jr Newsletter

September, 1990

Favorite Software Cited by Our Readers

Our annual survey of jr Newsletter readers has always included the following section: "Please list what software you use and like best." This provides a way for us to receive information from PCjr users regarding the software they use on their PCjrs. More importantly, it gives us a listing that emphasizes quality — software that not only runs well on PCjrs, but performs so well that at least one PCjr user thought highly enough of it to say they like it "best."

The following list of software titles contains all software listed by readers in this part of the survey.

The wide variety of software here shows how many great software programs are currently being run on PCjrs.

We were especially gratified to see how many of you listed software that you had purchased from the jr Newsletter Software Store. For these programs to be selected as your favorites, in competition with commercial software, is quite a tribute to the quality of shareware.

This listing is obviously not a complete account of all software that is PCjr compatible. There are hundreds of other titles out there that run well on PCjrs. But if you see a title on this list, you can be sure that it not only is PCjr compatible, but that at least one PCjr user considers it one of his or her favorite programs. So if you've been thinking about purchasing a title you see on this list, but have been delaying due to doubts about its compatibility or general quality, you can now be assured of both.

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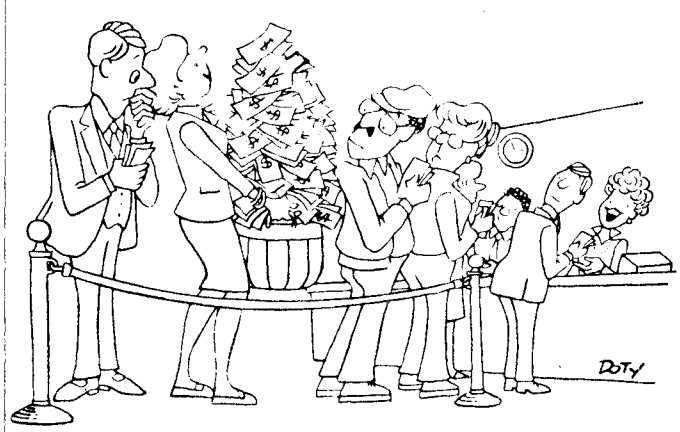
PCjr Lives!



"That's the money she saved by keeping her PCjr"

What Causes PCjr Compatibility Problems?

By John E. Wilson

The IBM computer executives and engineers who sat down in 1982 and 1983 to design the PCjr were not trying to create a clone of the immensely popular IBM PC. Their objective was to create a member of what was to be a family of computers.

The original PC was to continue to be the most popular member of this family; to be used for general business and professional computer needs. For those who had large data bases and needed a computer with a high- capacity hard disk, there was the extended version of the PC - the XT with its whopping 10 Mbyte hard disk and larger power supply.

A transportable PC complete with a built in display was in the works for on-the-go users. The, yet to be announced, Advanced Technology personal computer - the AT - was intended for heavy duty number crunching and graphic applications by scientists and engineers. Junior's place in this family was to be for use as recreation, education, and light-duty computing in homes and schools.

In keeping with these objectives, Junior was given some graphic and some sound capabilities that the other members of the PC family did not have; and to keep costs down (and also to make sure that Junior wouldn't compete with the more expensive members of the family), IBM made some sacrifices in Junior's hardware and expansion capabilities.

As nearly as possible the PCjr was to be compatible

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Beginner's Corner

A GUIDE TO COMPUTER TERMS

(PART II)

HALF DUPLEX: a form of modern communications in which information can be transmitted in only one direction at any time, so that the two communicating devices must take turns. Contrast with full duplex.

HANDSHAKING: refers to the manner in which the flow of data between two devices is controlled.

HARDWARE: the physical equipment that makes up a computer, including the system board, the keyboard, the display, and add on cards.

HEXADECIMAL (HEX): refers to base 16, a numeric notation in which there are 16 digits, 0 through 9 and A through F.

HIGH-LEVEL LANGUAGE: a programming language which lets you direct the computer with easy-to-use, English-like instructions, rather than with the machine language that the processor understands directly.

I/O: input/output. Reception of information by and transmission of information from a computer.

INITIALIZE: often used to describe the preparation of a diskette for use by DOS. Sometimes used interchangeably with the term format.

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INPUT: acceptance of information by the CPU from an external source such as a keyboard, diskette drive, or modem.

INTEGER: a whole number. In BASIC, a number with no fractional part in the range - 32768 to + 32767, requiring two bytes of storage. Contrast with single precision and double precision.

INTERFACE: circuitry which lets the PCjr connect with an attached device such as a printer, often in the form of an add-on card. Such cards 'are known as interface cards.

INTERPRETER: a program which executes source programs written in some high-level languages without the need for the source program to be compiled and linked as separate steps. Contrast with compiler.

K: short for 1024, often used to refer to bytes, so that 1K of memory is 1024 bytes.

KEYWORD: a word recognized by BASIC as one of its reserved set of instructions.

KILOBYTE: 1024 bytes, or 1K bytes. Often written as Kb.

LANGUAGE: like a spoken language, a computer language consists of a vocabulary and a set of rules for communicating to the computer the instructions and data necessary for performing tasks. All programs are written in one computer language or another.

LATCH: hardware which holds a single value until it is used or replaced.

LED: an acronym for Light-Emitting Diode. An electronic device which emits light, usually a red light which indi-

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jr Newsletter is published monthly by Crider Associates, P.O. Box 163, Southbury, CT 06488. Tom Crider, Editor. Subscriptions are $20 per year. Although every attempt has been made to insure that statements contained in this publication are accurate, neither the publisher, editor, or writers assume any responsibility for their accuracy. PCjr is a trademark of the International Business Machine Corp., which has no connection with this publication.

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. My jr presently has two 360 K floppy drives, the second from PC Enterprises. I have the opportunity to purchase a Miniscribe hard drive of 40 MB, half-height, 61 ms and no controller card. Will this fit in my case in either floppy location? What other cables or controller are necessary, or does the jr have a floppy/hard drive controller?

G. Shaw, Loveland, CO

A. Jr's standard controller card is for a single floppy drive only. All additional drives, either floppy or hard, will require a re-wired controller card, a replacement card or a separate dedicated card. There are different methods to interface drives to computers and they are, of course, incompatible with each other. For hard drives for the jr, the general approach has been to use a standard SCSI interface at the BUS and to use a SCSI drive. If, and only if, the Miniscribe is set up as a SCSI drive you could get an interface and cables from one of our advertisers which plugs into the jr (usually the modem or existing floppy card slot) and run the connections to the hard drive. Find out what the physical size of the Miniscribe is, especially from front-to-back; some external floppy drive housings which contain the required power supply may be too short. There are some half-height hard drives which are dimensioned to match a standard floppy drive and are meant as direct replacements. You will have to determine if that particular Miniscribe model will fit all these conditions yourself. We have not done any of this, but if there are any readers who have please let us know of the outcome.

Q. Have an intermittent problem; during boot when the B: drive is recognized, if there is a raucous noise the boot finishes up but only the A: drive is recognized. If there is no awful noise then both drives are recognized and usable. On those days when the B: drive is not recognized, no matter how many times I try to boot it just doesn't work... next day it may be fine. I physically switched drives and whichever one is B: acts the same. The connections have all been cleaned to no avail. Any suggestions?

R. R. Moersch, Holland MI

A. This happened to us and we found that our keyboard cable had become faulty! This was right at the entrance to the black cigar-like cable connector. It drove us nuts for a while. Any cable or connection anywhere in the jr. which is intermittent or erratic during or after boot-up could be the culprit. You may also find that the alignment of the drive which wrote the config.sys file or one of the files which it uses during boot-up could have been a bit out of specification. This would mean that on warm days both drives might read the slightly out of alignment boot disk correctly and on others it could actually mis-read a byte or two, or vice-versa. A freshly made boot disk (not using diskcopy!) usually solves this one. We generally approach intermittent problems as hardware related and almost always find connections somewhere at fault.

Q. Is it possible to start an autoexec.bat file from a floppy boot disk and finish on the hard disk? It seems that after you "cross over" you no longer read the autoexec.bat on the boot disk. If this is possible, how do you do it?

B. Campbell, Liverpool, NY

A. Because we do not have the hard drive boot cartridge we boot from a floppy in A: and wind up on the C: hard drive this way. We have a normal config.sys on the A: drive to recognize memory, floppies, SCSI hard drive, a ramdisk, buffers, and files. Our autoexec.bat has only one line: C:CONTINUE Now, on our C: drive the CONTINUE.BAT has: C: (this immediately changes us to this hard drive) SET PATH=C:\;C:\DOS; etc. (this sets up our path) SET COMSPEC=C:\COMMAND.COM (tell DOS to use the command.com on C:) Date (it won't come up automatically) Time (it won't come up automatically) etc. You get the idea, the a:autoexec.bat simply calls a C:

Questions and Answers

(Continued from page 3)

.BAT file which immediately changes to C: and continue.bat goes on doing what any normal autoexec.bat file would do. This is, of course, much faster because it reads and executes from the hard disk! There is one thing you should know when using DOS 2.1 and that is to be sure NOT to press <Space> or <Enter> after typing CONTINUE in the A:AUTOEXEC.BAT file!! We want the EOF (End Of File) marker right up against the "E" of the word CONTINUE. Use COPY CON to write the autoexec.bat file and just press Fn-6 and THEN press <Enter>. Do this so DOS 2.1 will not try to come back to this .BAT file to find the EOF marker after the statement is executed. DOS versions 3.0 and later allow .BAT files to call other .BAT files all over the place without a hitch.

