

Chapter 5
Software Installation

This chapter will guide you through the installation of drivers that are provided on the two *Drivers Installation* diskettes. The procedures for the hardware installation installed your *SpeedMaster* independent of the intended operating system. Unless you are only planning to use SCSI hard disk drives, which do not require additional drivers for operation, the final phase of installing software drivers will customize the I/O SCSI subsystem for your choice of Operating System.

5-1 Introduction

The following sections describe the procedures for installing drivers to enable your *SpeedMaster* to operate properly under specific operating system environments. Two *Drivers Installation* diskettes are provided for this purpose.

Diskette #1 provides drivers for:

DOS,
Windows 3.x
Windows NT v3.1, v3.51
Windows 95
Novell NetWare
OS/2 rel. 2.1, Warp

Diskette #2 provides drivers for:

SCO UNIX
IUX
UnixWare

If you purchased the "Gold" version, a comprehensive CorelSCSI driver package (comprised of five diskettes) is included to provides full device support for DOS and Windows 3.1 or higher. Refer to the documentation included with this software package for instructions.

5-2 DOS/Windows 3.x

5-2.1 DOS/Windows Environment Overview

The DOS/Windows environment has some limitations that should be reviewed at this point. The use of memory is limited by the operating system and you should configure your system software to minimize its use of memory. The amount of system memory used gets higher based on the number of drivers required.

If all you have attached to the SCSI bus is hard disk drives and you have DOS version 5.0 or higher, with or without Windows, *you should not load any software*. The SCSI BIOS will control your disk drives and will provide the maximum amount of free system memory.

If your system has a large variety of different peripherals, the use of a memory manager will help keep the impact, of multiple drives on system memory to a minimum.

The Operating System should be installed on your bootable hard disk prior to loading your DOS or DOS/Windows driver software.

NOTE

The performance of your system can be greatly improved by implementing the BIOS shadow function of many computers. The performance improvement may be as much as 50%. Check the system CMOS setup for "shadow ROM BIOS adapter memory."

For *SpeedMaster* "Gold" Version Users

If you have attached more than two hard disk drives, and you have a DOS version less that 5.0, with or without Windows, you should load the CorelSCSI software driver set.

If you have any other peripheral other than hard disk drives, you should load the CorelSCSI software.

ADVASPI.SYS Driver

With the exception of hard disks, each SCSI device that you add to your SCSI bus requires external drivers to make it work. These drivers must not only be specific to the device, but also work with every SCSI host adapter in the market. Therefore, an ASPI (Advanced SCSI Programming Interface) driver standard for host adapters was developed as a universal link between the host adapter and the operating systems. Device specific drivers are written to talk to the universal ASPI driver.

ADVASPI.SYS is the *SpeedMaster's* ASPI Manager for DOS & Windows. It will support MS-DOS version 4.01 and later.

ADVASPI.SYS is loaded from the CONFIG.SYS file. *It will be automatically installed by either the DOS or Windows based installation programs.* For a manual installation, simply add this line:

DEVICE=...\ADVASPI.SYS

(Note: if you manually add this file to the CONFIG.SYS, it is a good idea to create a *d:*\ADVSCSI directory (where *d:* = drive) to put all of the SCSI software in. For example, use DEVICE=*C:*\ADVSCSI\ADVASPI.SYS. The automatic install programs use this method.)

Command-line options can be added on the same line, separated by forward slashes. For example:

DEVICE=*d:*\ADVASPI.SYS /P/V

ADVASPI.SYS can also be loaded into high memory, if the appropriate memory manager has been installed prior to loading ADVASPI.

ADVASPI.SYS Command-line Options

There are several command-line options that can be used with ADVASPI.SYS. Most installations will not require any of these, but there are circumstances where one or more may be necessary.

/L By default, logical units (LUNs) are not supported by ADVASPI.SYS. To enable LUN support, specify this option on the command-line.

/P ADVASPI will pause and wait for the user to press a key before continuing once loaded.

/V A verbose display will be printed during initialization, showing adapter I/O ports, IRQs, and other miscellaneous information.

/I<port> This option can be used to specify a specific I/O port address that an ISA or VL adapter card can be found at. Up to four of these options can be present on the command-line. The I/O port must be specified in hexadecimal (the same way the BIOS and the SCSI Setup display it). For example, to use adapters at ports 190 and 330, add this to the command-line in CONFIG.SYS:

DEVICE=ADVASPI.SYS /I190 /I330

To avoid searching for any ISA or VL adapters, add a minus (—+) after the /I option:

DEVICE=ADVASPI.SYS /I-

Note that ADVASPI will still automatically search for EISA and PCI adapters, no matter what port is specified.

/NE & /NP These options will disable searching the EISA and PCI bus for *SpeedMaster* cards, respectively. The host adapters will not be controlled by ASPI and therefore unavailable for use by other drivers or applications.

