

Introduction by our Product Managers :

At ViewSonic, we've always known that a quality video card gives you a better picture, improved focus, reduced "ghosts" or ringing, support for higher refresh rates, and draws more polygons per second for the gaming crew... We test hundreds of video cards in ViewSonic Labs to ensure compatibility and solid performance with our monitors.

But now there are some exciting NEW developments in video cards that can change the way you work and play. This discussion is devoted to explaining these technologies, with emphasis on multiple monitors on one desktop.

Imagine the power that comes from more display space. Put e-mail on one screen, your browser and word processing on the other. It's an opportunity to work without drilling through layers of application windows. Or open up new experiences in gaming, as more games support dual monitor mode including two player views on separate screens.

ViewSonic is committed to providing you with advanced display technology. Offering sharp visual quality and support for high resolutions and refresh rates, ViewSonic's monitors are made to match your diverse business and entertainment needs, whether you're a corporate multitasker, home Web surfer, or serious 3D gamer.

There are several video card solutions for multiple monitors.

Dual monitor technology:

As more customers put two displays on one desktop, we've compiled some of the cool applications to let you see what people are doing. As monitors become more affordable and as people upgrade to a new display, people may have two ViewSonic® monitors, and now they can use both displays at once. Both Windows and MAC environments support multiple video cards in one computer for multiple monitors, and there is a technical description of "how to" at the bottom of this feature. But there are also NEW video cards that support dual monitors from a single card.

Flexibility is an advantage, and most multiple monitor configurations allow each monitor to have its own resolution and color depth. You can also set each monitor at independent resolutions and refresh rates. So not only can you split your desktop between the two displays, you can set up each monitor for best performance. For example you might use a ViewSonic 15" LCD ViewPanel® and a ViewSonic 19" (various viewables) CRT monitor, run the LCD at 1024x768@60Hz and the 19" (various viewables) monitor at 1280x1024@85Hz. As you move your mouse the cursor travels from one monitor to the next.

There are also other ways to use a dual monitor configuration. For example with DualHead there are zoom functions so that one monitor can be a zoom view, you can show the same thing on both displays, play games where each person has their own view, and more. The new class of ultra-flexible multiple monitor video cards is your passport to increased productivity and exciting entertainment possibilities. Below are a variety of applications that may interest you.

Is it worth it? In a word, definitely. You may find it hard to imagine going back to a single monitor desktop after you try it yourself.

Research and Writing:

With a word processor open in the primary display, and a web page or image browser open in the secondary display, you can write about what you're researching without forcing you to alt-tab or click down into the taskbar to bring up your research subject. It might sound insignificant at first but if you think about it, or try it, it really is a time saver and helps you work a lot more efficiently.

Graphic Arts and Imaging:

Zooming is another feature that Matrox's DualHead offers. With Zoom enabled, you can specify an area in the primary display that you want enlarged on your secondary display. This feature is obviously aimed at graphic artists, for whom this feature would prove to be most useful. When doing touch ups on graphics, it's often necessary to zoom in to take care of the fine details. You can see the small details in the secondary display and at the same time view how those changes are affecting the "bigger picture" in your primary display.

Another option is to work on one screen while you place tool bars, color palettes, and everything else on the other monitor

Entertainment (whistle while you work):

Matrox gives specific support for DVD playback on a second display. Simply launch a DVD movie and it will start up full screen in the secondary monitor automatically, while remaining in a window on your primary display. This means you can alt-tab or open up a word processor and do work while watching a movie. You've got a big presentation due the next day, but don't let that stop you from dropping in a copy of "Matrix," and watching Trinity kick some butt. You can also use this feature with a ViewSonic® projector as the secondary display and work on the PC while your family watches DVD movies on the living room wall. This is a great way to take advantage of a DVD installed in your computer.

Business:

Multitasking is easy when you can simultaneously run two or more applications on side-by-side displays, or stretch a spreadsheet across two screens to see more and do more. Waste no more time on closing and reopening applications, or switching back and forth between windows.

Training:

Instead of giving you an additional desktop on the secondary monitor, you can choose to have it simply mirror what is going on in the primary display.

Web Development:

If you live, breathe, work and play with cutting-edge web development technologies, then you will be interested in what dual monitor technology can do for you as a professional web developer.

Before dual monitor support, one big problem for web developers was a lack of desktop space. With email, browsers and editors all open at the same time, web teams need more screen space. If you are like our developers, you may have thought about upgrading to a bigger monitor to get that extra space. You may have even played with your resolution settings to squeeze every last possible pixel out of your monitor.

"As a developer, the ability to use two monitors just makes life so much easier! DualHead Display is definitely a web developer's dream. I use the second monitor to view my email or edit code in one window while I browse on the other."

