



Personal Computer

Using Your IBM PCjr Memory Options

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Chapter 1. Introduction to Memory Options

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The IBM PC^{jr} Memory Options are needed whenever you want to use additional memory beyond 128KB.

This package helps you:

- Run applications that need more than 128KB of memory.

Applications are game, education, and business programs you buy.

- Run applications that can use more memory for extra work space.

Some spread sheet and word processor applications do not need more than 128KB to run, but can use Memory Expansion as extra work space. This extra work space gives you room for big jobs and documents.

- Use part of the extra memory to imitate an additional diskette drive called Memory Disk.

The memory disk allows you to process information faster than a mechanical diskette drive.

What Is in This Booklet

This booklet tells you how to create two diskettes that allow you to run your applications with the PCjr Memory Options.

Part 1 - Memory Expansion describes how to:

- Backup your DOS diskette
- Create a DOS Backup With Memory Expansion diskette
- Add Memory Expansion to an application diskette
- Start applications using the diskettes you created.

Part 2 - Memory Disk describes how to:

- Backup your DOS diskette
- Create a DOS Backup With Memory Disk diskette
- Add Memory Disk to an application diskette
- Start applications using the diskettes you created.

Note: You must understand Memory Expansion before using Memory Disk.

Appendixes in the back include Error Conditions and using Memory Expansion with the IBM Cluster Program.

When to Use the Diskettes You Create

Use the DOS Backup With Memory Expansion diskette when your applications:

- Need more than 128KB of memory on the PCjr because of application specifications. Check the book that came with your application for memory requirements on the PCjr.
- Can run with more than 128KB of expanded memory. If memory size for the PCjr is not in your application book, try using the DOS Backup With Memory Expansion diskette.
- Can use more memory than 128KB because you're creating big spread sheets, documents, or files.
- Are running with the IBM *Cluster Program*. See Appendix B. "Using the IBM Cluster Program with Expanded Memory," for more information.

Use DOS Backup when your applications:

- Need the PCjr Basic Cartridge.
- Do not run with the DOS Backup With Memory Expansion because they were designed specifically for 128KB PCjr.

Use DOS Backup with Memory Disk diskette when your applications:

- Need a temporary second diskette drive setup in memory to store programs and files.

When Not to Use Either of the Diskettes You Create

Do not use the diskettes you create in the following cases:

- If you have self-starting applications, you do not have to use either of the diskettes.

Note: Self-starting means that you don't have to use your DOS diskette before starting the application.

- If you have applications that do not use the *IBM Disk Operating System*.

Saving the Booklet and Diskette

When you have finished using this booklet and PCjr Memory Options diskette, store them in the *IBM PCjr Guide to Operations*. Then you can use the instructions and diskette whenever you need to do another installation procedure.

Chapter 2. Part 1 - Memory Expansion

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This section describes how to:

- Backup your DOS diskette
- Create a DOS Backup With Memory Expansion diskette
- Install Memory Expansion on an applications diskette
- Start applications using the diskettes you created.

Getting Ready

Follow the steps below to get ready for installing Memory Expansion.

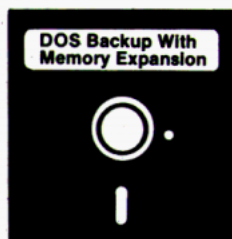
- 1** Make sure you have setup your IBM PC_{jr} and installed all your options.
- 2** Make sure you have *IBM Disk Operating System Version 2.10 (DOS 2.10)*
- 3** Get any applications you wish to use.
- 4** Get two (2) blank diskettes.
- 5** Get two (2) blank diskette labels.

- 6** Write the diskette titles on each of the labels as shown:

DOS BACKUP

DOS BACKUP WITH
MEMORY EXPANSION

- 7** Place one label on each blank diskette.



- 8** Go to the next page to prepare the diskettes for use with applications.

Preparing Your IBM PCjr Diskettes for Use with Applications

This section describes using PCjr to prepare your diskettes for use with applications.

