

RamQuest 50/60™

Software Guide

Productivity Software for the RamQuest 50/60 Memory Card

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PREFACE

This manual describes the Productivity Software used by the RamQuest 50/60. It provides descriptions and command syntax for using RAM disks, caching, and print spooling.

How to Use this Manual

This manual assumes you have a basic knowledge of your PS/2 system, such as how to boot DOS and run a program, but it does not rely on any special knowledge.

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ORCHID'S PRODUCTIVITY SOFTWARE

FOR THE RamQuest 50/60

Orchid's Productivity Software uses your PS/2's internal memory to increase processing speed enhancing the RamQuest 50/60's performance.

The RamQuest 50/60 Productivity Software can be installed easily by using the INSTALL program on your Productivity Software Diskette. The INSTALL program will guide you through the installation asking for your input on how you want to set-up the software for your system's configuration. Installation information is provided on the back of your RamQuest 50/60 Quick Card for your convenience and in this manual for reference.

This manual documents and describes the various commands and their functions. It provides information for those who wish to configure their own CONFIG.SYS or AUTOEXEC.BAT files.

The RamQuest's Orchid Productivity Software includes:

- **RamQuest Driver** - Partitions RamQuest memory into Protected and EMS Memory.
- **EMM Driver** - Provides Lotus/Intel/Microsoft EMM interface
- **RAM Disk** - Let's you use a RAM-based disk drive in extended or EMS memory for faster access time.
- **Disk Caching** - Speeds up access to hard disks (and removable drives) by caching disk access.
- **PrintSpooling** - Buffers printer data freeing your computer to run applications without waiting for the printer.

The commands for the Productivity Software use the following conventions: Optional parameters are enclosed in square brackets: []. The brackets are *not* typed as part of the command.

Numbers that can take a range of values are shown in lower case italicized letters: **D=kkkk**. Type the value you require, such as **D=100**.

The symbol **(Enter)** tells you to press the enter key.

Installing the Orchid Productivity Software

The INSTALL program modifies your system for use with the RamQuest 50/60. It will add lines where necessary to your CONFIG.SYS and AUTOEXEC.BAT file. It will copy the Productivity Software onto your system's hard disk. This loads the Productivity Software automatically whenever you turn on the power or reboot your system

The following instructions are also located on the back of your RamQuest 50/60 Quick Card for your convenience.

1. Insert the Orchid Productivity Software Diskette into Drive A:
2. At the DOS prompt, type **INSTALL**. Press **ENTER**
3. The INSTALL Program's Main Menu will be displayed. The Main Menu options are:
 1. About RamQuest
 2. View RamQuest Memory Configuration
 3. Set Ramquest Memory Configuration
 4. View Productivity Software Configuration
 5. **Set Productivity Software Configuration**
 6. Test RamQuest Hardware
 7. Exit
4. Press **5** or use the arrow keys to move down to option **5 Set Productivity Software Configuration**. Press **ENTER**

5. The **Set Software Configuration** screen will appear. This lets you adjust the memory size, memory type, and drive to be cached by using the arrow keys. **Make sure the NumLock key is NOT on** while using the arrow keys. After you have set the memory configuration for your system, **press ESC**.

6. The **INSTALL Program** will display this message: "Software Configuration has been updated onto drive C:". The Main Menu is also displayed. **Press 7 for EXIT**.

7. The **EXIT** screen will be displayed. You can choose to **Reboot** your system or **Exit Program**. The RamQuest 50/60 is ready to run, using the Orchid Productivity Software. *You must rebbot your system to use the software.*

To change your configuration after the Productivity Software has been installed, run the **INSTALL** program again. It will overwrite the files copied previously.

You can also edit your **CONFIG.SYS** and **AUTOEXEC.BAT** files using the command syntax given in this manual and an editor like **EDLIN**. The following sections document the command syntax and usage for editing your own **CONFIG.SYS** and **AUTOEXEC.BAT** files.

The Two Device Drivers - RAMQUEST.SYS and RQEMM.SYS

Two device drivers perform various functions for operation of the RamQuest 50/60.

RAMQUEST.SYS allocates how much of RamQuest's memory is used for EMS and how much for Protected (extended) memory.

