CUSTOMIZING YOUR MULTIUSER CONCURRENT DOS SYSTEM

Revision 5.0

January 1985

Gifford Computer Systems
P.O. Box 1917
San Leandro, CA 94577

(415) 895-0798
TELEX: 704521

DISCLAIMER

Gifford Computer Systems believes that the information presented in this manual is accurate and reliable, and takes no responsibility for any consequences arising out of the use of this manual. Gifford Computer Systems also reserves the right to revise the contents of this publication without obligation to notify any person of such revisions.

Questions or comments regarding this manual should be directed to Gifford Computer Systems.

TRADEMARKS

Virtual Terminals is a trademark of Gifford Computer Systems.
Multiuser Concurrent DOS is a trademark of Gifford Computer Systems.
DR Net is a trademark of Digital Research, Inc.
Gifford Computer Systems is a wholly owned subsidiary of Zitel Corporation.

COPYRIGHT NOTICE

No part of this publication may be reproduced, transcribed, translated, or stored in any type of media retrieval system in any form without prior written permission from Gifford Computer Systems.

Copyright (C) 1984 by Gifford Computer Systems.

All rights reserved.

Printed in the United States of America.

INTRODUCTION

This manual has been written to aid you in customizing your operating system should you decide to modify your Gifford MC-DOS computer with respect to any of the following:

1. the maximum number of physical terminals supported;
2. the maximum number of virtual terminals supported;
3. the maximum number of list devices supported;
4. the number of hard disk drives.

When your computer is first delivered, your MC-DOS operating system is already installed. You only need the information presented here if you wish to modify your MC-DOS system at a later time. You should read this manual if you decide to modify your operating system in any of the ways that are described above.

Your MC-DOS computer communicates with the physical components of your system through software that serves as an **extended input/output system**, called the **XIOS.** To let you customize your MC-DOS computer, Gifford provides files that contain many alternative versions of your XIOS. This manual will help you to select and install the XIOS version that matches the customized system configuration that you wish to install.

Your MC-DOS system has been distributed on three diskettes. **Section 1** of this manual describes the contents of these diskettes. **Section 2** provides a discussion of the function of each of the files on these diskettes, and how these files aid in customizing your MC-DOS system. **Section 3** guides you, step by step, through the procedures for selecting an appropriate XIOS to accommodate your new system configuration, and how to integrate that XIOS into your operating system. **Section 4** documents the menu-driven GENCCPM program, and **Section 5** displays I/O diagram maps for the various system configurations.

Only the system manager should modify an MC-DOS system by the procedures described here, since each XIOS is hardware dependent. If an XIOS is installed without the appropriate hardware to support it, the system will not operate properly.

USER'S GUIDE TO THIS MANUAL

Gifford Computer Systems has written this user's manual to conform to certain stylistic conventions for your own reading convenience. They are as follows:

1) System prompts and any messages that appear on your screen are in **boldfaced** lettering, e.g. **OA>**.

2) The status of any toggle switch is in UPPER CASE lettering, e.g. "The printer is OFF."

3) System commands are in UPPER CASE lettering, e.g. "Type GENCCPM."

4) Single keystroke commands are encased in parentheses, e.g. (Y).

5) File names and file types appear in UPPER CASE lettering, e.g. KEYS.CMD.

6) References to any other sections of this manual appear in **boldfaced** lettering, e.g. "Refer to **Section 2.1.**"

TABLE OF CONTENTS

INTRODUCTION.....i
USER'S GUIDE TO THIS MANUAL.....ii
TABLE OF CONTENTS.....iii

1.0 YOUR SYSTEM DISKS.....1
1.1 MULTIUSER CONCURRENT DOS SYSTEM DISK.....1
1.2 The TTYS File.....2
1.3 Your Master Diskette Label.....2
1.4 MULTIUSER CONCURRENT DOS XIOS DISK.....3
1.5 The Boot Sequence.....5
1.6 DR NET NETWORKING DISK.....6
1.7 MULTIUSER CONCURRENT DOS UTILITIES.....6

2.0 IDENTIFYING YOUR XIOS TYPE.....7
2.1 Identification Field.....7
2.2 Hard Disk.....7
2.3 Physical Terminals.....8
2.4 Virtual Terminals.....8
2.5 Printers or Plotters.....8
2.6 Sample XIOS File.....9

3.0 CHANGING YOUR XIOS TYPE.....9
3.1 Changing Your Number of Hard Disks.....10
3.2 Changing Your Number of Physical Terminals.....10
3.3 Changing Your Number of Virtual Terminals.....10
3.4 Changing Your Number of Printers or Plotters.....10
3.5 Selecting a New XIOS File.....11
3.6 Generating a New XIOS File.....12
3.7 Adding the DR Net Software.....14

4.0 THE GENCCPM PROGRAM.....16
4.1 Change System Parameters.....18
4.2 Change Memory Allocation Partitions.....19
4.3 Change Disk Buffer Allocation.....20
4.4 Change Operating System Label.....21
4.5 Change RSP List.....22
4.6 GENCCPM Input and Output Files.....23

5.0 I/O DEVICE MAPPING: PHYSICAL CONNECTIONS.....26
5.1 The 5-4 System Configuration.....26
5.2 The 6-3 System Configuration.....26
5.3 The 7-2 System Configuration.....27
5.4 The 9-8 System Configuration.....27
5.5 The 11-6 System Configuration.....28
5.6 The 13-4 System Configuration.....28
5.7 The 9-4 System Configuration.....29
5.8 The 10-3 System Configuration.....29
5.9 The 3-2 System Configuration.....30

1.0 YOUR SYSTEM DISKS

The programs necessary to operate your MC-DOS computer system have been supplied on four separate floppy diskettes labelled MULTIUSER CONCURRENT DOS SYSTEM DISK, MULTIUSER CONCURRENT DOS XIOS DISK, MULTIUSER CONCURRENT DOS UTILITIES DISK and an optional DR NET NETWORKING DISK. Make sure that you make copies of all of the diskettes that you receive using the CPY program, documented in Section 2.5-CPY in your MULTIUSER CONCURRENT DOS USER'S MANUAL. Store the original diskettes in a safe place and use the working diskettes that you made to create a new system generation file.

