



AcceleRAID™ Quick Installation Guide

**AcceleRAID 170
PCI to Ultra 160 SCSI
RAID Controller**





AcceleRAID™ Quick Installation Guide

AcceleRAID 170 Ultra 160 SCSI to PCI RAID Controller

Part Number 775065-00

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The AcceleRAID™ 170 complies with the following regulatory agencies:

FC Federal Communications Commission

The FCC information statements are in Appendix E of the AcceleRAID 170 Installation Guide (P/N 775064).

CE Community of Europe

The CE information statements are in Appendix E of the AcceleRAID 170 Installation Guide (P/N 775064).

Underwriters Laboratories



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Introduction

The AcceleRAID 170 is a versatile PCI to single channel Ultra 160 SCSI, Low Voltage Differential (LVD) RAID controller with many possible hardware configurations. The AcceleRAID 170 controller assumes the following parameters:

- A RAID 0, 1, 0+1, 3, 5, 10, 30, 50 or JBOD configuration is being installed.
- The user is familiar with Windows NT®, Windows® 2000, or Novell® NetWare®.
- The user is familiar with disk drive and RAID terminology.

Performing an Installation



WARNING

To avoid electrical shock, do not attempt to perform this hardware installation with power on. Disconnect the system from the electrical wall outlet.

PCI Hot Plug

Please refer to Appendix D in the *AcceleRAID 170 Installation Guide* (P/N 775064) for instructions on how to use the PCI Hot Plug feature.

Connectors, LEDs, and Jumpers

There is one external connector and one internal connector supported on the AcceleRAID 170 controller. The locations of the SCSI connectors are shown in Figure 1 and are labeled as CH 0.

The front side of the controller has three LEDs that are described in Figure 2 and in Table 1.

All the jumpers should normally be set to their default settings. Jumper locations are shown in Figure 3; jumper descriptions are detailed in Table 2.

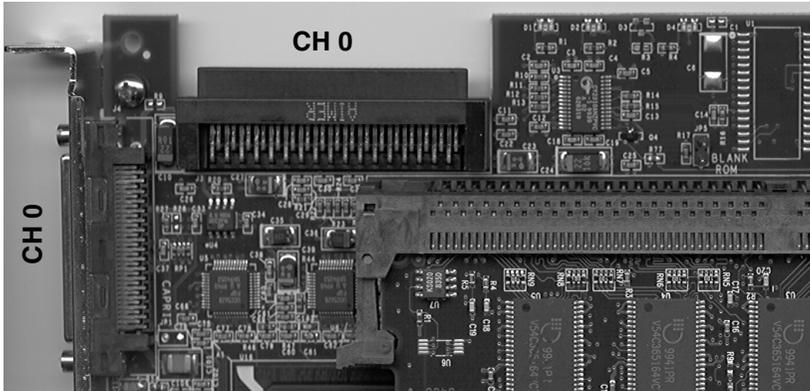


Figure 1. AcceleRAID 170 Controller Channel Connectors

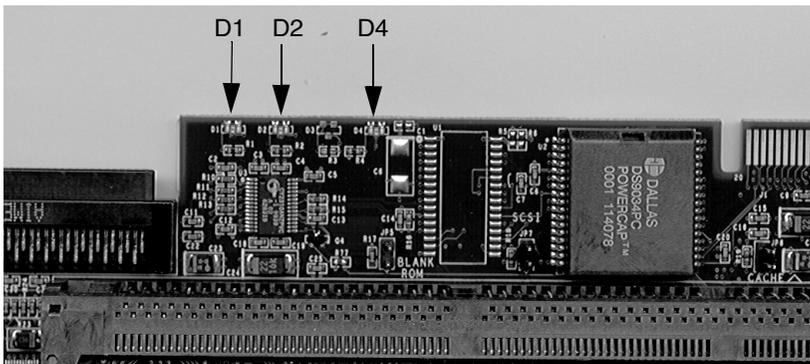


Figure 2. AcceleRAID 170 LEDs (front)

Table 1. LED Descriptions (front)

D 1	SE, Single Ended
D 2	LVD, Low Voltage Differential
D 4	Fail (processor self test)

