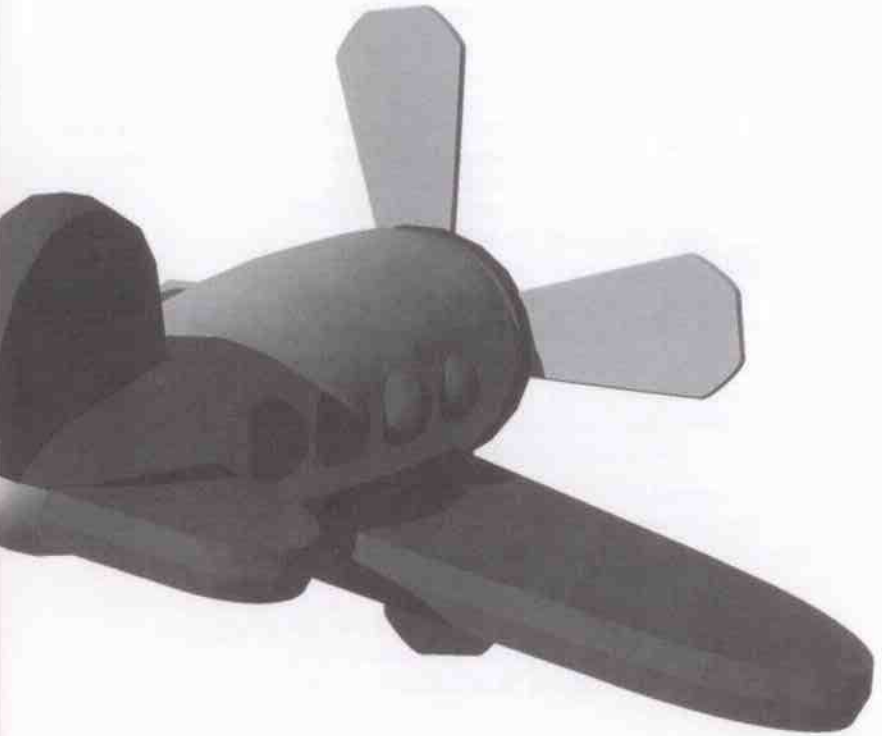
3-D SPEX™

USER'S GUIDE

NuVision
TECHNOLOGIES, INC.



Howzit Work?

Stereoscopic Vision and 3D

When you see the world through both eyes, you are actually looking at two pictures merged into one. Your right eye and your left eye each deliver a separate image to your brain, which meshes these two images into one three-dimensional picture.

Most video games in the past were only able to provide one image on the screen. So 3D effects had to be simulated by other means. Games manufacturers drew scenes in which distant objects appeared smaller and out of focus, while nearby objects were sharper and overlapped the distant objects.

Your 3-D SPEX, however, are able to provide a different view for each eye, more closely simulating true 3D vision.

How the 3-D SPEX Work

Each scene of your 3D game has two images, one drawn from a right-eye view and the other from a left-eye view. The game displays these alternating views so fast that your eyes cannot see the change.

Your 3-D SPEX are equipped with shutters in each lens. So, when the right-eye image is displayed on the screen, the left lens of your 3-D SPEX is closed, allowing only the right eye to see the image. When the left-eye image is displayed, the process is reversed and only the left eye can see the image. These images alternate so quickly that the eye sees only one smooth picture, making it look like you are actually inside a really cool 3D environment.

Optimizing Performance

Now that you are hooked up and plugged in, you can customize your gaming environment so that it is most comfortable for you.

Use the Best Equipment

Your 3-D SPEX run best on fast, powerful machines. To take the best advantage of this 3D technology, your system should include the following:

- Games that support LCDBios version 1.21 and VESA 1.2 video modes. (This should be indicated on the game package.)

- A video card that supports VESA 1.2 Bios in ROM. Or you can use an emulator that supports VBE 1.2, such as the UniVBE 5.1a by SciTech Software. You can reach their sales department at (916) 894-8400. Their web site also contains information on the latest video cards (www.scitechsoft.com).
- A computer monitor that supports the resolution of your video card and vertical refresh rates of 100 Hz or higher.
- Use the video card's vertical refresh rate utility to select the highest vertical refresh rate that your monitor can handle for each resolution, up to 120 Hz.

Create the Best Environment

- Avoid playing directly under fluorescent lights.
- Decrease your monitor's brightness and increase the contrast until the image is comfortable to look at. (See the manual that came with your monitor for instructions on adjusting these controls.)

