# Hard drives to get denser, cheaper

**NEW.COM**
*December 26, 1997*

Disk drives will become more dense and less expensive in 1998, which is good news for everybody but manufacturers.

Hard drives, like memory chips, are expected to continue to decline in price next year even as the technology improves and sales increase, say analysts.

As with memory, price erosion stems from an imbalance of supply and demand. Demand is actually quite robust, with disk shipments increasing by more than 21 million this year according to various estimates. Unfortunately, a recent rush to fill that demand by established as well as new manufacturers has created a glut.

That is good news for consumers who will get more storage for less, said Jim Porter, president of Disk Trends, a Mountain View, California-based research firm specializing in storage.

"In 1997, OEMs were paying on average about 8 cents a megabyte [for storage products]. In 1998, that should go to around 7 cents," said Porter. "In 1996, they paid 13 cents a megabyte." Typically, a drop in the manufacturer's purchase cost leads to a drop in consumer prices.
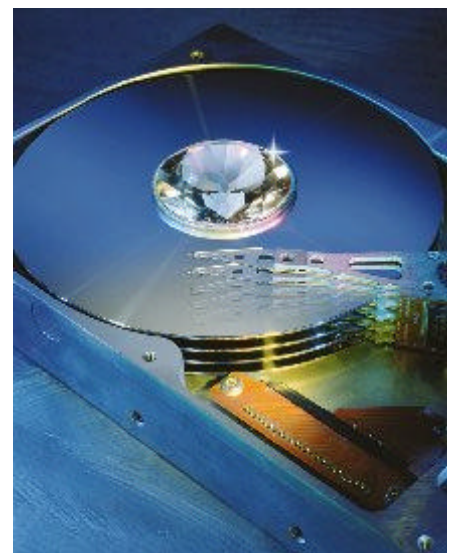
One of the big events for consumers, he said, will be the shift toward 2.1 GB platters. Platters are the building blocks of disks. The average hard drive contains two platters, while drives for higher-end machines can contain three to five platters.

Currently, most commercial hard drives use platters that store 1.7GB of information. 2.1GB platters, which are now manufactured in limited quantities, will start to find their way into standard product lines during the first two quarters of 1998.

While the shift may actually result in a slight increase in the total price for cutting-edge disks, consumers will pay less per megabyte for storage because of the jump in capacity. The typical 3GB hard drive will become the 4GB hard drive, Porter pointed out, and sell for close to the same price.

At the same time, this year's 3GB disk will become very cheap. Manufacturers will begin to heavily discount disks based on the current 1.7GB technology when more of the 2.1GB platters are available, Porter said.



Pricing pressures will also likely continue to be a feature of the market because of the surfeit in supply. Seagate Quantum, and Western Digital all warned that earnings would be lower than expected for their respective current quarters due to pricing turmoil. Seagate further said it planned to shut down its plant in Ireland in the first quarter as way to cut costs.

Despite the glut, the number of drives going out the door continues to grow. Alexa McCloughan, a storage analyst with International Data Corporation, said unit shipments went up 27 million this past year. Porter said shipments went from 105 million in 1996 to 126 million units.

## index

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### Membership
Membership in L.C.A.C.E is open to all individuals and families interested in personal computing. Annual dues are $20.00 per individual/family. Associate membership is only $10.00 (out of state, unable to attend meetings). Membership includes a one year subscription to the L.C.A.C.E. News Journal and access for all club libraries, and functions. Application for member may be obtained at the monthly meeting or by request on the club fax, Hotline or by writing to the club address.

### Meetings
L.C.A.C.E meetings are held on the second Saturday of each month at the Grant Township Meeting Hall, 411 Washington Ave. Ingleside, Il. Meeting open at 11:00 a.m, and are open to the public.  Bring a friend!

