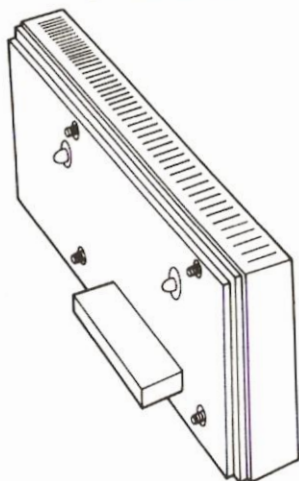


PC Enterprises'

# MegaBoard

## Installation and Operation Manual



*Adds More Memory than any other PCjr Expansion Product!*

PC Enterprises, PO Box 292, Belmar, NJ 07719 (201) 280-0025

### **This carton should contain the following:**

- MegaBoard Sidecar
- Memory Management Diskette
- MegaBoard Installation and Operation Manual

Please inspect this package to determine whether any item appears missing or damaged. If any item is missing or damaged report the missing or damaged item to the place of purchase as soon as possible.

## DEDICATION

The IBM PCjr was designed with hardware and BIOS limitations which would prevent many PCjr users from ever expanding memory beyond 128K.

Significant limitations once crippled the PCjr but today a fully expanded PCjr is much more powerful than its creators could have ever imagined - thanks to creative solutions devised by a small group of individuals who refuse to accept limitations as the way of life.

We at PC Enterprises would like to take this opportunity to say thanks to the technical team directly responsible for making this, and many other PCjr products, a reality. Thanks (in alphabetical order) to Ray Beaulieu, Sylvia Dayton, June Scott, and Toni Rae Yobbi. Without your help and devoted service my PCjr would likely have become a box packed away somewhere in the attic.

Thanks are also in order for Donna Greene, Mary Anne Hayes, Adrienne Nafziger, Raquel Pagliaro, Kelley Caroccia, Michele Gianfrancesco, Cindy Langeveld and Judianne Scheiber. Special thanks also to Dennis Gormley and most of all to Doug and Lisa.

..... *P. Joseph Calabria*

## INTRODUCTION

Congratulations on your purchase of a PC Enterprises product. We expect our product to serve you reliably for many years to come. We hope you will be pleased with this product and pledge to try very hard to keep you satisfied with our support, service, and new PCjr product.

The single most important expansion product for your PCjr is one that adds memory--memory to run serious programs such as dBase, Lotus 123, WordPerfect, and literally thousands of others. Memory that provides a reservoir of power for special applications, such as RAMDISK.

Such immediate, dramatic expansion is yours when you plug in your new PC Enterprises Megaboard to your PCjr. Fully compatible with all other PC Enterprises and IBM products, the Megaboard adds more memory than any other PCjr expansion product currently available.

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## **INSTALLATION REQUIREMENTS**

### **SYSTEM REQUIREMENTS**

128K, 256K, 384K, 512K, 640K, or 736K PCjr

PC DOS version 2.1 or later

### **TOOLS REQUIRED**

Medium sized flat-blade screwdriver.

### **OTHER PRODUCTS REQUIRED**

The PCjr's power supply is normally strong enough to operate up to three major add-on products. If your PCjr currently has three or more add-on products installed, we recommend you purchase and install an additional power supply **BEFORE** you attempt to install or use this product.

**Important:** After you complete the installation of this product, be sure to insert these option instructions into Section 5 of the PCjr Guide to Operations Manual

### **WHAT YOU SHOULD KNOW**

#### **ABOUT THE MEGABOARD**

A reminder or two about PCjr memory will help underscore the expansion benefits provided by the Mega-Board. The Enhanced model of the PCjr, as shipped by its manufacturer, came with only 128K memory. Other memory expansion products permit you to increase this memory to 736K, which is the maximum amount that can be recognized by DOS. Any portion of this memory may be employed for a RAMDISK application, however, the amount of memory used by the RAMDISK is deducted from the amount available to run programs. In other words, if a PCjr has 640K of "normal" DOS memory, and



you allocate 360K for use as a RAMDISK application, the PCjr only has 280K left to run programs.

That's the beauty of the PC Enterprises' MegaBoard. It expands DOS memory to the 736K maximum, and allocates the remaining memory for use as PCE memory. (Note: You do not have to increase DOS memory. If you prefer, all of the MegaBoard memory could be set up as PCE memory).

The MegaBoard is available in models providing 1024K (1 Meg), 768K, 512K, and 256K. Table 1 shows the amount of memory you obtain when you plug a MegaBoard into your PCjr. 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 run programs).

Column C shows the amount of PCE Memory you'll have. (PCE Memory is memory utilized for special applications supported by MegaBoard software).

