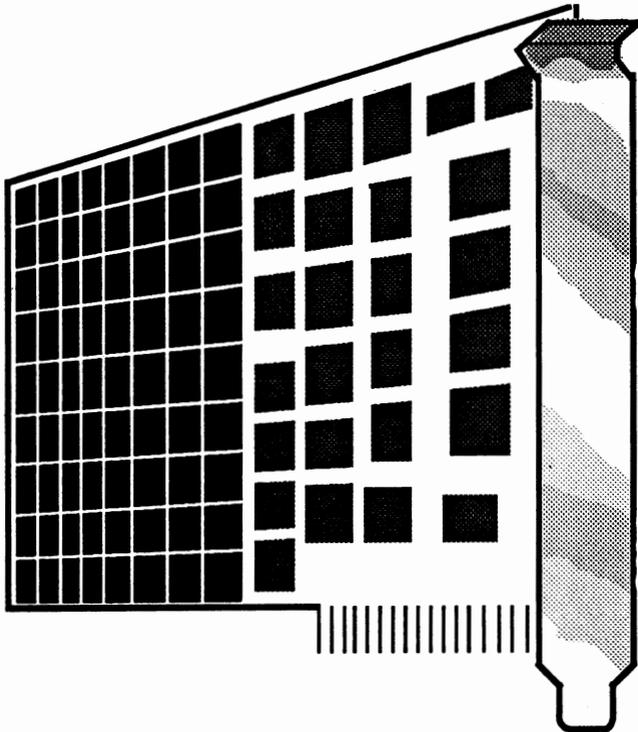


# RAM Window EMS card User's Manual



Complies with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC Rules.

The typeface used in the text of this manual is 12 point Helvetica® and is used under licence from the Allied Corporation, the owner of the typeface.

# Contents

---

<b>Introduction</b>	<b>1</b>
<b>Checklist</b>	<b>2</b>
<b>Card layout and port</b>	<b>3</b>
<b>Installation</b>	<b>4</b>
Installing conventional memory	<b>5-6</b>
Installing expanded memory	<b>7-8</b>
I/O port address	<b>9</b>
Installation of RAM Window	<b>10-11</b>
<b>Software</b>	<b>12-15</b>
Requirements	<b>12</b>
Using the Install program	<b>13-16</b>
Screen menu functions	<b>17</b>
<b>Appendix A</b> What's a RAM Disk?	<b>18-19</b>
<b>Appendix B</b> What's a print buffer?	<b>20</b>
<b>Appendix C</b> Adding memory to RAM Window	<b>21-24</b>
<b>Appendix D</b> Install program	<b>25-26</b>
<b>Appendix E</b> RAM Window messages	<b>27-36</b>

**NOTE**

*When unpacking and installing the adapter card you purchased, be sure to turn off the system first.*

## Introduction

You can rest assured of having made a wise choice in buying the RAM Window Card to expand the memory of your IBM PC™, PC/XT™, or compatible computer. With its expanded memory, the RAM Window Card will enable your computer to break through its previous 640 KB limit and reach up to 2 MB of memory.

The main features of the RAM Window Card are listed below:

- Expanded memory up to 8 MB (with four cards)
- Compatibility with Symphony™, Framework™, and most memory-gobbling software
- Expanded memory software
- RAM disk software
- Print buffer software

The easy-to-understand, well-illustrated instructions in this manual ensure that even if you are a newcomer to the computer world, you will have the RAM Window Card installed and running with a minimum of effort.

To use this manual effectively, first refer to the **Contents** page. The main text tells all that is necessary for experienced users. The appendices provide background information about the RAM Window and explanations of messages encountered when using the software.

IBM PC and IBM PC/XT are registered trademarks of International Business Machines. Symphony is a registered trademark of Lotus Development Corporation. Framework is a registered trademark of Ashton-Tate, Inc.

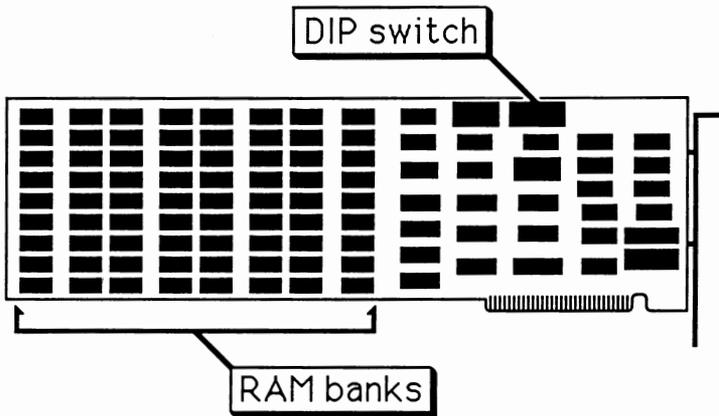
## Checklist

Your RAM Window Card package contains the following:

- One RAM Window Card
- One user's manual
- One Window software diskette

## Card layout and port

The illustration below will familiarize you with the layout of the RAM Window Card.



