

USER'S MANUAL

notebook

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FCC Statement (Federal Communications Commission)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the service representative or an experienced radio/TV technician for help.



Warning

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock, and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using this equipment with a telephone line (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range **220W** AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz DC Output 20V, 11A).

CAUTION

Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER, TELE-COMMUNICATION LINE CORD

This Computer's Optical Device is a Laser Class 1 Product

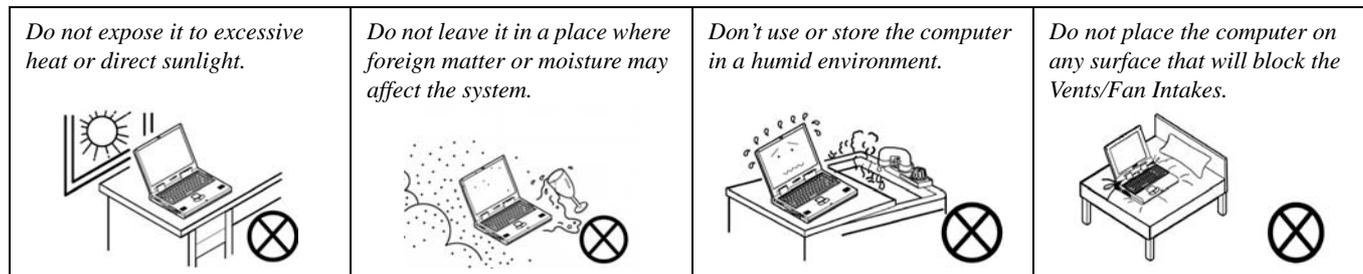
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



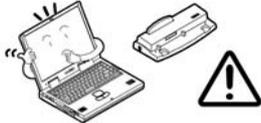
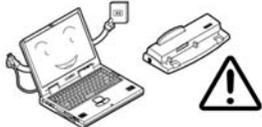
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
4. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

<p><i>Do not turn off the power until you properly shut down all programs.</i></p>  	<p><i>Do not turn off any peripheral devices when the computer is on.</i></p>  	<p><i>Do not disassemble the computer by yourself.</i></p>  	<p><i>Perform routine maintenance on your computer.</i></p>  
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5. **Take care when using peripheral devices.**

<p><i>Use only approved brands of peripherals.</i></p>  	<p><i>Unplug the power cord before attaching peripheral devices.</i></p>  
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Power Safety

The computer has specific power requirements:



Power Safety Warning

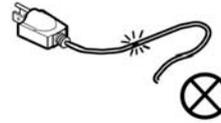
Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

- Only use a power adapter approved for use with this computer.
- Your AC/DC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies (i.e. AC/DC adapter or car adapter).

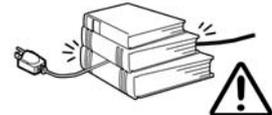
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not remove any batteries from the computer while it is powered on.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.



Battery Disposal & Caution

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

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Cleaning

Do not apply cleaner directly to the computer; use a soft clean cloth. Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Servicing

Do not attempt to service the computer yourself. Doing so may violate your warranty and expose you and the computer to electric shock. Refer all servicing to authorized service personnel. Unplug the computer from the power supply. Then refer servicing to qualified service personnel under any of the following conditions:

- When the power cord or AC/DC adapter is damaged or frayed.
- If the computer has been exposed to rain or other liquids.
- If the computer does not work normally when you follow the operating instructions.
- If the computer has been dropped or damaged (do not touch the poisonous liquid if the LCD panel breaks).
- If there is an unusual odor, heat or smoke coming from your computer.



Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

Travel Considerations

Packing

As you get ready for your trip, run through this list to make sure the system is ready to go:

1. Check that the battery pack and any spares are fully charged.
2. Power off the computer and peripherals.
3. Close the display panel and make sure it's latched.
4. Disconnect the AC/DC adapter and cables. Stow them in the carrying bag.
5. The AC/DC adapter uses voltages from 100 to 240 volts so you won't need a second voltage adapter. However, check with your travel agent to see if you need any socket adapters.
6. Put the notebook in its carrying bag and secure it with the bag's straps.
7. If you're taking any peripherals (e.g. a printer, mouse or digital camera), pack them and those devices' adapters and/or cables.
8. Anticipate customs - Some jurisdictions may have import restrictions or require proof of ownership for both hardware and software. Make sure your "papers" are handy.



Power Off Before Traveling

Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the Vents/Fan Intakes to be blocked. To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intakes while the computer is in use.

Preface

On the Road

In addition to the general safety and maintenance suggestions in this preface, and Chapter 8: Troubleshooting, keep these points in mind:

Hand-carry the notebook - For security, don't let it out of your sight. In some areas, computer theft is very common. Don't check it with "normal" luggage. Baggage handlers may not be sufficiently careful. Avoid knocking the computer against hard objects.

Beware of Electromagnetic fields - Devices such as metal detectors & X-ray machines can damage the computer, hard disk, floppy disks, and other media. They may also destroy any stored data - Pass your computer and disks around the devices. Ask security officials to hand-inspect them (you may be asked to turn it on). **Note:** Some airports also scan luggage with these devices.

Fly safely - Most airlines have regulations about the use of computers and other electronic devices in flight. These restrictions are for your safety, follow them. If you stow the notebook in an overhead compartment, make sure it's secure. Contents may shift and/or fall out when the compartment is opened.

Get power where you can - If an electrical outlet is available, use the AC/DC adapter and keep your battery(ies) charged.

Keep it dry - If you move quickly from a cold to a warm location, water vapor can condense inside the computer. Wait a few minutes before turning it on so that any moisture can evaporate.

Developing Good Work Habits

Developing good work habits is important if you need to work in front of the computer for long periods of time. Improper work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. The following are some tips to reduce the strain:

- Adjust the height of the chair and/or desk so that the keyboard is at or slightly below the level of your elbow. Keep your forearms, wrists, and hands in a relaxed position.
- Your knees should be slightly higher than your hips. Place your feet flat on the floor or on a footrest if necessary.
- Use a chair with a back and adjust it to support your lower back comfortably.
- Sit straight so that your knees, hips and elbows form approximately 90-degree angles when you are working.
- Take periodic breaks if you are using the computer for long periods of time.



Remember to:

- Alter your posture frequently.
- Stretch and exercise your body several times a day.
- Take periodic breaks when you work at the computer for long periods of time. Frequent and short breaks are better than fewer and longer breaks.



Lighting

Proper lighting and a comfortable viewing angle can reduce eye strain and shoulder and neck muscle fatigue.

- Position the display to avoid glare or reflections from overhead lighting or outside sources of light.
- Keep the display screen clean and set the brightness and contrast to levels that allow you to see the screen clearly.
- Position the display directly in front of you at a comfortable viewing distance.
- Adjust the display-viewing angle to find the best position.

LCD Screen Care

To prevent **image persistence** on LCD monitors (caused by the continuous display of graphics on the screen for an extended period of time) take the following precautions:

- Set the *Windows* **Power Plans** to turn the screen off after a few minutes of screen idle time.
- Use a rotating, moving or blank screen saver (this prevents an image from being displayed too long).
- Rotate desktop background images every few days.
- Turn the monitor off when the system is not in use.

Cable TV Safety

If you have included a **TV Tuner** in your purchase option then pay careful attention to the following:

- Make sure that your CATV system installer has connected the Coaxial cable shield to the grounding system of the building, as close to the point of cable entry as practical.
- This reminder is provided to call the CATV system installer's attention to Article 820-93 of the NEC (Section 54, Part I of the Canadian Electrical Code).
- The TV antenna supplied with any TV Tuner module is intended for indoor use only. Please do not use your TV Tuner module outdoors.

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Chapter 1: Quick Start Guide

Overview

This Quick Start Guide is a brief introduction to the basic features of your computer, to navigating around the computer and to getting your system started. The remainder of the manual covers the following:

- **Chapter 2** A guide to using some of the main features of the computer e.g. the **storage devices (hard disk, optical device, 7-in-1 card reader, ExpressCard/34/54), TouchPad & Mouse, Audio Features, FIR Settings & Printer.**
- **Chapter 3** The computer's **power** saving options.
- **Chapter 4** The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 5** An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 6** Instructions for **upgrading** your computer.
- **Chapter 7** A quick guide to the computer's **Wireless LAN, Bluetooth, PC Camera, TV Tuner and RAID modules** (some of which may be **optional** depending on your purchase configuration).
- **Chapter 8** A **troubleshooting** guide.
- **Appendix A** Definitions of the **interface, ports/jacks** which allow your computer to communicate with external devices.
- **Appendix B** Information on the **NVIDIA** Video driver controls.
- **Appendix C** The computer's **specification.**
- **Appendix D** Information on the **Window's XP OS.**

Advanced Users

If you are an advanced user you may skip over most of this Quick Start Guide. However you may find it useful to refer to *“Drivers & Utilities” on page 4 - 1*, *“BIOS Utilities” on page 5 - 1* and *“Upgrading The Computer” on page 6 - 1* in the remainder of the User’s Manual. You may also find the notes marked with a  of interest to you.



Notes

Check the light colored boxes with the mark above to find detailed information about the computer’s features.

Beginners and Not-So-Advanced Users

If you are new to computers (or do not have an advanced knowledge of them) then the information contained in this Quick Start Guide should be enough to get you up and running. Eventually you should try to look through all the documentation (more detailed descriptions of the functions, setup and system controls are covered in the remainder of the User’s Manual), but do not worry if you do not understand everything the first time. Keep this manual nearby and refer to it to learn as you go. You may find it useful to refer to the notes marked with a  as indicated in the margin. For a more detailed description of any of the interface ports and jacks see *“Interface (Ports & Jacks)” on page A - 1*.

Warning Boxes

No matter what your level please pay careful attention to the warning and safety information indicated by the  symbol. Also please note the safety and handling instructions as indicated in the *Preface*.

Not Included

Operating Systems (e.g. *Windows Vista/ Windows XP etc.*) and applications (e.g. word processing, spreadsheet and database programs) have their own manuals, so please consult the appropriate manuals.



Drivers

If you are installing new system software, or are re-configuring your computer for a different system, you will need to install the appropriate drivers. Drivers are programs which act as an interface between the computer and a hardware component e.g. a wireless network module. It is very important that you install the drivers in the order listed in [Table 4 - 1, on page 4 - 3](#). You will be unable to use most advanced controls until the necessary drivers and utilities are properly installed. If your system hasn't been properly configured (your service representative may have already done that for you), refer to ["Drivers & Utilities" on page 4 - 1](#) for installation instructions.

Ports and Jacks

See ["Ports and Jacks" on page A - 2](#) for a description of the interface (ports & jacks) which allow your computer to communicate with external devices, connect to the internet etc.



TV Tuner Module Support

Note that the TV Tuner module (factory) options in *Windows Vista* are supported by the **Windows Media Center** software which comes built-in to the *Windows Vista Home Premium* and *Ultimate* Editions only.

If your purchase includes a TV Tuner option, and you are re-configuring your system for a different system, you should install either *Windows Home Premium* or *Ultimate Editions* only.

System Software

Your computer may already come with system software pre-installed. Where this is not the case, or where you are re-configuring your computer for a different system, you will find the following operating systems are supported:

Operating System & Version	Note
*Windows XP (Home or Professional)	
*Windows XP Media Center Edition	
Windows Vista (64-bit) Home Basic Edition	In order to run <i>Windows Vista</i> without limitations or decreased performance, your computer requires a minimum 1GB of system memory (RAM).
Windows Vista (64-bit) Home Premium Edition	
Windows Vista (64-bit) Business/Enterprise/Ultimate Editions	

Table 1 - 1 - Operating Systems Supported

***Note:** For information on the *Windows XP OS* (specifically power, video and driver information) see "*Windows XP Information*" on page *D - 1*.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
4. Attach the AC/DC adapter to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
5. Move the LCD latches at the front of the computer outwards towards the sides of the computer, and hold them in place while raising the top cover.
6. Raise the lid/LCD to a comfortable viewing angle, and press the power button to turn the computer “on”.
7. Adjust the LCD panel to a comfortable viewing angle.
8. The LED indicators show the power and battery status of the computer and display information on the power status of the Bluetooth and Wireless LAN modules.



Figure 1 - 1 - Computer With AC/DC Adapter Plugged In



Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command from the **Lock Button Menu** in **Windows Vista**. This will help prevent hard disk or system problems.

1. Optional Built-In PC Camera
2. LCD
3. LED Power & Communication Indicators
4. Built-In Microphone
5. LED Status Indicators
6. Hot Key Buttons
7. Power Button
8. Keyboard
9. Speakers
10. Game Hot Keys
11. Touchpad & Buttons

System Map: LCD Panel Open



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices (e.g. WLAN or Bluetooth) aboard aircraft is usually prohibited. Make sure any wireless modules are OFF if you are using the computer aboard aircraft.

Use the appropriate function key combination (see [Table 1 - 5, on page 1 - 9](#)) to toggle power to any wireless modules, and check the LED indicators to see if any modules are powered on or not (see [Table 1 - 3, on page 1 - 7](#)).



Figure 1 - 2 - LCD Panel Open

LED Indicators

The two sets of LED indicators (**LED Status Indicators** and **LED Power & Communication Indicators**) on the computer display helpful information about the current status of the computer.

Icon	Color	Description
	Green	Card Reader Activity
	Green	Hard Disk Activity
	Green	Number Lock Activated
	Green	Caps Lock Activated
	Green	Scroll Lock Activated (to activate press Fn & Scr Lk)

Table 1 - 2 - LED Status Indicators

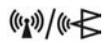
Icon	Color	Description
	Orange	DC Power is Plugged In
	Green	The Computer is On
	Blinking Green	The Computer is in Sleep Mode
	Orange	The Battery is Charging
	Green	The Battery is Fully Charged
	Blinking Orange	The Battery Has Reached Critically Low Power Status
	Green	The (optional) Wireless LAN Module is powered On
	Orange	The (optional) Bluetooth Module is powered On

Table 1 - 3 - LED Power & Communication Indicators

Hot Key Buttons & Keyboard

These buttons give instant access to the default Internet browser and e-mail program, and to a user-defined application, with one quick button press. To use the “user-defined application Hot Key Button”, you must install the driver. See *“Application Hot Key” on page 2 - 8* for configuration instructions.

Table 1 - 4 - Hot Key Buttons

Hot Key	Function
	Activate the Default E-Mail Browser
	Activate the Default Internet Program
	Activate the user specified application e.g. Microsoft Word or Excel

In addition to the Hot Keys outlined above, the two **Game Keys** on the left of the computer allow macros to be configured for common keystrokes used in applications, as long as the driver is installed (see *“Game Keys” on page 2 - 9*).

The keyboard has a numerical keypad for easy numeric data input, and features Function Keys to allow you to change operational features instantly.

Activate the **Number Lock** feature by pressing the **Num Lk** key at the top right of the keyboard. You may check if **Number Lock** is enabled or not by looking at the LED status indicators.



Other Keyboards

If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/AP-Key buttons unique to the system's regular keyboard may not work.

Keys	Description	Keys	Description
Fn + ~	Play/Pause (in Audio/Video Programs)	Fn + F7	Display Toggle
Fn + F1	TouchPad Toggle	Fn + F8	Decrease LCD Brightness
Fn + 1	Fan Automatic Control / Full Power	Fn + F9	Increase LCD Brightness
Fn + F3	Mute Toggle	Fn + F10	PC Camera Toggle
Fn + F4	Sleep Toggle	Fn + F11	WLAN Module Toggle
Fn + F5	Decrease Audio Volume	Fn + F12	Bluetooth Module Toggle
Fn + F6	Increase Audio Volume	Fn + Scr Lk	Scroll Lock Toggle

Table 1 - 5 - Function Keys

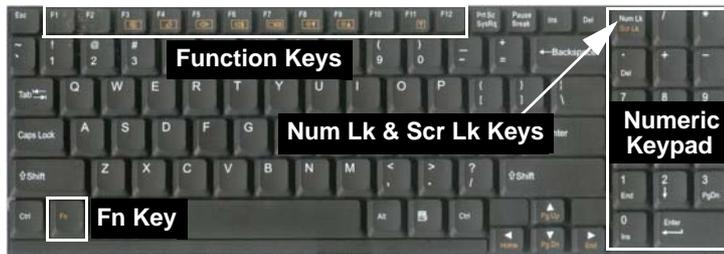


Figure 1 - 3 - Keyboard

Special Characters

Some software applications allow the number-keys to be used with **Alt** to produce special characters. These special characters can only be produced by using the numeric keypad. Regular number keys (in the upper row of the keyboard) will not work. Make sure that **Num Lk** is on.

Quick Start Guide

1. LCD Latches
2. Line-In Jack
3. S/PDIF-Out Jack
4. Microphone-In Jack
5. Headphone-Out Jack
6. Speakers
7. Vent/Fan Intake
8. DC-In Jack
9. DVI-Out Port
10. S-Video-In Jack*

*Enabled with **Optional**
Mini-PCI TV Tuner Only

System Map: Front & Rear Views



Overheating

To prevent your computer from overheating make sure nothing blocks the vent(s)/fan intake(s) while the computer is in use.

Figure 1 - 4 - Front & Rear Views

System Map: Left View



Mini-IEEE 1394 Port

The Mini-IEEE 1394 port only supports **SELF POWERED** IEEE 1394 devices.

ExpressCard Slot

The ExpressCard Slot accepts either **ExpressCard/34** or **ExpressCard/54** formats.

7-in-1 Card Reader

The card reader allows you to use the most popular digital storage card formats:

MMC (MultiMedia Card) / SD (Secure Digital) / MS (Memory Stick) /
 MS Pro (Memory Stick Pro) / MS Duo (requires PC adapter) /
 Mini SD (requires PC adapter) / RS MMC (requires PC adapter)

1. External Monitor Port
2. S-Video-Out Jack
3. Cable (CATV) Antenna Jack*
4. RJ-11 Phone Jack
5. RJ-45 LAN Jack
6. Mini-IEEE 1394 Port
7. Express Card Slot
8. Optical Device Drive Bay (for CD/DVD Device)
9. 7-in-1 Card Reader

*Enabled with **Optional** Mini-PCI TV Tuner Only

Figure 1 - 5 - Left View



Disk Eject Warning

Don't try to eject a CD/DVD while the system is accessing it. This may cause the system to "crash". Stop the disk first then eject it, or press the stop button twice.

CD/DVD Emergency Eject

If you need to manually eject a CD/DVD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. Do not use a sharpened pencil or any object that may break and become lodged in the hole. Don't try to remove a floppy disk/CD/DVD while the system is accessing it. This may cause the system to "crash".



Changing DVD Regional Codes

Go to the **Control Panel** and double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code (see "[DVD Regional Codes](#)" on page 2 - 5).

DVD region detection is device dependent, not OS-dependent. You can select your module's region code **5** times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

System Map: Right & Bottom Views



1. USB Ports
2. Security Lock Slot
3. Battery (Secondary HDD Bay - HDD3)
4. Fan Outlet/Intake
5. Primary HDD Bay (HDD1 & HDD2)
6. Component Bay Cover



Overheating

To prevent your computer from overheating make sure nothing blocks the vent(s)/fan intake(s) while the computer is in use.



Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges. See [“Battery Information” on page 3 - 10](#) for full instructions.

Figure 1 - 6 - Right & Bottom Views

Windows Vista Start Menu & Control Panel

Most of the control panels, utilities and programs within *Windows Vista* (and most other *Windows* versions) are accessed from the **Start** menu. When you install programs and utilities they will be installed on your hard disk drive, and a shortcut will usually be placed in the **Start** menu and/or the desktop. You can customize the look of the **Start** menu by right-clicking the **Start** menu and selecting **Properties** from the menu.



Figure 1 - 7 - Start Menu & Control Panel

In many instances throughout this manual you will see an instruction to open the **Control Panel**. The **Control Panel** is accessed from the **Start** menu, and it allows you to configure the settings for most of the key features in *Windows* (e.g. power, video, network, audio etc.). *Windows Vista* provides basic controls for many of the features, however many new controls are added (or existing ones are enhanced) when you install the drivers listed in *Table 4 - 1, on page 4 - 3*. To see all controls it may be necessary to toggle off Category View.

Video Features

You can configure display options, from the **Display Settings** control panel in *Windows* as long as the appropriate **video driver** is installed. For more detailed video information see “*NVIDIA Video Driver Controls*” on *page B - 1*. To access **Display Settings** in *Windows*:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Adjust screen resolution** under the **Appearance and Personalization** menu (or double-click **Personalization > Display Settings**).
3. Move the slider to the preferred setting in **Resolution:** ① (*Figure 1 - 8 on page 1 - 16*).
4. Click the arrow, and scroll to the preferred setting in **Colors:** ② (*Figure 1 - 8 on page 1 - 16*).
5. Click **Advanced Settings** (button) ③ (*Figure 1 - 8 on page 1 - 16*).
6. Click **GeForce.....** (tab).
7. Click **Start the NVIDIA Control Panel** ④ (*Figure 1 - 8 on page 1 - 16*) to access the control panel.
8. The **NVIDIA Control Panel** can also be accessed by right-clicking the desktop, and then clicking **NVIDIA Control Panel**.



Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. This computer features an **NVIDIA Scalable Link Interface (SLI)** that improves graphic quality and performance by combining dual NVIDIA GPUs in a single system for some of the video card options. **SLI Configuration** needs to be **enabled** from the **NVIDIA Control Panel (3D Settings > Set SLI Configuration)**; see “*SLI Multi GPU Configuration*” on *page B - 5*. Check with your service center for the latest details on video cards supported (see “*Video Card*” on *page C - 4* for details). **SLI Configuration** should not be enabled under battery power (see *page B - 6*).

Quick Start Guide

Display Devices & Options

Besides the built-in LCD, you can also use an **external VGA monitor (CRT)**/**external Flat Panel Display** (connected to the DVI-Out port) or **TV** (connected to the S-Video-Out jack) as your display device.

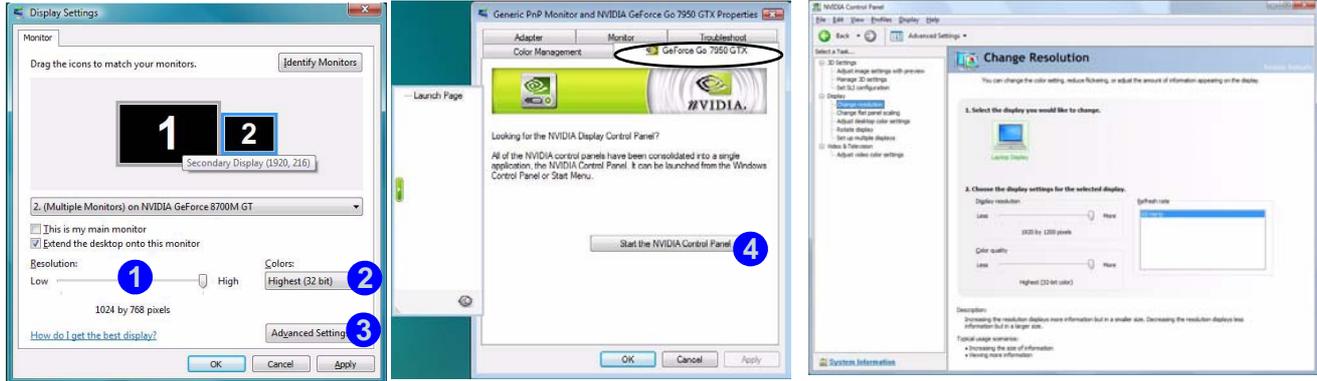


Figure 1 - 8 - Display Settings & NVIDIA Control Panel

NVIDIA Display Mode	Description	Note
Single	One display device is used.	Note that SLI configuration supports only Single display.
Clone	Both connected displays output the same view	
Dualview	Both connected displays are treated as separate devices, and act as a virtual desktop	

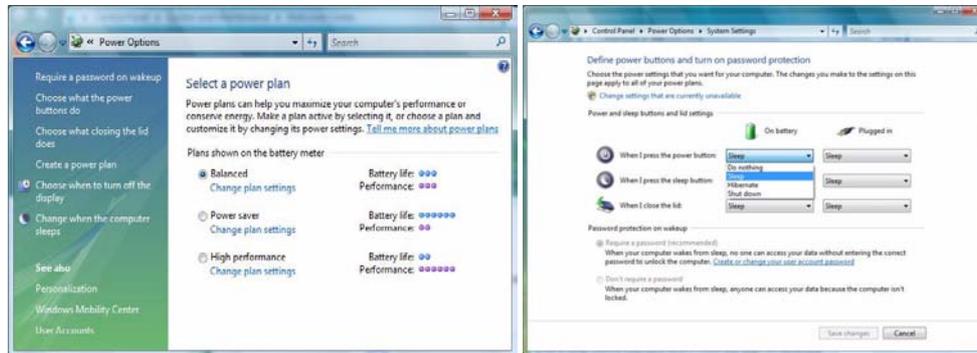
Table 1 - 6 - Display Modes Available

Power Options

The **Power Options** (**Hardware and Sound** menu) control panel icon in *Windows* (see page *1 - 14*) allows you to configure power management features for your computer. You can conserve power by means of **power plans** and configure the options for the **power button**, **sleep button**, **computer lid (when closed)**, **display** and **sleep mode** from the left menu. Note that the **Power saver** plan may have an affect on computer performance.

Click to select one of the existing plans, or click *Create a power plan* in the left menu and select the options to create a new plan. Click *Change Plan Settings* and click *Change advanced power settings* to access further configuration options.

Pay attention to the instructions on battery care in *“Battery Information” on page 3 - 10*.



Note: Sleep is the default power saving state in *Windows Vista*

Figure 1 - 9 - Power Options

Chapter 2: Storage Devices, Mouse, Audio & Printer

Overview

Read this chapter to learn more about the following main features and components of the computer:

- Hard Disk Drive
- Optical Device
- 7-in-1 Card Reader
- ExpressCard Slot
- Application Hot Key
- Game Keys
- TouchPad and Buttons/Mouse
- Audio Features
- Adding a Printer



Power Safety

Before attempting to access any of the internal components of your computer please ensure that the machine is not connected to the AC power, and that the machine is turned off. Also ensure that all peripheral cables, including phone lines, are disconnected from the computer.

Hard Disk Drive

The hard disk drive(s) is(are) used to store your data in the computer. The hard disk(s) can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5 mm. The primary hard disk bay ① is accessible from the bottom of your computer as seen below, and the secondary hard disk bay ② is located under the battery compartment.

The computer can accommodate up to three hard disks (two in the primary bay, and one in the secondary bay), and these may be configured in **RAID** or **AHCI** modes.

Further details on removing and inserting the hard disk are available in *“Upgrading the Hard Disk Drive(s)” on page 6 - 4.*



Figure 2 - 1
Hard Disk Bays

Optical Device

There is a bay for a 5.25" optical (CD/DVD) device (12.7mm height). The actual device will depend on the model you purchased (see *“Storage Options” on page C - 4*). The optical device is usually labeled **“Drive D:”** and may be used as a boot device if properly set in the **BIOS** (see *“Boot Menu” on page 5 - 12*).

Loading Discs

To insert a CD/DVD, press the open button **1** and carefully place a CD/DVD onto the disc tray with label-side facing up (use just enough force for the disc to click onto the tray’s spindle). Gently push the CD/DVD tray in until its lock “clicks” and you are ready to start. The busy indicator **2** will light up while data is being accessed, or while an audio/video CD, or DVD, is playing. If power is unexpectedly interrupted, insert an object such as a straightened paper clip into the emergency eject hole **3** to open the tray.



Sound Volume Adjustment

How high the sound volume can be set depends on the setting of the volume control within **Windows**. Click the **Volume** icon on the taskbar to check the setting.

Peripherals must be connected before you turn on the system.

Figure 2 - 2
Optical Device



CD Emergency Eject

If you need to manually eject a CD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. However please do NOT use a sharpened pencil or similar object that may break and become lodged in the hole.

Disk Eject Warning

Don't try to remove a CD/DVD while the system is accessing it. This may cause the system to "crash".

Handling CDs or DVDs

Proper handling of your CDs/DVDs will prevent them from being damaged. Please follow the advice below to make sure that the data stored on your CDs/DVDs can be accessed.

Note the following:

- Hold the CD or DVD by the edges; do not touch the surface of the disc.
- Use a clean, soft, dry cloth to remove dust or fingerprints.
- Do not write on the surface with a pen.
- Do not attach paper or other materials to the surface of the disc.
- Do not store or place the CD or DVD in high-temperature areas.
- Do not use benzene, thinner, or other cleaners to clean the CD or DVD.
- Do not bend the CD or DVD.
- Do not drop or subject the CD or DVD to shock.

DVD Regional Codes

To change the DVD regional codes see *“Changing DVD Regional Codes”* on page 1 - 12.

DVD Regional Coding	
Region	Geographical Location
1	USA, Canada
2	Western Europe, Japan, South Africa, Middle East & Egypt
3	South-East Asia, Taiwan, South Korea, The Philippines, Indonesia, Hong Kong
4	South & Central America, Mexico, Australia, New Zealand
5	N Korea, Russia, Eastern Europe, India & Most of Africa
6	China

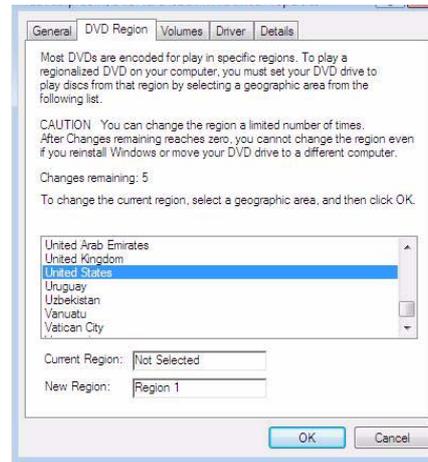


Table 2 - 1
DVD Regional Coding

Figure 2 - 3
DVD Regions



Card Reader Cover

Make sure you keep the cover in the card reader when not in use. This will help prevent foreign objects and/or dust getting in to the card reader.