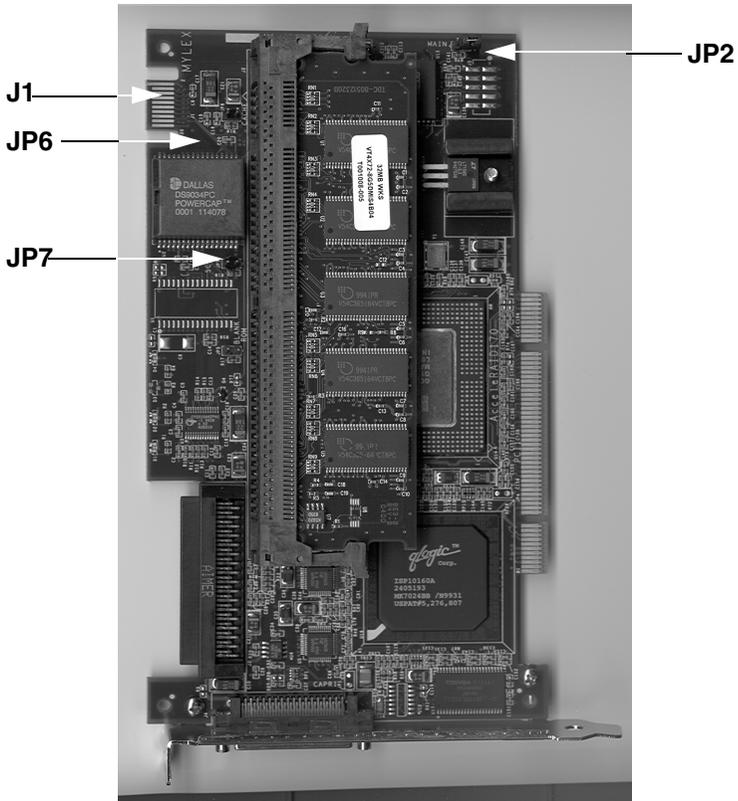


Figure 3. AcceleRAID 170 Jumper Locations

Table 2. AcceleRAID 170 Jumper Descriptions

J1	Manufacturing test point
JP2	Maintenance mode
JP6	Cache dirty (monitor cache write back) — LED header
JP7	BSY (SCSI activity) — LED header

Installing the AcceleRAID 170 into the System Board

Caution

Be sure to wear a ground wrist strap at all times.

1. With the power off, plug the AcceleRAID 170 controller into an available 32-bit PCI slot (see Figure 4); the 32-bit slot is short.

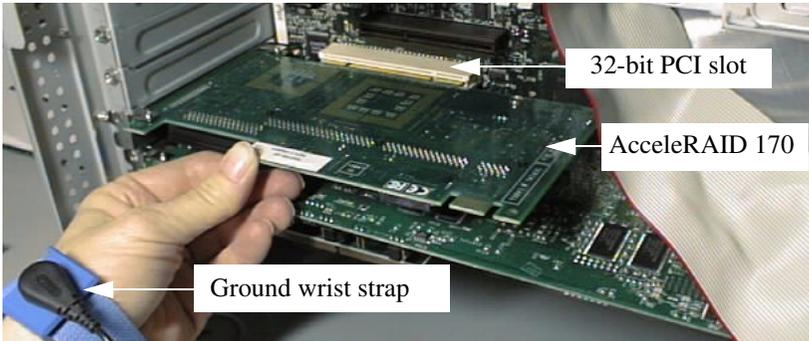


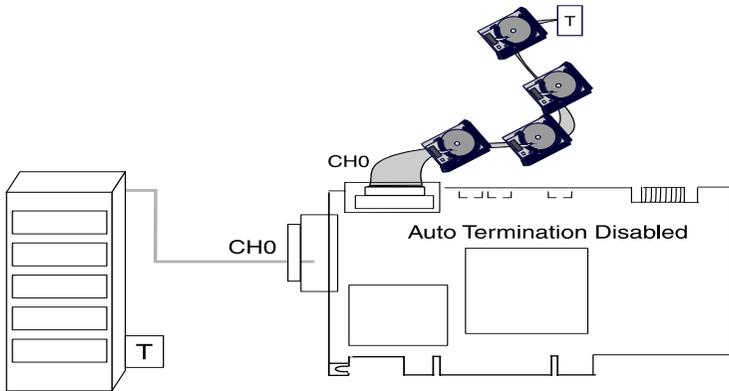
Figure 4. Plugging the AcceleRAID 170 into a PCI Slot

2. Set the SCSI ID on each internal drive to a unique address between 0 and 15, but do not use address 7, as it is reserved for the controller. See the documentation that comes with your drives for instructions on how to do this.

Caution

If internal and external drives are used, be sure that no drive addresses are duplicated. External SCSI cabinets usually automatically assign drive addresses according to the drives' location in the cabinet.

3. Be sure termination is *disabled* on all SCSI drives connected to the controller. See the documentation that comes with your drives for instructions on how to do this. (Termination must be enabled on the last device, if applicable.)
4. Be sure that termination power is *enabled* on all SCSI drives connected to the controller. See the documentation that comes with your drives for instructions on how to do this.



Internal – External Drive Configuration

Figure 5. Connecting Internal and External Drives**Connecting Internal SCSI Devices**

5. Connect a wide, high-density, 68-pin SCSI ribbon cable to the internal SCSI connector on the AcceleRAID 170 controller and connect the other cable connectors to any SCSI devices as required (see Figure 5). Termination is automatic on the AcceleRAID 170.
6. Connect an active terminator to the last device at the end of the SCSI ribbon cable (see Figure 5).

Connection External SCSI Devices

7. Connect a cable, with the 68 pin VHDCI, to the external connector on the AcceleRAID 170 controller. Connect the other end of the cable connector to other devices or to a SAF-TE external drive cabinet, as required (see Figure 5).
8. External drive cabinets usually have termination built into the end of the SCSI bus. Check the documentation that comes with your drive cabinet to be sure this is the case. If not, use an active terminator at the end of the bus.

Note

AcceleRAID 170 termination is enabled by default, but will be automatically disabled if necessary.

