

**** USER'S
MANUAL ****

FCC ID : ILL159

Federal Communications Commission (FCC) Statement

For equipment FCC ID: ILL159

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 against harmful interference in a residential installation. This equipment generates, uses and can radiate 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 or 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.

Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

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.

SOFTWARE LICENSE STATEMENT

International copyright laws protect the software described in this manual. You must not copy the software for any purpose other than making archival copies for the sole purpose of backing-up our software for protection against loss. The software must not be used on two or more machines at the same time.

LIMITED WARRANTY

SOFTWARE

We warrant the physical diskettes and documentation enclosed in this package to be free of any defects in material and workmanship for period of 60 days from the date of purchase. This warranty is limited to the original purchaser of the product and is not transferable. We will replace the defective products only when the original purchaser returns it to us. The remedy for this breach of warranty is limited to replacement only and shall not cover any damages, including but not limited to the loss of profit, special, incidental, consequential and other similar claims.

HARDWARE

We warrant to you that the hardware will be free from significant defects in materials and workmanship for a period of one year from the date of purchase. We sole and exclusive remedy with respect to defective hardware will be, at our option, to repair or replace such hardware.

DISCLAIMER

We can not warrant the performance or results you may obtain by using the software, hardware or documentation.

With respect to the use of this product, in no event shall we be liable for any loss of profit or any other commercial damage, including but not limited to special, incidental, consequential or other damages.

TRADEMARKS

Other trade names or trademarks belong to their respective owners.

FCC COMPLIANCE STATEMENT

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 against harmful interference in a residential installation. This equipment generates, uses, and can radiate 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 communications, which can be determined by turning the equipment off and on, we encourage the users to try one or more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Move the equipment away from the 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 additional suggestions.

CAUTION

Any changes or modifications to the equipment by the user not expressly approved by the guarantee or manufacturer could void the user's authority to operate such equipment.

WARNING

Only equipment certified to comply with Class B digital devices should be attached to this equipment, and must have shielded interface cables. Operation with a non-certified computer is likely to result in interference to radio and TV reception.

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Hardware Features of Harpoon

■ NVIDIA RIVA 128ZX 2D/3D Graphics & Video Accelerator

1.1 Featuring:

Key Features

- High performance 128-bit 2D/GUI/DirectDraw Acceleration
- Interactive, Photo-realistic Direct3D Acceleration with advanced effects
- Massive 1.6GBytes/s, 100MHz 128-bit wide 8MByte frame buffer interface
- Video Acceleration for DirectDraw/DirectVideo, MPEG-1/2 and Indeo
- Planar 4:2:0 and packed 4:2:2 Color Space Conversion
- X and Y smooth up and down scaling
- 250MHz Palette-DAC supporting up to 1600x1280/85Hz
- NTSC and PAL output with flicker-filter Multi-function Video Port and serial interface (Optional)
- Bus mastering DMA Accelerated Graphics Port (AGP) 2.0 Interface supporting 133MHz 2X data transfer mode
- Bus mastering DMA PCI 2.1 interface
- 300-pin PBGA VGA chip

2D Acceleration

- 100MHz 128-bit graphics engine optimized for single cycle operation into the 128-bit SGRAM interface supporting up to 1.6GBytes/s
- Acceleration functions optimized for minimal software overhead on key GDI calls
- Extensive support for DirectDraw in Windows95/98 including optimized Direct Frame-buffer (DFB) access with Write-combining
- Accelerated primitives including BLT, transparent BLT, stretch BLT, points, lines, polylines, polygons, fills, patterns, arbitrary rectangular clipping and improved text rendering
- Pipeline optimized for multiple color depths including 8, 15, 24, and 30 bits per pixel
- DMA Pusher allows the 2D graphics pipeline to load rendering methods optimizing RIVA128ZX host multi-tasking
- Execution of all 256 Raster Operations (as defined by Microsoft Windows) at 8, 15, 24 and 30-bit color depths
- 15-bit hardware color cursor
- Hardware color dithering
- Multi buffering (Double, Triple, Quad buffering) for smooth animation

