GeForce Series

Quick Start Manual

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TABLE OF CONTENTS

ABOUT THE QUICK START MANUAL 3
- About The Gainward PowerCD 3
- An Important Installation Note 3
- If Your Product Needs Service 3

INSTALLING YOUR NEW GAINWARD DISPLAY ADAPTER 4
- Step 1: Install the New Graphics Hardware 4
- Step 2: Connecting Display Devices 7
- Step 3: Software Installation 10

ABOUT DirectX 11
USING EXPERTool™ 12
THE POWER OF nVIEW 18
USING TWO MONITORS WITH YOUR GAINWARD DISPLAY ADAPTER (nView Function) 19
TROUBLESHOOTING 21
TECHNICAL REFERENCE 24
- Graphics Modes and Refresh Rates 24
- Connector Description 25

PRODUCT CERTIFICATION STATEMENTS 27
- FCC Notice 27
- CSA Notice 27
- CE Notice 27
- Macrovision Certificate Statement 28

ABOUT THE QUICK START MANUAL

This manual is designed to assist a computer novice as well as an experienced computer user through an easy and uncomplicated installation of a Gainward graphics product.
Should you need a manual in a language other than English, soft copies are available in different languages in PDF file format on your Gainward UTILITY DISC.
To do this, insert the Gainward UTILITY DISC, click on "Browse this CD", select the "MANUAL" folder, then the "VGA" folder and click on the file of your language, i.e. "ENGLISH". This will open your Acrobat Reader and display the manual.

About The Gainward UTILITY DISC
All Gainward products ship with a CD-ROM, which contains the latest drivers for your particular product. For updated information about a specific product that may not be included in this manual, please see the README.TXT file in the root directory on your Gainward UTILITY DISC.

An Important Installation Note
Your new Gainward display adapter is designed to work in a PCI Express, AGP or PCI bus slot, in a computer with any Intel Pentium or compatible processor (AMD, Cyrix, VIA, etc.). It will NOT operate in a PowerPC, Macintosh, in an ISA, or a VL-Bus slot.

If Your Product Needs Service
If your Gainward product is defective, please contact Gainward or your reseller. If you are a customer in Europe, please contact Gainward directly. All product returns must be accompanied with a "Return Material Authorization number" (RMA) and a problem report.

Please visit www.gainward.com for more information

INSTALLING YOUR NEW GAINWARD DISPLAY ADAPTER

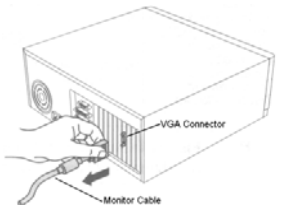
If you are installing a Gainward display adapter with an extra power connector, please make sure that your PC meets the following hardware requirements:

- Your PC must have a power supply unit (PSU) of at least 450 W (please reference the information on the packaging material of your products for more detail).
- A PCI Express compliant motherboard is required. Some PCI Express motherboards violate specifications and therefore the display adapter may not physically fit.
- A vacant slot adjacent to the PCI Express x16 slot may be required. This product series may occupy two slots in your PC.
- A 6-pin PCI Express power connector or two available hard disk drive power connectors are required (the floppy disk connector is not sufficient). Gainward includes a complementary power cable to connect the display adapter card with your PC's power supply.

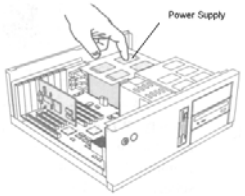
We went to great lengths to ensure the installation process for any Gainward graphics adapter is as easy as possible. There are three major tasks you need to complete so that you can fully enjoy your new Gainward display adapter: prepare your system, install the new display adapter, and install the display drivers and utilities. These three steps will be discussed in full detail below:

Step 1: Install the New Graphics Hardware

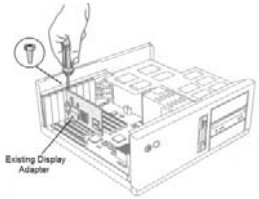
1. BEFORE YOU BEGIN INSTALLING ANY HARDWARE DISCONNECT YOUR AC POWER CORD FROM YOUR PC! WE HIGHLY RECOMMEND THAT YOU ALSO DISCONNECT OTHER PERIPHERALS (i.e. printers, Monitor, etc) FROM YOUR PC
   Remove the necessary screws from the PC's case, and remove its cover. Consult your PCs manual to help you do this.



