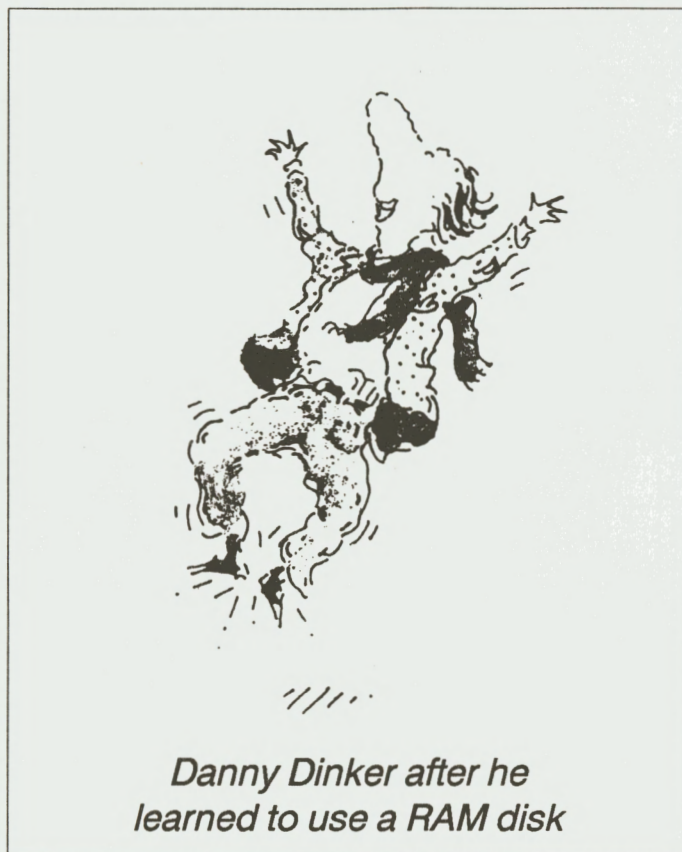# jr Newsletter

Many Options Available For Boosting PCjr Memory

With the prices of memory chips falling from the peak they reached last year, now is the time to think about upgrading your PCjr's memory.

Judging from the questions we get from readers, many people are not aware of the many options available for adding memory to their computers. So this article will describe those options.

The main reason for not being able to run new software on your PCjr if it only has 128K, or even 256K, is likely to be insufficient memory. With enough memory a PCjr can run 95% of the applications software and 75% of the game software written for IBM PCs and compatibles. But more and more new software requires 512K or 640K to run on PCjrs. Because of the way the PCjr uses its memory to handle video routines, or graphics, you generally must add 90 to 128K to the memory requirements listed on the software package, particularly for games which make heavy use of graphics.

An additional benefit of adding memory above 128K is that software operating with that "higher" memory will operate significantly faster. In fact, with 640K (or in some cases less memory) you can set up your boot disks so that your computer will automatically force software to run with the faster memory. The difference in speed is so noticeable

Danny Dinker after he learned to use a RAM disk

you'll think you've got a new computer. Higher amounts of memory also allow you to make use of RAM disks, which operate as fast as most hard disks. So investing in more memory not only allows you to run more software, it makes your machine run much faster.

So if you're sitting there with 128K or 256K on your faithful PCjr, and you want to keep up with the times, you should seriously consider upgrading. Or, if you've got more than the minimal amount of memory, think of how much more you could do with 736K (or up to 2MB, with the new PC Enterprises Megaboard announced in jr Newsletter last month.)

What are the options available for upgrading PCjr memory?

Starting with the basic level, if you have 128K on your PCjr, you have several choices. You can buy a memory only unit, such as the jr Hotshot (which also comes with a clock/calendar, so maybe we shouldn't say "memory only") or a sidecar memory unit, or you can get a combination unit which includes additional memory with a parallel

INSIDE

PCjr Lives!

Golden Peanut Award
Goes to Compatibility Authors

Although you may have missed the tv coverage of the award ceremony, The Golden Peanut Award was recently presented to the five PCjr experts who collaborated earlier this year to produce the PCjr Compatibility Guidelines.

These guidelines provided detailed information for software developers showing them how to include support for PCjrs in their new software titles.

The code represented months of work on the part of these dedicated PCjr enthusiasts who poured all of their knowledge of how PCjrs work into this set of clear, concise steps for software developers to follow.

The guidelines have been sent to dozens of software publishers by jr Newsletter in an attempt to inform them that PCjrs are alive and well and that, contrary to what many computer "experts" think, it's quite an easy matter to write code that will enable new software to run on the hundreds of thousands of PCjrs still in use. We have had several positive responses from major software companies and will report to our readers in detail on this subject in a future issue. It seems there is a great deal of interest on the part of software publishers in keeping PCjr users as buyers of their software.

So the entire PCjr user world is greatly indebted to these five people for the time, effort and expertise they brought to the writing of the PCjr Compatibility Guidelines:

* Rick Campbell *
* Max Maurer *
* Randy Pratt *
* Robert Sheaffer *
* Dave Wise *

Rick Campbell, who led the team in this effort, can be contacted at 2 Cottam Hill Rd., Wappingers Falls, NY 12590 (914) 297-3262.

Batch Files Ease
Date and Time Entry

The main reason for having a clock in your PCjr is to provide the information DOS needs to date and time stamp your files. This way, if you want to know what file you were working on with your word processor yesterday, just look at the directory and you'll see the file with yesterday's date next to the filename.

If you don't have a battery powered clock installed in your computer, you can still provide the information manually when you boot your computer. Then, for as long as your computer is turned on, DOS will know the right date. This batch file is designed to make entering that information a little easier.

For example, this method will allow you to enter the date December 18, 1989 and the time 9:34:29 by typing:

dt 12 18 89 9 34 29

With the lines below added to your AUTOEXEC.BAT file, the batch file DT.BAT will be called.

Put these lines at the end of your AUTOEXEC.BAT file:

```
ECHO     SET DATE AND TIME
ECHO
ECHO     TYPE DT FOLLOWED BY NUMBERS
ECHO     (SEPARATED BY SPACES) FOR MONTH, DAY, YEAR
ECHO     AND HOUR, MINUTES, SECONDS
```

Then create DT.BAT, the file that will be called when you type DT followed by the date and time numbers. Use the COPY.CON method to write the batch file, or use a word processor and save it in ASCII format.

```
ECHO OFF
CLS
DATE %1/%2/%3
TIME %4:%5:%6
```

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 a Jr upgraded to 640k but with only one disk drive. Is there some way to run spreadsheet programs such as Lotus 1-2-3 or look-alikes? If not, what is the cost of another drive, and which ones work on the jr? Some kind of enhanced keyboard is also on my list. Can you advise?

J. K. Richardson, Schenectady, NY

A. Plenty of spreadsheet programs run on the jr, needing only one drive! There is a cartridge version of Lotus 1-2-3 which only requires one drive. It's available from Computer Reset. Check their ad in this issue for address and phone number.

Second disk drive additions for PCjrs cost from about $200 and up, for units complete with PCjr style cases that fit on top of your current unit.

With 640K, you do have enough memory for a Ramdisk so you might want to try AS-EASY-AS (Disk #67 in the Software Store), a Shareware program "as easy as" and compatible with Lotus 1-2-3 and / or some other Shareware substitute. One of these might be a very inexpensive alternate. Another idea is to check out the Eight-In-One combination program from Spinnaker Software. As the name implies, there are eight modules, including a word-processor w/ graphics, a filer, a spreadsheet, pop-ups etc... and everything is "paste-able" across modules.

A complete selection of keyboards and adapters are available from PCjr-specific mail-order houses. Look around in this issue and give the companies a call or send a note; they'll give good information and service.

Q. Cannot get Chess Master 2000 to get very far. Int9 makes no difference. Any ideas?

G. Johnson, Potomac, MD

A. Our best information is that it runs for some of our readers with 384k or more, provided that DOS is booted first. (No one mentions which version of DOS) Have you got enough memory? Remember, if a program has graphics and calls for 256k RAM, then the jr needs that much PLUS 64k - 96k more RAM just for the video, as well as what's needed for DOS, COMMAND.COM and the device drivers! We usually just add 128k to be on the safe side.

Q. Have some problems. Cannot understand why they occur or what to do about them. I use DOS 3.2 with IBM sidecar memory with PC Enterprises memory expansion, jrExcellerator board, 20 meg hard disk and the standard (not chiclet) keyboard. I am trying to use WordPerfect 4.2 and a hard disk manager called DirecTree v 5.0.

(1) Cannot bring up the print format menu to change fonts or pitch in WordPerfect, and (2) Cursor does not come on with DirecTree on the hard disk.

R. Hancock, Shaker Heights, OH

A. Without knowing your CONFIG.SYS file we are limited. One glitch of DOS 3.2 shows up with PC ID switches and certain Cartridges. Your DOS version and the software / hardware together seem as if they are a combination to bring out the bug(s). There are certain other glitches which show up in DOS versions earlier than 3.3. If the hard disk is operating as a SCSI device, some software such as Norton's (and DirecTree?) don't always recognize correctly that there IS a hard disk installed and a bug may come out in strange ways. Even with the COMSPEC patch, and a SCSI drive with COMMAND.COM on it, early DOS versions will lose track of where to find COMMAND.COM. DOS 3.3 SEEMS to have corrected these problems.