1.1 The MULTIUSER CONCURRENT DOS SYSTEM DISK

The disk that is labelled MULTIUSER CONCURRENT DOS SYSTEM DISK (called the master system diskette throughout the rest of this manual), contains the following files:

CCPMINIT.CMD	VTGCS80.KEY
KEYS.CMD	VT950.KEY
VCMODE	
VTTYS.SAM	MC-DOS SYSTEM FILES

The contents and applications of the DR Net program are explained in full detail in the DR NET USER'S MANUAL. The contents and applications of the MC-DOS system files are fully documented in Chapter 2 of the MULTIUSER CONCURRENT USER'S MANUAL.

1.2 The TTYS File

The TTYS file on your master system diskette has been configured so that your system will support terminals running at 19.2K baud. If you only have terminals whose fastest baud rate is 9600 baud, you must make sure that Paddle 1 on Switch 2 of the Disk 1 Controller is set ON. If you have a Disk 1A, you must make sure that Paddle 5 of Switch 1 is set ON. You must then boot your system with your diskette labelled MULTIUSER CONCURRENT DOS XIOS DISK, which has no TTYS file. In the absence of a TTYS file, the operating system will read the switch setting of Paddle 1 of Switch 1 on your Disk 1 Controller to determine the baud rate of your system console. This will allow you to talk to a 9600 baud terminal. Now log onto drive C:, which is normally drive A: on your hard disk. Modify your TTYS file for the proper baud rate, (See page 2.5-TTYS-1 of the MULTIUSER CONCURRENT DOS USER'S MANUAL) and reboot your system with a copy of the master system diskette.

1.3 Your Master Diskette Label

The label of your master system diskette will list the following:

Hard Disk Type: This indicates the type of hard disk that you are using. It will read "Floppy Only," if you are using a floppy-only system.

XIOS Type: This indicates the XIOS type that has been installed for your system, based on your type of hard disk, and your number of hard disks, physical terminals, virtual terminal, printers or plotters. A more detailed explanation of this file is provided in **Section 2.**

1.4 The MULTIUSER CONCURRENT DOS XIOS DISK

The disk that is labelled MULTIUSER CONCURRENT DOS XIOS DISK contains the optional XIOS files available to you should you decide to reconfigure your system. Depending on the type of hard disk that your system is using, each of the files on this disk will have a specific file type. Listed below is a table which shows you what the file type is for each individual hard disk. You should choose your XIOS file according to these file types.

Disk Type	Description	File type
M10, Morrow	8" 10 Megabyte	.M10
M20, Morrow	8" 20 Megabyte	.M20
M26, Morrow	14" 26 Megabyte	.M26
M10, Disk II	8" 10 Megabyte	.G10
M20, Disk II	8" 20 Megabyte	.G20
M40, Disk II	8" 40 Megabyte	.G40
F5-5 w/ Konan	5 1\4" 5 Megabyte	.F05
F5-10 w/ Konan	5 1\4" 10 Megabyte	.F10
F5-16 w/ Konan	5 1\4" 16 Megabyte	.F16
F5-21 w/ Konan	5 1\4" 21 Megabyte	.F21
F5-23 w/ Konan	5 1\4" 23 Megabyte	.F23
F5-33 w/ Konan	5 1\4" 33 Megabyte	.F33
F5-37 w/ Konan	5 1\4" 37 Megabyte	.F37
F5-40 w/ Konan	5 1\4" 40 Megabyte	.F40
F5-56 w/ Konan	5 1\4" 56 Megabyte	.F56
FR-84 w/ Konan	5 1\4" 84 Megabyte	.S94
F5-33 w/ Disk 3	5 1/4" 40 Megabyte	.Q40
F5-40 w/ Disk 3	5 1/4" 40 Megabyte	.D40
F5-56 w/ Disk 3	5 1/4" 56 Megabyte	.D56

The supplementary XIOS files that are provided for you to choose from depend on your number of hard disks. If your system has one hard disk, the following files will be provided on your XIOS diskette:

X1130704	X1090708	X1110706
X1131504	X1091508	X1111506
X1070702	X1090704	X1050704
X1071502	X1091504	X1051504
X1060703	X1100703	X1030702
X1061503	X1101503	X1031502

Notice that in each of the files listed above, there is a one (1) in the second field. This is because your system has only one hard disk.

If you order another hard disk, a second XIOS diskette will be provided. On this diskette, you will find the files necessary to reconfigure your system to accommodate the addition of a hard disk. A list of these supplementary XIOS files follows:

X2131504	X2091508	X2111506
X2130704	X2090708	X2110706
X2071502	X2091504	X2051504
X2070702	X2090704	X2050704
X2061503	X2101503	X2031502
X2060703	X2100703	X2030702

The instructions for selecting an alternate XIOS file to accommodate any changes to your system configuration are documented in **Section 3** of this manual.

A file called XFLOPPY has been included on this disk. This file has assigned drives A: and B: as the floppies, and drive C: as the hard disk. (If you have only one floppy disk drive, ignore any references that assign drive B: as the right floppy drive:.) This is to insure that you can still boot your system in the event that your hard disk is misconfigured (e.g. improper PASSWD file, TTYS file, or VTTYS file), or broken. The MC.DOS file on this diskette has the XFLOPPY XIOS incorporated in it. If for any reason, you have to restore system files on your hard disk, follow this procedure:

1. Boot your system with your boot floppy.
2. Place your master system diskette in floppy drive B:. Type PIP C:=B:*.*[VROW] This will copy all of your master system files onto your hard disk.
3. If your system only has one floppy drive, you must remove the boot floppy and place the MC-DOS system diskette in drive A: and type DSKRESET. Now to copy the copy the system files onto the hard disk, type PIP C:=A:*.*[VROW].

1.5 The Boot Sequence

The following is a sequential explanation of the boot process:

1) MC-DOS looks at the system diskette. This floppy has:

   a) a LOADER on system or boot tracks 0 and 1.
   b) an MC.DOS file.

