

# Everything You'll Ever Need For Your PCjr Plus Much, Much More!!



"Dedicated Exclusively to the Support of the IBM PCjr Since 1984"

**Only PCjrs are used at PC Enterprises for all our Computer Needs. That's how we know the PCjr can Satisfy all your Needs too!**



To Place an Order or Request your own Catalog call 1-908-280-0025 or call Toll-Free:

**1-800-922-PCjr**

**8AM to 5:30PM Eastern Time  
Monday thru Friday  
Occasionally open on Saturdays**

Have a Question or Problem? Call our Customer Service Department  
1-908-280-0025 Monday thru Friday, 9AM to 4:30PM Eastern Time

*Everyone knows PC Enterprises has been dedicated to the support and service of the PCjr since 1984, but did you also know that we only use PCjrs at PC Enterprises? That's right! In total approximately 50 PCjrs are used throughout the company. Our Order Entry, Sales, and Customer Service Departments all use PCjrs. So does our Tech Lab and Test Department. We use PCjrs to maintain shipping and receiving records, payroll,*

*accounts payable, accounts receivable, inventory control, and production scheduling. We even maintain our mailing list and created this catalog on PCjrs! In addition to our fleet of PCjr computers, we also own one IBM PC and one 386 machine. These machines are rarely used except for compatibility testing. That's why we know the PCjr so well, and that's also why we know the PCjr can satisfy all your needs too!"*

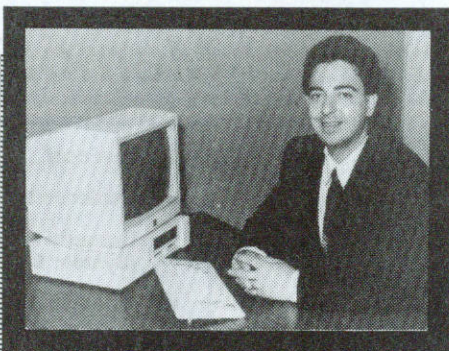
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**Like to FAX us a Question or an Order?  
FAX 1-908-280-0010 7 Days, 24 Hours**

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# A Letter from P. Joseph Calabria

—Owner of PC Enterprises



**Dear PCjr Owner:**

It's with great pleasure and excitement that I write to you this year. We're now into our seventh year of exclusive support for the IBM PCjr—and still the end is nowhere in sight! Our phones continue to ring from the moment we open until we close, with four to seven lines normally active throughout the day. Thousands of PCjr owners continue to purchase expansion products and upgrade their PCjr. Without a doubt, the PCjr has become more popular in its afterlife than any other computer in history!

I don't know whether recent sales increases are due to the economy slow down, or whether it's all those limitations built into IBM's newest home computer. Perhaps its a combination. With the economy as uncertain as its been, real estate value dropping, and banks being seized due to insufficient net worth, its not surprising that most Americans are hesitant to spend thousands of dollars to purchase another computer when they know they could upgrade their PCjr instead. To most, upgrading makes sense because when you upgrade your PCjr, you only pay for features that you really need.

Or perhaps it was the introduction of IBM's newest home computer, the PS/1, that has convinced so many more PCjr owners to upgrade their PCjr instead of buying a new computer. Ironically, critics have compared the PS/1 to the PCjr from the day the PS/1 was announced—"Another home computer that can't be expanded!"

PCjr owners will not be fooled again! Computers must be able to keep pace with changing times. IBM PS/1 users will soon understand. For example, the PS/1 comes with VGA already built in. That sounds good, until you realize the PS/1 can't run programs which go beyond VGA. So if you want to run programs which use Super VGA modes on a PS/1 you'll need a new display adapter card—but there's no place to plug another card. So you'll need to buy an expansion chassis. And because the PS/1 monitor is not Super VGA compatible, you need a new monitor too—but then there's still another problem! You see, IBM put the PS/1's power supply inside the monitor. So if you get rid of your monitor you'll also need a new power supply! All this done, I have to wonder whether you could disable the PS/1's built in display adapter. If not, PS/1 users will need a system board modification. Sound familiar?

When is IBM going to learn? People don't want another super-duper home computer that's not expandable. What they want is a computer that they could expand with their needs. The PCjr aftermarket proves it!

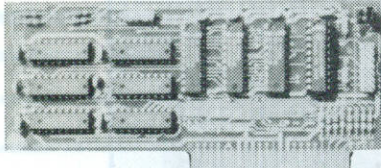
So IBM continues to introduce newer and better computers which are not designed to keep pace with changing times. And PC Enterprises continues to design after market products which permit PCjr owners to expand their computer to use all the latest computer hardware—and that's what we'll continue to do for as long as the need exists.

Nine out of ten people who place orders with us learn about PC Enterprises by word of mouth. Were it not for this loyal patronage we would not be here. Once I dreamed that my PCjr could run more software than any other IBM computer. Today that dream has become a reality.

Now, thanks to your continued loyal support, I'm proud to launch our most extensive catalog of PCjr add-on products ever!

## 192K Internal Memory Card

Now PCjr users  
can add 128K of  
memory for only  
**\$50**



Our new 192K memory card replaces the PCjr's existing internal 64K memory card—thereby adding an additional 128K of memory to your system. The new memory card provides an easy and low cost method to add to the memory you already have.

\*Requires system board modification

192K Internal  
Memory Card  
Catalog #14032

Only  
**\$50**

- Low cost
- Replaces the PCjr's existing 64K card with a 192K card
- Expands memory on 640K PCjrs to 736K (System Board Modification #97514 required)
- Expands memory on 512K PCjrs to 640K (System Board Modification #97515 required)
- Expand memory on 128K PCjrs to 256K (System Board Modification #97516 required)
- Does not require any additional power
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

## Five System Board Modifications for Greater Compatibility and Expandability!!

Here are five system board modifications which we strongly recommend for every PCjr owner. The modifications will also allow you to upgrade your PCjr with our new 192K Internal Memory Card and our Display-Master VGA Sidecar. In addition, we'll also install sockets (if your PCjr doesn't already have them) for our jr-Excellerator, Thin-Font Module, and jrROM-Clock—allowing you to upgrade with these products now, or at a future date.

To take advantage of these modifications, you can either send us your existing system board and let us modify it, or purchase a reconditioned system board which already has the modifications installed. (Refer to "Reconditioned Replacement Parts").

### System Board Upgrade Package

While your system board is here for modification, why not let us install our add-on products which plug into the PCjr System Board? This way, when you get your PCjr System Board back it will already have all our System Board enhancement products installed. You won't need to worry about ever taking your system apart again! Purchase the System Board Upgrade Kit below and we'll install a jrExcellerator, Thin-Font Module, and jrROM-Clock without any installation charges. (If you select this package you must include a note which tells us the make of all memory expansions installed on your PCjr, so we can properly set up the jrExcellerator. We must also know if you have a Racore with DMA).

Catalog #10043 Price: \$188

### 1 THE TANDY MODIFICATION

Most programs which run on a PCjr use 4-color CGA graphics.

Programs which run on the Tandy computer produce far better graphics because most Tandy programs run with 16 colors! This modification allows many Tandy programs to run correctly with 16-color graphics on a PCjr!

### 2 THE VGA MODIFICATION

Imagine being able to run your favorite software in 256 colors! This is possible when you install our new PCjr VGA sidecar. Once installed, our VGA sidecar permits the PCjr to run VGA, EGA, CGA, and MDA graphics! Unfortunately, you will not be able to install our VGA sidecar unless we first make this modification.

### 3 THE TANDY SOUND MODIFICATION

This modification will permit most Tandy programs to produce 4-voice arcade quality sound on your PCjr! It gives you near 100% compatibility with Tandy sound now and 100% Tandy sound compatibility when you upgrade to VGA.

### 4 THE PB2 MODIFICATION

This modification makes your PCjr more PC compatible. Certain PC programs run correctly on a PCjr until the program attempts to produce sound. When this happens the PCjr's display becomes garbled. The PB2 modification prevents programs which inadvertently modify bit 2 of the 8255B port from scrambling the display. (Paperboy is one example).

### 5 THE INTERNAL MEMORY BOARD MODIFICATION

This modification permits you to replace the PCjr's 64K internal memory card with our new 192K internal memory card. This modification does not require that you purchase our 192K card, it simply permits you to add our 192K card now or later.

To have all FIVE modifications performed, send us your system board and request one of the modifications below.

**Modification #97514:** Permits 640K PCjrs to expand to 736K\*\*

**Modification #97515:** Permits 512K PCjrs to expand to 640K\*\*

**Modification #97516:** Permits 128K PCjrs to expand to 256K\*\*

Do not send your entire PCjr. Send only the PCjr system board, system cabinet, and lid. (Remove all sidecars, disk drives, and internal plug-in cards). Include \$49.95 plus \$5 shipping and handling.

\*\*The modification itself does not increase your PCjr's memory, it simply permits you to install our optional 192K memory card.

# Should I Upgrade my PCjr... or Should I Buy Another Computer?

Each year thousands of new PCjr users call us for the first time and ask the same questions. Should I upgrade my PCjr or should I buy another computer? If I upgrade my PCjr will I be able to run important software packages? Will it run Lotus? Will the PCjr run dBase? And will it run WordPerfect? The answer of course is yes!

The fact is that the PCjr uses the very same microprocessor and Disk Operating System (DOS) as the IBM PC and PC-XT. As a result, the PCjr can run just about any PC compatible program—as long as the PCjr has been expanded to include any hardware that the program requires. Most programs written for PC Compatibles require at least 512K of memory. Consequently, additional memory is the first thing, and often the only thing, that most PCjr users need to run PC programs.

The second most important product that you could add is a second drive. While a second drive is not often required, it is usually purchased as a convenience to avoid constant diskette swapping. The drive you select may be a second floppy drive or a hard drive. Hard drives are preferred because they permit you to copy diskettes into the computer's permanent memory—therefore storing your software inside your computer (instead of on floppy diskettes). And because computers access hard drives much faster than floppy drives, you'll see a night-and-day performance improvement when you run programs.

Unfortunately, some PCjr owners never call PC Enterprises. Instead they go to local computer stores and ask people who know very little about the PCjr what they need to upgrade a PCjr. The computer retailer tells them they need a new computer. Is this true? Of course not. But you can't blame your

hometown computer store. After all, they don't sell add-on products for the PCjr—but often they do sell other computers!

At one time the PCjr had a bad reputation—primarily because it only came with 128K of memory, one diskette drive, a chicklet style keyboard, and couldn't be expanded. As a result, the PCjr could not run most PC programs. This is absolutely no longer the case! Today the PCjr can be expanded to include just about all the hardware that you might ever need.

Today, the PCjr can be expanded to include over 1.8 million bytes of RAM (memory), up to seven 377MB hard disk drives, a CD ROM Player, Tape Backup, plus up to two additional 360K or 720K floppy diskette drives, a 1024K (self booting) solid state disk drive, VGA, Super VGA, and Extended VGA capabilities—and it can operate at 9.54MHz. You can also add a full size 101-key keyboard, a mouse, a light pen, and two joysticks—and you can do so without first buying a game controller or other interface card. Unfortunately, most PCjr critics simply haven't kept up with the PCjr. In fact, most are often surprised to hear the expanded PCjr actually runs more software than any other IBM personal computer ever made. But it's true!

Each time IBM introduces a new computer, our staff looks to see what's new. Almost immediately we start to develop new add-on products that will permit the PCjr to take advantage of the latest enhancements. As a result, 1991 has already proved to be a great year for PCjr enthusiasts as more new PCjr products were introduced than ever before—but 1992 promises to be even better! More than half a dozen new PCjr products are already under development, including products which will

provide Adlib Sound, FAX, and full 386 capabilities, plus more!

Seven years ago PC Enterprises pledged we would remain dedicated to the support of the IBM PCjr for as long as the need would exist. Today, as in the beginning, PC Enterprises still has no plans to become involved with any other computer. Instead, PC Enterprises will continue to develop all the add-on products that permit PCjr users to keep pace with IBM's newest computers.

Sources have reported over 650,000 PCjr systems were manufactured, with over 150,000 PCjrs already expanded—and thousands more PCjr users continue to expand each year. After all, why not? As long as the PCjr can be expanded to include the latest computer hardware, and as long as the PCjr can run the latest software, isn't there very little reason to buy any other computer? When you expand your PCjr you add what you want when you want, without tying up a lot of money in a new computer. That's why each year thousands of PCjr owners upgrade their PCjr for the very first time. Once upgraded, PCjr owners become extremely happy with their PCjr and almost always continue to expand. Now stop to realize there are still half a million PCjrs waiting to be expanded. And that's why PC Enterprises will be in the PCjr add-on business for a long, long time. Browse through our catalog and we think you'll agree. Upgrading the PCjr makes a lot of sense. Also notice that all PCE products are sold with our Satisfaction Guarantee. That means PCjr owners who do upgrade are very happy with our products and with their expanded PCjr. (If that weren't true we would not be here). Then place your first order and we think you'll agree, upgrading the PCjr is the right choice!

# Memory Board Services

## 512K Upgrade (Modification #97501)

If you already have a 128K memory sidecar your PCjr now has 256K of memory. You can expand your PCjr's memory to 640K—without purchasing anything else! Here's how.

All 128K memory sidecars use two banks of 64K memory chips. Today, newer and higher capacity memory chips are available. We'll remove the 64K chips which are soldered to your board and replace them with 256K chips. Then we'll make other modifications which allow your PCjr to address and decode the additional memory. Your 128K sidecar becomes a 512K sidecar. And when plugged into your 128K PCjr your computer now has 640K of memory—and that's the conventional limit of DOS.

## Permit Expansion to 736K (Modification #97509)

If your PCjr already has 640K and you also have an extra 128K IBM sidecar, we can modify your 128K IBM sidecar so it increases your PCjr's memory to 736K, surpassing the 640K limitation of other computers!

## Memory Board Repair (Service #98507)

If your memory sidecar is not working correctly, we can repair it. The charge for component level repair is still only \$80 and that includes parts and labor. Repairs normally take one to three weeks (depending upon workload). Be sure to include a note which describes in detail any problems that you've had, and also send the diskette you use to start your system. If your memory sidecar is made by Tecmar, be sure to include the power transformer. (If you want your sidecar repaired and upgraded the charge is therefore \$80 plus the regular upgrade charge for your sidecar).

## Trade-Ins

If you have a defective memory sidecar and prefer to trade it in you can do so. We allow a \$30 credit towards other products in our catalog. Just complete Sections 1 and 6 below, then send this form (photocopy okay), along with the defective sidecar and a completed Order Form, to the address below. Enter \$30 in the section of our Order Form marked "Other Credits" and deduct \$30 from the amount due.

## Shipping Instructions

Disconnect the sidecar from your computer then place the sidecar in a small sturdy box. Next, complete the bottom half of this form and send the form (photocopy okay), along with your sidecar to the address below. We suggest that you use First Class Priority Mail, however, feel free to use UPS, RPS, Federal Express, or any other shipper that you desire. (Insure the sidecar for its replacement value).

If you are sending in your sidecar for a modification, please do not send any plug in power supplies, diskettes, loose screws or other items which you normally use with your sidecar. Also, to avoid damage by static electricity, do not remove the sidecar from the plastic sidecar case! And finally, be especially careful that you do not send the wrong sidecar. The 128K IBM Memory Attachment looks just like a printer or power attachment.

## PCE Services (Section 3)

For those in a hurry we now offer PCE Rush Service. While we can't make any promises (turn around time is always dependent upon workload). If you're sending in your sidecar for upgrade or modification and you select PCE Rush Service, we'll try to have your sidecar on its way back to you the day after it's received. If your sidecar is here for repair it may take several days due to the nature of repair services, although we'll always work on sidecars which pay for Rush Service before any others.

## Return Shipping (Section 4)

Regular Service includes return shipping and insurance via UPS Ground Service. Ground service can take up to 10 days, depending upon the distance shipped. Priority shipping services are also offered. If you pay this added return shipping charge, we'll pay the shipper to get your sidecar back to you in much less time. If you don't want us to use UPS, or if you don't provide us with a street address, we'll use the US Postal System instead. In this case we will send someone to our Post Office to mail your sidecar back to you, but you must also include an additional \$7.50 payment for special handling (total \$12.50 shipping & handling).

Send your sidecar to:

**Memory Board Services, PC Enterprises, 2400 Belmar Blvd - Building B16, Wall, NJ 07719**

(To avoid delays be sure the words Memory Board Services are clearly marked on the outside of the package)

<p><b>Section 1—Tell us What to Do</b></p> <p><input type="checkbox"/> Please upgrade my 128K sidecar to 512K (Modification #97501).</p> <p><input type="checkbox"/> Please modify my 128K sidecar so it expands my 640K PCjr to 736K (Modification #97509).</p> <p><input type="checkbox"/> Please repair my sidecar (Service #98507).</p> <p><input type="checkbox"/> The enclosed sidecar is defective. Please keep it. I have taken a \$30 credit on the enclosed order.</p>	<p><b>Section 2—Cost of Services</b></p> <p><b>Modification #97501</b> 512K Upgrades Offered For: Tecmar jrCaptains, Microsoft Boosters, QuadMEMjrs, AST jrCombo, Impulse, and IBM 128K Memory Expansions Price: \$199</p> <p><b>Modification #97509</b> Permits Expansion to 736K—Price: \$35</p> <p><b>Service #98507</b> Memory Board Repair—Price: \$80</p>	<p><b>Section 3—PCE Services</b></p> <p><input type="checkbox"/> Regular Service (no additional charge)</p> <p><input type="checkbox"/> Rush Service for Modifications (\$25)</p> <p><input type="checkbox"/> Rush Service for Repairs (\$50)</p> <p><b>Section 4—Return Shipping</b></p> <p><input type="checkbox"/> Regular UPS (\$5.00)</p> <p><input type="checkbox"/> UPS Next Day Service (\$27.50)</p> <p><input type="checkbox"/> UPS Second Day Service (\$12.50)</p> <p><input type="checkbox"/> US Mail (\$12.50)</p>
<p><b>Section 5—Payment Surcharges</b></p> <p><input type="checkbox"/> Check/Money Order Enclosed (no additional charge)</p> <p><input type="checkbox"/> Charge my Visa or MasterCard (no additional charge)</p> <p><input type="checkbox"/> Return COD (additional \$5) Cash or certified check only</p> <p><b>Note:</b> To avoid delay we will not hold up any work if the payment received does not cover the cost of the services you request. In this case we will return your sidecar COD for the balance due.</p>	<p><b>Section 6—Customer Information</b></p> <p>(Your street address is required for UPS delivery).</p> <p>Name _____</p> <p>Street Address _____</p> <p>City, State, Zip _____</p> <p>Day Phone ( ) _____</p> <p>(Credit Card Customers Also Fill In:)</p> <p>Name on Card _____</p> <p>Card# _____ ExpDate _____</p> <p>Signature _____</p>	<p><b>Section 7—Calculating Cost</b></p> <p><b>Please Fill In:</b></p> <p>Total Cost of Service(s) (Section 2) _____</p> <p>Total PCE Services (Section 3) _____</p> <p>Subtotal _____</p> <p>NJ Residents 7% Tax _____</p> <p>Return Shipping (Section 4) _____</p> <p>Payment Surcharges (Section 5) _____</p> <p>Total _____</p>

# What's New!

Last years "Win a New Product" survey proved beyond any doubt that tremendous numbers of PCjr owners intend to continue upgrading their PCjr. In response, to the continued and ever growing demand for new PCjr products, we have completely re-written our catalog and are now about to introduce more new PCjr products than ever before!

But before we talk about what's new, we'd like to first thank the PCjr community for their continued loyal support. It is you that permits us to continue growing and developing new products. Without your continued loyal support and patronage we could not develop any new products for the PCjr. In fact, we would not exist! So, Thank You!

And now, the results: Our "Win a New Product" survey asked PCjr users to indicate which new products they would most like to see offered for the PCjr. Thousands of votes were tabulated.

Finishing first in our survey was the PCjr EGA card. The survey showed the most important new PCjr product that we could produce would be a display adapter that would make the PCjr 100% compatible with adapters used in other computers. No wonder, almost all programs sold today support EGA, and if EGA were available, PCjr users could run most EGA programs without buying another monitor.

So we decided why stop with EGA? Why not build two products in one? A product that would have one connector for those who would be content with EGA and decide to keep their PCjr Color Display. And one connector for others who wouldn't settle for anything but the ultimate in computer graphics: VGA and Super VGA!

## New for 1991!!

- **VGA Sidecar**
- **2400 Baud Internal Modem**
- **Turbo-Drive**
- **jrBUS-Mouse**
- **External Junior Drive Power Supply**

Who could resist text modes which would offer 132 columns or 70 lines, and graphics displayed in 256 colors? So that's just what we did! Whether you keep your PCjr Color Display and settle for 16-color EGA graphics or whether you go the whole nine yards and upgrade to VGA—we think you'll agree, our new Display-Master VGA sidecar is simply a sensational new product.

### Editor's Note:

*VGA graphics are the same graphics used by IBM's PS/1 and PS/2 computers. The difference between existing PCjr graphics and VGA graphics simply can not be described in writing. Be sure to read the "Everything you should know about Display Adapters" section of our catalog for more information.*

Finishing second in our survey was a 2400 baud internal modem. Now here it is. The PC Enterprises 2400 Baud PCjr Internal Modem. This state of the art modem transfers information 8 times faster than the 300 Baud IBM Internal Modem and has all the features you'd expect. Best of all, it can pay for itself with the money you'll save on long distance phone calls. And of course, its 100% Hayes Compatible.

As you continue through our catalog, you'll also see our new Turbo-Drive, which is perhaps the most innovative new product we've ever created. Turbo-Drive (code name 5NC) is a non-volatile memory sidecar that adds a self booting one Megabyte solid state disk drive to your PCjr.

You'll be able to copy and install programs on the Turbo-Drive exactly the way you would if the Turbo-Drive were a hard drive. But, when you run software from the Turbo-Drive, you'll know the difference. Turbo-Drive's access time specification is thousands of times faster than even the fastest hard drive available today!

And there's still more. Because as you run more complex software sooner or later you're going to want a mouse. And when you do add a mouse you'll certainly want one that doesn't require the use of the computer's only serial port! Although we didn't list a Bus-Mouse in our survey questionnaire, we certainly received enough write-in votes for one. We think our new jrBUS-Mouse is the only mouse PCjr owners who intend to keep pace with newer computers should ever select!

And with all these new PCjr products, sooner or later you may need a larger power supply. So we designed an External Junior Drive Power Supply. This all-new product works with all PCjrs regardless of whether you've already started to expand. The External Junior Drive Power Supply provides 150 Watts of power—and even we think that's plenty of power for all the PCjr products you'll ever need.

So stick with PC Enterprises and you'll always be able to add the latest computer products without ever worrying about compatibility. Backed by your continued support, 1992 promises to be even better than 91! And don't forget to vote for the new PCjr products you'd like to see in next year's catalog by completing our "Win a New Product" survey.

*Please call to determine availability of new products before ordering.*

# Everything PCjr Owners Should Know About Display Adapters ... Before they Purchase Software

Purchasing software that will run on a PCjr is often confusing. The reason is that you rarely see "PCjr" listed on a software package. That's because most software manufacturers list the display adapters which they support, not the computers, on their packages.

Pick up any software package and examine the carton. Chances are it says the program will run with a Color Graphics Adapter (CGA). It may say an Enhanced Graphics Adapter (EGA), Memory Controller Gate Array (MCGA), or Video Graphics Array (VGA) is also supported. And now, you'll see more and more programs that also support the Tandy Graphics Adapter (TGA).

In addition to CGA, EGA, MCGA, VGA, and TGA you'll also see MDA, MGA, and HGA listed on many software packages. So what is a display adapter anyway, and which one of these does the PCjr have? More PCjr users shopping for software ask this question than any other. Do you know the answer?

If you're not sure then just keep reading. When you finish this article you'll know everything you need to select software that runs on your PCjr. Better yet, you'll also know exactly how you could enhance your PCjr so it runs more software than any other computer!

The correct answer is that the PCjr doesn't use any of the display adapters listed above. To understand this answer lets go back to the time that IBM was still selling the PC and PC-XT. If you purchased one of these computers you would have been asked whether you wanted the system to be set up so it could display in color.

## CGA and MDA

If you purchased a color system you got a color monitor and a plug-in circuit board that "adapted" the computer to work with the color monitor. IBM called this plug-in circuit board a Color Graphics Adapter, which is today more commonly known as a CGA card. If you did not select the color system you received a monochrome monitor and a Monochrome Display Adapter (MDA). Thus, the first two display adapters had arrived.

*Programs designed to run on computers set up with a CGA (Color Graphics Adapter) card could operate in either text or graphics modes, and could display up to 4-color graphics with 320x200 resolu-*

*tion. Programs designed to work with an MDA (Monochrome Display Adapter) card could not display graphics at all and were limited to one color.*

## HGA and MGA

It wasn't long before someone would improve IBM's MDA card. The improved Monochrome Display Adapter, developed by a company named Hercules, allowed monochrome monitors to also display graphics. The new adapter was known as the Hercules Graphics Adapter (HGA). Other companies, were soon marketing their own version of the Hercules card. These other cards, which did exactly the same thing as the Hercules card, became known as Monochrome Graphics Adapters (MGA).

*Programs which support either the HGA or MGA card will therefore not normally run on a PCjr at all, as both of these adapters were designed to work with monochrome systems, and the PCjr is a color system.*

## PCjr-CGA

The PCjr was IBM's entry into the home computer market. IBM wanted their home computer to have superior graphics when compared to their other computers, so they developed a special enhanced version of their CGA card. Enhanced CGA was supposed to revolutionize computing with its 3-voice sound and 16-color 320x200 graphics mode, but IBM stopped making PCjrs before Enhanced CGA had a chance to catch on.

Since IBM's Enhanced CGA was unique to the PCjr, we often refer to it as PCjr-CGA. And while PCjr-CGA is not 100% backwards compatible with true CGA, it is close enough to run *most* CGA programs. Nevertheless, differences between true CGA and PCjr-CGA do exist, and these differences account for some of the compatibility problems PCjr users have encountered.

This means if a program does not list the PCjr on its package, but it does list CGA, the program will normally run fine on the PCjr in CGA mode — although, because it is running in CGA mode, you should never expect the program to produce anything more elaborate than 4-color CGA graphics.

Programs which list the PCjr on their box, such as many titles sold by Sierra On-Line, often take full advantage of the PCjr's enhanced graphic and sound capabilities. This means the program will not only produce impressive 16-color graphics, but also arcade quality music and sound. (All 100% PC compatibles are limited to using the computer's internal beeper as a sound source. This means they can not produce sounds in any way comparable to PCjr sound, unless an expensive sound card is



also purchased).

However, here's the deceptive part. Just because a program lists the PCjr on its package it doesn't mean the program uses the enhanced 16-color PCjr-CGA mode—or the PCjr's 3-voice sound. The software publisher may have simply determined that the program runs on a PCjr in the usual 4-color CGA mode. So, unless it says 16-color PCjr-CGA mode on the package or manual, you'll need to try the program to determine whether it runs in the 16-color or 4-color mode.

### TGA

Shortly after the PCjr was announced, Radio Shack introduced their Tandy 1000 computer. The Tandy Graphics Adapter (TGA) can also display 16-color graphics with 320x200 resolution. In addition, the Tandy also has 3-voice sound.

Programs designed to produce Tandy 3-voice sound can produce the same sounds on a PCjr; however, to use this capability PCjr owners often need to run a software utility which turns the PCjr's internal beeper off and turns the 3-voice sound channel on.

*However, although TGA and PCjr-CGA are too similar to be coincidence, there is one minor difference which prevents most Tandy programs from running correctly on a PCjr. As a result, most PCjr owners need to make a hardware modification to their PCjr System Board in order to run TGA programs.*

### EGA

The next new IBM computer introduced was the PC-AT. About the same time IBM also introduced their new graphics adapter, which, like PCjr-CGA, could also display 16-color graphics with 200 lines of resolution. The new graphics adapter was called the Enhanced Graphics Adapter, or EGA card. In addition to the standard 200 line modes, EGA Card users who also purchased optional piggyback EGA memory expansion options, could also display graphics with superior 350 line resolution. So while 16-color EGA graphics may have excited those who were previously limited to 4-color CGA graphics, the EGA card offered with all IBM AT computers didn't offer a whole lot more than PCjr-CGA. But the bad news was that hardware differences between EGA and PCjr-CGA would prevent programs designed to use the EGA 16-color mode from running with PCjr-CGA.

But here's where PCjr owners got a big break! When a software company writes a program that supports EGA, they must first decide which EGA mode to use. If they design their program to use a 200 line EGA mode their program will run on any computer that has EGA. If they use a 350 line EGA mode their program will not run on IBM ATs unless the AT has had the optional EGA memory expansions installed. As a result, only a few

software publishers ever dared to develop a program which used anything other than 200 line EGA modes.

*Here's why this is great news. Remember earlier we explained how PCjr-CGA can produce 16-color graphics with 320x200 resolution? This means the monitor used on the PCjr is capable of displaying 16-colors and 200 lines of resolution. Or in other words, the PCjr's color display will have no trouble at all when used with software that runs in 200 line EGA modes—as most EGA programs do. That's why PCjr users do not need to buy another monitor in order to run most EGA programs (although they do need an EGA compatible display adapter).*

### IBM MCGA and VGA

IBM continued to design newer computer's, and with their next PS/ family of computers they introduced the Memory Controller Gate Array and the Video Graphics Array standards, more commonly referred to as simply MCGA and VGA.

VGA offers substantial improvement over both EGA and PCjr-CGA for several reasons. First, VGA has a 256-color 320x200 graphics mode, and also a 16-color 720x400 text mode. This means VGA offers modes which enable software companies to develop games with dazzling graphics, as well as substantially improved detail for word processing and spreadsheet users.

VGA also provides for an improved method for programs to display information on the screen. As a result, thanks to VGA's CPU to video memory read/write cache you'll have no trouble if you upgrade your PCjr to VGA— even if you're still operating at 4.77 MHz.

*MCGA is only used in IBM's low-end PS/ systems, and is not normally considered an important mode because VGA does more than MCGA, and VGA can also do all MCGA modes.*

### Super VGA

Soon lots of companies were making VGA cards. Each company made sure their VGA card was compatible with all IBM VGA modes, however virtually every VGA card manufacturer wanted to make their card better than everybody else's. VGA cards with 16-color 800x600 modes, as well as higher resolution modes which produced even more colors, were advertised. Terms such as "Enhanced", "Super", and "Above" were used to describe their VGA cards, but these terms had no universal meaning because there were no industry standards.

Well, VGA card manufacturers soon found out what all PCjr owners already know: Owning a computer which has superior graphic capabilities doesn't do you any good unless you also have software designed to utilize that capability.

So, the VGA card manufacturers started writing their own software drivers to use improved modes. The result was that users needed a special driver for each program, and also needed a monitor that worked with the same horizontal and vertical frequencies as the "improved" VGA card. And because there were no standards, a software driver designed to work with one "improved"

VGA card did not normally work with another manufacturer's "improved" VGA card. Worse yet, each time the software manufacturer revised their program the VGA card manufacturers had to write new drivers to work with the new version of the software manufacturer's program!

Things were quickly getting out of hand and the industry recognized the need to agree upon a non IBM standard that provided better resolution than VGA. A standards organization named VESA was formed, and in August 1990 the Super VGA standard was announced. The VESA recommended standard for Super VGA is 16-color graphics with 800x600 resolution.

*Super VGA is the first non IBM standard since TGA. It's also very important because software companies can now write software that displays slanted lines that look like slanted lines—not staircases; and circles that look like circles. Its also important because it means the software publishers, not the VGA card manufacturers, can design programs to work with Super VGA!*

### Upgrading the PCjr's Display Adapter

The PCjr can run VGA and VESA recommended Super VGA software, however, like the IBM PC, XT, AT, and other computers, to do so you must purchase and install a new display adapter card.

When you purchase and install a PC Enterprises Display-Master VGA sidecar the PCjr can run programs designed to work with all the display adapters listed in this article. You'll be able to run software designed to work with Super VGA, VGA, MCGA, EGA, CGA, MDA, MGA, and HGA as well as most Tandy (TGA) and all PCjr-CGA software.

In addition, the PC Enterprises Display-Master sidecar does not in any way interfere with the PCjr's sound capabilities. This means programs which support VGA that also support PCjr 3-voice or Tandy 4-voice sound, can run on a PCjr in VGA with 3 or 4 voice sound—and that's simply something no other IBM computer can do.

### Disk Drive Address Modification PROM

The PCjr's Diskette Drive Controller uses hardware addresses F0 through F7 hex. This is not the same as PC compatibles which use addresses 3F0 through 3F7 hex.

As long as programs that you run go through BIOS this difference should never cause a problem. However, all programs do not go through BIOS. Certain programs, especially programs which use "on-disk" copy protection, attempt to directly address the computer's hardware.

When this happens on a PCjr the program uses the wrong address. The Disk Drive Address modification corrects the problem because it allows the PCjr's Diskette Drive controller to be accessed at either address.

Before our Display-Master VGA Sidecar can be installed on your PCjr a modification must be made to your PCjr system board. This modification permits the VGA cartridge to turn off the PCjr's built in graphics adapter in order to avoid contention with our Display-Master VGA Sidecar.

There are three ways to have your system board modified:

**1** To get started with VGA as quickly as possible without any down time at all, simply purchase the PCjr Display-Master VGA Sidecar and also purchase a reconditioned PCjr System Board. (PCjr System Boards sold by PC Enterprises are already modified to support VGA). You'll be able to get VGA up and running on your PCjr the day you receive your order. Then, at your leisure, return your old PCjr System Board to us and receive a trade in credit. Refer to the "Trade-In Policy and Instructions" section of our catalog for more information.

**2** You can send your existing PCjr System Board to us and let us make the necessary modifications. How long you'll need to wait may vary with our work load, however, we expect that in most cases your system board will be on its way back to you within one week after it's received. Refer to the "Five System Board Modifications" page of our catalog for more information.

**3** Or, if you prefer, we'll provide modification instructions and the parts you'll need directly to you. Then, you can either modify your system board yourself, or let a local users group or dealer install the modifications for you. In this case, purchase the Display-Master VGA sidecar and the VGA Upgrade Kit (below).

*Note: 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!*

### VGA Upgrade Kit

Purchase this kit only if you intend to make the VGA system board modifications yourself. You will need to replace two components which are soldered to your PCjr System Board, cut several traces, and install a few jumpers. The kit includes all the components that you'll need, plus adequate wire, solder, solder wick, and step by step instructions. You'll need a soldering iron, an exacto knife, and a little know-how.

**Order Kit #11201 Price: \$9.95**

If your system board has already received any of our original PCE System Board Modifications (97503, 97507, or 97508), your system board may already have the Disk Drive Address PROM installed—however, we stopped performing this modification when we determined the modification was not compatible with Racore DMA.

If your system board has received any of the modifications we currently perform (97514, 97515, or 97516), or REV1 of the original modifications, the Disk Drive Address modification is optional although it is still recommended to avoid possible compatibility problems which are diskette drive related. The Disk Drive Address Modification PROM is a 20-pin IC which plugs into a socket installed by PCE at the time that the PCE System Board Modifications are performed.

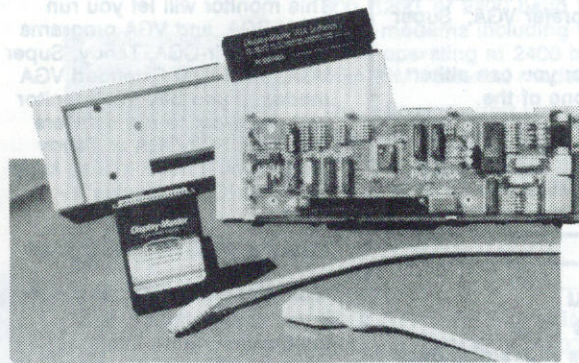
**Catalog #59331-1 Price: \$7.95**

# Display-Master

Now PCjr users can venture into a new world of computer sophistication. With our Display-Master VGA Sidecar installed your PCjr will become 100% EGA, MCGA, VGA, and Super VGA compatible! In addition, you'll also get full MDA, MGA, HGA, and CGA compatibility too! Add to this 16-color PCjr-CGA and 16-color Tandy capabilities, and we think it's going to be hard to find a program that doesn't run on a PCjr! VGA graphics are revolutionizing computing. No wonder. The difference between VGA and the best graphics your PCjr can display now is like night and day. If you have never seen a program run with VGA graphics we promise you'll not be disappointed. Instead, you'll probably find yourself staring at your monitor in awe the first time that you do.

And Super VGA goes beyond the modes supported by IBM's VGA card to provide serious computer users with even more dramatic displays. With Super VGA slanted lines look like slanted lines, not staircases. And circles look like circles. But our Display-Master Sidecar doesn't even stop with Super VGA. Extended VGA capabilities permit PCjr users to go far beyond both VGA and Super VGA. We think our 80 column x 75 line text mode is ideal for word processing. And there's also a 132 character x 60 line mode designed specifically for spreadsheet users.

But what most people like best about our Display-Master sidecar is that you don't need



to purchase new software to use it. Most software sold today already has built in VGA and EGA support — so all you need to do is run the program. VGA has caught on like a wild fire because it's the display standard used by IBM's PS/2 computers. That's why you'll have

no trouble finding programs that run in VGA modes. In fact, just about every software publisher we know of now designs all their programs to run in VGA.

You'll have lots of fun running software that you already own. Familiar programs, which have always run with primitive 4-color graphics, now come alive with 256 color arcade quality! You'll find it hard to

believe that you're running the same program!

The Display-Master sidecar is a PCjr sidecar that looks much like any other PCjr sidecar. On the rear you'll find a 2x9 position PCjr connector which allows you to connect your existing PCjr

Color Display. You'll also find a high density 15 position D-type connector that you'll use if you decide to connect an optional VGA or Super VGA monitor. Refer to the VGA Monitors page of this catalog for a complete description of which modes can be accessed with each monitor.

The Display-Master sidecar comes with a special VGA support cartridge. This cartridge can be plugged into either PCjr cartridge slot and permits you to add VGA BIOS support without using any ROM address space. The VGA cartridge also lets you return to PCjr or Tandy mode by simply unplugging the cartridge.

Simply speaking, we think the Display-Master VGA sidecar is the most important new PCjr product since memory expansion!

**Display-Master VGA Sidecar**  
System Board Modification Required (page 2)  
Catalog #14048 Price: \$199

- **VGA, MCGA, EGA, CGA, MGA, HGA, MDA compatible**
- **800 x 600 x 16 resolution—VESA Super VGA compatible**
- **132 columns by 60, 50, or 30 lines**
- **100 columns by 75, 60, 50 or 30 lines**
- **Lets you run most EGA programs with your existing PCjr color monitor**
- **Works with the PCjr Color Display without any adapters**
- **Works with industry standard VGA monitors without any adapters**
- **Also works with CGA, EGA, and monochrome monitors (adapter required)**
- **Simple plug-in installation (It's a sidecar)**
- **Eliminates the need to use memory management software**
- **Our Compatibility Guarantee**
- **Our Satisfaction Guarantee**
- **Full Year Warranty with PC Enterprises**
- **PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr**

Attention PC Enterprises Hard Disk Expansion System Users: When you first start your system you'll see the message: "PCjr ST01jr Disk Boot Software v1.4". If your system displays an earlier version number, you'll need to upgrade your ST01jr BIOS to version 1.4 before you add VGA. To do this order the latest ST01jr BIOS at the time you purchase your Display-Master sidecar. Catalog #59315-3 Price: \$4.95

# VGA Monitors

The PC Enterprises Display-Master VGA sidecar will permit PCjr users who already have an 80 column color monitor to run most EGA and true CGA programs without purchasing another monitor. For this reason we only recommend that you purchase another monitor if you are not satisfied with 16-color EGA graphics and instead prefer VGA, Super VGA, or Extended VGA capabilities.