Currently, software only exists to use PCE memory as a RAMDISK, however, updates are planned for additional applications. Planned applications include support of EMS, Print Spooler, and a Diskette Cache. Software updates will be provided, (upon request), free of charge (except shipping and handling), to registered MegaBoard users.

## FEATURES

- Creates a RAMDISK without using DOS memory. This means you'll never run out of DOS memory because you've allocated too much memory to the RAMDISK.
- Expands DOS memory to the maximum of 736K.
- Improves program performance dramatically. We used IBM's Writing Assistant program to check the spelling of a 25 page document. Twelve corrections were made. This took over 21 minutes from a floppy disk drive. Then we performed the same task running from our Megaboard's RAMDISK. We finished in four minutes.
- A RAMDISK can take the place of a second floppy disk drive, or a hard disk drive, in many applications.
- Print spooler, EMS, diskette cache, and other special applications for PCE Memory, are planned for the future.
- Only PCjr memory board manufactured that adds PCE Memory.
- All models user expandable to 1 Meg (1024K).
- Expand by adding banks of 256K.

A	B	C	B	C	B	C	B	C
128	384	0	640	0	736	160	736	416
256	512	0	768	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
Model	256K		512K		768K		1024K	

Table 1

## HOW COMPUTERS ADDRESS MEMORY

The IBM PCjr uses the 8088 microprocessor which has 20 address lines. Each address line can be either high or low (A1 or A0). When all lines are low, the address the microprocessor sees is 0000 0000 0000 0000 0000. This is the first address in memory. When all lines are high, the microprocessor sees address 1111 1111 1111 1111 1111. This is the highest address in memory.

These 20 address lines enable the PCjr to produce 1,048,576 unique addresses. In other words, the 8088 microprocessor can address 1 Megabyte of memory.

The PCjr's designers divided these 1,048,576 addresses into 16 equal parts, which are known as segments. Each segment therefore contains 1/16th of the total address space, or 65,536 unique addresses.

The number 65,536 is also known as 64K. This is because one K unit consists of 1024 bytes ( $64 \times 1024 = 65536$ ). We apologize if this causes any confusion, but computer terminology evolved long before PC Enterprises.

The hexadecimal numbering system (base 16) is used to name each segment. Refer to Table 2 if you're not familiar with the hexadecimal numbering system.

Actual Segment	Hex Number
First	0
Second	1
Third	2
Fourth	3
Fifth	4
Sixth	5
Seventh	6
Eighth	7
Ninth	8
Tenth	9
Eleventh	A
Twelveth	B
Thirteenth	C
Fourteenth	D
Fifteenth	E
Sixteenth	F

*Table 2*

Segments (0-9 hex) are always reserved for read/write (RAM) memory. This means a PCjr has 10 segments reserved for normal memory ( $10 \times 64K = 640K$ ).

### **EXTENDED DOS MEMORY**

To the best of our knowledge, the PCjr's entire A segment, and the first half of the B segment, were never used for anything. The IBM PCjr Technical Reference Manual states that this space is reserved for future video. Future video could mean Monochrome Support, true



CGA, EGA, PGA, VGA, or almost any other type of video support. (To the best of our knowledge, none of these products have ever been developed for the PCjr).

Unless you have a "Future Video" product that we don't yet know about, this address space on your PCjr is wasted. Switch two of the MegaBoard is the Extended DOS select switch. When this switch is in the Extended DOS position, the MegaBoard allows DOS to put this otherwise wasted address space to good use.

In the Extended DOS mode, the MegaBoard uses this address space to access 96K of its memory. This extends DOS memory from 640K to 736K. The only time you will not be able to use this feature, is if you also have another PCjr product that uses the address space reserved for future video. (Note: This switch also allows you to someday purchase a PC Enterprises future video product).

## **PCE MEMORY**

The reason DOS memory cannot be extended beyond 736K is that the second half of the B segment is already used by the PCjr for its own purposes (existing video support).

To continue our discussion of how the PCjr uses its address space, the C segment is reserved for Optional Sidecar ROMs (we'll talk more about this in the next paragraph). The entire D and E segments are reserved for cartridges, and the F segment is used by BIOS.

As you have seen, the only address space available for expansion products is the 64K chunk located in the C segment, and under normal conditions, 64K of address

space only lets you access 64K of memory. We had to come up with a more innovative approach, that would permit the PCjr to access all of the MegaBoards' memory, and still permit other devices which require Optional Sidecar ROM address space to be used.

The solution was to use a 16K chunk of the total address space in the C segment as a window. Through this window, special software we provide will pass as much information as necessary - 16K at a time (This is similar to the way EMS boards work on the IBM PC).

