QDPS v2.21 User Manual
(QDPS Diskette Creator)

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Disclaimer

This user manual, while accurate, does not attempt to cover all aspects of hard drive diagnostics or troubleshooting. Quantum does not warrant that this information will meet your particular needs or requirements. In no event will Quantum be liable to you, your customers, or other users, if the application of the information enclosed herein is not successful.

If you are certain the issue is directly related to your hard drive, refer to our Web site www.quantum.com for detailed information on our products and services. Call our Support Services line (800-377-3475) for automated trouble shooting guides and a list of other available documents. When calling, please be prepared to provide your hard drive serial number and part number. All other company and product names are the trademarks or registered trademarks of their respective holders.

Safety first!

Before running any system or hard drive diagnostics, take the opportunity to backup your data. Data recovery can be costly and time consuming. Remove the AC power plug before removing the cover on your computer. Before touching any chips on your computer, hard drive, or peripheral device, release static electricity from your body. Use either an anti-static grounding strap or by touching the power supply, case, or any bare metal part of your system chassis. Static electricity is invisible and can cause permanent damage so take a few moments to prevent static damage by discharging yourself before making contact.

Description / Overview

QDPS is a simple and highly effective tool to test the health of your Quantum hard drive. QDPS goes beyond generic drive tests to "exercise" PC-resident hard drives, utilizing advanced and proven tests developed by Quantum, to ensure the quality and reliability of your Quantum hard drive. The tests are passive and non-destructive, and will not harm your drive or data. Quantum's QDPS utilities are designed to give Quantum users the highest level of confidence that their Quantum hard drive is functioning properly.

The QDPS utilities are designed to be used on Quantum ATA and SCSI S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) capable hard drives. It can be used when the operational characteristics of the drive are in question. For the best results, the utilities should be run directly from the boot diskette created by the QDPS Diskette Creator utility available for downloading from the Support Software Download section of Quantum's web site. When the utilities are executed in this manner, they will not be dependent on your operating system. The QDPS Diskette Creator also includes an ASPI module, which greatly simplifies the setup and operation of your SCSI host adapter when supported SCSI drives are being tested. Please see the section below entitled "Running the Program" for restrictions.

If you are encountering problems with your PC system, QDPS will allow you to verify the operation of your Quantum hard disk drive. The utility will verify if your hard disk is functioning properly and avoid unnecessary returns and outages. Using QDPS will save you the time, and avoid the inconvenience of returning a properly functioning hard drive.

The program runs a series of tests to verify your hard drive operation:

- S.M.A.R.T. Check
- RAM Buffer Test
- Drive Diagnostics
- Physical Head Test
- Random Verify Scan
- Quick Media Scan
- Optional Full Media Scan

The Quick Media Scan Test examines the critical areas of your hard drive, where the Operating system and other system files are typically stored.

The optional Full Surface Scan Test also examines all additional data areas of the hard drive to verify if the hard drive is the source of a problem.

System Requirements

- A QDPS program diskette created by the QDPS Diskette Creator utility.
- A PC compatible system (386 or newer).
- A supported Quantum ATA or SCSI S.M.A.R.T. capable hard drive.
- Not currently supported to run on Apple systems

Supported Hard Drives

ATA Drives:

- Bigfoot
- Bigfoot CY
- Bigfoot TS
- Bigfoot TX
- Fireball 540/1080
- Fireball 640/1280
- Fireball CR
- Fireball CX
- Fireball EL
- Fireball EX
- Fireball lct
- Fireball lct10
- Fireball Plus KA
- Fireball Plus KX
- Fireball Plus LM
- Fireball SE
- Fireball ST
- Fireball TM

SCSI Drives:

- Atlas III *
- Atlas IV
- Atlas V
- Atlas 10K
- Atlas 10K II
- Viking II

* Although the Atlas III hardware contains support for SMART, generic distribution codes available for this drive will have SMART disabled. As a result, the SMART Check, Physical Head Test, and Final SMART Check components of QPDS will register a 'bypass' during the test of Atlas III drives. This does not currently affect other SCSI drives supported by QDPS.