## Installation

The first step in installing the RAM Window Card is finding out how much memory you already have in your computer. To do this, you should refer to the user's manual of your computer, or ask your dealer for help.

### The old 640 KB barrier

What kind of memory you add to your computer may be divided into two types: conventional and expanded. "Conventional" memory refers to that which exists below the old 640 KB memory barrier in IBM® personal computers and compatibles. Expanded memory exists beyond that limit, and enables more powerful software, such as larger spreadsheets.

If your computer has less than 640 KB and more than 256 KB of memory, you may use the RAM Window to add conventional memory. Note that you must have at least 256 KB of memory to install the RAM Window.

If you have 640 KB of memory in your computer, or you want to install expanded memory instead of conventional memory, skip ahead to **Installing Expanded Memory** on pages 7-8.

## Installing conventional memory

The limit of conventional memory for your computer is 640 KB. Your computer must have less than 640 KB of memory before installation of the RAM Window.

**Note:** You must have at least 256 KB of conventional memory in your computer to install the RAM Window card. If your computer is short of the 256 KB, you may either install it yourself, or have your dealer help you. Also, only one RAM Window card can be used to add to conventional memory.

To set the DIP switch on the RAM Window card for installation in a PC/XT or compatible computer, refer to the table below:

Conventional memory on motherboard	RAM Window switch settings
256 KB	
320 KB	
384 KB	
448 KB	
512 KB	
576 KB	
640 KB	

Set the DIP switch on the RAM Window card in accordance with the amount of memory presently in your computer. The switches other than 2, 3, and 4 are for other functions and will not be set at this point.

**Note:** To use the RAM window for conventional memory, your motherboard must have a memory-setting DIP switch. If the motherboard does not, you cannot use the RAM Window for conventional memory as memory conflicts will result.

Also, if you do not use the RAM Window for conventional memory, you should set the DIP switch on the RAM Window card for 640 KB of memory (refer to the table on the preceding page).

## Installing expanded memory

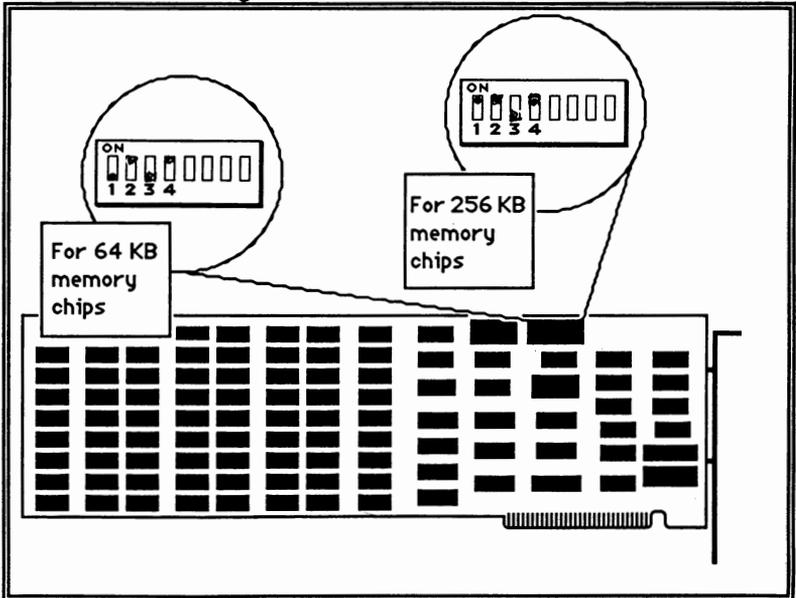
This section concerns:

- Installing a first RAM Window card with expanded memory
- Installing second, third, or fourth RAM Windows

If you do not wish to do either of these things, you may skip to the **I/O port address** section on page 9.

**Note:** You must have at least 256 KB of conventional memory in your computer to install the RAM Window card. If your computer is short of the 256 KB, you may either install it yourself, or have your dealer help you.

Refer to the illustration below for the appropriate DIP switch settings on the RAM Window card:



Note that as shown in the previous illustration, switch 1 should be off if you are using 64 KB chips in your conventional memory, and switch 1 should be on for 256 KB chips.

