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# RADEON™ VE

## User's Guide

Version 1.0

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# Using Multiple Monitors

Your RADEON™ VE provides dual display functionality and TV Out from a single video card. This new technology changes the way you view your PC, TV, and video graphics.

The RADEON™ VE uses HydraVision™ software to create a seamless multiple display desktop. Multiple monitor display works as one large work area. A single application can span all monitors, or many applications can occupy their own specific monitor. This feature will take your PC's graphics and video capabilities to the next level.

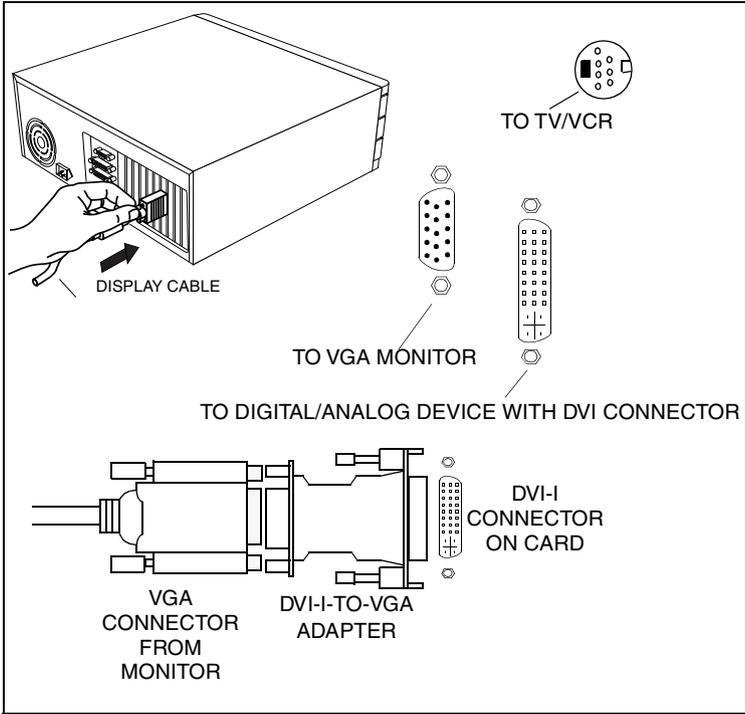
## Connecting your RADEON™ VE to your monitors

The RADEON™ VE provides support for one DVI-I monitor or two VGA monitors using the supplied DVI-I-to-VGA adapter. A television can also be used to expand your desktop by using the S-Video connector

**Plug the monitor cable into your card** (if you are running multiple monitors, connect their cables to the appropriate connectors), then turn on the computer and monitor(s).

To connect a flat panel to the RADEON™ VE use the DVI-I connector as shown on the following page. To connect a VGA monitor to the DVI-I connector, plug the supplied DVI-I-to-VGA adapter into the DVI-I connector, then plug your monitor cable into the adapter.

When you use multiple monitors with your RADEON™ VE, one monitor will always be primary. Any additional monitor(s) will be designated as secondary. The primary monitor displays the Windows® start-up logo during the computer's boot process. The monitor(s) that remain inactive(black) are secondary.



## RADEON™ VE Display Configurations

Display Configuration	Connector(s) Used	Comments
CRT monitor	- 15-pin VGA connector - 24-pin DVI-I connector (with DVI-I-to-VGA adapter)	
DFP monitor	- 24-pin DVI-I connector	
TV	- s-video connector	
CRT monitor + TV	- 15-pin VGA connector + s-video connector	Unsupported configuration if the CRT monitor is attached to DVI-I connector via DVI-I-to-VGA adapter
DFP monitor + TV	- 24-pin DVI-I connector + s-video connector	
CRT monitor + DFP connector	- 15-pin VGA connector + 24-pin DVI-I connector	
CRT monitor + CRT monitor	- 15-pin VGA connector + 24-pin DVI-I connector (with DVI-I-to-VGA adapter)	
CRT monitor + DFP monitor + TV	- 15-pin VGA connector + 24-pin DVI-I connector + s-video connector	Please note that this will result in two independent displays with the third display "cloning" the image of one of the other two displays.
CRT monitor + CRT monitor + TV	UNSUPPORTED CONFIGURATION	

