

# jr Newsletter

November, 1991

## Your PCjr Can Have VGA Compatibility!

With a new product developed by PC Enterprises, your PCjr can run software in virtually all graphics modes, right up through and including Super VGA.

This breakthrough was achieved several months ago by PC Enterprises, the Belmar, NJ, company which specializes in PCjr add-ons and upgrades.

Finally there is a way for PCjr users to enjoy EGA and VGA graphics. Now games which have abandoned the CGA standard can be run on your PCjr! There are many other advantages to this upgrade too.

The PC Enterprises VGA system includes a sidecar attachment and a cartridge, which plugs into the PCjr cartridge slot. It also requires a modification to the PCjr system board (motherboard). This modification is relatively easy to perform. It is similar in difficulty to the PCjr to Tandy 1000 modification that many PCjr users performed successfully themselves. For this reason, jr Newsletter has made a special arrangement with PC Enterprises to publish the instructions starting on page 10 in this issue, and to provide the PROMs and resistor that are needed (for \$7.95)

Performing this modification will enable you to purchase the PCE Display-Master VGA Sidecar without sending your PCjr to New Jersey for modifications (which cost \$50 plus shipping). After the modification your PCjr will run normally, but you will need to purchase the Display Master VGA sidecar before your PCjr will be able to run EGA and VGA software. The modification itself enables the built-in



**Bob Blokhed--former software salesperson.  
Convicted of slandering the PCjr.**

PCjr CGA adapter to be disabled by the PCE cartridge which comes with the Display-Master. Before EGA or VGA systems will work, the CGA system must be disabled. In PCs, this was accomplished by disconnecting a plug, but with PCjrs, with their built-in CGA, the job is more complicated -- thus the reason for this modification.

Once you have made the modification to your system board and purchased the PCE Display-Master VGA (for \$199), you won't need the memory management software that PCjrs use to recognized memory above 128K. The 16K buffer previously reserved for video will be available to DOS for the running of software. This means a 640K PCjr will really have 640K available to run DOS and software. The Display-Master VGA, when installed, provides its own video memory.

With the Display-Master VGA, you can run software written for virtually all graphics standards, including Super VGA, once you have purchased the monitor for that standard. However, Pat Calabria of PC Enterprises, says many PCjr owners have decided to stay with their PCjr monitor and run software in EGA mode. This way, they eliminate the

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**PCjr Lives!**

## Beginner's Corner

# Tips and Tricks for Jr. Users

By John King

Here are a few pointers on many subjects from John King, who served as president of the San Francisco PCjr User Group for many years:

### Public Domain Disks

After you buy a public domain or shareware disk, first check the directory with the DIR command. Put the disk in drive A and issue the following command.

DIR A: [Enter]

Look for a files with names such as README, READ.ME, README.TXT, or any file with an extension of .DOC or .TXT. These are text files which you can read. They contain instructions for the programs on the disk. If the file is called APROGRAM.DOC, give the following command.

TYPE APROGRAM.DOC [Enter]

You can stop the text from scrolling off the screen with

Fn Pause.

The actual programs have .COM or .EXE extensions. For example, APROGRAM.COM or NEWGAME.EXE. These you run by just entering the filename.

NEWGAME [Enter]

### Centering the Monitor Image

You can move the screen image left or right manually with the Ctrl-Alt-Left Arrow and Ctrl-Alt-Right Arrow keys. If you want to automate this, put the following line in your AUTOEXEC.BAT file to switch to 80 column mode and move the image two characters to the right.

MODE CO80,R

To move the image left use MODE CO80,L. Of course, the DOS MODE.COM program must be on your boot disk.

### File Transfers by Modem

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

### PROCOMM Bug

PROCOMM is an excellent communications program. The Host Mode feature allows you to turn your computer into a mini-BBS, so friends can upload or download files easily. However, Host Mode in PROCOMM 2.4.2 has a bug which can lock up your PCjr. This has been fixed in version 2.4.3 and PROCOMM PLUS TD (Disk #108 in the jr Newsletter Software Store).

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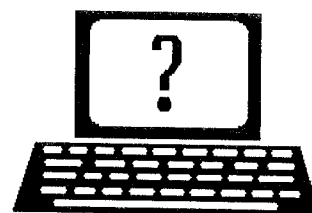
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# Questions and Answers

*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. On-going pain in the neck; When I have no disk in the drive and unintentionally try to read or write to it OR it is the selected or default drive at the end of a batch file, I get the "Abort, Retry, or Fail" message and my keyboard responses seem to have little effect in trying to get out of this loop, so I sometimes find that putting a disk in the drive is the easiest way out. HELP!**

*Many readers from all over...*

A. Our prior solution was to touch "F", then when the message about the drive no longer being valid appears, you type the letter (and a colon) of a drive which HAS a disk inserted. This does work. It may take a couple of tries pressing the "F" key depending on your version of DOS and how you got into the situation, so this is only moderate relief from the neck pain.

We've just discovered an additional pill for the distress. This was found in DOS 5.0, but it might work with some earlier versions, too. If your CONFIG.SYS file has some kind of command loader in it such as "SHELL=A:\COMMAND.COM etc..." you can just add "/F" (without the quotes) as the last switch. It seems that this undocumented add-on will type the "F" for you whenever the Failure option shows on the screen, so all you have to do is type "A:" or "C:" or whatever drive is active or has a diskette in it. It really works first time around, though the screen looks a bit peculiar with the two messages across on one line before the good drive is recognized. Ah well, at least this is a one-step correction.

**Q. Having been impressed with the Spinrite "find out and repair etc." program at the office, I was hoping to use it on my jr. only to find out that it does not work with external drives. Is there anything similar that does? If so, will it affect my ability to read/write data?**

*P. Shafer, St. Petersburg, FL*

A. Spinrite can't work with the jr because it assumes a genuine DMA system. Even the free, introductory "disk test" program written in BASIC which Spinrite distributes doesn't work properly on the jr. Depending on the version of DOS you have, you can use either Norton's or Central Point Utilities for hard and floppy disk condense or compress, de-fragmenting and interleave determination. Be forewarned, however, that we have found the interleave figure recommended, supplied and pre-configured by our advertisers and hard disk suppliers to be the optimal in each case! Let us re-word that: Unless something has happened to change it from the original setting, don't monkey with it!

The de-fragment programs to use with DOS 5.0 MUST be the latest from Norton and Central Point, ie. version 7. These come with both standard DOS and Windows versions, and you can select the standard .EXE version when you start the "Install" program. Earlier versions of these utilities work perfectly with earlier versions of DOS. When used correctly, none of these utilities adversely affect the read / write disk functions. They do, however improve the physical efficiency (read "speed") of both of these operations.

**Q. The following questions are from a new PCjr owner who has asked that we supply his address and phone number in order that others may contact him further about the answers to his questions. Contact; Peter Wiest, 325 29th Ave, Seattle WA 98122, (206)-324-7242.**

**I am curious about expanding above 640k using the IBM side-car mod. to get to 736k. Other than Newcomb's JrConfig, is there another way to recognize this memory and what limits are imposed as to what I can run there?**

*P. W.*

A. For DOS versions prior to 5.0, Newcomb's boot-up is the easiest way to recognize the memory; use the -L switch. There should be no problem as to how this RAM is used, as it is simply a continuation of DOS--available memory. For DOS 5.0 the recognition of RAM above 640k is put in the boot record and this will need to be patched for your booting disks as described by John King in the Aug. '91 jr Newsletter.

**Q. Is there a way to use JrConfig in such a way as to load the video buffer down against DOS in lower memory? I'm aware of the speed penalty, but I need memory for speller,**

*(Continues on page 4)*

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## Questions and Answers

(Continued from page 3)

grammar checker, etc. rather than speed.

P. W.

A. Just about ALL the device drivers which jr owners use to recognize more than 128k RAM can and do reposition the video buffer to lower memory, down against DOS. If the total of reserved low RAM (depending usually on video buffer size) is less than 128k the speed penalty applies. The full amount of RAM above this is DOS-available and continuous starting at the low RAM address just above the video buffer. PCjr literature and owners call the memory from 128k to 640k "expanded" memory, so you should keep this in mind when reading DOCs and instructions.

Here's the idea: The original PCjr has a video address "detour" built in so the video buffer could be in the uppermost part of standard RAM rather than on the dedicated memory chips of a separate video card. The location of the detour target is jammed against the top 128k of a standard jr, and reserved memory size is downward, depending on video buffer size requested. The RAM recognition and video buffer placement device drivers which we are dealing with here change the target of the detour to the lowest unused RAM address, nearest DOS. That's a bit simplified, but you get the idea. So we wind up with; DOS at the lowest addresses, video buffer (of optional size) on top of that, then RAM for applications or whatever.