Command Queueing and DOS/Windows

Because DOS/Windows 3.1x is a single-tasking operating system, there is probably no need to enable *Command Queueing* in the BIOS SCSI Setup <Ctrl><A>). Testing has shown that in some circumstances command queueing will actually degrade performance under DOS/Windows 3.x.

Installing and using the WINASPI.DLL and VxD

WINASPI is a DLL file used in conjunction with DOS ASPI and Windows VxD to support programs such as COLORADO memory's tape back up utility that requires a protected mode DLL to function properly. Certain CD, CDR and WORM applications, such as those from Incat Systems and Alchemy, also require use of a WINASPI layer. WINASPI.DLL is needed only for Windows 3.x, it is not needed for Windows 95 and Windows NT.

The best way to install WINASPI is to use the Windows Setup utility provided on the diskette.

For manual installation, follow these steps:

1) Copy the file WINASPI.DLL to the \Windows directory on your hard drive.

2) Copy the file advw32.386 to the \Windows\System directory.

3) Insert the line:

   device=<*drive*>:\windows\system\advw32.386

   under [**386enh**] in the SYSTEM.INI file in the windows directory. (<*drive*> refers to the hard disk containing the \Windows directory, usually c.)

4) Make sure the line **device=*int13** is present in the SYSTEM.INI file.

5) Reboot your system and restart Windows for the changes to take effect.

   Note: you must be running version 2.32 or later of the ASPI manager ADVASPI.SYS for this.

   For example in the case of COLORADO memory tape backup, if the utility is installed in subdirectory CBW, there should be a file WINASPI.DLL in that directory. Simply copy WINASPI.DLL provided on the diskette to the directory CBW. WINASPI.DLL is specifically designed to work with *SpeedMaster* adapters. Do no attempt to use WINASPI.DLL with other brand adapters.

5-2.2 DOS Driver Installation

This DOS based install program is intended for systems not running Microsoft Windows. If you have Microsoft Windws, you should run the Windows-based Setup program.

If you install the comprehensive CorelSCSI drivers, DO NOT install this ASPI device driver.

Your *SpeedMaster's* onboard BIOS provides the necessary functions to support most operations. When using version MS-DOS 5.0 or later, the BIOS will support up to seven hard disks; for DOS 4.01 or below, only two drives are supported.

Although the BIOS supports most hard disk functions without additional device drivers, you must install device drivers to support other types of SCSI devices, such as CD-ROM, tape backup, scanner, etc. The DOS INSTALL program on the *Drivers Installation Diskette #1* is provided for this purpose.

The INSTALL program creates an ADVSCSI directory on the C: drive and copies the following to it:

ADVASPI.SYS ASPI Manager

ADVANCD.SYS CD-ROM driver and utility

ADSVDISK.EXE Hard Drive/Removable Media Manager

SCSI Info utility

Text files describing the above software

The INSTALL program

Installing the DOS Device Drivers

> **NOTE**
> **If you install the comprehensive CorelSCSI drivers, DO NOT install these device drivers.**

1. Turn your computer ON to boot to the DOS prompt.
2. Insert the *Drivers Installation Diskette #1* into the floppy drive.
3. Change to the active drive of your floppy disk. At the a:> or b:> prompt, type: **INSTALL** and press <**Enter**>.
5. Follow the on screen instructions. The files will be copied to **C:\ADVSCSI** directory and the default settings for hardware and software will be used.
6. The install program will add the following lines to the CONFIG.SYS and AUTOEXEC.BAT files:

   Config.sys:

   ```
   [common]
   REM SIIG ASPI Manager
   DEVICE=C:\ADVSCI\ADVASPI.SYS
   DEVICE=C:\ADVSCI\ADVANCD.SYS
   DEVICE=C:\ADVSCI\ADVDISK.EXE
   ```

   Autoexec.bat:

   C:\DOS\MSCDEX.EXE /D:ADVCD0

7. When the installation is completed, remove the diskette.
8. Press the <**Ctrl**><**Alt**><**Del**> keys , the **Reset** button, or turn your system OFF then ON to reboot.

5-2.3 Windows 3.x Driver Installation

NOTE
If you install the comprehensive CorelSCSI drivers, DO NOT install the Windows device drivers.

1. Turn your computer ON and start Windows.
2. Insert *Drivers Installation Diskette #1* into the floppy drive.
3. Select **Run** from the **file** menu of the *Program Manager*.
4. Click on **Browse** and go to drive a: to read the floppy disk.
5. Go to the **DOS** directory on the floppy disk.
6. Select **setup.exe**.
7. Click **OK** to run **a:\dos\setup.exe**
8. You have the choice of ***Automatic*** or ***Custom*** installation. ***Automatic*** is recommended.

