

# *USER'S MANUAL*

*notebook*



**V16.1.10**



## Notice

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## Preface

### R&TTE Directive

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

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

### ErP 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:

- Off Mode < 0.5W

## 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:
  - **For Model A - Design I, Model B & Model C** - Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 6.15A (**120 Watts**) minimum
  - **For Model A - Design II** - Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19V, 4.74A (**90 Watts**) minimum



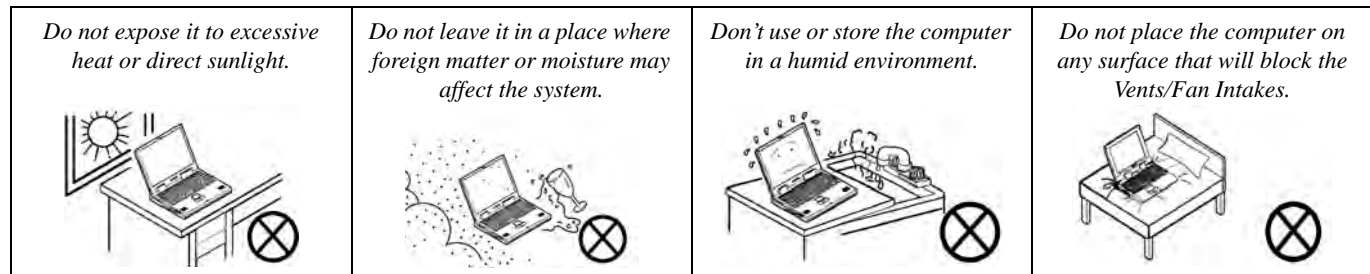
## Instructions for Care and Operation

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

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







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


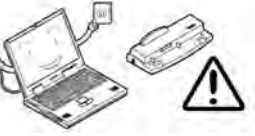


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- Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
- Follow the proper working procedures for the computer.**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

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

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

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

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



### Bottom Cover Removal Warning

Users should not remove any cover(s) and /or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty. If you need to replace/remove the hard disk/RAM/optical device etc., for any reason, please contact your distributor/supplier for further information.

### 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.

### Power Safety

The computer has specific power requirements:



#### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord).

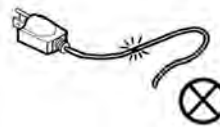
You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

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

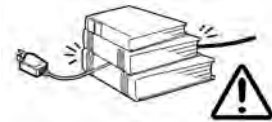
*Do not plug in the power cord if you are wet.*



*Do not use the power cord if it is broken.*



*Do not place heavy objects on the power cord.*



## Polymer/Lithium-Ion Battery Precautions

Note the following information which is specific to Polymer/Lithium-Ion batteries only, and where applicable, this overrides the general battery precaution information overleaf.

- Polymer/Lithium-Ion 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/Lithium-Ion batteries. Do not use Polymer/Lithium-Ion batteries in high ambient temperature environments, and do not store unused batteries for extended periods.
- If you are working in areas of low temperature use the AC/DC adapter to power the computer.

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

### General 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.

## Travel Considerations

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

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



### Power Off Before Traveling

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

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### Packing

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

1. Check that the battery pack and any spares are fully charged.
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7. If you're taking any peripherals (e.g. a printer, mouse or digital camera), pack them and those devices' adapters and/or cables.
8. Anticipate customs - Some jurisdictions may have import restrictions or require proof of ownership for both hardware and software. Make sure your documents are prepared.



#### Power Off Before Traveling

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



## On the Road

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

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

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

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

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

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

### Developing Good Work Habits

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



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



#### Remember to:

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

## Lighting

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

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

## LCD Screen Care

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

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

## LCD Electro-Plated Logos

Note that in computers featuring a raised LCD electro-plated logo, the logo is covered by a protective adhesive. Due to general wear and tear, this adhesive may deteriorate over time and the exposed logo may develop sharp edges. Be careful when handling the computer in this case, and avoid touching the raised LCD electro-plated logo. Avoid placing any other items in the carrying bag which may rub against the top of the computer during transport. If any such wear and tear develops contact your distributor/supplier.



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Audio .....D-2

Keyboard & Pointing Device .....D-2

Indicators .....D-2

Interface .....D-2

Card Reader .....D-3

Slots .....D-3

Communication .....D-3

Operating System .....D-3

Features (Depends on Model Type) .....D-3

Security .....D-3

Power Management .....D-4

Power .....D-4

Environmental Spec .....D-4

Physical Dimensions & Weight .....D-4




# 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 and card reader)**, **TouchPad & Mouse** and **Audio Features**.
- **Chapter 3** The computer's **power** management 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** A quick guide to the computer's **PC Camera, Wireless LAN, Bluetooth & WLAN Combo, Sound Blaster Audio** and **Intel** modules (some of which may be **optional** depending on your purchase configuration).
- **Chapter 7** 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 **Control Center**.
- **Appendix C** Information on the **Video** driver controls.
- **Appendix D** 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 *“Drivers & Utilities” on page 4 - 1* and *“BIOS Utilities” on page 5 - 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 10*) and applications (e.g. word processing, spreadsheet and database programs) have their own manuals, so please consult the appropriate manuals.



### Drivers

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

### Ports and Jacks

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

## System Software

Your computer may already come with system software pre-installed. Where this is not the case, or where you are re-configuring your computer for a different system, you will find the **Windows 10 (64-bit)** operating system is supported.



### Windows OS

Note that the information included on the following pages is for **Windows 10 only**.

In order to run **Windows 10 (64-bit)** your computer requires a minimum **4GB** of system memory (RAM).

## System Startup

1. Remove all packing materials, and place the computer on a stable surface, and securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
2. Attach the AC/DC adapter to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter (**make sure you use the adapter when first setting up the computer**, as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter).
3. Use one hand to raise the lid/LCD to a comfortable viewing angle (it is preferable not to exceed 130 degrees); use the other hand to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
4. Press the power button on the top 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).



Figure 1 - 1 - AC/DC Adapter In / Opening the Lid/LCD



### Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command in **Windows** (see page [1 - 40](#)). This will help prevent hard disk or system problems.

## Quick Start Guide

### Model Differences

This notebook series includes **four** different models that vary slightly in design style, color and general appearance. Note that though your computer may look slightly different from that pictured throughout this manual, all ports, jacks (other than those indicated below and in specification) and general functions are the same for all the design styles (see [Appendix D](#) for further details).




Feature	Model A - Design I	Model A - Design II	Model B	Model C
AC/DC Adapter	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 6.15A (120 Watts)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19V, 4.74A (90 Watts)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 6.15A (120 Watts)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 6.15A (120 Watts)
3G/4G Module	Supported			Not Supported
Display	15.6" (39.62cm) 16:9 Panel			17.3" (43.94cm) 16:9 Panel
Design				

Table 1 - 1 - Model Differences



## LCD Panel Open - Model A



### Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices (e.g. WLAN, Bluetooth or 3G/4G) aboard aircraft is usually prohibited. Make sure any wireless modules are OFF (i.e. the system is in **Airplane Mode**) if you are using the computer aboard aircraft.

Use **Fn + F11 Airplane Mode** key combination to toggle Airplane Mode On/Off, and check the LED indicator for the power status.

Figure 1 - 2  
LCD Panel Open  
Model A

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Illuminated (White) LED Keyboard
7. TouchPad & Buttons

Note that the Touchpad/Clickpad and Buttons has a valid operational area indicated within the dotted lines above.

## Quick Start Guide

Figure 1 - 3  
LCD Panel Open -  
Model B

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Illuminated (White) LED Keyboard
7. TouchPad & Buttons

Note that the Touchpad/Clickpad and Buttons has a valid operational area indicated within the dotted lines above.

## LCD Panel Open - Model B



### Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices (e.g. WLAN, Bluetooth or 3G/4G) aboard aircraft is usually prohibited. Make sure any wireless modules are OFF (i.e. the system is in **Airplane Mode**) if you are using the computer aboard aircraft.

Use **Fn + F11 Airplane Mode** key combination to toggle Airplane Mode On/Off, and check the LED indicator for the power status.

## LCD Panel Open - Model C



### Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices (e.g. WLAN, Bluetooth or 3G/4G) aboard aircraft is usually prohibited. Make sure any wireless modules are OFF (i.e. the system is in **Airplane Mode**) if you are using the computer aboard aircraft.

Use **Fn + F11 Airplane Mode** key combination to toggle Airplane Mode On/Off, and check the LED indicator for the power status.

Figure 1 - 4  
LCD Panel Open  
Model C

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Illuminated (White) LED Keyboard
7. TouchPad & Buttons

Note that the Touchpad/Clickpad and Buttons has a valid operational area indicated within the dotted lines above.

## LED Indicators

The LED indicators at the front of the computer display helpful information about the current status of the system.






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
	Green	The Battery is Fully Charged
	Green	<b>Airplane Mode is ON</b> (the WLAN, Bluetooth & 3G/4G Modules are OFF)
	Green	HDD Activity

Table 1 - 2 - LED Indicators

# Keyboard

The keyboard (or the factory option white illuminated LED keyboard) has an embedded numerical keypad for easy numeric data input, and features function keys to allow you to change operational features instantly. See [Table 1 - 4, on page 1 - 17](#) for full function key combination details.



Figure 1 - 5 - Keyboard

## Special Characters

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



## Other Keyboards

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


## Scr Lk

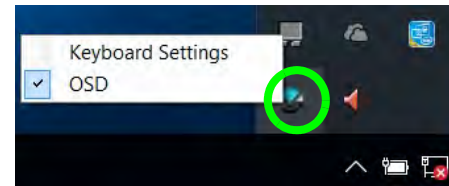
Hold down the **Fn Key** and **Scr Lk** to enable scroll lock and check the LED indicator for status.

## Keyboard Application Settings

### (Illuminated Keyboard Option)

If your computer includes an illuminated keyboard (factory option), you will need to install the keyboard **Control Center** application driver (see “*Control Center*” on page 4 - 8) and you can then select the type of keyboard as appropriate for your model’s configuration (you can only select keyboards supported by your system). After the driver has been installed, and the system restarts, the control panel below will pop-up to allow you to select the **illuminated white keyboard** for your system. Click **Save** to retain the setting chosen.

If you wish to change the setting at any time then right-click on the **Control Center** icon  and select **Keyboard Settings** to return to the keyboard select control panel.



Right-click and select **Keyboard Settings**.

Figure 1 - 6 - Keyboard Settings for Illuminated Keyboard Option

## Control Center



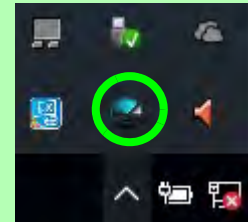
When in the **Windows Desktop application** (not in the **Start** screen) press the **Fn + Esc** key combination, or **double-click the icon**  in the **notification area of the taskbar** to toggle the **Control Center** on/off. The **Control Center** gives quick access to frequently used controls and enables you to quickly turn the camera/Touch Pad on/off (see [Appendix B](#) for full details).




Figure 1 - 7 - Control Center



### Control Center Access

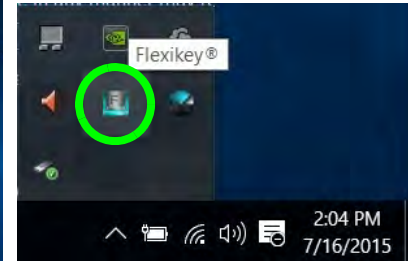
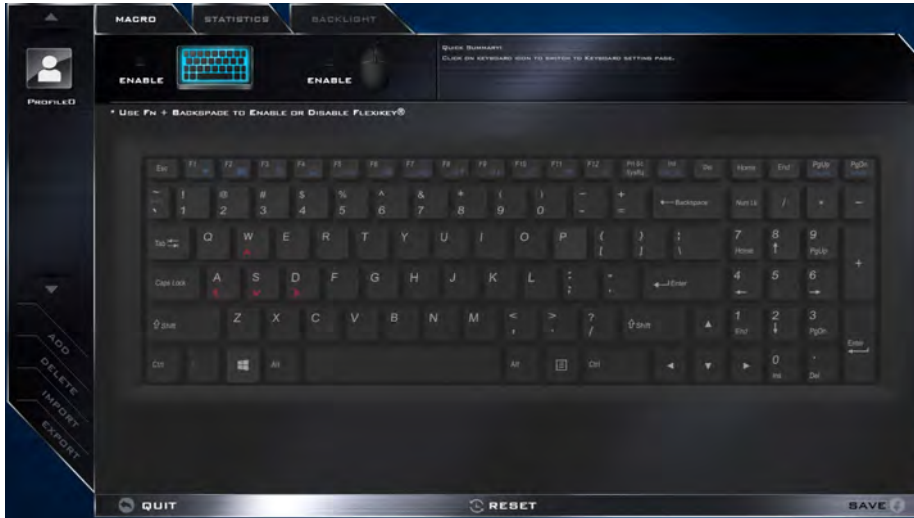
To run the Control Center press the **Fn + Esc** key combination, or double-click the icon  in the notification area of the taskbar.



Close the Control Center by clicking the  close icon in the top right of the panel (move the cursor onto the top right corner of the panel to highlight it).

## Flexikey® Application

The **Flexikey®** application is a quick hotkey configuration application, which allows you to **assign a single key to launch multiple key combinations**, or to **launch programs and applications**, to **create text macros** and to **disable** certain keys. The application can also be used to **configure the mouse buttons** to create hotkeys for gaming etc. All the configuration settings are retained under (up to 12) **profiles** to which the settings are applied. Click **Flexikey®** in the **Gaming** section of the Control Center, or the **click the icon**   in the notification area of the taskbar, to launch the application (see [Appendix B](#) for full details).



Flexikey® Enabled



Flexikey® Disabled

Figure 1 - 8 - Flexikey® Hotkey Application




## Flexikey® Application Features:

For full details see *“Flexikey® Application” on page B - 8.*


- **EXPRESS KEY** - This feature allows you to configure a single key (or mouse click) to send multiple key combinations, or to create more useful shortcut keys This is useful in gaming or when using applications which have a complex set of keyboard shortcuts.
- **LAUNCH APP** - This simply assigns single keys (or mouse clicks) to launch any program’s or application’s executable file.
- **EXPRESS TEXT** - With this you can assign single keys (or mouse clicks) to send commonly used strings of text.
- **DISABLE** - Use this function to disable any keyboard keys or mouse buttons.
- **STATISTICS** - Use this to quickly record keys in use in any application, and to disable unused keys.



### Windows Logo Keyboard Shortcut

Use the Windows logo key  + **D key combination** to switch between the Start screen and Windows Desktop.

### Menu/Application Keyboard Shortcut

When the Desktop app is running you can use the Menu/Application key  on the keyboard to display the context menu as per a mouse right-click.

## Keyboard Shortcuts

The following Windows Logo Key (Winkey) keyboard shortcuts are useful for navigation/operation in *Windows 10*.


Windows Logo  Key +	Description
Tap Winkey	Toggle the <b>Start</b> menu
A	Open the <b>Action Center</b>
B	Select the <b>Taskbar Notification Area</b>
C	Launch <b>Cortana</b> (in listening mode)
D	Toggle the <b>Desktop</b>
E	Launch <b>File Explorer</b> (Quick Access tab)
+ Number (1, 2, etc)	Launch an application from the taskbar (numbered from left to right)

Table 1 - 3 - Keyboard Shortcuts

## Function Keys & Visual Indicators

The **function keys** (F1 - F12 etc.) will act as **hot keys** when pressed while the **Fn** key is held down.







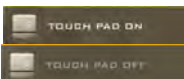




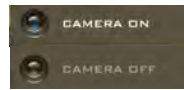


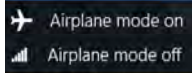





Keys	Function/Visual Indicators	Keys	Function/Visual Indicators
Fn + 	Fan Control Toggle Automatic / Full Power 	Fn + 	<b>Control Center</b> Toggle (see over)
Fn + 	Play/Pause (in Audio/Video Programs)	Fn + 	Display Toggle
Fn + 	Touchpad Toggle 	Fn +  	Brightness Decrease/Increase
Fn + 	Turn LCD Backlight Off (Press a key to or use Touchpad to turn on)	Fn + 	PC Camera Power Toggle 
Fn + 	Mute Toggle	Fn + 	Airplane Mode Toggle 
Fn + 	For Backlight Keyboards Only Toggle Off/High/Low 	Fn + 	Sleep Toggle
Fn +  	Volume Decrease/Increase		

Table 1 - 4 - Function Keys & Visual Indicators

## Quick Start Guide

*Figure 1 - 9*  
**Front & Rear Views**  
**All Models**

1. LED Power Indicators
2. Vent/Fan Intake

### Front & Rear Views - All Models



#### Overheating

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

## Right Views

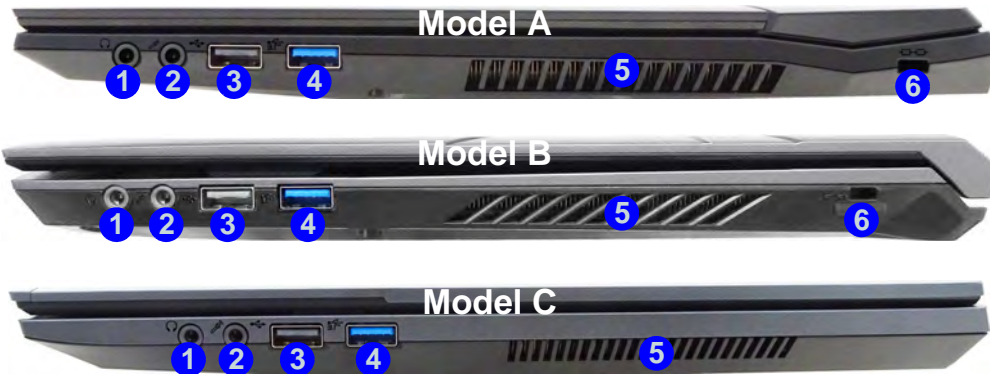


Figure 1 - 10  
Right Views

1. Headphone Jack
2. Microphone Jack
3. 1 \* USB 2.0 Port
4. 1 \* Type-A USB 3.0 Port (USB 3.1 Gen1)
5. Vent/Fan Intake
6. Security Lock Slot (Models A & B Only)

### USB 3.0 (USB 3.1, Gen1) Type A OR C Ports OR USB 2.0 Port

This model includes 3 \* USB 3.0 (USB 3.1, Gen1 ports) ports and 1\* USB 2.0 port. The USB 2.0 port is the larger black port. The Type-A USB 3.0 (USB 3.1, Gen1 ports) are the larger **blue color** ports. The Type-C USB 3.0 (USB 3.1, Gen1 ports) is the smaller black port.



### USB Ports

Note that the connections to the USB ports only fit one way, do not force them.

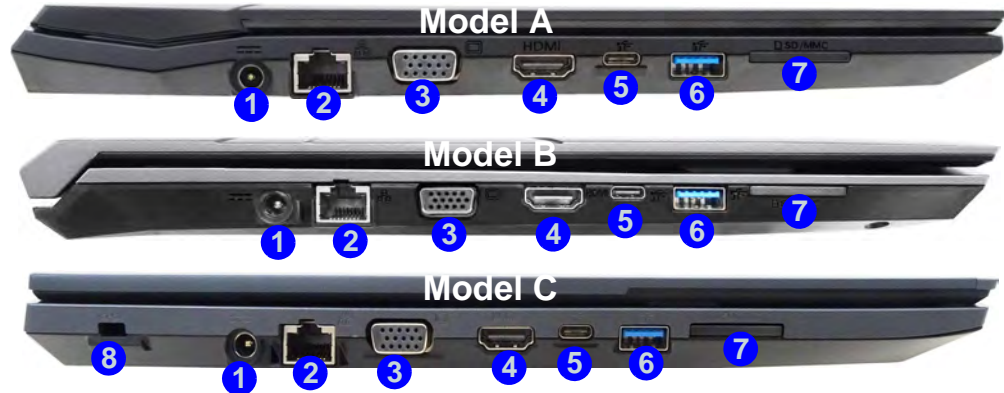
## Quick Start Guide

Figure 1 - 11

### Left Views

1. DC-In Jack
2. RJ-45 LAN Jack
3. External Monitor Port
4. HDMI-Out Port
5. 1 \* Type-C USB 3.0 Port (USB 3.1 Gen1)
6. 1 \* Type-A USB 3.0 Port (USB 3.1 Gen1)
7. Multi-In-1 Card Reader
8. Security Lock Slot (Model C Only)

## Left Views



### HDMI Port

Note that the HDMI Port support video and audio signals to attached external displays.

Note that **Sound Blaster Cinema** audio will be disabled when you are connecting to an external display through an HDMI connection.



### 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

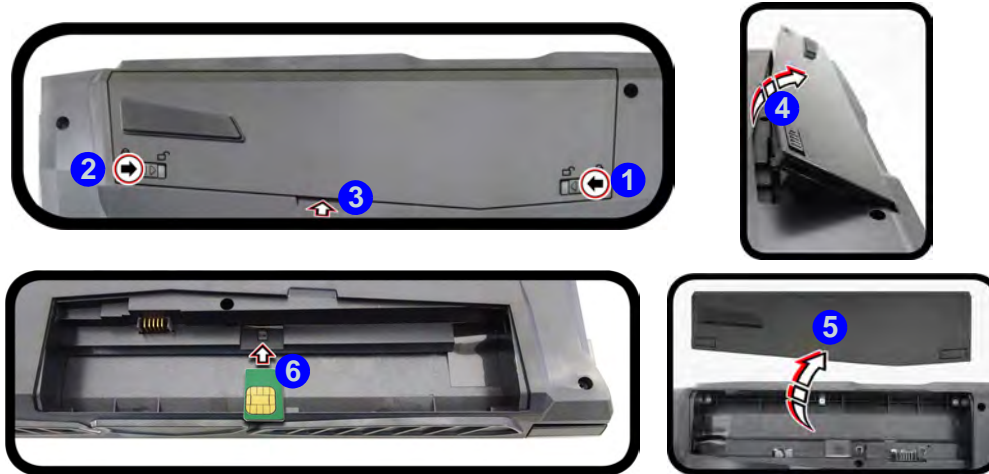
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This model includes 3 \* USB 3.0 (USB 3.1, Gen1 ports) ports and 1\* USB 2.0 port. The USB 2.0 port is the larger black port. The Type-A USB 3.0 (USB 3.1, Gen1 ports) are the larger blue color ports. The Type-C USB 3.0 (USB 3.1, Gen1 ports) is the smaller black port.

### 3G/4G Module USIM Card Installation (for Models A & B)

Follow the instructions below to install the USIM card (which will be supplied by your service provider) which requires the removal of the battery first.

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow, and then slide latch **2** in the direction of the arrow and hold it in place.
3. While holding the latch **2** in place, pull the battery up at point **3** in the direction of the arrow **4** to remove the battery **5**.
4. Insert the USIM card **6** (see overleaf).
5. Reinsert the battery (see page 1 - 23).



#### Power Safety Warning

Before you undertake any installation procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines).

Figure 1 - 12  
Battery Removal &  
USIM Card Insertion



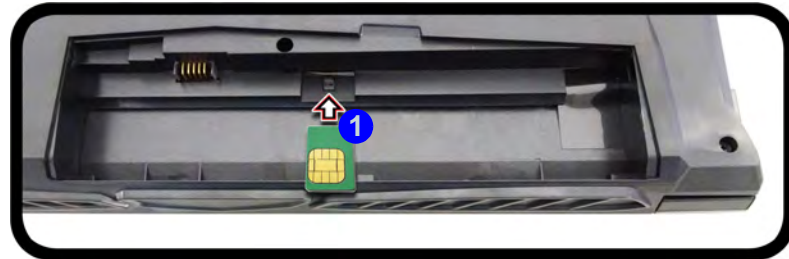
### USIM Card Orientation

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

Figure 1 - 13  
USIM Card Insertion

### 3G/4G Module USIM Card Installation

Insert the USIM card **1** as illustrated below (pay careful attention to the orientation of the card as the gold contact side of the card should face downwards) until it clicks fully into position. To eject the card simply press it until it ejects, but do not attempt to eject the card while connected to a 3G/4G network (see below).



### USIM Card Ejection

Simply press on the USIM card to eject it, however do not do this while a connection is in progress. If you do eject the card while a 3G/4G connection is ongoing, you will need to shut down the system, reinsert the USIM card, restart the system and then reestablish the 3G/4G connection.

If you wish to change USIM cards then you will need to shut the system down, reinsert the USIM card, restart the system and then reestablish the 3G/4G connection.



## Battery Insertion

1. Orientate the battery **1** as illustrated below and align it with the edges of the battery compartment.
2. Push the battery in the direction of the arrow **2** to insert it into the compartment (it should click into place).
3. Slide the latch **3** in the direction of the arrow into the lock position.



*Figure 1 - 14*  
**Battery Insertion**

*Figure 1 - 15*  
**Bottom View**  
**Model A**

1. Battery
2. Fan Outlet/Intake
3. Speakers



#### Bottom Cover Removal Warning

Do not remove any cover(s) and/or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty.

If you need to replace/remove the hard disk/RAM/optical device etc., for any reason, please contact your distributor/supplier for further information.



#### Overheating

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



#### Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

## Bottom View - Model B



### Overheating

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

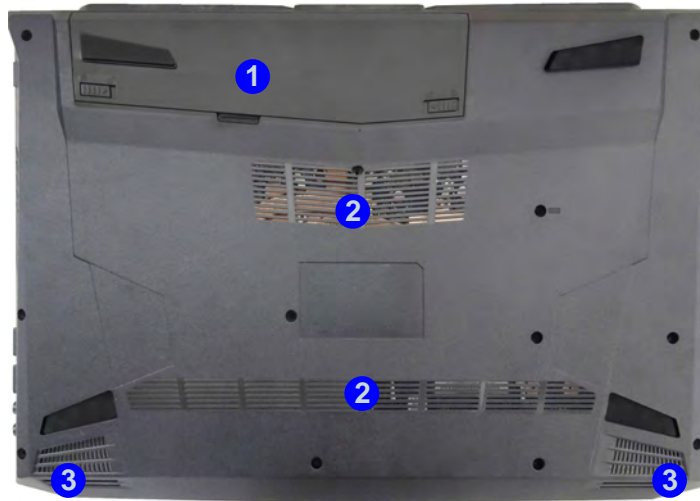


Figure 1 - 16  
Bottom View  
Model B

1. Battery
2. Fan Outlet/Intake
3. Speakers



### Bottom Cover Removal Warning

Do not remove any cover(s) and /or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty.

If you need to replace/remove the hard disk/RAM/optical device etc., for any reason, please contact your distributor/supplier for further information.



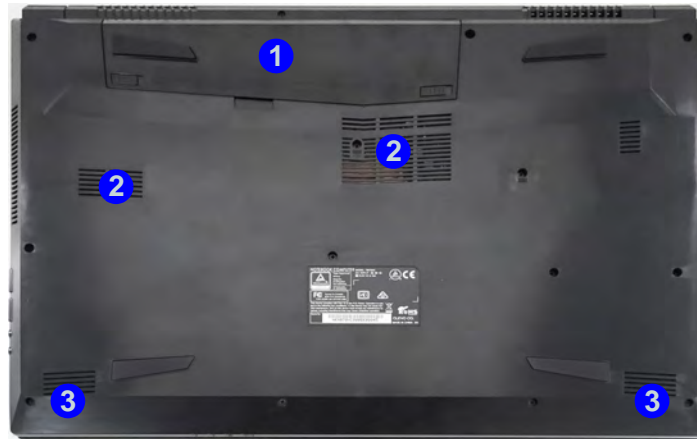
### Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

Figure 1 - 17  
Bottom View  
Model C

1. Battery
2. Fan Outlet/Intake
3. Speakers

## Bottom View - Model C



### Battery Removal

Note that the **built-in battery is not user removable**. Removing the battery will violate the terms of your warranty.

If you need to remove the battery for any reason, please contact your distributor/supplier for further information.



### Overheating

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

### Bottom Cover Removal Warning

Do not remove any cover(s) and /or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty.



If you need to replace/remove the hard disk/RAM/optical device etc., for any reason, please contact your distributor/supplier for further information.



### Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

# Windows 10 Start Menu

Most of the apps, control panels, utilities and programs within *Windows 10* can be accessed from the **Start Menu** by clicking the icon  in the taskbar in the lower left corner of the screen (or by pressing the **Windows Logo Key**  on the keyboard).

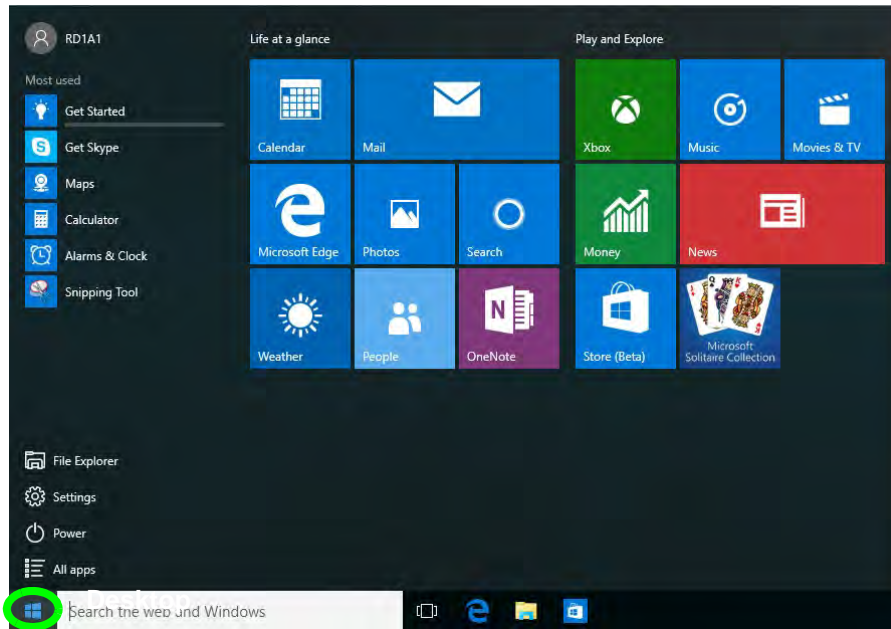


Figure 1 - 18 - Windows Start Menu

## Right-Clicking the Windows Logo In Start Menu

Right-click the Start Menu  icon (or use the **Windows Logo Key**  + **X** key combination) to bring up an advanced **Context Menu** of useful features such as Control Panel, Programs and Features, Power Options, Task Manager, Search, File Explorer, Command Prompt, Device Manager and Network Connections etc.

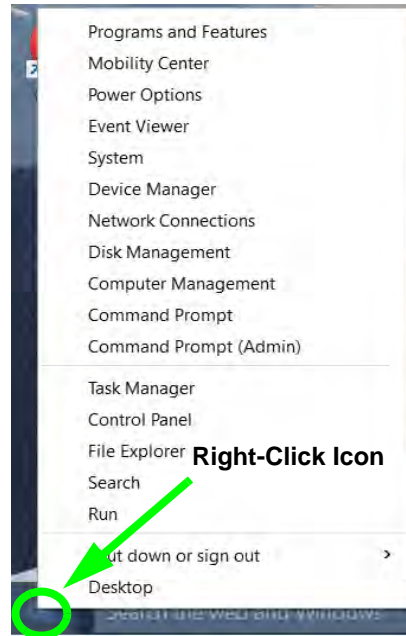


Figure 1 - 19 - Right-Click Windows Logo in Start Menu

## Start Menu Apps & Tiles

The **Windows 10** Start Menu will contain a number of apps, and many more will be installed as you add more applications etc. Not all of these apps can fit on the screen so may need click and drag the handles at the edge of the screen to expand the menu in order to view all the apps (you can use the scroll bar to move up and down the screen).

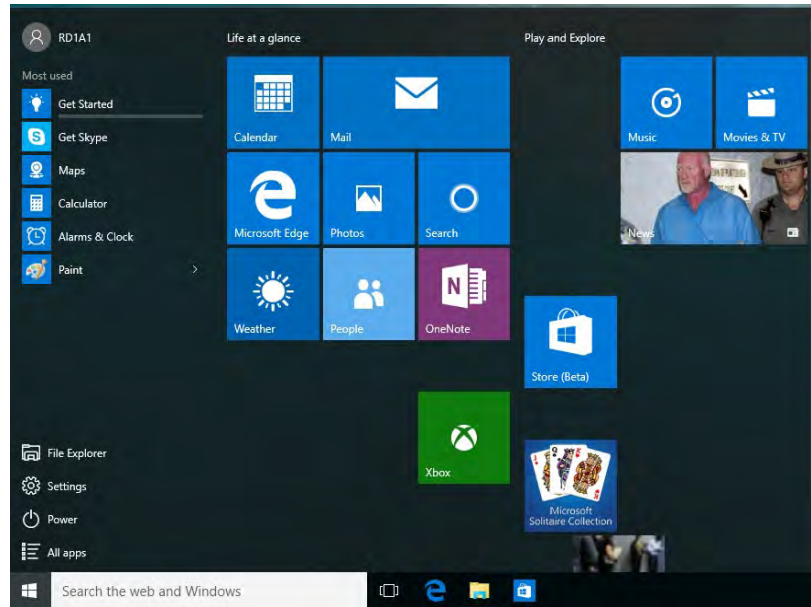


Figure 1 - 20 - Expanding the Start Menu

## Quick Start Guide

### Pining/Unpinning Apps & Programs to/from the Start Menu

To make things easy to find you can add and remove tiles for apps and programs to the Start Menu. Right-Click on a program's icon and select **Pin to Start** from the drop-down menu. To remove an app or program from the Start Menu right-click the icon and select **Unpin from Start**. You can use the same method to **pin apps/programs to/from the taskbar** (select pin to taskbar/unpin this program from the taskbar).

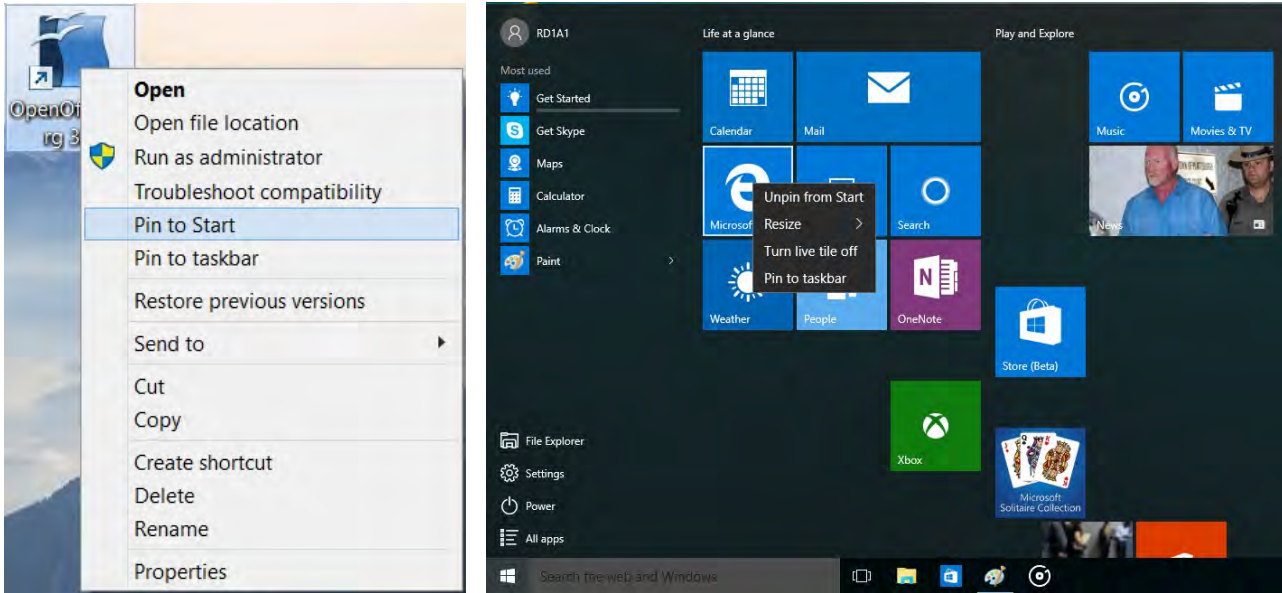




Figure 1 - 21 - Pin to Start/Unpin from Start



## Windows 10 Control Panel

In many instances throughout this manual you will see an instruction to open the **Control Panel**. The Control Panel can be accessed in a number of ways in *Windows 10*.

- Right-click the Start Menu icon  in the taskbar in the lower left corner of the screen and select Control Panel from the menu.
- Press the Windows logo key  on your keyboard and **X** to bring up the context menu, and then press **P** to bring up the Control Panel.
- Type *Control Panel* into the Search box in the taskbar and click on the icon when it pops up.

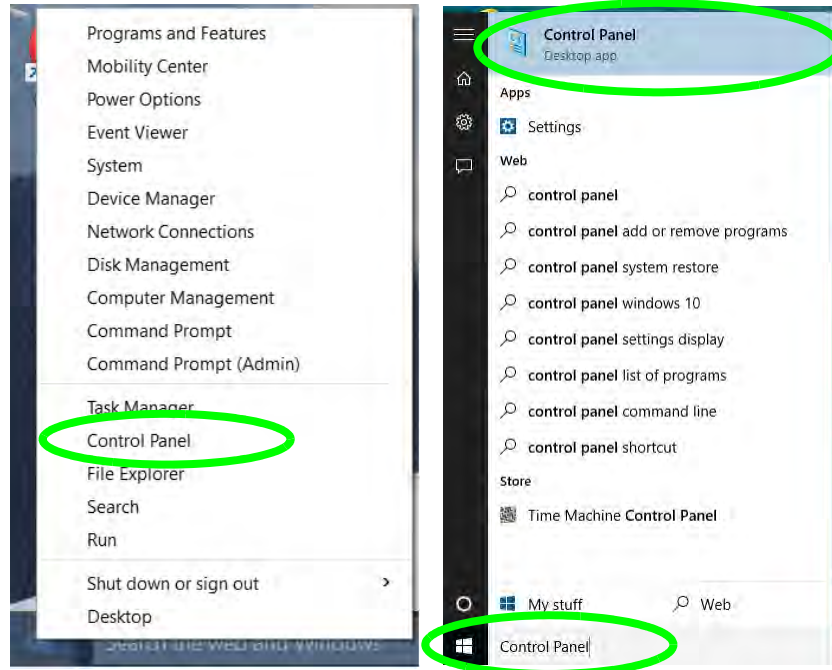


Figure 1 - 22 - Windows 10 Control Panel Access

## Settings

The **Settings** item in the Start Menu (and also as an App) gives you quick access to a number of system settings control panels allowing you to adjust settings for System, Devices, Network & internet, Personalization, Accounts, Time & language, Ease of Access, Privacy and Update & security.

