AppSet

Installation and User Manual

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Introduction

Your ELSA *GLoria* graphics adapter is equipped with a high-performance graphics processor that combines workstation-class 3D graphics acceleration and state-of-the-art 2D performance.

The ELSA AppSet utility enables you to control the the hardware accelerated 3D extensions of your ELSA *GLoria* graphics adapter. Changes to the settings depend on the application you want to run and on the rendering performance you require.

In general you won’t need to modify the default settings. It is necessary, however, to change the driver's 3D settings for some 3D/OpenGL applications.

The simplest way to optimize the support for your application is to select one of the series of settings offered by the AppSet utility. Most users will find this list sufficient for controlling the driver.

The ELSA AppSet utility appears as a registration card in the property sheet for Display Properties to be found under Control Panel, Display.

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Installation Guide

Automatic Installation
In general the ELSA AppSet is installed automatically with your ELSA graphics driver. You can check the installation by opening the Display Properties property sheet. There you should find a tab with an ELSA logo named "*AppSet*”.

Manual Installation of AppSet
Shipped with the driver you will find the files GLSet.dll, GLSet.inf, GLSet.map and GLSetEng.hlp (the file you are reading now). Click on the GLSet.inf file using the right mouse button and select the menu entry “Install”. This will copy the files of the AppSet to your computer and enter all necessary entries to the registry. Now open the property page titled Display Properties (Control Panel, Display) to check whether a property sheet titled AppSet was added to the property page. There should be a tab with an ELSA logo and the name "AppSet”.

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User Manual

In this chapter we describe how to activate and use the ELSA AppSet property page.

The AppSet property page

In the Control Panel, select the Display Properties or call the Display Properties sheet by right-clicking on the desktop and selecting Properties. At the top of this sheet there is a tab for each property page. Selecting the ELSA AppSet tab activates the AppSet property page.

The version numbers of the graphics driver and the related OpenGL driver are displayed at the top of the page. Below this is the Application List with six buttons. The rest of the page is usually blank and reserved for the Advanced Settings. These are displayed after pressing the >>Advanced<< button or if the AppSet utility is started after changes to the settings have been made.

Hardware Acceleration

Use this switch to turn on *GLoria* 3D hardware acceleration (default). If this switch is disabled, the OpenGL support will be controlled by software, which is slower! It can occur that software OpenGL is used for rendering even though you enabled the *GLoria* 3D extension. If this happens, then you have selected a combination of resolution and AppSet settings that cannot be supported in hardware. Especially with higher resolutions there is insufficient frame buffer to support back-buffered hardware-accelerated OpenGL. In this case an application requiring double buffering will then be supported by software OpenGL only. Single-buffered applications will run with hardware accelerated OpenGL. To check what kind of OpenGL is currently running, use the ELSA OpenGL Query utility.

Application list

The AppSet utility can store numerous groups of settings which are defined in the Advanced Settings. The identifiers for these groups of settings are displayed in the application list box. Here you can store all the options required to optimize the operation of any application. ELSA has predefined settings for some applications. The operation of these programs will be optimized by selecting the corresponding entry from the list. Use the slider on the right to scroll through the list box and show all the entries. The default values active after installation are summarized in the "ELSA Default Settings" group.

After you have selected an entry matching your application, press the >>OK<< button to accept the settings or >>Cancel<< to discard them. The Display Properties dialog will now be closed. To activate the changes without leaving the dialog press >>Apply<<.

The buttons directly below the application list enable you to create your own groups of settings or to modify the ELSA settings for new applications.

Advanced

Pressing this button will open the Advanced Settings box in which you can change the driver's operation with OpenGL programs.
This button is only enabled when the Advanced Settings dialog is not already on display.

Add

The >>Add<< button opens the dialog "Add New Option to List" where you enter the text for the entry which is to appear in the application list. Press >>OK<< to accept the string and create a new item at the bottom of the list of current settings. Press >>Cancel<< to leave the dialog and discard the changes.

