The Junior Report

June 15, 1987 Volume 3 Number 6 The National Newsletter for PCjr Owners

Computer Chain Hopes To Attract the Upwardly Mobile Junior Owner

NYNEX OFFERS PCjr TRADE-IN

In a very interesting marketing move, NYNEX Business Centers has announced a special trade-in program for PCjr owners who wish to trade-in their machines in return for a price reduction in the cost of a new computer system. The offer extends to other discontinued computers (such as the ill-fated Apple Lisa) as well, said Steve Bornet, NYNEX spokesman, in an interview with *The Junior Report* last week. Mr. Bornet said the PCjr trade-in policy was to be effective immediately, and would coincide with NYNEX's special inventory clearance sale which featured software and hardware prices marked down 15 to 50%. When asked about the trade-in value for a basic PCjr system (128K, one drive, color monitor) towards a new system, he stated that it would be dependent upon the condition of the equipment, and up to each individual Center to establish a value. When pressed further, Mr. Bornet said that they would in all liklihood use the current blue book value of the PCjr, which is close to about 50% of the *current* new cost value of a system (about $300. to $500 according to the spokesman). In other words, if your Jr is in excellent condition, it'll bring $200. in a trade-in. What are they going to do to your Junior once you have signed over its adoption papers? Well, not such a bad fate - NYNEX will resell them to the used equipment market.

In more exciting news for the PCjr owner, Mr. Bornet also informed us that NYNEX has a substantial amount of PCjr's still available for purchase. The Juniors are not stocked in each Center, of course, but can be delivered to any of the 92 nationwide centers of the company. If the salesperson is unsure as to the whereabouts of the new Juniors, a call up to the NYNEX corporate offices in White Plains, NY should do the trick. At less than $500, a new PCjr seems to us to be a heckuva buy. In contrast, however, a trade-in value of less than $200. for a used Junior certainly challenges the sense of humor of thousands of satisfied PCjr owners. And that's no joke.

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COMDEX: The Last Waltz For Jr?

As editor of a PCjr specific newsletter, I approach all major computer shows with an air of uneasiness. Will this be the show that will nail the final nail into PCjr's coffin? Incredibly, the Junior has survived over two years without the help of its less-than-caring-former parent IBM, surprising even its best supporters. And with the IBM employee "fire sale" all but over, the ranks of PCjr owners has swollen to almost 500,000 enthusiasts, making it the most numerous computer "orphan" in the world. And yet despite these impressive numbers, I still quickly pace the floors of COMDEX with a feeling of loneliness, like a child lost in a sea of frenetic subway commuters during rush hour. How the PCjr would fare this year was would be answered later, after two long days of trekking. But first an overview of COMDEX Spring '87.

This year's Spring 1987

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Editor's Notes: If you're looking for **Hard Choices for the PCjr: Part II** in this issue, look no further. The article is sitting under the COMDEX article which we felt was more time-sensitive than the hard drive article, so we pasted it on top. Also, we had learned that some of the suppliers have changed their hard drive options, prices, and availability since Part II was written, and we didn't have time to re-edit the important facts and figures. But don't try peeling the COMDEX article off the page, we will put the article on top next month. Besides, we use very, very strong glue.....which states have the most PCjr's in the United States? Well, going from our statistics, New York leads the pack, with California second followed closely by Illinois and Texas. Juniorites are aplenty in New Jersey, Florida, and Michigan, and Pennsylvania, to name a few. The least? Try New Mexico. The least in the world? **Outer Mongolia**.....as reported in our COMDEX article, the hot topic is still desktop publishing, and PFS First Publisher, a new DTP product from the makers of the popular PFS productivity series, will bring some respectibility to the intermediate computer publishing market. It will retail for an astonishing $99. and will have three modes of dot matrix output, and more importantly, will have **300-dot-per-inch laser printer support**. Every masterful package usually has its power requirements, and this is no exception. Though according to an initial Software Publishing Corporation spokesperson who informed us that the package would not run on the Junior, the technical department told us that there should not be any reason why the program shouldn't run on the PCjr with at least 512K, two disk drives or one drive and a hard disk, and with no memory-resident programs to cause conflicts. Though we have been rather disappointed with most DTP packages for the Junior, we're hoping that this particular package is a turning point, and look forward to reviewing this program for the PCjr owner.....something new had occured with last month's mailing of our newsletter that may have affected some of our subscribers. First, a history. Once upon a time there was this small newsletter for a special computer that started out mailing its offering via first class postage. At first, it was okay because the first few copies were rather light in weight (though not in content), and postage was rather reasonable for that early group. But as the newsletter grew in weight and content, making it one of the thickest newsletters in any field, first class postage would have sent the newsletter tumbling to the ground, so bulk rate saved the day. It enabled the newsletter to continue to grow and prosper, but not without its drawbacks, however. You see bulk rate, the savior of most heavy newsletters, puts the newsletter in the same mail pouch as your typical K-Mart flyer, which means that if your mail person is having a bad day, or your dog is having a particularly good one, the newsletter doesn't have to be mailed, without consequences to the carrier. Worst yet, bulk mail is not forwarded. So every month, there was bound to be a few subscribers whose mailing world was found wanting. The collective heads of the newsletter sat about the Round Table to offer solutions. Second class postage? Still too expensive, but more importantly, much more work than the eager, young staff could afford. Cut back on the pages to reduce

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Editor's Notes.....

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weight? Nope. It was contrary to its policy of expanding rather than shrinking. Inform the masses about the challenges of mailing bulk rate. Good idea. Remind them to send address changes way in advance. Good idea, once again. Finally, a bright light appeared where there was once darkness. **Address Correction Requested.** Those three words, though simple in nature, has made a marked improvement. Now the carrier is morally, if not legally, obligated in sending to the newsletter any changees of address or any unmailed issues. The newsletter will still not be forwarded, but at least the staff has a better idea of who is and who isn't receiving the issues. Of course, the Post Office will charge for each bit of information, but the service is well worth the cost if it will make just one subscriber a happier reader. In the first month alone, the newsletter received over thirty unrecorded address changes. Fortunately, it was able to mail out issues to the wanting, but unknowing subscribers. Though a few issues may not reach their destinations for some reason or another, the staff feels that the new system will help dramatically. That newsletter, which shall remain anonymous, wishes to thank those subscribers who at one time or another received their newsletters later than usual.....if you have been reading our newsletter for the last few months, you are aware that one mail order company to avoid was **PC Network**. With an advertising budget in the millions, the Chicago-based company has filed for Chapter 11 bankruptcy protection, leaving many creditors and consumers in a bind. President Stephen Dukker expects the company to come out of Chapter 11 within six to twelve months, so there still might be help for those PCjr owners needing refunds or goods.....The Junior Report Survey #4 is now over and being tabulated for your information. When published in a very near issue, it will be the first comprehensive list of PCjr-compatible software ever. In a prelude to that list, many subscribers have already warned **Borland's Turbo Basic** will not run on the Junior.....speaking of running, it seems a few subscribers did not fathom our humor about offering a new red Porsche as the first prize in our art contest. We have awarded the **keys to a Porsche** (just the keys, not the car) in previous contests, and in the same spirit will do so again.....Reprints again will be offered this month for a limited time and for specific issues only, and an order blank can be found on page 21. To conserve precious space in the newsletter we will be offering reprints periodically as certain issues are reprinted.....speaking of reprints, many of you who have requested the address of **Turning Point Logic**, needed to implement the hard disk schematics for the PCjr, can reach the company at 7012 Dakota Ave., Chanhassen, MN 55317.....Rumors. Where has **Creative Firmware** been the last few months? The original, inexpensive second disk drive manufacturer for the PCjr hasn't had an ad in ANY computer magazine for a long time. We've heard that they are so busy with just making Junior disk drive controllers for another PCjr aftermarketeer that they simply don't have the time for anything else. Well, just as long they keep busy..... In a recent article in *Infoworld*, **PCjr expansion products** were reported to be in great demand, with the only problem being that there were not enough suppliers. In other words, someone can make a lot of money serving the needs of the 500,000+ Junior owners. A point that should not be lost on some of the major manufacturers of computer products.....we have been flooded with letters to our **Letters** department (about ten a day) and are unable to answer each letter personally, and are trying to print the most pertinent questions monthly. We are in the process of hiring more "Letters" people and will expand the column in the near future.....and finally in the Did Leonardo De Vinci really paint the Mona Lisa department, we report our most impressive gaffe to date. It seems the art work displayed in last month's Guggenheim Collection was not produced by Pat and Frank Dunsmore's PCjr as stated, but instead was designed and created by a 640K PCjr residing in Tucson, Arizona, aided and abetted by PC Paint Plus and a Mouse Systems mouse. The owner of the rightful artist is **Mr. James Clark**, who was very, very understanding of our error. We, here at The Report, are never afraid to admit when we are wrong. So to an all-round nice guy, wonderful human being, scholar, and consumate gentleman goes our very sincerest apologies. And thank you, Jim, for the detailed history and information about your expertise in the munitions and detonation fields.

