EUT:VGA CARD

FCC ID:ILLFX142ETV

BRITEK ELECTRONICS CO., LTD.

USER'S MANUAL

EXHIBIT

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient o relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1. INTRODUCTION

The *Vulcan G* Game Accelerator has been implemented with **3Dfx**'s **Interactive Voodoo Graphics** game accelerator. That provides the highest performance 3D solution with full PC compatibility for multimedia graphics acceleration.

1.1 General Feature Description

Feature	Product Model
	Vulcan G
2D Graphic Engine	NO
Integrated DAC	135MHz
3D Setup/Rendering Engine	3Dfx Voodoo Graphics
3D Frame Buffer Size	2 MB
3D Texture Buffer Size	4 MB
Total Memory Size	6 MB
PCI v2.1 Bus interface	YES
3D Glasses support	NO

1.2 3D Feature Description

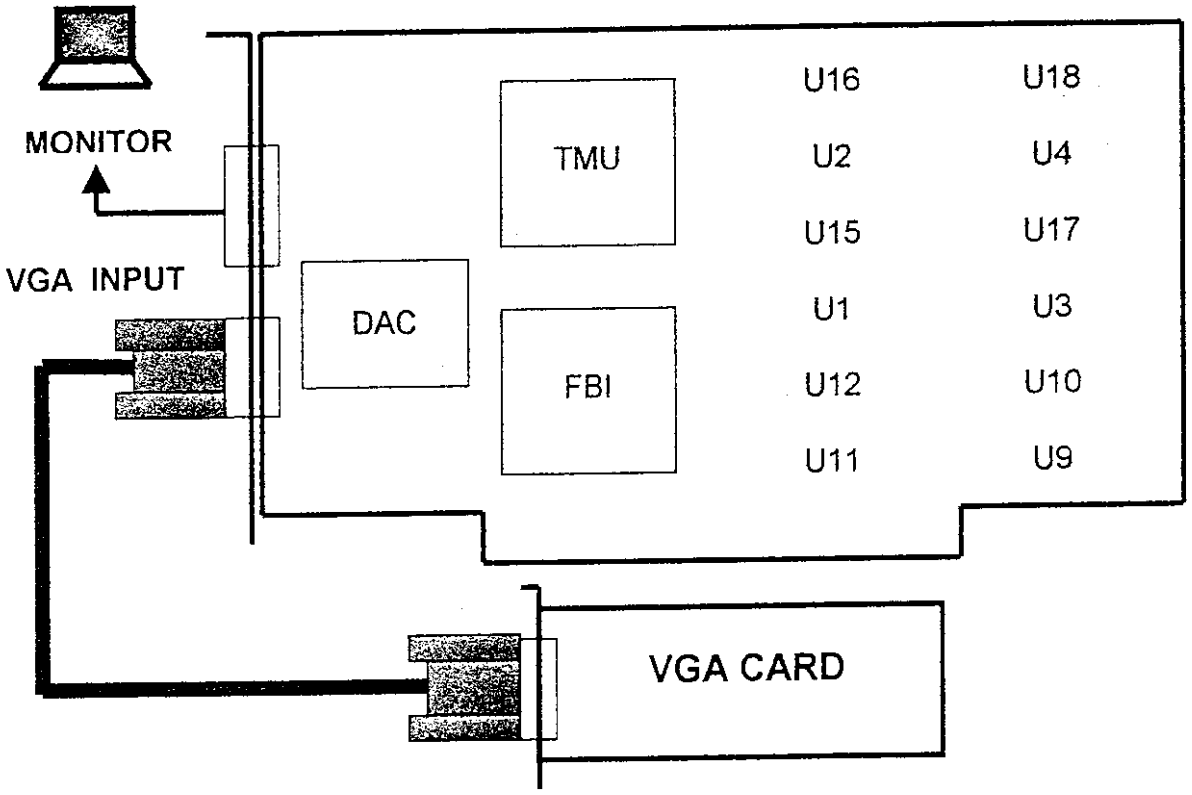
- Perspective correct texture mapping
- Bi-linear and tri-linear texture filtering
- Level-of-detail (LOD) MIP mapping
- Sub-pixel and sub-texel correction
- Gouraud shading and texture modulation
- Full 24-bit rendering, dithered to 16-bit RGB
- 13 texture formats including 8-bit compressed and 8-bit paletted formats
- Full bi-linear blending of paletted and compressed textures
- Anti-aliasing
- Depth buffering (16-bit linear, 22-bit effective)
- Alpha blending
- Per-pixel special effects: fog, transparency, translucency
- Texture compositing, morphing, animation
- Linear frame buffer access

1.3 Software Drivers List

- Windows95 or latest version
- Windows NT 3.5/4.0
- DOS 6.22 or latest version

2 Hardware Information

2.1 Configuring the *Vulcan G*



2.2 Understand your *Vulcan G*

1. **Monitor Connector:** This connector accepts the video cable from the monitor, where the *Vulcan G* accelerator is attached.
2. **VGA input Connector:** This connector accepts the Video cable from the VGA card (The cable is bundled in BOX.).

2.3 VGA Card Installation

To install the ***Vulcan G*** Game Accelerator, follow the steps below:

1. Turn off your computer, but leave the power cable connected to the wall outlet to ensure that your computer is grounded.
2. Remove the screws from the back of the system unit cover and slowly pull the cover forward to remove it from the system unit.