   Automatic Installation: Installs files to **C:\ADVSCSI.** Default settings for hardware and software will be used

   Custom Installation: You will be prompted for various options including file locations and hardware settings for your SCSI adapter.
9. The setup program will install the SIIG 32-bit ASPI and CD-ROM drivers.
10. When completed, click “Yes” when prompted, to reboot your computer.
11. Remove the floppy disk from the drive and click **OK**.
12. An“ Initializing Phase II” screen will inform you setup was successful.

5-3 Windows 95 Driver Installation

Installing the Driver

Proceed with the following steps to install the Windows 95 driver:

1. Select the **Add New Hardware Wizard** from *My Computer/ Control Panel*.
2. Click **Next**.
3. Click **No**, then **Next**. DO NOT allow Windows to search for new hardware.
4. Select "**SCSI controllers**" from near the bottom of the list of hardware types, then click **Next**.
5. Click **Have Disk**.
6. Insert the *Drivers Installation Diskette #1* in drive A. Type **A:\WIN95**, or use "**Browse**" to find the WIN95 directory. Then click **OK**.
7. Click on the model of your SCSI Bus Master, "**SIIG ISA SCSI Host Adapter Driver**", then click **Next**.
8. Write down the **DMA channel**, **I/O Range** and **IRQ** "Resource Settings" Windows 95 has assigned to the adapter: (These settings may be used later to configure the SCSI BIOS Setup, see the note at the end of installation.)
9. Click **Next**. Windows will now copy the Windows 95 driver.
10. Click **Finish**. Remove the driver diskette and press the <**Ctrl**> <**Alt**> <**Del**> to reboot your system.

Proceed to the next section to run the SCSI BIOS.

Running the SCSI BIOS

1. Start the computer and press <**Ctrl A**> to run the SCSI BIOS.
2. Set up the IRQ, DMA and I / O settings under the *ADAPTER CONFIGURTION* using the information you got from step
3. Press <**Esc**> until you get into the main memu.
4. Write to **Setup and Exit**.
5. Reboot the computer then press <**Ctrl A**> and run the BIOS set up on the SCSI card again to verify the new settings. Look at the blue bar at the top of the screen. The setting should match the configuration you just set up.
6. Write to **Setup and Exit** and reboot to Windows.

Installation of the Windows 95 driver is now complete.

5-4 Windows NT Driver Installation

For the Windows NT operating system to communicate with the *SpeedMaster*, special files need to be added to the system files of your computer. The *Drivers Installation Diskette #1* contains the required files. Please follow one of the procedures below to properly configure your system. The Windows NT Universal Driver works under both NT 3.1 and NT 3.5.

The *Drivers Installation* diskette 1 contains two Windows NT directories: Use WINDOWS.NT for version 3.1; use WIN351.NT for version 3.51.

> **NOTE: Before installing the Universal Driver for Windows NT, you should install and verify correct operation of your *SpeedMaster* using MS-DOS and the *Drivers Installation Diskette #1* that comes with your *SpeedMaster*.**

Installing Windows NT for the First Time

If you are installing Windows NT for the first time:

1. The Universal Driver for Windows NT cannot be installed using the WINNT or WINNT32 command. A set of three setup floppies must be created by using the /OX switch with the appropriate command. After creating the three setup floppies, insert the *Setup Disk number 1* and reboot your computer.
2. When the installation program attempts to find all the devices hooked up to your system, it will not find all of your SCSI devices. The Windows NT installation program will allow you to specify additional SCSI devices it was unable to find if you have an "Other Manufacturer's" supplied diskette.
3. Choose this option and insert the *Drivers Installation Diskette #1* when it prompts you to insert an "Other Manufacturer's" supplied diskette. This will install the SCSI device drivers for your *SpeedMaster*.
4. Then follow the normal installation according to the Windows NT supplied manual.

Adding the Universal Driver to an NT System

If you are already running Windows NT, and wish to add the Universal Driver to your system, follow this procedure:

1. Run Windows NT Setup from the Windows NT MAIN program group.
2. Click on **Options** from the pull-down menus.
3. Choose **Add/Remove SCSI Adapters...**
4. Click on **Add**.
5. Select **Other...** from ***Select SCSI Adapter Option*** menu
6. Insert the *Drivers Installation Diskette #1* into drive A: and type **A:\WINDOWS.NT**, then click on **OK**. (Or drive B: as appropriate.)
7. Exit Windows NT Setup and reboot your system for the driver to take effect.

5-5 OS/2 Driver Installation

The OS/2 Driver supports OS/2 2.1 and OS/2 Warp Releases. The installation directions below are specifically for OS/2 Warp.

The OS2 directory includes the following files.

