.3 System Master disk).

Commands and control keys

Commands which a reader is required to perform are set apart by being in boldface and on a separate line. The **return** key must be pressed at the end of every such command unless otherwise specified. Control characters are preceeded by **"ctrl"**. An example of both is:

6 ctrl P

Type **6**. Next, place one finger on the **ctrl** key and then press **P**. Don't forget to press the return key.

Other special combination keypresses include **ctrl reset** and **open-apple ctrl reset**. In the former, press and hold down the **ctrl** key then press the **reset** key. In the latter, press and hold down both **ctrl** and **open-apple** then press **reset**.

You have a LEGAL RIGHT to an unlocked backup copy of your commercial software.

Our editorial policy is that we do NOT condone software piracy, but we do believe that users are entitled to backup commercial disks they have purchased. In addition to the security of a backup disk, the removal of copy-protection gives the user the option of modifying programs to meet his or her needs. Furthermore, the copyright laws guarantee your right to such a DEPROTECTED backup copy:

..."It is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner."

United States Code title 17, §117

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Editor's Notes

Fancy Hardware or Vaporware?

Check out the pre-product announcement on page 17 and make up your own mind.

Hardware Believers?

I'm looking for 20 hardware believers who still use their IIe and think they can spare about $250. I have a hardware project that boosts the computing power of a IIe.

It's a 4"x13" board that sits under the keyboard in your IIe. It has a 65C816 processor using a 4Mhz clock and 1Mbyte of RAM minimum (expandable to 8Mbytes). The ROM is actually a 128K battery backed SRAM chip so that the system "ROM" can be easily changed at any time. It connects to the IIe at the 65C02 chip. You unplug the 65C02 on the motherboard and plug in a jumper to the board. I call it the "Option Card" but some others here call it the "2GTS". That's stands for "too good to stop".

I've sent for quotes on the board. Only one has come back so far. If I can find 20 people interested in constructing the card, it will cost us about $60 each for the bare board. If you are interested, write to me at COMPUTIST.

Instant On?

I've been playing around with this one for quite a while. It's a card with 12-32K SRAM chips with battery backup. It looks like a disk drive. I store my system (DOS/ProDOS) software and favorite programs on it. I'm thinking of redoing the board to use 8-128K SRAM chips. That would mean that the board would have 1Mbyte of SRAM. A good size for a RAM disk. If you are interested in sharing the cost of having the new board made, let me know.

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Street Rod 22
Test Drive II 22
Vette 22
Wing Commander 21

Jeff Hurlburt TX

The PRODUCT MONITOR

RATINGS

Superb	★★★★★
Excellent	★★★★
Very Good	★★★
Good	★★
Fair	★
Poor	☹
Bad	☹☹
Defective	💣

II to Two

By now it should be clear that, for the active computer user, access to a PC/AT machine is a 'given'. Along with your radio, TV, and telephone, it has become 'standard equipment'. Interestingly, it has not attracted much experimenter interest nor anything like a fanatic user group following. Today's generic PC/AT IS a good, solid machine and, by far, the best price/performance personal computing value— besides which, it continues to absorb an overwhelming portion of major software vendor attention. It has not, however, replaced the Apple II.

Why? Many reasons; but, to keep it short: you can't and/or won't do "Apple II" stuff on your PC. This especially applies to experimentation and one's willingness to try out enhancement products from a growing list of new 'garage shop' suppliers. Ironically, when a II user moves from II-only to "two"— i.e. adds a PC— there is more enthusiasm for enhancements and, after a brief dip, time spent using the older machine actually increases! For whatever reason, the "endless Apple II" does seem to be on the rebound. Two computers really are better than one.

Freakin' Funky Fuzzballs

★★

$44.95, for CGA-VGA 640K PC

Sir-Tech

(AdLiB or Sound Blaster sound recommended)

Most fuzzballs don't do much about being kicked around; but YOU are different! You are "freakin'", "funky", AND determined to polish-off the Enemy!! Your quest begins at Level 1 and will not be completed until you blow up the Enemy's HQ on Level 15.

Sir-Tech's 'Fuzzballs is a fast-paced arcade-adventure featuring colorful top-down-view grid displays, simple KB controls, and Adlib/SB/Roland effects and music. Mainly, on each Level you want to collect the keys needed to open a gateway to the next Level— NOT so easy, because each tile is good for just one or two transits before it simply disappears; you must find the gateway and, of course, the Enemy is usually in hot pursuit. HIS objective is to pound your Strength points to zero— whereupon you become a POOFball, just a memory in FFF's Hall of Fame top scores list. Fortunately, each Level is sprinkled with food items (to restore strength), wands that create tiles, plus other goodies, like shields, rings (to increase max Strength), and scrolls. Much of fun is in finding ways to isolate the Enemy (by eliminating tiles) so that you can loot a Level's treasures.

Lest you become complacent after a few early successes, the fifteen Levels span five "worlds" (Ancient Times, Funky Gardens, Modern Times, Future Space, and Darkness) offering a nice mix of patterns, grid size, and trickery (e.g. wrap-around tiles). For aces, there's an Expert Mode; and really competative types can go one-on-one with one player taking the Enemy role.

Supplied on both 3.5" and 5.25" media with manual and commands card, 'Fuzzball delivers lively, addictive action; and, via an Alternate Turns option, the lure of fierce high-scores competitions for up to ten players. Possibly, the game should offer joystick input; but its chief weakness is the absence of a Save Game option. After a few tries, it is not difficult to get 10-20 minutes of continuous play; it IS difficult to get much more without enduring many increasingly tedious replays of early Levels. Being a freakin' funky fuzzball is fun; but it could easily have been funner.

World Class Soccer

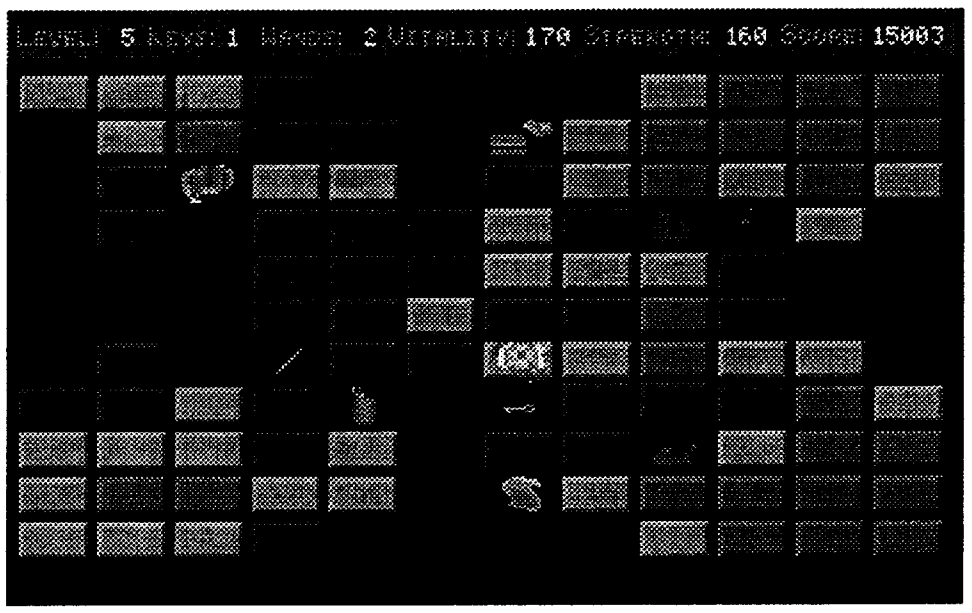
★★★

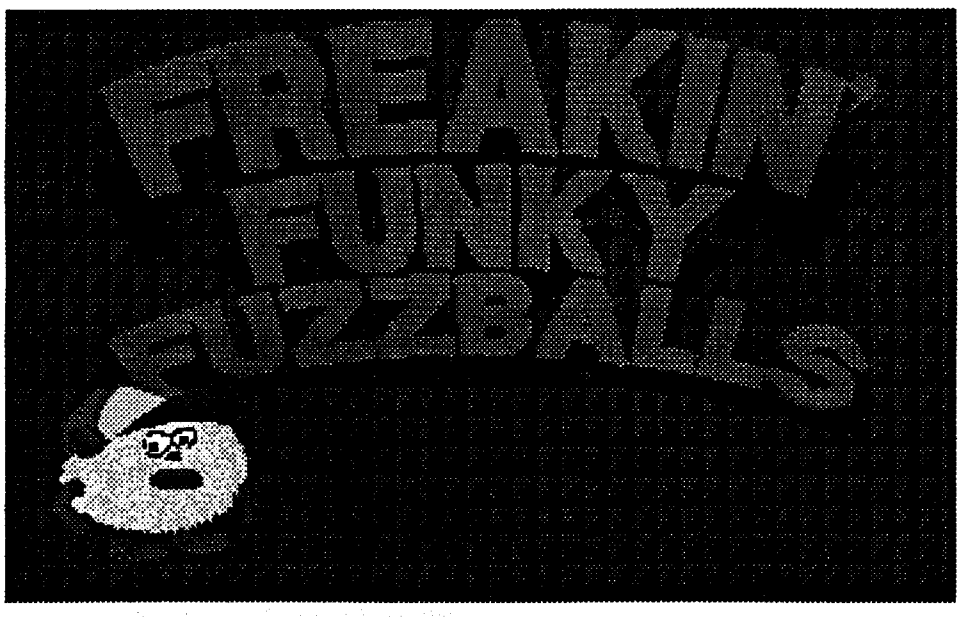
$44.95 for CGA-EGA 512K PC

U.S. Gold

Joystick recommended

If a sports simulation 'works', it's a good bet that someone who doesn't especially like the sport will not like the simulation. Fortunately, Toby, one of the Computer Room regulars is a sports fan who enjoys soccer. While I watched, he tested (and tested) U.S. Gold's new World Class Soccer until it became clear that the "testing" was over and he was simply 'hooked' on the game!





A colorful 66-page manual is your first tip-off that 'Soccer is for real. In it you'll find an outline of game rules, terms, pictures and bios for World Cup star players, trivia, and highlights of the 1990 matches. For individual matches or to enter the World Cup competition, you have a choice of the twenty-four 1990 Cup teams. Each has a page showing national flag, an interest-hyping 'color' commentary, overall SSAS ratings (Skill, Speed, Aggression, and Strength), and the 22-player roster. To assist in picking the eleven players for each match, each player is also SSAS rated. The latter is not merely more hype, since the program uses player ratings to determine in-play outcomes.

'Soccer's setup menus and displays get you into action with minimal hassle. Once you select a team and formation, the roster (with ratings) appears on-screen along with formation diagram. Guided by highlighted formation position, you pick each player until all slots are filled. Easy! The game supports person vs. computer and person vs. person Individual matches using KB or joystick controls. With two human players, two-joystick play is available using a game port adapter (such as the one listed in Sound Blaster's catalog for $11.95). Multi-match Tournament play is single-person only— the program simulates outcomes for other matches in each round and allows saving Tournament status to disk between matches.

In fact, everything looked so easy that, having observed Toby's rather extensive "testing" sessions, even I, a total soccer novice, found myself playing. U.S. Gold's new release is to soccer what Activision's 'Two-on-Two/IIgs is to basketball— which is to say Very Good and very playable. 'Two-on-Two's sound is better; 'Soccer offers AdLib/SB or Roland music, but just PC effects. ('Soccer, however does offer true two-person play.) Mainly, the new soccer delivers smooth, realistic action and natural-feeling control of movement, kicking, heading, and tackling. The 'trick' is that the program automatically puts you in control of whichever team member is closest to the ball. (A small arrow points to the person-controlled player.) Other players continue to follow the flow of play, which can range freely over the smooth-scrolling multi-screen field. Rounding out the package, a lighted scoreboard display comes up to present penalty and other game messages; and— still more hype— a TV sportscaster introduces each match by predictng the winner.

Boasting crisp, colorful EGA graphics, 'Soccer comes with fold-out poster/controls guide and manual on both 5.25" and 3.5" media. Expect a quality, easy-playing simulation; but don't count on easy victories— especially against 'top guns' like Italy, Germany, Argentina OR a skilled second player. Great fun, even if you don't consider yourself a fan of the sport; an absolute feast, if you do!

Continuum

★★★★

$49.95 for CGA-VGA 512K PC

Data East

(joystick, AdLiB or Sound Blaster, and 10Mhz minimum speed recommended)

Flying dreams seem to be fairly common; so, perhaps, you've happened upon this particular variant: You're in an enormous room where, to your delight, you discover that can leap/glide from wall to wall. Great fun; and, now, thanks to Data East, a remarkably similar experience is available in Continuum. According to the manual, you "pilot" a minicraft called a "mobile"; in fact, though, you ARE the mobile. Move the stick back, and your view sweeps upward toward the ceiling. You see level upon level of platform squares. Move it forward, and you can see your base resting upon a platform, platforms below you, and the floor. Bouncing and turning positions you for a 'jump'. Pressing 'fire' sends you forward, sliding into space where turns can steer you to another platform ready for another leap.

Connected by doorways placed at various altitudes, there are 256 of these enormous rooms organized into twelve "emotional regions" (Dream, Stimulate, Develop, ...). Mood is set via color scheme, AdLib/SB music/effects, platform arrangement, hazards (e.g. force prisms, mobiles which try to knock you down, etc.), and opportunities. The game can be played in Emotion or Action mode. In the former— you choose any region and are free to explore rooms without competative pressures. In 'the real thing', Action Mode, you start in the "Welcome" room and must collect the sixteen crystals and sixteen cubes scattered throughout the Continuum universe. All hazards are active and the time you can spend in each room is limited. To balance such risks, there is a

multi-position Game Save and a quick-save/restore "Memory" feature for trying out daring new maneuvers. Only Action Mode players can score points (for time in flight and objects retrieved); and only the best of these can win a place in the High Scores roster.

As might be anticipated, Continuum rates just 'okay' on the 'artwork beautifulness' scale; the design effort here has gone into super-realistic perspective and physics effects, smooth, responsive controls, effective musical composition, and imaginative room setups. The effort was not wasted. You DO feel like you are flying; AND there are all sorts of neat places to fly around in! A 'dream come true'? Pretty close. Continuum is a unique gaming experience.

King's Quest V: Absence Makes the Heart Go Yonder

★★

$69.95 for VGA PC

Sierra

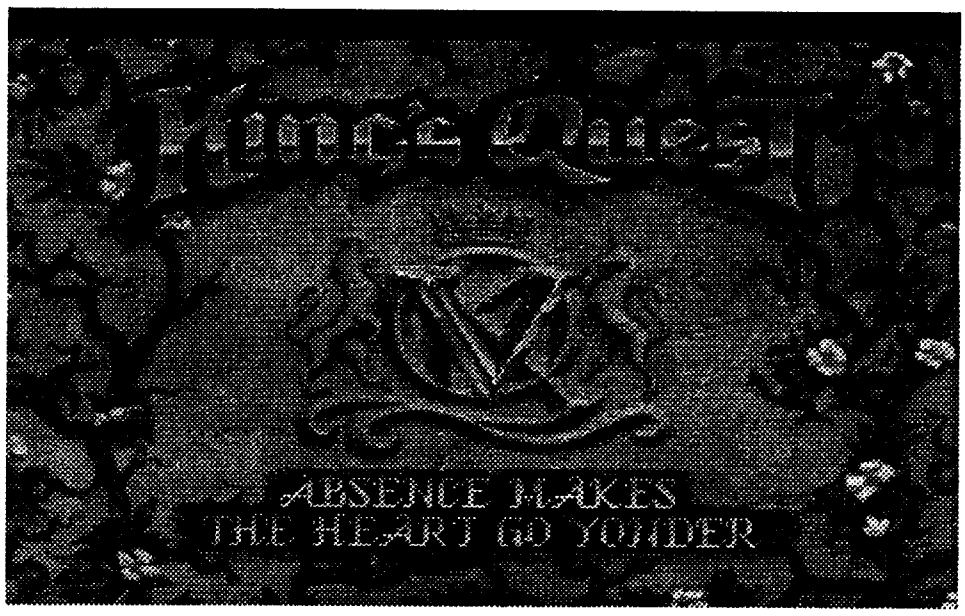
(Cluebook required: $9.95; Adlib, Sound Blaster, or Roland sound recommended)

Castles are supposed to very safe places. They're so big and stony and heavy. Certainly, the last thing King Graham expected after a pleasant day in the woods was to return to his estate and find an empty plot! Yet, incredibly, everything—castle, family, retainers, horses, (PC, IIgs, Sierra games, collection of Computists!)— EVERYTHING is gone!! It's a good thing a friendly owl, Cedric, happened to be on the scene. He informs you that a wizard spelled your home into a dark whirlwind and then vanished. Now, your only hope is to let Cedric sprinkle you with flying dust and follow him to a friendly wizard who may be able to help. It's a long, long way from Daventry; but, you already miss your family and, as they say "absence makes the heart go yonder"!

To whatever extent superb, award-class 256-color VGA animated graphics can be said to 'make a game', King's Quest V''s do it. Starting with the extended movie-like introductory sequence— you do get to see the evil wizard poof your castle— and ending with a no-holds-barred magic duel, the player is treated to one computer-arts masterpiece after another. Your travels take you to a bustling town, deserts dry enough to send you out for a Coke (complete with temples, tents, bandits, and dancing girls), enchanted forests, bone-chilling snowscapes, mountains, seas, islands, and, finally, the maze and chambers of the evil wizard's castle.

One of the big reasons you are certain to pause and admire the artwork is the AdLib/Sound Blaster/Roland soundtrack. I must have spent five minutes just enjoying the music and 'atmosphere' of the desert camp dancing girl scene. Much the same happened with the weeping willow (who plays a magic harp), the enchanted forest, and the icy mountains frames (you hear the winds and falling snow). "Wow! I bet all that great stuff uses 4 or 5 megabytes on hard disk." Nope. It uses 9.7 megabytes! (You can cut this way down by accepting a 'compressed files' option; but, the resulting delays spoil the presentation.) In short, Sierra's most lavish adventure begins as a beautifully crafted 'picture book'; there's no better showpiece for your computer's sound and graphics capabilities.

If you liked "Clash of the Titans", "The Seventh Voyage of Sinbad", and "The Wizard of Oz", you will appreciate King's Quest V'. (i.e. It's a good story, too.) Besides all the places to go, there are many interesting characters to deal with. You'll meet wizards, shopkeepers, gypsies, thugs, pricesses, gnomes, a witch, elves, an ice goddess, harpies, a



yeti,... and many more. Practically every one of these has something you will need to complete your quest and/or can supply help at a critical moment—which gives you some idea of the number of 'use this to get that' puzzlettes. For instance: you'll need the skeleton's shoe to throw at the cat to save the rat who will gnaw your ropes when you are imprisoned in the cellar by thugs. (By the way, keep the rope.) Naturally, to break the lock you will have the hammer you got from the cobbler in return for the boots you got from the elf, who was grateful for the jewels you found in the pouch you took from desk in the witch's house!

Long-time Computist readers may recall that, some years ago, I experimented with omitting ratings. (This did not last long— readers like ratings; and, they want the reviewer to 'commit', in clear-cut terms, to some kind of overall evaluation.) The experiment was prompted by products like King's Quest V'. Yes, the game CAN be a very entertaining adventuring experience; but, ONLY if played in a certain way using materials not included in the game package. Your problems begin with the new point-and-click no-text-input interface. The one in KQ5 works well; and, given a four-quadrant 'walk-around-and-get/do-things' format, eliminating text input may be a good idea. Game action and displays do seem more realistic. A designer must, however, supply substitutes for the hints normally obtained via text exchanges. Too often, this game is 'long' on puzzles and 'short' on critical clues.

A second problem area is the implementation of real-time obstacles. These almost always fall flat in puzzle-oriented adventures. For good reason. It doesn't make sense to allow the player to stand around and think about/try solutions for a problem 'forever' in one frame; and, then, require speedy, precise movements in the next. Bad enough; but, when KQ5 incorporates numerous learn-by-dying experiences AND uncountable opportunities to continue play (for hours and hours) with no chance of winning—well, I have to ask: "WHERE were the play testers?!" There is NO WAY anyone is going to get through this game without outside help and/or exotic trickery (e.g. scanning program files for text hints).

Consider the problems a 'play it straight' (no outside help) adventurer faces in the desert. For starters, the only way to find the oases is to explore; and that means poor King Graham is certain to die of thirst several times. When you discover the pool just south of the temple, you hear approaching hoofbeats. Since Cedric has warned you of outlaw nomads, you can figure that meeting the riders isn't a good idea; also, this is a real-time threat; so, delay is fatal. The easiest escape try is to click for a northward move. You do it; and, not only do you escape; you discover the temple! Unfortunately, the correct response is to maneuver Graham behind some boulders near the pool— tricky, given time pressure, especially since there's no obvious indication that you can hide. (If you hide, you see the riders approach and open the temple using a magic staff—this also sets a flag which allows the staff to be present and stealable at the bandit camp far to the south.) Run north, and the riders (for no good reason) do not approach the temple! You should be caught and killed; but, you're safe, with no hint whatsoever that you cannot ever get into the temple.

Okay, you have the staff. You open the temple (the staff breaks) and come upon another real-time trap. Spend even a second admiring the treasures and Graham is entombed. After a Restore, you zip in, grab a large bottle near the entrance and scurry out just before the entrance seals. Success?! Uh, uh. You left the gold coin! (It does sparkle, but is easy to miss under pressure.) Now, there is no way to pay the gypsy! Unless you guess that a treasure remains, you're doomed to pointless wandering. As for the skeleton, with luck you'll happen upon it and get the shoe. Without luck,...

Happily, several factors rescue King's Quest V from the 'Init Me Please' bin. First, being killed-off is not nearly so bothersome as in most adventures. The game offers twenty user-named Game Save positions; and both Save and Restore are very speedy. This also makes it easier to minimize losses should you suspect (or discover) that you're on a losing path. Sierra offers hints via telephone (not a free call) and the latest catalog lists a Cluebook. It is reassuring to believe 'the official answers' are available in print; but I have not seen a Cluebook copy yet. Instead, I relied upon a walkthrough posted on a popular BBS by (according to the doc's heading) "Daniel, AKA XERXES- Master of Games from the present and future". While the walkthrough includes no maps, it does supply more than enough information to assure that players need not become permanently mired.

King's Quest is one of the classic computer game series; and, you must admit, it has been too long since your last visit to Daventry. (Absence makes the heart grow fonder, too.) Thanks, largely, to the ready availability of external help, you can enjoy the beauty, atmosphere, and (to a fair extent) the challenges offered in the latest installment. Get the Xerxes docs or the Cluebook, check out the maps presented in this issue, and then get King's Quest V'. You won't be disappointed.