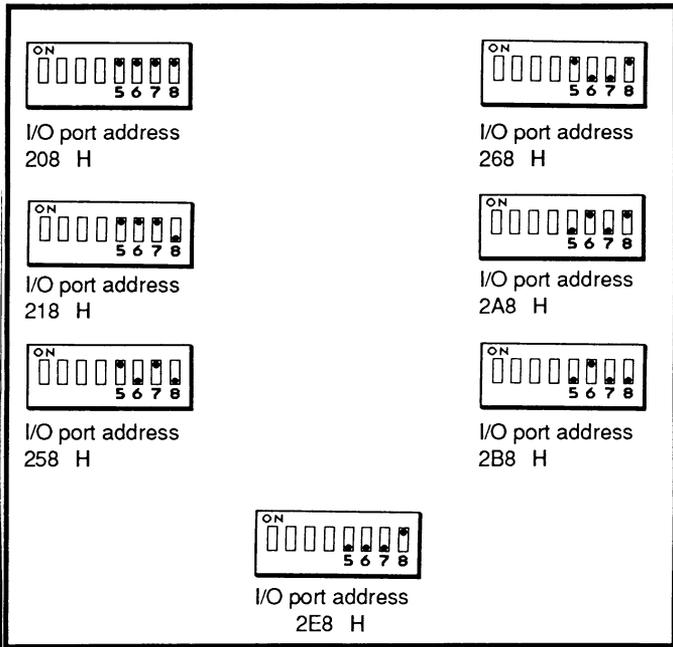
If you are uncertain about whether your chips are 64 KB or 256 KB, a simple rule of thumb is to refer to the label on the chips and find either 64 or 256 in the number. Otherwise, you may consult your dealer.

**Note:** If you do not use the RAM Window for conventional memory, you should set the DIP switch on the RAM Window card for 640 KB of memory (refer to the table on page 5).

## I/O port address

Your computer must have a unique address for each add-on card you install in it. The I/O port address of each card is the address for communication between the microprocessor in your computer and the card.

Switches 5-8 of the DIP switch on the RAM Window card select the card's I/O address. It is recommended that you use one of the settings shown below because these addresses are seldom assigned to other cards which may be in your system:

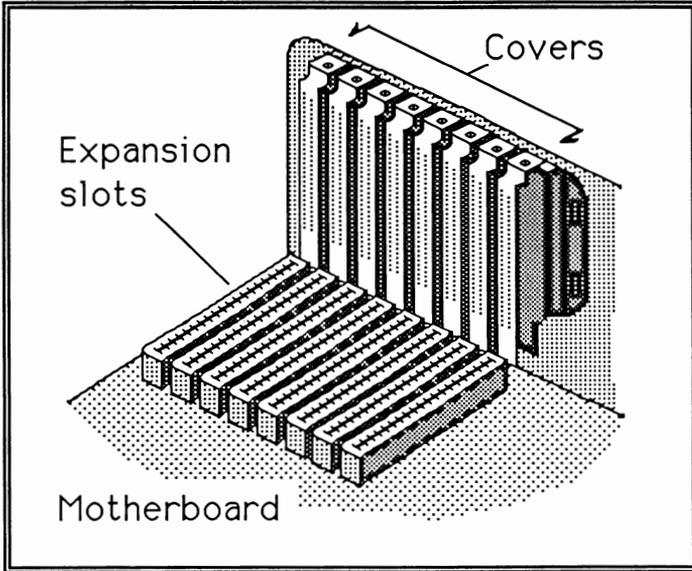


If these addresses should conflict with those of other cards in your computer, software on the RAM Window card will notify you of the conflict. More about this will be explained in the section on RAM Window software.

## Installation of the RAM Window

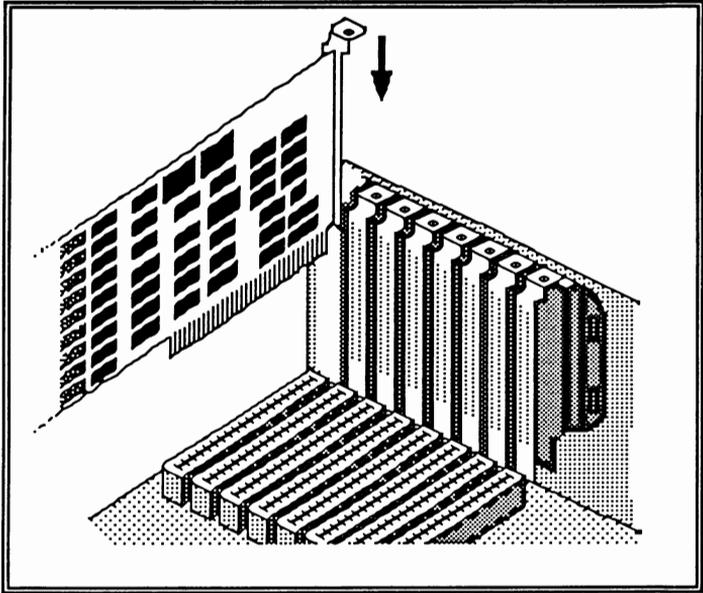
Refer to the user's manual of your computer to open it up.

With a nutdriver or a small screwdriver (usually a Phillips), remove the cover at the back of an unused slot. Keep the screw to attach the card. Refer to the illustration below:



Before you install the card in your computer, make sure the computer is unplugged, and then remove any static electric charge from your body by placing one hand on the power supply box inside your computer.

