

USER'S MANUAL

notebook



Notice

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Preface

R&TTE Directive

This device is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/5/EC.

This device will be sold in the following EEA countries: Austria, Italy, Belgium, Liechtenstein, Denmark, Luxembourg, Finland, Netherlands, France, Norway, Germany, Portugal, Greece, Spain, Iceland, Sweden, Ireland, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland, Slovenia.

EuP-Standby and Off Mode Power Consumption Statement:

The figures below note the power consumption of this computer in compliance with European Commission (EC) regulations on power consumption in off mode or standby mode:

- Standby Mode < 2W
- Off Mode < 1W

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters “CE”. The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0560 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

FCC Statement (Federal Communications Commission)

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Operation is subject to the following two conditions:

1. This device may not cause interference.

And

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

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.



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.

If your purchase option includes both **Wireless LAN** and **3.75G** modules, then the appropriate antennas will be installed. Note that In order to comply with FCC RF exposure compliance requirements, the antenna must not be co-located or operate in conjunction with any other antenna or transmitter.

Important Notice - 3.75G/HSPA & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3.75G/HSPA module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3.75G/HSPA module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.

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 with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 6.3A (**120** Watts) minimum AC/DC Adapter.

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

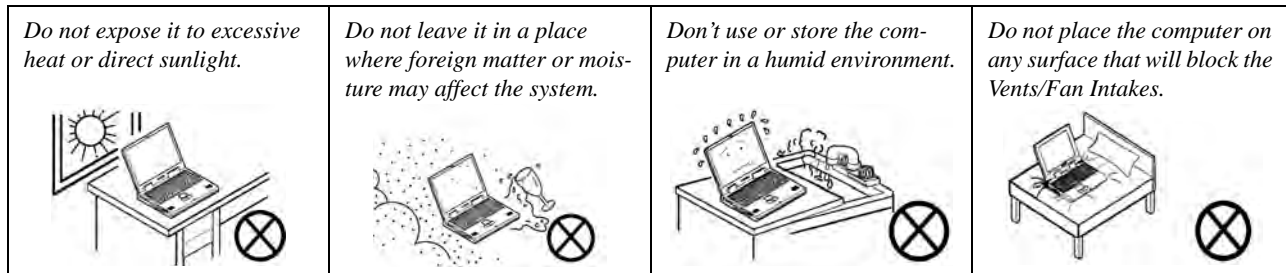
Instructions for Care and Operation

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.

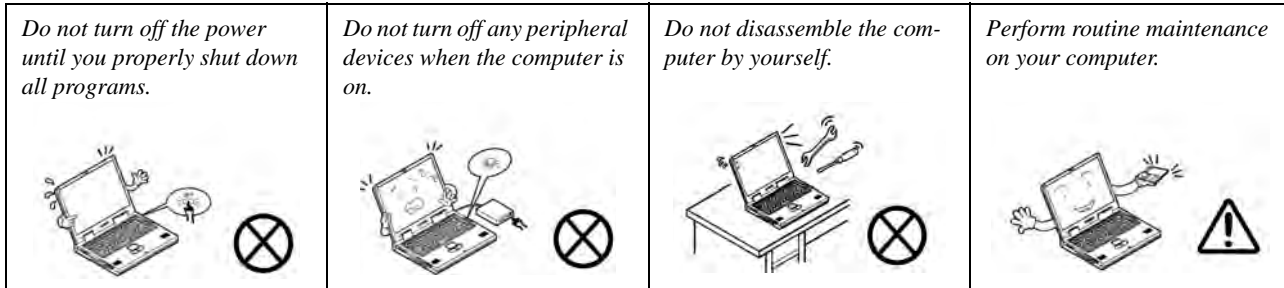


2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

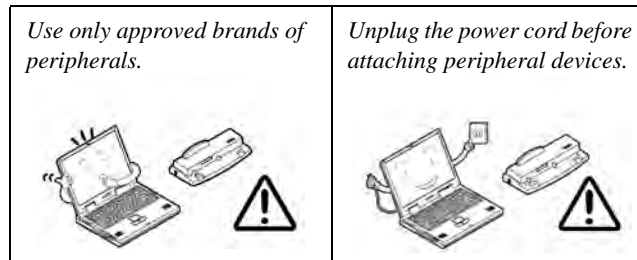


Preface

- 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.
- 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.



- Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

- 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).

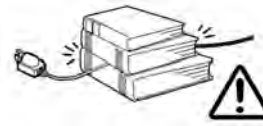
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



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.

Polymer Battery Precautions

Note the following information which is specific to polymer batteries only, and where applicable, this overrides the general battery precaution information overleaf.

- Polymer batteries may experience a slight expansion or swelling, however this is part of the battery's safety mechanism and is not a cause for concern.
- Use proper handling procedures when using polymer batteries. Do not use polymer batteries in high ambient temperature environments, and do not store unused batteries for extended periods.

See also the general battery precautionary information overleaf for further information.

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.
- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- 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.

Preface

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 documents are prepared.



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 vent(s)/fan intake(s)/outlet(s) to be blocked. To prevent your computer from overheating make sure nothing blocks the vent(s)/fan intake(s)/outlet(s) 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 comfortable display viewing angle can reduce eye strain and muscle fatigue in your neck and shoulders.

- 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.

Contents

Notice	I	System Map: LCD Panel Open - Model B	1-8
EuP-Standby and Off Mode Power Consumption Statement:	II	LED Indicators	1-9
FCC Statement	IV	Hot Key Buttons & Keyboard	1-10
FCC RF Radiation Exposure Statement:	V	Keyboard	1-11
Instructions for Care and Operation	VII	Function/Hot Key Indicators	1-12
Power Safety	IX	System Map: Front & Left Views	1-13
Polymer Battery Precautions	X	System Map: Right & Rear Views	1-14
Battery Precautions	XI	System Map: Bottom View - Model A	1-15
Cleaning	XII	System Map: Bottom View - Model B	1-16
Servicing	XII	3.75G/HSPA Module USIM Card Installation	1-17
Travel Considerations	XIII	Video Features	1-19
		NVIDIA® Optimus™ Technology	1-19
		Power Options	1-23
		MOFA LCD Back Covers - Model A	1-24
Quick Start Guide		Features & Components	
Overview	1-1	Overview	2-1
Advanced Users	1-2	Hard Disk Drive	2-2
Beginners and Not-So-Advanced Users	1-2	Optical (CD/DVD) Device	2-3
Warning Boxes	1-2	Loading Discs	2-3
Not Included	1-3	Handling CDs or DVDs	2-4
System Startup	1-4	DVD Regional Codes	2-5
System Software	1-5	Multi-In-1 Card Reader	2-6
Model Differences	1-6		
System Map: LCD Panel Open - Model A	1-7		

Preface

Touchpad and Buttons/Mouse	2-7
Gestures and Device Settings	2-8
Audio Features	2-11
Setup for Audio Recording	2-12
Adding a Printer	2-13
USB Printer	2-13
Parallel Printer	2-13

Power Management

Overview	3-1
The Power Sources	3-2
AC/DC Adapter	3-2
Battery	3-2
Turning On the Computer	3-3
Power Plans	3-4
Power-Saving States	3-7
Sleep	3-7
Hibernate	3-8
Shut down	3-8
Configuring the Power Buttons	3-9
Resuming Operation	3-10
Energy Star Power Saving	3-11
Battery Information	3-12
Conserving Battery Power	3-13
Battery Life	3-14

New Battery	3-14
Recharging the Battery with the AC/DC Adapter	3-14
Proper handling of the Battery Pack	3-15
Battery FAQ	3-16

Drivers & Utilities

What to Install	4-1
Module Driver Installation	4-1
Driver Installation	4-2
Updating/Reinstalling Individual Drivers	4-4
User Account Control	4-5
Windows Security Message	4-5
New Hardware Found	4-5
Driver Installation Procedure	4-6
Chipset	4-6
Video (VGA)	4-6
NVIDIA Video (VGA)	4-6
LAN	4-6
CardReader	4-6
Touchpad	4-6
Hot Key	4-7
USB 3.0	4-7
MEI Driver	4-7
Audio	4-7
Windows Experience Index	4-8

Optional Drivers 4-9
 PC Camera Module 4-9
 Wireless LAN Module 4-9
 3.75G/HSPA Module 4-10
 Intel Rapid Storage Technology Driver 4-10

BIOS Utilities

Overview 5-1
 The Setup Utility 5-2
 Failing the POST 5-3
 Fatal Errors 5-3
 Non-Fatal Errors 5-3
 Setup Screens 5-4
 Main Menu 5-5
 System Time & Date (Main Menu) 5-5
 SATA Port # (Main Menu) 5-6
 System/Extended Memory (Main Menu) 5-6
 MB Series / BIOS Revision / KBC/
 EC firmware Revision (Main Menu) 5-6
 Advanced Menu 5-7
 Advanced Chipset Control (Advanced Menu) 5-7
 Bluetooth Power Setting (Advanced Menu >
 Advanced Chipset Control) 5-8
 SATA Mode (Advanced Menu) 5-8
 Legacy USB Support (Advanced Menu) 5-8

Boot Logo (Advanced Menu) 5-9
 Power On Boot Beep (Advanced Menu) 5-9
 Battery Low Alarm/Alert Beep (Advanced Menu) 5-9
 Security Menu 5-10
 Set Supervisor Password (Security Menu) 5-10
 Set User Password (Security Menu) 5-11
 Password on boot: (Security Menu) 5-11
 Boot Menu 5-12
 Boot Sequence (Boot Menu) 5-13
 Exit Menu 5-14

Upgrading The Computer

Overview 6-1
 When Not to Upgrade 6-2
 Removing the Battery 6-3
 Upgrading the Hard Disk Drive 6-4
 Upgrading the Optical (CD/DVD) Device 6-7
 Upgrading the System Memory (RAM) 6-9
 Changing the Optional LCD Back Covers 6-12

Modules & Options

Overview 7-1
 PC Camera Module 7-2
 PC Camera Driver Installation 7-3
 Wireless LAN Module 7-10

Preface

802.11b/g/n Driver Installation	7-11	Text Messaging Service (SMS)	7-63
Intel® WLAN Driver Installation	7-11	SMS Utility	7-63
Connecting to a Wireless Network in Windows 7	7-12	Sending a Text Message	7-65
Intel® My WiFi Configuration	7-15	Phonebook	7-68
Intel WLAN & Bluetooth Combo Module		SMS Settings	7-71
High-Speed Data Transfer Configuration	7-27	Intel Rapid Storage Technology	7-74
Windows Mobility Center	7-29	IRST Driver Installation	7-74
Fingerprint Reader Module	7-30		
Fingerprint Reader Driver Installation	7-31	Troubleshooting	
User Enrollment	7-32	Overview	8-1
Fingerprint Control Center Features	7-34	Basic Hints and Tips	8-2
Bluetooth Module	7-35	Backup and General Maintenance	8-3
3rd Party Bluetooth Combo Driver Installation	7-36	Viruses	8-4
3rd Party Bluetooth & WLAN Combo Settings	7-37	Upgrading and Adding New Hardware/Software	8-5
3rd Party Bluetooth Networking Setup	7-40	Problems and Possible Solutions	8-7
3rd Party Bluetooth & WLAN Combo Module		Bluetooth Connection Problems	8-13
Configuration	7-41	Intel® Centrino Advanced WLAN &	
Intel Bluetooth Combo Driver Installation	7-44	Bluetooth V3.0+HS Combo Modules	8-17
Standard Bluetooth Configuration in Windows 7	7-45	Wake On LAN Setup	8-18
3.75G/HSPA Module	7-49		
Wireless Manager	7-52	Interface (Ports & Jacks)	
Wireless Manager Installation	7-52	Overview	A-1
Wireless Manager Application	7-53	Notebook Ports and Jacks	A-2
Profiles	7-56		
Settings	7-60		

Video Driver Controls

Video Driver Installation	B-1
Video (VGA)	B-1
NVIDIA Video (VGA)	B-1
NVIDIA® Optimus™ Technology	B-2
Intel® Graphics & Media Control Panel	B-5
Display Devices & Options	B-7
Attaching Other Displays	B-8
Configuring an External Display in Windows 7	B-11
HDMI Audio Configuration	B-14
NVIDIA Control Panel	B-17
Optimus™ Customization Options	B-19
Set PhysX® Configuration	B-23
Video Settings	B-24

Specifications

Processor	C-2
Processor	C-2
Core Logic	C-2
Display	C-2
Memory	C-2
Video	C-3
BIOS	C-3
Storage	C-3

Audio	C-3
Keyboard, Pointing Device & Buttons	C-3
Interface	C-3
Card Reader	C-4
Slots	C-4
Communication	C-4
Communication	C-4
Power Management	C-4
Power	C-4
Security	C-4
Operating System	C-4
Design Feature	C-5
Environmental Spec	C-5
Dimensions & Weight	C-5


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, card reader), Touchpad & Mouse, Audio & 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 **PC Camera, Wireless LAN, Fingerprint, Bluetooth & WLAN Combo** and **3.75G** 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 **video driver controls.**
- **Appendix C** The computer's **specification.**

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 *“What to Install” 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.

Beginners and Not-So-Advanced Users




Notes

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

If you are new to computers (or do not have an advanced knowledge of them) then the information contained in the 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 7*) 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 drivers listed in ***“Drivers & Utilities” on page 4 - 1***. 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. 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 ***Chapter 4*** for installation instructions.

Ports and Jacks

See ***“Notebook 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.

System Startup

1. Remove all packing materials and place the computer on a stable surface.
2. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
3. 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.
4. Use one hand to raise the lid/LCD to a comfortable viewing angle (**do not exceed 135 degrees**); use the other hand to support the base of the computer (**Note: Never lift the computer by the lid/LCD**).
5. Press the power button on the top right of the computer **for about 2 - 3 seconds** to turn the computer “on” (note that the **power LED** on the front of the computer **will turn from orange to green** when the computer powers on).



Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command from the bottom right of the **Start** menu in **Windows**. This will help prevent hard disk or system problems.



Figure 1 - 1 - Opening the Lid/LCD & Computer with AC/DC Adapter Plugged-In

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 that this manual refers to the *Windows 7* operating system.



Windows OS

In order to run *Windows 7* without limitations or decreased performance, your computer requires a minimum **1GB** of system memory (RAM), however if you are running *Windows 7 64 bit* your computer requires a minimum **2GB** of system memory (RAM).

Model Differences


This notebook series includes **two** different model types that mainly differ as indicated in the table below. Note that your model may appear slightly different from those pictured in this manual.

Feature	Model A	Model B
Display Type Supported	15.6" (39.62cm) HD (1366 * 768) / HD+ (1600 * 900) / FHD (1920 * 1080) 16:9 LCD Panel	17.3" (43.94cm) HD+ (1600 * 900) / FHD (1920 * 1080) 16:9 LCD Panel
MOFA or IMR LCD Back Cover	Factory Option	N/A
3.75G Module	UMTS/HSPDA-based 3.75G Module with USB Mini-Card Interface (Factory Option)	N/A
Fingerprint Module	Factory Option	N/A
Dimensions & Weight	374mm(w) * 250mm(d) * 25-37.2mm(h) 2.6 kg with ODD & 48.84WH Battery	413mm(w) * 277.5mm(d) * 25.1-38.9mm(h) 3.1 kg with ODD & 48.84WH Battery

Table 1 - 1 - Model Differences

System Map: LCD Panel Open - Model A





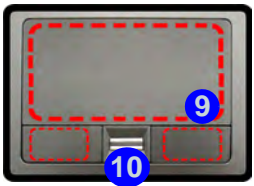
**Wireless Device
Operation Aboard
Aircraft**

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 key combinations to toggle power to the **3.75G/HSPA/WLAN/Bluetooth** modules, and check the LED indicator or on-screen icon to see if the modules are powered on or not (see *Table 1 - 5, on page 1 - 12/ Table 1 - 3, on page 1 - 9*).

Figure 1 - 2
LCD Panel Open -
Model A

1. Built-In PC Camera (Optional)
2. LCD
3. Power Button
4. GPU Button
5. LED Indicators
6. Hot Key Buttons
7. Keyboard
8. Built-In Microphone
9. Touchpad & Buttons
10. Fingerprint Reader (Factory Option)



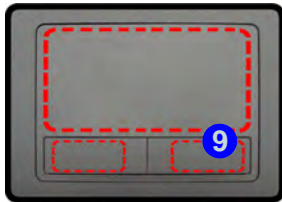
Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines above.



Quick Start Guide

Figure 1 - 3
LCD Panel Open
Model B

1. Built-In PC Camera (Optional)
2. LCD
3. Power Button
4. GPU Button
5. LED Indicators
6. Hot Key Buttons
7. Keyboard
8. Built-In Microphone
9. Touchpad & Buttons



Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines above.

System Map: LCD Panel Open - Model B



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 key combinations to toggle power to the **WLAN/Bluetooth** modules, and check the LED indicator or on-screen icon to see if the modules are powered on or not (see [Table 1 - 5, on page 1 - 12/ Table 1 - 3, on page 1 - 9](#)).

LED Indicators

The LED indicators on the computer display helpful information about the current status of the computer.






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	Number Lock Activated
	Green	Caps Lock Activated
	Green	Scroll Lock Activated (to activate press Fn & Scr Lk)

Table 1 - 2 - Front Left LED Indicators







Icon	Color	Description
	Green	UMA Mode Activated
	Orange	Optimus Mode Activated
	Green	Intel Integrated GPU (iGPU) Activated
	Orange	NVIDIA Discrete GPU (dGPU) Activated
	Green	The (optional) WLAN Module is Powered On
	Orange	The (optional) Bluetooth Module is Powered On
	White	Hard Disk Activity
	White	The Computer is Powered On

Table 1 - 3 - Top Case LED 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/hot-keys unique to the system's regular keyboard may not work.

NumLk & ScrLk

Hold down the **Fn Key** and either **NumLk** or **ScrLk** to enable number or scroll lock, and check the LED indicator for status.

Hot Key Buttons & Keyboard

Press the hot key buttons on the computer to toggle the appropriate function on/off.






Icon	Color	Description
	Green	UMA Mode Activated
	Orange	Optimus Mode Activated
		The (optional) Wireless LAN Module is Powered On
		Volume Mute is Enabled
		The (optional) PC Camera is Powered On
	White	The Computer is Powered On

Table 1 - 4 - Hot Key Buttons



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 **NumLk** is on.

Keyboard

The keyboard has an embedded numerical keypad for easy numeric data input, and features function keys to allow you to change operational features instantly. See *Table 1 - 5, on page 1 - 12* for full function key combination details.

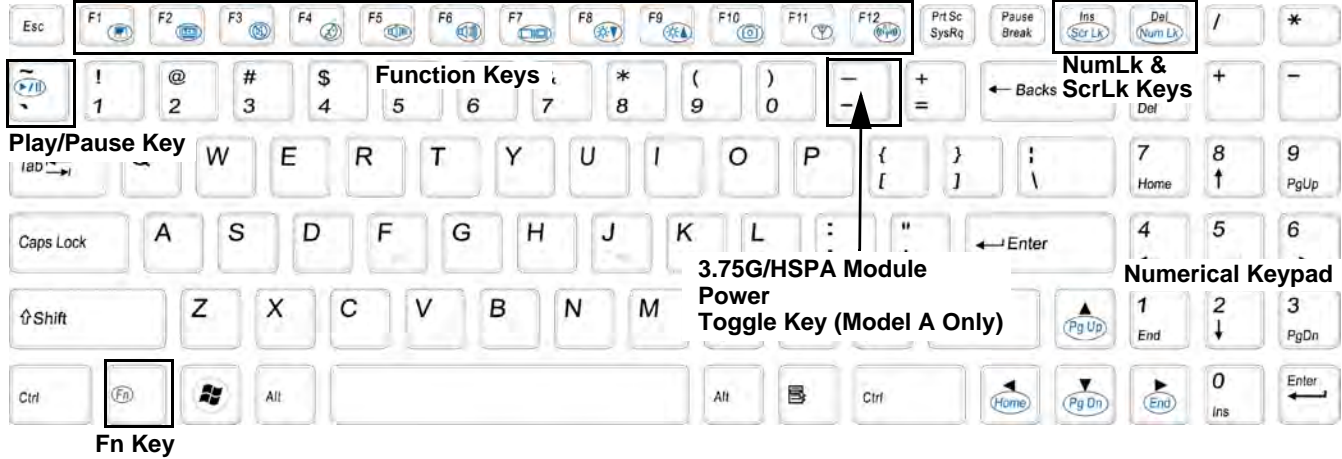


Figure 1 - 4 - Keyboard

Function/Hot Key Indicators

The **function keys** (F1 - F12 etc.) will act as **hot keys** when pressed while the **Fn** key is held down. In addition to the basic function key combinations; visual indicators are available when the hot key utility is installed.
















Keys	Function/Visual Indicators	Keys	Function/Visual Indicators
Fn + ~	Play/Pause (in Audio/Video Programs)	Fn + F7	Display Toggle
Fn + 	3.75G Module Power Toggle  	Fn + F8/F9	Brightness Decrease/ Increase 
Fn + F1	Touchpad Toggle  	Fn + F10	PC Camera Power Toggle  
Fn + F2	Turn LCD Backlight Off (Press a key to or use Touchpad to turn on)	Fn + F11	*WLAN Module Power Toggle  
Fn + F3	Mute Toggle  	Fn + F12	Bluetooth Module Power Toggle  
Fn + F4	Sleep Toggle	Fn + NumLk	Number Lock Toggle
Fn + F5/F6	Volume Decrease/ Increase 	Fn + ScrLk	Scroll Lock Toggle

Table 1 - 5 - Function & Hot Key Indicators

System Map: Front & Left Views



Figure 1 - 5
Front & Left Views

1. LED Indicators (see [Table 1 - 2, on page 1 - 9](#))
2. External Monitor Port
3. RJ-45 LAN Jack
4. HDMI-Out Port
5. 1 * USB 2.0 Port
6. 2 * USB 3.0 Ports
7. Vent/Fan Intake
8. e-SATA Port
9. Multi-In-1 Card Reader



Multi-In-1 Card Reader

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

MMC (MultiMedia Card) / RS MMC
SD (Secure Digital) / Mini SD / SDHC / SDXC
MS (Memory Stick) / MS Pro / MS Duo

USB 3.0 Port OR USB 2.0 Port

Some models in this series have a single USB 3.0 port (**Factory Option**) on the left side of the computer, other models will have a USB 2.0 port. The USB 3.0 port is denoted by its blue color; USB 2.0 ports are colored black.

Note that the USB 3.0 port requires a driver installation (see [“USB 3.0” on page 4 - 7](#)) and does not support wake on USB.

Quick Start Guide

Figure 1 - 6
Right & Rear Views

1. Headphone-Out Jack
2. Microphone-In Jack
3. S/PDIF-Out Jack
4. USB 2.0 Port
5. Optical Device Drive Bay
6. Security Lock Slot
7. Battery
8. DC-In Jack

System Map: Right & Rear Views



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".

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.

System Map: Bottom View - Model A



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 - 12](#) for full instructions.

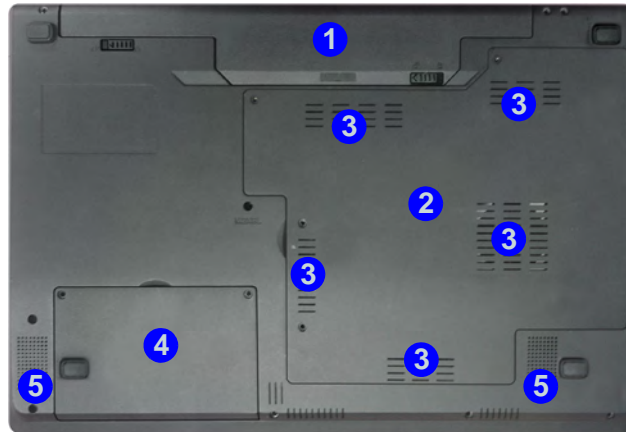


Figure 1 - 7
Bottom View
Model

1. Battery
2. Component Bay Cover
3. Fan Intake
4. Hard Disk Bay Cover
5. Speakers



CPU

The CPU is not a user serviceable part.

Overheating

To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intake while the computer is in use.

Figure 1 - 8
Bottom View
Model B

1. Battery
2. Component Bay Cover
3. Fan Intake
4. Hard Disk Bay Cover
5. Speakers

System Map: Bottom View - Model B



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 - 12](#) for full instructions.



CPU

The CPU is not a user serviceable part.

Overheating

To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intake while the computer is in use.

3.75G/HSPA Module USIM Card Installation


If you have included an optional 3.75G/HSPA module in your purchase option (**Factory Option for Model A Computers Only**), follow the instructions below to install the USIM card (which will be provided by your service provider), and then run the **Wireless Manager** application. See *“Wireless Manager” on page 7 - 52* for instructions on installing the program etc.

1. Turn **off** the computer, and turn it over and then remove the battery (slide the latches in the direction indicated below and slide the battery out).
2. Insert the USIM card (at the rear of the battery compartment) as illustrated below until it clicks fully into position, and replace the battery.



Figure 1 - 9 - Battery Removal & USIM Card Insertion

Windows 7 Start Menu & Control Panel

Most of the control panels, utilities and programs within *Windows 7* (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. Right-click the **Start** menu icon , and then select **Properties** if you want to customize the appearance of the **Start** menu.

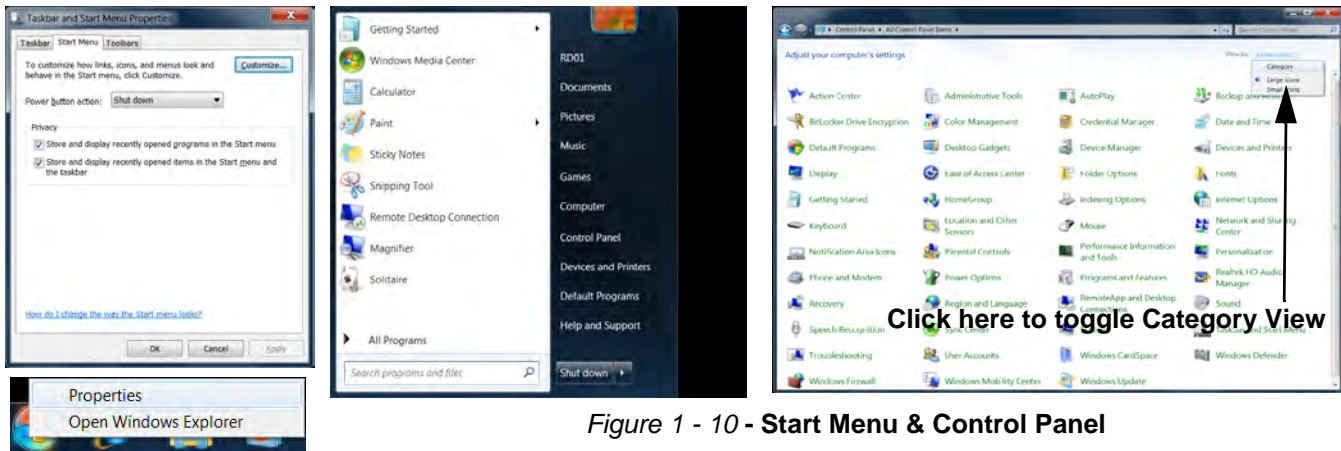



Figure 1 - 10 - Start Menu & Control Panel

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 7* provides basic controls for many of the features, however many new controls are added (or existing ones are enhanced) when you install the drivers. To see all controls it may be necessary to toggle off *Category View* to view the control panel icons.

Video Features

NVIDIA® Optimus™ Technology

NVIDIA® Optimus™ technology is a seamless technology designed to get best performance from the graphics system while allowing longer battery life, without having to manually change settings. When the computer is in **Optimus Mode** it will **automatically** switch between the integrated UMA (Unified Memory Architecture) GPU (iGPU) and the discrete GPU (dGPU) when required by the applications in use. This switch is seamless to the user and does not require any use of the GPU button (see *“NVIDIA® Optimus™ Technology” on page B - 2*).

The **GPU button**  allows you to switch between the **Optimus Mode** (where GPU switching is automatically handled) and **UMA Mode** (for constant power-saving with the integrated GPU only).





Icon	Color	Description	Note
	Green	UMA Mode Activated	The GPU LED indicators  will display which GPU is currently in use
	Orange	Optimus Mode Activated	
	Green	Integrated GPU (iGPU) Activated	
	Orange	Discrete GPU (dGPU) Activated	

Table 1 - 6 - GPU Modes & GPU LED Indicators

You can switch display devices, and configure display options, from the **Display** control panel (in **Appearances and Personalization**) in *Windows 7* (see over). For more detailed video information see *“Video Driver Controls” on page B - 1*.

Quick Start Guide

To access **Display (Control Panel) and Screen Resolution** in *Windows*:

1. Click **Start** and click **Control Panel**.
2. Click **Display** (icon) - In the **Appearance and Personalization** category.
3. Click **Adjust Screen Resolution/Adjust resolution**.
4. Alternatively you can right-click the desktop and select **Screen resolution**.
5. Use the dropbox to select the screen **Resolution** ① (*Figure 1 - 11*).
6. Click **Advanced settings** ② (*Figure 1 - 11*) to bring up the **Advanced** properties tabs.

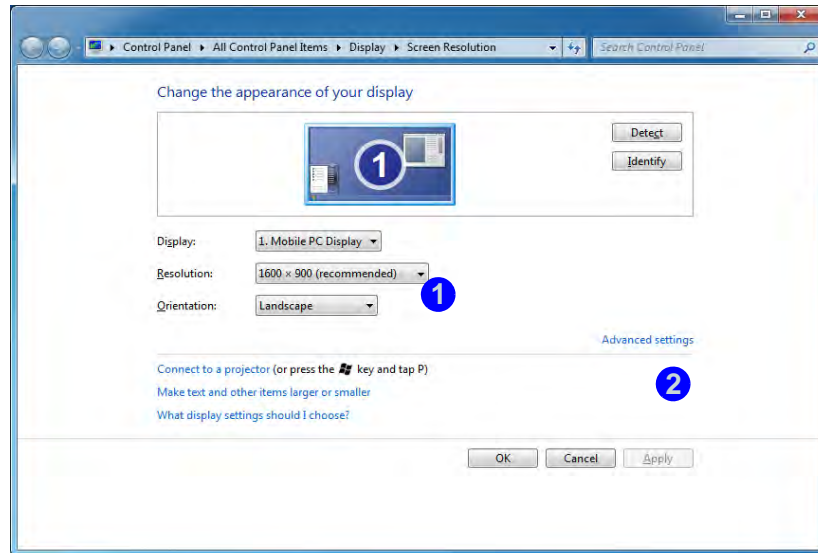


Figure 1 - 11 - Screen Resolution

To access the *Intel(R) Graphics and Media Control Panel*:

1. Click **Advanced settings** ② (*Figure 1 - 11 on page 1 - 20*) in the **Display Settings** control panel in *Windows*.
 2. Click **Graphics Properties (button)** ③ (*Figure 1 - 12*) in the **Intel Graphics & Media Control Panel** tab.
- OR
3. Right-click the desktop and select **Graphics Properties** from the menu.
- OR
4. Click the icon ④ (*Figure 1 - 12*) in the taskbar and select **Graphics Properties** from the menu.
- OR
5. Access the **Intel(R) Graphics and Media Control Panel** from the *Windows* control panel in **Classic View**.
 6. Choose the application mode (**Basic, Advanced or Wizard**) required.

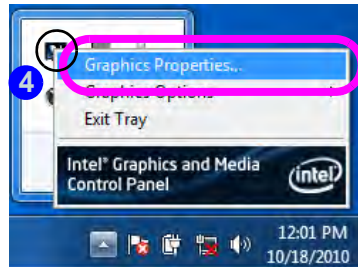
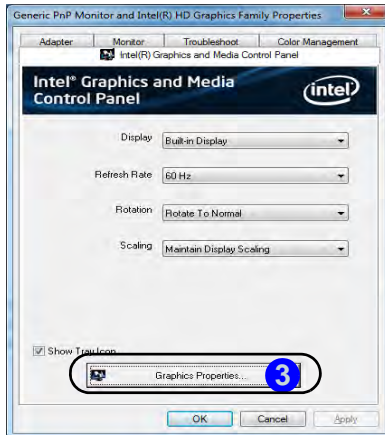


Figure 1 - 12 - Intel Graphics and Media Control Panel

Quick Start Guide

To access the *NVIDIA Control Panel*:

1. Right-click the desktop and select **NVIDIA Control Panel** 5 (Figure 1 - 13).
- OR
2. Double-click the icon 6 (Figure 1 - 13) in the Windows control panel.