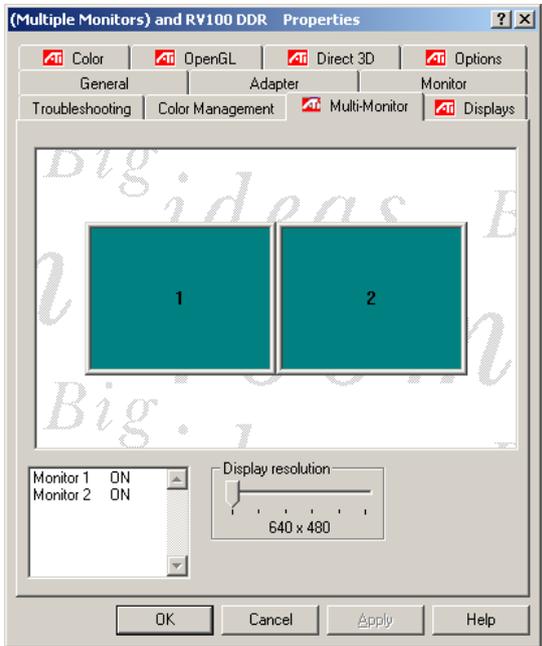
### Legend:

CRT-(cathode ray tube) analog monitor utilizing the standard 15-pin VGA connector

DFP-digital flat panel monitor utilizing the 24-pin DVI-I connector

- The DVI-I connector can support a monitor using a 15-pin VGA connector via DVI-I-to-VGA adapter
- The s-video connector on the board can support a composite connector via s-video-to-composite adapter

## Multi-Monitor Controls



### *The Windows® 2000 Multi-Monitor Dialog*

The **Multi-Monitor** dialog in Windows® 2000 features a graphic representation of the current monitor array. The Multi-Monitor dialog is located in the Advanced Settings of the Display Properties. You can drag the monitor illustrations to new locations in the diagram to change the array. You can also enable and disable monitors by double-clicking on the monitor number in the list box.

The Multi-Monitor dialog in Windows® 98SE and Windows® Me is located in the Settings tab of the Display Properties. From here, you can enable/disable multiple displays, change color depth and screen resolution.

To enable the secondary display (assuming a secondary display is attached to your RADEON™ VE):

- 1 Right-click on monitor labeled “2”.
- 2 Click “Enable” in the drop-down menu.
- 3 Click “OK”.



### *The Windows® 98SE/Windows® Me Multi-Monitor Dialog*

To change resolution or color depth:

- 1 Left-click the desired monitor to make it active.
- 2 Make the desired changes to the color depth and resolution.

To reposition your display, click and drag the appropriate monitor to the desired position. For example, the secondary display can be dragged to the left of the primary display. This allows you to position your secondary display to be either physically left or right of the primary display.

**Note**

The RADEON™ VE offers Ratiometric expansion. Ratiometric expansion (or digital panel scaling as it is commonly known) expands a low resolution image to fill a higher resolution panel. However, Ratiometric expansion is only available on the primary display. Therefore, if a DFP is set as secondary, the extended desktop is disabled and the resolution is less than the DFP monitor's native resolution. This causes the DFP monitor to default to center mode.

## Dynamic Monitor Reassignment Windows® 98SE/Windows® Me/Windows® 2000

In addition to the fact that you never have to reboot when enabling and disabling multiple monitor settings, you can also change the assignment of your primary and secondary display on the fly without even rebooting!

- 1 Right-click on the desktop and click on **Properties** from the drop down menu.
- 2 Select the **Settings** tab.
- 3 Click on the **Advanced** button.
- 4 Select the **Displays** tab.

This window shows you the display(s) that are active, and the button beside the active displays will be blue. The active blue buttons will have the word “**Primary**” or “**Secondary**” beside them.

Clicking on a blue button (in a dual display configuration) will reassign the primary and secondary monitors. Clicking on “**Apply**” will enable any changes that you have made.