Pick up the RAM Window card by its non-conductive edges. Avoid touching the connector contacts or any components with your hands as it could damage the card. Insert the card into a empty expansion slot as shown in the illustration below:



Attach the mounting bracket of the card securely to the rear panel of your computer with the screw you saved.

### Finishing up

If you have any other cards to install, put them in now following the same steps as those for the RAM Window card. When all of your new cards have been installed, you can close your computer.

## Software

To begin using the software included with your RAM Window card, you should open up the INSTALL program, which is also included with the card. The INSTALL program will help you set up software for a print buffer and RAM disks within your system.

The files included are: INSTALL.EXE; RAMTEST.EXE (both applications); BDISK.SYS; BPRINT.COM; and WINDOW.SYS. Most people will only use the first two files.

In case you do not already know, a print buffer holds information sent to a printer, thereby freeing your computer while the printer is printing.

A RAM disk is an electronic form of a hard disk, which by virtue of having no moving parts, is much faster than a mechanical hard disk.

Both of these software devices will increase the efficiency of your computer substantially.

### Requirements

To use the INSTALL program, your computer must have the following:

- Either two floppy disk drives or a floppy disk drive and a hard disk
- Version 2.0, 2.1, or 3.0 of DOS<sup>®</sup>
- At least 256 KB of conventional memory
- At least one RAM Window card installed

Note that if you use the INSTALL program to re-configure your system, any information which is in existing RAM disks or print buffers will be lost.

## Using the INSTALL program

To open the INSTALL program:

- Insert your DOS<sup>®</sup> disk in drive A, boot up your computer, and restart it by pressing <Ctrl> <Alt> <Del>.

**Note:** If you receive a DOS<sup>®</sup> error message, turn off your computer, and check the DIP switch settings on your RAM Window card. Switch 1 is probably set incorrectly.

- Copy the RAM Window software diskette, and keep the original in a safe place. With the copy of the RAM Window disk in drive A, type:

```
INSTALL <Enter>
```

You will see the following screen:



```
RAM WINDOW INSTALLATION Ver 1.00  
Copyright by DATATECH Corp. 1987  
WINDOW RAM TESTING. . . .SSSS KB OK
```

```
Frame segment starting address (Hex): C400H
```

```
DTK WINDOW card I/O address (Hex): 268
```

```
Press any key to execute installation program
```

After you press a key to start the installation program, you will see the next screen:

```
DTK RAM WINDOW/88 EMS INSTALLATION © 1987 DATATECH  
EXPANDED MEMORY RAM DISK-PRINT BUFFER SET UP UTILITY
```

```
<1> LOTUS 1-2-3  
<2> dBASE II  
<3> dBASE III  
<4> Displaywrite 2  
<5> Microsoft Word  
<6> Microsoft Windows  
<7> Wordstar  
  
<8> MultiMate  
<9> Symphony  
<A> Framework  
<B> pfs:FILE  
<C> SuperCalc 3  
<D> others  
<E> Exit to DOS
```

Which one ?

By keying in one of the numbers (1-9) or one of the letters (A-E), you initiate the set up program for a certain kind of application software. If, for example, you were to press 5 for Microsoft Word<sup>®</sup>, you would see the following screen on the next page:

SET RAM DISK & PRINT BUFFER FOR: MICROSOFT WORD

- 1.Virtual Disk #1 Size (K bytes): 0320
- 2.Virtual Disk #2 Size (K bytes): 0000
- 3.Print Buffer #3 Size (K bytes): 0064

[M] Modify configuration

[S] Save configuration

[R] Return to previous screen

[E] Exit to DOS

Which function ?

Do you want to save configuration (Y/N)?

Define drive name to save configuration (A/C)

By using this screen, you can modify or create two files (and store them in a hard disk so that the RAM Window software runs automatically when you turn on or restart your computer).

With this screen you can finalize the set up of two RAM disks and a print buffer.

**Note:** To use the RAM disks and print buffer included with your RAM Window software, any RAM disks and print buffers which are currently in your system must be deleted.

## Default values for RAM Disks and print buffer

Software	RAM Disk #1	RAM Disk #2	print buffer
Lotus 1-2-3	0	0	16
dBASE II	320	0	64
dBASE III	320	0	64
Displaywrite 2	0	0	0
Microsoft Word	320	0	64
Microsoft Windows	1200	0	0
Wordstar	320	0	64
MultiMate	320	0	64
Symphony	0	0	16
Framework	0	0	0
pfs:FILE	320	0	64
Supercalc 3	0	0	16
others	0	0	16

The table above shows the default values for the RAM disks and print buffer.

## Screen menu functions

The screen menu provides you with information about the size of RAM in your RAM Window, and allows you to save or modify a configuration, or exit to DOS.<sup>®</sup> To use one of these three functions, press the letter indicated (S, M, R, or E).

