USER'S MANUAL

Multimedia PC

V12.1.00

Notice

The company reserves the right to revise this publication or to change its contents without notice. Information contained herein is for reference only and does not constitute a commitment on the part of the manufacturer or any subsequent vendor. They assume no responsibility or liability for any errors or inaccuracies that may appear in this publication nor are they in anyway responsible for any loss or damage resulting from the use (or misuse) of this publication.

This publication and any accompanying software may not, in whole or in part, be reproduced, translated, transmitted or reduced to any machine readable form without prior consent from the vendor, manufacturer or creators of this publication, except for copies kept by the user for backup purposes.

Brand and product names mentioned in this publication may or may not be copyrights and/or registered trademarks of their respective companies. They are mentioned for identification purposes only and are not intended as an endorsement of that product or its manufacturer.

©August 2012

Trademarks

Intel, **Celeron**, and **Intel Core** are trademarks/registered trademarks of Intel Corporation.

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.

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using this equipment with a telephone line (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz, DC Output 19V, 6.3A).

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

Instructions for Care and Operation

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

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

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

3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.

4. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost.

5. **Take care when using peripheral devices**.

Power Safety

The computer has specific power requirements:

<table>
<tr><td>

🔔

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 and power cord).
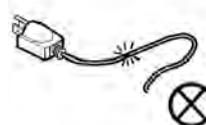
You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

</td></tr>
</table>

•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.

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.*

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.

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 is damaged or frayed.
- If the computer has been exposed to any 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 restoring power to the system.

Also note the following when the cover is removed:

- Hazardous moving parts.
- Keep away from moving fan blades.

Ergonomics

We designed your Multimedia PC system to be functional as well as attractive. To get most out of it, here are some suggestions on how to position and use the computer:

• The top third of the LCD (screen) should be at eye-level or slightly below.

• The LCD should be at least 18"/45cm. directly in front of you.

• If the screen resolution makes you strain to read, then adjust the resolution to something more comfortable (see *"Video Features" on page 1 - 18*).

• Angle the LCD (see *"Tilting the LCD Screen" on page 1 - 6*) so that it doesn't reflect any light into your eyes.

• Use a chair which offers good back support (especially lower-back). The seat should allow your feet to rest flat on the floor or on a footrest directly in front of you.

• If possible, illuminate your work area with natural daylight or use a steady-glowing (non-flickering) light source.

• Place the keyboard and mouse so that your arms are at your sides and your forearms are roughly parallel to the floor. Your wrists should flex slightly downward as you work. Your neck and shoulders should also be relaxed.

• Take a break from the computer. Get up, stretch, flex your wrists, walk about, and look at something else for about 10 minutes every hour.

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.

> 泠
> **Carrying the Computer**
>
> We strongly recommend using both hands to move the computer (one hand gripping the handle area and the other gripping the computer) to avoid accidentally dropping it. Be careful that objects such as belt buckles etc. do not scratch the screen while it is being carried.

Wall Mounting Information

The computer may be mounted on a wall for display. The system meets VESA MIS-D Standard (100mm * 100mm) for wall mounting. However if you intend to wall mount the system please contact your service center for information in order to avoid personal injury, or damage to the computer.

Contents

Quick Start Guide

Preface

Features & Components

Power Management

Drivers & Utilities

BIOS Utilities

Upgrading The Computer

Modules & Options

Troubleshooting

Interface (Ports & Jacks)

Intel Video Driver Controls

Preface

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**, **Multi-in-1 card reader**, **ExpressCard/34/54**) **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, Bluetooth & WLAN Combo** and **Trusted Platform (Security)** 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 **Intel 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 User's Manual. You may also find the notes marked with a ✐ of interest to you.

> ✐
>
> **Notes**
>
> Check the light colored boxes with the mark above to find detailed information about the computer's features.

Beginners and Not-So-Advanced Users

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

Warning Boxes

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

Not Included

Operating Systems (e.g. *Windows 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 in *Table 4 - 1, on page 4 - 3*. You will be unable to use most advanced controls until the necessary drivers and utilities are properly installed. If your system hasn't been properly configured (your service representative may have already done that for you), refer to *"What to Install" on page 4 - 1* for installation instructions.

Ports and Jacks

See *"Computer 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, CDs/DVDs and floppy disks etc.
2. Securely attach any peripherals you want to use with the computer to their ports (e.g keyboard and mouse etc.)
3. Attach the AC/DC adapter to the DC-In jack at the rear of the LCD, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
4. Push the power button at the front of the computer (along the bottom of the LCD) to turn the computer "on".
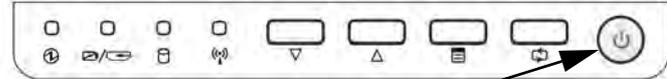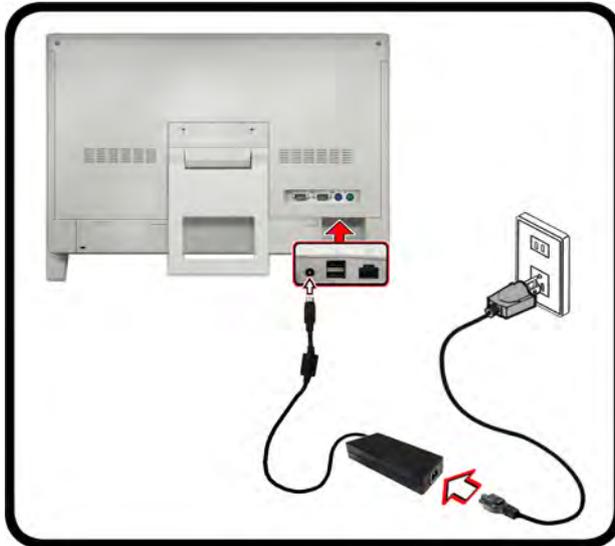
Power Button (located along the bottom of the LCD)

🖉

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 **- AC/DC Adapter Plugged-In/Power Button**

System Map: Front View

1. Optional Built-In PC Camera
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Power Button
6. Function Buttons
7. Power & System Activity LED Indicators
8. Speakers
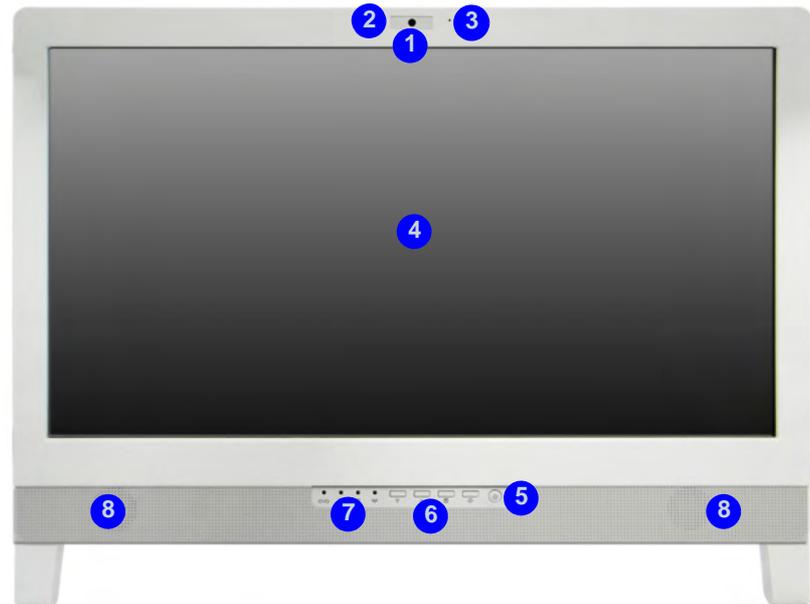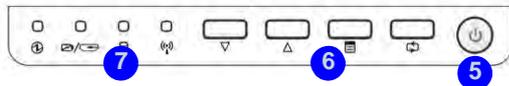
Figure 1 - 2 **- Front View**

Tilting the LCD Screen

It is possible to tilt the LCD screen in order to get the best possible viewing angle of the screen without glare etc.

1. Place one hand at the top of the computer **1**, and use the other to open the stand **2** to **an angle of around 15 degrees from the vertical position** (the stand will allow you to adjust to the appropriate angle if you pull it out and let it spring back).

Adjust the stand to tilt the computer to 15° from the vertical position.

Figure 1 - 3 **- Adjust the Stand**

🖉

Moving the Computer

We strongly recommend using both hands to move the computer. You can use one hand to grip the computer by the stand, and the other to hold the top of the LCD screen.

It is recommended that you carry the computer with the LCD facing your body to avoid scratching the surface against other objects. However take care not to scratch the LCD with any personal items, belt fittings or jewelry etc.(one hand gripping the stand and the other gripping the top of the computer to avoid accidentally dropping it).

1

2. Apply pressure with one hand at the top (at point **3**) of the computer (while holding on to the side with the other hand) to carefully push the LCD screen down in order to tilt it to the appropriate viewing angle (**up to 50 degrees from the vertical position**).

3. Use one hand at the top of the computer (while holding on to the side with the other hand) to move the computer back to the original position.
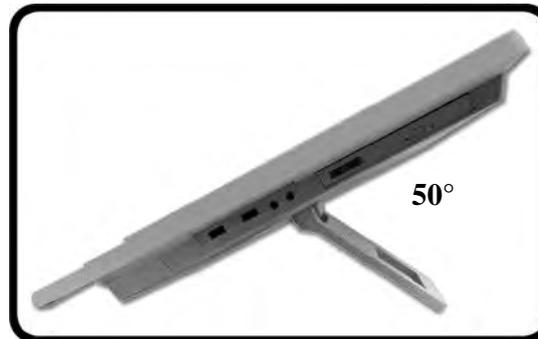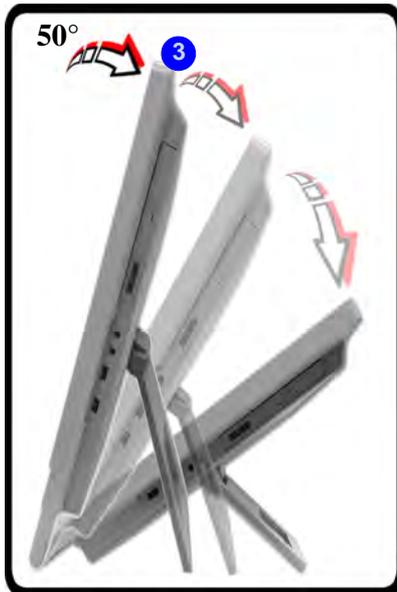
Apply pressure from the top of the screen to adjust the stand outwards (up to 50° from the vertical position).

🔅

DVD Operation

Note that although the computer may be tilted up to an angle of 50 degrees from the vertical position, the DVD-ROM drive will only work (i.e continue to spin and read DVDs) up until an angle of around 35 degrees from the vertical position.

If you have any problems with the system reading DVDs, adjust the tilt angle accordingly.

Figure 1 - 4 **- LCD Screen Tilt**

Buttons & LED Indicators

The buttons located under the front panel icons allow you to make screen and input adjustments.
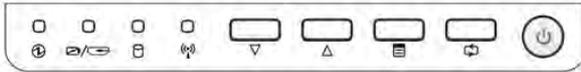
Figure 1 - 5 **- Front Icons**

Icon	Description
▽ △	Decrease/Increase Buttons - Use the buttons to decrease/increase the brightness/volume
▤	Menu Toggle - Use this button to switch between the brightness or audio menus and use the buttons above to adjust
↻	Mode Toggle - Use this button to toggle between the computer and HDMI Input modes (see *"Mode Toggle" on page 1 - 11*)

Table 1 - 1 **- Function Buttons**

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

Icon	Color	Description
⏻	Orange	AC/DC Power is Plugged In
	Green	The Computer is On
	Blinking Green	The Computer is in Sleep Mode
⊡/⟷	Orange	The Battery is Charging
	Blinking Orange	The Battery has Reached Critically Low Power Status
	Blank	The Battery is Fully Charged
	Green	HDMI Cable Plugged-In (if the computer is off - see page *1 - 11*
▤	Green	System Activity
(((•)))	Green	The (**optional**) WLAN Module is Powered On
	Orange	The (**optional**) Bluetooth Module is Powered On

Table 1 - 2 **- LED Indicators**

On Screen Display Indicators/Buttons

Press the function menu button for about two seconds ▤ (see *Table 1 - 1, on page 1 - 8*) to bring up the On Screen Display. The OSD provides visual indicators for brightness, volume, camera power toggle and WLAN/ Bluetooth power toggle (the camera, WLAN and Bluetooth power indicators will only display if the modules are included in your purchase configuration) when the **Hotkey AP** is installed (see page *4 - 6*).

OSD Icon	Description	OSD Icon	Description
	Volume Decrease/Increase		Camera Power Toggle
	Brightness Decrease/Increase		Bluetooth Power Toggle
			WLAN Power Toggle

Table 1 - 3 **- On Screen Display Indicators**

The indicators will appear when the computer boots up, or resumes from a power saving state, in order to display the current power status of the camera and/or WLAN/Bluetooth module. If you adjust the brightness or volume the OSD indicators will appear, and will also allow you to adjust the power status of the camera and/or WLAN/ Bluetooth module using the mouse to click on the icon.

Figure 1 - 6
Left View

1. Stand
2. Multi-in-1 Card Reader
3. ExpressCard Slot (see page *2 - 7*)
4. 2 * USB 3.0 Ports
5. HDMI-in Port
6. HDMI-Out Port

System Map: Left View

🖉

HDMI-In Port

Note that the HDMI-In Port supports video and audio signals from attached HDMI devices.

Multi-in-1 Card Reader

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

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

USB 3.0 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*), does not support wake on USB and is not operational under DOS.

🖉

ExpressCard Slot

The ExpressCard Slot accepts either **ExpressCard/34** or **Express-Card/54** formats.
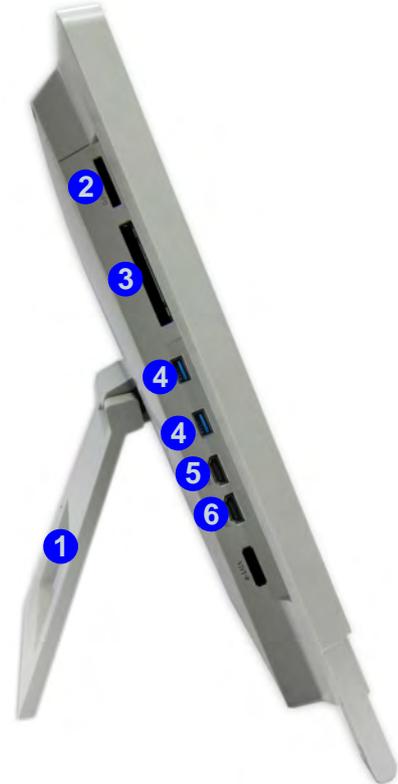
HDMI-In Port

This computer features an **HDMI** (High-Definition Multimedia Interface) **input port** that allows you to display external sources such as Blu-ray players, DVDs, set top boxes and games consoles etc. on your computer screen.

The computer itself does not need to be powered on to display video and audio from external HDMI input sources. As long as the computer is plugged-in to a power source using the AC/DC adapter (the HDMI-In port will nit function under battery power), simply plug-in the HDMI cable from the external device to the computer's HDMI-In port and the computer will act as the display device. For resolutions supported see page *C - 3*.

Mode Toggle

Press and hold the mode toggle button 🔁 to switch between the computer and HDMI input modes. When the HDMI input source is displayed you can use any HDMI device plugged in to the computer's HDMI-In port. **A quick press of the button will toggle the display on/off**.

When the HDMI cable is plugged-in, **and the computer is powered off**, the ▱/⭤ icon will be green when you press and hold the mode toggle button 🔁. When the HDMI device is playing the icon will then return to indicate the battery charge status. See *Table 1 - 4, on page 1 - 12* for details.

The following table indicates the functions when an HDMI cable is plugged in to the HDMI-In port.

Computer Power Status	HDMI Icon ☑/⊖	Mode Toggle Button (Press & Hold)	Mode Toggle Button (Quick Press)
The computer is powered **on** (using the AC/DC adapter)	Indicates battery charge status only	Toggles between computer display and HDMI input	Toggles the display on/off
The computer is powered **off** (but is plugged in to the AC/DC adapter)	Green (when HDMI cable is plugged-in and the Mode Toggle Button has been pressed and held to select HDMI input) When the HDMI source is playing the icon will indicate battery charge status only	Toggles between computer display and HDMI input	Toggles the display on/off

Table 1 - 4 **- Mode Toggle Functions when HDMI Cable is Plugged-In**

System Map: Right View

Figure 1 - 7 **- Right View**

1. Optical Device Drive Bay (for CD/DVD Device - see page *2 - 3*
2. Headphone-Out Jack
3. Microphone-In Jack
4. USB 2.0 Port
5. Stand

🔔
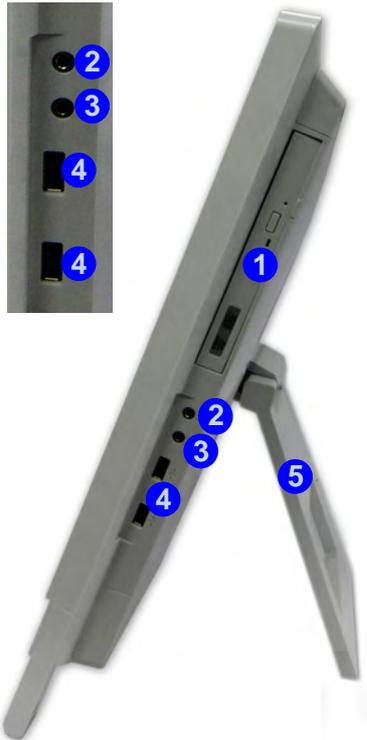
CD Emergency Eject

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 similar object that may break and become lodged in the hole.

🖋

Changing DVD Regional Codes

Go to the **Control Panel** and double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code. You can select your module's region code 5 times (see *"DVD Region Note" on page 2 - 5*).

🔔

Media Warning

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

Figure 1 - 8
Rear View

1. Rear Component Cover
2. Stand
3. Vent/Fan Intake
4. Carrying Handle Area
5. USB Wireless Transceiver Cover (for Optional RF Keyboard & Mouse Kit)
6. Security Lock Slot
7. Battery
8. 2 * RS-232 Serial Ports
9. PS/2 Port (keyboard)
10. PS/2 Port (mouse)
11. DC-In Jack
12. 2 * USB Ports
13. RJ-45 LAN Port

System Map: Rear View

🔔

USB Port for Wireless Transceiver

Note that the USB port for the wireless transceiver is designed specifically for the **optional** RF Keyboard & Mouse kit supplied with this model only.

Do not use any other USB devices in this port.
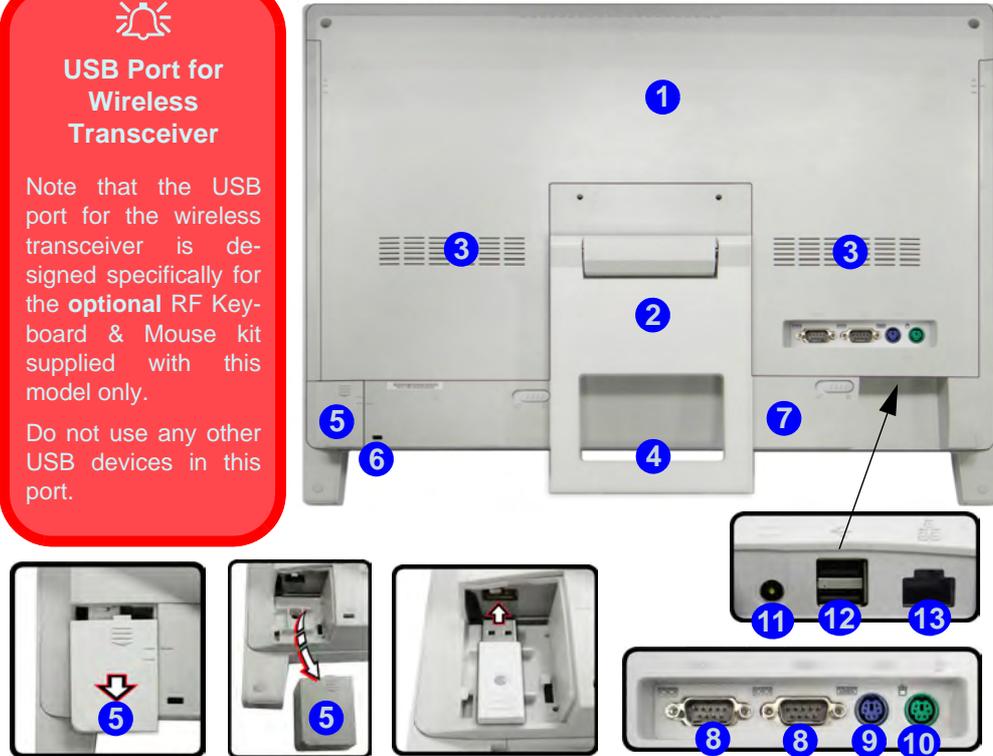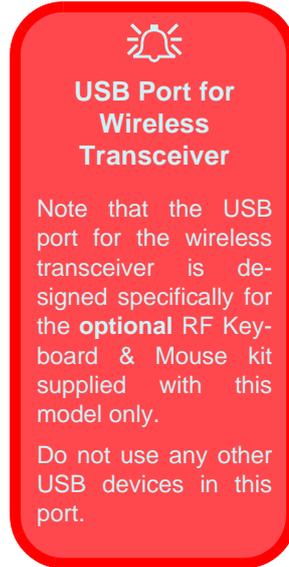
Optional Keyboard & Mouse Kit

There is an **optional** RF wireless USB keyboard and mouse kit available for this computer series. A USB port located at the bottom of the rear cover (see *"System Map: Rear View" on page 1 - 14*) is designed to house the transceiver for the USB wireless keyboard & mouse kit. See *"Wireless Keyboard & Mouse USB Transceiver" on page 1 - 16* for more information.