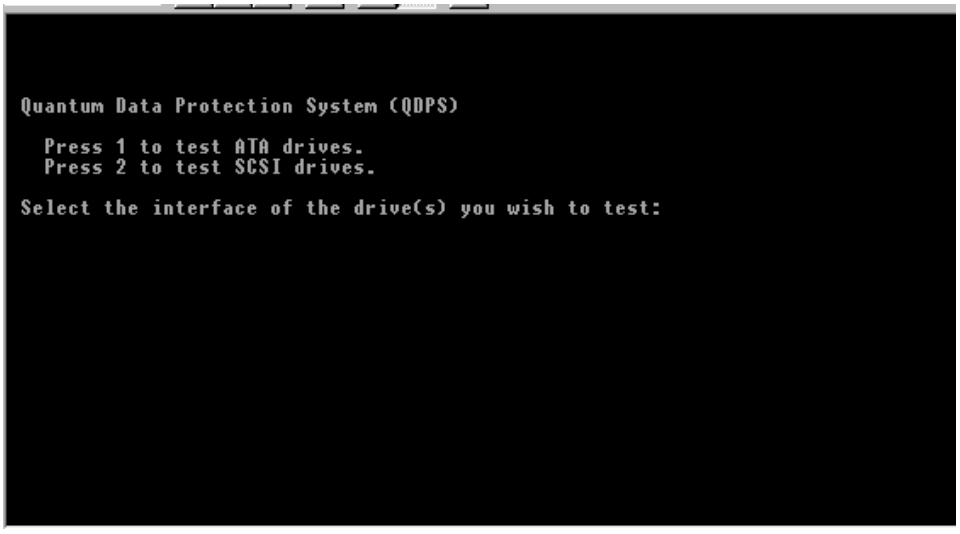
Creating a QDPS Program Diskette

1. Download the QDPS Diskette Creator utility from the Support Software Download section of Quantum's web site to a temporary folder or download folder on your local hard drive.
2. Once the download to your hard drive is completed, double-click on the diskette creator utility located in your temporary folder or download folder.
3. Insert a formatted 1.44MB diskette into drive A and press the ENTER key. This will begin the process of creating a bootable QDPS Program Diskette. The diskette creator utility is supported to run from within the Windows 3.1x, Windows 95/98, Windows NT 4.0, and Windows 2000 desktop environments.

Running the Program

QDPS is designed to run on Quantum S.M.A.R.T. capable ATA or SCSI hard drives (The utility will identify a drive as S.M.A.R.T. capable). For a list of supported Quantum hard drives please review the previous section entitled "Supported Hard drives". QDPS is a non-destructive disk drive test. However, as with any system test, Quantum recommends that you have a complete backup of your drive before beginning

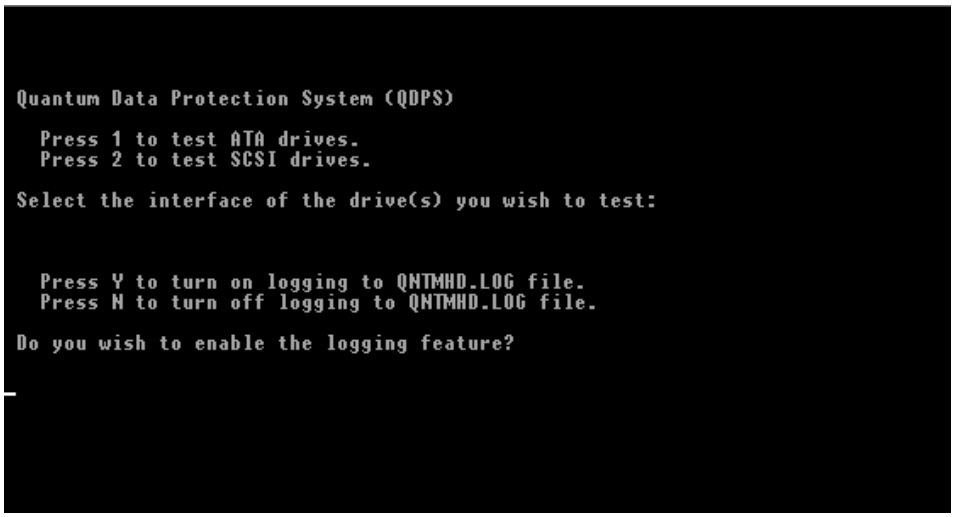
1. Shut down Windows and insert the QDPS Program diskette into drive A:.
2. Reboot or power on your computer.
3. After the program starts up you will be presented with the following screen:



Select the type of the drive(s) you to want to test by entering either "1" or "2" on your keyboard. The QDPS program has the ability to test multiple drives however it can only test one type of drive interface (SCSI or ATA) at a time.