One other thing; does DirecTree need ANSI.SYS installed? This is often overlooked and sometimes solves similar cursor / prompt problems.

Q. I have a jr with 640k and second Racore drive. The drive was acting up and I cleaned it. If it does fail must I

Questions and Answers

(Continued from page 3)

use a jr-specific drive for replacement or can I get a drive from one of the advertisers of another magazine?

J. Pruett, Blackfoot, ID

A.   If the drive will physically fit, and has the same connectors as the existing drive, you are all set. Also make sure the drive made for IBM and compatibles.

Q.   Recently found a good buy on a Tecmar Jr Cadet with all the memory already installed. Don't have either Jr Wave or Jr Captain. Is it possible to use this side-car as expanded memory with modifications? If so, can you explain or direct me to a source for information?

R. Randolph, Cincinnati OH

A.   As far as we know, the only modification for expanded memory above the 736K DOS addressable limit on PCjrs is for the IBM or Microsoft side-cars. This is not to say the other products cannot be done; we just don't know how to do it, yet. The IBM modification is in the July 1989 jr Newsletter on page 12.

Q.   I tried Microsoft Works v1.5 and the program runs fine except for certain keyboard functions. (Esc, Arrow keys, Enter etc) I called Microsoft and they told me I need a keyboard patch. I was able to return the program to the dealer and will re-purchase it if it can be made to run properly. Would like this for my son's school work. Can you help me?

T. Law, S. San Francisco, CA

A.   First, you need at least 256k for Works. If you have not yet applied the IBM patches to DOS 2.1, now is the time for it because the bugs in DOS 2.1 can cause the symptoms you describe. The separate keyboard patch referred to by Microsoft, which EVERYONE should install, whether having problems or not, is the now-famous correction for the BIOS Interrupt #9 service. The INT9 patch is on the Jr Power Pack diskettes (Disks #52 and #65) and is well documented. It is also included automatically when you use JRCONFIG (all versions) as your memory device driver. JRCONFIG is also on the Jr Power Packs. This is the best and easiest solution. Third choice is the INT9 which will be added to your AUTOEXEC.BAT file. This keyboard input change makes NO difference to programs which already run. It does allow many others, such as Microsoft products, to run without a hitch. They ought to include it, or something like it, with every disk they sell!

Q.   I would like to know if I can use a 3 1/2" 1.44 MB drive on my jr. If it can handle 5 1/4" 360K and 1.2 MB as well as 3 1/2" 720K, can I just put in the 1.44 MB drive and use the DOS 3.3 device drivers?

D. Murphy, Madison Heights, MI

A.   Not yet. The example you take above for the 1.2MB drive is NOT the standard drive, running at the standard speed. This product is especially set up for the jr. The "doubling" of data on disks and with drives is done in at least two completely different ways: One way is to double the number of tracks, which causes read / write / erase problems if the diskette is used first in a standard drive then in a higher density drive because the head(s) are narrower in the new drives and they read and write to about one-half of the standard track. The other way is to double the amount of information in each sector, writing the data "faster" to each sector. The change from 720K to 1.44MB is like the change from 360K to 1.2MB floppies. Checking around, we find that work and research IS being done for us jr owners... hang in there!

Q.   Many of us who have installed hard disks need back-up software which is really compatible with the jr. I tried FASTBACK PLUS only to find it not compatible. I know you don't like to recommend specific software, but what are we to do?

R. Markeloff, Kingwood TX

A.   You're right on both counts. DMA rears its head in most hard disk back-up software and makes it incompatible. Among the programs which is menu-driven, flexible, efficient and fully compatible with the jr is; DS BACKUP by Design Software. Telephone (312) 231-4540 for information about this and other software they produce which will run on the jr...

Q.   What is the least expensive way to add a second disk drive and with the least physical modification on the user's part?

K. Reeve, Don Mills, Ontario, Canada

A.   Get a "package priced" external drive and card from one of our advertisers. There is NO physical modification on the user's part. First, plug the card into the jr. Second, connect the card and the drive together with the supplied cable. Third, place the new drive somewhere near (or on top of) the jr and plug in its power supply. Fourth, add a line to your CONFIG.SYS file (it's all in the supplied documentation) and re-boot. Done! The new (second) drive is now the real "B:" drive.

Q.   Based on articles in the Newsletter I've put in a JrHotshot, a V-20 chip and done the Tandy graphics mod.
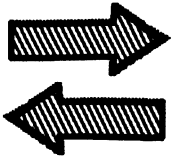
Reader Feedback
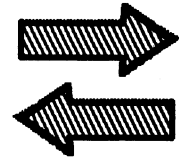
Engineering Student Loves His Hand-Me-Down PCjr

I'm an electrical engineering/computer engineering student who loves his jr. (Donated to me by my brother who told me I could have it if I fixed it.) When I obtained jr. three years ago it was a 128K standard jr.

At present jr. has 640K via Racore Drive II plus DMA, the Tandy modification, dual font chip, V-20 microprocessor and various hardware modifications and additions. Without contacts made through your pages most of the above couldn't have been accomplished. Thanks again!

PCjr Lives!

Colt Weaver, Raleigh, NC

3.5" Drive Problem May Have Simple Fix

I have been a subscriber of your newsletter since November '86 and have gained many valuable and useful ideas, tips etc., that have helped me enjoy my jr.

I am having a problem that perhaps you or one of your readers can advise me on a solution.

I have my computer equipped with a Tecmar jrCaptain sidecar which I upgraded to give me a full 640K RAM using some of your reader's tips. When I got into trouble with some of my amateur de-soldering and soldering Tecmar bailed me out--and very graciously for a reasonable fee.

Last year in August I added a second drive, a PC Enterprises Junior Drive II 3.5" system. All worked well until last spring when I began to have some severe noise problems and a disk recognition problem. Since it was still under warranty I returned it to PC Enterprises. They were unable to duplicate my problem in their labs and returned the unit to me. Along with the return they suggested my using 3.2 DOS with my config.sys containing the line "DEVICE = DRIVER.SYS /D:1 /F:2". I have DOS 3.3 so I utilized this configuration and have had no noise problems at all.

However, the recognition problem persists. If I change disks in the 3.5" drive more than twice the drive persists in only recognizing the 2nd disk entered. This occurs if I ask for directories, run a chkdsk, or use a program such as Managing Your Money which requires many disk changes. I am thus forced to revert to my 5 1/4" drive for such programs with many more disk changes. I have had no problems with the original 5 1/4" drive since I purchased my jr in December of 1984.

Whenever I re-boot, the drive again recognizes the first 2 disks I ask it to.

Thanks again for a great newsletter. Keep it coming.

A. R. Chinery, Hobart, IN.

EDITOR'S NOTE: Your problem is most likely caused by a quirk (if not a bug) in DOS 3.x. It arises from the use of buffers, which store the directories of disks you've inserted in your drive. Under certain conditions, DOS 3.x may not know you've put another disk in the drive and it will simply read the information stored in the buffer, which would be from the previous disk. We don't have the manual for DOS 3.3, but you should find a reference to a switch you can install in your DEVICE = line to tell DOS to check for new disk insertions. Another way to handle your problem would be to issue the command: BASIC X, which will get BASIC (Cartridge or other) to try to load a fictitious file called "X". The effect of this will be a nearly instantaneous clearing of all buffers, almost a cold boot, and your next disk should work fine. This may not be practical when you're using Managing Your Money, in which case the switch on your DEVICE = line is a better solution.

Newsroom Pro Is Recommended for PCjr Desktop Publishing

In the Sept-Oct issue of the jr Newsletter there was a letter from Marilou Grant, from Villa Park, IL. She was requesting a desktop publisher. I recently purchased NEWSROOM PRO from Springboard and am most pleased with it. It does so much, including 2000 pieces of clip art, and doesn't require an expert to understand it. I intend to use it for newsletter publication and think it will be just right. I have used it enough to realize it does work on my Jr.

I also have 640K, and a single floppy disk drive. The printer she mentioned is not listed among the many that will work with this program. That may be a problem. (6 different

Reader Feedback

Okidata Microline printers are listed, among about 20 others.) This program sells for about $35 which is great too!

Not to take away from your new label program, but I have also found that MYLABELMAKER by Mysoftware Co. works great for me. It handles up to 200 labels in one sequence, and add another disk and do 200 more if needed. It also alphabetizes the names, and inserts new additions into the alphabet easily. This program sells for about $20.

Neither of these programs were listed on your compatibility disk. Our 'Software etc' in our Mall lets us take home software to try them with full money back if returned in 30 days. I believe this is a branch of Dalton's Books. She also spoke about getting a compatibility list for jr's to have on hand.

Both my husband and I read your newsletter and have learned much from it. You do a real service to jr owners, and especially novices like us!

Nancy Donahoe, Superior, WI

Some Tips on Writing Assistant and Printer Setting

I use a PCjr enhanced by Racore, 640K with PCID and DMA, two drives; and I print on an Okidata 82. A couple of weeks ago, my system quit working, so I tried cleaning it with a cleaning disk, as I have done before. The A Drive cleaned OK, but the B Drive wouldn't do anything. I tried "Format:B" and "Dir:B" but to no avail. Then I cleaned the B Drive rods with isopropyl alcohol, but still nothing. After lots of pushing and prodding, the entire system suddenly started working, and is still going strong. Do you have any idea what happened?

Here's another problem, which I created - and solved - all by myself. It may be of interest to other users of Writing Ass't.