**Q. Can 8088 especially jr owners avail themselves of the advantages of HIMEM? If not, why use DOS 5.0 at all? It's pretty, but we've had colors (in DOS and more) for quite some time now.**

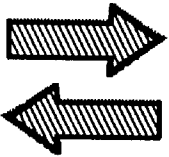
P. W.

For a while we jr owners thought we were dealing with unique methods and problems, what with video buffer relocation, memory recognition, RAM gap closings and other such things. Well, DOS 5.0 is really the epitome of these same things, but it is tailored for the "IBM and compatible" crowd. New methods of "memory management" they call it in the DOS 5.0 literature. Enough said.

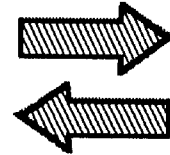
To an 8088 or 8086, there isn't any additional addressable RAM up there for DOS 5.0 to access without a separate "exPANded memory manager." HIMEM simply does not apply. That's for 80286 and higher CPUs with "exTENDED memory" only.

We jr owners want to use DOS 5.0 for convenience and speed, not just color screens; it IS faster and tighter. The nifty, pure ASCII oriented Editor just about precludes ever using EDLIN or COPY CON again. Though GWBASIC is still included, you'll want to use the outstanding QBasic

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# Reader Feedback



## Reader Is Happy With His New Scanner

First, I want to say how much I have enjoyed your newsletter over the past years (since December '87) and all the helpful tips and hints that you have so thoughtfully included every month.

My Jr. was orphaned by it's parent (IBM) shortly after I purchased it, I guess if I had waited a little longer, I could have gotten a bargain!

Originally, it was purchased for my children to do their homework upon and to enjoy some games. Off and on my wife would use a word processing program (Homeword) to write the Band Parents Newsletter to which we belonged.

My "regular" computer was a Pied Piper, a CPM based machine that I had purchased back in the early 1980's. My main purpose was word processing. Having been involved in genealogy for some twenty years, this seemed to be a good machine, but as years crept by, it became more and more outdated. Still good for word processing but the memory was limited to 64K.

Not wanting to completely retire my machine until it's death, I began checking around about the PCjr. I ran across an advertisement about your newsletter and began a subscription at once.

Over the years, I have increased my Jr from 128K to 640K, added another 5 1/4 drive and this winter added a 30 meg hard drive.

Currently on order (and waiting with baited breath) is a sidecar by PC ENTERPRISES called STO1jr (scsi host adapter) which will enable me to boot off my hard drive. But, more important, I have ordered it to come with "future domain chips" so that in the future I can run a CD-ROM, tape backup or a WORM if they should become available.

While glancing at your July issue, I noticed that Computer Reset was offering an attachment to enable the Jr. to use a scanner.... at last, another jump into current technology.

With Computer Reset down in Texas, I started calling around to gather information about this device. Trying to understand the ins and outs of systems and what was necessary to make it work finally paid off.

I discovered that a company called CAT (Computer Aided Technology), also based in Texas, made an adapter called a SCANADAPTERLPT, a small external box (about 2" x 4") that would run off the parallel port of laptop computers. This was the same device that Computer Reset was selling in the newslet-

ter.

The PCjr was a perfect match because, having no slot other than the internal modem, it could be hooked up to the parallel port. I did have to invest in a switch box to transfer between the scanner and my printer. The LPT is hooked up to one of the parallel ports on the switch box and the scanner is plugged into the LPT. There is also a small power unit that runs the LPT that needs to be plugged into your power source.

When receiving the LPT adapter, an enhancement package of software comes with it. This is necessary because when configuring the scanner it must be set up to recognize the parallel port and not the BUS port (as most other scanners only work off an added card internally).

What a sense of accomplishment when you activate your scanner for the first time and see the screen fill up with the image that you are scanning. Graphics, pictures or text can be scanned (although an optical Character Recognition program called CAT Reader Professional OCR is the only program that can be used to read text in conjunction with the enhanced program right now, later this year it will be reconfigured to use other OCR programs).

As my way of saying thanks to all of you that take the time and effort to put together the newsletter, I am enclosing some copies of the Cat Hand ScanAdapter LPT literature along with some information about the other products that CAT currently offers.

What's next for me? Hmmmm, a VGA monitor that supports a color scanner? Maybe?

*Rollin G. Golden, Sacramento, CA*

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# Software

(Order form on page 23)



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**CHECK PROCESSOR.** Easy to use software for financial record keeping. Balance checkbook, print expenses by category, etc. 128K (Disk #59)

**WILLS.** Written by a lawyer, this software helps prepare wills that are appropriate for many different situations. Includes 18 basic types, with many clauses that can be combined to create "customized" wills for most families. 256K (Reviewed 4/91) (Disk #124).

**EDNA'S COOKBOOK.** Will organize your recipes by subject, allowing for quick retrieval. Print out sorted collection for your own cookbook. 128K, 2 drives. (Disk #96)

**FAMILY TREE.** Powerful genealogy program with easy to use menu system. Prints handy research forms, checks your accuracy, prints variety of charts and can make your family tree into a book! 256K (Reviewed 3/90) (Disk #109)

**FAMILY HISTORY.** Includes complete manual on disk with how-to info on tracing and setting up your family tree with detailed genealogical information. Easy to use and modify as you gather more data. New compiled version runs faster than previous version. 128K order Disk #33 alone. 256K order #33 and #33A.

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## VGA Upgrade

(Continued from page 1)

expense of purchasing a new monitor, and still enjoy EGA software on their PCjr monitors. EGA compatibility not only gives you a much wider range of games and other software, but it runs faster than CGA, he says. Many PCjr users are satisfied with this EGA compatibility and may never go out and buy a VGA monitor, since almost everything on the market today is EGA compatible.

Other advantages: Gives you true CGA compatibility (which is slightly different from PCjr CGA; can remove cartridge and return to original PCjr mode; no adapters required for use with PCjr monitors; when used with an analogue monitor you get flicker-free display in Hercules mode.

There have been some compatibility problems with jr Hotshots and the Display-Master VGA sidecar, but PC Enterprises will help you work these out if you encounter them. PCjrs with more than 640K, unless it is via PCE's 192K internal card, will have to disable the additional memory when operating the Display-Master VGA.

System board VGA modification is compatible with the Tandy Mod.

To purchase the PCjr System Board VGA kit, please send \$7.95 to jr Newsletter, Box 163, Southbury, CT 06488.

## A Fun To Use Word Processor That Helps Kids Learn To Write

Word Processing for Kids (Disk #41) is, as its name implies, designed especially for children who are just learning to write. Children will find it fun and easy to use. With it they can concentrate on expressing their ideas instead of perfecting their handwriting and/or erasing abilities. Here is what the author, Sidney Nolte, says about the software in the eight page instruction manual, which is included on the disk: "We developed this program because we feel that more than any other kind of program, a word processor can do much to help children learn to communicate through the written word. While those word processors developed for adults have the features required for professional writing, they do not serve children. They simply are much too complex.

"It can be used by very young children with but a brief training period, since it uses only a few keys. It uses the large type font typically taught in school rooms today and so will be familiar to the child." Word Processing for Kids uses the color capabilities of the PCjr to good advantage and will run on 128K. See page 23 for ordering information.

# PCjr System Board Modification Instructions

(See Page 1 for story on VGA for Junior)

**Editor's Note:** The following instructions are published here under special arrangement with PC Enterprises, which provided the instructions for those who wish to prepare their PCjr system boards for the PCE Display Master VGA Sidecar.

The PROMS and resistor needed for this modification may be obtained from jr Newsletter for \$7.95. Although we believe these instructions to be accurate, jr Newsletter will not be responsible for any damage that may occur during this modification.

## Why the PCjr System Board Requires a Modification to use VGA

Before a VGA display adapter can be installed on any computer, you must first remove or disable any CGA adapters which are present. The PCjr's CGA adapter is built-in to the system board. As a result, a system board modification must be made which permits the Display-Master to disable the PCjr's built-in CGA graphic subsystem.

The VGA Upgrade Kit (Catalog #11201) provides all the instructions and components necessary for do-it-yourselfers to modify a PCjr System Board. Once the modifications are correctly installed, the PCjr System Board works exactly the same as it did before the modifications — with one important exception.