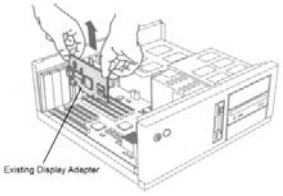
2. Touch the metal case of your PC's power supply to ground yourself. This will discharge all static electricity. It is very important to do this, because electronic components such as those inside your computer are very sensitive, and can be destroyed by an electric discharge.



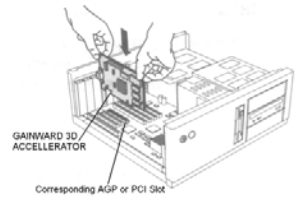
3. Remove the screw on the mounting bracket of your old VGA display adapter card.



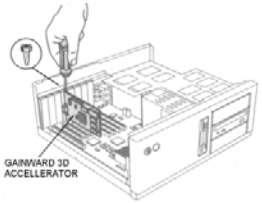
4. Remove your old VGA display adapter card by pulling it gently, in a straight, upward manner.



5. Remove your new Gainward display adapter from the anti static bag. If your Gainward card has a fan, please make sure not to touch it!
   Touch the metal case of your PC's power supply again to ground yourself. This will discharge all static electricity.
   Insert the new Gainward card in the appropriate PCI Express x16 slot, making sure that it is firmly seated. Be gentle when pushing it straight into the slot. Do not use brute force! Do not bend or flex the card.

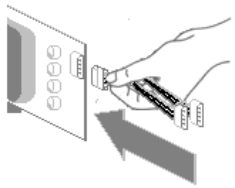


6. Re-attach the screw on the mounting bracket of your Gainward card. This is very important, as when the monitor cable is attached later, the display adapter card may work loose, and your computer will not operate correctly.

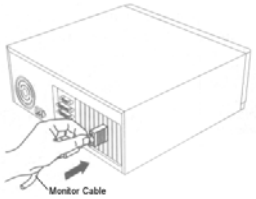


7. Skip to step 8 if you are installing a Gainward display adapter without an extra power connector!

   Connect the female connector of 6-pin (or 8-pin) PCI Express power cable from your computer's power supply to the extra power connector on the back of the graphics card. (Or, connect the female connector of the supplementary power cable to the extra power connector on the back of the graphics card. Then, attach those two male connectors on the cable to matching connectors from your computer's power supply.) The display adapters will not operate without the additional power source.



8. Replace the cover on your PC, and tighten its screws.
   Connect the monitor cable to your new Gainward display adapter card. Reconnect the AC power cord to your PC.
   The hardware installation is now complete.

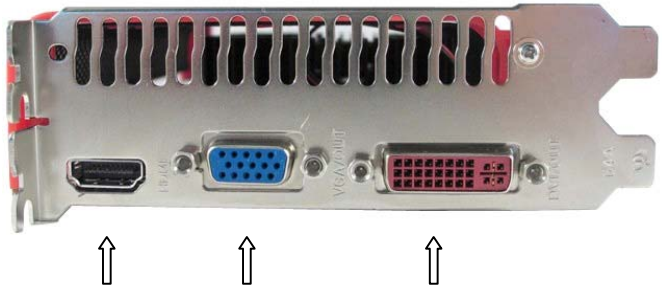


(Supplementary power cable)

Step 2: Connecting display devices

Your new Gainward display adapter supports several display devices. The following figures show the connectors for all display devices you can connect to:

(Display card with HDMI supporting)



VGA connector	Connecting CRT monitor or LCD monitor with VGA connector
DVI-I connector	Connecting LCD monitor (DFP) with a digital connector
HDMI connector	Connecting HDMI display device
SPDIF connector	Connecting SPDIF digital audio signal (connect to mother board)
DVI-VGA converter	Converter DVI-I to support VGA monitor

Your new Gainward display adapter provides dual display functionality. The following table lists the different ways you can connect displays to your card.