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Q. I think I understand the concept of RAM drives but don't know how to address it or when I can use it. How can I write to it from within a program or copy files to it or from it, say copy to a floppy? If I download to c:\ while in ProComm can I get the stuff moved so I can save it?

B. Armington, Haddam, CT

A. Here's the scoop on the last part first: We never use VDISK because once it is installed it stays there, hogging memory. Use one of the variable-sized, turn-on turn-off ramdisks available from the Software Store (Disk #75 Ramdisk Master is one of these). BEFORE running ProComm, make a ramdisk of any size you might need for whatever files you will be downloading say about 300K... you tell us you have 640k so you should be OK. Start up ProComm from your A: drive and set the D/L path to C: (if that is the ramdisk) and connect with the BBS or mainframe. Download one or more files and they will write to C:, the ramdisk. Quit ProComm but DO NOT get rid of the ramdisk yet! Watch out if you are using a .BAT file for ProComm, some of them automatically dump the ramdisk when exiting the program! If you do a "DIR C:" at this point you'll see the file(s) which you down loaded there. Put a freshly formatted disk in A: or B: and COPY C:*.* to A: or B: and you'll have them. You see, the ramdisk is so much like a third, high speed floppy that you use it just the same way. Only now can you turn off the ramdisk if you don't need it any more. If you choose, you can DEL C:*.* to clean out the file(s) and use this C: drive exactly the way you use any other drive. Within other programs, the same technique applies: make the ramdisk, run the program, set up for the C: drive, use it as you would any floppy or hard drive, but don't erase, delete or dump it until you've saved what is on it to a real floppy or hard drive. By the way, our own ramdisk turns out to be D: because we have a hard drive recognized as C: before we configure for the ramdisk.

Q. Having trouble with various programs which require Alt-PrtSc to get the screen capture. Nothing happens when we do this. Is this the program or are we doing something wrong?

Various readers.

A. When software instructions are written they almost never take into consideration the jr's keyboard. In this case it is usually a matter of holding the Alt key down then pressing Fn-PrtSc sequence if Fn-PrtSc won't do it. It would depend on the scan codes expected by the program. Don't be afraid to experiment. Sometimes you'll see Shft- PrtSc or Control-PrtSc as the combination. Just be sure to press the Fn-PrtSc sequence whenever this comes up. The same goes for Cntrl-Break or any other combination, for the jr just hold the Cntrl then press the

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READER FEEDBACK

736K Possible With Tecmar Sidecars

In some past issues you have stated that 736K of RAM in a PCjr was achievable only with a P C Enterprises or IBM memory expansion board.

I originally had a TECMAR jr Captain with 128K. Recently, I finally decided to expand the memory and checked with some suppliers. Some said it wasn't possible to combine the TECMAR board and reach 736K, however, the people at P C Enterprises said differently. Thus, I purchased their 512K memory expansion board. Well, they didn't want to work together at first, but after about four phone calls and various DIP switch settings on each board they now work great together with 736K of RAM on every boot.

I would like to recommend a very good and reasonable 2400 baud external modem. The **ZOOM** brand modem. It comes with PROCOMM software and some other utility programs including PKZIP and PKUNZIP. Its cost ranges from $99-- to $120-- in various ads in **COMPUTER SHOPPER.**

Thomas Blake, Falls Church, VA

Answers to Allways Questions Raised in Lotus 2.2 Article

EDITOR'S NOTE: The following response to questions raised by R.E. Newtson about using Allways and Lotus 2.2 on PCjrs was provided by Carl Haub, whose original article on this subject appeared in the April 1990 issue of jr Newsletter.

Nice to hear that my article on Lotus 2.2 and the PCjr was helpful to you. You've asked some additional questions on the use of Allways on a PCjr without a hard disk and I hope the following helps.

For one, you must have a hard disk to use Allways or at least a 3.5" disk drive or a high density 5 1/4" drive. If you don't have either of those added on, forget Allways. Another negative note is that Allways give trouble on dot matrix printers; for some users I know, it skips lines when it prints. I use it at work on a LaserJet, so I don't have much experience there.

In my article, I said that Allways assumes that it's being run from a hard disk in a subdirectory \123. It also assumes that Lotus itself was run from such a directory. My point was to create such a subdirectory on the disk where you will copy Allways. Do this my typing "md\123 <enter>" at a DOS prompt. Then "log" onto that directory by typing "cd\123 <enter>." THEN copy the files to the disk. You must also have done the same with the Lotus program disk; it, too, must be started from a subdirectory called \123. Note that, without a hard drive, Lotus and Allways must on different disks. It may also be that Allways expects that your high density drive is drive c:, the usual letter for hard drives; it just so happens that my 3.5" is c: so it conveniently emulates a hard drive as far as drive lettering goes.

Hope this helps. If the business about creating directories is still unclear, any PC user with a hard drive can quickly explain the use of directories on a hard or floppy drive.

Carl Haub

Writing Assistant Unprotection Works Only for Versions 1.00 and 1.01

On page 8 of the June, 1990 issue, the question was raised about how to unprotect Writing Assistant, version 2.0. I can assure you that the unprotect file I have been making available is not able to affect the copy protection scheme for this version of Writing Assistant. The file is useful only for versions 1.00 and 1.01*. The scheme of copy protection used on version 2.0 is quite different. I am not enough of a programmer to be able to fashion a new unprotect scheme. Having looked at the files on version 2.0, I am reasonably certain that a considerable number of program changes will be necessary to unprotect Writing Assistant, version 2.0. It appears that there may be as many as 10 calls to the protect file, so each of these calls would have to be revised in some way to avoid making the call and to prevent an automatic shutdown in the event of an unanswered call.

My two disks continue to be available for the same price mentioned in your earlier issue this year. ($4 per disk for two disks.) There are about 194 unprotect files on these disks for a wide variety of games and application programs. Anyone wishing to see the available files before buying, can send a stamped self-addressed envelope and I will respond with a one-page listing showing the directories of both disks.

* This one file contains the information to unprotect all of the Assistant programs: Writing Assistant, Reporting Assistant, Graphing Assistant and Filing Assistant. This file was published in the June/July issue, 1988, of the

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Reader Feedback

(Continued from page 5)

Junior Report, if anyone wants to look it up.

For those who want to make the change but are reluctant to make the attempt using DEBUG, I will make the changes for you if you send me your original disks. The cost for this is only the mailing cost of $1 for both disks. (I wonder how long it will take me to get rich doing this!)

Clyde A Dodge, Mountain View, CA

"Camelot" Not Intended for PCjrs

EDITOR'S NOTE: *The following letter was sent to Phillip Schwartz, of Parsippany, NJ, from Liz Jacobs, Customer Service Manager of Sierra On-Line.*

Let me begin by saying on behalf of Sierra On-Line, I would like to extend our sincerest apology for the frustration you suffered in regard to your purchase of our software. We appreciate your continued business and enthusiasm regarding our products.

Unfortunately, we did have some "contradictory" information in regard to the release of Conquest of Camelot. The original intent was to support the PCJr, as was indicated on the outside label. However, we had so much trouble during the "testing" period, on the Jr., that a decision was made to ship the product without the Jr. drivers included.

It is correct that you could take the Jr. driver from an earlier game, and use it to run Camelot. I actually cannot say that you will not run into "unforseen" problems, since we were not able to clear up all of our concerns with the product, on the PCJr.

I must apologize for the lack of clear direction that you got from my customer service rep. I have spoken with my department people, since receiving your letter, and I will hope that they are not clear on this issue.

I also cannot tell you what the future is for the Jr. in relation to our products. I do not have solid information at this time on whether the 1990 releases will have the PcJr. drivers in them, or not. Our games are becoming soooo long, and require so much out of the hardware side, that I believe we are concerned in our ability to offer you a reliable product that will definitely run on your machine.

I know that Ken Williams is very appreciative of the loyalty of the Jr. market, and if there is any way to continue offering you a product that is reliable for your machine...he will.

Update on F-19 Stealth Fighter

Referring to my letter published in the May 90 issue on page 7, concerning my inability to run the F-19 Stealth Fighter Program, I have since received the software store disk of PCjr patches, have patched the program and can now successfully run the version mentioned in the letter, Version 435.02, 11/10/88 (not 10/11/88 as stated).

U. E. Leimkuhler

Genius Mouse Requires Larger PCjr Power Supply

Ref: June 1990 Issue - Q. from J. Salyer: "I cannot get my serial Genius Mouse to work..."

