For The Serious User Of Personal Computers

COMPUTIST

Issue 62 December 1988

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RDEX Features:

■ **No more floppies for Word Juggler v2.8/2.9**—By Sue D. Nim

■ **A better Bootable Thexder**—By Mountain Man

■ **Print Shop catalog patch, revisited**—By Edward L. Eastman

■ **The Product Monitor**—By Jeff Hurlburt

■ **Convert PrintMaster graphics into Print Shop graphics**—By Andrew Borne

■ **Recovering OTHEXDER (The other THEXDER)**—By Brian A. Troha

■ **ProDOS IOB 5.25**—By Bill Jetzer

RDEX Softkeys:

Alge-Blaster ¢ All About America (IIgs) ¢ Below the Root ¢ Calendar Crafter ¢ Certificate Maker IIgs ¢ Club Backgammon (IIgs) ¢ Dazzle Draw IIc ¢ DC Heath Elementary Math ¢ Deathlord ¢ Decisions Decisions ¢ Easy Graph ¢ Fortran ¢ Fraction Factory ¢ Fractions ¢ Game Frame ¢ GATO v1.3 ¢ Geoworld ¢ Graphics Studio (IIgs) ¢ High Seas ¢ Hometown ¢ Instant Music ¢ Kindermath ¢ King's Quest I (IIgs) ¢ King's Quest II (IIgs) ¢ King's Quest III ¢ Matchmaker World Geography Facts ¢ Mavis Beacon Teaches Typing ¢ Maxi Golf ¢ Mind over Matter ¢ On Balance ¢ One World ¢ Pac-Man ¢ Project Space Station ¢ Rad Warrior ¢ Read and Rhyme (IIgs) ¢ Reading Workshop ¢ Robot Rascals ¢ Run For It ¢ Space Quest 2 (IIgs) ¢ Street Sports Soccer (IIgs) ¢ Tetris IIgs ¢ Thexder (IIgs) ¢ Timeliner ¢ Toy Shop ¢ Trains ¢ Treasure Hunt ¢ Ultima V ¢ Ultraterm Applewriter Preboot-V ¢ USA Profile ¢ Vegas Craps (IIgs) ¢ Vegas Gambler (IIgs) ¢ Word Juggler 2.9

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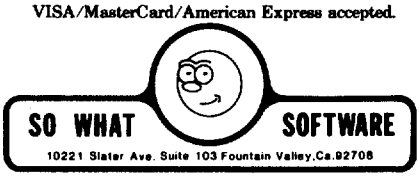

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Notes 'n things.....

Help on Help!

When asking for help, plesae give all the information about the program and/or whatever you are doing. IE. Program name, revision/date of release, your computer setup, what you tried and the results, etc... It makes it a lot easier for someone to provide an answer. Open ended or general questions are too broad, forcing the readers to guess at what you want, and usually require an extensive written answer. These questions are less likely to receive an answer from the readers.

Kudos on THEXDER

Thanks to everyone who wrote and told us how to put Thexder and ProDOS on the same disk. (And there were a lot of you.)

Bulletin Board System (BBS)

COMPUTIST is very interested in setting up a BBS. Can anyone recommend a good BBS program?

Shrinking List

The Most Wanted list will lose a lot of weight by the next issue. Many of the titles are going to be dropped. Remember, the titles on the Most Wanted list are dropped after six (6) issues. If you still need help, send in the name and publisher again.

Missing issues & change of address

The Post Office will not forward 3rd Class mail (regular subs) unless you specifically tell them too and then only for 6 months (maybe). Don't forget, let us know your new address right away.

BUGS:

COMPUTIST #11, pg 19. Ultimapper.large - see E. Spiteri, page 14.

COMPUTIST #55, pg 11. Alternate Reality character editor - see Warwick Phillips, page 21.

COMPUTIST #56, pg 13. Write Hi-res Picture or Binary File - see Warwick Phillips, page 13.

COMPUTIST #60, pg 35. The "POKE 11681,40" should be "POKE 11681,64". Also, If the file is locked, unlock it before you BSAVE and then lock it again, after.

COMPUTIST #61, pg 13. After entering the DoubleDOS BASIC program, save it with "SAVE DOUBLEDOS". After entering the binary portion of DoubleDOS, save it with "BSAVE DOUBLE.OBJ, A$8000, L$9C".

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Here's another (and much easier) way to convert those graphics.

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At last, a ProDOS version of Super IOB! Brought to you by Bill Jetzer.

Readers Data

For serious users of Apple computers: II, II+, //c, //e, IIgs, Macintosh

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 specially boxed. An example of both is:

6 [CTRL-P]

Press [6]. Next, place one finger on the [CTRL] key and then press [P]. Don't forget to press [RETURN].

Other special combination keypresses include [CTRL-RESET] or [OPEN-APPLE-CTRL-RESET]. In the former, press and hold down [CTRL] then press [RESET]. In the latter, press and hold down both [CTRL] and [OPEN-APPLE] then press [RESET].

Software recommendations

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

- Applesoft program editor such as "Global Program Line Editor (GPLE)".
- Assembler such as the "S-C Assembler" from S-C software or "Merlin/Big Mac".
- Bit-copy program such as "Copy II Plus", "Locksmith" or "Essential Data Duplicator (EDD)".
- Text-editor (that produces normal sequential text files) such as "Applewriter II", "Magic Window II" or "Screenwriter II".
- "COPYA", "FID" and "MUFFIN" from the DOS 3.3 System Master disk are also useful.

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.

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. Cutting Edge Ent. (Box 43234 Ren Cen Station-HC; Detroit, MI 48243) sells a hardware device that will give you this important ability but it will void an Apple //c warranty.

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 before running any protected programs (CALL -151) and press "# [RETURN]". This will turn on two hidden CDAs, *Memory Peeker* and *Visit Monitor*. Thereafter press [OPEN-APPLE ESC] to go to the Desk Accessories menu. Select "Visit Monitor" and there you are. Use [OPEN-APPLE Y] to exit.

Recommended literature:

- ***Apple II Reference Manual***
- ***DOS 3.3 manual***
- ***Beneath Apple DOS & Beneath Apple ProDOS***, by Don Worth and Pieter Lechner, from Quality Software

Keying in 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
```

...because 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 delta characters (^). All other spaces are there for easier reading. NOTE: If you want your checksums (See **Computing checksums**) to match up, only type spaces within quotes or after DATA statements if they are shown as delta (^) charactors.

Keying In 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.

The source code is printed to help explain a program's operation. To enter it, you need an "Assembler". Most of the source code is in *S-C Assembler* format. If you use a different assembler, you will have to translate pieces 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. 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 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 [OPEN-APPLE Y].

SSSS.EEEE [OPEN-APPLE Y]

Correct the lines at which the checksums differ. ..... RDEXed

EXchange

etc... who want all their software backed up and COPYA-able

Writing to the RDEX editor

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- When you send your material on disk, try to use a disk formatted for Apple DOS 3.3. It makes things a lot easier for us.
- When writing to request help, be sure to include **ALL** relevent information. The more information you include, the easier it is to figure out what is the matter. If you want your address to be printed, please say so in your letter. Otherwise, it will not be printed and all responses with come thru the RDEX editor.
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Captain Dan

Bit Copy for...

Wings of Fury

Broderbund

■ **Requirements**

☐ Copy II Plus v6 or newer
☐ One blank disk

This will not let you modify Wings of Fury, but it will allow you to copy the disk. It requires bit copying and disabling a nibble count.

[1] Bit copy the front and back of the original, tracks $00 - $22, track increment 01.

[2] Enter the sector editor and read track $00, sector $0B, DOS 3.3 Patched, of the front side. Make the following changes:

Trk	Sct	Byte(s)	From	To
$00	$0B	$43-44	D0 F4	EA EA
		$4C-4D	D0 FA	EA EA
		$55-56	D0 41	EA EA
		$64-79	?	A0 07 B9 72 0C 99 F0 00 88 10 F7 4C 7A 0C FC EE EE FC E7 EE FC E7

[3] Write protect the original.

The sectors in tracks $02 and on seem to be twice as big as standard sectors. Hopefully someone can figure out how to make them normal and let the rest of us know.

Betta B. Goode

MECC'S Calendar Crafter is a program for the Apple IIgs that utilizes pictures which are mixed 320/640 modes. It prints beautifully in both B/W and color. And it is capable of printing a calendar by the week, two weeks, month, two months, year, etc. for any year from year 1 to 9999. It will even print out the historically short September of 1752, which had only 19 days. (This is true. Those who are skeptical can look it up.) It will print long calendars, short calendars, and sideways-on-the-paper calendars. It is well worth the money that MECC asks. But it is protected, and if any company wants to activate the "Puzzle Solver" which lies within me, all they need do is to attempt to make their program uncopyable, which is exactly what MECC tried to do.

Therefore, in a very short period of time I had discovered a way to make a protected backup and was soon on my way to totally deprotecting Calendar Crafter. These discoveries will make MECC'S Calendar Crafter far more usable to its owner than it is in its present "protected" condition.

Making a "Protected" Backup

For those of you who are only interested in making workable backups, and have access to Copy II Plus, version 8.2, do the following.

[1] *Write Protect* your original! Proceed to the 3½" inch bitcopy program and use "Manual Bit Copy". (Important: Use an "unformatted" NEW 3.5 inch disk.) Copy the disk with default settings, Track $01-4F, both sides.

[2] Manual Bitcopy Track $00-00, both sides. Make the following parameter ("parm") changes: 4B=01 "Keep Track Length". You can also set this by answering "Yes" to the question. 4C=00 "Tolerance" for the nibble count to ZERO. Copy II Plus is normally set at "01". 4D=00 Do not "Erase" the entire track to $FF's before writing. Copy II Plus usually is set to do so, IE., 4D's default setting is 01.

Put your original in a safe place and use your newly created "protected" backup to create your own beautiful calendars by following the steps outlined in your manual.

Putting Calendar Crafter in "Autocopy" on Copy II Plus

Enter your parms into your Copy II Plus data base for Automatic copies by doing the following exactly as outlined.

[A] Select "CREATE NEW PARM ENTRY".

[B] Type CALENDAR CRAFTER for "Name:"

[C] Type MECC for "By:".

[D] Type (without quotation marks) the following on separate lines as shown below. Use a [RETURN] to move from line to line.

T1-T4F
T0, 4B=01, 4C=00, 4D=00

[E] Escape and select SAVE PARM ENTRY

Whenever you need to renew your backup, you now can use the Autocopy program of COPY II PLUS and enter CALENDAR CRAFTER for the program name.

Readers Data EXchange

Softkey for...

Calendar Crafter

MECC

Requirements

☐ Disk editor with search
☐ 3½" disk copier that ignores errors

Do NOT make changes to your original. Always protect your originals from any alteration. Do this to a copy only, preferably one made by using the previous steps.

[1] Search for C9 27 ØØ DØ Ø2 18 6Ø 38. It occurs only ONCE. You will get a "Read" error on track $ØØ, block $Ø8. Just proceed to block $Ø9 and continue. On my disk, the sequence was found on Block $567 (Decimal 1383).

[2] Change the 38 (SEC) to 18 (CLC) and write the change back to the disk.

[3] Use a 3½" disk copier which ignores read errors and copy the disk you have just edited.

You now possess a copyable backup which will run on any Apple IIgs with adequate memory. (768K min., 1.2 meg recommended.)

Putting Calendar Crafter on Hard Disk

Copy the main system file, CALENDAR, and CANNED EVENTS, PRODUCT INFO, and the subdirectory named PICTURES with all of its files, to a sub or sub/sub directory. (Preferred because of file number limitations.) If you want to use MECC's Icon for "Calendar", copy CALENDAR.ICONS from the ICON subdirectory (folder) to the ICON folder for your disk's Finder. Enjoy!

Softkey for...

Instant Music

Electronic Arts

Hey, look here! A new version of copy-protection on recent Instant Music releases for the IIgs. And this one is done a little more skillfully than earlier releases. I'll leave it to the reader to list the block in order to discover how EA reads the program to secure the values of the protection code and then uses the BEQ instruction, "Branch if Equal", to proceed with the program. The protection scheme works because it is nearly impossible to read block 1599, the very last block on the disk. Therefore, a copy does not "Equal" the numbers on the stack and, consequently, it does not "Branch" to the proper location. Instead, it proceeds to the "Insert master disk" message and/or other error messages found in another block on the disk.

Just two changes will suffice. Follow the steps listed below:

[1] Get out your copier which ignores errors (Diversi-Copy is a good one!) and make a copy of your original Instant Music master. Put your original in a safe place. Never make changes to your original program disk.

[2] Search your copy for 68 22 A8 ØØ E1 12 ØØ. It occurs only once. List this to read the instructions. The sequence 22 A8 ØØ E1 12 ØØ asks the program to "read" the values at the address, $E1/ØØA8. Shortly following this "read" command, the BEQ instruction compares the results read with the values on the stack. Then the program proceeds ("Branches") if the values are equal. Therefore, this is where we must make a change.

[3] The BEQ (FØ 13), "Branch if Equal to byte $1Ø95", follows soon after the above "read" sequence. This occurs on Block $14 (Decimal 2Ø) on my new Instant Music. If yours is also there, chances are good that your changes will be made in the same places as mine.

Proceed to the BEQ instruction which follows the above sequence. On mine this occurred on Block $14, byte $46. Change FØ to 8Ø.

You must make one more change in this block in order to avoid another error. Search the same block for Ø8 C2 3Ø. On mine this occurred at byte $1DD. Change the Ø8 to 6B.

By changing the FØ to 8Ø you changed BEQ, "Branch if Equal", to BRA, the "Branch Always" instruction. As a consequence the program will advance even though the values are not equal. By making the second change, changing the Ø8 to 6B, you circumvented a jump to a DOS error. A 6B is a RTL instruction, a "Return" from a "Long" subroutine. By inserting the return at this point the program leaves the "protection" subroutine, returns to the program sequence, and proceeds as though everything is okay.

Your Instant Music copy will now run normally.

Now are you going to remember all this when you need to make another copy because the first one crashed? You don't have to if you enter this information into the Autocopy database in Copy II Plus (Mine is version 8.2.). To do this just follow these instructions:

A. Highlight "CREATE NEW PARM ENTRY".

B. Type INSTANT MUSICMINE for "Name:".

C. Type ELECTRONIC ARTS for "By:".

D. Type (without quotation marks) the following on separate lines as shown below. Use a [RETURN] to move from line to line.

```
T1-T4E, SECTOR COPY
T4F
SECTOR EDIT, BLOCK Ø14, Ø46:8Ø
SECTOR EDIT, BLOCK Ø14, 1DD:6B
```

(Modify these accordingly if your Instant Music shows this same protection elsewhere.)

E. Press [ESC] and highlight SAVE PARM ENTRY.

Whenever you need to renew your backup, you now can use the Autocopy program of Copy II Plus and enter Instant Musicmine for the program name. Remember to always use your original, not the copy, to make your backup.

NOTE: If your copy of Instant Music does not contain the initial search string in "Step 2" above, you will have to use a different deprotection plan. I refer you to COMPUTIST #48 and #5Ø for other methods on earlier releases.

Sit back and play away! Enjoy!

Sue D.Nim

† *Softkey for...*

Word Juggler 2.9

Quark

Requirements

☐ Apple IIe/IIc/IIgs
☐ ProDOS User's disk, or system utilities disk
☐ DOS 3.3 48K slave disk
☐ a couple of blank 5¼" floppies
☐ COMPUTIST #33

I tried to use John Nice's cookbook method (COMPUTIST #33, page 1Ø) on version 2.9, and found that the protection code has been moved. The memory edits to W2JE.SYSTEM cause you to crash when you try to perform step 11 in his de-protection method.

The new location for the byte sequences are: change the twelve hex bytes beginning at $241E from 8C Ø1 Ø3 AD ØØ CØ 8D 1Ø CØ 4C E3 B2 to all EAs (12 EA's), and change the bytes beginning at $21E2 from 6C 24 ØØ 41 5Ø to 8D 81 CØ 4C 59 FF. The rest of the procedure is done with Nice's method.

If you have a single 3½" disk drive, there is room on one 3½" disk for your stripped-down and souped up version of Word Juggler, Lexicheck, plus a sub-directory with about 6ØØk of data files. If it seems heretical or dangerous to store data files on your program disk, just bear in mind that you can now have six (or more) backups of this souped up version, for the price of a few disks. Even if you trash one, you've got your backup.

And now a plug for the product: It may be old (1984), but it still beats the pants off such slicked-up products as Multiscribe GS 3.Ø for heavy-duty word crunching. There's no graphics capability, or thesaurus, but who needs

them? Its text-merge, mail-merge, file-handling, power and simplicity make it the choice for office use by far. The unprotected version boots from floppy in 16 seconds on my stock IIe.

Put Word Juggler v2.8/2.9 on 3.5" or hard disk

■ **Requirements**

☐ Apple IIe/IIc/IIgs
☐ ProDOS User's disk, or system utilities disk
☐ DOS 3.3 48K slave disk
☐ a couple of blank 5¼" floppies
☐ a 3½" disk drive and blank 3½" disk -or- a ProDOS hard disk
☐ Deprotected Word Juggler

Large disk installation method

In Computist #33, John Nice describes a method for cracking Word Juggler 2.8, which works well, and produces a disk which is "normal" in every respect. The author said he had not tried to install the de-protected copy on a hard disk, and advised caution. You may now throw caution to the winds, as it runs very well from a ProDOS hard disk, such as my Sider 1ØMeg drive. The trick is getting it installed on the hard drive (or 3½" drive).

This method will work for either. The basic idea is to do the configuration for the target drive (hard disk or 3½" disk") while the un-protected copy is still in the 5¼" drive, and then use any normal file-copying program to copy the desired files to the hard or 3½" disk. If this is not done in this order, you would be able to boot and run Word Juggler, but not use any of the external procedures, such as the spelling checker "Lexicheck", or the other utilities contained in the program.

[1] Follow Nice's method from COMPUTIST #33, for deprotecting Word Juggler. (If you don't already have a deprotected backup.)

[2] Take your newly deprotected copy of Word Juggler, and use any ProDOS utility program to make another unprotected backup copy of it, and put your original unprotected disk in a safe place.

[3] If you want the program on hard disk, create a sub-directory on your hard disk (such as "/Hard1/WJ"), to which the Word Juggler files will be copied soon. If you want the program on a 3½" disk, format one and give it a volume name such as "/WJ".

[4] Put your unprotected backup in your favorite 5¼" disk drive and boot it. Go to text entry mode, and call up the utilities (press solid-apple-1).

[5] "Define the external procedure path", and when prompted, give the pathname of the directory where Word Juggler will be located. At this point you may also define the intended default prefix for data disk access.

[6] Exit the utilities with a press on the spacebar, so that the information is stored to the 5¼" floppy.

[7] Use your system utilities or any file copying program to copy all the files you want to use, except "ProDOS", onto your hard disk. If you're going to use a 3½" disk, you'll need "ProDOS" too, so it can boot. (You don't need the Quark.install, Catalyst Desktop, Tech.notes, sample form letters, or any printer filters except the one for your printer.)

[8] Now use your normal file copying utility to copy the files from your "Lexicheck" disk to the same directory as the rest.

Sit back and be amazed at how fast this fine program can run, especially on an Apple IIgs, at fast speed!

A word of caution about ProDOS; on the newer system disks for the IIgs, the file named ProDOS is actually something else. ProDOS 8 is now called "P8" on the 3½" system disk. "P8" is ProDOS version 1.4, and can be used in place of older versions of ProDOS, on 8-bit programs such as this.

Note: there's a problem on the IIgs with Word Juggler 2.8; the preset margin defaults can't be over-ridden in the middle of a document. If you can live with this minor hickey, OK, otherwise, rush out to your dealer and buy a copy of (Tah-Dah) Word Juggler 2.9, in which Quark, Inc has fixed that little minor irritant, along with a couple other minor changes.

Softkey for...

Certificate Maker IIgs

Springboard Publishing

■ **Requirements**

☐ sector editor with search
☐ Copier that ignores read errors

I recently returned my copy of Certificate Maker to Springboard for replacement after it became unbootable. I had re-configured the program disk for a different printer, and after the configuration file was written to disk, it could no longer be read. Truly a fragile copy-protection scheme. Kudos to Springboard for a prompt replacement, even though the disk was outside the 9Ø day warranty. Well anyway, the new disk I received is the latest version, which is IIgs compatible, and supports the color Imagewriter. A similar protection scheme is used.

Jim Hart's article (COMPUTIST #43, p24) gives the basic method. Copy all four sides to two new floppies. Ignore the read error on track $2Ø on disk one, side A (the "program" disk). Search track $Ø3 on this disk for the bytes 2Ø ØØ 42 and change them to 18 9Ø Ø3. Write this sector back to disk and you're done! The other three disk sides are un-protected.

Mountain Man

A Better Bootable Thexder

■ **Requirements**

☐ IIgs System Disk
☐ A deprotected copy of Thexder
☐ A copy program, such as Cat Doctor or Copy II Plus
☐ A blank 3½" disk

In Computist #58, Matt Ownby showed how to put ProDOS on the Thexder program disk. However, his methods require you to switch disks when you get to a certain level. I have succeeded in making a bootable Thexder disk that holds all 16 levels on one disk. Here's how:

[1] Make a BACKUP copy of your deprotected Thexder disk. NEVER modify an original disk.

[2] Copy the file PRODOS from your IIgs System Disk (I used System Disk 3.1, but earlier versions may work) to your new Thexder disk.

[3] Create a subdirectory named SYSTEM on your new disk.

[4] Copy the file P16 from the SYSTEM/ subdirectory of your System Disk to the SYSTEM/ subdirectory of your new Thexder disk. This is the actual ProDOS 16 system file.

[5] Create a subdirectory named TOOLS in the SYSTEM/ subdirectory of your new disk.

[6] Copy the file TOOLØ25 from the SYSTEM/TOOLS/ subdirectory of your System Disk to the SYSTEM/TOOLS/ subdirectory of your new disk. This is the Note Synthesizer, the only RAM based tool used by Thexder.

[7] Create a subdirectory named SYSTEM.SETUP in the SYSTEM/ subdirectory of your new disk.

[8] Copy the files TOOL.SETUP and SOUND.INIT from the SYSTEM/SYSTEM.SETUP/ subdirectory of your System Disk to the SYSTEM/SYSTEM.SETUP/ subdirectory of your new disk. These files contain patches to the ROM based toolsets.

[9] Rename the file THEXDER on your new disk to THEXDER.SYS16. This will cause it to be executed when you boot the disk.

[10] Rename the new disk THEXDER.

You now have a bootable Thexder. My copy had 30 free blocks after this procedure. Your disk directory should look like this:

/THEXDER/ *Volume name of your new disk*
PRODOS *from the IIgs System Disk*
SYSTEM/ *subdirectory you created*
P16 *from the IIgs System Disk*
SYSTEM.SETUP/ *subdirectory you created*
TOOL.SETUP *from the IIgs System Disk*
SOUND.INIT *from the IIgs System Disk*
TOOLS/ *subdirectory you created*
TOOL025 *from the IIgs System Disk*
THEXDER.SYS16 *already on your copy of Thexder*
DATA/ *already on your copy of Thexder*
(data files) *already on your copy of Thexder*

You can delete the FINDER.ROOT and FINDER.DATA files from the disk, since they are used by the Finder. Thexder doesn't use them.

A.P.T. for...

Thexder
Sierra On Line

Here's how to get unlimited energy in Thexder.

From Applesoft (BASIC.SYSTEM), with a COPY of your Thexder disk in the drive, type the following:

```
PREFIX THEXDER
BLOAD THEXDER, A$1000, L$1, B$522C, T$B3
POKE 4096,128
BSAVE THEXDER, A$1000, L$1, B$522C, T$B3
```

This is another (much easier) way to accomplish the edit from Stephen Lau in COMPUTIST #60. . . . . RDEXed

A note on Paintworks Gold Epson Driver

Paintworks Gold comes with drivers for the Epson series of printers and the Grappler, Parallel Pro, and GraphiCard interfaces. These drivers can be installed on other IIgs programs to allow printing with an Epson (if you have one of those interface cards). To use them, just copy the files EPSON and either GRAPPLER, PARALLEL.PRO, or GRAPHICARD (depending on which interface you have) from the SYSTEM/DRIVERS subdirectory of the PaintWorks Gold disk to the SYSTEM/DRIVERS subdirectory of your program disk.

These will work with most IIgs programs that use the standard printer tools (such as Multiscribe, Draw Plus, Top Draw, DeluxePaint II). They won't work with programs that use their own print routines (like Music Studio, Music Construction Set, Visualizer, Notes 'N' Files).

Softkey for...

Easy Graph
Grolier

Requirements

☐ A copy program
☐ A block or sector editor
☐ A blank 5¼" disk

To deprotect Grolier's "Easy Graph", first copy the disk with any standard copy program, such as COPYA, Copy II Plus, or ProSel. Then get out your sector editor and search the disk for the byte sequence 4C F8 00 BD 8C C0. You should find this sequence in two places on the disk. On my copy they were at track $16, sector $0E, byte $C5 (ProDOS block $B0, byte $1C5) and at track $1C, sector $0F, byte $D7 (ProDOS block $E7, byte $1D7). Change the BD 8C to 18 60 and write the sectors back to disk. Easy Graph is now deprotected and may be copied with any disk copy program.

Edward Teach

Softkey for...

Maxi Golf
Thunder Mountain

I hope that this is still on the most wanted list when this softkey is published. I bought this disk for the sole purpose of cracking it. The game is not bad, but other golf games are better. (Leader Board World Class Golf for example). The first thing I do when examining a disk is to boot it. This disk shows a "]" when booted. This usually means a somewhat normal DOS. Then I press [RESET] right after the "]". At this point the disk cataloged. If it would not catalog with a normal DOS then a RWTS swap copy was in order. But, it did catalog with a normal DOS. Next I used Locksmith 6.0 fast copy. This shows what tracks have normal prologues and epilogues. The only trouble spot seemed to be track 22. Next I decided to search the Disk for accesses to the "read the disk code" (C08C). Since DOS was normal I was looking for disk access from any of the files on the disk. The code I was looking for was located on track $1A, sectors $08 and $09. The code read as:

```
0815 LDA $C08C,X
0818 BPL $0815
081A CMP $F9
081C BNE $082C
081E INC $F2
0820 BNE $0815
0822 INC $F3
0824 LDA $F3
0826 CMP #$10
0828 BCC $0815
082A BCS $0812
082C CMP $F8
082E BEQ $0836
0830 INC $F5
```

From this code it is obvious that it is not the normal read the disk code. Normal code would look for either D5,AA,96 or AD. Here the code is looking for something in $F9. I traced the code down until it either jumped out of the code to another location or hit a RTS. Tracing the code, in this case, means simply listing it on the screen. The RTS is located at $088E in this sector. Placing a 00 where the RTS was will cause the program to stop and then we can look at the memory locations that the program was manipulating ($F0-$F9).

Write the 00 then boot the disk. When the code tries to execute the RTS it will instead encounter the 00 and the code will "BREAK". At this point all the registers will be displayed as well as the location of the 00. Then, in theory, all we have to do is read the contents of locations $F0 to $F9 and restore them along with the registers, and jump over the signature check routine.

Examining the code at $F0 to $F9 shows the values of 7D 0E 83 05 00 01 AC 03 FF DD and the registers are A=18 X=60 Y=00. The BREAK occurred at $1DAC. Listing the code around that location shows the same code that was in track $1A, sector $08. We now know what the code was when the RTS was executed and also where the code resided in memory. Now lets restore the code just after the first byte was read. (the C08C). Read track $1A, sector $08 and add our code starting at byte $18. The only other thing we need to do is to add a few extra bytes that the original code restored after the check was completed. Since the signature check started at track $1A, sector $09 we will have to place a jump to our patch in that sector.

Trk	Sct	Byte(s)	From	To
$1A	$09	$8C-8E	AE 27 1C	4C 14 1D
$1A	$08	$18-50	?? ?? ??	A9 7D 85 F0 A9
				0E 85 F1 A9 83
				85 F2 A9 05 85
				F3 A9 00 85 F4
				A0 01 85 F5 A9
				AC 85 F6 A9 03
				85 F7 A9 FF 85
				F8 A9 DD 85 F9
				A9 A8 A4 00 A6
				60 BD 88 C0 8D
				94 61 8D 97 0C
				18 60

Write these changes back to disk and the program will boot and run. This technique has appeared in a number of COMPUTISTs. All we have done is to change the read the disk code to store the proper bytes where the program expects them and then exit the code. If you are totally lost on what I did in this crack, I suggest that you buy a copy of MAXI-GOLF and look at the code I outlined. (The disk is only $8.00). You never get any better if all you do is POKE in the fixes other people have written. Finally, a faster DOS greatly improves the loading speed of this program. Enjoy

Paul Johnson

A.P.T. for...

California Games

Epyx

If, for some reason, you want to get rid of the high scores on California Games, then get out your sector editor and read track $01, sector $0A on the front side of the disk. Here you will find all of the high scores in the same order as they are listed on the high scores screen. All you need to do is replace the score listed with whatever you want. You can change the names in this way, too.

(?) I have a question for the readers. Does anybody know of a program that would help me learn Calculus? I know about the program from Broderbund, but that is only for the Macintosh, and I have an Apple IIe. I only have 128K memory. If anybody knows of such a program, either commercial or Public Domain, then I would appreciate it if you could write a short letter and put it in the RDEX. Thank You.

Blain Johnson

Softkey for...

Deathlord

Electronic Arts

■ Requirements

☐ Apple II with at least 128K
☐ Three disk sides and a slave disk

While flipping through COMPUTIST #56, I ran across George Miller's playing tips. I read in the article that the program was protected, and it hadn't been unprotected yet. I flipped to the Most Wanted List and, wouldn't you know it, Deathlord was on it. One of my friends had asked me to deprotect it about 3 months earlier, but I was unable. This time I was determined.

All of the Deathlord disks are in the same format. Track $00 has one readable sector, plus 10 sectors encoded with a 4&4 format. The rest of the disk is in a 6&2 format, but the address information, data epilogs, and data prologs are special. Because the 4&4 formatted track $00 is used only during bootup, track $00 on the master scenarios is unimportant.

The address prolog is D5 AA plus the track, sector, and checksum bytes. The address field has no epilog. The data prolog is D5 9C plus 342 encoded bytes then a C9 epilog. The track, sector, and checksum bytes are not 4&4 encoded. Using a special translate table, the bytes are loaded and converted directly to a usable byte. The 342 bytes are encoded the same as a DOS 3.3 disk except that each byte is EOR with a unique value before reading and writing.

With the uniqueness of the disk's format, making a simple IOB routine is impossible. I decided to try to capture Deathlord's RWTS. This is accomplished using the tip on page 16 of COMPUTIST #58. It involves booting a program into the auxiliary memory of your computer. I tried using XFER.BOOT, but the program would not boot completely. After capturing Deathlord's RWTS, I studied it and made a BASIC program that would copy the disks for you.

Here are the steps involved to deprotect DEATHLORD.

[1] Setup to boot disk into auxiliary memory.

```
CALL -151
0:8D 03 C0 8D 05 C0 4C 00 C6
```

[2] Insert the Deathlord boot disk and boot it.

```
0G
```

[3] When the drive stops, press [CTRL-RESET] followed by [RESET].

[4] Transfer the modified RWTS to main memory.

```
CALL -151
0300:18 4C 11 C3
03F8:4C 00 03
2200<200.7FF[Y]
```

[5] Boot a slave disk and save the RWTS.

```
PR#6
BSAVE DEATHLORD.RWTS,A$2200,L$600
```

[6] Type in and save the BASIC program and the two hexdumps. The first two are for the actual copying of the disks and the last program is code that is written to the unprotected disk for booting purposes.

```
SAVE DEATHLORD.BAS
BSAVE DEATHLORD.COPY,A$1200,L$F3
BSAVE DEATHLORD.BOOT,A$2000,L$C3
```

[7] Run the BASIC program. (It will load the binary files automatically.) The program will ask whether you are using 1 or 2 drives and also what kind of disk you are deprotecting. (Boot/Scenario)

[8] When you finish copying all the disks, you'll need to make some sector edits to the boot disk.

Trk	Sct	Byte(s)	From	To
$00	$01	$8C-8E	AE FE 02	4C 00 06
$00	$02	$3C-3E	20 E6 03	EA EA EA
		$4D	2D	25
$00	$08	$58	AE	AA
		$9E	EA	DE
		$F1	AE	AA
$00	$09	$35	EA	DE
		$6A	D6	96
		$9B	B7	AA
$00	$0C	$84	D6	96
		$B3	B7	AA
$20	$0B	$D9-EE	?	all EAs

Put write protect tabs on the boot and master scenario disks. If you have any playing scenario disks made with the original, you can use this Super IOB routine to convert them to normal. The unprotected Deathlord works only with unprotected scenario disks.

Controller

```
1000 REM DEATHLORD SCENARIO CONTROLLER
1010 TK=0:LT=35:ST=15:LS=15:CD=WR:FAST
     =1
1015 RESTORE : GOSUB 190: GOSUB 210: GOSUB 170
1020 GOSUB 490: GOSUB 610
1025 GOSUB 230
1030 GOSUB 490: GOSUB 610: IF PEEK (TRK) = LT
     THEN 1050
1040 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO 1015
1050 HOME : PRINT "COPYDONE" : END
5000 DATA 213,170,214,213,174,173,222,183,
     234,170
```

Checksums

```
1000  - $356B      1030  - $E915
1010  - $2544      1040  - $A206
1015  - $9A4C      1050  - $99A4
1020  - $586E      5000  - $CE4A
1025  - $9D2F
```

DEATHLORD.BAS

```
10 PRINT CHR$ (4); "BLOAD DEATHLORD.COPY,
   A$1200"
20 PRINT CHR$ (4); "BLOAD DEATHLORD.RWTS,
   A$1300"
30 PRINT CHR$ (4); "BLOAD DEATHLORD.BOOT,
   A$9000"
40 HOME : HIMEM: 4096
50 PRINT "ARE YOU USING 1 OR 2 DRIVES?" ;
```

```
60 GET D$:D = VAL (D$)
70 IF D < 1 OR D > 2 THEN 60
80 HOME
90 PRINT"CONVERT^(B)OOT^OR^(S)CENARIO ^DISK^
     ?";
100 GET I$: IF I$ < > "B" AND I$ < > "S" THEN 100
110 HOME
120 IF D = 1 THEN 500
130 M$ = "INSERT^DEATHLORD^DISK^IN^DRIVE^1" :
     GOSUB 410
140 M$ = "INSERT^BLANK^DISK^IN^DRIVE^2" : GOSUB
     410
150 GOSUB 520
160 T = 34
170 IF D = 1 THEN GOSUB 350
180 POKE 4609,2: POKE 4613,26: CALL 4608
190 POKE 4609,19: POKE 4613,2: CALL 4608
200 POKE 4652,T: CALL 4641
210 IF I$ = "S" THEN 230
220 IF T = 6 THEN GOSUB 460
230 POKE 4609,26: POKE 4613,2: CALL 4608
240 IF I$ = "S" THEN 260
250 IF T = 6 THEN GOSUB 370
260 IF D = 1 THEN GOSUB 360
270 POKE 47092,2: POKE 47082,D
280 POKE 47084,T: POKE 47085,15
290 POKE 47083,0: POKE 47091,0
300 POKE 47089,143: POKE 47073,112
310 CALL 46995
320 T = T - 7: IF T = 6 THEN POKE 4650,96
330 IF T > 0 THEN 170
340 END
350 M$ = "INSERT^DEATHLORD^DISK" : GOTO 410
360 M$ = "INSERT^TARGET^DISK" : GOTO 410
370 CALL 4814
380 CALL 4782
390 CALL 4828
400 RETURN
410 POKE 241,1: POKE 243,0
420 VTAB 10: HTAB 1: PRINT SPC( 40)
430 VTAB 10: HTAB (20 - ( LEN (M$) / 2)): PRINT M$
440 VTAB 14: HTAB 11: PRINT "AND^PRESS^ANY^KEY";
450 GET A$: PRINT : RETURN
460 POKE 4645,47: POKE 4650,8
470 POKE 4652,32: POKE 4654,10
480 CALL 4641
490 RETURN
500 M$ = "INSERT^BLANK^DISK" : GOSUB 410
510 GOSUB 520: GOTO 160
520 POKE 47082,D: POKE 47083,0
530 POKE 47092,4: CALL 4808: RETURN
```

Checksums

```
10   - $EA2C     280  - $9307
20   - $9EC5     290  - $D629
30   - $A055     300  - $2A20
40   - $2C70     310  - $9B89
50   - $DE09     320  - $3931
60   - $8897     330  - $0684
70   - $A892     340  - $76D5
80   - $4DEF     350  - $376D
90   - $1BFD     360  - $3658
100  - $0C43     370  - $4A33
110  - $001A     380  - $FC9D
120  - $D479     390  - $94AC
130  - $6331     400  - $4FAD
140  - $FCB2     410  - $5CF3
150  - $034E     420  - $4E46
160  - $D661     430  - $5652
170  - $59FE     440  - $3D5F
180  - $4CCF     450  - $B8AE
190  - $1B57     460  - $CBA9
200  - $DCAB     470  - $DC48
210  - $867B     480  - $EF5C
220  - $9080     490  - $4F13
230  - $6B2C     500  - $0C8E
240  - $5978     510  - $BF32
250  - $D0D6     520  - $82BC
260  - $EF27     530  - $1105
270  - $4FAC
```

DEATHLORD.COPY

```
1200: A9 1A 85 FD A9 02 85 FF    $0E9B
1208: A9 00 85 FC 85 FE A8 AA    $B266
1210: B1 FC 91 FE C8 D0 F9 E6    $225D
1218: FD E6 FF E8 E0 06 D0 F0    $89D7
1220: 60 2C EA C0 A9 8F 20 5C    $3149
1228: 04 A9 70 A0 1B A2 0F 20    $5A28
1230: 5F 04 60 A9 8F 20 5C 04    $D9C4
1238: A9 70 A0 1B A2 0F 20 5F    $5532
1240: 04 60 AE F8 1D BD 89 C0    $C598
1248: BD 8E C0 BD 8C C0 10 FB    $0F8D
1250: 49 D5 D0 F7 BD 8C C0 10    $6F38
1258: FB C9 AA D0 F3 BD 8C C0    $98A8
1260: 10 FB C9 FD D0 EA BC 8C    $24CF
1268: C0 10 FB B9 00 16 C5 F0    $2646
1270: D0 DE BD 8C C0 10 FB C9    $1C19
1278: 9C D0 F7 A0 00 BD 8C C0    $907A
1280: 10 FB 38 2A 85 F1 BD 8C    $9048
1288: C0 10 FB 25 F1 99 00 21    $1AD6
1290: 45 F2 85 F2 C8 D0 E6 BD    $5C42
1298: 8C C0 10 FB 85 F1 BD 8C    $F2B7
12A0: C0 10 FB 25 F1 C5 F2 EA    $7E18
12A8: EA 18 60 4C 59 FF A0 01    $7F2E
12B0: 98 48 18 69 20 8D 8F 12    $DCC4
12B8: 84 F0 20 42 12 68 A8 C8    $5D89
12C0: C0 08 D0 EC BD 88 C0 60    $87D2
12C8: 20 E3 03 4C D9 03 A9 70    $66EB
12D0: 8D 78 04 A9 00 AE F8 1D    $96C3
12D8: 20 A0 B9 60 A0 90 B9 FF    $B990
12E0: 8F 99 FF 1F 88 D0 F7 A0    $A8E0
12E8: 32 B9 90 90 99 00 24 88    $8EA3
12F0: 10 F7 60                   $6A1F
```

DEATHLORD.BOOT

```
2000: 01 A9 60 8D 01 08 A6 2B    $A4B3
2008: 8A 4A 4A 4A 4A 09 C0 8D    $C745
2010: 4D 08 A9 6A 45 00 45 01    $661C
2018: A8 EA EA 2C 82 C0 20 2F    $B102
2020: FB 20 58 FC A0 40 84 E6    $E08A
2028: 20 F2 F3 2C 50 C0 2C 52    $034F
2030: C0 2C 55 C0 2C 57 C0 A0    $C84D
2038: 0E 98 48 B9 58 08 85 3D    $3F12
2040: B9 68 08 85 27 A9 00 85    $C124
2048: 26 85 41 20 5C 00 68 A8    $3BED
2050: 88 EA EA D0 E4 4C 78 08    $94C8
2058: 00 0D 0B 09 07 05 01 0E    $017C
2060: 0C 0A 08 06 04 02 0F 00    $2E84
2068: 00 09 04 05 06 07 02 B8    $738F
2070: B9 BA BB BC BD BE BF 00    $1B03
2078: A0 00 B9 00 09 99 00 03    $3F04
2080: C8 D0 F7 A2 60 8E E4 BC    $4ECB
2088: A9 00 8D DF BC 4C 04 04    $6DD0
2090: A9 00 8D EB BF 8D F0 BF    $7BAF
2098: 8D F3 BF A9 01 8D EA BF    $2F2E
20A0: 8D F4 BF A5 F0 8D EC BF    $B993
20A8: A5 F1 8D ED BF A5 F3 8D    $2BA7
20B0: F1 BF 08 78 A9 BF A0 E8    $875F
20B8: 20 00 BD B0 03 28 38 60    $BA7F
20C0: 28 18 60                   $2FC0
```

Ted Bachman

Softkey for...

Fraction Factory

Counterpoint Software

■ Requirements

- ☐ Apple II
- ☐ one blank disk
- ☐ Super IOB
- ☐ A way into the monitor

I used Joe Drelling's softkey for Early Games for Young Children in COMPUTIST #32. The steps are essentially the same, however I found no need for any fixes after a normal DOS is put on the disk.

[1] Initialize the blank disk and delete the hello program.

```
INIT HELLO
DELETE HELLO
```

[2] Boot the Fraction Factory disk so we can capture the RWTS.

```
PR#6
```
enter the monitor here
```
1900<B800.BFFFM
```
move RWTS down

[3] Boot the disk you just initialized. When the drive stops, insert your Super IOB disk and save the RWTS.

```
PR#6
BSAVE RWTS.FRACTION FACTORY, A$1900,
     L$800
```

[4] Type in the controller and save it to the Super IOB disk.

```
SAVE CON.FRACTION FACTORY
```

[5] Load Super IOB, merge the controller and run it. Follow the prompts and don't FORMAT the disk again.

Controller

```
1000 REM FRACTION FACTORY CONTROLLER
1005 XX = 0:TK = 3:LT = 10
1010 ST = 15:LS = 15:CD = WR:FAST = 1
1020 GOSUB 360: GOSUB 490: GOSUB 610
1030 GOSUB 360: GOSUB 490: GOSUB 610: IF PEEK
     (TRK) = LT THEN 1050
1040 TK = PEEK (TRK):ST = PEEK (SCT): GOTO 1020
1050 IF XX = 0 THEN TK = 11:LT = 35:XX = 1: GOTO
     1010
1060 HOME : PRINT "COPY^DONE" : END
10010 PRINT CHR$ (4) "BLOAD^ RWTS.FRACTION^
     FACTORY,^A$1900"
```

Checksums

```
1000  - $356B      1040  - $3BAC
1005  - $8838      1050  - $9EB0
1010  - $D7D3      1060  - $8559
1020  - $3A9E      10010 - $E50A
1030  - $080A
```

Tom Donofrio

Softkey for...

Ultraterm AppleWriter Preboot-V

Videx, Inc.

■ Requirements

- ☐ Any Apple II computer.
- ☐ Videx Ultraterm or Videoterm 80 column card
- ☐ Super IOB 1.5
- ☐ One blank disk

This preboot program for AppleWriter, (AW) II or IIe, is a nifty little utility that lets you use your Videx Ultraterm to do your word processing with a screen display of 80 columns by 24, 32 or 48 rows. With the higher density modes, it becomes possible to display close to a full page of text on the screen at one time, a luxury which can become quite difficult to do without. The program must be purchased separately from the hardware and is copy protected. Since a back up copy was included with the original, I was never to concerned about the protection. That is until I managed to destroy the original by accidentally reformatting it, (I never did bother to cover up the write protect tab).

Making a copy of the back up disk using nibble copiers proved to be rather difficult. I finally succeeded by manually adjusting the drive speed while using EDD III in its nibble count mode. This of course only produces another protected copy of the disk. I eventually decided to make an attempt at unlocking the disk so that I could try to make some changes to the program. The main reason for wanting to do so was to try and do something about the annoying disk juggling that must be performed during the initial bootup when using the preboot with AW II on an Apple II+.

The protection on this disk turns out to be rather easy to defeat. A slightly modified DOS is used along with what appears to be some sort of nibble count. A raw track dump indicates that the address and data field epilogue bytes have been changed from DE AA to FF FF. Once this had been fixed, a sector editor would only read all the sectors on the disk if the check sum routine was defeated. This plus the fact that the sectors on track $11 almost look like they are normal catalog sectors, indicates that a change has been made to the RWTS translate tables. Using the Code Breaker utility from Golden Delicious Software's "C.I.A.", and with a lot of luck, I quickly determined what the modification was. Normally, when data is read from the disk, the value $96 is translated to $00 while the value, $AA, remains the way it is. On this preboot disk, value $96 is translated into $AA, while value $AA is translated into $00. A better explanation of what this is all about can be found in Quality Software's "Beneath Apple DOS". Both of the above modifications to DOS can be handled by Super IOB.

The nibble count is even easier to circumvent because it seems to occur as part of the booting process. Therefore, all that is needed is a different booting routine, i.e. a normal DOS.

[1] Initialize a blank disk with either a normal DOS 3.3 or a fast DOS such as ProntoDOS or Diversi-DOS. This effectively handles the nibble count routine.

[2] Type in the controller at the end of this article and save it to your Super IOB disk. Load Super IOB and merge the controller. Line 1015 makes the necessary changes to the Read translate table, while line 1050 restores it to normal before showing you a CATALOG of the unprotected disk and quitting.

[3] Run SUPER IOB. Enter "N" when it asks you if you want to initialize the target disk. The program will then copy tracks $3 to $22.

[4] After the action is over, type the following;

```
NEW
10 PRINT CHR$(4)"BRUN COPYRIGHT 1983
    VIDEX INC"
SAVE HELLO
```

HELLO may be replaced by any other name you might have given to the greeting program. You now have an unprotected version of the disk which behaves just like the original version.

A Closer Look

The following discussion applies mainly to those such as myself who are running AW II on an Apple II+, (not AW IIe on an Apple IIe or IIc). Now that the disk can be CATALOGed, the various files can be examined more closely. There are six entries in the CATALOG listing. The first entry, "VIDEX APWRT PREBOOT", is simply a heading and does nothing. The next three files seem to be associated with AW IIe, while the second last file, UWDA, is associated with AW II. The last file, despite the awkward name, was the original greeting program and it determines which machine you are using as well as providing the means for selecting the screen display.

A more thorough examination of this file seems to indicate that with the IIe programs and machines, a one time installation is available, thus avoiding the annoying disk juggling necessary with the older version of AW. My aim was to find some way to put both the preboot program and AW II on one disk so that I too could avoid that hassle.

When I first purchased the preboot disk, I marveled at how fast the word processor seemed to load after the initial preboot was completed and the program prompted you to insert your AW disk. This should have been my first clue to what was going on. A look at the CATALOG of the unprotected disk reveals that the file UWDA, which is associated with the II version of the program, is 93 sectors long! After a little fiddling around, I came to the conclusion that this was not a preboot program after all, but instead a modified version of the entire word processor. When the so called preboot asks you to insert your AW II disk, all it does is verify that you have it by checking something on track $00. It then loads the system files just as the original program would have done. In other words, if you defeat the verify routine, the original AW II disk would no longer be needed.

To create a single disk version of the program, first delete the first four files on the unprotected preboot disk since they will just take up space which may be needed. Next type in the following;

```
BLOAD COPYRIGHT 1983 VIDEX INC
CALL -151
C3C:EA EA EA
DBD:EA EA EA EA EA EA EA
DC8:00
BSAVE COPYRIGHT 1983 VIDEX INC, A$C00,
    L$9C2
```

The modifications at $C3C NOP's the jump to the verify routine, while the other modifications just bypass the message that asks you to insert your original disk. Once this has been completed, all you need do is to copy the system files from your original AW II disk to your new disk. The files you must copy are

TAB.SYS and PRT.SYS. If you want to have "HELP" available to you, you will also have to copy HELP8Ø along with any other file prefixed by HS.

Controller

```
1ØØØ REM ULTRATERM APPLEWRITER PREBOOT
1ØØ5 REM CONTOLLER FOR SUPER IOB 1.5
1Ø1Ø TK=3:LT=35:ST=15:LS=15:CD=WR:FAST=1
1Ø15 POKE 47766,17Ø: POKE 47786,Ø
1Ø2Ø RESTORE : GOSUB 17Ø: GOSUB 49Ø: GOSUB 61Ø
1Ø3Ø GOSUB 23Ø: GOSUB 49Ø: GOSUB 61Ø: IF PEEK
     (TRK) = LT THEN 1Ø5Ø
1Ø4Ø TK = PEEK (TRK) :ST = PEEK (SCT) : GOTO 1Ø2Ø
1Ø5Ø HOME : POKE 47766,Ø: POKE 47786,17Ø: PRINT
     : PRINT CHR$ (4); "CATALOG,D" D2
1Ø6Ø PRINT : PRINT "COPYDONE" : END
5ØØØ DATA 255,255,255,255
```

Checksums