Delete

The >>Delete<< button enables you to remove those application entries you have created. You cannot remove the options predefined by ELSA.
This button is only enabled when a user-defined application has been selected.

Rename
Use the >>Rename<< button to open the "Rename Option” dialog and modify the string identifiers for your settings. >>OK<< will rename the entry in the list, >>Cancel<< will discard the modifications.
This button is only enabled when a user-defined application setting is selected.

Default
This button restores the ELSA settings for an application if you have made modifications to the options.
This button is only enabled when an item is selected for which an ELSA default setting is available.

Advanced Settings

If you select the >>Advanced<< button, the dialog is extended with an entry for each item. These items can be modified to create new entries or to change the current settings.

Pixel Format

Double Buffer
This switch instructs the driver to support double-buffered modes. When double buffering is enabled the frame buffer is divided into two parts in which the first buffer (front buffer) is used to display while the second (back buffer) is used for rendering. This results in flicker-free animations. Most OpenGL applications require this switch to be enabled. Note that some higher resolutions will prevent the driver from using double buffering. In this case, setting this switch will cause (slower) software OpenGL to be used!

GDI in 3D window
The driver exports additional pixel formats that support GDI drawing within the OpenGL view (PFD_SUPPORT_GDI). Some applicatons require these types of pixel formats.

Alpha Planes
Alpha channels are used for blending and transparency effects. If an OpenGL application doesn't use alpha values, this switch allows color calculations to be limited to red, green, and blue only.

Overlay Planes
Overlay planes are used as a paletted surface additional to the normal color (RGB) buffer. Overlays are especially useful for drawn areas which are independent of the 3D image itself, such as menus and cursors. The implementation of overlay planes with the *GLoria* is only possible in TrueColor modes (32-bit) where setting this switch transforms the byte normally used for the alpha channel to an overlay plane. Some applications (e.g. Softimage) require overlay planes.

Swap Layer Buffers
Applications using overlays can perform independent writes to the different layers. With this pixel format extension (PFD_SWAP_LAYER_BUFFERS) the application can also do independent swaps of each layer from the back to the front buffer. If the layers are swapped independently, they are always copied (blit).

Stereo Modes
To run stereo applications with shutter glasses, the driver has to export stereo pixel formats. Additionally, the driver supports higher refresh rates, required for ergonomic stereo display modes. Notes: You should only export stereo pixel formats if you really need to. Some applications automatically choose a stereo format although they don’t

need it or behave incorrectly in a stereo pixel format. For stereo pixel formats the driver organizes the memory differently and thereby allows stereoscopic and monoscopic applications to be used simultaneously. Due to the technical limitations, however, simultaneously writing to both the front and back-buffers is not possible (as done with some applications).

Swap Buffers

Force Buffer Blit
For double buffering, i.e. switching between front and back buffer, the driver uses the fastest possible method. This is page flipping where only the displayed page is switched in contrast to blitting which copies the data using a bitblit. Page flipping needs the data to be consistent in the front and back buffer. Because some applications are using a mix of 2D (GDI) and 3D (OpenGL) commands within a 3D view, this consistency cannot be guaranteed. The user then may activate the safe but slower buffer blit method.

Wait for Vertical Blank
Some actions like page flipping are synchronized with the vertical blank of the monitor. This prevents tearing effects, but causes a dramatical performance decrease when displaying animations, because the frame rate is then coupled with the refresh rate. Therefore the synchronization is disabled by default. If you see tearing effects, enable this button to perform all actions within the vertical blank.

Broadcast GDI to Back Buffer
The Windows GDI API doesn’t know about the OpenGL back buffer. Some applications use 2D commands in their 3D views and assume that GDI draws correctly to the back-buffer. Use this key to force 2D commands to be broadcasted to the OpenGL backbuffer. 2D areas outside an OpenGL window are managed automatically by the driver in any case.