RQEMM.SYS is the program that implements Lotus/Intel/Microsoft EMS memory. For example if you have an application that uses EMS memory, that program will use the RQEMM driver to assist in operating the EMS memory contained on the RamQuest 50/60.

These device drivers are installed in your CONFIG.SYS file. The CONFIG.SYS file holds configuration information about the computer. CONFIG.SYS is similar to an AUTOEXEC.BAT file. It contains a list of programs or functions that the computer executes in order to perform normal operations. Special hardware such as RamQuest 50/60 needs to have device drivers installed in the CONFIG.SYS.

Adding Device Drivers to Your CONFIG.SYS File

1. Turn on your computer.
2. Once you have booted DOS, run a directory of your boot drive. Type DIR C: if booting from a hard disk; DIR A: if booting from a floppy.
3. You should see a file called CONFIG.SYS. If you don't, do not be alarmed. Your computer does not need this file to operate, it is only

required if you have special device drivers or set specific configurations on your computer.

4. The first step to adding the device drivers for the Ramquest 50/60, is to edit your CONFIG.SYS file. Use your favorite line editor, word processor, or EDLIN (found on your DOS diskette).

NOTE: If you use a word processor, ensure it does not add any control characters to the file - it must make a standard DOS text file.

5. You will need to add the two device drivers, **RAMQUEST.SYS** and **RQEMM.SYS**.

RAMQUEST.SYS

RAMQUEST.SYS requires some information added to the command line. This information includes: The slot or slots your RamQuest(s) are installed in, and how much EMS memory you desire to allocate. The syntax used looks like this:

```
DEVICE = RAMQUEST.SYS SLOT=n,n,n,n EMSSIZE=xxxx
```

You must tell the RAMQUEST driver the information for "*n*" and "*x*."

"*n*" indicates the slot (or slots if you have multiple boards) the RamQuest(s) are installed in. In the PS/2 Model 50, the left-most slot is slot 1, the innermost slot is 3. On a Personal System /2 model 60, the innermost available slot would be 7. This is the slot closest to the power supply. If you are using more than one RamQuest, use a comma between slot numbers.

"x" indicates the amount of EMS memory you want to make available to your applications or utilities. The number represents the amount in kilobytes. The maximum number is 2048 per RamQuest. If you are using multiple RamQuests, a maximum of 8192 kilobytes may be allocated for EMS memory. For choosing the amount of memory you need, see "Hints For Selecting Amount of EMS Memory" below. Round numbers may be used. If you do not wish to use EMS memory, use a zero "0" in this position.

The following are examples for the RAMQUEST.SYS device driver syntax:

Example 1.

```
DEVICE = RAMQUEST.SYS SLOT=1 EMSSIZE=1024
```

This indicates you have one RamQuest located in slot 1, with 1024 kilobytes (or 1 megabyte) allocated for EMS memory.

Example 2.

```
DEVICE = RAMQUEST.SYS SLOT=1,3 EMSSIZE=3000
```

This indicates you have two RamQuests, located in slots 1 and 3, with 3000 kilobytes (approximately 3 megabytes) allocated for EMS memory.

RQEMM.SYS

The second device driver is RQEMM.SYS. This driver works in conjunction with applications and utilities to operate the EMS memory. There are no additional command specifiers for the RQEMM.SYS driver.

If you specify 0 for EMSSIZE in the RAMQUEST.SYS line, you do not need to add the RQEMM.SYS driver into your CONFIG.SYS.

An example for the RQEMS.SYS driver in the CONFIG.SYS file is:

```
DEVICE = RQEMM.SYS
```

When you have completed editing your CONFIG.SYS file, it should look something like this:

```
DEVICE = RAMQUEST.SYS SLOT=1 EMSSIZE=2048  
DEVICE = RQEMM.SYS  
DEVICE = RQDISK.SYS 1024 /x  
BUFFERS = 20  
FILES = 20
```

This example configures your computer for: One RamQuest located in slot 1, with 2 megabytes of memory allocated for EMS. The EMS driver is installed. You have one RAM disk that is 1 megabyte in size using EMS memory which will be explained in a later section. The last two lines are DOS commands that configure the system for 20 DOS buffers and up to 20 files may be open at one time.