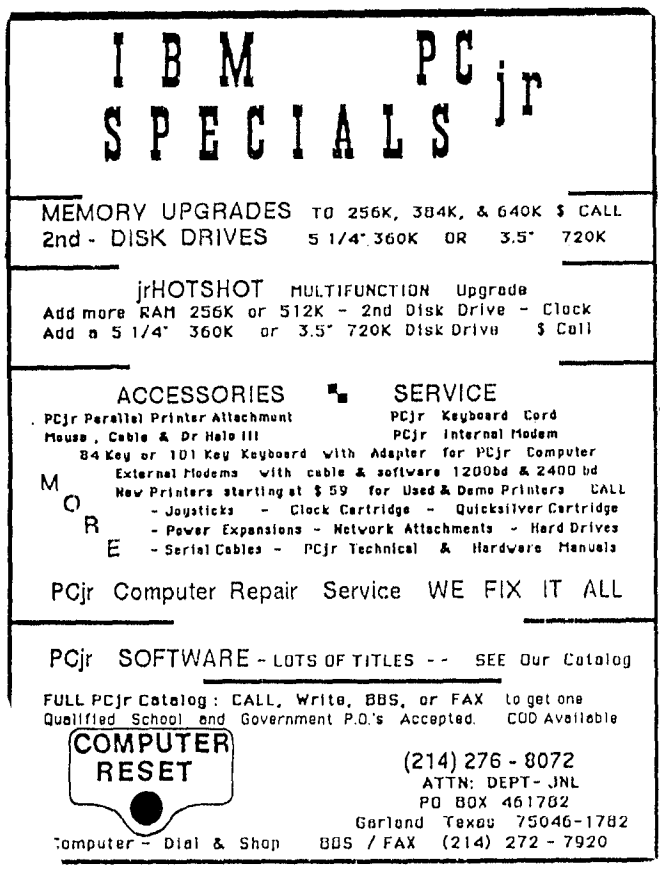
I have a Genius Mouse and find that it works fine on a PC with the driver supplied and with most any other mouse driver, so I believe your response is not correct.

While the Genius Mouse I mention ran on a PC, it would not run on my jr even though my Microsoft Mouse did run on the jr.

After some study and a call to the Genius technical folks, it turns out that **there are two different power supplies for the jr, a 7 inch and an 11 inch.** Mine was the older 7 inch, which did not supply the -12v (minus 12 volts) required by the Genius Mouse. The newer 11 inch board does supply the -12v required by the Genius (and some other mice).

The solution is to get -12v to the bus somehow or get a Microsoft Mouse which doesn't require the additional power.

Mr. A. E. McKenney, Portsmouth, VA



What Causes Compatibility Problems?

(Continued from page 1)

with the other members of the family, but 100% compatibility was not an objective. IBM reasoned that those who used the PCjr would not be interested in the really serious programs, and besides, there would be a hugh supply of programs written especially for Junior.

Of course we know now that IBM's objectives for Junior were not achieved. We have expanded and use our PCjrs in ways and for purposes IBM never imagined, and there is no hugh supply of programs written especially for Junior.

Now, all of us who own PCjr's are very much interested in compatibility. The quirks of Junior can be very frustrating and aggravating, and at the same time fascinating and challenging. Many of us, perhaps most of us, have spent time trying to reconfigure our computer or patch some program that refused to work correctly, if at all, on Junior. And whenever owners of PCjr's get together, the talk is usually about which programs will or will not run on Junior or how to get some obstinate program to run on Junior.

We'll explore the reasons of Junior's compatibility problems in this article. We won't look at specific programs or include any patches or fixes, but you will see how Junior is different from other members of the PC family, and you will gain some understanding of why programs that should work, won't.

We need, first of all, to define "compatibility". Up until the last couple of years, "compatibility" meant the degree that a computer emulated, or acted like, the original IBM PC. Almost all programs were written on and tested-out on the PC, and therefore were only guaranteed to run on the IBM PC, and 100% compatible computers.

Now that the PC is an obsolete computer, just like Junior, very few programmers use it anymore to write programs on, and some large programs, or programs that rely heavily on graphics will not run on the original PC. For games and educational programs we are often more interested in compatibility with the Tandy 1000. Nevertheless, the venerable IBM PC was the closest member of the IBM family to Junior, and is still pretty much the standard to which computers are measured and that is the standard we will use.

What It Takes To Be A PC Compatible Computer

For a computer to be even in the running as a PC compatible, it must have a microprocessor that is a member of Intel Corporation's 8086 family. The microprocessor, the brains in every personal computer, has the ability to process instructions - in other words: to run a computer program. Built into every microprocessor is a set of in-

(Continued on page 8)

Software Store

GAMES.

Please Use Order Form on pg. 23.

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)

WORDCRAZE. Create your own word search puzzles and print them out for friends and family. Or tease their brains with 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! 128K ok (Disk #87)

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)

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)

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)

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)

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)

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)

What Causes Compatibility Problems?

(Continued from page 7)

structions that the microprocessor is able to recognize and execute. Every computer program, regardless of what language (BASIC or Pascal or any of a dozen others.) it is written in, must ultimately be transformed down to this machine language set of instructions.

Each family of microprocessors has its own unique instruction set and machine language code is not easily translated from one family of microprocessors to another. Macintosh and Amiga computers use microprocessors that are in Motorola's 68000 family, not the Intel 8086 family. This prevents them from ever being true PC compatible computers.

The microprocessor used in Junior is the 8088. This is the very same microprocessor used in the PC and the XT, so Junior starts out as an equal with those two models. Since the PC, the XT and Junior were introduced, the Intel Corporation has developed several new and improved microprocessors. Each of these newer microprocessors has a larger instruction set than the 8088 but they are backwards compatible so that the new microprocessors will correctly execute the instructions of the older members of the family.

The numbering system of Intel's microprocessor family is slightly confusing. The original member of the family was named the 8086, a name which had no special significance. To accommodate some peripheral hardware requirements in the original IBM PC, Intel made a slight modification to the 8086 and named it the 8088. For programming and compatibility purposes, the 8086 and the 8088 are identical. Also identical for programming and compatibility is the 8088 clone: the NEC V20, which many of us have installed in our Juniors.

Having a microprocessor that is in the 8086 family is just the first step in computer compatibility. None of the instructions that the microprocessor can process is related directly to input or output, and to accomplish even the simplest task requires additional hardware and instructions. Of all the instructions that the microprocessor recognizes (The 8088 recognizes about 110 instructions) there is not one that says something like "PRINT" or "WRITE". By itself, the microprocessor cannot even print the letter "A" on your screen.

The chips to accomplish writing on the screen or to a printer, and for reading input from the keyboard and for controlling all of the other components Junior works with fill up the rest of the system board plus the expansion slots. These chips and components and the method that a particular program uses these components also affect compatibility.

In the IBM family of computers, most of the input/output hardware can be programmed directly by placing data in specific memory locations and port addresses. But manipulating the hardware directly has some disadvantages - it is complicated for the programmer and there is a high risk of incompatibility (or non- portability as the programmers say). As a service to programmers both the Operating System (MS-DOS) and the computer's Read-Only- Memory (ROM) provide numerous routines that programs can use to handle input/output.

Therefore, there are three possible methods that a program can use to print an "A" on the screen: Directly manipulate the hardware, use the computer's ROM routines, or use the operating system routines. These three methods are also, in effect, three levels of compatibility and we'll see how Junior stacks up at each level.

MS-DOS Level Compatibility

We are mostly familiar with DOS, and we put it to work, through our use of the commands to copy and delete files, format disks, look at the contents of disks, etc., but there is another part of DOS that, although it is unseen, is always present and ready for work.

Whenever you use PC-DOS to start up your PCjr a portion of a file named IBMBIO.COM (a hidden "systems file" which does not appear in a disk directory) loads itself into memory and remains there as long as the computer is on. IBMBIO contains input/output drivers for the display, the keyboard, the disk drives and practically any other device your computer uses.

Microsoft has a mechanism for programs on all computers using DOS to use these drivers for their input and output work. Non-IBM computers normally use MS-DOS which often customized and slightly different from PC-DOS and the program that stays in memory is usually called IO.SYS, but it accomplishes the same thing as IBMBIO. In fact, the computer manufacturer often supplies hardware information to Microsoft to ensure that the DOS routines work properly. There are entire books devoted to the DOS routines (Which are usually called the DOS Services.), but we won't say much more about them in this article except that they are extremely compatible. The DOS services will work on virtually any computer that uses Microsoft's DOS operating system.

In the early to mid 1980's several computer companies sold computers that used Intel 8086 family microprocessors, but were not even close to being IBM compatible. These machines were often from established computer firms, such as TI, DEC and Wang, that considered it beneath their dignity to produce an IBM clone. These computers could process the DOS services but that was about all that they had in common with the other 8086 computers. As you would expect, Junior has 100% compatibility with the PC in the MS-DOS routines.

In spite of high compatibility and ease of programming, commercial programs do not always use the DOS

services for input and output. They often use the routines for disk operations, but the DOS services for video output are, compared to other methods, very slow and not versatile. It is not possible to even change colors on the screen with the DOS services and there are no DOS services that cover graphics. Therefore, programs that need even moderately sophisticated screen output must use methods closer to the hardware and thereby run the risk of limited portability.