Display configurations	Connector	Note
Single CRT monitor or LCD monitor with VGA connector	VGA connector	
Single CRT monitor or LCD monitor with VGA connector	DVI-I connector with DVI-VGA converter	
Single LCD monitor (DVI port)	DVI-I connector	
CRT monitor + LCD monitor (DVI port)	VGA connector + DVI-I connector	
HDMI display device + LCD monitor (DVI port)	HDMI connector + DVI-I connector	Note #1
HDMI display device + LCD monitor with VGA connector	HDMI connector + VGA connector	Note #1

Note #1

To proper use the HDMI display device you just connect the HDMI cable (it will come with your HDMI display device) to the HDMI connector of the Gainward HDMI display adapter. And, do not forget to connect SPDIF -your audio signal. You can simply use the SPDIF internal cable (white/red-SPDIF signal, black-GND) connect your mother board' s SPDIF output pin header (please reference the user's manual of the mother board) with the internal SPDIF connector, the small connector in WHITE (AUDIO IN) on the component side, of the Gainward HDMI display adapter.

(Internal SPDIF cable)

Step 3: Software Installation

Note:
To make sure the system reliability we strongly recommend you to remove the old display driver that system had installed for the old display adapter.

1. Turn your computer and monitor on and boot the operating system. The operating system (Windows Vista/XP) will attempt to detect your new Gainward display adapter, and then try to install the drivers that it can find. Since these drivers are usually much older, and very generic, you will not be able to benefit from many of the adapter's advanced features and enhanced performance. It is therefore recommended to manually select a driver. Please select "Standard PCI Display Adapter (VGA)" as your display adapter, and reboot the system when you are asked.
2. When your operating system is running a "Standard PCI Display Adapter (VGA)" driver, you may insert the Gainward UTILITY DISC. This CD-ROM has an auto-start feature. The installation software will detect the version of your operating system and it will then install all necessary drivers and utility programs. Just sit back and relax as the software installation may take a few moments.

3. During the process of installation, you will be asked if you would like to install utilities such as EXPERTool™ and DirectX. It is highly recommended to install both. This will allow you to take full advantage of all advanced features that come with your new Gainward display adapter
4. When the installation process is completed, you will be asked to reboot your computer. Congratulations! You have successfully installed your Gainward display adapter!

ABOUT DirectX

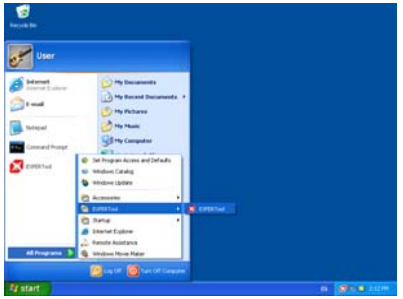
The Gainward UTILITY DISC includes Microsoft's DirectX. This is a set of APIs that make games and multimedia applications run faster on Windows based computers. DirectX is a thin software layer that provides direct access to hardware services. This technology takes full advantage of available hardware accelerators and emulates accelerator services when accelerators are not present. DirectX components include: DirectDraw (provides 2-D graphics services), Direct3D (provides 3-D graphics services), DirectSound (provides sound-mixing and playback services), DirectPlay (provides multiplayer game connectivity over the Internet), and DirectInput (provides services for joysticks and other input devices).
Gainward has included the most recent version of DirectX on the Gainward UTILITY DISC. You may choose to install DirectX automatically during initial display driver installation (recommended), or at any later time.
From time to time, Microsoft will update DirectX and other software components. Choose "Windows Update" from the "Start" menu. This will connect you directly with Microsoft's update web site on the Internet and make all necessary updates available to you, by analyzing which software is already installed on your system.