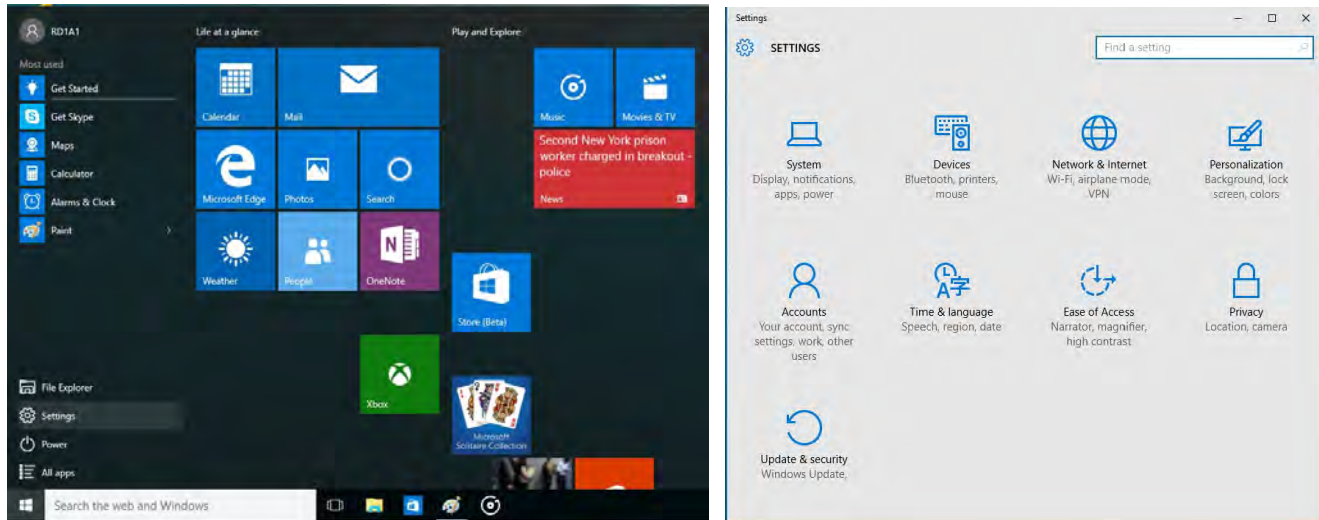
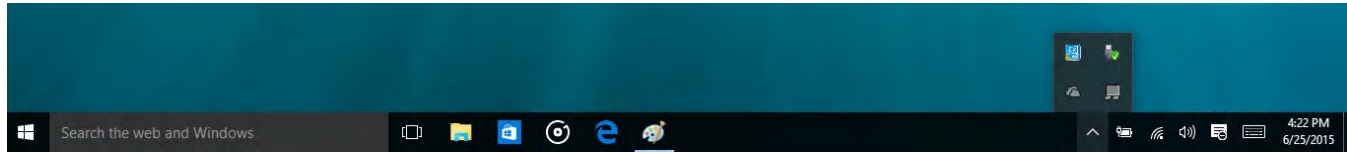


Figure 1 - 23 - Settings

## Windows 10 Taskbar

In many instances throughout this manual you will see an instruction to access the **notification area of the taskbar**. The notification area of the taskbar is in the bottom right of the screen. Some of the Control Panels and applications referred to throughout the course of this manual can be accessed from here.



Taskbar



Taskbar - Pinned Programs and Apps




Notification Area

Figure 1 - 24 - Taskbar

You can pin/unpin apps to/from the taskbar in much the same way as you can to the Start screen (see *[“Pining/Unpinning Apps & Programs to/from the Start Menu” on page 1 - 30](#)*).

## Video Features

You can switch display devices, and configure display options, from the **Display** control panel (in **Appearance and Personalization**). Click **Adjust resolution** to make changes to the appearance of the display and to detect and configure any attached displays. In *Windows 10* it is possible to quickly configure external displays from the **Project** menu (press the Windows logo key  on your keyboard and the **P** key).

### Microsoft Hybrid Graphics

Your computer will feature **Microsoft Hybrid Graphics** switchable graphics technology. This seamless technology is designed to get best performance from the graphics system while allowing longer battery life, without having to manually change settings. The computer's operating system (and some applications) will **automatically** switch between the integrated UMA (Unified Memory Architecture) GPU (**iGPU**) and the discrete GPU (**dGPU**) when required by the applications in use. This switch is seamless to the user.

The basic video features for this computer can be configured using the **Intel® HD Graphics Control Panel**. Further video configuration is available through the **NVIDIA** control panel (see the information on the following pages and [Appendix C](#)).

## To Configure Displays using Project

1. Attach your display to the appropriate port, and turn it on.
2. Press the **Windows + P** key combination.
3. Click on any one of the options from the menu to select **PC screen only**, **Duplicate**, **Extend** or **Second screen only**.
4. You can also click **Connect to a wireless display** at the bottom of the **Project** screen and follow the steps to connect to any wireless enabled display.



### Intel or NVIDIA Video Driver Controls

More detailed video controls are provided by the **Intel/NVIDIA Control Panel** (for more detailed information see [Appendix C](#)).

You can also access the control panel by right-clicking the desktop and selecting **Intel(R) Graphics Properties/NVIDIA Control Panel**.

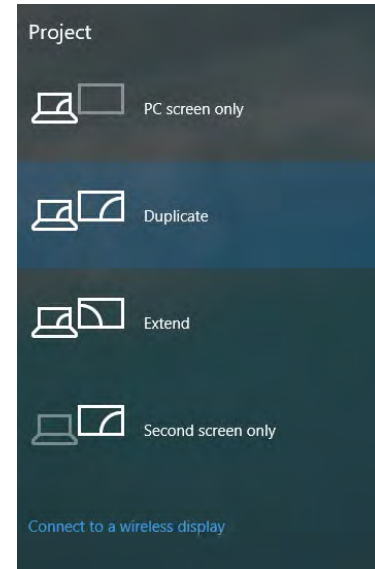


Figure 1 - 25 - Project (Devices)

## Quick Start Guide

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

1. Go to the **Control Panel**.
2. Click **Display** (icon) - In the **Appearance and Personalization** category.
3. Make and changes required from the **Display, Resolution, Orientation** or **Multiple display** menus.
4. Click **Apply** to save the settings.

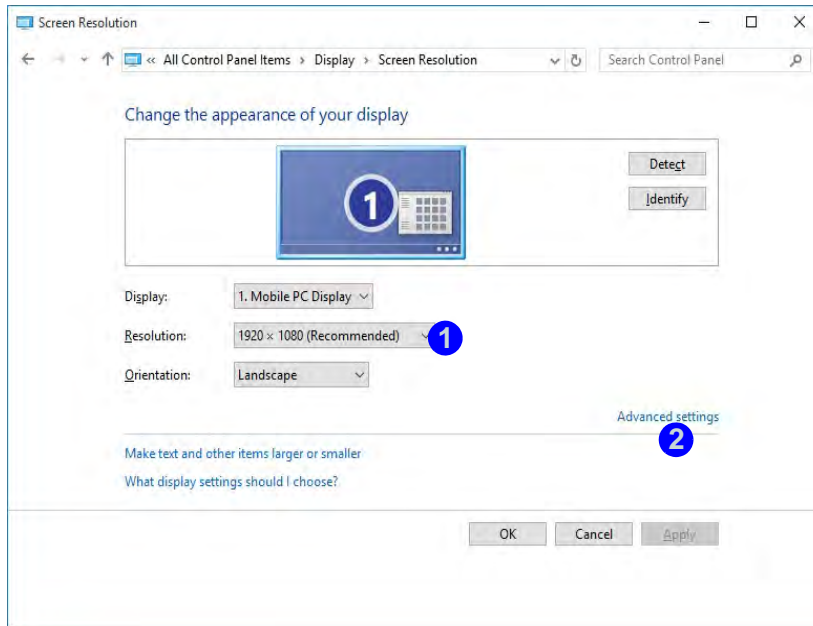


Figure 1 - 26 - Screen Resolution

### Screen Resolution

1. Use the dropdown to select the screen **Resolution** **1** (*Figure 1 - 26*).
2. Click **Advanced settings** **2** (*Figure 1 - 26*) to bring up the **Advanced** properties tabs.
3. Click **Apply** to save any changes made.

## Display Settings:

1. You can quickly adjust the display by right-clicking the desktop and selecting **Display Settings** ① (*Figure 1 - 27*).
2. Adjust the settings using the sliders in the menu or click **Advanced display settings** ② (*Figure 1 - 27*) to change resolution.
3. Click **Apply** to save any changes made to resolution.

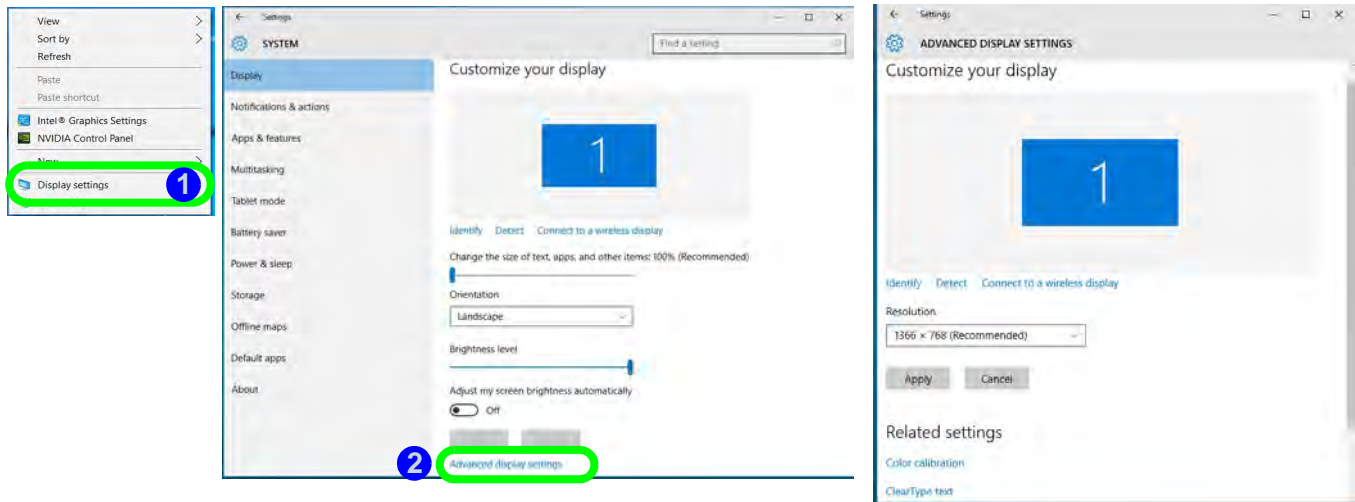



Figure 1 - 27 - Display Settings

## Quick Start Guide

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

1. Right-click the desktop and select **Intel(R) Graphics Settings** from the menu.

**OR**

2. Click the icon  in the notification area of the Desktop taskbar and select **Intel(R) Graphics Settings** from the menu.

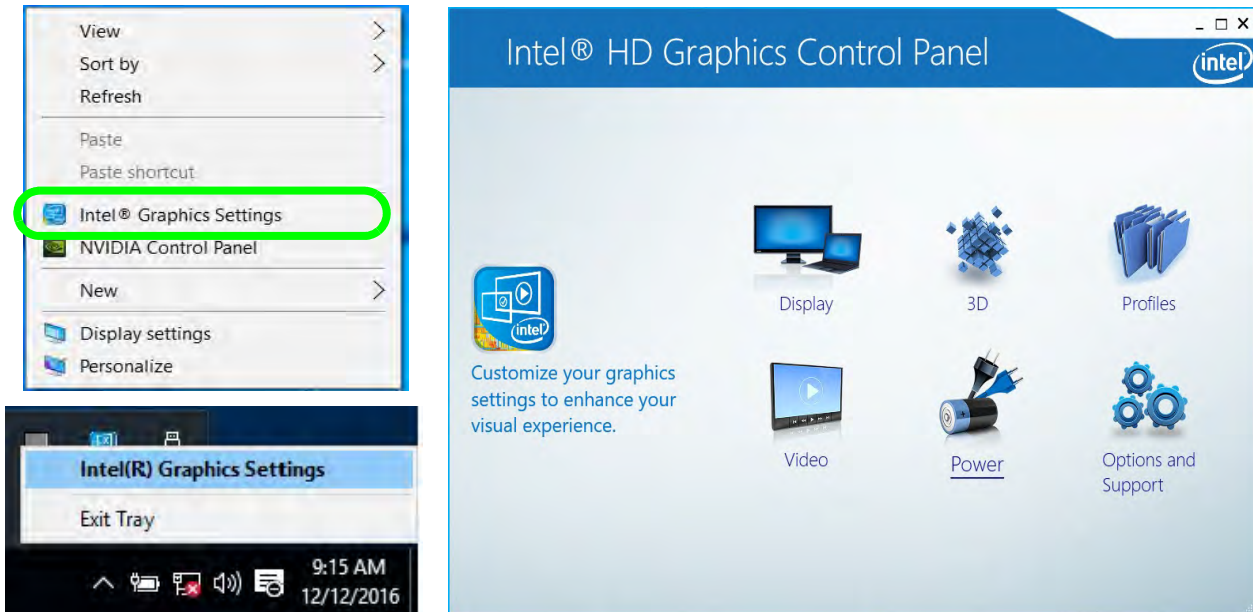


Figure 1 - 28 - Intel® HD Graphics Control Panel



To access the *NVIDIA Control Panel*:

1. Right-click the desktop and select **NVIDIA Control Panel** ① (Figure 1 - 29).
- OR**
2. Double-click the icon ② (Figure 1 - 29) in the *Windows* control panel.

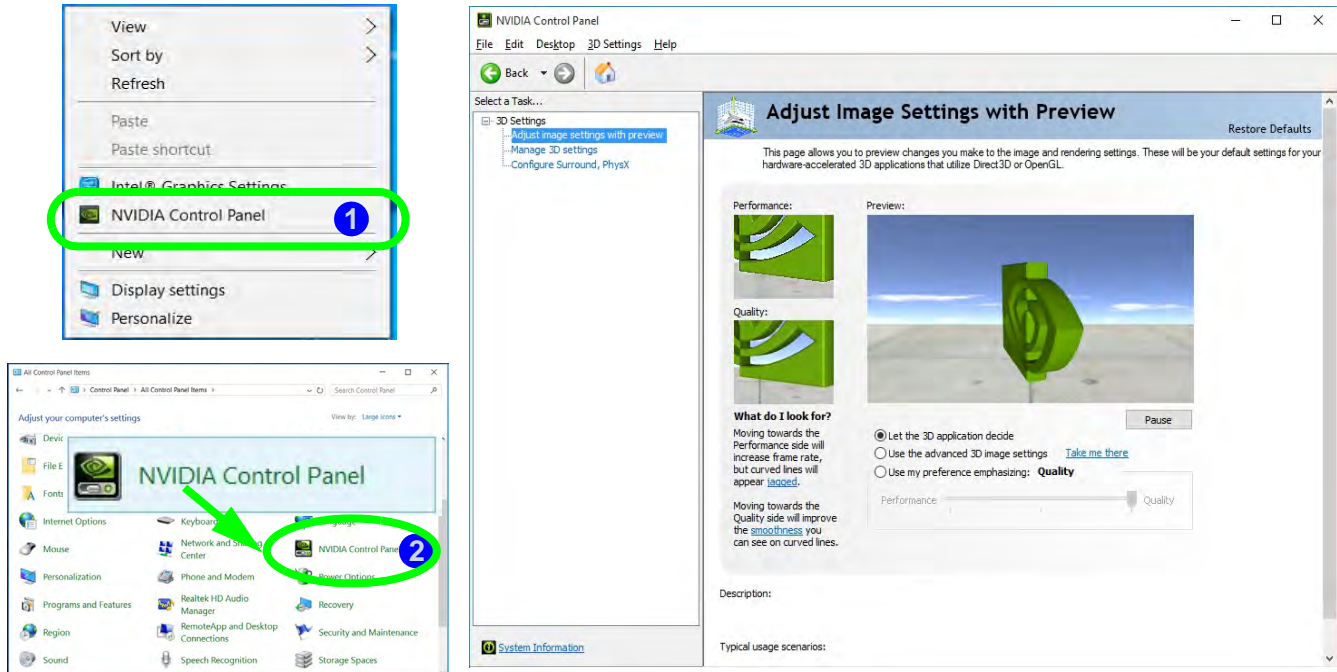



Figure 1 - 29 - NVIDIA Control Panel

## Power Options

**Power Options (Hardware and Sound)** can be accessed from the Control Panel. The **Power** button item in **Start Menu** (or the context menu) may be used to **Shut down** or **Restart** (you can also add **Hibernate/Sleep** to the menu - see page *1 - 41*). To fully control all the power options (including Hibernate mode) go to the **Power Options** control panel and configure the power button, sleep button and lid to perform the function selected.

### Using the Power Button

1. Go to the **Start Menu**.
2. Click the **Power button** .
3. Select the power state required from the menu.

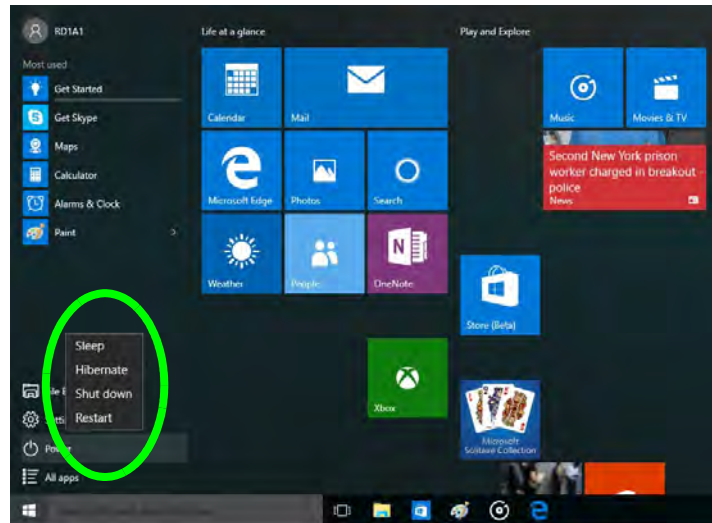



Figure 1 - 30 - Shut Down/Restart

You can also use the **context menu** (right-click the Start Menu  icon or press the Windows logo  + **X** key combination) to **Sign out, Sleep, Hibernate, Shut down, and Restart**.

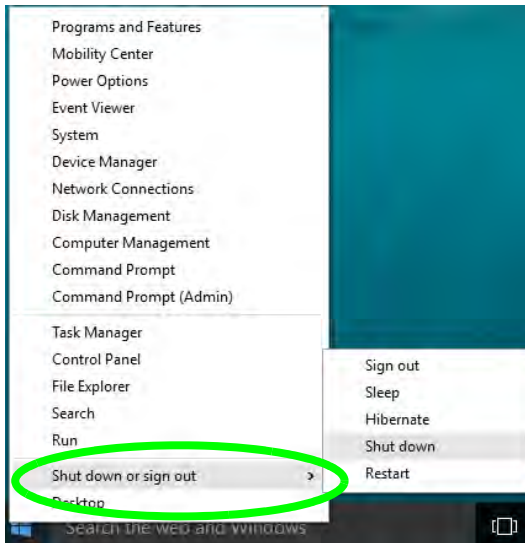



Figure 1 - 31 - Context Menu Shut Down or sign out

### Adding Hibernate/Sleep to the Power Men

1. Go to the **Power Options (Hardware and Sound)** control panel.
2. Click **Choose what the power buttons do**.
3. Click "**Change settings that are currently unavailable**"  [Change settings that are currently unavailable](#).
4. Click to put a check in the **Hibernate/Sleep** box under **Shutdown settings**.
5. Click **Save Changes** and close the control panel.

### Ctrl + Alt + Delete Key Combination

You can use the **CTRL + ALT + DEL** key combination to bring up a full-screen displaying **Lock, Sign out, Change a password, Task Manager and Switch User**. If you click the **Power** icon in the lower right corner of the screen a power management option menu appears to display **Sleep, Hibernate, Shut down, and Restart**.

## Quick Start Guide

### Minimum Screen Resolution Settings

1. **Windows 10** has minimum screen resolution requirements.
2. Right-click a blank area of the Desktop and select **Screen Resolution** (or go to the **Display** control panel).
3. Adjust the **Resolution** to make sure that it is at least **1024 \* 768**, although preferably **1366 \* 768** or above.

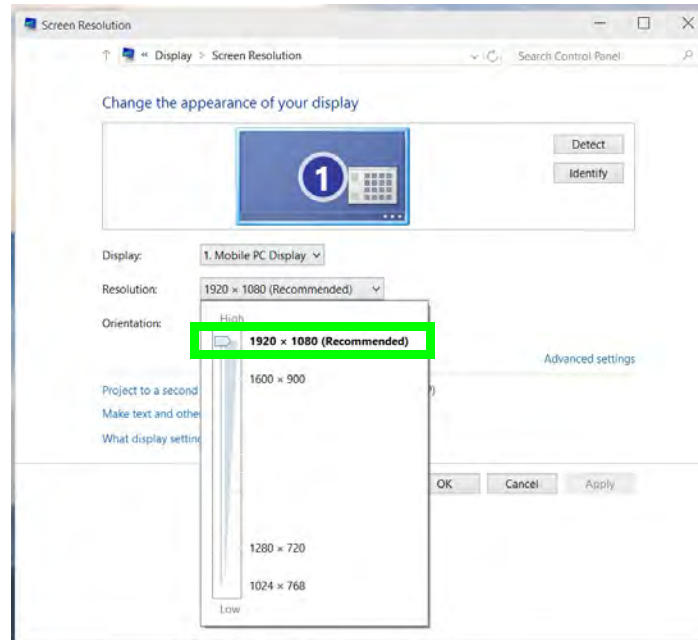


Figure 1 - 32 - Screen Resolution

# Chapter 2: Storage Devices, Mouse, & Audio

## Overview

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

- Hard Disk Drive/Solid State Drive
- Multi-in-1 Card Reader
- Audio Features
- Touchpad and Buttons/Mouse



#### Bottom Cover Removal Warning

Do not remove any cover(s) and /or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty.

If you need to replace/remove the hard disk for any reason, please contact your distributor/supplier for further information.

## Hard Disk Drive/Solid State Drive

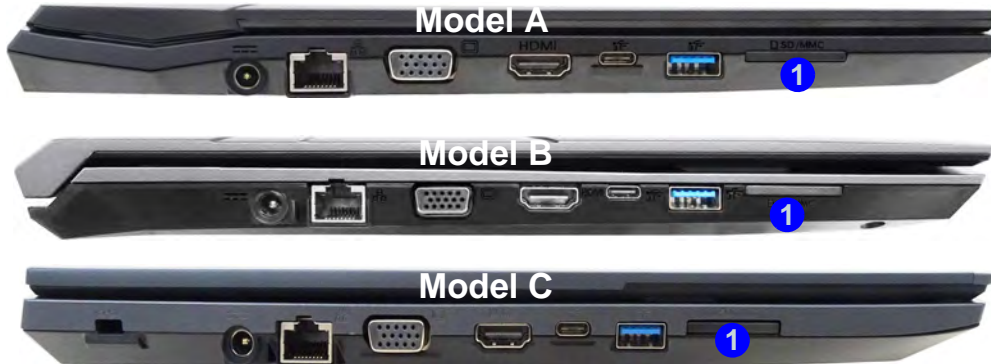
The hard disk drive (HDD) and/or solid state drive (SSD) is used to store your data in the computer. The hard disk can be taken out to accommodate other serial (SATA) hard disk drives (see *“Storage” on page D - 2* for specification information), however you will need to contact your distributor/supplier to do this in order to avoid violating the terms of your warranty.

## 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 *“Card Reader” on page 4 - 7*).

- MMC (MultiMedia Card) / RSMMC
- SD (Secure Digital) / Mini SD / SDHC / SDXC

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



### Push-Push Card Reader


The card reader features a push-in/push-out card insertion and ejection mechanism. Simply push the card to insert and eject it, however Ms Duo cards require an adapter.

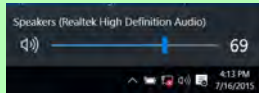
*Figure 2 - 1*  
**Left View**

1. Card Reader






### Volume Adjustment

The sound volume level can be clicking using the volume control icon  in the **notification area of the taskbar**.




*Figure 2 - 2*  
**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 taskbar 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 **audio slider in the Settings menu** (see sidebar).



Right-click the icon  to access the menu above.




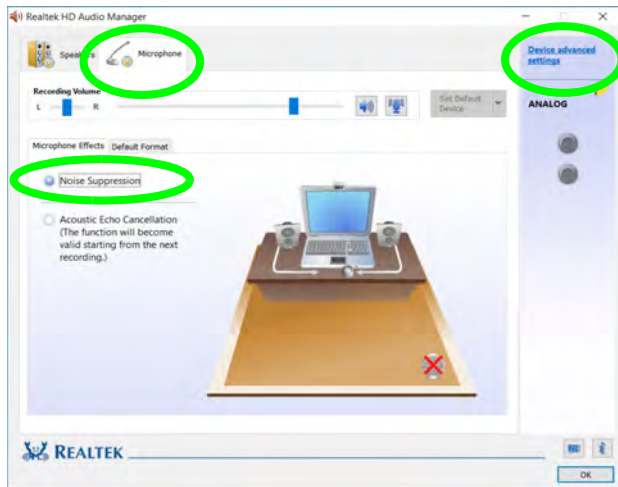
See ***“HDMI Audio Configuration” on page C - 9*** for a description of the audio configuration when connecting an HDMI supported display device.  
See ***“Sound Blaster Cinema 3” on page 6 - 37*** for more information on the Sound Blaster Audio setup.



## Setup for Audio Recording

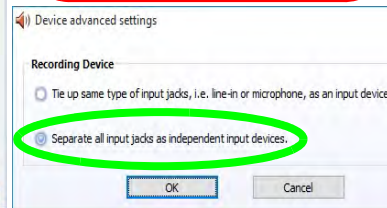
To record audio sources on your computer at optimum quality follow the instructions below:

1. Go to the **Control Panel**.
2. Click **Realtek HD Audio Manager (Hardware and Sound)**, 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.



### Sound Blaster Cinema 3 Audio

Note that you will need to install the Sound Blaster Cinema 3 audio application in order to get maximum audio performance. See [“Sound Blaster Cinema 3” on page 6 - 37](#).



### Device Advanced Settings

For the purposes of recording it is recommended that you **enable “Separate all input jacks as independent input devices”** in **Device advanced settings**.

This will help prevent a situation where the internal microphone seems to be disabled, or where sound can still be heard from the speakers even though the headphones are plugged into the headphone jack.

*Figure 2 - 3*  
**Realtek Audio Manager - Recording Setup**



### Touchpad Cleaning

In order to improve pad performance it is necessary to keep the surface clean and free of fingerprints and marks etc.

Use a soft dry cleaning cloth to keep the pad surface clean.

### Disabling the Pad

Use the **Fn + F1** or Control Center button to disable the Touchpad.

## Touchpad and Buttons/Mouse

The Touchpad is an alternative to the mouse; however, you can also add a mouse to your computer through one of the USB ports. The Touchpad buttons function in much the same way as a two-button mouse. Make sure you have installed the Touchpad driver (see *“Touchpad” on page 4 - 8*).

### Touchpad Sensitivity

The **mouse button zones** at the bottom of the pad are defined by the line at the **bottom** of the pad, and the **left and right buttons** are divided roughly down the middle. Press the left button zone for a left click, and right button zone for a right click action.




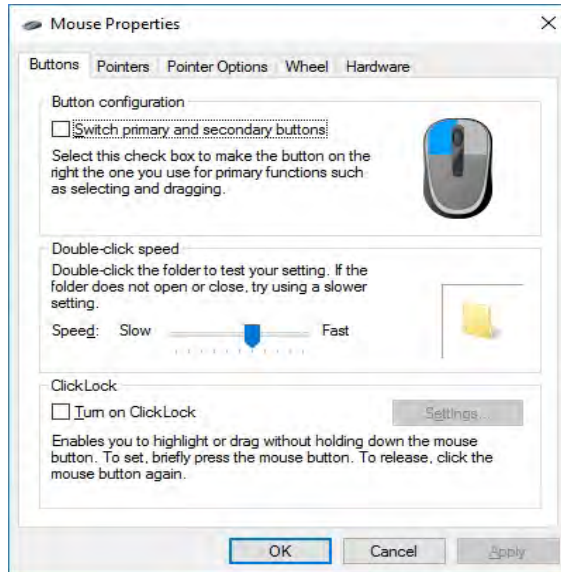
### Mouse Driver

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

# Mouse Properties Control Panel

You can configure the functions from the **Mouse** control panel in *Windows* as follows.

1. Right-click the **Start Menu**  icon.
2. Select **Control Panel**.
3. Click **Mouse (Hardware and Sound > Devices and Printers)**.
4. Click the menu headings tabs to adjust your mouse preferences.

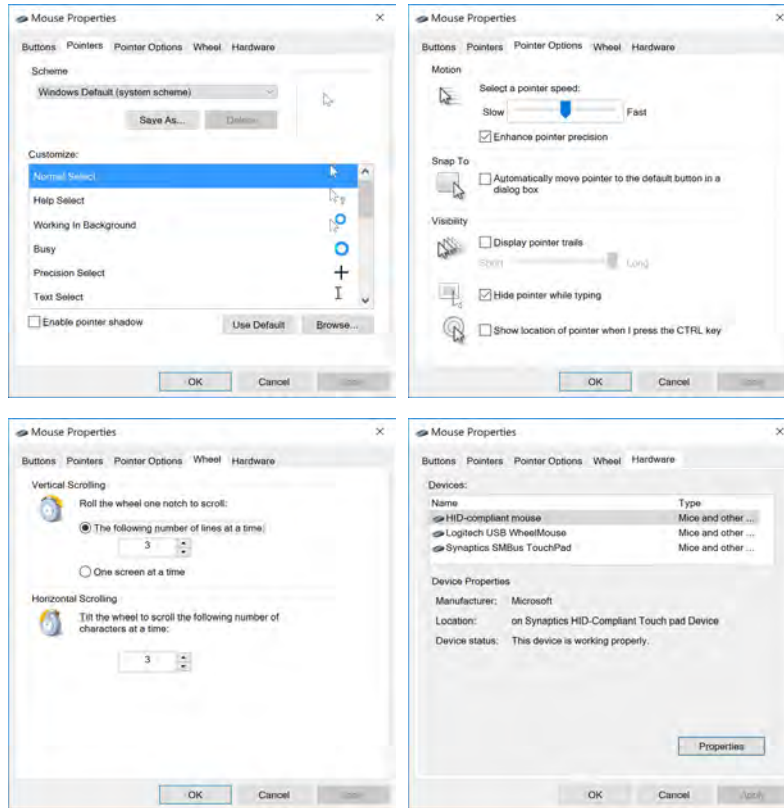


## Disabling the Touchpad

If you need to disable the Touchpad for any reason (e.g. you may find that when using the computer's internal keyboard you accidentally trigger the Touchpad when resting your wrists or palms on it) you can do so by using **Fn + F1** key combination.

*Figure 2 - 4*  
**Mouse Properties Control Panel - Buttons**

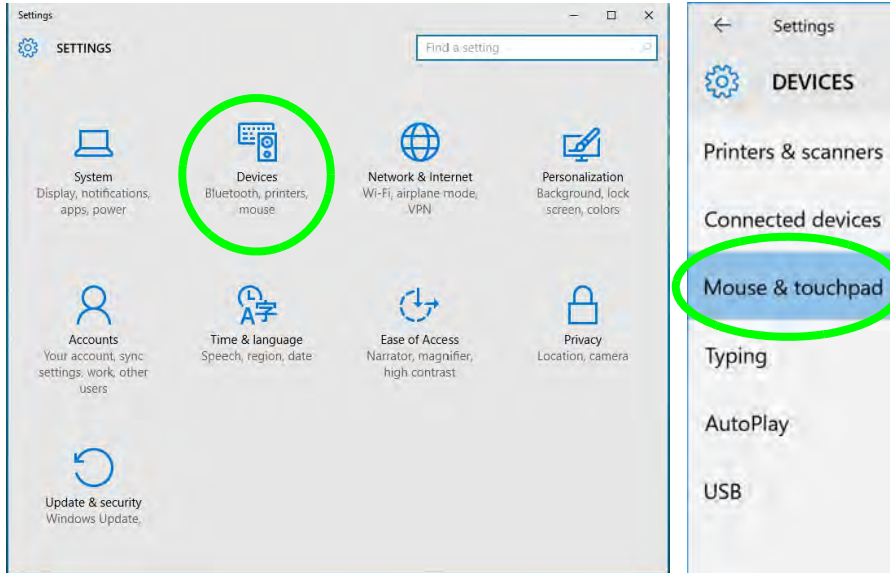
*Figure 2 - 5*  
**Mouse Properties Control Panels**



## Mouse & Touchpad Devices

You can also configure the functions from the **Mouse & touchpad** control panel in **Devices** in the **Settings** control panel as follows.

1. Click the **Settings** item in the **Start Menu** (this is also as an App or **All Settings** in the Action Center).
2. Click **Devices**.
3. Click **Mouse & touchpad**.

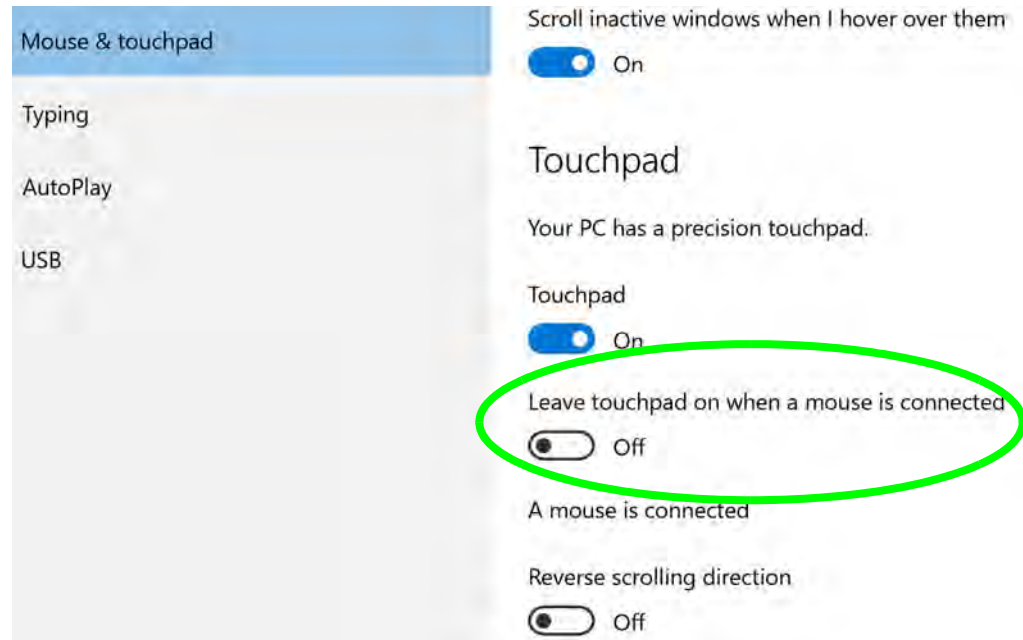


*Figure 2 - 6*  
**Settings > Mouse & touchpad**

### Touchpad Settings

You can disable the Touchpad by clicking the Touchpad button to turn it off.

You can set the system to automatically disable the internal Touchpad when an external USB point device (e.g a USB mouse) is attached. Click **“Leave touchpad on when a mouse is connected”** to off.



*Figure 2 - 7*  
**Mouse & Touchpad**  
*(Touchpad turned off when mouse connected)*

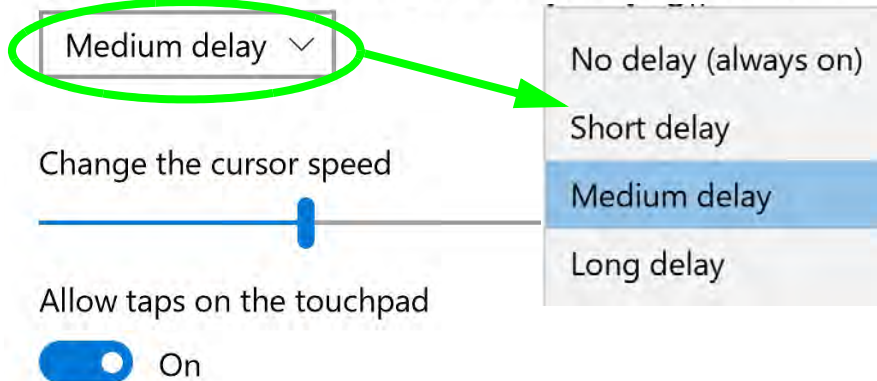
## Touchpad Taps

Make sure “**Allow taps on the touchpad**” is on if you want to use the tap feature.

The **Delay** feature helps prevent recognizing taps on the pad by accident, by recognizing when your palm is resting on it or brushing its surface while you are typing.

Use the drop-down menu to either turn off any delay, or to adjust the delay to your preference.

To help prevent the cursor from accidentally moving while you type, turn off taps or change the delay before taps work.



*Figure 2 - 8*  
**Mouse & Touchpad**  
**Adjust Delay**

You to use a specific gesture or taps on the surface of the pad to perform specific actions to manipulate documents, objects and applications, and these may be enabled or disabled by clicking on the appropriate button.

Press on the lower right corner of the touchpad to right-click



On

Allow double-tap and drag



On

Use a two finger tap for right click



On

Use a two finger drag to scroll



On

Use a two finger pinch to zoom



On

*Figure 2 - 9*  
**Mouse & Touchpad  
Taps and Gestures**



The **two-finger tap** acts as a **right-click mouse** action and can bring up context menus etc.

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



*Figure 2 - 10*  
**Scrolling Gesture**

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



*Figure 2 - 11*  
**Zooming Gesture**

The **three and four-finger taps** may be configured may be used to trigger **Cortana Search** or the **Action Center**.



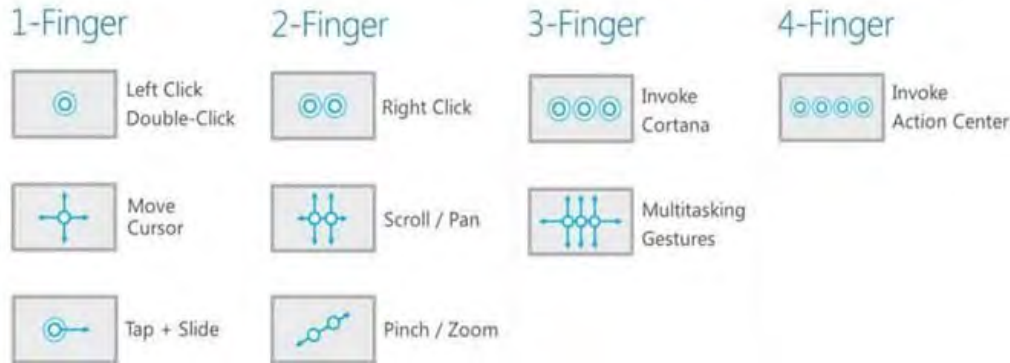
*Figure 2 - 12*  
**Mouse & Touchpad**  
**Select Actions**

The **three finger-drags & slides** gesture may be used to enhance navigation with a variety of applications such as browsing the Internet or scrolling through a photo viewer.



*Figure 2 - 13*  
**Slide Gesture**

The following is an overview of the main gestures you can use with your Touchpad.



*Figure 2 - 14*  
**Touchpad  
 Gestures**



# Chapter 3: Power Management

## Overview

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

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

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



### OS Note

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



### 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.

## The Power Sources

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

### AC/DC Adapter

Use only the AC/DC adapter that comes with your computer. The wrong type of AC/DC adapter will damage the computer and its components.

1. Attach the AC/DC adapter to the DC-in jack on the left of the computer.
2. Plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter (**make sure you use the adapter when first setting up the computer**, as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter).
3. Raise the lid/LCD to a comfortable viewing angle.
4. Press the power button to turn “On”.

### Battery

The battery allows you to use your computer while you are on the road or when an electrical outlet is unavailable. Battery life varies depending on the applications and the configuration you're using. **To increase battery life, let the battery discharge completely before recharging** (see *“Battery FAQ” on page 3 - 21*).

We recommend that you do not remove the battery. For more information on the battery, please refer to *“Battery Information” on page 3 - 17*.

## 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 (Hardware and Sound)** in the *Windows* control panel to configure this feature.





### Power Button as Stand by or Hibernate Button

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

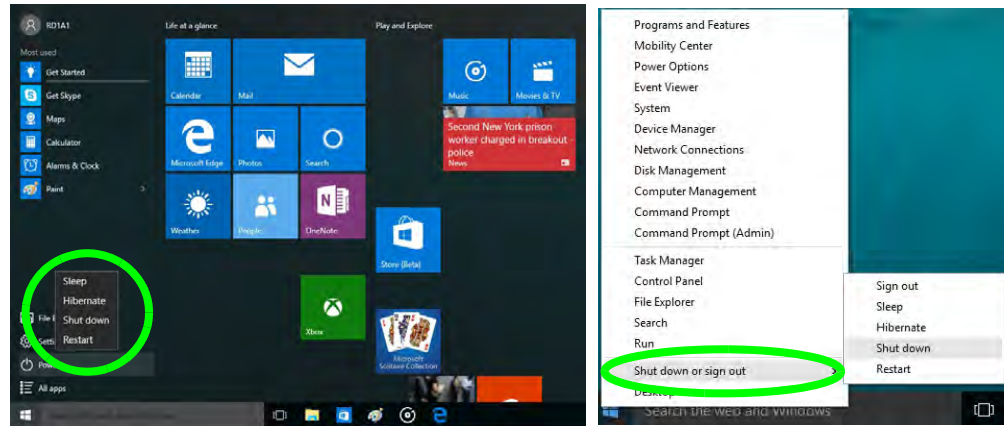
# Shutting the Computer Down

Note that you should always shut your computer down by choosing the **Shut down** command as this will help prevent hard disk or system problems. Use the **Power**  item in the **Start Menu** and select **Shut down**.