> 🔔
> **Dongle & USB Ports**
>
> A single USB dongle (which acts as a transceiver for the keyboard and mouse) is provided with the keyboard and mouse kit. This dongle may be inserted into any of the USB ports however it is recommended that you use the USB port specifically provided for this (see page *1 - 14*).
>
> **Port Warning**
>
> The computer can only accept one keyboard at a time. Don't try to install a USB and a PS/2 keyboard at the same time. Doing so may cause resource conflicts and make the system unstable.

Figure 1 - 9 **- Optional Wireless Keyboard & Mouse Kit**

☼

**USB Port for
Wireless
Transceiver**

Note that the USB port
for the wireless trans-
ceiver is designed spe-
cifically for the **optional**
RF keyboard and
mouse kit supplied with
this model only.

Do not use any other
USB devices in this port.

Figure 1 - 10
**USB Port for
Wireless Keyboard
& Mouse Kit**

Wireless Keyboard & Mouse USB Transceiver

If your purchase includes the optional wireless keyboard & mouse kit you can use
the USB port located at the bottom left of the rear cover to house the USB transceiver
(do not use this port for any other device, see sidebar).

1.Remove the USB transceiver port cover **1** by sliding it in the direction of arrow **2**.
2.Insert the USB transceiver **3** into the USB port.
3.Replace the cover.

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.
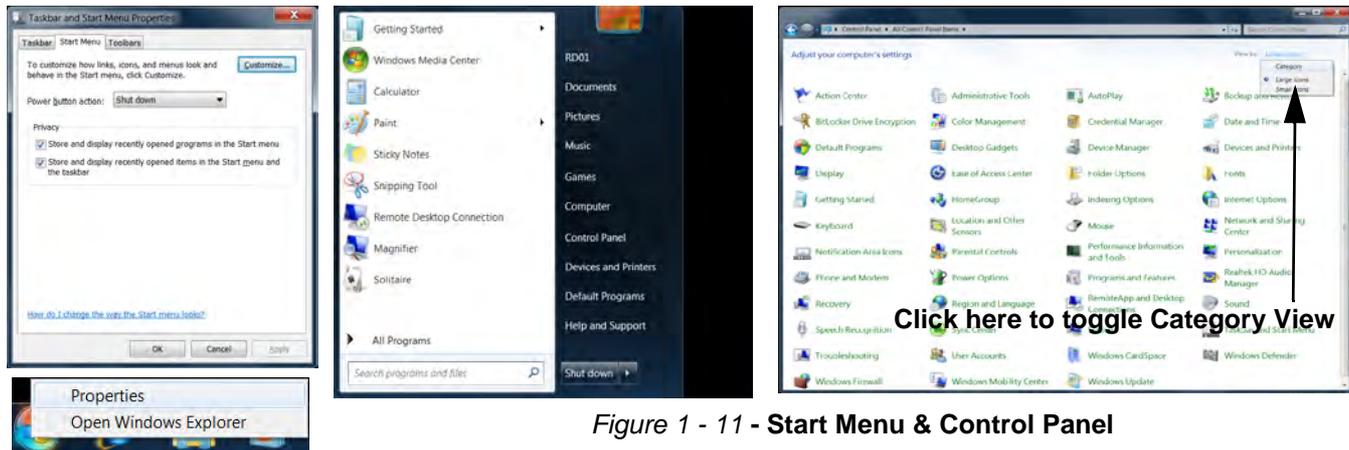
Figure 1 - 11 **- Start Menu & Control Panel**

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

You can configure display options from the **Display (Control Panel) and Screen Resolution** in *Windows*. For more detailed video information see *Chapter B"Intel Video Driver Controls" from page B - 1*.

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**.

🖉

Right-Click Desktop

1.   You can right-click the desktop and select **Screen resolution** ❶ (*Figure 1 - 12*).
2.   Use the dropbox to select the screen **Resolution** ❷ (*Figure 1 - 12*).
3.   Click **Advanced settings** ❸ (*Figure 1 - 12*) to bring up the **Advanced** properties tabs.
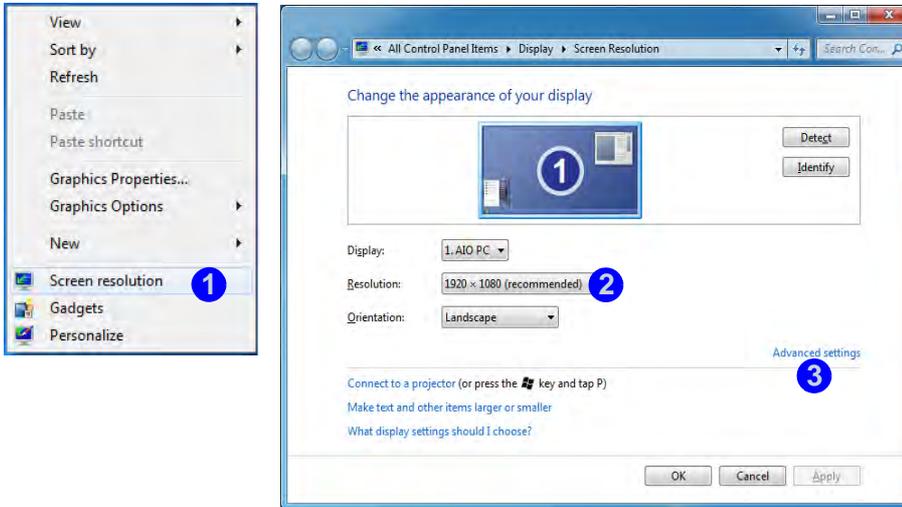
Figure 1 - 12 **- Screen Resolution**

To access the *Intel(R) Graphics Media Accelerator Driver for mobile* control panel:

1. Click **Advanced settings** ❸ (*Figure 1 - 12 on page 1 - 18*) in the **Screen Resolution** control panel in *Windows*.
2. Click the **Intel(R)...** tab and click **Graphics Properties** (button) ❹ (*Figure 1 - 13 on page 1 - 19*) .

OR

3. Right-click the desktop and select **Graphics Properties** from the menu.

OR

4. Click the icon 🖼 in the taskbar and select **Graphics Properties** from the menu.

Figure 1 - 13 - **Intel GMA Driver for Mobile Control Panel**

Power Options

The **Power Options** (**Hardware and Sound** menu) control panel icon in *Windows* (see page *1 - 17*) 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**, **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.
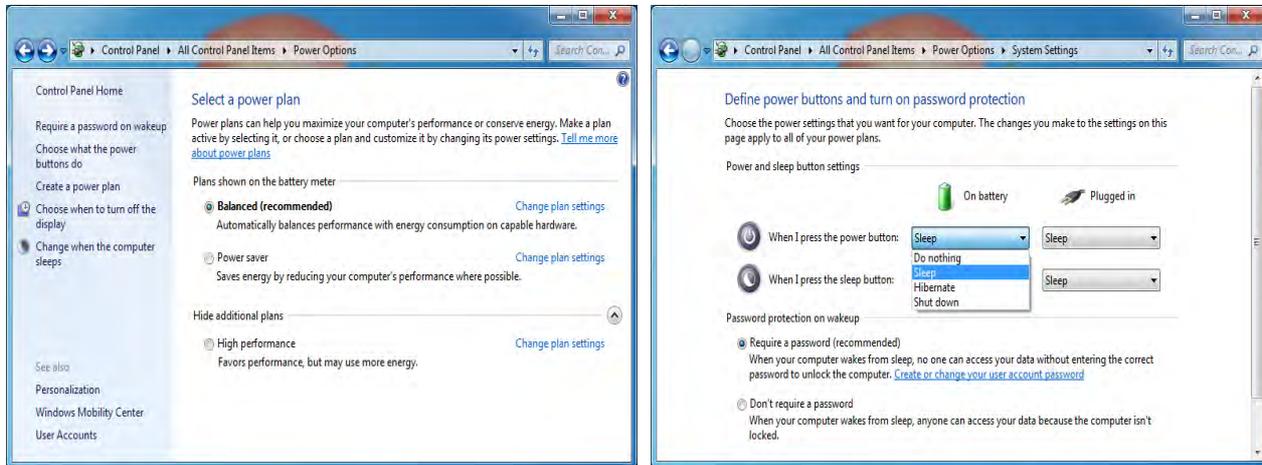
Figure 1 - 14 **- Power Options**

Chapter 2: Features & Components

2

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
- ExpressCard Slot
- Audio Features

2

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" or 3.5" (pictured below) serial (SATA) hard disk drives with a height of 9.5 mm.

The hard disk is accessible from the rear of your computer as seen below. For further details see *"Upgrading the Hard Disk Drive/SSD" on page 6 - 9*.
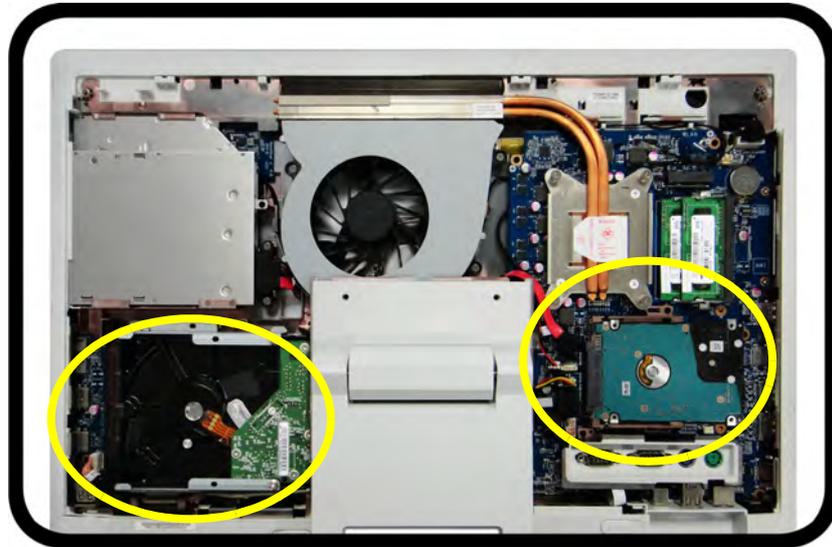
Figure 2 - 1
Hard Disk Location

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 - 13*).

Loading Discs

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

Figure 2 - 2
Optical Device

2

⚠

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.

2

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.

🖉

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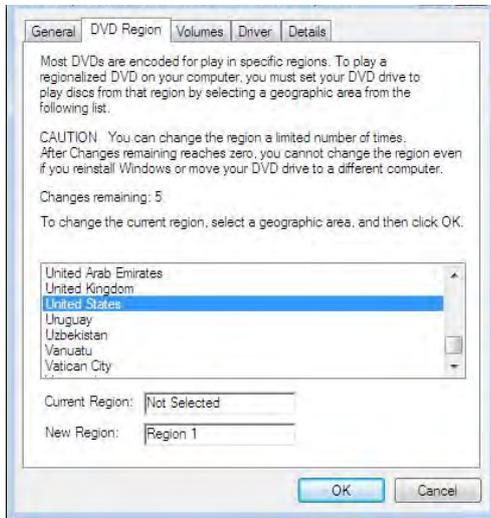
- **Region 1** - USA & Canada
- **Region 2** - Western Europe, Japan, South Africa, Middle East & Egypt
- **Region 3** - South-East Asia, Taiwan, South Korea, The Philippines, Indonesia, Hong Kong
- **Region 4** - South & Central America, Mexico, Australia, New Zealand
- **Region 5** - N Korea, Russia,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

Figure 2 - 3
DVD Region Codes

2

Figure 2 - 4
Front View

1. 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 *"ExpressCard/Card Reader" on page 4 - 6*).

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

2

ExpressCard Slot

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

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

Inserting and Removing Express-Cards

- Align the ExpressCard with the slot and push it in until it locks into place.
- To remove an ExpressCard, simply press the card to eject it.

🖉

ExpressCard Slot Cover

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

Figure 2 - 5
ExpressCard Slot

1. ExpressCard Slot

2

Figure 2 - 6
Realtek Audio Manager

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 notification area/control panel (right-click the taskbar notification area icon 🔊 to bring up an audio menu). The volume may also be adjusted by means of the **volume icon in the taskbar** or the **On Screen Display Indicators** (see *Table 1 - 3, on page 1 - 9*).

Right-click the icon 🔊 to access the menu above.
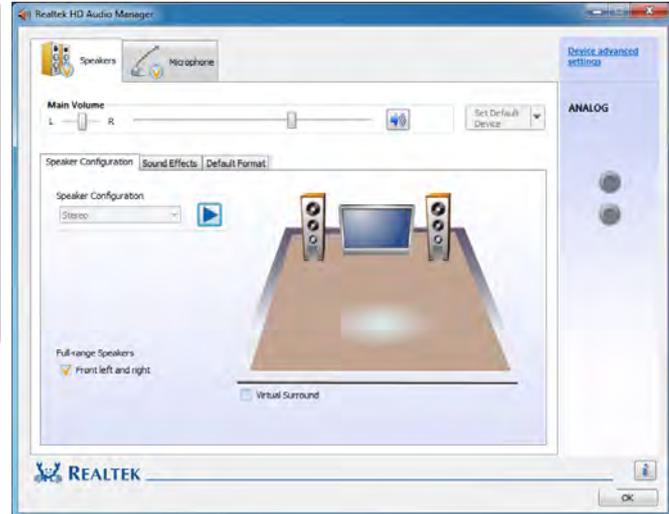
Note that many keyboards have built-in controls to allow you to adjust the audio volume.

2

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.
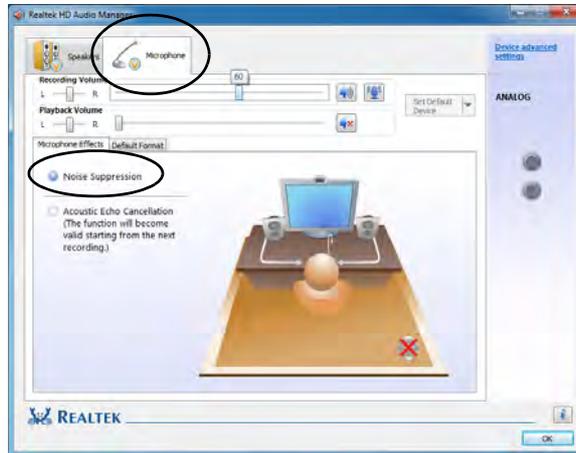
Figure 2 - 7
Realtek Audio Manager - Recording Setup

2

Chapter 3: Power Management

Overview

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

This chapter covers:

- Turning On the Computer
- Power Plans
- Power-Saving States
- Configuring the Power Buttons
- Energy Star Power Saving

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.

Using some form of power management greatly increases the life span of the LCD.

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.)

3

3

The Power Sources

The computer can be powered by either the 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. Adjust the LCD to a comfortable viewing angle.
4. Press the power button on the front 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).

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 - 15*).

We recommend that you do not remove the battery. For more information on the battery, please refer to *"Energy Star Power Saving" on page 3 - 10*.

3

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.
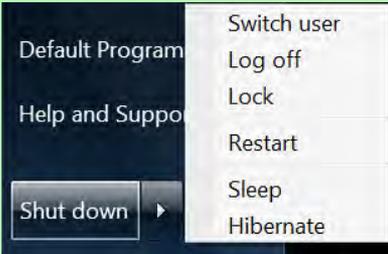
	Switch user
Default Program	Log off
	Lock
Help and Suppo	
	Restart
	Sleep
Shut down ▸	Hibernate

🖉

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 - 8* for details).

3

Password

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

Figure 3 - 1
Power Plan Advanced Settings

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**.

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.

Click to Show/Hide additional power plans
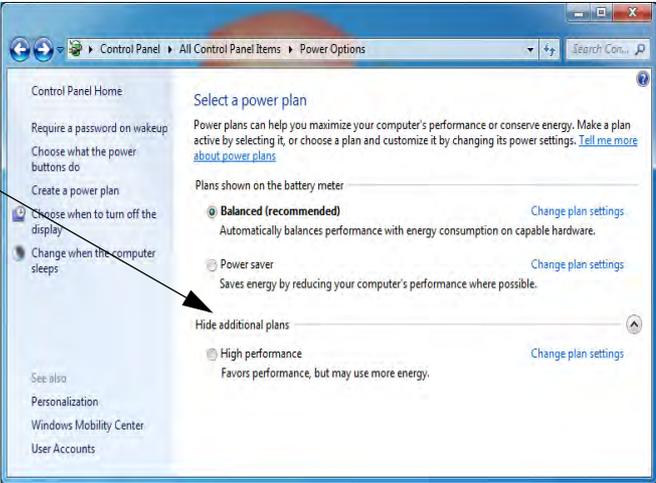
Figure 3 - 2
Power Plans

3

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.

3

Hibernate

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

Shut down

You should **Shut down** the computer if you plan to install new hardware (don't forget to remove the battery and follow all the safety instructions in **Chapter 6**), plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **Shut down** takes longer than from **Sleep** or **Hibernate**.
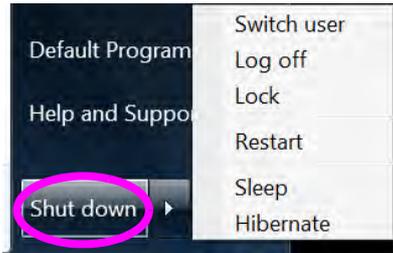
Figure 3 - 3
Start Menu Power

Configuring the Power Buttons

The power button may be set to send the computer in to either **Sleep** or **Hibernate**. In **Sleep**, the LED ⏻/⏻ will blink green. In **Hibernate** the LED will be orange. If only the display is turned off, the LED will remain green. 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 - 4
Power Options Define Power Buttons

3

Resuming Operation

You can resume operation from power-saving states by pressing the power button, or in some cases pressing the sleep button (see your keyboard documentation).

Power Status	Icon ⏻/⏻ Color	To Resume
Power Off	Off	Press the Power Button
Sleep	Blinking Green	Press the Power Button Press the Sleep Button (see your keyboard documentation)
Hibernate	Off (battery) Orange (AC/DC adapter)	Press the Power Button
Display Turned Off	Green	Press a Key or Move the Mouse

Table 3 - 1
Resuming Operation

🖉

Power Button

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

3

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**. Power Conservation Modes
3. Select **Energy Star** to use the Energy Star power management and override other power saving settings.

Figure 3 - 5
Energy Star Menu

🔔
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.

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 notification area to see the current battery level and charge status.

> ⚡
> **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.

3
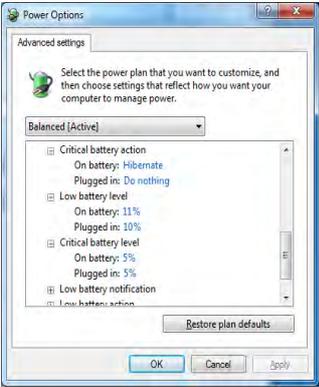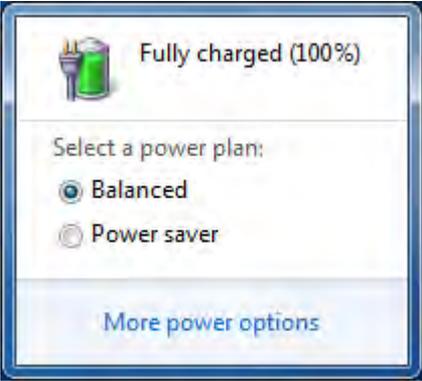
Figure 3 - 6
Battery Icon (Notification Area) & Battery Advanced Settings

3

> ✍
>
> **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.

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.

Figure 3 - 7
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 - 4*.

New Battery

Always completely discharge, then fully charge, a new battery (see *"Battery FAQ" on page 3 - 15* 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 *"Energy Star Power Saving" on page 3 - 10* for more information on how to maintain and properly recharge the battery pack.)

3

🔔

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.

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 distributor/supplier. If the battery has been dropped we do not recommend using it any further, as even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire. It is recommended that you replace your computer battery every two years.

Battery FAQ

How do I completely discharge the battery?

