COMPUTER CONNECTION

HAPPY NEW YEAR!
WE HAVE GREAT PLANS FOR 1998

Our program chairman, Rich Caunitz, has been playing Santa this holiday season, lining up interesting programs for our up-coming meetings. Some of the programs are confirmed, some await confirmation, all promise to provide information that will interest most all of us.

Next month, on February 10, a representative from Exabyte Corporation will tell us what we need to know about backup hardware and soft-ware, and explain prudent backup strategies for the home computer. It's possible to believe that nothing can harm our precious personal and business data and applications, but, as the experienced hands among us know for a certainty, it's not *if* disaster will strike, but *when*.

In March, Alps Electric will demonstrate its new Micro Dry color printing technology. Now that so many of us are busy creating our own splendiferous greeting cards, banners and posters on inkjet printers, we've come to recognize that paper saturated with ink does not make for appetizing output. Alps' new color ribbon cartridge technology is said to eliminate wet pages and color documents that fade with the passing of time.

IBM will visit again in April, this time with antivirus software.

Computer viruses are regarded by some as an overrated threat, but now that so many of us are downloading files from the Internet, the danger is real. IBM is one of the leading providers of virus protection, so we're sure to find out what level of security is necessary and how antivirus technology stays current.

For the May meeting, we've invited Visioneer, whose affordable scanning technology has revolutionized document storage on the PC desktop .

So—there is much to look forward to in the months ahead. Our thanks to Rich Caunitz and to all who will be working behind the scenes to make our new season of programs informative and entertaining. Happy 1998! ∎
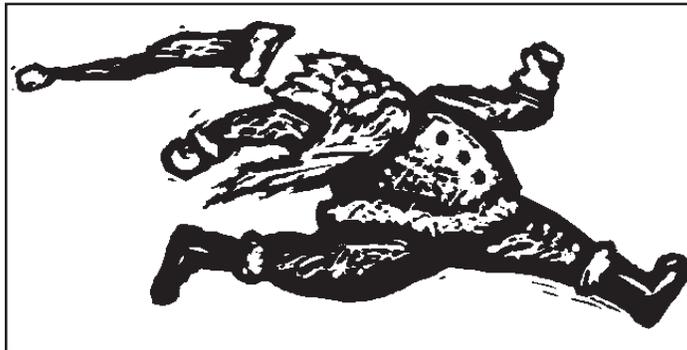
Online Banking January 13

Safe or sorry, that's the question. Some people swear by online banking, others wouldn't touch it with a ten foot pole. Most of us don't yet have enough information to make a decision.

MEETING SCHEDULE

Rockland Conservatory of Music 7:30 P.M.

Tuesday, January 13 – Citibank's Direct Access

Tuesday, February 10 – Backup with Exabyte

Tuesday, March 10 – Alps Color Printing

(All are welcome)

FEATURES

PRESIDENT'S MESSAGE

by Stan Smith

Our Board has authorized a six-month trial of a policy designed to increase membership. During the trial we will add three months to any existing member's RPCUG membership expiration date when they bring us a new member.

It's simple. Just recommend RPCUG to a friend, business acquaintance, family member, etc., and when they join RPCUG as a regular, joint, family, or sponsor member, your membership expiration date will be extended by three months.

In order to qualify for the above offer, you must actively solicit the new member, and your name must be listed as the Referring Member on the membership application form. (All new memberships under this program must have our New Member Form completed in full; no other form may be used.)

Members are not limited to only one referral extension. Bring us three new members and you will receive an additional nine months added to your own membership expiration date.

Let's swell our membership ranks with new referrals!

Looking For A New Job?

We frequently receive notification of position openings within the Data Processing field. Sometimes the jobs are full-time, sometimes they are consulting assignments. They may be in the PC arena or in mainframe computing. Employers are sometimes looking for experienced programmers and sometimes wish to fill less technical positions.

Phone me (634-6618) if you are contemplating a job change and are interested in any contacts we may have. Just another benefit of RPCUG membership!

Our Wonderful Volunteers

I know that I have overlooked some who have volunteered in the past. If your name was not among those that I identified for special recognition, please accept my apology. My activity and participation in RPCUG spans almost twelve years and my memory, while it still serves me well, simply isn't as sharp as it used to be.

So, for all of our "unsung volunteer heroes," hearty congratulations and thank you for caring enough about RPCUG to have participated—for identifying an area where you might contribute and accepting the responsibility to assist us.

