





## **Preface**

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### **CHANGES**

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Milpitas, CA 95035



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This document provides installation information on Adaptec's Advanced SCSI Programming Interface (ASPI) DOS Manager for the AHA-154X and the AHA-1640 SCSI host adapters, the ASPI disk driver ASPIDISK.SYS, and the SCSI hard disk partitioning program AFDISK.

### **ASPI DOS Manager ASPI4DOS.SYS**

The DOS operating system uses the ASPI DOS Manager to communicate with the SCSI host adapter and allow access to additional SCSI devices connected to the host adapter. The ASPI DOS Manager is typically installed:

- when more than two hard disk drives are already installed (see section on ASPIDISK.SYS installation)
- to install a SCSI drive that is configured at a SCSI ID other than 0 or 1 (see section on ASPIDISK.SYS installation)
- to install removable media (see section on ASPIDISK.SYS installation)
- when interfacing to ASPI modules, which include modules for SY-TOS, CD-ROM, printers, plotters, and other SCSI devices
- to support DOS extenders which run in protected mode (i.e., MS Windows 3.0, MS Windows 386, Quarterdeck QEMM 386, Qualitas 386MAX)
- to support programs that write large amounts of data directly to video memory
- to change the host adapter configuration
- to increase performance

Version 2.0 and newer of the ASPI4DOS.SYS ASPI manager fully conform to the VDS (Virtual DMA Services) specification. VDS is described in the "Commonly Asked Questions" section of this document.

## ASPIDISK.SYS

ASPIDISK.SYS and AFDISK are used to partition a SCSI disk drive that is not installed under the host adapter BIOS. A drive will not be installed under the host adapter BIOS if

- the host adapter BIOS is disabled
- more than two hard disk drives are already installed
- the SCSI ID is something other than 0 or 1

Removable media hard disks should only be installed with the ASPIDISK.SYS driver, and not with the host adapter BIOS. If the removable media hard disk is installed under the host adapter BIOS, do not remove the media or unpredictable results may occur and data may be lost! Only media with 512 bytes-per-sector is supported.

If no AFDISK partitions are found, ASPIDISK.SYS will not install. However, if a removable media hard disk is found, and not installed under the BIOS, a minimum of one logical drive will be reserved.

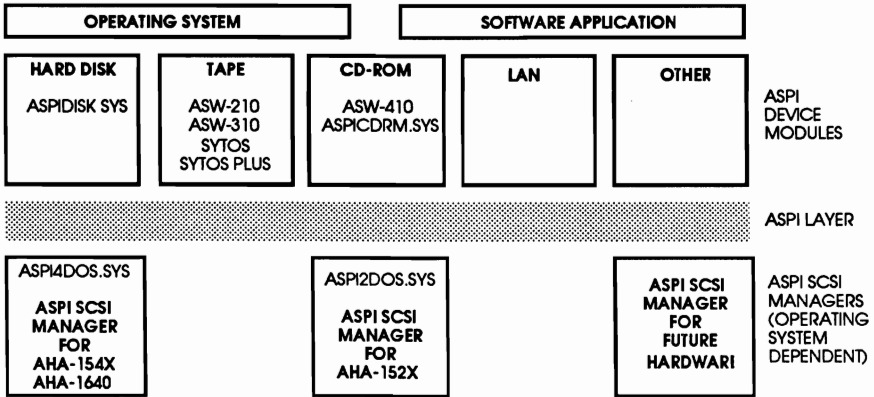
If only a total of two or less hard drives is in the system (e.g. two standard hard disks, one standard hard disk and one SCSI hard disk, or two SCSI hard disks), ASPIDISK.SYS is not needed. ASPIDISK.SYS can be loaded in the CONFIG.SYS, because it will not install and take up memory unless AFDISK partitions are found. Do not be concerned that ASPIDISK.SYS does not load if it is known that no AFDISK partitions exist.

## AFDISK.EXE

AFDISK.EXE is an Adaptec SCSI disk partitioning utility. SCSI disks not installed under the host adapter BIOS must be partitioned with AFDISK. AFDISK will allow you to add or delete a DOS partition, as well as delete a non-DOS partition. AFDISK partitions are installed with the ASPIDISK.SYS driver. AFDISK partitions are completely compatible with DOS partitions (i.e., partitions created with DOS FDISK can later be installed with the ASPIDISK.SYS driver). The DOS version used must be 3.21 or newer.