You can also use the **context menu** (right-click the Start Menu  icon or press the Windows logo  + **X** key combination) to **Sign out**, **Sleep**, **Hibernate**, **Shut down**, and **Restart**.

If you want to add Hibernate/Sleep to the Power Menu see *“Adding Hibernate/Sleep to the Power Menu” on page 3 - 10.*

Figure 3 - 1  
Shut Down/Restart



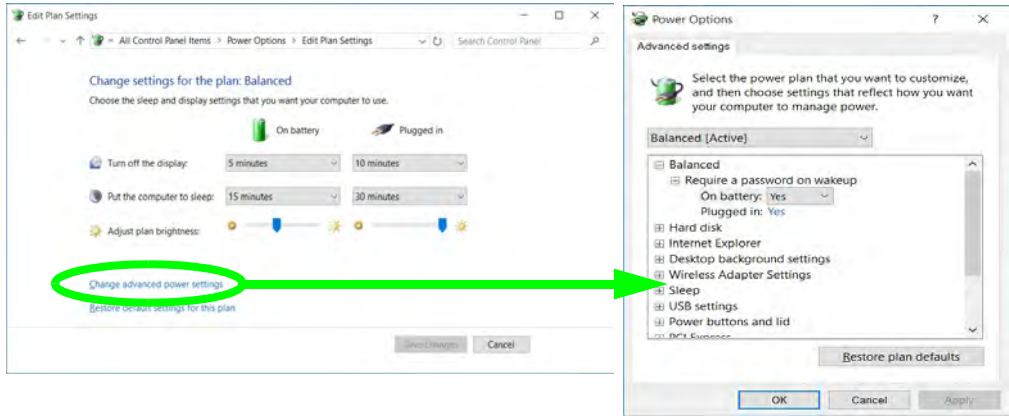



# Power Plans

The computer can be configured to conserve power by means of **power plans (Control Panel > Power Options)**. 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**.





**Resuming Operation**

See *Table 3 - 1, on page 3 - 11* for information on how to resume from a power-saving state.

**Password**

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

*Figure 3 - 2*  
**Power Plan Advanced Settings**

## Power Management

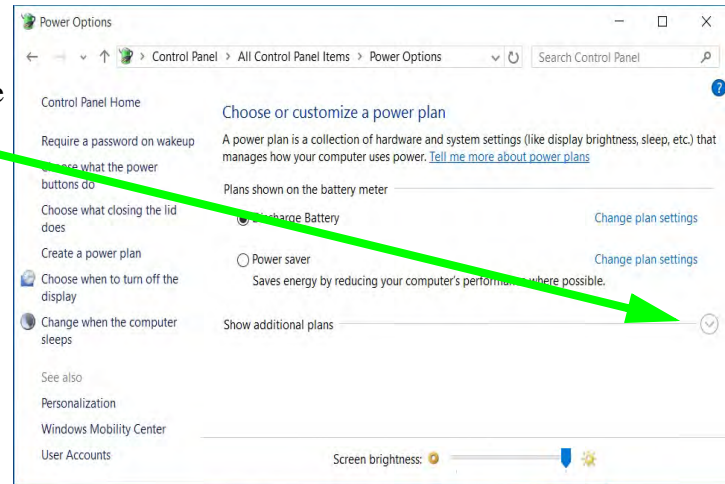
3

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.

*Figure 3 - 3*  
**Power Plans**

Click to Show/Hide additional power plans



## Power-Saving States

You can use power-saving states to stop the computer's operation and restart where you left off. *Windows 10* 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.

To add **Sleep** to the **Power Menu** see *“Adding Hibernate/Sleep to the Power Menu” on page 3 - 10*.



### Wake On LAN Support

Wake-On-LAN is only supported from **Sleep** or **Hibernate** states in *Windows*.

If you require your computer to wake up from network activity in *Windows* then make sure that the computer is either in **Sleep** or **Hibernate**.

Wake-On-LAN is not supported from **Shut-down** states in *Windows*.

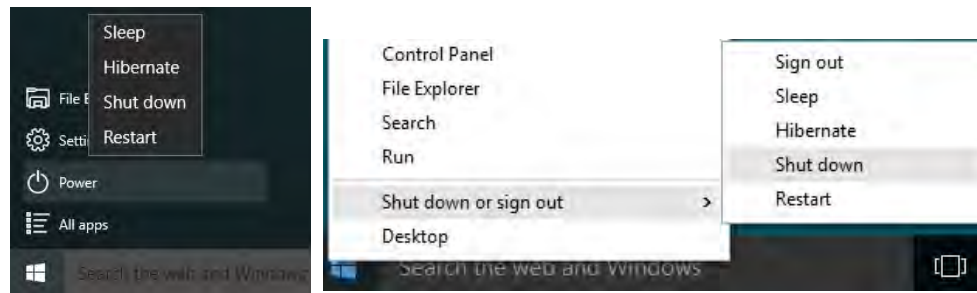
### Hibernate

**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. To add **Hibernate** to the **Power Menu** see *“Adding Hibernate/Sleep to the Power Menu” on page 3 - 10.*

### Shut down

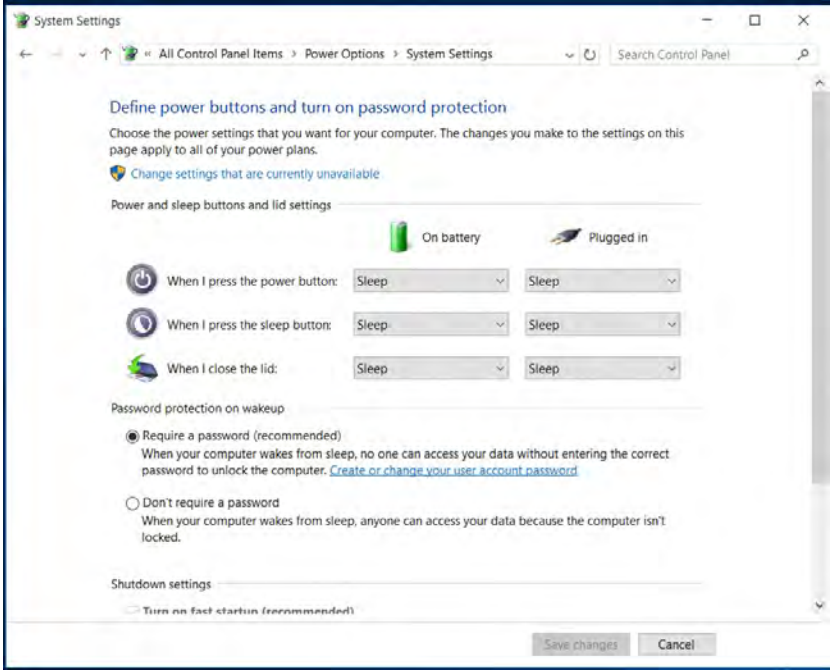
You should **Shut down** the computer if you plan to install new hardware, plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **Shut down** takes longer than from **Sleep** or **Hibernate**.


*Figure 3 - 4*  
**Power Button &  
Start Menu Power**



# Configuring the Power Buttons

The power/sleep button (**Fn + F12** key combo) and closed lid may be set to send the computer in to a power-saving state. Click **Choose what the power buttons do** on the left menu in **Power Options** to bring up the menu.





### Password Protection


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

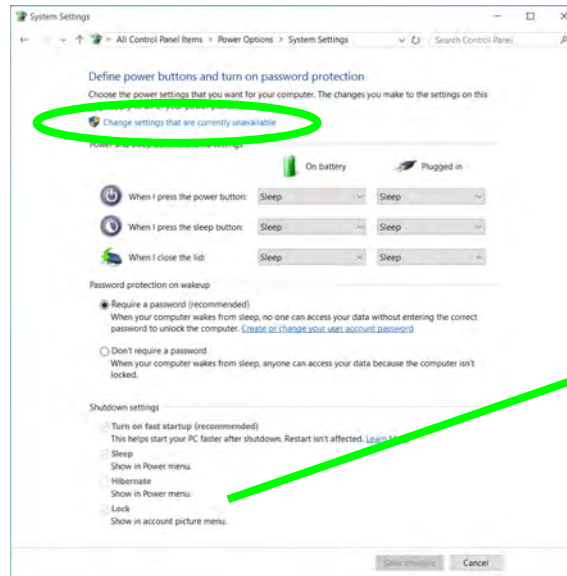
However you can disable this setting from the **Power Options** menu by clicking **Require a password on wakeup** in the left menu, and selecting the options (click **Change settings that are currently unavailable**).

Figure 3 - 5  
Power Options  
Define Power Buttons

### Adding Hibernate/Sleep to the Power Menu

Add **Hibernate/Sleep** to the **Power Menu** as follows.

1. Go to the **Power Options (Hardware and Sound)** control panel.
2. Click "**Change settings that are currently unavailable**"  Change settings that are currently unavailable .
3. Click **Choose what the power buttons do**.
4. Click to put a check in the **Hibernate/Sleep** box under **Shutdown settings**.
5. Click **Save Changes** and close the control panel.



#### Shutdown settings

- Turn on fast startup** ( This helps start your PC
- Sleep** Show in Power menu.
- Hibernate** Show in Power menu.
- Lock** Show in account picture

*Figure 3 - 6*  
**Power Options**  
**Define Power**  
**Buttons - Shutdown**  
**Settings**

### Resuming Operation

You can resume operation from power-saving states by pressing the power button, or in some cases pressing the sleep button (**Fn + F12** key combo).




Power Status	Icon  Color	To Resume
Power Off	Off	Press the Power Button
Sleep	Blinking White	Press the Power Button Press the Sleep Button (Fn + F12 Key Combo)
Hibernate	Off (battery) Orange (AC/DC adapter)	Press the Power Button
Display Turned Off	White	Press a Key or Move the Mouse/Touchpad

Table 3 - 1  
Resuming  
Operation



**Power Button**

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



**Closing the Lid**

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



### Power Conservation Modes

The **Power Saving** 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.

Note that the Energy Star setting will put the display into sleep after no more than 15 minutes of user inactivity.

### Power Conservation Modes

This system supports **Power Saving** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity. Adjust **Power Conservation Modes** from the **Control Center**:

1. Press the **Fn + Esc** key combination to toggle the **Control Center** on/off.
2. Click either the **Performance**, **Balanced** or **Power Saving** button.

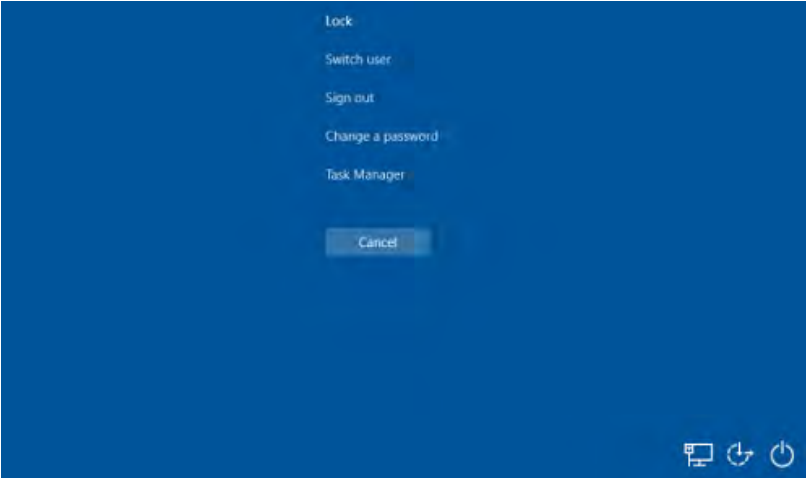


*Figure 3 - 7*  
**Control Center**



### Ctrl + Alt + Delete Key Combination

You can use the **CTRL + ALT + DEL** key combination from almost any of the *Windows 10* interfaces/Apps to bring up a full-screen displaying **Lock, Switch User, Sign out, Change a password** and **Task Manager** options. If you click the **Power** icon in the lower right corner of the screen a power management option menu appears to display **Sleep, Shut down, and Restart**.

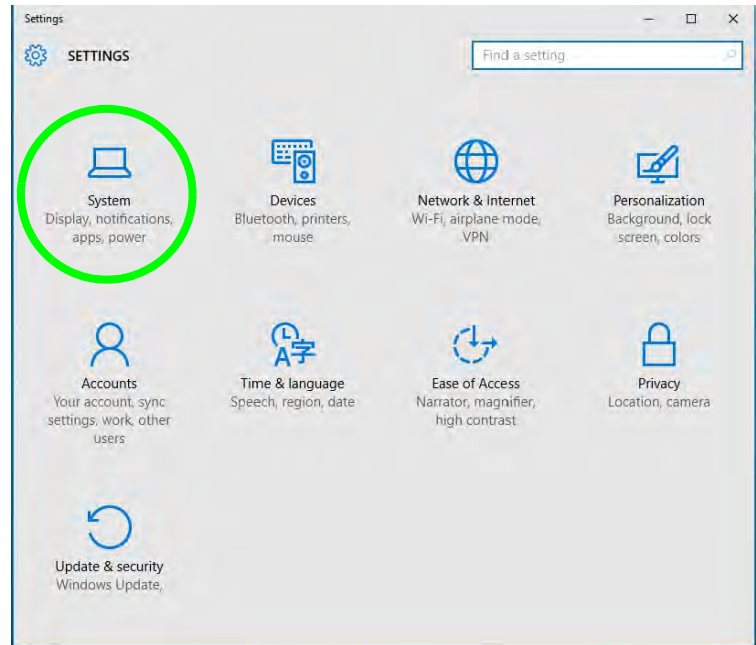
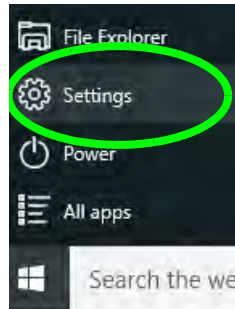


*Figure 3 - 8*  
**Ctrl + Alt + Delete**  
**Menu**

To fully control all the power options (including Hibernate mode) go to the **Power Options** control panel and configure the power button, sleep button and lid to perform the function selected.

# Settings Menu Power Controls

The **Settings** item in the **Start Menu** (and also as an App) gives you access to a number of power settings control panels which enable you to quickly adjust power options. Click **System** to access the menu including the power option settings.



*Figure 3 - 9*  
**Settings**

### Battery Saver

Battery Saver will display the battery level, and by clicking **Battery Use** you can see the current state of battery usage by application etc. Click **Battery saver settings** to adjust the battery saver level.

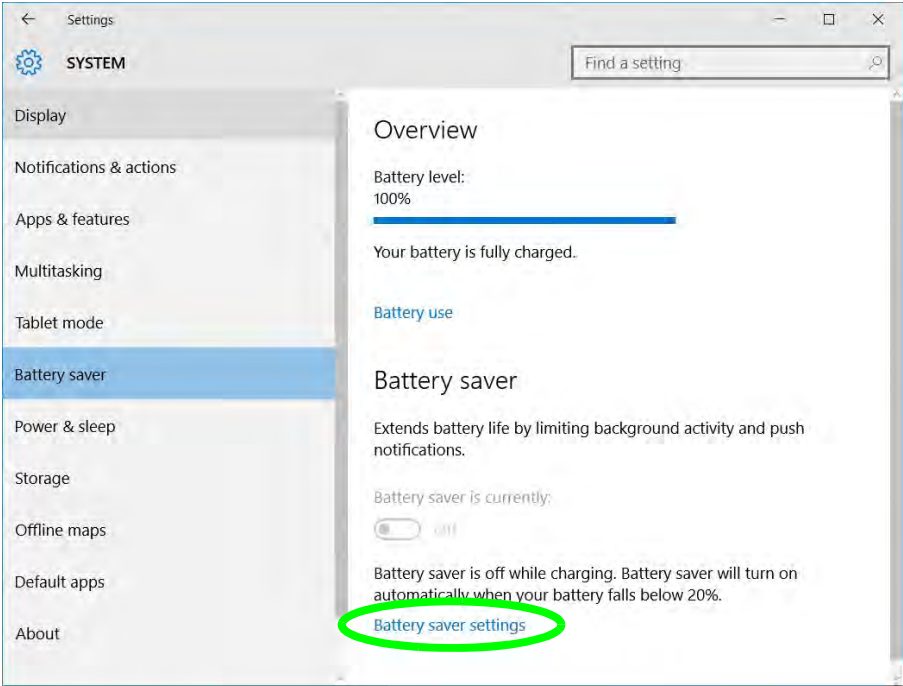
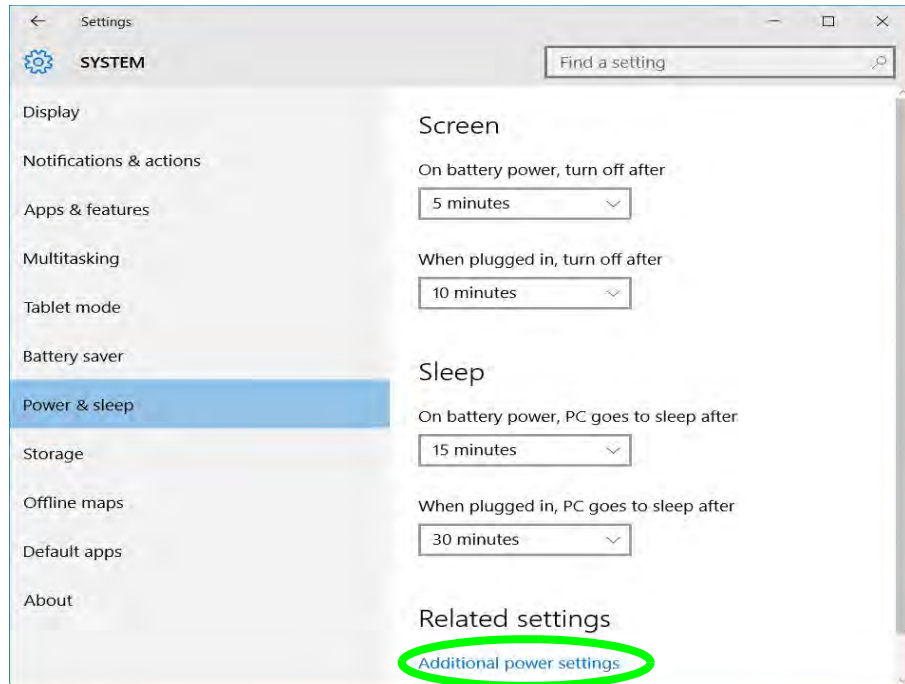


Figure 3 - 10  
Settings > Battery  
Saver

### Power & Sleep

**Power & sleep** gives you quick access to **Screen** and **Sleep** settings. Click **Additional power settings** to go to the main power options control panel.

3




*Figure 3 - 11*  
**Settings > Power & Sleep**

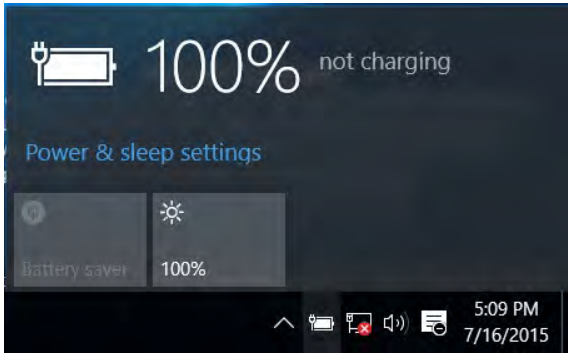
# Battery Information

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 - 3 on page 3 - 6*).

Click the battery icon  in the notification area to see the current battery level and charge status (you can also click **Power & sleep settings** to access the **Settings** menu to quickly adjust power settings).



  
**Low Battery Warning**

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

*Figure 3 - 12*  
**Battery Icon (Notification Area) & Battery Advanced Settings**

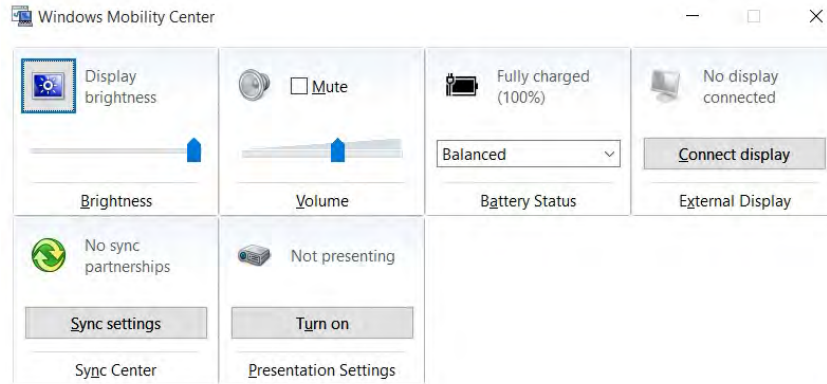


### Windows Mobility Center

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, ExpressCards etc.



*Figure 3 - 13*  
**Windows Mobility Center (Control Panel)**

## 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 should not remove the built-in battery yourself (see sidebar).

## New Battery

Always completely discharge, then fully charge, a new battery (see [“Battery FAQ” on page 3 - 21](#) 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 [“LCD Panel Open - Model B” on page 1 - 8](#) for information on the battery charge status, and to [“Battery FAQ” on page 3 - 21](#) for more information on how to maintain and properly recharge the battery pack.



### Battery Removal

Note that **the built-in battery is not user removable**. Removing the battery will violate the terms of your warranty.

If you need to remove the battery for any reason, please contact your distributor/supplier for further information.



### Caution

Danger of explosion if battery is incorrectly replaced.

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

### 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**.

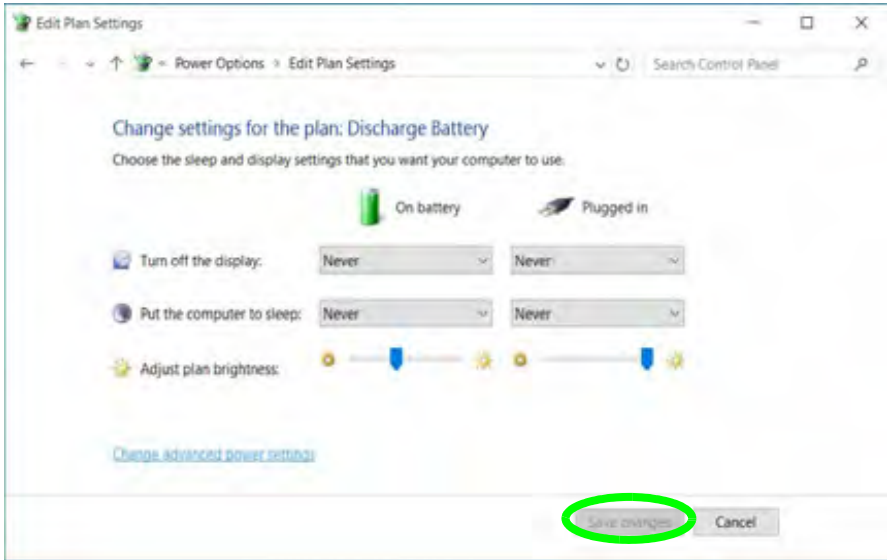
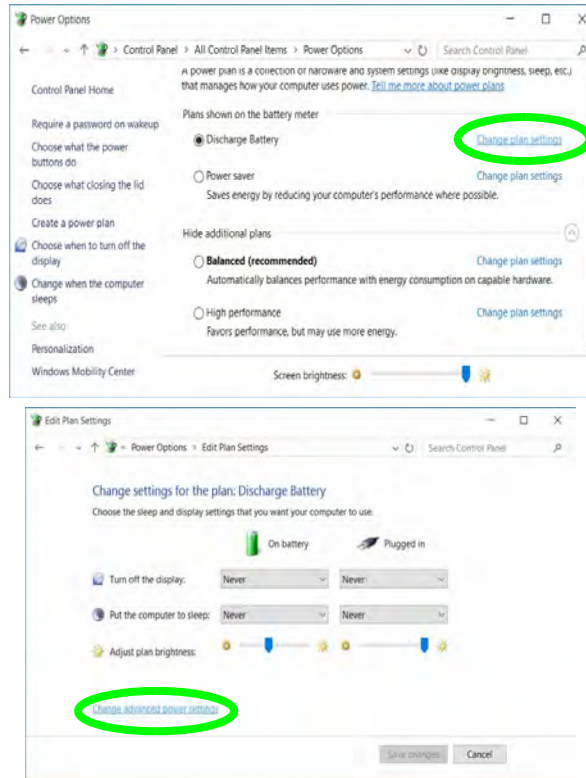


Figure 3 - 14  
Power Plan Create

## Power Management

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

*Figure 3 - 15*  
**Change Plan Settings / Change Advanced Power Settings**



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

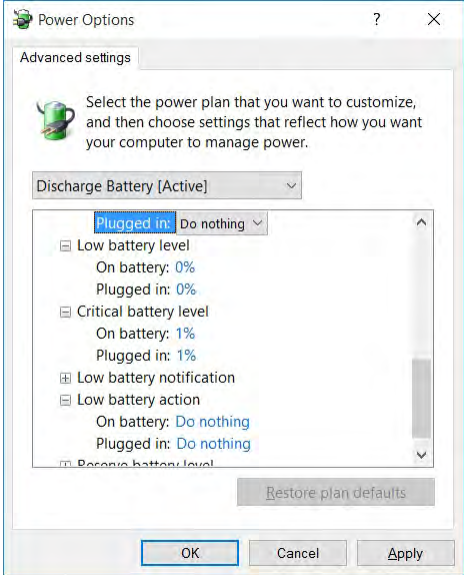


Figure 3 - 16  
Power Options  
Advanced Settings -  
Battery

- Low battery levels = 0%
- Critical battery Levels = 1%
- Low battery action = Do Nothing
- Critical battery action (On battery) = Shut Down
- Critical battery action (Plugged in) = Do Nothing

### **How do I fully charge the battery?**

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

### **How do I maintain the battery?**

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

# Chapter 4: Drivers & Utilities

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

## What to Install

You will need to attach an external optical CD/DVD device drive to install the drivers from the *Device Drivers & Utilities + User's Manual* disc. The disc contains the drivers and utilities necessary for the proper operation of the computer. *Table 4 - 1, on page 4 - 4* lists what you need to install and **it is very important that the drivers are installed by the method outlined in this chapter, and in the order indicated.** Note that the information on the following pages is for *Windows 10 (64-bit) only*.

## Module Driver Installation

The procedures for installing drivers for the **Wireless LAN, Bluetooth & WLAN Combo, Intel Technology, Sound Blaster Cinema** and **4G** modules are provided in "*Modules*" on page 6 - 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

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click the message “**Tap to choose what happens with this disc.**”
3. Click **Run autorun.exe**.
4. Click **Install Drivers** (button), or **Option Drivers** (button) to access the **Optional** driver menu.



Figure 4 - 1 - Drivers Installer Screen 1

5. Check the driver installation order from **Table 4 - 1, on page 4 - 4** (the drivers must be installed in this order) which is the same as that listed in the *Drivers Installer* menu below.
6. Click to select the driver you wish to install, (you should note down the drivers as you install them).
7. Follow the instructions for each individual driver installation procedure as listed on the following pages.



Figure 4 - 2 - Install Drivers

## Drivers & Utilities

Win 10 (64-bit) Driver	Page #	Win 10 (64-bit) - Optional Items	Page #
<i>Chipset</i>	<i>Page 4 - 7</i>	<i>Setting Up SATA RAID or AHCI Mode</i>	<i>Page 6 - 2</i>
<i>Video (VGA)</i>	<i>Page 4 - 7</i>	<i>Wireless LAN Module</i>	<i>Page 6 - 21</i>
<i>NVIDIA Video (VGA)</i>	<i>Page 4 - 7</i>	<i>Bluetooth &amp; WLAN Combo Module</i>	<i>Page 6 - 25</i>
<i>LAN</i>	<i>Page 4 - 7</i>	<i>Intel® Software Guard Extensions Driver</i>	<i>Page 6 - 30</i>
<i>Card Reader</i>	<i>Page 4 - 7</i>	<i>Intel® Rapid Storage Technology</i> (required for hard disks in AHCI & mode)	<i>Page 6 - 31</i>
<i>Touchpad</i>	<i>Page 4 - 8</i>	<i>Sound Blaster Cinema 3</i>	<i>Page 6 - 37</i>
<i>Airplane</i>	<i>Page 4 - 8</i>	<i>PC Camera</i> (no driver installation required)	<i>Page 6 - 49</i>
<i>Control Center</i>	<i>Page 4 - 8</i>	<i>Trusted Platform Module</i> (no driver installation required)	<i>Page 6 - 54</i>
<i>MEI Driver</i>	<i>Page 4 - 8</i>	<i>3G/4G Module</i> (no driver installation required)	<i>Page 6 - 60</i>
<i>Audio</i>	<i>Page 4 - 8</i>		
<i>All drivers provided are for the Windows 10 (64-bit) operating system.</i>			

*Table 4 - 1 - Driver Installation*

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



### 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 **Check for updates** (**Settings > Update & security > Check for updates**) in order to get all the latest security updates etc. (all updates will include the latest **hot-fixes** from Microsoft). See “*Windows Update*” on [page 4 - 9](#) 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** 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. Go to the **Control Panel**).
2. Double-click **Device Manager (Hardware and Sound > Devices and Printers > 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. WLAN or Bluetooth) are **ON (i.e. the system is not in Airplane Mode)** before installing the appropriate driver.

## Driver Installation Procedure

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

### Chipset


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

### Video (VGA)

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

### NVIDIA Video (VGA)

1. Click **3.Install NVIDIA VGA Driver > Yes**.
2. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
3. Click **Next**.
4. Click the **Close** button to complete the installation.

5. After all the drivers have been installed (an internet connection is required) run the **NVIDIA GeForce Experience** by clicking the desktop icon  (or App).

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

### LAN

*Note: If the computer enters a deep sleep mode during installation, you will be prompted to plug in a network cable, and click **OK**, to continue installation. If a network cable is not available, restart the system and re-install the LAN driver.*

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

### Card Reader

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

### Touchpad

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

### Airplane

*Note: Do not use Update Driver in Device Manager to install the Airplane Mode driver.*

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

### Control Center

1. Click **8.Install Control Center AP > Yes**.
2. Click **Next > Install**.
3. Click **Finish** to restart your computer (see [Appendix B](#)).

### MEI Driver

1. Click **9.Install MEI Driver > Yes**.
2. Click **Next**.
3. Click the check box to accept the license and then click **Next**.
4. Click **Next**.
5. Click **Finish**.

### Audio

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

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

(See Overleaf)

It is recommended that you install the **Sound Blaster Audio** application (see “*Sound Blaster Cinema 3*” on *page 6 - 37*) and **Intel Rapid Storage Technology** driver (see “*Intel® Rapid Storage Technology*” on *page 6 - 31* - required for AHCI & RAID mode).



### Windows Update

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

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

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

### Optional Drivers

See the pages indicated in *Table 4 - 1, on page 4 - 4* for the driver installation procedures for any modules included in your purchase option.



*Figure 4 - 3 - Optional Drivers Installer Screen*

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

# Chapter 5: BIOS Utilities

## Overview

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

**Diagnostics:** The **POST** (Power-On Self Test)

**Configuration:** The *Setup* utility

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

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



### BIOS Screens

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

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



### BIOS Settings Warning

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

### UEFI Boot & POST

When UEFI Boot is enabled, then the prompts to **press F2 or F7** will **not appear**. However you can still press F2 to enter the setup, or F7 to choose the preferred boot device, if you press the key immediately the system boots up.

## The Power-On Self Test (POST)

If you enable the **Boot-time Diagnostic Screen** in 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.



## 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.



### BIOS Settings Warning

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

## The Setup Utility

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

### Entering Setup

To enter *Setup*, turn on the computer and 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) 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**.

## Setup Screens

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

Instructions on how to navigate each screen are in the box at the bottom right side of the screen.

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

If these tools are confusing, press **F1** to call up a **General Help** screen, and then use the arrow keys to scroll up or down the page.

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

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



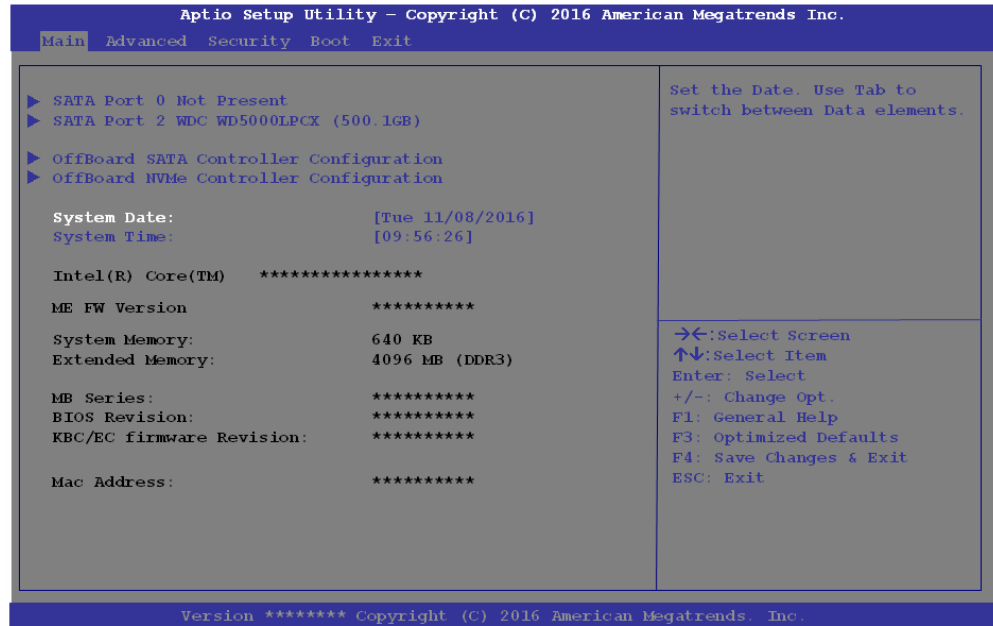
### Setup Menus

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**

# Main Menu

Figure 5 - 2  
Main Menu



## 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.

### *OffBoard SATA/NVme Controller Configuration (Main Menu)*

Pressing **Enter** opens the sub-menu to show the configuration of any devices on the off board SATA/NVme Controller if applicable.

### *System Time & Date (Main Menu)*

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

### *ME FW Version/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/Mac Address (Main Menu)*

This item contains information on the BIOS version, and the identifier address for the device on a network, and is not user configurable.

## Advanced Menu

Figure 5 - 3  
Advanced Menu



### *Advanced Chipset Control (Advanced Menu)*

The sub-menu here allows you to enable/disable **GPU Performance Scaling**, **Flex-iCharger** (see page 5 - 9), **SW Guard Extensions** and **VT-d**.

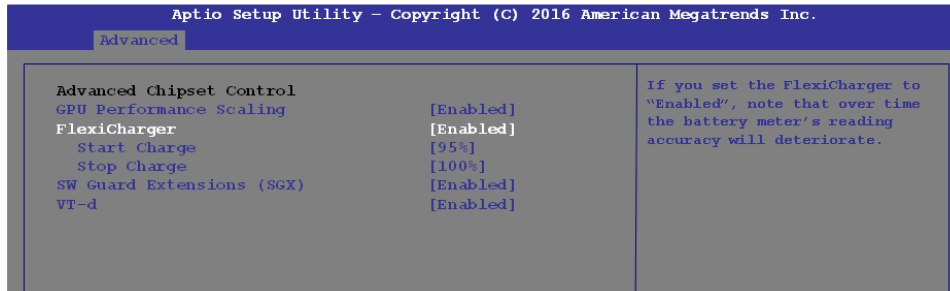
### *GPU Performance Scaling (Advanced Menu > Advanced Chipset Control)*

You can enable/disable NVIDIA GPU Performance scaling from this menu. The NVIDIA Card does the scaling if this option is on, and has less latency than the Intel GPU. This can be useful if you play games etc.

*FlexiCharger (Advanced Menu > Advanced Chipset Control)*

The sub-menu here allows you to enable/disable the **FlexiCharger**. The FlexiCharger may be set to automatically start charging your battery when the battery reaches a certain capacity level (e.g. you could start the battery charge level at 40%).

**See the sidebar warning for information on running the FlexiCharger for an extended period as this is not recommended.**

*Software Guard Extensions (Advanced Menu > Advanced Chipset Control)*

Intel provides SGX, which is a set of instructions allowing user-level code a degree of security, and privacy, from the operating system.

*VT-d (Advanced Menu > Advanced Chipset Control)*

Enable/disable **Intel® Virtualization Technology for Directed I/O (VT-d)** from this menu. This extends Intel's Virtualization Technology (VT) by providing hardware assists for a virtualization solution.



### FlexiCharger Warning

If you leave the FlexiCharger continuously "**Enabled**" for a period of three months or more, the battery meter's reading accuracy will deteriorate.

To reset this, set the FlexiCharger to "**Disabled**", and then allow the battery to completely discharge (see "**Battery FAQ**" on page 3 - 21) before enabling the function again.

Figure 5 - 4  
Advanced Chipset  
Control >  
FlexiCharger



### SATA Mode Selection

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

### Flash BIOS & RAID

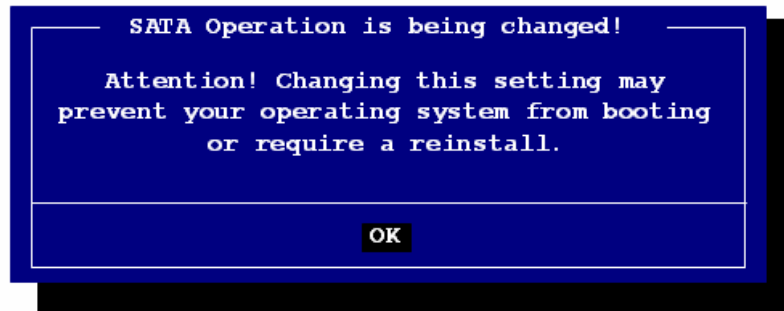
Note that flashing the BIOS may actually destroy the RAID setup. Contact your distributor/supplier for further information before attempting to flash the BIOS if you have enabled a RAID.

*Figure 5 - 5*  
**SATA Mode Change Notification**

### *SATA Mode (Advanced Menu)*

You can configure SATA (Serial ATA) control to operate in **AHCI** (Advanced Host Controller Interface) or **RAID** (Redundant Array of Independent disks) 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). See *“Setting Up SATA RAID or AHCI Mode” on page 6 - 2* for details. Make sure you install the **Intel Rapid Storage Technology application** if you have set the SATA Mode to **RAID**, or to **AHCI** *“Intel® Rapid Storage Technology” on page 6 - 31*.

If you wish to change your SATA mode to/from AHCI/RAID mode you will receive a message (see overleaf) to notify you that doing so may prevent your operating system from booting, and may require a reinstall of the OS. If you do wish to change the SATA mode then backup any necessary data on your hard disk(s) as you will need wipe the disks clean in order to prevent system problems.





*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.