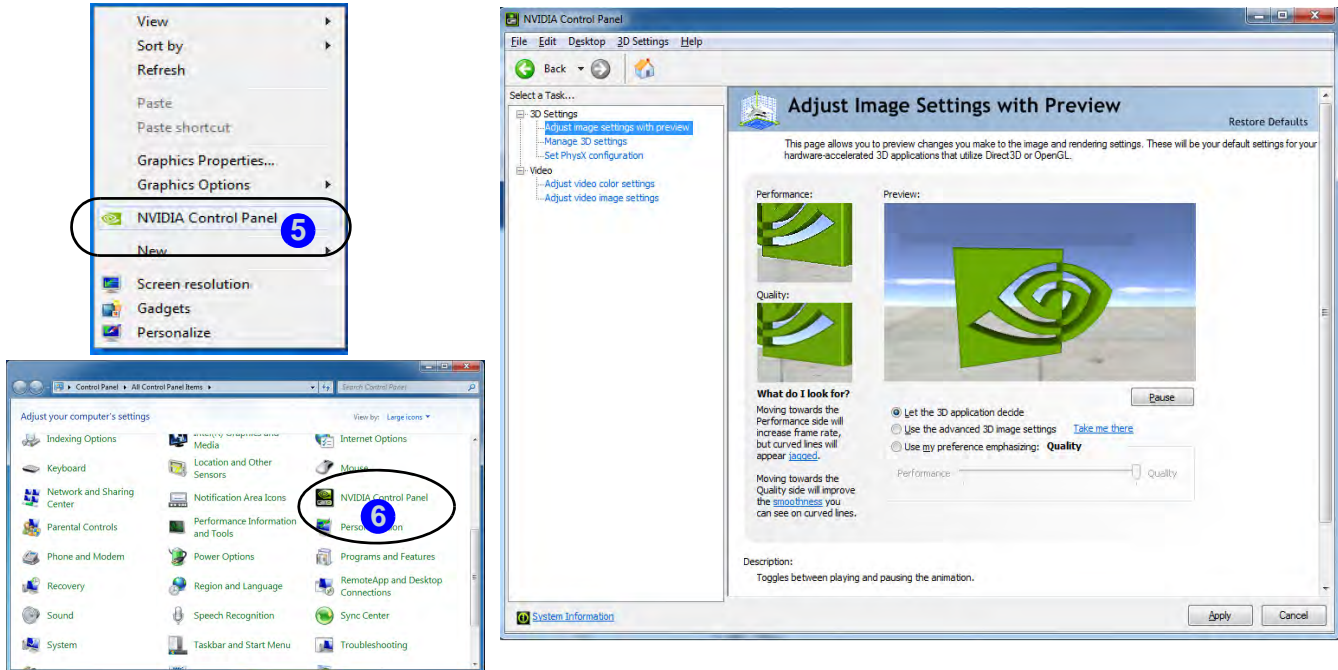


Figure 1 - 13 - NVIDIA Control Panel

Power Options

The **Power Options (Hardware and Sound menu)** control panel icon in *Windows* (see page *1 - 16*) 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 - 12.*

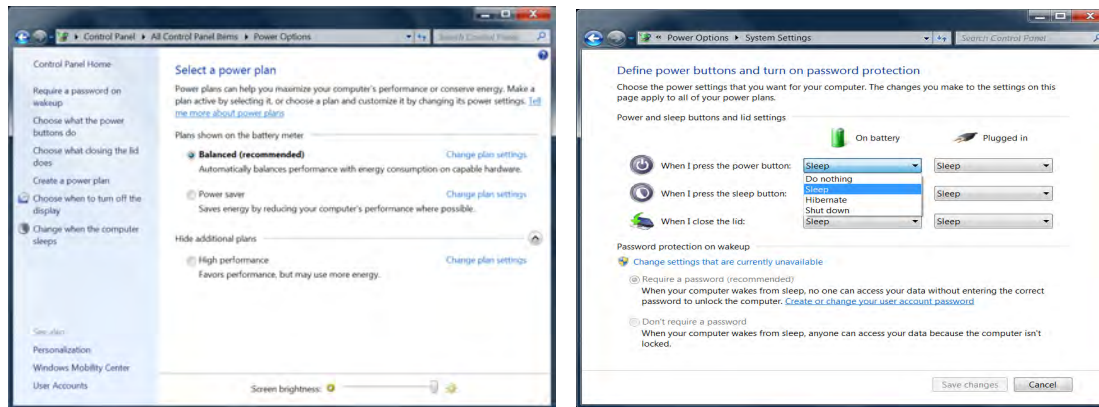


Figure 1 - 14 - Power Options

MOFA LCD Back Covers - Model A

MOFA (Magic of Film Art) technology allows fashionable and unique pictorial designs to be printed on the specially designed changeable LCD back covers. If your purchase option includes the specially designed changeable LCD back cover option (**Model A Computers Only**), then follow the instructions in *“Changing the Optional LCD Back Covers” on page 6 - 12* to change the covers (**note these covers are not applicable to all models in this series** - consult your service center for details).



Figure 1 - 15 - Magic Of Film Art Optional LCD Back Covers

Chapter 2: Features & Components

Overview

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

- Hard Disk Drive
- Optical (CD/DVD) Device
- Multi-In-1 Card Reader
- 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 is used to store your data in the computer. The hard disk can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5 mm.

The hard disk is accessible from the bottom of your computer as seen below. For further details see [“Upgrading the Hard Disk Drive” on page 6 - 4.](#)

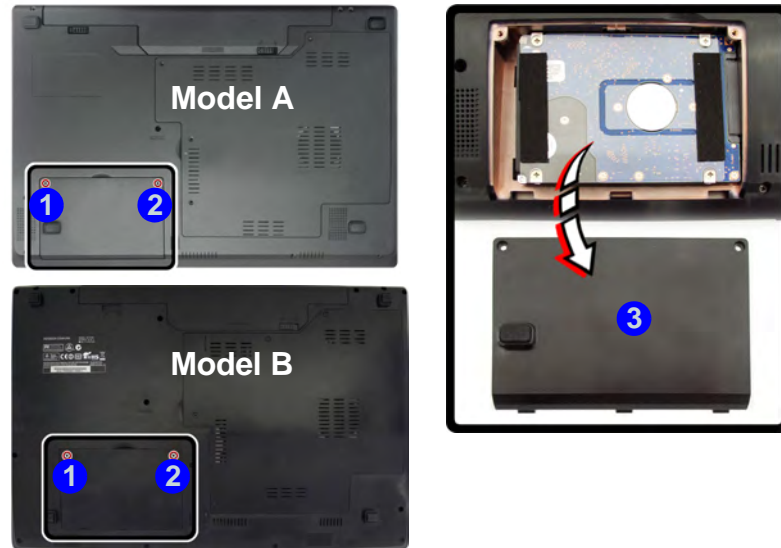


Figure 2 - 1

Hard Disk Location

Optical (CD/DVD) Device

There is a bay for a 5.25" optical (CD/DVD) device (12.7mm height). The actual device will depend on the module you purchased (see *“Storage” on page C - 3*). 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 ❶ 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 ❷ 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 ❸ 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 (see *“Audio Features” on page 2 - 11*).

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.

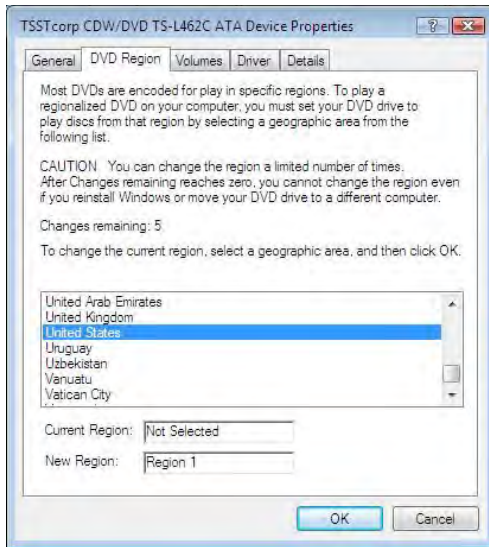
Note the following:

- 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:

1. Go to the **Control Panel**
2. Double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**.
3. 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.



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



DVD Region Note

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.

Figure 2 - 3
DVD Region Codes



Card Reader Cover

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

Multi-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 *“CardReader” on page 4 - 6.*

- MMC (MultiMedia Card) / RS MMC
- SD (Secure Digital) / Mini SD / SDHC / *SDXC Compatible*
- MS (Memory Stick) / MS Pro / MS Duo

Note: Some of these cards require PC adapters that are usually supplied with the cards.


Figure 2 - 4
Left View

1. Card Reader



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.

Once you have installed the Touchpad driver (see *“Touchpad” on page 4 - 6*) you can configure the functions by double-clicking the Touchpad driver icon  on the **taskbar**. You may then configure the Touchpad tapping, buttons, scrolling (see sidebar), pointer motion and sensitivity options to your preferences.



Touchpad Scrolling

This computer model series may feature different Touchpad versions.

These Touchpads may differ in their vertical scrolling function in most scrollable windows.

Some Touchpads require sliding the finger up and down on the right of the Touchpad to scroll the window. Other versions require tapping/holding down the finger at the top right or bottom right of the Touchpad to scroll the window.

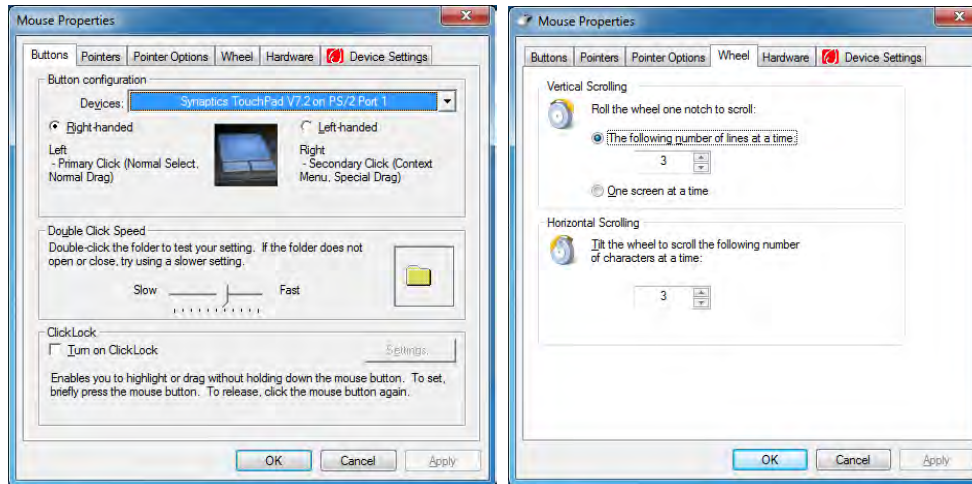


Figure 2 - 5
Mouse Properties



Show Video

You can get a clearer view of the gestures involved by clicking the **Show Video** option for each gesture item.

Select the gesture (**Pinch Zoom, Rotating, Three Fingers Down and Three Finger Flick**) in the **Device Settings > Settings** left tree menu and click the **Show Video** button to see the demonstration video.

For more details on any of the gestures see the **help** in the lower part of the right menu window.

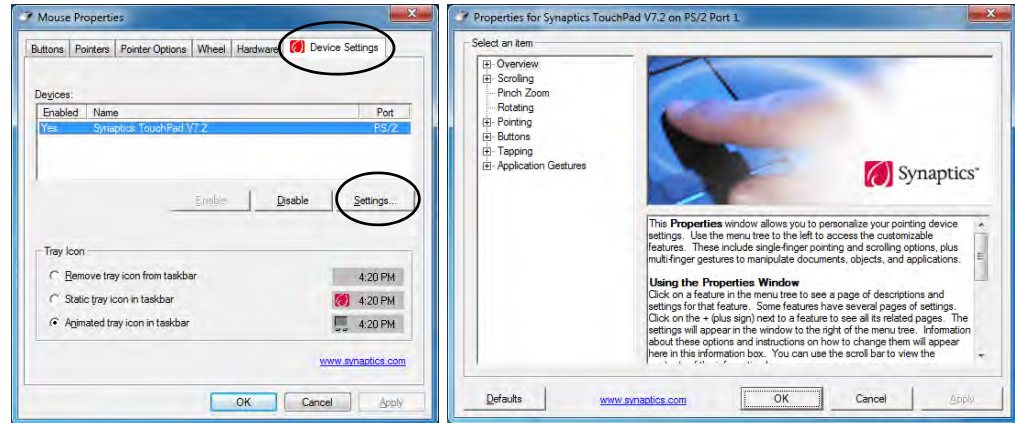
Figure 2 - 6
**Mouse Properties -
Device Settings**

Gestures and Device Settings

The Synaptics Gestures Suite application allows you to use a specific gesture (action) on the surface of the Touchpad to perform specific actions to manipulate documents, objects and applications.

You can configure the settings from the Device Settings tab in **Mouse Properties**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Mouse (Hardware and Sound)**.
3. Click **Device Settings** (tab) and click **Settings**.
4. Use the menu tree on the left to access the user configurable settings.



Scrolling


The Two-Finger scrolling feature works in most scrollable windows and allows you to scroll horizontally and vertically. Place two fingers, slightly separated, on the Touchpad surface and slide both fingers in the direction required (in a straight continuous motion).



Figure 2 - 7
Scrolling Gesture

Zooming

The Pinch Zoom gesture can be used to perform the same function as a scroll wheel in *Windows* applications that support CTRL + scroll wheel zoom functionality. Place two fingers on the Touchpad (for best results use the tips of the fingers) and slide them apart to zoom in, or closer together to zoom out.



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
Zooming Gesture

Rotating

Use the Pivot Rotate gesture to rotate objects (e.g. photos) in 90 degree increments. Place a finger down on the left “target” zone and keep it stationary. Place another finger near the middle of the Touchpad and slide it in a circular motion around the stationary finger (clockwise or counterclockwise) to rotate the object.

Figure 2 - 9
Rotating Gesture



Three Finger-Flick/Three Fingers Down (Press)

The Three Finger-Flick gesture may be used to enhance navigation with a variety of applications such as browsing the Internet or scrolling through a photo viewer. The Three Fingers Down gesture may be used to launch user-selectable applications.


Figure 2 - 10
**Flick/Press
Gesture**

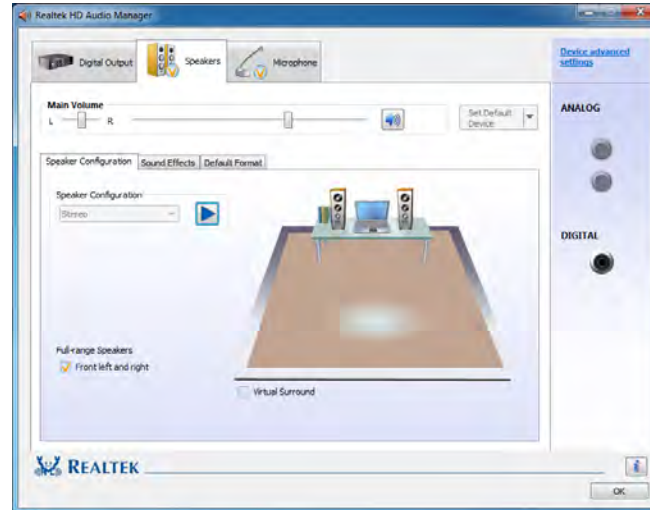


Audio Features

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 (see [Table 1 - 5](#), [on page 1 - 12](#)).



Right-click the icon  to access the menu above.



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 - 11
Realtek Audio Manager

See [“HDMI Audio Configuration” on page B - 14](#) for a description of the audio configuration when connecting an HDMI supported display device.

Setup for Audio Recording

To record audio sources on your computer at optimum quality follow the instructions below:


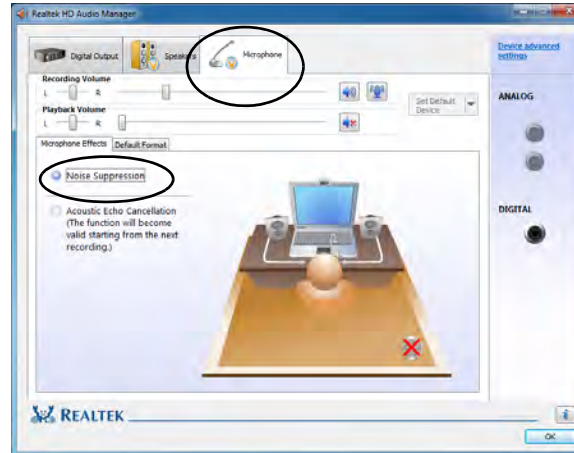
1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**) and make sure you are in **Classic View**.
2. Click **Realtek HD Audio Manager** (or right-click the taskbar icon  and select **Sound Manager**).
3. Click **Microphone Effects** (tab) in **Microphone** (tab), and then click to select **Noise Suppression** (button), or adjust the **Recording Volume** level to around **60**, to obtain the optimum recording quality.
4. Click **OK** to close the control panel and save the settings.

Figure 2 - 12
**Realtek Audio
Manager -
Recording Setup**



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 current 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, however you will need to purchase a parallel to USB converter.



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.

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 LCD 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
- Energy Star Power Saving
- 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 7* 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.

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 - 16*).

We recommend that you do not remove the battery. For more information on the battery, please refer to *“Battery Information” on page 3 - 12*.

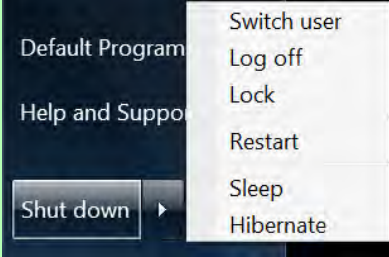
Turning On the Computer

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 Stand by/Hibernate/Shutdown hot-key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will shut the computer down). Use **Power Options** in the *Windows* control panel to configure this feature.


Shut Down

Note that you should always shut your computer down by choosing the **Shut Down** command from the bottom right of the **Start** menu in *Windows*. This will help prevent hard disk or system problems.



The screenshot shows the Windows Start menu with the 'Shut down' button highlighted. A context menu is open over the 'Shut down' button, listing the following options: Switch user, Log off, Lock, Restart, Sleep, and Hibernate.


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 as Stand by or Hibernate Button

You can use the OS’s **Power Options** control panel to set the power button to send the system into Stand by or Hibernate mode (see your OS’s documentation, or *“Configuring the Power Buttons”* on page 3 - 9 for details).



Resuming Operation

See [Table 3 - 1](#), on [page 3 - 10](#) 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**.

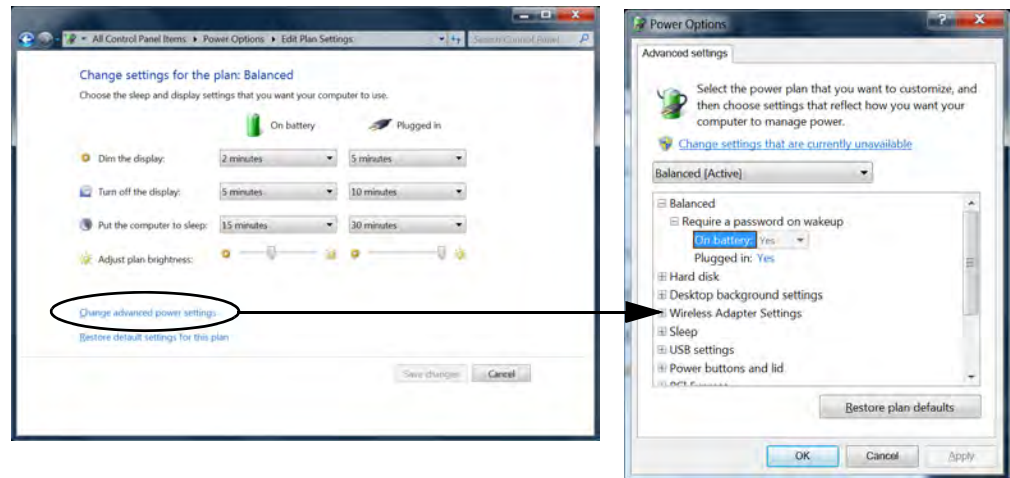


Figure 3 - 1
**Power Plan
Advanced Settings
(Win 7)**

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** (you may need to click **Show additional plans** to view the High performance plan) 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. The recommended **Balanced** power plan will balance power saving and performance.

Click to Show/Hide additional power plans

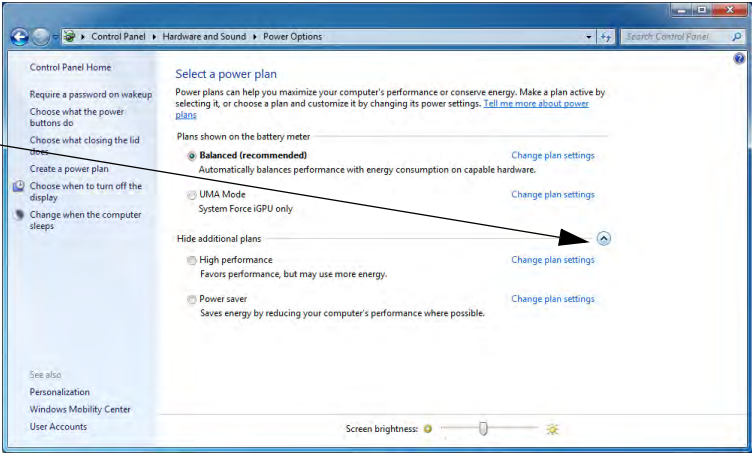


Figure 3 - 2
Power Plans

Power Management

3



UMA Mode Power Plan

UMA Mode is designed for **maximum power saving**, however this does have an affect on the system's overall video performance (as it is based on the Power saver power plan).

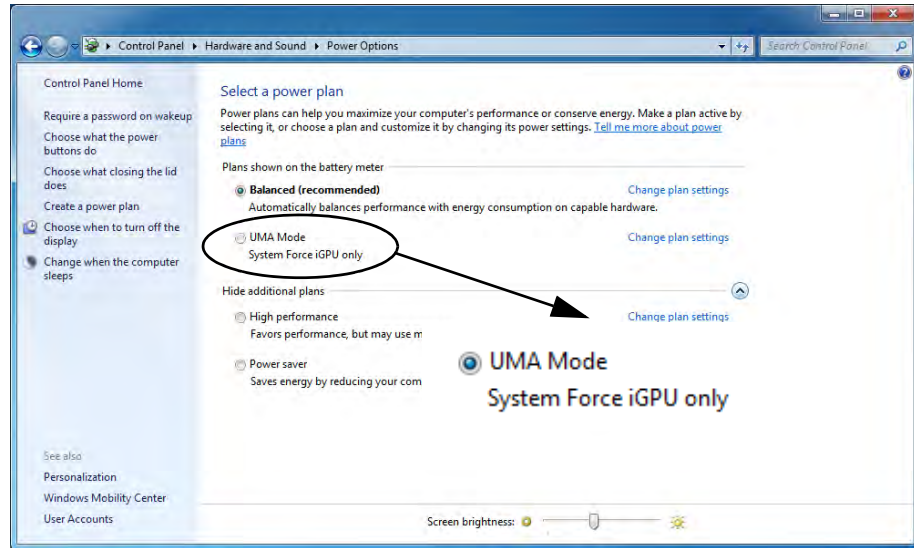
If you require better video performance then it is recommended that you use **Optimus Mode**. Alternatively you may switch the **UMA Mode** power plan to Balanced (however power savings will be reduced in this case).

Note that when the power plan is set to UMA Mode the GPU LED indicators may no longer display the correct status.

Figure 3 - 3
**Power Plans in
UMA Mode**

An additional power plan will be available when you switch the computer to **UMA Mode** (for constant power-saving with the integrated GPU only). As **UMA mode** is usually used to save the maximum amount of power through the integrated graphics system, the **UMA Mode** power plan's standard settings are also configured to save the maximum amount of power if selected.

When the system is switched to **Optimus mode**, the **UMA Mode** power plan will return to **Balanced**.



Power-Saving States

You can use power-saving states to stop the computer's operation and restart where you left off. *Win 7* uses the **Sleep**, **Hibernate** and **Shut Down** power-saving states.

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.

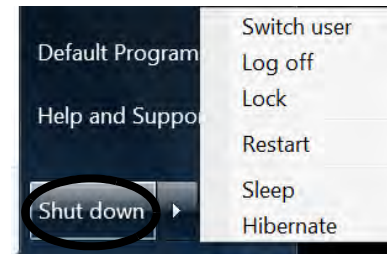
Hibernate

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

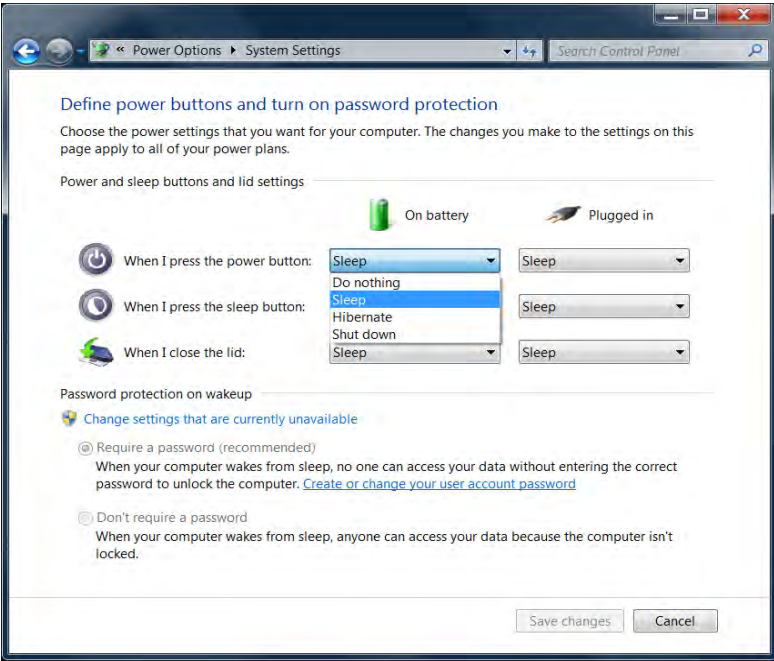
You should **Shut down** the computer if you plan to install new hardware (don't forget to remove the battery and follow all the safety instructions in **Chapter 6**), plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation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


Figure 3 - 4
Start Menu Power



Configuring the Power Buttons

The power/sleep button (**Fn + F4** key combo) and closed lid may be set to send the computer in to a power-saving state. Click **Choose what the power buttons do** on the left menu in **Power Options** to bring up the menu.





Password Protection

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

However you can disable this setting from the **Power Options** menu by clicking **Require a password on wakeup** in the left menu, and selecting the options (click **Change settings that are currently unavailable**).

Figure 3 - 5
Power Options
Define Power Buttons



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.

Table 3 - 1
Resuming Operation




3.75G/HSPA Modules & System Wake Up

Note that the 3.75G modules **DO NOT** support system wake up on 3.75G/HSPA modem activity.

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).

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


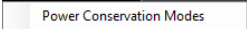


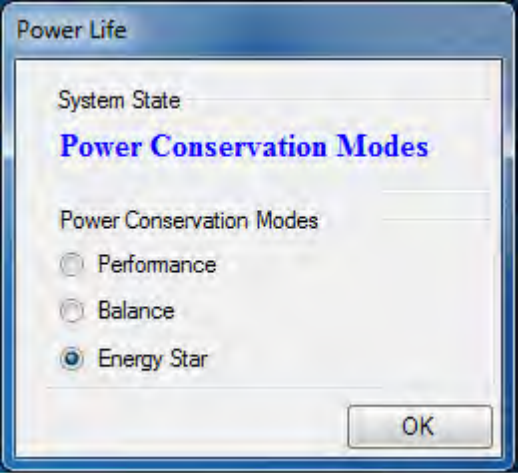
Power Button


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).

Energy Star Power Saving

This system supports **Energy Star** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity. If you want to enable Energy Star power saving then follow these instructions:

1. Right-click the taskbar icon  (see sidebar).
2. Select **Power Conservation Modes**. 
3. Select **Energy Star** to use the Energy Star power management and override other power saving settings.






Conservation Modes

The default **Energy Star** setting will result in maximum power saving, but with the possible loss of some performance.

Setting the mode to **Balance** will give power saving matched with performance.

Performance will give optimum computer performance but with less power conservation.



Taskbar Icon

If the taskbar icon does not appear then click the taskbar arrow and select **Customize**.




Select **Show icon and notifications** alongside the **Hot key** icon and click **OK**. The  icon will now appear in the taskbar.

Figure 3 - 6
Energy Star Menu



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 - 7
Battery Icon (Taskbar) & Battery Advanced Settings

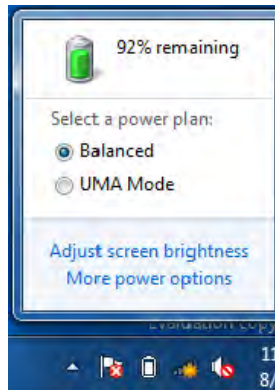
Battery Information

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 **Change plan settings > Change advanced power 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.

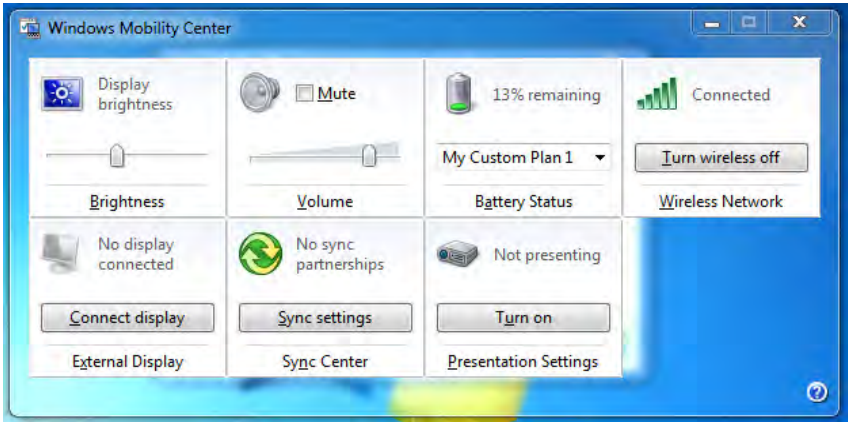


Figure 3 - 8
Windows Mobility Center

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 (e.g. long term storage) 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 - 16* 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 - 9* for information on the battery charge status, and to *“Battery Information” on page 3 - 12* 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**.

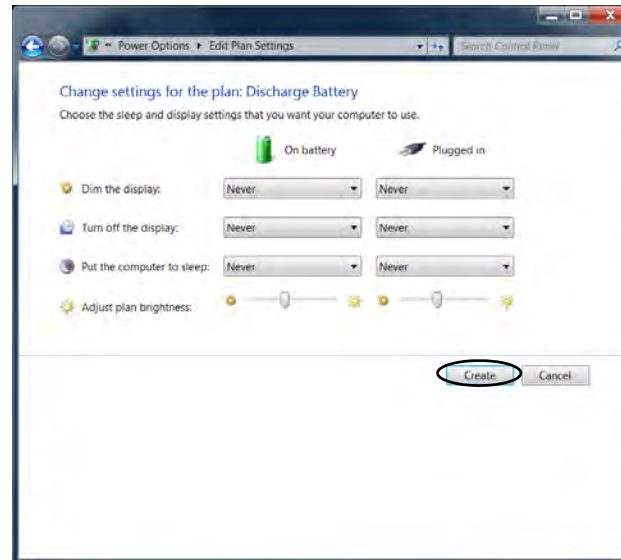


Figure 3 - 9
Power Plan Create

- 3. Click **Change plan settings** (after creating it) and click **Change plan settings > Change advanced power settings**.

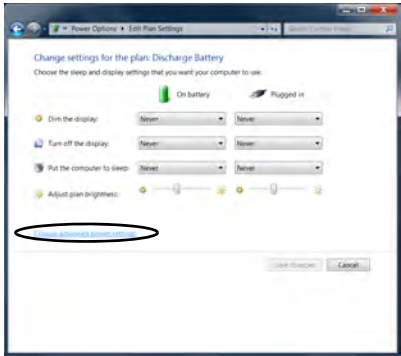
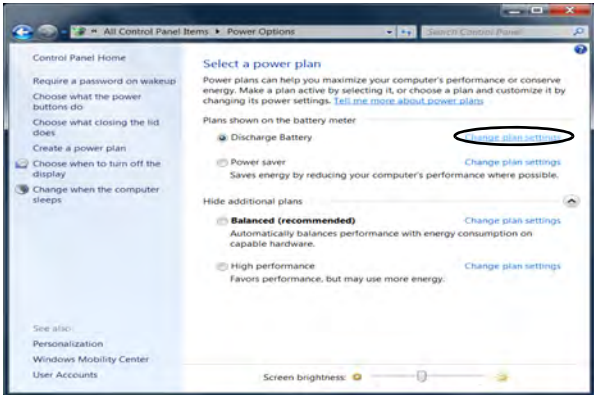


Figure 3 - 10
Change Plan
Settings / Change
Advanced Power
Settings

Power Management

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

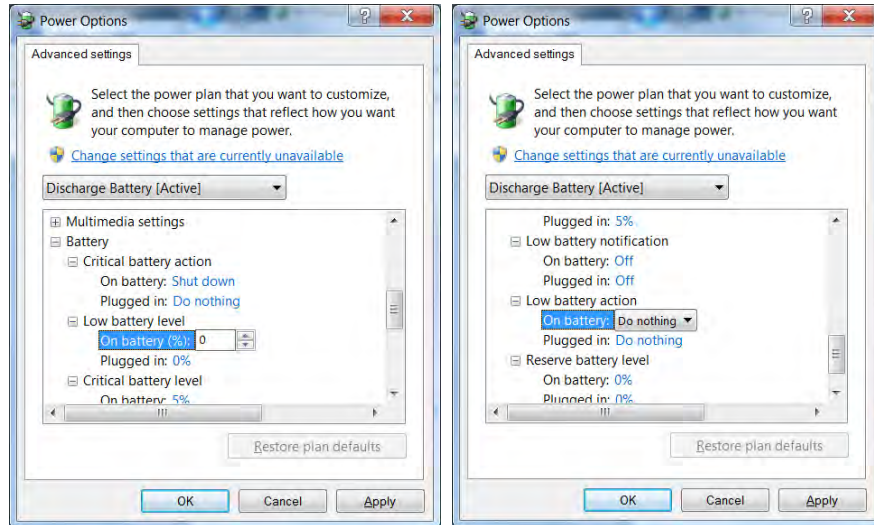


Figure 3 - 11
**Power Options
Advanced Settings -
Battery**

- Low battery levels = 0%
- Critical battery Levels = 1%
- 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.