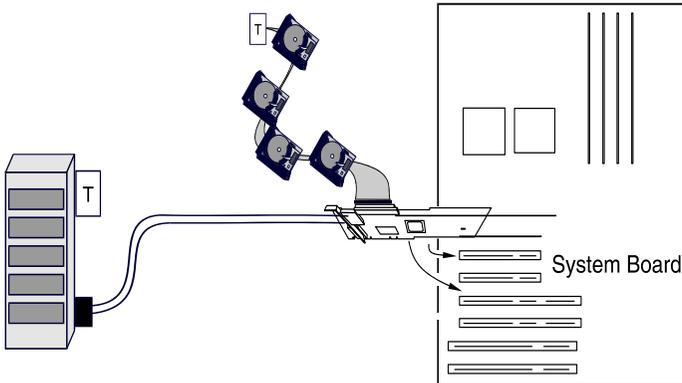


Figure 6. AcceleRAID 170 in a Typical Installation

The hardware portion of the installation is complete.

The AcceleRAID 170 may be used in either a 32-bit or 64-bit PCI slot, although a 32-bit PCI slot is preferred.

A typical installation with the internal channel connected to a ribbon cable with the last device terminated and the external channel connected to an external drive cabinet is illustrated in Figure 6.

Continue on to “RAID Configuration” on page 7.

RAID Configuration

Using RAID EzAssist

RAID EzAssist, the on-board BIOS Configuration Utility, is used to build several types of RAID configurations. Since this is a Quick Installation Guide, only the Automatic Configuration option will be described here.

Note

A first time installation is being assumed.

The following limitations apply to Automatic Configuration:

- Only one array will be configured using the Automatic Configuration option.
- All drives controlled by the AcceleRAID board can be different sizes, but all drives within an array will be formatted to the size of the smallest drive in the array.
- A maximum of 15 drives can be configured into an array using Automatic Configuration
- The drives with the largest capacity (if mixed drive sizes are used) will be the drives selected to become hot spares.

Note

If you want to do anything other than an Automatic Configuration, refer to the *RAID EzAssist Configuration Utility User Reference Guide* or *Quick Configuration Guide*.

To perform a RAID configuration with the Automatic Configuration option using RAID EzAssist, do the following:

1. First, power on any disk enclosures connected to the AcceleRAID controller, and then power on the computer. The AcceleRAID controller is furnished with the BIOS enabled by default.
2. Watch the messages on the screen for the following prompt to be displayed:

Press <ALT-M> for BIOS options

Wait approximately 5 seconds. Do *not* press any keys at this time.

3. Watch the messages on the screen for the following prompt to be displayed:

Press <ALT-R> for RAID Configuration options

4. Press **Alt-R** to get into RAID EzAssist (the configuration utility).

 **Note**

For more detailed information on how to run the RAID EzAssist, refer to the *RAID EzAssist Configuration Utility User Reference Guide* or *Quick Configuration Guide*.

The utility will scan all available drive channels for SCSI devices. Upon completion of the scan, the following will occur under the following conditions:

- a. More than one controller:

Select Controller

will appear on the screen. In this case use the arrow keys to select the controller you wish to configure and press **Enter**.

- b. After a controller was selected in **a**, *and* no RAID configuration exists, the following message will appear:

```
No existing RAID configuration has been detected.  
Would you like to configure a RAID drive now?  
[Yes] No
```

Select YES with the arrow keys and Press **Enter**. This takes you to Step 5.

5. The following options appear:

Automatic
Assisted
Custom

Select AUTOMATIC. Press **Enter**.

 **Note**

The scope of this Quick Reference Guide only covers Automatic Configuration.

A summary display of the configuration will appear. Up to five lines will be displayed. If more than five SCSI drives are physically connected to the controller, press **Page Down** to see up to five more lines.

6. Select APPLY. Press **Enter**.

The Array will be automatically configured. The program will indicate that Automatic Configuration is in progress until the configuration finishes.

Upon completion, the following prompt will be displayed:

```
RAID drive configuration is successful.  
You may utilize this drive immediately.  
[Reboot] Main Menu
```

7. Select MAIN MENU and press **Enter** if you want to further examine the configuration.

Or select REBOOT and press **Enter** to restart your system.

Go on to “Operating Systems and Drivers” on page 10.

Operating Systems and Drivers

NetWare 4.2

Installing the Mylex Disk Array Controller as the Primary Controller

If the Mylex Disk Array Controller will be the primary (bootable) controller, you must install the controller driver at the time of NetWare 4.2 installation.

Before proceeding you should have already carried out the following steps:

- Installed the Mylex Disk Array Controller hardware, connected the disk drives to the controller and to each other, set drive SCSI IDs, and terminated the SCSI bus following the instructions in your Mylex Disk Array Controller hardware installation guide.
- Used the Mylex RAID EzAssist Configuration Utility to create a drive configuration and initialize the drives for use following the instructions in your Mylex *RAID EzAssist Configuration Utility Quick Configuration Guide*.

The procedure below assumes that the CD-ROM drivers are available, and that a CD-ROM device is connected to the AcceleRAID 170 controller.

1. Boot the system from a newly created DOS boot drive, and then create (or edit) the CONFIG.SYS and AUTOEXEC.BAT files to include the drivers required for accessing the CD-ROM as a logical drive under DOS. The following example assigns the CD-ROM as drive D: under MS-DOS 6.00 or above.