OS2.TXT	OS2 README File
ASC.ADD	Universal SCSI Adapter Device Driver
PRASC.EXE	Presence Check Program (for desktop)
PRASC.DDP	Presence Check Definition File (for desktop)

ASC.ADD Driver Installation for Warp

1. Obtain the OS/2 Warp CD-ROM installation kit with the following items:
   a. IBM OS/2 Warp "Installation Diskette for CD-ROM"
   b. IBM OS/2 Warp "Diskette for CD-ROM (1)"
   c. IBM OS/2 Warp CD-ROM
2. Make a backup copy of the diskette "*Diskette for CD-ROM (1)*". This diskette must be modified to install the ASC driver.
3. The file **ASC.ADD** must be added to the diskette "*Diskette for CD-ROM (1)*". Make space on the diskette by removing at least two of the following driver files. Don't remove any drivers that you have Adapter Cards for in your system. These are all drivers for other SCSI Adapter Cards.

   DPT20XX.ADD, BTSCSI.ADD, AHA152X.ADD, AHA154X.ADD, AHA164X.ADD, AHA174X.ADD, AIC7770.ADD, AIC7870.ADD
4. Use a text editor to add the line

   BASEDEV=ASC.ADD

   as the last line of the file CONFIG.SYS on the "*Diskette for CD-ROM (1)*". Remove or comment out with "**REM**" the BASEDEV lines in CONFIG.SYS for the driver files that you removed from the diskette.

5. Insert the "*Installation Diskette for CD-ROM*" into drive A:, insert the install CD-ROM into the CD-ROM drive, and install OS/2 by following the IBM OS/2 installation instructions.
6. After the OS/2 Installation has completed, install the driver from the OS/2 Desktop by following Step A of the "Directions *for installing the driver to an existing system*", below. Alternatively you can install the driver manually by following the next instructions outlined in ***Step B***.

Installing Driver to an Existing System

Follow (**A**) for installing from the OS/2 Desktop or (**B**) for installing from the OS/2 Command Line Desktop. It is recommended that (A) be used because it is simpler to perform. Use either method of installation, but don't use both.

A. From the OS/2 desktop:

1. Boot up the existing OS/2 system.
2. Insert the *SpeedMaster's Drivers Installation Diskette #1* in drive A.
3. Select "**System Setup**" in the "**OS/2 System**" icon. Select "**Device Driver Install**" and follow the directions to install the driver. Specify the OS2 directory on the diskette as the "**Source Directory**".
4. If you would like to add options to the **ASC.ADD** command line in the CONFIG.SYS file, use a text editor (**tedit**) from an OS/2 Window command line to edit the **CONFIG.SYS** file. Find the **BASEDEV=ASC.ADD** line in the file and add the desired options. Refer to driver options below.
5. Reboot the system by selecting "**Shutdown**" from the "**Launch Pad**" icon.

B. From the OS/2 command line:

1. Boot up the existing OS/2 system.
2. Insert the *SpeedMaster's Drivers Installation Diskette #1* in drive A.

3. Copy the file **ASC.ADD** from the diskette's OS2 directory to the directory C:\. This assumes that C: is the root drive. Substitute the correct drive letter if your root drive is different.
4. Use a text editor to add the line:

   BASEDEV=ASC.ADD

   as the last line of the drive C: or root drive **CONFIG.SYS** file. Add any desired options to the line at this time. Refer to driver options below.
5. Reboot the system.

ASC.ADD Command Line Options

/V **Verbose**
Display information during OS/2 system initialization.

/A:d **Adapter Index**
"**d**" is a decimal number. This option is used to specify an adapter for options that follow like **/I**, **/DM**, or **/SM**. The first *SpeedMaster* adapter in the system is numbered 0, the second 1, etc.

/I **Ignore Adapter**
Must be preceded by a **/A:d** option.

/[!]DM:target *or*
/[!]DM:(target,lun),... **DASD Manager Support**
Indicates the unit(s) are to be controlled by OS2DASD.DMD. "**target**" and "**lun**" are decimal numbers that specify the devices to use. Must be preceded by a **/A:d** option. If the '/' is followed by a '!' the unit will not be controlled by OS2DASD.DMD.

/[!]SM:target *or*
/[!]SM:(target,lun),... **SCSI Manager Support**
Indicates the unit(s) are to be controlled by OS2SCSI.DMD. "**target**" and "**lun**" are decimal numbers that specify the devices to use. Must be preceded by a **/A:d** option. If the '/' is followed by a '!' the unit will not be controlled by OS2DSCSI.DMD.

/L Enable scanning for LUN devices for all targets. By default no LUN scanning is done.

/I:port Specify an I/O port address where an ISA *SpeedMaster* adapter can be found. Up to four of these options can be present on the driver command-line. "**port**" is a hexadecimal number.

/I- Avoid searching for any ISA or VL adapters.

/[!]TO Enable/disable software timeouts of disk I/O operations. By default the driver will timeout a disk I/O after 15 seconds.