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.

4

What to Install

The *Device Drivers & Utilities + User's Manual* disc contains the drivers and utilities necessary for the proper operation of the computer. *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.**

Module Driver Installation

The procedures for installing drivers for the **PC Camera, Wireless LAN, Fingerprint, Combination Bluetooth & WLAN, 3.75G/HSPA,** and **Intel Rapid Storage Technology** modules are provided in "*Modules & Options*" on page 7 - 1.

Driver Installation

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

4



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, (you should note down the drivers as you install them).
3. Follow the instructions for each individual driver installation procedure as listed on the following pages.



Figure 4 - 2 - Drivers Installer Screen 2

Windows 7Driver	Page #	Windows 7Driver	Page #
<i>Chipset</i>	<i>Page 4 - 6</i>	<i>MEI Driver</i>	<i>Page 4 - 7</i>
<i>Video (VGA)</i>	<i>Page 4 - 6</i>	<i>Audio</i>	<i>Page 4 - 7</i>
<i>NVIDIA Video (VGA)</i>	<i>Page 4 - 6</i>	<i>PC Camera Module</i>	<i>Page 7 - 3</i>
<i>LAN</i>	<i>Page 4 - 6</i>	<i>Wireless LAN Module</i>	<i>Page 7 - 11</i>
<i>CardReader</i>	<i>Page 4 - 6</i>	<i>Fingerprint Reader Module</i> (Model A Only)	<i>Page 7 - 30</i>
<i>Touchpad</i>	<i>Page 4 - 6</i>	<i>Bluetooth Module</i>	<i>Page 7 - 36</i>
<i>Hot Key</i>	<i>Page 4 - 7</i>	<i>3.75G/HSPA Module</i> (Model A Only)	<i>Page 7 - 49</i>
<i>USB 3.0</i>	<i>Page 4 - 7</i>	<i>Intel Rapid Storage Technology</i> (required for hard disks in AHCI & RAID modes)	<i>Page 7 - 74</i>

Table 4 - 1 - Driver Installation

Note that for Intel and 3rd party WLAN & Bluetooth Combo modules you need to install both the WLAN & Bluetooth drivers.

Manual Driver Installation

Click **Browse CD/DVD** (button) in the *Drivers Installer* application and browse to the executable file in the appropriate driver folder.

4

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc. (all updates will include the latest **hotfixes** from Microsoft). See [“Windows Update” on page 4-8](#) for instructions.

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

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”** 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 General Guidelines

The driver installation procedure outlined in this Chapter (and in **Chapter 7 Options & Modules**), are accurate at the time of going to press.

Drivers are always subject to upgrade and revision so the exact procedure for certain drivers may differ slightly. As a general guide follow the default on screen instructions for each driver (e.g. **Next > Next > Finish**) unless you are an advanced user. In many cases a restart is required to install the driver.

Make sure any modules (e.g. PC Camera, WLAN or 3.75G/HSPA) are **ON** before installing the appropriate driver.

Driver Installation Procedure

Insert the *Device Drivers & Utilities + User's Manual disc* and click **Install Drivers** (button).

Chipset

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

Video (VGA)

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

NVIDIA Video (VGA)

1. Click **3.Install nVIDIA VGA Driver > Yes**.
2. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
3. Click **Next**.
4. Click the **RESTART NOW** button to restart the computer.

Note: After installing the video driver go to the **Display/Display Settings** control panel to adjust the video settings to the highest resolution.

LAN

1. Click **4.Install LAN Driver > Yes**.
2. Click **Install**.
3. Click **Finish**.

CardReader

1. Click **5.Install Cardreader Driver > Yes**.
2. Click **Install**.
3. Click **Finish**.

Touchpad

1. Click **6.Install Touchpad Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license agreement and click **Next**.
4. Click **Finish > Restart Now** to restart the computer.

Hot Key

1. Click **7.Install Hotkey AP > Yes**.
2. Click **Next > Next**.
3. Click **Finish > Finish** to restart the computer.

USB 3.0

1. Click **8.Install USB 3.0 Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license agreement and click **Next**.
4. Click **Install**.
5. Click **Finish**.

MEI Driver

1. Click **9.Install MEI Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish**.

Audio

1. Click **10.Install Audio Driver > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.

Note that after installing the audio driver the system will not return to the *Drivers Installer* screen. To install any of the optional drivers listed overleaf, eject the *Device Drivers & Utilities + User's Manual* disc and then reinsert it (or double-click the disc icon in **My Computer**), and click *Option Drivers* (button) to access the optional driver menu.

It is recommended you now also install the **Intel Rapid Storage Technology** driver (see "*IRST Driver Installation*" on page 7 - 74 - required for AHCI mode hard disks).

(see over)



Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc. (all updates will include the latest **hotfixes** from Microsoft).

To enable **Windows Update** make sure you are **connected to the internet**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Windows Update** (System and Security/ Security).
3. Click **Check for updates** (button).
4. The computer will now check for updates (you need to be connected to the internet).
5. Click **Install now** (button) to begin checking for the updates.
6. Click **Install updates** (button) to install the updates.

Windows Experience Index

After the drivers are installed follow this procedure to ensure an accurate rating from the *Windows Experience Index* (make sure the AC/DC adapter is plugged in):

1. Click **Start**, and click **Control Panel**.
2. Click **Performance Information and Tools** (**System and Security > System > Check the Windows Experience Index**).
3. Click “**Rate this computer/Refresh Now/Rerun the assessment**”.
4. The computer will take a few minutes to assess the system performance.
5. Close the control panel.

Optional Drivers

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



Figure 4 - 3 - Drivers Installer - Option Drivers Menu

Note that for Intel and 3rd party WLAN & Bluetooth Combo modules you need to install both the WLAN & Bluetooth drivers.

PC Camera Module

See the introduction in *“PC Camera Module”* on page 7 - 2, and check the installation procedure.

Wireless LAN Module

See the introduction in *“Wireless LAN Module”* on page 7 - 10, and check the installation procedure.

Fingerprint Module

Model A Computers Only

See *“Fingerprint Reader Module”* on page 7 - 30 for configuration instructions.

Bluetooth & WLAN Combo Module

See *“3rd Party Bluetooth Combo Driver Installation”* on page 7 - 36 or *“Intel Bluetooth Combo Driver Installation”* on page 7 - 44.

3.75G/HSPA Module

Model A Computers Only

See the introduction in *“3.75G/HSPA Module” on page 7 - 49*, and check the installation procedure.

4

Intel Rapid Storage Technology Driver

See the install procedure in *“Intel Rapid Storage Technology” on page 7 - 74*.

Chapter 5: BIOS Utilities

Overview

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

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 *Setup*. 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 Screens

Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.

BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.



BIOS Settings Warning

Incorrect settings can cause your system to malfunction. To correct mistakes, return to *Setup* and restore the **Previous Values** with <F2>, or **Optimized Defaults** with <F3>.

5

The Setup Utility

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.

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

To enter *Setup*, turn on the computer and press **F2** (give the system a few seconds to enter *Setup*). If the **Boot Logo** is enabled the **F2** on screen will be **highlighted** to illustrate that the system is processing the request during the **POST** (or press **F7** for boot options). 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.

To see the boot options press **F7** and choose your preferred boot device.

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!) and you can then press **F7** (the **F7** on screen will be **highlighted** to illustrate that the system is processing the request) for boot options.

Press **F2** (give the system a few seconds to enter *Setup*; the **F2** on screen will be highlighted to illustrate that the system is processing the request) 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.



Setup Menu

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.

Figure 5 - 1
Navigation Menu

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 at the bottom right side of the screen.

```
→←: Select Screen  
↑↓: Select Item  
Enter: Select  
+/-: Change Opt.  
F1: General Help  
F3: Optimized Defaults  
F4: Save Changes & Exit  
ESC: Exit
```

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 upper 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.

Main Menu

```

Aptio Setup Utility - Copyright (C) 2010 American Megatrends Inc.
Main  Advanced  Security  Boot  Exit

System Date          [Tue 02/16/2011]
System Time          [09:56:26]

SATA Port0 SAMSUNG HM160H (160.0G
SATA Port1 TSSTcorp CDDVD ATAPI
SATA Port2 Not Present

System Memory:      640 KB
Extended Memory:   2048 MB (DDR3)

MB Series:          *****
BIOS Revision:     *****
KBC/EC firmware Revision: *****

Set the Date. Use Tab to
switch between Data elements.

->←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save Changes & Exit
ESC: Exit

Version ***** Copyright (C) 2010 American Megatrends, Inc.

```

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 # (Main Menu)

Pressing **Enter** opens the sub-menu to show the configuration of a optical Device/HDD on the computer's SATA Ports.

System/Extended 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.

MB Series / BIOS Revision / KBC/EC firmware Revision (Main Menu)

This item contains information on the BIOS version etc., and is not user configurable.

Advanced Menu

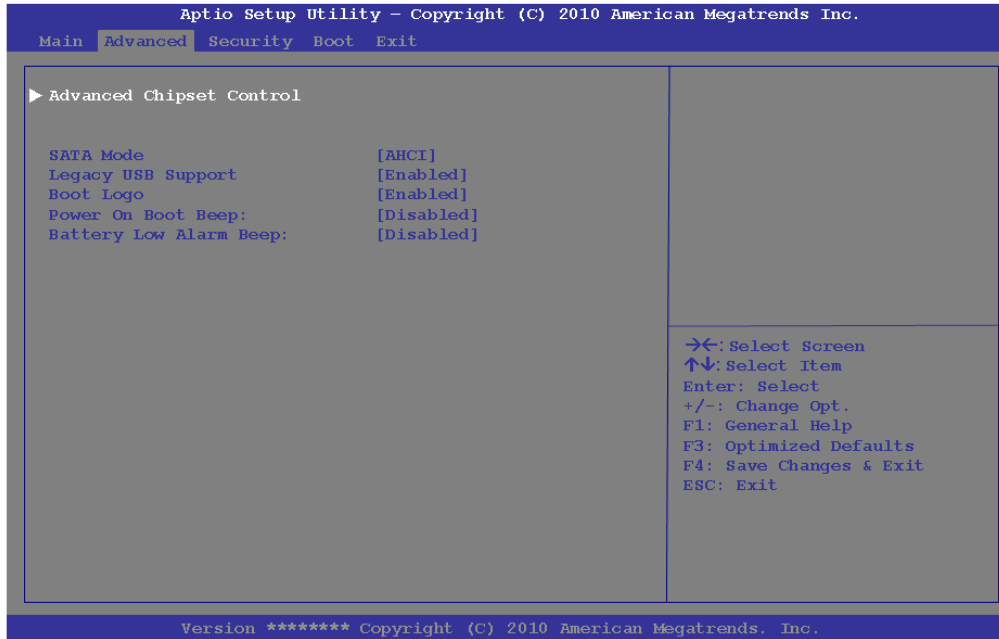


Figure 5 - 3
Advanced Menu

Advanced Chipset Control (Advanced Menu)

The sub-menu here allows you to adjust the **Bluetooth Power Setting**.



SATA Mode Selection

If you have installed the *Windows 7* operating system with either **IDE** or **AHCI** mode enabled, **DO NOT** disable the set mode (if you wish to disable the set mode you will need to reinstall the *Windows 7* OS).

5

Bluetooth Power Setting (Advanced Menu > Advanced Chipset Control)

You can adjust the Bluetooth module power setting to your preference. The default setting (**Disabled**) will see the Bluetooth module powered off when the system is started up or restarted. Enabling the power setting will have the module retain the last power status (on or off) before any restart or shut down.

SATA Mode (Advanced Menu)

You can configure SATA (Serial ATA) control to operate in **IDE** (native/compatible) or **AHCI** (Advanced Host Controller Interface) modes from this menu. The **SATA Mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar).

Legacy USB Support (Advanced Menu)

Choose “**Enabled**” if you intend to use **USB** devices in systems which do not normally support USB functionality (e.g. DOS). The default setting is “**Enabled**” and does not need to be changed if you intend to use your USB devices in **Windows**.

Boot Logo (Advanced Menu)

Use this menu item to enable/disable the **Boot Logo** screen at system startup. If you disable the **Boot Logo** you will not see the **F2 Enter Setup** or **F7 Boot Options** prompts on the screen, however you can still press these keys, while the boot screen is displayed, to perform the Enter Setup or Boot Option functions.

Power On Boot Beep (Advanced Menu)

Use this menu item to enable/disable the beep as the computer starts up.

Battery Low Alarm/Alert Beep (Advanced Menu)

Use this menu item to enable/disable the battery low alarm beep.

Security Menu

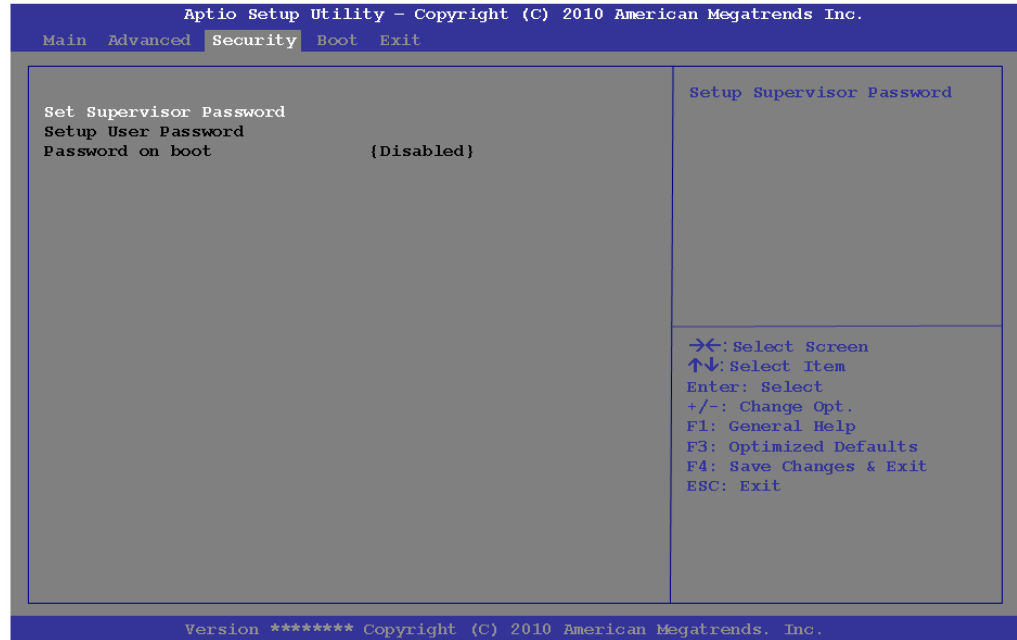


Security Menu

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 **Aptio Setup Utility**. This will not affect access to the computer OS (only the **Aptio Setup Utility**).

Set User Password (Security Menu)

You can set a password for user mode access to the **Phoenix SecureCore Tiano Utility**. This will not affect access to the computer OS, (only the *Setup* utility) unless you choose to set a **Password on Boot** (see below). Many menu items in the **Phoenix SecureCore(tm) Setup Utility** cannot be modified in user mode. You can only set the user password after you have set the supervisor password.

Password on boot: (Security Menu)

Specify whether or not a password should be entered to boot the computer (**you may only set a password on boot if a supervisor password is enabled**). 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

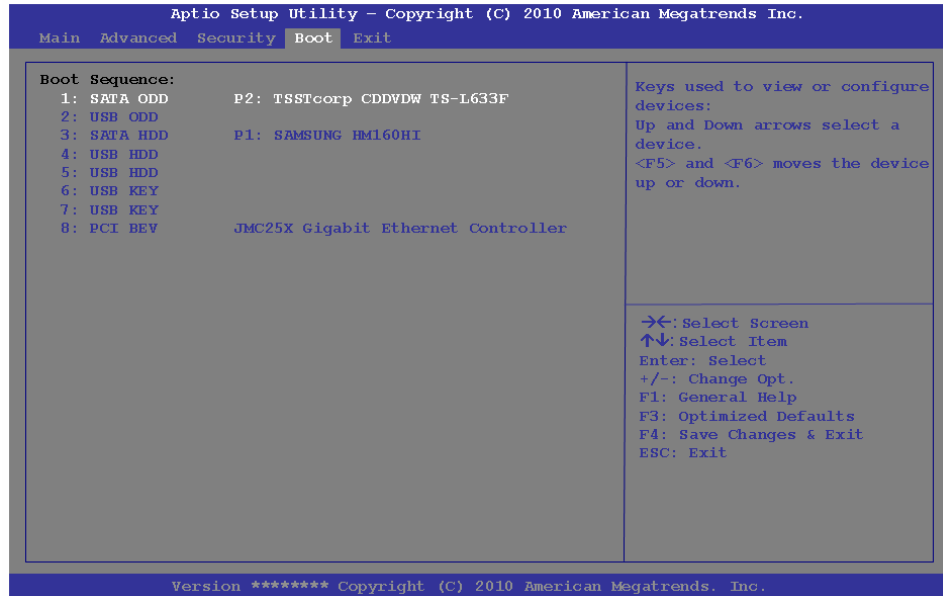
5



BIOS Screens

Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.

BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.



When you turn the computer on it will look for an operating system (e.g. *Windows 7*) 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 Sequence**. Item specific help on the right is available to help you move devices up and down the order.

Boot Sequence (Boot Menu)

Use the arrow keys to move up and down the menu and use the **F5** and **F6** keys to move the device's boot priority up and down the list (the selected device will be highlighted in white).

Exit Menu

Figure 5 - 6
Exit Menu



Click *Save Changes and Reset* to save all changes made. 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
- Upgrading the Optical (CD/DVD) Device
- Upgrading the System Memory (RAM)
- Changing the Optional LCD Back Covers

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.

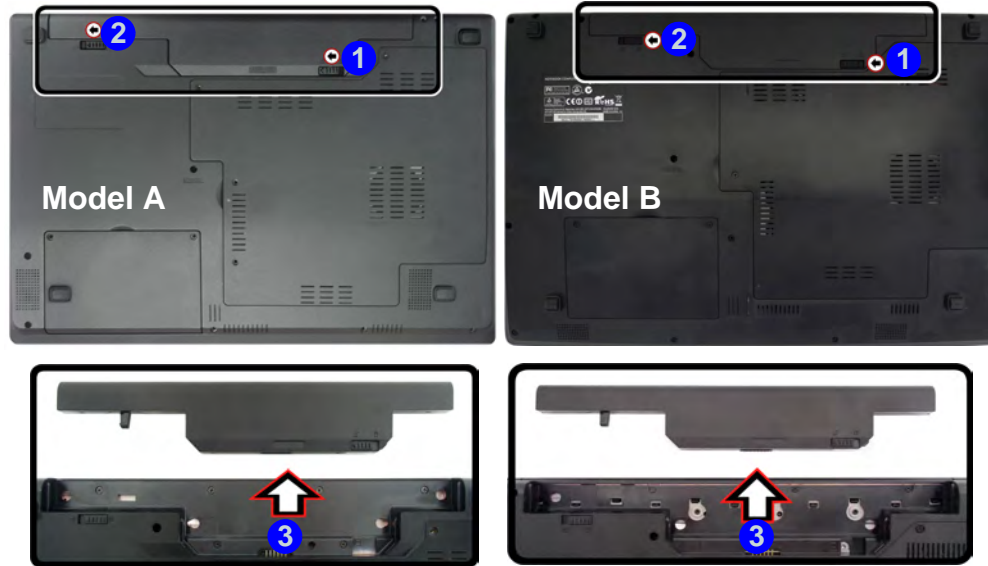
Upgrading the Processor

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. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow, and hold it in place.
4. Slide the battery out in the direction of the arrow **3**.



🔔

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 discs 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

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h) (see *“Storage” on page C - 3*). Follow your operating system’s installation instructions, and install all necessary drivers and utilities (see *“Driver Installation” on page 4 - 2*), when setting up a new hard disk.

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

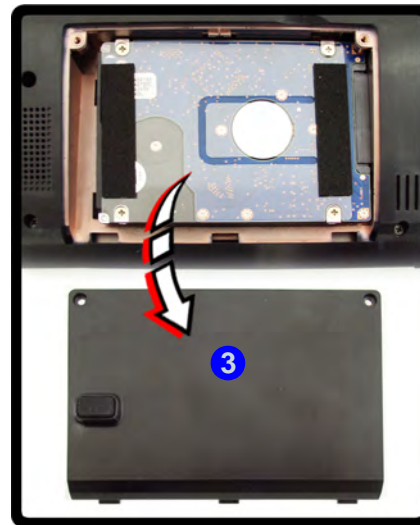
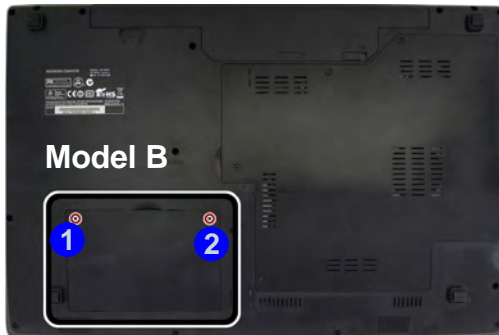
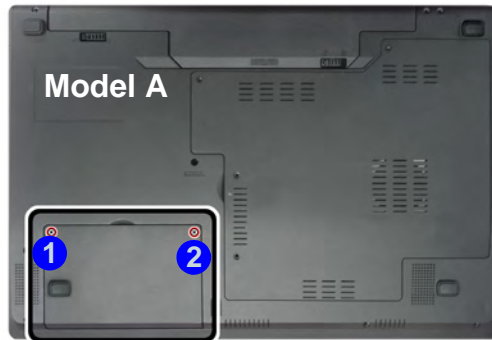


Figure 6 - 2
**Hard Disk Bay
Cover Removal**

Upgrading The Computer



Hard Disk Screws & Cover

The hard disks and covers pictured here may appear slightly different from your model design (these designs are subject to change and upgrade without notice). Pay careful attention to the screws (if included) and cover orientation.

4. Slide the hard disk in the direction of arrow 4.
5. Lift the hard disk out of the bay 5.
6. Remove the screw(s) 6 - 7 and the adhesive cover 8.
7. Reverse the process to install a new hard disk drive (do not forget to replace all the screws and covers).

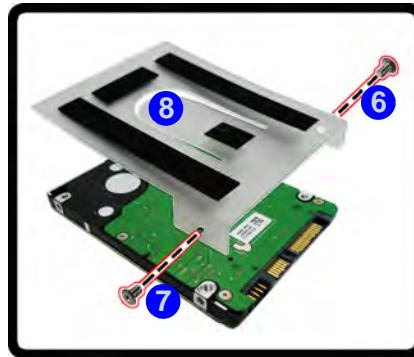
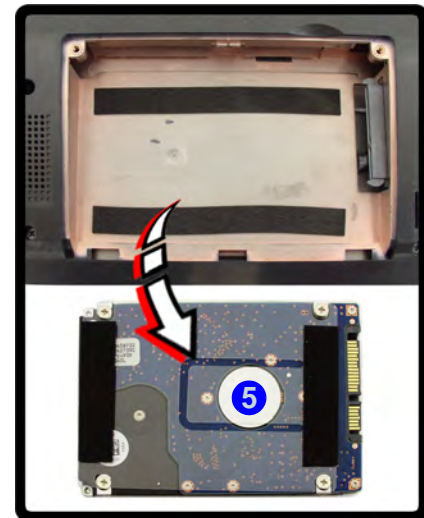
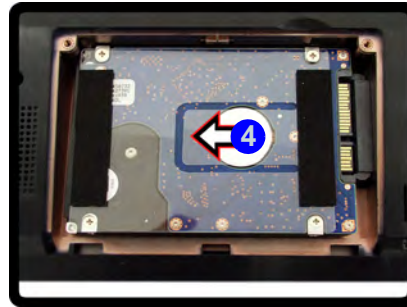


Figure 6 - 3
Hard Disk Removal

Upgrading the Optical (CD/DVD) Device

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the hard disk bay cover and remove screws **1** & **2**.
3. Remove the hard disk bay cover **3**.
4. Slide the hard disk in the direction of arrow **4** and lift the hard disk out of the bay.

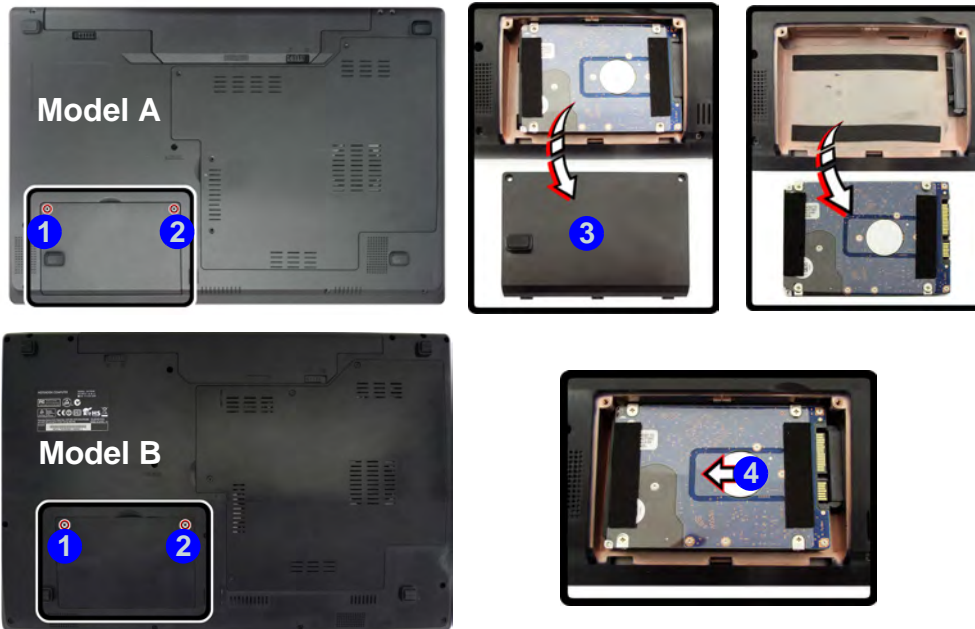
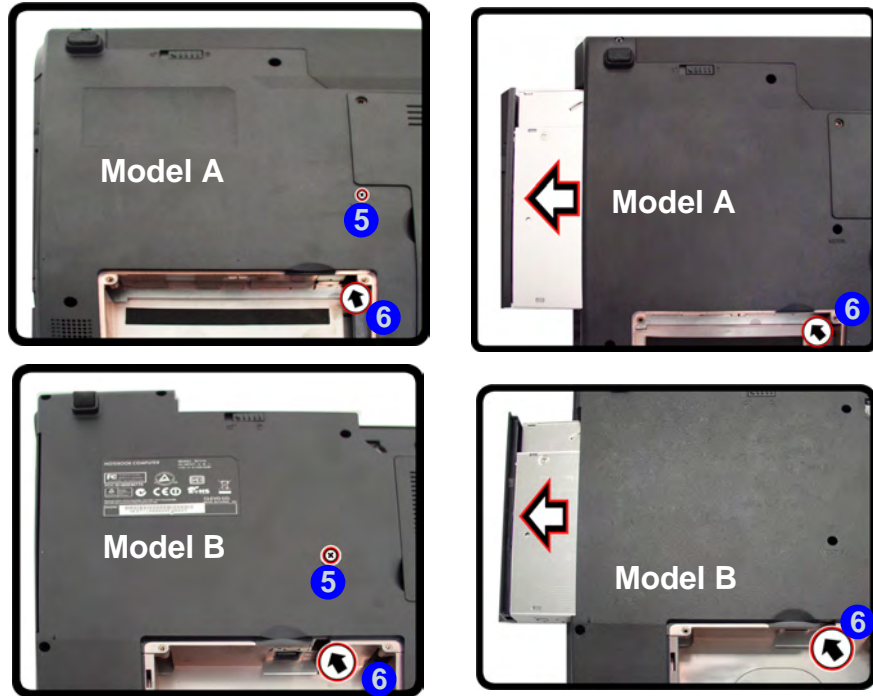


Figure 6 - 4
Hard Disk Removal

Upgrading The Computer

5. Remove the screw at point **5**, and use a screwdriver to carefully push out the optical device at point **6**.
6. Reverse the process to install the new device.
7. Replace the hard disk bay cover.

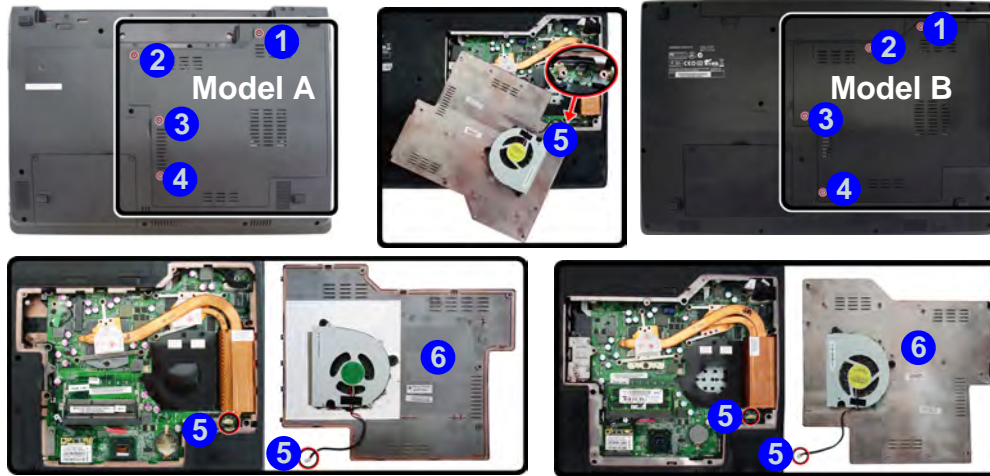
Figure 6 - 5
Removing the
Optical Device



Upgrading the System Memory (RAM)

The computer has **two** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDRIII (DDR3)** type memory modules (see *“Memory” on page C - 2* for details of supported module types).

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the component bay cover and remove screws **1** - **4**.
3. Carefully (**a fan and cable are attached to the under side of the cover**) lift up the bay cover.
4. Carefully disconnect the fan cable **5**, and remove the cover **6**.



Fan Cable

Make sure you reconnect the fan cable **5** before screwing down the bay cover.

Contact Warning

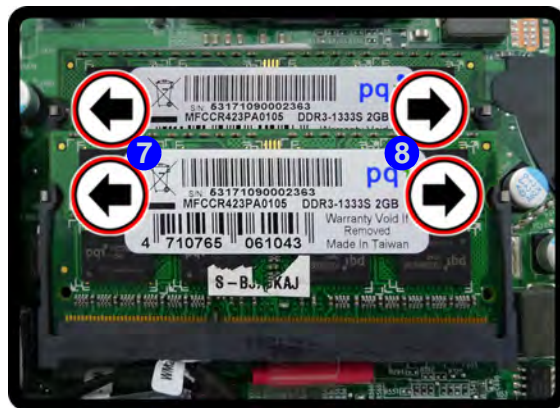
Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 6 - 6
Removing the Component Bay Cover

Upgrading The Computer

5. Gently pull the two release latches on the sides of the memory socket in the direction indicated by the arrows (7 & 8) in *Figure 6 - 7*.