3 SOFTWARE UTILITIES

To facilitate the smooth installation of the optimized display drivers and utility software provided with your multimedia accelerator, you should read the instructions in this section carefully prior to attempting installation. The optimized display drivers for your multimedia accelerator may have been provided on diskette or compact disk (CD). If you received diskettes with your accelerator and have not already done so, first make a backup copy of the driver installation diskette(s) and store the original in a safe place.

Refer to your operating system manual for details on how to duplicate a diskette. You should use the backup copy you have made for all subsequent steps. If you received driver CD with your accelerator, see **CONTENTS.TXT** for more detail.

3.1 Windows 95 Installation

1. Install Windows 95 in the usual way. When installation has completed, Windows 95 should be booted on the VGA.
2. During the booting of Windows 95, a message of "**New Hardware Found PCI Multimedia Video Device**" must appear on the screen.
3. Insert the Windows 95 driver diskette into floppy disk A, or put **VIEWTOP** Driver CD into CD-ROM drive.
4. Select the "**Driver from Disk Provided by Hardware Manufacture**" and then select the "**OK**" button. A sub-window with a title named "**Install From Disk**" will be pop-on your screen.
5. Specify the path **A:** or **X:\ Voodoo\ Graphics\ Win95** and select the "**OK**" button in the "**Install From Disk**" window (X:CD Driver).
6. After all new drivers are installed; a sub-window will be displayed asking you to restart Windows 95 now.
7. Remove the diskette from floppy drive **A** and than press "**Yes**" button to restart the Windows 95 now. Otherwise, use the normal procedure to restart Windows 95 (from the Start menu, click on the "**Shut Down**" icon and select the "**Restart the Computer**" option).

3.1.1 DirectDraw

The driver contains support for hardware optimized DirectDraw functionality, which is used by DirectDraw games as well as by the Direct3D

3.3.1 DOS Notes

If you are running within pure DOS (not a DOS Prompt or DOS Shell under Windows for Workgroups, Win95, or OS/2) and you have less than 24MB of RAM you must set the environment variable DOS4GVM to the value 1.

```
C:\>SET DOS4GVM=1
```

3.3.2 Windows 95 Notes

If you are running under Win95 and you have less than 24MB of RAM you must change your DOS properties settings. The value for DPMI memory must be changed from AUTO to 16384. The initial environment setting must also be changed from AUTO to a minimum of 4096 for some applications.

3.3.3 Windows NT Notes

Glide programs built for DOS4GW cannot be run under Windows NT.

HAL. The driver is compatible with DirectX. Please obtain a release of this software if you require DirectDraw/Direct3D acceleration.

3.1.2 Direct3D

The driver contains a Direct3D HAL driver. This enables hardware acceleration of Direct3D applications. Some features are currently still under development and there are limitations which should be understood before attempting to run Direct3D or Retained Mode Direct3D programs. Most of these features do not affect current Direct3D/DirectDraw applications.

3.1.3 Other API

Other API are supported by using Glide as a lear, these API include: Renderware, Brender, GLQuake Driver (3Dfx GLQuake Driver)

3.2 Windows NT 3.5x/4.0

1. Insert the Windows NT driver diskette into floppy disk A, or put **VIEWTOP** Driver CD into CD-ROM drive.
2. Select \ **Voodoo\ Graphics\ Winnt** directory
3. Run **grtvgr.exe**
4. It will lead you to setup Glide driver in Windows NT.

> Before installing the video driver, make sure Windows NT is installed in VGA mode and work fine.
>
> Please install the Windows NT service pack 3 package first (you can download these drivers from Microsoft web site), or the driver may not work smoothly.

3.3 Glide 3D driver

Glide supports Windows 95, Windows NT 3.51, 4.0, MS-DOS, and MAC O/S. There is no native support in the development release for OS/2™ or Linux.

> Titles that use Glide Version 2.11 and earlier will not work with your 3Dfx *Vulcan G*. A Glide 2.3 or newer version title must be obtained.
>
> Resolution used by Glide can only be set by the application. Not all games support all resolutions or allows the use of a resolution other than 640x480

3. Locate an available (unused) expansion slot. Your *Vulcan G* Game Accelerator can be installed in any PCI expansion slot. Remove the slot cover and save the screw to anchor the accelerator board mounting bracket later.
4. Pick up the board (still in its sleeve) by grasping the edge bracket with one hand. Avoiding pressing on board components. With your other hand, touch an unpainted metal surface to discharge any built-up static electricity in your body.
5. Remove the plastic sleeve and with your free hand, touch an unpainted metal surface a second time to ensure there is no static buildup.
6. Insert the board into the expansion slot. Press it firmly to ensure that the board is fully seated. Anchor the board mounting bracket using the screw you set aside previously.
7. Use the cable and connect your analog VGA or compatible monitor to the accelerator board's 15-pin VGA connector, and fasten the retaining screws (if any).

1.4 System Requirements

- 120MHz (or faster) Intel Pentium™ CPU
- Vacant PCI slot
- Minimum 16MB RAM, 32MB Recommended
- For Glide: MS-DOS® revision 6.22 or higher, Windows® 95 or Windows® NT 4.0
- For Direct3D/DirectDraw (Windows ®95 or Windows ®98)

1.5 Advanced Information

For more information, please refers to 3Dfx web site at:
http://www.3dfx.com/

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