



North Texas PC Users Group

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Deadlines:

All material for publication in North Texas PC NEWS (articles and ads) must be received by the NEWS staff no later than the fourth Friday of the month prior to publication.

Articles:

Column width of articles is not critical, but please do not right-justify the copy. Article submission is preferred by modem (817-275-4109 or Startext 51563), or disk in ASCII format, unjustified. If you send a disk, please include a printed copy of the article to assure accuracy. Double spaced, typewritten copy is acceptable but must be received a week before the deadline.

Circulation:

North Texas PC NEWS circulation is 910. Member distribution is 713; remaining copies are distributed to PC user groups around the country, and to advertisers, prospective members and others with common interests.



The deadline for the next issue of North Texas PC NEWS is April 25th. ONE WEEK AFTER THE APRIL MEETING!

... from the Editor's desk.

More of our excellent articles have been reprinted in newsletters around the country. James Pearson - "Shell from IBM-PC Basic" reprinted in the Dec '85 PC News from the Alaska Computer Society. Looks like they have the same name as our newsletter too. + Stuart Varus - "AccuTax" reprinted in the Feb '86 CPC Newsletter from the Connecticut IBM-PC Users Group. + Sid Nolte - "Lightning" reprinted in the Feb '86 Basically Speaking from the SW Michigan PC Users Group. + Bruce Lutz - "Paradox" reprinted in the Feb '86 IBM-PC User Group Newsletter of Kansas City Missouri. + Jim Rich - "Expanding the Environment of MS-DOS/PC-DOS" reprinted in the Feb '86 Blue Times from the Corvallis PC Users Group. + Dick Gall - "A Beginners Look at Topview" appeared in the Oct/Nov '85 issue of PC San Diego, newsletter of the IBM PC SIG, San Diego Computer Society.

We now exchange newsletters with about 65 PC User Groups around the country. They contain a lot of interesting articles and represent some great talent out there in PC Land. We reprint timely articles from these newsletters occasionally, such as the FASTBACK and Hard Disk setup articles in this issue. Tom Prickett, Newsletter Exchange Editor, selects and keys a great number of these articles for us. He's doing a great job. Thanks, Tom.

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April Programs

Charles Kroboth, Program Chairman

9:00 AM, Auditorium * Microsoft WORD *

Microsoft will be represented by Michael Labanowski, Major Account Representative in Dallas. Michael will be presenting the latest release of WORD. Microsoft's WORD is rated number two in unit sales only to IBM's Displaywrite. Some of the features include: Built in mail merge facility, 80,000 word spelling checker, IBM EGA card support, and a 100% money back guarantee. Three copies of WORD will be given away as door prizes. Michael will also be at the Communication SIG for a brief discussion of Microsoft ACCESS.



10:15 AM, Auditorium * ARTIFICIAL INTELLIGENCE *

MDBS, Inc. will be presenting GURU, it's new artificial intelligence product for business. Artificial Intelligence has been referred to as one of the hottest areas in personal computing for 1986. Numerous companies have claimed to utilize AI techniques in their software, but few have offered serious tools for the development of highly functional expert systems, a key element of AI. GURU contains within its expert system component, an interactive rule builder, a rule compiler, and the ability to consult resulting rule sets with either forward or reverse logic. GURU also contains a natural language component allowing users a conversational interface to the computer. Integration with normal business components allows users to interact with and view GURU data in spreadsheets, colorful forms, graphs, customized reports and more.

The April presentation will concentrate on the expert system and natural language capabilities of GURU. The discussion will include a presentation of certainty factors and how they are handled in a rule set, as well as multi-valued or "fuzzy" variables. Several sample expert systems will be demonstrated. Information on how expert systems might be used in your business will also be provided.

12:15 PM, Auditorium * HYPERGRAPHICS *

HG StoryBook

James Fillingame of HyperGraphics Corp. will demonstrate their newest product, HG Storybook. This is a graphics presentation package which can be used for rolling demos, in-class training presentations, client presentations, sales and marketing messages...anywhere a graphics presentation may be appropriate. HG Storybook offers the user animation, text, color, branching plus external program references -- All on the same screen. It also features an On-Line Encyclopedia (known as OLE) which replaces the need for the customary hard copy user manual.

----- Open showrooms at INFOMART April 19 -----

MICROSOFT - Room 3049 - After 10:00

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9:00 - 3 Copies of WORD
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Introduction to Modems

by Fred Williams

The growth of the personal computer segment of the information processing industry has allowed millions of people access to computers in a way not previously available. This new information processing resource has collectively created a huge wealth of information. While the personal computer revolution was occurring, traditional information processing systems continued to improve and spread throughout society. These parallel evolutions caused a large number of people to gain a great amount of personal information processing power as some members of general industry were creating vast databases of both "real-time" and historical information.

As the growth of personal computer power and databases evolved, the need to exchange both personal and commercial data also grew. Because computer to computer data communications offers a method of data exchange that is both convenient and timely, greater and greater numbers of computers are acquiring data communication capabilities. The majority of personal computers use a data communication device commonly known as a Modem to connect to the switched telephone network. The unique needs of data communications plus the fact that the communication link is established on a network designed for voice transmission demand the use of a Modem.

The job of a sending Modem is to convert a stream of data to an electronic signal that is acceptable to the telephone network, and the job of a receiving Modem is to convert the electronic signal received from the telephone line back to a stream of data. Technically this is done in much the same manner as radio and television signals are sent and received, through the use of frequency modulation. The signal to be sent is "modulated" at the transmitter, and "demodulated" at the receiver. This process, MODulate - DEMODulate is how the name MODEM evolved.

Before we can discuss modems, we have to define a few basic data communication terms which we will need to use. We have to do this for the same reason that if you wish to understand how to bake a cake you must know the definition of flour, stir, beat, and many other cooking terms.

There are basically two types of data communication in use today, Asynchronous and Synchronous. Asynchronous communication is the most commonly used method of transmission between computers operating at low communication speeds over the switched telephone network. This includes the majority of communicating personal computers. Synchronous communication allows much higher data speeds and requires the use of a special "clock" signal. Normally Synchronous communication is used by larger computer systems and the devices which are connected to those systems. This does include a few personal computers.

Asynchronous communication is the oldest and most common data transmission technique. The reason it is the most common, is that it is technically the simplest to implement and therefore less expensive than Synchronous. But what you save in dollars you pay for in speed, or the lack of. Because Asynchronous transmission techniques are simpler, transmission speeds have traditionally been less than those of synchronous. This discussion will center around modems used to communicate asynchronously. I have mentioned synchronous communication only so that you will be aware that it exists and is a different method of data communication.

Communication speed has been mentioned several times, so let's define the term. Communication speed is the measure of the volume of data that can traverse a communication connection in a given period of time. Naturally "miles per hour" will not do for a unit of measure, so we will use "baud" or "baud rate". I will define the term "baud" loosely as, the number of data bits communicated per second. Thus, 300 baud means that the communication speed is effectively 300 data bits per second. An even looser definition of speed is that 300 baud equals 30 characters per second.

You can use the rule of thumb measurement of dividing the baud rate of a connection by 10 to get a more meaningful measure of characters per second throughput. This rule of thumb measurement assumes ASCII character transmission with an 8 data bit character ►

MODEMS continued

length and an uninterrupted data flow. Real data communication heroes grit their teeth when you equate baud rate to characters per second, but for our purposes it will do.

Our discussion to this point has assumed movement of data in only one direction at a time. Most modern computers and modems can both transmit and receive data at the same time. This capability is referred to as Full Duplex. The ability to send data in only one direction at a time is known as Half Duplex. I guess that is better than using duplex and soloplex. Anyway, a Full Duplex communication link can move data in both directions simultaneously, whereas a Half Duplex connection can only move data in one direction at a time. So the maximum obtainable effective data rate for a full duplex connection moving data in both directions is twice the baud rate of the connection.