ASPI4DOS.SYS and ASPIDISK.SYS are written to the ASPI (Advanced SCSI Programming Interface). This is a modular approach to writing SCSI device drivers. Drivers are written to the ASPI interface instead of to the host adapter hardware. The advantage is that a program need only be written once; if the ASPI Manager for a particular host adapter is loaded, it will work will all ASPI modules.

ASPI





The first installation step is to copy the files from the ASW 1410 program diskette to a directory on drive C using the DOS COPY command.

*Note: You might want to create a separate directory for the AFDISK files.*

### **ASPI4DOS.SYS INSTALLATION**

In order for the ASPI MS-DOS Manager files to be loaded whenever the system is booted, the CONFIG.SYS file must contain the following **DEVICE=** command:

```
DEVICE = \<directory>\ ASPI4DOS.SYS /optional switches
```

Using any ASCII file editor, add the individual device driver commands to an existing CONFIG.SYS file, or follow the instructions in the MS-DOS Operations Reference Manual to create a new CONFIG.SYS file. The driver should precede the loading of all ASPI modules and any disk caching drivers.

When the driver is loaded, the display should look similar to:

```
-----  
AHA-154X/1640 ASPI Manager for DOS  
Version 2.1  
Copyright 1990 Adaptec, Inc.
```

```
Int 13H routed through ASPI manager  
ASPI4DOS.SYS Installation Successful  
-----
```

If you add the '/D' command line option (i.e., **DEVICE = ASPI4DOS.SYS /D**), the driver will display configuration information similar to:

-----  
 AHA-154X/1640 ASPI Manager for DOS  
 Version 2.1  
 Copyright 1990 Adaptec, Inc.

```
SCSI ID 0 - LUN 0:   QUANTUM  P40S  940-40-94xx
SCSI ID 1 - LUN 0:   QUANTUM  P40S  940-40-04xx
SCSI ID 4 - LUN 0:   SONY      CD-ROM  CDU-6XXX
SCSI ID 6 - LUN 0:   ADAPTEC   Nodem
```

```
I/O Port Address:   330
Interrupt Level:    11
DMA Channel:        5
Host Adapter SCSI ID: 7
```

```
Debug Status:      2
```

Int 13H active for drive C: and D:

Int 13H routed through ASPI manager  
 ASPI4DOS.SYS Installation Successful

-----

## COMMAND LINE OPTIONS

The following command line options may be added to the ASPI4DOS.SYS driver to change the parameters of the host adapter:

```
DEVICE= \<directory>\ASPI4DOS.SYS [/P<port address>] [/S<slot number>] [/D] [/L] [/W] [/WM] [/V] [/VM] [/X<speed>] [/N <bus on time>] [/F<bus off time>] [/I] [/NORST]
```

Notes: /S is for the AHA-1640 only  
 /P <port address>, /X <speed>, /N <bus on time>, /F<bus off time> are for the AHA-154X only  
 use either /W, /WM, or neither, but do not use both  
 use either /V, /VM, or neither, but do not use both

/P <port address>      Sets the port address that the driver uses to communicate with the AHA-154X host adapter. This value is in hex. Valid addresses are:

130, 134, 230, 234, 330, 334 (i.e., /P334)

The AHA-154X should be jumpered accordingly. The AHA-154X and AHA-1640 BIOS should be disabled if a port address other than 330 is used as they only work at port 330. The default value is port 330.

**/S<slot number>**

Sets the slot number where the driver will find your AHA-1640 host adapter. The valid slot values are:

1, 2, 3, 4, 5, 6, 7, 8 (i.e., /S3)

If this option is not used, the driver will scan the slots starting with slot one and use the first AHA-1640 that it finds.

**/D**

This option will display useful information about the host adapter during boot (see earlier example).

**/L**

This option will enable support for SCSI logical units other than zero. The driver can recognize all eight possible SCSI LUNs on each target. If this option is not specified, the driver will only recognize LUN 0 for each SCSI device.

**/W**

This option will enable virtual mode buffering. The driver will attempt to allocate a 64K virtual buffer from extended memory; if no extended memory is available, the driver will allocate 64K from main memory. Do not use this option if the /WM switch is used. Virtual mode buffering is required for applications such as Windows 386 v2.x. Virtual mode buffering is not required for MS Windows v.3.0 or later. See section "Software Considerations".

**/WM** This option has the same function as the **/W** option except that this will always allocate the 64K virtual buffer from main memory. Do not use the **/W** switch and the **/WM** switch at the same time. Use the **/WM** switch if the **/W** switch does not work or if no extended memory is available.