Talking Tools

★★★

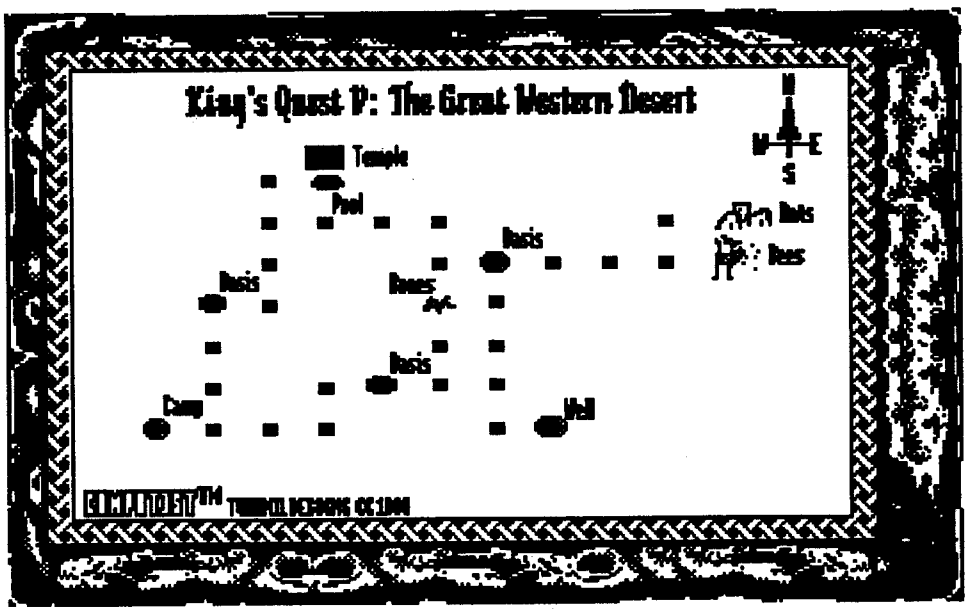
$60.00, for 1MB Apple IIgs

ByteWorks

(1.25MB and second 3.5" drive recommended)

Thanks to the Ensoniq sound IC right there on your IIgs motherboard, it turns out your computer has all the hardware needed for easy, memory-efficient speech programming. All the software you need is an Orca language and Talking Tools. The new ByteWorks release comes with SPEAK.IT, a program you can start immediately to try out all of the package's features. Just type-in a message (like "Good morning Dave") or load a text file, click "Speak" and your IIgs talks!

Default voicing produces "Wargames"-style speech; but, you can quickly change this by adjusting global parameters for Voice (male/female), Range (bass/treble), Pitch (0-9), speed (0-9), and volume. For most realistic, tailored output, SPEAK.IT's editor allows in-text, local-effect changes in the parameters plus entry of delays and phonetic



codes. You can also encode and save words in one or more Exceptions Dictionaries— this way the program can say the words correctly without the need for in-text changes. Other handy editing features include cut-and-paste, an option to speak only selected (highlighted) text, and optional display of text as phonetic code.

Employing over 1200 grammar rules, Talking Tools recognizes such common abbreviations as Dr., Mr., and St.— it says "doctor", "mister", "street"— as well as monetary and math symbols. For example: $1 + $1.02 = $2.02 is "one dollar and one dollar and two cents equals two dollars and two cents". It adjusts sentence voicing for ending question marks; but, unfortunately, 'recognizes' parentheses and quotes by name. A "(", for instance, becomes "open paren". The documentation describes no easy way to turn this feature off; so, if you want existing word processor-produced stuff to sound right, it's up to you to remove offending punctuation and/or substitute delays where desired.

Along with the ready-to-go talking editor, ByteWorks has collected the Tools and produced a talker program in three Orca languages (Assembly, C, Pascal) including source and .exe code plus libraries; and 'everything'— SPEAK.IT use, phonetic coding, TOOL.050-TOOL.053 descriptions, and source code listings— is covered in a well-organized 103-page manual. Supplied on expanded GSOS System and Program diskettes, Talking Tools IS the easy, fun way to tool-up for computer speech!

Chip's Challenge

★★★★

$39.95 for CGA-VGA 640K PC

Epyx

Joystick recommended

Melinda the Mental Marvel is smart, cute, and president of Bit Busters, your school's ultra exclusive computer club. When she offers you (Chip the Nerd) an opportunity to prove you have the right stuff for 'Busters membership, only one answer is possible: "Wow!" and then "Let me at them/it/..whatever."

"It" is a series of 144 multi-screen push, slide, toggle, unlock, navigate, dodge, detonate puzzles. In each smooth-scrolling top-down view gamescape your objective is to guide the Chip action figure to an exit square before time expires. The "Chip" in "Chip's Challenge" has a double meaning, since, usually, you must collect a specified number of computer Chips in order to get past a chip Socket square. Success starts you at the next puzzle and produces a four-letter code. (There is no Game Save; instead, if you wish to take a break, coding permits restarting at any level for which the code is known.) There are also Level and cumulative scores; but, no record is maintained on-disk.

Play begins with eight introductory/practice Levels designed to highlight and demonstrate the operation of gamescape features and items. This is where you learn how to avoid many of the nine (crawling, bouncing, sliding) Monster types, and that Magnets let you walk against the flow of Force Floors (moving walkways), Shields protect you from Fire and Water hazards, and Cleats keep you from sliding on Ice. You'll also discover that Blocks can be used to detonate Bombs or pushed into place to create walkways, that color-coded keys and buttons can remove or deactivate barriers, that "?" icons supply helpful hints, and that all Walls are not visible. Add Teleport squares, Bear Traps, Reflectors, Clone Machines, ... and you have more than forty game elements, each represented by its own easy-to-recognize, often animated icon. With AdLib/SB/Roland support, you can look forward to a variety of 'colorful' sound effects as well.

Each Level boasts its own 'look' and mood, further enhanced by one of several musical pieces. Part of the payoff and fun in making it through one Level is getting to see what the next has in store. You may encounter anything from a somber, monster-infested plain, through a frantic pinball game style maze. Evidently, there is always some theme which, once discovered, may be a valuable hint. For example, in the Level titled "South Pole" you navigate an ice-floored maze of reflector walls by consistently moving 'down' the screen (i.e. "south"). Often, the trick is to recognize the value of some general procedure which can be repeated. So, in the "Castle Moat" puzzle, you discover a quick way to move blocks out of a maze and another procedure for getting them to the moat to build a walkway. Emphasizing the puzzle nature of the challenge, even moderate arcade expertise is seldom required. Similarly, time pressure is minimal. (A few Levels are not timed at all.) If you run out (or get zapped, trapped, etc.), no problem— the game permits endless attempts. Once you catch on to the right approach, there is ample time to explore and enjoy each challenge.

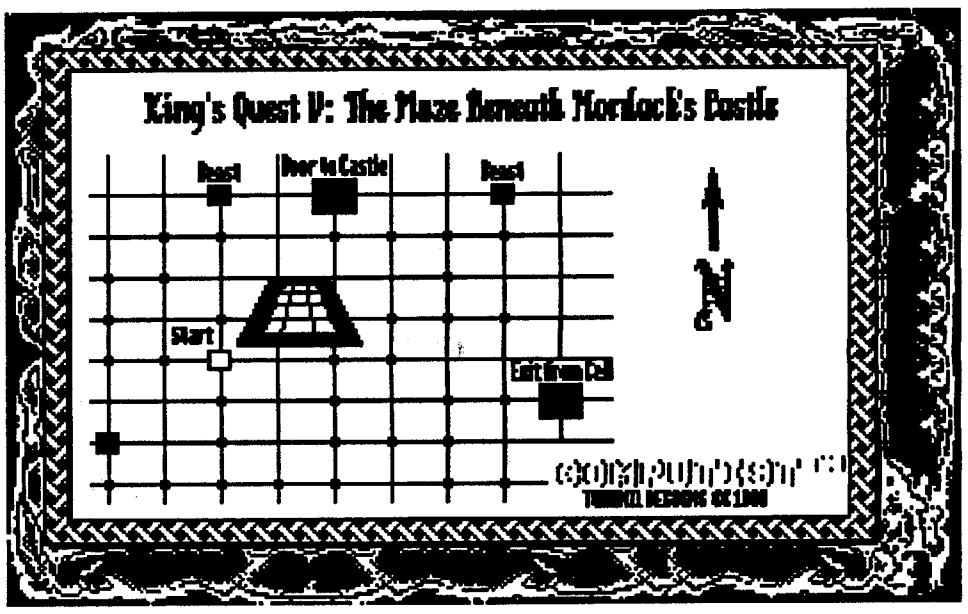
Even as you were pushing around crates in "Sokoban", rolling rocks in "Boulderdash", toggling barriers in "Saracen", fitting together blocks in "Tetris", ... you just knew that somewhere an ultimate, do-it-all puzzle quest remained. Basically, you've been looking for the 'Neverending Fun' of the 'Neverending Puzzle'. Well, through 22 super-addictive Levels, winning Bit Busters membership looks doable; yet, over 120 Levels remain! The Ultimate Puzzle Quest? So far, Chip's Challenge is IT!

(Supplied with manual on both 5.25" and 3.5" media.)

Fast Frames, Updates, etc.

The Maps of Kings Quest V

Talk about luck! Just when it looked like you would have to tackle the dreaded Western Desert unaided, along comes an old gnome who suggests: "Hey, whynottrytheComputistmaplibrary?!" Sure enough, all you had to do was look. On the very top shelf in the southwest corner, between stacks of yellowing scrolls labeled "Ultima" and "Questron", you spy "KQ" and reach for the parchment rolls. The ancient ladder creaks, shifts slightly in its tracks and you start to imagine headlines like "Adventurer Perishes in Freak Mishap", "Quester Plummets to Doom", ... then you've got them!... ("Still clutching the prized documents, the broken remains of...") and scurry down to safety. Whew! But it was worth the risk. One sheet IS the desert map, crisply drawn and beautifully illuminated. Even better, the other is not merely a copy of the first. It's a diagram of some kind of maze. ("Hmmm, looks like I get in through this grating. Wonder why 'beast' is marked... to avoid, or maybe one has something I'll need...") No doubt, both maps will come in very handy indeed!



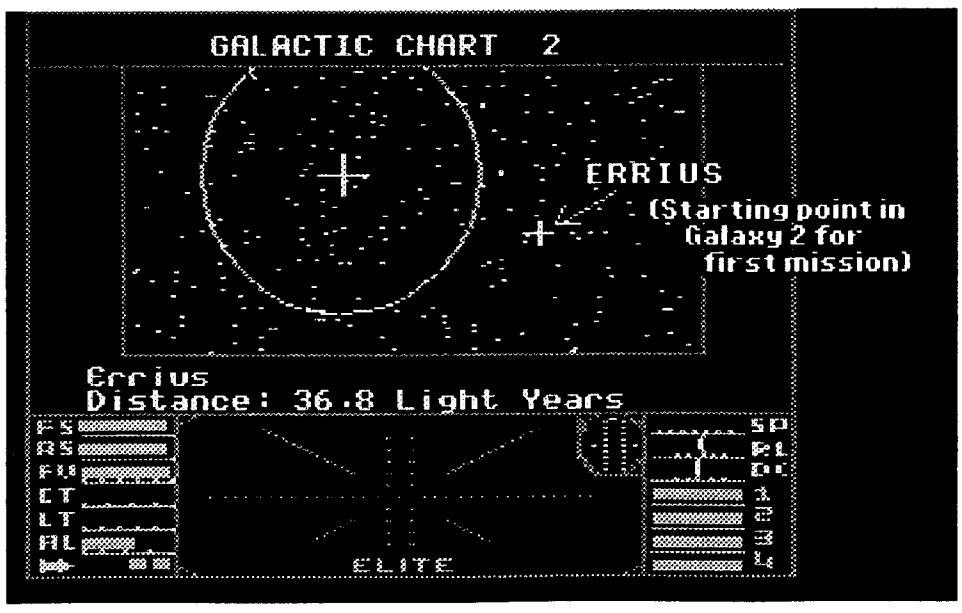
Elite Matters

In issue #80, Zorro had a few questions about the first Elite mission. Your initial Space Navy message comes at Xeer, in the eastern central part of Galaxy 1. (Note: While docked, you can locate any planet in a galaxy by pressing "5", to call up the galaxy map, then "F" and entering the planet's name.) According to my notes, the chase leads to Reesdice and Arexe in Galaxy 1 and, then, moves to Errius in Galaxy 2. It's okay to dock at any nearby planet after the G-jump in order to do a planet Find for Errius. A chain of messages starting at Errius directs you to Inbibe, Ausar, and Usleri. Finally, the showdown is at Orarra.

Elite Plus ★★★

It took a while, but, FINALLY someone has released a full-sound, full-color EGA/VGA version of "Elite" for PC/AT ($44.95). Wisely, MicroPlay's designers have hewed closely to the original look and feel of the most popular space combat and trading adventure ever. Once again, you begin as a "Harmless" rated trader/combateer at the helm of a bare-bones Cobra space craft. Your mission: build your wealth, arm your ship 'to the teeth', gain Elite rank, and do something about an inter-galactic conspiracy involving trading combines, the Knights Templar, and (of course!) the ruthless insectoid Thargoids— all of which is explained in the new scene-setter novella included as part of the manual.

In Elite Plus you can look forward to more color, better-detailed, filled ship and station shapes, an attractive cockpit view including status icons, and much improved AdLib/SB/Roland sound. (By the way, AdLib/SB sound is better here. The game's Roland effects do not differentiate between laser bursts which hit the target and those which miss; the Adlib/SB effects do.) Except for substituting function keys for number keys, both KB and joystick controls behave very much like the Apple II original. One notable exception is that you cannot slow to a full stop; so, docking without a computer is much more difficult. Gaining rank is easier— I reached Elite after about 1000 kills. On the other hand, smaller system-to-system price differences for low cost items makes getting a start in building your fortune



somewhat rougher. (Incidentally, no, I have not won the game yet. As in the original, when you take on the new Elite', you're in for a long, LONG adventure.)

"Elite" veterans will notice other differences, as well. Most, like increased close-in combat and beautiful planet/inhabitant displays when you call-up System Info are for the better. (Incredibly, the designers had the good sense to retain the decidely odd, yet 'tradional' sys info text descriptions.) The quest is new; but the stars are the same, and Elite Plus is still Elite!

The Bard's Tale III: Thief of Fate/PC

"It can't be!!!" Alas, it can. After several hours of fine BT-style exploration and monster-mashing I was ready to consider a class change for a couple of Level 9 magic users. (Each had achieved spell level 5.) A magician had no trouble moving to conjurer; but when a conjurer chose "magician" his class designiator changed from a letter to mush and he was no longer viewable/accessible as a standard character. Instead, the program seemed to believe he was some sort of non-player character. (NPC's can join your party but, aside from being less than reliable, they cannot develop like the ones you create.) I experimented a bit; and the same kind of thing happens if, given two choices (numbered 1 and 2), you enter "3". In the latter case, your NPC'd character mysteriously acquires the full set of geomancer spells! Quite a mess. 'Bard's Tale III'/PC is definitely defective. I have notified EA and will let you know when a fixed release is available.

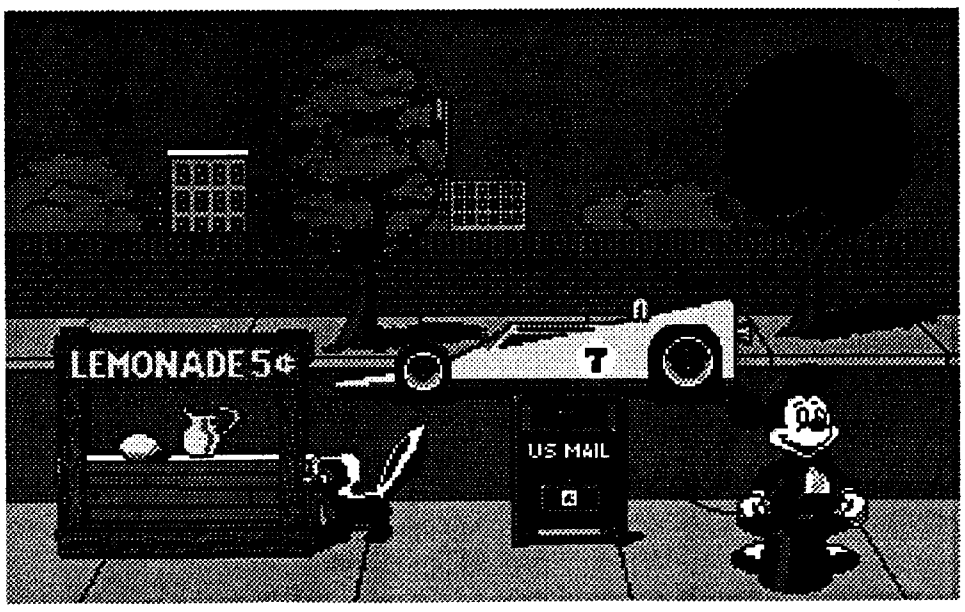
Dark Designs

As you may recall, I had promised a review of Softdisk GS's Dark Designs trilogy. Regrettably, a game-killer bug in DD III has put the project on hold pending arrival of a fix.

Mickey's 123's: The Big Surprise Party ★★★★

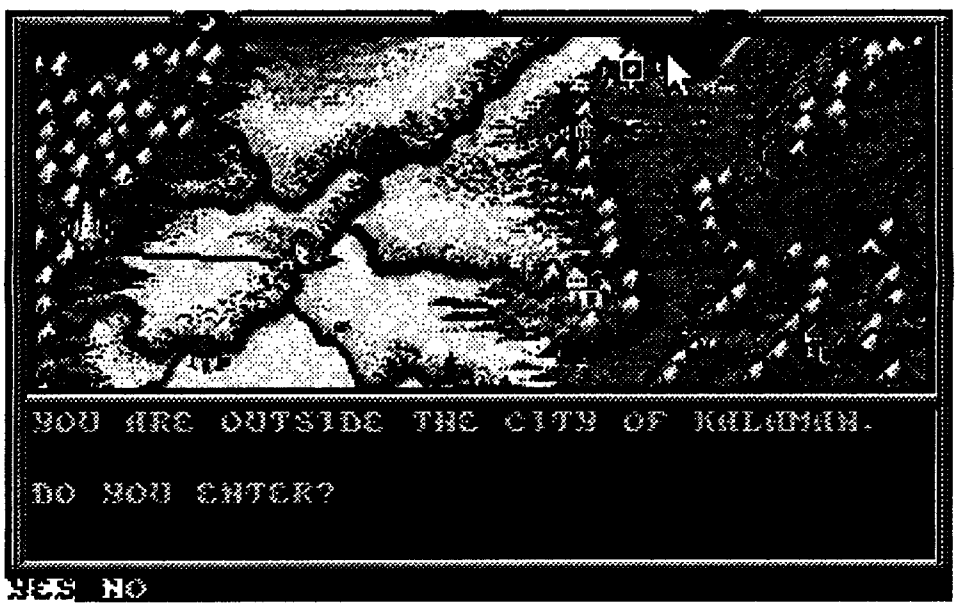
Everyone knows that the best way to learn about something is to use it. That's just what young computists (ages 2-5) do in Disney's new learning about numbers activity. Once you decide which of Mickey's eight friends is having a birthday, the game launches Mickey into the business of preparation. At Goofey's Food Market he shops for drinks, food, balloons, etc.— you press 0-9 at each location to indicate how many to get and a teacher voice says the number and counts off the items. At the Post Office, Mickey uses numbers to select those to receive invitations; and you see the postman's truck make each delivery. At the Toy Factory, the number you punch determines which toy is to be stamped-out and wrapped (on a Rube Goldberg assembly line) as a gift.

Numbers are everywhere! Of course, because one of the program's aims is to help the young player see that numbers have many uses besides just "counting 1, 2, 3's". Punch a "2" while Mickey is walking between locations and POOF! he's riding a bicycle; a "5", and he's zipping along in a convertible with spare; a "9" and ... — cute, especially since a number doesn't always produce the same vehicle. Finally, at the party, number entries decide how much of each food/drink item to serve each guest. Throughout, you can expect quality Disney artwork and animation plus crisp Sound Source music, effects, and voices. Mickey's 123's' is a valuable arithmetic 'readiness' activity, good for uncountable hours of learning fun. ($49.95, or $69.95 with Sound Source, for CGA-VGA 512K PC on 3.5" and 5.25" media)



Death Knights of Krynn ★

It figures; just when you're ready to relax at the celebration of last year's victory over the Draconians, down swoops a mob of undead raiders led by your old pal, the recently slain Sir Karl! Obviously, once again, 'the game is afoot' on Krynn; only, this time, you face the unearthed legions of The Death Knight, Lord Soth!!



Death Knights of Krynn ($49.95, for CGA-EGA 640K PC) is second in SSI's series based upon TSR's "Dragonlance" stories and characters. You can count on the same fine artwork, AdLib/SB sound, and excellent gaming system— including scrolled multi-screen tactical combats— as found in "Champions of Krynn" and other SSI favorites. You can not count on the same level of adventure. DKK is a sequel which shows its sequelness. Your six characters, whether transfers or newly created, come in around Level 6, far past the most challenging (most fun!) stages of development. Magic users start with monster-wiper spells like Fireball; and fighters come with weapons and armor better than anything they can buy or discover until late in the game. Yet, despite your enhanced powers, DKK floods the gamescape with inept undead pissants. A succession of dreary settings and a tortured, wandering scenario complete the picture: with or without the $12.95 Clue Book, this quest is more work than play.

Two-World Transfers

For the new two-computer user, two different machines can seem to mean learning to work and play in two separate 'worlds'. No wonder! The Apple II owner who adds a PC will find many differences, not the least of which is the difference in disk operating systems. Your PC can't make sense of DOS 3.3, ProDOS, or GSOS; your Apple doesn't understand MS-DOS. Too bad; because, once you've got the second machine up and running, you begin to notice all sorts of text documents, programs, graphics files, etc. you would very much like to move from one machine to the other.

Hardware

Fortunately, there is one thing your Apple II (Mac, C-64, Amiga, ...) and PC do agree upon: a modem is a modem. A few years ago, my dad wanted to move some plant design programs developed on the II+ to an IBM PC at his lab. The solution: convert the Applesoft files to TEXT, modem the files to the lab PC, and adjust for differences in the the BASICs. The same approach worked when I needed to move a RUN review from IIgs Appleworks to C-64 Qwik-Write.

A modem is a modem; AND RS-232 is RS-232. (RS-232c is the name of the interface standard commonly used for modem I/O.) If your PC is sitting a few feet from your II, you can transfer stuff via modem (if you've got two modems); OR you can connect one '232 port to the other via a NULL-modem. A null-modem is 'no modem', just a pair of standard 25-pin female connectors connected back to back so that outputs coming from one computer go to the inputs of the other. To link the computers you plug the modem cable (i.e. RS-232 I/O cable) from each machine into the null-modem.

Note: The reason that a null-modem must swap I/O lines is that you are joining two RS-232 "terminal sets". The normal modem cable does no swapping because your modem is a "data set" with a plug wired so that modem outputs go to computer inputs and vice-versa. When you connect two computers via null-modem, each computer, in effect, 'believes' it is the terminal and the other is a modem.

Many electronic suppliers, including your local Radio Shack, offer standard 25-pin null-modem cables. (By convention, they are called "cables" even when the connectors are housed in a single compact case.) If you would rather 'roll your own', use the wiring scheme shown below:

Connector A		Connector B
pin 1	to	pin 1
pin 2	to	pin 3
pin 3	to	pin 2
pins 4 & 5	to	pin 8
pins 6 & 22	to	pin 20
pin 7	to	pin 7
pin 8	to	pins 4 & 5
pin 20	to	pins 6 & 22

On a 25-pin female connector the pins (as viewed from the back, long row on top) are numbered 1-13 and 14-25 left-to-right. Often, pin numbers are stamped into the connector. (If you've counted the wires in your IIgs modem cable and are concerned about missing lines, no problem. Most modem interfaces do not use all of the RS-232 signals.)