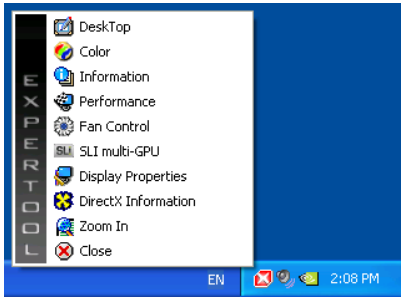
USING EXPERTool™

What is EXPERTool™?
EXPERTool™ is a display control and desktop enhancement utility program for Windows Vista and XP, which will only function correctly in conjunction with your new Gainward display adapter.

Most likely, you chose to install EXPERTool™ during our initial display driver installation process. In this case the EXPERTool™ icon is located in the "System Tray" of your Windows' task bar (in the lower right-hand corner of your Windows desktop).

If you have not yet installed EXPERTool™, you can do so now by running our Gainward UTILITY DISC





Deselect any of the items you have previously installed, and leave "EXPERTool Desktop Management Utility" ticked. Follow the on-screen instructions. When the installation process is completed, please reboot your computer, so that all changes can take effect.
To launch EXPERTool™, simply click on the small 'X" – icon in the System Tray, and a pop-up menu will appear on your screen, similar to the one you see when you click on the "Start" – button.

DeskTop works much like the "Settings" of Windows' "Display Properties", but much better. The difference is that our version is easier to understand and easier to use, because everything you need is on one single, well organized page!
Use Desktop to change your display's resolution, the color depth, the Windows' system font size and the refresh rate of your monitor.

Information gives you a very detailed status report on your Gainward card's current operating environment, such as the model, current display settings, current software and driver versions, etc. This could be helpful in the event you run into a problem and need to talk to technical support. You can update your display drivers by making use of our "Smart Update" feature via the Internet! You also have an option to enable or disable EXPERTool™ at Windows' startup.

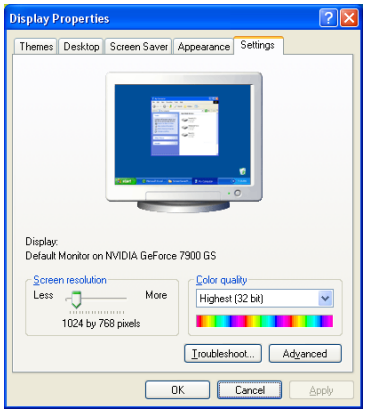
The *Fan Control* page is to adjust the fan's speed by your requirement. Setting on "Fixed Speed" to get the best cooling performance if the noise level is not the concern for you. Setting on "Dynamic Speed" to keep the normal fan speed that is set by Expertool automatically. The "Temperature" shows the current GPU's temperature. It is better to keep the temperature under 105 degree C.

With the *Performance* settings page, you can change the speed at which your Gainward display adapter operates. You can change both the core clock and/or the memory clock settings independently. The higher the clock settings, the faster your graphics card will work.
Click on "Safe Mode" to reset the adapter to NVIDIA's reference settings. This is like a "safe mode" and may be used to analyze if a graphics problem is related to the display adapter (hardware), or, if it is a software problem.
If you purchased a "Golden Sample" version of your Gainward display adapter, you will find a second button, which will allow you to set the board to

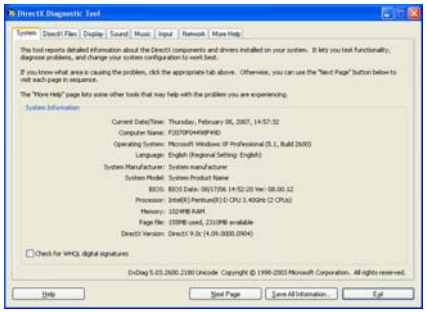
"Enhanced Mode Settings". These settings are much higher, and they are GUARANTEED TO WORK IN ANY SYSTEM WITH ANY "GOLDEN SAMPLE" DISPLAY ADAPTER FROM GAINWARD!
A "Golden Sample" board is extremely special: Golden Sample boards are put through a set of punishing and arduous performance tests. Only a board that passes these tests will be qualified as a "Golden Sample" and is then enabled for "Enhanced Mode Settings".
Click on "Enhanced Mode Settings" and see the improvement in your game play!
You can exceed the enhanced mode settings, by changing the clock settings manually using the slider bars. Do take care while doing this: Change the speed in small increments only, i.e. in increments of 5 MHz. Then check if your games are still running correctly. If you start seeing abnormal frames on your screen, or your 3D graphics appear in a "broken" fashion, you have exceeded the board's capabilities, and you must revert to your previous setting. If your computer crashes, the previous safe settings will automatically be activated when you next start a Windows session.