CONFIG.SYS contains the statements:

```
device = [pathname] \aspidac.sys  
device = [pathname] \btcdrom.sys /D:[devicename]
```

AUTOEXEC.BAT contains the statement:

```
[pathname] \mscdex /v /m:10 /D:[devicename]
```

The device name is that of the specific CD-ROM drive (e.g., MSCD001).

2. Boot the system with the new CONFIG.SYS and AUTOEXEC.BAT, and make sure the NetWare CD-ROM files are accessible under DOS.

3. Follow the standard NetWare 4.2 upgrade or installation procedure, as described in the NetWare 4.2 documentation.
4. Insert the NT4/NW drivers diskette into the floppy disk drive when the installation program prompts you to insert the vendor-supplied disk. The installation program will scan the diskette for all available drivers. Select the NetWare 4.2 driver (MDAC.HAM) from the list.

To install GAM server, refer to the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Installing the Mylex Disk Array Controller into an Existing NetWare 4.2 System

If NetWare 4.2 is already installed (existing) and you wish to add a Mylex Disk Array Controller later, the controller will be a secondary (non-bootable) controller. After installing the controller hardware and configuring a disk array, follow the procedure below to add the necessary controller drivers.

1. With NetWare Server 4.2 loaded and running, load the NetWare program INSTALL.NLM by typing the following at the console prompt:

```
: load install
```

and press **Enter**.

2. Select DRIVER OPTIONS in the Installation Options menu.
3. Select CONFIGURE DISK AND STORAGE DEVICE DRIVERS in the Driver Options menu.
4. Select SELECT AN ADDITIONAL DRIVER in the Additional Driver Actions menu.

NetWare scans for controllers that do not have drivers already loaded.

5. At the “Select a driver” box, press **Ins** (or **Insert**) to choose to install an unlisted driver.
6. Insert the NT4/NW drivers diskette into the diskette drive.
7. Press **F3** to specify the path of the NetWare driver you’re about to install.
8. Change the path line to read:

```
A: \netware
```

and press **Enter**. NetWare scans for drivers on the floppy diskette in the specified path.

9. In the “Select a driver to install” box, select the appropriate driver for your controller:
MDAC.HAM | Mylex Disk Array Controller <model number>
10. Select **YES** at the confirmation box to install the driver.
11. Press **Enter** to select the default server boot path.

12. Select **YES** to save a backup of the old or existing driver.
13. Press **Enter** to continue when you see the message that the old driver will be saved.
NetWare copies the file.
What you just backed up was the old or existing .DSK or .HAM file.
14. Repeat Steps 12 and 13 for the .DDI file.
15. Select **NO** to decline selection of an additional driver to install unless you are installing more than one Mylex controller at this time.
16. Exit INSTALL.NLM, by pressing **Esc** three times, then selecting **YES** at the "Exit Install?" box.

This concludes installation of the driver files needed to run your Mylex Disk Array Controller under NetWare 4.2.

For more detailed information on this operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Overview of NetWare 5.0 or Higher

This installation assumes that NetWare 5.0 or higher is being installed on an x86 platform.

This section provides information about the following:

- Installation procedures and the functionality of the Mylex Disk Array Controller drivers for Novell NetWare 5.0 or higher.

The software is provided on the appropriate Software Kit distribution diskette and Software Kit CD-ROM.

- Installation, verification, and startup of the Global Array Manager Server software for Novell NetWare 5.0 or higher.

The software is provided on the Software Kit CD-ROM.

Mylex Disk Array Controller Driver Files for NetWare

All hardware installation, system configuration, and disk array controller configuration must be properly completed before proceeding with the NetWare driver installation. These basic installation procedures follow the Novell Installation manual, with only the few minor differences that are described in this section.

The subdirectory \netware on the NT4/NW drivers diskette contains the following:

MDAC.HAM: The driver to support Mylex Disk Array Controllers with NetWare 5.0 or higher.

MDAC.DDI: NetWare installation file for MDAC.HAM.

Tape, Disk, and CD-ROM Support

Tape drive support is available to the Mylex Disk Array Controller under NetWare by means of the NWTAPE.CDM. Most NetWare applications that communicate through ASPI on the server will work with the controller when the Nwaspi.CDM module is loaded. Disk drive support is provided through the SCSIHD.CDM module.

Similar to tape drive support, CD-ROM is also supported by the controller for use under NetWare. The SCSICD.CDM provides support to the CD-ROM application running on the server. A CD-ROM driver will also have to be loaded. These are included with the Novell NetWare releases.

Mylex Disk Array Controller Driver for NetWare 5.0 or Higher

Installing the Mylex Disk Array Controller as the Primary Controller

If the Mylex Disk Array Controller will be the primary (bootable) controller, you must install the controller driver at the time of NetWare installation.

Before proceeding you should have already carried out the following steps:

- Installed the Mylex Disk Array Controller hardware, connected the disk drives to the controller and to each other, set drive SCSI IDs, and terminated the SCSI bus following the instructions in your Mylex Disk Array Controller hardware installation guide.
- Used the Mylex RAID EzAssist Configuration Utility to create a drive configuration and initialize the drives for use following the instructions in your Mylex *RAID EzAssist Configuration Utility Quick Configuration Guide*.