**Note**

Video overlay allows for the viewing of full-motion video on your computer. However, there is only one video overlay, which is only available on the **primary** monitor. The RADEON™ VE allows you to change the primary monitor while viewing a DVD.

## Using HydraVision™ for Windows® 98SE/Windows® Me/Windows® 2000

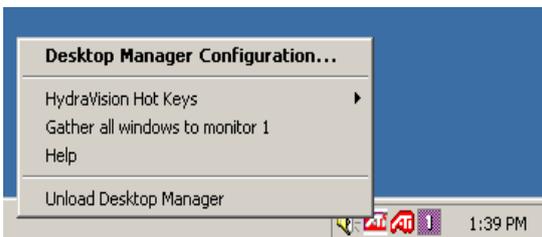
The Windows®98SE, Windows®Me and Windows®2000 operating systems are designed to recognize multiple monitors in a single system. HydraVision™ software is specifically designed for use with Windows®98SE, Windows®Me and Windows®2000. HydraVision™ installation enables the Desktop Manager and creates a Windows® program group for HydraVision™ display management software.

HydraVision™ and the Desktop Manager are activated whenever Windows® starts. You can tell that HydraVision™ is running by the presence of the HydraVision™ icon in the Windows® system tray.



### *HydraVision™ System Tray Icon*

Right-click on this icon to access HydraVision™ features and help, or to unload the HydraVision™ Desktop Manager.



### *Accessing HydraVision™*

The HydraVision™ Desktop Manager allows you to modify your display options. You can access the **Desktop Management** and **Hot Keys** dialog boxes by clicking on the appropriate tab in the Desktop Manager.

Along the bottom of each HydraVision™ dialog are four buttons: **OK**, **Cancel**, **Apply** and **Help**.

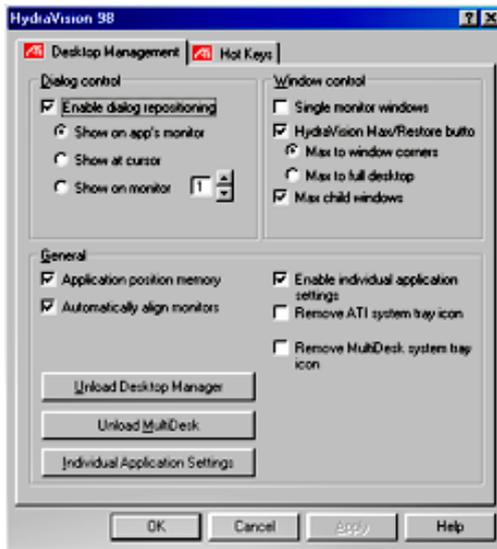
**OK** implements the changes you've made in the HydraVision™ dialog and exits the Desktop Manager. Changes take effect immediately unless you see a message prompting you to restart your computer.

**Cancel** discards *all* changes made to any section of the HydraVision™ dialog and closes the Desktop Manager.

**Apply** implements your changes without closing the Desktop Manager.

**Help** connects to local or on-line HTML-based help. You can also get context -sensitive on-screen help by moving your mouse over the relevant text for each controller

## Desktop Management Controls



### *The Desktop Management Dialog*

The **Desktop Management** dialog lets you determine the behavior of pop-up windows and dialog boxes in a multiple monitor environment.

#### **Dialog control:**

**Enable dialog repositioning**—Toggles dialog control on and off. When it is checked, you can choose to have dialog boxes appear on the parent application's monitor (The parent application is the application that generated the dialog box.). If the parent application or associated monitor cannot be located, the dialog box defaults to monitor 1. You can also choose to have dialog boxes appear on the monitor in which the cursor is located or to always appear on a specific monitor in the array.

**Window control:**

**Single monitor windows**—When this box is checked, windows are sized no larger than a single monitor. Windows that are placed on monitor splits are automatically relocated to the monitor on which most of the window appears.