If you decide to purchase another monitor you can either leave monitor selection to us and order one of the monitors on this page, or you could go to your local computer store and select your own monitor. In either case, we'll do our best to tell you everything you need to know to select a monitor which is particularly well suited for PCjr applications.

## Things to Remember Before You Purchase A New Monitor for the PCjr

Beware—many monitors interfere with the PCjr's disk drive when they are placed on top of the PCjr system unit. If you select a monitor that interferes with your drives you'll experience "Disk Boot Failures" and "Error Reading Drive (Abort, Retry, Ignore)" messages. If this happens you will not be able to keep your monitor on top of your PCjr. Instead you will need to position your monitor to the side of your system, or somehow elevate the monitor above the system unit. The only way you can tell whether or not a monitor will interfere with the PCjr's disk drive is to try it.

Also, make sure the monitor you select comes with its own power cord that plugs directly into an AC wall outlet. Many monitors come with a special power cord that's intended to plug into the computer's power supply. If you purchase one of these monitors you'll find there's no place to plug it when used with a PCjr.

It's also important to point out that, like other computers, the PCjr has a built-in beeper which produces sound. If you upgrade to VGA you'll still hear the PCjr's built in beeper, however while the PCjr Color Display came standard with a built-in amplifier and speaker, most VGA monitors do not. This will be apparent when you run programs which produce PCjr or Tandy sound. In order to hear the improved sound, you'll need to connect your PCjr to your stereo, or purchase an external amplifier and speaker (such as PCE Catalog #14804 which is a low cost PCjr product that will be available soon). Remember: This only affects PCjr and Tandy sound which you can't hear on other computers anyway.

Also, VGA has modes which emulate CGA and EGA, however, if you want to run software in other modes the monitor you purchase must be capable of operating at the frequencies indicated below.

	Vertical (Hz)	Horizontal (KHz)
PCjr-CGA (Tandy)	60	15.75
HGA	50	18.10
MDA	50	18.43
VGA and MCGA	60 and 70	31.50
Super VGA	56	35
Extended VGA Modes	50 to 70	31.5 to 35

And finally, keep in mind that these monitors also work on other computers, so an investment in a new monitor is not tied to your PCjr.

Monitor specifications and part numbers are not included in our catalog because monitor manufacturers come out with new models much more frequently than we print new catalogs. When you purchase a monitor from PCE it will always be selected specifically for PCjr applications and it will meet or exceed all the specifications provided on this page. Call for details. Also, monitor prices include shipping surcharges. This means we'll ship your entire order UPS Ground Service for \$5—even when the monitor alone might actually cost us ten times that to ship!

## Single Frequency VGA Monitor

Purchase this monitor if you're looking for the least expensive monitor you could buy that permits you to upgrade to VGA. This monitor will let you run CGA, EGA, and VGA programs but not PCjr-CGA, Tandy, Super VGA, or several Extended VGA modes. If you buy this monitor and you want to run software that uses PCjr-CGA or Tandy modes you'll need to also keep your PCjr Color Display attached.

Catalog #78812 Price: \$399

## Multi-Scanning VGA Monitor

If you could afford a good multi-scanning monitor, we strongly recommend you buy it. With the proper multi-scanning monitor, one monitor is all that you'll need to display any mode that your PCjr and Display-Master sidecar can produce.

Even after upgrading to VGA there will be times when you'll want to run software in PCjr-CGA or Tandy mode. Many older programs support 4-color CGA and 16-color PCjr or Tandy mode—but not EGA or VGA. When you run these programs on other computers the program runs in 4-color CGA mode. No doubt you'll prefer to run these programs in 16-color PCjr-CGA or Tandy mode. To do so with a multi-scanning monitor is simple—just pull out the VGA cartridge. With any other type of monitor you'll need to switch back to your PCjr Color Display. But be careful if you purchase a multi-scanning monitor elsewhere—not all multi-scanning monitors go down to 15.75KHz, which is what you need to run software in PCjr-CGA or Tandy modes. And not all go up to 35KHz, which is necessary to run all the Extended VGA modes that our Display-Master VGA Sidecar can produce.

Catalog #78811 Price: \$499

## The PCjr Color Display

This information is included on this page for comparison with our VGA monitors. The PCjr Color Display is the monitor most PCjr users already have because it was usually sold with the PCjr. This is a digital monitor capable of displaying 16 colors with 200 lines of resolution. If you use the PCjr Color Display with our Display-Master VGA sidecar you'll be able to run programs that use any CGA or EGA mode—except EGA modes which require 350 lines. We didn't think 350 line EGA modes were very common so we ran some tests. We selected twenty popular programs which stated on their package that they supported EGA graphics. All twenty ran fine in EGA mode with this monitor and our Display-Master VGA Sidecar. So that's why we don't expect you to encounter many EGA programs that won't run with your PCjr monitor!

Catalog #78705 Price: \$199 (Reconditioned)

Horizontal Scan: 31.48KHz  
Vertical Scan: 60 or 70 Hz  
Max Resolution: 640 x 480  
Screen Size: 14 inch  
Dot Pitch: .51  
Built in amplifier & speaker: No

### Graphics Modes

640 x 480	16 Colors
320 x 200	256 Colors
360 x 480	256 Colors
720 x 540	16 Colors
640 x 350	16 Colors
640 x 200	16 Colors
320 x 200	16 Colors

### Text Modes

100 Columns by 60 lines  
100 Columns by 50 lines  
100 Columns by 30 lines

Horizontal Scan: 15.75 to 35KHz  
Vertical Scan: 60 to 70 Hz  
Max Resolution: 800 x 600  
Screen Size: 14 inch  
Dot Pitch: .31  
Built in amplifier & speaker: No

### All PS/2 compatible modes PLUS:

#### Graphics Modes

640 x 400	256 Colors
320 x 240	256 Colors
800 x 600	16 Colors*

#### Text Modes

100 Columns by 75 lines  
132 Columns by 60 lines  
132 Columns by 50 lines  
132 Columns by 30 lines  
\*100% VESA Super VGA compatible

Horizontal Scan: 15.75KHz  
Vertical Scan: 60Hz  
Max Resolution: 640 x 200  
Screen Size: 13.25 inch  
Dot Pitch: Approximately .51  
Built in amplifier & speaker: Yes

### Graphics Modes

640 x 200	4 Colors
320 x 200	16 Colors

### Text Modes

80 Columns by 25 lines

## 2400 Baud Internal Modem



### 2400 Baud Capability

The PC Enterprises Internal Modem can operate at 110, 300, 600, 1200, or 2400 baud for maximum compatibility with other modems including the IBM internal modem. However, when operating at 2400 baud our modem is eight times faster than IBM's internal modem.

The following chart illustrates the advantage of 2400 baud modems. We have listed the overall time it would take to transfer three different files. Actual times could be longer due to telephone line noise.

File Name	Size	300 Baud IBM Modem	2400 Baud PCE Modem
JRCONFIG.NRD	3169 bytes	1 min 45s	12 seconds
JRCONFIG.DOC	24027 bytes	13 min 21s	1 min 40s
PCE Utility Disk	362496 bytes	3 hours 21 min	25 min 6s

As you can see, if you're now using the IBM Internal Modem and you purchase the PC Enterprises Internal Modem the new modem can pay for itself with the money you'll save on long distance phone calls.

### Hayes Command Set Compatibility

The PC Enterprises Internal Modem is completely Hayes command set compatible. This means it recognizes all the Hayes AT commands and is therefore compatible with industry standard communication software packages which are designed to work with Hayes modems.

### Address and Interrupt Compatible

Our Internal Modem will always be recognized as COM1: and always uses the same hardware address (3F8h) and interrupt request (IRQ4) as COM1: uses on an IBM PC. This means that it will work with almost any communications software package designed to run on PC Compatible computers.

### Nonvolatile Memory

Instead of using DIP switches to store your preferred operation set-up we use nonvolatile memory. This offers significant advantages as it lets you change defaults with keyboard commands - saving you the trouble of disassembling your computer. The nonvolatile memory lets you store communication parameters, the compatibility standard (Bell or CCITT), dialing method (pulse or tone), speaker volume, and numerous other things you will want to occasionally change.

### Built in Speaker

When you use our modem to originate a call you will hear the call being dialed, the ringing of the remote telephone, a busy signal (if any), and a brief carrier signal (if data connection is established). The speaker volume can be initially set by adjusting the volume control knob then later changed with a keyboard command.

- Does not use the PCjr S Connector
- 2400, 1200, 600, 300, and 110 Baud Capability
- 100% Hayes Command Set Compatible
- 100% Address and Interrupt Compatible
- Dials and Answers Calls Automatically
- PBX Compatible (Waits for second dial tone)
- Bell 103/212a compatible and CCITT V.21/V.22/V.22bis compatible
- Nonvolatile Memory
- Built in Speaker
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility and Commitment to Continue Supporting the PCjr

Most computer users prefer internal to external modems because internal modems won't take up any space on their desk. However, there's a much more important reason why PCjr users should prefer internal modems. Internal modems plug into a slot inside the computer and therefore do NOT use the computer's RS-232 serial port (the S connector). This is important because PCjrs only have one RS-232 port, and there are lots of other devices which can be connected to your computer through this port.

This means if you add an internal modem, you'll have no trouble if you later decide to use a serial mouse, tracker ball, printer, or other RS-232 serial device. If you select an external modem you will not be able to install any of these other serial devices unless you also purchase a switching box, and then you would not be able to use the other device at the same time that you use your external modem.

## 2400 Baud Internal Modem

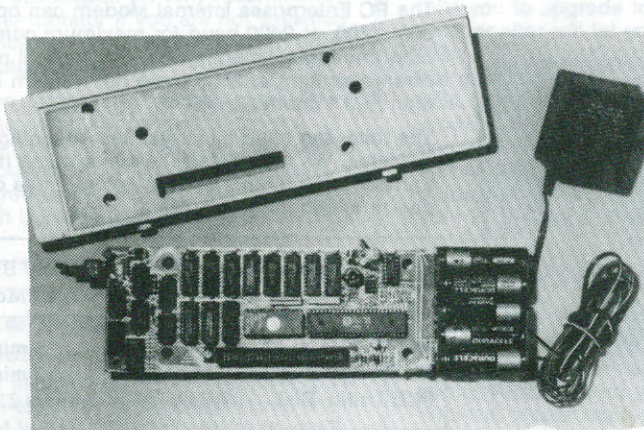
Catalog #15508 Price: \$199

When you purchase the PC Enterprises 2400 Baud Internal Modem you'll also receive at no additional charge a FREE CompuServe Subscription with a \$15 usage credit and also a free Prodigy Starter Kit which is normally sold by PCE for \$32.95 when purchased separately. This is a special limited time offer which will be withdrawn without notice, so call to avoid disappointment.

## New Product Announcement

# Turbo-Drive

The Performance Index sums things up nicely. A PCjr running at 9.54 MHz with a Turbo-Drive blew the doors off an IBM PS/2 Model 70 with a 386 microprocessor that was running at 16 MHz! No wonder why our PCjr loads WordPerfect 5.0 in just over 2 seconds!



Actual Test Results				
	Floppy	Turbo-Drive		
	Basic Enhanced	4.77 MHz		9.54 MHz
	Model PCjr (840K)	8088	V20	V20
Load Writing Assistant v1.01	18.8s	3.0s	2.8s	1.7s
Load WordPerfect v5.0	36.5s	4.5s	3.2s	2.2s
Screen Change	12.3s	3.9s	3.4s	2.2s
Performance Benchmarks	PS/2 Model 70 386/16 MHz			
Norton Disk Index v4.50	8.7	8.6	10.6	17.1
Average Seek	28.9ms	.4ms	.4ms	.2ms
Track to Track Seek	15.9ms	.4ms	.4ms	.2ms
Data Transfer Rate	8712 KB/s	302 KB/s	494 KB/s	793 KB/s
Performance Index	66	131	132	264

Benchmarks furnished by Coretest v2.40 except where noted. All tests with JRCONFIG.DSK -T3 -V32 in CONFIG.SYS. FILES=20 for WordPerfect tests. Screen Change test described in detail on the Jr-Excellerator Performance page.

Here's a new and innovative computer product that adds lots of features as well as performance to your PCjr. Introducing Turbo-Drive, the solid state disk drive that will revolutionize the way you use your computer.

That's because Turbo-Drive is lightning fast. Consider the specifications. The access time of hard drive is measured in milliseconds with a twenty millisecond hard drive being considered extremely fast. Turbo-Drive accesses its information in microseconds, yielding performance improvements hundreds of times superior to hard drives. And comparing our Turbo-Drive to a floppy drive is like comparing a Ferrari to a snail.

That's why programs load from Turbo-Drive with astonishing

speed — almost instantaneously. In fact, many programs load and run so quickly their entire personality changes. Your programs become more friendly because they no longer keep you waiting around while they read the disk drive. More importantly, Turbo-Drive looks like a hard drive to your software, so it works with "install" and "setup" utilities that come with programs that you purchase. You'll be able to install software on a Turbo-Drive exactly as you would if you had a hard drive.

And our Turbo-Drive is also self-booting. A feature which until now was reserved strictly for hard drive users. This means your PCjr can now start DOS, load your CONFIG.SYS file, install your Memory Management software, run your AUTOEXEC.BAT file, and start your program without even having a

diskette in your floppy drive! Installation of Turbo-Drive is also a breeze. Just connect Turbo-Drive like you would any other sidecar. And don't worry if you've already expanded your system with other products because Turbo-Drive is compatible with all other IBM, PC Enterprises, and most other PCjr expansion products. And Turbo-Drive can be connected without adding another power supply. It comes with its own power transformer which plugs into any household AC outlet. And because a Turbo-Drive contains no moving parts, it's inherently much more reliable than mechanical disk drives.

Turbo-Drive adds one Megabyte (1024KB) of solid state diskette storage to your system and is available with or without battery backup. If you select the battery backup option five NiCad batteries are included inside the sidecar. These batteries protect your data in the event your local electric company experiences a power outage. And when AC power has been restored, the built in charging circuit recharges your batteries automatically.

You can also purchase a Turbo-Drive without batteries and add them later. In this case you'll simply want to backup your Turbo-Drive more often because a power glitch on your household AC line, or a power outage, could cause the Turbo-Drive to lose its data.

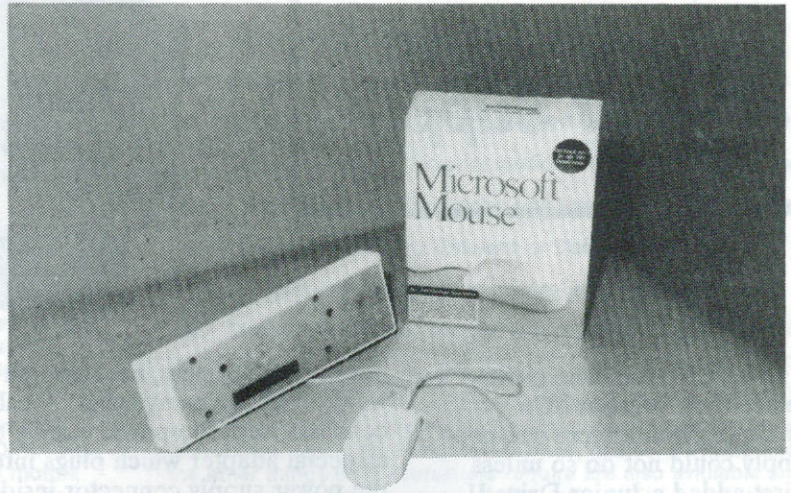
So, if you've been thinking about expanding your PCjr, remember that the days of waiting for programs to load from your floppy drive can be over. No longer do you need to wait for the disk drive indicator light to go out before your program continues. With Turbo-Drive connected to your PCjr your system will out perform even the most expensive hard disk drive that money can buy. Ask yourself whether you'd like to speed up your computer when it stops to read the disk drive. If the answer is yes, treat yourself to a Turbo-Drive today! This is one PCjr product that could make your PCjr more unique than all the others combined.

**1MB Turbo-Drive (without batteries)**  
Catalog #14047 Price: \$295

**1MB Turbo-Drive with Battery Backup**  
Catalog #14043 Price: \$325

# jrBUS-Mouse

**At Last, a  
Mouse for the  
PCjr That  
Does Not Use  
the PCjr's  
S  
Connector!**



Until now, all stand alone mouse products offered for the PCjr were serial mice—and that meant they had to be plugged into the PCjr's S connector.

Here's the problem. The PCjr only has one S connector. This means if you add a serial mouse to your PCjr, you'll have a problem if you ever decide to connect another serial device such as an external modem, serial printer, or a plotter. Most PCjr users therefore find themselves asking "Should I add a Mouse or a Modem?"

Introducing jrBus-Mouse. The first and only mouse we've ever offered for the PCjr that's 100% compatible with all external modems and other serial devices because the jr-Bus Mouse does not plug into the PCjr's S connector.

**jrBus-Mouse (Microsoft)**  
Catalog #14044 Price: \$149

This product is now available thanks to combined efforts of Microsoft and PC Enterprises. We wanted to use the Microsoft Mouse because all mouse products are not the same. The Microsoft Mouse has always been the one all others are judged by—and with one touch, you'll know why. With its sleek and elegant design the Microsoft mouse is easier to

- Does not use the PCjr's S connector
- Not an imitation. This is the genuine Microsoft Mouse made by Microsoft
- 400 Points Per Inch Resolution
- Only requires an area the size of a postage stamp to move anywhere on the screen
- Adjustable acceleration and sensitivity
- Includes the latest Microsoft Mouse Drivers
- Simple plug-in installation (It's a sidecar)
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

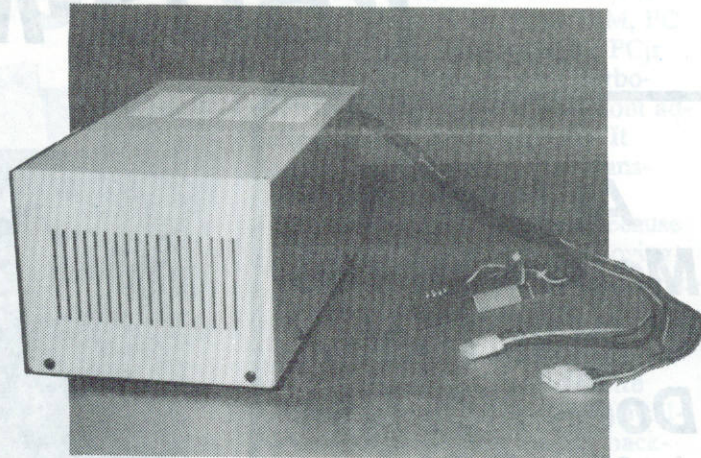
maneuver and more comfortable to hold.

With each Microsoft jrBus-Mouse you'll receive a PC Enterprises bus mouse sidecar. The sidecar plugs into the PCjr's sidecar expansion bus and is compatible with all other IBM, PC Enterprises, and most other PCjr add-on products.

We think we've put together a great team. If you wanted to select the finest and most compatible mouse that you could find which other Mouse would you choose but the genuine Microsoft Mouse? With Microsoft you're assured full compatibility with all your software. And if you were to select a company to design a special PCjr Bus interface that would not limit your future expansion opportunities, would you choose any company other than PC Enterprises?

**jrBus-Mouse and  
Microsoft Paint Program**  
Catalog #14045 Price: \$169

### The External Junior Drive Power Supply



Until now PCjr users who wanted to replace their original PCjr power supply with a more powerful supply could not do so unless they first added a Junior Drive II System.

Things have changed. Now all PCjr users can power their PCjr with a single external power supply that doesn't require they purchase anything else.

Once installed, the new External Junior Drive Power Supply provides 150 Watts of power - and this should be plenty for all the sidecars and disk drives that you'll ever need.

The new External Junior Drive Power Supply comes in its own steel case which is attractively styled and painted to match the PCjr.

On the rear of the power supply's case you'll find a single on/off switch that you'll use to operate the PCjr and all your plug in add-on accessories.

A power cord provided plugs directly into any AC outlet. That's right, you can get rid of all your black brick

power transformers, because you won't need them anymore! A cable connects from the power supply to a special adapter which plugs into the power supply connector inside the PCjr. The adapter also provides connectors for the PCjr's internal fan and disk drive.

Connectors for three additional floppy or hard disk drives are also supplied. But if you want to add more than three drives you can do so with an optional power Y cable. (The cable attaches to the rear of the power supply with a snap and

lock connector).

While the External Junior Drive Power Supply was specifically designed for PCjr users who do not have a PC Enterprises Junior Drive enclosure which snaps on top of the PCjr, its so easy to install that all PCjr users may prefer this power supply to any other.

#### External Junior Drive Power Supply

Catalog #12527 Price: \$139.95

#### Racore, Rapport, and Quadram Users

If you presently own a Drive II Enhancement Package sold by one of these companies, you can also use PC Enterprises External Junior Drive Power Supply.

To use the External Junior Drive Power Supply to power your Drive II Enhancement Package, you also need the sideboard cable adapter. If you also have a Racore Hard Drive you can use the External Junior Drive Power Supply to power your hard drive too, but you'll need the Hard Drive Cable Adapter.

Sideboard Cable Adapter  
Catalog #22520 Price: \$9.95

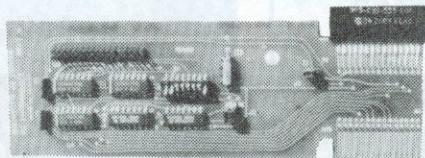
Hard Drive Cable Adapter  
Catalog #22521 Price: \$2.95

- Provides 150 Watts—Enough power for all the Sidecars, Floppy Disk Drives, Hard Drives, and other Products that you'll probably ever need
- Typical Five Minute Installation
- Does not require our Junior Drive System Enclosure which Snaps on Top
- Powers the PCjr and all PCjr Add-on Accessories with one switch
- Attractively Designed and Styled to match the PCjr
- Designed to Sit Conveniently on your desk to the left side of the PCjr compatible with all PCjrs and all other PCjr add-on products
- Recommended alternative to replacing your existing power supply (black brick) transformer, or Racore Power Supply
- Does not use any External Transformers
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr



# The Enhanced jr Driver... The Heart of our Junior Drive System

The PCjr was designed by IBM to work with only one disk drive. The Enhanced jrDriver is a product designed by PC Enterprises that allows you to overcome this limitation. The Enhanced jrDriver saves you time because it's easy to install. And it saves money because it lets you add a disk drive without replacing your existing disk drive controller card.



To install the Enhanced jrDriver just plug it into the computer's disk drive controller slot. Next plug your existing disk drive controller card on top of the Enhanced jrDriver — in piggyback fashion. Finally attach a cable which connects between both cards and your disk drives.

The Enhanced jrDriver adds the hardware required to support up to four floppy drives, so you'll only need one Enhanced jrDriver — regardless of how many floppy disk drives you add. That's why the Enhanced jrDriver comes with the Junior Drive II System, while it is not included with systems which add a third or fourth drive.

A mode control switch lets you operate in either the Energy Efficient or Daisy Chain mode. In the Energy Efficient mode, the Enhanced jrDriver can operate up to two drives. In this mode, drive motors are controlled independently so the computer's +12 volt power supply is never used to spin more than one drive motor at one time. This feature enables most people to add a Junior Drive II System without adding another power supply.

When you add a third or a fourth drive you'll switch to the Daisy Chain mode. In this mode the Enhanced jrDriver can support four floppy disk drives. However, all drive motors are controlled simultaneously which means you may need an additional power supply.

Those who already own an older PC Enterprises Junior Drive System which uses our original "Modem Magician" jrDriver Interface Module that only supports two drives and requires the use of the internal modem slot should not feel left out. The Enhanced jrDriver was designed so it can be used in your system, too.

If you ever purchase a Junior Drive III System, internal modem, or other PC Enterprises product which requires the Enhanced jrDriver, we'll swap your original jrDriver card for the Enhanced jrDriver. Free!

- Included with all Junior Drive II Systems.
- Installs in minutes without any tools.
- Works with any industry standard 360K or 720K disk drive.
- Does not use the internal modem slot (standard version).
- Lets you select which drive you want to be your A: drive.
- Operates in Energy Efficient or Daisy Chain mode.
- Provides the hardware to control up to four drives.
- Direct replacement for our original jrDriver (special version)

### Enhanced jrDriver (Standard Version)

The Enhanced jrDriver is included with all Junior Drive II Systems and is also available separately as a replacement part. Complete kits which include the Enhanced jrDriver, cables, software and all the other things do-it-yourselfers require are also available and are featured on another page of this catalog. The standard version of the Enhanced jrDriver can only be used with the PC Enterprises snap-on-top enclosure because installation requires room inside the PCjr to piggyback two cards.  
Catalog #12516 Price \$59.95

### Enhanced jrDriver (Special Version)

The special version can be used as a direct replacement for our original "Modem Magician" jrDriver Interface Module. It plugs into the internal modem slot. The only difference between the special and the standard version is that the special version is assembled without the top connector which prevents the PCjr's system lid from closing when the card is installed in the internal modem slot.  
Catalog #12519 Price \$59.95

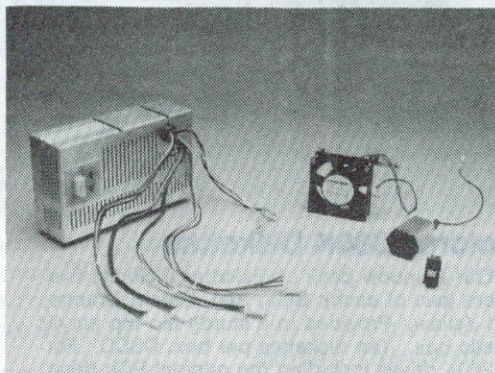
# The Internal Junior Drive Power Supply

### Catalog #12524 Price: \$99

With our mighty Junior Drive Power Supply installed, your PCjr will have just as much power as an IBM PC-XT! The PC-XT comes with a 150 Watt power supply. PC-XT users can therefore add additional disk drives or other expansion products without adding additional power.

The PCjr is different. It comes with a 35 Watt power supply. The Junior Drive Power Supply replaces the feeble PCjr power supply with a PC-XT supply — repackaged so it fits inside your PCjr!

With the Junior Drive Power Supply installed, it's not likely that you'll ever need to worry about power again. You'll have enough power to add as many sidecars as you want. As many floppy drives. And probably all your hard drives, tape drives, and CD ROM drives too!



Your computer will now be powered from a single supply which means it can be turned on and off with one single switch — without any unnecessary cables to clutter your desk and without any big black boxes which must sit on your desk or floor.

Unfortunately, space limitations inside the PCjr cabinet prevent you from using the Junior Drive Power Supply unless you have a PC Enterprises Junior Drive Expansion Chassis installed as your first snap-on-top expansion chassis. The Junior Drive Power Supply includes a power cord as well as a fan, mounting bracket, power receptacle, and ON/OFF switch which all mount in special cutouts provided in the Junior Drive Expansion Chassis.

If you already have a Junior Drive II System which snaps on top, you can install a Junior Drive Power Supply in your existing system provided your expansion chassis has cutouts for the power receptacle and ON/OFF switch. If for any reason you cannot install the PC Enterprises snap-on-top enclosure as your first snap-on-top drive, you will not be able to use the Internal Junior Drive Power Supply. In this case, you should purchase our External Junior Drive Power Supply.

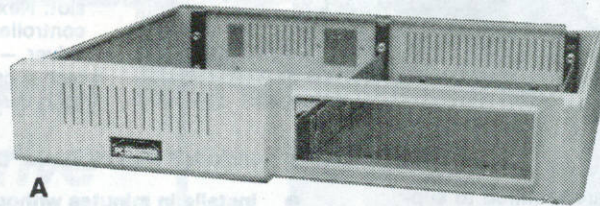
# Junior Drive System Kits & Components

## Complete Junior Drive II Kit

This kit includes everything normally supplied with our Junior Drive II System — except the disk drive. Often purchased by those who currently use an external drive and want to convert to our system that snaps on top. Can be used with 360K or 720K drives.

Includes the enclosure which snaps on top of the PCjr, standard version of the Enhanced jrDriver, Power Y Cable, Two Drive Energy Efficient Mode Signal Cable, Software and Manual.

Catalog #10011 Price \$169



A

## Controller Card Kit (for use with our Snap-On-Top Enclosure)

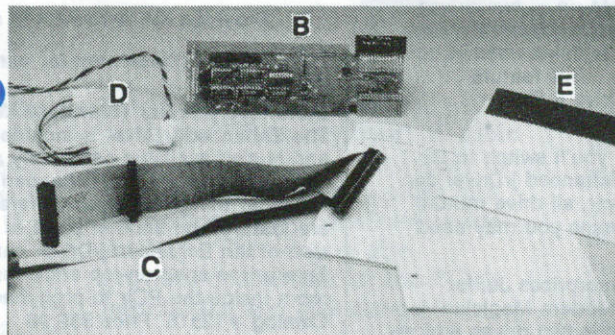
Same as the complete Junior Drive II Kit except less the enclosure.

Catalog #10030 Price \$79

## Controller Card Kit (for use with External Drives)

This kit is normally purchased by those who already have their own disk drive and enclosure. It includes the Enhanced jrDriver (special version), Two Drive Energy Efficient Mode Signal Cable, Software and Manual. The special version of the Enhanced jrDriver plugs into the internal modem slot.

Catalog #10031 Price: \$79



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A The enclosure that snaps on top of the PCjr — or any other PCjr Expansion System. This all-aluminum cabinet has an injection-molded front bezel which matches the front of the PCjr. Cut-outs are provided for a power switch and power receptacle. Often purchased by do-it-yourselfers who originally purchased an external disk drive and now prefer to have a drive which snaps on top.

Junior Drive Expansion Chassis  
Catalog #42007 Price \$75

B Enhanced jrDriver  
Catalog #12516 Price \$59.95

C Two Drive Energy Efficient Mode Signal Cable  
Catalog #91806 Price \$39.95

D Power Y Cable  
Catalog #91805 Price \$12.95

E Software and Manual  
Catalog #55002 Price \$9.95

Also available but not shown:

Three Drive Daisy Chain Mode Signal Cable  
Catalog #91808 Price \$39.95

Additional Shelf for Snap-On-Top Enclosure  
Catalog #96003 Price \$6.95

Enhanced jrDriver Special Version  
Catalog #12519 Price \$59.95

## Drives & Diskettes

### 360K Diskette Drives

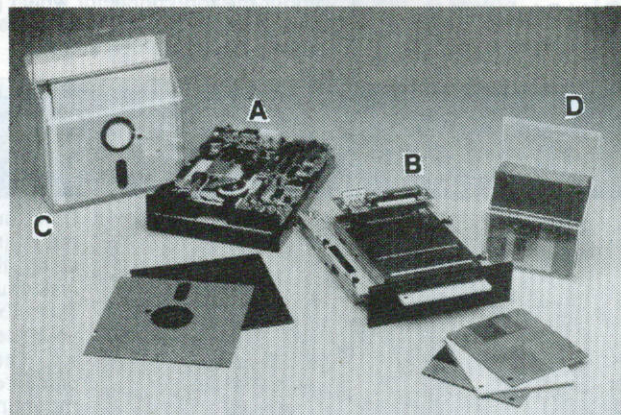
A Replaces the original PCjr drive. These drives are specifically selected to work and fit correctly in the PCjr. Half height, double sided, and fully compatible with the PCjr's double density controller. Two heads and 40 cylinders provide 360K of formatted storage. 6ms track to track access time provides fast transfer of data. Low power dissipation. Warranted by PC Enterprises for a full year!

Catalog #44002 Price \$129

### 720K Diskette Drives

B This 3½ inch drive can be installed inside your PCjr as a replacement to your existing 360K drive — or as a replacement to your existing second or third PCjr drive. Includes software to use 720K diskettes without upgrading your DOS; however, you'll need to switch to DOS 3.2 (or later) if you want to boot from this drive.

Catalog #44003 Price \$129



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### Datalife Plus 360K Diskettes

"The best diskettes money can buy!" Data Life Plus diskettes are teflon-coated to protect your data against the most common causes of data loss: fingerprints, smudges and spills. In most cases fingerprints and other smudges are cleaned off the diskette automatically as the diskette spins inside its jacket. In extreme cases, such as if you were to spill a cup of coffee on your diskette, you can remove the diskette from its jacket and clean it with a towel. Box of ten. DSDD. (Not shown.)

Catalog #55010 Price \$14.95

### Colored 360K Diskettes

C Our Rainbow pack of diskettes includes five colors (two of each): Blue, Red, Green, Orange, and Yellow. Provided in a sturdy flip top acrylic plastic box. Ten diskettes per box. DSDD. For all 360K drives including the original PCjr drive.

Catalog #55007 Price \$9.95

### 3 ½ Inch Diskettes

D These are quality diskettes. Provided in a sturdy flip top acrylic plastic box. Ten diskettes per box. For all 3½ inch 720K drives.

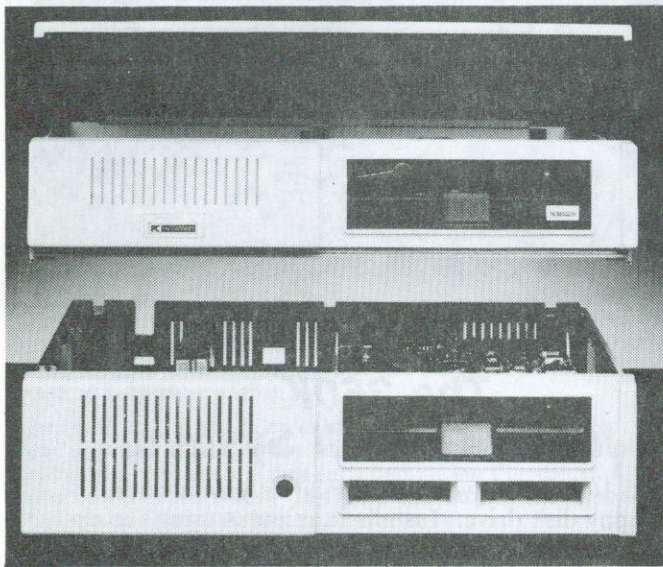
Catalog #55009 Price \$18.50

### High Density 1.2M Diskettes

High density diskettes look just like regular diskettes. That's why our high density diskettes have white jackets. If you use only white jacket high density diskettes you won't have any trouble distinguishing them from regular 360K diskettes. Provided in a flip top plastic box. Ten diskettes per box. 600 oersted. For all 1.2M 5¼ inch drives. (Not shown.)

Catalog #55008 Price 19.95

# The Junior Drive Floppy Disk Expansion System



Our Junior Drive Systems are now long established as the most popular add-on floppy disk drives you could purchase for the PCjr.

Each system's chassis is made of metal and is styled and painted to perfectly match the PCjr. An injection molded front panel adds the finishing touch, making the Junior Drive System one of the most attractive add-on systems ever made for the PCjr.

More important, it's expandable. Models are available which permit you to add 360K 5 1/4 inch or 720K 3 1/2 inch diskette drives, as your second or third floppy drive. Each model snaps on top of the PCjr or on top of another Junior Drive System while adding only 2 1/2 inches to the height of the system unit.

When a Junior Drive System is installed, your PCjr will look like it came from the factory as one piece. Your friends will find it hard to believe that the Junior Drive System is really an add-on unit. And, of course, the Junior Drive System is completely compatible with all other PC Enterprises and IBM brand PCjr expansion products. In fact, it's compatible with just about every PCjr add-on option we know of!

As you can see, the Junior Drive Floppy Disk Expansion System offers a wide selection of drives to fit your needs. Much more important, if you select the Junior Drive System it can grow with your needs... and with your budget.

- Installs in minutes without any tools
- Snaps on top of the PCjr
- 360K and 720K models currently available
- Drive II and Drive III Systems currently available
- Works with all known sidecars, cartridges, and most other PCjr products
- Works with PC DOS 2.1, 3.0, 3.1, 3.2, 3.3, and 4.0
- Compatible with all Junior Drive Power Supplies
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

## Junior Drive II Systems

Select a Junior Drive II System if you will be adding a disk drive to your PCjr as your second drive. Each system comes complete with everything needed.

Most people who add the Junior Drive II System can do so without adding another power supply. This is because the Junior Drive II System uses the Energy Efficient mode of the Enhanced jrDriver. In this mode, the computer's +12 Volt power supply is only used to spin one drive motor at a time.

## Junior Drive III Systems

If you have already added a Junior Drive II System and would like to add a third drive, you can do so by installing our Junior Drive III System.

The Junior Drive III System uses the Enhanced jrDriver Interface Card (that came with your Junior Drive II System) set up to operate in the Daisy Chain mode, which permits it to control three drives. This means when you add a Junior Drive III System, you'll also need one of the Junior Drive Power Supplies, which must be purchased separately.

## Junior Drive III Systems for Racore Users

Those who use Racore, Rapport, and Quadram Drive II Enhancement Systems can also add a third floppy drive on top of their existing system. This system uses a special version of the Enhanced jrDriver which plugs into the computer's internal modem slot. The system also includes a new signal cable, which is used to connect all three drives, and a power Y cable which permits the system to get its power from the PCjr's internal power supply. This means Racore users can add this system without adding another power supply (the Racore System already has another power supply). Racore users with DMA can also use this system, however, the DMA must first be disabled (we don't think you'll notice any difference). Instructions provided.

# 360K Junior Drive Systems

Our 360K Junior Drive Floppy Disk Expansion System is still the first choice of PCjr owners who want to add a second 360K diskette drive without compromising future expansion options.

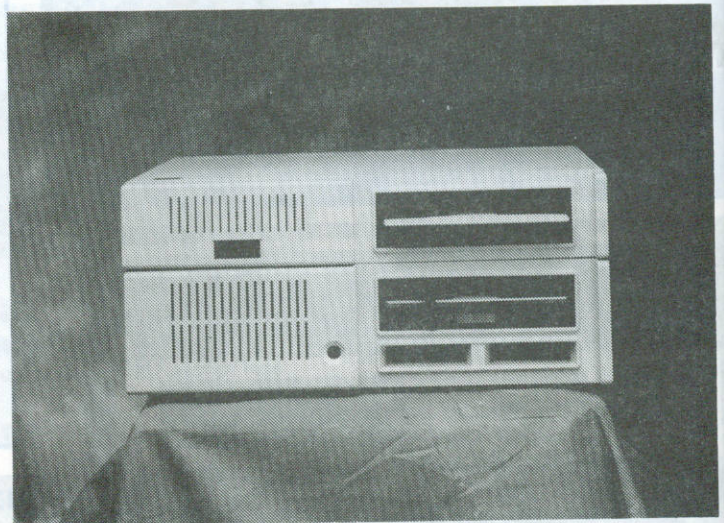
This is our original and still most popular Junior Drive System with beginners and other's who consider themselves computer novice. It's also the easiest add-on disk drive system to use because it uses the same 360K diskettes as the disk drive that came with the PCjr.

When you install a second 360K diskette drive in your PCjr the computer will never again display the "Insert Diskette for Drive B" message. Instead, the computer swaps drives each time you previously had to swap diskettes! The 360K Junior Drive II Floppy Disk Expansion System therefore totally ends the annoyance of constant diskette swapping!