3D Acceleration

Triangle setup engine

- Setup hardware optimized for Microsoft Direct3D API
- 5G flop floating point geometry processor
- Slope and setup calculations
- Accepts IEEE Single Precision format used in Direct3D
- Efficient Vertex caching

Rendering engine

- Rendering pipeline optimized for Microsoft Direct3D API
- Perspective correct true-color Gouraud lighting and texture mapping
- Full 32-bit RGBA texture filter and Gouraud lighting pixel data path
- Alpha blending for translucency and transparency
- Sub-pixel accurate texture mapping
- Internal pixel path: up to 24bits, alpha: up to 8 bits

VistaTOP Harpoon Graphics Accelerator Card

- Texture magnification filtering with high quality bilinear filtering without performance degradation
- Texture minification filtering with MIP mapping without performance degradation
- LOD MIP-mapping: filter shape is dynamically adjusted based on surface orientation
- Texture sizes from 4 to 2048 texels in either U or V
- Textures can be looped and paged in real time for texture animation
- Perspective correct per-pixel fog for atmospheric effects
- Perspective correct specular highlights
- Multi buffering (Double, Triple, Quad buffering) for smooth 3D animation
- Multipass rendering for environmental mapping and advanced texturing

Video Acceleration

- Advanced support for DirectDraw (DirectVideo) in Windows 95/98
- Back-end hardware video scaling for video conferencing and playback
- Hardware color space conversion (YUV 4:2:2 and 4:2:0)
- Multi-tap X and Y filtering for superior image quality
- Optional edge enhancement to retain video sharpness
- Support for scaled field interlacing for reduced motion artifacts and reduced storage
- Per-pixel color keying
- Multiple video windows with hardware color space conversion and filtering
- Planar YUV12 (4:2:0) to/from packed (4:2:2) conversion for software MPEG acceleration and H.261 video conferencing applications
- Accelerated playback of industry standard CODECs including MPEG-1/2, Indeo, Cinepak

Support for Standard

- Acceleration for Windows 95/98 Direct APIs including Direct3D, DirectDraw and DirectVideo
- VGA and SVGA: The Harpoon has an industry standard 32-bit VGA core and BIOS support. In PCI configuration space the VGA can be enabled and disabled independently of the GUI
- Accelerated Graphics Port (AGP 2.0) or PCI 2.1 bus interface
- ITU/CCIR-656 compatible video port
- VESA DDC2B+, DPMS, VBE 2.0 supported

Host Interface

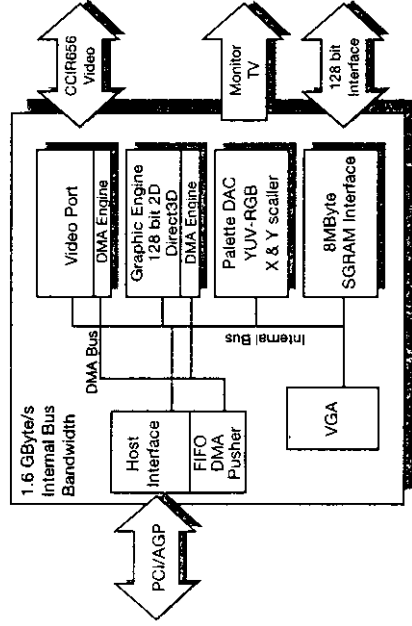
- High performance AGP 2X 133MHz interface
- 32-bit PCI version 2.1 or AGP version 2.0
- Burst DMA Master and target
- 33MHz PCI clock rate, 66MHz AGP clock rate and AGP 2X mode
- Supports over 100MBytes/s with 33MHz PCI to over 400MBytes/s on AGP-2X mode
- Implements read buffer posting on AGP