**HydraVision™ Max/Restore**—Allows you to control the behavior of the Windows® **Maximize** button. When HydraVision™ is running, a HydraVision™ Max/Restore button appears in the upper right corner of your application title bars. Clicking this icon makes the active window maximize in one of two ways:

- **Max to window corners** causes windows to maximize to the monitor(s) that contain the window's upper left and lower right corners.
- **Max to full desktop** causes windows to maximize to the entire monitor array.

**Max child windows**—Keeps windows generated by parent applications from splitting across monitors (A child window is a window residing within a parent application window.) The ability to keep child windows on a single monitor when maximized is extremely useful for editing multiple documents side by side in a parent application.

 *NOTE: The HydraVision™ application title bar icon changes from a single square to two smaller squares when a window is in a HydraVision™ maximized state. Clicking the icon again restores the active window to its default state as a single square.*

General:

**Application position memory**—Check this box to “remember” the size and location of application windows when they are closed and reapply those settings when the application is reopened.

**Automatically align monitors**—Under Windows®98SE and Windows®Me, you can manually define monitor placement from the **Settings** dialog in the **Display Properties** dialog box. When this box is checked, HydraVision™ will override user-defined monitor placement if the monitors are not evenly aligned.

☞ *NOTE: This control will work only if all monitors are running at the same resolution and your desktop is configured as a rectangle (monitors side by side).*

**Enable individual application settings**—Check this box to specify desktop management settings for individual applications. You can access these settings by clicking on the down arrow of the HydraVision™ icon in the application title bar or by clicking the **Individual Application Settings** button in the **Desktop Management** dialog.

**Remove HydraVision™ system tray icon**—This box removes or restores the HydraVision™ system tray icon.

**Remove MultiDesk system tray icon**—This box removes or restores the MultiDesk system tray icon.

**Load/Unload Desktop Manager**—This button restores or removes the HydraVision™ Desktop Manager tracking program. Unloading the Desktop Manager returns display settings to Windows®98SE/Windows®Me defaults. You should only select this option if you do not want to use any multiple monitor dialog box and window controls or hot keys.

☞ *NOTE: **Unload** applies to your current Windows®98SE/Windows®Me session only. When Windows®98SE/Windows®Me restarts, the Desktop Manager will reload.*

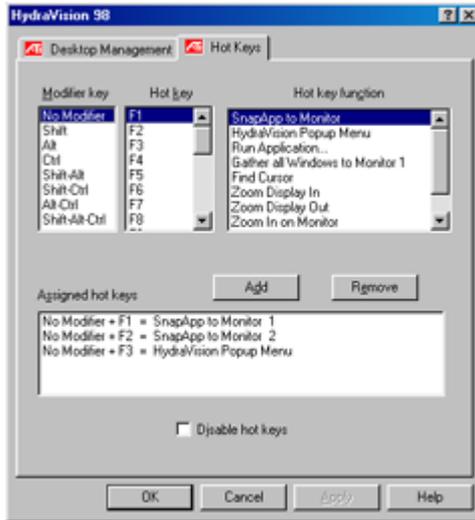
**Load/Unload MultiDesk**—This button restores or removes multiple desktop functionality.

☞ *NOTE: **Unload** applies to your current Windows®98SE/Windows®Me session only. When Windows®SE/Windows®Me restarts, MultiDesk will reload.*

**Individual Application Settings**—This button allows you to specify, enable and disable desktop management settings for individual applications.

☞ *NOTE: These settings override the global settings defined in the **Desktop Management** dialog.*

## Hot Keys Controls



### *The Hot Keys Dialog*

HydraVision™ allows you to specify hot key shortcuts for common operations such as starting applications, snapping applications to designated monitors, and changing display resolution.

## Create/Remove Hot Keys

To create custom hot key sequences, select a **Modifier key** (Shift, Alt, etc.), a **Hot key**, and the **Hot key function** you want this key combination to perform. Click **Add** to enter your new combination in the **Assigned hot keys** list box. Click **Apply** to activate assigned hot keys.

*NOTE: ATI recommends that a modifier key be used with any function key (F1, F2, etc.) assigned as a hot key. This will prevent interference with the function of these keys in individual applications.*

To delete a hot key from the **Assigned hot keys** list box, highlight it, click **Remove**, and then click **Apply**.

