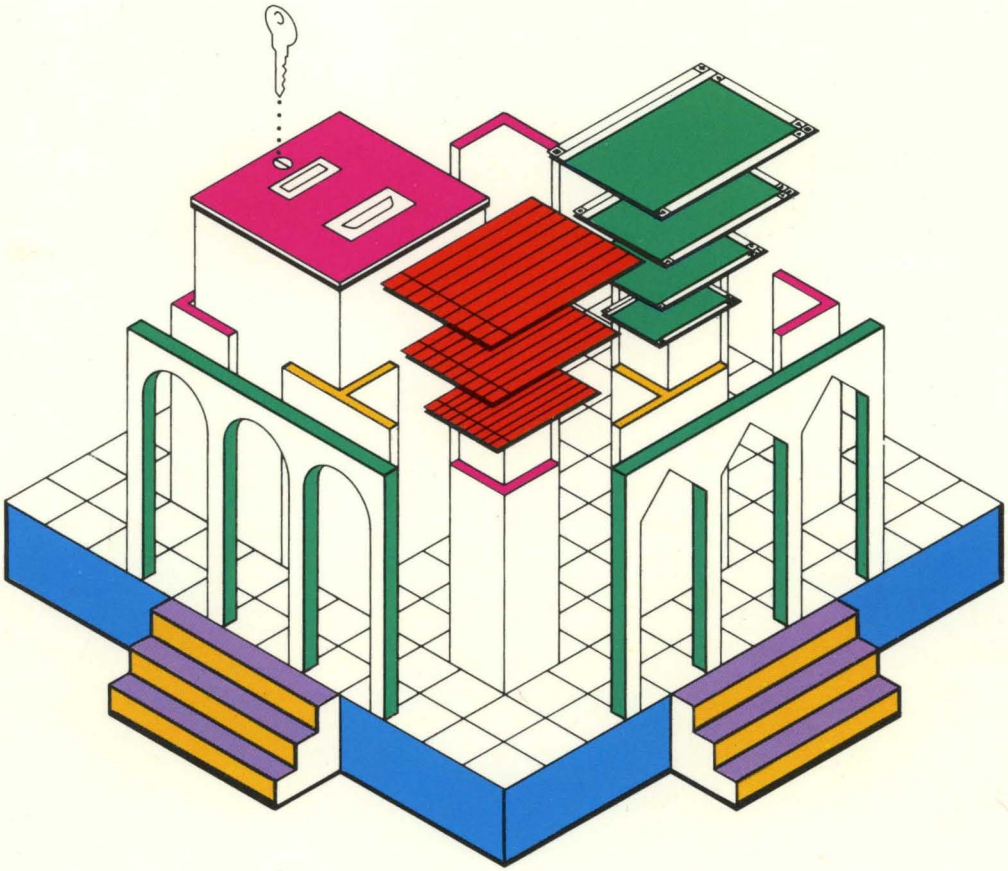
Concurrent™ DOS

Multiuser/Multitasking Operating System

INSTALLATION GUIDE



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Concurrent™ DOS

INSTALLATION GUIDE

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TRADEMARKS

Foreword

This guide contains information and guidelines for installing Concurrent CDS on your system, for using Concurrent DOS with expanded memory boards and for configuring your system for extra users. It is assumed that you have a working knowledge of the computer systems you use and of the general terminology used to describe hardware and software.

Before you use this guide, you should be familiar with the Concurrent DOS User's Guide and with the documentation that accompanies your system.

In this guide, DOS refers to either PC-DOS or MS-DOS. Concurrent DOS refers to either Concurrent DOS XM or Concurrent DOS 386. Any information which is relevant only to one version of Concurrent DOS is clearly marked as such.

Table of Contents

1 Installing Concurrent DOS

This section helps you install Concurrent DOS and configure it for your computer. The installation procedure is menu-driven, and includes full onscreen instructions.

Installing Concurrent DOS does not affect the present configuration of your system. If you have DOS, you can leave it and its associated files on your system, provided that you keep the DOS external commands in a subdirectory rather than in the root directory.

1.1 Backing Up Your System

Before you install any major new piece of software, such as an operating system, it is important to take a backup of the existing files on your hard disk.

1.2 Installing Concurrent DOS

To install Concurrent DOS complete the following steps:

1. Start the computer

2. Place the distribution disk labeled "Startup Disk" in drive A and close the door.

3. Press Ctrl-Alt-Del simultaneously and wait for Concurrent DOS to display the title screen.

4. Press the F10 function key to select the main installation menu, and then follow the onscreen instructions.

During the installation process, Concurrent DOS copies system files from the Startup disk to the hard disk's root directory. It also copies several batch files, numbered START001.BAT, START002.BAT etc, which contain startup information for each of the windows and terminals on your system.

Concurrent DOS modifies the existing AUTOEXEC.BAT file by adding the command:

LOADSYS ASK

This command is then used each time the computer is started. It allows you to choose whether to load Concurrent DOS or use your original operating system. LOADSYS is fully described in the Reference Guide.

Concurrent DOS also creates a subdirectory on the hard disk named "CDOS" and copies into it the other system utilities from the Startup disk.

After the installation is complete, Concurrent DOS displays a message on how to restart your computer to begin using Concurrent DOS. At that time, you might want to use the commands PATH and APPEND to adjust the way Concurrent DOS looks for files. The Reference Guide describes these commands.

If your computer contains more than 640Kb of memory, Concurrent DOS 386 will automatically invoke memory paging. For Concurrent DOS XM you may need to set up switches on your expanded memory board. See section 2, "Adding Extra Memory to your System" for details.

1.3 Starting Concurrent DOS

To start Concurrent DOS from a hard disk when the power is off, just turn the power on. To start Concurrent DOS from a hard disk when the power is already on, press Ctrl-Alt-Del simultaneously. If your computer also runs DOS, a message asking if you want to load Concurrent DOS is displayed.

1.3.1 Startup Files

When you start Concurrent DOS, it looks for the START batch files, which for a three-user system are START001.BAT for window 1, START002.BAT for window 2, START003.BAT for window 3, START004.BAT for window 4, and START005.BAT and START006.BAT for the serial terminals (Concurrent DOS systems for more than three users will have correspondingly more START files). Each batch file contains commands that are run from the specified window.

You can use these startup files to arrange your windows, define function keys, set the system date and time, and perform other preliminary tasks that define the particular configuration of your computer. You can create and edit startup batch files just as you create and edit any batch file.

The Reference Guide explains how to use batch files. Section 2 in the User Guide explains how Concurrent DOS uses windows.