When I use Writing Assistant to write anything, I save it on a separate disk. Then, in order to print it later, I have to install the Program, get the document, and then print it, all of which takes time. I tried TYPE myprog with the saved

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PCjr Auto-Setup Disk Makes Powerful Setups Easy

Perhaps the most important thing you can do to make your PCjr as powerful, efficient and compatible as possible is to use config.sys and autoexec.bat files designed for the type of software you're using.

Our new PCjr Auto-Setup Disk takes the pain out of doing this by providing you with an easy to use menu system that helps you make several boot disks, each designed for your system and for the things you use your PCjr for.

If you haven't figured out how to make your own config.sys and autoexec.bat files, or how to do things like keep DOS from always telling you to "insert command.com," the new PCjr Auto-Setup Disk is for you.

The disk is full of ready made config.sys and autoexec.bat files designed especially for PCjrs. All you do is select the ones you want from a menu and the Auto-Setup Disk will create a boot-up disk for you.

If you haven't yet experienced the boost in speed and convenience of using a RAM disk, the Auto-Setup Disk will make one for you --either a fixed size, or one you can adjust at any time.

With PCjr Auto-Setup, you can create boot disks that will automatically set you keyboard click on, put your screen in 80 column mode, set the screen colors, read your internal clock so it will time and date your files, force software to run in high memory for faster operation, set up video buffers for maximum game software compatibility, create RAM disks of varying sizes, and much more. All

you have to do is select options from a menu and it will be done for you automatically.

Many PCjr users have mastered the skills of customizing their own setups, but judging from the questions we receive from readers, many of you are not using all the wonderful features available on your PCjrs, simply because you don't know how. So if you've had difficulty reading instructions for jrconfig or the memory drivers that came with your memory expansion units, or you just don't understand the ins and outs of config.sys and autoexec.bat files, this disk if for you.

PCjr Auto-Setup helps you make boot-up disks especially designed for each type of software you want to run. This approach makes your PCjr operate faster and more efficiently, and it increases compatibility at the same time. There are setups for running telecommunications software, others for using word processors or database managers, several for games and for creating RAM disks.

Simple instructions and tips on how to best use each of the setups are included on the disk.

PCjr Auto-Setup also includes many useful utilities, some of which improve on DOS functions, or make tedious computing tasks easier. One setup copies these utilities to a small RAM disk so they'll be there for you whenever you need them.

PCjr Auto-Setup requires 256K and works with all PCjr memory expansion units. It is Disk #99 in the Software Store.

PCjr Guru Answers Some "Stupid" Questions
By Ima Begin

The last time I called up my PCjr Guru, I had a lot of dumb questions to ask. I thought maybe some of you had the same dumb questions, so I thought I'd tell you about them. Here's a transcript of our conversation:

"Mr. Guru, I'm a non-technical person who'd like to add a second disk drive without going to a lot of trouble or expense. What's the best way to do it?"

"Well, Ima, that's not a dumb question, but it's a little like asking What kind of car should I buy? Different people have different needs."

"But, first of all, my advice would be not to rule out installing a second disk drive yourself unless you're the type of person who couldn't or wouldn't want to change the battery in your smoke alarm. Many of the second drive kits are just about that simple. They require taking the top off your jr, plugging in some cables and an adapter card, putting the drive unit in place on top of your initial drive (if the unit is a so-called "internal second drive" with an enclosure that matches the design of the PCjr's casing), and copying some files to your DOS disk so that your jr will recognize the second drive."

"That doesn't sound too bad. Can even a dummy like me do it?"

"Most makers of second drives for the PCjr supply you with step-by-step instructions which are quite easy (even for the non-technical person) to follow. If you already have added memory to your jr you will have to ask your supplier whether the second drive will work with it, but that should not be a problem. But, if you don't like to do these kinds of things yourself, you can send your PCjr to one of the advertisers in jr Newsletter and they will do it for you (for a little more money, of course.)"

"I think I can do it if it's as easy as you make it sound, Mr. Guru."

"It really is easy, Ima. No tools, other than a screwdriver are needed. And think of the amount of disk swapping you will save yourself by adding a second drive."

"It gets pretty boring, all right. My wrist is still aching from the disks I had to copy a few minutes ago. So, OK, I'm convinced it'd be nice to have a second floppy disk drive. How much do they cost?"

"You can get them for around $200, Ima. But you have another alternative."

"Oh, Mr. Guru, you always have to throw in a zinger, don't you? What do you mean, another alternative."

"Well, if you have enough memory, you can create an imaginary disk drive."

"Now just hold it right there! I'm going to stop calling you if you keep kidding me, Mr. Guru! I don't want any IMAGINARY drive, I want a REAL drive."

"Hear me out, Ima. You've probably seen RAM disks mentioned in this newsletter, right?"

"Yes, but that went right over my head and made me turn to another article I could understand."

"Well, it's very simple and very handy to use a RAM disk, Ima. And it may enable you to do without buying a second floppy disk drive."

"OK, you've got my attention. But I'm warning you, Mr. Guru, keep this simple or I'll ask you a million dumb questions."

"Right, Ima. First of all, this RAM disk gets its name because it exists in your computer's RAM, which is its Random Access Memory, get it?"

"OK, I'm not so dumb I can't follow that!"

"Just think of it as a part of your computer's memory that's set aside for use as a disk drive. You can use it just like a real drive by copying things to it and from it. And, are

Beginner's Corner

you ready for another surprise, Ima?"

"My seatbelt's fastened!"

"A RAM disk operates MUCH FASTER than an actual floppy disk drive does!"

"This is too much for my heart, Mr. Guru, no more surprises, please!"

"Well, that's really all there is to it, Ima. A RAM disk is a disk drive that's made in a part of your computer's memory that is set aside for that purpose. Once it's set up, you can use it just as you would use a floppy disk drive, only it operates much faster."

"I've got the idea now. But I sure don't know how it's, what did you say? Made in my computer's memory?? You lost me there."

"You have to have at least 256K on your PCjr to do it, Ima. But if you've got more than the 128K that your PCjr had originally, that means you've got some kind of memory expansion unit on your PCjr. Usually it's a piece that fits on the right side and is called a "sidecar." Or, it could be a jr Hotshot, which is inside your PCjr, plugged into the main electronic circuit board called a "motherboard.""

"Whoa, there, Mr. Guru, too fast, too fast! I never looked inside, I don't know a fatherboard from a motherboard."

"You don't really have to, Ima. The point is, if your jr has added memory, then you have the instructions that came with that added memory. And every type of memory expansion unit, whether it's a sidecar or internal, comes with instructions for setting up a RAM disk. And if you have at least 512K, you might consider learning how to use a RAM disk instead of buying another floppy drive."

"What if I don't have 512K?"

"Well then you might want to add memory to your jr rather than adding another floppy drive. If your budget is low, and you have to choose between adding a floppy and adding memory, adding memory might be the better choice because more and more software these days requires a lot of memory. And if you learn how to use a RAM disk you'll be able to run more software AND use your added memory as another disk drive when you want to."

"I'll have to call you back, Mr. Guru. My brain is spinning. If I call you again will you explain HOW I'd set up and use a RAM disk if I had enough memory?"

"Be glad to, Ima. And in the meantime, think about this: Before I became a Guru, I had the same dumb questions you have."

"Thanks, I feel better now. I think my wrist is rested enough to go copy some more floppies."

Questions and Answers

Now that I have such great graphics I find myself using programs with graphics more than ever. Still, I find that the "notchy" updates in Flight Simulator and Battlehawks 1942 are irritating. Any suggestions?

T. Burke, Otisville, MI

A You've already done the least expensive things to speed up your jr. As for the desired speed up on Flight Simulator and Battlehawks, the next step is not really inexpensive, but more than just speed is acquired if you choose to do it. What are we driving at? The '286 board, of course! The jr will run at a Norton SI of about 11.5. (The standard PC runs at an SI of about 1.0) Check 'em out; when you find out what else these boards do, you just might decide to have your jr turn into an AT!

Q. Now that there is a new (version 4.0) of Flight Simulator, will it run on the jr?

BCS callers and others.

A It will run in 16-color if you have made the Tandy-to-jr hardware modification; otherwise it will run in monochrome or standard CGA 4-color mode. The patch which customizes the TGA1.GRA graphics driver for version 3.0 will NOT work! We're waiting impatiently for the wonderful people who do such things to come up with a graphics patch for this version. Our jr HAS the Tandy compatible hardware modification and we find this version of Flight Simulator is really an elaborate upgrade, not an entirely new version. The improvements are worthwhile, however. The "views" and 3D windows operations are de-bugged and easier to use, for example. The clouds and other graphics are MUCH more realistic, as is the weather in general. Other planes in the air and on the ground show up, so keep looking! The airports (there are 118 now) have been upgraded to match the quality of the separate scenery disks, especially the smaller ones. For those of you familiar with them, and want the challenges, full ILS IFR with VASI, night-time ALS, REIL, RAIL and MALSR are shown realistically. ATC messages will clear you to land just as in any real flight, too. You'll have to occasionally dial in Mode C transponder "squawk" freqs, too! Night flights are fantastic!

You should "de-sensitize" the controls somewhat in this version though, as it's really touchy. You have a choice of improved versions of; the original Cessna, the Lear Jet, the Sopwith and now a German-designed Glider for flights. You can even design your own plane and fly it if you're a good enough designer and test pilot!