Running the Program

4. After selecting the type of drive(s) you want to test you will be presented with an additional prompt for logging options:



By enabling the logging feature you will be able to keep a record of all drives tested by the QDPS program diskette. This feature is useful if you are planning to use the same system to test multiple drives or if, you are performing drive testing across multiple systems with the same QDPS program diskette.

Logging Functions:

The QNTMHD.LOG file is an ASCII text file that is comma delimited and is automatically appended over subsequent executions of the QDPS program. The ability of this file to append makes it useful for capturing the test results of multiple drives. The log file will consist of a one-line summary containing the pass/fail status, serial number, drive model, and any associated validation code for each drive tested. It can be imported into Microsoft Excel as a spreadsheet or simply viewed or printed through an ASCII text editor such as Microsoft's Notepad.

The QDPS program also provides you the option of saving or printing the current test results at test completion. The print file (QDPS.PRN) is described in further detail on pages eight and nine of this user manual (see the “Evaluating Test Results” section).

Running the Program

5. If you are testing SCSI drives, the next screen prompt will be for detecting the type of SCSI controller being used in your system (If you are testing ATA drives you can proceed directly to step 6).

The LoadASPI module contained on the QDPS program diskette has the ability to auto-detect supported SCSI host adapters and then automatically loads the correct DOS ASPI driver. If no choice is made within 30 seconds, the program will automatically attempt to auto-detect any supported adapters installed in your system.

Auto-detected SCSI host adapters:

- Adaptec 154x
- Adaptec 2940U/UW
- Adaptec 2940U2W
- Adaptec 19160*****
- Adaptec 29160*****
- Adaptec 39160*****

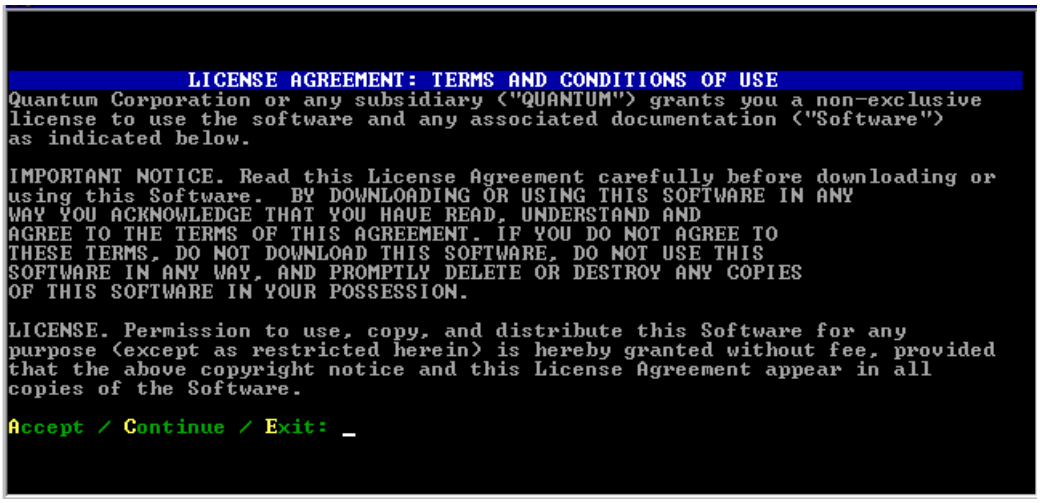
***Note:** Although the Adaptec 19160, 29160, 39160 adapters are supported by the LoadASPI module, they will not auto-detect at this time. It will be necessary to use option 2 from the menu above to manually load the ASPI8U2.SYS driver for these adapters (i.e. :>ASPI8U2.SYS). The ASPI8U2.SYS driver is already resident on the QDPS program diskette.

A great many more of the Adaptec hosts are actually supported by the ASPI drivers included with the QDPS Program Diskette, but *may* not be automatically detected. See Appendix A for a detailed list of these additional SCSI adapters and their associated DOS ASPI drivers.

If you are using a SCSI adapter that is not auto-detected and not listed in Appendix A, then you will be required to use option 2 to use a known DOS ASPI device driver. When using this option it will be necessary to direct the LoadASPI module to the path where the required driver is located. In these instances, it is best to copy the necessary DOS ASPI driver directly to the QDPS program diskette.