High Speed Memory Interface

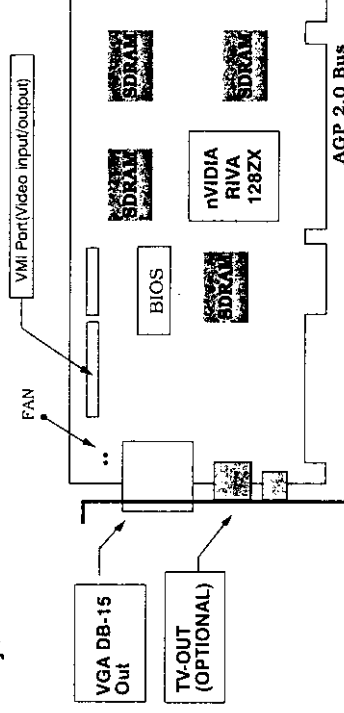
- 125/100MHz SDR SGRAM or SDRAM
- 64-bit synchronous memory bus
- 4, or 8MB frame buffer
- 512Kx32K or 256Kx32K parts

VistaTOP Harpoon Graphics Accelerator Card

1.2 Function Block Diagram



1.3 Board Layout



Software Features of Harpoon

OS Driver support

- Windows 95 VxD display driver
- Windows 98 / Windows NT 5.0 WDM (Win 32) display driver
- Windows NT 4.0 display driver
- Supporting Application APIs: Direct 3D, OpenGL ICD, Active X

2.1 Driver Installation

Before you start, please carefully read the following technical advice to avoid hardware and software compatibility problems.

1. General Notice :

- 1.1. Always keep updating the BIOS and drivers of both your mainboard and VGA card.
- 1.2. Most games require its own patch program to fix compatibility with some hardware and adding new game optional features (resolution upgrade etc.).
- 1.3. Regularly run Windows system utility to disk-optimize your system.
This helps stability and also kick out possible file damage.

2. Windows NT4 users:

The installation of "Microsoft Win NT4 Service Pack 3 or newer" is a must.
Win NT4 only supports 2D and Direct X 2.x for 3D.

3. Windows 95/98/NT5 users:

To make the AGP card run properly and activate the full 2D/3D acceleration capability, complete and successful drivers installation of your system mainboard is required. The drivers of mainboard must be installed in serial order and after each driver installation step, Windows system need re-booting to make driver activated before go to next driver installation. Also game should be configured properly per your VGA card.

For example, the VIA MVP3-based mainboard driver requires installation in below order:

1. Microsoft USB Supplement program (no need for Windows 98/NT5)
2. VIA IRQ Router program
3. VIA AGP (VxD) driver
4. VIA IDE bus-master (Ultra DMA-33) driver
This driver is installed twice. The first, copying driver into Windows system and the second, setting up driver mode for each IDE drives.
5. APMC driver (ACPI Power Management)
6. VGA card driver and other hardware / peripherals drivers

7. Direct X 6 installation
8. Game software installation
Uncheck the Direct X installation option during game installation process.
9. Install the Game Patch program.
10. Configure the game per your VGA card.

Like in Quake II Ver. 3.17, Video/Driver, you can and have to choose among:

- 3D Now ! Software
- 3D Now ! OpenGL
- 3D Now ! 3DfxGL Software
- Default OpenGL
- 3Dfx OpenGL
- PowerVR OpenGL

Remember to re-boot your Windows system after EACH driver installation step to activate the previous driver.

2.2 Windows 95/98/NT5 Installation

1. Installation Requirements

- Windows 95/98/NT5
- PC with a Pentium, Pentium II or compatible Processor
- AGP slot
- Minimum 16MB of system memory

2. Fresh Installation

NOTE: Complete Steps 1 before removing your existing 2D card.