This system also lets you run all programs that won't run now because two drives are required. In addition, programs which do already run will now run so quickly and conveniently that you'll wonder how you survived so long with only one drive.

The Junior Drive System has now been long established as the leading add-on expansion system you could purchase for a PCjr - but it's just one member in the continually growing family of PC Enterprises PCjr Expansion products.

When you select the Junior Drive System today, you can rest assured that you'll be able to continue expanding your PCjr in the future. PC Enterprises has developed more add-on products for the PCjr than every other company combined. In fact, we'll probably still be designing new PCjr products long after all the other companies have gone.



**New Reduced Price!**

## The 360K Junior Drive II System

Adds a 5 1/4" disk drive to your PCjr as your second 360K floppy disk drive. Installs in minutes using the existing PCjr power supply and comes complete with everything needed. Includes a 360K Floppy Diskette Drive, Junior Drive Expansion Chassis which snaps on top of the PCjr, Enhanced jrDriver Interface Card, Energy Efficient Mode Two Drive Signal Cable, Power Y Adapter Cable, Software, and an illustrated Installation and Operation manual. Completely compatible with all other IBM and PC Enterprises products.

**360K Junior Drive II System**  
Catalog #12509 Price: \$225

## The 360K Junior Drive III System

Adds a 360K 5 1/4" disk drive to your PCjr as your third drive. Installs in minutes on top of an existing Junior Drive II System using your existing Enhanced jrDriver Interface Card. Includes a 360K Floppy Diskette Drive, Junior Drive Expansion Chassis, Daisy Chain Mode Three Drive Signal Cable, Software, and an illustrated Installation and Operation manual. Also requires a Junior Drive Power Supply which is not included.

**360K Junior Drive III System**  
Catalog #12508 Price: \$195

**Remember! When you purchase your PCjr expansion products from PC Enterprises you'll be able to add what you want—when you want and you'll never need to worry about compatibility.**

# 720K Junior Drive Systems

## External Switch to Swap Drive Letters now Included!

The External Switch lets you change the drive used to boot your system without disassembling your system. When this switch is flipped, the first and second physical drives swap drive letters.

The External Switch is a very important feature if you run copy protected software. Certain copy protection schemes, known as key disk protection, only allow the program to run if the original diskette is in the A drive. Without this switch you would have a problem if your 3½ drive is your second drive and your 5¼ inch drive is setup as drive A.

This kit, which now comes standard with all 3½ inch Junior Drive Systems, is offered separately for those who already have a Junior Drive System which was purchased before this feature became available.

To install this switch in an existing Junior Drive enclosure, you will need to drill a hole in the PCjr cabinet, or as an alternative, you can use the hole intended for the IR receiver. A wire connected to the switch then plugs into the 2x3 jumper block found on all Enhanced JrDrivers.

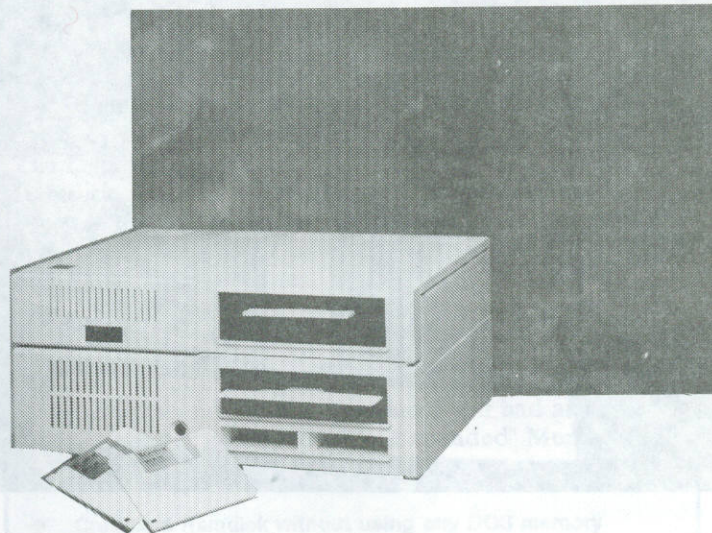
The PCjr was sold with a 40 track disk drive that uses 5¼ inch flexible diskettes. Each diskette can store up to 360K of information.

Many newer computers use 80 track drives which can therefore store twice as much information. These newer 720K drives use smaller shirt pocket-size diskettes which are also more rugged and durable because they have a hard plastic jacket. The diskettes measure only 3½ inches square.

The 720K Junior Drive System is one of the most important PCjr products in our catalog because it prevents your PCjr from becoming obsolete as software manufacturers change over to the newer 3½ inch diskette standard.

Once installed, this system lets you run software that comes on 3½ inch 720K diskettes. You'll also be able to copy software from 3½ inch diskettes to 5¼ inch diskettes — and back. And because 3½ inch diskettes have twice as much storage capacity as the 360K diskettes you currently use, you'll actually be able to copy two regular floppies onto each 3½ inch floppy.

If you're already using DOS 3.2 or later your DOS will recognize 80 track diskette formats without any other software. You'll also be able to select which drive you'll use to boot with. However, you don't need to change your DOS to use the PC Enterprises 3½ inch Junior Drive System. Special device driver software included allows this system to work with PC-DOS 2.1 or later.



Sooner or later you'll probably want to add a 3½ inch drive to your PCjr. That's why it's important to stick with our Junior Drive System.

The PC Enterprises Junior Drive Floppy Disk Expansion System is the only system that permits you to add an additional disk drive today without compromising future expansion alternatives.

Three systems are now available. Select the Junior Drive II System to add a 3½ inch drive as your second drive. Select the Junior Drive III system if you already have a Junior Drive II System and will be adding the 3½ inch system as your third drive.

And now, new for 1991, we're now offering a special Junior Drive System for Racore users. Select this system if you already have a Racore, Quadram, or Rapport Drive II Enhancement Package and want to add our 3½ inch drive on top of your existing system.

**720K Junior Drive II System**  
Catalog #12521 Price: \$225

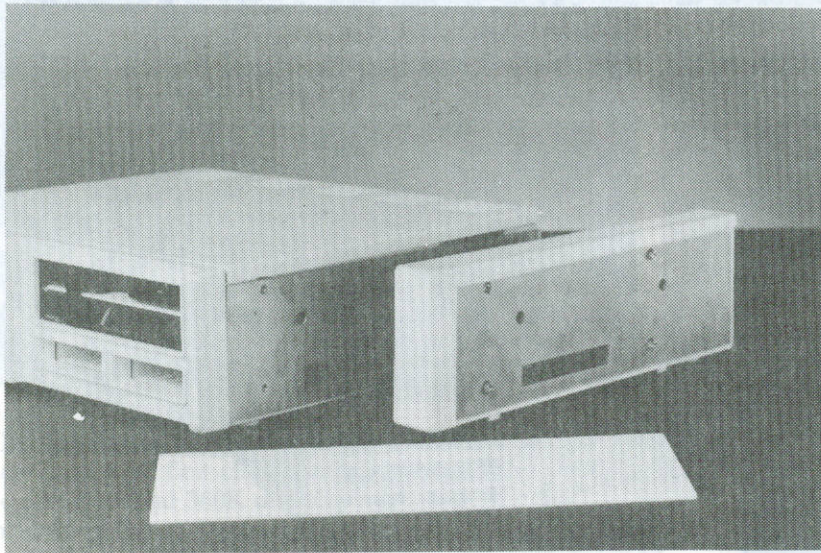
**720K Junior Drive III System**  
Catalog #12518 Price: \$195

**720K Junior Drive III System  
for Racore Users**  
Catalog #12526 Price: \$225

### Just the Drive & Software

If your PCjr already has two 5¼ inch disk drives you can replace either of your existing drives with a 3½ inch drive  
Catalog #44003 Price: \$129

# Expand your PCjr's Memory with our 512K Series of Memory jrSidecars



If you're thinking about upgrading your PCjr, think about this — additional memory is all that you'll need to run most PC programs.

The PC Enterprises 512K Series of jrSidecars allow you to expand the PCjr's memory up to the conventional 640K limit of DOS, and beyond—thus permitting the PCjr to run more PC programs than ever before!

Best of all, like other PC Enterprises jrSidecars, our 512K Series can be installed without even removing the lid from the PCjr's system unit! Simply unsnap the PCjr's side panel and plug the jrSidecar into the right hand side of the computer.

We think you'll agree, the PC Enterprises Sidecar Series of PCjr Expansion Products is perhaps the easiest to install and add on accessories ever designed for any computer.

**Chip Prices are Down  
So Buy Now and Save!**

Our 512K Series of Memory jrSidecars permit you to add up to 512K of memory to your PCjr. While the primary reason most people increase memory is to run more programs, running more programs is only one reason to add more memory.

More memory also lets you create and utilize a Ramdisk. A Ramdisk is an alternative to a second floppy disk drive in many applications. Once you learn how to use a Ramdisk you'll wonder how you ever managed without it!

Additional memory also permits you to run more background programs — including print spooler utilities which let you continue using the computer while a document is printing.

But what's even more important in many applications is speed! When you install any of PC Enterprises Memory jrSidecars, your programs can run faster than ever before. Because our jrSidecar's memory is faster than the memory inside your PCjr. Much faster.

The 512K Series of PC Enterprises Memory jrSidecars team up high speed, low power CMOS technology with high density memory chips. Together these two technologies yield a winning combination — a 512K memory expansion product that uses less power than IBM's 128K expansion! And that's important because the PCjr power supply does not have a lot of power to spare.

That's why most people who add our memory jrSidecars do not need to add anything else. As long as your computer has enough power to support a single 128K expansion you can add our 512K jrSidecar instead!

And of course, PC Enterprises 512K Series of jrSidecar's are completely compatible with just about every other PCjr product we know of, including products which plug into the PCjr's microprocessor slot — such as the jrExcellerator speed up board.

So why start expanding your PCjr with a memory expansion product made by a company which may or may not be there if you should need them? And why take the chance that you'll select a memory expansion product that doesn't work with our speed up board, VGA sidecar or other PC Enterprises product still on the drawing board?

PC Enterprises is the PCjr products supplier that has always been committed to supporting the PCjr, and we're committed to continue supporting the PCjr for as long as the need exists. Select PC Enterprises jrSidecar today and you'll be able to add the other PCjr products that you'll want tomorrow.

## Which jrSidecar Should I Select?

All memory jrSidecars on this page can be populated with 512K of memory, however, not all PCjr users need to purchase a fully populated memory jrSidecar. If you have not yet started to expand your PCjr's memory your PCjr currently has 128K. In this case you can purchase either model shown below. Select our 256K jrSidecar to increase memory to 384K, or select our 512K jrSidecar and you'll expand to the conventional 640K limit of DOS.

If you've already started to expand your PCjr's memory the jrSidecar Series may be for you, too. If you already have 256K or 512K jrSidecar can double your memory giving you a total of 512K. Or, add our 512K jrSidecar and you'll shatter the old 640K boundary of DOS by expanding to 736K!

**This table shows which jrSidecar we recommend for your system. If you're not sure how much memory you now have turn your computer on and observe the results. The computer will count the total amount of memory installed.**

IF YOU NOW HAVE	RECOMMENDED SIDECAR	MEMORY AFTER EXPANSION
128K	512K	640K
256K	512K	768K*
512K	256K	768K*
640K	256K	768K*

256K jrSidecar—Catalog #14023 Was \$245, Now \$220  
512K jrSidecar—Catalog #14024 Was \$295, Now \$245

\*Only 736K of this memory is usable.

Zero K jrSidecars can be populated with 512K by installing sixteen 256Kx1 (150ns) DRAM chips.

Catalog #14027 Still Only \$195

# Or, Select the PCE Megaboard and Expand by One Megabyte in One Megaleap!

The single most important expansion product for your PCjr is one that adds memory—memory to run serious programs such as dBase, Lotus 1-2-3, WordPerfect, and literally thousands of others. Memory that provides a reservoir of power to drastically improve the performance of your software by utilizing a Ramdisk application.

Such immediate, dramatic expansion is yours when you plug in the PCE Megaboard to your PCjr. Fully compatible with all other PCE and IBM products, the Megaboard adds more memory than any other PCjr expansion product ever!

A reminder or two about PCjr memory will help underscore the expansion benefits provided by the Megaboard. The Enhanced model of the PCjr only came with 128K of memory. The computer's memory can be increased to 736K, which is 96K more than the conventional 640K limitation of other computers.

Other PCjr memory expansion products also permit you to use any portion of this memory for a Ramdisk application. However, with other memory products, the memory used for a Ramdisk is immediately deducted from the amount available for running programs. That's the beauty of the PCE Megaboard. It expands DOS memory to 736K (regardless of how much memory you now have), and provides all additional memory to be used for other purposes. We call the additional memory PCE memory.

Let's say your PCjr already has 640K. If you install our 1024K Megaboard, it will expand your PCjr's DOS memory to 736K, which is adequate to run any program that runs on other computers. In addition, you'll also have 928K of PCE memory. If you only have 128K of memory before you add the PCE Megaboard, everything else is the same, except you'll only have a 416K Ramdisk.

The table below will help you identify the amount of memory expansion you obtain when you install a Megaboard, which is available in models providing 256K, 512K, 768K, and one megabyte (1024K) of memory.

First, locate the memory currently installed in your PCjr in column A. If you are uncertain of the amount, simply turn your computer off, then back on, and watch your memory count up on your screen.

Column B shows how much DOS memory you'll have after installing each model. (DOS memory is memory available to programs that you run).

Column C shows the amount of PCE memory that you will have. (PCE Memory is memory available for Ramdisk and special applications developed by PC Enterprises).

A	B	C	B	C	B	C	B	C
128	384	0	640	0	736	160	736	416
256	512	0	736	32	736	288	736	544
384	640	0	736	160	736	416	736	672
512	736	32	736	288	736	544	736	800
640	736	160	736	416	736	672	736	928
736	736	288	736	544	736	800	736	1024
<b>Model</b>	<b>256K</b>		<b>512K</b>		<b>768K</b>		<b>1024K</b>	
<b>Cat #</b>	<b>14028</b>		<b>14029</b>		<b>14030</b>		<b>14031</b>	
<b>Price</b>	<b>\$250</b>		<b>\$275</b>		<b>\$300</b>		<b>\$325</b>	

Here's an example of how you would use the Megaboard to drastically improve the performance of a program that runs slowly because it frequently stops to read the disk drive. Lets say the program requires 640K to run and that it comes on three separate diskettes. To run this program from a Megaboard Ramdisk, begin by copying all three diskettes onto the Ramdisk. Then, set the default drive to the letter used by your Ramdisk, and run the program in the usual manner. Presto—the program now loads and runs with amazing speed because it never pauses to read your drive or to ask you to swap diskettes.

The Megaboard therefore allows you to increase your PCjr's memory up to 736K and to create a Ramdisk which does not use any DOS memory, a feature which was previously not obtainable unless you had an AT or other computer equipped with "Expanded" Memory.

- Permits expansion of DOS memory to 736K
- Creates a Ramdisk without using any DOS memory
- Permits Rebooting without losing contents of the Ramdisk
- Running software from a Megaboard Ramdisk can improve performance dramatically. We used IBM Writing Assistant's spelling checker to check a 25 page document which needed 12 corrections. This process took over 21 minutes from floppy. It took less than four minutes when we did the same thing from a Megaboard Ramdisk
- Works like a Ramdisk setup in Extended memory
- Available in 256K, 512K, 736K, and 1024K models. All models are expandable to 1024K, so you can buy any model now and increase memory at a later date. Expand by adding 256K x 1 (150ns) DRAMS
- Future print spooler, EMS, and other special applications for PCE memory are planned
- Simple plug-in installation (its a sidecar)
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

Chip Prices are Down — Prices Reduced up to \$100!

# Do I Need Another Power Supply?

A power supply is a plug in product that provides the energy required for your PCjr and for all your PCjr add-on accessories to operate. Each time you attach a new add-on product to your PCjr, the new product takes the power it needs from the computer's power supply. If your expansion products take more power from the power supply than it was designed to produce, the power supply will fail and you'll need to service your PCjr. In most cases, the item that fails will be the Power Transformer (also referred to as the black brick), or the PCjr's internal power supply card. When this happens most PCjr users replace their internal power supply card and black brick power transformer with one of our Junior Drive Power Supplies (featured elsewhere in this catalog).

Before you can determine which expansion products you can add, you must first determine which power supply card you have. Most PCjr's came with a seven inch long 33 Watt power supply. Other PCjr's have a 10 inch long power supply which provides 46.5 Watts. If you don't know which supply came with your PCjr, remove your PCjr's lid and measure the overall length of the power supply (This is the computer board that has the PCjr's On/Off switch attached to it).

The PCjr power supply produces power at three different voltages: +5V, +12V, and -Something. (Note: We say -Something because the shorter power supply produces -6 Volts and the long power supply produces -12V instead). The -Something voltage does not go to the sidecar expansion bus and it is therefore not normally used by PCjr add-on devices. For these reasons you only need to be concerned with +5V and +12V requirements.

Refer to Table 1 to determine how much power your PCjr should have available for add-on products before you add any expansion products. Be careful not to exceed either of these numbers or damage will occur!

Note: IBM only specifies available power with their Internal Modem installed. Since most PCjr users do not use the IBM Internal Modem, we added the specified maximum power consumption of the IBM Internal Modem to the specified power available for other expansion products to come up with the figures in table 1.

Before we continue, we must discuss two other PCjr products and how they work. The IBM Power Expansion sidecar and the Racore Drive II Enhancement System. If you have an IBM Power Attachment installed, it provides power for all products plugged into its right hand side. It does not provide any power to the PCjr itself, or to any PCjr options installed to the left side of the Power Expansion sidecar. Consequently, consider the power requirements of products plugged into an IBM Power Attachment separately. Racore and Quadram Drive II Enhancement Packages also provide additional power to the side bus—exactly the same way as the IBM Power Attachment. The amount of additional power provided by these systems will vary depending upon which Racore power supply you use. (Rapport systems which use a 3 wire power supply do not provide any additional power to the side bus).

Now refer to the Power Requirement Worksheet. Place a check mark in column A adjacent to each product that you currently use. Next, circle the associated +5 and +12 power requirements, then total up the two columns. This is the approximate power the add-on products circled will need. Now, compare what's needed to what your power supply can produce (Table 1). It's important to understand these figures are based upon measurements made on products in our laboratory and that all products are not identical. The actual power used by your products may be higher or lower than what's indicated. All figures published in this worksheet were carefully determined and are believed to be accurate, however this worksheet is offered strictly for use at your own risk. We strongly recommend you include an adequate safety factor to avoid problems. Our calculations seem to indicate that a 1 Watt safety factor should be adequate. Refer to the example below.

Example: Let's say you have the 7 Inch power supply. Table 1 indicates your PCjr has 3.5 watts of +5 volt power available. If you are using a 1024K Megaboard, IBM Parallel Printer Attachment, 360K Junior Drive II System, jrBus-Mouse, 101 Keyboard, two joysticks and a jrExcellerator, the worksheet indicates your add on products are consuming 1.75 Watts—leaving another 1.75 Watts still available. If you use the 1 Watt safety factor it means you will limit future expansion to .75 Watts. If you attempt to install our Display-Master VGA Sidecar you would use up every last bit of the published available power and therefore would not have any safety factor. This means the VGA sidecar may or may not overload your system's power supply.

Power Available Before Expansion (Watts)  
Table 1

Power Supply	+5.0V	+12.0V
IBM's 7 inch PCjr Power Supply	3.5W	.6W
IBM's 10 inch PCjr Power Supply	11.0W	6.6W
IBM Power Expansion Attachment	14.5W	4.0W
PCE Junior Drive Power Supply	60.0W	52.0W

Power Requirement Worksheet (All figures in Watts)	A	+5.0V	+12.0V
	✓		
<b>Memory Expansions</b>			
PCE 192K Internal Memory Card		*	0
PCE 512K Memory jrSidecar		.35	0
PCE 1024K Megaboard Sidecar		.55	0
IBM 128K Memory Expansion		.60	0
IBM 512K Memory Expansion		.75	0
Microsoft jrBooster (512K)		1.10	0
Tecmar jrCaptain (512K)		*	0
<b>Floppy Drives</b>			
PCE Junior Drive II 360K System (Energy Efficient Mode)		.25	0
PCE Junior Drive II 360K System (Daisy Chain Mode)		.25	4.5
PCE Junior Drive II 720K System (Energy Efficient Mode)		.25	0
PCE Junior Drive III 720K System (Daisy Chain Mode)		.25	1.8
PCE ST01jr (SCSI Sidecar)		1.30	0
3.5" SCSI Hard Drive		6.80	9.5
5¼" SCSI Hard Drive		3.80	24.2
<b>Mice</b>			
Mouse Systems Optical Mouse		.25	0
PCE jrBus-Mouse		.05	0
<b>Modems</b>			
IBM 300 Baud Internal Modem		.65	.2
PCE 2400 Baud Internal Modem		.55	.3
External Modems		*	0
<b>Cartridges</b>			
Configuration Plus		.70	0
Combo v2, or Quicksilver		.15	0
Cartridge Basic, Combo v1 Keyboard Buffer, or jrVideo		.10	0
<b>Other</b>			
IBM Parallel Printer Attachment		.60	0
IBM Speech Attachment		.35	.4
IBM or CH Products Joystick		*	0
Racore Keyboard Adapter		.45	0
Racore Drive II Enhancement Pkg		0	0
PCE 101 Keyboard		*	0
PCE jrExcellerator		.30	0
PCE Turbo-Drive		*	0
PCE Display-Master VGA Sidecar		1.75	0
<b>Total Power Required</b>			

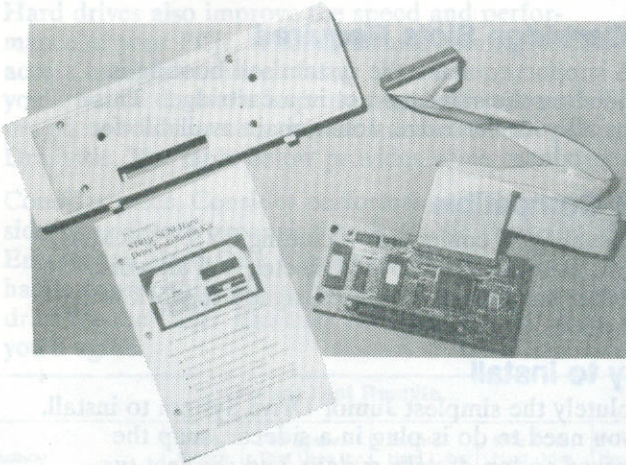
\*These items use so little power that they could almost always be added without causing a problem. Also, the Tecmar jrCaptain actually uses about 1.8 Watts of +5 Volt power, but it comes with its own power supply.



# The ST01jr—Our SCSI Host Adapter

The PC Enterprises Hard Disk Expansion System uses an industry standard SCSI (pronounced Scus-si) hard disk drive. The drive is mounted inside our enclosure that snaps-on-top of the PCjr and controlled by a SCSI host adapter sidecar designed and manufactured specifically for the PCjr by PC Enterprises. We call our SCSI host adapter the ST01jr.

When you invest your money in the PC Enterprises Hard Disk Expansion System you're not making an investment in your PCjr—instead, your investing in your future. Because we designed our system so you'll have lots of future expansion options if you keep your PCjr and so you'll still be able to use your hard drive if you decide to purchase another computer. In fact, you'll be able to do so without even reformatting the drive!



While the ST01jr can be installed just like any other sidecar, there is a cable which comes from the sidecar that must plug into the hard drive. That's why we recommend installing the ST01jr as your first sidecar. When installed as your first sidecar the 60 conductor ribbon cable attached to the ST01jr can be passed inside the PCjr system unit through a special slot found on all PCjrs. This slot, which was thoughtfully provided by IBM, permits a neat and professional method to get the ST01jr's cable inside the PCjr's cabinet without leaving it exposed to view.

If you ever decide to use the hard drive provided with this system on another computer all you need is the optional ST01 host adapter #79032 (\$39). The ST01 host adapter, which is made by Seagate Technologies, is available from PC Enterprises as well as numerous other suppliers. It permits you to use Seagate brand SCSI hard drives on any PC, XT, or AT compatible computer.

PCjr users who cannot install our snap-on-top enclosure as their first snap-on-top enclosure (such as those who use Racore, Quadram, and Rapport systems), can still use the PC Enterprises Hard Disk

Expansion System, however, as you will not be able to install the ST01jr as your first sidecar, installation will leave the ribbon cable exposed to view.

## Two Chip Sets are Available:

The ST01jr is designed to work with either of two chip sets commonly used by the industry to control SCSI drives. Each chip set offers its own advantages, so before you purchase the ST01jr please read the section below to decide which chip set best suits your needs.

### The Seagate Chip Set

If you are primarily interested in adding a hard drive the lower cost Seagate chip set is the best choice. The Seagate chip set can control any Seagate brand hard drive which has an embedded SCSI controller. (These drives can be identified by the N suffix in their part number; example: ST125N). While the Seagate chip set provides optimum performance with Seagate brand disk drives, the disadvantage is that only two hard drives are supported. If you expect to add more than two drives, or other SCSI devices, you'll need the Future Domain Chip Set, or an optional software device driver (not provided).

### Future Domain Chip Set

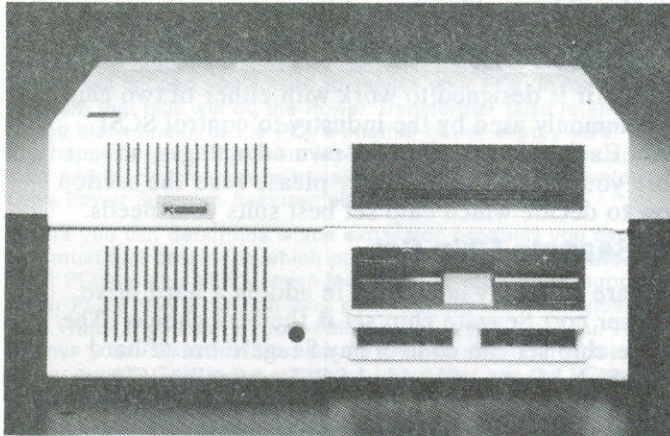
The Future Domain chip set is the most versatile. These chips support up to seven SCSI peripherals available from Seagate Technologies, as well as a large variety of other manufacturers. SCSI peripherals supported include not only hard drives, but also tape backups, CD ROMs, WORMs, removable media devices, and optical disks. A complete list of supported devices can be obtained by calling or writing our customer service department.

*The decision as to which chip set to select is totally yours, however, PC Enterprises has only performed thorough testing with Seagate brand disk drives and the Seagate chip set. We are very pleased with the results and think you'll be too. Also, keep in mind that if you purchase the Seagate chip set you can always upgrade to the Future Domain chips at a later time.*

The ST01jr comes with all PC Enterprises Hard Drive Installation Kits, but it is also available separately for do-it-yourselfers and as a replacement part. Both chip sets are also available separately for those who already have an ST01jr and decide to swap to the other chip set.

ST01jr	Chip Sets
<b>ST01jr with Seagate Chips</b> Catalog #12525-1 Price: \$149	<b>Seagate Chip Set</b> Catalog #10038 Price: \$29.95
<b>ST01jr with Future Domain Chips</b> Catalog #12525-2 Price: \$179	<b>Future Domain Chip Set</b> Catalog #10037 Price: \$59.95

# The Hard Disk Expansion System



## Future Expandability

Our ST01jr Sidecar allows you to add up to seven SCSI (pronounced Scus-si) peripherals. SCSI peripherals presently available include hard drives, tape backup, CD ROM's, WORMs, removable media devices, and optical disks. This means if you purchase our Hard Disk Expansion System and later decide to add any of these other SCSI devices, you could do so without purchasing another host adapter card!

## Self Booting

Just leave the door to drive A open—then turn the computer on. Your PCjr will automatically load DOS from the hard disk drive.

## Fast Access Time

The access time of the system depends upon which drive you select. Check the specs. Our drives offer access time specifications as fast as 20 ms and even our slowest drive guarantees 40 ms. And 40 ms isn't very slow at all - it's pretty fast.

## Memory Mapped I/O

Many people ask about access time, but few realize the importance of whether the system is memory or I/O mapped. We're proud that our system is memory mapped. I/O mapped systems automatically add two wait states to each and every cycle. Memory mapped controllers therefore require 33% less overhead than I/O mapped controllers. (Controllers which plug into the internal modem slot are I/O mapped).

## Speed Up Board Compatibility

Speed up boards are devices designed to accelerate memory cycle time without effecting I/O cycle time. This means if you use our Hard Disk Expansion System with a speed up board such as the jrExcellerator, its performance will get even better.

## Intelligent Controller

The ST01jr uses an intelligent SCSI controller. Not-so-intelligent controllers, also known as dumb controllers, require many instructions to accomplish even simple tasks. For example, intelligent controllers such as ours only take one instruction cycle to perform a write operation. Dumb controllers, regardless of whether they use software provided on a cartridge or as a device driver, may take three instruction cycles to do the same thing—and that means they take three times longer!

## Most Attractive

Our system snaps on top of your computer and looks great! Competitors offer external systems which come in unsightly external cases and take up lots of room on your desk.

## No Cartridge Slots Required

BIOS support to make the system self booting is provided on the sidecar - not in a cartridge. This means all your cartridge slots remain available for other products.

## DOS Compatible

The usual DOS commands including SYS, FORMAT, FDISK, BACKUP, RESTORE, etc., will all work. So will other hard drive utilities designed to work with SCSI drives.

## Easy to install

Absolutely the simplest Junior Drive System to install. All you need to do is plug in a sidecar, snap the enclosure on top of your system, and connect two cables. Chances are you'll be using your hard drive within minutes after you open the box.

## Can Fit Inside Junior Drive III Systems

If you already have, or someday purchase, a PC Enterprises Junior Drive III System which adds a third floppy disk drive to your PCjr, the hard drive can be mounted inside the Junior Drive III enclosure along with your third floppy disk drive.

## Our Compatibility Guarantee

Our system is fully compatible with all other PCjr products made by IBM, PC Enterprises and most other manufactures. In fact, we're so convinced that you'll be able to use our system without a hitch that we'll waive the usual restocking fee if you encounter a compatibility problem which we're unable to resolve.

Consider the performance and future expansion benefits of this system. Also remember, PC Enterprises is the PCjr support company that's going to be here long after all the others are gone. We think the Junior Drive Hard Disk Expansion System is the undisputed best choice for all PCjr owners. Try the system yourself and you'll agree. And of course, like all PC Enterprises products, this system is backed by our full year parts and labor warranty.

## Why People Add Hard Drives

Perhaps the most desired and sought after expansion for any computer is the hard disk drive. Hard drives are popular because they make computers easier to use. Much easier. Because they add tremendous diskette storage to your system. Internal storage that virtually eliminates the need to ever use floppy diskettes again!

With a hard drive installed chances are you'll never again find yourself fumbling through a box of diskettes searching for a program you want to run. Because hundreds of programs will be at your fingertips ready to run all the time.

And the PC Enterprises Hard Disk Expansion System is self booting. That means when you turn your computer on, DOS will start and you're free to make the coffee.

Hard drives also improve the speed and performance of your PCjr. That's because computers can access hard drives much faster than a floppy. So you'll notice dramatic improvements when you run programs which access the hard drive. That's right. Dramatic. The table below provides some examples.

Consider price. Consider performance. Then consider your future expansion options. We think the PC Enterprises Hard Disk Expansion System is the hands down choice when it comes to selecting a hard drive for the PCjr. Examine the features. We think you'll agree.

**Actual Test Results**

Activity	360K Floppy Drive	RIM System That Uses the Modem Slot	Racore Hard Drive System	PCE SCSI Hard Drive System	PC-XT Hard Drive System
Load Writing Assistant v1.01	18.8s	12.2s	12.0s	4.0s	4.5s
Load WordPerfect v5.0	38.5s	18.6s	18.3s	5.4s	6.0s
Screen Change	12.3s	5.8s	5.6s	4.3s	4.8s

**Performance Benchmarks**

	RIM	Racore	PCE SCSI	PC-XT
Norton Disk Index Wv4.50	.4	.3	2.1	1.9
Average Seek	88.5ms	75.1ms	26.8ms	48.4ms
Track to Track Seek	28.8ms	20.5ms	11.9ms	12.7ms
Data Transfer Rate	???	26.9 KB/s	236 KB/s	253 KB/s
Performance Index	.621	.893	3.458	2.6

**Notes:**  
RIM—20MB System ST225  
Racore—20MB System ST225  
PCE—80MB SCSI System ST1024N  
PC-XT—40MB SCSI System ST157N  
Screen Change test described in detail on the jrExcellerator Performance page.

Performance benchmarks furnished by Coretest v2.4 except where noted. ??? indicates no result was furnished by the Coretest program. Perhaps the system was too slow for Coretest to consider results valid? All tests with JRCONFIG.DSK -T3 -V32 in CONFIG.SYS. FILES=20 used for WordPerfect tests.

As this catalog went to press, many changes were taking place concerning SCSI Hard Drives. Smaller capacity drives are being discontinued and replaced with much larger drives. These changes are occurring because many programs now require several megabytes of hard drive storage just to run. Smaller capacity drives become filled after only a few programs are installed. We're sure you'll want as much storage capacity as you can afford, and we're certain you'll use all that you have. SCSI Hard Drives up to 377MB are now available for other computers and were being tested on PCjrs at the time this catalog went to press. Call for pricing and availability.

## PCE Hard Disk Expansion System

To order the Hard Disk Expansion System select one item from each of the three categories below.

### 1 Hard Drive Installation Kit.

Two are available, choose one. For more information, refer to the section of our catalog titled, "Introducing the ST01jr".

#### Standard Hard Drive Installation Kit

Select a standard kit to install your hard drive in its own enclosure. Includes our snap-on-top enclosure, the ST01jr our SCSI Host Adapter Sidecar, signal cable, and instructions.

#### Standard Installation Kit (Seagate Chip Set)

Catalog #10033 Price: \$200

#### Standard Installation Kit (Future Domain Chip Set)

Catalog #10041 Price: \$230

#### Drive III-Plus Installation Kit

Select a Drive III Plus kit if you already have a PC Enterprises Junior Drive III System and prefer your hard drive to fit inside your existing enclosure. Includes a mounting shelf that fits on the left side of your existing Junior Drive III enclosure, the ST01jr our SCSI Host Adapter Sidecar, signal cable, and instructions.

#### Drive III Plus Installation Kit (Seagate Chip Set)

Catalog #10034 Price: \$159

#### Drive III Plus Installation Kit (Future Domain Chip Set)

Catalog #10042 Price: \$189

### 2 The Hard Disk Drive of your Choice

When you purchase the hard drive itself from PC Enterprises, the drive is tested, formatted, and installed in the kit you select before leaving our facility. Each 20MB of storage will typically give you enough space for 60 regular floppy diskettes. Choose one.

20MB (typically formats up to 21.5MB)

ST125N or equivalent. 40ms max, (28ms typical)  
Catalog #44007 Price: \$349

30MB (typically formats up to 32.2MB)

ST138N or equivalent. 40ms max, (28ms typical)  
Catalog #44008 Price: \$375

40MB (typically formats up to 48.6MB)

ST157N or equivalent. 40ms max, (24ms typical)  
Catalog #44009 Price: \$399

60MB (typically formats up to 64.9MB)

ST277N or equivalent. 40ms max, (24ms typical)  
Catalog #44010 Price: \$425

80MB (typically formats up to 85.0MB)

ST296N or equivalent. 28ms max, (20ms typical)  
Catalog #44011 Price: \$450  
ST1096N or equivalent. 20ms max, (15ms typical)  
Catalog #44011-1 Price: \$499

### 3 The Junior Drive Power Supply

Two models are now available, choose one.

#### Internal Junior Drive Power Supply

Requires that you have a PC Enterprises snap-on-top enclosure installed as your first snap-on-top enclosure.  
Catalog #12524 Price: \$99

#### External Junior Drive Power Supply

Catalog #12527 Price: \$139.95

# Super-Charge your PCjr with the jrExcellerator Speed Up Board

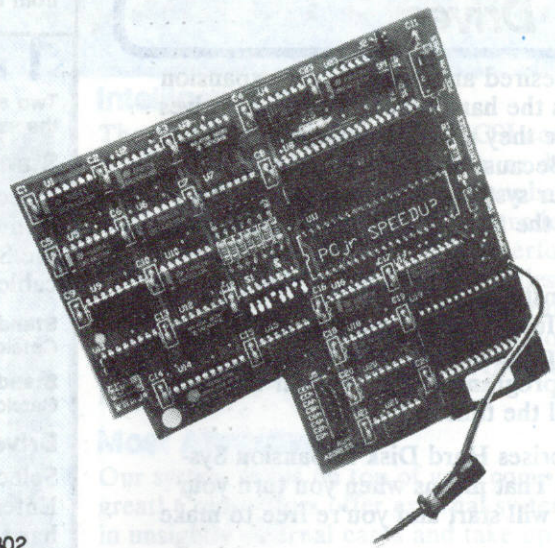
For years the PCjr has been criticized because it couldn't run programs as quickly as today's newer computers. Well, PCjr critics, it's now possible to operate a PCjr at 9.54 MHz.

Just plug our accelerator board into your PCjr's microprocessor socket and the computer's clock speed increases from 4.77 MHz to 9.54 MHz. Then run a program and notice that the PCjr does just about everything faster than before.

You'll zip right through what was previously a time consuming task. That's right. With the jr-Excellerator installed your computer runs circles around other PCjrs. Whether you're using a spreadsheet. A word processor. Or just playing a game. The program executes more quickly because the PCjr's microprocessor is running at twice the speed as it did before!

And because the jrExcellerator plugs into the PCjr's microprocessor socket it's easy to install. It's also compatible with most other PCjr add-on products including those manufactured by PC Enterprises, IBM, Tecmar, Microsoft, and Racore.

We don't think you'll be one "bit" disappointed with the jr-Excellerator. In fact, we're so sure you'll like it when you try it that we'll refund the full purchase price if for any reason you choose to return it. But best of all, the jr-Excellerator won't take a big "byte" out of your budget.



Catalog #14802  
Price: \$129

*"We think that the jrExcellerator is a 'must have' for PCjr owners that are looking to keep pace with today's more powerful machines"... Sierra On-Line*

## Features

- Easy Plug-in Installation<sup>1</sup>
- Makes Programs Run Noticably Faster
- Starts in the Fast or Slow Mode Automatically
- Change Speeds at any Time (On the Fly)
- Works with All Software Including Self Booting Software
- 10 MHz V20 Microprocessor Included
- Adds 16K of RAM (PC Memory Mode)
- Permits the PCjr to Recognize Expansion Memory Without Running Memory Management Software. (PC Memory Mode)<sup>2</sup>
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to continue supporting the PCjr

<sup>1</sup> Plug-in installation requires your PCjr microprocessor already be in a socket. If your PCjr's Microprocessor is not in a socket we can still install the jrExcellerator. Contact our Customer Service Department for details. Installation charge is \$25. Not compatible with the jrHotshot or other products which plug into the microprocessor socket

<sup>2</sup> Racore users with DMA can not use the PC Memory Mode feature.

# jrExcellerator Performance\*

The jrExcellerator is designed to speed up the memory of your computer. When you speed up your computer's memory, the computer processes information faster than it could before—permitting all your programs to run faster. That's why accelerator boards are almost always the first add-on product people select once they decide to speed up their computer. But it's important to understand while accelerator boards always make your computer execute software faster, they cannot make your peripheral devices work any faster. So, if you want your

computer to print faster, you'll still want a faster printer, and if you want your modem to work faster you'll prefer a faster modem.