Important Note: Please note that Gainward will NOT warrant this display adapter beyond "Enhanced Mode"!

Select *Power Saving* to put your monitor in Stand-by mode, Suspend mode, or even shut your monitor off. You can restart your monitor by moving your mouse, or by pressing any key on your keyboard.



When you select *Display Properties*, EXPERTool™ will bring you to Windows' own display properties pages, where you can alter additional settings such as change the background picture, change the screen saver and some power management features, change the appearance of Windows' desktop, etc. Read more about Display Properties in your Windows User Manual!



Use *DirectX Information* to determine the version of DirectX that is currently installed on your system.
You can examine how DirectX interfaces with your multimedia and graphics hardware, and enable or disable DirectX hardware acceleration. (This is not recommended, as it would decrease your system's performance whilst running graphics intensive software such as games or video.)

Zoom In is designed to magnify a portion of your Windows desktop dynamically, up to 32 times of its original size. This is useful for graphics designers who need to work with high level of detail. Simply click into your "Zoom In" window, hold down the left mouse button, and drag the transparent tile to the position on your desktop, that you need enlarged. You can set the magnification level by clicking and moving the scroll bar button. You may resize and reposition the Zoom-In window as to your preferred location on your Windows desktop.

Click on *Minimize* to hide EXPERTool™

Click on *Close* to stop using EXPERTool™. EXPERTool™ will be removed from Windows' System Tray, and reappear the next time you start your Windows operating system.

THE POWER OF nView

nView is a set of desktop tools designed to help you be more productive when using your NVIDIA GPU based video card.

Using nView you can set up multiple desktops to work with your applications. Multiple desktops give you extra desktop areas on which to run your applications so you won't have to crowd several open application windows on one desktop.

nView can enhance your desktop using a 3D effect called transparency, which allows you to see information underneath windows. nView also includes many additional features that allow more efficient of multiple displays with your computer. If you use multiple displays with your system, nView also allows you to set up Window Management to manage window settings and set up additional Hot Keys for convenient navigation in multiple display configurations.

To enable nView, you can open nView Desktop Management (control panel) from the Windows Control Panel group and then click the Load nView button. This will temporarily enable nView until you log off and log on again. You can also set up nView to automatically load every time you start Windows. This option is recommended for all multi- monitor users or if you plan on frequently using the features offered by nView.

nView can record all of its display settings in a single file, called a profile. nView includes several generic profiles for different industries. In addition Administrators can add new profiles specific to a company, workgroup or user.

nView helps manage application's positioning. When an application is closed, nView remembers where the application was located, its window size and state, and even its desktop location, if you run multiple desktops. When you start the application again, nView restores all the settings from the last time you used the application. The "application position memory" feature also stores any special nView feature that you have selected for the application.

You can access nView features quickly and easily from any application using nView's system menu extension. Every window has a system menu for basic tasks such as moving or resizing the window. nView extends this menu to add features such as making the window transparent or moving the window on another monitor or desktop.

Other enhancements available with nView include accelerated window opening, maximizing and restoring. nView can eliminate the extra drawing steps Windows uses in creating these effects.

