An Inexpensive Way to Try C on Junior

By John E. Wilson

C is now by far the most popular computer programming language. Almost all commercial programs, for a wide variety of computers, are written in C, there is an abundance of books about C programming and most of the articles in programming magazines are either about C or use C in their examples.

C is a heavy duty programming language, with header files and object files and libraries, and most of the C compilers require a hard disk and more horsepower than a PCjr has. The compilers are often geared for professional programmers to use in the development of large commercial programs rather than for home computer experiments.

There is, though, one C compiler available that works very well on a dual floppy drive based PCjr and it costs less than most books about the C language. It is the Power C Compiler from Mix Software Inc of Richardson, Texas, at a price of $19.95 plus $5.00 shipping costs.

Power C has been around for several years, at this same $19.95 price, but the program is not heavily advertized, is sold only by mail order from Mix Software, and has never received much notice. The current version of Power C is 2.0. According to Mix Software, the minimum system requirements are DOS 2.0, or later, 320K bytes of memory and two floppy drives.

The program has power and is fairly easy to use, but don't expect any bells and whistles. Creating programs

In This Issue:

PCjr Lives!
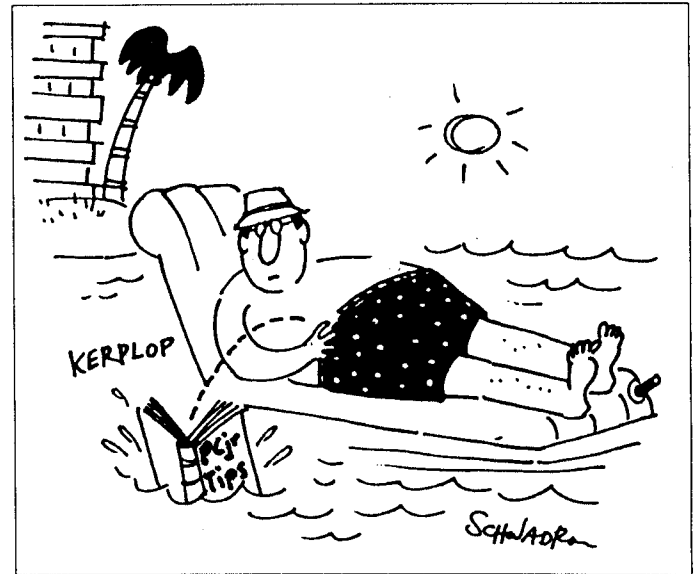
with Power C is a three step process. First, you use an editor or word processor that saves text in ASCII format (PC-Write is one of many word processors that does this.) to make up the source code. Of course this is the hard part of programming.

Next, Mix's Power C Compiler is used make an object code file from the source code. Finally, you use the Power C Linker to link the object code with external functions and data and create an .EXE file. This sequence is the more-or-less standard way that many C compilers work. Borland International has spoiled most of us with their integrated editor-compiler programming environments, but there are still a number of powerful (and expensive) compilers that don't include an editor, and use this same command line type of compiling and linking to build executable programs.

During compiling, Power C displays a copyright notice and sends brief messages as compiling progresses. The length of time needed for compiling depends, naturally, upon the length of the source code. For most of us this is only a few seconds. If the compiler finds any errors it displays the offending line and points out the error. Since, if you have very many, they may scroll off the screen, error messages are automatically written into a text file named C.ERR that you can review with a text editor.

So you have your favorite word processor or compiler in Drive A and your data diskette in Drive B. Since you are a very careful computer user, you know that as soon as you have completed a letter, document, program or whatever, the next step is to back up the completed file on a backup disk.

You type COPY B:MYFILE.EXT A: and press ENTER.

Oops! You forgot to put the backup disk in drive A. So, you read the friendly DOS error message:

Write protect error writing A:

Abort, Retry, Ignore?

Your normal response might be not to run to the DOS manual, but to try to reason out the proper steps on your own. After all, computers are meant to be "user friendly".

It would seem logical to remove the write-protected disk, insert the intended backup disk, and then respond with: RETRY (or IGNORE).

Wrong!

One of the first things DOS does when you issue the COPY command is to read and store the directory of the target diskette. In fact, DOS does this before checking to see if the target disk is write protected. Thus, if you remove the write protected disk and insert the intended disk, followed by a response RETRY or IGNORE, the COPY command continues and the directory from the removed diskette is put on the newly inserted diskette. That leaves all the files previously stored on the diskette inaccessible (unless you use the DOS 2.x RECOVER command or the Norton Utilities FILEFIX command, along with lots of time and patience). When you go back to the DOS manual to find out what went wrong, you may find that the warning reads: "If any of these (error writing or error reading) error messages appear for a diskette drive, DO NOT change diskettes." ...Having learned what not to do -- and its consequences -- what should you do next time?

First, do not change diskettes. Second, respond to the error message with ABORT (or "A"). Third, continue with the correct procedure -- which would have avoided all the problems in the first place: change diskettes, then re-issue the command.

(The above article was reprinted from the Winnepeg User's Group)

What Is A File Manager?

A File Manager is a very handy type of software for copying, moving, deleting, renaming and doing other useful things to files without having to use DOS commands. Scout, Disk #81 in the jr Newsletter Software Store, is one of the best we know of. It can be "memory resident," which means it'll pop up any time you need it by just pressing two keys

Questions and Answers

By Rene Waldron

EDITOR'S NOTE: jr Newsletter gets questions in the mail from PCjr owners every day. So many, in fact, that we apologize for not being able to answer them personally. This Questions and Answers column is our way of responding to the questions readers ask about their PCjrs. We can't answer all of the questions we receive, but we try to answer those that are either asked by several readers or those we feel will be of interest to PCjr owners in general. If you have a question that you do not see answered here, or elsewhere in this newsletter, please feel free to write to us at jr Newsletter, Box 163, Southbury, CT 06488

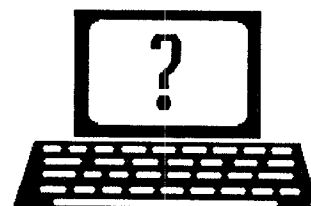Q. I have Hayes Smartcom EZ and Smartcom II and can't get them to work properly. I called Hayes about these problems and they said only that it ran on PC, 286 / 386 and TRUE compatibles. Would it be possible to make a patch for this kind of program? The problem is that when selecting an option, a beep then "keyboard buffer filled" message is shown. I have 640k, two floppy drives and the modem is an external with 1200 Baud. B. Heise, Waterloo IL

A. No patch may work, or a patch may not be necessary, but without a copy of your config.sys and autoexec.bat files it is difficult for us to make a determination. Now, for ALL new software you MUST have some kind of INT9 correction! Once you have it in your config.sys (jrconfig does it automatically) or autoexec.bat leave it in because it fixes lots of other little erratic glitches elsewhere and takes up almost no valuable RAM. Your serial port has to be COM2 and you must use COMSWAP to have the proper internal addresses and interrupts to the #2 com port for your external modem..

We do not have this particular Hayes software but the usual trial for this kind of problem goes like this: Use NOBEEP.COM from the Software Store (JR PATCHES DISK #56)to take care of Int9, keyboard buffer and other problems. Also, be sure to load the communications program with something like "C:1024" or (or a larger number) following the command-line program name. Your DOS manual explains how this enlarges your serial port buffer size. Use something a lot larger than the Hayes software recommends and you might be able to get away without DMA if the software assumes it is there. In your config.sys file too, be sure you have enough buffers (min. of 10) and files (min. of 30) as well. What we're after here

is enough "cushion" with all these buffers to make up for the lack of DMA and the speed of the stream of data to and from the serial port.

Last suggestion: Use Procomm, Qmodem, or any of the proven, tested software from the Software Store with the modem, they'll work fine.

Q. A number of readers would like to use monitors other than the IBM PCJr color monitor and they wonder about compatibility and adapters etc.

A. This is a fairly simple change. The monitor, any size, must be capable of RGBI input if full color is desired and its supplied input cable must conform to the standards of the IBM Color Display. Don't worry about this, just about all RGB and RGBI color monitors are built to these standards. Ask if the monitor will plug into a standard IBM PC and if it will you're all set. There is an adapter (a short cable, actually) available from our advertisers which plugs into the left rear of the Jr. This is a receptacle labelled "D" for Display. The other end of this adapter connects to the cable which comes with the new monitor. If the monitor has sound capabilities, and most do not, there will be an additional receptacle usually an RCA type phono jack labelled "audio" at the rear. Connect this one to the RCA type jack labelled "A" also at the left rear of the Jr. Any audio cable, co-ax or pair, with RCA plugs at each end will work between these two receptacles.

We do not recommend monochrome monitors for replacement or upgrade. Because the jr's output is always CGA (Color Graphics Adapter) the text written to the screen can NEVER be like that of the standard PC when in mono mode! When the jr is set up for mono it ONLY means "two colors only," so all screen writes are black and white. It does NOT change scan rates, does NOT use a different ROM for the individual letters for text and does NOT match the higher text resolution of the MDA (Mono Display Adapter) card of the PC, XT etc. The MDA card drives mono monitors to a screen resolution of 720x350, not 600x200 as our jr always does. The MDA card writes each text letter in a box of 9x13 dots, not the 8x8 dots of a CGA adapter. For our jrs then, the text will be written to 8x8 boxes, and that's precisely the same resolution you see on the color monitor.

Another reason to stay away from mono displays is that so much software nowadays is written to display in color if it detects a CGA card. This means that the software will keep trying to display color on the mono monitor

Questions and Answers

and you'll wind up with weird unreadable checkerboard or polka-dot patterns where text and colors would be expected. Setting up with MODE BW80 usually won't do a thing to correct this either, because the software detects the presence of a CGA card in your jr and kicks it right back into color mode.

Q. Sometimes I would like to print the date from the computer memory directly into a document while in my word-processor which is IBM Assistant. I have not seen this addressed in any of your articles on computer use. Is there a way to do this? J. Craig——

For users of PC-Write and PC-Write-Lite it means just touching Alt-F4 then F5 and the system date is inserted at the cursor position. For users of MS Word or WordPerfect or any other word processor we can think of, there are also simple key combinations or "macros" if one wants to use them. Even database and spread-sheet programs have this feature. We don't immediately have access to the manual for Writing Ass't, but we cannot understand why there is no built-in method to insert the system date, and with some simple technique.

If there is no dedicated key sequence, we recommend you look in the section of the manual having to do with "merging" for mailing lists, etc. as there is usually an automatic date function involved with these operations. The system date, or a single typed copy of it, can be brought in along with the names and addresses in any of the word-processors we've seen.