With all this and more, it is simply beyond belief that Microsoft has again failed to write the relatively simple graphics driver change for the jr!!!

How to Fix a Tecmar Sidecar

By Gary K. Inglish

My Tecmar Captain expansion for Junior has given me a lot of good service for over 4 years, but would occasionally act finicky; after heating up, the keyboard would lock up and require a reboot. (This is a common problem with Tecmar. -- ED.) The situation could be corrected by unplugging and resetting the power adapter plug. Investigating the cause, I determined I had two separate problems. First the coaxial power jack at the back of the sidecar had cracked which caused the power plug to lose contact. This would do anything from a hangup to a complete reboot. Secondly the voltage regulator IC located on the heatsink was breaking down from the heat. The only way to regain control was to unplug it and let it cool down.

If you have either of these problems, you can fix them with a little help from Radio Shack. A replacement for the Voltage Regulator IC is part no. 276-1770 and costs $1.19. The coaxial power jack was a little harder. A replacement that will work with a little modification is part no. 274-1565. This is a pack that has two jacks and mounting hardware and costs $1.29. The replacement procedures are not complicated but require a few tools. You will need:

Pencil solder iron
Solder
Needle nose pliers
Knife or wire stripper
Small philips screw driver
Small straight slot screw driver
Small file or grinding tool
Solid hook up wire
Heat sink compound part no. 276-1372

To start, turn off the computer and unplug it from the wall. Unplug the Tecmar adapter. Pry off the plastic cover from the side of the Tecmar sidecar. You will find four round recesses that contain the sidecar's mounting screws. Use the flat blade screw driver and remove them. Carefully pry the sidecar away from the Junior. Unplug the printer cable and lay the sidecar on the table inside side up. There are four small slots along the two long edges of the sidecar. To pry open the gray cover, insert the screw driver in these slots and gently release the catches. Lift out the printed circuit card holding it by the edge. You will see a piece of metal that wraps around the end that the printer connector is mounted on. This is called a heatsink. Look inside the long side nearest the power jack. You should see a small black square mounted on the inside of the heatsink. This is the Voltage Regulator IC. The IC is also plugged into a socket on the circuit card just behind the power jack.

Hero's Quest I — A Great New Series Begins!

Hero's Quest I, a new release by Sierra, is definitely a bold move in the right direction by one of the most successful adventure game software publishers of all time. Rather than creating a game in the same mold as the ever-popular, always excellent King's Quest or Space Quest series, Sierra decided to add some new features to this game, those being role-playing aspects and arcade style combat control. The character still moves around the screen as in the other 3-D Sierra adventures, but a large part of what he can (or can't) do is determined by a set of attributes made up for the character at the beginning of the game. These attributes are very similar to the ones found in such popular RPG's (role-playing games) as Bard's Tale, Wizardry, and Ultima, and they increase as more experience is gained. This is the first of the adventure games on the market to combine 3-D animated graphics, complete control of your character, and aspects of role playing games all at once. Along with complete day and night cycles, it definitely makes for a winning combination.

The game begins with the choice of one of three character classes: Fighter, Magic User, and Thief. From there, a list of all the attributes is given , along with the pre-set minimums of each (for instance, a Fighter cannot have a strength value of less than 20, and a Thief cannot have a stealth value of less than 15). The user is given 50 points to distribute to the different attributes until the character is set up satisfactorily. It must be remembered that Fighters need more strength, weapons use, and parry skills; Magic Users need more intelligence and magic, and Thieves need more agility, luck and lock picking skills when assigning points.

A really interesting feature is that when you attempt to do something (like climb a tree that looks climbable), the character gets an increase in his climbing points just for making the effort. This is true in almost everything done in the game. As a general rule, the more something is practiced, the better the character becomes in that particular area. Stamina and health points (which are the equivalent to hit points) also are included. If and when a character reaches zero in health points, the character dies. As the stamina points decrease, the character becomes more and more tired (oftentimes, the character will be shown taking deep breaths and sometimes even falling to the ground in exhaustion!). The player can rest the character when this happens, and it raises the stamina and health slightly for the first two or three times the "rest" command is typed in.

The combat sequences are a neat addition to Sierra games. When you encounter a monster in the forest, a full screen view of the monster you are facing and your back side are given. The player controls the various movements: dodge left, dodge right, lunge forward with sword, shield up. The sequences tend to be slow in places, but they are fun and are more than a challenge. As the character gets more money, better equipment can be purchased, which makes the fighting much easier (along with the increase in strength, agility, dodging, etc. with every victory you post in battle). Some of the more interesting monsters found in the forests are : the Cheetaur, a Cheetah-Centaur mix with claws the size of meat cleavers; the Griffin, an Eagle-Lion cross with blinding speed and dagger like talons; and the Saurus Rex, a pumped-up version of the regular Saurus (which is just a baby dinosaur).

The game begins in the city of Spielburg. Spielburg has a major problem, for the heavy snows of the past few years have trapped several brigands and monsters. These monsters have been ravaging the villages and wreaking havoc in the forests, and the brigands, or thieves, have been pillaging left and right. It is the adventurer's job to assume the responsibilities of a Hero by fighting off any of these unwelcome hordes, rescuing people, undertaking selected quests, and stopping the brigands' stealing (unless, of course, you are a Thief!).

"This is the first game to combine 3-D graphics, complete character control and role playing."

In the town itself, there are two locations in particular that need to be visited quite frequently: the Hero's Tale Inn and the Adventurer's Guild. The Hero's Tale Inn is a place where a weary adventure can come to eat a good meal and rest up after a hard day's work, all at very reasonable prices. The Adventurer's Guild is just west of the Inn and has a bulletin board listing various quests which need to be undertaken and completed and a sign-in book where each adventurer writes his name and therefore can officially begin his claim to fame within the realm. Three of the more important quests are for the safe return of Baron Barnard von Spielburg, former Hero of the Realm and protector of the people; the return of Elsa von Spielburg, who has been missing for ten years and would now be eighteen, and for the capture of the Brigand Leader, a mysterious figure who is known to wear a cloak and helmet but whose face has never been seen.

For the Magic User, there are a variety of useful magic spells to aid him in his quest for Heroship. The "zap" spell is used in battle situations. It has the effect of increasing the amount of damage a dagger can do for one attack. This spell is very limited, for it only works when the opponent is in close range. The "open" spell is useful in picking locks

and opening jammed or barred doors. The "fetch" spell allows the Magic User to manipulate small objects at a distance and bring them to the caster. The "flame dart" and "dazzle" spells are both battle- related, with the main difference between the two being that the "flame dart" inflicts damage and the "dazzle" just temporarily blinds the enemy. The "calm" spell is very useful for those who would rather avoid fights than start them, because it prevents combat. The "detect magic" spell can be very useful as well, for it tells the Magic User whether or not an object has some form of magic cast on it. This full arsenal of spells gives the Magic User an unfair advantage over the Fighter and Thief classes in many instances, but can leave them quite disadvantaged in combat, because Magic Users are not very adept with swords and knives.

The Fighter, of course, relies heavily on combat skills. Strength, dodging, and parrying are three areas in which he must be proficient to stay alive in battle. With every victory, these three attributes (as well as some other very important ones such as agility and vitality) go up. In the beginning of the game, only a handful of monsters can be fought and defeated, but, as the Fighter gains more and more experience, even the nastiest of the Brigands can be beaten in battle.

The Thief is the slickest of the heros. He relies on his stealth, agility, and lock-picking to get what he wants. It is because of his evasive nature that he is considered the most powerful of the adventurers. If a Fighter or Magic User does something that shouldn't have been done, they are usually in a good deal of trouble, but the Thief, on the other hand, is usually long gone before anything is noticed. The Thieves respect their right for secrecy, and therefore it is not readily known where in fact their Guild is. When it is found, a sign must be given to enter, or else the Thief will find himself seriously disadvantaged!

Hero's Quest I is the beginning of a new series for Sierra, for they plan on continuing the series in the same tradition as the King's Quest series. If the first installment is any indication of how the rest will be, the Hero's Quest series will be extremely popular. Sierra has always prided itself on being the trend-setters in the adventure game industry, and they haven't let me down at all with this fine product.

Hero's Quest I works on any PCjr with 640k, and works on PCjrs with the Tandy modification with at least 512k. It runs in beautiful 16-color graphics and supports the same great 3-voice sound utilized in all Sierra games. The game retails for $59.95, but I got mine at Babbage's (a nationwide software dealer) for only $35.95. Computability (1-800-558-0003) is selling it for only $37.95, both outstanding prices considering the quality of the game and the length of it (ten disks long!). This game would definitely be an excellent Christmas gift for a PCjr user.

Lotus 2.2 Runs on the PCjr — And It's Faster Than 3.0!

By Carl Haub

There once was a time when writing a software review for a PCjr newsletter such as this one or my own group's Metro PCjr Journal was easy. But, times have changed. One must take into account users with machines that range from 128K to 736K and beyond, have one or two or three disk drives, 3.5" disks, and,now even 80286 CPU's. In addition, as the years go by, it's important to take into account both seasoned users and those who have just started. With that in mind, this article presents a nearly look at a brand new product, Lotus 2.2 and how it fits into the array of spreadsheet programs available. This program has enough new features that many PCjr users will want to know about it as soon as possible.