2) Your disk controller acts as RAM at this point so that it can tell the CPU to load information off of tracks 0 and 1 of the floppy boot disk. The disk controller takes these boot instructions from the system diskette and puts them into memory. The disk controller then tells the CPU to follow those boot instructions. After the Disk Controller has accomplished these tasks, it will tell the CPU to look for RAM, which already has the loader on it. Now the Disk Controller will disappear from RAM forever.

3) Tracks 0 and 1 start loading the MC.DOS file. When MC.DOS is loaded, MC-DOS takes over.

1.6 DR NET NETWORKING DISK

The third disk that is provided with your MC-DOS system if you ordered networking is labelled DR NET NETWORKING DISK. This disk contains all of the command and data files necessary to run the DR Net operating system. Here is a list of those files:

ADDNET.DMC
CONFIG.NET
DRNET.CMD
NAMSVR.DAT
NAMENODE.CMD
NET.CMD
NETMOTD
PWASK.NET
SETNET.CMD

The instructions for using the DR Net operating system are documented in the DR NET USER'S MANUAL.

1.7 MULTIUSER CONCURRENT DOS UTILITIES

The last diskette that is provided with your system contains utility files that could not be included on the system diskette.

2.0 IDENTIFYING YOUR XIOS TYPE

The XIOS file customizes the way that your system will run. This customization is determined by the following four factors:

1) number of hard disks
2) number of physical terminals
3) number of virtual terminals
4) number of printers or plotters

A default XIOS file has been established on your master system diskette according to your type of hard disk and your system configuration. The name of this XIOS file is printed on your master system diskette label. The file type of this XIOS file indicates the type of hard disk that you are using, as indicated on **page 3.** The only time that the name of this default XIOS will change is if you need to change the value of one of the four categories that are listed above. The text on the following page provides a definition of each of the fields that comprise the XIOS file.

2.1 Identification Field

The first field of the XIOS name that is printed on your master diskette contains an "X." This letter simply indicates that this is an XIOS file.

2.2 Hard Disk

The hard disk field, represented by the second digit of the XIOS name, indicates the number of hard disks that this XIOS supports. If the XIOS name on your master diskette label has a one (1) in this field, your system is using one hard disk. If this field has a two (2), your system is using two hard disks.

2.3 Physical Terminals

The physical terminals field, represented by the third and fourth digits of the XIOS name, indicates the number of physical terminals that this XIOS is capable of supporting. The number in this field shows the largest number of physical terminals that your system requires, but should not be larger than necessary since this will waste system memory.

2.4 Virtual Terminals

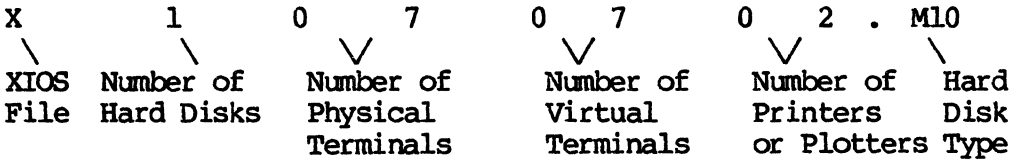
The virtual terminals field, represented by the fifth and sixth digits of the XIOS name, indicates the total number of additional screens that can be used by your system. The system manager can allocate these additional screens among the individual system users in any number of combinations, as long as the total is less or equal to than the number indicated in this field.

2.5 Printers or Plotters

The printers field, represented by the seventh and eighth digits of the XIOS name, indicates the number of printers or plotters that this XIOS is capable of supporting. The number in this field shows the largest number of printers or plotters that your system requires, but should not be larger than necessary since this will waste system memory.

2.6 Sample XIOS File

Below is an example of an XIOS file, similar to the one that has been established as a default on your master diskette. This example is followed by an explanation of what each of these letters and numbers indicate.



X Indicates that this is an XIOS file.

1 Indicates that this system is using one hard disk.

07 Indicates that this system is capable of supporting seven physical terminals.

07 Indicates that this system is capable of supporting seven virtual terminals.

02 Indicates that this system is capable of supporting two printers or plotters.

.M10 Indicates that this system is using a Morrow M10 hard disk.

3.0 CHANGING YOUR XIOS TYPE

If you decide to change the type of hard disk, or the number of hard disks, physical terminals, virtual terminals, or printers or plotters that your system is using, choose one of the optional XIOS files that are provided on the MULTIUSER CONCURRENT DOS XIOS DISK.

3.1 Changing Your Number of Hard Disks

You may want to upgrade your MC-DOS system by adding a second hard disk to your system. If you order a second hard disk, you will be provided with an additional diskette which contains the XIOS files necessary to reconfigure your system to accommodate the second hard disk. The digit that corresponds to the number of hard disk that your system is using is embedded in the second field of the XIOS file.

3.2 Changing Your Number of Physical Terminals

The supplementary XIOS disk gives you the option of reconfiguring your system to accommodate additional physical terminals. The digits that correspond to the number of physical terminals that your system can support are embedded in the third and fourth fields of this file. To avoid wasting system memory, make sure that this number is not much larger than the number of terminals that you're actually using.

3.3 Changing Your Number of Virtual Terminals

The supplementary XIOS disk gives you the option of supporting either seven (7) or fifteen (15) virtual terminals for any system configuration that you choose. The digits that correspond to the number of physical terminals that your system can support are embedded in the fifth and sixth fields of this file. To avoid wasting system memory, make sure that you do not use an XIOS with a 15 embedded in this field if you are only using 5 virtual terminal screens.

3.4 Changing Your Number of Printers or Plotters

You also have the option of changing the number of printers or plotters that your system is using. The digits that correspond to the number of printers or plotters that your system can support are embedded in the seventh and eighth fields of the file. Again, to avoid wasting system memory, make sure that this number is not much larger than the number of printers or plotters that you are actually using.

3.5 Selecting a New XIOS File

The XIOS file that you choose from your diskette labelled MULTIUSER CONCURRENT DOS XIOS DISK depends on the considerations listed above. The text below provides a typical situation that you might encounter, necessitating the selection of a new XIOS file.