Note that when you select the sizes for the print buffer and the RAM disks, the sizes must be multiples of 16 up to 8 MB (1024 x 8). The total sizes of the print buffer and the RAM disks may not exceed 8 MB.

To modify the values for the print buffer and the RAM disks, press M. This will move the cursor to the print buffer section. If you don't want a print buffer, type in 0000 in the print buffer section and press <Enter>. You may also use the direction keys to move the cursor.

When you have moved the cursor to the RAM disk #1 section, you may select the size. Remember that the size must be a multiple of 16. When you have typed in the size you want, you may press <Enter> or use the direction keys to move the cursor to the RAM disk #2 section. When you have finished making all your selections, press <Enter>, and the cursor moves to the black box at the bottom of the screen. You should now press S to save the configuration you have just chosen. Finally, press Y or N to confirm or cancel your choice.

## Finishing up

If you have set up the configurations for your print buffer and RAM disks, but decide not to save them, you may press E to return to DOS.<sup>®</sup>

The INSTALL program adds information to your AUTOEXEC.BAT and CONFIG.SYS files. If you would like to know what information has been added to these files, you can find out by referring to Appendix D.

A RAM disk is random-access memory which is used like a disk drive. Because a RAM disk is electronic instead of mechanical, it works much faster than a floppy disk or a hard disk. Because a RAM disk is non-physical, you needn't format it, but you should also remember that anything stored on it disappears when the power is gone.

### **Running software on a RAM disk**

A RAM disk is particularly effective with application programs that access a disk frequently. For example, integrated spreadsheets and desktop publishing software take up large amounts of memory, and therefore function more effectively on a RAM disk. To use software on a RAM disk, you are advised to refer first to the user's manual for that software. Many recently published manuals have detailed information on using software with RAM disks.

### **Data storage on RAM disks**

Often, by storing data, rather than a program on a RAM disk you can maximize the efficiency of your system.

Programs which use large data files on a data disk will probably run much faster if you store your data files on a RAM disk.

**Note:** Due to the electronic nature of a RAM disk, any data stored on it will be lost in a power failure or when the power is turned off. Therefore, data on a RAM disk should be saved to a physical disk frequently.

Programs which use large data files on a data disk will run faster if you store your data files on a RAM disk.

### **Using two RAM disks**

In situations requiring the use of two disk drives, you can boost your efficiency by creating one RAM disk for application programs and another for data files. For example, you might put two applications from which you frequently switch back and forth on one RAM disk, and store the data on another RAM disk.

### **Copying to a RAM disk**

After you've installed a RAM disk in your computer, you can copy almost any application program or data file to it if the RAM disk is large enough. There are two ways to copy to a RAM disk:

- Use the DOS COPY<sup>®</sup> command before you start a program
- Include COPY commands in your AUTOEXEC.BAT file for data files and applications software. This will automatically copy software and data to a RAM disk when you invoke the software.

The first method is recommended for data files, which you need to select specifically, while the second method is recommended for applications. Your DOS<sup>®</sup> manual has more information on the COPY command and the AUTOEXEC.BAT file.

Note that most copy-protected software can not be copied to a RAM disk.

## Appendix B

### What's a print buffer?

A print buffer feeds information to a printer so that you and your computer can get on with more important business. Because printers don't have large memories, they use information bit by bit instead of all at once. A print buffer, with its large memory, acts as a reservoir for information that you want to print.

Nothing in this world comes free however; the print buffer you create is also memory that you could be using for other purposes. For this reason, you should decide whether you need a print buffer and if so, how large it should be.

#### **Making decisions**

In the following cases, you will not benefit from creating a print buffer:

- If you have a serial printer only, the print buffer will be bypassed. Many daisy wheel printers and a few laser printers are serial.
- If you use software that already has a print buffer, an additional print buffer is unnecessary.
- If you usually print large documents, you'll need a large print buffer. For four pages, you'll need around 16 KB in your print buffer. If your document is larger than your print buffer, you'll still have to wait.

## Appendix C

### Adding memory to RAM Window

A single RAM Window card can hold a maximum of 2048 KB of memory. If you wish to add more memory to the card, you should remove it from your computer, and check whether it already holds the 2048 KB memory limit.

If 256 KB chips are inserted in the memory banks of your RAM Window card, the memory is full, and you cannot add any more to it. If, however, 64 KB chips are in the memory banks, you may replace these with 256 KB chips.

If you are uncertain whether your RAM Window card contains 64 or 256 KB chips, you should check with your dealer. In general, the numbers 64 or 256 in the label on the chips indicate the corresponding size.

**Note:** You may use either 64 or 256 KB chips separately in a RAM Window, but these two kinds of chips may not be used together on the same card.

Buy chips from your dealer in multiples of nine, and specify that the chips are to operate at 200 nanoseconds or faster (such as 150 nanoseconds). Your dealer can help you insert the chips, or if you wish, you may put in the chips yourself.