This column brings to an end my many months of recognition of volunteers. I wanted to let all of our members know that we have had a long succession of involved, caring members who have volunteered their time, talents, experiences, and expertise.

You might have noticed in my last few columns that many people who have volunteered generously in the past have scaled back their participation levels. Put simply, they just became "burned out." That is what happens over time. Many of us feel the affects of an intense involvement level when it extends over a protracted time period.

That is why the identification and fostering of new volunteers is crucial to the success of volunteer organizations like ours. New energies, new thoughts, new experiences, new talents—they are all needed. The existing volunteers need to be replaced as they scale down their involvement.

The board has designated Jack McDermott (our board member-at-large) as our new Volunteer Coordinator. Jack will assist us in recruiting and managing our volunteers and guiding their activities. He is currently compiling a list of stations that need to be manned. Some activities, such as making a monthly telephone call to confirm our monthly meeting date and time, involve 5–10 minutes a month; others, such as transporting our literature library to the meeting, involve more time and an active role. Every task is important to our group and requires tender care and attention.

Contact Jack at our meetings (or telephone him at 356-6125) to see how you might assist RPCUG.

New Activity Center

We are going to have a new Activity Center at our monthly meetings. If you want to join RPCUG or renew your membership, visit the Activity Center. If we are offering books (such as the *Secret Guide to Computers*) stop by the Center to purchase or pick up your copies. Want to see if your e-mail address is listed or correct—or to notify us of a change—do it at the Activity Center. If you have membership questions, the Activity Center is the place to get your answers.

We will add additional services in the future that will be handled by the Activity Center, such as offering discounted magazine subscriptions.

Look for a bright sign, a table, and the smiling faces available to help. How about several of you volunteering to help our membership chairman greet newcomers and answer non-technical questions?

THE EDITOR'S DESK

by Sy Ribakove

This newsletter has come to a crossroads. We're running out of material. There have been almost no contributions from members—no first-person accounts of computing experiences, no questions—only a single lonely response (you'll find it on page 10) to November's invitation to submit definitions for some commonly-used computer terms.

Our stable of reviewers has dwindled to a precious few. I no longer know what products to request for review beyond those that reflect my own interests: computer graphics and desktop publishing. When I offer other products for review, there are no takers, so I have to do the reviews myself. As you might expect, I am growing tired of my own voice.

So here's an invitation to any member interested in contributing to our newsletter: make yourself known to me via e-mail or postal mail. Addresses are at the bottom of this page. Right off the bat, I am looking for someone to do a couple of face-to-face or phone interviews with other members regarding their computing experiences, adventures, mishaps, enthusiasms, needs. I will, if asked, provide a list of possible lines of questioning.

Other things I would like to read: a short report from one or more members of our well-attended New Users SIG. What brought you there? Why have you decided to learn more about computing at this time in your life? What computer configuration are you using at work? At home? Are you finding the course material helpful?

I would love to hear from one or more of you about your experience with a recent system purchase. Where did you buy your computer? What influenced your decision to purchase there? How did you choose the configuration? Was the salesperson helpful? Were there problems in setting up the machine? Did everything work out of the box? Did you receive documentation with your new computer? Was it helpful? Would you recommend the dealer to a friend?

How about your kids and grandkids—are you helping them with their computing, or are they helping you with yours?

I would *not* like to read jokes found on the Internet. The Internet propagates jokes at the speed of light. As my Dad used to say, by the time a story gets to me, it has "a long white beard" on it.

I would love to see some letters about this newsletter and about our group—good, bad or indifferent. If they don't contain offensive language, I'll publish them. How about you CompuServe, AOL and Prodigy users—are you happy with the quality of your Internet service? How about letting fellow members know of any good or bad things that you have experienced online.

Does anyone have some thoughts about Microsoft's domination of the PC world? Is it beneficial for us as end users? Or is it dangerous, as others claim?

How about some gripes, some grins, some pats, some pans?

Would you like to try your hand at reviewing? Let me know your interests.

Without some additional member involvement, we all can look forward to a smaller (much smaller!) newsletter. ■

DRIVECOPY

by Sy Ribakove

In the last two years I've had 2.5 hard disk failures. The disk drives were under warranty and replacements from the manufacturer were deposited on my doorstep next morning. However, getting my system up and running again the first two times took three solid days of work. The problem was Windows 95's faulty implementation of Plug and Play and its perplexing Registry. (I know you are wondering about that half of a hard drive failure; I'm getting to it.)