Let's say for example, that the default XIOS file that was established on your master diskette is X1070702.M10. The third and fourth digits of your default XIOS file indicate that your system is capable of supporting seven physical terminals. Recently, your office has expanded and you need to add four more terminals to your system. Now refer to the selection of optional files that are listed on **page 4.** Your new XIOS file should be able to support at least eleven terminals to accommodate the four new additions. Therefore, your new XIOS should be X1110706.M10. To replace your default XIOS file with the new one that you have chosen, follow the instructions on the following page.

3.6 Generating a New XIOS File

Place your copy of the ediskette labelled MULTIUSER CONCURRENT DOS XIOS DISK in the left floppy drive, and your copy of the DR NET NETWORKING DISK (if you have one), in the right floppy drive. Refer to the table below to determine the letters that correspond to your floppy drives. (If your system has only one floppy disk drive, assume that your floppy drive is equivalent to the left floppy drive in the table below.)

Type of system	**Drive designations**		
	Hard Disk	**Left Floppy**	**Right Floppy**
Floppy-only	none	A:	B:
5Mb hard disk	A:	B:	C:
11Mb hard disk	A:B:	C:	D:
16Mb hard disk	A:B:	C:	D:
21Mb hard disk	A:B:C:	D:	E:
37Mb hard disk	A:B:C:D:E:	F:	G:
40Mb hard disk	A:B:C:D:E:	F:	G:
56Mb hard disk	A:B:C:D:E:	F:	G:
84Mb hard disk	A:B:C:D:E:F:	G:	H:

Access the left-hand floppy drive by typing the appropriate letter, followed by a colon. Let's assume for our example that the left-hand floppy drive is drive D: and the right-hand floppy drive is drive E:.

After you have chosen the appropriate XIOS file, make sure that you record the name of this new file somewhere, in case you forget it. Now use the REN command to rename the new file by typing the following:

```
0D>REN XIOS.CON=X1110706.M10
```

You must erase your old MC.DOS file on your copy of the MULTIUSER CONCURRENT DOS XIOS DISK to make room for the new one that you have selected. To do this, type the following:

```
0D>ERA MC.DOS
```

The GENCCPM program must be used to generate a new CCPM.SYS file on the MULTIUSER CONCURRENT DOS XIOS DISK, later renamed to MC.DOS, to accommodate your new system configuration. There are several types of input files that can be used in conjunction with the GENCCPM program that will enable you to run GENCCPM automatically according to your type of cache buffering. An explanation of the file names for these files follows:

BUFFER	Creates an MDRIVE/H cache system.
HRD32K-1	Creates a system with 32K of cache buffering in main memory for a computer with one hard disk.
HRD32K-2	Creates a system with 32K of cache buffering in main memory for a computer with two hard disks.
FLP32K	Creates a system with 32K of cache buffering in main memory for a computer that uses drives A: and B: for its floppy drives.
HRD64K-1	Creates 64K of cache buffering in main memory for a computer with one hard disk.
HRD64K-2	Creates 64K of cache buffering in main memory for a computer with two hard disks.
FLP64K	Creates a system with 64K of cache buffering in main memory for a computer that uses drives A: and B: for its floppy drives.

The file type that you choose for your input file depends on the type of hard disk that your system is using. The optional file types are the same ones that are listed on **page 3.** You will be supplied with one of each of the file names listed above, and the file type will depend on your type of hard disk. For example, suppose that you are using a Morrow 10 Megabyte hard disk. You will be supplied with the following files:

BUFFER.M10	FLP32K.M10	HRD32K-1.M10	
HRD32K-2.M10	FLP64K.M10	HRD64K-1.M10	HRD64K-2.M10

Depending on the type of system you want, you must choose one of the input files listed on the previous page, and then run GENCCPM using that input file. Suppose that your system has two hard disks, you want to have 64K of cache buffering in main memory, and you have a Morrow 10 Megabyte hard disk. You must type:

```
0D>GENCCPM <HRD64K-2.M10
```

This will generate a new CCPM.SYS file, that you will later rename to MC.DOS, and will automatically run the GENCCPM program to create the desired memory allocation.

3.7 Adding the DR Net Software

If you purchased the DR Net networking program, place the DR NET NETWORKING DISK in the right-hand floppy drive, (remember, for our example, the left-hand drive is D:, and the right-hand drive is E:. If you have only one floppy drive, use the name of that floppy drive and not the name of the drive used in this example.). Now copy your DR Net program to the XIOS disk by typing the following command:

```
0D>PIP D:=E:DRNET.CMD[VROW]
```

Then run ADDNET from the right-hand floppy drive to add networking to your system by typing the following command:

```
0D>E:SETMEM FFFF
0D>E:ADDNET
```

Your MULTIUSER CONCURRENT DOS XIOS DISK will now have a new CCPM.SYS file to accommodate the additional terminals and hard disk. You must rename the new CCPM.SYS file that you have just created because the operating system will be looking for a file called MC.DOS. To do this, type:

```
0D>REN MC.DOS=CCPM.SYS
```

Place a copy of your MULTIUSER CONCURRENT DOS SYSTEM DISK in the left-hand floppy drive, erase your old MC.DOS file, and copy your new MC.DOS file onto this disk. To do this, type:

```
0D>DSKRESET
0D>ERA E:MC.DOS
0D>PIP E:=D:MC.DOS[VROW]
```

You can now use that copy of your system disk to boot your system as long as you used the CPY program, and not the PIP program to make your copy of the system diskette. If you used the PIP program, you will have to put the boot tracks back on the diskette. To do this, you must use the SYSGEN program which is documented in Section 2.5-SYSGEN in your MULTIUSER CONCURRENT DOS USER'S MANUAL.