You can also disable all hot keys listed in the **Assigned hot keys** list box by checking the **Disable hot keys** box near the bottom of the **Hot Keys** dialog.

## Using Hot Keys

You can use any assigned hot key at any time, from within any application, to change your display.

Provided hot key functions include:

Snap App to Monitor	Allows you to move or “snap” active windows or dialogs from monitor to monitor for quick placement and viewing of desktop contents.
HydraVision™ Pop-up Menu	Allows on-the-fly access to HydraVision™ controls.
Run Application	Lets you start any application with a hot key.
Gather All Windows to Monitor 1	Allows you to find applications that are hidden or are open and lost on disabled monitors.
Find Cursor	Locates the cursor on a busy or crowded desktop
Next Desktop	Accesses other active desktops
Zoom Display In/Out	Causes the desktop resolution to increase or decrease.
Zoom In/Out on Monitor	Causes the resolution of the active monitor to increase or decrease.

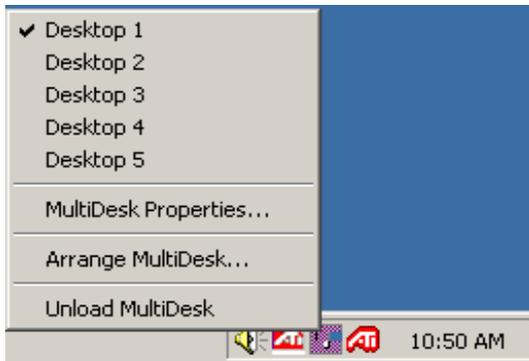
## MultiDesk

HydraVision™ software supports multiple desktops. With MultiDesk, one active desktop will always be visible, while up to eight active desktops can reside in the background. When MultiDesk is running, the MultiDesk icon in the system tray displays the number assigned to the current desktop



### *MultiDesk System Tray Icon*

Right-click on this icon to access MultiDesk controls. In addition to accessing active desktops from the system tray, you can also access active desktops with a **Hot key** shortcut



### *MultiDesk Pop-Up Menu*

To switch to another defined desktop, select the appropriate desktop number from the pop-up menu. To enable, disable and name active desktops, select **MultiDesk Properties** from the pop-up menu. To arrange applications within active desktops, or to enable specific applications on all desktops, select **Arrange MultiDesk** from the pop-up menu.

The MultiDesk functionality can be removed by selecting **Unload HydraVision™ MultiDesk** from the pop-up menu.

☞ *NOTE: This applies to your current Windows® session only. When Windows® restarts, MultiDesk will reload*

## Using TV Out

### View your PC's display on a TV!

Your new RADEON™ VE card has TV Out capability. You can attach your card to a television and monitor at the same time. Or you can connect it to your VCR and record your monitor's display.

Television display is ideal for playing games, giving presentations, watching movies, and browsing the Internet. The following tips will help you get the most out of your TV Out feature.



#### **IMPORTANT INFORMATION for European Customers**

Some PC monitors in Europe **cannot** be used simultaneously with television display. When you enable television display in Europe, the refresh rate for the monitor and television is set to 50Hz. Some monitors may not support this refresh rate and could be damaged.

- Please check the documentation supplied with your monitor to see if your monitor supports a refresh rate of 50Hz.

**If your monitor does not support 50 Hz (or if you are not sure), then turn off your monitor before turning on your computer when using your television as a display.**

For information on disabling television display, see [Enabling and Disabling the Television Display](#) on page 24.