```
1ØØØ  - $356B     1Ø3Ø  - $4D31
1ØØ5  - $6F41     1Ø4Ø  - $74BB
1Ø1Ø  - $F287     1Ø5Ø  - $FBAB
1Ø15  - $1E2A     1Ø6Ø  - $B976
1Ø2Ø  - $78A8     5ØØØ  - $6184
```

Marv Conn

Softkey for...

Project Space Station

HesWare (Human Engineered Software)

■ Requirements

- ☐ 64K II Plus, IIe, IIc
- ☐ Super IOB 1.5
- ☐ Apple DOS System Master Disk
- ☐ Blank Disk

Project: Space Station is a space simulation where the player controls the building and implimentation of a space station. First, the player appropriates the funds to selective budget accounts, purchases equipment and schedules shuttle launches. Then the player must fly the shuttle and perform EVA operations in an arcade-like phase. The overall idea is to build a space station while launching enough satellites to bring in income and not go broke. It is an interesting and fast moving game.

The only real problem is the disk is protected. I tried a bit copier but that didn't work. When the disk booted, the drive didn't move from track $ØØ for a few seconds (as indicated by my Trak Star) and then the disk rebooted. I suspect a nibble count of some sort on track ØØ.

When I used the CIA sector editor (Golden Delicious Software Ltd.) to examine track $ØØ, I found that the DOS was modified. The address and data epilogs were FF FF instead of DE AA. I quickly got bored trying to find the nibble count routine. Since the only modification to the disk was changed epilogs, I decided to change the disk to normal and continue from there.

After converting both sides and replacing the DOS on the Boot side, (using the DOS 3.3 System Master disk) the disk worked great.

I've written a controller that takes care of everything automatically. Just merge it into Super IOB and RUN. It will prompt you for the correct disks. On side A it POKEs 4Ø514,52 ($9E42:34) to allow a binary hello program, then initializes side A with the hello file name FIN and copies tracks $Ø3-22. On side B it initializes the disk and copies all the tracks.

As a final note, experienced users who fully understand this softkey, may wish to convert the, copy disk to a 'fast' DOS. I used DOS 3.3 for this softkey only because DOS 3.3 is a standard that everyone has access to. I found that Pronto-DOS (Beagle Bros) worked very well and cut disk access time to a minimum.

Controller

```
1ØØØ REM SPACE STATION
1ØØ3 TK=3:A$="INSERT^TARGET^SIDE^A" : GOSUB
     47Ø: HOME : POKE 4Ø514,52: PRINT : PRINT
     CHR$ (4) "INITFIN,S" S2 ",D" D2: GOTO 1Ø1Ø
1ØØ5 TK=Ø:A$="INSERT^TARGET^SIDE^B" : GOSUB
     47Ø:SO = S2:DV = D2: POKE CMD,INIT:VL =
     254: GOSUB 41Ø
1Ø1Ø LT = 35:ST = 15:LS = 15:CD = WR:FAST = 1
1Ø2Ø RESTORE : GOSUB 19Ø: GOSUB 21Ø: GOSUB 17Ø:
     GOSUB 49Ø: GOSUB 61Ø
1Ø3Ø GOSUB 23Ø: GOSUB 49Ø: GOSUB 61Ø: IF PEEK
     (TRK) = LT THEN 1Ø5Ø
1Ø4Ø TK = PEEK (TRK) :ST = PEEK (SCT) : GOTO 1Ø2Ø
1Ø5Ø IF QQ < > 1 THEN QQ = 1: GOTO 1ØØ5
1Ø6Ø HOME : PRINT "ALL^DONE" : END
5ØØØ DATA 213,17Ø,15Ø,213,17Ø,173,255,255,
     255,255
```

Checksums

```
1ØØØ  - $356B     1Ø3Ø  - $9988
1ØØ3  - $A092     1Ø4Ø  - $192D
1ØØ5  - $E8FD     1Ø5Ø  - $ØB99
1Ø1Ø  - $EC6F     1Ø6Ø  - $F54B
1Ø2Ø  - $AC11     5ØØØ  - $61DE
```

E. Spiteri

On a whim, I pulled out Ultima II and thought I would give it a shot. I went leafing thru my COMPUTIST back issues for the usual character editors. COMPUTIST #11 had what I wanted so I began entering Ultimaker III, Ultimapper.large and Ultimapper.small. All went well except for line 43Ø in Ultimapper.large. For some reason, it generates a checksum of E5ØB instead of D971, although the line appears identical. I went on a bug hunt all the way up to COMPUTIST #3Ø to no avail. I hope you can tell me what is wrong.

It seems a gremlin crept into the listing and switched out a character. The pound sign (#) before "BIG FOREST" should be the small up arrow—exponent sign(^). .....RDEXed

Edward L. Eastman

Modification for...

Print Shop

Broderbund

The Catalog modification by Klaus Iden in COMPUTIST #57, page 35 did not work for me. It would boot, then crash if I tried to Catalog a disk. (I should mention that my version is deprotected by a simple NOP of the jump to check for protection, thanks to Copy II Plus v7.3.) I decided to get the patch in another way.

Now the fun begins. I set Print Shop to jump into the monitor where it would normally jump to the protection routine. (On track $Ø2, sector $ØF, byte $ØA, from 2Ø E Ø BC to 4C 59 FF on my disk.) I then check memory locations $Ø3F2-Ø3F3 and found that Print Shop goes to $28Ø on RESET. This turns out to be a memory wipe routine (Only $22 Bytes long). There's more than enough room for the patch right here. And it will load in with the Print Shop's DOS automatically. I set my sector editor to search for the reboot code, and the rest is history.

You need a modified library disk for this as well as a backup of Print Shop. Make the following sector edits.

Trk	Sct	Byte(s)	From	To
$ØØ	$Ø5	$4A	2Ø 2F FB 2Ø 58	4C ØØ C6 A9 11
			FC AØ ØØ 98 99	8D 22 81 A9 ØØ
			ØØ Ø8 C8 DØ FA	8D 23 81 A9 81
			EE 8B Ø2 AD 8B	AØ 1E 2Ø D9 Ø3
			Ø2 C9 CØ 9Ø EF	BØ ØC AD Ø1 82
			8D F3 Ø3 8D F4	8D 22 81 AD Ø2
			Ø3 6C FC FF ØØ	82 8D 23 81 6Ø
$Ø2	$ØF	$41	8D 23 81	2Ø 83 Ø2
		$D9	CE 23 81	2Ø 96 Ø2

Here's what we changed:

Track ØØ
$Ø28Ø: JMP $C6ØØ Reboot on RESET
$Ø283 to $Ø295: Initial read OF VTOC
$Ø296 to $Ø2A2: Get and store next cat sector
Track 2
$8Ø3D: JSR $Ø283 On start of cat check VTOC
$8ØD5: JSR $Ø296 Get next sector

If you are unclear on any aspect of this patch, look at that informative article in COMPUTIST #57.

Jeff Hurlburt

The PRODUCT MONITOR

Ratings

- ★★★★★ ..... SUPERB
- ★★★★ ..... EXCELLENT
- ★★★ ..... VERY GOOD
- ★★ ..... GOOD
- ★ ..... FAIR
- ● ..... POOR
- ●● ..... BAD
- ●●● ..... DEFECTIVE

Everyone knows that December is the month of dancing sugar plumbs, extended vacations, and good cheer. Yet, as psychologists never tire of reminding us, this is also a period of unusual pressures. What better time, then, to beat the odds, abolish stress, and actually have some fun? (Like, you DO know how to have fun, don't you? You just wiggle-in a diskette and BOOT!)

To get the ball rolling, this issue concentrates on several 'best bets' for fun, the established, continuously developing adventure sets I call "The Great Sagas".

The Great Sagas

When you finish a truly great adventure, it's only natural to look forward to another like it, preferably with the same stalwart character(s). Like "The Ring" trilogy, "Dragonlance Chronicles", and other fantasy classics, the 'great sagas' of computer gaming supply both an added level of involvement— often you can move a developed party from one game to another— and the prospect of many hours of adventuring fun.

With a couple of exceptions— the vendors haven't gotten around to supplying the latest installments— most of the multi-package epics are described below. The ratings, on a series basis, are a kind of average measure of quality (graphics, sound, attention to player convenience, etc.), plus duration (how much play you can expect per package), and, overall, fun.

Ultima

Origin Systems

★★★★

Since introducing major map adventuring, "Ultima" has not only continued to refine its hires top-view display format and added Mockingboard music, but also become larger and more complex. Some innovations include animated on-map characters (monsters, townsfolk, etc.), detailed building interiors, more conversant townsfolk (to supply clues in the more involved scenarios), clever 'puzzle room' mazes, and one of the better multi-character tactical combat schemes.

Regrettably, since "Ultima IV" (a quest for avatarhood), players have been saddled with artificial "goodness" constraints on conduct, and been forced to accept game-created characters to fill most party slots. (True, the latter may be a blow for "realism"— after all, how many you's can there be in a party— ;but, I enjoy experimenting with different character mixes.) Personal preferences aside, this is a very sophisticated system with only one notable flaw. Since there is no option for 'quick combat resolution', towards the end of an adventure you can anticipate a long series of (by then) routine, time-consuming battles.

In "Ultima V" your party (from U-IV or newly created) embarks upon the rescue of King British, a quest packed with intrigue, puzzles and combat. Indeed, the newer releases in this series can deliver plenty of entertainment, but at the cost of more player 'work' than required by most adventures.

The Bard's Tale

Electronic Arts

★★★★

If the cheerful hearth, dread mazes, and drama of Dungeons & Dragons seems especially appealing, then "The Bard's Tale" is where you belong. Enfolding the player in music and extraordinary 3D-perspective forward-view partial-animation graphics, this series of three multi-character adventures offers quests within quests, practically unlimited character development, and **Atmosphere!**

Whereas, in the first "Bard's Tale", action is confined to a single town's dungeons, castles, and towers (you must free Skara Brea from Mangar and his spell of Eternal Winter); in "Destiny Knight" the quest to reassemble a powerful magical artifact (to save the kingdom) leads to wilderness journeys, also in 3D-perspective, and adventures in several towns. Finally(?), in "Thief of Fate", the entire world is at stake as you traverse multiple dimensions to battle the Mad God! (Rats!, I thought we'd polished off that turkey back in Harkyn's castle.) Thanks to "Starter mazes" in the sequels, you CAN begin with any adventure; but, since the games will also transfer powerful experienced characters, the 'reception' for new guys is progressively rougher in each installment.

"Bard's Tale" highlights the most involved, best thought-out magic system in adventure gaming, excellent pacing, and well-defined character and monster types. Combat is semi-tactical— in each round, each character directs weapons/magic against one or more monsters, casts healing or defensive spells, etc.—, very entertaining, and, for more developed characters, often avoidable. Even so, unless you consider yourself a combat/mapping fanatic, do not expect to finish a game without its "Clue Book". (By all rights, something like each booklet's maps and hints, to say nothing of an excellent scenario-enhancing mini-novella, belong in each package; but they are sold separately.) Ultra long-playing, the adventures are great on a IIe and (BT I & II) positively stunning in IIgs super-res and sound.

Wizard's Crown

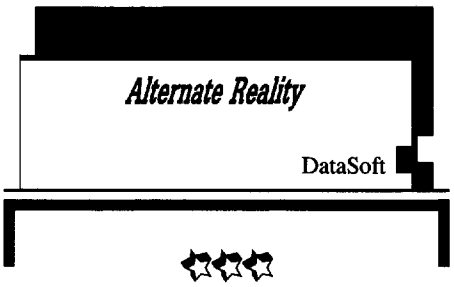
Strategic Simulations

★★★

Among multi-character 'standard hires' Ultima-type adventures, the "Wizard's Crown" series is unique in the extent to which it highlights combat. "'Eternal Dagger" (WC-II), in particular, offers comprehensive character development (both attributes AND a host of "skills") plus a good magic system, an excellent scheme for weapons grading and improvement, absolutely the most entertaining tactical combat anywhere, AND an option for fast 'computer resolution' when you'd rather concentrate on exploration.

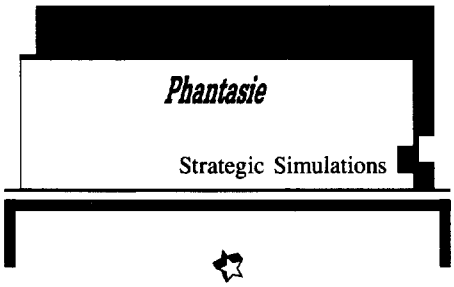
Beginning with a relatively simple (single continent) 'scotch the evil wizard' scenario, the series really blossoms in "'Eternal Dagger", when your party embarks upon a multi-quest epic to close off a monster-spewing portal into

the Demon World. (As for building your characters in WC-I, to better meet the demon challenge, you can forget it. Not only are the stories unconnected, but newly created characters are as strong as any you may transfer!) Spanning three continents and several detailed dungeons (i.e. you can search bookcases, etc.), "'Eternal Dagger" delivers very long play, loads of fun, and a guarantee of, at the very least, WC-III.

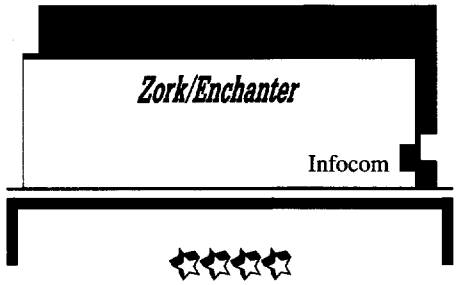


Having arranged to have you kidnapped by UFO types and dumped in a city on another planet, "Alternate Reality" challenges you to build your powers and master a new environment in each scenario. First, there was "The City"; now it's the multi-level "Dungeon" (beneath "The City"); next, who knows? (There IS an exit to the Palace in Dungeon Level I.) Eventually, by the sixth or seventh installment, you are supposed to be able to get back to Earth.

Though available only in standard hires, AR's 3-D perspective forward view and monster graphics, especially in "The Dungeon", are surprisingly convincing. So, unfortunately, is the challenge; unless you begin in "The City", a new character has a very rough time. Special strengths are: excellent documentation, flexible non-tactical combat, well-defined monsters, and very good schemes for handling weapons and magic. Whatever the scenario, in "Alternate Reality" you can look forward to the challenge of a large, complex environment and many hours of entertainment.

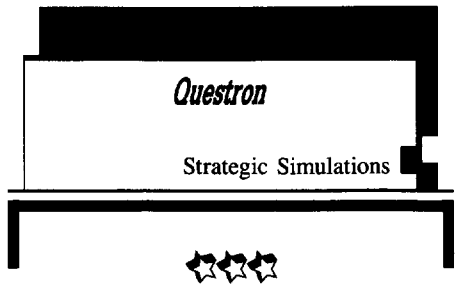


What is so rare as a sequel which actually concludes a series? Well, "The Wrath of Nikademus" does indeed produce the promised "final confrontation" and wrap up the "Phantasie" saga. (This assumes, of course, that you and your five comrades manage to battle your way through forests, swamps, and mazes, locate key clues, build your powers, and polish off the 'Dark Lord'.) While boasting more real estate and a more flexible semi-tactical combat scheme, the third "Phantasie" retains essentially the same display (mainly hires text plus character figures and monster figures) with postage stamp-size map window. If you've played through one or both of the earlier "Phantasie's", you owe it to yourself to 'win the big one'. Otherwise, the competition is just too good; try something else.



While Infocom likes to identify its "Enchanter", "Sorcerer", and "Spellbreaker" text adventures as "The Enchanter Trilogy", these and several earlier scenarios all, in fact, belong to the Zork mythos. This becomes evident with the newly released "Beyond Zork", wherein you tackle the situation (a threat to the efficacy of magic) resulting from "Spellbreaker". New wrinkles include on-screen mapping aids, colored text (on the IIgs), and a character with for-real Strength, Dexterity, etc. attributes, who occasionally must battle monsters.

Just think, beginning with "Zork I", you can move through a series of 'small scale' adventures and end up in a continent-spanning quest to rescue the world from magiclessness! It's a long long journey to Quendor; but you can count on excellent parsing, challenging puzzles, humor, and fun every step of the way.



When Lord British and Origin went on to the second and third Ultima's, others, notably SSI, were quick to pick up the ball and continue development of the original single-character format. Offering improved dungeons, larger, more detailed towns and castles, and other goodies, "Questron" proved to be just the kind of "Ultima I" upgrade many map adventurers were waiting for.

The original scenario, a quest to save the world from an evil magician named Mantor, continues in "Questron II" as you tackle the problem of Mantor's (indestructible!) Evil Book of Magic. While the new storyline is decidedly more involved, the really big changes are in graphics technique, artwork, and sound. Continent maps (with animated character and monster figures), plus maze, cathedral, fortress, town, and casino game displays— all very attractive on the IIe— become truly spectacular in IIgs super-res. Best of all are the new 3-D perspective forward view dungeons (including a top-view self-mapping insert). Simply put, "Questron II" /IIgs sets a new standard for map/maze adventure sound effects and graphics.

Offering simple, non-tactical combat and elementary magic/weapons schemes, "Questron" emphasizes exploration, information gathering, and completion of numerous mini-quests. Though the latest release is good for, at most, forty or fifty hours, this is an action-packed adventure that grabs you and holds your attention for every minute.

Fast Frames, Updates, Etc.

*** Bribery?!! ****

Lest a mere thirty or so voters determine the outcome of the 'Best New Stuff' competition, those who may be holding back now have the added incentive of being eligible for a drawing to win a game. IIe owners may choose from "Questron II" and "Beyond Zork"; IIgs choices are "Alien Mind", 'Dream Zone", or "Questron II". (You may indicate a choice on the ballot or wait until notification to make a selection.) Naturally, your name and address should be somewhere on the stuff you send. Sections are:

1. Best Game
2. Best Adventure
3. Best Sports Simulation
4. Best 'Productivity' Package (e.g. painters, word processors, etc.)
5. Best Utility (e.g. copiers, DOS enhancers, etc.)
6. Best Music Package
7. Best Miscellaneous (i.e. whatever).

Rules: To qualify, a 'candidate' must be a 1987 or 1988 release for the Apple IIe or IIgs. You may vote in any or all sections. You may list up to three products per section. Each list should be headed by the section name followed by titles in order of preference. (i.e. First listed= "1st Place", etc..) A product may be listed in more than one section, if it fits. Be sure and note version (IIe or IIgs), if it matters. Feel free to jot down any comments; but try to keep everything, ballot plus comments, to no more than two sheets.

Each voter gets just one ballot. However, up to four voters may send their ballots in a single envelope, as long as each ballot is signed. Ballots should be sent to me at 7814 Santa Elena, Houston, Texas 77061. The NEW deadline is December 31, 1988. The results should be in print by the March issue.

Vendors

Electronic Arts: 1820 Gateway Drive, San Mateo, CA 94404 (415) 571-7171
Infocom: 125 Cambridge Park Drive, Cambridge, MA 02140 (800) 262-6868
Intellicreations/Datasoft: 19808 Nordhoff Place, Chatsworth, CA 91311 (818) 886-5922
Origin Systems: 136 Harvey Road, Building B, Londonderry, NH 03053 (603) 644-3360
Strategic Simulations Inc.: 1046 North Rengstorff Ave., Mountain View, CA 94043 (415) 964-1353

Andrew Borne

Convert PrintMaster Graphics into Print Shop Graphics

To Jerry Mulder: My PrintMaster (version 1.0) uses ProDOS 1.1.1. That's how it came (DOS 3.3?). I'm not sure why you decided to grab the graphic from screen memory (what a task!), but there's an easier way.

■ Requirements

☐ PrintMaster Program Disk
☐ Two initialized ProDOS Disk sides
☐ Two initialized DOS 3.3 Disk sides
☐ Copy II Plus v6.0 or later (or other ProDOS transfer utility)

[1] Boot PrintMaster in drive one.

[2] From the main menu, select Editor.

[3] From the Graphic Editor Menu, select Graphic: By Picture.

[4] With your graphic selection highlighted, press P to preview graphic.

[5] Choose your Graphic. (It should appear in the editing window after you've choosen.)

[6] Select "Save as Graphic" option. Name them, and save them as they appear, unless you wish otherwise.

[7] Repeat steps 5 & 6 on the graphics you want to convert.

[8] Boot Copy II Plus and transfer the graphics from the ProDOS disks to the DOS 3.3 disks.

For single drive folks with 128K RAM

[8] Boot Copy II Plus (ProDOS Version) and select "FORMAT", select "DISK", then select "Slot 3: /RAM DISCONNECTED". Your electronic /RAM Volume is ready to go.

[9] Select "COPY", then select "FILE'.

[10] Put the disk with the saved ProDOS Graphics into Drive 1.

[11] Source = drive 1. Destination = Slot 3: /RAM.

[12] Copy some of them into /RAM. They won't all fit.

[13] When /RAM is full, put the Blank DOS Disk in drive 1 and copy all the graphics in /RAM to it.

You may want to change the names of the transferred graphics. (IE. Get.rid.of.all.the. periods.)

E.N. Hondrick

(?) I have an extra Integer Card. Jim Sather gives directions in his book "Understanding the Apple II" on converting an Integer card, but I've been too cheap to buy the book, just for the directions. Is there someone who can give simple instructions for converting to (1)Extra RAM, (2) A Qwik-Loader to load ProDOS instead of DOS 3.3, or (3) A "Hollywood" card to put Super IOB or my favorite (ProDOS) word processor "Fredwriter" on the machine as soon as it's turned on? I also have a Qwik-Loader and I'd like to know how to use either card to set the "hooks" for my 20-Meg Sider, so I don't have to boot it to run "Fredwriter" of course, on an Apple IIe, 128K.

Peter Pebler

Softkey for...

Ultima V
Origin

■ Requirements

COPYA

The protection scheme used is bit insertion. Certain sectors on the program disk have sector numbers between $11 and $20 instead of $00 and $0F. These sectors are identified by inserted bits in the address field epilogue, and their sector numbers are adjusted. A bit copy would not have the inserted bits and give incorrect sector numbers. The patch made to DOS 3.3 detects too large sector numbers and adjusts them. For details see the read address field routine on track $01, sector $04 of the program disk. This protection is a good example of a solid bit copy protection with very little effort from the programmer.

[1] Boot a DOS 3.3 disk.

CALL-151
898B: A5 2D C9 10 90 04 E9 11 85 2D 18 60
E003G
RUN COPYA

Copy the Program disk. None of the other disks are protected.

Dan Reid

(?) I have tried several times to get "5 Second Fastboot into Locksmith 6.0. Fast copy" (COMPUTIST #56) to work with no luck. I used track $00 of Bard's Tale, where he used "Seven cities of Gold". Was there a bug in the article? Could someone help me figure out what's wrong.

Cracker Jack & Sneaky the Pete

Softkey for...

Alge-Blaster!
Davidson & Associates

■ Requirements

☐ Apple II series
☐ Sector or bit copy program
☐ Sector editor

Since this is on your Most Wanted list and since it took me about 12 hours of work to crack this, I think I should share it with you. This is the trickiest scheme I've seen in a long time. The tricky track is $03. It contains a lot of FF's, an occasional D5, an FA, one F7 and a header consisting of 9F E7 F9. By carefully nibble editing this track with Locksmith 6.0 (LS), without analyzing it, just setting a beginning and end of track so that nothing gets repeated, I got an occasional copy to work. This wasn't good enough.

I use LS 6.0's boot trace program to find the routine that was accessing track $03. I used Track Star to monitor the track position and stopped the trace as soon as it reached track $03. I found a most interesting routine at $BB03. It starts by modifying itself for several lines, then it XOR's itself with $B900,Y. In other words starting at byte $BB27 it XOR's that with $B927 and works its way to $BBFF XORed with $B9FF. What is at $B977 is an integral part of DOS. This unencodes the protection scheme. This makes it hard to find and hard to change. I tried changing the JSR $B903 to NOP's without any luck. When the

routine succeeds it JMP's to $B793. After much trial and error, I found the earliest I could jump out of the routine was at $BB69. In order to encode the JMP $B793 instructions I had to compare them to the instruction at the same offset in the $B9ØØ range (IE. $B969-B96B.) By taking the values I wanted and XORing them with the values in $B9xx I arrived at the encoded values to put in the protection routine. $BBØØ corresponds to track $ØØ, sector $Ø5. $B9ØØ corresponds to track $ØØ, sector $Ø2. All this is in case your disk is different than mine, you hopefully won't have to work so hard, but if your disk is the same as mine you should be able to crack it as follows:

[1] Make a copy of the disk with anything that won't cough at the weird track $Ø3. I used LS 6.Ø fastcopy program but any sector copy program that will ignore the errors on track $Ø3 or let you skip track $Ø3 will work.

[2] Sector edit track $ØØ sector $Ø5 starting at byte $69, search for E4 73 7B BA 46 61 D2 6F and change the E4 73 7B to 15 6C ØC. Write this out to the disk.

Road Warrior

A.P.T. for...

AutoDuel
Broderbund

When I saw Marc Batchelor's AutoDuel Car Editor in Computist #55, I was very impressed. By the time I got around to typing it in, COMPUTIST #58 had already arrived. That morning I looked at the listing and said there must be an easier way. First of all I played the game for a while, then stuck in a DOS 3.3 formated disk, pressed Q and saved the game. I got out Copy II Plus's sector editor and scanned for the name of my character. I changed a few bytes and rebooted the game. After several times here's what I found. If it is a number displayed on the screen then you cannot put any letters in that byte. Also, the money amount is written sort of backwards. Actual number 123456 is written in the sector as 654321.

Here is where things are on the sector with the name of your character on the top of it.

What it is	Byte (s)
Money	16-14 (backwards)
Prestige	17
Driving Skill	18
Marksmanship	19
Mechanic Ability	1A
Health	1E
Body Armour	26

The car data is almost the same as the driver data.

What it is.	Byte (s)
Max Weight	14-13
Weight Left	16-15
Max Speed	17
Space Left	18
HCL	19
Acceleration	1A
Battery	23
Plant	61

For tires and armour, the first number is how many points you have now and the second is for if you lose more than what it should be.

Tires

Position	Bytes
F-L	69-6A
F-R	71-72
B-L	79-7A
B-R	81-82

Armour

Position	Bytes
Front	89-8A
Back	91-92
Left	99-9A
Right	A1-A2
Under	A9-AA

Ammo

Weapon #	Bytes
1	B6
2	BE
3	C6
4	CE
5	D6
6	DE
7	E6
8	EE
9	F6
Ø	FE

Alex Vogt

? I would greatly appreciate any information on where I might purchase a copy of "Beneath Apple DOS". I have checked some of the local book stores with no success.

? I am interested in CD ROM hardware for resetting into the monitor. Where might one look to purchase such hardware? I have only seen a few mentioned in COMPUTIST.

As you have already guessed, I'm a novice. I have owned my Apple IIe (standard) for a little over 1 year now. At first COMPUTIST seemed way over my head, but by plugging along it has opened my eyes a great deal. Keep up the good work! I plan on purchasing back issues, on a monthly basis, until my collection is complete. So here's looking to the many years ahead! Thank you for your time and any information, suggestions and recommendations that you can send my way.

Dr. Leigh Rowan-Kelly

Softkey for...

Mavis Beacon Teaches Typing
Software Toolworks

I won't go into a lot of detail, but essentially it involves the usual standard copier pass on the Master disk, and then a sector edit.

[1] Copy the disk with any standard copier.

[2] Sector edit block $3E.

Block	Byte(s)	From	To
$Ø3E	$113	DØ	8Ø

Or search for 22 ØØ ØØ ØØ 7A 7A A8 DØ 12 F4 17 ØØ and change the DØ to 8Ø. What this does is to alter a branch in the code to bypass the check for the Key disk and allows the program to run. The Data disk is unprotected and needs no changes at all. Unfortunately it does not like being run from Hard disk.

Mike Brown

Softkey for...

Pac-Man
Atarisoft

■ Requirements

☐ DOS 3.3 System Master
☐ Sector Editor

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

[3] Make the following sector edits to the copy you just made.

Trk	Sct	Byte(s)	From	To
$ØØ	$Ø3	$35	AA	DE
		$3F	DE	AA
		$91	AA	DE
		$9B	DE	AA

Readers Data EXchange

James W Patton

? As a user of the Apple IIgs, I find that some of the techniques you have described in the past are not applicable on the new machine. For example, way back in COMPUTIST #2Ø was an excellent article titled "Apple II Boot ROM", that discussed the disassembly of the code at $C6ØØ-$C6FF (assuming that the Disk II interface card is in slot 6). Unfortunately, the code in the IIgs at that address is different. It appears to be using 65816 code. An article discussing the disassembly of the new IIgs ROM code at $C6ØØ-$C6FF is badly needed. And a article dealing with "Boot Code Tracing" with the new IIgs ROMs is also badly needed. Surely someone among your readers has the technical ability to perform this worthwhile service.

Terry Yancy

† *Softkey for...*

Dazzle Draw IIc
Broderbund

■ **Requirements**

□ COMPUTIST #21

If you have a IIc with the 3.5 ROM, here's how to deprotect Dazzle Draw. All you have to do is follow the procedure in COMPUTIST #21 with the following changes:

[3] Move the disk controller ROM code to RAM and modify it so that it jumps to the monitor.