Note: if the START files do not exist, Concurrent DOS will load and run the AUTOEXEC.BAT file instead.

1.4 Configuring your System

When you fit a multi-port expansion card, or connect printers, modems, plotters, or serial terminals to your computer, use the SETUP command to configure a serial port according to the requirements of each specific device. The SETUP command also enables you to save the settings you make so that those settings are in effect each time you start Concurrent DOS.

1.5 Connecting a Printer

Concurrent DOS allows several printers to be in use simultaneously. To keep track of printers used, Concurrent DOS numbers the printers. Each time Concurrent DOS starts up, you will see the numbers of the available printers displayed on the opening screen.

When you start Concurrent DOS, the default printer for each window is the first printer installed in your system. Use the PRINTER command to change the default printer for a given window or console.

Before you use a serial printer, use SETUP to configure your serial port according to the specifications of your printer.

See the PRINTER and SETUP command discriptions in the Reference Guide.

1.6 Connecting Serial Terminals

Concurrent DOS lets you install serial terminals as part of your system. They can be used as workstations for additional users or as remote workstations, when connected to a modem.

To install a serial terminal, use SETUP to configure each serial port according to the terminal's requirements. SETUP allows you to set each serial port to be an auxiliary or printer port, or a serial terminal port.

Concurrent DOS XM allows you to run a wide range of multiuser applications and also the many single user applications that are capable of being installed on terminals.

Concurrent DOS 386, in addition, enables each serial terminal to have have up to two virtual consoles. Screen-oriented programs, such as Lotus 1-2-3™ can also be run on the Concurrent DOS 386 serial terminals.

For further details on setting up a system with serial consoles, see section 3, "Configuring your System for Extra Users".

1.7 Using the CCONFIG.SYS file

Concurrent DOS allows you to load device drivers and set up certain parameters every time you start it. It does this by reading the contents of a file called CCONFIG.SYS which identifies the device drivers to be loaded and the parameter settings.

The device drivers and file parameters supported are as follows:

DEVICE = [path] [driver file name] [optional parameters]

The named device driver will be loaded and initialised.

FIXED-DEVICE = [path] [driver file name] [optional parameters]

This is used to load and initialise device drivers that will not support removeable media.

EMM = [path] [driver file name] [optional parameters]

EEMM = [path] [driver file name] [optional parameters]

Either of these commands instructs Concurrent DOS to load an expanded memory driver. The EEMM variant will also execute the SCEPTER command automatically, which initializes the device driver for paged memory operation under Concurrent DOS. Both commands are ignored if either the built-in memory driver has been enabled or Concurrent DOS 386 has been booted.

COUNTRY = [number]

This command selects the country information to be used for time and date displays within Concurrent DOS and case translation. [number] is normally the international telephone code for the desired country. The default is set to 44 for the UK.

LASTDRIVE = [drive letter]

This sets the last drive returned by the DOS function 14. Many DOS applications will not access drives after the LASTDRIVE. The default is set to E: (ie LASTDRIVE = E).

ENV_SIZE = [number]

This sets the number of bytes (in decimal) allocated by each TMP for the environment. Each TMP requires its own environment. The default environment size is 512 bytes.

BREAK = [ON|OFF]

This sets the initial BREAK status for DOS applications. The default is "ON".

BUFFERS = [number]

The optimum number of buffers for a particular program varies between programs; refer to each program's installation guide. Concurrent DOS supports up to 99 buffers.

To create a CCONFIG.SYS file, use any standard text editor to produce an ASCII list of the commands you want. Make sure this file is called CCONFIG.SYS and placed in the root directory.

Note: the initialization file CCONFIG.SYS is named CCONFIG.SYS under Concurrent DOS, not CONFIG.SYS as under DOS.

1.8 Attaching a Non-Standard Hard Disk

To attach a hard disk to your computer that is not automatically supported by Concurrent DOS, you must edit the CCONFIG.SYS file and specify

FIXED-DEVICE = driver.fil

where driver.fil is the name of the hard disk device driver specified in the hard disk's documentation.

Make sure that CCONFIG.SYS is in the root directory of your hard disk.

1.9 Connecting Other Devices

Concurrent DOS supports serial devices that can provide input to and accept output from your computer. Such devices include modems, and plotters.

You can use PRN or LST with printers and some plotters. The PRINTER command assigns printer 3 or 4 and upwards (serial ports 0 or 1 and upwards) to the PRN device.

Use the SETUP command to set up the serial ports for your specific needs, regardless of which logical device you use to access a serial device.

1.10 Installing Applications

Most software manufacturers will provide instructions for installing applications. The usual stages are as follows:

1. Create the subdirectories you will need on the disk or disks that will hold the program. See the MKDIR and CHDIR command descriptions in the Reference Guide for explanations of subdirectories, how to create them, and how to use them.

2. Copy the application's program files into the desired subdirectory.

3. Copy the text files into the desired subdirectory.

4. Configure applications for terminals (if necessary).

Some applications have special configuration programs or procedures that prepare the program to run on a specific kind of terminal. The application's installation instructions describe any preparation procedures.

If you need to configure the application for more than one kind of terminal or for a console and a terminal, be careful: you might need different versions of the same program. To avoid conflict, put each terminal version in a different subdirectory. Some installation programs also let you make up different names for the different terminal versions.

5. Assign passwords (if file security is required). Refer to the PASSWORD command in the Reference Guide.

6. Create batch files for easy loading of the application. Batch programming is discussed in the Reference Guide.

To have global access to program files, place them in any subdirectory, and place the drive and directory name in the search path with the PATH command.

More information on the use of DOS Applications can be found in the guide called Running Applications Under Concurrent DOS.

2 Adding Extra Memory to your System

In order to add extra memory to your system you install expanded memory boards. This section helps you to configure your system for use with extra memory. First, follow the instructions supplied with the expanded memory board for physically installing the board. If you are a Concurrent DOS 386 user you can disregard the rest of this section since Concurrent DOS 386 automatically performs the necessary configuration for you.

The documentation that accompanies most expanded memory boards contains information about configuring the board for systems that use the MS-DOS™ or PC-DOS™ operating system. This section supplements the manufacturers documentation and helps you install the board on a computer system that uses Concurrent DOS.

To make optimal use of an expanded memory board under Concurrent DOS, you should allow the board to supply as much as possible of the system's conventional memory in the range used by application programs (from approximately 200K to 640K depending on the size of the operating system). This is because Concurrent DOS converts this conventional memory to paged memory when you start the system.

The table below shows how having less memory installed on the system board means that more of the memory supplied by the expanded memory board is capable of being converted to paged memory and used to swap large applications.