PCE sells a variety of fast peripherals as well as other products designed to speed up all types of computer operations. Some of these other products are indicated below. Optimum results will always be obtained when the jrExcellerator is used together with these other products.

## Norton SI

The Norton SI Index is perhaps the most well known performance benchmark used to compare a computer to an IBM PC.

An index of 1.0 is obtained on a genuine IBM PC. Higher indexes are obtained on faster computers. The PCjr with only 128K of memory only gets a .7 rating. When you expand your computer's memory to 640K the PCjr gets a 1.0 rating.

## Landmark

The Landmark tests are also performance benchmarks which compare a computer to an IBM PC.

Test (1) compares the computer to a genuine IBM PC. A 128K PCjr only gets a .3 rating in this category, while 640K PCjrs produce a 1.0 rating (before the jrExcellerator is added).

Test (2) is the time it took the computer to perform a specific calculation. 128K PCjrs take 1,964 ms for this test. That's almost two full seconds! A PCjr with 640K will perform the same calculation in 600 milliseconds—less than one third the time.

The Norton SI and Landmark tests clearly show the speed advantage when you expand your memory beyond 128K—but now compare the results to those for a 640K PCjr with the jrExcellerator and see how much faster the jrExcellerator makes the system perform. (Results were obtained using Norton v4.50 and Landmark v0.99).

## 123 Calculation

A 1-2-3 Calculation is one of the best tests to use to evaluate a speed up board's true performance. This test requires intensive memory operations, while it does not require a lot of screen writing or diskette activity.

It took a PCjr with 640K of memory 22.4 seconds to recalculate a Lotus v1A spreadsheet which had 250 rows and 8 columns. The same calculation only took 11.6 seconds with the PCE memory expansion and jrExcellerator. Check the test results above to determine how much faster the PCjr performed with your memory expansion product!

## Screen Walk

The Screen Walk results provide a good indicator of jrExcellerator performance with games and other programs because this test causes intensive memory and screen writing operations to take place (without disk drive activity).

The time published is how long it takes Leisure Suit Larry to walk completely across the bar, with the program speed control set to fastest. Leisure Suit Larry is a well known game published by Sierra On-Line. Comparable results are expected with other game programs.

## TYPE Test

The TYPE test does not require intensive memory operations—instead, it requires mostly screen I/O. That's why this test is not the best to use to show off our jrExcellerator, nevertheless, we thought it would be fun to include these results for comparison with our jrVideo Cartridge. See if you could guess how much faster this test would run if you also had a jrVideo Cartridge, then refer to the section of our catalog titled, "Three Great Cartridges which

Activity	640K PCjr 4.77MHz	Results with jrExcellerator (9.54MHz)				
		640K PCjr w/PCE	640K PCjr w/IBM	640K PCjr w/Racore	640K PCjr w/Microsft	640K PCjr w/Tecmar
Norton SI	1.0	3.4	3.3	3.4	2.6	2.6
Landmark (1)	1.0	1.9	1.8	1.8	1.3	1.2
Landmark (2)	600ms	328ms	332ms	337ms	476ms	517ms
123 Calculation	22.4s	11.6s	11.9s	11.9s	15.9s	16.8s
Screen Walk	16.3s	8.8s	9.8s	9.6s	12.2s	12.9s
TYPE Test	70.8s	37.4s	37.6s	37.5s	59.2s	59.8s
Screen Change	12.3s	10.5s	10.6s	10.5s	10.9s	11.0s

\* The improvement in speed that you see varies depending upon whether you have expanded your PCjr's memory, and if so, the make and model of the memory expansion unit that you use. We tested the jrExcellerator with PCE memory expansion products as well as all four other PCjr memory expansion products which are widely used today. Refer to the chart below for details concerning the expansion used in determining the published results.

w/PCE w/IBM	PCE Megaboard populated with 512K. (Results with PCE 512K jrSidecar are comparable). IBM 128K Memory Expansion Sidecar upgraded by PCE to 512K. Results with 128K sidecars are comparable.
w/Racore	Racore 8-wire sideboard (without DMA) using a Racore 512K memory board. Results with DMA should be comparable.
w/Microsft w/Tecmar	128K Microsoft Booster upgraded by PCE to 512K. Tecmar 128K jrCaptain upgraded by PCE to 512K.

Note: The jrExcellerator is not compatible with memory expansion products which plug into the computer's microprocessor slot. All tests were performed on a basic PCjr with JRCONFIG.DSK -T3 -V32 as the only line in the CONFIG.SYS file and without any AUTOEXEC.BAT file. The jrExcellerator switch settings used were those settings recommended in the jrExcellerator manual for the memory expansion unit under test. Note that recommended switch settings are conservative. Slower memory expansion units may therefore perform significantly faster with more aggressive switch settings. Results vary.

Improve the Personality of your PCjr" and see how close your guess came to the actual results.

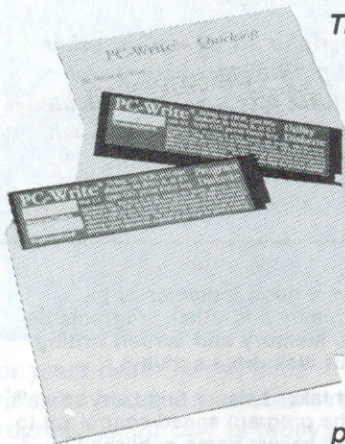
We loaded JRCONFIG.DOC for v2.10 in a Ramdisk, then used the TYPE command to display the file.

## Screen Change

Our Screen Change test requires mostly disk I/O and is included primarily for comparison with other PCE products—nevertheless, the results prove that the jrExcellerator even helps with operations which do require lots of diskette I/O. (Remember, speed up boards are designed to speed up memory, not diskette operations. You'll see substantial improvements in disk I/O if you install a Megaboard, Turbo-Drive, or a Hard Disk Expansion System).

The published time is how long we had to wait for a screen change to take place after Leisure Suit Larry opened the bathroom door. Results may vary when you run other programs which pause while the computer changes screens, however comparable results can almost always be expected.

## PC-Write



The shareware concept has produced some really remarkable products, and PC-Write is one of the best. PC-Write is crammed with lots of powerful features. In fact, PC-Write's features compare against even some of the best professional word processors. The

manual is a model of clarity and completeness. PC-Write, with its continuing revisions, may be the only word processor you'll ever need.

...PC Magazine

PC-Write is a full featured word processing program which includes a spelling checker. Its grown in power and complexity and is now widely considered a competitor to such expensive programs as Word-Perfect, Microsoft Word, and Xywrite III.

**PC-Write (Version 2.71)**  
256K Required—Two Disk Set  
Catalog #87001 Price: \$9.95

**PC-Write (Version 3.02)**  
384K Required—Three Disk Set  
Catalog #87002 Price: \$14.95

## jrROM-Clock

With the jrROM-Clock installed you'll never need to input the correct date or time again! Just start your PCjr, and run the program that we provided. The jrROM-Clock then enters the date and time for you, automatically.



Often people don't bother to enter the date or time, however, entering the correct date and time can be quite important. Each time a file is changed, DOS records the current date and time in the diskettes directory.

This means anytime you ask for a directory of a diskette you can tell which files are the newest. And that's pretty helpful when two or more of your diskettes have files with the same name! And the jrROM-Clock is easy to install. Just remove either of the PCjr's BIOS chips and plug the jrROM-Clock into the system board's socket. Finally, plug the computer's BIOS chip into the socket on the jrROM-Clock. Installation takes less than ten minutes (provided your computer's BIOS chips are not soldered to the system board).

Best of all, our jrROM-Clock uses an embedded lithium energy cell guaranteed by its manufacturer to maintain time for more than 10 years! And that means its battery will probably last quite a bit longer (20 years typical). Accurate to within one minute per month.

**jrROM-Clock**  
Catalog #14801 Price: \$39.95

Installation Available (\$25). Even if your BIOS chips are soldered to your system board! PC Enterprises will install a jrROM-Clock for you. Purchase a Thin-Font Module and JrExcellerator and we'll install them too—and at no extra installation charge.

## IBM's Writing to Read

Shows children how to develop their language skills at an early age. Writing to Read helps children learn how to write, read, and pronounce words correctly using the English language. Based on the "alphabetic principle", this program can be a priceless learning tool for children, grades kindergarten to first grade.

The Writing to Read system has combined learning theory with the unique "talking" technology of the PCjr's Speech Attachment to provide an interactive, multi-sensory learning experience which has been determined effective by the Educational Testing Service located in Princeton, New Jersey. The clear, distinct, human voice being reproduced from your computer is simply remarkable.

The process begins by emphasizing the correct pronunciation by way of phonetically accurate verbal response and instruction produced directly from your

PCjr system. Then, by showing children how to progress from only being able to say the words they know to writing and eventually reading those words, they quickly learn how to communicate in an easy, more consistent fashion at an earlier age.

In closing, Writing to Read's logical, progressive, and importantly uniform format enhances students inherent language maturation skills. This lesson makes Writing to Read perhaps the most valuable software package ever written for the PCjr!

**System Requirements:** 128KB RAM, DOS 2.1, 360K Disk Drive, Speech Attachment, Cassette Player

**Supplied:** 12 diskettes, manual, 10 workbooks, 15 instructional Cycle audio cassettes.

Extremely small quantities are available.

Catalog #86210 Regular Price: \$800 Now: \$399

# How to Connect a Printer to Your PCjr

This section is provided for the computer novice who decides to connect a printer to the PCjr.

Computers use "ports" to transfer information to and from printers and other peripheral devices. The PCjr has two types of ports (serial and parallel) which can be used to attach a printer.

All industry standard serial ports conform to a specification known as the RS232 interface—and the PCjr's built-in serial port is no different. The PCjr's serial port can therefore be used to attach just about any peripheral which has a serial interface. This includes Hayes compatible external modems, mice and serial printers.

All industry standard parallel ports conform to the Centronics standard which is almost exclusively used to connect printers. For this reason, parallel ports are often referred to as Centronics ports, or simply, printer ports.

Before you connect a printer to your PCjr you must determine whether the printer you have selected requires an RS232 (Serial) interface or a Centronics (Parallel) interface. This information can be found in the printer's manual.

## How to Connect Parallel Printers

Parallel interfaces are extremely easy to connect and operate. If your printer has a parallel interface all you need to purchase is a Parallel Printer Attachment (Catalog #79006) and a cable (#22510-1 or -2). Simply connect the Parallel Printer Attachment to the side of the PCjr then attach the printer with the cable.

## How to Connect Serial Printers

Serial ports, on the other hand, are more versatile than parallel ports—and therefore present more of a challenge for PCjr users to get working with a printer, unless, of course the printer was designed specifically for the PCjr as is the case with our NEC Elf 370 printers.

The first thing you'll need when you connect a serial printer to your PCjr is a cable. Be aware: PCjr serial cables sold by IBM and PC Enterprises will make the

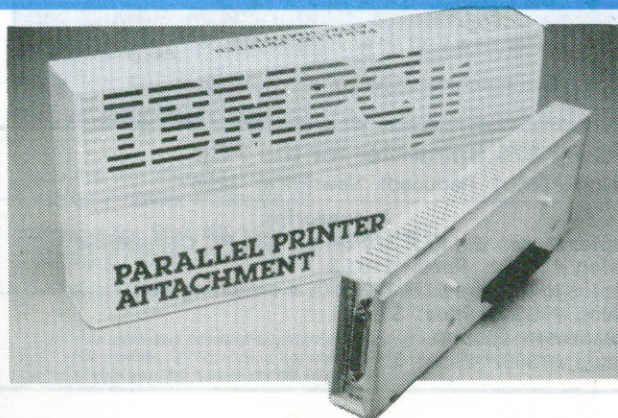
PCjr's "S" port "look" exactly like the serial port used by an IBM PC. This means the cable has the correct pin assignments for modems and mice, which is not the same as what's needed for most printers.

The easiest way to properly connect the printer is to ask the printer's manufacturer what you need to connect his printer to an IBM PC. If the printer can be connected to an IBM PC serial port with a standard 25 position cable, then you can connect our PCjr serial cable directly to your printer. However, if the printer requires a special cable, you'll either need to purchase that cable, or to make your own pinout adapter. In many cases our Null Modem/Printer Adapter (catalog #75510) will do the trick all by itself, or it can easily be modified to do exactly what you need. However, there is no one industry standard, so what you need will depend upon your printer.

Once the printer is properly connected you must next set up the communication parameters. To do this you need to know which COM port your printer will be using. The PCjr's "S" connector is known to BIOS, DOS, and BASIC as COM1 if you do not have an internal modem, Comswap board, or RIM Sasitalk hard disk interface card plugged into your internal modem slot. If you do have any of these devices, the PCjr's "S" port becomes COM2.

Next, you must use option 3 of the Mode command to initialize the COM port. Initialize means set the baud rate, parity, number of databits and stop bits, and tell the computer to continuously retry when timeout errors occur. Your PCjr can do almost anything your printer will need, so refer to your printer manual to determine what is required, then refer to your DOS manual to determine how to use option 3 of the Mode command.

You should also know that DOS has the ability to redirect output intended for a parallel printer to a serial port. This is a nice feature because it lets you use your serial printer with programs designed to work with parallel printers—without modifying your program. Option 4 of the Mode command is used for this purpose. Refer to your DOS manual for details.



## IBM Parallel Printer Attachments (New)

This is the genuine IBM brand Parallel Printer Attachment. It plugs into the side of the PCjr like any other PCjr sidecar, and allows you to attach an industry standard parallel printer as LPT1.

Catalog #79006 Price: \$89.95

## Reconditioned Printer Attachments

New for 1991. Reconditioned IBM printer attachments are now also available. These products are enhanced by PC Enterprises to work as LPT1 or LPT2.

Catalog #78737 Price: \$89.95

# Here's A Letter Quality Printer that Plugs Directly into the PCjr without any other Adapters, Attachments, or Cables!

If you thought you couldn't afford professional-looking letter quality printing, take another look now. PC Enterprises has slashed the price of this printer by \$100.00! This great NEC printer is suitable for business and home applications and originally sold for \$395 in our catalog.

Now you can get a good, reliable letter quality printer at a reasonable price. And because the Spinwriter Elf 370 is designed specifically for the PCjr it works without any other adapters or cables.

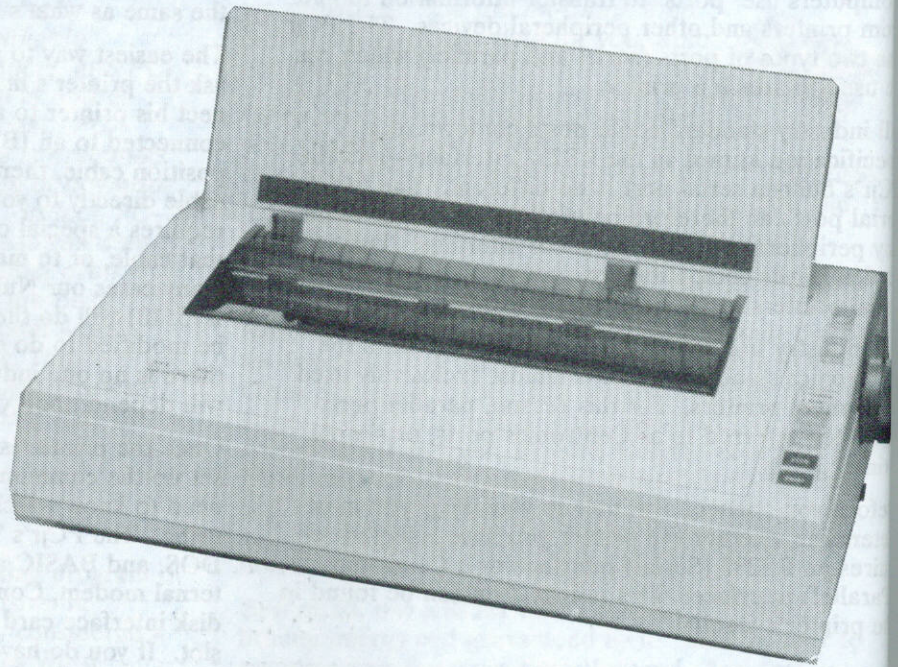
The NEC Elf 370 is easy to connect because its designed specifically to operate with a PCjr. Just plug it into jr's serial port and away you go! The Elf 370 is an ideal first printer but it's more frequently purchased and used as a second printer by PCjr owners who already have a dot matrix printer and would like to also be able to produce documents which look exactly like they were typed on a real typewriter.

## Great Spinwriter Performance

The Spinwriter Elf 370 prints up to 190 words per minute, is unusually quiet, and features a user friendly operator control panel. It comes with a standard sheet guide, a single lever paper control, and an auto load feature that lets you feed and position paper automatically when using the sheet guide. In addition, the Elf gives you 10, 12, 15 and proportional spacing pitches, plus underscoring, bold and shadow print for variety and flexibility of format. And the Elf's bi-directional print capability ensures fast, smooth printing.

## Software Compatible, Too

The Elf 370 will work with just about any software package you run because it uses the popular NEC 3550 command set. And just in case you find an application which doesn't support the NEC commands, you can flip a switch and the Elf 370 supports the IBM command set instead!



**Quiet, compact, affordable, and easy to operate...**

- True letter quality printing
- Plugs into the PCjr "S" port without any additional cables or adapters
- Print Speed: 16 - 19 characters per second
- Print Buffer: 1024 bytes
- Extra Wide Carriage (11 inches)
  - 10 pitch - 110 columns
  - 12 pitch - 132 columns
  - 15 pitch - 165 columns
- Dimensions: 5.8" x 19.3" x 13"
- Ideal as a first or second printer
- Manufacturers warranty

## NEC Elf 370 Spinwriter for the PCjr

Catalog #78601 Reduced! New Price: \$295

### Accessories

Adapter to use the ELF 370 on an IBM PC Compatible  
Catalog #15504 Price: \$19.95

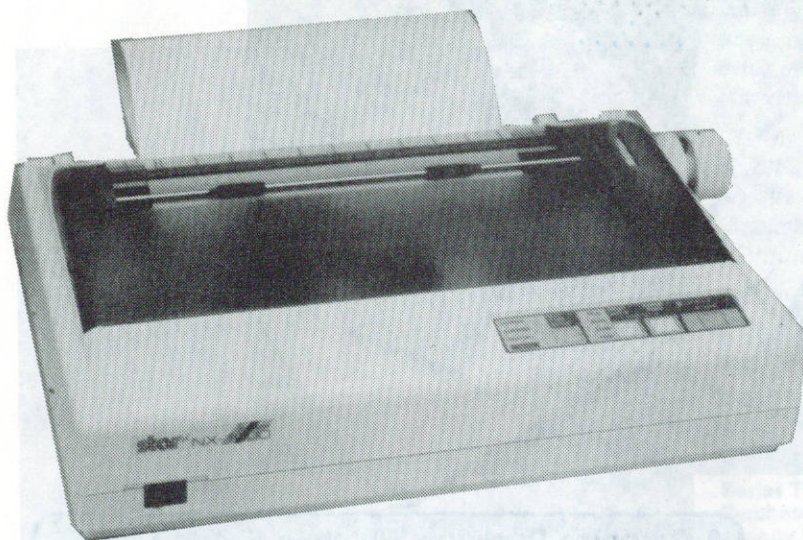
Adapter to use the ELF 370 with a switching box  
Catalog #15503 Price: \$19.95

Replacement Ribbon  
Catalog #78607 Price: \$9.95

Sorry, Next Day and Second Day Shipping is not available for printers. If you select the Priority Service option on our order form, we will still expedite your order in our facility, but the printer will ship regular UPS ground service.



# Our Most Popular Dot Matrix Printers— the Star NX-1000 NL



- Draft mode—150 characters per second
- Near-Letter-Quality mode—38 characters per second
- Graphics Capability
- Proportional Printing in All Fonts
- Convenient Push Button Control Panel
- Paper Parking Mechanism
- Tractor and Friction Feeds
- IBM and Epson Compatible (Switchable)
- Full Year Manufacturer Warranty

## Near Letter Quality Printing with Superior Quality, Speed and Ease-of-Operation

The Star NX-1000 printers are compact and easy-to-use. Both models come with a full complement of features making either an excellent choice for PCjr users who do not desire "typewriter quality" printing.

Select the Multi-Font NX-1000NL printer if you want a standard one color printer or the NX-1000NL Rainbow to print in seven beautiful colors. Examine the features. We think you'll understand why STAR Micronics printers are the only dot matrix impact printers we have ever sold for the PCjr.

The most important feature is compatibility. While most other printers are either IBM or Epson compatible, the Star NX1000 printers are both. This means you'll be able to print almost anything your computer can generate, both text and graphics.

### Star Multi-Font NX-1000NL Printer

Catalog #78603 Price: \$209

### Star NX-1000NL Rainbow Printer

Catalog #78605 Price: \$269

#### Accessories

#### Ribbons for Star NX-1000NL

Catalog #78606 Price: \$5.95

#### Ribbons for Star NX-1000NL Rainbow

Catalog #78608 Price: \$9.95

Printer manufacturers occasionally discontinue printers and replace them with newer and better models. If this should happen with either of these printers, PCE will automatically ship you the newest model whenever possible.

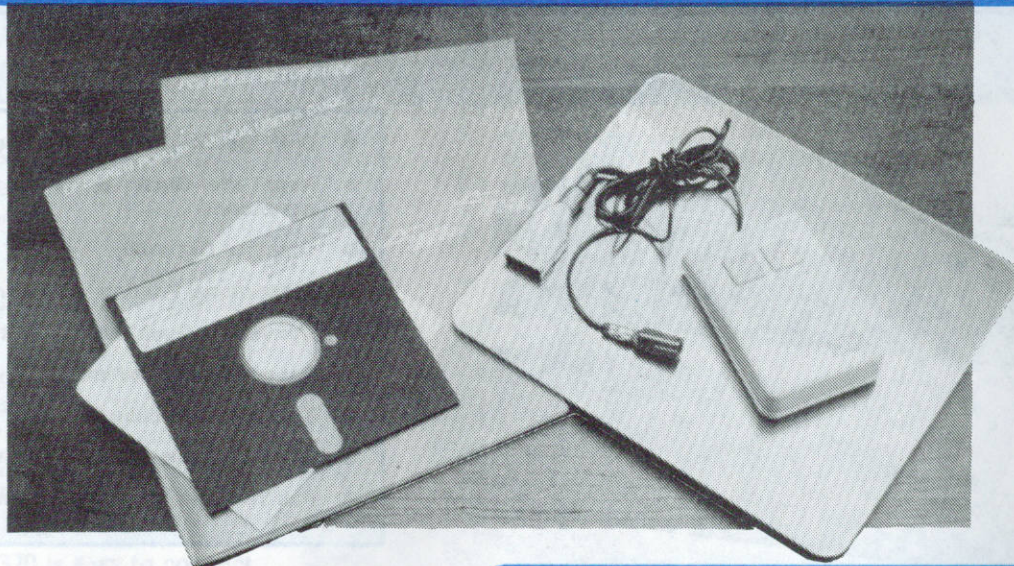
Just as important is ease of operation. Just connect the printer to your PCjr Parallel Printer Attachment (available separately), and you're ready to start printing without a lot of fuss. The printers have clearly understandable switches and lamp displays which operate in combination to perform a surprising variety of functions, including margin setting and micro-alignment.

Single sheets, fanfold forms, and multi-copy forms are all accepted and you can use either tractor or friction feed. A special feature enables you to keep fanfold forms parked in readiness while printing on other paper. The printers have one draft style and four Near-Letter Quality styles (Courier, Sanserif, and Orator with small capitals or lower case, plus italics for all styles, condensed print, bold print, double-sized print, and quadruple-sized print. Also Emphasized, Double-strike, Underlining, Overlining, Superscript, Subscript, and download characters.)

To connect either of these printers you'll also need a PCjr Parallel Printer Attachment, Catalog #79006, and a Parallel Printer Cable Catalog #22510-1 (6 Foot) or #22510-3 (10 Foot).

Sorry, Next Day and Second Day Shipping is not available for printers. If you select the Priority Service option on our order form, we will still expedite your order in our facility, but the printer will ship regular UPS ground service.

# PCjr Mouse and PC Paint Plus



A mouse is a hand held pointing device which makes even the most complex software package fun to run. Click a button and a menu appears on the screen. Now move the mouse until the arrow on the screen points at the command you wish to select. Finally, click the button again... and your wish is your command. All without taking your eyes off the screen!

Included with the mouse is a disk full of software. Mouse drivers are supplied for programs designed to work with a mouse. Pre-designed mouse menus are included for a long list of popular programs which were not designed to work with a mouse. And still another program lets you create and design your own mouse menus...for just about any software package you want. It even comes with a popular mouse game so you'll be able to start using your mouse right away.

But much more important compatibility problems are rare indeed because the Mouse System's mouse is a standard in the industry. And because it's an optical mouse there are no moving parts to wear out. And no balls to keep clean.

## A Graphics Package Which is Fun to Use

In just a few short minutes PC Paint Plus will turn your PCjr into a powerful graphics development tool. PC Paint Plus lets you draw pictures quickly and easily - and when used on a PCjr you can use up to 16 colors at the same time! Best of all, the program is easy to use because it works with a mouse.

Point at the pencil and click the mouse. Now draw a quick sketch just as if you were holding the pencil in your hand. Next, point at the spray can and spray on some color. Make a mistake? Point at the eraser and click again. It's fun and easy.

PC Paint Plus not only lets you draw pictures but lets you create signs, banners, and even load and edit graphs and pictures created with other programs. Such as Lotus 1-2-3. And PC Paint Plus supports a long long list of printers so you'll be able to integrate the graphs, charts and diagrams you create with text printed with your favorite word processing software. Three disk set.

### PC Paint Plus Program (Requires 384K)

Catalog #86012 Price: \$44.95

## PCjr Optical Mouse with PCjr Connectors

Select this mouse if you are not presently using the PCjr's serial port. Everything that you need is included. The mouse plugs into the PCjr's serial and light pen ports. These are the connectors in the rear of the PCjr marked with the letters "S" and "LP".

### Mouse Only

Catalog #75502 Price: \$99

### Mouse with PCjr Connectors & Paint Program

Catalog #75513 Price: \$139.95

## PCjr Optical Mouse with a Male DB25 Connector

Select this mouse if you are already using the "S" connector in the rear of the PCjr. This mouse uses a male 25 position D connector which can be plugged into a "serial" switching box such as catalog #75501. Also uses the light pen ("LP") connector.

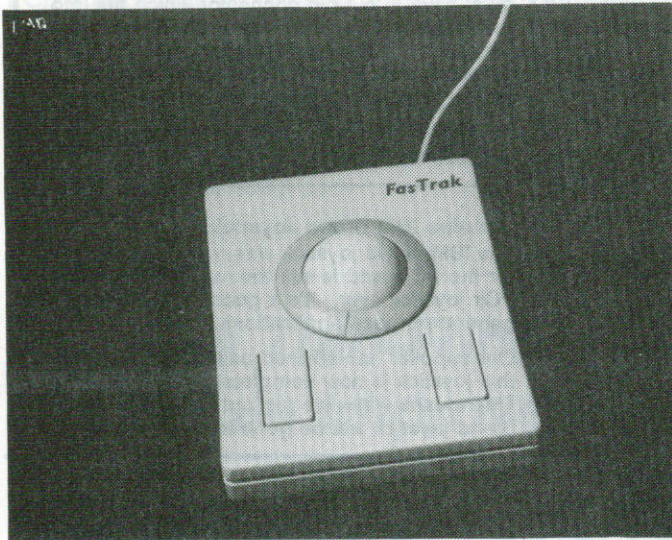
### Mouse Only

Catalog #15505 Price: \$109

### Mouse with DB25 Connectors & Paint Program

Catalog #75514 Price: \$149.95

# Tracker Balls and Light Pens



Our Serial Tracker Balls

*Tracker Balls are often thought of as stationary mice because Tracker Balls work with all programs designed to use a mouse—but Tracker Balls are often preferred to mice because they are stationary, and because they use less desk space.*

*The first time you rest your hand on our Tracker Ball you'll understand why it's become so popular. With its unique hand-fitting design and thumb-operated ball, the Tracker Ball offers more ease, comfort, and productivity than any other pointing device you've ever used.*

Two versions are available:

#### **Serial Tracker Ball with a PCjr Connector**

Purchase a Tracker Ball with a PCjr connector if you're not presently using the PCjr's S connector. This tracker ball comes with a 2x8 pin PCjr connector which can be plugged directly into the PCjr's "S" port.

Catalog #75519 Price: \$79.95

#### **Serial Tracker Ball with a Male D-type Connector**

Purchase a Tracker Ball that has a male D-type connector if you already have something plugged into your PCjr's S connector. You'll also need a Switching Box (#75501 or #75515) so you can select which serial device is connected to your computer, and a PCjr Serial Cable to connect the switching box to the PCjr "S" connector.

Catalog #75520 Price: \$79.95

- **Stainless Steel Body for Durability**
- **Comes Complete with Application Software Package**
- **Operates with all Light Pen Software**
- **Includes Game Software**
- **Mouse Emulation Software for Prodigy and other programs under development. Ask for details.**

## Light Pens



A light pen is a bridging device between man and machine. It permits people to operate computers without taking their eyes off the screen. Much more important, a light pen permits computer operation without hampering your thought process or your creativity.

When you use a light pen you point to what you want. The light pen therefore offers a natural form of communication. One hand operation offers precise computer control with less effort and greater efficiency.

As fast as you can point to what you want to do, it is done. The ease and speed with which you can use your computer will amaze you. The light pen is the nearest thing to your normal thought process and frees you to do something the computer can't do, create.

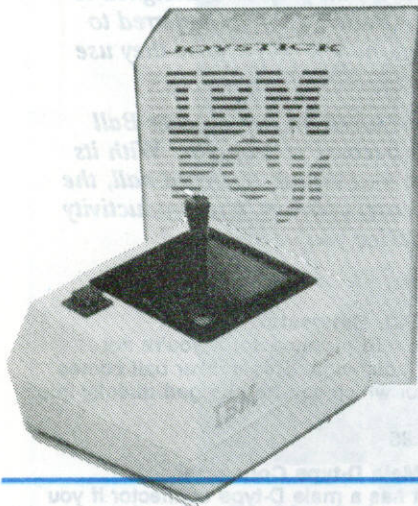
Light pens are especially popular with those who write their own programs because the light pen commands are easy to use and fun to program with. Use the light pen to select options from a menu instead of the keyboard.

Software is included so you can start using your light pen right away. Software is provided which permits you to create graphic presentations, play Solitaire, Reversi, Backgammon, or an educational game of World and United States Geography.

In addition to the programs supplied, the light pen will work with all other programs designed to work with a light pen. The Light Pen plugs into the LP connector on the rear of the PCjr.

**Catalog #75101 Price: \$189**

# The Right Joystick for Every Member of Your Family



- Lowest Cost
- Conventional Style
- Two Fire Buttons
- Spring Centering or Free Motion
- Designed for General Purpose Applications
- One Year Warranty with PC Enterprises

**IBM Brand PCjr Joystick**  
Catalog #74506 Price: \$29.95

**IBM Brand PCjr Joystick Package of Two**  
Catalog #10022 Price: \$54.95

The PCjr comes standard with two built in joystick ports. This means you can add joysticks to the PCjr without purchasing a "game card", or anything else. On the rear of the PCjr you'll find two connectors which are marked with the letter "J". This is where the joysticks attach.

To connect a joystick to the PCjr the joystick must have a 2x4 pin connector which fits into the PCjr's joystick port. Naturally, all of the joysticks on this page are provided with the proper connector for a PCjr.

Some programs only require one joystick while others, especially those which permit two players to compete, require two joysticks.

## Genuine IBM Brand Joysticks

The IBM brand joystick was made specifically for the PCjr, and is still the most widely used PCjr joystick ever. It's a good choice for general purpose applications.

Our supplier has advised us that his stock of this joystick is now completely exhausted. This means when we run out, the genuine IBM brand joystick will be gone forever.

## CH Products Mach III Joystick

- Precision Movement
- Superior Quality
- Conventional Style
- Three Fire Buttons
- Spring Centering or Free Motion
- Designed for General Purpose Applications
- One Year Warranty with PC Enterprises

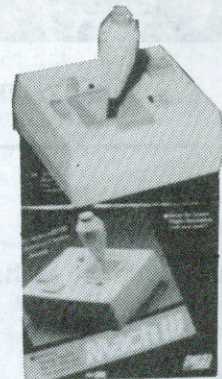
**Mach III Joystick for the PCjr**  
Catalog #74509 Price: \$49.95

**Mach III Joystick—Package of Two**  
Catalog #10039 Price: \$94.95

Here's a great joystick for kids of all ages who are serious about the software they run. If you demand accurate and precision movement when you use a joystick, the CH Products Mach III joystick is the right joystick for you.

CH Products has been long established as a leader in joystick technology. Their joysticks are not toys, but precise instruments which control cursor movement.

Each joystick has three fire buttons. Two buttons are located on the base. The third button is conveniently located at the top of the shaft.



## CH Products FlightStick

- Precision Movement
- Superior Quality
- Superior Operation with Flight Simulation Software
- Contour pistol grip looks and feels like a real flight stick
- Audio and tactile feedback fire buttons add to reality of flight simulation
- One Year Warranty with PC Enterprises

Note: All CH Products joysticks on this page are modified by PC Enterprises for PCjr compatibility. As a result, these joysticks are covered by PC Enterprises standard one year warranty, instead of CH Product's usual 90 day warranty.

While the CH Products FlightStick is the most superior joystick on the market for flight simulator software, it can also be used with other programs. It is especially well suited for computer aided design and other graphics applications where a pistol grip is preferred to conventional designs.

The FlightStick has been designed specifically to provide the ultimate in hand comfort and easy one hand access to the two buttons used in fast paced action games. The pistol grip handle design and prime button locations reduce fatigue and improve response time to more realistically simulate actual flying conditions, giving you the edge against the elements.

In addition to the usual two axes provided by other joysticks, the FlightStick has a third control which permits you to utilize the throttle control feature of most flight simulation software. The third axis control does exactly the same thing as the Y axis control of the B joystick.

**CH Products FlightStick for the PCjr**  
Catalog #74508 Price: \$79.95



# Sharper Characters for your Monitor!

PCjr users often complain that the display is difficult to read. Its true. Normal characters displayed by the PCjr often "fill-in" or "close-up" making them difficult to read.

The Thin-Font module is a low cost easy-to-install product which helps to minimize this problem. It replaces the PCjr's original character generator IC with a new module that lets you choose between two different character sets.

**The Thin-Font Module improves the apparent resolution of your PCjr monitor.**

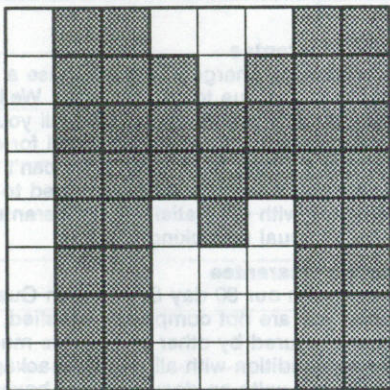
The first character set is very similar to the characters your computer displays now. These characters are two dots wide. Most people prefer these characters when running software in 40 column and reverse video modes.

We call the second character set the Thin-Font characters. These characters are only one-dot-wide. You'll probably wind up using these characters the majority of the time.

Once installed, your computer automatically selects the Thin-Font characters. If for any reason you ever want to switch back to the bolder character set you can do so with a simple keyboard command.

Installation can be accomplished in just a few minutes provided your computer's character generator IC is already in a socket. Simply unplug the existing character generator IC and replace it with the Thin-Font module. Next, attach an E-Z clip to an easy to get at location.

While most PCjrs already have their character generator IC plugged into a socket a few do not. If your character generator IC is not already in a socket we will be happy to install our Thin-Font Module for you (\$25 charge). The character generator IC is the 24 pin IC directly behind the round hole in the front of the PCjr. It can be found underneath the computer's IR receiver.

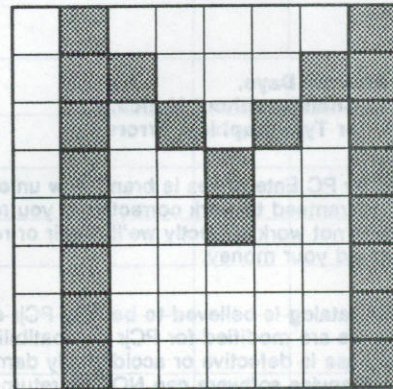


**Normal Character Set**

Normal PCjr characters are two dots wide. While two-dot-wide characters are sharp and distinct in 40 column modes they tend to "fill-in" or "close up" in 80 column modes. And when two wide characters are displayed side by side the characters tend to blur together.

## Thin-Font Module

**Magnified view of the actual dot pattern used by the letter M**



**Thin-Font Character Set**

The Thin-Font module adds a much thinner character set to the PCjr. The new characters are one dot wide and therefore have more distinctive shapes. And because they are thinner they will not "fill-in", "close up", or "blur together" as easily as two-dot-wide characters.

**Catalog #1809 Price: \$19.95**

# TERMS AND CONDITIONS OF SALE

## ORDERING INFORMATION

Order Line: (800) 922-PCjr—8:00AM to 5:30PM EST  
Customer Service: (908) 280-0025—9:00AM to 4:30PM EST

### How to Place an Order

If you have a Visa or MasterCard call either our toll free order line (800) 922-PCJR or our main number (908) 280-0025 and place your order by phone. Or, if you prefer, you can mail us your order along with a check or money order. Purchase Orders must include a check. Sorry no COD purchases.

### How Long Should It Take?

Orders paid for with Visa, MasterCard, certified check or a money order drawn on a US bank are normally processed the day received. Personal and business checks are held for 14 days. After your order is processed it is sent to our shipping department. Everything ordered which is in stock is shipped immediately. If one or more items ordered are temporarily out of stock, the back ordered items will ship separately at our expense.

### Checking on an Order

If an order you place is overdue and you would like to check on the order, feel free to call our toll free order line to ask whether the item you're waiting for is on back order. The Order Entry Department cannot look-up your specific order, but they can tell you whether an item you're waiting for is on back order. If you prefer to talk to someone who can check on your specific order, or to change an order previously placed, you'll need to call our Customer Service Department. Customer Service is absolutely the only department that has access to this information.

### Problems

If you need help installing or using one of our products, or you have any other problem and need to speak to anyone other than an Order Entry person, call our Customer Service Department. Our Customer Service representatives can get you an answer to your question or arrange for the return of an item. Please do not call on our order line if you have a problem. The people who answer these lines are order takers only, and therefore are not knowledgeable in the use of our products, and do not know how to check up on orders.

## SHIPPING AND HANDLING

### Regular Service—\$5.00

Regular Service still only costs \$5 per order, regardless of the number of items ordered. This charge includes the cost of labor, the shipping carton, packaging materials, insurance, and the actual shipping cost via UPS Ground Service. (UPS Ground service can take up to ten days). Regular Service is not available to Alaska, Hawaii, Canada, Puerto Rico, Post Office Boxes, APOs, FPOs, or any other location which UPS does not offer ground service. If you want us to ship to any of these locations you must pay for one of the special services listed in this section.

### Special Service—Priority

If you want us to give your order special attention you can pay a \$7.50 premium and select Priority Service. When you select Priority Service we'll put a rush on your order. If any item you order is on back order we'll add your name to the top of the waiting list and also ship everything that is in stock immediately.