```
8500<C500.C800M
86F9:59 FF
```

[5] Your Apple will beep and the monitor prompt will appear. Now turn off the drive and make some mods so that the next stage of the boot can be halted and start up this boot.

```
C0E8
0843:59 FF
86F9:01 08
863C:85
85AE:50
8600G
```

Thanks go out to R.G. Henderson for his letter in COMPUTIST #26, which is the basis for this update.

Dennis Gaunt

Some notes on Moebius

Many thanks to A. Evans for the Moebius A.P.T.'s in COMPUTIST #57. However, a word of caution, the suggestion of sector editing various values to FF (where appropriate) doesn't work. Apparently, there are limits for these character attributes which the program doesn't recognize. I tried using FF for lives, but this didn't change from the 1 life I had left. Possibly, you cannot have more than 11 lives, I typed in Ø9 and did get 9 lives on screen. I also was able to add 1Ø ($ØA) shurikens and torches. The amount of food and water your character can have is 1ØØ "units", I think this is 64 in hex, but I haven't tried it yet.

You must be careful, if you are already into a journey and then begin sector editing your character. The new values seem to change where you are in the game, it's best to start a new character, just get started, save the game and then sector edit his/her attributes. The safest is to simply add lives and when those eventually run down to 1 or 2 simply edit in more.

One last tip: It's possible in some realms of Moebius to be transported into a place from which you cannot get out (surrounded by stone or by vegetation without your sword). If you are sure you cannot move or get out do not save your current position. Instead hit "R" to restart at the last saved position and then avoid the trap that got you stuck. If you do save the game when trapped you can write off your character. Now, what was that prayer to make me invisible?

Paul Kippes

A.P.T. for...

Lode Runner
Broderbund

For those of you who have a deprotected Lode Runner, these modifications will allow your computer to rest between game sessions, or give you another way to cheat. These modifications were developed from a copy of Lode Runner deprotected with the aid of COMPUTIST.

$2Ø6F holds the beginning number of men.
$22Ø2 holds the beginning level minus one.
$244F determines how trap doors are displayed on playing screen.
$2Ø58-2Ø5F clears the score to Ø.
$8E-91 is the score location.

For example: to begin play at level 112 with 43 men and a score of 1,Ø29,645, enter:

```
BLOAD LODE RUNNER
CALL-151
2058:EA 2059<2058.205EM     Prevent score from being cleared
8E:45 96 02 01              Starting score
206F:2B                     Starting number of men
2202:6F                     Starting level
EFDG                        Start Lode Runner
```

There is a drawback from setting a beginning score; when the demo is run or [R] is pressed, points scored will, of course, not be cleared.

Here's one more modification that will no doubt help in playing Lode Runner.

```
244F:05                     Trap doors are now visible
```

If anyone knows of a way to avoid the opening and closing of the screen between levels, please submit the information.

Bud Myers

To Doug Parish: I have and use The Graphics Manager from On Three. It does everything advertised and more. I use a Fingerprint Plus parallel interface and an Epson FX-85. In the supported interfaces, mine is not listed, so I use the Grappler Plus option, with absolutely no problems. I use the same DIP switch settings for everything; Appleworks and other processors, Print Shop and other graphics programs, Publish It! and other desktop publishing software. Sorry I can't help, but hope someone else does. You're missing a lot of power and fun.

To Steve Scalia: Renew your subscription! If you have been a subscriber for at least a year, see my letters in COMPUTIST #52 and #54. Like you, I was ready to dropout when the light finally dawned. Above all, don't throw away those back issues. Sooner or later you'll be glad you didn't.

To all RDEX contributors: Please keep in mind readers like Mr. Scalia and me. Oversimplify everything. Ask yourself which you prefer, instructions so detailed that you can skip most of them, or those so skimpy you can't get started. Real experts aren't hampered by "See Spot Run" — level stuff, but beginners are stymied by "Reset into the monitor" and "Capture the RWTS'.

Incidentally, Fingerprint Plus affords an easy way to get into the monitor and do whatever it is one does there.

Jason Cobb

I have just became the proud owner of Pirates for the Apple IIgs. It's a challenging game with good animation. The reason I'm writing is because I would like to know if anyone has APT info for it, such as how to get ships or change your status with the different countries. I would like to know how the information is stored, and what it does. I have found some data, but can't figure out what to change. If I could get the information for it, I will write an editor and give whoever sends the information, a copy.

Readers Data EXchange

Andy Borne

? I've created some double-hi-res pictures with Dazzle Draw. How can I display them from ProDOS Basic.System? HGR displays it in only Hi-res, when I BLOAD the picture. Being in ProDOS I'm aware that the /RAM disk takes the double-Hi-res buffer memory. I've taken care of that problem, so what is it that I'm doing wrong?

Bob Igo

A.P.T. for...

Bard's Tale III
Electronic Arts

I was one of the four readers who sent in editor information about the Bard's Tale III. Personally, I was rather disappointed that my set of information was not the main one published, but I congratulate Brian Symonds, Thomas Rapheld, and Harold Day for their work. Brian's character editor information was much more prolific than mine. The knowledge that four people sent in information on the same topic gives me a feeling of teamwork, not competition. I do have a few comments on some of the information published. Changing the picture of your character can affect playablility; $77 and up (to $FD?) will crash the game (as far as I tested). I know that $FE is black and $FF is clear (you see what you were looking at before you decided to look at your character).

Also, here is a more complete list of conditions possible for your character:

Condition	Bytes	Status Of 'x'
Paralyzed	x0-x3	any odd hex
Dead	x4-x7	any hex #
Stoned	x8-xF	any hex #
Possessed	20-23, 60-63	NA
Nuts	40-43	NA
Ok	00	NA
Poisoned	01	NA
Old	02	NA
Poisoned & Old	03	NA

It was not stated that values of FF should be entered in the spells area to give all the known spells. Also, you can have a Geomancer with all the spells possible in the game by just FF-ing the whole area and changing your class byte (if not already) to 0C for Geomancer.

As the RDEXed suspected, there were errors in the list of items on page 19 (COMPUTIST #59). They should be as the RDEXed said. There are also a few others,but they're not really major.

One last thing: It's nothing major,but why wasn't my name printed in the list of Apple RDEX contributors?

It's my fault. I goofed up and no one noticed until the issue was printed. I'm sorry for the ommission. I did make sure your name was in COMPUTIST #61 on the combined chart. Thanks for the additional data. I interpret your condition code info as a possible bit position code.

Byte	Bit position	effect
00	0000 0000	O.K.
01	0000 0001	Poisoned
02	0000 0010	Old
04	0000 0100	Dead
08	0000 1000	Stoned
10	0001 0000	Paralyzed
20	0010 0000	Possessed
40	0100 0000	Nuts
80	1000 0000	????

What do you think? .....RDEXed

George Sabeh

I have enjoyed COMPUTIST this past year and find myself going back and reading all the back issues. They are a great help. I am new at this but I have been able to deprotect some programs and would like to share this.

Softkey for...

High Seas
Garde

■ **Requirements**

☐ COPYA
☐ Two blank disks

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum/epilog errors and the first byte of the address prolog (D5). Use COPYA to copy both disks.

POKE 47426,24 *B942:18*
POKE 47444,41 *B954:29 00*
POKE 47445,0
RUN COPYA

Softkey for...

Kings Quest III
Sierra On Line

■ **Requirements**

☐ Fast copy program or COPYA
☐ 5 Double Sided or 10 Single Sided Disks
☐ Sector Editor

[1] Copy Program with Fast Copier or COPYA.

[2] Sector edit side 1 of disk 1 only.

Trk	Sct	Byte(s)	From	To
$0A	$01	$05	A9	60

This is the same protection used on Kings Quest I and II. If needed search for A9 00 AA A8.

Softkey for...

Rad Warrior
Epyx

■ **Requirements**

☐ COPYA
☐ Sector Editor

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

[3] Make the following sector edit to the copy you just made.

Trk	Sct	Byte(s)	From	To
$00	$05	$00	??	A9 FC 85 F0 A9 EE 85 F1 A9 EE 85 F2 A9 FC 85 F3 A9 EF 85 F4 A9 EE 85 F5 A9 FC 85 F6 A9 E7 85 F7 4C 7A BB

This is explained in detail by Jim S. Hart in COMPUTIST #57, page 17.

Softkey for...

Robot Rascals
Electronic Arts

■ **Requirements**

☐ Fast Copy Program that ignore errors such as Locksmith Fast Copy
☐ Sector Editor

[1] Copy program ignoring error on track $06.

[2] Sector edit:

Trk	Sct	Byte(s)	From	To
$01	$0F	$00-02	4C 69 A0	18 60 DD
		$6F-71	4C 69 A0	18 60 DD
	$0C	$00	4C	60

You could search for 4C 69 05 and change the 4C to 60 for that last edit.

These changes should produce a copyable and unprotected programs. Lock your originals in a safe place and enjoy. I hope this information would help some of your readers. I continue

to enjoy COMPUTIST and feel I have learned more from reading it than any other source. Keep up the good work.

? How about publishing a short list of important books that would help a novice get started.

Now there's something that could cause a lot of dialog. How about it COMPUTISTs, what books do you find yourself using again and again? What books would you recommend to others? Drop me a post card with your best titles..... RDEXed

David Sharpe

Please place Gutenberg Sr. back on your most wanted list. The softkey from B.D Brett in COMPUTIST #56 does not produce a very useful copy of Gutenberg Sr. It is easy to get a copy which will boot, but most of the important utilities will not run from such a copy or from that produced by Brett's softkey. There is apparently a check for the original disk when these utilities are run.

Claire M Dominov

? Has anyone developed Softkeys for any Sunburst program since 1986 copyright date, particularly the Muppet series?

It's tough to answer your question unless I actually owned the programs in question. It's better if you ask for a softkey for a specific title with a version number. Perhaps someone with an index could answer your question..... RDEXed

Scott F. Earnest

? Wanting to take a foothold in "working" with commercial software, I immediately took notice to your advertisement in Nibble magazine. But because I know little about hacking and have many questions. I decided to consult your publication for advice. Here is a small set of questions to start:

Q. A few years ago, an incorrect hookup of my disk drive caused partial scrambling of data upon booting. One disk was a copy of Broderbund's "Dazzle Draw". I would like to repair it, but it has a copy protection on it, and furthermore, my software repair program Disk Recovery System, crashed in an unexplainable magnetic failure along with several other programs on the disk. What I need to know is, how to open up the damaged disk for repair and copy, the cost of such an opertion, and where I can get a good reliable repair program?

The easiest and perhaps the cheapest way to repair an original disk is to return it to the publisher with the required replacement fee. This not only fixes the disk but usually gets you the latest version, as well. Be sure and tell them what computer you have. In the future, ***only use a backup copy.*** *And while we're on the subject, backup all of your software and* ***only use the backups.*** *We've printed several article/softkeys about Dazzle Draw that make COPYA-able copies. I would need to know which version you have before I could make a suggestion.*

Disk repair programs are made to work with standard Apple disks. They are not for "fixing" protected disks which usually have altered formats and unique bit patterns. They are designed to help "fix" data disks that you created. The assumption is that the disk contains critical data and that no backup exists. (What, no backup?) There are several companies that repair disks (if possible) but again, they don't "fix" protected program disks. The cost can be quite high..... RDEXed

Q. What are softkeys and do they need any special knowledge in software manpulation?

A softkey is a procedure that allows you to copy a protected disk; creating a copy that is itself not copy protected. (IE. Copyable with COPYA or any other regular copy program.) Most of the procedures are given in step-by-step format and don't require any special knowledge. The basic tools that you need are given to you, when you subscribe, in the form of a software "Starter Kit". ..... RDEXed

Q. Where can I find complete machine language programming tips?

Now there's an open ended question, difficult to answer because there are so many correct answers; depending on where you are in your knowledge of machine language and on what "tools" you have available. But you did say tips and my favorite book of "tips" is "6502 Assembly Language Subroutines" by Lance A. Leventhal and Winthrop Saville. The book starts out with general information on programming methods, instructions, Address modes and common errors. Then it goes into programming for code conversions, strings, arrays, indexing, math, bit manipulation, input/output, and interrupts, etc. The authors don't just talk, the book is full of practical examples, charts and tables. Each subroutine is explained, in detail, and heavily commented. Great for the beginner or the pro..... RDEXed

Q. Is there a map of Applesoft to locate useful program subroutines?

The most complete list of Applesoft subroutines that I know of is the "S-C Documentor" ($50 + $2 shipping) from S-C Software Corporation, 2331 Gus Thomasson #125, Dallas, TX 75228. This is the complete, commented source code for Applesoft BASIC. Everything you ever wanted to know..... RDEXed

Q. Finally, tying in with machine language are shape tables. So far, I cannot find anything about creating shape tables. Where could I find information about this topic?

I haven't used shape tables in years, so I'm going to let the readers answer this one. Anyone know of a good reference? Perhaps someone would like to writing an explanation..... RDEXed

Warwick Phillips

I have been stirred into action by your request for bugs in COMPUTIST #59. I have been waiting patiently for others to write in. Michael Horton's Character Editor for Alternate Reality looks interesting, but I don't understand what the symbol "#" is meant to be. It appears, for example, in line 760 (COMPUTIST #55 pg.11).

```
760 AN (I) = AN (I)+PEEK (P(I)-J)*256#J
```

If the line is entered as written the checksums are incorrect and the program won't run properly. I don't have sufficient command of BASIC to work out what the program is trying to do and rewrite it; nor do I understand what operation "#" it is to perform. The same symbol appears in line 1010, 1050, 1140 and 1150. It's probably something simple, but I would appreciate some help.

There are also some minor errors in Dudley Brett's BASIC program "Write Hi-res Picture Or Binary File". (COMPUTIST #56, pg. 13.) Line 40 should begin T=X not TI=X and line 80 needs to reset the sector count to 15.

? A couple of minor requests: Has anyone worked out how to import Newsroom or Print graphics into Publish It. Can anyone tell me why it's not possible? Finally has any genius out there cracked Bureaucracy yet? Thanks for the assistance and a fascinating magazine.

Let's take these comments in order. The pound signs "#" in Michael Horton's Character Editor are actually exponent signs "^". We had a problem with the character translate table that the typesetter uses and the pound sign slipped in. In the lines that you mention, replace the "#" with "^" and things should work out right.

Line 40 of Dudley Brett's program could begin with T = X but then later, in the same line, you would have to delete the T = TI. Six of one, half dozen of the other.

The sector count definitely needs to be reset to 15 ($0F). The best place to do this is probably line 50. Delete line 80, line 90 and line 100. Change line 50 to read:

```
50 S = S - 1: IF S < 0 THEN S = SI: T = T + 1: IF T
   > LT THEN PRINT "-ERROR-": END
```

..... RDEXed

Readers Data EXchange

Jim Mitchell

? I now own a Macintosh in addition to my IIe. I really would like to see some articles on copy protection (or anti-copy protection) for the Mac.

There are some Mac softkeys in COMPUTIST #52 but that is it so far as I know. How about it readers? Do you have any tips for Mac users or do you know anyone who does Mac softkeys that would write for us?.....RDEXed

Michael Yelich

? How do I deprotect "Visicalc" for installation on a Hard Disk?

Lenny Schmidt

Softkey for...

Mind Over Matter
Learning Well

■ Requirements

- ☐ Mind Over Matter disk (c) 1984
- ☐ DOS 3.3 System Master or other normal DOS 3.3 disk
- ☐ Super IOB (or CopyB, Advanced Demuffin 1.1, etc.)
- ☐ One 5¼" disk

Although this one is an "oldie", it is a perfect example of a program that uses protected DOS and can be cracked easily in a few minutes. When I first played this game, I noticed that it did a lot of disk access and whenever it accessed the disk, it kept grinding the drives a lot. I figured that my drive would not be in the most healthy of conditions if it kept grinding itself two times every 30 seconds for 2 hours, so I decided to take on the challenge of cracking it.

[1] Boot the DOS 3.3 disk (or compatible Fast DOS). Insert the 5¼" disk and initialize both sides.

FP
INIT HELLO *for both sides*

[2] Boot Mind Over Matter and wait until the startup program is displaying the startup graphics, then:

[CTRL-C]
FP

What you have done is clear the Applesoft program pointers and reset some other memory locations to normal. If you were to type a Applesoft command after pressing [CTRL-C], program would restart. If you type a DOS command, however, the DOS command would work. FP is a DOS command that acts like NEW but also resets MAXFILES and a few more locations that NEW doesn't. (The poke that makes Applesoft commands act like RUN is POKE 214,255, commonly known as the RUN FLAG.)

[3] Now move the RWTS down in memory so we can recover it later.

CALL -151
4000<B800.BFFFM

[4] Boot the disk you INITed in step 1. (I assume your disk controller is in slot 6.)

C600G

[5] Save the RWTS to your Super IOB disk.

BSAVE RWTS.MOM, A$4000, L$800

[6] Now you can use Advanced Demuffin 1.1 (or later versions) to copy the entire disk (both sides) from tracks $00-$22 or you can use the following Super IOB controller. (Don't forget to save this controller to your Super IOB disk.)

Controller

```
1000 REM MIND OVER MATTER (side 1 & 2)
1010 TK=3:LT=35:ST=15:LS=15:CD=WR:FAST=1
1020 GOSUB 360: GOSUB 490: GOSUB 610
1030 GOSUB 360: GOSUB 490: GOSUB 610: IF PEEK
     (TRK) = LT THEN 1050
1040 TK=PEEK (TRK):ST=PEEK (SCT): GOTO 1020
1050 HOME : PRINT "COPYDONE" : END
10010 PRINT CHR$ (13) CHR$ (4) "BLOAD^RWTS.MOM,^
     A$1900"
```

Checksums

```
1000  - $356B      1040  - $0D4F
1010  - $2445      1050  - $8E0B
1020  - $C908      10010 - $E081
1030  - $FB9C
```

If you copy the de-protected Mind Over Matter, be sure to use only a full disk copier, not a file copier. Why? Apparently on track $1F, sectors $00-04 of side 1 is an Applesoft program that is not listed in the directory, but is considered "used space" in the VOTC. I'm not sure if it has any significance to the program.

More on Booting from drive 2

Here is an interesting feature about 2nd drive booting. Some games can be booted from drive 2. If a program uses DOS 3.3 and you try to boot it from drive 2, it will usually (after a few seconds) start reading from drive 1. This way you can determine if a program uses normal DOS or a modified version of DOS 3.3.

Jim S. Hart

Bit Copy for...

Tetris
Spectrum Holobyte

■ Requirements

- ☐ Original Tetris 5¼" disk
- ☐ 2 blank disk sides
- ☐ Bit copy program
- ☐ Super IOB
- ☐ Sector editor

Tetris is the most interesting game to come along in quite some time. The object of the game is simple: pile differently shaped configurations of blocks on top of each other so that an entire row across is filled up. Nothing too complicated, which reminds me of the days when game play was the most important attribute a game had, not how pretty it looked. In my opinion, that is why the games today are not that great - so much time goes into making it look good (i.e. graphics) and not enough time goes into making the game play good (i.e. fun). Tetris' game play is really good, and for the graphics lovers there are several good pictures of Soviet scenery in the background.

The Tetris package consists of a 5¼" disk (both sides protected) and a 3½" disk (not copy protected, but there is a manual word check). Since I have a Laser 128, I was not interested in the IIgs version, which by the way has great graphics and sound, but rather the 5¼" version. The 5¼" disk is double sided. The front side contains the 128K double hires version and the back side has the 48K any-Apple version. Both sides are protected in the same manner.

The Protection

The first part of the protection scheme is almost identical to that used by California Games and Boulderdash Construction Set. Refer to my Boulderdash Construction Set softkey, in COMPUTIST #57, for a more complete description of what's happening. The protection code is almost identical and the functional protection is the same: a group of bytes on a certain spot on the disk are read into locations $F8-$FF. These bytes are then used to decode the next boot stage. All of this is on track $00, the only normal 16 sector track on the side. The rest of the tracks on the disk ($01-$22) are in a 6 sector-per-track format. What we are going to do is to bypass the first protection, the reading in of those certain bytes, and then bit copy the rest of the side. The result is a bit copyable version. If anyone can take the softkey further so that the whole disk is deprotected, be my guest.

The Half-key

[1] Load Super IOB, install the FAST controller and add the follow lines:

```
1015 LT = 1
1017 POKE 47426, 24
```

[2] This controller copies just the first track. Use it now to copy the first track on each side of the original to the first track on each side of your blank disk. Answer 'Y' when asked if you want to format the destination disk.

[3] Make these sector edits to both sides of the partially copied disk.

Trk	Sct	Byte(s) From	To
$00	$02	$00-$1D A9 0A 85 FC A6	A9 E7 85 F8 85
		2B BD 89 C0 BD	FB A9 FC 85 F9
		8E C0 A9 80 85	85 FC 85 FF A9
		FD C6 FD F0 74	EE 85 FA 85 FD
		20 A6 25 B0 6F	85 FE A6 2B BD
		A5 F9 C9 0F D0	89 C0 18 90 52

[4] Boot your bit copier and bit copy tracks $01-$22 of the front side of the original to the front side of the partially copied disk. Repeat for the back sides.

Your Tetris is now in bit copyable form. The enterprising Computist will take this 'Half-Key' (as Edward Teach put it) and develop it into a full fledged softkey. It would sure be nice to have a Tetris disk in which all the information is kept in files instead of directly on disk so we could load it into a RAM card for super quick access time while playing.

Other Tetris notes

- Track $00, sector $01 is loaded into $1000-$10FF.
- Track $00, sectors $08-$0C are loaded into $2000-$24FF.
- After the memory ranges of $1000-$10FF and $2000-$24FF have been loaded in and decoded, execution goes to $1000.
- The code at $1000 loads $2000-$24FF into $D000-$D4FF in bank 1 of the RAM card for the 128K version, and from $2000-$24FF into $B000-$B4FF for the 48K version. Execution then goes to the beginning of the newly relocated code ($D000 for the 128K version, $B000 for the 48K version).

A.P.T. for...

Pharoah's Revenge

?

Pharoah's Revenge is a pretty neat little game put out by a fellow named Ivan Manley. The game concept is something like Lode Runner, except that you have to place ladders in different spots on the playfield so that you can climb up to the next floor. The object of the game is to collect ankhs and then to go to the 'up arrow' which sends you to the next level. Ankhs are not necessary to collect, but you receive points for them (the only way to get points) and if you collect all of them on one level and then advance to the next level, you get a free man. There are several different levels of difficulty that you can play the game at; I play the standard game.

What bugs me is that you can only have 6 ladders in hand at one time, and when those are used up you have to go back down to the lower left corner of the screen to get 6 more. I hacked through the code a bit and discovered that zero page location $1C holds the number of ladders you have. Enterprising Computists can use this information any way they want. For example, to get rid of the command that decrements your ladder count each time you use one, search the front side of the disk for the byte sequence C6 1C (DEC $1C) and replace it with EA EA (NOP NOP). Write the change back to disk (a copy - never change your originals!) and you'll never have to worry about running out of ladders. A less extreme edit would be to change the number of ladders that you receive each time you 'refuel' in the bottom left corner. The code would look something like:

```
A9 06  LDA #$06
85 1C  STA $1C
```

All you'd have to do is replace the #$06 with whatever number you like.

Miscellaneous Notes

Disable ProDOS error checking

To disable ProDOS error checking (the equivalent of DOS 3.3's B942:18), enter the following:

```
BLOAD PRODOS,A$2000,TSYS
CALL -151
55FB:18                    was 38
2000G                      starts modified ProDOS
```

POKEing around Hires

Memory location $E4 (decimal 228) seems to have some bearing on the hires color that is in use. Try this program to see what I'm talking about:

```
10 HGR
20 CLR = 0 : POKE -16368,0
30 POKE 228,CLR
40 HPLOT 0,0
50 CALL 62454
60 CLR = CLR + 1
70 CLR = CLR * (CLR < 256)
80 IF PEEK (-16384) < 128 THEN 30
90 TEXT : END
```

Pressing any key will abort the program. The following table shows values and colors.

VALUE	Equivalent HCOLOR#
0	0
42	1
85	2
127	3
128	4
170	5
213	6
255	7

$E4 is shown as "HGR.COLOR" in our Applesoft disassembly. The HCOLOR = X statement puts the X'th value from a color table into $E4. Here is what it looks like disassembled.