DOS treats your single diskette drive as both drive A and drive B. You must switch diskettes each time DOS tells you to exchange diskettes until you see the "Copy complete" message.

Task # 1. Make DOS Backup

The first task you must do is make a copy of DOS. Follow the instructions below:

Hint: For this procedure, you can remember which diskette to insert if you remember:

"Source" = DOS original diskette that comes with your DOS book.

and

"Target" = The diskette you labeled: "DOS Backup"



- 1** Insert your DOS diskette.
- 2** Power on your PCjr if it's not on, or press Ctrl-Alt-Del, (System Reset).
- 3** Enter the date.
- 4** Enter the time.

The DOS prompt is displayed:

A>

5 Enter: `diskcopy`

6 The following message is displayed:

Insert source diskette in drive A:
Strike any key when ready

Insert your original DOS diskette (the source in this case)

Note: If DOS is already in the drive, leave it there.

- *Now* press any key.

7 The “in use” light comes on while the source diskette is being read, and then this is displayed:

Insert target diskette in drive A:
Strike any key when ready

- Remove your source diskette (DOS original).
- Insert the target diskette (the diskette you labeled DOS Backup).
- *Now* press any key.

Note: You will have to switch the diskettes until you see the message in **step 8**.

- 8** The “in use” light comes on while the backup diskette is being written. Then the message shown in **step 6** is displayed again. Keep repeating **steps 6** and **7** until this message is displayed:

Copy complete

Copy another (Y/N)?

- 9** Enter: Y

The following message is displayed:

Insert source diskette in drive A:
Strike any key when ready

You have now completed the first task of preparing your diskettes.

- 10** Remove the diskette labeled “DOS Backup” from the drive and set it aside.

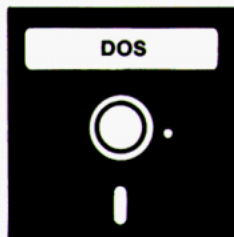
Task # 2. Add Memory Expansion to DOS

Your second task is to make the DOS Backup With Memory Expansion diskette. This task includes making another copy of DOS and running the Memory Expansion install program on that copy. Follow the instructions below:

Hint: For this procedure, you can remember which diskette to insert if you remember:

"Source" = DOS original diskette that comes with your DOS book.

and



"Target" = The diskette you labeled:
"DOS Backup With Memory Expansion"



- 1** The last message from Task # 1 should still be displayed:

Insert source diskette in drive A:
Strike any key when ready

- 2** Insert your original DOS diskette (the source in this case).

- *Now press any key.*

3

The “in use” light comes on while the source diskette is being read, and then this is displayed:

Insert target diskette in drive A:
Strike any key when ready

- Remove your source diskette (DOS original).
- Insert the target diskette (the diskette you labeled DOS Backup With Memory Expansion).
- *Now* press any key.

Note: You will have to switch the diskettes until you see the message in **step 4**.

4

The “in use” light comes on while the backup diskette is being written. Then the message shown in **step 1** is displayed again. Keep repeating **steps 2** and **3** until this message is displayed:

Copy complete

Copy another (Y/N)?

5

Type: N

You don’t have to press the Enter key. The DOS prompt is displayed:

A>

6

Remove the DOS Backup With Memory Expansion diskette from the drive.

7 Insert the IBM PCjr Memory Options diskette (the one that came with the Using Your IBM PCjr Memory Options package).

8 Enter: `install`

The Installing PCjr Memory Options screen is displayed.

Installing PCjr Memory Options

Type the option number and press Enter.

1. Expanded Memory
2. Expanded Memory with Memory Disk
3. Exit - No Installation

Option:

9 Enter: `1`

10 When the following screen is displayed:

Remove your PCjr Memory Options
diskette from the diskette drive.

Insert your DOS backup diskette
or your application diskette that
contains DOS.

Press any key when ready.

11 Remove your PCjr Memory Options diskette
from the drive.

Insert the DOS Backup With Memory Expansion
diskette in the drive.