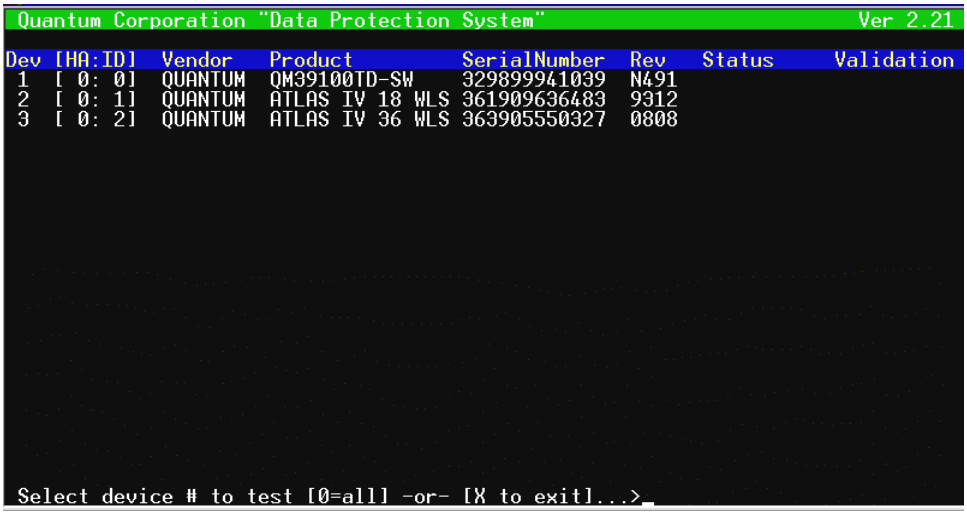
Running the Program

6. The following is the Quantum licensing screen, which will appear after the LoadASPI module has completed initialization (for SCSI drives) or immediately after selecting the logging option when testing ATA drives.



You have the choice of accepting the licensing terms immediately from this initial screen or you can continue on to review the entire licensing agreement. Pressing "E" to exit will terminate the QDPS program.

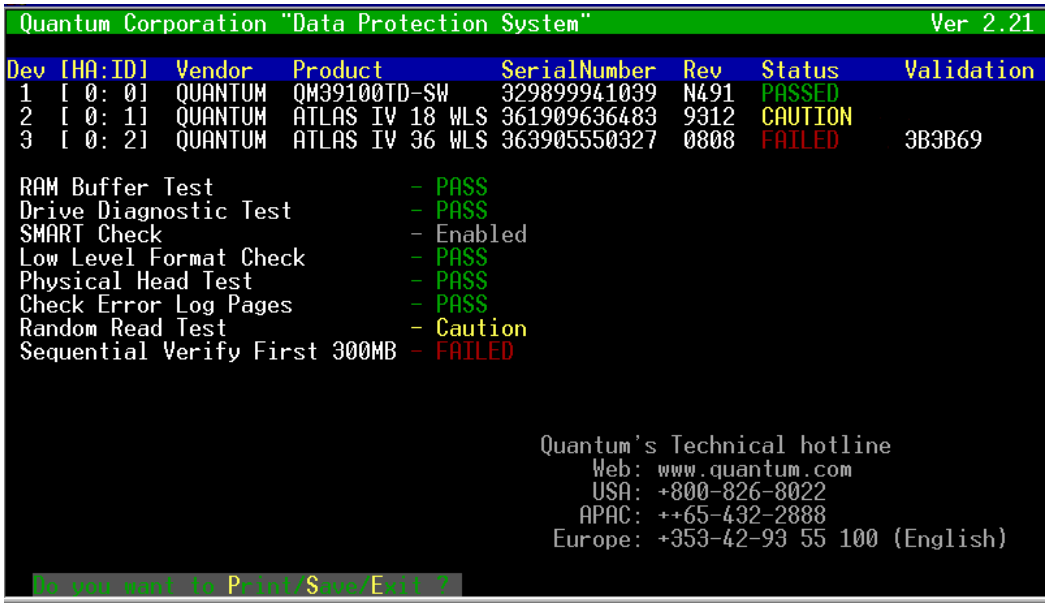
7. After accepting the Quantum licensing agreement the main QDPS program screen is presented (the example shown below is using SCSI drives - the screen presented for testing ATA drives will be identical):



At this point you can select an individual drive for testing or if multiple drives are present as in the example above, then the "all" option can be utilized. When the "all" option is used, you will be prompted if a full media scan is desired for all drives listed. If you decline the full scan option then the QDPS program will default to the "quick "scan for all drives listed. If only a single drive is being tested then you will be prompted for the optional “full” media scan at the end of the test.