Hints For Selecting the Amount of EMS Memory to Be Used

There are a couple of things to remember when selecting the amount of EMS memory to be used.

1. Application programs like Lotus 1-2-3, FrameWork, and Turbo Lightning use EMS memory. The more EMS memory you have allocated, the greater the storage area for data.
2. Utilities provided with your RamQuest can use both EMS memory and Extended (Protected Mode) memory. If you are not using all the memory for your applications, you may use the remaining amount of EMS memory for RAMdisks or disk caching.
3. EMS memory is faster than Protected Memory. Most applications can only access EMS memory.

If you have 1 RamQuest, up to 2 megabytes of memory will be available for EMS. When you allocate EMS memory in the RAMQUEST.SYS driver, it will "borrow" the memory from Extended (Protected) memory. What this means is: If you allocate 1 megabyte of memory for EMS, you will have 1 megabyte of available Extended (Protected) memory left. (Plus any remaining memory on the mother board.)

DISK CACHING (CACHE.EXE)

Caching improves the speed of disks by saving disk data in RAM memory where it can be accessed instantly. Caching is somewhat like a RAM disk that is automatically saved onto a real disk. It is almost as fast as a RAM disk and it is not volatile.

You can allocate as much memory for caching as you desire. Using more memory allows more disk data to be kept in memory; *the more memory the better*. Caching can use DOS, Extended, or EMS Memory. EMS and Extended Memory are recommended, since this leaves more room in DOS Memory for your other applications.

The caching program needs some amount of DOS Memory even if the cache is in EMS or Extended Memory. The larger the cache, the more DOS Memory is required. A cache buffer of 8 megabytes uses approximately 150K of DOS Memory. Be sure to take this into account when allocating DOS Memory. (After installing the software and rebooting, you can use CHKDSK to find out how much DOS Memory is still free.)

This command can be typed from the keyboard or placed in your AUTOEXEC.BAT file.

The following parameters are used:

CACHE a,b,c,... [D=kkkk] [E=kkkk] [X=kkkk] [/U] [/R]

a,b,c,... - Names of drives that will be cached. Specify only *fixed disks* unless **/R** is used. The commas between the drive names are optional and can be omitted. Do *not* leave spaces between the drive names.

Caching can use DOS, EMS, and Extended Memory. You can specify more than one type of memory.

D=kkkk - Number of kilobytes of DOS Memory used for caching.

E=kkkk - Number of kilobytes of Extended Memory used for caching.

X=kkkk - Number of kilobytes of EMS Expanded Memory used for caching.

/U - Uninstalls the cache to reclaim the memory it uses. CACHE.EXE must be the **most recently installed** resident program for this to work.

/R - Allows *removable* media (floppies and removable hard disks) to be cached. When this option is active, you must simultaneously press **(Alt)-(Left Shift)-(F)** to clear the cache buffers before you remove your disk.

Caching removable media, such as floppy disks, requires a great deal of care on behalf of the operator and is *not recommended*. Caching fixed drives poses no such problem and is transparent to the user.

Press **Alt-Left Shift-F** to flush the cache buffers *before* changing removable media (/R). *Always* press **Alt-Left Shift-F** to clear the buffers:

1. Before changing a floppy disk.
2. Before changing a removable hard disk, like an Iomega. (The latest version of the Iomega will automatically inform the CACHE program when the disk is changed.)
3. When a disk error occurs.

Typing **CACHE** with no parameters displays a list of the current configuration.

EXAMPLES:

These examples can be typed from the keyboard or placed in an AUTOEXEC.BAT file.

Any example using EMS Expanded Memory requires the RQEMM driver to be the first line in the CONFIG.SYS file.

1. Cache fixed drive c: using 64K of DOS Memory:

CACHE C D=64

2. Cache fixed drives c: and d: (in a system with two hard disks) using 360K of Extended Memory:

CACHE C,D E=360

NOTE: *Do not* leave a space between the drive names. The comma is optional.

Print Spooling

PRTSPOOL.COM will buffer a program's printer output in DOS memory and hold it until the printer is ready for it. This frees your computer to go on running without waiting for the printer.