If you would like to become a "power user" you can acquire the book, DOS POWERTOOLS a PC Magazine publication (C) 1989 or a later edition. (ISBN #0-553-34526-5) This book includes a disk of more than two hundred utilities and programs. We found TIMEKEY.COM in this tome, a tiny TSR which allows insertion of the date into documents being created by other applications, such as word-processors, spread-sheets, databases etc. There are three formats of the date which are user selectable. If all else fails, this, or a utility like it, would be a good choice. Do you have Sidekick or something along those lines?

Q. I understand that the speed-up board from PC Enterprises increases the jr's speed from 4.7 to 9.54 MHz and that the MESA 286 jr increases it from 4.7 to 12 MHz. Can speeds beyond 12 MHz be achieved by installing both boards? What are the redeeming benefits to having them both installed? Will they run together at all? P. Shafer St. Petersburg FL

A. Whew! The shortest response time of the memory chips (chip speed in tiny fractions of a sec.) is going to be the major factor for the highest speed attainable in
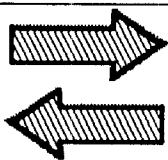
Reader Feedback
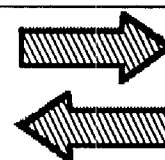
Sharp Wizard Downloads Pose Problem

My biggest disappointment has been trying to download and convert spreadsheet info from a Sharp "Wizard" (Pocket book computer/calculator) to my PCjr. I purchased the Wizard hoping to be able to use it like a small/cheap laptop. Since I'm on the road a lot, I would love to enter data in the wizard while I'm away, then download it to the Pcjr when I'm home. this am able to do with the basic "Wizard" functions of calendar, memo, address, etc., but I have had trouble with the optional spreadsheet card. When I try to transfer from the Wizard to the PCjr, the download appears to work just fine, but the computer keyboard "locks up" when the software tries to convert the spreadsheet from wizard format to Lotus format.

The cost of the Wizard, spreadsheet, and connecting hardware/software has been as much as a hard drive, but it would be worth it to me if I could get the "use" of the PCjr while away from home. I would like to tell other jr owners how nice it has been to enter travel expenses, calculate business data, then download the info to a larger spreadsheet once I'm at my desk -- but I've been "locked-up"! If you have any suggestions, I would appreciate help -- I'm desperate for a solution

Mike Livingood, Kingwood, TX

Editor's Note: We don't have a solution for you, Mike, but perhaps another junior user has and will enlighten all of us.

Tips From An Enthusiastic Junior Lover-Promoter

EDITOR'S NOTE: The following comments came to us via a jr Newsletter Reader Survey sent in by Ron Legro of Milwaukee, WI. His bold handwriting filled the page on both sides with comments and tips. We couldn't resist passing them on you, just as we got them.

Owning a PCjr is like owning a '57 Chevy. Outmoded? Maybe, but it gets you around and it's a classic.

Imagic's "Touchdown Football" written for the jr years ago, remains a game favorable in features to many much newer products. Jr sportsfans should try to find it. (Computer Reset has it for $12 - ED)

I now have an Amiga (which reminds me greatly of an enhanced, 1990s PCjr -- better graphics, 4 voice sound, etc.) but I still use the jr often for productivity, speech synthesis, etc. I have a lot invested in MS-DOS and the jr. Plus, it is clear that owning both the PCjr and the Amiga, I LIKE underdogs.

Tips:

1. Everyone should use the NMI patch routine. (This is available on PCjr Patches, Disk #56, and is automatically installed when you use jrconfig as your PCjr memory managament software. Jrconfig is on our PowerPack disks as well as PCjr Autosetup, Disk #99)

2. Everyone (with enough RAM) should use DOS 3.1 or above.

3. A Thinfont Module and high quality monitor (I have a Thomson Multiscan) will greatly improve readibility and reduce eyestrain. EGA & VGA are unnecessary for many non-graphics applications. If monitor allows, compress vertical image for even better CGA readibility.

4. Buy a used jr for spare parts, or to hook up to your existing machine as a kind of mini-network. The new Synectics LANjr product or Traveling Software's Desklink may be useful. I bought three jrs, refitted
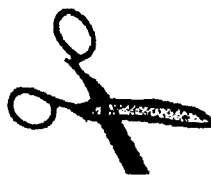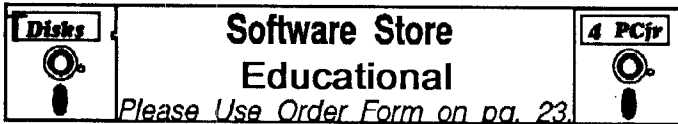
ARE YOU READY FOR CALCULUS? Excellent review of Algebra and Trigonometry skills you'll need before taking Calculus. Provides help in needed areas. Designed by professor in University of Arizona's Math Department. 128K ok (Reviewed 8/90)(Disk #117)

BIBLE QUIZ. Excellent quiz game tests knowledge of both the Old and New Testaments. Provides answers and biblical references for each question. For one to three players. 128K OK. (Disk #85)

BRAIN BOOSTER. Includes IQ Builder, a program that both teaches and tests your ability to solve number, analogy, synonym and antonym problems like those on IQ and SAT tests. Also includes Algebra and Chemistry programs. For high school and up. 128K (Disk #43)

COMPUTER TEACHER. For those who want to learn how to use DOS commands and to understand basic computer hardware terms, this interactive software will help you become computer literate. Helps you better understand those manuals and computer magazines, as well as how to do more with your computer. 128k (Disk #77)

CROSSWORD CREATOR V3.30. Make your own puzzles up to 36 columns by 22 rows. Many helpful sorting and placement features. Prints out on virtually any printer. 256K (Disk #71)

EARLY LEARNING. A collection of colorful educational games for ages 6-8. Sing-along alphabet, letter match, counting game, maze, pattern matching and more. 128K, need Cartridge Basic. (Disk #48)

**EQUATOR.** An excellent way to learn and review 35 basic equations used in math, finance and science. Learn to compute the volume of a cylinder, compound interest, or average velocity and much more. Manual on disk. 128K (Disk #20)

GAMES FOR EARLY LEARNERS. Young children like Teach Tot's alphabet and counting games. Other activities teach spelling and telling time. For Preschool through grade 3. Cartridge BASIC, 128K. (Disk #63)

HAPPY GAMES. Written by a mother to help her own preschoolers learn on their PCjr, this set of colorful educational games makes learning fun. Teaches colors, shapes, logic, eye-hand skills. 256K and joystick required. (Disk #88)

LANGUAGE TEACHER. Helpful exercises for both French and Spanish language students. Hundreds of vocabulary words and verb conjugations. 128K ok. (Disk #72)

Reader Feedback

them and gave two to family members.

5. If you're giving up on your jr, try selling it at a used computer store. Better: donate it (and some personal time for training!) to a non-profit organization or needy kid.

6. Write software makers, reminding them "PCjr Forever!" (Thanks, Apple) and ..."Peanut Power."

7. Retire the jr as your prime machine? OK, but how about using it for X-10 home automation, or to control a phone line for E-Mail, or as a handy disk copying station, or ....! Once friendh)0*0*w with a 386 PC has his jr packed in an IBM carrying case, ready to travel or to unpack in an emergency, or to take with him to the cottage.

8. The "Best of jr Newsletter" Disks are excellent! They help speed research into PCjr problems and issues. Like having an on-line tech manual. Plus I can give all those old jr Newsletters to family members with hand-me-down PCjrs!

9. Could we have a National Junior Convention? Sort of like an Edsel Convention -- could be fun! Plus, think of the PR potential. Let's invite the peanut design team!

Don't you guys ever stop publishing!

Our Rag Helps Schools Use Their Juniors

In spring, 1985 I bought my PCjr to write my Ph.D. dissertation. This was just days after it became orphaned. I finished my dissertation and along the way learned about computers. I now use computers in many aspects of my work as an associate professor of Communication and Theater.

Last summer, I finally decided it was too difficult to continue using my PCjr in conjunction with my computer at work. I purchased a Gateway 200 386SX.

My jr was not trashed, however. I donated it to the Van Buren, Main Junior High school where an English classroom had three other PCjrs. As useful as the computer and enhancements may be, the three years of back issues of PCjr Newsletter showed them what could be done with a jr and that it was not the forgotten machine they assumed it was. The PCjr newsletter has prolonged the useful life of all their jrs.

I learned a lot from my jr and I am pleased to know that it is still helping others to learn.

Richard Asam, Prergue Isle, ME

Spelling Checker Software
Now Has 112,000 Word Dictionary

A new version of the popular shareware spell checker, ShareSpell (Disk #94) has many significant improvements, including a dictionary more than double the size of the older version.

The new version was recommended to us by PCjr user Jack Sellors, of Sarasota, Florida, who says,"ShareSpell V2.2 is an upgrade of your disk with a larger dictionary. It works with ASCII text files or other word processor files such as Writing Assistant, etc. It's fast and has good output choices. Much better than PC Write's dictionary." (Thanks, Jack -- ED)

The software has gone through several updates, bug fixes, and additions of features since the V1.3, which is the one we had in our Software Store. This is a MAJOR update to an already excellent program.

ShareSpell version 2.2 is a "stand-alone" spelling checker. With it you can check the spelling of text files that you have written. It is completely interactive. It will display the text of the file as it goes through the file, checking for spelling errors. At each word that it thinks is misspelled, you'll be given the option of replacing the word from a list of suggested correct spellings, manually correcting it, adding it to the dictionary, marking it for later correction, or ignoring it throughout the rest of the document.

Currently ShareSpell has a 112,000+ word dictionary, and you have the option of adding words that you use all the time such as your name and words specific to your field of writing.

ShareSpell requires 384K and two disk drives to operate best, although it can do with one drive. It is Disk #94 in the jr Newsletter Software Store, page 23.

When DOS Growls, Don't Panic

DOS has a lot of error messages, such as "Disk Boot Failure," "File Not Found," "Bad Command or Filename," and other depressing statements. But 90 per cent of the time, the problem indicated by the error message is minor.

For example, unless you're perfect (in which case, please let us know-- we'll do an article on you in our next issue), you may have simply made a typing error. Your PCjr is VERY particular about which keys you press when communicating with it.