2.1 Expanded Memory Configurations

Installed memory	Expanded memory board fills in
64K	576K
128K	512K
192K	448K
256K	384K*
512K	128K
640K	0K

* optimum configuration

Note: The amount of memory that can be paged does not affect the Concurrent DOS support for those programs such as Lotus 1-2-3™ (version 2.0), Framework™, and others that access expanded memory above the 640K limit using the Expanded Memory Specification (EMS).

2.2 Configuring Your System

To use an expanded memory board with Concurrent DOS you must configure your computer system. This typically involves setting DIP switches on the expanded memory board to determine the amount of memory on the board to be used as conventional (non-paged) memory and the starting address of the conventional memory. DIP switches on your computer system's board are also set to optimise the presence of expanded memory. Some expanded memory boards are designed to be configured via a configuration program rather than by DIP switch settings. You should refer to the documentation supplied with your expanded memory board for details.

The following procedure is provided as an example of a typical configuration procedure. But remember, check the documentation supplied with both your expanded memory board(s) and your computer system to determine the procedure you should follow.

2.3 Example Configuration Procedure

1. Configure the expanded memory board by setting the DIP switches to the proper values.

2. Set the DIP switches on your computer's system board to optimize the presence of the expanded memory.

Further information on DIP switch settings can be found in the documentation supplied with your expanded memory board and in the documentation supplied with your computer.

If you want to run applications such as Lotus 1-2-3™ (version 2.0) which makes use of the EMS support provided by the expanded memory software device driver, follow the next step (step 3) to complete the installation process. If you do not want to run this type of application, omit step 3 and follow step 4 instead to complete the installation process.

3. Install the expanded memory software device driver. When you start Concurrent DOS, it reads commands contained in the ASCII file CCONFIG.SYS, and loads all the identifiable device drivers from disk. To install the driver, use a text editor to create or edit the CCONFIG.SYS file, and enter the command:

```
EMM = REMM.SYS
```

REMM.SYS is the name of the file containing the driver. Note that this name may be different for different brands of expanded memory board.

There are four options available to customize the operation of the Expanded Memory Manager. The options are:

EMM = REMM.SYS /P = n

EMM = REMM.SYS /D = n

EMM = REMM.SYS /C = n

EMM = REMM.SYS /X = hhhh-hhhh

where n is a decimal digit, and h is a hexadecimal digit.

The /P option sets a limit on the number of Process IDs supported by the EMM. n is a decimal number from 2 to 256; the default is 32. Increasing this value sometimes allows more memory allocations to succeed, but does not increase or decrease the amount of memory which may be allocated.

The /D option specifies how many mapping register contexts may be saved per Process ID. n is a decimal number from 1 to 32; the default is 5. The default should normally be sufficient.

The /C option specifies the total number of mapping register contexts that can be saved for all Process IDs. n is a decimal number greater than or equal to the value of Process IDs. The default is the value of the /D option + the /P option - 1 (D+P-1). The default should normally be sufficient.

The /X option specifies a range of memory (in paragraphs) to exclude from paging operations. There is no default.

Note: If you do not give a drive specifier, REMM.SYS must reside on the drive from which you start Concurrent. It can also reside in any subdirectory providing you specify the path in the CCONFIG.SYS file. During installation, the driver requires some memory allocation. If there is no memory available, the installation will fail. Should this occur, perform the following steps:

a. Run the SETUP utility and select F2, the "Reserve System Space" menu.

b. Increase the amount of memory reserved for device drivers.

c. Update the CCPM.SYS file on your system disk, then restart Concurrent.

Repeat steps a-c until the amount of reserved memory is sufficient for a successful installation.

Proceed to step 5.

4. Concurrent DOS XM provides an internal software driver that supports the running of applications in paged memory. To Enable this driver:

a. Run the SETUP program and select F8 for MENU TWO.

b. Select F4 from MENU TWO to Enable or Disable the internal software driver.

c. Press ESC to return to the SETUP main menu

d. Select F10 to update the system. Follow the Update and Exit menu instructions to ensure that your driver setting is used every time Concurrent DOS is started.

SETUP provides in-context help should you need further assistance.

5. The installation process is now complete.

2.4 Example Configurations

The following examples give the DIP switch settings for several common system configurations with different amounts of conventional memory installed on the system board. If your system configuration is different, you might need to interpolate the settings given below. Always keep in mind that the non-paged conventional memory installed on the system board, or on other memory boards, should ideally be in the range 192-256K in order to maximize the effectiveness of the expanded memory.

Note: These examples assume you are installing one AST RAMpage!™ (version 1.0) board with up to 2MB of memory. If you install more than one board, each board must have a different starting address. In this case you should consult the RAMpage! documentation to determine the correct DIP switch settings. Switch settings may also be different for later versions of both expanded memory boards and computers. You should consult your manufacturers documentation to check these settings.

2.4.1 Example 1: IBM PC/XT with 256K

Perform the following steps:

1. Set DIP switch SW1 on the IBM PC/XT to specify the presence of 256K of conventional memory on the system board. The DIP switch settings are as follows:

SW1-3	SW1-4
OFF	OFF

2. Set DIP switch SW1 (switches 5 and 6) on the RAMpage! board to make 512K available as conventional memory. Set the other switches according to the RAMpage! documentation. The DIP switch settings are as follows:

SW1-5	SW1-6
ON	OFF

3. Set DIP switch SW2 on the RAMpage! board to start the conventional memory at 256K. The DIP switch settings are as follows:

SW2-1	SW2-2	SW2-3	SW2-4
OFF	OFF	ON	OFF

4. Install the RAMpage! software driver REMM.SYS in your CCONFIG.SYS file on the Concurrent DOS system disk.

5. Start Concurrent DOS. When REMM.SYS is loaded, it displays diagnostic information on the console screen verifying the proper installation of the paged memory.

You can of course, use the Concurrent DOS internal driver as described earlier if you wish.

2.4.2 Example 2: IBM PC/AT

Perform the following steps:

1. Set the J18 jumper on the PC/AT system board (beneath the disk controller) on the 2 pins toward the rear of the machine to enable only the first 256K of memory on the system board. (The PC/AT requires a minimum of 256K on the system board, so on a 512K machine you can disable only the second 256K).

2. Set DIP switch SW1 on the RAMpage! board to make 384K available as conventional memory on the system board. The DIP switch settings are as follows:

SW1-1	SW1-2	SW1-3	SW1-4
ON	ON	OFF	ON

3. Set DIP switch SW2 on the RAMpage! board to start the non-paged memory at address = 256K, bypassing the 256K already on the PC/AT system board. The switch settings are as follows:

SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7
ON	ON	ON	ON	ON	OFF	ON

4. Set the remaining switches on the RAMpage! board DIP switches to the default values as described in the RAMpage! documentation.