4.0 THE GENCCPM PROGRAM

The instructions below guide you through the steps of the menu-driven GENCCPM program. The GENCCPM program can either be run as a menu-driven program or by using input files. To generate input files with the GENCCPM program, refer to the instructions in **Section 4.6.** By typing GENCCPM, the following menu will be displayed on your screen:

```
GENCCPM v3.1  [2/7/84]
GENerate SYStem image for Concurrent CP/M-86 3.1
Constructing new MC.DOS file

*** Concurrent CP/M-86 3.1 GENCCPM Main Menu ***
       Help          GENCCPM Help
    Verbose [Y]      More Verbose GENCCPM Messages
  destdrive [A:]     MC.DOS Output to (Destination) Drive
  deletesys [N]      Delete (instead of rename) old MC.DOS file

  sysparams          Display/Change System Parameters
     memory          Display/Change Memory Allocation Partitions
 diskbuffers         Display/Change Disk Buffer Allocation
    oslabel          Display/Change Operating System Label
       rsps          Display/Change RSP list

     gensys          I'm finished changing things, go GEN a SYStem

Changes?
```

GENCCPM assumes the default value, which is given in parentheses. To change a default value, type the parameter name followed by = and the new value for that parameter. Any toggled YES/NO response can be changed by typing the parameter name. A single command line can change the default value of multiple parameters by entering them on one line each separated by a single space. For example:

Changes? help verbose destdrive=b: deletesys

After typing the above command line the screen will display the HELP option which prints a message on the screen that describes how to use the main menu.

After the HELP message has been displayed, the GENCCPM program will toggle the VERBOSE parameter. The default value for the VERBOSE option is YES. In the above example, to limit the length of GENCCPM messages, you have toggled the VERBOSE option to NO by entering the parameter name.

The next option, DESTDRIVE specifies the destination drive for the MC.DOS file. The DESTDRIVE default is the current drive into which you are logged. In the above example, the destination drive has been changed from the default drive A: to drive B:.

The final entry on the above command line, DELETESYS specifies whether the old MC.DOS file should be deleted. The default value of NO indicates that GENCCPM will rename the previous file to MC.OLD before creating a new MC.DOS file. To delete the old MC.DOS file, enter DELETESYS to toggle the variable to YES (erase the old MC.DOS file).

You can enter any of the five sub-menus (Sysparams, Memory, Diskbuffers, Oslabel, and RSP) from the main menu by typing the sub-menu name followed by RETURN. If multiple sub-menus are specified on one command line, each sub-menu will be displayed in the order that it appears on the command line.

4.1 Change System Parameters

To enter the SYSPARAMS sub-menu followed by the MEMORY sub-menu, type:

Changes? SYSPARAMS MEMORY

The SYSPARAMS option brings up the System Parameters Menu:

```
Display/Change System Parameters
      sysdrive [A:]   System Drive
      tmpdrive [A:]   Temporary File Drive
    cmdlogging [N]    Command Day/File Logging at Console
    compatmode [Y]    CP/M FCB Compatibility Mode
       memmax [2000]  Maximum Memory per Process (paragraphs)
      openmax [FF]    Open Files per Process Maximum
      lockmax [FF]    Locked Records per Process Maximum

      osstart [  40]  Starting Paragraph of Operating System
    nopenfiles [  FF] Number of Open File and Locked Record Entries
     npdescs  [40]    Number of Process Descriptors
       nqcbs  [40]    Number of Queue Control Blocks
    qbufsize  [800]   Queue Buffer Total Size in bytes
      nflags  [FF]    Number of System Flags
Changes?
```

The above options are almost always left at the default value. Some users prefer to have the day-file option set ON (see "System Parameters Menu" in Section 2.3 of the CONCURRENT CP/M OPERATING SYSTEM SYSTEM GUIDE). If you want to set the day-file option ON, type CMDLOGGING next to the **Changes?** prompt, otherwise, the OFF default value will remain.

Standard MC-DOS systems come with the number of 16-byte paragraphs available to each process set to 2000 (128 kilobytes). If you want to allow larger programs (for example, to get larger SuperCalc spreadsheets), set the memmax value higher.

To change the number of 16-byte paragraphs available to each process to 4000 (256 kilobytes), type:

Changes? memmax=4000

See the **Section 2.5-SETMEM** for a discussion on how to select the maximum paragraphs per process.

If you press RETURN from the **Changes?** prompt, you will return to the main menu.

4.2 Change Memory Allocation Partitions

When you select the MEMORY option from the main menu, the screen displays the Memory Allocation Partitions Menu:

```
          Addresses              Partitions      (in paragraphs)
#         Start      Last        Size       Qty
1.         400h      6000h        400h      17h

Display/Change Memory Allocation Partitions
          add        ADD Memory Partition(s)
       delete        DELETE Memory Partition(s)
Change?
```

GENCCPM does not allow you to exit from the Memory Allocation Partitions Menu if the values that you list are not valid. The XIOS allocates the memory for MC-DOS. The memory allocations from the GENCCPM program are not used by the operating system. You should set up dummy partitions that specify low address values and partition sizes. You should first delete all default memory partitions and then add new values:

Changes? delete=* add=100,200,100

Press RETURN and GENCCPM will return you to the main menu.

4.3 Change Disk Buffer Allocation

The DISKBUFFER main menu option displays the GENCCPM Disk Buffering Menu:

Display/Change Disk Buffer Allocation

***** Disk Buffering Information *****

Drv	Dir Bufs	Max/Proc Dir Bufs	Data Bufs	Max/Proc Dat Bufs	Hash -ing	Specified Buf Pgphs
A:	??	0	??	0	yes	??
B:	??	0	??	0	yes	??
C:	??	0	??	0	yes	??
D:	??	0	??	0	yes	??
E:	??	0	??	0	yes	??
F:	??	0	??	0	yes	??
G:	??	0	??	0	yes	??
H:	fixed		fixed		fixed	fixed

Total paragraphs allocated to buffers: 0
Drive (<CR> to exit) ?

Enter the drive designation followed by a colon and press RETURN. If you do not enter a valid drive, the GENCCPM program will respond:

Please correct drive buffers information
Press RETURN to continue

If your system uses MDRIVE/H boards as buffers, you should specify the minimum number of directory buffers and data buffers. A minimal amount of disk buffer space minimizes tha amount of memory that the system occupies. You should also specify that all drives will share the disk buffer with drive A:. Enter the non-boldfaced responses to the GENCCPM prompts listed on the following page.