PRTSPOOL can be placed in your AUTOEXEC.BAT file so it is automatically invoked when you boot, or it can be typed from the keyboard.

The options for PRTSPOOL are shown here in four separate groups: **Parallel Port**, **Serial Port**, **Memory Allocation**, and **Page Reprint**. When you use them, the Memory Allocation and Page Reprint options can be combined with Serial or Parallel spooling. The examples at the end of this section show some of the combinations.

Spooling the Parallel Port

PRTSPOOL LPTn: - LPTn: indicates the parallel port that is being spooled. LPT1, LPT2, or LPT3 can be specified.

Spooling the Serial Port

```
PRTSPOOL LPTn:=COMn: /RATE=n, [parity], [databits],  
[stopbits], [/ON=protocol] [/OFF=protocol]
```

The above command is shown on two lines for legibility. Do not break it into two lines when using it. (The command you use will typically be much shorter than what is shown here.)

LPTn:=COMn: - This part of the command indicates that output sent to the parallel port LPTn is being redirected to serial port COMn.

- The application program (word processor, spread sheet, etc.) should send its printer output to the *parallel port* specified (LPT1, LPT2, or LPT3).
- PRTSPOOL will buffer this output and send it to the *serial port* specified (COM1 or COM2).

When output sent to LPT1 is redirected to a serial port, the device connected to LPT1 will respond as LPT2 and LPT2 will respond as LPT3. The following diagram shows the assignment:



Configuring the Serial Port

If more than one of the following options are used, place a *comma* after each option to separate it from the other options.

/RATE=n indicates baud rate, either 110, 150, 300, 600, 1200, 2400, 4800, 9600, or 19200. Typing **/RATE=** is optional; you can just type the number.

PARITY (optional) - The first letter after the rate indicates parity; either **N** for no parity, **O** for odd parity, or **E** for even parity. The default is even.

DATABITS (optional) - Indicates the number of data bits; either **7** or **8**. Default is **7**.

STOPBITS (optional) - Indicates the number of stop bits; either **1** or **2**. Default is **2** at a rate of **110** baud, otherwise it is **1**.

/ON=protocol and **/OFF=protocol** (optional) - These options turn on and off various protocols, such as:

- xon** - XON/XOFF
- dcd** - DCD handshake
- dsr** - DSR line
- cts** - CTS line

The default is **DSR** and **CTS on**; **DCD** and **XON/XOFF off**.

Example: **/on=xon** turns on the XON/XOFF protocol.

Memory Allocation Options

Program Memory - The DOS Memory that PRTSPOOL uses to hold printer output is not available for your application program. If your program requires a large amount of memory, PRTSPOOL can reserve memory for your program.

/U=kkk - Reserves at least kkk kilobytes of DOS Memory for the application program. This leaves room for the program you will run after you invoke PRTSPOOL.

The default is 64K, which means that there will always be at least 64 kilobytes of DOS Memory available for your application program. Check your application program's manual for the amount of memory it requires. If it requires 128K (and you are spooling LPT1:), type:

```
PRTSPOOL LPT1: /U=128
```

Spool Buffer Size - The spool buffer is the memory used to hold the printout while it is waiting for the printer. A bigger buffer allows bigger printouts to be held in memory. Printouts larger than the buffer can be spooled, but spooling is more efficient if the buffer is larger than the printout. (With a small buffer, the application program will send output to the buffer until it is full; the program will then have to wait until the buffer empties enough to hold the rest of the output.) Buffers less than 16 kilobytes are not recommended.

/M=kkk - Allocates kkk kilobytes of DOS Memory for buffering the output sent to the printer. The default is 64K. This means that 64K of output can be stored in memory by PRTSPOOL. If your printouts are typically larger than this, specify a

larger value. If they are shorter and you wish to save memory for other applications, specify a smaller value.

For example, to spool LPT1 using 100 kilobytes to store output to the printer, type:

```
PRTSPOOL LPT1: /M=100
```

/M - When the number of kilobytes is not specified, this option reserves *all* available DOS Memory for the spool buffer.

To spool LPT1 using all available DOS Memory for holding output to the printer, type:

```
PRTSPOOL LPT1: /M
```

Once you have invoked PRTSPOOL, you cannot change either of the memory allocation options (**/U** or **/M**) without rebooting.