While we can't make any promises, in most cases you'll receive your package within three business days. Your order will ship UPS Blue Label (second day service). If UPS does not offer second day service to your address, or if you did not give us a street address, your order will be shipped via First Class Priority mail. To select "Special Service—Priority" enter \$7.50 in the Special Services section of our order form. (Total S&H charge: \$12.50).

### Special Service—Top Priority

If you want us to "drop everything and process your order" you may select Top Priority Service. In this case we'll do our best to get your order to you the next business day (UPS "Red Label" or equivalent), provided everything is in stock. To select "Special Service—Top Priority" enter \$22.50 in the Special Services section of our order form. (Total S&H charge: \$27.50).

### Shipping Services and Other Locations

We will ship to other locations or use any other shipping service that you request if you pay the actual shipping cost plus a \$10 service fee. In this case, pay by credit card and tell us how you want your order shipped. We will add the appropriate charges to your bill. The \$10 service fee is applied to cover the cost of shipping materials and labor.

## POLICIES

**All Sales Final After 30 Days.**  
**Prices Subject to Change without Notice.**  
**Not Responsible for Typographical Errors**

### Hardware Policy

All hardware sold by PC Enterprises is brand new unless otherwise stated and guaranteed to work correctly. If you receive a product which does not work correctly we'll repair or replace the product or refund your money.

### Software Policy

All software in our catalog is believed to be fully PCjr compatible (certain items are modified for PCjr compatibility). If software you purchase is defective or accidentally damaged we'll replace it—otherwise software can NOT be returned once opened. The only exception is when we goofed and the program does not run correctly on a PCjr. If this happens, we'll either fix the problem or refund your money.

### Returns Policy

If you need to return an item for repair or refund call our Customer Service Department to receive a Return Authorization (RA) number. Write this number on the outside of the package. You pay shipping charges to us and we pay the shipping back to you. Items returned without a valid RA number will be refused. If you paid by credit card and request a refund we will credit your account. If you paid by check and request a refund we will send you a check payable in US dollars. Requests for refund must be accompanied by proof of purchase and be in accordance with one of the policies listed in this section. Sorry, but we can not refund shipping and handling charges.

### Our Compatibility Guarantee

There's never a restocking charge if you purchase a product that you are unable to use due to compatibility. We'll do our best to solve compatibility problems for you. All you need to do is describe the problem with adequate detail for our staff to reproduce the problem in our laboratory. If we can't solve the problem in a reasonable time, you'll be permitted to return the product in accordance with our Satisfaction Guarantee, and, of course we'll waive all usual restocking charges.

### 30 Day Satisfaction Guarantee

All hardware is sold with our 30 day Satisfaction Guarantee. Try it. If for any reason you are not completely satisfied, we'll take it back. Items manufactured by other companies must be returned in like-new condition with all original packaging and documentation. (Do not write on documents or boxes). We will refund the purchase price of the item(s) less a 15% restocking charge if in our opinion the item must be retested before it can be resold. Shipping and handling charges are not refundable.

### Our Full Year Warranty

All services performed and products manufactured with the PC Enterprises label are warranted for one full year (90 days for reconditioned products). Details available upon request. Items manufactured by IBM which were sold by PC Enterprises are also covered by our same full year warranty, as are items manufactured by other companies which are modified for PCjr compatibility by PCE (these items will be clearly indicated in our catalog and on their packaging). Items manufactured by other companies (except those modified by PCE) can only be returned to PC Enterprises for service or replacement during the first two weeks. After two weeks the manufacturer's warranty is in effect.



"The jrProducts Group"

PC Enterprises, PO Box 292, Belmar NJ 07719

Order Desk: (800) 922-PCJR 8AM to 5:30PM EST

Customer Service: (908) 280-0025 9AM to 4:30PM EST

PC Enterprises started manufacturing products for the PCjr in 1984. Today, as always we remain dedicated exclusively to support and service of the PCjr and have no plans for things to change. This year we've lowered many prices and now ask for your help so we can continue to do so. Please do your best to complete the section below. Thank You.

How long have you owned your PCjr?

- Less than 6 months
6-23 months
Years

How long have you known about PCE?

- Less than 6 months
6-23 months
Years

How did you first find out about PCE?

- IBM
Racore
Word of Mouth
Magazine Ad (indicate which)
Don't Remember
Other

How to Place an Order

Please review the page titled, "Terms and Conditions of Sale" and select the type of service you prefer. Next, if our terms are acceptable, complete this order form and mail it to the above address...

Home Address of the Person Placing the Order

Name
Address
City State Zip
Day Phone (include area code)
Night Phone (include area code)

Shipping Address (if different from above)

Name
Address
City State Zip
Check Enclosed #
Money Order Enclosed
Credit Card Customers
Name as printed on card
Credit Card #
Expiration Date Signature

Table with 5 columns: Catalog Number, Quantity, Item Description, Unit Price, Total Price. Multiple empty rows for item entry.

Got a Friend?

Do you know someone else who owns a PCjr? If so, we'd like to send them a free catalog. And if they're not already on our mailing list we might just send you a discount coupon for future orders!

Name
Address
City State Zip

- Please Check One:
Regular Service
Special Service - Priority (\$7.50)
Special Service - Top Priority (\$22.50)

Amount of Order
Other Credits
Subtotal
NJ Residents 7% Tax
Shipping & Handling \$5 00
Special Service
Total

# How to Run Tandy Software on the PCjr

While all PCjrs come standard with the ability to display 16-color graphics and to produce 3-voice sound you'll never utilize these capabilities unless you run programs which are designed to work with the PCjr's hardware.

While almost all programs designed to run in PCjr, EGA, or Tandy modes produce 16-color graphics, programs designed to run with CGA can never display graphics that use more than four colors.

The software publishers decide which modes their programs will support. Most always release a 4-color CGA version. In addition, their programs may also support any or all of the popular 16-color modes (PCjr, EGA, and Tandy). You can determine which modes are supported by examining the software package.

CGA modes always produce primitive looking graphics which are not very exciting. Understandably so. Asking a software publisher to design detailed screen graphics which work with CGA is like giving the publisher a sheet of paper and only three crayons—and then asking them to draw you a picture! That's why you'll notice a night and day difference when you run programs which use 16-color modes. The software publisher now has 15 colors (plus background) available to design his program. As a result, programs which run in 16-color modes can produce more detailed screen graphics which are remarkably easier to understand.

Unfortunately, though, unless the software publisher chooses to support the PCjr's 16-color mode, PCjr users often need to settle for CGA graphics. That's why PCjr users should all be supportive of software publishers such as Sierra On-Line, who have continued to support the PCjr's unique 16-color mode. When you buy one of their programs it runs on the PCjr with 16-color graphics and 3-voice sound, without doing anything special.

But, while few software publishers have continued to support the PCjr's unique hardware, almost all publishers do support Tandy graphics and sound—and with a little know how, PCjr users can get most Tandy programs to run on their PCjr. Tandy programs that produce EGA-like graphics with not 3, but 4-voice sound! If you'd like to know how to run these programs, just keep reading.

PC Enterprises offers a service in which we make modifications to PCjr system boards for increased Tandy compatibility. What's important to realize, however, is that while these modifications greatly increase the number of Tandy programs that run on a PCjr—the Tandy modifications are not always required. Some Tandy programs will run on a PCjr without any modifications. The only way you can tell whether a Tandy program will run on your PCjr is to try it.

Before you attempt to run any Tandy 16-color program, you must first use your existing PCjr Memory Management Software to set up a 32K video buffer. If the program you use to recognize your PCjr's memory is called JRCONFIG.NRD use the -T3 -V32 options to set up an 80 column display and a 32K video buffer. (When you try to get a Tandy program to run I strongly recommend that you use the .NRD program, not .DSK, and that you do not use any other options of the JRCONFIG program).

It's also important that you do not have any other lines in your CONFIG.SYS file and that you do not have an AUTOEXEC.BAT file on your boot disk.

If you prefer to use the .DSK program, or any other JRCONFIG options, or if you wish to have other entries in your CONFIG.SYS or AUTOEXEC.BAT file that's fine, but it's important that you don't do so until you first determine whether you can get the Tandy program to run on your PCjr.

The -T3 -V32 options of JRCONFIG gives you the greatest degree of compatibility, but they also waste 64K of memory. If you run out of memory, you can try using the -S0 option, however, doing so will sacrifice system performance and also Tandy compatibility.

If the program you use to recognize your additional memory is called PCJRMEM.COM, JRVIDMA.SYS, JRVIDMA2.SYS, JRVBUFFDD.SYS, or JRVIDEO.SYS, try using the /C option first, and if that doesn't work try the /E option instead.

After you set up your PCjr to use a 32K video buffer (don't forget to re-boot first) you are ready to run your first Tandy program. Be sure to select a program that runs on the Tandy in 16 colors. Look for programs which boast 16-color Tandy support right on the box.

The first thing to do is determine how to make the program run in Tandy mode instead of CGA mode. Some programs come with a totally separate version for Tandy. For example the program known as PAPERBOY has been sold with three separate versions all on the same disk. (PAPERCGA, PAPERCGT, and PAPEREGA). In this case just type PAPERCGA to run the CGA version and PAPERCGT to run the Tandy version.

Another technique often used by software publishers is to provide an install or setup utility which must be run before running the application program. Look for a program named INSTALL or SETUP on the application program diskette and run this program. If the program asks what type of computer or graphics adapter you're using tell it Tandy 1000 or TGA.



A similar technique is for the application program to display a menu when it is first run. Once again, select Tandy 1000 or TGA. Certain versions of "California Games" fit into this category. If you tell the program you're using a Tandy 1000 it runs in 16 colors — even if you have not had the Tandy modifications installed on your system board.

Other programs use a parameter on the DOS command line when you first start the program. Often the parameter is the letter T or perhaps the word Tandy or the letters TGA. For example, you may need to enter the name of the program followed by a space, then /T or /TANDY or /TGA. The proper letters to type can be found in the program's manual.

Regardless of which of the above techniques the software publisher has used, you should not have any trouble getting the Tandy version to start on your PCjr. However, there's still another technique which often causes problems for PCjr owners. Some software companies try to figure out the type of computer that you're using without asking. These programs might check the computer's "System Identification Byte", test for Tandy specific hardware, or search the computer's BIOS for the Tandy copyright notice.

While these "Auto-Sensing" programs are at times the simplest to run in 16 colors on the PCjr, they are more often the most difficult. The Dark Heart of Ukarall, for example, tries to detect the type of computer you're using, detects (in error) that its running on a Tandy, and goes directly into the Tandy mode.

This is great if your PCjr has already had the Tandy modifications installed, however, if you don't have the Tandy Mods, the program looks like you're veiwing it through venetian blinds. Other programs which attempt to automatically sense the type of computer being used correctly determine that the PCjr is not a Tandy and therefore default to 4-color CGA graphics. Yick! To get these programs to run in Tandy mode you can sometimes defeat the auto-sensing "fea-

ture" by adding a parameter to the command line (similar to the situation described above). The difference is that with auto-sensing programs the software publisher intended to use the optional parameter for test purposes only, and therefore doesn't mention it in the manual. Experiment! Try using /T, /TGA, /Tandy, or anything else you think might work even though the manual makes no mention of any such command. If all else fails, place a call to the software publisher.

The first thing to ask when you call a software publisher is whether the program runs in 16 colors on a Tandy. This is important because many publishers list Tandy on the package even though their program only runs on a Tandy in 4-color CGA mode. So, unless the box states Tandy 16-color mode, you'll have to ask!

If a program runs on the Tandy in 16 colors but it only runs on a PCjr in four colors it means your PCjr is running the CGA version. Tell the software publisher that you're using a Tandy compatible (not a true Tandy). Ask how to force the program to run in Tandy mode. Sometimes this takes a lot of persistence.

For example, I tried to run "Where in Time is Carmen SanDiego" in the 16-color Tandy mode. I typed CARMEN TANDY to start the program and received a "Graphics Adapter Not Available" message. After making six long distance phone calls to Broderbund (the publisher) and speaking to three different people, someone at Broderbund told me to try TANDY!. So I typed CARMEN TANDY! to start the program and the exclamation point did the trick!

If you succeed in getting the Tandy version of a program to start on your PCjr, but the program doesn't run correctly, you may not see anything at all on the screen, or what you do see may or may not resemble the program. If this happens you can go back to your CONFIG.SYS file and try using different video buffer parameters (If the Memory Management program you are using is JRCONFIG).

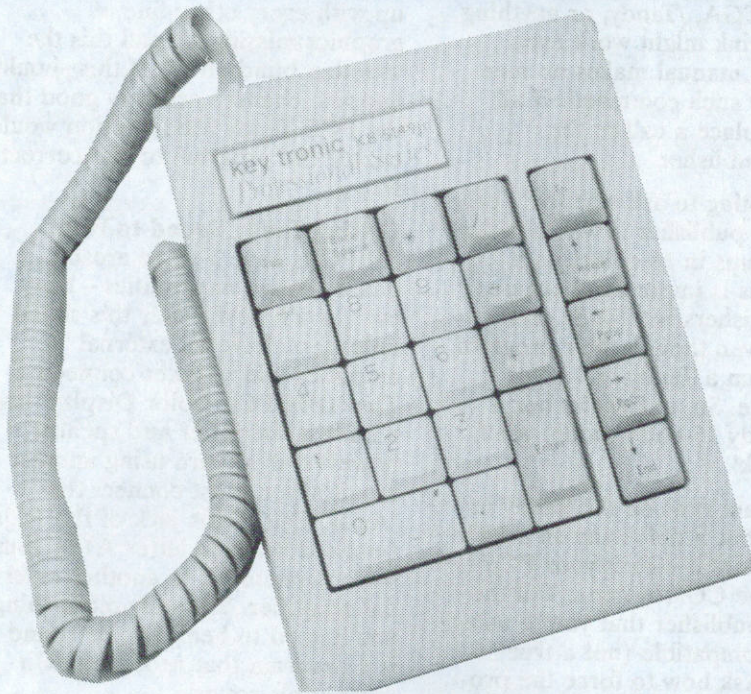
Try using the -V32 switch with the -S0, -S32, and -S64 options. You might also try substituting -V64 or -V96 for -V32. (The -V switch allocates a larger video buffer and the -S switch moves the video buffer to different areas of low memory). If you try to run a Tandy program on your PCjr and the program comes up with every other line of graphics missing we call this the venetian blind effect. If this should happen, chances are very good that the PCE Tandy Modification would enable the program to run correctly.

#### Getting Tandy Sound to Work

All PCjrs have 3-voice arcade quality sound capabilities — however, you'll never hear this sound unless you have an external amplifier and speaker connected. The "IBM PCjr Color Display" has a built in amplifier and speaker, however, if you are using another monitor you must connect the "Audio Out" RCA jack of the PCjr (marked with the letter A) to your stereo system, or to another external amplifier. The only other thing you'll need to hear 3-voice sound is a program that produces PCjr compatible sound.

The Tandy computer also comes with arcade quality sound capabilities, however, while Tandy designers made sure the Tandy would be PCjr compatible, they also made improvements which give the Tandy 4-voice sound. As a result, the PCjr is not 100% compatible with Tandy sound, although it's close enough for many Tandy programs to produce 3-voice sound on the PCjr. If you run a Tandy program and find it only produces 1-voice (beeper) sound, try running the TSound utility program (found on our PCjr Utilities Diskette) before you run the Tandy program. This utility opens and initializes the sound channel — however it will not give your PCjr 4-voice sound. To hear 4-voice sound, and to allow Tandy programs to properly open the sound channel on their own, you'll need the Tandy Sound Modification which is now part of our Five System Board Modifications (featured elsewhere in our catalog).

# Why Buy a New Keyboard when all you Really Need is a Calculator Style Numeric Keypad with Separate Cursor Movement Keys?



## 23 Keys!

- 10 Number Keys
- . + - \* and / Keys
- Four Arrow Keys
- Tab, Backspace, Fn, and Enter Keys

## Now compatible with the Racore PC Keyboard Adapter

Have you ever wished your keyboard had a separate calculator style numeric keypad as well as separate cursor movement keys? If so, one of these keypads may be the answer to your wishes.

Two models are available. The KB 5149jr keypad is made by Key-tronics. Select this keypad if you are presently using either the Chicklet or Replacement style PCjr keyboard.

The second model is called the PCE 5149jr. This is a Key-tronics keypad which has been enhanced by PC Enterprises so that it can also be used with the Racore PC Keyboard Adapter. Purchase this keypad if you are presently using the Racore PC Keyboard Adapter with a PC keyboard that does not have separate cursor movement keys.

Both keypads are extremely popular with those who use spreadsheet software—because they let you move the cursor and use the calculator style numeric keypad, without ever pressing the Num Lock key!

The special PCE version was introduced in response to popular demand from PCjr owners who already have the Racore PC Keyboard Adapter and a PC-XT style keyboard. PC and XT style keyboards do not have separate cursor movement keys. That means, to use its numeric keypad you must first press the Num Lock key.

Then you could use the number keys, but before you use the cursor movement keys again you must press the Num Lock key, again. With the PCE 5149jr plugged into your Racore Keyboard Adapter you'll have a separate keypad and separate cursor movement keys, so you never need to press the Num Lock key again!

To connect the standard KB5149jr to your PCjr use your existing IBM or PC Enterprises keyboard cable (not included and not shown in photo). Then connect the keypad to your original PCjr or fully compatible keyboard with the coiled cable provided.

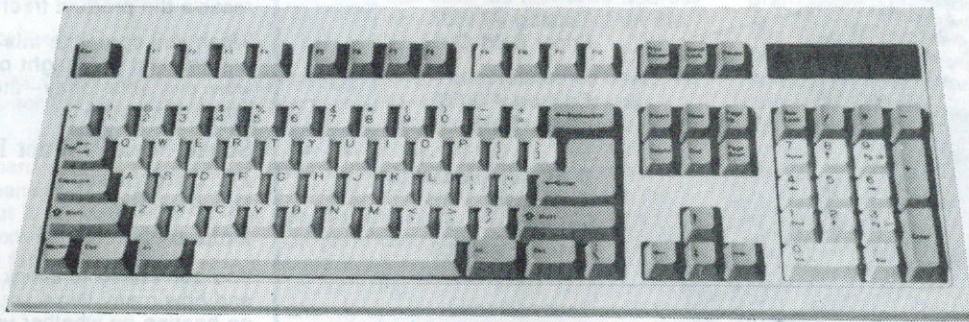
To connect the special PCE version to the Racore PC Keyboard Adapter, use the coiled cable provided to plug the keypad into the telephone style jack on your existing Racore Keyboard Adapter.

Both keypads work with the original equipment IBM PCjr keyboard. Or with any other fully compatible PCjr keyboard including the PC Enterprises XT keyboard and the Cherry 5150 style keyboard.

**Numeric Keypad—Standard version (KB 5149jr)**  
Catalog #71511 Price: \$19.95

**Numeric Keypad—Special PCE version (PCE 5149jr)**  
Catalog #71515 Price: \$29.95

# PC Enterprises 101 Enhanced Keyboard for the 600,000 PCjr Users Other Companies Ignore!



While many PCjr users are very satisfied with the smaller 62-key keyboard that came with the PCjr there are times that everyone agrees, a full size keyboard is much more convenient.

The PC Enterprises 101 Enhanced Keyboard makes your PCjr much easier to use. With its positive tactile feel, extra large shift and return keys, and indicator lights for NumLock, Caps Lock, and Scroll Lock our 101 Enhanced Keyboard is perhaps the most convenient keyboard ever designed.

It has twelve dedicated function keys, so that when your software says to "Press F10 to continue" you just press the F10 key. With the original PCjr keyboard you're supposed to press the Fn key first then press the 0 key. And try doing that three times fast!

You'll also find the calculator style numeric keypad as easy to enter data with as a pencil; and just in case you make a mistake the separate cursor movement keys act as your eraser.

Best of all, when you use our 101 Enhanced Keyboard your PCjr becomes even more PC compatible and therefore can run even more PC programs. That's because bugs in the PCjr's 62-key translation routine prevents the computer from recognizing certain keyboard operations when you use the PCjr's original keyboard. Our keyboard totally solves this problem.

The PC Enterprises 101 Enhanced Keyboard comes with its own coiled keyboard cable. The cable plugs into the 2x3 pin K connector found on the rear of the PCjr. Select our 101 key keyboard and we think you'll agree, thirty-nine extra keys can make a world of difference!

**Catalog #71518 Price: \$139.95**

- 101 Keys
- 100% Scan Code Compatible with PC Keyboards
- 12 Function Keys Across the Top
- Dedicated Numeric Keypad with Large Enter Key
- Dedicated Cursor Movement Keys
- NumLock, CapsLock and Scroll Lock Indicator Lights
- Dedicated Keys for Print Screen, Scroll Lock and Pause
- Dedicated Page Up, Page Down, Home, and End Keys
- Isolated Escape Key
- Positive Tactile Feel
- Extra Large Shift and Return Keys
- Two Control and Alternate Keys for Ambidextrous Access
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

## Conversion Kit for PC-XT

Our 101 Enhanced Keyboard can be converted so it works with an IBM PC-XT or compatible. Purchase this kit if you sell your PCjr and decide to use this keyboard with another computer.

**Catalog #10036 Price: \$14.95**

# Other PCjr Keyboards and Accessories

## PCjr Wireless Keyboards

Very popular with people who use TV Game Show Software. Allows each player to compete using their own keyboard.



### A PCjr Chicklet Style Keyboard

New –  
Catalog #71507  
Price: **Sold Out**

Reconditioned –  
Catalog #78726  
Price: \$15

### B PCjr Replacement Keyboard

New –  
Catalog #71508  
Price: \$49.95

Reconditioned –  
Catalog #78717  
Price: \$25

These are the actual PCjr wireless keyboards originally sold and marketed with the IBM label. IBM called them "Freeboards" because they work without any wires—but we think you'll simply call them a bargain. Because at these low prices they can't be beat!

Kids, both young and old, often prefer wireless keyboards when they are playing games which permit more than one player to compete, because each player gets to use their own keyboard. And we think you'll prefer to let the kids bang on their very own keyboard instead of yours!

And if you run serious software it's a good idea to keep a spare keyboard around—just in case your usual keyboard stops working. If this happens while you're running a program, you'll still be able to use your spare keyboard to save your data. (Just think of what that could be worth!)

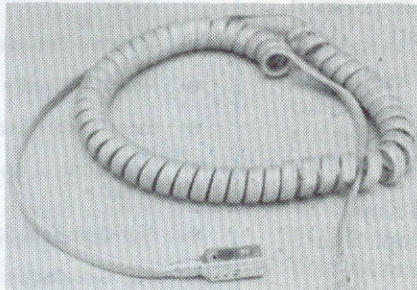
## Keyboard Cables for PCjr Keyboards

**Straight**



Catalog #22502-1 Price: \$18.95

**Coiled**



Catalog #22501-1 Price: \$19.95

These keyboard cables permit you to use the PCjr wireless keyboard without batteries and without the keyboard facing the system unit. They also eliminate interference and beeping caused by bright lights and other PCjrs. Six feet long.

### IBM Brand PCjr Keyboard Cord

This is the original PCjr keyboard cable sold by IBM. Straight. Reconditioned. Limited supplies. Call before ordering.

Catalog #78724 Price: \$24.95

## Win A New Product!

Here's a partial list of PCjr products that we've already begun to develop. Complete this form to become a "beta test" customer! Each time we release a new product we'll have a drawing. Winners receive the product free!

When you complete this form check off any product you might purchase if it were available today—then send this form (or a copy) to:

### Sneak Peek Product Preview

PC Enterprises  
PO Box 292  
Belmar, NJ 07719

You don't need to check any item to win and how many items you do check has no bearing on whether you win. Please PRINT clearly.

- 386 Board
- Optical Scanner
- Video Capture Board
- FAX Card
- Ad-Lib Sound Card
- DMA Board
- PC Compatibility Board
- Cartridge Expansion Box
- MIDI Interface

Other \_\_\_\_\_

Other \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Phone ( ) \_\_\_\_\_

### Keyboard Overlays

Package of five overlays which fit the PCjr Chicklet Keyboard.

Catalog #71517 Price: \$2.95

*Remember! When you purchase your PCjr expansion products from PC Enterprises you'll be able to add what you want—when you want and you'll never need to worry about compatibility.*

# ComSwap Board

- Strongly recommended for all PCjr users who do not have an internal modem
- Permits the PCjr to work with more PC programs which access COM ports
- Makes your PCjr Serial Port 100% Address Compatible with COM2 on the IBM PC
- Easy to use—works without running software
- Easy to install—plugs into the internal modem slot
- Ends Com Port Mystery
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Our Full Year Warranty
- PC Enterprises Quality, Service, Compatibility, and Commitment to Continue Supporting the PCjr

The ComSwap Board may be the smallest and least expensive PCjr product that we make—but it can save PCjr owners that use external modems a lot of aggravation. In fact, if you do not have an internal modem installed, we strongly recommend that you purchase and install a ComSwap Board before you attempt to use any device which plugs into the PCjr's S connector! Here's why.

Other computers (including the IBM PC and all true compatibles), are normally set up to work with two or more serial ports. These ports are known as COM1

and COM2.

When a PCjr is set up with an internal modem, the internal modem becomes COM1 (as it should) and the PCjr's serial port (the "S" port) becomes COM2, as it should. But, here's the problem. When you use a PCjr without an internal modem, the PCjr serial port becomes COM1—even though it still uses the hardware address associated with COM2 on the IBM PC.

That's why programs designed to work with serial devices (especially external modems), may not run correctly when

the serial device is plugged into the PCjr's S connector. In some cases the problem is minor. For example, if the program uses DOS, BIOS, or BASIC to control the serial device, you must tell it you're using COM1. If the program directly addresses the computer's hardware you must tell the program to use COM2 instead. And because there's no way to tell which method a program uses, it means you must experiment before you know whether to tell the program you're using COM1 or COM2. But while experimentation works

some of the time, it just places a band-aid over the problem.

Sooner or later a program that you are running will use DOS, BIOS, or BASIC for certain functions, and hardware addresses for others. When this happens the program simply will not run correctly on your PCjr unless a ComSwap Board is installed. Certain features may work perfectly, while other features will not work at all or may even cause the program to hang up.

The solution is to use a ComSwap Board to swap the names of your COM ports. Just plug ComSwap into your internal modem slot, then forget about it. You're PCjr's S connector will now always be 100% address compatible with COM2 on an IBM PC.

Whether you have already had problems using a serial device, or whether you're the type of PCjr user that prefers to prevent a problem before it occurs, for only \$9.95 how could you lose? Add a ComSwap Board to your next order of PCjr add-on products!!

Catalog #15506 Price: \$9.95

## Special Offer

Purchase any external modem from PC Enterprises and you'll receive a free ComSwap Board PLUS a \$15 Compu-Serve credit FREE with your order!

## External Modems

### 1200 and 2400 Baud Hayes Compatible Modems

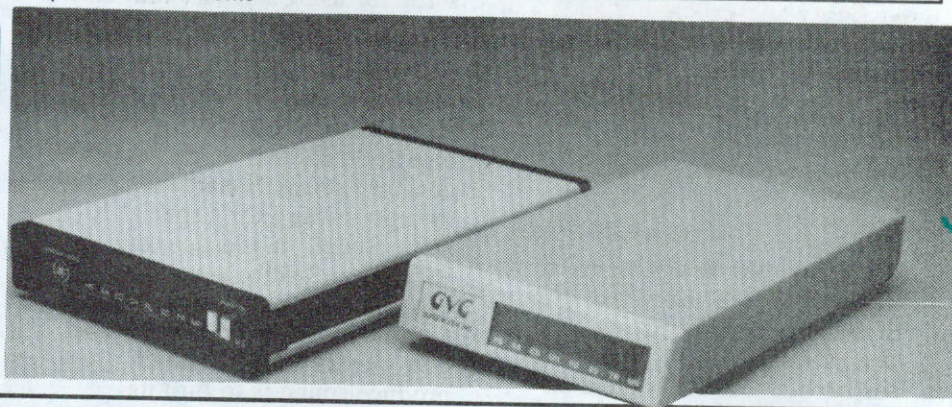
The 1200 baud modem features 1200/300/110 baud selection and our 2400 baud modem features these speeds as well as 2400 baud. Both have auto dial, auto answer and auto speed detect capabilities. Both have eight front panel lights, an RS232 interface, and an external power supply. The 1200 baud modem also has two push buttons for manual control of baud rate and the voice/data feature.

These modems have been tested by PCE with PCjr's which use both the long and the short PCjr power supplies and have been found to work extremely well. You will also need a PCjr Serial Cable (such as catalog #22505-4).

**1200 Baud External Modem**  
Catalog #75507 Price: \$119

**2400 Baud External Modem**  
Catalog #75516 Price: \$149

**2400 Baud External Modem w/MMP5 Error Correction**  
Catalog #75521 Price: \$229



### D-Type Gender Changers

Gender Changers are indispensable when you want to attach two cables or devices which will not mate because they both have the same gender connector.

#### Female Gender Changers

Female gender changers have female contacts on both ends and permit joining two devices or cables which both have male connectors.

**25-Position Female Gender Changer for D-Type Connectors**

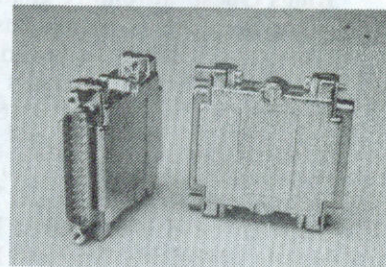
Catalog #75509 Price: \$7.95

#### Male Gender Changers

Male gender changers have male pins on both ends therefore permitting you to join two devices or cables which both have female connectors.

**25-Position Male Gender Changer for D-Type Connectors**

Catalog #75508 Price: \$7.95



# PCjr Users Speak Up

## A Campaign to Bring Back 16-color 3-Voice Support for the IBM PCjr

By P. Joseph Calabria

When software manufacturers ask me the type of computer I'm using I always tell them its an 8088 machine with 1.8 Meg of RAM, 160 Megabytes of hard disk storage, VGA graphics, 3-voice sound, and that it runs at 9.54MHz. I'm always treated with respect and they always do their best to support me. But the moment I mention that it's a PCjr, some software publishers shy away from me as though I have the plague. This is beginning to get me irritated. In fact, I'm just about fed up! If you tell the software manufacturer you're using a Tandy 1000 or an XT clone its a totally different story. But mention its a PCjr and suddenly they act as though you're using a second class computer. Have you ever had the same experience? If so, I think its time we PCjr users speak up. Stand by my side and software manufacturers will soon treat PCjr owners with due respect. They'll bring back 16-color 3-voice support for the IBM PCjr — and that's a promise!

During the past few years we've all heard PC-XT users rave over EGA. I remember walking into Computerland shortly after EGA was introduced. The system on display was running one of the "Kings Quest" adventure games by Sierra. An eager salesman rushed to my side. Smiling, he proudly said, "I'll bet you think that's impressive! You're looking at 16-color EGA graphics. Would you be interested in upgrading to a computer that can do EGA?". I shook my head, then looked him straight in the eye. Smiling, I said, "No thanks. That's exactly the way that program looks when it runs on my PCjr. Except, what's wrong with the sound? When I run that program on my PCjr I hear music. What I hear coming from your AT sounds

more like beeping!"

It's true, I guess I was spoiled by my PCjr. Sure, it's easy to understand why XT users have raved over EGA, after all, before EGA came along the best graphics their computer could display were limited to four colors! And true, EGA is *capable* of producing better graphics than the Junior, but IBM AT users can't run higher resolution EGA modes unless they purchase an optional EGA memory expansion. As a result, to insure AT compatibility, software manufacturers design their EGA programs to use modes which are no better than those available on PCjrs.

Unfortunately however, although the PCjr comes standard with 16-color capabilities, the PCjr is not EGA compatible. This means the PCjr cannot run EGA programs. As a result, most PCjr users now settle for using software that only runs in 4-color CGA modes.

But our PCjrs can run software with EGA like 16-color graphics — and we don't need to buy anything else to do so. All we need to do is convince software manufacturers to support the PCjr's special 16-color mode! In addition, our PCjrs have 3-voice sound capability. That means it could produce pretty good music. The only way a PC or AT could produce sound is to turn its beeper on and off. And that means it can only play one note at a time.

So, one might ask, if PCjrs actually have superior capabilities, why did software companies drop 16-color 3-voice PCjr support anyway? To understand, let's go back to when IBM announced their decision to stop making PCjrs. IBM said they had reached their production quota. In lay person terms, this meant they couldn't fit any more PCjrs in their warehouse. Newspapers reported that IBM had made half a million PCjr's, and most were unsold.

As a result of IBM's announcement, most software manufacturers stopped writing programs that supported the PCjr's special 16-color 3-voice mode. After all, why should they spend the time and money to develop a program that runs on a computer that nobody owns? So they dropped PCjr support. And of course, there simply weren't enough PCjr users around to speak up and complain. After all, most PCjrs were still in IBM's warehouse!

But they didn't stay in IBM's warehouse very long. The reason the PCjr didn't sell was because the price was too high. When IBM dropped the price the PCjr sold like hotcakes. In fact, they sold so well, soon all the systems in IBM's warehouse were gone, and IBM once again started putting systems together from their massive inventory of spare parts! In total, sources have estimated over 650,000 PCjrs were sold!

Then PCjr users got a big break. Radio Shack introduced their Tandy 1000 computer. The Tandy also boasted of 16-color graphics and 3-voice sound. In fact, the Tandy 1000 is a PCjr compatible! But while the PCjr was discontinued because it didn't meet IBM expectations, Radio Shack's more conservative production schedule permitted the Tandy 1000 to become a big success. In fact, Radio Shack is still making the Tandy 1000 and almost all software companies are still designing their programs so they produce 16-color graphics and 3-voice sound when run on a Tandy.

But the bad news is, that while the two computers are very similar, the Tandy and the PCjr are not 100% compatible. One very minor difference will prevent most Tandy programs from running correctly on PCjrs.

## And Let Your Voice Be Heard

The good news is that software publishers who already support the Tandy can get the Tandy version of their programs to run on PCjr's with minimal effort. That's why software companies will bring back 16-color 3-voice support for the PCjr. Because doing so can be as simple as making a one byte change that would take the software's publisher less than ten minutes to accomplish!

So I contacted several major software publishers to tell them the good news. I told them how easily they could get their 16-color 3-voice Tandy version to run on the PCjr. I hoped they would eagerly listen in order to make their software more appealing to the 650,000 PCjr users. Instead, the moment I mentioned the PCjr it was the same old story. They showed me the cold shoulder and ignored my efforts. They told me there simply aren't enough PCjr's in use to make a change worth while! Can you believe this? How much could a ten minute change possibly cost? I think this is outrageous.

It's been proven. Software companies are not going to listen to me. It's up to you to let your voice be heard. Wait for others to speak up and you'll need to settle for 4-color CGA graphics which cannot produce any sound other than those produced by the PCjr's internal beeper. Stand by my side in this campaign, and software companies will bring back 16-color 3-voice PCjr support almost immediately.

The time to act is now! Here's what to do. When you see a software package that lists the Tandy and not the PCjr, write a letter to the software's publisher. Tell the publisher that you have a PCjr, making sure to tell them how much memory you have (software publishers still think PCjr's can only have 128K).

Tell them all about the things you have added to your PCjr. Then ask why their program will run on a Tandy with 16-color graphics and 3-voice sound—but not on a PCjr.

Tell them you'd like to purchase their software, but only if it runs on the PCjr in 16 colors, and with 3-voice sound. (You might also volunteer to test their program on your PCjr if they send you a free copy). Then, ask them to WRITE back with an answer. If you don't receive a response in a reasonable amount of time, send a copy of your letter to the company's owner or president. Ask why you haven't received an answer. Write to as many software publishers as you can, but write to at least one today!

When Sierra On-Line dropped PCjr support from Kings Quest IV, Police Quest II and Leisure Suit Larry II, I contacted Sierra to voice my opinion. In less than two days Sierra reversed their decision. Sierra proved themselves worthy of continued patronage from PCjr owners. They re-sponded with a written commitment to bring back PCjr support and a promise to upgrade non PCjr versions of their software at no charge. Other companies will do the same. Sierra did respond to PC Enterprises request, but were it not for hundreds of other PCjr owners who also voiced their complaints to Sierra, the voice of PC Enterprises would have been ignored. It was your backing that opened Sierra's ear!


Each time a software publisher receives one letter, they realize that there are hundreds, and maybe thousands of others who feel the same way although they did not take the time to write. That's why each one of your letters will make a big difference.

And its not too late. It doesn't matter that we're asking software publishers to reverse a decision that they made a long time ago. Remember Star Trek? Network television cancelled the series back in the 60's. But, even though they stopped making new Star Trek episodes, the series never died. In fact, like the PCjr, Star Trek became more popular as time went by. And finally, an organized movement to bring back Star Trek succeeded—over twenty years later!

PC Enterprises receives hundreds of phone calls each week from PCjr owners who are actively using their PCjr. Can you imagine how quickly software companies will make the "ten minute change" if these same PCjr owners would just speak up and let their voices be heard? In addition, our catalog will go out to over a quarter million PCjr users. The economy is weak and software manufacturers are searching for new markets to tap. We've been quiet for far too long. The time to speak up is now. Let the software manufacturers feel the fury of the PCjr owner. Start your own personal letter writing campaign and don't let up until each and every software product you see in your store says right on the package: PCjr 16-color 3-voice Support.

Then write to me at the address below and let me know about your progress. Include a stamped self addressed return envelope, and I'll provide you with some names and addresses of software manufacturers that we should focus our efforts upon. I'll also keep you informed and I'll tell others about your achievements. They brought back Star Trek and they'll bring back PCjr support too!

**Let Your Voice Be Heard**  
**PC Enterprises**  
**PO Box 292**  
**Belmar, NJ 07719**



## Three Great Cartridges which Improve the Personality of your PCjr

### JrVIDEO CARTRIDGE



"The PCjr is much slower than the PC and PC-XT. It seems to take longer to do everything. Directories take forever to finish scrolling and spreadsheet response is really sluggish. And games. They run so slowly they're just not a challenge."

Sound familiar? These are common assaults on the PCjr which are often launched from those who operate a PC. And for the most part they're

legitimate. The PCjr does take longer to do certain things.

Other acceleration products, such as our jr-Excellerator Speed up Board increase the computer's clock speed—thereby enabling the computer to execute instructions more quickly. But this is not enough. Computed results are often meaningless until the computer displays information on the screen.

Here's where jrVideo will help. Three routines are included to speed up the PCjr's ability to write information on the screen. The improvement you see will at times be quite dramatic (see table).

The first routine is activated automatically when the cartridge is plugged in. Sluggish BIOS screen writing routines are replaced with significantly faster jr-Video routines. All programs which use BIOS for screen writing now display information faster than ever before.

The second routine activates DOS support of the video speed up. The use of this routine is strictly optional (it causes the PCjr to become too fast for some people).

Now there are three great cartridges available to upgrade and enhance your PCjr. All three make your PCjr easier and more enjoyable to operate, because they actually change the computer's Basic Input Output Service (BIOS) routines—thus improving the personality of your computer.

The jrVideo Cartridge speeds up the computer's screen writing routines.

The Keyboard Buffer Cartridge lets you continue using your keyboard even while the computer pauses so it could access the disk drive. It also corrects several bugs in DOS which often cause PCjr's to hang up and crash without warning.

The QuickSilver Cartridge makes the PCjr boot quickly and silently. QuickSilver also enables you to run many PC programs which do not respond correctly to a PCjr's keyboard.

The three cartridge routines can be purchased in separate cartridges—or combined together in one. Our combined cartridges, called Combo Cartridges, are by far the most popular as they only take up one cartridge slot. All cartridges work in either slot, and all are compatible with IBM's Cartridge Basic and all other PCE Cartridges.