12 Now press any key.

The following messages are displayed:

Installation in progress....

The installation of your PCjr
Memory Options is completed.

Do you want to do the same
installation on another DOS
backup diskette or application
diskette that contains DOS (Y/N)?

13 Enter: N

The following screen is displayed:

You must do a System Reset with this
diskette in order to use the new PCjr
Memory Options.

A>

You have now completed the second task of
preparing your diskettes.

14 Remove the DOS Backup With Memory
Expansion diskette from the drive.

Your next step is to start your applications. Go on to
the next page.

Starting Your Applications

This section describes how to start your applications. If you have not determined when you should use the diskettes you created during "Preparing Your IBM PCjr Diskettes for Use with Applications," read "When to Use the Diskettes You Create," in Chapter 1.

Applications Using DOS Backup With Memory Expansion

This section describes how to start your applications using the DOS Backup With Memory Expansion diskette and application diskette.

Follow these instructions:

- 1** Insert your DOS Backup With Memory Expansion diskette in the drive.
- 2** Press Ctrl-Alt-Del, (System Reset).
- 3** Enter the date.
- 4** Enter the time.

The DOS prompt is displayed:

A>

- 5** Remove the DOS Backup With Memory Expansion diskette.
- 6** Insert your application diskette.

- 7** Type the special characters that start the application.

The manual for each application may list the special characters that you type to start the program.

If you cannot find this information, type:

`AUTOEXEC`

- 8** Press Enter.

- 9** Follow the instructions in your application book.

The application now runs using the expanded PCjr memory.

Note: If you:

lose power or power off,

press Ctrl-Alt-Del (System Reset),

insert a cartridge,

you must restart the system using the appropriate instructions above.

Applications Using the DOS Backup Diskette

This section describes how to start your applications using the DOS Backup diskette and application diskette.

Follow these instructions:

1 Insert your DOS Backup diskette in the drive.

2 Press Ctrl-Alt-Del, (System Reset).

3 Enter the date.

4 Enter the time.

The DOS prompt is displayed:

A>

5 Remove the DOS Backup diskette.

6 Insert the application diskette.

7 Type the special characters that start the application.

The manual for each application may list your special characters that you type to start the program.

If you cannot find this information, type:

AUTOEXEC

8 Press Enter.

Follow the instructions in your application book. The application now runs.

Installing Memory Expansion on Your Self-Starting Application Diskettes

This section describes how to install Memory Expansion on your self-starting application diskettes.

Follow the instructions below:

Note: Test the self-starting application first before trying to install Memory Expansion. To do this, go back to “Applications Using DOS Backup With Memory Expansion” and run the application.

If the self-starting application runs using Memory Expansion, return to this section and follow the instructions below. If the application does not run using Memory Expansion, go to Appendix A. “Error Conditions.”

- 1** Insert your DOS Backup With Memory Expansion diskette in the drive.

- 2** Press Ctrl-Alt-Del (System Reset).

The DOS prompt is displayed:

A>

- 3** Remove the DOS Backup With Memory Expansion diskette from the drive.

- 4** Insert the IBM PCjr Memory Options diskette (the one that came with the Using Your IBM PCjr Memory Options package).

5 Enter: `install`

The Installing PCjr Memory Options screen is displayed.

Installing PCjr Memory Options

Type the option number and press Enter.

1. Expanded Memory
2. Expanded Memory with Memory Disk
3. Exit - No Installation

Option:

6 Enter: `1`

7 When the following screen is displayed:

Remove your PCjr Memory Options diskette from the diskette drive.

Insert your DOS backup diskette or your application diskette that contains DOS.

Press any key when ready.

Remove your PCjr Memory Options diskette from the drive.

Insert the self-starting application diskette that you want to receive Memory Expansion.

8 Press any key.

The following messages are displayed:

Installation in progress....

The installation of your PCjr
Memory Options is completed.

Do you want to do the same
installation on another DOS
backup diskette or application
diskette that contains DOS (Y/N)?