```
F6E9:20 F8 E6   JSR $E6F8   Eval exp to single byte in X
F6EC:E0 08      CPX #8      Value must be 0-7
F6EE:B0 F6      BCS $F6E6   Illegal Qty Err
F6F0:BD F6 F6   LDA $F6F6,X Get color pattern
F6F3:85 E4      STA $E4     HGR.COLOR
F6F5:60         RTS
F6F6:00 2A 55 7F 80 AA D5 FF  Color Table
.............................. RDEXed
```

Colors vary from column to column in hires graphics, and here are the colors you'll get depending on the column you're drawing on:

HCOLOR #	Odd column	Even column
0	black	---
1	black	green
2	violet	black
3	violet	white
4	black	---
5	black	red
6	blue	black
7	blue	red

The Disk Controller Card

Here are the ROM locations in the disk controller card and what they do. The X-register contains the slot# * 16. (i.e. slot 6 is $60.)

```
C088,X   motor off
C089,X   motor on
C08A,X   engage drive #1
C08B,X   engage drive #2
C08C,X   strobe data latch for I/O
C08D,X   load data latch
C08E,X   prepare latch for input
C08F,X   prepare latch for output
```

Disk protection schemes do not always use the X-register. They can just as easily use the Y-register or even directly call the address, although this limits what slot your disk controller card can be in. For example, the direct call to strobe the data latch for I/O with the disk controller card in slot 6 is $C08C + $60 = $C0EC. Some Electronic Arts schemes are like this, because if your card is in any other slot than slot 6, upon booting you will receive a message like 'DISK CONTROLLER CARD MUST BE IN SLOT 6'.

Readers Data EXchange

Math Operators in Applesoft

Here is the mathematical order of operations in Applesoft:

( )	Parenthesis
+ - NOT	Unary operators
^	Exponentiation
* /	Multiplication and division
+ -	Addition and subtraction
< > =	Comparison operators
AND	AND logical operator
OR	OR logical operator

Some notes on Mousetext

Mousetext is not hard to activate and use, contrary to what friends have told me. Here is an example of how to use it:

```
10 MO$ = CHR$ (27) + CHR$ (15) : REM Mousetext on
20 MF$ = CHR$ (24) + CHR$ (14) : REM Mousetext off
30 PRINT CHR$ (4); "PR#3" : REM Turn on 80
   columns
40 PRINT MO$ : REM Activate Mousetext
50 PRINT "ABCDEFGHIJKL" : PRINT
60 PRINT MF$ : REM Go back to standard character
   set
70 PRINT "ABCDEFGHIJKL"
80 END
```

You can now easily add Mousetext effects to your program.

Kudos

I forget at times to mention names that should be mentioned. My thanks to Brian A. Troha for his helpful info that allowed me to make Thexder a self booting disk. Also, thanks go out to Chris Korpi, Edward Teach, Keith Parker, Kim Griffith, and all of the other Computists who have written me and become my pen pals.

Brian A. Troha

**IIgs Softkey for...*

King's Quest I

Sierra On-line

■ **Requirements**

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

King's Quest I (KQ1) has been re-released in a IIgs format, with the same type of cartoon graphics as the 128K Apple II versions. It is sad that Sierra has overlooked the potential of the IIgs, they should have put some effort in to the graphics. Well, to continue, the protection is the same as on Space Quest and Leisure Suit Larry. The program comes on two 3½" disks, with both disks having an error over block $634. After checking the code on the KQ1 disk, and that of the other two Sierra programs I found a common section of code (along with the edit to crack them). All three disks have this same code.

```
22 00 00 00   JSL 000000
C9 01 00      CMP 0001
F0 04         BEQ (+4)
22 00 00 00   JSL 000000
22 00 00 00   JSL 000000      change 22 to AF
AE 00 00      LDX 0000
AD 00 00      LDA 0000
DA            PHX
48            PHA
```

These bytes can be found on block $A0 for KQ1 and when the patch is made, the result is a cracked copy that can be run from 3½" disks or a hard disk.

If you use Copy II Plus v8 to search for "00 F0 04 22 00 00 00 22", when the sequence is found, the cursor will be on the byte that needs to be changed. The same exact sequence is on all three forementioned programs and the same change will work for each. When checking a copy of Police Quest (also by Sierra) I cound not find the above code or any protection routine for that matter. The krack for King's Quest I is as follows:

[1] Make a copy of both disks, ignore errors on block $634.

[2] Make the following change on the copy of disk one only.

Block	Byte(s)	From	To
$A0	$BB	22	AF

**IIgs Softkey for...*

Vegas Gambler

California Dreams/Logical Designs

■ **Requirements**

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

California Dreams has brought out at least three new games (ported over from the Atari ST) for the IIgs, these are Vegas Gambler (VG), Vegas Craps, and Club Backgammon. While all three games take a bit to load in, the graphics used are well worth the wait.

With VG you can play Roulette, Poker, a Slot Machine, and Blackjack. The graphics are so nice they make Monte Carlo (PBI Software) look like Double Hi-res for 128K Apple in comparison.

Even with high graphics quality, there is one major problem I would not put up with, the type of "copy protection" used. Actually it's "pirate protection" (if that can be done), meaning you can make as many copies as you want but you need the actual manual for a letter check. The program asks you to go to page X, line Y, and type in the Z'th letter. This is VERY bothersome, not only do you need the game disk (when you run it from 3½" drives), but now you will need the manual handy too. The only good point about this protection is, that you only have to look up one letter and you only have to do that once. At least VG is totally hard disk compatible with it's copy protection. I decided that this type of protection should be "Out of sight, out of mind," so I set out to disable the letter check.

I found which block the program started on, then I followed the code down a little and inserted a 00 for a software interrupt (break). This way if the letter check came up, then I went too far, if the letter check didn't come up, then I didn't go far enough. This is a real brute force method, however after 4 hours I was succesful with this program. In VG there are seven menu choices, but only four places where the checks are. Each check looks like this:

```
22 xx yy 00   JSL 00yyxx
8D 48 00      STA 0048
AD 48 00      LDA 0048
D0 zz         BNE wwww
```

After checking the code there is one spot that will send the program to a ProDOS 16 quit routine if $0048 is equal to anything but zero. I searched for 8D 48 00, found it several times and checked each one out. There is one place (for the QUIT option) that looks like A9 01 00 8D 48 00 that should not be changed. I changed all the other STA $0048 to STZ $0048 so a zero would be stored in the flag always, except for the quit option and changed the JSLs to LDAs. Now VG would go from the main menu right to the loading screens, skipping the check of the manual! To disable the letter check follow these steps:

[1] Copy the game disk.

[2] Make the follow edits to the copy.

Block	Byte(s)	From	To
$24	$1C9	22	AF
	$1CD	8D	9C
	$1F0	8D	9C
$25	$6	22	AF
	$A	8D	9C
	$2D	8D	9C
	$43	22	AF
	$47	8D	9C
	$6A	8D	9C
	$80	22	AF
	$84	8D	9C
	$A7	8D	9C

[3] Write the edits back to the disk.

Optional: Upload the game to your hard drive. Break the bank!

Readers Data EXchange

**IIgs Softkey for...*

Graphics Studio

Accolade

■ **Requirements**

☐ 768K Apple IIgs
☐ 3½" Disk copier
☐ 3½" Disk editor

In COMPUTIST #54 (page 22) there was an article by me on how to softkey Graphics Studio. When you apply the patch, and boot into the program, then start trying to draw without selecting anything the copy would bomb. I went back and reviewed my notes to see what the problem was. It seems that I overlooked some code on block $98, where they store zeros in $ØØ/ØØØ2 and $ØØ/ØØØ3. I have come up with a different patch that skips the actual disk read and works without the above described problem.

[1] Copy the original Graphics Studio disk.

[2] Make the following edits to the copy.

Block	Byte(s)	From	To
$31	$4C	DØ 42	8Ø 35
$98	$1A8	A2 2Ø	8Ø 2C

[3] Write the block back to the copy.

Optional: upload the program to a hard disk.

**IIgs Softkey for...*

Read and Rhyme

Unicorn Inc.

■ **Requirements**

☐ 768K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Read and Rhyme (RR) is an educational program that teaches rhyming and alphabetizing. The program comes on two 3½" disks and uses nibble counting (on tracks $2Ø and $21) on the program disk for copy protection. Like the other Unicorn program if you search for A2 21 AØ Ø1 you would find the copy protection. The actual dissassembly is so close to other Unicorn products it's not worth showing, only the absolute addresses change.

If you change the LDX #21 (A2 21) at $6F to BRA 8E (8Ø 2C) then RR no longer checks for the original and continues to load. For other Unicorn programs that come out try searching for A2 21 AØ Ø1 and change the A2 21 to 8Ø 2C.

[1] Copy the 3½" disk.

[2] Make the following edits to the copy.

Block	Byte(s)	From	To
$38A	$6F	A2 21	8Ø 2C

[3] Write the block back the copy.

Recovering OTHEXDER

■ **Requirements**

☐ 512K Apple IIgs
☐ Original THEXDER disk
☐ Copy II Plus v8

While looking at my Thexder (Sierra) disk, I noticed a deleted file by the name of "OTHEXDER". (I assume it's OTHE*r* *the*XDER or perhaps O*ld* THEXDER.) I used Copy II Plus v8 (lower versions gave me "lost file" messages) to undelete the file. I then tried to run the file, but Sierra's protection scheme was also present in this version of Thexder. I thought I would check $55 bytes into the file and see if the call to the protection was there. I found a 22 62 ØF ØØ (it was 22 42 ØF ØØ for Thexder, see COMPUTIST #5Ø, page 19-2Ø) starting with byte $55 (on block $7), so I changed it to an AF. The new file was now completely deprotected! I'm not that good at the game, so I can't tell if there are any major differences between the two files. The only thing I really noticed was the fading of the music from the main title screen, where as Thexder would just stop. To capture your version of Othexder try this:

[1] Copy the original Thexder disk.

[2] Make the following edits:

Block	Byte(s)	From	To
$Ø7	$55	22	AF

[3] Enter Copy II Plus v8 utilities and Undelete OTHEXDER.

Optional: Upload both programs to a hard disk.

**IIgs Softkey for...*

King's Quest II

Sierra On-line

■ **Requirements**

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

King's Quest II (KQ2), like KQ1, has also been re-released in a IIgs format. Sierra used the same protection routine (to find the bad block), but has added a flag check system to avoid a simple krack. Once again the program comes on two 3½" disks, with both disks having an error over block $634. Using the key scan bytes found on other Sierra releases, I found the same section of code (on block $2ED):

```
22 ØØ ØØ ØØ  JSL ØØØØØØ
C9 Ø1 ØØ      CMP ØØØ1
FØ Ø4         BEQ (+4)
22 ØØ ØØ ØØ  JSL ØØØØØØ
22 ØØ ØØ ØØ  JSL ØØØØØØ        change 22 to AF
AE ØØ ØØ      LDX ØØØØ
AD ØØ ØØ      LDA ØØØØ
DA            PHX
48            PHA
```

However, when the patch was made, the program would load about 8Ø% then bomb into the monitor. Now it's time to go back and trace the actual block read code and look for some type of flag. I went back and changed the AF to ØØ (which was the edited 22 from block $2ED) this forces a break, from there you can examine the disk check code. Simply boot the disk and wait for it to bomb into the monitor. You should see something like "Ø2/A12C:ØØ 24 BRK 24" at the top of the screen. Replace the JSL instruction by typing A12C:22, then list the code with A12CL. This reveals the code we want to check is located at $Ø2/8224 in memory. Here's what I found after looking at it:

```
ØB            PHD
3B            TSC
38            SEC
E9 FB ØØ      SBC #ØØFB
5B            TCD
69 C4 ØØ      ADC #ØØC4
1B            TSC
A9 ØØ Ø2      LDA #Ø2ØØ   Load & store a value to insure
8D 9A 76      STA 769A    we've run this section of code.
```

Skip down to $8315.

```
A2 ØØ ØØ      LDX #ØØØØ
A9 34 Ø6      LDA #Ø634   The bad block to check for.
48            PHA         Push it on the stack for a second.
8A            TXA
8F 8E 8B Ø1   STA Ø18B8E  Store a 16-bit zero here.
68            PLA         Pull the block to check for.
8F 8C 8B Ø1   STA Ø18B8C  Store it here.
F4 22 ØØ      PEA ØØ22    22 = ProDOS 16 Block read.
F4 Ø1 ØØ      PEA ØØØ1    Part of ProDOS MLI memory loc.
F4 86 8B      PEA 8B86    Last half of MLI memory location.
22 6F 35 Ø1   JSL Ø1356F  Sierra self modifing ProDOS link
AD 2D 61      LDA 612D    Get value returned from ProDOS.
C9 27 ØØ      CMP #ØØ27   $27 = I/O error or block read.
FØ 1E         BEQ 8359 (+1E)  Branch on error = orig.
```

Skip down to $8359.

```
AD 2D 61      LDA 612D    Load the error code value
8D 9C 76      STA 769C    Store it in a flag location
A2 ØØ ØØ      LDX #ØØØØ   Get set to check another block
A9 2F Ø6      LDA #Ø62F   Block $62F, it should read okay
48            PLA
```

```
8A          TXA
8F 8E 8B Ø1 STA Ø18B8E
```

Lots more code and eventually a RTL to return to the caller.

The main purpose of all this code is to determine if the original disks are being used. From my brief description you can see that the value Ø2ØØ is stored at $769A. This was done to ensure that the block check code was run. Also the the value ØØ27 was stored at $769C. This is the code returned for a block read error by the protocol converter and ProDOS 16. So I search the disk for C9 27 hoping it would reveal the "check of the disk check." Luck was on my side, I found the offending code on block $267. In memory it would look like this (starting at Ø1/2782):

```
AD 9A 76    LDA 769A Get value to see if the code was run
18          CLC      Get set to add
6D 9C 76    ADC 769C Add the value for the read error
C9 27 Ø2    CMP #Ø227 They should total Ø227
FØ Ø4       BEQ 2792 (+Ø4) if yes, then goto the return
22 63 A8 Ø2 JSL Ø2A863 if no, then mess things up
6B          RTL      Return to the sender
```

If the Ø227 wasn't found then a JSL was made to some subroutine that caused KQ2 to bomb into the monitor. Simply changing the JSL to a LDA results in a cracked version of KQ2! However I was able to track down the call to the "check of the disk check" and disable it there too!. To crack King's Quest II follow these easy steps:

1 Make a copy of both disks, ignore errors on block $634.

2 Make the following edits on the copy of disk one only. These edits kill the check of the disk check, the subroutine that crashes KQ2 and the check for the BAD blocks, respectively.

Block	Byte(s)	From	To
$25F	$178	22	AF
$267	$166	22	AF
$2ED	$BF	22	AF

Don't forget to write the blocks back to the copy. Optional: upload the whole program to a hard disk.

IIgs Softkey for...

Space Quest 2

Sierra On-line

■ Requirements

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Space Quest 2, Vohual's Revenge (SQ2), like most Sierra adventures, has been released in a IIgs format. Sierra used the same protection routine on King's Quest 2 (KQ2) for this one. Once again the program comes on two 3½" disk, with both disks having an error over block $634. If you search the disk for A9 34 Ø6 you would find it once on block $39F and once on block $3AØ.

Using the key scan bytes found on other Sierra releases will not work this time though. SQ2 does not have all calls on the disk as 22 ØØ ØØ ØØ, but instead each call has address values. So I started out by searching for C9 Ø1 ØØ FØ Ø4 and found the call to bad block check. Then I searched the disk for C9 27 Ø2 and found the routine that checks the results of bad block read. From there is was just a matter of using the same type of edits I used on KQ2.

The actual disk protection is almost a byte for byte copy of KQ2, in fact most of the routines are in the same exact memory locations. The general pattern is: First the bad block (block $634) is checked for and certain values are store in memory if found. Then a subroutine is called latter to make sure those values are present.:

Here's what I found at starting at $8224.

```
ØB          PHD
3B          TSC
38          SEC
E9 FB ØØ    SBC #ØØFB
5B          TCD
69 C4 ØØ    ADC #ØØC4
1B          TSC
A9 ØØ Ø2    LDA #Ø2ØØ  Load & store a value to insure
8D A2 76    STA 76A2   we've run this section of code!
```

Skip down to $8315.

```
A2 ØØ ØØ    LDX #ØØØØ
A9 34 Ø6    LDA #Ø634  The bad block to check for
48          PHA        Push it on the stack for a second
8A          TXA
8F A2 8B Ø1 STA Ø18BA2 Store a 16-bit zero here
68          PLA        Pull the block to check for
8F AØ 8B Ø1 STA Ø18BAØ Store it here
F4 22 ØØ    PEA ØØ22   Code number for ProDOS 16 Block
                       read
F4 Ø1 ØØ    PEA ØØØ1   Part of the ProDOS MLI memory
                       location
F4 9A 8B    PEA 8B9A   The last half of MLI memory
                       location
22 6F 35 Ø1 JSL Ø1356F Sierra's ProDOS link (self
                       modifing)
AD 2D 61    LDA 612D   Get the value returned from
                       ProDOS
C9 27 ØØ    CMP #ØØ27 $27 = I/O error (or a block read)
FØ 1E       BEQ 8359 (+1E) Branch on error, means
                       original
```

Skip down to $8359.

```
AD 2D 61    LDA 612D   Load the error code value
8D A4 76    STA 76A4   Store it in a flag location
A2 ØØ ØØ    LDX #ØØØØ  Get set to check another block
A9 2F Ø6    LDA #Ø62F  Block $62F, it should read okay
48          PLA
8A          TXA
8F A2 8B Ø1 STA Ø18BA2
```

Lots more code and eventually a RTL to return to the caller.

The main purpose for all this code is to determine if the original disks are being used. From my brief description you can see that the value Ø2ØØ is stored at $76A2 (KQ2 was $769A). This was done to ensure that the block check code was run. Also the the value ØØ27 was stored at $76A4 (KQ2 was $769C). Again, searching the disk for C9 27 reveals the "check of the disk check". In memory it would look like this starting at $Ø1/2782:

```
AD A2 76    LDA 76A2 Get value to see if the code was run
18          CLC      Get set to add
6D A4 76    ADC 76A4 Add the value for the read error
C9 27 Ø2    CMP #Ø227 They should total Ø227
FØ Ø4       BEQ 2792 (+Ø4) if yes, then goto the return
22 97 A9 Ø2 JSL Ø2A997 if no, then mess things up
6B          RTL      Return to the sender
```

If the Ø227 wasn't found then a JSL was made to some subroutine that cuased SQ2 to bomb into the monitor. Simply changing the JSL to a LDA results in a cracked version of SQ2! As with KQ2, I was able to track down the call to the "check of the disk check" and disable it. To crack Space Quest II follow these easy steps:

1 Make a copy of both disks, ignore errors on block $634.

2 Make the following changes on the copy of disk one only.

Block	Byte(s)	From	To
$34C	$178	22 82 1F ØØ	AF 82 1F ØØ
$354	$166	22 3A 1A 13	AF 3A 1A 13
$3AB	$93	22 75 16 ØD	AF 75 16 ØD

Don't forget to write the blocks back to the copy. Optional: upload the whole program to a hard disk.

IIgs Softkey for...

Vegas Craps

California Dreams/Logical Designs

■ Requirements

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Vegas Craps (VC) is the second program from California Dreams with the same high quality graphics. VC uses a simular type of protection as Vegas Gambler, but has a code wheel instead.

In VC there is only one game to play so there is only one check before the game starts. Using the same brute force method, I was able to track the check down in this game. The code for this check looks like the following:

```
22 FE 7F ØØ  JSL ØØ7FFE
85 C3        STA C3
A5 C3        LDA C3
DØ Ø3        BNE FAILED
82 74 ØØ     BRL CONTINUE
```

So from here I changed the JSL to LDA, the STA to STZ, and finally the BNE "failed" to NOP NOP. Now VC would boot right into the game and skip the code wheel check and would never ask for any letter!

1 Copy the game disk.

2 Make the following edits on the copy:

Block	Byte(s)	From	To
$12B	$1C6	22	AF
	$1CA	85	64
	$1CE	DØ Ø3	EA EA

Softkey for...

Tetris IIgs

Spectrum Holobyte

Requirements

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Tetris is a Soviet "block building" game, where you try to place various shaped falling blocks together to pack as many as you can before your game area fills up. The game has great picture backgrounds and has nice sound that you can toggle on or off with OPEN-APPLE-K.

The type of protection used is a "log-on" type of proceedure. First you need to type the Tetris password, then you must look up some letter on page X in line Y. As copy protection in any form is STILL copy protection, I decided to disable the check. (Also, a couple of friends asked me to do it for them.)

I found what block the Tetris programs started on (block $2B) then looked at the code, here is what I found starting at $41:

```
AB           PLB
8D ØØ ØØ     STA ØØØØ
4B           PHK
AB           PLB
7B           TDC
8D B5 61     STA 61B5
2Ø 25 ØØ     JSR Ø025
2Ø 3E Ø2     JSR Ø23E
2Ø CE 57     JSR 57CE      Go do the LOG-ON routine
AD B7 ØF     LDA ØFB7      Load the flag for pass/fail
DØ Ø3        BNE 5C (+Ø3)  Anything but Ø means failed!
2Ø C5 Ø4     JSR Ø4C5      Go play the game for awhile
2Ø 6E Ø1     JSR Ø16E      Set up for the quit to ProDOS
22 A8 ØØ E1  JSL E1ØØA8    Call to ProDOS 16 interface
29 ØØ        ØØ29          Call number for ProDOS quit
79 ØF ØØ     ØØØF79        Parm table location in memory
ØØ           ØØ            End of ProDOS call parm table
```

I thought the call $57CE seemed out of place, when all the other calls were to routines located in memory less than $1ØØØ. Also the loading of $FB7 and checking for a zero seemed kind of strange so early in the file. I changed the JSR (2Ø) at $51 to LDA (AD), the STA (8D) at $54 to STZ (9C), and finally the BNE 5C (DØ Ø3) to NOP NOP (EA EA). I booted the disk and it went straight to the game, skipping everything involving the log-on routine! My job was finished.

1 Make a copy of your original Tetris disk.

2 Make the following edits on the copy only:

Block	Byte(s)	From	To
$2B	$51	2Ø	AD
	$54	AD	9C
	$57	DØ Ø3	EA EA

Now you can put it on your hard disk.

**IIgs Softkey for...*

Thexder

Sierra On-line

Requirements

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Sierra has released a new version of Thexder that uses the joystick for control! The new version has two new additions: The disk is now auto bootable and uses the joystick as the default controller. This new version is easily identified; it will ask you to center the joystick then hit a button before the first game starts. Also this version seems to be a modified "Othexder" with the music fade from screen to screen. Well, anyways, the protection is still the same but to crack this new version you must make a slightly different edit:

1 Copy your original Thexder disk.

2 Make the following edit to the copy:

Block	Byte(s)	From	To
$7	$5A	22 8D ØA ØØ	AF 8D ØA ØØ

Don't forget to write the block back to the copy. Now you can upload the game to your hard drive.

Again this edit disables the key disk system and you may change the volume name without having a disk called "/THEXDER" online. As before you can upload the program to hard (or ram) disk without the need for the original Thexder in one of the drives.

**IIgs Softkey for...*

All About America

Unicorn Software

Requirements

☐ 768K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

All About America (AAA) is another educational program by Unicorn that uses the same protection as the others I showed. AAA comes on two 3½" disks and does a nibble count on disk one before the program begins. Like most Unicorn programs searching for A2 21 AØ Ø1 reveals the nibble counting routine. Also like the other five programs before AAA changing the A2 21 to 8Ø 2C results in a deprotected backup. The actual steps to crack AAA are as follows:

1 Make a copy of both disks.

2 Make the following edits on disk 1 only.

Block	Byte(s)	From	To
$4E9	$17A	A2 21	8Ø 2C

**IIgs Softkey for...*

Street Sports Soccer

Epyx

Requirements

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Street Sports Soccer (SSS) from Epyx lets you play soccer in a street type of environment. You can choose from 9 different plays and save up to 5 team sets.

Like other IIgs releases from Epyx, SSS uses nibble counting on tracks $2Ø and $21. The routine starts on block $24 at byte $3C and continues through $D2, the fail routine is at $D3-DD, and the values to check against are stored at $DE-E9. There is a single call to the nibble counting routine at byte $ØØ of block $24. Now that you know where everything is, I'll show you how to crack SSS:

1 Copy your original SSS game disk.

2 Make the following edits to the copy.

Block	Byte(s)	From	To
$24	$ØØ	2Ø 3C 2Ø	EA EA EA

Readers Data EXchange

**IIgs Softkey for...*

Club Backgammon

California Dreams/Logical Designs

■ **Requirements**

☐ 512K Apple IIgs
☐ 3½" disk copier
☐ 3½" disk editor

Club Backgammon (CB), from California Dreams, has the same high quality graphics as Vegas Gambler and Vegas Craps. CB uses a similar type of manual/letter check protection as Vegas Gambler, but like Vegas Craps there is only one game and one check before the game starts. After much work I was able to track the protection routine down. The routine (that actually checks for the letter) starts at byte $49 on block $B9. I found only one call to this subroutine at byte $1ØE on block $13. Simply changing the JSL (22) instruction to LDA (AF) results in a copy that boots right into the game and never even shows any signs of copy protection!

1 Copy the game disk.

2 Make the following edits on the copy:

Block	Byte(s)	From	To
$13	$1ØE	22 Ø1 3E ØØ	AF Ø1 3E ØØ

You may upload the game to your hard disk.

Jim Bancroft

Softkey for...

Game Frame

Houghton Mifflin

The program is in Pascal and the protection is very similar to Quicken. COPYA the disk. Search the disk for A9 FF DØ Ø2 A9 ØØ 48 48 BD 88 CØ. Change the A9 ØØ to A9 FF and you're set.

Softkey for...

Kindermath

Houghton Mifflin

The program is standard DOS 3.3 with a nibble check of track $Ø6. Copy the disk ignoring errors on track $Ø6. The last sector of the file LINK.TRV (on track $22, sector $Ø1 of my disk) has the nibble check routine. The sector contains a 4C ØØ C6 at byte $DE which you can scan for. Starting at byte $46 replace all branches (BCC BCS BNE BEQ) with EA EA until you reach the 4C ØØ 6Ø (JMP $6ØØØ)

Softkey for...

Geoworld

Tom Snyder Productions

The protection is encrypted on disk. It decrypts itself and executes at $A5ØØ. Search the disk for a 2Ø ØØ A5 (JSR $A5ØØ) and change it to EA EA EA. It was on track $Ø3, sector $Ø1 on my disk.

Softkey for...

Timeliner

Tom Snyder Productions

The protection is encrypted on disk. It is also relocated before it is executed. It is necessary to alter encrypted code on disk. Search for Ø8 15 13 ØC E3 93 31 4C DØ (in memory this is (CF C7 D2 C1 CD 2E BD 8C CØ). Change the disk code from 93 31 4C to 36 78 AØ. The 36 will decode as 2E, keeping the rest of the code proper in memory. The 78 AØ will decode as 18 6Ø. The nibble count will be bypassed.

Softkey for...

Decisions Decisions

Tom Snyder Productions

Softkey for...

Below the Root

Windham Classics

Softkey for...

DC Heath Elementary Math

DC Heath/Callamore

All three use the same protection. Heath & Decisions even use exactly the same DOS byte by byte. The files, although catalogable, load as garbage. There is no nibble translate problem. The DOS sends LOADs and BLOADs to a subroutine to decode bytes as they are read. The SAVE command is non-functional. The DOS is encrypted on disk and does not alter its LOADs until after a nibble check on track $Ø3 is passed, then the nibble count at $BBØØ is overwritten as a DOS buffer area.

1 Initialize a disk with Pronto-DOS or DOS 3.3 (Diversi-DOS does not work) with the STARTUP program at the end of this section. It will load their DOS at $6DØØ then move it to $9DØØ so that the programs will decode as necessary. The move routine utilized is courtesy Beagle Bros. Tips.

2 Of course, to load their DOS we will have to capture it. Interrupt the original's boot as it is loading files or as soon as the drive stops.

CALL -151
6DØØ<9DØØ.BFFFM

3 Boot a slave disk with no hello. Insert the disk with the STARTUP program on it

BSAVE DOS2, A$6DØØ, L$23ØØ

4 Now use FID or another file copy utility to copy every file from the original disk. If the hello program on the original disk is not HELLO, either rename it or change the file name which STARTUP runs.

```
1 REM STARTUP BY JIM BANCROFT MEMORY MOVE
    ROUTINE FROM BEAGLE TIPS
4 PRINT CHR$ (4) "BLOADDOS2"
5 N = 27904 : LOC = 6Ø : GOSUB 15 : N = 36863 : LOC = 62 :
    GOSUB 15 : N = 49151 : LOC = 64 : GOSUB 15 : N =
    4Ø192 : LOC = 66 : GOSUB 15
1Ø POKE 768,16Ø : POKE 769,Ø : POKE 77Ø,76 : POKE
    771,44 : POKE 772,254 : CALL 768 : PRINT
    "......MOVED......."
12 PRINT CHR$ (4) "RUNHELLO"
15 POKE LOC,N - INT (N / 256) * 256 : POKE LOC +
    1, INT (N / 256) : RETURN
```

Checksums

1	- $97CE	1Ø	- $2AEB
4	- $4DD7	12	- $9ØØ7
5	- $D9EA	15	- $88F9

Softkey for...

Hometown
USA Profile
One World

Active Learning Systems

Hometown: local area study, USA Profile: social and geographical database, and One World: countries database are protected by changing ProDOS and the ProDOS loader (a definite no-no according to all the books.) It is obvious by the strange checksums that the translate table has been messed with, but there is no translate table to mess with. What they did was mess with the $C6ØØ translate table once it is read down to $36C-3D5 in memory by changing the 27 28 to 28 27. The solution:

RUN COPYA

RESET	*stop COPYA*
CALL-151	*enter the monitor*
B942:18	*ignore errors while copying*
BADE:28 27	*alter translate table*
3DØG	*return to BASIC*
7Ø	*stop COPY OBJØ reload*
RUN	

You now have to copy a normal PRODOS onto your disk and also a normal bootstrap

loader. The loader is block $ØØ if you are using a block editor. It is track $ØØ, sector $ØØ and track $ØØ, sector $ØE if you are using a sector editor.

Once copied, one file on the disk may contain a JSR 3F8. If so change the 2Ø F8 Ø3 to EA EA EA to avoid the program crash it causes. This code was not on all the bootable disks I checked, but when it is, it causes trouble. You will know if its there when you run the program. The $3F8 code in question is a relative jump, the value of which is set after a disk check via $BEF5.

Softkey for...

Treasure Hunt
McGraw Hill

The protection is altered epilogs with a strange epilog read routine in the DOS.

[1] Initialize a disk with a program called N and then delete N.

INIT N

DELETE N

[2] Use FID to copy all the files.

BLOAD FID

POKE 47426,24 *B942:18*

CALL 2051 *Restarts FID*

[3] The BASIC programs all do a CALL 471Ø3 to check for their DOS. In any normal or fast DOS that location is unused and contains a BRK (ØØ). They have placed an RTS (6Ø) at that location in theirs. Simple solution:

LOAD N *their hello program*

Ø POKE 471Ø3,96

SAVE N

Now the hello program will POKE the RTS into DOS and everything is fine when the call is made.

Softkey for...

Toy Shop
Broderbund

The protection is a lot of tracks without normal sectoring which are loaded using 4&4 encoding. A good bit copier will copy this without trouble. Then on Track $ØØ, sector $ØE, byte $Ø9 of the startup disk, I found a JSR to a nibble count at $B8ØØ (2Ø ØØ B8). Upon changing that to EA EA EA the disk booted and ran perfectly.

Mike Egnotovich

Softkey for...

GATO v1.3
Spectrum Holobyte

■ **Requirements**

☐ COPYA
☐ Blank Disk
☐ Protected GATO v1.3 Disk
☐ Locksmith v6.Ø or 7.Ø, with ABT
☐ Sector or Block Editor (Copy II Plus or Blockworks)

My original attempts at deprotecting the PASCAL 1.3 version of this Spectrum Holobyte adventure game came pretty close but fell slightly short of creating a bootable/COPYA-able copy (see COMPUTIST #59). As noted in that issue, I had been able to partially deprotect it. I have since been able to completely deprotect it. What I did with the copy produced by the method outlined in COMPUTIST #59 was to first use PASCAL 1.3 to format a new disk and then to singularly copy (using the Transfer selection of PASCAL Filer) each file from the copy to the newly formatted disk. The resulting version booted normally and was COPYA-able.

For those who do not have access to COMPUTIST #59, the steps preceding the PASCAL Format and file transfers stated above are repeated below:

[1] Boot your DOS 3.3 system disk.

[2] Change DOS and run COPYA with your GATO 1.3 version in Drive 1 and the copy disk in Drive 2.

CALL-151
B954:4A C9 6A DØ EF
B98B:18 6Ø
RUN COPYA

[3] Use the Pascal utilities to format a disk and copy files as stated above.

Softkey for...

On Balance
Broderbund

■ **Requirements**

☐ COPYA
☐ Blank Disk
☐ Protected On Balance
☐ Bag of Tricks (Optional)
☐ A Sector or Block Editor (Copy II Plus or Blockworks)

Early versions of this outstanding financial management program were initially protected, although the publisher later removed the copy protection.

Using Bag of Tricks Trax mode is a good start to see some of the copy protection on a protected disk. Examination of On Balance showed that address and data epilogs have been changed from DE AA, that you would expect to find on a normal DOS-formatted disk, to FF FF. This portion of the copy protection is easily circumvented.

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

[3] Use Copy II Plus (or any other disk editor) to search for BD 8C CØ 1Ø FB 88 FØ 58 and replace BD 8C CØ with 4C 74 ØE. Or, alternatively, use a Block Editor like Blockworks to find the same sequence. On my version of On Balance these were at Bytes $B7-BE of track $1A, sector $ØE, or, alternatively, beginning at block $DØ, byte $1B7.

Softkey for...

Fortran
Apple

■ **Requirements**

☐ COPYA
☐ Bag of Tricks (Optional)
☐ Blank Disk
☐ Protected FORT 2 disk

This program is the Apple Pascal version of Fortran version 7 that has been out for quite some time. Unlike Pascal, Fortran has one of its disks copy protected. Although the program is Bit-copyable (Copy II Plus, EDD, Locksmith w/ parameters), side 2 (FORT2), the boot side of this 2-sided program, is protected such that it is not Locksmith Fastcopy-able or COPYA-able.

Trying to copy with Locksmith Fastcopy results in errors on tracks $Ø3 and $Ø4. Examination of those tracks using Bag of Tricks Trax mode indicates altered epilogs on sectors $Ø9 and $ØD of track $Ø3 and sector $ØØ of track $Ø4. The normal DE AA was changed to DE AB in all three instances.

That is the extent of the copy protection and is easily circumvented. Simply disabling error checking and running COPYA will do the trick.

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

That's it. You now have a COPYA-able, bootable, copy of Fortran's FORT2 boot disk. Side 1 (FORT1) is COPYA-able as is.

Thus far, I have only 3 programs in my possession for which attempts to deprotect have been unfruitful. MicroLeague Baseball, EDD version 4, and Where in the World is Carmen San Diego. Although COMPUTIST has published cracks for the latter two in back issues, I have been unable to implement them for my versions of the programs. Micro is on the Most Wanted list and has been for some time. I don't have the hardware required for the published crack for Carmen and my version of EDD is slightly different than the one published. In my EDD, the first 2 boot stages are the same as the published crack but boot 3 appears to be different and the code for the program does not reside at $C00. Instead of a JUMP $C00 at $477, there is a JUMP $B000 at $47E. Either the code is buried or the protection is different, but in any event, the "tape-worm" developed by B. A. Troha doesn't work.

I would appreciate any updated cracking tips for these programs that COMPUTIST readers might have come across.

A. L. Head, Jr.

Softkey for...

Fractions

EduWare

Fractions is an interesting, interactive educational program that provides a conducive environment for 8-9 year old children to learn fractions. It is a good program, but EduWare has locked it up. This is particularly disquieting for a program designed for use by children in elementary schools. It requires that the original be put at risk in normal usage. I decided to normalize the program to permit legal backups to be made.

The Protection

I like to start by watching and listening to the boot process. Early in the boot a BASIC cursor appears which indicates a quasi-normal DOS. I use a TRAK STAR to monitor which track the boot drive is accessing. It repeatedly returns to track $11 which is the normal VTOC and catalog track. This indicates that the program is probably file based. Next, using Locksmith 6.0 Fast Disk Copy to read the original shows that something is wrong with the address field. The next step is to use a nibble editor to examine the formatting on the disk. I like to stay in Locksmith 6.0 and use the Disk Editor. After reading track $00, the track data can be analyzed by invoking Locksmith's default track procedure with a [S] keypress. If this is successful the track start, verify start, and track end are flagged for later writing. Locksmith fails to find the track start most of the time using its default settings. The next step is to manually find the beginning of the track. Place the cursor at the start of the track buffer by pressing [B]. Then, press [RETURN]. The prompt "LPL:" will appear. Enter "FIND D5 AA 96 ? ? ? ? AA AA" [RETURN]. The cursor will immediately move to the beginning of sector $00. Examination of the address field shows a lead sync field of 84 84 84 EB AB FF BF EB, a normal address prolog of D5 AA 96 and an altered address epilog of AF xx. This is repeated for the other sectors of the track.

Repeat the procedure for track $01 except that the search pattern while in the Disk Editor is: "FIND D4 AA 96 ? ? ? ? AA AA". Examination of the address field shows a lead in sync field of 84 84 84 EB AB FF BF EB, a changed address prolog of D4 AA 96 and the same altered address epilog of AF xx.

Examining a few more tracks shows that the even numbered tracks use D5 AA 96 as the address header while the odd numbered tracks use D4 AA 96. The first byte of the address trailer has been changed to a sync AF with the second nibble varying. These alterations will defeat any standard copier.

The lead-in sync bytes of 84's followed by the pattern EB AB FF BF EB before the address header is intended to confuse bit copiers unless specific parameters are set to find the track start. Also, this type of pattern before the address header looks like a signature that might be verified in the program code. Some bit copiers, EDD-3 for instance, use the longest sync field to find the track start unless parameters are set. These tracks are written so that all the lead-in sync fields are about the same length.

The protection that is apparent can be summarized as follows:

a. Altered lead-in sync bytes —- 84's followed by EB AB FF BF EB just prior to the address header.

b. Altered address header on odd numbered tracks —- D4 AA 96. Even numbered tracks use the standard address header.

c. Altered address trailers on all tracks —- sync AF xx.

The Softkey:

The softkey must defeat the format alterations enumerated above. Any secondary protection will then become evident. The one that is suspected is a signature check for the bytes inserted just before the address header.

The use of sync 84's in the lead-in sync field is of no particular significance unless it is checked. The Apple hardware will get in sync with the use of almost any repetitive sync byte. (Obviously, it will not with zeros.) The controller presented at the end of this article will completely normalize the formatting on the backup copy. The question then is: Will the backup boot and function normally?

[1] Load SUPER IOB 1.5, install the Fractions Controller and start the program. Answer Y to the FORMAT BACKUP option.

The BACKUP obtained is COPYA-able. It will boot and function normally in all respects. This means that no signature check is being made.

Boot a normal DOS 3.3 disk and CATALOG the backup. Seventeen (17) files are revealed with the startup file being "EDU-WARE". Both [C] and [RESET] have been masked out negating the ability to interrupt the program. You may use a utility such as Diversi-DOS or Pronto-DOS to add a fast-DOS to the backup. This will speed up the loading process and permit the program to be interrupted with [RESET].

Discussion of Controller

The file IOB.OBJ0 has been modified to copy every other track. The patch to do this is poked into memory by lines 1005 and 1007 using the DATA statements in lines 1100 and 1110. In addition line 340 of SUPER IOB 1.5 has been changed consistent with copying every other track to permit the sector editor to find the correct address to edit in the sector buffer.

Lines 1010-1040 copy the even numbered tracks beginning with track $00. Note that the pokes in line 1020 tell SUPER IOB to ignore address trailer marks when reading. Line 1030 normalizes the marks and writes the even numbered tracks to disk. When all even numbered tracks have been written to disk the execution jumps to line 1050. Here the setup is made to copy the odd numbered tracks beginning at track $01. The pokes in line 1060 tell SUPER IOB to ignore address trailer marks and to change the address header to D4 AA 96 when reading. Line 1065 performs two sector edits on track $11, sector $00 that changes the bit map to free eleven sectors that are not used on track $02. Line 1070 normalizes the marks and writes the odd numbered tracks to disk. Line 1090 is a sign off statement.

As a consequence of incrementing the track number by two, notice that the last track (LT) in lines 1010 and 1050 is two greater than the last track to be copied. Also notice the TK = T1 + 12 in line 1065. This is used in the sector editor and it must reflect the incrementing by two.

This controller has been annotated rather thoroughly to indicate the power of SUPER IOB when combined with modest machine language patches.

Controller

```
340 POKE 9984 + ((A1 - T1) / 2) * 4096 + ABS
    (FAST * 15 - A2) * 256 + A3,A4: NEXT :
    RETURN
```

```
1000 REM FRACTIONS
1002 REM EDUWARE
1005 FOR I = 0 TO 2: READ A: POKE 904 + I, A: NEXT
1007 FOR I = 0 TO 6: READ A: POKE 736 + I, A: NEXT
1010 TK = 0: LT = 36: ST = 15: LS = 15: CD = WR: FAST
     = 1
1020 GOSUB 490: POKE 47496,24: POKE 47497,96:
     GOSUB 610
1030 GOSUB 490: GOSUB 230: GOSUB 610: IF PEEK
     (TRK) = LT THEN 1050
1040 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1020
1050 TK = 1: LT = 35: ST = 15: LS = 15: CD = WR: FAST
     = 1
1060 GOSUB 490: POKE 47496,24: POKE 47497,96:
     POKE 47445,212: GOSUB 610
1065 RESTORE : T1 = TK: TK = T1 + 12: GOSUB 310: TK
     = T1
1070 GOSUB 490: GOSUB 230: GOSUB 610: IF PEEK
     (TRK) = LT THEN 1090
1080 TK = PEEK (TRK): ST = PEEK (SCT): GOTO 1060
1090 HOME : VTAB 8: A$ = "THAT'S^ALL^FOLKS" :
     GOSUB 450: TEXT : END
1100 DATA 32,224,2
1110 DATA 238,14,3,238,14,3,96
1115 DATA 2^CHANGES
1120 DATA 17,0,64,255,17,0,65,224
```

Checksums

340	- $4BE5	1060	- $0248
1000	- $3CD3	1065	- $3682
1002	- $6211	1070	- $6DA5
1005	- $C51A	1080	- $5AB3
1007	- $4EDC	1090	- $33BF
1010	- $9FA8	1100	- $AECC
1020	- $F570	1110	- $4DCC
1030	- $A45B	1115	- $20F3
1040	- $5EF2	1120	- $6C73
1050	- $A103		

U.N. Known

Modification for...

Alien Mind

PBI Software

If you have not been able to deprotect Alien Mind and have gotten a deprotected copy with an offensive screen at the begining, before the PBI screen, here is a patch to keep this screen from being seen. When you boot the disk after installing this patch it will boot and look just like your original.

1 Boot up any sector editor that will work on a 3.5 disk and has a "scan for bytes" feature.

2 Read block $0000 and scan for the byte string 8D 29 C0, you should find it twice on the block. Change it at each location to EA EA EA.

3 Read block $0001, scan for the byte string AD 00 C0 30 and change it to 20 62 09 60.

Bill Jetzer

Softkey for...

Project Space Station

Hesware

■ Requirements

☐ Super IOB 1.5
☐ 2 blank disk sides

This program uses altered epilogues and a nonstandard DOS with a built in protection check. It also uses RWTS files (code that exists in certain places on the disk but not shown as a directory file). To deprotect it, follow these steps:

1 Initialize a blank disk with a startup file called FIN. Since this is a binary file, inform DOS that it must BRUN the startup file.