7-in-1 Card Reader

The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your hard disk (s). Make sure you install the Card Reader driver (see *“Card Reader/ExpressCard” on page 4 - 6*).

- MMC (MultiMedia Card)
- SD (Secure Digital)
- MS (Memory Stick)
- MS (Memory Stick Pro)
- MS Duo (requires PC adapter*)
- Mini SD (requires PC adapter*)
- RS MMC (requires PC adapter*)

***Note:** The PC adapters are usually supplied with these cards.

Figure 2 - 4
Left View

1. Card Reader



ExpressCard Slot

The computer is equipped with an **ExpressCard/34/54** slot that reads Express Card/34 and ExpressCard/54 formats. ExpressCards are the successors to PCMCIA (PC Cards).

ExpressCard/54 is used for applications which require a larger interface slot, e.g. CompactFlash card reader. The number denotes the card width; 54mm for the Express Card/54 and 34mm for the ExpressCard/34. Make sure you install the ExpressCard driver (see *“Card Reader/ExpressCard” on page 4 - 6*).

Inserting and Removing ExpressCards

- Align the ExpressCard with the slot and push it in until it locks into place.
- To remove an ExpressCard, simply press the card to eject it (as pictured in the generic figure below).



ExpressCard Slot Cover

Make sure you keep the cover in the ExpressCard slot when not in use. This will help prevent foreign objects and/or dust getting in to the ExpressCard Slot.

Figure 2 - 5
Express Card Slot



Application.exe

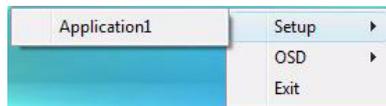
You will need to locate the actual **application executable (.exe) file**, not just the **shortcut**. To find the application right-click its **shortcut** on the desktop and click **Properties**. Click the **shortcut (tab)** and see where the executable file is located by clicking the **Open File Location (button)**.

Figure 2 - 6
Application Hot Key
Configuration

Application Hot Key

The hot key buttons give instant access to the default Internet browser and e-mail program, and to a user-defined application, with one quick button press. To configure a program to open when the application hot key \mathcal{A} is pressed (**Windows Media Player** is the default program), follow the instructions below (make sure you have installed the **Ap-Key** Utility driver - see *“Ap-Key Utility” on page 4 - 6*).

1. **Right click** the Hot Key driver icon  in the **taskbar**.
2. Select **Setup** from the menu and then select **Application 1**.



3. An **Open** dialog box will appear on the screen.

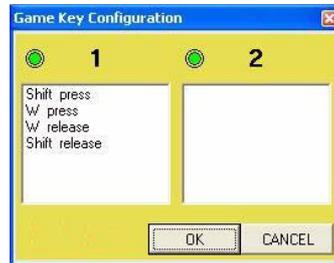


4. Click **Look in:** and browse to the directory where the desired **application.exe** (see the sidebar) program exists.
5. **Double-Click** on the program file or choose **Open**.

Game Keys

The two game hot keys on the left of the computer allow macros to be configured for common keystrokes used in applications (the keys can assigned macros for any program, not only games). To configure the keys follow the instructions below (make sure you have installed the **Ap-Key** Utility driver - see *“Ap-Key Utility” on page 4 - 6*).

1. Run the **Game Key Configuration** program from the desktop icon  (or from C:\Windows\CleGameKey\GmKeyCfgUtl.exe).
2. Double-click the button  for the appropriate key (it will turn red .
3. When the button is red  you may then record the keystrokes to be assigned to the Game Key.



4. Click **OK**.
5. Repeat the procedure for the other Game Key if required.
6. Close the **Game Key Configuration** window.
7. The keystroke order will be repeated with the appropriate button press in any application program.

Figure 2 - 7
Game Key Configuration



Mouse Driver

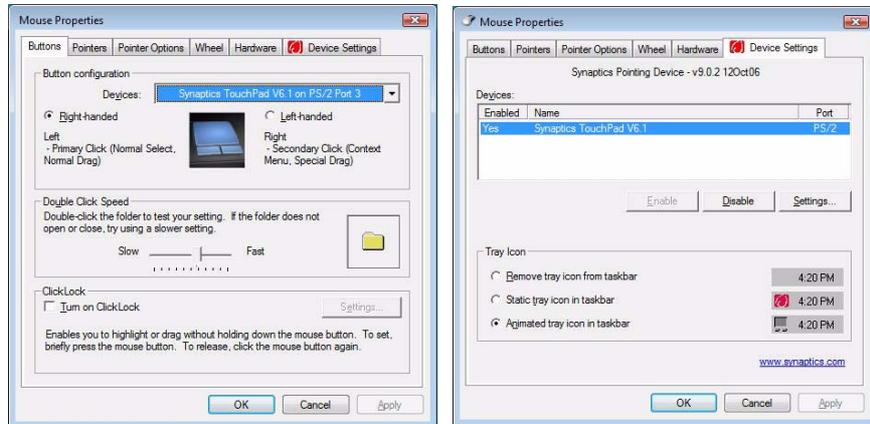
If you are using an external mouse your operating system may be able to auto-configure your mouse during its installation or only enable its basic functions. Be sure to check the device's user documentation for details.

Figure 2 - 8
Mouse Properties

TouchPad and Buttons/Mouse

The TouchPad is an alternative to the mouse; however, you can also add a mouse to your computer through one of the USB ports. The TouchPad buttons function in much the same way as a two-button mouse. The central button may be configured to function as you require.

Install the TouchPad driver (see page 4 - 5) and then double-click the TouchPad driver icon  in the taskbar to configure the functions. You may then configure the TouchPad tapping, buttons, scrolling, pointer motion and sensitivity options to your preferences. The TouchPad may be toggled on/off by means of the **Fn + F1** key combination.

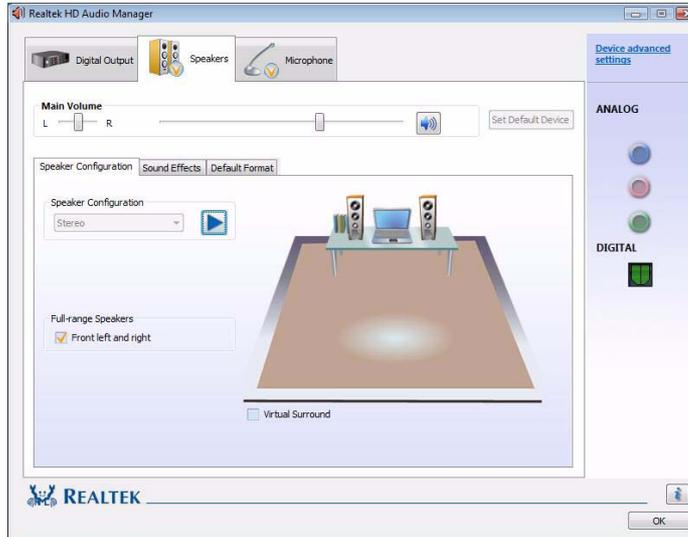


Audio Features

You can configure the audio options on your computer from the **Sound**  control panel in *Windows*, or from the **Realtek HD Audio Manager**  icon in the taskbar/control panel (right-click the taskbar icon  to bring up an audio menu). The volume may also be adjusted by means of the **Fn + F5/F6** key combination.



Right-click the icon  to access the menu above.



Sound Volume Adjustment

The sound volume level is set using the volume control within *Windows* (and the volume function keys on the computer). Click the volume icon in the taskbar to check the setting.

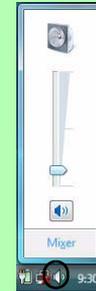


Figure 2 - 9
Realtek Audio Manager



Parallel Printer

After setting up the printer attach the parallel cable to the printer.

Connect the printer's parallel cable to the Parallel to USB converter, and then plug the converter into the USB port.

Turn ON the printer, then turn ON the computer.

Windows will identify the printer and either load one of its own drivers or ask you to supply one. Follow the on-screen instructions.

Adding a Printer

The most commonly used peripheral is a printer. The following conventions will help you to add a printer; however it is always best to refer to the printer manual for specific instructions and configuration options.

USB Printer

Most new printers have a USB interface connection. You may use any one of the ports to connect the printer.

Install Instructions:

1. Set up the printer according to its instructions (unpacking, paper tray, toner/ink cartridge etc.).
2. Turn ON the computer.
3. Turn ON the printer.
4. Connect the printer's USB cable to one of the USB ports on the computer.
5. **Windows** will identify the printer and either load one of its own drivers or ask you to supply one. Follow the on-screen instructions.

Parallel Printer

This is still a very common type of printer. The install instructions are in the sidebar (you will need to purchase a parallel to USB converter).

Chapter 3: Power Management

Overview

To conserve power, especially when using the battery, your computer power management conserves power by controlling individual components of the computer (the monitor and hard disk drive) or the whole system.

This chapter covers:

- The Power Sources
- Turning on the Computer
- Power Plans
- Power-Saving States
- Configuring the Power Buttons
- Battery Information

The computer uses enhanced power saving techniques to give the operating system (OS) direct control over the power and thermal states of devices and processors. For example, this enables the OS to set devices into low-power states based on user settings and information from applications.



OS Note

Power management functions will vary slightly depending on your operating system. For more information it is best to refer to the user's manual of your operating system.

(**Note:** All pictures used on the following pages are from the *Windows Vista* OS.)

The Power Sources

The computer can be powered by either an AC/DC adapter or a battery pack.

AC/DC Adapter

Use only the AC/DC adapter that comes with your computer. The wrong type of AC/DC adapter will damage the computer and its components (see page [C - 6](#)).

1. Attach the AC/DC adapter to the DC-In jack at the rear of the computer.
2. Plug the AC power cord into an outlet, and then connect the AC power cord to the AC/DC adapter.
3. Raise the lid/LCD to a comfortable viewing angle.
4. Press the power button to turn “On”.

Battery

The battery allows you to use your computer while you are on the road or when an electrical outlet is unavailable. Battery life varies depending on the applications and the configuration you're using. **To increase battery life, let the battery discharge completely before recharging** (see *“How do I completely discharge the battery?” on page 3 - 14*).

We recommend that you do not remove the battery. For more information on the battery, please refer to *“Battery Information” on page 3 - 10*.

Turning on the Computer

Now you are ready to begin using your computer. To turn it on simply press the power button on the front panel.

When the computer is on, you can use the power button as a Sleep/Hibernate/Shut Down hot key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will force the computer to shut down). Use **Power Options (Hardware and Sound menu)** control panel in *Windows Vista* to configure this feature (see *Figure 3 - 4 on page 3 - 8*).



Forced Off

If the system “hangs”, and the **Ctrl + Alt + Del** key combination doesn’t work, press the power button for **4 seconds**, or longer, to force the system to turn itself off.

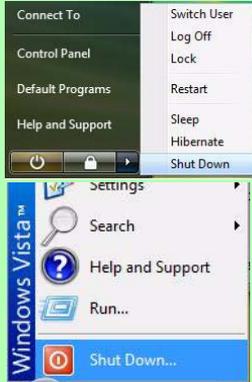
Power Button Sleep

Sleep is the default power mode when the power button is pressed for less than 4 seconds. You may configure the options for the power button from the **Power Options (Hardware and Sound menu)** control panel in *Windows Vista* (see your OS’s documentation, or “*Configuring the Power Buttons*” on page 3 - 8 for details).



Shut Down

Note that you should always shut your computer down by choosing the **Shut Down** command from the **Lock Button Menu** in *Windows Vista*. This will help prevent hard disk or system problems.





Resuming Operation

See [Table 3 - 1, on page 3 - 9](#) for information on how to resume from a power-saving state.

Password

It is recommended that you enable a password on system resume in order to protect your data.

Power Plans

The computer can be configured to conserve power by means of **power plans**. You can use (or modify) an existing **power plan**, or create a new one.

The settings may be adjusted to set the **display** to turn off after a specified time, and to send the computer into **Sleep** after a period of inactivity.

Click *Change plan settings* and then click *Change advanced power settings* to access further configuration options in **Advanced Settings**.

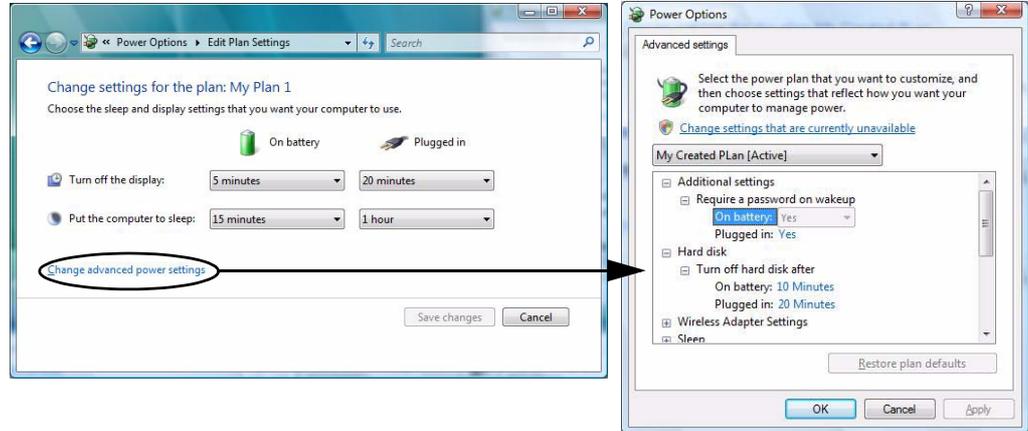


Figure 3 - 1
Power Plan
Advanced Settings

Each **Windows Power Plan** will also adjust the processor performance of your machine in order to save power. This is worth bearing in mind if you are experiencing any reduced performance (especially under DC/battery power).

Choose **High performance** for maximum performance when the computer is powered from an AC power source. Choose the **Power saver** (bear in mind that this scheme may slow down the overall performance of the computer in order to save power) for maximum power saving when the computer is battery (DC power) powered.

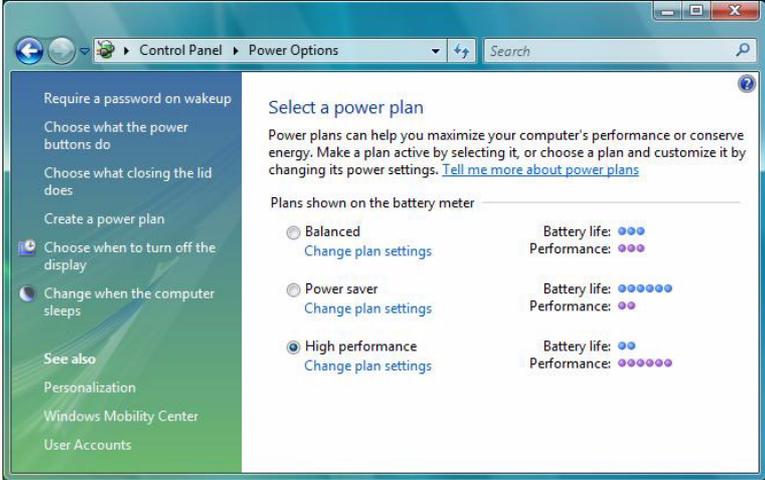


Figure 3 - 2
Power Plans



Power Button

The **Power Button**  in the Start Menu (in Classic View use the Shut Down button ) can be used to send the computer into a power-saving state.

Sleep Mode & Mobile PC Battery

A mobile PC in **Sleep** uses very little battery power.

After an extended period of time the computer will save any open documents and applications to hard disk.

Power-Saving States

You can use power-saving states to stop the computer's operation and restart where you left off. **Sleep** is the default power-saving state in *Windows Vista*.

Earlier versions of *Windows* used Stand By and Hibernate as system power-saving states. *Windows Vista* combines the features of Stand By and Hibernate into the default **Sleep** power-saving state.

Sleep

In **Sleep** all of your work, settings and preferences are saved to memory before the system sleeps. When you are not using your computer for a certain length of time, which you specify in the operating system, it will enter **Sleep** to save power.

The PC wakes from **Sleep within seconds** and will return you to where you last left off (what was on your desktop) without reopening the application(s) and file(s) you last used.

If your mobile PC in **Sleep** is running on battery power the system will use only a minimum amount of power. After an extended period the system will save all the information to the hard disk and shut the computer down before the battery becomes depleted.

Hibernate

Hibernate uses the least amount of power of all the power-saving states and saves all of your information on a part of the hard disk before it turns the system off. If a power failure occurs the system can restore your work from the hard disk; if a power failure occurs when work is saved only to memory, then the work will be lost. **Hibernate** will also return you to where you last left off within seconds. You should put your mobile PC into **Hibernate** if you will not use the computer for a period of time, and will not have the chance to charge the battery.

Shut Down

You should **shut down** the computer if you plan to install new hardware (don't forget to remove the battery and follow all the safety instructions in **Chapter 6**), plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **shut down** takes longer than from **Sleep** or **Hibernate**.



Figure 3 - 3
Lock Button Menu

Resuming Operation

You can resume operation from power-saving states by pressing the power button, or in some cases pressing the sleep button (**Fn + F4** key combo).



Closing the Lid

If you have chosen to send the computer to **Sleep** when the lid is closed, raising the lid will wake the system up.

Power Status	Icon  Color	To Resume
Power Off	Off	Press the Power Button
Sleep	Blinking Green	Press the Power Button Press the Sleep Button (Fn + F4 Key Combo)
Hibernate	Off (battery) Orange (AC/DC adapter)	Press the Power Button
Display Turned Off	Green	Press a Key or Move the Mouse/Touchpad

Table 3 - 1 Resuming Operation



Power Button

When the computer is on, you can use the power button as a Sleep/Hibernate/Shut Down hot key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will force the computer to shut down).



Low Battery Warning

When the battery is critically low, immediately connect the AC/DC adapter to the computer or save your work, otherwise, the unsaved data will be lost when the power is depleted.

Figure 3 - 5
Battery Icon (Taskbar) & Battery Advanced Settings

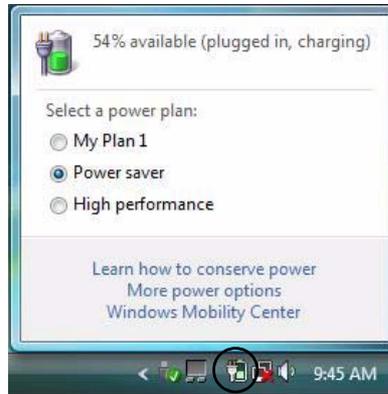
Battery Information

Please follow these simple guidelines to get the best use out of your battery.

Battery Power

Your computer's battery power is dependent upon many factors, including the programs you are running, and peripheral devices attached. You can set actions to be taken (e.g. Shut down, Hibernate etc.), and set critical and low battery levels from **power plan Advanced Settings** (see *Figure 3 - 1 on page 3 - 4*).

Click the battery icon  in the taskbar to see the current battery level and charge status.



Conserving Battery Power

- Use a **power plan** that conserves power (e.g **Power saver**), however note that this may have an affect on computer performance.
- Lower the brightness level of the LCD display. The system will decrease LCD brightness slightly to save power when it is not powered by the AC/DC adapter.
- Reduce the amount of time before the display is turned off.
- Close wireless, Bluetooth, modem or communication applications when they are not being used.
- Disconnect/remove any unnecessary external devices e.g. USB devices, ExpressCards etc.



Windows Mobility Center

The **Windows Mobility Center** control panel provides an easy point of access for information on battery status, power plans used and wireless device status etc.

3



Figure 3 - 6
Windows Mobility Center

Battery Life

Battery life may be shortened through improper maintenance. **To optimize the life and improve its performance, fully discharge and recharge the battery at least once every 30 days.**

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason see *“Removing the Battery” on page 6 - 3.*

New Battery

Always completely discharge, then fully charge, a new battery (see *“Battery FAQ” on page 3 - 14* for instructions on how to do this).

Recharging the Battery with the AC/DC Adapter

The battery pack automatically recharges when the AC/DC adapter is attached and plugged into an electrical outlet. If the computer is powered on, and in use, it will take several hours to fully recharge the battery. When the computer is turned off but plugged into an electrical outlet, battery charge time is less. (Refer to *“LED Indicators” on page 1 - 7* for information on the battery charge status, and to *“Battery Information” on page 3 - 10* for more information on how to maintain and properly recharge the battery pack.)

Proper handling of the Battery Pack

- DO NOT disassemble the battery pack under any circumstances
- DO NOT expose the battery to fire or high temperatures, it may explode
- DO NOT connect the metal terminals (+, -) to each other



Damaged Battery Warning

Should you notice any physical defects (e.g. the battery is bent out of shape after being dropped), or any unusual smells emanating from the notebook battery, shut your computer down immediately and contact your service center. If the battery has been dropped we do not recommend using it any further, as even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire. It is recommended that you replace your computer battery every two years.



Caution

Danger of explosion if battery is incorrectly re-placed.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

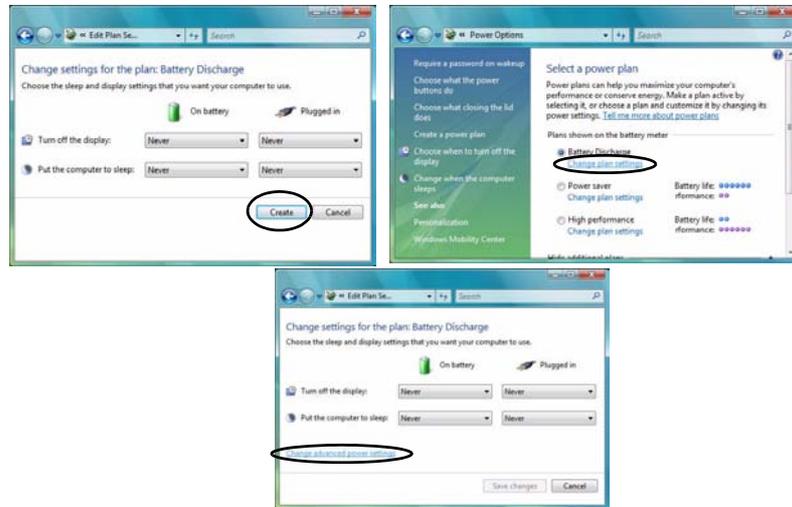
Battery FAQ

How do I completely discharge the battery?

Use the computer with battery power until it shuts down due to a low battery. Don't turn off the computer even if a message indicates the battery is critically low, just let the computer use up all of the battery power and shut down on its own.

1. Save and close all files and applications.
2. **Create a power plan** for discharging the battery and set all the options to **Never**.
3. Click **Change plan settings** (after saving it) and click **Change advanced power settings**.

Figure 3 - 7
Power Plan Create



- 4. Scroll down to **Battery** and click **+** to expand the battery options.
- 5. Choose the options below (click **Yes** if a warning appears):

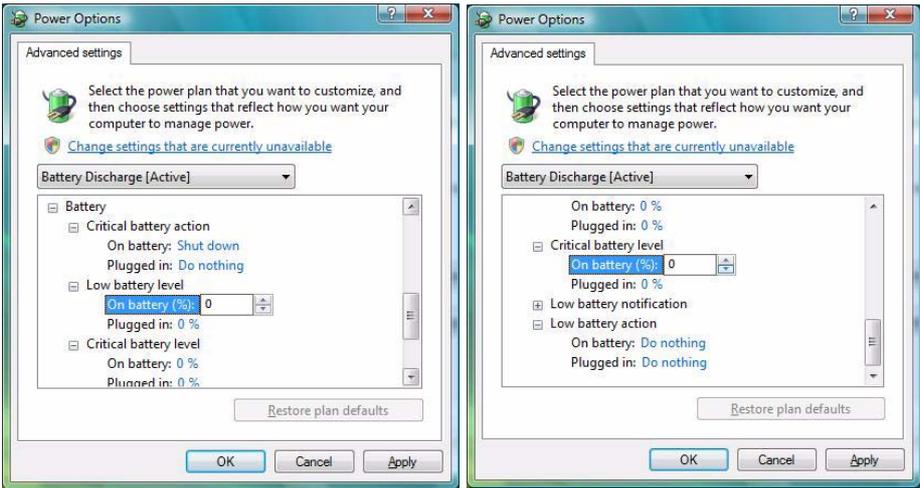


Figure 3 - 8
Power Options
Advanced Settings -
Battery

- Low battery levels = 0%
- Critical battery Levels = 0%
- Low battery action = Do Nothing
- Critical battery action (On battery) = Shut Down
- Critical battery action (Plugged in) = Do Nothing

How do I fully charge the battery?

When charging the battery, don't stop until the LED charging indicator light changes from orange to green.

How do I maintain the battery?

Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.



SLI Multi GPU Configuration & Battery Power

Note that due to the high power and system demands created by enabling SLI Configuration, **you should not enable SLI configuration if your computer is powered by battery only**. If you attempt to run an SLI configuration when the computer is powered by the battery only, then system problems may occur.

If the computer is currently powered by battery only **do not enable SLI configuration**.

If you have currently enabled SLI configuration, and the computer is powered by the AC/DC adapter, **do not switch to battery power only** (or go to the NVIDIA Control Panel and disable SLI configuration before switching to battery power only).

Chapter 4: Drivers & Utilities

This chapter deals with installing the drivers and utilities essential to the operation or improvement of some of the computer's subsystems. The system takes advantage of some newer hardware components for which the latest versions of most available operating systems haven't built in drivers and utilities. Thus, some of the system components won't be auto-configured with an appropriate driver or utility during operating system installation. Instead, you need to manually install some system-required drivers and utilities.

RAID & AHCI Setup

Note that setting up a RAID, or AHCI mode, needs to be done prior to installing the *Windows OS*, and therefore before installing the other drivers listed here (see "[Setting Up SATA RAID or AHCI Modes](#)" on page 7 - 2).

What to Install

The *Device Drivers & Utilities + User's Manual DVD-ROM* contains the drivers and utilities necessary for the proper operation of the computer. The DVD contains drivers for *Windows Vista* and *Windows XP* (the appropriate drivers will autorun for your system).

Table 4 - 1, on page 4 - 3 lists what you need to install and **it is very important that the drivers are installed in the order indicated** (see "[Driver Installation](#)" on page D - 25 for *Windows XP* information).

Module Driver Installation

The procedures for installing drivers for the **RAID, WLAN, Bluetooth, PC Camera and TV Tuner** modules are provided in "[Modules](#)" on page 7 - 1. Only install drivers for modules included in your purchase option.

Driver Installation

Insert the *Device Drivers & Utilities + User's Manual* DVD-ROM and click **Install Drivers** (button), or click **Optional** (button) to access the **Optional** driver menu.

If you wish to install the drivers manually see page 4-3.



Figure 4 - 1 - Drivers Installer Screen 1

1. Check the driver installation order from [Table 4 - 1, on page 4 - 3](#) (the drivers must be installed in this order) which is the same as that listed in the **Drivers Installer** menu below.
2. Click to select the driver you wish to install, after installing each driver it will become grayed out (if you need to reinstall any driver, click the **Unlock** button).
3. Follow the instructions for each individual driver installation procedure as listed on the following pages.



Figure 4 - 2 - Drivers Installer Screen 2

Manual Driver Installation

To install the drivers manually click the **Browse CD** button in the *Drivers Installer* application and browse to the executable file in the appropriate driver folder.

Driver	Page	Notes
<i>Video (VGA)</i>	<i>Page 4 - 5</i>	<p>Note that setting up a RAID, or AHCI mode, needs to be done prior to installing the Windows OS, and therefore before installing the other drivers listed here.</p> <p>The optional TV Tuner drivers/applications are provided on a separate CD.</p>
<i>Audio</i>	<i>Page 4 - 5</i>	
<i>Modem</i>	<i>Page 4 - 5</i>	
<i>TouchPad</i>	<i>Page 4 - 5</i>	
<i>Card Reader/ExpressCard</i>	<i>Page 4 - 6</i>	
<i>Ap-Key Utility</i>	<i>Page 4 - 6</i>	
<i>Intel Matrix</i> (RAID or AHCI)	<i>Page 7 - 7</i>	
<i>Wireless LAN Module</i>	<i>Page 7 - 8</i>	
<i>Bluetooth Module</i>	<i>Page 7 - 12</i>	
<i>PC Camera Module</i>	<i>Page 7 - 17</i>	

Table 4 - 1 - Driver Installation

Updating/Reinstalling Individual Drivers

If you wish to update/reinstall individual drivers it may be necessary to uninstall the original driver. To do this go to the **Control Panel** in the *Windows OS* and double-click the **Programs and Features** icon (**Programs > Uninstall a program**). Click to select the driver (if it is not listed see below) and click **Uninstall**, and then follow the on screen prompts (it may be necessary to restart the computer). Reinstall the driver as outlined in this chapter.

If the driver is not listed in the **Programs and Features** menu:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Device Manager (Hardware and Sound > Device Manager)**.
3. Double-click the **device** you wish to update/reinstall the driver for (you may need to click “+” to expand the selection).
4. Click **Driver** (tab) and click the **Update Driver** or **Uninstall** button and follow the on screen prompts.

User Account Control (Win Vista)

If a **User Account Control** prompt appears as part of the driver installation procedure, click **Continue** or **Allow**, and follow the installation procedure as directed.

Windows Security Message

If you receive a *Windows* security message as part of the driver installation process. Just click “**Install this driver software anyway**” or **Install** to continue the installation procedure.

You will receive this message in cases where the driver has been released after the version of *Windows* you are currently using. All the drivers provided will have already received certification for *Windows*.

New Hardware Found

If you see the message “**New Hardware Found**” (**Found New Hardware Wizard**) during the installation procedure (**other than when outlined in the driver install procedure**), click **Cancel** to close the window, and follow the installation procedure.

Driver Installation Procedure

Video (VGA)

1. Click **1.Install Video Driver > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.

Audio

1. Click **2. Install Audio Driver > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.

Modem

1. Click **3.Install Modem Driver > Yes**.
2. Click **OK**.
3. The modem is now ready for configuration.



Modem Country Selection

Go to the **Phone and Modem Options** control panel (**Hardware and Sound**) and make sure the modem country selection is appropriate for you.