### Advertising
Ad rates per issue: Full page - $25, Half page -$15, Quarter page - $10, Business Card -$5. Discounts are available on advance purchase of multiple issues. Please send Camera-ready copy and payment to the club address by the 21st of the month preceding publication. For more information on ad pricing, please call our Hotline. Ads are **FREE** to all paid members.

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## Deadline Approaching
### SEND YOUR ARTICLES
Remember, the deadline for all articles submitted to the News Journal is the 20th of each month. Send your article ...or e-mail it to the club web-site or newsletter editor.

## L.C.A.C.E. HOTLINE

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# from the
# president

*by Corky Bell*

To begin, I would like to wish everyone a Happy New Year if I haven't already done so. I can recall that it was just a year ago that I was writing about all the changes that had taken place in 1996 and what we could possibly look forward to in 1997. Well here it is, 1998 and **WOW**, look what we've got now.

Our 1997 Christmas party was a very enjoyable event. I would like to congratulate Al Wojchiechowski on being the winner of our **1 Year Membership Raffle** and welcome him to the club. Al operates the *INFINET DIRECTIONS* server in Grayslake and provides us with our WEB site location on the Internet. I would like to thank Mark Ross and his staff at Software City in Mundelein for donating the various items that were utilized as prizes in our raffle. Thanks goes out to Deope and Deanna Gayomali for bringing the delicious ham for all of us to eat and last but not least, all the members for making this organization such a success, besides so much fun to be associated with.

I haven't made any tentative plans as far as a formal agenda goes for the January meeting. I would like anyone who received any computer equipment and/or programs that they would like to share with us, to do so at this meeting. If you would like to do this, please let me know so that I can arrange to have any needed equipment there for you. Remember that the meeting will be held at the Grant Township Hall in Ingleside on January 10th.

I recently made contact with Matt McCann. For those of you who don't remember who Matt is, he formerly demonstrated programs to user groups for Parsons Technology (he did a demonstration for us in 1996), but now has gone into this line of work for himself called **USER GROUP PROMOTIONS**, demonstrating programs for various maufacturers. I am hoping that I can arrange for his return to one of our meetings in the near future. If you get a chance take a look at his WEB site at http://www.ugpro.com/ and let him know what group you are from by sending him some E-Mail. he is always glad to hear from user groups and backs them 100%. As soon as I can get more information and/or a commitment from Matt, I'll get it the news to everyone immediately.

Now for some old business. I will be contacting the Warren/Newport Library about getting an application on file for the use of one of their conference rooms for our meetings. The most recent news I have received is that the library is finally getting back into normal operation and will begin accepting applications in the near future. Although no date was given, I feel that we should get an application on file so that we are not overlooked.

The WEB page is being updated as much as possible. For those who are not aware of the newest changes, we now have our News Journal, Membership Applications and Member Profile Forms online. However, to view and/or print any of these you will need the Adobe Acrobat Reader installed on your system. If you don't have this program, you can download it from http://www.adobe.com for **FREE**. For those of you who have not submitted an updated Profile Form, please do so as soon as possible. We need this so that one of you lucky people can be included in the News Journal and on the WEB site as the "MEMBER of the MONTH".

# The Pretenders: Emulators

*An Update by Twisted Pair*

Remember back in the old days when you could make your Atari ST think that it was a "good old" Atari 800? How about Dave Small's masterful Spectre that made your ST think that was a Mac? Both of these are examples of "Emulators".

Fast forward to today...emulators are still alive and well for systems flexible enough to run them. One example of a system flexible enough to think that it's something else is any system based on the Motorola/IBM "PowerPC" chip.

The largest number of PowerPC computers currently in the consumer and business market are either Macintoshes or Mac clones. As you would suspect- there are a large number of emulators that run on the PowerPC platform.

The most popular are DOS/Windows emulators such as Insignia's "Soft Windows" and Connectix' "Virtual PC" which allow the Power Mac to have a Windows or Windows 95 compatible environment.