# Security Menu



## Security Menu

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

5

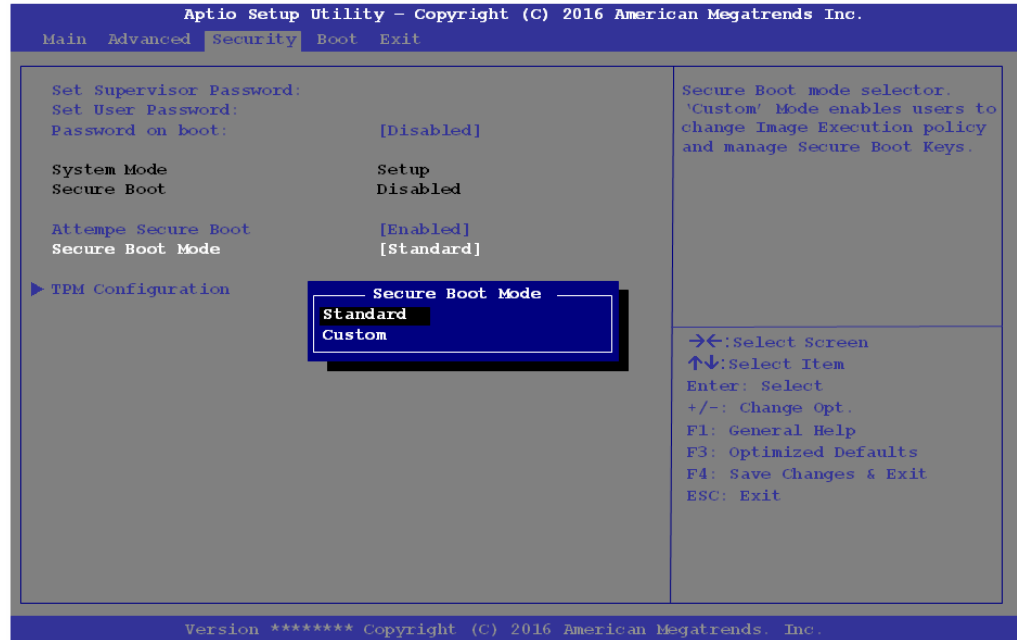


Figure 5 - 6 Security Menu

### Set Supervisor Password (Security Menu)

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

**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.

**Note:** *You can only set the user password after you have set the supervisor 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.

**Note:** *You can only set the user password after you have set the supervisor password.*

### *Password on boot: (Security Menu)*

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



### 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.

## Secure Boot Control (Security Menu)

Secure Boot Control prevents unauthorized operating systems and software from loading during the startup process. **Secure Boot** is available as a menu option if you have enabled **UEFI Boot** (see *“Boot Menu” on page 5 - 16*). Enabling Secure Boot will bring up the **Secure Boot Mode** menu to enable you to configure Secure Boot as **Standard** (with a fixed secure boot policy), or **Custom** (which enables you to make changes to the **Key Management** database).

5

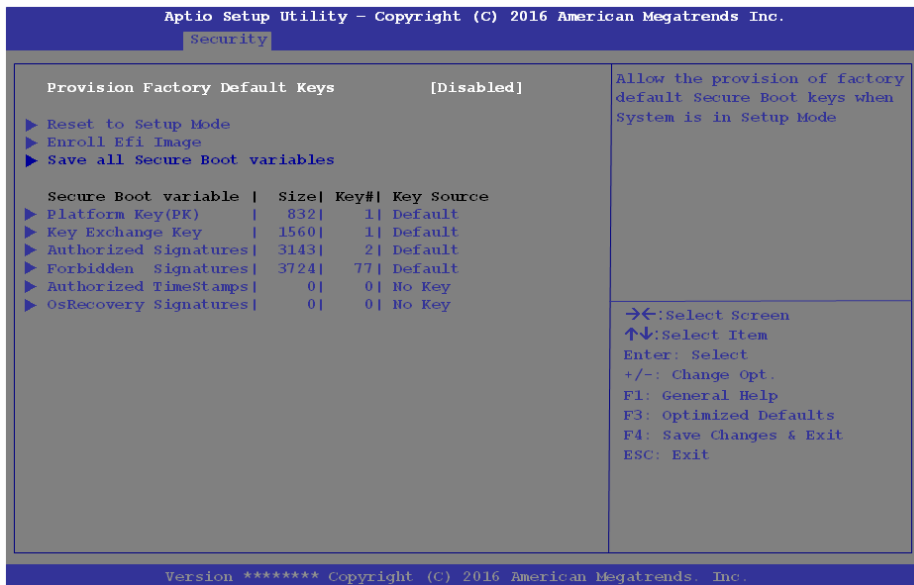
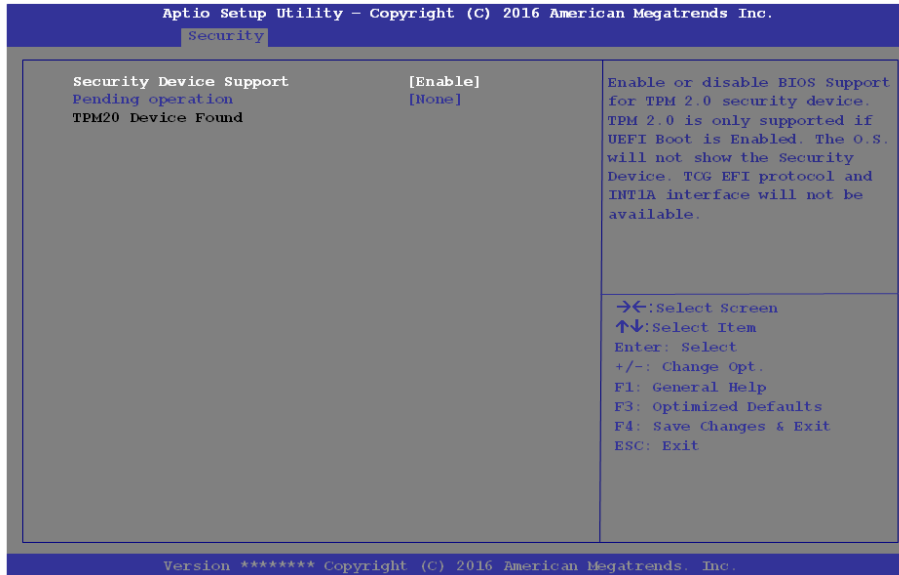


Figure 5 - 7  
**Security -  
 Secure Boot  
 (Key Management)**

*TPM Configuration (Security Menu)*

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support, and to configure the TPM State. Select **TPM Configuration** and press Enter to access the sub-menu. Press Enter to access the **Security Device Support** menu and select **Enable** to support TPM. You can select **Pending operation**, and then select **TPM clear** to clear existing TPM information in order to reset the TPM (see *“Trusted Platform Module” on page 6 - 54* for details).



*Figure 5 - 8*  
**Security Device Support**

# Boot Menu

Figure 5 - 9  
Boot Menu

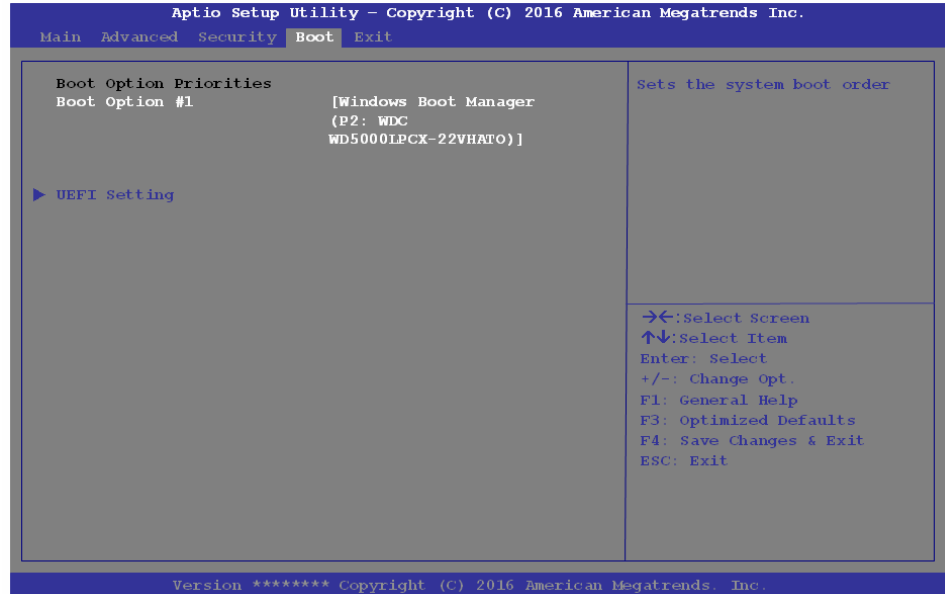
5



### BIOS Screens

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

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



When you turn the computer on it will look for an operating system (e.g. *Windows 7*) from the devices listed in this menu, and **in this priority order**. If it cannot find the operating system on that device, it will try to load it from the next device in the order specified in the **Boot Option Priorities**.

### *Boot Option Priorities (Boot Menu)*

Press Enter to select the Boot Option # and use the arrow keys to select any device in order to move its boot priority up and down the list (the selected device will be highlighted in white).

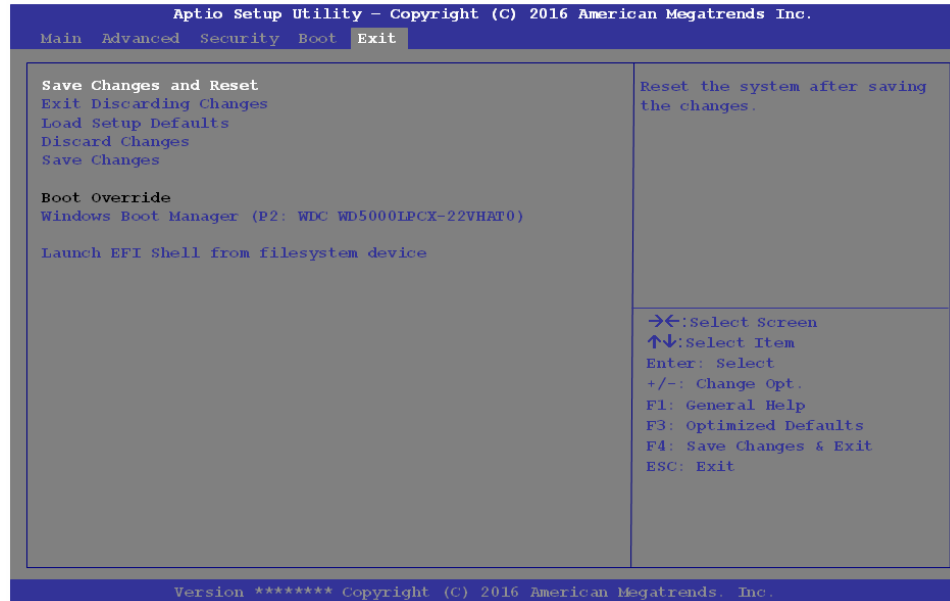
### *UEFI Boot (Boot Menu)*

Enable/disable UEFI Boot from this menu. The Unified Extensible Firmware Interface (UEFI) specification provides a clean interface between operating systems and platform firmware at boot time. In contrast to BIOS, UEFI defines a set of standard boot and runtime services. The *Network Stack* item will be enabled as an option under UEFI Boot.

**UEFI Boot is enabled for your system by default. It is recommended that you keep UEFI Boot enabled for the Windows operating system.**

## Exit Menu

Figure 5 - 10  
Exit Menu



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



# Chapter 6: Modules

## Overview

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

The chapter includes information on the following:

- Setting Up SATA RAID or AHCI Mode
- Wireless LAN Module
- Bluetooth & WLAN Combo Module
- Intel® Rapid Storage Technology
- Sound Blaster Cinema 3
- PC Camera
- Trusted Platform Module
- 3G/4G Module



### RAID Solid State Drives

All SSDs in a RAID should be identical (the same size and brand) in order to prevent unexpected system behavior.

### SATA Mode Selection

The SATA mode selection should be made **before installing your operating system**.

**DO NOT change your selected SATA mode** unless you intend to re-install your operating system. Make sure you have backed up all your data before doing so.

## Setting Up SATA RAID or AHCI Mode

### AHCI Mode

Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced serial ATA features such as Native Command Queuing (for maximum hard disk efficiency and performance). AHCI mode can be supported by one or two hard disks/solid state drives. Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your HDDs/SSDs in AHCI mode (see *“Intel® Rapid Storage Technology” on page 6 - 31*).

### RAID

To configure your RAID (Redundant Array of Independent Disks) system in Striping (RAID 0) or Mirroring (RAID 1) modes (see *Table 6 - 1, on page 6 - 3*) you will require **two identical** (see sidebar) SSDs.

### Intel® Rapid Storage Technology Application

Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your SSDs in **RAID** mode (see *“Intel® Rapid Storage Technology” on page 6 - 31*).

Note the following:

- **RAID mode with UEFI disabled (legacy mode) does not support PCIe SSDs.**
- **AHCI mode with the IRST driver installed does not support PCIe SSDs.**

RAID Level	Description
RAID 0	Identical drives reading and writing data in parallel to <b>increase performance</b> . RAID 0 implements a striped disk array and the data is broken into blocks and each block is written to a separate disk drive.
RAID 1	Identical drives in a mirrored configuration used to <b>protect data</b> . Should a drive that is part of a mirrored array fail, the mirrored drive (which contains identical data) will handle all the data. When a new replacement drive is installed, data to the new drive is rebuilt from the mirrored drive to restore fault tolerance.

Table 6 - 1  
RAID Levels



### Array Types

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

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



### SATA Mode Selection

The SATA mode selection should be made **before installing your operating system**.

**DO NOT change your selected SATA mode** unless you intend to reinstall your operating system. Make sure you have backed up all your data before doing so.

Note the following:

- **RAID mode with UEFI disabled (legacy mode) does not support PCIe SSDs.**
- **AHCI mode with the IRST driver installed does not support PCIe SSDs.**

### RAID Solid State Drives

All solid state drives in a RAID should be identical (the same size and brand) in order to prevent unexpected system behavior.



### Flash BIOS & RAID

Note that flashing the BIOS may actually destroy the RAID setup. Contact your distributor/supplier for further information before attempting to flash the BIOS if you have enabled a RAID.

## SATA RAID Setup Procedure

The actual procedure for setting up a RAID system will depend on whether or not your system has UEFI enabled or not, and if you are using 2 \* PCIE SSDs with the *Windows 10 OS* installed on one of them.

**UEFI Boot is enabled for your system by default. It is recommended that you keep UEFI Boot enabled for the Windows operating system.**

See below and follow the procedure that corresponds to your system setup:

- *“SATA RAID Setup - UEFI Enabled” on page 6 - 5*
- *“SATA RAID Setup (2 \* PCIE SSDs) - UEFI Enabled” on page 6 - 10*
- *“SATA RAID Setup - UEFI Disabled” on page 6 - 16*

No matter which system setup you use make sure you install the **Intel Rapid Storage Technology driver** - see *“IRST Driver Installation” on page 6 - 31*).

Run the **Intel® Rapid Storage Technology application** to manage your RAID volume as instructed in *“Intel® Rapid Storage Technology for RAID Systems” on page 6 - 32*.

See also *“Deleting a RAID (Windows 10)” on page 6 - 20* (however **backup up any necessary files and data before deleting a RAID**, as doing so will result in the loss of all data on the RAID volumes).

## SATA RAID Setup - UEFI Enabled

To configure your RAID (Redundant Array of Independent Disks) system in Striping (RAID 0) or Mirroring (RAID 1) modes (see *Table 6 - 1, on page 6 - 3*) you will require **two identical** solid state drives.

You need to setup a RAID before installing your *Windows 10* operating system, and you will need to prepare the following in order to do so.

- 
- The *Microsoft Windows 10 OS DVD*.
  - An attached external DVD drive.
  - Two Identical solid state drives.
  - The *Device Drivers & Utilities + User's Manual* disc.
- 

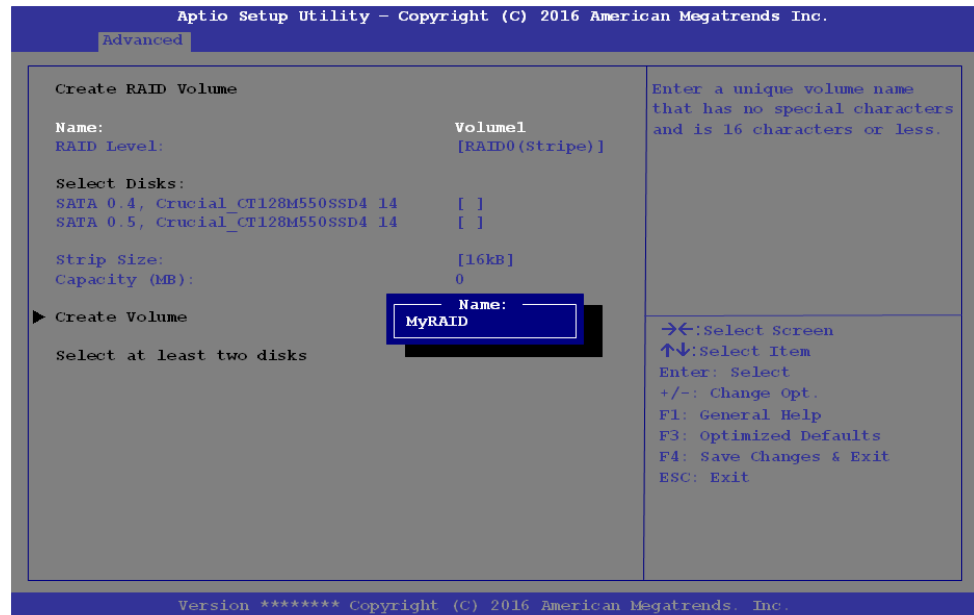
1. Start-up your notebook computer and press <F2> to enter the **BIOS**.
2. Go to the **Boot** menu, select **UEFI Setting** and press <Enter> (see page **5 - 16**).
3. Set **UEFI Boot** to "**Enabled**".
4. Press <Esc> to exit the menu and go to the **Advanced** menu.
5. Select **SATA Mode** (see page **5 - 10**), press <Enter> and select "**RAID Mode**".
6. Press <F4> and <Yes> to "**Save Changes and Reset**".
7. As the computer restarts press <F2> to enter the **BIOS** again.
8. Go to **Intel(R) Rapid Storage Technology (Advanced)** menu) and press <Enter>.
9. Select **Create RAID Volume** and press <Enter>.

## Modules

*Figure 6 - 1*  
**Create RAID Volume**  
(Advanced > Intel(R)  
Rapid Storage  
Technology)

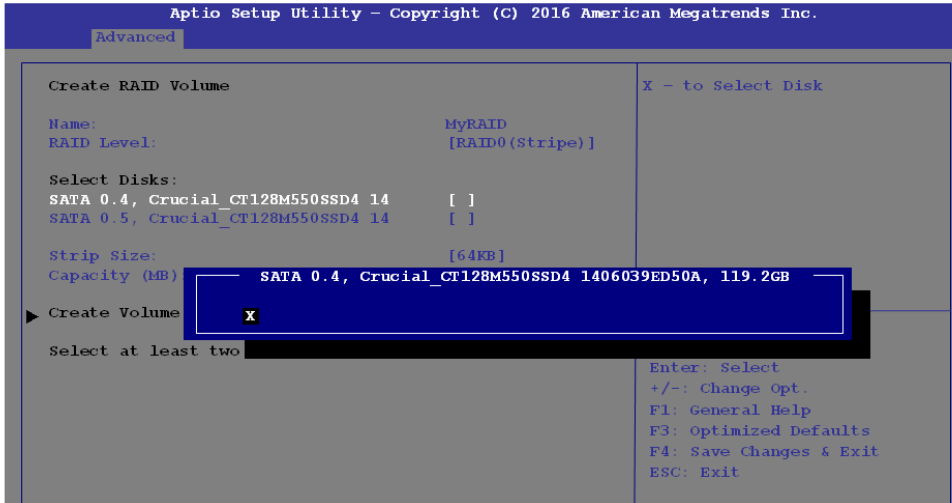


10. You can now setup your RAID volume using any two installed disks.
11. Go to **Name:** and press <Enter>.
12. Type a name of your choice for your RAID volume and press <Enter>.



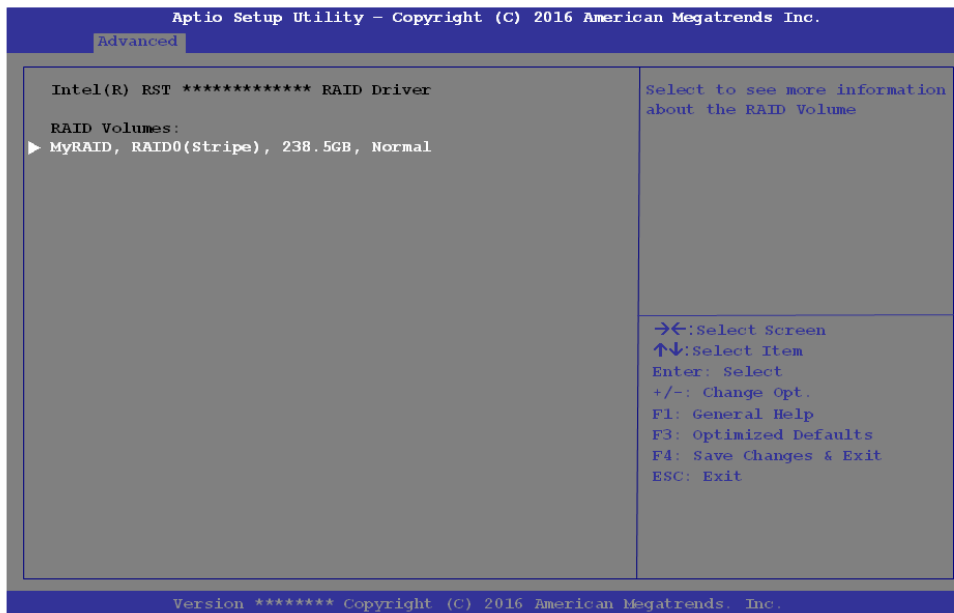
*Figure 6 - 2*  
**Name the RAID**  
**Volume (Advanced**  
**> Intel(R) Rapid**  
**Storage**  
**Technology)**

13. Go to **RAID Level:** and press <Enter>.
14. Choose the RAID Level required (see *Table 6 - 1, on page 6 - 3* for details) and press <Enter>.
  - **RAID0 (Stripe)**
  - **RAID1 (Mirror)**
15. Go to any of the disks listed under **Select Disks:** and select a disk name and press <Enter>.
16. Move the cursor down (use the arrow keys) onto to **X** (o select the disk required and press <Enter>).



*Figure 6 - 3*  
**Select Disks**  
 (Advanced > Intel(R)  
 Rapid Storage  
 Technology)

17. You should select two identical SSDs to form your RAID volume.
18. If you have selected **RAID0 (Stripe)** then you can adjust the “**Strip Size**” to your requirements (*it is recommended that you set the “Strip Size” to 128KB*).
19. Go to **Create Volume** and press <Enter>.
20. The RAID volume will then be created and the RAID information will be displayed under **Intel(R) Rapid Storage Technology** (in the **Advanced** menu).



*Figure 6 - 4*  
**Created RAID  
Information  
(Advanced > Intel(R)  
Rapid Storage  
Technology)**

21. Press <Esc> to exit the menu.



22. Press <F4> and <Yes> to “**Save Changes and Reset**”, however **ensure that the condition in the bulleted point below is met** before doing so.
  - Make sure the **Windows 10** OS DVD is in the attached DVD drive, as the computer starts up it will automatically boot from the **Windows 10** OS DVD (you will be prompted to press a key to boot from the DVD).
23. Press <F7> as the computer starts up to bring up the boot device menu.
24. Select the DVD drive containing the **Windows 10** OS DVD and press <Enter>.
25. Press a key at system startup to begin installing **Windows** from your **Microsoft Windows 10** disc.
26. Click **Next > Install Now** to continue installing the operating system as normal (see your **Windows** documentation if you need help on installing the **Windows** OS).
27. Follow the on-screen instructions to install the **Windows 10** operating system.
28. Install the **Windows** drivers from the **Device Drivers & Utilities + User’s Manual** disc as per **Table 4 - 1, on page 4 - 4** (make sure you install the **Intel Rapid Storage Technology driver** - see overleaf).
29. Run the **Intel® Rapid Storage Technology** application to manage your RAID volume as instructed in “**Intel® Rapid Storage Technology for RAID Systems**” **on page 6 - 32**.

## SATA RAID Setup (2 \* PCIE SSDs) - UEFI Enabled

If you are setting up a RAID using 2 \* PCIE SSDs, with the *Windows 10 OS* installed on one of them, then follow the setup procedure below:

To configure your RAID (Redundant Array of Independent Disks) system in Striping (RAID 0) or Mirroring (RAID 1) modes (see *Table 6 - 1, on page 6 - 3*) you will require **two identical** solid state drives.

You need to setup a RAID before installing your *Windows 10* operating system, and you will need to prepare the following in order to do so.

- =====
- The *Microsoft Windows 10 OS DVD*.
  - An connected external DVD drive.
  - Two Identical PCIE solid state drives.
  - The *Device Drivers & Utilities + User's Manual* disc.
  - A USB flash drive.
  - An operable computer (to copy files from the *Device Drivers & Utilities + User's Manual* disc to the USB flash drive).
- =====

Before setting up the system you will need to copy a driver folder to a USB flash drive. This driver folder is included on the *Device Drivers & Utilities + User's Manual disc* but you will need to go to an operable computer and copy the folder to a USB Flash drive.

1. Go to the operable computer and insert a USB Flash drive.

2. Insert the **Device Drivers & Utilities + User's Manual** disc into the CD/DVD drive of the operable computer.
3. Copy the **f6flpy-x64** folder from the location below (D: denotes your DVD drive) on the **Device Drivers & Utilities + User's Manual** disc to the USB flash drive or external USB hard disk.

• **D:\Options\RAID\f6flpy-x64\**

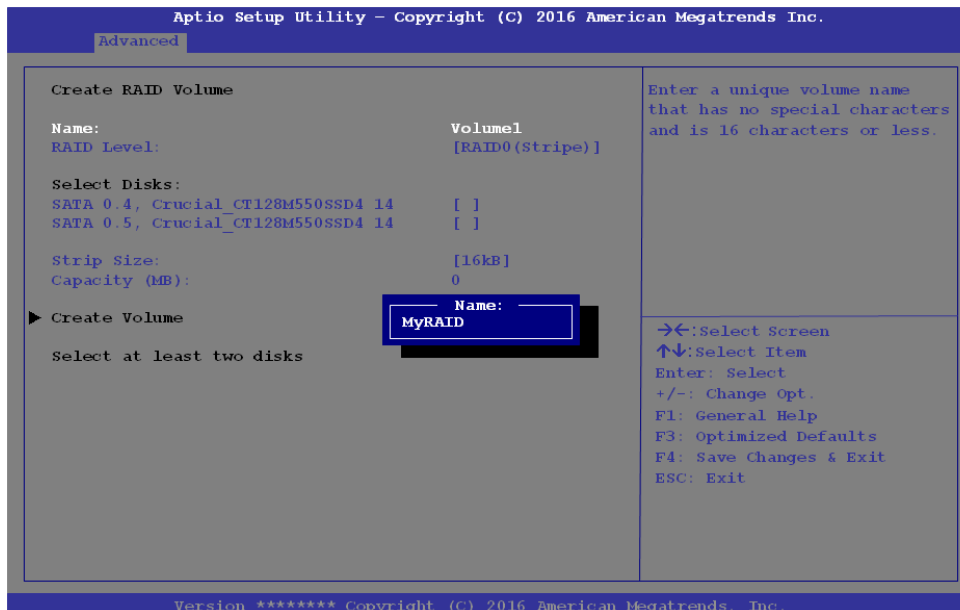
4. Start-up your notebook computer and press <F2> to enter the **BIOS**.
5. Go to the **Boot** menu, select **UEFI Setting** and press <Enter> (see page **5 - 16**).
6. Set **UEFI Boot** to "Enabled".
7. Press <Esc> to exit the menu and go to the **Advanced** menu.
8. Select **SATA Mode** (see page **5 - 10**), press <Enter> and select "RAID Mode".
9. Press <F4> and <Yes> to "Save Changes and Reset".
10. As the computer restarts press <F2> to enter the **BIOS** again.
11. Go to **Intel(R) Rapid Storage Technology (Advanced menu)** and press <Enter>.
12. Select **Create RAID Volume** and press <Enter>.



13. You can now setup your RAID volume using any two installed disks.
14. Go to **Name:** and press <Enter>.
15. Type a name of your choice for your RAID volume and press <Enter>.

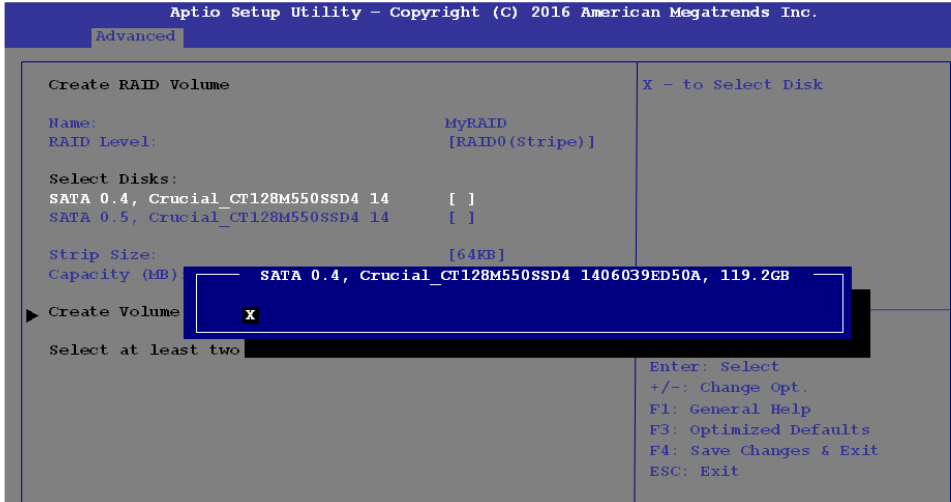
*Figure 6 - 5*  
**Create RAID Volume**  
**(Advanced > Intel(R)**  
**Rapid Storage**  
**Technology**

*Figure 6 - 6*  
**Name the RAID  
 Volume (Advanced  
 > Intel(R) Rapid  
 Storage  
 Technology)**



16. Go to **RAID Level:** and press <Enter>.
  17. Choose the RAID Level required (see [Table 6 - 1, on page 6 - 3](#) for details) and press <Enter>.
- **RAID0 (Stripe)**
  - **RAID1 (Mirror)**

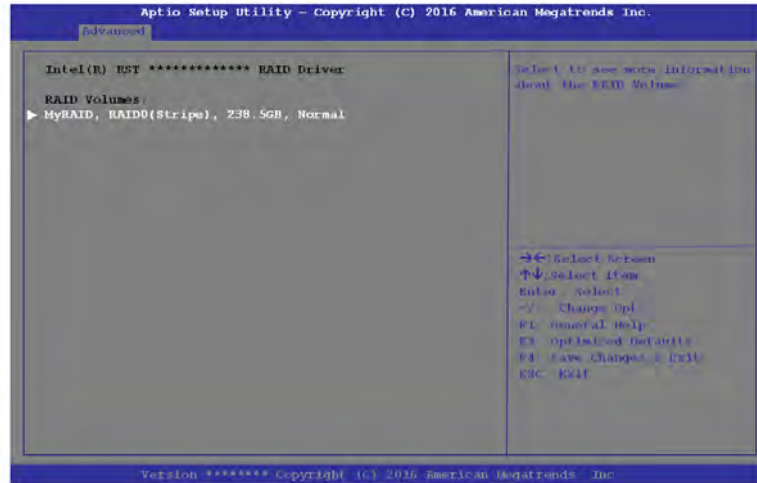
18. Go to any of the disks listed under **Select Disks:** and select a disk name and press <Enter>.
19. Move the cursor down (use the arrow keys) onto to **X** (o select the disk required and press <Enter>).



*Figure 6 - 7*  
**Select Disks**  
 (Advanced > Intel(R)  
 Rapid Storage  
 Technology)

20. You should select two identical SSDs to form your RAID volume.
21. If you have selected **RAID0 (Stripe)** then you can adjust the “**Strip Size**” to your requirements (*it is recommended that you set the “Strip Size” to 128KB*).
22. Go to **Create Volume** and press <Enter>.

23. The RAID volume will then be created and the RAID information will be displayed under **Intel(R) Rapid Storage Technology** (in the **Advanced** menu).



*Figure 6 - 8*  
**Created RAID Information**  
**(Advanced > Intel(R) Rapid Storage Technology)**

24. Press <Esc> to exit the menu.
25. Press <F4> and <Yes> to “**Save Changes and Reset**”, however **ensure that the condition in the bulleted points below are met** before doing so.
- Make sure the **Windows 10** OS DVD is in the attached DVD drive, as the computer starts up it will automatically boot from the **Windows 10** OS DVD (you will be prompted to press a key to boot from the DVD).
  - Make sure your USB Flash drive is attached to one of the computer’s USB ports.

26. Press <F7> as the computer starts up to bring up the boot device menu.
27. Select the DVD drive containing the **Windows 10** OS DVD and press <Enter>.
28. Press a key at system startup to begin installing **Windows** from your **Microsoft Windows 10** disc.
29. Click **Next > Install Now** to continue installing the operating system as normal (see your **Windows** documentation if you need help on installing the **Windows** OS).
30. A prompt will appear to ask you to **Load Driver**.
31. Click **Browse** and browse to the location you copied the files to on your USB Flash drive or external USB hard disk (X: denotes your USB Flash drive):
  - **X:\f6flpy-x64 (for Windows 8 64bit)**
32. Click **Next**.
33. Follow the on-screen instructions to install the **Windows 10** operating system.
34. Install the **Windows** drivers from the **Device Drivers & Utilities + User's Manual** disc as per **Table 4 - 1, on page 4 - 4** (make sure you install the **Intel Rapid Storage Technology driver** - see overleaf).
35. Run the **Intel® Rapid Storage Technology** application to manage your RAID volume as instructed in **"Intel® Rapid Storage Technology for RAID Systems" on page 6 - 32**.

### SATA RAID Setup - UEFI Disabled

To configure your RAID (Redundant Array of Independent Disks) system in Striping (RAID 0) or Mirroring (RAID 1) modes (see *Table 6 - 1, on page 6 - 3*) you will require **two identical** solid state drives.

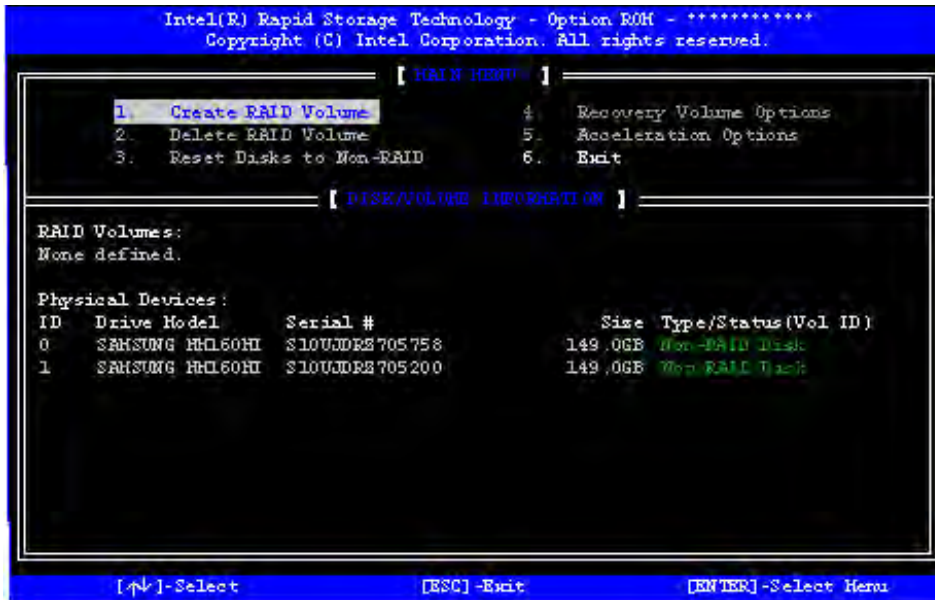
You need to setup a RAID before installing your *Windows 10* operating system, and you will need to prepare the following in order to do so.

- 
- The *Microsoft Windows 10 OS DVD*.
  - An attached external DVD drive.
  - Two Identical solid state drives.
  - The *Device Drivers & Utilities + User's Manual* disc.
- 

1. Start-up your notebook computer and press <F2> to enter the **BIOS**.
2. Go to the **Boot** menu, select **UEFI Setting** and press <Enter> (see page *5 - 16*).
3. Set **UEFI Boot** to “**Disabled**”.
4. Press <Esc> to exit the menu and go to the **Advanced** menu.
5. Select **SATA Mode** (see page *5 - 10*), press <Enter> and select “**RAID Mode**”.
6. Press <F4> and <Yes> to “**Save Changes and Reset**”.
7. As the computer restarts press **Ctrl + i** to enter RAID configuration menu.



8. Select **1.Create RAID Volume** and press Enter.



*Figure 6 - 9*  
Intel(R) Rapid  
Storage Technology  
Option ROM

9. Type the **RAID volume name** and then press Tab or Enter to advance to the next field.
10. Specify (use the up and down arrow keys) the **RAID level (RAID 0 (Stripe) or RAID 1 (Mirror))** and then press Tab or Enter to advance to the next field.
11. Press Enter and the system will select the physical disks to us if applicable.
12. Press Enter and select (if applicable) the Strip Size (best set to **128KB**).

13. Press Enter and select the Capacity size (best set to default).
14. Press Enter to select **Create Volume**.
15. Press Enter to create the volume, and confirm the selection by pressing **Y**.
16. This will now return to the main menu.