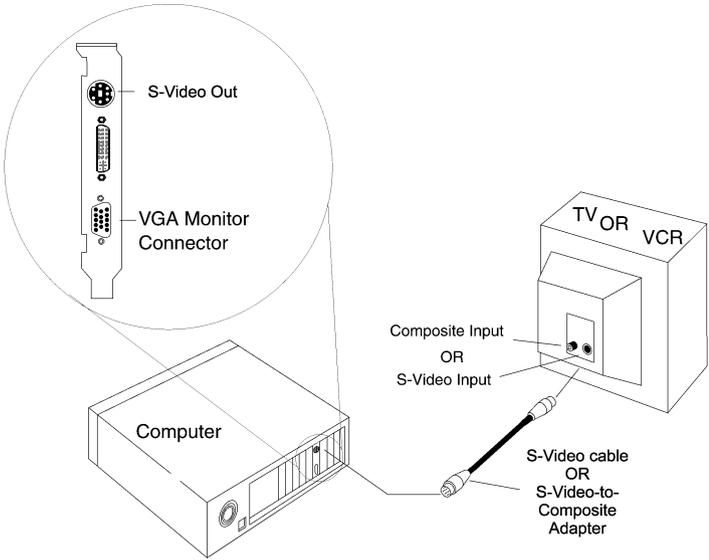
Some televisions in Europe may use an SCART connection. If you use SCART, please read [Using SCART Connectors for European Televisions](#) on page 23 before attempting to connect your PC to your television.

## Connecting your RADEON™ VE to a TV or a VCR

To connect your graphics card to a television or a VCR, use an S-Video cable from your RADEON™ VE to the television (or VCR). However, most televisions (and VCRs) have a Composite video input, in which case you can use the supplied S-Video to Composite video adapter. If your television has cable input only, which is the case on older units, you can connect your RADEON™ VE to your television through your VCR or an RF modulator (available in most electronics stores).

### Connecting Your RADEON™ VE TV Out to a Television or VCR

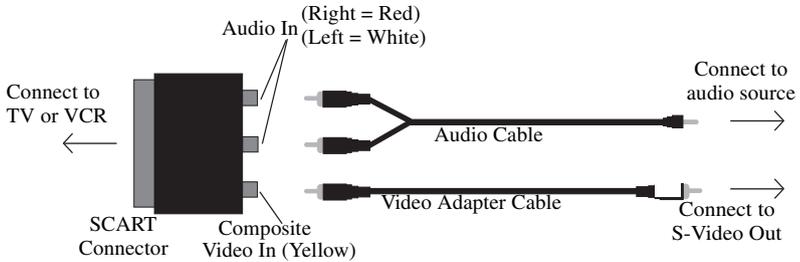
- 1** Turn off your computer and your television (or VCR).
- 2** Ensure your graphics card is installed correctly.  
*For information about placing the card in your computer and installing the enhanced ATI driver, see the Radeon™/Radeon™ VE Getting Started guide.*
- 3** Determine if your television (or VCR) has an S-Video or Composite video connection.
- 4** Looking at the back of your computer, locate your RADEON™ VE card. Using an S-Video cable or the supplied adapter cable, attach one end of the cable to your graphics card and the other to your television (or VCR). See “Connecting your ATI RADEON VE card to a TV (or VCR)” on the following page.



***Connecting your ATI RADEON™ VE card to a TV (or VCR)***

- 5** Turn on your computer and your television (or VCR).
- 6** To turn your television display on and off, please see [\*Enabling and Disabling the Television Display on page 24.\*](#)

## Using SCART Connectors for European Televisions



**Figure 2.** Using a SCART connector with the video adapter cable

The SCART connector supports only the Composite video format, which means you will have to use the video adapter cable. The above illustration shows how to connect your RADEON™ VE to a European TV using the SCART.

If your European television does support S-Video (S-VHS) input, you can use an S-Video cable (available in most consumer electronic stores) to view your PC on a television.

# Using and Adjusting TV Out

## Enabling and Disabling the Television Display

- 1 Click **Start**.
- 2 Point to **Settings**, then click **Control Panel**.
- 3 Double-click **Display**.
- 4 Click on the **Settings** tab and then the **Advanced...** button.
- 5 Click on the **ATI Displays** tab.
- 6 Click on the green **enable/disable** button next to the word **“TV”** to enable/disable television display.

*If there is no display on your TV, you may need to switch it to video display mode. For more information, consult the documentation supplied with your TV. If your television is connected to your VCR, you may need to tune the TV to the VCR's output. For information about connecting your TV to your VCR, consult the documentation that came with your VCR.*

- 7 Click **Apply** to save the changes you have made.

For information about how to use television display and the ATI Displays Properties page, click the **Help** button.