Did you know that there are MANY more emulators available? A PowerPC Mac system can also run software designed for the following systems: Amstrad CPC, Amstrad PCW, Apple I, Apple II, Atari 800 series, Atari ST, Atari 2600, Atari 5200, BBC Micro, Commodore 64, Commodore Amiga, CP/M, Edsac, HP 48, IBM Series/1, MIPS R2000, MSX, Dec PDP 8/E, Palm Pilot, Sinclair ZX81, Spectrum QL, Spectrum ZX, TI 81, TRS-80, TRS-80 Color Computer, DEC VAX, Colecovision, Nintendo, Gameboy, Intellivision, Sega Master System, Sega Genesis, Super Nintendo, and a plethora of Commercial Game Consoles! Sadly, no emulator has yet been developed for the Atari Lynx, but Atari fans are pretty much covered in the above list.

The dark side of the ability of the PowerPC machines to be so emulation friendly is that strictly speaking, you still must own a set of the OS ROM's (or in some cases, the entire system) to legally emulate the OS, and certainly must own an original copy of the programs that you wish to run. Any other usage of these emulator programs is the same as software piracy.

Regardless of the technical legal issues, the real world situation is that most once-protected software and hardware is freely available on the world wide web and can be had for the price of a download. For practical purposes, playing any prior generation computer game you ever wanted is as simple as visiting http://emulation.net.

Here are the details on a couple of emulators that LCACE members might find to be of interest:

## PRESIDENTS RAM
*continued from page 5*

I have also produced a page for reference to the WEB sites of hardware and software developers such as Seagate, Microsoft, Supra and Lotus for example. I have also put information for getting **FREE** E-Mail service, search engines and C-NET sites in this area. This area is going to be worked on so that we may be able to have one of the best areas of locating computing assistance in the area. If you have any suggestions or additions for this page, let me know so that we can change it. Also let us know whether you want the club to continue mailing the News Journal to you or you will be getting it form the WEB site. This way we can update our mailing list. As we've requested in the past **WE NEED ARTICLES FOR THE NEWS JOURNAL**. If you read an article in the newspaper, a computer magazine, see or hear something on the radio or TV or have your own personal experience with anything related to computer use, share it with us and write an article. It doesn't have to be a book, just a short article would be great. If you do compose something, please save it in either ASCII or RTF format and attach it to an E-Mail message to the club or put it on a disk and deliver it to JJ or myself at one of the meetings. We'll even take a good computer joke.

That is all I can think of for now. See everyone at the meeting on January 10th. Until then, good computing to everyone.

## Corky

# The Techno Term DICTIONARY

**486** - The average IQ needed to understand a PC.

**State-of-the-art** - Any computer you can't afford.

**Obsolete** - Any computer you own.

**Microsecond** - The time it takes for your state-of-the-art computer to become obsolete.

**G3** - Apple's new Macs that make you say "Gee, three times faster than the computer I bought for the same price a Microsecond ago."

**Syntax Error** - Walking into a computer store and saying "Hi, I want to buy a computer and money is no object."

**Hard Drive** - The sales technique employed by computer salesmen, esp. after a Syntax Error.

**GUI** - What your computer becomes after spilling your coffee on it. (pronounced "gooey")

**Keyboard** - The standard way to generate computer errors.

**Mouse** - An advanced input device to make computer errors easier to generate.

**Floppy** - The state of your wallet after purchasing a computer.

**Portable Computer** - A device invented to force businessmen to work at home, on vacation, and on business trips.

**Disk Crash** - A typical computer response to any critical deadline.

**Power User** - Anyone who can format a disk from DOS.

**System Update** - A quick method of trashing ALL of your software.

## Emulators

"Rainbow" by Chris Lam emulates the Atari 8-bit environment about as perfectly as it could be on the PowerPC. Of course you must have a set of the Atari 8-bit ROM's in disk form (Hint: the translator disk). Look for Rainbow at http://www.shenleyfield.demon.co.uk/rainbow.html.