Application specific

Unix OpenGL conform
The implementations of OpenGL on different platforms vary in their drawing behavior. Pixels at the meeting-edge of two polygons should not be drawn twice when being rendered, so a decision has to be made which polygon "owns" which pixels. For example, on Microsoft Windows platforms the right and low edges of rectangles are not drawn. In Softimage 3.01 the rectangles are assumed to be drawn identical to UNIX OpenGL implementations. Enable this switch if you use Softimage 3.01.

3DS MAX Exclusive
With this option activated, 3D Studio MAX 1.x/VIZ and OpenGL applications cannot be operated simultaneously.
If this option is deactivated, then the simultaneous operation of 3D Studio MAX and an OpenGL application could result in display problems for 3D Studio MAX.
This is caused by differences between the software driver for 3D Studio MAX and hardware-accelerated drivers.

Linear Texture Mapping
When textures are enlarged, for example when zooming-in, one of two methods can be used. "Nearest neighbor" simply reproduces the nearest pixel. "Linear interpolation", on the other hand, interpolates the new pixels from those surrounding it. Activating "Linear ´Texture Mapping" will cause a slight loss in speed when working with textures, but the displayed results are more realistic.

SI 3.5x/3.7x optimization

Some OpenGL applications use GDI functions to draw menus or dialogs in a double-buffered OpenGL view. With this switch activated, application running in full-screen mode execute their GDI drawings in the front and back buffer simultaneously. This double write is done in hardware, so there will be no loss in performance. Softimage 3.5x/3.7x requires this flag to be set.

Quality / Performance

Fast Clear Planes

Fast Clear planes are used to for faster clearing of the depth buffer (z-buffer). The depth buffer on the *GLoria* board is situated in the DRAM, whereas the color buffer (frame buffer) is in the VRAM. Clearing VRAM is much faster than clearing DRAM. Time can be saved by only partially clearing the DRAM. Therefore information is stored to define which pixels are to be cleared and thus reduces the amount of memory to be written while running an animation. This switch is normally set to speed up drawing performance in animations. Disable this switch if an OpenGL application needs to read back depth buffer information (e.g. Microsoft's OpenGL Hardware Compatibility Test).

Anti-Aliasing (lines)

This switch enables functions designed especially to support rendering of anti-aliased lines and points on graphics adapters with the PERMEDIA 2 chipset. When switched on, the jaggy appearance of lines is reduced so that the lines look smooth. The increase of rendering quality however causes a loss of rendering speed.
NOTE: This switch is only effective on GLoria Synergy adapters.

Mip Mapping

For a better rendering quality texture maps are stored in different sizes (mip map levels). These texture maps will be used to calculate (filter) the resulting pixel. Deactivate mip maps to reduce the amount of memory needed on the graphics board and calculation time.

Texture Compression

Color reduction

Textures may be stored in an reduced 16 bit format instead of 24 or 32 bits per pixel.
Auto: Depending on the current color depth the driver may to reduce the texture maps.
On: True Color texture maps will always be reduced
Off: True Color texture maps will never be reduced. The texture maps give the best quality

Compression ratio

To store as as many texture maps on the graphics adapter as possiblr it is possible to shrink the textures in size. With higer compression rates you will lose some quality but gain performance.

Quick Switch

The "Options list for Quick Switch" dialog is for selecting the applications which will subsequently be displayed in the "Display: AppSet" submenu of the WINman Suite The left-hand list shows the applications which will appear in the Quick Switch menu, and other applications are listed on the right. Use the two buttons to move applications from one side to the other.

AppSet in the *WINman Suite*

The *WINman Suite* enables fast access to the list of applications in AppSet. To call this utility, just access the task bar and click on the *WINman Suite* symbol depicted above. A pop-up menu will be displayed: use the "Display: AppSet" entry to open the AppSet dialog. Here, you can call the Help or select one of the applications listed. In this menu, the entries displayed have already been selected in the AppSetQuick Switch dialog.

Select the top menu entry to start or activate the AppSet dialog.

Here you will find a list of applications selected for the Quick Switch menu. Selecting one of these entries immediately changes the driver settings. The active entry is shown with a check mark, as are any other entries with identical settings. Some changes require Windows NT to be restarted.

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