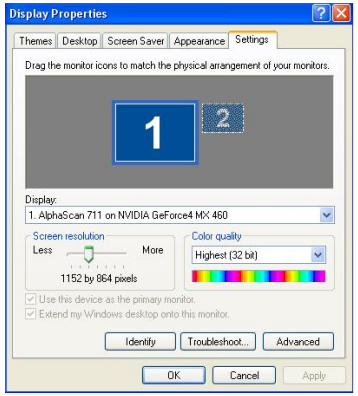
USING TWO MONITORS WITH YOUR GAINWARD DISPLAY ADAPTER (nView function)

Many nView enabled display adapters also have the ability to run two VGA monitors simultaneously, provided they are both DDC2b compliant. All new monitors are DDC2b compliant. If you have an older monitor, please be sure you check your monitor's technical documentation first.
The nView feature is implemented in two ways:

1. The "Extended Desktop" mode: In this mode, the Windows desktop is shared between a primary display and a secondary display, enlarging the usable desktop area. Both, resolution and color depth, can be set independently from one other.
2. The "Cloned Desktop" mode: In this mode, the original Windows desktop from your primary VGA display is replicated onto the secondary VGA display. The secondary display may have a resolution equal to or less than that of the primary display. If the resolution on the secondary display is less than its original, a panning mode can be enabled to allow full access to the entire desktop on the secondary display.

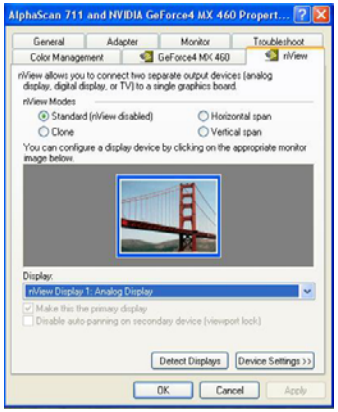
Extended Desktop

To enable the Extended Desktop function, open your Display Properties Settings page, and right-click on the second monitor. A pop-up menu will appear next to the mouse pointer on your desktop. Choose "Attach", and then click on "Apply". The second monitor will come on now, and display the same desktop background picture as your first monitor.
When you click on the second monitor in your display properties settings page, you can adjust the desktop resolution as well color depth.
To disable the Extended Desktop function, open your Display Properties Settings page again, and right-click on the second monitor. From the pop up menu, please select "Attached" and click on "Apply". Your second monitor will turn off and Windows' desktop will be returned into its original state



Cloned Desktop

To enable the Cloned Desktop function, open your Display Properties Settings page, and click on "Advanced…". Click on the "nView" tab. Click on the "Clone" tab and then on "Apply" to have your changes take effect. Your secondary VGA display will now come "alive" and display an exact replica of your primary VGA display.
By default, the panning mode is enabled. This is a useful feature if your secondary (clone) display has a lower resolution than the primary display. This way you can access every item on your Windows desktop by moving your mouse in the respective areas.
If you need your secondary monitor to be "stationary", you can click on "Disable auto-panning on clone device (viewport lock)". This is useful if you need a zoomed preview screen.
Instead of cloning your desktop onto a second monitor, you can opt to span your Windows desktop over two monitors, either vertically or horizontally. This means that Windows will have one single, large desktop shared over two monitors.
To disable clone or spanning mode, simply click on the "Standard (nView disabled)" radio button, and then on the "Apply" button. Your secondary monitor will go dark again, and Windows will be back in its normal, single desktop mode.



TROUBLESHOOTING

This section contains a list of symptoms that may indicate a problem with your software or hardware and some troubleshooting steps you can take to solve the problem. If you still have problems after trying our suggestions or if you're having a problem that is not described below, please contact us. We'll be glad to assist you. See the "CONTACTING GAINWARD" section in this manual for more details.

The system doesn't boot when it's turned on, there is no display, and the PC beeps abnormally.
This probably means that your new display adapter isn't correctly seated in the PCI-E or AGP slot. Try the following:

1. Turn off your PC.
2. Remove your new Gainward display adapter from the PCI-E or AGP slot and reseat it. The card should fit into the bus slot perfectly, without extra "fingers" that do not match the slot.
3. Re-attach the monitor cable to your Gainward card and turn on the PC's power. If the problem persists repeat step 2
4. If you have another PC available, you may wish to try installing the display adapter in another PC before calling Gainward. This will help narrow down the cause of the problem.