Installing NetWare Drivers

NetWare version 5.0 or higher is available on CD-ROM. Drivers provided in the \DOS subdirectory of the Software Kit Distribution diskette are required to install NetWare 5.0 or higher from a CD-ROM drive connected to a Mylex Disk Array Controller.

The procedure below assumes that the CD-ROM drivers are available, a new system is being used, and the hard drive has no data.

1. Boot the system and watch the messages on the screen for the following prompt to be displayed:

Press <ALT-M> for BIOS options

Press ALT-M and select the bootable CD-ROM option.

When you exit the BIOS options menu the system reboots.

2. In the DOS partition of the boot drive, create a directory C:\NWUPDATE.

Insert the NT4/NW Drivers Software Kit Diskette and copy any new drivers to this directory along with the MDAC drivers.

```
copy A:\Netware\MDAC.* C:\NWUPDATE
```

3. Follow the standard NetWare upgrade or installation procedure, as described in the NetWare documentation.
MDAC.HAM will be installed from the C:\NWUPDATE directory.
4. Return to the driver summary by pressing the **arrow keys** and select the option to continue.
5. Netware will continue the installation.

Watch for another status screen that displays the storage devices (i.e., SCSIHD.CDM and SCISICD.CDM) and the network drivers:

6. Select **MODIFY**
7. Select **STORAGE DEVICES**
8. Press the **Insert** key
9. Select **NWASPI.CDM** (this driver is required to load GAM)
10. Press **Enter**
11. Return to the driver summary by using the **arrow keys**.

Installing Peripherals Under NetWare 5.0 or Higher

Non-disk peripheral devices, such as tape or CD-ROM drives, can be installed on any channel of the controller. Each disk or non-disk device will require a unique SCSI ID different from any other device connected to the same channel.

Each device requires a driver module connecting it to the controller. These modules are best loaded in the STARTUP.NCF file before the MDAC.HAM driver.

The required common device modules are:

Table 3. Common Device Modules

SCSI disk drives (including Mylex RAID system drives)	SCSIHD.CDM
SCSI CD-ROM	SCSICD.CDM
SCSI tape drive	NWTAPE.CDM
Magneto optical drive	SCSIMO.CDM
DLT tape drive	DLTTAPE.CDM
IDE DC-ROM	DECD.CDM
IDE disk drive	IDEHD.CDM
ASPI compliant	NWASPI.CDM

1. The appropriate drivers should be loaded before trying to access the non-disk devices.
2. Load the following drivers to use a CD-ROM under NetWare 5.0 or higher (Novell supplies the *cdrom*):

 **Note**

`mdac.ham` and `scsicc.cdm` are usually loaded in the `startup.ncf` file.

```
: load mdac.ham
: load scsicc.cdm
: load cdrom
```

After the CD-ROM is mounted, the volume on the CD-ROM can be mapped from any workstation and accessed.

Installing the Mylex Disk Array Controller into an Existing NetWare System

If NetWare 5.0 or higher is already installed (existing) and you wish to add a Mylex Disk Array Controller later, the controller will be a secondary (non-bootable) controller. After installing the controller hardware and configuring a disk array, follow the procedure below to add the necessary controller drivers.

1. Copy `NWASPI.CDM` (for GAM support) from the Novell distribution CD-ROM.
 - Copy `C:\NWSERVER\DRIVERS\NWASPI.CDM` to the directory named `C:\NWSERVER`.
 - In the `C:\NWSERVER\STARTUP.NCF` file,
 - Add `LOAD NWASPI.CDM` with the other `.CDM` files.

2. With NetWare Server 5.0 or higher loaded and running, load the NetWare program by typing the following at the console prompt:

```
: load nwconfig
```

and press **Enter**.

3. Select **DRIVER OPTIONS** in the Installation Options menu.
4. Select **CONFIGURE DISK AND STORAGE DEVICE DRIVERS** in the Driver Options menu.
5. Select **SELECT AN ADDITIONAL DRIVER** in the Additional Driver Actions menu.

NetWare scans for controllers that do not have drivers already loaded.

6. At the “Select a driver” box, press **Ins** to choose to install an unlisted driver.
7. Insert the NT4/NW drivers Software Kit diskette into the diskette drive.
8. Press **F3** to specify the path of the NetWare driver you’re about to install.
9. Change the path line to read:

```
A: \netware
```

and press **Enter**. NetWare scans for drivers on the floppy diskette in the specified path.

10. In the “Select a driver to install” box, select the appropriate driver for your controller:
`MDAC.HAM | Mylex Disk Array Controller <model number>`
11. Select **YES** at the confirmation box to install the driver.
12. Press **Enter** to select the default server boot path.
13. Select **NO** to save a backup of the old or existing driver.
14. Select **NO** to decline selection of an additional driver to install, unless you are installing more than one controller now.
15. Exit `INSTALL.NLM` by pressing **Esc** three times, then selecting **YES** at the “Exit Install?” box.

This concludes installation of the driver files needed to run your Mylex Disk Array Controller under NetWare 5.0 or higher.

For more detailed information on this operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Windows NT 4.0

Installing the Mylex Disk Array Controller as the Primary Controller (from Microsoft setup diskettes)

If the Mylex Disk Array Controller will be the primary (bootable) controller, you must install the controller driver at the time of Windows NT 4.0 installation.