LETTERS

I am glad I subscribed! After reading only one Report, I see that there are other people who ask basic questions and it's so nice that it is all about Junior!!!

I have other magazines but I never know what they are talking about or if it will apply to Junior.

What about back issues? I'd like to get all I can so I can catch up.

Although I've used IBM's at work for years, setting up my own system is something else! I don't have the money to buy the best like we have at work, and others did the upgrading there, so I'm really a novice. A 56 year-old widow type novice!!

Any groups in my area to help me insert new chips and such? Maybe even meet a computerizing man!?!

D. Tenopir
Topeka, KS

Dear D. Tenopir,

We really like your attitude. Your enthusiasm exudes from your letter, and we are happy you're happy with The Report. Some back issues can be ordered on page 21, and in future issues you'll be able to order more when some of the sold-out issues are reprinted. We haven't received any information about PCjr -specific clubs in your area, but if anyone knows of any, please let us know. Until then, try a local PC group meeting and you might find a PCjr SIG (special interest group) to help with any problems you might encounter. Check with your local library to see if one exists, or your local computer store may have information for you. If that doesn't work, try contacting George Holcomb, P.O. Box 23, Hutchinson, KS 67504. Though that's a might to drive, quite often clubs within the state have communications with each other, and he might know of a club that's a lot closer to Topeka. Good luck, and write us back if you find a group.

We love readers like yourself that realize that 1) the PCjr is a very capable computer, not an AT, but a computer that can grow and be just about as productive as any PC compatible, and 2) the whole world of personal computing should be enjoyed, and not worried about.. You seem to be enjoying yourself.

I would like to save face and offer a correction to my BASIC program unprotection scheme. Mr. Goucher did a fine job in providing a working program, however, my original program works as well, with the following fix:

1. Load Basic, type NEW and hit Enter.
2. Type DEF SEG and hit Enter.
3. Type BSAVE "UN.P",1124,1
4. Load any protected program.
5. Finally, type BLOAD "UN.P",1124 to unprotect it.

I inadvertently left out the number 1 after the BSAVE statement in step #3. Hey, we all make mistakes. Additionally, this program is more efficient than others of its type, since it takes up only 9 bytes of disk space when compared to Mr. Goucher's 1132 bytes. Memory location 1124 is very useful for both protecting and unprotecting programs within Basic's workspace. Because of this, it may not always be necessary to use the UN.P program. By typing POKE 1124,0 in direct mode, one can sometimes succeed in unprotecting a Basic program, the degree of success depends upon how the program in question is protected. User-written protected Basic programs are saved in Basic's protected format and are usually very easy to crack, while commercial Basic programs poke special memory locations in addition to saving in protected format. These programs are generally much harder to break into. The UN.P unprotection program can handle either type admirably though. Regardless of what Mr. Goucher might have stated about the integrity of my program, it does work.

Ari Feldman
Staff

Dear Ari,

Your face has been saved. Now get back to work.

Thanks for the great article on Pockets Software. I'm always on the lookout for good kids stuff.

I called World Book (Aileen Quinn, 800-

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Letters.....

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323-6366) and they only sell at $39.95 list and claim no distributers have the product any longer.

Do you know where I can buy it at the $6. to $10. each price listed in your April '87 article.

Thanks!

Joe Baiyor

Petaluma, CA

Dear Joe,

You just described the main problem with a lot of the educational software out there - too much cost for too little software. A lot of the traditional educational houses like Random House and World Book at one point said, "Hey, let's get into this possibly lucrative field called educational software." So they hired some software writers and developed some pretty average software. Then they made a big mistake and charged $39.95 for it. The really good educational software will come from legitimate software companies like Springboard, Davidson & Associates, etc., that specialize in learning software. We are still baffled by World Book's insistence on selling its Pockets series of software for the original list price, which is about thirty dollars more than they should cost. The under ten dollars price that we quoted was from liquidation houses that specialize in re-selling software that didn't sell through traditional means (distributers). Look for either the Pockets series being discounted heavily at computer flea markets that are popping up all over the place, or a move by World Book to possibly re-package the software in a more reasonable price range, just in time to get in on National Computer Learning Month in October.

I don't know if anyone has tried this before. I just purchased a video camera, and decided to use one of my graphics programs to create several screen titles for some of my home-made videos. I was aware that our PCjrs do have outputs for using the TV as a monitor (the V slot). I checked the output connector and found that it uses the a standard RCA type plug (same as most tape recorder type plugs). I used one of my tape deck cables from my stereo system, and plugged into the V slot, and attached the other end to my video camera. I loaded my graphics program on my Junior, ran my screen titles, and started recording. Wow!! It works and the results are great! There is no need to purchase one of those separate audio/video cables.

I am in complete agreement with you with the article on the new IBM PS/2 Model 30. It's just a faster machine and isn't worth the $2,000. to buy it. Several dealers in my area already are discounting the Model 30 by $500.00. That may tell you how well this model is selling. I bet during Christmas time we'll see heavy promotion from IBM to move the Model 30. If the price comes down to $1800.00 and includes a hard disk and a color monitor, then and only then, it will become a good but certainly not a best buy.

LOVE MY JUNIOR AND ENJOY VERY MUCH READING THE JUNIOR REPORT! Thank you again.

Tony Law

So. San Francisco, CA

Dear Tony,

Thank you very much for sharing the great tip on how to generate video screen titles on the PCjr. The longer one has the Junior, the more capabilities of this machine will emerge. The PCjr is a very good computer that will satisfy the computing needs of the vast majority of Junior owners. It is with little wonder that readers like yourself write about how much you love the little beast.

For those who need the raw speed of the new generation computers, our article on the Model 30 was certainly not an endorsement of the computer, as you have stated. Most PCjr owners bought their Junior systems at an incredible discount, making it possibly one of the greatest computer bargains in history. Hey, we're used to great deals. We're also smart enough to know that other bargains exist in the rapidly changing computer world. Unfortunately, the IBM Model 30 isn't one of them.

I have a PCjr, and am interested in upgrading it to 640K. I am just learning to use it, but most programs call for more power than the 128K that I have.

This upgrading to 640K, are these re-cycled chips, or originals? As you can see, I'm not up on the computer language, so I hope you can bear with me.