ROM BIOS Level Compatibility

Built into every personal computer is a set of programs that are activated every time the computer is turned on. These programs are located in Read-Only-Memory, and since they perform Basic Input/Output Services, they are usually referred to as the ROM BIOS. Physically, on Junior the ROM BIOS are in two chips located on the front-left side of the system board. Often additional ROM modules are located on option devices, such as disk drive controllers and video system adapters.

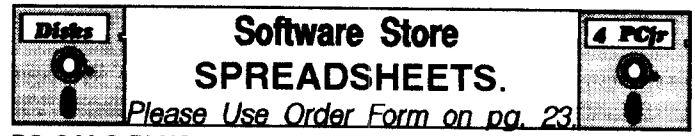
The ROM BIOS perform a variety of tasks: they check-out and initialize the computer, on the PCjr they display the IBM logo and color strip on the screen during the memory check, and they have a set of routines that programmers can use for input and output. Many of these routines, or services, duplicate the MS- DOS services, but the ROM BIOS often work significantly faster than the DOS routines. The ROM BIOS also can set screen colors and screen modes, handle graphics and control the keyboard - tasks that the DOS services cannot do. The ROM BIOS is really a very clever system for handling input and output.

As IBM comes out with new computer models with new features; routines to handle the new features are added to the ROM BIOS, but the existing services are not changed. When the PCjr was introduced, services to cover Junior's three new video modes were added to the ROM BIOS and they are still available for programmers to use.

We cannot go into details about the ROM BIOS, or even explain how they are implemented in programs because it is fairly complicated and that is not what we are really interested in now. The question we are interested in is: How compatible is Junior in the ROM BIOS? The answer is that Junior is just about 100% compatible with the original PC. Actually the PCjr has a couple more ROM BIOS services for video than the PC so that it is possible to write programs that will run on Junior but not on the PC. Sort of reverse incompatibility.

With the introduction of the AT and the PS/2 computers, IBM has greatly expanded personal computer hardware and ROM BIOS services to match. As you would expect, Junior will not respond to the new hardware and

(Continued on page 10)



PC CALC PLUS. V2.0 More advanced than PC Calc (Disks 5 and 6), this is a very powerful spreadsheet program which includes graphing features. Excellent. 512K (Disk Set #2 (2 disks) $10.)

PC-CALC. A versatile spreadsheet program that can do up to 26 columns of adjustable size and 256 lines. Features on-screen prompts, many math and statistical functions, hidden column capability, many formatting options, 64 character cells, automatic global recalculation, and more. Has some limits on 128K, but still very useful. (Disk #5 runs on 128K, Disk #6 requires 320K and two drives)

MINICALC. A small, easy to use, spreadsheet program. 11 columns by 22 rows. On-line help function and manual on disk. In addition to performing calculations, will generate bar graphs. (Disk #27)

AS-EASY-AS V.4.00 This is a MAJOR upgrade of the popular, powerful Lotus 1-2-3 look-alike spreadsheet software. Many useful features have been added to an already full-featured program. Earlier 256K version (2.05) is Disk #67. This upgrade requires 384K. Reviewed 2/90 (Disk #107)

AS EASY AS. Excellent, easy to use, spreadsheet program. Works like Lotus 1-2-3, with all spreadsheet functions. Can load and operate 1-2-3 files. 256K ok (Disk #67)

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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)

What Causes Compatibility Problems?

(Continued from page 9)

ROM BIOS services, but you can expect 100% compatibility with programs using ROM BIOS for a comparably equipped PC.

The official programming policy of IBM is that programs should always use the ROM BIOS for input and output. This is a good policy, but commercial programs often do not follow it. The ROM BIOS routines are often 10 times faster than similar MS-DOS routines, but by programming the hardware directly, speed can be increased by perhaps another 10 times. This is especially true in the video routines.

Hardware Compatibility

We have seen that Junior has just about 100% compatibility with the PC at the MS-DOS level and at the ROM BIOS level. It is at the hardware level that Junior has problems. IBM cut some corners when they designed Junior so that they could save on manufacturing costs. Those of us who own Juniors have been paying for those cost-saving steps ever since. The areas that cause the most problems are in the video system, the keyboard and the diskette drive system. We will look at each one of these trouble areas to see how Junior's hardware differs from the PC and how this causes incompatibility.

Video System Differences:

On the PC and the XT, the owner of the computer could choose the Monochrome Display Adapter (MDA), or the Color Graphics Adapter (CGA) as a video system. The MDA, popular for word processing, data base management and other text based programs, did an excellent job of displaying easy-on-the-eyes text but it could not do graphics and it was limited to one color. The CGA could handle graphics, in color too, although the screen was a little grainy. Both of these systems were add-on "option" boards that plugged in to one of the computer's expansion slots.

Junior's video system is built into the system board as an integral part of the computer. It emulates the PC's CGA system but it is not the same as CGA and sometimes the differences between Junior's video system and CGA cause compatibility problems. Junior's video system has all the screen modes that CGA has, plus three extra ones, and it is memory mapped just as the CGA.

A memory mapped video system is one in which the data to be shown on the screen is placed first into a particular section of the computer's memory - the video memory buffer. For a text mode, for instance, the character (actually a code for the character) that is to be displayed in the top, left-hand corner of the screen is in the very first byte of the display buffer. Many, and maybe even most, commercial programs bypass the ROM BIOS services and go directly to this memory buffer for screen output because it is extremely fast and relatively easy to do.

In CGA the video memory buffer uses the 16 K bytes of RAM on the graphics adapter board starting at address B8000 (A hexadecimal number). Junior's video display buffer is not at address B8000. It is located somewhere in conventional memory at almost any address. You would think that this would cause severe compatibility problems, but it doesn't. IBM included some clever hardware in Junior that automatically transfers all program references for address B8000 to the actual video memory buffer, where ever it is.

The only consequences of Junior's arrangement of sharing video memory with main computer memory is that Junior has 16 K bytes less memory for programs than a comparably equipped PC; and secondly, since the 8088 microprocessor must manage video memory along with everything else, programs will typically run about 15% slower on Junior than on a PC. Some of the expansion systems for Junior do eliminate this last consequence.

Having the video buffer in standard memory does make life for PCjr memory expansion makers slightly more complicated. IBM originally planned for 128 K to be the maximum amount of memory that Junior could have, so they used the last 16 K of memory for the video buffer. Memory expansion units have to relocate Junior's video buffer so that it is not in the middle of memory, creating a "hole" in memory. They usually do this with software that you use whenever your boot up Junior, and through the years a wide variety of CONFIG.SYS drivers have been developed for Junior to tweak the video buffer.

IBM did a good job of handling the difference between Junior's address of the video memory buffers and the CGA's address, but there are two other addresses that they did not take care of. In the CGA, there is a mode control register at port address 3D8 (another hexadecimal number) which can be used to set the video mode, and at port address 3D9 is the color select register which can be used to set screen colors, including the border color. Junior's video system has similar registers, but they are at different addresses. As a result, a program written for CGA which sets the screen mode or screen color by going directly to the graphic adapter ports will not work on Junior.

Keyboard Differences:

IBM's cost cutting efforts with the PCjr are more visible with the keyboard than any other component. The original chiclet keyboard was so bad that IBM replaced it about one year after Junior was introduced and gave a new keyboard to everyone who had already bought the computer. Junior never recovered from the reputation

imparted by the original, lousy keyboard. The new keyboard was a big improvement, but it still has major differences from the PC's keyboard. The obvious differences are the fewer number of keys on Junior's keyboard and the optional infrared connection between the keyboard and the computer, but there are internal differences as well.

The PC's keyboard has a small microprocessor that is able to store keystrokes while it sends the computer information about the keys that have been pressed (and released) through special port addresses. The keystroke information is then handled by the computer's ROM BIOS starting with an interrupt 9 (Interrupts are the 8088's way of initiating ROM routines. Their numbers refer to the routine's location in memory.). Each key on the keyboard has a number, called a scan code, and the ROM BIOS takes the scan code and, after determining if any of the shift keys have been held down, translates it to a character.

Junior's keyboard cannot store keystrokes so it is vital that keystroke activity be immediately sent to the computer. Therefore, Junior uses a very high priority interrupt, Interrupt 2 - the nonmaskable interrupt, to send the scan codes directly to the ROM BIOS. The ROM BIOS quickly processes the information, changes the PCjr scan codes (Because of the difference in the number of keys, Junior's keys have different scan codes than the PC keys.) to PC scan codes and then passes the results to interrupt 9 for the regular ROM BIOS routines.

IBM's plan with Junior's keyboard was to make up hardware deficiencies with extra programming in the ROM BIOS. It usually works, but it is possible for a program to short circuit the flow of Junior's nonstandard keyboard information with disastrous results.

One more way that Junior's keyboard is different from the PC keyboard is in the repeat-key action. The length of time that a key is held down before the repeat action begins, and the speed of the repeats are both handled by hardware in the PC keyboard. In the PCjr, both of these actions are handled by the ROM BIOS. Programs that accelerate cursor movement often do not work correctly on Junior because of this difference in hardware.