Or some slight misalignment, dust particle, flea or gnome may have caused the problem and then disappeared. In which case simply trying again will do the trick.
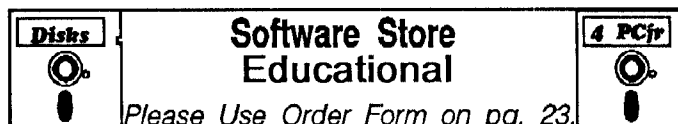
MATH FUN! A great way to get kids learning how to add, subtract, multiply and divide. Includes a program called Math Tutor which has cleverly designed exercises for kids in Grades 1-6. Also Funnels and Buckets, a nifty math game that makes learning math fun. 128K. Need Cartridge BASIC (Disk #42)

PLAY AND LEARN. Educational games for kids 5-12. Word match games, find-a-word puzzles, word scrambles, and many more made by teachers. 128K, need Cartridge Basic. (Disk #32)

SPEED READ. If you'd like to double or triple your reading speed, and increase comprehension as well, Speed Read can help you do it. It provides instruction and exercises designed to break bad habits and improve reading efficiency. 256K (Disk #90)

SPELLING BEE. A game that builds spelling skills from Grade 3 level to adult. You are an Olympic athlete representing your country. Excellent color graphics. Four skill levels from very easy to very difficult words. Fun way to become a spelling champ! 256K ok (Disk #82)

STUDY AIDS. Three great programs to help students. PHLASH - a computerized version of flashcards which you make and use for any subject. Multiple choice, true/false, and/or fill in blanks. FRACTIONS - a series of interactive exercises in fractions (many levels). And PHRASE - a program that picks out examples of bad writing in any document and suggests improvements. 128K ok (Disk #92)

THE WORLD V.2.6. Fascinating way to see the world on your PCjr! Just use the pointer to move over full screen map of world and press Enter to zoom in on any region, country or city. Many features. Even shows you hurricane tracks by year. 256K Reviewed 2/90 (Disk #105)

TIME TRAVEL IN HISTORY. A maze adventure game in which you have to answer questions about different periods of American History in order to get gold pieces--and save your life! 128K (Disk #21)

TYPING INSTRUCTOR. Disk contains both PC-Touch, a great typing exercise and speed testing program, and Touch Typing Tutor, a combination of lessons, including finger positions, speed tests and a typing game. 128K ok. (Disk #18)

WIZQUIZ. The Wizard keeps track of your progress in solving math problems that range from elementary level through fractions and negative numbers. Extensive exercises, with scores and times recorded under each "player's" name. Compete against your personal best as you improve your skills. Grades 4 through adult. 128K ok. (Disk #95)

Skyglobe, A Stargazer's Friend

By John M. King

I learned my first constellation, the Big Dipper, in elementary school and used the "pointers" to find the North Star. Later, I learned Casseopia and Orion. If I had kept on at that rate, I would know hundreds of constellations by now, but I don't. It got harder, especially when I tried to learn them on my own from books. But then, I didn't have a computer and SKYGLOBE.

Why is it hard to learn new constellations? Because they change location and orientation in the sky according to the season, the time of night, and the latitude of your viewing spot. Let's see why that is.

Imagine the stars as faint points of light on the surface of a large, stationary, transparent sphere. The sun is at the center of the sphere, with the earth revolving around it in a close orbit. From earth, we can see out toward the sphere only at night when our side of the earth faces away from the sun and the sky is dark.

From season to season, as the earth revolves around the sun, a new part of the sphere becomes visible, and the night sky gradually changes. Spring constellations are replaced with summer constellations, then summer with fall, and fall with winter as new parts of the sphere become visible. At the end of a year we are back where we started, and the sky is the same as it was a year earlier.

If we viewed the stars at the same time every night, the sky would change only slightly from night to night. It takes 365 days to complete the full 360 degree circle around the sum, so the position of the stars changes only about one degree every 24 hours. That's if we view the stars at a fixed time each night.

Now, imagine watching the sky from any place in the Northern Hemisphere for one whole night. The stars to the south would appear to swing across the sky rising in the east and setting in the west as the earth rotated on its axis. The stars to the north would appear to rotate around the North Star because it is in line with the earth's axis. Since the earth rotates 360 degrees around its axis in only 24 hours, the stars appear to move 15 degrees every hour.

Finally, the latitude of our viewing location affects the height of a constellation in the sky. Traveling from the tip of Florida to the Canadian border changes the angle of a constellation above the horizon by 25 degrees. Some constellations easily viewed in the southern states are not visible at all in the north because they never rise above the horizon.

No wonder it's so difficult to find a constellation. Some are visible only in winter, some only in summer. Even if you have the right season, the constellation may be in the east or in the west depending upon the time of night, or it may be invisible because it's below the horizon. Finally, it's orientation will change, especially if it is near the north or south pole. For example, the Big Dipper is sometimes right side up and sometimes upside down as it rotates around the North Star every night.

What you really need is a customized star map created for the specific night and time and place when you will be stargazing. This is what SKYGLOBE, a shareware program written by Mark Haney, provides in a simple and elegant fashion.

Using SKYGLOBE

SKYGLOBE will run on any IBM compatible PC, PCjr, XT, AT, 386, or 486 with one 360K or greater floppy drive. Monographics, CGA, EGA, and VGA displays are supported; and less than 200K free RAM is required. Your star map can be printed to a dot matrix or laser printer. Skyglobe is Disk #129 in the jr NewsletterSoftware Store.

Here's how to create a custom star map. Load SKYGLOBE and set the location by picking a city from the menu or by entering a latitude and longitude. Adjust the viewing time using the M, D, Y, H, and T keys to advance the month, day, year, hour, and minute counters. (Shift reverses the count if you overshoot.) Pick a compass direction with the N, S, E, or W key, and fine tune it with the Left and Right arrow keys. Adjust the angle and field of view with the Up and Down arrow keys and by zooming in or out with Z/Shift-Z. When you have the map you like, press P to send it to your printer. The result is a map that really looks like the night sky.

The fastest way to locate a star, constellation or Messier object is to use SKYGLOBE's Object Find function. Press the O key, and select the object from the menu. SKYGLOBE will select the best date, time, and viewing direction and display your choice. This is particularly useful for finding constellations which rise above the horizon only briefly during the year.

Additional SKYGLOBE Features

Help with SKYGLOBE's features is available by pressing Function keys 1 and 2. All the features, including the few not covered by the on-screen help, are explained in the excellent documentation on disk. I recommend printing out the last two pages of the documentation which provide a brief summary of all the commands.

SKYGLOBE offers a great deal of control over the display. Stars can be displayed according to their brightness. This allows realistic representations for hazy metropolitan conditions as well as clear mountain skies. Numbers to identify 300 named stars can be displayed or not.

Eighty-nine constellations can also displayed according to brightness. Their names and the connecting lines between their stars can be turned on or off. This permits

uncluttered maps with only the major constellations for new students.

The planets, sun, moon, an outline of the Milky Way, and Messier objects such as galaxies and nebulas can also be displayed or turned off.

Additional controls include turning on or off the Ecliptic (path of the sun), right ascension and declination lines, the horizon, and markers indicating degrees above the horizon. Colors can be adjusted on EGA and VGA monitors. You can save and restore the parameters for up to eleven different display configurations.

I've saved the most fascinating feature for last. SKYGLOBE can automatically increment the star display by minutes, days, or sidereal days. The calculations are so fast that the display is updated in less than a second on even the slowest computers. Set the increment to 15 minutes, and a full day passes in less than two minutes. One of my favorite tricks is to point SKYGLOBE to the north and watch the constellations wheel around the North Star.

WHY REGISTER?

The shareware distribution disk for SKYGLOBE contains data for 15,000 stars and planetary data for five years. Data for an additional 10,000 stars and planetary data for 15 more years comes with registration. In addition, your home town is listed first and your monitor type automatically selected on your registered copy. You also receive a useful reference guide.

Registration costs only $15 which will support further development of the program. Mark Haney plans to add high resolution printing and other features in future releases.

CONCLUSION

SKYGLOBE is great if you want to learn a few more constellations or just find out whether that bright object in the sky tonight is a star or planet. It is especially good for teaching kids about astronomy because the star maps are so easy to use. Every elementary school ought to have a copy for use in science classes. College astronomy classes ought to have copies available for all the students.

To order Skyglobe (Disk #129), please use order form on page 23.
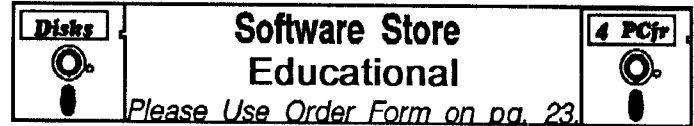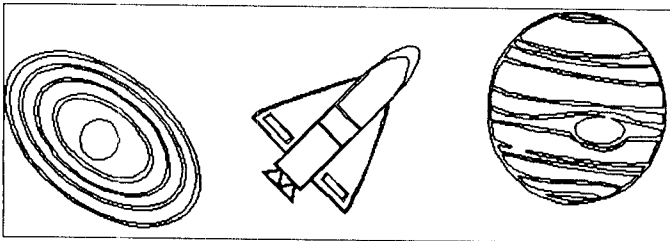
WORD PROCESSING FOR KIDS. Simple, fun and easy-to-use word processor designed especially for beginning writers. Allows children to express their ideas easily and then print them out in large type on your printer. Colorful opening menus make learning the simple commands very easy. Parents/teachers manual is on the disk. 128K. (Disk #41)

WORDCRAZE. Create your own word search puzzles and print them out for friends and family. Just make the list of words you want in the puzzle and it's printed out for you. Or try Quotefall, a unique type of scrambled word puzzle. And then there's a high-level version of Hangman. Just try escaping from the noose in this one! 256K (Update review 8/90) (Disk #87)

WORD GALLERY. Help your child learn to read with this colorful program that presents pictures and words to match. It's fun to use, has four levels, the last with a missing letter for the child to fill in for beginning spelling. 256K (Reviewed 4/91) (Disk #125).

MATH & LOGIC GAMES. Designed for kids in Grades K-6, but fun for kids of all ages. Six different games can be played against the computer, or with another human. Each game teaches a different logic and/or math skill. (Reviewed 5/91) 256K required. (Disk #126)

Games

ADVENTUREWARE. Six different text adventures with titles like "Island of Mystery," "Terror in the Ice Caverns," and "Moon Mountain Adventure," all test your wits and take you to strange mysterious places. 128K (disk #14)

ARCADE GAMES. Includes Kong, Pango, PC-Golf, Pyramid and other exciting, colorful games for hours of fun. 128K. (Disk #30)

BOARD GAMES. Eleven different games on one disk! Hours of fun with Monopoly, Yahtzee, Cribbage, Backgammon, Othello, and others. All run great on your PCjr! 128K. Need Cartridge BASIC (Disk #31)

BUSHIDO. Test your skills in martial arts combat. Fighters kick, spin, duck, punch, etc. Requires 256K and keyboard with function keys (Disk #16)

CASTAWAY/S. AMERICAN TREK. Test your survival skills as the survivor of a shipwreck in the South Pacific. Or as an explorer of South America. Two novice text adventures from Jim Button. Ages 12 and up. 128K. (Disk #53)

An Inexpensive Way to Try C on Jr

Linking the object code works about the same way as compiling. On a dual floppy computer you have to have the linker and its library files on one disk and the compiled program along with header files and files with external functions on the second disk. If you have a hard disk, compiling and linking can be combined into one step.

