



*For correct resolution and refresh rate operation, you need to select a monitor. Please refer to the online help for more information. When you restart your system following installation of your graphics card, Windows 95 will detect the new hardware and may attempt to install a driver from its system registry. When prompted to "Restart the computer now", select NO. Then follow the normal installation procedure below. Selecting 'NO' for the initial restart prompt is a necessary step since Windows 95 may load an older display driver that is incompatible with your new graphics card. Always use the driver available on the diskette or CD-ROM that came with your computer, or an applicable driver update.*

**Installing Enhanced Drivers for Windows NT**

After installing your graphics card, Windows NT will default to standard VGA mode (640 x 480, 16 colors). The procedure below describes how you install the enhanced driver for Windows NT 4.0.

**To install the enhanced driver for Windows NT 4.0**

- 1 Boot Windows NT.
  - 2 Double-click the My Computer icon.
  - 3 Double-click the Control Panel icon.
  - 4 Double-click the Display icon.
  - 5 Click on the Settings tab.
  - 6 Click the Display Type button.
  - 7 Click Change.
  - 8 Click the Have Disk button.
  - 9 Select your diskette drive (usually CD-ROM) and click OK.
  - 10 The "Change Display" window appears. Click OK.
  - 11 When it asks "Do you wish to proceed?" click Yes.
  - 12 After the files have been copied to your computer, click OK.
  - 13 Close open windows. When the "System Settings Change" dialog box appears, click Yes to reboot Windows NT.
  - 14 After reboot, the invalid Display Settings window appears. Click OK.
  - 15 The Display Properties dialog box appears. Select a desired display mode. For more detailed information about changing your display mode, click Help. For correct resolution and refresh rate operation, you need to select a monitor. Please refer to the online help for more information.
- Troubleshooting Tips**  
The following troubleshooting tips may help you if you experience problems. Contact your dealer for more advanced troubleshooting information.
- Check that the card is seated properly in its expansion slot. If the problem still exists, try a different PCI or AGP expansion slot.
  - Ensure the monitor cable is securely fastened to the card.
  - Make sure that the monitor and computer are plugged in and receiving power.

**Electronic Emission Notices**

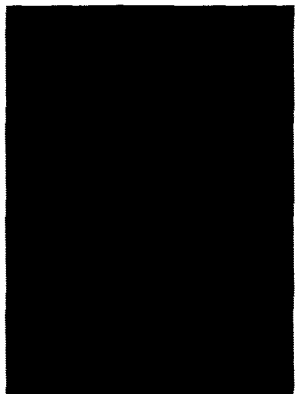
**Federal Communications Commission (FCC) Statement**  
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may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

- 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 THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

**NOTE:** Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception. The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

**Copyright**  
This manual is copyrighted with all rights reserved. No portion of this manual may be copied or reproduced by any means. While every precaution has been taken in the preparation of this manual, no responsibility for errors or omissions is assumed. Neither is any liability assumed for damages resulting from the use of the information contained herein.

**Trademarks**  
All brand names, logos and registered trademarks mentioned are property of their respective owners.



**R128-102  
AGP Card**

**USER'S MANUAL**





## Introduction

The Rage 128 Pro is a highly integrated 2D, 3D, and video accelerator. It is available in both PCI and AGP packages, bringing great 3D performance to all segments of the PC market.

The Rage 128 Pro delivers 3D performance unmatched in its class, along with a comprehensive list of 3D features including perspective, correct texturing, mip-mapping, bilinear and trilinear filtering, z-buffering, video texturing, Gouraud shading, and alpha blending.

The Rage 128 Pro incorporates excellent video support, suitable for MPEG-2 content and video conferencing acceleration, as well as support for the ATI Multimedia Channel (AMC), allowing upgrades such as ATI-TV and ATI-DVD. Support for a wide variety of memory configurations, allowing implementations designed for low cost as well as high performance SGRAM configurations with full performance at deep color depths and high resolutions up to 1600x1200.

## Features

### Interfacing

- AGP support.
- Fully PC 98 compliant.
- Power management including PCI Power Management registers.
- Comprehensive HDKs, SDKs and utilities augmented by full engineering support.
- Flash or ROM support.

### Memory

- 64-bit wide memory-mapped registers
- Programmable flat or paged memory model with linear frame buffer access
- Supports SDRAM and SGRAM across a 32-bit or 64-bit interface.
- Supports block write feature of SGRAM for improved performance.
- Flexible graphics memory configurations: 4MB up to 32MB

### 2D Acceleration

- Hardware acceleration of Blit, Line Draw, Polygon, Rectangle Fill, Bit Masking, Monochrome Expansion, Panning/Scrolling, Scissoring, Full ROP support and hardware cursor
- Game acceleration (including support for Microsoft's DirectDraw): Double Buffering, Virtual Sprites, Transparent Blit, Masked Blit and Context Chaining.
- Acceleration in 4/16/24/32 bpp modes. Packed pixel support (24bpp) enables true color in 1MB configurations.
- Increased display FIFO from 2k to 32 DWORDS.