Figure 6 - 10  
RAID Created

```

Intel(R) Rapid Storage Technology - Option ROM - *****
Copyright (C) Intel Corporation. All Rights Reserved.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
3. Recovery Volume Options
4. Acceleration Options
6. Exit

[ DISK/VOLUME INFORMATION ]

RAID Volumes:
ID Name Level Strip Size Status Bootable
0 MyRAID RAID0 (Stripe) 16KB 141.6GB Normal Yes

Physical Devices:
Port Drive Model Serial # Size Type/Status (Vol ID)
1 SAMSUNG HM160HI S10UJDRZ705758 149.0GB Member Disk (D:)
2 SAMSUNG HM160HI S10UJDRZ705200 149.0GB Member Disk (D:)

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

17. Select **6.Exit** and press Enter, then press **Y** to exit the RAID configuration menu.
18. As the computer starts up make sure the **Windows 10** OS DVD is in the attached DVD drive and it will automatically boot from the **Windows 10** OS DVD (you will be prompted to press a key to boot from the DVD). Alternatively you can press <F7> as the computer starts up to bring up the boot device menu.

19. Select the DVD drive containing the **Windows 10** OS DVD and press <Enter>.
20. Press a key at system startup to begin installing **Windows** from your **Microsoft Windows 10** disc.
21. Click **Next > Install Now** to continue installing the operating system as normal (see your **Windows** documentation if you need help on installing the **Windows OS**).
22. Follow the on-screen instructions to install the **Windows 10** operating system.
23. Install the **Windows** drivers from the **Device Drivers & Utilities + User's Manual** disc as per **Table 4 - 1, on page 4 - 4** (make sure you install the **Intel Rapid Storage Technology driver** - see overleaf).
24. Run the **Intel® Rapid Storage Technology** application to manage your RAID volume as instructed in **"Intel® Rapid Storage Technology for RAID Systems" on page 6 - 32**.

### Deleting a RAID (Windows 10)

If you wish to delete an existing RAID then follow the procedure below to do so. However **backup up any necessary files and data before deleting a RAID**, as doing so will result in the loss of all data on the RAID volumes.

1. Start-up your notebook computer and press <F2> to enter the **BIOS**.
2. Go to **Intel(R) Rapid Storage Technology** (in the **Advanced** menu) and press <Enter>.
3. Go to the RAID (listed under **RAID Volumes:**) and press <Enter>.
4. Select **Delete** and press <Enter>.
5. Select **“Yes”** (note that all the data on the volumes will be lost) and press <Enter>.

*Figure 6 - 11*  
**Delete RAID**  
**(Advanced > Intel(R)**  
**Rapid Storage**  
**Technology)**



## Wireless LAN Module

If you have included an **Intel® Wireless LAN & Bluetooth Combo module** is on (i.e. the system is not in **Airplane Mode**) before installing the driver.

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

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

### Intel® WLAN Driver Installation

1. **Make sure the system is not in Airplane Mode**, and then insert the *Device Drivers & Utilities + User's Manual* disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install WLAN Driver > Yes**.
4. Click in the check box to agree to the **End User License Agreement** and click **Install**.
5. Click **Finish**.
6. The operating system is the default setting for Wireless LAN control in *Windows* (see page *6 - 22*).




#### Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN & Bluetooth module(s)** are **OFF** if you are using the computer aboard aircraft by putting the system in to **Airplane Mode** (see *Table 1 - 4, on page 1 - 17*).

## WLAN Configuration in Windows 10

You can configure a wireless connection using one of the following options, however make sure the Wireless LAN module is turned on (and not in Airplane Mode) before configuration begins.

1. Click the Wireless icon  in the notification area of the taskbar.
2. Make sure that **Airplane mode** is **off** (the Airplane mode icon should be gray).
3. A list of available access points will appear.
4. Double-click an access point to connect to it (or click it and click **Connect**).

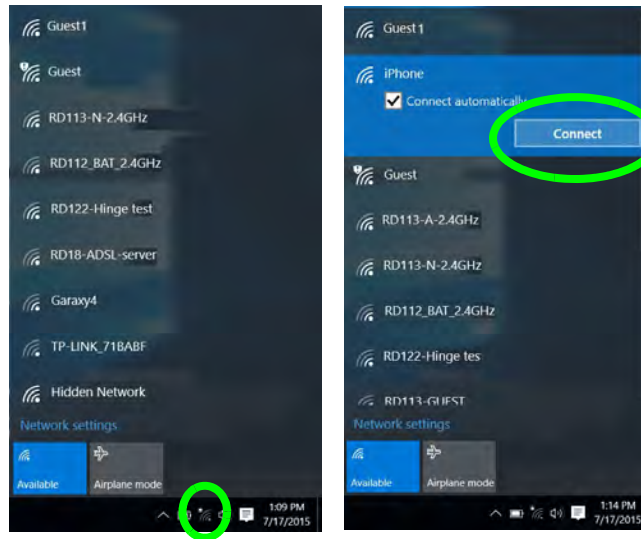


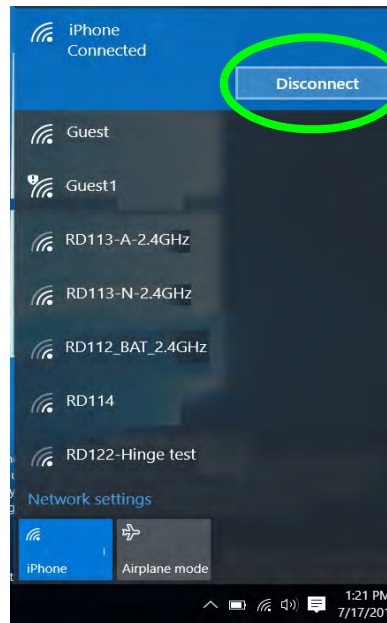
Figure 6 - 12  
WiFi & Network  
Connections

5. Enter a network security key (password) if required, and click **Next**.
6. You can choose to share or connect to devices or not.
7. When you are connected to the network access point it will display **Connected** status **Connected**.
8. Select any connected network and click **Disconnect** **Disconnect** to disconnect from a connected access point.

  
**Wireless Device  
 Operation Aboard Aircraft**

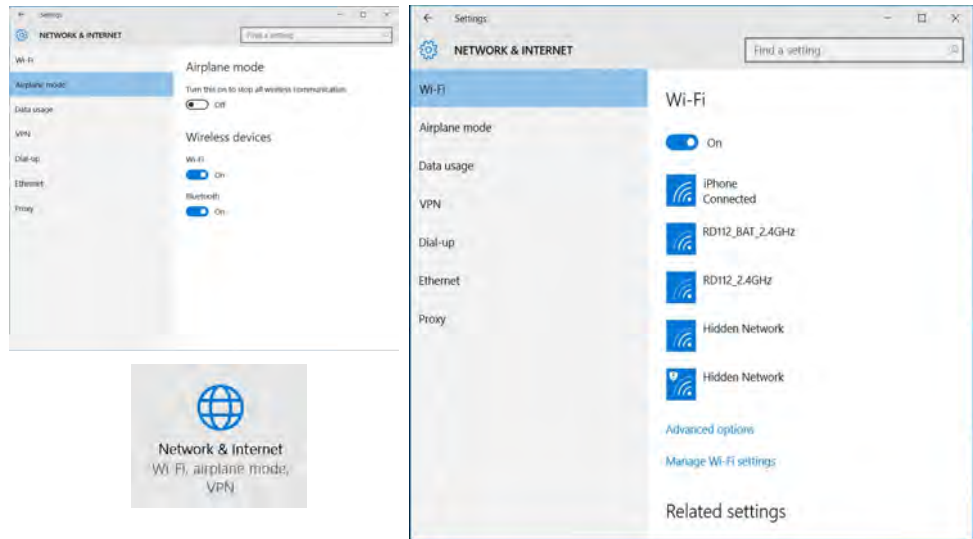
The use of any portable electronic transmission devices aboard aircraft is usually prohibited.

Make sure the module is either **OFF** or in **Airplane mode** if you are using the computer aboard aircraft.



*Figure 6 - 13*  
**Network Connected**  
**(Click Disconnect)**

9. You can click the **Airplane Mode** button to turn the mode On or Off.
10. You need to either use **Airplane Mode**, or to **turn the WLAN module off** aboard aircraft.
11. If you click on **Network Settings** to bring up **Network & Internet** for a more comprehensive list of network and internet settings including **Wi-Fi** (can be turned on/off), **Airplane mode** (Airplane mode and Wireless devices can be turned on/off) **VPN, Dial-up, Ethernet** and **Proxy**.
12. You can also access the **Network & Internet** settings from the **Start Menu (Settings > Network & Internet)**.



*Figure 6 - 14*  
**Network & Internet**  
**Settings**



## Bluetooth & WLAN Combo Module

If you have included an **Intel® Wireless LAN & Bluetooth Combo module** is on (i.e. the system is not in **Airplane Mode**) before installing the driver.

Make sure that the module is on (i.e. the system is not in **Airplane Mode**) before installing the driver.



### 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.

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




### Wireless Device Operation Aboard Aircraft

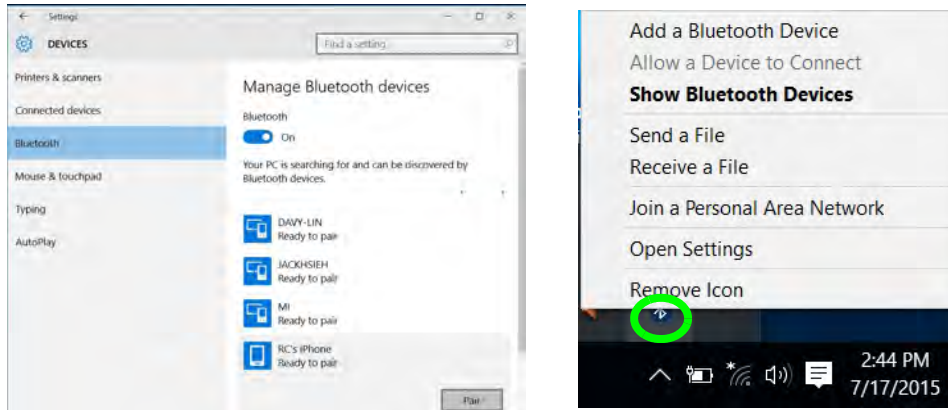
The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN & Bluetooth module(s) are OFF** if you are using the computer aboard aircraft by putting the system in to **Airplane Mode** (see [Table 1 - 4, on page 1 - 17](#)).

### Intel Bluetooth Combo Driver Installation

1. **Make sure the system is not in Airplane Mode**, 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 Combo BT Driver > Yes**.
4. Click **Next > Next**.
5. Click in the check box to accept the license and click **Next**.
6. Select the setup type (**Typical** is recommended) and click **Install**.
7. Click **Finish**.
8. See *“Bluetooth Configuration in Windows” on page 6 - 27* for configuration instructions.

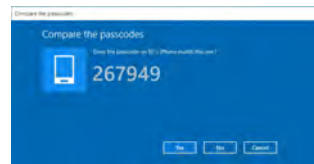
## Bluetooth Configuration in Windows

1. Click the **Settings** item in the Start Menu and then click **Devices** (or click the Bluetooth icon  in the taskbar and click **Add a Bluetooth Device**).
2. Click **Bluetooth** and make sure Bluetooth is **On** and a list of discovered devices will appear.



*Figure 6 - 15*  
**Devices > Bluetooth**  
**Bluetooth Taskbar**  
**Menu**

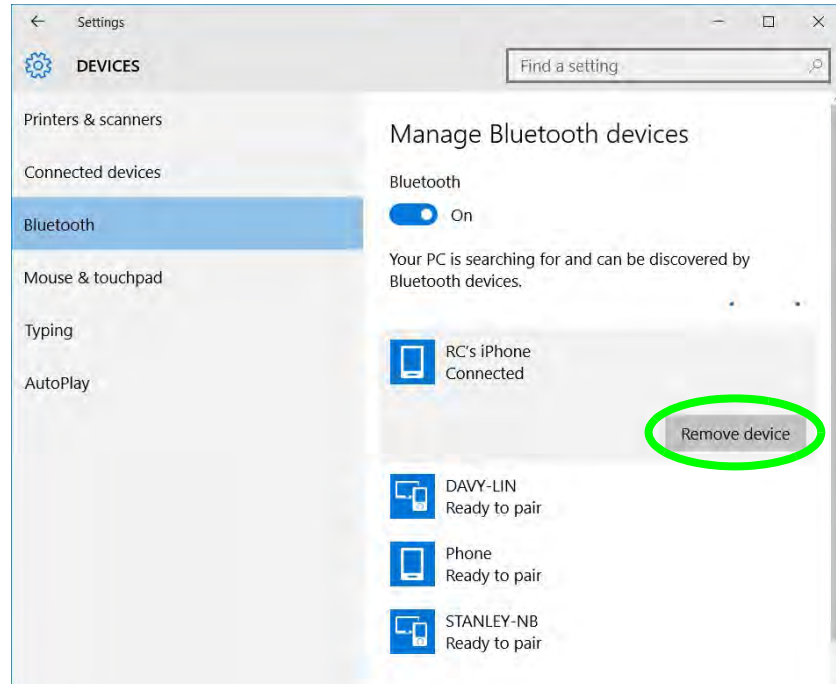
3. Double-click the device you want to pair with the computer and click **Pair**.
4. On first connection the computer will provide you with a pairing code to be entered onto the device.




*Figure 6 - 16*  
**Enter the Passcode**

5. Enter the code into your Bluetooth enabled device and click **Yes** on the computer to complete the pairing.
6. Select a device and click **Remove Device** Remove device to disconnect from any device.

*Figure 6 - 17*  
**Devices > Bluetooth**  
**Remove Device**



## To Make your Computer Discoverable to Bluetooth Devices

1. Click the **Settings** item in the Start Menu and then click **Devices**.
2. Click **Bluetooth** and under **Related Settings** click **More Bluetooth options** (or click the Bluetooth icon  in the taskbar **Open Settings**).
3. In **Bluetooth Settings** make sure that **Allow Bluetooth devices to find this PC** check box (**Discovery**) has a check inside it.
4. Make sure that the **Alert me when a new Bluetooth device wants to connect** check box (**Notifications**) has a check inside it, if you want to be notified when a Bluetooth device wants to connect.

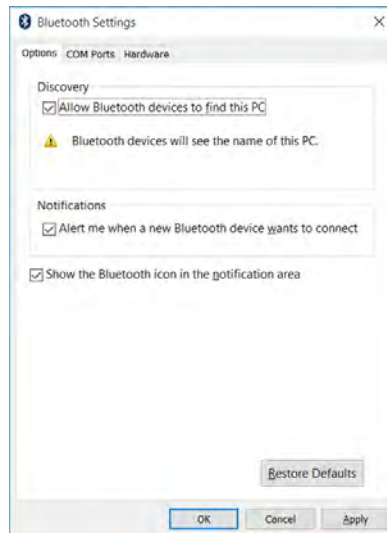


Figure 6 - 18  
Bluetooth Settings

# Intel® Software Guard Extensions Driver

Install the **Intel® Software Guard Extensions Driver** which provides a set of instructions allowing user-level code a degree of security, and privacy, from the operating system.

## Intel SGX Driver 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 Intel SGX Driver > Yes**.
4. Click **Next**.
5. Click in the check box to accept the license and click **Next**.
6. Click **Next > Install**
7. Click **Finish** to complete the installation.

## Intel® Rapid Storage Technology

The **Intel Rapid Storage Technology application** provides high-performance SATA and SATA RAID capabilities. Install the **Intel Rapid Storage Technology application** (after installing all necessary drivers in the correct order) to support your **RAID** system or SATA drive if set up in **AHCI mode** in the BIOS (see **“SATA Mode (Advanced Menu)” on page 5 - 10**).

### IRST Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **4.Install IRST Driver > Yes**.
4. Click **Next**.
5. Click the check box to accept the license and click **Next**.
6. Click **Next > Next > Next**.
7. Click **Finish** to restart the computer.
8. When the system restarts the OS will pop up a message to prompt you to **Restart again** (*note that if your system has a single PCIe M.2 SSD then a second reboot will not be required*) to restart the computer again.

See the following pages for more information if you have set your hard disks up in a RAID configuration.



#### IRST and M.2 PCI-e SSDs

Note that Intel® Rapid Storage Technology **does not support M.2 SSDs with a PCI-e Interface** (M.2 SSDs with a SATA Interface are supported).

Note the following:

- RAID mode with UEFI disabled (legacy mode) does not support PCIe SSDs.
- AHCI mode with the IRST driver installed does not support PCIe SSDs.



### IRST and M.2 PCI-e SSDs

Note that Intel® Rapid Storage Technology does not support M.2 SSDs with a PCI-e Interface (M.2 SSDs with a SATA Interface are supported).

## Intel® Rapid Storage Technology for RAID Systems

Intel® Rapid Storage Technology application displays status information on your RAID configuration. Run the **Intel® Rapid Storage Technology** application from the item in the **Start** menu.

When the **Intel® Rapid Storage Technology** application is launched the system will open the **Status** window. Here you can view the general health of the storage system. Various volume creation and management options are available depending on the system's status.

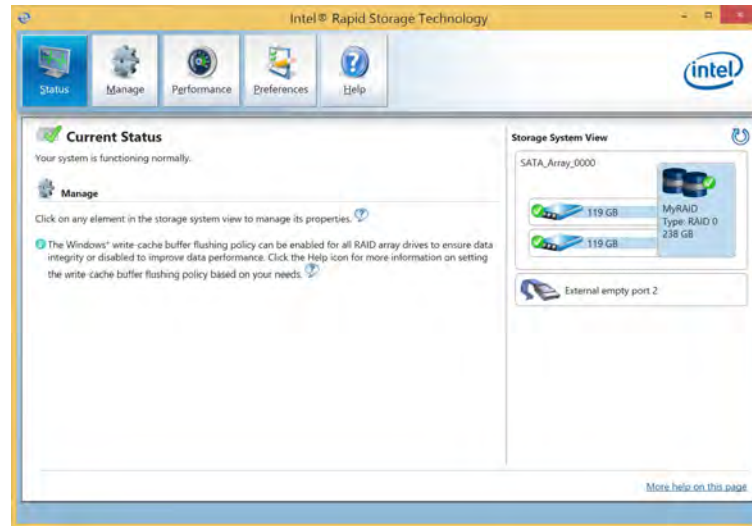


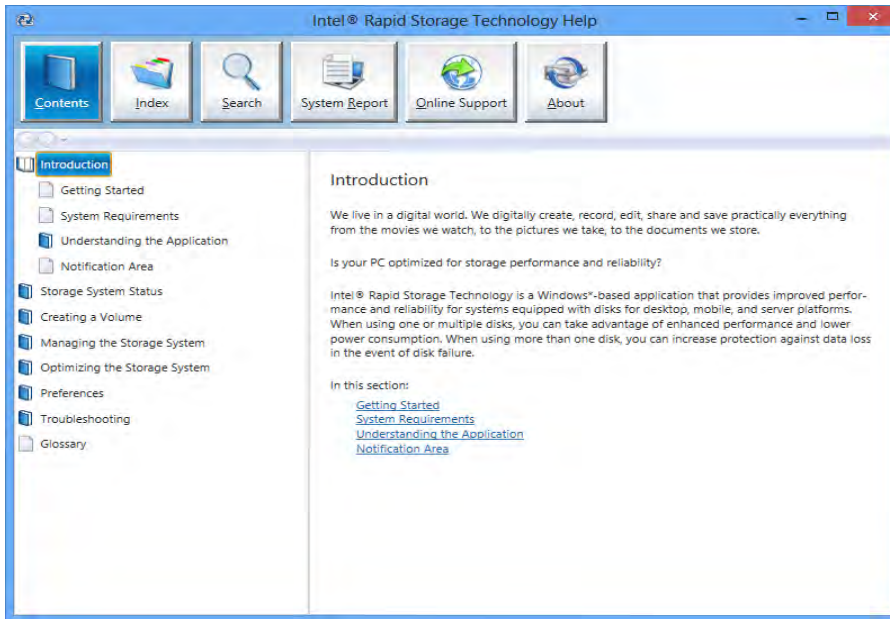
Figure 6 - 19

### Intel® Rapid Storage Technology Status



## Intel® Rapid Storage Technology Help

If a hard drive member of a RAID volume is reported as “**Degraded**” or “**Failed**” it may be possible to recover the volume. If the volume cannot be restored then you will need to recreate the RAID volume and restore the data from a back up. Click the **Help** menu (or press **F1**) for instructions on how to recover or recreate RAID Volumes.



### Help

Click the **Help** (or press **F1**) menu button at the top of the **Intel® Rapid Storage Technology** application.

Click **Contents** to view the general list of subjects covered, click **Index** or **Search** for a more specific help topics on a particular item.

Click **More help on this page** at the bottom of any page for page specific help.

*Figure 6 - 20*  
**Intel® Rapid Storage Technology Help**

## RAID Volume Data Verification and Repair

The RAID volume data verification process identifies any inconsistencies or bad data on a RAID 0 or RAID 1 volume. The table outlines what occurs for each RAID level:

*Table 6 - 2*  
**RAID Level**  
**Verification &**  
**Repair Status**

RAID Level	Verify	Verify & Repair
RAID 0	Bad blocks are identified.	N/A
RAID 1	Bad blocks are identified. Data on the mirrored drive is compared to data on the source drive.	Bad blocks are reassigned. If the data on the mirrored drive does not match the data on the source drive, the data on the mirrored drive is overwritten by the data on the source.

## Replacing and Reverting Recovery and Master Volumes

If a master or recovery drive fails you will need to add a new identical drive and rebuild the recovery volume to the drive. You can also revert the master drive to the state of the previous volume update. For details on how to do this see the help file *“Intel® Rapid Storage Technology Help” on page 6 - 33.*

See over for details on how to verify and repair RAID volume data. Verification will identify and repair data inconsistencies on the volume.

## Verifying and Repairing RAID Volume Data

1. Run the **Intel® Rapid Storage Technology** application.
2. Click to **select the RAID** in the pane on the right side of the window.
3. Click **Manage** and click **Advanced**.
4. Click **Verify** and click **Verify** (button) to begin the process (in some cases you may be required to **initialize** a volume before verification).

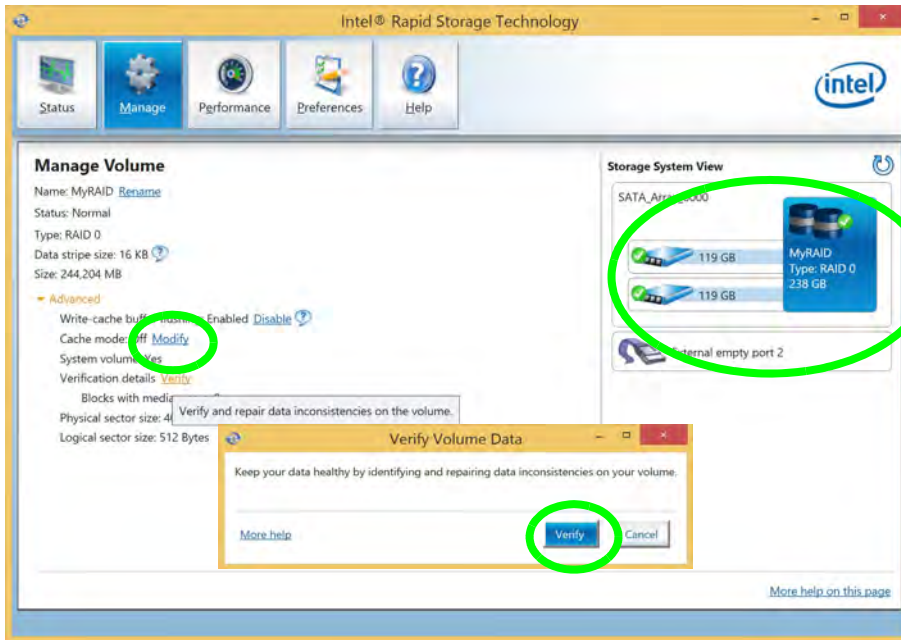


Figure 6 - 21  
Intel® Rapid  
Storage  
Technology  
Verify

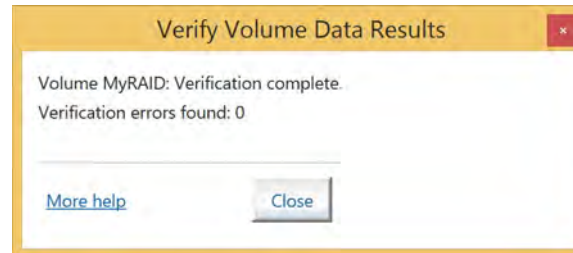
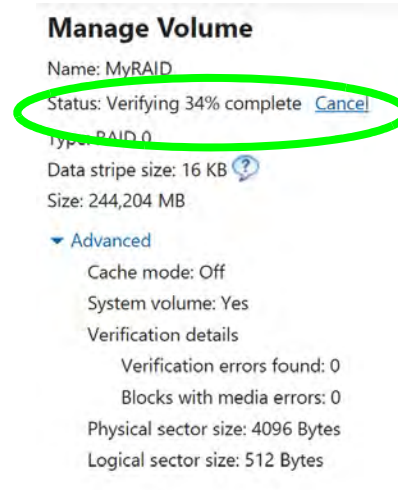
## Modules



### Scheduling Verify & Repair

You can schedule verification and repair by clicking **Preferences > Scheduler** and enabling a set time for verification and repair.

5. The completion percentage will be listed under **Status** (verifying and repairing).
6. Click **Close** in the Verify Volume Data Results window.



*Figure 6 - 22*  
**Intel® Rapid Storage Technology Verify**

## Sound Blaster Cinema 3

Install the **Sound Blaster Cinema** application is a suits of audio technologies which allow you to configure the audio settings to your requirements for the best performance in games, music and movies.

### Sound Blaster Cinema 3 Installation

1. Before installing the driver make sure you have a working internet connection.
2. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
3. Click **Option Drivers** (button).
4. Click **5.Install SB Cinema 3 AP > Yes**.
5. You will be prompted to enter your Activation keys (enter the keys and then click **Activate**). If you have a working internet connection the system will confirm the activation.
6. Click **OK**, and you will then need to restart the computer.



#### Software Update

Check for the latest software updates by making sure you are connected to the internet and clicking **Software Update** from the **Settings** menu. Follow the instructions provided to update the software.

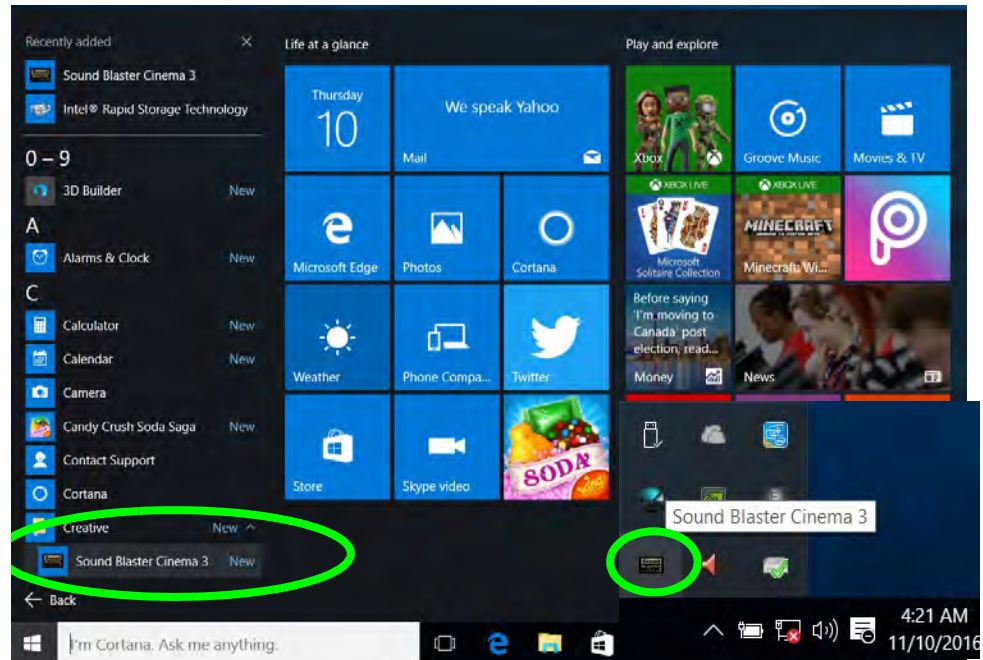


### Sound Blaster Cinema 3 & HDMI

Note that the Sound Blaster Cinema 3 SBX Pro Studio audio effects do not apply to audio generated through an HDMI connection.

## Sound Blaster Cinema 3 Application



Run the **Sound Blaster Cinema** control panel from the notification area of the taskbar (or from **Creative** folder item in the Apps menu). Click on the tabs to access the any of the control panel menus.

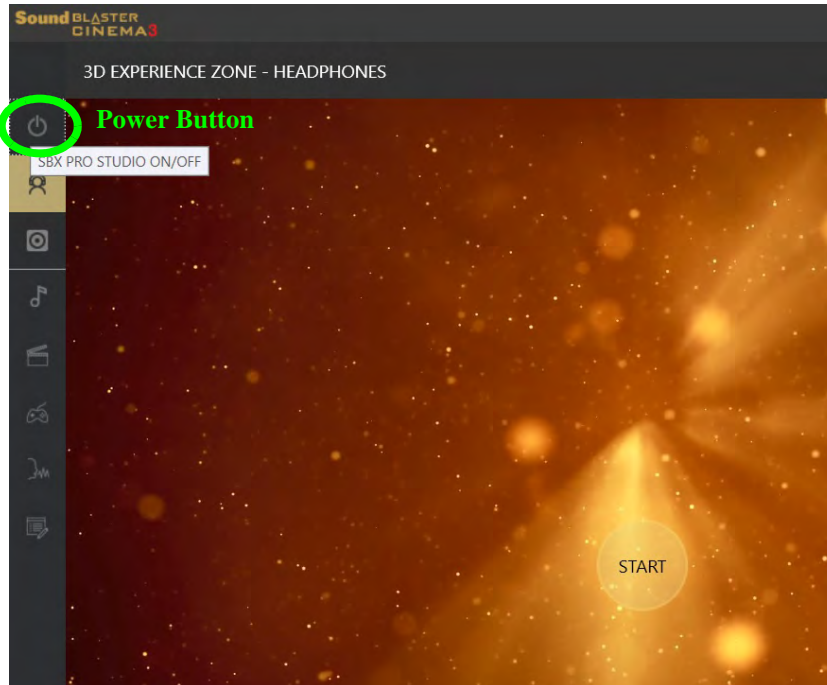


*Figure 6 - 23*  
**Sound Blaster Cinema 3 Apps Menu & Taskbar Icon**

## Sound Blaster Cinema 3 Power

The **Sound Blaster Cinema 3** can be turned **On/Off** by clicking the **Power Button**

 (when the power is off the icon will be dimmed ).



*Figure 6 - 24*  
**Sound Blaster  
Cinema 3 Power  
Button**


## Modules

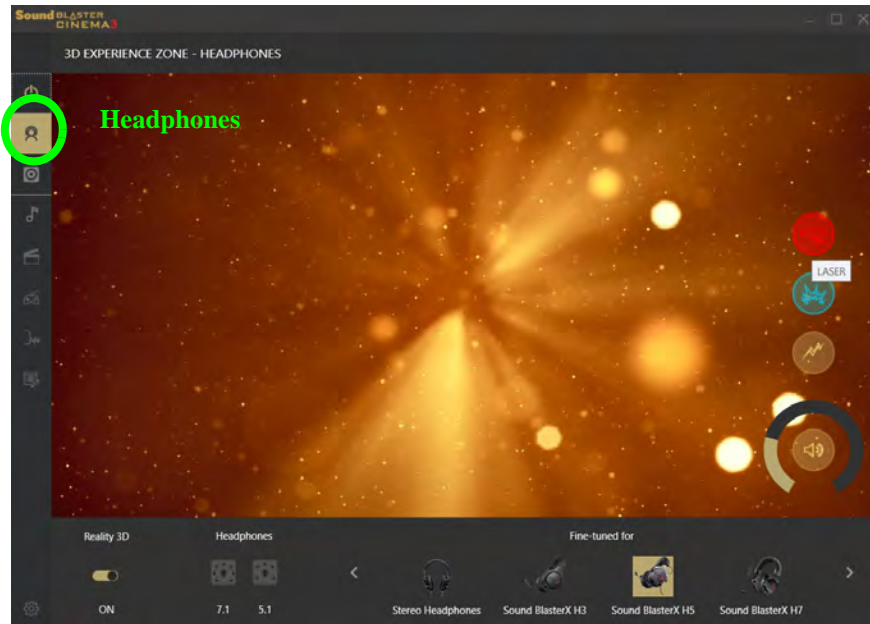


### Reality 3D

The Sound Blaster Cinema 3 Reality 3D controls can be used to configure sound for both the internal speakers, and any connected audio source, including TVs through an HDMI connection, if audio is supported.

### Sound Blaster Cinema 3 - Reality 3D

**Sound Blaster Cinema 3 Reality 3D** allows you to enable 5.1/7.1 surround sound for headphones or speakers, and to test different surround effects. There are separate pages to allow configuration of either headphones or speakers, and you can fine tune effects for specific headphone types supported. Click **Start**  to begin to configure the settings.



*Figure 6 - 25*

### Sound Blaster Cinema 3 - Reality 3D Experience Zone (Headphones)

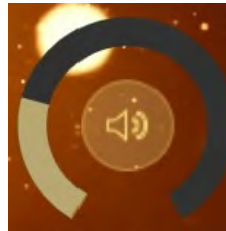


You can scroll left or right through the headphones supported.



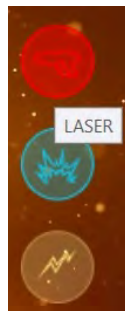
*Figure 6 - 26*  
**Sound Blaster  
 Cinema 3  
 Headphones**

Volume can be adjusted by clicking on the dial.



*Figure 6 - 27*  
**Sound Blaster  
 Cinema 3  
 Volume Dial**

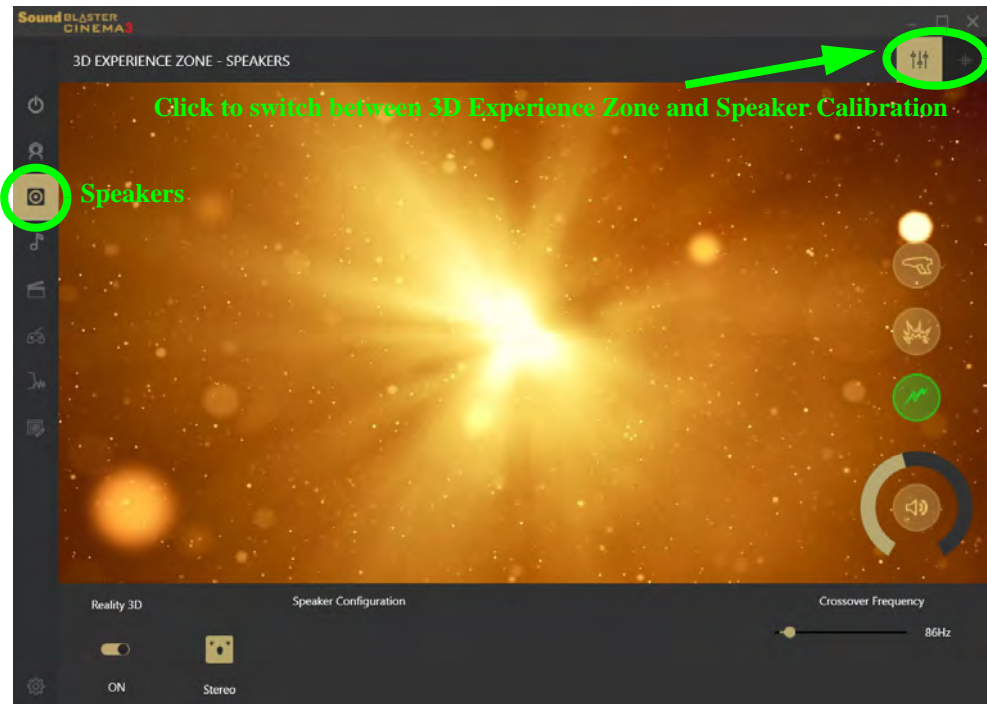
Click on any of the effects buttons to test the effects.



*Figure 6 - 28*  
**Sound Blaster  
 Cinema 3  
 Effect Buttons**

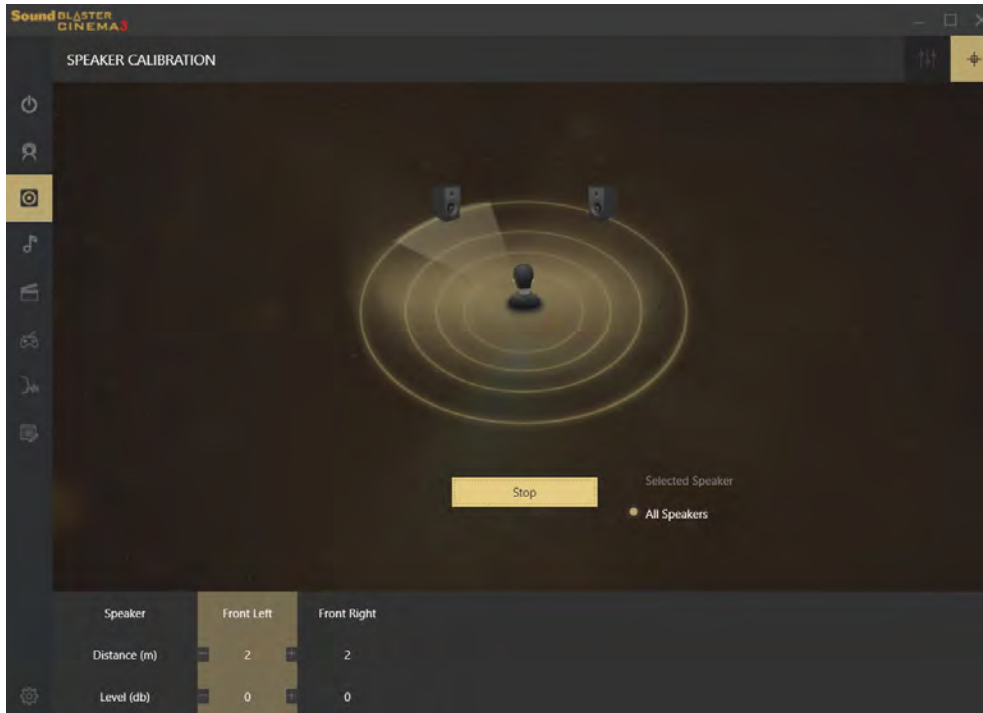
## Modules

The **Speakers** page has two tabs (**3D Experience Zone** and **Speaker Calibration**) which can be accessed by clicking the icons at the top right of the page.



*Figure 6 - 29*  
**Sound Blaster  
Cinema 3 - Reality  
3D Experience Zone  
(Speakers)**

Click **Test** to run the **speaker calibration** test, and **Stop** once complete. Adjust the speaker distances and levels from the controls at the bottom of the page.





### SBX Pro Studio

The Sound Blaster Cinema SBX Pro Studio controls can be used to configure sound for both the internal speakers, and connected audio sources through the headphone jack. However it cannot be used to configure audio sources through an HDMI connection.

## Sound Blaster Cinema 3 SBX Pro Studio

The **Sound Blaster Cinema 3 SBX Pro Studio** offers a suite of playback technologies to enhance sound. Each playback technology at the bottom of the screen has an **On/Off button** to allow you to enable/disable it, and most controls feature a slider to adjust the levels.

- **Surround:** Provides virtual sound channels to control the level of immersion.



*Figure 6 - 30*  
**Sound Blaster  
Cinema 3 SBX Pro  
Studio  
Surround**

- **Crystalizer:** Enriches audio to make it sound livelier.



*Figure 6 - 31*  
**Sound Blaster  
 Cinema 3 SBX Pro  
 Studio  
 Crystalizer**

- **Bass:** Enhances the bass level of the sound system.



*Figure 6 - 32*  
**Sound Blaster  
 Cinema 3 SBX Pro  
 Studio  
 Bass**

- **Smart Volume:** Minimizes sudden volume changes to avoid the need for constant adjustment.

*Figure 6 - 33*  
**Sound Blaster  
Cinema 3 SBX Pro  
Studio  
Smart Volume**



- **Dialog Plus:** Optimizes dialogue levels for movies etc.

*Figure 6 - 34*  
**Sound Blaster  
Cinema 3 SBX Pro  
Studio  
Dialog Plus**



### Sound Blaster Cinema 3 Profiles

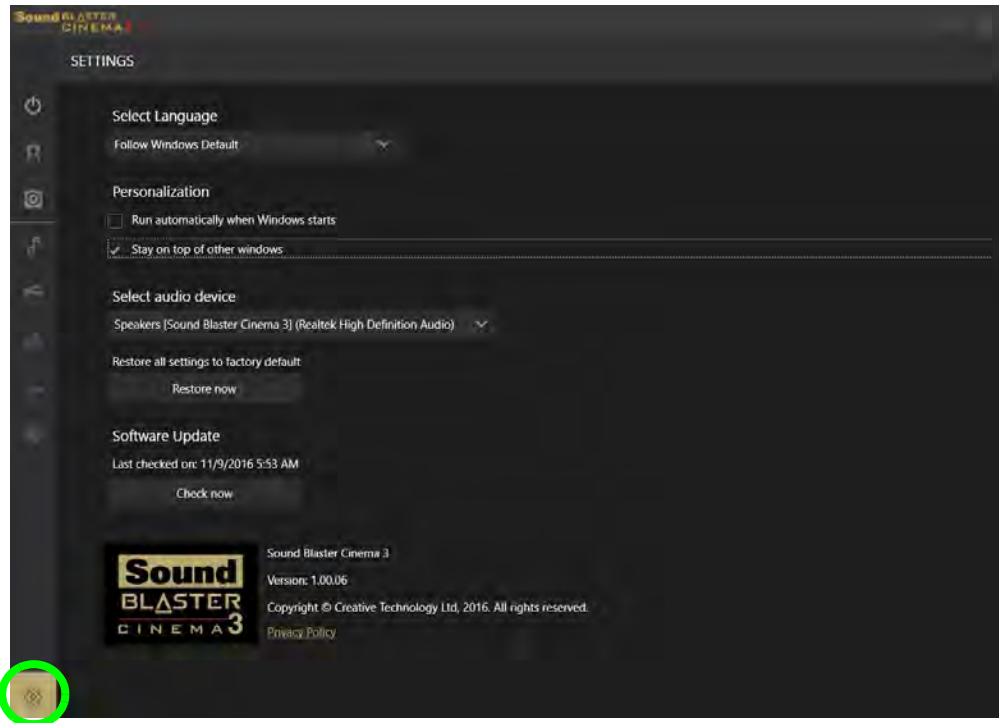
The **Profile** buttons on the left side of the screen give you preset settings to enhance your audio settings for **Music**, **Movie**, **Game** and **Voice**. You can choose **Custom** to adjust the settings to your own set preferences.



*Figure 6 - 35*  
**Sound Blaster  
Cinema 3  
Profiles**

### Sound Blaster Cinema 3 Settings

Click the **Settings** button at the bottom left of the page to adjust the settings to your preferences.



*Figure 6 - 36*  
**Sound Blaster  
Cinema 3 - Settings**




## PC Camera

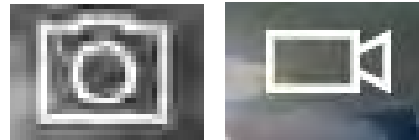
Use the **Fn + F10** key combination (see “*Function Keys & Visual Indicators*” on [page 1 - 17](#)) or **Control Center button** to toggle power to the PC Camera module.

When the PC Camera is in use the LED indicator to the left of the camera will be illuminated (see [2 Figure 1 - 2 on page 1 - 7](#)).

Note that you need to use the **Camera app**  in *Windows* to take pictures and capture video.

### Camera App

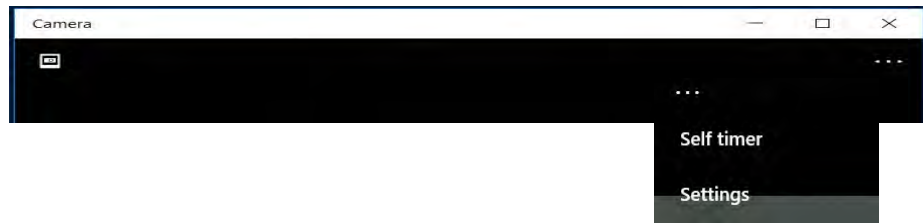
1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Start menu by clicking on the **Camera app icon**  (you can type “camera” into the search box to find the Camera app if it is not pinned to the Start menu).
3. The interface displays two buttons on the right of the screen; one for photo and one for video.




Photo

Video


4. Simply click on the appropriate button to switch to either photo or video modes.
5. You can use the buttons at the top to access the **Photo** collection, **Self Timer** or **Settings**.



*Figure 6 - 38*  
Camera Menu Bar

- Click **Settings**  to access the camera settings menu to make adjustments for **Camera Button** long key press function, **Photo Aspect ratio**, **Framing grid**, **video recording frame rates**, **Flicker reduction** and **Digital video stabilization**.



  
**Camera Settings**

The **Self Timer** may be set to take Photos after **2, 5 or 10** seconds and can also be set to continue taking pictures until the camera button is pressed again.

The **Aspect Ratio** can be changed to those supported by the system.





You can use a **Framing grid** to help you line up pictures.

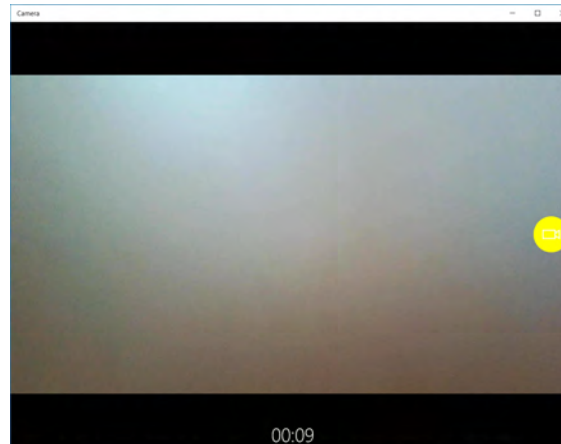
The **Video recording** resolution and frame rate can be set to any supported by the system. Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select Properties) and the remaining free space on your hard disk (go to File Explorer, 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.

If you need to reduce any screen flicker, change the settings in **Flicker reduction** to either e.g. 50Hz or 60Hz.

*Figure 6 - 39*  
**Camera Settings**

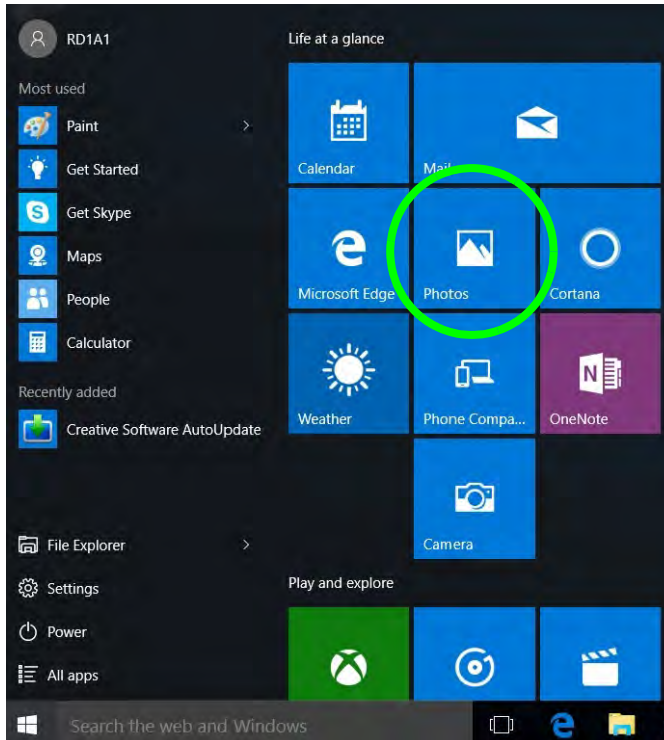
### Taking Pictures/Capturing Video

1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Start menu by clicking on the **Camera app icon**  (you can type “camera” into the search box to find the Camera app if it is not pinned to the Start menu).
3. Click to select either **photo**  or **video**  modes.
4. Click the photo icon to take a picture, and the camera icon will briefly turn yellow as the picture is taken.
5. Click on the video icon  to start video capture (if video capture begins a timer will appear at the bottom of the screen and the icon will turn yellow).
6. To stop video capture click the video icon again.



*Figure 6 - 40*  
**Video Camera  
Recording in  
Process**

7. Captured photos and videos will be saved to the **Photos** app stored in the Start menu (type **Photos** into the search box if you cannot find the app).



*Figure 6 - 41*  
**Photo App**  
**(For Captured**  
**Photos & Videos)**

## Trusted Platform Module

(Optional)

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.

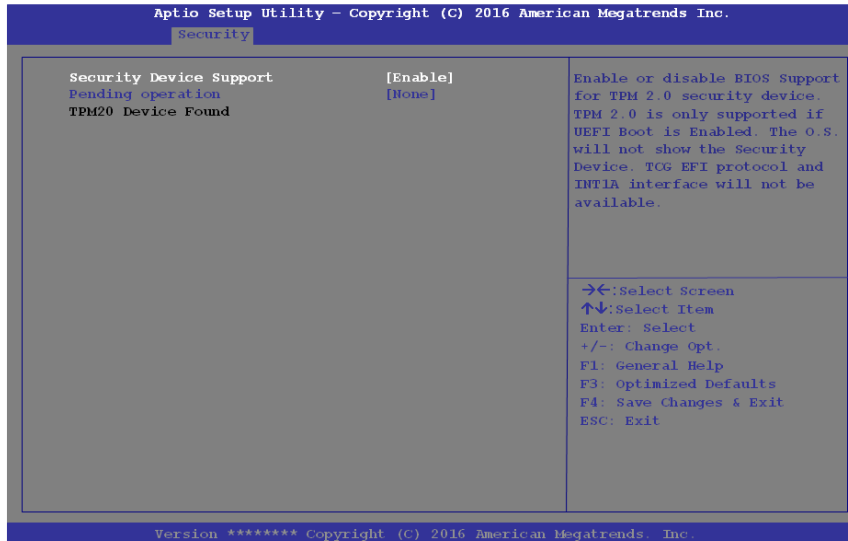
Individual users can use the TPM as an authentication with the fingerprint reader.

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.

## Enabling & Managing 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 **TPM Configuration** and press Enter to access the sub-menu.
5. Press Enter to access the **Security Device Support** menu and select **Enable**.
6. Press **F4** to save the changes and restart the computer.