Use the computer with battery power until it shuts down due to a low battery. Don't turn off the computer 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**.
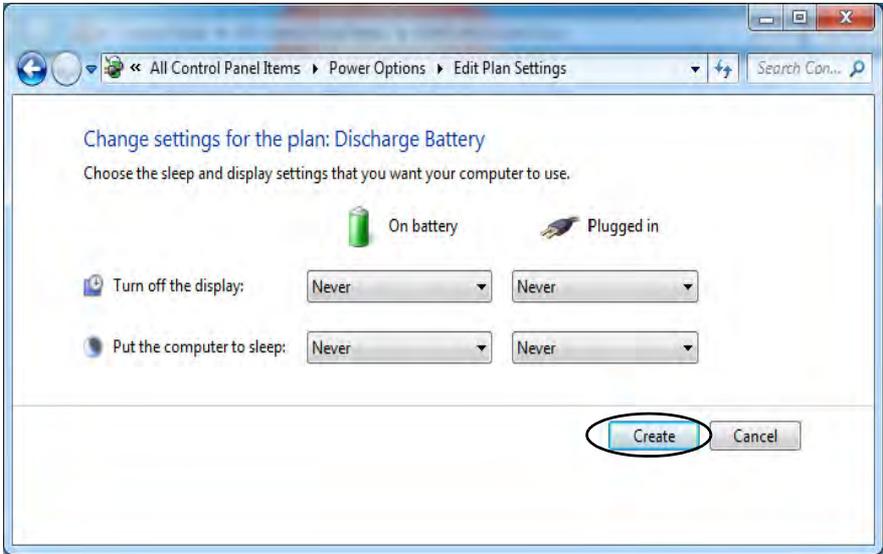
Figure 3 - 8
Power Plan Create

3. Click *Change plan settings* (after creating it) and click *Change plan settings > Change advanced power settings*.
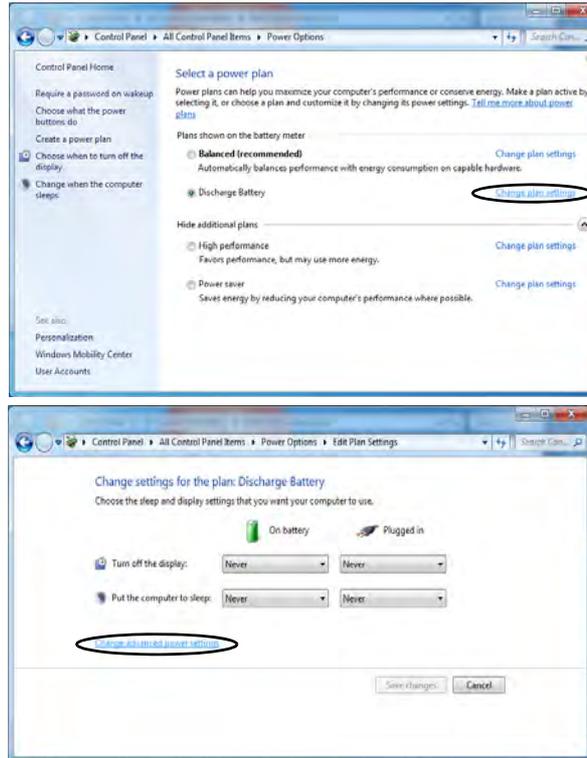
Figure 3 - 9
Change Plan Settings / Change Advanced Power Settings

3

4.   Scroll down to **Battery** and click **+** to expand the battery options.
5.   Choose the options below (click **Yes** if a warning appears):
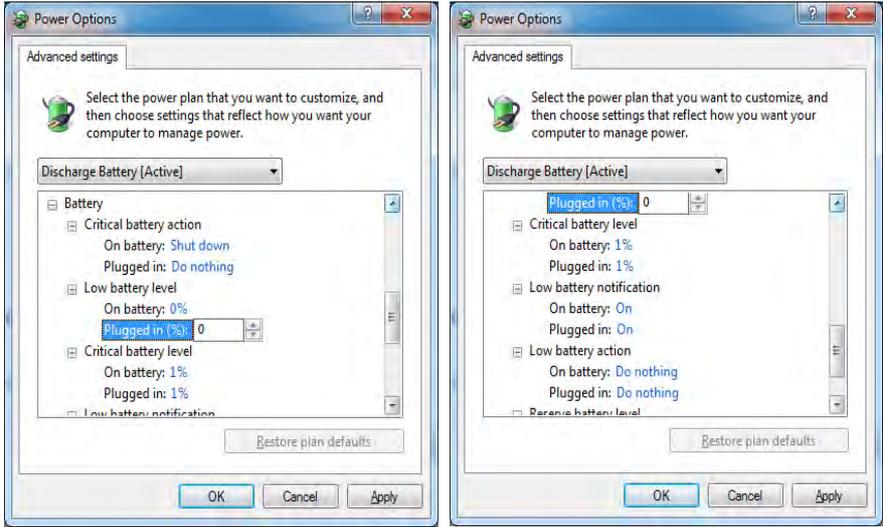
Figure 3 - 10
**Power Options
Advanced Settings -
Battery**

- 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

3

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.

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** (all drivers provided are for *Windows 7 with Service Pack 1*).

The procedures for installing drivers for the **PC Camera**, **Wireless LAN** and **Bluetooth & WLAN Combo** modules are provided in *"Modules & Options" on page 7 - 1*.

> 🔔
>
> **Driver Installation & Power**
>
> **When installing drivers make sure your computer is powered by the AC/DC adapter connected to a working power source**. Some drivers draw a significant amount of power during the installation procedure, and if the remaining battery capacity is not adequate this may cause the system to shut down and cause system problems (note that there is no safety issue involved here, and the battery will be rechargeable within 1 minute).

Driver Installation

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

Follow the instructions to install the driver. Alternatively click **Start**, navigate (**Browse..**) to the executable file and then follow the manual setup instructions.

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.

Note: If you need to reinstall any driver, you should uninstall the driver first.

Figure 4 - 2 - **Drivers Installer Screen 2**

Driver for *Windows 7 with Service Pack 1*	Page #	Driver for *Windows 7 with Service Pack 1*	Page #
Chipset	*Page 4 - 6*	*PC Camera Module*	*Page 7 - 2*
Video	*Page 4 - 6*	*Wireless LAN Module*	*Page 7 - 10*
LAN	*Page 4 - 6*	*Bluetooth & WLAN Combo Module*	*Page 7 - 36*
ExpressCard/Card Reader	*Page 4 - 6*	*Trusted Platform (Security) Module*	*Page 7 - 43*
Hotkey AP	*Page 4 - 6*		
USB 3.0	*Page 4 - 7*		
MEI Driver	*Page 4 - 7*		
Audio	*Page 4 - 7*		

Table 4 - 1 **- Driver Installation**

Note that you need to install both the WLAN & Bluetooth drivers for the WLAN & Bluetooth Combo modules.

4

Manual Driver Installation

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

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 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 Bluetooth) are **ON** before installing the appropriate driver.

Driver Installation Procedure

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

4

Chipset

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

Video

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

LAN

1. Click **3.Install LAN Driver > Yes**.
2. Click **Install Drivers and Software > Next**.
3. Click the button to accept the license and click **Next**.
4. Click **Next > Install**.
5. Click **Finish**.
6. The network settings can now be configured.

ExpressCard/Card Reader

1. Click **4.Install Cardreader Driver > Yes.**
2. Click **Finish**.

Hotkey AP

1. Click **5.Install Hotkey AP > Yes**.
2. Click **Next > Next**.
3. Click **Finish > Finish** to restart the computer.

USB 3.0

1. Click **6.Install USB 3.0 Driver > Yes**.
2. Choose the language you prefer and click **OK**.
3. Click **Next**.
4. Click the button to accept the license agreement and click **Next**.
5. Click **Finish**.

MEI Driver

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

Audio

1. Click **8.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.

(See Over)

4

Windows Experience Index

After the drivers are installed follow this procedure to ensure an accurate rating from the *Windows Experience Index*:

4

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**".
4. The computer will take a few minutes to assess the system performance.
5. Close the control panel.

🖉

Windows 7 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).
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.

Optional Drivers

See the pages indicated in *Table 4 - 1, on page 4 - 3* for the driver installation procedures for any modules included in your purchase option. Insert the *Device Drivers & Utilities + User's Manual* disc and click **Option Drivers** (button) to access the optional driver menu.

Figure 4 - 3 **- Optional Drivers**

Drivers & Utilities

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.

<div style="border: red box">

🔔

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.

</div>

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.

5

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 distributor/supplier 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 Menus

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

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.

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) 2012 American Megatrends Inc.
       Main  Advanced  Security  Boot  Exit

        System Date                    [Tue 08/28/2012]        Set the Date. Use Tab to
        System Time                    [09:56:26]              switch between Date elements.

      ▶ SATA Port 0 WDC WD5000AAKX (500.1GB)
      ▶ SATA Port 1 Not Present
      ▶ SATA Port 4 MATSHITA-CMB ATAPI

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

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

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

                Version ******** Copyright (C) 2012 American Megatrends. Inc.
```

Figure 5 - 2
Main Menu

5

System Time & Date (Main Menu)
The hour setting uses the 24-hour system (i.e., ØØ = 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.

5

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
This item contains information on the BIOS version etc., and is not user configu-
rable.

Advanced Menu

```
                Aptio Setup Utility — Copyright (C) 2012 American Megatrends Inc.
   Main  Advanced  Security  Boot  Exit

 ▶ Advanced Chipset Control                          Advanced Chipset Control

   SATA Mode                         [AHCI Mode]
   Boot Logo:                        [Enabled]
   Power On Boot Beep:               [Disabled]
   Battery Low Alarm Beep:           [Disabled]
 ▶ Super IO Configuration

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

                Version ******** Copyright (C) 2012 American Megatrends. Inc.
```
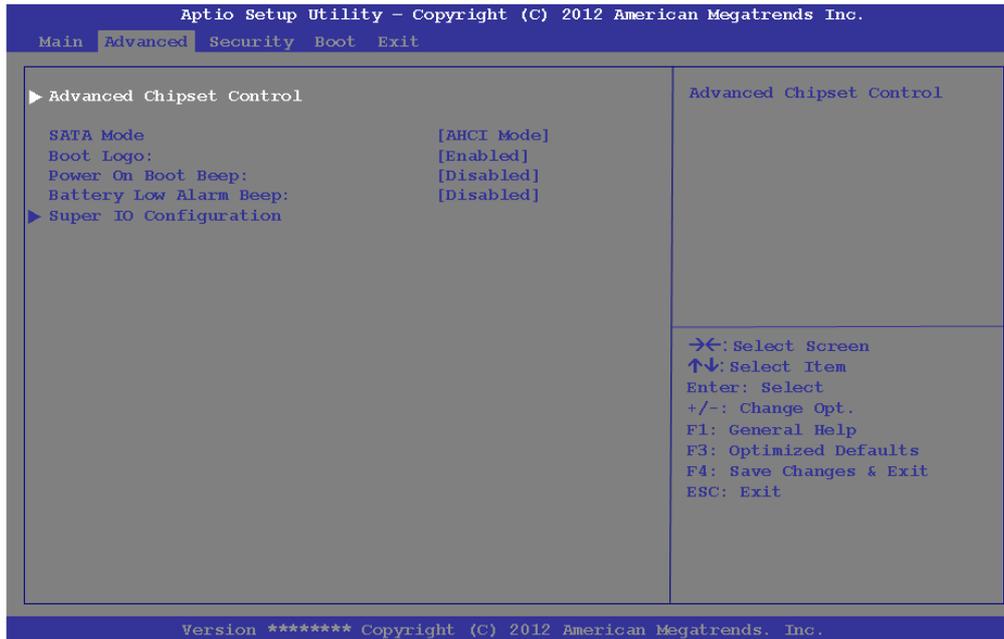
Figure 5 - 3
Advanced Menu

5

Advanced Chipset Control (Advanced Menu)
The sub-menu here allows you to adjust the **Bluetooth Power Setting** and **Total Graphics Memory**.

☼

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).

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.

Total Graphics Memory (Advanced Menu > Advanced Chipset Control)
Use this menu item to set the amount of system memory to be allocated for use by Intel® Dynamic Video Memory Technology for the graphics device. The default memory size allocated is **Max** (up to **1748MB**) and this may be adjusted to **128MB or 256MB** (by pressing the spacebar to adjust) if required (see *"Dynamic Video Memory Technology" on page B - 1*).

SATA Mode Selection (Advanced Menu)
You can configure SATA (Serial ATA) control to operate in **IDE** (native/compatible), **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).

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 Beep (Advanced Menu)
Use this menu item to enable/disable the battery low alarm beep.

Super IO Configuration (Advanced Menu)
Use this menu to enable/disable and configure the serial (RS-232) ports to your requirements. **Change Settings** allows you to change the IO and IRQ settings, and **Device Mode** allows you to set the ports to normal or high speed modes.
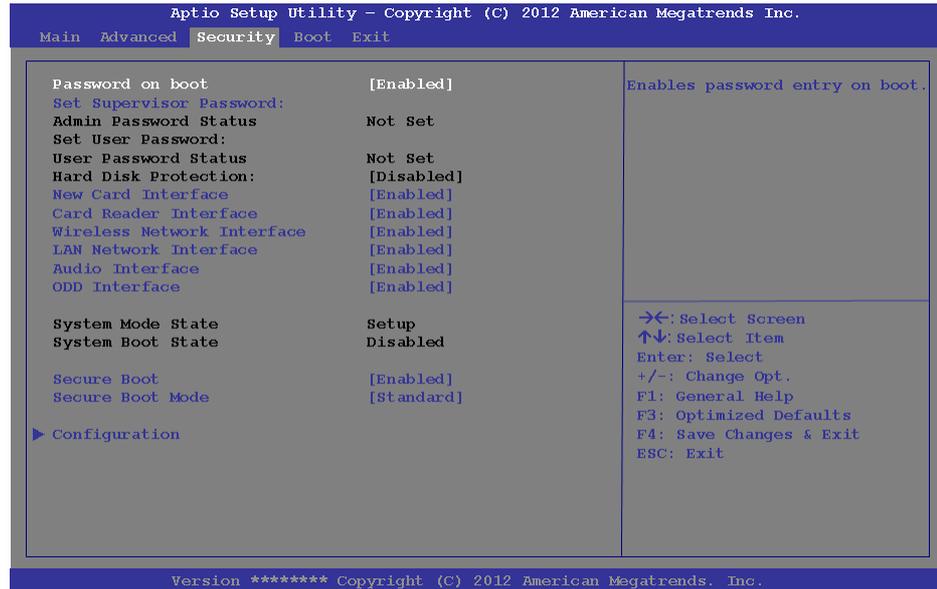
Security Menu

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.

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**).

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**). If you set a supervisor password you can then add a **user password**.

Set User Password (Security Menu)
You can set a password for user mode access to the **Aptio Setup 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 **Aptio Setup Utility** cannot be modified in user mode. **You can only set the user password after you have set the supervisor password**.

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.

Interface Items (Security Menu)
The interfaces for the ExpressCard (New Card), Card Reader, WLAN, LAN, Audio and ODD (optical device drive) may be enabled/disabled from the menu items here if required.

> 泛
>
> **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.

5

5

Secure Boot (Advanced Menu)

Enable/disable **Secure Boot** from this menu. The **Secure Boot** specification pro-vides a clean interface between operating systems and platform firmware at boot time. In contrast to BIOS, **Secure Boot** defines a set of standard boot and runtime services. Secure Boot may be set to **Standard** (with a fixed Secure Boot policy), or **Custom** (which allows changes to execution policy and Secure Boot databases).

Configuration (Security Menu)

This sub-menu will allow you to enable/disable the Trusted Platform Module (TPM) **Security Device Support**, and to configure the TPM State. Select **Configuration** and press Enter to access the sub-menu. Press Enter to access the (TPM) **Configu-ration** menu and select **Enable** to display the full TPM configuration menu (see *"Trusted Platform (Security) Module" on page 7 - 43* for details).

Boot Menu

```
        Aptio Setup Utility - Copyright (C) 2012 American Megatrends Inc.
  Main  Advanced  Security  Boot  Exit

  Fast Boot                    [Disabled]          Enables or disables boot with
  UEFI Boot                    [Disabled]          initialization of a minimal
                                                   set of devices required to
                                                   launch active boot option. Has
  Driver Option Priorities:                        no effect for BBS boot options.
  Boot Option Priorities:
  Boot Option #1               [P4: MATSHITA-CMB   ...]
  Boot Option #2               [P0: WDC WD5000AAKX-...]
  Boot Option #3               [IBA GE Slot 00C8 v1381]

  Network Device BBS Priorities
  CD/DVD ROM Drive BBS Priorities
  Hard Drive BBS Priorities
  Wake-up On LAN               [Enabled]           →←:Select Screen
                                                   ↑↓:Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F3: Optimized Defaults
                                                   F4: Save Changes & Exit
                                                   ESC: Exit



        Version ******** Copyright (C) 2012 American Megatrends. Inc.
```

Figure 5 - 5
Boot Menu

🔔

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 Option Priorities**. Item specific help on the right is available to help you move devices up and down the order.

Fast Boot / UEFI Boot (Boot Menu)
Fast Boot will enable a boot with the minimal set of devices required (the sub-menus will allow you to choose to skip the EFI VGA driver, USB devices and/or PS/2 devices. You can also choose to enable/disable boot from UEFI devices.

Boot Option Priorities (Boot Menu)
Use the arrow keys to move up and down the menu, and press Enter to select a device from the **Boot Option #** list. You can go to either **Network Device BBS Priorities**, **CD/DVD ROM Drive Priorities** or **Hard Drive BBS Priorities** and use the **+** and **-** **keys** to move the device's boot priority up and down the list (the selected device will be highlighted in white).

Wake-up On LAN (Boot Menu)
Enable/disable the Wake-up On LAN feature here. If enabled network activity will wake up the computer from sleep.

Exit Menu

```
               Aptio Setup Utility - Copyright (C) 2012 American Megatrends Inc.
     Main   Advanced   Security   Boot   Exit

        Save Changes and Reset                        Reset the system after saving
        Exit Discarding Changes                       the changes.
        Load Setup Defaults
        Discard Changes
        Save Changes

        Boot Override
        IBA GE Slot 00C8 v1381
        P4: MATSHITABD-CMB UJ160
        P0: WDC WD5000AAKX-001CA0