Once activated text will dash on-to and off-of your screen so quickly that you're certain to become very familiar with the key on your keyboard labeled "Pause".

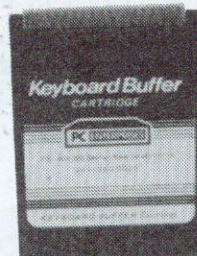
The third routine permits the PCjr to recognize added memory—without slowing down screen writing routines. In addition, the jrVideo Cartridge will also let you run more PC programs because it provides better mode defaults, and better register protection.

JrVideo Cartridge Catalog #18002 Price: \$29.95

Activity	640K PCjr	640K PCjr w/jrVideo	640K PCjr w/jrVideo & jrExcellerator
DIR Test	32.9s	12.2s	6.2s
TYPE Test	70.8s	13.9s	6.9s

We wanted to publish test results for actual entertainment, word processing, and spreadsheet applications, but we had one problem. Our finger couldn't press the button on our stop watch fast enough! So we decided to publish the results of our DIR and TYPE tests instead—this way we could publish repeatable results and you could more reliably calculate percent improvement. The DIR test was how long it took to display the 171 files in the M:\1991CAT directory of our hard drive. The TYPE test was how long it took to "TYPE" out the JRCONFIG.DOC v2.10 file on a basic PCjr with 640K. By the way, all tests were performed in PCE memory above 128K and yes, M: is the drive letter used by our PCjr's hard drive!

### KEYBOARD BUFFER CARTRIDGE



For years the PCjr was sharply criticized because its keyboard couldn't be used while the disk drive was spinning. Other computers do not have this restriction because they have DMA—a feature which permits both the keyboard and disk drive to be used at the same time.



But the PCjr doesn't have DMA. That's why the computer beeps if you use your keyboard while the disk drive is spinning. These beeps occur because the PCjr is too busy supervising a diskette operation to deserialize keyboard information.

Once you use a computer which has DMA the PCjr will seem sluggish for this very reason. Most PCjr users simply learn to accept as fact: when the PCjr is reading or writing to its disk drive, you must wait for the PCjr to finish doing what it wants-to-do before you tell it what you want-it-to-do!

Well, PCjr users need not remain patient anymore! With the Keyboard Buffer Cartridge installed a new keyboard routine replaces the usual BIOS routine that handles keyboard input. As a result, you can type up to 47 characters while the disk drive is spinning—permitting the PCjr's keyboard to work like it would if the PCjr had DMA.

And if you're still using DOS 2.1, the cartridge will also improve system reliability. It will correct several bugs in DOS which relate to the PCjr's keyboard and NMI routines. These bugs are known to cause PCjrs to "hang up" and "crash" without warning. With the cartridge installed and activated, the DOS NMI bugs are exterminated!

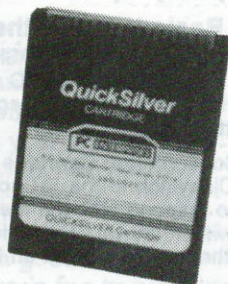
The next time you find yourself waiting for the PCjr's disk drive to stop spinning remember that you don't need to wait any longer. Whether you choose the Keyboard Buffer Cartridge alone, or combined with our jrVideo and QuickSilver Cartridges, this is one PCjr product we don't think you should be without. We like the Keyboard Buffer Cartridge a lot and we're almost certain it will become one of your favorite PCjr products, too!

**Keyboard Buffer Cartridge** Catalog #18001 Price: \$29.95

## QUICKSILVER CARTRIDGE

When the PCjr is first turned on the computer counts up its memory then sounds a beep to indicate all is well. PCjr users often complain that this start up process takes too long—and also that the beep heard at the end of the start up process is annoying. The QuickSilver Cartridge is designed for anyone who would prefer their PCjr to power up quickly and silently.

Quickly because QuickSilver replaces the usual IBM memory test with a new test that's so fast and efficient that you'll hardly notice any delay at all. And silently because the QuickSilver Cartridge eliminates that annoying beep normally sounded at the conclusion of the usual memory test. With QuickSilver installed, your PCjr only beeps when an error is detected during the Power On Self Test (POST).



What's even more important to most is that QuickSilver corrects a bug in the PCjr's keyboard handling routine (int 9). This bug will cause certain PC programs to display two characters on the screen each time a single key is pressed, or, not to display any character on the screen at all. So with QuickSilver installed, you'll be able to run more PC programs than ever before!

Activity	640K PCjr	640K PCjr w/QuickSilver	640K PCjr w/QuickSilver & jrExcellerator
Count to 640K	26.9s	2.6s	1.4s

*That's right. From 26.9 to 1.4 seconds!*

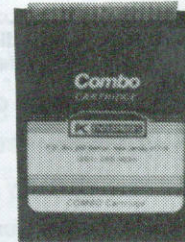
To illustrate the Quicksilver advantage, we set up a PCjr with 640K and then turned the computer on. We timed how long it took to count up to 640. Then, we installed a Quicksilver Cartridge and did the same thing. And just to show you how you could further optimize PCjr performance with PCE products, we installed a jr-Excellerator—then ran our test one more time.

**QuickSilver Cartridge** Catalog #18027 Price: \$29.95

## COMBO CARTRIDGE Version 1.0

The Keyboard Buffer and jrVideo Cartridge are available combined on a single cartridge. Order the Combo Cartridge version 1.0 and receive these two great products in one.

**Combo Cartridge Version 1.0**  
Catalog #18012 Price: \$54.95



## COMBO CARTRIDGE Version 2.0

The Combo Cartridge version 2.0 combines all three—Keyboard Buffer, jrVideo, and QuickSilver in one cartridge! In addition, Combo version 2.0 will not likely become obsolete because we left room inside for a fourth cartridge routine that could be added at a later date.

**Combo Cartridge Version 2.0**  
Catalog #18028 Price: \$69.95

## TRADE-INS ACCEPTED

If you previously purchased a Keyboard Buffer, jrVideo, or QuickSilver Cartridge from PC Enterprises and would now prefer to have the Combo Version 2.0 cartridge, you can trade in your existing cartridge(s) and receive a credit towards a Combo Version 2.0.

When you upgrade to Combo Version 2.0 you only pay for the cartridge routines which you do not already have. In other words, if you trade in two cartridges, you only pay for one (\$29.95). Or, if you trade-in one cartridge, then you pay for two (\$54.95)

Contact PC Enterprises for details or mail your cartridge(s) in a small padded envelope or box to PC Enterprises, 2400 Belmar Blvd, Building B16, Wall, NJ 07719. On the outside of the package write the words, "Cartridge Upgrade" making sure the words can be read without opening the package, and please add \$5 for return shipping and handling.

# CONFIGURATION CARTRIDGES

When the PCjr is first turned on the computer operates as if you have a 40 column color monitor and a single disk drive. In addition, the PCjr will also permit programs that you run to determine that they're running on a PCjr. These are the PCjr's default settings.

The Configuration Cartridge allows you to change the default configuration of your system. The Configuration Plus Cartridge is a Configuration Cartridge plus a key-lock indicator cartridge. The key-lock indicator cartridge has three lights on it which indicate the status of your Caps Lock, Num Lock and Scroll Lock keys.

- PC/PCjr Identifier Switch
- Recognize Additional Disk Drives without Software
- Start in either the 40 or 80 Column Mode without Software
- Start in Color or B&W Mode without Software
- Caps Lock, Num Lock, and Scroll Lock or Insert Mode Indicator Lights (Configuration Plus Only)
- Our Compatibility Guarantee
- Our Satisfaction Guarantee
- Full Year Warranty with PC Enterprises
- PC Enterprises Quality, Service, Compatibility, and Commitment to continue Supporting the PCjr

## Equipment Determination Switches

Most other computers have switches to set up the type of display (color or monochrome, 40 or 80 column) and the number of drives—the PCjr does not. The Configuration Cartridge adds the switches IBM left out. Just set the switches and plug in the cartridge.

These switches allow you to use the PCjr's built-in diagnostics (CTRL-ALT-INS) to test all your floppy drives. You'll also find these switches especially desirable when using other PCjr add-on devices which allow you to operate without memory management software such as our jrExcellerator and Display Master VGA Sidecar.

## PC/PCjr Identifier Switch

This switch permits you to change the System Identification Byte of your computer from that of a PCjr to that of an IBM PC. When the switch is set in the PC Mode, programs which check the System Identification Byte of the computer will be fooled into running as they would on an IBM PC.

While fooling a program into running as it would on an IBM PC will not turn your jr into a PC, it will permit you to run the PC version of certain programs. This is often desirable if you have added additional hardware such as memory, a speed up board, VGA sidecar or DMA device, and you are unable to use your new hardware with a certain program because the program detects that it's running on a PCjr. For example, certain software titles published by Sierra-on-Line require an 8MHz or faster computer to run well.



That's why these programs display a "will not run on PCjrs" message. Use the Configuration Cartridge to tell the program that your jr is really a PC—and the program runs fine. While you'll still appreciate the benefits of a speed up board, at least you'll be the judge of whether or not its needed.

Here's another situation where you'll need a Configuration Cartridge. Let's say you've added our Display Master VGA sidecar and then run a program which supports the PCjr's 16-color mode. If the program checks the computers ID byte to determine whether you're using a PCjr, you may have trouble getting the program to run in VGA mode. The Configuration Cartridge will solve this problem too!

## Key-Lock Indicators

Have you ever started typing on your keyboard only to look up and find you were in the Caps Lock Mode—and you didn't want to be? The Configuration Plus Cartridge has an indicator light which goes on whenever your computer is put in the Caps Lock mode. It also has an indicator light for Num Lock and one for Scroll Lock. And because most people rarely use their Scroll Lock key you can change the Scroll Lock indicator to an Insert Mode indicator—because you probably use your Ins key every day.

## Run Basic Without the Basic Cartridge!

The diskette version of BASIC can be found on your DOS diskette. While diskette BASIC runs fine on an IBM PC, a "Cartridge required" message is displayed when you try to run diskette BASIC on a PCjr.

The Configuration Cartridge solves this problem. Just flip the PC/PCjr switch to the PC position and the cartridge causes the PCjr to respond with the identification code for the IBM PC. Now, when you try to run diskette BASIC, you'll find it runs exactly the way it does on an IBM PC.

The diskette version of BASIC is often preferred to Cartridge Basic because it is the same Basic that the IBM PC uses. In addition, diskette BASIC permits you to run slightly larger programs than cartridge BASIC and it will not cause your PCjr to crash if you have expanded memory beyond 128K.

Often people who already have the IBM BASIC Cartridge replace it with the Configuration Plus Cartridge. When this is done the slot which is now dedicated exclusively to the BASIC Cartridge lets you take advantage of the other features built into the Configuration Plus Cartridge without taking up another cartridge slot.

**Configuration Cartridge**  
Catalog #18025 Price: \$19.95

**Configuration Plus Cartridge**  
Catalog #18026 Price: \$29.95

**Diskette Basic Manual**  
Catalog #79023 Price: \$24.95

## PCjr Game Cartridges

Limited Quantities Please  
Call Before Ordering



### Scuba Venture by IBM

Explore treacherous underwater caverns and avoid perilous sea creatures as you search for buried treasure. The object of Scuba Venture is to score as many points as you can by collecting rare fish and by opening locked treasure chests with the keys that you can find lying on the ocean floor. But be careful. Some of the fish are poisonous to the touch, and electric eels can be fatal. And seaweed, seahorses, and cavern walls can block your diver's way and cause your diver to be swept into the hungry jaws of the untiring, deadly fish that chase you on your journey. Joysticks optional.

Catalog #18020 Price: \$29.95

### Mine Shaft by IBM

Danger! Flood waters have short-circuited your robot miners...and now they're running berserk. How can you retrieve your fortune in gems without being destroyed? The object is to guide your mining car through a maze to pick up four jewels. Meanwhile, you shoot berserk robots with your laser gun. Mine Shaft is a good, though easy, arcade game. The characters are rendered fairly well with good detail and the animation is smooth. The game is fun to play, especially if you're not an arcade game wizard with hand-eye coordination that defies belief.

Catalog #18022 Price: \$29.95

### Crossfire by IBM

Defend your city against dangerous spiders and other menacing insects running madly through the streets...determined to destroy everything in their path. Play Crossfire! Joystick recommended.

Catalog #18023 Price: \$29.95

### Demon Attack by IMAGIC

Save the Planet! Use your laser cannon to blast the demons from your outpost on the moon. Wave after wave of eerie demons attack. Each has its own attack style and weapon. Then, blast off and take the offensive by attacking the demon's lair. Demon Attack is not recommended for those with weak hearts or for those who prefer slow paced strategic games. Demon Attack is a fast action shoot-em-up arcade style game which will keep you glued to your joystick. It is certainly one of, if not the most exciting PCjr game cartridge we have ever carried. If you only intend to purchase one PCjr game cartridge, Demon Attack is the one to buy! Joysticks required.

Catalog #18011 Price: \$29.95

### Mouser by IBM

Mice are on the loose in Farmer Wheatbreads farmhouse. You must trap them by surrounding them with the moveable walls that are in each room. Some rooms are dark and if you haven't picked up a flashlight you will be unable to find your way. You may pivot the walls clockwise or counterclockwise; if two walls end up on top of one another, a push from the farmer will cause them to separate. The graphics are as sharp, detailed, colorful and attractive as many coin-operated games—and the play concept is original and interesting. Mouser is a strategy game. Quick action is not necessary for success. Instead you must figure out how to get the walls across the room to where the mouse is. This game is notable in that it is nonviolent—you try to cage the mice, not blow them to bits. So, if you want a non-violent game that challenges your cleverness more than your reflexes, Mouser may be the game for you. Joysticks optional.

Catalog #18024 Price: \$29.95

# What to do if your PCjr ever Breaks

The IBM PCjr is certainly one of the most reliable home computers ever sold—nevertheless, even the most reliable computer may, at times, require service. That's why service should be a real concern. What would you do if someday your PCjr should break?

Relax. It's not likely you'll ever need to send your PCjr to the repair shop. Thanks to a considerable number of diagnostic tests which are built into the PCjr, the PCjr may be the easiest computer ever designed to troubleshoot and repair. If your PCjr ever breaks you'll have a choice. You could purchase just the parts that you need, or send your entire system to us and let our trained PCjr technicians diagnose the problem and professionally install any replacement parts that you need.

That's the beauty of owning a PCjr. You'll never have any trouble finding parts or someone knowledgeable to service your computer. Large inventories of PCjr spare parts exist, and should we ever run out of a part, PCE will simply produce one that's better (we've already done this with the internal memory card). Unlike other companies that abandoned the PCjr, PC Enterprises has remained the PCjr specialist and is committed to servicing the PCjr for as long as the need exists.

## Diagnosing Problems by Yourself

The PCjr's built-in self tests allow most people to determine which replacement part they need without sending the system in for service. Once you determine which part you need, repair can be just as simple—even if you're not technically inclined. Here are a few basic things every PCjr owner should know which concerns the PCjr's built-in tests, and what to do if a problem is ever experienced. We suggest you skim through this section now, and refer back if you ever encounter a problem.

While it's always difficult to diagnose a problem without seeing the system, many years of troubleshooting experience with the PCjr often cause us to suspect certain parts. For this reason we've used a "probably, but not always" approach in this section—intended to allow you to benefit from our experience.

Each time you turn your PCjr on, the PCjr runs its Power On Self Test (POST). During this test the IBM logo appears while the computer counts its memory. If POST detects a problem it will display an error message when possible. Sometimes POST starts to run, but the problem prevents it from displaying information on the screen. If this happens, you'll see a white or black screen and hear two or three beeps. (This is a good indication that your computer's power transformer and power supply are both okay. If a problem prevents POST from running at all, as a bad transformer or power supply certainly would, you'll always see a white screen and you'll never hear any beeps).

If the computer does not complete POST, the basic troubleshooting procedure is to identify the problem by removing everything which is not essential to complete POST. Start by unplugging everything from the rear of the PCjr except the power transformer and monitor. Next, remove all cartridges and sidecars, retesting the PCjr after each step. Also remove the Internal Memory Card, Wireless Receiver, and Disk Drive Adapter card. The PCjr should successfully complete POST with just the power transformer, power supply, and system board installed. If it does not, the problem is with one of these parts. If the transformer is warm, it's probably, but not always, good. If you hear the PCjr's fan running, both the transformer and power supply are probably, but not always, good. If you have removed everything from the PCjr except the power transformer and power supply, and you still hear two or three beeps, the system board is probably, but not always, bad.

Always check for bent pins and that your cables are plugged into the correct connectors on the rear of the PCjr. The keyboard, joystick, light pen, and cassette cables are often plugged in the wrong connector. Bent pins, which prevent proper connector alignment, are absolutely the most common

problem that we see and have accounted for white and black screens, two or three beeps, or plug in items not working. Bent pins found on the rear of the PCjr can cause POST errors B, C, or D and on the 60 pin sidecar expansion bus causing errors A,F,H,I or J. Always check the outside unoccupied bus connector too. Also, when checking for bent pins, remove each sidecar and check all the way back to PCjr. Sometimes multiple pins are bent or sometimes a bent pin goes without notice until a new add on device is purchased.

If the computer completes POST without displaying an error message, you can run additional built in diagnostic tests. These tests are extremely helpful, especially if you have a memory or disk drive problem. However, if you have more than one floppy drive you may need a Configuration Cartridge to test additional drives.

Always first try to isolate the problem by following the previously described troubleshooting procedure, however, the information below may also be helpful. And remember, if you have a problem we're just a phone call away.

## White Screen or System Dead

Probably, but not always, a power problem. Suspect the Power Transformer or Internal Power Supply. If you have a spare (black brick) power transformer try it. Otherwise check the output of the transformer and power supply with a meter. Never plug a good transformer into a Racore if you have a power problem. It could blow your good transformer instantly.

## Black Screen and One Beep

Probably, but not always, a monitor problem. Try another monitor or use a TV connector to test your PCjr with your television.

## Black Screen and Two Beeps

Probably, but not always, a system board problem.

## Distorted characters

Multiple colors on the screen with diagonal lines. Screen often rolls. Especially common after rebooting. The problem may go away when the system is turned off for a while. This is a monitor problem.

## Sector not found

Might also receive Boot disk failure, Bad or missing command interpreter, Error reading (or writing), and Bad DEV/COM messages. Your disk drive is probably going bad, but it can also be a bad diskette or Disk Drive Adapter card. Your computer may also have trouble reading diskettes which were formatted on other computers. This is a very common problem. Run the disk drive self-test and replace the drive if it fails.

## Error A Message

Memory error. Write down the number displayed as it tells you the address of the last memory location that passed POST. Check the switches on memory boards that you have installed. If you have a Jr-Excellerator installed check the switch settings.

## Error B Message

Keyboard problem. You may have pressed a key during POST. If not, check for stuck keys. Also check for bent pins on the IR Receiver module and keyboard K port. If you have removed the IR receiver from your computer, make sure a keyboard cable is plugged into the PCjr K port.

## Error C Message

Cassette port problem. Unplug all devices

plugged into the computer's C connector and retry. If you still get the error it is a problem with the System Board. However, you can press ENTER to bypass the message—however, doing so will make it unlikely that you'll be able to use your cassette port.

## Error D

Serial port problem. Disconnect anything plugged into the PCjr's S connector and retry. If you still get the error, it is a problem with the system board. To bypass the error message press Enter—however, doing so will make it unlikely that you'll be able to use the PCjr's serial port.

## Error E

Internal modem problem. Check the internal modem slot. You may have the wrong board plugged into it.

## Error F

Optional ROM CHECKSUM error. Make note of the letter and number displayed. This is the segment and offset where the error occurred. Often a ROM address conflict. Have you just added a new product? Remove sidecars and other plug in boards one at a time until error goes away. If your system works when you remove a sidecar the sidecar may be using the same ROM address space as something else in your system. Change the ROM address used by one product or the other.

## Error G

Cartridge error. Make note of the letter and number displayed. This tells you the segment and offset where the error occurred.

## Error H

Disk drive error. Check all cable connections to your floppy disk drives, especially power cables. Make sure any external drives you have are plugged in and the fuses are good. Make sure terminating resistors are removed and check the drive select jumpers. If the power supply and all else mentioned are okay, the drive has probably gone bad. If you have a second drive and you have started to disassemble your system and now receive this error it is because your second drive system is no longer properly installed. Remove the disk drive controller card to get past the error.

## Error I

Cluster Attachment Error

## Error J

Speech Attachment Error

The Testing section of your 'Guide to Operations' manual (the red binder that came with the PCjr) explains most error messages and provides instructions for running the built-in diagnostic self tests. The 'Hardware Maintenance and Service' manual (#79016) provides instructions and adapters required to run IBM's Advanced Diagnostic Tests which are intended to help more precisely determine which board or other replacement part you'll need. The Sams 'ComputerFacts' (#79002) is usually purchased by those with technical background who intend to perform component level repair.

## Extensive Diagnostic Testing

For just \$35 we'll give your PCjr a thorough check-up. Our trained PCjr technicians will perform Extensive Diagnostic Testing (EDT) on your PCjr system, then provide you with a report. We believe EDT Service for PCjr computers is the most thorough and comprehensive test program put together for a PCjr computer since IBM closed the PCjr production facility. Our staff only works on PCjrs and are all experts in the field. If they can't solve your problem it would be hard to find anyone who can!

EDT Service for the PCjr computer includes a long list of diagnostic tests which have been proven to be very effective when identifying PCjr problems. We'll provide you with a report that tells you absolutely everything your PCjr needs to pass EDT. And EDT is the very same test program our reconditioned PCjrs are required to pass before they're permitted to leave our facility.

Once EDT Service has been completed you'll receive a call from our Customer Service Department. They'll tell you everything your system needs to pass EDT. If you authorize us to make repairs, our trained PCjr technicians will professionally install the parts and products you purchase—then retest your system.

And don't think that because we're only charging \$35 we'll do a second rate job. Here's what EDT Service includes:

### System Board

Visual inspection of all pins and connectors, plus electrical test of the System Board RAM, ROM, Diskette Drive Interface, Serial Interface, Display Interface, Composite Display Interface, Internal Modem Interface, Keyboard Interface, Joystick Interfaces (2), Audio Interface, Infrared Keyboard Adapter, Cassette Interface, Cartridge Interface, Light Pen Interface, and Beeper.

### Internal Diskette Drive

We'll test Clamping, Spindle Speed, Head Alignment, Sensitivity, Head Rotation, and Directional Seek. In addition, we'll also check the Track Zero Sensor adjustment, Index Timing, and head alignment.

### Internal Options

All IBM and PCE internal options including Internal Memory Cards, Diskette Adapter Cards, Power Supplies, Internal Modems, jr-ROM Clocks, Thin-Font Modules, and jr-Excellerators, plus lots of other internal options that you might have.

### Sidecars

All IBM and PCE sidecars including Memory Expansions, Printer Interfaces, Power Attachments, clock calendar products, Speech Attachments, plus lots more!

### Other Options

We'll also test your keyboard, color display, power transformer, and just about every other product made by any company—as long as it is sent in at the same time as your system, and as long as we're familiar with the product and have the information we need to test it (except disk drives).

### Additional Charges

An additional \$15 fee is charge for each floppy or hard drive that you have. This is due to additional labor to test and disassemble these systems. Diagnostic tests performed on hard drives include DIAG testing (Seagate Technologies), read and write tests, and Directory Structure and FAT table evaluation—plus a disk surface scan for defects.

### Turn-Around Time

Naturally, every PCjr owner who experiences a problem would like us to work on his system the day it's received. We understand this and always promise to do the very best that we can. Unfortunately, our turn-around time varies with the workload. Feel free to call in advance and ask us to estimate current turn around time based on any existing backlog. On average, EDT Service is completed within one to three weeks.

We will attempt to duplicate any problem you have had in our test lab. Once duplicated, problems normally take minutes for

us to pinpoint. However, if you provide inadequate information and an intermittent problem is experienced, substantial testing and multiple overnight burn-ins may be required. When this happens we never ask you to pay for additional labor charges, although we do request that you remain patient while we continue our testing.

### You Can Speed Things Up

The more you tell us about any problems you have had the faster we can track down the trouble. Please include a note which thoroughly describes the problem and also be sure to tell us about any error messages you have seen. And finally, be sure to include the actual disk that you use to start your system.

### Pre-Authorizations Cuts Turn-Around in Half

When you choose not to pre-authorize, the technician who pinpoints the trouble with your system puts your system back on the shelf, then prepares a written report which interprets EDT results. The report then waits to be reviewed and approved by a supervisor before being sent to our Customer Service Department. Customer Service then tries their best to contact you by phone. If you're a hard person to reach, perhaps you live in another time zone or don't always get your messages, this could take quite a while. When we give the technician the go ahead to perform the work your system once again waits on the shelf for its turn to get back into the Tech Lab.

When you authorize us in advance to repair your system the technician who isolates the problem immediately performs all repairs. In most cases the work is finished the day the problem is identified.

In order to pre-authorize, simply provide us with a credit card number or instruct us to return your system COD for the amount due. You can also request reconditioning if the cost to repair exceeds a specific amount. For example, you might ask us to repair your system if it could be fixed for \$173 or less, otherwise recondition it.

We used \$173 because repairs rarely go that high. The most expensive internal part that could fail costs \$148 to replace and \$25 to install (you'll get a \$50 trade-in certificate with the new part). Please don't be hesitant to pre-authorize, it simply makes a lot of sense and pre-authorization never changes EDT results.

Extensive Diagnostic Service (EDT)	Service No	Price	Return Shipping		
			Regular Service	Second Day	Next Day
EDT for PCjr systems with one drive	98514	\$35	\$15	\$25	\$35
EDT for PCjr systems with two drives	98515	\$50	\$20	\$35	\$45
EDT for PCjr systems with three drives	98516	\$65	\$25	\$45	\$55
EDT for PCjr systems with four drives	98517	\$80	\$25	\$55	\$65

### Installations Service Offered

Our trained PCjr technicians will install any or all of your PCjr add-on products—and all we charge is \$25 for this service! We're familiar with just about every PCjr product ever made, so don't be afraid to leave everything up to us. And when you include a copy of the diskette that you use to start your system we'll even check your CONFIG.SYS file and install the software drivers we think you'll need. If our technicians see something wrong in your CONFIG.SYS file, we'll rename it CONFIG.OLD and rewrite it the way we would. (Look for a PCERead.ME file for notes from the technicians).

### Component Level Repair

We also repair PCjr Monitors and just about every other PCjr add-on product that we could think of. If the product is one that we repair or recondition regularly, we may be able to offer an \$80 flat rate repair charge. Other products can be repaired for \$50/hr. Repairs are always subject to the availability of parts.

### Getting Your System to PCE

If you are hesitant to pack up and ship your PCjr to PCE yourself, why not bring it to a company which specializes in packaging and shipping? These companies are often listed in the Yellow Pages under Packaging or Shipping Services. If you bring your PCjr to them they'll professionally pack and ship it for you.

Or, for an additional \$25 charge, we'll arrange for UPS to pick-up your system or monitor and bring it to our shop for repair or upgrade. The \$25 charge includes the cost of shipping, insurance and call tags. All you have to do is pack up everything and address the box—then give us a call!

## PCjr Reconditioning

It's never expensive to repair the PCjr! For just \$249 we'll make your PCjr work as well as it did when new. Perhaps even better!

Here's what we'll do:

- Clean your PCjr
- Perform the now famous EDT Service for PCjr systems to determine exactly what your system needs.
- Repair or Replace all original equipment parts which fail EDT.
- Test, Adjust, and Align your Floppy Disk Drive
- Repair all supported add-on products\*
- Overnight Burn-In (if necessary)

As you can see, we'll do everything necessary for your PCjr to pass EDT with flying colors. In addition, we'll even install PCE's Five System Board Modifications on your system board.

We can recondition your PCjr regardless of which PCE, Racore, Rapport, or Quadram accessories you have installed. In addition, we'll also test and repair just about any other PCjr product that you have. A partial list of third party add-on products which we routinely test and repair appears below. If you have any products which do not appear on our list, we may be able to test and repair these products too—but can't make any promises. Our ability to service other products is subject to the availability of schematics, replacement parts, manuals, and a little luck.

### Supported Add-on Products

We always test, and can usually repair, all PCjr products made by AST, IBM, Impulse, Micro Products, Microsoft, Quadram, Rapport, Racore, and Tecmar.

\* **Exceptions:** There could be times that we're unable to test/repair a PCjr add-on product that you own—even though it may appear on the list above. If this happens we'll contact you to discuss alternatives. Also, our reconditioning charge does not include monitors or Hard Drives. If one of these products requires service, the cost will be quoted separately.

### PCjr Reconditioning—One Drive Systems

Catalog #98509 Price: \$249

### PCjr Reconditioning—Two Drive Systems

Catalog #98510 Price: \$299

### PCjr Reconditioning—Three Drive Systems

Catalog #98511 Price: \$349

Refer to the EDT Service page for return shipping costs. Also let us know if you'd like us to upgrade your memory with our Internal Memory Card. It only adds \$50 to the cost and 512K systems are expanded to 640K and 640K systems to 736K.

## Rewards for Patches

Many Tandy programs can be modified so they run with 16-colors graphics and 3-voice sound on a PCjr. When PCE learns about modifications to enhance programs that we sell we like to provide these modifications with our software. That way, everyone benefits. PCjr users who purchase software from us receive software that runs much better on their PCjr than the software they could buy at their hometown software store. PCE benefits because we're able to sell more software and therefore keep our prices down!

Now you could benefit too, even if you never purchase software from PCE by cashing in your knowledge for PCE certificates. If you know how to modify a program so it runs in 16-colors and produces Tandy sound on the PCjr and you are the first to share this information with PCE, you might just receive a \$25 certificate as your reward.

If we're currently selling a program that you know how to patch we're definitely interested. Or, if you have a patch for any other program that we might someday decide to sell, we could be interested too!

This reward is offered only to people who have actually tried the patches and know they work. We don't care whether you worked them out yourself or whether you found them on a bulletin board, as long as you know that the patches work with software that's both popular and currently available.

To qualify for each \$25 certificate you must include a printout of the original diskette's directory as well as debug or other patch information. Also tell us about the PCjr you used to test the program and what you had in your CONFIG.SYS file. Write down any instructions or any other information you think could be helpful.

Our catalog does not usually publish which programs we supply patches with because software publisher's are constantly releasing new versions of their software which require different patches, so things are constantly changing. The best way to determine whether we are already including patches for a specific program is to call and ask.

Be the first to send us a patch that we decide to distribute and you'll receive the reward. It's that simple!

We also offer the same reward for patches which enable programs to run on a PCjr which normally would not. Unfortunately, finding a program that doesn't run on the PCjr is becoming more difficult every day.

### PCjr Utility Diskette

A collection of public domain, user supported, and copyrighted PCE software that no PCjr user should be without. Includes patches to correct NMI bugs in DOS 2.1, as well as numerous other PCjr utilities including JRCONFIG, TSOUND, JRINT9 plus more.

Catalog #55013 Price: \$9.95

# Complete PCjr System Units

Why take the chance that you'll experience any down time at all? When the cost and inconvenience of having your PCjr serviced is considered, a second PCjr System Unit is a real bargain.

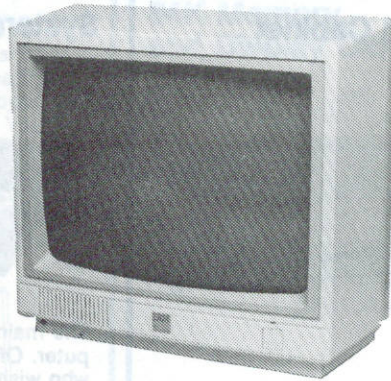
What better insurance can you possibly buy to protect your PCjr investments than a second monitor or PCjr system unit? These previously owned PCjrs and monitors can now be purchased for a fraction of what they would cost if new.

The PCjr Color Display is the monitor that plugs into the D connector on the rear of your PCjr. The monitor includes a built in amplifier and speaker.

The Enhanced Model PCjr is a complete PCjr System Unit which includes everything needed to run software—except the monitor. Two models are available. The IBM version includes 128K of memory, a floppy disk drive and the improved PCjr Replacement Style Keyboard. The PCE version is identical to the IBM model except it uses our 192K Internal Memory Card instead of IBM's 64K card. The PCE version therefore comes with 256K of internal memory, and because it uses the PCE Internal Memory Card it's fully compatible with the PCE jr Excellerator speed up board.

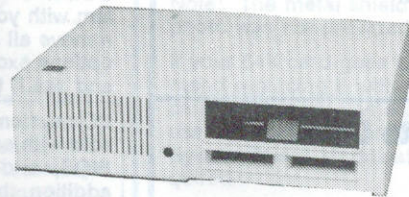
Both models are sold with the Five System Board Modifications already installed. This means you can upgrade either model to VGA simply by plugging in our Display-Master VGA Sidecar. This also means the System Boards come with their microprocessor, character generator IC, and ROM BIOS socketted for easy installation of future add-on products.

PCjr System Units are often purchased by people who experience problems with their existing PCjr and would like a second system unit to help determine which part has gone bad.



## PCjr Color Display

Catalog #78705 Price: \$199 Trade-In Credit: \$50



## 128K Enhanced Model PCjr System — IBM Version

Catalog #78733 Price: \$299 Trade-In Credit: \$100

## 256K Enhanced Model PCjr System — PCE Version

*The 256K PCE Version can be expanded to 736K by adding any PCE 512K Memory jrSidecar.*

Catalog #78728 Price: \$349 Trade-In Credit: \$100

### Save the Most when you Trade-in Defective PCjr Parts

Many replacement parts in our catalog qualify to receive a Trade-In Credit when the defective part is returned to PC Enterprises in accordance with our Trade-in policy.

The Trade-In Credit is "store credit" and is accepted at face value for anything sold by PC Enterprises.

When you purchase a product which offers a Trade-In Credit, a certificate which entitles you to receive the credit is sent automatically—regardless of whether you intend to trade-in the defective part. This means you do not need to tell anyone at the time you place your order that you'll be trading in a defective part.

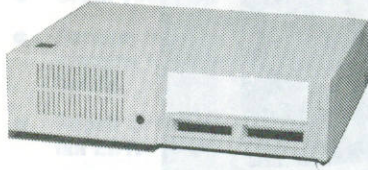
### Trade-in Policy and Instructions

- 1 Buy the replacement part from PC Enterprises and pay the regular price. When you receive your order you'll also receive a certificate for the appropriate trade-in credit.
- 2 Return the defective part that you intend to trade-in, along with the certificate, postage prepaid, to PC Enterprises within 60 days of the time you receive the replacement part.
- 3 Write the words "Trade-in Enclosed" on the outside of the package that contains the defective part.
- 4 Upon acceptance of the item(s) returned for credit PC Enterprises will validate your certificate and return it to you via US Mail.

This trade-in program was established to insure a low cost supply of replacement parts will remain available for the PCjr as long as the need exists. PC Enterprises therefore reserves the right to refuse any item returned for trade-in which has been modified, is not complete, or can not be reconditioned by us due to physical or abnormal damage. Please allow 2-4 weeks.

# Reconditioned Replacement Parts

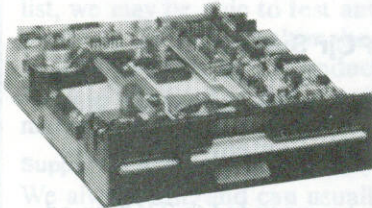
## PCjr System Cabinet



The actual plastic cabinet used to contain a PCjr computer. This is the plastic shell only and does not include any electronics. Often purchased by do-it-yourselfers as a cabinet to install a second disk drive.

**Catalog #78716**  
**Price: \$29**

## 360K Diskette Drive



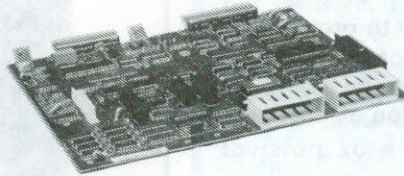
The original PCjr disk drive. Disk drives are mechanical devices with lots of moving parts, and therefore tend to go bad much more often than any other part of the PCjr.

When floppy diskette drives start to go bad, the PCjr will often report bad sectors when good diskettes are formatted. You may also have trouble reading diskettes which were formatted by other computers, or receive a bad or missing DEV/CON error.

If you encounter any of the drive error messages listed in this section or the Disk Drive Adapter Card section, its probably time to purchase another disk drive. (If changing the drive doesn't correct the problem, try the Disk Drive Adapter Card next).

**Catalog #78719 Price: \$98**  
**Trade-in Credit: \$39**

## System Board



The main system board of the PCjr computer. Often purchased by PCjr users who wish to obtain the benefits of the five PCE System Board Modifications without sending in their computer for service.

When the PCjr system board goes bad, the system will often display a white or a black screen. If you suspect a problem with your PCjr system board, remove all sidecars and other plug in options except the PCjr power supply, and see if the problem goes away.

PCjr system boards sold by PCE are sold with socketed microprocessors, BIOS, and character generator IC's. In addition, the five PCE System Board Modifications are already installed.

**System Board with Standard Modification #97514**  
**Catalog #78739 Price: \$148**

**System Board with Special Modification #97515 (for Racore users with 512K total memory)**  
**Catalog #78740 Price: \$148**

**Trade-in Credit: \$50**

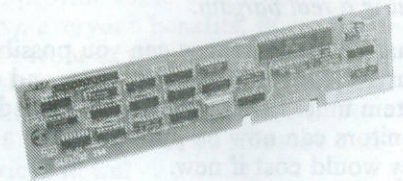
## Disk Drive Mounting Shelf



The plastic shelf that snaps into the PCjr and holds the disk drive and fan in place. The shelf has two plastic prongs which snap into the PCjr Cabinet. This item is often purchased by people who damage their original while removing the PCjr's disk drive.

**Catalog #78725 Price: \$2.95**

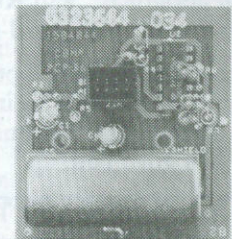
## Disk Drive Adapter Card



Controls the operation of the floppy disk drive. When this board goes bad you will often receive one of the disk drive error messages (sector not found, error reading..., error writing..., disk boot failure, etc.), an Error H message, or the computer will go straight into BASIC without ever trying to read the drive. Note: the same problems can also, and are more frequently caused by a defective disk drive. We suggest that you replace your disk drive first, and if the problems continue, then replace the disk drive adapter card.

**Catalog #78708 Price: \$50**

## Wireless IR Receiver



This circuit board plugs into the PCjr system board and receives the information transmitted by the PCjr's cordless keyboard. When this item goes bad, you'll normally receive an Error B message or the PCjr cordless keyboard may not work correctly. Replace this item if your PCjr's cordless keyboard will not operate and you have already tried replacing the batteries found in your keyboard.

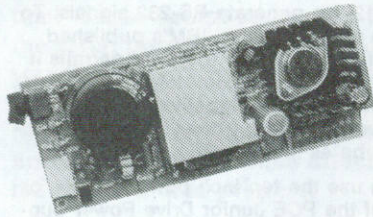
**Catalog #78710 Price: \$38**

*All reconditioned parts subject to a 90 day warranty and all sales are final. Refer to the Terms and Conditions section of our order form for details.*



# For Your PCjr

## Power Supply Card



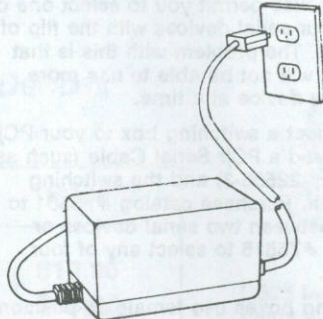
This is the original power supply card that plugs inside the PCjr computer. If you do not see or hear anything when the PCjr's power switch is turned on, replacing this card could solve the problem. Note that a bad power transformer will cause similar problems.