Minimize Flicker

In some cases, the 3-D SPEX may have a noticeable flicker, which may cause eye strain. If this bothers you, follow the instructions on the next page.

What Causes Flicker

The largest factor in whether the 3-D SPEX flicker is the vertical refresh rate of your video card. This is the number of times in a second that the screen is redrawn from top to bottom. Because some monitors can handle higher vertical refresh rates and others cannot, video card manufacturers generally set the vertical refresh rates low to accommodate a wider variety of monitors.

With your 3-D SPEX, the range of vertical refresh rates provide varying degrees of comfort. In dim light, a vertical refresh rate of 70 Hz may be comfortable for some people, but in harsh light (i.e. fluorescent lighting) 70 Hz could cause flicker and eventually eye strain. Vertical refresh rates of 100 Hz or higher are generally comfortable to most people and do not cause noticeable flicker.

Note: Some people are more sensitive to flicker than others. If you find you are sensitive to flicker, follow the instructions below to optimize your system. If you do not notice a flicker or if it does not cause you discomfort, you are better off NOT changing the default settings for the vertical refresh rates.

How to Minimize the Flicker

1. Reduce ambient lighting, especially fluorescent lights.
2. Make sure you are using the recommended equipment listed on page 21.
3. Choose a higher vertical refresh rate. You can do this through the software utility that came with your video card. (If you no longer have that utility, you can generally

find it on the video card manufacturer's Web site or BBS, etc.)

- Set the vertical refresh rate as high as your monitor can handle for each resolution.
- Optimum performance is in the range of 100–120 Hz.
- Do not set your refresh rates above 120 Hz. These higher refresh rates have no effect on the flicker and will reduce your image quality.

Warning: Setting a vertical refresh rate higher than your monitor can handle can cause permanent damage to your monitor. Be sure to read your monitor's specifications before setting the vertical refresh rate.

Choosing a Different Parallel Port

The game installation uses LPT1 as the default parallel port. To change this to a different port:

1. At the DOS prompt, change to the appropriate game directory on your hard drive. For example, C:\GAMES\DESCENT2.
2. Type SETLCDLP and press ENTER.

This will run a quick test of the three LPT ports and determine which one the glasses are plugged into. It will then set the environmental variable LCDPORT to the correct parallel port (LPT1, LPT2, or LPT3) and can set this variable in the AUTOEXEC.BAT file on the C:\ drive.

You only have to run the SETLCDLP utility once: you do not have to run it each time you play a game. However, if the LCDPORT variable is changed through some other program, you will then have to run SETLCDLP to reset it to the correct LPT port.

If you wish to boot from your A:\ drive, copy the following line in the C:\AUTOEXEC.BAT file to the appropriate place in the A:\AUTOEXEC.BAT file:

```
SET LCDPORT=LPTX
```

(where LPTX represents the parallel port: LPT1, LPT2, or LPT3).

Increasing Game Speed

There are two ways to increase the game speed. You can edit the game's batch file to adjust the *Interrupt Frequency* or the *LockFlip*.

Note: Both of these adjustments increase the game's speed, but may decrease the image quality. You may find that the original settings work best.

Caution: We recommend you preserve the original settings by first copying the batch file to a new name before editing it. Or you can restore the original settings by re-installing the game.

Adjusting the Interrupt Frequency

The Interrupt Frequency determines how often the 3-D SPEX check that it is time to switch lenses. The more frequently the 3-D SPEX check, the slower the game runs. Reducing the Interrupt Frequency will increase the speed of the game, but decrease the accuracy of the 3D viewing.

To change the Interrupt Frequency, edit the game's batch file that runs the LCDBios driver.

1. At the DOS prompt, change to the directory that contains the game you wish to adjust. For example, type: CD C:\GAMES\DESCENT2 and press ENTER.
2. Type EDIT and then the name of the batch file for the game. To edit the batch file for *Descent II: Destination Quartzon* for example, type EDIT D23D.BAT and press ENTER.
3. Add the /FASTINT:X switch at the end of the line that begins with "CALL LCDGLASS", where X is a whole number from -2 to 2. The higher the number, the more often the 3-D SPEX check when to switch lenses, and the slower the game runs.
4. Press ALT F, then S to save your changes.
5. Press ALT F, then X to exit.

Changing the LockFlip

The LockFlip forces the 3-D SPEX to switch only when the raster scan is moving back to the top of the screen to draw the new image. By turning this setting off, your game will run faster, but there will be a flickering black band at the bottom of the screen.