        Launch EFI Shell from filesystem device

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

                Version ******** Copyright (C) 2012 American Megatrends. Inc.
```

Figure 5 - 6
Exit Menu

5

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 *Load Setup Defaults* to restore the original *Setup* defaults and return the *Setup* to its original state, and erase any previous changes you have made in a previous session.

5

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 (se sidebar)
- 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
- Removing the Rear Component Cover
- Upgrading the Hard Disk Drive/SSD
- Upgrading the Optical (CD/DVD) Device Drive
- Upgrading the System Memory (RAM)

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.

Screwdriver Types

Make sure you use a small manual screwdriver, and **not an electrical screwdriver**, in the course of the upgrade/disassembly procedures outlined here, due to the delicate nature of the screws.

6

🔔

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 and power cord).

6

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 restoring power to the system.

Also note the following when the cover is removed:
• Hazardous moving parts.
• Keep away from moving fan blades.

Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery. **Before removing the battery disconnect the AC/DC adapter from the computer first**.

1. Turn the computer off, remove the AC/DC adapter 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 cover in the direction of the arrow until the bottom marker of the battery cover icon **3** is aligned with the marker on the side of the computer **4**.
5. Remove the battery bay **5** cover.
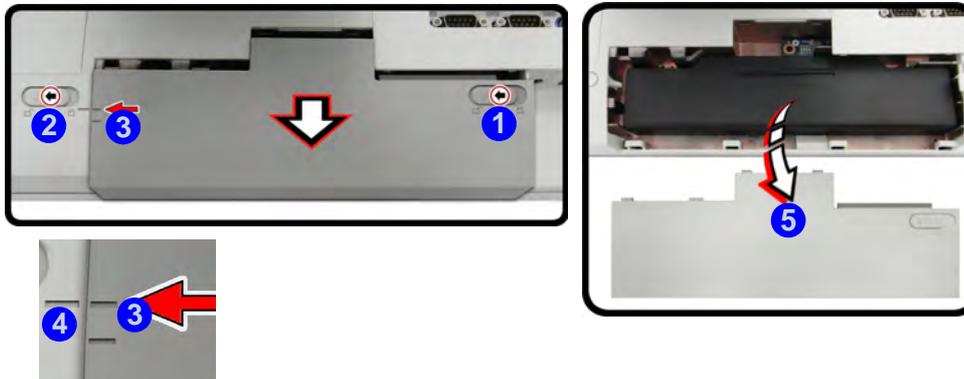
Warranty Warning

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

6

Figure 6 - 1
Battery Bay Cover Removal

6. Raise the battery up out of the bay **6**.
7. Remove the battery **7**.
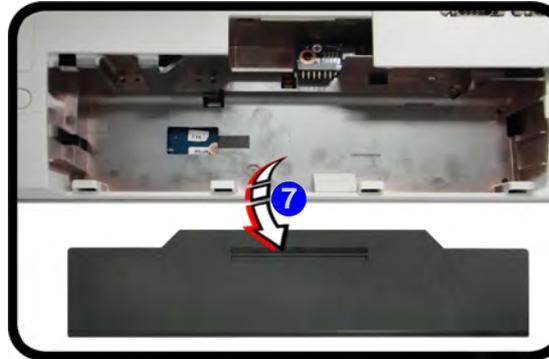
Figure 6 - 2
Battery Removal

6

Inserting the Battery

1. Insert the battery ❶ at an angle and slide it firmly into the battery bay until connected.
2. Insert the battery bay cover by angling it to fit on the right ❷ at first, and then click the left side into place ❸.
3. Slide the cover in the direction of the arrow ❹ until the top marker of the battery cover icon ❺ is aligned with the marker on the side of the computer ❻.
4. Slide the latches ❼ towards the lock symbols to lock the cover in place.
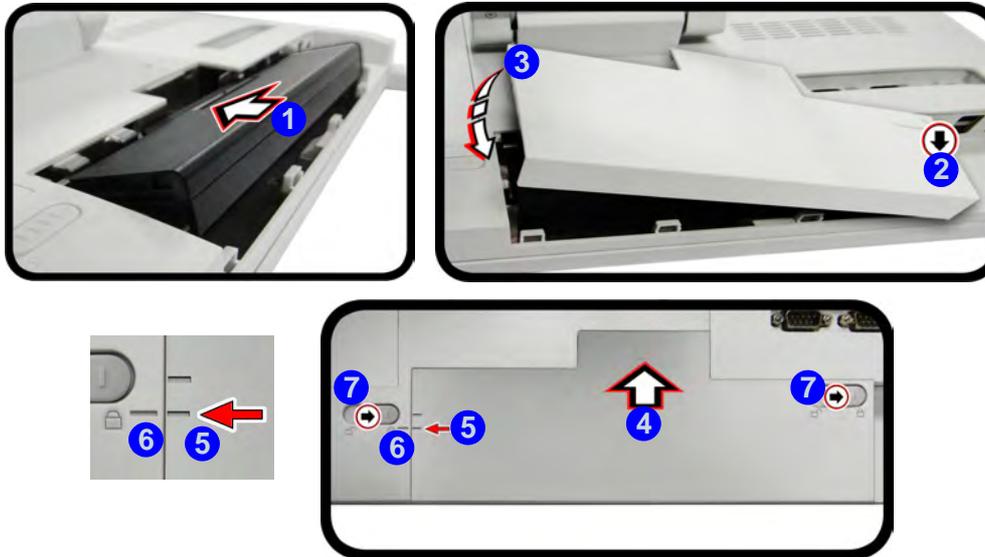
Figure 6 - 3
Battery & Cover Insertion

Removing the Rear Component Cover

Before undertaking any upgrade procedure it is necessary to remove the rear cover component cover to access the components.

1. Turn **off** the computer and disconnect all cables and peripherals.
2. Carefully place the computer flat with the LCD facing down (make sure you cover the LCD to avoid scratches) so that you may access the rear cover.
3. Remove screws **1** & **2**.

6

Figure 6 - 4
Rear Cover Screws

4. Slide the rear cover up in the direction of the arrow ❸, until the bottom marker of the rear cover icon is aligned with the marker on the side of the computer ❹.
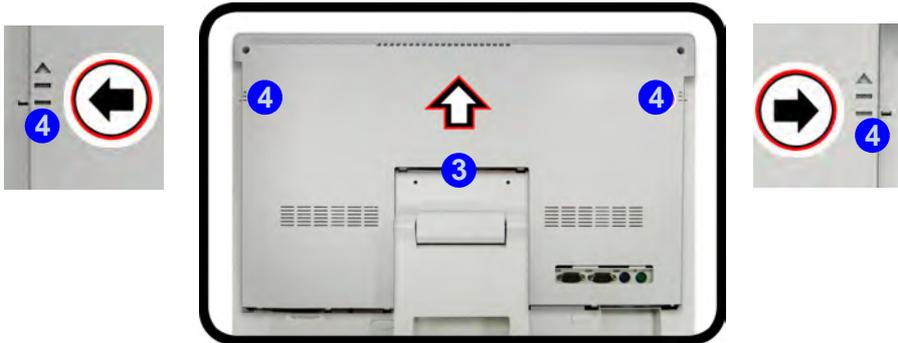
Figure 6 - 5
Rear Cover Unlock

5. Carefully remove the rear cover ❺, and set it aside.

Figure 6 - 6
Rear Cover Remove

Inserting the Rear Cover

1. Carefully slide the rear cover on to the computer until the marker of the rear cover icon is aligned with the marker on the side of the computer **1**.
2. Replace screws **2** & **3**.
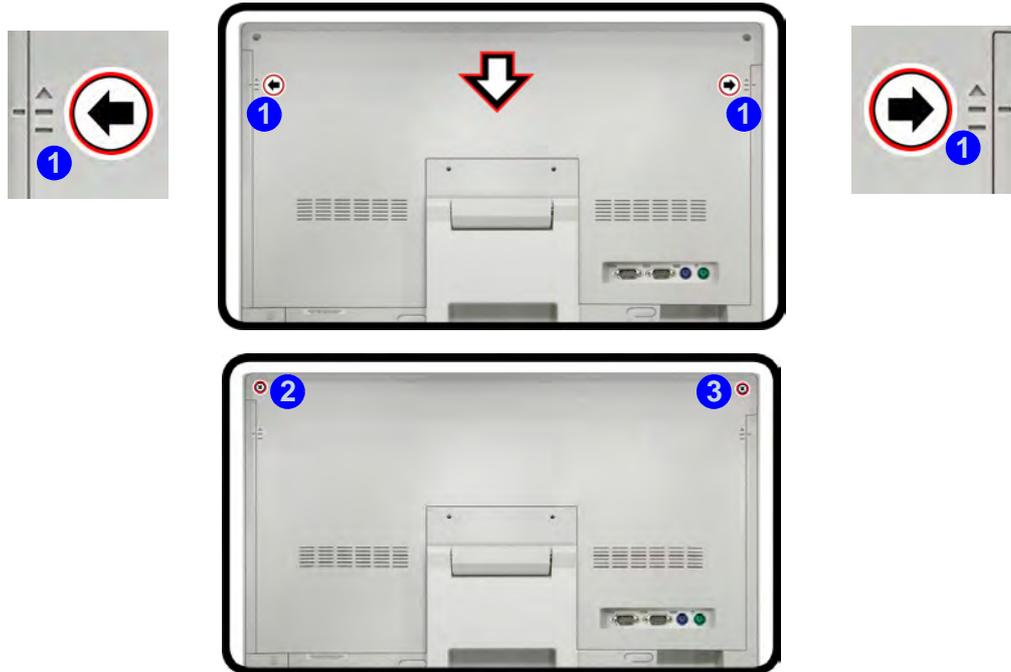
Figure 6 - 7
Inserting the Rear Cover

6

Upgrading the Hard Disk Drive/SSD

The hard disk drive can be taken out to accommodate other 2.5"(63.5mm) or 3.5"(88.9mm) serial (SATA) hard disk drives (see *"Storage" on page C - 3*), or a Solid State Drive (SSD). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in *"Driver Installation Procedure" on page 4 - 6*), when setting up a new hard disk.

See the following pages for the appropriate information:

- *"Removing the 3.5" (88.9mm) HDD" on page 6 - 10*.
- *"Replacing the Brackets & Screws in the 3.5" (88.9mm) HDD" on page 6 - 12*.
- *"Removing the 2.5" (63.5mm) HDD or SSD" on page 6 - 14*.
- *"Removing the 2.5" (63.5mm) HDD from the Bracket." on page 6 - 15*.
- *"Removing the SSD from the Bracket." on page 6 - 16*

> 泠
>
> **HDD System Warning**
>
> New HDD's are blank. Before you begin make sure: You have backed up any data you want to keep from your old HDD.
> You have all the CD-ROMs and FDDs required to install your operating system and programs.
> If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

6

Removing the 3.5" (88.9mm) HDD

1. Remove the battery and rear cover (see pages *6 - 3* & *6 - 5*).
2. The hard disk is located at point **1**.
3. Remove screws **2** - **5** from the hard disk bracket.
4. Slide the HDD assembly in the direction of arrow **6**.
5. Life the HDD assembly **7** out of the computer.
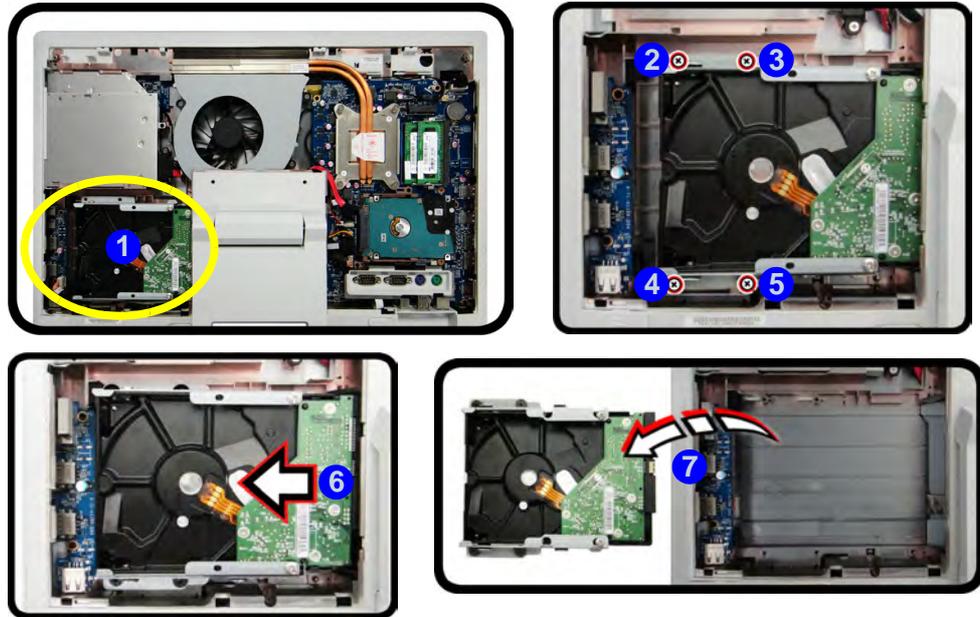
Figure 6 - 8
**3.5" HDD Assembly
Removal**

6. Remove screws **8** - **13** from the hard disk bracket
7. Remove the left and right side brackets from the HDD.
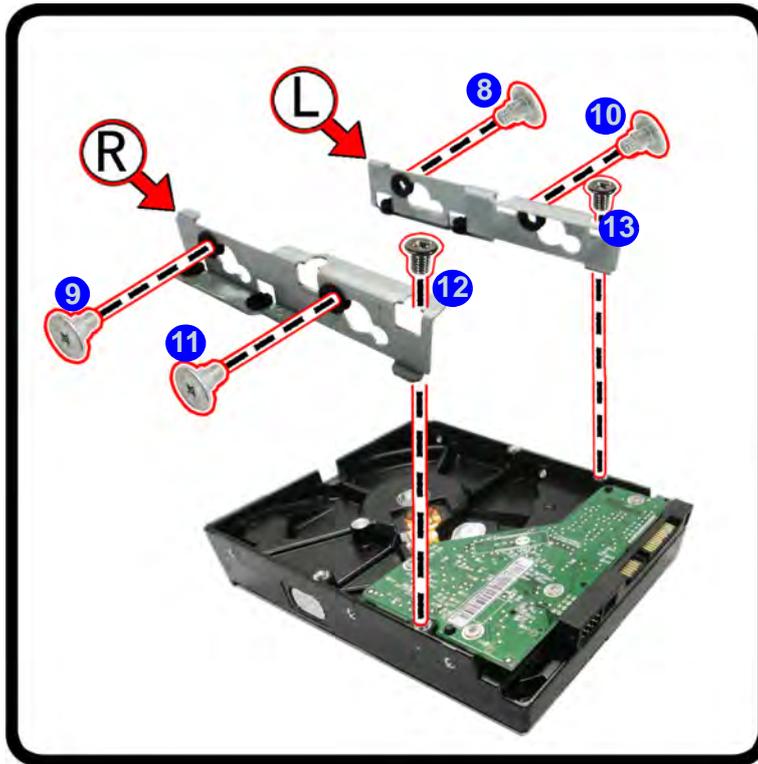
Figure 6 - 9
3.5" HDD Assembly Removal

Screwdriver Types

Make sure you use a small manual screwdriver, and **not an electrical screwdriver**, in the course of the upgrade/disassembly procedures outlined here, due to the delicate nature of the screws.

6

🖉

Screw Types

Note that **screws 1 & 2,** and **screws 3 -6** are different. Screws **1 & 2 a**re for the top of the bracket, and screws **3 - 6** are for the side of the bracket.

Replacing the Brackets & Screws in the 3.5" (88.9mm) HDD

1. Before replacing the brackets and screws for any new HDD, **it is important to note** that there are **left and right brackets** for the side of the assembly, and **the screws need to be inserted in the appropriate order**.
2. The control board is on the top of the HDD, and the interface board is at the rear.
3. The Left and Right brackets are marked with an **L & R** symbol.
4. Attach the left and right brackets as illustrated.
5. Firstly screw in the 2 top case screws **1** & **2** (note the screw type).
6. Secondly screw in the 4 side case screws **3** - **6** (note the screw type).

Figure 6 - 10
3.5" Hard Disk Assembly Brackets & Screw Insertion

🔔

HDD Brackets & Screws

Note the orientation of the brackets before reinserting the screws. The screw holes (on the bottom of the brackets) for attaching the assembly to the board must face outward.

The screws must be attached in the order illustrated, with **the top case screws being attached before the side case screws.**

Screws 3 - 6

Screws 1 & 2

7. **It is important to set the screws 7 - 10 (for screwing the HDD assembly to the case) in place in the HDD assembly before sliding the assembly into the case.**

8. Once the screws are set in place slide the whole assembly including the screws into place as per *Figure 6 - 8 on page 6 - 10*.

9. Make sure the HDD is connected to the slot and then tighten the four screws and replace the rear component cover and screws.
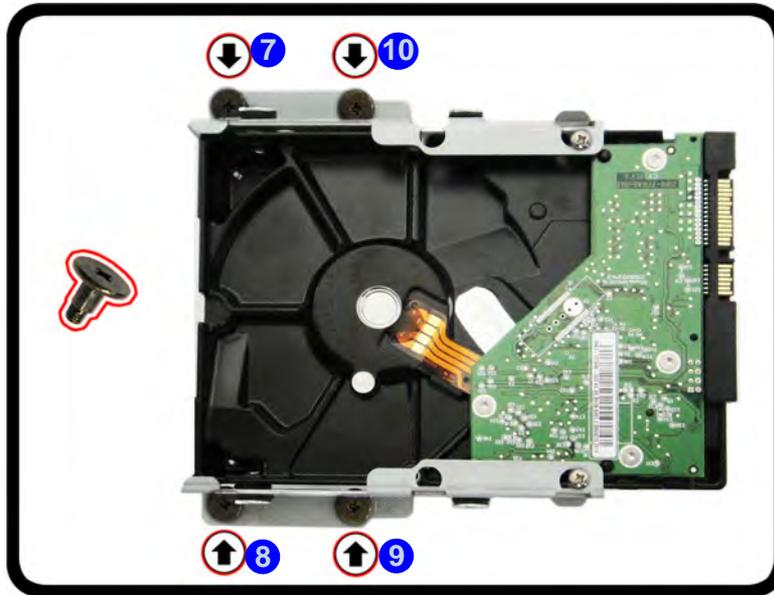
> 🔔
>
> **Screwdriver Types**
>
> Make sure you use a small manual screwdriver, and **not an electrical screwdriver**, in the course of the upgrade/disassembly procedures outlined here, due to the delicate nature of the screws.

6

Figure 6 - 11
3.5" Hard Disk Assembly Brackets & Screw Insertion

6

Foam Insert for SSDs

Note that if your computer contains an SSD in the bracket then a foam insert will be supplied. Make sure you have the foam inserted when installing an SSD to this bracket (see *"Removing the SSD from the Bracket." on page 6 - 16*).

Figure 6 - 12
2.5" HDD/SSD Assembly Removal

Removing the 2.5" (63.5mm) HDD or SSD

1. Remove the battery and rear cover (see pages *6 - 3* & *6 - 5*).
2. The hard disk or solid state drive is located at point ❶.
3. Remove screws ❷ & ❸ from the bracket (make sure you **use a small manual screwdriver** and not an electrical screwdriver to do this, due to the delicate nature of the screws).
4. Life the HDD assembly ❹ out of the computer.

Removing the 2.5" (63.5mm) HDD from the Bracket.

5.   Remove screws **1** & **2** and separate the bracket **3** from the HDD **4**.
6.   Reverse the process to install a new hard disk.

6
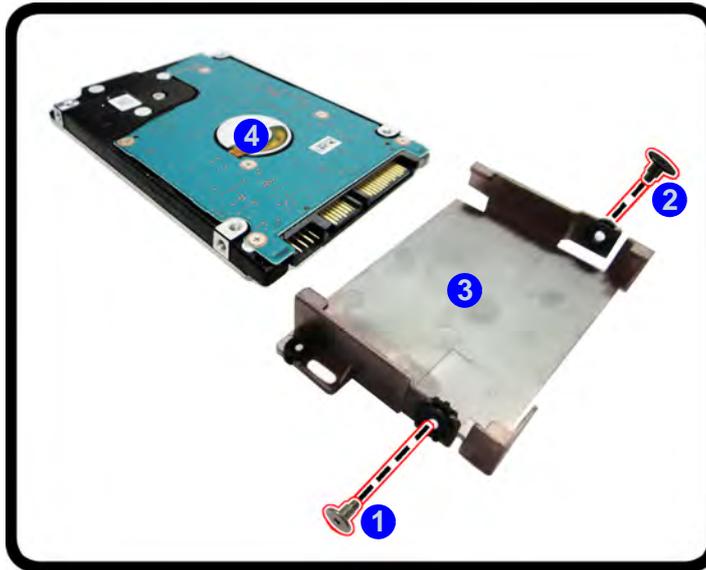
Figure 6 - 13
**2.5" Hard Disk
Assembly Brackets
& Screws**

Removing the SSD from the Bracket.

1. Remove screws **1** & **2** and separate the bracket and sponge assembly **3** from the HDD **4**.
2. Separate the bracket **5** from the sponge **6**.
3. **Make sure you insert the sponge when installing a new HDD.**
4. Reverse the process to install a new hard disk.

6
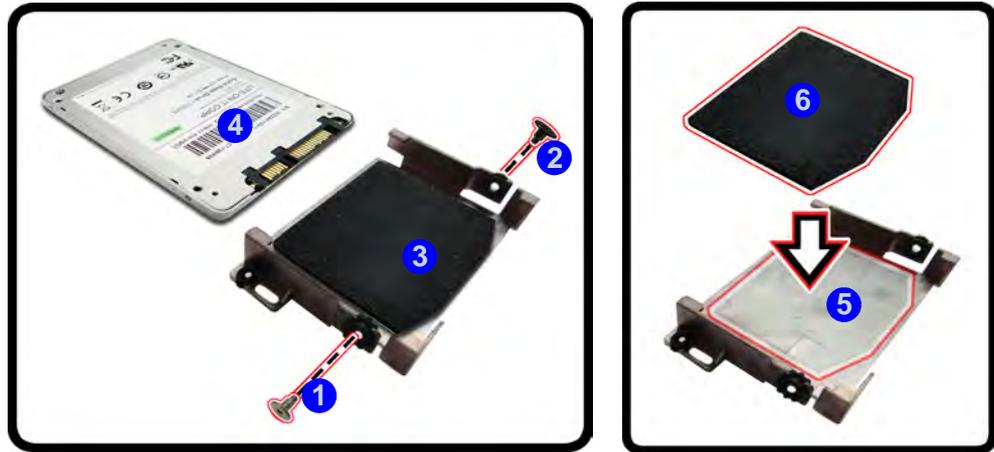
Figure 6 - 14
SSD Assembly Brackets, Screws & Sponge

Upgrading the Optical (CD/DVD) Device Drive

1. Remove the battery and rear cover (see pages *6 - 3* & *6 - 5*).
2. The ODD is located at point **1**.
3. Remove the screw **2**, and use a screwdriver to carefully push out the optical device out in the direction of the arrow at point **3**.
4. Reverse the process to install any new optical device.
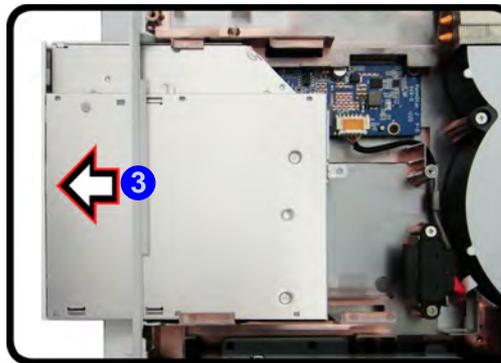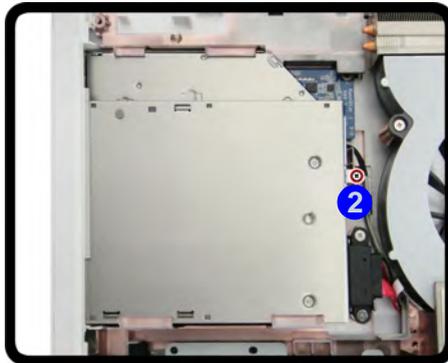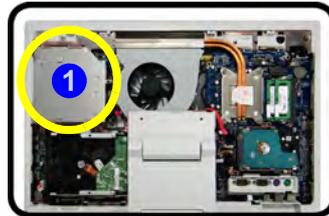
Figure 6 - 15
Removing the ODD

<div style="border: red">

⚠️

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.

</div>

6

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).

The total memory size is automatically detected by the POST routine once you turn on your computer.

1. Remove the battery and rear cover (see pages *6 - 3* & *6 - 5*).
2. The RAM is located at point ①.
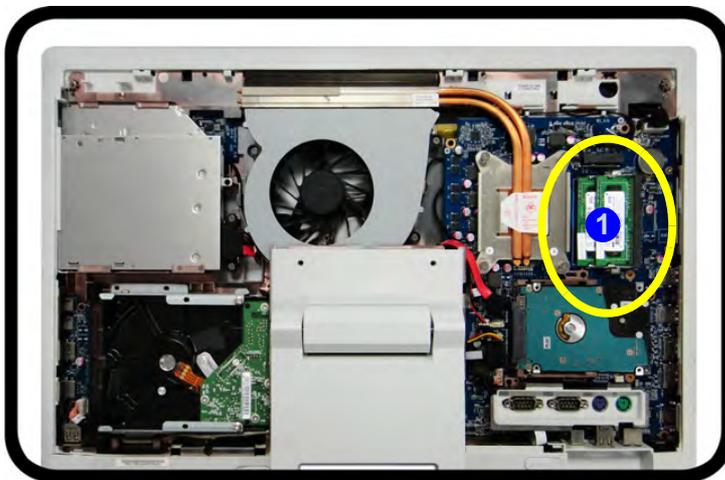
Figure 6 - 16
RAM Location

3. Gently pull the two release latches on the sides of the memory socket in the direction indicated by the arrows (**2** & **4**) in *Figure 6 - 17*.

Figure 6 - 17
RAM Module Release

4. The RAM module will pop-up, and you can remove it.
5. Pull the latches to release the second module if necessary.

6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket (see sidebar note if you are inserting a single module).

Figure 6 - 18
RAM Module Removal

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 **upper memory socket** (the socket furthest from the mainboard).

7. 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.
8. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
9. Replace the module bay cover and screws.
10. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

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.

Warranty

The CPU is not a user serviceable part. Accessing the CPU in any way, may violate your warranty.

Unauthorized tampering with the HDD may also violate your warranty.

6

Upgrading The Computer