When the first data communications using the telephone network was done there was only one phone company around. That is why historically modem types have been and to some extent still are referred to as the "Bell" type code, (i.e. Bell 103A). International modem standards have naturally evolved separately from the control of Bell Telephone; but due to the historical lead the U. S. has enjoyed, the international modem standards have remained only slightly different from the U. S.. "Bell", specifications. The international group that is responsible for modem standards is the Comite Consultatif Internationale de Telegraphie et Telephonie, CCITT for short, and International Consulting Committee for Telegraph and Telephone, in good old American English.

I do need to point out the fact that although the two modem standards are similar, they are not interchangeable. Generally, CCITT type modems will not support communications with Bell type modems, and Bell types will not talk to CCITT types. And Modem manufacturers' modem model codes seldom even hint as to what the modem's Bell or CCITT type code is.

The modem type codes are composed of numbers and sometimes alpha suffixes. The number code designates the modem's

communication specifications and the optional letter suffix denotes optional extra features. An example is the 103A, or the CCITT V.21. The "103" of the modem 103A type code denotes a 0-300 baud two wire modem designed for use on the switched telephone network. The "A" of the 103A type code indicates that the modem will automatically switch to "answer" or "originate" mode as required. The 103F modem, for comparison, is a Bell 103, CCITT V.21 type modem intended for use only on "private line". (not public) telephone circuits, and the 103F modem must be ordered either as an "answer mode" or "originate mode" modem.

When selecting modems for a particular data communications application, it is imperative that the modems selected for each end of the communication link have the same modem type codes. For example, a 103 modem must be used to talk to another 103 modem. The most common letter type code used with personal computer modems is the "A" type code. This modem type code allows the personal computer to both answer and originate data communication calls.

If someone offers you a "good deal" on a modem type you don't recognize, make sure it will work with the more common personal computer modem types, and uses the RS-232 standard for connecting to your personal computer. Currently the most common personal computer modem types are 103, 212 and v.22bis. We will cover each of these modem types in detail later. There are some "intelligent" modems on the market that are capable of automatically switching to the proper communication specification when receiving a call or can be made to originate in a selected communication specification. You can purchase a v.22bis modem that can also communicate with both 103 and 212 modems, and most 212 modems can also communicate with 103's.

Unless you are designing for a special purpose you should steer clear of any modem type code which is not one of the most common modem types used with personal computers. Currently the most popular modem types used with personal computers are 103, 212, and V.22bis. Beware of any modems that do not have one of these type designations. For example 202 modems are "split speed" ►

MODEMS continued

modems, and 201, 204, and 208's are all synchronous modems. None of these modems will work with 103's, 212's, or V.22bis'.

To aid you in developing a better understanding of the communication capabilities of each of the more popular personal computer modem types, a brief description of each follows. After that a definition of the term "Hayes compatible" is presented.

The Bell 103, CCITT V.21, is one of the oldest modem types still in wide use today. It is a proven performer at the low speed end of the data communications spectrum. The maximum speed obtainable is 300 baud but the modem can be operated at any speed from zero up to 300 baud. Some personal computer users have managed to squeeze 450 baud operation out of some brands, although operation at that speed is highly error prone and not recommended by me or the manufactures.

The 103 modem uses Frequency Shift Keyed (FSK for short. A form of FM modulation.)

modulation to send data over the telephone network. The modem only needs to recognize one data bit per signal unit. The modulation method and low maximum baud rate both help simplify the design of the electronics and provide a broad "safe" range of phone line performance.

The 212, CCITT V.22, modem is a full duplex modem that operates at a fixed speed of 1200 baud. To attain this four fold increase in throughput over the 103, the 212 must use a much more sophisticated form of modulation referred to as Quadrature Amplitude Modulation (QAM for short. An AM modulation.) this form of modulation causes each signal unit to carry four data bits. The QAM modulation is much more sensitive to phone line conditions and the speed is high enough that communication link echo can be great enough to cause problems. Both the modulation technique and echo suppression needs increase the cost of electronics required to build a 212 type modem. The nice thing is that the cost increase of a 212 over a 103 is not four times as great. Therefore the price/performance of a 212 is better than a 103. ➤

HG StoryBook



HG StoryBook is an invaluable communications tool that will allow you to create and give exciting presentations using your PC. HG StoryBook has an abundance of "Expressive Power" in an easy to use format. Some of HG StoryBook's many features include:

- | | |
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| -Keyboard or Mouse Create | -Free Technical Support |

We at HyperGraphics are pleased to show you HG StoryBook, our new state-of-the-art business communication facility and offer it to you at a special show price of \$150.00. Come by and see us at the show or call us at 817-565-0004.

MODEMS continued

The 212 modem is a relatively new modem type that has been made cost effective through use of VLSI technology. Most 212 modems on the market provide for operation with a 103 type modem by using FSK modulation at a speed to 300 baud. This feature provides an extra degree of flexibility to continue to operate even over phone lines that will not support full 1200 baud transmission rates, and also allows connections with computers that use the slower 103 type modems.

The CCITT V.22bis, or Bell 2224, modem specification is so new that it reflects the world market that is rapidly developing in the information processing industry. The modem type is normally referred to by the CCITT type V.22bis and not the Bell equivalent of 2224. These modems are the current "hot" product. It is what everyone wishes they had but can't convince the spouse that life will not go on without one. The reason they are so hard to sell is that for the average personal computer user V.22bis is expensive. The price/performance is better than both the 103 and 212

but the cost is more in the investment range of prices.

The V.22bis uses QAM modulation techniques like the 212 but the receiver must recognize sixteen bits of information per signal unit. Although the modem is considered to be reasonably reliable on the average local telephone network, real signal reliability problems can and do occur when used on a marginal local phone link or long distance links. The use of communication protocols that allow for recovery from errors is required if the modems are to be used for anything but casual use on long distance calls.

One feature included in most V.22bis modems is the ability to operate as a 212 or 103 type modem if required. This feature allows the user the ability to attempt to continue data communication at a reduced rate over a marginal phone circuit, also the modem may be used to communicate with computers that have either a 103 or 212 modem attached.

If Bell and CCITT define the actual design and performance of the modem as to type, what ►

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MODEMS continued

does the term "Hayes compatible" mean? To understand what Hayes compatible means, we have to look back to the time in modem land known as BH or Before Hayes. Prior to the introduction of the Hayes Smartmodem, modems were in general a pretty dull bunch. The only way to establish a data communication connection was to either dial the number manually or use a monster known as the 801 Automatic Calling Unit (ACU) or one of its imitators. This device was physically separate from the modem and was naturally "extra cost". A lot of older modems even required that the operator physically answer the incoming call prior to switching the call to the data mode. This operator assistance was because the automatic answer feature was also "extra cost".

With the deregulation of the phone network, greater freedom was allowed as to who could and could not build devices which attach to the phone network. So along comes the \$9.00 throwaway phone and reasonably priced data modems. There were a bunch of good young boys down in Norcross, Georgia that had a better idea. Their idea was to give the old dull modem a hint of a brain, Ala, the Smartmodem! The boys at Hayes gave their modem a "command" mode of operation. Using the command mode, one could have the Smartmodem place a call, answer an incoming call automatically, force the modem to hang up the phone, and do several other handy things to improve automation of both the connection and disconnection of the data communication call. This magic could be done directly by the operator using the keyboard and display or the job could be handled completely by computer software.

It is the the format of commands and and the modem's status responses that are what is known as "Hayes compatible". All modems must conform to a particular Bell or CCITT type, but how they do anything else to aid in the mechanics of the call is left to the imagination of the modem designer. Now if he is a realistic person, he will implement as a minimum, the basic "Hayes compatible" commands and responses.

To give an example of a Hayes command, we can use the Hayes "dial" command which is

used to have the modem dial a phone number. The Hayes dial command is: ATDnnn-nnn-nnnn<cr>, where "ATD" tells the modem to dial the number which follows in the command, the "nnn-nnn-nnnn" is used here to represent the phone number to be dialed, and the <cr> is an ASCII "carriage return" character. If the modem accepts a command, it will respond with, OK<cr>. These are two very basic features of the Smartmodem command mode.