**Note**

A TV cannot be left connected to the graphics card if two analog monitors are connected to the RADEON™ VE, even if the TV is off and not enabled in the software.

An analog monitor connected to the DVI-I connector cannot be left connected to the RADEON™ VE when TV out is enabled.

In both cases, the RADEON™ VE will become overloaded, resulting in a dim image on **all** devices.

## Starting Windows® with Television Display Enabled

The television screen may become scrambled during the initial Windows® logo display. This is only a temporary effect and your television screen will be restored within a few seconds.

During start up, your RADEON™ VE will go through a sequence of mode settings, during which your television display will remain blank. This process takes only a few seconds and helps program the television display.

## Using a Monitor vs. Using the Television Display

Using your television for your computer's display is ideal for playing games, giving presentations, watching movies, and browsing the Internet. However, the display on your monitor may change or look squashed. This occurs because the display adjusts to fit the dimensions of your television. To correct the monitor's display, use the monitor's control buttons to adjust its display size and position.

Some single frequency monitors may not work with television display enabled. If you experience problems when television display is enabled, disable television display to restore your monitor's display.

## Adjusting Monitor Display

The size of the display on your monitor may be smaller and not perfectly centered when you have television display enabled. These effects are caused by the changes required to provide a proper display on the television.

Use the controls available on the **Adjustments** tab on the **Monitor Properties** page (accessible by clicking on the **Monitor** button on the **ATI Displays** tab) to adjust the display on your monitor only. Click on the **Television** button to adjust the television display only.

## Viewing Text on Television

A TV is designed primarily to show moving, rather than static, images. The large dot pitch of a TV (which is fine for moving video) will yield poor quality static images such as text.

The small text sizes commonly used for computer desktops can appear blurred or unclear on a TV. You can compensate for this by using larger fonts.

### To Use Larger Display Fonts

- 1** Click **Start**.
- 2** Point to **Settings**, then click **Control Panel**.
- 3** Double-click **Display**.
- 4** Click on the **Settings** tab and then the **Advanced...** button.
- 5** Make sure you're on the **General** tab.
- 6** In the **Font Size** box, select the size you want your displayed fonts to be.
- 7** Click **Apply**, then follow the onscreen instructions to save your new settings.

## Reducing Edge Distortion

When using a television for your PC's display, you may see some edge distortion on the left and right side of your television screen. This effect depends on your television and the PC application you are running.

To reduce edge distortion, you can increase the TV display's horizontal size.

### To Increase the Horizontal Size

- 1 Click **Start**.
- 2 Point to **Settings**, then click **Control Panel**.
- 3 Double-click **Display**.
- 4 Click on the **Settings** tab and then the **Advanced...** button.
- 5 Click on the **ATI Displays** tab.
- 6 Click on the **TV** button.
- 7 Make sure you're on the **Adjustments** tab.
- 8 Click on the plus (+) button under Horizontal Screen to increase the horizontal size of the television display.
- 9 Click **Apply** to save the changes you have made.

You can also reduce edge distortion by reducing the TV's brightness.

### To Change the Brightness

- 1 Click **Start**.
- 2 Point to **Settings**, then click **Control Panel**.
- 3 Double-click **Display**.
- 4 Click on the **Settings** tab and then the **Advanced...** button.
- 5 Click on the **ATI Displays** tab.
- 6 Click on the **TV** button.
- 7 Drag the **Brightness slider** to the left to decrease the brightness.
- 8 Click **Apply** to save the changes you have made.

## Changing Display Configurations

If you move your computer to a place where you are using television display only, make sure that you have the television display feature enabled; see *Enabling and Disabling the Television Display on page 24*.

You can set your display resolution as high as 1024 x 768. However, higher resolutions will result in a virtual desktop. If a television is your only display device and a higher mode is selected, the display on your television will disappear.

## Using Games and Applications

Some older games and applications may program your RADEON™ VE card directly to run under a specific display mode. This may cause your television display to turn off automatically or become scrambled (the PC monitor will not be affected). Your television display will be restored once you exit the game or if you restart your computer.