The other 48K of address space in the C segment, remains available to Optional Sidecar ROMs that exist in other PCjr products that you already have, or someday might want to attach to your PCjr.

## **SELECTING A POWER SUPPLY**

The PCjr's internal power supply is not normally strong enough to power more than three major add-on devices. As a result, if you already have three add-on products attached to your PCjr, we strongly recommend you add an additional power supply.

Two products are available that permit you to add power for PCjr add-on products. The IBM PCjr Power Attachment [Catalog #79909] is the first product. This product is actually a second power supply. It plugs into the PCjr like any other sidecar and provides power for other sidecars you attach.

If you already have any one of PC Enterprises Junior Drive Systems that snap on top of the PCjr, we recommend the Junior Drive Power Supply (Catalog #12523). This is a 150 Watt internal power supply, designed

specifically for the PCjr, that fits inside PC Enterprises Junior Drive Expansion Chassis. The Junior Drive Power Supply replaces the original power supply, so it can power your PCjr and all the options you're likely to ever attach.

For additional information on these and other PCjr Products available from PC Enterprises, refer to PC Enterprises' latest "Catalog of PCjr Products."

## **INSTALLING MEMORY CHIPS**

If you purchased your MegaBoard from PC Enterprises already populated with memory chips, you will not need to install any memory chips. Refer to the section of this manual titled, "Setting up the Hardware". Two styles of MegaBoard exist. Before you purchase or attempt to install memory chips in your MegaBoard, you must first determine the type of memory chip your MegaBoard accepts.

The easiest way to determine which style memory chip you'll need is to examine the sockets provided for memory expansion. If the sockets accept 16 pin chips, you'll need 256K x 1 (SAMSUNG KM41256AP-15 or equivalent) devices. If the sockets accept 20 pin chips, you'll need 256K x 4 (SAMSUNG 41256P-15) devices.

The four banks are labeled A, B, C, and D. If your MegaBoard uses 256K x 1 chips, eight chips are required for each bank. If your MegaBoard uses 256K x 4 chips, only two chips are required for each bank. The two chips in the A bank would therefore be labeled 1A and 1B. You must fill bank D first, then C, then B, and finally bank A.



## **LABELING**

Each socket is labeled with the chip number and the bank letter. This means the chips in the A bank will be labeled 1A, 2A, 3A, 4A, 5A, 6A, 7A and 8A.

## **SETTING UP THE HARDWARE**

Before the MegaBoard is installed, all MegaBoard users must set up the hardware. This involves two processes. First, an eight position DIP switch (SW1) is used. This switch permits you to enable or disable MegaBoard features - and to select the proper starting address for the DOS memory that you add. The second process involves setting the address jumpers, which select the 16K window and the I/O address that the MegaBoard uses to access PCE memory.

## **SETTING THE SWITCHES**

### **PCE MEMORY SELECT**

Switch 1 determines whether or not you'll allow the MegaBoard to access PCE Memory through a 16K window in the Optional Sidecar ROM Address space (segment C). Refer to table 3. For normal operation be sure this switch is OFF.

<b>Switch One</b>	
<b>ON</b>	<b>PCE Memory CAN NOT be used</b>
<b>OFF</b>	<b>PCE Memory CAN be used</b>

*Table 3*



In the ON (closed) position, the MegaBoard will not be able to access any PCE Memory through the 16K window in the Optional Sidecar ROM Address space.

If you ever suspect you have a compatibility problem you will be instructed to disable PCE Memory by setting this switch ON.

### **EXTENDED DOS MEMORY SELECT**

Switch 2 determines whether you'll allow 96K of the MegaBoard's memory to be used to "extend" DOS memory from 640K to 736K. Refer to Table 4.

Switch 2	
ON	Maximum DOS Memory is 640K
OFF	Maximum DOS Memory is 736K

*Table 4*

Whether you expand your system to 640K, or to 736K, is up to you; however, unless you have special requirements, you'll normally want the most DOS memory you could have. For this reason, we recommend you keep switch 2 OFF all of the time.

If you ever suspect you've encountered a compatibility problem with another product that you use, set switch 2 ON to disable the use of "Extended DOS" memory.

### **STARTING ADDRESS OF DOS MEMORY**

Switches 3, 4, and 5 are used together to set the starting address of DOS memory. The proper starting address for your system depends upon how much memory you have before the MegaBoard is installed.

Refer to Table 5 to determine the proper setting for switches 3, 4, and 5. If you're not certain how much memory your PCjr has installed, turn your PCjr on (before you plug in the MegaBoard), and observe the memory count on the screen.