ASC Driver CONFIG.SYS Examples

DEVICE=ASC.ADD /V /I:110

Print adapter and device information during start-up.
And only look for ISA or VL type cards at I/O port 0x110.
The **/I:XXX** option does not prevent the driver from finding and controlling EISA and PCI cards.

DEVICE=ASC.ADD /I- /L

Do not look for any ISA and VL type cards. The driver will only look for and control EISA and PCI cards. For each adapter found scan each target device for LUN devices.

BASEDEV=ASC.ADD /A:0 /!SM:5 /!DM:5

Prevent the *SpeedMaster* Adapter 0, Target 5 device from being controlled by the OS2SCSI.DMD and OS2DASD.DMD Device Manager Drivers. If OS2ASPI.DMD is loaded in your CONFIG.SYS it will take control of the device.

Refer to the OS2.TXT file for troubleshooting and recovery suggestions.

5-6 Novell NetWare Driver Installation

ASCxxx.DSK NetWare Driver

ASCxxx.DSK is the Universal ASPI NetWare Driver. It works with all major versions of NetWare (3.11, 3.12, 4.x). ASCxxx.DSK is a disk driver and will auto-load ADVASPI if no other ASPI Manager is present.

The file should be loaded in the server's STARTUP.NCF file. For a default installation, simply add this line:

LOAD ASCxxx
ABOVE16=Y

NetWare Driver naming scheme

The NetWare Driver is named according to it's version number to allow for easier differentiation of drivers. However, when upgrading drivers, it is important to modify the server STARTUP.NCF or AUTOEXEC.NCF to reflect the new driver name.

ASPI Translation Layer

The ASCxxx driver now relies on an ASPI Translation Layer to provide ASPI services to other modules. This change was made to allow for side-by-side functionality with other SCSI host adapter drivers. ASCxxx will now automatically load ASCASPI.DSK when itself is loaded. If the module cannot be found, the driver will be unloaded from memory. It is therefore important to install both the ASCxxx.DSK and ASCASPI.DSK driver in the server directory.

Command-line options

There are several command-line options that can be used with the ASCxxx.DSKdriver. Most installations will not require any of these, but there are circumstances where one or more may be necessary.

Command-line options are specified as part of the **LOAD** command. For example:

LOAD ASCxxx VERBOSE=Y ABOVE16=Y

The various command-line options are described below.

PORT=n
This specifies that the ASCxxx.DSK driver should only control the *SpeedMaster* adapter located at I/O port "**n**". This is normally not needed, as ASCxxx.DSK will locate and initialize all installed host adapters. This option can be specified as many times as needed.

ABOVE16=[Y | N]
See the note below on using the ASCxxx.DSK driver on a server with greater than 16 megabytes of memory.

SCAN=[I | V | E | P]
By default, the driver will scan for all types of cards (ISA, VESA Local Bus, EISA, and PCI) at initialization time. However, scanning for VESA or ISA cards may cause conflicts with other adapter cards, especially network adapters. The SCAN option can limit the search and prevent these problems. The option can be used with more than one bus type. For example, to search for PCI and EISA adapters, add to the command-line:

LOAD ASCxxx SCAN=EP

Any combination can be used.

IGNORE=n
This is the opposite of the PORT option. All host adapters will be initialized except for the adapter at I/O port "n". This option can be specified as many times as needed.

EXCLUDE=h/t[,h/t...]
By default, ASCxxx.DSK will control all fixed, removable, CD-ROM, WORM, and optical devices. If you will be using an ASPI module to control any of these devices (such as RAID software) you need to exclude the drive(s) that will be under the modules control. Specify the host ("**h**") and target ID ("**t**") on the command-line with the **EXCLUDE** option. A comma can be used to specify more than one device. No spaces should be present between commas.

EXCLUDEALL
This is a short way of excluding all devices from ASCxxx.DSK control.

FIXED_DISK=[Y|REMOVABLE=[Y|N] CDROM=[Y|N]
These options allow for broader control of what types of devices are controlled by ASCxxx without having to specify host numbers and SCSI IDs. These options are all "**Y**" by default.

INCLUDE=h/t[,h/t...]
This option is the reverse of **EXCLUDE**. This option should be used in conjunction with the **EXCLUDEALL** or **FIXED_DISK/ REMOVABLE/CDROM** options. **INCLUDE** will specifically designate a device to be included, even it normally would have been excluded by the **EXCLUDE** options.

CHECKWP=[Y | N]
ASCxxx.DSK will check the write-protect flag on all devices and report them as read-only to NetWare if set. Some devices improperly report the write-protect flag, and are therefore set as read-only when they are read-write. Set this option to "**N**" to disable write-protect checking.

LUN=[Y | N]
Logical unit (LUN) support is enabled by default. Set to "**N**" to disable.

VERBOSE=[Y | N]
When set to "**Y**", *SpeedMaster* host adapter configuration information is displayed at initialization.