- Roderick Bellefontaine, senior web developer

"I can design in a 1024 x 768 screen setting but also automatically see the result in a 800 x 600 environment. Or view a magnified image in one monitor and a normal view on another. The result? I can fix design flaws right away instead of waiting until the end of the project. DualHead saves me time without jeopardizing the quality of my work."

- Marc Chretien, web developer

Multi-Display mode allows you to do more than double your desktop for a larger viewing area. You can also extend one application across two monitors or even open multiple application windows all at once. Imagine editing code on one monitor using ColdFusion Studio, for example, while simultaneously browsing and testing on your second monitor.

You can also use two monitors for two different applications simultaneously, where each application can only maximize on a single monitor. For example, you can review web pages created on both Netscape and Internet Explorer side-by-side and instantly make any necessary changes.

"Having to toggle between my HTML code and my web browser was definitely an inefficiency that DualHead quickly got rid of. I further optimized my time by using hot keys; "alt-tab" to set my web browser as the active window, "ctrl-r" to reload the page and "alt-tab" to go back to my code. Sure you only saved 2 seconds off a 4-second task, but you also saved 50 percent of your time. Figure out how many times you do that task in a day and 50 percent of that becomes significant." - Marc Chretien, web developer

Gaming:

Using two monitors for games will really get your adrenaline pumping. Gaming support on two monitors will allow you to recycle old monitors you have lying around, although there's likely to be a battle over who gets the newest 22" (various viewable) ViewSonic PerfectFlat® screen.

With several games already enhanced to support dual monitors and many more on the way, you'll begin to see a shift in the way games are both made and played. Games that already have several different camera views programmed into them are most likely to take advantage of dual monitor support. ViewSonic does not make any claims about which games provide support for a dual monitor setup. We recommend you contact the gaming companies directly, or contact your video card vendor. Matrox also has good information on which games support

their DualHead video cards. Below is a partial listing of gaming support, we recommend you verify support before any purchase decision.

WarMonkeys or Star Trek: Armada take advantage of DualHead by allowing you to view things like cinematic sequences, full-screen map views or resource management statistics on your secondary output.

"These views are normally placed on the user interface in a thumbnail sized RTS mini-map," says Marc Turndorf, Star Trek: Armada Producer from Activision. "Outputting this view to another monitor gives you eye-popping cinematic visuals that make the game almost as fun to watch as it is to play."

Racing games:

Most racing games today feature a variety of camera views, and now some systems let you enjoy head-to-head racing between two players without having to split a single screen. Play Renegade Racers from Interplay/Promethean, in single player mode for example, and you can show the player's view on your first monitor while race highlights are shown on your second monitor or TV. Switch to two-player mode and have each player's view shown full-screen on separate displays.

Sports games:

Imagine playing a baseball game on a dual monitor system, complete with different camera angles for offense and defense. Watch from the batter's box on one screen as the ball you just crushed sails over the right field fence for a home run. On the second display your opponent sees it coming at him and tries to make a leaping catch at the warning track.

Football games provide an equally compelling dual monitor experience, as opponents are able to view the field from opposite sides of the ball, while calling plays on their own full-screen display.

Flight simulators:

Flight simulation fanatics will also get excited about the possibilities of dual-monitor-ready games. Microsoft's Flight Simulator 2000 and Combat Flight Simulator are two examples. Put maps or 3rd person views of your aircraft on the second display, while your primary monitor displays the main cockpit view. Split the second screen between the 3rd person view and the navigational map.

Gaming Summary:

Connect two regular monitors or analog flat-panel screens to each other and enjoy true head-to-head gaming with an opponent, each on your own screen. Converge your PC and your TV to output games, or a DVD movie, onto your big-screen TV and double the thrill.

More about Matrox DualHead:

[Click here to visit the Matrox web site](#) if you want more information on their video cards.

Other Dual Monitor Solutions:

As you may know, Apple has supported multiple monitors for a long time, and now Windows 98 and Windows 2000 support this as well. You can use two or more standard video cards in one PC, so if you already have one card you can add another. There are also other vendors that offer dual monitor video cards, such as Appian Graphics, Nvidia, ATI, Matrox, and [Margi](#) PCMCIA video cards for notebooks. As always, we recommend you verify support for specific features directly with these vendors.

Dual Monitors for Notebook Computers:

Many laptop users dock their notebooks and connect to one of our large CRT monitors for better viewing. Solutions are now available which allow you to split your view between the laptop LCD screen and the large desktop monitor. This allows you to use both screens at once with different content on both. For example you can put email on your notebook screen, and word processing (etc) on your large desktop screen. In this way you can really expand your viewing area with the gear you already have. Currently the only method of doing this that we are aware of is via a PCMCIA video card available from Margi Systems. For more information, [click here to visit the Margi Systems web site](#). As we find additional ways to achieve this we will post them here.