The half hard drive failure was not as catastrophic as the two totally wrecked disks had been. My 2.1 GB drive had begun to whine and I suspected that a failure was imminent. A phone call to the manufacturer produced a replacement drive on my doorstep before 10 A.M. the next morning. As luck would have it, a copy of PowerQuest's **DriveCopy** had just been returned to me by the member reviewer who had not been able to give it a test. I decided to try the software myself and see if it was as good as it claimed to be. Turned out that it was, but I wasn't.

DriveCopy is a companion program to PowerQuest's PartitionMagic. Like PartitionMagic, it sits on the shelf entirely useless until you need it, at which time it becomes instantly indispensable. The under $30 package contains one 3.5-inch diskette and a clearly-written manual that explains precisely what must be done to replace one hard drive with another without having to reinstall everything or restore a backup. (Of course, if your original disk has failed utterly, as mine had twice previously, **DriveCopy** cannot save you. In order to copy the contents of a hard disk, you must be able to access it.)

The usual reason for copying a still-operational hard disk is lack of space for new applications; no amount of compressing, offloading or deleting rarely used files will free up the necessary storage space. Today, with the cost of multi-gigabyte hard drives at an all-time low, the natural solution to the problem of a crammed disk is to replace it with a new jumbo model.

Using **DriveCopy**, you can automatically copy everything from your old hard drive to your new drive. No formatting, no partitioning, no reinstalling, no data loss, no headaches. All you need is a boot floppy disk, so that your computer can be started from the A: drive.

There are two main parts to the copying process: setting up the two disk drives (one as the source, the other as target) and the file transfer itself. **DriveCopy** actually makes the copying phase a no-brainer. In my case, the preparatory physical setup had its problems. My system uses a SCSI (Small Computer System Interface) adapter which allows the daisy-chaining of up to seven peripherals. The SCSI advantage is that once the adapter is installed on the motherboard, up to seven devices can be fed from it. (My SCSI devices are an external flatbed scanner, an internal CD-ROM drive and a hard drive.) The downside of SCSI is that each end of the SCSI chain must be terminated, which means that, because of the tiny jumpers and dip switches on today's miniaturized hard drives, one needs to have the keen eyes and nimble fingers of a microsurgeon.

It took some doing, but finally my old and new drives were hooked up to the SCSI chain and properly terminated. As per the clear instructions in the manual, the new drive was set up as the Primary drive in a two-drive system. My original (failing) drive was set up as a Slave drive.

Next, using the boot diskette, the computer was started from the A: drive and the BIOS setup program was accessed by pressing (on my system) the Delete key before the startup was complete. I provided the necessary information to the BIOS Setup, saved the new configuration, and turned the computer off. Now the easy part began.

After once again starting the computer from the A: drive, I replaced the boot diskette with the **DriveCopy** diskette, typed PQDC and pressed Enter. Yes! The **DriveCopy** software recognized both drives. The copying from my old drive, which had been partitioned as C:, D:, E:, F:, G:, H:, and I:, to the new drive was accomplished in under twenty minutes. That included the formatting of the new disk and the copying of well over a gigabyte of programs and data.

Many scenarios and configurations are covered in the manual—copying from an EIDE drive to a SCSI drive, retaining the old drive as a second drive in a two-drive system. My situation was somewhat unique: I was copying to an identical drive and my original drive would have to be returned to the manufacturer. Since I didn't wish to have the drive readable (I have personal material stored there) I was planning to erase it before removing it from my system. Can you guess what happened when I rebooted the system to the new C: drive?

As Windows 95 opened, some of the pretty shortcut icons on my desktop went generic and a series of "Can't Find..." messages appeared. When the computer booted, the new drive was recognized as C:, my old disk was renamed D:, and all the letter names on both drives were nudged up a letter. The result was alphabet soup. The shortcuts that were aimed at files on the E: drive couldn't find their programs; they now resided on a drive called F:! And so it went.

In the end it took several hours to straighten out the situation; several applications had to be reinstalled. The Windows 95 Norton products—Utilities and AntiVirus—*always* need to be

THE SMART SHOPPER

by H. Stanley Smith

Are you considering a new computer purchase? An upgrade of an existing system? The following thoughts might provide you with some additional ammunition for your selection evaluation when you do your shopping.