The command mode on the original Smartmodem, a 103A type modem, provided many commands and options which allow the user to tailor the modem to match the needs of each individual communication connection. As later models of the Smartmodem have been released, new commands and modem responses have been added to increase the utility of the modem. The 212A modem now returns a "BUSY" response if the called phone is busy. Also a new command is provided to control whether the modem will function as a 212A or a 103A.

Any modem maker who advertises his modem as "Hayes compatible" must have implemented as a minimum the command set of the original Hayes Smartmodem to justify his advertising claim. Many of the newer modems are advertising "enhanced Hayes compatible" command modes. This is nice, but remember if you design software for the enhanced operation of a particular modem it may not, and probably will not, work properly with a modem from a different manufacture. Speaking of new modems on the market brings us to the subject of what is the future of the modem market.

Like all other aspects of the computer industry, one can expect the continued improvement of the price/performance ratio of modems in general. Current technology has reduced the price of a 103A Hayes compatible modem to less than a hundred dollars. My original Hayes Smartmodem, bought in 1982, cost me almost three hundred dollars. Also, data communication speeds can be expected to grow even higher as it appears we are still near the bottom of the expected performance curve. ►

MODEMS continued

Modems are much like other electronic gadgets, the performance will continue to improve, the package size will continue to shrink, and the cost will continue to drop. I bought my first four function handheld calculator for less than a hundred dollars. I can get the same thing now for less than four dollars, and it is solar powered. If you are waiting for the price to "get right" you are in for a long wait. Tell the spouse you're not going to go out to dinner but twice next month and buy yourself a good 212 modem with what you saved.

When you go to purchase your new modem, there is one very important factor which must be considered when you are making your selection, the physical package. There are two physical designs: internal and external. The internal modem is designed to plug into an expansion slot of your personal computer. The external modem is self-contained and powered. Both naturally have their own set of advantages and disadvantages. Internals are normally less expensive than externals. Externals do not dominate a communications port and therefore can share a port with another serial device. Internals do not require a separate asynchronous communications card. Externals may be kept for the next computer while some internals won't work in the new computer. Internals are really the most practical thing to consider

for the "portables" and "transportables". These are only some of the considerations involved in the physical package decision. Think about your current and future needs as they relate to the package.

Currently data communications is one of the fastest growing segments of the information processing industry. As more and more computers acquire communications capabilities, the services provided for those computer's owners will continue to increase and their related costs should continue to decrease. Right now there are a lot of "recreational" uses for personal computer communications. Also, there are many commercial "special interest" online systems currently up and running which offer a variety of useful services for people who have a need for the information provided. An example would be the online services provided by the Dow Jones securities market quotation system. So, if you're looking to have some educational fun or have a need for the information provided by one of the specialized commercial services, it is time to go "online".

Fred

E

(Fred Williams is the owner of Systems Consultants, a data communications software development, network design, and consulting firm. He is the Leader of the Communications SIG, and is a frequent contributor to North Texas PC NEWS. Ed.)

**Disk of the Month**

By Walton Grayson, IV

APRIL 1986 DOM

The April disk of the month is QMODEM ver.1.13. It is a very good and very popular communication program that was written in December of 1985. It can store many phone numbers in a personal directory for later recall. It will handle a variety of modems connected to the PC, transfer files to other computers using either XON / XOFF or the ever popular XMODEM protocols. The program was written using Turbo Pascal from Borland International. Qmodem requires an IBM PC/XT/AT/PCjr or close compatible with 192K, a Color/Graphics or Monochrome card and monitor, and a serial port and modem.

PD0065

Public Domain 65 is DESKMATES Version 1.01. This "sidekick" look-alike is the upgrade to the version the club released in November 85. PC-DeskMates allows your PC to eliminate those devices that are currently cluttering your desktop. It is no longer necessary to maintain an alarm clock, calculator, typewriter, phone book or calendar on your desktop. These functions can easily be performed by your PC at any time, even while you are using it for other programs and functions. In addition, PC-DeskMates allows you to control the PC printer and to execute commonly used PC DOS commands while running other programs.

PC-DeskMates is stored in your PC's memory so that it may be accessed by pressing a single command key. This allows you to execute these functions at any time from within any program without exiting your program or loading diskettes. ▶

DISK OF THE MONTH (continued)

PC-DeskMates includes the following utilities:

- Alarm Clock
- * Display Time
- * Hourly Chime
- * Ring Bell
- * Display Note
- * Auto Program Start
- Calendar
- * Display & Print Any Month
Between 1964 & 2050
- * Maintain Multiple Calendars Of
Important Dates & Appointments
- Notepad
- * Enter Notes
- * Print Notes
- * Recall & Save Notes From Disk
- Printer Control
- * Enable/Disable PrtScr
- * Select Printer Type
- * Select Printer Device
- * Print a Test Pattern
- * Select Special Printer Functions
- Calculator
- * Full Function
- * Printing
- * Monitor Display Tape
- * Memory & Percentage
- * Read Screen Numbers
- * Return Answer
- DOS Commands
- * Chkdsk
- * Chdir
- * Copy, Erase & Rename Files
- * Display Directories
- * Print & Type Files
- Phone Dialer
- * Automatic Phone Dialer
- * Maintain Multiple Phone Books
- * Store Them Within PC Memory
- * Save & Recall From Disk
- Typewriter
- * Emulate Electric Typewriter
- * Character Mode
- * Line Mode
- * Margin Control
- * Tab Control

The program also contains the following features:

1. Menu Driven
2. Help Facilities
3. Can be used as either a memory resident or stand alone program.
4. Ability to change the start key for the memory resident version.
5. Ability to configure the Printer Control Utility for non-IBM compatible printers

The following minimum hardware configuration is required to run PC-DeskMates:

- An IBM Personal Computer, or true compatible, with at least 128K
- At least one single or double sided, double density, diskette drive
- An 80 column monochrome display or a color monitor with a graphics card

- PC DOS 2.0

Since PC-DeskMates is stored in your PC's memory, it is necessary to have enough memory to run your largest application program plus an additional 64 Kbytes to store PC-DeskMates.

LT0017 & LT0018 & LT0019

LETUS A-B-C data base for the 4TH quarter of 1985. Includes articles from PC MAGAZINE, PC WEEK, BUSINESS COMPUTING, PC jr., PC WORLD, COMPUTE!, jr., PROGRAMERS JOURNAL, PC TECH JOURNAL, BYTE, and PC PRODUCTS.

DISCLAIMER: The North Texas PC Users Group copies these programs as a service to the club and the members of the club. We try to test all the programs, but we DO NOT WARRANT THE PROGRAMS IN ANY WAY. YOU MUST DECIDE IF A PROGRAM IS SUITABLE FOR YOUR SYSTEM AND USE. If you ask, we will tell you what we know about any program, but the final decision to buy and/or use these programs is totally yours. We will gladly and with out question exchange an unreadable diskette for one of the same program.

EXCHANGE: All members of the club are encouraged to contribute copies of public domain programs to the club library. For each new diskette of software contributed, you may select any diskette in the club library in exchange. The contributions will be reviewed before credit is issued at the next meeting.

MAIL ORDERS: At this time we will not be handling mail orders. The one exception we will make to this is if we are out of stock on a diskette at a regular meeting. For this service we will have a MINIMUM CHARGE OF \$2.00 FOR EACH DISKETTE. When we have some club members volunteer to help with DOM we might be able to extend this option.

PRICE: \$2.00 per diskette (if the program is on two diskettes the price is \$4.00)

CATALOG DISKETTES: Currently this is a two volume set priced at \$4.00. This has all of the readme files from each diskettes in the club library.

MEDIA: DSDD 5 1/4" Formated as 9 sector data diskettes. Public domain software only, standard full disclaimers.