ORDERED=[Y | N]
When using command (tagged) queuing, the ASCxxx.DSK driver will use simple tags for all requests. Some devices do not work well with simple tags, and may cause timeout problems. Set this option to "**Y**" to use ordered tags instead.

IMPORTANT

Using the ASCxxx.DSK driver with the ISA *SpeedMaster* on a server with greater than 16 megabytes present

If you will be using ASCxxx.DSK driver with a ISA *SpeedMaster* adapter on a file server with greater than 16 megabytes of memory, it is vitally important to follow these instructions.

The server can report the total amount of memory by typing the **MEMORY** command at the file server prompt. If the file server reports memory less than what is actually installed, follow the instructions in **B**, below. Otherwise, follow **A**.

In either case, whether ASCxxx.DSK is loaded in the STARTUP.NCF or AUTOEXEC.NCF, add the "**ABOVE16=Y**" option to it's command-line, i.e.:

LOAD ASCxxx ABOVE16=Y

A. In your STARTUP.NCF file, include the following commands (if they are not present):

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = ON

SET RESERVED BUFFERS BELOW 16 MEG = n

The number of buffers to reserve ("**n**") is equal to (4 x number of ISA host adapters) + (6 x number of attached SCSI devices). So, if you had 5 SCSI devices on 2 ISA hosts, you would allocate ((4 x 2) + (6 x 5)) = 38. If you have already declared this statement for another driver or NLM, add this value to the one already specified. The default setting is ***20 buffers***. There is no reason to set this value lower than that, even if you require fewer than 20 buffers.

B. In your STARTUP.NCF file, include the following commands (if they are not present):

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = OFF

SET RESERVED BUFFERS BELOW 16 MEG = n

(Follow the instructions in **A** for deciding the number of buffers to allocate.)

In your AUTOEXEC.NCF file, add this command:

REGISTER MEMORY 1000000 n

Where "**n**" is equal to the amount of memory above 16 megabytes available (in hexadecimal). For example, use the command that corresponds to the amount of memory installed:

24MB REGISTER MEMORY 1000000 800000
32MB REGISTER MEMORY 1000000 1000000
64MB REGISTER MEMORY 1000000 3000000

Accessing DOS drives after loading ASCxxx.DSK

ASCxxx.DSK can, in some cases, cause problems accessing the server's local DOS directory after being loaded. Symptoms include the system hanging after exiting the server, or being unable to load local files, like INSTALL.NLM or STARTUP.NCF. The server has not crashed, but the ROM BIOS is not able to access the disk, and is timing out the request.

As of this time, the only solution is to load the DOS ASPI Manager in the server's CONFIG.SYS file before loading the server software. As long as the ASPI Manager is the same version as the ASCxxx NetWare driver, there should be no problem exiting back to DOS.

In no case is data integrity being compromised. If the server appears to hang when trying to load a file from the local DOS directory, wait for the command to timeout. When appropriate, down the server, add the ASPI Manager to the CONFIG.SYS file, and restart. If the server hangs when exiting to DOS, the server's file cache has already been flushed to disk and data is safe.

5-7 SCO UNIX Driver Installation

The SCO Unix Driver is for the SCO Unix 4.2 and OpenServer 5.0 Releases. The SCO Unix driver will be found on the *SpeedMaster's Drivers Installation Diskette #2* in the SCO directory.

The SCO directory includes the following files.

SCO.TXT	SCO Unix README file
SCOBTLD.EXE	DOS self-extracting archive containing diskette image
SCOBTLD.Z	UNIX compressed floppy diskette image

To install the SCO Driver you will need to create a Boot Loadable Diskette containing the driver. You may create the diskette using either a DOS or Unix system. Decide which system to use and follow the directions below. After the diskette is created, it can be used to add the driver during an SCO Unix installation or used to add the driver to an existing SCO Unix system. Directions for both of these installation options are listed below.

Create the ASC Driver BTLD Diskette from DOS

The file **scobtld.exe** is a self-extracting archive which contains an image of an SCO Unix EAFS file system. The image can be copied to a 3.5" diskette to make an ASC Driver BTLD diskette.

1. Copy the file **scobtld.exe** (from the SCO directory in the *Drivers Installation Diskette #2*) to a directory on a DOS system hard drive.
2. Run the command **scobtld.exe**. The following two files will be created:

   btld.dat
   unixfer.exe

3. Insert a blank formatted diskette in the 3.5" floppy disk drive and create the diskette with the following command.

   unixfer btld.dat a:

4. To verify the contents of the diskette, run **unixfer** in reverse. The file **btld.dat** should exactly match **test.dat**.

   unixfer a: test.dat
   fc btld.dat test.dat

Create the ASC Driver BTLD Diskette in SCO Unix

The file **scobtld.Z** is a compressed image of an SCO Unix EAFS file system. The image can be copied to a 3.5" diskette to make an SCSI Driver Diskette.