I regularly am asked, "What system should I buy?" or "Isn't this Pentium 200 MHz system with MMX technology a good buy?" or "Look at this specification sheet, would you recommend this system?" Sometimes people take my suggestions, thank goodness. But more often, they really just want a validation of their choices and ignore what I have to say if it doesn't agree with their own thoughts—thoughts inspired by clever advertisements, fancy pictures, questionable product comparison matrices, and glib salespeople.

How many people do you know who have recently bought a real "barn-burner" of a system with a "state-of-the-art" Pentium CPU with MMX technology? Well, folks, Intel's Pentium chip with MMX technology *in any and all speeds* is the slowest, the oldest, and the most feeble CPU chip Intel currently produces for general computing! All speeds of their middle-line processors (Intel Pentium Pro) and all models of their high-end line of Pentium II processors are faster and more capable than the Pentium line.

So anyone who buys a Pentium-based system today has bought obsolete technology. There will not be any Pentium CPU architecture changes for improved processor performance. There will be no more Pentium OverDrive processor upgrades. There will be no faster Pentiums in the future. In fact, during 1998, the Pentium chip will cease to be manufactured for general computing use.

What is today's intelligent choice? Unless you have large sums of discretionary money, never purchase the fastest CPU available—especially immediately after it becomes available. Systems with these "fastest, latest, and greatest" processors always have a hefty premium attached to them—sometimes as much as a $500 premium.

Instead, look to purchase one of the lower-speed versions of the most current processor line, which today is Intel's Pentium II class of processors.

Carefully weigh the performance differences in available processor speeds. For example, consider a 266 MHz Pentium II processor vs. a newly announced 300 MHz Pentium II. The increase in the 300's processor speed represents a 12% *potential* for greater throughput and may cost an additional $400–500. But that 12% potential will never be realized in everyday computing. Since there are few general computing applications that are *processor bound*—that is, spending all of their time just executing instruc-

tions inside the CPU rather than frequently interrupting their processing to communicate with their attached memory, disk drives, CD-ROMs, printers, keyboards, monitors, modems, scanners—a large part of the CPU's speed is lost while it waits for data or interactions with the attached devices. However, a 266 MHz Pentium II represents more than a 14% *potential* for greater throughput than a 233 MHz but is only $150 more.

For maximum purchase value, my bottom line suggestion is to purchase an entry-level speed in the current processor line—today that would be a 233 MHz Pentium II. For a reasonable compromise between performance and cost, purchase an intermediate speed in the current processor line—today's 266 MHz Pentium II. And for those with unlimited funds, purchase the 300 MHz (or soon to be released 333 MHz) Pentium II.

And remember, within one to eight months of your purchase there will probably be a faster processor (maybe even two) introduced. So keep smiling while you realize that you have been happily computing with your (almost) new system!

I'm expecting to cover system upgrades and disk drives in future installments. ∎

DriveCopy *(continued from page 4)*

reinstalled, even when they are restored from a good tape backup. They just can't seem to recover from any disturbance to the computing environment.

The **DriveCopy** manual provides excellent directions for cleaning up when the desired result is either a one- or a two-drive configuration. **DriveCopy** supports all of the popular PC operating systems—Windows 3.1, 95 and 95b, NT, DOS and OS/2—and the file systems they use.

If you want to copy a crammed hard drive to a new one with more space, **DriveCopy** can simplify the task enormously. If your copying needs are somewhat different from the many scenarios covered in the excellent manual, you'll need someone with technical expertise to hold your hand through the process. ∎

COMPUTER BOOKS

WORD 97 ANNOYANCES by Woody Leonhard, Lee Hudspeth and T. J. Lee ; O'Reilly & Associates, Inc.; 338 pages; $21.95; ISBN: 1-56592-308-1

This book attempts to tame Microsoft's latest version of Word, which, even to experienced Word disciples, can behave in strange and idiosyncratic ways.

Most Word manuals and third-party books deal with an unreal world: one in which Word always does things in a logical fashion. This is pure nonsense: Word has driven users to the loony bin for more than a generation, particularly each time Microsoft adds new bells and whistles.

The book is geared both to Word "gurus," who are aware of Word's limitations but still go ballistic over its stupidity and inadequacy, and to users like myself, who stumble along trying to get Word to do basically mundane and simplistic word processing tasks.