**Important Note:** The PCjr's BIOS, which displays the memory count-up that you see on the screen, stops looking for memory when it gets to 640K. This means even if you have more than 640K, your system will never count past 640K.

Total Memory BEFORE Adding a MegaBoard	Switches		
	3	4	5
128K	ON	ON	ON
256K	ON	ON	OFF
384K	ON	OFF	ON
512K	ON	OFF	OFF
640K	OFF	OFF	OFF

Table 5

## NUMBER OF BANKS INSTALLED

The MegaBoard can have one, two, three, or four banks of memory. Switches 6 and 7 should be set to tell the MegaBoard software how many banks of memory are installed.

To determine how many banks of memory that you are using, you'll need to know the total memory inside your

MegaBoard. If you're not sure how much memory your MegaBoard has installed, either inspect the board itself (refer to the section of this manual titled, "Installing Memory Chips" for more information), or refer to your original sales receipt. Refer to Table 6.

BANKS OF MEMORY INSTALLED	SWITCH	
	6	7
1 BANK (256K MEGABOARDS)	ON	ON
2 BANKS (512K MEGABOARDS)	ON	OFF
3 BANKS (768K MEGABOARDS)	OFF	ON
4 BANKS (1024K MEGABOARDS)	OFF	OFF

Table 6

## FUTURE EXPANSION

Switch 8 is reserved for a future application. Please keep this switch ON.

## SETTING THE JUMPERS

A 2 x 8 header is used on the MegaBoard for two features. First, it permits you to select the address of the 16K window within the Optional Sidecar ROM address space. Two jumpers are used on two of the top four positions of this header for this purpose. Second, the I/O address used by the MegaBoard must be determined, and this is accomplished by installing a jumper on one of the bottom four positions.

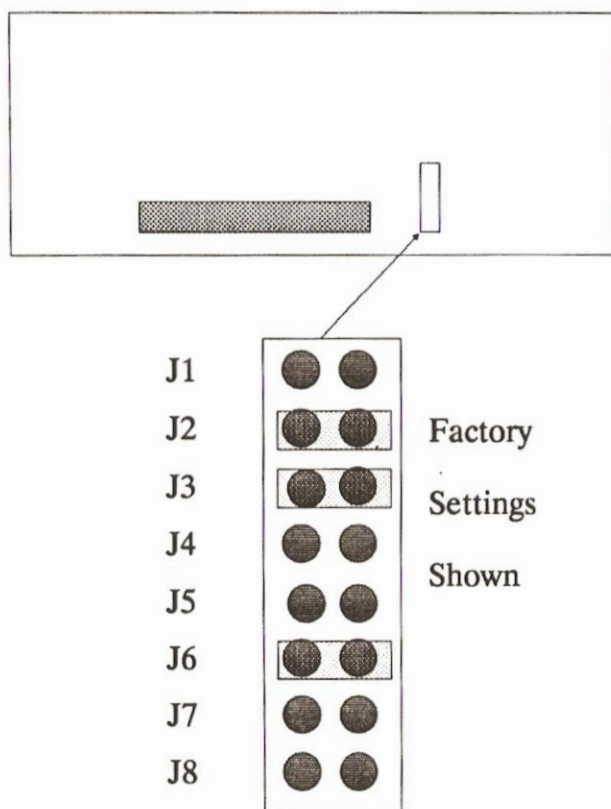


Figure 1

## SETTING THE ADDRESS OF THE 16K WINDOW IN THE OPTIONAL SIDECAR ROM ADDRESS SPACE

In order to access PCE memory, you must permit the MegaBoard to use 16K of the address space reserved in the C segment for Optional Sidecar ROMs. Jumpers are provided on the MegaBoard which permit you to



change the address of the 16K window (block) used. This means the MegaBoard will work with most other PCjr products, including other products which also use ROM address space; although, you may need to move a jumper if you encounter a conflict.

PC Enterprises carefully chose factory settings which are not likely to interfere with other IBM and PC Enterprises products; however, as you continue to expand your PCjr, there is a chance that you'll someday experience a ROM address conflict. If this does happen, all you'll need to do is change the ROM address used by one or more of your PCjr options.

You should suspect that you've encountered a ROM address conflict if you receive an "Error F" message, or if one of your PCjr add-on products stops working when another product is installed.

Read the section of this manual titled, "Compatibility With Other Pcjr Products That Use Sidecar ROMs" if you ever experience a problem that you suspect is related to ROM addressing.

### **POSSIBLE CONFLICTS**

Most MegaBoard users will never need to change the factory jumper settings because the MegaBoard, as shipped from our facility, is set up to use the first 16K block of addresses in the C segment.

