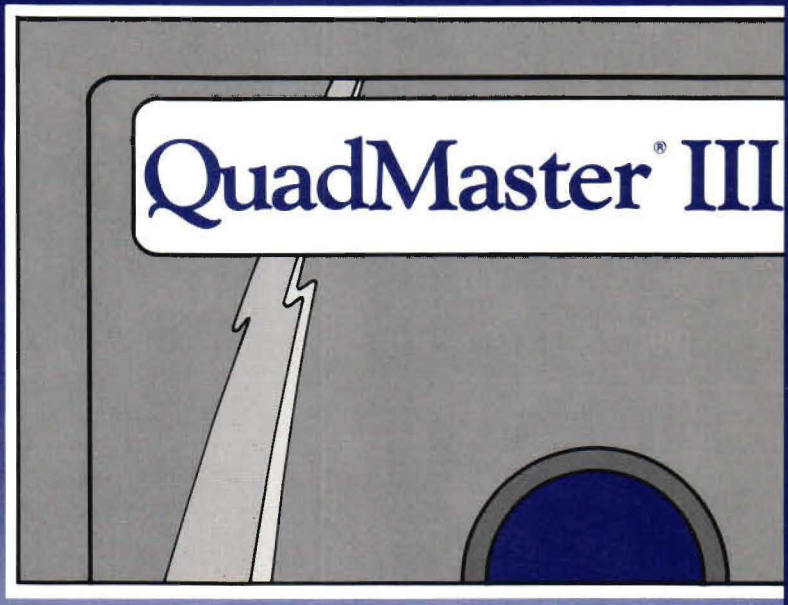
QUADMASTER® III

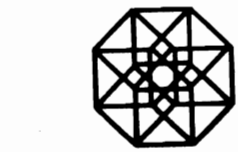


User's Manual

QUADRAM®
An Intelligent Systems Company

QUADMASTER III USER'S MANUAL

QuadMaster III®
User's Manual



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Read this manual thoroughly before attempting to use this product.

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TWR 810-766-4915 (QUADRAM NCRS)

QuadMaster III User's Manual—Revised December 1985
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Manual by Ken Poshedly

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- **Obtain a return authorization number from Quadram prior to return to the factory,**

- **Insure and accept all liability for loss of or damage to the product,**
- **Prepay all shipping charges,**
- **Use shipping container equivalent to the original packaging if product is to be shipped by U.S. Postal Service or any common carrier.**

No expressed or implied warranty is made for any Quadram product damaged by accident, abuse, misuse, natural or personal disaster or unauthorized modification.

1.0 INTRODUCTION

1.1 About Quadram

Welcome to the world of enhanced computing with *QuadMaster III* (version 3.04), Quadram's series of powerful utility programs for use with PC-DOS Version 2.0 *or later.* Where others leave off, Quadram continues on with a variety of features to assist the novice, amateur or serious professional.

Quadram is a leader in the design, manufacture and marketing of microcomputer enhancements for IBM, Apple and compatible personal computers; we offer a complete line of memory expansion cards, color boards, print buffers, monochrome and color video displays, color ink jet printers and software support systems.

Quadram Quality, the craftsmanship used to produce *QuadMaster III* and all our products, is the result of a concerted effort by all Quadram personnel to provide you with the best microcomputer products available.

1.2 About QuadMaster III

QuadMaster III is packed with a series of powerful device drivers designed to help you "master" PC-DOS **Version 2.0 or later:**

- Create multiple RAM drives as large or small as you desire (almost indispensable when working with temporary files)
- Spool to three parallel printers simultaneously (if your system is so equipped; a real time-saver)
- Spool to a serial port simultaneously (again, if your system is so equipped)
- Update your hardware-based clock—if present—with the current date and time each power up (eliminates manual setting of date and time each power-up)

What's more, owners of Quadram's *Liberty-PC* and *Liberty-AT* and *Quadboard-AT* boards will appreciate *QuadMaster III* programs which utilize the new **Lotus Expanded Memory Specification.** These special device drivers allow you to create RAM drives and spoolers using "expanded memory," that is, system memory above the 640-kilobyte "ceiling."

Those with Quadram's *Liberty-AT* or *Quadboard-AT* boards installed in their IBM PC/AT personal computers may also use *QuadMaster III*'s "extended memory" device drivers in conjunction with PC-DOS Version 3.0.

1.3 About This Manual

No matter what the situation, when installing QuadMaster III device drivers, you are in effect **configur**ing your **system**; you will create and save, therefore, a **CONFIG.SYS** file by following the instructions presented in each chapter. This CONFIG.SYS file does NOT exist on your diskette until you follow the instructions presented on this manual.

In each chapter, you'll be shown the correct command line syntax for QuadMaster III installation and given an explanation of the command line.

While all of this may seem overwhelming at first, you'll soon find that everything will work together nicely. Just carefully follow the steps in this manual and avoid skipping ahead to unfamiliar territory.

Use this manual both for initial installation procedures and as a reference book for the future. While you'll keep your initial parameters for quite some time, you have the option of changing them at will.

Even though many of the procedures presented in this manual are already in your DOS manual, their inclusion here may speed things up.

If you find unfamiliar words at any point, refer to Glossary.

This manual has been organized to provide you with individual installation procedures first, then more complex, multiple installations. All are quite simple and will operate as detailed **if** you will follow the instructions as presented.

Note that this manual was written for users who are at least reasonably familiar with their personal computer and have a working knowledge of how to boot up. If you do have questions or require information of this sort, contact Quadram.

1.4 Pre-Installation Information

Quadram takes pride in being able to assist your efforts to utilize your IBM with QuadMaster III and related products. But before proceeding further, we highly recommend that you first gain a working knowledge of your computer by becoming familiar with your *Guide to Operations* manual. Here, you'll find complete information on powering up ("booting up"), as well as removing the computer hood, etc.

Another publication with which you should become familiar, especially if you plan on working with various cards and software, is the *Disk Operating System User's Guide* which accompanied the DOS disk you purchased with your computer.

Please remember that, while this manual will, in fact, restate several of the procedures already covered in those two publications, it is not meant to be a replacement.

Also, note that copyright restrictions prohibit Quadram from shipping bootable diskettes. In other words, **you must follow the steps in this manual to produce your own bootable diskettes.**

1.5 For Assistance

Everybody needs help with new equipment now and then. And Quadram prides itself on being there when you need answers to your questions.

If you have start-up problems, we strongly urge you to first contact the Authorized Quadram Dealer from which you purchased this product before proceeding further. Our dealers are familiar with our products, and they know how to best service your needs.

Should questions arise which cannot be handled at the dealer level, phone our Technical Support Department at (404) 923-6666 between the hours of 8:15 a.m. and 7 p.m. (eastern time) Monday through Friday, and until 5 p.m. Saturdays.

When you do phone, it will speed things up considerably if you have at hand: the product(s) in question; the appropriate operations manual(s); a set of notes as to exactly what your questions/concerns are.

If for any reason you find it necessary to return your Quadram product for Authorized Factory Service, you *must* phone ahead for a Return Authorization Number.

Finally, keep in mind that there is a myriad of magazines and books available to keep you up on the latest in computer technology. Your Authorized Quadram Dealer is a good source for more information about which magazines and books would be most useful to you.

2.0 WORK DISKS AND BACK-UPS

2.1 Preparation

Copyright restrictions prohibit Quadram from shipping bootable diskettes. In other words, *you must follow the steps in this chapter to produce your own bootable diskettes.*

Before utilizing QuadMaster III, be sure your Quadram hardware has been installed properly; Quadram hardware and software are designed to work together. The QuadMaster III diskette is a very sturdy, yet fragile, tool. While the programs it holds were engineered to provide an indefinite term of service, the diskette itself should be treated with kid gloves—or something very close!

What we mean is that, as stated in your *Guide to Operations* manual, you will have to observe and follow special precautions when handling the diskette. Even though it is enclosed in a protective sleeve, we assume that you already know not to touch the exposed disk surfaces, tamper with the sleeve itself, expose the disk to extremes of temperature, nor spill things on it.