TouchPad

1. Click **4.Install Touchpad Driver > Yes**.
2. Click **Next > Finish**.
3. Click **Restart Now** to restart the computer.
4. You may then configure your TouchPad as outlined in ***“TouchPad and Buttons/Mouse” on page 2 - 10.***

Card Reader/ExpressCard

1. Click **5.Install CardReader Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license, and then click **Next**.
4. Click **Finish**.

Ap-Key Utility

1. Click **6.Install AP-key Utility > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.
4. See *“Application Hot Key” on page 2 - 8* and *“Game Keys” on page 2 - 9* for configuration instructions.

Optional Drivers

See the pages indicated for the driver installation procedures for any modules included in your purchase option.



Figure 4 - 3 - Optional Drivers Installer Screen

Intel Matrix

This driver is only required if you have set up your hard disks in **RAID** or **AHCI** modes (see *“Setting Up SATA RAID or AHCI Modes” on page 7 - 2*).

Wireless LAN

See the appropriate install procedure for your WLAN module in *“Intel WLAN Driver Installation” on page 7 - 8*.

Bluetooth

See the install procedure in *“Bluetooth Driver Installation” on page 7 - 12*.

PC Camera

See the camera instructions in *“PC Camera Driver Application” on page 7 - 17*.

TV Tuner

See the install procedure in *“Mini-PCI TV Tuner Module” on page 7 - 25*.

Chapter 5: BIOS Utilities

Overview

This chapter gives a brief introduction to the computer's built-in software:

PhoenixBIOS Setup Utility

If your computer has never been set up, or you are making important changes to the system (e.g. hard disk setup), then you should review this chapter first and note the original settings found in the **PhoenixBIOS Setup Utility**. Even if you are a beginner, keep a record of the settings you find and any changes you make. This information could be useful if your system ever needs servicing.

There is one general rule: *Don't make any changes unless you are sure of what you are doing*. Many of the settings are required by the system, and changing them could cause it to become unstable or worse. If you have any doubts, consult your service representative.



BIOS Settings Warning

Incorrect settings can cause your system to malfunction. To correct mistakes, return to *Setup* and restore the *Setup Defaults* with <F9>.



POST Screen

1. **BIOS** information
2. CPU type
3. Memory status
4. Enter **Setup** prompt appears only during **POST**

Note: The **POST** screen as pictured is for guideline purposes only.

Figure 5 - 1
POST Screen

The Power-On Self Test (POST)

Each time you turn on the computer, the system takes a few seconds to conduct a **POST**, including a quick test of the on-board RAM (memory).

As the **POST** proceeds, the computer will tell you if there is anything wrong. If there is a problem that prevents the system from booting, it will display a system summary and prompt you to run *Setup*.

If there are no problems, the *Setup* prompt will disappear and the system will load the operating system. Once that starts, you can't get into *Setup* without rebooting.

```
Phoenix TrustedCore(tm) Desktop
Copyright 1985-2005 Phoenix Technologies Ltd. 1
All Rights Reserved
BIOS Revision: *****
KBC/EC Revision: *****

CPU = 1 Processor Detected, Cores per Processor = 2 2
Intel(R) Core(TM)2 CPU          6300 @ 1.86GHz
TCG is enabled
511M System RAM Passed 3
2048 KB L2 Cache
System BIOS shadowed
Video BIOS shadowed
Fixed Disk 0: TOSHIBA MK6034GSX
ATAPI CD-ROM: Optiarc DVD RW AD-7530A
Mouse initialized

Press <F2> to enter SETUP 4
```

Failing the POST

Errors can be detected during the **POST**. There are two categories, “fatal” and “non-fatal”.

Fatal Errors

These stop the boot process and usually indicate there is something seriously wrong with your system. Take the computer to your service representative or authorized service center as soon as possible.

Non-Fatal Errors

This kind of error still allows you to boot. You will get a message identifying the problem (make a note of this message!) followed by the prompt:

- Press <F1> to resume
- <F2> to enter Setup

Press **F1** to see if the boot process can continue. It may work, without the correct configuration.

Press **F2** to run the **Setup** program and try to correct the problem. If you still get an error message after you change the setting, or if the “cure” seems even worse, call for help.

The Setup Program

The **Phoenix Setup** program tells the system how to configure itself and manage basic features and subsystems (e.g. port configuration).

Entering Setup

To enter the **PhoenixBIOS Setup Utility**, turn on the computer and press **F2** during when you see the prompt "*Press F2 to Enter Setup*", which is usually present for a few seconds after you turn on the system. If you get a "Keyboard Error", (usually because you pressed **F2** too quickly) just press **F2** again.

If the computer is already on, reboot using the **Ctrl + Alt + Delete** combination and then hold down **F2** when prompted. The *Setup* main menu will appear.

Setup Screens

The following pages contain additional advice on **portions** of the *Setup*.

Along the top of the screen is a menu bar with menu headings. When you select a heading, a new screen appears. Scroll through the features listed on each screen to make changes to *Setup*.

Instructions on how to navigate each screen are in the box along the bottom of the screen. If these tools are confusing, press **F1** to call up a **General Help** screen, and then use the arrow keys to scroll up or down the page.

The **Item Specific Help** on the right side of each screen explains the highlighted item and has useful messages about its options.

If you see an arrow ► next to an item, press **Enter** to go to a sub-menu on that subject. The sub-menu screen that appears has a similar layout, but the **Enter** key may execute a command.

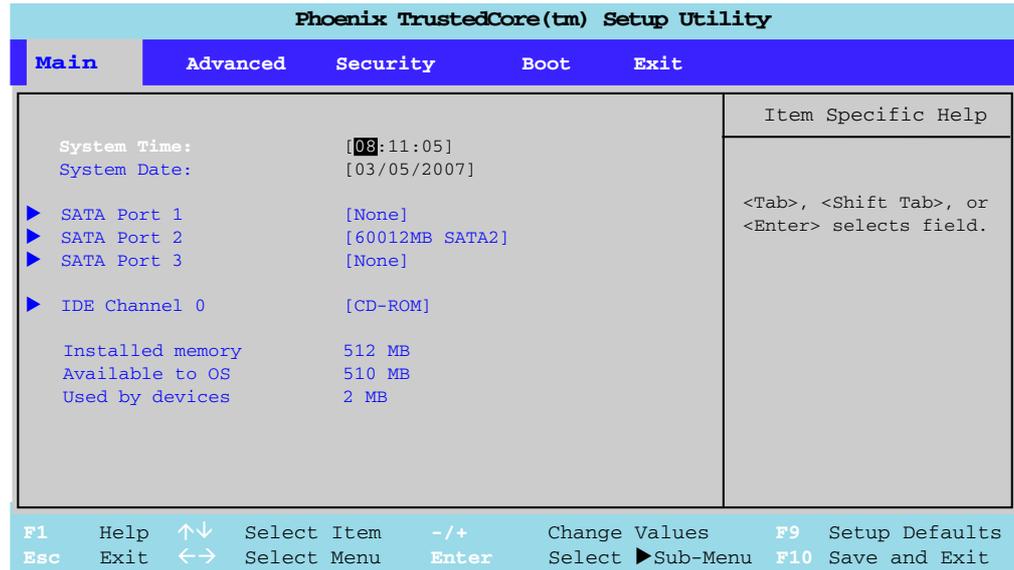


Setup Menus

The **Setup** menus shown in this section are for **reference** only. Your computer's menus will indicate the configuration appropriate for your model and options.

Main Menu

Figure 5 - 2
Main Menu



System Time & Date (Main Menu)

The hour setting uses the 24-hour system (i.e., 00 = midnight; 13 = 1 pm). If you can change the date and time settings in your operating system, you will also change these settings. Some applications may also alter data files to reflect these changes.

SATA Port 1/2/3: (Main Menu)

Pressing **Enter** opens the sub-menu to show the configuration of hard disks on the computer's SATA ports. Use the **Auto** (Type:) setting to have the items configured automatically for you.

IDE Channel 0 (Main Menu)

Pressing **Enter** here opens the sub-menu to show the configuration of the CD/DVD device(s) on the computer's IDE Channel. Use the **Auto** (Type:) setting to have the items configured automatically for you.

Installed Memory: (Main Menu)

This item contains information on the system memory, and is not user configurable. The system will auto detect the amount of memory installed (the items below will show the memory used by devices and the memory available to the OS).

Advanced Menu



RAID/AHCI Enable/Disable Warning

DO NOT Enable/Disable SATA RAID or SATA AHCI unless you intend to reinstall your operating system. Make sure you have backed up all your data before doing so.

5

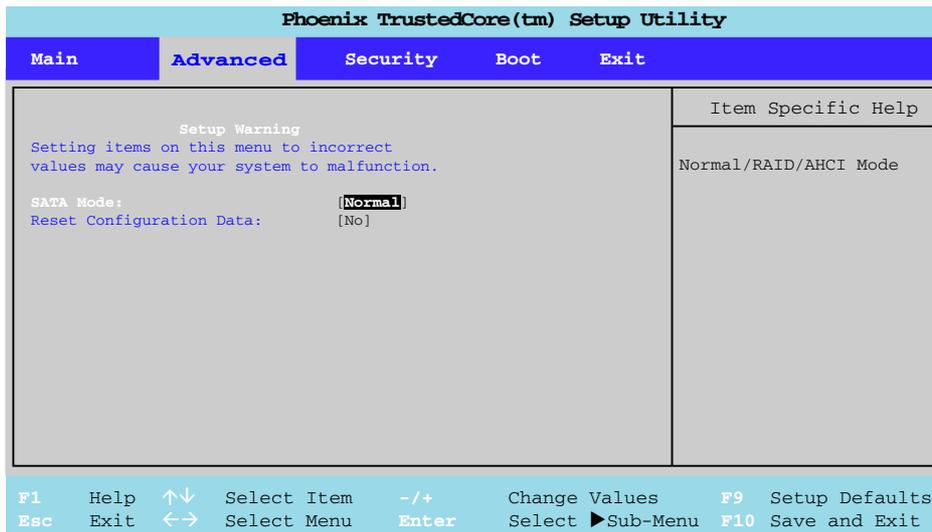


Figure 5 - 3
Advanced Menu

SATA Mode: (Advanced Menu)

Press **Enter** here to open the sub-menu to choose the configuration of the SATA mode. You may **enable/disable SATA RAID or AHCI** mode for your hard disks, however **you should only enable/disable SATA RAID or AHCI BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar).

Reset Configuration Data: (Advanced Menu)

This item is set to **No** as default. You can change the setting to **Yes** if you have installed a new add-on which has reconfigured the system, resulting in such a serious system conflict that the operating system is unable to boot.

Security Menu



Security Menu

The changes you make here affect the access to the **Setup** utility itself, and also access to your machine as it boots up after you turn it on. These settings do not affect your machine or network passwords which will be set in your software OS.

5

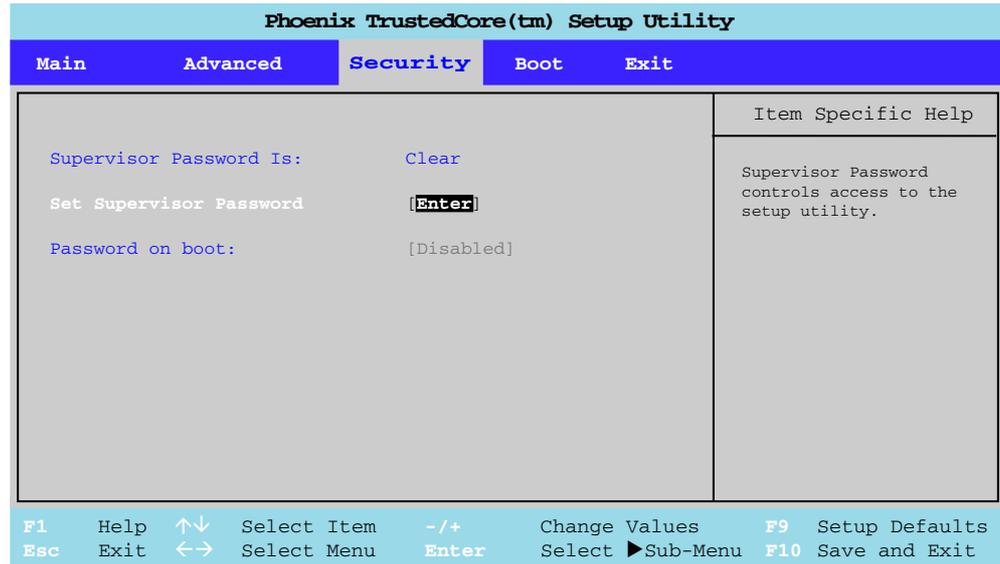


Figure 5 - 4
Security Menu

Set Supervisor Password (Security Menu)

You can set a password for access to the **PhoenixBIOS Setup Utility**. This will not affect access to the computer OS, (only the **PhoenixBIOS Setup Utility**).

Password on boot: (Security Menu)

Specify whether or not a password should be entered to boot the computer. If “**Enabled**” is selected, only users who enter a correct password can boot the system (see **the warning in the sidebar**). The default setting is “**Disabled**”.

Note: To clear existing passwords press **Enter** and type the existing password, then press **Enter** for the new password (without typing any password entry) and **Enter** again to confirm the password clearance.



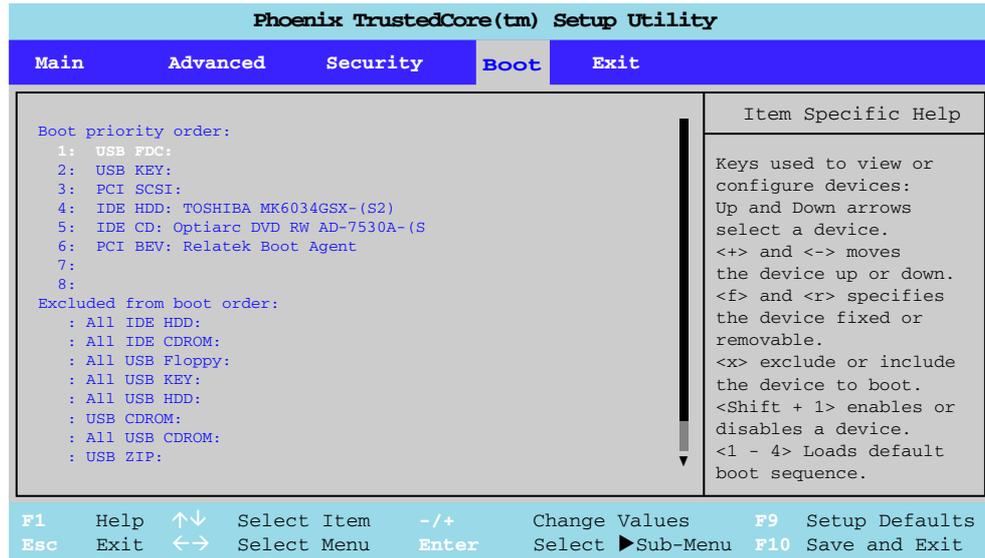
Password Warning

If you set a boot password (Password on boot is “Enabled”), **NEVER** forget your password.

The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

Boot Menu

Figure 5 - 5
Boot Menu



When you turn the computer on it will look for an operating system from the devices listed in this menu, and **in this priority order**. If it cannot find the operating system on that device, it will try to load it from the next device in the order specified in the **Boot priority order**. Item specific help on the right is available to help you move devices up and down the order.

Exit Menu

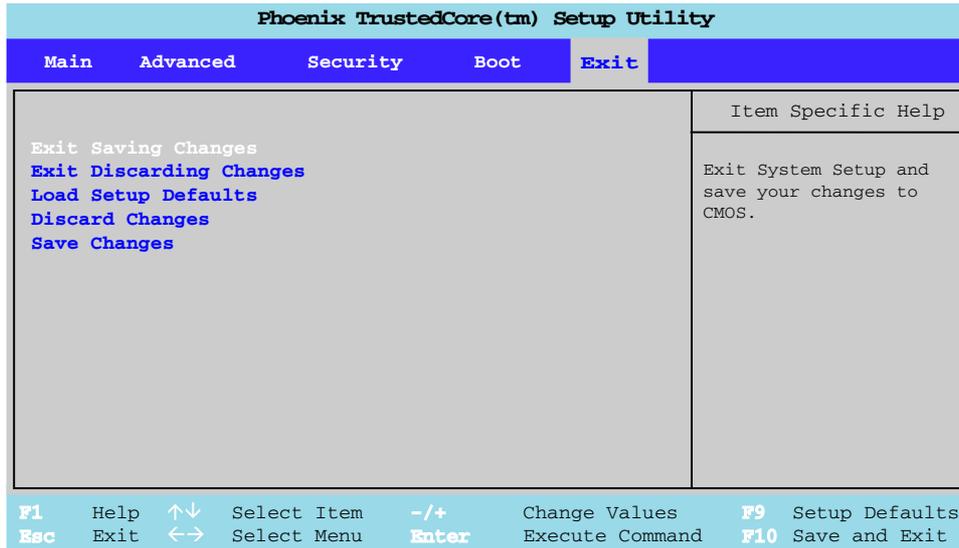


Figure 5 - 6
Exit Menu

Choosing to *Discard Changes*, or *Exit Discarding Changes*, will wipe out any changes you have made to the *Setup*. You can also choose to restore the original *Setup* defaults that will return the *Setup* to its original state, and erase any previous changes you have made in a previous session.

Chapter 6: Upgrading The Computer

Overview

This chapter contains information on upgrading the computer. Follow the steps outlined to make the desired upgrades. If you have any trouble or problems you can contact your service representative for further help. Before you begin you will need:

- A small crosshead or Phillips screwdriver
- A small regular slotted (flathead) screwdriver
- An antistatic wrist strap

Before working with the internal components you will need to wear an antistatic wrist strap to ground yourself because static electricity may damage the components.

The chapter includes:

- Removing the Battery
- Upgrading the Hard Disk Drive(s)
- Upgrading the System Memory (RAM)
- Upgrading the Optical (CD/DVD) Device(s)
- Upgrading the Video Card

Please make sure that you review each procedure before you perform it.



Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.



Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

When Not to Upgrade

These procedures involve opening the system's case, adding and sometimes replacing parts. You should **not** perform any of these upgrades if:

- Your system is still under warranty or a service contract
- You don't have all the necessary equipment
- You're not in the correct environment
- You doubt your abilities

Under any of these conditions, contact your service representative to purchase or replace the component(s).



Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

Upgrading the Processor

If you want to upgrade your computer by replacing the existing processor with a faster/new one you will need to contact your customer service representative. We recommend that you do not do this yourself, since if it is done incorrectly you may damage the processor or mainboard.

Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery.

1. Turn the computer **off**, and turn it over.
2. Loosen screws ① - ③.
3. Release the battery, and lift the battery ④ out of the battery bay.



Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

Figure 6 - 1
Battery Removal



HDD System Warning

New HDD's are blank. Before you begin make sure:
You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

Upgrading the Hard Disk Drive(s)

The hard disk drive(s) can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h) (see *“Storage Options” on page C - 4*). Follow your operating system’s installation instructions, and install all necessary drivers and utilities (as outlined in *“Drivers & Utilities” on page 4 - 1*), when setting up a new hard disk.

Removing the Hard Disk(s) in the Primary HDD Bay

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the hard disk bay cover and remove screws ① - ④.
3. Remove the bay cover ⑤.



Figure 6 - 2
**HDD Bay Cover
Removal**

4. Remove screws **6** - **8** and lift the hard disk assembly out of the computer.
5. Remove screws **9** - **16**.
6. Separate the hard disk(s) from the bracket **17** and connector cable **18**.
7. Insert the new hard disk into the computer.
8. Re-Insert the bracket and insert screws.

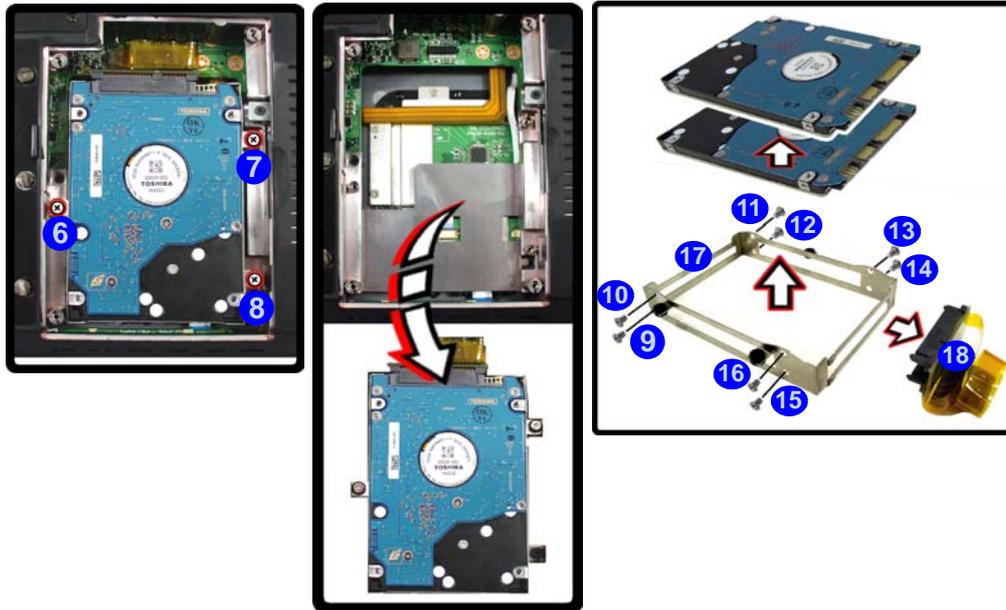
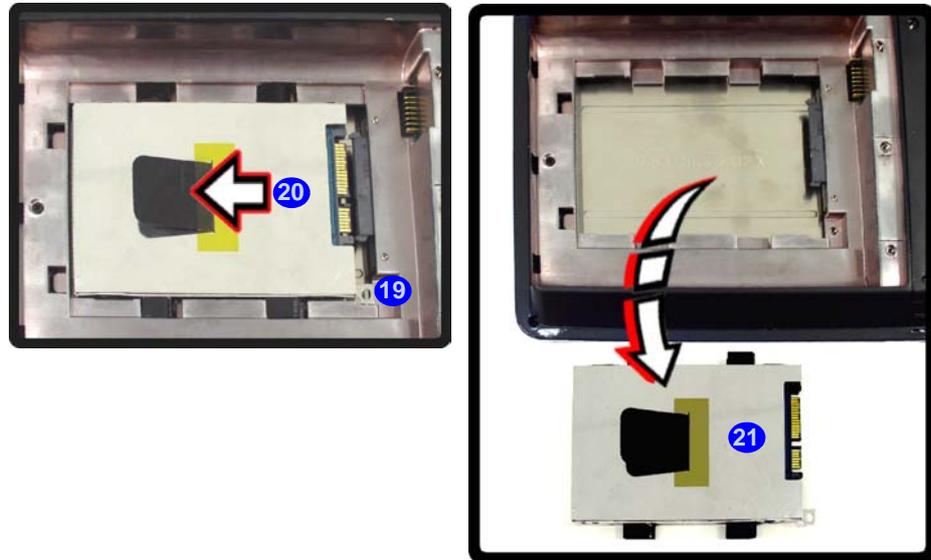


Figure 6 - 3
**Primary HDD
Removal**

Removing the Hard Disk(s) in the Secondary HDD Bay

1. Turn **off** the computer, and turn it over and remove the battery.
2. The secondary hard disk bay is located under the battery compartment.
3. Remove screw **19**.
4. Slide the hard disk assembly in the direction of the arrow **20**.
5. Lift the hard disk assembly **21** out of the compartment.
6. Remove the screws to release the hard disk from the case.

Figure 6 - 4
Secondary HDD
Removal



Upgrading the System Memory (RAM)

The computer has **two** memory sockets for 200 pin Small Outline Dual In-line (SO-DIMM) **DDR II (DDR2)** type memory modules (see *“Memory” on page C - 3*). The total memory size is automatically detected by the POST routine once you turn on your computer.

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the component cover and remove screws **1** - **10**.
3. Remove the bay cover **11**.



Figure 6 - 5
Bay Cover Screws

Upgrading The Computer

- Remove screws 12 - 14 from the RAM fan.

Figure 6 - 6
RAM Fan Screws



- Remove the RAM fan 15.

Figure 6 - 7
RAM Fan Removal



- Gently pull the two release latches (16 & 17) on the sides of the memory socket in the direction indicated by the arrows in *Figure 6 - 8*
- The RAM module 18 will pop-up, and you can remove it.



- Pull the latches to release the second module if necessary.
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket.
- The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. DO NOT FORCE the module; it should fit without much pressure.
- Press the module in and down towards the mainboard until the socket levers click into place to secure the module.
- Replace the RAM fan, cover and screws.
- Restart the computer to allow the BIOS will register the new memory configuration as it starts up.



Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 6 - 8
**RAM Module
Removal**

Upgrading the Optical (CD/DVD) Device(s)

1. Turn the computer off, turn it over and remove the battery.
2. Locate the hard disk bay cover and remove screws **1** - **4**.
3. Remove the bay cover **5**.
4. Remove screw **6** and use the screwdriver to push the optical device(s) out of the computer at point **7**.



Figure 6 - 9
Removing the CD/
DVD Device(s)

Upgrading the Video Card

If you intend to upgrade or add another VGA card follow the procedures outlined here. However please check with your service representative first to make sure your computer can support more than one video card, and that you are not going to void your warranty. Pay careful attention to the alignment of any video card into the slot on the mainboard.

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the component cover and remove screws ① - ⑩.
3. Remove the bay cover ⑪.



Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

Figure 6 - 10
Bay Cover Screws

Upgrading The Computer

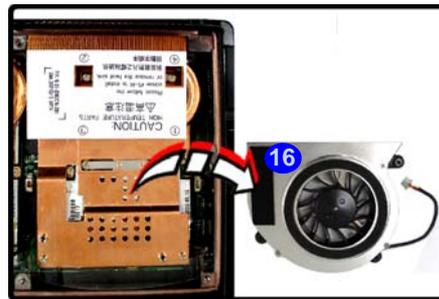
4. Remove screws **12** - **14** from the video card fan.
5. Disconnect the fan cable **15**.

Figure 6 - 11
**Video Card Fan
Screws**

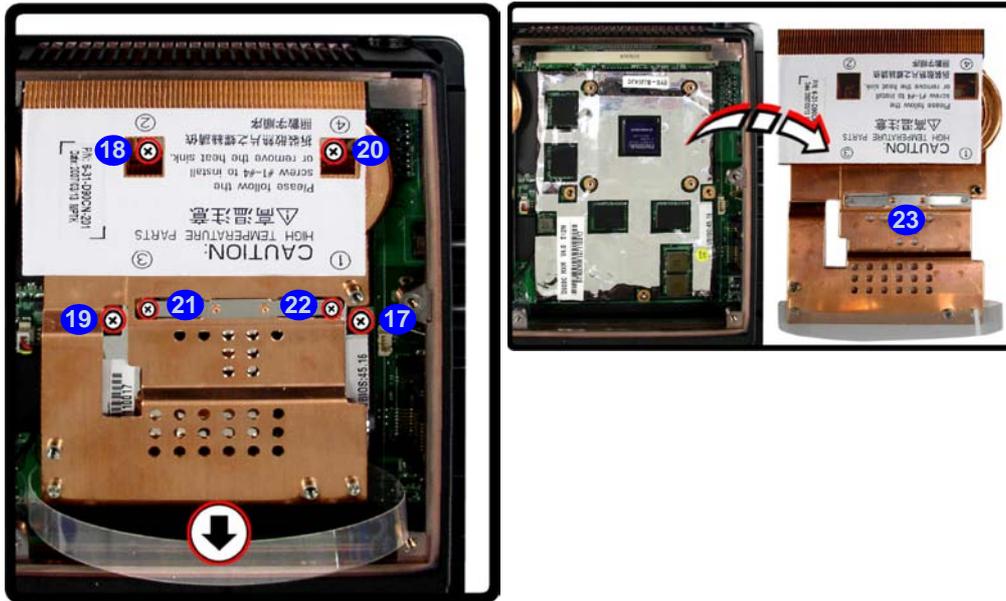


6. Remove the video card fan **16**.

Figure 6 - 12
**Video Card Fan
Removal**



- Remove screws **17** - **20** from the video card heatsink in the order indicated on the label.
- Remove screws **21** & **22**.
- Grip the handle and carefully remove the heatsink **23**.



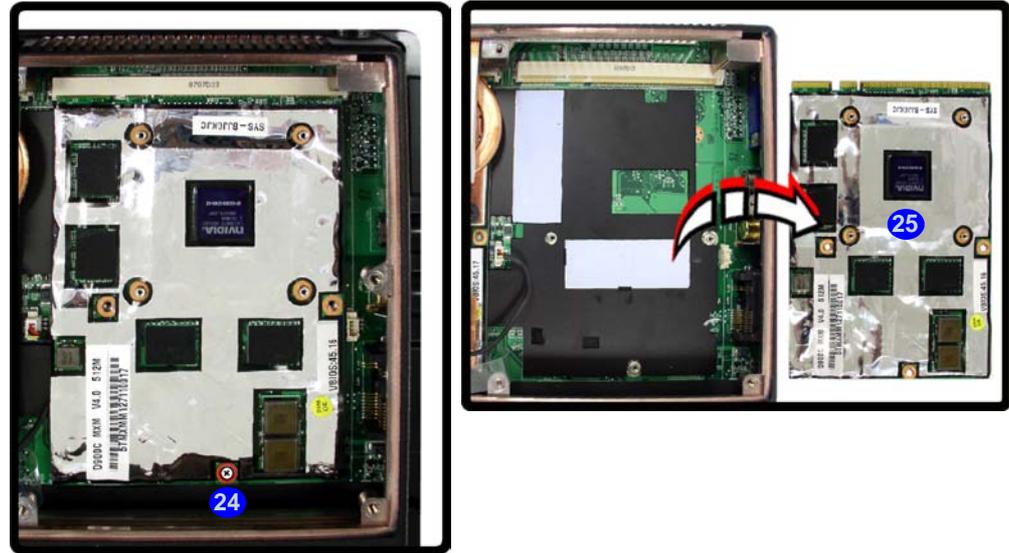
The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

Figure 6 - 13
Heatsink Removal

Upgrading The Computer

10. Remove screw **24** from the video card.
11. Carefully remove the video card **25**.

Figure 6 - 14
Video Card Removal



Installing a New Video Card

1. Prepare to fit the video card into the slot by holding it at about a 30° angle.



2. The card needs to be fully into the slot, and the video card and socket have a guide-key and pin which align to allow the card to fit securely.