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
- Intel® Wireless Display Application
- Bluetooth & WLAN Combo Module
- Trusted Platform (Security) Module

🔔

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.

7

PC Camera Module

Before installing the driver, make sure the PC Camera is on. Use the **On Screen Display** button (see page *1 - 9*) to toggle power to the PC Camera module. When the PC Camera application is run the LED indicator to the left of the camera will be illuminated in red (see ❷ *Figure 1 - 2 on page 1 - 5*).

Install the camera driver as indicated overleaf and install all the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*. **Make sure you access the camera 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. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/
    DVD drive.
2. Make sure the camera module is on before beginning the installation process (use
    the On Screen Display to toggle power to the camera module - see page *1 - 9*).
3. Click **Option Drivers** (button).
4. Click **1.Install Webcam Driver > Yes**.
5. Click **Finish** to restart the computer.
    OR
    Click **Next > Finish**.
6. Run the camera application program from the desktop shortcut (if the hard-
    ware is turned off use the **On Screen Display** button to turn it on again).

7

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).
11. To obtain the best sound recording quality enable **Noise Suppression** in the **Realtek HD Audio Manager** control panel (see *"Setup for Audio Recording" on page 2 - 9*).

7

Figure 7 - 1
Audio Setup for PC Camera

Right-click

7
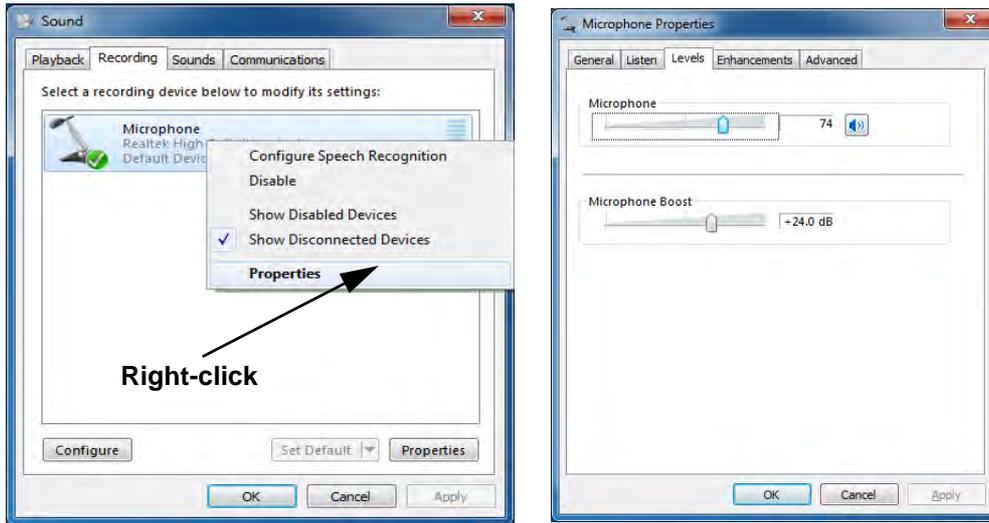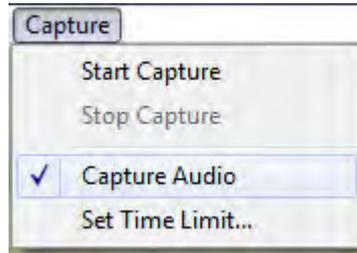
Camera Application

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 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/Yes** (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 on the previous page.

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).

<u>**To Reduce Video Resolution Output Size:**</u>

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.

7

Figure 7 - 2
Video Capture Filter

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 **Powerline Frequency (Anti Flicker)**.
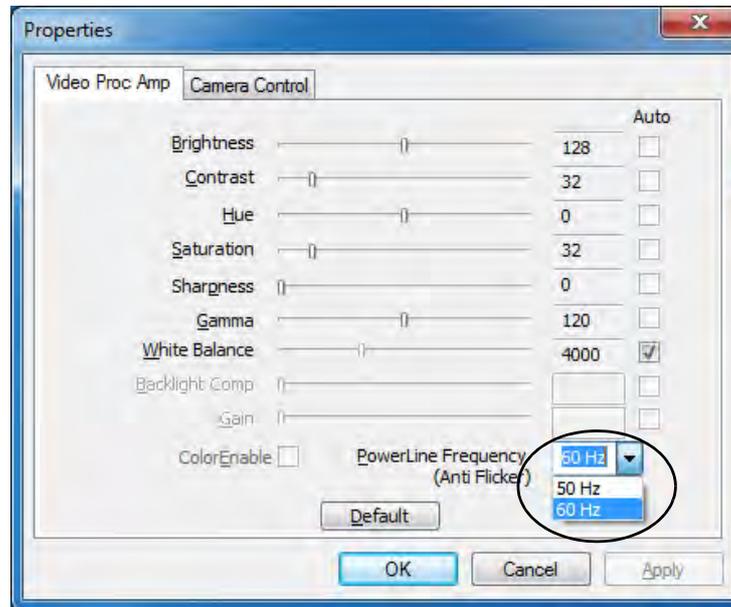
Taking Still Pictures

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.

7

Wireless LAN Module

If you have included an **Intel®** or **3rd Party** module in your purchase option use the **On Screen Display** button (see page *1 - 9*) to toggle power to the Wireless LAN module, and make sure that the module is on before installing the driver.

Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*.

Note that you need to install both the WLAN & Bluetooth drivers for the WLAN & Bluetooth Combo modules.

7

3rd Party 802.11b/g/n Driver Installation (for WLAN Module Only)

See over for information on installing the drivers for the 3rd party WLAN & Bluetooth combo module.

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 an attached 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**.
6. Click **Finish** to restart the computer.

Note: The operating system is the default setting for Wireless LAN control in *Windows* (see page *7 - 16*).

7

3rd Party 802.11b/g/n Driver Installation (for Combo Modules)

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 an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Click **Next**.
5. Click **Finish** to restart the computer (see sidebar for important information).

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

7

Intel® WLAN Driver Installation

For a standard Intel® WLAN driver installation and configuration choose the **Typical Installation** below and use the *Windows OS* for Wireless LAN control (**see overleaf**). If you want to use **Intel® PROSet/Wireless WiFi Connection Utility** as your WLAN interface, and/or add **Intel® MyWifi Technology** (Personal Area Network) see overleaf.

Typical Installation:
1. If you see the message "**Found New Hardware**" click Cancel to close the window.
2. **Make sure the module is powered on**, and then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
3. Click **Option Drivers** (button).
4. Click **2.Install WLAN Driver > Yes**.
5. Click **Next > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Typical > Install**.
8. Click **Finish**.

Note: The operating system is the default setting for Wireless LAN control in *Windows* (see *"Connecting to a Wireless Network in Windows 7" on page 7 - 16*).

Custom Installation (for Intel® ProSet and/or Intel® MyWiFi Technology):
Note that if you wish to install Intel® MyWiFi you will need to **install Micro-soft.net Framework 4.0 (or later version) before installing the driver** as per the procedure below. To get the **Microsoft.net Framework** file go to the *Microsoft* website, search for the file, Download it and then install it.

1. If you see the message "**Found New Hardware**" click Cancel to close the window.
2. **Make sure the module is powered on**, and then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
3. Click **Option Drivers** (button).
4. Click **2.Install WLAN Driver > Yes**.
5. Click **Next > Next**.
6. Click the button to accept the license and click **Next** > **Custom**.
7. To install **Intel® MyWiFi Technology** click the icon ▭▾ alongside **Intel® MyWiFi Dashboard** and select **"Entire feature will be installed on local hard drive"** (see *Figure 7 - 3 on page 7 - 15*)**.**
8. To install **Intel® PROSet/Wireless WiFi Connection Utility** click the icon ▭▾ alongside it and select **"Entire feature will be installed on local hard drive"** (see *Figure 7 - 3 on page 7 - 15*)**.**
9. Click **Next > Install > Finish**.
10. See *"(For Intel® WLAN Modules Only)" on page 7 - 19* or *"Intel® My WiFi Configuration" on page 7 - 21* for further information.
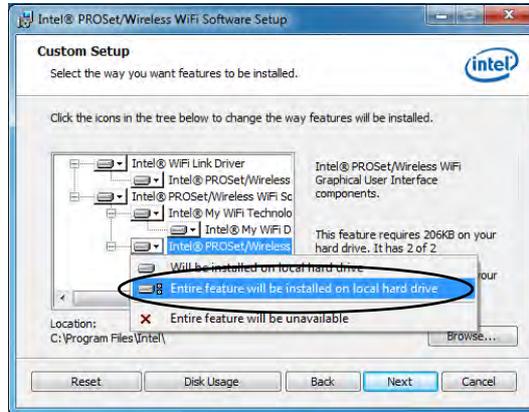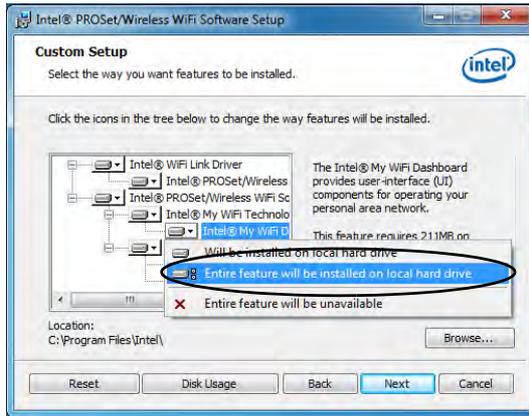
Figure 7 - 3
Install Intel® MyWiFi Technology & Intel® PROSet/Wireless WiFi Connection Utility

7

Figure 7 - 4
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).
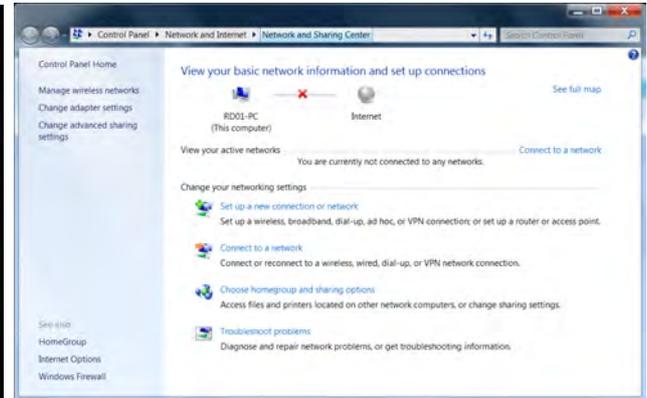
2. You may need to enter a security key for any access point to which you are trying to connect.
3. Click to select a network location (e.g. **Home, Work or Public**).
4. Click "**View or change settings in Network and Sharing Center"** to access further options for the connection.
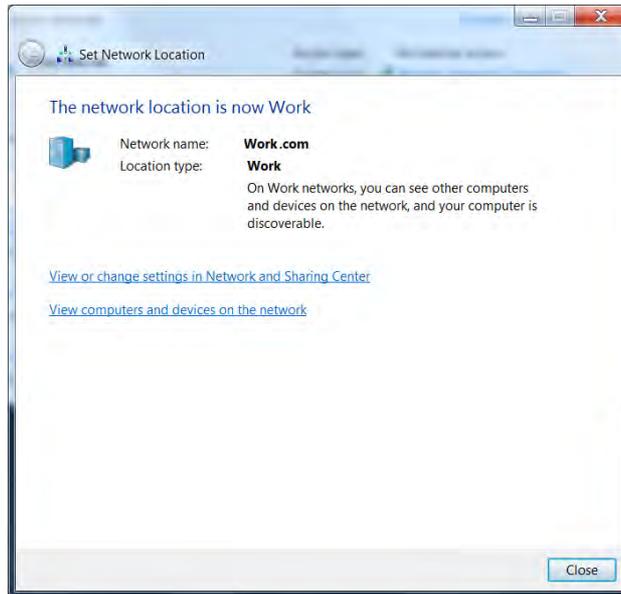
Figure 7 - 5
Network Location Set

7

Figure 7 - 6
Click Taskbar Icon Menu - Disconnect

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).

7

Connecting to a Wireless Network Using Intel® PROSet Wireless

(For Intel® WLAN Modules Only)

1. Make sure the Wireless LAN module is on.
2. Access the **Intel® WiFi Connection Utility** from the **Start** menu (**Start** > **All Programs** > **Intel PROSet Wireless > WiFi Connection Utility**).
3. Click to select a network from the found list WiFi network access points, or click **Refresh** to update the list.
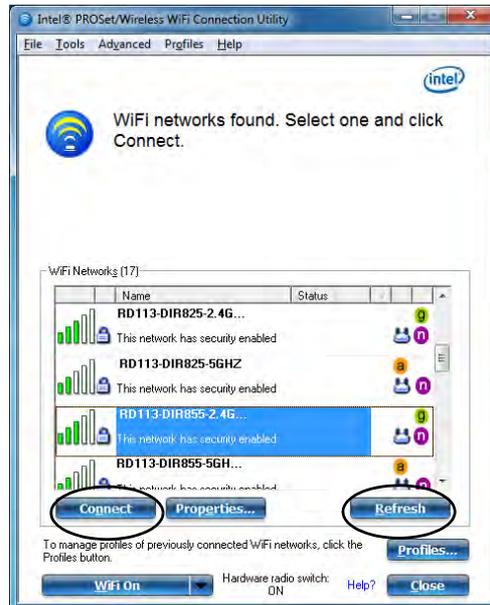
Figure 7 - 7
Intel® PROSet/ Wireless WiFi Connection Utility (Connect)

7

4. Click **Connect** to connect to the select WiFi network access point.
5. If the access point is encrypted then you will need to enter the password and click **OK**.
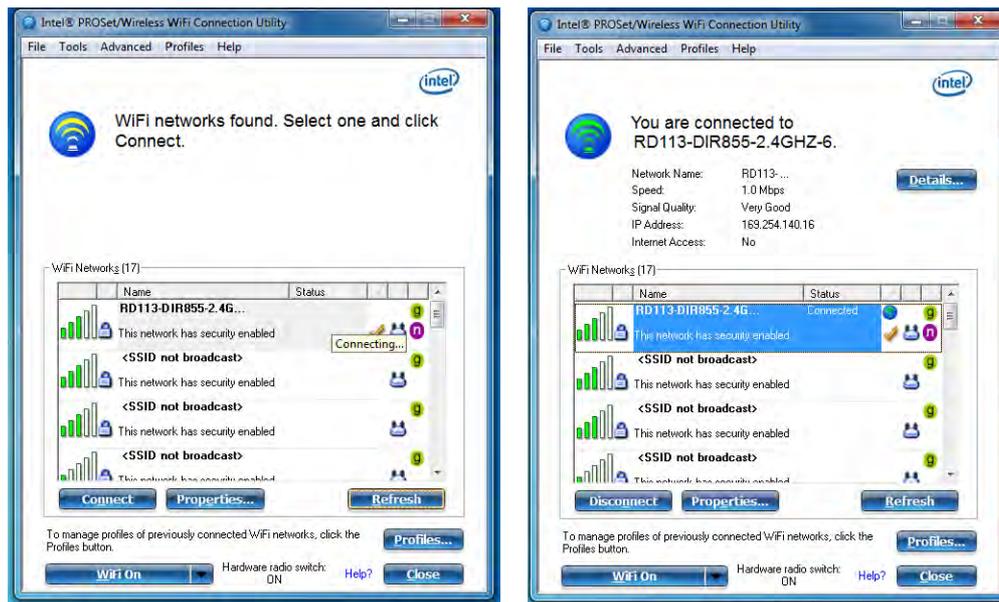
Figure 7 - 8
**Intel® PROSet/
Wireless WiFi
Connection Utility
(Connecting &
Connected)**

6. You can turn **WiFi On/WiFi Off** from the button at the bottom of the Utility.
7. To disconnect, select the connected access point and click **Disconnect**.
8. Select **Help** from the menu at the top of the utility (or at the bottom right) to bring up the **Help** menu.

Intel® My WiFi Configuration

(For Intel® WLAN Modules Only)

Intel® My WiFi Technology (Intel® MWT) uses your WLAN to transform your system into a Wi-Fi Personal Area Network, and enables you wirelessly share your videos, photos, music with other WiFi enabled devices, while still connecting to the Internet through your WiFi wireless connection.

Intel® MWT also features a chat function, and offers you the option of being able to create a WiFi hotspot from your computer. Intel® MWT 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 Dashboard** from the **Start** menu (**Start > All Programs > Intel PROSet Wireless > Intel(R) My WiFi Dashboard**), or by clicking the taskbar icon. click the **Help** icon in the dashboard and select a help topic from the **Contents** menu.

7

Intel® My WiFi Configuration

You can configure the My WiFi settings as follows.

1. Make sure the Wireless LAN module is on.
2. Access the **Intel® WiFi Connection Utility** from the **Start** menu (**Start** > **All Programs** > **Intel PROSet Wireless > Intel(R) My WiFi Dashboard**), or click the icon 🌐 in the notification area of the taskbar (or right-click and select Open Dashboard).
3. An initial welcome message will appear on the first run of the program (click "***Don't show this message again***" to turn this off in future).

Figure 7 - 9
**Intel® My WiFi
Utility - Welcome**
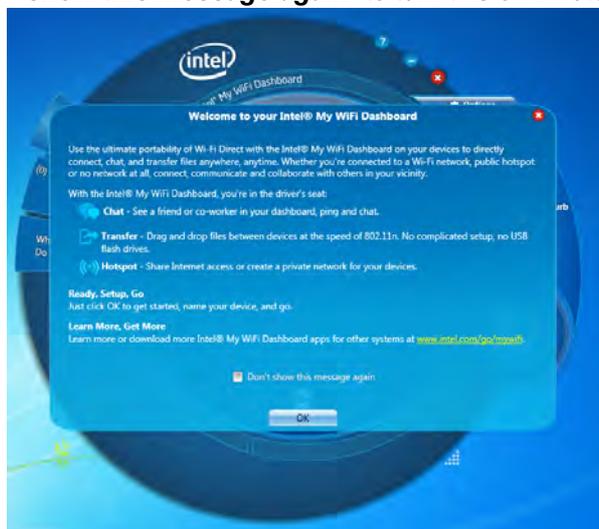
Intel® My WiFi Interface
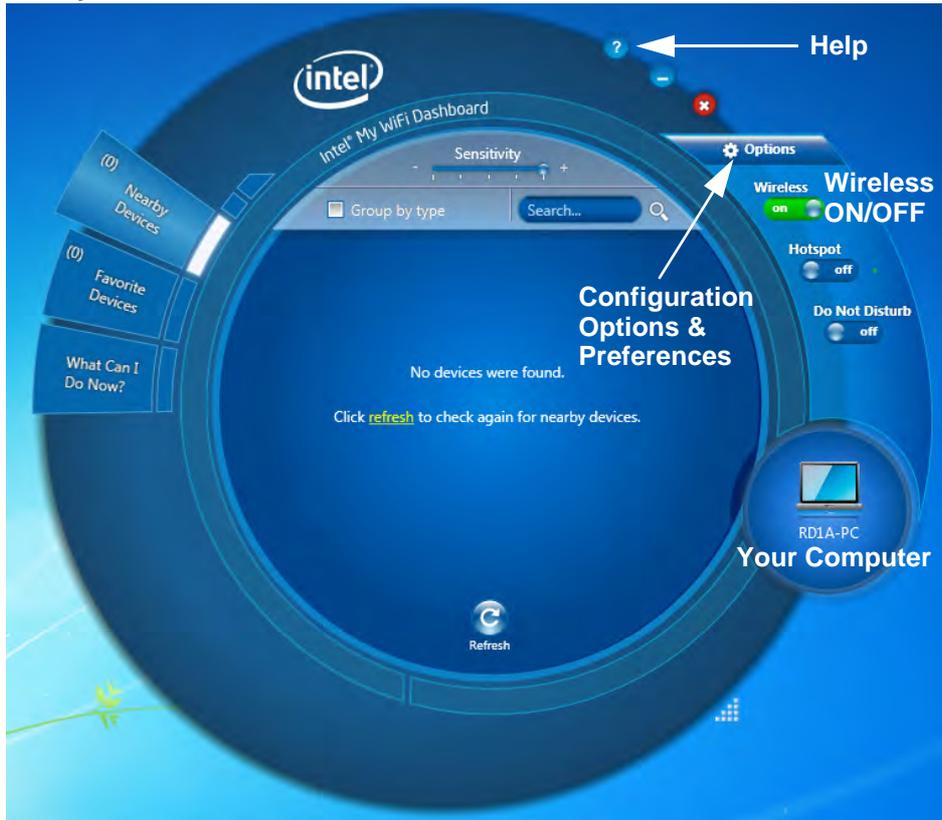
Figure 7 - 10
Intel® My WiFi Utility - Interface

7

Intel® My WiFi Help

Click the **Help** icon ? in the dashboard to bring up the Help menu and select and item from the **Contents** menu to obtain the help information.
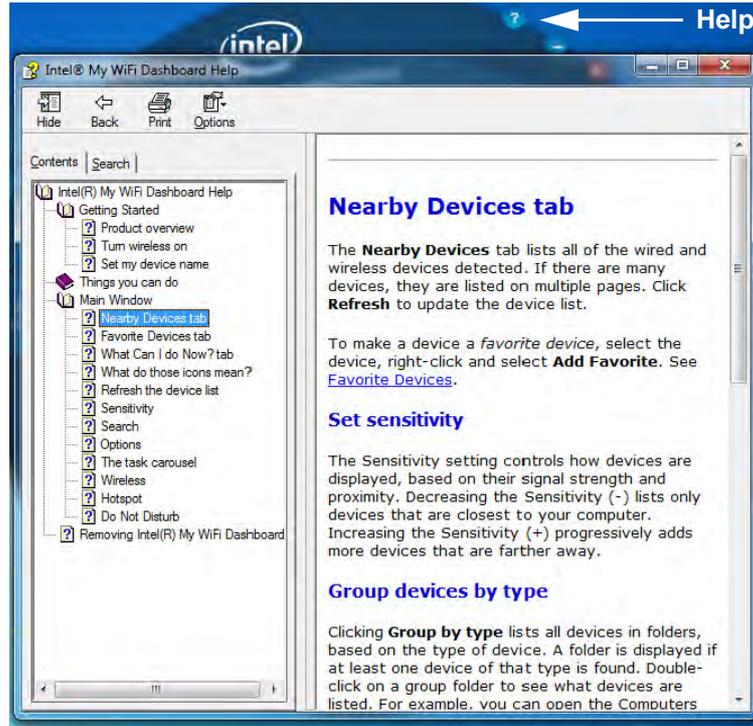
7

Figure 7 - 11
**Intel® My WiFi
Utility - Help**

Preferences

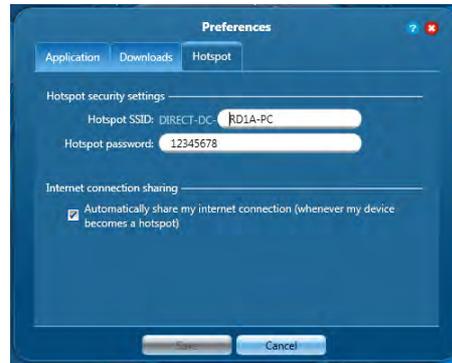Click the **Options** icon ⚙ and select **Preferences** to configure the options.
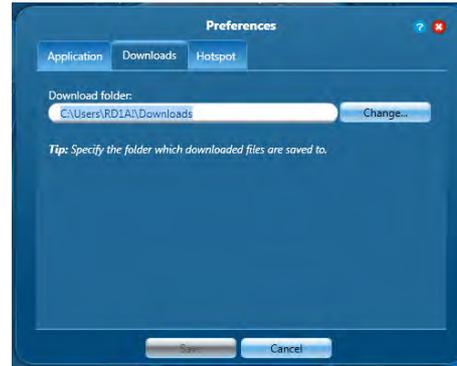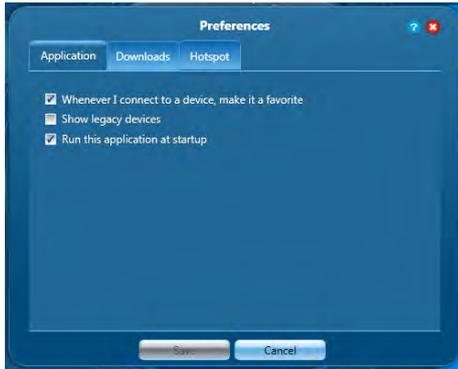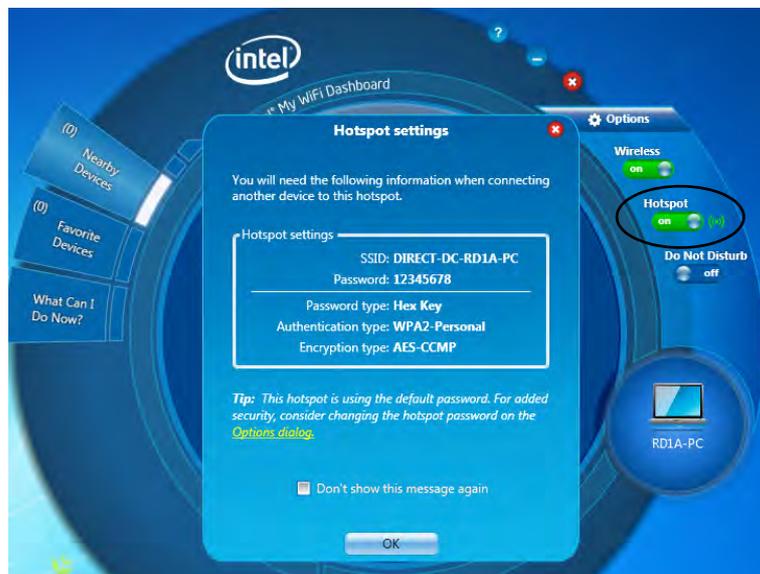

Figure 7 - 12
**Intel® My WiFi
Utility - Preferences**

Hotspot

You can turn the computer into a hotspot to allow other devices to connect to it (and any locally connected devices), and also (if available) the internet.

1. Click the **Hotspot** icon [on] to turn the **Hotspot** on.
2. The **Hotspot** settings tab shows the SSID and password (you will need to enter this information when accessing the **Hotspot** from the client computer/device).
3. Click **OK** to close the **Hotspot** settings.

Figure 7 - 13
Intel® My WiFi
Utility - Hotspot

7

Finding Devices

You can find any **Nearby Devices** by clicking the **Refresh** button in the main window. Click again at any time to update the list. If a lot of devices are found they will be listed on multiple pages and you can use the left or right buttons to turn the pages.

Sensitivity

The **Sensitivity** controls displays available devices based on their signal strength and proximity e.g decreasing (**-**) the sensitivity lists only devices closest to the computer's location.

Group Devices by Type