Null-modem connects are easy to set up and take apart. I have found no difficulty with plugging in connectors whether one or both machines is on or off. (Actually, your RS-232 input is supposed to be fairly tolerant of this kind of treatment.) As for machines separated by more than a few feet, RS-232 has enough noise immunity to allow adding an extender cable for joining computers across the room from one another. Best of all, null-modem transfer speeds are not limited by modem response. Instead of the 2400 baud most users depend upon for phone line communications, null-modem moves can easily run at 9600 baud, 19.2K, and even faster.

Software

Computist can, Chuck assures me, handle submissions in a variety of formats. However, since the magazine is set up on a Mac II, a Mac-readable format makes for the quickest turn-around, especially when it comes to pictures. Since most of my screen captures, especially for entertainment product reviews, have been coming from PC releases, I need some quick, easy way to move large files from the PC to the IIgs on a regular basis. (The Mac CAN read GIF picture files written by the IIgs.) Null-modem transfers get the job done.

Once the ports are connected, the only requirement is that each machine be running as a telecommunications terminal at the same baud rate using a compatible protocol. On the IIgs end I've been trying out MGR's

Modem MGR ★★★

Priced at just $49.50 (for 64K Apple II...IIgs), MM offers a utilitarian 40/80 column text-only display and employs KB ESC-key commands. For instance, ESC-? displays the current commands menu, ESC-G lets you load-in a phone list for single-key dialing, etc.. Naturally, for many IIgs users, the program's look and controls are a genuine turn-off— this is NOT a piece of software you would be likely to purchase after a brief showing at your local computer stuff emporium. Despite a compact loose leaf binder (with slide-over case) packed with comprehensive, easy-reading documentation, on-diskette tutorial, fast

ProDOS/8 startup on the IIgs, and being able to move all files to a single 3.5" diskette— well, I, too, was put-off by MM's low-pizazz mouselessness.

On the other hand, I kept running into situations where the program did just what I wanted! MM supports just about every popular smart, dumb, and semi-smart modem, handles XMODEM (several variations), YMODEM, and ZMODEM, emulates popular terminals, offers a split-screen (commands and I/O) option, includes a text editor and capture buffer with scrollback and autosave, and supports user macros. My one real complaint is that the MGR product does not permit setting a default path for the Phone List, the way it does for macros and function keys. Still, I doubt that there's a faster way to go from 'off' to 'ready to receive'.

On the PC/AT ('286) side, my choice has been a piece of shareware called

Telemate ★★★★

Tsung Hu, the author, sells Telemate for just $40 ($48 to Canada)— a bargain when you consider that it has become the preferred telecom package for many modem users. Incorporating an attractive windowed display with pull-down menus and mouse interface, Telemate does everything for the PC that MM does for the IIgs and adds 'frills' like a BBS mode, "last called" date stamping on the phone list and a 115.2K maximum baud rate. The program package, including full documentation, is available via modem on many BB's. Sending in the 'registration fee'— shareware, remember, is not freeware— entitles you to any future updates.

After setting the source path at the sender (e.g. C:\Upload*.*) and the destination path at the receiver (e.g. /SAVE/ , the name of a diskette in drive two), you're ready to begin the transfer. For one-at-a-time transfers, this system can run at 19.2K baud with Modem MGR set for "XMODEM-Snd CKL" and Telemate set for "XMODEM". It's easier to send batches of several pictures with both programs set for "ZMODEM"; but, max baud rate drops to 9600. It doesn't seem to matter which program you 'start' first. If you start the sender first, it waits for the receiver and vice versa. The main consideration here is that both are started before one or the other times out (typically, about 30 seconds).

Depending upon the method selected, files may be saved more or less close to the file type desired. Usually, I am dealing with Apple Preferred format picture files (converted from .LBM files at the PC end via Electronic Arts' Deluxe Paint II Enhanced "Convert" utility). On a ZMODEM transfer, the pics do not come in as type $C0, auxtype 2 files; but this is easily fixed using a nifty $15 shareware utility from Jason Harper named

SHR Convert/IIgs ★★★

Featuring a 640-mode windowed display and mouse interface, the program's chief function is to convert picture files to/from various formats, including GIF, RLE, and several from Apple II, IIgs, Mac, C-64/128, and Atari ST. It also lets you make file type and auxtype changes, whether or not you're dealing with pic files! If you are, of course, the results can be displayed immediately.

Since pictures are close to a 'worst case' transfer situation, you can see that the 'two worlds', Apple II and PC, are not nearly so distant as they may appear. A null-modem cable and good telecom software is all you need to create the bridge.

NRFPT Releases ☹

For CGA-VGA 640K PC, Accolade's Harmony ($44.95) and U.S. Gold's Vaxine ($39.95) offer attractive displays, optional joystick control, and AdLib/SB sound. (Harmony also offers Roland sound; Vaxine claims to, but it did not work.) Both games have low-pressure Practice modes; and both maintain a High Scores roster on-disk. Harmony's fifty configurations challenge one or two players to achieve synergy by untangling same-colored spheres and pushing them together. Vaxine offers an inexhaustible supply of Levels where you speed along glass-smooth planes to find and destroy bounding, sliding spheroids.

Though one game is a kind of puzzle challenge and the other purports to send you into the President's bloodstream to shoot-the-evil-virus, their motifs are very similar— not a surprise, once you notice that both releases come from the same design team. In each case you encounter fairly simple, abstract displays featuring moving, pulsing blobs often connected by rubber band-like strands. Unfortunately, you also encounter the same fundamental design flaw: both games build the challenge into your controls, not into the 'targets', where it belongs. You've spent years learning to push the 'stick in the direction you want to move; but Harmony insists that you rotate a pointer to direct your "seeker" (pusher sphere). Vaxine doesn't make this error; instead, it encumbers movement and aim with exaggerated momentum effects. In case Assembly Line (the designer) plans future game releases, here's the rule: Sloppy controls are unfun controls. Pending a fix, Harmony and Vaxine are "not ready for prime time" play.

California Games II ★

Having re-tooled for PC/AT, Epyx is back; and, so is California Games. The new installment ($39.95, for CGA-VGA PC) offers fine AdLib/Sound Blaster music and effects, joystick/KB controls, and on-disk saves of Most Excellent Dude record holders for each event. Regretably, of the five new events, only two can be said to evidence the quality animation and control-ability long-time multi-sport gamers have come to expect from Epyx.

The sailing, swooping, fun of Hang Gliding (with bonus points for hitting buoys with water balloons) and the aggro action of a long-play Skateboard run through the aqueducts DO come close to 'making' the package. Any fun in the other events will have to come from scores competition—like, who dweebs-out the least. Bodyboarding combines wave stunt-riding and obstacle-avoidance. Along with helicopter drop Snowboarding, it suffers from unnatural feeling control-to-action choreography and weak movement fill-in. (The latter refers to how well the program smooths-out control inputs and makes your action figure's movements realistic.) Jet Surfing, a race through one of five courses (including one with ramps) is the easiest event; but animation is so gappy that any illusion of riding a jetboard vanishes with your first sharp turn.

So, like, what is a dude or dudette to do? Two out of five is not, for sure, exactly a radically far out value; but, for today's C-gamer, that's the choice.

Four More

If the continued activity in golf simulation releases is any indication, the sport must be attracting more computer players than ever. I don't doubt it. Computer golf is one of the very few entertainment products which can accommodate both a single player and groups AND which practically everyone—even rank beginners— can enjoy. With holiday get togethers just around the bend, you'll want to have the latest 'ice breaker' ammunition ready:

Jack Nicklaus Presents the Major Championship Courses of 1991 ★★★

For use with "'Championship Golf" or (the newer) "'Unlimited Golf", this Course Disk (vol.5, $21.95, for PC) delivers the three Grand Slam courses of 1991. I gave each a try and, believe it or not, the back-of-the-box blurbs are right on target. You'll get Hazeltine (Chaska, MN), a rambling "survival test", Royal Birkdale (Southport, England), windy, with dunes and willows to test your "target golf", and Crooked Stick (Carmel, IN), bunkers, water, and "7075 yards of undulating... challenge". If you're new to computer golf and wondered if courses really do have different 'personalities', a few hours with Accolade's latest should settle the matter.

Jack Nicklaus Course Designers Clip Art ★★★

Since the introduction of "'Unlimited Golf" (game plus designer), devotees of Accolade's Jack Nicklaus Golf series have had access to the most comprehensive course creation and editing utility available. The new "clip art" package ($24.95, for PC) expands your creative horizons with three new land plots (Arizona Desert, Meadow Lakes, Caribbean Shore) plus 73 objects and 9 backgrounds you can import from six model courses. The result is more options for setting the overall 'look' and more choices (of trees, bushes, fountains, carts, etc.) when it comes to customizing each hole. You cannot play the "model courses"— they are intended only as clip art holders— but you CAN play the new Desert Highlands course which is also included.

Links Championship Courses: Pinehurst ★★★

Speaking of "survival tests" and "target golf", this beautiful new addition to Access's "Links" series ($24.95, for PC) is 'what it's all about'. One miscue, and I was very nearly lost in the piney jungle that wraps itself around every fairway. If you want a guaranteed leg up on computer golfing regulars, put in some practice on this one. Then, the next time you start up "Links" for your group, casually suggest: "Hey, why don't we try Pinehurst?"(!)

Links Championship Courses: Bay Hill ★★★

With its latest "Links" course ($24.95, for PC), Access ups the pizazz factor by including a course facilities tour featuring Arnold Palmer, Bay Hill's designer. Good idea! One of "Links"'s few weaknesses is its excessively peaceful atmosphere. The TV-like pre-match hype— actually, a pretty good commercial for Bay Hill— sets a mood more appropriate to championship competition. The course itself is among my favorites. I enjoy water hazards; and Bay Hill offers some of the most challenging 'water holes' to be found.

Elite Plus PLUS!

Don't Leave Lave without It

Okay, maybe you like the prospect of countless trips trading for peanuts among a few relatively safe worlds; and, it could be that you prefer the thrills of manual docking to combat. If so, then collect the standard 100 Cr, hop into your bare-bones Cobra and go for it. If not, the Lave branch of Turdnil Combateers Commercial Intergalactic (TCCI) is prepared to make you a handsome cash advance!

Activating your TCCI account is a snap:

Step 1: After startup, immediately Save the default (new) Jamison character under the name CMPUTIST. Exit to DOS.

Step 2: Using "Xtree'" or similar utility, Edit the CMPUTIST.CDR file in the ELITE directory.

`$00008C`: change `E8 03` to `2A 4E` (funds).

`$0000E0`: change `2B A8` to `A3 9E` (checksum).

Step 3: Save the edited CMPUTIST.CDR file.

That's all there is to it! After restarting play and loading in CMPUTIST, you will be shown as having only 100 Cr. Not to worry. Once you buy or sell something the display will agree with your actual holdings. From now on you can do Saves and play under any name you choose.

Granted, 2001 Cr isn't exactly a fortune. It IS a decent stake, enough to finance a docking computer and have plenty of credits to begin profitable trading.

Notes: When I mentioned the mod to the usual Computer Room crew, Gorbash observed that "Sure, 2001 Credits is fine, for now." Baywoof, of course, immediately wanted MORE. Well, I want more too; but, earning it is much of the challenge and fun. A moderate funds boost compensates for game design weaknesses which make getting started in Elite Plus far more laborious than in Elite: IF docking were not so unrealistically difficult, if trade in cheap items between low-threat systems paid better, if ... then, there would be no excuse for any mods. As things stand, getting a docking computer and a few hundred Credits is a fair adjustment.

As to mod 'nuts and bolts', the first trick is to track down the funds number. At $8C, $3E8 equals 1000 decimal (aha! 100.0 Credits?); so, $4E2A (20010 decimal) should turn out to be 2001.0 Credits (it does). The big problem is that, for each Save, Elite' calculates and writes a checksum in the saved file's last two bytes. It re-calculates the value when loading a file. If these values don't match, the file is "corrupted" and will not be accepted. This explains why your original CMPUTIST Save must be 'just so'— i.e. before your new character goes anywhere, buys or sells anything, etc.. The change at $E0 adjusts the checksum specifically for a new character named CMPUTIST who has 2100.0

Credits. After restarting, your character's new funds are not shown at first because the display comes from text saved in the file. The text gets updated the moment you buy or sell an item.

Trade and Combat 301

Old Professor Freen is a retired Elite and he DOES give some colorful lectures; but he's awfully wordy (and, his class starts at 8:00 AM— nobody is awake at 8:00 AM!). Fortunately, an Academy upperclassman has a set of notes you obtain at the bargain price of 10 Credits...

"Equipment: Buy Docking Computer 1st. Costs too much (50 Cr!) for station docking service. On manual, it's easy to mess up docking and lose credit for lots of kills on way to station. After DC get cargo hold expansion— cheap, and quickest way to boost trading profits. Next buy should be ECM or Beam Laser. Need ECM for travel in heavy-pirate systems— missiles thick as flies on a woozey. Beam Laser is much better than pulser— best defense is good offense— get Beamer before ECM if you put off trading in bad systems (like multi-govt/ feudal/ anarchy). Whatever, don't spend away your capital. The bigger your bankroll, the faster it grows. A poor trader is an idle trader!

"Entering a system/ what to do after hyperspace: Prime a missile— good for getting I.D.'s of unknown ships and spotting likely attackers on the way in. (Remember to re-prime after each lock-on to get I.D.'s for other ships.) Plan ahead! For dangerous systems, it's smart to h-space in from close-by. If things get too hot, you will have the fuel to h-space out! Beam Laser in tail is handy— pirates like to attack from behind when you're heading in.

"Locating a station- Usually, you enter system with planet between you and sun. Stations are between planet and sun; so aim jumps above or below planet. Many new pilots don't know how to use the compass. When close enough to a station, it stops homing-in on planet and points to a station instead! (Watch for indicator dot not centered when view shows planet dead ahead— or dot IS centered when view shows mainly empty space.) Keep dot at center of compass cross-hairs until "S" indicator lights.

"Strategy and tactics- 1st, about missiles: Missiles are for emergencies (cost too much to waste). When you use one, fire at close range to defeat enemy ECM, if present. When you are target, evasion good only for delay— must be ready to absorb hit, h-space out of system, or destroy missile. Without ECM, best anti-missile tactic is to head directly toward enemy— try to destroy ship and missiles. With ECM, be sure to re-pulse ECM as long as enemy missiles present.

2nd, ramming: The Mk III Cobra's shields can be used as a weapon! On way into a system you can take out many potential enemies with a glancing blow on your forward shield. The hit discharges the shield; so use ramming in light-action systems where there is time to recharge between encounters.

3rd, dogfights: keep enemy at distance for best chance of scoring hits (optimal is with image a bit smaller than laser cross-hair). Close-in, watch out for point-blank missile shots. In heavy-action anarchy systems, best bet is to meet multiple enemies head-on. Depending upon run-and-shoot tactic (using rear-mounted laser) weakens anti-missile protection from ECM (which is front mounted). Use speed shifts to gain positional advantage; but, fight mostly at max speed for fastest shield recharging. Finally, beware of attempts to distract you from chasing down a weakened enemy. It's the ones you don't finish that end up finishing you!"

Assorted Corrections

In issue #75 Beagle's Program Writer (a 4-Star performer!) is listed as supporting Apple II+. It does include ProDOS and DOS 3.3 versions and will run on all II's from the IIe through IIgs; BUT, it will NOT run on a II+. (Beagle, in fact, clearly lists compatible II's on page 2 of the manual.) For whatever comfort it may be to II+ readers who went to the trouble of checking out the product, I recently spent an hour or so reconfiguring the PW Editor's keys to run on our II+. After all, why limit ease of PW programming to our IIgs?! Well, after checking for usable CTRL keys to sub for the OPEN-APPLE commands and running the Config program, the editor bombed. (You enter && and get a screen full of garbage.) I re-checked the PW manual only to discover that the "+" in the compatible II's list is a IIc+.

In issue #80 the phone number shown for Glynne Tolar's Club Apple BB is incorrect. The Club Apple number is 713-476-9998.

Next

Ah, yes. Next time expect something on music products. For certain, too, is some IIgs stuff, SSI's Eye of the Beholder, New World's Tunnels and Trolls, Spectrum's Stunt Driver, Martian Memorandum from Access, ... PLUS, naturally, more!

Vendors

Access Software
4910 W. Amelia Earhart Drive
Salt Lake City Utah 84116
Attn: Susan Dunn/ Steve Witzel (800-800-4880/ 801-359-2900)

Accolade
550 S. Winchester Blvd. Suite 200
San Jose CA 95128
Attn: Melinda Mongelluzzo (408-985-1700)

Ad Lib
220 Grand-Allee East Suite 960
Quebec QC
Canada G1R 2J1
Attn: Jill Carette (800-463-2686)

Beagle Bros
6215 Ferris Square Suite 100
San Diego CA 92121
Attn: Bevey Minarovich (800-345-1750)

Byte Works
4700 Irving Blvd. NW Suite 207
Albuquerque NM 87114
Attn: Patty Westerfield (505-898-8183)

Center for Gifted and Talented
University of Houston/University Park
Farrish Hall #123
Houston TX 77004
Attn: Theresa Monaco

Club Apple
P.O. Box 5338
Pasadena TX 77508-5338
Attn: Glynne Tolar (713-476-9998)

Data East
470 Needles Drive
San Jose CA 95112
Attn: PR/Mktg. (408-286-7074)

Electronic Arts
1820 Gateway Drive
San Mateo CA 94404
Attn: Lisa Higgins (415-571-7171/ orders 800-245-4525)

Epyx
600 Allerton St.
PO Box 8020
Redwood City CA 94063
Attn: Ralf Silver (415-368-3200)

Janklow Bender
257 Park Avenue South
New York NY 10010
Attn: Kim Adamo (212-475-8030)

Jason Harper
1480 Michelle Ct. #A
Colorado Springs CO 80916

Tsung Hu
PO Box 938 Unit 105
St. Catherines
Ontario ON
Canada L2R 6Z4
Attn: Tsung Hu (via User to User BBS Dallas 214-492-6565)

Mgr Software
305 S State College Blvd. Suite 101
Anaheim CA 92806
Attn: Jim Okubo (714-993-0294)

Micro Play/Micro Prose
180 Lakefront Drive
Hunt Valley MD 21030
Attn: Kathy Gilmore (orders 800-879-PLAY/ 301-771-1151)

Neal-May & Partners
4920 El Camino Real
Los Altos CA 94022
Attn: Garth Chouteau (415-967-4444)

Sierra On-Line
Coarsegold CA 93614
Attn: Anita Green (209-683-4468)

Sir-Tech
PO Box 245
Charlestown Mall
Ogdensburg NY 13669
Attn: Sheri Mitchell (800-447-1230/ 315-393-6633)

Softdisk GS
PO Box 30008
Shreveport LA 71130-0008
Attn: Editor (800-831-2694)

Strategic Simulations Inc
675 Almandor Ave
Sunnyvale CA 94086
Attn: Linda Blanchard (408-737-6800)
dist Electronic Arts

U.S. Gold
550 S. Winchester Blvd.
San Jose CA 95128
Attn: Caryn Mical (408-246-6607)

Walt Disney Computer Software
500 South Buena Vista
Burbank CA 91521
Attn: Kirk Green (818-567-5340)

Scott Jelsma — IA

First of all I would like to thank a couple of people for there help! David L. Goforth for his hard work on Micro-Typewriter 3.5" ProDOS version and for the 5.25" DOS 3.3 version by S.E. Warner Inc. Jack Moravetz for his work on the Teacher's Toolkit v3.1 by Hi-Tech of Santa Cruz on a two 3.5" Disks.

Do you have any softkeys for the 5.25" version of the Teacher's Toolkit v3.1?

Does anyone know if there is a way in ProDOS 16 & GS/OS to have it automatically run a program file. Music Studio and Instant Music are ProDOS 16 and you do not see the finder, they automatically run the program File.

Stanley Miller — CA

I typed the listing of Enhanced COPYA from issue #67 and it crashes as it goes back to the main program. The menu appears on the screen, the selection of menu keys works and returns to line 90 of COPYA. Then the drop into the monitor and these lines appear:

```
APPLE DUPLICATION PROGRAM
02CC- A=02 X=9D Y=9D P=36
S=F2
```

If I ctrl C to BASIC and RUN 90 the same thing happens. I also attempted the same idea from #66 using the SUPER COPYA 1.1 with the same results. What's happening, what am I doing wrong?

Sounds like your not BLOADing COPY.OBJ which is the machine language portion of COPYA. RDEXed

Michael S. Pollock — CA

I have some questions I hope you or your readers can answer. Recently I purchased a used IIe system with an early Duodisk drive with a serial number of 676-102. This drive has trashed the 0 sector of disks under certain conditions. The fix is to cut off two capacitors, I am told. The question is which two? It also seems to be unable to read disks after repeated disk access. It would seem to be a thermal problem but where?

Recently I came across an Apple Rom Card without instructions. Am I correct in assuming it was used to switch between integer and Apple BASIC?

George Sabeh — PA

Softkey for...

Risk v1.4

Leasure Genius

Requirements:

Copy program that can be modified (such as CopyA or Super IOB)
Sector editor (I used Copy II Plus for ProDOS and sector editing)
Normal PRODOS file from any unprotected ProDOS disk

Version 1.3 was unprotected by Jim S. Hart (Computist 74 page 11). Apparently the protection has been changed since, but the detailed article by Mr. Hart gave sufficient information to enable me to unprotect my version.

Procedure

I will describe two ways of achieving this. The protection includes a format modification which consists of abnormal Data Epilogues and a modified ProDOS to accept this change. Also it includes a Nibble count that forces a reboot if the nibble count is not satisfied. The data prologue is changed from DE AA EB to AA DE EB. I used COPYA to make the normalized copy.

Method I

1. Copy the Risk diskette.

RUN COPYA *When it asks for Slot and Drive:*
ctrl C *to stop program*
70 *to stop COPY.OBJ from reloading*
CALL -151 *to enter monitor*
B934:29 00 *ignore 1st epilog byte*
B93E:29 00 *ignore 2nd epilog byte*
3D0G *to return to BASIC*
RUN *to restart COPYA*

2. Copy a normal PRODOS from any unprotected ProDOS disk. I used Copy II Plus. The ProDOS on the Risk disk is modified to accept the abnormal epilogue.
3. Sector edit the disk to bypass the nibble count.

Trk	Sct	Byte	From	To
22	00	FD-FF	4C 00 C6	EA EA EA

Method II

1. Repeat step 1 from Method I to produce a normalized copy.
2. Boot your ProDOS utility disk and enter BASIC.

PREFIX /RISK
BLOAD RISK.SYSTEM, A$2000, TSYS
CALL -151

List starting at 2000 and you will see the code is similar to the disassembly provided by Mr. Hart at the beginning but then it changes. The reboot code is branched to at 20FD. Disassembly starting at 20F9 looks like this

```
20F9-    A5 D6     LDA  $D6
20FB-    D0 03     BNE  $2100
20FD-    4C 00 C6  JMP  $C600
```

If your copy shows a different listing, then try and find the location of the above code.

3. To disable the reboot we need to change the 4C 00 C6 to EA EA EA and this should bypass the call to reboot.

20FD:EA EA EA

4. Save the changed file back to disk.

BSAVE RISK.SYSTEM, A$2000, TSYS

Now you have an unprotected copy.