The system appears to boot normally when it's turned on but there is no display on the monitor.
This probably means that your monitor isn't operating or isn't connected to the display adapter correctly. Try the following:

1. While the PC is still on, make sure that the monitor is plugged into an electrical outlet and is turned on.
2. Turn off your PC. Reattach the monitor's video cable to your display adapter. This helps rule out the possibility of a loose connection between the display adapter and the monitor. Verify that the display adapter is still tightly seated in its bus slot.
3. Turn on power to your PC. If the problem still occurs take another look at the monitor. Many monitors have an indicator or display that tells you whether or not the monitor is receiving a video signal from the display adapter. This information will help if you have to contact Gainward.
4. If necessary remove the Gainward card and reinstall your old display adapter to verify that the monitor works correctly with the old display adapter.

An application doesn't display correctly or behaves erratically after Gainward display drivers were installed.
This might indicate a problem with our display driver or a hardware compatibility issue. To narrow down the cause of the problem try the following:

1. Temporarily switch to the standard VGA driver. Your PC will operate in a low-resolution environment and you won't have accelerated display performance, but this is a good way to see if the problem is related to the display driver.
2. Check our web site to see if an updated display driver has been made available for your product.
3. Enter your motherboards CMOS setup, (Press [CTRL]-[Alt]-[Del] during Power-On-Self-Test) and load "Fail-safe settings" Consult the user manual of your motherboard to learn how to do this.
4. Most AGP-based display adapters require their own hardware interrupt. On most motherboards this feature is not enabled by default. Consult the user manual of your motherboard to learn how to make these changes.
5. On most motherboards the first PCI slot to the left of the AGP (or PCI-E) slot, shares one hardware interrupt with the AGP slot. The hardware interrupt on this PCI slot is hard-wired and can't be changed. Make sure not to place any PCI card right beside the AGP slot.
6. If the problem still occurs you may need to contact Gainward.

The system appears to boot normally when it's turned on. The monitor comes on and shows the Power On Self Test. The moment Windows' desktop starts, the monitor turns off or shows a message "Out of Range".
This indicates that you (or Windows) chose a resolution and/or refresh rate that the monitor is not capable of handling. This is known to happen on a few occasions where Windows 98, Windows 98SE or Windows ME installs a "Default Monitor" after installing display drivers

- Turn off your computer and turn it back on again. Immediately press the [F8] key and keep it pressed until Windows has finished loading the desktop. Windows is now loaded in "Safe mode". Right-click on Windows' desktop and open the "Display Properties" - "Settings" applet. Click on "Apply" and reboot Windows. Windows will now start normally but with 16 colors. Again, open your "Display Properties" - "Settings" applet, change the color depth and the resolution. Click on "Apply" and Windows will restart for a second time. Now Windows will come up normally. You can now proceed to select the correct monitor type on the advanced "Display Properties" - "Monitor" applet.

Two monitors are connected to a Gainward display adapter, but it is impossible to get the second monitor working.

This behavior indicates that either, the primary monitor or the secondary monitor, or both monitors together do not comply with the DDC2a or DDC2b standard. The DDC2a/b standard is a Plug&Play definition that amongst others, clearly defines power saving properties. Windows-based operating systems can only use one power management standard. To prevent serious damage to any non-DDC2 compliant monitor the nView feature is disabled in the display driver. (The DDC2 issue is a mandatory requirement from Microsoft to pass the "Windows Hardware Quality Labs" (WHQL) certification.

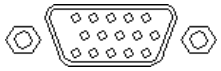
1. Try switching the primary and secondary monitors to determine if this is a workable solution.
2. Check your user manuals of both monitors. Some newer monitors can be configured to become DDC2 compliant via the monitor's OSD – Setup (On Screen Display Setup). This software is built into some monitors.
3. If nothing helps get a DDC2 compliant monitor.