Contact Warning

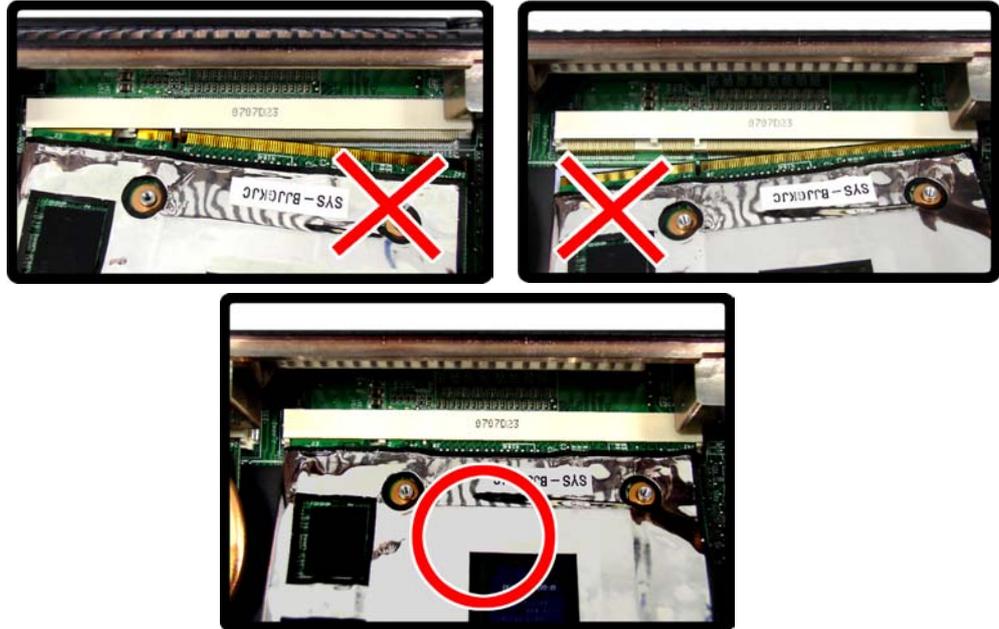
Be careful not to touch the metal pins on the VGA card's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 6 - 15
**Video Card
Insertion**

Upgrading The Computer

3. Fit the connectors firmly into the socket, straight and evenly.
4. DO NOT attempt to push one end of the card in ahead of the other.

Figure 6 - 16
Video Card Insertion
Procedure



5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.

6. Secure the card with screw **24** (*Figure 6 - 14 on page 6 - 14*).
7. Place the heatsink back on the card, and secure the screws in the order indicated in *Figure 6 - 13 on page 6 - 13*.
8. Attach the video card fan and secure with the screws as indicated in *Figure 6 - 11 on page 6 - 12*.
9. Reinsert the component bay cover, and secure with the screws as indicated in *Figure 6 - 10 on page 6 - 11*.

Chapter 7: Modules

Overview

This chapter contains the information on the various modules (some of which are **optional**) which may come with your computer, depending on the configuration purchased. If you are unsure please contact your service representative.

The chapter includes information on the following:

- Setting Up SATA RAID or AHCI Modes
- Wireless LAN Module
- Bluetooth Module
- PC Camera Module
- Mini-PCI TV Tuner Module

Setting Up SATA RAID or AHCI Modes

AHCI Mode

Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced serial ATA features such as Native Command Queuing (for maximum hard disk efficiency and performance). AHCI mode can be supported by one, two or three hard disks.

RAID

You may use your hard disks (if you have included more than one hard disk in your purchase option) in combination with Striping (RAID 0), Mirroring (RAID 1) or Parity Across Disks (RAID 5) for either fault tolerance or performance (see [Table 7 - 1, on page 7 - 3](#)). To configure your system in Striping (RAID 0) or Mirroring (RAID 1) modes you will require **at least two** hard disks; to configure your system in Parity Across Disks (RAID 5) mode you will require **three hard disks** installed.

RAID Level	Description
RAID 0	Identical drives reading and writing data in parallel to increase performance . RAID 0 implements a striped disk array and the data is broken into blocks and each block is written to a separate disk drive.
RAID 1	Identical drives in a mirrored configuration used to protect data . Should a drive that is part of a mirrored array fail, the mirrored drive (which contains identical data) will handle all the data. When a new replacement drive is installed, data to the new drive is rebuilt from the mirrored drive to restore fault tolerance.
RAID 5	Identical drives (at least three drives must be used) in a parity across disks configuration are used to protect data and increase performance . A RAID 5 array can withstand a single disk failure without losing access to data.



Array Types

A **Mirrored Array (RAID 1)** provides full data protection, as data can simply be copied from a healthy disk to a replacement for any failed disk.

A **Striped Array (RAID 0)** is **NOT** fault-tolerant. The failure of one drive will result in the loss of all data in the array. It is designed to increase disk performance by spreading the I/O load across the channels and drives.

Prepare the following before setting up your serial ATA hard disks in **RAID** mode (to configure **AHCI** mode you do not need to prepare any extra hard disks but will need to install the Intel Matrix driver):

1. The **Microsoft Windows OS CD**.
2. A **second** hard disk installed in the Primary HDD bay for **RAID level 0 or 1** (required for RAID but not required for AHCI).
OR
A **second** hard disk installed in the Primary HDD bay, and a **third** hard disk in the Secondary HDD bay for **RAID level 5**.
3. The **Device Drivers & Utilities + User's Manual DVD-ROM**.

Table 7 - 1
RAID Levels

SATA RAID or AHCI Setup Procedure (BIOS)

1. Start-up your notebook computer and press <F2> to enter the **BIOS**.
2. Go to the **Advanced** menu, select "**SATA Mode**" and press Enter.
 - For RAID Mode: - Set "**SATA Mode**" ("*SATA Mode: (Advanced Menu)*" on *page 5 - 8*) to "**RAID**".
OR
 - For AHCI Mode: - Set "**SATA AHCI Enable**" ("*SATA Mode: (Advanced Menu)*" on *page 5 - 8*) to "**AHCI**".
3. Press **Esc** and go to the **Boot** menu.
4. Set the **CD/DVD-ROM Drive** (make sure the **Microsoft Windows OS CD** is inserted) as the first device in the boot order from the **Boot** menu.
5. Select **Exit Saving Changes** from the **Exit** menu (or press **F10** and Enter) and press Enter to exit the BIOS and reboot the computer.
6. For **RAID** mode see the instructions in "*RAID Setup (Intel Matrix)*" on *page 7 - 5*.
7. For **AHCI** mode simply install the Intel Matrix driver (see "*Intel Matrix Driver Installation*" on *page 7 - 7*).

RAID Setup (Intel Matrix)

1. Press **Ctrl + i** to enter RAID configuration menu.

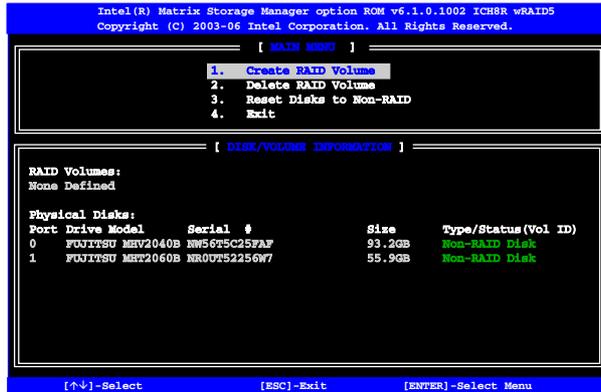


Figure 7 - 1
Intel(R) Matrix
Storage Manager

2. Select **1.Create RAID Volume** and press Enter.
3. Type the **RAID volume name** and then press Tab or Enter to advance to the next field.
4. Specify (use the up and down arrow keys) the **RAID level (RAID 0 or RAID 1 or RAID 5** - see [Table 7 - 1, on page 7 - 3](#)) and then press Tab or Enter to advance to the next field.
5. Press Enter and the system will select the physical disks to use.
6. Press Enter and select (if applicable) the Strip Size (best set to default).
7. Press Enter and select the Capacity size (best set to default).
8. Press Enter to select **Create Volume**.
9. Press Enter to create the volume, and confirm the selection by pressing **Y**.

10. This will now return to the main menu.

Figure 7 - 2
RAID Created

```

Intel(R) Matrix Storage Manager option ROM v6.0.0.1022 ICH8R wRAID5
Copyright (C) 2003-06 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]

1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID Name Level Strip Size Status Bootable
0 My RAID RAID1(Mirror) N/A 55.9GB Normal Yes

Physical Disks:
Port Drive Model Serial # Size Type/Status (Vol ID)
0 FUJITSU MHV2040B NW56T5C25FAF 93.2GB Member Disk(0)
1 FUJITSU MHT2060B NR0UT52256W7 55.9GB Member Disk(0)

[↑↓]-Select [ESC]-Exit [ENTER]-Select Menu
    
```

11. Select **4.Exit** and press Enter, then press **Y** to exit the RAID configuration menu.
12. As the computer starts up, press a key when you see the message "**Press any key to boot from CD**".
13. Press **Enter** to continue installing the operating system as normal (see your **Windows** documentation if you need help on installing the **Windows** OS).
14. Install the **Windows** drivers from the **Device Drivers & Utilities + User's Manual DVD-ROM** as per **Table 4 - 1, on page 4 - 3** (make sure you install the Intel Matrix driver - see "**Intel Matrix Driver Installation**" on page 7 - 7).

Intel Matrix

Make sure you install the Intel matrix driver and application if you have set up your hard disk(s) in **AHCI** or **RAID** modes.

Intel Matrix Driver Installation

1. Click **1.Install Intel Matrix > Yes**.
2. Click **Next > Next > Yes > Next**.
3. Click **Finish** to restart the computer.

The **Intel Matrix Storage Console** displays status information on your RAID configuration. Run the **Intel Matrix Storage Console** from the Programs/All Programs menu. The **Intel(R) Matrix Storage Manager** provides information on the RAID status.

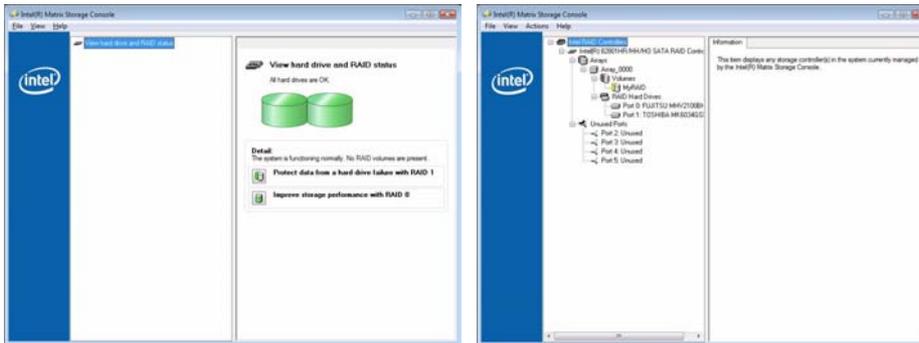


Figure 7 - 3
Intel Matrix Storage Console



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F11** key combination to toggle power to the WLAN module, and check the indicator to see if the module is powered on or not (see [Table 1 - 5, on page 1 - 9](#)).

Wireless LAN Module

If you have included an **Intel PRO/Wireless 3945ABG (802.11a/b/g)** or **Intel PRO/Wireless 4965AGN (802.11a/g/n)** PCIe WLAN module, make sure that the Wireless LAN module is on before installing the driver. Use the **Fn + F11 key combination** (see [Table 1 - 5, on page 1 - 9](#)) to **toggle power to the Wireless LAN module** (when the WLAN module is on, the  LED will be green). Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#).

Intel WLAN Driver Installation

1. Make sure the module is powered on, and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **2.Install Intel WLAN driver > Yes**.

Note: The operating system is the default setting for Wireless LAN control in *Windows Vista* (see overleaf).

Connecting to a Wireless Network

1. Click the taskbar wireless icon , and then click **Connect to a network** (or right-click the icon , and then click **Connect to a network**).

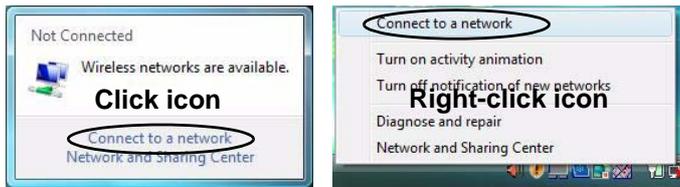


Figure 7 - 4
Taskbar Menus

2. In the **Show** list, click to choose **Wireless** from the drop-down menu.
3. A list of currently available networks will appear.



Figure 7 - 5
Connect to a
Network

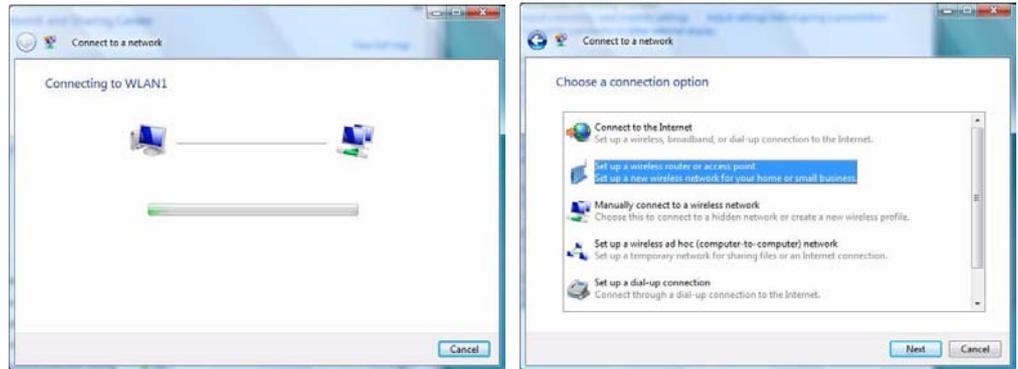


Network and Sharing Center

You can also use the **Network and Sharing Center** control panel in Windows (**Network and Internet**) to connect to any available wireless networks.

4. Click a network, and then click **Connect**.
5. If you do not see a network you want to connect to, click **Set up a connection or network** (a list of options will appear allowing manual searching, and creating a new network).

Figure 7 - 6
Connecting

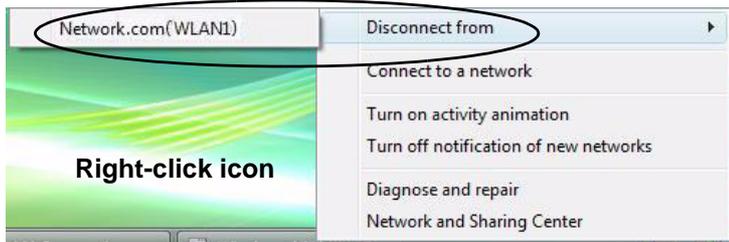
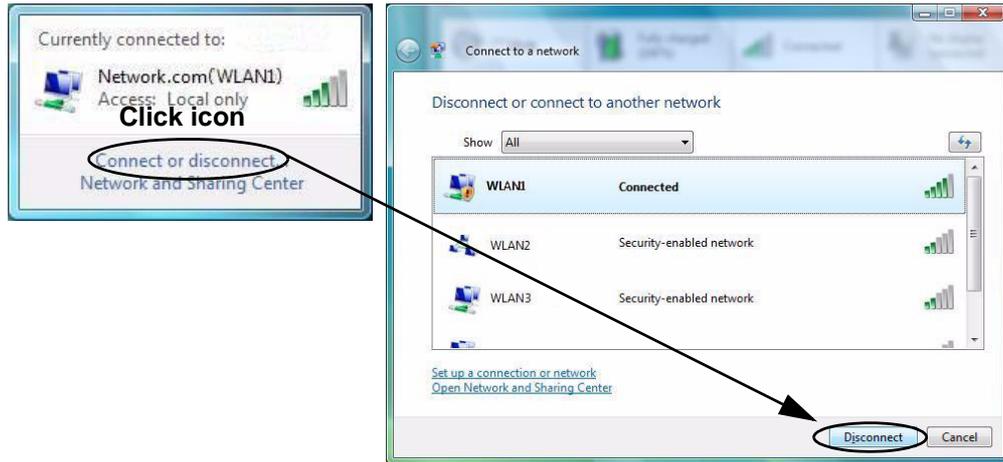


6. Move the cursor over the taskbar icon  to see the connection status (see below).

Figure 7 - 7
Connection Status



- To disconnect from the wireless network you can click the taskbar wireless icon , and then select **Connect or disconnect** to access the network menu, and click **Disconnect** (or **right-click** the icon , and then click **Disconnect from**).





Security Enabled Networks

You should try to make sure that any network you are connecting to is a secure network.

Connecting to unsecure networks may allow unauthorized access to your computer, documents, websites and files etc.

Figure 7 - 8
Disconnecting



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F12** key combination to toggle power to the Bluetooth module, and check the indicator to see if the module is powered on or not (see [Table 1 - 5, on page 1 - 9](#)).

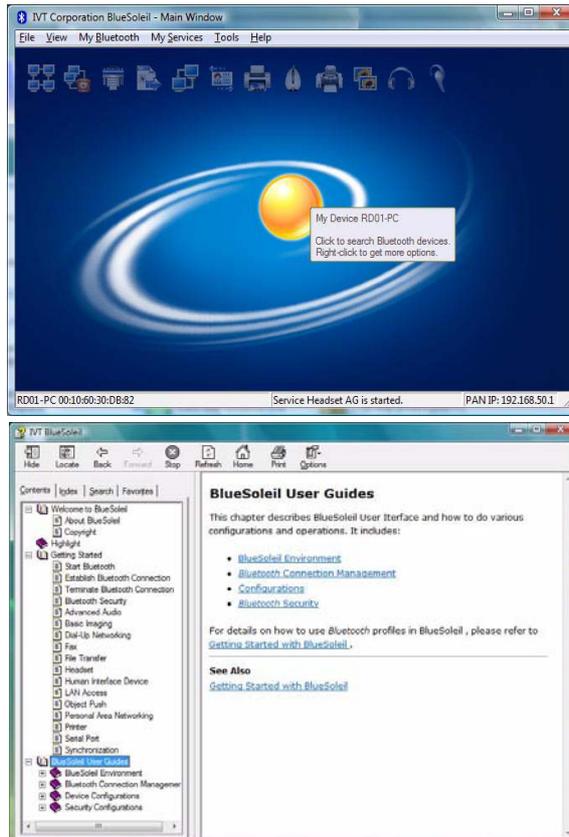
Bluetooth Module

The **optional** Bluetooth module allows you to connect your computer to Bluetooth enabled devices such as other computers, desktop computers, mobile phones, printers, digital cameras, PDAs, headsets etc. using a short-range radio frequency.

Make sure that the Bluetooth module is on. Use the **Fn + F12 key combination** (see [Table 1 - 5, on page 1 - 9](#)) to **toggle power to the Bluetooth module** (when the Bluetooth module is on, the  LED will be orange).

Bluetooth Driver Installation

1. Make sure the module is powered on, and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **3.Install BlueTooth driver > Yes**.
3. Choose the language you prefer, and click **OK > Next**.
4. Click the button to accept the license agreement, and then click **Next**.
5. Click **Next > Install**.
6. Click **Finish**, and the **BlueSoleil** icon  will appear on the desktop.
7. You can configure the settings at any time by going to the **IVT Corporation BlueSoleil - Main Window (Start > Programs/All Programs > IVT BlueSoleil > BlueSoleil)**, or by clicking the desktop icon .



User Guides & Help

View the BlueSoleil User Guides from the **Help** Menu (or press the **F1** key) in the **IVT Corporation BlueSoleil - Main Window** control panel.

Click the **Help** menu and select **Contents and Index**.

Look through **Getting Started** or select the appropriate **User Guide** from the **Contents** menu.

7

Figure 7 - 9
BlueSoleil Main Window & Help



Disconnecting

In order to have the Local Area Connection icon display the correct connection status, you will need to exit the **IVT Corporation BlueSoleil - Main Window** by clicking the **File** menu and selecting **Exit** (see over).

After exiting the program you can then use the **Fn + F12** key combination to turn off the Bluetooth module.

If you use the close button, or turn off the Bluetooth module (by using the **Fn + F12**) the icon will not display the correct status

Bluetooth Local Area Connection

You can check the Bluetooth connection status from the **Network and Sharing Center**:

1. Use the **Fn + F12** key combination to turn on the Bluetooth module.
2. Run the **IVT Corporation BlueSoleil** program from the desktop icon or **Start** menu.
3. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
4. Double-click **Network and Sharing Center** (**Network and Internet**).
5. Click **Manage network connections**.
6. The Bluetooth connection status will then be displayed in the control panel.

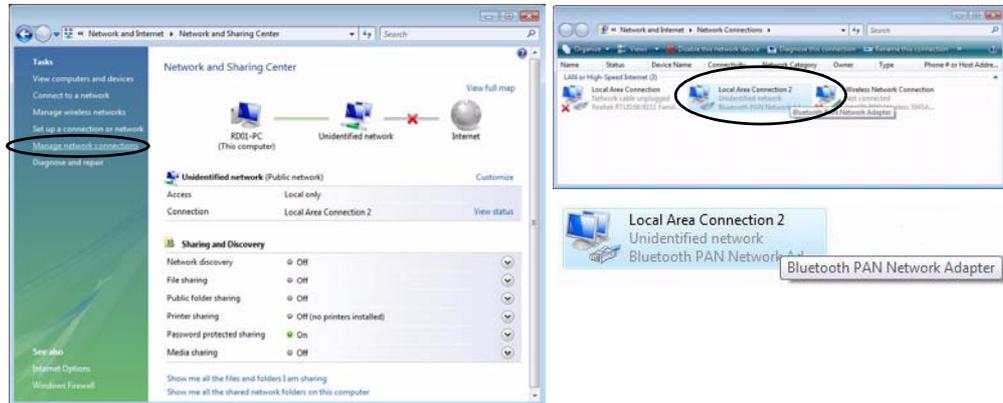


Figure 7 - 10
Local Area Connection

7. To **disconnect** click **File** from the **IVT Corporation BlueSoleil - Main Window**, and select **Exit** (the Local Area Connection will then display “**Network cable unplugged**”).

8. Do not use the **close**  button or **Fn + F12** key combination before clicking **File > Exit** or the correct status will not be displayed.
9. You can then use the **Fn + F12** key combination to turn off the Bluetooth module (check the LED icon for the Bluetooth module power status).

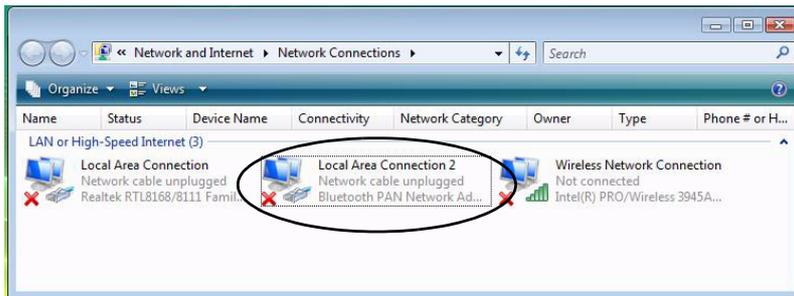
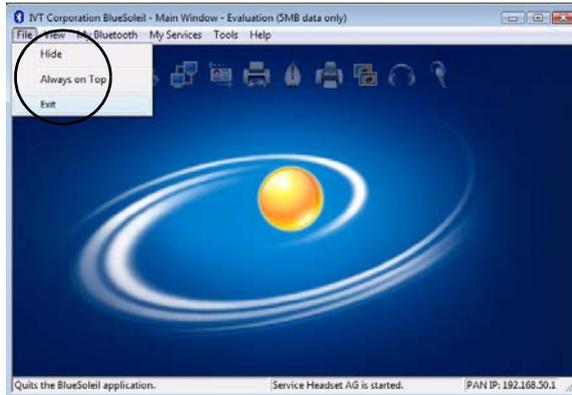


Figure 7 - 11
Bluetooth
Disconnected

PC Camera Module

If you have included the PC Camera module in your purchase **option**, you will have the appropriate application provided on the *Device Drivers & Utilities + User's Manual DVD-ROM*. There are 2 camera options available for this computer, depending on your purchase configuration. The **1.3M pixel camera** module uses the **BisonCap** application to capture video files. The **2.0M pixel camera** module uses the **Video View** application to capture video files.

Make sure the PC Camera is on. Use the **Fn + F10 key combination** (see *Table 1 - 5, on page 1 - 9*) to toggle power to the PC Camera module.

PC Camera Driver Application

1. Make sure the module is powered on, and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **4.PC Camera, Web cam > Yes**.

For the 1.3M Pixel Camera Module:

3. Choose the language you prefer and click **Next > Next**.
4. Click **Finish** to restart the computer.
5. Run the **BisonCap** application program from the **BisonCam** shortcut on the desktop, or from the **BisonCam** item in the **Start > Programs/All Programs** menu (if the hardware is turned off use the **Fn + F10** key combination to turn it on again).

For the 2.0M Pixel Camera Module:

1. Click **Install**.
2. Click to select **Yes** or **No** in answer to the power system question.
3. Click **Finish > Finish** to restart the computer.
4. Run the **Video View** application program from the **Video View** shortcut on the desktop, or from the **USB2.0 PC Camera** item in the **Start > Programs/All Programs** menu (if the hardware is turned off use the **Fn + F10** key combination to turn it on again).



PC Camera & TV Tuner

If you have the optional TV Tuner included in your purchase, make sure you select which device to use with the **BisonCap/Video View** program. Go to the **Devices** menu and select the **Bison Cam, NB Pro/USB2.0 2M WebCam**.

PC Camera Audio Setup

If you wish to capture video & **audio** with your camera, it is necessary to setup the audio recording options in *Windows*.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound**  (**Hardware and Sound**).
3. Click **Recording** (tab).
4. Right-click **Microphone** (Realtek High Definition Audio) and make sure the item is not disabled.
5. Double-click **Microphone** (or select **Properties** from the right-click menu).
6. Click **Levels** (tab), and adjust the **Microphone** and **Microphone Boost** sliders to the level required.
7. Click **OK** and close the control panels.
8. Run the **BisonCap/Video View** application program from the **Start > Programs/ All Programs > BisonCam/USB2.0 PC Camera** menu.
9. Go to the **Devices** menu heading and select **Microphone (Realtek....)** (it should have a tick alongside it).
10. Go to the **Capture** menu heading and select **Capture Audio** (it should have a tick alongside it).

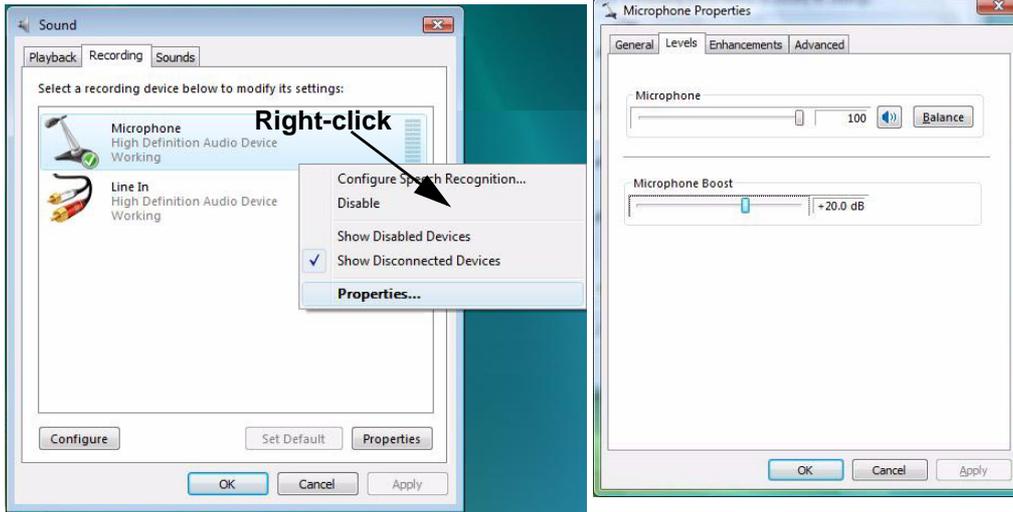


Figure 7 - 12
Audio Setup for PC
Camera





Pre-Allocating File Space

You may pre-allocate the file size for the capture file in the **BisonCap** program. You can choose to ignore this by clicking **Cancel**.

Pre-allocating space on the hard disk can improve the capture quality (particularly of large capture files), by reducing the amount of work the hard disk has to do in finding space for the video data as it is being captured.

BisonCap (for 1.3M pixel camera module)

BisonCap is a video viewer useful for general purpose video viewing and testing, and can capture video files to .avi format.

1. Run the **BisonCap** program from the **Start > Programs/All Programs > Bison-Cam** menu (it is recommended that you **set the capture file** before the capture process - **see Set Capture File below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check **“PC Camera Audio Setup” on page 7 - 18**) and select **Start Capture**.
3. On the first run of the program (if you have not set the captured file) you will be asked to choose a file name and size (**see the sidebar - Pre-Allocating File Space**) for the captured file. Click **Start Capture** again.
4. Click **OK** to start capturing the video, and press **Esc** to stop the capture.
5. If you wish to, you may go to the **File** menu and select **Save Captured Video As...**, choose a file name and location, and then click **Open** (you can view the file using the **Windows Media Player**).

Set Capture File

In the **BisonCap** program you will only be asked to set the capture file name on the first run of the program. When you run the program the next time the file will automatically be overwritten with the newly captured file. To avoid overwriting files you can go to the **Set Capture File..** option in the **File** menu, and set the file name and location before capture. Set the name and location then click **Open** (you can choose **Cancel** to ignore the file size if prompted).