When the Display-Master VGA Cartridge is plugged into either of the PCjr cartridge slots, the modifications permit the cartridge to disable the PCjr's built-in CGA graphics. When the Display-Master VGA cartridge is removed, the Display-Master sidecar is

automatically disabled, and the PCjr's built-in graphics adapter once again becomes the active graphics adapter.

**Warning:** We do NOT recommend installing the Display-Master VGA sidecar on a PCjr computer unless the PCjr system board has received the modification described in this section. If you choose to ignore this warning, be sure to set up the Display-Master switches so that the Display-Master will function as the secondary graphics adapter. It is also important to restate at this time that, when a VGA graphics adapter must co-exist with a CGA graphic adapter the VGA adapter is restricted to monochrome modes.

There are three ways to have the VGA modifications installed on your PCjr System Board:

1. You can get started with VGA with only a few minutes of down time if you purchase a reconditioned PCjr System Board from PC Enterprises. All reconditioned PCjr System Boards sold by PC Enterprises come with the VGA modifications already installed. Simply order a reconditioned PCjr System Board, then, at your leisure, return your original system board and receive a PCE trade-in credit (Refer to the "Trade-in Policy and Instructions" section of our catalog for more information). This option has an added advantage in that reconditioned system boards sold by PCE also come with a variety of other modifications which provide greater PC and Tandy compatibility and expandability.
2. You can send your PCjr System Board to PCE and let our experienced rework personnel install all the PCE modifications that we normally perform on reconditioned PCjr System Boards (Refer to the Five System Board Modifications" page of our catalog for more information).
3. Or, you can purchase the optional VGA upgrade kit (#11201) from PCE and either install the VGA modifications yourself, or have the modifications installed by a qualified third party.

Relax. If you attempt to make the modifications yourself and wind up damaging your system board you can still take advantage of our system board trade-in credit without penalty (as long as you haven't physically damaged the system board beyond repair).

To install the VGA modifications you'll need to replace two components (which are presently soldered to the PCjr system board), cut five traces, and install eight jumpers. The VGA upgrade kit

includes all the components needed, plus adequate wire, solder, and solder wick.

## Step by Step Modification Instructions

Follow these instructions only if you purchased the VGA Upgrade Kit and intend to install the VGA system board modifications yourself.

### Tools Required

- Medium size flat-blade screwdriver
- Small size flat-blade screwdriver
- Soldering iron
- Exacto Knife
- Wire cutters
- Analog or Digital Multimeter (recommended)

Note: An IC socket has only been provided for the 20-pin PROM. Be certain that you do NOT use an IC socket for the 16-pin PROM as doing so will cause problems if you later attempt to install a PCE jrExcelsior speed-up board.

We recommend reading through these instructions entirely before you begin. Then, follow this modification procedure step by step, placing a check mark alongside each step as it is completed.

A Digital or Analog Multimeter, or any other electronic continuity checker, is NOT required, although we highly recommend you obtain one of these devices before proceeding. Even the most inexpensive multimeter, purchased for less than ten dollars, can save you hours of frustration in the event that a wiring error has occurred. Another item which you might consider purchasing to simplify this installation procedure is a hand held desoldering device. Such devices are commonly available from Radio Shack and most other companies which sell electronic supplies.

### Step One: Remove the PCjr System Board from the PCjr Cabinet.

To do this, unplug all cables which attach to the rear of the PCjr system unit. Then, remove all cartridges, sidecars and additional drives. Next, remove the PCjr system lid and unplug all the inter-

nal cards and also the internal disk drive (sometimes the PCjr's internal disk drive requires a fair amount of force to remove, however, if you pull hard enough, it will snap out without using any tools).

Use the medium size flat-blade screwdriver to remove the four screws located along the rear of the PCjr system board. Then use the small size flat-blade screwdriver to remove the single screw located on the left cartridge slot. The PCjr system board can now be removed by first depressing the two plastic clips on the left hand side of the cabinet - then lifting the left side of the system board up and out of the case (Don't be concerned if the plastic snaps break off. These clips were intended to simplify the manufacturing process and serve no useful purpose).

### Step Two: Perform the Quick Test

Before we make any modifications to your system board at all, we'd like you to perform a simple quick test. After the modifications have been installed you'll be instructed to run this test again. (The reason for running the test at this time is to see what's supposed to happen when the system board is working correctly).

Lay the PCjr system board down on a flat table with the cartridge slots facing the front. Next, plug the PCjr power supply card into the left most slot, then attach the power transformer to the power supply card and your PCjr display to the appropriate connector (You may need to examine the PCjr enclosure to determine which connector is the D connector). Turn the power switch on and observe the screen. You should see the IBM title screen and the system should count up to 64K, then when the computer completes the automatic Power On Self Test (POST) it will sound a single beep which tells you the system board has passed the POST. The BASIC screen then appears. You should not encounter a black or white screen, and you should not hear two beeps.

### Step Three: Attach the Identification Labels

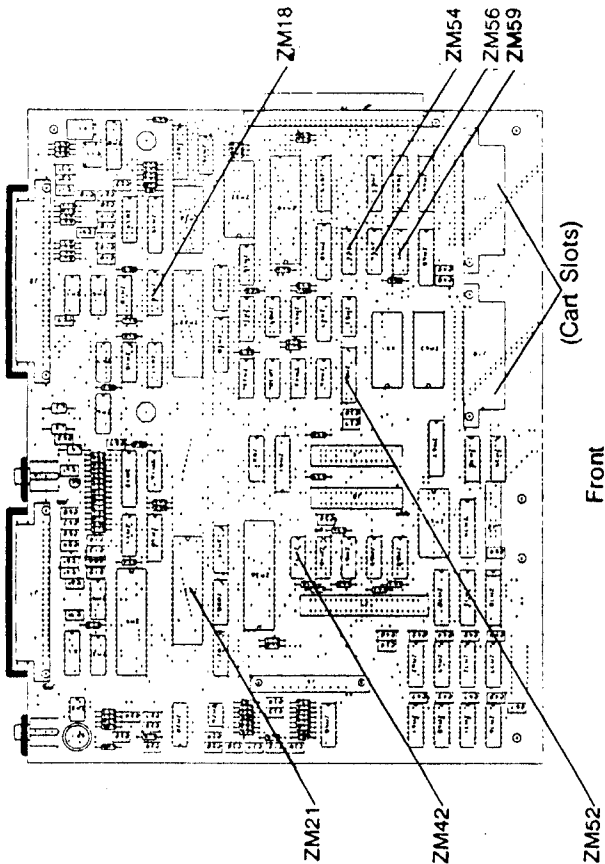
Peel and stick identification labels are included to simplify the procedure. First, orient your system board so that the component side is up and the cartridge slots are in front of you. With the system board oriented in this manner, pin 1 of all the IC's you will be working with, will always be on the right (refer to Appendix A if your not sure how to determine which pin is pin 1). Now refer to the figure below, then attach each of the identification labels to the top of the appropriate ICs.



board's silk screen (The silk screen is the printing that appears on the system board).

*System Boards with silk screens that use white ink.*

Make two cuts on the top (component) side of the system board and two cuts on the bottom (solder) side.



**Step Four: Affix the Modification Identification Label**

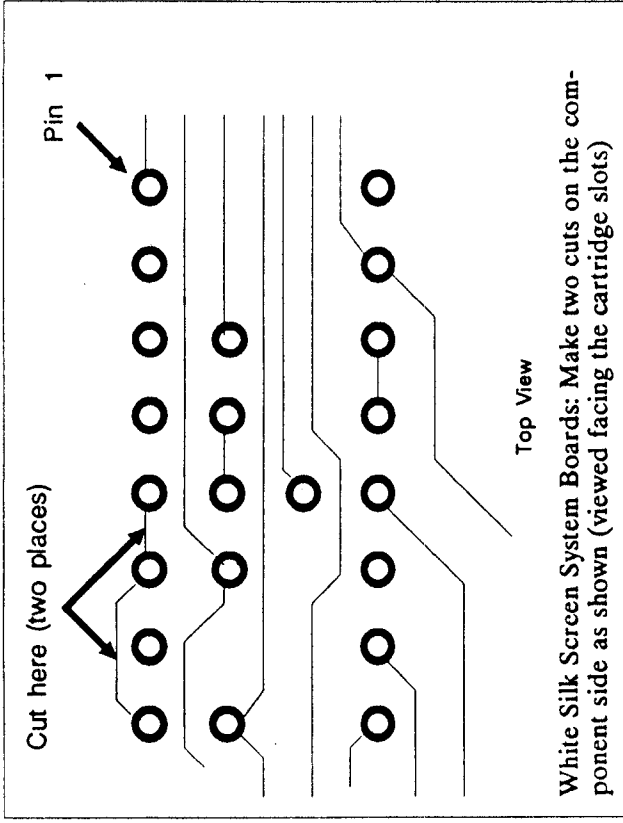
The label which identifies the modification you are about to perform should now be affixed to ZM21. This label is very important as it permits us to provide technical support and future repairs or service (if needed). It also identifies your system board as one that has indeed been modified to provide VGA compatibility.