Drive (<CR> to exit)? A:
Number of directory buffers, or drive to share with? 1
Maximum directory buffers per process[8]? 1
Number of data buffers, or drive to share with? 1
Maximum data buffers per process [4]? 1
Hashing [yes]?

Press RETURN and the screen will display the Disk Buffering Information chart showing the specified drive A: parameters. Repeat the above process, except you should type an asterisk in place of a drive designation. This tells the GENCCPM program that the rest of the drives will share the buffers with drive A:. You cannot exit the Disk Buffering Menu until all of the fields have been set.

If your system does not have any MDRIVE/H boards, then you should specify two directory buffers and two data buffers for the first drive of the hard disk. The remainder of hard disk drives should share with drive A: using the asterisk symbol. You should then select one directory buffer and one data buffer for the first floppy disk drive. The second floppy drive can share with the first using the asterisk symbol. All of the fields in the Disk Buffering Menu must be set before you can return to the main menu.

4.4 Change Operating System Label

The OSLABEL option from the main menu enables you to create a sign-on message. After specifying OSLABEL, the system responds:

Display/Change Operating System Label
Current message is:
<null>

Add lines to message. Terminate by entering only RETURN:

You can enter any message to be printed on each virtual terminal when the system boots.

4.5 Change RSP List

The RSP option enables you to specify the resident system processes (RSPs) to include in the MC.DOS file. You can include as many RSPs as you want, but each RSP increases the size of the system, and reduces the amount of available memory.

Some multiuser applications programs require that you include special RSPs in the system. Be extremely careful not to include any MP/M II RSPs in the system, since 8-bit programs will not run on the 16-bit processor. If you have an 8-bit RSP that you need to include in the system, call Gifford Computer Systems.

The required RSPs are:

SHELLn	n is the number of the current version of the shell, which contains most of the user interface code. Be sure to include only one version of SHELL. Select the one with the highest number if you have several.
GCS	Included as part of Gifford's enhancements to the DRI operating system.
PIN	Physical INput RSP handles keyboard input for virtual terminals.
VOUT	Virtual OUTput RSP switches console output form background processes and handshakes with PIN when processes are brought to the foreground.
STATUS	Replaces the Digital Research CLOCK.RSP. Updates the status line every second on all virtual terminals.
KRON	Used by the CHRON program to check the date and timestamp on CHRONTAB.

For more information about RSPs, refer to "Resident System Process Generation" in Section 5 of the CONCURRENT CP/M OPERATING SYSTEM PROGRAMMER'S REFERENCE GUIDE. You can change the RSP list by typing RSP from the main menu.

The screen will display:

```
RSPs to be included are:
SHELL46.RSP          GCS.RSP          VOUT.RSP          PIN.RSP
STATUS.RSP           KRON.RSP

Display/Change RSP list

     include         Include RSPs
     exclude         Exclude RSPs
Changes?
```

To include additional RSPs you must specify:

```
Changes? include=xx.rsp,yy.rsp,zz.rsp
```

After you have specified the RSPs, you are ready to generate a system with the GENSYS option. The program compiles a system, and writes it out to your destination diskette as MC.DOS. You should check the new system by booting the modified diskette.

4.6 GENCCPM Input and Output Files

The GENCCPM program will accept an input file which contains all of the parameters which must be specified and changes which should occur in the new MC.DOS file. Input files can be created in the non-document mode of WordStar or any word processing program. You can send console output to an output file.

Each command in an input file should appear in the same order that you would enter that command in the GENCCPM menu-driven program. Every command must appear on a separate line followed by a RETURN. The last command in the input file should be:

```
GENSYS
```

Suppose that the name of your input file is HRD32K-1.F40. The contents of this file are listed on the following page.

```
ver=n
sys
sys=a: tmp=a: op=ff lo=ff os=40 no=ff np=40 nq=40 qb=1000 nf=ff

mem
del=* ad=100,200,100

disk
a:
4
4
3c
3c
yes
*:
a:
a:
yes
f:
2
2
2
2
yes
g:
f:
f:
yes

oslabel
Gifford Multiuser Concurrent DOS

rsps
ex=* in=vout.rsp in=pin.rsp in=shell51.rsp
in=status10.rsp in=memory15.rsp in=gcs15.rsp
in=kron.rsp

ver=y
gensys
```

Each of the lines in the sample input file listed on the previous page is a response to a question posed by the GENCCPM program. By submitting this input file, you are able to bypass the tedium of answering each of these questions every time you run the GENCCPM program.

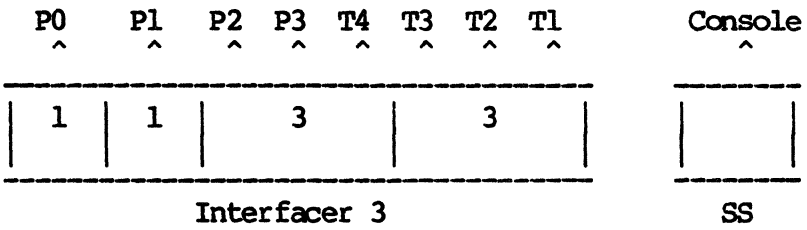
If you want to make changes to the input file that you have chosen, you can do so by using NewWord or a similar text editor, in non-document mode. For more information about what each of these lines represents, refer to DRI's CONCURRENT CP/M OPERATING SYSTEM SYSTEM GUIDE.