"Stella" by Bradford W. Mott allows 2600 games to be played on PowerPC. Activision has a similar 2600 emulator that they plan to sell commercially in a "2600 Action Pack" but Stella is a bit better in my estimation. Look for Stella at http://www4.ncsu.edu/~bwmott/www/2600.

"Frodo" by Christian Bauer and Richard Bannister emulates the venerable Commodore 64 and does an excellent job on graphics intensive games and programs. Go to http://internetter.com/titan/software to check it out.

# WIN TIPS

## DRIVESPACE ISN'T JUST FOR HARD DRIVES
Use DriveSpace for diskettes. Just remember if you need to format them in the future, you must do so from the DriveSpace utility.

## FIND OUT WHAT'S WHAT
If you hold the mouse pointer over minimized folders or applications on your task bar, a ToolTip will pop up and give you the folder or application, along with document names.

## MAKE ICONS FROM BITMAPS
If you have Microsoft Plus, you can create an icon from any bitmap image. Open Control Panel and double-click on Display. Select the Plus Tab, then select the icon you want to change. Press Change Icon, then press Browse. Find a bitmap, click on Open, and then on OK for both dialog boxes.

## A FILE WITH A VIEW
For a light-and-fast file viewing utility, check out Quick View, which ships with Windows 95 (you won't see it if you opted for a typical Win95 install). By default, Quick View only pops up as an option for certain types of files, so if you change a TXT file extension, Quick View will no longer show up as an option. But you can enable Quick-View for any file type you want by going to View/ Options in any folder window and selecting File Types. Select the file type you want to change, click on the Edit button, and check the box marked Enable Quick View. You can also put Quick View in the SendTo folder to view any compatible document on the fly.

## GET RIGHT TO THE ROOT
You can pop up rooted Explorer views on the fly by creating an option for them in the right-click menu for folders. Edit the action list for the Folder file type, as in the previous tip, and create a new action called Explore from Here. For the application path, type WINOWS\EXPLORER.EXE /E,/ROOT,%1. You can also set thisup automatically with Microsoft's Power Toys, availableon WinMag's Web site.

## SURGICAL SELECTION
You can select files or folders "surgically" by pressing and holding the Ctrl key as you click. You'll select the files or folders you click on without selecting those between. Click on a file or folder once and it's selected. Click on it again and it's de-selected.

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**It is better to have common sense without education than to have education without common sense, though it's best to have both.**

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# Taking Care of Your CDs

*by Betty MacKenzie*

I have always believed, and probably most everyone else has too, that the data on a CD-ROM was on the bottom of the disk, that extreme care should be taken not to scratch the underside of the disk, otherwise you'd be back at the store looking for a new one. Well, it's almost true—you do have to be careful of your CD, but reasonable care should be enough insurance against loss.

For proper safeguards CDs should be treated like eggs and kept in those plastic containers some people call "jewel cases." These boxes are sold at most stores for about a buck and are the best insurance against damage. If nothing else, CDs should be kept in cardboard sleeves or envelopes.

**ACGNJ Ed note:** Or you can use Tyvek sleeves for 5.25" diskettes and old 5.25" diskette cases. These safeguards protect against scratches and insure cleanliness thus preventing dirt from being carried into the CD player possibly damaging the laser or lens inside.

**What Can Damage a CD?**
First, let's examine how a CD is constructed. When a CD is made it starts out with a base of plastic about half the thickness of a dime. The data is recorded on the top surface by a laser beam burning tiny pits into it. Then the recorded data is covered by a very thin coat of shiny aluminum. This provides a surface to print labels, logos and advertising on the top of the disk. When the ink is dry it is covered by a thin coat of lacquer.

At the factory CD-ROMs are made in large quantities in a room filled with machines recording directly from a hard drive. Each disk then is an original recording.

If you examine a cross section of the finished disk, the data (or sound track of a music CD) is really written on the label side of the disk. The data is read by a player with a laser beam that shines upward through the bottom of the CD and reads the recorded data reflected back by the shiny aluminum coating.