**Step Five: Remove ZM56.**

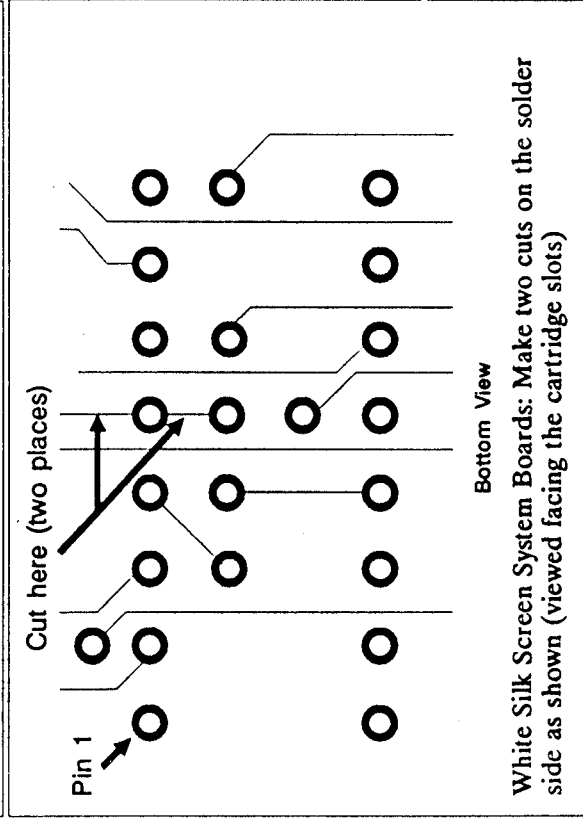
Using the solder wick provided (or an optional hand held desoldering tool purchased separately), remove the 16-pin PROM (ZM56) from the PCjr system board (If you don't know how to remove a part which is soldered to a circuit board refer to Appendix B). This part is usually marked 648, however it may be marked 24S10,74S287, 27S21, 7114, 63S141, or 82S129.

**Step Six: Cut four traces.**

All traces going to pins 5, 6, and 8 of ZM56 must be cut in order to isolate these pins. The specific procedure that you must follow can be determined based upon the color of your system



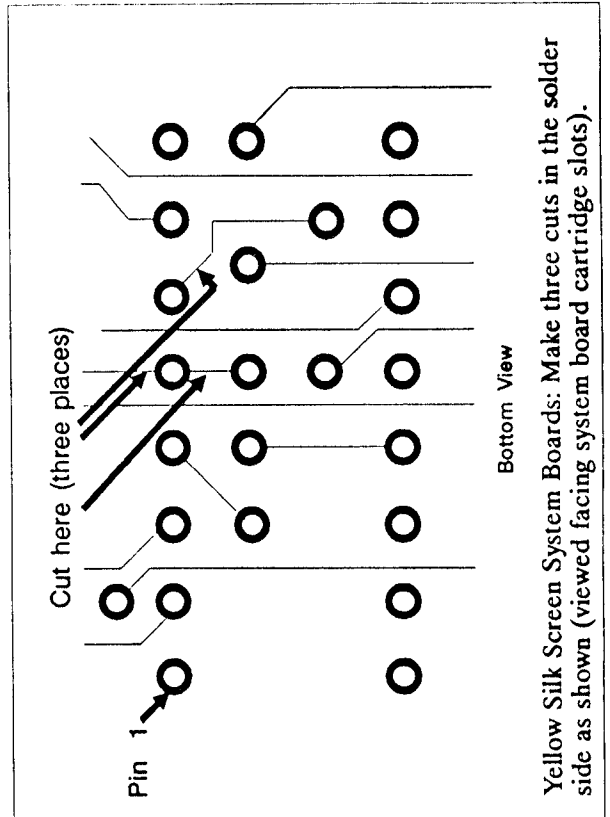
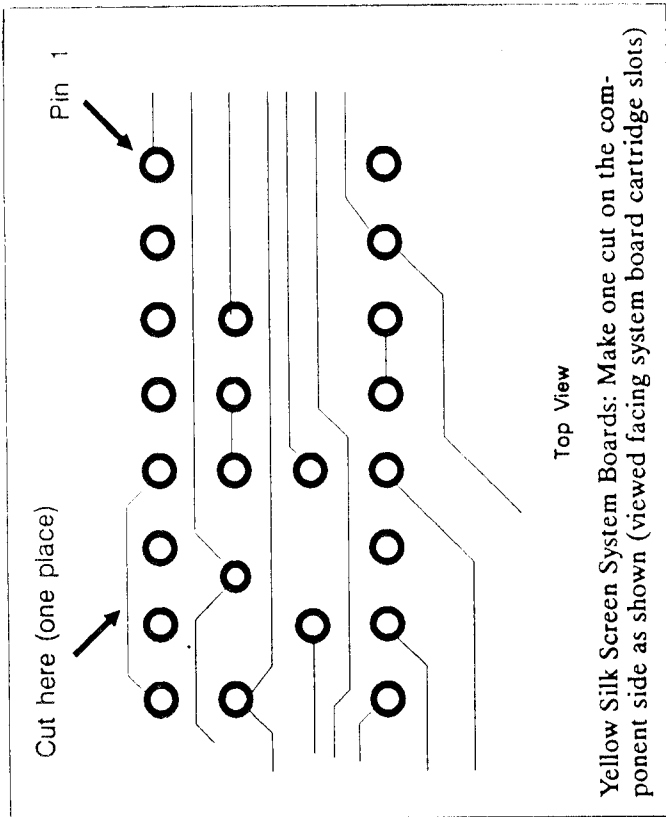
White Silk Screen System Boards: Make two cuts on the component side as shown (viewed facing the cartridge slots)



White Silk Screen System Boards: Make two cuts on the solder side as shown (viewed facing the cartridge slots)

*System Boards with silk screens that use yellow ink*

One cut is required on the top (component) side and three cuts on the bottom (solder) side.



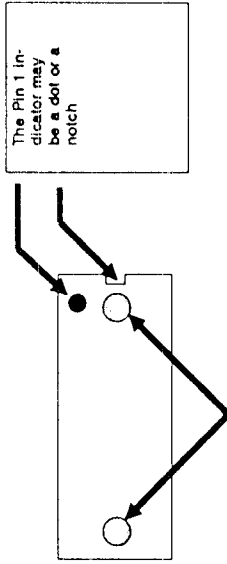
**Step Seven: Check your work!**

Use your meter or continuity checker to verify that pins 5, 6, and 8 are isolated from each other.

**Step Eight: Install the new ZM56 (16-pin PROM).**

Locate the 16-pin PROM supplied with the VGA Upgrade Kit. Be sure to orient the IC properly, noting the correct position of pin one, then solder the IC directly to the PCjr system board.

Note: PROMs are devices which must be programmed before they can be used. The four digit number of the PROMs provided with this kit is the checksum of the programmed device and should not be confused with the ZM number which is a designation number assigned to the device by IBM.



Often mold marks appear in this area and are often mistaken for pin 1 indicators

Top view of the 16-pin PROM, properly oriented with respect to pin 1, and ready to be inserted into the system board (as viewed facing the system board cartridge slots).