As any Lotus fan knows, the "new" version of the industry standard spreadsheet program, Lotus 1-2-3, has been long overdue. A classic example of "vaporware." While the number-crunching world awaited the arrival of the new wonder from Lotus, other rivals made inroads on the program's virtual monopoly in the spreadsheet world.

Borland introduced Quattro, a real challenger whose graphics were superior, Microsoft brought out Excel, and others such as Mosaic and Paperback Software offered Twin and VP-Planner, respectively, as viable alternatives. The shareware world has several competitors, the best of which is probably As-Easy-As (Disk #67 in the jr Newsletter Software Store), a very, very good Lotus substitute.

But Lotus remains the king in many ways, particularly for those with 8088-based machines with 640K memory and one disk drive - a class into which most PCjr users fit. Quattro is nice but definitely needs two disk drives - consider it seriously for its great graphics and color if you have two drives or a 3.5"drive; forget Excel, it requires too much memory, a hard disk,and a personal letter from Bill Gates to run it. VP-Planner is nice, but is generally unremarkable. The Twin is o.k, but the graph menus will drive you crazy and it shrinks the graph area whenever you add an option such as title lines or source notes. Perhaps the most serious contender for the home market is the shareware As-Easy-As which will almost certainly fill most spreadsheet needs. These challengers have also been priced well below 1-2-3 and are worth considering on those grounds alone. The challengers often tout the fact that one does not need to resort to a separate Print Graph disk and that that feature is contained directly in their programs. What they don't point out is that such a feature takes a big bite out of remaining RAM,baggage you must carry around every time you use the program. Lotus makes the most efficient use of your memory and does not need the program disk in the drive once it's run. How often does one actually print graphs?

The first version of Lotus - 1A - is credited with the explosion of personal computers (their numbers, not their condition). Visicalc put Apples on some corporate desks, but Lotus gave companies a reason to begin installing IBM PC's in earnest. The spreadsheet brings enormous computing capabilities to the casual, non-programming user. Accountants use them for budgets, home users for checkbooks, demographers for life tables. Lotus 1A was introduced when the PCjr was still a hot item a 128K PC with color graphics, IBM compatibility, a disk drive,and the IBM logo. This, remember, was in the days when the Apple was king of the home computing set, a machine with 64K, a 40 column monochrome monitor, and a tortoise-like 4 bit microprocessor. That machine could be upgraded, but it wasn't cheap. The PCjr was originally overpriced, too, and had a lousy keyboard, but, by late '84, IBM rectified all that and the machine really took off. Lotus would not only run on the "home"PCjr, but a cartridge version was even introduced. The "big PC"disk-based version also ran on jr's with 256K, but required a special disk to use graphics and even that was normally provided free. The graphics, however, only ran in 4 colors. This was the IBM business standard for the time, but it was really annoying that Lotus made no provision to use the jr's 16 colors. An oddity is that PCjr owners with the cartridge version can actually use larger spreadsheets than other PC users since the program, by definition, uses no memory - it's all in the cartridge.

"It Shatters the myth that you can't run THAT on a PCjr."

The next version of Lotus, 2.01, added many improvements to 1A, such as hidden columns, slightly improved graphics, access to DOS, etc. But the big surprise was that it still supported PCjr graphics -- well after IBM ceased jr production. But, you guessed it, only 4 color mode again. Nonetheless, it was nice to see our jr listed in 2.01's INSTALL program.

The next version of Lotus was promised for the Summer of '88, if memory serves me correctly. Lotus decided to rewrite the entire thing in the C language, rather than in assembly AND be certain that it would run on 8088 machines with "only" 640K -- people like us. Big mistake. Lotus 3.0 became a dinosaur. It wouldn't run under 640K and requires at least an 80286 microprocessor. Recognizing that

it shot itself in the foot,Lotus quickly followed the late Spring '89 release of 3.0 with a scaled-down upgrade for the "rest of us." Lotus 2.2 was made available to the peasants, but, amazingly, it's a very desirable product. For one, it's still written in assembly, so it's actually faster than its big brother 3.0, if you can believe that.

But does it run on jr? I fully expected that 2.2 would run on jr and it did. Few, if any, "business-type" programs are a problem. But, would the graphics run? My guess was no, and the lack of any PCjr-specific graphics driver on the disks seemed to confirm that suspicion. Happily, that guess was wrong. Simply specifying "CGA" during the INSTALL process enabled Lotus graphics with no problem -- in 4 colors, of course. So, PCjr owners can consider an upgrade to 2.2 without fear of compatibility problems.

Is 2.2 worth an upgrade? That depends. Many users have found that software upgrades are a two-edged sword. All have new features but they also extract penalties. 2.2's chief penalty will be a financial one. If you are a Lotus user, you should have already received an upgrade notice. An upgrade from 2.01 costs $150 but is FREE if you bought 2.01 after 9/6/88 and jstill have the sales receipt. (What was magical about Sept. 6th?)

What V2.2 Will Do

Whatever your cost, this is what Lotus 2.2 will do for you. It will consume about 30K more RAM than 2.01, on the negative side, still an impressively small addition for an upgrade. The added features are not great on their own, but they do add up. The biggest difference is "file linking." This feature allows cells to be addressed from other worksheets, a scaled-down version of the true "3-D" features of Lotus 3.0. This is a useful feature if you need different formats for the same spreadsheet; I use it now to automatically reproduce edited and formatted tables for modem transmission to a typesetter -- no more laborious manual reformatting.

2.2.'s graphics are only slightly improved. Long x_axis labels are now staggered so they won't overprint, grid lines don't print through the bars in bar charts, and the hatching patterns are little better looking. But that's about it; Info World still rates Lotus graphics as "poor." Lotus graphics were never really intended for presentation quality.

Other new features are: the ability to change multiple column widths with a single command; specification of multiple,adjacent data ranges for graphs; the use of "setting sheets"which show all graphing and printing specs on a single screen;search and replace in a range - nifty if you need it; improved macro debugging and run features; optional backup files when saving or doing file extracts; and, at last, a warning if you try to exit the program without saving. BUT there is STILL no warning if you do a /Worksheet Erase without first saving!! Still not completely bulletproof.

When you first run 2.2, you will notice that 150K of memory seems to be mysteriously missing. As in earlier versions/Worksheet Status will show remaining RAM; it's not shown on screen as with other programs. The missing RAM is used by the new "UNDO" feature and you'll probably want to disable it. UNDO will recover an erased worksheet from the last "Ready," but requires a lot of memory. Undoing UNDO is accomplished by the following series of commands: /Worksheet Global Default Other Undo Disable. Whew! If you want that change to be permanent,don't forget to specify "Update" in the Default menu.

Lotus overcomes its skimpy graphics with an end run: Funk Software's Allways package provides a reduced set of desktop publishing features that enable one to print spreadsheets with different fonts and type sizes along with shadings, underlinings, and imbedded graphs. Nice, but will it run on a PCjr? The manual states that a hard disk drive is required, but don't you believe it. Allways will run on the junior without a hard drive,but all of its files need 1.2 meg of disk space. The solution for those without a hard

Lotus 2.2

(Continued from page 13)

drive is to install Always on a 3.5" 720K drive or, better, a high density 1.4 meg 5 1/4" inch floppy. Both methods will work on junior, although you can only use one font file at a time with the 720K 3.5" drive.

The secret is to make Always think it's being installed on a hard drive. The Always install routine (use the AWSETUP program) will look for two files on the disk, 123.RI and 123.DYN on the target disk and those files must be in the directory \123. So, create a directory called \123 and copy the above two files to it. Then, Always will create its own subdirectory called\123\Always and copy its files there. If you're putting it on a 3.5" disk, pick one of the font files, PICA.AFL, TIMES.AFL (TimesRoman), or TRIUM.AFL (Triumvirate). A 1.4 meg floppy will hold all three. You may also wish to delete the "HLP," help file.

That done, Always can be run as an add_in program from the main Lotus menu. Well, almost. I discovered that Always would not run under Lotus when Lotus itself had been run from a floppy disk's root directory. It kept looking for files under \123. This mystified me since that directory was on the Always disk! On a hunch, I recopied the whole Lotus program to a new floppy but to the directory \123 and reran it. Then, Always worked fine. Well, it works in black and white on the junior as do many other Lotus add_ins such as Seemore. It will also use 113K of RAM once it has been "attached."

All on a 3.5" Disk

The main Lotus program will run from a floppy disk and, once started, does not require the disk to be left in the drive (except for the help feature). The whole thing, including the Print Graph program, can be shoehorned onto a 3.5" disk; you will need to reinsert it to move from 123 to Print Graph, by the way. You may use the same disk drive for data files or for Always. Just remember to install the program in a directory called \123, not the root directory if you plan to use Always.

As you might expect, it took a fair amount of futzing around to get all of the above features to work on junior. Experience may show there to be a better way.

Is 2.2 worth it? If you're one of the lucky ones eligible for a free upgrade, of course it is. But $150? Not for those whose spreadsheet usage is relatively modest. But, if you're a heavy Lotus user and often need to carry work from home to office, it may make sense, particularly with Always thrown in. In addition to the nice surprise that it runs on the junior, 2.2 also maintains a very high degree of downward compatibility (it, too, saves WK1 files) with earlier versions and most Lotus add ons. It will not work with a few, such as Seemore, Lotus HAL, Look and Link, Project

Printer Setting Utility Added to Print Handler Disk #51

Responding to requests and questions from readers, we've added a utility that lets you easily set your printer with your keyboard.