**/V** This option will enable video buffering. The driver will attempt to allocate a 64K video buffer from extended memory; if no extended memory is available, the driver will allocate 64K from main memory. Do not use this option if the **/VM** switch is used. Video buffering is required for applications or programs that write large amounts of data directly to video memory. This switch is not required if using a AHA-154XB or AHA-1640. If used in conjunction with **/W** or **/WM**, only a single 64K buffer will be allocated.

**/VM** This option has the same function as the **/V** option except that this will always allocate the 64K video buffer from main memory. Do not use the **/V** switch and the **/VM** switch at the same time. Use the **/VM** switch if the **/V** switch does not work or no extended memory is available. If used in conjunction with **/W** or **/WM**, only a single 64K buffer will be allocated.



## ADVANCED COMMAND LINE OPTIONS

- /X<speed>** This option sets the AT Bus Master transfer speed of the AHA-154X host adapter only. This option overrides the host adapter jumpers. If this option is not used, the speed will be determined by the jumpers on the host adapter. Normally the host adapter is jumpered for 5 MBytes/sec. The hex value is what is sent directly to the AHA-154X during a "Set Transfer Speed" (Opcode=9) command. Five values are predefined:
- 00 - 5.0 MB/sec (i.e., /X00)
  - 01 - 6.7 MB/sec
  - 02 - 8.0 MB/sec
  - 03 - 10.0 MB/sec
  - 04 - 5.7 MB/sec (AHA-154XA or B only)
- Warning: AT Bus Master transfer speeds of greater than 5.0 MB/sec are not supported in all AT systems. Increasing the transfer speed to a speed greater than the AT can handle may cause a hang condition.*
- /N<bus on time>** This option sets the BUS ON time for the AHA-154X host adapter only. Valid BUS ON times are between 02 and 15 µsecs. The default time is 11 µsecs (i.e., /N11). The value is in decimal. This command is only valid on the AHA-154X.
- /F<bus off time>** This option sets the BUS OFF time for the AHA-154X host adapter only. Valid BUS OFF times are between 01 and 64 µsecs. The default time is 4 µsecs (i.e., /F4). The value is in decimal. This command is only valid on the AHA-154X.
- /I** This option will disable the loading of the embedded INT 13 module. This option is for debugging purposes and should normally not be used.

**/NORST** This option will cause the driver not to issue a hard reset to the host adapter during initialization only if the BIOS is disabled. If the BIOS is enabled, no hard reset is ever issued by the driver because the BIOS resets the board during its initialization phase. If not specified with the BIOS disabled, all devices on the SCSI bus will be reset.

## ASPIDISK.SYS INSTALLATION

In order for the ASPIDISK.SYS driver to recognize logical drives partitioned with AFDISK, the CONFIG.SYS file must contain the following **DEVICE=** command:

**DEVICE = \<directory>\ ASPI4DOS.SYS /optional switches**

**DEVICE = \<directory>\ ASPIDISK.SYS /optional switches**

*Note: The ASPIDISK.SYS driver must be loaded after the ASPI4DOS.SYS driver for proper operation. AFDISK should be run before attempting to load these logical drives with the ASPIDISK.SYS driver.*

## COMMAND LINE OPTIONS

The following command line option may be added to the ASPIDISK.SYS driver:

**/D** This displays useful information during boot (see the following example)

**/R<# of reserved logical drives>** This determines the number of logical drives that will be reserved for removable media. This command is ignored if the hard disk is the non removable type. If not specified the default number of reserved logical drives is one. If media with logical drive assigned is inserted in the removable media drive during boot, that number of logical drives will be reserved.

When both the ASPI4DOS.SYS driver and the ASPIDISK.SYS driver are loaded, the display should look similar to:

---

```
AHA-154X/1640 ASPI Manager for DOS
Version 2.1
Copyright 1990 Adaptec, Inc.
```

```
Int 13H routed through ASPI manager
ASPI4DOS.SYS Installation Successful
```

```
ASPI Disk Driver for DOS
Version 2.1
Copyright 1990 Adaptec, Inc.
```

```
 2 SCSI disk drive (s) handled by ASPIDISK
 5 Logical drive(s) installed
ASPIDISK.SYS Installation Successful
```

---

If you add the '/D' command line option to both drivers (i.e. ,  
DEVICE = ASPI4DOS.SYS /D  
DEVICE = ASPIDISK.SYS /D), the driver will display configuration  
information similar to:

-----  
AHA-154X/1640 ASPI Manager for DOS  
Version 2.1  
Copyright 1990 Adaptec, Inc.