Power C comes with its files in a compressed format on two 5.25" disks (You can get 3.5" disks also.), and an install program unpacks the files onto floppy disks, or onto a hard disk if you have one. Actually, the program is probably a little easier to install and to use on a hard disk. The install program isn't quite right for a 360K byte floppy drive computer. It tries to put too many files onto one of the disks, gives a data reading error, and ends the install program. I thought that there was something wrong with my drive B, until I noticed that the disk was full. To get around this problem I used five floppy disks instead of the four that Mix Software thinks you need.

Mix Software documentation says that the install program puts everything you need for compiling on the first disk, everything for linking on the second disk, example programs and header files on the third disk, and Library files for small and large memory model programs on the fourth disk. In fact though, there are too many files to fit on the second disk, so you need to place what the install program thinks should be on one disk onto two disks. Then you have to rearrange the files that the install program places on these two disks so that all of the linker files are on a single disk (The PCL.EXE program and six files with .MIX extensions.). For linking you don't need the MIX.EXE program and a couple of others that the install program places on the second disk.

The documentation that comes with the Power C compiler is so-so. The manual, a 663 page paperback, is pretty good, but explanations as to how to use compiler and linker are minimal, and some support and utility programs included with the product are not even mentioned in the documentation. Another example of their lack of completeness is that both the compiler and the linker will accept paths in the filename, but the Power C manual doesn't say that they do. Instead, they go into a detailed explanation on to how to modify your AUTOEXEC.BAT file (Which you probably do not want to do.) to accept paths.

Good Tutorial In Manual

The manual contains a tutorial that is a good introduction to the C programming language, although it would probably help if you already know something about computer programming languages. The tutorial assumes that you already know what things like strings, and integers and variables are. Another portion of the manual contains a fairly detailed reference section listing the rules of C operators, expressions, functions, etc. With the information contained in these two sections of the Power C manual, you can begin to write basic C programs, but to advance to intermediate level programming you will probably need to obtain additional books about C.

The bulk of the manual contains descriptions of functions used in Power C's library. The descriptions and examples of the functions in the Power C manual are very clear and complete. If you buy Microsoft's $495 C compiler, you have to pay an extra $23 for a Library Reference Manual. Things like this make the Power C package very attractive for someone who may just be interested in finding out what C is all about.

Mix Software claims that Power C is an ANSI compatible C compiler. ANSI is an acronym for the American National Standards Institute, an industry supported organization that publishes standards on just about everything from steel piping to computer programming languages. I am not certain that the Power C compiler actu-

---

"With a minimum investment you can get a C compiler that will work fine on PCjr."

---

ally meets all of the criteria of the ANSI standard on the C programming language, but it probably doesn't make much difference to most of us. It is fairly difficult to confirm that a compiler is fully ANSI standard, and some very expensive C compilers have minor discrepancies with the ANSI standard.

If the source code for a program contains only ANSI functions the program will compile and link on any version of C - Borland's, Microsoft's, Zortech's, or Power C. But the ANSI standard functions are limited, especially in screen output functions, so C compilers supply functions beyond the ANSI standard and naturally they often do not work with competitor's compilers. Power C, for example, has a function to clear the screen named clrscrn. Borland has a function to do the same thing but it is named clrscr and if your source code contains a clrscr function it will not compile with Power C. This works against the portability feature of C, but it is not a major concern. You can do anything with the ANSI functions that you need to do (although it is more work than using the extra functions) and it will work with any ANSI C compiler.

Several Graphic Functions

Power C includes quite a few graphic functions so that your programs can draw lines and circles, and so forth in colors and filled with patterns if you want. Of course these functions are not likely to be portable so hard-core C programmers will want to write their own functions for graphics. Programs can be compiled so that

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they utilize a 8087 math coprocessor (The compiler itself neither needs or uses a math coprocessor.).

Do not think that just because Power C is cheap, it is a watered down, toy compilier. The Power C compiler handles programs within three different memory models - the small, the medium, and the large memory model. These terms, which come from Intel, have to do with how programs address data and functions. Programs using the large memory model can handle an unlimited amount of code (the program instruction steps) and data, although there are some other restrictions.

The largest program size - the high memory model - is not supported by Power C, but it is not likely that any of us would ever be interested in, or capable of, writing a program that large. In actuality, most of your programs will probably use the small memory model, which is the fastest running and most efficient model, in which code and data each fits in a separate 64K block of memory. For comparison: Turbo Pascal through Version 3 used only the tiny memory model which is the .COM format and in which code and data combined cannot exceed 64K.

What's So Great About C?

When Lotus developed Version 3.0 of 1-2-3 they abandoned assembly language and completely rewrote the program using C, and Microsoft now uses C to write most of the supplemental and utility programs for DOS. What is there about C that makes it the language used by almost every professional programmer? The reasons can be summed up in two words - portability and efficiency.

Portability means that the source code (which is what we usually call the "program") for C programs can used, with very little modification, on a wide variety of computers -ranging from mainframes to personal computers. Efficiency means that the compiler transforms the source code into a relatively small, fast running program.

Computers don't understand C, just like they don't understand BASIC or Pascal. They only understand machine language, which is a series of ones and zeros. The compiler for any language converts the source code into machine language, and C has certain operators and expressions that ensures the machine language instructions doesn't have extra steps or cause operations to be done in a roundabout way. Assembly language makes programs with the most efficient set of machine language instructions, but because assembly language uses instructions specific to a particular microprocessor or central processing unit it is one of the least portable languages.

To give you a little flavor of C, Figure 1 shows fragments of programs written in Cassette BASIC (which is built into every PCjr), Pascal, C, and assembly language. These routines all do the same thing. They initialize a variable named NUM to a value of 5, and then each goes through a loop ten times, adding one to NUM and printing the result each time through the loop. You will notice that

FIGURE 1

An Incrementing Loop in Four Computer Languages

BASIC:
```
100   LET NUM=5 110   FOR KOUNT=1 TO 10
120   LET NUM=NUM+1 130   PRINT NUM 140
NEXT KOUNT
```

Pascal:
```
Num := 5; For Kount = 1 to 10 do begin
Num := Num + 1; WriteLn(Num) end;
```

C:
```
for (num=5,kount=1 ; kount<=10;
kount++,num++) printf(%d\n, num);
```

Intel Assembler:
```
MOV CX,10 MOV DX,5 next: ADD DX,1 CALL
Print_Num CALL New_Line LOOP next
```

with C, the operation becomes more cryptic.

C is not an easy language to master. It is easy to write simple programs in C, but C does a lot of things with pointers and with memory addresses which require a significant investment in time (and often in money for books and classes) to learn. C will also let you get by with things that other languages won't. As a result, your program may compile without complaint or error messages but it will not do what you intended for it to do.

There is a lot more that we could say about the C language, but we have already answered the question as to why it is so popular. For professional programmers it offers power and flexibility, and for the rest of us it offers a challenge.

Mix Software sells a number of other C products at very reasonable prices. For another $19.95 you can get a debugger to trace your way through programs in order to see how they work or to see why they don't work. They also have, for another $19.95, a database toolchest so that you can write your own customized database management programs. I haven't tried these programs, but the system requirements are the same as for the Power C compiler so I would think that they would work on a PCjr, and they have a money back guarantee.

If you want to see what C is all about you cannot go wrong with the Power C compiler from Mix Software. With a minimum investment in money you can get a C compiler that will work fine on your PCjr and is powerful enough that you will not soon outgrow it. About the only thing else to say is to give you the toll free phone number for Mix Software. It is 1-800-333-0330.

Telix Offers Telecommunication Power And Ease of Use

By Dorothy A. DeBisschop

Telix is an easy-to-use modem program which offers almost any advanced feature you can think of. The program allows:

* powerful multiple dialing directories, with up to 1000 entries each. Each entry includes the phone number and communications parameters and may invoke an automatic procedure customized for that particular phone.
* automatic redialing for hard-to-reach numbers.
* DEC VT102 and VT52 terminal emulation with user definable keys.
* extensive script language for automated logons and other complicated functions. Included with the program is one SALT script language which sets up Telix in Host Mode to act as a mini-BBS.
* access to DOS through DOS shell and DOS Command-line options with full path support.
* A Host Mode with file transfers, operator paging, a Remote DOS shell, and two access levels.
* A Chat Mode, keyboard macros, a scroll-back buffer, session capture, usage log, and a translate table,

We have added Telix v3.12 to the jrNewsletter Software Store.

Supports Wide Variety of Protocols

Telix's strongest point, in comparison to other telecommunications programs available for the PCjr, is the wide range of built-in file transfer protocols. File transfer protocols set the ground the rules when sending files from one place to another. Among those included in Telix are: Zmodem, Compuserve Quick B, Xmodem, Xmodem-1k, Xmodem-1k-g, Ymodem (TRUE), Ymodem-g, Kermit, SEAlink, Telink, Modem7, and ASCII. Each of these formats is described in brief below:

ASCII -in an ASCII transfer, it is as if the sender is actually typing the characters and the receiver is just recording them. There is no form of error detection used. Usually only ASCII files can be sent in this way, as binary files contain characters which would foul up the screen.

Kermit - The Kermit protocol was developed to make it easier for computers of different types to send files to each other. Almost any computer using Kermit can be set up to send files to another computer using Kermit (the same is true of Zmodem).

Xmodem - This is the most popular protocol in use today, but it is slowly being replaced by quicker and more reliable protocols. Xmodem sends files in blocks of 128 characters at a time. When the receiving computer is satisfied that the block has arrived intact, it signals so and waits for the next block. Error checking is a checksum or a more sophisticated Cyclic Redundancy Check. Telix

supports both and will automatically use the right one. During a download, Telix will attempt to use the CRC, but will switch to checksum if it seems the host does not support CRC. The Xmodem protocol needs a setup of no parity, 8 data bits, and 1 stop bit. If your communications parameters are different from these when you start an Xmodem transfer, Telix will switch to the required setup for the transfer, and back to the original setup after it is finished.

Xmodem-1k - This is a small variation of the above that uses blocks that are 1 Kilobyte (1024 bytes) in size.

Xmodem-1k-g - This related protocol is meant for error-free channels such as error correcting modems or null modem cable links between two computers. It achieves great speed by sending blocks one after another without waiting for acknowledgement from the receiver. If you want to hook two computers together with a nullmodem and cable, this is a good choice.

SEAlink -SEAlink is an advanced version of Xmodem developed by System Enhancement Associates. SEAlink is 15 to 25 percent faster than regular Xmodem. SEAlink passes a file's name, size, and date when transferring it, and can be used to send more than one file at a time.

Ymodem - This protocol is a variation on Xmodem, which allows for multiple files to be sent per transfer. While transferring files, it keeps the correct name, size, and date, and may use 128 or 1024 byte block sizes.