Before proceeding you should have already carried out the following steps:

- Installed the Mylex Disk Array Controller hardware, connected the disk drives to the controller and to each other, set drive SCSI IDs, and terminated the SCSI bus following the instructions in your Mylex Disk Array Controller hardware installation guide.
- Used the Mylex RAID EzAssist Configuration Utility to create a drive configuration and initialize the drives for use following the instructions in your Mylex *RAID EzAssist Configuration Utility Quick Configuration Guide*.

To install the controller driver during Windows NT 4.0 installation:

1. Boot the system with the Windows NT 4.0 Setup Diskette #1.
2. Insert Setup Diskette #2 when prompted and press **Enter**.
3. Press **Enter** again when prompted.
4. Select CUSTOM SETUP in the Windows NT Setup screen.
5. Next, select S to skip the automatic detection scan.
6. Select S to specify an additional device.
7. Select OTHER in the list of supported adapters displayed and press **Enter**.
8. When prompted for the Manufacturer's supplied hardware support disk, insert the NT4/NW Drivers Software Kit diskette into the floppy disk drive and press **Enter**.
9. Select the appropriate Mylex controller from the list of controllers displayed on this screen and press **Enter**.

10. If you have drivers to install for other controllers (for example, an on-board SCSI controller to run other devices such as a CD-ROM drive, etc.), repeat Step 6 and Step 7. Then when prompted, insert the manufacturer's supplied hardware support disk, press **Enter**, and select the appropriate driver from the list (scroll down if needed).

If you have no other drivers to install, or when you have finished installing other drivers, simply press **Enter** to continue installation.

11. Insert Windows NT 4.0 Setup Diskette #3 when prompted.
12. Follow the on-screen instructions to continue Windows NT 4.0 installation, inserting the Windows NT CD-ROM into the CD-ROM drive when prompted. Press **Enter** and continue with the next few Windows NT 4.0 installation screens.
13. When prompted again for the "MDAC Software Kit" diskette, insert the NT4/NW Drivers Software Kit diskette into the floppy disk drive and press **Enter**.

If you installed other drivers from other diskettes, you will be asked to reinsert those diskettes as well.

When the Windows NT 4.0 operating system installation has been completed, you can then choose to install the *optional* Mylex Accelerated Disk Driver (see the Note below about MACDISK). Otherwise, this concludes the Mylex portion of driver(s) installation of Windows NT 4.0.

If you *do not* want to install the Mylex Accelerated Disk Driver, then your driver installation is completed. Remove the diskette from the drive and reboot in order to launch the newly installed Windows NT 4.0.

Note

The Mylex Accelerated Disk Driver (MACDISK) is provided on the NT4/NW Drivers Software Kit Diskette. If you choose to install MACDISK, continue with Step 14. Do not reboot until you are finished installing MACDISK.

14. Click the **Start** icon in the lower left corner of you screen.
15. Select **Settings** and then click on **Control Panel**.
16. A new screen appears. Double click the **SCSI Adapters** icon.

17. Select the **Drivers** tab, click the **Add** button, and then click **Have Disk**.
18. Insert the NT4/NW Drivers Software Kit Diskette.
19. Click **Browse**, double click the **Disk** folder, highlight the MACDISK.INF file, and then click the **Open** button.
20. Ensure that "A:\disk" is entered in the path box and click **OK**.
21. The next screen, Install Driver window, displays "Mylex Accelerated Driver." Click **OK**.
22. The next screen, Window NT Setup, appears. In the path box, type the directory path "A:\disk." Click **Continue**.
23. When prompted, remove the diskette from the drive and click Yes to restart your computer.

Congratulations! You have completed installing the Mylex Accelerated Driver for Windows NT 4.0.

For more detailed information on operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manger Client Software Installation Guide and User Manual*.

Installing the Mylex Disk Array Controller as the Primary Controller (from Windows NT bootable CD-ROM)

Before proceeding you should have already carried out the following steps:

- Installed the Mylex Disk Array Controller hardware, connected the disk drives to the controller and to each other, set drive SCSI IDs, and terminated the SCSI bus following the instructions in your Mylex Disk Array Controller hardware installation guide.
- Used the Mylex RAID EzAssist Configuration Utility to create a drive configuration and initialize the drives for use following the instructions in your Mylex *RAID EzAssist Configuration Utility Quick Configuration Guide*.

To install the controller driver during Windows NT 4.0 installation:

1. *Enable the BIOS.* If the CD-ROM drive is connected to the Mylex controller, you need to activate the CD-ROM drive to be bootable through the BIOS options screen by pressing **Alt-M**. Refer to the *AcceleRAID 170 PCI to Ultra 160 SCSI RAID Controller Installation Guide* under BIOS Options Sequence for detailed instructions.

If the CD-ROM drive is not connected to the Mylex controller, you need to set the CD-ROM drive to be bootable. Please refer to your system manual or other manufacturer's controller manual for instructions.