SCSI ID 0 - LUN 0:	QUANTUM	P40S	940-40-94xx
SCSI ID 1 - LUN 0:	QUANTUM	P40S	940-40-04xx
SCSI ID 2 - LUN 0:	SyQuest	SQ555	
SCSI ID 4 - LUN 0:	CONNER	CP3040	-40mb-3.5

I/O Port Address:	330
Interrupt Level:	11
DMA Channel:	5
Host Adapter SCSI ID:	7

Debug Status:	2
---------------	---

Int 13H active for drive C: and D:

Int 13H routed through ASPI manager  
ASPI4DOS.SYS Installation Successful

ASPI Disk Driver for DOS  
Version 2.1  
Copyright 1990 Adaptec, Inc.

HA #0 - SCSI ID 0:	Handled by host adapter BIOS
HA #0 - SCSI ID 1:	Handled by host adapter BIOS
HA #0 - SCSI ID 2:	Removable media - 2 logical drives E: to F: reserved
HA #0 - SCSI ID 4:	Fixed Disk - 3 logical drives G: to I:

Host Adapter BIOS:	64 head translation
DOS version:	3.30

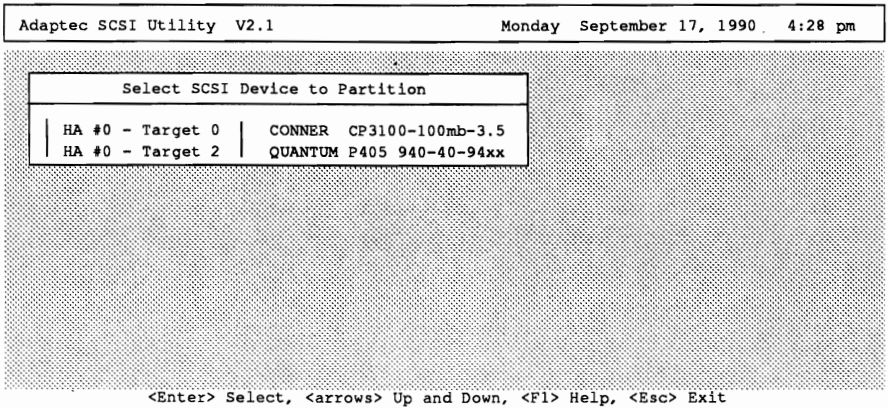
2 SCSI disk drive(s) handled by ASPIDISK  
5 Logical drive(s) installed  
ASPIDISK.SYS Installation Successful  
-----

AFDISK INSTALLATION

Make sure that all the AFDISK support files are in the same directory as AFDISK.EXE. The files and their functions are listed below.

<i>File</i>	<i>Function</i>
AFDISK.EXE	SCSI disk partition and format utility
PROGHLP.HLP	AFDISK HELP file
SY\$MSG.DTA	AFDISK system disk file
SY\$ERR.DTA	AFDISK error message file
SY\$HELP.DTA	AFDISK help message file

To invoke AFDISK, simply type AFDISK at the DOS prompt. The ASPI Manager must already be installed in the CONFIG.SYS for AFDISK to run correctly. The screen will look similar to:



The displayed list shows all installed SCSI disk drives, including removable media devices. The "HA#" field indicates the host adapter number. If running a single host adapter, this number will be zero. The "Target" field indicates the SCSI devices target ID. Select the SCSI disk to partition, and format, and press <Enter>. The screen will look similar to:

Adaptec SCSI Utility V2.1		Monday September 17, 1990		4:29 pm
---------------------------	--	---------------------------	--	---------

Select SCSI Device to Partition		Type	Start	End	Megs
HA #0 - Target 0	CONNER CP3100-1				
HA #0 - Target 2	QUANTUM P405 940				

Logical Drive Info
64 heads
32 sectors/track
40 cylinders
512 bytes/sector
40 megabytes
1406Ch blocks

<Ins> Create, <Del> Delete, <F1> Help, <Esc> Exit

Logical drive information will be displayed in the lower left hand corner of the screen. Since most Adaptec SCSI host adapters use a 64 head/32 sector translation scheme, the number of cylinders will equal the number of megabytes of capacity available. The number of SCSI logical blocks is also displayed.