1. Copy the file **scobtld.Z** (from the SCO directory of the *Drivers Installation Diskette #2*) to a directory on a SCO Unix system hard drive.

2. Uncompress the file **scobtld.Z** with the following command in the same directory where the file is located.

   $ uncompress scobtld.Z

3. Insert a blank diskette in the 3.5" floppy disk drive and use "**dd**" to create the diskette with the following command.

   $ dd if=scobtld of=/dev/rfd0 bs=64k

4. To verify the contents of the diskette, run "**dd**" in reverse. The file **scobtld** should exactly match **test.dat**.

   dd if=a: of=test.dat bs=64k
   cmp scobtld test.dat

Install ASC Driver While Installing SCO Unix

1. Set up your devices to have the following SCSI Target IDs: **Hard Disk: 0**, **CD-ROM: 5**, and **Tape Drive: 2**.

2. Boot the system with the SCO installation boot disk.

3. Type "**link**" at the boot prompt.

4. The package to link to is "**asc**".

5. Insert the *ASC Driver BTLD Diskette* into the floppy drive when the system requests it. Note: The diskette should not be inserted after entering "**asc**". The install procedure will ask for it later.

6. At the end of the installation, you may be asked: "*Do you want to replace 'auto' with 'asc' Y or N*." Answer "yes" to the question.

Install the ASC Driver after SCO Unix is Installed

1. Run the command "**installpkg**" from the SCO Unix command line.
2. Insert the ***ASC Driver BTLD Diskette*** into the floppy drive.
3. After installation, type the following commands to rebuild a new kernel that contains the **asc** driver. For more information refer to the SCO documentation regarding compiling the kernel.

   cd /etc/conf/cf.d
   ./link_unix

Installing SCSI Devices under SCO Unix

Refer to the SCO.TXT file for information on installing SCSI devices under SCO Unix.

5-8 Interactive UNIX Driver Installation

The Interactive Unix Universal Driver supports Interactive Unix 4.0 and 4.1 Releases. The Interactive Unix driver will be found in the IUX directory of the *SpeedMaster's Drivers Installation Diskette #2*.

The IUX directory includes the following files.

IUX.TXT	Interactive Unix README file
IUXBTLD.EXE	DOS self-extracting archive containing diskette image
IUXBTLD.Z	UNIX compressed floppy diskette image

To install the IUX Driver, you will need to create a Boot Loadable Diskette containing the driver. You may create the diskette using either DOS or Interactive Unix. Decide which system to use and follow the directions below. After the diskette is created it can be used to add the driver during an Interactive Unix installation or used to add the driver to an existing Interactive Unix system.

Directions for both of these installation options are contained below.

Create the ASC Driver Diskette using DOS

The file **iuxbtld.exe** is a self-extracting archive which contains an image of an Interactive Unix S51K file system. The image can be copied to a 3.5" diskette to make an ASC Universal Driver HPDD Diskette.

1. Copy the file **iuxbtld.exe** (from the IUX directory on the *Drivers Installation Diskette 2)* to a directory on a DOS system hard drive.

2. Run the command **iuxbtld.exe**. The following two files will be created:

   btld.dat
   unixfer.exe

3. Insert a blank formatted diskette in the 3.5" floppy disk drive and create the diskette with the following command.

   unixfer btld.dat a:

4. To verify the contents of the diskette, run **unixfer** in reverse. The file **btld.dat** should exactly match **test.dat**.

```
unixfer a: test.dat
fc btld.dat test.dat
```

Create the ASC Universal Driver Diskette using Interactive Unix

The file **iuxbtld.Z** is a compressed image of an Interactive Unix S51K file system. The image can be copied to a 3.5" diskette to make an *ASC Driver HPDD Diskette*.

1. Copy the file **iuxbtld.Z** to a directory on an Interactive Unix system hard drive.

2. Uncompress the file **iuxbtld.Z** with the following command in the same directory where the file is located.

```
$ uncompress iuxbtld.Z
```

3. Insert a blank diskette in the 3.5" floppy disk drive and use "**dd**" to create the diskette with the following command.

```
$ dd if=iuxbtld of=/dev/rfd0 bs=64k
```

4. To verify the contents of the diskette, run **dd** in reverse. The file **iuxbtld** should exactly match **test.dat**.

```
dd if=a: of=test.dat bs=64k
cmp iuxbtld test.dat
```

Install the ASC Driver When Installing Interactive Unix

1. Insert the *ASC Driver HPDD Diskette* when prompted to by the install procedure. The driver will be loaded into the live system and the install will proceed.

2. After the base system has been installed, packages may be added to the system. Select the "**InstallPkg**" option and install first the "**Kernel Configuration**" package, then install the package on the *ASC Driver HPDD Diskette*.