Diskette Drive Differences:

The diskette drive system is another area in which IBM substituted ROM BIOS routines for expensive hardware in an effort to lower production costs of the PCjr. The PC has a Direct Memory Access (DMA) chip to handle the transfer of data to and from the diskette and computer memory. Junior does the transfer work with ROM BIOS, which ties up the computer during diskette operations, and results in diskette timing and performance that is significantly different from the PC.

One obvious result of this difference is the beep that junior emits whenever you try to type on the keyboard while the diskette drive is operating. This beep means that the computer is busy reading disk data and cannot process keystrokes. Another, more severe consequence of these timing differences is in copy protection schemes that relocate some of the disk's sectors and depend upon the diskette's rotational timing to pick out the correct sectors. Since Junior's timing may not the same as the PC, the diskette won't work.

Some programs will not run on our computers because of hardware requirements, rather than hardware differences. Programs tend to get larger with each release and need hard disks or high density disk drives just to load the program. Expansion devices continue to be available for Junior to accommodate these new programs. On the other hand, programs which need an exotic video system, EGA or VGA, will probably never work on Junior since IBM made no provisions for changing the video system. Not being able to run programs because of hardware requirements is more of an obsolescence problem than it is a compatibility problem, and Junior isn't the only computer with this type of problem.

This completes our review of the PCjr's compatibility with the PC. We've learned that IBM set up a system allowing programs that will run on both machines to be easily written. We've also learned that programs generally bypass this system and directly control the hardware, and because of hardware differences between Junior and the PC these programs may, or may not work on Junior. The bright spot in this picture is that although there are some programs that will not run on the PCjr, there are a lot more programs that will.

PCjr Repairs And Upgrades -- Two More Options

In addition to the advertisers in jr Newsletter, there are a few other individuals and companies who work on PCjrs. Since repair centers for PCjrs are few and far between, you'll usually have to pack up your Junior and send it. But if it means you'll get your Junior back as good as (or better than) new, it's worth it.

Here are two more PCjr repair shops we've heard about recently:

Airport Computers
19245 Des Moines Way S
Seattle, WA 98148
(206) 824-5413

Stephen McMains
Computer Sales and Service
8108 Cawdor Court
McLean, VA 22102-2716
(703) 821-2300

Guide to Computer Terms

(Continued from page 2)

cates the state of an electronic device or circuit. The light which indicates when the PCjr's diskette drive motor is on is an LED.

LINKER: a program which takes machine language files produced by compilers and/or assemblers and combines them into a runnable program file.

LISTING: the text of a program, displayed on the screen or in printed form.

LOAD: the process of transferring the contents of a file into memory.

M: short for mega, which refers to 1024 times 1024, or 1024K, often used to describe the size of memory, so that 1M of memory is 1024K (1,048,576) bytes.

MACHINE LANGUAGE: the language that a processor understands directly. Machine language consists of strings of binary numbers which represent the actual physical operations which a processor is designed to execute.

MAINFRAME: a very large multiuser computer, typically handling data in 32-bit chunks. Contrast with minicomputer.

MASS STORAGE DEVICE: a device which holds information on a long-term basis. Programs and data residing in RAM memory can be stored to and retrieved from mass storage devices such as cassette recorders or diskette drives.

MEGABYTE: roughly one million bytes, but actually 1024Kb, or 1,048,576 bytes. Often written as Mb.

MEMORY: any device which stores information. Commonly used to refer to a computer's internal memory, in which storage is accessed directly and very rapidly by the processor, and which holds programs and data while they are being used. There are two types of internal memory, RAM and ROM; when not specified, memory generally refers to RAM.

MENU: a selection of options displayed on the screen for the user to choose among.

MICROCOMPUTER: a computer that is much smaller than a mainframe and smaller than a minicomputer, typically handling data in 8-bit chunks, although some microcomputers use 16-or even 32-bit data. The boundary between minicomputers and microcomputers is becoming blurred.

MICROPROCESSOR: a processor which is contained entirely on a single integrated circuit chip. Often used interchangeably with the terms processor and CPU.

MINICOMPUTER: a computer that is smaller than a mainframe and larger than a microcomputer, typically handling data in 16-bit chunks. The boundary between minicomputers and microcomputers is becoming blurred.

MODEM: short for Modulator/DEModulator. A device which allows a computer to exchange information with other computers over a telephone line.

MONITOR: a display designed especially to show computer-generated text and/or graphics.

NIBBLE: one-half of a byte, or four bits.

OCTAL: refers to base 8, a numeric notation in which

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there are 8 digits, 0 through 7.

OPERATING SYSTEM: software which turns a computer into a self-contained environment for using programs, and which provides both the user and programs with easy access to the physical resources of the computer.

OUTPUT: transmission of information from the CPU to another device, such as a diskette drive, printer, or modem.

PARALLEL: a means of exchanging data in which all 8 bits of each byte transmitted are sent simultaneously. Contrast with serial.

PARAMETER: a value entered on a command line which instructs the command to act in a certain way. Parameters can take on a range of values at the option of the user, depending on the action desired.

PARITY BIT: an additional bit sometimes added to a byte to check whether the contents of the byte have been transmitted or stored correctly. Odd parity means that the parity bit is set to 1 or 0 as needed to make the sum of the bits in the byte odd, and even parity means that the parity bit is set to 1 or 0 as needed to make the sum of the bits in the byte even. If the bits in the byte plus the parity bit do not add up to an odd or even number (whichever type of parity is in use) at any time, then the information in the byte is known to have been corrupted.

PERIPHERAL: a device attached to a computer to provide it with additional capabilities, like a printer or a modem.

PERMANENCE: the time for which the dots on a CRT remain glowing after having been made to glow by the sweeping electron beam which creates the image. The higher the permanence, the less the flicker of the screen and the less tiring the screen is to view.

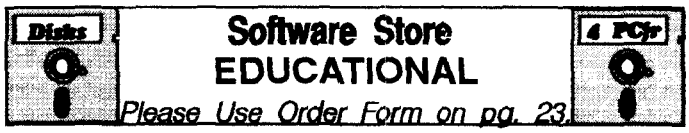
(To be continued in a future issue)

San Jose Area PCjr Users May Form Users Group

Walt Glasspool, of Milpitas, California, has informed jr Newsletter that he wants to start a PCjr users group for PCjr owners in his area.

User groups, even when they're small, can be of great value, in terms of technical support, sharing of experiences, swapping software and equipment, and just plain friendship.

Walt can be contacted at (408) 946-2161. His address is 520 Corinthia Dr., Milpitas, CA 95035.



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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)

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)

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)

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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)

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)

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)

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The PCjr and Obsolescence

By Clyde Dodge

The term "obsolescence" is one that should be familiar to every PCjr user. Immediately after IBM said it was abandoning the jr, every writer in every computer magazine started saying that this little computer was obsolete. People like John Dvorak said some other derogatory things such as the fact that it was slow and also it has an odd scheme for writing to the screen. EVERYbody chimed in on this theme. If you were a jr owner, you began to wonder if perhaps you HAD made a mistake.

I worried about that for a while. Then my younger son brought home a computer program from one of his classes in the Master's degree program at Stanford that would not run on his Laser 128. So he started up my jr and soon moved away from the chair and started to read the evening paper. "Don't touch it; it's working," he told me.

I went over and sat in front of the computer. The screen looked just like it does when it locks up; the cursor was not visible and the screen was blank. "The disk light isn't on," I told him. "That's OK," he replied. "Are you sure?" I asked. "Just don't touch it, and it will be through in a few minutes."

He went back to the paper. I sat there for a few minutes and finally decided he must know what he was talking about, so I went back to fixing dinner. But I kept an eye on the screen. After about 20 minutes the disk light came on and the screen came to life. The results of the calculations were stored on the disk and so he copied the results to the printer, decided it looked OK and so he turned off the computer.

"What was that all about," I asked. "It is a program to calculate wing offset dimensions at chord stations for a problem in one of my classes," was his response. The program was designed by one of the graduate students to run on the PC since no one has a Stanford mainframe at home. "I set the parameters and the computer runs the calculations."

At that point I stopped worrying about the PCjr becoming obsolete. In the intervening years, I have had to admit that 4.77 MHz operating speed is not very fast when you read about 20 or 25 or 28 MHz operating speeds on the newest computers.But what does that mean to me? This computer still runs faster than I can think, and if it seems slow to you, that is OK with me. It gives me time to think about what is going to happen next before it flashes past me, leaving me wondering if I missed something. (My number one son has an Apple IIC. I think he told me the operating speed is less than 2 MHz.)

I have added Ed Strauss's jrHotshot board for addi-

tional memory and have inserted an internal modem which I use EVERYday. The San Francisco PCjr User's Group had a workshop to show me how to add a second disk drive. I did the necessary internal wiring changes right there and then plugged in a new cable. The first try was all that was necessary. I have a total of about $1,600 invested including the original cost plus the IBM Graphics printer.