- 1) Before removing your existing 2D card switch the video driver to Standard VGA. Click Start, Control Panel, Double-click on Display. Select 640X480 and 16 colors. Accept the changes.
- 2) Power off the system and remove your existing 2D card.
- 3) Install the Harpoon Card in AGP Slot (normally brown-colored)
- 4) Power on the system and verify that video appears during POST (Power On Self Test).

- 5) Start Windows in Normal mode
(Once Windows starts you may be notified that no video device exists, click Cancel if this message appears)
- 6) Windows will detect a new VGA Compatible Display. You need to:

Windows 95 Standard Release users:

Select "Use Driver from Mfr." and click OK. Point to the Win95 driver folder name in the CD drive location x:\Win95 then click OK again.

Windows 95 OSR2 users:

Click the Next Button on the Detection Dialog Box. When notified that the drivers are not found, click "Other Locations" then enter the driver path in the CD drive x:\Win95

- 7) You may then be prompted to insert the Windows 95 Harpoon Driver Disk. Again, enter the path in step 6 and press OK.
- 8) Windows will copy the drivers. Reboot the system when prompted
- 9) Install DirectX 6.

3. Upgrade Existing Harpoon Drivers

- 1) Start Windows 95
- 2) Click Start, Settings, **Control Panel**. Double-click on **Display**.
- 3) Click the Settings tab then click:
- Windows 95 Standard Release users: Click "**Change Display Type**"
- Windows 95 OSR2 users: Click "**Advanced Properties**"
- 4) Then under "**Change Display Type/Advanced Display**" click "**Change**"
- 5) Click "**Have Disk**" and enter the driver path in the CD drive x:\Win95
- 6) When asked to choose a device, select "ViewTop Harpoon"
- 7) You may then be prompted to insert the Harpoon Driver Disk.
- 8) Enter the path you specified in Step 5 again.
- 9) Windows will copy the drivers. Reboot the system when prompted.
- 10) Install DirectX 6

2.3 Windows NT4 Installation

1. Installation Requirements

- Windows NT 4.0 or higher
- Microsoft Windows NT4 **Service Pack 3** or newer installed
- PC with a Pentium II, Pentium or compatible processor
- 16MB or more system memory

2. Fresh Installation / Upgrade Existing Drivers

NOTE: For Fresh Installations, complete Steps 1 - 7 before removing your existing 2D card. If existing Harpoon drivers are being updated, installation is complete once step 7 is done.

- 1) Log-in to Windows NT Administrator privilege account.
- 2) Click "Start", "Control Panel". Double-click on "Display".
- 3) Click the "Settings" tab, "O.K.", click "Display Type", then click "Change".
- 4) Click "Have Disk" and enter the driver path in the CD drive x:\Winnt4.
- 5) When asked to choose a device, select "ViewTop 3D Harpoon" in left and in right side "VIEWTOP 3D Harpoon for Windows NT 4.0".
- 6) You may then be prompted to insert the Harpoon Windows NT4 Driver Disk. Enter the driver path again.
- 7) Windows NT will copy the drivers.

Steps 8-11 are only used during a fresh installation

- 8) Power off the system and remove your existing 2D card.
- 9) Install the Harpoon card in a free PCI/AGP Slot
- 10) Power on the system and verify that video appears during post
- 11) Start Windows NT4. If problems occur, revert to "Last Known Good" from within the Windows NT startup options.

Information and Support

Internet Support

If you need more information about ViewTop series products, please visit our Internet website:

<http://www.viewtop.com>

The most update driver and BIOS of ViewTop product are also available from the Download page of our website at

<http://www.viewtop.com/html/faq.htm>

Complete hardware and software information about RIVA chipsets are available from the NVIDIA website at

<http://www.nvidia.com>

Customer feedback

If you have any idea, suggestion about ViewTop products, or you need more information and help, please let us know. You can contact

britek02@ms6.hinet.net

Thanks for supporting ViewTop products.

We wish you enjoy it and love it.

Installation Guide

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