Rich Etarip — WI

Softkey for...

Gorgon

Sirius

Requirements:
Apple or compatible 64K
A blank disk (no Hello program)
Sector editor

I had retired from software deprotection several years ago when I got the urge to do it again. The problem was that I couldn't easily acquire any old original disks to unlock. I placed an unClassified ad in Computist #78 offering to (or at least try to) deprotect any disks sent to me. Although I received few replies, one reader from California had a good sized library of old originals and was generous enough to lend them to me in exchange for a softkey. Thanks Chuck. One of the disks he sent was Gorgon by Sirius. Although it's an oldie, it is on the Most Wanted List so let's crack it!

Gorgon only requires 48K to run but in order to eliminate the disk access and still keep the title page, I decided to use the RAM card to store the title program and it seems almost everyone has at least 64K. The program is too large to save in one pass so the disk must be boot code traced twice.

Start by entering the monitor:
CALL-151

Move the DOS boot program (boot 0) down to RAM to be modified.
9600<C600.C6FFM

Alter boot 0 to enter the monitor upon exit.
96FA:98 N 9801:4C 59 FF

Now, boot the disk to load in boot stage 1 at $800.
9600G

Boot 1 must be moved to another part of memory to be modified because boot 0 will load over $800 again.
9800<800.8FFM

Boot 1 loads the next stage into $400 (the text page buffer) and it will scroll off the screen before we can move it, so alter boot 1 to load into $6400-67FF instead of $0400-07FF.
9810:64 N 984C:68

Boot 1 contains a memory clear routine which would erase all our hard work. $985C specifies the # of pages to erase so change it to $1 and it will do us no harm.
985C:01

Boot 1 is not necessarily relocatable in $9800 so sometimes changes have to be made to run in $9800
9870:98

At $987D is a $JMP $0400 which is the next boot stage. We caused it to load into $6400 and we want it to jump to the monitor entry point instead of $400.
987E:59 FF

Everything is ready to load in boot 2 and return to the monitor.
9600G

Now that we have the code we want in $6400, change boot 1 so it does not load over it, but rather, load into $0400 where it belongs. Well move our modified code into $400 later.
9810:04 N 984C:08

At $645D is a tricky checksum routine. It EORs the 4 pages of boot 2 together and uses the result to determine some lower page values, stack values and the stack pointer which are all vital to the running of the game. Hence, if any one byte is changed within this boot code, the program will bomb. The way I eluded this little protection was by moving an image of the boot 2 code to $8400 in its immaculate unaltered state and modifying boot 2 to look at $8400 instead of $400. This way, the result value will be correct.

Move an unaltered boot 2 to $8400 and then change boot 2 to look at pages $84-$87.
8400<6400.67FFM
6463:84
6466:85
6469:86
646C:87

At $65EF is an RTS which is the exit to the start of the game. Instead of jumping to the start of the game, we want to find out where the RTS is going to by pulling two values off the stack. We'll also save the vital stack pointer and the fragile lower pages of memory before jumping to the monitor. Hi-res page 1 is available for safe storage. Even though the exit is at $65EF, before the exit is a small memory check routine (at $65C6) and we don't need this routine so begin writing the routine at $65C6.
65C6:BA 8E 02 23 68 8D 00 23
:68 8D 01 23 A2 00 BD 00
:00 9D 00 20 BD 00 01 9D
:00 21 BD 00 02 9D 00 22
:E8 D0 EB 4C 59 FF

Finally, boot 1 has to move the modified memory to the correct address before jumping to it. Normally boot 1 jumps to $400 but at $400 is Sirius' typical memory check routine so it can be bypassed. Nothing important happens until $446. Write the move routine and finally, call the boot program to load everything in.
987D:A2 00 BD 00 64 9D 00 04
:BD 00 65 9D 00 05 E8 D0
:F1 A6 2B 4C 46 04
9600G

The game is now loaded in memory and we're almost ready to save the first section, but first, check locations $2300-2302 where we stored the start address and stack pointer. The values should be $1F, $A7 and $1E respectively. Next, we want to save the title page but it hasn't been loaded in yet because the program goes back to the disk. The title normally loads in from $4000 to $4BFF and we can't overwrite the memory there right now, but it will fit nicely at $2400-$2FFF.

The routine to load and run the title page is at $1E00 so we'll modify it to read it into $2400 instead of $4000.
1E2D:24 N 1E65:30
1E00:A2 60

Also, it must be altered so it does not run the program upon loading. Then, call $1E00 to load it in. Afterwards, turn off the disk drive.
1E15:4C 59 FF
1E00G
C0E8

Now, we still have available memory from $3000-$3FFF so we can save some of the memory occupying the DOS area. Also move page $8 to safety while re-booting DOS.
3000<A800.B7FFM
8000<800.8FFM

Insert your blank disk (make sure there is no HELLO program) and call $C600 to re-boot, then enter the monitor and restore page $8.
C600G
CALL-151
800<8000.80FFM

One more alteration must be made before this section is saved. The routine at $A820 (moved to $3020) calls a routine at $A8AD which tampers with the RAM card. I found out that the program will not run correctly if this routine is called because we are using the RAM card for storage. If we change the JSR $A8AD to JSR $A8CB the RAM card routine will be bypassed.
3021:CB

For the first part, we'll save memory from $800 to $8000.
BSAVE GORGON, A$800, L$7800

Now for the part we all love...it's time to go back to the Gorgon disk and boot code trace again to capture the second part of the program. Listed below is a quick cookbook method for the trace because not all of the previous steps are necessary this time.

Back to the monitor.
CALL -151
9600<C600.C6FFM
96FA:98 N 9801:4C 59 FF
9600G
9800<800.8FFM
985C:01 N 9870:98
987D:A9 59 8D E7 05 A9 FF 8D E8 05 4C 46 04
9600G

When the game is in memory, move pages $80-$A7 down to a safe part of memory ($2000 will work fine), re-boot the slave disk and enter the monitor again.
2000<8000.A7FFM
C600G
CALL-151

This part is going to be saved to disk but not as a BLOADable file. Let me explain; the program is too large to load into memory by the use of normal DOS so we're going to save section 2 to disk and the file named Gorgon will call the RWTS to read it in using the track/sector list from file #2. I'll explain more as we go along. First, look at locations $2000-$2003 and write the values down. They should be $C9 $04 $F0 $01 respectively. When DOS writes a Binary file to disk, the first 4 bytes on the first sector represent the start address and length of the file. So in this case, if we saved it now, the first sector would start like this:

```
00 20 00 28 C9 04 F0 01...
```

The start address would be $2000 (00 20) and length $2800 (00 28). Because of this, to use the RWTS we would have to read the sectors in memory and then offset them by 4 bytes. This is too much trouble to go through but fortunately, there is a simple solution. BSAVE the entire chunk of memory minus the first 4 bytes so everything will fall into place on the sector. Of course, the first 4 bytes will be lost but that's why we wrote them down. Then we can take a sector editor and write the original first 4 bytes over the address and length. The file will not be BLOADable but that shouldn't be a problem.

BSAVE the data skipping the first 4 bytes (0-3).
BSAVE GORGON.CODE, A$2004, L$27FB

Run your sector editor and read Track 11 Sector F. Then position the pointer at the first letter of the file name GORGON.CODE. Now go back 3 bytes and note the next two values. This is the track and sector where you'll find the Track/Sector list for GORGON.CODE. Read that track and sector and look at byte $0C. This the track and sector of the first page of the program (usually it's just the next sector back on the same track). Read that sector and set the pointer for byte $00. If you have the right sector, you'll see $00 $20 $FB $27. Change these 4 bytes to the 4 values you wrote down earlier and write the sector.

Now comes the really fun part. Load the first file called GORGON and enter the monitor with CALL-151. At $2300, enter the hexdump in listing 1 and type carefully. This is the program to read in GORGON.CODE and do all the necessary memory moves.

Listing 1

```
2300:A9 60 8D 8B A3 A2 00 BD  $9724
2308:C1 23 F0 06 20 ED FD E8  $01BC
2310:D0 F5 20 89 FE 20 93 FE  $87FC
2318:AD C9 B5 85 D0 AD CA B5  $60B4
2320:85 D1 A0 00 B1 D0 99 00  $8D5B
2328:03 C8 D0 F8 A9 80 8D F1  $3DD2
2330:B7 A0 00 8C F0 B7 8C EB  $3A41
2338:B7 B9 0C 03 F0 1B 8D EC  $74AF
2340:B7 B9 0D 03 8D ED B7 84  $8F58
2348:D2 A9 B7 A0 E8 20 B5 B7  $1D23
2350:EE F1 B7 A4 D2 C8 C8 D0  $2FEC
2358:E0 A9 30 85 D1 A9 A8 85  $1361
2360:D3 A2 10 20 AC 23 AD 81  $1C2B
2368:C0 AD 81 C0 A9 F8 85 D1  $FA7E
2370:85 D3 A2 08 20 AC 23 AD  $FAF9
2378:83 C0 AD 83 C0 A9 24 85  $72DC
2380:D1 A9 D0 85 D3 A2 0C 20  $318D
2388:AC 23 B9 00 20 99 00 00  $0D2D
2390:B9 00 21 99 00 01 B9 00  $1556
2398:22 99 00 02 C8 D0 EB AD  $CD58
23A0:50 C0 AD 57 C0 AD 52 C0  $5A40
23A8:A2 1E 9A 60 A0 00 84 D0  $CC59
23B0:84 D2 B1 D0 91 D2 C8 D0  $48F5
23B8:F9 E6 D1 E6 D3 CA D0 F2  $FF68
23C0:60 8D 84 C2 CC CF C1 C4  $2BB7
23C8:A0 C7 CF D2 C7 CF CE AE  $E22D
23D0:C3 CF C4 C5 8D 00        $934C
```

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IIGS Error Codes

System Failure Codes

Code	Name	Description
0001	pdosUnClmdIntErr	Unclaimed Interrupt (ProDOS 16)
0004	divByZeroErr	Division by 0
000A	pdosVCBErr	Volume control block unusable (ProDOS 16)
000B	pdosFCBErr	Bad File control blk (ProDOS 16)
000C	pdosBlk0Err	Block zero allocated illegally (ProDOS 16)
000D	pdosIntShdwErr	Interrupt with I/O shadowing off (ProDOS 16)
0011	wrongOSVersion	Wrong GS/OS Version
0015	segLoader1Err	Segment Loader error
0017	sPackage0Err	Cannot load a package
0018	package1Err	Cannot load a package
0019	package2Err	Cannot load a package
001A	package3Err	Cannot load a package
001B	package4Err	Cannot load a package
001C	package5Err	Cannot load a package
001D	package6Err	Cannot load a package
001E	package7Err	Cannot load a package
0020	package8Err	Cannot load a package
0021	package9Err	Cannot load a package
0022	package10Err	Cannot load a package
0023	package11Err	Cannot load a package
0024	package12Err	Cannot load a package
0025	outOfMemErr	Out of memory
0026	segLoader2Err	Segment Loader error
0027	fMapTrshdErr	File map destroyed
0028	stkOvrFlwErr	Stack Overflow
0030	psInstDiskErr	Please insert disk (File Manager alert)
0032-0053		Memory Manager errors
0100	stupVolMntErr	Cannot mount system startup volume

Tool Locator Codes

0001	toolNotFoundErr	Specified tool set not found
0002	funcNotFoundErr	Specified routine not found
0110	toolVersionErr	Specified minimum version not found
0111	messNotFoundErr	Specified message not found

Memory Manager Codes

0201	memErr	Unable to allocate block
0202	emptyErr	Illegal operation on an empty handle
0203	notEmptyErr	Empty handle expected for this operation
0204	lockErr	Illegal operation on a locked or immovable block
0205	purgeErr	Attempt to purge an unpurgeable block
0206	handleErr	Invalid handle
0207	idErr	Invalid user ID
0208	attrErr	Illegal operation with specified attributes

Miscellaneous Tool Set Codes

0301	badInputErr	Bad input parameter
0302	noDevParamErr	No device for input parameter
0303	taskInstlErr	Specified task already in Heartbeat queue
0304	noSigTaskErr	No signature detected in task header
0305	queueDmgdErr	Damaged Heartbeat queue detected
0306	taskNtFdErr	Specified task not in queue
0307	firmTaskErr	Unsuccessful firmware task
0308	hbQueueBadErr	Damaged Heartbeat queue detected
0309	unCnctdDevErr	Dispatch attempted to unconnect device
030B	idTagNtAvlErr	No ID tag available

Quickdraw II Codes

0401	alreadyInitialized	QuickDraw II already initialized
0402	cannotReset	Never used
0403	notInitialized	QuickDraw II not initialized
0410	screenReserved	Screen reserved
0411	badRect	Invalid rectangle specified
0420	notEqualChunkiness	Chunkiness not equal
0430	rgnAlreadyOpen	Region already open
0431	rgnNotOpen	Region not open
0432	rgnScanOverflow	Region Scan Overflow
0433	rgnFull	Region full
0440	polyAlreadyOpen	Polygon already open
0441	polyNotOpen	Polygon not open
0442	polyTooBig	Polygon too big
0450	badTableNum	Invalid color table number
0451	badColorNum	Invalid color number
0452	badScanLine	Invalid scan line number
04FF	Not Implemented	

Desk Manager Codes

0510	daNotFound	Specified DA not available
0511	notSysWindow	Window pointer is not a pointer to a window owned by an NDA

Event Manager Codes

0601	emDupStrtUpErr	EMStartUp already called
0602	emResetErr	Cannot reset Event Manager
0603	emNotActErr	Event Manager not active
0604	emBadEvtCodeErr	Event code is greater than 15
0605	emBadBttnNoErr	Button # specified is not 0 or 1
0606	emQSiz2LrgErr	Size of event queue is greater than 3639
0607	emNoMemQueueErr	Insufficient memory available for queue
0681	emBadEvtQErr	Event queue damaged - fatal system error
0682	emBadQHndlErr	Queue handle damaged - fatal system error

Code	Name	Description
	Sound Tool Set Codes	
0810	noDOCFndErr	No DOC or RAM found
0811	docAddrRgnErr	DOC address range error
0812	noSAppInitErr	No SoundStartUp call made
0813	invalGenNumErr	Invalid generator number
0814	synthModeErr	Synthesizer mode error
0815	genBusyErr	Generator already in use
0817	mstrIRQNotAssgnErr	Master IRQ not assigned
0818	sndAlreadyStrtErr	Sound Tool Set already started
08FF	unclaimedSndIntErr	Unclaimed sound interrupt error (reported through System Failure Manager)
	Apple Desktop Bus Tool Set Codes	
0910	cmndIncomplete	Command not completed
0911	cantSync	Cannot synchronize with system
0982	adbBusy	ADB busy (command pending)
0983	devNotAtAddr	Device not present at address
0984	srqListFull	SRQ list full
	Integer Math Tool Set Codes	
0B01	imBadInptParam	Bad input parameter
0B02	imIllegalChar	Illegal character in string
0B03	imOverflow	Integer or Longint overflow
0B04	imStrOverflow	String overflow
	Text Tool Set Codes	
0C01	badDevType	Illegal device type
0C02	badDevNum	Illegal device number
0C03	badMode	Illegal operation
0C04	unDefHW	Undefined hardware error
0C05	lostDev	Lost device: device no longer on-line
0C06	lostFile	File no longer in diskette directory
0C07	badTitle	Illegal filename
0C08	noRoom	Insufficient space on specified diskette
0C09	noDevice	Specified volume not on-line
0C0A	noFile	Specified file not in directory of specified volume
0C0B	dupFile	Duplicate file: attempt to rewrite a file when a file of that name already exists
0C0C	notClosed	Attempt to open a file that is already open
0C0D	notOpen	Attempt to access a closed file
0C0E	badFormat	Error in reading real or integer number
0C0F	ringBuffOFlo	Ring buffer overflow: characters arriving faster than the input buffer can accept them
0C10	writeProtected	Specified diskette is write-protected
0C40	devErr	Device error: device failed to complete a read or write correctly
	Window Manager Codes	
0E01	paramLenErr	First word of parameter list is the wrong size
0E02	allocateErr	Unable to allocate window record
0E03	taskMaskErr	Reserved bits not clear in wmTaskMask field of WmTaskRec
	Control Manager Codes	
1001	wmNotStartedUp	Window Manager not initialized
	Print Manager Codes	
1301	missingDriver	Specified driver not in the DRIVERS subdirectory of the SYSTEM subdirectory
1302	portNotOn	Specified port not selected in the control panel
1303	noPrintRecord	No print record specified
1304	badLaserPrep	Version of LaserPrep file in LaserWriter is not compatible with this version of Print Manager
1305	badLPFile	Version of LaserPrep file in DRIVERS subdirectory of SYSTEM subdirectory is not compatible with this version of Print Manager
1306	papConnNotOpen	Connection cannot be established with the Laser- Writer
1307	papReadWriteErr	Read-write error on the LaserWriter
1321	startUpAlreadyMade	LLDStartUp call already made
1322	invalidCtlVal	Invalid control value specified
	Lineedit Tool Set Codes	
1401	leDupStrtUpErr	LEStartUp already called
1402	leResetError	Cannot reset LineEdit
1403	leNotActiveErr	LineEdit not active
1404	leScrapErr	Desk scrap too big to copy
	Dialog Manager Codes	
150A	badItemType	Inappropriate item type
150B	newItemFailed	Item creation failed
150C	itemNotFound	No such item
150D	notModalDialog	Frontmost window not a modal dialog window
	Scrap Manager Codes	
1610	badScrapType	No scrap of this type
	Font Manager Codes	
1B01	fmDupStartUpErr	FMStartUp call already made
1B02	fmResetErr	Cannot reset the Font Manager
1B03	fmNotActiveErr	Font Manager not active
1B04	fmFamNotFndErr	Family not found
1B05	fmFontNtFndErr	Font not found
1B06	fmFontMemErr	Font not in memory
1B07	fmSysFontErr	System font cannot be purgeable
1B08	fmBadFamNumErr	Illegal family number
1B09	fmBadSizeErr	Illegal font size
1B0A	fmBadNameErr	Illegal name length
1B0B	fmMenuErr	FixFontMenu never called
1B0C	fmScaleSizeErr	Scaled size of font exceeds limits

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☐ 64 Modern Problems
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☐ 69 The Black Castle of NaGog
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Unfortunately, more typing has to be done. The routine at $1E00 normally goes to the disk to load in the title page but since it is being stored in the RAM card, we'll simply change their disk access routine to a memory move routine and make a few other changes. The disk drive will still turn on during the title page but it's not accessing the disk in any way.

1E15:20 6A 1E A2 60
1E22:AD E8 N 1E28:60
1E78:A0 00 84 D0 84 D2 A9 D0
:85 D1 A9 40 85 D3 A2 0C
:B1 D0 48 B1 D2 91 D0 68
:91 D2 C8 D0 F3 E6 D1 E6
:D3 CA D0 EC 60

When the typing is finished, put a JMP $2300 at $7FD and save it.

7FD:4C 00 23
BSAVE GORGON, A$7FD, L$7803

That should do it. Gorgon can now be played by simply BRUN GORGON. Remember, the file 'GORGON.CODE' cannot be BLOADed so for copying purposes, I would suggest FID. That's all until next time!

Softkey for...

Captain Goodnight

Broderbund

Requirements:
Apple 64K
A blank 2 sided disk or 2 blank disks
An initialized disk with no Hello program
COPYA or Locksmith Fast Disk Backup
A sector editor

You are Captain Goodnight. You only have 24 hours to safely fly your jet across enemy territory, battle your way past the robots, cross Doom Island and at the end, disable the Doomsday machine. There is much more to the game than that, though, including some quite impressive graphics and challenging play. It's fortunate for us that the protection on this game is not quite as challenging and it was not as difficult to deprotect as most of Broderbund's games are.

The first thing I usually do when I receive a protected disk is run a copier over it so see what is protected and what is not. To my surprise (being a Broderbund product) only tracks 00 to 0F and track 20 are protected on the disk. The rest is all normal including all of side 2. It appeared that the only thing that was protected was the section of the disk containing the game program. Tracks 00 to 0F are well protected and almost appear to be quarter-tracked by the sound of the disk drive during the load but I didn't pay much attention to the format or how the program loads because with a simple boot code trace, we can get our hands on the game program that is protected. Once we have that, the rest is easy.

The first step of the Softkey is copying what is normal from the game disk. The Locksmith Fast Disk Backup works good for this because it bypasses read errors. However, if you don't have this copier, I have included modifications to COPYA for this purpose. Those of you who have the Locksmith FBD can go ahead and copy both sides of the disk. You can use a 2 sided disk or two blank 1 sided disks but be sure to label them side 1 and side 2. If you are using the locksmith copier, there is one important thing I must point out. Track 0 of the backup side 1 MUST contain the RWTS (that any normal DOS 3.3 disk would contain). This can be taken care of a number of ways:

1. Initialize the backup of side 1 before you make the copy and then open the disk drive door when the Locksmith copier attempts to write to Track 0. It will just ignore the write errors and go to the next track. You don't have to be exact with this though. It is okay if you also miss writing Track 1 or 2 along the way because nothing through Track F will be needed. The copier will not be able to read tracks 00 through 0F of the game disk so there is no data being lost.

2. The other way of doing this is copying the disk with the Locksmith copier and then taking a copier that allows you to select tracks and copying Track 0 from any normal DOS 3.3 disk.

If you are using COPYA, you won't have to worry about Track 0 because it will be intact when the copy is finished.

For users of COPYA, first, copy side 2 of the game disk and then exit into BASIC and make the following changes:

70 *delete line 70*
CALL -151
2DD:10
3A1:18
BDD4:4C 04 BE
ctrl C

Once you have made these modifications, type RUN to run COPYA and copy side one. The modifications will cause it to start copying on track 10 and ignore the errors on track 20. Once you have finished copying the disk, then you are ready for the boot code trace.

Boot Code Tracing the disk

The major part of this Softkey is getting the game program into memory and saved to a normal disk. This will, of course, require boot code tracing the disk. This involves tracing through and controlling the boot stages one at a time until the program is finally loaded in. Resetting into the monitor might work (I haven't tried it) but a lot of us don't have the proper hardware to do that so I have included the boot code trace steps.

First, begin by entering the monitor.

CALL-151

Next, move the boot program from $C600 down to $9600 so we can modify it to return to the monitor after it reads in the first boot stage. This is where the Apple first goes when it reboots ($C600) if your disk controller card is in slot 6. To keep things simple, it will be assumed that your disk drive is in slot 6.

9600<C600.C6FFM

Boot stage 1 will load into $800 and we will be moving it to $9800 to be modified. Since we will have to eventually jump to $9801 from the boot program at $9600, we'll just have it jump there now and then write a short routine at $9801 turn off the disk drive motor and jump to the monitor.

96FA:98 N 9801:AD E8 C0 4C 59 FF

Now we're all set to execute the boot at $9600.

9600G

The disk drive will make the usual sound that it does when booting a disk but once the first boot stage is in memory, it will beep and throw you into the monitor.

Boot stage 1 is now in memory at $800 so move it to $9800.

9800<800.8FFM

The boot program at $9600 is already jumping to $9801 so we don't have to worry about that. If you list through this boot stage you will see that it is loading from $850, Exclusive-ORing it with #$A5 and storing it in the zero page starting at $0060. If you list through boot 1 at starting at $850, you will just see what appears to be 'garbage' memory even though it really isn't. It is actually encoded data. What boot 1 is doing is decoding the memory at $850. We want to have this code stored somewhere else in memory so we can modify it before it gets stored in $0060.