The existing partitions on the drive will be displayed on the upper right hand corner of the screen. Both DOS and non-DOS partitions can be deleted by pressing the <Delete> key and answering "yes" to the prompt. In this example, no partitions exist. To create a partition, press the <Insert> key. The screen will look similar to:

Adaptec SCSI Utility V2.1		Monday September 18, 1990 4:32 pm									
Select SCSI Device to Partition HA #0 - Target 0    CONNER CP3100-1 HA #0 - Target 2    QUANTUM P405 940		<table border="1"> <thead> <tr> <th>Type</th> <th>Start</th> <th>End</th> <th>Megs</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Type	Start	End	Megs				
Type	Start	End	Megs								
Logical Drive Info 64 heads 32 sectors/track 40 cylinders 512 bytes/sector  40 megabytes 1406Ch blocks		<table border="1"> <thead> <tr> <th colspan="2">Create a DOS Partition</th> </tr> </thead> <tbody> <tr> <td>Start Cylinder:</td> <td>0</td> </tr> <tr> <td>End Cylinder:</td> <td>31</td> </tr> </tbody> </table>		Create a DOS Partition		Start Cylinder:	0	End Cylinder:	31		
Create a DOS Partition											
Start Cylinder:	0										
End Cylinder:	31										
<Ins> Create, <Del> Delete, <F1> Help, <Esc> Exit											

A "Create a DOS Partition" window will appear in the lower right hand corner of the screen. The "Start Cylinder" and "End Cylinder" will default to the maximum allowed. For DOS 3.3x the limit is 32 Megabytes per partition, and for DOS 4.0x and newer the limit is 1 gigabyte per partition. In this example, DOS 3.3 is used so the Start Cylinder is 0 and the End Cylinder is 31. These values can be changed. AFDISK will not allow illegal values to be entered.

When the desired cylinder numbers have been entered, press the <Esc> key. The screen will look similar to:

Adaptec SCSI Utility V2.1 Monday September 18, 1990 4:33 pm

Select SCSI Device to Partition		Type	Start	End	Megs
HA #0 - Target 0	CONNER CP3100-1				
HA #0 - Target 2	QUANTUM P405 940				

Logical Drive Info

64 heads  
32 sectors/track  
40 cylinders  
512 bytes/sector

40 megabytes  
1406Ch blocks

Create Partition? - <F1> Help

No  
Yes

Create a DOS Partition

Start Cylinder: 0  
End Cylinder: 31

<Ins> Create, <Del> Delete, <F1> Help, <Esc> Exit

Use the down arrow key to select "Yes" and press the <Enter> key. If additional partitions are desired, hit the <Insert> key and repeat the instructions described above.

In the following example, two partitions were created, a 32 Megabyte partition and an 8 Megabyte partition.

Adaptec SCSI Utility V2.1 Tuesday September 18, 1990 12:08 pm

Select SCSI Device to Partition		Type	Start	End	Megs
HA #0 - Target 0	CONNER CP3100-1	DOS	0	31	32
HA #0 - Target 2	QUANTUM P405 940	DOS	32	39	8

Logical Drive Info

64 heads  
32 sectors/track  
40 cylinders  
512 bytes/sector

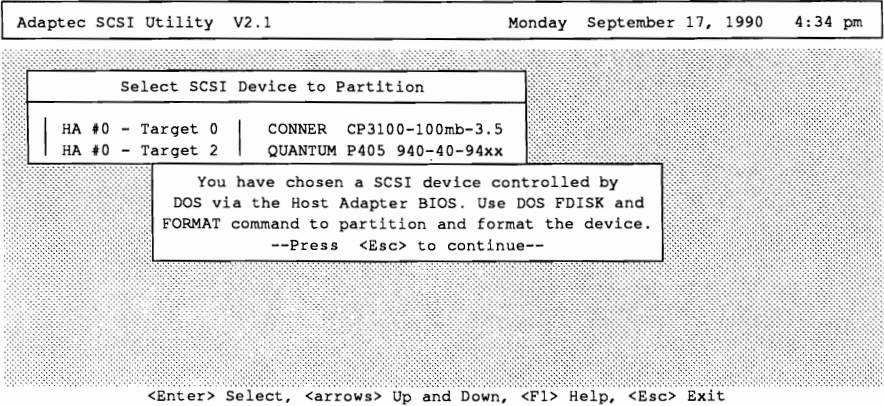
40 megabytes  
1406Ch blocks

<Ins> Create, <Del> Delete, <F1> Help, <Esc> Exit

Press the <Esc> key to return to the "Select SCSI Device to Partition" screen. Select any other valid SCSI drives to partition.