2. Boot the system with the Windows NT bootable CD-ROM inserted in the CD-ROM drive.
3. When you see the following message, press **F6** several times until you get the Windows NT setup (blue) screen.

```
Setup is inspecting your computers hardware configuration
```

4. Select **S** to specify an additional device.
5. Select **OTHER** in the list of supported adapters displayed and press **Enter**.
6. When prompted for the Manufacturer's supplied hardware support disk, insert the NT4/NW Drivers Software Kit diskette into the floppy disk drive and press **Enter**.
7. Select the appropriate Mylex controller from the list of controllers displayed on this screen and press **Enter**.

8. If you have drivers to install for other controllers (for example, an on-board SCSI controller to run other devices such as a CD-ROM drive, etc.), repeat Step 4 and Step 5. Then when prompted, insert the manufacturer's supplied hardware support disk, press **Enter**, and select the appropriate driver from the list.

If you have no other drivers to install, or when you have finished installing other drivers, simply press **Enter** to continue installation.

9. Follow the on-screen instructions to continue Windows NT 4.0 installation.
10. To set up Windows NT now, press **Enter** and continue with the next few Windows NT 4.0 installation screens.
11. When you see the following message, press **Enter**.

All adapters have been setup.

12. Continue to follow the on-screen instructions to complete the Windows NT 4.0 installation.
13. When prompted for the "MDAC Software Kit" diskette, insert the NT4/NW Drivers Software Kit diskette into the floppy disk drive and press **Enter**.

If you installed other drivers from other diskettes, you will be asked to reinsert those diskettes as well.

When the installation is finished, you will get the following message:

This portion of setup has completed successfully.

When the Windows NT 4.0 operating system installation has been completed, you can then choose to install the *optional* Mylex Accelerated Disk Driver (see the Note on the following page about MACDISK). Otherwise, this concludes the Mylex portion of driver(s) installation of Windows NT 4.0.

If you *do not* want to install the Mylex Accelerated Disk Driver, then your driver installation is completed. Remove the bootable CD-ROM and diskette and reboot in order to launch the newly installed Windows NT 4.0.

Note

The Mylex Accelerated Disk Driver (MACDISK) is provided on the NT4/NW Drivers Software Kit Diskette. If you choose to install MACDISK, continue with Step 14. Do not reboot until you are finished installing MACDISK.

14. Click the **Start** icon in the lower left corner of your screen.
15. Select **Settings** and then click on **Control Panel**.
16. A new screen appears. Double click the **SCSI Adapters** icon.
17. Select the **Drivers** tab, click the **Add** button, and then click **Have Disk**.
18. Insert the NT4/NW Drivers Software Kit Diskette.
19. Click **Browse**, double click the **Disk** folder, highlight the MACDISK.INF file, and then click the **Open** button.
20. Ensure that "A:\disk" is entered in the path box and click **OK**.
21. The next screen, Install Driver window, displays "Mylex Accelerated Driver." Click **OK**.
22. The next screen, Window NT Setup, appears. In the path box, type the directory path "A:\disk" or the path for your CD-ROM. Click **Continue**.
23. When prompted, remove the diskette and the bootable CD-ROM if necessary, then click Yes to restart your computer.

Congratulations! You have completed installing the Mylex Accelerated Driver for Windows NT 4.0.

For more detailed information on operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Installing the Mylex Disk Array Controller into an Existing Windows NT System

If Windows NT 4.0 is already installed (existing) and you wish to add a Mylex Disk Array Controller later, the controller will be a secondary (non-bootable) controller. After installing the controller hardware and configuring a disk array, follow the procedure below to add the necessary controller drivers.

1. Make sure Windows NT 4.0 is up and running.
2. Click **Start**, and select **Settings->Control Panel** within the Start menu.
3. From the Control Panel window, double-click the **SCSI Adapters** icon.
4. In the SCSI Adapters box, click the **Drivers** tab to bring the Drivers page to the foreground.
5. With the Drivers page in the foreground, click **Add**.
6. The Creating driver list progress bar is displayed briefly, and then the Install Driver box is displayed.
7. In the Install Driver box, click **Have Disk**.
8. Insert the NT4/NW drivers diskette into the floppy disk drive.
9. From the Install From Disk box, type the path A:\NT4 and click **OK**.
10. From the Install Driver box, and from the controller list, select the Mylex controller you want to install and click **OK**.
11. If there is an existing Mylex driver in the system you will see a Windows NT Setup box. Click **New** to install the new driver from the diskette.
12. Again, type the path A:\NT4 and click **Continue**.
The driver is copied from the diskette. The System Settings Change box is displayed.

When the Windows NT 4.0 operating system installation is completed, you can then choose to install the *optional* Mylex Accelerated Disk Driver (see the Note below about MACDISK). Otherwise, this concludes the Mylex portion of driver(s) installation of Windows NT 4.0.

If you *do not* want to install the Mylex Accelerated Disk Driver, then your driver installation is completed. Remove the diskette and reboot in order to launch the newly installed Windows NT 4.0.

See the note below for more information about the installation of the optional MACDISK driver.

 **Note**

The Mylex Accelerated Disk Driver (MACDISK) is provided on the NT4/NW Drivers Software Kit Diskette. If you choose to install MACDISK, continue with Step 13. Do not reboot until you are finished installing MACDISK.