```
POKE 40514,52
INIT FIN
```

2 Load Super IOB 1.5 into memory, exec the fast controller, tell DOS to ignore read errors, and copy the **BACK** side:

```
LOAD SUPER IOB
EXEC FAST.CON
POKE 47426,24
RUN
```

3 Change line 1010 so that it will copy tracks $3-$22, and copy the **FRONT** side:

```
1010 TK = 3: LT = 35: ST = 15: LS = 15: CD
     = WR: FAST = 1
RUN
```

All done.

ProDOS IOB 5.25

■ Requirements

☐ 64k Apple II or better
☐ 1 ProDOS disk

For the past several years, Super IOB has been the dominant deprotection tool in the Apple world. But lately, its been showing some faults. First of all, it only works with DOS 3.3. Secondly, it crashes unexpectedly on the IIgs (probably DOS 3.3's fault). Lastly, there is no way to copy a ProDOS disk using the standard swap controller. With the introduction of ProDOS IOB 5.25, these problems will be alleviated (I hope!).

Keying In The Program

To have your own copy of ProDOS IOB 5.25, you must first have a ProDOS disk. I recommend formatting a new disk with a volume name of /COMPUTIST or something similar and copying to it the files PRODOS, BASIC.SYSTEM, and some utility program such as UTIL.SYSTEM from Copy II Plus v6-v8.

Get into BASIC by executing BASIC.SYSTEM. Type in the Applesoft part of ProDOS IOB 5.25 and save it:

```
SAVE PRODOS.IOB.5.25
```

Next, enter the monitor, key in the machine code, and save it:

```
BSAVE IOB.OBJ.5.25, A$300, L$A9
```

ProDOS IOB 5.25 Notes

As you know, ProDOS data isn't stored in tracks and sectors, but in blocks. So instead of showing the track and sector when reading and writing, ProDOS IOB 5.25 simply shows what block number is currently being accessed.

ProDOS IOB 5.25 uses a different kind of swap controller. ProDOS uses a faster and more efficient type of RWTS routine called the Disk II device driver. This program is stored in bank 1 of the language card, making it more difficult to capture, but I will cover that later.

ProDOS has no built in format routine, so you will have to format the duplicate disk ahead of time. This is where UTIL.SYSTEM comes in handy.

There is no way to copy DOS 3.2 disks with ProDOS IOB 5.25 — use Super IOB instead.

As you may have guessed, the "5.25" means that this program is strictly for 5¼" disks. All the modifications that can be made by the program affect only the Disk II device driver.

I have added a nice feature to ProDOS IOB 5.25 that was lacking in Super IOB. If an error occurs which stops the copy process, the proper device driver will automatically be switched in and ProDOS will be normalized.

How the Program Works

Like Super IOB, ProDOS IOB 5.25 is simply a collection of subroutines which are called by the controller. The following is an explanation of the subroutines. During the explanation, it might be a good idea to refer to the program listing to see how each subroutine works.

Start Up (1-10) Entry Conditions: None.

The first four lines identify the program. Line 10 transfers control to the initialization routine.

R/W a Range of Blocks (30-70) Entry Conditions: BK = First block to access, LB =

Last block to access, MB = Maximum buffer page, CD = Command code.

This subroutine reads or writes a range of blocks by calling the machine language routine. Note that MB is automatically set to 150 ($96) in the initialization routine.

Write Enable ProDOS (100) Entry Conditions: None.

This subroutine is called by all routines that modify ProDOS. ProDOS resides in the language card. In order to modify the language card, the soft switch at $C089 (write enable the language card) must be referenced twice.

Write Protect Language Card (120) Entry Conditions: None.

Also called by all the routines that modify ProDOS, this subroutine write protects the language card after a modification has been made.

Ignore Checksums And Epilogues (140) Entry Conditions: None.

This subroutine will allow ProDOS to ignore both address and data checksums and epilogues. This will cause no problems when reading from a normal disk, and it also allows disks with altered checksums and epilogues to be read from. This is similar to a POKE 47426,24 in DOS 3.3.

Ignore an Address Marker (160, 170, 180) Entry Conditions: None.

These subroutines will allow ProDOS to ignore 1 or 2 address markers, thus allowing disks with strange markers to be read. To ignore the first marker, GOSUB 160. To ignore the second marker, GOSUB 170, etc. This is also useful for disks whose protection differs from track to track. You may ignore any one of the markers, or the first and third, or the second and third. You may not ignore all three or the first and second.

Ignore a Data Marker (200, 210, 230) Entry Conditions: None.

These are the same as the previous subroutines, except that they ignore the data markers.

Alter Address Markers (240) Entry Conditions: Proper DATA pointers.

Sometimes a disk uses address markers that differ from the usual D5 AA 96. To replace the normal values with the protected disk's values, have their decimal equivilents stored as the next DATA statements.

Alter Data Markers (260) Entry Conditions: Proper DATA pointers.

This is the same as the previous subroutine except that the data statements replace the data field markers (normally D5 AA AD).

Ignore Unreadable Blocks (280) Entry Conditions: None.

This is not a ProDOS modification, but rather a modification to the ProDOS IOB 5.25 machine language routine. When GOSUBed, the machine language routine will ignore unreadable blocks. When an unreadable block is encountered, the bell will ring to signal you and the block will be zeroed out.

Normalizer (300-310) Entry Conditions: None.

This subroutine will normalize ProDOS, i.e. undo all of the modifications included with the program. It will also normalize the read error flag so that unreadable blocks cause the program to halt and print an error message.

The Block Editor (330-360) Entry Conditions: Proper DATA pointers and elements, B1 = lowest block in buffer, BK = highest block in buffer.

This subroutine automatically performs block edits as the copy process goes on. It must be GOSUBed just after reading a range of blocks. To indicate how many block edits are to be performed, you must have a DATA element that has the number of edits followed by the word "CHANGES". For example: "5000 DATA 4 CHANGES" would tell the block editor that the next 12 data elements are block edits. This is because each block edit is defined by three elements. The location of the "x CHANGES" in the DATA strings doesn't matter because the block editor will search it out and use the elements immediately following it.

The format for the three DATA elements that define a block edit is as follows: BLOCK (0-279), BYTE POSITION (0-511), NEW VALUE (0-255). Each element should be in decimal form within the correct ranges since no error checking is done.

Swap Device Drivers (380-390) Entry Conditions: None.

This subroutine will swap the device driver in ProDOS with the one at $1900. The people at Apple decided to continue their tradition of non-compatibility by moving the location of the device driver from $F800 to $D000 in ProDOS 1.1-1.4, so line 380 checks to make sure that the foreign device driver is compatible with the kernel version. If you get a "KERNEL/DEVICE DRIVER MISMATCH" error, you must execute a different version of ProDOS. For instance, if you are using ProDOS version 1.0.1 or 1.0.2, you must execute version 1.1.1, 1.2, 1.3, or 1.4 and vice versa. I hear that the new system disks given out with IIgs's have a ProDOS version of 1.6 and BASIC.SYSTEM is up to version 1.2. This should cause no problems.

Center Message (410) Entry Conditions: A$ = message to be centered.

This subroutine prints a message in the horizontal center of the screen at the current VTAB position. To avoid an error, care should be taken that the message to print is not longer than 40 characters.

Print Message and Wait for Key (430) Entry Conditions: A$ = message.

This subroutine uses CENTER MESSAGE to print the intended message and "PRESS ANY KEY TO CONTINUE" at the horizontal and vertical centers of the screen. It will then wait for a key to be pressed before RETURNing.

The Rest of the Program

Lines 2000-9999 are reserved for the controller and any DATA statements it contains. Lines 10000-10060 are the initialization routine. Lines 10070-10170 get the unit numbers for the disks. The unit is described as a byte with the bit pattern DSSS0000; D (0 or 1) stands for drive, S (001-111) stands for slot. Lines 10180-10290 handle any errors that occur. If an error should occur, the proper device driver will automatically be switched in and ProDOS will be normalized.

Line 10270 deserves some further explanation. With ProDOS it is possible to add commands to the BI, at the expense of extra memory. If an error #86 occurs, it means that the machine language routine is trying to read a block into a page that is protected by ProDOS; probably because of an added command. You must execute BASIC.SYSTEM to free up the reserved pages of memory.

Memory Usage

The following is a memory map of ProDOS IOB 5.25. It is almost identical to the memory map of Super IOB, except that the device driver is $100 bytes shorter, and everything after that is moved up in memory.

- $0800-18FF (2048-6399) The APPLESOFT part of ProDOS IOB 5.25.
- $1900-1FFF (6400-8191) Holds the foreign device driver.
- $2000-25FF (8192-9727) Variable space.
- $2600-95FF (9728-38399) Block buffer; holds $38 (56) blocks.

The Standard Controller

The following controller, when merged with ProDOS IOB 5.25 can copy only normal ProDOS and DOS 3.3 disks. All other controllers will simply be modified versions of this controller, so it is recommended that you key it in and save it.

The PRODOS.IOB.5.25 controllers start at line number 2000 and have the prefix/suffix "PCON". Super IOB controllers start at 1000 and have the prefix/suffix "CON". .....RDEXed

Readers Data EXchange

Controller

```
2000 REM STANDARD CONTROLLER
2010 BK = 0:LB = 279:CD = WR
2020 CD = RD: GOSUB 30
2030 CD = WR: GOSUB 30
2040 BK = PEEK (BLK) + PEEK (BLK + 1) * 256: IF
     BK < = LB THEN 2020
2050 A$ = "COPY^DONE" : GOTO 10280
```

Checksums

```
2000  - $DF03      2030  - $BCD1
2010  - $E658      2040  - $27BB
2020  - $7F99      2050  - $2925
```

Line by Line

2000 - Identifies the controller.

2010 - Initializes variables. BK is the first block to be copied, LB is the last.

2020 - Set the command to ReaD and read a bunch of blocks. Modifications to ProDOS should be made before the CD = RD. To perform block edits, add the statements "B1 = BK:BK = PEEK (BLK) + PEEK (BLK + 1) * 256: RESTORE: GOSUB 330: BK = B1" after the GOSUB 30. Be sure to add the data statements at the end of the controller.

2030 - Set the command to WRite and write a bunch of blocks. If modifications to ProDOS were made, a GOSUB 300 should be inserted before the CD = WR.

2040 - Update the block information and loop back if more blocks to copy.

2050 - Inform the user that the copy process is finished. The "COPY DONE" message will be printed on the screen, ProDOS will be normalized, and HIMEM will be reset.

The Swap Controller

The following is a LISTing of the swap controller:

```
2000 REM SWAP CONTROLLER
2010 BK = 0:LB = 279:CD = WR
2020 GOSUB 380:CD = RD: GOSUB 30
2030 GOSUB 380:CD = WR: GOSUB 30
2040 BK = PEEK (BLK) + PEEK (BLK + 1) * 256: IF
     BK < = LB THEN 2020
2050 A$ = "COPY^DONE" : GOTO 10280
10010 PRINT CHR$ (4) "BLOAD^DRVR.X.X.X,A$1900"
```

Checksums

```
2000  - $DF03      2040  - $D65E
2010  - $E658      2050  - $5CEE
2020  - $9584      10010 - $1FB7
2030  - $159E
```

This controller reads with the protected device driver and writes with the normal one. This is most useful to beginners and occasional users who don't care about address markers and checksums, but only want a deprotected disk. No GOSUBs are required in order to read from the disk.

To use this controller, you must first boot the protected disk, jump into the monitor, and move its device driver into a safe area of memory. Jumping to the monitor is much easier under ProDOS than DOS 3.3. By pressing [CTRL-RESET] followed by [RESET], you will be left in BASIC, with the language card still intact. Next, get into the monitor and execute the following machine language routine:

```
CALL-151
300:AD 88 C0 A2 00 BD 00 D0
308:9D 00 80 E8 D0 F7 EE 0A
310:03 EE 07 03 D0 EF AD 8A
318:C0 60
300G
```

This routine moves the entire language card (except bank 2) into memory at $8000. From there, you must determine which version of ProDOS (1.0 or 1.1-1.4) this device driver is from:

```
80F4 N A8F4
```

If this driver is from version 1.0, location $A8F4 will contain a FD. If the driver is from versions 1.1-1.4, location $80F4 will contain a D5. Next, you must move the device driver to a safe memory location. For version 1.0, you would type:

```
8000<A800.AEFFM
```

The device driver for versions 1.1-1.4 is already at $8000.

Then you must boot a ProDOS disk, move the device driver to its proper location, and save it:

```
PR#6
CALL-151
1900<8000.86FFM
BSAVE DRVR.XXX,A$1900,L$700
```

You should replace the "XXX" with the name of the program that you are trying to deprotect. You will then have to change the XXX in the swap controller too.

Saving the Controllers

The easiest way to save controllers is with the capture program on the COMPUTIST starter kit. First, it must be converted to ProDOS by using UTIL.SYSTEM or some other utility. Then, all you have to do is type in the controller and EXEC CAPTURE.

```
1 REM ********************
2 REM * PRODOS IOB 5.25 *
4 REM * BY BILL JETZER *
5 REM ********************
10 GOTO 10010
20 REM R/W A RANGE OF BLOCKS
30 POKE MAX,MB: POKE BUF,38: POKE LST,LB - INT
     (LB / 256) * 256: POKE LST + 1,LB / 256:
     POKE BLK,BK - INT (BK / 256) * 256: POKE
     BLK + 1,BK / 256: POKE CMD,CD: POKE UNT,U1:
     IF CD = WR THEN POKE UNT,U2
40 A$ = "INSERT^SOURCE^DISK" : IF CD = WR THEN A$
     = "INSERT^TARGET^DISK"
50 ON U1 = U2 GOSUB 430: VTAB 1: HTAB 8: PRINT
     "READING" SPC( 11) "WRITING" ;
60 HTAB 8:A$ = "READING" : IF CD = WR THEN HTAB
     26:A$ = "WRITING"
70 INVERSE : PRINT A$: NORMAL : CALL IO: RETURN
80 REM PRODOS V1.0-V1.4 MODIFICATIONS
90 REM WRITE ENABLE PRODOS
100 A = PEEK (49289):A = PEEK (49289): RETURN
110 REM WRITE PROTECT PRODOS
120 A = PEEK (49290): RETURN
130 REM IGNORE CHECKSUMS & EPILOGUES
140 GOSUB 100: POKE 54244 + V,24: POKE 54245 +
     V,96: POKE 54476 + V,24: GOTO 120
150 REM IGNORE AN ADDRESS MARKER
160 GOSUB 100: POKE 54189 + V,0: GOTO 120
170 GOSUB 100: POKE 54199 + V,0: GOTO 120
180 GOSUB 100: POKE 54210 + V,0: GOTO 120
190 REM IGNORE A DATA MARKER
200 GOSUB 100: POKE 54334 + V,0: GOTO 120
210 GOSUB 100: POKE 54344 + V,0: GOTO 120
220 GOSUB 100: POKE 54354 + V,0: GOTO 120
230 REM ALTER ADDRESS MARKERS
240 READ A1,A2,A3: GOSUB 100: POKE 54187 + V,A1:
     POKE 54197 + V,A2: POKE 54208 + V,A3: GOTO
     120
250 REM ALTER DATA MARKERS
260 READ A1,A2,A3: GOSUB 100: POKE 54332 + V,A1:
     POKE 54342 + V,A2: POKE 54352 + V,A3: GOTO
     120
270 REM IGNORE UNREADABLE BLOCKS
280 POKE EFL,0: RETURN
290 REM NORMALIZER
300 GOSUB 100: POKE 54244 + V,208: POKE 54245 +
     V,21: POKE 54476 + V,56: POKE 54189 +
     V,239: POKE 54199 + V,242: POKE 54210 +
     V,231: POKE 54334 + V,244: POKE 54344 +
     V,242: POKE 54354 + V,232
310 POKE 54187 + V,213: POKE 54197 + V,170: POKE
     54208 + V,150: POKE 54332 + V,213: POKE
     54342 + V,170: POKE 54352 + V,173: POKE
     EFL,1: GOTO 120
320 REM THE BLOCK EDITOR
330 READ A$: IF RIGHT$ (A$,7) < > "CHANGES" THEN
     330
340 FOR A = 1 TO VAL (A$): READ A1,A2,A3
350 IF A1 < B1 OR A1 > BK THEN NEXT : RETURN
360 POKE 9728 + (A1 - B1) * 512 + A2,A3: NEXT :
     RETURN
370 REM SWAP DEVICE DRIVERS
380 IF PEEK (6646) = 253 AND NOT V OR PEEK (6646)
     = 213 AND V THEN A$ = "KERNEL/DEVICE^DRIVER^
     MISMATCH" + CHR$ (7): GOTO 10280
390 POKE 251,25: POKE 253,208 + 40 * ( PEEK
     (6646) = 253): POKE 254,7: CALL SWP: RETURN
400 REM CENTER MESSAGE
410 HTAB 21 - LEN (A$) / 2: PRINT A$;: RETURN
420 REM PRINT MESSAGE AND WAIT FOR KEY
```

```
430 VTAB 11: GOSUB 410:A$ = "PRESS ANY KEY TO
    CONTINUE" : PRINT : PRINT : GOSUB 410: POKE
    49168,0: WAIT 49152,128: GET A$: VTAB 10:
    PRINT : PRINT SPC( 120): RETURN
10000 REM INITIALIZATION
10010 REM BLOAD DEVICE DRIVER HERE
10020 TEXT : HOME : PRINT CHR$ (21): HIMEM: 9728:
    LOMEM: 8192: ONERR GOTO 10190
10030 VTAB 1:A$ = "* PRODOS IOB 5.25 *" :
    GOSUB 410: PRINT : PRINT :A$ = "BY BILL
    JETZER" : GOSUB 410
10040 IF PEEK (768) * PEEK (769) = 338 THEN
    10070
10050 A$ = "INSERT PRODOS IOB DISK" : GOSUB 430
10060 PRINT CHR$ (4) "BLOAD
    IOB.OBJ.5.25,A$300"
10070 RD = 128:WR = 129:MB = 150:IO = 768:CMD =
    792:MAX = 815:UNT = 838:BUF = 840:BLK =
    841:LST = 843:SFL = 845:EFL = 859:SWP =
    892:V = 10240 * NOT PEEK (49151)
10080 U1 = 96: VTAB 20: PRINT : INVERSE : PRINT
    "ORIGINAL" : NORMAL : PRINT "SLOT:" U1 /
    16 - (U1 > 128) * 8: PRINT "DRIVE:" 1 +
    (U1 > 128):H = 8: GOSUB 10120:U1 = U
10090 U2 = ((U1 < 128) - (U1 > 128)) * 128 + U1:
    VTAB 21: HTAB 31: INVERSE : PRINT
    "DUPLICATE" : NORMAL : HTAB 33: PRINT
    "SLOT:" U2 / 16 - (U2 > 128) * 8: HTAB 32:
    PRINT "DRIVE:" 1 + (U2 > 128):H = 39: GOSUB
    10120:U2 = U
10100 VTAB 1: PRINT SPC( 120): VTAB 3:A$ =
    "BLOCK:$000" : GOSUB 410: ON U1 = U2 GOTO
    2000:A$ = "INSERT DISKS IN PROPER DRIVES"
    : GOSUB 430: GOTO 2000
10110 REM GET UNIT NUMBER
10120 VTAB 22: HTAB H:B$ = "7" : GOSUB 10150:U
    = VAL (A$) * 16
10130 HTAB H:B$ = "2" : GOSUB 10150:U = U + 128
    * ( VAL (A$) - 1): RETURN
10140 REM GET KEY
10150 GET A$: IF A$ = CHR$ (13) THEN A$ = CHR$ (
    PEEK ( PEEK (40) + PEEK (41) * 256 + PEEK
    (36)) - 128)
10160 IF A$ < "1" OR A$ > B$ THEN 10150
10170 PRINT A$: RETURN
10180 REM HANDLE ERRORS
10190 ER = PEEK (222): PRINT CHR$ (7)
10200 IF ER = 6 OR ER = 8 THEN 10030
10210 IF ER = 254 THEN PRINT : PRINT "TYPE AGAIN
    PLEASE" ; : FOR A = 1 TO 1000: NEXT : HTAB 1:
    PRINT SPC( 40): VTAB PEEK (37) - 4: PRINT :
    RESUME
10220 IF ERR = 255 THEN 10290
10230 IF ER = 43 THEN A$ = "REMOVE WRITE PROTECT
    TAB" : GOSUB 430: RESUME
10240 A$ = "PROGRAMMING ERROR #" + STR$ (ER) +
    " IN LINE " + STR$ ( PEEK (218) + PEEK (219)
    * 256)
10250 IF ER = 39 THEN A$ = "I/O ERROR OR BAD
    BLOCK NUMBER"
10260 IF ER = 40 THEN A$ = "NO DEVICE CONNECTED
    TO UNIT"
10270 IF ER = 86 THEN A$ = "EXECUTE BASIC.SYSTEM
    AND RE-RUN"
10280 VTAB 12: GOSUB 410
10290 ON PEEK (SFL) GOSUB 380: GOSUB 300: HIMEM:
    38400
```

Checksums

```
1    - $97CE      360  - $3615
2    - $F48B      370  - $89C1
4    - $A5E1      380  - $AD4D
5    - $EA22      390  - $06FB
10   - $EF7C      400  - $D758
20   - $1650      410  - $3BE4
30   - $DB19      420  - $8CDD
40   - $0312      430  - $43AF
50   - $4BBC      10000 - $A4C7
60   - $1ADD      10010 - $7C7D
70   - $2014      10020 - $FCDA
80   - $B6D9      10030 - $2B30
90   - $D79C      10040 - $31C6
100  - $D260      10050 - $A53F
110  - $7A68      10060 - $F5CA
120  - $79A3      10070 - $A364
130  - $5D47      10080 - $81CA
140  - $597D      10090 - $9685
150  - $AB79      10100 - $C32A
160  - $82A2      10110 - $8DA6
170  - $AD5F      10120 - $7937
180  - $8C56      10130 - $F7BE
190  - $24EA      10140 - $61DF
200  - $6BAD      10150 - $1F7A
210  - $EA5F      10160 - $D891
220  - $3DAB      10170 - $7A80
230  - $C5F9      10180 - $AF86
240  - $5EBF      10190 - $634B
250  - $E908      10200 - $C139
260  - $5724      10210 - $FA7F
270  - $8480      10220 - $6588
280  - $DDB3      10230 - $41CA
290  - $AF42      10240 - $7F10
300  - $0B0E      10250 - $E1FF
310  - $CE77      10260 - $929E
320  - $6B60      10270 - $026F
330  - $5C95      10280 - $99ED
340  - $F2C5      10290 - $9113
350  - $0DED
```

Jack R. Nissel

Softkey for...

Run For It

Optimum Resource

■ Requirements

☐ 1 blank disk
☐ A sector editor
☐ Any fast copy program that will ignore errors

1 Fast copy your original disk and ignore a read error on track $01.

2 Make the following sector edits.

Trk	Sct	Byte(s)	From	To
$02	$06	$00-01	A0 3C	18 60
		$08	FB	F7
$02	$07	$80-DF	00 06 02 07 06	A5 63 F0 34 A0
			02 02 2F 01 0B	00 B1 73 85 5C
			09 0A 01 0B 00	C8 B1 73 85 5B
			0B 04 07 05 07	20 FF 1D A5 78
			01 0E 11 05 01	09 60 85 74 A5
			02 00 02 02 03	77 85 73 A2 00
			12 02 02 01 10	A0 00 A5 5C 85
			0A 12 03 02 01	5D B1 73 91 77
			00 12 01 05 05	C8 C6 5D D0 F7
			02 01 01 00 04	E6 62 C6 5B D0
			01 01 05 02 01	DC A9 00 85 63
			01 02 01 06 06	60 A0 00 B1 73
			02 03 00 02 01	85 5C C8 B1 73
			01 05 24 01 01	85 5B C8 18 98
			02 0F 06 0F 16	65 73 85 73 A9
			04 06 02 05 0A	00 65 74 85 74
			04 04 06 05 16	20 FF 1D A2 00
			0E 06 0C 02 05	A0 00 A5 5C 85
			00 10 00 00 00	5D B1 73 91 77
			00	C8

Whew!

Softkey for...

Trains

Spinnaker Software

■ Requirements

☐ The original Trains disk
☐ 1 blank disk
☐ COPYA

1 Boot your DOS 3.3 system disk.

2 Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

Softkey for...

Matchmaker World Geography Facts

?

■ Requirements

☐ The original Matchmaker disk
☐ A blank initialized disk
☐ A blank slave disk
☐ Super IOB v1.5
☐ A way to reset into the monitor

1 INITialize your blank disks.

FP

INIT HELLO
DELETE HELLO

[2] Boot your original Matchmaker disk and at the Applesoft prompt, reset into the monitor.

[3] Move the RWTS to a safe place.

1900<B800.BFFFM

[4] Boot your slave disk.

C600G

[5] After the disk boots and the Applesoft prompt appears, insert your Super IOB disk and save the RWTS to it by entering:

BSAVE RWTS.MATCHMAKER WGF, A$1900, L$800

[6] Install the controller into Super IOB, run it and copy your original disk to your blank disk. Answer NO when asked if you want to Format the blank disk.

Controller

```
1000 REM MATCHMAKER WORLD GEOGRAPHY FACTS
1010 TK = 3:ST = 0:LT = 35:CD = WR
1020 T1 = TK: GOSUB 490: GOSUB 360: ONERR GOTO
     550
1030 GOSUB 430: GOSUB 100:ST = ST + 1: IF ST < DOS
     THEN 1030
1040 IF BF THEN 1060
1050 ST = 0:TK = TK + 1: IF TK < LT THEN 1030
1060 GOSUB 490:TK = T1:ST = 0: GOSUB 360
1070 GOSUB 430: GOSUB 100:ST = ST + 1: IF ST < DOS
     THEN 1070
1080 ST = 0:TK = TK + 1: IF BF = 0 AND TK < LT THEN
     1070
1090 IF TK < LT THEN 1020
1100 HOME : PRINT "COPY^DONE" : END
10010 PRINT CHR$ (4) "BLOAD^RWTS.MATCHMAKER^
     WGF,^A$1900"
```

Checksums