Modify boot stage 1 to store the decoded memory at $1060 and then jump to the monitor.

9837:10 N 9847:4C 59 FF

Since this boot stage does no disk access, we can execute it direct without going through $9600 first.

9801G

Now the encoded memory is in its decoded form at $1060 and can

be examined.

First things first though. Before we forget, we have to change boot stage 1 so it loads from $1060 and stores it in $0060. Also, this boot stage is exited via an RTS (typical of Broderbund boot stages) so we'll change that back also and take care of the RTS address elsewhere. More on that later.

982D:60 10
9831:EA EA
9837:00
9847:60

If you examine the code at $1060 (assuming you understand assembly language) you will see that it is loading the next boot stage into the text page (also typical of Broderbund). Our first concern is getting this code somewhere else in memory such as $6400 so we can look at it.

Alter this boot stage to load the text page boot into $6400 instead of $400.

106A:A9 64

The boot stage at $1060 ends in an RTS (at $10AD) as well as boot stage 1. For those of you who don't understand how an RTS works as a branch, it takes the two top values off the stack, adds one, and jumps to that address. The values that get stored on the stack can be found at $1100 (which will be moved down to $100). The values you will find here are:

```
B3 00 5F 00 FF 03
```

Looking at these, the RTS at the end of boot stage 1 will branch $00B4 ($00B3+1=$00B4) and the routine at $00B4 also ends in an RTS so the next two values show that it will be going to $0060 and finally when that boot stage exits it will be going to $400 ($03FF+1=$0400). Simple enough?

Since we already modified boot stage 2 to load the text page boot into $6400, all we have change now is the FF and 03 so it does not jump to $400. We'll make it jump to $9500 and at $9500 jump to the monitor.

1105:94
9500:4C 59 FF

Now we're all ready to execute $9600. Afterwards, turn off the disk drive with an access to $C0E8

9600G
C0E8

Also, before we forget, modify the boot code at $1060 to load the text page boot where it belongs so it doesn't load over the one we are working with at $6400.

106B:04

Now we can list through the code at $6400. Way down at $662D is a JMP $6300 which is the start of the game program. That is all we need to know now.

Change this JMP $6300 to jump to $9400.

662E:00 94

At the time of the JMP $6300, the entire RAM card is filled with program code and data (both $D000 banks and $E000 to $FFFF). If we were to jump to the monitor ($FF59) from where the JMP $6300 is, Broderbund's error check routine would sense an error and reboot. The reason for this is that ROM ($F800 to $FFFF) is disabled and there is no monitor routine for $FF59. What we have to do is disable the RAM card and enable ROM (access to address $C082) before jumping to $FF59. However, we should first move the RAM card memory to a safe place before doing this in addition to saving pages $00 to $07. It is not always necessary to save these lower memory pages but sometimes the game uses the data in them and it's better to be safe and save them now than to find out later that they are needed and have to go through the whole deprotection process again.

Memory from $2800 to $5FFF is empty after the game program is in memory and that is just enough space to fit the RAM card memory and pages $00 to $07.

Since we are jumping to $9400 when the game program is loaded in, a memory move routine must be written there to save the RAM card memory and pages $00 to $07.

9400:A2 00 BD 00 D0 9D 00 28
:E8 D0 F7 EE 07 94 EE 04
:94 D0 EF AD 82 C0 BD 00
:00 9D 00 58 E8 D0 F7 EE
:18 94 EE 1B 94 AD 1B 94
:C9 60 D0 EA 4C 59 FF

Now type '9400L' and compare it to Listing 1 to verify that everything was entered correctly.

Boot stage 2 (at $1060) is still exiting to $9500 where it is jumping to the monitor. We no longer want to jump to the monitor at this point, but rather, move the altered text page memory where it belongs and jump to it. We will have to change $9500 to move our modified page $6 (it's at $6600 right now) down to page $6 and then jump to $400. We need not move the entire text page boot down to $400 because $600 is the only page we had to modify.

9500:A2 00 BD 00 66 9D 00 06
:E8 D0 F7 A2 60 4C 00 04

Everything should be ready and we can execute $9600 to load in the game program.

9600G

Right now, the memory we have to save runs from $800 to $6FFF plus we still have to save bank 2 of the RAM card. We can move this down to $7000.

First we have to enable the RAM card without disabling ROM. This can be done by moving $F800 through $FFFF into $F800. It doesn't make a lot of sense to move something to where it already is but there is no $F800 ROM present when the RAM card is enabled so we have to move it there.

C081 C081 N F800<F800.FFFFM

Now open bank 2 of the RAM card.

C08B

Then move memory from $D000-DFFF down to $7000.

7000<D000.DFFFM

Everything is where we want it and we are almost ready to save this program, but first we have to reboot DOS.

Page $8 must be moved to a safe place in memory so it is not overwritten by rebooting DOS.

8000<800.8FFM

Insert a diskette with NO HELLO PROGRAM (don't use the disk you copied the game disk to before) and reboot DOS.

6 ctrl P

Now enter the monitor.

CALL -151

Move page $8 back where it belongs.

800<8000.80FFM

Now we will have to write a memory move routine at $7000 to restore all memory to its original location before running the game program. When I first got the game program deprotected, I wrote the memory moves and executed the program... and it just locked up. Why? I was sure I saved all memory that needed to be saved so I boot code traced the disk again and looked things over closely. Then I noticed something that looked fishy. In the text page boot routine it was storing the disk slot number times $10 (slot 6 would be $60) in location $BFFF. I had failed to store that value there prior to running the game and I was hoping that that was the problem. I loaded the game back in and stored the $60 in $BFFF before running it... and sure enough, it worked. After the memory moves are complete, we will have to store a $60 in $BFFF.

Enter the memory move routine.

8000:20 89 FE 20 93 FE AD 81
:C0 AD 81 C0 AD 83 C0 AD
:83 C0 A2 00 BD 00 28 9D
:00 D0 E8 D0 F7 EE 16 80
:EE 19 80 D0 EF AD 8B C0
:AD 8B C0 BD 00 70 9D 00
:D0 E8 D0 F7 EE 2D 80 EE
:30 80 AD 30 80 C9 E0 D0
:EA BD 00 58 9D 00 00 E8
:D0 F7 EE 43 80 EE 46 80
:AD 46 80 C9 08 D0 EA A9
:60 BD FF BF AD 50 C0 AD
:57 C0 AD 52 C0 AD 55 C0
:AD 83 C0 AD 83 C0 4C 00 63

Once this is entered list through $8000 and verify it by comparing it to Listing 2.

If all is correct, save the game to your disk for safe keeping. The disk you save it to must have at least 122 sectors free. The game does not have to be saved to disk but it is good practice to save the program incase you make an mistake in the writing process. That way you can just load the program in memory instead of starting over from step 1.

BSAVE GOODNIGHT, A$800, L$7871

The next step is writing the program to side one of the game disk you copied earlier. We will use the RWTS to do this. It will be written to Tracks 1 through 7.

You should still be in the monitor so enter the following routine at $9000 to write the game program to the backup game disk. This will be using the RWTS from DOS.

9000:A9 B7 A0 E8 20 B5 B7 EE
:F1 B7 CE FF B7 F0 10 CE
:ED B7 10 EC A9 0F 8D ED
:B7 EE EC B7 4C 00 90 60

Also, enter the IOB (Input/Output Block) for the routine. The IOB contains all the information the RWTS needs as far as the slot and drive, Track and Sector, whether to read or write, where in memory to read it, etc. This goes at $B7E8.

B7E8:01 60 01 00 01 0F FB B7
:00 08 00 00 02 00 00 00
:00 00 00 00 01 EF D8 79

Now insert side one of the copied game disk and execute the routine at $9000.

9000G

The program should now be written to the disk. All that is left now is altering the boot code to load the game in at boot. Get out your sector editor and read Track 0 Sector 1 of game disk side one and change the following bytes:

Trk	Sct	Byte	From	To
00	01	$15	?	01
		$1A	?	0F
		$3B	?	4C
		$3C	?	00
		$3D	?	80
		$A6	?	EE
		$AC	?	EE
		$E0	?	79
		$E7	?	09
		$EB	?	00

Normally the code on this sector reads in DOS at boot but by making these modifications, it will read in the game program. Don't forget to rewrite this sector to the disk.

There is just one bug left in this backup copy. After you finish a game, if you choose to view the high scores, it will go to side one and look for the protected Track 20. If it doesn't find it, it will create a protected Track 20 causing a problem in making normal backup copies. I found this routine on Track 22, Sector 2. If you simply put the code for an RTS ($60) right at the beginning you should have no problems.

Trk	Sct	Byte	From	To
22	02	00	?	60

...And there it is. Your deprotected Captain Goodnight diskette. The Captain Goodnight file you saved to the other disk can be scratched now. It is no longer needed.

Advanced Playing Technique for...

Captain Goodnight

Broderbund

You start with 24 hours on the clock and your final score is the amount of time left on the clock when you complete the mission (if you complete it before the clock runs out). The following modification will allow you to have 99 hours on the clock instead of 24.

Edit side one of the copy.

Trk	Sct	Byte	From	To
06	05	DA	04	09
		DF	02	09

That's all! Goodnight!

Softkey for...

Jawbreaker

Sierra OnLine

The disk is well protected with the 'spiradisc' system but the game basically is a single load program and can be downloaded into a single file using a boot code trace.

CALL-151 *enter monitor*
9600<C600.C6FFM *move boot 0 to RAM*
96FA:98 N 9801:4C 59 FF *modify boot 0*
9600G *boot disk*
9800<800.8FFM *move boot 1 to modify*
9833:98 N 98EB:98 *make changes to boot 1 so it will exit*
9870:59 FF *into monitor*
9600G *boot disk*

The next boot stage is loaded in from $B200-BFFF and a large part of it is in a decoded form. The routine that decoded this memory is at $B47A. Initially, I had to call the decoder in order to trace the code to find out where it was going but later found out the the part we have to modify is not in the decoded section. This boot stage is exited at $B466 via RTS following a PLP and a CLC at $B464... so at $B464 we will JMP $B000 (which is a safe part of memory to write a short routine). The disk loading routines are loaded into $300 and the JMP to the title program (JMP $800) is at $347. The routine we write at $B000 will patch a 59 and FF over the 00 and 08 so it jumps to the monitor instead of the program.

B464:4C 00 B0
B000:28 18 A9 59 8D 48 03 A9
:FF 8D 49 03 60
C0E9 *turn on the disk drive*
B800G *execute boot 2*

At $34A is the routine that loads in the actual game program and at $363 is the JMP $800 to start the game.

364:59 FF *jump to monitor after load*
34AG *load in the game*
2000<8800.A7FFM *move upper pages of memory to hi-res screen*
8800<800.8FFM *move page $8 so it doesn't get overwritten*
C600G *boot a blank disk with NO HELLO program*
CALL-151 *enter monitor*
800<8800.88FFM *move page $8 back*

At $3F80 write a routine to move $2000-$3FFF back to $8800

3F80:20 89 FE 20 93 FE A2 00
:BD 00 20 9D 00 88 E8 D0
:F7 EE 8A 3F EE 8D 3F AD
:8A 3F C9 40 D0 EA 4C 00 08
7FD:4C 80 3F *jump to memory move before start of game*
1129:4C 00 08 *a few changes must be made so program does*
12A2:EA EA EA *not attempt to access disk for high scores*
1FC9:60 *or the cartoon after level 4*
A964:FF *patch DOS for long file*
BSAVE JAWBREAKER, A$7FD, L$8003

There you have it! A single BRUNable file of JAWBREAKER. In order to do it this way, the cartoon and title program had to be sacrificed. Originally, I worked the title program and cartoon into my copy of JAWBREAKER, but it was a timely process. However, look for my Softkey for LUNAR LEEPER (also by Sierra On-Line) which is protected the same exact way as JAWBREAKER...and in this Softkey, I will show you how to save the title program and all parts of the game!

Softkey for...

County Fair

Datamost

County Fair was released by Datamost back in 1981. I didn't have a lot of time to explain the steps in detail but this method will allow you to capture the game program in a BRUNable file.

CALL-151 *enter monitor*
9600<C600.C6FFM *move boot 0 to RAM*
96FA:98 N 9801:4C 59 FF *modify boot 0*
9600G *boot disk*
9800<800.8FFM *move boot 1 to modify*
9805:98 N 9842:59 FF *cause boot 1 to exit to monitor*
9600G *boot disk*
9300<300.3FFM *move boot 2 to modify*
9842:01 93 *make appropriate changes*
9327:20 5D 02
9343:4C 59 FF
9600G *boot disk*

This section was tricky. Boot 3 at $B700 loads over itself twice before loading in the game so we have to cause it to load elsewhere like $8700 so it won't load over $B700 where we are working

BD1A:87 *load into $8700*
B748:59 FF *jump to monitor*
B700:A2 60 EA *boot 3 looks for drive number X10 in X reg*
B700G *execute boot 3*
B703<8703.87FFM *new boot 3 is at $8700, move to $B700*
B741:59 FF *exit into monitor again*
B700G *execute boot 3 again*
B703<8703.87FFM *move next boot 3 to $B700*

Make it load $AF pages of memory into $800 instead of $B0 or it will again load over our boot 3 ($0800 + $B000 = $B800).

B7E0:AF N B741:59 FF

Execute boot 3 to finally load game. The necessary program code runs from $800 to $8800.

B700G
8800<A800.AFFFM *pages $A8-$AF are also needed*
9000<800.8FFM *move page $8 to safe place during reboot*
C600G *boot blank disk with NO HELLO program*
CALL-151 *enter monitor*
800<9000.90FFM *move page $8 back in place*

Write memory move to move pages $88-$8F (which were at $A8-$AF) to $00-$07 where they would have been later moved, then JuMP to $800 to start game

9000:20 89 FE 20 93 FE A2 00
:BD 00 88 9D 00 00 E8 D0
:F7 EE 0A 90 EE 0D 90 AD
:0D 90 C9 08 D0 EA 4C 00 08
7FD:4C 00 90 *make beginning of game JuMP to $9000*
A964:FF *patch DOS to save long file*
BSAVE COUNTY FAIR, A$7FD, L$8824

That's all!

Softkey for...

High Rise

?

High rise can be captured as a single file via boot code trace. Here is how to do it...

Enter monitor and move boot 0 to RAM.

CALL -151
9600<C600.C6FFM

Change the JMP at the end to go to $9801 and set $9801 to JMP $FF59.

96FA:98
9801:4C 59 FF
9600G *Boot it*
9800<800.8FFM *Move boot 1 to page $98*

Listing through $9800 you'll find this to be a normal DOS boot 1. Change it to run in page $98 and exit into monitor

980E:90
984A:4C 59 FF
9600G
C0E8 *Turn off disk drive*

The next boot stage is also a normal DOS RWTS loader at $B700. This can be executed directly from memory without going through $9600 and $9800. All

you have to do is load X with $60 before calling it. Do this right before it at $B6FE.

B6FE:A2 60

At $B747 is a JMP $9D84 which is the next section. Change this JMP to a JMP $FF59 and execute $B6FE to load.

B748:59 FF
B6FEG

At $9DE5 is a JMP $449A which is the start of the game program. This should be changed to jump to the monitor again.

9DE6:59 FF

Also, $9D84 loads the accumulator with the disk slot value ($60) from location $2B. Since $2B is one of those touchy zero page addresses, its value gets changed upon entering the monitor. We want to LDA with a $60 at $9D84 and we're ready to load in the game.

9D84:A9 60
9D84G

The game runs from $4000 to $8FFF but the game will not run without a few changes. At $9DCC (part of the loader) is a routine that stores certain values in zero page and text page addresses and these are vital to the running of the program. Move this short little routine to $3F80 right before the game code.

3F80<9DCC.9DE4M

At this point, I thought the game was ready to be saved so I re-booted DOS and saved it only to find that it wouldn't run (I hate secondary protection!). So, it was time to flip through the game code hoping to find the problem. I found something peculiar at $48F7. It was a JSR to $AD2B and I did not save any code beyond $9000. I boot code traced the disk again and looked at $AD2B to find a little routine hidden away in the middle of DOS-land. The routine runs from $AD2B to $AD3F so move this small chunk of memory into $3FEB and we'll move it back before the game is run.

3FEB<AD2B.AD3FM

Finally, after the routine at $3F80 move the memory back and jump to $449A to start the game.

3F99:A2 20 BD E0 3F 9D 20 AD CA
:10 F7 4C 9A 44

Now re-boot DOS and save the file to disk. It's that simple!

C600G
BSAVE HIGH RISE,A$3F80,L$5080

Softkey for...

O'Riley's Mine

Datasoft

Datasoft's protection is a quite different from most of the protection I have seen. The disk appears to be encoded in 4X4 but each track contains just 5 data marks followed by an entire track of data. There is no sector format on this disk. However, once the program is in memory, it does not access the disk so the best way to get this program is by boot code tracing. Begin by entering the monitor.

CALL-151

Move the boot program from $C600 (slot 6) down to $9600 so it can be modified to return control to the monitor. Then change the jump at the end to point to $9801 and at $9801 turn off the disk drive and jump to the monitor. Finally, call up $9600 to boot the disk.

9600<C600.C6FFM
96FA:98
9801:AD E8 C0 4C 59 FF
9600G

Boot 1 has now been loaded into $800. Move an image of this to $9800 where we can modify it.

9800<800.8FFM

Now list $9801.

9801L

By first glance, it just appears to be 'garbage' memory, but it you read Computist #46, in an article called 'Amazing Computer Facts' I had spoken on how to scramble assembly listings to make them appear as 'garbage'. It is done by inserting invalid opcodes in a listing. I believe that not all invalid opcodes will work for this and this scrambling technique will not work on any Apple with the 65C02 microprocessor so the disk may not boot either. When the 6502 encounters an invalid opcode, it ignores it as well as the next opcode. Now, at $9801 is an invalid opcode so it will skip $9802 as well and go to $9803. By listing $9803, you will see a BCS $985D. The carry is always set upon entering a boot 1 program so now it is going to $985D so list it.

985DL

After a load and a store, there is another BCS, this time to $9895. At $9895, you will see it decoding page $8 by means of EOR and storing it in $700. Finally down at $98B3 there is a JMP $705.

First, a couple of changes have to be made so this boot code runs in the $9000 area.

9861:98
98AD:90

Modify it so it moves the decoded memory to $6700 instead of $700.

98A0:67

Finally, change the JMP $705 to JMP $FF59 and call $9600.

98B4:59 FF
9600G

The next section has now been decoded into $6700 so it can be listed and modified. This routine loads the next boot stage into pages $4 and $5 and at $676C you'll find a JMP $484. Since this is text page memory it must be loaded elsewhere. At $677F is a $05 which specifies where to load. Change it to a $65 and change the exit jump to go to the monitor.

677F:65
676D:59 FF

Now we have to alter boot 1 to move $6700 down to $700 and jump to it.

98A0:07
989B:67
985E:00
98B3:A9 D7 8D A0 98 4C 35 07

The last entry line above shows the JMP going to $735. Normally it goes to $705 but the first part of the routine is just playing around with the RAM card and reset vector and can sometimes cause problems with boot code tracing, so we're skipping over it. Everything is ready to go...

9600G

The final loading stage is now in $6400 and $6500. The game is jumped to via an RTS at $64DD. Normally we would have to write a routine to pull the values off the stack to see where it is going but they left the answer right out in the open. At $6484 you'll find an LDA #$08 followed by a PHA and at $64C7 an LDA #$FC and a PHA. By looking at this you can tell that the entry point of the game is $8FD ($8FC+$01=$8FD). By changing the two values pushed on the stack to $FF and $58 it will go to $FF59 after the game is loaded and we will have control.

6485:FF N 64C8:58

This boot routine can be called directly from memory without going through the first three stages but first it must be moved to its proper place and location $2B must contain $60 to specify the slot. write a routine at $9500 to do this. Type carefully...

9500:A2 00 BD 00 64 9D 00 04
:BD 00 65 9D 00 05 E8 D0
:F1 A2 60 86 2B 4C 84 04

Now we're ready to load in the game.

9500G

When you hear the 'beep' the game will be in memory. It runs from $900 to $95FF and pages $24-$2F are available for storage. The entry point of the game is $8FD but all there is at $8FD is a JMP $2000 so the actual start of the game is $2000. Continuing on, move the upper $0C pages of the game to the available space in the hi-res page. Then reboot DOS with a slave disk. The disk CANNOT contain a HELLO program or it will overwrite part of the game.

2400<8A00.94FFM
C600G

The final step is writing a memory move for pages $24-$2F. I found a blank page of memory at $3F00 where this routine can be entered. Enter the monitor first...

CALL-151
3F00:A2 00 BD 00 24 9D 00 8A
:E8 D0 F7 EE 04 3F EE 07
:3F AD 04 3F C9 30 D0 EA
:4C 00 20

Before saving the game, put a JMP $3F00 right before the start address and patch DOS to save a long file...and finally, save it.

8FD:4C 00 3F
A964:FF
BSAVE O'RILEY'S MINE, A$8FD, L$8103

Glynne Tolar — TX

The following is from a posted release by Pete Snowberg as posted by Glynne Tolar on Club Apple BBS (Houston, Texas 713-476-9998) and forwarded to us by Jeff Hurlburt. I have not received any product announcements from Siskiyou Systems Engineering so I cannot attest to the accuracy of any of the following information. However, Jeff Hurlburt is a "reliable source" and I'm willing to print this on his recommendation. As always, beware of vaporware and unsubstantiated hardware claims.
.....RDEXed

GS/DSP: Update on IIgs Enhancement Board

The GS/DSP is a development of Siskiyou Systems Engineering. This preliminary information release (10/20/91) is a quick overview and set of specifications. More complete and final information will become available as the project nears completion.

Why the info?

Normally all information on a project such as this would be kept very secret. But under the current circumstances, with the GS loosing popularity on what seems like a daily basis, this kind of secrecy might have ultimately served to hurt the product rather than help it. I would rather have people be aware that there ARE new pieces of innovative hardware (and software) in the works an not to give up all hope for the Apple //gs. Another reason for generating early awareness of this product is that the support of outside programmers and engineers will be essential to unlocking it's FULL potential.

Because this is not a completed product, the specifications may change. The only difference here is that people will be aware of these changes where as normally secrecy would prevail. I just want to stress that even though the information in this file is the result of roughly a zillion hours of R&D, things may change before the card is ready for release (only for the better though).

I hope that this degree of openness isn't misread by the Apple II community. While the GS/DSP isn't finished, I want to stress that it is a REAL product, and WILL NOT end up as vaporware. I'm a veteran of the old days of the Apple II (pre +) when people shared information and knowledge freely (well... in most cases). It would be nice if some of that openness would return.

What is a DSP anyway?

The DSP, or Digital Signal Processor is a fairly new class of processors that are optimized for performing extremely complex high-speed numeric processing. The development of the DSP grew out of the need for enough processing power to perform complex actions such as adaptive filtering on analog signals which are extremely difficult and very expensive to implement in analog circuitry. Digital signal processors offer the advantages of low cost and extreme versatility. Characteristics of the desired filter can be changed simply by passing different parameters to the software, whereas an analog filter might have to be replaced completely, requiring a new circuit board.