Projector Presentations from Your Notebook:

Now you can project your PowerPoint® presentation at a meeting with a ViewSonic® projector, and view your notes pages on your laptop screen. The audience sees your slides, and you see your notes. This is perfect for presentations, and you no longer need to shuffle printed notes pages while you speak. Currently the only method of doing this that we are aware of is via a PCMCIA video card available from Margi Systems. For more information, [click here to visit the Margi Systems web site](#). As we find additional ways to achieve this we will post them here.

ViewSonic's Position on Video Card Vendors :

Our mission is one of customer satisfaction through continuous improvement. One of the ways we pursue this vision is endless testing of video cards in ViewSonic Labs. There are many excellent video card vendors out there, and we have not mentioned all of them in this feature. Select a trusted brand of video card, especially if you are choosing a Professional Series or A-series ViewSonic® monitor. ViewSonic does not make claims that one video card brand is superior to another, this comparison is best left to you the customer. One tip is that memory specs on a video card (e.g. "32 meg") don't always translate into picture quality. Our recommendation is to visit editorial sites and publications that frequently review video cards. If you are ever interested in support for a specific video card, you can check our Video Card Compatibility link on this site, call our technical support department, or call the video card vendor directly. Thank You for all the input on solutions in this feature, and Happy Computing.

Technical Discussion: Using The Windows? Capabilities For Multiple Monitors.

This text describes how to use basic functionality in Windows to configure multiple monitors.

Typically this has been done with multiple video cards in the PC, one card per monitor. There are now

some video cards that support dual monitors, and frequently these cards have their own configuration utilities and drivers. For this discussion, we are limiting the topic to Windows native support.

Multiple display support feature in Windows® 98, 2000, and Millenium Edition makes it possible for you to use additional monitors simultaneously to expand your desktop area, run different programs on separate monitors, and run programs or play games with multiple views.

You can also move programs from one monitor to another monitor. Moreover, you can also specify a different resolution for each of the monitors. For example, you conduct research with Microsoft® Encarta® 98 displayed at 1024x768 @60Hz on a ViewSonic VG150 15” Flat Panel Monitor (Figure 1, center picture), type their report in Microsoft® Word® at 1280x1024 @85Hz on a ViewSonic PF790 Monitor (Figure 1, right picture), and open Windows® Explorer® at 1024x768 @60Hz on another VG150 Flat Panel Monitor (Figure 1, left picture).



Figure 1

To arrange multiple monitors

- ?? Open the **Display Properties** dialog box at the **Settings** tab as in Figure 2 and Figure 3.
- ?? Drag the monitor icons to positions that represent the physical arrangement of your monitors.

Notes

- ?? You can also open the **Display Properties** dialog box at the **Settings** tab by clicking **Start**, pointing to **Settings**, clicking **Control Panel**, double-clicking **Display**, and then clicking **Settings**.
- ?? When you click a monitor icon, a large number appears in the corresponding monitor, and that monitor's video card appears in **Display** as in Figure 2 and Figure 3.
- ?? The icon positions determine how you move items from one monitor to another. For example, if you're using two monitors and you want to move items from one monitor to the other by dragging left and right, position the icons side-by-side (Figure 2 and Figure 3). To move items between monitors by dragging up and down, position the icons one above the other. The icon positions don't have to correspond to the physical positions of your monitors. That is, you can position the icons one above the other even though your monitors are side-by-side.