When you want to set your printer to perform some special functions, change the type style, size, etc., it's much easier to do it by selecting the functions you want from a menu than pushing buttons or switches (sometimes hard to reach) on your printer.

PrnSet V2.70, the utility we've added to Disk #51, will work with almost any printer. It comes with menus already designed for Epson, Okidata, IBM and Citizen printers and compatibles. The on disk manual tells you how to make your own menu for any printer you want, or to customize one of the supplied menus to add or combine features already present.

Print Handler already has programs for printing banners, sideways, a font generator and print spooler, mainly for Epson and compatible printers.

Use That Modem On Your Jr To Explore A jr BBS

If you have a modem on your PCjr, there's a lot of valuable information available. It's ready to be accessed by your PCjr, any time you want it. Here are a few of the best sources of PCjr info as well as places to chat with other PCjr users:

PCjr Workshop of the Atlanta PCjr-UG (404) 740-1916.

jr BBS ,operated by the Metro PCjr Users Group, (301)468-0984.

San Francisco PCjr Users Group BBS (415)997-4874.

Many PC users groups around the country support the National PCjr Help Conference, where PCjr users exchange information. Try calling your local PC BBS and see

Calc, and 3-2-1 Blastoff, however.

2.2 is a nice upgrade of the incremental variety and, once more, happily shatters the myth: "Oh, you can't run THAT on a PCjr."

PCjr Compatibility Update

Here is a list of notes on software compatibility compiled from a variety of sources including reader reports, other PCjr publications and our own testing.

Keep in mind that virtually all software that will operate in 4 colors on a standard PCjr will operate in 16 colors if you have made the PCjr to Tandy 1000 modification (described in our April 1989 issue and performed by some of our advertisers.)

The following list is as accurate as we can make it, but we suggest you follow the cardinal rule of software buying: make sure the store you buy new software from will take it back if it won't run on your PCjr. In general, add 128K to the memory requirements listed on the software package. So, if it says it requires 256K, it will probably need 384K to run on a PCjr.

For detailed information on nearly 1,000 software titles, get the PCjr Compatibility Disk (Disk #60), which was updated last month to Version 3.0. The disk also contains tips on getting some supposedly incompatible software to run on your PCjr.

Please help us to continue providing PCjr users with accurate information on current software by sending us your experiences with new software.

688 Attack Sub - Runs in 4 colors.

Airborne Ranger (Microprose) - Works initially, but crashes.

Battletech (Infocom) - Runs in 16 colors. You may have to erase the file named $erify.exe.)

Calendar Creator Plus - Some say not compatible, but others say it's great!

F-19 (Microprose) - Needs patch. See Jr Patches Disk #56.

Five on Five: Lakers vs. Celtics (Electronic Arts) - Reportedly not compatible.

Ford Simulator - Version 2 only is compatible.

Heros of the Lance - Runs in 4 colors.

Hero's Quest (Sierra-On-Line) - 16 colors. Need 640K.

Home Video Producer (Epyx) - Some say it's not compatible, others say it runs fine.

Hoyle's Card Games (Sierra-On-Line) - Full PCjr support.

Indiana Jones and the Last Crusade (Lucasfilm) - Good.

John Elway Football - Reportedly not compatible.

John Madden Football - Runs in 16 colors.

Metropolis - Reportedly not compatible.

My Label Maker (MySoftware) - Runs well.

Newsroom Pro - Runs well. Good, inexpensive.

Quick Verse - Runs well. Bible concordance.

Quite Write (Parsons) - Very good, inexpensive word processor.

Rack 'Em (Accolade) - Runs in 4 colors, but reportedly keeps disk drive spinning. Anyone solved this problem?

Rampage (Activision) - Runs with 512K.

Red Storm Rising - Runs in 4 colors.

Sentinel Worlds I: Future Magic - Runs in 4 colors.

Shogun - Reportedly works with keyboard controls, not joystick.

Space Quest III (Sierra-On-Line) - Runs in 16 colors.

Strike Fleet (Lucasfilm) - Runs in 4 colors

The Duel: Test Drive II (Accolade) - Runs with 512K.

TV Sports Football - Reportedly not compatible.

War in Middle Earth - Reportedly not compatible.

Where in Time is Carmen Sandiego (Broderbund) - Runs in 4 colors. Need 640K and two disk drives.

Wizardry V (Sir Tech) - Some say compatible, others say no. Version with off disk protection reportedly runs well.

Zany Golf - Excellent.

Many PCjr Memory Expansions

(Continued from page 1)

printer port, clock/calendar and a second disk drive in a case designed to match your PCjr's design and color. Some of the memory expansion units that were once made for PCjrs are no longer being manufactured. But plenty of them are. And often you can find used units, either through our advertisers, who get them in trade, or through classified ads in jr Newsletter.

We couldn't possibly mention all of the options available for boosting the memory on 128K jrs, but here are a few:

The jr Hotshot is a high quality unit that plugs into your 8088 microprocessor socket. A few PCjrs have chips that are soldered in place, so if you have one of them you'll probably want to have the supplier install it for you. If your chips are socketed, it's easy to install the jr Hotshot yourself. An easy way to tell whether or not your chips are socketed is to take the top lid of your PCjr off and look at the chip directly behind the infrared sensor (that little hole to the left of your disk drive). If you don't see any solder on the legs of the chip, it's socketed, and your 8088 chip is too. Jr Hotshots with 512K, which will bring your PCjr's total memory to 640K, were selling for about $240 a year ago, but now are considerably less. Prices fluctuate with the market prices of memory chips.

The second type of memory expansion, a "sidecar" unit, is one that fits on the right side of your PCjr. Many companies have made these units in the past, but the only ones currently being made are by PC Enterprises. With 512K these units are selling for $295. They are also available with less memory for less money. Or you could purchase PC Enterprises Megaboard, a sidecar which allows you to add any amount of memory, from 256K to 1,024K. If your budget won't allow you to get the full amount now, you can add to it later.

New Internal Memory Unit

Another new alternative available from PC Enterprises is a 192K internal memory board. This board is inserted in the slot currently occupied by a 64K board in PCjrs with 128K, bringing the total internal memory to 256K. This board can also be used to bring those who have 640K up to 736K since the memory address can be set to start at any desired position.

A third choice boosting 128K jrs to 640K is to add a combination memory expansion sidecar and second disk drive unit. PC Enterprises, Racore and Legacy units of this type are currently available in the $500 to $600 range for units with 512K, a parallel printer port and a second 5 1/4 inch floppy disk drive. In some cases you can choose to have the second drive be a 3.5 inch drive, for a little more money.

Mid-range Expansion Options

What if you already have some added memory on your PCjr, but you want more? Here again, many options are available, some of which depend upon the type of unit you currently have.

If you have a 128K IBM, Tecmar, Quadram or Microsoft sidecar, you replace the 128K chips to bring the memory of the sidecar to 512K. Instructions for doing this yourself with the IBM and Microsoft sidecars are available on The Best of jr Newsletter Disk #54. This is not a job for the inexperienced, however. Several of our advertisers will do these upgrades. Check them for current prices.

Racore combination sidecar and second disk drive units were sold with 384K boards or 512K boards with either 256K or 512K on them. If you have a 384K board you can replace the socketed chips. If you have a 512K board you can add chips to the empty sockets. (Get 256K 150ns chips for any of the PCjr upgrades mentioned in this article.) Jr Hotshots with less than 512K currently on board can be similarly upgraded by the user. Just add the chips to the empty sockets. Impulse 100 series are also socketed.

Many PCjr suppliers will take used memory expansion units in trade. So if you have, say, two IBM 128K sidecars on your PCjr now and you'd like to add a 512K jr Hotshot, you can get credit for your IBM unit trade-ins toward the jr Hotshot purchase.

Breaking the 640K "Limit"

Unlike other PCs and compatibles, which are limited to 640K of DOS addressable memory, the PCjr is capable of running on 736K of DOS memory. This memory can be achieved by adding a modified IBM 128K sidecar to a PCjr that currently has 640K. Or it can be done with a PC Enterprises sidecar, internal 192K card, or the Megaboard, which is capable of adding up to 1,024K to any amount of existing memory on a PCjr, up to a maximum of nearly 2 MB. 736K is the most memory DOS can handle, so any amount above that becomes expanded memory which requires special software to utilize. Currently PC Enterprises supplies software with its Megaboards to use the memory above 736K for a RAM disk.

So as you can see from this article, the options are many. And, since more memory not only vastly increases the software you can run, but also makes your computer run faster, memory expansion is the most significant upgrade you can make. In view of the fact that prices are down from last year, now is a good time to upgrade to a more powerful PCjr.

A Short Introduction to Databases

By Colin Tuttle

When I bought my PCjr, the salesman asked me which programs I wanted to buy with the computer. Naturally I wanted a word processor. After all that is one of the main uses of home computers. When I bought my copy of IBM Writing Assistant, the salesman then suggested that I buy a database. When I asked him why, he just laughed and told me everyone needs a database. He couldn't tell me what I needed it for, just that I needed it. Naturally I bought the program, after all he assured me that I HAD to have a database.