5. Run SETUP on the PC/AT diagnostic diskette. Specify the following:

   * BASE memory = 640K (256K on system board + 384K on RAMpage! board)

   * Expansion memory = 0K

6. Install the RAMpage! software driver REMM.SYS in your CCONFIG.SYS file on the Concurrent system disk.

7. Start Concurrent. When the driver is loaded, it displays diagnostic information on the console screen verifying the proper installation of the paged memory.

You can of course, use the Concurrent DOS internal driver as described earlier if you wish.

2.5 Running SCEPTER

SCEPTER is the program that initializes the paged memory when you are not using the Concurrent DOS internal driver. After you have installed the RAMpage! board and started Concurrent DOS, you should run SCEPTER before using any application program. Once SCEPTER has initialized the paged memory, Concurrent DOS performs memory management that is completely transparent to the running application.

SCEPTER supports two command line options:

SCEPTER/M = hh

SCEPTER/S = hhhh

where h is a hexadecimal digit.

The /M option supports applications written for the Expanded Memory Specification (EMS) also called the Lotus/Intel/Microsoft (LIM) specification. The /M option specifies how many available pages of memory are reported to the application. It is useful for preventing one application from using too much memory, thereby preventing other applications on other windows from having enough memory to run.

If you run SCEPTER without this option, the default is a maximum of 20H pages (512K). You can specify a 16K page count as two hexadecimal digits. For example, the command:

SCEPTER /M = 18

specifies 18H pages, or 384K.

The /S option specifies the address where SCEPTER begins converting "conventional" memory to "banked" memory. The default is 4000H (256K). You can specify a paragraph address as four hexadecimal digits to start bankable memory windows at a different address.

Some applications may have been explicitly written to assume the presence of an expanded memory board such as RAMpage!. Such applications communicate directly to the board through the REMM.SYS driver, and may be incompatible with the Concurrent DOS memory paging scheme initialized by SCEPTER. In such a case, you may still install the REMM.SYS driver, but do not run SCEPTER prior to running these applications.

SCEPTER can be run in a batch file. You might find it convenient to put it in the AUTOEXEC.BAT or the START001.BAT file so that it runs whenever Concurrent DOS is started. If you are using the internal expanded memory driver, you do not need to run SCEPTER. If you attempt to run it, an error message will be displayed to advise you that SCEPTER will only run with the EMM driver installed.

If you use EEMM = REMM.SYS (instead of EEM = REMM.SYS) in CCONFIG.SYS then SCEPTER will be run automatically whenever you start Concurrent DOS.

2.6 Above Board™/PC

Generally, you should read and follow the Above Board/PC documentation regarding the physical installation of the board in your computer. However, installing the Above Board/PC software is slightly different under Concurrent DOS.

You should perform the following steps:

1. Run the SETUPAB program, following the directions in the Above Board/PC documentation. SETUPAB creates a file named CONFIG.SYS on your system disk.

2. Using any text editor, edit the CONFIG.SYS file as follows:

Change the command:

DEVICE = EMM.SYS

to the command:

EMM = EMM.SYS

3. Rename the CONFIG.SYS file to CCONFIG.SYS

Note: Each time you run SETUPAB, it creates a new CONFIG.SYS file. Therefore, whenever you install a new board or make any changes that require you to run SETUPAB, you will need to perform the steps outlined above.

3 Configuring your System for Extra Users

Concurrent DOS, as delivered, is set up to support one user on the main console and may be configured to support additional users. This section helps you to configure your system for additional users.

Additional users can be supported under both Concurrent DOS XM and concurrent DOS 386 using COM1 plus COM2 or multi-port serial cards such as the AST Four Port/DOS Card, the Hostess Multiport Network Adaptor (4 Port) card, or the ARNET Multiport multi-4 card.

Concurrent DOS 386 can be further configured to support 8 port cards such as the Hostess multiport Network Adaptor (8 Port) 8 port card or the ARNET Multiport multi-8 card.

Concurrent DOS XM is designed to run on IBM PC, XT, AT, PS/2 model 30 or 100% compatibles and will support up to a maximum of 6 users. Concurrent DOS 386 is designed to run on Compaq 386 Deskpro or 100% compatibles and will support up to a maximum of 10 users.

Concurrent DOS XM also supports the IBM PS/2™ models 50 and 60 and Concurrent DOS 386 supports the IBM PS/2™ model 80.

Users of the PS/2™ family are able to configure for additional users with Microchannel™ compatible versions of the above cards such as the Hostess/MC™ card. Contact your dealer or manufacturer for more information.

Note: Implementation of a multi-port serial card will prevent subsequent use of COM2.

If you are familiar with Concurrent DOS, turn directly to "Running SETUP to Install Additional Users" to begin the implementation of a multiuser configuration.

If you are less familiar with Concurrent DOS, read the following section, "Terminal Configuration Parameters". And, remember, if questions arise, refer to your system manuals.

3.1 Terminal Configuration Parameters

This section describes the communication parameters that you will be required to configure on your terminal and in the SETUP program.

There are parameters that must be set in both the computer system and the terminal to guarantee a that proper connection is established. The methods of establishing these communication parameters differ between terminal manufacturers. There should be a User's Reference Manual or Operator's Guide that accompanied the terminal being attached to the computer system. This document will explain the procedures for establishing the communication parameters.

3.1.1 Baud Rate

Baud rate is the speed at which characters of information are transmitted from your console or terminal to the computer system.

There are two different baud rate settings which need to be configured. One establishes the communication speed between the terminal and computer system; the other, if supported, establishes the speed between the printer or an auxiliary device and the computer system. Refer to your terminal or printer's reference manual for the supported parameter settings. The physical connection of the host system to the terminal device is through communications cables attached to "ports" which are usually located at the backs of the system and terminal and are appropriately labeled.

Terminals can be configured to communicate at any of the following baud rates:

300 600 1200 2400 4800 9600 19200 38400

Printer/Auxiliary ports can be configured to communicate at any of the following baud rates:

110 150 300 600 1200 2400 4800 9600

Note: Usually, different speeds are supported for the different devices. The allowable speeds will be documented in the terminal/printer reference manual.

3.1.2 Parity

Many terminals support the inclusion of an extra bit of data to aid in error detection. It is particularly useful when modems are used to provide communications capabilities over a long distance. There are three different settings for parity that are normally used. They are ODD, EVEN and NO PARITY. Concurrent DOS supports all three.