If you click **Group by type** it will list all devices according to their type in a folder group. Double-click on any group folder to see the devices of that type listed. There are 12 possible device types available.

Search

If you want to search for a particular device by name then enter the device name in the Search field to return results for devices matching the name of the device.

7

Favorite Devices

The **Favorite Devices** tab is where you keep devices to which you connect most often, and this is particularly useful in environments where many devices are listed nearby. A favorite device will display the icon 💓.

To make any device a favorite just click to select it and select **Add Favorite**.
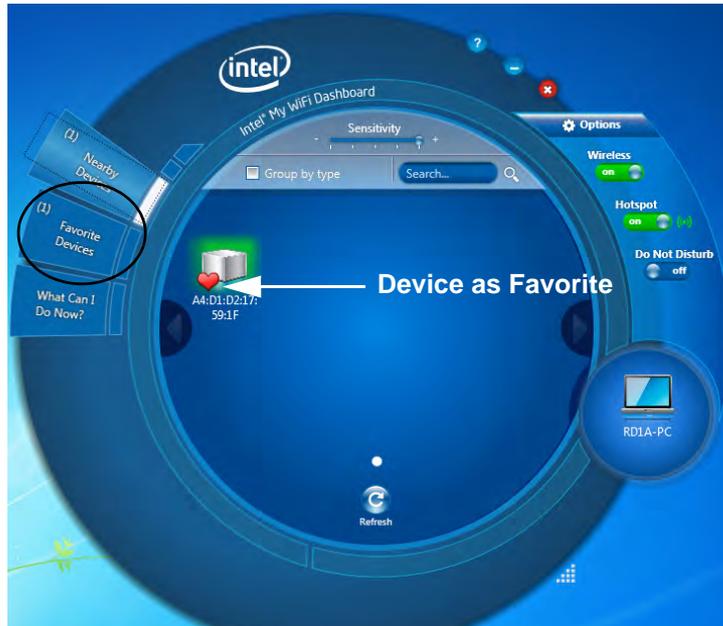
Figure 7 - 14
Intel® My WiFi
Utility - Interface

7

Connect to a Device

1. Click the device you want to connect to, and click the connect icon ![icon].
2. An invitation will be sent to the target device.
3. The user must then accept the invitation.
4. After the invitation is accepted the connection will be made.
5. Use the *Windows Network and Sharing Center* to set permissions for viewing and sharing the resources on your computer with another connected computer.

Further Information

For information on how to **block/unblock** devices, setting **Do Not Disturb**, **sharing an internet connection** and **chat** options see *"Intel® My WiFi Help" on page 7 - 24*.

7

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.

7

Figure 7 - 15
Windows Mobility Center

Intel® Wireless Display Application

The **Intel® Wireless Display Application** (**requires Intel® Centrino WLAN/ Combo module**), in conjunction with a **compatible video adapter** (purchased separately), allows you to display the contents of the notebook display on another display (e.g. HDTV) without the need to have cables stretching across a room. You can then play games, browse the internet, display videos or photo slide shows on your TV/external display without using HDMI or A/V cables.

Before configuring the **Intel® WiDi** application you will need to set up your **compatible adapter** with your display/speakers. Connect the adapter using an HDMI or A/V cable and turn on the display (or in the case of speakers connect them to the wireless speaker adapter with the cables provided with the adapter), and then set the display to the appropriate input channel (see the documentation supplied with your **compatible adapter** for full details).

Intel® WiDi also incorporates **Intel® Wireless Music** which allows you to wirelessly stream audio from your computer to speakers connected to a **compatible wireless speaker adapter** (purchased separately).

🖉

Compatible Adapters

For a list of compatible display and audio adapters check the Intel website, or your distributor/ supplier.

7

Intel® WiDi Application Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install WiDi AP > Yes**.
4. Click **Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Finish**.

Intel® Wireless Music Driver Installation

If you wish to use your system to stream wireless audio to speakers connected to a compatible wireless speaker adapter you will need to install the **Intel(R) Wireless Music Driver**.

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Browse** and browse to the driver location (X: denotes your DVD drive):
- **X:\Options\02_WLAN\WiFi\Music\IntelWirelessMusicDriver1.5.5323.0\auto-run.exe**
3. Click **Next**.
4. Click the button to accept the license and click **Next**.
5. Click **Finish**.
6. Follow the procedure overleaf to setup WiDi or Wireless Music.

7

Intel® WiDi Application Configuration

1. Click **Start > All Programs > Intel Corporation > Intel(R) Wireless Display >
   Intel(R) Wireless Display**, or double click the icon [ ] on the desktop.
2. Click **I agree to the terms of this license** (button).
3. The application will scan for any connected compatible adapters (or you can click
   the **Scan for available adapters** button to enable **Intel My WiFi Technology**).


Figure 7 - 16
Intel® WiDi Scan

7

4. Click to select any detected adapters, and click **Connect**.
5. The system will then prompt you to enter the **4-digit security code** which will be displayed on the external TV Screen (or press the **connect** button on the wireless speaker adapter).
6. Enter the code for the video adapter and click **Continue**.

Figure 7 - 17
Intel® WiDi Connect & Enter Security Code
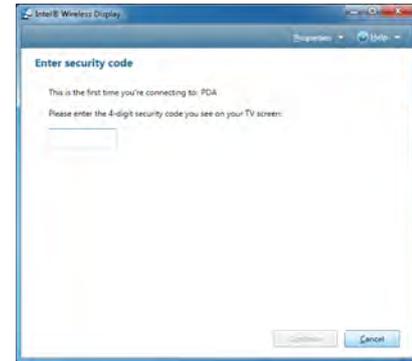
7. You will then be prompted to enter a name for the video adapter and click **Continue**.
8. Click **Finished** to complete the setup.

🖉
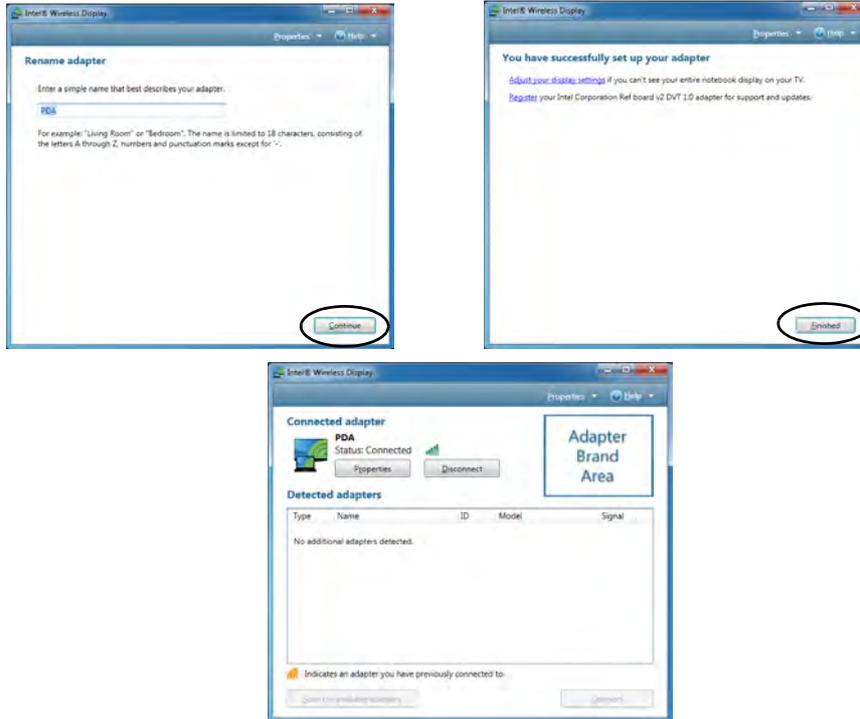
Test Audio Adapter

To verify a successful audio connection (for **Intel® Wireless Music)**, select the "**Test your audio connection**" link or select "**Finished**" to bypass the test.

You can select "**Play Sample**" to play an audio test sample from your adapter to the connected speaker set.

Figure 7 - 18
Intel® WiDi Connected

🖉

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.

Bluetooth & WLAN Combo Module

If your purchase option includes the Combination Wireless LAN & Bluetooth module (either **Intel®** or **3rd Party**) then install the driver as instructed from the appropriate page (see below).

🖉

High Speed Bluetooth Data Transfer

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

To obtain high speed data transfer make sure that the WLAN module is not turned off in the Windows Mobility Center (see page *7 - 30*). Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

- For **3rd party Bluetooth combo modules** see the information in *"3rd Party Bluetooth (V4.0) Combo Driver Installation" on page 7 - 37* and *"Standard Bluetooth Configuration in Windows 7" on page 7 - 39*.

- For **Intel Bluetooth combo modules** see the installation procedure in *"3rd Party Bluetooth (V4.0) Combo Driver Installation" on page 7 - 37* and *"Standard Bluetooth Configuration in Windows 7" on page 7 - 39*.

3rd Party Bluetooth (V4.0) Combo Driver Installation

Note this driver is required for the 3rd Party combo Bluetooth and WLAN module (Bluetooth V4.0) only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use the **On Screen Display** button to toggle power to the module), 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** (if a prompt appears to ask you to turn the Bluetooth power on, use the **On Screen Display** button to do so, otherwise the driver will not be installed).
5. Click **Finish** to restart the computer.
6. See *"Standard Bluetooth Configuration in Windows 7" on page 7 - 39* for configuration instructions.

🖉

High Speed Bluetooth Data Transfer

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

To obtain high speed 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.

7

7

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 the **On Screen Display** button), then insert the *Device Drivers & Utilities + User's Manual* disc into an attached 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 *"Standard Bluetooth Configuration in Windows 7" on page 7 - 39* for configuration instructions.

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 **On Screen Display** button 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

Click Taskbar Icon
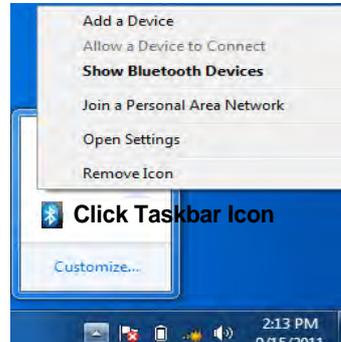
> 🖉
>
> **Add a Device**
>
> Click **Start**, and click **Control Panel** and then click **Devices and Printers (Hardware and Sound)**. Click **Add a device** to search for any available Bluetooth devices.
>
> **Bluetooth Module & Resuming From Sleep Mode**
>
> The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the **On Screen Display** button to power on the Bluetooth module after the computer resumes from Sleep.

Figure 7 - 19
Bluetooth Devices & Click Icon Menu

🖉

Pairing Options

If a device has been pre-viously connected then the pairing option menu will appear when you at-tempt subsequent con-nections. You can choose to have the computer cre-ate a pairing code for you, use the device's existing pairing code or you can pair certain devices with-out using a code.

*Figure 7 - 20*
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.
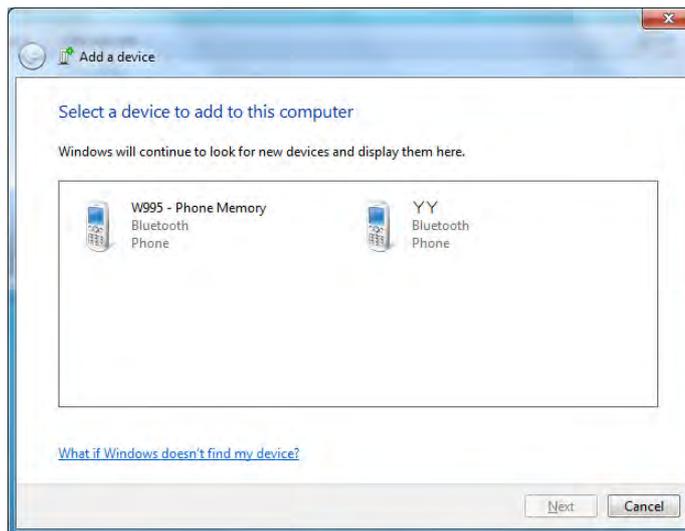
3. On first connection the computer will provide you with a pairing code to be entered onto the device.

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

🖉
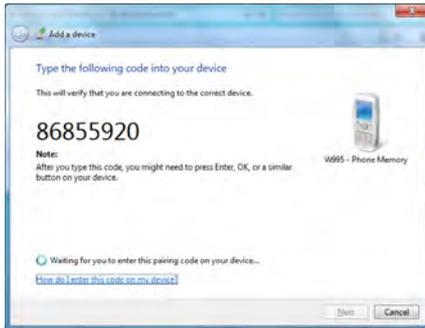
Pairing Codes

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 - 21
Pairing Code Example

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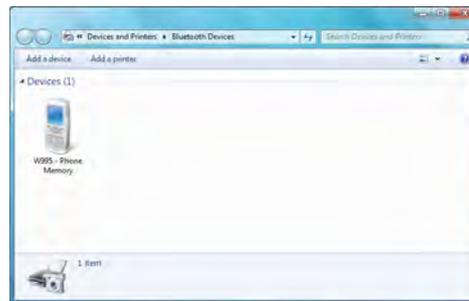7.   Click **Close**.

Figure 7 - 22
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.

7

Figure 7 - 23
Bluetooth Settings - Options

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.
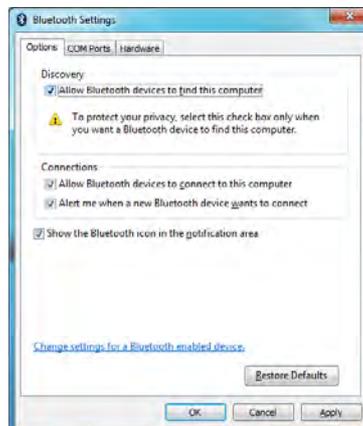
Trusted Platform (Security) Module

The **TPM security chip** allows you to create and manage digital certificates for user and platform authentication. This type of security is usually administered within large enterprises and organizations, and therefore requires implementation by a system administrator before users can access security features.

Individual users can use the TPM as an authentication with the fingerprint reader.

Make sure you have administrator's rights to your computer, and have a *Windows* password enabled for full security protection. In addition **Make sure you prepare a removable media (e.g. a USB flash drive) to store passwords etc. before beginning the TPM initialization process**.

Before setting up the TPM functions you must initialize the security platform.

7

Enabling & Activating TPM

1. Restart the computer.
2. Enter the **Aptio Setup Utility** pressing **F2** during the POST/startup.
3. Use the arrow keys to select the **Security** menu.
4. Select **Configuration** and press Enter to access the sub-menu.
5. Press Enter to access the **Security Device Support** menu and select **Enable** to display the full **TPM configuration** menu.
6. Select **TPM State**, press Enter and select **Enabled** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

Figure 7 - 24
TPM State (Enabled)

7. As the computer restarts press **F2** to enter the BIOS again and go to the TPM **Configuration** menu.

8. Select **Pending operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership**). You will then need to press **F4** to save the changes and restart the computer.
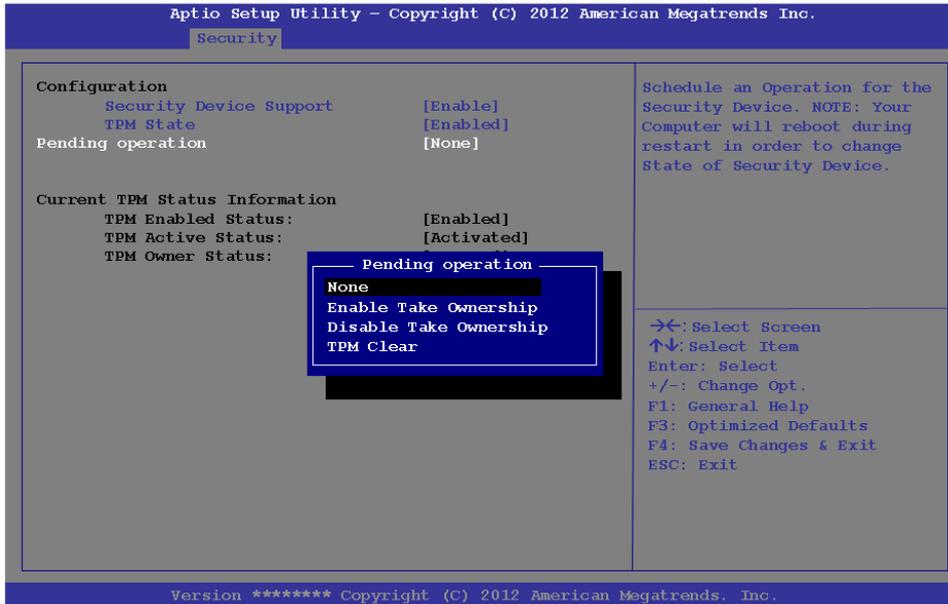

Figure 7 - 25
**Pending operation
(Enable Take
Ownership)**

9. You can now **install the TPM driver** (see *"Trusted Platform Module (TPM) Driver Installation" on page 7 - 46*) and then initialize the TPM.

Trusted Platform Module (TPM) Driver Installation

1. Make sure you have enabled and activated the TPM in the BIOS before installing the driver (if you do not do see the note below).
2. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