**46.5 Watt Power Supply (10 Inch)**  
Catalog #78729 Price: \$150  
Trade-in Credit: \$25

**33 Watt Power Supply (7 Inch) (shown in photo)**  
Catalog #78707 Price: \$75  
Trade-in Credit: \$25

## Power Transformer

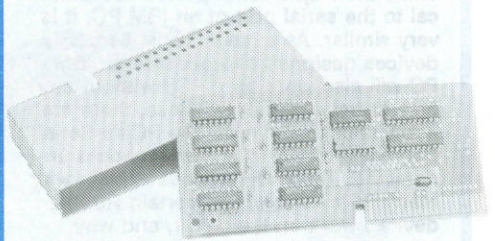
The power transformer resembles a black brick which has a cord attached to both ends. When this goes bad you will not see or hear anything happen when the PCjr is first turned on. You can test the transformer by measuring the output voltage, or by swapping it with a known good transformer such as the transformer included with a Racore System or with the PCjr Power Attachment Sidecar.



**Warning:** If you have a Racore Drive II Enhancement System and your power supply goes bad, it will often cause the transformer plugged into the Racore system to also fail. Do not plug a good power transformer into a Racore system if your Racore power transformer has failed until you have had your Racore power supply first checked out.

**Catalog #78712 Price: \$44**  
**Trade-in Credit: \$12**

## 64K Memory and Display Card



The IBM internal memory card increases the PCjr's memory from 64K to 128K. If this card goes bad your display will often appear "messed up" or your system may display the Error A message before it counts to 128K. Note: The metal shield shown in the photo was not provided with all PCjr's.

If your 64K card goes bad, we recommend replacing it with the PCE 192K card, as it is the same price, however to use our 192K memory card, the PCE System Board Modifications are also required.

**Catalog #78709 Price: \$50**

## Replacement Keyboard



This is the actual improved version of the PCjr wireless keyboard provided by IBM with the PCjr. Often purchased for use as an additional keyboard, or saved as a spare.

**A Replacement Keyboard**  
Catalog #78717 Price: \$25

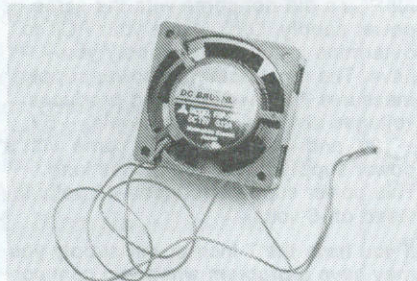
**B Chicklet Keyboard (not shown)**  
Catalog #78726 Price: \$15

### Special Offer

Buy Two Replacement Keyboards  
Get One FREE  
Catalog #10040 Price: \$50

## Diskette Drive Fan

The actual fan that mounts on the rear of the disk drive mounting shelf. When the PCjr is first turned on you should hear the sound of this fan. If this fan ever stops working the computer can overheat - causing permanent damage

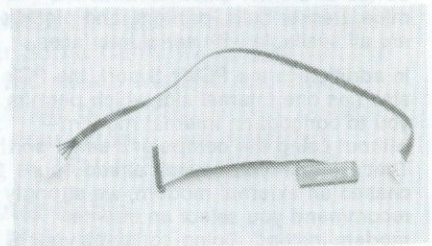


to other components (usually the system board). Often purchased as a spare.

**Catalog #78720 Price: \$9.95**

## Cables

(For Systems with One Disk Drive)



### A Power Cable

The black, 4-conductor cable which attaches from the PCjr's internal disk drive to the power supply card.

**Catalog #91814 Price: \$9.95**

### B Disk Drive Signal Cable

The grey, 34-position flat ribbon cable which attaches from the PCjr's internal disk drive to the Diskette Drive Adapter Card.

**Catalog #91813 Price: \$9.95**

# What Every PCjr User Should Know BEFORE they Purchase a Serial Device

While the PCjr's serial port is not identical to the serial port of an IBM PC, it is very similar. As a result, most serial devices designed to work with an IBM PC will also work on a PCjr without any fuss or trouble—nevertheless, there are a few idiosyncracies of the PCjr's Serial Port which every PCjr owner should understand. These differences explain why many PCjr users report certain RS-232 devices work on their PCjr, and why others report the very same devices do not.

## General Information

The PCjr comes standard with only one serial port. Peripheral devices that you purchase can be connected to this port by plugging them into the connector located on the rear of the PCjr. The connector is marked with the letter S which is the reason that the PCjr's serial port is often referred to as the PCjr's S port.

Serial ports can be used to connect a variety of devices which have serial interfaces. When hardware manufacturers say their products have a standard serial interface it means the device conforms to EIA standard RS-232C. For this reason, serial devices are also commonly referred to as RS-232 devices (C is the revision).

There are lots of serial devices which can be connected to your PCjr, however, it's important to remember that the PCjr only has one serial port. This means you can only use one serial device at a time. External modems, mice, tracker balls, printers, and plotters are all available with serial interfaces.

In addition to the PCjr's S port, the PCjr also has one internal slot which permits you to connect an internal modem—without using the computer's serial port! That's why, if you haven't already purchased an external modem, we strongly recommend you select an internal modem instead. Doing so keeps your S connector available for a mouse, tracker ball, serial printer, or other RS-232 device.

If you already have an external modem connected to the PCjr's S connector you can still add a mouse or tracker ball, however, you must select one which has a bus interface (such as our Jr-Bus Mouse). If you already have an external modem and you decide to add a printer be sure the printer you purchase has a

Centronics (parallel) interface. While you'll also need to purchase a parallel printer attachment you'll be able to add your printer without introducing any compatibility problems.

Another option to consider if you're already using the PCjr's S connector and would like to install an additional serial device is to install a switching box. These boxes permit you to select one of up to four serial devices with the flip of a switch. The problem with this is that you still will not be able to use more than one device at a time.

To connect a switching box to your PCjr you'll need a PCjr Serial Cable (such as catalog #22505-3) and the switching box itself. Purchase catalog #75501 to select between two serial devices or catalog #75515 to select any of four devices.

Switching boxes use female 25-position D-type connectors (not PCjr connectors), so if any of your serial devices use PCjr connectors you'll also need an adapter (#15503) which converts the PCjr connector to one that will plug into the switching box.

## Connector Differences

The PCjr's S connector is not mechanically compatible with serial ports that you'll find on other computers. Devices which plug into the PCjr's S connector must have a special 2x8 position PCjr connector. Most serial devices that you purchase have either 9 or 25 position D-type connectors.

Always try to purchase serial devices which already have PCjr connectors. If you purchase a device which uses D-type connectors you'll also need our Adapter Cable for Serial Devices (Catalog #22505-3) in order to plug the serial device into the PCjr's S connector.

## Voltage levels

All PCjr's did not come with the same power supply. Look inside your PCjr to determine which power supply you have. The most common power supply measures 7 inches long and produces voltages at three different levels, +5V, +12V, and -6V. Other PCjr's came with a power supply that is ten inches long. This power supply produces -12 volts instead of -6 volts.

If you have the 7 inch power supply you may have a problem when you connect

an RS-232 device. The reason concerns the -6V level. 100% PC Compatibles use -12V to generate RS-232 signals. To make matters worse, IBM's published specification for the -6V level permits it to vary 16% (approximately 1 volt). This means the actual negative voltage produced by your power supply may actually be as low as -5V!

If you use the ten inch power supply, or any of the PCE Junior Drive Power Supplies, you do not need to worry about this problem at all because they produce the same levels as PC compatibles.

If you have the seven inch PCjr power supply, we recommend that you purchase all your RS-232 devices from competent PCjr product suppliers who are aware of this problem and therefore only sell serial devices which are determined by test to work with all PCjr's—including those which only produce -5 Volts.

## Maximum Baud Rate

If you operate the PCjr's serial port with an RS-232 device at baud rates higher than 4800 you may or may not have a problem. This is because the PCjr uses a different frequency divisor to generate baud rate. If this difference presents a problem, be sure to complete and return our Win a New Product Survey. We already have a design for a low cost product that allows the PCjr to operate at speeds up to 115,000 baud.

## Keyboard Interference

Keyboard operations which occur while using baud rates higher than 1200 could present a problem. If your serial device happens to be receiving information and you press, or release a key, the information sent to the computer while the PCjr is servicing its keyboard routine may be ignored. When you are using a modem this will, in most cases, cause the other computer to re-send the information. However, it has also been reported to cause certain programs to be interrupted. PCjr users who hold down keys to get the computer's attention experience this problem much more often than those who use their keyboard normally. If the communication program that you use will also work with a mouse, you can completely eliminate this problem by using the mouse instead of the keyboard.

## Patches Required for Dos 2.1

Most experienced PCjr users already know that reliable operation of the PCjr with DOS 2.1 requires the DOS NMI Patches. If you use DOS 2.1 and you have not corrected these bugs, your PCjr will occasionally hang up or crash without warning. This will always happen when you press or release a key. Refer to the Keyboard Buffer Section of our catalog for more information. The DOS Patches are also provided on the PCE Utility Diskette.

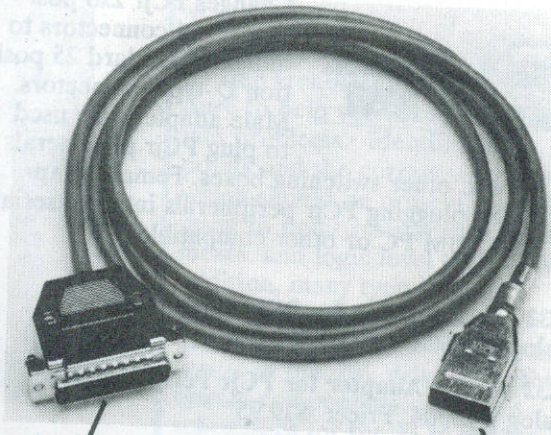
# PCjr Cables and Switching Boxes

## PCjr Serial Cables

Now you can select the correct length serial cable for your system! These cables make your PCjr Serial port "look" just like the serial port used by the IBM PC. With a PCjr Serial Cable you can connect peripheral devices designed to work with any IBM PC directly into your PCjr. Shorter cables are often used to connect to switching boxes and mice. Longer cables are normally preferred when attaching to other computers, external modems, and printers.

*Connect the PCjr to RS232 Devices*

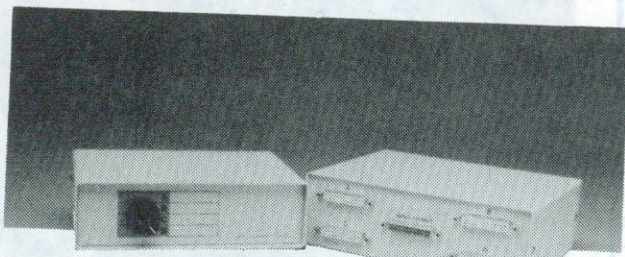
Length	Catalog#	Price
18 inch	22505-3	\$19.95
3 foot	22505-4	\$22.95
6 foot	22505-5	\$24.95



DB25 Male Pins  
Plugs into serial  
device or switching box

16 POS (2 x 8) Female  
Plugs into PCjr  
"S" connector

## Switching Boxes



*Lets you Select a Different Device Without Unplugging any Cables!*

Switching boxes permit you to attach more than one device to the same port on your computer. Once installed you will be able to change the device selected with the flip of a switch. Twenty-five position switching boxes are often used to connect an external modem to your computer at the same time as a mouse or printer. These same boxes can also be used to connect more than one printer to one computer or more than one computer to a single printer. Nine pin switching boxes are commonly used to connect two computers to the same monitor. Select an AB box if you want to switch between two devices and the ABCD box to switch between four devices. Cables not included. Nine pin AB box not shown in photo.

**AB Switching Box** (9 pin D-Type Female Connectors)  
Catalog #75512 Price: \$24.95

**AB Switching Box** (25 pin D-Type Female Connectors)  
Catalog #75501 Price: \$29.95

**ABCD Switching Box** (25 pin D Type Female Connectors)  
Catalog #75515 Price: \$39.95

## 25 Position Cables

This cable can be used to connect any two devices which use 25 position D-type connectors because they connect all 25 positions.

### Computer Cable (DB25 Female-Male)

Commonly used to connect a switching box, modem, or other serial device when the PCjr Serial Cable which you already have is too short. Male at one end, female at the other end, D-type connectors, 25 conductor, 6 foot, shielded.  
Catalog #22513-1 Price: \$14.95

### Computer Cable (DB25 Male-Male)

This cable has two common uses. If you want to connect your mouse or modem to a switching box this cable will do so nicely. It can also be used to connect two printers to one computer — or two computers to one printer. This cable will connect between your computer's parallel printer port and your switching box. Male D-type connectors on both ends, 25 conductor, 6 foot, shielded  
Catalog #22506-1 Price: \$14.95

### About Prices

PCjr products made by other companies are becoming increasingly difficult to find and therefore more expensive for us to purchase. As a result, a few of our prices have slightly increased and might be expected to continue increasing as the products become unavailable. Prices for products manufactured by PCE are only effected by this problem when the PCE product uses a PCjr specific component.

# Other Adapters and Cables

(Actual Adapter May or May Not Resemble the Adapter Shown in the Photo)

## Adapter for Peripherals which Plug into the PCjr's "S" Connector



Changes PCjr 2x8 position serial connectors to industry standard 25 position D-type connectors. Male adapters are used to plug PCjr peripherals

into AB and other switching boxes. Female adapters permit plugging PCjr peripherals into the serial port of an IBM PC or other compatible.

**RS232 Male Adapter for PCjr Peripherals**  
Catalog #15503 Price: \$19.95

**RS232 Female Adapter for PCjr Peripherals**  
Catalog #15504 Price: \$19.95

## Adapter for EGA Displays

Permits an industry standard EGA (digital) monitor to be used with our Display-Master VGA Sidecar. Call to determine availability.

**Adapter for EGA Displays**  
Catalog #22523 Price: \$19.95

## Adapter for Monochrome TTL Displays

Permits an industry standard monochrome TTL monitor to be used with our Display-Master VGA Sidecar. Call to determine availability.

**Adapter for Monochrome TTL Displays**  
Catalog #22524 Price: \$19.95

## Joystick Adapter



Permits you to use most IBM PC joysticks with your PCjr. Single button joysticks will work with games designed to run on the PC. Other programs may require a two button joystick.

One end of this adapter plugs into the 2x4 pin "J" connector on the rear of the PCjr. The other end has a 15 position female D-type connector which plugs into the PC joystick. One adapter is needed for each joystick.

Catalog #22503-1 Price: \$14.95

## Adapter for Color Displays

Attach an industry standard color monitor to your PCjr

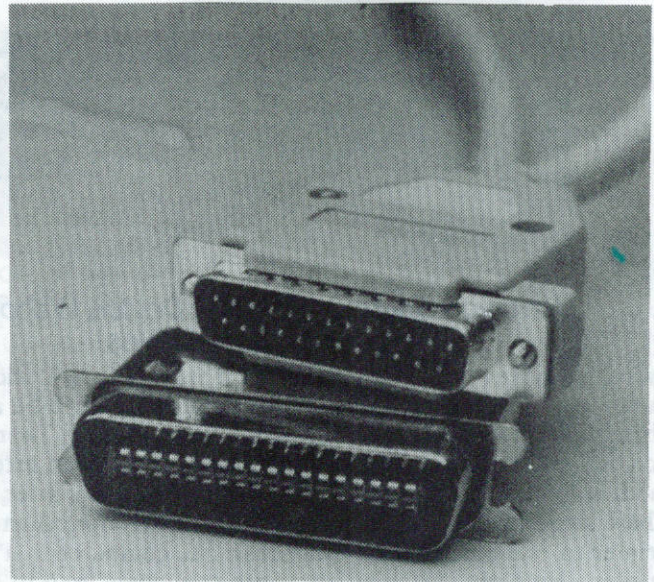


Permits an industry standard RGB (digital) monitor to be used with the PCjr. One end of this adapter plugs into the 2x9 pin connector marked with a "D" in the rear of the PCjr. The other end of this adapter has a female 9 pin D-type connector which plugs into the male 9 pin D-type connector found on all industry standard RGB monitors. This adapter is for digital color monitors only and does not work with monochrome displays. (Note: the same adapter also works with the PC Convertible).

**Adapter for Color Displays**  
Catalog #22509-1 Price: \$29.95

## Parallel Printer Cables

*Works with all PCjr Parallel Printer Ports!*



Allows you to connect any printer which has a standard parallel interface to the PCjr or a PC compatible. This cable has a male 25 pin D-type connector on one side and a Centronics 36 pin connector on the other. Shielded.

**Parallel Printer Cable, 6 Foot**  
Catalog #22510-1 Price: \$14.95

**Parallel Printer Cable, 10 Foot**  
Catalog #22510-3 Price: \$19.95

# Dust Covers

Dust often plugs ventilation holes causing excessive heat build up and premature component failure. With these custom designed covers your system will not only stay looking like new longer but it may last much longer as well. All vinyl. Color beige.

## Dust Cover for PCjr Monitor

Fits the IBM PCjr Color Display. Designed for those who keep their monitor alongside the system unit. Catalog #72002 Price: \$10.95

## Dust Cover for PCjr Keyboard

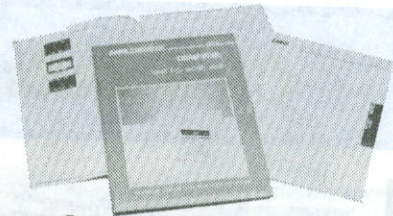
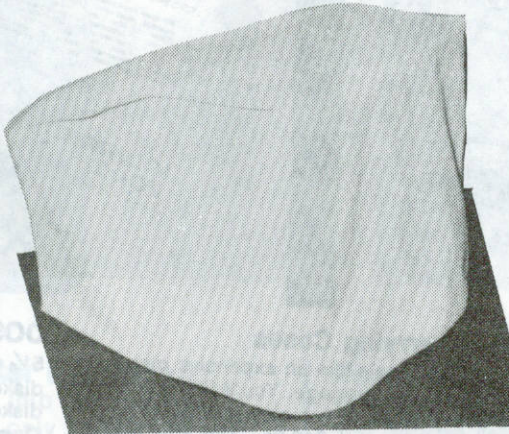
Fits both the chicklet or improved version of the original equipment PCjr wireless keyboard. Catalog #72003 Price: \$4.95

## PCjr Monitor and System Unit

Designed for those who keep their monitor on top of the PCjr system unit. One piece construction fits systems with one internal disk drive. Catalog #72001 Price: \$14.95

## PCjr Monitor and Two Drive System Unit

As above except for systems with two or three internal disk drives. Fits PC Enterprises, Racore and Legacy floppy or hard disk expansion systems. Catalog #72005 Price: \$14.95



## Sams ComputerFacts for the PCjr

Take the trouble out of troubleshooting. Provides a step by step troubleshooting procedure to help you identify and isolate problems. Identifies test points and the correct waveforms which should be present, provides point to point resistance measurements, and logic level tables. In addition, many type-in BASIC programs are included which enable the testing, alignment, and repair of the disk drive and other system components. Includes schematics for the PCjr system board, power supply, 64K memory expansion, disk drive and disk drive controller card. A must for anyone with a technical background.

Catalog #79002 Price: \$34.95

## Let Two Computers Share your PCjr Color Display

Now you can connect two computers to your PCjr Color Display and select which computer uses the display with the flip of a switch. Both kits come complete with everything needed.

### Kit #1 Connect two PCjrs to one PCjr Color Display

Qty	Catalog#	Description	Price	Amount
1	75512	Monitor Switching Box	29.95	29.95
2	22515-1	Cable (connects from PCjr to Switching Box)	19.95	39.90
1	22511-1	Adapter (allows monitor to plug into switching box)	49.95	49.95
Catalog #10026—Special Price: \$100.10			Regular Price:	\$119.95

### Kit #2 Connect one PCjr and one PC Compatible to one PCjr Color Display

Qty	Catalog#	Description	Price	Amount
1	75512	Monitor Switching Box	29.95	29.95
1	22515-1	Cable (connects from PCjr to Switching Box)	19.95	19.95
1	22516-1	Cable (connects PC Compatible to switching box)	14.95	14.95
1	22511-1	Adapter (allows monitor to plug into switching box)	49.95	49.95
Catalog #10027—Special Price: \$94.95			Regular Price:	\$114.80

## Null Modem Serial Printer Adapters

These adapters look just like our 25-position gender changers except that they have male pins on one side and female pins on the other.

You can use a Null Modem Adapter to connect your PCjr's serial port to the serial port of another computer, or to a serial printer (if the printer requires a different pinout as compared to a modem).

Catalog #75510 Price: \$8.95

## HARDBIOSjr Hard Drive Boot Cartridge

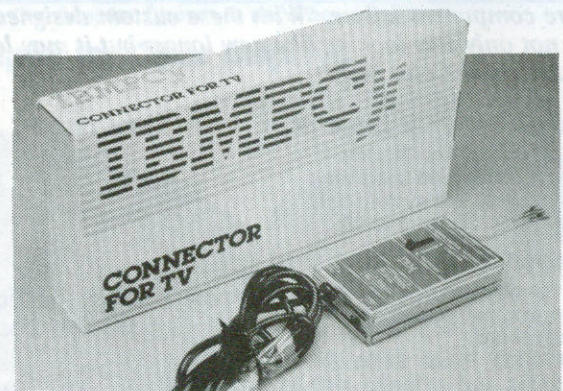
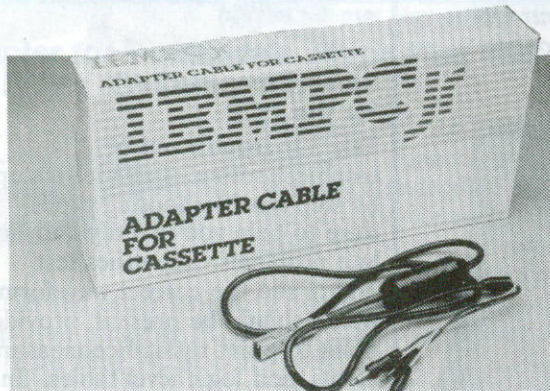
If you have a competitors hard disk drive system that uses the RIM SASITALK Host Adapter Card, this cartridge will permit you to boot from your hard drive without using a floppy.

The RIM SASITALK card plugs into the computer's internal modem slot and can be identified by the word SASITALK which is printed on the circuit board.

Catalog #18030 Price: \$49.95

An extremely small number of these cartridges are still available.

# Closeouts on IBM Brand Accessories!



## Adapter Cable for Cassette Recorders

This cable permits you to attach a cassette recorder or other device to the cassette port of the PCjr. This port was originally intended so you could save information on cassettes, but today, PCjr users have come up with much more interesting applications.

Those who know how to write their own programs can use this cable to turn the cassette motor relay on or off by program control, therefore controlling just about any other device that they might want. When used with a cassette recorder you can also record or playback sounds throughout the day—by program control.

If your collection of PCjr add-on accessories does not include one of these cables, why not order one today? Our supplies are limited and at this price they won't last forever.

Catalog #79005 Price \$9.95

## Cluster Attachments

The PCjr Cluster Attachment is a sidecar designed to permit the PCjr to be interconnected to other PCjr's and to other computers. In the clustered arrangement, several PCjr's could share a common hard disk drive or other hardware. Each computer in a cluster must have its own Cluster Attachment.

If you decide to cluster a group of computers, you'll also need a coaxial cable and the IBM Cluster Program (not presently available from PC Enterprises). Also, in order to keep the price down, the Cluster Attachment is being offered without any technical support (not because we don't want to, but because we don't know how to). This is the very same PCjr Cluster Attachment which originally sold for \$300.00. So hurry the case alone is worth the price.

**PCjr Cluster Attachment**  
Catalog #79014 Price \$29.95

**PC Cluster Card for PC, XT, and AT Compatibles (8-bit)**  
Catalog #79034 Price: \$29.95

## PCjr Carrying Cases

Looks and feels like an expensive piece of hard cover luggage. You'll find it hard to believe that such a nice product could sell for only \$19.95. The PCjr carrying case will permit you to safely and conveniently transport your PCjr. Often used to take the computer to and from work or school. It is also used as a shipping container by many PCjr owners who need to send the PCjr in for service.

Catalog #79004 Price \$19.95

## TV Connectors

Permits you to connect a color or black and white television set to the PCjr for use as a monitor. Ideal for those who take their computer with them when they travel as it permits connecting the PCjr to Hotel/Motel television sets. Others purchase and save a TV Connector for possible future use in the event their monitor ever needs service. Can also be used to attach the PCjr to a VCR so that you could make video tapes of programs that you run.

Catalog #79003 Price \$24.95

## Guide to Operations Manual

Step-by-step instructions on basic PCjr operation. Includes "Exploring the IBM PCjr" animated diskette. Opened.

Catalog #79033 Price: \$19.95

## PCjr Compact Printer

The PCjr Compact Printer was designed specifically for the PCjr. Comes complete with its own cable which plugs directly into the PCjr's S (serial connector).

**Reconditioned**  
Catalog #78738 Price: \$59

## Hands on BASIC Manual

Personal computer BASIC self-tutor for the IBM PCjr. Teaches you the important ideas about computers and programming.

Catalog #85031 Price: \$14.95

## DOS 2.10

5¼ diskettes. Includes manual, DOS diskette plus Supplemental Programs diskette.

**Opened**  
Catalog #78731 Price: \$39.95

**New**  
Catalog #86011 Price: \$49.95

## DOS 3.20

Recommended for anyone who uses a high density disk drive. Does not require any software device drivers to read or write high density diskettes. Very limited quantities.

**5¼ inch diskettes (opened)**  
Catalog #78723 Price: \$59.95

**3½ inch diskettes (new)**  
Catalog #78732 Price: \$59.95

## 128K Memory Expansions

The IBM Brand 128K Memory Expansion sidecar. Just plug this sidecar into your PCjr and the amount of memory available to run programs will be increased by 128K. This means if your PCjr presently counts up to 128K you'll have a total of 256K. You can add up to four regular 128K sidecars.

Catalog #78715 Price \$199

**512K IBM Brand Memory Expansion**  
The 512K IBM Brand Memory Expansion Sidecar is a 128K sidecar that has been upgraded by PCE to 512K.

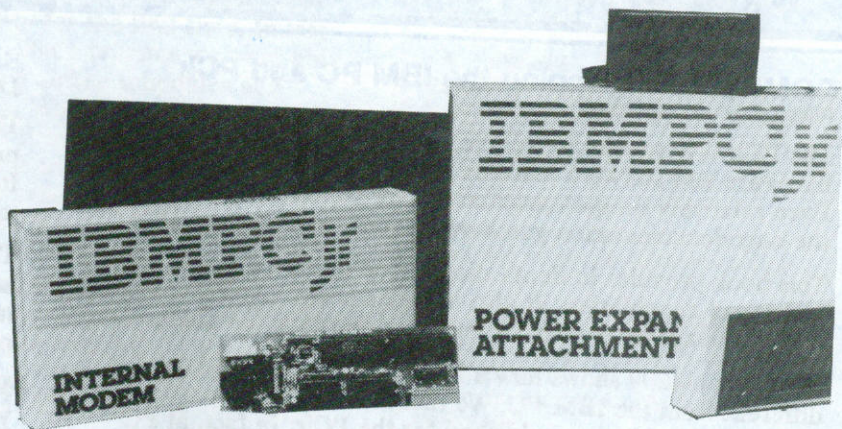
Catalog #14019 Price: \$295

## Special 128K Version

Now a "Special Version" of the IBM 128K sidecar can also be purchased from PC Enterprises. This version is modified by PC Enterprises to permit those with 640K of memory to expand to 736K. These 128K Sidecars are reconditioned, and like all IBM brand products sold by PC Enterprises, are warranted by PC Enterprises for a full year. Includes user supported memory management software.

Catalog #78727 Price \$199

**More  
IBM Brand  
Favorites  
At  
Unbelievable  
Prices!**



**Telecommunications Starter Package**

Here's a chance for you to enter into the exciting world of telecommunications for only \$29.95! That's right, just \$29.95 gets you absolutely everything you'll need — except the PCjr and the telephone line.

So if you're curious about modems and would like a chance to "get your feet wet" without spending a lot of money don't let this starter package pass you by. The package includes a Bell 103 compatible PCjr auto answer/auto dial internal modem (300 baud), user supported communications software, and a FREE subscription to CompuServe which includes fifteen dollars worth of FREE access time.

Access CompuServe's PCjr Forum where you can exchange information with other PCjr users. Read about PCjr problems — and their solutions. Learn which programs run on a PCjr — and what to do when a program does not. You'll even be able to chat through your keyboard with other PCjr users and trade software.

But when you log on to CompuServe, the PCjr Forum is only the beginning. You can also access airline schedules, electronic encyclopedias, the daily news, and even stock market quotes and reports. Plus thousands of other uses. And CompuServe is only one of thousands of places that you'll be able to call with the IBM Internal Modem and your PCjr. You'll be able to communicate with any computer that uses a Hayes compatible modem — because all Hayes modems are Bell 103 compatible.

And don't be fooled by this low price. These modems originally sold for \$300 and are listed in our Spring 1988 catalog for \$129. We've slashed the price because we're overstocked and because experienced users normally prefer faster modems. Nevertheless, at \$29.95 this is perhaps the best bargain in our catalog!

But don't wait too long — our supplies won't last forever and the \$15 CompuServe credit is only being offered for a limited time.

**Catalog #79024 Sale Price: \$29.95**

**Power Expansion Attachment**

If you overload your PCjr's power supply, your PCjr will require service. That's why power should be a real concern to everyone who has already started to expand their PCjr.

Most options which you attach to your computer take the power that they need from the PCjr's internal power supply. When the options you have attached consume more power than the PCjr's power supply can provide, an overload condition occurs. This means the power supply tries to "put out" more power than it was designed to provide. If allowed to operate in an overload condition, your PCjr power supply may continue to operate for seconds, minutes, hours, or days — but eventually, if the overload continues the power supply will normally fail and require service.

The IBM PCjr Power Expansion Attachment is a product which supplies additional power for your PCjr add-on products. The Power Expansion Attachment comes in a PCjr sidecar. It also comes with its own power transformer which is interchangeable with the "black brick" power transformer that came with the PCjr.

To install the Power Expansion Attachment just plug it into the right side of your PCjr. Once installed, other side mounted expansion units such as Memory sidecars, Printer Attachment sidecars, and Speech Attachment sidecars can be plugged into the Power Expansion sidecar. Sidecars plugged to the righthand side of the Power Expansion Sidecar receive their power from the Power Expansion Attachment. Sidecars plugged to the left of the Power Expansion continue to receive their power from the power supply inside the PCjr. Be sure to read the sections of our catalog which describe our Junior Drive Power Supply, as you may prefer that product instead.

**IBM Power Attachment (New)**  
Catalog #79909 Price: \$69.95  
**IBM Power Attachment (Reconditioned)**  
Catalog #78714 Price: \$54.95  
**Power Adapter for Hard Disk Drive**  
Catalog #22522 Price: \$9.95

**Specs**  
15 Watts @ +5V  
4 Watts @ +12V  
.3 Watts @ -12V

# Preferred Books for Your PCjr

## COMPUTE!'s Mapping the IBM PC and PCjr

Russ Davies—330 Pages

The PCjr is a powerful machine, however many of its built-in hardware and software features are not well documented. Even relatively simple things may seem impossible to do when the only documentation you have is what's provided by IBM.

This book provides in depth discussions of the keyboard, video, and sound capabilities. It also includes comprehensive memory and port maps, as well as an interrupt and function guide.

The book clearly shows how a PCjr is the same, and how it is different from the IBM PC. We think it is without question the most useful book ever published for the PCjr. In fact, at PC Enterprises you'll always find a Mapping book within reach of any of our technicians, both at work and at home. We use it more than all the others combined. Whether you're an engineer, technician, programmer, or whether you simply like to dabble with batch files and debug—we think you'll consider this book a valuable asset to your PCjr collection too!

Catalog #85035 Price: \$18.95

## BASIC Exercises for the IBM PCjr

J.P. Lamoitier—251 pages

This book uses the learn by doing approach, a truly effective teaching method. It offers a practical and entertaining way to learn BASIC.

Through progressive, step-by-step examples, you'll learn the fine points of the language and learn how to write your own programs.

With a little practice, you will be using your PCjr to compute taxes, forecast sales, calculate the rate of growth, and find the average of a sequence of measurements. You'll also learn how to perform many routine accounting, statistical, and financial tasks. Includes numerous short type in programs and subroutines.

Catalog #85014 Price: \$16.95

### Super Saver Package #3

Perhaps our two best PCjr Books! Includes the indispensable Mapping the PC and PCjr book and our most popular BASIC programming book that we have ever sold, Basic Exercises for the IBM PCjr.

Catalog # 10044 Price: \$24.95

## IBM PC and PCjr Logo Programming Primer

Don Martin, Marijane Paulsen, Stephen Prata - 456 pages

Designed for newcomers to the world of Logo and the IBM PCjr, this book teaches the revolutionary Logo programming language quickly and easily with exciting visual feedback. By using Logo's "turtle graphics" to introduce key programming ideas, you learn the new "top down" method of program design. This book teaches the elements of Logo in easy to read style. Each chapter has command summaries and practice exercises to help reinforce the concepts presented in the chapter. Extremely limited quantities—Call before ordering.

Catalog #85007 Price: \$24.95

## COMPUTE!'s IBM & Compatibles BASIC Program Collection

263 Pages

A collection of 25 favorite game, useful applications, education programs, and helpful utilities for PCjr users which have appeared in various issues of COMPUTE! Magazine. All programs have been fully tested on a PCjr.

The programs in this collection cover a wide range of interests and levels of use. You'll find serious programming applications like a fast batch file editor; valuable utilities, including a keyboard customizer, fast moving arcade style games; and clever educational games that will hold children's attention while they learn. Extremely limited quantities—Call before ordering.

Catalog #85034 Price: \$18.95

## COMPUTE!'s IBM PC & PCjr Games for Kids

Clark and Kathy H. Kidd—362 Pages

Your PCjr can educate and entertain children of all ages, from preschool to high school. This book includes 29 games and two utility programs which are ready to be typed in and run.

Whether you already know how to program, or are just starting out, you've probably realized that creating educational, entertaining games takes time and practice. Perhaps the best way to improve your programming skills is to type in a program yourself—and when you do so with this book you'll end up with an instant library of educational software for your children. Extremely limited quantities—Call before ordering.

Catalog #85033 Price: \$14.95

## IBM PC and PCjr Computer Workout

Software Lab East—62 pages

You'll have quite a workout solving over 40 crossword puzzles, word searches, mix and match games, and other fun games. Included are programming tips that will help you put your programs into great shape. Have fun while you test your computer's problem solving skills and develop your programming muscles. Do the IBM PC and PCjr Computer Workout. For ages 7 and up. Extremely limited quantities—Call before ordering.

Catalog #85008 Price: \$2.95

These books are now out of print. Once our existing supplies are sold out, we cannot get any more. Cartridge Basic or a PC Enterprises Configuration Cartridge is required for books which contain Basic programs. Super Saver Packages 1 and 2 are sold out.



# Prodigy Runs on the PCjr!

If you own a PCjr, and you also have a 1200 or 2400 baud Hayes Compatible modem, you may already have everything you need to access the Prodigy Information Service.

Prodigy is a telephone information service created by a partnership of IBM and Sears. If you purchase the Prodigy Start-up kit below all you'll need to access the Prodigy service is your PCjr, a modem, and a phone line.

There are lots of other services which permit a PCjr to communicate with larger mainframe computers, but Prodigy is the only service we've ever recommended for average PCjr users.

Here's three reasons we think you'll enjoy using Prodigy. First, there's a good chance that you can access Prodigy by dialing a local telephone number. Prodigy has hundreds of phone numbers all over the US. Feel free to ask our sales representative for a list of cities which offer local telephone numbers.

Second, while other on-line information services have an hourly charge, Prodigy has a monthly charge. You could use Prodigy as often, and for as long as you like without running up your bill. And, surprisingly, the monthly charge for unlimited use is only \$12.50. Many other services charge that much for just one hour!

And third, the services offered by Prodigy are useful, fun, and well worth the while. We think you'll agree. Examine this page and decide for yourself.

But first, here's a testimonial. When PC Enterprises needed to send two representatives to a trade show in Boston we thought it was a good opportunity to try out Prodigy. Prodigy advertises that users can make airline reservations, so we decided to put them to the test.

First we contacted our usual travel agent and asked to reserve two seats on the least expensive flight to Boston. Then we logged onto Prodigy for the first time. In less than fifteen minutes we were able to view airline schedules and prices. We selected a flight, and asked Prodigy to reserve two seats. Several hours later our travel agent called back and quoted a fare \$100 per seat higher! While we're not knocking travel agents, this experience does make a statement concerning the usefulness of Prodigy.

## Just look at all these services:

### ● Computer Club

In this section you'll meet lots of other PCjr owners and some pretty accomplished PCjr gurus. They'll offer advice and answer specific questions you might have concerning PCjr's and other computers.

### ● Easy Sabre

Here's the service we used to make airline reservations. Prodigy also lets you make hotel and rental car reservations.

### ● Mobile Travel Guide

Ratings for restaurants and lodging, and information about history and sightseeing in 53 major cities around the US.

### ● Zagat's Restaurant Survey

Ratings of restaurants in 16 major US cities. Search by cuisine, rating, or section of town!

### ● Travel Club and City Guides

Here are two particularly useful services which come in handy when you plan a trip. You can read and exchange messages with other Prodigy members about their experiences in cities that you intend to visit. For example, one recent message in the Caribbean section read, "We just returned from Barbados, and while we had a great time it sure would have been nice if we had brought insect repellent with us. The only thing that ate better than us were the flies!"

### ● Weather

Accu-Weather coverage - over 300 cities worldwide! After making our airline reservations to Boston we used this section to see what the weather would be like. We were happy that we did, because when the thunderstorm started we were prepared! You can also get foreign weather and ski reports.

### ● News

In-depth news from around the US and the world! Current and up to date.

### ● Education

You can access the Academic American Encyclopedia which is updated four times a year. Every article can be printed.

### ● Sports

Extensive in-progress coverage of baseball, football, hockey, and basketball scores, standings, and statistics for your favorite teams!

### ● Shopping

Shop from your own home! Special sales and exclusive discounts are offered.

### ● Money Management

On-line banking opportunities from anywhere in the US! Stock quotes when you want them. On-line discount brokerage!

### ● Entertainment

A movie guide which contains thousands of listings from 1902 to today! While this section can be used by any movie lover, it's especially useful if you like to rent movies. Let Prodigy compile a list of movies by actor, director, or genre—then go to wherever you go to rent movies with a list of movies you'd like to see!

### ● Horoscopes

Personal Horoscope from Jeane Dixon! See what's in the stars for your birthday, or any day.

### ● Electronic Mail

You can send and receive messages with other Prodigy members all over the country. You'll even be able to leave private or public messages for other Prodigy subscribers or for any of our troops in foreign countries.

### ● Other

Look up product information in Consumer Reports. Play challenging and fun games! Get advice from nationally known experts. And lots more!