Page Reprint Options

You can stop the printout and restart at the top of the current page or the previous page. This allows you to adjust the paper in the printer and correct paper jams.

Page reprint commands are executed during the printout, but you must use the **/B** option when invoking PRTSPOOL to enable the reprint feature. (You may also wish to set a page length different than the default 66 lines per page, as shown below.)

To enable page reprint, type:

```
PRTSPOOL LPT1: /B
```

LPT1: is shown as an example; any valid assignment could be used.

/LPP=nn - Page Length: This indicates the number of lines per page of printed output. It helps PRTSPOOL keep track of where pages begin.

PRTSPOOL passes output to the printer with no changes. It keeps track of the number of lines and pages printed (by counting Line Feeds and Form Feeds). This allows you to stop a printout and restart from the beginning of the current page or the previous page.

Most printed output has 66 lines per page. If you frequently print with a different number of lines per page, you can specify it with the option `/LPP=n`. For example, if you use 44 lines per page (and are spooling LPT1), type:

```
PRTSPOOL LPT1: /LPP=44 /B
```

Commands Typed While PRTSPOOL is Running

The following commands can be typed from the keyboard while PRTSPOOL is running to stop and restart printouts:

To *stop* a printout, type **PRTSPOOL/S** from the DOS prompt.

To *continue* where you left off, type **PRTSPOOL/C**.

- * To *restart* a printout at the beginning of the *current* page, type **PRTSPOOL/R**.
- * To *restart* at the beginning of the *previous* page, type **PRTSPOOL/RP**.

To stop a printout and *purge* the print buffer (erasing all data that it holds), type **PRTSPOOL/P**.

To check the status of your Print Spooling, type **PRTSPOOL**.

- * *You must invoke PRTSPOOL with /B before you can use the commands indicated with an asterisk.*

EXAMPLES:

These examples can be typed from the keyboard or placed in your AUTOEXEC.BAT file.

1. Spooling parallel printer LPT1:

```
PRTSPOOL LPT1:
```

By default: the spool buffer is 64K; at least 64K is reserved for the application program; page reprint is not active.

2. As above, but spooling LPT2:

```
PRTSPOOL LPT2:
```

3. Spooling LPT1 with 100K of DOS Memory used as a spool buffer:

```
PRTSPOOL LPT1: /M=100
```

4. Redirecting output sent to LPT1 to serial port COM1 setting baud rate at 9600:

```
PRTSPOOL LPT1:=COM1: /RATE=9600
```

In addition to the defaults in Example 1, the serial port will be configured with these defaults:

- even parity
- 7 databits
- 1 stopbit (110 baud - 2 stopbits)
- DSR and CTS protocol on

5. Redirecting LPT1 to COM2, setting baud rate at 1200, and setting up a 120-kilobyte buffer to hold printer output:

```
PRTSPOOL LPT1=COM2 /RATE=1200 /M=120
```


EXAMPLES:

The next examples use more advanced options.

- You can type these commands from the keyboard even if you have *already* invoked PRTSPOOL.

1. Redirecting LPT2 to COM1 with a baud rate of 1200:

```
PRTSPOOL LPT2:=COM1: /RATE=1200
```

2. Redirecting LPT1 to COM1 and configuring the serial port to 2400 baud, no parity, 7 databits, 1 stopbit:

```
PRTSPOOL LPT1:=COM1: /RATE=2400,N,7,1
```

3. Redirecting LPT1 to COM1 and configuring the serial port to 2400 baud, no parity, 7 databits, 1 stopbit, shutting off the default DCD and DSR protocols and turning on CTS protocol:

```
PRTSPOOL LPT1:=COM1: /RATE=2400,N,7,1  
/OFF=DCD,DSR /ON=CTS
```

EXAMPLES:

The final examples use special options that cannot be changed without *rebooting*.