9 Enter: N

The following screen is displayed:

You must do a System Reset with this
diskette in order to use the new PCjr
Memory Options.

A>

10 Press Ctrl-Alt-Del (System Reset).

Your self-starting application begins.

11 Follow the instructions in your application book.

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A *memory disk* is like having a temporary second diskette drive in the memory of your expanded IBM PCjr. You can use the memory disk to store programs and files.

The storage space on the memory disk is temporary. You will lose the data on the memory disk if any of the following happens:

- lose power or power off,
- press Ctrl-Alt-Del (System Reset),
- insert a cartridge.

Using Drive C (Memory Disk)

The computer recognizes the memory disk as drive C. You can use DOS commands to copy files to the memory disk and to use the files that are stored there.

You can copy information from a diskette to the memory disk by inserting a diskette in drive A and copying the files to drive C. Also, you can save information that is on the memory disk by inserting a diskette in drive A and copying the files from drive C.

You must understand Memory Expansion before using Memory Disk.

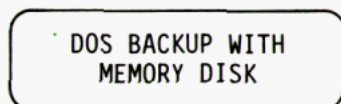
This section of the book describes how to:

- Create a DOS Backup With Memory Disk diskette
- Start applications using the diskettes you created.

Getting Ready

Follow the steps below to get ready for installing Memory Expansion.

- 1** Get one (1) blank diskette.
- 2** Get one (1) blank label.
- 3** Write the diskette title on the label as shown:



- 4** Place the label on the blank diskette.



- 5** Go to the next page to prepare the diskette for use with applications.

Preparing Your Memory Disk for Use with Applications

This section describes preparing your Memory Disk diskette. Preparing your Memory Disk diskette includes making a copy of DOS and then installing Memory Expansion and Memory Disk.

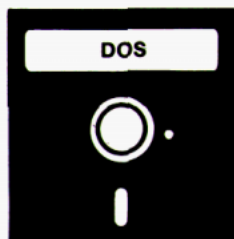
Follow the instructions below:

Hint: For this procedure, you can remember which diskette to insert if you remember:

"Source" = DOS original diskette that comes with your DOS book.

and

"Target" = The diskette you labeled:
"DOS Backup With Memory Disk"



- 1** Insert your DOS diskette.
- 2** Power on PCjr if it's not on or press Ctrl-Alt-Del, (System Reset).
- 3** Enter the date.
- 4** Enter the time.

The DOS prompt is displayed:

A>

5 Enter: `diskcopy`

The following message is displayed:

`Insert source diskette in drive A:
Strike any key when ready`

6 Insert your original DOS diskette (the source in this case)

Note: If DOS is already in the drive, leave it there.

- *Now* press any key.

7 The “in use” light comes on while the source diskette is being read, and then this is displayed:

`Insert target diskette in drive A:
Strike any key when ready`

- Remove your source diskette (DOS original).
- Insert the target diskette (the diskette you labeled DOS Backup With Memory Disk).
- *Now* press any key.

Note: You will have to switch the diskettes until you see the message in **step 8**.

- 8** The “in use” light comes on while the backup diskette is being written. Then the message shown in **step 5** is displayed again. Keep repeating **steps 6** and **7** until this message is displayed:

Copy complete

Copy another (Y/N)?

- 9** Type: **N**

You don’t have to press the Enter key. The DOS prompt, **A>**, is displayed.

- 10** Remove the DOS Backup With Memory Disk diskette from the drive.

- 11** Insert the IBM PCjr Memory Options diskette (the one that came with the Using Your IBM PCjr Memory Options package).

12 Enter: `install`

The Installing PCjr Memory Options screen is displayed.

Installing PCjr Memory Options

Type the option number and press Enter.

1. Expanded Memory
2. Expanded Memory with Memory Disk
3. Exit - No Installation

Option:

13 Enter: 2

The following screen is displayed:

Type the size (in K bytes) for your
memory disk (default is 60).