AVAILABILTY: We will do our best to have all past diskettes at each meeting. DOM the will open around 8:30 to 10 min. before the main meeting when we will close. We will then open up again after the main meeting and remain open until around 1:30.

IBM EXCHANGE NEWS LETTER: The EXCHANGE for the current month will be available at the DOM table AFTER the main meeting at no charge to paid up members of the NTPCUG. Currently IBM is providing the exchange Bi-monthly. We hope to have the March/April issue at the April meeting.

2

Norton Utilities Version 3.1 by George Gynn

(The following is reproduced from Volume 4.12 of the N.E. Indiana IBM-PC Newsletter. Ed.)

I can't imagine anyone having a PC not knowing what the Norton Utilities are, or for that matter, owning a copy - especially if you are a hard disk user.

For the complete novice, utilities are programs that are "tools", things that let you easily do things that you cannot do (or can do better) with the utilities supplied by DOS. For example, if you would like your directory and all subdirectory listings arranged (grouped) in alphabetical order by filename extension, how would you do it using the DOS sort utility? It would be a time consuming, difficult task, and at this writing, I don't know how to do it, or if it's even possible. With Norton's tool DS.COM (DiskSort.COM) you just enter: A>ds en /s and the whole disk including all subdirectories is read, sorted, and re-written, in a flash. Naturally, hard disk users would use a drive designator other than A>.

As DOS gets bigger and new versions are announced, Peter Morton has improved, expanded and released corresponding new versions. Version 3.0 was the first version that gave these tools to the hard disk user, but they are equally valuable and useable to those of you with just floppys. However, there were a few features that Peter left out of 3.0 that were in earlier version.

In the earlier versions you could reset the attributes of hidden and system files.

That was dropped from Version 3.0 since Peter apparently felt that people could use that capability to "cheat" and make illegal copies of protected software. I think he came to realize that anyone with the knowledge to do that could also do it with the utility provided by IBM called DEBUG, and secondly, there's only an infinitesimal number of jerks who would even bother doing it.

Consequently, in Version 3.1 that ability has been restored. If you had a hard disk and loaded a program into a sub-directory

that wrote a hidden read-only file in the directory, the average user (who didn't read the manual in detail) couldn't remove the directory from the hard disk, since he couldn't delete the hidden file. There was a way, but it wasn't made obvious. That problem's been completely resolved in 3.1.

There are gobs of many new features in 3.1, and the following is just a brief highlighting of some of them: UnRemove Directory - bring back "erased" directories so that you can then recover "erased" files that were in the lost directory; Support for the Iomega (Bernoulli Box) drives; Cross Directory operation for all the utilities; fully implemented FileAttribute utility (i.e., Paragraphs 4 & 5); ListDirectories totals the size of the files in each directory to help with disk management; an extensive improvement to TextSearch, indispensable, especially when you're looking for the pieces of your data you've lost or scrambled; WipeFile and WipeDisk have been updated and now meet MIL spec security requirements.

For those of you with color, you now can set your preferences. There's even the capability of EBCDIC code conversions for those of you tied into guess who's mainframes.

If you've never looked at the Norton Utilities, we'll follow with a listing of the filenames, omitting the .COM extension. The names are pretty much self descriptive. There is included a batch file that changes the names from the "longform" that we'll list to the short form, i.e., it changes DirectorySort.COM to DS.COM.

Beep, DirectorySort, DiskTest, FileAttribute, FileFind, FileSize, ListDirectories, LinePrint, NortonUtilities (the main program), QuickUnerase, ScreenAttributes, SystemInformation, TimeMark, Textsearch, UnremoveDirectory, VolumeLabel, WipeDisk, and WipeFile.

Most of the programs have many user selectable options (switches) that result in the real convenience of these programs. There are switches that are common to all programs such as .p (pause at screen full) [Peter follows the DOS syntax or style]. There are even switches to specify European characters (/EUR), /t for totals only, and /a meaning search all drives. ►

Peter has also expanded support for larger hard disks so you BIG hard disk users will no longer get an "exceeding program capacity" message.

Honestly, if there is nay one program I would recommend that every PC user have available it would be the Norton Utilities. People have brought messed up disks to my home to be salvaged. Even though they were aware of the Utilities. When they saw them work, they bought them immediately.

If they had them in the first place, think of the embarrassment and trouble they would have saved themselves.

There are many public domain utilities that are available. But many of them are dangerous, especially for the novice. Norton's Utilities are so simple to use, and the manual so well written and straight-forward, that even the newest PC user will find them a joy.

I'll say this for Peter, when he comes out with an upgrade, it's worth the money. There are major improvements, not just some minor bug fixes to bring in the author some more money. If you are one of the smart ones that already have the Utilities, you can upgrade for \$25 for the new colored disk and new manual. If you don't have the Utilities, stop in at your dealers and pick up a copy. "Retail Price" is \$100. Offer \$99 and see what happens. If nothing, go elsewhere.

George Gynn
N.E. Indiana IBM-PC Club

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Special Interest Program Reports

General SIG News

- The Eagle Computer SIG has been discontinued.
- A new FRAMEWORK SIG starts this month. See the schedule at the meeting for location.
- A reminder that any SIG news items for this newsletter must be received by noon of the fourth Friday of the month -- regardless of the date of the next meeting.

Phil Chamberlain, SIG Coordinator

Advanced Programmers SIG

As often happens, Neil started the March meeting with a short practical suggestion. He advised against re-using write-protect disk tabs. They don't stick as well after the first use, and if they come off in the drive, you have a problem! At various points in the program, there were also quotes about "Real Programmers", such as "Real Programmers can write Fortran code in any language".

The "instability" of DOS, or the fact that routines are not re-entrant, causing problems for the multi-tasking programmer, received some discussion. Some people use a simple counter on Interrupt 21 calls, and wait for context switching until the counter reaches zero. Others expressed doubt about the effectiveness of this method.

There were questions about PC-AT hard disk performance. One visitor who has a very large number of small files said that performance degrades (slows) over a period of time. Reformatting and reloading restores normal operation. Best guess was that his files were becoming too fragmented, and that one of the disk reorganization programs would do the same job. Jim Hoisington reviewed a number of PC-Clones, based on the study he did for the club's purchase for the Bulletin Board.

It was pointed out that the PC serial port will actually operate at Baud rates higher than 9600. Several members are using it at at least 19200.

Phil Chamberlain for Carrington Dixon

APL Language SIG

Are you a programming connoisseur?

Our April 19 meeting will feature a presentation by John Roland on Q'Nial, which is a very powerful language related to APL, without the special symbols that APL uses. "Nial" stands for "Nested Interactive Array Language; Q'Nial is the Queen's University implementation. Q'Nial combines the array processing of APL and the AI-oriented list processing of Lisp, with the control structures of Pascal! Our "chef" for the meeting, John Roland, is the author of the "Exotic Language of the Month" article on Q'Nial in the September 1985 issue of Computer Language Magazine.

Q'Nial is interactive, so a hands-on demonstration of the language running on a PC is planned. Come and get a taste of something a little different!

Jim Fiegenschue, SIG Leader, (214)539-9281
(h)

Artificial Intelligence SIG

Joe Tatem, a knowledge engineer working on a DARPA expert system contract, presented an overview of expert systems. He defined artificial intelligence, discussed the nature of expert systems, and answered questions.

There was a great deal of interest in this topic, perhaps spurred by a number of new DoD expert system contracts and the large number of AI-related articles which have appeared in the popular press. This month's AI SIG meeting was also announced in the TI Users' Group newsletter.

At the April meeting, I will present a tutorial on Prolog programming. I will also describe the relatively large number of Prolog interpreters and compilers which are now available for the PC and compatibles. If someone can provide a PC for a Prolog demonstration, please contact me prior to the next meeting.