Of course, the machine is approaching 6 years of age. I got it in October of 1984. I have to acknowledge that the science of computers is marching rapidly past the point where this machine represented the latest in computer technology. One of the first impacts of this development occurred last spring when I tried to use the J.K. Lasser income tax program for my 1989 tax report. I had used these programs for the previous three years without any hangups, but this new program would not work. I sent a letter post haste to Simon and Schuster. I explained what the problem was and sent them a printout of the screen at the fatal point. I also asked for my money back. At the same time I bought the AMTAX 89 disk at one of the local computer shows. But before I filed the report based on that work, Simon and Schuster called me from New York one morning to tell me the problem was that I needed to use DOS 3.3. I got a copy of that from the INFERNO BBS sysop in Monte Serreno and I was back in business.

Another point of interest is that one of the boys sent me a Sierra On-Line game for Father's day. Unfortunately, it took forever to load and then ran at a snail's pace and the colors were not like the King's Quest colors I have been used to. Upon returning it, I was informed that Sierra is no longer writing games that fit the slow speed and peculiar internal programming of the PCjr.

So, there it is. The computer works fine for the programs that were designed to work on its operating system. But the bottom line for programmers is not going to be adequate if they don't work with the faster computers. Willy-nilly, the PCjr is being left in the dust of advancing technology. In the future, it will be like driving an old Pierce Arrow down the street. It works fine for what it is, but if you try to use a modern unleaded gasoline in it, it simply is not going to work very well.

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(See page 23 for ordering information)

SCOUT. Excellent memory resident (or not) file manager, DOS shell. Move, copy, rename, volume label, search, sort, printer control, view files, and more - fast and easy. Best we've seen. (Disk #81)

TEXT UTILITIES. Includes V7.0 of List.com, the powerful text viewing software, which adds many handy new features in this version. Also on disk: A versatile directory listing and disk labeler; the fastest text searcher we've seen; a handy copying utility with many features; a memory resident protection against overwriting precious files. 256K Reviewed 2/90 (Disk #103)

SUPER UTILITIES. The 15 utilities in this collection include Undelete, to recover a mistakenly deleted file; a powerful command editor; a clock, notepad, time and calendar; another to redirect file contents from printer to disk...and many more useful utilities. Under 128K ok. (Disk #28)

PRINT HANDLER. Excellent printer setting utility allows you to set features from a menu. Other software on disk for banners, sideways printing, custom font generator (Epson), print spooler, count pages before printing and more! Will work with most dot matrix printers. (Disk #51)

Print It! Selection of programs allows you to print large banners as well as tiny (but quite readable) documents on most dot matrix printers. Compress four pages on one sheet with Docsmash, print on both sides of computer paper with Both,reformat into tiny columns with Microtext (many other options), make wall-length banners with Bannerific! 256K (Disk #111)

PKZIP V.1.02 The new and increasingly popular file compression utility used by more and more BBSs. Includes PKUNZIP, the one you need to uncompress downloaded ZIP files, and many other features. 128K ok Reviewed 2/90 (Disk #104)

LZEXE. Cut down dramatically on the disk space required for software. LZEXE compresses EXE files into 2/3 to 1/2 their original size and allows them to be run from compressed form. Great for keeping RAM disks small and memory free. Utility will also convert COM files. 256K (Reviewed 5/90) (Disk #112)

PC-DESKTEAM. Provides memory resident notepad, alarm clock, appointment calendar, typewriter, calculator, phone book, auto-dialer. Some say better then Sidekick! Quick, easy, powerful. (Disk #22 V1.04)

NEW KEY. Powerful popular program that allows you to redefine keystrokes and assign series of keystrokes to one or two keys. Customize software to meet your needs. Many other useful features included. 128K. (Disk #35)

(More Utilities on page 18)

Favorite Software Cited by Our Readers

(Continued from page 1)

ABC FUNKEYS
ABILITY
ADJRAM (DISK #75)
ALPHA WORKS
AM TAX
AMPLE NOTICE
AMY'S FIRST PRIMER
ANARKEY
ANCIENT ART OF WAR
ANCIENT ART OF WAR AT SEA
ANIMAL HOTEL
ANIMATION CREATION
APBA MAJOR LEAGUE BASEBALL (MASTER ED)
ARCTIC FOX
ARKANOID
ART STUDIO
AS EASY AS (DISK#67 AND #107))
ASTROTELL
AUTO MENU
AUTOSKETCH
BACK TO BASICS
BAKER'S DOZEN (DISK #73)
BANK STREET MUSIC WRITER
BANK STREET WRITER
BANNERMANIA
BASIC
BATTLECHESS
BEST OF JR NEWSLETTER (DISKS #54,66 & 91)
BEYOND WORD WRITER
BEYOND ZORK
BIBLE Q (DISK #85)
BLACK CAULDRON
BOULDERDASH
BOYAN (DISK #61)
BROTHER'S KEEPER
CALENDAR CREATOR PLUS
CARBON COPY PLUS
CASHTRAC V7.0
CERTIFICATE MAKER
CHART
CHECKFREE
CHESSMATE 2000
COBOL (MICROSOFT) V3
COLORPAINT
COPY II PC
CP-EDIT
CREATIVE CALC
CREATIVE FILER
CROSSFIRE
CROSSTALK
CRUSADE IN EUROPE
CUTTHROATS
DAC EASY LIGHT
DBASE III
DBASE III PLUS
DBASE IV
DECISION IN THE DESERT
DELUXE PAINT II
DESIGN CAD
DESK ORGANIZER
DESKTEAM (DISK #22)
DIRECT ACCESS HOME BANKING V4.0
DIRMAGIC
DOLLARS AND SENSE V3.0
DONALD DUCK PLAYGROUND
DOSAMATIC
DOS 3.3
DR HALO III
EAGLES NEST
EARL WEAVER BASEBALL
EARLY GAMES
EARLY LEARNING
EASY AS ABC
EASY GRAPHMAKER
EASY PLANNER
EASY WORKING FILER
EASY WORKING PERSONAL CASH MANAGER
EASYWRITER
EDINFO
EDNA'S COOKBOOK (DISK #96)
EIGHT-IN-ONE
ELECTRIC CRAYON
ELECTRIC DESK
EMPIRE
ENCHANTER
EPISTAT
EXPERT FORMS
EZCAD
F-15 STRIKE EAGLE II
FALCON
FAMILY ROOTS V3.5
FAST BUCKS
FILE EXPRESS (DISK #83-4)
FILER'S CHOICE
FILING ASSISTANT
FIRST CHOICE
FIRST PUBLISHER
FLIGHT SIMULATOR SCENERY DISKS
FLIGHT SIMULATOR V1,2 & 3
FLOPCAT III
FLOW DRAW
FONTASY
FORMGEN
FORM KING
FORTRAN 4.1
FOURTH AND INCHES
FRAMEWORK II
FRIENDLY WRITER
FUNNELS AND BUCKETS
F-15 STRIKE EAGLE
F-19
GALAXY (DISK #69)
GATO
GENEALOGY ON DISPLAY V3.0
GERTRUDES SECRETS
GOLD CUP CHALLENGE
GOLD RUSH
GRAMMATIK
GRAND PRIX
GRAPH MAKER
GT-POWERCOMM V14.02
HARDBALL
HARVARD GRAPHICS V2.1
HEROS OF THE LANCE
HOME ACCOUNTANT JR
HOME BUDGET JR
HOME INVENTORY (DISK #58)
HOME WORD
HOME WORD PLUS
HUNT FOR RED OCTOBER
IBM FILING ASSISTANT
IBM GRAPHING ASSISTANT
IBM REPORTING ASSISTANT
IBM WRITING ASSISTANT
IMAGEPRINT (DISK #50)
IMPOSSIBLE MISSION II
IMPRESS
INFILTRATORS I AND II
INSTANT PAGES
INSTANT RECALL
JEOPARDY
JET
JR MUSIC MACHINE (DISK #62)
JR POWER PACK (I AND II)
JR TELE (DISK #86)
JRCONFIG (DISKS #52 & 65)
JUMPMAN
JYACC
KEDIT
KIDS ON KEYS
KINGS QUEST (COMPLETE SERIES)