5.0 I/O DEVICE MAPPING: PHYSICAL CONNECTIONS

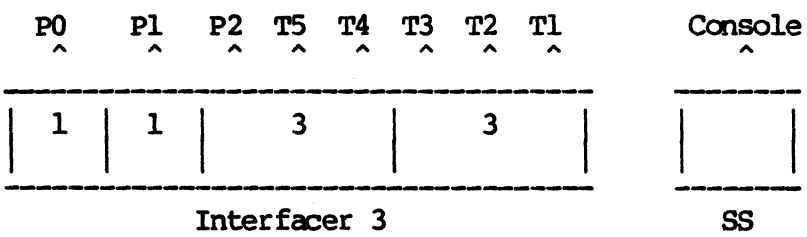
The text below provides information necessary to properly connect your terminals, printers or plotters to your serial I/O boards. Connections are documented for the following system configurations: 5-4, 6-3, 7-2, 9-8, 11-6, 13-4, 9-4, 10-3, and 3-2. In these configurations, the first digit represents the number of terminals that your system supports, and the second digit represents the number of printers that your system is capable of supporting. Your system console should always be connected to the System Support Board. Make the appropriate connections according to the way that your system is configured. The abbreviations that are used in this section are as follows:

SS = System Support Board
P = Printer
T = Terminal
CC = Centronics Connector

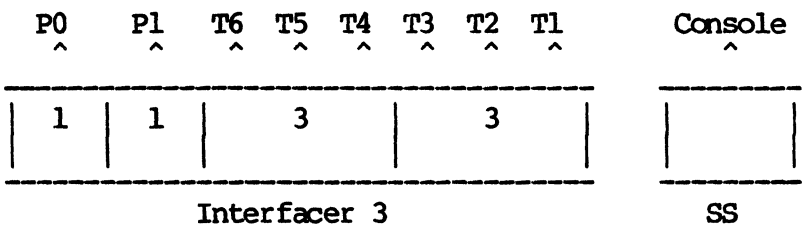