Running the Program

8. After testing has completed, the test results will be displayed in the QDPS main program screen similar to the example shown below.



The status (Passed/Failed/Caution) of each drive tested will be displayed in the status column on the right side of the QDPS program screen. Drives that fail testing will have an associated six-digit validation code displayed in the far right column of the display. The validation code along with the drive's serial number will be required for obtaining an RMA on a qualified drive (See page 10 for determining warranty status).

The QDPS.PRN File:

The QDPS program will prompt you to either save or print the test results, or to exit after testing has completed. Selecting "Save" or "Print" will create a print file (QDPS.PRN) with the detailed test results of each drive tested. It is highly recommended that you either save or create this file for future reference. You may be asked to reference this file if you need to contact Quantum's technical support regarding your test results. A sample printout of the QDPS.PRN file is displayed on the next page.

The QDPS.PRN file provides the detailed test results for each drive tested during the most recent execution of the QDPS program. Since the QDPS.PRN file will be overwritten during the next execution of the QDPS program be sure to either create a print out of the current file or archive/rename the file for future reference. The optional QNTMHD.LOG file will only contain a one-line pass/fail summary of each drive tested. However, it has the ability to store test results over subsequent executions of the QDPS program.

Running the Program

A sample QDPS.PRN printout for the SCSI drives used in the previous examples:

```
================================================================================
 Quantum Corporation "Data Protection System"                        Ver 2.21
================================================================================
                                                    Date : 3/7/2000
     Start testing Dev [00:00]
     Vendor ID    : QUANTUM
     Product ID   : QM39100TD-SW
     Serial Number: 329899941039
     Firmware Rev : N491

     RAM Buffer Test                                - PASS
     Drive Diagnostic Test                          - PASS
     SMART Check                                    - bypass
     Low Level Format Check                         - PASS
     Physical Head Test                             - bypass
     Check Error Log Pages                          - PASS
     Random Read Test                               - PASS
     Sequential Verify First 300MB                  - PASS
     Sequential Verify Last 100MB                   - PASS
     Re-Check Error Log Pages                       - PASS
     Final SMART Check                              - bypass

     PASS - PASS - PASS - PASS - PASS - PASS - PASS
================================================================================
 Quantum Corporation "Data Protection System"                        Ver 2.21
================================================================================
                                                    Date : 3/7/2000
     Start testing Dev [00:01]
     Vendor ID    : QUANTUM
     Product ID   : ATLAS IV 18 WLS
     Serial Number: 361909636483
     Firmware Rev : 9312

     RAM Buffer Test                                - PASS
     Drive Diagnostic Test                          - PASS
     SMART Check                                    - PASS
     Low Level Format Check                         - PASS
     Physical Head Test                             - PASS
     Check Error Log Pages                          - PASS
     Random Read Test                               - PASS
     Sequential Verify First 300MB                  - Caution
     Sequential Verify Last 100MB                   - PASS
     Re-Check Error Log Pages                       - PASS
     Final SMART Check                              - PASS

     CAUTION - CAUTION - CAUTION - CAUTION - CAUTION
================================================================================
 Quantum Corporation "Data Protection System"                        Ver 2.21
================================================================================
                                                    Date : 3/7/2000
     Start testing Dev [00:02]
     Vendor ID    : QUANTUM
     Product ID   : ATLAS IV 36 WLS
     Serial Number: 363905550327
     Firmware Rev : 0808

     RAM Buffer Test                                - PASS
     Drive Diagnostic Test                          - PASS
     SMART Check                                    - Enabled
     Low Level Format Check                         - PASS
     Physical Head Test                             - PASS
     Check Error Log Pages                          - PASS
     Random Read Test                               - Caution
     Sequential Verify First 300MB                  - FAILED

        Failed Sequential Read

     Validation Code:      3B3B69
```

Evaluating Test Results

Hard Drive PASSES All Tests:

If your hard drive passes all tests, you will receive a PASSED status message informing you that this hard drive meets all manufacturers' specifications. Drives that have passed QDPS testing will not have an associated validation code and will not require replacing.