If you put in the chips yourself, remember that you must use memory chips which are all of the same type i.e., 256 KB or 64 KB, but you cannot combine different types of memory chips on one card.

Below are two lists of recommended chips for adding memory. The first list is of 64K memory chips, and the second is of 256K chips:

**4164 chips**

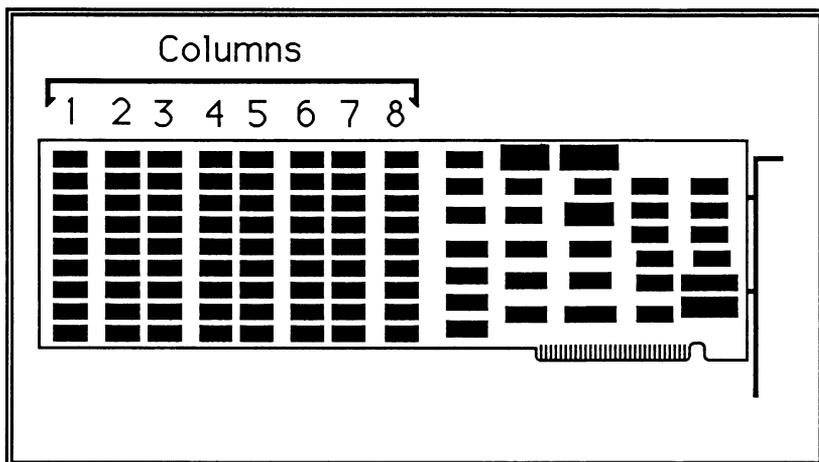
Manufacturer	Part numbers	
	200 nanoseconds	150 nanoseconds
<b>Intel</b> <b>Fujitsu</b> <b>Hitachi</b> <b>Mitsubishi</b> <b>NEC</b> <b>Texas Inst.</b>	<b>2164A-20</b> <b>MB8264-20</b> <b>HM4864-3</b> <b>M5K4164-20</b> <b>D4164-2</b> <b>TMS4164-20</b>	<b>2164A-15</b> <b>MB8264-15</b> <b>HM4864-15</b> <b>M5K4164-15</b> <b>D4164-3</b>

**41256 chips**

Manufacturer	Part numbers	
	200 nanoseconds	150 nanoseconds
<b>Intel</b> <b>Hitachi</b> <b>Mitsubishi</b>	<b>51C256-20</b> <b>HM50256-20</b> <b>M5M4256-20</b>	<b>51C256-15</b> <b>HM50256-15</b> <b>M5M4256-15</b>

## Inserting chips

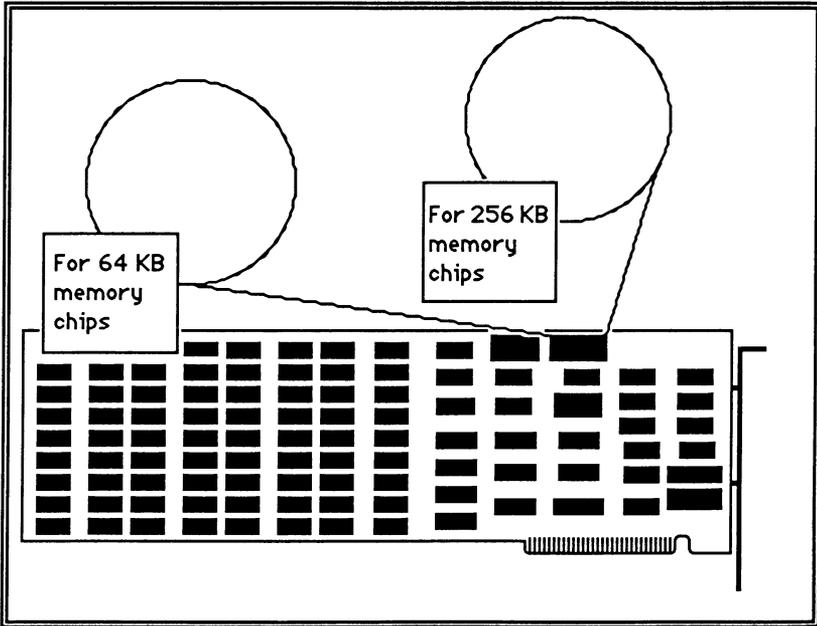
By inserting one column of 256 KB chips, you install 256 KB of memory in the RAM Window. You must add memory in 256 KB increments; you needn't fill all the columns in the memory bank, but if you fill one column, it must be completely filled. Refer to the illustration below:



Insertion of memory chips must be done column by column in numerical order. In other words, if you are replacing all of your chips, you would start with column 1, fill column 2 next, and so on. It is not necessary to fill all the columns, but no column may be partially filled. Each column must be either empty or full.