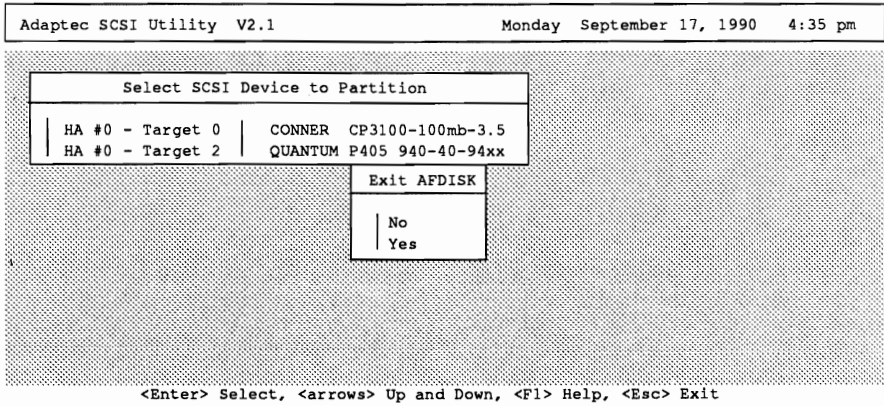


A drive that is being controlled by the host adapter BIOS cannot be partitioned with AFDISK. If such a drive is selected, the following screen will appear:



Simply press the <Esc> key to continue.

To quit AFDISK, press the <Esc> key and select "yes" when prompted on whether or not to quit. It is necessary to reboot the system in order for the partitions that have just been created to be installed.



If for some reason it is difficult to read the text when running AFDISK (i.e., certain laptop computers), the program can be forced into black and white mode. To do this, use the DOS MODE command:

```
MODE BW80
```

If color mode is desired again at a later time, use the DOS MODE command:

```
MODE CO80
```

For the majority of systems, the default color mode should be sufficient.

On-line help is always available by pressing <F1>.

Some programs that use the virtual mode of the 386 sometimes require a virtual buffer allocated to run correctly. A virtual buffer can be allocated with the command line switch /W or /WM after the ASPI4DOS.SYS driver. Programs that conform to the VDS specification do not require a virtual buffer. See the table below to determine if a separate buffer is required.

<i>Program</i>	<i>Version</i>	<i>Note</i>
MS Windows 286	all	No buffer required
MS Windows 386	2.x	/W or /WM required
MS Windows*	3.0 or newer	No buffer required
QEMM 386* by Quarterdeck	5.0 or newer	No buffer required. Driver can be loaded into "high" memory except when loading from a SCSI drive controlled by the AHA-154X or AHA-1640 BIOS.
QEMM 386 by Quarterdeck	previous to 5.0	/W should be used. If it is used, at least 64K of extended memory should be left free when QEMM is loaded (i.e., DEVICE = QEMM.SYS EXTMEM = 64). ASPI4DOS.SYS should NOT be loaded into "high" memory.
QRAM by Quarterdeck	all	No buffer required. Driver can be loaded into "high" memory.

<i>Program</i>	<i>Version</i>	<i>Note</i>
386MAX* by Qualitas	4.08 or newer	No buffer required. Driver can be loaded into "high" memory except when loading from a SCSI drive controlled by the AHA-154X or AHA-1640 BIOS.
386MAX by Qualitas	previous to 4.08	/W should be used. If it is used, at least 64K of extended memory should be left free when 386MAX is loaded (i.e., DEVICE = 386MAX.SYS EXT=64). ASPI4DOS.SYS should NOT be loaded into "high" memory.
MOVE'EM by Qualitas	all	No buffer required. Driver can be loaded into "high" memory.
Any protected mode Software (No VDS support)	?	/W or /WM required
Any protected mode* Software (VDS support)	?	No buffer required.

\*This program conforms to the VDS specification.

*Note: If problems occur loading ASPI4DOS.SYS into high memory, make sure that ASPI4DOS.SYS is not being loaded into video memory. Consult your user's manual for the particular application.*

Each ASPI4DOS.SYS driver will support a single host adapter. Support for multiple host adapters can be achieved by loading multiple copies of the driver, each instance with a different /P (AT) or /S (Micro Channel) option specifying the port address or slot location. The drivers are capable of chaining themselves onto the ASPI entry point, so the AHA-154X ASPI manager could be mixed in with ASPI managers for other host adapters as well.