Figure 6 - 7
RAM Module
Release &
Removal



6. The RAM module will 9 pop-up, and you can remove it.
7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.

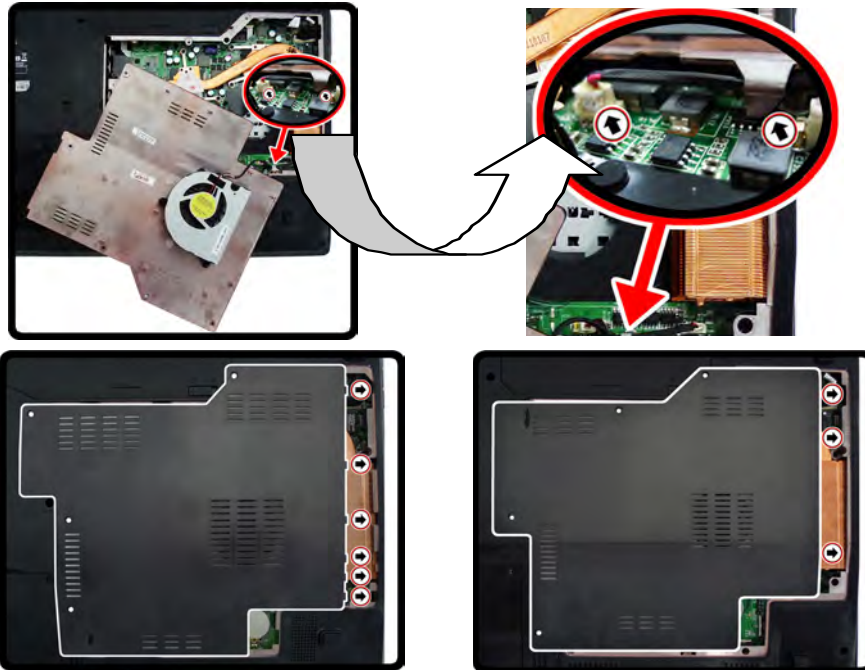
6



Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1)** socket. In this case this is the **lower memory socket** (the socket closest to the mainboard).

11. Replace the bay cover (see sidebar) and screws (make sure you reconnect the fan cable, and hook it under the retaining pins, before screwing down the bay cover).



Cover Pins

Note that the computer has **six (Model A)** or **three (Model B)** cover pins. These pins need to be aligned with slots in the case to insure a proper cover fit, before screwing down the bay cover.

Figure 6 - 8
**Cover Pin
Alignment**

12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



Rubber Screw Covers

After removing the rubber screw covers, place them on a clean dry surface (or attach them to the front cover itself) in order to prevent loss of adhesive.

Changing the Optional LCD Back Covers

If your purchase option (**optional for Model A computers only**) includes the specially designed changeable LCD back cover option, then follow the instructions below to change the covers (note these covers are not applicable to all models in this series - consult your service center for details).

1. Open the LCD and carefully remove the rubber screw covers ① & ② and set them aside.
2. Remove screws ③ & ④ from the front cover.

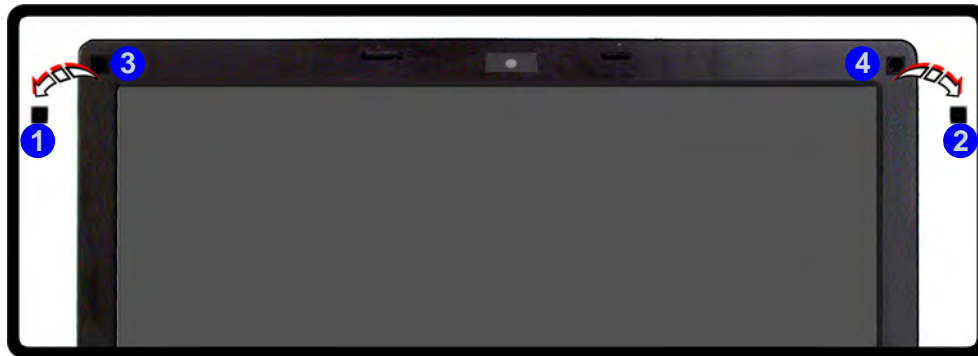


Figure 6 - 9
Removing the
Covers & Screws

- Carefully slide the cover forward in the direction of the arrows **5** & **6** as illustrated below.

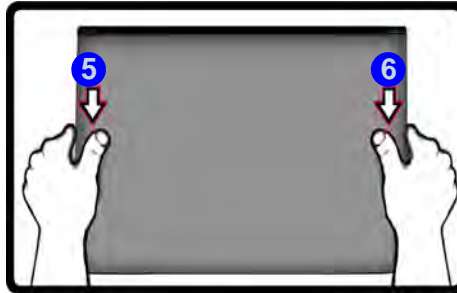


Figure 6 - 10
**Slide the Cover
Forward**

- Remove the LCD back cover **7**.

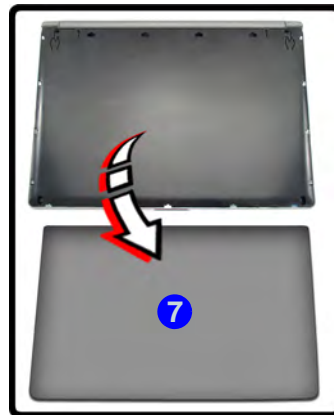


Figure 6 - 11
**Remove the LCD
Back Cover**

Upgrading The Computer

- Align the replacement cover with the top of the LCD **8** as illustrated below (and as marked on the cover).

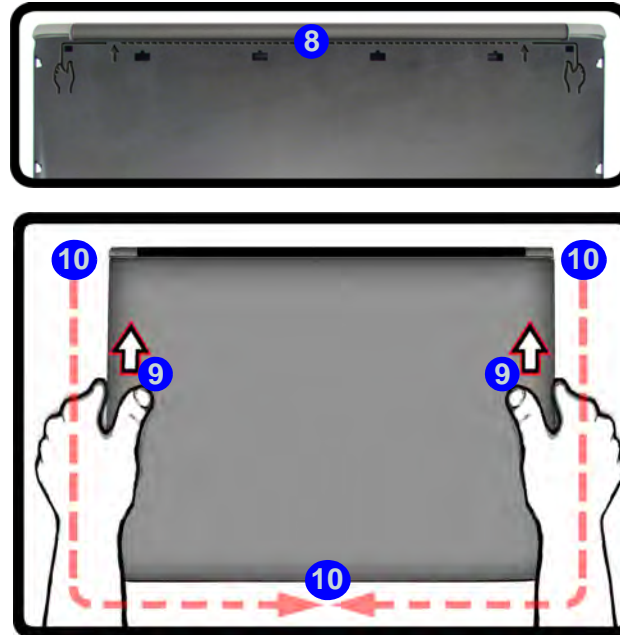


Figure 6 - 12
Replacing the LCD
Back Cover

- Slide the cover forward slightly until it clicks firmly into place **9**.
- Run your hands around the sides and front of the cover **10** to make sure it is firmly aligned in place (carefully press down to make sure the fit is secure).
- Replace the screws and rubber covers (see [Figure 6 - 9 on page 6 - 12](#)).

Chapter 7: Modules & Options

Overview

This chapter contains information on the following modules, which may come with your computer, depending on the configuration purchased. If you are unsure please contact your service representative.

- PC Camera Module
- Wireless LAN Module
- Fingerprint Reader Module
- Bluetooth Module
- 3.75G/HSPA Module
- Intel Rapid Storage Technology



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.



Important Notice

If your purchase option includes both **Wireless LAN** and **3.75G/HSPA** modules, then the appropriate antennas will be installed. Note that In order to comply with FCC RF exposure compliance requirements, the antenna must not be co-located or operate in conjunction with any other antenna or transmitter.

Important Notice - 3.75G/HSPA & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3.75G/HSPA module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3.75G/HSPA module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.



Driver Installation & Module Power

Make sure any modules (e.g. WLAN, PC Camera, 3.75G/HSPA & Bluetooth modules) are **ON** before installing the appropriate driver.



Latest PC Camera Driver Information



Check the *Device Drivers & Utilities + User's Manual disc* and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here.

PC Camera Display

The PC Camera application software needs to be run while the *default notebook LCD* is the selected display device.

After a camera picture is obtained on the default notebook LCD, you may then use the **Fn + F7** to toggle through the display modes (give the screen time to refresh).

PC Camera Module

Before installing the **PC Camera** driver, make sure that the optional PC Camera is on. Use the **Fn + F10** key combination (see "*Function/Hot Key Indicators*" on [page 1 - 12](#)) or hot key button  to toggle power to the PC Camera module. Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#). When the PC Camera module is powered on, the indicator  will briefly be displayed.


There are a number of different camera modules available with this computer model series. You will have the appropriate application installed for your camera. **Make sure you access the application via the desktop shortcut.**



PC Camera Application and Power-Saving States

If the computer enters **Sleep** or **Hibernate** mode while running the camera application, the program will stop running, and will need to be restarted when the system resumes from the power-saving state.

PC Camera Driver Installation

1. Make sure the module is powered on, and then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install Webcam Driver > Yes**.
4. Click **Next > Install > Finish** to restart the computer.
OR
Choose the language you prefer and click **Next > Next > Finish**.
OR
Click **Next > Next > Install > Finish** to restart the computer.
OR
Click **Next > Install > Finish > Finish** to restart the computer.
5. Run the camera application program from the desktop shortcut (if the hardware is turned off use the **Fn + F10** key combination or hot key button  to turn it on again).



PC Camera Screen Refresh

The PC Camera module supports a frame rate of 12 fps. If you find that the screen refresh rate is subject to lag or stuttering, then **reduce the window size**, or adjust the **Output Size** and/or **Color Space Compression**.

To reduce **Output Size** and/or **Color Space Compression** run the camera application, click **Options** and select **Video Capture Pin**. Adjust the settings from the appropriate pull-down menu.

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*.


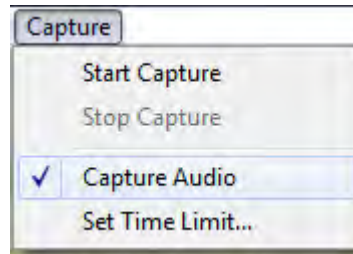
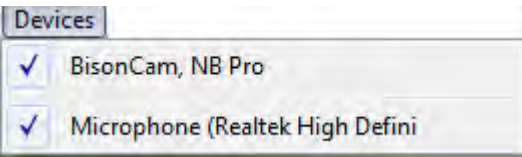
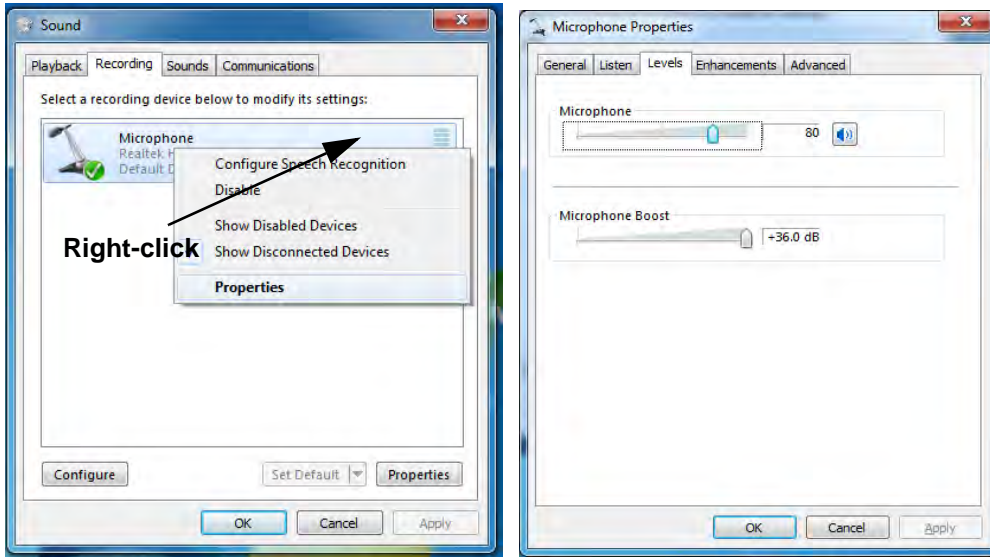
1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound**  (**Hardware and Sound**).
3. Click **Recording** (tab).
4. Right-click **Microphone** (Realtek High Definition Audio) and make sure the item is not disabled.
5. Double-click **Microphone** (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 camera application program from the desktop shortcut.
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 - 1
Audio Setup for PC
Camera



Camera Application

The camera application is a video viewer for general purpose video viewing and testing, and for capturing video files to .avi format.

1. Run the camera application from the desktop shortcut (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 - 4**) 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 (you can view the file using the **Windows Media Player**).

Set Capture File

Prior to capturing video files you may select the **Set Capture File...** option in the **File** menu, and set the file name and location before capture (this will help avoid accidentally overwriting files). Set the name and location then click **Open**, then set the **“Capture file size:”** and click **OK**. You can then start the capture process as above.

Note the important information in **“Reducing Video File Size” on page 7 - 7** in order to save file space, and help prevent system problems.

Reducing Video File Size

Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select **Properties**) and the remaining free space on your hard disk (go to **My Computer**, right-click the hard disk, and select **Properties**). If necessary you can remove the recorded video file to a removable medium e.g. CD, DVD or USB Flash drive.

Note that the *Windows* system requires a minimum of **15GB** of free space on the **C: drive** system partition. In order to prevent system problems it is recommended that you save the captured video file to a location other than the **C: drive** (see “*Set Capture File*” on page 7 - 6), limit the file size of the captured video or reduce video resolution (see below).

To Reduce Video Resolution Output Size:

1. Run the camera application program from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Pin....**
3. Click the **Output Size** drop box and select a lower resolution size in order to reduce the captured file size.
4. Click **OK**.



Latest PC Camera Driver Information

Check the *Device Drivers & Utilities + User's Manual disc*, and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here, including the figures pictured here.

Eliminating Screen Flicker

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

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Filter...**
3. Click either **50Hz** or **60Hz** under **Frequency (Anti Flicker)**.

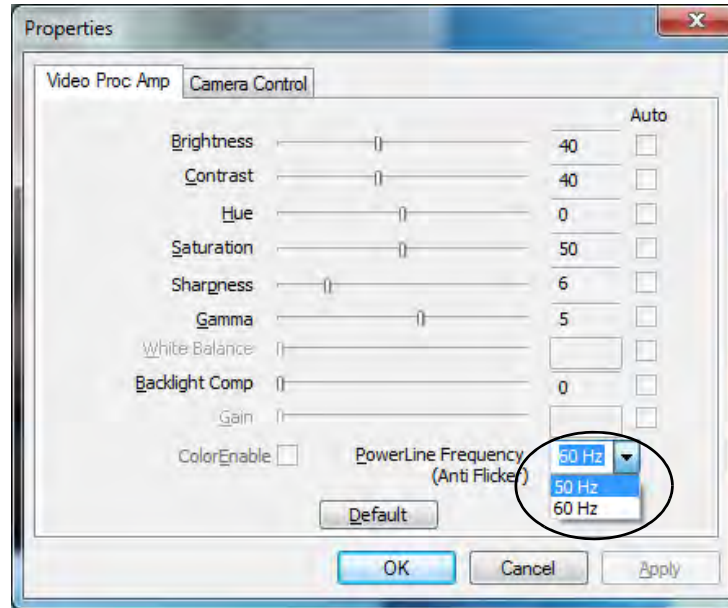



Figure 7 - 2
Video Capture Filter

Taking Still Pictures

The camera application allows you to take still pictures.

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and select **Take Picture**.
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.





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 or hot key button 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 - 12](#)/[Table 1 - 3, on page 1 - 9](#)).

Wireless LAN Module

If you have included an **Intel® or 3rd Party 802.11b/g/n WLAN** module in your purchase option, make sure that the Wireless LAN module is on before installing the driver.

Use the **Fn + F11 key combination** (see [“Function/Hot Key Indicators” on page 1 - 12](#)) or hot key button  to toggle power to the **Wireless LAN module**. Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#). When the WLAN module is powered on the indicator  will briefly be displayed.

Note that for the Intel and 3rd party WLAN & Bluetooth Combo modules you need to install both the WLAN & Bluetooth drivers.

802.11b/g/n Driver Installation

If you see the message “**Found New Hardware**” click **Cancel** to close the window.

1. **Make sure the module is powered on**, and then insert the *Device Drivers & Utilities + User’s Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Choose the language you prefer and click **Next**.
5. Click **Next > Install**.
6. Click **Finish** to restart the computer.

Intel® WLAN Driver Installation

If you see the message “**Found New Hardware**” click **Cancel** to close the window.

1. **Make sure the module is powered on**, and then insert the *Device Drivers & Utilities + User’s Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Click **Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Next > Finish**.

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



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.

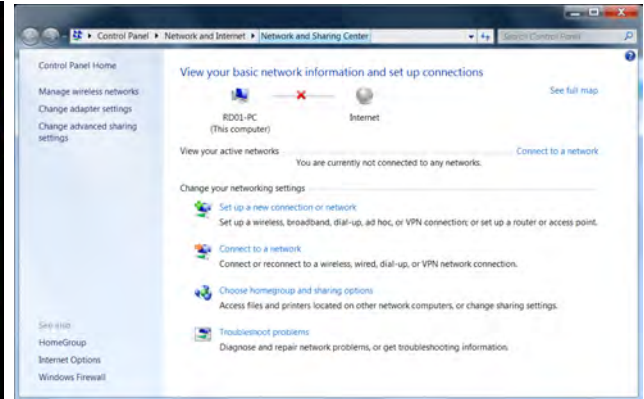
7

Figure 7 - 3
**Click Taskbar Icon
Menu & Network
and Sharing Center**

Connecting to a Wireless Network in Windows 7

Make sure the Wireless LAN module is turned on.

1. **Click** the taskbar wireless icon , and then double-click an access point to connect to or click to **Open Network and Sharing Center** if you do not see a network you want to connect to in the taskbar menu (a list of options will appear allowing setting changes, and creating a new network).



2. You may need to enter a security key for any access point to which you are trying to connect.
3. Click to select a network location (e.g. **Home, Work or Public**).
4. Click “**View or change settings in Network and Sharing Center**” to access further options for the connection.

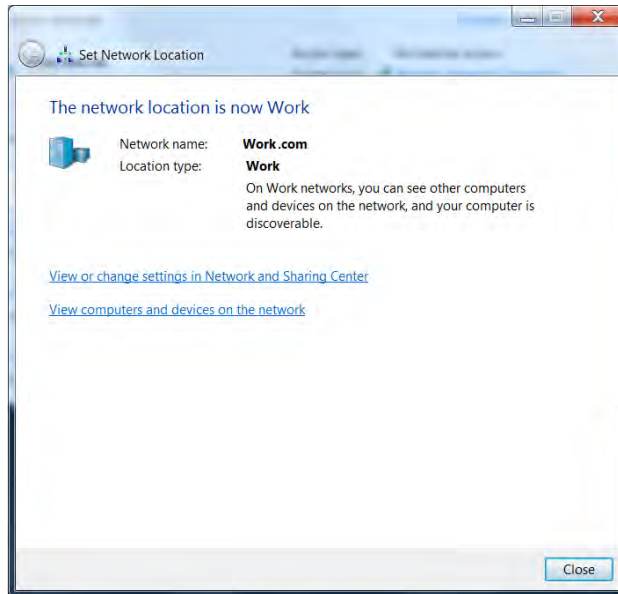


Figure 7 - 4
Network Location Set

Modules & Options



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.



5. Click the taskbar icon  to see any currently connected networks.
6. To disconnect from the wireless network you can click the taskbar wireless icon , click the active connection and then click **Disconnect** (button).



Figure 7 - 5


**Click Taskbar Icon
Menu - Disconnect**

Intel® My WiFi Configuration

Intel® My WiFi Technology uses your WLAN (**for Intel WLAN modules only**) module to allow you to connect up to eight other WiFi enabled devices (e.g. digital cameras, other computers, cell phones, handheld devices etc.) to your computer (similar to Bluetooth), while still connecting to the Internet through your WiFi wireless connection. Intel® My WiFi Technology offers greater range and speed than other personal area networks, and does not require an access point.





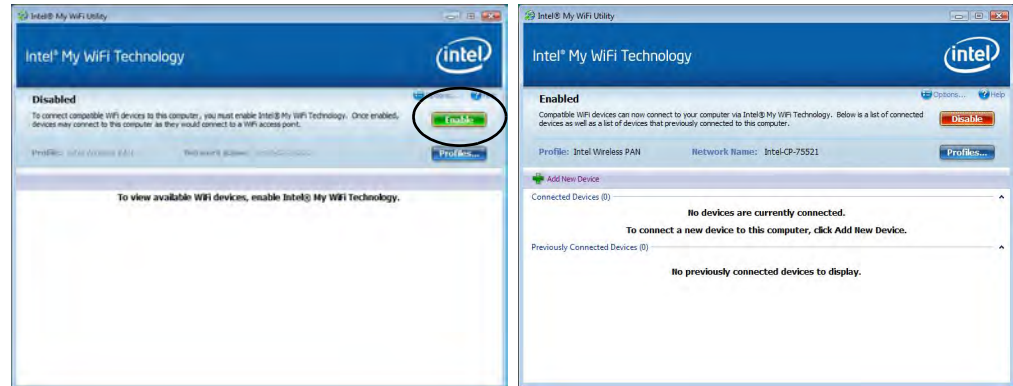
Intel® My WiFi Help

To get help on **Intel® My WiFi** configuration and settings, access the **Intel® My WiFi Utility** from the **Start** menu (Start > Programs/All Programs > Intel PRO-Set Wireless > Intel My WiFi Technology), or by clicking the taskbar icon . Click the **Help** icon  and select a help topic from the **Contents** menu.

Intel® My WiFi Configuration

You can configure the My WiFi settings as follows.

1. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start > Programs/All Programs > Intel PROSet Wireless > Intel My WiFi Technology**), or by double-clicking the taskbar icon .
2. Click **Enable**  (on the first run of the program there will be no connected devices listed).



7
Figure 7 - 6
**Intel® My WiFi
Utility**

3. Click **Start** and click **Control Panel**.
4. Click **Network and Sharing Center (Network and Internet)**.
5. Click **Change adapter settings**.

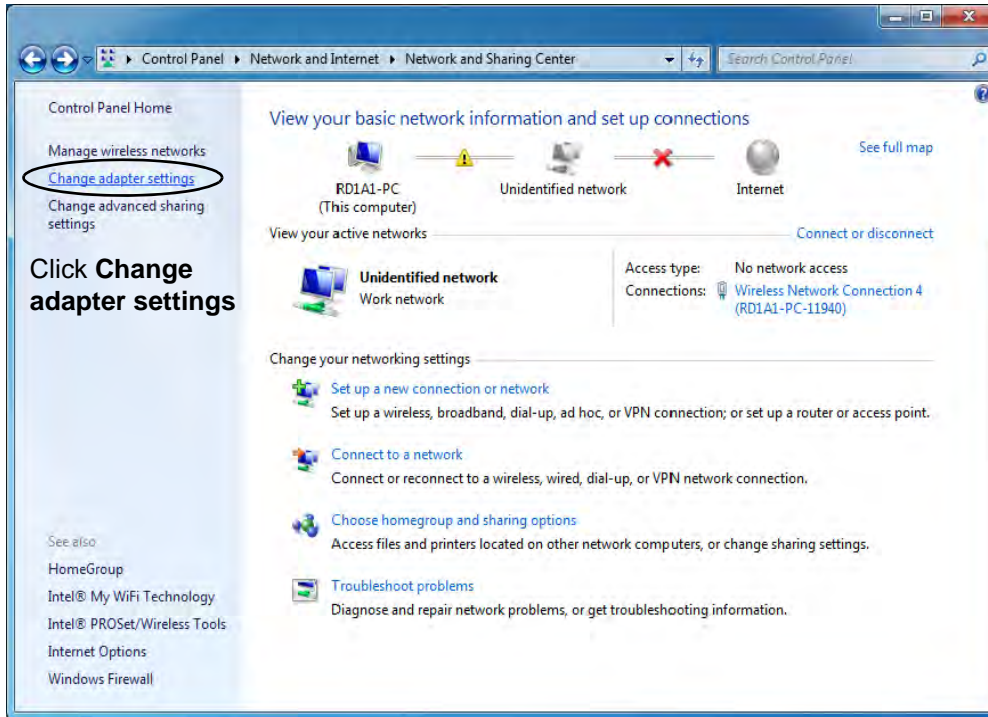
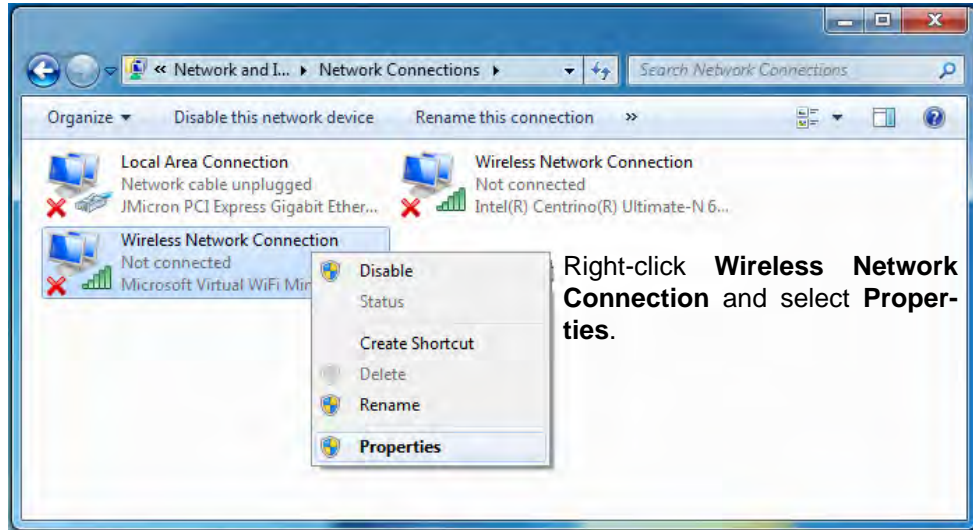


Figure 7 - 7
Network and Sharing Center

Modules & Options

6. Right-click **Wireless Network Connection** and select **Properties**.

Figure 7 - 8
Network Connections



7. Click **Sharing (tab)** and select **“Allow other network users to connect through this computer’s Internet connection”**.
8. Select **Wireless Network Connection** under **Home networking connection**.
9. Click **OK**.

Click **“Allow other network users to connect through this computer’s Internet connection”**.

Select **Wireless Network Connection**.

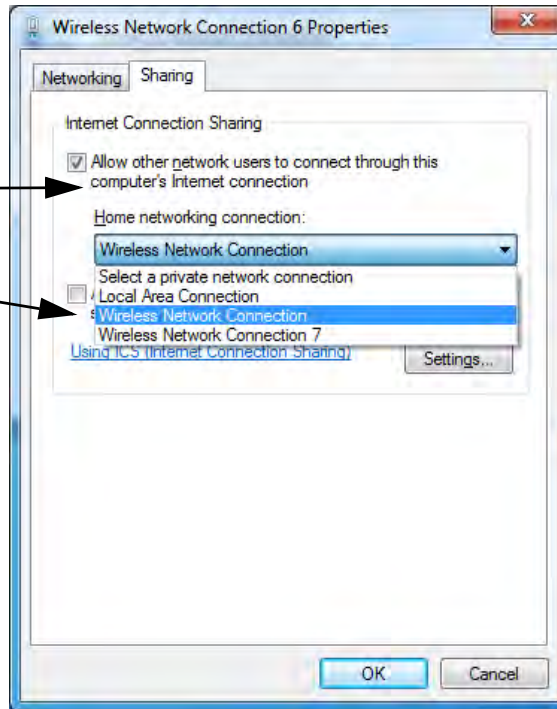


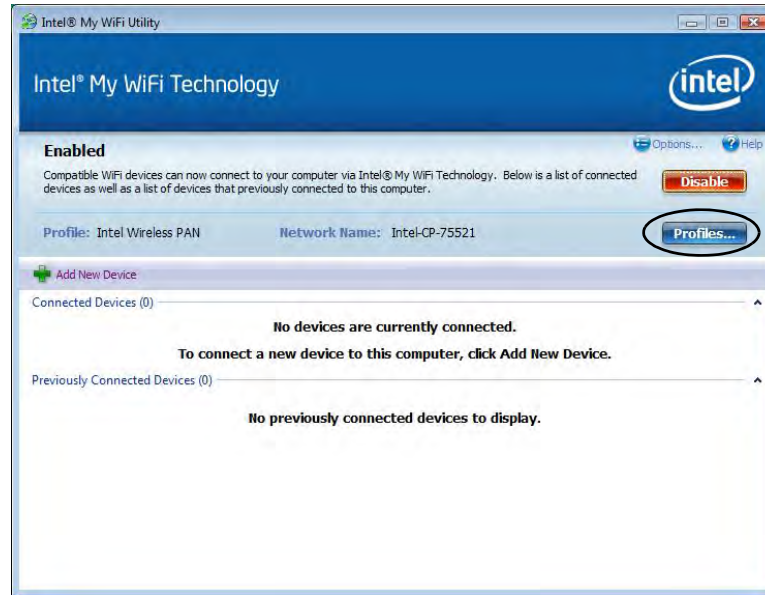


Figure 7 - 9
Wireless Network Connection Properties - Sharing

Modules & Options

10. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start > Programs/All Programs > Intel PROSet Wireless > Intel My WiFi Technology**), or by double-clicking the taskbar icon .
11. Click **Profiles** .



7

Figure 7 - 10
Intel® My WiFi
Utility - Profiles

12. Click **Profiles**, click **Intel Wireless PAN** and click **Edit** or **New** (Note that all preset settings may not be editable - see sidebar).



Figure 7 - 11
Profiles

13. You can change the **Profile Name** and **Network Name** to your personal preferences in **General** (tab).



Profile and Network Names

The **Profile Name** is the name as displayed on your computer in the **Network Connections** control panel (see [Figure 7 - 13 on page 7 - 22](#)).

The **Network Name (SSID)** is the name the devices see when they try to connect to your computer.

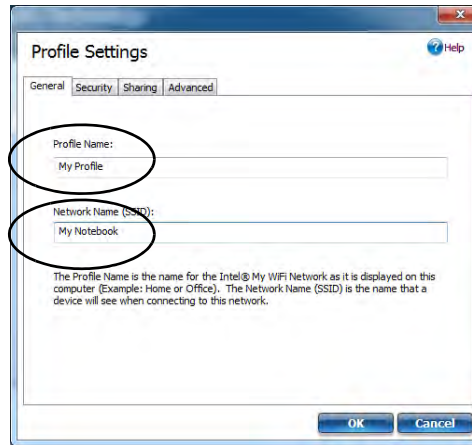


Figure 7 - 12
Intel® My WiFi
Profile Settings -
General

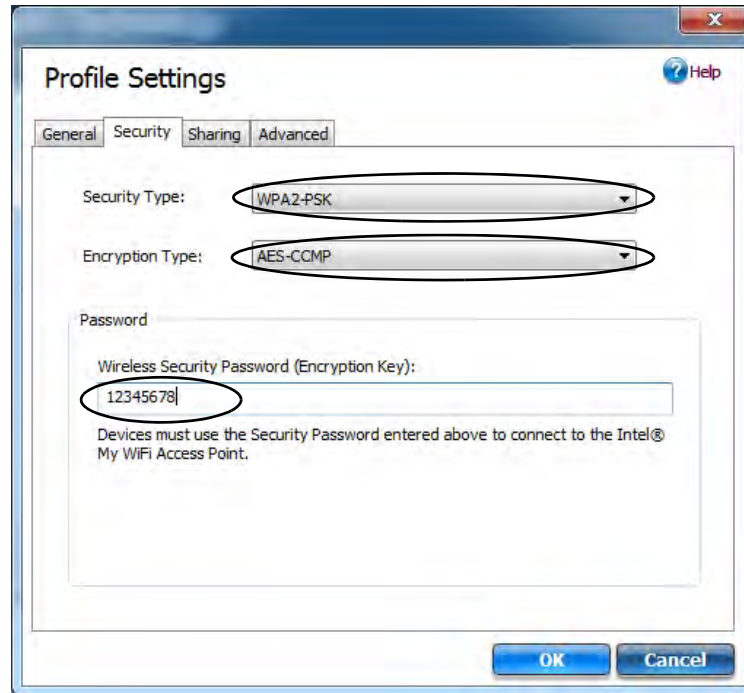


Profile Settings

Profiles that are **preset** may not be fully **editable**. To edit all the profile settings, click **New** to create a new profile and adjust the settings to your preferences.

Modules & Options

- Click **Security** (tab).
- Change the **Security Type** to **WEP** and the **Encryption Type** to **64bit**.
- Enter a password (8 characters long) in the **Password** box.



7 *Figure 7 - 13*
Intel® My WiFi
Profile Settings -
Security

17. Click **Sharing** (tab).
18. It is recommended that the **Filter Network Traffic** and **DHCP and DNS Server** are **Disabled**.