LEARNING DOS
LDA GENEALOGY
LETTRIX
LEISURE GENIUS SCRABBLE
LEISURE SUIT LARRY
LIPTICOE
LOTUS 123 V2.01 AND 2.2
LOTUS FREELANCE
LOTUS REPORT WRITER
LQ
LUCID 3-D
MAIL LABEL
MANAGING YOUR MONEY V.5
MANAGING THE MARKET
MATH BLASTER
MATH FUN (DISK #42)
MATH MAN
MATH RABBIT
MATHCADD
MEAN 18
MICKEYS SPACE ADVENTURE
MICRO COOKBOOK
MICROLEAGUE BASEBALL
MICROSOFT WORD V4.0
MIND YOUR MONEY
MIXED UP MOTHER GOOSE
MONEY COUNTS
MONEYCOUNTS V5.0 PLUS
MOTHER GOOSE
MS WORKS
MULTIMATE V3.3
MULTIPLAN V3.0
MURDER BY THE DOZEN
MYCALC
MUSIC CONSTRUCTION SET
NAME PAL (DISK #70)
NEWKEY (DISK #35)
NEWSMASTER II
NEWSROOM PRO
NICEPRINT
NFL CHALLENGE
NORTON COMMANDER
NORTON UTILITIES
NUTSHELL
NYET
ONE-ON-ONE
OPPOSITES ATTRACT
OREGON TRAIL
ORIGAMI (DISK #39)
PATHMINDER
PCCS
PCJR COLORPAINT
PC-CALC (DISK #5-6)
PC-FILE R
PC-FILE (DISK #3-4)
PC-GLOBE
PC-KEY DRAW (DISK #37)
PC-OUTLINE (DISK #17)
PC-PAINT
PC-PAINT PLUS
PC-SCRIPT
PC-TALK III
PC-TOOLS (AND DELUXE)
PC-TOUCH (DISK #18)
PC-USA
PC-WRITE (DISKS #1-2)
PERSONAL ANCESTRAL FILE
PERSONAL EDITOR II
PFS: ACCESS
PFS PROFESSIONAL FILE
PFS PROFESSIONAL WRITE
PFS WRITE
PIANOMAN (DISK #36)
PIPE DREAMS
PK FAX
PLANNER'S CHOICE
PLAY AND LEARN (DISK #32)
POLICE QUEST
POOL OF RADIANCE
POWER-UP POCKET ADDRESS
POWER WORD
PRINT SHOP
(ESPECIALLY THE NEW PS)
PRINTMASTER
PRINTMASTER PLUS
PROCOMM
PROCOMM PLUS
PRODESIGN
PROJECT (MICROSOFT)
PROFONT
PROKEY
PRO-WRITE
PUBLISH IT!
PURSUE THE PENNANT
Q & A
Q & A WRITE
QEDIT
QMODEM
QUATTRO AND QUATTRO PRO
QUICK BASIC V 3.0, 4.0 AND 4.5
QUICK C
QUICK PRO II AND III
QUICKEN V2.0 AND 3.0
QUICKVERSE
RAILROAD WORKS
READER RABBIT
REFLEX
ROGUE
SARGON III
SCOUT (DISK #81)
SCRABBLE
SELECT-A-FONT
SENTINEL WORLDS I
SESAME STREETS CRAYON
SHARESPELL (DISK #94)
SIDEKICK
SIDEWAYS V3
SIGN AND BANNER MAKER
SILENT SERVICE
SILPHEED
SIM CITY
SKYRACE
SMART MONEY
SNOOPY'S READING MACHINE
SOLO FLIGHT
SPACE QUEST II
SPECIAL DAYS
SPINRITER
STAMPKEEPER
STARFLEET
STARFLIGHT
STEPPING STONES
STICKYBEAR NUMBERS
STOCK CHARTING
STREET SPORTS BASKETBALL
SUPER HUEY (I & II)
SUPER WRITER
SUPERCALC
SUPERCALC 3
SWIFTCALC
SWIFTAX
SYLVIA PORTERS
PERSONAL FINANCE
SYMPHONY
TALLY HO
TAPCIS
TAX ADVANTAGE
TEACHERS QUIZ DESIGNER
TELEMATE V2.0
TELIX V3.0
TEST DRIVE
TEST DRIVE II
TETRIS
TEXTRA V.5.2
THEXDER
THINK QUICK
TIME TRAVEL IN HISTORY
TIMELINE V2.0 AND 3.0
TIMES OF LORE
TOM SAWYERS ISLAND
TOURNAMENT BRIDGE

(Continued on next page)

MORE SUPER UTILITIES. A collection of excellent screen and keyboard enhancements, useful file managers, color selectors, and more. Under 128K ok (Disk #29)

BAKER'S DOZEN. 13 powerful utilities by shareware star Jim Button. Recover zapped files, save screen to files, print sideways, sort files, file management, locate text, pop-up calendar, powerful one screen spreadsheet, set screen colors, and more. (Disk #73)

IMAGEPRINT V3.33. Produces near letter quality print on dot matrix printers. IBM Graphics Printers, Proprinters, Epsons and compatibles. Contains many format features, three quality levels, interfaces with word processors. 128K ok. (Disk #50)

(See also utilities on page 15)

3 X 5. An information management program that works just like a 3 x 5 card file. It offers speed, versatilityy and simplicity in entering, indexing and retrieving data. Has an integrated word processor, powerful search commands, multiple windows so you can edit in one and search in another, etc. Requires 256K. (Disk #19)

FILE EXPRESS. (V4.22) Very easy to use database manager. Extensive menus and prompts to guide you. Excellent choice for maintaining mailing lists, etc. Many powerful features. 256K (Disks #83 and #84)

MR. LABEL. Extremely versatile, this software enables you to make labels ranging from the very simple to the very sophisticated. It's the best of many we've tried. 128K ok. (Disk #97)

NAMEPAL. An excellent utility program for maintaining and printing name and address lists, address books or mailing labels. Keeps business and personal references and allows user to maintain free-form notes as well. Requires 128K Memory. (Disk #70)

PC-FILE III. This excellent database manager will handle up to 9,999 records, such as names and addresses, notes, product descriptions, etc. Uses generic, embedded, soundex and wildcard searches. Global updates and deletes. Sorts on any field. Too many features to mention. (Disk #3 runs on 128K, Disk #4 needs 256K)

Readers' Favorite Software

(Continued from page 17)

TOUCHDOWN FOOTBALL
TREKRUN
TREND POINT
TRIVIA 101 AND 102
TURBO C
TURBO LIGHTNING
TURBO PASCAL
TURBOTAX
TWIN
TYPE AND LEARN
TYPEWRITE (DISK #93)
TYPING INSTRUCTOR
TYPING TUTOR III
U.S. GEOGRAPHY
ULTIMA SERIES
VCR COMPANION
VIDEO PRO TITLER
VIDEOTEL
VISICALC
VISISCHEDULE
VOLKSWRITER DELUXE PLUS
VOPT
VP PLANNER PLUS
WEBSTER'S SPELLING CHECKER
WELLTRIS
WHEEL OF FORTUNE
WHELAN RTTY & PACKET
WHERE IN THE USA IS CARMEN SANDIEGO
WHERE IN THE WORLD IS CARMEN SANDIEGO
WILL MAKER
WINE COMPANION
WINNIE THE POOH
WINTER GAMES
WORDFINDER
WORD PERFECT V.4.1, 4.2, 5.0, 5.1
WORDPERFECT JR
WORDPROOF
WORDSTAR 2000
WORDSTAR V4.0
WRITE AND SPELL
XLISP
XOR
XQR FOOTBALL
XTREE PRO
XYWRITE
ZEN V3.0
ZURAN

Questions and Answers

(Continued from page 5)

Fn-Break sequence or whatever is called for. You'll have an interesting education pressing the Fn-Up, Dn, Lf, Rt keys in these programs with and without the Shift or Cntrl key held down... try it.

Q. I have three IBM PCjr color monitors. Two are used at different locations and the last is held in reserve. One is easy to read, one is fair and the other is poor. Is there anything a tv or computer repairman can do to improve the readability of these? The character chips are soldered in both jrs so installing the thin-font chip becomes a problem.

A. J. Taylor, Redding, CA

A. Sounds to us as if the focus or masking alignment is degraded on at least two of the monitors. Normally any tv or computer repairman can re-set the balance, size, proportion and, most important to you, the focus of a monitor right at the site, using the test pattern you get with Ctrl-Alt-Ins. This is generally considered a minor adjustment unless something is so far out of whack that they want to go the full route with bench measurements etc. Prices for home calls vary, so try to get an estimate or carry your spare in to their shop for a first go at it.

Q. Recently acquired "Publish it! Lite" but had to return it because I couldn't get through the installation procedure. The program requires that five working disks be made from the five master disks and five back-ups also be made. Here's the problem: I have a 5.25 floppy as A: and a 3.50 as B: for drives. The install procedure went along OK until the program asked that I put the "Startup Disk in B:". B:?? It just doesn't fit! Well, I made full copies of the originals in BOTH 5.25 and 3.50 so that anything would go anywhere, if necessary. No matter, I couldn't get past "Install Startup in A:" or "B:" depending on where I set up the default install drive. The dealer said that the dissimilar types of drives really are the problem and took back the package. Can you verify this? Is there any way around this? Do I have to spend billions to get some other program for high quality multi-page news letters?

P. Bonday, Maywood, NJ

A. We almost hate to write this, but... did you try booting your jr with memory recognition, but WITHOUT recognizing the second physical drive for the installation procedure?? This would make both the A: and B: drives 5.25 (in the A: physical drive, remember) and surely without any type dissimilarities! After the working disks are made, just

(Continued on page 20)

Software Store
Art & drawing

Please Use Order Form on pg. 23.

PRINTMASTER LIBRARY. Two disk set full of graphic images for use with PrintMaster. (Disk Set #3 - 2 disks, $10)

PC-KEY DRAW. A powerful graphics program that allows you to draw, paint, produce slide shows, store and print your work. 256K, two drives. (Disk #37)

PC-KEY DRAW DEMO. Contains a slide show demonstration which allows you to see the amazing results you can get with PC-KEY DRAW. Helps to learn the many graphic capabilities of PC-KEY DRAW. (Disk #38)

ORIGAMI. Learn the art of Japanese paper folding. This program shows you how, step-by-step, to create amazing animals and other objects just by folding paper. Fun for kids and adults, too. 128K. Requires Basic Cartridge. (Disk #39)

A full listing of software titles is found in our catalog. If you didn't receive PCjr Survival Kit, write

Jr Newsletter, PO Box 163, Southbury, CT 06488

for your free copy..