The book is organized into nine chapters and two appendices. Chapters 1 through 3 deal with the causes and nature of annoyances in Word. You learn how to optimize Windows 95 and to set up Microsoft Office to get the most from the Word software. Then you learn about the huge number of tweakable settings—for instance, customizing the toolbar buttons to get some high-speed work done.

Chapters 4 through 6 provide a tutorial on Word 97's new macro language, Visual Basic for Applications (VBA). We learn how to work with the VBA editor to assign macros to toolbars, menus, and keyboard shortcuts. We also learn how VBA can be used to overcome a plethora of Word 97 annoyances.

Chapters 7 through 9 tackle some of Word's most egregious annoyances. There are excellent tips, tricks and macro solutions for such things as making Word assign the file extensions you want instead of the ones it uses by default. The virus threat is examined, particularly the viruses specific to Word. The section on the Word features that can protect against this threat is very helpful and should be required reading. A discussion of where and how to get help is also very useful, providing a list of magazines, newsletters and Web sites, all excellent resources.

If you are a Word 97 user, and don't mind getting involved with the nuts and bolts of Word 97, this book will actually lower your blood pressure a few notches. *Reviewed by Jack McDermott*

REAL WORLD PHOTOSHOP by David Blatner and Bruce Fraser; Peachpit Press; 642 pages; $44.95; ISBN 0-201-68888-3
THE PHOTOSHOP WOW! BOOK by Linnea Dayton and Jack Davis; Peachpit Press; 329 pages+CD; $44.95; ISBN 0-201-68857-3

My quest to get some productive work done in Adobe Photoshop continues. I open each third-party book with hope in my heart. *Now, at last,* I think, *the riddles will be solved, the secrets revealed.*

Real World Photoshop contains a wealth of imaging wisdom and insight. In it, I actually learned the secret of getting perfect scans of finely-detailed line art (scan them as grayscale and tweak them with Photoshop's sharpening and thresholding tools) as well as a practical method for calibrating my monitor so that the colors I was seeing on the screen would actually resemble those I was able to produce on my desktop inkjet printer.

There is so much in Photoshop that needs explaining—color theory and management, image resolution, all those near-miraculous visual tricks we've grown accustomed to in films and commercials—and this book explains all of them very well. If you are going to spend time "living" with this immense but opaque application, this heavy duty book will serve as an excellent and very wise text. As its title suggest, it is not a primer, but rather a collection of the solutions its authors have acquired after years with living with computer graphics.

The Photoshop Wow! book, on the other hand, is careless in its execution. It purports to reveal how sensational effects (that's the Wow! part) can be achieved in Photoshop and it provides lots of illustrations on the accompanying CD. Unfortunately, there are so many images, and they have been given names so devoid of meaning (i.e., Conbg078.tif) that I spent hours trying to locate and load images in order to work my way through the Wow! techniques. Of course, neither the text nor the photo captions mention the images' filenames. Dumb!

This is a book that falls far short of its intended purpose, unless you've got far more time and patience than I have to unravel its mysteries. *Reviewed by Sy Ribakove*

———————

NETSCAPE COMMUNICATOR FOR BUSY PEOPLE, by Christian Crumlish and Jeff Hadfield; Osborne/McGraw-Hill; 286 pages; $24.99; ISBN 0-07-882441-9

This is a pretty book, colorfully printed on fine paper. It purports, with its many eye-catching illustrations, tables, tips, blueprints, road signs, information lists and more, to distill the es-

Online Banking

The January 13 meeting will provide a fine opportunity to dialogue with a representative from Citibank, whose free Direct Access software will be both demonstrated and discussed. We're expecting to hear answers to many troubling questions about online banking: Will someone not authorized be able to access our accounts? Will someone not authorized be able to know more about us than we want them to? How much will it cost us to use Direct Access? What can we actually do using online banking? Will online banking actually make our lives easier?

We'll find out about paying bills with available funds, checking account balances,, viewing account activity, verifying deposits and withdrawals, confirming that checks have cleared, transferring funds, and lots more.

Here we are at the start of a new year. Is it time to take a new look at the way we're handling our banking? ■

Read this sentence:

FINISHED FILES ARE THE RE-
SULT OF YEARS OF SCIENTIF-
IC STUDY COMBINED WITH
THE EXPERIENCE OF YEARS.