The first ASPI4DOS.SYS loaded must specify the host adapter with its BIOS enabled. If none of the host adapters have their BIOS's enabled, this will not be a problem.

The following is the CONFIG.SYS entry for a system with two AHA-154X host adapters.

```
DEVICE = ASPI4DOS.SYS
DEVICE = ASPI4DOS.SYS /P334
DEVICE = ASPIDISK.SYS (include this line only if you need it)
```

The following is the CONFIG.SYS entry for a micro channel system with two AHA-1640 host adapters.

```
DEVICE = ASPI4DOS.SYS /S1
DEVICE = ASPI4DOS.SYS /S2
DEVICE = ASPIDISK.SYS (include this line only if you need it)
```

When using multiple AHA-154X host adapters, be sure to select a different port address, DMA channel, and Interrupt channel for each host adapter. Only one AHA-154X should have its BIOS enabled; all other host adapter BIOS's should be disabled. If using multiple AHA 1542 host adapters (the '2' indicates the presence of a floppy controller), you will also need to disable the floppy controllers on all the host adapters except the one used.

When using multiple AHA-1640 host adapters, be sure to select a different port address, arbitration level, and Interrupt level for each host adapter. Only one AHA-1640 should have its BIOS enabled; all other host adapter BIOS's should be disabled.



- Q. *What is VDS and why is it an advantage for me?*
- A. VDS stands for virtual DMA Services. It is a standard, developed so that bus master devices can obtain the physical address of software that is running in the protected mode of the '386. It eliminates the need for a separate buffer, thus increasing overall system performance. ASW 1410 ver 2.0 and newer fully supports the VDS specification. Microsoft Windows 3.0 also supports VDS. See section on "Software considerations".
- Q. *Why should I install the ASPI4DOS.SYS manager if I only have one hard disk installed, and it is currently installed under the BIOS?*
- A. When the manager is loaded, Int 13 calls are rerouted through the driver instead of through the host adapter BIOS. Since the Int 13 code is processed at RAM speed instead of ROM speed, overall system performance is increased.
- Q. *What is SCSIHA.SYS and do I still need it?*
- A. SCSIHA.SYS is a device driver for the AHA-154X/1640, that can be obtained from the Adaptec BBS. It is not required when using the ASPI4DOS.SYS driver (a /W may be needed. See Software Considerations section of this document). This driver creates a buffer in lower memory that is required when using programs use the protected mode of the '386.
- Q. *I have both ASPI4DOS.SYS and ASPIDISK.SYS loaded into my CONFIG.SYS. However, I'm getting a message during boot "0 Logical drive (s) installed. Failed to find any SCSI logical drives to support. ASPIDISK.SYS is NOT installed." What is wrong?*
- A. ASPIDISK.SYS will only install if compatible partitions are found on SCSI drives that are not installed under the host adapter BIOS. If such partitions are not found, ASPIDISK.SYS will not install. This is normal and is not a problem. ASPI4DOS.SYS will still install normally.

- Q. *Will AFDISK support partitions greater than 32 MBytes if DOS 3.31 is used?*
- A. No, it won't. Although DOS 3.31 supports large partitions, such partitions are not supported through AFDISK. The limit is still 32 MBytes per partition, unless DOS 4.0 or later is used. The limit is 1 GByte per partition with DOS 4.0 or later.
- Q. *How do I install a removable-media drive?*
- A. Removable media is supported by ASPI4DOS.SYS and ASPIDISK.SYS. Use the following guidelines to install removable media.
1. Change the SCSI ID of the removable media drive to 2,3,4,5, or 6. (Consult the drive's manual for instructions).
  2. A low-level format of the media may be necessary. Format Utilities are available on the Adaptec BBS.
  3. Boot to DOS, with a CONFIG.SYS containing the ASPI Manager ASPI4DOS.SYS.
  4. Partition the media with AFDISK.EXE.
  5. Reboot for partitions to take effect (ensure CONFIG.SYS has ASPI4DOS.SYS and ASPIDISK.SYS loaded).



**ASPI4DOS.SYS**

Invalid entry for '/P' setting

You have entered an invalid '/P' setting on the command line. There are six valid port settings: 334, 330, 234, 230, 134, and 130 (i.e., /P334).

Invalid entry for '/N' setting

You have entered an invalid '/N' setting on the command line. You can only enter number 2-15 (i.e., /N10). This bus on time is entered in decimal. This option is only valid for the AHA-154X.