Ymodem-g - This protocol is a variation on the above, which achieves very high transfer rates by sending blocks one after another without waiting for acknowledgement. This however means than an error-free link such as an error-correcting modem or null modem cable between two computers is needed. If an error is detected by the receiver, the transfer is aborted.

Telink - This protocol is mainly found on Fido bbs systems. It is basically the Xmodem protocol using CRC checking with an extra block sent ahead of the file telling its name, size, and date. This protocol also allows more than one file to be sent at a time.

Modem7 -Modem7 is a close cousin to Xmodem that passes the filename before starting the transfer, thus taking away some of the user's work. It is common on CP/M systems and allows more than one file to be sent at a time.

Compuserve Quick B - This protocol is used only on the Compuserve Information Service. It is quite fast and specially suited for the networks used in accessing CIS,
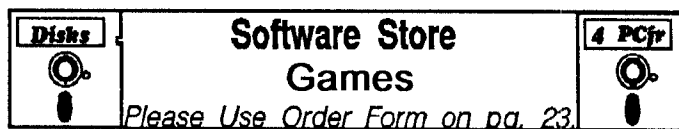
which have large turnaround delays. Unless errors are detected, data is being sent at all times. A CIS Quick B transfer is totally controlled by Compuserve. After telling CIS what file(s) to send, the user does nothing. Telix, in terminal mode, then detects the command from CIS which tells it to start the transfer.

Zmodem - This advanced protocol is very fast and incredibly reliable, and offers many features. Zmodem can transfer a group of files in one batch, and keeps the exact file sizes and dates. Zmodem can detect and recover from errors quickly, and can resume an interrupted transfer at a later time. This feature, called Crash Recovery, may be toggled in the 'Protocol options' page of the Configuration Menu. Zmodem is also very well suited for satellite links and packet switched networks.

Which One to Use

When both sides of the connection only support one protocol, then obviously that is the one to use, no matter what its deficiencies. Otherwise some protocols are a better choice than others. On Compuserve, CIS Quick B should be used. For direct-connect transfers over a serial cable, Ymodem-g and Xmodem-1k-g are the fastest. However, for most purposes, Zmodem is the best all around protocol. It is very fast and very reliable.

ZModem transfers are especially valuable when paying for connect time or for long-distance calls. If your transfer should be aborted, just log back onto the BBs, and request the same file. Telix will automatically resume the transfer where it left off. This saves you the cost of repeated transfer of that portion you received in the first attempt. Telix offers automated Zmodem downloads. It automatically detects when a BBS is sending a file by Zmodem, pops up the file transfer window and begins downloading.

After Zmodem, Ymodem, SEAlink, and Xmodem-1k are quite fast and pretty reliable. The last choices would be Xmodem and its close cousins Telink and Modem7. ASCII transfers are suitable only for text files and do not perform any error detection or correction, so they are to be avoided if possible.

What if I want to use another protocol? Telix includes all the commonly used transfer protocols, but if you have a need for another, it can be added to the program. Telix supports up to four external protocols which can be added to the menu and run through the main program.

Telix runs on an PCjr with one hard drive and one floppy drive, or two floppy drives, and with at least 180k of free memory. (Memory available after DOS has been loaded.) For a few functions, such as the DOS Shell, more memory is helpful.

If you want to get the most out of your modem, give Telix a try. We think you'll enjoy its power and ease-of-use. Telix comes in a three-disk set, Disk Set #4 in the Software Store.

COMPUTER JOKER. Disk full of jokes, wisdom, and visual tricks to play on your computing friends. 128K ok (Disk #64)

DOUBLE TROUBLE. Two of the most challenging, highest quality arcade style games we've seen -- Amazing Mazes and Willy the Worm. Ten different mazes and five levels of play will tie your brain in knots. And Willy, who is the fastest, jumpingest worm you'll ever see, will beat you for sure! You can even modify Willy to give yourself more (or less) trouble. 128K ok. (Disk #68)

DUNGEONS & WARS. In Dungeon Quest you can choose to be a dwarf, elf, magic-user, fighter or other type of character. You select your strengths and weapons, too. Then you enter the dangerous dungeons on your Quest. Thermonuclear War pits the US vs. the Soviets in a very real demonstration of what a nuclear war might be like. Combat is a strategic battle on the ground. 128K ok. (Disk #9)

DUOTRIS. Two great Tetris-like games on one disk. Similar to the popular Russian strategy game, both of the versions add new twists of their own. Written in Turbo Pascal, both are high quality games. 128K ok (Reviewed 8/90) (Disk #116)

GALAXY. One of the easiest to use word processors we've ever seen, Galaxy has all the features you need to write letters and do most word processing. It has many, but not all, advanced features. Its strength is its simplicity, with help menus always ready to assist you. You probably won't even have to read the manual. 128K ok. (Disk #69)

GAMES I. An assortment of games for hours of fun and excitement. Includes Spacewar, Airtrax, Life, Wumpus, Wizard and more. All good with 128K. Need Cartridge BASIC (Disk #8)

GAMES II. A wild bunch of games to test your wits and skills. Includes Slither, Xwing, Torpedo, ABM2 and Overeact, where you are in charge of a nuclear plant. 128K. Need Cartridge BASIC (Disk #34)

GAMES III. Kingdom of Kroz, an award-winning arcade action game. Go-Moku, a challenging Japanese strategy game, also known as Pente. Zigsaw, the first really good on screen simulation of a jigsaw puzzle. All three on one disk. 256K Reviewed 12/89 (Disk #101)

GAMES IV. Turbo-Car tests your skills at driving a fast car on a two lane highway. Can you keep from crashing? Return to Kroz is a colorful, exciting arcade-strategy sequel to Kingdom of Kroz on Games III. Trek Trivia tests and expands your knowledge of Star Trek. Three great games on one disk! 256K Reviewed 2/90 (Disk #106)

(More Games on Page 18)

The PC/MS-DOS Environment Space

by Glenn J. Wiorek
Chicago Computer Society

Many people often ask about the DOS environment and its related variables. What does it do, how can it be used, and what does it offer? are just a few of the questions people ask. Part of the mystery behind the DOS environment is the lack of, or slim coverage of it by PC/MS-DOS manuals and books. I will try to gather all this information together while explaining the environment and its uses. Along the way I will cover some commands you can use to control or view the environment. Perhaps this will help you find new ways to make DOS more productive and easier to use.

The environment is a special memory area or buffer reserved by DOS. This space is used by DOS as an area to save configuration strings called environment variables. These variables describe the current setup or environment to the command processor (COMMAND.COM).

Both DOS and other programs can use these variables as defaults or, in some cases, even change them. How does any of this affect a user? Well, even if you never make use of the environment space, it's still working for you. Some variables such as COMSPEC and PROMPT are set by DOS at boot time and maintained by it. Others, such as PATH, may also be set; depending on who set up your computer, or what programs you have installed recently.

Finding out what is defined in the current environment is very easy, just type "SET" at the DOS prompt. The SET command can also be used to create new variable or assign different values to old ones. Another command for viewing or changing a part of the environment is the PATH command. PATH can be used to set the path (directories) that DOS will search when looking for commands typed at the prompt. Both commands are internal (built into COMMAND.COM) so they are always there when you need them. For example, on my machine, typing PATH, prints the path listed in the box below.

This shows that DOS will search my DOS, BIN, USR\BIN, ROOT and TURBO and PIBTERM directories on my C partition and the BIN, DOS and MS directories on my D partition, all after searching the current directory for a file.

Typing SET at the prompt on my machine causes DOS to print out the set listed below. Looks both impressive and confusing, but it's not, once you have spent some time with environment variables. PROMPT=PG means to display the drive and current directory and the ">" as my DOS command line prompt.

TMP=C:\TMP is used by many programs as a scratch area to write out temporary files. Compilers, shells, and editors are just a few of the programs that will often use this setting. In fact, setting this to a ram drive will greatly speed up many programs.

The INCLUDE and LIB variables are also used by many compilers. The compiler looks at these variables to find out where to look for needed files. Some of these are libraries, headers and include files.

SHTMP is used by POLYSHELL, same as TMP, and it looks for the TMP variable if SHTMP is undefined.

PIBTERM tells my communication program where to find its support files. INIT tells the Microsoft editor where its configuration files are and CL defines common compiler switches for the Micro- soft C compiler driver.

All the above variables are set-up in my AUTOEXEC.BAT FILE, but can be set on the fly from the DOS prompt. Some were added by me and others where added by various install programs. All but the PATH variable were assigned values with SET.

For example the command: SET TMP=C:\TMP

```
                          PATH:
PATH=C:\DOS;C:\BIN;C:\USR\BIN;C:\;D:\BIN;D:\DOS;D:\MS;C:\TURBO;C:\PIBTERM;


                          SET:
PROMPT=$P$G
PATH=C:\DOS;C:\BIN;C:\USR\BIN;C:\;D:\BIN;D:\DOS;D:\MS;C:\TURBO;C:\PIBTERM;
TMP=C:\TMP
COMSPEC=C:\COMMAND.COM
SHTMP=C:\TMP
PIPTERM=C:\PIBTERM
LIB=D:\LIB
INCLUDE=D:\INCLUDE;
INIT=D:\MS\SOURCE\ME\INI;
CL=-DMSC -DLINT ARGS -W3
```

creates the environment variable TMP and assigns it the string C:\TMP. You can type the command in lower or upper case because DOS converts it to upper case for you. Be aware, though, that you cannot have any spaces between the variable, "=" sign, or assignment string.

The PATH variables are a special case and can be assigned a value with either SET or PATH, though it is recommended that you use the PATH command itself, because early versions of DOS had a bug in the SET command and wouldn't always convert the string to upper case. This seemed to only occur when setting the path. Using
SET PATH=c:\dos
would not always work, while
PATH=c:\dos
would.

Variables can also be unassigned by giving the name without any assignment string. For example,
SET TMP=
would undefine the TMP variable. It doesn't remove the variable itself, just its current value. One of the nicer things about environment variables is that you can refer to them in batch files by the %varname% notation. This comes in handy if you need to have directories added to the path occasionally.
LIB=C:\MYDIR;%PATH%
would add the directory MYDIR to the LIB search path without changing the rest of the LIB string or forcing you to type the whole string over. You can control if the new value gets added to the front of the variable value, or the end, by placing the %variablename% either at the front, or back, of the assignment (SET) command.

Also, most software houses now use this method to add to your path without destroying the current settings. Anyone who has had their AUTOEXEC.BAT destroyed by unthinking programs, can appreciate this. WARNING: The %variablename% notation only works within BATCH FILES.