Again, this parameter must be set to the same value in both the computer system and the terminal for communications to be successful.

3.1.3 Data Bits

Data bits determine the variety of characters that can be transmitted over the communications line. Either 7 or 8 data bits can be specified. A 7-bit specification uses the 128-character ASCII character set, which includes all of the characters the keyboard can generate plus some special character sequences. An 8 bit specification will allow the use of foreign character sets as well as line drawing characters.

It is good practice to set the data bits parameter to 8 data bits; however, some older terminals may only support 7 data bits. If there is any doubt, check your terminal reference manual.

3.1.4 Stop Bits

System and terminal may be set to add time between the sending of individual characters. This is done to allow the terminal enough time to correctly detect where one character ends and another starts. The configurations allow a one bit pause between characters (1 stop bit) or a two-bit pause between characters (2 stop bits).

3.1.5 Handshaking

Handshaking describes the method which the computer and terminal use to communicate and prevent the loss of data. With handshaking, a terminal may interrupt the flow of data when its storage area (receive buffer) is full by, in effect, saying 'hold it' and, when the terminal is ready to receive more characters, can say 'carry on'. In particular, when using high data rates, handshaking becomes essential.

Two main methods of handshaking are supported:

1) Hardware handshaking

2) Software handshaking

Hardware handshaking requires two extra wires in the cable connecting the computer to the terminal. The basic wires are used for transmit, receive and ground functions. Additional wires are required to control terminal-to-computer handshaking and computer-to-terminal handshaking. When a terminal receive buffer is full it will indicate on one of the lines to say ' hold it' and then when it is ready again it will do the opposite to say 'carry on'. The other wire is used if the computer wants to tell the terminal to 'hold it.'

Two different cabling methods are supported:

a) DTR/DSR (Data Terminal Ready / Data Set Ready)

b) RTS/CTS (Request To Send / Clear To Send)

With software handshaking, no extra wires are needed. The standard three wires transmit, receive and ground are used. Two characters in the 256 character set are defined to mean 'hold it' and 'carry on'.

They are:

XON - which is Control-S - 'hold it'

XOFF - which is Control-Q - 'carry on'

The terminal will interpose these characters between your terminal's transmission as neccessary to get the computer to stop sending characters.

There are two problems with this method:

1) If a user enters Control-S, the computer has no way of knowing it was originated by the user or the terminal so it stops transmitting characters. The computer will begin transmitting again only when it receives a Control-Q.

2) Some applications such as Wordstar use Control-S or Control-Q for cursor movement. If applications such as these are being used, it is suggested that hardware handshaking be used.

At low data rates you may not need to use handshaking but at data rates above 9600 Baud characters may be lost or corrupted if handshaking is not used.

3.2 Running SETUP to Install Additional Users

Follow the procedure "Installing Concurrent DOS" in Section 1 to install Concurrent DOS on your hard disk. Upon completion, follow the instructions below. NOTE: The user needs to set the current directory to be the directory, usually the root directory, containing the file CCPM.SYS before running the SETUP utility to configure the system for multiuser use.

3.2.1 Using SETUP for multiuser configuration

Run the SETUP program. The first screen you will see is shown below.

```
                Concurrent System Customization

              SELECT SYSTEM CUSOMIZATION OPTION


F1  Help                          F2  Reserve System Space

F3  Save System Parameters        F4  MDisk

F5  Diskette Drive Parameters     F6  Verify After Diskette Write

F7  Setup Serial Consoles         F8  MENU TWO

F9  Color Monitor Scroll Mode     F10 Update and Exit

                  Esc  Quit without Update
```

Select Option F7 - Setup Serial Consoles (Press the Programmable Function Key F7) to display the Setup Serial Consoles menu.

3.2.2 Selecting COM1/COM2 or Multi-port Card

The menu shown on the next page will now be displayed.

```
                    Concurrent  System  Customization

                          Setup  Serial  Consoles

      This option can be used to configure the system to support
  multi-user serial ports, either by use of an add on multi serial port
 card or using the COM1/COM2 system ports. ALL serial ports can be used
  as either Auxiliary/Printer ports or as an additional console.

                          SELECT FUNCTION

      F3   Setup Multi-port card          F4   Ctrl\Alt\Del Reset ENABLED

      F5   Setup COM1/COM2 ports          F6   Setup Console Features

      F1   Help                           Esc  Return to Main Menu
```

If you are configuring for up to three users, select F5 to set up the COM1 and COM2 ports and follow the procedure starting at section 3.2.3.

If you are configuring for up to six users on Concurrent DOS XM or up to ten users on Concurrent DOS 386, select F3 and follow the procedure starting at section 3.2.6.

If you are configuring for Concurrent DOS 386, then you may select F6, see Section 3.2.8, but this is best done after you have completed the rest of the setup procedures.

3.2.3 Configuring For Up To Three Users

If you pressed F5 as above the screen below will appear.

```
                    Concurrent System Customization

                          Setup COM1/COM2 ports

This option is used to select whether a serial port will be used
as an Auxilliary / Printer port, or as an additional console in a
multi-user system. Both ports may perform either function.

                          SELECT FUNCTION

F3   Change COM1 port assignment       F4   Change COM2 port assignment

F5   Configure COM1 port               F6   Configure COM2 port

F1   Help                             Esc  Return to Previous Menu
```

COM1 and COM2 can both be set to be Auxilliary/Printer ports or Multiuser Terminal ports. Press F3 for COM1 and F4 for COM2 to select for multiuser Terminal use.

You must now configure the COM1 and COM2 ports. To configure COM1 select F5 and the screen below will appear.

```
                    Concurrent System Customization

                         Configure serial port

                            SELECT FUNCTION



                    F3   Port Configuration

                    F5   Port Protocol

F1   Help                                  Esc    Return to Previous Menu
```

Select F3 for Port Configuration and the screen below will appear.