Remember: Quadmaster III was designed to work with a DOS-formatted disk of **at least** Version 2.0 (DOS 3.0, if you are running QuadMaster III on an IBM PC/AT). Keep that in mind, and it may save you many a restless night.

Quadram highly recommends that you produce **two** bootable copies of your QuadMaster III disk; use one as your everyday work disk and store the other as a back-up should the first become lost or damaged.

In no case, however, should you use your original QuadMaster III disk as your work disk.

In addition to your QuadMaster III disk, you'll need your DOS system disk (which includes commands to

boot the system and format disks) and at least two blank, unformatted diskettes. Note that if you re-format a disk, you destroy all programs and files stored on it.

Besides the QuadMaster III programs, you may also wish to copy other files and programs from other diskettes onto your everyday work disk—the options are yours.

2.2 Creating QuadMaster III Work Disks—Single-Drive System

1) With your DOS system disk in the drive and the system booted, enter:

2) At the prompt, remove the DOS disk, replace it with a blank, unformatted disk (or one with programs you no longer require) and press any key to begin formatting
3) When formatting is completed, you'll be presented with statistical information about your newly-formatted disk (we'll call this your "work disk") and asked if you wish to format another; press the letter **Y**, replace the work disk with another blank, unformatted disk and proceed as prompted
4) Replace this second work disk with the QuadMaster III distribution disk and enter:

5) At the prompt, replace the QuadMaster III disk with one of your work disks and press any key to begin
6) Continue swapping disks as prompted; a tally of the total number of files copied will be displayed and followed by the DOS-prompt (A❯)
7) Repeat the copying procedure with your other QuadMaster III work disk
8) If you wish to copy other programs onto your work disks, do so at this time

When the A❯ appears, label one disk "QuadMaster III Work Disk Back-Up" and store it, along with your original QuadMaster III diskette, in a clean, dry, dust-free environment away from extremes of temperature or humidity. Label the other "QuadMaster III Work Disk #1" and use it to run QuadMaster III.

2.3 Creating QuadMaster III Work Disks— Two-Drive System

1) With your DOS system disk in drive A and the system booted, enter:

```
FORMAT B:/S [ENTER]
```

2) At the prompt, place a blank, unformatted disk (or one with programs you no longer require) into drive B and press any key to begin formatting
3) When formatting is completed, you'll be presented with statistical information about your newly-formatted disk (your "work disk") and asked if you wish to format another; press the letter **Y**, replace your new work disk with another

blank, unformatted disk and proceed as prompted

4) At the "Formatting completed..." message this time, press **N** and the spacebar once
5) Replace your DOS system disk (in drive A) with the QuadMaster III distribution disk and type **COPY *.* B:** and press **[ENTER]**
6) A tally of the total number of files copied will be displayed and followed by the DOS-prompt (A❯)
7) Repeat the copying procedure with your other QuadMaster III work disk
8) If you wish to copy other programs onto your work disks, do so at this time

When the A❯ appears, label one disk "QuadMaster III Work Disk Back-Up" and store it, along with your original QuadMaster III diskette, in a clean, dry, dust-free environment away from extremes of temperature or humidity. Label the other "QuadMaster III Work Disk" and use it to run QuadMaster III.

2.4 Creating QuadMaster III Work Disks— Hard-Disk System

If you wish to utilize QuadMaster III with your QuadDisk or other hard drive, refer to your DOS manual and hard drive owner's manual for details on formatting procedures, etc. In the example below, note that the hard-disk drive is designated C: (your disk drive configuration may be different).

1) With the system booted, your QuadMaster III disk in drive A and the A❯ onscreen, enter:

2) A tally of the total number of files copied will be displayed and followed by the DOS-prompt itself (A>)

3) If you wish to copy other programs onto your hard drive, do so at this time

We recommend that you also produce a floppy work disk by simply following the procedures in either section 2.2 or 2.3, depending on your system configuration (single floppy drive or two floppy drive).

Afterwards, label that disk "QuadMaster III Work Disk Back-Up" and store it, along with your original QuadMaster diskette, in a clean, dry, dust-free environment away from extremes of temperature or humidity.

Depending on your degree of proficiency, you may find it advantageous to keep your QuadMaster III files in a subdirectory within your hard-drive system. Again, we recommend that you refer to the operations manual pertinent to your needs.

2.5 Directory

After you have completed the installation procedure detailed above for your particular configuration, it would be wise to call up a directory of what is on your disk. Your disk should display the following QuadMaster III files (though not necessarily in this order):

COMMAND.COM	Boots the system
RAMDRIVE.SYS	Utilizes conventional memory to create multiple RAM drives
QLPT1.SYS	Parallel port LPT1 print spooler (conventional memory)

QLPT2.SYS	Parallel port LPT2 print spooler (conventional memory)
QLPT3.SYS	Parallel port LPT3 print spooler (conventional memory)
QCOM1.SYS	Serial port COM1 print spooler (conventional memory)
QCOM2.SYS	Serial port COM2 print spooler (conventional memory)
QUADRAM.SYS	Expanded Memory Manager device driver; **must** be installed only once and prior to any QuadMaster III programs beginning with "X"
XRAMDRIV.SYS	Utilizes *expanded* memory to create multiple RAM drives
XQLPT1.SYS	Parallel port LPT1 print spooler (*expanded* memory)
XQLPT2.SYS	Parallel port LPT2 print spooler (*expanded* memory)
XQLPT3.SYS	Parallel port LPT3 print spooler (*expanded* memory)
XQCOM1.SYS	Serial port COM1 print spooler (*expanded* memory)
XQCOM2.SYS	Serial port COM2 print spooler (*expanded* memory)
ATRAMDRV.SYS	Utilizes **extended** memory to create multiple RAM drives

ATQLPT1.SYS	Parallel port LPT1 print spooler (*extended* memory)
ATQLPT2.SYS	Parallel port LPT2 print spooler (*extended* memory)
ATQLPT3.SYS	Parallel port LPT3 print spooler (*extended* memory)
ATQCOM1.SYS	Serial port COM1 print spooler (*extended* memory)
ATQCOM2.SYS	Serial port COM2 print spooler (*extended* memory)
QUADCLOK.SYS	Device driver which updates your hardware clock each power-up
QUADCLOK.COM	Optional command (".COM") file used to update system clock
QSWAP.COM	Electronically swaps parallel ports
QUADNOTE.TXT	A special helpfile; simply type **TYPE QUADNOTE.TXT** and press **[ENTER]**

3.0 EXPANDED MEMORY MANAGER

3.1 Description

If your IBM system is equipped with Quadram's *Liberty-PC*, *Liberty-AT* or *Quadboard-AT*, you have the option of utilizing what is called "expanded memory," that is, memory which complies with the Lotus/Intel Expanded Memory Specification to "reach" beyond what had been the 640-kilobyte limit in the standard PC environment.

In this way, PC users may access up to eight megabytes of RAM. in *QuadMaster III* (Version 3.04) enables you to utilize that expanded memory with programs like "XRAMDRIV" (for creating multiple RAM drives), "XQLPT" (for parallel port spooling), and "XQCOM" (for serial port spooling).

Before using those programs, however, you must first install an "Expanded Memory Manager" program, called QUADRAM.SYS, which coordinates (manages) how QuadMaster III programs will utilize expanded memory.

Take note that QUADRAM.SYS must be the first program installed and is only installed IF you will be using QuadMaster III's expanded memory programs.

3.2 Installation

Remember, if you will be using *QuadMaster III*'s expanded memory programs or if you plan to use application programs such as **Symphony** (which does use expanded memory), you must "install" this program first **and** you must assign a value to each variable (there are no defaults).