> "When you remove the CD from its original case, do not grab the CD by the edges and pull."

Lay a CD on its label side (top) and if a tiny scratch of a thousandth of an inch is made on it, data on the CD could be ruined. If the bottom of the CD gets scratched or roughed up a little bit, the laser can still read the data. However, with neglect it could soon become like a dirty window, preventing the laser from reading the data at all.

When you remove the CD from its original case, do not grab the CD by the edges and pull. This could crack the disk and ruin it. Rather, press the notched hub retainer in the center of the case that holds the CD in place. This will loosen the CD so that it can easily be lifted out by the edges. Be careful—no finger prints on the CD, please.

**New Developments on the Way**
In the fall of 1996 you can expect to see a whole new chapter in the history of the CD. Movies and music will be first with computer disks coming in early 1997. This new development will be called "DVD" (Digital Video Disks).

DVD disks will have multiple layers of data, providing a huge increase in the data on each disk. By increasing laser intensity the player will move from layer to layer depending on your needs or the program needs. Multiple foreign language versions of the same program can be on the same disk. Or different technical versions can be on different layers. If the program requires it, at start-up the laser will read the first layer of data, then the laser intensity will be increased automatically to read the second layer.

New DVD Players will have to be bought to run these new disks. It looks as if Toshiba might be shipping a $600 DVD player for running movies on your TV about September. The movie industry has been behind this develop-ment in an effort to replace tape cassettes. It might be another year before computer programs are available but they are on the way, so start saving your pennies.

™©£¢&®†√‹ ›fiflÏþ!

# HIDDEN SYMBOLS

## Have You Found Them Yet?

The above symbols are the same in both Times and Helvetica, some are done while holding Option down and some with both Shift and Option. Try the first 4 lines using Option (Times):

¡ ™ £ ¢ ¥ § ¶ • ª º – ¹
œ å ´ ® † ¥ ¨ ˆ ø p " '
å ß ¶ ƒ © ú D ° ¬ … æ
W » ç Ö ò ˜ µ £ ³ ÷

- Did you know there is a ready-made "division" symbol?—see last symbol, last line above (Option and question mark).
- Notice the ™, ® and © which are used frequently in computer writings.
- How about the "…" (an ellipsis, properly used to show an omission in a word or words used to complete grammatical construction), created by holding down

**HP JetSend Beta Available**
Hewlett-Packard Co. posted a beta version of JetSend for Windows on it's website.
JetSend lets networked devices (printers, scanners, faxes, and cameras) talk with one another with out special configuration.
The beta supports email systems that endorse Microsoft's Messaging API protocol. Future JetSend versions will support video, audio and more text formats.
HP's website is http://www.hp.com/

**Fine Print v1.32**
Single Track Software has released Fine Print v1.32, a printer driver that prints up to eight document pages on a single piece of paper. The software works with Windows 3.x and Windows 95 and is accessed from the standard Windows printer dialog screen. It can be used for printing all documents, including text and graphics.
Additional features include using existing or creating custom stationery to print headers, footers, page numbers, and date/time stamps. Fine Print includes a watermark option, the text of which may be changed.
The shareware product retails for US$25, and, for a limited time, it's available for US$19.95.
Find Single Track Software at http://www.singletrack.com/

Option and pressing semi-colon. It's faster and more accurate than pressing a period 3 times.
- See the curly quotes at the end of line 2 above (where the 4 lines of symbols are)? They're made using Option and the brackets at the right on keyboard line 2. To make them curl in the opposite direction, use Shift/Option on the first or second bracket. These would be handy if you habitu-ally use straight quotes but want, occasionally, to use the curly ones.