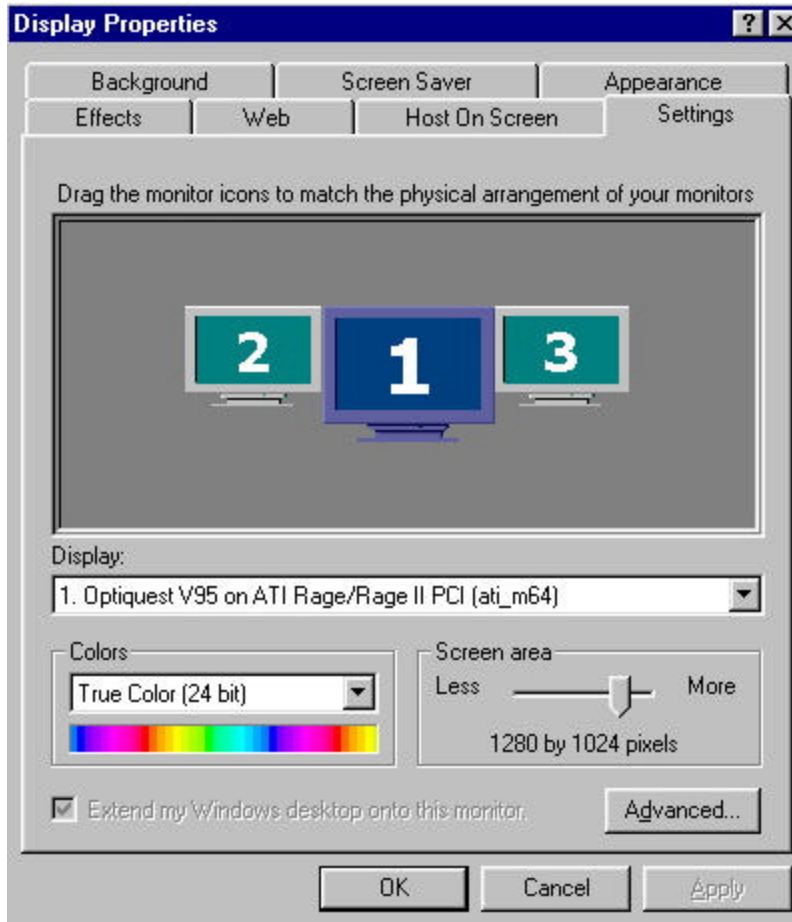


Figure 2

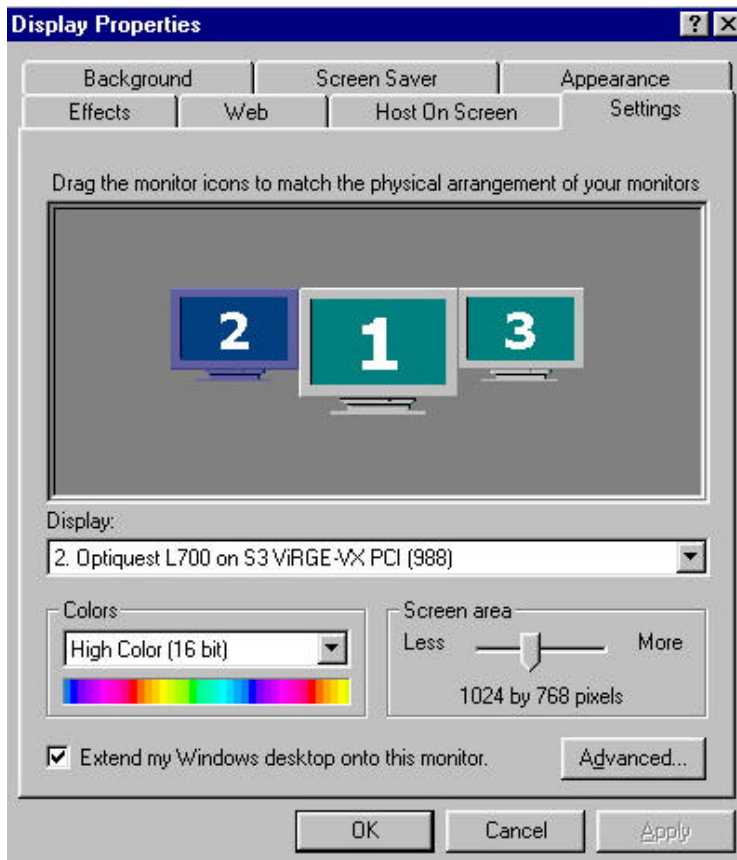


Figure 3

To select screen resolutions and colors

- ?? Open the **Display Properties** dialog box at the **Settings** tab as in Figure 2 and Figure 3.
- ?? Use the **Screen area** slider to select the monitor resolution.
- ?? Click on the **Colors** drop-down list to select colors.

Note

- ?? The number of available colors dependent on the video card memory.
- ?? The screen resolutions available dependent on the monitors and flat panels maximum resolutions.

To change the primary monitor

- ?? Make sure that both your primary and secondary monitors are plugged into your video cards.
- ?? Turn on your computer.
- ?? The primary monitor is the one that displays the items on your desktop.
- ?? If your desktop items do not appear on the monitor that you want to use as primary, shut down Windows[®] and turn off your computer and monitors.
- ?? Plug the monitor you want as primary into the primary video card and plug the other monitor into the secondary video card.
- ?? Restart your computer.

Note

- ?? The full-screen MS-DOS window always appears in the primary monitor.

Notice

- ?? *Running additional programs when you're using multiple monitors may place extra demands on your system resources.*
- ?? *Typically to use multiple monitors, you need a multiple display PCI or AGP video card for each monitor. Now there are some video cards available that support two monitors.*

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