First, boot your system to get the DOS-prompt and

enter:

```
COPY CON: CONFIG.SYS
DEVICE = QUADRAM.SYS S C P1 P2 P3 P4
```

where:

- S = Segment Size (see section 3.3)
- C = Code parameter (see section 3.4)
- P1, P2, P3, P4 = Port Number parameter (see section 3.5)

Now install the expanded memory device driver(s) of your choice (i.e., XRAMDRIV.SYS and/or XQLPT.SYS and/or XQCOM.SYS). Refer to chapters 4, 5 and 6 for details on installing these programs.

Remember to press the **[ENTER]** key after each command line.

3.3 Assigning the Segment Parameter

System memory is measured in bytes (or kilobytes). Locations in memory are called "addresses" and are specified by a numbering system called "hexadecimal." (We suggest you research hexadecimal numbering further on your own by consulting with any of a number of fine reference books and magazines available in your library or bookstore.)

QuadMaster III offers you the choice of having the expanded memory manager allocate space beginning at hexadecimal address D000 or hexadecimal address E000.

Ordinarily, you would assign D000 by typing the number zero ("0") as the first parameter in the command line. If, though, that address is already being allocated by another

product you must select the alternative address, E000, by typing the number one ("1") as the first parameter in the command line.

Some products allocate both D000 and E000 address space (such as some versions of Quadram's own *Palette Master* color graphics card, for instance), which means you are not able to utilize expanded memory if your system is equipped with a product such as this.

Consult the owner's manual of other cards installed in your system to be sure there are no conflicts with either hexadecimal address.

3.4 Assigning the C Parameter

Refer to the following chart to guide you in choosing the correct "Code" number.

Possible configurations of Quadram expanded memory boards

CODE	1	2	3	4
0	a	—	—	—
1	a	a	—	—
2	a	a	a	—
3	a	a	a	a
4	b	—	—	
5	b	a		
6	b	a	a	
7	b	b		
8	c	—		
9	c	a		
A	c	a	a	
B	c	b		
C	c	c		

a = *Liberty-PC*

b = *Liberty-AT*

c = *Quadboard-AT*

— = No board installed

In the above, you would assign a "0" code if you had Quadram's *Liberty-PC* card installed. If you had two *Liberty-PC* cards installed, you would assign a "1" parameter. Three *Liberty-PC* cards yield a "2", and four *Liberty-PC* cards, a "3".

If you had one *Liberty-AT* installed, you would assign the "4" parameter. And so on.

3.5 Assigning the Port Number—Parameters P1 P2 P3 P4

Finally, you must assign the mapping register(s) base port for the I/O port(s); note that each of the four values applies to a separate card.

If you have only one *expanded* memory board in your system, it is recommended that P1=258.

If you have two such cards installed in your system, it is recommended that P1=258, and P2=268.

If you have three such cards installed in your system, it is recommended that P1=258, P2=268, and P3=288.

Finally, if you have four such cards installed in your system, it is recommended that P1=258, P2=268, P3=288 and P4=290.

For example, in a system with three *Liberty-PC* boards installed, the command line would appear as:

```
DEVICE = QUADRAM.SYS 1 2 258 268 288
```

Note that in this example, the Segment parameter has been set to E000 (S=1).

4.0 RAM DRIVES

4.1 Description

With QuadMaster III, you have the option of storing your system commands and application programs on floppy disks or hard disks and storing new information and temporary files on electronic disk drives called RAM drives (for "Random Access Memory" drives).

Each RAM drive holds as much memory as you decide and only exists as long as power is ON; once you power down, however, RAM drives cease to exist and all information stored there is lost unless previously copied onto a real disk.

You'll soon discover how important RAM drives are if your needs include extremely intricate programs (i.e., the integrated spreadsheet Lotus 1-2-3) or if you routinely save information for one-time use.

QuadMaster III gives you the choice of drawing from:

- conventional system memory (all systems)
- expanded memory (systems equipped with Quadram's *Liberty-PC*, *Liberty-AT* or *Quadboard-AT* memory card)
- extended memory (systems equipped with Quadram's *Liberty-AT* or *Quadboard-AT* memory card)

The advantage to utilizing expanded memory is that conventional system memory is left available for large applications programs.

QuadMaster III's RAM drives cease to exist when power to the system is terminated.

Note that if you do opt for utilizing expanded memory for your RAM drives, you must install the "Expanded Memory Manager" device driver as described in Chapter 3.

4.2 Installation

First decide if you want to utilize either conventional or expanded memory. If you choose conventional memory, boot your system to get the DOS-prompt and enter:

```
COPY CON: CONFIG.SYS
DEVICE = RAMDRIVE.SYS K
[F6]
```

To utilize expanded memory, boot your system to get the DOS-prompt and enter:

```
COPY CON: CONFIG.SYS
DEVICE = QUADRAM.SYS S C P1 P2 P3 P4
DEVICE = XRAMDRIV.SYS K.S.D
[F6]
```

To utilize extended memory, boot your system to get the DOS-prompt and enter:

```
COPY CON: CONFIG.SYS
DEVICE = ATRAMDRV.SYS K.S.D
[F6]
```

Refer to Chapter 3 for details on installing QUADRAM.SYS.

K = (RAMDRIVE.SYS and ATRAMDRIV.SYS) the number of kilobytes you assign to each RAM drive (default=64K); with XRAMDRIV.SYS only, the number of 16-kilobyte "pages" (blocks) you assign to each RAM drive (default=4, that is 64 kilobytes)

S = (XRAMDRIV.SYS and ATRAMDRV.SYS) the

desired sector size in bytes; options include 128, 256 or 512 (default=128)

D = the maximum number of directory entries; options 4 through 512 (default = 64)

To make your command line easier to understand, you have the option of labelling each numerical value you assign. That's because both RAMDRIVE.SYS and XRAMDRIV.SYS do not recognize alphabetical characters following the word "SYS".

To install multiple RAM drives, simply repeat the **DEVICE=...**command line as many times as desired. QuadMaster III will automatically assign each RAM drive a letter designation (for instance, if your system is configured with two floppy disk drives and you install two RAM drives, the first RAM drive will automatically be designed "C:" If your system includes one floppy disk drive and a hard drive, your first RAM drive will automatically be designated "D:").

Remember:

- To press the **[ENTER]** key after each command line
- **[F6]** is function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter

After you press **[F6]** and **[ENTER]**, you'll see a message that 1 file has been copied (that's the "CONFIG.SYS" file). Now complete installation by pressing **[CTRL] [ALT] [DEL]** simultaneously.

4.3 Choosing the RAM Drive Size—Parameter K

You may assign anywhere from 1K to total system RAM minus 64K (set aside by QuadMaster III for internal

operating purposes) minus any other RAM set aside for other device drivers.

In other words, at least 64K must remain after you've installed your device drivers.

4.4 Choosing a Sector Size—Parameter S

You may select 128, 256 or 512 bytes per sector (default=128). If you anticipate working with a number of rather short files, you should probably choose a lower number. This is because any data written into sectors reserves the rest of that sector as well, resulting in wasted space on the diskette.

If you feel that a good deal of your files will be rather lengthy, you are better off selecting a higher value for your sector size. (The standard DOS default on floppy diskettes is 512).

4.5 Directory Entries—Parameter D

Your options are 4 through 512 (default=64). Again, if you know you will be creating a number of short files, you may want to choose the higher value for the maximum number of directories you can store on your RAM drives.

If you know ahead of time that you'll be working with only a few files, you may select a lower value. (This number will automatically be rounded off to: Sector Size in bytes divided by 32.)

4.6 Assigning Default Values

As stated earlier, you have the option of either assigning your own choice to each parameter, or using "defaults", that is, preset values programmed in at the factory. XRAMDRIV.SYS uses commas between parameters as "delimiters". In this way, you have the option of selec-

ting those default values you wish to use.

If you wish to use a default value in the middle of the command line, simply omit it from the command line and bracket its space with commas.

For example, to use the default value for **D** (maximum number of directory entries), simply leave it out of the command line. To use the default value for **S** (number of bytes per sector), leave it out, but place a comma before and after where it would have been. The same rule holds true if you wish to use the **K** parameter.

If you are using RAMDRIVE.SYS and wish to use the default value for **K**, simply leave it out of the command line altogether.