For example, typing
PATH=%PATH%;C:\MYDIR;
at the DOS prompt would wipe out your current path and set it to %PATH%;C:\MYDIR;. This is just a word of caution when trying out the commands.

Another use of the % notation would be in setting up a generic batch file, perhaps for your compiler. For example, writing a batch file called COMPILE.BAT that contained this line could be used to compile any C file to an object module with MSC.
CL /c /Za /W3 %filename%

To use it, you would set up the environment variable by giving the command
set filename=foo.c
at the command line. Then running the batch file compile

would compile the file FOO.C. Any time you wanted to compile a different file, you just use SET again. This is a little easier than using the command line %1 batch file notation. With the environment variable you only need type compile at the DOS prompt in- stead of compile FOO.C. It saves you a bit of typing if your fingers seem to mix up keystrokes like mine do.

By default, the environment size is 160 bytes for DOS versions 3.3 & 3.2, and 128 bytes for earlier versions, but its size can be changed in different varying ranges depending on the version of DOS you use. DOS 3.2 & 3.3 can vary 160 to 32,768 bytes and DOS 3.1 can vary from 12 to 62 paragraphs (192 to 992 bytes).

Normally you don't have to worry about the environment size because DOS will expand it as needed. Unfortunately, DOS cannot expand the environment space if you use TSR's or any of the DOS resident commands, such as MODE, GRAPHICS or PRINT. Loading any of the previous will lock the environment space size at its current size. Since you can control its size (DOS 3.0 and up), this restriction is not as bad as it would seem.

Users of DOS 2.0 either have to define all their environment strings before loading resident programs (your AUTOEXEC.BAT is a good place), or use a program such as Microsoft's setenv to alter its size.

With DOS 3.2 and 3.3, you can increase the environment with the SHELL config.sys configuration command. Adding
SHELL=command.com /p/e:480
would increase your environment space to 480 bytes. The command is slightly different under DOS 3.1 since the /e switch expects the size in paragraphs (16 bytes), so
SHELL=command.com /p/e:30
would increase the environment space to 480 bytes (480/16 = 30).

Programmers can also take advantage of environment variables to make running their applications a little easier. Most languages provide routines to search the environment for defined variables. Following are some C, Turbo Pascal, Turbo Basic and Quick Basic routines to show you how to access the environment variables.

You can also change the environment while in your program -- very useful when shelling out to DOS. Note that the changes are kept only until your program exits to DOS.

Unlike UNIX and XENIX, MS-DOS has no export environment command. BASIC uses ENVIRON "variable=value". Turbo C, Microsoft C, and most UNIX C compilers use putenv("variable=value) . Also ANSI C does not define putenv(), only getenv(). Turbo Pascal doesn't offer any function to change the environment.

Well, that covers most of what I know and could find out about the DOS environment. I hope you will find it of some use, be it as either an end user or a programmer.

New Calendar Software Makes Planning Simple

One day, recently, we received a copy of Calendar Mate V4.0 in the mail from the author, Rick Hawkes. He said a PCjr user was a registered user of his shareware program and suggested that he send a copy to us for our review.

We tried it out and found it to be significantly better than the calendar program we already have in our Software Store. So here it is, folks--a new, well designed, easy to use calendar maker for you. It now replaces Calendar Keeper, and is the new Disk #115 in the jr Newsletter Software Store.

Calendar Mate version 4.0 is a full featured program designed to create personalized calendars. The user defines events to the program and it will display them on the calendars when printed. There are three types of calendars that can be printed - a monthly block calendar, a one page yearly calendar and a daily appointment calendar/scheduler. The monthly calendar can display up to three events per day and any of the calendars can be printed in English, French, German or Spanish.

In addition to the attractive printed calendars, Calendar Mate Version 4 can handle different types of repeating events. Simple intervals such as 'yearly' or 'weekly' are a snap, and it can also do '3rd Monday of the month' or 'Wed-Fri' types of events. Defining events to the system is a simple task. Much effort has been invested in making the program intuitive and user friendly. There is context sensitive help available anywhere in the program.

Calendar Mate is designed to help you keep track of important events. Many homes have a central calendar with everything from dental appointments to birthdays to PTA meetings marked on them. With Calendar Mate, you can enter these events into the database and print off a calendar to put up on your wall.

Calendar Mate's strength lies in its ability to handle repeating events. You can enter your father's birthday into the database, specify that it is to repeat on a yearly basis and Presto! Every year, your father's birthday will be shown on the calendar.

What if you have to work in the church nursery on the 3rd Sunday of the month or if you have a reunion with a friend on the 2nd Wednesday in September? What if you have a darts game scheduled fortnightly? No problem! Calendar Mate can handle repeating events easily.

Calendar Mate is extremely flexible. You can delete or reschedule a specific occurrence of a repeating event without affecting other dates that the event falls on. There are no cumbersome codes to learn. You can define events in plain English. You can specify the date format -- whether 05/12/91 means May 12, 1991 or December 5, 1991.

As well as the simplicity and ease of use built into the program there are several powerful features including...
- Prints daily, monthly and yearly calendars.
- Simple installation procedure.
- Automatic computation of Easter and lunar cycles.
- Mouse support.
- Calendars can be printed in English, French, German or Spanish.
- Julian dates can optionally be included on monthly calendars.
- Events that repeat on a regular basis can have a single (or several) occurrences rescheduled without affecting the other occurrences of the event.
- Future dates for a repeating event can be displayed

Calendar Mate runs well on PCjrs with at least 512K of memory. To order, please select Disk #115 on the order form on page 23.

Questions and Answers

(Continued from page 4)

your jr. The speed-up board from PC Enterprises and others speeds up the clock rate of the bus and the CPU. The whole computer then runs faster. Some expansion cars and add-in boards cannot even handle the increased speeds available with this system because the chips cannot refresh, for example, in the shorter times required. The MESA board, on the other hand, replaces the 8088 CPU with an 80286 CPU which can run at faster speeds, AND the speed for the rest of the memory on the bus is also optimized for the capability of the 80286 CPU action with this board. In the first case, the machine is simply running faster but with the MESA it is running faster and with a quicker CPU.

There is no reason to try to put the two together because the speed of the bus etc. is already controlled by the MESA board just the same as the speed is controlled by the PC Enterprises board. There is NO add or multiplication factor and the speeds are NOT relative. Here's an analogy to think about for a moment: 50 MPH in an automobile is exactly the same as 50 MPH in TWO automobiles, neither changes to 100 MPH. Only if they are moving in OPPOSITE directions will the RELATIVE speed be 100 MPH. Try that kind of thinking with a computer model and the total is 0 MPH (+50 and -50 = 0) Side by side, the two cars doing 50 MPH (or two speed up boards) are still only doing 50 MPH no matter how you cut it. It seems to us that both of these speed-up boards would have to exclude (or cut out) whatever clock crystal may already be installed in order to work properly, anyway.

Q. I am trying to patch Maniac Mansion, the patch involving the DEBUG commands were simple to do. My problem is with the instructions for zapping the check for BIOS Video (Int 10). How do I do this and what does it all mean? S. Woodrow, Indiana PA

A. It is being done for you by the patch. The patch instructions beginning with "1) Rename MANIAC.EXE..." and ending with "3) Rename Maniac.xxx..." are all that are needed for the complete patch. The notes above these typing instructions are an explanation of what you are doing with DEBUG! You are cancelling the call to check for the ID of the machine and this will allow the program to run "even if it is a jr." The other information you see there tells you that you are changing the initialization from direct access of the standard PC Video to the proper, built-in (Int 10) BIOS video access for graphics on IBM machines.

It is always astonishing to us to find programmers using the direct access method, even though IBM recommends against it, AND it needs only to be called ONCE in a program; therefore no speed or size advantage! The BIOS method works every time across the whole spectrum of IBM and compatibles, so there is simply NO reason to continue doing this.

Q. I am still having a problem with the Prodigy patch. On disk #56 PCjr PATCHES, the instructions are exactly the same as in the Dec. 1990 issue of the Jr Newsletter. C. Langenhagen, Hingham MA and others with similar problems.

A. The patch does work, so you must be making a mistake somewhere along the line. Without more details, we can't tell you where you went wrong. The best way to use Prodigy of course (as well as many other games and graphics software, is to get the PCjr to Tandy 1000 modification done on your Junior. Then you don't need any patch to run Prodigy V3.1)

By the way, it might be helpful (and prevent the need for these patches and their attendant problems) when you are next on Prodigy to ask the Sysops about producing and distributing software which is compatible with the jr. Remember, you should mention that our Guidelines For Programmers is available to them at any time!

Software Store
Games
Please Use Order Form on pg. 23

GOLF/SAILING. Two great games! The golf game has three courses, user definable club ranges and a swing control that determines whether you hit a slice, hook or straight shot. Three nine hole courses (Novice, Pro, and Sadistic). In the other game, you try to sail the three legs of the Bermuda Triangle avoiding, if you can, the creeping mists, alien crystals, vortexes and storms. Your boat is equipped with radar, rudder and sail (all of which you control) and an engine for emergencies. 128K ok for sailing. Need 256K for golf. (Disk #47)

MEAN 18 GOLF COURSES. Three excellently designed courses for those who play "Mean 18," the commercial golf game. Disk #79 has Boca Woods North, Boca Woods South, both with especially challenging water holes, and Kearsage Valley, with fall foliage in full color. Disk #80 has TPC of Avenel, TPC of Sawgrass, with massive sand traps and a tough 17th green on an island, and TPC of Woodlands, which may be the most challenging of all. (Disk #79 and #80)

Junior User Loves
Letterperfect and Patient Husband

My subscription to your newsletter started with the October 1986 issue. Since that time and with all your help, both jr. and I have grown quite a lot. Since I am now much better informed, I recently went back and reread most of those newsletters and found a lot of information that means something now, that I had skipped over before.

My jr. now has 640KB (Hotshot), a second disk drive (OOwl), 101 keyboard (PC Enterprises) and a 2400 Zoom modem (Computer show in Norfolk). About a year ago I switched to dos 3.10 and was not able to use BASIC until I discovered (through rereading) PXJREXTRA (on Disk #65). Now BASIC works great, but instead of getting back to DOS by typing "system", one must now type "shell", then to get back o BASIC, type "exit:". It was quite confusing at first because I can't find much documentation on SHELL . The little I did find was in a book published by COMPUTE! in 1984.

I am a "refunder" and keep a rather large file on national food manufacturers, their addresses, UPC numbers, the products each company makes, and their toll free phone numbers. This has been on-going for six year, and is constantly growing and changing. I couldn't find any way to use a database for all of this stuff, so I used Wordperfect jr. As you know, WPJ is limited to about 62K, and my file was outgrowing it fast, so I started looking at better word processors and, since I could no justify the cost of WordPerfect, settled on its spinoff, **LetterPerfect**. It would not install on a one disk system, hence the second disk drive -- I was only looking for an excuse anyway. Then it seemed only right, new software to learn, let's get a new keyboard. It's all made me very happy, and that's what it's all about.