3. Select the "**Kconfig**" option. From the "**Configure**" submenu, select the "**HPDD**" option, then the "**Reconfigure HPDD**" option, and then one of the controller options. Select the "**asc**" driver from the list of drivers. Configure the driver and devices attached to the SCSI bus.

4. Return to the top "**Kernel Configuration**" menu and select the "**Build**" option to build a new kernel.

5. Return to the top "**Kernel Configuration**" menu and select the "**Install**" option to install a new kernel.

Install the ASC Driver after Interactive Unix is Installed

1. Run the "**sysadm**" command from the command line as the root user.

   # sysadm

2. Select the "**Software**" option and then the "**Install a package**" option. Install the package from the *ASC Driver HPDD Diskette*. After the installation quit the **sysadm** program.

3. Run the "**kconfig**" command from the command line.

   # kconfig

4. Select the "**Kconfig**" option. From the "**Configure**" submenu, select the "**HPDD**" option, then the "**Reconfigure HPDD**" option, and then one of the controller options. Select the "**asc**" driver from the list of drivers. Configure the driver and devices attached to the SCSI bus.

5. Return to the top "**Kernel Configuration**" menu and select the "**Build**" option to build a new kernel.

6. Return to the top "**Kernel Configuration**" menu and select the "**Install**" option to install a new kernel. Reboot the system to run the new kernel built with the ASC HPDD driver.

Refer to **IUX.TXT** file for information on changing ASC driver option and installing SCSI Devices under Interactive Unix.

5-9 UnixWare Driver Installation

The UnixWare Driver supports UnixWare 2.0 Release. The UnixWare driver will be found in the UNIXWARE directory of the *SpeedMaster's Drivers Installation Diskette #2.*

The UNIXWARE directory includes the following files.

UNIXWARE.TXT	UnixWare README file
UNIXBTLD.EXE	DOS self-extracting archive containing diskette image
UNIXBTLD.Z	UNIX compressed floppy diskette image

To install the UnixWare Driver, you will need to create a Boot Loadable Diskette containing the driver. You may create the diskette using either DOS or UnixWare. Decide which system to use and follow the directions below. After the diskette is created it can be used to add the driver during an UnixWare installation or used to add the driver to an existing UnixWare system. Directions for both of these installation options follow.

Create the ASC Driver HBA Diskette using DOS

The file **unixbtld.exe** is a self-extracting archive which contains an image of a UnixWare s5 file system. The image can be copied to a 3.5" diskette to make an *ASC Driver HBA Diskette.*

1 Copy the file **unixbtld.exe** (from the UNIXWARE directory on the *SpeedMaster's Drivers Installation Diskette #2)* to a directory on a DOS system hard drive.

2. Run the command **unixbtld.exe.** The following two files will be created:

   btld.dat
   unixfer.exe

3. Insert a blank formatted diskette in the 3.5" floppy disk drive and create the diskette with the following command.

   unixfer btld.dat a:

4. To verify the contents of the diskette, run **unixfer** in reverse. The file **btld.dat** should exactly match **test.dat**.

   unixfer a: test.dat
   fc btld.dat test.dat

Create the ASC Universal Driver Diskette using UnixWare

The file **unixbtld.Z** is a compressed image of an UnixWare s5 file system. The image can be copied to a 3.5" diskette to make an *ASC Driver HBA Diskette*.

1. Copy the file **unixbtld.Z** (from the UNIXWARE directory on the *SpeedMaster's Drivers Installation Diskette #2)* to a directory on a UnixWare system hard drive.

2. Uncompress the file **unixbtld.Z** with the following command in the same directory where the file is located.

   $ uncompress unixbtld.Z

3. Insert a blank diskette in the 3.5" floppy disk drive and use "**dd**" to create the diskette with the following command.

   $ dd if=unixbtld of=/dev/rdsk/f0t bs=64k

4. To verify the contents of the diskette run **dd** in reverse. The file **unixbtld** should exactly match **test.dat**.

   dd if=a: of=test.dat bs=64k
   cmp unixbtld test.dat

Install the ASC Driver When Installing UnixWare

1. Insert the *ASC HBA Driver Diskette* when prompted to by the install procedure. The driver will be loaded into the live system and the install will proceed.

Install the ASC Driver after UnixWare is Installed

1. Run the **pkgadd** command from the command line as the root user.

   pkgadd -d diskette1

2. Insert the *ASC HBA Driver Diskette* and install the HBA driver. The kernel will automatically be re-built to include the driver the next time the system is shutdown.

Refer to the file **UNIXWARE.TXT** for information on converting the ASC driver to a loadable driver, checking the software and hardware configuration, and installing SCSI devices under UnixWare.

5-10 Where to Next?

If you purchased the "Gold" version, please refer to the CorelSCSI software package. It includes the CorelSCSI User's Manual for complete instructions on the DOS and Windows utilities and drivers which are included to support all types of SCSI devices.