4.7 Using Your RAM Drives

Note that if you are using an IBM PC or PC/XT, it is highly possible that the contents of your XRAMDRIV will be preserved across a reboot (that is, **[CTRL] [ALT] [DEL]**). This is one feature of XRAMDRIV.SYS.

5.0 PARALLEL PORT SPOOLERS

5.1 Description

Let's say you've just finished typing—and editing— a 20-page report. It's all finished—no typos, paragraphs indented properly no need to access it again. It remains only to be printed.

But you have to finish work on yet another document and don't have time to wait for a lengthy printout. What to do?

Simple! Use QuadMaster III's print spooling feature to set up buffers for up to three parallel printers (if your system is so configured) and print out three documents simultaneously!

QuadMaster III gives you the choice of drawing from:

- conventional system memory (all systems)
- extended memory (for PC/AT systems equipped with Quadram's *Liberty-AT* or *Quadboard-AT* memory card)
- expanded memory (for PC, PC/XT or PC/AT systems equipped with Quadram's *Liberty-PC*, *Liberty-AT* or *Quadboard-AT* memory card)

The advantage to utilizing extended or expanded memory is that conventional system memory is left available for large applications programs.

Note that if you do opt for utilizing **expanded memory** for your parallel spoolers, you must install the "Expanded Memory Manager" device driver as described in Chapter 3.

QuadMaster III's spoolers cease to exist when power to the system is terminated.

5.2 Installation

First, decide whether you wish to use conventional, expanded or extended memory for your spoolers. If you choose conventional memory, boot your system to get the DOS-prompt and type in the following:

```
COPY CON: CONFIG.SYS
DEVICE = QLPTn.SYS K.C1.C2
[F6]
```

If you choose extended memory, boot your system to get the DOS-prompt and type in the following:

```
COPY CON: CONFIG.SYS
DEVICE = ATQLPTn.SYS K.C1.C2
[F6]
```

If you choose expanded memory, boot your system to get the DOS-prompt and type in the following:

```
COPY CON: CONFIG.SYS
DEVICE = QUADRAM.SYS S C P1 P2 P3 P4
DEVICE = XQLPTn.SYS K.C1.C2
[F6]
```

Do **not** install QLPT, ATQLPT and XQLPT; otherwise, the most recently installed parallel spooler will overlay

(thus cancel out) the previous parallel spooler device driver.

Remember:

- Refer to Chapter 3 for details on installing QUADRAM.SYS.
- To press **[ENTER]** key after each command line
- The letter **n** is equal to the parallel port the spooler is assigned (your choices are 1, 2 and 3 if your system is so configured)
- With QLPT and ATQLPT, the letter **K** is equal to the number of kilobytes you wish to assign to the spooler (default=2K); with XQLPT, the letter **K** is equal to the number 16-kilobyte "pages" (blocks) you wish to assign to the spooler (default=1, that is 16K)
- C1 and C2 are your "Window Control Keys" and are equal to keys you assign from a table later in this chapter
- **[F6]** is function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you press, all other commands are types letter-by-letter

After you press **[F6]** and **[ENTER]**, you'll see a message that 1 file has been copied (that's the "CONFIG.SYS" file). Now complete installation by pressing **[CTRL] [ALT] [DEL]** simultaneously.

During the reboot you'll see onscreen notification of each spooler's installation.

You may assign the same amount of buffer memory to each spooler (within the memory limitations of your system).

5.3 Print Control Commands

Your "Print Command Window" is a handy little

feature which lets you pause or resume the printout at will, or even flush the buffer contents if you so choose—all without disturbing the application program currently in use. To "call up" the Print Command Window, you simply press the two keys you designated when you installed QLPT, your Window Control Keys.

Use the table below to assign values to C1 and C2:

Key #	Key Value
0	[ALT]
1	[CTRL]
2	Left Shift
3	Right Shift

If you do not assign a value, to C1 and C2:

- the QLPT1, XQLPT1 and ATQLPT1 Window Control Keys will default to [ALT] [CTRL]
- the QLPT2, XQLPT2 and ATQLPT2 Window Control Keys will default to [ALT] Left Shift
- the QLPT3, XQLPT3 and ATQLPT3 Print Control Key will default to [ALT] Right Shift

Note that you must assign different Print Control Keys to each spooler.

Thus, if you type

```
DEVICE = QLPT1.SYS 96,1,3 [ENTER]
```

your QLPT1 buffer will draw 96K from conventional memory, and your Window Control Keys will be [CTRL] and Right Shift.

Similarly, if you type

the spooler will draw 96K from extended memory (the Window Control Keys will be the same as in the previous example).

Finally, if you type

the spooler will draw 48K (3 × 16K) from expanded memory (the Window Control Keys will be the same as in the first example).

To use a default value in the command line, simply leave it out and be sure to add the commas. Thus to use the 2K buffer size, you would enter

5.4 Use

QuadMaster III spoolers operation is termed "transparent," that is, they automatically receive and store your data, then send it to the printer as fast as needed.

When using QLPT (or XLPT or ATQLPT), note that the printing operation begins only after:

1) the entire file has been sent to the buffer, or
2) the buffer is full

If your system includes more than one parallel port, be sure to designate the port to which you wish to print (if your application program allows you to do so).

To call up the Print Command Window, simply press each of the two Window Control Keys simultaneously. The Print Command Window should appear at the upper left corner of the screen.

It halts the spooling operation, tells you which spooler currently is in operation, how many kilobytes have been assigned to it, what percentage of the butter remains free and offers you the options of:

- Pausing the spooler (to review what has been printed)
- Resuming the spooler (assuming everything is okay), or
- Flushing the buffer contents, thereby abandoning the print-out.

Note that if you are presently printing out a document, you will be presented with only the **Pause** and **Flush** options (if you wish to resume printing, simply press **[ESC]**).

If you wish to resume work in your current application or other program but remove the Print Command Window from the screen, simply press **P**.

If you have already **Paused** the printing operation, the command window will offer you only the **Resume** and **Flush** options (again, if you wish to make no change, simply press **[ESC]**).

To restart the printout, press your two Window Control Keys and then press **R**.

Note that the window disappears after each option is chosen, therefore you must call up the window for each command.

6.0 SERIAL PORT SPOOLERS

6.1 Description

Besides parallel ports spoolers, QuadMaster III also offers you the capability of spooling to each of two serial ports, as well.

QuadMaster III gives you the choice of drawing from:

- conventional system memory (all systems)
- extended memory (for PC/AT systems equipped with Quadram's *Liberty-AT* or *Quadboard-AT* memory card)
- expanded memory (for PC, PC/XT or PC/AT systems equipped with Quadram's *Liberty-PC*, *Liberty-AT* or *Quadboard-AT* memory card)

The advantage to utilizing extended or expanded memory is that conventional system memory is left available for large applications programs.

Because spoolers serve to buffer or slow the flow of information to printers, we do not recommend setting up a spooler for a serial port to be used with a modem.

QuadMaster III's spoolers cease to exist when power to the system is terminated.

Note that if you do opt for utilizing **expanded memory** for your serial spoolers, you must install the "Expanded Memory Manager" device driver as described in Chapter 3.

6.2 Installation

First, decide whether you want to use conventional, expanded or extended memory for your spoolers. If you choose conventional memory, boot your system to get the DOS-prompt and type:

```
COPY CON: CONFIG.SYS
DEVICE = QCOMn.SYS K.C1.C2.B.P.D.S
[F6]
```

If you choose extended memory, type:

```
COPY CON: CONFIG.SYS
DEVICE = ATQCOMn.SYS K.C1.C2.B.P.D.S
[F6]
```

If you choose expanded memory, type:

```
COPY CON: CONFIG.SYS
DEVICE = QUADRAM.SYS S C P1 P2 P3 P4
DEVICE = XQCOMn.SYS K.C1.C2.B.P.D.S
[F6]
```

Do not install QCOM, ATQCOM and XQCOM together; otherwise, the most recently installed spooler will overlay (thus cancel out) the previously installed one.