1. Spooling LPT1 using all available DOS Memory for buffering printer output:

```
PRTSPOOL LPT1: /M
```

2. Spooling LPT1 reserving at least 128 kilobytes of DOS Memory for your application program:

```
PRTSPOOL LPT1: /U=128
```

3. Spooling LPT1 setting up a 120K spooling buffer and reserving at least 256K of DOS Memory for your application program:

```
PRTSPOOL LPT1: /M=120 /U=256
```

4. Redirecting LPT1 to COM1; configuring the serial port to 1200 baud, even parity, 8 databits, and 1 stopbit; setting up a 120K spooling buffer; reserving at least 256K of DOS Memory for your application program; and enabling page reprints:

```
PRTSPOOL LPT1:=COM1 /RATE=1200,E,8,1 /M=120  
/U=256 /B
```

RQDISK.SYS

RQDISK.SYS lets you use part of RAM memory to electronically simulate disk drives. You can have as many disk drives as DOS will allow. Each drive can be in DOS, EMS Expanded Memory, or Protected (extended) memory. A small part of DOS memory will be used even if the RAM disk is in EMS Expanded Memory.

Data left in a RAM disk will be lost when you turn off the power or reboot your system.

To protect your data, use RAM disks for *read-only data* (programs or data bases that are not being updated). For other data, copy the contents of your RAM disks *onto fixed or floppy disks* as soon as you finish with them.

Add RQDISK.SYS to your CONFIG.SYS file as follows:

```
DEVICE=RQDISK.SYS ssss [ddd] [/D] [/E] [/X]
```

ssss - Size of drive in kilobytes.

ddd (optional) - Maximum number of directory entries. Lowering the number of entries will save some memory; allowing more entries allows more files in each RAM disk.

This option defaults to 64 directory entries if it is not included on the command line; the maximum number of directory entries is 512.

Use *either*:

/D - to place RAM disk in DOS Memory (default)

- or -

/E - to place RAM disk in Protected Memory

- or -

/X - to place the RAM disk in EMS Expanded
Memory

When installing multiple RAM Disks, use *one* command line for each drive you wish to install.

RamQuest 50/60 Specifications

The RamQuest 50/60 is the first of Orchid's family of products for the IBM Personal System /2. The RamQuest 50/60 board is designed to give you more memory and speed. It is 100% compatible with the IBM Personal System /2 models 50 and 60 and it supports Lotus/Intel/Microsoft Expanded Memory Specifications.

The jumpers located on the RamQuest 50/60 board are factory set and pertain to manufacturing testing. *Please do not remove any jumpers.*

Host:

IBM Personal System/2, models 50/60

Memory Modes:

Protected (Extended) and EMS
Expanded Memory

Memory Capacity:

2 Megabytes on board. Multiple boards can be installed to increase memory capacity up to the IBM PS/2 limitations

Bus Requirements:

Micro Channel

RAM Chips:

8 Single In-Line Package (SIP) Panels; 120 Nanoseconds

EMS I/O Ports Used:

1 out of the following port blocks are system programmable:

0204 - 0207 Hex
0404 - 0407 Hex
0604 - 0607 Hex
0804 - 0807 Hex
0A04 - 0A07 Hex
0C04 - 0C07 Hex
0E04 - 0E07 Hex

Pageframe Addressing:

C000:0 Hex or D000:0 Hex

Board Dimensions:

3" x 11"

Productivity Software:

RAM Disk, Print Spooling, and Disk Caching

Features:

2 Megabytes of RAM which can be used in part or in whole as EMS and Protected memory. Easy software installation, no switches to set

Additional Features:

User-modifiable translation table for windowing

Temperature:

Operation from 0 to 50 degrees C
Storage from -25 to 90 degrees C

Humidity:

Operation from 15% to 90%
Storage from 0% to 95%

Installation:

Uses Set-Up Program from the IBM Reference Software Diskette and Orchid's Set-Up Program

Execution:

Runs EMS applications on most software that supports EMS: Lotus 1-2-3, Symphony, Microsoft Windows, Quarterdeck DESQview, Framework II, Supercalc 3, ThinkTank, AutoCAD, and many more.

Orchid Productivity Software File List

RAMQUEST.SYS
RQEMM.SYS
RQDISK.SYS
CACHE.EXE
PRTSPOOL.COM
INSTALL.BAT
RQSLIDE.DAT
RQSU.COM
RQTEST.COM
SHELL.COM