## Prodigy Start-up Kit

Requires: 512K, 1 Drive, 1200 or 2400 Baud Modem

Runs Best With 640K, 2400 Baud Modem, and Mouse

When you purchase the Prodigy Start-up Kit from PC Enterprises you'll receive a one month membership, special keyboard-fix software which improves communication reliability with a PCjr, a special PCjr screen driver which lets Prodigy run with 16-color graphics, and instructions.

Catalog #86316 Price: \$32.95

Prices and services are those in effect at the time this catalog was printed. If you elect to continue using Prodigy after the first month a \$12.50 monthly fee must be paid directly to Prodigy. If you cancel after the first month, you will not be billed for any additional charges.

# Three Great Reasons to Buy Software from PC Enterprises

1

**Compatibility**— All software sold by PC Enterprises is guaranteed to run correctly on a PCjr—or your money back. While most PC programs run without modification, programs which do not normally run are opened and enhanced for PCjr compatibility before leaving our facility. We'll also supply special instructions when necessary to overcome PCjr specific problems that you may encounter.

2

**Superior Graphics**— Although the PCjr will run almost any program designed to run on an IBM PC with a CGA card, the PCjr is not TANDY compatible. As a result, the PCjr will not run the 16-color TANDY version of most programs that you buy. Whenever practical, PC Enterprises will modify the TANDY version of a program so the 16-color mode works correctly on the PCjr. (Note: PAPERBOY is one such example).

3

**Price**— Our prices are very competitive and we invite you to shop and compare. And best of all, we never charge extra when we modify or enhance a program for operation on the PCjr.



## CALIFORNIA GAMES

16-Color PCjr Graphics  
Requires 640K  
Catalog #86608  
List \$39.95 Our Price \$29<sup>96</sup>

Put on your knee pads — you're about to have the most fun you've had since Mom hid your skateboard. Enter six wild events and compete against up to eight players. Win enough trophies to become a California champion!

## TEST DRIVE

16-Color Graphics with PCE System Board Modifications and Software Upgrade Requires 384K  
Catalog #86604  
List \$39.95 Our Price \$29<sup>96</sup>

Experience the power and performance of the world's most exclusive cars. Test drive a Ferrari Testarossa, a Lotus Esprit, a Porsche 911Turbo, a Lamborghini Countach and a Corvette.

## SPACE QUEST: THE SARIAN ENCOUNTER

16-Color PCjr Graphics  
Requires 256K  
Catalog #86607  
List \$49.95 Our Price \$37<sup>96</sup>

The player will board enemy space ships, explore alien landscapes and encounter weird creatures in this tale of action and adventure in deep space. Features 3-D graphics and animation, Arcade sequences and an inventive plot.

## PAPERBOY

16-Color PCjr Graphics Requires 256K  
Catalog #86602  
List \$39.95 Our Price \$29<sup>96</sup>

You're the Paperboy and it's time to begin your route. Hop on your bike and ride through not-so-typical suburbia. Foil the robbers and win fame and fortune as you brave mean streets. Avoid traffic, tires, motorcycles, tricycles, gratings and other obstacles.

## THEXDER

16-Color PCjr Graphics  
Requires 256K  
Catalog #86613  
List \$34.95 Our Price \$26<sup>21</sup>

Transform the robot Thexder into a jet plane and pilot 16 battle scenarios. Features graphics and animation.

## POLICE QUEST

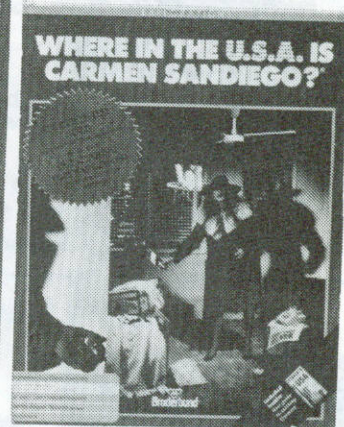
Police Quest 16-Color PCjr Graphics  
Catalog #86606  
Requires 256K  
List \$49.95 Our Price \$37<sup>46</sup>

Police Quest 2 16-Color PCjr Graphics  
Catalog #86615  
Requires 640K  
List \$49.95 Our Price \$37<sup>96</sup>

A 3-D animated adventure game that puts you in the role of a police officer in a mid-American town. Work your way from a street cop to undercover narcotics agent in a quest to bust a big-time drug dealer nicknamed "The Death Angel". Includes a policeman's indoctrination guide and activity map.

# SO WHERE IS CARMEN SANDIEGO?

*Expand your horizons while you have fun with the Carmen Sandiego series by Broderbund Software. In these educational and entertaining games you travel through Time, Europe, the World, and the USA looking for Carmen Sandiego. In your travels, history is brought to life highlighting people, events, inventions, cities, geography, economy, and cultures.*



## WHERE IN TIME IS CARMEN SANDIEGO?

*16-color graphics with PCE System Board Modifications!*

Carmen is on another exciting detective chase far into the past. She is somewhere between 400 A.D. and the 1950s. History is brought vividly to life highlighting leading people, events and invention. Use the New American Desk Encyclopedia (included) to solve the case.

*Requires 512K and 2 Disk Drives  
Runs best with Speed-Up Board and Mouse*

Catalog #86619  
List \$49.95 Our Price \$37.46

## WHERE IN EUROPE IS CARMEN SANDIEGO?

*16-color graphics with PCE System Board Modifications!*

Carmen strikes again! Track Carmen and her gang across 34 European nations using the "Concise Atlas of Europe" (included). While traveling through the European nations you will learn about geography, history, economy, and culture.

*Requires 384K and 1 Disk Drive  
Runs best with Speed-Up Board*

Catalog #86620  
List \$49.95 Our Price \$37.46

## WHERE IN THE WORLD IS CARMEN SANDIEGO?

*16-Color EGA Graphics with Display-Master and PCjr Monitor*

The metropolis awakens to find the Statue of Liberty's torch gone... Stolen! There are 10 possible suspects, 30 cities and nearly 1000 clues. Decipher clues by looking up facts in the World Almanac (included). A different game every time you play.

*Requires 512K and 1 Disk Drive  
Runs best with 640K, 2 Disk Drives, Speed-Up Board, Mouse, or Joystick*

Catalog #86611  
List \$49.95 Our Price \$37.46

## WHERE IN THE USA IS CARMEN SANDIEGO?

*16-Color EGA Graphics with Display-Master and PCjr Monitor*

The sequel to "Where in the World is Carmen Sandiego?". Research clue information in Fodor's USA travel guide which provides maps of each state as well as specific state by state descriptions. A total of 16 suspects, 50 states and more than 1,500 clues. Thousands of random games.

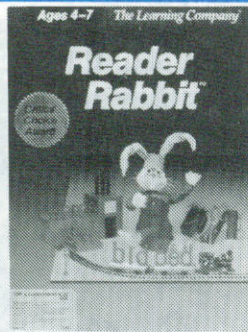
*Requires 512K and 1 Disk Drive  
Runs best with 640K, 2 Disk Drives, Mouse or Joystick*

Catalog #86612  
List \$49.95 Our Price \$37.46

# Educational Software

Remember! When you buy software from PC Enterprises you never need to worry whether the program runs correctly on a PCjr. We guarantee the program will run—or your money back! So don't worry about PCjr compatibility—even if someone tells you they know that a program listed in our catalog doesn't run on a PCjr. That's our specialty. We search for programs which do

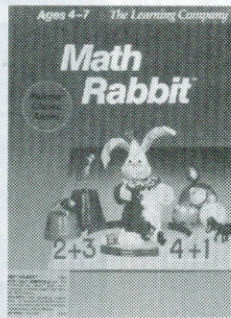
not normally run on a PCjr—then modify the programs for PCjr compatibility. We also include utility programs and special instructions when necessary to overcome known problems. Unfortunately, we can't indicate in our catalog which programs are modified because the list is constantly changing. However, modified products are always clearly marked on the package and are supported and warranted by PC Enterprises.



## READER RABBIT

4-Color PCjr Graphics  
Requires 256K  
Catalog #86203  
List \$39.95 Our Price \$2996

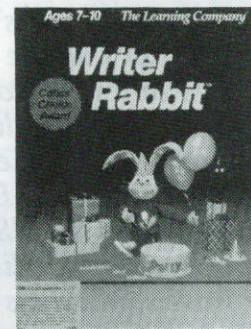
Helps preschool and kindergarten children learn the fundamentals of reading and spelling. Your child will learn to improve memory skills, vocabulary and even their concentration.  
16-Color Graphics with PCE System Board Modifications (384K Required)



## MATH RABBIT

4-Color PCjr Graphics  
Requires 256K  
Catalog #86202  
List \$39.95 Our Price: \$2996

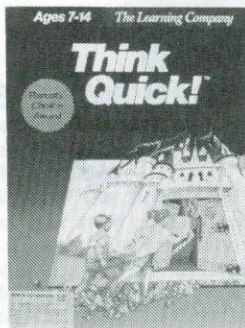
Teaches children important early math skills. Entertains and motivates using animated graphics, playful music, and the colorful dancing Math Rabbit. Includes four game levels. Ages 4 to 7.



## WRITER RABBIT

4-Color PCjr Graphics  
Requires 256K  
Catalog #86208  
List \$39.95 Our Price: \$2996

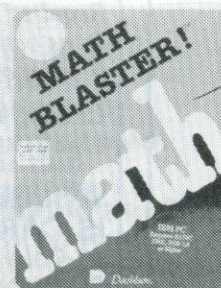
Teaches children the basic building blocks for writing. In six carefully sequenced games, children learn to put together words and phrases to build complete sentences. Grades 2 to 4.



## THINK QUICK

4-Color PCjr Graphics  
Requires 256K  
Catalog #86204  
List \$49.95 Our Price \$3746

An educational, fun game which will help build your child's thinking skills. With six different game levels, your child will go from room to room solving different puzzles. Ages 7 to 14.



## MATH BLASTER

4-Color PCjr Graphics  
Requires 256K and BASIC  
Catalog #86201  
List \$49.95 Our Price \$3746

With over 600 problems covering addition, subtraction, multiplication and division, this program will help teach your child the basics of math. It even includes fractions, percents and decimals. Designed for children grades 1 to 6.



## DESIGNASAURUS

Requires 512K  
Catalog #86206  
List \$39.95 Our Price \$2996

An exciting program for everyone who loves dinosaurs! The program has three parts: Walk-A-Dinosaur, Build-A-Dinosaur and Print-A-Dinosaur, which increase the child's interest in science and stimulates creative and independent thought.

# Educational Software

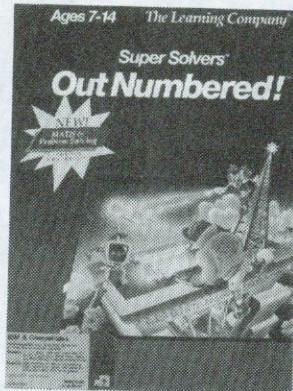
## SUPER SOLVERS: OUTNUMBERED!

4-Color PCjr Graphics\*  
Requires 512K and 1 Disk Drive  
Catalog #86211

List \$49.95 Our Price \$37.46

Recommended for Ages 7-12. Collect clues that will lead you to the hideout of the Master of Mischief. This fun-filled game combines arcade action with word problems that use charts, lists and graphics to help children analyze and solve basic math problems in multiplication, division, addition and subtraction. The "Drill for Skill" game lets players practice math facts.

\* Runs best with 640K, 2 disk drives and speed up Board. 16-color graphics with PCE System Board Modifications (640K required)!



## SUPER SOLVERS: MIDNIGHT RESCUE!

4-Color PCjr Graphics\*  
Requires 512K and 1 Disk Drive  
Catalog #86212

List \$49.95 Our Price \$37.46

Recommended for Ages 8-11. You have until midnight to discover the culprit who is splashing disappearing paint on the school. Midnight Rescue helps develop your child's reading and thinking skills; reading for the main idea, remembering key facts, gathering meaning and drawing conclusions. Your child will have an appreciation of reading that will last forever.

\* Runs best with 640K, 2 disk drives and speed up Board. 16-color graphics with PCE System Board Modifications (640K required)!



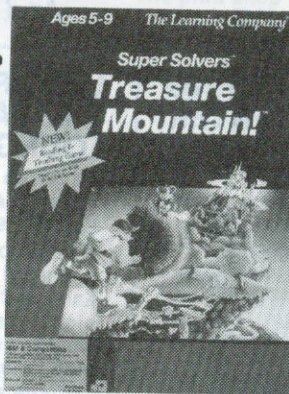
## SUPER SOLVERS: TREASURE MOUNTAIN!

4-Color PCjr Graphics\*  
PCjr Sound  
Requires 512K and 1 Disk Drive  
Catalog #86213

List \$49.95 Our Price \$37.46

Recommended for Ages 5 to 9. Something peculiar is happening on Treasure Mountain! The Master of Mischief is back and has stolen the enchanted crown and is taking all the gold on the mountain for himself. Stop the Master of Mischief by answering questions from the local elves, who will assist you in finding the hidden treasures. Will help enrich your children's reading, thinking, math and science skills.

\* Runs best with 640K, 2 disk drives and speed up Board. 16-color graphics with PCE System Board Modifications (640K required)!



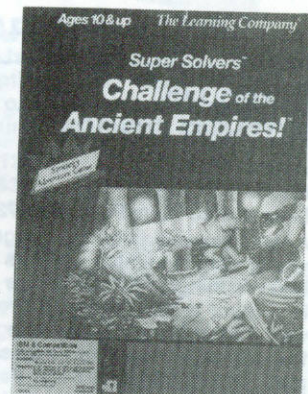
## SUPER SOLVERS: CHALLENGE OF THE ANCIENT EMPIRES

4-Color PCjr Graphics\*  
PCjr Sound  
Requires 512K and 1 Disk Drive  
Catalog #86214

List \$49.95 Our Price \$37.46

Recommended for ages 10 & up. The world's most priceless artifacts were stolen by thieves centuries ago. These artifacts reveal the secrets of the ancient world and are buried far beneath the desert sands. You must recover the priceless artifacts by discovering the secrets of the caverns and chambers, fearlessly confronting menacing cave creatures and facing the final challenge.

\* 16-color graphics with PCE System Board Modifications! 256-color graphics with Display-Master VGA Sidecar (640K required)!



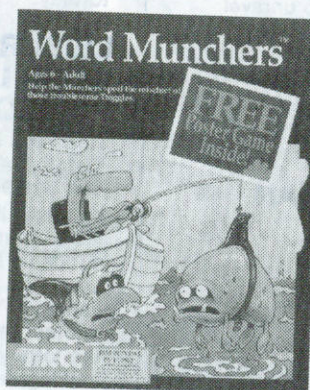
## WORD MUNCHERS

4-Color PCjr Graphics\*  
Requires 512K  
and 1 Disk Drive  
Catalog #86215

List \$49.95 Our Price \$37.46

Recommended for ages 6 to adult. Word Munchers is an exciting game to help children learn basic vowel sounds. Choose from hundreds of game boards. As your child's skills increase, the game boards become more complex and challenging.

\* Runs best with a joystick. 256-color mode with Display-Master VGA Sidecar (640K required)!



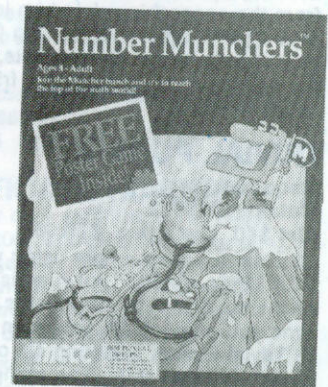
## NUMBER MUNCHERS

4-Color PCjr Graphics\*  
Requires 512K and 1 Disk Drive  
Catalog #86217

List \$49.95 Our Price \$37.46

Recommended for ages 8 to adult. Number Munchers is an educational game designed to help children practice their skill at recognizing basic numbers and relationships. Choose from a number of different difficulty levels for more challenging and complex gameboards.

\* Runs best with a joystick. 256-color mode with Display-Master VGA Sidecar (640K required)!



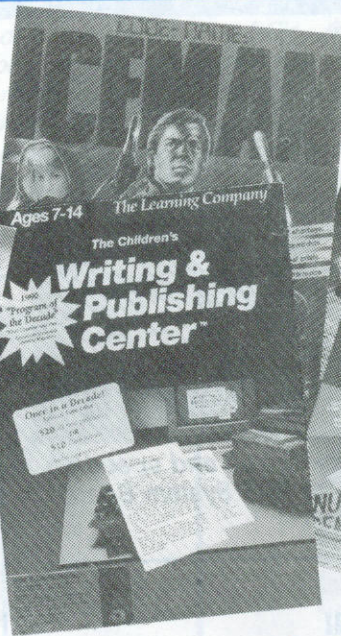
# SOFTWARE THAT'S FUN-TO-RUN!



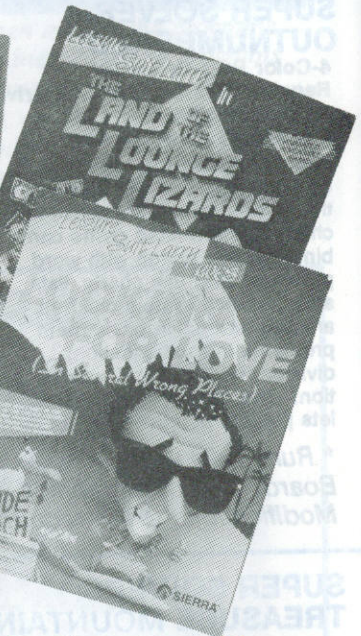
For the young...



For the not-as-young...



And for those over 21...



## MIXED-UP MOTHER GOOSE

Requires 256K.  
Catalog #86207  
List: \$29.95 Our Price \$18.72

A fantastic entertainment program for young children which requires absolutely no reading skills. Once the program is started, a child can take over with very little instruction, because only a few computer keys are necessary to play.

## ALF

Requires 384K  
Catalog #86603  
List \$14.95 Our Price \$11.21

Alf's best buddies from Melmac have crash landed their spaceship on Earth! Guide Alf through the maze-like neighborhood, as he collects all that was lost from the spaceship. Join him in the race against time and the Dog Catcher as you help him collect objects, rebuild the spaceship, and return his friends safely to space!

## TRIVIAL PURSUIT

Requires 384K  
Catalog #86622  
List \$40 Our Price \$29.96

Challenge your memory using your IBM PCjr. Play against your friends or any of the six computer opponents. Each time you play, create your own edition of Trivial Pursuit selecting six of the 30 categories available. The computer players are experts but don't know it all—Do you?

## THE CHILDREN'S WRITING AND PUBLISHING CENTER

Requires 384K and 1 Disk Drive  
Catalog #86216  
List \$69.95 Our Price \$52.46

Recommended for ages 8 to 14. A productivity program that will enable students to produce illustrated reports, stories, newsletters, and more. Features word processing, picture selections and page design capabilities. For home or school use.

Runs best with 2 disk drives. 16-Color graphics with PCE System Board Modifications!

## PSYCHO

Requires 256K  
Catalog #86610  
List \$24.99 Our Price \$18.74

Travel to the Bates Motel to unravel this mystery. Enter both the Motel and the forbidden house on the hill. Search for clues. Keep your eyes alert and your back to the wall as you encounter the psychotic Norman Bates and his curiously silent mother.

## CODENAME: ICEMAN

Requires 640K  
Catalog #86621  
List \$59.95 Our Price: \$44.96

You as Johnny Westland must crack the deadly security of a terrorist base and rescue a hostage ambassador. With the use of Naval Intelligence charts pilot a submarine into the enemy territory. This exciting adventure game combines action and realistic simulation for a new kind of computer entertainment.

## LEISURE SUIT LARRY IN THE LAND OF THE LOUNGE LIZARDS

Requires 256K  
Catalog #86601  
List \$39.95 Our Price \$29.96

A humorous and harmless 3-D animated adventure game for adults. Larry is the original blind date nightmare — the kind of guy you wouldn't want your daughter to date, let alone meet. The goal is to help Larry become a hit with the ladies. Go with Larry to the disco — see if Larry finds someone to dance with. Or sit at the bar and offer an attractive young woman a drink. Maybe even take her to the casino! Test your luck — and your wit with this exciting singles scene game of the 80's. Must be 21 or older to play.

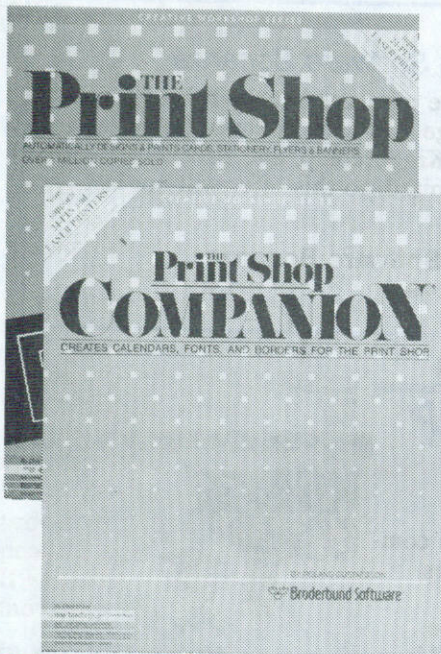
## LEISURE SUIT LARRY GOES LOOKING FOR LOVE

Requires 512K and Speed Up Board  
Catalog #86609  
List \$49.95 Our Price \$37.46

Why is it that some of the loveliest ladies in the western hemisphere are suddenly hot to get their hands on Larry and why is Larry resisting their advances? You and Larry are off on another exciting adventure. Larry wins the lottery (or does he?). Now Larry is looking only for Miss Right as opposed to Miss Right Now. Will Larry get lucky and find someone who loves him for the person that he is? Must be 21 or older to play.

# Productivity Software

## The New Print Shop and Print Shop Companion



### THE NEW PRINT SHOP

This program allows you to design your very own signs, banners, invitations, letterheads and more. With a large range of designs and eight different typefaces, it's like having your very own print shop right at home.

Requires 512K (640K and Hard Disk Drive Required for Color Printing)  
Catalog #86301  
List \$59.95 Our Price \$44<sup>96</sup>

### THE NEW PRINT SHOP COMPANION

Expand your print shop! This program includes more typefaces, borders and graphics. Now you can design your own alphabets with the font editor. The print shop companion will let you take your creativity one step further.

Requires 512K Catalog #86302  
List \$49.95 Our Price \$37<sup>46</sup>

### QUICKEN

A perfect software program designed for handling home finances. Will help with check writing, tax record keeping, financial reporting, budgeting and cash management.

Requires 256K, 384K Recommended  
Catalog #86303  
List \$49.95 Our Price \$39<sup>96</sup>

### MANAGING YOUR MONEY 5.0

An integrated personal financial package. Let Andrew Tobias help you through budgeting, tax planning and investment analysis.

Requires 128K, 256K Recommended  
Catalog #86304  
List \$219.98 Our Price \$164<sup>99</sup>

### FIRST CHOICE 3.0

A good program for the first time computer owner with business needs. Includes word processing, file management, business graphics, spreadsheet analysis and more!

Requires 512K, 640K Recommended  
Requires 2 drives  
Catalog #86312  
List \$179 Our Price \$134<sup>25</sup>

### SAT (BARONS)

Designed to help you prepare for your scholastic aptitude test. Good practice for all types of questions. Will help to point out your weaknesses.

Requires 512K  
Catalog #86309  
List \$49.95 Our Price \$37<sup>46</sup>

### COPY II PC

Protect your valuable software investments. Copy II PC is one of the best back up programs for copy protected disks. It allows you to back up most copy protected disks including business, entertainment and educational software.

Requires 256K  
Catalog #86314  
List \$39.95 Our Price \$29<sup>96</sup>

### MICRO COOKBOOK

Need cooking ideas? This program allows you to choose from over 150 different recipes from all over the world. Designed to make cooking fun and easy!

Requires 256K, 384K Recommended  
Catalog #86310  
List \$49.95 Our Price \$37<sup>46</sup>

### CERTIFICATE MAKER

Create your own certificates. Choose from over 200 certificates in many different categories. Includes various typefaces and borders. Also includes over 3 dozen colorful seals. Works best with a dot matrix printer.

Requires 256K  
Catalog #86311  
List \$39.95 Our Price \$29<sup>96</sup>



# Spinnaker's Line of Early Learning Games for Your Child's Growing Mind

Computers are everywhere. They're at work. At home. And in the schools. That's why it makes sense to introduce your children to computers at a very young age.

These PCjr game cartridges are designed to teach children computer fundamentals. They help your child become familiar with the return key, the space bar, the cursor, menus, arrow keys, and the mechanics of starting and restarting a program.

Children who are already familiar with computer fundamentals have an important advantage when computers are first introduced in the school. These game cartridges therefore give your children, or your grandchildren a head start.

## Special Offer

### Cartridge Software Bonanza

Buy any two at the same time and get the third FREE! The Spinnaker Cartridge Software Bonanza Package includes Fraction Fever, Kindercomp, and Facemaker. Hurry. Supplies are limited, so this offer will not last forever.

### Spinnaker Cartridge Software Bonanza

Catalog #10024 Price: \$24.90

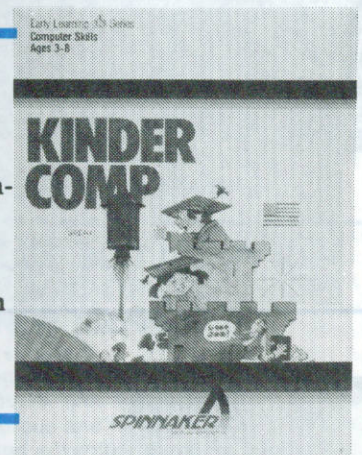
## KINDERCOMP

Introduce your child to numbers, shapes, letters, words and drawings.

**Ages 3 to 8**

KINDERCOMP is a game that allows very young children to start learning on the computer. It's a collection of learning exercises that ask your children to match shapes and letters, write their names, draw pictures, or fill in missing numbers. And KINDERCOMP will delight kids with colorful rewards, as the screen comes to life when correct answers are given. As a parent, you can enjoy the fact that your children are having fun while improving their reading readiness and counting skills.

**Kindercomp Game Cartridge for the PCjr, Catalog #18004 Price \$12.95**



## FRACTION FEVER

**FRACTION FEVER** brings fractions into play. **Ages 7 to adult.**

FRACTION FEVER is a fast-paced arcade game that challenges a child's understanding of fractions. As kids race across the screen in search of the assigned fraction, they're actually developing a basic understanding of what a fraction is and of relationships between fractions. They're even discovering that the same fraction may be written in a number of different ways. All in all, Fraction Fever encourages kids to learn as much as they can about fractions—just for the fun of it!

**Fraction Fever Game Cartridge for the PCjr, Catalog #18005 Price \$12.95**

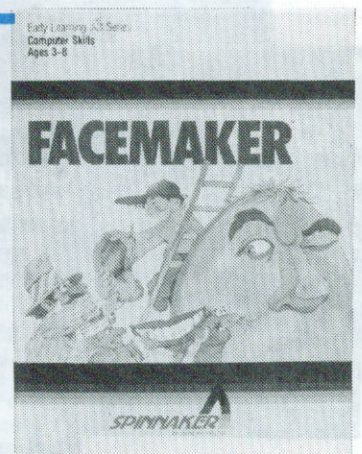


## FACEMAKER

**FACEMAKER** makes faces fun. **Ages 3 to 8.**

FACEMAKER lets children create their own funny faces on the screen. Once a face is completed, your children will giggle with delight as they make it do all kinds of neat things: wink, smile, wiggle its ears, or whatever their imagination desires. Plus, FACEMAKER helps children become comfortable with computer fundamentals such as menus, cursors, the return key, the space bar, simple programs and graphics. And, FACEMAKER won't make parents frown because their children will be safe at home making friends with the computer.

**Facemaker Game Cartridge for the PCjr, Catalog #18003 Price \$12.95**





# Good News For Racore, Rapport, and Quadram Users

On October 5, 1990 Racore Computer Products Inc. announced that the support and service for their Drive II line of products for the IBM PCjr had been transferred to PC Enterprises. This is good news for those who use Racore products, because it means PC Enterprises can support and service your Racore products and also bring about increased compatibility between the two product lines.

Racore was one of the first and perhaps the most prominent company to ever develop, manufacture, and market PCjr products. The Racore Drive II Enhancement Package proved itself as a top of the line product right from the beginning. It has been sold to tens of thousands of PCjr owners.

In addition, Racore has also manufactured hard disk drive expansion systems, a PC Keyboard Adapter, an external speaker, and a PC Identifier cartridge. All are proven products which have passed the test of time.

PC Enterprises will now provide support and service, warranty as well as non-warranty, for all PCjr add-on products manufactured by Racore, except Local Area Networking (LAN) products. This includes Racore products manufactured under the "Rapport" and "Quadram" names.

Racore users who experience any difficulty concerning installation, use, or compatibility of Racore products should contact PC Enterprises' Customer Service Department. Our staff will be happy to assist you and to provide all levels of service and support that you might need — exactly the way we would if you had purchased the products directly from PC Enterprises.

Previously Racore products were not 100% compatible with PC Enterprises products. For example, those who used Racore products could not easily add a PC Enterprises Junior Drive III System or PCE Hard Disk Expansion System.

Now things will change. Racore has shared previously proprietary technical information about their products with PC Enterprises. This means PC Enterprises can now support those who use Racore products much better than ever before.

And what's even better, PC Enterprises can now develop new PCjr products and modifications that eliminate compatibility problems which previously existed. In fact, as you read through this catalog you'll see several of these new products already!

The first new product allows Racore, Rapport, and Quadram Drive II Enhancement System users to attach a 3½ inch 720K disk drive as their third floppy drive. You'll also find a new 150 Watt External Power Supply which is specifically designed and styled to match the PCjr and the Racore Drive II Enhancement System. It allows Racore users to install the PC Enterprises Hard Disk Expansion System.

PC Enterprises is proud to have been selected by Racore as the company chosen to support Racore products. We're also very excited about upcoming expansion opportunities and we look forward to hearing from Racore users and solving any problems which might occur.

## PCjr Survey Reports Shocking News!

Over 93% of all PCjr computers are still in use and two out of every three PCjrs are used at least once per week. That's a summary of perhaps the most extensive survey of PCjr owners to take place in many years.

During April 1991, PCE conducted a documented telephone survey in which we attempted to contact 759 people randomly selected from our list of 125,000 PCjr owners who had contacted PCE sometime during the past seven years.

77% of those we were able to reach said they still own their PCjr. Only 23% did not. So we asked those who said they did not what happened to their PCjr. 16.5% of the PCjrs were sold or given away, only 1.5% threw it away, and 5% wouldn't tell us (they did not wish to participate in our survey or hung up). The results indicate as many as 93.5% of all PCjrs are still in use! While the PCjr is not always being used by its original purchaser, its still in use by someone.

Here are some other results we thought you'd like to see.

### In the past six months how often did you use your PCjr?

- 26% Everyday
- 40% A few times a week
- 13% A couple of times a month
- 7% Less than once a month

### How much memory does your PCjr have?

- 13% 128K
- 12% 256K
- 3% 384K
- 10% 512K
- 52% 640K
- 2% 736K

### Do you have any additional drives?

- 24% 360K floppy
- 6% 720K floppy
- 3% Hard Drive

### How often do you use your PCjr for word processing?

- 39% Frequently
- 31% Occasionally
- 21% Never

### How often do you use your PCjr for entertainment?

- 24% Frequently
- 38% Occasionally
- 29% Never

### Is the PCjr the only computer you own?

- 59% Yes
- 35% No

Percentages may not add up to 100 because not all questions were answered.

The PCjr Lives! There must be a reason.

# JRCONFIG Program Stops Computer Virus!

Most PCjr users already know about Larry Newcomb's contribution to the PCjr community—but did you also know that Larry's JRCONFIG program can also warn you when a computer virus has infected your computer?

That's right! Recently PCE started to receive countless reports from PCjr users throughout the country all having the same problem. Most had 640K of memory and had suddenly started to receive a Top of DOS = 638K message.

The problem was a computer virus. Computer viruses can destroy data on your hard drive, erase or damage programs that you run, or in some other way interfere with the normal use of your computer.

Viruses are created by sick people who get enjoyment out of damaging data on other people's computer. They hide their viruses inside games or other programs which appear to be harmless—then share these programs with other computer users.

If someone gives you a program which is infected with this specific virus the virus would discretely copy itself onto the boot sector of your hard drive. Once this has happened the virus is automatically loaded into your computer's memory each time your computer is started.

If your computer contracts this virus, it would immediately copy itself onto each and every floppy diskette that you insert into your drive (except those that are write protected). As you might imagine, the virus spreads quickly and can be extremely difficult to get rid of!

Fortunately the sick individual who released this virus never suspected it would be run on a PCjr with Larry's JRCONFIG program. While the virus may go undetected as it spreads from IBM PC to PC, PCjr users who use JRCONFIG are instantly warned. The Top of

DOS = 638K message tells you that another program (the virus) has taken over 2K of your computer's memory. This allows PCjr users to re-boot from floppy and back up their data before damage can be done.

If you ever suspect that a virus has infected your computer immediately turn the computer off—then re-start with a floppy diskette which could not possibly have been infected by the virus. Back up important data to floppy diskettes, then re-format your hard drive—or find a skilled computer wizard who can locate and surgically remove the virus.

The JRCONFIG program was designed to permit PCjr's to recognize memory above 128K. It also permits PCjr users to set up and use a Ramdisk as well as a seemingly endless list of other features and options with one easy to use device driver. We think every PCjr owner should have and use Larry's program.

**Editors Note:** JRCONFIG is User Supported Software. This means the program's author doesn't receive a penny unless users make voluntary contributions. If you find the program useful Larry has asked that you send a \$5 or \$10 contribution. We at PCE strongly encourage those who use JRCONFIG to make this contribution. JRCONFIG has already made a significant contribution to the PCjr community and Larry Newcomb has never asked for very much. So let's be sure we keep Larry motivated to continue updating and improving JRCONFIG!

Send contributions to:

Larry Newcomb, 9210 Adelaide Dr, Bethesda, MD 20817

The JRCONFIG program is one of many user supported programs you'll receive when you purchase the PCjr Utility Diskette from PC Enterprises.

# V-20 Chips

Here's a quick, easy, and inexpensive way to improve the performance of your computer. The PCjr came with an 8088 microprocessor. While the 8088 was at one time very popular, today faster and more efficient microprocessors are available.

The V20 is one such faster microprocessor. It is completely compatible with the 8088 instruction set—only much faster! Improvements in the V20's micro code enable faster operation even though you have not increased the clock speed of the computer.

When you replace your 8088 with a V20 Chip, you'll be able to measure an improvement in execution speed that varies up to 40%—depending upon the application. The most significant improvements will be noticed while moving large blocks of data and during number crunching applications. The V20 is included with all jrExcellerator speed up boards and is also available separately so other PCjr users could take advantage of the improved performance it offers.

## Installation

Your PCjr's 8088 microprocessor can be found underneath the PCjr's original disk drive. Remove the PCjr's disk drive and look for the 40 pin IC marked with the numbers 8088. (If you don't know how to remove the PCjr's disk drive there are excellent illustrations in the PCjr Guide to Operations Manual). In most cases the 8088 is mounted in a socket. This means you'll be able to install a V20 without special tools or skills. If your 8088 is soldered to the system board we'll be happy to install a V20 for you (installation charge \$25).

## V20-10 Microprocessor

Performance Benchmark	Low Memory		High Memory	
	8088	V20	8088	V20
Norton SI	.7	1.0	1.0	1.9
Landmark (1)	.3	.3	1.0	1.1
Landmark (2)	1964ms	1905ms	600ms	586ms

Norton SI program version 4.50, Landmark version 0.99. Refer to the jrExcellerator page for test details. For test results which demonstrate actual improvements with application software refer to the Turbo-Drive page of our catalog.

# Doing our Best to Serve all Your PCjr Needs

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of Repair



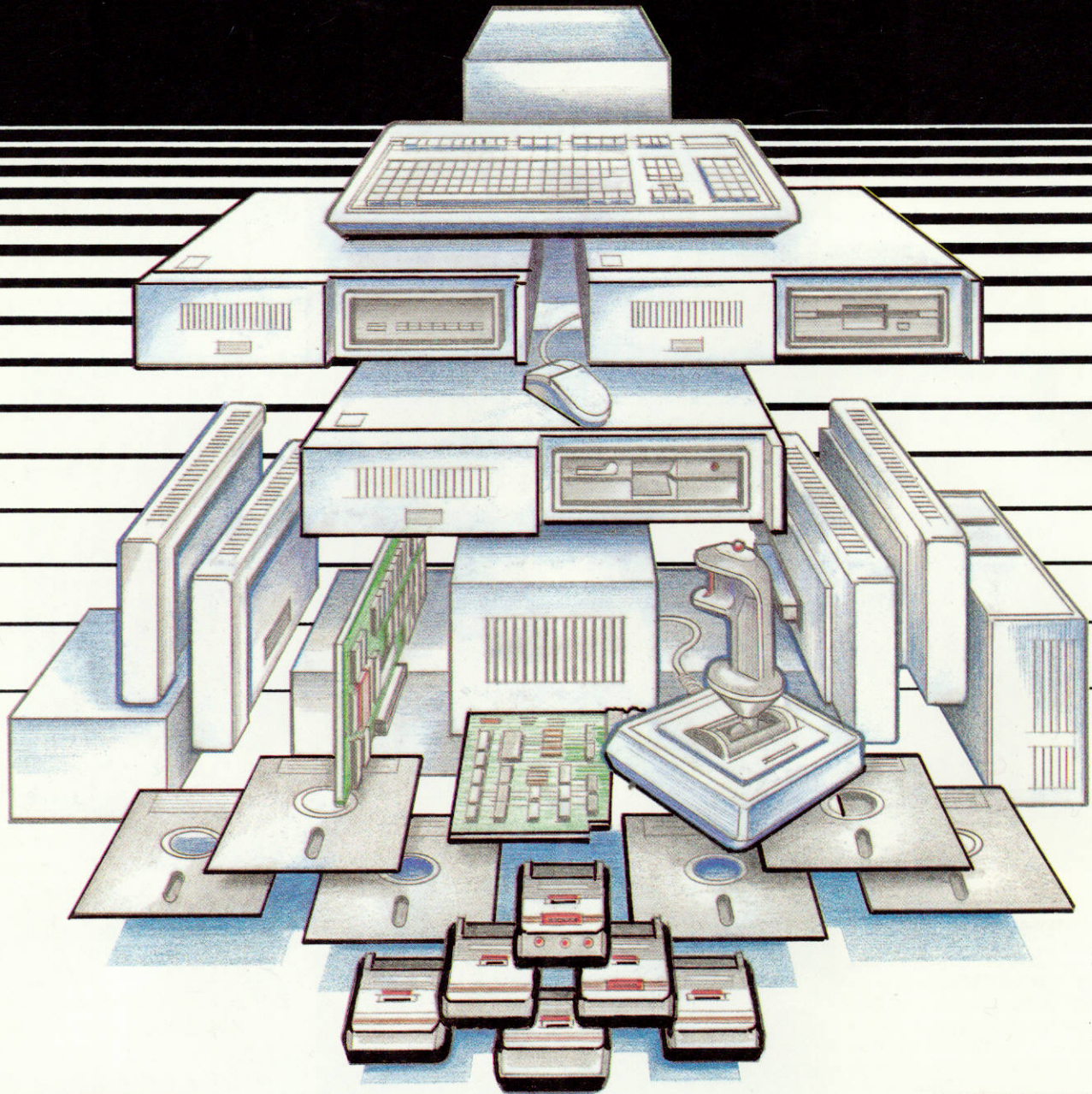
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