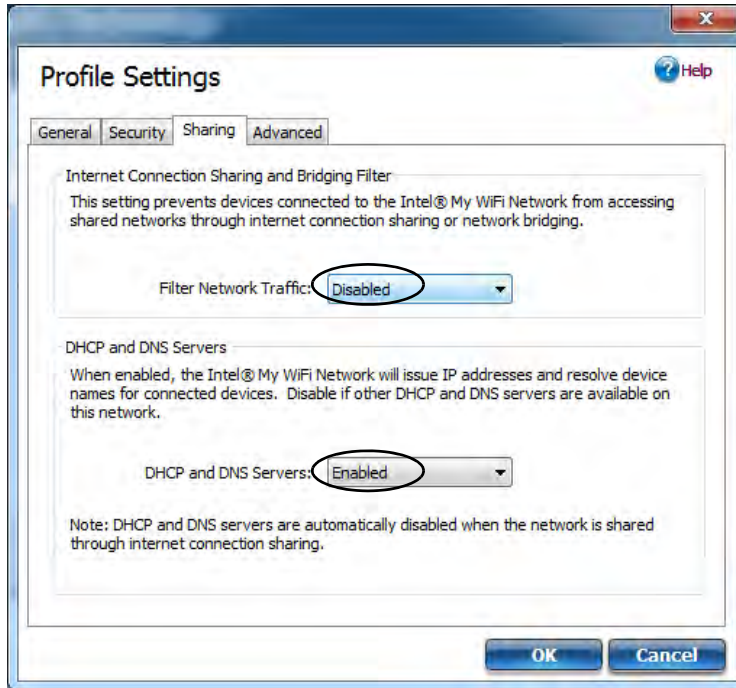
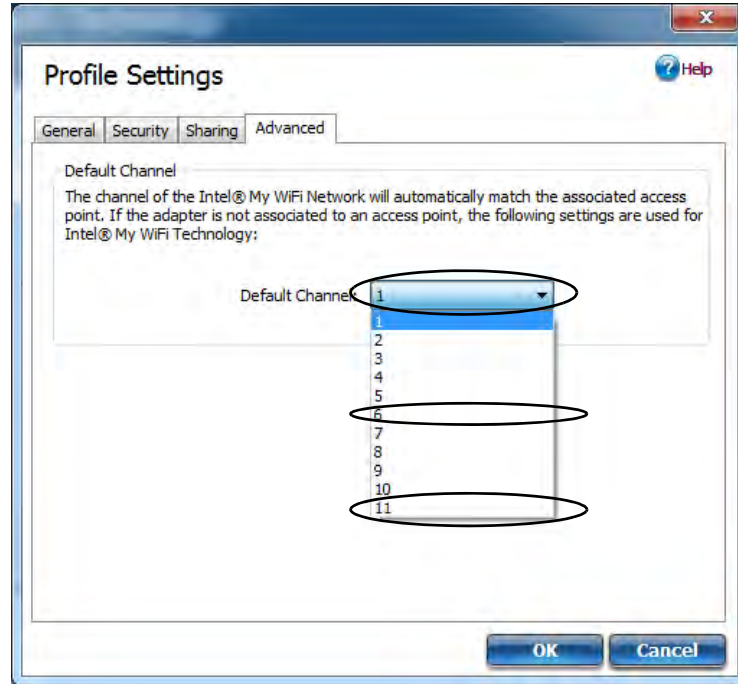


Figure 7 - 14
Intel® My WiFi
Profile Settings -
Sharing

Modules & Options

19. Click **Advanced** (tab).
20. It is recommended that the **Default Channel** is set to **Channel 1, 6 or 11**.
21. Click **OK** to save the settings.



7 *Figure 7 - 15*
Intel® My WiFi
Profile Settings -
Advanced

22. Double-click **Wireless Network Connection** in **Network Connections**.
23. Click **Details** to display the **Network Connection Details**.

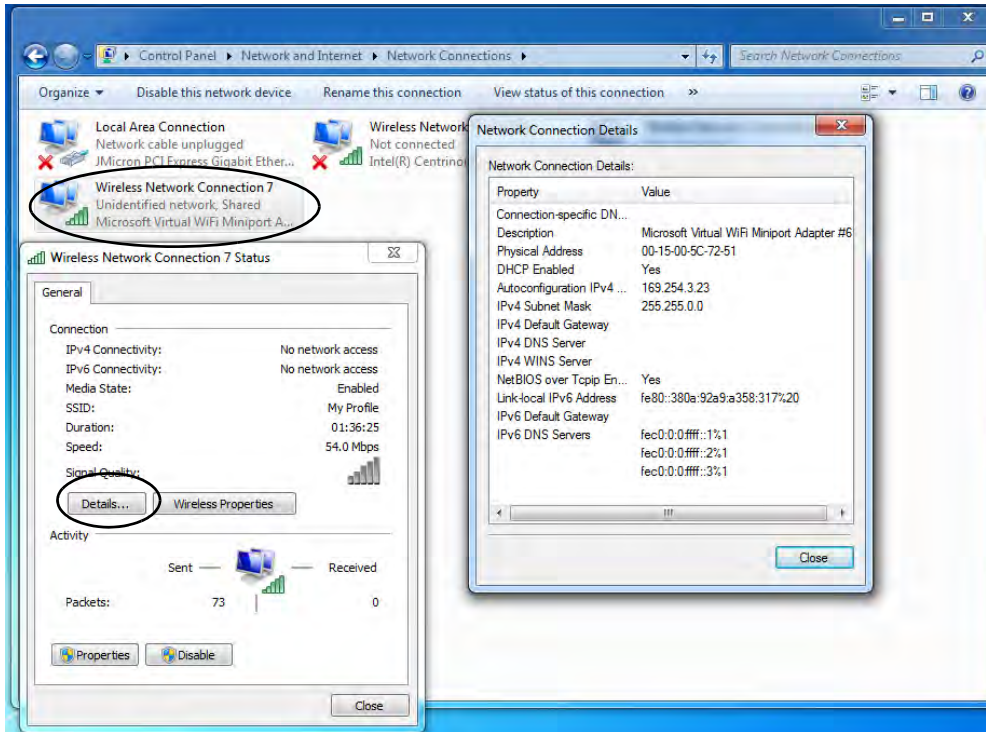



Figure 7 - 16
Wireless Network
Connection Details

Modules & Options

24. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start > Programs/All Programs > Intel PROSet Wireless > Intel My WiFi Technology**), or by clicking the taskbar icon .
25. To add a new device follow the instructions in the devices' user guide for connecting to a WiFi network.
26. Click **Add New Device** in **Intel® My WiFi Utility** to confirm the security settings detail.

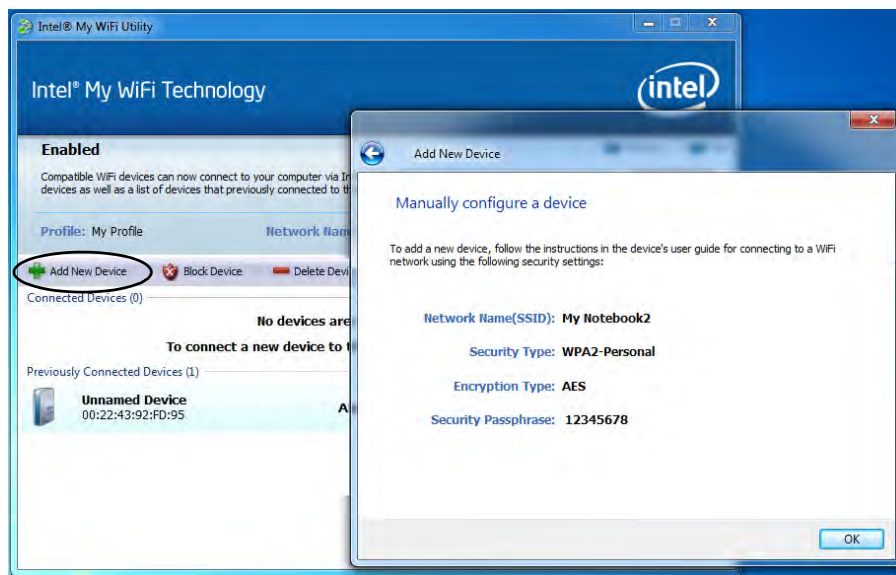


Figure 7 - 17
**Intel® My WiFi
Utility
(Add New Device)**

Intel WLAN & Bluetooth Combo Module High-Speed Data Transfer Configuration

You will need to configure the following settings to enable high-speed wireless data transfer as supported by Intel Wireless LAN & Bluetooth Combo modules (note this information applies to Intel WLAN & Bluetooth Combo modules only).

1. Go the **Windows** control panel and double-click **Device Manager** (in **Hardware and Sound** under **Devices and Printers**).

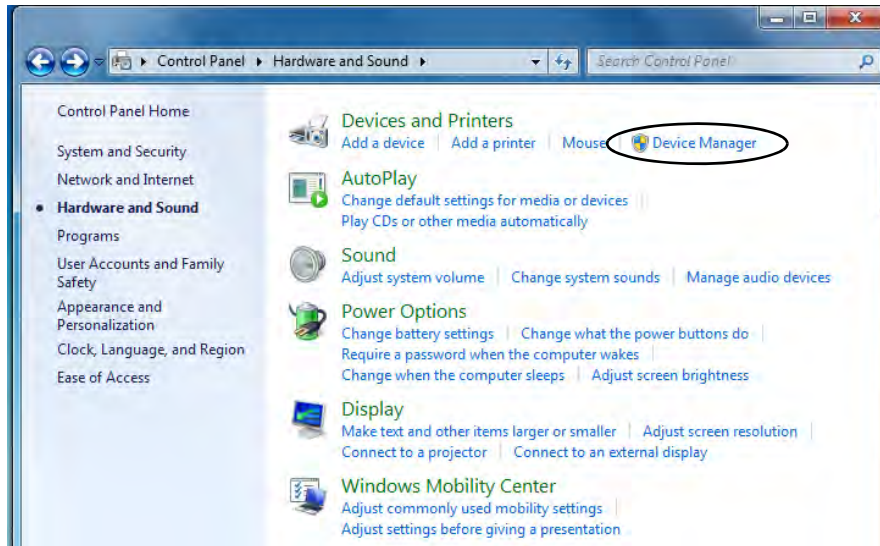


Figure 7 - 18
Devices and Printers (Device Manager)

Modules & Options

2. Click **Network adapters** to expand the sub-menu.
3. Double-click the **Intel WiFi Link** module.
4. Click **Advanced** (tab).
5. Click **802.11n Channel Width for band 2.4** under “**Property:**”.
6. Click the pull-down menu under “**Value:**”.
7. Click to select **Auto**.
8. Click **OK** and close the control panels.

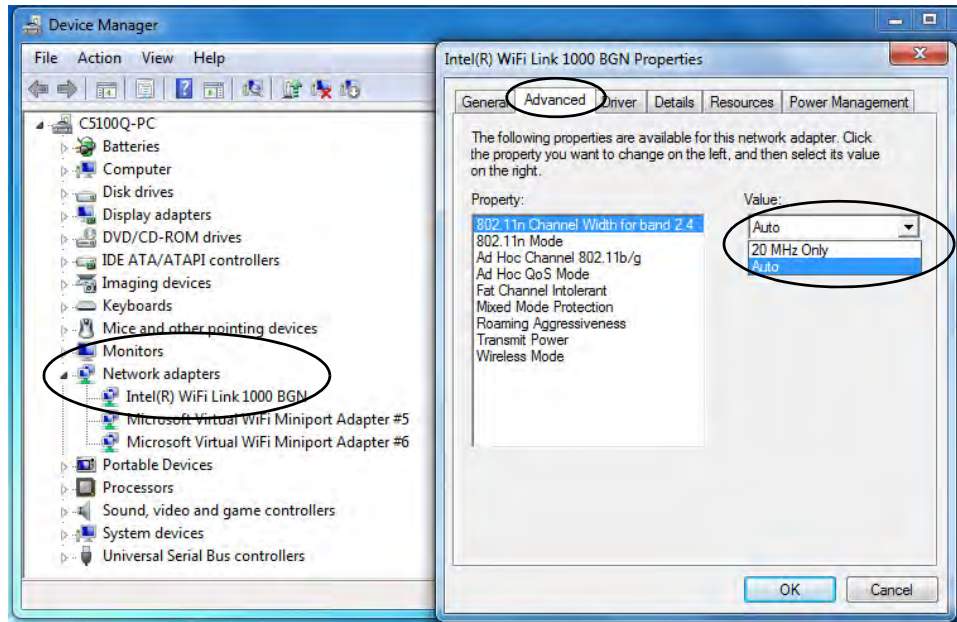



Figure 7 - 19
Intel WiFi Link
Properties
(Advanced)

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.

To access the Windows Mobility Center:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Windows Mobility Center (Mobile PC)**.
3. Click the button to **Turn wireless off/on**, or click the icon  to access the network menu.

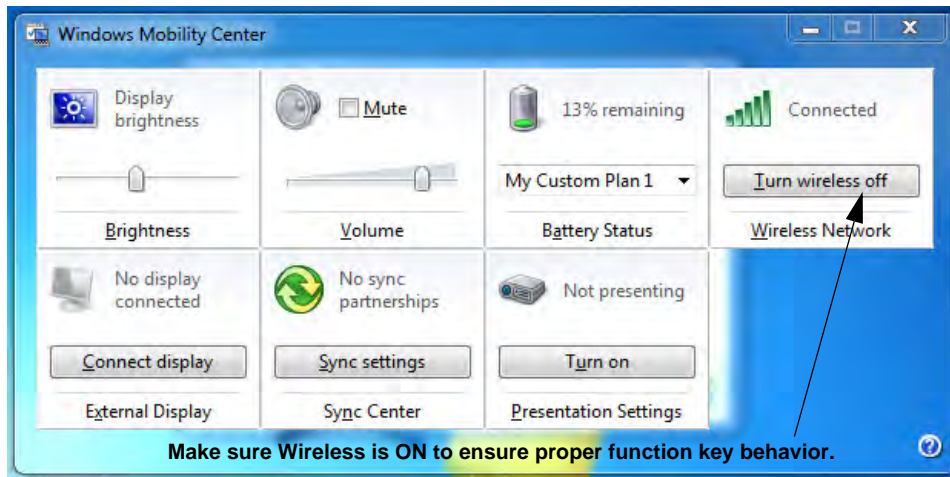


Figure 7 - 20
Windows Mobility Center



Password Warning

If you set passwords for any of the security modules, **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.

Fingerprint Reader Module

The **optional** (for **Model A Only**) **fingerprint reader Protector Suite Software** provides a high level of security for your computer. A further level of security and control is provided in the BIOS (see “*Security Menu*” on page 5 - 10).

The **fingerprint reader** and **Protector Suite Software** allow you to:

- Access or Lock your computer
- Protect sensitive files
- Display and file your favorite web pages
- Fill in frequently used dialogs
- Run your favorite applications

If you have included the fingerprint reader in your purchase option you will need to install the driver as per the instructions below.

Make sure you have administrator’s rights to your computer, and have a **Windows** password enabled for full security protection.


Before beginning the enrollment process it is recommended that you go through the fingerprint tutorial. To run the tutorial click **Start > Programs/All Programs > Protector Suite QL > Fingerprint Tutorial** after installing the driver.

Fingerprint Reader Driver Installation

1. Make sure the module is powered on, and then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install Fingerprint Driver > Yes**.
4. Click **Next > Next > Next**.
5. Click **Finish > Yes** to restart the computer.



Help & Manual


Right-click the taskbar icon  to bring up the menu to select **Help**.



Fingerprint Enrollment

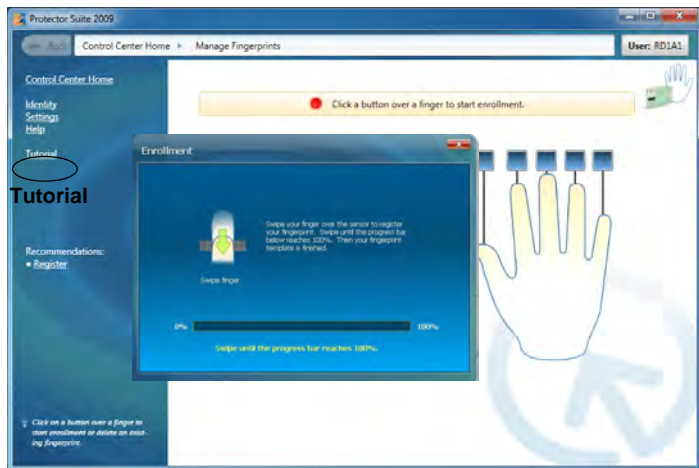
Note that it is strongly recommended that you **enroll more than one finger** in case of injury etc.


User Enrollment

1. Click **Start > Programs/All Programs > Protector Suite > Control Center**, or double click the taskbar icon  (click **Initialize**).
2. On the first run of the program you will be asked to click the **Accept** button to accept the license.
3. If you have not set a **Windows** password you will be prompted to do so (**note**: If you have not set a password **Protector Suite** cannot secure access to your computer).
4. Click **Submit** when you have entered password.
5. You will then be prompted to enroll your fingerprints (you can click **Tutorial** to get help with fingerprint enrollment at any time).

7

Figure 7 - 21
Fingerprint Enrollment



6. Click the button above any of the fingers to begin the enrollment process for that finger.
7. Swipe the finger until the progress bar reaches **100%** to enroll that finger.
8. Close the **Protector Suite 2009** window.
9. Right-click the taskbar icon  and select **Start Control Center** (and then swipe a finger) to allow you to **Edit Fingerprints**, register **Applications**, edit **Settings** and access the **Help** menu etc. You can also run the **Control Center** etc. from the **Protector Suite** item in the **Programs/All Programs** menu
10. Click **“Help”** in **Control Center Home** to get more information on any topic.
11. You can also run the **Tutorial**, or **Product Tour** video to get more information.

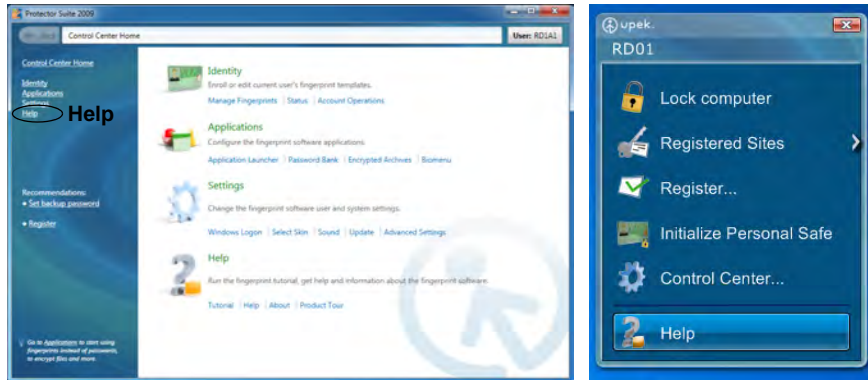


Figure 7 - 22
Control Center & Biomenu

12. See **“Help & Manual” on page 7 - 31** for further details.
13. If you swipe your finger over the reader at any time you can access the **Biomenu** to **lock the computer**, **register websites**, access the **Personal Safe**, open the **Control Center** and access the **Help** menu.



Help

For more information on these and other features simply access “**Help**” in the **Fingerprint Control Center** and select the item from the menu on the left.

Fingerprint Control Center Features

Application Launcher

The **Application Launcher** allows you to register applications to be launched when assigned to a particular finger. Simply copy the application icon on to one of the registered fingers and then click OK to close the application window. Once registered the application will launch when you swipe the appropriate finger across the sensor.

Password Bank


The **Password Bank** stores registrations of user names, passwords and other settings for web sites etc.

Personal Safe

The **Personal Safe** is an encrypted area assigned on your hard drive that allows you to store files and folders to be protected by fingerprint protection.

Bluetooth Module

If your purchase option includes the **Combination Wireless LAN & V3.0 Bluetooth module** (either **Intel®** or **3rd Party**) then install the driver as instructed overleaf. Follow the instructions on page **7 - 41** to configure the Bluetooth settings.

Use the **Fn + F12** key combination to toggle power to the **Bluetooth module**. When the Bluetooth module is powered on the indicator  will briefly be displayed.



Bluetooth Data Transfer

Note that the transfer of data between the computer and a Bluetooth enabled device is supported in **one direction only (simultaneous data transfer is not supported)**. Therefore if you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process from the computer has been completed.

- For **3rd party Bluetooth modules** see the installation procedure see *“3rd Party Bluetooth Combo Driver Installation” on page 7 - 36* and *“3rd Party Bluetooth & WLAN Combo Settings” on page 7 - 37*.
- For **Intel Bluetooth modules** see the installation procedure see *“Intel Bluetooth Combo Driver Installation” on page 7 - 44* and *“Standard Bluetooth Configuration in Windows 7” on page 7 - 45*.



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 LED indicator to see if the module is powered on or not (see [Table 1 - 5](#), on page 1 - 12/ [Table 1 - 3](#), on page 1 - 9).



High Speed Bluetooth Data Transfer


The **Combination Wireless LAN & V3.0 Bluetooth module** supports high speed (V3.0) data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer.**

To obtain high speed (V3.0) data transfer make sure that both the **WLAN and Bluetooth modules are powered on.**

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

3rd Party Bluetooth Combo Driver Installation

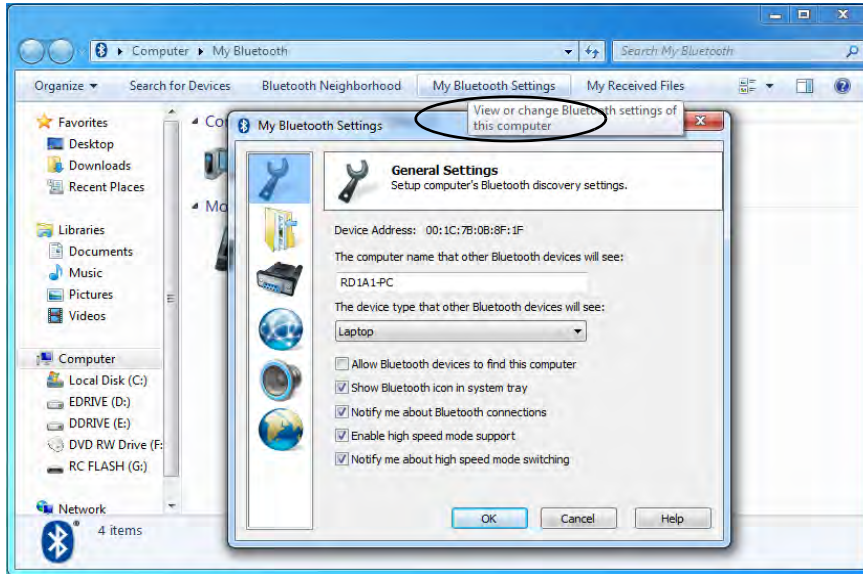
Note this driver is required only for the 3rd Party combo Bluetooth and WLAN module only.


1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive. If a *Found New Hardware* window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes.**
4. Choose the language you prefer and click **OK.**
5. Click **Next.**
6. Click the button to accept the license and click **Next.**
7. Click **Next >** (*select if you want to create an icon to appear on the desktop*)
Next > Install.
8. Click **Finish.**
9. The **My Bluetooth** icon  will appear on the desktop and the **Bluetooth** item will be installed in the **Programs/All Programs** menu.
10. See *"3rd Party Bluetooth Networking Setup" on page 7 - 40* for information on Bluetooth networking.

3rd Party Bluetooth & WLAN Combo Settings

This information applies to the combo Bluetooth and WLAN module only.

1. Make sure the Bluetooth module is powered on.
2. Double-click the **My Bluetooth** application on the desktop (or access it from the **Programs/All Programs** menu).
3. Click **My Bluetooth Settings** (menu heading).






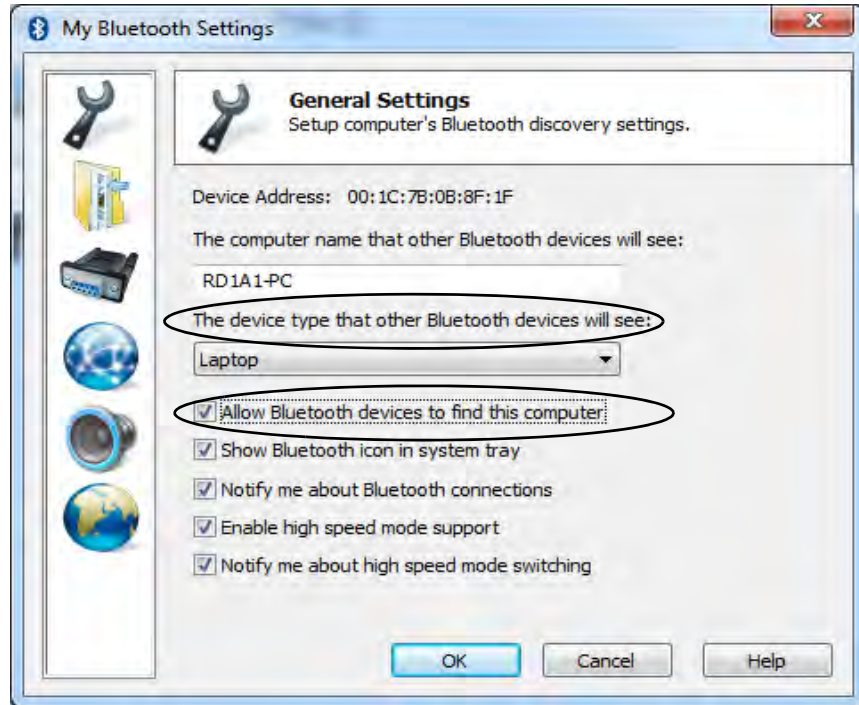
Bluetooth Module & Resuming From Sleep Mode

The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.


Figure 7 - 23
My Bluetooth Settings

Modules & Options

4. Click **General Settings**  to change the computer **name that other Bluetooth devices will see**, and click the tickbox to **Allow Bluetooth devices to find this computer**
5. Click **OK** to confirm the settings.



7
Figure 7 - 24
General Settings

6. Click **File Transfer Settings**  to **Enable sharing of my files with other Bluetooth devices**.
7. Click **OK** to confirm the settings.

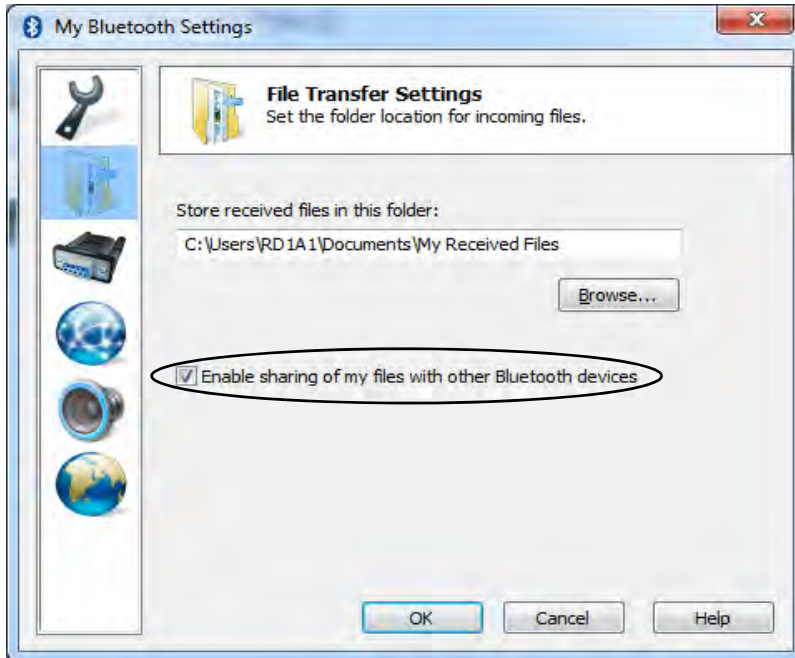


Figure 7 - 25
File Transfer Settings

3rd Party Bluetooth Networking Setup

This information applies to the combo Bluetooth and WLAN module only.

1. Make sure the Bluetooth module is powered on.
2. Double-click the **My Bluetooth** application on the desktop (or access it from the **Programs/All Programs** menu).
3. Click **My Bluetooth Settings** (see [Figure 7 - 23 on page 7 - 37](#)).

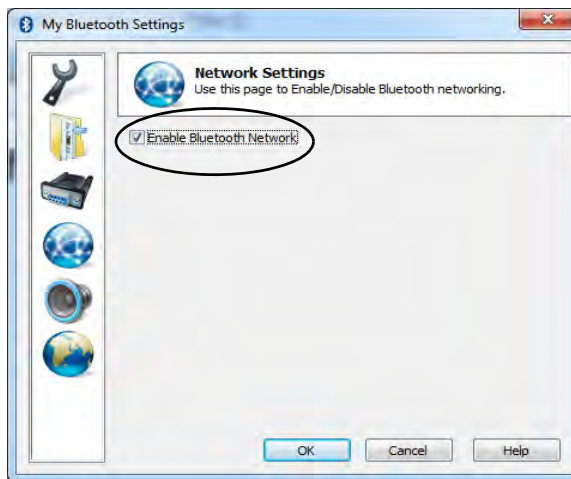


Figure 7 - 26
Network Settings

4. Click **Network Settings** (make sure the Bluetooth module is powered on).
5. Click **Enable Bluetooth Network** and click **OK**.
6. A message will appear in the taskbar to confirm that the network driver has been installed.

3rd Party Bluetooth & WLAN Combo Module Configuration

Setup your Bluetooth Device so the Computer Can Find it

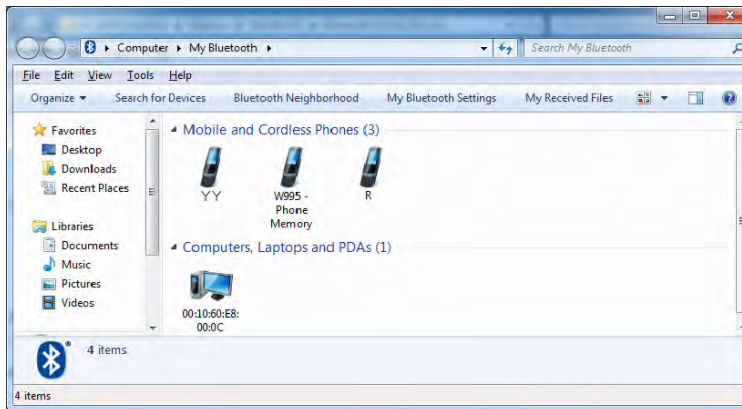
1. Turn your Bluetooth device (e.g. PDA, mobile phone etc.) on.
2. Make the device discoverable (to do this check your device documentation).


To Turn the Bluetooth Module On

1. Press the **Fn + F12** key combination to power on the Bluetooth module.

To Add a Bluetooth Device

1. Double-click the **My Bluetooth** application on the desktop (or access it from the **Programs/All Programs** menu).
2. Double-click the device you want to pair with the computer (if no devices appear press **F5** or click the **Refresh** button to search for devices).





Bluetooth Module & Resuming From Sleep Mode

The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

Figure 7 - 27
My Bluetooth Devices

3. You will then be presented with a menu of options to select from.



7

Figure 7 - 28
**Bluetooth Device
Options**

4. Click the appropriate button to connect to the device.

5. You may need to allow the connection from your device, and you will then need to provide a passcode from the device.
6. You can then enter the passcode on the computer and click **OK** to establish the connection.

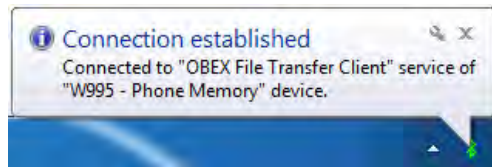
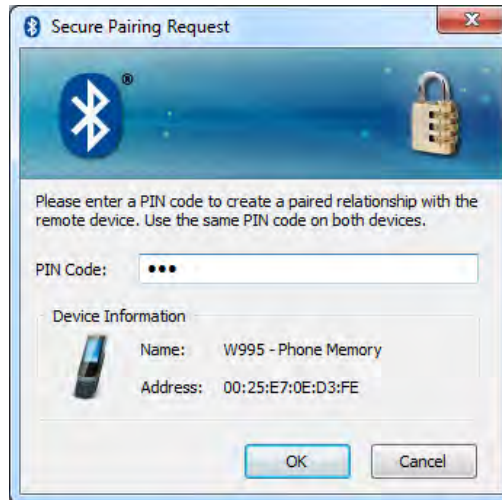


Figure 7 - 29
**Bluetooth Pairing
Code & Connection
Established**



High Speed Bluetooth Data Transfer

The **Combination Wireless LAN & V3.0 Bluetooth module** supports high speed (V3.0) data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer.**

To obtain high speed (V3.0) data transfer make sure that both the **WLAN and Bluetooth modules are powered on.**

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

Intel Bluetooth Combo Driver Installation

Note this driver is required only for the Intel combo Bluetooth and WLAN module only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive. If a *Found New Hardware* window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes.**
4. Click **Next > Next.**
5. Click the button to accept the license and click **Next.**
6. Click **Next > Finish.**
7. See over for configuration instructions.




Note that, at the time of going to press, **Intel® Centrino Advanced 6230 WLAN & Bluetooth V3.0+HS combo modules** use the standard Bluetooth configuration in *Windows 7* (see "*Standard Bluetooth Configuration in Windows 7*" on page 7 - 45). **Do not use** the Bluetooth & WLAN Combo settings information outlined from page 7 - 37 to page 7 - 43. See also "*Intel® Centrino Advanced WLAN & Bluetooth V3.0+HS Combo Modules*" on page 8 - 17.