Hard Drive with "CAUTION" Status:

The caution status indicates that the drive has recoverable errors and does not require replacing. The caution status is typically associated with one of the media scan tests (quick scan or full scan). A validation code will not be created for these drives. The drive can be recovered by running either the ZeroFill or DataEraser programs available from the Quantum web site. The DataEraser program supports both Quantum ATA and SCSI drives. Additionally, SCSI drives can be recovered by using the host adapter's low-level format routine in lieu of using the DataEraser program. Before using any of these recovery methods a backup should be performed as all of these methods are destructive to any existing data.

Hard Drive FAILS Tests:

If your hard drive fails during the testing, make note of the validation code, the serial number and which specific test failed. If possible, create a printout of the current test results (the QDPS.PRN file) and/or of the log file (QNTMHD.LOG). You should utilize Quantum's Warranty on the Web (WOW) service to determine your drive's warranty status and whom you should contact for obtaining an RMA. Quantum's Warranty on the Web (WOW) site is located at the following URL:

http://www.quantum.com/support/warranty/wow.htm

If your hard drive is experiencing a problem or if you need additional help to determine if the problem can be corrected while the drive remains in your system, Technical Support can be contacted as follows:

- **Disk Drive E-mail Technical Support:**
  http://www.quantum.com/qonline/forms/support_drive.html
- **USA:** 800-826-8022
- **APAC:** 65-432-2888
- **Europe:** 353-42-93 55 100 (English)

Evaluating Test Results

Hard Drive PASSES Tests – But you still have a problem with your system:

Rerun the QDPS utility and select "Full-Surface Scan". Although this test will take longer to run, it will test your entire hard drive and locate any hard drive problems not identified in the initial Quick Scan/Test.

If your hard drive again PASSES, then the problem is most likely not in your Quantum hard drive. You will need to look elsewhere for the failure. Your problem could be your system motherboard, software, virus, etc.

What To Do Next:

Your hard drive has passed all tests, but you still have a problem. Further troubleshooting will be necessary to locate your problem. You may do this yourself or have a repair professional assist you. A good place to start would be to run some additional tests that go beyond the hard drive and check various hardware and software components of your system. We have put together a short list of options, although others are available.

- Ontrack's Data Advisor (available free at Ontrack International)
- Third party system diagnostics programs such as Norton Utilities.
- Vendor-specific diagnostic utilities shipped with your PC.
- Or contact your system supplier for assistance.

Appendix A: Supported Adaptec Drivers

The most common of the Adaptec SCSI host adapters, the AHA-154x, AHA-2940U/UW, and AHA-2940U2W, are supported directly with option 3 of the LoadASPI program included with the QDPS Program Diskette. A great many more of the Adaptec hosts are actually supported by the ASPI drivers included with QDPS, but may not be automatically detected. You can use option 2 to specify the following resident ASPI drivers for the hosts listed for each:

ASPI driver:	**Supported host adapters:**
ASPI2DOS.SYS	Adaptec AVA-1502P,1502AP Adaptec AVA-1505 Adaptec AVA-1515 Adaptec AHA-1510/1520/1522 Adaptec AHA-1510A/1520A/1522A Adaptec AHA-1510B/1520B/1522B Adaptec AHA-1530P/1532P Adaptec AVA-1502AE/AI,AVA-1505AE/AI,AVA-1505AES Adaptec AIC-6260/6360/6370 based SCSI host adapters Adaptec AVA-2825 host adapter
ASPI4DOS.SYS	Adaptec AHA-1540B/1542B Adaptec AHA-1540C/1542C Adaptec AHA-1540CF/1542CF Adaptec AHA-1540CP/1542CP
ASPI8DOS.SYS	Adaptec AHA-2910A/2910B Adaptec AHA-2906 Adaptec AHA-2920C Adaptec AHA-2930A/2930B/2930C/2930CU Adaptec AHA-2940/2940AU/2940W/2940U/2940UW Adaptec AHA-2944W/2944UW Adaptec AHA-3940/3940U/3940W/3940UW Adaptec AHA-3940AU/3940AUW Adaptec AVA-2904, AVA-2902E/I, AVA-2906 Adaptec AIC-7850/7855/7860/7870/7880 based SCSI host adapters Adaptec AIC-7895 based SCSI host adapters
ASPI8U2.SYS	Adaptec AHA-2930U2 Adaptec AHA-2940U2W Adaptec AHA-3950U2 AIC-7890/7891/7896/7897 based SCSI host adapters Adaptec SCSI Card 39160 Adaptec SCSI Card 29160 Adaptec SCSI Card 29160N Adaptec SCSI Card 19160