The salesman was right, everyone does need a database program. His problem was he couldn't explain why. The second problem was the program he sold me, IBM Filing Assistant, was not the ideal database. It's main selling point was that it allowed data transfers between itself and Writing Assistant and that is not the main use of a database in the home. This was mainly a tool for people who wanted to send out form letters, which I was not interested in doing.

Before we go into why you need a database, we need to explain the term database. A database is raw information, or simply a file cabinet. You put information into a file cabinet. To organize the file cabinet, you use file folders. Each record in your database is like a file folder. To give you even more control of your information, you have fields, which are each of the lines of information on the paper. The more fields you have, the more versatile your database.

Fast Search

With a database program, you can have the computer look through your entire file cabinet for any item such as a person's name. In a matter of seconds. the computer will find all the documents with that person's name.

So you can see why a database is so handy. It allows total control of lists or documents. To bring it to the home level, you can keep track of your VCR library, your Christmas card list, your record collection, research notes, or anything you want to be able to search quickly.

Naturally if you run a small business or are a member of an organization where you need to keep a mailing list, a database is essential. With a database, you can print mailing labels, sorted by zip code, alphabetically, or any way you choose. You can also keep track of when membership dues are due, or any other pertinent information.

The first step, which may be the hardest, is deciding what information should be in your database. If you set up too few fields you are limiting the database's usefulness. If you go the other way and add too many, you will have a slow running and cumbersome database. Let's say you are setting up a database of your child's Little League. The best way to set it up is to look at your present system. If you keep the information on 3 X 5 cards, you know that you will have to use all the fields on the cards on your database.

The next step is defining your fields. This is one of the most important parts of your database, as it can be difficult to change after your database is set up. This is where you tell the computer how many spaces each field will occupy. For example, the first field might be "LAST_NAME". You will need to decide what the longest possible last name a person might have. I've found that fifteen is usually safe, unless you have a few hyphenated names.

Include All Fields

You will want to carefully consider all of your fields as it is being set up. After you have entered all the fields on your index card, try to think of any other information which you might find useful to add to the record. You can always leave a blank field when you are entering the information, but you can't easily go back to add another field after you have started entering your data.

After you have defined your database, the hardest part is finished. All you have to do now is enter the data, a simple task, as the computer will prompt you for all the information.

Since you have decided you can't live without a database, you now must decide on which one. There are probably thousands of database programs on the market. Some are excellent, and others are mediocre, at best. I think the most important item to look for when selecting a database is its import/export capabilities. This will allow you to exchange data with another database program.

This was one serious flaw of IBM's Filing Assistant. I have several databases on Filing Assistant which can only be used by that program, which I might add, I outgrew shortly after I entered all the information into the database.

For home and small business use, I would suggest PC-File, a shareware program which is on Disks #3 and #4 in the jr Newsletter Software Store. The program is simple to learn and operate. It will also export data into numerous formats, including DBASE, so when your database needs become immense, you don't have to reenter all the information. It also allows you to easily re-define your database, an important option when you are just beginning your database and forget to add certain fields.

Reader Feedback

disk, and got the program, first in ASCII, then in regular type, but it ran so fast I couldn't read it, and I could not stop it, either. When I used "Echo" to print it, it did print, but without line feed, so it just made one solid black line across the paper.

After some experimenting, I changed a switch, #6, on the printer, and the document printed OK. However, when I later ran a print from Writing Assistant, I got double spacing, which of course I didn't want. Finally, I cut a window in the plastic shell of the printer, in front of the control panel; so now I can flick #6 switch to Line Feed or Off, and run either from Writing assistant or from Dir, without having to strip down my printer each time to get to the switch!

Jonathan W. King, Jr., Owensboro, KY

EDITOR'S NOTE: It's very hard to diagnose a mechanical problem from the information given in a letter, but it sounds as though your "pushing and prodding" may have done the trick. Quite often computer failures of many different kinds are simply due to poor connections. When you push and prod, you may be doing just enough to create a good connection to your disk drive controller, for example. That's why it's often a good idea to disengage and then reengage all connections before deciding your computer needs repair. It may be just a loose or dirty connection. As for your Writing Assistant printing problems, several points: First of all, when you use the TYPE command to read a text file, you can stop the scrolling by using the Fn Pause keys on a PCjr keyboard, then hit any key to resume. Or if you've connected a larger keyboard to your PCjr, you can use the Ctrl Num Lock combination in the same way. There is a much easier solution to setting your printer. Most printers come with manuals telling you how to send codes to your printer using software. You can usually write a simple program in BASIC to do anything you can do with the manual settings. Or you can use a printer setting utility such as the ones we've added to Print Handler Disk #51 in the Software Store. (It was your letter that convinced us to do this.) With a printer control utility, you simply select the settings you want from a pop-up menu, rather than manually setting your printer (through a cutout window, no less!).

Want to get your child excited about writing?

Try WORD PROCESSING FOR KIDS -- Disk #41, page 23.

Genius Mouse Driver Interference and Patch for F-19 Stealth Fighter

I recently purchased a **Genius Mouse** for our PCjr. It is version 8 according to the disk when I start to install it.

The manual says Genius Mouse Version 6 (MC-6 Plus). It also says, "No Extra Power REquired!!" (The Genius Mouse hardware has a maximum total current requirement of less than 10 mA with search current from signal line!!!)

The above paragraph is word for word from the manual. And now our problem.

When we install it and then run Gtest in Mouse Mode Three Button (emulates Mouse System PC Mouse) as soon as we touch a button all three buttons light up and stay lit-up and the cursor moves all over the screen without touching the mouse.

When we install the Two Button Mouse Mode (Emulate Microsoft Serial Mouse), when we press the left or right, they work fine on the screen, but the curser does not move.

We have checked out the mouse on another computer, a PC, and it works perfectly.

Do you or any of the readers have any solutions to make the mouse work?

Also, the boys run **OP Wolf** but only in 4 color and only with the keyboard. The jr joystick just stays in the upper left hand corner for a few minutes and then the machine locks up, but on the keyboard, it's fine.

We also run **F19 Stealth Fighter** also in four colors with joystick. I tried to look into the software with debug to see why we only get four colors and there appears to be a problem in the CGRAPHIC.EXE

Debug CGRAPHIC.EXE
S O FFFE BAD 8 03
371E: 287E
371E: 289E

Both of the above lines refer to the DX.03D8 port, which the newsletter tells us does not exist. I am just a novice and wouldn't even know where to begin, but maybe you or your readers might find a solution.

I could not send you a printout of the above because I am having OOWL software install the Tandy Modification. We will let you know how it works. Also, just to tank you the above Debug formula came from your Power Pack Disk. Your newsletter is very good reading. I only wish I knew more about computers.

EDITOR'S NOTE: If we knew how your config.sys and autoexec.bat files were set up, we might have more to go on, but it seems as though something is interfering with your mouse driver. A mouse driver monitors the serial port

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50-60 times a second for input, using Int 21. If another piece of software, such as Sidekick or some other software installed in memory before the mouse driver is installed, is interfering with this , you could get the results you describe. Mouse drivers should be installed first, and work best in low memory, so we suggest trying a simple config.sys, with no ram disk. And load your mouse driver before any memory resident software. Also, sometimes automatic mouse menus can cause interference. If you're trying to use one, try working without it.

We're glad you mentioned F-19 Stealth Fighter, because we have a patch for it on Jr Patches V.5.0 Disk #56. The reason you didn't know that is because for the last two issues the description of Disk #56 in the Software Store did not include F-19. It should have, and we thank you for bringing it up because your letter caused us to check the listing.

Tandy Modification Switch?

I have a PCjr with PC Enterprises side board, 640K, 2 floppy drives and DMA. I am writing about your April issue containing the Tandy modification. Making these adjustments would provide better compatibility and 16 color graphics on some programs. What I am wondering is that once the adjustments are made, can I switch back and forth between the Tandy and Junior without opening up the computer?

My second question is about the Mesa 286j. First, is it compatible with my computer? Second, does the board make the Junior AT compatible, if so what percent. Third, if the Tandy modification is made, would the 286 board still work?

I would like to report that Rush N' Attack, Ikari Warriors, Defender of the Crown (3.2 DOS is faster) and Rampage are Junior compatible in 4 colors. John Elway QB and Double Dragon are not compatible. Thank you very much.

Andrew Chan, Stockton, CA.

EDITOR'S NOTE: Yes, it is easy to install a switch to re-establish your original PCjr mode after making the Tandy 1000 modification to your PCjr. But there is no reason to do it. All software that runs on unmodified PCjrs will also run after the modification. (Instructions for the Tandy modification were printed in the April 1989 issue. Many jr Newsletter advertisers also perform the modification, which allows 16 color operation for much software that only runs in 4 colors on standard PCjrs.)

Also, yes, the Mesa 286j would work with your PCjr as well as with a Tandy modification.

Fix a Tecmar Sidecar

Now remove the two hex headed screws on either side of the printer socket. Lift the heatsink and twist it gently to work the end over the printer socket and unplug the Voltage Regulator Ic from its socket. Unbolt the IC from the heatsink and replace it with the new one. Use a small amount of the heatsink compound between the IC and the heatsink. Make sure the bolt is tight for good heat transfer.