Then press Enter.

Size:

14 Enter the Memory Disk size you want.

15 When the following screen is displayed:

Remove your PCjr Memory Options
diskette from the diskette drive.

Insert your DOS backup diskette
or your application diskette that
contains DOS.

Press any key when ready.

16 Remove your PCjr Memory Options diskette
from the drive.

Insert the DOS Backup With Memory Disk
diskette in the drive.

17 Now press any key.

The following messages are displayed:

Installation in progress....

The installation of your PCjr
Memory Options is completed.

Do you want to do the same
installation on another DOS
backup diskette or application
diskette that contains DOS (Y/N)?

18 Enter: N

The following screen is displayed:

You must do a System Reset with this
diskette in order to use the new PCjr
Memory Options.

A>

You have now completed the task of preparing
your DOS Backup With Memory Disk diskette.

19 Remove the DOS Backup With Memory Disk
diskette from the drive.

Go on to the next section to start using applications
with the Memory Disk.

Starting Your Applications

This section describes how to start your applications.

Applications Using DOS Backup With Memory Disk

This section describes how to start your applications using the DOS Backup With Memory Disk diskette and application diskette.

Follow these instructions:

1 Insert your DOS Backup With Memory Disk diskette in the drive.

2 Press Ctrl-Alt-Del, (System Reset).

3 Enter the date.

4 Enter the time.

The DOS prompt is displayed:

A>

5 Remove the DOS Backup With Memory Disk diskette.

6 Insert the application diskette.

7 Type the special characters that start the application.

The manual for each application may list the special characters that you type to start the program.

If you cannot find this information, type:

AUTOEXEC

8 Press Enter.

9 Follow the instructions in your application book.

The application now runs using the expanded PCjr memory with the memory disk.

Note: If you:

lose power or power off your computer,

press Ctrl-Alt-Del (System Reset),

insert a cartridge,

you must restart the system using the appropriate instructions above.

Installing Memory Disk on Your Self-Starting Application Diskettes

This section describes how to install Memory Disk on your self-starting application diskettes.

Follow the instructions below:

Note: Test the self-starting application first before trying to install Memory Disk. To do this, go to “Applications Using DOS Backup With Memory Disk” and run the application.

If the self-starting application runs using Memory Disk, return to this section and follow the instructions below. If the application does not run using Memory Disk, go to Appendix A. “Error Conditions.”

- 1** Insert your DOS Backup With Memory Disk diskette in the drive.
- 2** Press Ctrl-Alt-Del, (System Reset).
- 3** Enter the date.
- 4** Enter the time.

The DOS prompt is displayed.

A>
- 5** Remove the DOS Backup With Memory Disk diskette from the drive.
- 6** Insert the IBM PCjr Memory Options diskette (the one that came with the Using Your IBM PCjr Memory Options package).

7

Enter: `install`

The Installing PCjr Memory Options screen is displayed.

Installing PCjr Memory Options

Type the option number and press Enter.

1. Expanded Memory
2. Expanded Memory with Memory Disk
3. Exit - No Installation

Option:

8

Enter: `2`

The following screen is displayed:

Type the size (in K bytes) for your memory disk (default is 60).

Then press Enter.

Size:

9

Enter the Memory Disk size you want.

10 When the following screen is displayed:

Remove your PCjr Memory Options
diskette from the diskette drive.

Insert your DOS backup diskette
or your application diskette that
contains DOS.

Press any key when ready.

11 Remove your PCjr Memory Options diskette
from the drive.

Insert your application diskette in the drive.

12 Now press any key.

The following messages are displayed:

Installation in progress....

The installation of your PCjr
Memory Options is completed.

Do you want to do the same
installation on another DOS
backup diskette or application
diskette that contains DOS (Y/N)?

13 Enter: **N**

The following screen is displayed:

You must do a System Reset with this
diskette in order to use the new PCjr
Memory Options.

A>

14 Press Ctrl-Alt-Del (System Reset).

Your self-starting application begins.