Invalid entry for '/F' setting

You have entered an invalid '/F' setting on the command line. You can only enter numbers 1-64 (i.e., /F5). This bus off time is entered in decimal. This option is only valid for the AHA-154X.

Invalid entry for '/X' setting

You have entered an invalid '/X' setting on the command line. You should enter a 2-character hex value (i.e., /X03). This option is only valid for the AHA-154X.

Unable to read configuration from 154x host adapter

The driver failed in its attempt to get the host adapter's configuration settings. This error will only occur with the AHA-154X. Make sure there are no hardware conflicts within your PC, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Unable to set Bus Master transfer rate

The driver failed in its attempt to set the host adapter's Bus Master DMA transfer rate. This error will only occur with the AHA-154X. Make sure there are no hardware conflicts within your PC, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Unable to set bus on/off timing

The driver failed in its attempt to set the host adapter's bus-on or bus-off time. This error will only occur with the AHA-154X. Make sure there are no hardware conflicts within your AT, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Unable to initialize host adapter mailboxes

The driver failed in its attempt to initialize the host adapter's mailbox base address. Make sure there are no hardware conflicts within your AT, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Failed checking for scatter/gather mode

The driver failed in its attempt to determine whether or not your host adapter supports scatter/gather. Make sure there are no hardware conflicts within your AT, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Failed to hard reset the host adapter

The driver failed in its attempt to hard reset the host adapter. Make sure there are no hardware conflicts within your AT, the host adapter's jumpers are set correctly, and that the host adapter is securely inserted.

Failed scanning for SCSI devices

The driver failed scanning for devices on the SCSI bus. Make sure that the SCSI bus is properly terminated.

Unable to find host adapter in POS registers

No AHA-1640 host adapter was found in your system.

ASPI4DOS.SYS Installation Failed

This error message indicates that the ASPI driver was not loaded. This message will generally be preceded by one of the aforementioned errors.

### **ASPIDISK.SYS**

Unable to open ASPI manager!

The driver failed to access the ASPI4DOS.SYS. The ASPI4DOS.SYS driver may not be installed. Be sure that the ASPIDISK.SYS driver is loaded after the ASPI4DOS.SYS driver.

Command line argument is incorrect.

The driver can not get the correct command line argument. Make sure that the value is valid and was specified correctly.

ASPI "Host Adapter Inquiry" failed.

The driver failed to issue ASPI host Adapter Inquiry command to get the information of installed host adapters.

No Host Adapter exists.

The driver can not find any host adapter on the system through the ASPI manager.

ASPI "Get Device Type" failed.

The driver failed to issue ASPI Get Device Type command.

Failed to access SCSI device parameter.  
SCSI drive either not formatted or bad.

The driver failed to read the BPB table of the first SCSI drive that is controlled by the driver. This drive either has not been formatted or is bad.

Get DOS version failed.

The driver failed to get the DOS version.

Invalid DOS version. DOS must be version 3.21 and above.

The current DOS version is older than 3.21. The driver does not support DOS versions older than 3.21.

SCSI ID XX - Read Capacity failed.

The driver failed to issue SCSI Read Capacity command on the specified drive.

Failed to read master boot record.

The driver failed to read the information from the master boot record. The drive either has not been partitioned or is bad.

Failed to read boot record.

The driver failed to read the disk parameters. The SCSI drive or cable might be bad.

Error issuing SCSI inquiry command.

The driver failed to issue SCSI Inquiry command to check the removable media.

No SCSI drives attached.

The driver can not find any SCSI drive attached on the system.

Failed to find any SCSI logical drives to support.

The driver can not find any logical drives to be handled. The drive that is not controlled by host adapter BIOS may not have been formatted.

**WARNING:** Maximum number of logical drives reached.  
Driver can only support up to 26 logical drives.

There are too many logical drives on the attached SCSI drives that cause the total number of logical drives on the system to be 26, the maximum number that can be handled by DOS. The data on the logical drives not installed is not lost; however, the data will not be available until sufficient logical drives are made available.

ASPIDISK.SYS is NOT installed.

This message will be shown with the other error messages mentioned above to indicate that the loading of the driver has been aborted due to the error.

Not ready error reading drive #

This error message is issued by DOS after the user tried to access the dummy logical drive reserved by the driver. Just type 'a' to abort it.

General failure error reading drive #  
Abort, Retry, Fail?

This error message is issued by DOS after the user tried to access the removable media whose block size is not equal to 512 bytes/block.





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STOCK NO.: 510109-00 Rev.C

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Printed in Singapore