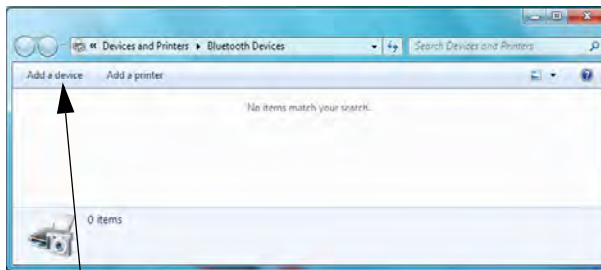
Standard Bluetooth Configuration in Windows 7

Setup your Bluetooth Device so the Computer Can Find it

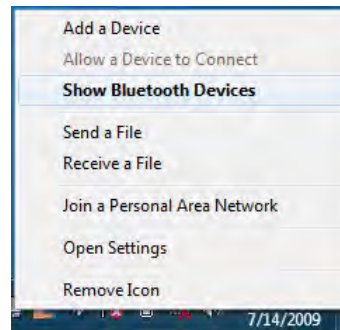
1. Turn your Bluetooth device (e.g. PDA, mobile phone etc.) on.
2. Make the device discoverable (to do this check your device documentation).


To Turn the Bluetooth Module On

1. Press the **Fn + F12** key combination to power on the Bluetooth module.
2. A Bluetooth icon  will appear in the taskbar.
3. You can then do any of the following to access the **Bluetooth Devices** control panel.
 - **Double-click** the taskbar icon  to access the **Bluetooth Devices** control panel.
 - **Click/Right-click** the taskbar icon  and choose an option from the menu.



Add a device



Right-Click Taskbar Icon 



Add a Device

Click **Start**, and click **Control Panel** and then click **Devices and Printers (Hardware and Sound)**. Click **Add a device** to search for any available Bluetooth devices.

Bluetooth Module & Resuming From Sleep Mode

The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

Figure 7 - 30

Bluetooth Devices & Click Icon Menu



Pairing Options

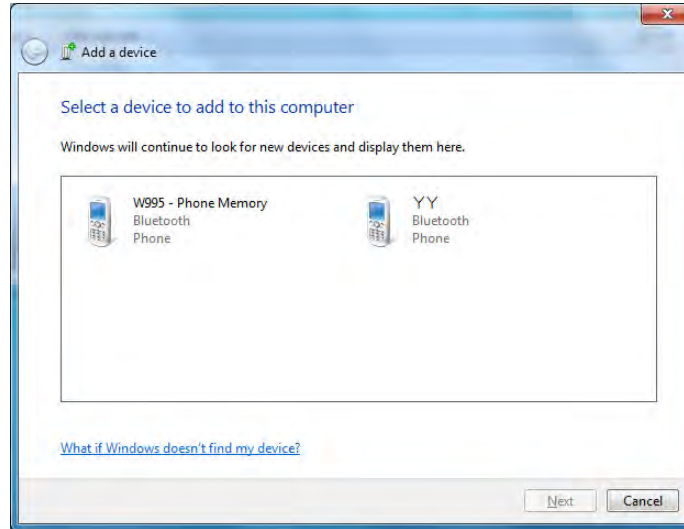
If a device has been previously connected then the pairing option menu will appear when you attempt subsequent connections. You can choose to have the computer create a pairing code for you, use the device's existing pairing code or you can pair certain devices without using a code.

7

Figure 7 - 31
Add a Device

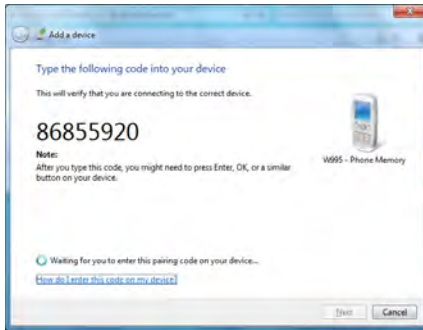
To Add a Bluetooth Device


1. Access the **Bluetooth Devices** control panel and click **Add a device**.
2. Double-click the device you want to pair with the computer.



3. On first connection the computer will provide you with a pairing code to be entered onto the device.

- Enter the code into your Bluetooth enabled device and follow any on-screen instructions to complete the pairing.





Pairing Codes

The example outlined here shows a connection to a mobile device. Other devices e.g. computers, may have a slightly different connection procedure, and may require you to confirm a pairing code is correct on both devices. Follow the on-screen instructions to complete the pairing.

Figure 7 - 32
Pairing Code Example

- Windows** will check to see if any drivers are required to complete the pairing.
- Follow any on-screen instructions on the computer if device drivers are required to be installed.
- Click **Close**.

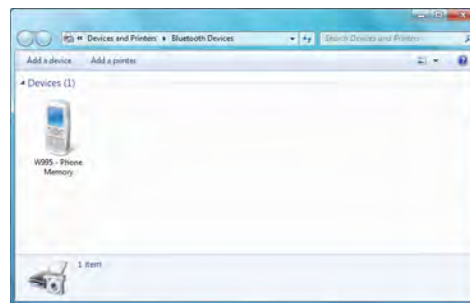


Figure 7 - 33
Pairing Complete & Bluetooth Device Enabled



Bluetooth Help

To get help on Bluetooth configuration and settings, select **Help and Support** from the **Start** menu. Type Bluetooth in the **Search Help** box, and select an item from the returned search results to get more information.

To Change Settings for the Bluetooth Device

1. Click the taskbar icon and select **Show Bluetooth Devices**.
2. Right-click on the device you want to change and click **Properties** to:
 - Change the **name** of the device (click **Bluetooth**, type a new name and click **OK**).
 - Enable/Disable a **service** (click **Services**, clear/tick the check box next to the service and click **OK**).

To Make your Computer Discoverable to Bluetooth Devices

1. Click the taskbar icon and select **Open Settings**.
2. Click **Options**, and make sure that **Allow Bluetooth devices to find this computer** check box (**Discovery**) has a tick inside it.
3. Make sure that the **Alert me when a new Bluetooth device wants to connect** check box (**Connections**) has a tick inside it, if you want to be notified when a Bluetooth device wants to connect.

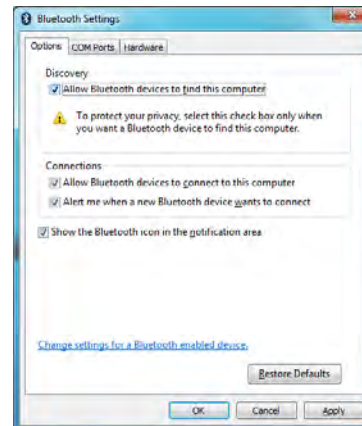


Figure 7 - 34
Bluetooth Settings -
Options

3.75G/HSPA Module

If you have included an **optional** (for **Model A Only**) **3.75G/HSPA** (High Speed Packet Access) module (see “*Communication*” on page **C - 4** for specification details) in your purchase option, you will have the appropriate application provided for your module (**Wireless Manager**). Follow the instructions on page **7 - 50** to install the USIM card (which will be provided by your service provider), and then install the application.



Important Notice - 3.75G/HSPA & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3.75G/HSPA module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3.75G/HSPA module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.



3.75G/HSPA Module Options

There are **three optional** 3.75G/HSPA modules available for this series of computer models. Each module is supplied with the appropriate application software.

The module type supplied may depend upon the computer model purchased. Check with your service center for details.

Install the driver from the Drivers Installer menu and check the instructions for the appropriate application on the following pages.



Power Safety Warning

Before you undertake any installation 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.

USIM Card Orientation

Note that the USIM card's readable side (with the gold-colored contacts) should face upwards as illustrated.

3.75G/HSPA Module USIM Card Installation

Follow the instructions below to install the USIM card (which will be provided by your service provider).

1. Turn **off** the computer, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow, and hold it in place.
4. Remove the battery.
5. Insert the USIM card (at the rear of the battery compartment) as illustrated below until it clicks fully into position, and replace the battery.

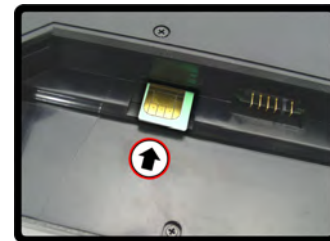
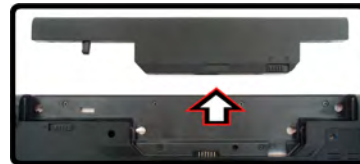
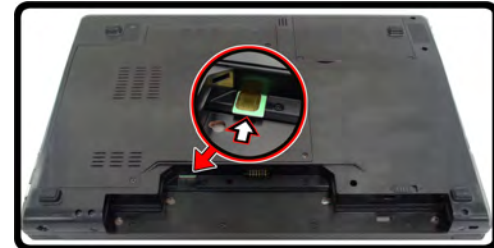
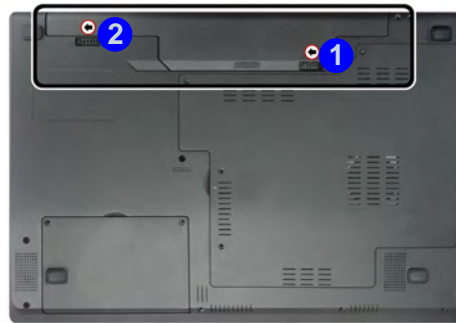




Figure 7 - 35

Battery Removal & USIM Card Insertion

Before installing the application, make sure that the 3.75G/HSPA module is ON (installing the driver with the module off will not allow the software to detect the module hardware correctly). Use the **Fn +  key combination** (see [Table 1 - 5, on page 1 - 12](#)) **to toggle power to the 3.75G/HSPA module**. When the 3.75G/HSPA module is powered on, the indicator  will briefly be displayed. Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#). **Note that exiting the application does NOT turn off the 3.75G/HSPA module.**

- **Wireless Manager** - See [“Wireless Manager Installation” on page 7 - 52](#) for driver installation information and [“Wireless Manager Application” on page 7 - 53](#) for instructions on using **Wireless Manager**.




3.75G/HSPA Modules & System Wake Up

Note that the 3.75G modules **DO NOT** support system wake up on 3.75G/HSPA modem activity.



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 + ** key combination to toggle power to the 3.75G/HSPA module, and check the indicator to see if the module is powered on or not (see [Table 1 - 5, on page 1 - 12](#)/[Table 1 - 3, on page 1 - 9](#)).

Wireless Manager



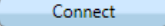
With the **3.75G/HSPA** module and USIM card (supplied by your service provider) installed you may then install the **Wireless Manager** application. The **Wireless Manager** application allows you to directly access your HSPA internet service from the computer.

Wireless Manager Installation

1. Enable power to the module by pressing the **Fn + ** key combination (give the module about 10 seconds to power on - the on screen icon  will indicate the module's power status).
2. If a *Found New Hardware* window appears, click **Cancel** (click **Cancel** for all *Found New Hardware* windows that appear).
3. Insert the *Device Drivers & Utilities + User's Manual disc* into your external optical device drive.
4. Click **Option Drivers** (button).
5. Click **3.Install 3G Driver > Yes**.
6. Click **Next > Next > Install**.
7. Click **Finish**.
8. Access the **Wireless Manager** application from the **Start** menu or the desktop shortcut .

Wireless Manager Application

The connection information is stored on the USIM card supplied by the service provider (where this is not the case you may need to create a profile - see *“Creating a Profile” on page 7 - 59*).

1. Power on the 3.75G/HSPA module using the **Fn +**  key combination.
2. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
3. You may be required to enter your **PIN** number and click **OK**.
4. Click the **Connect**  button (a **Profile** needs to be selected, and in most cases this will be pre-configured).



PIN Number

The PIN number for your USIM card will be supplied by your service provider. You usually have a limited number of attempts to enter the correct PIN number.

If you fail to enter the PIN number correctly you will be blocked from accessing the USIM card and you will need a **PUK** (Personal Unblocking Key), supplied by your service provider, to unlock it.

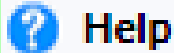
Figure 7 - 36
Wireless Manager
(Not connected)

Modules & Options



Wireless Manager Help

To get help on **Wireless Manager** configuration and settings, click the **Help** icon or press **F1**.






5. The system will connect to your network.
6. **Connected** will appear above the timer icon (the timer will indicate your connected time for the current session) 
7. You can then access the internet, download e-mail etc. as per any internet connection.



Figure 7 - 37
Wireless Manager
(Connected)

- Click the Wireless Manager notification area icon  to view the connection status, or wireless icon  to view the Mobile Broadband Connection status.

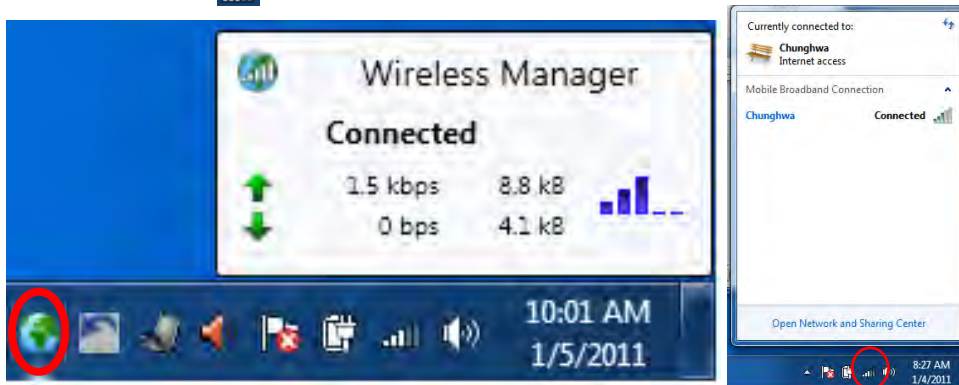

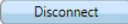




Figure 7 - 38
Notification Area
Icons (Connected)

- The indicator  will display the signal strength and radio access technology.
- To disconnect from the service provider, click the **Disconnect**  button (note that if you click the close icon at the top right of the screen the application will minimize to the system tray, however the application will still be running; to exit the application right-click the notification area icon and click **Disconnect** or **Exit Wireless Manager**).
- The program will disconnect from the service provider.
- The module will still be on, and you will need to press the **Fn + ** key combination to turn it off.
- If you are unsuccessful in connecting this way you may need to add a profile with information provided by your service provider (see the following pages).



Notification Area Icon

Right-click the notification area icon to bring up the menu to **Open/Exit Wireless Manager, Disconnect** or **Turn radio off**.

Open Wireless Manager

Disconnect

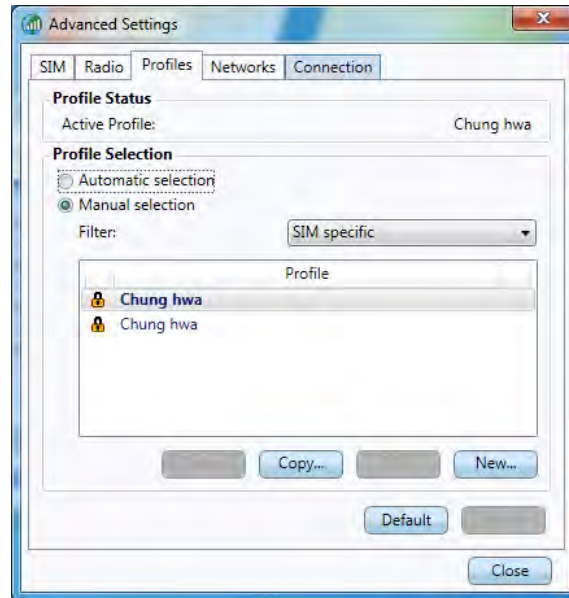
Turn radio off

Exit Wireless Manager

Profiles

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click the **Settings > Advanced**.
3. Click the **Profiles** (tab).

Figure 7 - 39
Advanced Settings - Profiles



- Multiple profiles may be available from the USIM card and the first time the application starts it may require you to select a profile (**Set Profile**) to use for your connection.

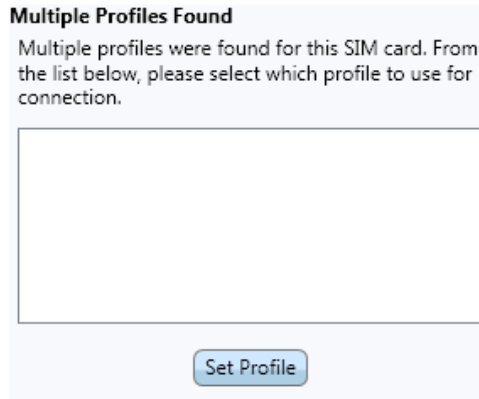


Figure 7 - 40
Multiple Profiles Found

Automatic Profile Selection

If **Automatic selection** is chosen, then the application will search the operator profile database for a profile that matches the details on your USIM card. If a correct profile is found it will be automatically selected as your profile.

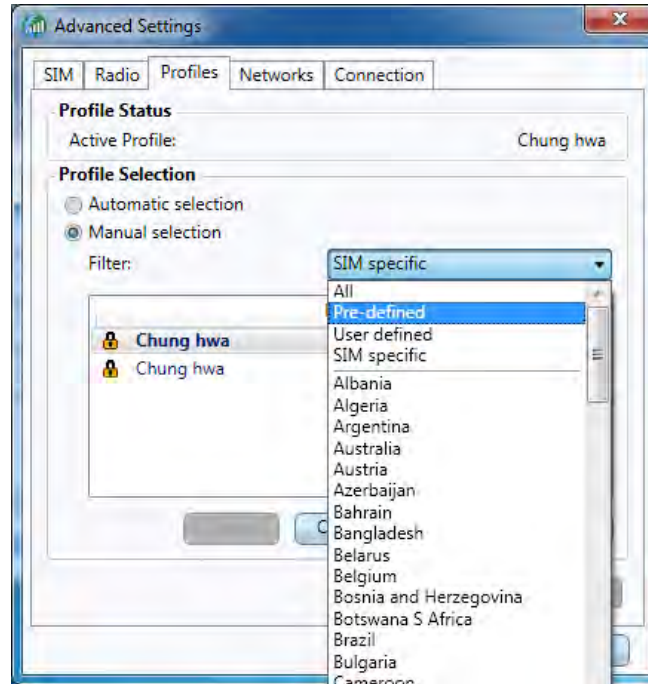
Manual Profile Selection

If Manual selection is chosen, then you can select a profile from the applications' operator profile database, or you can create a new profile.

Selecting a Profile

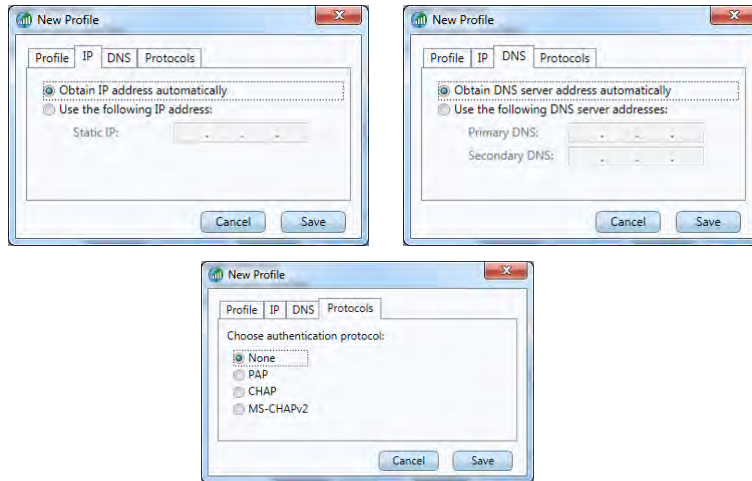
1. Click **Manual selection** (button).
2. Click the **Filter** to view the drop-down list.
3. Select the Profile you wish to use and click **Apply** to confirm the selection.

Figure 7 - 41
Profile - Manual Selection (Filter)



Creating a Profile

1. Click **Manual selection** (button).
2. Click the **New**.
3. Enter a name you prefer for the profile.
4. Enter the **Access Point Name (APN)**.
5. Enter the **User Name** and **Password** if required (some service providers may not require this information and the fields may then be left blank).
6. If your service provider requires **IP address**, **DNS** and **Protocols** to be entered, click the appropriate tab and enter the supplied information (otherwise leave blank).
7. Click **Save** to save the profile information.
8. The profile will be stored under **User defined** in the **Filter** drop-down list.



Deleting a Profile

To delete a profile click to select **Manual selection** and select the profile and click **Delete**.

Modifying a Profile

To modify a profile click to select **Manual selection** and select the profile and click **Edit**. Change the settings as required and then click **Save** (note that only **user defined** profiles may be edited).

Figure 7 - 42
**New Profile IP, DNS
 & Protocols**


Settings

The **Settings** tab allows you to adjust the application features. Click to put a tick in **Launch Wireless Manager at Windows startup** to launch the application at *Windows* Startup.

Figure 7 - 43
Settings




The **Advanced** settings allows more detailed configuration. To access the **Advanced** settings:

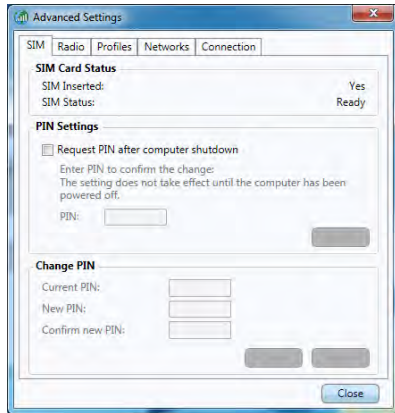
1. Access the **Wireless Manager** program from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click the **Settings > Advanced**.
3. Click the tab to edit any particular setting.

SIM

Most USIM cards are protected by a Personal Identity Number (PIN). You may turn on or off the **Request PIN at startup** (click **Apply** to save any changes). You can also **Change PIN** (you will need to enter the new PIN in the two fields provided and click **Apply** to save any changes).

Radio

Radio needs to be turned on before you can make any connection (note this is not the same as powering the module off/on using the **Fn** +  key combination), but you may turn it off when required. **Automatic** mode is the recommended setting for most 3G networks as it will use 3G where available. All **Frequency bands** are selected as default (click **Apply** to save any changes).



PIN Notes

You will have to enter your current PIN to change the PIN settings.

Request PIN at startup will apply only after you have shut the computer down and restarted it (not just restarted).

Radio & Power Saving States

You can choose to have the radio turned on or off during **Hibernate** or **Sleep** power saving states.

Figure 7 - 44
Advanced Settings
SIM & Radio



Warning

Note that some applications automatically transmit data when connected, and you may be charged for the data transfer. Some auto connection/connection settings may lead to expensive roaming charges.

Networks

The mobile network list lists available networks at your location, and allows you to select a network which to connect. You must disconnect before being able to select a network.

Connection

You can set the **Wireless Manager** to automatically connect at **Windows** startup (however the module must be powered on, and radio must be turned on). You can also automatically connect when resuming from a power-saving state (click **Apply** to save any changes). Click **Default** to return to the original default settings.

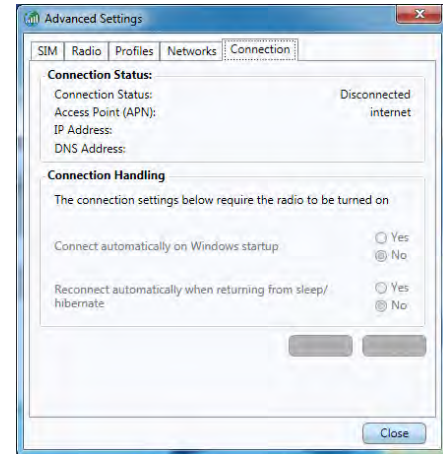
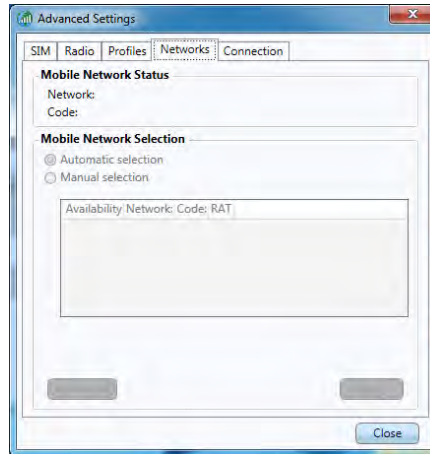



Figure 7 - 45
Advanced Settings
Networks &
Connection

Text Messaging Service (SMS)

In addition to standard internet services you may also send and receive SMS text messages using the **Wireless Manager**, if your service supports SMS.

SMS Utility

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. The indicator in the upper right corner will display if radio is currently on or off (radio must be on in order to send/receive messages).

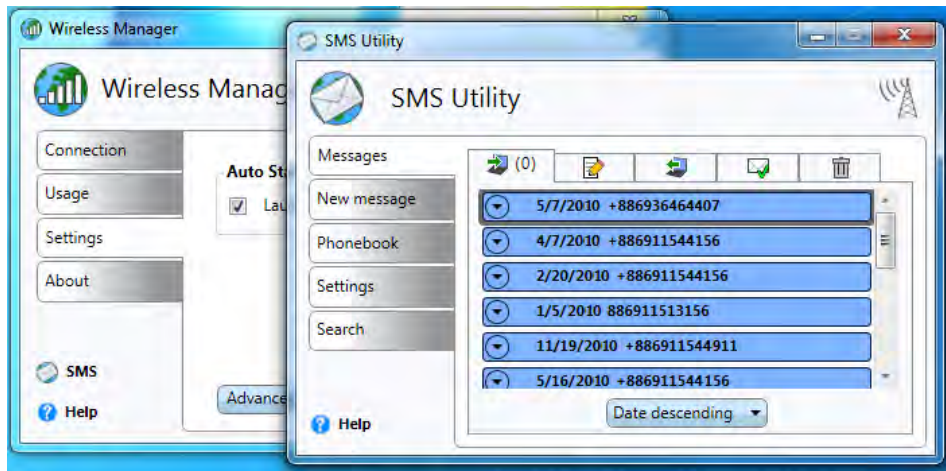


Figure 7 - 46
SMS Utility Open

Messages

Click the **Messages** tab to access the tabs displaying text messages. The tabs at the top of the menu display the **Inbox**, **Drafts**, **Outbox**, **Sent** and **Trash** menus.

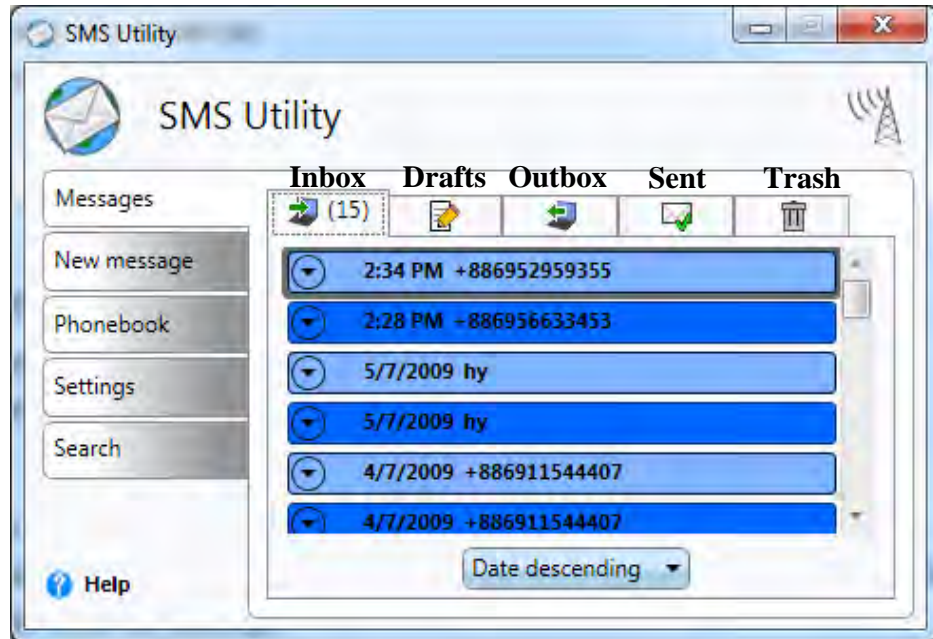




Figure 7 - 47
SMS Utility
Messages

Text messages are automatically saved to your computer and may be sorted in ascending or descending order by name or date.

Sending a Text Message

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **New Message** tab.
4. Enter the phone number in the **To** field (multiple numbers may be entered separated by a semicolon (;), or click the phonebook icon  to select a name from the phonebook.
5. Select any contact's phone number and click **OK** (you can click a check box to select multiple contacts or more than one phone number for each contact).
6. Type the message body in the **Message** field (to a **maximum of 160 characters**).

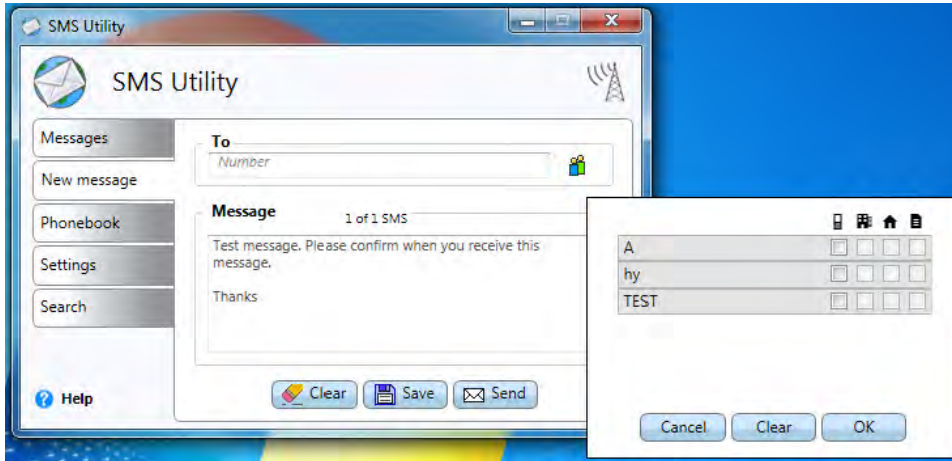





Figure 7 - 48
SMS Utility - New
Message

Modules & Options

7. Click **Send**  to send the message or **Save**  to save the message in the **Drafts** folder.
8. Clicking the **Clear** icon  clears both the **Message** and **To** fields.
9. If **radio is on** then the message will be sent, however if the radio is off the message will be stored in the **Outbox**.

Note that you do not have to connect to the network to Send/Receive SMS messages.

Inbox

Any received text messages will be displayed in the **Inbox**. The number of unread messages will be displayed in parenthesis in the inbox tab. Unread messages will be displayed in a darker color then the read messages, and incoming messages will be displayed briefly in the Notification Area.

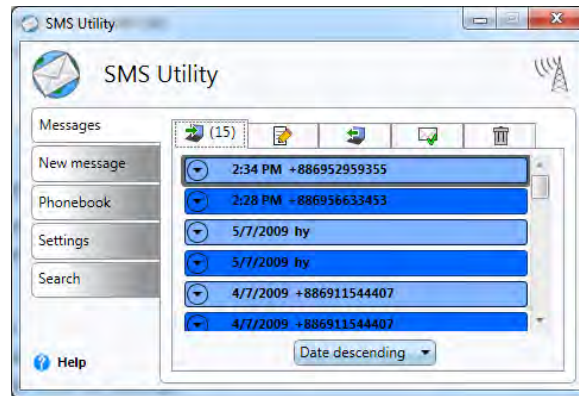




Figure 7 - 49
**SMS Utility - Inbox &
New Message
Received
Notification**

Messages

- **Opening a text message:** Double-click the message and the message will open in a new window (to close it click the close icon in the top right of the message).




Figure 7 - 50
Close Message

- **Previewing a text message:** Click the preview icon  and the message preview will open. Click the icon again to close the preview.
- **Replying to a text message:** Double-click the message and click **Reply**. Type the reply in the message field and click **Send** to send the message (or **Save** to save it in **Drafts**).
- **Forwarding a text message:** Double-click the message and click **Forward**. Type the recipients name in the **To** field or click the icon  to select recipients from the **phonebook**.
- **Deleting a text message:** Right-click the message select **Delete selected**. To delete all messages in the folder right-click any message and select **Delete All**. Holding down the **Ctrl** key and selecting messages allows you to multiple select messages for deletion (choose **Delete selected**). Deleted message will be sent to the Trash folder. To permanently delete messages right-click and select **Delete selected** or **Delete All** (or you may choose to **Recover/Recover All**) and click **Yes** to confirm.

Phonebook

The **Phonebook** allows you to view and edit all your frequently used contacts, and is divided into **Contacts**  and **Groups** . To access the **Phonebook**:

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **Phonebook** tab.