While DSPs are intended mainly for processing signals such as RADAR reflections, audio, and image data, they're really just very powerful processors with special complex math instructions. Because of this they can also be used as high power/low cost coprocessors for general computing.

The Motorola DSP56001 which is titled a "general purpose DSP", was chosen for the GS/DSP for several reasons. The 56001 is powerful, fast, and has a VERY nice assembly language which is something uncommon to the majority of DSPs. It's also the DSP with the greatest base of free code and development tools available for it.

The GS/DSP is the first in a unique new class of very high performance peripherals for the Apple II line. Because it achieves it's speed by offloading tasks from the main CPU, software must be modified, or it must use system tools which have been modified to take advantage of the available power. Any tool based application (any application using the Desktop) will benefit from the increased speed without modification because of it's use of accelerated tools. The GS/DSP is also capable of emulating other cards, which can boost system performance transparently, requiring NO modification to existing software.

Our goal is to get developers to support the DSP in just about every new piece of software being written that can take advantage of this new tool.

Features of the Motorola DSP56001 (from the DSP56001 spec. sheet)

Speed: 13.5 MIPS (Million Instructions Per Second) peak at a clock speed of 27 Mhz. (By contrast, a Macintosh IIfx is generally rated at 6 MIPS, while a stock GS is generally rated at .35 MIPS)

Note: This does not in any way mean that your GS will operate faster than a Macintosh IIfx, however code segments running inside of the DSP subsystem will be capable of such speeds. Most DSP code will actually operate between 8 and 12 MIPS. It is important to note that access to the host (the IIgs side of things) slows things down considerably because of the Apple II series' 1 Mhz bus bandwidth, but have no fear, it still screams along.

Buses: The 56001 architecture is divided into three independent 16 bit address spaces, one for program storage and two separate data spaces. Data buses are all 24 bits wide.

Parallelism: The data arithmetic logic units (ALU's), address ALU's, and program controller operate in parallel so that an instruction prefetch, a 24 x 24 bit multiplication, a 56 bit addition, two data moves, and two address pointer updates using one of three types of arithmetic (linear, modulo, or reverse carry) can be executed in a single instruction cycle. This parallelism allows a four coefficient Infinite Impulse Response (IIR) filter section to be executed in only four cycles — the theoretical minimum for a single multiplier architecture.

Precision: The 24 bit data paths allow for signal processing with 144dB of dynamic range; intermediate results held in the 56 bit accumulators can range over 336dB.

Integration: In addition to the three independent execution units, the DSP56001 has six on-board memories (512 bytes by 24 bits of program RAM, 256 bytes each of 24 bit X and Y data RAM, 24 bit sine/cosine table, positive Mu-law and A-law expansion tables, and bootstrap ROM), three on-chip MCU style peripherals (serial communication interface, synchronous serial interface, and the host interface), a clock generator, and seven buses (four data and three address).

Instruction set: The 62 instruction mnemonics are MCU-like, making programming the 56001 VERY easy. The orthogonal syntax supports control of the parallel execution units. The no-overhead DO instruction and the REP (repeat) instruction make writing straightline code a thing of the past.

Chip fabrication: HCMOS for low power consumption.

Features of the GS/DSP card

Although the GS/DSP was originally designed as a GS specific board, the GS/DSP has now been changed so that it can reside in any slot of an Apple II, IIe, or IIgs. You can even run more than one in a system for parallel processing applications. The card contains...

°DSP56001 at 27 Mhz delivering 13.5 Million Instruction Per Second (MIPS) (peak) and 81 Million Operations Per Second (MOPS) (absolute peak). Actual mileage may very, although most code will operate at 8-12 MIPS.

°256k of 1 wait state, 24 bit wide DRAM.

°8k of 0 wait state static RAM mapped as 4k for program and 2k for each of the two data spaces as well as contiguously, the same static RAM configuration found in the NeXT line of workstations.

°32K of battery backed static RAM (NVRAM) mapped to slot firmware address space for storage of drivers. This allows the GS/DSP to become a bootable device. Because this, the GS/DSP is able to patch tools, install CDA's, and allow more flexibility in booting (i.e.: allow additional warm up time for a slow hard drive, or be able to select the boot device simply by holding down a particular key at startup).

°DMA generator for very high speed data movement. DMA between DSP and GS memory happens at a rate of 1.023 meg/second. DMA from GS memory to GS memory happens at a rate of 511.5 KB/second. DMA may be performed at 2.6 Mhz, but only between fast RAM or ROM and the DSP.

°Built-in 8 bit A/D and D/A converters (with line level input and output) for digitizing, playback, live manipulation of sound.

°NeXT compatible DSP port for connection of just about ANY serial device such as digital microphones, CD players, DAT players, scanners, the GS/DSP Audio Interface Box, or the General Purpose Interface Box. The last two items are described below in the peripherals section.

°Two High-speed Zbus connectors allows you to connect other cards directly to the GS/DSP for ultra high-speed data transfer. Daughterboards may be piggybacked on the GS/DSP, or cables may run from these ports to other cards. As an example, you could connect a graphics card to the Zbus and use the DSP for acceleration of QuickDraw. The DSP would intercept the tool calls, perform the calculations at blinding speed, and blit the data directly to a graphics card without bothering the GS. When combined with the NVRAM, the GS/DSP can also be used as a very low cost hard disk controller ;). Thanks to the Zbus support logic, peripherals such as 8 bit IDE DMA controllers (used for the InnerDrive) or DMA SCSI controllers can be implemented in just TWO chips. Low cost 16 bit IDE controllers (used for the Vulcan) aren't much more complex. The Zbus is capable of addressing up to seven peripherals.

°Complete developers package for both hardware and software that holds back no secrets (well, almost none). This will allow developers to utilize the DSP in their code and with additional Zbus peripherals with greatest possible ease.

GS/DSP Peripherals

These additional peripherals will add capabilities to the GS/DSP by attaching to either the Zbus or the NeXT compatible DSP port. These peripherals will not be released at the same time as the GS/DSP, but will follow sometime in late winter or early spring.

Audio Interface Box that contains a pair of 16 bit, 44.1 khz, Sigma/Delta A/D converters and their D/A counterparts for CD quality stereo sound manipulation, sampling, and playback. Level controls, line level RCA jacks, and phono jacks will be included for both input and output. An additional low cost option for the Audio Interface, the Phone Line Interface, will be available that will allow people to WRITE 300, 1200, 2400, 9600 bps V.32, and even higher speed modems, FAX modems (transmit and receive), and voice mail machines in SOFTWARE on the DSP. This box will plug into the NeXT compatible DSP port and will also be usable on the NeXT.

Low cost General Purpose Interface Box designed around using the GS/DSP for control applications. The specifications for this box will most likely change, but they will include something very similar to this: 32 channels of digital I/O, an 8 channel A/D (8 bit) with anti-aliasing filters and selectable voltage ranges, an 8 bit D/A with selectable voltages, all I/O buffered with socketed chips for easy replacement, LED monitors, programmable PWM capability, and possibly more. This interface can be used for the control and monitoring of almost anything you can think of. It's a perfect way to get an introduction to computer control, or to put the DSP to real use in the outside world. This box interfaces via the DSP port and may also be used on the NeXT. With the addition of a minimal amount of additional circuitry, the GS/DSP could be used as the controller for a full sized laser lightshow.

Very low cost DMA 8 bit IDE hard disk controller for use with InnerDrives, OverDrives, or any disk with an IDE interface. Because this interface uses the Zbus, it requires only TWO off-the-shelf chips (one of which is a buffer) and a very small amount of circuit board, yet is a complete DMA controller. A small amount of additional firmware (stored in the NVRAM) is all that is required to make this a caching DMA controller.

Very low cost DMA SCSI hard disk controller for use with any SCSI drive. Again, thanks to the Zbus, this controller uses only TWO off-the-shelf chips, yet it is also a DMA controller. A small amount of additional firmware (stored in the NVRAM) is all that is required to make this a caching DMA controller.

DSP Software Applications...

On the software end of things, there will be a large amount of code included with the board (sample source and object code, utilities - such as a sound editor and real time sound effects processor, tools - such as InSANE, and applications - Fractals anyone?). One of the included tool patches, InSANE, will accelerate anything that uses the Integer Math Toolset, or the Standard Apple Numeric Environment (SANE), to levels far beyond anything that you could get with a conventional math co-processor such as a 68881 (the DSP is capable of accelerating much more than just the floating point computations that an FPU would).

Here are just a couple of other POSSIBILITIES for adventurous programmers. Thanks to the speed of the DSP, this list only SCRATCHES the surface. Quite a bit of the code to accomplish the below tasks is already written and has been placed in the public domain. With a very small amount of adaptation, that code can be ported to and used on the GS/DSP. I'm only planning to tackle a couple of these projects myself (InSANE, some sound effects things, and a little fractal code) so I encourage anyone interested in writing DSP applications to write to New Concepts for additional information and a developers package (when it becomes available).

- 3-D Rendering
- Disk caching
- DMA RAM disks
- Tool acceleration
- Modems (300-2400, V.32, FAX, ultra high-speed modems; >9600 bps before data compression)
- Real time audio special effects (flanging, phasing, chorus, delay, echo, reverb, harmonizing, EQ, distortion, ring modulation, etc.)
- Audio manipulation and editing
- Voice synthesis
- Voice recognition
- Voice-mail systems
- DTMF encoding / decoding (touch tone)
- Test equipment (spectrum analyzers, tone/signal generators, etc.)
- 16 bit oversampling Ensoniq ™ emulation
- Fractals
- High volume MIDI sequencer/patch management
- MIDI effects processor
- High-speed data compression / decompression
- High-speed data transfers for graphics acceleration, animation, etc.
- 8088, 80286, 80386 emulation (note: 386 emulation would not be that fast)
- Image processing and enhancement
- Control of other equipment
- Monitoring of both analog and digital signals (data acquisition)
- Surround sound decoding
- SAP (second audio program) stereo TV sound decoding
- Digital filter research: Fast Fourier Transforms, Discrete-Time Fourier Transforms, Radix-2 Decimation-in-Time / Decimation-in-frequency FFT's, Cascadeable Adaptive Finite Impulse Response Filters, etc.
- Sound and Music Synthesis
- Proportional-integral-derivative controllers (for laser lightshows)
- and the list goes on and on.

Product availability/information

If you have any questions or comments, you can reach me at:

BBS: The Motherboard (415) 991-4832 (I'm user #5) 1200,2400,HST 8N1 (I check this one daily)

Or mail (SASE please) letters to:

Pete Snowberg
1427 Park Ave.
San Bruno, CA 94066

The GS/DSP card is expected to be completed by the end of fall '91 and available for shipping by the end of the year. Every attempt is being made to make it available for a STREET PRICE of under $300. If you would like more info on the board, please WRITE to:

New Concepts
Attn: GS/DSP project
665 West Jackson Street
Woodstock, IL 60098

Because this is PRE-RELEASE information, the request is made that people write in because the volume of phone calls concerning this product has been tremendous. New Concepts would have to hire a full time employee just for DSP calls to keep up. -Thank you

---

Ross A. Holmes — CA

Ⓠ I was using an Apple IIe before I bought a Mac LC. On using the PFS Write program by Scholastic I wanted to rearrange the date, so that it will read MM/DD/YY instead of the YY/MM/DD. I've tried something but it didn't work. I changed only the entry when it asks for the date, asking to save the file

and typing the new date. How can I change the date that comes on every time "86/1/1" to something like 91/1/1?

This is the first time I have used this program with my new Mac LC and to my surprise it did the date automatically. Maybe for the rest of you out there still interested in changing the above, those of you without a clock in your computer. I still would like to read a date as MM/DD/YY.

Ⓠ I purchased a Mac LC with a built-in 3.5" disk and I'm using the Apple IIe adapter card with an Apple 5.25" disk drive. I copied all the files from the 5.25" disk to a 3.5" disk of The New Print Shop. After rebooting the 3.5" disk with The New Print Shop files on it the program asks for side B. How can I change this so that The New Print Shop will read only the 3.5" disk and look for the files on the 3.5" disk drive? I also want to put all my graphics, fonts, and borders on a 3.5" disk for it to read.

Ⓠ Can anyone of you out there want to make me a program that would decipher a code using the alphabet. I am in need of a small program that will do the following:

```
INPUT DATA:__________
  (I enter)     C F D
```

And from the key as you enter these letters will output BED.

This is a program found in Might and Magic II Clue Book:

```
10 DIM F$(4,9)
15 FOR Y=1 TO 4:FOR X=0 TO 9
20 READ D$
25 F$(Y,X)=D$
30 NEXT:NEXT
35 PRINT:PRINT:PRINT"ENTER
  DATA: ";
40 GET A$
45 A=ASC(A$)
50 IF A=13 THEN 35
55 IF A<49 OR A>52 THEN 40
60 A=A-48
65 GET A$
70 B=ASC(B$):IF B<48 OR B>57
  THEN 65
75 B=B-48
80 IF A*10+B>48 THEN 65
85 PRINT F$(A,B);:GOTO 40
90 DATA "",A,B,C,D,E,F,G,
  H,I,J,K,L,M,N,O,P,Q,R,S,
  T,U,V,W,X,Y,Z
95 DATA 1,2,3,4,5,6,7,8,9
  ,0,",",-,END
```

I would like to have something similar to it as stated above. If anyone can help me I would appreciate it very. The new program will be used in another clue book for the codes as A=B,B=C,C=D,D=E,E=F etc.

Write to me at:

5712 Judith St

San Jose CA 95123-2035

Gary Wills — Canada

Ⓠ **To Zorro:** Thank you for your response regarding OMEGA and its installation on a 3.5" disk. I've basically tried what you suggested. I renamed the disk /S and created subdirectories for each of the disk sides (/STEM, /ER, /SOURCE/MPLE). I chose these names because I could edit the disk without changing the actual lengths of the pathnames.

ie. /SYSTEM

becomes /S/STEM in the subdirectory.

I searched each floppy, before transferring it to the 3.5", and changed the names of the subdirectories to match mine. I got hung up until I used BLOCK WARDEN and found a lower case name "system" hiding on the disk. Copy II Plus differentiates between upper & lower case in a disk search.

My 3.5" disk has the /SYSTEM files in the main directory (/S) AND in a subdirectory (/STEM). I'm not sure if both are necessary since I didn't get into a complete test.

The 3.5" disk boots well and I seem to be able to access the /OPER (my /ER) disk files in the subdirectory. Problems arise when I try to access the /SAMPLE & /RESOURCE (my /MPLE & /SOURCE) subdirectories. OMEGA searches the main directory of the disk but seems unable to enter into any subdirectories. As a result, I must use my 5.25" floppies when I create a new ID disk & when I borrow intelligence routines from the /RESOURCE disk.

Any comments/help would be appreciated!

Ⓠ Has anyone ever figured out a way to put Certificate Maker & even the Library Disks onto a 3.5" disk?

I also want to thank Computist! I recently ordered Pipe Dream. The day my order arrived so did issue #80 — with the edit needed to skip the Code Wheel! I'm impressed!

James J Harvey — MI

Special Thanks to MOMMA (Computist # 77, pg. 13). These are the same codes outlined in Issue # 77 and I found that these would work for the following (3.5" disk) MECC Programs:

Softkey for...

Miner's Cave
Outliner: (1990)
Space Station Freedom (1990)
Invisible Bugs (1989)
Mystery Objects (1988)
Mystery Matter (1988)
Wood Car Rally (1988)
Chemistry - Periodic Table (1988)
Chemistry - Balancing Equations (1990)
To Preserve, Protect, and Defend (1987)

MECC

1. Use Copy II Plus 9.0 and copy the programs.
2. Sector edit the copied disk.

Miner's Cave

Blk	Byte	From	To
0010	16D	B0 98 38 60	B0 98 18 60

Outliner: (1990)

Blk	Byte	From	To
0036	19F	B0 98 38 60	B0 98 18 60

Space Station Freedom (1990)

Blk	Byte	From	To
0029	1F3	B0 98 38 60	B0 98 18 60

Invisible Bugs (1989)

Blk	Byte	From	To
002E	1DB	B0 98 38 60	B0 98 18 60

Mystery Objects (1988)

Blk	Byte	From	To
0007	1C6	B0 98 38 60	B0 98 18 60

Mystery Matter (1988)

Blk	Byte	From	To
002F	1CB	B0 98 38 60	B0 98 18 60

Wood Car Rally (1988)

Blk	Byte	From	To
0007	1A4	B0 98 38 60	B0 98 18 60

Chemistry - Periodic Table (1988)

Blk	Byte	From	To
0036	1A3	B0 98 38 60	B0 98 18 60

Chemistry - Balancing Equations (1990)

Blk	Byte	From	To
0028	1CC	B0 98 38 60	B0 98 18 60

To Preserve, Protect, and Defend 1987

Blk	Byte	From	To
0007	19F	B0 98 38 60	B0 98 18 60

Some of the above programs are available on 5.25 disks so the following cracks are for the MECC programs that are on 5.25 disks.

Softkey for...

Outliner 1990
Mystery Matter 1988
Mystery Objects 1988
Wood Car Rally 1988
Invisible Bugs
Space Station Freedom
CommuniKeys
Chemistry - Periodic Table (1988)
To Preserve, Protect, and Defend (1987)

MECC

1. Boot your DOS 3.3 system disk.
2. Tell DOS to ignore certain items and use COPYA to copy the disk.

RUN COPYA
ctrl C *at the menu*
POKE 47426,24 *Ignore Epilogs*
POKE 48584,71 *Ignore Track Checker*
RUN 80 *skip reloading COPY.OBJ*

3. Search the disk for 90 03 4C xx xx 60 and change all occurrences to 18 EA EA EA EA 60.
4. After sector editing your copy; format a ProDOS disk and copy a fresh PRODOS file onto it.
5. Copy all of the files except PRODOS from your sector edited disk onto this ProDOS formatted disk.
6. Change the volume name of the ProDOS disk to the same name as the original.

This will work for all of the following MECC programs on 5.25 disks.

Outliner 1990

Trk	Sct	Byte	From	To	
06	0C	D4	90 03 4C 72 0E	60	18 EA EA EA EA 60
06	0D	25	90 03 4C 15 0E	60	18 EA EA EA EA 60
13	09	F5	90 03 4C B2 DD	60	18 EA EA EA EA 60

Mystery Matter 1988

Trk	Sct	Byte	From	To	
05	09	A6	90 03 4C 59 9E	60	18 EA EA EA EA 60

Mystery Objects 1988

Trk	Sct	Byte	From	To	
01	09	26	90 03 4C 71 83	60	18 EA EA EA EA 60
06	0F	16	90 03 4C 52 03	60	18 EA EA EA EA 60

Wood Car Rally 1988

Trk	Sct	Byte	From	To	
01	09	04	90 03 4C 2F 85	60	18 EA EA EA EA 60
03	0A	26	90 03 4C 52 03	60	18 EA EA EA EA 60

Invisible Bugs

Trk	Sct	Byte	From	To	
06	0D	34	90 03 4C 9B 86	60	18 EA EA EA EA 60
08	0A	5F	90 03 4C 52 03	60	18 EA EA EA EA 60

Space Station Freedom

Trk	Sct	Byte	From	To	
05	09	A6	90 03 4C A1 87	60	18 EA EA EA EA 60

CommuniKeys

Trk	Sct	Byte	From	To	
05	09	66	90 03 4C 1E 82	60	18 EA EA EA EA 60

Chemistry - Periodic Table (1988)

Trk	Sct	Byte	From	To	
01	09	62	90 03 4C 6F 85	60	18 EA EA EA EA 60

To Preserve, Protect, and Defend (1987)

NOTE: You must copy an older (30 sector version) PRODOS file onto your ProDOS formatted disk for this program because you will not have enough room for the newest (32 sector version) PRODOS file and all of the program files.

Trk	Sct	Byte	From	To	
01	0E	D3	90 03 4C 13 85	60	18 EA EA EA EA 60
03	0A	4B	90 03 4C 52 03	60	18 EA EA EA EA 60

Softkey for...

Apple Assembly Language (1984)
Hi Res Tool Kit (1984)
Advanced Applesoft Basic (1981)

MECC

1. Boot your DOS 3.3 system disk.
2. Tell DOS to ignore some checks and use COPYA to copy the original programs.

RUN COPYA
ctrl C *at the menu*
CALL-151 *to enter the monitor*
B8F3:00 *ignore 2nd data prolog byte*
B8FE:00 *ignore 3rd data prolog byte*
B925:18 60 *ignore data epilog*
3D0G *returns to BASIC*
RUN 80 *skip reloading COPY.OBJ*

3. The Apple Assembly Language program and The Advanced Applesoft BASIC programs will operate OK, however, The Hi Res Tool Kit program will need the following sector edit. If the bytes have moved, scan the disk for 90 03 4C A0 66 60 and change to 18 EA EA EA EA 60.

Trk	Sct	Byte	From	To	
15	09	66	90 03 4C A0 66	60	18 EA EA EA EA 60

Softkey for...

Note Card Maker

Grolier

The protection is the same series of bytes as the older version but they are relocated.

1. Use Locksmith Fastcopy and ignore the error on track 3.
2. Sector edit the copy. If the bytes have moved, scan for the "From" bytes shown and replace with the "To" bytes.

Side One

Trk	Sct	Byte	From	To
10	0F	0E	A0 10 BD 10	A0 10 60 10
1A	09	68	65 01 BD 8C C0	65 01
60 8C C0				

Side Two

Trk	Sct	Byte	From	To
1A	0E	30	A0 10 BD 10	A0 10 60 10
1C	00	80	65 01 BD 8C C0	65 01
60 8C C0				

Softkey for...

Mission Control

?

1. Boot your DOS 3.3 system disk.
2. Tell DOS to ignore certain error checks and use COPYA to copy the disk.

RUN COPYA
POKE 47426,24 *Ignore Epilogs*
POKE 48584,71 *Ignore Track Checker*
Run 80

3. Turn your computer off, wait 10 seconds, and reboot the DOS 3.3 System Master disk. Initialize a blank disk with the following HELLO program.

```
10 TEXT: HOME: VTAB (5):
   PRINT : "LOADING...."
20 PRINT CHR$(4); "RUN LOGO"
```

INIT HELLO

4. Copy all of the files, except HELLO from your copy onto your newly initialized disk.

Charles Duncan — AL

Softkey for...

Electric Crayon (This Land is your Land)

Polarware

Requirements:
Electric Crayon (TLIYL-5.25 disk)
2 Blank Disk
COPYA
Copy II Plus (or other disk editor)

This deprotection will allow you to catalog and probably switch the pictures from one Electric Crayon (EC) series to another. I don't know if the Sesame Street Series are similar or not, but if they are this will most likely work on those too. Most of all it will allow the user to use the disk on any Apple compatible computer like the Laser 128, which happens to be the reason for this deprotection.

I am a Laser 128 version 4.3 owner, and have had trouble with many programs not running on it. Most currently the EC Series disk by Polarware. I spent many weeks figuring out why this disk would not work on my Laser 128 and it turned out that the file SHAPES and EC COLORS was the culprit.

Jack Moravetz's softkey for Electric Crayon ABC's (Issue #50, pg. 25) did not work on this disk. The disk did not have a complete catalog. The computer could only find PRODOS and E.C.SYSTEM in the catalog and a nasty Range Error. Tom Kepka also mentions this in his article (Issue #53, pg. 18) about the Sesame Street Series. However, the method both authors used is essentially the same. It correctly disables the nibble count, for an Apple computer but not the Laser, and you still cannot catalog the disks. I also had trouble trying to erase and copy a new PRODOS to a backup copy of EC TLIYL. I kept getting ERROR #51.