```
1000 - $356B      1060 - $20C0
1010 - $3565      1070 - $28C5
1020 - $6170      1080 - $6CA2
1030 - $7771      1090 - $9DCA
1040 - $6342      1100 - $9A4D
1050 - $ABA3      10010 - $16D6
```

A.P.T. for...

Thexder

Sierra On-Line

■ Requirements

- ☐ A deprotected Thexder
- ☐ A blank 3.5 disk
- ☐ Your ProDOS system utilities disk

To get unlimited energy do the following to a deprotected back up of your original disk.

[1] Make a copy of your deprotected copy of Thexder.

[2] Catalog the main directory and look at the file called THEXDER to see if it is called THEXDER or THEXDER.SYS16 or something else.

[3] Boot your ProDOS system utilities disk and get into BASIC.SYSTEM.

[4] Remove your system disk, install the copy you just made and enter:

BLOAD THEXDER, A$1000, L$1, B$522C, T$B3
CALL-151
1000:80
BSAVE THEXDER, A$1000, L$1, B$522C, T$B3

Note: If when you cataloged your Thexder disk you found the file called anything else other then just THEXDER you must BLOAD and BSAVE the file by the name that you found, (IE. BLOAD THEXDER.SYS16, A$1000, L$1, B$522C, T$B3).

Several publications you might be interested in are listed below. I have found them to be informative. If any readers have any others please send the information to COMPUTIST. Please include an address or phone number, or both.

- Open Apple, P.O. Box 11250, Overland Park, KS 66207 (913) 469-6502
- Reboot, P.O. Box 266, Unalakleet, AK 99684 (907) 624-3161
- AppleWorks Forum, Box 87453, Canton, MI 48187 (313) 397-1594
- AppleWorks Journal, 5677 Oberlin Dr., San Diego, CA 92121 (619) 455-7513
- Scarlet, 423 Norfolk Ave., Norfolk, NE 68701 (402) 379-4680

John Wiegley

Softkey for...

Ultima V

Origin

■ Requirements

- ☐ Blank Disk
- ☐ CopyA
- ☐ Sector Editor
- ☐ A Sense of Humor

Here I am, sitting back, playing with my AppleWorks and the TimeOut Series (which is excellent), and my mother hands me the latest COMPUTIST. As usual, before I intensely study it, I glanced through to see if there are some very interesting articles. Seeing none that immediately caught my eye, I turned to the Most Wanted list to see what people wanted cracked. When I saw Ultima V at the bottom of the list, I found it very humorous. I must have a different version than everyone else because this is the second most simplest program I have every cracked. I don't mean to put down inexperienced people who are just beginning the skill, but this should defintely be a game you should do some of your first cracking on. The only other game as easy to crack as this would be Might & Magic. After about 6-7 minutes, I was playing my cracked copy.

I must say though, that Origin has produced some formidable protections in the past, but this was ridiculous. After failing a bit copy by EDD V4.6, I turned to cracking, expecting hours of code-searching and sector-editing. The first program I tried gave the whole protection away. Bag of Tricks 1 or 2, using the TRAX program, will show that all sector numbers have been incremented by $11. I made a simple patch to DOS's RWTS to decrement all sector numbers before storing them in the zero page.

[1] Use COPYA and the following patch to copy the boot side.

RUN COPYA
[C] *at the first prompt*
70
CALL -151
B942:18
B989:A5 2D E9 11 85 2D 18 60
3D0G
RUN

[2] Reboot DOS and run your sector editor. Search for E9 11 and change it to 18 60. Now you have a cracked copy of Ultima V:Warriors of Destiny.

More Clues to Ultima V

For those people who refuse to put in the many hours of searching through locales, I have here all of the clues I have found that I have ever written down. I have solved the game and must say that the final dungeon is a pain.

Shrines	Mantras	Dungeons	Words of Power
Honesty	Ahm	Deceit	Fallax
Compassion	Mu	Despise	Vilis
Valor	Ra	Destard	Inopia
Justice	Beh	Wrong	Malum
Sacrifice	Cah	Covetous	?Ignavus
Honor	Summ	Shame	Infama
Spirituality	Om	Hythlothe	?Avidus
Humility	Lum	(Abyss)	Veramocor

Assorted clues

- Password to the Oppression is IMPERA.
- Mystic Arms: Within the Underworld, where the Abyss once was, the lava still flows, north of the entrance to Hythlothe. In this lava is where the Mystic Arms lie.

• Shard of Cowardice: At the bottom of the dungeon at the Isle of the Avatar, you will be in an enclosed space. Using spells, go to other enclosed spaces nearby. The Shard is in one of them. It's Britannia location is L' A'' L' I''.

• To destroy the Shadowlords: Gather the three Shards, go to the Flames of Love, Truth and Courage and yell the name of the Shadowlord who opposes that Flame, wait until he is upon the Flame and cast his Shard into the Flame.

• The daughter of another council member works as a sailmaker. Ask the child about her mother, for she too knows one of the 8 Words of Power.

• Crown: The Crown is at the top level of Blacthorn's Castle.

• Sceptre: The Sceptre is in the Shadowlords lair Stonegate.

• Amulet: The Amulet is at the location Lord British was when he disappeared.

• Blackthorn's Castle: At the top of one of the three islands of lava, east of Serpent's Hold, west of the Isle of the Avatar, and next to the location of the Skull of Mondain in Ultima IV.

• Stonegate: South of Minoc, near Cove. There is a long row of mountains here, at the southwest side of these moutains is a river, start climbing here and Stonegate is near the bottom of the mountains.

• Lord British's Camp: The camp is in the Underworld. To get there, go down the waterfall in Spiritwood on a skiff. Follow the rivers into a large lake. At the south side of the lake there are two rivers going southeast and southwest, follow the southeast river until you come to a small lake with a skiff in it. This is Lord British's skiff. Exit your skiff and go south, following the path until you come to a vast expanse of marsh. At the east side of this, in the mountains (through a path) is the camp of Lord British before he disappeared.

Names of the Shadowlords

Hatred	Astaroth
Cowardice	Nosfentor
Falsehood	Faulinei

The Bard's Tale III code wheel

I found this code wheel protection to be VERY annoying. The code wheel is enormous and a real pain to get out every time you pass onto a dimension. Well, putting my skills to the test, I decided to remove it. After about 30 minutes I discovered that a simple 1 byte edit will remove the protection completely, making the program so that it accepts any number up to 7 digits (it can even be a blank line). Make the following sector edit:

Trk	Sct	Byte(s) From	To
$0B	$0B	$50 $38	$18

Although getting this info was not that easy, the protection itself is simple. I accomplished it by the following method:

1. Boot up and try to go to Arboria.
2. Find out what number it really wants.
3. NMI at this point (this may take a couple tries before it works).
4. Scan memory for the number.
5. Scan memory for a reference to the address of the first number.
6. Decode that memory and you will find it to be the routine.

Very simple (at least I thought so).

To Harold Day: (COMPUTIST #59) I don't see the problem. Just transfer the characters with a write protect over the Wizardry I or II character disk. Make the edit to the last byte in the character, and add them in. It should work fine. If you have real problems (or anyone else does) write me care of COMPUTIST, with the details and I will look into it.

Some notes on Airheart

I know how to crack this disk, but I haven't had enough time to do it. For those who wish to attempt this disk (It looks very time consuming), at any time during boot up, stop the program (with an NMI) and save the text page to higher memory. This is the DOS. The Data Read routine starts at $418 (list four times to see all of it), and the Address Read routine starts at $4D7 (list three times).

Some notes on Legacy of the Ancients

This disk I have gotten pretty far on. I have gotten it to boot and play the theme song (along with displaying the title page) but after that, it buzzes at me and hangs. I have found that the menu (and maybe more) is written in BASIC, and without a way to edit the BASIC program and be able to write it back to disk, I cannot crack it. The protection lies in the first 20 or so lines of program with an ONERR to 100, you could try changing the machine language tokens of the program to REM statements, but I haven't had the time for that either. I would display the RWTS's of Track $00 and Tracks $01-$22 here but they are to heavily modified to show simple patches. I have many files on Legacy of the Ancients. Some of these are:

LEGACY.THEME: The theme song in a BRUN-able file

LEGACY BOOT.PIC: The title picture (makes a good printout)

LEGACY.RWTS(T$00): The RWTS to track 0

LEGACY.RWTS(T$1-22): The RWTS to track 1-22

LEGACY.TEXT PAGE: The saved text page

There is no use of the 16K upper memory as far as I can tell except for the use of BASIC.

Note: The protection on this program is EXACTLY like the protection on Strike Fleet. All the RWTS files will work on this program and the code matches Legacy's byte by byte up to the execution and sector-page load vectors. Essentially, if you crack this, you crack both.

For those with MODEMs: My number is (703) 437-1808. Please call after 2:15 EST (because I either won't be home, or won't answer). If it is busy, try again (I tend to call boards a lot). I have a USRobotics Courier 2400 and support the following protocols: XMODEM (Standard, DOS, ProDOS, CRC), YMODEM CRC, Kermit, Transit, and Christensen. I also have a variety of Tech files on ProDOS, the Apple IIe, and even one on XMODEM protocol, plus a bunch of other files. If anyone is interested on making a transfer, please call. Note: I will not accept collect calls.

Lane Callahan

Bit-copy for...

Bank Street Writer IIc

Broderbund

Requirements

- ☐ 64K
- ☐ One blank disk
- ☐ Copy II Plus
- ☐ Locksmith

This really isn't a crack, It's just a simple way for novice's (like myself) to copy Bank Street Writer IIc.

[1] Boot Locksmith and choose Backup copy.

[2] Copy track $00 and synchronize, but DO NOT preserve track length.

[3] Boot Copy II Plus and choose PARTIAL Auto Copy. Copy from track $01 to $22 to get an excellent working copy!!

(?) HELP! I need RAMDISK 16 by ? for some personal operations. Please send me a program list or send me a disk and I'll pay for the disk!

Mail to: Lane Callahan
Rt.1 Box 13
Morrisville, MO 65710

Readers Data EXchange

Ralph L. Jones

? I am having trouble with SENSIBLE SPELLER ProDOS on my IIgs with a hard disk. My Sensible Speller disk has been "softkeyed" as per the article in COMPUTIST No. 16, and it worked without a flaw until I got a hard disk. After installing Sensible Speller on the hard disk, it will boot showing the hi-res screen then ask me to insert the Speller program disk. If I insert the program disk, the program will then run without any trouble.

I searched other issues of COMPUTIST and found in issue 55, an article that was supposed to permit Sensible Speller to run on a hard disk. The Hex Sequence mentioned in step three (20 04 4A) was not found on my disk.

I know that the program is searching for a "key" disk named SENSIBLE00, because I initialized two blank disks, one a 5 1/4 and the other a 3 1/2 inch disk, both I named SENSIBLE00. If either of these disks is inserted in a slot, the program will find these disks, and then run without a flaw from then on, even though these disks are blank.

Will some one please show me how to defeat this "key" disk search.

Dick Lavallee

Softkey for...

Reading Workshop

Mindscape

■ **Requirements**

☐ COPYA or similar copier.
☐ Sector Editor
☐ Blank disks

Mindscape's Reading Workshop disks are done in Pascal and cannot be read with normal DOS. The protection scheme is on track $00 which looks for a signature. By inserting an RTS (60) at the front end of this scheme, we bypass the signature search.

[1] Boot your DOS 3.3 system disk.

[2] Tell DOS to ignore checksum and epilog errors and use COPYA to copy the front side of the Toolkit Disk and both sides of the Story Disks.

POKE 47426,24
RUN COPYA

[3] Make the following sector edits to the FRONT side ONLY of each disk.

Trk	Sct	Byte(s)	From	To
$00	$0C	$00	8D	60

Or search for 8D 78 04 A2 FF B5 00 and change the 8D to 60.

MOST WANTED Softkeys

ABM Muse
Agent U.S.A. Scholastic
Airheart Broderbund
Algebra I Intelligent Tutor
Alien Mind PBI
Anhk Datamost
Apple Super Pilot ?
Artificial Intelligence Scholastic
Balance of Power Mindscape
Bandits Sirius Software
Bank Street Filer Broderbund
Bank Street School Filer Sunburst Communications
Barron's Computer SAT ?
Battlegroup SSI
Battlezone Atarisoft
Brain Bank The Observatory
Burgertime ?
California Games (IIgs) Epyx
Captain Goodnight ?
Caverns of Callisto Origin
Certificate Library Vol. 1 ?
Chuck Yeager's Advanced Flight Trainer Electronic Arts
Colossus IV Firebird
Creature Venture Softsmith Co.
Cross Country Rally Softsmith Co.
David's Midnight Magic ?
DB Master V4.0 Stoneware
Design Your Own Train Abracadata
DROL Broderbund
Eliminator Adventure International
Epidemic S.S.I.
F-15 Strike Eagle Microprose
Fay: The Masked Woman Didatech Software
Fay's Word Rally Didatech Software
Fortress S.S.I.
Fun Bunch Unicorn
Galaxian Atarisoft
Galactic Gladiators S.S.I.
Game Show Advanced Ideas
Gemstone Healer SSI
GradeBusters 1-2-3 Gradebusters
Gutenburg Jr. Micromation LTD
Gutenbery Sr. Micromation LTD.
Handicapping System Sports Judge
Impossible Mission Epyx
Indoor Sports Mindscape
Into the Eagles Nest Mindscape
Jigsaw Microfun
Joust Atarisoft
Killed until Dead Accolade
King of Chicago Cineware
The Last Ninja Activision
Legacy of the Ancients Electronic Arts
Little Computer Peoples House on a Disk Activision
Lollipop Dragon Society for Visual Ed
Cursor Control Adventures
Plotting & Programming Adventures
Letter & Number Key Adventures
Function Key Adventures
Magic Spells The Learning Company
Micro League Baseball Micro-league Sports
Mini-Putt Accolade
Mr. Do Datasoft
Mr. Pixel's Cartoon Kit Mindscape
Ms. Pac-Man Atarisoft
Never Ending Story Datasoft
Odin Odesta
Paperboy Mindscape
Peeping Tom Microlab
Pensate Penguin
Personal Finance Manager (PFM) Apple Computer
Prime Plotter Primesoft Corp.
Principals Assistant Library Mindscape
Print Master Unision World
Pro-Football Sports Judge
Publisher Springboard
Puzzles & Posters MECC
Quadratic Equations II Olympus Educational Software
Quiz Castle Didatech Software
Ruski Duck Softsmith Co.
Scrabble Electronic Arts
Sea Stalker Broderbund
S.E.U.I.S. S.S.I.
Show-Off VI.1 Broderbund
Snoggle Broderbund
Space Eggs Sirius
Space Journey Mindscape
Spare Change Broderbund
Speedy Spides Readers Digest
Stellar 7 Penguin Software
Stellar 7 Software Entertainment
Success with Typing v1.2 Scholastic Software
Super Factory Sunburst
Superstar Indoor Sports Mindscape
Test Draive Accolade
Think Tank Living Video
Universe Omnitrend
Universe II Omnitrend
Visiblend Microlab
Wargle Hayden
Wasteland Electronic Arts
Wheel of Fortune ?
Where in the USA is Carmen San Diego Broderbund
Where in the World is Carmen San Diego Broderbund
Wings of Fury Broderbund
Word Attack Davidson
Work Force II Core Concepts
The Works First Star Software
Zany Golf Electronic Arts

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24 *Softkeys* •Electronic Arts software •Grolier software •Xyphus •F-15 Strike Eagle •Injured Engine •Mr. Robot And His Robot Factory •Applecillin II •Alphabet Zoo •Fathoms 40 •Story Maker •Early Games Matchmaker •Robots Of Dawn •*Feature* •Essential Data Duplicator copy parms •*Core:* •DOS-Direct Sector Access

22 *Softkeys* •Miner 2049er •Lode Runner •A2-PB1 Pinball •The Heist •Old Ironsides •Grandma's House •In Search of the Most Amazing Thing •Morloc's Tower •Marauder •Sargon III •*Features* •Customized Drive Speed Control •Super IOB version 1.5 •*Core:* •The Macro System

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24	☐	☐	☐
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■13	O	☐	O
■12	O	☐	O
■11	O	☐	O
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IBM Reader's Data EXchange IBM

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Softkey for...

Print Shop
Broderbund

The PS.EXE file should have 362Ø8 bytes in it, and dated 1Ø-23-86, if it doesn't have this then it's wrong version.

[1] Format a blank disk.

MD PS

[2] Use the file ASSIGN.COM on your DOS disk and type "ASSIGN C=B".

[3] Now put the original print shop in drive "A" and type "PSHD" which will install it on your diskette instead of the hard drive. When it is finished you will have to make a batch file which is outside the "PS directory".

[4] Copy ASSIGN.COM from your DOS disk to your new copy of PS. (It must be outside of the directory.)

This is the batch file I called PS.BAT, you can write the batch file in EDLIN or Sidekick or whatever.

CLS
ASSIGN C = A
C: *"This is important because it must think that it is still on drive C"*:
CD/PS
PS
CD/
CLS
ASSIGN
CLS

I'm sure that there is a better way, but I'm not that good a machine language, but this will work.

Softkey for...

Print Shop Companion
Broderbund

The PSC.EXE file must be 3456Ø bytes long and a stamp date of 1-Ø5-85.

Follow the same procedure as before except whereever you see PS, you put PSC, and the install program is called "PSCHD". The batch file is called "PSC.BAT"

Not too many letters this time so I'm putting up some more BBS stuff that came in. This stuff is pretty old, though, so how about someone sending some new material with a 1988 date. I don't think the Apple people are complaining about us anymore, they're just laughing.

. . . . . RDEXed

The Ancient Mariner

Softkey for...

FOCUS
?

The following fix will eliminiate the bothersome requirement to insert the FOCUS "activator" diskette in the A-drive everytime you bring FOCUS up. This change was made to a version of FOCUS that had file dates of Ø5/11/84. Be sure that you verify the code that is in place before applying this zap.

RENAME FCPCINIT.EXE FCPCINIT.XXX
DEBUG FCPCINIT.XXX
U 22AB L 5

You should see 9A C5 Ø2 14 Ø2 CALL Ø214: Ø2C5 on the screen. If not, see note* below.

E 22AB 90 90 90 90 90
W
Q
RENAME FCPCINIT.XXX FCPCINIT.EXE

That all there is to it. Have fun.

*Note: Same procedure, only the 5 bytes you need to no-op are at location ØC57:23EØ. What you see at that location is CALL Ø21C:Ø2C5.

Unknown

Softkey for...

Disk Mechanic v1.13

DEBUG TRQ5.BAS
A 858
858 NOP
859 NOP
85A NOP
ENTER *to exit assemble*
W
Q

Softkey for...

Disk Mechanic v3.20

DEBUG TRQ8.BAS
A 887
887 NOP
888 NOP
889 NOP
ENTER *to exit assemble*
W
Q

That's all you have to do to be able to use Disk Mechanic from your hard disk.

Unknown

Softkey for...

Enable v1.00
Software Group

If you have a hard disk or want to create a backup copy that is not tied to the original Enable system disk, this will remove the copy protection completely.

This procedure is to be used by legitimate owners of Enable only, as you are entitled to make a back up for archive purposes only. You are bound by your licence agreement.

[1] Format a blank disk using DOS 2 or 2.1. (Do not use the /s option.) Label it the same as the original Enable system disk.

[2] Copy the files from the original Enable system to the formatted blank disk using "*.*".

[3] Place a DOS system disk containing DEBUG in drive A: and the new copy of Enable in drive B:

DEBUG B:SYSTEM.TSG
S CS:Ø L EFFF B8 Ø1 Ø4
XXXX:Ø69C *You should see this*
XXXX:XXXX *this one doesn't matter!*

If you don't see this, type Q and press **ENTER** to quit. You have a different version! Otherwise, continue...

E Ø69C
B8.EB Ø1.2D Ø4.9Ø
W
Q

Now all the copy protection has been removed, and you may copy the files as required. All checks for specially formatted tracks have been removed.

Unknown

Softkey for...

Fastback v5.03
FGS

This "modification" jumps around the code that searches for the key disk. Notice the modification is on the .PGM file. Simply run FINSTALL from the new disk to install the modified FASTBACK.EXE.

[1] Copy the 3 programs FASTBACK .PGM, FRESTORE.PGM and FINSTALL .EXE to another disk and work with those.

DEBUG
N FASTBACK.PGM
L 4000:0 *we need C496 hex or 50326 dec bytes to load program*
U 4000:2704 2726

```
4000:2704 E82113      CALL  3A28
4000:2707 B80C00      MOV   AX,000C put "JMP 29EE" here
4000:270A 50          PUSH  AX
4000:270B B8DE15      MOV   AX,15DE
4000:270E 50          PUSH  AX
4000:270F B8EE00      MOV   AX,00EE
4000:2712 50          PUSH  AX
4000:2713 E8C760      CALL  87DD
4000:2716 8BE5        MOV   SP,BP
4000:2718 B80C00      MOV   AX,000C
4000:271B 50          PUSH  AX
4000:271C B8EA15      MOV   AX,15EA
4000:271F 50          PUSH  AX
4000:2720 B8FA00      MOV   AX,00FA
4000:2723 50          PUSH  AX
4000:2724 E8B660      CALL  87DD
```

U 4000:29C9 29EE

```
4000:29C9 B80C00      MOV   AX,000C
4000:29CC 50          PUSH  AX
4000:29CD B8EE00      MOV   AX,00EE
4000:29D0 50          PUSH  AX
4000:29D1 B8DE15      MOV   AX,15DE
4000:29D4 50          PUSH  AX
4000:29D5 E8055E      CALL  87DD
4000:29D8 8BE5        MOV   SP,BP
4000:29DA B80C00      MOV   AX,000C
4000:29DD 50          PUSH  AX
4000:29DE B8FA00      MOV   AX,00FA
4000:29E1 50          PUSH  AX
4000:29E2 B8EA15      MOV   AX,15EA
4000:29E5 50          PUSH  AX
4000:29E6 E8F45D      CALL  87DD
4000:29E9 8BE5        MOV   SP,BP
4000:29EB E83A10      CALL  3A28
4000:29EE 833E520700  CMP   WORD PTR [0752],+00 Jmp to here
```

A 4000:2707
4000:2707 JMP 29EE
4000:270A
U 4000:6B7 6CF

```
4000:06B7 E85947      CALL  4E13
4000:06BA C6066A1701  MOV   BYTE PTR [176A],01
4000:06BF 833E2A0700  CMP   WORD PTR [072A],+00
4000:06C4 7505        JNZ   06CB    put "JMP 6CB" here
4000:06C6 E8F61B      CALL  22BF
4000:06C9 EBF4        JMP   06BF
4000:06CB 837E1400    CMP   WORD PTR [BP+14],+00
4000:06CF 7503        JNZ   06D4
```

A 4000:6C4
4000:06C4 JMP 6CB
4000:06C6
W 4000:0 *Writing C496 bytes*
Q

R.R.S. & D.A.W.

Softkey for...

Fastback
Fifth Generation

These patches are for Fastback ver 5.0 & 5.01 and will allow you to run Fastback without the master disk in drive A. It still asks for the master disk, but any formatted floppy will work.

Make a backup copy of your Fastback Files using diskcopy of master disk. Then do the following. If data does not match, then this may not work.

For version 5.0

DEBUG FASTBACK.PGM
E 28B2
XXXX:28B2 7D.90 2E.90
E 28B7
XXXX:28B7 7D.90 29.90
E 2972
XXXX:2972 7D.90 2F.90
E 2977
XXXX:2977 7D.90 2A.90
W *Writing blocks xxxx*
Q

For version 5.01

DEBUG FASTBACK.PGM
E 29AD
XXXX:29AD 7D.90 2E.90
E 29B2
XXXX:29B2 7D.90 29.90
E 2A6D
XXXX:2A6D 7D.90 2F.90
E 2A72
XXXX:2A72 7D.90 2A.90
W *Writing blocks xxxx*
Q

Now install Fastback on your harddisk using the installation program.

Unknown

Softkey for...

Multilink v2.07

The following will patch Multilink 2.07 to get rid of the copy protection scheme. This will allow you to run it from a hard disk. If you are just interested in making backup copies of the system to another diskette, COPY II PC does a great job of that. If you don't know how to use DEBUG, you need to read the DOS manual about DEBUG commands before attempting this patch. You should only make the patches to a backup copy of the file MLINK.COM.

[1] Start up DEBUG.

DEBUG A:MLINK.COM

[2] Make the following patch beginning at 34DF (Replacing the existing code).

E 34DF B8 00 00 BB 00 2C BA 00 00 0E 07 90 90 F8 C3

[3] Make the following patch beginning at 33E4. You should enter the fifth (5th) and sixth (6th) numbers of your Multilink serial number in place of "x" and "y". (IE. If your Multilink serial number was 123456, you would enter: C7 06 00 2C 35 36 F8 90.)

E 33E4 C7 06 00 2C 3x 3y F8 90

[4] Make the following patch beginning at 34C1.

E 34C1 90 90

[5] Make the last patch beginning at 2CA6.

E 2CA6 20 20 20

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by Phil Goetz

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Sample run

This is Dr. Sheffield's office, where you sometimes come for counseling. The walls are papered a sickly green no doubt thought to be soothing. Dr. Sheffield is counseling Ed.

>Put the black tape on the desk in the tape player.
OK.
Ed just walked south out of the room.

>Pick the tape recorder up.
OK.
"Hey!" Dr. Mark Sheffield says, "you didn't ask to borrow that."
Dr. Sheffield picks up a tape recorder.

>Ask him "Can I borrow your recorder?"
"No, I need it."

>Ask Mark "Why do you need it?"
He leans back in his chair. "I have my reasons."

>Kill
(Dr. Mark Sheffield)
(with wooden bar)
. . .

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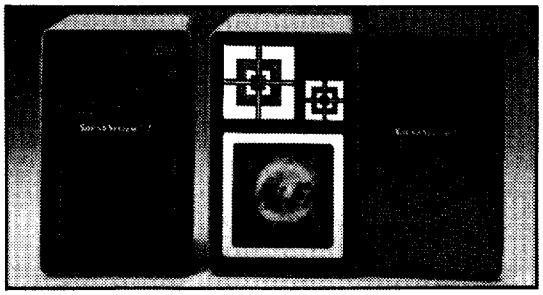

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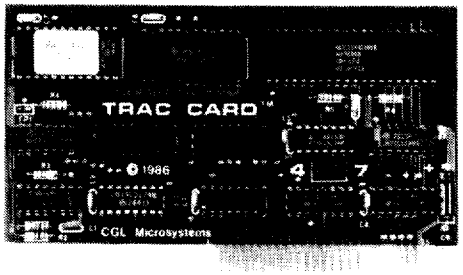

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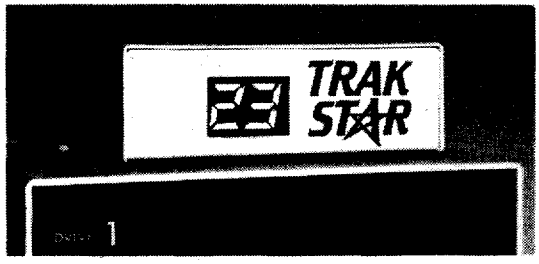

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► A reprint of **Disk Inspection and the Use of Super IOB**, from COMPUTIST No. 17. This article explains how to write your own Super IOB controllers.

► **COMPUTIST No. 32**, which contains an extensive article detailing the hows and whys of Super IOB v1.5 and at least 5 articles using the new Super IOB program.

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● The issue of COMPUTIST in which each controller appeared is indicated in case further steps are required to deprotect a particular program.**

*Requires at least 64K of memory.
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