3. Click **Option Drivers** (button).
4. Click **5.Install TPM Driver > Yes**.
5. Click **Install > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Next > Next > Install**.
8. Click **Finish > Yes** to restart the computer.

7

Figure 7 - 26
TPM Confirmation Message

(if the driver is installed without TPM being enabled and activated in the BIOS)

Initializing TPM

1. Run the application from the **Infineon Security Platform Solution > Manage Security Platform** item in the **Start > Programs** menu.
2. Click **User Settings** (tab) and click **Yes,** or right-click the icon ![TPM icon] in the notification area of the taskbar, and select **Security Platform Initialization** (or click the **Security Platform State** taskbar bubble).
3. The **Quick Initialization** method will automatically be selected for you (if you need to use advanced settings provided by your network administrator then select **Advanced Initialization**).
4. You will need to use a removable media (e.g. a USB Flash Drive) to store passwords and data (keep the media in a safe place until required).
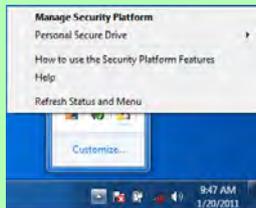5. Select the drive you want to use from the drop-down menu and click **Next**.

7

Figure 7 - 27
**Security Platform Quick Initialization Wizard**

P

Help

Right-click the icon 🔑 in the notification area of the taskbar to bring up the menu to select *Help* or **How to use the Security Platform Features**.

You can also click the **Help** button in any of the Infineon Security Platform Settings Tool tabs to bring up specific help topics on each tab.

7

6. Choose the **Security Platform Features** you want to use by clicking the appropriate tickbox.
7. Enter a **Basic User Password** (and re-type to confirm it) and click **Next**.
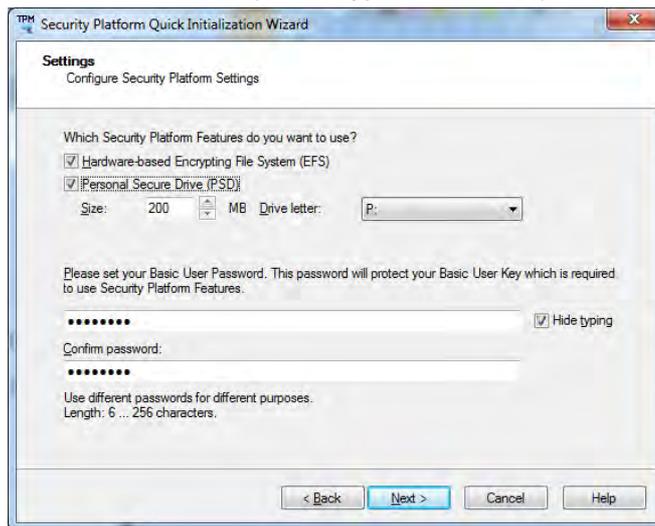
8. Click **Next** to confirm the settings.
9. The computer will then initialize the settings.
10. Click **Finish**.
11. Click the tabs and control panels to adjust the settings.
12. Double-click the icon 🔑 in the taskbar notification area to access the **Infineon Security Platform Settings Tool**, or right-click the icon 🔑 and select a menu item.

Infineon Security Platform Settings Tool

The Infineon Security Platform Settings Tool allows you to manage and check the TPM state, manage your password information, and to backup and restore the TPM data. As TPM is usually administered within large enterprises and organizations, your system administrator will need to assist you in managing the information here.

🖉

Menus

Note that not all the menus pictured here will be available for access. The menu items that appear will be dependent on your configuration settings etc. (see the **Help** file for full details).

7

Figure 7 - 29
Infineon Security Platform Settings Tool

User Settings

This page allows the settings to be configured for the currently logged in Infineon Security Platform user including the ability to change the password, configure secure e-mail, file and folder encryption and Enhanced Authentication. You can also import or delete certificates protected by the security platform.

Figure 7 - 30
Infineon Security Platform Settings Tool (User Settings)
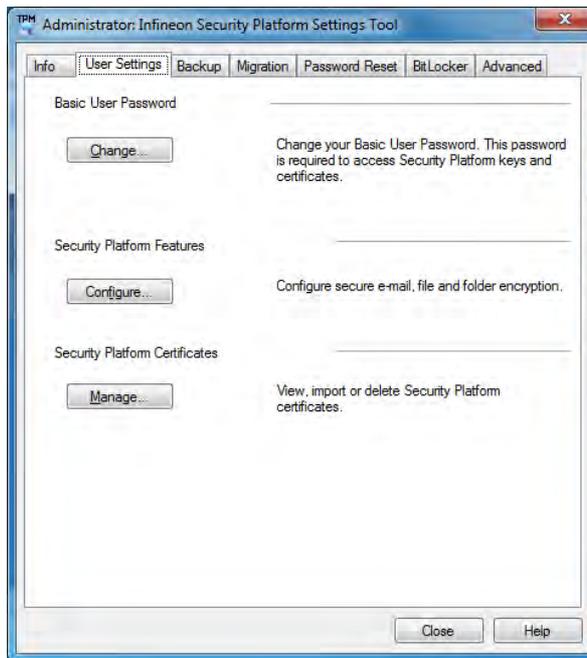
Backup

Here you can configure backup and restore operations. Backup files contain the computer identification and user identification information which is used to match the machine name and user name with the current machine and user during restoration.
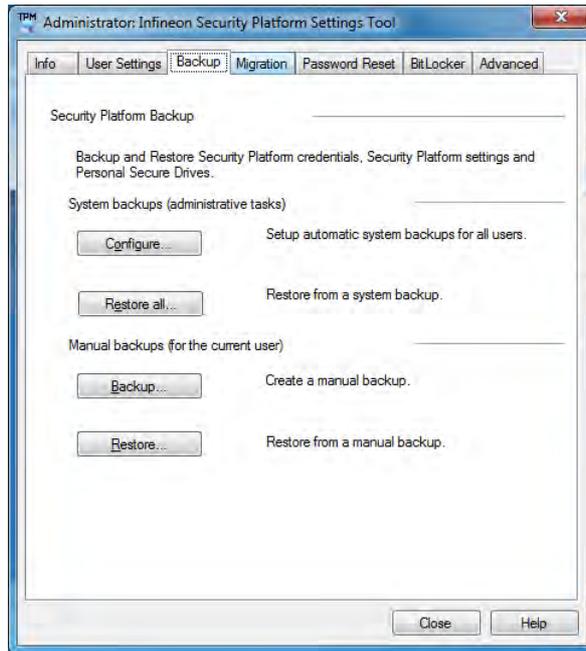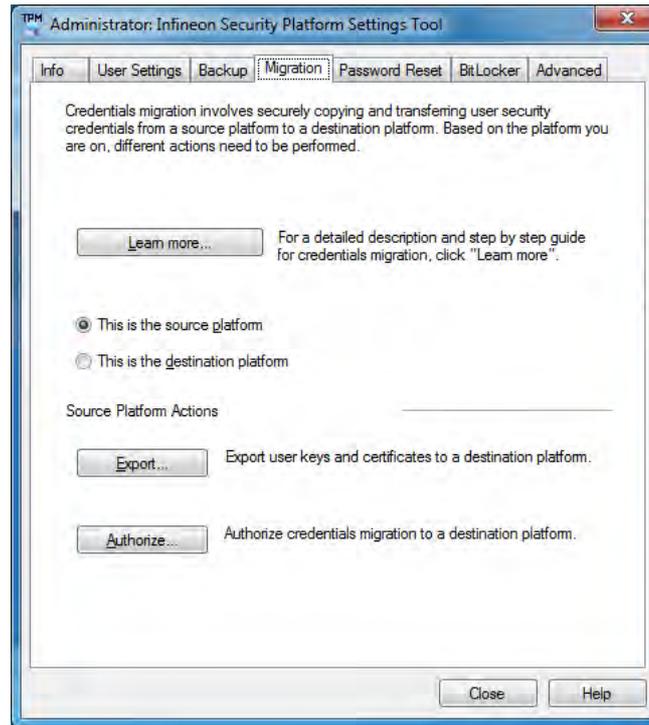

Figure 7 - 31
Infineon Security Platform Settings Tool (Backup)

Migration

The Migration tab is used to help securely transfer keys and certificates from one platform to another.

Figure 7 - 32
Infineon Security Platform Settings Tool (Migration)

Password Reset

Use Password Reset to reset basic user passwords when required.
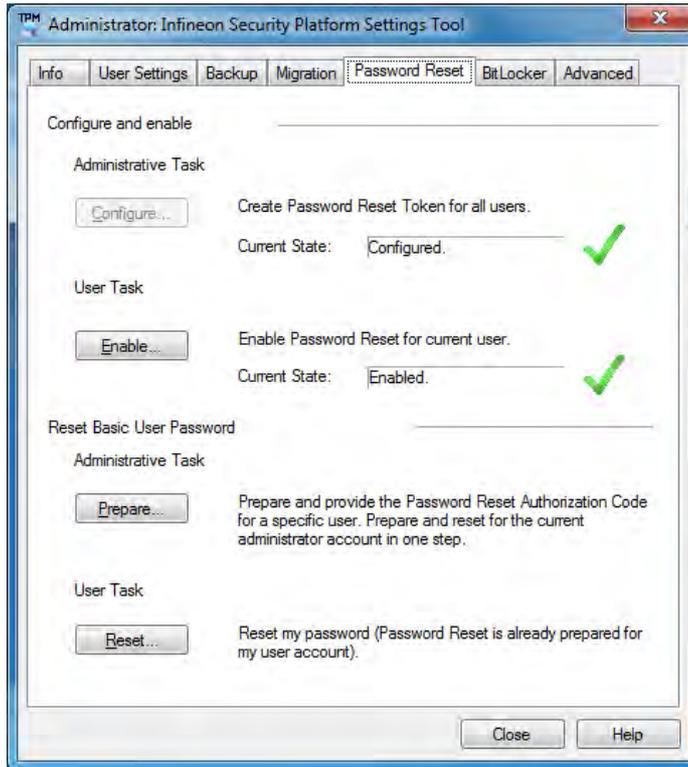
Figure 7 - 33
**Infineon Security
Platform Settings
Tool
(Password Reset)**

7

BitLocker

BitLocker Drive Encryption can be used in conjunction with the TPM to encrypt data on the disk and is done via the **Microsoft BitLocker Control Panel Applet**. Click **Configure** and select a drive to be encrypted and then follow the Wizard to begin the encryption process.

Figure 7 - 34
Infineon Security Platform Settings Tool (BitLocker)

7
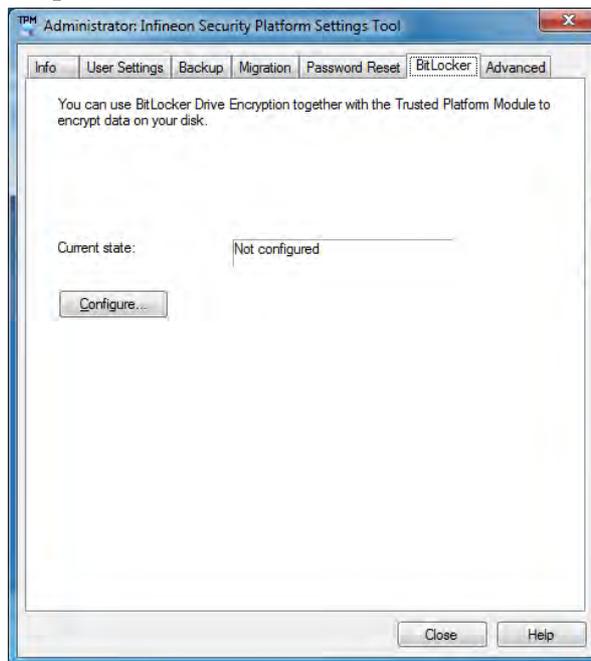
Access the Microsoft **BitLocker Drive Encryption** control panel applet from the *Windows* control panel (**System and Security**).
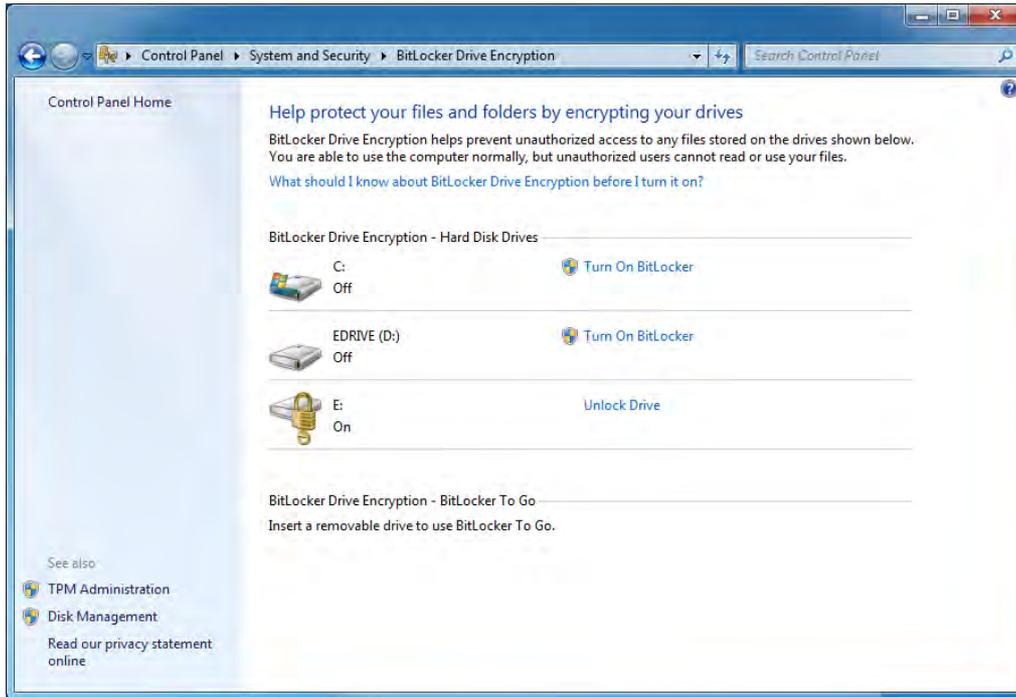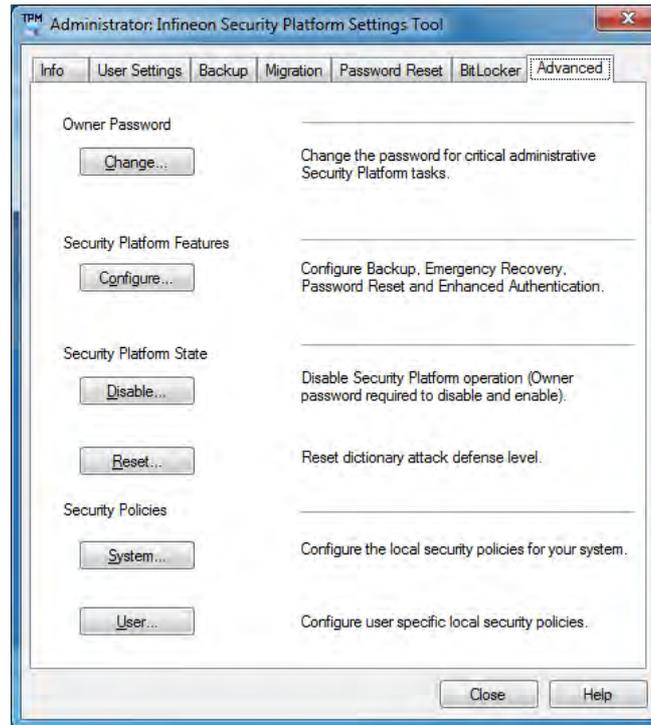

Figure 7 - 35
BitLocker Drive Encryption

Advanced

Configure all the Security Platform owner and policy settings from the Advanced tab. The settings that can be changed are for the local computer only.

Figure 7 - 36
Infineon Security Platform Settings Tool (Advanced)

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.

8

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 *"Buttons & LED Indicators" on page 1 - 8*) 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*, or power button, to wake-up the system.

- **Brightness** - Check the brightness of the screen by pressing the brightness buttons to adjust the brightness.

- **Display Choice** - Make sure the system is not set to "external only" display if an external display is attached.

- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive when you start up your machine (this is a common cause of the message "*Invalid system disk - Replace the disk, and then press any key*" / "*Remove disks or other media. Press any key to restart*").

Backup and General Maintenance

• Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.

• Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.

• Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Supervisor** password for the BIOS (see *"Security Menu" on page 5 - 10*).

• Keep copies of vital **settings files** such as network, dialup settings, mail settings etc.(even if just brief notes).

🔔
Warranty

The CPU is not a user serviceable part. 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).

8

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.

8

Problems & Possible Solutions

Problem	Possible Cause - Solution
The **Battery LED power** indicator ▣/⟹, is blinking orange.	*Low Battery.* Plug in the AC power source. If the computer doesn't start up immediately, turn it off then on again.
You are losing **battery power** too quickly.	*The system is using too much power.* If your *OS* has a *Power Options* scheme (see *"Power Plans" on page 3 - 4*) check its settings. You may also be using an ExpressCard device/USB device/external device that is drawing a lot of power.
Actual **battery operating time** is shorter than expected.	*The battery has not been fully discharged before being recharged.* Make sure the battery is fully discharged and recharge it completely before reusing.
	Check the settings of any active power plan (see *"Power Plans" on page 3 - 4*).
	A peripheral device/USB device is consuming a lot of power. Turn off/remove the unused device to save power.
The computer feels too hot.	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. Make sure you're using the correct adapter.

8

Troubleshooting

Problem	Possible Cause - Solution
Nothing appears on screen.	*The system is in a power saving mode.* Press the power button or any configured sleep/resume key combination.
	The screen controls need to be adjusted. Press the brightness buttons to adjust the settings. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check any attached monitor's own brightness and contrast controls.
	*The **screen saver** is activated.* Press any key on the keyboard.
No image appears on the external monitor I have plugged in and powered on.	*You haven't installed the video driver and configured it appropriately from the **Control Panel**.* See for instructions on installing and configuring the video driver.
No image appears on the screen after I have plugged-in an HDMI device in to the HDMI-In port.	*You haven't pressed the **Mode Toggle Button**.* Press and hold the mode toggle button 🔁 to switch between the computer and HDMI input modes. When the HDMI input source is displayed you can use any HDMI device plugged in to the computer's HDMI-In port. A quick press of the button will toggle the display on/off (see *Table 1 - 4, on page 1 - 12*).
The sound cannot be heard or the volume is very low.	*The volume might be set too low.* Check the volume control in the **Volume Control Panel** in the *Windows* taskbar, or use the volume buttons to adjust the setting (see *"Audio Features" on page 2 - 8*).
The compact disc cannot be read.	*The compact disc is dirty.* Clean it with a DVD-ROM cleaner kit.

8

Problem	Possible Cause - Solution
The **Optical Disk Drive tray** will not open when there is a disc in the tray.	*The compact disc is not correctly placed in the tray.* 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.	*The code has been changed the maximum 5 times.* See *"DVD Regional Codes" on page 2 - 5*.
The DVD will not play.	*The computer is tilted beyond 50 degrees.* Note that although the computer may be tilted up to an angle of 50 degrees from the vertical position, the DVD-ROM drive will only work (i.e continue to spin and read DVDs) up until an angle of around 35 degrees from the vertical position. See *"DVD Operation" on page 1 - 7*.
You forget the boot password.	*If you forget the password, you may have to discharge the battery of the CMOS.* Contact your service representative for help.

8

🔔
Password Warning

If you choose to set a boot password, **NEVER** forget your password. The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

Troubleshooting

Problem	Possible Cause - Solution
The **Wireless LAN/ Bluetooth/PC Camera modules** cannot be **detected**.	*The modules are off.* Press the function menu button ▤ for about two seconds (see *Table 1 - 3, on page 1 - 9*) to bring up the On Screen Display. Check the appropriate OSD to see if it is on or off.
The **Wireless LAN/ Bluetooth/PC Camera 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 in *Chapter 7 "Modules & Options"* for the appropriate module).
A file cannot be copied to/from a connected **Bluetooth** device.	*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 Bluetooth enabled device to your computer until the file transfer process from the computer has been completed
The **Wireless LAN** cannot connect to an access point.	*The WLAN module is turned off in the **Windows Mobility Center**.* Make sure that Wireless is **ON** in the Mobility Center to ensure proper function key behavior (see *"Windows Mobility Center" on page 7 - 30*).

8

8 - 10 Problems & Possible Solutions

Bluetooth Connection Problems