Could you also suggest some programs that

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Letters....

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would be suitable for accounts receivable, stock portfolio, etc., as this would really help me. We did get some from the Club, but the instructions were not explicit enough for me.

We would appreciate any suggestions you can give us.

Julius Nasberg
West Warwick, RI

Dear Julius,

To discuss how to upgrade the PCjr to 640K would take up more space that is available here, and it has been covered extensively in previous issues. However, in a nutshell, the PCjr requires an expansion card that contains the new memory chips that will bring the total memory of the unit to 640K. Most of the time, this expansion card is housed in an EXTERNAL sidecar that attaches to the right side of your Junior. There are many brands of external sidecars. One expansion card, the jrHotshot, can be installed internally under your internal disk drive unit. This card attaches to where the 8088 microprocessing chip is socketted, therefore a major requirement is for an unsocketted 8088 chip.

If you are running a small business, the very best deal in accounting software is probably the Peachtree series of accounting software. You must have expanded memory to utilize this program. DAC Easy Accounting, highly advertised for $59. in a lot of computer magazines, also runs on the Junior. In fact, the original developer of the program had the PCjr owner as its original target as the program requires simply 128K and a single disk drive. The general feeling of DAC Easy Accounting, however, is that it requires rather extensive prior knowledge of accounting basics in order for the Junior owner to fully realize its potential.

The best personal financial manager at this time for the PCjr is Andrew Tobias's Managing Your Money. It does a creditable job of handling stock portfolios, as well as other aspects of your financial management in a well-thought, entertaining style that Tobias has become famous for. The program was one of the major programs that IBM had hoped would sell the PCjr a few years ago. It, along with Lotus 1-2-3, came in cartridge form to run on the 128K, single drive version of the PCjr. If you look hard enough, you may find in this form in some computer stores. More than likely, however, you will find the current disk version of this best-selling software package at most stores or mail order houses. The disk version requires at least 256K on the PCjr, and often can be purchased at $129. mail order, which is a great deal considering the quality of the program.

Managing Your Money is certainly not the only good financial software package that runs on the Junior. Sylvia Porter's Personal Financial Manager also has received good reviews and will be reviewed in this newsletter shortly.

I recently received information on a service called X-CHANGE offered by X-PRESS Information Service, P.O. Box 4153, Englewood, CO 80155 (1-800-446-4266). This service supplies news, stock, and sports information, as well as a variety of other online services made available through a connection with the local cable system. There is a one-time fee ($40.) covering a connection receiver and software. This appears to be an excellent value.

When I called the company, much to my disappointment, they told me that they did not, as yet, have software for the PCjr. I am writing to you in hopes that a call from you informing them of the number of Junior users may prove to X-PRESS that there is a substantial demand for this service among PCjr owners. Perhaps that will encourage them to speed up the development of a Junior package.

The Junior Report has been uniformly excellent and I salute your work. Keep it up. And thanks for all the help. Keep the faith.

Dennis Kennedy
St. Louis, MO

Dear Dennis,

Fellow Juniorite M.F. Vest from Birmingham, Alabama also wrote to us about this possibly great service. We thank both of you for the valuable information. We are preparing a formal letter to this company. However, the greatest impact can be obtained if every concerned reader were to write a short note to the company, or call their toll-free number, informing them of the PCjr owners interest in the service. It would cost only 22 cents or a minute's worth of time, but would go a long way in making the PCjr a more viable member of the PC community. Let's see what happens.

Comdex.....

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COMDEX was held in that fine city called Atlanta. It was my first visit to the Georgia World Congress Center, and to say I was in awe of the entire proceedings would be a gross understatement. After years of weaning on McCormick Place conventions in Chicago, I was still impressed by the immensity of the physical structure of this stunning convention hall. Imagine three football fields full of computer hardware, software, or anyware all under the same roof on different levels. While last year I called the CES (Consumer Electronics Show) the ultimate electronics playground, I call the Atlanta COMDEX computer heaven. Almost every manufacturer of computer products made their appearance at this show. But, making an appearance is not sufficient at these shows; they grab your attention with either bright lights, colors, musicals, or song and dance in a frenzied competition of the hostess with the mostest. And whether you are the press, buyer, competitor, or just plain visitor, the exhibitors treat you as if you were Bo Derek on the USS Intrepid in the Mid-Atlantic. They woo you with computer jargon, and then entice you with little gifts and trinkets. While the CES often employs comely models to attract your attention, COMDEX accomplishes the same with the very latest in monitors, printers, or digitizers. Though I generally prefer the former, most PCjr owners would be totally amazed at what modern technology defines as the state of the art for that given moment in time, whether it is PCjr-related or not. But still we are mostly concerned to what extent Junior was involved in the proceedings. And to do that, we must examine the major themes of the show.

New Computers and Products. Yes, IBM was there with its new line of computers. Whether these computers will have a long term effect on the future world of computing or not, these computers demanded the attention of everyone in attendance. The IBM display commanded the floor space that the biggest company in the world should be accustomed to, and this year's slogan, "Here We Go Again," splashed atop the exhibit where even weak eyes could not avoid, seemed humorously ambiguous to this writer. With IBM's last projects (PCjr, the IBM portable computer, and the PC convertible) and the hoopla that accompanied these still fresh in everyone's minds, "Here We Go Again" took almost a humorous tone. Humorous or not, the slogan does aptly describe the effect any new IBM product always has on the show and market. There we went again with aisle after aisle of manufacturers playing catch-up with their OS/2 compatible computer or expansion board that provided some uncomfortable deja vu. One could not help but envision the same excitement and electricity that must have accompanied another IBM product called the PCjr in June of 1984. But this is 1987 and three years is like an eternity in this unusual world and one of this year's key words for the show was OS/2 (the new operating system for IBM's computers). 640K, 8088 microprocessor architecture, non-high resolution monitors, 286's, and sadly, PCjr's were old hat. At least, Junior was in good company. It isn't that the PCjr was unworthy, it was a case of if you're not involved with 386 or OS/2 GET OUT OF THE WAY! As I said before, three years is an eternity, and the whole computer community is blessed with very short memories, as in what's a PCjr?

Still there are plenty of manufacturers making PCjr products like Racore, Legacy, J&M Systems, True Data Corp., Keytronic Corp., Synectics Software & Systems, and PC Enterprises, to name a few. Add to these the "PCjr AfterMarketeers" like Computer ReSet, Solid Rock, Micro Marketing, Paul Rau, and Oowl Software, and you'll find that the Junior has not totally been abandoned. Yet due to financial constraints or other reasons, only one major developer of a PCjr product was in attendance in Atlanta and that was the Tecmar Corporation. Formerly the premier manufacturer of PCjr add-on products, the Solon, Ohio company ran into some financial problems last year, and stopped active production of their PCjr expansion products the JrCaptain and the JrCadet. Since then, Tecmar, which manufactures other computer products as well, has had a resurgence. We had reported in an earlier issue that Tecmar was considering the possibility of manufacturing JrCaptains and JrCadets once again. This was in direct response to an increased demand for PCjr memory expansion due to the "fire sales" that brought the total PCjr ownership to about 500,000. Still it was with great surprize that I found JrCaptains and JrCadets along side Tecmar's new IBM PS/2 expansion products

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Comdex.....

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in its flashy new brochure. Eilene Fussner, the very cordial Tecmar representative with whom we spoke, added that the JrCaptains were being manufactured on a limited basis, but were selling well. When asked where the products could be purchased. Ms. Fussner stated that though not all of their distributers would be carrying the Junior products, all could order the expansion units if required. Though the current price of the units was not disclosed, it was believed to be competitive with the current crop of PCjr add-ons. Though the PCjr aftermarket would survive with or without Tecmar, it is still welcome news to all Junior owners that new JrCaptains are available.