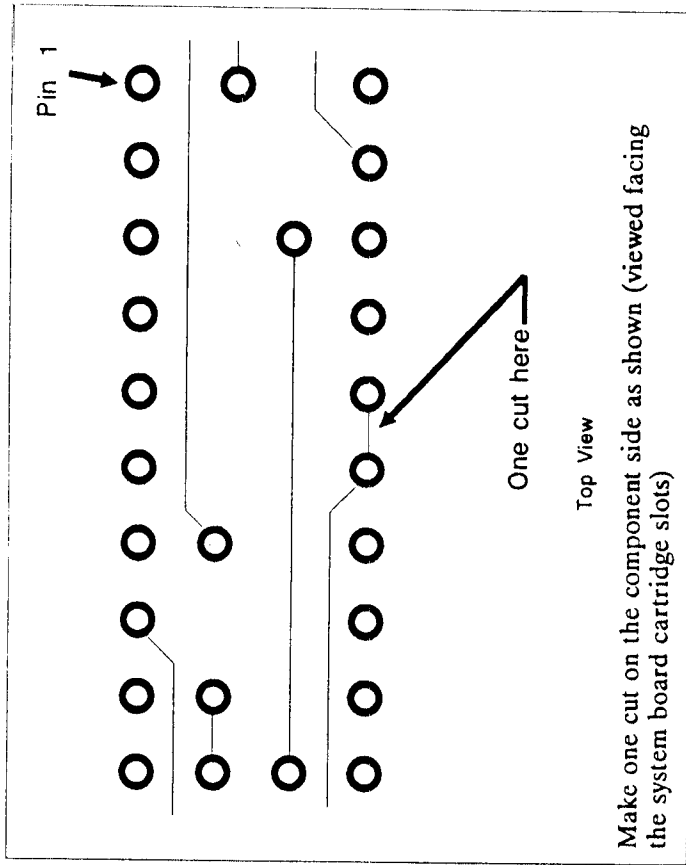
Note the position of the asterisk on the label affixed to the 16-pin prom. The asterisk marks Pin 1.

**Step Nine: Remove ZMS2**

Use the solder wick provided to remove the 20-pin IC (ZMS2) from the PCjr system board (If you don't know how to remove a part which is soldered to a circuit board refer to Appendix B). This part is usually marked 724, however it may be marked 28L22, 74S472, 27S29, 7124, 63S481, 29623, or 82S147.

**Step Ten: Make one cut**

All traces going to pins 15 and 16 must be cut in order to isolate these pins. This normally requires only one cut (which is made on the component side) regardless of the color of your PCjr system board's silk screen.

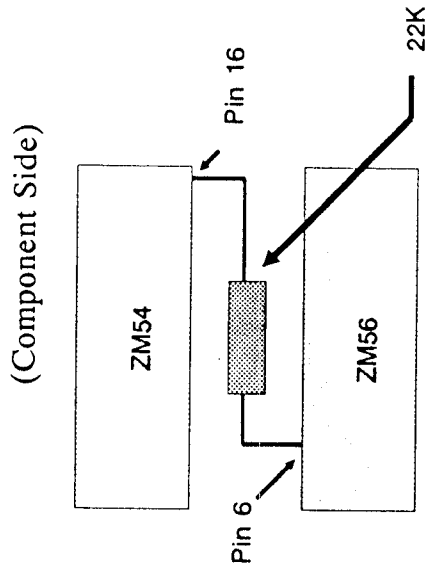


**Step Thirteen: Install the new ZM52 (20-pin PROM)**

Locate the 20-pin PROM supplied with the VGA Upgrade Kit. Be sure to orient the IC properly, noting the correct position of pin 1, then insert this IC directly into the 20-pin IC socket.

**Step Fourteen: Install the 22K resistor.**

The 22K ohm (RED,RED,ORANGE) resistor connects between ZM56-6 (pin 6 of ZM56) and ZM54-16 (pin 16 of ZM54). Orientation of the resistor does not matter. Position the resistor as shown below, then solder it in place.



Next, install the eight jumpers on the solder side of the system board as described in the next eight steps.

**Signal Wires**

**Step Fifteen: Install Jumper 1 (ZM56-5 to ZM52-16)**

**Step Sixteen: Install Jumper 2 (ZM52-16 to ZM42-5)**

Note that Jumper 1 is already attached to ZM52-16. This means you should now have two jumpers on this pin.

**Step Seventeen: Install Jumper 3 (ZM42-4 to ZM42-13)**

**Step Eighteen: Install Jumper 4 (ZM42-2 to ZM42-3)**

**Step Eleven: Check your work!**

Using your meter or continuity checker verify that pins 15 and 16 are not connected to each other.

**Step Twelve: Install the 20-pin IC socket in location ZM52**

Locate the 20-pin IC socket supplied with the VGA Upgrade Kit. Be sure to orient the IC socket properly, noting the correct position of the indent (the pin 1 indicator), then solder the IC socket to the PCjr system board.

**Step Nineteen: Install Jumper 5 (ZM42-2 to ZM42-14)**

Note that Jumper 4 is already attached to ZM42-2. This means you should now have two jumpers on this pin.

**Step Twenty: Install Jumper 6 (ZM42-1 to ZM18-14)**

*Ground Wires*

**Step Twenty-one: Install Jumper 7 (ZM56-13 to ZM59-8)**

**Step Twenty-two: Install Jumper 8 (ZM54-12 to ZM54-8)**

**Step Twenty-three: Check your work.**

If you have a multimeter or continuity checker, use it at this time to verify that all eight jumpers have been properly installed. To minimize the chance of errors, measure the continuity while viewing the top side of the system board keeping in mind that pin one will always be on the right when viewing the system board from the cartridge slots. Circle each of your check marks as you verify that the jumper has been properly installed.

If you do not have a multimeter or continuity checker, take time out to perform a careful visual inspection.

**Step Twenty-four: Indicate the completed date on the modification identification tag**

Using a ball point pen write the current date on the modification identification tag.

**Step Twenty-five: Perform a quick test**

Perform the same test as in step 2. If the system does not complete POST successful (one beep) recheck your work.

**Step Twenty-six: Reassemble your PCjr making sure to reinstall all cables, cartridges, and sidecars removed during this procedure.**

If you encounter a problem and would like to speak to a technician call our "Tech Lab" at: 1-908-280-0072. (Please be persistent if no one answers or if the line is busy. Our technicians are

in and out of the lab throughout the day and there is only one phone line).

If you have decided not to perform or complete the VGA modifications and have instead decided to purchase a PCjr System Board that has already been modified call our sales department at: 1-800-922-PCjr.

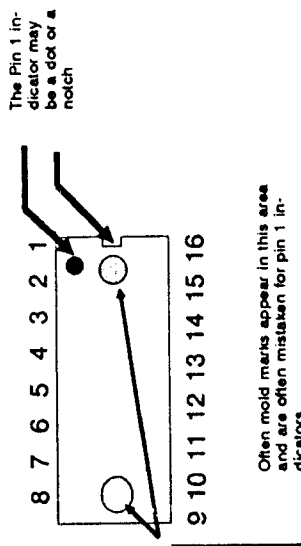
The VGA modification is one of the five system board modifications performed on all PCjr system boards sold by PCE. In addition, when you purchase a reconditioned system board from PCE the system board always comes with a trade in certificate that permits you to receive a trade-in credit for your existing system board. (Whether or not you actually trade-in your existing system board is always optional).

## Appendix A

### Pin Numbering Conventions

All IC devices have a notch or a dot to indicate pin 1. As viewed from the top, pin numbers are then assigned counter clockwise.

### Pin Numbering for a 16-lead device shown



**Important Note for Novice:** The Pin Numbering scheme for a 16-pin device is shown. Extreme care should be taken when working on the solder side of the board. When the circuit board is flipped upside down, the pins reverse.

**HINT:** After you remove the two ICs, insert a small wire through the hole for pin number 1 and leave it there until you are ready to install the new IC or the IC socket. The small wire that you insert through the hole in pin 1 will provide for a quick and easy to locate reference when you flip the circuit board upside down.

## Appendix B

Removing an IC that is soldered to a circuit board.

The copper colored braided material supplied with this kit is known as solder wick. The process of removing an IC which is soldered to a circuit board consists of touching the solder wick to the solder pad then touching the soldering iron to the braided material and heating the pad. When sufficient heat has been applied the solder will be drawn out of the pad by the solder wick.

Often, you must apply a little bit of solder to get the wicking action started. Once the wicking action starts, leave the heat applied until the solder flow stops.

If the solder wick has not completely cleared the hole, repeat the operation after cutting away and discarding any portion of the solder wick which has been saturated with solder. Remember: It is often necessary to apply a little solder to get the wicking action started.

To avoid damage to the system board's traces, always use your small size flat blade screwdriver or a similar device (a household ice pick might work well) to move the IC's lead away from the side of the hole. This insures that the lead is no longer being held to the side of the hole by solder.

Also, to avoid damage to the printed circuit board, be certain not to apply heat to the solder pad for any more time than what is necessary. (The application of heat for longer than 20 seconds will often cause the solder pad and the printed circuit board to separate).