7. You can now manage the TPM from **Windows**.



### Clearing TPM Information

You can select **Pending operation**, and then select **TPM clear** to clear existing TPM information in order to reset the TPM.

*Figure 6 - 42*  
TPM State (Enable)

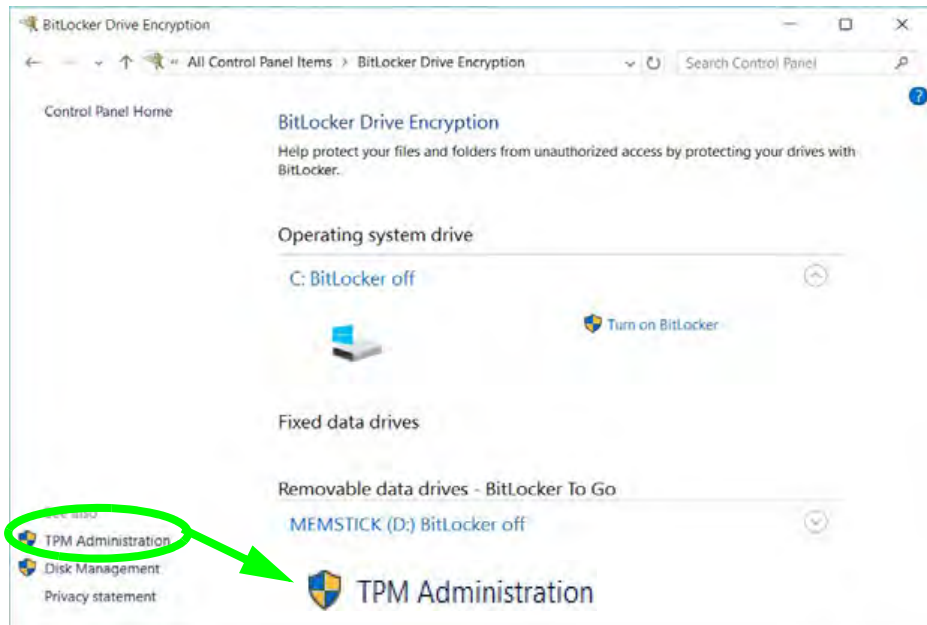
## TPM Management in Windows

You can manage your TPM settings from within *Windows*:

1. Go to the **Control Panel**.
2. Click **BitLocker Drive Encryption (System and Security)**.
3. Click **TPM Administration**.

6

*Figure 6 - 43*  
**BitLocker Drive Encryption (TPM Administration)**





- The TPM Management window allows you to configure the TPM within **Windows**. As TPM is usually administered within large enterprises and organizations, your system administrator will need to assist you in managing the information here.

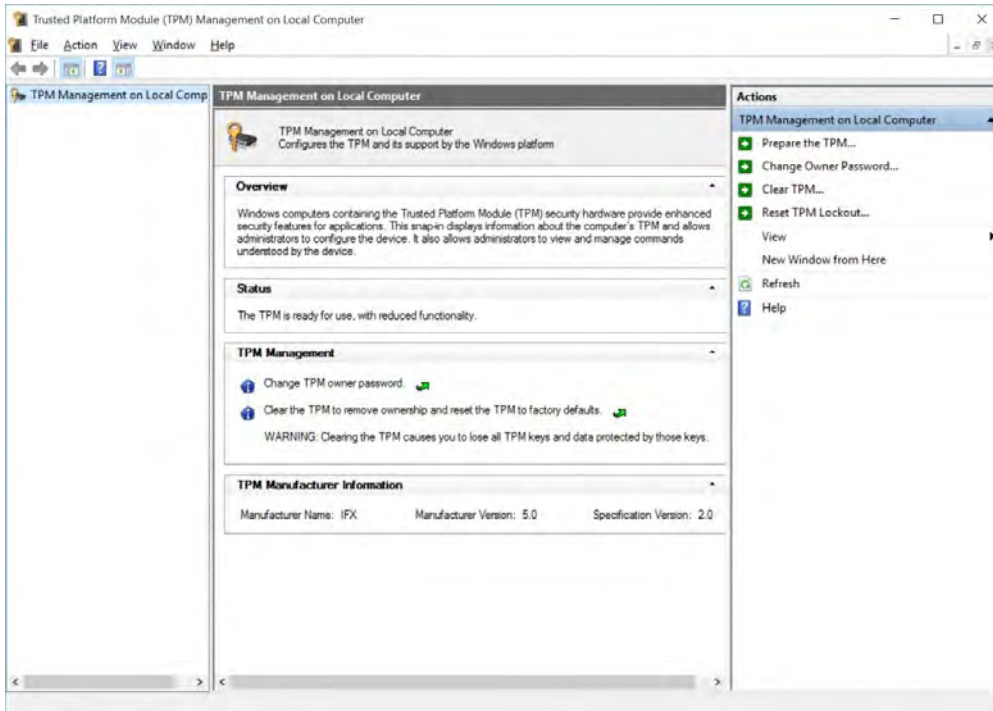
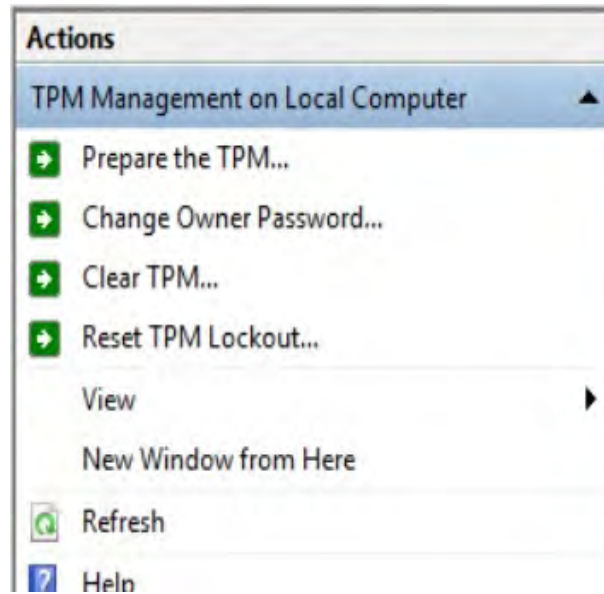


Figure 6 - 44  
**Trusted Platform  
 Module (TPM)  
 Management on  
 Local Computer  
 Administration**

### TPM Actions

1. Click **Prepare the TPM** and follow the instructions in the Wizard to prepare the TPM (this will probably require a restart of the computer and confirmation of the setting changes after restart by pressing the appropriate F key).
2. After the restart the TPM will be prepared and you can then use the **Actions** menu to **Turn TPM off**, **Change Owner Password**, **Clear TPM** or **Reset TPM Lockout**.
3. A wizard will help take you through any setup steps.



6 *Figure 6 - 45*  
TPM Actions Menu

## BitLocker

BitLocker Drive Encryption can be used in conjunction with the TPM to encrypt data on the disk. Access the Microsoft **BitLocker Drive Encryption** control panel applet from the *Windows* control panel (**System and Security**).

1. Click **Turn on Bit Locker**.
2. Follow the on-screen instructions to setup BitLocker, and make sure you have a removable media (e.g. a USB flash drive) to store saved recovery keys etc.

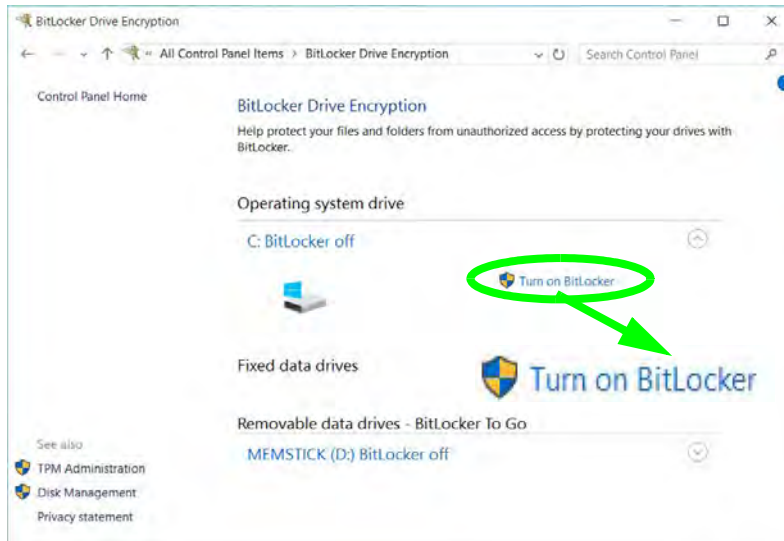


Figure 6 - 46  
BitLocker Drive  
Encryption



### Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN, Bluetooth and 3G/4G module(s) are OFF** (or the system is in **Airplane Mode**) if you are using the computer aboard aircraft (see [Table 1 - 4, on page 1 - 17](#)).

## 3G/4G Module

(For Models A & B Only)

If you have included an **optional UMTS/HSPA+** based 3G Module (Universal Mobile Telecommunications System or High Speed Packet Access) module or **LTE** (Long Term Evolution) 4G module (see ***“Communication” on page D - 3*** for specification details) in your purchase option, ***you do not require a driver/application installation for Windows 10.*** Follow the instructions overleaf to install the USIM card (which will be provided by your service provider), and then **use the Charms Bar Wireless icon to access the 3G/4G network** in the same manner as the WLAN.



### Important Notice

If your purchase option includes both Wireless LAN and 3G/4G modules, then the appropriate antennas will be installed. Note that In order to comply with FCC RF exposure compliance requirements, the antenna must not be co-located or operate in conjunction with any other antenna or transmitter.

### Important Notice - 3G/4G & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3G/4G module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3G/4G module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.

### 3G/4G Module USIM Card Installation (for Models A & B)

Follow the instructions below to install the USIM card (which will be supplied by your service provider) which requires the removal of the battery first.

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow, and then slide latch **2** in the direction of the arrow and hold it in place.
3. While holding the latch **2** in place, pull the battery up at point **3** in the direction of the arrow **4** to remove the battery **5**.
4. Insert the USIM card **6** (see overleaf).
5. Reinsert the battery (see page 6 - 63).



  
**Power Safety  
Warning**

Before you undertake any installation procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines).

6

*Figure 6 - 47*  
**Battery Removal &  
USIM Card Insertion**



### USIM Card Orientation

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

### 3G/4G Module USIM Card Installation

Insert the USIM card **1** as illustrated below (pay careful attention to the orientation of the card as the gold contact side of the card should face downwards) until it clicks fully into position. To eject the card simply press it until it ejects, but do not attempt to eject the card while connected to a 3G/4G network (see below).



*Figure 6 - 48*

### USIM Card Insertion



### USIM Card Ejection

Simply press on the USIM card to eject it, however do not do this while a connection is in progress. If you do eject the card while a 3G/4G connection is ongoing, you will need to shut down the system, reinsert the USIM card, restart the system and then reestablish the 3G/4G connection.

If you wish to change USIM cards then you will need to shut the system down, reinsert the USIM card, restart the system and then reestablish the 3G/4G connection.

## Battery Insertion

1. Orientate the battery **1** as illustrated below and align it with the edges of the battery compartment.
2. Push the battery in the direction of the arrow **2** to insert it into the compartment (it should click into place).
3. Slide the latch **3** in the direction of the arrow into the lock position.



*Figure 6 - 49*  
**Battery Insertion**




### Connecting to the Cellular Network Manually

Usually the Internet APN (Access Point Name) is set automatically, however if your cellular data connection isn't working, you should try manually entering a new Internet APN based on your location and mobile operator. See page 7 - 14 for details.

## 3G/4G Configuration in Windows 10

You can configure a 3G/4G connection as below, however make sure the system is not in Airplane Mode before configuration begins. You can connect to a 3G/4G connection in much the same way as the WLAN connection.

1. Click the **Settings** item in the Start Menu and then click **Network and Internet**.
2. Click **Cellular** and a list of available access points will appear (if you have issues connecting to the cellular network see the sidebar).
3. Click the access point and click **Connect**.
4. The system will connect to your network.
5. **Connected** will appear under the connection.
6. You can then access the internet, download e-mail etc. as per any internet connection.
7. To disconnect you can select the connection and click **Disconnect**.
8. You need to use **Airplane Mode** aboard aircraft.
9. You can also click the Wireless icon  in the notification area of the taskbar, click **Cellular** and double-click an access point connect to access the connection information.



# Chapter 7: Troubleshooting

## Overview

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

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

# Basic Hints and Tips

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

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Power Indicators** (see *“LCD Panel Open - Model B” 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* (see *“Configuring the Power Buttons” on page 3 - 9*), the **Fn + F12** key combination, or power button to wake-up the system.
- **Brightness** - Check the brightness of the screen by pressing the **Fn + F8 and F9** keys to adjust the brightness (see *Table , on page 1 - 17*).
- **Display Choice** - Press **Fn + F7** to make sure the system is not set to “external only” display.
- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive.

## Backup and General Maintenance

- Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.
- Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.
- Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Boot** password for the SCU (see *“Security Menu” on page 5 - 12*).
- Keep copies of vital **settings files** such as network, dialup settings, mail settings etc. (even if just brief notes).



### Bottom Cover Removal Warning

Users should not remove any cover(s) and/or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty. If you need to replace/remove the hard disk/RAM/optical device etc., for any reason, please contact your distributor/supplier for further information.

# Viruses

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


## Upgrading and Adding New Hardware/Software

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

## Troubleshooting

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

## Problems and Possible Solutions

Problem	Possible Cause - Solution
<p>You turned on the <b>power</b> but it doesn't work.</p>	<p><i>Battery missing / incorrectly installed.</i> Check the battery bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.</p>
<p>The battery <b>LED power</b> indicator , is blinking orange.</p>	<p><i>Low Battery.</i> Plug in the DC power source. If the computer doesn't start up immediately, turn it off then on again.</p>
<p>You are <b>losing battery power</b> too quickly.</p>	<p><i>The system is using too much power.</i> If your OS has a <i>Power Options</i> scheme (see "<a href="#">Power Plans</a>" on page 3 - 5) check its settings. You may also be using a <i>peripheral device/USB device</i> that is drawing a lot of power.</p>
<p>Actual <b>battery operating time</b> is shorter than expected.</p>	<p><i>The battery has not been fully discharged before being recharged.</i> Make sure the battery is fully discharged and recharge it completely before reusing (see "<a href="#">Battery Information</a>" on page 3 - 17).</p> <p><i>Power Options have been disabled.</i> Go to the <b>Control Panel</b> in <i>Windows</i> and re-enable the options.</p> <p><i>A peripheral device/USB device is consuming a lot of power.</i> Turn off/remove the unused device to save power.</p>

## Troubleshooting

Problem	Possible Cause - Solution
<p>The computer feels <b>too hot</b>.</p>	<p>Make sure the computer is properly ventilated and the Vent/Fan intakes are not blocked. If this doesn't cool it down, put the system into <b>Hibernate</b> mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see <i>"Overheating" on page 1 - 18</i>). Make sure you're using the correct adapter.</p> <p>Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the Vent/Fan intakes to be blocked.</p>
<p>The <b>system will not wake up from a power saving state (Sleep/Hibernate) on network activity (Wake on LAN)</b> even though <b>I have plugged in the powered AC/DC adapter</b>.</p>	<p><i>Wake on LAN is supported in AC mode only.</i></p> <p>When the system enters a power saving state the plugged in AC/DC adapter should be connected, and should remain connected, in order to allow the system to wake up on network activity. Unplugging the adapter, and then plugging it back in again, will not allow the system to wake up on network activity.</p>
<p>No image appears on the <b>external monitor</b> I have plugged in and powered on.</p>	<p><i>You haven't installed the video driver and configured it appropriately from the <b>Control Panel</b>. See <a href="#">Appendix C</a> for instructions on installing and configuring the video driver.</i></p>




Problem	Possible Cause - Solution
<p><b>Nothing appears</b> on screen.</p>	<p><i>The system is in a power saving mode.</i> Toggle the sleep/resume key combination, <b>Fn + F12</b> (see <a href="#">“Configuring the Power Buttons” on page 3 - 9</a>).</p> <p><i>The screen controls need to be adjusted.</i> Toggle the screen control key combinations <b>Fn + F8/F9</b>. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls.</p> <p><i>The computer is set for a different display.</i> Toggle the screen display key combination, <b>Fn + F7</b>. If an external monitor is connected, turn it on.</p> <p><i>The <b>screen saver</b> is activated.</i> Press any key or touch the <b>TouchPad</b>.</p>
<p>You forget the <b>boot password</b>.</p>	<p><i>If you forget the password, you may have to discharge the battery of the CMOS.</i> Contact your service representative for help.</p>




### 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 sound cannot be heard or the <b>volume is very low</b> .	<i>The volume might be set too low.</i> Check the volume control in the <b>Volume Control Panel</b> in the <i>Windows</i> notification area, or use the key combination <b>Fn + F5</b> and <b>F6</b> (see <i>“Flexikey® Application” on page 1 - 14</i> ) to adjust.
Unwelcome numbers appear when typing.	<i>Num Lock is turned ON</i> (see <i>“LCD Panel Open - Model B” on page 1 - 8</i> ).
 <b>Other Keyboards</b> If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot keys unique to the system's regular keyboard may not work.	
The <b>system freezes</b> or the screen goes dark.	<i>The system's power saving features have timed-out.</i> Use the AC/DC adapter, press the sleep ( <b>Fn + F12</b> ) key combination, or press the power button if no LEDs are lit.
The system never goes into a <b>power saving mode</b> .	Power Options features are not enabled. Go to the <b>Windows</b> Power Options menu and enable the features you prefer (see <i>“Power-Saving States” on page 3 - 7</i> ). Make sure you have enabled <b>Hibernate</b> mode from the control panel.

Problem	Possible Cause - Solution
The <b>Wireless LAN/Bluetooth</b> modules cannot be detected.	<i>The modules are off as the computer is in <b>Airplane Mode</b>. Check the LED indicator  to see if it is in <b>Airplane Mode</b> (see “<b>LCD Panel Open - Model B</b>” on page 1 - 8). Use the <b>Fn + F11</b> key combination to toggle <b>Airplane Mode</b> on/off (see <b>Table</b>, on page 1 - 17).</i>
The <b>PC Camera</b> module cannot be detected.	<i>The module is off. Press the <b>Fn + F10</b> key combination in order to enable the module (see “<b>Flexikey® Application</b>” on page 1 - 14). Run the camera application to view the camera picture.</i>
The <b>Wireless LAN/Bluetooth</b> modules cannot be configured.	<i>The driver(s) for the module(s) have not been installed. Make sure you have installed the driver for the appropriate module (see the instructions for the appropriate module in “<b>Wireless LAN Module</b>” on page 6 - 21 and/or “<b>Bluetooth &amp; WLAN Combo Module</b>” on page 6 - 25).</i>
A file cannot be copied to/from a connected <b>Bluetooth</b> device.	<i>The transfer of data between the computer and a Bluetooth enabled device is supported <b>in one direction only (simultaneous data transfer is not supported)</b>. 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 has been completed</i>
My <b>internal microphone seems to be disabled</b> and/or <b>I can still hear sound from the speakers</b> even though I have plugged headphones into the headphone jack.	<i>You have not enabled “<b>Separate all input jacks as independent input devices</b>” in Device advanced settings.</i>

## Troubleshooting

Problem	Possible Cause - Solution
<p><b>No sound</b> can be heard through an <b>HDMI</b> connected display.</p>	<p><i>You have not configured the HDMI audio output. See <b>“HDMI Audio Configuration”</b> on page C - 9.</i></p>
<p>The <b>Sound Blaster Cinema 3 SBX Pro Studio</b> audio effects don't work when the system is connected to an <b>external display through an HDMI/ Display Port cable</b>.</p>	<p><i>Note that Sound Blaster Cinema 3 SBX Pro Studio audio effects will be disabled when you are connecting to an external display through an HDMI or Display Port connection. See <b>“HDMI Audio Configuration”</b> on page C - 9.</i></p>
<p>When using a <b>Bluetooth headset the audio appears to be mono</b> and not stereo.</p>	<p><i>This is a common issue with Bluetooth headsets. To resolve this issue do the following (you will need to <b>repeat this procedure after every boot up, restart, or when the system resumes from hibernation</b>):</i></p> <ol style="list-style-type: none"> <li>1. Go to the <b>Devices &amp; Printers</b> control panel in <b>Windows</b>.</li> <li>2. Double-click the Bluetooth headset.</li> <li>3. Click <b>Connect</b> to complete the stereo connection.</li> </ol> <p><b>OR</b></p> <ol style="list-style-type: none"> <li>1. Go to the <b>Sound</b> control panel in <b>Windows</b>.</li> <li>2. Right-click (in the <b>Playback</b> tab) the Bluetooth Stereo Audio device (the default device is <b>Headset</b>).</li> <li>3. Click <b>Connect</b> to complete the stereo connection.</li> </ol>

Problem	Possible Cause - Solution
<p>I have used <b>Update Driver</b> in <b>Device Manager (Unknown device &gt; Other Devices)</b> to try and install the <b>Airplane Mode</b> driver. <b>Windows</b> encountered a problem in attempting to update the driver, and a <b>yellow exclamation mark</b> appears in <b>Device Manager</b> against the <b>Unknown device</b>.</p>	<p><i>It is very important that the drivers are installed in the order indicated in Chapter 4 (which is the numbered installation order on the Device Drivers &amp; Utilities + User's Manual disc). This issue can occur when drivers are manually installed, and not in the correct order.</i></p> <p>If you have attempted to <b>Update Driver</b> from the <b>Device Manager</b> control panel and have encountered problems, then use the method below to correct this:</p> <p><b>To correct this problem:</b></p> <ol style="list-style-type: none"> <li>1. Go to the <b>Programs and Features (Programs)</b> control panel in <b>Windows</b>.</li> <li>2. Select any installed Airplane Mode driver item (e.g. Insyde Airplane Mode HID Mini-Driver), and click <b>Uninstall/Change</b> to uninstall the current driver.</li> <li>3. Restart the computer.</li> <li>4. Insert the <i>Device Drivers &amp; Utilities + User's Manual disc</i> and click <b>Install Drivers</b> (button).</li> <li>5. Double-click the <b>Airplane Driver</b> item in the menu.</li> <li>6. Follow the instructions to install the correct driver (you will need to restart the computer as part of the installation process).</li> </ol>

### Resolving the “Can’t connect to this network” issue with the 3G/4G Module






1. If you have issues connecting to the cellular network when you are attempting to use the 3G/4G network then you may need to manually connect to the **Internet access point name (APN)**.
2. Usually the **Internet APN** is set automatically, however if your cellular data connection isn't working, you should try manually entering a new Internet APN based on your location and mobile operator.
3. To find your APN settings contact your mobile operator directly (or if you can connect to a WiFi network on your PC, or have a phone handy, try searching online to find the Internet APN settings for your mobile operator).
4. See <http://windows.microsoft.com/en-us/windows-10/cellular-settings> or search the Microsoft website for "**Windows 10 cellular settings**".

# Appendix A: Interface (Ports & Jacks)

## Overview

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





# Ports and Jacks

Item	Description
<p>Card Reader</p> 	<p>The card reader allows you to use the following digital storage cards:</p> <p style="text-align: center;">MMC (MultiMedia Card) / RSMMC SD (Secure Digital) / Mini SD / SDHC / SDXC (up to UHS-II)</p> <p>Push the card into the slot and it will appear as a removable device.</p>
<p>DC-In Jack</p> 	<p>Plug the supplied AC/DC adapter into this jack to power your computer.</p>
<p>External Monitor (VGA) Port</p> 	<p>This port allows you to connect an external monitor, or Flat Panel Display, to get dual video or simultaneous display on the LCD and external monitor/FPD.</p>
<p>HDMI-Out Port</p> 	<p>The HDMI-Out (<b>High-Definition Multimedia Interface</b>) 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 (see <a href="#">“Attaching Other Displays” on page C - 29</a>) by means of a HDMI cable. <b>Note that HDMI carries both audio and video signals.</b></p>
<p>Headphone-Out Jack</p> 	<p><b>Headphones</b> or <b>speakers</b> may be connected through this jack. <b>Note:</b> Set your system’s volume to a reduced level before connecting to this jack.</p>



A



## Interface (Ports & Jacks)

Item	Description
<p data-bbox="156 227 373 250">Microphone-In Jack</p> 	<p data-bbox="432 227 1187 250">Plug an external microphone in to this jack to record on your computer.</p>
<p data-bbox="177 350 357 374">RJ-45 LAN Jack</p> 	<p data-bbox="432 350 900 374">This port supports LAN (Network) functions.</p> <p data-bbox="432 379 1198 403"><b>Note:</b> Broadband (e.g. ADSL) modems usually connect to the LAN port.</p>
<p data-bbox="172 481 362 505">S/PDIF-Out Jack</p> 	<p data-bbox="432 481 1465 535">This S/PDIF (<b>Sony/Philips Digital Interface Format</b>) Out Port allows you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for "5.1" or 'dts' surround sound.</p>
<p data-bbox="167 577 367 601">Security Lock Slot</p> 	<p data-bbox="432 577 1465 631">To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.</p>

## Interface (Ports & Jacks)

Item	Description
USB 2.0/1.1 Port 	USB 2.0 compatible ports (USB 2.0 is fully USB 1.1 compliant) are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device).
USB 3.0 (USB 3.1 Gen 1 Type A) Port	
USB 3.0 (USB 3.1 Gen 1 Type C) Port	USB 3.0 ports capable of 5Gbps (SuperSpeed) are classified as <b>USB 3.1 Gen 1</b> and <b>USB 3.1 Gen 2</b> ports are capable of 10Gbps SuperSpeed+.
USB 3.1 (USB 3.1 Gen 2 Type A & Type C) Port <b>(Factory Option)</b> 	There is <b>one USB 2.0 port, two USB 3.1 Gen 1 (Type A)</b> ports and <b>one USB 3.1 Gen 1 (Type C)</b> port (the Type C port is the smaller sized USB port).  One <b>USB 3.1 Gen 2 port (Type A)</b> and one <b>USB 3.1 Gen 2 port (Type C)</b> are available as a <b>factory option</b> . These ports are shared with the existing USB 3.1 Gen 1 Type A and Type C ports, <b>and are capable of 10Gbps SuperSpeed+ for a single device, or if two devices are plugged in to both USB 3.1 (Gen 2) ports, the bandwidth will be shared between the ports.</b>

A

# Appendix B: Control Center & Flexikey®



## Overview

The following chapter will give a quick description of the functions of the **Control Center & Flexikey®** applications.

### Control Center

The **Control Center** gives quick access to frequently used controls, power management features and enables you to quickly turn modules on/off. Click the **Control Center** icons to toggle the appropriate function, or hold the mouse button down and move the dial control where applicable. Certain functions will automatically be adjusted when a power mode is selected. The **Control Center** in *Windows 10* works under the **Desktop** app and not under the Start screen.



### Flexikey®

The **Flexikey®** application is a quick hotkey configuration application, which allows you to **assign a single key to launch multiple key combinations**, or to **launch programs and applications**, to **create text macros** and to **disable** certain keys. The application can also be used to **configure the mouse buttons** to create hotkeys for gaming etc. All the configuration settings are retained under (up to 12) **profiles** to which the settings are applied. Click **Flexikey®** in the **Gaming** section of the Control Center, or the **click the icon**   in the notification area of the taskbar, to launch the application.