Remember:

- Refer to Chapter 3 for details on installing QUADRAM.SYS.
- To press **[ENTER]** key after each command line
- **[F6]** is function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter

After you press **[F6]** and **[ENTER]**, you'll see a message that 1 file has been copied (that's the "CONFIG.SYS" file). Now complete installation by pressing **[CTRL] [ALT] [DEL]** simultaneously.

You will see onscreen message during the reboot that your spooler(s) have been installed.

In the command line, you'll notice several variables. These are parameters which must be assigned a value—either by you or they will use pre-set "defaults" programmed into QuadMaster III. Your options are:

n = the serial port you are assigning the spooler; your choices are 1 and 2 (default=1)

K = with QCOM and ATQCOM, the number of kilobytes you decide to assign to the print buffer (default=2K); with XQCOM, the number of 16 kilobyte blocks (default=16K); each buffer may contain anywhere from 1K to total system RAM minus 64K (set aside by QuadMaster III for internal operating purposes) minus any other RAM set aside for other device drivers.

C1 and C2= your "Print Control Keys" which activate your "Print Command Window" (see Chapter 4 for complete description). If you do not assign values, the defaults are [ALT] and Right Shift; use of the Print Command Window is explained in the next section.

Use the table below to assign values to C1 and C2:

Key #	Key Value
0	[ALT]
1	[CTRL]
2	Left Shift
3	Right Shift

B = baud rate (speed at which data is sent); choices include:

110	1200	
150	2400	
300	4800	
600	9600	(default)

P = parity (a form of error-checking); choices include 0 (even), 1 (odd) or 2 (none); default = 0 (even)

S = the number of stop bits per byte (used to designate the end of a byte of information); choices include 2 or 1 (default)

D = the number of data bits per byte of information; choices include 8 or 7 (default)

As with QuadMaster III's parallel spooler programs, commas are used to separate each variable. You have the choice of using any or all default values by just leaving them out of the command line and keeping the commas.

Note that the parameters are dependent on your equipment; refer to your printer owner's manual for details.

6.3 Use

Operation of QCOM, XQCOM and ATQCOM is identical to QuadMaster III's parallel spooler programs; refer to Chapter 5 for complete details.

If your system includes more than one port (such as a serial and a parallel port), be sure to designate the serial port during the printing operation (if your application program allows you to do so).

6.4 MODE.COM

Because your system automatically recognizes your

parallel port as the primary port, you must redirect data from the parallel port to the serial port **before** entering your application program even if your system includes **only** a serial printer.

To do this, copy the DOS program **MODE.COM** onto your QuadMaster III work disk. Then (at the DOS prompt) type:

```
MODE LPT#: = COMn
```

and then press **[ENTER]**.

In the above:

LPT = Line Printer Terminal (parallel printer)
\# = Either 1, 2 or 3 (printer number)
COM = Asynchronous Communications Port (serial port)
n = Either 1 or 2 (serial port number)

Now, each time you boot up, data to your parallel port will automatically be redirected to your serial printer.

7.0 CLOCK PROGRAMS

7.1 Description

If your PC system includes a real-time clock/calendar, you'll find *QuadMaster III*'s chronograph feature most helpful in keeping track of when you last originated/reopened files.

QuadMaster III provides you with two methods of accessing your battery clock (if present); a ".COM" (or "command") file, called **QUADCLOK.COM**, and a ".SYS" (device driver) program, called **QUADCLOK.SYS**.

The disk operating system ("DOS") does not have the ability to access your battery clock each power-up; to set the battery clock, therefore, you must use either QUADCLOK.**COM** (which accesses the battery clock and "tells" DOS), or use the DOS-based **TIME** and **DATE** commands (covered in your **DOS** manual).

The **device driver** QUADCLOK.SYS "attaches" itself to DOS upon boot-up and stays in memory (occupying only 600 bytes). When DOS must be updated, it accesses QUADCLOK.SYS which, in turn, accesses the battery clock.

The advantage to **QUADCLOK.SYS** is that when you update DOS, it uses the device driver program to update the battery clock; no further user input is required.

On the other hand, the advantage to **QUADCLOK.COM** is that it does not remain in memory; its disadvantage is that you must use this program to set your battery clock, as opposed to the **TIME/DATE** functions of DOS.

Due to the fact that communications software requires constant time updates, a loss of time will occur if

QUADCLOK.SYS is used with these packages. Therefore, if you will be using software like *Crosstalk* or *Smartcom*, we recommend that you use QUADCLOK.COM to access your battery clock.

Install **QUADCLOK.COM** in an AUTOEXEC.BAT file (detailed later) and each time you boot up, your hardware clock is updated and the standard time/date prompts normally shown at boot-up are bypassed.

7.2 Installing QUADCLOK.SYS

Remember: use this feature only if your system includes a hardware-based clock/calendar (we recommend that you NOT use this program if using a communications software package with your system).

The correct command line syntax (at the DOS prompt) is:

```
COPY CON: CONFIG.SYS
DEVICE = QUADCLOK.SYS
[F6]
```

Remember:

- press the **[ENTER]** key after each command line
- **[F6]** is the function key #6 (or press **[CTRL]** and **Z** simultaneously)

To complete installation, simply do a "warm boot" by pressing **[CTRL] [ALT] [DEL]** simultaneously. You will see onscreen notification that the clock program is being installed during the reboot.

If you had previously created an AUTOEXEC.BAT file (see your DOS manual for a complete description),

the re-boot will display the date and time and proceed immediately to the AUTOEXEC.BAT file.

If no AUTOEXEC.BAT file exists, you will be presented with the current date, followed by a prompt to change this information if need be.

To change the date, type **MM/DD/YY**, where:

MM = the corresponding number of the current month (i.e., May = 08)

DD = the numerical date (single-digit dates should be preceeded by a zero)

YY = the last two digits of the year (i.e., 1985 = 85)

Thus, the command line to set the date to May 10, 1985 would appear as:

and be followed by pressing **[ENTER]**. If the onscreen date is current, simply press **[ENTER]**.

Next, you will be presented with the current time, again followed by a prompt to change this information if need be.

To change the time, type **hh/mm**, where:

hh = the hour, using a 24-hour clock in which midnight is 0 (i.e., 2 p.m. = 14)

mm = the minute (range is from 0 to 59)

Thus, the command line to set the time to 2:17 p.m. would appear as:

and be followed by pressing **[ENTER]**.

Note that you should only have to do this once; if you find your clock/calendar to be consistently inaccurate, contact your authorized Quadram dealer.

Note also that if you run this program with your clock disabled and have an IBM Expansion Unit installed, the Expansion Unit will be reinitialized.

7.3 Using QUADCLOK.COM

Note that QUADCLOK.COM is not installed, but instead allows you to read from and write to the battery clock any time the DOS prompt is onscreen.

Remember: we recommend using this program if you will be using a communications software package with your system.

To use **QUADCLOK.COM**, first, get the DOS prompt onscreen; then type:

and press **[ENTER]**. You should then see the current time and date messages onscreen.

To *update* the battery clock, the correct syntax is (again, at the DOS-prompt):

```
QUADCLOK /DATE = mm:dd:yy /TIME = hh:mm [ENTER]
```

Remember that:

/ must be used

mm = the corresponding number of the current month (i.e., May = 08)

dd = the numerical date (single-digit dates should be preceeded by a zero)

yy = the last two digits of the year (i.e., 1985 = 85)

hh = the hour, using a 24-hour clock in which midnight is 0 (i.e., 2 p.m. = 14)

mm = the minute (range is from 0 to 59)

For example, the command line to set only the date to May 10, 1985 would appear as:

```
QUADCLOK /DATE = 05:10:85 [ENTER]
```

The command line to set only the time to 2:17 p.m. would appear as:

```
QUADCLOK /TIME = 14:17 [ENTER]
```

Note that you should only have to do this once; if you find your clock/calendar to be consistently inaccurate, contact your authorized Quadram dealer.