SPECIALIZING IN ACCESSORIES FOR

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VISA MASTERCARD AMEX DISCOVER

Questions and Answers

(Continued from page 19)

make whatever copies would be needed in the real B: drive from the 5.25 floppies, keeping these 3.50 diskettes also in 360k format for further insurance. Reasonably priced, high quality DP package? First Publisher works well on PCjrs. But for a really inexpensive one, the DP from Spinnaker Software, One Kendall Square, Cambridge, MA 02139 may be the only one in the whole wide world. Write or call, tell 'em we sent you and that it will be for a jr; ask for a brochure.

Q. I am looking for a phone dialer for my jr. I notice that the latest version of Vernon Buerg's List has a dialer, but I can't get it to work. Are there any PD or Shareware dialers that will work on my machine?

F. Zagare, Buffalo, NY

A. If you are using the jr internal modem any software for dialing you wish to use MUST have the ability to be changed so that the Hayes AT commands can be changed to the IBM modem command set. This will be the case even if dialing is the only use you have in mind. You will have to inspect the software for some way to set up the initialization string(s) and be sure that the AT can be changed to ^N which is Ctrl-N, the only way to make the internal modem respond to commands, including dialing. The speed is always 300 Baud for the internal modem and the rest of the parameters will be determined by matching with whatever your connection requires. One last and very important point; the COM port for the internal modem will be addressed as COM1. If you can make these changes in the software and still have problems try SWAPCOM or one of the COM Port swapping programs. These don't really swap the COM ports they detour the addressing only from one to the other. A subtle difference perhaps, but there you have it. If you are using an external Hayes-compatible modem you should only see that the software does NOT need DMA, does NOT run in the background, and was not set up as a TSR to automatically answer if a call comes in! Otherwise, the vast majority of communications and dialer programs work. By the way the jr is NOT alone in problems like this one. Perusing any of the monthly journals will quickly demonstrate that the most "compatible" of the other computers out there have the same kind of problems. As an example, our readers should know that SWAPCOM was not originally written specifically for the jr!

Need a Form Feed in a hurry?

Can't reach the switches easily? Try this, Bunkie...
Type the following; ECHO Ctrl-L>PRN <Enter>
Voilá, the printer feeds to top of form!

*** PCjr CLASSIFIEDS ***

PCJR 20 meg HardDrive, Racore II Drive W/DMA 640b, (25.25") drives, TV adaptor, b/w monitor, internal modem, V-NEC 20, thermal printer w/paper, all cables, Basic Cartridge, DOS 2.1, 3.1, 3.2, Tech. Ref, ALL original manuals, 3 spare keybds, + 101 Keytronic AT-style Key-bd, w/ kb adaptor, all mags from PCjr club, lots of software from PCjr Club, includ. King's Quest IV, Bard's Tale I & II, Scuba Venture. Adult use only, asking $800.00. Call (201)276-2585, Nilsa Martinez 56 S. 21 St., Kenilworth, NJ 07033.

IBM PCjr-640K, color monitor, 2 keyboards with cable, BASIC cartridge, parallel printer sidecar, DOS 2.1, V-20 chip, joystick, Tandy modification with instructions, PCjr internal modem. $400 plus shipping. William Garces, 110 Cornell St., Widefield, CO 80911. (719)392-0119.

PCjr-20 meg Racore Hard Drive, 640K, V-20 Chip, 5.25 Drive, jr-Color Monitor, Mouse, 2 keyboards, 2 jr-Joysticks, parallel port, clock/calendar, Dos 2.1 & 3.3, basic cartridges, all orig. & tech. manuals, many extras, (reduced) to $900 + ship. Call Landon ONLY between 6:00 pm & 9:00 pm Eastern (EST) Fla. (407)487-2066.

How to Submit a Classified Ad

Classified Ads are $12 per month. Send us your typewritten ad (no more than five lines on an 8 1/2 x 11 typed page). Send to Jr.Newsletter, Box 163, Southbury, CT 06488.

Ads received by the 10th of the month will be printed in the following month's issue.

Can't Keep Track of Your Records?

Try the database File Express!

Enjoy Your Own Private PCjr Classical Music "Performances"

An impressive series of classical music concerts can be played on your PCjr, thanks to the efforts of a serious musician and an assembly language programmer.

If you enjoy classical music, or even if you're just interested in the high quality sound your PCjr is capable of producing, you'll be interested in PCjr Music Sampler (Disk #119). With the three voice sound chip made by Tandy, but included in our PCjrs, the music of Mozart, Beethoven, Bach and others, sounds wonderful.

Also included on this disk are two programs which can be used to turn Junior's sound on and off. This is useful for some game programs which fail to activate PCjr sound. These programs will turn the sound on so the game software can utilize it, and will turn it off when you've finished the game.

The high quality classical music is performed by Dolores Werths and programmed by Bruce Harrison. Their skills and careful attention to detail produce an amazingly true to life performance sound.

In a text describing their work, (included on the disk), they say the concerts "are programmed with the listener in mind, so precision in timing is given top priority. Ornamentation and embellishments (like trills) indicated in the scores are all there, too. No short cuts. We use a variety of instrument sounds in various combinations such as pianoforte, pianoforte and flute, fife and drums, etc. They are primarily to play the music as closely as possible to the scoring indicated by the composer."

The musician-programmer team has learned how to overcome the limitations of programming music in BASIC, by sending codes directly to the sound generators. This allows the programmer to achieve more accurate timing and greater control over volume, both of which are essential for a high quality classical music performance.

This disk is a sampler of music produced by Werths and Harrison. It includes 22 full-length pieces. Some of them are J.C. Bach's Sonata in B flat; J.S. Bach's Minuet in G, Handel's Jobel's Lyre; Goldberg Variation #1; Yankee Doodle; Mozart's Rondino in D, and others. For music lovers who want more, a full selection of concert performances is available from Harrison Software. Details are given in text files on this disk.

To order PCjr Music Sampler (Disk #119), please turn to page 23.

Get High Quality Sound With GAMES!

A program to turn PCjr sound on before running games is included on PCjr Music Sampler (Disk #119). Some games which operate well in other respects fail to turn on the high quality sound generator in PCjrs, so you can't hear all the music and sound effects. A short, easily executable, program written by Bruce Harrison, who programmed the classical music on PCjr Music Sampler, will turn the sound on for you. Another program, also on this disk, will turn the sound off.

PCjr Software Sale

Order two disks from the jr Newsletter Software Store this month, and select one more disk FREE!

Order four disks and get TWO FREE. Order six, get THREE FREE. And so on. For every two disks ordered you will be entitled to pick out another one free of charge.

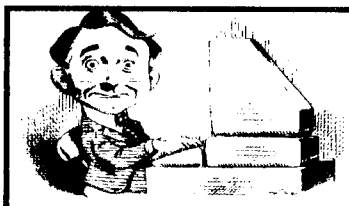
To order, please use the order form on page 23. This free disk offer expires October 15, 1990, so order now.

Canadian PCjr Repair Service

Don MacMillan of Maccom Systems in Ottawa, reports that he started repairing PCjrs and PCjr add-ons as a service to the company's regular IBM customers.

He has been interested in PCjrs for several years and wants Canadian PCjr users to know they can send their computers to him for repairs, avoiding U.S. customs hassles.

He can be contacted at Maccom Systems, Ltd., 838 Eastvale Dr., Ottawa, Ontario K1J7A4 (613) 749-1232.



Need Help?

The following disks from the jr Newsletter 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 V.5.0 Patches to fix software that ordinarily won't run on PCjrs. V.5.0 adds patches for Prodigy, Telix V.3x, Bard's Tale II, Maniac Mansion, Designasaurus, California Games, and F-19. Also patches for Flight Simulator V.3.0, Arctic Fox, Managing Your Money V.3, Autocad, King's Quest IV (early 512K version), KQ II (PC ver), Turbo C, Quick BASIC V3-4, Advanced Flight Trainer, Double DOS, Bard's Tale I, Turbo BASIC, and BASICA. (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:

Games - page 7
Spreadsheets, Jr. Ref a disk - 9
Educational - 13
Utilities - 15 & 18
Databases - 18
Art & Drawing - 19

Software Store New Releases

Please Use Order Form on pg. 23

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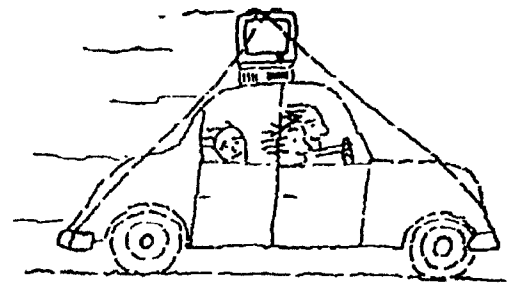

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