With my new keyboard I should have gotten instructions on how to use it. All those extra keys--and why does it lock up in Number Lock mode and what can I do about it short of rebooting? In NumLock the shifted number keys at the top of the board do not work--I'm memorizing ASCII!-- and none of the grey keys work. Is this normal?

Letterperfect is great, and since I have been using WPJ, very easy to learn because a lot of the commands are the same or similar. There are a lot of differences also, but with the pulldown menus, within a week, I felt right at home. I've had it for about six weeks, and I am still learning new stuff, but it was still an easy transition. Now my largest files will only be limited by disk size. The macros are easy to use, and there are 30 DrawPerfect graphic images included. Public Brand Software has compatible graphics disks, which I have ordered. New software is always exciting (to me), but I think this is one

package that will continue to please for a long, long time.

My modem was installed last summer and with the first phone bill I realized how expensive it could be. Even some of the local BBSs have a toll call number. I soon learned to use only the free ones, except on occasion. My grandson has his computer set in host mode, and calls me, and we have a lot of fun for hours at t time trading files. comparing notes, or just plain foolishment!

The biggest thrill for me was the first few times I downloaded files--it just seemed so wonderful. I was given **ProComm** with my modem, but my grandson set me up with **Telix**. From the very beginning we used Zmodem protocol and had no problems at all. We are, however, having a problem trying to get Telix to recognize a busy signal. Any advice?

My husband is very tolerant of my passion for the computer, pays the phone bills, and supports anything I want to try, bury or do. Aren't I lucky! It also occurs to me, that it's usually the other way around -- that it's the wife who has to be tolerant!

Without jrNewsletter, I am quite sure I would have missed an awful lot. Since everyone else dropped jr, had it not been for you, I would have traded him in on (probably) an inferior machine log ago. Thank you, and please don't ever stop.

Edna Y. Nagle, Portsmouth, VA

EDITOR'S NOTE: The problem of your telecommunications software not recognizing a busy signal sounds like a parameters problem. Your software (any telecommunications program) needs to know exactly what signals your modem will send to the computer in order for it to recognize them. Different modems may send slightly different strings. If your modem is fully Hayes compatible, try selecting the Telix Configuration Menu (Alt O) and editing the Modem and Dialing Settings. Be sure that "BUSY" is listed on the "no-connect: strings segment of the menu. (Telix recognizes up to four no-connect strings. Usually NO CARRIER, BUSY, NO DIAL TONE, and VOICE are used.)

AT is the modem attention code. X1 makes the modem give extended result codes. It is important that if your modem supports a higher 'X' value, you use that instead. For example, on a Hayes 2400, 'X4' enables BUSY signal detection. A full description of this configuration process is found on pages 33 and 34 of the Telix Manual. (Available on Disk Set #4 in the Software Store, page 23.)

If your modem is not fully Hayes compatible, consult your modem manual for information on your signals. Or, if you have a version of ProComm that recognized your modem's busy signal, boot up that program. Check what the modem string settings in ProComm were and try those no-connect messages in the Telix software menu. Hope that solves your problem.

PC-CHESS. Two great chess games on one disk! A full-color, many featured chess program with four levels of play, allows such things as switching sides, setting up the board yourself, validity checking, en passant, etc. The other works on color or monochrome, has window showing options it considers before moving, adjustable difficulty level -- but a powerful opponent at any level. 128K ok for one, 256K for other. (Disk #44)

PHRASE CRAZE. Based on the TV show Wheel of Fortune, you get to be the guest who guesses the mystery phrases and wins piles of money! The wheel spins to select the amount of money you win for correct guesses. It gets harder with each round you play. You can add your own phrases to this game or try to guess the ones provided on the disk. Lot of fun for adults as well as older kids. 128K. (Disk #46)

PINBALL RALLY. A colorful collection of amazingly realistic pinball games. Using the Shift keys as flippers, the games get more and more complex until you get to Twilight Zone, the hardest one of all. Runs on 128K. (Disk #10)

PLAYER'S CHOICE. Six different card games, some easy, some hard, but all excellent. Youngsters can have fun playing Memory or Even-Out, which are quite easy to master. Blackjack is hard to beat, and Poker, which has the ability to modify its play in response to your methods, is a real challenge. Also two fine versions of Solitaire, one with great graphics. Some need 256K. (Disk #78)

REFLEX POINT. Patterned on the TV show Robotech, this game follows the show's storyline, with the Freedom Fighters trying to reach the Reflex Point and destroy the evil Invid Prince. 128K ok. (Disk #12)

SCRABBLE. At last, an excellent Scrabble game that runs in 16 colors on PCjrs! Plays just like the board game. Expandable dictionary checks words. Keeps track of all premium score squares and scores for up to four players. Also contains WORDWHIZ, a nice vocabulary building game. 256K (Reviewed 5/90) (Disk #113)

STAY ALIVE !!! Three games that require all your wits to stay alive. Can you avoid the terrible nightmares and reach the highest level in Dr. Sleep? Or fight off the alien hordes on the Planet Iskib? Bet you can't shoot down the clever enemy pilots in Sopwith. If you can, you deserve a medal! 256K (Disk #89)

SUPER BOARD GAMES. Excellent versions of two popular board games Monopoly and Risk. Very much like the board versions, except your computer keeps track of everything for you. All you have to do is make the right moves and have fun. 256K. Need Cartridge BASIC (Disk #55)

(More Games on Page 20)

TOMMY'S TRIVIA. Excellent trivia game with 3 ways to play against computer, 2 against human opponent. 2,500 questions in many categories, from entertainment to history. More Q's available. 16 colors on PCjr. Need 256K. (Disk #98)

WAR ON THE SEA. Based on World War II naval battles, this game allows you to command a fleet in seven different campaigns in the Atlantic and Pacific. Not a joystick game, this one will allow you to see whether you have the strategic skills to be an Admiral. 256K (Disk #100)

ZAXXON/GALAXY TREK. Two exciting high tech shoot-em-up games. In Zaxxon you fly through an obstacle course, shooting while you go, up and over walls, and eventually through space. Galaxy Trek makes you the commander of a Star Ship which you maneuver through the universe seeking to destroy a fleet of Megaton warships before they conquer the planets. 128K. (Disk #45)

Especially for Junior

PCJR MUSIC SAMPLER. A collection of classical music "concerts" performed with great precision to produce the highest quality sound you've ever heard on your PCjr. Disk includes a separate program to activate Junior's sound generator before running game software to get highest quality sound. 128K ok (Disk #119)

JR MUSIC MACHINE. If you want to write and play music on your PCjr, this program allows you to do it. Displays music as you write it using jr's 16 colors, and plays music back in three voice harmony. Features allow you to adjust key, tempo, note values, etc. Color Display required. 128K ok. (Disk #62)

THE BEST OF JR NEWSLETTER I. The best and most informative articles from twelve issues of jr Newsletter (June 1986 through May 1987 issues) are contained on this disk. More than 50 articles on compatibility, problem solving, software, maintenance, memory expansion, how-to projects, tips on using DOS, and more! 128K (Disk #54)

THE BEST OF JR NEWSLETTER II. All the major articles and columns from June 1987 through May 1988 issues of jr Newsletter. Subjects cover most aspects of PCjr operations with tips on compatibility, DOS, expanding and speeding up PCjrs, best software, etc. Easy search function finds subjects quickly. 128K ok. (Disk #66)

THE BEST OF JR NEWSLETTER III. Disk contains most of the major articles published in jr Newsletter from the June 1988 issue through May 1989. Articles on compatibility, PCjr hardware and software tips, regular columns, letters from PCjr users, and other informative articles. Utility to search for subjects included. (Disk #91)

BEST OF JR NEWSLETTER IV. For your handy reference, disk has the most informative articles, columns, and tips published in Jr Newsletter from June 1989 through May 1990. Easy to use search utilities provide quick ways to find any subject of interest. 128K ok (Disk #118)

Dos Command Editing
Can Speed Up Your Computing
by Larry I. Schwartz

Many users are aware that pressing the ESC while at the DOS command prompt causes the current command line to be erased. However, most users don't know that there are a number of editing functions built into DOS for use at the command prompt (or in EDLIN). These are described in the DOS User's Guide, a "spiral " bound book that comes with DOS. In the DOS 3.3 version, see Chapter 2.

Fundamental to the editing process is the fact that DOS uses an input buffer. If you don't clear it, e.g., by pressing ESCape, it contains the last command you typed. We'll call the last command the "line".

For samples, just use the input line "rem abode". "rem" is the "op code" for a "remark", and nothing will happen.

In all of these actions, INSert and DELete work on the remainder of the line in the buffer. Also, you can mix any of the actions on a single line.

F1 - Pressing this key, (Fn-1 on the jr keyboard) or the cursor right key, will play out the last line, one character at a time. Hold it down until you get to the part of the line that you want to change then let go. Now begin typing the remainder of the changed command. After typing the changes, hold down F1 until the rest of the line is played out (or press F3 to play out the rest of the line).

F2 - Pressing F2 and then a character, plays out the line, up to but not including the character. This is useful if you want to play out the line up to a specific character, make some changes, and then play out the rest of the line (perhaps using F3). You can use F2 more than once on a single line.

F3 - Pressing F3 plays out the remaining characters in the line.

F4 - Pressing F4 and then a character does the opposite of F2. It deletes characters from the start of the line but not including the character whose key you pressed. Although not displayed, the line is still in the buffer. You can play it out, optionally making changes, or you can overstrike it, starting with the position of the letter whose key you pressed. You can also use INSert, etc.

F5 - Pressing F5 causes the current line, as displayed, to be placed into the buffer. The command you typed is not executed. You can use this action to place an edited line into the buffer and then continue the editing process.

You should try using these keys; they'll save you a lot of time.

*** PCjr CLASSIFIEDS ***

PCjr - 640K (Tecmar); PCjr Color Display; 3.5" drive internal, 5.25" drive in PC Enterprises expansion chassis (mod allows boot from either); V20 chip, KB, mouse, joystick, combo cartridge, basic cartridge, software and all manuals. Bonus: jr Newsletters since 1988. $550 or best offer (904)287-3434 evenings EST.

JUNIOR STUFF FOR SALE: Tecmar Captain (128K) - $75; jrCadet (384K) -$40; Enhanced 101 keyboard-$75; Ext 2nd drive kit-$100. Also have: modem, joystick, monitor adapter cables and LOTS of Jr specific books. (904)287-3434 evenings EST or send SASE to Gary Inglish, 289 St. Johns River Place Ln, Jacksonville, FL 32259.