15 Follow the instructions in your application book.

Saving the Booklet and Diskette

When you have finished using this book and PCjr Memory Options diskette, store them in the *IBM PCjr Guide to Operations*. Then you can use the instructions and diskette whenever you need to do another installation procedure.

Appendixes

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**Appendix B. Using the IBM Cluster Program with
Expanded Memory B-1**

Appendix A. Error Conditions

This appendix contains the error conditions that can occur while using Memory Options.

While Installing Menu Options

Installation not successful...

Cause: This error condition occurs if there is not enough room on the diskette for the memory options files when performing the INSTALL procedure.

Action: Erase or transfer unneeded files to make room for the memory options files, and repeat the INSTALL procedure.

DOS Backup With Memory Expansion

If you receive any of the following conditions:

- unusual characters, or distortion on the screen
- hangs while starting
- seems to be in an infinite loop
- illegal function call (BASIC)
- syntax error—out of memory (BASIC).

Cause: The application was designed specifically for a 128KB PCjr.

Action: Restart the system using your DOS Backup diskette.

DOS Backup with Memory Disk

If you receive any of the following conditions:

- out of memory during startup of program
- hangs while starting
- seems to be in an infinite loop.

Cause: There is not enough memory for the application and Memory Disk at the same time.

Action: Decrease Memory Disk size or do not use a Memory Disk.

Appendix B. Using the IBM Cluster Program with Expanded Memory

This information applies to Version 1.00 of the IBM Cluster Program and is for the cluster manager.

Follow this procedure if one or more computers on the cluster is an IBM PCjr with expanded memory.

To use the expanded memory, you must reset the system after following one of these steps. Proceed to **Step 1** for local system resets or **Step 2** for remote system resets.

Step 1.

If you are preparing to do a local system reset, continue with this step:

- a. Follow the instructions in the *Cluster Program Introduction and Program Setup Guide*, then return to this book and continue with Step b.
- b. Use a text editor such as EDLIN or Personal Editor to add:

```
DEVICE=PCJRMEM.COM
```

as the first line in the CONFIG.SYS file on the local system reset diskette.

Note: Do *not* use the PCjr Install Program on your system reset diskette.

- c. Copy the file PCJRMEM.COM from the PCjr Memory Options diskette to your local system reset diskette.

You can now do a local system reset from the PCjr station.

Step 2

If you are preparing to do a remote system reset from the station, continue with this step:

- a. List the files of your Cluster Program using the DOS **DIR** command.
- b. Look at the date of the files @#CLUSTR.COM and DC.COM. If the date is *later* than 12-30-83, go to Step c. If the date is 12-30-83, contact your IBM sales representative, IBM Product Center, or your authorized IBM dealer where you purchased the Cluster Program for the updated version of the files @#CLUSTR.COM and DC.COM, then proceed to Step c.
- c. Go to the *Cluster Program Disk Server Guide*. Follow the instructions up to "Configuring the Fixed Disk," then return to this book and continue with Step d.
- d. Get the diskette labeled "Remote System Reset Volume Creation."
- e. Use a text editor such as EDLIN or Personal Editor to add:

```
DEVICE=PCJRMEM.COM  
DEVICE=@#CLUSTR.COM
```

as the first and second line in the CONFIG.SYS file on the Remote System Reset Volume Creation diskette.

Note: Do *not* use the PCjr Install Program on your Remote System Reset Volume Creation diskette.

- f. Copy the file PCJRMEM.COM from the PCjr Memory Options diskette to your Remote System Reset Volume Creation diskette.
- g. Copy the updated file @#CLUSTR.COM to your Remote System Reset Volume Creation diskette.
- h. Copy the updated file DC.COM to your Disk Server Station System Files diskette and to your disk server station's fixed disk.
- i. Go back to the *Cluster Program Disk Server Guide* and continue at "Configuring the Fixed Disk."

These changes to the Remote System Reset Volume have no effect on the remote system reset of other types of IBM Personal Computers.

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