PCjr users who are also using a PCjr multifunction board made by Impulse, Micro Products, or PC Enterprises, are the exception. These were the PCjr add-on boards that added memory, a printer port, and a clock-calendar all in one sidecar. These boards also use the first block of addresses in the C segment. In this case, the

MegaBoards' address jumpers must be changed. Those who use the IBM Cluster Attachment also need to change the address of the 16K window used by the MegaBoard.

As of the date this manual was written, these are the only products known to conflict with the factory settings. IBM's Parallel Printer Attachment and Memory Expansion sidecars do NOT use any "Optional Sidecar ROM" address space and therefore cannot cause a ROM address conflict. The same situation exists with the Microsoft jrBooster, and Tecmar's jrCaptain, jrWave, and jrSecond Mate.

### **COMPATIBILITY WITH OTHER PCjr PRODUCTS THAT USE SIDECAR ROMS**

*This section is somewhat technical. You may wish to skip this section now and refer back only if you encounter a ROM address conflict.*

The PCjr has one 64K segment of address space available to "Optional Sidecar ROMs" (C0000h-CFFFFh). Note that "Optional Sidecar ROMs" are not always found in sidecars - they're also found on some boards which plug into the computer's microprocessor slot.

Optional ROMs are normally 8K, 16K, or 32K - depending upon the size needed for the application. For this reason, PC Enterprises likes to divide the 64K of available ROM address space into eight 8K blocks. We also like to refer to each block by the starting address in hex

Table 7 shows the factory settings for all PC Enterprises products that use Optional Sidecar ROM address space, currently in production as of the date this manual was written.

<b>Block</b>	<b>Starting Address</b>	<b>Label</b>	<b>Suggested Use (Factory Setting)</b>
<b>#1</b>	<b>C0000</b>	<b>C0h</b>	<b>MegaBoard (1 of 2)</b>
<b>#2</b>	<b>C2000</b>	<b>C2h</b>	<b>MegaBoard (2 of 2)</b>
<b>#3</b>	<b>C4000</b>	<b>C4h</b>	<b>jrExcellerator</b>
<b>#4</b>	<b>C6000</b>	<b>C6h</b>	<b>ST01jr - BIOS1</b>
<b>#5</b>	<b>C8000</b>	<b>C8h</b>	<b>ST01jr - BIOS2 (1 of 2)</b>
<b>#6</b>	<b>CA000</b>	<b>CAh</b>	<b>ST01jr - BIOS2 (2 of 2)</b>
<b>#7</b>	<b>CC000</b>	<b>CCh</b>	
<b>#8</b>	<b>CE000</b>	<b>CEh</b>	<b>Speech Attachment</b>

*Table 7*

The base address of the MegaBoard's 16K window can be changed by installing the jumpers as shown in Table 8 below.

<b>Starting Address of the 16K Block in the Optional Sidecar ROM Address Space</b>	
<b>C0000</b>	<b>Install Jumpers J2 and J3</b>
<b>C4000</b>	<b>Install Jumpers J1 and J3</b>
<b>C8000</b>	<b>Install Jumpers J2 and J4</b>
<b>CA000</b>	<b>Install Jumpers J1 and J4</b>

*Table 8*

## **I/O ADDRESS**

The MegaBoard also requires the use of I/O address space to access PCE memory. We decided to use I/O address 140 hex for two reasons. First, the PCjr Technical Reference Manual does not indicate this address is used by anything else, and second, because we don't know of any existing PCjr product that already uses this address.

Chances are you'll never encounter any problem with the factory settings; however, just to get the jump on Murphy (Murphy's Law), we designed the MegaBoard so the address can be changed. The I/O address can be changed to either 0E0h, 160h, or 1C0h - all of which are not committed for any other purpose in the PCjr Technical Reference Manual. Refer to Table 9.

<b>I/O Address</b>	<b>Jumper</b>
<b>0E0h</b>	<b>J5</b>
<b>140h</b>	<b>J6</b>
<b>160h</b>	<b>J7</b>
<b>1C0h</b>	<b>J8</b>

*Table 9*



## INSTALLING THE SOFTWARE

Your MegaBoard is now installed and ready to be used. Two lines must now be added to your CONFIG.SYS file. If you are a novice and do not know how to add a line to your CONFIG.SYS file, refer to the section of this manual titled "Software Installation Instructions".

The first line is `DEVICE=JRCONFIG.NRD -T3 -L`. This line permits your PCjr to recognize DOS memory above 128K. The `-T3` starts DOS in the 80 column color mode, and the `-L` tells DOS to "look" for more than 640K of memory .