PCjr - 640K, jr Hotshot with clock calendar, V20 chip, Tandy mod, PCE jrVideo Cartridge, parallel port, PCjr Color Monitor, DataDesk keyboard + original, DOS 2.1, Cartridge Basic, original manuals and packing, collection of Jr Report and Jr Newsletters + many programs. $500 or best offer Tim, (313)631-4321.

PCjr-768K, two 720K and one 360K floppy disk drives, 30 meg internal hard drive, 130 watts internal power supply, speed board (PC Enterprises), IBM color monitor, enhanced keyboard, Clock/calendar, new motherboard, cartridges (BASIC, Quicksilver, Combo, Configuration Plus.) $800 plus shipping. (718) 529-1528.

Jr parts and upgrades. Low prices on memory expansions, floppy drives, keyboard cords, etc. Buy, sell, trade. Call or write for current list. Elmer Hungate, R.R. #1, Box 324, Dodge Center, MN 55927, 507-374-2795.

File Transfers by Modem

When you consider sending or receiving files electronically by modem, it's useful to know approximately how long the transfer will take. At 1200 baud, files are transferred at about 5,000 bytes/min. The rate will be a bit over one-fourth as great at 300 baud and almost twice as fast at 2400 baud. A disk full of shareware programs that you can buy for three to five dollars will take over an hour to download at 1200 baud. If it's a long distance call, perhaps you should consider mail order.

For Sale 9.54 MHz 640k IBM PCjr w/color monitor. Two drives (one 5.25 and one 3.5). Tandy modification, two joysticks, printer w/parallel printer port & cables. Modem without serial cable. Writing Assistant, Fixed DOS, & extra programs included. Asking $1,100. (201) 821-1162. Ask for Eddie or Ann Schmidt.

PCjr 640K, PCjr color monitor, 2 360K drives, Tecmar JrCaptain and JrCadet, DOS 2.,01, IBM PCjr printer with stand, 2 joy sticks, Koala Pad, Lotus 123, original manuals, V20 microprocessor, BASIC cartridge and others. Internal modem. Excellent condition $495 + shipping. Call Bud at 617-527-2691 (Newton, MA) after 6:30 p.m.

For Sale: 512 KB PCjr - Racore Drive 2+ with DMA, 128 KB PCjr, lots of hardware including jr color monitor, 2 1200 modems, Epson FX-80 printer, jrExcellerator card, IBM speech attachment, tech. ref. manuals and much more. Write Steven Monaco, 114 Bethany Drive, McMurray, PA 15317 for complete item/price list.

For Sale: PCjr, 640K, cartridges, printer, monitor, color TV adapter, joysticks, numeric keypad, manuals, software, many extras. $700.00. (301) 628-7255. Will Ship UPS.

Inexpensive Hard Drive

Paul Rau Consulting has achieved a price breakthrough on hard drives for PCjrs. In June they combined a good price on 20 meg hard drives with the use of recycled PCjr cases and started offering the drives for $299, the lowest price we've seen for PCjr hard drives.

The hard drive package includes a preformatted drive, cable, software and installation instructions. The drive boots from a floppy disk and requires DOS 3.0 or higher to run.

Need Help?

The following disks from the jr News-letter Software Store can help you to get the most out of your junior. To order, see the coupon on page 23.

PCJR AUTOSETUP. A beginner's dream: Just select from a menu to make separate boot disks especially for each type of software you use. Automatically creates the right config.sys and autoexec.bat files for RAM disks, games, word processing, telecommunications and other software to run at maximum power and efficiency on your PCjr. Designed especially those who haven't mastered the art of customizing their computers. This one does it for you! 256K (Disk #99)

JR TOOLKIT V2.0. A collection of 30 upgrades, modifications and repairs. Some easy, some require experience. Includes adding second 5.25" drive (easy) or 3.5" drive (easy), PCjr to Tandy 1000 Mod (harder), power supply upgrade (harder), reset button (harder), V20 speedup chip (easy), how to quiet drives (easy), adjust monitors (easy), plus many others. (Reviewed 3/90 & 6/90) (Disk #110)

JR POWER PACK. A collection of particularly useful programs for PCjr owners. Set up RAM disks, address memory to 736K, turn a joystick into a mouse, set screen colors, keyboard click, scan and search text files, screenblanker, print spooler, and more. 128K. (Disk # 52)

JR POWER PACK II. Disk full of programs to make your PCjr more useful and powerful. Fix compatibility problems, set up ram disks, tiny word processor, set up 3.5" drives, use DOS easily, and more. Need 256K for some, 128K ok for most. (Disk #65)

PCJR COMPATIBILITY DISK V3.5. Lists hundreds of software titles, along with info on how they run (or don't run) on PCjrs. Includes many tips on how to make software PCjr compatible. Powerful search feature finds titles quickly and easily. 128k ok. Updated April, 1990. (Disk #60)

PCJR PATCHES V6.0 Patches to fix software to run on PCjrs. Most enable 16 colors. V6.0 adds patches for 1 on 1, 688 Attack Sub, Battle Chess, Battle Tech, Boxing II, Genius Mouse, Grand Prix, Indiana Jones, Jack Nicklaus, Knight Games, Paperboy, Prodigy (thru V3.1),Shanghai, Silpheed, Sim City, Space Rogue, Steel Thunder, Strip PokerII, Test Drive II, Tetris, The Games (Summer), Ultima IV, plus new patch to stop disk drive spin. Dozens of older patches, too. (Reviewed 2/91) (Disk #56)

jr Newsletter Software Store

The software in the jrNewsletter Software Store is the best public domain and user-supported software for the PCjr we've been able to find. All software has been tested on our PCjrs and is highly recommended. Some of the programs are equal to or better than commercial programs costing hundred of dollars. These are offered for you to try at $5.95 per disk. Some shareware requires additional payment if you continue to use it.

Software Listings In This Issue:

Educational - pages 6, 7, 9
Games - pages 9, 13, 18, 19, 20
Especially for Junior - 20

Disks	Software Store New Releases	4 PCjr
	Please Use Order Form on pg. 23.	

* **NEW** * **SKYGLOBE V2.5.** View a map of the heavens customized for your location, date and time. Maps 10,000 stars, 300 with labels, 89 constellations. Many useful features such as brightness selection, zoom in and out, printing on dot matrix, a "find" feature, and an astounding on-screen demonstration of star and planet movement across the sky. 256K. Reviewed 7/91 (Disk #129)

* **NEW VERSION** * **SHARESPELL V2.2** This update of popular spell checker has 112,000 word dictionary. It checks your word processing documents for spelling errors and replaces with correct spelling. Works fast and has ability to add your own words to dictionary. 384K. Reviewed 7/91 (Disk #94)

* **NEW** * **CALENDAR MATE V4.0** Design and print your own calendars with birthdays, meetings, events, appointments all listed for you. Many features. Easy to use with F1 help key available at all times. Need 512K. Reviewed 7/91 (Disk #115)

* **NEW** * **TELIX V3.12.** Powerful, yet easy-to-use telecommunications program, with variety of built-in transfer protocols. Features Z-Modem--one of the most efficient and reliable transfers available. If you're disconnected while downloading, Z-Modem will pick up where it left off when you next log-on, thus saving connect time and telephone toll charges. Need 180K free memory after loading DOS and either two floppy disks or a floppy disk and a hard drive. Reviewed 7/91 (Disk Set #4)

Please circle the diskette #'s of your choice

SET DISK SETS
1 PC WRITE V3.02 (3 disks-$12)
2 PC CALC PLUS. 512K (2 disks-$10)
3 PRINTMASTER LIBRARY. (2 disks-$10)
4 TELIX V3.12 (3 disks-$12)

 # TITLE
1   PC-WRITE V2.5 (128K)
2a   PC-WRITE V2.7 (256K), Disk 1
2b   PC-WRITE V2.7 (256K), Disk 2
3   PC-FILE III. 128K
4   PC-FILE III. 256K
5   PC-CALC. 128K
6   PC-CALC. 320K
8   GAMES I
9   DUNGEONS & WARS
10   PINBALL RALLY
12   REFLEX POINT
14   ADVENTUREWARE
15   PROCOMM
16   BUSHIDO
17   PC-OUTLINE
18   TYPING INSTRUCTOR
19   3 X 5
20   EQUATOR
21   TIME TRAVEL IN HISTORY
22   PC-DESKTEAM
23   PC-PROMPT
24   PC DOS HELP
25   PC-CHECK MANAGER
26   BATCH FILE UTILITIES
27   MINICALC
28   SUPER UTILITIES
29   MORE SUPER UTILITIES
30   ARCADE GAMES

31   BOARD GAMES
32   PLAY AND LEARN
33   FAMILY HISTORY (128K), single
33A FAMILY HISTORY (256K), need both
34   GAMES II
35   NEW KEY
36   PIANOMAN
37   PC-KEY DRAW
38   PC-KEY DRAW DEMO
39   ORIGAMI
40   DOS 2.1 FIX
41   WORD PROCESSING FOR KIDS
42   MATH FUN!
43   BRAIN BOOSTER
44   PC-CHESS
45   ZAXXON/GALAXY TREK
46   PHRASE CRAZE
47   GOLF/SAILING
48   EARLY LEARNING
49   DOSAMATIC
50   IMAGEPRINT V3
51   PRINT HANDLER
52   JR POWER PACK
53   CASTAWAY/S. AMERICA TREK
54   THE BEST OF JR NEWSLETTER I
55   SUPER BOARD GAMES
56   PCjr PATCHES V.6.0
57   HOME BUDGET MANAGEMENT, 128K
57A HOME BUDGET MANAGEMENT, 256K
58   HOME INVENTORY
59   CHECK PROCESSOR
60   PC-JR COMPATIBILITY DISK, V4.0
61   BOYAN
62   JR MUSIC MACHINE
63   GAMES FOR EARLY LEARNERS
64   COMPUTER JOKER
65   JR POWER PACK II
66   THE BEST OF JR NEWSLETTER II

67   AS-EASY-AS, V.2.05 (256K)
68   DOUBLE TROUBLE
69   GALAXY
70   NAMEPAL
71   CROSSWORD CREATOR V3.30
72   LANGUAGE TEACHER
73   BAKER'S DOZEN
74   MIND READER
75   RAMDISK MASTER
76   PC-STYLE
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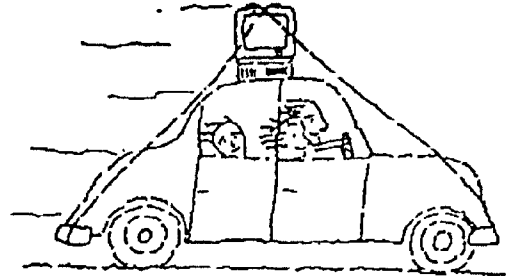
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