## Setting DIP switch

After you install the memory chips in your RAM Window, check the DIP switch on the card. If you are using 64 KB memory chips, switch 1 should be off. If you are using 256 KB memory chips, switch 1 should be on. Refer to the illustration below:



Now you are finished installing the memory chips in your RAM Window.

## Appendix D INSTALL program

The INSTALL software diskette contains several files which are used to set up the RAM disk and print buffer utilities in your computer. You may access these files and use them to reconfigure your RAM disk and print buffer settings, but you will find it much simpler to use the INSTALL command and reset the utilities with the menu-type interface which is provided.

The files contained on the INSTALL software diskette are:

### CONFIG.SYS

CONFIG.SYS contains an INITIAL.SYS file which will build the RAM Window's device drive.

### WINDOW.SYS

WINDOW.SYS is a character device driver built into the CONFIG.SYS file. WINDOW.SYS sets up the software driver for expanded memory.

### BDISK.SYS

BDISK.SYS is an electronic disk emulator which uses expanded memory as a disk buffer. Two RAM disks are made possible by BDISK.SYS.

### BPRINT.COM

BPRINT.COM uses expanded memory as a print buffer. Data to be printed is queued in a predefined area of memory and is printed using a PC system interrupt.

RAMTEST.EXE

RAMTEST.EXE tests the RAM Window's page segment.

43

RAM Window messages provide helpful advice should you get into trouble while using the card. The messages in themselves are fairly self-explanatory, but this section will provide you greater understanding of what is going on behind the scene if you are curious.

The RAM Window messages, printed in the Courier font, appear here in boxes and are listed in alphabetic order for quick reference.

```
Can't find a large enough frame
block in system address. Frame
block addresses:
```

C400-D3FF	C800-D7FF
CC00-DBFF	D000-DFFF
D400-E3FF	D800-E7FF
DC00-EBFF	E000-EFFF

The 384 KB portion of memory above the 640 KB allotted for conventional memory is used by the RAM Window to create a frame block. A frame block is a kind of map which gives access to extended memory beyond the previous 640 KB limit. A frame block needs 64 KB, and within the 384 KB portion available, there are eight possible hexadecimal locations (in the message box). When this message appears, it tells you that all of the eight locations have been either partially or completely taken up by I/O addresses for add-on cards. This means you must find out the addresses for your add-on cards and change one or more so that one of the 64 KB spaces is free. If this is impossible, you must remove one of your add-on cards to free up space.

```
Disk memory is
insufficient
```

This means that the memory to set the disk configuration is insufficient, and the parameters for it will have to be reset.

```
Do you want to save
configuration (Y/N) ?
```

This prompt message confirms your choice of configuration. "Y" signifies yes, and "N" signifies no.

```
DTK RAM DISK Ver 1.00
```

This identifies the version of the RAMdisk.

```
DTK virtual disk is
successfully installed now
```

The RAMdisk was successfully installed for DOS<sup>®</sup> versions 2.X and 1.X.

```
DTK virtual disk is
successfully installed now
as drive *
```

A letter in place of the asterisk identifies the name of the RAMdisk if you are using DOS<sup>®</sup> 3.X.

Input parameter of BPRINT  
COMMAND is incorrect. The form  
must be as follows:

```
A>BPRINT ssss
      ssss is BCD number,
      range from 16 to 8192
```

The print buffer parameter is outside the given range.  
You should key in a new number.

Input parameter for RAMdisk size is  
invalid or outside range. The form  
is as follows:

```
DEVICE=BDISK ssss
      ssss is BCD number ranging
      from 4 to 8192
```

Rekey the RAMdisk size according to the format and  
the range given.

Memory Manager system not working

The memory manager is not working. This means  
that either the program has been destroyed or you have a  
hardware problem.

More than one Window card is using  
conventional memory, USER CHECK!

Only one RAM Window card is allowed to use  
conventional memory. To solve this problem,  
reconfigure the Window cards so that only one is using  
conventional memory.

More than one WINDOW.SYS,  
please check CONFIG.SYS!

This message indicates more than one WINDOW.SYS file in the CONFIG.SYS file; the identical files are in conflict. You probably installed a WINDOW.SYS file for some other product before you installed the RAM Window. Therefore, with the appropriate DOS<sup>®</sup> command, you should erase all but one of the WINDOW.SYS files from the CONFIG.SYS file. Or just use the INSTALL program to do the same thing automatically (It's simpler).

More than 4 RAM Windows  
in your computer system

A maximum of four RAM Windows may be used in your personal computer. Exceeding that limit will result in this message.

No empty directory  
to create

An empty directory is needed to store the necessary program in an .AUTOEXEC.BAT. Either the A or C directories may be used. If the AUTOEXEC.BAT file is full, you will have to make space to add the new program.

No expanded memory to  
install, USER CHECK!