Note: Use the JRCONFIG.NRD program in place of any other program that you may currently be using to recognize your memory. This is required because other memory management programs may not check for memory beyond 640K (unless you also have a PC Enterprises jr-Excellerator Installed). In other words, make sure you are not using PCJRMEM.COM, JRVBUFD.DOS, MEMORY.SYS, CONPCJR, or JRVIDMA.COM.

The second line that must be added to your CONFIG.SYS file is `DEVICE=MEGADSK.SYS /*`. This line causes DOS to set up the RAMDISK in PCE memory. The `/*` tells DOS to use all available memory. If you prefer, you can use a number. For example `/360` sets up a 360K ramdisk. Multiple RAMDISK are also supported by using multiple commands. As an example,

adding the following two lines to your CONFIG.SYS file will set up two RAMDISKS.

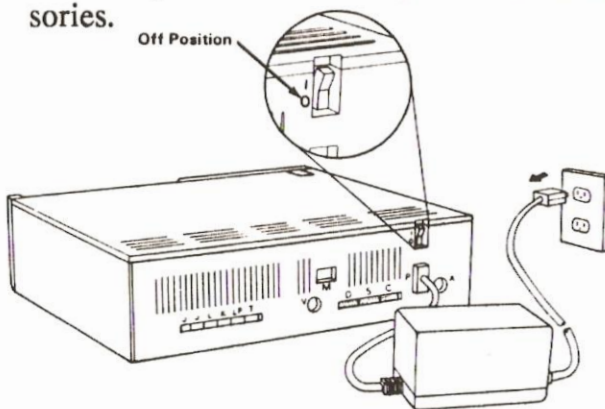
**DEVICE = MEGADSK.SYS /360**

**DEVICE = MEGADSK.SYS /\***

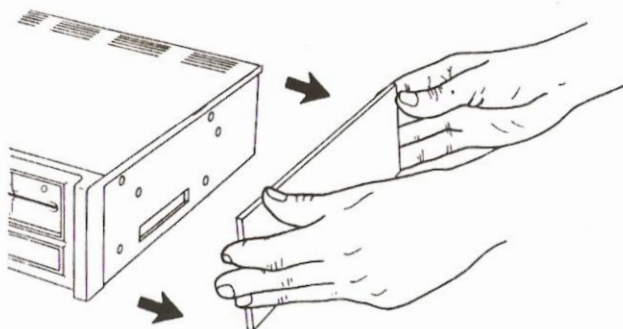
The first will be 360K, the second will use whatever memory you have left over.

## INSTALLING THE HARDWARE

1. Turn your IBM PCjr power off.
2. Turn off power to the computer and its accessories.



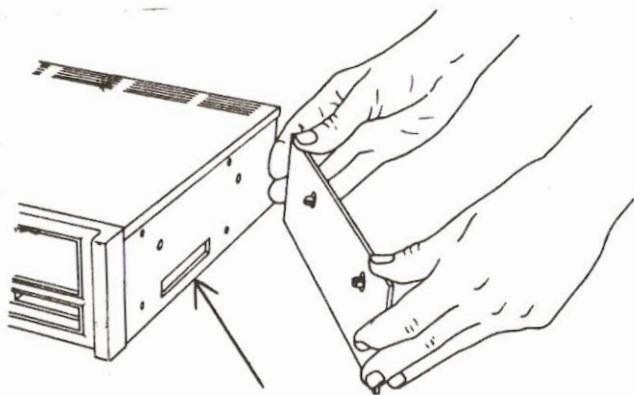
3. Remove the plastic side cover from the right side of the computer or last add-on module.



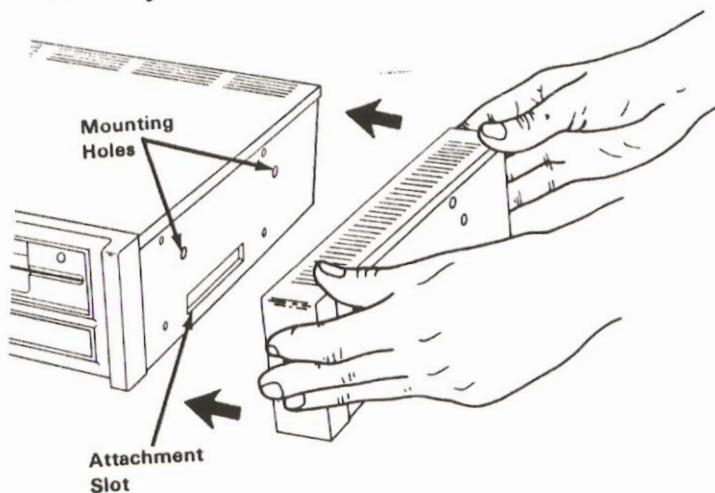
4. Turn your IBM PCjr so the rear is toward you.