## Control Center & Flexikey®



### Control Center Access

To run the Control Center press the **Fn + Esc** key combination, or double-click the icon  in the notification area of the taskbar. Close the Control Center by clicking the  close icon in the top right of the panel (move the cursor onto the top right corner of the panel to highlight it).

### Flexikey® Access

The **Flexikey®** is accessed from within the Control Center by clicking **Flexikey®** in the **Gaming** section of the Control Center.

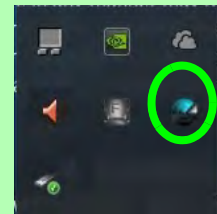


Figure B - 1 - Control Center

## B - 2 Overview

**Power Modes**

You can set a **Power Mode** by clicking the appropriate icon at the top of the **Control Center**. Each power mode will affect the Power Conservation Mode, Airplane Mode, Power Plan and PC camera power etc.

You can click a **Control Center** icon to set an overall power mode and then click individual icons in the **Control Center** to power on/off the Touchpad and PC camera.








Modes		Quiet	Power Saving	Performance	Entertainment
Icon					
Power Plan		Balanced	Power Saver	High Performance	Balanced
Power Conservation Mode		Balance	Energy Star	Performance	Balance
PC Camera		ON	OFF	ON	ON
TouchPad		ON	ON	ON	ON
Airplane Mode		OFF	ON	OFF	OFF

Table B - 1- Power Modes



## Control Center & Flexikey®

### Control Center Menus

The Control Center contains 3 menu headings (**System Program**, **Device** and **Gaming**) under the Power Modes. Click the menu headings and then click any of the buttons outlined on the following pages.

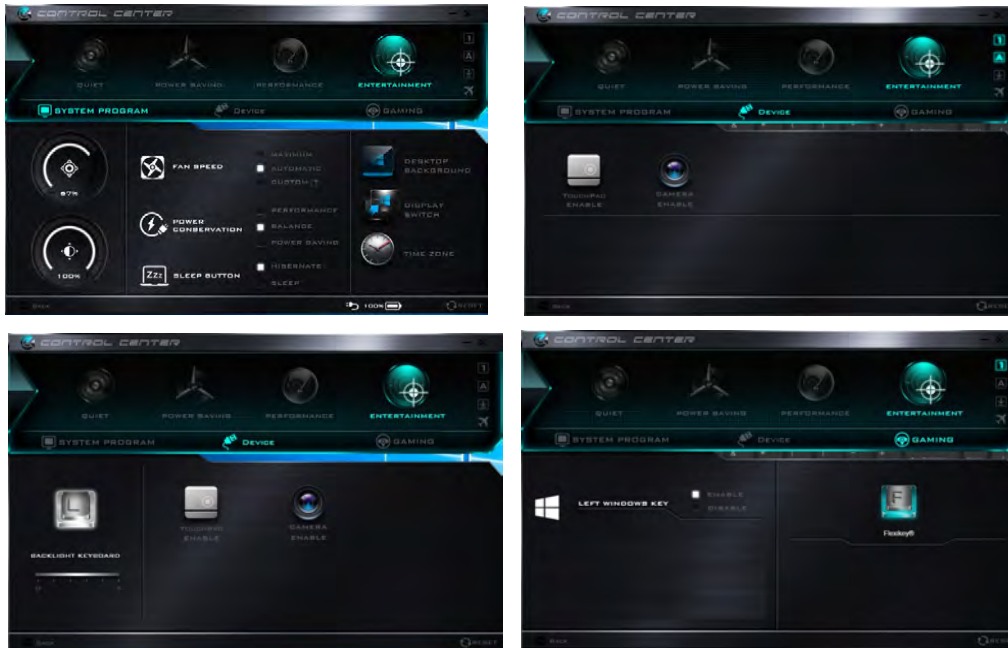


Figure B - 2 - Control Center Menus

**Power Status (System Program)**



The **Power Status** icon will show whether you are currently powered by the battery, or by the AC/DC adapter plugged in to a working power outlet. The power status bar will show the current battery charge state.

**Brightness (System Program)**



The **Brightness** icon will show the current screen brightness level. You can use the slider to adjust the screen brightness or the **Fn + F8/F9** key combinations, or use the **Fn+ F2** key combination to turn off the LED backlight (press any key to turn it on again).

**Volume (System Program)**



The **Volume** icon will show the current volume level. You can use the slider to adjust the Volume or the **Fn + F5/F6** key combinations, or use the **Fn+ F3** key combination to mute the volume.

**Fan Speed (System Program)**



You can set the fan speed to **Maximum (full power)**, **Automatic** or **Custom** from this menu item. The fan speed will adjust itself automatically to control the heat of the CPU. However you can adjust the setting to maximum if you prefer. Select **Custom** and click on the sliders to adjust the settings to your preference, however these settings can be overridden by the system, as a safety precaution, if it requires heavier use of the fan.



  
**Custom Settings**  
Click **Save** to retain customized settings, or **Reset** to select default settings.



## Control Center & Flexikey®

### Power Conservation (System Program)

This system supports **Power Saving** power

management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity (see *“Power Conservation Modes” on page 3 - 12*). Click either the **Performance**, **Balanced** or **Power Saving** button.



### Sleep Button (System Program)

Click either the **Hibernate** or **Sleep** buttons to have the computer enter the selected power-saving mode (see *“Power-Saving States” on page 3 - 7*).




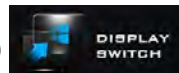
### Desktop Background (System Program)

Clicking the **Desktop Background** button will allow you to change the desktop background picture.



### Display Switch (System Program)

Click the **Display Switch** button to access the menu (or use the  + **P** key combination) and select the appropriate attached display mode.



### Time Zone (System Program)

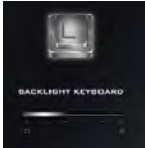
Clicking the **Time Zone** button will access the **Date and Time Windows** control panel.





**Backlight Keyboard (Device)**

Click the numbers under the Backlight Keyboard icon to



**TouchPad/Camera (Device)**

Click either of these buttons



to toggle the TouchPad or camera module's power status. The icon will appear dimmed when it is off. Note that the power status of the camera module is also effected by the **Power Mode** selected (see *Table B - 1, on page B - 3*).

**Caps Lock/Scroll Lock/ Number Lock/Airplane Mode**

Click the button to toggle the appropriate lock mode and Airplane Mode.



**Left Windows Key (Gaming)**




Click **Disable** to disable the Windows Key on the left side of the keyboard. This may be useful if you are using the gaming keys (**W, A, S & D**) and wish to avoid accidentally triggering menus with the Windows Key.

**Flexikey® (Gaming)**

Click the button to access the **Flexikey®** application.




# Flexikey® Application

Click the button  in the **Control Center**, or the **click the icon**   in the notification area of the taskbar, to access the **Flexikey®** application.

## Profiles

The menus on the left side of the application relate to Profiles. You can **Add** or **Delete** Profiles (**you can maintain 12 active Profiles**), **Export** and **Import** profiles from the menus. If you double-click on a Profile you can change the **Profile Name**, and change an **Image** file (images created using PNG files).



**Windows Key & P Key**

Note that you can assign actions to any keyboard key except the **Windows key** and **P key**.



Figure B - 3 - Flexikey® - Profiles

## Flexikey® Application Features

- **EXPRESS KEY** - This feature allows you to configure a single key to send multiple key combinations or to create more useful shortcut keys. This is useful in gaming or when using applications which have a complex set of keyboard shortcuts.
- **LAUNCH APP** - This simply assigns single keys to launch any program's or application's executable file.
- **EXPRESS TEXT** - With this you can assign single keys to send commonly used strings of text.
- **DISABLE** - Use this function to disable any keyboard keys.
- **STATISTICS** - Use this to quickly record keys in use in any application, and to disable unused keys.

## Keyboard and Mouse Settings

Click **Enable** to create settings for the keyboard and/or mouse by clicking the button on the top left of the screen (e.g. you may wish to create a profile with settings only for the mouse or keyboard). Clicking on the keyboard or mouse icons will allow you to access the settings page for the either the keyboard or mouse.

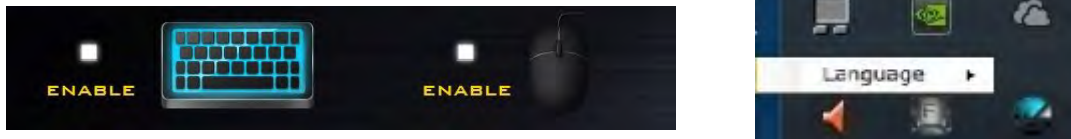



Figure B - 4 - Enable Keyboard & Mouse / Language Selection

## Language Interface

You can change the language interface by right-clicking the icon  in the notification area of the taskbar and selecting the language from the menu.



## Control Center & Flexikey®

### Enabling or Disabling Flexikey®

You can enable or disable Flexikey® (and therefore any hotkeys or mouse profile functions currently in use) by using the **Fn + Backspace** key combination. Pressing this key combination will toggle you between the currently selected keyboard or mouse profile to the standard keyboard and/or mouse settings, and back again.

**\* USE FN + BACKSPACE TO ENABLE OR DISABLE FLEXIKEY®**

*Figure B - 5 - Enable/Disable Flexikey®*

The icon Flexikey® icon in the notification area of the taskbar will appear grayed out  when Flexikey® is off, and in color  when on (an on screen icon will also pop-up to display the status of the application as it is toggled on/off).






*Figure B - 6 - Taskbar Notification Area Icons*

## Keyboard Settings

The keyboard settings allow you to configure actions for any single key (or a combination of keys). Click the key and then select the **Action Type** (**Express Key**, **Launch App**, **Express Text** or **Disable**) from the menu at the bottom of the page. You can rename the action by clicking in the **Name** box, and click in **Tool Tips** to type in a note to remind you of the action's function.



  
Windows Key  &  
P Key

Note that you can assign actions to any keyboard key except the Windows key  and P key.

B

Figure B - 7 - Key Configuration

### Mouse Settings

When an external mouse is attached, the mouse settings allow you to configure actions for the left **1**, right **2** and middle **3** buttons of the attached mouse, and also for any backward **4** and forward **5** buttons if applicable (on a gaming type mouse). Click the button number and then select the **Action Type** (**Express Key**, **Launch App**, **Express Text** or **Disable**) from the menu at the bottom of the page. You can rename the action by clicking in the **Name** box, and click in **Tool Tips** to type in a note to remind you of the action's function.



Figure B - 8 - Mouse Configuration

## Keyboard Settings - Express Key

To configure a single key to send multiple key combinations, or to create more useful shortcut keys, use **Express Key**.

1. **Enable** and select the keyboard under your chosen profile, click on a key to select it, and then click to select **Express Key** in **Action Type**.
2. In the following example we want to change an existing game key configuration which uses the **left shift** key for sprinting, and the **W** key for moving forwards, to use the **left Ctrl** key to combine this movement to sprint forward.
3. Click on the chosen key for the shortcut action.
4. Click in the **Tool Tips** field and type to give the key combination a name e.g. “*Sprint Fwds*”, then click back in the Name field (to avoid adding the recorded keys to the Tool Tips name).
5. Click **Start Record** and then **press** the key or keys (in this case we will **press** Left Shift and W) required (make sure you **press the key(s) required** and do not click on them).
6. Click **Stop Record** to complete the process.



Figure B - 9- Express Key Record Key Combination

## Control Center & Flexikey®

- Click **Save** to save the settings within your chosen profile.
- If you want to remove any individual key click to select it, and then click **Delete**.
- If you want to clear all the settings click **Restore** to return to the default key setting.
- Any assigned **Express Keys** will appear in **orange**.

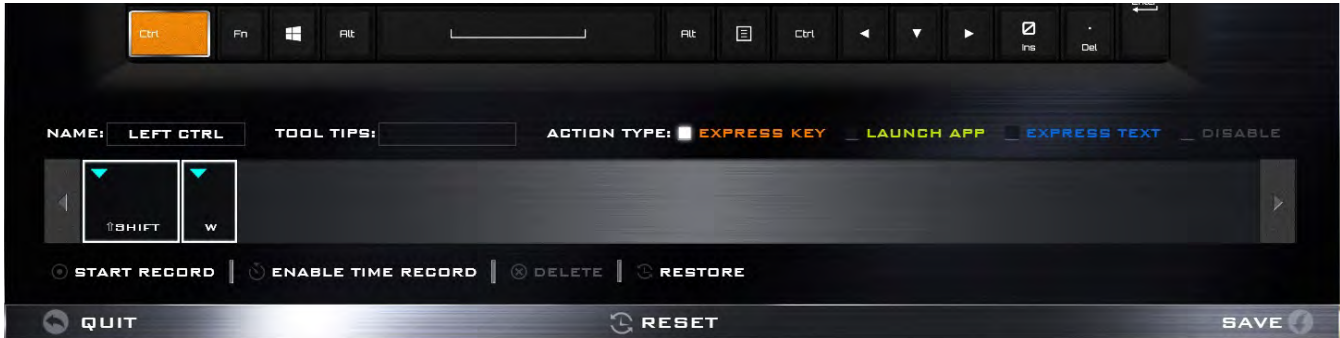


Figure B - 10 - Key Combination Set

B



### Tool Tips

The Tool Tips field allows you to type a note to remind yourself of the function you have programmed the key for under any Profile.



## Enabling Time Record

If you want to create a delay between key presses within the key combination, then you can use **Time Record** function to do so.


1. **Enable** and select the keyboard under your chosen profile, click to select a key for the shortcut action, and then click to select **Express Key in Action Type**.
2. Click in the **Tool Tips** field and type to give the key combination a name, then click back in the Name field (to avoid adding the recorded keys to the Tool Tips name).
3. Click **Start Record** and then **press** the key or keys required in the sequence and time delay between key presses required (make sure you **press the key(s) required** and do not click on them).
4. Click **Stop Record**.
5. Click to select a key in the sequence and click **Enable Time Record**  **ENABLE TIME RECORD**, then click a key to view the time delay.




Figure B - 11 - Enable Time Record

## Control Center & Flexikey®

- You can edit the delay between key presses by clicking in the **Delay Time (MS)** field and typing a new number for the delay between the key presses.



Figure B - 12 - Time Record Between Key Presses

- Click  to close the Time Record window.
- Click **Save** to save the settings within your chosen profile.
- If you want to remove any individual key click to select it, and then click **Delete**.
- If you want to clear all the settings click **Restore** to return to the default key setting.

## B - 16 Keyboard Settings - Express Key

## Keyboard Settings - Launch App

You can configure keys to launch any application or program as follows:

1. **Enable** and select the keyboard under your chosen profile, click to select a key to launch the application, and then click to select **Launch App** in **Action Type**.
2. Click **Browse...** at the bottom right of the application window.

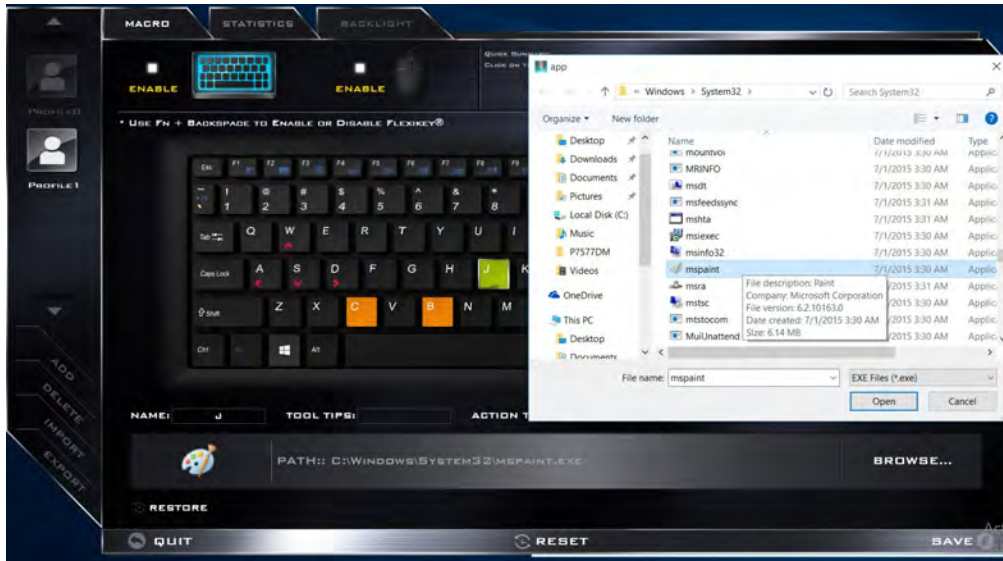


Figure B - 13 - Keyboard - Launch App (Browse to Executable File)

## Control Center & Flexikey®

3. Navigate to the executable file of the application and click **Open**.
4. The key will now be configured to open the selected application under your chosen Profile, and the key will appear in **green**.



Figure B - 14 - Key Set to Launch App

5. If you want to remove any **Launch App Key**, select it and click on **Restore**.
6. Click **Save** to save the settings within your chosen profile.

## B - 18 Keyboard Settings - Launch App

## Keyboard Settings - Express Text

A single key can be set to send a string of text within any application using **Express Text**.

1. **Enable** and select the keyboard under your chosen profile, click to select a key, and then click to select **Express Text** in **Action Type**.
2. Click in **Start** key if required (the **Start** key is the key used to in your target program to open a text message), or you can leave it blank if you prefer.
3. Click in the **Click to type** field and type in your message.



Figure B - 15 - Keyboard - Express Text

## Control Center & Flexikey®

4. Click in **Send** key if required (the **Send** key is the key used to in your target program to send a text message e.g the Enter key would be the most commonly used), or you can leave it blank if you prefer.
5. The key will now be configured to send the text message in the target program under your chosen Profile, and the key will appear in **blue**.
6. If you want to remove any **Express Text** key, select it and click on **Restore**.
7. Click **Save** to save the settings within your chosen profile.



### Copy & Paste Text

Note that some applications and games do not support copy and pasted text. Where this is the case, any text you may have copy and pasted in to the “Type to Text” field may not be displayed within the application. In this case you will need to type the text into the field instead.

## Keyboard Settings - Disable

You can use the program to disable any keys not required.

1. **Enable** and select the keyboard under your chosen profile, click to select a key to disable, and then click to select **Disable** in **Action Type**.
2. The key will now be disabled.
3. If you want to enable the key again, select it and click on **Restore**.
4. Click **Save** to save the settings within your chosen profile.
5. The key will be disabled under your chosen Profile, and the key will appear in **Gray**.



Figure B - 16 - Keyboard - Disable

# Mouse Settings - Express Key

To assign a mouse button click to send multiple key combinations (an external mouse must be attached), or to create more useful shortcut keys, use **Express Key**.

1. **Enable** and select the mouse under your chosen profile, click on a mouse button to select it, and then click to select **Express Key** in **Action Type**.
2. In the following example we will configure the central mouse wheel to combine the actions of **left shift** key for sprinting, and the **W** key for moving forwards in a game program.
3. Click on the central mouse wheel for the shortcut action.



Figure B - 17 - Mouse - Express Key Record Key Combination (Mouse)



4. Click in the **Tool Tips** field and type to give the key combination a name e.g. “*Sprint Fwds*”, then click back in the Name field (to avoid adding the recorded keys to the Tool Tips name).
5. Click **Start Record** and then **press** the key or keys (in this case we will **press** Left Shift and W) required (make sure you **press the key(s) required** and do not click on them).
6. Click **Stop Record** to complete the process.
7. Click **Save** to save the settings within your chosen profile.
8. If you want to remove any mouse setting click to select it, and then click **Delete**.
9. If you want to clear all the settings click **Restore** to return to the default mouse setting.
10. The mouse button for any assigned Express Keys will appear in **orange**.

### Enabling Time Record for Mouse Settings

If you want to create a delay between key presses within the mouse click combination, then you can use **Time Record** function to do so in the same manner as that used for keyboard settings (see “*Enabling Time Record*” on page B - 15).

# Mouse Settings - Launch App

You can assign a mouse button click to launch any application or program as follows:

1. **Enable** and select the mouse under your chosen profile, click on a mouse button to select it, and then click to select **Express Key** in **Action Type**.
2. Click **Browse...** at the bottom right of the application window.

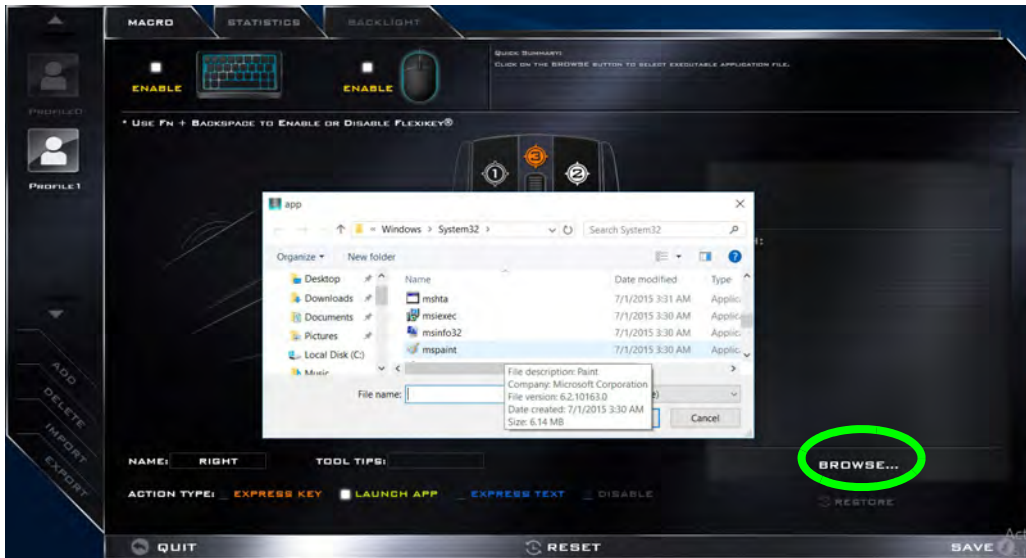


Figure B - 18 - Mouse - Launch App (Browse to Executable File)

3. Navigate to the executable file of the application and click **Open**.
4. The mouse click will now be configured to open the selected application under your chosen Profile, and the button will appear in **green**.
5. Click **Save** to save the settings within your chosen profile.



Figure B - 19 - Mouse Button Set to Launch App

# Mouse Settings - Express Text

A mouse button click can be set to send a string of text within any application using **Express Text**.

1. **Enable** and select the mouse under your chosen profile, click on a mouse button to select it, and then click to select **Express Text** in **Action Type**.
2. Click in **Start** key if required (the **Start** key is the key used to in your target program to open a text message), or you can leave it blank if you prefer.
3. Click in the **Text Context** field and type in your message.



Figure B - 20 - Mouse - Express Text

4. Click in **Send** key if required (the **Send** key is the key used to in your target program to send a text message e.g the Enter key would be the most commonly used), or you can leave it blank if you prefer.
5. The mouse button click will now be configured to send the text message in the target program under your chosen Profile, and the button will appear in **blue**.
6. If you want to remove any **Express Text** mouse button, select it and click on **Restore**.
7. Click **Save** to save the settings within your chosen profile.

# Mouse Settings - Disable

You can use the program to disable any mouse button clicks if not required.

1. **Enable** and select the mouse under your chosen profile, click on a mouse button to select it, and then click to select **Disable** in **Action Type**.
2. The button click will now be disabled.
3. If you want to enable the button again, select it and click on **Restore**.
4. Click **Save** to save the settings within your chosen profile.
5. The button click will be disabled under your chosen Profile, and the key will appear in **Gray**.



Figure B - 21 - Mouse - Disable

## Statistics

The **Statistics** tab allows you to record keys used in any application, and to **disable** any infrequently, or unused, keys to save any accidental incorrect key presses.

1. Click the **Statistics** Tab, and press **Start Record** to start recording the frequency of key presses for keys used.
2. You can then go to the application you wish to use the profile for, and use the application as normal so that a standard set of keys used may be recorded.
3. Return to the Flexikey® application and press **Stop Record** to stop recording.
4. At the end of the recording process colors will represent the frequency of key presses, with red as the most frequent through to lighter blue the less frequent (the color bar at the bottom of the screen displays the color code against the number of key presses).
5. Under **Quick Disable** click the color which corresponds to the keys you wish to disable.
6. All disabled keys will then change to gray and will be disabled under this profile.



Figure B - 22 - Statistics





# Appendix C: Video Driver Controls


The basic settings for configuring the LCD are outlined in “*Video Features*” on *page 1 - 34*. The basic video features for this computer can be configured using the **Intel(R) HD Graphics Control Panel**. Further video configuration is available through the **NVIDIA** control panel. Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 4*.

## Video Driver Installation

### Video (VGA)

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

### NVIDIA Video (VGA)

1. Click **3.Install NVIDIA VGA Driver > Yes**.
2. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
3. Click **Next**.
4. Click **Close** to complete the installation.
5. After all the drivers have been installed (an internet connection is required) run the **NVIDIA GeForce Experience** by clicking the desktop icon  (or App).



### Video Card Options

Note that this computer model series may support a range of CPUs and/or video adapters.

To get information on your system's **video adapter** go to the **Start** menu and select **Settings**, and then select **System** and click **Display> Advanced display settings > Display adapter properties**.

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

# Microsoft Hybrid Graphics

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

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

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

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

### How the Technology works

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



### Customization Options

Although **Microsoft Hybrid Graphics** is completely seamless to the user, NVIDIA also allow customization options within the control panel (see *[“Customization Options” on page C - 35](#)*).

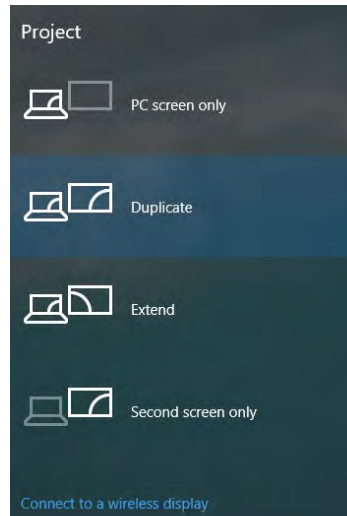
# Intel® Dynamic Video Memory Technology

Intel® DVMT automatically and dynamically allocates as much system memory (RAM) as needed to the integrated video system (**the video driver must be installed**). DVMT returns whatever memory is no longer needed to the operating system.

## Configure Other Displays Using Project

You can configure attached displays from **Project**.

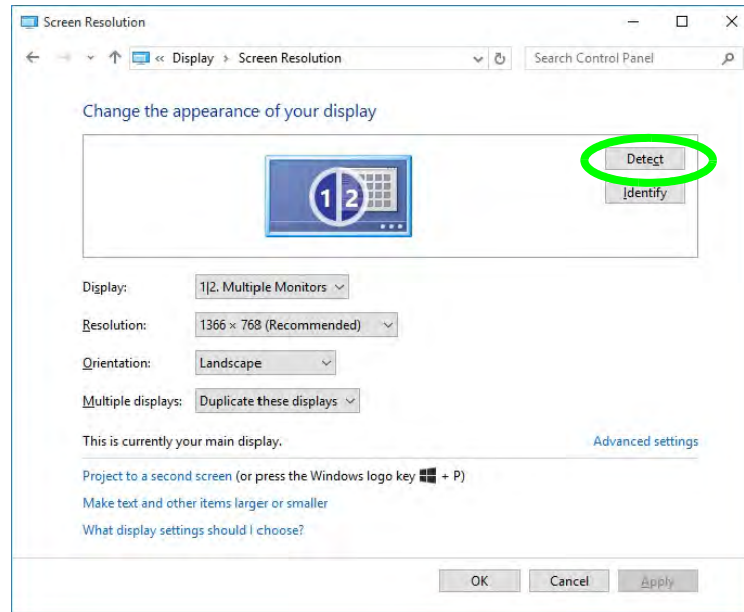
1. Attach your display to the appropriate port, and turn it on.
2. Press the **Windows + P** key combination.
3. Click on any one of the options from the menu to select **PC screen only**, **Duplicate**, **Extend** or **Second screen only**.
4. You can also click **Connect to a wireless display** at the bottom of the **Project** screen and follow the steps to connect to any wireless enabled display.



*Figure C - 1*  
**Project**

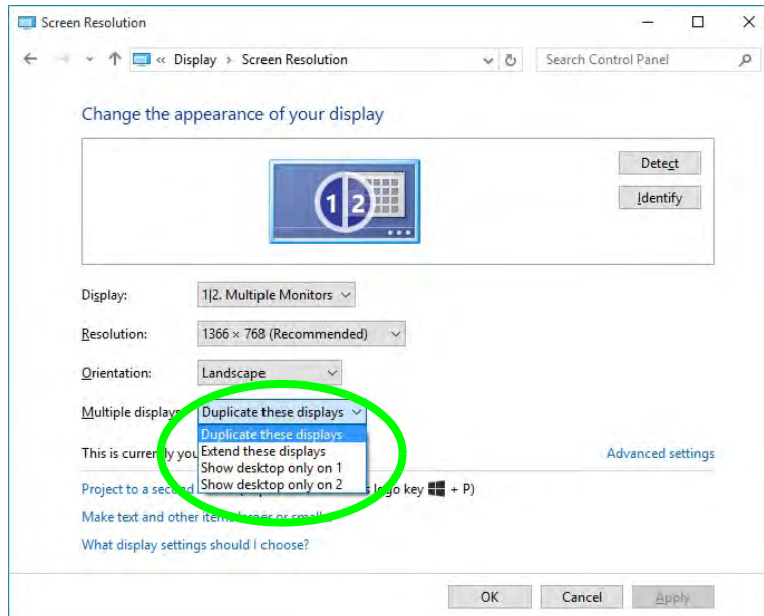
# Configuring an External Display In Windows

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Control Panel**.