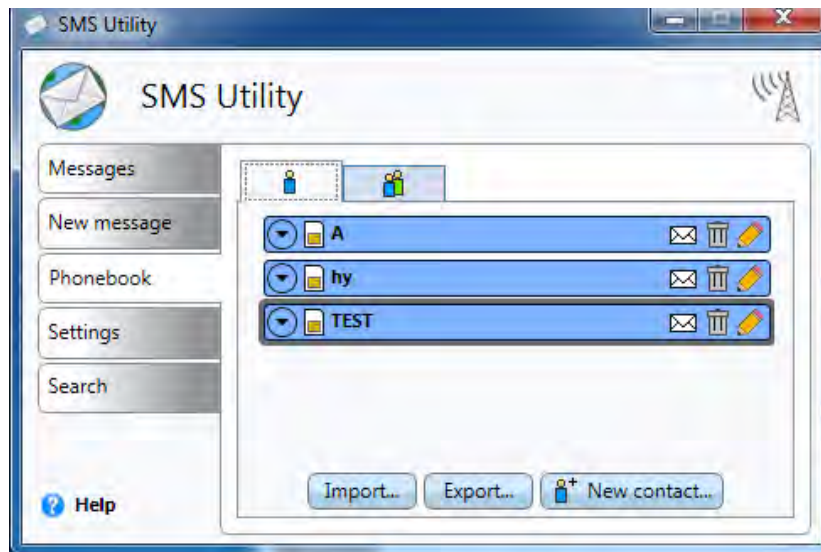
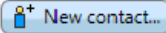


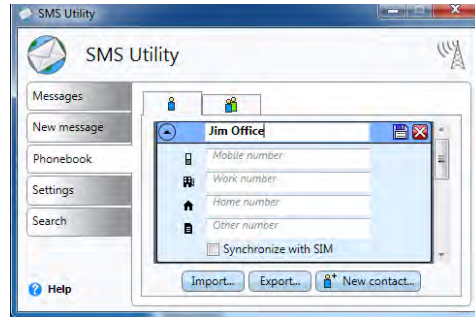






Figure 7 - 51
**SMS Utility -
Phonebook
(Contacts)**

Contacts

- **New Contact:** Click the **New contact** button  to create a contact. Add the name and at least one phone number (**Mobile, Work, Home** and **Other** fields are available) for the contact. Click the  icon to expand the number details. Select **Synchronize with SIM** to synchronize the contact information with your USIM card. Click the **Save** icon  to save the information.



- **Edit Contact:** Click the edit icon  to make changes to a contact detail, and click save  to confirm the changes.
- **Delete Contact:** Click the delete icon  to delete a contact from the phone-book.
- **Send a message to a Contact:** Click the message icon  to send a text message to any contact.



Import/Export Contacts

Import/Export Contacts: Click the **Import/Export**   buttons to import or export the list of contacts.

Figure 7 - 52
SMS Utility
New Contact

Groups

You can organize existing contacts into groups from the **Groups** tab.




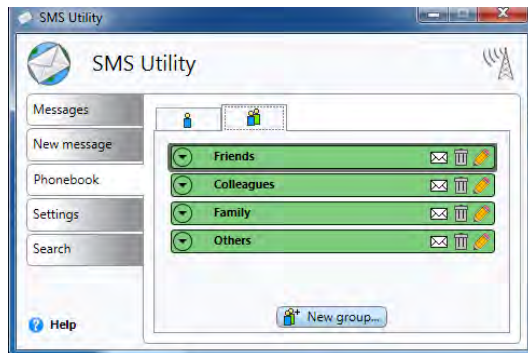





- **New Group:** Click the **New group** button  **New group...** to create a group. Click the  icon to expand the group details, and click a check box to add at least one phone number from the contacts for the group. Click the **Save** icon  to save the information.

Figure 7 - 53
SMS Utility
Groups



- **Edit Group:** Click the edit icon  to make changes to a contact detail, and click save  to confirm the changes, or close  to exit without making changes.
- **Delete Group:** Click the delete icon  to delete a group from the phonebook.
- **Send a message to a Group:** Click the message icon  to send a text message to any group.

SMS Settings

The SMS Utility **Settings** tab allows you at adjust the SMS features.

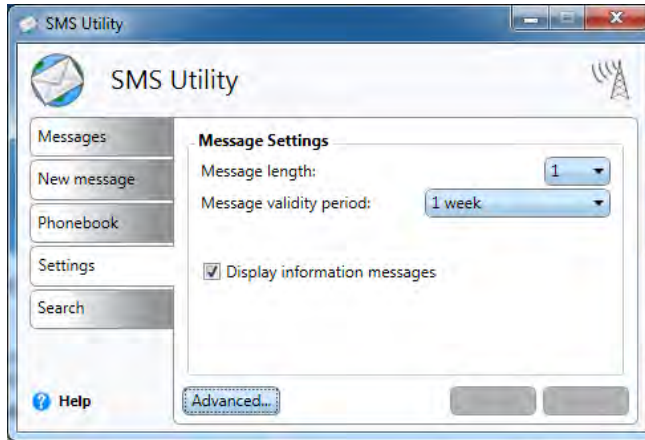


Figure 7 - 54
SMS Utility Settings




SMS Settings

Message Length: You can set the number of blocks that can be sent (up to a length of 10 blocks).

Message validity period: This sets the period after which the message will be deleted from the SMS center and therefore not forwarded to the recipient(s) when they come online.

Display information messages: You can choose whether to allow information messages to automatically appear on screen or not.

The **Advanced** settings allows more detailed configuration. To access the **Advanced** settings:

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **Settings > Advanced**.
4. Click the tab to edit any particular setting.

Send

Click **Delivery Report** to automatically request a reply from a recipient. If you click to **Send messages in Outbox automatically upon connection** then messages written when the radio is off, will then be sent automatically the next time radio is turned on. You can also choose to **Include original message in reply**.

Notification

This menu allows you to enable/disable **Show animation on new message** to get an animated notification of newly received messages. Enabling **Play sound on new message** will play an audio notification upon receipt of new messages.

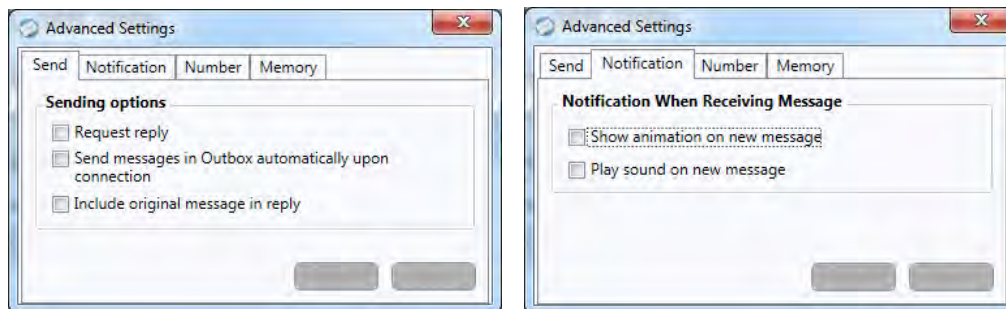


Figure 7 - 55

**SMS Utility -
Advanced Settings
Send & Notification**

Number

You can choose to **Use default service center number** or you can uncheck the box and add your number manually if your service provider supplies a different number (click **Apply** to save the change or **Default** to return to the default number).

Memory

Phonebook memory status displays the number of contacts displayed on the USIM card.

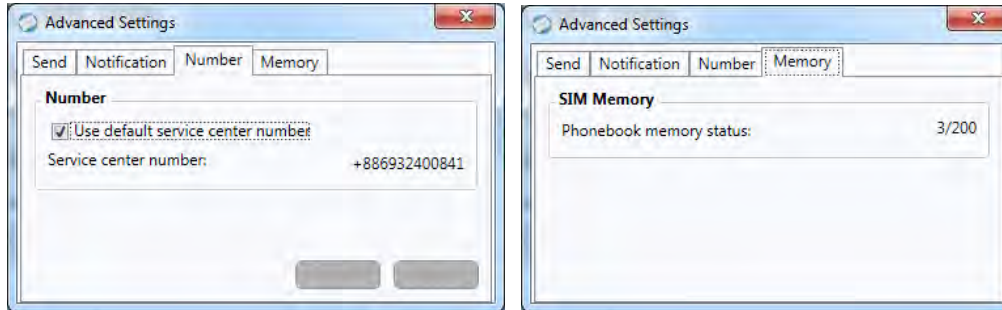


Figure 7 - 56
**SMS Utility -
 Advanced Settings
 Number & Memory**

Intel Rapid Storage Technology

Install the Intel Rapid Storage Technology to support your SATA drive if set up in AHCI mode in the BIOS (see “*SATA Mode (Advanced Menu)*” on page 5 - 8).

IRST Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **6.Install IRST Driver > Yes**.
4. Click **Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer (you will need to restart the system again after the computer has rebooted).

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 & Communication Indicators** (see “*LED Indicators*” on page 1 - 9) 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 “*Power-Saving States*” on page 3 - 7), 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.
- **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 (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 **Supervisor** password for the BIOS (see *“The Setup Utility” on page 5 - 2*).
- 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).


Troubleshooting


- 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.
- 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 and Possible Solutions


Problem	Possible Cause - Solution
<p>You turned on the power 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 DC 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 "Power Plans" on page 3 - 4) check its settings. You may also be using a 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 "Battery Information" on page 3 - 12).</p> <p><i>Power Options have been disabled.</i> Go to the Control Panel in <i>Windows</i> and re-enable the options.</p> <p><i>A peripheral device/USB device is consuming a lot of power.</i> Turn off/remove the unused device to save power.</p>

Troubleshooting

Problem	Possible Cause - Solution
 UMA Mode & Performance <p>UMA Mode is designed for maximum power saving, however this does have an affect on the system's overall video performance (as it is based on the Power saver power plan).</p> <p>If you require better video performance then it is recommended that you use Optimus Mode. Alternatively you may switch the UMA Mode power plan to Balanced (however power savings will be reduced in this case).</p>	
The computer feels too hot .	<p>Make sure the computer is properly ventilated and the Vent/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 <i>"Overheating" on page 1 - 15</i>). 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 Vent/Fan intakes to be blocked.</p>

Problem	Possible Cause - Solution
<p>Nothing appears on screen.</p>	<p><i>The system is in a power saving mode.</i> Toggle the sleep/resume key combination, Fn + F4 (see “Configuring the Power Buttons” on page 3 - 9).</p> <p><i>The screen controls need to be adjusted.</i> Toggle the screen control key combinations Fn + F8/F9. 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 combination, Fn + F7. 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 Appendix B 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>
<div style="text-align: center;">  <p>Password Warning</p> <p>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.</p> </div>	


Troubleshooting

Problem	Possible Cause - Solution
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 <i>Windows</i> taskbar, or use the key combination Fn + F5 and F6 (see “Function/Hot Key Indicators” on page 1 - 12) to adjust.
The CD/DVD cannot be read .	<i>The CD/DVD is dirty.</i> Clean it with a CD/DVD cleaner kit.
The CD/DVD tray will not open when there is a disc in the tray.	<i>The CD/DVD 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 .
Unwelcome numbers appear when typing.	<i>If the LED  is lit, then Num Lock is turned ON.</i> (see “LED Indicators” on page 1 - 9).



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/hot keys unique to the system's regular keyboard may not work.

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 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 "Power-Saving States" on page 3 - 7). Make sure you have enabled Hibernate mode from the control panel.
The Wireless LAN/Bluetooth/3.75G/HSPA modules cannot be detected.	<i>The modules are off.</i> Check the LED indicator and/or function key indicator to see if the WLAN/Bluetooth/3.75G/HSPA module is on or off (see "LED Indicators" on page 1 - 9). If the LED indicator is off, then press the Fn + F11 (WLAN) , Fn + F12 (Bluetooth) or Fn +  (3.75G/HSPA) key combination(s) in order to enable the modules (see Table 1 - 5, on page 1 - 12).
The PC Camera module cannot be detected.	<i>The module is off.</i> Press the Fn + F10 key combination in order to enable the module (see "Function/Hot Key Indicators" on page 1 - 12). Run the camera application to view the camera picture.
The Wireless LAN/Bluetooth/ PC Camera/3.75G/HSPA modules cannot be configured.	The driver(s) for the module(s) have not been installed. Make sure you have installed the driver for the appropriate module (see the instructions for the appropriate module in "Modules & Options" on page 7 - 1).

Troubleshooting

Problem	Possible Cause - Solution
A file cannot be copied to/from a connected Bluetooth device.	<i>The transfer of data between the computer and a Bluetooth enabled device is supported in one direction only (simultaneous data transfer is not supported). If you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the device to your computer until the file transfer process from the computer has been completed.</i>
The Bluetooth module is off after resuming from Sleep.	<i>The Bluetooth module's default state will be off after resuming from the Sleep power-saving state. Use the key combination (Fn + F12) to power on the Bluetooth module after the computer resumes from Sleep.</i>
I am sliding my finger up and down on the right side of the Touchpad to scroll a Window and the Touchpad does not respond .	<i>There are different Touchpad versions available on this computer, and this version requires tapping/holding to scroll. Either tap repeatedly, or hold the finger down, at the top or bottom right of the Touchpad (depending on the scrolling direction required) to scroll the window.</i>
The GPU LED indicators do not seem to display the correct status.	<i>The UMA Power Plan is implemented. When the power plan is set to UMA Mode the GPU LED indicators may no longer display the correct status.</i>

Bluetooth Connection Problems

If you are experiencing problems connecting to some Bluetooth devices (in particular certain mobile phones and headsets) it may be necessary to download and install the **Windows Mobile Device Center** software (for *Windows Vista* and *Windows 7*). Go to the Microsoft website and search for the **Microsoft Windows Device Center Driver for Windows Vista (64-bit or 32-bit) and Windows 7 (64-bit or 32-bit)**, and then download the driver.

1. Install the **Microsoft Windows Device Center Driver** as appropriate for your operating system.
2. **Windows Vista** will automatically configure the driver for you, however **Windows 7** requires further configuration.
3. Make sure the Bluetooth device is powered on.
4. Go the **Windows 7** control panel and double-click **Device Manager (Hardware and Sound > Devices and Printers)**.
5. **Bluetooth Peripheral Device(s)** will be listed under **Other Devices** (note this will only be listed if you have connected, or tried to connect to, a Bluetooth device previously).

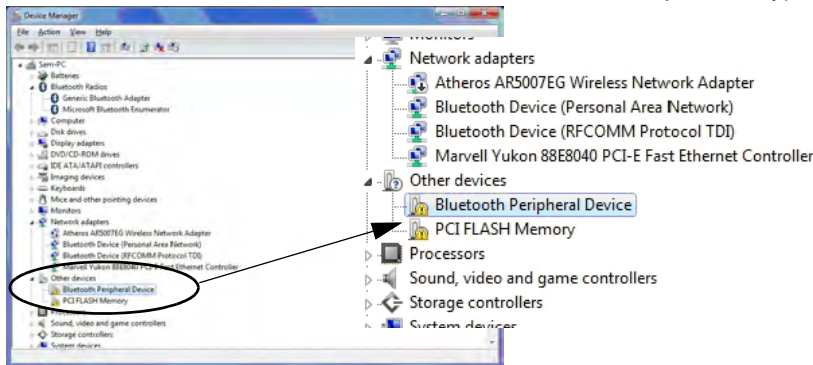


Figure 8 - 1 - Device Manager

Bluetooth Peripheral Devices

You will need to repeat the procedure listed here for all **Bluetooth Peripheral Devices** listed under **Other Devices** i.e. until there are no more **Bluetooth Peripheral Devices** listed under this menu heading.

Troubleshooting

- Right-click **Bluetooth Peripheral Device** and click on **Update Driver Software**.
- Click **Browse my computer for driver software**.
- Click **Let Me pick from a list of device drivers on my computer**.

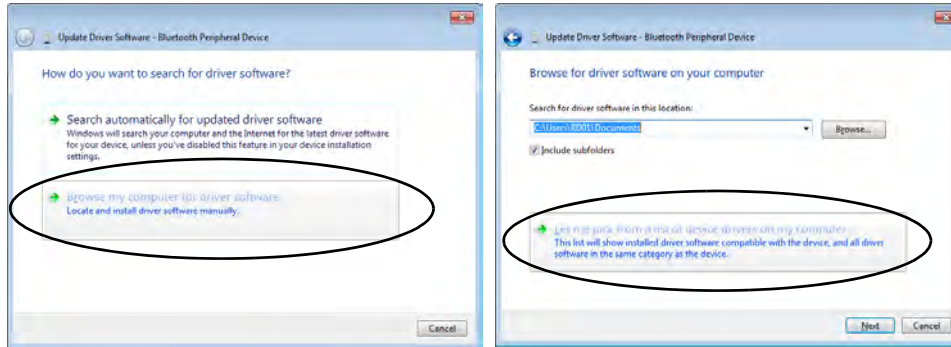


Figure 8 - 2 - Browse my computer.../Let me pick from...

- Select **Bluetooth Radios** from the list.

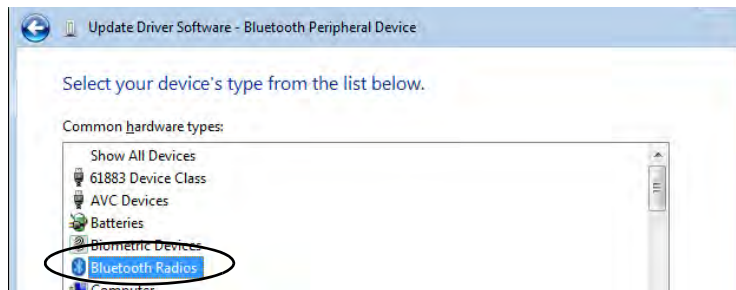


Figure 8 - 3 - Select Bluetooth Radios

10. A list of drivers will appear with **Manufacturer** on one side and **Model** in the other.
11. Choose **Microsoft Corporation** (make sure you choose the full name **Microsoft Corporation** and do not choose **Microsoft** - Note that you must have installed the **Microsoft Windows Device Center Driver for Microsoft Corporation** to appear in the list).
12. Select **Windows Mobile-based device support** from the **Model** list.

Make sure you select
Microsoft Corporation

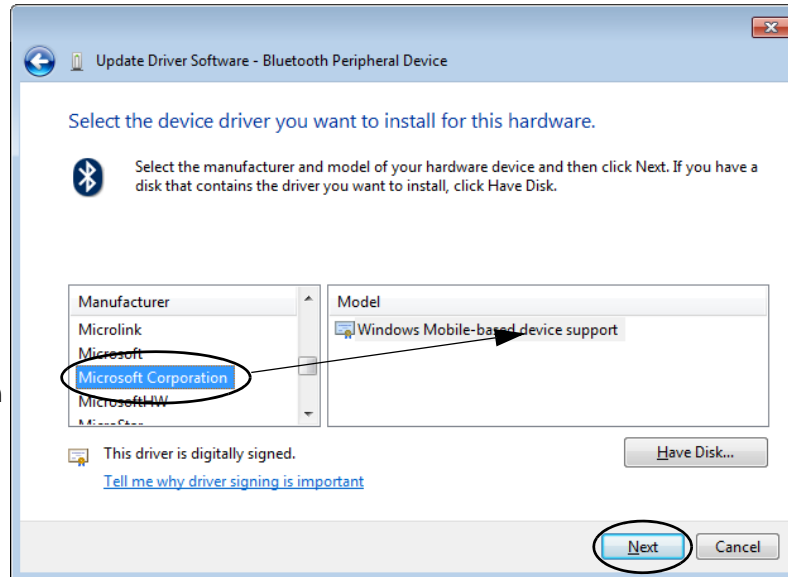


Figure 8 - 4 - Select Device Driver

13. Click **Next > Yes** and the driver will install.
14. Click **Close** to complete the installation.

Troubleshooting

15. The **Device Manager** should now display the **Windows Mobile-based device support** under **Bluetooth Radios**.
16. You will need to repeat the process for any other **Bluetooth Peripheral Devices** listed under **Other Devices**.

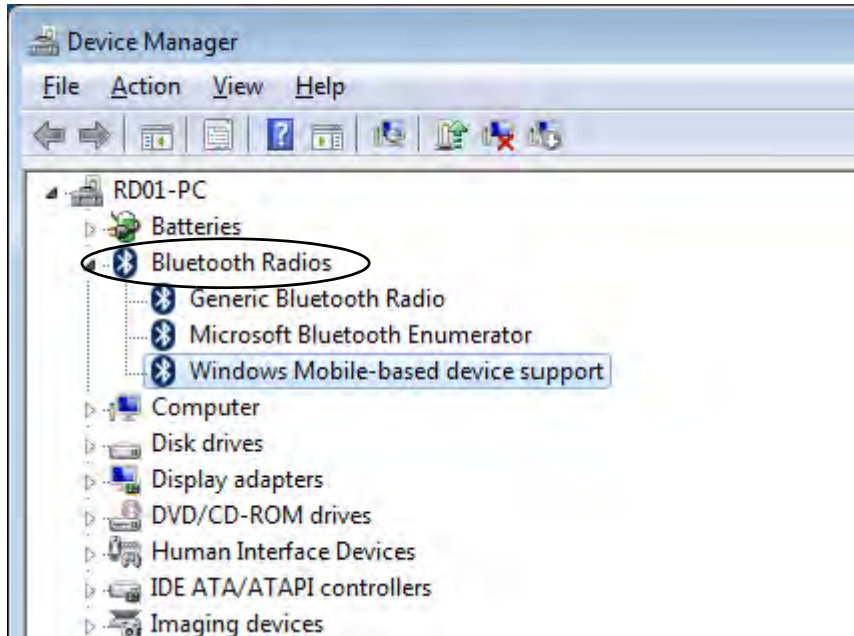


Figure 8 - 5 - Device Manager - Bluetooth Radio

Intel® Centrino Advanced WLAN & Bluetooth V3.0+HS Combo Modules

Note that, at the time of going to press, **Intel® Centrino® Wireless-N 1030** and **Intel® Centrino Advanced 6230** WLAN & Bluetooth V3.0+HS combo modules use the standard Bluetooth configuration in *Windows 7* (see *“Standard Bluetooth Configuration in Windows 7” on page 7 - 45*). **Do not use** the Bluetooth & WLAN Combo settings information outlined from page *7 - 37* to page *7 - 43*.

Driver Release Update

Note also that, at the time of going to press, this module does not support high speed Bluetooth (V3.0) data transfer. **Intel** have scheduled a driver release to allow this module to support high speed data transfer, so please check with Intel or your service center for details.

Wake On LAN Setup

Wake On LAN is an Ethernet computer networking standard that allows a computer to be turned on or woken up by a network message. If you need to have your computer **Wake On LAN** you will need to enable **Computer Management** settings as follows.

1. Go the **Windows** control panel and double-click **Administrative Tools (System and Security)**.
2. Double-click **Computer Management**.
3. Click **Device Manager** under **System Tools**, and click the arrow to the left of **Network adapters**.
4. Double-click **jMicron PCIExpress Gigabit Ethernet Adapter**, and click **Power Management** (tab).
5. Click to enable (place a check in the checkbox) "**Allow this device to wake the computer**".

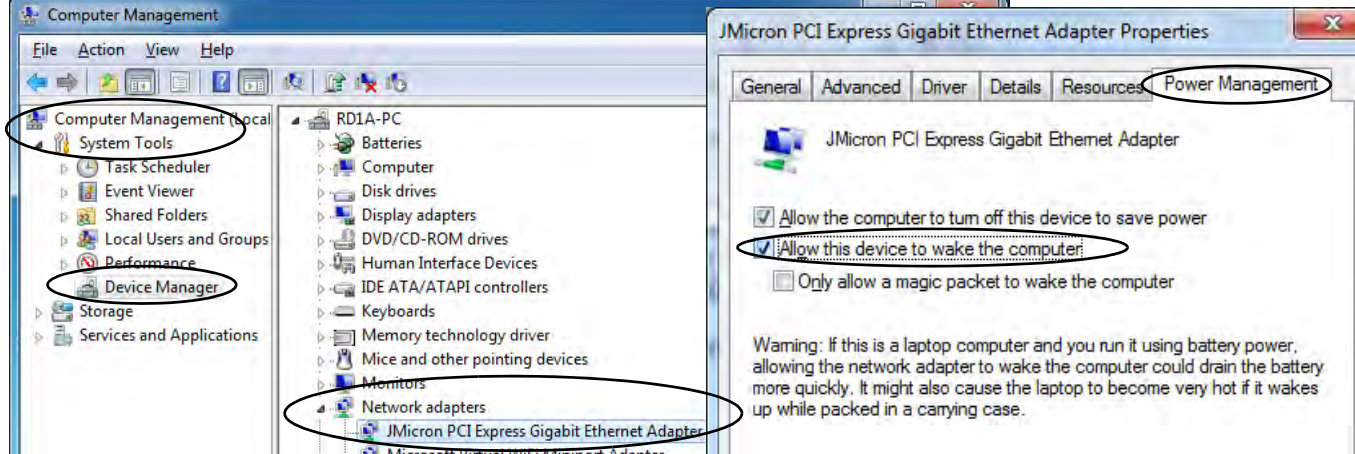


Figure 8 - 6- Network Adapter Wake On LAN (Power Management)

6. Click **Advanced** (tab).
7. Scroll down to the bottom of the **Property** menu and select “**Wakeup from Shutdown**”.
8. Click to select **Enabled** from the drop-down **Value** menu.
9. Click **OK** to close the menu.
10. Close the **Computer Management** control panel.

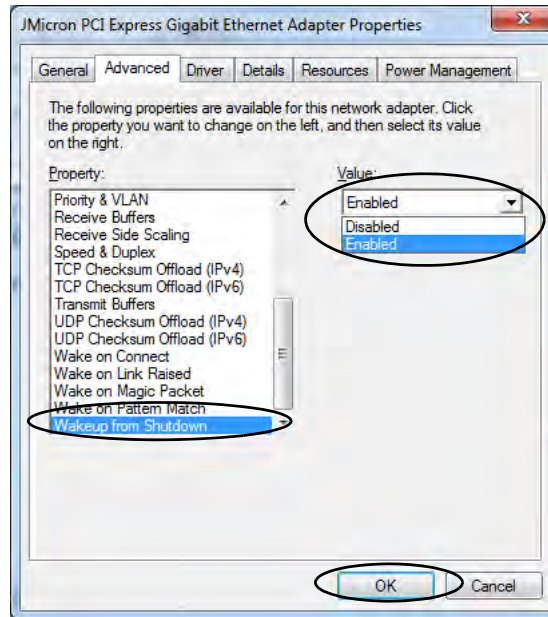






Figure 8 - 7- Network Adapter Wake On LAN (Advanced)






Appendix A: Interface (Ports & Jacks)

Overview

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

Notebook Ports and Jacks

Item	Description
Card Reader Port  MMC / SD / MS	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.
DC-In Jack 	Plug the supplied AC/DC adapter into this jack to power your computer.
External Monitor (VGA) Port 	This port allows you to connect an external monitor, or Flat Panel Display, to get dual video or simultaneous display on the LCD and external monitor/FPD.
e-SATA Port e-SATA	This is a combined e-SATA (external Serial Advanced Technology Attachment) / USB 2.0 compatible port. Plug external Serial ATA hard drives into this e-SATA (external Serial Advanced Technology Attachment) port.
HDMI-Out Port HDMI	The HDMI-Out (High-Definition Multimedia Interface) is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a HDMI cable. Note that HDMI carries both audio and video signals.
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.

Item	Description
Microphone-In Jack 	Plug an external microphone in to this jack to record on your computer.
RJ-45 LAN Jack 	This port supports LAN (Network) functions. Note: Broadband (e.g. ADSL) modems usually connect to the LAN port.
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/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.
USB 2.0/1.1 Ports  USB 3.0 Port	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). The USB 3.0 ports are denoted by their blue color; USB 2.0 ports are colored black. USB 3.0 will transfer data much faster than USB 2.0, and is backwards-compatible with USB 2.0. Note that the USB 3.0 port requires a driver installation (see “USB 3.0” on page 4 - 7) and does not support wake on USB.

Interface (Ports & Jacks)

A

Appendix B: Video Driver Controls

The basic settings for configuring the LCD are outlined in “*Video Features*” on [page 1 - 19](#).

Video Driver Installation

Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 3](#). Insert the *Device Drivers & Utilities + User’s Manual* disc and click **Install Drivers** (button).

Video (VGA)

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

NVIDIA Video (VGA)

1. Click **3.Install nVIDIA VGA Driver > Yes**.
2. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
3. Click **Next**.
4. Click the **RESTART NOW** button 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.



iGPU or dGPU

Note the NVIDIA control panel refers to **High-performance NVIDIA processor** (which is the discrete GPU) and **Integrated graphics** (which is the integrated GPU).

NVIDIA® Optimus™ Technology

Most notebook computers come with either a **discrete** or **integrated** graphics solution.

Discrete graphics solutions feature a dedicated Graphics Processing Unit (GPU) which are capable of playing games, watching HD video or running GPU-based applications. However computers with discrete graphics solutions tend to be heavy in power consumption, and slightly larger in size in order to incorporate the dedicated discrete GPU.

Integrated graphics solutions usually feature memory sharing technology to help save power consumption and allow for longer battery life. However computers with integrated graphics solutions will not usually run games, HD video or GPU-based applications without severe limitations.

Nvidia® Optimus™ technology is a seamless technology designed to get best performance from the graphics system while allowing longer battery life, without having to manually change settings. Thus when an application is run that requires extra performance or quality, then the system will run the discrete GPU (dGPU); when the system does not require such enhanced performance it will let the integrated (iGPU) handle it.

How Optimus Technology works

When the system is powered up and is displaying just the desktop, the dGPU will be powered off. In this case the system is running in the same way as a system without a discrete graphics solution. However when an application that requires use of the dGPU is run (e.g, a game or HD Video), the dGPU is powered on and takes over the processing duties. If the program is closed, then the dGPU will be powered back down again until required.



UMA Mode & Performance

UMA Mode is designed for **maximum power saving**, however this does have an affect on the system's overall video performance (as it is based on the Power saver power plan).

If you require better video performance then it is recommended that you use **Optimus Mode**. Alternatively you may switch the **UMA Mode** power plan to Balanced (however power savings will be reduced in this case).

Note that when the power plan is set to UMA Mode the GPU LED indicators may no longer display the correct status.



Customization Options

Although **Optimus** is completely seamless to the user, NVIDIA also allow customization options within the control panel (see "[Optimus™ Customization Options](#)" on page B - 19).

Video Driver Controls

GPU Button





This computer also features a button  that allows the user to switch between **Optimus Mode** and **UMA Mode** (Unified Memory Architecture). **UMA Mode** will use only the integrated GPU; **Optimus Mode** will allow the system to automatically determine whether the **dGPU** or **iGPU** is used. Thus the user can completely control how the graphics system operates. Press the GPU button, and the button color will indicate the current mode.

Table B - 1
GPU Button Modes

Icon	Color	Description	Power Plan
	Green	UMA Mode Activated - The system will use the integrated GPU (iGPU) only	UMA Mode
	Orange	Optimus Mode Activated - Optimus technology will determine when to use the integrated GPU (iGPU) or discrete (dGPU) automatically	Balanced

The **GPU LED indicators** will display which GPU is currently in use.

Table B - 2
GPU LED Indicators

Icon	Color	Description
	Green	Integrated GPU (iGPU) Activated
	Orange	Discrete GPU (dGPU) Activated

Intel® Graphics & Media Control Panel

Advanced video configuration options are provided by the **Intel® Graphics and Media Control Panel**. To access the control panel:

1. Click **Advanced settings** in the **Screen Resolution** control panel in **Windows**.
 2. Click the **Intel(R)...** tab and click **Graphics Properties** (button).
- OR
3. Right-click the desktop and select **Graphics Properties** from the menu.
- OR
4. Double-click the **Intel(R) G&M** control panel in **Windows**.
 5. Choose the application mode (**Basic, Advanced or Wizard**) required (see sidebar).



Application Mode

Note that all figures pictured, and instructions outlined here are based on the **Advanced Application Mode**.



Figure B - 1
**Intel® G&M
Control Panel**

Video Driver Controls



Options & Support

Click **Options & Support** and select an item from the sub-menu to bring up the help and support topics.

You will need to be connected to the Internet to access the key resource links.

Multiple Display

At least one other display must be attached in order to view multiple display selection options.

You may make changes to any of the graphics properties by clicking the appropriate menu tab on the left of the menu and adjusting the settings on the right.



Figure B - 2

Intel® G&M Control Panel Tabs

B

Display Devices & Options

Besides the built-in LCD you can also use an external monitor/flat panel display/TV connected to the external monitor port or to the HDMI-Out port (High-Definition Multimedia Interface) as your display device. The table below outlines the display options.



Attaching Displays

When you first attach an external display you may find that the desktop does not occupy the full screen area. Use either the display's auto adjust/configure controls, or the Intel(R) G&M control panel to configure the full screen display.

Intel Display Mode	Description
Single Display	One of the connected displays is used as the display device
Clone Displays	Both connected displays output the same view and may be configured independently
Extended Desktop	Both connected displays are treated as separate devices, and act as a virtual desktop



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.

Note that HDMI supports video and audio signals.

Table B - 3
Display Modes



Multiple Display

At least one other display must be attached in order to view **Multiple Display** selection options.

General Settings

Click **General Settings** to access settings the options for any attached display.

Attaching Other Displays

If you prefer to use a monitor or flat panel display, connect it to the external monitor port or HDMI-Out port on the left of the computer.

To Clone Displays:

1. Attach your display to the external monitor port or HDMI-Out port, and turn it on.
2. Go to the **Intel(R) G&M** control panel and click **Display > Multiple Displays**.
3. Click **Operating Mode** and select **Clone Displays** from the menu.
4. Click **Apply**, and **OK** to confirm the settings change.
5. You can switch the **Primary/Secondary Display** from the menu.



Figure B - 3

Display > Multiple Displays (Clone)

To Enable Extended Desktop:

1. Attach your display to the external monitor port or HDMI-Out port, and turn it on.
2. Go to the **Intel(R) G&M** control panel and click **Display > Multiple Displays**.
3. Click **Operating Mode** and select **Extended Desktop** from the menu.
4. Click **Apply**, and **OK** to confirm the settings change.