Eliminating Screen Flicker (BisonCap)

If you find that the video screen in the **BisonCap** program is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

1. Run the **BisonCap** program.
2. Go to **Options** and scroll down to select “**Video Capture Filter...**”.
3. Click either **50Hz** or **60Hz** under **Frequency** in **Property Page** (tab).

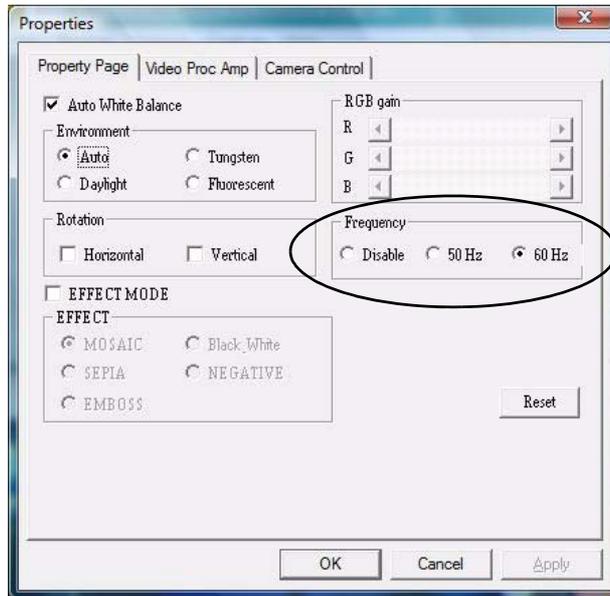


Figure 7 - 13
Video Capture Filter



Pre-Allocating File Space

You may pre-allocate the file size for the capture file in the **Video View** program.

Pre-allocating space on the hard disk can improve the capture quality (particularly of large capture files), by reducing the amount of work the hard disk has to do in finding space for the video data as it is being captured.

Video View (for 2.0M pixel camera module)

Video View is a video viewer useful for general purpose video viewing and testing, and can capture video files to .avi format.

1. Run the **Video View** program from the **Start > Programs/All Programs > USB2.0 PC Camera** menu (it is recommended that you **set the capture file** before the capture process - see **Set Capture File below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check **“PC Camera Audio Setup” on page 7 - 18**) and select **Start Capture**.
3. Click **OK** (the file location will be displayed in the pop-up box) to start capturing the video, and press **Esc** to stop the capture.

Set Capture File

Prior to capturing video files you may **Set Capture File...** To avoid overwriting files you can go to the **Set Capture File..** option in the **File** menu, and set the file name and location before capture. Set the name and location then click **Open** (you can choose **Cancel** to ignore the file size if prompted).

Eliminating Screen Flicker (Video View)

If you find that the video screen in the **Video View** program is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

1. Run the **Video View** program.
2. Go to **Options** and scroll down to select **Video Capture Filter...**
3. Click either **50Hz** or **60Hz** under **Flickering Reduction in Image** (tab).

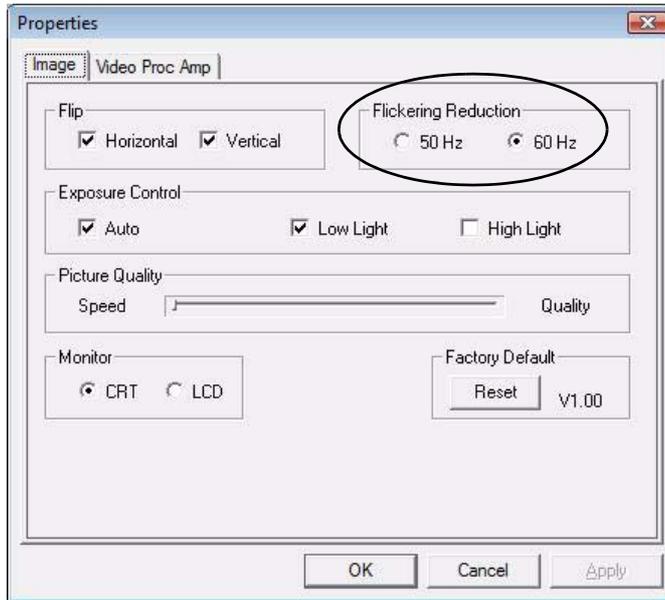


Figure 7 - 14
Video Capture Filter

Figure 7 - 15
Setting



Snapshot Folder

The Snapshot folder's default location is on the desktop. Do not move this folder or an error may appear when you try to take a still picture.

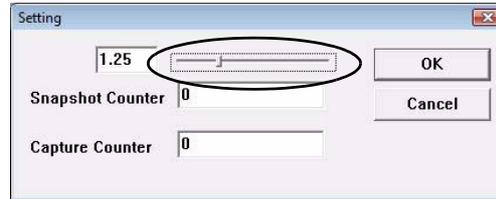
If you accidentally delete or move the folder, you can create a new Snapshot folder on the desktop in order to capture the files.

Figure 7 - 16
Snapshot Folder

Zoom (Video View)

If you have enabled digital zoom when installing the **2.0M Pixel Camera** driver you may use the **Options > Setting** menu to zoom the camera in and out.

1. Run the **Video View** program.
2. Go to **Options** and scroll down to select **Setting**.
3. Use the slider to adjust the zoom level, and click **OK** to save the setting.



Still Image Capture (Video View)

You can capture still images by using the **Snapshot** command from the **Capture** menu.

1. Run the **Video View** program.
2. Go to **Capture** and select **Snapshot**.
3. The picture (in JPEG format) will be placed in the **Snapshot** folder on the desktop.



Mini-PCI TV Tuner Module

A CD containing drivers, software and a user guide will be supplied if your purchase configuration includes the **optional** Mini-PCI TV Tuner module. The **MPC788** module features both **Analog** and **Hybrid** (Analog & Digital) options; the **MPC718** is a **Hybrid** module. You will also be supplied with a remote control unit and appropriate antenna and fittings for the Mini-PCI TV Tuner module.

The optional TV Tuner allows you to watch TV, play music CDs, video conference and capture still images and video on your PC.

The Cable (CATV) antenna jack and S-Video-In jack will only be enabled when the TV Tuner module is installed. Make sure you install the driver before connecting the TV antenna.



TV Antenna

The TV antenna supplied with any TV Tuner module is intended for indoor use only. Please do not use your TV Tuner module outdoors.

TV Tuner Remote

Point the remote at the consumer IR transceiver to change channels etc.



Figure 7 - 17
**TV Tuner
Ports/Jacks**

1. S-Video-In Jack (not supported by AverMedia TV Tuner module)
2. CATV Antenna Jack



TV Tuner Module Support

Note that the TV Tuner module options in *Windows Vista* are supported by the **Windows Media Center** software which comes built-in to the *Windows Vista Home Premium* and *Ultimate Editions* only.

If your purchase includes a TV Tuner option, and you are re-configuring your system for a different system, you should install either *Windows Home Premium* or *Ultimate Editions* only.

MPC788/MPC718 Driver & Software

1. Insert the *MPC788 or MPC718* driver **CD-ROM** into the CD/DVD drive.
2. Click **Vista Driver Setup**.
3. Click **Install > OK**.

MPC788 Module

1. This TV Tuner module requires the installation of the software encoder supplied before running *Windows Media Center*.
2. Insert the *Cyberlink Software Encoder CD-ROM* into the CD/DVD drive.
3. Click **Next > Yes > Next**.
4. Click **Finish**.
5. The multimedia functions are supported by *Windows Media Center* in *Windows Vista (Home Premium Edition & Ultimate Edition)*.
6. Run *Windows Media Center* directly from the **Start** menu (**Start > Programs > Windows Media Center**).
7. *Windows Help and Support* provides information on the **Windows Media Center** functions. Click **Start**  and select **Help and Support**, and then type "*Media Center*" in the **Search Help** box and click the magnifying glass icon  to bring up the results.

MPC718 Module

1. This TV Tuner module is fully supported by *Windows Media Center* in *Windows Vista (Home Premium Edition & Ultimate Edition)*.
2. Run *Windows Media Center* directly from the **Start** menu (**Start > Programs > Windows Media Center**).
3. *Windows Help and Support* provides information on the **Windows Media Center** functions. Click **Start**  and select **Help and Support**, and then type “*Media Center*” in the **Search Help** box and click the magnifying glass icon  to bring up the results.



TV Tuner Module Support

Note that the TV Tuner module (factory) options in *Windows Vista* are supported by the **Windows Media Center** software which comes built-in to the *Windows Vista Home Premium* and *Ultimate Editions* only.

If your purchase includes a TV Tuner option, and you are re-configuring your system for a different system, you should install either *Windows Home Premium* or *Ultimate Editions* only.



CATV Cable Safety

Make sure that your CATV system installer has connected the Co-axial cable shield to the grounding system of the building, as close to the point of cable entry as practical.

This reminder is provided to call the CATV system installer's attention to Article 820-93 of the NEC (Section 54, Part I of the Canadian Electrical Code).

Digital TV Broadcast Signal

The antenna is the most crucial factor in receiving a clear digital terrestrial TV broadcast signal. The **passive** antenna provided should provide a clear signal when placed beside a window. If the signal is not clear then you can purchase an **active** antenna (it should also be placed beside a window) to improve the signal. You should also check with any related government website which provides information on digital terrestrial TV coverage for your area. Note that (unlike standard analog TV) if the digital signal is weak then no picture will appear on the TV at all.

TV Recording and Power Plans

If you intend to use the **optional** TV Tuner to record live TV, then go to the **Power Options** control panel and create a power plan (see “*Power Plans*” on page 3 - 4) to prevent the power saving options from adjusting the computer's performance level.

Remote Control Unit

The remote control unit allows you to remotely start and send the system into a power saving state, to run *Windows Media Center* and to navigate the *Media Center* menus etc. The remote control unit also gives full control over all TV and video functions.

1. Mute
2. Teletext
3. Home
4. Power Button
5. DVD/VCD
6. Music
7. Pictures
8. Videos
9. Back
10. Radio
11. Information
12. Cursor Buttons & OK
13. SAP (Secondary Audio Programming)
14. Live TV
15. DVD Menu
16. Last Channel
17. A/V Navigational Buttons
18. Channel Change
19. Volume
20. Number Pad
21. Clear
22. Enter



Figure 7 - 18
Remote Control Unit
(For MPC Modules)

Chapter 8: Troubleshooting

Overview

Should you have any problems with your computer, before consulting your service representative, you may want to try to solve the problem yourself. This chapter lists some common problems and their possible solutions. This can't anticipate every problem, but you should check here before you panic. If you don't find the answer in these pages, make sure you have followed the instructions carefully and observed the safety precautions in the preface. If all else fails, talk to your service representative. You should also make a record of what happened and what remedies you tried.

Of course, if something goes wrong, it will happen at the most inconvenient time possible, so you should preview this section just in case. If, after you've tried everything, and the system still won't cooperate, try turning it off for a few minutes and then rebooting. You will lose any unsaved data, but it may start working again. Then call your service representative.

Basic Hints and Tips

Many of the following may seem obvious but they are often the solution to a problem when your computer appears not to be working.

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Power Indicators** (see *“LED Indicators” on page 1 - 7*) to see the computer’s power status.
- **Connections** - Check all the **cables** to make sure that there are no **loose connections** anywhere.
- **Power Savings** - Make sure that the system is not in **Hibernate** or **Sleep** mode by pressing the keys configured in your *Power Options* (see *“Configuring the Power Buttons” on page 3 - 8*/*“Configuring the Power Button” on page D - 20*), the **Fn + F4** key combination, or power button to wake-up the system.
- **Brightness** - Check the brightness of the screen by pressing the **Fn + F8 and F9** keys to adjust the brightness (see *Table 1 - 5, on page 1 - 9*).
- **Display Choice** - Press **Fn + F7** to make sure the system is not set to “external only” display.
- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive when you start up your machine (this is a common cause of the message *“Invalid system disk - Replace the disk, and then press any key” / “Remove disks or other media. Press any key to restart”*).

Backup and General Maintenance

- Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.
- Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.
- Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Boot** password for the SCU (see *“Security Menu” on page 5 - 10*).
- Keep copies of vital **settings files** such as network, dialup settings, mail settings etc. (even if just brief notes).



Warranty

The CPU is not a user serviceable part. Opening this compartment, or accessing the CPU in any way, may violate your warranty.

Viruses

- Install an **Anti-Virus** program and keep the **definitions file** (the file which tells your program which viruses to look for) up to date. New computer viruses are discovered daily, and some of them may seriously harm your computer and cause you to lose data. **Anti-Virus** programs are commercially available and the **definitions file updates** are usually downloadable directly from the internet.
- Be careful when opening e-mail from sources you don't know. **Viruses** are often triggered from within **e-mail attachments** so take care when opening any attached file. You can configure most **Anti-Virus** programs to check all **e-mail attachments**. **Note:** You should also beware of files from people you know as the virus may have infected an **address book** and been automatically forwarded without the person's knowledge.
- Keep a "**Bootable CD-ROM/DVD-ROM/USB storage device**" (this CD/DVD/USB device provides basic information which allows you to startup your computer) handy. You may refer to your OS's documentation for instructions on how to make one, and many **Anti-Virus** programs will also provide such a disk (or at least instructions on how to make one).

Upgrading and Adding New Hardware/Software

- Do not be tempted to make changes to your **Windows Registry** unless you are very sure of what you are doing, otherwise you will risk severely damaging your system.
- Don't open your computer or undertake any repair or upgrade work if you are not comfortable with what you are doing.
- Read the **documentation**. We can assume, since you are reading this that you are looking at the computer's manual, but what about any new peripheral devices you have just purchased? Many problems are caused by the installation of new hardware and/or software. Always refer to the documentation of any new hardware and/or software, and pay particular attention to files entitled "**READ ME**" or "**READ ME FIRST**".
- When installing a new device always make sure the device is powered on, and in many cases you will need to restart the computer. Always check that all the cables are correctly connected.
- Make sure you have installed the **drivers** for any new hardware you have installed (latest **driver files** are usually available to download from vendor's websites).
- Thoroughly check any **recent changes** you made to your system as these changes may affect one or more system components, or software programs. If possible, go back and undo the change you just made and see if the problem still occurs.

Troubleshooting

- Don't over complicate things. The less you have to deal with then the easier the source of the problem may be found; **Example** - if your computer has many devices plugged into its ports, and a number of programs running, then it will be difficult to determine the cause of a problem. Try disconnecting all of the devices and restarting the computer with all the peripheral devices unplugged. A process of elimination (adding and removing devices and restarting where necessary) will often find the source of a problem, although this may be time consuming.

Problems & Possible Solutions

Problem	Possible Cause - Solution
<p>You turned the power on but it doesn't work.</p>	<p><i>Battery missing / incorrectly installed.</i> Check the battery bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.</p>
<p>The Battery LED power indicator , is blinking orange.</p>	<p><i>Low Battery.</i> Plug in the AC power source. If the computer doesn't start up immediately, turn it off then on again.</p>
<p>You are losing battery power too quickly.</p>	<p><i>The system is using too much power.</i> If your OS has a <i>Power Options</i> scheme (see <i>“Power Plans” on page 3 - 4/“Power Schemes” on page D - 17</i>) check its settings. You may also be using an ExpressCard/USB device/external device that is drawing a lot of power.</p>
<p>Actual battery operating time is shorter than expected.</p>	<p><i>The battery has not been fully discharged before being recharged.</i> Make sure the battery is fully discharged and recharge it completely before reusing (see <i>“Battery Information” on page 3 - 10/“Battery Information” on page D - 21</i>).</p> <p>Check the settings of any active power plan (see <i>“Power Plans” on page 3 - 4/“Power Schemes” on page D - 17</i>).</p> <p><i>A peripheral device/USB device/ExpressCard is consuming a lot of power.</i> Turn off/remove the unused device to save power.</p>

Troubleshooting

Problem	Possible Cause - Solution
<p>The computer feels too hot.</p>	<p>Make sure the computer is properly ventilated and the vents/fan intakes are not blocked. If this doesn't cool it down, put the system into Hibernate mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see "Overheating" on page 1 - 13). Make sure you're using the correct adapter.</p> <p>Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the vents/fan intakes to be blocked.</p>
<p>Nothing appears on screen.</p>	<p><i>The system is in a power saving mode.</i> Toggle the Fn + F4 (see "Configuring the Power Buttons" on page 3 - 8/"Configuring the Power Button" on page D - 20).</p> <p><i>The screen controls need to be adjusted.</i> Toggle the screen control Fn + F8/F9 key combinations. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls.</p> <p><i>The computer is set for a different display.</i> Toggle the screen display key Fn + F7 combination. If an external monitor is connected, turn it on.</p> <p><i>The screen saver is activated.</i> Press any key or touch the TouchPad.</p>
<p>No image appears on the external monitor I have plugged in and powered on.</p>	<p><i>You haven't installed the video driver and configured it appropriately from the Control Panel.</i> See "NVIDIA Video Driver Controls" on page B - 1/"Video Features" on page D - 7 for instructions on installing and configuring the video driver.</p>
<p>You forget the boot password.</p>	<p><i>If you forget the password, you may have to discharge the battery of the CMOS.</i> Contact your service representative for help.</p>

Problem	Possible Cause - Solution
 Password Warning If you choose to set a boot password, NEVER forget your password. The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.	
The sound cannot be heard or the volume is very low.	<i>The volume might be set too low.</i> Check the volume control in the Volume Control Panel in the Windows taskbar, or use the key combination Fn + F5 and F6 (see “Audio Features” on page 2 - 11/“Audio Features” on page D - 4) to adjust.
The compact disc cannot be read.	<i>The compact disc is dirty.</i> Clean it with a CD-ROM cleaner kit.
The compact disc tray will not open when there is a disc in the tray.	<i>The compact disc is not correctly placed in the tray.</i> Gently try to remove the disc using the eject hole (see “Loading Discs” on page 2 - 3).
The DVD regional codes can no longer be changed.	<i>The code has been changed the maximum 5 times.</i> See “DVD Regional Codes” on page 2 - 5/“DVD Regional Codes” on page D - 2 .
The TouchPad doesn't work.	<i>The Touchpad has been disabled.</i> Press the Touchpad toggle (Fn + F1) key combination (make sure you have installed the Touchpad driver.

Troubleshooting

Problem	Possible Cause - Solution
The system freezes or the screen goes dark.	<i>The system's power saving features have timed-out.</i> Use the AC/DC adapter, press a key on the keyboard, or press the sleep (Fn + F4) key combination, or press the power button if no LEDs are lit.
The system never goes into a power saving mode .	Power Options features are not enabled. Go to the Windows Power Options menu and enable the features you prefer (see <i>"Power-Saving States" on page 3 - 6</i> / <i>"System Power Options" on page D - 18</i>). Make sure you have enabled Hibernate mode from the control panel.
The Wireless LAN/Bluetooth/PC Camera modules cannot be detected.	<i>The modules are off.</i> Check the appropriate LED indicator  /  for the WLAN or Bluetooth module to see if the modules are on or off (see <i>"LED Indicators" on page 1 - 7</i>). If the LED indicator is off, then press the appropriate function key combination in order to enable the modules (see <i>Table 1 - 5, on page 1 - 9</i>).
The Wireless LAN/Bluetooth/PC Camera modules cannot be configured.	<i>The driver(s) for the module(s) have not been installed.</i> Make sure you have installed the driver for the appropriate module (see the instructions in <i>Chapter 7 "Modules"/"Module Drivers" on page D - 29</i> for the appropriate module).
The PC Camera software displays a black screen when the BisonCap software is run.	<i>The software is using the incorrect device.</i> If you have both an optional PC Camera and an optional TV Tuner module present, you will need to select which device to use with the BisonCap program. Go to the Devices menu in the BisonCap program and select the USB Video Device device.

Appendix A: Interface (Ports & Jacks)

Overview

The following chapter will give a quick description of the ports & jacks which allow your computer to communicate with external devices, connect to the internet etc.

Ports and Jacks

Item	Description								
<p>Card Reader</p> 	<p>The card reader allows you to use the following digital storage cards:</p> <table border="0"> <tr> <td>MMC (MultiMedia Card)</td> <td>RS MMC (requires PC adapter)</td> </tr> <tr> <td>SD (Secure Digital)</td> <td>Mini SD (requires PC adapter)</td> </tr> <tr> <td>MS (Memory Stick)</td> <td>MS Duo (requires PC adapter)</td> </tr> <tr> <td>MS (Memory Stick Pro)</td> <td></td> </tr> </table>	MMC (MultiMedia Card)	RS MMC (requires PC adapter)	SD (Secure Digital)	Mini SD (requires PC adapter)	MS (Memory Stick)	MS Duo (requires PC adapter)	MS (Memory Stick Pro)	
MMC (MultiMedia Card)	RS MMC (requires PC adapter)								
SD (Secure Digital)	Mini SD (requires PC adapter)								
MS (Memory Stick)	MS Duo (requires PC adapter)								
MS (Memory Stick Pro)									
<p>Cable (CATV) Antenna Jack</p> 	<p>Use this jack to connect a CATV cable if you have included the optional Mini-PCI TV Tuner in your purchase.</p>								
<p>DC-In Jack</p> 	<p>Plug the supplied AC/DC adapter into this jack to power your computer.</p>								
<p>DVI-Out Port</p> 	<p>The DVI-Out (Digital Visual Interface) Port (at the rear of the computer) allows you to connect an external monitor, or Flat Panel Display, to allow dual video or simultaneous display on the LCD and external monitor/FPD (see “- <i>Display Modes Available</i>” on page 1 - 16). If you are using an older type of monitor you will need to use a converter to convert the signal from DVI to VGA.</p>								
<p>External Monitor Port</p> 	<p>The External Monitor Port (on the left of the computer) allows you to connect an external monitor, or Flat Panel Display, to allow dual video or simultaneous display on the LCD and external monitor/FPD (see “- <i>Display Modes Available</i>” on page 1 - 16).</p>								

Interface (Ports & Jacks)

Item	Description
Headphone-Out Jack 	Headphones or speakers may be connected through this jack. Note: Set your system's volume to a reduced level before connecting to this jack.
Line-In Jack 	The Line-In jack allows you to play audio sources through the computer's speakers. Note that audio input through Line-in will default to the mute setting. To set up your audio sources to play through the Line-in jack go to the Sound control panel  and make sure the Mute box is not ticked.
Microphone-In Jack 	Plug an external microphone in to this jack to record on your computer.
Mini-IEEE 1394 Port 	This allows high-speed connection to various peripheral devices, e.g. external disk drives and digital cameras (see note below). <div style="border: 2px solid green; border-radius: 15px; padding: 10px; text-align: center; margin: 10px 0;">  IEEE 1394 The Mini-IEEE 1394 ports only support SELF POWERED IEEE 1394 devices. </div>
RJ-11 Phone Jack 	This port connects to the built-in modem. You may plug the telephone line directly into this RJ-11 telephone connection.

A

Interface (Ports & Jacks)

Item	Description
RJ-45 LAN Jack 	This port supports LAN (Network) functions. Note: Broadband (e.g. ADSL) modems usually connect to the LAN port.
S/PDIF-Out Jack 	This S/PDIF (Sony/Philips Digital Interface Format) Out Port allows you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for "5.1" or 'dts' surround sound.
Security Lock Slot 	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.
S-Video-In Jack 	The S-Video-In jack allows video input to the computer if you have included the optional Mini-PCI TV Tuner in your purchase.
S-Video-Out Jack 	Connect your television to your computer and view DVDs, VCDs or anything else your computer can display.
USB 2.0/1.1 Ports 	These USB 2.0 compatible ports (USB 2.0 is fully USB 1.1 compliant) are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device).

A

A - 4 Interface (Ports & Jacks)

Appendix B: NVIDIA Video Driver Controls

The basic settings for configuring the LCD are outlined in “*Video Features*” on [page 1 - 15](#).

NVIDIA Video Driver Installation

Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#).

1. Insert the *Device Drivers & Utilities + User’s Manual DVD-ROM* into the CD/DVD drive.
2. Click **1.Install Video Driver > Yes**.
3. Click **Next**.
4. Click **Finish** to restart the computer.



Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported.



Screen Flickering

Note that the display may briefly flicker during **display device detection** (switching displays etc.), or if **changes in resolution** or **mode settings** are taking place (this includes resuming from power saving modes, opening and closing the lid and logging on to **Windows** etc.).



NVIDIA Control Panel

To access the **GeForce..... control panel from the desktop**; right-click the **desktop**, then click **NVIDIA Control Panel**.



Figure B - 1

NVIDIA GeForce..... Control Panel

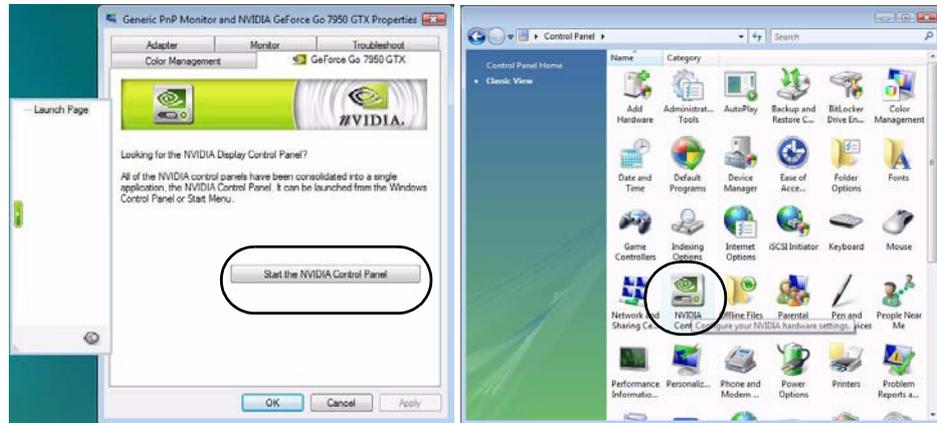
NVIDIA Control Panel

More advanced video configuration options are provided in the **NVIDIA Control Panel** tab.

1. Open the **Display Settings** (see page **1 - 16**) control panel.
2. Click **Advanced Settings** (button).
3. Click **GeForce.....** (tab).
4. Click **Start the NVIDIA Control Panel** to make any video adjustments.

OR

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **NVIDIA Control Panel** (click "**Classic View**" from the left of the menu if you are in **Control Panel Home**).



The **NVIDIA Control Panel** provides additional video configuration controls and tools which allow quick access to features such as display configuration, 3D Settings and Help menus etc.



Navigating the Control Panel

Navigate through the control panels in much the same way as you would a web page. Click on the sub-headed tasks in the left menu (and on the highlighted links) for information. Use the buttons on the top left to go back, forward etc.

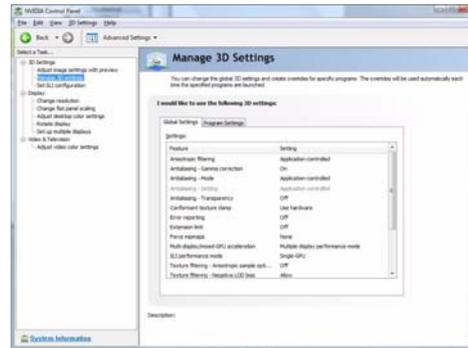
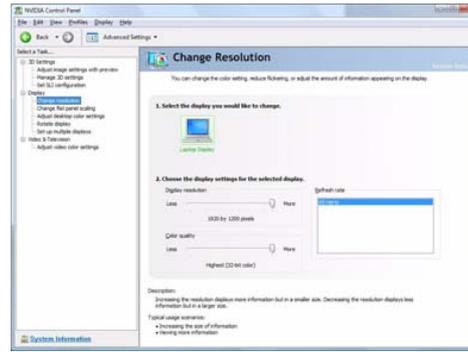
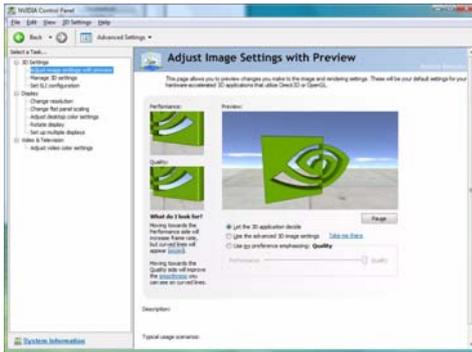
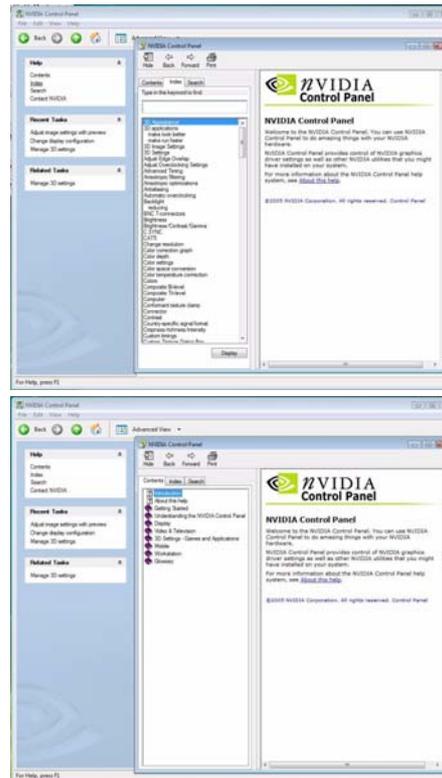


Figure B - 2
NVIDIA Control Panels

NVIDIA Video Driver Controls

The **Help** menus provide index and search features, and direct links to the NVIDIA website etc.