Jim Bender, SIG Leader, (214) 423-3470 (h)
(214) 343-4885 (w)

Special Interest Program Reports

Assembler SIG

The main topic of the March meeting was Memory Segmentation and .EXE Files (Chapter 8 in the "Waite Book"). We covered advantage of EXE vs. COM files, the most important ones being that EXE files can use multiple 64K memory segments and executable code can be linked together to form larger programs. The only advantages of COM files seem to be that they are a bit simpler to write and executable code is smaller. We talked about 5 registers (IP, CS, DS, ES, and SS) dedicated specifically to memory addressing. Considerations about where to place different segments in memory in relation to each other (completely separate, partly overlapping, identical) were detailed. A source listing we went over illustrated the code necessary to make EXE files define and use separate memory segments, and be executable both as stand-alone programs and linked into larger programs.

Next meeting we'll look at memory segmentation in operation in a live program. Chris Morgan, of Morgan Computing, will let us view the internal mysteries of the 8088 chip in action more clearly than you ever dreamed of with DEBUG. The tool Chris will use, Advanced Trace86, was designed primarily for sophisticated debugging of advanced applications, but it's also a great aid in learning Assembly Language in the first place!

John Wolley, SIG Leader, (214)739-9090 (w)

Business Applications SIG

Last month, Stacie Smith, CPA, President of Automated Business Solutions, covered "The Ways a Database Management System Can Help a Small Business". Her presentation and a 9-page hand-out covered more than enough areas to achieve the goal of giving every attendee at least one idea on how to use a database manager to help solve a business problem.

Clarence Handlogen, who will make the presentation this month, discussed the problem

that users, especially beginners, have in knowing in advance whether or not a given software package will meet their needs. The points were made that many packages do not perform as advertised or have serious drawbacks, and may or may not be the right package for the user. In search of a solution, Clarence contacted "Software Digest Ratings Newsletter", which evaluates programs for the IBM PC and compatibles. SD offered members of the Users Group a 20% discount on an annual subscription, normally \$245.

We will have brochures and sample copies in the Business SIG room at the April meeting. All Users Group members are invited to come by and see if this publication would be a help to them.

For April, the SIG's topic, led by consultant Handlogen, will be a detailed discussion of how to use batch commands to improve your computing. He will show us the extensive use he makes of them, and will teach us how to do it ourselves. He insists it's easy to do, even for non-programmers. So come by and learn!

Following the presentation and Q/A, we'll cover other business application subjects.

Ed Fries, SIG Leader, (214)783-8543 (w)

C Language SIG

We continued with the discussion of the use of pointers in C at our March meeting. Rex McAnally completed his presentation, which was supplemented by handouts containing all the examples used. Thanks to Rex for a very informative presentation. We all learned from it.

Our April meeting will return to the "free form" format in which we will open up the floor for discussion of topics of interest. See you then.

Dr. Sid Nolte, SIG Leader, (214)233-6178 (h)
(214)995-3868 (w)

Special Interest Program Reports

Integrated/Spreadsheet SIG

When I called Pat Charles at The Software Group office to confirm our April 19th demo, I wondered why he was in such a good mood. It didn't take long for him to tell me either. He informed me that their flagship product Enable had been selected by the IRS for their multi-million dollar portable PC program. While this may not be such good news for us guys hoping desperately to avoid an audit, the Enable folks are justifiably popping their vest buttons over it. If that weren't enough, they had already gotten a small commitment a couple of weeks earlier from the Air Force, who have made it their integrated package of choice. So if you want to take a look at what your rich uncle was so impressed by, come by at 2:00 and check it out.

Many thanks to Norma Wade of A-T for showing us some more features of Framework II. Those of you interested can join in the inaugural Framework Users SIG at noon.

Apologies to those of you waiting on AUTO-MENU disks. Walton discovered a problem it has running under DOS 3.x so we're going to check that out before we put it on DOM. For you old fogies still on 2.1 or less, I'll bring a few disks with me that I'll trade for a blank.

Jim Janeway, SIG Leader
(w) (214)349-0314 - StarText MC 113737

Investment: N-Squared SIG

The March meeting was well attended. There were quite a few new faces. Even when it was announced that this was NOT a general Investment SIG, no one left the room.

Greg Morris went through all of the features of the Utilities programs for both the Market Analyzer and the Stock & Futures Analyzer. Because the Market Analyzer can read data that is in a High-Low-Close format in addition to its own standard format, there was some confusion, but after many examples it was cleared up.

The April meeting will not deal so much with the software as it will with Technical Analysis techniques and ideas. Anyone who has an idea about an indicator and wants to see if it can be put into an algorithm to be used by the N-Squared software, please bring it.

Greg Morris, SIG Leader, (214)680-1445 (w)

Turbo Pascal SIG

Our March meeting featured Ray Quay, Turbo programmer par excellence. StarText columnist, etc. who told us more about the use of Sets in Pascal than we knew existed. In addition, his hand-outs were both helpful and enlightening.

Our group purchase of the "Debug" program is still in the works -- Warren Ferguson is heading it.

Since we have spent the past few months delving rather deeply into some of the more advanced features and uses of Turbo Pascal, our April meeting will be directed entirely at the beginners and novices in Turbo. We'll review the basic things one must do to get started in using the language, and make some hopefully helpful suggestions as to how to get programs running quickly.

Phil Chamberlain, SIG Leader
(h) (214)243-5034 - StarText Mail Code 2606 a

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Software Report

by Dick Gall

SMARTCOOK

Le Com advertises their products as "The First & Last Name in Cooking Software". The line indeed covers a wide range:

- SMARTCOOK is a series of 13 different recipe categories, ranging from appetizers & snacks to fish & seafood to one-dish meals. \$19.95 each.

- MY VERY OWN RECIPES puts your cookbook on a disk for \$29.95.

- LADY PENELOPE provides recipes from leading gourmet chefs throughout the country (\$29.95). The deluxe version (\$79.95) includes formal scrolled menus for each meal.

- YOUR TICKET TO THE KITCHEN - for the younger chef. "A healthy mixture of learning and fun." \$29.95.

All the Le Com packages include ingredients and directions for both microwave and conventional cooking. Servings can be calculated for 1-24 people. Help is provided with suggested ingredient substitutions, and customized recipes can be printed.

Versions of the Le Com programs are available for most PCs and many home computers. Le Com Enterprises, Inc., P.O. Box 346, Winfield, Illinois 60190. Phone: 312-682-0650. Demonstration disks available.

BetterBASIC

It's always interesting to run a demo of a product that has received the intense promotion and magazine review coverage that has attended BetterBASIC over the past six months. Especially when the object of all the attention is based on an item as well-known as BASIC.

Is all the hoopla valid? Yes, because BB appears to have done a good job of bringing the BASIC language far into the world of structured programming while maintaining a comfortable level of familiarity for users of other BASIC language products. Yes, because of the wide variety of options available, which currently include an 8087/80287 math module, Btrieve interface module, high-speed binary math system, and a standalone run-time system. No, because of BB's high price in relation to the "free" interpreters included on the PC-DOS distribution diskette and compared to the \$99 list for Microsoft's QuickBASIC Compiler.

BetterBASIC itself costs \$199, the math module is \$99, and the runtime system for

producing standalone .EXE programs is a "mere" \$250. Based on this, one can imagine equally significant prices on the 3 announced new modules: a Virtual Memory Manager, Lotus 1-2-3 Interface, and a C Interface for object code libraries.

At these prices, the only significant market for BB is organizations producing custom programs on a professional basis. In the hope that discounting will ultimately bring BB within the reach of - at least - the relatively serious programmer who writes programs for personal or small departmental use, we'll proceed with a brief descriptions of its features. Meantime, a \$10 demo diskette is available for purchase and copying.

BB is an interactive compiler. Syntax is checked as each statement is entered, and the exact location of syntax errors and the type of error is indicated. It provides access to up to 640K bytes of memory, far exceeding the 64K limit of the standard interpreters. Windowing is supported, as well as true functions and procedures. Local variables can be defined within procedures, and procedures and functions can be added to the language syntax as keywords.