**To order the PROMS and resistor for this modification, send \$7.95 to:**

**jr Newsletter,  
P.O. Box 163  
Southbury, CT 06488.**

## Questions and Answers

(Continued from page 4)

instead. You'll quickly use this as a replacement for the previous BASIC interpreters and it is a superb stepping-stone towards learning to use the BASIC Compilers! The Editor referred to above is a slightly limited version of the QBasic Editing Environment; when you learn one, you learn both. Wait 'til you see and run the included Gorillas.bas and the other sample programs!

The DOS on-line Help and the /? commands which pop up and explain just about EVERY aspect of EVERY DOS command are really useful. This is especially so for a new computer user or when needing information about a seldom-used command. You'll want to use the visual and convenient DOSSHELL for file viewing and management, if nothing else. Load DOSKey, and you get a species of DOS macro language, with all the ease and speed of single-key operations along with an in-memory "chain" of all your previous DOS commands which you can call up and edit. Batch files are almost a thing of the past with the lightning-fast DOSKey assignments. Unformat and Undelete are real file- or life-savers, as the names should indicate. DIR has a whole new, flexible personality. Hard disks can be larger than 32 MB without partitioning. All kinds of floppy disk drives, sizes and formats are recognized, including the new 2.88 MB drives.

The list of substantial improvements and new features goes on. As of this writing at a sale price of \$39.95 at EGGHEAD stores, for example, the DOS 5.0 upgrade is not to be missed.

We recommend you buy the 5.25" floppy version of the MS-DOS 5.0 Upgrade. Use DISKCOPY to make working copies for installation, if you choose, the originals are write-protected. Remember, you will need to use John King's installation and boot patches. These were featured in the Aug '91 issue of the jr Newsletter and they work like a charm for proper implementation of the upgrade.

### Q. What about other memory managers such as the Lotus Intel Microsoft (LIM) recognitions systems?

A. Memsim32.zip by Harris Computer Consulting was down-loaded from GENie after we received the information from L. Hutchinson of Holt MD. (See Aug. '91, pg 7.) We unzipped it and found two versions of memsim, one for 8088, 8086, and the NEC V-20; the other version for 80286 processor chips. Both provide the functions as stipulated in the LIM specifications for version 3.2. Note: we don't know what changes are in LIM 4.0. Harris Computer Consulting MAY have an upgrade, and one should register for \$25.00.

Write to Harris for more information at:

6779 Beadnell Way #103,  
San Diego CA 92117,

We followed the directions and initially set up a jr with

a hard drive to have 4 Megabytes of LIM expanded memory. It worked without a glitch. It would be one possible solution for applications (programs) which can use and need more than 640k of RAM. Some applications and DOS 5.0 are written to take advantage of such memory when it is found. This is a device driver which emulates RAM above 640k by exchanging paged memory in from and out to the disk drive as if it were memory chips.

We found that there was a file of exactly the emulated 4 Mb RAM size on the disk in the directory we had assigned. It never contracted or expanded in size as we ran and tested programs. Before we de-fragment or back up this disk we will absolutely delete this file! We deleted it at the end of each session without any adverse affects and decided we'd do some more checking. No problems, but of course we won't delete it in the middle of a session!

The jr we tested with has 640k, a hard disk and runs DOS 5.0. The device driver, MEMSIM32.08X for the jr, loads a 64k low memory page frame, so we set our video buffer to minimum and are still well over the 128k speed trap. We have 177k used for DOS and other necessities. It appears that a 732k machine would be a good model because the page frame could be in "high" memory along with any DOS 5.0 loadhigh drivers, or perhaps DOS itself. Most of the standard 640k would then be available for applications.

### UPDATE from a previous column: How can I monitor the serial port and perhaps use the data?

Among recent archaeological finds (in a 1990 Programmer's Journal 8.2) was an advertisement for aSPORT. The spelling is copied directly from the dusty scroll. This device is purported to: "display all data going in & out. ASCII, hex, decimal & binary. YOU choose hand-shaking lines. Automatically runs port diagnostics." It is supposed to be for people who are not and don't want to be communications experts, but use or write software for serial devices such as plotters, mice, modems..."

For more information:

W H S

3037 Grass Valley Hwy #8201

Auburn, CA 95603

Tel. (916) 885-2480.

### File Transfers by Modem

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

# Using Procomm On Your Junior

By John E. Wilson

OK! You've got your modem, and you have it hooked up to your PCjr's serial port and to a telephone line. Now what do you do?

To use the modem you'll need some software. Actually, it is possible to control a modem by using DOS to send commands through the serial port to the modem, but this is a primitive and awkward method. You'll want to use one of the numerous telecommunication programs that are available at very reasonable prices. We'll try out a program that is easy to learn and works very well with a PCjr, but first let's see what we can expect from telecommunication software.

## What Telecommunication Software Does

**SET COMMUNICATION PARAMETERS.** The most fundamental task of telecommunication software is to set the modem's transmission speed, the number of data bits, number of stop bits, parity, and duplex mode. The upper limit of transmission speed, in bits per second (or baud, if you prefer), depends upon the modem, but the speed you use is set by the software. You may have a 2400 bps modem, but you can still run it at 1200 bps, or even 300 bps. The software also sets up the serial port - usually either COM1 or COM2 - used by the modem.

**ESTABLISH CONNECTIONS.** The software can dial any phone number you select, using the communication parameters you select. Most programs can keep a list of often called phone numbers to semi-automate calling. If the number called is busy or doesn't answer, the program will let you know. Probably the program will have some means to redial the number if you want it to do so. This redialing could be continuous (for numbers that are often very busy), or once every so-many minutes and you can have it give up after a certain number of tries.

**TRANSFER FILES.** Sending files (uploading) and receiving files (downloading) is often the reason for making a connection. The software sets up file transfer using an error-checking protocol that ensures the data received hasn't been changed by the transmission process. Both the sending system and the receiving system must use same protocol, and most software will give you a choice of several protocols.

**CAPTURING INTERACTIONS.** Once you get on line there will be a string of messages, and menus, and lists appearing on your computer screen in addition to whatever you type into your computer. Most telecommunication software will allow you to capture this interaction in computer memory, or in a disk file, or as output to the printer.

Most programs also will hold a certain amount of data in a memory buffer which you can redisplay after the characters have scrolled off the screen.

**OTHER FEATURES.** The telecommunication program features we've listed are the basic ones that you will probably use most often, but most programs will do much more; including emulate terminals, receive phone calls (act as a host), filter characters, and process command files (sometimes called script files). These command files cannot only dial the phone number, but give pass words and other information after the connection has been made.

## Procomm

One of the most popular telecommunication programs is ProComm. It is now a commercial program, with the

*(Continues on page 16)*

	<h1>Software</h1> <p><i>(Order form on page 23)</i></p>	
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## Especially for Junior

**DOS 2.1 FIX.** Patches to fix the bugs in DOS 2.1. Cures most problems encountered when running memory intensive programs. Also patches to run BASIC and BASICA on DOS 2.1 without having Cartridge BASIC installed. 128K ok. (Disk #40)

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

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

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

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

**BEST OF JR NEWSLETTER V.** The best, most informative articles, columns, reviews, Questions and Answers from the June 1990 through the May 1991 issues. Includes powerful search utility so you can find and read any subject easily. 128 ok (Disk #130).

## Using Procomm

(Continued from page 15)

latest version called ProComm Plus 2.0, but ProComm started out as a shareware program and is still widely available wherever user-supported and public domain software is distributed. We'll take a look at Version 2.3 of ProComm as found on Disk #15 from the jr Newsletter Software Store.

A more recent version of ProComm, named ProComm Plus, is on Disk #108. Both versions work very well on an expanded PCjr, but since I was not at all familiar with ProComm, I picked the older version, thinking that it might be a little easier to learn. You may run into a version of ProComm between Version 2.3 and ProComm Plus. It is



## Writing Essentials

**MIND READER.** Experience the wonders of artificial intelligence! Use a full-featured word processor that guesses the words that you're about to type. Works like a charm! 128K ok. (Disk #74)

**PC-WRITE LITE.** The most powerful shareware word processor in a condensed but still incredibly useful package. Unless you need things like microjustification, indexing & mail merge, Lite can do what you need. 384K recommended. Reviewed 8/91 (Disk Set #5)

**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 manipulate data. Outperforms many commercial programs, says PC Magazine. 128K. (Disk #17)

**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.)

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

Version 2.4.3 and it also works very well on a PCjr. Version 2.4.2 has a bug, so avoid that one.