Here is what you get with both Shift/Option down, using Times:

Ú ¤ ‹ › fi fl ‡ ° · ,
Œ „ ´ ‰ ÿ Á ¨ ˆ Ø Õ " '
Å Í Î Ï ¨ Ó Ô Ò Ú Æ
¸ þ Ç à i ˜ Â ¯ ù ¿

Aha! here's (3rd row keyboard, K) where the "Apple" is!
Try holding down Option on the Symbol Font, using the number line of the keyboard:

Á ª £ ¢ ° ¤ ¦ ¥ » ¼ Ð -

**Suggestion #1:** Print out Option and Shift/Option symbols of your fonts on a sheet of paper to keep handy for when you may need them—saves hunting and pecking later.

**Suggestion #2:** Save yourself a lot of time, **OR** for quick look-up, **1)** go to the Apple menu, **2)** select Key Caps, **3)** select the desired font under Key Caps menu, **4)** when desired font shows up, press Option or Shift/ Option or Shift to see what symbol is available, **5)** click on the symbol you want (it now shows in the long cursor bar at the top), **6)** copy that from the Edit menu or use Command C, **7)** close Key Caps (click little white box at extreme top left), **8)** paste the symbol into your document.

**Remember**, if your document is in Times and you've entered a symbol of a different font, you'll must reselect Times to continue typing in it. **Short-cut**: Leave a blank, then type a word or two past where you want the insert-ed symbol, and paste the symbol in the blank. Continue typing with no hassle.

**Recommended reading list: Beyond the Mac is Not a Typewriter, and How To Boss Your Fonts Around (both by Robin Williams).**
**Peachpit Press**
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**Berkeley, CA 94710**
**800-283-9444**
**510-548-4393**
**Fax 510-548-5991**

## Community Calendar

### COMPUTER CENTRAL

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and Sales for Home and Business**

## SUNDAY ONLY

## JAN. 18, 1998

**COLLEGE OF DuPAGE
Main Arena of Phys Ed Bldg.
Glen Ellyn, IL
SHOW HOURS 9:30 AM - 3:00 PM
ADDMISSION - ADULTS $6.00 CHILDREN - $2.00**

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## PC Software for Sale

| | |
|---|---|
| Wildcat BBS V4.10 (DOS) | $10 |
| Lotus Approach 3.02 (Win 3.1) | $10 |
| Serif Page Plus 3 (Win 3.1) | $15 |
| (complete Publishing Suite) | |
| FIFA International Soccer (DOS) | $5 |
| Indiana Jones and the | |
| Fate of Atlantis  (DOS) | $5 |
| Trivial Pursuit  (Win 3.1) | $5 |
| PowerAlbum  (Win95) | |
| (Image Cataloger) | $5 |
| Jones in the Fast Lane (DOS) | $5 |
| Mad Dog McCree (DOS) | $5 |
| Hardball 4 (DOS) | $5 |
| Fuzzy's World | |
| (DOS Mini Golf Game) | $5 |

If you're interested, please E-mail Bob Carpenter at bobc@in-motion.net.
Since I live in Indianapolis, please don't ask me to ship just 1 $5 game. Volume discounts are available.

### WINTIP OF THE MONTH

 **RETURN TO THE DESKTOP**  Here's a tip for those of you who prefer the keyboard. Sometimes you'd like to select items on the desktop, but the desktop isn't the currently selected "folder." With your desktop visible, Press Ctrl+Esc to bring  up the Start menu, hit Esc, then Shift+Tab. Now your  arrow keys will let you navigate items on the desktop.
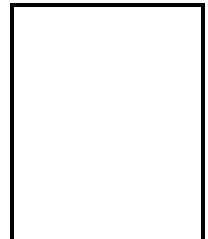
## Next Meeting!!!

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## 10 January 1998

## Grant Township Meeting Hall
### 411 Washington Ave.
### Ingleside, Illinois

**11:00 am - 2:00 p.m.**

**This is our normal meeting location.**

## L.C.A.C.E

*Lake County Area Compuer Enthusiasts*
**409 S. Elmwood Ave**
**Waukegan, IL 60085-5219**

**ADDRESS CORRECTION REQUESTED**