For further information, see the BASIC section of PC MAGAZINE's October 29, 1985 issue on languages, the October 1985 issue of BYTE, or the June 1985 issue of 80 MICRO, or contact Summit Software Technology, 106 Access Road, Norwood MA 02062. Phone (617) 769-7966.

Dick

■

The Meaning of IBM

by John Keohane

Last August I wrote a column titled "The IBM Standard in Business PCs". I wrote that IBM set a standard for PCs in business, and that like marriage, IBM had become a standard for better and for worse. The standard for business PCs is IBM or IBM-compatible.

I thought perhaps that article would be controversial. After all my home in Richardson is less than a mile from another computer maker, Texas Instruments. TI has produced both the low-priced 99/4A and the more powerful TI Professional computer, neither of which is IBM compatible.

However, there was no controversy. In fact last year TI itself produced an IBM-compatible PC. It is the TI BusinessPro and it is an excellent machine. ▶

IBM continued

What does it mean to be IBM compatible? Basically it means to run the software that will run on the IBM. Now some software, such as Certiflex accounting systems will run on almost any computer, including the IBM and the TI Professional. Certiflex is not a good indicator of IBM compatibility, because it does not use particular hardware features of IBM and compatible machines. Good indicators on IBM compatibility are the spreadsheet Lotus 1-2-3 and the computer game Flight Simulator.

The key to software compatibility is that the computer will run the software that will run on the IBM. IBM compatible PCs include the Compaq computers, AT&T 6300, Tandy 3000, TI BusinessPro, HP Vectra, Leading Edge, ITT Xtra, and various IBM-XT and IBM-AT clones. A key to all of these is that they will run the same versions of the same software that will run on the IBM.

Compatibles may be better buys than the IBM, for many compatibles have lower price and/or better performance than the IBM. Recent articles in the Wall Street Journal and elsewhere have pointed to the growing popularity of IBM clone computers and I know many corporations in and near Dallas which are purchasing IBM clones in large number. Certain IBM XT clones will operate faster than the IBM XT.

While IBM has provided a standard for business PCs, not everything that IBM does becomes such a standard. IBM's PCjr has been like Ford Motor Company's Edsel automobile. It was high-priced for a home computer, and limited in performance for business use. IBM recently discontinued an engineering computer based on the Motorola 68000 processor. Though a powerful machine, it was not compatible with IBM's own PC and never achieved wide market acceptance.

IBM software has never been famous for its performance. In the mainframe world of the large processors, SyncSort replaced IBM sorts in almost every shop. SyncSort simply ran better, and faster, than the sorts from IBM.

IBM came to dominance in mainframes by providing quality hardware, software that was

adequate, but not super, and by excelling in two areas, service and marketing. IBM constantly stressed business solutions to business problems, and built upon its large marketing base in unit record and tab card equipment to ease existing customers into computers. If the software was only adequate, one could always upgrade to more powerful hardware from IBM. On its computers, IBM provided prompt and competent service to clients everywhere.

In the PC world, IBM provides some software under its label. IBM product centers also market software from third party vendors such as Lotus Development and Ashton-Tate. Most IBM computers are not sold at the IBM product centers, but rather at other computer stores, or directly through other channels of IBM. With the coming of the IBM PC clones, IBM is losing market share on PCs.

Clones are easy to construct, partly because of the "open" technology of the IBM PC. Because of the clones, IBM has trouble with both market share and sales margins. An answer in terms of IBM's marketing strategy is to market it's IBM System 34/36/38 mini computers. Larger and more powerful than PCs, though smaller than mainframes, these are called "mini" (but not micro) computers. They have the advantage, to IBM, of proprietary technology, so that competition is kept away.

The jury is still out as to whether the emphasis on System 34/36/38 will succeed for IBM. What is already clear is that there are some problems with these systems for the purchaser. For one thing, there is not a strong and increasing price competition for hardware, whereas there is for PCs. Another problem for the purchaser is lack of software availability. There is lots and lots of excellent software, at very reasonable prices, for the IBM PC, and there is coming to be more every day.

John

▲

(John Keohane is a computer consultant/implementer, a resident of Richardson, and a University of Chicago MBA. He is vice president of the University of Chicago Club of Dallas. He is active in the Dallas chapter of the Data Processing Management Association and in the North Texas PC Users Group.)

Taking Advantage of Your Hard Disk

by Barry Gordon (NYPC)
reprinted from San Diego PCUG
reprinted from HAL-PC

PART I: FILE MANAGEMENT

This article is about organizing files on any hard disk attached to a member of the IBM-PC family, including the PC with an Expansion Unit, and certainly, the PC-AT.

The following suggestions have evolved from several months of using the IBM-XT as a follow-on system to the IBM-PC. I hope these thoughts prove useful to those who work with hard disks on the IBM-PC, particularly to those who are new to it.

File Management

The hard disk is not merely an overgrown diskette, it can be used that way, but you would be inviting serious file management problems in doing so. The hard disk has other abilities you should utilize, and there is no reason not to take full advantage of the hard disk's potential.

About the last thing you want to deal with is a ten megabyte hard disk containing all its files in one directory. (There is a limit of how many files the root directory can contain, so the disk may give you an error message even though much of the disk is not filled.) With intelligent organization, the hard disk retains its speed advantage over the diskette, and you are better able to keep track of your files as well. The name of each file should use filename and the three-letter extension. Sooner or later you will need all the help you can get in remembering what each file contains. Most importantly, though, your file should be organized among several directories.

The Root Directory

Each DOS volume (diskette or hard disk) has a root directory which DOS creates when it formats the disk. The root directory on your hard disk should contain a minimum of files, reserving the space for sub-directory names.

Nonetheless, a few files are essential in the root directory. When you format the hard disk, use the /S parameter:

```
FORMAT C:/S
```

which copies three .COM files to your hard disk:

```
(IBMBIO.COM)
(IBMDOS.COM)
COMMAND.COM
```

Notice that the first two are hidden files. You won't see them in any DIRectory listing but the CHKDSK command will tell you they are there.

You should store the various DOS external command files and all data files in other sub-directories.

Sub-Directories for Executable Files

Now let's consider locating your various executable program files into directories of their own. For example, you may want one sub-directory containing all of the external DOS commands, another sub-directory with your word processing .COM and .EXE files, another with your accounting .COM and .EXE files, etc. until you have stored all of your executable programs into sub-directories. They are much easier to remember this way.

The root directory has no user-assigned name, but all sub-directories are specifically created and named using the MKDIR command, MD for short.

```
MD anyname
```

You can create as many levels of sub-directories as you like, but generally, the fewer levels you have to create, the simpler your directory structure will be. There will be times when a second- or third-level sub-directory is needed (a directory created within another sub-directory), but multi-level sub-directories create a more complex path structure for both you and DOS to sort through. ►

HARD DISK continued**Directory Sizes**

You can fill a sub-directory with as many bytes as the disk will allow, but it is often convenient to limit the size of those sub-directories into which you regularly store data to the capacity of a single diskette, 320-360KB. This allows you to back up a directory using the COPY command:

```
COPY C:*. * A:
```

The COPYable directory size offers an alternative to the BACK and RESTORE commands, an alternative that many find easier to use. It offers portability as well as backup.

If you want to verify the copy with its original, you can follow the COPY command with this:

```
COMP C: A:
```

However, if you feel confident using the BACKUP and RESTORE commands, the contents of a single sub-directory can be as many bytes as you like. The bigger it is, the more time consuming the backup process becomes.

Another suggestion is to give each backup diskette a volume label. This is especially useful if you use the COPY command to backup your sub-directories. By using the /V parameter when you format the diskette, you can label your diskette with the same name as the directory it backs up.

It is rarely necessary to back up the entire hard disk. Typically, you store data changes in the files of a few sub-directories, those few being the only sub-directories you need to back up regularly. Many sub-directories never change, and need backing up only once.