Click the appropriate monitor icon and drag it to match the physical arrangement you wish to use (e.g. the secondary display may be extended left/right/above/below the primary display).

Click General Settings to make any adjustments required.



Display Settings Extended Desktop

You can have different Colors, Screen Area and Monitor Refresh Rates for each display device **provided your monitor can support them**.

You can drag the monitor icons to match the physical layout of your displays. Icons and programs may also be dragged between the displays.

B

Figure B - 4
Display > Multiple Displays (Extended)

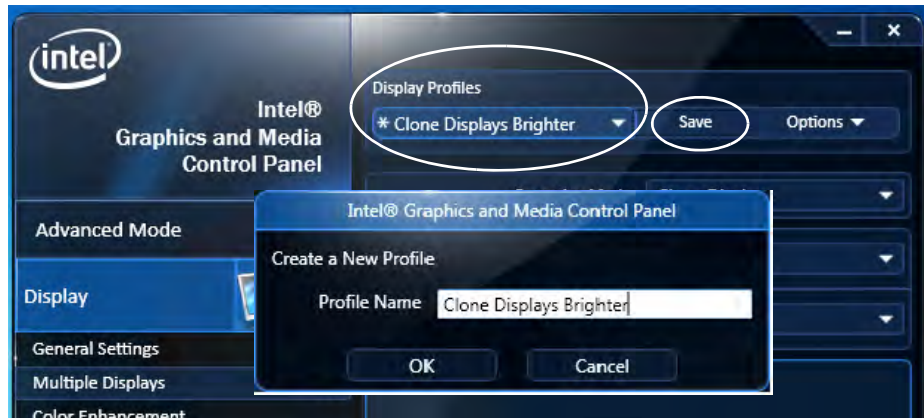
Video Driver Controls

Display Profiles

You can save display settings to be loaded at any time.

1. Go to the **Intel(R) G&M** control panel and click **Display**.
2. Configure the General Settings, Multiple Displays, Color Enhancement, Custom Resolution & Monitor/TV Settings to your preferences.
3. Click **Apply**, and **OK** to confirm the settings change.
4. Click the **Save** button at the top of the General Settings, Multiple Displays or Color Enhancement menus (under **Display Profiles**).
5. Type a name for the **Profile** and click **OK**.
6. The **Profile** will be listed under **Display Profiles**.
7. Select the profile from the pull-down menu and click **Apply**, and **OK** to confirm the settings change.

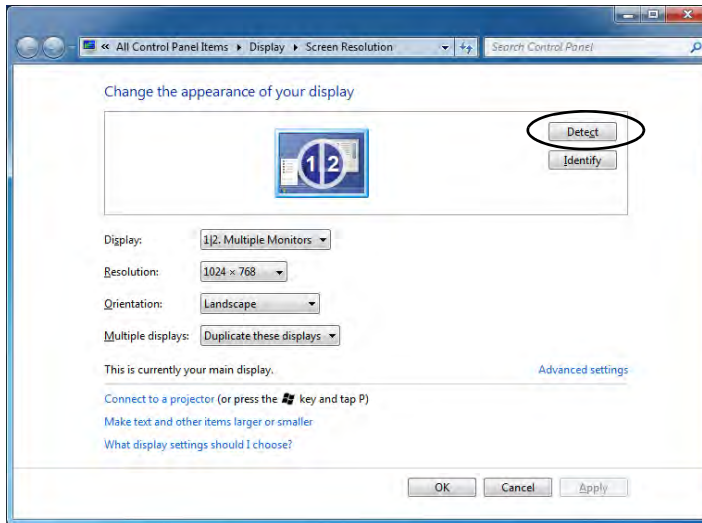
Figure B - 5
Intel® G&M
Profiles



Configuring an External Display in Windows 7

You can also use the **Screen Resolution** control panel in *Windows 7* to configure an external display.

1. Attach your display to the external monitor port or HDMI-Out port, and turn it on.
2. Go to the **Screen resolution** control panel (see *“Video Features” on page 1 - 19*).
3. Click the **Detect** button.
4. The computer will then detect any attached displays.



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.

Note that HDMI supports video and audio signals.

Figure B - 6
Screen Resolution
Multiple Displays
(Win 7)

Video Driver Controls

5. You can configure the displays from the **Multiple Displays** menu.

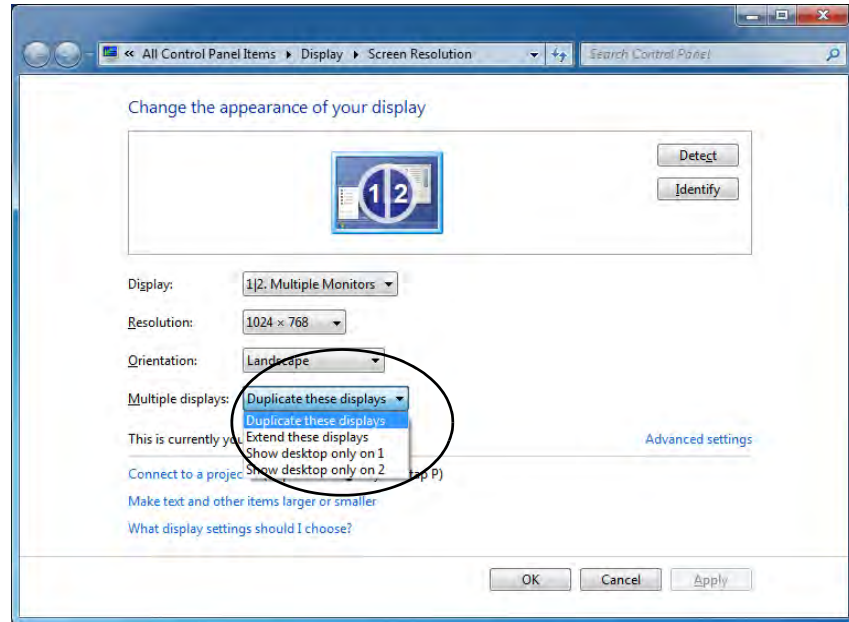



Figure B - 7
**Screen Resolution
Multiple Display
Options
(Win 7)**

- Duplicate these displays - Shows an exact copy of the main display desktop on the other display(s)
- Extend these displays - Treats both connected displays as **separate** devices
- Show desktop only on 1/2 - Only one of your displays is used.

Using the Windows Logo Key + P Key Combination to Switch Displays

You can also use the  + **P** key combination to quickly change display configuration and modes (this is particularly useful when attaching a projector) in *Windows 7*.




1. Attach your display to the external monitor port or HDMI-Out port, and turn it on.
2. Press the  + **P** key combination.
3. An on-screen menu will pop up.
4. Use the cursor keys (or  + **P**) to select the appropriate configuration from the menu, and press Enter to confirm the selection.



Figure B - 8
 + P Display
Configuration
Selection
(Win 7)

HDMI Audio Configuration

HDMI (High-Definition Multimedia Interface) carries both **audio** and video signals. In some cases it will be necessary to go to the **Sound** control panel and manually configure the HDMI audio output as per the instructions below.


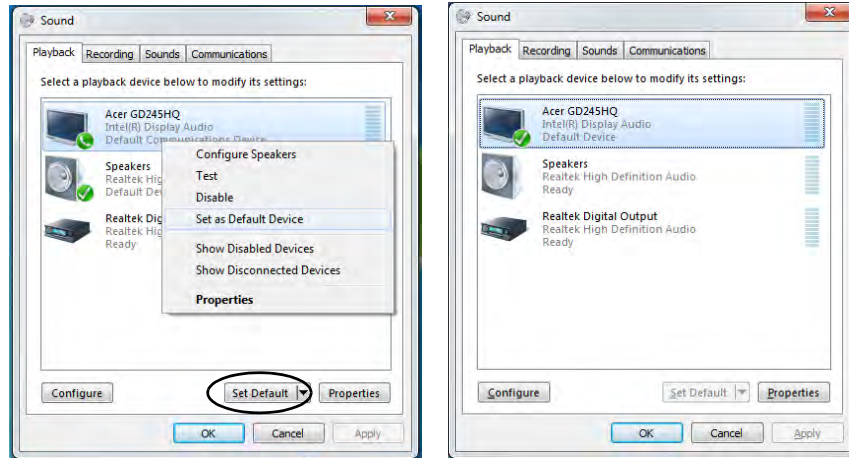
1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound**  (**Hardware and Sound**) and click **Playback** (tab)
3. Depending on your display, the playback device may be selected, however in some cases you may need to select the audio device and click **Set Default** (button). If the display does not appear, select **Realtek Digital Output** and click **Set Default** (button).
4. Double-click the device to access the control panel tabs illustrated overleaf.

Figure B - 9
**Sound - HDMI
Device
(Set Default)**



5. Double-click the connected HDMI device (or right-click and select **Properties**) to adjust the HDMI settings from the control panel tabs.
6. Click **OK** to close the control panel (see notes overleaf).

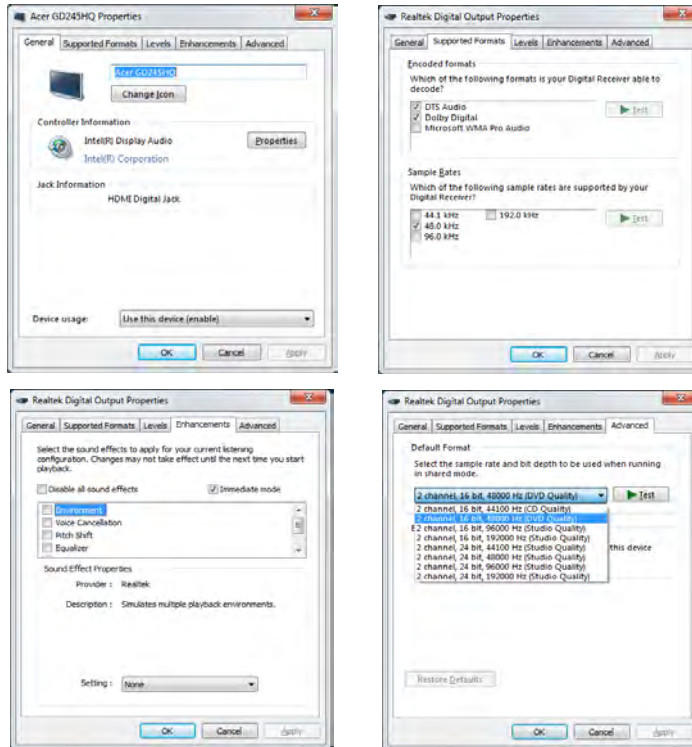


Figure B - 10
HDMI Device
Properties





Other Applications

If you are using a third party application to play DVDs etc. from any attached DVD device, you will need to consult the application's documentation to see the appropriate audio configuration (the application must support digital to analog translation).

HDMI Notes

- Connect a device with HDMI support to the HDMI-Out port **BEFORE** attempting to play audio/video sources through the device.
- To play audio sources through your external display's (TV or LCD) speakers you will need to go to the audio configuration control panel on the display and configure the audio input accordingly (see your display device manual).

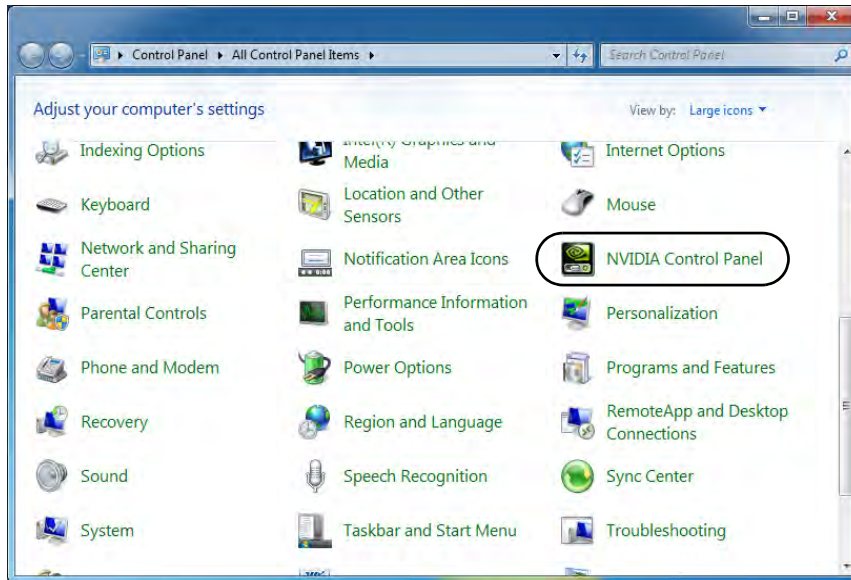
HDMI Video Configuration

1. Connect an HDMI cable from the HDMI-Out port to your external display.
2. Configure your external display as per the instructions in *“Attaching Other Displays” on page B - 8*.
3. Set up your external display (TV or LCD) for HDMI input (see your display device manual).
4. You can now play video/audio sources through your external display.

NVIDIA Control Panel

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

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**).



NVIDIA Control Panel

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

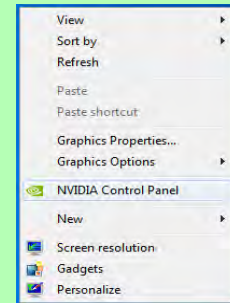


Figure B - 11
NVIDIA GeForce.....
Control Panel

Video Driver Controls



Navigating the Control Panel

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

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

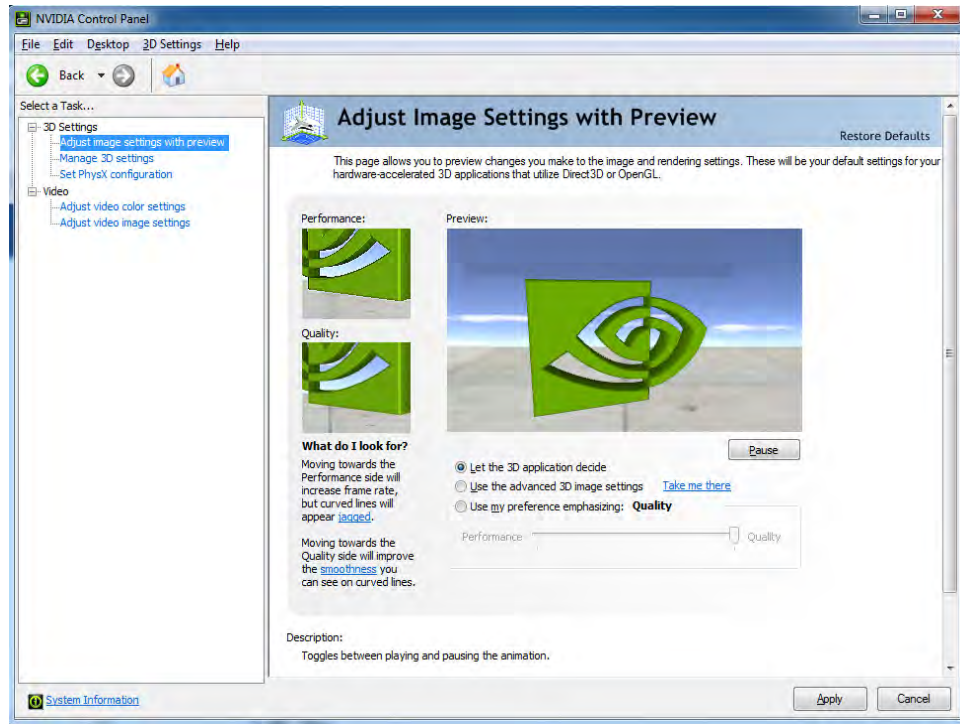


Figure B - 12
NVIDIA Control
Panel

B

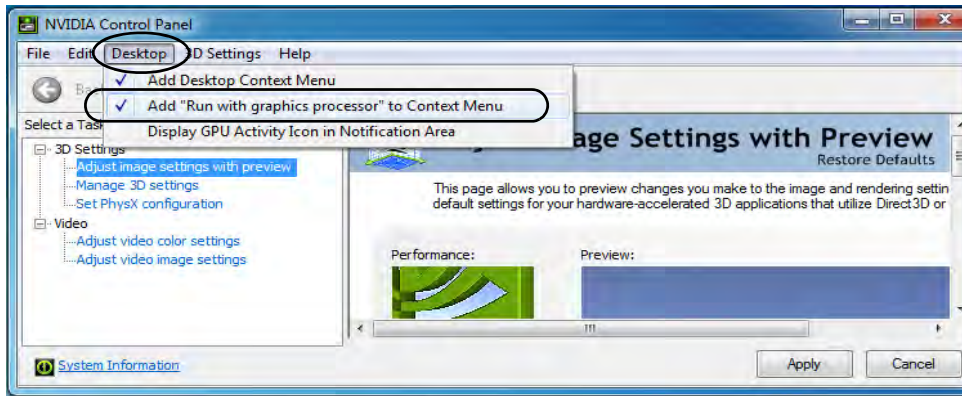
Optimus™ Customization Options

One of the most important aspects of **Nvidia® Optimus™** technology is that it will switch between the integrated GPU and discrete GPU seamlessly and automatically, and does not require any input from the user. However customization options are offered for users who prefer to set their own parameters for GPU usage.

Context Menu

One of the quickest ways to choose which GPU to use for a particular application is by using the “**Run with graphics processor**” in the context menu.

1. Run the **NVIDIA Control Panel** (see page [B - 17](#)).
2. Click **Desktop** from the top menu and select “**Add “Run with graphics processor” to Context Menu**” (it should have a tick alongside it).



Display GPU Activity Icon

Click to enable **Display GPU Activity Icon in the Notification Area** to quickly access the GPU Activity monitor from the taskbar.



Figure B - 13
NVIDIA Control Panel - View

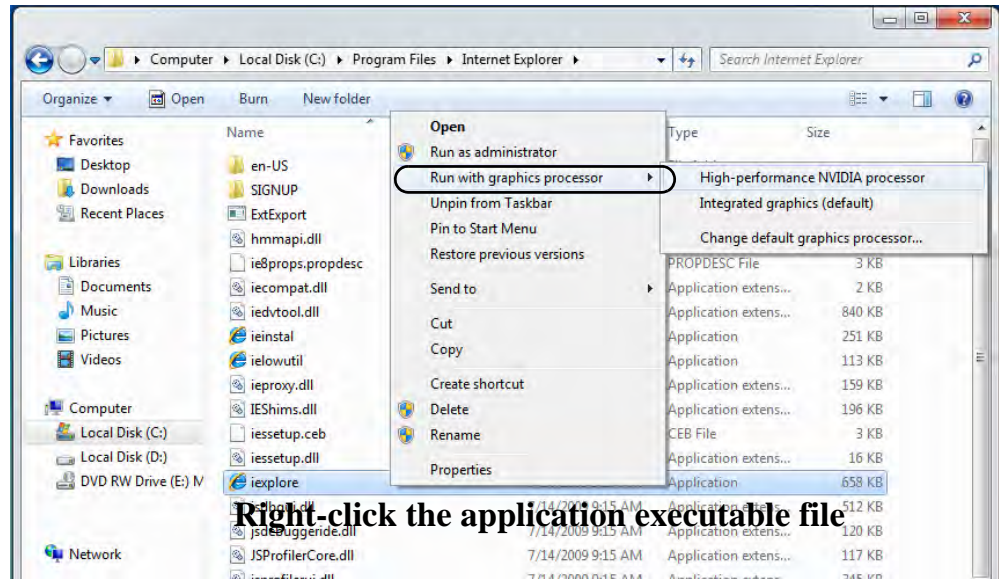
Video Driver Controls



iGPU or dGPU

Note the NVIDIA control panel refers to **High-performance NVIDIA processor** (which is the discrete GPU) and **Integrated graphics** (which is the integrated GPU).

3. Close the **NVIDIA Control Panel**.
4. Make sure the computer is in **Optimus Mode** (use the GPU Button to switch modes).
5. Find the executable file icon of the application you want to run.
6. Right-click the icon and select **Run with graphics processor** from the context menu.
7. Select either **High-performance NVIDIA processor (dGPU)** or **Integrated graphics (iGPU)** to run the program with the selected GPU.



Right-click the application executable file

Figure B - 14

Context Menu with
Run with graphics
processor

B

Global Settings

Global settings allows you to set the preferred graphics processor for overall use. Ideally this would be the iGPU for battery life, but this can be set to the dGPU if preferred.

1. Run the **NVIDIA Control Panel** (see page [B - 17](#)).
2. Click **Manage 3D Settings (3D Settings)** and select **Global Settings** (tab).
3. Select either **Integrated graphics (iGPU)** or **High performance NVIDIA Processor (dGPU)** from the drop-down menu.
4. Click the **Setting** menu items to select any options required.
5. Click **Apply** to save the settings.

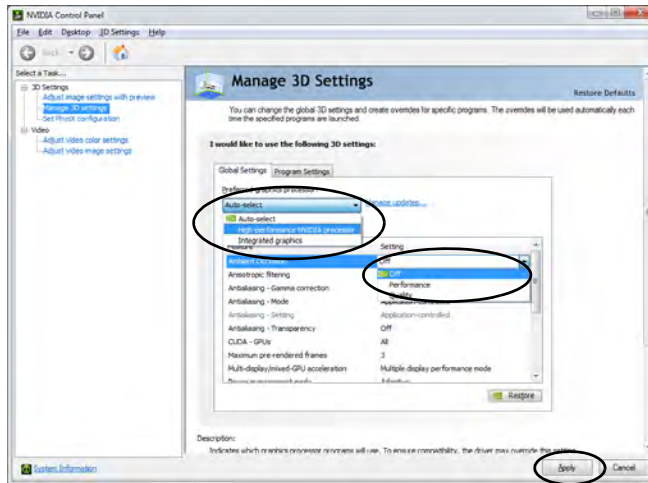


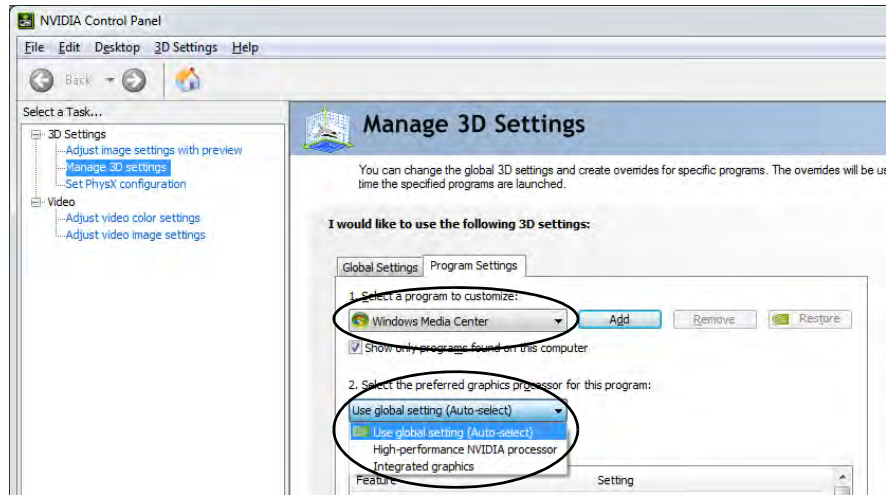
Figure B - 15
Global Settings

Program Settings

Program settings allows you to make specific adjustments for installed applications.

1. Run the **NVIDIA Control Panel** (see page [B - 17](#)).
2. Click **Manage 3D Settings (3D Settings)** and select **Program Settings** (tab).
3. **Select a program to customize** from the drop-down menu, or click **Add** to add any program that does not appear in the menu.
4. **Select the preferred graphics processor for the program** from the drop-down menu.
5. Click the **Setting** menu items to select any options required.
6. Click **Apply** to save the settings.

Figure B - 16
Program Settings



Set PhysX® Configuration

NVIDIA® PhysX® is a physics engine that can use the GPU to accelerate game and 3D application performance. You can select the GeForce video card or CPU as a PhysX® processor, or configure the computer to auto-select a PhysX® processor (recommended default setting).

1. Go to **NVIDIA Control Panel** (see page [B - 17](#)).
2. Click **Set PhysX configuration**.
3. Click to **Select a PhysX processor** from the menu; Auto-select (recommended) is the default setting.
4. Click **Apply** to save the settings.

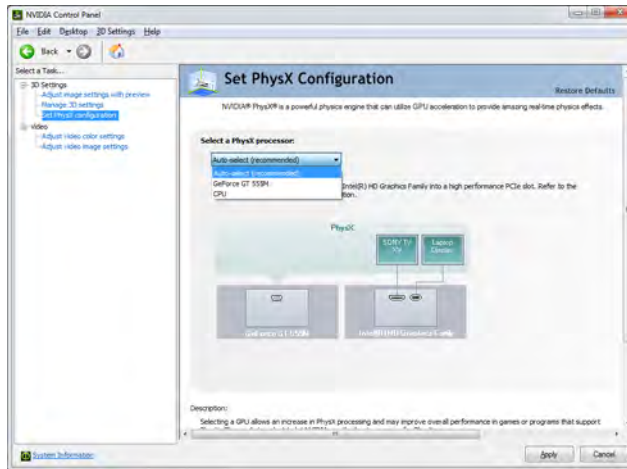
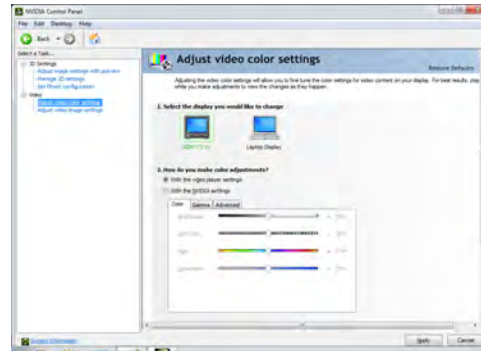


Figure B - 17
**Set PhysX®
Configuration**

Video Settings

Click the sub-menus under **Video** to adjust the **video color** or **image settings**.

Figure B - 18
Video Settings



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

Processor	Processor	Display
<p><i>Note all processor packages are rPGA988B</i></p> <p>Intel® Core i7-2820QM (2.3GHz) Quad-Core Mobile Processor 8M L3 Cache, 32nm (32 Nanometer), DDR3-1600MHz, TDP 45W</p> <p>Intel® Core i7-2720QM (2.2GHz) Quad-Core Mobile Processor 6M L3 Cache, 32nm (32 Nanometer), DDR3-1600MHz, TDP 45W</p> <p>Intel® Core i7-2630QM (2.0GHz) Mobile Processor 6M L3 Cache, 32nm (32 Nanometer), DDR3-1600MHz, TDP 45W</p> <p>Intel® Core i7-2620M (2.7GHz) Mobile Processor 4M L3 Cache, 32nm (32 Nanometer), DDR3-1333MHz, TDP 35W</p>	<p>Intel® Core i5-2540M (2.6GHz) Mobile Processor 3M L3 Cache, 32nm (32 Nanometer), DDR3-1333MHz, TDP 35W</p> <p>Intel® Core i5-2520M (2.5GHz) Mobile Processor 3M L3 Cache, 32nm (32 Nanometer), DDR3-1333MHz, TDP 35W</p> <p>Intel® Core i5-2410M (2.3GHz) Mobile Processor 3M L3 Cache, 32nm (32 Nanometer), DDR3-1333MHz, TDP 35W</p> <p>Intel® Core i3-2310M (2.1GHz) Mobile Processor 3M L3 Cache, 32nm (32 Nanometer), DDR3-1333MHz, TDP 35W</p>	<p>Model A: 15.6" / 39.62cm 16:9 HD (1366 * 768) / HD+ (1600 * 900) / FHD (1920 * 1080) TFT LCD</p> <p>Model B: 17.3" / 43.94cm 16:9 HD+ (1600 * 900) / FHD (1920 * 1080) TFT LCD</p>
		<p>Memory</p> <p>Dual Channel DDRIII (DDR3) Two 204 Pin SO-DIMM sockets supporting DDR3 1333MHz/1600MHz (real operational frequency depends on the FSB of the processor)</p> <p>Memory Expandable up to 8GB (using 1GB / 2GB / 4GB SO-DIMM Modules)</p>
	<p>Core Logic</p> <p>Mobile Intel® HM65 Express Chipset</p>	

Video	BIOS	Keyboard, Pointing Device & Buttons			
<p><u>Intel® Integrated GPU and NVIDIA® GeForce GT 555M Video:</u></p> <p><i>Supports NVIDIA® Optimus Switchable GPU Technology</i></p> <p>Intel® Integrated GPU (Intel® GMA HD): Intel® GMA HD Intel® Quick Sync Video Stereoscopic 3D Blu-ray Microsoft DirectX®10.1 Compatible Intel® Clear Video HD Technology / Intel® HD Graphics</p> <p>NVIDIA Discrete GPU (GeForce GT 555M): 2GB GDDR3 Video RAM Supports PCIe * 8 Microsoft DirectX®11 Compatible</p>	<p>One 32Mb SPI Flash ROM Phoenix™ BIOS</p> <th data-bbox="571 281 1023 328">Storage</th> <p>One Changeable 12.7mm(h) Super Multi/Blu-ray Combo Optical Device Drive with SATA Interface (Factory Option)</p> <p>One Changeable 2.5" / 9.5 mm (h) HDD with SATA (Serial) Interface</p> <th data-bbox="571 505 1023 552">Audio</th> <p>High Definition Audio Interface Built-In Microphone 2 * Built-In Speakers S/PDIF Digital Output 3D Stereo Enhanced THX Surround Sound System</p>	Storage	Audio	<p>Isolated A4 Size Keyboard Built-in Touchpad with Multi-Gesture Functionality Three Instant Buttons; WLAN On/Off, Mute, Camera On/Off GPU Mode Button (UMA/Optimus Mode)</p> <th data-bbox="1034 398 1476 445">Interface</th> <p>Two USB 2.0 Ports Two USB 3.0 Ports One eSATA Port One External Monitor Port One HDMI Out Port One Headphone-Out Jack One Microphone-In Jack One RJ-45 LAN Jack One DC-In Jack One S/PDIF-Out Jack</p>	Interface

Specifications

Card Reader	Communication	Power Management
<p>Embedded Multi-In-1 Card Reader</p> <ul style="list-style-type: none"> - MMC/ RS MMC - SD/ Mini SD / SDHC/ SDXC Compatible - MS/ MS Pro/ MS Duo <p>Note: Some of these cards require PC adapters that are usually supplied with the cards.</p>	<p>3rd Party WLAN 802.11b/g/n Half Mini-Card Module with PCIe Interface (Factory Option)</p> <p>3rd Party Combo WLAN (802.11b/g/n) and Bluetooth v3.0+HS Half Mini-Card Module with PCIe Interface (Factory Option)</p>	<p>Supports Wake on LAN</p> <p>Supports Wake on USB</p> <p>Energy Star 5.0</p>
Slots	<p>Built-In 10/100/1000Mb Base-TX Ethernet LAN</p>	Power
<p><u>Two Mini-Card Slots with PCIe & USB Interfaces:</u></p> <p>Slot 1 for WLAN Module</p> <p>Slot 2 (USB) for 3.75G Module (Factory Option for Model A Computers)</p>	<p>1.3M/2.0M Pixel PC Camera Module with USB interface (Factory Option)</p> <p>UMTS/HSPDA-based 3.75G Module with USB Half Mini-Card Interface (Factory Option for Model A Computers)</p> <p>Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz)</p> <p>UMTS WCDMA FDD (2100 MHz)</p> <p>Note that UMTS modes CAN NOT be used in North America</p>	<p>Full Range AC/DC Adapter</p> <p>AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 6.3A (120 Watts)</p> <p>Removable 6 Cell Smart Lithium Ion Battery Pack 48.84WH</p> <p>Removable 6 Cell Smart Lithium Ion Battery Pack 62.16WH (Factory Option)</p>
Communication		Security
<p>Intel® Centrino® Advanced-N 6230 (2*2 802.11 a/g/n) Half Mini-Card PCIe WLAN & Bluetooth 3.0 Combo Module (Factory Option)</p>		<p>Security (Kensington® Type) Lock Slot</p> <p>BIOS Password</p> <p>Fingerprint Security (Factory Option for Model A Computers)</p>
<p>Intel® Centrino® Wireless-N 1030 (1*2 802.11 b/g/n) Half Mini-Card PCIe WLAN & Bluetooth 3.0 Combo Module (Factory Option)</p>		Operating System
		<p>Windows® 7</p>

Design Feature	
MOFA II (Magic Of Film Art) Changeable LCD Back Covers (Model A Computers Only)	
IMR (Injected Molded Resin) LCD Back Covers (Model A Computers Only)	
Environmental Spec	
Temperature	
Operating:	5°C - 35°C
Non-Operating:	-20°C - 60°C
Relative Humidity	
Operating:	20% - 80%
Non-Operating:	10% - 90%
Dimensions & Weight	
<u>Model A:</u>	
374mm (w) * 250mm (d) * 25 - 40.2mm (h)	
2.6 kg with ODD & 48.84WH Battery	
<u>Model B:</u>	
413mm (w) * 277.5mm (d) * 25.1 - 31.4mm(h)	
3.1 kg with ODD & 48.84WH Battery	

Specifications

C