### 3D Acceleration

- Complete 3D primitive support: points, lines, triangles, lists, strips and quadrilaterals and BLTs with z compare.
- Comprehensive enhanced 3D feature set:
- Full screen or window double buffering for smooth animation
- Hidden surface removal using 16-bit z-buffering
- Sub-pixel and sub-level accuracy
- Gouraud and specular shaded polygons

2



- Perspective correct mip-mapped texturing with chroma-key support
- Support for single pass bi- and tri-linear texture filtering
- Full support for Direct3D texture lighting

- Special effects such as complete alpha blending, fog, video textures and texture lighting
- Dithering support in 16bpp for near 24bpp quality in less memory
- Extensive 3D mode support:
- Draw in RGBA32, RGBA16, and RGB 6
- Texture map modes: RGBA32, RGBA16, and RGB 6
- Compressed texture modes: YUV422, CLUT4 (C14), CLUT8 (C18)

### Motion Video Acceleration

- Smooth video scaling and enhanced YUV to RGB color space conversion for full-screen / full-speed video playback.
- True color overlay accepts video streams at full MPEG-2 width, up to 720 pixels.
- Supports multi-stream video for video conferencing and other applications.
- Filtered horizontal and vertical, up and down scaling enhances playback quality.
- Special filter circuitry eliminates video artifacts caused by displaying interlaced video on non-interlaced displays.
- Interact capable video capture interface.
- Bus master engine includes bi-directional planar YUV to packed format converter for superior MPEG playback and video conferencing acceleration.
- Hardware mirroring for flipping video images in video conferencing systems.
- Supports graphics and video keying for effective overlay of video and graphics.
- YUV to RGB color space converter with support for both packed and planar YUV.
- YUV422, YUV410, YUV420
- RGB32, RGB16/15, RGB8, Mono.

### AMC Operation

- 16-bit, bi-directional video port allows direct connection to popular video upgrades such as:
- Video capture / video conferencing
- Hardware MPEG-2 / DVD player
- TV Tuner with intercast support
- I<sup>2</sup>C and MPP interface to control AMC peripherals

### Software Support

- Support software Win95, Win98, Win6SE, WinME, NT 3.51, NT 4.0.
- Register-compatible with VGA standards, BIOS-compatible with VESA Super VGA.
- Calibration utility for WYSIWYG color

### Display Capability

- Depending on the memory configuration, the Rage 128 Pro can give a maximum resolution of 1600x1200 at 65K colors and a refresh rate of 76 Hz.
- Triple 8-bit palette DAC with gamma correction for true WYSIWYG color. Pixel rates up to 200MHz.

3

## Software Install

- Installing Your Graphics Accelerator Card
- Troubleshooting Tips

These graphics accelerators are the most advanced on the market today. They improve the performance of your system and display exceptional graphics. Your graphics accelerator comes complete with enhanced drivers and comprehensive award-winning software utilities designed to make you more productive. Please read this guide before attempting to install your card.

### Preparing Your Computer

If you are using special drivers that are not 640x480 VGA and an operating system other than Windows95, you may encounter conflicts with the card. We recommend that you first reconfigure your operating system to use a VGA driver supplied with your operating system before installing the card. For more information about changing your operating system configuration, see your operating system documentation. Turn off the power to your system and discharge your body's static electric charge by touching a grounded surface — e.g., the metal surface of the power supply — before performing any hardware procedure. The manufacturer assumes no liability for any damage, caused directly or indirectly, by improper installation of any components by unauthorized service personnel.

If you do not feel comfortable performing the installation, consult a qualified computer technician. Damage to system components, the accelerator card, and injury to yourself may result if power is applied during installation.

### Installing Enhanced Drivers for Windows 95

You need to install the enhanced driver for Windows 95 takes advantage of your card's higher performance, resolutions, and special features. To ensure that you install the latest driver, install the enhanced driver located on the CD-ROM shipped with your graphics accelerator card.

### To install the enhanced driver for Windows 95

- 1 Insert the driver diskette into your CD-ROM drive.
- 2 Click on the Star button in the Start menu.
- 3 Scroll up to Settings and click on Control Panel.
- 4 Double click on display.
- 5 Click on the change display type or the adapter type bar, and then click the change button next to advanced type.
- 6 On the select device page, click on the Have Disk button, to install the display driver.
- 7 Use the Browse button if needed to select the driver diskette and click OK.
- 8 Wait for a moment, then select the name of your card from the listing shown and click OK.
- 9 You will now be back in the window with the Driver tab. Click OK.
- 10 The "Copying Files" dialog box appears as your drivers are installed.
- 12 Click on the Restart button.

4