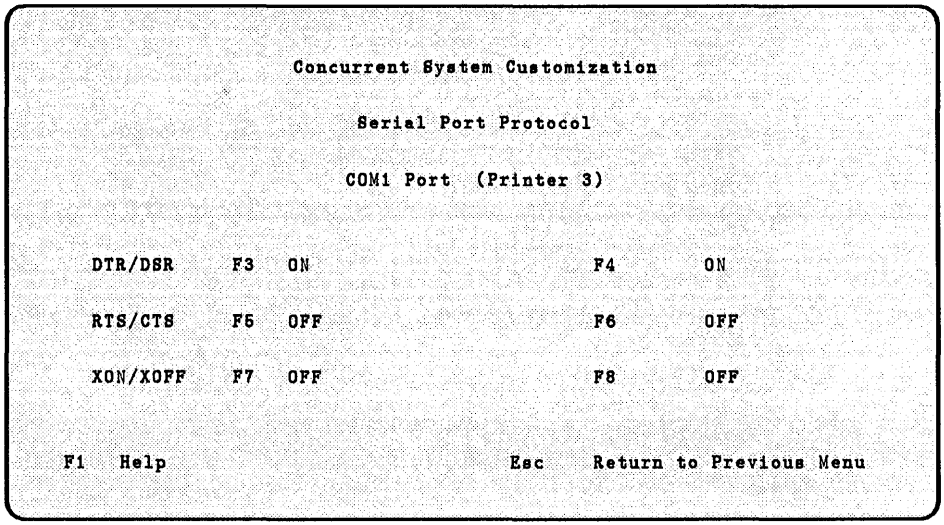
```
                    Concurrent System Customization

                         Serial Port Configuration
                    Press function key to advance value
                         COM1 Port (Printer 3)

          Baud rate          F3        300

          Word length        F5        8

          Parity             F7        NONE

          Stop bits          F9        1

F1   Help                                  Esc    Return to Previous Menu
```

3.2.4 Serial Port Configuration - 3 Users

You can set the Baud Rate, word length, Parity and Stop bits values to suit your terminal by pressing the function keys shown.

When you have done this press the Esc key and you will return to the previous menu.

Press F5 to set the port protocol. The screen below will now be shown.



3.2.5 Serial Port Protocol - 3 Users

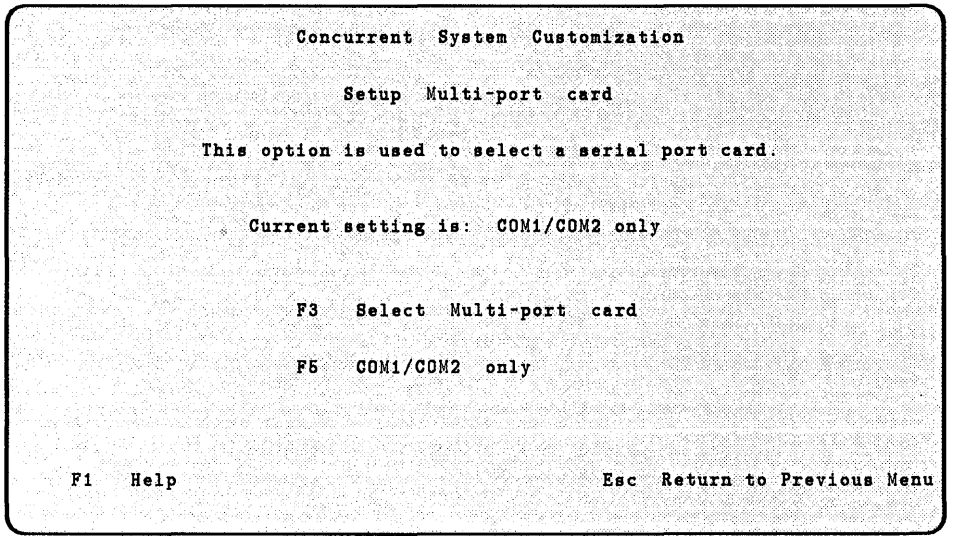
The protocol that you have chosen to use can be selected using the assigned function keys to set that protocol ON. If you are not using any protocol the setting should be set to OFF. More information on protocols can be found in section 3.1.5.

When you have set the protocol to meet your needs press Esc to return you to the previous screen. You can now press Esc again to take you back to the 'Setup COM1/COM2 Ports' screen shown on page 19.

If you have a COM2 port that is to be used as a multiuser terminal you should also configure that port by selecting F6 from this screen and repeating the above steps.

Otherwise you should now press the escape key twice to return to the Setup Main Menu. You should now turn to section 3.2.9: Saving Your Setup.

3.2.6 Configuring For Up To 6 to 10 Users.

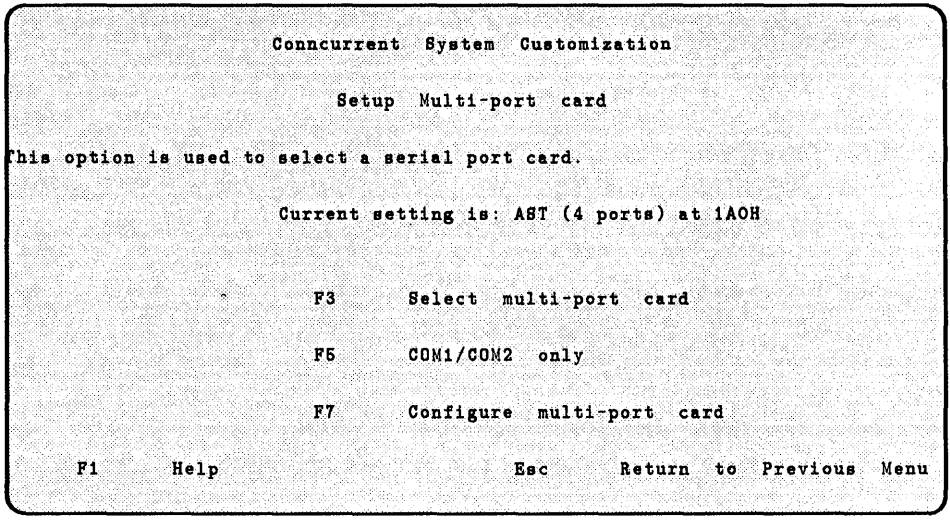


Option F5 is provided to easily configure the system to recognize only COM1/COM2 which will result in a three user system only.