**Caution:** Serious shock hazards exist within the covers of the IBM PCjr. Do not open these covers unless you have unplugged your IBM PCjr power cord from the wall outlet. After turning your IBM PCjr power off, allow 5 minutes for cooling to take place before removing the top cover.

5. Inspect the 60 pin connector and make sure none of the PCjr's pins are bent, damaged or missing. You should see two rows of 30 pins. If any pins are bent or damaged, do not attempt to install the jrSidecar until you straighten the bent or damaged pins. You may do so with needle nosed pliers.



6. Position the jrSidecar so that the mating connector on the jrSidecar aligns with the 60 pin connector on the PCjr, then while holding the computer, push the module in towards the computer until it is firmly seated.



7. Install the four stacking screws provided and tighten until they are snug. **DO NOT OVERTIGHTEN!** The purpose of these screws is simply to prevent the sidecar from falling off.
8. Re-attach all of your PCjr sidecars that were removed earlier in this installation procedure. Be especially careful to properly align each sidecar so its pins properly fit together when installed. Then screw each sidecar in place, being certain to only tighten the screws until they are snug.



## **IMPORTANT NOTICE - PLEASE READ**

*Perhaps the most common problem we've seen when PCjr sidecars are installed is misalignment of the pins. If you are not careful all of the pins may not fit together. Inspect the pins of the PCjr and each of your sidecars BEFORE you attempt to reinstall each sidecar. Be certain the pins are properly aligned (especially the pins on the ends). If they are not aligned properly, straighten the pins with needle nosed pliers before you continue. If a problem is noticed when you power up your system, come back to this step and carefully remove and examine each sidecar for proper pin alignment.*

If all goes well, proceed now to the next section. If a problem occurs, carefully recheck the installation. Be sure to write down any error messages you receive exactly the way they appeared, then contact our Customer Service Department (201 280-0025) if you need further assistance. The Customer Service Representative will either help you directly or tell you how to obtain technical support.

## **WHICH DRIVE LETTER**

You'll need to determine which drive letter DOS has assigned to your RAMDISK. The best way to tell is to ask for a directory using the drive letter that you think DOS has assigned (Example: DIR C:).

In most cases the RAMDISK will become drive C:, however, this may not be the case if you have three or four floppy drives, or a hard disk drive installed.

DOS always assigns drive letters in sequence. Floppy drives controlled by DOS go first, then hard drives (con-

trolled by DOS), then devices such as the PCE Mega-Board, which are controlled by device driver software. Drive letters A and B are always reserved for floppy drives controlled by DOS. This means your RAMDISK will never be assigned a letter that comes before C:.

If you have other devices installed which use device driver software, DOS will assign drive letters on a first come, first serve basis. This means the order of your CONFIG.SYS file determines which drive letter your RAMDISK will be assigned.

Note: Your floppy or hard drives are controlled by DOS if you tell DOS about the drives with either a Configuration Cartridge or configuration software (example: `DEVICE = JRCONFIG.NRD -D3`). If you are using device driver software (such as `DRIVER.SYS` or `MICRODSK.SYS`) to tell DOS about these drives, then they are not considered drives controlled by DOS.

## **OTHER PCjr PRODUCTS**

PC Enterprises started developing PCjr products in 1984. Today, as always, we remain dedicated exclusively to the PCjr - and we intend to continue developing new products and services for the PCjr as long as the need exists.

PC Enterprises believes a computer, in many ways, can be compared to an electronic stereo system. As long as your receiver does what its supposed to do, and as long as you can add-on the newest devices which come out (a CD or Video CD player, for example), there's little reason to ever replace it.

Likewise, as long as the PCjr can run software that's available, you'll probably continue using your PCjr for a long, long time. As a result, we pledge to continue developing products which maintain compatibility with other computers, while making the PCjr much more powerful than most could have ever dreamed.

Our latest catalog of PCjr products now includes over 200 products. PCjr owners can obtain a FREE catalog of PCjr products by placing an order, or calling our toll free catalog and order hotline: [800] 922-PCJR.

## **RETURN POLICIES**

### **DAMAGED EQUIPMENT**

We carefully pack and inspect all products before leaving our facility. Insurance is paid to the carrier who accepts FULL responsibility for safe delivery. If your package arrives in a damaged condition, obvious or concealed, you must immediately report the damage to the carrier. Failure to do this in a timely manner will result in the carrier and or PC Enterprises refusing to honor the claim. The carrier will provide any additional information necessary for you to be reimbursed for damages. The equipment must not be returned to us without prior approval by PC Enterprises and release from the carrier.