Desktop Publishing. When is desktop publishing not a hot topic these days? With the multitude of dedicated systems from companies like AST, Xerox, and IBM, the desktop publishing craze has infected the PC compatible world. The problem with all of the PC desktop publishing systems that we saw, however, was that even with 386 microprocessing power, Microsoft windows, PC Pagemaker (the desktop publishing software standard), and new input technology, the PC systems still could not come close to approaching the kind of finished product that can be created with the Macintosh/LaserWriter combination. It's not a case of one computer system being superior to another, it's just that the Macintosh is a "graphics-based" system whereas the IBM PC is "text-based", making the PC much more difficult to handle the manipulation of text blocks and graphics, essential functions of any desktop publishing system. At this point in time, trying to make a PC into a Macintosh professional publishing system is like trying to put a Ferrari engine into a Chevy and expecting it to win a Grand Prix event. Sure, the Chevy might run faster, but it sure ain't a Ferrari. In other words, whether you have an IBM XT, Epson Equity II, Leading Edge Model D, or a PCjr, you will not have the horsepower in your CPU to run even the most adequate professional PC publishing system. However, there is a genre of new and improved intermediate programs that will run on the less powerful computers, like NewsMaster, that should satisfy the needs of most PCjr owners. Talking to several of the software manufacturers provided a view that the PCjr owner will see quite a few new desktop publishing programs that fit into this intermediate market.

LAN's and Connectivity. A major theme of the show, this topic will be covered in another PCjr article soon.

Software. The lifeblood of any computer system; the area which commanded most of our attention. All but two software manufacturers that we interviewed said that their programmers were making a conscious effort to make all of their software PCjr compatible. Though not all were succeeding, we appreciated the fact that the PCjr should have plenty of new software to keep it a vital machine in the coming year. Microprose President Bill Stealey told us that most of their new software would be PCjr-compatible, good news for Junior owners from one of the major players in the software entertainment world. Other software developers also were aware of the financial benefits of not excluding the 500,000 PCjr market. Those that were not aware, were, after our friendly reminders.

Within the software sector of this year's COMDEX was a new underlying theme that should interest most PCjr owners. The very big push in the upcoming months will be in the educational software market. Many of you who have been with us the last couple of years have heard a recurrent gripe from our staff about the lack of GOOD educational software. Certainly some programs stand out like Where in the World Is Carmen SanDiego, but for the most part, if you bought your PCjr to benefit your children's education, you probably have been disappointed. That should change in the next few months when a whole slew of new generation educational software will be announced, and we will place quite a bit of emphasis on these programs in future issues. The whole movement will culminate in National Computer Learning month in October of 1987, when you'll see everyone stressing the educational potential of your computer with contests, prizes, and give-aways. This is definitely one party that the PCjr will be invited to.

A few final comments on the Spring COMDEX are in order. First of all, Atlanta sure knows how to throw a party. From the grandeur of the Georgia World Congress Center to the low "gouge factor" of the concession stands, COMDEX in Atlanta was the perfect setting for viewing

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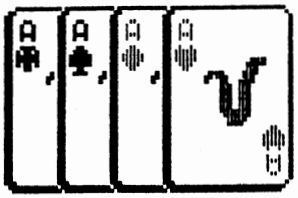
SOFT WARE

SICK OF THE 4 COLOR GRAPHICS OF THE PC
MAKE THE MOVE TO CARTRIDGE BASIC
TURN YOUR JUNIORS INTO A FUN MACHINE
WITH THESE STRATEGY AND MIND GAMES



SOLITAIRE

Seven separate programs chained together for ease of play. Canfield, Klondike, Warehouse Fitz, Progression, and Wenzel. Main program is 55K and 10K of instructions. Easy single key operation. The cards look like cards. Sound too. $20.00

POT SHOT

Move over parlor games, the computer will do it now. For 2 or 3 players. A Player knocks his opponent home, the computer takes shots at everyone. 16 colors, 20 wide screen, 18K, and lots of graphics. The computer changes the play of the game after each turn. $20.00

DIE PER ADD

A math game that incorporates add, subtract, multiply, and divide to score points. Play against the computer or gather up to five friends. 16 colors, 40 wide screen, 23K, on screen help, plenty of sound and of course lots of graphics. $20.00

BALL FALL

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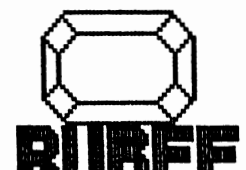

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SOFT WARE

INSIDE THE PCjr: PART III

By Ari Feldman

In Part II of this series, Ari Feldman led us through the land of PCjr microprocessors, interrupts, and specialized chips such as Junior's System Support Devices. In this installment, Ari uncovers one of Junior's strengths - its graphics abilities.

Although the PCjr is an excellent all-round machine, it is particularly adept in the creation of detailed and colorful graphic images. Its graphics capabilities are extensive, and feature for feature, rank among the best found in the microcomputer world. They are even superior to those found in the IBM PC. As promised, this installment of Inside The PCjr will cover the wonderful world of PCjr graphics and the special hardware which creates them. The PCjr, like other computers, uses a special technique known as memory-mapped video to display its screen images. The concept is simple: a section of the Junior's main memory is reserved so that it can be used to hold the video image being displayed. The memory area is called the screen memory or video memory. Special video hardware in the PCjr, translates the contents of this memory area into video signals which are in turn converted into the desired patterns seen on the screen.

This special hardware is called the video processor. Although it is reserved for screen data, this special memory area is still accessible by the 8088 microprocessor. The primary reason why the PCjr is slower than the PC when it comes to displaying graphics is that its video circuitry constantly needs to access the screen memory while forming the screen image, and since this memory is part of Junior's system RAM, the 8088 can't get the memory necessary to execute its instructions until the video hardware is finished with it. The PC, on the other hand, doesn't have this particular problem. The memory allocated for its screen use is found on a separate plug-in card known as the color/graphics adaptor and contains its own 16Kb of video memory which acts independently from that of the machine's main RAM. Therefore, there is no conflict when both the microprocessor and video processor want to use the memory at the same time. For PCjr owners, there are ways of getting around this as we shall see later.

The video processor in the PCjr contains three major chips which do all of the graphics work. They are the *6845 CRT Controller chip*, the *Video Gate Array (VGA)*, and the *Character Generator ROM*. Each of these chips performs ceratin tasks in order to create graphics. By issuing commands to both the 6845 and the VGA, the microprocessor controls how they operate. The amazing flexibility of the PCjr's display becomes evident from the many different display modes it supports. These modes fall into two basic categories - Text mode and Graphics mode. Text mode as its name implies can only display those characters found on Junior's keyboard and in ROM, while Graphics mode can display both text and finely detailed pictures. To set the display to a special mode, commands are sent to the 6845 and the VGA. However, certain commands can't be used by a program in memory because of a conflict with the VGA's refresh duties. The PCjr, therefore, relies on its BIOS (Basic Input - Output System), by using the BIOS INT 10 function to change the display modes. One reason why some of the old games and graphics programs written specifically for the PC won't run on the Junior is that they rely on their own custom graphics display routines and bypass the BIOS. The BIOS is a collection of 8088 programs found in the PCjr's ROM that controls how the computer works and includes a set of routines necessary to display graphics in a uniform fashion on all IBM computers. On the following page is a chart listing all of the PCjr's built-in display modes as preset by the BIOS when the PCjr is turned on.