Now, count aloud the F's in that sentence. Count them *only once*; do not go back and count them again.

Answer: 0–2: Yikes! 3=average, 4–5=Better, 6=You're a 100% grade-A reader!

The Nitty-Gritty

This issue was produced on a Pentium 200 MHz computer. Copy was prepared in WordPerfect 7, then imported into PageMaker 6.5. PostScript fonts were used throughout: Adobe Minion for body text and headlines, URW Sans for sans serif items.

The document was transmitted by modem to proofreaders Marian Baade, Dick Blumenthal and Stan Smith in Adobe Acrobat format.

The corrected document was saved as a PostScript file, checked for layout errors with Ghostscript, compressed using WinZip 6.3, and transmitted by modem to our printer.

The final output device is a 600 dpi Xerox Docutech 135.

The document was saved once again in PageMaker as an Adobe Acrobat document. This was transmitted by modem to our Webmaster, who added it to the newsletter page for online reading or downloading. ■

Computer Books

sence of Netscape Communicator's five modules in a way that allows you to skip over the information you don't need and jump right to the thing you want to do. It looks good, it sounds great, and anybody who already knows the ins and outs of Netscape will probably look at it and say it is wonderful. But it suffers from the same problem that so many how-to books have. It does not give enough information.

To begin with, and this is the most serious omission, there is no glossary. There are boxes with definitions relevant to the discussions at hand spread throughout the book. If, however, you have forgotten what something means, a common problem with all those acronyms flying about, it is not always so easy to find that box again. In addition, the descriptions of procedures tend to gloss over steps. For instance, I found myself stuck at one point, because I couldn't enter the parameters for a search. After fumbling for about twenty minutes, I realized I was trying to write in the wrong box. The authors just assumed that part would be clear to me. I encountered similar problems trying to save e-mail messages to send later and attempting to download newsgroup postings.

It is true this book is not intended for the absolute beginner, and anyone with some online knowledge will probably be able to work it out. On the other hand, if the point of this book is to help busy people utilize their precious time more efficiently, every twenty-minute fumble mitigates against that goal. This could have been an excellent book, and I do hope the authors consider revising it. As the book stands now, however, I have to say: Close, but no cigar. *Reviewed by Nancy Ribakove*

MEMORY GLOSSARY

from Kingston Technology

Memory is a computer system's primary workspace. It works in tandem with the CPU, or microprocessor, to store data, programs, and processed information that can be made immediately and directly accessible to the CPU or to other system devices. Memory is central to a computer's operation because it forms the critical link between software and the CPU. Computer memory also determines the size and number of programs that can be run simultaneously, and helps to optimize the capabilities of increasingly powerful microprocessors.

There are many different kinds of memory, each with its own features and benefits. Unfortunately, with so many different types of memory, it can be easy to get them confused. Use this glossary to help sort out the confusion.

RAM (Random Access Memory)

Internally, computer memory is arranged as a matrix of memory cells laid out in rows and columns, like squares on a checkerboard. Each memory cell is used to store a bit of data, which can be instantaneously retrieved by indicating the row and column location (or address) of the data. Because these bits of data can be individually accessed, retrieved, and modified at random, the type of main memory used in computers is called random access memory (RAM).

RAM is a volatile form of memory, which means that it must have power in order to retain data. When the power is turned off, data in RAM is lost. Contrast this to other storage media such as disks, tapes, and CDs that retain data even without power.

The two main forms of RAM are DRAM and SRAM.

DRAM (Dynamic RAM)

DRAM is the most common type of computer memory. A bank of memory modules using DRAM chips usually forms the core of a personal computer's main memory. The system uses this memory to temporarily store programs, data, and processed information that moves to and from the processor, video card, and other peripherals.

It is called "dynamic" RAM because it must be refreshed, or re-energized, hundreds of times each second in order to retain data in its memory cells. It has to be refreshed because its memory cells are designed around tiny capacitors that store electrical charges. These capacitors work like very tiny batteries and will gradually lose their stored charges if they are not re-energized.

SRAM (Static RAM)

Static RAM also uses memory cells laid out in rows and columns to store data, but SRAM is about five times faster, twice as ex-

pensive, and twice as big as DRAM. SRAM is also volatile (it must have power to retain data) but SRAM does not need to be constantly refreshed like DRAM.