So, I owe the knowledge gained by this softkey, as most of us do, to the companies that put copy-protection on these disks. Thanks to Computist I can back up my software, which I have invested a great deal of money. I don't know who enjoyed the disk more, my children coloring and printing out the pictures, or me when the disk finally cataloged and worked on my Laser.

Step-by-step

1. Boot your DOS 3.3 system disk.
2. Tell DOS to ignore checksum and epilog errors and use COPYA to copy EC to a blank disk.

POKE 47426,24
RUN COPYA

3. Make the following sector edits to the copy.

Trk	Sct	Byte	From	To
12	0D	00	A9	18

4. Read track 01, sector 00 and write it to track 00, sector 07.
5. Edit the sector.

Trk	Sct	Byte	From	To
00	07	00	07	00
		02	05	03
00	0B	02	03	07

6. Format another ProDOS disk with the volume name "A".
7. Copy the newest version of PRODOS you have to the formatted disk.
8. Copy all the files from the edited copy of EC, except the file PRODOS, to the newly formatted disk.
9. Change the volume name of the second copy from "A" to "TLIYL". This is important because the disk checks for the correct volume name.

You should now have a completely normal ProDOS disk of Electric Crayon's "This Land is your Land". Enjoy.

The Blade — CA

To Jere T. Murray: (Issue 69, having trouble with his GS needing to be warmed up) It sounds like your problem is caused by metal expansion and contraction. When your GS is cold one of the pins on one of the chips might not be making proper contact. When it warms up, the metal expands and thus makes proper contact. To remedy this situation first make sure all of the chips are properly seated in their sockets. If that doesn't work it could be that one of the traces on the motherboard has a hairline crack. (Usually caused when pulling or inserting the ROM chips) This is very, very hard to find. You'll need to pull the motherboard and examine the traces with a magnifying glass to find it. When and if you find it, scrape some of the protective insulation off the board around the crack and put some solder on the exposed metal trace. Since you said warming the VGC chip with your finger solves the problem, you should start there. Also check for a cold solder joint at one of the IC socket pins.

Softkey for...

King's Bounty

New World Computing

Requirements:
1 blank disk
Fast disk copier (Copy II Plus)
Sector Editor (Copy II Plus)

This new game by the makers of Might and Magic uses almost the same protection except they have encoded the entire routine. Look at the end of track $22, sector $05 and the start of track $22, sector $04 for the decoding routine. It's almost identical to the one used in Might and Magic (track $1E, sector $03, bytes $D0-DA on the M&MII disk A).

Step-by-step

1. Copy the both sides of the original disk to a blank disk.
2. Sector edit the copy.

Trk	Sct	Byte	From	To
00	08	FF	80	40
22	02	BD	D3 41 BD	57 54 55

The 57 54 55, when decoded becomes 3 NOP's that replace a ROR $0FFF (6E 0F FF). Byte $FF of track $00, sector $08 is loaded into address $0FFF in memory. The 40 allows the protection routines to pass.

Softkey for....

Softkey for...

Bad Dudes
Platoon

Data East

Requirements:
Fast disk copier
sector editor

Data East used the exact same copy protection routine(s) for both of these games.

Step-by-step

1. Copy the disk, both sides.
2. Sector edit the copy.

Trk	Sct	Byte	From	To
00	0E	4A	4C 00 C6	EA EA EA

Ⓟ Does anyone know of a way to get rid of the manual check from the IIe version of King's Quest IV? It takes long enough to boot and play the game without having to find a word from the manual.

Ⓟ Please place Prince of Persia by Broderbund, and the IIe version of The Last Ninja by Activision on the most wanted list. I have been looking over the disk with a nibble editor and have found that track $00 is in normal 16 sector format while tracks $01-$22 use the same 18 sector formatting as Wing's of Fury. I'm sure that if someone could just come up with a way to convert at least one of these disks to standard 16 sectors all the others would soon follow. The PRIME MINISTER stated in issue #76 that he softkeyed The Last Ninja but didn't have the time to write about how he did it. If he's willing to get hold of me, (ie. send me copies of all the source code listings and notes of what he did while doing the softkey) I'll try to write a article on how he did it.

Ⓟ Please put RISK back on the list. The softkey from issue 74 is incomplete. The game does not function properly when rolling dice. (The graphics get messed up)

Softkey for...

Comics

Accolade

Requirements:
Fastdisk copier
Sector editor

I saw this on the most wanted list and thought I should pass along this softkey for it. I didn't actually come up with this softkey. I got hold of a softkeyed copy and used it to compare with my original. Which brings me to another topic. I noticed a lot of the programs on the most wanted list have already been softkeyed and pirated by people who probable don't subscribe to COMPUTIST. I know most of us won't admit it (I don't) but we probable have one or more of these pirated programs. One way to figure out how to softkey a program would be to compare a original program with the softkeyed version. Write down any differences, then apply the changes to a copy of the original. Maybe this way we could shrink the size of the MOST WANTED LIST.

Trk	Sct	Byte	From	To
07	0E	36	1C	18
0A	03	8E	F7	D7

Softkey for...

Might and Magic II

Activision

Requirements:
Copy II Plus
3 blank disk

I have been a subscriber since issue #69 and I have to say my money wasn't wasted. Might and Magic is a excellent game with only one problem, the copy protection. Might and Magic will fast copy, and it will even boot. But try to save a character and you will find that you get nowhere. Protection like this is hard to remove, well at least for me, because you don't know where to look.

Anyway, after about a couple of days looking through each and every sector on disk A, I noticed this little piece of code on track $1E sector $03:

```
CA:8D 5F C0   STA $C05F
CD:8D 5E C0   STA $C05E
D0:A0 00      LDY #$00
D2:98         TYA
D3:59 00 9E   EOR $9E00,Y
D6:99 00 9E   STA $9E00,Y
D9:C8         INY
DA:D0 F6      BNE $9CD2
DC:20 00 9E   JSR $9E00
DF:6E FF 0F   ROR $0FFF
E2:A0 00      LDY #$00
E4:98         TYA
E5:99 00 9E   STA $9E00,Y
E8:C8         TYA
E9:D0 F9      BNE $9CE4
EB:60         RTS
```

I found it strange that this routine decodes everything starting at $9E00, jumps to it, then erases it. I stuck a BRK "00" command at byte $DC, wrote the sector back to the copy of disk A, then booted the disk. After the program dropped me in the monitor I looked at what was at address $9E00. It was the copy protection routine. Examination of the routine showed that placing a $40 at address $0FFF would allow the program to work correctly.

Scan disk A for the byte sequence 6E FF 0F A0 00 98 and replace it with A9 40 8D FF 0F 60. I've played a copy of the game for a couple of days now without any difficulty.

Trk	Sct	Byte	From	To
1E	03	DF	6E FF 0F	A9 40 8D
			A0 00 98	FF 0F 60

Softkey for...

Bubble Bobble

Taito

Requirements:
Fast disk copier
Sector editor

Step-by-step

1. Copy both sides of the disk.
2. Sector edit the copy.

Trk	Sct	Byte	From	To
14	00	C5	AD	60

3. Write back all changes.

Mad Vandal

IBM Softkey for...

Nuclear War

?

Like most, it's another doc check. Nothing special. For Norton users search the file NUKEWAR.EXE for the byte pattern C4 08 0B C0 75 34 and change the 75 34 to 90 90.

DEBUG method. DEBUG is assumed to be in the current path or dir.

REN NUKEWAR.EXE NUKEWAR.ZAP
DEBUG NUKEWAR.ZAP
E DF71 90 90
W *to save it*
Q *to quit*
REN NUKEWAR.ZAP NUKEWAR.EXE

Okay, that's it. For those interested in the program changes they are shown below:

Before

```
DF69 E88A8C    CALL  6BF6  Routine to check
                           your entry
DF6C 83C408    ADD   SP,+08
DF6F 0BC0      OR    AX,AX
DF71 7534      JNZ   DFA7  Jump if you are
                           wrong
DF73 8E060E53  MOV   ES,[530E]
DF77 26        ES:
DF78 C7061E1C0000  MOV  WORD PTR
                        [1C1E],0000
DF7E 8E061053  MOV   ES,[5310]
DF82 26        ES:
DF83 C70642000000  MOV  WORD PTR
                        [0042],0000
                        Setup your cities
DF89 8E060853  MOV   ES,[5308]
DF8D 26        ES:
DF8E C706D20A0100  MOV  WORD PTR
                        [0AD2],0001
DF94 8E061053  MOV   ES,[5310]
DF98 26        ES:
DFA0 C746E20000    MOV  WORD PTR [BP-
                        1E],0000
DFA5 EB27      JMP   DFCE  jump to start game
DFA7 8E060853  MOV   ES,[5308]
DFAB 26        ES:
DFAC C706D20A0100  MOV  WORD PTR
                        [0AD2],0001
DFB2 8E061053  MOV   ES,[5310]
DFB6 B80100    MOV   AX,0001
DFB9 26        ES:         Make your cities
DFBA A34200    MOV   [0042],AX <   dead so
                           you can't
DFBD 8E060E53  MOV   ES,[530E] <   play
DFC1 26        ES:
DFC2 A31E1C    MOV   [1C1E],AX
```

After

```
DF69 E88A8C    CALL  6BF6  Check your entry
DF6C 83C408    ADD   SP,+08
DF6F 0BC0      OR    AX,AX
DF71 90        NOP         Do not jump
DF72 90        NOP
DF73 8E060E53  MOV   ES,[530E]
DF77 26        ES:
DF78 C7061E1C0000  MOV  WORD PTR
                        [1C1E],0000
DF7E 8E061053  MOV   ES,[5310]
DF82 26        ES:
DF83 C70642000000  MOV  WORD PTR
                        [0042],0000
DF89 8E060853  MOV   ES,[5308]
DF8D 26        ES:         Setup your cities
DF8E C706D20A0100  MOV  WORD PTR
                        [0AD2],0001
DF94 8E061053  MOV   ES,[5310]
DF98 26        ES:
DF99 833E420000    CMP  WORD PTR
                        [0042],+00
DF9E 7475      JZ    E015
DFA0 C746E20000    MOV  WORD PTR [BP-
                        1E],0000
DFA5 EB27      JMP   DFCE  Jump to start
                           game
DFA7 8E060853  MOV   ES,[5308]
DFAB 26        ES:
DFAC C706D20A0100  MOV  WORD PTR
                        [0AD2],0001
DFB2 8E061053  MOV   ES,[5310]
DFB6 B80100    MOV   AX,0001
DFB9 26        ES:         All this skipped
DFBA A34200    MOV   [0042],AX
DFBD 8E060E53  MOV   ES,[530E]
DFC1 26        ES:
DFC2 A31E1C    MOV   [1C1E],AX
```

Hmmm. I hope they didn't waste too much time on this, but still, waste is waste.

Blackmax

IBM Softkey for...

Pipe Dream

Lucasfilm

Use Norton utility to search for FA 02 74 06 B8 01 00 and change the 01 to 00. This will pass the code-wheel test no matter what is entered.

or

Using a disk editor such as HADES (available from the Heath Users' Group), search the file GAME.OVR for 1E 57 9A 24 07 BB 05 75 02 EB 25 and change the 75 02 to 90 90. When the game asks for a translation from the code wheel, just type a return!

Bentley Bear

IBM Softkey for...

Red Storm Rising!

?

Use Norton to search REDSTART.RSR for 75 05 B8 01 00 EB 02 2B C0 8B and change the 75 05 to 90 90.

This allows you to hit <ENTER> on the screen where you're supposed to identify the ship and it will accept any answer. You still have to insert the key disk (or a COPYWRITed backup) in drive A:.

J. Murray

IBM Softkey for...

Wing Commander

Origin

This game is great. Flashy graphics, awesome sound and gameplay that just will not quit!

Using PC Tools search WC.EXE for 75 14 B8 and change to EB 14 B8. Save your changes and exit. When you are asked to give a response to a question just type a number and hit enter.

If that doesn't work, try this patch. It bypasses the protection screen and prevents you from having to enter anything. Search for E8 81 FE 59 0B C0 75 and change to 90 90 90 90 90 90 EB.

Mike Basford — CN

IBM Softkey for...

Populous

Electronic Arts

Using Debug, here's the sequence from DOS:

ren populous.exe populous.xxx
DEBUG POPULOUS.XXX
R*write down the CS register value after the register dump*
S CS:0000 FFFF 3B 46 0C 75 09 8B 46 0C A3 82 2A

DEBUG should respond with cs:xxxx (xxxx is an address)

U CS:xxxx *I hope you realize by now to substitute the cs register value for the "cs"*

```
cs:xxxx                          CMP
AX,[BP+0C]   (Debug should
respond with this)
cs:yyyy                          JNZ
DE66
```

E CS:YYYY *put the value of cs and yyyy from above in here*
75.EB 09.03
W *debug says "writing zzzzz bytes"*
Q
REN POPULOUS.XXX POPULOUS.EXE

You have finished!

B-MAN

IBM Softkey for...

Life & Death II: The Brain

?

Requirements:

INSTALL.EXE, Size: 63778, Date/Time: 12-02-90, 12:00am

LD2.EXE, Size: 194936, Date/Time: 11-29-90, 4:22pm

Contrary to the documentation, which indicates that Life & Death II is NOT copy protected at all, it is actually copy protected twice! How's that for honesty from a software publisher?

The primary copy protection is contained in the file INSTALL.EXE, which requires the original KEY DISK in order to execute. You can't install the program without INSTALL.EXE because it writes an important configuration file. This configuration file contains the video, sound and disk specifications. It also contains some CRC data based on measurements of the particular machine on which it has been run (more on this below). Once you have patched INSTALL.EXE, you will be able to install the program from a floppy other than the original key disk. You must preserve the structure of the paths, etc., in order for any install diskette to work properly.

The second part of the copy protection is less obvious. As mentioned above, the install program writes some CRC data to the configuration file which is unique (in theory) to the particular installation machine. Therefore, if you change individual items or replace your entire system, the installed copy will not run. For example, changing your disk controller, system BIOS or even TSR programs can cause this CRC check to fail and prevent the execution of the program. If you patch LD2.EXE as outlined below, these CRC checks will not be performed. Therefore, you can back up your installed copy and restore it to any machine — as long as the video and sound options are the same. If your video (VGA/EGA/TANDY) and sound options (SPEAKER/ADLIB/BLASTER) do change, you will have to run install again.

This patch requires that you have and know how to use the hex search and edit of a search-and-replace hex editor such as those employed in PC-Tools, Norton Utilities or the shareware hex editor Hexcaliber.

Install the patch by performing the following hex search-and-replace operations:

Search INSTALL.EXE for 74 07 B8 E0 1F and replace with EB 07 B8 E0 1F. This string will occur twice, patch each one. Search for E8 51 08 and replace with 90 90 90. Search for 00 75 E2 and replace with 00 90 90.

Search LD2.EXE for 55 8B EC 39 26 CE 79 77 05 9A 10 0A 00 00 0E E8 BA FF A1 53 0D 0B and replace with 83 C4 14 8B F8 0B FF EB 05 9A 10 0A 00 00 5F 5E 8B E5 5D E9 E8 FE.

Unknown

IBM Softkey for...

Battlehawks 1942

Lucasfilms

In the game Battlehawks 1942 you have to pass a "Recognition Test" by identifying the silhouette of one of several planes from the manual. The following patch will disable the test in such a way that you can just press enter to continue without identifying the plane. This patch should work with the BH.EXE file dated 10-06-88.

Use the following keystrokes to perform the patch on a BACKUP COPY of your original disk.

REN BH.EXE BH
DEBUG BH
E 2D55
xxxx:2D55 **EB.E9 02.A2 90.00**
W
Q
REN BH BH.EXE

IBM Softkey for...

Centurion

Electronic Arts

Use DEBUG to crack this one.

DEBUG OVL0.OVL
S 0000 FFFF C0 75 06 FF 46
XXXX:615
E 616
XXXX:616: **74.75**
W
Q

That's it. Simple huh? Just changing a Jump Not Zero to Jump Zero. So answer the silly question any old way you like.

IBM Softkey for...

Champions of Krynn

SSI

Using a disk editor such as HADES (available from the Heath Users' Group), search the file GAME.OVR for the following byte strings, and change the indicated bytes.

Search for 16 57 9A 2F 07 B7 0B 74 03 and change the 74 to EB.

Search for 16 57 9A 2F 07 B7 0B 75 06 C6 46 and change the 75 06 to 90 90.

When the game asks for a specific word from the journal, just type a return!

IBM Softkey for...

Command HQ

?

Use Norton utility to search for 76 03 E9 BB 01 and change the 76 03 to 90 90.

IBM Softkey for...

Indianapolis 500

Electronic Arts

INDY.EXE is in a EXEPACK format. I don't have the Exepack utility

from Mickeysoft, and so I can't say to you how the original Indy.Exe file is affected by this crack.

In order to crack Indianapolis you need the LZEXE91.ZIP package that you can find in many BBSs (Exec-PC is one of these, really recommended), and use the program UPACKEXE.EXE that you find in this program.

This neat program gets an Exepacked file and unpacks it. So first of all type:
UPACKEXE Indy.exe

At this point you have an unpacked file. Get out your favorite sector editor (NU, PCtools or ZipZap65 works well). Search for 47 3A C4 75 1A 07 and change the 75 14 to 90 90.

You can now use LZEXE to compact the file again, better than with Exepack.

IBM Softkey for...

Jack Nicklaus' Greatest 18 Holes of Major Championship Golf

Accolade

To softkey the game "Jack Nicklaus' Greatest 18 Holes of Major Championship Golf", simply copy the files GOLFC.EXE, GOLFE.EXE, and GOLFT.EXE to a separate disk or subdirectory. DO NOT use your originals!

Next, making use of your favorite Hex-Editor, search each of the three files listed above for the Hex string of 3D 03 00 75 03 E9 84 01 E8. This string only occurs once in each of the files. If you can't locate this string, STOP NOW!... you have a different version and this patch won't work!

Once the above mentioned string is found, change it to read EXACTLY as the following: 3D 03 00 75 03 90 90 90 E8. You now have an unprotected version of this game that you do not have to identify any course holes with!

GOLFM.EXE does not need this patch because it loads the file GOLFC.EXE into your system for monochrome displays.

IBM Softkey for...

Lowblow Boxing

?

Another doc check, not as hidden as I'd expect. It can be rendered useless by changing one byte.

Norton users should search the file BOX.EXE for the byte pattern 74 14 16 and change the 74 to EB.

DEBUG method. DEBUG is assumed to be in the current path of dir.

```
REN BOX.EXE BOX.ZAP
DEBUG BOX.ZAP
E E4B0 EB
W                    to save it
Q                    to quit
REN BOX.ZAP BOX.EXE
```

For those interested the changes look like this:

Before

```
E4A5 8B46F8   MOV AX,[BP-08]
E4A8 D1E0     SHL AX,1
E4AA 03D8     ADD BX,AX
E4AC 58       POP AX      Copy protection
                          routine
E4AD 26       ES:
E4AE 3B07     CMP AX,[BX] Check you answer to
                          doc check
E4B0 7414     JZ  E4C6    Jump if correct
E4B2 16       PUSH        SS
E4B3 8D8656FF LEA         AX,[BP+FF56]
E4B7 50       PUSH        AX
E4B8 9A02008C15 CALL      158C:0002
E4BD 59       POP CX      disables game and
                          sets up
E4BE 59       POP CX      for DOS exit
E4BF 50       PUSH        AX
E4C0 9A26042A08 CALL      082A:0426
E4C5 59       POP CX
E4C6 8BE5     MOV SP,BP
E4C8 5D       POP BP      Exit and continue
E4C9 CB       RETF
```

After

```
E4A5 8B46F8   MOV AX,[BP-08]
E4A8 D1E0     SHL AX,1
E4AA 03D8     ADD BX,AX
E4AC 58       POP AX      Copy protection
                          routine
E4AD 26       ES:
E4AE 3B07     CMP AX,[BX] Check you answer to
                          doc check
E4B0 EB14     JMP E4C6    Always jumps, always
                          right
E4B2 16       PUSH        SS
E4B3 8D8656FF LEA         AX,[BP+FF56]
E4B7 50       PUSH        AX
E4B8 9A02008C15 CALL      158C:0002
E4BD 59       POP CX      All this skipped
E4BE 59       POP CX
E4BF 50       PUSH        AX
E4C0 9A26042A08 CALL      082A:0426
E4C5 59       POP CX
E4C6 8BE5     MOV SP,BP
E4C8 5D       POP BP      Exit and continue
E4C9 CB       RETF
```

IBM Softkey for...

Might and Magic

Activision

Requirements:
Norton Utilities (or similar program)
A copy of the file MM.EXE from your original disk.

Load the file MM.EXE into Norton. Then search for the string CD 13 72 EE and change the bytes to 90 90 90 90. Write the changes.

Next search for the string CD 13 72 05 and change the bytes to 90 90 90 90. Write the changes.

Next search for the string CD 13 72 05 and change the bytes to 90 90 EB 05.

A few bytes after this is a 75 F6, change these bytes to 90 90. You will have to do this 4 more times. Here are the jumps to look for: 75 20, 75 18, 75 10, 75 08. These will all be 7 bytes apart, change them all to 90's.

Another 7 bytes after the last change is 74 03, change it to EB 03. Write the changes.

The program will now skip the check for copy protection all together. If you have any problems with any of these patches, check the date of the file MM.EXE on your original disk 1 for the date 11/18/87. If your file has a different date then they probably changed the copy protection method and your out-of-luck with this patch.

IBM Softkey for...

Might And Magic II

?

Search the file 1MENU1.OVL for B5 27 8A 16 6D 1E B6 00 07 06 33 DB CD 13 and replace the CD 13 with 90 90. Search for B5 27 8A 16 6D 1E B6 00 CD 13 80 FC 10 74 07 and replace the CD 13 80 FC with 90 90 EB 32.

IBM Softkey for...

Railroad Tycoon

Microprose

Using Norton Utilities or PC Tools search GAME.EXE for E8 DF D9 89 46 F2 3D 0D 00 75 and replace with 90 90 90 89 46 F2 3D 0D 00 90. Search for 2A 8B 46 F6 39 46 FC 74 and change to 90 8B 46 F6 89 46 FC EB.

Now save the file and exit. That's all there is to it!

IBM Softkey for...

Silpheed v2.2

?

I don't know if this will work with all versions but I don't see why not!

First make a copy of your Master Disk and put the master away. Debug must be on the disk you want to softkey or it must be in your path. I figured out and fixed the copy protection because I hated needing the book just to type in the enemy. I am also color blind so I had a tough time reading the names.

```
REN SIERRA.COM SIERRA.KRK
DEBUG SIERRA.KRK
S 0000 05B0 74 0C
xxxx:03B7
E 03B7
74.75
E 05AF
74.75
W
Q
REN SIERRA.KRK SIERRA.EXE
```

That's all there is to it. Now when it asks you for the ship just hit <ENTER> and the game will continue.

If you have a different version you may come up with a different address when you search for 74 0C. If you do then just edit the first occurrence of the 74 0C. Then search for 74 10. Change the 74 to a 75 and that should be it. Hope this helps.

IBM Softkey for...