Each display mode requires a certain amount of memory to hold its respective screen data. The high resolution modes contain more information, thus more memory must be set aside to display images in these modes. The Page Register, is part of the Video processor found at I/O address 3DFH (in hexadecimal), that controls which area of system RAM is allo-

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Inside the PCjr.....

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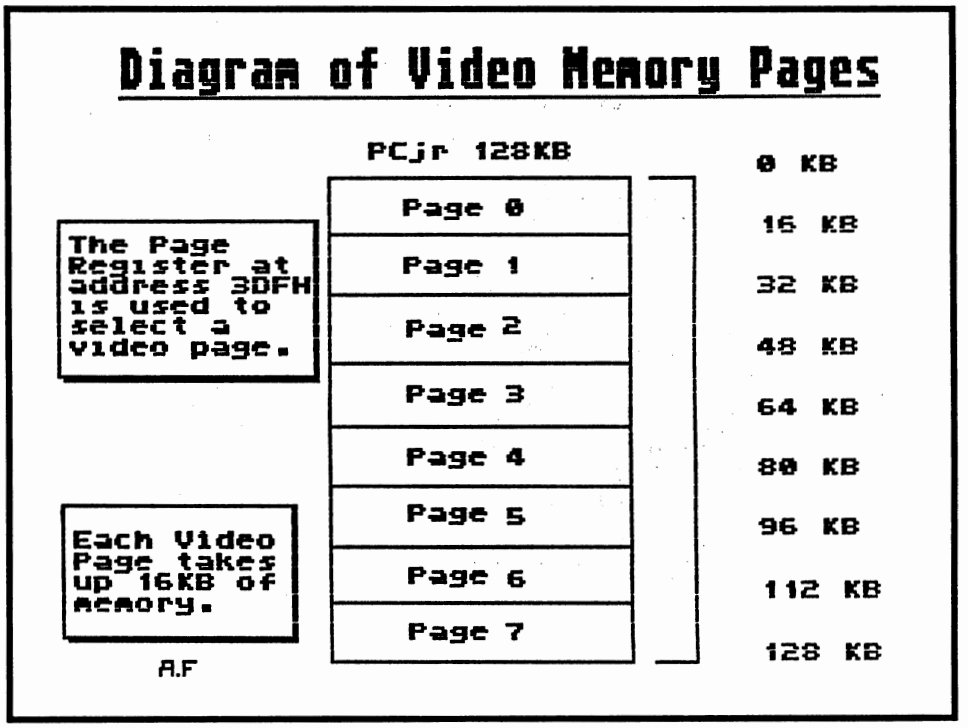
cated to the display. In a standard128K PCjr, there are eight video pages numbered from 0 to 7. Each of the eight pages contains 16Kb of RAM. By using the page register, a program can determine which video page will be used. The PC, as previously mentioned, has its video memory on a plug-in board. This memory starts at memory address B800H, and all PC programs access this address. The PCjr, however, has no memory at address B800H due to its video page scheme, so to maintain PC compatibility, special hardware is provided to allow the 8088 microprocessor to treat any one of the eight video pages as if they all really started at address B800H.

The PCjr's four text modes support screen displays in both 40 column by 25 line, and 80 column by 25 line formats. Each character position is represented by a "screen address", which ranges from 0 to 999 in 40 column mode, or from 0 to 1999 in 80 column mode. The screen addresses are calculated by multiplying the display widths by their row numbers and adding a column number. Thus, there are either 1000 individual character cells in 40 column modes or 2000 cells in 80 column modes. There are two bytes of screen memory allocated for each character position. One byte is used to define the particular character being displayed while the other defines how the character is actually displayed. There can be up to 256 values for the character definition byte so there can be a maximum of 256 different characters. The pre-defined character dot patterns are stored in the PCjr's Character Generator ROM. The text characters are useful for most purposes and include many types and shapes.



If an application requires characters to be displayed with a little more flair such as new type styles, their patterns may be redefined. Text characters can only be redefined in the graphics mode, however. The byte used to define how the character is to be displayed contains a known value commonly called a display attribute. Every character displayed on the screen can have a different attribute. The color text modes, for example, use attribute values to control the character color, blink, and intensity.

Each character is made up of a grid of dots. When viewed from far away they appear to be solid. Each dot found at the same vertical position is part of the same scan line. The scan lines that form the character also determine its height. When a character is displayed, it is done so one scan line at a time. In the text mode, the 6845 CRT controller chip fetches the character data for each scan line from the character generator ROM. The 6845 chip has two main tasks: one is to arrange the many dot patterns in ROM into displayable characters, and the other is to generate the video timing information. These tasks are not easy, and accordingly the 6845 is a very powerful chip. It can create many different display types, and is responsible for generating all of the PCjr display modes. The 6845 has six regis-

(Continued on next page)

Inside the PCjr.....

(Continued from previous page)

ters found at I/O addresses 3D4H and 3D5H. These registers are used to control the horizontal and vertical aspects of the display. The number of scan lines and the number of characters per column are also determined by these registers. On powerup, the Junior's BIOS initializes 8 scan lines to form each character. The other 6845 registers control the cursor image, the segment of display memory used, and the cursor display position.

The greatest advantage of the PCjr over its compatible brethren is its powerful and flexible color producing abilities. In any of the color text modes, each character is made up of two parts - the foreground and background. The foreground is the character image while the background is the area surrounding it. The display attribute byte is used to determine the foreground and background character colors. As previously mentioned, these can be any of 16 possible colors for the foreground or any of 8 colors for the background, with the additional choice of a character blink. If the blink is disabled, all 16 background colors can be used. Generally, the PCjr is capable of producing up to 16 different colors. This is possible by using four different bit combinations (four bits yield a total of 16 combinations). The first three bits are used to enable the three different color guns of a color picture tube (red, green, blue), and the fourth bit is used to select either low or high color intensity. The VGA is the chip in the PCjr that produces color. It is also responsible for the signal refresh of the PCjr's dynamic RAM. Dynamic RAM chips are used in many personal computers and are capable of holding data for only an instant before disappearing, thus they require a continuous electrical impulse generated by the VGA to be able to store information in RAM for any lengthy period of time. The VGA is a complex chip that contains 21 different registers to perform various functions. These registers can be found at I/O address 3DAH. Of these various registers, the most important one is the status register, which tells when the display is doing a vertical retrace (the time the electron beam in the picture tube is moved from the lower right corner to the upper left corner of the screen). Programmers can make any changes in the VGA during this short period. Vertical retrace is also a system interrupt, which has a priority interrupt number of five (See Junior Report April 87). The status register is also used to detect a change in any other VGA register. Of the remaining registers, a whopping 16 of them represent the color palette array. Each entry in the palette array has four bits to represent a specific color. The palette array is usually fixed in standard color order, but the VGA configuration in the PCjr allows any color to be substituted for any other. The same can't be said for the PC, which forces programmers to tinker directly with its VGA palette registers in order to change a color. This accounts for the relatively few PC games that use colors other than those found in its default color palette of cyan, magenta, white, and black. Very few popular computers on the market today offer the color manipulation capabilities that can rival those of the PCjr. The mode control 1, palette mask, and reset registers control the display mode. They are set by the BIOS INT 10 function instead of being changed directly, due to the conflicts created with the VGA's RAM refresh responsibilities. The border color register allows a programmer to set the color of the screen border to any of the Junior's 16 colors. Finally, the mode control 2 register allows a programmer to enable or disable the character blink.