## Getting Started

The first thing you should do with the ProComm Disk, Disk #15, is to make a copy of it. Then put the original in a safe place and work with the copy. The label on the original disk instructs you to put the diskette in drive A, type GO, and press Enter. If you do this, some information about the files on the disk and some instructions will scroll down the computer screen. The words you see on the screen are actually the contents of a text file named README that is on the disk. You'll need to carefully read this information, and probably the easiest way to do it is to print a copy of it to your printer. You can do this by typing in, at the DOS prompt, the command: COPY README PRN <Enter>

As the readme file explains, most of the files on the disk are compressed and are to be extracted using a small program called ARCE.COM which is also on the disk. Since the expanded files will be too large to all fit on one 360K diskette you'll need to copy some of the files to other disks. PRCMDOC.ARC and ARCE.COM to one disk; PROCOMM.ARC, PRCMUTIL.ARC, and ARCE.COM to a second disk. We are assuming, throughout this article, that you are using 360K diskettes. If you have a PCjr with hard disk, you can just make a directory for ProComm, copy all the files into this directory and also run the program from it.

The program's reference manual is in the file PRCMDOC.ARC. After PRCMDOC has been expanded, you'll find the manual as a text file called PROCOMM.DOC. It is an almost overwhelming 190,055 bytes long. It is a good manual, with detailed explanations on 76 numbered pages, a table of contents and even a small index. However, I have never had much success printing such long files. Either the holes on the paper's tractor feed strip tear, or else the pages and the perforations become misaligned, and as likely as not both problems will happen. Therefore, I divided the file into four smaller, more easily managed files, and used a word processor to edit out some portions that did not look essential before I printed it. One way or the other, you will eventually want to print out the manual in order to learn all of ProComm's features, but we'll cover enough of the basics in this article to get you started using ProComm without reading the manual.

## Starting Procomm

With a disk containing PROCOMM.EXE in drive A, type in PROCOMM and press Enter. If you are using a composite monochrome monitor you will want to start the program by typing in PROCOMM /B to make the screen a little easier to read. After building itself some files, the program will display a logo, then a shareware information screen, and finally go into the program. The program begins with an almost blank screen showing only the words "ALT-F10



FOR HELP" at the bottom.

ProComm is a command driven program, which means that it waits for you to issue a command before it does anything. This may seem a little intimidating at first, but you will find the commands easy to learn and to use. Virtually all the commands are issued by holding down the Alt key and then pressing a second key. You can see a list of the commands at any time by pressing Alt- F10. I've always found that the first command to learn in any program is how to exit the program. In ProComm you exit the program by pressing Alt-X.

### Setting Up

The first time you use ProComm you'll want to set it up for your computer's configuration and for your modem. Most of the setup is handled by the Alt-S command. This command brings up a menu listing six numbered sub-menus: Modem Setup, Terminal Setup, Kermit Setup, General Setup, Host Mode Setup, and ASCII Transfer Setup. Modem Setup and General Setup are probably the only sub-menus you need to look at.

Modem Setup is easy if your modem is Hayes compatible. However, if you have the IBM PCjr internal modem, you have some work to do. A file, also on Disk 15, named INTMODEM.TXT will give you some instructions on how to set the ProComm modem parameters. A few other files, COMSWAP.DOC, COMSWAP.COM and COMREST.EXE, are included on Disk #15 to also help you if you are using a PCjr Internal Modem. For a Hayes compatible modem, you can leave the ProComm modem parameters as they are. If you are especially ambitious, or just particular, you can dig up your modem's manual and follow through the modem initialization strings and other settings. To change anything type in the number of the option and then the new parameters.

If you don't appreciate the zippy sounds that ProComm often makes, you can turn them off with the General Setup menu. When you are satisfied with your setup, be sure to save it by pressing S, at the main Setup menu.

If you are using a monochrome composite monitor, you can permanently set the screen colors for a more readable display by using the Alt-Z command. You can also use this command to change the colors on a color display. This command brings up a list of windows with options for setting foreground, background and highlighted colors. Use the space bar to change the colors.

For a PCjr it is especially important to setup the modem to use the COM2 serial port. Issue the command Alt-P, and then type in 21 to select COM2 as the active serial port. The new setting will be shown in the top of the window. This command also sets the default modem parameters. They are initially set to 300 baud, no parity, eight data bits, and one stop bit. You might want to change them now to the more often used 1200, N, 8, 1, but you can also set these

parameters whenever you dial a number. Be certain to save these parameters with option 22 before you leave the window.

### Dialing A Phone Number

The very first step than you must take to make use of your modem is to find a phone number to call. There are the national online services, such as CompuServe, but for your initial call, which will try out your system, you will probably be better off with a local service. If you live in a city there are probably numerous public bulletin boards that you can try out, and if you live in a very large city there are probably free computer newspapers that list these bulletin boards. Otherwise, you can look in computer stores or libraries for notices about local computer bulletin boards. Some bulletin boards are free, but most are not. They will let you know as soon as you connect with them, along with information about the service. If you are a member of a computer club which has a bulletin board, your best bet for your first call is to use the club's bulletin board.

The easiest way to dial a number with ProComm is to use the Alt-D command. This brings up the dialing directory with a list of phone numbers and a menu. Each directory entry is numbered and you can dial a number by simply typing in the number of the entry and pressing Enter. You

*(Continues on page 20)*

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## Tips & Tricks for Jr Users

Continued from page 2

### Ramdisk Surprises

JRCONFIG is a fine shareware memory management program that allows you to create a ramdisk with the same program that moves the video buffer. The ramdisks which JRCONFIG.DSK creates will be about 10K larger than ramdisks created by other programs for the same amount of RAM used. This is because JRCONFIG is able to include as part of the ramdisk memory between DOS and the video buffer which would otherwise be unusable.

The only negative feature of JRCONFIG ramdisks is that they are about 20 percent slower than most other ramdisks due to their small cluster size. JRCONFIG uses 128 byte clusters rather than the 512 or 1024 byte clusters used by other programs.

### Using Redirection

How do you know what's on a floppy disk without putting it in your computer and running DIR? Why not keep

a printed list of the files in the sleeve with the disk. SD.COM is one of many directory programs which lists files by name and date in two columns. I send the listing to my printer with this command.

```
SD A: > PRN
```

You could do this with DIR, but I prefer the two column output. I put the printer in compressed mode (17 characters per inch) and cut the printout to 5.25 inches square to fit in the sleeve with the disk.

The command with the ">" character is an example of redirection. The SD program normally sends its output to the monitor. The ">" symbol redirects the output to the printer, PRN.

Imagine this situation. You just printed out that directory listing or the documentation for a new shareware program. Suppose you want to add a few comments to the bottom of the page. Of course, you could write them by hand on the print out, but you could also give this command.

```
COPY CON PRN
```

Now, type your comments. They will appear on the monitor, and you can edit each line before you hit the Enter key at the end of the line. When you are done, add the End Of File marker with Fn 6 or Ctrl-Z and press Enter. Everything you typed will be printed. If you change your mind or want to start over, type Fn Break or Ctrl-C and press Enter. Nothing will be printed.

You can also redirect output from the monitor to a disk file. If you want to use your word processor to add comments to a directory listing, try this.

```
DIR A: > FILES-1
```

The directory listing will now be in an ASCII text file with the name FILES-1. You can edit it as you choose before printing it out.

### Monitor Interference

A new user once called me with a problem. All her monitor would do was display wiggly diagonal lines. None of the control knobs had any effect. Does it sound like it's time to call the repair shop? I discovered that the monitor's signal cord was plugged in upside down. IBM keyed most of the PCjr accessory plugs to prevent this, but the display is an exception. The plug should be inserted with the D on top. Fortunately, no harm was done, and everything worked fine when the plug was inserted correctly.

Once we got the monitor working, the PCjr's disk drive began reporting errors. This was due to radio frequency interference from the monitor sitting on top of the computer. Although this sometimes works, it can be the source of "Sector not found" errors. Moving the monitor six inches away solved the problem. (So will putting a layer or two of aluminum foil under the monitor, as a shield -- ED)

### Disks

Here's a simple technique to remove the gummy

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adhesive left behind when you remove disk labels. Run down to Long's Drug store, or a similar place, and buy an eight ounce can of Energine cleaning fluid. Put a little Energine on a paper towel or rag, and you can wipe the adhesive right off.

Floppy disks formatted under DOS 3.0 and above will not work properly under DOS 2.1. The file allocation table, FAT, entry was changed from twelve to sixteen bits in DOS 3.0 to allow smaller file clusters on hard disks. One consequence is that DOS 2.1 cannot read the new FAT although every version can read disks formatted under an earlier version.