Street Rod

California Dreams

Be sure to backup your disk before starting and use the back up for the softkey. Modify only the backup copy!!!

```
REN SR.EXE SR
DEBUG SR  Loads program into debug
S 0000 FFFF 74 04 2B C0 EB 03 B8 01 00
   8B E5        Search for protection
XXXX:YYYY  The search will return
one address. If more or less than one
are returned this softkey may not
work.
E YYYY EBEdit the contents of the com-
   puted address
WWrite the new sr game back to the disk
Q                    Quit DEBUG
REN SR SR.EXE change the name back
```

Now try to run the new (Hopefully) unprotected version of Street Rod just click or push SPACE on any answer.

IBM Softkey for...

M1 Tank Platoon

Microprose

The patch described here bypasses the identification quiz that so effectively disrupts the continuity of the first game after booting TANK. To apply the patch, you will need a hex editor such as Norton's "NU" (part of the well-known and readily available set of DOS utilities called Norton Utilities) or DOS's DEBUG.

The file that needs to be patched is TANKST.TNK; my copy is dated 9/20/89 3:26PM. Using your editor, change the byte at offset x158F from x74 to xEB. The byte to be changed may be found by searching for 74 09 B8 01 00 5E 8B E5 5D C3.

This change makes a JMP (Jump Short) out of a JE (Jump Equal). The quiz will still appear with this patch applied, but your answer WILL ALWAYS BE CORRECT. In other words, just hit Enter when the quiz appears. You will still have to use the "key" disk; I have not figured out how to bypass this yet.

IBM Softkey for...

Test Drive II

Accolade

EGA Version

```
REN TD2EGA.EXE TD2EGA
DEBUG TD2.EGA
E DS+1000:34C3 BB.E9 5E.25 02.01
E DS+1000:35CF 76.75
E DS+1000:35D4 76.75
E DS+1000:35D9 77.75
E DS+1000:35DE F8.CB
E DS+1000:35E8 63.00
W
Q
REN TD2EGA. TD2EGA.EXE
```

CGA Version

```
REN TD2CGA.EXE TD2CGA
DEBUG TD2.CGA
E DS+1000:0D78 BB.E9 5E.25 02.01
E DS+1000:0E84 76.75
E DS+1000:0E89 76.75
E DS+1000:0E8E 77.75
E DS+1000:0E93 F8.CB
E DS+1000:0E9D 63.00
W
Q
REN TD2CGA. TD2CGA.EXE
```

IBM Softkey for...

Vette

?

To get rid of the "paper work" in Vette use Norton Utilities and search Vette.exe for the hex bytes: 3A 04 74 0E 83 3E. Replace the 74 with EB. Write the data and your done.

IBM Softkey for...

ABC Monday Night Football

?

Use PCtools or other program and edit MONDAY.EXE. Go to sector 1, offset 50 and change E8 4A A0 to 90 90 90. That's it!

IBM Softkey for...

Abrams Battle Tank

?

Here's how to eliminate that silly "look up" screen. Using Norton utilities, search START.EXE for F3 E8 62 1C 0B C0 75 0E and change the E8 62 1C to 90 90 90 and the 75 OE to EB 0E. Write the data and exit. You will never be bothered again!

IBM Softkey for...

Bop'n Wrestle

Mindscape

Using DEBUG:

```
REN BOP.EXE BOP.TRY
E CS:96D
31 C0 EB 2F
W                    Save the changes
Q                    Exit debug
REN BOP.TRY BOP.EXE
```

The program will now skip the check for copy protection all together. The first change (31 C0) is an xor ax,ax. The Second (EB 2F) jumps to a return. (Just in case you wanted to know.)

unClassifieds

How to place an UnClassified Ad

Send a typed sample copy with appropriate instructions. (If possible, send text on a 5.25" Apple format disk.) Use up to 40 characters per line, we will adjust word wrap.

Special Graphics Instructions: The first three words of the first line are printed in bold for free. If you want other words bolded, use 5 characters less per line. Use 10 characters less per line if you have a lot of uppercase bold letters. Bold letters are wider than normal. If the typed copy does not show bold, circle the words you want bolded and, on the side, write BOLD. If you want a line centered, write CENTER next to that line. There is no charge for centering any line.

You must check your ad for errors, the first time it runs. Errors on our part will be corrected, then, for free. Errors or changes on your part will be charged a $5 processing fee.

★★★★ **New Rates** (per line) ★★★★

Computist club member .....25¢
All others .....35¢

The minimum order is $5.

- Our liability for errors or omissions is limited to the cost of the ad.
- We reserve the right to refuse any ad.
- Washington state residents add 7.8% sales tax.
- Send a check or money order (funds drawn on US bank only) for the entire amount to:

COMPUTIST unCLASSIFIEDS
33821 East Orville Road
Eatonville, WA 98328

TRADE YOUR APPLE SOFTWARE

Send your list of programs to trade. I have over 120 originals to trade.

Byron Blystone
PO Box 1313
Snohomish, WA 98290

WANTED

Ancient Art of War, Arcade Machine, Battle Chess, Video Card for RGB. What have you for the Apple IIe?

Joe Torzewski
51625 Chestnut Road
Granger IN 46530

Book Sale

How to Repair and Maintain your Apple II, II+, IIe, and IIc by Gene B. Williams (212 pgs), Chilton Book Company

Book w/5.25" disk software $20
Book only — no software $8
Add $2.50 for postage & Insurance

Software—Books—Magazines

We buy and sell out-of-print & hard to find Apple II originals, old and new. Send $1 for catalog.

Frank M. Polosky
PO Box 9542
Pittsburg, PA 15223

Help!!!

Longtime COMPUTIST reader and contributor looking for software, old and new, for IIgs and IIe. Also have and am looking for hints and help for many games. Send list

Mike Ferreira
5380 Marigold Lane
Santa Rosa, CA 95403

WANTED "Most Wanted List" Software

? Need assistance to deprotect a disk ?

Softkey hobbist is interested in acquiring copy protected software to deprotect. Good track record, many successful attempts. Original disk will be returned along with softkey for COMPUTIST. Especially interested in older software (pre-1988) but will give any disk a shot. System: Apple II+, 64K. Send disk to:

Rich Etarip
824 William Charles, Apt #2
Green Bay, WI 54304

RDEX Contributors

B-MAN.....21
Mike Basford 21
Bentley Bear 21
Blackmax ...21
The Blade.....20
Charles Duncan.....20
Rich Etarip 10
James J Harvey 19
Ross A. Holmes.....18
Jeff Hurlburt 4
Scott Jelsma 9
Stanley Miller 9
J. Murray 21
Michael S. Pollock.....9
George Sabeh 9
Glynne Tolar.....17
Unknown ...21
Mad Vandal.....21
Gary Wills 19

Most Wanted

80 Ace of Aces .....Accolade
65 Airheart .....Broderbund
63 Alcon .....Taito
74 Algebra Shop .....Scholastic
63 Alien Mind .....PBI Software
73 American History Explorer Series .....Mindscape
75 Anchorman .....Virginia Reel
74 Animals of the Past .....Focus Media
72 Ankh .....Datamost
73 Ant Farm .....Sunburst
67 Aquatron .....Sierra
69 Axis Assassin .....?
63 Bad Street Brawler .....Mindscape
73 Bank Street Beginner's Filer .....Sunburst
73 Bank Street School Filer .....Sunburst
80 Battle Chess II .....Interplay
63 Beyond Zork .....Infocom
65 Bilestoad .....Datamost
69 Blue Powder - Grey Smoke .....Grade
74 Birds - Trees & Flowers .....Focus Media
63 Border Zone .....Infocom
65 Borg .....Sirius
67 Bouncing Kamungas .....Penguin
66 Boxing .....?
65 Bureaucracy .....Infocom
67 C'est La Vie .....Adventure International
69 Caverns of Callisto .....Origin
69 Checker .....Odesta
69 Chess 7.0 .....Odesta
81 Chessmaster 2100 IIe .....Software Toolworks
75 Clue Master Detective .....Leisure Genius
80 Colony (The) .....Mindscape
63 Cosmic Relief .....Datasoft
65 Crime & Punishment .....Imagic
81 Crosscountry USA School Edition .....Didatech
69 Crossword Magic v4.0 .....?
69 Cybernation .....Nexa Corp.
74 Decimal Dungeon .....Unicorn
74 Decisions Decisions: Colonization v1.0 .....Tom Snyder Productions
69 Delta Squadron .....Nexa Corp.
67 Desecration .....Mind Games
66 Disk Optimizer System .....Nibble Notch
65 Dondra .....Spectrum Holobyte
69 Dragon Eye .....Epyx
69 Dueling Digits .....Broderbund
68 D&D-Master Assistant vol2 .....SSI
62 DROL .....Broderbund
67 Epoch .....Sirius
74 Exploring Tables & Graphs Level 2 (SU) .....Weekly Reader
67 Evolution .....Sydney
67 Falcons .....Piccadilly
68 Factastics Trivia .....Daystar
75 Final Frontier .....Softsmith
73 Fisher's Cove .....Tom Snyder Productions
69 Flt Wars .....Sirius
74 Fraction Action .....Unicorn
69 Gemstone Healer .....SSI
73 Geometric Supposer (the) .....Sunburst
66 GEOS .....Berkley Softworks
72 Galactic Gladiators .....SSI
63 Gladiator .....Taito
73 Goodell Diamond Caper .....Tom Snyder Productions
66 GradeBuster 1 2 3 .....Grade Buster
61 Gutenberg Sr. .....Micromation LTD.
65 Halls of Montezuma .....Electronic Arts
80 Heat Wave .....Accolade
67 High Orbit .....Softsmith
67 Horizon V .....Softsmith
75 Hunt for Red October GS .....Datasoft
69 Impossible Mission .....Epyx
62 Indoor Sports .....Mindscape
68 Infocomics .....Infocom
66 Jane .....?
63 Joker Poker .....Mindscape
72 Kabul Spy .....Sirius
71 Keyboarding Klass .....Mastery Developement
68 Kingdom of Facts .....Santa Barbara/Thunder Mountain
75 Kobayashi Alternative (The) .....Simon & Schuster
72 Lane Mastodon .....Infocom
67 Lancaster .....SVS
72 Laser Force (IIgs) .....Britannica
81 The Last Ninja (IIe) .....Activision
75 L.A. Land Monopoly .....Softsmith
66 Legacy of the Ancients .....Electronic Arts
65 Lost Tomb .....Datasoft
81 M-ss-ing L-nks: Classics old & new (revised) .....Sunburst
74 Mammals - Reptiles & Amphibians .....Focus Media
65 Manhunter New York IIgs .....Sierra On Line
65 Mavis Beacon Teaches Typing (gs) .....Software Toolworks
73 McGraw-Hill Problem-Solving Lvl 5&6 .....Tom Snyder Productions
67 Microwave .....Cavalier
73 Mind Castle I .....MCE Inc.
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63 Modem MGR .....MGR Software
68 Mr. Pixel's Cartoon Kit .....Mindscape
73 Mystery of Hotel Victoria .....Tom Snyder Productions
63 National Inspirer .....Tom Snyder Productions
75 Neptune .....Softsmith
66 Observatory (The) .....Mindscape
74 Ocean Life .....Focus Media
66 Odin .....Odessta
63 Operation Wolf .....Taito
68 Pensate .....Datasoft/Softdisk
69 Phantasie II .....SSI
67 Phantoms 5 .....Sirius
67 Pig Pen .....Datamost
74 Plants & Animals of the Desert .....Focus Media
75 Prince of Persia (5.25") .....Broderbund
67 Project: Space Station .....Avantage
75 Promethean Prophecy (The) .....Simon & Schuster
67 Pulsar II .....Sirius
68 Pure Stat Basketball .....?
62 Quadratic Equations II .....Olympus Educational Software
81 Quarter Mile IIe .....?
63 Questron II .....Electronic Arts
68 Rails West .....SSI
63 Renegade .....Taito
67 Rescue Raiders .....Sir Tech
67 Rings of Saturn - Level 10 .....?
63 Rocket Ranger (IIgs) .....Cinemaware
69 Roundabout .....Datamost
75 Russki Duck .....Softsmith
63 S.D.I. (IIgs) .....Cinemaware
62 Sea Stalker .....Broderbund
67 Serpentine .....Broderbund
74 Seven Cities of Gold .....Electronic Arts
68 Skeletal System .....Brainbank
63 Sky Shark .....Taito
80 Sim City .....Maxis
63 Sound Song & Vision .....Advanced Software
67 Space Ark .....Datamost
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67 Spectre .....Datamost
62 Speedy Spides .....Readers Digest
67 Star Cruiser .....Sirius
67 Star Maze .....Sir Tech
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67 Succession .....Piccadilly
65 Superstar Ice Hockey .....Mindscape
61 Superstar Indoor Sports .....Mindscape
74 Surveys Unlimited .....Mindscape
68 Talking Text Writer GS .....Scholastic
68 Tangled Tales .....Origin Systems
81 Test Drive IIe .....Accolade
69 Tetris (IIe) .....Spectrum Holobyte
72 Theatre Europe .....PBI
74 The Other Side v2.0 .....Tom Snyder Productions
81 Think Quick! v1.2 .....Learning Company
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63 Ticket to Washington D.C. .....Blue Lion Software
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74 Time Liner v1.1 .....Tom Snyder Productions
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69 Track Attack .....Broderbund
68 Triad .....Thunder Mountain
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68 Trinity .....Infocom
73 Unicorn 5.25" software .....Unicorn
73 Vincent's Museum .....Tom Snyder Productions
68 Volcanoes v1.8 .....Earthware Comp. Services
66 War in the Middle Earth .....Melbourne
80 Wayne Gretzky Hockey 2 .....Bethesda
67 Wayout .....Sirius
63 Wings of Fury .....Broderbund
63 Wizardry:Return of Werda .....Sir-Tech.
68 Word Attack Plus (IIgs) .....Davidson
65 Works (the) .....First Star Software
67 Zenith .....Softsmith

IBM Most Wanted

75 Empire .....Intersil
72 GBA Championship Football .....Electronic Arts
68 Graphitti .....George Best Phillips Academy
61 Gunship .....Microprose
63 Heros of the Lance .....SSI
72 Kings Quest III .....Sierra
72 Operation Wolf .....Taito
72 Radio Baseball .....Electronic Arts

#79• The Product Monitor• *Bitkeys:* Kabul Spy• *Softkeys:* ABM• Algebra 1-6• Cause and Effect• Chemistry: Series I• Computer Generated Mathematics Vol. 2• Cribbage• Designer Puzzles• Dungeon Master Assistant Vol. 2• Economics• Genesis• Gin King• Go• Graphmaster• Hard Hat Mack• Hi Res Computer Golf• Integer Arcade• Laser Bounce• Mammals Reptiles and Insects• Master Grades• Mickey's Crossword Puzzle Maker• Mind Benders• Missing Links• Non-Western Cultures• RoboCOP• Safari Search• SAT Score Improvement Series• Special Product and Algebraic Factors• Stickybear GS Talking series Talking Alphabet• Talking Opposites• Talking Shapes• Task Force• Teacher's Toolkit version 3.1• The Great Knowledge Race• The History of Europe• The Solar System• The Time Tunnel• Thief• TrianGO• US History• Wasteland• Water and Weather• Who Am I?• Word Problems for Algebra• Worksheet Generator• Writing Chemical Formulas• Your Body• Your Body: Series II• *Playing Tips:* Baneful Tales• Elite• *Mac Features:* Mac Hard Disk Ejection Fix• *Mac Softkeys and other Patches:* ABCBase• Animation Toolkit1• Aztec C 1.0• Aztec C version 1.00c• Championship Boxing• Chart• Checkminder• Cutthroats• Cutthroats alternate• Deja Vu• Desk Toppers• Dollars & Sense• Dollars & Sense alternate• Electric Checkbook• Excel• Excel alternate fix• Fact Finder 1.0• Factfinder• Farenheit 451• Feathers & Space• File• FileMaker• Filevision• Filevision alternate• Forecast• Frogger• FunPak• Gato• Grid Wars• Griffin Terminal• Haba-Comm• Haba-Comm alternate• HabaCheckMinder• Habadex 1.1• Harrier Strike Mission• Hayden Speller• Hayden Speller alternate• Hippo^C Level 1• Hitchhiker's alternate• Hitchhiker's Guide to the Galaxy• Home Accountant• Legacy• Lode Runner• Mac Fortran• Macattack• MacChkrs/Rvrsi• MacCommand• MacDraft 1.0• MacDraft 1.1• MacGammon/Cribbage• MacJack/Poker II• MacLabeller• MacMatch• MacPascal (version 1.0)• MacPoker• MacType• Master Type• Master Type alternate• Mouse Stampede• Multiplan alternate• Multiplan version 1.02• OverVue• PageMaker• PageMaker 1.0• Pensate• PFS• PFS File/Report• PFS version A.03• Real Poker• Rogue• Sargon III• SkyFox• Smooth Talker• The Quest• Think Tank• ThinkTank 1.1• ThinkTank 128• ThinkTank 512• Transylvania• Triple Play 1.0• Trivia Arcade• Trivia Fever• Typing Intrigue• Ultima][• Ultima III• VideoWorks 1.0• WellTris• Winter Games• Xyphus• *Features, Notes & such:* COPYA-able Questron II• How to make Thief into a BRUNable file• How to run Task Force on your hard drive• Making Genesis into a single BRUNable file• Making Hard Hat Mack into a single BRUNable file• Making PLATO software run on the Enhanced //e• Multi-Column Print Utility (MCP)• Notes on Battle Chess• Notes on Silent Service GS• Notes on Wildcard II card• Object Module Format (OMF)• ORCA/Disassembler Scripts• ORCA/Disassembler utilities• Other Notes• Running Teacher's Toolkit v3.1 (3.5") on a Laser 128• Task Force on a hard drive and Wings by Vitesse• The Basics of Kracking (part 5): Deprotection of Modified DOS disks• The Basics of Kracking Part 6: Mating Zone & Nibblizing Mysteries• Update on theSilent Service GS v925.01 crack• Xternal Commands for BASIC: CWD (Change Working Directory)• ONLINE• **#80**• The Product Monitor• *Features, Notes & such:* Add Copy II Plus file handling to your BASIC program• Comments on the Beginner's Book• Formatting 720K disks as 1.44M HD• How to SAVE hexdumps as CDA's• Logging ProDOS Drives• The Basics of Kracking (part 7)• The Basics of Kracking (part 8)• *Bitkeys:* Black Magic• Guild of Thieves• Gunslinger• King's Quest Series• Leisure Suit Larry• Man Hunter: New York• Police Quest• Realms of Darkness• Saracen• Sierra Boot Disks• Silicon Dreams• Space Quest Series• Ultima V• Wizardry Series• Xyphus• *Softkeys:* Ancient Art of War• Battle Chess• Bridge 6.0• Captain Blood GS• Dinosaur Days v1.0• Empire• Fahrenheit 451• Fay's Word Rally• GATO v1.3• Greeting Card Maker• Hostage• Keef The Thief• Magic Spells v2.0• Magic Spells v2.1• Mickey's Crossword Puzzle Maker• Monsters and Make Believe v1.1• Pipe Dream• Pipe Dreams• Rear Guard• Rendezvous with Rama• Same or Different• Teacher's Tool Kit• Teacher's Tool Kit (IIc)• War of the Lance• Where in the USA is Carmen Sandiego?• WindwalkerGS• Windwalker IIe• *APTs:* Space Rogue• Wizardry III• *Playing Tips:* Countdown• Space Rogue• *IBM Softkeys:* Serve and Volley• Welltris

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and much more...

For a complete back issue list, send a 75¢ stamp to Computist.

Special Software Sale

(while they last)

These software packages are **NEW** (shrink-wrapped except for the one copy of Sound Master that I opened in order to find out what it was). They're software packages that someone ordered and then canceled and we were unable to return.

SubLogic Scenery Disk 2 (Phoenix, Albquerque & El Paso)

SubLogic

(All Apple II's) **$5.00**

For use with Jet and/or Flight Simulator v2.0. Each scenery disk covers a geographical region of the country and includes major airports, radio-nav aids, cities, highways, rivers and lakes located in that region. Enough detail is available for either visual or intrumental cross-country navigation.

SoundQuest CZ Master

Sound Quest In

(Commodore Amiga) **$10.00**

For use with the Casio CZ-101, CZ-1000, CZ-3000, CZ-5000 and other compatable synthesizers. Included are file management and bank editing features, patch mixing and random voice generation features. Compose and mix your own music using many of the package options available.

Send orders to Computist at the address listed on the Back issue order form below.

Issue	Mag	Disk	Issue	Mag	Disk	Issue	Mag	Disk	Issue	Mag	Disk
Core1	□		22	□	□	46	□	□	70	□	□
1	□		23	○	□	47	□	□	71	□	□
2	○		24	□	□	48	□	□	72	□	□
Core2	□		25	□	□	49	□	□	73	□	□
3	○		26	□	□	50	□	□	74	□	□
4	○		27	□	□	51	□	□	75	□	□
5	○	□	28☆	□	□	52	□	□	76	□	□
6	○	□	29	□	□	53	□	□	77	□	□
Core3	□	□	30	□	□	54	□	□	78	□	□
7	○		31	□	□	55	□	□	79	□	□
8	○		32	□	□	56	□	□	80	□	□
9	○	□	33	□	□	57	□	□	81	□	□
10	○	□	34	□	□	58	□	□			
11	○	□	35	□	□	59	□	□			
12	○	□	36	□	□	60	□	□			
13	○	□	37	□	□	61	□	□			
14	○	□	38	□	□	62	□	□			
15	○	□	39	□	□	63	□	□			
16☆	□	□	40	□	□	64	□	□			
17	○	□	41	□	□	65	□	□			
18	○	□	42	□	□	66✱	○	□			
19☆	□	□	43	□	□	67	□	□			
20	□	□	44	□	□	68	□	□			
21	○	□	45	□	□	69	□	□			

Some disks apply to more than one issue and are shown as taller boxes.

☆ Limited supply — first-come-first-serve basis.
○ Out-of-print — only "Zeroxed" copies for sale.
✱ Issue 66 is laser printed on 8½ by 11 paper.

Back Issue Order Form

COMPUTIST back issues and library disks are frequently referenced in current issues.

Back Issue and Library Disk Rates

	Quantity	US, Canada & Mexico	All others
Back issues	5 or less	$4.75	$8.75
	6 to 9	$3.75	$6.00
	10 or more	$3.00	$5.00
Zox* back issues	any qty.	$4.75	$8.75
Library disks	5 or less	$5.50	$7.50
	6 to 9	$4.00	$6.00
	10 or more	$3.00	$5.00

**Due to the time and effort involved in making Zox copies, their price will remain at $4.75 each for US, Canada & Mexico and at $8.75 for all other Foreign.*

Shipping is included in all the prices shown.

What's a library disk?

A library disk is a 5¼ inch floppy diskette that contains programs that would normally have to be typed in by the user. Documentation for each library disk can be found in the corresponding issue.

•Library disks are available for all issues of COMPUTIST.

For a complete back issue list, send a 75¢ stamp to Computist.

_____ Number of back issues. $ _____

_____ Number of Zox back issues. $ _____

_____ Number of library Disks. $ _____

Washington state residents add 7.8% tax $ _____

Total enclosed $ _____

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Address _____

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City _____ State _____ Zip _____

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VISA

MC _____ - _____ - _____ - _____ Exp. _____

Signature _____

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