To change the LockFlip, edit the game's batch file that runs the LCDBios driver.

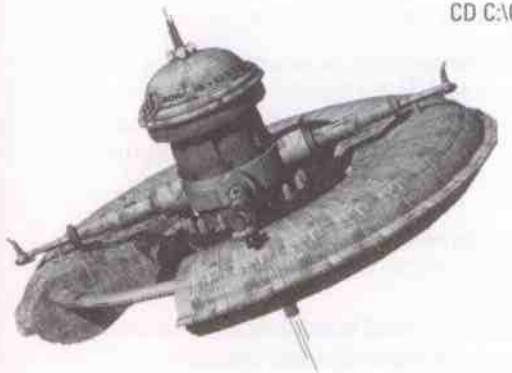
1. At the DOS prompt, change to the directory that contains the game you wish to adjust. For example, type: CD C:\GAMES\DESCENT2 and press ENTER.
2. Type EDIT and then the name of the batch file for the game. To edit the batch file for *Descent II: Destination Quartzon* for example, type EDIT D23D.BAT and press ENTER.
3. Add /LOCKFLIP- at the end of the line that begins with "CALL LCDGLASS" to turn it off:

lockflip on:	lockflip off:
/LOCKFLIP	/LOCKFLIP-

4. Press ALT F, then S to save your changes.
5. Press ALT F, then X to exit.

If a black band appears, you can change its location by adding the DelayFlip switch in the batch file that runs the LCDBios driver.

1. At the DOS prompt, change to the directory that contains the game you wish to adjust. For example, type:



CD C:\GAMES\DESCENT2 and press ENTER.

2 Type EDIT and then the name of the batch file for the game. To edit the batch file for *Descent II: Destination Quartzon* for example, type EDIT D23D.BAT and press ENTER.

3 Type /DELAYFLIP:ZZ at the end of the line that begins with "CALL LCDGLASS".

- To move the band down, replace the "zz" with positive numbers.
- To move the band up, replace the "zz" with negative numbers.

4 Press ALT F, then S to save your changes.

5 Press ALT F, then X to exit.

3D Funzies

NuViewer™

One of the CDs that came with your 3-D SPEX includes NuVision Technologies, Inc. NuViewer software that allows you to view 3D images on your screen. This CD also contains sample reels that display the images in sequence like a slide show. You can run NuViewer directly from the CD. You do not need to install it onto your hard drive.

For a full description of the NuViewer DOS commands, see the README.TXT file on the NuViewer CD (in the \NUVIEWER directory).

Using NuViewer

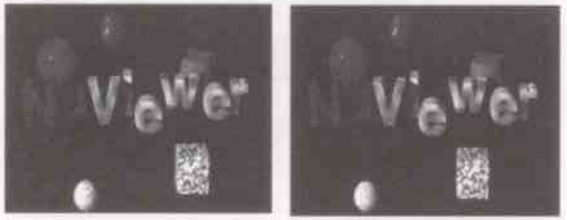
1 Go to DOS.

Windows 95: Restart in DOS mode.

Windows: Exit Windows.

2. Insert the NuViewer CD.
3. Type D: (or whichever letter corresponds to your CD-ROM drive) and press ENTER.
4. Type CD/NUVIEWER and press ENTER.
5. If the 3-D SPEX are plugged into a parallel port other than LPT1, run the SETLCDLP utility, as described in "Choosing a Different Parallel Port" on page 24.
6. Type DIR *.BAT and press ENTER to list the sample image reels.
7. Type the name of the image reel you wish to view and press ENTER. For example, if you want to view the STILLIFE.BAT reel, type STILLIFE and press ENTER.

A series of 3D images will be displayed on the screen. Each image contains a left-eye and right-eye view. For example, here are two images prepared with a left and right view. Note their subtle differences.



Copying NuViewer to the Hard Drive (Optional)

If you wish to copy the NuViewer files to your hard drive, you can do this either in DOS or Windows 95:

1. Insert the NuViewer CD.
2. Copy the entire NUVIEWER directory to your hard drive:

   Windows 95: In the Explorer, click on the CD-ROM icon, then select the NuViewer folder. Drag and drop the folder to wherever you want it on your hard drive.

   DOS: Type
   XCOPY D:\NUVIEWER *target directory* /S

   (where D:\ represents your CD-ROM drive and *target directory* represents the directory on your hard drive you want to copy the files to)