SRAM designs use pretzel-like flip-flop circuits that allow electricity to flow through one side or the other depending on which one of two transistors is activated. This flow-through design is faster than the stored charge design of DRAM, but it consumes more power.

Because of its lower cost and smaller size, DRAM is preferred for use in computer main memory, while SRAM, because of its speed, is used primarily for cache memory.

Cache RAM

Cache is a small block of high-speed memory (usually SRAM) located between the CPU and main memory that is used to store frequently requested data and instructions. When the processor needs data, it will check in the high-speed cache first to see if the data is there. If not, then the processor will retrieve the data from slower main memory.

Cache works much like a home refrigerator. A refrigerator can be considered a cache for groceries. Instead of going to the grocery store (main memory) every time you're hungry, you can go to the refrigerator (cache) first to see if the food you want is there. If it is, then you've saved a lot of time. If not, then you have to spend the extra time to get it from the store.

FPM (Fast Page Mode) DRAM

Most computers in use today use FPM DRAM. This kind of memory is an improvement over older forms of DRAM, making it faster to access data in the same row, or "page." If the data needed is in the same row as the previous data, the memory controller does not have to repeat the row location; it only needs to indicate the next column location. This makes the memory process a little faster.

Using FPM memory is like reading a dictionary. As long as the word you want is on the same "page," it will be easy to scroll down the list and find the definition; but when you have to flip pages, it takes a little longer to find what you want.

EDO (Extended Data Out) DRAM

EDO DRAM is almost the same as FPM, with a slight modification that allows back-to-back memory accesses to occur much faster. Because EDO is easy to implement, it has gained wide acceptance in a very short span of time.

A computer system must be designed to support EDO in or-

Memory Glossary *(continued from previous page)*

der to make use of the extra efficiency it offers. EDO memory in a system that doesn't support it will work, but there will be no performance increase. At present, FPM and EDO DRAM make up the majority of main memory configuration for computers.

BEDO (Burst EDO) DRAM

Burst EDO is an innovation on standard EDO that allows a "burst," or series, of data to be transmitted from memory with a single request. The assumption behind this feature is that the next data-address requested by the CPU will be sequential to the last one, which is usually true.

In BEDO DRAM all memory accesses occur in bursts.

SDRAM (Synchronous DRAM)

SDRAM is another form of memory developed shortly after EDO. This technology is a more radical innovation that can synchronize itself with the system clock that controls the CPU. Being in sync with the processor eliminates timing delays and makes the memory retrieval process much more efficient.

In order to use SDRAM, a computer system must be designed to support that kind of memory. Most computers shipping to-day support EDO, but a few are beginning to support SDRAM. Over the next few years, FPM will phase out, and SDRAM will most likely overtake EDO as the standard memory for high-performance systems.

SGRAM (Synchronous Graphics RAM)

SGRAM is an extension of SDRAM that includes graphics-specific read/write features. SGRAM allows data to be retrieved and modified in blocks, instead of individually. This reduces the number of reads and writes that the memory must perform, and increases the performance of the graphics controller by making the process more efficient.

RDRAM (Rambus DRAM)

RDRAM is a completely unique design developed by Rambus, Inc. RDRAM is extremely fast, but requires significant changes in the memory controller and memory/system interface to use. RDRAM uses a narrow, high-bandwidth "channel" to transmit data at speeds about ten times faster than standard DRAM. At present, RDRAM is being used in some game machines and PC graphics applications.

VRAM (Video RAM)

Graphics memory must work very quickly to update, or refresh, the screen (60-70 times a second) in order to prevent annoying screen flicker. At the same time, graphics memory must respond very quickly to the CPU or graphics controller in order to change the screen image. With ordinary DRAM, the CRT and CPU must compete for one data port, causing a bottleneck of data traffic.

VRAM is a "dual-ported" memory that solves this problem by using two separate data ports. One port is dedicated to the CRT, for refreshing and updating the image on the screen. The second port is dedicated for use by the CPU or graphics controller, for changing the image data stored in memory.

VRAM works much like a fast food drive-through that uses two windows. After you place an order, you pay at one window, then drive up and get your food at the next window. This makes the process faster and more efficient.

WRAM (Window RAM)

WRAM is another type of dual-ported memory also used in graphics-intensive systems. It is slightly different from VRAM in that its dedicated display port is smaller, and in that it supports EDO features. ■

Since Ralph has mistakenly brought his wife's sewing machine rather than his portable computer let's go on to the next report..