5.1 The 5-4 System Configuration



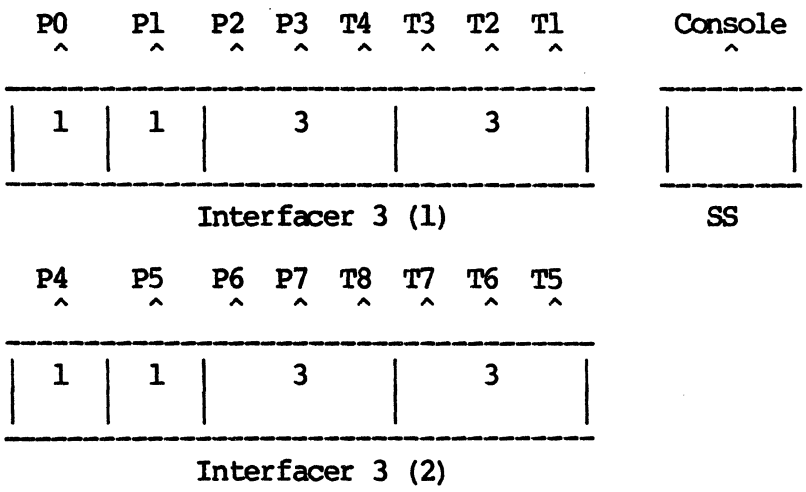
5.2 The 6-3 System Configuration



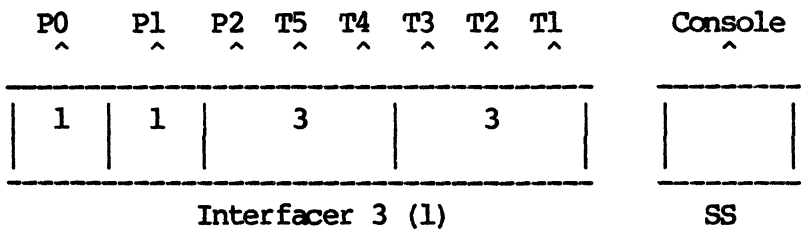
5.3 The 7-2 System Configuration

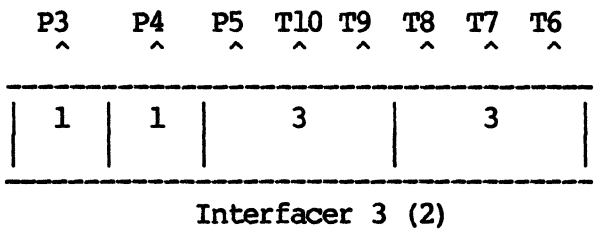


5.4 The 9-8 System Configuration

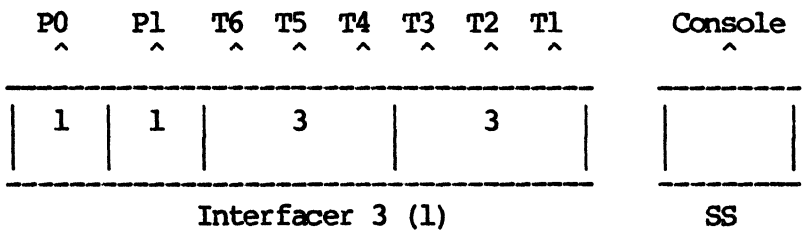


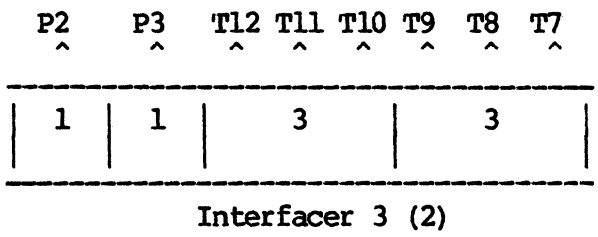
5.5 The 11-6 System Configuration



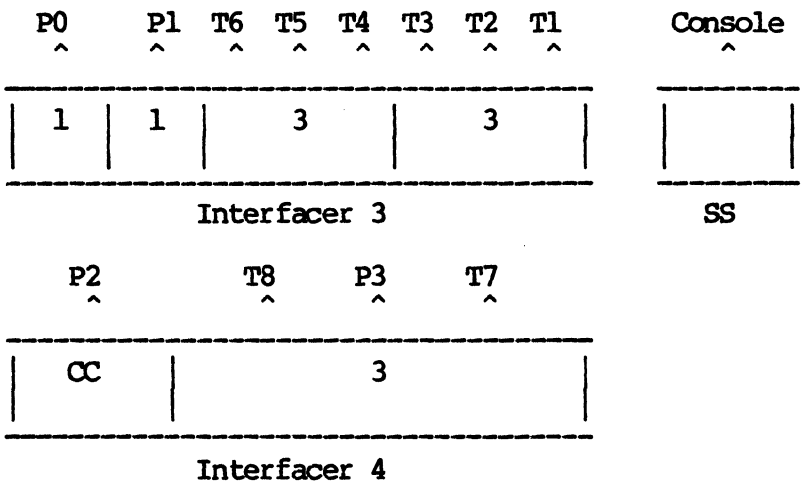


5.6 The 13-4 System Configuration

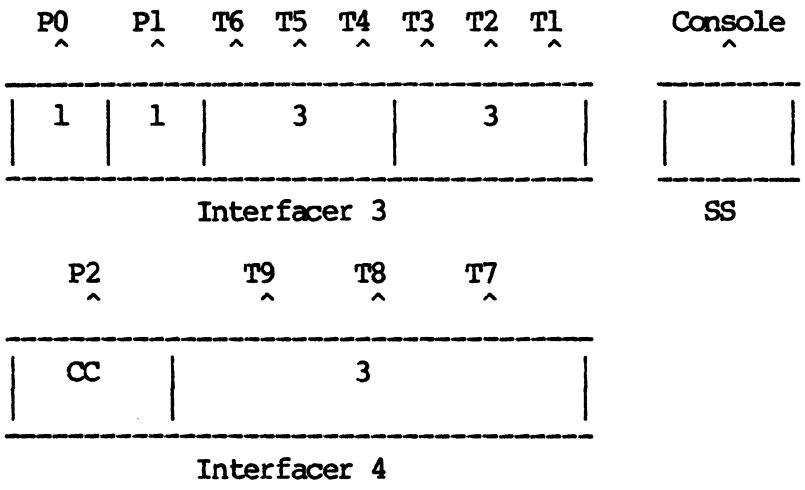




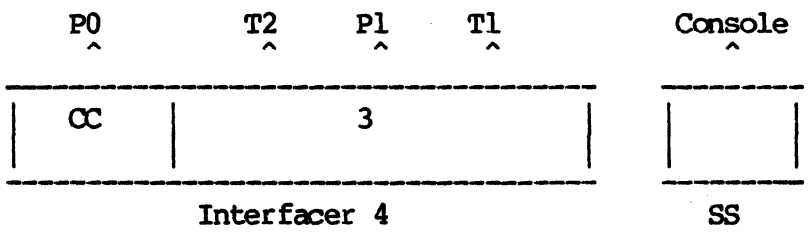
5.7 The 9-4 System Configuration



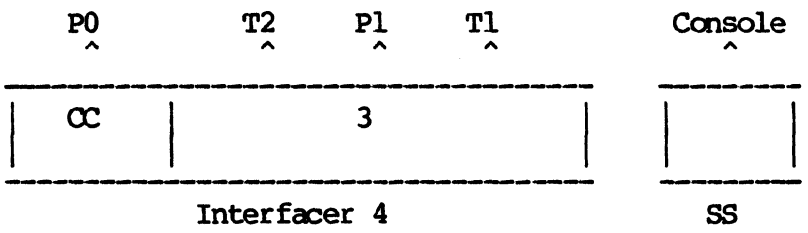
5.8 The 10-3 System Configuration



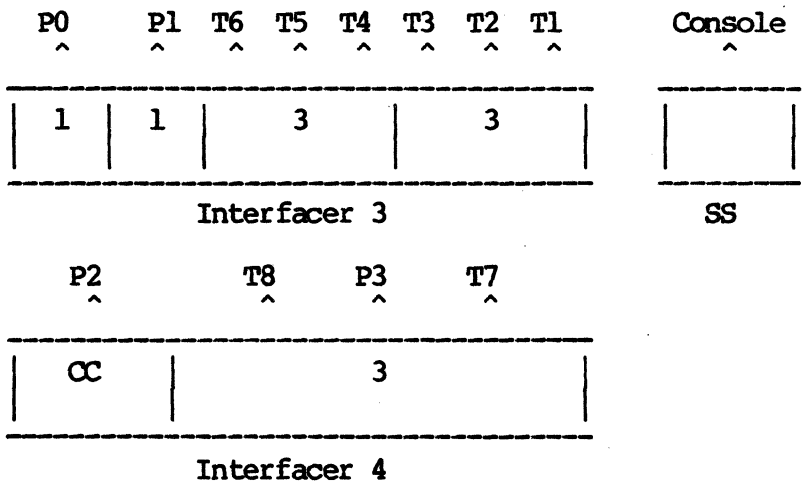
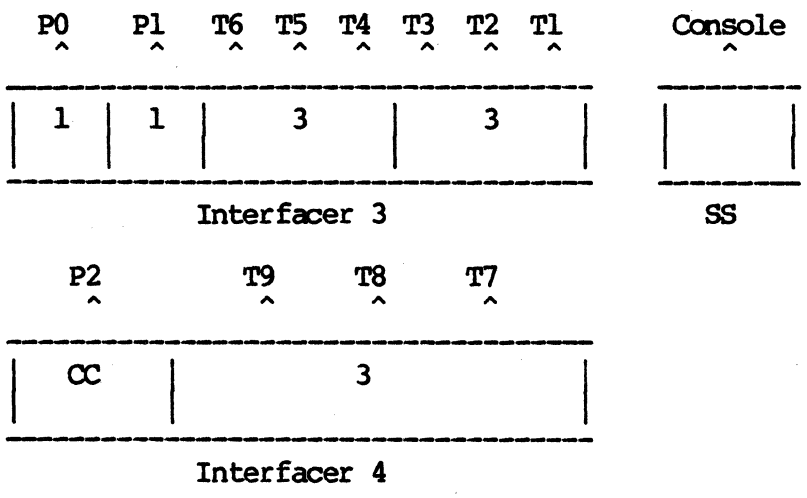
5.9 The 3-2 System Configuration



5.9 The 3-2 System Configuration



5.7 The 9-4 System Configuration



5.8 The 10-3 System Configuration