While the PCjr text modes are nice, its graphics modes are its best features. Graphics modes are organized in rows and columns of individual dots rather than the characters of the text modes. Because of this, the color of each screen dot can be controlled, allowing for the display of not only text characters, but detailed images as well. The PCjr supports three different screen resolutions - low, medium, and high. Every screen mode has a fixed pixel height of 200 pixels but supports a varying horizontal pixel width of 160 pixels in low resolution, 320 in medium resolution, and up to 640 in high resolution. These display modes compare favorably with the graphic resolution supported by such newer computers as the Atari ST. As in text mode, each pixel is addressed by its X and Y coordinates. Text can be displayed in the graphics mode, but the difference is that each character is drawn one pixel at a

(Continued on page17)

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Below is an open letter addressed to Stan Veit, who in his newest venture Computer Shopper's PC Clones magazine, professed, "One word of warning, don't buy an IBM PCjr. There are still some of these failures around, and they are now being offered at "bargain" prices. They are no bargain at any price." That ridiculous quote begged for a response, and here it is below.

Dear Mr. Veit,

I read with great interest your article on How to Buy a PC Clone in your premier issue of PC Clones magazine. I am a great fan of your Computer Shopper magazine and was anxious to read your views of the PC compatible computer market today. It was with great shock, however, when I came across your comments on the IBM PCjr. As an editor of a PCjr-specific newsletter, I feel both compelled and qualified to respond to your statements not out of blind loyalty to the PCjr, but out of my two year association with many of the thousands of satisfied Junior owners.

You may rest assured that this is not going to be a mad raving of the virtues of the PCjr. You, as well as every PCjr owner, know that the Junior is not a perfect computer. In fact, a good portion of our monthly newsletter is devoted to ways to improve the performance of the machine. With or without modification, however, the PCjr has proven itself to be a very capable member of the PC community. It certainly isn't an IBM AT, but it performs most computer activities quite admirably. What bothers me most about your labeling of "failure" for the PCjr is that you do so without much explanation. Is it a failure because it is not PC compatible? Not from our experience. Through the years, our readership have found very few important programs that cannot run on a standard or an enhanced PCjr with extra memory. In fact, we are in the process of compiling a very lengthy list of PCjr compatible software that will surprise even the most ardent Junior lover. Is it a failure because it is poorly built? Not from our experience. We have found no evidence of any extraordinary rate of PCjr breakdowns in the last two years. Is it a failure because no one uses it? Not from our experience. Our newsletter is constantly being bombarded with letters from owners who run small businesses to owners who create monthly newsletters. It was a "failure" from the IBM marketing standpoint. However, a computer that runs almost every piece of PC software, rarely if ever breaks down, and is used for almost every personal computer endeavor in the world does not seem to me to be such a failure. Again, the PCjr is not without faults. But as I type this letter using WordPerfect 4.1, conduct my business using Lotus 1-2-3, control my personal affairs with Managing Your Money by Andrew Tobias, and fly between the twin towers of the World Trade Center in my Flight Simulator, I am hard pressed to call the PCjr a failure.

Whether or not the purchase price of a PCjr is a bargain or not depends on both the cost and the time of purchase. Thousands of PCjr owners bought their Juniors two years ago for under a thousand dollars, quite a bargain when one considers that a similarly equipped PC with 128K and a color monitor would have cost over two thousand dollars more at the time. It was a great opportunity for someone to get into PC computing with very minimal investment. Today a new PCjr system with 128K, one disk drive, and a RGB color monitor will cost about $500. Used prices vary, but considering a RGB color monitor normally costs about $400. alone, a PCjr does not seem to be such a bad buy even today. Additionally, it is still being supported by manufacturers producing PCjr second disk drives, expansion boards, and hard drives, to name a few accessories. The bottom line is that the PCjr was never meant to challenge the AT's or XT's, but remains today one of the most affordable means for many individuals to get into PC computing. To most PCjr owners including this writer, the Junior has become both a welcome and productive member of the family. In this respect, the PCjr has certainly not failed in any way, and may prove to be one of the best computer bargains ever.

Sincerely,

Harrison Day

Program Reviewed
PowerText Formatter
Distributor
Beaman Porter, Inc.
417 Halstaed Ave.
Harrison, NY 10528
Price
$89.95 List
Minimum requirements
256K PCjr
Reviewer
Diana Fisher

Beaman Porter's Powertext Formatter is somewhat like the American Express Card advertisement which asks, "Do you know me?" Few people recognize the name, but once it's on your software shelf, you won't want to sit down at your computer without it. Fortunately, I've noticed this program on the software shelves of a few local merchants. When I discovered it two years ago, however, it was advertised in a mere tiny box on the last page of a computer magazine. I bought it when I reached the check number in my checkbook that corressponded to the year in which I was born. It didn't seem right to use that check to pay a phone bill; it deserved to be used for something special and The PowerText Formatter looked like it did a lot of special things. It does.

The PowerText Formatter reminds me of one of those game boxes I received from a distant relative one Christmas when I was a child - a relative that didn't really know what I liked to do, but figured there were enough choices in the box to entertain me for a while. There was a checker game, a miniature chess set, Chinese checkers, and so on, with instructions for playing. Each game was different; each set of instructions was different. When I wanted to play, I would remove one game and a set of instructions and concentrate on it. In like manner, I use the PowerText Formatter the same way.

There are applications for this program that I will probably never use or have a need for, just as there were games in that box I never wished to learn. When I need it, however, I know the PowerText Formatter will handle the job. My life has changed since I bought the program, and these changes have created many opportunities to discover the wonderful powers of this program.

Simply put, the PowerText Formatter formats text. You create text using a word processor and enter certain commands to assist the Formatter in its work when you are done. If you need to create form letters, write a memo, a term paper, a script or screenplay, keep a schedule, or design a multi-column newsletter, you can do any of these with this program. You can even design your own formats for special needs, and the program supports many printers, including the lasers. The people at Beaman Porter will even write a printer driver for you if your printer isn't on the list!

Along with the intricacies of the Dewey decimal System and Geometry theorems, I recall that Learning To Write a Term Paper fell low on my high school hit parade of popular subjects. Although I retained the ability to find my way around a library, my term paper writing skills were as faded as my prom gown when I became an evening college student several years ago. The first term paper I produced was typed on a portable typewriter with one hand while I tended two small children with the other. I used something close to a ream of erasa-

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PowerText Formatter.....

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ble typewriter bond, re-typing the entire paper every time I left out a word or footnote and finally resorting to a page of add-on footnotes at the end. I earned an A- on the paper, a pile of eraser crumbs, and a visit from the local Child Abuse Officer for my efforts. I'm still going to college at night and one of those chidren is now in high school. And no one in the house is afraid of term papers anymore.

The PowerText Formatter takes care of the tedious chore of formatting a term paper properly, and anyone who has done a term paper will recall that the rules of term paper formatting seem more important to those who grade them the content of the paper itself. Using the power of the PCjr and a reliable word processor, it automatically formats footnotes, bibliographies, glossaries, outlines, and tables of contents. Depending upon your printer's capabilities, the footnote numbers will be superscripted and they will neatly appear under a horizontal line in condensed type at the bottom of each page. Additions or deletions doesn't bother the PowerText Formatter - it automatically renumbers your footnotes and reformats the paper. Bibliography entries can be included also, and the program will extract them, sort them, and place them on a correctly formatted page at the end of the paper. The instructions for formatting a term paper take up only a few short pages of the manual and clear examples are given for every command.

I've used two other features of the PowerText formatter - the screenplay, which led me to wonder just how people type screenplays without a program like this, and the Newsletter, which produces multiple columns, boxed text, automatice hyphenation (which avoids the gaps between words in columns), and many other features. Space can be reserved for graphics or pictures, however, an additional program called INSET 2 must be used to combine text with graphics. INSET 2 doesn't work on the PCjr. There is an older version of INSET that is compatible, however, and in case you're one of those people whose children conned you into buying a PCjr Koala Pad, INSET is the only program that will allow you to print your creations. The people at Koala Technologies told me that the PCjr version of the Koala Pad came out about the same time that IBM stopped manufacturing the computer, so they didn't bother to write a screen print program. Well, thanks and excuse me.