PART II. DOS BATCH FILES**DOS and Batch Files**

Familiarity with DOS is assumed. However, it is helpful to the new user to include a paragraph or two on BATCH files. The IBM-PC and DOS work with three different kinds of program or command files: .EXE, .COM, and .BAT files. (BASIC and BASICA work with their own .BAS files, but those are not relevant

to the present discussion.) The .EXE and .COM files give instructions to the PC itself. They are produced by assemblers, compilers, and linkers. The .BAT or BATCH files are instructions to DOS which you create for your own convenience. I will discuss a couple of commands what you may find convenient in working on your PC: the DOS PROMPT command and the PATH command.

The DOS Prompt Command

Just as DOS keeps track of a default disk drive, it will also keep track of each drive's current directory (the directory you are working in). Most often, this directory is the one you tell DOS to assume and use when no other is specified.

The DOS prompt always has indicated the default disk drive followed by the greater-than symbol: A> which works well for diskette drives. With a hard disk, you will want to know the directory you are working in (the current directory) as well. You can customize the prompt to show the current directory using the DOS PROMPT command. The command PROMPT \$P\$G tells DOS to display the name of the current directory whenever the prompt appears on your screen. Other, more elaborate prompt variations are possible, but \$P\$G is a useful beginning.

The DOS PATH Command

The actual program fetching is accomplished by means of the DOS PATH command. This command tells DOS where to look for your programs (the executable files) when they are not in the current directory.

The overall scheme begins to take shape: you work in the (current) directory containing your data files, and DOS looks in the programs you need (in priority sequence) in other sub-directories. Thus, your PATH command might look something like this:

```
PATH C:\anyname1;C:\anyname2;C:\anyname3
```

The PATH command should contain the full specification of each sub-directory, including the drive designation. This keeps the search path valid even if you should decide to make, say, drive A: the default drive temporarily. ►

HARD DISK continued

Since the root directory is not named, it is not included in the PATH command. Of course, having to enter all of this PROMPT and PATH information each time you turn on your PC can become a nuisance. The proper way to handle this is to create BATCH files in the root directory that stores and executes your commands.

Creating Batch Files

The most direct way to create .BAT files is to use the DOS ability to COPY a file directly from the PC keyboard into a disk file:

```
COPY CON: filename.BAT
```

where CON: is the DOS name for the keyboard, and "filename" represents the name you wish to give your new BATCH file. You enter your file contents, line by line, ending with a line containing ^Z (Control-Z), which can be entered by pressing the Function Key F6. As an alternative (though I don't recommend it) you could learn to use EDLIN, a minimal file editor whose chief virtue is its automatic inclusion with the DOS package. For serious work of this kind, a good file editor is a great help. The IBM Personal Editor is one of the very best.

The AUTOEXEC.BAT and SETPATH Batch Files

The AUTOEXEC.BAT file is executed only at startup (unless you specifically enter it), and contains those commands you wish to enter for your convenience in operating your PC.

A simple version of an AUTOEXEC.BAT file might look like this:

```
DATE
TIME
PROMPT $P$G
PATH C:\anyname1;C:\anyname2;C:\anyname3
```

The first thing you may want to do is to move the PATH command from the AUTOEXEC.BAT file and put it in its own BATCH file called SETPATH.BAT. The AUTOEXEC.BAT would have these four lines:

```
DATE
TIME
PROMPT $P$G
SETPATH
```

Your SETPATH.BAT file lets you modify your program search path any time you wish, and then restore it by getting into the root directory and entering the SETPATH command.

PART III: CONFIG.SYS AND THE VIRTUAL DISK**Enhancing Your System**

There are some simple things you can do to enhance the performance of your hard drive. Creating a CONFIG.SYS file and the virtual disk can give you added power and speed in working on your PC by reconfiguring your operating system and random access memory (RAM). ▶



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Flagstaff Engineering now has three innovative solutions to data/text transfer to and from the IBM PC or compatibles.

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THE WORD CONNECTION is the way to transfer between different word processing systems like DISPLAYWRITER, LANIER, OS/6, NBI, WANG, XEROX 860, CPT, MICROSOFT WORD, MULTIMATE, WORDSTAR, etc., using the same 3 1/2", 5 1/4" and 8" subsystem interfaced to a PC.

THE TAPE CONNECTION is a half inch magnetic tape drive interface for the IBM PC that allows transfer of files from a PC to tape and back. With the TAPE DATA EXTRACTION facility a user can transfer and select records and files from labeled and unlabeled 1600 BPI Phase Encoded magtapes.

For more information contact John Haydukovich, Flagstaff Engineering, 1120 West Kaibab Lane, Flagstaff, AZ 86001 (602)779-3341. ■

(WANTED: Reporter for the Variety Store. Call the Editor, 817/275-4109.)

HARD DISK continued**The CONFIG.SYS File**

Another file that is useful in the root directory is the CONFIG.SYS file. It's a collection of miscellany to modify the way the PC system works. You may want to try a CONFIG.SYS file consisting of three lines:

```
BREAK=ON
FILES=16
BUFFERS=8
```

The BREAK command allows you to interrupt the system more easily should you wish to terminate the execution of a program.

The FILES command allows DOS to juggle more than the default of eight active files simultaneously. This is important, because DOS loads files of its own, leaving you with only three. Sixteen should give you enough to handle most any situation.

The BUFFERS command can speed up certain kinds of disk operations. You may want to try as many as 16 or even 32 for a 20MB hard disk.

The Virtual Disk

The large internal RAM not only allows manipulation of large file when necessary, but gives the user access to the speed of internal memory for processing data. Just as the hard disk increases computing speed over the diskette drive, so internal memory, if utilized, increases computing speed over the hard drive. To tap the speed and power of the internal memory, you might consider setting up a virtual disk. However, to attempt to set up a virtual disk, you should have more than 256KB of memory in your PC, preferably, 512KB or larger.

The virtual disk is a portion of RAM set aside to simulate a disk. The virtual disk is referred to by the drive designation letter following that of the system's last hard disk. Assuming a single hard disk C:, our virtual disk becomes D:. The virtual disk is created at startup by a program such as the VDISK command that comes with DOS 3.0, working together with a command you save in your CONFIG.SYS file.

With 512KB of RAM, a reasonable virtual disk size to try is 64KB. If you have a 640KB

system, you may want to set up a virtual disk of 192KB. I suggest leaving about 448KB of available, active RAM to have ample memory for DOS to do its work.

A virtual disk of even 64KB can do wonders. It can also be effectively larger by specifying the smallest possible sector size - e.g. 128 bytes - for the greatest possible data packing density. Assuming VDISK.COM and 640KB of RAM, the virtual disk specification in your CONFIG.SYS file might look like this:

```
DEVICE=C:\VDISK
```

The entire CONFIG.SYS file would look like this:

```
BREAK=ON
FILES=16
BUFFERS=8
DEVICE=C:\VDISK.SYS 192 128 64
```

The SETPATH.BAT and AUTOEXEC.BAT Files Revised

What do you do with this virtual disk D: now that it is set up? First, you can begin to take full advantage of your virtual disk's speed by adding a statement to the AUTOEXEC.BAT to transfer the sub-directory of your most used files to the virtual disk D:

Your AUTOEXEC.BAT file now contains the following:

```
DATE
TIME
PROMPT $P$G
SETPATH
COPY \anyname1\*.* D:
D:SETPATH
```

Note that the SETPATH command must remain the last one in the file. Next, modify the PATH command (in SETPATH.BAT) to:

```
PATH D:\:C:\anyname2;C:\anyname3
```

replacing the C:\anyname1 you formerly had in SETPATH.BAT with the root directory of your virtual drive D:\. drive designations to keep the command totally independent of what the default drive might happen to be.) Finally, move the SETPATH.BAT file out of the root directory and into the \anyname1 directory for automatic transfer to D:. This allows

HARD DISK continued

you to execute the SETPATH command from any directory, entering it as simply SETPATH or D:SETPATH if necessary.