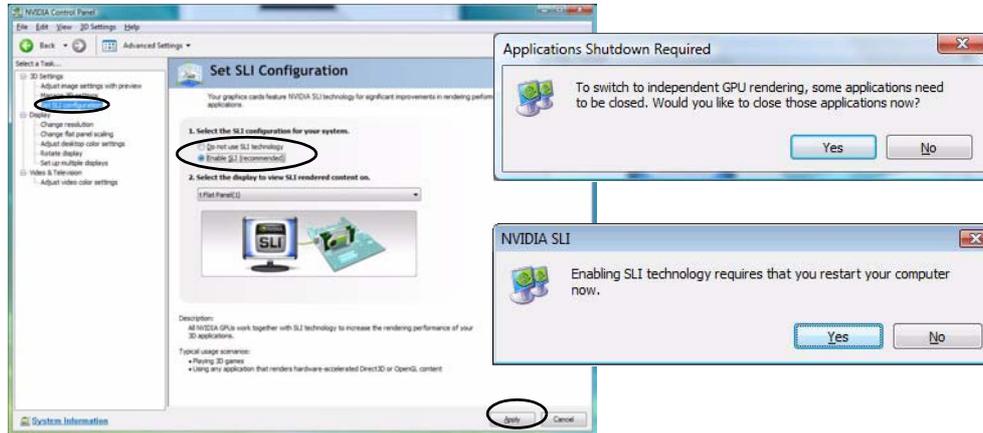
Figure B - 3
Help Menus



SLI Multi GPU Configuration

This computer features an **NVIDIA Scalable Link Interface (SLI)** that improves graphic quality and performance by combining **dual NVIDIA GPUs** in a single system. To enable/disable SLI Configuration:

- Go to **NVIDIA Control Panel** (see [“NVIDIA Control Panel” on page B - 2](#)).
- Double-click **3D Settings**, and then click **Set SLI Configuration**.



- Click to **“Select the SLI configuration for your system.”**
- Click to **“Select the display to view the SLI rendered content on.”** (only a **single display** may be used).
- Click **Apply > Yes** (you will need to close any open applications), and **Yes** to restart the computer (see over).



SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single display** may be used as the display device.

Figure B - 4
Set SLI Configuration

SLI Multi GPU Configuration & Battery Power

Note that due to the high power and system demands created by enabling SLI Configuration, **you should not enable SLI configuration if your computer is powered by battery only**. If you attempt to run an SLI configuration when the computer is powered by the battery only, then system problems may occur.

- If the computer is currently powered by battery only **do not enable SLI configuration**.
- If you have currently enabled SLI configuration, and the computer is powered by the AC/DC adapter, **do not switch to battery power only** (or go to the NVIDIA Control Panel and disable SLI configuration before switching to battery power only).

Display Devices

Besides the built-in LCD, you can also use an external monitor/flat panel display or TV as your display device. The following are the display options:

1. The built-in LCD.
2. An external monitor connected to the DVI-Out Port or external monitor port.
3. A flat panel display connected to the DVI-Out Port (or external monitor port for older models).
4. A TV connected to the S-Video-Out jack.



Monitor and TV Tuner

If you are connecting both a monitor/flat panel display to the DVI-Out Port, and a cable/aerial to the optional TV Tuner module, **make sure you attach the cable/aerial to the TV Tuner first**, then the monitor.

SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.



Function Key Combination

You can use the **Fn + F7** key combination to toggle through some display options:

- Notebook Only
- External Display Only
- Notebook + External Display

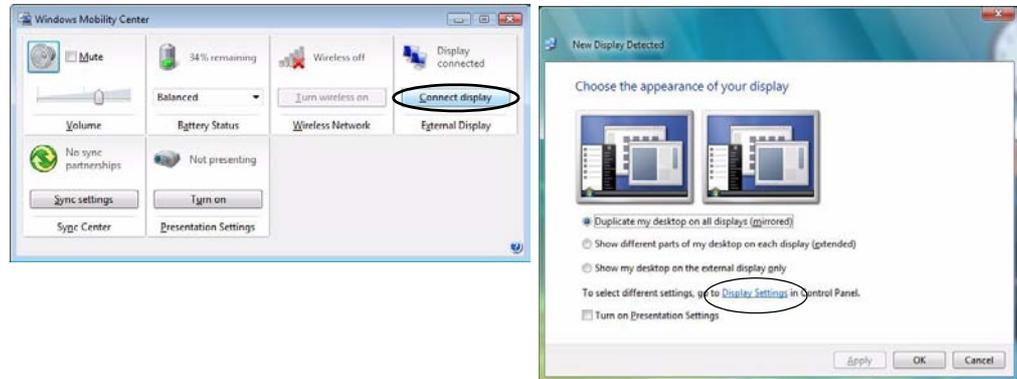
Make sure you give the displays enough time to refresh.

Attaching Other Displays

Configuring an External Display in Windows Vista

1. Attach your external display to the external monitor port/DVI-Out Port and turn it on.
2. If a **New Display Detected** window does not appear in **Windows Vista**, go to the **Windows Mobility Center** control panel (**Mobile PC > Adjust commonly used mobility settings**) and click **Connect display**.
3. Click on any of the buttons to configure the displays to your preferences, or click **Display Settings** (in the New Display Detected window) to access the control panel.

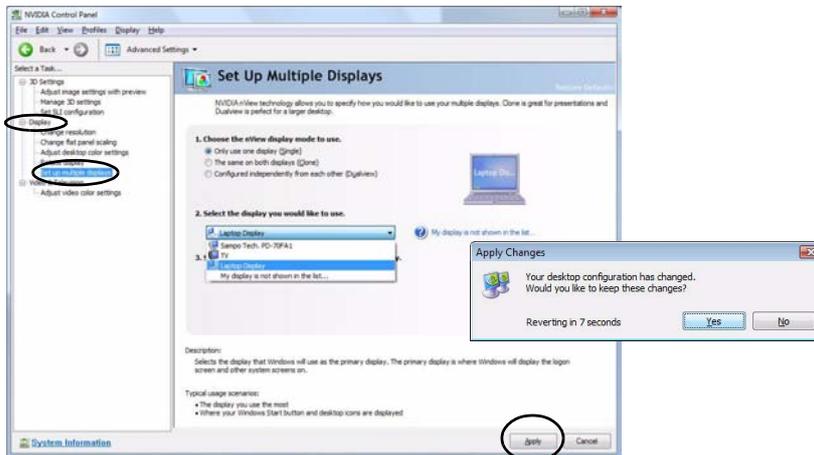
Figure B - 5
New Display Detected



Configuring an External Display using the NVIDIA Control Panel

Alternatively you can use the **NVIDIA control panel** to configure any attached displays.

1. Attach your external display to the external monitor port/DVI-Out Port (or TV to the S-Video-Out jack), and turn it on.
2. Go to **NVIDIA Control Panel** (see *“NVIDIA Control Panel” on page B - 2*).
3. Double-click **Display**, and then click **Set up multiple displays**.



4. Click to select the nView **display mode** you wish to use (see page *B - 10*).
5. Select the display(s) you want to use (if your display is not shown click *“My Display is not shown in the list...”*), and choose which display is to be the primary display.
6. Click **Apply** > **Yes** to save the changes.



SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

Figure B - 6
Set Up Multiple Displays



Blu-ray/HD-DVD Support

If your optical device drive option includes a **Blu-ray/HD-DVD** device, please note the following:

The **GeForce Go 7950 GTX** video card DOES NOT support **HDCP** (high-bandwidth digital-content protection), and therefore **will not play content through the DVI-Out port or S-Video Out Jack** on the computer.

If you wish to display content from the **Blu-ray/HD-DVD** device on an external display, then use **External Monitor Port** to connect the computer to the external display using **Single or Dualview display modes** (do not use **Clone mode**).

Display Modes

Single Display Mode

Only one of your displays is used.

Clone Mode

Clone Mode simply shows an exact copy of the Primary display desktop on the other display(s). This mode will drive multiple displays with the same content.

Dualview Mode

Dualview Mode (or **Extended Mode** in *Windows Vista* - see overleaf) treats both connected displays as separate devices, and they act as a virtual desktop resulting in a large workspace. When Dualview is enabled, you can drag any icons or windows across to the other display desktop. It is therefore possible to have one program visible in one of the displays, and a different program visible in the other display.

Using New Display Detected to Enable Extended Mode

1. Attach your external display to the external monitor port/DVI-Out Port (or TV to the S-Video-Out jack), and turn it on.
2. If a **New Display Detected** window does not appear in *Windows Vista*, go to the **Windows Mobility Center** control panel (**Mobile PC > Adjust commonly used mobility settings**) and click **Connect display**.
3. Click to select **Show different parts of my desktop on each display (extended)**.
4. Click **Right** or **Left** under **Extend your desktop**.
5. Click **Apply > OK**.

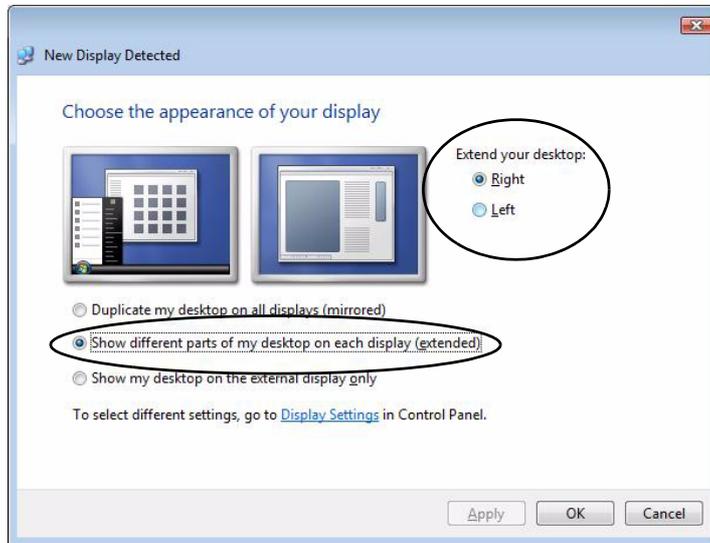


Figure B - 7
**New Display
 Detected
 (Extended)**

NVIDIA Video Driver Controls



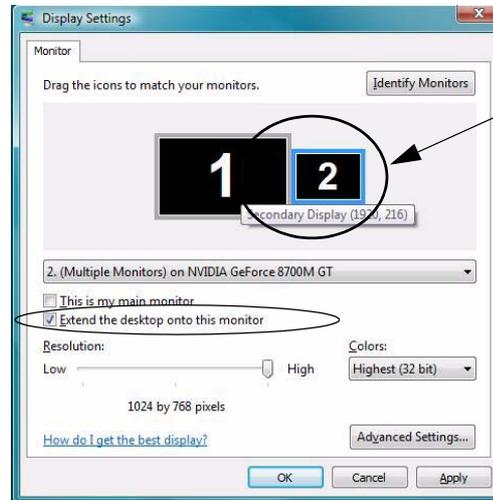
Display Settings Extended Desktop

Use the control panel to drag the monitors to match the physical arrangement you wish to use.

You can drag any icons or windows across to either display desktop, which makes it possible to have one program visible in one of the displays, and a different program visible in the other display.

Using Display Settings to Enable Extended Mode

1. Attach your external display to the external monitor port/DVI-Out Port (or TV to the S-Video-Out jack), and turn it on.
2. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
3. Click **Adjust screen resolution** under the **Appearance and Personalization** menu (or double-click **Personalization > Display Settings**).
4. Click the monitor icon (e.g. **2**), and make sure you have checked “**Extend the desktop onto this monitor.**” and click **Apply**.



Click the appropriate monitor icon (e.g. **2**) to be able to select the option to extend the desktop on to it.

In this example the Primary monitor **1** is on the left, the secondary display **2** is on the right.

Figure B - 8
Display Settings
(Extend the
Desktop)

Enabling TV Display

To display desktop images on a TV, connect the TV to your computer by using an S-Video cable from the TV to the S-Video-Out jack on the left of the computer.

You will need to enable the TV display from the **NVIDIA Control Panel** as per the instructions on **B - 9**. The TV will appear as a display option (**2. Select the displays you would like to use.**) when attached to the S-Video-Out jack. **Apply** the settings, and then click **Yes** to save the changes.



Detect Displays

To get a full range of display options click **“My display is not shown in the list...”**.

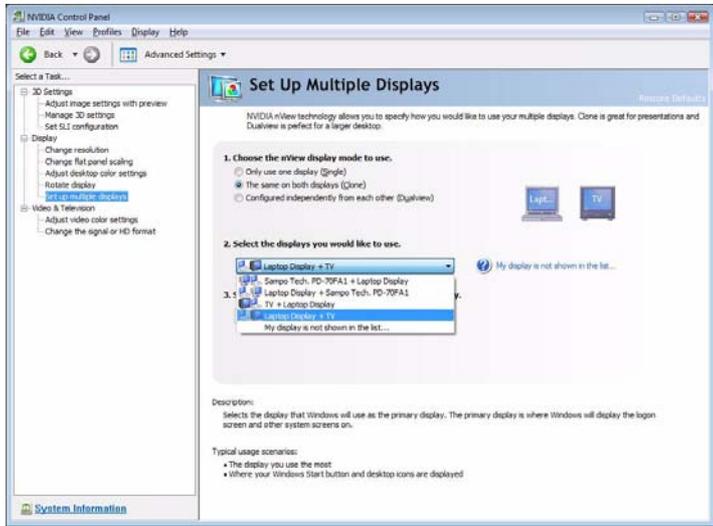


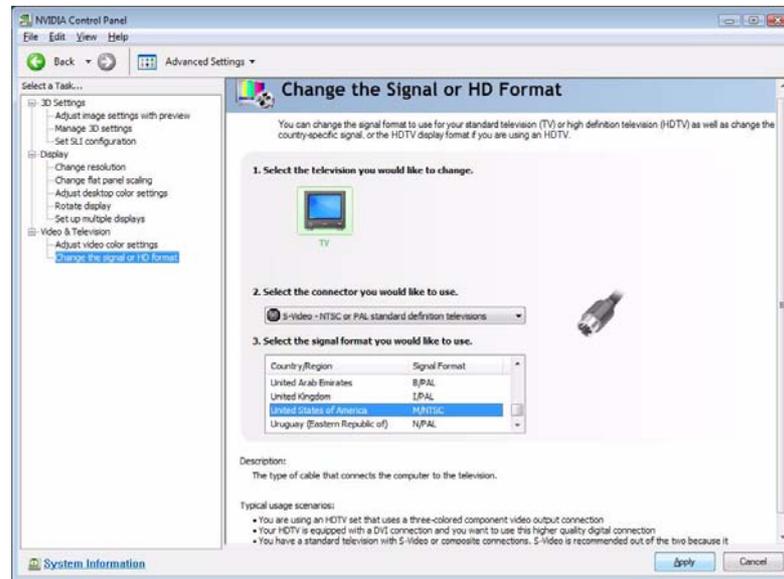
Figure B - 9
Set Up Multiple Displays
 (with TV connected)

B

Changing the TV Signal Format

1. When the TV is enabled as a display device, click the sub-menus under **Video & Television**.
2. Click "**Change the signal or HD format**"
3. Select the TV signal format (the menu allows you to select TV format by country if you are unsure of your TV format).
4. **Apply** the settings, and then click **Yes** to save the changes.

Figure B - 10
Change the Signal or
HD Format



Appendix C: Specifications



Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/speeds and CD/DVD device types) may be changed, updated or delayed due to the manufacturer's release schedule. Check with your service center for details.

Specifications

Feature	Specification
Processor Types	Intel® Core™ 2 Duo Processor LGA775 Package (775-pin) E6300/ E6400 65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 1066MHz FSB 1.86/ 2.13 GHz
	Intel® Core™ 2 Duo Processor LGA775 Package (775-pin) E6600/ E6700 65nm (65 Nanometer) Process Technology 4MB On-die L2 Cache & 1066MHz FSB 2.40/ 2.67 GHz
	Intel® Core™ 2 Duo Processor LGA775 Package (775-pin) E6550/ E6850 65nm (65 Nanometer) Process Technology 4MB On-die L2 Cache & 1333MHz FSB 2.33/ 3.0 GHz
	Intel® Core™ 2 Quad Processor LGA775 Package (775-pin) Q6600/ Q6700 65nm (65 Nanometer) Process Technology G0 Stepping 8MB On-die L2 Cache & 1066MHz FSB 2.4/ 2.66 GHz
	Intel® Core™ 2 Extreme Processor LGA775 Package (775-pin) X6800 65nm (65 Nanometer) Process Technology 4MB On-die L2 Cache & 1066MHz FSB 2.93 GHz
Core Logic	Intel P965 + ICH8-R

Feature	Specification
LCD	17.1" Glare Type Flat Panel TFT (For One of the Following Options) WXGA (1440 * 900) OR WSXGA+ (1680 * 1050) OR WUXGA (1920 * 1200)
Security	Security (Kensington® Type) Lock Slot BIOS Password
Memory	Two 200 Pin SO-DIMM Sockets Supporting DDRII (DDR2) 533/667/800 MHz 64-bit Wide DDRII (DDR2) Data Channels Memory Expandable up to 4GB (512/ 1024/ 2048 MB DDRII Modules Supporting HDCP) (Note: Do Not Use Other Module Types)
BIOS	One 16Mbit Flash ROM Phoenix BIOS

Specifications

Feature	Specification	
<p data-bbox="124 227 256 249">Video Card</p> <div data-bbox="113 258 347 757" style="border: 2px solid green; border-radius: 15px; padding: 10px;">  <p data-bbox="165 333 288 384">Video Card Options</p> <p data-bbox="134 407 320 712">Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported.</p> </div>	<p data-bbox="359 227 879 311">NVIDIA GeForce Go 7950 GTX PCI-E Video Card - SLI Compatible (NVIDIA Scalable Link Interface supported)</p> <p data-bbox="359 316 453 339">MXM-IV</p> <p data-bbox="359 344 868 395">512MB GDDR3 Video RAM on Board, Supporting PCI-E*16</p> <p data-bbox="359 400 639 423">MS DirectX® 9 Compatible</p> <div data-bbox="352 449 906 725" style="border: 2px solid red; border-radius: 15px; padding: 10px; text-align: center;">  <p data-bbox="564 521 703 544">SLI Support</p> <p data-bbox="389 566 879 667">Note that only the NVIDIA GeForceGo 7950 GTX/ GeForce 8700M GT/NVIDIA GeForce 8800M GTX support more than one SLI video card. Check with your service center for the latest information.</p> </div>	<p data-bbox="927 227 1453 311">NVIDIA GeForce 8700M GT PCI-E Video Card - SLI Compatible (NVIDIA Scalable Link Interface supported)</p> <p data-bbox="927 316 1021 339">MXM-IV</p> <p data-bbox="927 344 1433 395">512MB GDDR3 Video RAM on Board, Supporting PCI-E*16</p> <p data-bbox="927 400 1406 423">MS DirectX® 10 Compatible, HDCP Supported</p> <p data-bbox="927 451 1430 473">NVIDIA Quadro FX 1600M PCI-E Video Card</p> <p data-bbox="927 479 1021 501">MXM-IV</p> <p data-bbox="927 507 1433 557">512MB GDDR3 Video RAM on Board, Supporting PCI-E*16</p> <p data-bbox="927 563 1406 585">MS DirectX® 10 Compatible, HDCP Supported</p> <p data-bbox="927 613 1453 697">NVIDIA GeForce 8800M GTX PCI-E Video Card - SLI Compatible (NVIDIA Scalable Link Interface supported)</p> <p data-bbox="927 703 1021 725">MXM-IV</p> <p data-bbox="927 731 1433 781">512MB GDDR3 Video RAM on Board, Supporting PCI-E*16</p> <p data-bbox="927 787 1406 809">MS DirectX® 10 Compatible, HDCP Supported</p>
<p data-bbox="124 837 316 860">Storage Options</p>	<p data-bbox="359 837 1299 860">One Changeable 12.7 mm (h) Optical Device Drive Bay (see “Optional” on page C - 7)</p> <p data-bbox="359 876 1027 899">Up to Three Changeable 9.5 mm (h) SATA II Hard Disk Drives</p> <p data-bbox="448 904 1369 927">Supports 5400RPM/ 7200RPM RAID 0, RAID 1, RAID 5 HDD Fault Tolerance System</p> <p data-bbox="359 944 916 966">(Optional) External USB 1.44MB Floppy Disk Drive</p>	

Feature	Specification	
Card Reader	Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) Note: MS Duo/ Mini SD/ RS MMC Cards Require a PC Adapter	
Audio	UAA (Universal Audio Architecture) Integrated Azalia Compliant Interface	S/PDIF Digital Output Built-In Microphone 4 * Built-In Speakers
Keyboard & Pointing Device	Full Size Winkey Keyboard with Numeric Keypad Two Game Hot Keys	Built-In TouchPad (Scroll Functionality Included)
ExpressCard Slot	ExpressCard/34/54 Slot	
I/O Ports	Four USB 2.0 Ports One Mini-IEEE1394a Port One S-Video-Out Jack for TV & HDTV Output One DVI-Out Port One External Monitor Port One Headphone/Speaker-Out Jack One Microphone-In Jack One S/PDIF Out Jack One Line-In Jack for Audio Input	One RJ-11 Modem Jack One RJ-45 Gigabit LAN Jack One DC-In Jack One CATV Antenna (Analog/Digital) Jack (Functions with Optional TV Tuner Module) One S-Video-In Jack (Functions with Optional TV Tuner Module) One Consumer Infrared Transceiver (Functions with Optional TV Tuner Module)

Specifications

Feature	Specification	
Communication	AZALIA MDC 56K Modem (V.90 & V.92 Compliant) 1GB PCIe Fast Ethernet LAN Module Intel PRO/Wireless 3945ABG PCIe Wireless LAN Module (Option) Intel PRO/Wireless 4965AGN PCIe Wireless LAN Module (Option)	USB 2.0 Bluetooth Class II Module (Option) 1.3M/2.0M Pixel USB 2.0 PC Camera Module (Factory Option)
Operating Systems Supported	Windows XP SP2	Windows Vista 64bit Home Premium/ Business/ Enterprise/ Ultimate
Power Management	Supports ACPI 2.0 Battery Low Suspend Supports Resume from Modem Ring	Supports Suspend to RAM (S3) Supports Suspend to Disk (S4)
Power	Full Range 220W AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz, DC Output 20V, 11A Easy Changeable 12-Cell Smart Lithium-Ion 6600mAh	
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%

Feature	Specification	
Physical Dimensions & Weight	397mm (w) * 298mm (d) * 51 ~ 60mm (h)	5.4kg
Optional	<p><u>Optical Drive Module Options:</u></p> <p>Combo Drive Module DVD-DUAL Module DVD-Super Multi Drive Module Blu-ray Drive Module HD-DVD Drive Module</p> <p>External USB 1.44MB Floppy Disk Drive</p> <p>Analog TV Tuner Module with Mini-PCI Interface OR Hybrid TV Tuner Module with Mini-PCI Interface</p>	<p>Intel PRO/Wireless 3945ABG PCIe Wireless LAN Module Intel PRO/Wireless 4965AGN PCIe Wireless LAN Module</p> <p>USB 2.0 Bluetooth Class II Module</p> <p>1.3M/2.0 Pixel USB 2.0 PC Camera Module (Factory Option)</p> <p>DVD Player Software</p>

Specifications

C

Appendix D: Windows XP Information

This Appendix contains information (including control panel information, driver installation etc.) for users of the *Windows XP OS*.

DVD Regional Codes



Changing DVD Regional Codes

Go to the **Control Panel** and double-click **System > Hardware** (tab), click **Device Manager**, then click the **+** next to **DVD/CD-ROM drives**. Double-click on the DVD-ROM device to bring up the **Properties** dialogue box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code.

DVD region detection is device dependent, not OS-dependent. You can select your module's region code **5** times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

Region	Geographical Location
1	USA, Canada
2	Western Europe, Japan, South Africa, Middle East & Egypt
3	South-East Asia, Taiwan, South Korea, The Philippines, Indonesia, Hong Kong
4	South & Central America, Mexico, Australia, New Zealand
5	N Korea, Russia, Eastern Europe, India & Most of Africa
6	China

Table D - 1 - DVD Region Codes

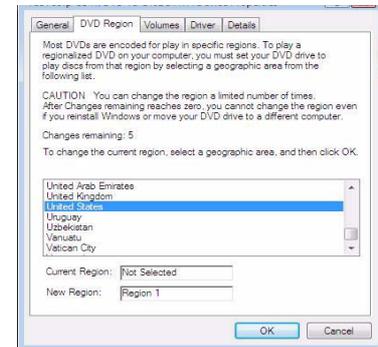


Figure D - 1 - DVD Regions



Sound Volume Adjustment

How high the sound volume can be set depends on the setting of the volume control within **Windows** (and the volume control function keys on the computer). Click the Volume icon on the taskbar to check the setting.



Figure D - 3
Realtek Audio Configuration Menus

Audio Features

You can configure the audio options on your computer from the **Sounds and Audio Devices**  **Windows** control panel. For advanced options double-click the **Realtek HD Audio Manager**  icon in the taskbar (or click the control panel) to bring up the Realtek Audio Configuration menus. The volume may also be adjusted by means of the **Fn + F5/F6** key combination.



Application Hot Key

The hot key buttons give instant access to the default Internet browser and e-mail program, and to a user-defined application, with one quick button press. To configure a program to open when the application hot key  is pressed (*Windows Media Player* is the default program), follow the instructions below (make sure you install the **Ap-Key** Utility driver - see *“TouchPad” on page D - 29*).

1. **Right click** the Hot Key driver icon  in the **taskbar**.
2. Select **Setup** from the menu, scroll to **Application 1** and press **Enter**.



3. An **Open** dialog box will appear on the screen.



4. **Browse** to the directory where the desired **application.exe** (see the sidebar) program exists.
5. **Double-Click** on the program file or choose **Open**.



Application.exe

You will need to locate the actual **application executable (.exe) file**, not just the **shortcut**. To find the application right-click its **shortcut** on the desktop and click **Properties**. Click the **shortcut** (tab) and see where the executable file is located by clicking the **Find Target** (button).

Figure D - 4
**Hot Key
Configuration**

Game Keys

The two game hot keys on the left of the computer allow macros to be configured for common keystrokes used in applications (the keys can assigned macros for any program, not only games). To configure the keys follow the instructions below.

1. Run the **Game Key Configuration** program from the desktop icon  (or from C:\Windows\CleGameKey\GmKeyCfgUtl.exe).
2. Double-click the button  for the appropriate key (it will turn red .
3. When the button is red  you may then record the keystrokes to be assigned to the Game Key.

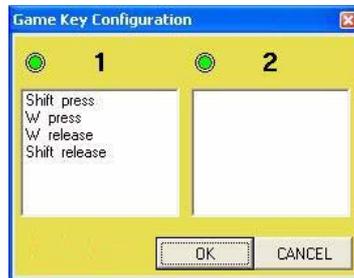


Figure D - 5
**Game Key
Configuration**

4. Click **OK**.
5. Repeat the procedure for the other Game Key if required.
6. Close the **Game Key Configuration** window.
7. The keystroke order will be repeated with the appropriate button press in any application program.

Video Features

You can switch display devices, and configure display options, from the **Display Properties** control panel in *Windows* as long as the appropriate **video driver** is installed.

To access Display Properties in *Windows*:

1. Click **Start**, point to **Settings** and click **Control Panel** (or just click **Control Panel**).
2. Double-click **Display** (icon) - In the **Appearances and Themes** category.
3. Click **Settings** (tab) in the **Display Properties** dialog box.
4. Move the slider to the preferred setting in **Screen resolution** ① (*Figure D - 6 on page D - 8*).
5. Click the arrow, and scroll to the preferred setting in **Color quality** ② (*Figure D - 6 on page D - 8*).
6. You can also access **Display Properties** by right-clicking the desktop and scrolling down and clicking **Properties**. Click **Settings** (tab) and adjust as above.
7. Open the **Display Properties** control panel, and click **Advanced** (button) ③ (*Figure D - 6 on page D - 8*) to bring up the Advanced properties tabs.
8. Click **Start the NVIDIA Control Panel** (click to select **Standard** or **Advanced** options and click **OK**)
9. Click on any of the menu items on the left to display the appropriate control panel.



GeForce Control Panel

To access the **GeForce.....** control panel from the desktop:

Right-click the **desktop**, then point to or click **NVIDIA Control Panel**.

Windows XP Information

Display Properties

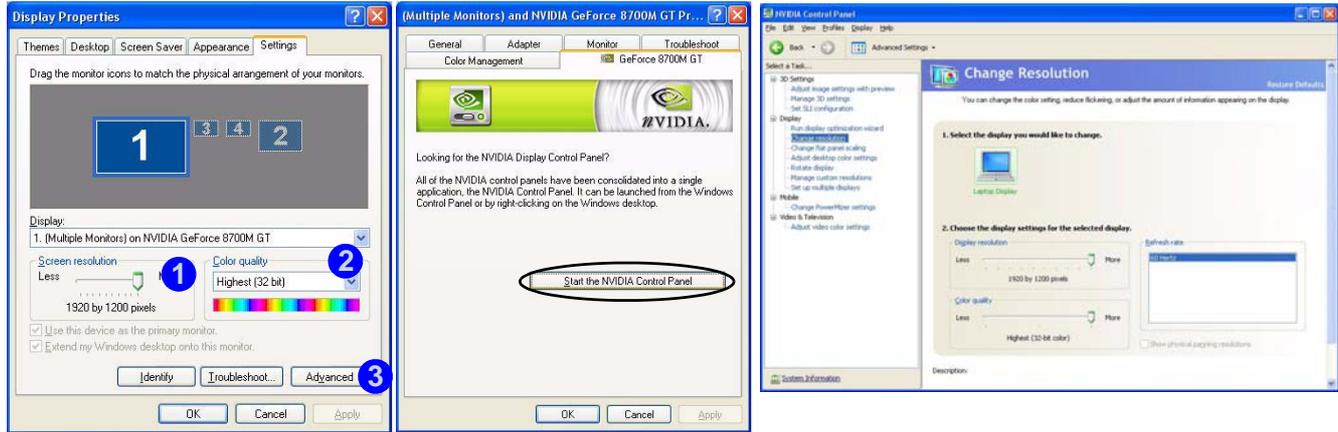


Figure D - 6 - Display Properties & NVIDIA Control Panel



Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. This computer features an NVIDIA Scalable Link Interface (SLI) that improves graphic quality and performance by combining dual NVIDIA GPU in a single system for some of the video card options. **SLI Configuration** needs to be **enabled** from the **NVIDIA Control Panel**; see [“SLI Multi GPU Configuration” on page D - 10](#). Check with your service center for the latest details on video cards supported (see [“Video Card” on page C - 4](#) for details). **SLI Configuration** should not be enabled under battery power (see page [B - 6](#)).