No memory is available on the RAM Window card. There are two possibilities in this case: first, not enough of the memory banks on the RAM Window are filled, or you need to use 256 K chips instead of 64 K chips; second, the memory chips you are using may be bad. To check this, substitute other memory chips.

No memory available to set  
print buffer or RAMdisk

This message tells you that there is insufficient memory on the RAM Window card to set up a print buffer or a RAMdisk. To solve this problem either install more or larger memory chips on the card, or try smaller sizes for the print buffer and the RAMdisk.

No RAM Window in your  
computer system

Software checks for the presence of a RAM Window card in your system. If none is found, this message will appear.

Not enough memory to  
allocate for print buffer

If you want to create a print buffer, you should reduce the size of your RAMdisk or make more free memory.

Page register error, USER CHECK!

This means that your computer is unable to access the RAM Window's expanded memory due to a problem in the page register, which is a map to expanded memory. To solve this problem, find out whether two add-on cards are using the same I/O address. If this is not the case, you should take the RAM Window to your dealer, or check it yourself by replacing it with another RAM Window.

Parameter format error in  
CONFIG.SYS, USER CHECK!

This means that the parameters you have set for one of the files in CONFIG.SYS are in conflict with those of another file. You should reset the parameters so that no conflict exists.

Parity error !

Your computer will make sure that its memory map and expanded memory in the system correspond. To do so, it checks parity bits on data read from expanded memory and in the memory map. If there is no correspondence between the two, the parity error message results. To correct this situation run the RAM test for the RAM Window. If the RAM test shows no problem, check the RAM Window card with your dealer or by replacing it. If the RAM Window card is good, the problem is in your motherboard.

Press any key to execute  
installation program

This message tells you that the installation program is ready. Pressing any key on the keyboard will initiate the program.

Print buffer size cannot  
be set

There is no space left in Window memory to set a print buffer.

RAMdisk size cannot be set

Not enough memory exists to create a RAMdisk. If you want to create a print buffer, you should reduce the size of your print buffer or make more free memory.

The buffer size is too  
large, try again !

This tells you that the print buffer size you have selected is too large and that you should select a smaller size. Rekey a smaller size.

The printer has been set,  
you can't set another one

You can only set the system for one kind of printer.

Too many device drivers in  
CONFIG.SYS, USER CHECK!

This indicates that the CONFIG.SYS file has been overloaded with too many sub-files (device drivers) which are used to operate hardware. To remedy this situation, find out what files are in the CONFIG.SYS file, and make backup copies of all of them just in case they are needed in the future. Finally, erase unnecessary files from CONFIG.SYS until it is no longer overloaded.

Too many programs installed  
in WINDOW system

The KB size of the programs in the WINDOW system has exceeded the system's capacity. You will have to take one of the programs out of the WINDOW system.

Wait for a moment to save  
configuration . . . .

This message informs you that the new configuration you have selected is being saved.

Window driver has been installed

This tells you that the window driver for the Expanded Memory Manager has been successfully installed.

Window driver hasn't been installed

This tells you that the window driver for the Expanded Memory Manager hasn't been successfully installed. You must use the `DEVICE=CONFIG.SYS` command to install the window driver in your system.

Window memory conflicts with other add-on card memory, USER CHECK!

This tells you that memory (RAM) for another add-on cards shares a conflicting address with the RAM Window. To solve this problem, find out where the conflict is, and then reconfigure one of the add-on cards to eliminate the conflict, or remove the conflicting add-on cards.

WINDOW Memory Manager has not been installed

The memory manager was not installed. This means that you must reconfigure your system with the following command: `DEVICE=WINDOW.SYS`

*PRINT 0064*

Window memory overlaps add-on card ROM, USER CHECK!

This tells you that memory for the RAM Window and an add-on card ROM is overlapping. The RAM Window must have a contiguous 64 K segment of memory at the following addresses (in hexadecimal):

C400-D3FF	C800-D7FF	CC00-DBFF
D000-DFFF	D400-E3FF	D800-E7FF
DC00-EBFF	E000-EFFF	

To solve this problem, find out where the conflict is, and then reconfigure one of the add-on cards to eliminate the conflict, or remove one of the conflicting add-on cards.

WINDOW system is not working

The WINDOW system is not working. You should take the card out, and replace it with another. If the replacement works, the problem is in the original card. Otherwise, there are two possibilities; there was a Window hardware error, or the Window Memory Manager software was destroyed.

Your size range must be from 16 to XXXX for installation, 0 for no installation

This message tells you the size range for the configuration of the RAMdisk or print buffer that is permissible. If you choose not to install a print buffer, simply key in 0. XXXX represents a BCD number which is the largest size available.

The RAM Window card, this manual and all illustrations in it are copyrighted with all rights reserved. Under the copyright laws, the RAM Window card, this manual, and the illustrations may not be copied without the written consent of Datatech Enterprises Co., Ltd.