If you need to replace the Coaxial power jack, unsolder the three lugs from the printed circuit card. A solder sucker or solder wick will help here. Gently remove the old jack, being sure not to damage the circuit card traces. Remove the black plastic grommet from the hole. Use the file or grinding tool to enlarge the hole so the new jack will fit from the inside. Be sure to have enough room for the jack to clear the surface of the circuit card. Drill two small holes for the mounting screws and mount the jack with the flanges inside the heatsink. Lay the circuit card on the table with the component side up and the heatsink upside down beside it with the jack next to the card edge. Use about two and a half inches of wire to connect the jack lugs to the circuit card. Only two of the lugs need to be connected. The hole closest to the edge of the card was only for mounting support. Compare the old jack connections for guidance.

Now reverse the process by plugging in the IC to its socket and working the heatsink over the printer socket. Gently push the wires inside the heatsink being careful not to force some other component loose. Insert the mounting screws and reassemble the sidecar case. Mount the sidecar to Junior and plug in the power cords. You might want to power up Junior before tightening the sidecar screws. If your extra memory is not recognized, look for bent pins on the sidecar socket or check for reversed polarity on the power jack wires. If all works well, tighten the screws, snap on the plastic cover and plug in the printer.

You should now be back in business with solid power to your expansion unit. Happy computing.

* * * PCjr CLASSIFIEDS * * *

IBM PCjr-640K; Racore Drive II w/DMA, clock, and ID Cart.; Mouse Systems-jr Mouse; IBM Internal modem, serial cable, and 3 joysticks (1 new); Software-Wordstar for jr, cart. BASIC, DOS 2.1, Crossfire cart. + more; IBM manuals: Guide to Operations and Hardware Maintenance and Service (w/4 test plugs for advanced diagnostics) Asking $950 + shipping. Stuart at (803) 226-7595

FOR SALE - PC MOUSE for PCjr with PAINT PLUS software, and Mouse pad (all cables also included) from PC ENTERPRISES. Brand new never used sells for $135 asking $70 I will pay for shipping. Write Sal Russo 3735 White Ave. , Blasdell, NY 14219.

FOR SALE: Tecmar jrCaptain w/128K, expandable, power pack, tech. manual, 3 software packages, $130. Enhanced jr. Keyboard w/ cord, $30. PCjr 128K ROM version Managing Your Money $35. Managing Your Money v.3, $35. Jack Ragland, (502) 459-7335. Will pay shipping.

PCjr, Racore 2 drives, 640K, DMA, clock, original color monitor, Epson Spectrum LX-80 printer, knock-down desk, some software. $750 freight collect. Robert Devore, 4469 Bermuda Ave., San Diego, CA. 92107. Phone (619) 226-8592.

FOR SALE: IBM PCjr. 256K, modem, enhanced keyboard, Epson printer, all software. $500 or best offer. Pat (818) 367-6197.

IBM PCjr-640K Racore Drive II w/DMA, jrExcellerator, thin font, Combo cartridge, PCjr Color Display, Software-Lotus 123 and others. Many other extras. Excellent condition, $900. Call Dick (209) 333-0161.

IBM PCjr - 640K, Racore Drive II with DMA, Racore P.C.I.D. cartridge, Keytronics 515jr keyboard, Quicksilver cartridge, Thin-font chip, PCjr color monitor, Two joysticks, Cartridge Basic, Extra parallel port side car, Reset button, DOS 2.1. $800. Call Greg McDonald (314) 863-6259 evenings and weekends.

IBM PCjr with memory expansion, 640K, parallel port, color monitor, PCjr Report reprints, Writing Assistant software. $750 Martha Lyne, 1013 Peachwood Court, Los Banos, CA. 93635. (209) 826-3239.

PCjr 640K, PCjr Color monitor, Racore 2nd drive with parallel port, IBM 128K memory sidecar, NEC V20 chip, internal modem, Mouse Systems mouse, IBM joystick, jrVideo cartridge, Thinfont module, DOS 2.1, ColorPaint cartridge, used by adults only, all in excellent order, $790. Dick Hermon, 4355 Skyline Dr., N. Vancouver, B.C. V7R 3G9; (604) 988-4087.

WWII Sea Battle Game Requires Strategic Skill

The newest game in our software collection is War On the Sea (Disk #100), a game that requires admiral-like naval strategy skills in order to beat the computer.

The game simulates seven different World War II naval confrontations, pitting the US or English navies against Japan or Germany. Although not designed to accurately portray these battles, the game sets up navies on both sides using the names of battleships, carriers, destroyers, etc. which were used in World War II.

When the game starts, you select one of the seven naval campaigns. You then select your ships from a large stockpile. Each ship has different abilities and costs, which you must learn and use wisely in order to win.

As the battles proceed, you choose your targets and the ships that will fire on them, based upon their relative strengths. The software randomly selects who has the initiative to fire first, which can be a great advantage.

As you damage or sink enemy ships, you gain points toward a victory, which is determined at the end. The campaigns can be fought in less than half an hour, so it is not necessary to save the game and continue another day. According to the author, the intent is to provide a short and exciting game each session.

Written in Turbo Pascal, the game can be played on PCs as well as PCjrs.

War On the Sea is Disk #100 in the jr Newsletter Software Store.

jr Newsletter Software Store

This software is the best public domain and user-supported software for the PCjr we've been able to find. All the programs in this collection have been tested on our PCjrs and are highly recommended. Some of these programs are equal to or better than commercial programs costing hundreds of dollars. The programs in this collection are available for $5.95 per disk.

* NEW * 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)

* NEW * 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)

* NEW VERSION * 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)

*)NEW VERSION * PCJR COMPATIBILITY DISK V3.0. Lists over 800 software titles, along with info on how they run (or don't run) on PCjrs. Also tips on how to make software PCjr compatible. 128K ok. Updated October, 1989. (Disk #60)

* NEW * 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)

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

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

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)

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)

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. (Disk #39)

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)

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-CHECK MANAGER. A menu-driven program that can handle multiple checkbooks, unlimited payees and ledger account assignments. Requires 256K. (Disk #25)

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)

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)

PC DOS HELP. Similar to PC-Prompt, but takes up less memory (16K) as a resident program. Geared to DOS 2.1 with special PCjr commands included. 128K. (Disk #24)

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)

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)

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-OUTLINE. Organizes thoughts, notes, lists of just about anything. Powerful features create logical outlines, merge with your word processor, customizing allows you to rearrange and ma-

nipulate data. Outperforms many commercial programs, says PC Magazine. 128k. (Disk #17)

PC-PROMPT. A memory resident program that provides the format for DOS commands in an on-line mode. Help screen toggles on and off Also help screens for BASICA, Turbo Pascal, Debug and EDLIN. 128K. (Disk #23)

PC-STYLE. Perhaps the best of many programs that help you make what you write more readable. Jim Button made this a very slick, useful tool for improving your writing. It reads and analyzes what you write, then gives you a detailed analysis based upon several useful standards. Fast, easy to use. 128k (Disk #76)

PC-WRITE. This extremely popular word processing software is both powerful and easy to use. A review in PC World said, "PC-Write may well be more versatile than WordStar; it's certainly more straightforward." Version 2.5 runs well on 128K. Version 2.7 has more features and needs 256K to run without the spell checker, which needs 384K. Version 3.02, the most powerful, needs 512K. (Order Disk #1 for 128K V2.5. Order Disks #2A and 2B for V2.7. Order Disk Set #1 (3 disks) $12 for V3.02.)

PCjr COMPATIBILITY DISK v2.0. Lists over 800 software titles, along with info on how they run (or don't run) on PCjrs. Also tips on how to make software PCjr compatible. 128K. Updated Feb. 1989. (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 V3.0, Loderunner (V-20 chip), 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, Starflight, Advanced Flight Trainer, Double DOS, Bard's Tale I, Turbo BASIC, and BASICA. (Disk #56)

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)

PIANOMAN. A great music program! Allows you to write your own music, store it and play it on jr's terrific sound system. 128K. (Disk #36)

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)

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)

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)

PRINT HANDLER. Excellent software for printing banners, sideways, etc. Contains custom font generator, print spooler, and other useful print control utilities for Epson and compatible printers. 128K (Disk #51)

PROCOMM. This powerful, yet easy to use telecommunications program has become the one favored by more PCjr users than any other. Dialing directory, auto redial, XMODEM, Kermit and other file transfer protocols, auto log-on, DOS gateway, keyboard macros, exploding windows and many other features. The editor of PC Magazine called Procomm "competitive with the best comm programs on the market." Manual on disk. 256K (Disk #15)

RAMDISK. Use ADJRAM to create a RAM disk of any size and adjust its size at any time without losing the contents. Or use JRCONFIG to set up your PCjr. Both programs with complete instructions for creating and using RAM disks on you PCjr. Need 256K. (Disk #75)

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)

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)

SHARESPELL. Spelling checker that works independently of your word processor. Can check spelling of any text file with its 52,000 word dictionary. Will also use custom word list you make. Works with all word processors. 384K ok (Disk #94)

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! 128K ok (Disk #82)

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)

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)

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)

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)

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)

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) .

TYPEWRITER. When you'd rather use a typewriter instead of a word processor, this is the one to use. Couldn't be simpler. Margins, tabs, type size all can be set. Disk includes two printer control programs for higher quality output. 128K ok (Disk #93)

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)

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. 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)

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)

See November Issue for Additional Software Titles

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jr Software Order Form

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30	31	32	33	33a	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	57a	58	59	60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79	80	81	82	83
84	85	86	87	88	89	90	91	92	93	94	95	96	97
98	99	100	101	102	103	104	105	106	107	108	109	110	

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