D

D - 8 Video Features

Display Devices & Options

Besides the built-in LCD, you can also use an **external VGA monitor (CRT)/external Flat Panel Display** or **TV** as your display device. A VGA monitor/Flat Panel Display connects to the DVI-Out port or external monitor port; a TV to the S-Video-Out jack. The following display modes are available.

Display Mode	Description	Note
Single Display Mode	Only one of your displays is used.	Note that SLI configuration supports only Single display.
Clone Mode	Clone Mode simply shows an exact copy of the Primary display desktop on the other display(s). This mode will drive multiple displays with the same content.	
Dualview Mode	Dualview Mode treats both connected displays as separate devices, and they act as a virtual desktop resulting in a large workspace. When Dualview is enabled, you can drag any icons or windows across to the other display desktop. It is therefore possible to have one program visible in one of the displays, and a different program visible in the other display.	

Table D - 2 - Display Options



Blu-ray/HD-DVD Support

If your optical device drive option includes a **Blu-ray/HD-DVD** device, please note the following:

The **GeForce Go 7950 GTX** video card DOES NOT support **HDCP** (high-bandwidth digital-content protection), and therefore **will not play content through the DVI-Out port or S-Video Out Jack** on the computer. If you wish to display content from the **Blu-ray/HD-DVD** device on an external display, then use **External Monitor Port** to connect the computer to the external display using **Single** or **Dualview display modes (do not use Clone mode)**.



SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

SLI Configuration & Battery Power

Note that due to the high power and system demands created by enabling SLI Configuration, **you should not enable SLI configuration if your computer is powered by battery only** (see page **B - 6**).

SLI Multi GPU Configuration

This computer features an **NVIDIA Scalable Link Interface (SLI)** that improves graphic quality and performance by combining **dual NVIDIA GPUs** in a single system. To enable/disable SLI Configuration:

1. Go to **NVIDIA Control Panel** (see **“Video Features” on page B - 7**).
2. Click **Set SLI Configuration (3D Settings)**, and then click **“Enable SLI technology”**.
3. Click **Apply** to save the settings.

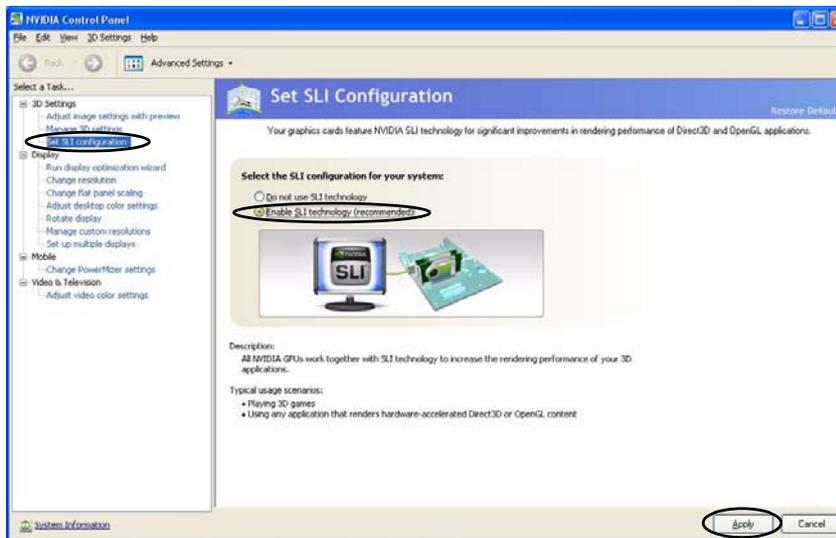


Figure D - 7
Set SLI Configuration

Control Panels (NVIDIA)

The **NVIDIA Control Panel** provides additional video configuration controls and tools which allows quick access to features such as display configuration, appearance, mobile support and Help menus etc.



Navigating the Control Panel

Navigate through the control panels in much the same way as you would a web page. Click on the headings, menus and highlighted links for information. Use the buttons on the top left to go back, forward etc.

The **Help** menus provide index and search features, and direct links to the NVIDIA website etc.

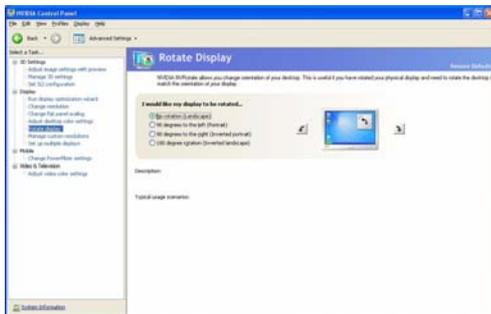
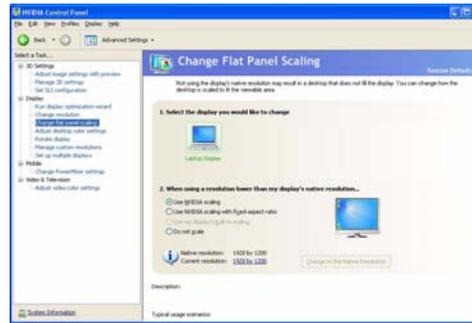
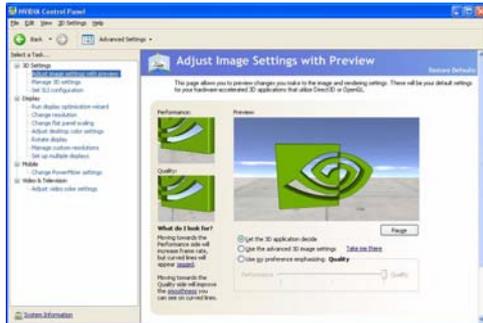


Figure D - 8
NVIDIA Control Panels



Function Key Combination

You can use the **Fn + F7** key combination to toggle through the display options:

- Notebook Only
- External Display Only
- Notebook + External Display

Make sure you give the displays enough time to refresh.

Detect Displays

To get a full range of display options click "**My display is not shown in the list...**".

Attaching Other Displays

1. Attach your external display to the external monitor port/DVI-Out Port (or TV to the S-Video-Out jack), and turn it on.
2. Go to **NVIDIA Control Panel** (see "[Video Features](#)" on page B - 7).
3. Click **Set up multiple displays (Display)**.
4. Select the display mode and displays you want to use from the menu.
5. Select the **Primary** display if you are using **Dualview Mode**.
6. Click **Apply** (and **Yes** to confirm the settings change).

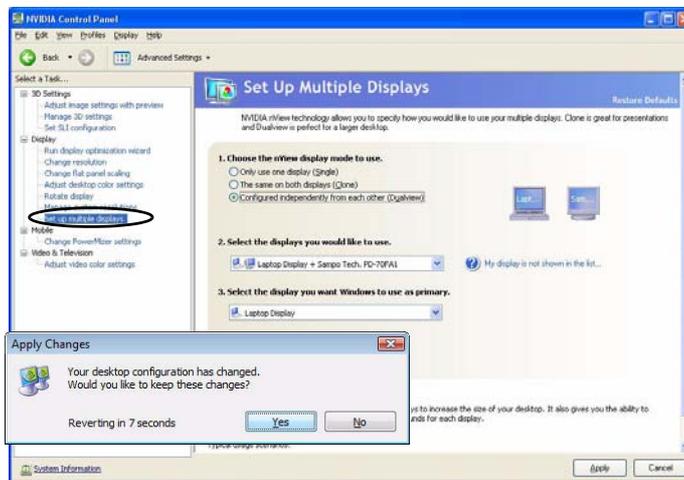


Figure D - 9 - Set Up Multiple Displays



SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

7. Click **Change Resolution (Display)** to adjust the display resolution for any attached displays.
8. Click the display icon and use the sliders to adjust the resolution.
9. Click **Apply** (and **Yes** to confirm the settings change).

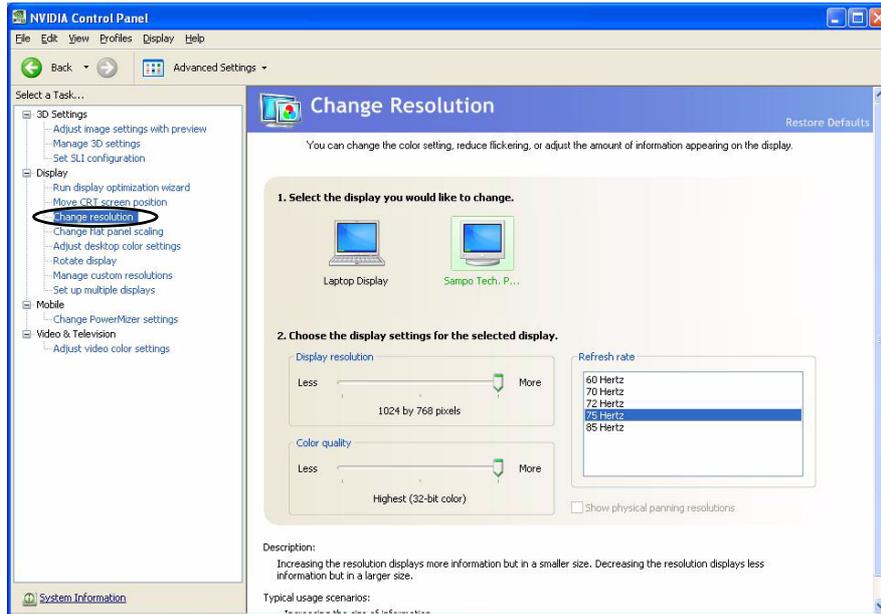


Figure D - 10 - Change Resolution

To Enable Windows Extended Desktop

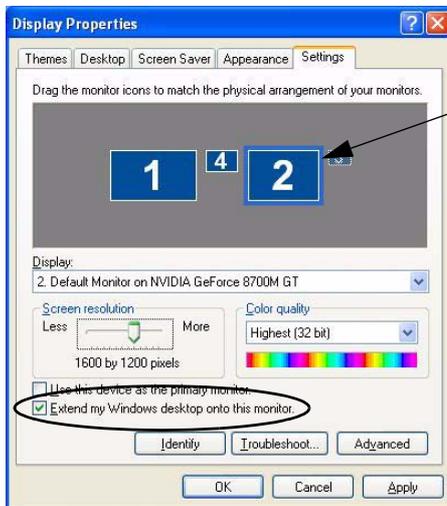
1. Attach your external monitor to the external monitor port and turn it on.
2. Click **Start**, point to **Settings** (or click **Control Panel**) and click **Control Panel** (if you are in **Category View** choose **Appearance and Themes**).
3. Double-click **Display** (icon).
4. Click **Settings** (tab).
5. Click the monitor icon (e.g. **2**), and make sure you have checked “**Extend my Windows desktop onto this monitor.**” and click **Apply**.



Display Settings Extended Desktop

Use the control panel to drag the monitors to match the physical arrangement you wish to use.

You can drag any icons or windows across to either display desktop, which makes it possible to have one program visible in one of the displays, and a different program visible in the other display.



Click the appropriate monitor icon (e.g. **2**) to be able to select the option to extend the desktop on to it.

In this example the Primary monitor **1** is on the left, the secondary display **2** is on the right.

Figure D - 11 - Display Properties (Extended Desktop)

Enabling TV Display

To display desktop images on a TV, connect the TV to your computer by using an S-Video cable from the TV to the S-Video-Out jack on the left of the computer.

You will need to enable the TV display from the **NVIDIA Control Panel** as per the instructions on *D - 12*. The TV will appear as a display option (2. *Select the displays you would like to use.*) when attached to the S-Video-Out jack. **Apply** the settings, and then click **Yes** to save the changes.



Detect Displays

To get a full range of display options click "**My display is not shown in the list...**".

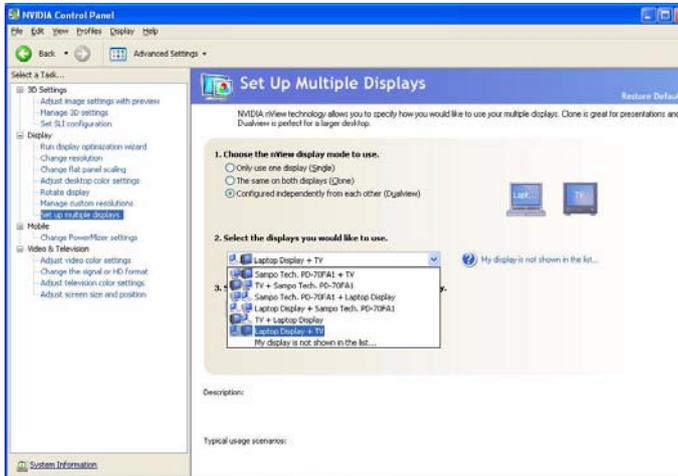


Figure D - 12 - Set Up Multiple Displays for TV

Changing the TV Signal Format

1. When the TV is enabled as a display device, click the sub-menus under **Video & Television**.
2. Click “**Change the signal or HD format**”
3. Select the TV signal format (the menu allows you to select TV format by country if you are unsure of your TV format).
4. **Apply** the settings, and then click **Yes** to save the changes.

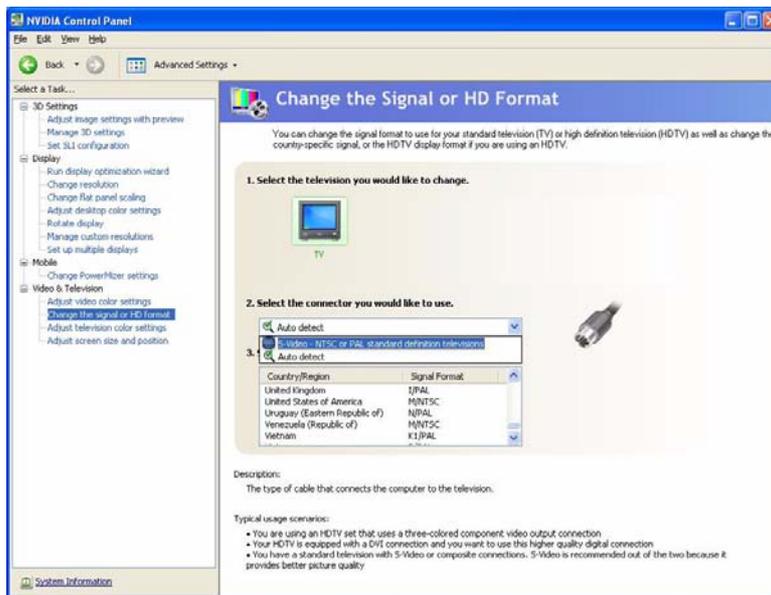


Figure D - 13 - Change TV Signal Format

Power Management Features

The **Power Options** control panel icon in *Windows* (see page *D - 3*) allows you to configure power management features for your computer. You may conserve power through individual components such as the monitor or hard disk, or you may use either **Stand by** or **Hibernate** mode to conserve power throughout the system.

Power Schemes

You can set your computer to conserve power through individual components by means of **Power Schemes**. You can also adjust the settings for each scheme to set the monitor to turn off after a specified time, and the computer's hard disk motor to turn off if the hard disk drive has not been accessed for a specified period of time (if the system reads or writes data, the hard disk motor will be turned back on). The schemes may also be set to set a specified time for the system to enter **Stand by** or **Hibernate** modes.



Figure D - 14 - Power Schemes

Resuming Operation

Press the **Sleep/Resume** key combination (**Fn + F4**), or power button to resume from Monitor or Hard Disk Stand by.

Windows XP Information

Each **Windows Power Scheme** will also adjust the processor performance of your machine in order to save power. This is worth bearing in mind if you are experiencing any reduced performance (especially under DC/battery power).

Choose the **Home/Office Desk** scheme for maximum performance when the computer is powered from an AC power source. Choose the **Max Battery** scheme (bear in mind that this scheme may slow down the overall performance of the computer in order to save power) for maximum power saving when the computer is battery (DC power) powered. **Windows** will use **Portable/Laptop** as the default scheme.

System Power Options

You can use the system power options to stop the computer's operation and restart where you left off. This system features **Stand by** and **Hibernate** sleep mode levels (**Hibernate** mode will need to be enabled by clicking the option in the **Hibernate** tab in the **Power Options** control panel).

Hibernate Mode vs. Shutdown

Hibernate mode and Shutdown are the same in that the system is off and you need to press the power button to turn it on. When you come back from hibernation, you can return to where you last left off (what was on your desktop) without reopening the application(s) and file(s) you last used.

Stand by Mode vs. Hibernate Mode

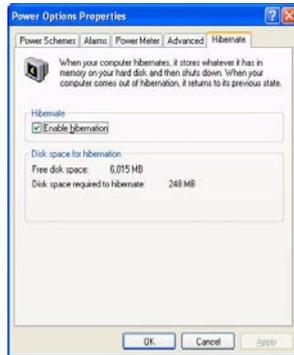
If you want to stay away from your work for just a while, you can put the system on Stand by instead of in hibernation. It takes a longer time to wake up the system from **Hibernate** mode than from **Stand by** mode.

Stand by

Stand by saves the least amount of power, but takes the shortest time to return to full operation. During Stand by the hard disk is turned off, and the CPU is made to idle at its slowest speed. All open applications are retained in memory. When you are not using your computer for a certain length of time, which you specify in the operating system, it will enter Stand by mode to save power.

Hibernate

Hibernate uses no power and saves all of your information on a part of the HDD before it turns the system off. Although it saves the most power it takes the longest time to return to full operation. You can set your computer to automatically enter Hibernate mode when the battery power is almost depleted. You will need to enable Hibernate mode from the **Hibernate** tab in the Power Options control panel. **The system will resume from Hibernate mode by pressing the power button.**



System Resume

The system can resume from Stand by mode by:

- Pressing the power button
- An incoming call received on the modem (if enabled)
- Network card activity (if enabled)

Figure D - 15 - Enable Hibernation

Configuring the Power Button

The power button may be set to send the computer in to either **Stand by** or **Hibernate** mode. In **Stand by** mode, the LED  will blink green. In **Hibernate** the LED will be off (battery) or orange (AC/DC adapter). If you are in a power saving mode set to save power through individual components (e.g. hard disk, monitor), the LED will remain green.



Sleep Button

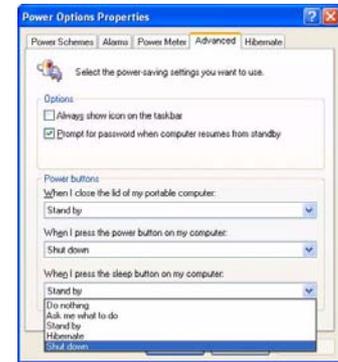
You may also configure the **Sleep/Resume** key combination (**Fn + F4**). In **Windows** this is referred to as the **Sleep** button.



Power Button



Lid



Sleep/Resume
(Sleep) Button

Figure D - 16 - Power Options (Advanced - Power Buttons)

Battery Information

Please follow these simple guidelines to get the best use out of your battery.

New Battery

Always completely discharge, then fully charge, a new battery (see *“Battery FAQ” on page D - 24*).

Battery Life

Your computer’s battery life is dependent upon many factors, including the programs you are running, and peripheral devices attached. **Power Options** (you may set low battery **Alarms** and actions, and check the **Power Meter** from the **Power Options** control panel), and settings in the OS will help prolong the battery life if configured appropriately.

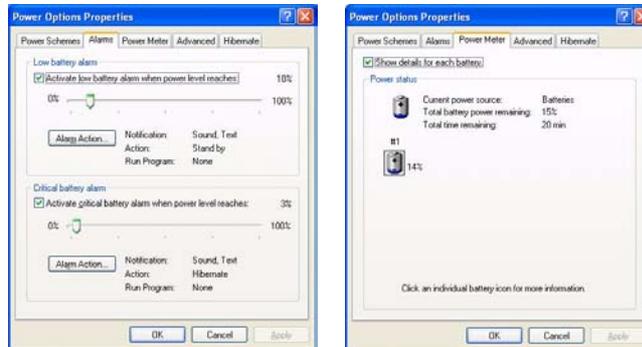


Figure D - 17 - Power Options (Alarm & Power Meter)



Low Battery Warning

When the battery is critically low, immediately connect the AC/DC adapter to the computer or save your work, otherwise, the unsaved data will be lost when the power is depleted.

Windows XP Information

Battery life may be shortened through improper maintenance. **To optimize the life and improve its performance, fully discharge and recharge the battery at least once every 30 days.**

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason see *“Removing the Battery” on page 6 - 3.*

Recharging the Battery with the AC/DC Adapter

The battery pack automatically recharges when the AC/DC adapter is attached and plugged into an electrical outlet. If the computer is powered on, and in use, it will take several hours to fully recharge the battery. When the computer is turned off but plugged into an electrical outlet, battery charge time is less. (Refer to *“LED Indicators” on page 1 - 7* for information on the battery charge status, and to *“Battery Information” on page D - 21* for more information on how to maintain and properly recharge the battery pack.)



Conserving Battery Power

To conserve battery power:

Lower the brightness level of the LCD display. The system will decrease LCD brightness slightly to save power when it is not powered by the AC/DC adapter.

Close modem or communication applications when they are not being used.

Remove any unused Express Cards from the computer (Express Cards quickly use up battery power even if the system enters sleep mode).

Disconnect any unnecessary external devices.

Proper handling of the Battery Pack

- DO NOT disassemble the battery pack under any circumstances
- DO NOT expose the battery to fire or high temperatures, it may explode
- DO NOT connect the metal terminals (+, -) to each other



Damaged Battery Warning

Should you notice any physical defects (e.g. the battery is bent out of shape after being dropped), or any unusual smells emanating from the notebook battery, shut your computer down immediately and contact your service center. If the battery has been dropped we do not recommend using it any further, as even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire. It is recommended that you replace your computer battery every two years.

Battery FAQ

How do I completely discharge the battery?

Use the computer with battery power until it shuts down due to a low battery. Don't turn off the computer by yourself even when you see a message that indicates the battery is critically low, just let the computer use up all of the battery power and shut down on its own. Disable the **Power Options** functions in the **Control Panel**, especially any **Alarms** (**un**click the tickboxes - see page [D - 21](#)) and **Schemes** (change all the settings to **Never** - see page [D - 17](#)). As the battery nears the end of its life save and close any critical files.

How do I fully charge the battery?

When charging the battery, don't stop until the LED charging indicator light changes from orange to green.

How do I maintain the battery?

Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.



Caution

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Driver Installation

The *Device Drivers & Utilities + User's Manual DVD-ROM* contains the drivers and utilities necessary for the proper operation of the computer. **Table D - 3** lists what you need to install, and **it is very important that the drivers are installed in the order indicated.**

WinXP SP2 Driver	Page #	Notes
Chipset	D - 28	<div style="border: 2px solid red; border-radius: 15px; padding: 10px; text-align: center; background-color: #ffe6e6;">  RAID or AHCI Setup Note that setting up a RAID, or AHCI mode, needs to be done prior to installing the <i>Windows</i> OS, and therefore before installing the other drivers listed here. </div> <p>The Mini-PCI TV Tuner Module driver and Cyberlink PowerCinema application are provided on a separate CD-ROM for <i>Windows XP</i>.</p>
Video	D - 28	
Audio	D - 28	
Modem	D - 28	
LAN	D - 28	
TouchPad	D - 29	
Card Reader/Express Card	D - 29	
AP-Key Utility	D - 29	
RAID Utility	D - 32	
Wireless LAN Module	D - 37	
Bluetooth	D - 39	
PC Camera	D - 43	

Table D - 3 - Driver Installation

What to Install

This section covers driver and utility installation instructions for *Windows XP Home & Professional*. Insert the *Device Drivers & Utilities + User's Manual DVD-ROM* and click **Install Drivers** (button), or click **Optional** (button) to access the **Optional** driver menu.



Figure D - 18 - Drivers Installer Screen 1

1. Check the driver installation order from [Table D - 3](#) (the **drivers must be installed in this order**) which is the same as that listed in the **Drivers Installer** menu below.
2. Click to select the driver you wish to install, after installing each driver it will become greyed out (if you need to reinstall any driver, click the **Unlock** button).
3. Follow the instructions for each individual driver installation procedure as listed on the following pages.



Figure D - 19 - Drivers Installer Screen 2

Updating/Reinstalling Individual Drivers

If you wish to update/reinstall individual drivers it may be necessary to uninstall the original driver. To do this go to the **Control Panel** in the *Windows OS* and double-click the **Add/Remove Programs** item. **If you see the individual driver listed** (if not see below), uninstall it, following the on screen prompts (it may be necessary to restart the computer). Go to the appropriate section of the manual to complete the update/reinstall procedure for the driver in question.

If the driver is not listed in the **Add/Remove Programs** item:

1. Click **Start** (menu), point to **Settings** and click **Control Panel** (or click **Start > Control Panel**).
2. Double-click **System** (icon); System (icon) is in **Performance and Maintenance** (category).
3. Click **Hardware** (tab) > **Device Manager** (button).
4. Double-click the **device** you wish to update/reinstall the driver for (you may need to click "+").
5. Look for the **Update Driver** button (check the **Driver** tab) and follow the on screen prompts.



Windows XP Service Pack 2

Make sure you install **Windows XP Service Pack 2** (or a Windows XP version which includes Service Pack 2) **before installing any drivers**. Service Pack 2 includes support for **USB 2.0**.

If you have **upgraded** the system by installing **Service Pack 2** (i.e. your Windows XP version does not include Service Pack 2) then follow these instructions:

1. Click **Start** (menu), point to **Settings** and click **Control Panel** (or click **Control Panel**).
2. Double-click **System** (icon); **System** (icon) is in **Performance and Maintenance** (category).
3. Click the **Hardware** (tab) > **Device Manager** (button).
4. Click "+" next to **Other Devices** (if its sub-items are not shown).
5. Right-click **Universal Serial Bus (USB) Controller** and select **Uninstall > OK** (if you don't see the item then there is no need to take any further action).
6. Restart the computer and it will find the USB 2.0 controller.

Windows XP Information

Chipset

1. Click **1.Install Chipset Driver > Yes.**
2. Click **Next > Yes > Next.**
3. Click **Finish** to restart the computer.

Video

1. Click **2.Install Video Driver > Yes.**
2. Click **Next** (click **Continue Anyway** if asked if you want to continue at any time).
3. Click **“Yes, I want to restart my computer now”** (button).
4. Click **Finish** to restart the computer.

Audio

1. Click **3. Install Audio Driver > Yes.**
2. Click **Next** (click **Cancel** if a *Found New Hardware Wizard* appears).
3. Click **Finish** to restart the computer.

Modem

1. Click **4.Install Modem Driver > Yes.**
2. Click **OK.**
3. The modem is now ready for configuration.



Modem Country Selection

Be sure to check if the modem country selection is appropriate for you (**Control Panel > Phone and Modem Options**).

LAN

1. Click **5.Install LAN Driver > Yes.**
2. Click **Next > Install.**
3. Click **Finish.**
4. The network settings can now be configured.

TouchPad

1. Click **6.Install Touchpad Driver > Yes**.
2. Click **Next > Next > Next**.
3. Click **Finish** to restart your computer.

Card Reader/ExpressCard

1. Click **7.Install CardReader Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license, and then click **Next**.
4. Click **Finish**.

Ap-Key Utility

1. Click **8.Install AP-key Utility > Yes**.
2. Click **Next**.
3. The **GameKey** icon will appear on the desktop when the driver is installed.
4. See *“Application Hot Key” on page D - 5* and *“Game Keys” on page D - 6* for configuration instructions.

Module Drivers

See the following pages for the driver installation procedures for any of the **optional** modules included in your purchase configuration.

Bluetooth & Wireless LAN Modules



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are **OFF** if you are using the computer aboard aircraft.



Power Toggle for the Wireless LAN and Bluetooth Modules

Enable power to the modules as follows:

Fn + F11 = Wireless LAN Module Power Toggle

Fn + F12 = Bluetooth Module Power Toggle

When the WLAN module is on, the  LED will be green.
When the Bluetooth module is on, the  LED will be orange.

Setting Up SATA RAID or AHCI Modes

AHCI Mode

Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing (for maximum hard disk efficiency and performance). AHCI mode can be supported by one, two or three hard disks.

RAID

You may use your hard disks (if you have included more than one hard disk in your purchase option) in combination with Striping (RAID 0), Mirroring (RAID 1) or Parity Across Disks (RAID 5) for either fault tolerance or performance. To configure your system in Striping (RAID 0) or Mirroring (RAID 1) modes you will require **at least two** hard disks; to configure your system in Parity Across Disks (RAID 5) mode you will require **three hard disks** installed.

RAID Level	Description
RAID 0	Identical drives reading and writing data in parallel to increase performance . RAID 0 implements a striped disk array and the data is broken into blocks and each block is written to a separate disk drive.
RAID 1	Identical drives in a mirrored configuration used to protect data . Should a drive that is part of a mirrored array fail, the mirrored drive (which contains identical data) will handle all the data. When a new replacement drive is installed, data to the new drive is rebuilt from the mirrored drive to restore fault tolerance.
RAID 5	Identical drives (at least three drives must be used) in a parity across disks configuration are used to protect data and increase performance . A RAID 5 array can withstand a single disk failure without losing access to data.

Table D - 4 - RAID Levels

What to Prepare for RAID or AHCI Setup

Prepare the following before setting up your serial ATA hard disks in **RAID** mode (to configure **AHCI** mode you do not need to prepare any extra hard disks but will need to install the **Intel Matrix** driver):

1. An operable computer (to create a **SATA RAID/AHCI driver** diskette).
2. An external USB floppy disk drive.
3. A prepared formatted blank 3.5" 1.44MB floppy diskette.
4. The **Microsoft Windows XP Home or Professional Edition (with Service Pack 2) OS CD**.
5. The **Device Drivers & Utilities + User's Manual DVD-ROM**.
6. A **second** hard disk installed in the Primary HDD bay for **RAID level 0 or 1** (required for RAID but not required for AHCI).
OR
A **second** hard disk installed in the Primary HDD bay, and a **third** hard disk in the Secondary HDD bay for **RAID level 5**.