3. Click **Display** (icon) and **Adjust Resolution (Appearance and Personalization)**.
4. Click the **Detect** button.
5. The computer will then detect any attached displays.



*Figure C - 2*  
**Screen Resolution**  
**Multiple Displays**

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



*Figure C - 3*  
**Screen Resolution  
Multiple Display  
Options**

- 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.

## Video Driver Controls

The **System** Control Panel in **Settings** may also be used to configure displays.

1. Attach your external display to the appropriate port, and turn it on.
2. Click the Start Menu and click **Settings > System** (or right-click the desktop and select **Display Settings**).
3. You can change Duplicate, Extend or choose to display on 1 screen only.
4. Click **Apply** to save any changes made.
5. Click **Advanced display settings** to access further options.

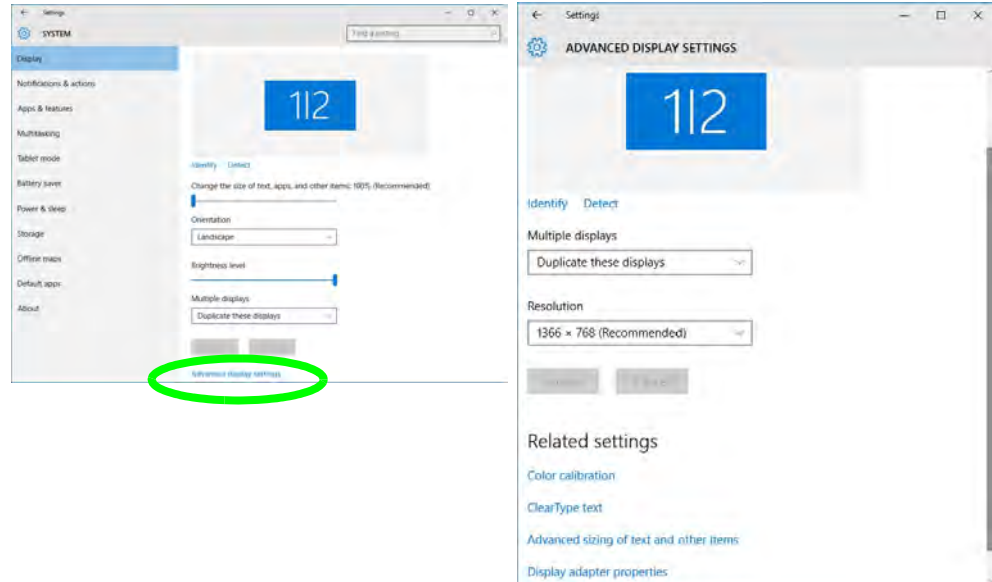


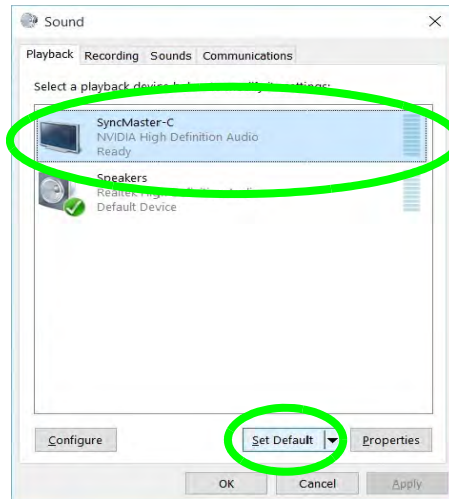
Figure C - 4  
System > Display



## 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. Go to the **Sound** control panel.
2. Click **Playback** (tab)
3. The playback device will be selected.
4. You may need to select the audio device and click **Set Default** (button).
5. Double-click the device to access the control panel tabs.



### Volume Adjustment


The sound volume level can be clicking using the volume control icon  in the **notification area of the taskbar**.



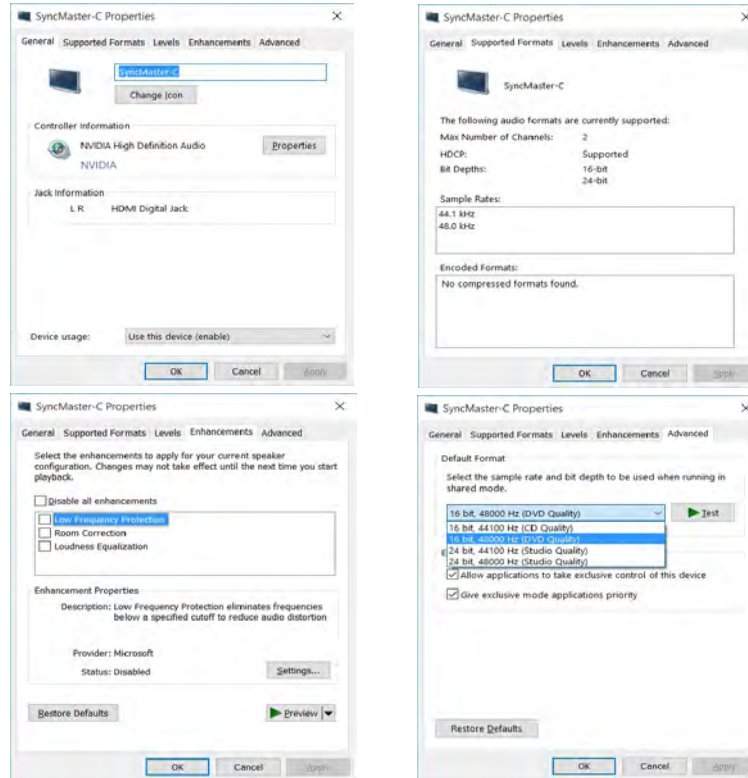
Figure C - 5

**Sound - HDMI  
Device (set Default)**

## Video Driver Controls

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

*Figure C - 6*  
**HDMI Device  
Properties**



### 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).
- Note that the Sound Blaster Cinema 3 SBX Pro Studio audio effects do not apply to audio generated through an HDMI connection.

### 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 C - 29*.
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.



### 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).



### Compatible Adapters

For a list of compatible adapters check the video adapter/display device documentation, or with your distributor/supplier.

## Wireless Display

**Wireless Display** uses your Wireless LAN module/WLAN Bluetooth Combo module (you need to make sure that your video adapter/display device is compatible with your particular WLAN/Combo module) in conjunction with a **compatible video adapter/display device** (purchased separately) to allow 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.

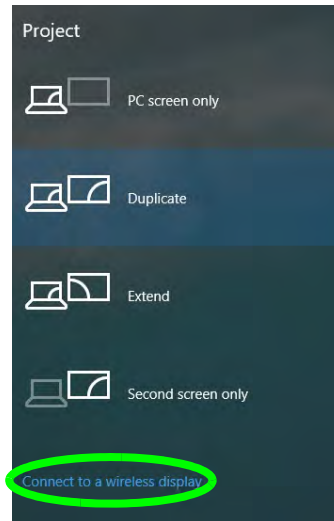
You can use the wireless display to play games, browse the internet, display videos or photo slide shows on your TV/external display without using HDMI or A/V cables.

Before configuring **Wireless Display** 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/display** for full details).

Note that no driver or application is required for wireless display in *Windows 10*.

## Wireless Display Configuration

1. Note that no driver or application is required for wireless display in **Windows 10**.
2. Press the **Windows + P** key combination.
3. Click **Connect to a wireless display** at the bottom of the **Project** screen and follow the steps to connect to any wireless enabled display.



*Figure C - 7*  
**Add a Wireless Display**

4. The system will then search for compatible display devices (**this may take up to 60 seconds** so allow time for this to complete).
5. Double-click any detected display device in the list.

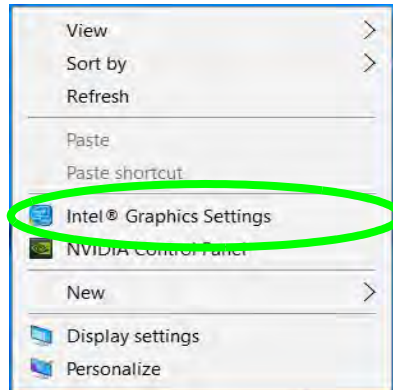
## Video Driver Controls

6. You may then need to input a pin number for the device to which you are connecting and click **Next**.
7. The display will then connect (for specific settings for your display see the documentation supplied with your compatible adapter/display for full details).
8. Go to the **Project** menu and click **Disconnect** to temporarily disconnect from the wireless display.
9. To permanently disconnect from the display (you will need to go back through the connection process again) you can select it in **Devices** and click **Remove Device > Yes**.

## Intel® HD Graphics Control Panel


Advanced video configuration options are provided by the **Intel® HD Control Panel**. To access the control panel see below and overleaf:

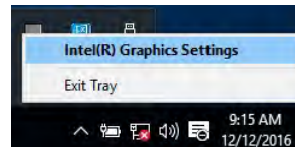
1. Right-click the **Desktop** and select **Intel(R) Graphics Settings** from the menu.



*Figure C - 8*  
**Right-Click Desktop  
(Intel Graphics  
Settings)**

**OR**

2. Click the icon  in the notification area of the Desktop taskbar and select **Intel(R) Graphics Settings** from the menu.



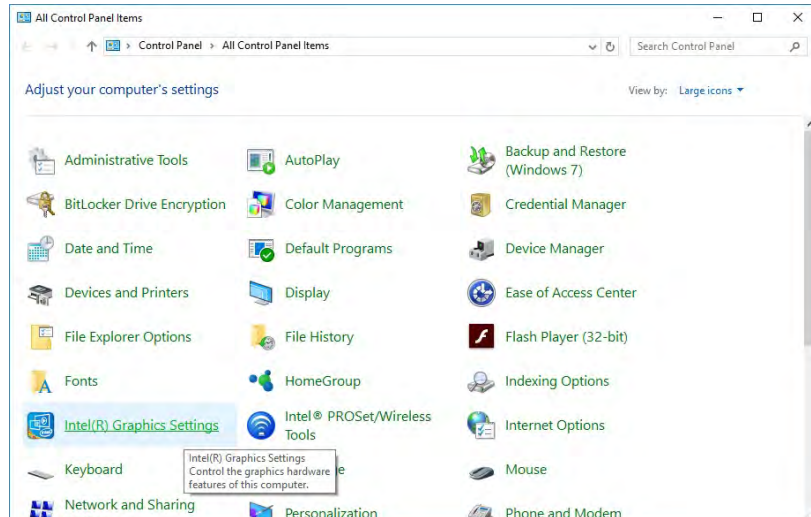
*Figure C - 9*  
**Taskbar Notification  
Area Icon Menu**

## Video Driver Controls

OR

3. Double-click the **Intel(R) HD Graphics** control panel in the **Windows Control Panel**.

*Figure C - 10*  
**Control Panel**  
**Intel® Graphics**  
**Settings**





You may make changes to any of the graphics properties by clicking the appropriate menu panel and adjusting the settings from the menus.



  
**Home**  
Click the Home button to return to the main menu screen in any of the sub-menu screens.

*Figure C - 11*  
**Intel® HD Graphics Control Panel**

## Video Driver Controls



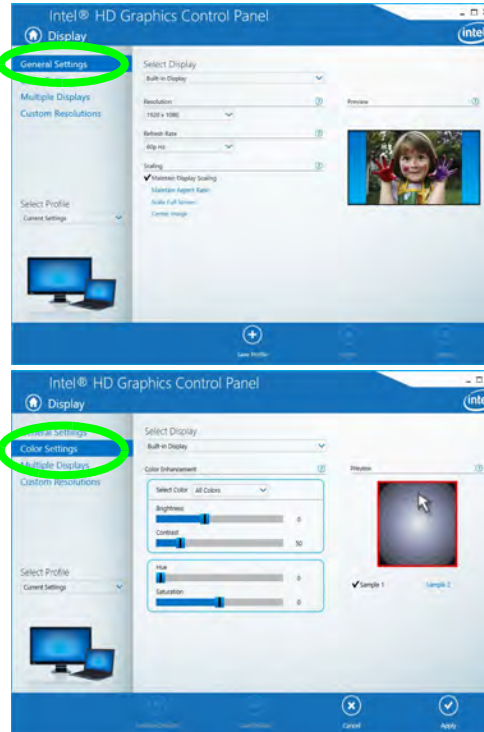
### Multiple Display

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

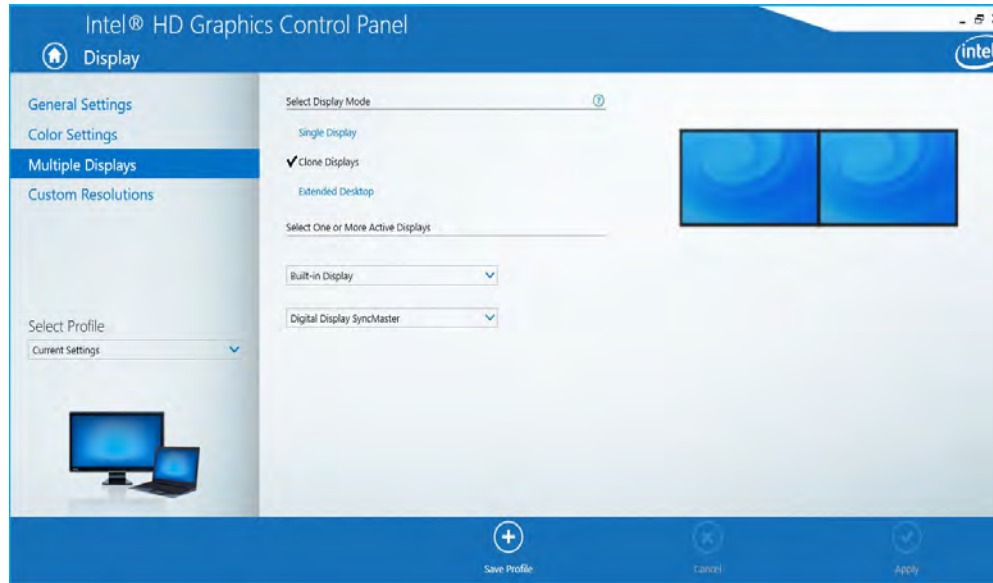
*Figure C - 12*  
**Intel® HD Graphics Control Panel**  
**Display**

### Display

Click either **Display Settings** or **Color Settings** to make display adjustments, including configuration for any attached external displays.



Click the **Display** menu at the top of the screen to display the sub-menus. The **Multiple Displays** menu allows you to configure the display mode of any attached displays (see *“Attaching Other Displays” on page C - 29*). Click **Apply** to save any changes made.



### Multiple Display

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

### Audio Settings

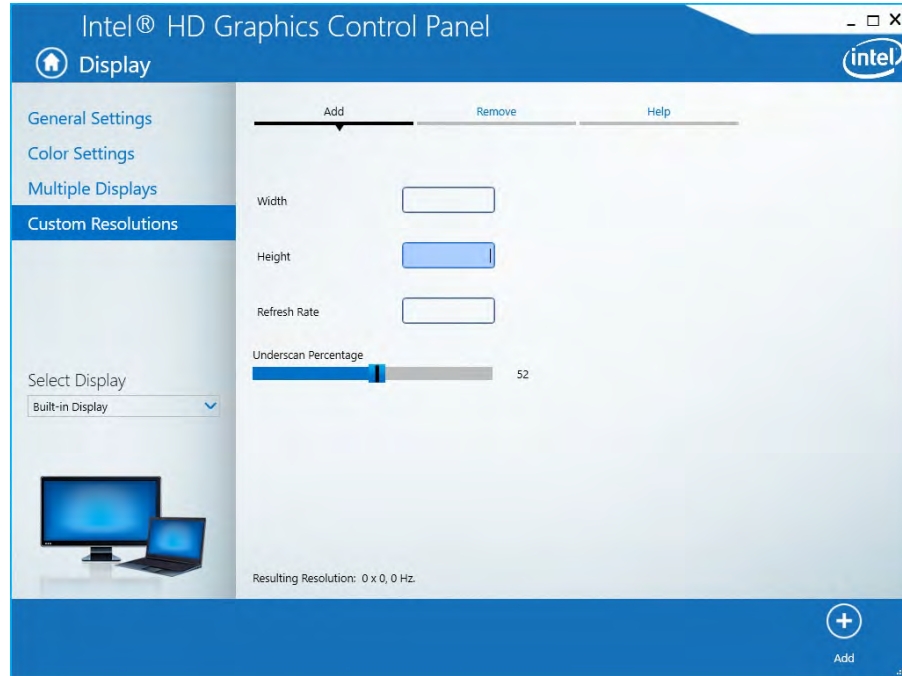
Any attached active displays must have audio capacity to allow audio configuration.

*Figure C - 13*  
**Intel® HD Graphics  
Control Panel  
Display - Multiple  
Displays**

## Video Driver Controls

The **Custom Resolutions** sub-menu allows you to adjust the display (or any attached display) to any width, height, refresh rate, color depth and underscan percentage of your choice. Note that incorrect settings can cause system instability and even possible component damage, so this is adjusted at your own risk.

*Figure C - 14*  
**Intel® HD Graphics  
Control Panel  
Display Settings -  
Custom  
Resolutions**



### 3D

This menu allows you to choose how 3D images are displayed. **Performance** gives the smoothest motion of images, **Quality** displays the most detail, **Balanced Mode** provides better computer performance with good quality and **Custom** allows you to configure the **Anisotropic Filtering** and **Vertical Sync** and features to your preferences. Click **Apply** to save changes.

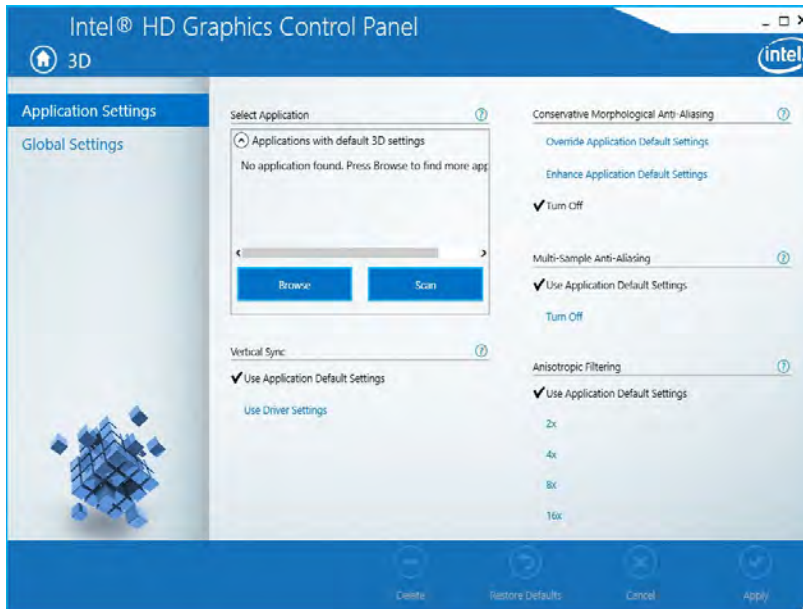


Figure C - 15  
Intel® HD Graphics  
Control Panel 3D

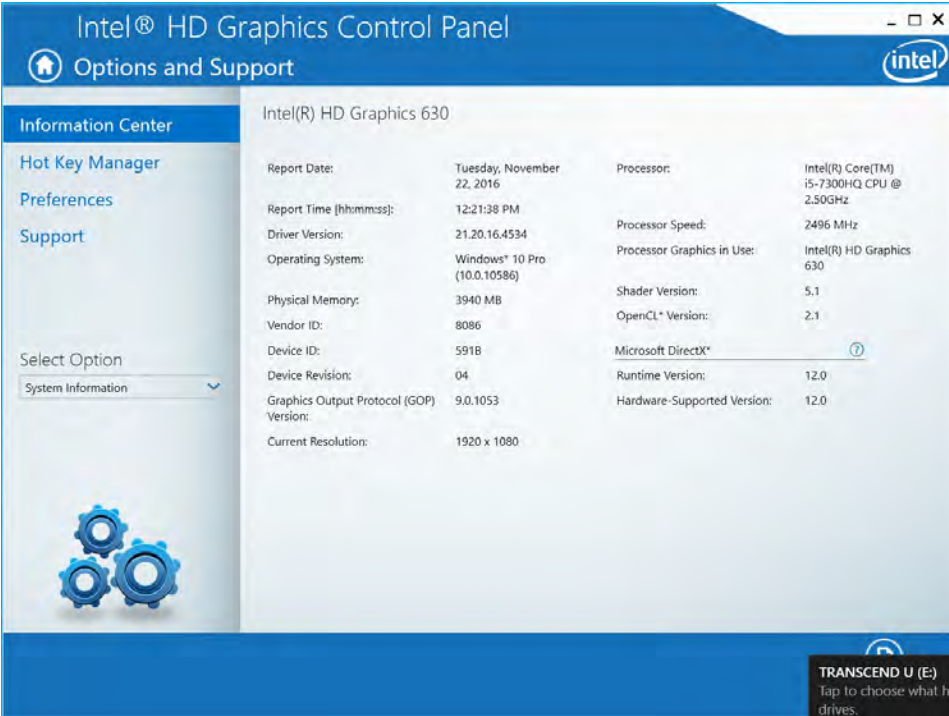
### Options and Support


**Hot Key Manager** in **Options and Support** allows you to create hot keys for opening the application and scaling etc. Click **Apply** to save changes.



*Figure C - 16*  
**Intel® HD Graphics  
Control Panel  
Options and  
Support**

Click the **Options** menu at the top of the screen to display the sub-menus. The **Information Center** provides details on **System Information**, the **Built-In Display** and any **attached displays**.





**Preferences**

Go to the **Preferences** sub-menu in Options to configure the preferences for the Intel® HD Graphics Control Panel.

Make sure you click **Enable** under **Tray Icon** to display the Intel® HD Graphics Control Panel icon in the notification area of the taskbar (as below).




Figure C - 17 Intel® HD Graphics Control Panel Options - Information Center

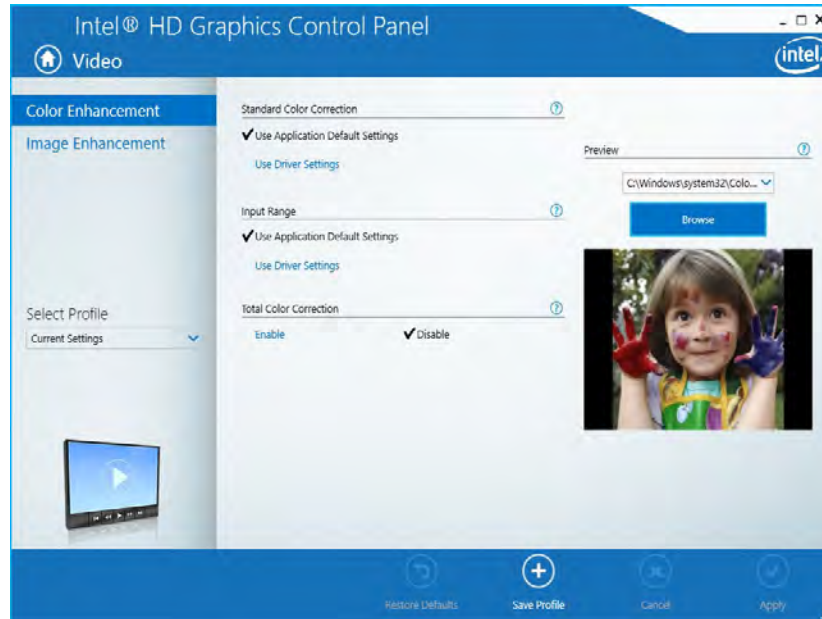


## Video Driver Controls

### Video

The **Video** menu allows you to brighten or darken movies, or to switch to vivid colors. The **Preview** image will display a sample image using the current settings. You can **Save Profile** and name the Profile to recall the settings at any time. Click **Apply** to save changes (select **Color Enhancement** or **Image Enhancement** from the menu).

*Figure C - 18*  
Intel® HD Graphics  
Control Panel -  
Video  
(Color  
Enhancement)





Click the **Video** menu at the top of the screen to display the sub-menus. The **Image Enhancement** menu allows you to adjust the **Sharpness**, **Skin Tone Enhancement**, **Noise Reduction**, **Contrast Enhancement** and **Film Mode Detection**. Click **Apply** to save changes.



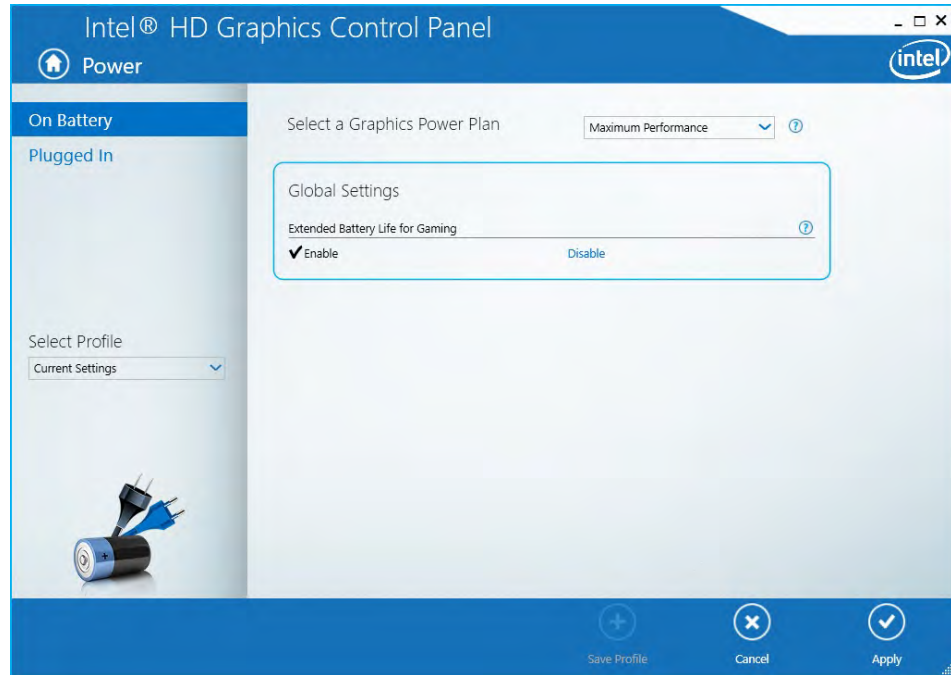
*Figure C - 19*  
Intel® HD Graphics  
Control Panel - Video  
(Image  
Enhancement Basic)

## Video Driver Controls

### Power

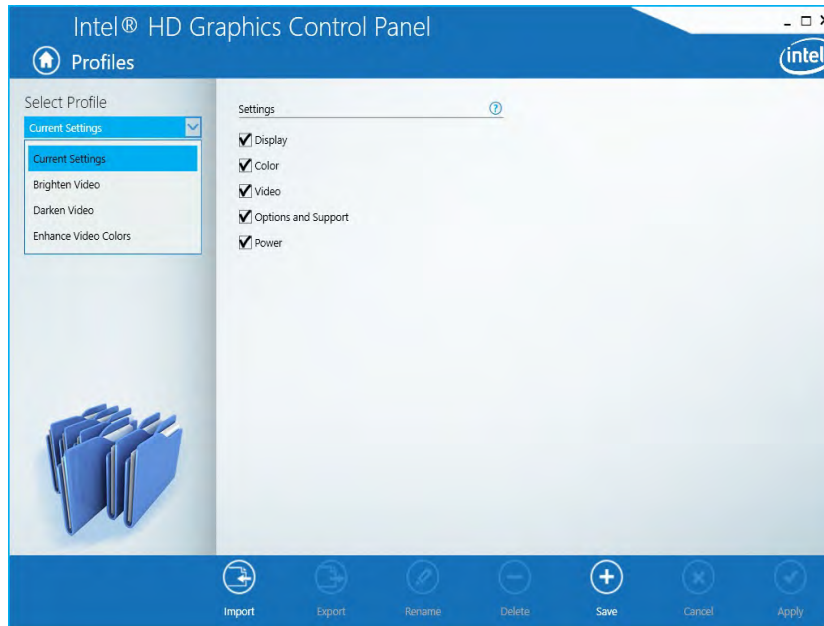
The battery life can be extended through dynamic control of the frame rate if **Extended Battery Life for Gaming** is enabled. Settings can be selected for when the system is powered by battery or is plugged in.

*Figure C - 20*  
**Intel® HD Graphics Control Panel - Power**



## Profiles

You can select one of the preset profiles (**Brighten Video**, **Darken Video** and **Enhance Video Colors**) from the menu on the left. Alternatively you can go through the menus to make adjustments to your preferences for **Display**, **Color**, **Video**, **Options and Support** and **Power** (tick any boxes for the settings required), and then **Save** the settings to a profile (which may be imported or exported).



*Figure C - 21*  
Intel® HD Graphics  
Control Panel -  
Profiles




### 4K2K Videos on 4K2K External Displays

Note you may experience some video lag when playing 4K2K videos on an attached 4K2K external display.

*Table C - 1*  
**Display Modes**

## Display Devices & Options

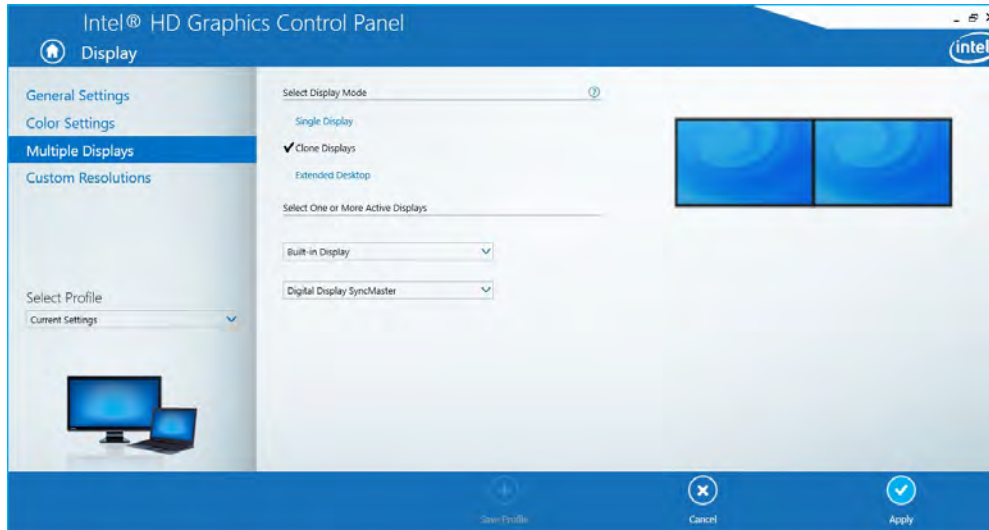
Note that you can use external displays connected to the HDMI-Out port and/or external monitor port and Mini Display (1.2) port. See your display device manual to see which formats are supported.

Display Mode	Description	
Single Display	One of the connected displays is used as the display device ( <b>PC screen only or Second screen only</b> ).	 <p><b>Attaching Displays</b></p> <p>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) HD Graphics Control Panel to configure the full screen display.</p>
Clone/Duplicate	Both connected displays output the same view and may be configured independently	
Extended / Extend	Both connected displays are treated as separate devices, and act as a virtual desktop	
Collage	A number of connected displays are combined into a single unified higher resolution for larger screen sizes	
Hybrid	A number of connected displays are combined and can be configured in a combination of Clone and Extended modes	

# Attaching Other Displays

## To Clone Displays:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel(R) HD Graphics Control Panel** control panel and click **Display > Multiple Displays** (sub-menu).
3. Click **Clone** from the **Select Display Mode** menu.
4. Click **Apply**, and **OK** to confirm the settings change.
5. Select the displays from the **Select One or More Active Displays** menu.



## Multiple Display

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

*Figure C - 22*  
**Display > Multiple Displays (Clone)**

## Video Driver Controls



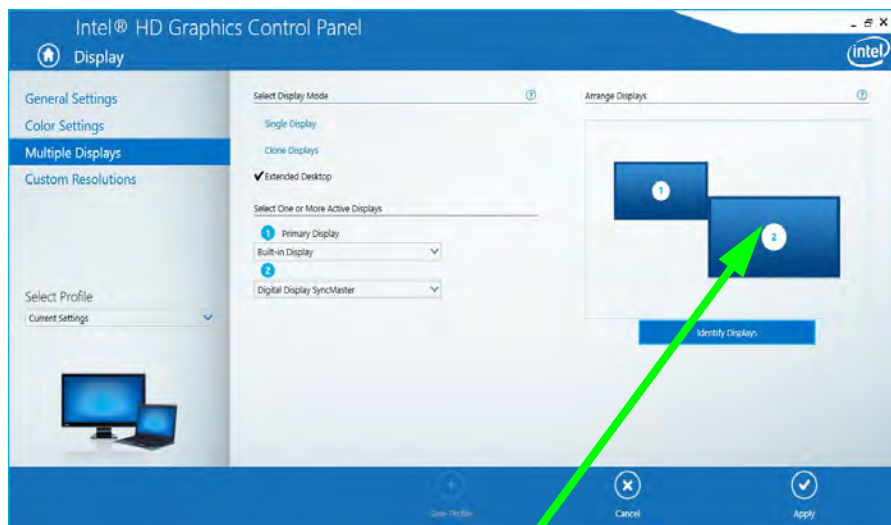
### Display Settings Extended Desktop

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

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

### To Enable Extended Mode:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel(R) HD Graphics Control Panel** control panel and click **Display > Multiple Displays** (sub-menu).
3. Click **Extended** from the **Select Display Mode** menu.
4. Click **Apply**, and **OK** to confirm the settings change.



*Figure C - 23*  
**Display > Multiple  
Displays (Extended)**

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).

### To Enable Collage Mode:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel(R) HD Graphics Control Panel** control panel and click **Display > Multiple Displays** (sub-menu).
3. Click **Collage** from the **Select Multiple Display Mode** menu.
4. Click **Enable Collage** and click **On**.
5. Click **Vertical** or **Horizontal** to arrange and displays as required.
6. Click **Apply**, and **OK** to confirm the settings change.



### Collage Mode

Collage mode is used to combine a number of displays into a single unified higher resolution for larger screen sizes,.



*Figure C - 24*  
**Display > Multiple Displays (Collage)**

### NVIDIA Control Panel

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

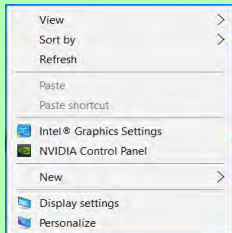
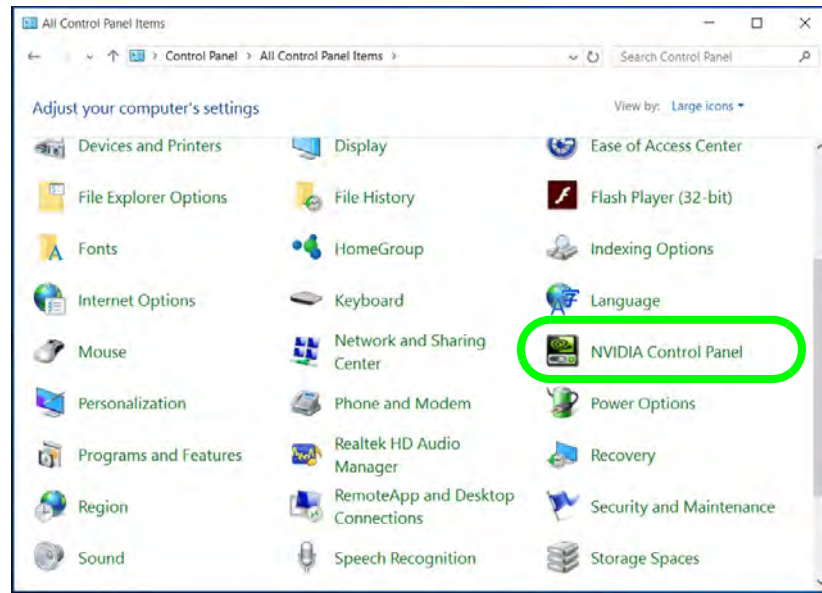


Figure C - 25  
NVIDIA Control Panel

## NVIDIA Control Panel

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

1. Go to the **Control Panel**.
2. Double-click **NVIDIA Control Panel** (click to view the control panel in either **Large icons** or **Small icons** if you are in **Category** view).



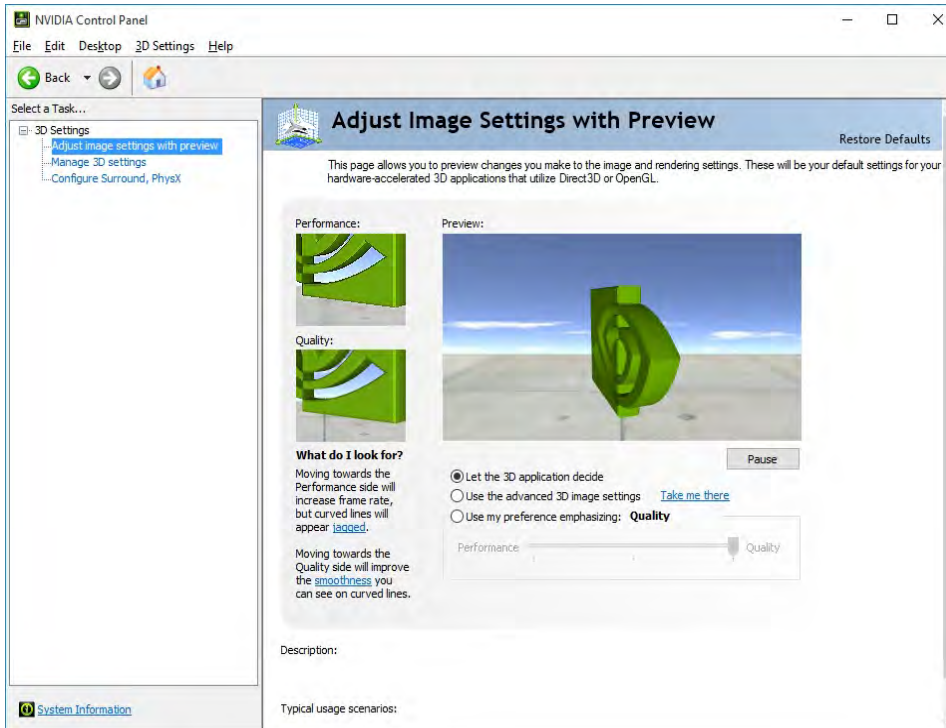


The **NVIDIA Control Panel** provides additional video configuration controls and tools which allow quick access to features such as image settings, 3D Settings and video configuration.



### Navigating the Control Panel

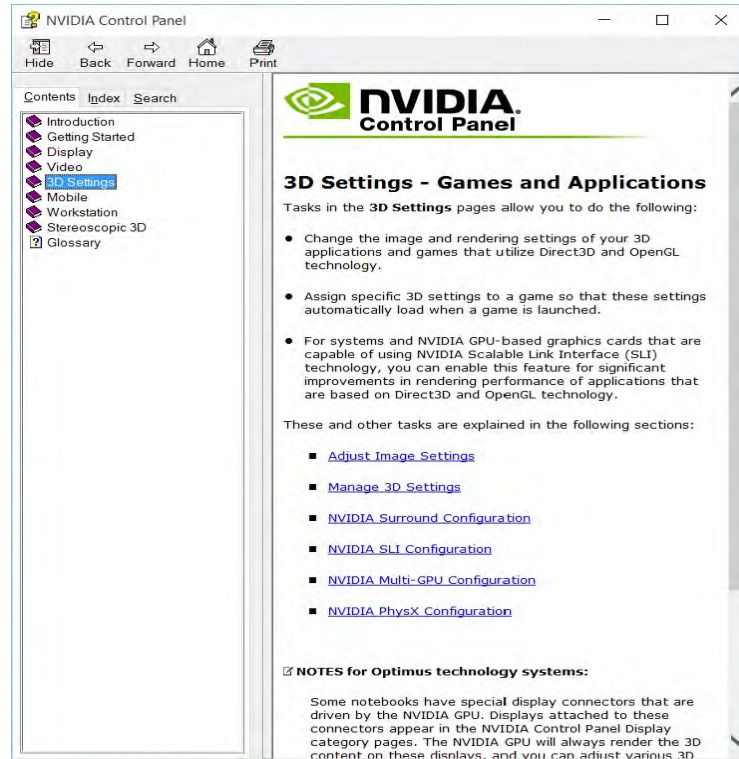
Navigate through the control panels in much the same way as you would a web page. Click on the sub-heading tasks in the left menu (and on the highlighted links) for information. Use the buttons on the top left to go back, forward etc.



*Figure C - 26*  
**NVIDIA Control Panel**

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

Figure C - 27  
Help Menu



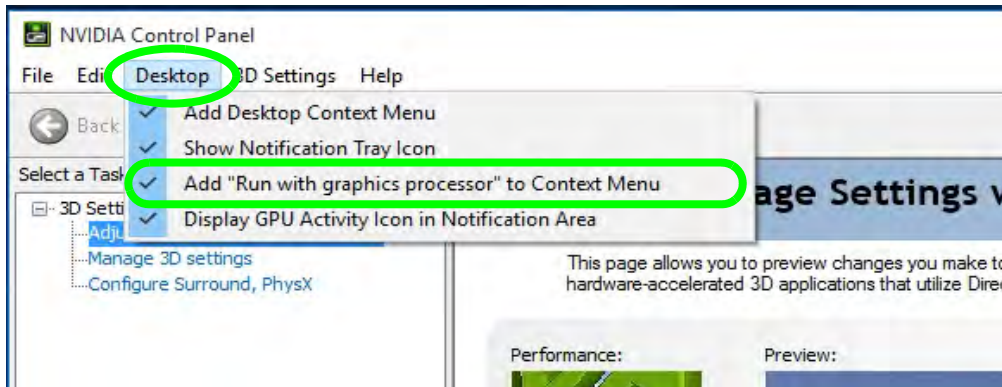
## Customization Options

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

### Context Menu

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

1. Go to the **NVIDIA Control Panel**.
2. Click **Desktop** from the top menu and select **Add “Run with graphics processor” to Context Menu** (it should have a check alongside it).



### Display GPU Activity Icon

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



Figure C - 28  
NVIDIA Control Panel - View

## Video Driver Controls



### iGPU or dGPU

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

3. Close the **NVIDIA Control Panel**.
4. Find the executable file icon of the application you want to run.
5. Right-click the icon and select **Run with graphics processor** from the context menu.
6. Select either **High-performance NVIDIA processor (dGPU)** or **Integrated graphics (iGPU)** to run the program with the selected GPU.

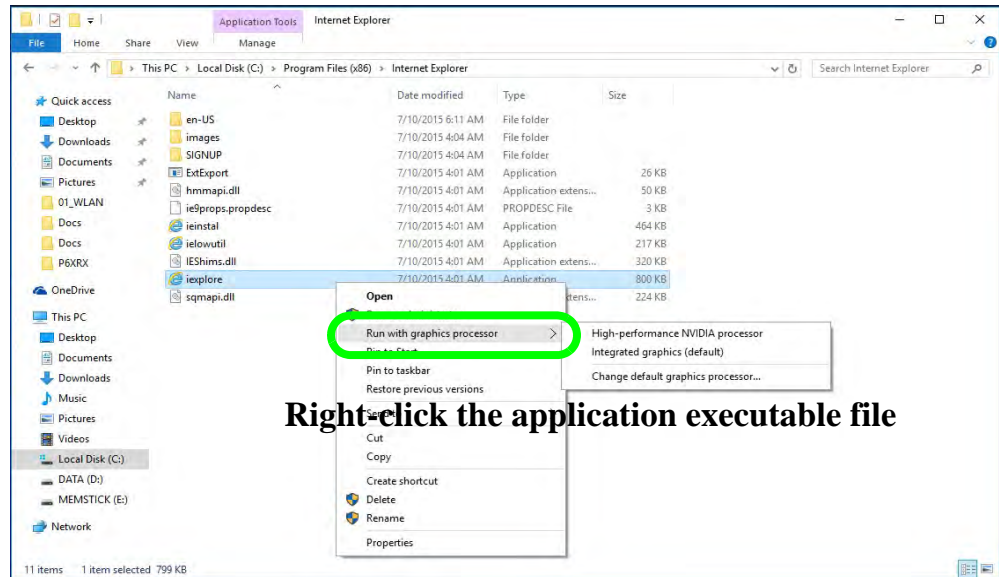


Figure C - 29

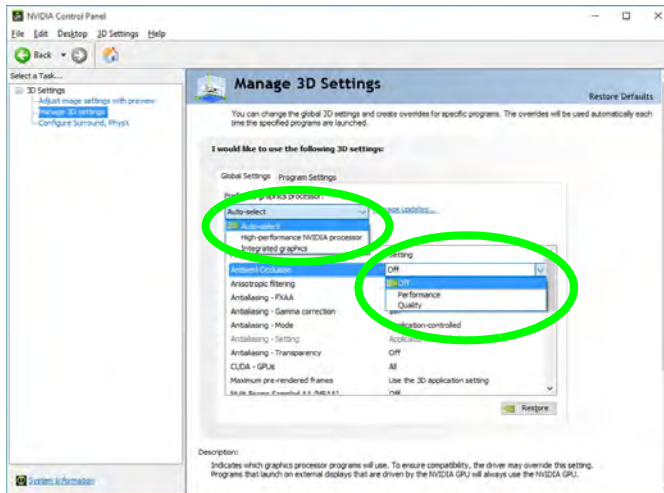
Context Menu with  
Run with graphics  
processor

C

## Global Settings

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

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



### Customization Options

Although hybrid technology is completely seamless to the user, there are customization options within the control panel (see page [C - 34](#)).

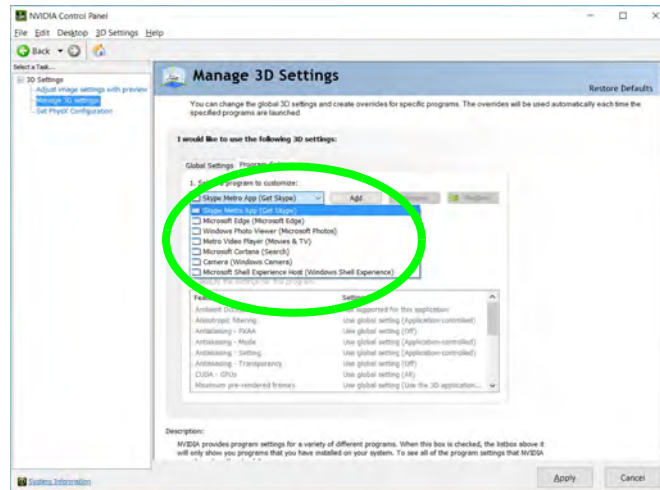
Figure C - 30  
Global Settings

### Program Settings

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

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

*Figure C - 31*  
**Program Settings**



## Configure Surround, PhysX®

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

1. Go to the **NVIDIA Control Panel**.
2. Click **Configure Surround, PhysX**.
3. Click to select a processor from the menu (**PhysX Settings**); Auto-select (recommended) is the default setting.
4. Click **Apply** to save the settings.

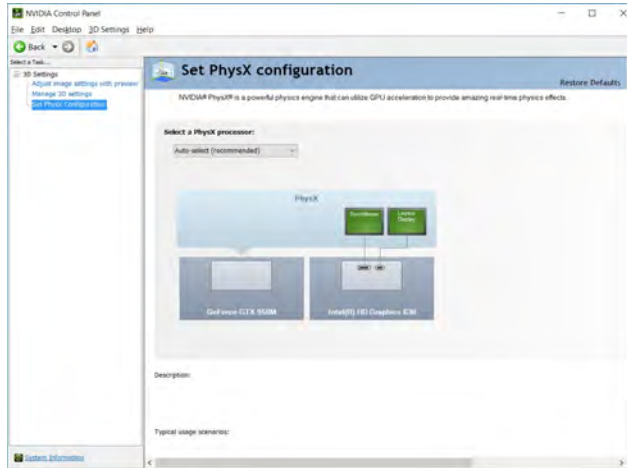



Figure C - 32  
Configure  
Surround, PhysX



### NVIDIA GeForce Experience Version

Note that the NVIDIA GeForce Experience application is subject to constant, change, update and revision, so make sure you connect and update regularly in order to get the latest settings and information.

## NVIDIA GeForce Experience

If you have a working internet connection (and you will need remain connected to the internet to run **NVIDIA GeForce Experience**) you can click the **NVIDIA GeForce Experience** desktop icon  (or App) to run the application. This will optimize your gaming settings for your NVIDIA GPU by downloading the latest settings from the NVIDIA cloud data center.

You may need to create an NVIDIA account to log-in to the system (alternatively you may be able to use your Facebook or Google account to log-in).

After logging in to the system you can click through any on-screen instructions to update your settings and check for installed games etc.

By running the **NVIDIA GeForce Experience** you will be able to download the latest drivers to insure compatibility with games, power saving features and various other enhancements for your NVIDIA GPU (these features are subject to change and update so check with the NVIDIA website for the latest information).

Note that to enable **BatteryBoost** you must be connected to the internet.



# Appendix D: Specifications



## Latest Specification Information


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

Note that this computer model series may support a range of CPUs and/or video adapters.

To find out which **CPU** is installed on your system go to the **Start** menu and select **Settings**, and then select **System** and click **About**. This will also provide information on the amount of **Installed RAM** etc.

To get information on your system's **video adapter** go to the **Start** menu and select **Settings**, and then select **System** and click **Display > Advanced display settings > Display adapter properties**.

## Specifications

<b>Core Logic</b>	 <b>SO-DIMM Memory Types</b> All SO-DIMM memory modules installed in the system should be identical (the same size and brand) in order to prevent unexpected system behavior.  Don't mix SO-DIMM memory module sizes and brands in order to prevent system problems.	<b>Audio</b>
Mobile Intel® HM175 Express Chipset		High Definition Audio 2 Built-In Speakers Sound Blaster™ Cinema 3 Built-In Array Microphone Built-In Microphone ( <b>Factory Option</b> )
<b>Display</b>		<b>Keyboard &amp; Pointing Device</b>
<b>For Models A &amp; B:</b> 15.6" (39.62cm), 3.2 mm, FHD (1920 * 1080) / HD (1366 * 768), 16:9 Backlit Panel  <b>For Model C:</b> 17.3" (43.94cm), 4.0 mm, FHD (1920 * 1080) / HD+ (1600 * 900), 16:9 Backlit Panel		Full Size Isolated Keyboard with Numeric Pad  Full Size Isolated White LED Illuminated Keyboard with Numeric Pad ( <b>Factory Option</b> )  Built-In TouchPad with Microsoft Multi Gesture & Scrolling Functionality
<b>Memory</b>	<b>Storage</b>	<b>Indicators</b>
Dual Channel <b>DDR4</b>  Two 260 Pin SO-DIMM Sockets Supporting <b>DDR4 2400</b> MHz Memory Modules ( <i>real operational frequency depends on the FSB of the processor</i> )  Memory Expandable up to <b>32GB</b> (maximum), Compatible with 4GB/8GB/16GB Modules	One Changeable 2.5" 7mm(h) Hard Disk Drives (HDD) / Solid State Drives (SSD) with SATA Interface  One M.2 2280 SSDs with SATA Interface ( <b>Factory Option</b> ) <b>OR</b> One M.2 2280 SSD with PCIe Gen 3 x4 Interface ( <b>Factory Option</b> )	LED Indicators - Power/Suspend, Battery, HDD, Camera
	<b>BIOS</b>	<b>Interface</b>
	One 64Mb SPI Flash ROM AMI BIOS	One USB 2.0 Port Two USB 3.0 (USB 3.1 Gen 1) Ports (Type-A) One USB 3.0 (USB 3.1 Gen 1) Port (Type-C)  See over

## D - 2 Specifications

<p>=====</p> <p>One USB 3.1 (Gen 2 - Type A) Port &amp;            One USB 3.1 (Gen 2 - Type C) Port  <b>(Factory Option</b> shared with USB 3.0 ports) - 2 * <i>USB 3.1 Gen 2 Ports with 10Gb Shared Bandwidth</i></p> <p>=====</p> <p>One HDMI™ (High-Definition Multimedia Interface) Out Port (with HDCP)            One External Monitor Port            One Headphone/Speaker-Out Jack            One Microphone-In Jack            One RJ-45 LAN Jack            One DC-In Jack</p>
<p><b>Card Reader</b></p> <p>Embedded Multi-In-1 Push-Push Card Reader            - MMC / RSMCMC            - SD / Mini SD / SDHC / SDXC</p> <p><b>Card Reader Note:</b> Some of the cards require PC adapters that are usually supplied with the cards.</p>

<p><b>Slots</b></p> <p><b>Two or Three M.2 Slots:</b></p> <p>=====</p> <p><b>Slot 1:</b> for M.2 2230 WLAN Combo Module Card with PCIe &amp; USB Interfaces (A Key)</p> <p><b>Slot 2:</b> for M.2 2280 <b>SSD</b> Card with SATA/PCIe Gen 3 x4 Interface (M Key)</p> <p><b>For Models A &amp; B Only:</b></p> <p><b>Slot 3:</b> for LTE or UTMS/HSPA+ M.2 3042 <b>3G or 4G Module</b> Card with USB Interface (B Key) - <b>(Factory Option)</b></p>
<p><b>Communication</b></p> <p>Built-In 10/100/1000Mb Base-TX Ethernet LAN</p> <p>1.0M / 2.0M FHD PC Video Camera Module</p> <p><b>Intel® Dual Band Wireless-AC 8265</b> (2*2 802.11 a/c) M.2 WLAN + Bluetooth Combo M.2 2230 Module <b>(Factory Option)</b></p> <p><b>Intel® Dual Band Wireless-AC 3168</b> (1*1 802.11 ac) WLAN + Bluetooth Combo M.2 2230 Module <b>(Factory Option)</b></p>

<p><b>For Models A &amp; B Only:</b></p> <p><b>3G</b> UTMS/HSPA+ M.2 3042 Card Module <b>(Factory Option)</b></p> <p><b>4G</b> LTE M.2 3042 Card Module <b>(Factory Option)</b></p>
<p><b>Operating System</b></p> <p>Windows® 10 (64-bit)</p>
<p><b>Features (Depends on Model Type)</b></p> <p>Painted Style            Shipping Mode            Flexicharger            All-Alloy            Microsoft Cortana with Voice Technology</p>
<p><b>Security</b></p> <p>Security (Kensington® Type) Lock Slot            BIOS Password            Intel® PTT for Systems without TPM            Trusted Platform Module 2.0 <b>(Factory Option)</b></p>



## Specifications

Power Management	Environmental Spec
Supports Wake on LAN (AC Mode Only) Supports Wake on USB Supports Wake on RTC Alarm (AC Mode Only)	Temperature Operating: 5°C - 35°C Non-Operating: -20°C - 60°C Relative Humidity Operating: 20% - 80% Non-Operating: 10% - 90%
Power	Physical Dimensions & Weight
Removable 6 Cell Smart Lithium-Ion Battery Pack 62WH ( <b>Factory Option</b> ) Removable 6 Cell Smart Lithium-Ion Battery Pack 47WH ( <b>Factory Option</b> ) <b><u>For Models A (Design I), B &amp; C:</u></b> Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 6.15A ( <b>120 Watts</b> ) <b><u>For Model A - Design II:</u></b> Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19V, 4.74A ( <b>90 Watts</b> )	<b><u>Models A &amp; B:</u></b> 378mm (w) * 267mm (d) * 24.9mm(h) 2.5kg *Barebone System with VGA Card & Battery  <b><u>For Model C:</u></b> 418.5mm (w) * 288.7mm (d) * 25.4mm(h) 3.1kg *Barebone System with VGA Card & Battery  <i>*A barebone system does not include the HDD, RAM, adapter, power cord and factory option modules (weight tolerance within +/- 5%).</i>