8.0 QSWAP

8.1 Description

The QuadMaster III program **QSWAP** eliminates the physical disconnection and reconnection of parallel printers for those who have up to three parallel ports configured in their system.

8.2 Using

Note that you do not have to "install" QSWAP as you did with RAMDRIVE.SYS, QLPT1.SYS, QLPT2.SYS, QLPT3.SYS, QCOM and QUADCLOK.SYS. That's because these programs are "device drivers" and are used to configure your system.

You may use QSWAP any time the DOS prompt is onscreen by simply typing:

```
QSWAP N M
```

and pressing **[ENTER]**. Note that N and M equal to the two parallel ports you wish to swap. If you assign no values to N and M, parallel ports 1 and 2 will be swapped.

Optionally, you may include QSWAP in an autoexecution file, called "AUTOEXEC.BAT", detailed in another chapter of this manual.

9.0 MULTIPLE INSTALLATIONS

9.1 Introduction

In previous chapters, you were shown how to install device drivers individually. Chances are, however, that you will be installing more than one at one time.

Let's assume that your system consists of the following:

- A PC (or compatible) with a 256K system (without plug-in memory cards installed)
- An additional 384K of RAM (via auxiliary memory cards)
- Two floppy disk drives
- A battery-powered *real-time* clock/calendar

In every case, remember:

- press the **[ENTER]** key after each command line
- **[F6]** is function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you press, all other commands are typed letter-by-letter

To complete installation, simply do a "warm boot" by pressing **[CTRL] [ALT] [DEL]** simultaneously.

9.2 IBM PC with Parallel Ports

Besides the above, let's assume that you wish to utilize **conventional memory** only, your system is equipped with three parallel ports and you wish to install a 75K RAM drive, a 200K RAM drive and spoolers for all three parallel ports.

First, boot your system to get the DOS prompt, then type:

```
COPY CON: CONFIG.SYS
DEVICE = RAMDRIVE.SYS 75
DEVICE = RAMDRIVE.SYS 200
DEVICE = QLPT1.SYS 96.1.3
DEVICE = QLPT2.SYS 64
DEVICE = QLPT3.SYS
DEVICE = QUADCLOK.SYS
[F6]
```

Note that in addition to the two RAM drives (designated by DOS as C and D, respectively):

- 96K and Print Control Keys [ALT] [CTRL] have been assigned to QLPT1
- 64K has been assigned to QLPT2; the Print Control Keys will default to [ALT] Left Shift
- QLPT3 will utilize all three defaults—64K buffer and [ALT] Right Shift

9.3 IBM PC with Serial Ports (No Default Values Used)

Now let's assume that your system is configured exactly as above with the exception being that you have a serial printer configured to your system rather than a parallel printer(s).

Again, boot your system to get the DOS prompt, then enter:

```
COPY CON: CONFIG.SYS
DEVICE = RAMDRIVE.SYS 75
DEVICE = RAMDRIVE.SYS 200
DEVICE = QCOM.SYS 37.0.2.1200,1.0.8
DEVICE = QUADCLOK.SYS
[F6]
```

When installation is complete, your system will be configured exactly as the one in the previous section, plus:

- the serial port spooler will consist of 37K;
- the Window Control Keys will be [ALT] Left Shift;
- the baud rate will be set at 1200;
- parity will be odd;
- there will be 0 stop bits and 8 data bits.

9.4 IBM PC with Serial Ports (Default Values Used)

To utilize QuadMaster III defaults in the serial portion of the above, utilize the following syntax (device driver configuration will remain as in the previous examples):

```
COPY CON: CONFIG.SYS
DEVICE = RAMDRIVE.SYS 75
DEVICE = RAMDRIVE.SYS 200
DEVICE = QCOM.SYS 37,0,2,1200,,0,8
DEVICE = QUADCLOK.SYS
[F6]
```

In the above, all parameters are as in the previous example with the exception being the even parity default value.

Remember to refer to your owner's manual for specific parameter limitations with your equipment.

9.5 IBM PC Using *Conventional* and *Expanded* Memory

Now let's change things a bit: you wish to use both **conventional memory** and ***expanded memory*** (you must have a *Liberty-PC* installed) and your system is equipped with three parallel ports and two serial ports.

You wish to install a 75K RAM drive, a 200K RAM drive, spoolers for all three parallel ports and both serial ports, and a clock program. You've decided to utilize *expanded memory* for all programs except the clock program (which can only access *conventional memory* anyway).

First, boot your system to get the DOS prompt, then type:

```
COPY CON: CONFIG.SYS
DEVICE = QUADRAM.SYS 0 1 258
DEVICE = XRAMDRIV.SYS 10,256,32
DEVICE = XQLPT1.SYS 4,2,3
DEVICE = XQLPT2.SYS ..1
DEVICE = XQLPT3.SYS 2,1,3
DEVISE = XQCOM1.SYS 8,0,1,1200,1,1,7
DEVICE = XQCOM2.SYS 3,0,2,1200,,2,8
DEVICE = QUADCLOK.SYS
[F6]
```

In the above:

- The QUADRAM.SYS Expanded Memory Manager has been set to begin mapping memory from address D000; the assigned Code is 1 (for two *Liberty-PC* cards); and the I/O base number port address is 258 (in hexadecimal)
- The ***expanded memory*** RAM drive buffer includes 160 kilobytes (10×16K); each sector includes 256 bytes; and no more than 32 directory entries will be allowed
- The first ***expanded memory*** parallel port spooler utilizes a 64-kilobyte buffer (4×16K); the first

Window Control Key is the Left Shift Key; the second Window Control Key is Right Shift

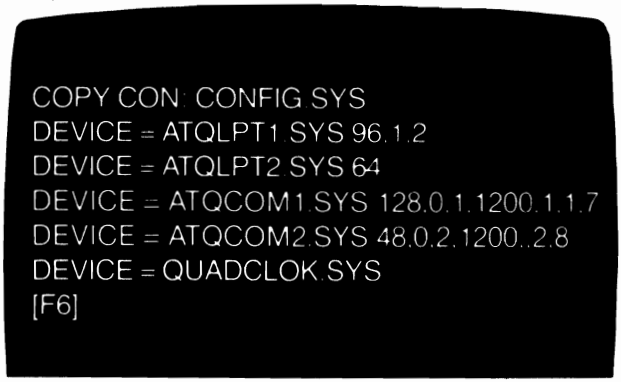
- The second ***expanded memory*** parallel port spooler utilizes the buffer size default of 16K; the first Window Control Key also defaults to the ALT key; the second Window Control Key is the CTRL key
- The third ***expanded memory*** parallel port spooler uses a 32-kilobyte buffer (2×16K); the Window Control Keys are CTRL and Right Shift
- the first ***expanded memory*** serial port spooler uses a 128K buffer (8X16K); ALT and CTRL are the Window Control Keys; the baud rate is set at 1200; parity set to "odd"; 1 stop bit and 7 data bits
- the second ***expanded memory*** serial port spooler uses a 48K buffer (3X16K); ALT and Left Shift are the Window Control Keys; the baud rate is set at 1200; parity defaults to "even"; there are 2 stop bits and 8 data bits
- The QUADCLOK.SYS program utilizes *conventional memory* to automatically update the hardware clock

9.6 IBM PC/AT Using *Conventional* and *Extended* Memory

Finally, say you are using an IBM PC/AT and plan to utilize both **conventional memory** and ***extended memory*** (that means either or both a *Liberty-AT* and/or *Quadboard-AT* are installed) and have three parallel ports and two serial ports.

You wish to install spoolers for two parallel ports and both serial ports (using *extended memory*) and a clock program. Remember: the clock program can only access *conventional memory*.