The DIR command will work because only the directory is read. However, an attempt to copy a file will fail when DOS 2.1 cannot read the DOS 3.1 FAT to find the proper sectors to copy. The only practical solution is to boot up under a version of DOS 3 and copy the files to a disk formatted under DOS 2.1.

### Memory

When you turn on your PCjr, RAM memory is checked. The count is displayed in a box in the lower right hand corner of the screen below the IBM logo. If the proper total is not shown, check the installation of your memory board. Even though the memory is counted, if you have more than 128K, you must still run a memory management program before DOS can use the additional RAM. Common memory management programs are PCJRMEM.COM from IBM, CONPCJR.EXE from Tecmar, and JRCONFIG.DSK, a shareware program.

You can use CHKDSK.COM from your DOS disk to test whether your expansion RAM and memory management software are installed properly. Give the following command.

### CHKDSK

CHKDSK reports on the floppy disk in the drive with size, number of files, and any errors in the file storage. Then it reports on system memory with two lines.

```
xxxxxx bytes total memory
xxxxxx bytes free
```

If you have 128K of RAM, the total memory will be  $128 \times 1024 = 131073$  bytes. The total memory reported by CHKDSK should agree with the boot up screen count. If it doesn't, you need to check your memory management software.

The bytes free tells you how much memory is available for programs after DOS, memory management, ramdisks, and other configuration files are loaded. Without a ramdisk, 48-52 Kbytes are used by the system under DOS 2.1.



# Software

(Order form on page 23)



## Utilities

**4DOS V2.21.** This is the "ultimate utility" since it replaces almost all DOS commands with new, improved versions. And it adds 35 more useful commands of its own! It will replace many of your favorite enhancement utilities. For example, 4DOS allows 40 character file descriptions, more flexible wildcards, multiple commands per line, handy conditional commands, command stacking, alias commands, faster batch processing -- and MUCH more! A must for all serious computerists. Reviewed 1/90 (Disk #102)

**LHA V.2.11** Powerful archive software will compress even more than PKZip, (though not as fast). Many extra features to update, delete, list files in archive, even extract and run. 256K (Disk #128)

**POWERBATCH.** Compiles batch files into .EXE files, which run as much as three times faster. Additional commands add power, control, & flexibility. Requires DOS 3.0 or above. (Disk #127)

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

**BATCH FILE UTILITIES.** A tutorial on how to create batch files and six utilities to use. 128K (Disk #26)

**DOSAMATIC.** A nifty way to view the contents of disks, easily manipulate files and carry out DOS commands. Features a Mac-like "point and press" interface which allows you to select the commands you want from pull down menus. Also permits loading several programs at once and jumping from one to the other. 128K ok, but more memory needed for "multi-tasking." (Disk #49)

**ASIC.** Excellent BASIC compiler turns your BASIC programs into executable COM or EXE files. A shareware alternative to costly compilers. 128K (Reviewed 12/90) (Disk #122)

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

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**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)

**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)

**AUTOMENU V4.7** Make your own menu system to greet you every time you start up your trusty Junior (or PC,XT,AT,PS/2). This is perhaps the easiest menu system to set up, and yet it has advanced features if you want them. Uses only 32k. (Reviewed 3/91) (Disk #123)

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

**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)

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

**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 your PCjr. Need 256K. (Disk #75)

## Using Procomm

(Continued from page 17)

can add to the directory by selecting R, and then follow the instructions to add a phone number along with the modem parameters. You also can dial a number by selecting M, for manual, and then typing in the phone number. The default modem parameters are used (set by Alt-P) unless you type in some new ones after the phone number.

### When You Connect

After you connect to the online service, you just follow the instructions as they appear on your computer screen. Your Junior will act as a terminal to the host computer system. The online service will probably ask you to type in your name and some other information. If the characters you type in appear on your screen twice, or if they don't appear at all, then your duplex setting is different from the host system. ProComm's Alt-E command will toggle the duplex setting, and should clear up the problem.

You may want to record the interactions between you and the connected system. You can use the Alt-L command to capture with your printer. Alt-L is a toggle command that turns printing on and off. Printing slows down the system, and it is suitable for only for getting a permanent copy of a small part of a session. Capturing to a disk file using the Alt-F1 command is usually a better way to do record interactions. ProComm will ask you for a file name to hold the information, and if you don't provide one it will use the default PROCOMM.LOG. Alt-F2 will pause and restart the log file, and a second Alt-F1 command will terminate logging and close the file. The captured file is an ASCII text file that you can look at, edit and print with your word processor after you've completed the online session.

### Downloading A File

Most online services will have a list of files that you can transfer, or download, into your computer. Usually these files are arranged by category - utilities, spreadsheets, programming, etc. You may even find a PCjr category. Quite often the files are compressed to save file space and downloading time, and they must be expanded with a special program before you can use them. Two of the more popular compression/expansion programs used are PKARC and PKZIP. Files compressed with PKARC usually have an .ARC filename extension and must be expanded with the program PKXARC.COM. Files compressed with PKZIP usually have a .ZIP extension and must be expanded with PKUNZIP.EXE. Disk #104 from the jr Newsletter Software Store contains PKUNZIP, and you might want to obtain it before you download any ZIP files. The online service that you are using will also probably have the expansion programs, which you can download, in the utility section of their

library.

If you don't have the necessary expansion program, but you still want to try out downloading, then look for an interesting file that is not compressed. These will usually have a file extension of .COM, .EXE, .TXT, or .DOC. It is also good to choose a short file to start with. The time that it takes to download a file depends upon a number of factors, with the speed of your modem the main factor. A 100K file may take roughly an hour to download at 300 bps, and 20 minutes at 1200 bps.

You will probably be a little nervous the first time you download a file, but you'll find that the process works smoothly, and you should have no problems if you start out with a small file. After you have picked out a file to download, select the download option from your online service's menu. Then you will be asked to type in the entire name of the file you want to download. After the service finds the file you will probably be shown of list of available error detection protocols (You may have already picked out a protocol when you signed up on the online service.). ProComm, Ver 2.3, supports XMODEM, MODEM7, YMODEM, ASCII, Telink, and Kermit protocols. Of these, XMODEM and YMODEM are commonly supported by online services, and of these two, YMODEM is a little faster.

After you've picked out a protocol from your online service, press the PgDn key on your PCjr. ProComm will open a window on your computer's screen with a list of protocols. Enter the number corresponding to the protocol you've selected and ProComm will prompt you for the name that you want the file to be received as. Then ProComm will display a status window that keeps a running total of the number of bytes transferred. Be patient, wait for the process to finish, and for ProComm to turn control back to the online service. That's all there is to it.

We have covered enough of ProComm's basics to get you started, but you will find that the program will do a lot more. It can use command files that automate log-ons, it can upload files, handle redials, use keyboard macros, act as a host computer, and much more. This old, simple version of ProComm is still a first rate program that you may never outgrow.

### Centering the Monitor Image

You can move the screen image left or right manually with the Ctrl-Alt-Left Arrow and Ctrl-Alt-Right Arrow keys. If you want to automate this, put the following line in your AUTOEXEC.BAT file to switch to 80 column mode and move the image two characters to the right.

```
MODE CO80,R
```

To move the image left use MODE CO80,L. Of course, the DOS MODE.COM program must be on your boot disk.

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

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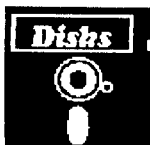
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\* **NEW** \* **DISKCAT.** Creates a catalogue of all files on all your disks, so you don't have to push disk after disk in your drive looking for that 1987 letter to the IRS. Makes table of contents for each disk, too. 128K ok Reviewed 10/91 (Disk #133)

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\* **NEW** \* **PC-WRITE LITE.** The most powerful shareware word processor in a condensed but still incredibly useful package. Unless you need things like microjustification, indexing & mail merge, Lite can do what you need. 384K recommended. Reviewed 8/91 (Disk Set #5)



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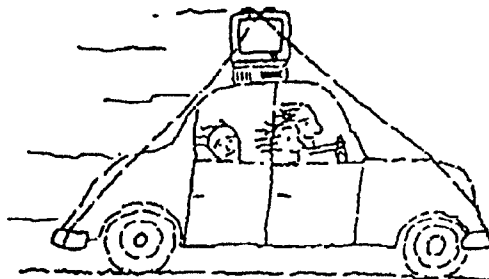
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