13. Click **No** in order to install the Mylex Accelerated Driver, before restarting Windows NT 4.0.
14. With the Drivers page in the foreground, click **Add**.
15. The Install Driver box is displayed.
In the Install Driver box, click **Have Disk**.
16. Reinsert the NT4/NW drivers diskette into the floppy disk drive if requested.
17. From the Install From Disk box, change the path to A:\disk and click **OK**.
18. From the Install Driver box, be sure the Mylex Accelerated Driver is selected and click **OK**.
19. If there is an existing Mylex driver in the system, you will see a Windows NT Setup box. Click **New** to install the new driver from the diskette.

20. Again, type the path A:\disk and click **Continue**.

The driver is copied from the diskette. The System Settings Change box is displayed.

21. Remove the diskette and click **Yes** to restart Windows NT 4.0 for the new Mylex Disk Array Controller drivers to be available.

For more detailed information on operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Windows 2000

Installing the Mylex Disk Array Controller as the Primary Controller

If the Mylex Disk Array Controller will be the primary (bootable) controller, you must install the controller driver at the time of Windows 2000 installation.

Before proceeding you should have already carried out the following steps:

- Installed the Mylex Disk Array Controller hardware, connected the disk drives to the controller and to each other, set drive SCSI IDs, and terminated the SCSI bus following the instructions in your Mylex Disk Array Controller hardware installation guide.
- Used the Mylex RAID EzAssist Configuration Utility to create a drive configuration and initialize the drives for use following the instructions in your *Mylex RAID EzAssist Configuration Utility Quick Configuration Guide*.

If you need information regarding the installation of Windows 2000, please refer to the Windows 2000 User Manual for details.

To install the controller driver during Windows 2000 installation:

1. *Enable the BIOS.* If the CD-ROM drive is connected to the Mylex controller, you need to activate the CD-ROM drive to be bootable through the BIOS options screen by pressing **Alt-M**. Refer to the *AcceleRAID 170 PCI to Ultra 160 SCSI RAID Controller Installation Guide* under BIOS Options Sequence for detailed instructions.

If the CD-ROM drive is not connected to the Mylex controller, you need to set the CD-ROM drive to be bootable. Please refer to your system manual or other manufacture's controller manual for instructions.

2. Insert the Windows 2000 bootable CD-ROM into the CD-ROM drive. Windows 2000 will begin to load.
3. As soon as the screen turns blue, press **F6** to allow loading of the correct Windows 2000 driver for the AcceleRAID 170.
4. Choose **S** to specify an additional device.

5. When prompted for the Manufacturer's supplied hardware support disk, insert your Windows 2000 Drivers Software Kit diskette into the floppy disk drive and press **Enter**.

You will see a screen with the following information:

You have chosen to configure a SCSI Adapter for use with Windows 2000, using a device support disk provided by an adapter manufacturer.

Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.

6. Use the scroll bar (if necessary) to select the following device:
Mylex AcceleRAID 170 Disk Array Controller.
7. With the Software Kit diskette still in the floppy disk drive, press **Enter**.
8. Follow the on-screen instructions to continue Windows 2000 installation. Press **Enter** and continue with the next few Windows 2000 installation screens.
9. If additional drivers are required, return to Step 4.
If you have no other drivers to install, or when you have finished installing other drivers, simply press **Enter** to continue installation.
If you installed other drivers from other diskettes, you will be asked to reinsert those diskettes as well.

This concludes the primary installation of a Mylex Disk Array Controller driver installation for Windows 2000 when using the AcceleRAID 170 controller.

For more detailed information on operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.

Installing the Mylex Disk Array Controller into an Existing Windows 2000 System

If Windows 2000 is already installed (existing) and you wish to add a Mylex Disk Array Controller later, the controller will be a secondary (non-bootable) controller. After installing the controller hardware and configuring a disk array, follow the procedure below to add the necessary controller drivers.

After the system boots, it will detect new hardware. A brief message indicating that new hardware has been found will be displayed.

1. When the “Welcome to the Found New Hardware Wizard” dialog box appears, click the **Next** button.
2. In the next dialog box, select the option to “Search for a suitable driver for my device” and then click **Next**.
3. The “Locate Driver Files” dialog box will appear. Insert the Mylex Windows 2000 Driver Diskette into Drive A, click on the **Floppy Disk Drives** check box, and then click **Next**.
4. The “Driver Files Search Results” dialog box will appear. After verifying that the correct device driver was found, click **Next**.
5. If the current version of the Mylex driver you are about to install is too new to have been tested and approved by Microsoft, the driver will not have a digital signature and a Digital Signature Dialog Box will appear. If this dialog box appears, click **Yes** to continue with the installation.

This dialog box will not appear if the driver contains a digital signature.

While the driver files are copied, a dialog box will appear to show the progress of this process. This process will complete by itself.

6. Click **Finish** when the “Completing the Found New Hardware Wizard” screen appears.

For more detailed information on operating system, driver installation, and GAM Server, see the appropriate *Disk Array Controller Software Kit Installation Guide and User Manual*.

To install the GAM or WAM client, refer to the *Global Array Manager Client Software Installation Guide and User Manual* or the *Web Array Manager Client Software Installation Guide and User Manual*.



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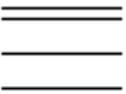
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