First, boot your system to get the DOS prompt, then type:



In the above:

- The first ***extended memory*** parallel port spooler utilizes a 96-kilobyte buffer: the first Window Control Key is the CTRL key; the second Window Control Key is Left Shift
- The second ***extended memory*** parallel port spooler utilizes the buffer size default of 64K; both Window Control Keys default to ALT and Right Shift
- the first ***extended memory*** serial port spooler uses a 128K buffer; ALT and CTRL are the Window Control Keys; the baud rate is set at 1200; parity set to "odd"; 1 stop bit and 7 data bits
- the second ***extended memory*** serial port spooler uses a 48K buffer; ALT and Left Shift are the Window Control Keys; the baud rate is set at 1200; parity defaults to "even"; there are 2 stop bits and 8 data bits
- The QUADCLOK.SYS program utilizes **conventional memory** to automatically update the hardware clock

9.7 Altering Your CONFIG.SYS File

Should you decide to change any of the CONFIG.SYS file, you may do one of two things:

- redo the complete CONFIG.SYS file
- if you wish to change only one or two allocations, use the EDLIN command in DOS (refer to your IBM DOS manual for more on this) or any other text editor.

Afterwards, warm boot the system to install the new parameters.

10.0 AUTOEXECUTION FILES

10.1 QSWAP

After you have completed your CONFIG.SYS file, you may want to automatically change line printers each boot-up. If that is the case, simply include QSWAP in an autoexecution program called AUTOEXEC.BAT.

Afterwards, each time you boot up, you'll see your CONFIG.SYS file executed and then your line printer terminals exchanged immediately afterwards.

Let's assume your system includes three parallel printers and that you wish to automatically swap LPT1 and LPT3 each boot-up:

1) Onto a bootable work disk with your CONFIG.SYS file already saved, copy QSWAP
2) With that disk on your logged drive, enter the following:

```
COPY CON: AUTOEXEC.BAT
QSWAP 1 3
[F6]
```

Remember:

- This will destroy any previous AUTOEXEC.BAT file
- To press the **[ENTER]** key after each command line
- **[F6]** is the function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter

After you've pressed **[F6]** and **[ENTER]**, press **[CTRL]** **[ALT]** and **[DEL]**.

Now, each time you boot up:

- Your CONFIG.SYS file will be installed
- Parallel ports 1 and 3 are swapped

10.2 QUADCLOK.COM

Perhaps, you've left QUADCLOK.SYS out of your CONFIG.SYS file and wish to use QUADCLOK.COM instead. In this case:

1) Onto a bootable work disk with your CONFIG.SYS file already saved, copy QUADCLOK.COM
2) With that disk on your logged drive, [ENTER] the following:

```
COPY CON: AUTOEXEC.BAT
QUADCLOK
[F6]
```

Remember:

- press the **[ENTER]** key after each command line
- **[F6]** is the function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter
- This will destroy any previous AUTOEXEC.BAT file

After you've pressed **[F6]** and **[ENTER]**, press **[CTRL]** **[ALT]** and **[DEL]**.

Now, each time you boot up:

- Your CONFIG.SYS file will be installed
- Your clock/calendar will be updated, and the usual time/date prompts will be bypassed

10.3 QSWAP and QUADCLOK.COM

If you wish to swap line printers *and* include your word processing, spreadsheet or other application program into AUTOEXEC.BAT:

1) Onto a bootable QuadMaster III work disk with your CONFIG.SYS file already saved, copy QSWAP and all the command files needed for your application program (we'll use WordStar as an example; that means copying all the command files WordStar requires)
2) With that disk on your logged drive, [ENTER] the following:

```
COPY CON: AUTOEXEC.BAT
QSWAP
WS
[F6]
```

Remember:

- press the **[ENTER]** key after each command line
- **[F6]** is the function key #6 (or press **[CTRL]** and **Z** simultaneously)
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter
- WS is used only as an example; substitute your own text editing or other application program here
- This will destroy any previous AUTOEXEC.BAT file

After you've pressed **[F6]** and **[ENTER]**, press **[CTRL]** **[ALT]** and **[DEL]**.

Now, each time you boot up:

- Your CONFIG.SYS file will be installed
- Your primary and secondary printers exchange terminals
- WordStar will be called up

10.4 MODE.COM

As detailed earlier, those whose systems include a serial printer rather than a parallel printer(s), should use MODE.COM to redirect data from the parallel port to the serial printer.

To do this each boot-up, simply include MODE.COM in your AUTOEXEC.BAT file thusly:

1) Copy MODE.COM from your DOS disk onto your QuadMaster III work disk
2) At the DOS prompt, type

```
COPY CON: AUTOEXEC.BAT
MOD LPT#: = COMn
[F6]
```

Remember:

- press the **[ENTER]** key after each command line
- **[F6]** is the function key #6 (or press **[CTRL]** and **Z** simultaneously)
- This will destroy any previous AUTOEXEC.BAT file
- **[CTRL]**, **[ALT]** and **[DEL]** are keys you *press*, all other commands are typed letter-by-letter

After you've pressed **[F6]** and **[ENTER]**, press **[CTRL] [ALT]** and **[DEL]**.

In the above:

LPT = Line Printer Terminal (parallel printer)
# = Either 1, 2 or 3 (printer number)
COM = Asynchronous Communications Port (serial port)
n = Either 1 or 2 (serial port number)

Now, each time you boot up, data to your parallel port will automatically be redirected to your serial printer.

Glossary of Terms

Although many of the following terms do not appear in this manual, their explanations here may help in your understanding of this product as well as other computer products.

APPLICATION PROGRAM A software program written to be applied to one particular discipline, such as accounting, word processing, or computer-generated graphics.

ASCII. Acronym for the American Standard Code for Information Interchange (usually pronounced "askee") which consists of eight-bit coded characters and serves as the universal microcomputer code.

ASYNCHRONOUS COMMUNICATION. Data communication in which each character is preceded by a "start" bit and followed by a "stop" bit, thus "framing" each character; the mode of communication utilizing the serial port. This is the method of data transmission used by most modems.

BACK-UP. To make a copy of software for the purpose of preserving the information in the event of loss or damage to the original medium on which it is recorded.

BACKUP COPY. A spare or copy of the original. When working with system software provided on disks, the backup is made to use with the system, the original being stored away for protection.

BATCH PROCESSING. The processing of data accumulated over a period of time in such a way that each batch of work is processed in the same run.

BAUD. A unit for measuring the speed of data transmission through a communications channel, usually stated as the number of discrete signals (bauds) transmitted per second.

BIOS. Acronym for Basic Input/Output System; that part of the computer's operating system which communicates with input/output devices such as printers, keyboards, etc.

BIT. Contraction of "BInary digiT"; the smallest value a computer can process; one-eighth of a "byte." It represents one ON/OFF signal, the opening or closing of one circuit.

BLANK. Empty. In reference to a floppy disk, a blank disk is one which is brand new, and which has not been formatted. Blank disks cannot be operated in a disk operating system.

BOARD PHYSICAL PAGE. The physical 16-kilobyte page on a physical expanded memory board which gets mapped into a process ID's logical page; this entity may or may not correspond to the actual physical page of memory on that board.

BOOT. To bring the computer/system on-line or "up"; also called "boot up"; derived from the expression "pulling oneself up by the bootstraps."

BUFFER. A type of memory providing short term storage where data is held until it can be further processed, i.e., printed to disk, paper, etc. Data held within a buffer ceases to exist when power to the system is disconnected.

BUG. A mistake in software causing a computer malfunction.

BYTE. A grouping of eight bits to form a piece of information such as a letter, number or other symbol.

CATHODE RAY TUBE. The vacuum tube (television screen) used to display output of a computer system; sometimes referred to as "VDT," or "video display terminal."

CENTRAL PROCESSING UNIT (CPU). An integrated circuit which lies at the heart of every computer, and understands and executes machine-language programs.

CHARACTER. A letter, digit, or symbol that is used as part of the organizational control or representation of data.

CHRONOGRAPH. A device used by the computer to generate accurate time and date information. Also known as a "clock-calandar."

CONVENTIONAL MEMORY. This is the "standard" linear memory (0 through 640K) which is recognized by MS-DOS.

COLD BOOT. To boot, or "power-up" the computer by turning on the electrical power. Contrast to WARM BOOT. See also BOOT.