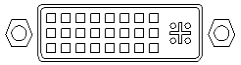
TECHNICAL REFERENCE

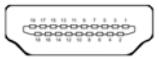
Graphics Modes and Refresh Rates

Resolution	256color/High color(16bits)	True color(32bits)	Note
640 x 480	60 – 240 Hz	60 – 240 Hz	
800 x 600	60 – 240 Hz	60 – 240 Hz	DVI monitor support up to 200Hz
1024 x 768	60 – 240 Hz	60 – 200 Hz	DVI monitor support up to 140Hz
1152 x 864	60 – 200 Hz	60 – 170 Hz	DVI monitor support up to 100Hz
1280 x 768	60 – 170 Hz	60 – 150 Hz	DVI monitor support up to 100Hz
1280 x 960	60 – 170 Hz	60 – 150 Hz	DVI monitor support up to 85Hz
1280 x 1024	60 – 170 Hz	60 – 150 Hz	DVI monitor support up to 85Hz
1360 x 768	60 – 170 Hz	60 – 150 Hz	DVI monitor support up to 85Hz
1600 x 900	60 – 150 Hz	60 – 120 Hz	DVI monitor support up to 72Hz
1600 x 1024	60 – 120 Hz	60 – 100 Hz	DVI monitor support up to 60Hz
1600 x 1200	60 – 120 Hz	60 – 100 Hz	DVI monitor support up to 60Hz
1920 x 1080	60 – 100 Hz	60 – 85 Hz	DVI monitor support up to 60Hz
1920 x 1200	60 – 100 Hz	60 – 85 Hz	DVI monitor support up to 60Hz
1920 x 1440	60 – 85 Hz	60 – 85 Hz	"Dual-Link" DVI monitor
2048 x 1536	60 – 85 Hz	60 – 85 Hz	"Dual-Link" DVI monitor
2560 x 1600	60 Hz	60 Hz	"Dual-Link" DVI monitor

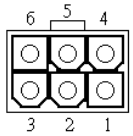
Connector Description

Analog VGA Connector 	1	Red Video	9	+ 5V
	2	Green Video	10	Sync Return (Ground)
	3	Blue Video	11	NC
	4	NC	12	DDC DATA
	5	Ground	13	Horizontal Sync
	6	Red Return (Ground)	14	Vertical Sync
	7	Green Return (Ground)	15	DDC CLOCK
	8	Blue Return (Ground)		

DVI Connector 	1	TX2-	13	TX3+
	2	TX2+	14	+5V Power
	3	SHLD 2/4	15	Ground
	4	TX4-	16	HPD
	5	TX4+	17	TX0-
	6	DDC_CLK	18	TX0+
	7	DDC_DAT	19	SHLD 0/5
	8	Vertical Sync	20	TX5-
	9	TX1-	21	TX5+
	10	TX1+	22	SHLD Clock
	11	SHLD 1/3	23	TXC+
	12	TX3-	24	TXC-

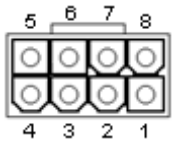
HDMI Connector 	1	TMDS Data2+	2	TMDS Data2 Shield
	3	TMDS Data2-	4	TMDS Data1+
	5	TMDS Data1 Shield	6	TMDS Data1-
	7	TMDS Data0+	8	TMDS Data0 Shield
	9	TMDS Data0-	10	TMDS Clock+
	11	TMDS Clock Shield	12	TMDS Clock-
	13	CEC	14	Reserved
	15	SCL	16	SDA

6-pin power connector



1	+12V
2	+12V
3	+12V
4	Ground
5	Sense
6	Ground

8-pin power connector



1	+12V
2	+12V
3	+12V
4	Sense1
5	Ground
6	Sense0
7	Ground
8	Ground

PRODUCT CERTIFICATION STATEMENTS

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Notice: 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 manufacturer's 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 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.
- Plug the computer into a different outlet so that the two devices are on different branch circuits.
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

Warning: 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.

CSA Notice: This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

CE Notice: This electronic device is designed for home and office use only, and it has been tested and certified to fully comply with CE standards set forth by the European Community.

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