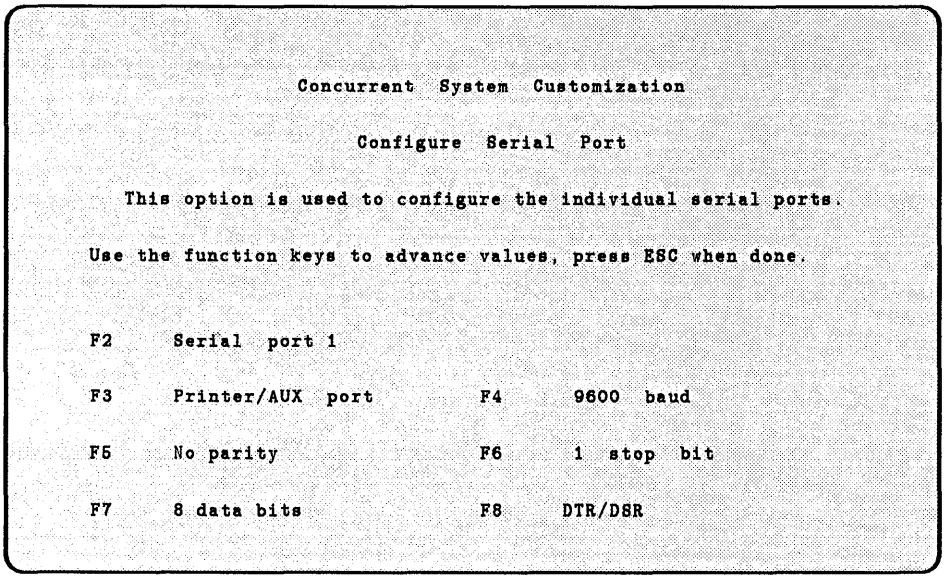
Option F3 allows you to indicate to Concurrent DOS that a particular card is installed. The following cards are displayed in turn in the 'Current setting is:' line each time you press F3:

Concurrent DOS XM	**Concurrent DOS 386**
COM1/COM2 only	COM1/COM2 only
Hostess (4 ports) at 280H	Hostess (8 ports) at 280H
Hostess (4 ports) at 2C0H	Hostess (8 ports) at 2C0H
ARNET (4 ports) at 280H	ARNET (8 ports) at 280H
ARNET (4 ports) at 2C0H	ARNET (8 ports) at 2C0H
AST (4 ports) at 2A0H	
AST (4 ports) at 280H	

As soon as the 'Current setting is:' line changes to specify a card, the menu shown on the next page is displayed.



Press F7 to configure the multi-port card, The menu shown on the next page will be displayed.



3.2.7 Setting Individual Port Parameters

Option F2 indicates which serial port is being configured. All other options pertain to the serial port indicated by F2.

Option F3 will identify the port to be configured as a Printer/AUX port or as a multi-user terminal.

This menu allows you to configure each of the specific parameters described in "Terminal Configuration Parameters" earlier in this section. Remember, these parameters must match the individual terminal configuration. The selectable values for each option are shown on the next page.

F2

Concurrent DOS XM and 386	*Concurrent DOS 386 Only*
Serial port 1	Serial port 5
Serial port 2	Serial port 6
Serial port 3	Serial port 7
Serial port 4	Serial port 8

F3	**F4**
	(Baud Rate)
Multi-user terminal	300, 600, 1200, 2400, 4800 8600, 18200, 33400
Printer/AUX	110, 150, 300, 600, 1200, 2400 4800, 9600

F5	**F6**
No Parity	1 stop bit
Even	2 stop bits
Odd	

F7	**F8**
8 data bits	RTS/CTS
7 data bits	DTR/DSR
	XON/XOFF
	No protocol

To complete the configuration, press the following key(s) until the desired value is displayed:

F4 to set BAUD RATE

F5 to set PARITY

F6 to set the number of STOP bits

F7 to set the number of DATA bits

F8 to set the HANDSHAKING mode

If you need help press F1.

Upon completion of configuration for the first port, move to the next port by pressing the F2 key - the entire configuration, for all ports, may be reviewed using the F2 key. Changes made to each port will be retained until ESC is pressed.

```
                Conncurrent System Customization

                      Configure Serial Port

      This option is used to configure the individual serial ports.

Use the function keys to advance values. Pres Esc when done.

  F2      Serial port 1

  F3      Multi-user terminal        F4      9600 baud

  F5      No parity                  F6      1 stop bit

  F7      8 data bits                F8      XON/XOFF
```

The above example reflects Port 1 set up as a Multi-user Terminal, at 9600 baud, No Parity, 1 stop bit, 8 data bits and software (XON/XOFF) handshaking.

Upon completion of the configuration, press the ESC key. This will return control to the Setup Serial Consoles menu shown on page 19.

In a 6 or 10 user system, COM1 can also be set up as a Multi-user Terminal Port. (If you are configuring a Concurrent DOS 386 system, you may select Serial Console Features before this, see Section 3.2.8.) If you want to set up a Multi-user Terminal Port, you should follow the prodedure outlined in sections 3.2.3 to 3.2.5. Otherwise you should press the Esc key again and return to the Setup Main Menu shown overleaf.

3.2.8 Selecting Serial Console Features

On Concurrent DOS 386 systems, the Setup Serial Consoles screen has an option to Setup Console Features. If you select F6, the screen on the following page will appear:

```
                    Concurrent System Customisation

                    Select Serial Console Features

This option is used to select various optional features for
each serial console. Select the correct keyboard and the number
of virtual consoles for each serial console. The PC terminal
emulation can be selected separately for each console.

                                        F2    Serial port 1

  F3   PC emulation ENABLED             F4    National keyboard

  F5   2 virtual consoles               F6    Enhanced keyboard

  F1   Help                             Esc   Return to the previous menu
```

Function F2 may be pressed to identify serial ports, up to 4 or 8. The number on the screen will be incremented each time you press F2.

Press F3 if that console has no PC emulation. Functions F4, F5 and F6 then have no significance.

Press F4 if you want to use a US keyboard.

Press F6 if you have an 84 key keyboard.

When you have completed the console feature setup, press Esc to return to the Setup Serial Consoles menu (Page 19) then you may set up COM1 as a Multi-user Terminal Port, or press Esc again to return to the Main Menu.