To effectively use the PowerText Formatter, you need never read past the small section you're interested in. However, each command is dutifully covered in detail in the back of the book. If it's 10 p.m. and your daughter tells you that her term paper is due tomorrow and still needs to be typed, you can probably have it done by 11 p.m. if you're using this program. The alternative is to call the school the next day and tell them she has the stomach virus or the dog ate the term paper if you're not. If you do have the program, however, don't limit yourself to one function. The PowerText Formatter, along with your word processor, is an unbeatable combination for putting your words into impressive formats.

...The Powertext Formatter, along with your word processor, is an unbeatable combination for putting your words into impressive formats.....

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Inside the PCjr.....

(Continued from page 12)

time rather than the whole thing at once. This makes the display of text in the graphics modes much slower than in the text modes. There are five graphics modes on the PCjr, and other than the resolution they display, they differ only in the maximum number of color choices available to them. Three of the five modes use 16Kb to hold their screen images, while the other two require 32Kb to store theirs. In all graphics modes, the contents of their display memory area determines the image produced. The number of bits in the memory area that are allocated to a single pixel position determines the number of colors that each pixel can possibly display. The two 32Kb screen modes (screens 5 & 6 in cartridge BASIC) need four bits to describe each pixel, and in turn, produce 16 diffferent colors, while two of the three 16Kb modes (screens 1, 3, and 4 in cartridge BASIC) require only two bits for each pixel therefore producing either 4 or 16 colors depeding on the resolution used. The monochrome high resolution mode (screen 2 in cartridge BASIC) has only one bit allocated to each screen pixel, allowing it to display only one color on black. It is possible for the PCjr to generate more than 16 colors through a complex process called artifacting. Artifacted colors are created by blending combinations of various colors. Artifacting has its drawbacks, though. It can only be used on a color TV or color composite monitor monitor, and artifacted colors have a washed-out appearance.

Unlike text mode, the screen memory arrangement in the graphics modes is more complex and varies from mode to mode. Basically, the display memory is organized in one of two ways, depending on the amount of memory used (either 16Kb or 32Kb). In the 16Kb modes, the screen memory is divided into two 8Kb banks in which the first bank represents the even numbered screen rows, while the second bank represents the odd numbered screen rows. In the 32Kb modes the screen memory is divided into four 8Kb sections which alternate between odd and even numbered screen rows. The PC also shares this screen memory arrangement for its two graphics modes.

As like many other computers, the PCjr can perform animation. Animation is useful for games, educational programs, and simulations. The PCjr can produce two different types of animation. The first type is called text character animation. This technique uses the PCjr's text modes and creates animation by rapidly printing text characters on the screen. Although this method is very fast, colorful, and effective, it does have its pitfalls. These include a limitation to the system's built-in character set, the lack of adequate resolution for applications requiring detail, and the somewhat jerky appearance of the animated objects.

The most common method used by the Junior is known as bitmap animation. Some computers include special video hardware to produce screen objects called sprites. These sprites produce very fast and convincing animation because they are independent from the screen image and are created by dedicated hardware. Since the PCjr lacks the necessary hardware to produce sprites, it instead relies on the bitmap technique to grab a rectangular portion of its screen image and quickly place it onto another area of the screen. Bitmap animation can be fairly fast, but if it isn't done well, it can produce unsightly flicker. It also tends to get bogged down if the animated image is very large. For the most part though, this technique generates smooth and pleasing animation.

Before leaving, there are few more tidbits that you should know about Junior's graphics. For one thing, they are slow. If you run a game on the PC and then run the same game on the Junior, you'll probably notice a difference in speed. There are quite a few reasons for this - some of them have already been discussed in this article. Another reason yet discussed is that the PCjr was designed around its graphics system, while the PC is just the opposite - the PC's graphics hardware was built around the PC. This is to say that the graphics hardware in the PCjr is an intrinsic part of the PCjr's system. For example, the PCjr's video hardware takes one out of every four clock cycles generated by the 8088 microprocessor because of the video timing mechanism, thus slowing the computer down considerably. In addition, the Junior's video hardware can't be

(Continued on next page)

Inside the PCjr.....

(Continued from previous page)

disabled because of the vital role it plays in the machine's operation. The PC, however, can turn off its graphics and has the ability to accept more powerful graphics hardware via a plug-in board through one of its expansion slots.

Finally, there are ways to speed up the display of graphics in the PCjr. One way is to connect a memory expansion board such as an Tecmar, IBM, or Racore unit. The software drivers that come with these boards are used to configure the new memory in the system, and as a side effect, they help to speed up the PCjr's graphics display by one of several methods. The Racore software, for instance, reserves the lower 128Kb (the PCjr's original memory) to store the screen and DOS, and speeds up the graphics by creating a freer memory path to the microprocessor. The Tecmar software works somewhat differently. It allows the user to select any video page in the lower 128Kb to store the screen and DOS, which essentially accomplishes the same result, though not as effectively. The IBM driver, that comes with its board, simply seeks out the best video page location in the lower 128Kb to hold the screen. I also have heard of a new cartridge being developed by PC Enterprises which is supposed to speed up the writing of information to the video screen. This product may have a lot of potential and should prove quite interesting when it is released.

In conclusion, the graphics powers of the PCjr are vast and almost limitless, though not without faults. They are important parts of this unique machine that we call the Junior, that in time, can become less mystifying and more productive through our understanding of its quirks and capabilities.

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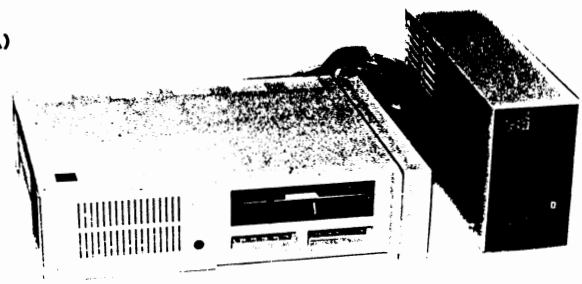

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Comdex.....

(Continued from page 8)

the serious world of today's computer technology. We were extremely impressed with the hospitality of the people of Atlanta, and the organization and thoughtfulness of the the COMDEX people (The Interface Group), especially Jeannie Brooks, who handled the public relations. Thumbs up for the show.

By the end of the show, we were less anxious as we had been at the outset. Though the hardware picture for the Junior remains generally outside of the show, the PCjr was still being courted from the immensely important software suitors. The next major function on the computer show circuit will be the even larger Fall COMDEX in Las Vegas, where we'll be to observe and report this ongoing, somewhat elegant struggle/courtship of the IBM PCjr. Though not a wallflower yet, our impression from this COMDEX is that Junior will have several more parties to attend, and many more waltzes to dance.

NEWS FLASH:

MURDOCH SELLS NEW IBM SPEECH ATTACHMENTS TO PCjr CLUB FOR IMMEDIATE DISTRIBUTION!!!

In an incredible turn of events, PCjr entrepreneur Robert Murdoch has sold his remaining stock of IBM PCjr Speech attachments to the World-renowned PCjr Club in Schaumburg, Illinois. The number of Speech attachments remaining was placed at only 15 according to a PCjr Club spokesman. They will be sold at a discount to PCjr club members at a cost of $85. plus $5. S&H, which is less than a third of their original $300. cost. Those subscribers interested were instructed to send a check or money order (US funds only) to The PCjr Club, IBM Speech Attachments, P.O. Box 59067, Schaumburg, IL 60159-0067. No further details were given.