COMMAND. A coded instruction to the computer to process data in a particular way.

COMPUTER. Any electronic instrument which can store a specific set of instructions, process incoming data based on this set of instructions, and send the data out to an external device.

CONFIGURATION. The specific arrangement of computers, peripherals, software, etc., comprising a complete system.

CRASH. A breakdown resulting from software or hardware malfunction.

CURSOR. A small, usually blinking, onscreen placemarker identifying the position of the next character to be keyed.

DATA. Units of information; facts, concepts or instructions in a format usable by computers.

DATA PROCESSING. The execution of a programmed sequence of operations upon data.

DEFAULT. A value or option assumed by the system when no other value is specified.

DEVICE. A single discrete mechanism which serves a specific function.

DIGIT. A character used to designate a quantity. The decimal system uses the digits 0-9; the binary system uses 0-1; the hexadecimal system uses 0-F.

DIRECTORY. A list of identifiers or references to corresponding items of data. Usually a listing of files contained on a disk.

DISK. A magnetically-coated circular device to which data can be electronically stored and retrieved. A diskette measuring 5¼" or smaller in diameter is usually referred to as a "diskette."

DISK EMULATOR. Volatile random access memory which, when combined with the appropriate software, can read or write data.

DISPLAY. An output device which usually places data on a video screen for reference by the user.

DOCUMENTATION. The material specifying the proper operation of a system; also referred to as a manual or guide to operations.

DOS. Acronym for Disk Operating System, a collection of programs which supervise a computer's resources and the execution of other programs.

EXECUTE. To carry out an instruction or a command.

EXPANDED MEMORY WINDOW. The address range in memory where Expanded Memory appears; this area is 64K long, and is subdivided in four 16K Logical Windows; revision 3 of the Lotus Expanded Memory Specification stipulates that these Logical Windows must be contiguous in memory, although this stipulation may change in the future.

EXTENDED MEMORY. The IBM-preferred term for linear memory in the 1-megabyte to 16-megabyte range which is available

to the 80286 processor running in protected mode.

F KEY. A function key on the IBM/PC keyboard. The F Keys are programmable, and can be made to perform specific operations.

FILE. A unique set of information treated as a unit. A file might contain many separate records, such as a set of names and addresses, or one continuous text, such as a letter.

FLOPPY DISK. Flexible, magnetic storage disk used by computers. Floppy disks come in several sizes; the 8" diameter disk is gradually being replaced by the 5¼" disk. Newer yet is the 3½" floppy disk, usually referred to as a "mini-floppy."

FORMAT. A contraction of **FOR**m of **MAT**aterial, designating a predetermined arrangement of information; a diskette, for example, may be formatted in various ways.

GARBAGE. The term applied to meaningless data or onscreen displays.

GIGO. Slang term short for **G**arbage **i**n—**g**arbage **o**ut; that is, if the input is garbage, the output can only be garbage.

HARD COPY. A printed copy of computer output in readable form.

HARD DISK DRIVE. A high-capacity magnetic storage device used with the personal computer which permits increased speed of access to a comparatively large amount of data.

HARDWARE. The actual physical computer along with any tangible parts of its system, such as the printer, the main logic board, the peripheral cards, etc.

KEYBOARD. The coded set of typewriter-style keys most often used for the input of information into a computer.

KILOBYTE (K). Although one K of memory is usually thought of as one thousand bytes, actually it is equal to 1,024 bytes; therefore, 64K of RAM actually equals 65,536 bytes.

LOGICAL PAGE. The identification number of an individual page assigned to a specific process ID; different process IDs may have identical logical pages, but each logical page will correspond to a unique Board Physical Page.

LOGICAL WINDOW. The "logical slot" (0 through 3) of the Expanded Memory Window to which a logical page is mapped in the Map Page function call (function #5 in the Lotus Expanded Memory Specification).

MENU. A display of options available to the computer operator.

MICROCOMPUTER. A computer using a microprocessor. See also COMPUTER.

MONITOR. A video screen displaying the computer output for viewing by the operator.

OPERATING SYSTEM. The software enabling a computer to access the information storage devices and to process the information; see also DOS.

OUTPUT. Any data sent out from a computer to a peripheral.

OVERWRITE. To erase data by recording new data over its storage area.

PARALLEL PORT. An interface which sends and receives data via a number of parallel wires over which all data travels simultaneously. Contrast with SERIAL PORT.

PARAMETER. Any constant, with variable values, used as a reference for determining other variables. In telecommunications, this word refers to the set of variable specifications for data transmission.

PARITY. A form of error checking performed in data transmission in which the number of 1's in an 8-bit word is checked to see whether it is odd or even.

PARITY BIT. An extra bit added to a string of binary digits in a byte to keep the number of bits either always odd or even; used in error checking.

PERIPHERAL. Referring to external devices which support activities of the central processing unit, or computer proper, for example, printers, modems, etc.

PERSONAL COMPUTER. A small, self-contained, computing device which has memory, input/output and language capabilities, and is suited for the home or office.

PFBA. Abbreviation for the Page Frame Base Address, the lowest logical segment where expanded memory exists; the PFBA corresponds to Logical Window 0.

PHYSICAL WINDOW. The physical segment address (segment-justified) at which appears the first byte of the corresponding Logical Window; if Logical Window 2 appears at D800:0, the corresponding Physical Window would be D800 (in hex).

PORT. An access point on a computer or peripheral for data entry or exit; see also SERIAL PORT and PARALLEL PORT.

PROCESS. To perform a systematic sequence of operations to produce a specified result.

PROGRAM. (n) An ordered sequence of coded commands and instructions which define a certain process. (v) To create such a sequence of commands and instructions.

PROMPT. (n) A request to act; for example, a computer-generated prompt to "press any key." (v) To issue such a request to act.

RANDOM ACCESS MEMORY (RAM). Rapidly accessed memory storage used primarily for program execution while the computer is ON; memory whose access time is independent of the location of a given data item; alternative to actual, permanent storage of data on diskettes or other media. RAM is volatile; that is, it loses its data when the system power is disconnected. Contrast to READ-ONLY MEMORY.

READ ONLY MEMORY (ROM). Permanent memory "burned" into an integrated circuit chip; it cannot be altered during normal use of the computer. Variations that can be altered include Programmable Read-Only Memory (PROM) and Erasable Programmable Read-Only Memory (EPROM). Contrast to RANDOM ACCESS MEMORY.

RS-232-C. A recognized standard for serial information transfer in data communications.

RUN. The single and continuous execution of a program by a computer.

SCROLLING. The vertical movement of lines of data as displayed on a CRT screen.

SERIAL PORT. A communications path which sends and receives data one bit at a time. Contrast with PARALLEL PORT.

SOFTWARE. Computer programs, instructions, etc. which control the way in which information is processed by the hardware.

SPOOLING. The technique by which output to a slow-running device is queued on a storage device to await transmission.

START BIT. In asynchronous communication, that bit used to designate the beginning of a discrete unit of information, or byte, for the system receiving it.

STOP BITS. In asynchronous communication, those bits used to

designate the end of a discrete unit of information, or byte, for the system receiving it.

STRING. A continuous sequence of characters or bits that is treated as a discrete data entity.

SYNCHRONOUS. Refers to transmission in which the data character bits are sent at a fixed rate, with a constant interval between each bit. Once the transmitter and receiver are synchronized, data can be transmitted faster and more efficiently than with asynchronous transmission.

SYNTAX. The rules or restrictions governing the structure of the computer language.

TERMINAL. A device capable of receiving and transmitting information, usually containing a keyboard and monitor.

TEXT. Written forms of human language rather than computer language.

VOLATILE MEMORY. Memory which loses its data when the power source is disconnected.

WARM BOOT. Reloading the operating system of a computer after it has been on, without turning off the power. Contrast to COLD BOOT.

WRITE. To record or store information electromagnetically for later use or reference.

WRITE-PROTECT NOTCH. The notch on a floppy diskette which, when covered with a WRITE-PROTECT TAB, will prevent the diskette from having anything written to it.

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