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READER RESPONSE

In the November issue, we asked readers to submit definitions that reflect their own understandings of some commonly used computer terms: default, utility, macro, batch file, peripheral, Fatal Error. We also asked for an explanation of the difference between analog and digital. The following response was submitted by long-time member Bob Sieffert.

Think of *default* as meaning "assumed." For instance, when you name a file in your word processing program, and you don't enter a directory before the name, the program has to "assume" the directory in which it should save the file.

A *utility* is a (usually small) program that performs a limited set of specialized operations that may not be handled as well by other general-use programs.

A *macro* is a sequence of commands for a specific program that may be repeated in a fixed sequence and initiated by a single command or keystroke.

A *batch* file, usually named with a BAT extension, contains a series of commands directed to the operating system to run programs in a particular order.

A *peripheral* generally refers to various physical parts of a computer system that are outside the central processing unit ("brain") of the computer. They include such parts as removable disk drive, monitor, keyboard, tape drive, scanner and printer.

A *Fatal Error* is an error that is so severe that it causes a running program to stop what it is doing, usually without completing the operation in progress.

Analog refers to something that varies on a continuous basis, without discrete steps. An example is the way the speed of your car varies when accelerating from a full stop to highway speed. *Digital* refers to something that takes discrete separate jumps as it changes. For instance , the volume controls on most modern televisions are digital. You can only select from a limited number of fixed volume levels.

And Bob's own additions...

Why are the large and small letters of the alphabet called "uppercase" and "lowercase?"

In Colonial times, when typesetting was done by placing individual metal letters in a frame, the trays of letters were arranged for the typesetter's ease and efficiency. Since small (lowercase) letters were used more frequently, they were located in a lower position, closer to the page frame work area. Large (upper case) letters were positioned at a higher, less accessible position.

What are the proper names for the following symbols: ~, #, | *?*

~ is called *tilde*

is an *octothorpe* (for a good laugh and more info enter "octothorpe" in any Internet search engine)

| is called *pipe*, from its use in the Unix operating system for directing the output of one program to the input of another ■

Thanks, Bob. We did check out "octothorpe." Found lots of funny stuff. We especially liked *http://www.nynews.com/octohome.htm* and also *http://gondwanaland.com/bong/bongs/bong359.htm.*

Member readers are invited to comment or submit their own understandings of the terms defined above.

President *(continued from page 2)*

Meeting Notes

Microsoft's popular Holiday Road Show arrived in Spring Valley for our December meeting. Member Paul Stark (an experienced and accomplished pilot) took the control of the feature-laden Flight Stick to assist in the demonstration of the newest version of Microsoft Flight Simulator. Let's just say that we several times heard the sounds of crashing as the plane made unplanned and breakneck returns to Mother Earth. I am sure that with a little practice using the program and the controls Paul would soon be adeptly circumnavigating the globe from his favorite chair.

Several other software titles were demonstrated and more than a dozen door prizes were distributed. I hope you didn't miss the festive night.

January will bring us a presentation of one of my favorite PC applications—one I have used (virtually) every single day since mid-1985—PC banking. Citibank will join us to showcase Direct Access, their consumer online banking system. I have found online banking indispensable. (I was one of Citibank's first users of PC banking—then called Home Base—joining their online ranks when the application was only available as a pilot project. I was quickly hooked.)

PC banking has changed the face of consumer banking and will continue to do so in the future. Join us to see what online banking has to offer.

See you on Tuesday, January 13 at 7:30 P.M. at the Rockland Conservatory of Music, 7 Perlman Drive, Spring Valley. ■

AND KEEP IN MIND	
January	
8	New Users Group; 7:15–8:45 P.M., New City Library
13	General Meeting; Citibank; 7:30 P.M.
20	Windows 95 SIG; 7–9 P.M.; Pearl River Library
21	OS/2 SIG; 7:30 P.M.; 634-6618 for directions
??	Investment SIG; Phone Hank Feinberg (352-3935)

WANT TO JOIN THE GROUP?   HERE'S HOW!

Annual membership in the Rockland PC Users Group includes a subscription to ComputerConnection. Bring your completed application and a check payable to RPCUG to a meeting or mail your application and check to RPCUG at 169 South Main Street, Suite 384, New City, NY 10956-3358.

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