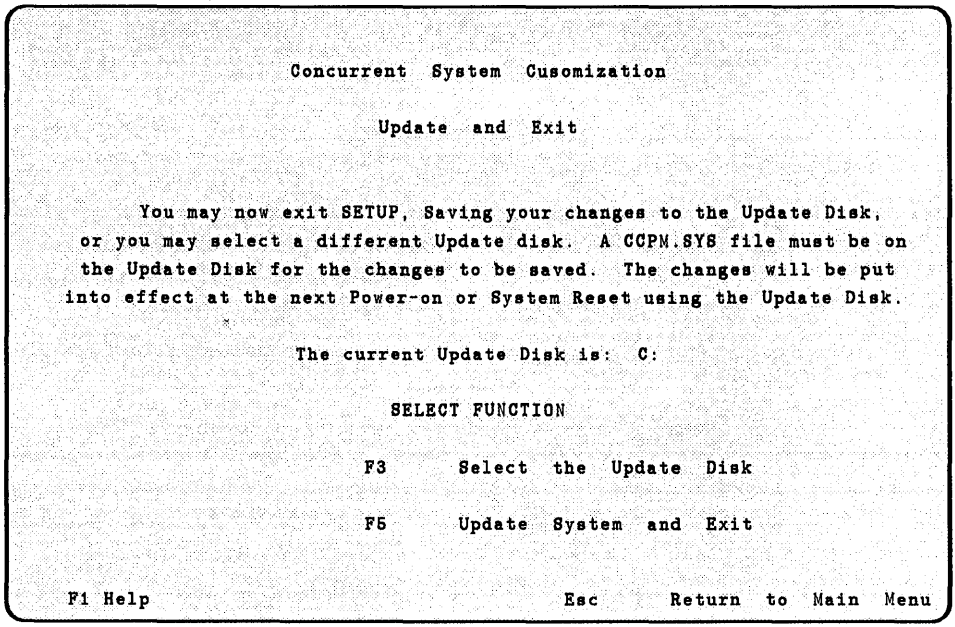
```
                Concurrent  System  Customization

                SELECT  SYSTEM  CUSOMIZATION  OPTION


F1   Help                          F2   Reserve System Space

F3   Save System Parameters        F4   MDisk

F5   Diskette Drive Parameters     F6   Verify After Diskette Write

F7   Setup Serial Consoles         F8   MENU TWO

F9   Color Monitor Scroll Mode     F10  Update and Exit

                  Esc   Quit without Update
```

3.2.9 Saving your setup

In order to complete the configuration, the serial port settings must be saved on the hard disk.

To QUIT WITHOUT SAVING, press ESC. All changes you have made with Setup will be lost.

To save the changes you have made so that they will be used whenever Concurrent DOS is started select the Update and Exit option, F10, and the menu shown on the next page will be displayed.



3.2.10 Selecting the Disk to be Updated

This menu allows you to select the disk to be updated. If the disk shown is correct, press F5; otherwise press F3 and enter a single letter indicating the disk to be updated. Finally, press F5 and your system will be updated.

NOTE: The user needs to be in the same directory as the file CCPM.SYS for the update to be successful.

Upon completion, reboot the system and Concurrent DOS will be running as configured.

3.3 Setting up Serial Ports for Printers and Plotters

Follow the configuration procedure detailed in "Running SETUP to Install Additional Users" earlier in this section, to set baud rate, parity bits, etc.; however, the port must be set for Printer/AUX rather than Multi-user terminal.

You may then use the PRINTER = command to set the default printer to whichever port you want to use.

Note: Printer numbers 0 through 4 are supported on the multi-port system; however, Printer 4 becomes the first port on the multi-port board rather than COM2.

3.4 Editing the STARTnnn.BAT Files

On startup Concurrent DOS will execute the commands in a specific batch file associated with the console that the user is connected to.

Main Console -	Virtual Console 1 - START001.BAT
	Virtual Console 2 - START002.BAT
	Virtual Console 3 - START003.BAT
	Virtual Console 4 - START004.BAT

COM1 - START005.BAT

COM2 or first multi-port -	START006.BAT
second multi-port -	START007.BAT
third multi-port -	START008.BAT
fourth multi-port -	START009.BAT

and on Concurrent DOS 386

fifth multi-port -	START010.BAT
sixth multi-port -	START011.BAT
seventh multi-port -	START012.BAT
eigthth multi-port -	START013.BAT

You may edit these files with DR EDIX or any ASCII editor and include in them specific commands that you want to run at startup.

Note: files associated with COM1/COM2 ascend in sequential order. For example, if COM1 is not multiuser then the file associated with the first multi-port (COM2) will be START005.BAT. If a serial terminal has two virtual consoles (possible only with Concurrent DOS 386), a file is associated with each console. For example, if the second multi-port in the list above has two virtual consoles, files START007.BAT and START008.BAT would belong to it while START009.BAT would belong to the third multi-port.

If Concurrent DOS does not find a particular STARTnnn.BAT file it will run the AUTOEXEC.BAT file. This feature can be used to provide a common startup sequence to all users.

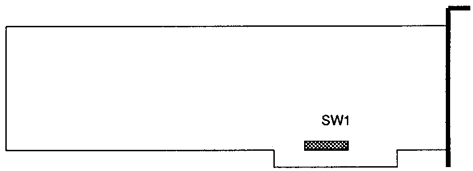
3.5 Configuring the Menu System for Other Terminals

Both the menu system (RUNMENU) and the File Manager (FM) can support different terminal types on each serial port. Both look for the file TERMn.DAT from which to read the parameters to be used for functions such as clear screen, cursor positioning, etc., for that particular terminal. If TERMn.DAT is not found it will look for a global TERM.DAT file. The TERM.DAT provided with Concurrent DOS supports the Zenith Z29 (and compatible) terminal.

Appendix A: Switch Settings for Multi-port Cards

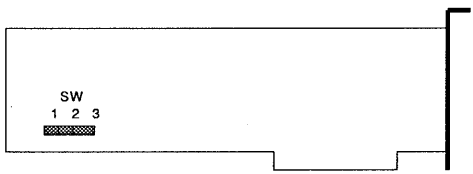
AST Four Port Asynch

Address 1A0H
IRQ3
Enhanced (non-compatible) mode



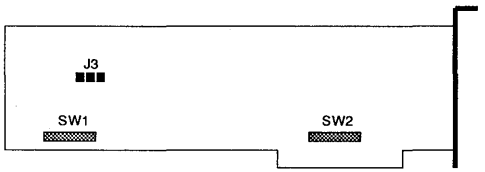
AST Four Port/DOS

Address 1A0H
IRQ3
Enhanced mode

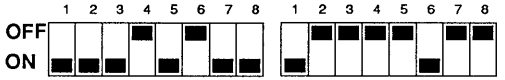


Hostess Multiport Network Adaptor - 4 Port

Address 280H
IRQ3



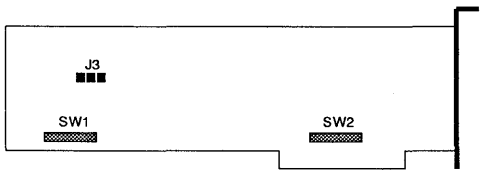
J3

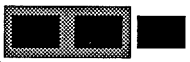


SW1 SW2

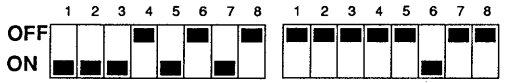
Hostess Multiport Network Adaptor - 8 Port

Address 280H
IRQ3





J3



SW1 SW2

ARNET Multiport
Multi-4 and Multi-8

Address 280H
IRQ3
Option Address 270H