SATA RAID or AHCI Setup Procedure (BIOS)

1. Go to the operable computer running **Windows** and insert a prepared formatted blank 3.5" 1.44MB floppy diskette.
2. Insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive of the operable computer.
3. Click **Start** (menu) > **Run...** and navigate (**Browse..**) to **D:\Others\00Raiddriver\F6flpy32.exe** and click **OK**.
4. Make sure the formatted blank 3.5" 1.44MB floppy diskette is inserted, and click **OK**.
5. A **SATA RAID/AHCI driver** diskette will now be created for you.
6. Remove the **SATA RAID/AHCI driver** diskette.
7. Start-up your computer and press <F2> to enter the **BIOS**.
8. Go to the **Advanced** menu, select "**SATA Mode**" and press Enter.
 - For RAID Mode: - Set "**SATA Mode**" ("**SATA Mode: (Advanced Menu)**" on page 5 - 8) to "**RAID**".
 - OR**
 - For AHCI Mode: - Set "**SATA AHCI Enable**" ("**SATA Mode: (Advanced Menu)**" on page 5 - 8) to "**AHCI**".
9. Press **Esc** and go to the **Boot** menu.
10. Set the **external CD/DVD-ROM Drive** (make sure the **Microsoft Windows OS CD** is inserted) as the first device in the boot order from the **Boot** menu.
11. Select **Exit Saving Changes** from the **Exit** menu (or press **F10** and Enter) and press Enter to exit the BIOS and reboot the computer.
12. For **RAID** mode see the instructions in "**RAID Setup (Intel Matrix)**" on page D - 33.
13. For **AHCI** mode see "**Windows Setup for RAID & AHCI Modes**" on page D - 35, and install the Intel Matrix driver "**Intel Matrix Driver Installation**" on page D - 36.

RAID Setup (Intel Matrix)

1. Press **Ctrl + i** to enter RAID configuration menu.

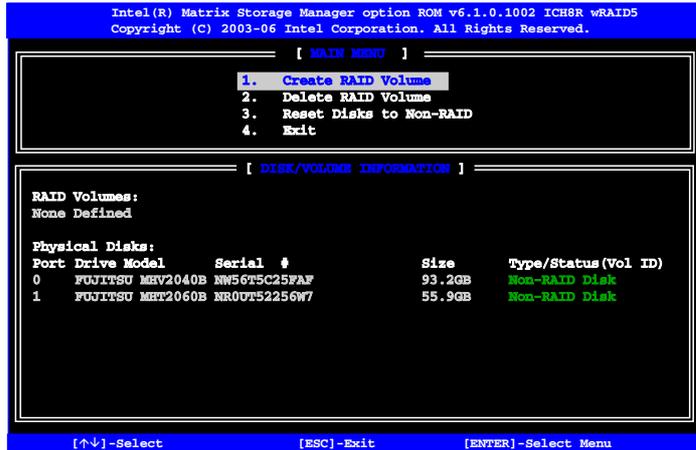


Figure D - 20
Intel(R) Matrix Storage Manager

2. Select **1.Create RAID Volume** and press Enter.
3. Type the **RAID volume name** and then press Tab or Enter to advance to the next field.
4. Specify (use the up and down arrow keys) the **RAID level (RAID 0 or RAID 1 or RAID 5** - see [Table D - 4, on page D - 30](#)) and then press Tab or Enter to advance to the next field.
5. Press Enter and the system will select the physical disks to use.
6. Press Enter and select (if applicable) the Strip Size (best set to default).
7. Press Enter and select the Capacity size (best set to default).
8. Press Enter to **Create Volume**.
9. Confirm the selection by pressing **Y**.

Windows XP Information

10. This will now return to the main menu.

Figure D - 21
RAID Created

```
Intel(R) Matrix Storage Manager option ROM v6.0.0.1022 ICH8R wRAID5
Copyright (C) 2003-06 Intel Corporation. All Rights Reserved.

[ MAIN MENU ]

1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID  Name      Level      Strip      Size      Status      Bootable
0   My RAID   RAID1(Mirror)  N/A      55.9GB     Normal      Yes

Physical Disks:
Port  Drive Model      Serial #      Size      Type/Status(Vol ID)
0     FUJITSU MEV2040B  NW56T5C25FAF  93.2GB   Member Disk(0)
1     FUJITSU MET2060B  NR0UT52256W7  55.9GB   Member Disk(0)

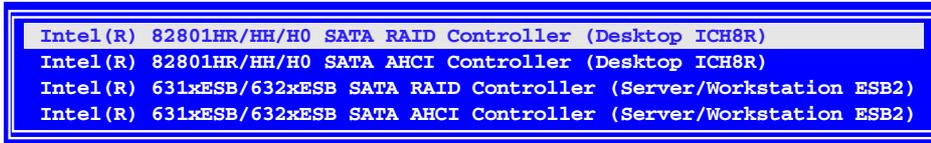
[↑↓]-Select      [ESC]-Exit      [ENTER]-Select Menu
```

11. Select **4.Exit** and press Enter, then press **Y** to exit the RAID configuration menu.

12. See over for *Windows* setup.

Windows Setup for RAID & AHCI Modes

13. Start the computer up, and press a key when you see the message "**Press any key to boot from CD**".
14. Press the **F6** key when you see the message "**Press F6 if you need to install third party SCSI or RAID driver**".
15. When the **Windows** Setup menu appears (**Windows** will load a number of files before the Setup menu appears), press the <S> key to "**Specify Additional Device**".
16. Insert the **SATA RAID driver** diskette into the external USB floppy drive, and press Enter.
17. Use the arrow keys to scroll down and select (see below):



```

Intel(R) 82801HR/HH/H0 SATA RAID Controller (Desktop ICH8R)
Intel(R) 82801HR/HH/H0 SATA AHCI Controller (Desktop ICH8R)
Intel(R) 631xESB/632xESB SATA RAID Controller (Server/Workstation ESB2)
Intel(R) 631xESB/632xESB SATA AHCI Controller (Server/Workstation ESB2)
  
```

Figure D - 22
SATA RAID Controller
Desktop ICH8R

- For **RAID** Mode - *Intel(R) 82801HR/HH/H0 SATA RAID Controller (Desktop ICH8R)*
 - For **AHCI** Mode - *Intel(R) 82801HR/HH/H0 SATA AHCI Controller (Desktop ICH8R)*
18. After you have selected the appropriate option, press **Enter**.
 19. The system will now read from the floppy disk drive and then return to the **Windows** Setup menu.
 20. Press **Enter** to continue installing the operating system as normal (see your **Windows** documentation if you need help on installing the **Windows** OS).
 21. Install the **Windows** drivers as per [Table D - 3, on page D - 25](#), and then install the **Intel Matrix driver** (see overleaf).

Intel Matrix Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**.
3. Click **1.Install Intel Matrix > Yes**.
4. Click **Next > Next > Yes > Next**
5. Click **Finish** to restart the computer.
6. Run the **Intel(R) Matrix Storage Manager** application from the **Start > Programs/All Programs** menu.

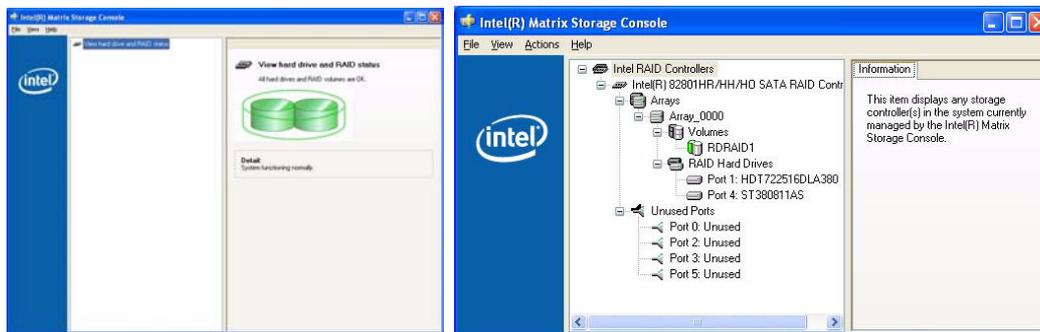


Figure D - 23 - Intel Matrix Storage Console

7. The **Intel(R) Matrix Storage Manager** provides information on the RAID status.

Intel WLAN Module

Before installing the **Intel PRO/Wireless 3945ABG (802.11a/b/g)** or **Intel PRO/Wireless 4965AGN (802.11a/g/n)** WLAN driver use the **Fn + F11** key combination to toggle power to the module.

Intel WLAN Driver Installation

1. Make sure the module is powered on (use the **Fn + F11** key combination to toggle power to the module), and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **2. Wireless Lan > Yes**.
3. Click **Install Software** (button).
4. Click the button to accept the license and click **Next > Next > OK**.
5. Click **OK** to complete the installation.
6. You can configure the settings by going to the **Intel (R) PROSet Wireless** control panel (**Start > Programs/All Programs > Intel PROSet Wireless**), or by double-clicking the taskbar icon .

Windows XP Information



User Guide

You can view the User Guides from the **Device Drivers & Utilities + User's Manual DVD-ROM**.

Click **Optional** and then click the **Unlock** button. Click **2.Wireless Lan > Yes**.

Click **View User Guide** (button).

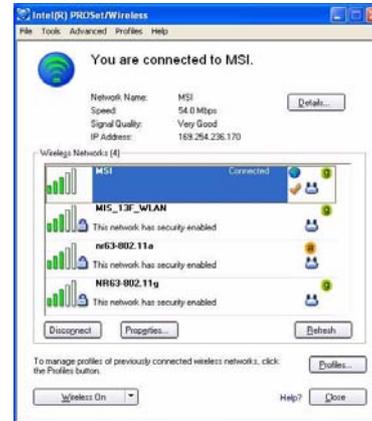
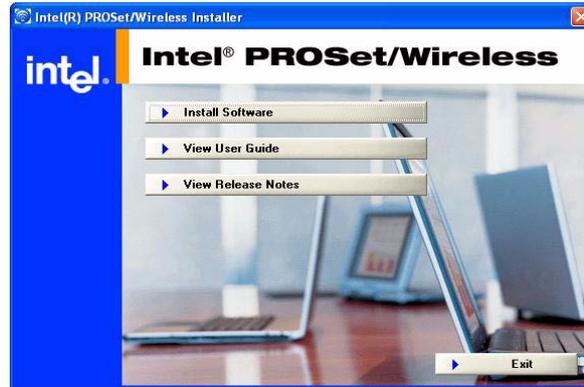


Figure D - 24
Intel PROSet/
Wireless

Bluetooth Module

Before installing the Bluetooth driver use the **Fn + F12** key combination to toggle power to the module.

Bluetooth Driver Installation

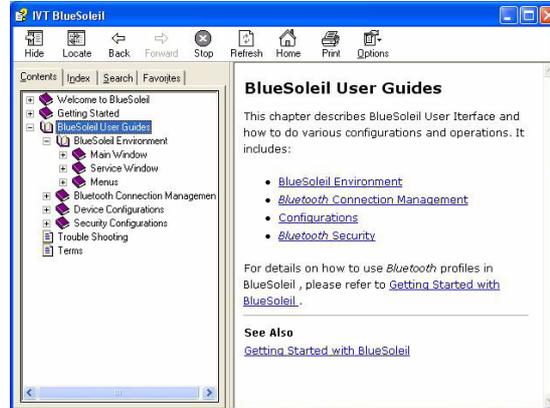
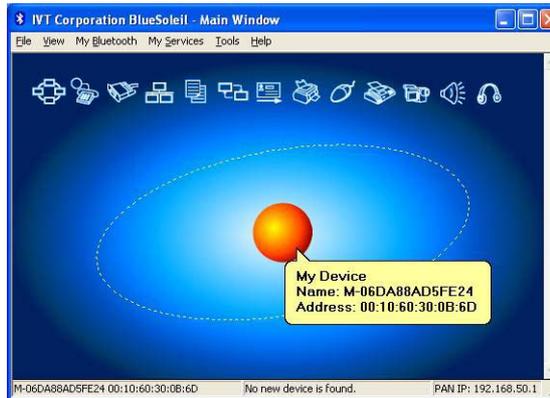
1. Make sure the module is powered on and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **3.Bluetooth > Yes**.
3. Choose the language you prefer, and click **OK**.
4. Click **Next**.
5. Click the button to accept the license agreement, and then click **Next**.
6. Click **Next > Next > Install**.
7. Click **Finish**.
8. The **IVT Corporation BlueSoleil - Main Window** screen will appear on the desktop.
9. You can configure the settings at any time by going to the **IVT Corporation BlueSoleil - Main Window** control panel (**Start > Programs/All Programs > IVT BlueSoleil**), or by clicking the taskbar icon .



User Guide

View the BlueSoleil User Guides (Contents and Index) from the **Help** menu (or press the **F1** key) in the **IVT Corporation BlueSoleil - Main Window** control panel. Click **BlueSoleil User Guides** in the **Contents** tab, and click to select the appropriate User Guide from the panel on the right.

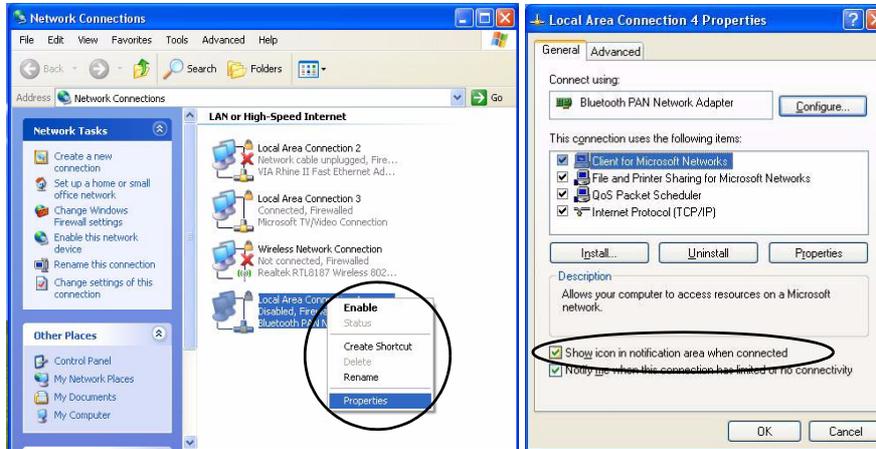
Figure D - 25
Bluetooth Control Panel & User Guides



Bluetooth Local Area Connection Icon

If you want to display the Local Area Connection icon for the Bluetooth connection in the taskbar, set it up as follows:

1. Access the **Network Connections** control panel in *Windows* (**Start > Settings > Network Connections OR Start > Connect To > Show all Connections**) or by clicking the taskbar icon .
2. Right-click the Bluetooth connection icon, and select **Properties**.
3. Click to put a tick in the **"Show icon in the notification area when connected"** box.
4. Close the control panels and the icon  for the Bluetooth connection will be displayed in the taskbar when connected (see sidebar and overleaf).



Disconnecting

In order to have the taskbar icon display the correct connection status, you will need to exit the **IVT Corporation BlueSoleil - Main Window** by clicking the **File** menu and selecting **Exit** (see over).

After exiting the program you can then use the **Fn + F12** key combination to turn off the Bluetooth module.

If you use the close button, or turn off the Bluetooth module (by using the **Fn + F12**) the taskbar icon will not display the correct status

Figure D - 26
Local Area
Connection

Windows XP Information

5. Use the **Fn + F12** key combination to turn on the Bluetooth module.
6. Run the **IVT Corporation BlueSoleil** program from the desktop icon or **Start** menu.
7. The connection status will then be displayed.

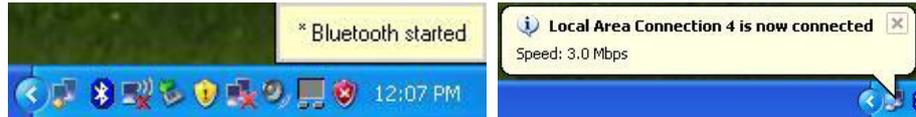


Figure D - 27 - Bluetooth Connected

8. To **disconnect** click **File** from the **IVT Corporation BlueSoleil - Main Window**, and select **Exit** (the Local Area Connection will then display "**A network cable is unplugged**").
9. Do not use the **close**  button or **Fn + F12** key combination before clicking **File > Exit** or the correct status will not be displayed.
10. You can then use the **Fn + F12** key combination to turn off the Bluetooth module (check the LED icon for the Bluetooth module power status).

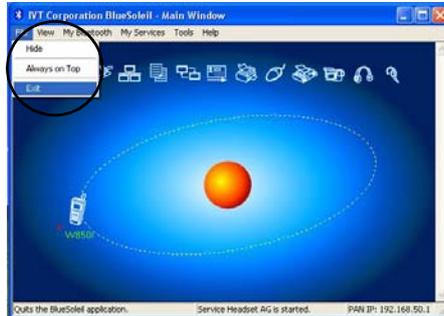


Figure D - 28 - Bluetooth Disconnected

PC Camera Module

Before installing the PC Camera driver use the **Fn + F10** key combination to toggle power to the module. There are **2** camera options available for this computer, depending on your purchase configuration. The **1.3M pixel camera** module uses the **BisonCap** application to capture video files. The **2.0M pixel camera** module uses the **Video View** application to capture video files.



Taking Still Pictures

Double-click the **My Computer** icon on the desktop, or go the **Start** menu and point to **My Computer**, then click it.

Double-click the camera icon.



Click **Take a new picture** in the **Camera Tasks** box.

PC Camera Driver Installation

1. Make sure the module is powered on and then insert the *Device Drivers & Utilities + User's Manual DVD-ROM* into the CD/DVD drive.
2. Click **Optional**, and then click **4.PC Camera, Web cam > Yes**.

For the 1.3M Pixel Camera Module:

3. Choose the language you prefer and click **Next > Next**.
4. Click **Finish** to restart the computer.
5. Run the **BisonCap** application program from the **BisonCam** shortcut on the desktop, or from the **BisonCam** item in the **Start > Programs/All Programs** menu (if the hardware is turned off use the **Fn + F10** key combination to turn it on again).

For the 2.0M Pixel Camera Module:

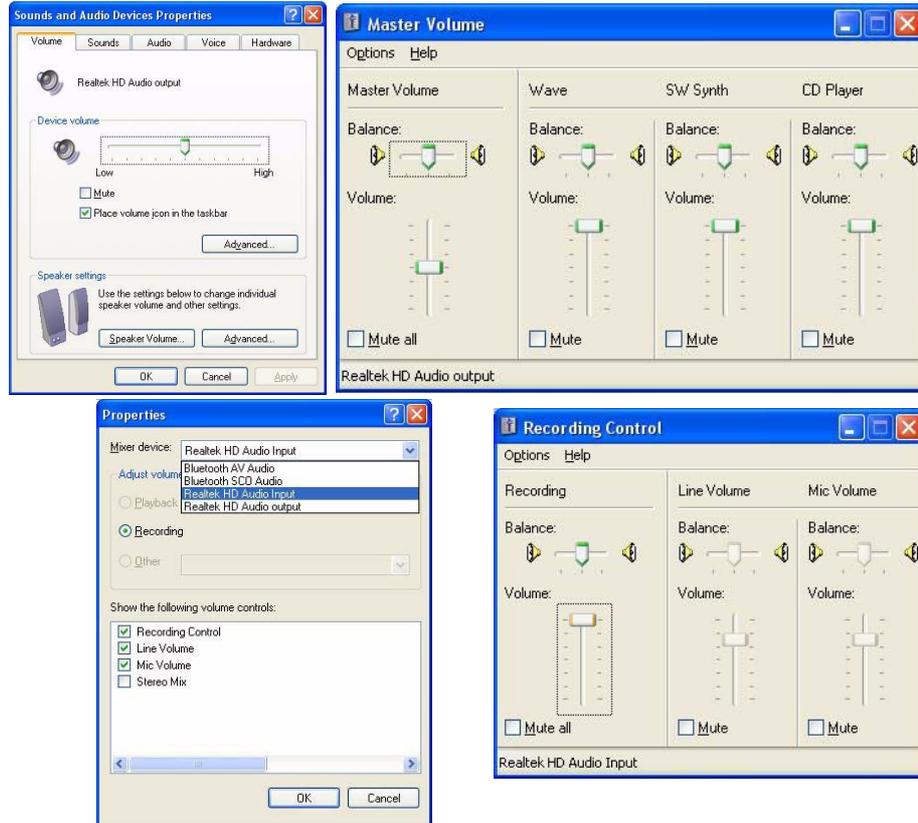
1. Click **Install**.
2. Click to select **Yes** or **No** in answer to the power system question.
3. Click **Finish > Finish** to restart the computer.
4. Run the **Video View** application program from the **Video View** shortcut on the desktop, or from the **USB2.0 PC Camera** item in the **Start > Programs/All Programs** menu (if the hardware is turned off use the **Fn + F10** key combination to turn it on again).

PC Camera Audio Setup

If you wish to capture video & **audio** with your camera, it is necessary to setup the audio recording options in *Windows* (see *Figure D - 29 on page D - 46*).

1. Go to the **Start** menu and point to **Settings** (or just click **Control Panel**) and click **Control Panel**, then double-click the **Sounds & Audio Devices** icon (**Sounds, Speech, and Audio Devices** in Category View).
2. Click **Advanced** in the **Volume > Device volume** tab.
3. Click **Options** and scroll down and click **Properties**.
4. Select **Realtek HD Audio input** from the **Mixer device** menu.
5. Click **Mic Volume** (check box) if it is not checked, then click **OK**.
6. Boost the **Recording** volume in the **Recording Control** panel as high as it will go.
7. Close the control panels.
8. Run the **BisonCap/Video View** application program from the **Start > Programs/All Programs > BisonCam/USB2.0 PC Camera** menu.
9. Go to the **Devices** menu heading and select **Realtek HD Audio input** (it should have a tick alongside it).
10. Go to the **Capture** menu heading and select **Capture Audio** (it should have a tick alongside it).

Figure D - 29
**Audio Setup for
PC Camera**



BisonCap (for 1.3M pixel camera modules)

BisonCap is a video viewer useful for general purpose video viewing and testing, and can capture video files to .avi format.

1. Run the **BisonCap** application from the **Start > Programs/All Programs > BisonCam** menu (it is recommended that you **set the capture file** before the capture process - **see Set Capture File below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check **“PC Camera Audio Setup” on page D - 45**) and select **Start Capture**.
3. On the first run of the program (if you have not set the captured file) you will be asked to choose a file name and size (**see the sidebar - Pre-Allocating File Space**) for the captured file. Click **Start Capture** again.
4. Click **OK** to start capturing the video, and press **Esc** to stop the capture.
5. If you wish to, you may go to the **File** menu and select **Save Captured Video As...**, choose a file name and location, and then click **Open** (you can view the file using the **Windows Media Player**).

Set Capture File

In the **BisonCap** application you will only be asked to set the capture file name on the first run of the program. When you run the program the next time the file will automatically be overwritten with the newly captured file. To avoid overwriting files you can go to the **Set Capture File..** option in the **File** menu, and set the file name and location before capture. Set the name and location then click **Open** (you can choose **Cancel** to ignore the file size if prompted).



Pre-Allocating File Space

You may pre-allocate the file size for the capture file in the **BisonCap** application. You can choose to ignore this by clicking **Cancel**.

Pre-allocating space on the hard disk can improve the capture quality (particularly of large capture files), by reducing the amount of work the hard disk has to do in finding space for the video data as it is being captured.

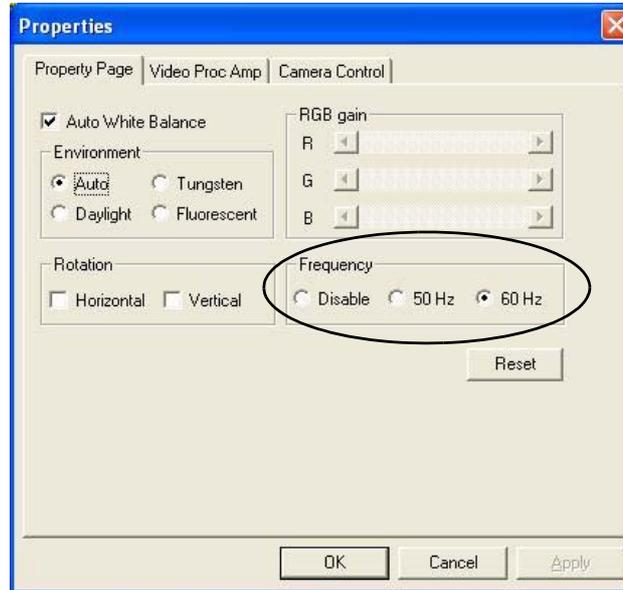
You may find it helpful to defragment the HDD before capture.

Eliminating Screen Flicker (BisonCap)

If you find that the video screen in the **BisonCap** application is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

- 1.Run the **BisonCap** program.
- 2.Go to **Options** and scroll down to select “**Video Capture Filter...**”.
- 3.Click either **50Hz** or **60Hz** under **Frequency** in **Property Page** (tab).

Figure D - 30
Video Capture Filter



Video View (for 2.0M pixel camera module)

Video View is a video viewer useful for general purpose video viewing and testing, and can capture video files to .avi format.

1. Run the **Video View** program from the **Start > Programs/All Programs > USB2.0 PC Camera** menu (it is recommended that you **set the capture file** before the capture process - **see Set Capture File below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check **“PC Camera Audio Setup” on page D - 45**) and select **Start Capture**.
3. Click **OK** (the file location will be displayed in the pop-up box) to start capturing the video, and press **Esc** to stop the capture.

Set Capture File

Prior to capturing video files you may **Set Capture File...** To avoid overwriting files you can go to the **Set Capture File..** option in the **File** menu, and set the file name and location before capture. Set the name and location then click **Open** (you can choose **Cancel** to ignore the file size if prompted).



Pre-Allocating File Space

You may pre-allocate the file size for the capture file in the **Video View** program.

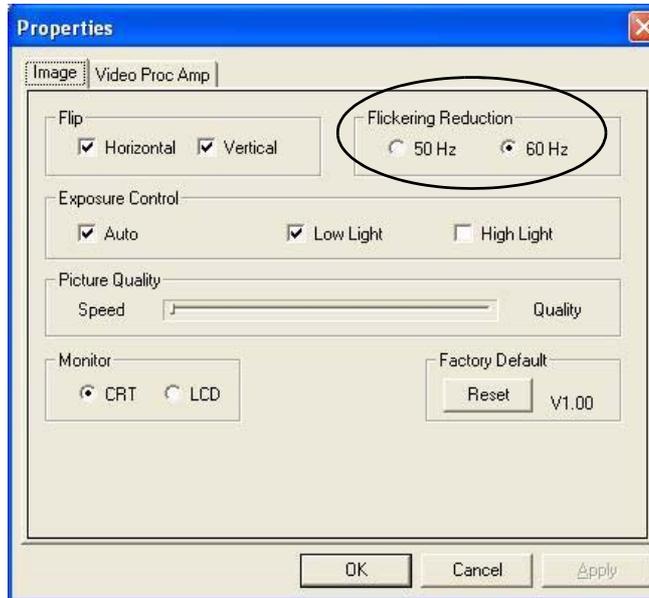
Pre-allocating space on the hard disk can improve the capture quality (particularly of large capture files), by reducing the amount of work the hard disk has to do in finding space for the video data as it is being captured.

Eliminating Screen Flicker (Video View)

If you find that the video screen in the **Video View** program is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

1. Run the **Video View** program.
2. Go to **Options** and scroll down to select **Video Capture Filter....**
3. Click either **50Hz** or **60Hz** under **Flickering Reduction** in **Image** (tab).

Figure D - 31
Video Capture Filter



Zoom (Video View)

If you have enabled digital zoom when installing the **2.0M Pixel Camera** driver you may use the **Options > Setting** menu to zoom the camera in and out.

1. Run the **Video View** program.
2. Go to **Options** and scroll down to select **Setting**.
3. Use the slider to adjust the zoom level, and click **OK** to save the setting.

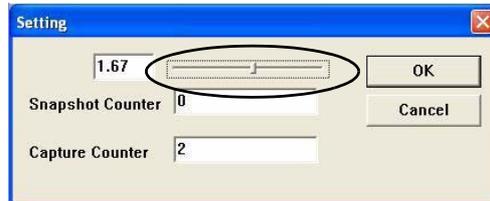


Figure D - 32
Setting

Still Image Capture (Video View)

You can capture still images by using the **Snapshot** command from the **Capture** menu.

1. Run the **Video View** program.
2. Go to **Capture** and select **Snapshot**.
3. The picture (in JPEG format) will be placed in the **Snapshot** folder on the desktop.



Snapshot Folder

The Snapshot folder's default location is on the desktop. Do not move this folder or an error may appear when you try to take a still picture.

If you accidentally delete or move the folder, you can create a new Snapshot folder on the desktop in order to capture the files.

Figure D - 33
Snapshot Folder

Mini-PCI TV Tuner Module

The Mini-PCI TV Tuner Module driver and application (for MPC788/MPC718) are provided on a separate CD-ROM for *Windows XP* (see “*Mini-PCI TV Tuner Module*” on page 7 - 25 for further information).

MPC788/MPC718 Driver & Cyberlink PowerCinema Installation

1. Insert the driver *MPC788 or MPC718 CD-ROM* into the CD/DVD drive.
2. Click **XP Setup**.
3. Choose the Setup Language you prefer, and then click **Next**.
4. Click **Next > Next**.
5. Click the button to accept the license agreement for **Microsoft(R) DirectX(R)**, and then click **Next > Next > Finish**.
6. Choose the Setup Language you prefer for **PowerCinema**, and then click **OK**.
7. Click **Next > Yes**.
8. Type in the **Cyberlink PowerCinema** CD Key provided (make sure you also input a User and Company Name), and then click **Next**.
9. Click **Next > Next > Next > Finish**.
10. Click **Next > Install > Finish** to install **SimHID**.
11. Click **Finish** to restart the computer.
12. Run the application from the **Start > Programs/All Programs > Cyberlink PowerCinema** and select the **PowerCinema** program, or double-click the icon on the desktop.
13. **Help** is available from within the **PowerCinema** program.