### **DEFECTIVE EQUIPMENT**

This policy pertains to equipment which does not work correctly, although the equipment does not appear to have been damaged during transit.

If you experience a problem with any PC Enterprises product, you should call or write to PC Enterprises. If it is determined that the merchandise should be returned to us, you will be given a Return Authorization Number [RA Number].

**Anything Returned Without an RA Number Will be Refused and Returned to you Without Exception!**



## STEP-BY-STEP SOFTWARE INSTALLATION INSTRUCTIONS

*These instructions are written to guide "beginners" through the process of installing the Megaboard software. The instructions assume you have an 80 column color monitor, one disk drive, and will be creating a CONFIG.SYS file for the first time. If you have a 40 column color monitor use the -T1 option instead of the -T3 option in step 9.*

Advanced users may choose to skip the STEP-BY-STEP instructions. First, we're going to copy two files from the Memory Management Diskette onto your working copy of DOS. The names of the two files are JRCONFIG.NRD and MEGADSK.SYS.

1. Start your computer with your working copy of DOS.
2. Insert the Memory Management Diskette into your disk drive.
3. Type: **COPY JRCONFIG.NRD B:** then press Enter.
4. Wait until you receive the following message, "Insert diskette for drive B:, and strike any key when ready."
5. Insert your working copy of DOS into the drive. Be sure it is not write protected, then press any key.
6. You will receive the message, "1 File(s) copied".
7. Type: **COPY MEGADSK.SYS B:** then press Enter.
8. The computer will prompt "Insert diskette for drive A: and strike any key when ready". At this time, insert the Memory Management Diskette into your disk drive and press Enter.

9. Wait until you receive the following message,  
"Insert diskette for drive B: and strike any key  
when ready."
10. Insert your working copy of DOS into the drive.  
Be sure it is not write protected, then press any  
key.
11. You will receive the message, "1 File(s) copied".

**Next, we must create a CONFIG.SYS file which will run  
your memory software automatically, each time you  
turn your computer on.**

12. The working copy of your DOS diskette should  
still be in your disk drive. If it is not then be sure  
to put it there.
13. Type: **COPY CON CONFIG.SYS** then press  
Enter.
14. Note that the cursor has jumped to the next line.  
Now type: **DEVICE=JRCONFIG.NRD -T3 -**  
**L** then press Enter.
15. Type: **DEVICE=MEGADSK.SYS /\*** then press  
Enter.
16. Press function key 6. (To do this with the PCjr  
keyboard, press and hold the Fn key then press  
the 6 key).
17. An "End of file" marker ( ^Z) will appear on the  
screen. Now press the Enter key.
18. At this point you may receive the message, "Insert  
diskette for drive A: and strike any key when  
ready."

If you receive this message simply press any key. The message, "1 File(s) copied " will be displayed.

- 19.** Finally you must reboot your system so that DOS will read your new CONFIG.SYS file. To do this, press and hold the Ctrl, Alt, and Del keys at the same time.

### LIMITED WARRANTY

PC Enterprises warrants the original purchaser of this product that it will be in good working order for the one year period from the date of purchase from PC Enterprises or authorized dealer. Should this product fail to be in good working order at any time during the warranty period, PC Enterprises will, at its option, repair or replace the product at no additional cost except that as stated below. Repair parts and replacement products will be furnished either reconditioned or new. All replaced parts and products become the property of PC Enterprises. This warranty does not include service to repair damage to the product as a result of misuse, disaster, accident, or modification of the product.

Warranty service may be obtained by shipping the product US Mail to PC Enterprises and providing proof of purchase date. You agree to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges and to use the original shipping container or equivalent. Contact PC Enterprises prior to returning any products for repair to receive a Return Authorization (RA) number. Any products returned without an RA number will be indiscriminately refused.

All express and implied warranties for this product including the warranties of merchantability and fitness for a particular purpose, are limited in duration to the one year period from the date of purchase, and no warranties, whether express or implied, will apply after this period. Some states do not allow limitations on how long an implied warranty lasts, so the above may not apply to you.

If this product is not in good working order as warranted above, your sole remedy shall be repair or replacement as provided above. In no event will PC Enterprises be liable to you for any damages, whether incidental or consequential, arising out of the use of, or inability to use such product. Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, whereas the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. Modification or other disassembly of the PC Enterprises' product without written permission from PC Enterprises will void this warranty.