IBM AND TECMAR EXPANSION BOARD UPGRADES

If you want to be the first kid on your block to have 256K chips in your IBM or Tecmar expansion board, this one's for you. After replacing the 64K chips originally soldered in your JrCaptain or IBM expansion sidecar, adding new sockets, and inserting 256K chips, you will effectively have 640K of RAM in your PCjr to play with. All work will be done by qualified technicians headed by Brian Cook. What we want you to do, is to fill out the form below to let us know if you're interested. Once we have your form on file, you will be notified by phone or mail when we would like for you to ship your board to us for prompt work, hopefully within two weeks time. The cost of mailing the board to us and insuring it will be your responsibility, and the cost and care of returning your upgraded board to you via UPS in a safe manner will be ours. We want you Tecmar owners to send your power supply along as well, so that we can test the board with your own power supply before we do anything to it. The cost of this service will be $145.00 (U.S. Currency). If you should have any questions concerning this service, please let us know on your form. We will guarantee the work and the 256K chips for 90 days.

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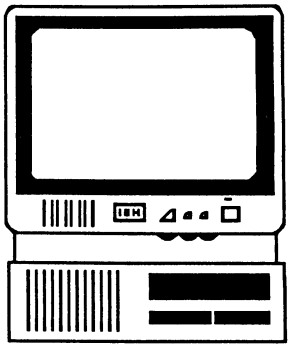
Is Your Junior An Artist?

The PCjr has its drawbacks, but it performs a lot of computer chores admirably, such as word processing and database management. Another strength is Junior's graphic abilities. With or without a mouse, there is an abundance of good to great drawing programs that run well on the PCjr, and the best part is that they are all coming down in price. Whether you draw for fun or for profit, we would like to see your work. Just send in a printout of your masterpiece to The Junior Report, The Guggenheim Collection, P.O. Box 59067, Schaumburg, IL 60159-0067, and we'll feature some of the best pieces during the year, and at the end of the year, we'll pick the very best drawing and award a first, second, and third place prize. Just send your masterpiece, a description of your PCjr setup, and the software you you are using. So let's see how good your PCjr really is with a brush. You may surprise your Junior and yourself.



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An introduction to Japanese. This is a challenging program for those that would like to learn another language. May be the first of several language diskettes if this should prove popular. Try it - you'll like it.

PC-FILE+ (#75)

The update to the most popular shareware program of all time. For advanced PC-File III users - packed with almost every advanced feature, including mail-merge, math calculations, and more. Increased speed is its most impressive feature. For the novice that wants to use this state-of-the-art database, there is a teaching mode, however. Requires at least 384K with two drives, or 640K with one drive. **2-disk set - $9.**

PINBALL II (#76)

For all pinball wizards that gives plenty of action, but requires no quarters.

REPRINTS

Below is a list of reprints that are currently available for purchasing. Please use the order blank below and send remittance and form to: The PCjr Club, Reprints, P.O. Box 59067, Schaumburg, IL 60159-0067.

NOV 1986 - IBM ColorPaint jRHotShot Internal Memory Expansion Gato
DEC 1986 - Readers' Survey #3 Jr BBS's Fontrix Converting IBM's Expansion Board to 512K
JAN 1987 - PCjr Software Compatibility List Doctoring IBM Writing Assistant Carmen SanDiego on Jr
FEB 1987 - PC-Write 2.7 PCjr Clubs DOS Patch 2.1 Basic Programing on the Junior
MAR 1987 - Art Studio Cassette Cable to Joystick Adapter Inside Your Jr Part I New Jr Products
APR 1987 - Inside the Jr Part II Microsoft Booster Upgrade StarFlight Fix Pockets Educational Software
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Don't forget the new programs on page 21!!

PC FILE III (#1): the classic, updated, full-featured database program that has set the standard for shareware programs. Considered by many to be better than most commercial programs. Version 4.
PC WRITE (#2): this best-selling shareware program is equal to or better than most word processors on the market. This is the latest version (2.55) and will run on the single drive, 128K PCjr.
PC TALK (#3): PCjr adapted version of one of the most popular communications programs.
HOME MANAGEMENT (#4): a reliable, general purpose financial manager.
MONOPOLY (#6): Colorful, electronic version of the most popular board game in history. **Requires 256K.**
KIDS (#7): a special children's disk composed of a kid's word processor, an intermediate math program, and a colorful counting game for the preschooler.
PC-KEY-DRAW (#9): the most powerful graphics program available in shareware. **Requires 256K.**
GAMES (#10): one of the best selling game disks has Combat, Dungeons & Dragons, & Global THermNuclear War.
PC TUTORIAL (#12): a course in computer and the PC-DOS environment.
GAMES (#16): includes PC-versions of Pac-Man, Missile Command, Asteroids, and Centipede.
PC OUTLINE (#17): an easy-to-use outlining program that's a must for writers and aspiring writers.
EDUCATIONAL GAMES (#18): features math exercises, thinking programs, and the classic Flashcards.
LABEL MASTER (#19): the original label making program has a variety of uses.
GAMES (#24): Poker games, Battleship, Land Mines, Fire, Grime, and Hostages.
IMAGEPRINT (#25): A must-have printer utility that makes your dot matrix into a lean, mean, quality text producing printing machine. Can proportionally space text. Requires an Epson or IBM compatible printer.
QMODEMJr (#26): a special PCjr version of the popular communications program, allows easy access to BBS's.
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EZ FORMS (#28): Create and print custom forms to fit every need. A business neccesity. **Requires 256K.**
PC-STYLE (#29): Written by Jim Button, helps improve your writing skills by analyzing your writing style. Easy to use, it wakes up your documents or prose, making your writing more readable and stylish.
VISIBLE-PASCAL (#30): A special version of Pascal for novice Pascal programmers.
PC-CALC (#31): A "visible" spreadsheet program that challenges those offered commercially. Income tax computations, calculating depreciation, computing loan interests, or just plain balancing your checkbook are just some of the chores this program can handle.

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To order any Public Domain disk, please send $5.50 (U.S. Currency) for each program ($10.00 for non-members) which includes shipping and handling and send to: The PCjr Club, Public Domain, P.O. Box 59067, Schaumburg, IL 60159-0067. Please allow four weeks for delivery. All orders outside of the United States and Canada, please include $10.00 (U.S.) per order.

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PC-DESKMATES (#36): A memory resident that includes an alarm clock, phone book, calendar, notepad, and printer commands.
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GAMES (#41): Features Striker, an arcade-style helicopter attack game that will make you swear you're in a real arcade. Also has Catacombs of Nemon, and JumpJoe.2 (A donkey Kong lookalike) **Requires 256K.**
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CASHTRAC 5.15 (#48): an excellent program intended for use by the household manager, club treasurer, small business, and expense account keepers. **Requires 256K.**
PCjr UTILITIES (#49): special utilities for Junior includes a print spooler, two text editors, and a program that can create special PCjr keyboard templates for WordPerfect 4.1, Reflex, PC-Write 2.55, and others.
GOOD HEALTH (#50): features PC-Recipe, a fun program that maintains recipe information, and allows you to display, update, add, change, and re-calculate recipes. Also has BioRhythm and ELIZA, the "artificial intelligent" companion.
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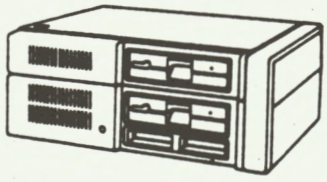

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