The root directory on your hard drive now contains the following files:

```
(IBMIO.COM)
(IBMDOS.COM)
COMMAND.COM
AUTOEXEC.BAT
sub-directory names
CONFIG.SYS
VDISK.COM
```

Tips Concerning the Virtual Drive

Now that your PC has the virtual disk D:, you will want to keep only your most used files in your c:\anyname1 directory. I would suggest you put in some DOS external command files, plus regulars like BASIC.COM, or perhaps a few of your personal favorites, such as PE.EXE or your word processing program. Depending

on the size of your virtual disk, you might even wish to add some non-executable, but nonetheless frequently used, files that you would like to have accessible from any sub-directory.

All of these would presumably reside permanently in your C:\anyname1 directory so that they transfer automatically to D: at system startup. The one thing you must not forget is that your virtual disk D: actually resides in RAM and not on a real disk drive. I suggest you do not store anything in your virtual drive that is not stored in a file on your hard disk or a diskette, because whenever you turn your PC off or whenever the power fails, everything in your virtual disk is lost.

SUMMARY

That's it. My experience shows that a hard disk with large internal RAM, set up more or less as recommended here, can be a real pleasure to operate. A brief summary of what the various files might look like is given below: ►

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HARD DISK continued

The Root Directory

(IBMIO.COM)
 (IBMDOS.COM)
 COMMAND.COM
 AUTOEXEC.BAT

Sub-directory names

CONFIG.SYS
 VDISK.COM

CONFIG.SYS file

BREAK=ON
 FILES=16
 BUFFERS=8
 DEVICE=C:\VDISK.SYS 192 128 64

The numerical values in the DEVICE command will vary depending on the size you wish your virtual disk to be.

AUTOEXEC.BAT File

DATE
 TIME

PROMPT \$P\$G
 SETPATH
 COPY \anyname1*.* D:
 D:SETPATH

The D: shown above presumes that you don't have a second hard disk attached to your PC. With two hard disks, the virtual disk would be E:.

C:anyname1 (Directory)
 SETPATH.BAT

Most Frequently Used Executable Files
 High Usage Reference/Date Files

SETPATH.BAT File

PATH D:\:C\;\any1;C:\any2;C:\any3; ...
 C:\anyname2 et al (Directories)

Other Executable Files by Frequency of Use
 Other Data Files Grouped by Related Functions
 Enjoy. - Barry Gordon (NYPC)

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WANTED: Summer job for student. Student, an experienced C programmer, needs summer job, starting in June. Also knows Pascal, FORTRAN, and LISP. Call Jim at 343-4885.

Diagnostics II**F A S T B A C K**
Kudos and Complaints**Microcomputer hardware system diagnostics**

This is not a product review. It is a statement of some of the conditions in which a product was found, my and another's attempts to resolve the matter, and a request to be contacted by others who have this software to determine if they have had the same findings. A memory test of this product does not perform as stated in the Diagnostics II documentation supplied with the software. Documentation about another test does not completely correspond with the actual running of that test.

Upon discovering a memory test performance inconsistency with the documentation, I telephoned the maker of the product, SuperSoft, Inc., P.O. Box 1628, Champaign, IL 61820. I spoke with a gentleman who returned my telephone call and he was to have contacted me again after speaking with a technical person. To date I have not been contacted again by anyone at SuperSoft. The salesman who sold the product to me has also spoken more than once to individuals at SuperSoft, Inc. about this matter without its resolution. In mid February 1986 the salesman and I each enclosed individual letters in the same envelope addressed to SuperSoft at their street address. As of March 14, 1986 neither of us has received a response to the letters from SuperSoft.

I would like to be contacted by others who have Diagnostics II so we could determine if their software and mine are performing the same. My telephone number is 214-242-0121.

Arthur L. Hirdler ▲

Hoare's Law of Large Programs

Inside every large program is a small program struggling to get out.

by Ralph Keuler

reprinted from NYPC User Group

reprinted from Pacific Northwest IBM PC Users Group

Several different newsletters have carried articles and user reports about FASTBACK (Fifth Generation Systems). The software is generally praised for being the first software that allows really high-speed backing up of a hard disk onto floppies, and its cost (\$179 list) is many times cheaper than a tape backup unit. How fast is it? Most users report backups made onto 360 KB floppies at about 10 megabytes in 8 minutes. Using 1.2 MB floppies on a PC-AT the time drops to about 4 minutes. A few bugs, both in FB (FASTBACK) and also in the IBM hardware have also surfaced. For example, early versions of FB did not handle zero-length files correctly. Even some of the more recent versions did not handle certain types of copy-protected software installed on a hard disk very well. The current version (as of Nov./Dec.), version 5.1 is supposed to have cleaned up most of the bugs. A problem that has been lurking unseen in the DMA (direct memory access) hardware of some PC's also came to light when people started using FB software. There is reportedly a way around that problem but only by slowing FB down or by buying an additional expansion board from the FB folks for about \$30.

Ralph Keuler ▲

(Note - The version of FASTBACK distributed as part of North Texas PC User Group's hard disk group buy last month was version 5.03. A call to Bruce at 5th Generation Systems Technical Support number on 3/28 told me that 5.03 is the most recent, and 5.1 has not been released yet, but release 5.03 fixed the problems mentioned above. He did not have a change list for 5.1 and was unaware of their upgrade policy. Give him a break though, it was a holiday for them that day and he just happened to answer the phone...

Tom Prickett - Newsletter Exchange Editor)



Room Assignments

Saturday, 19 April 1986

Check room numbers in lobby at INFOMART



Special Presentations:

9:00 - 9:55
A Microsoft representative
will demonstrate the latest
release of WORD.
- DOOR PRIZES -

12:15 - 12:55
HYPERGRAPHICS - HG StoryBook
presentation.

9:00 - 9:55 Room
Science/Engineering
Beginners
Genealogy (w/Apple)
Graphics
BASIC Applications

9:45 - 10:10
Orientation

MAIN MEETING: 10:15 - 11:45

MDBS, Inc., will give a presentation of GURU, an artificial
intelligence program for business.

12:00 - 12:25 Room
Orientation

12:00 - 12:55
Assembly Language
APL
C Language
Turbo Pascal
Framework

12:30 - 1:55 Room
Invest - N-Squared

1:00 - 1:55
Artificial Intelligence
Business Applications
Communications
Databases

2:00 - 2:55
Advanced Programmers
Integrated Software

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The North Texas PC Users Group is a non-profit, independent group, not associated with IBM Corporation. Membership is open to owners and others interested in exchanging ideas, information, hardware, predictions, and other items related to the IBM Personal and compatible computers. To join the Group, complete the application blank printed elsewhere in this issue, and send it with \$24 membership dues to address shown below. A subscription to the newsletter is included with each membership.

The Group meets once each month, usually on the second Saturday. See cover for date, time and place of the next User Group meeting.

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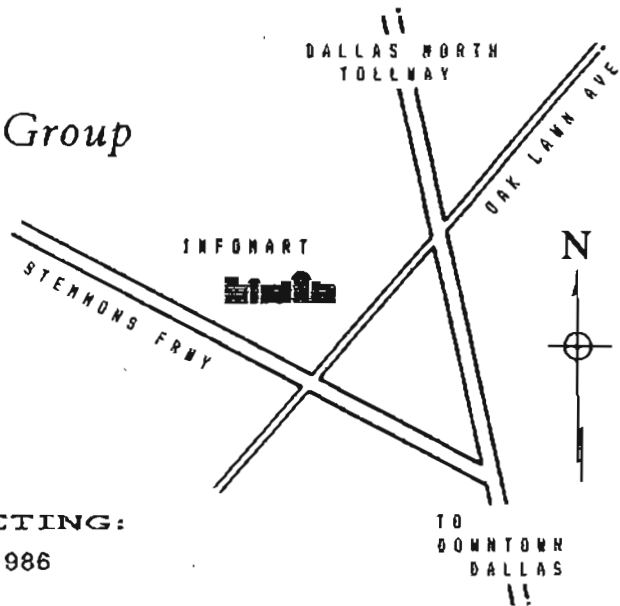


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NEXT MEETING:
19 April 1986