If you are experiencing problems connecting to some Bluetooth devices (in particular certain mobile phones and headsets) it maybe 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).
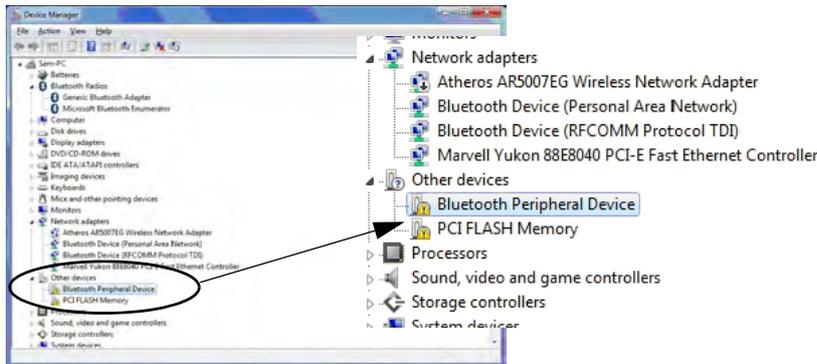

Figure 8 - 1 **- Device Manager**

8

🖉

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.

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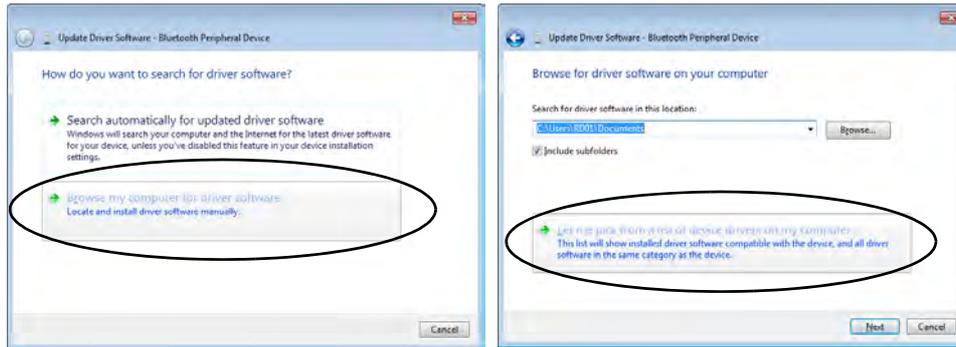8. Click **Let Me pick from a list of device drivers on my computer**.

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

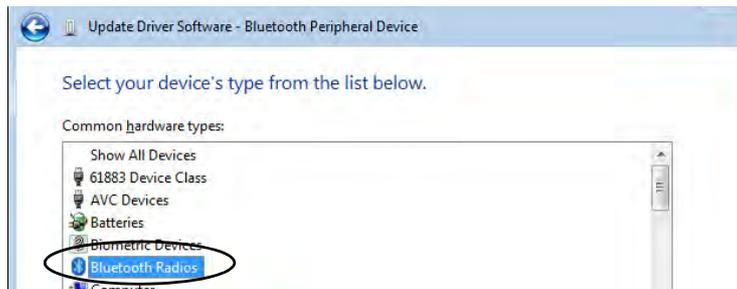9. Select **Bluetooth Radios** from the list.

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.

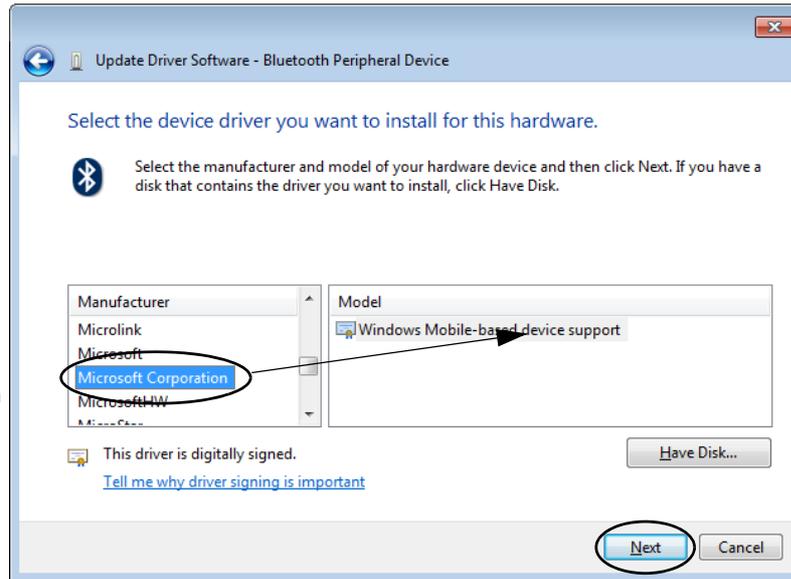Make sure you select **Microsoft Corporation**

Figure 8 - 4 **- Select Device Driver**

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

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**.
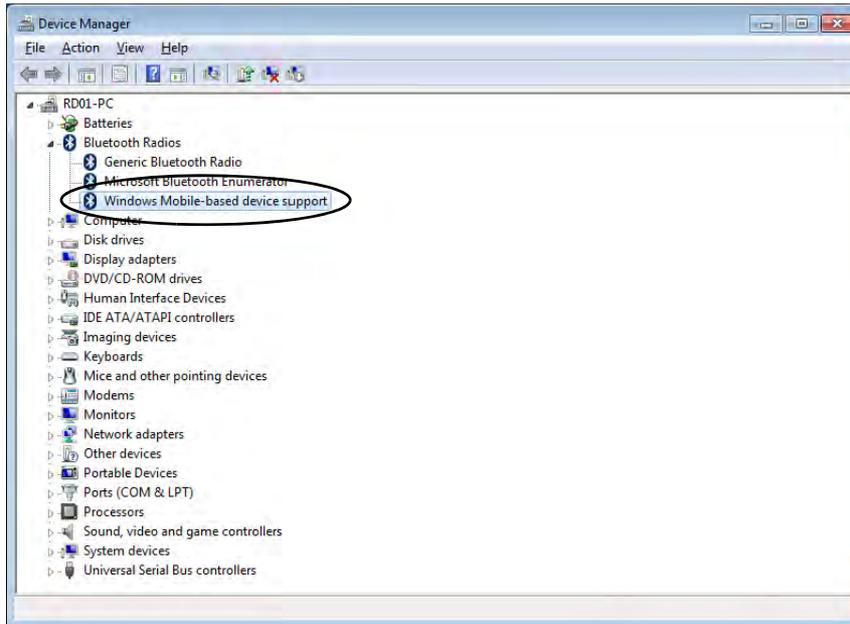

Figure 8 - 5 **- Device Manager - Bluetooth Radio**

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.

A

Computer Ports and Jacks

Item	Description
Card Reader Port □ SD / MMC/ 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.
HDMI-In Port HDMI	The HDMI-In (**High-Definition Multimedia Interface**) port allows you to display external sources such as Blu-ray players, DVDs, set top boxes and games consoles etc. on your computer screen as long as the computer's AD/DC adapter is plugged in to a power source (see *"HDMI-In Port" on page 1 - 11*).
HDMI-Out Port HDMI	The HDMI-Out (**High-Definition Multimedia Interface**) port 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** (see *"HDMI Audio Configuration" on page B - 10*).
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.

A

Item	Description
Microphone-In Jack	Plug an external microphone in to this jack to record on your computer.
PS/2 Type Keyboard & Mouse Ports	Connect an external PS/2 type mouse or keyboard to these ports.
RJ-45 LAN Jack	This port supports LAN (Network) functions. **Note**: Broadband (e.g. ADSL) modems usually connect to the LAN port.
RS-232 COM/Serial Ports	The RS-232 COM/serial is a communication interface for data transfer, through which information transfers in or out one bit at a time. These ports can be used to connect the computer to devices such as terminals and peripherals.

Port Warning

The computer can only accept one keyboard at a time. Don't try to install a USB and a PS/2 keyboard at the same time. Doing so may cause resource conflicts and make the system unstable.

A

Interface (Ports & Jacks)

Item	Description
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.
USB 2.0/1.1 Ports USB 3.0 Port	These USB (**Universal Serial Bus**) 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 port is denoted by its 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*), does not support wake on USB and is not operational under DOS.

A

Appendix B: Intel Video Driver Controls

The basic settings for configuring the LCD are outlined in *"Video Features" on page 1 - 18*.

Intel Video Driver Installation

Make sure you install all the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*.

Video

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

Dynamic Video Memory Technology

Intel® DVMT automatically and dynamically allocates as much system memory (RAM) as needed (up to **1.7GB**) to the video system (**the video driver must be installed**). DVMT returns whatever memory is no longer needed to the operating system (see *"Total Graphics Memory (Advanced Menu > Advanced Chipset Control)" on page 5 - 8*).

🖉

DVMT Notes

DVMT is not local video memory.

DVMT is not user-configurable.

DVMT will not function in MS-DOS. DOS uses the legacy memory indicated.

B

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 the *Windows Control Panel*.

冰

HDMI-In Port

This computer features an **HDMI** (High-Definition Multimedia Interface) **input port** that allows you to display external sources such as Blu-ray players, DVDs, set top boxes and games consoles etc. on your computer screen.

Note that this is an HDMI Input port and **cannot** be used as an HDMI Output port to display the computer's screen on external displays.

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

B

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.

🖉
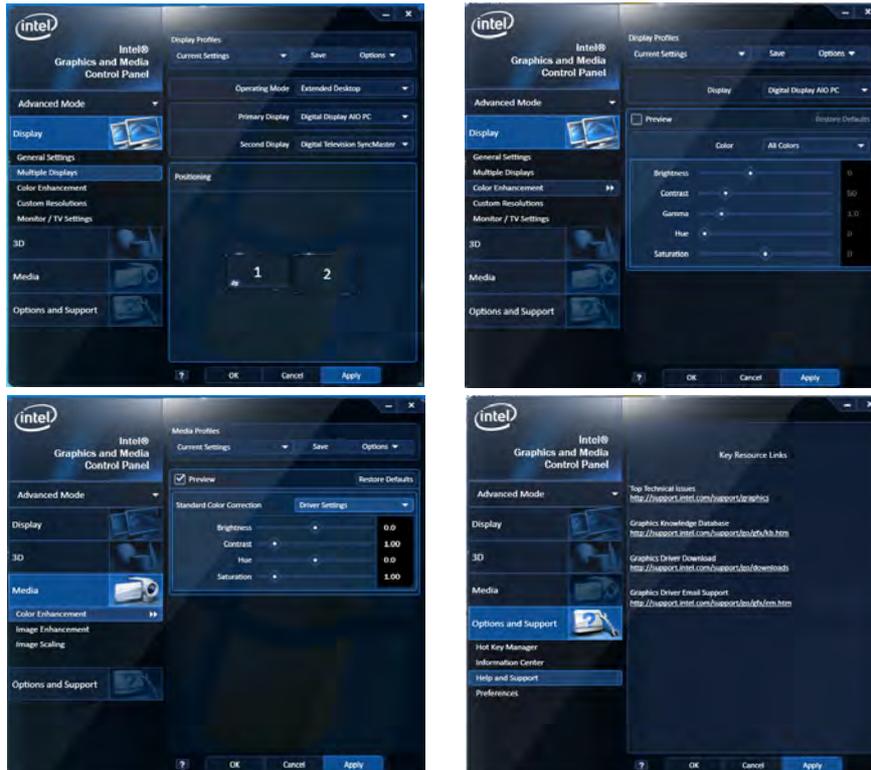
Options & Support

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.

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 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

B

Attaching Other Displays

If you prefer to use a monitor or flat panel display, connect it to the external monitor port.

To Clone Displays:
1. Attach your display to the 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.

🖉

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.

🖉

Default Display Mode

The initial default display mode when first attaching an external display is set to **Extended Desktop Mode**.

You can use the Intel(R) G&M control panel to adjust this setting.

Subsequent to any restart/shutdown or removal of display device, the system will retain the last mode set before the restart/shutdown or removal of display device.

Figure B - 3
Display > Multiple Displays (Clone)

B

Intel Video Driver Controls

Figure B - 4
Display > Multiple Displays (Extended)

To Enable Extended Desktop:
1. Attach your display to the external monitor 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.

B

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 and turn it on.
2. Go to the **Screen resolution** control panel (see *"Video Features" on page 1 - 18*).
3. Click the **Detect** button.
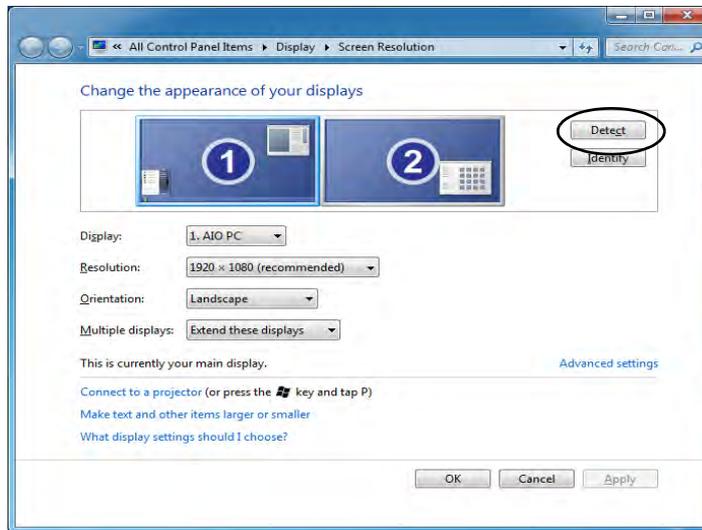4. The computer will then detect any attached displays.

Figure B - 5
Screen Resolution
Multiple Displays
(Win 7)

B

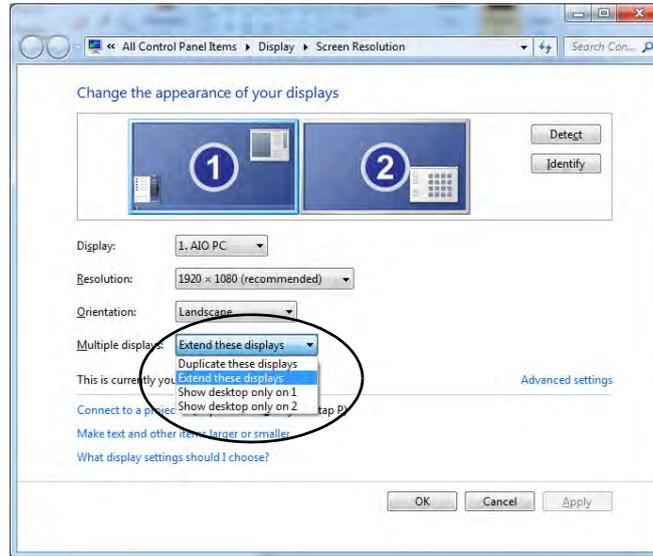5. You can configure the displays from the **Multiple Displays** menu.

Figure B - 6
**Screen Resolution
Multiple Display
Options
(Win 7)**

B

*   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 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.
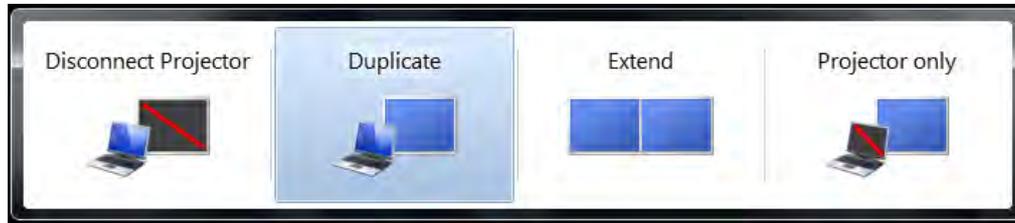

Figure B - 7
⊞ + P Display Configuration Selection (Win 7)

B

🖉

Volume Indicator

Click the taskbar volume indicator 🔊 when an HDMI device is selected, and you will note that the icon at the top of the volume level indicator has changed.

Figure B - 8

Sound - HDMI Device (set Default)

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).
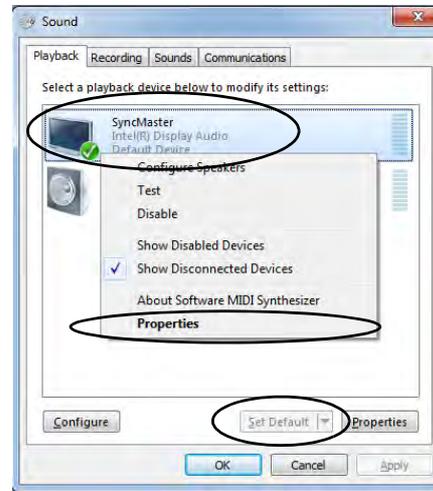4. Double-click the device to access the control panel tabs illustrated overleaf.

5. Adjust the HDMI settings from the control panel tabs.
6. Click **OK** to close the **Sound** control panel.

Figure B - 9
HDMI Device Properties

B

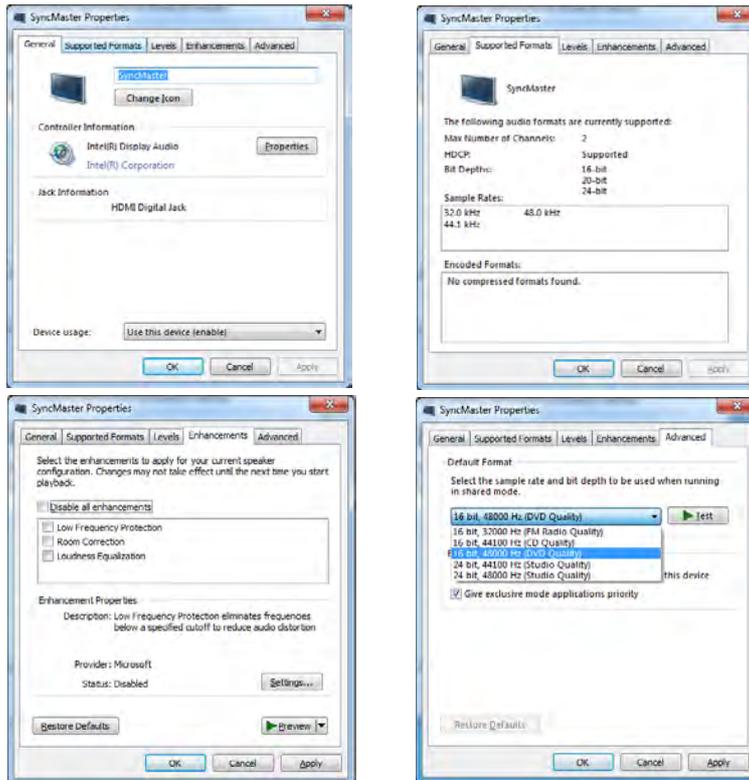## Intel Video Driver Controls

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 - 5*.
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.

B

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 or updated due to the manufacturer's release schedule. Check with your distributor/supplier for details.

C

Specifications

Processor

Intel® Core™ i7-3770S Processor (3.10GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 8MB L3 Cache - TDP 65W

Intel® Core™ i5-3570S Processor (3.10GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Core™ i5-3550S Processor (3.00GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Core™ i5-3475S Processor (2.90GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Core™ i5-3470S Processor (2.90GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Core™ i5-3450S Processor (2.80GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Core™ i5-3570T Processor (2.30GHz)
22nm (22 Nanometer) Process Technology, DDR3-1600MHz, 6MB L3 Cache - TDP 65W

Intel® Pentium® G640 Processor (2.80GHz)
32nm (32 Nanometer) Process Technology, 3MB L3 Cache & FSB 1066MHz - TDP 65W

Intel® Celeron® G540 Processor (2.50GHz)
32nm (32 Nanometer) Process Technology, 2MB L3 Cache & FSB 1066MHz - TDP 65W

Core Logic

Intel® H61 Express Chipset

Display

21.5"(54.61cm) FHD (1920 * 1080) 16:9 Panel

Memory

Dual Channel **DDRIII (DDR3)**

Two 204 Pin SO-DIMM Sockets Supporting **DDRIII (DDR3)** 1066MHz/ 1333MHz Memory Modules

Memory Expandable up to **8GB** Compatible with 2GB or 4GB Modules

C

Video Adapter

Intel® Integrated GPU (Intel® HD Graphics / Intel® HD Graphics 2500 / Intel® HD Graphics 4000):

Dynamic Frequency

Intel® DVMT Shared Memory Architecture up to 1748MB

Microsoft DirectX®10 Compatible (Intel® HD Graphics)

Microsoft DirectX®11 Compatible (Intel® HD Graphics 2500 / Intel® HD Graphics 4000)

BIOS

One 48Mb SPI Flash ROM
AMI™ BIOS

Storage

One Changeable 2.5" 9.5 mm (h) **SATA** (Serial) Hard Disk Drives

One Changeable 3.5" 25 mm (h) **SATA** (Serial) Hard Disk Drives

One 12.7 mm Super Multi/Blu-ray Combo SATA Optical Device Drive (**Factory Option**)

Audio

High Definition Audio
Built-In Microphone
2 Built-In Two 3W Speakers

Keyboard & Pointing Device

RF USB Keyboard/Mouse with Transceiver (**Factory Option**)

Interface

Four USB 2.0 Ports
Two USB 3.0 Ports
One HDMI™ In (High-Definition Multimedia Interface) Port
One HDMI™ Out (High-Definition Multimedia Interface) Port (with HDCP)
One Headphone-Out Jack
One Microphone-In Jack
One RJ-45 LAN Jack
2 * RS232 Serial COM Ports
2 * PS/2 Ports
One DC-in Jack

Card Reader

Embedded Multi-In-1 Push-Push Card Reader
- MMC/ RS MMC
- SD/ Mini SD / SDHC/ SDXC
- MS/ MS Pro/ MS Duo

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

Slots

ExpressCard/34/54 Slot

One Mini Card Slot for Combo WLAN and Bluetooth Half Mini-Card Module with PCIe & USB Interface

One Internal USB Port for RF Keyboard & Mouse Dongle

Communication

Built-In 10/100/100 Mb Base-TX Ethernet LAN

C

Specifications

Intel® Centrino® Wireless-N 2230 2*2 (802.11 b/g/n) Half Mini-Card PCIe WLAN + Bluetooth V4.0+HS Combo Module (**Factory Option**)

802.11b/g/n WLAN Half Mini-Card Module (**Factory Option**)

Combo WLAN (802.11b/g/n) **and Bluetooth v4.0 LE** Half Mini-Card Module (**Factory Option**)

2.0M HD PC Video Camera Module (**Factory Option**)

Power Management

Supports Wake on LAN
Supports Wake on USB

Power

Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19V, 6.3A (**120 Watts**)

Removable 6 Cell Smart Lithium-Ion Battery Pack, 62.16WH (**Factory Option**)

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Trusted Platform Module 1.2

Operating System

Windows® 7 with Service Pack 1

Design Features

Textured Finish
VESA MIS-D 100 (100mm * 100mm)

LED Indicators

Power / Suspend, Battery/HDMI-In, HDD/ ODD, WLAN/Bluetooth

Environmental Spec

Temperature
Operating: 5°C - 35°C
Non-Operating: -20°C - 60°C
Relative Humidity
Operating: 20% - 80%
Non-Operating: 10% - 90%

Physical Dimensions & Weight

525mm (w) * 49mm (d) * 418mm (h)
7Kg with ODD

C